



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

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

VIA ELECTRONIC MAIL

July 12, 2022

David Hoogasian
Project Manager
Network Building & Consulting (NB+C)
100 Apollo Drive, Suite 303
Chelmsford, MA 01824
dhoogasian@nbcllc.com

RE: TS-DISH-028-220526 - Dish Wireless, LLC request for an order to approve tower sharing at an existing telecommunications facility located at 355 New London Road (a/k/a State Route 85), Colchester, Connecticut.

Dear Mr. Hoogasian:

The Connecticut Siting Council (Council) is in receipt of your correspondence of July 7, 2022 submitted in response to the Council's June 24, 2022 notification of an incomplete request for tower sharing with regard to the above-referenced matter.

The submission renders the request for tower sharing complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.
Sincerely,

A handwritten signature in black ink, appearing to read 'Melanie A. Bachman'.

Melanie A. Bachman
Executive Director

MAB/IN/laf

From: David Hoogasian <dhoogasian@nbcllc.com>

Sent: Thursday, July 7, 2022 12:54 PM

To: Robidoux, Evan <Evan.Robidoux@ct.gov>

Cc: CSC-DL Siting Council <Siting.Council@ct.gov>

Subject: RE: Council Incomplete Letter for TS-DISH-028-220526 (355 New London Road/State Route 85, Colchester)

EXTERNAL EMAIL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Good afternoon.

Attached please find a supplement package for the above reference location for DISH. One hard copy will be sent to the CSC office.

Thank you,

David Hoogasian

Project Manager

NETWORK BUILDING + CONSULTING

100 Apollo Drive | Suite 303 | Chelmsford, MA | 01824

M 508.344.3343



July 7, 2022

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

RE: TS-DISH-028-220526- INCOMPLETE LETTER

Dear Ms. Bachman:

To supplement the above referenced Tower Share Request, enclosed please find:

- Updated Structural Analysis Report for the facility that includes proposed equipment by T-Mobile and other entities which includes a passing value (64%).

Location:

Site Name	Full Address
302465 Colchester CT 6	355 Route 85 Colchester, CT

If you have any questions or need any additional information, please do not hesitate to contact me.

Sincerely,

David Hoogasian

David Hoogasian
Project Manager
M 508.344.3343
dhoogasian@nbcllc.com



STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

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

VIA ELECTRONIC MAIL

June 24, 2022

David Hoogasian
Project Manager
Network Building & Consulting (NB+C)
100 Apollo Drive, Suite 303
Chelmsford, MA 01824
dhoogasian@nbcllc.com

RE: TS-DISH-028-220526 - Dish Wireless, LLC request for an order to approve tower sharing at an existing telecommunications facility located at 355 New London Road (a/k/a State Route 85), Colchester, Connecticut.

Dear Mr. Hoogasian:

The Connecticut Siting Council (Council) received the tower share request for the above-referenced facility on May 26, 2022.

According to Section 16-50j-90 of the Regulations of Connecticut State Agencies, “no tower share application shall be approved until a complete application containing all information deemed relevant by the Council has been filed. Relevant information shall at a minimum include that listed in Section 16-50j-89 of the Regulations of Connecticut State Agencies...”

Staff has reviewed this tower share request for completeness and has identified a deficiency in the Structural Analysis (SA) Report provided with the filing. The SA Report provided is dated July 7, 2021 and is prepared by American Tower Corporation. The Council received a request for exempt modification from T-Mobile for the same facility on December 21, 2021. The above-referenced tower share request does not include T-Mobile’s approved equipment; however, the structural analysis included in T-Mobile’s request for exempt modification does appear to include both T-Mobile’s equipment and the equipment that Dish is now proposing. Please see T-Mobile’s exempt modification filing for this facility, which may be found on the Council’s website under the Decisions page in Colchester under the filing number EM-T-Mobile-028-211221.

Therefore, the tower share request is incomplete at this time. The Council recommends that NB+C provide an updated Structural Analysis Report for the facility that includes proposed equipment by T-Mobile and other entities that are located at this facility on or before July 25, 2022. If additional time is needed to gather the requested information, please submit a written request for an extension of time prior to July 25, 2022. **Please provide an electronic version and one hard copy of the requested information for the incomplete tower share filing to be rendered complete and processed. Please include the Council’s tower share identification number referenced above with the submittal.**

This notice of incompleteness shall have the effect of tolling the Federal Communications Commission (FCC) 60-day timeframe in accordance with Paragraph 217 of the FCC Wireless Infrastructure Report and Order issued on October 21, 2014 (FCC 14-153).

Thank you for your attention to this matter. Should you have any questions, please feel free to contact me at 860-827-2951.

Sincerely,

A handwritten signature in dark ink, appearing to read "Melanie A. Bachman". The signature is fluid and cursive, with a long horizontal stroke at the end.

Melanie A. Bachman
Executive Director

MAB/IN/emr



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 180 ft Monopole
ATC Site Name : Colchester CT 6,CT
ATC Site Number : 302465
Engineering Number : 13694582_C3_07
Proposed Carrier : T-MOBILE
Carrier Site Name : CTHA059E
Carrier Site Number : CTHA059E
Site Location : 355 Route 85
Colchester, CT 06415-1825
41.5449, -72.3049
County : New London
Date : July 6, 2022
Max Usage : 64%
Result : Pass

Prepared By:

Ramesh Karki
Structural Engineer

Ramesh Karki

Reviewed By:



COA : PEC.0001553



Table of Contents

Introduction.....	3
Supporting Documents	3
Analysis	3
Conclusion	3
Existing and Reserved Equipment.....	4
Equipment to be Removed	4
Proposed Equipment	5
Structure Usages.....	6
Foundations	6
Deflection and Sway*	6
Standard Conditions	7
Calculations	Attached

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 180 ft Monopole to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawings	Valmont order #17494-98, dated June 8, 1998
Foundation Drawing	Valmont drawing #17494-S-01, dated July 10, 1998
Geotechnical Report	Tectonic Engineering Consultants Project #1170.C877, dated June 5, 1998
Modifications	ATC Project #13711921_C8_03, dated August 19, 2021

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.

Basic Wind Speed:	122 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.00" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	$S_s = 0.20, S_i = 0.06$
Site Class:	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. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
169.9	2	Generic 6' Omni	Side Arm	(2) 0.405" (10.3mm) Coax	SENET, INC.
163.0	6	Commscope JAHH-65B-R3B	Triangular Platform with Handrails	(2) 1 5/8" Hybriflex	VERIZON WIRELESS
	2	RFS DB-B1-6C-12AB-0Z			
	3	Samsung B2/B66A RRH-BR049			
	3	Samsung B5/B13 RRH-BR04C			
150.0	6	LGP Allgon LGP21903	Triangular Platform with Handrails	(4) 0.78" (19.7mm) 8 AWG 6 (1) 2" Carflex Non-Metallic Conduit (1) 3" conduit (2) 0.39" (10mm) Fiber Trunk (2) 0.65" (16.4mm) 8 AWG 2C (12) 1 1/4" Coax	AT&T MOBILITY
	3	Ericsson Radio 8843 - B2 + B66A			
	3	Ericsson RRUS 4449 B5, B12			
	3	Powerwave Allgon 7770.00			
	1	CCI HPA65R-BU6A			
	2	CCI HPA65R-BU8A			
	1	Kathrein Scala 80010965			
	2	Kathrein Scala 80010966			
	6	Powerwave Allgon LGP21401			
2	Raycap DC6-48-60-18-8F (23.5" Height)				
120.0	3	Fujitsu TA08025-B605	Triangular Platform with Handrails	(1) 1.60" (40.6mm) Hybrid	DISH WIRELESS L.L.C.
	3	JMA Wireless MX08FRO665-21			
	3	Fujitsu TA08025-B604			
	1	Commscope RDIDC-9181-PF-48			

Equipment to be Removed

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
180.0	3	Ericsson Radio 4460 B25+B66	-	(3) 1.99" (50.7mm) Hybrid (6) 1 5/8" Coax	SPRINT NEXTEL
	3	Ericsson Radio 4480 B71+B85A			
	3	Ericsson Air6449 B41			
	3	Commscope VV-65A-R1			
	3	RFS APXVAALL24 43-U-NA20			
175.0	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield	T-Arm	(2) 1 1/4" Hybriflex Cable	
	3	Alcatel-Lucent RRH2x50-08			
138.0	3	Ericsson RRUS 11 B4	-	(1) 1 5/8" (1.63"- 41.3mm) Fiber	T-MOBILE
	3	Ericsson RRUS 11 B2			
	3	Commscope LNX-6515DS-A1M (96.6" Height)			
	3	RFS APX16DWV-16DWVS-E-A20			
	3	Ericsson RRUS 11 B12			

Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
180.0	3	Ericsson 4460 BAND 2/25	Triangular Platform with Handrails	(3) 1.99" (50.7mm) Hybrid	T-MOBILE
	3	Ericsson 4480 BAND 71			
	3	Commscope VV-65A-R1B			
	3	Ericsson AIR 6419 B41			
	3	RFS APXVAALL24 43-U-NA20			

¹ 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	23%	Pass
Shaft	64%	Pass
Base Plate	48%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	4079.1	55%
Axial (Kips)	61.5	27%
Shear (Kips)	34.7	20%

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) (°)
180.0	Ericsson 4460 BAND 2/25	T-MOBILE	1.898	1.200
	Ericsson 4480 BAND 71			
	RFS APXVAALL24 43-U-NA20			
	Ericsson AIR 6419 B41			
	Commscope VV-65A-R1B			

*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 A.T. Engineering Services LLC 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 A.T. Engineering Services LLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Services LLC and used in the performance of our engineering services is correct and complete.

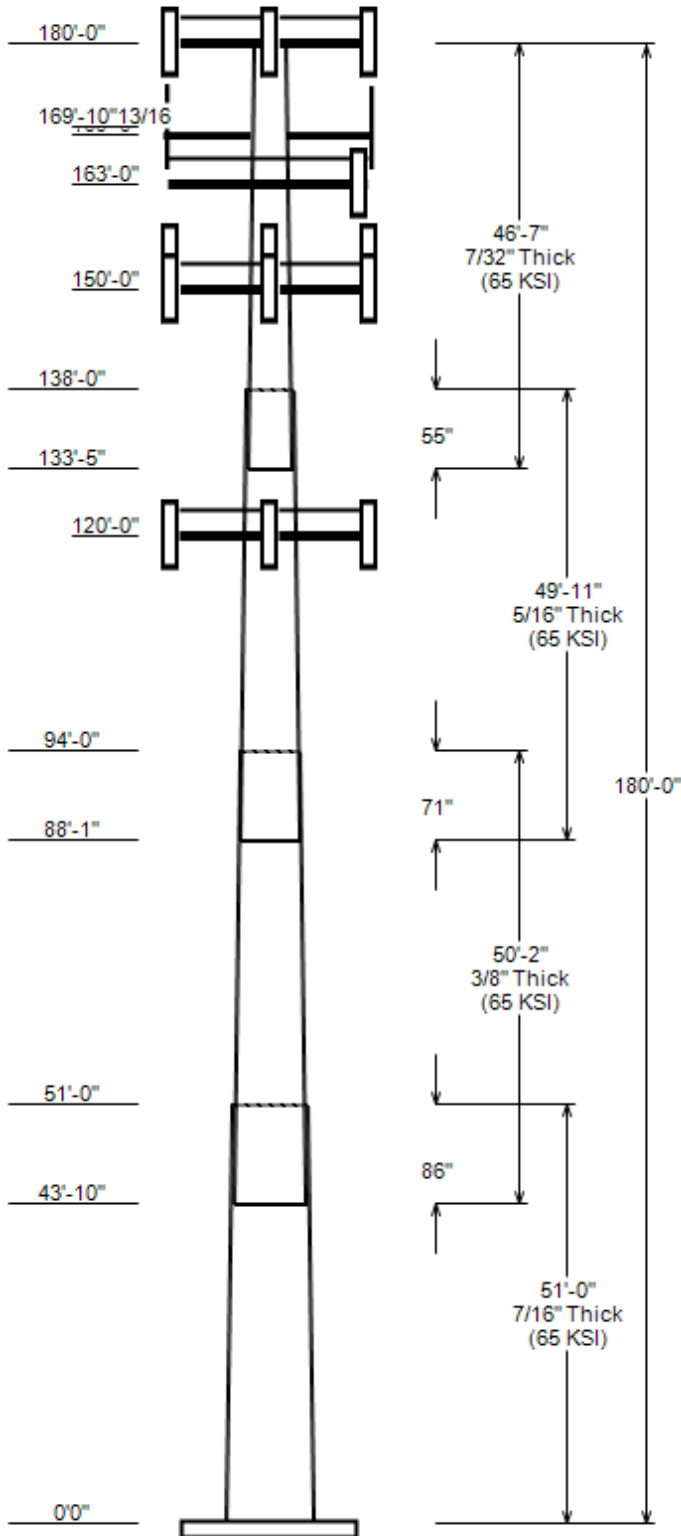
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively “American Tower”) are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

Unless explicitly agreed by both the client and A.T. Engineering Services LLC, 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. A.T. Engineering Services LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

Asset : 302465, Colchester CT 6
 Client : T-MOBILE
 Code : ANSI/TIA-222-H

Height : 180 ft
 Base Width : 64
 Shape : 12 Sides



SITE PARAMETERS

Nominal Wind: 122 mph wind with no ice **Topo Category:** 1
 Ice Wind: 50 mph wind with 1" radial **Topo Method:** Method 1
 Base Elev (ft): 0.00 Taper : 0.26100 (in/ft) **Topo Feature:**
 Structure Class: II Exposure : B S_s : 0.205 S_1 : 0.055

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Type	Overlap Length (in)	Shape	Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom					
1	51.000	50.70	64.00	0.438		0.000	12 Sides	65
2	50.167	40.24	53.32	0.375	Slip Joint	86.000	12 Sides	65
3	49.917	29.39	42.40	0.312	Slip Joint	71.000	12 Sides	65
4	46.583	18.87	31.02	0.219	Slip Joint	55.000	12 Sides	65

DISCRETE APPURTENANCE

Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.0	180.0	3	Ericsson 4460 BAND 2/25
180.0	180.0	3	Ericsson 4480 BAND 71
180.0	180.0	3	Commscope VV-65A-R1B
180.0	180.0	3	Ericsson AIR 6419 B41
180.0	180.0	3	RFS APXVAALL24 43-U-NA20
180.0	180.0	1	Generic Round Platform with Ha
169.9	169.9	2	Generic 6' Omni
169.0	169.0	2	Generic Round Side Arm
163.0	163.0	3	Samsung B5/B13 RRH-BR04C
163.0	163.0	3	Samsung B2/B66A RRH-BR049
163.0	163.0	2	RFS DB-B1-6C-12AB-0Z
163.0	163.0	6	Commscope JAHH-65B-R3B
163.0	163.0	1	Generic Round Platform with Ha
150.0	152.0	6	LGP Allgon LGP21903
150.0	153.0	6	Powerwave Allgon LGP21401
150.0	153.0	2	Raycap DC6-48-60-18-8F (23.5"
150.0	150.0	3	Ericsson Radio 8843 - B2 + B66
150.0	150.0	3	Ericsson RRUS 4449 B5, B12
150.0	153.0	3	Powerwave Allgon 7770.00
150.0	150.0	1	CCI HPA65R-BU6A
150.0	150.0	2	CCI HPA65R-BU8A
150.0	150.0	1	Kathrein Scala 80010965
150.0	150.0	2	Kathrein Scala 80010966
150.0	150.0	1	Generic Round Platform with Ha
120.0	120.0	1	Commscope RDIDC-9181-PF-48
120.0	120.0	3	Fujitsu TA08025-B604
120.0	120.0	3	Fujitsu TA08025-B605
120.0	120.0	3	JMA Wireless MX08FRO665-21
120.0	120.0	1	Generic Flat Platform with Han

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	180.0	1.99" (50.7mm) Hybrid	No
0.0	170.0	0.405" (10.3mm) Coax	No
0.0	163.0	1 5/8" Hybriflex	No
0.0	153.0	3" conduit	No
0.0	153.0	2" Carflex Non-Metallic Conduit	No
0.0	153.0	0.78" (19.7mm) 8 AWG 6	No
0.0	150.0	1 1/4" Coax	No
0.0	150.0	0.78" (19.7mm) 8 AWG 6	No
0.0	150.0	0.65" (16.4mm) 8 AWG 2C	No

JOB INFORMATION

Asset : 302465, Colchester CT 6
 Client : T-MOBILE
 Code : ANSI/TIA-222-H

Height : 180 ft
 Base Width : 64
 Shape : 12 Sides

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	150.0	0.39" (10mm) Fiber Trunk	No
0.0	120.0	1.60" (40.6mm) Hybrid	No

LOAD CASES

1.2D + 1.0W	122 mph wind with no ice
0.9D + 1.0W	122 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W	4079.09	34.70	61.54
0.9D + 1.0W	4029.35	34.68	46.14
1.2D + 1.0Di + 1.0Wi	937.61	7.76	79.69
1.2D + 1.0Ev + 1.0Eh	229.58	1.54	61.76
0.9D - 1.0Ev + 1.0Eh	225.77	1.54	42.52
1.0D + 1.0W	876.36	7.51	51.31

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
-----------	------------------	-----------------	----------------

ASSET: 302465, Colchester CT 6
CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
ENG NO: 13694582_C3_07

ANALYSIS PARAMETERS

Location:	New London County,CT	Height:	180 ft
Type and Shape:	Taper, 12 Sides	Base Diameter:	64.00 in
Manufacturer:	Valmont	Top Diameter:	18.87 in
K_d (non-service):	0.95	Taper:	0.2610 in/ft
K_e:	0.98	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed w/o Ice:	122 mph
Risk Category:	II	Design Wind Speed w/Ice:	50 mph
Topo Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	559.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	2.71
T_L (sec):	6	P:	1
S_s:	0.205	S₁:	0.055
F_a:	1.600	F_v:	2.400
S_{ds}:	0.219	S_{dt}:	0.088
		C_s:	0.030
		C_s Max:	0.030
		C_s Min:	0.030

LOAD CASES

1.2D + 1.0W	122 mph wind with no ice
0.9D + 1.0W	122 mph wind with no ice
1.2D + 1.0Di + 1.0Wi	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Weight (lb)	Bottom						Top							
							Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)	
1-12	51.00	0.4375	65		0.00	13,914	64.00	0.000	89.54	46,176.7	36.52	146.29	50.70	51.00	70.81	22,831.9	28.37	115.89	0.2608	
2-12	50.17	0.3750	65	Slip	86.00	9,565	53.32	43.833	63.93	22,872.5	35.42	142.18	40.24	94.00	48.13	9,761.2	26.07	107.30	0.2608	
3-12	49.92	0.3125	65	Slip	71.00	6,082	42.40	88.083	42.35	9,577.7	33.68	135.69	29.39	138.00	29.25	3,156.3	22.52	94.04	0.2608	
								133.41								583.5				
4-12	46.58	0.2188	65	Slip	55.00	2,761	31.02	7	21.70	2,627.4	35.31	141.77	18.87	180.00	13.14		20.43	86.24	0.2608	
Shaft Weight						32,322														

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
180.00	Ericsson AIR 6419 B41	3	0.75	0.000	83.30	6.322	0.63	186.12	7.471	0.63
180.00	RFS APXVAALL24 43-U-NA20	3	0.75	0.000	122.80	20.243	0.63	387.42	22.763	0.63
180.00	Ericsson 4480 BAND 71	3	0.75	0.000	81.00	2.878	0.67	132.72	3.641	0.67
180.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3600.40	43.807	1.00
180.00	Commscope VV-65A-R1B	3	0.75	0.000	24.70	5.887	0.63	104.11	7.325	0.63
180.00	Ericsson 4460 BAND 2/25	3	0.75	0.000	109.00	2.564	0.67	169.05	3.280	0.67
169.90	Generic 6' Omni	2	1.00	0.000	25.00	1.760	1.00	56.18	2.611	1.00
169.00	Generic Round Side Arm	2	1.00	0.000	187.50	5.200	1.00	249.24	7.035	1.00
163.00	Samsung B2/B66A RRH-BR049	3	0.75	0.000	84.40	1.875	0.50	127.33	2.482	0.50
163.00	RFS DB-B1-6C-12AB-0Z	2	0.75	0.000	21.40	2.512	0.67	75.12	3.213	0.67
163.00	Commscope JAHH-65B-R3B	6	0.75	0.000	60.60	9.113	0.69	196.75	10.980	0.69
163.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3590.06	43.651	1.00
163.00	Samsung B5/B13 RRH-BR04C	3	0.75	0.000	70.30	1.875	0.50	108.80	2.482	0.50
150.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3580.22	43.502	1.00
150.00	Kathrein Scala 80010965	1	0.75	0.000	97.60	13.814	1.00	275.40	15.849	1.00
150.00	CCI HPA65R-BU8A	2	0.75	0.000	54.00	11.230	0.78	208.92	13.380	0.78
150.00	CCI HPA65R-BU6A	1	0.75	0.000	41.90	7.864	1.00	158.78	9.705	1.00
150.00	Powerwave Allgon 7770.00	3	0.75	3.000	35.00	5.508	0.65	110.81	6.926	0.65
150.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.969	0.50	113.98	2.591	0.50
150.00	Ericsson Radio 8843 - B2 + B66	3	0.75	0.000	71.90	1.650	0.50	112.99	2.215	0.50
150.00	Raycap DC6-48-60-18-8F (23.5"	2	0.75	3.000	20.00	1.260	1.00	55.12	1.699	1.00
150.00	Powerwave Allgon LGP21401	6	0.75	3.000	14.10	1.104	0.50	30.74	1.580	0.50
150.00	LGP Allgon LGP21903	6	0.75	2.000	5.50	0.231	0.50	11.11	0.457	0.50
150.00	Kathrein Scala 80010966	2	0.75	0.000	114.60	17.363	0.72	328.75	19.823	0.72
120.00	JMA Wireless MX08FRO665-21	3	0.75	0.000	64.50	12.489	0.64	232.06	14.321	0.64
120.00	Fujitsu TA08025-B605	3	0.75	0.000	75.00	1.962	0.50	115.84	2.562	0.50
120.00	Fujitsu TA08025-B604	3	0.75	0.000	63.90	1.962	0.50	101.92	2.562	0.50
120.00	Commscope RDIDC-9181-PF-48	1	0.75	0.000	21.90	1.867	1.00	59.00	2.454	1.00
120.00	Generic Flat Platform with Han	1	1.00	0.000	2500.00	42.400	1.00	3658.12	56.072	1.00
Totals	Num Loadings: 29				76	14,358.00		24,309.69		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : _

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Coax/ Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	180.00	3	1.99" (50.7mm) Hybrid	1.99	1.9	N	0	0	0	0	N	T-MOBILE
0.00	170.00	2	0.405" (10.3mm) Coax	0.41	0.11	N	0	0	0	0	N	SENET, INC.
0.00	163.00	2	1 5/8" Hybridflex	1.98	1.3	N	0	0	0	0	N	VERIZON WIREL
0.00	153.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	N	AT&T MOBILITY
0.00	153.00	1	2" Carflex Non-Metall	2.36	0.68	N	0	0	0	0	N	AT&T MOBILITY
0.00	153.00	1	3" conduit	3.5	7.58	N	0	0	0	0	N	AT&T MOBILITY
0.00	150.00	12	1 1/4" Coax	1.55	0.63	N	0	0	0	0	N	AT&T MOBILITY
0.00	150.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	N	AT&T MOBILITY
0.00	150.00	2	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	N	AT&T MOBILITY
0.00	150.00	2	0.65" (16.4mm) 8 AWG	0.65	0.31	N	0	0	0	0	N	AT&T MOBILITY
0.00	120.00	1	1.60" (40.6mm) Hybrid	1.6	2.34	N	0	0	0	0	N	DISH WIRELESS

SEGMENT PROPERTIES

(Max Len: 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fy (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.4375	64.000	89.544	46,176.70	36.52	146.29	64.9	1393.9	0.0	0.0
5.00		0.4375	62.696	87.707	43,392.70	35.72	143.31	65.8	1337.1	0.0	1,507.9
10.00		0.4375	61.392	85.870	40,722.90	34.92	140.32	66.6	1281.4	0.0	1,476.6
15.00		0.4375	60.088	84.033	38,165.00	34.12	137.34	67.5	1227.0	0.0	1,445.4
20.00		0.4375	58.784	82.196	35,716.40	33.32	134.36	68.4	1173.8	0.0	1,414.1
25.00		0.4375	57.480	80.359	33,374.90	32.52	131.38	69.2	1121.7	0.0	1,382.8
30.00		0.4375	56.176	78.522	31,138.10	31.73	128.40	70.1	1070.8	0.0	1,351.6
35.00		0.4375	54.872	76.685	29,003.40	30.93	125.42	71	1021.1	0.0	1,320.3
40.00		0.4375	53.568	74.848	26,968.70	30.13	122.44	71.9	972.6	0.0	1,289.1
43.83	Bot - Section 2	0.4375	52.569	73.440	25,474.80	29.52	120.16	72.5	936.2	0.0	967.1
45.00		0.4375	52.264	73.011	25,031.40	29.33	119.46	72.7	925.2	0.0	543.8
50.00		0.4375	50.960	71.174	23,189.20	28.53	116.48	73.6	879.1	0.0	2,294.6
51.00	Top - Section 1	0.3750	51.450	61.673	20,534.70	34.08	137.20	67.5	771.0	0.0	452.0
55.00		0.3750	50.406	60.413	19,302.00	33.34	134.42	68.4	739.8	0.0	830.9
60.00		0.3750	49.103	58.838	17,831.80	32.41	130.94	69.4	701.6	0.0	1,014.5
65.00		0.3750	47.799	57.264	16,438.20	31.47	127.46	70.4	664.4	0.0	987.7
70.00		0.3750	46.495	55.689	15,119.20	30.54	123.99	71.4	628.2	0.0	960.9
75.00		0.3750	45.191	54.115	13,872.70	29.61	120.51	72.4	593.0	0.0	934.1
80.00		0.3750	43.887	52.540	12,696.70	28.68	117.03	73.4	558.9	0.0	907.3
85.00		0.3750	42.583	50.966	11,589.10	27.75	113.55	74.5	525.8	0.0	880.5
88.08	Bot - Section 3	0.3750	41.779	49.995	10,939.20	27.17	111.41	75.1	505.8	0.0	529.6
90.00		0.3750	41.279	49.391	10,547.80	26.82	110.08	75.5	493.6	0.0	598.7
94.00	Top - Section 2	0.3125	40.861	40.802	8,562.50	32.36	130.75	69.4	404.8	0.0	1,226.2
95.00		0.3125	40.600	40.539	8,398.40	32.13	129.92	69.7	399.6	0.0	138.4
100.00		0.3125	39.296	39.227	7,609.00	31.01	125.75	70.9	374.1	0.0	678.6
105.00		0.3125	37.992	37.915	6,870.70	29.90	121.57	72.1	349.4	0.0	656.2
110.00		0.3125	36.688	36.603	6,181.80	28.78	117.40	73.3	325.5	0.0	633.9
115.00		0.3125	35.384	35.291	5,540.60	27.66	113.23	74.5	302.5	0.0	611.6
120.00		0.3125	34.080	33.979	4,945.30	26.54	109.06	75.8	280.3	0.0	589.3
125.00		0.3125	32.776	32.666	4,394.20	25.42	104.88	77	259.0	0.0	566.9
130.00		0.3125	31.472	31.354	3,885.70	24.31	100.71	78.2	238.5	0.0	544.6
133.42	Bot - Section 4	0.3125	30.581	30.458	3,561.80	23.54	97.86	79	225.0	0.0	359.3
135.00		0.3125	30.168	30.042	3,418.00	23.19	96.54	79.4	218.9	0.0	279.1
138.00	Top - Section 3	0.2188	29.823	20.857	2,333.30	33.84	136.30	67.8	151.1	0.0	518.4
140.00		0.2188	29.302	20.490	2,212.10	33.20	133.92	68.5	145.8	0.0	140.7
145.00		0.2188	27.998	19.571	1,927.70	31.61	127.96	70.2	133.0	0.0	340.8
150.00		0.2188	26.694	18.653	1,668.80	30.01	122.00	72	120.8	0.0	325.2
155.00		0.2188	25.390	17.734	1,434.20	28.41	116.04	73.7	109.1	0.0	309.5
160.00		0.2188	24.086	16.815	1,222.60	26.82	110.08	75.5	98.1	0.0	293.9
163.00		0.2188	23.304	16.264	1,106.30	25.86	106.51	76.5	91.7	0.0	168.8
165.00		0.2188	22.782	15.897	1,033.00	25.22	104.12	77.2	87.6	0.0	109.4
169.00		0.2188	21.739	15.162	896.20	23.94	99.35	78.6	79.6	0.0	211.4
169.90		0.2188	21.504	14.996	867.20	23.66	98.28	78.9	77.9	0.0	46.2
170.00		0.2188	21.478	14.978	864.00	23.62	98.16	79	77.7	0.0	5.1
175.00		0.2188	20.174	14.059	714.60	22.03	92.20	80.7	68.4	0.0	247.0
180.00		0.2188	18.870	13.141	583.50	20.43	86.24	81.9	59.7	0.0	231.4

Totals: 32,321.4

Load Case: 1.2D + 1.0W	122 mph wind with no ice	25 Iterations
Gust Response Factor:	1.10	
Dead load Factor:	1.20	
Wind Load Factor:	1.00	

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-61.54	-34.70	0.00	-4,079.1	0.00	4,079.09	5,229.17	1,571.49	9,421.69	6,783.18	0	0	0.614
5.00	-59.48	-34.12	0.00	-3,905.6	0.00	3,905.62	5,190.65	1,539.25	9,039.18	6,594.14	0.07	-0.12	0.604
10.00	-57.45	-33.55	0.00	-3,735.0	0.00	3,735.02	5,149.25	1,507.01	8,664.60	6,403.58	0.26	-0.25	0.595
15.00	-55.47	-33.00	0.00	-3,567.2	0.00	3,567.25	5,104.97	1,474.78	8,297.94	6,211.74	0.59	-0.38	0.586
20.00	-53.53	-32.45	0.00	-3,402.3	0.00	3,402.27	5,057.81	1,442.54	7,939.21	6,018.84	1.06	-0.51	0.576
25.00	-51.62	-31.90	0.00	-3,240.0	0.00	3,240.05	5,007.77	1,410.30	7,588.41	5,825.12	1.66	-0.64	0.567
30.00	-49.75	-31.36	0.00	-3,080.5	0.00	3,080.53	4,954.85	1,378.06	7,245.53	5,630.81	2.4	-0.77	0.558
35.00	-47.93	-30.81	0.00	-2,923.7	0.00	2,923.71	4,899.05	1,345.82	6,910.58	5,436.14	3.28	-0.91	0.548
40.00	-46.15	-30.31	0.00	-2,769.6	0.00	2,769.65	4,840.37	1,313.58	6,583.55	5,241.34	4.31	-1.05	0.538
43.83	-44.82	-30.01	0.00	-2,653.5	0.00	2,653.47	4,793.44	1,288.87	6,338.20	5,092.06	5.2	-1.16	0.531
45.00	-44.08	-29.65	0.00	-2,618.4	0.00	2,618.45	4,778.81	1,281.35	6,264.45	5,046.65	5.48	-1.19	0.529
50.00	-41.12	-29.25	0.00	-2,470.2	0.00	2,470.18	4,714.38	1,249.11	5,953.28	4,852.29	6.81	-1.34	0.518
51.00	-40.51	-28.95	0.00	-2,440.9	0.00	2,440.93	3,748.95	1,082.35	5,214.40	3,905.86	7.1	-1.37	0.636
55.00	-39.31	-28.42	0.00	-2,325.1	0.00	2,325.12	3,716.58	1,060.25	5,003.62	3,792.47	8.29	-1.49	0.624
60.00	-37.86	-27.82	0.00	-2,183.0	0.00	2,183.02	3,673.53	1,032.61	4,746.27	3,650.12	9.94	-1.65	0.609
65.00	-36.43	-27.22	0.00	-2,043.9	0.00	2,043.91	3,627.60	1,004.98	4,495.71	3,507.29	11.76	-1.82	0.594
70.00	-35.04	-26.62	0.00	-1,907.8	0.00	1,907.81	3,578.79	977.35	4,251.95	3,364.21	13.76	-1.99	0.578
75.00	-33.69	-26.02	0.00	-1,774.7	0.00	1,774.71	3,527.09	949.72	4,014.98	3,221.11	15.94	-2.17	0.561
80.00	-32.37	-25.42	0.00	-1,644.6	0.00	1,644.62	3,472.52	922.08	3,784.80	3,078.24	18.3	-2.34	0.544
85.00	-31.10	-24.92	0.00	-1,517.5	0.00	1,517.53	3,415.07	894.45	3,561.42	2,935.81	20.85	-2.52	0.527
88.08	-30.33	-24.62	0.00	-1,440.7	0.00	1,440.68	3,378.20	877.41	3,427.05	2,848.30	22.51	-2.63	0.516
90.00	-29.51	-24.26	0.00	-1,393.5	0.00	1,393.50	3,354.74	866.82	3,344.83	2,794.06	23.58	-2.7	0.508
94.00	-27.88	-23.91	0.00	-1,296.5	0.00	1,296.47	2,549.41	716.07	2,738.82	2,107.92	25.91	-2.85	0.627
95.00	-27.64	-23.58	0.00	-1,272.6	0.00	1,272.56	2,541.91	711.46	2,703.72	2,088.10	26.51	-2.88	0.621
100.00	-26.60	-23.00	0.00	-1,154.7	0.00	1,154.66	2,502.69	688.43	2,531.57	1,988.82	29.64	-3.09	0.592
105.00	-25.59	-22.43	0.00	-1,039.6	0.00	1,039.65	2,460.58	665.41	2,365.09	1,889.44	32.98	-3.29	0.562
110.00	-24.61	-21.87	0.00	-927.5	0.00	927.48	2,415.60	642.38	2,204.27	1,790.18	36.54	-3.5	0.529
115.00	-23.66	-21.31	0.00	-818.1	0.00	818.14	2,367.74	619.35	2,049.12	1,691.27	40.31	-3.7	0.495
120.00	-19.19	-17.82	0.00	-711.6	0.00	711.57	2,317.00	596.32	1,899.62	1,592.95	44.29	-3.89	0.456
125.00	-18.32	-17.27	0.00	-622.5	0.00	622.46	2,263.38	573.30	1,755.79	1,495.45	48.47	-4.09	0.425
130.00	-17.50	-16.81	0.00	-536.1	0.00	536.09	2,206.88	550.27	1,617.62	1,398.99	52.85	-4.27	0.392
133.42	-16.95	-16.53	0.00	-478.6	0.00	478.65	2,166.61	534.53	1,526.45	1,333.80	55.95	-4.4	0.368
135.00	-16.56	-16.29	0.00	-452.5	0.00	452.48	2,147.49	527.24	1,485.11	1,303.81	57.42	-4.46	0.356
138.00	-15.83	-16.00	0.00	-403.6	0.00	403.62	1,272.79	366.05	1,022.18	768.59	60.26	-4.57	0.539
140.00	-15.59	-15.66	0.00	-371.6	0.00	371.63	1,263.21	359.60	986.49	749.27	62.18	-4.64	0.510
145.00	-15.00	-15.18	0.00	-293.3	0.00	293.31	1,237.26	343.48	900.03	700.72	67.15	-4.85	0.433
150.00	-10.42	-10.32	0.00	-215.8	0.00	215.75	1,208.42	327.35	817.54	652.01	72.33	-5.04	0.341
155.00	-9.98	-9.86	0.00	-164.1	0.00	164.13	1,176.70	311.23	739.02	603.37	77.69	-5.2	0.282
160.00	-9.59	-9.49	0.00	-114.8	0.00	114.85	1,142.10	295.11	664.45	555.03	83.21	-5.34	0.216
163.00	-5.61	-6.13	0.00	-86.4	0.00	86.39	1,119.95	285.43	621.62	526.27	86.58	-5.41	0.170
165.00	-5.48	-5.88	0.00	-74.1	0.00	74.12	1,104.62	278.98	593.85	507.22	88.86	-5.45	0.152
169.00	-4.81	-5.15	0.00	-50.6	0.00	50.61	1,072.56	266.09	540.23	469.51	93.45	-5.52	0.113
169.90	-4.71	-4.94	0.00	-46.0	0.00	45.98	1,065.09	263.18	528.51	461.11	94.49	-5.53	0.104
170.00	-4.72	-4.75	0.00	-45.5	0.00	45.48	1,064.26	262.86	527.22	460.18	94.6	-5.53	0.104
175.00	-4.42	-4.35	0.00	-21.7	0.00	21.74	1,021.02	246.74	464.55	414.13	100.42	-5.59	0.057
180.00	0.00	-3.89	0.00	0.0	0.00	0.00	968.59	230.62	405.84	366.91	106.29	-5.61	0.000

Load Case: 0.9D + 1.0W	122 mph wind with no ice	25 Iterations
Gust Response Factor:	1.10	
Dead load Factor:	0.90	
Wind Load Factor:	1.00	

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.14	-34.68	0.00	-4,029.4	0.00	4,029.35	5,229.17	1,571.49	9,421.69	6,783.18	0	0	0.603
5.00	-44.58	-34.07	0.00	-3,856.0	0.00	3,855.96	5,190.65	1,539.25	9,039.18	6,594.14	0.07	-0.12	0.594
10.00	-43.05	-33.47	0.00	-3,685.6	0.00	3,685.61	5,149.25	1,507.01	8,664.60	6,403.58	0.26	-0.25	0.584
15.00	-41.54	-32.88	0.00	-3,518.2	0.00	3,518.25	5,104.97	1,474.78	8,297.94	6,211.74	0.58	-0.37	0.575
20.00	-40.07	-32.31	0.00	-3,353.8	0.00	3,353.84	5,057.81	1,442.54	7,939.21	6,018.84	1.04	-0.5	0.566
25.00	-38.62	-31.74	0.00	-3,192.3	0.00	3,192.31	5,007.77	1,410.30	7,588.41	5,825.12	1.63	-0.63	0.556
30.00	-37.21	-31.17	0.00	-3,033.6	0.00	3,033.62	4,954.85	1,378.06	7,245.53	5,630.81	2.37	-0.76	0.547
35.00	-35.82	-30.60	0.00	-2,877.8	0.00	2,877.76	4,899.05	1,345.82	6,910.58	5,436.14	3.24	-0.9	0.537
40.00	-34.48	-30.07	0.00	-2,724.8	0.00	2,724.78	4,840.37	1,313.58	6,583.55	5,241.34	4.25	-1.03	0.528
43.83	-33.47	-29.77	0.00	-2,609.5	0.00	2,609.50	4,793.44	1,288.87	6,338.20	5,092.06	5.13	-1.14	0.520
45.00	-32.91	-29.40	0.00	-2,574.8	0.00	2,574.77	4,778.81	1,281.35	6,264.45	5,046.65	5.41	-1.18	0.518
50.00	-30.68	-28.99	0.00	-2,427.8	0.00	2,427.79	4,714.38	1,249.11	5,953.28	4,852.29	6.72	-1.32	0.507
51.00	-30.22	-28.69	0.00	-2,398.8	0.00	2,398.80	3,748.95	1,082.35	5,214.40	3,905.86	7	-1.35	0.623
55.00	-29.31	-28.13	0.00	-2,284.1	0.00	2,284.06	3,716.58	1,060.25	5,003.62	3,792.47	8.18	-1.46	0.611
60.00	-28.20	-27.52	0.00	-2,143.4	0.00	2,143.39	3,673.53	1,032.61	4,746.27	3,650.12	9.8	-1.63	0.596
65.00	-27.12	-26.90	0.00	-2,005.8	0.00	2,005.82	3,627.60	1,004.98	4,495.71	3,507.29	11.59	-1.79	0.580
70.00	-26.07	-26.28	0.00	-1,871.3	0.00	1,871.34	3,578.79	977.35	4,251.95	3,364.21	13.56	-1.96	0.564
75.00	-25.04	-25.66	0.00	-1,740.0	0.00	1,739.95	3,527.09	949.72	4,014.98	3,221.11	15.7	-2.13	0.548
80.00	-24.04	-25.05	0.00	-1,611.6	0.00	1,611.64	3,472.52	922.08	3,784.80	3,078.24	18.03	-2.3	0.531
85.00	-23.08	-24.54	0.00	-1,486.4	0.00	1,486.41	3,415.07	894.45	3,561.42	2,935.81	20.53	-2.48	0.514
88.08	-22.49	-24.23	0.00	-1,410.7	0.00	1,410.73	3,378.20	877.41	3,427.05	2,848.30	22.17	-2.59	0.503
90.00	-21.88	-23.87	0.00	-1,364.3	0.00	1,364.29	3,354.74	866.82	3,344.83	2,794.06	23.22	-2.66	0.496
94.00	-20.65	-23.53	0.00	-1,268.8	0.00	1,268.81	2,549.41	716.07	2,738.82	2,107.92	25.51	-2.8	0.611
95.00	-20.47	-23.19	0.00	-1,245.3	0.00	1,245.28	2,541.91	711.46	2,703.72	2,088.10	26.1	-2.83	0.605
100.00	-19.68	-22.60	0.00	-1,129.4	0.00	1,129.36	2,502.69	688.43	2,531.57	1,988.82	29.17	-3.03	0.577
105.00	-18.91	-22.01	0.00	-1,016.4	0.00	1,016.38	2,460.58	665.41	2,365.09	1,889.44	32.46	-3.24	0.547
110.00	-18.17	-21.44	0.00	-906.3	0.00	906.31	2,415.60	642.38	2,204.27	1,790.18	35.95	-3.43	0.515
115.00	-17.45	-20.88	0.00	-799.1	0.00	799.10	2,367.74	619.35	2,049.12	1,691.27	39.65	-3.63	0.481
120.00	-14.13	-17.45	0.00	-694.7	0.00	694.71	2,317.00	596.32	1,899.62	1,592.95	43.56	-3.82	0.443
125.00	-13.48	-16.90	0.00	-607.5	0.00	607.46	2,263.38	573.30	1,755.79	1,495.45	47.66	-4.01	0.413
130.00	-12.85	-16.44	0.00	-523.0	0.00	522.97	2,206.88	550.27	1,617.62	1,398.99	51.95	-4.19	0.381
133.42	-12.44	-16.16	0.00	-466.8	0.00	466.81	2,166.61	534.53	1,526.45	1,333.80	55	-4.32	0.357
135.00	-12.15	-15.92	0.00	-441.2	0.00	441.22	2,147.49	527.24	1,485.11	1,303.81	56.44	-4.37	0.345
138.00	-11.61	-15.63	0.00	-393.5	0.00	393.47	1,272.79	366.05	1,022.18	768.59	59.22	-4.48	0.523
140.00	-11.42	-15.30	0.00	-362.2	0.00	362.20	1,263.21	359.60	986.49	749.27	61.11	-4.55	0.494
145.00	-10.98	-14.81	0.00	-285.7	0.00	285.72	1,237.26	343.48	900.03	700.72	65.98	-4.75	0.418
150.00	-7.63	-10.06	0.00	-210.0	0.00	210.00	1,208.42	327.35	817.54	652.01	71.06	-4.94	0.329
155.00	-7.30	-9.59	0.00	-159.7	0.00	159.71	1,176.70	311.23	739.02	603.37	76.31	-5.1	0.272
160.00	-7.01	-9.23	0.00	-111.7	0.00	111.74	1,142.10	295.11	664.45	555.03	81.72	-5.23	0.208
163.00	-4.09	-5.98	0.00	-84.1	0.00	84.06	1,119.95	285.43	621.62	526.27	85.02	-5.3	0.164
165.00	-3.99	-5.73	0.00	-72.1	0.00	72.10	1,104.62	278.98	593.85	507.22	87.25	-5.34	0.146
169.00	-3.51	-5.02	0.00	-49.2	0.00	49.19	1,072.56	266.09	540.23	469.51	91.74	-5.41	0.108
169.90	-3.43	-4.81	0.00	-44.7	0.00	44.68	1,065.09	263.18	528.51	461.11	92.76	-5.42	0.100
170.00	-3.44	-4.62	0.00	-44.2	0.00	44.20	1,064.26	262.86	527.22	460.18	92.88	-5.42	0.100
175.00	-3.23	-4.22	0.00	-21.1	0.00	21.12	1,021.02	246.74	464.55	414.13	98.58	-5.47	0.054
180.00	0.00	-3.89	0.00	0.0	0.00	0.00	968.59	230.62	405.84	366.91	104.32	-5.5	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph wind with 1" radial ice		24 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 Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-79.69	-7.76	0.00	-937.6	0.00	937.61	5,229.17	1,571.49	9,421.69	6,783.18	0	0	0.153
5.00	-77.38	-7.64	0.00	-898.8	0.00	898.81	5,190.65	1,539.25	9,039.18	6,594.14	0.02	-0.03	0.151
10.00	-75.07	-7.53	0.00	-860.6	0.00	860.59	5,149.25	1,507.01	8,664.60	6,403.58	0.06	-0.06	0.149
15.00	-72.80	-7.42	0.00	-822.9	0.00	822.94	5,104.97	1,474.78	8,297.94	6,211.74	0.14	-0.09	0.147
20.00	-70.56	-7.31	0.00	-785.8	0.00	785.84	5,057.81	1,442.54	7,939.21	6,018.84	0.24	-0.12	0.145
25.00	-68.35	-7.20	0.00	-749.3	0.00	749.30	5,007.77	1,410.30	7,588.41	5,825.12	0.38	-0.15	0.142
30.00	-66.18	-7.09	0.00	-713.3	0.00	713.30	4,954.85	1,378.06	7,245.53	5,630.81	0.55	-0.18	0.140
35.00	-64.06	-6.98	0.00	-677.8	0.00	677.85	4,899.05	1,345.82	6,910.58	5,436.14	0.76	-0.21	0.138
40.00	-61.97	-6.87	0.00	-643.0	0.00	642.96	4,840.37	1,313.58	6,583.55	5,241.34	0.99	-0.24	0.136
43.83	-60.40	-6.81	0.00	-616.6	0.00	616.61	4,793.44	1,288.87	6,338.20	5,092.06	1.2	-0.27	0.134
45.00	-59.62	-6.74	0.00	-608.7	0.00	608.66	4,778.81	1,281.35	6,264.45	5,046.65	1.27	-0.28	0.133
50.00	-56.33	-6.65	0.00	-575.0	0.00	574.96	4,714.38	1,249.11	5,953.28	4,852.29	1.57	-0.31	0.130
51.00	-55.68	-6.59	0.00	-568.3	0.00	568.31	3,748.95	1,082.35	5,214.40	3,905.86	1.64	-0.32	0.160
55.00	-54.26	-6.48	0.00	-541.9	0.00	541.93	3,716.58	1,060.25	5,003.62	3,792.47	1.92	-0.34	0.158
60.00	-52.51	-6.36	0.00	-509.5	0.00	509.51	3,673.53	1,032.61	4,746.27	3,650.12	2.3	-0.38	0.154
65.00	-50.81	-6.24	0.00	-477.7	0.00	477.71	3,627.60	1,004.98	4,495.71	3,507.29	2.72	-0.42	0.150
70.00	-49.14	-6.11	0.00	-446.5	0.00	446.53	3,578.79	977.35	4,251.95	3,364.21	3.18	-0.46	0.147
75.00	-47.52	-5.99	0.00	-416.0	0.00	415.98	3,527.09	949.72	4,014.98	3,221.11	3.69	-0.5	0.143
80.00	-45.93	-5.86	0.00	-386.0	0.00	386.05	3,472.52	922.08	3,784.80	3,078.24	4.24	-0.54	0.139
85.00	-44.38	-5.75	0.00	-356.8	0.00	356.76	3,415.07	894.45	3,561.42	2,935.81	4.83	-0.59	0.135
88.08	-43.44	-5.69	0.00	-339.0	0.00	339.02	3,378.20	877.41	3,427.05	2,848.30	5.22	-0.61	0.132
90.00	-42.54	-5.61	0.00	-328.1	0.00	328.11	3,354.74	866.82	3,344.83	2,794.06	5.47	-0.63	0.130
94.00	-40.68	-5.54	0.00	-305.7	0.00	305.66	2,549.41	716.07	2,738.82	2,107.92	6.01	-0.66	0.161
95.00	-40.42	-5.47	0.00	-300.1	0.00	300.12	2,541.91	711.46	2,703.72	2,088.10	6.15	-0.67	0.160
100.00	-39.13	-5.35	0.00	-272.8	0.00	272.77	2,502.69	688.43	2,531.57	1,988.82	6.88	-0.72	0.153
105.00	-37.88	-5.23	0.00	-246.0	0.00	246.03	2,460.58	665.41	2,365.09	1,889.44	7.66	-0.77	0.146
110.00	-36.66	-5.11	0.00	-219.9	0.00	219.89	2,415.60	642.38	2,204.27	1,790.18	8.49	-0.82	0.138
115.00	-35.48	-4.99	0.00	-194.4	0.00	194.35	2,367.74	619.35	2,049.12	1,691.27	9.37	-0.86	0.130
120.00	-29.08	-4.21	0.00	-169.4	0.00	169.41	2,317.00	596.32	1,899.62	1,592.95	10.3	-0.91	0.119
125.00	-27.98	-4.09	0.00	-148.4	0.00	148.36	2,263.38	573.30	1,755.79	1,495.45	11.28	-0.96	0.112
130.00	-26.92	-3.99	0.00	-127.9	0.00	127.92	2,206.88	550.27	1,617.62	1,398.99	12.31	-1	0.104
133.42	-26.21	-3.92	0.00	-114.3	0.00	114.30	2,166.61	534.53	1,526.45	1,333.80	13.03	-1.03	0.098
135.00	-25.75	-3.87	0.00	-108.1	0.00	108.09	2,147.49	527.24	1,485.11	1,303.81	13.38	-1.05	0.095
138.00	-24.89	-3.80	0.00	-96.5	0.00	96.48	1,272.79	366.05	1,022.18	768.59	14.04	-1.07	0.145
140.00	-24.57	-3.73	0.00	-88.9	0.00	88.88	1,263.21	359.60	986.49	749.27	14.5	-1.09	0.138
145.00	-23.77	-3.62	0.00	-70.2	0.00	70.22	1,237.26	343.48	900.03	700.72	15.66	-1.14	0.120
150.00	-16.43	-2.49	0.00	-51.7	0.00	51.74	1,208.42	327.35	817.54	652.01	16.88	-1.18	0.093
155.00	-15.78	-2.38	0.00	-39.3	0.00	39.31	1,176.70	311.23	739.02	603.37	18.15	-1.22	0.079
160.00	-15.18	-2.29	0.00	-27.4	0.00	27.42	1,142.10	295.11	664.45	555.03	19.45	-1.26	0.063
163.00	-9.03	-1.46	0.00	-20.6	0.00	20.55	1,119.95	285.43	621.62	526.27	20.24	-1.27	0.047
165.00	-8.82	-1.40	0.00	-17.6	0.00	17.63	1,104.62	278.98	593.85	507.22	20.78	-1.28	0.043
169.00	-7.85	-1.23	0.00	-12.0	0.00	12.03	1,072.56	266.09	540.23	469.51	21.86	-1.3	0.033
169.90	-7.65	-1.18	0.00	-10.9	0.00	10.92	1,065.09	263.18	528.51	461.11	22.1	-1.3	0.031
170.00	-7.64	-1.13	0.00	-10.8	0.00	10.81	1,064.26	262.86	527.22	460.18	22.13	-1.3	0.031
175.00	-7.15	-1.03	0.00	-5.2	0.00	5.16	1,021.02	246.74	464.55	414.13	23.5	-1.32	0.019
180.00	0.00	-0.87	0.00	0.0	0.00	0.00	968.59	230.62	405.84	366.91	24.89	-1.32	0.000

Load Case: 1.0D + 1.0W	60 mph Wind with No Ice	24 Iterations
Gust Response Factor: 1.10		
Dead load Factor: 1.00		
Wind Load Factor: 1.00		

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-51.31	-7.51	0.00	-876.4	0.00	876.36	5,229.17	1,571.49	9,421.69	6,783.18	0	0	0.139
5.00	-49.65	-7.38	0.00	-838.8	0.00	838.83	5,190.65	1,539.25	9,039.18	6,594.14	0.01	-0.03	0.137
10.00	-48.02	-7.25	0.00	-802.0	0.00	801.95	5,149.25	1,507.01	8,664.60	6,403.58	0.06	-0.05	0.135
15.00	-46.43	-7.12	0.00	-765.7	0.00	765.71	5,104.97	1,474.78	8,297.94	6,211.74	0.13	-0.08	0.132
20.00	-44.86	-7.00	0.00	-730.1	0.00	730.08	5,057.81	1,442.54	7,939.21	6,018.84	0.23	-0.11	0.130
25.00	-43.32	-6.88	0.00	-695.1	0.00	695.08	5,007.77	1,410.30	7,588.41	5,825.12	0.36	-0.14	0.128
30.00	-41.82	-6.76	0.00	-660.7	0.00	660.68	4,954.85	1,378.06	7,245.53	5,630.81	0.51	-0.17	0.126
35.00	-40.35	-6.64	0.00	-626.9	0.00	626.88	4,899.05	1,345.82	6,910.58	5,436.14	0.7	-0.2	0.124
40.00	-38.91	-6.53	0.00	-593.7	0.00	593.69	4,840.37	1,313.58	6,583.55	5,241.34	0.92	-0.23	0.121
43.83	-37.83	-6.46	0.00	-568.7	0.00	568.68	4,793.44	1,288.87	6,338.20	5,092.06	1.12	-0.25	0.120
45.00	-37.25	-6.38	0.00	-561.1	0.00	561.14	4,778.81	1,281.35	6,264.45	5,046.65	1.18	-0.26	0.119
50.00	-34.80	-6.29	0.00	-529.2	0.00	529.23	4,714.38	1,249.11	5,953.28	4,852.29	1.46	-0.29	0.116
51.00	-34.32	-6.23	0.00	-522.9	0.00	522.94	3,748.95	1,082.35	5,214.40	3,905.86	1.52	-0.29	0.143
55.00	-33.36	-6.11	0.00	-498.0	0.00	498.02	3,716.58	1,060.25	5,003.62	3,792.47	1.78	-0.32	0.140
60.00	-32.20	-5.98	0.00	-467.5	0.00	467.47	3,673.53	1,032.61	4,746.27	3,650.12	2.13	-0.35	0.137
65.00	-31.06	-5.85	0.00	-437.6	0.00	437.58	3,627.60	1,004.98	4,495.71	3,507.29	2.52	-0.39	0.133
70.00	-29.95	-5.71	0.00	-408.3	0.00	408.34	3,578.79	977.35	4,251.95	3,364.21	2.95	-0.43	0.130
75.00	-28.86	-5.58	0.00	-379.8	0.00	379.77	3,527.09	949.72	4,014.98	3,221.11	3.42	-0.46	0.126
80.00	-27.80	-5.45	0.00	-351.9	0.00	351.86	3,472.52	922.08	3,784.80	3,078.24	3.93	-0.5	0.122
85.00	-26.77	-5.34	0.00	-324.6	0.00	324.60	3,415.07	894.45	3,561.42	2,935.81	4.47	-0.54	0.118
88.08	-26.15	-5.28	0.00	-308.1	0.00	308.13	3,378.20	877.41	3,427.05	2,848.30	4.83	-0.56	0.116
90.00	-25.49	-5.20	0.00	-298.0	0.00	298.01	3,354.74	866.82	3,344.83	2,794.06	5.06	-0.58	0.114
94.00	-24.15	-5.12	0.00	-277.2	0.00	277.22	2,549.41	716.07	2,738.82	2,107.92	5.56	-0.61	0.141
95.00	-23.98	-5.05	0.00	-272.1	0.00	272.09	2,541.91	711.46	2,703.72	2,088.10	5.69	-0.62	0.140
100.00	-23.15	-4.93	0.00	-246.8	0.00	246.84	2,502.69	688.43	2,531.57	1,988.82	6.36	-0.66	0.133
105.00	-22.34	-4.80	0.00	-222.2	0.00	222.21	2,460.58	665.41	2,365.09	1,889.44	7.07	-0.71	0.127
110.00	-21.55	-4.68	0.00	-198.2	0.00	198.20	2,415.60	642.38	2,204.27	1,790.18	7.84	-0.75	0.120
115.00	-20.79	-4.56	0.00	-174.8	0.00	174.80	2,367.74	619.35	2,049.12	1,691.27	8.64	-0.79	0.112
120.00	-16.93	-3.81	0.00	-152.0	0.00	152.01	2,317.00	596.32	1,899.62	1,592.95	9.5	-0.83	0.103
125.00	-16.22	-3.69	0.00	-133.0	0.00	132.96	2,263.38	573.30	1,755.79	1,495.45	10.39	-0.87	0.096
130.00	-15.54	-3.59	0.00	-114.5	0.00	114.49	2,206.88	550.27	1,617.62	1,398.99	11.33	-0.92	0.089
133.42	-15.09	-3.53	0.00	-102.2	0.00	102.22	2,166.61	534.53	1,526.45	1,333.80	11.99	-0.94	0.084
135.00	-14.77	-3.48	0.00	-96.6	0.00	96.62	2,147.49	527.24	1,485.11	1,303.81	12.31	-0.95	0.081
138.00	-14.17	-3.42	0.00	-86.2	0.00	86.18	1,272.79	366.05	1,022.18	768.59	12.92	-0.98	0.123
140.00	-13.97	-3.35	0.00	-79.3	0.00	79.34	1,263.21	359.60	986.49	749.27	13.33	-0.99	0.117
145.00	-13.49	-3.24	0.00	-62.6	0.00	62.61	1,237.26	343.48	900.03	700.72	14.39	-1.04	0.100
150.00	-9.38	-2.20	0.00	-46.0	0.00	46.04	1,208.42	327.35	817.54	652.01	15.5	-1.08	0.078
155.00	-9.00	-2.10	0.00	-35.0	0.00	35.02	1,176.70	311.23	739.02	603.37	16.65	-1.11	0.066
160.00	-8.66	-2.02	0.00	-24.5	0.00	24.50	1,142.10	295.11	664.45	555.03	17.83	-1.14	0.052
163.00	-5.11	-1.31	0.00	-18.4	0.00	18.43	1,119.95	285.43	621.62	526.27	18.56	-1.16	0.040
165.00	-4.99	-1.26	0.00	-15.8	0.00	15.81	1,104.62	278.98	593.85	507.22	19.04	-1.17	0.036
169.00	-4.38	-1.10	0.00	-10.8	0.00	10.79	1,072.56	266.09	540.23	469.51	20.03	-1.18	0.027
169.90	-4.28	-1.05	0.00	-9.8	0.00	9.80	1,065.09	263.18	528.51	461.11	20.25	-1.18	0.025
170.00	-4.28	-1.01	0.00	-9.7	0.00	9.70	1,064.26	262.86	527.22	460.18	20.28	-1.18	0.025
175.00	-4.00	-0.93	0.00	-4.6	0.00	4.63	1,021.02	246.74	464.55	414.13	21.52	-1.2	0.015
180.00	0.00	-0.84	0.00	0.0	0.00	0.00	968.59	230.62	405.84	366.91	22.78	-1.2	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.205
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.055
Long-Period Transition Period (T_L – Seconds):	6
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}):	0.219
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.088
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_s :	0.030
Lower Limit C_s :	0.030
Period based on Rayleigh Method (sec):	2.710
Redundancy Factor (ρ):	1.000
Seismic Force Distribution Exponent (k):	2.000
Total Unfactored Dead Load:	51.310 k
Seismic Base Shear (E):	1.540 k

1.2D + 1.0Ev + 1.0Eh Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
45	177.5	260	8,188	0.014	21	323
44	172.5	276	8,198	0.014	21	343
43	169.95	6	164	0.000	0	7
42	169.45	52	1,479	0.002	4	64
41	167	235	6,555	0.011	17	292
40	164	121	3,262	0.006	9	151
39	161.5	194	5,070	0.009	13	242
38	157.5	337	8,348	0.014	22	419
37	152.5	380	8,848	0.015	23	473
36	147.5	462	10,059	0.017	26	575
35	142.5	478	9,706	0.016	25	595
34	139	196	3,779	0.006	10	243
33	136.5	601	11,193	0.019	29	747
32	134.2084	323	5,810	0.010	15	401
31	131.7084	453	7,860	0.013	20	564
30	127.5	682	11,084	0.019	29	848
29	122.5	704	10,567	0.018	28	876
28	117.5	738	10,191	0.017	27	918
27	112.5	760	9,625	0.016	25	946
26	107.5	783	9,046	0.015	24	974
25	102.5	805	8,459	0.014	22	1,001
24	97.5	827	7,866	0.013	21	1,029
23	94.5	168	1,502	0.002	4	209
22	92	1,345	11,387	0.019	30	1,673
21	89.0417	656	5,199	0.009	14	816
20	86.5417	621	4,654	0.008	12	773
19	82.5	1,029	7,006	0.012	18	1,280
18	77.5	1,056	6,344	0.011	17	1,314
17	72.5	1,083	5,693	0.010	15	1,347
16	67.5	1,110	5,056	0.009	13	1,380
15	62.5	1,137	4,440	0.008	12	1,414
14	57.5	1,163	3,846	0.006	10	1,447
13	53	950	2,668	0.004	7	1,182
12	50.5	482	1,229	0.002	3	599

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
11	47.5	2,444	5,513	0.009	14	3,039
10	44.4167	579	1,141	0.002	3	720
9	41.9167	1,081	1,900	0.003	5	1,345
8	37.5	1,438	2,022	0.003	5	1,788
7	32.5	1,469	1,552	0.003	4	1,827
6	27.5	1,500	1,135	0.002	3	1,866
5	22.5	1,532	775	0.001	2	1,905
4	17.5	1,563	479	0.001	1	1,944
3	12.5	1,594	249	0.000	1	1,983
2	7.5	1,626	91	0.000	0	2,022
1	2.5	1,657	10	0.000	0	2,061
Ericsson 4460 BAND 2/25	180	327	10,595	0.018	28	407
Ericsson 4480 BAND 71	180	243	7,873	0.013	21	302
Commscope VV-65A-R1B	180	74	2,401	0.004	6	92
Ericsson AIR 6419 B41	180	250	8,097	0.014	21	311
RFS APXVAALL24 43-U-NA20	180	368	11,936	0.020	31	458
Generic Round Platform with Handrails	180	2,500	81,000	0.137	211	3,109
Generic Round Platform with Handrails	163	2,500	66,422	0.112	173	3,109
Generic Round Platform with Handrails	150	2,500	56,250	0.095	147	3,109
Generic 6' Omni	169.9	50	1,443	0.002	4	62
Generic Round Side Arm	169	375	10,710	0.018	28	466
Samsung B5/B13 RRH-BR04C	163	211	5,603	0.010	15	262
Samsung B2/B66A RRH-BR049	163	253	6,727	0.011	18	315
RFS DB-B1-6C-12AB-0Z	163	43	1,137	0.002	3	53
Commscope JAHH-65B-R3B	163	364	9,660	0.016	25	452
LGP Allgon LGP21903	150	33	742	0.001	2	41
Powerwave Allgon LGP21401	150	85	1,904	0.003	5	105
Raycap DC6-48-60-18-8F (23.5" Height)	150	40	900	0.002	2	50
Ericsson Radio 8843 - B2 + B66A	150	216	4,853	0.008	13	268
Ericsson RRUS 4449 B5, B12	150	213	4,792	0.008	12	265
Powerwave Allgon 7770.00	150	105	2,362	0.004	6	131
CCI HPA65R-BU6A	150	42	943	0.002	2	52
CCI HPA65R-BU8A	150	108	2,430	0.004	6	134
Kathrein Scala 80010965	150	98	2,196	0.004	6	121
Kathrein Scala 80010966	150	229	5,157	0.009	13	285
Commscope RDIDC-9181-PF-48	120	22	315	0.000	1	27
Fujitsu TA08025-B604	120	192	2,760	0.005	7	238
Fujitsu TA08025-B605	120	225	3,240	0.006	8	280
JMA Wireless MX08FRO665-21	120	194	2,786	0.005	7	241
Generic Flat Platform with Handrails	120	2,500	36,000	0.061	94	3,109
		51,314	590,489	1.000	1,539	63,821

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

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
45	177.5	260	8,188	0.014	21	223
44	172.5	276	8,198	0.014	21	236
43	169.95	6	164	0.000	0	5
42	169.45	52	1,479	0.002	4	44
41	167	235	6,555	0.011	17	201
40	164	121	3,262	0.006	9	104
39	161.5	194	5,070	0.009	13	166
38	157.5	337	8,348	0.014	22	288
37	152.5	380	8,848	0.015	23	326
36	147.5	462	10,059	0.017	26	396
35	142.5	478	9,706	0.016	25	409
34	139	196	3,779	0.006	10	167
33	136.5	601	11,193	0.019	29	514
32	134.2084	323	5,810	0.010	15	276
31	131.7084	453	7,860	0.013	20	388
30	127.5	682	11,084	0.019	29	584
29	122.5	704	10,567	0.018	28	603

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
28	117.5	738	10,191	0.017	27	632
27	112.5	760	9,625	0.016	25	651
26	107.5	783	9,046	0.015	24	670
25	102.5	805	8,459	0.014	22	689
24	97.5	827	7,866	0.013	21	709
23	94.5	168	1,502	0.002	4	144
22	92	1,345	11,387	0.019	30	1,152
21	89.0417	656	5,199	0.009	14	562
20	86.5417	621	4,654	0.008	12	532
19	82.5	1,029	7,006	0.012	18	881
18	77.5	1,056	6,344	0.011	17	904
17	72.5	1,083	5,693	0.010	15	927
16	67.5	1,110	5,056	0.009	13	950
15	62.5	1,137	4,440	0.008	12	973
14	57.5	1,163	3,846	0.006	10	996
13	53	950	2,668	0.004	7	813
12	50.5	482	1,229	0.002	3	412
11	47.5	2,444	5,513	0.009	14	2,092
10	44.4167	579	1,141	0.002	3	495
9	41.9167	1,081	1,900	0.003	5	926
8	37.5	1,438	2,022	0.003	5	1,231
7	32.5	1,469	1,552	0.003	4	1,258
6	27.5	1,500	1,135	0.002	3	1,285
5	22.5	1,532	775	0.001	2	1,312
4	17.5	1,563	479	0.001	1	1,338
3	12.5	1,594	249	0.000	1	1,365
2	7.5	1,626	91	0.000	0	1,392
1	2.5	1,657	10	0.000	0	1,419
Ericsson 4460 BAND 2/25	180	327	10,595	0.018	28	280
Ericsson 4480 BAND 71	180	243	7,873	0.013	21	208
Commscope VV-65A-R1B	180	74	2,401	0.004	6	63
Ericsson AIR 6419 B41	180	250	8,097	0.014	21	214
RFS APXVAALL24 43-U-NA20	180	368	11,936	0.020	31	315
Generic Round Platform with Handrails	180	2,500	81,000	0.137	211	2,141
Generic Round Platform with Handrails	163	2,500	66,422	0.112	173	2,141
Generic Round Platform with Handrails	150	2,500	56,250	0.095	147	2,141
Generic 6' Omni	169.9	50	1,443	0.002	4	43
Generic Round Side Arm	169	375	10,710	0.018	28	321
Samsung B5/B13 RRH-BR04C	163	211	5,603	0.010	15	181
Samsung B2/B66A RRH-BR049	163	253	6,727	0.011	18	217
RFS DB-B1-6C-12AB-0Z	163	43	1,137	0.002	3	37
Commscope JAHH-65B-R3B	163	364	9,660	0.016	25	311
LGP Allgon LGP21903	150	33	742	0.001	2	28
Powerwave Allgon LGP21401	150	85	1,904	0.003	5	72
Raycap DC6-48-60-18-8F (23.5" Height)	150	40	900	0.002	2	34
Ericsson Radio 8843 - B2 + B66A	150	216	4,853	0.008	13	185
Ericsson RRUS 4449 B5, B12	150	213	4,792	0.008	12	182
Powerwave Allgon 7770.00	150	105	2,362	0.004	6	90
CCI HPA65R-BU6A	150	42	943	0.002	2	36
CCI HPA65R-BU8A	150	108	2,430	0.004	6	92
Kathrein Scala 80010965	150	98	2,196	0.004	6	84
Kathrein Scala 80010966	150	229	5,157	0.009	13	196
Commscope RDIDC-9181-PF-48	120	22	315	0.000	1	19
Fujitsu TA08025-B604	120	192	2,760	0.005	7	164
Fujitsu TA08025-B605	120	225	3,240	0.006	8	193
JMA Wireless MX08FRO665-21	120	194	2,786	0.005	7	166
Generic Flat Platform with Handrails	120	2,500	36,000	0.061	94	2,141
		51,314	590,489	1.000	1,539	43,938

1.2D + 1.0Ev + 1.0Eh Seismic

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
---------------	------------------	------------------	-----------------	-----------------	-----------------	----------------------------	---------------	---------------	---------------	---------------	--------------------	----------------	-------

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-61.76	-1.54	0.00	-229.58	0.00	229.58	5,229.17	1,571.49	9,422	6,783.18	0.00	0.00	0.05
5.00	-59.74	-1.55	0.00	-221.87	0.00	221.87	5,190.65	1,539.25	9,039	6,594.14	0.00	-0.01	0.05
10.00	-57.75	-1.56	0.00	-214.12	0.00	214.12	5,149.25	1,507.01	8,665	6,403.58	0.01	-0.01	0.05
15.00	-55.81	-1.56	0.00	-206.34	0.00	206.34	5,104.97	1,474.78	8,298	6,211.74	0.03	-0.02	0.04
20.00	-53.91	-1.57	0.00	-198.54	0.00	198.54	5,057.81	1,442.54	7,939	6,018.84	0.06	-0.03	0.04
25.00	-52.04	-1.57	0.00	-190.71	0.00	190.71	5,007.77	1,410.30	7,588	5,825.12	0.09	-0.04	0.04
30.00	-50.21	-1.57	0.00	-182.87	0.00	182.87	4,954.85	1,378.06	7,246	5,630.81	0.14	-0.04	0.04
35.00	-48.42	-1.57	0.00	-175.02	0.00	175.02	4,899.05	1,345.82	6,911	5,436.14	0.19	-0.05	0.04
40.00	-47.08	-1.57	0.00	-167.16	0.00	167.16	4,840.37	1,313.58	6,584	5,241.34	0.25	-0.06	0.04
43.83	-46.36	-1.57	0.00	-161.14	0.00	161.14	4,793.44	1,288.87	6,338	5,092.06	0.30	-0.07	0.04
45.00	-43.32	-1.56	0.00	-159.31	0.00	159.31	4,778.81	1,281.35	6,264	5,046.65	0.32	-0.07	0.04
50.00	-42.72	-1.56	0.00	-151.53	0.00	151.53	4,714.38	1,249.11	5,953	4,852.29	0.40	-0.08	0.04
51.00	-41.54	-1.55	0.00	-149.97	0.00	149.97	3,748.95	1,082.35	5,214	3,905.86	0.41	-0.08	0.05
55.00	-40.09	-1.55	0.00	-143.77	0.00	143.77	3,716.58	1,060.25	5,004	3,792.47	0.48	-0.09	0.05
60.00	-38.68	-1.54	0.00	-136.05	0.00	136.05	3,673.53	1,032.61	4,746	3,650.12	0.58	-0.10	0.05
65.00	-37.30	-1.53	0.00	-128.36	0.00	128.36	3,627.60	1,004.98	4,496	3,507.29	0.69	-0.11	0.05
70.00	-35.95	-1.52	0.00	-120.71	0.00	120.71	3,578.79	977.35	4,252	3,364.21	0.81	-0.12	0.05
75.00	-34.64	-1.51	0.00	-113.11	0.00	113.11	3,527.09	949.72	4,015	3,221.11	0.94	-0.13	0.05
80.00	-33.35	-1.49	0.00	-105.58	0.00	105.58	3,472.52	922.08	3,785	3,078.24	1.08	-0.14	0.04
85.00	-32.58	-1.48	0.00	-98.13	0.00	98.13	3,415.07	894.45	3,561	2,935.81	1.24	-0.15	0.04
88.08	-31.77	-1.47	0.00	-93.56	0.00	93.56	3,378.20	877.41	3,427	2,848.30	1.34	-0.16	0.04
90.00	-30.09	-1.44	0.00	-90.74	0.00	90.74	3,354.74	866.82	3,345	2,794.06	1.40	-0.17	0.04
94.00	-29.88	-1.44	0.00	-84.98	0.00	84.98	2,549.41	716.07	2,739	2,107.92	1.55	-0.17	0.05
95.00	-28.85	-1.42	0.00	-83.54	0.00	83.54	2,541.91	711.46	2,704	2,088.10	1.58	-0.18	0.05
100.00	-27.85	-1.40	0.00	-76.45	0.00	76.45	2,502.69	688.43	2,532	1,988.82	1.78	-0.19	0.05
105.00	-26.88	-1.38	0.00	-69.45	0.00	69.45	2,460.58	665.41	2,365	1,889.44	1.98	-0.20	0.05
110.00	-25.93	-1.36	0.00	-62.56	0.00	62.56	2,415.60	642.38	2,204	1,790.18	2.20	-0.22	0.05
115.00	-25.01	-1.33	0.00	-55.77	0.00	55.77	2,367.74	619.35	2,049	1,691.27	2.44	-0.23	0.04
120.00	-20.24	-1.17	0.00	-49.11	0.00	49.11	2,317.00	596.32	1,900	1,592.95	2.69	-0.24	0.04
125.00	-19.40	-1.14	0.00	-43.25	0.00	43.25	2,263.38	573.30	1,756	1,495.45	2.95	-0.26	0.04
130.00	-18.83	-1.12	0.00	-37.53	0.00	37.53	2,206.88	550.27	1,618	1,398.99	3.23	-0.27	0.04
133.42	-18.43	-1.11	0.00	-33.69	0.00	33.69	2,166.61	534.53	1,526	1,333.80	3.43	-0.28	0.03
135.00	-17.68	-1.08	0.00	-31.93	0.00	31.93	2,147.49	527.24	1,485	1,303.81	3.52	-0.28	0.03
138.00	-17.44	-1.07	0.00	-28.69	0.00	28.69	1,272.79	366.05	1,022	768.59	3.70	-0.29	0.03
140.00	-16.85	-1.04	0.00	-26.55	0.00	26.55	1,263.21	359.60	986	749.27	3.83	-0.30	0.05
145.00	-16.27	-1.02	0.00	-21.33	0.00	21.33	1,237.26	343.48	900	700.72	4.15	-0.31	0.04
150.00	-11.24	-0.76	0.00	-16.24	0.00	16.24	1,208.42	327.35	818	652.01	4.48	-0.33	0.03
155.00	-10.82	-0.73	0.00	-12.46	0.00	12.46	1,176.70	311.23	739	603.37	4.83	-0.34	0.03
160.00	-10.58	-0.72	0.00	-8.79	0.00	8.79	1,142.10	295.11	664	555.03	5.19	-0.35	0.03
163.00	-6.23	-0.45	0.00	-6.63	0.00	6.63	1,119.95	285.43	622	526.27	5.41	-0.35	0.02
165.00	-5.94	-0.43	0.00	-5.73	0.00	5.73	1,104.62	278.98	594	507.22	5.56	-0.36	0.02
169.00	-5.41	-0.40	0.00	-3.99	0.00	3.99	1,072.56	266.09	540	469.51	5.86	-0.36	0.01
169.90	-5.34	-0.39	0.00	-3.63	0.00	3.63	1,065.09	263.18	529	461.11	5.93	-0.36	0.01
170.00	-5.00	-0.37	0.00	-3.60	0.00	3.60	1,064.26	262.86	527	460.18	5.94	-0.36	0.01
175.00	-4.68	-0.35	0.00	-1.74	0.00	1.74	1,021.02	246.74	465	414.13	6.32	-0.37	0.01
180.00	0.00	-0.32	0.00	0.00	0.00	0.00	968.59	230.62	406	366.91	6.71	-0.37	0.00

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

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-42.52	-1.54	0.00	-225.77	0.00	225.77	5,229.17	1,571.49	9,422	6,783.18	0.00	0.00	0.04
5.00	-41.13	-1.55	0.00	-218.07	0.00	218.07	5,190.65	1,539.25	9,039	6,594.14	0.00	-0.01	0.04
10.00	-39.76	-1.55	0.00	-210.34	0.00	210.34	5,149.25	1,507.01	8,665	6,403.58	0.01	-0.01	0.04
15.00	-38.42	-1.55	0.00	-202.59	0.00	202.59	5,104.97	1,474.78	8,298	6,211.74	0.03	-0.02	0.04
20.00	-37.11	-1.56	0.00	-194.82	0.00	194.82	5,057.81	1,442.54	7,939	6,018.84	0.06	-0.03	0.04
25.00	-35.83	-1.56	0.00	-187.04	0.00	187.04	5,007.77	1,410.30	7,588	5,825.12	0.09	-0.04	0.04
30.00	-34.57	-1.56	0.00	-179.26	0.00	179.26	4,954.85	1,378.06	7,246	5,630.81	0.13	-0.04	0.04
35.00	-33.34	-1.55	0.00	-171.48	0.00	171.48	4,899.05	1,345.82	6,911	5,436.14	0.19	-0.05	0.04
40.00	-32.41	-1.55	0.00	-163.70	0.00	163.70	4,840.37	1,313.58	6,584	5,241.34	0.24	-0.06	0.04
43.83	-31.92	-1.55	0.00	-157.75	0.00	157.75	4,793.44	1,288.87	6,338	5,092.06	0.29	-0.07	0.04
45.00	-29.82	-1.54	0.00	-155.94	0.00	155.94	4,778.81	1,281.35	6,264	5,046.65	0.31	-0.07	0.04
50.00	-29.41	-1.54	0.00	-148.25	0.00	148.25	4,714.38	1,249.11	5,953	4,852.29	0.39	-0.08	0.04
51.00	-28.60	-1.53	0.00	-146.71	0.00	146.71	3,748.95	1,082.35	5,214	3,905.86	0.40	-0.08	0.05
55.00	-27.60	-1.52	0.00	-140.58	0.00	140.58	3,716.58	1,060.25	5,004	3,792.47	0.47	-0.09	0.04
60.00	-26.63	-1.52	0.00	-132.96	0.00	132.96	3,673.53	1,032.61	4,746	3,650.12	0.57	-0.10	0.04
65.00	-25.68	-1.51	0.00	-125.39	0.00	125.39	3,627.60	1,004.98	4,496	3,507.29	0.68	-0.11	0.04

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
70.00	-24.75	-1.49	0.00	-117.86	0.00	117.86	3,578.79	977.35	4,252	3,364.21	0.79	-0.12	0.04
75.00	-23.84	-1.48	0.00	-110.39	0.00	110.39	3,527.09	949.72	4,015	3,221.11	0.92	-0.13	0.04
80.00	-22.96	-1.46	0.00	-103.00	0.00	103.00	3,472.52	922.08	3,785	3,078.24	1.06	-0.14	0.04
85.00	-22.43	-1.45	0.00	-95.68	0.00	95.68	3,415.07	894.45	3,561	2,935.81	1.21	-0.15	0.04
88.08	-21.87	-1.44	0.00	-91.20	0.00	91.20	3,378.20	877.41	3,427	2,848.30	1.31	-0.16	0.04
90.00	-20.72	-1.41	0.00	-88.44	0.00	88.44	3,354.74	866.82	3,345	2,794.06	1.38	-0.16	0.04
94.00	-20.57	-1.41	0.00	-82.80	0.00	82.80	2,549.41	716.07	2,739	2,107.92	1.52	-0.17	0.05
95.00	-19.86	-1.39	0.00	-81.39	0.00	81.39	2,541.91	711.46	2,704	2,088.10	1.55	-0.17	0.05
100.00	-19.17	-1.37	0.00	-74.45	0.00	74.45	2,502.69	688.43	2,532	1,988.82	1.74	-0.19	0.05
105.00	-18.50	-1.35	0.00	-67.61	0.00	67.61	2,460.58	665.41	2,365	1,889.44	1.94	-0.20	0.04
110.00	-17.85	-1.32	0.00	-60.87	0.00	60.87	2,415.60	642.38	2,204	1,790.18	2.16	-0.21	0.04
115.00	-17.22	-1.30	0.00	-54.26	0.00	54.26	2,367.74	619.35	2,049	1,691.27	2.39	-0.23	0.04
120.00	-13.94	-1.14	0.00	-47.76	0.00	47.76	2,317.00	596.32	1,900	1,592.95	2.63	-0.24	0.04
125.00	-13.35	-1.11	0.00	-42.05	0.00	42.05	2,263.38	573.30	1,756	1,495.45	2.89	-0.25	0.03
130.00	-12.96	-1.10	0.00	-36.47	0.00	36.47	2,206.88	550.27	1,618	1,398.99	3.16	-0.26	0.03
133.42	-12.69	-1.08	0.00	-32.73	0.00	32.73	2,166.61	534.53	1,526	1,333.80	3.35	-0.27	0.03
135.00	-12.17	-1.05	0.00	-31.02	0.00	31.02	2,147.49	527.24	1,485	1,303.81	3.45	-0.28	0.03
138.00	-12.01	-1.04	0.00	-27.87	0.00	27.87	1,272.79	366.05	1,022	768.59	3.62	-0.28	0.05
140.00	-11.60	-1.01	0.00	-25.79	0.00	25.79	1,263.21	359.60	986	749.27	3.74	-0.29	0.04
145.00	-11.20	-0.99	0.00	-20.72	0.00	20.72	1,237.26	343.48	900	700.72	4.06	-0.30	0.04
150.00	-7.73	-0.73	0.00	-15.77	0.00	15.77	1,208.42	327.35	818	652.01	4.38	-0.32	0.03
155.00	-7.45	-0.71	0.00	-12.10	0.00	12.10	1,176.70	311.23	739	603.37	4.72	-0.33	0.03
160.00	-7.28	-0.70	0.00	-8.54	0.00	8.54	1,142.10	295.11	664	555.03	5.07	-0.34	0.02
163.00	-4.29	-0.44	0.00	-6.44	0.00	6.44	1,119.95	285.43	622	526.27	5.29	-0.35	0.02
165.00	-4.09	-0.42	0.00	-5.57	0.00	5.57	1,104.62	278.98	594	507.22	5.43	-0.35	0.02
169.00	-3.73	-0.39	0.00	-3.88	0.00	3.88	1,072.56	266.09	540	469.51	5.73	-0.35	0.01
169.90	-3.68	-0.38	0.00	-3.53	0.00	3.53	1,065.09	263.18	529	461.11	5.80	-0.35	0.01
170.00	-3.44	-0.36	0.00	-3.49	0.00	3.49	1,064.26	262.86	527	460.18	5.80	-0.36	0.01
175.00	-3.22	-0.34	0.00	-1.69	0.00	1.69	1,021.02	246.74	465	414.13	6.18	-0.36	0.01
180.00	0.00	-0.32	0.00	0.00	0.00	0.00	968.59	230.62	406	366.91	6.56	-0.36	0.00

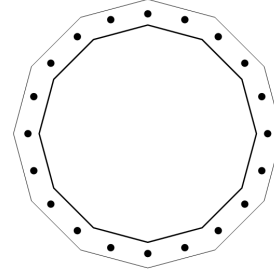
ANALYSIS SUMMARY

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	34.70	0.00	61.54	0.00	0.00	4079.09	51.00	0.64
0.9D + 1.0W	34.68	0.00	46.14	0.00	0.00	4029.35	51.00	0.62
1.2D + 1.0Di + 1.0Wi	7.76	0.00	79.69	0.00	0.00	937.61	94.00	0.16
1.2D + 1.0Ev + 1.0Eh	1.57	0.00	61.76	0.00	0.00	229.58	94.00	0.05
0.9D - 1.0Ev + 1.0Eh	1.56	0.00	42.52	0.00	0.00	225.77	94.00	0.05
1.0D + 1.0W	7.51	0.00	51.31	0.00	0.00	876.36	51.00	0.14

BASE PLATE ANALYSIS @ 0 FT

PLATE PARAMETERS (ID# 19756)

Diameter:	78.76	in
Shape:	12	
Thickness:	2.5	in
Grade:	A871-60	
Yield Strength:	60	ksi
Tensile Strength:	75	ksi
Rod Detail Type:	d	
Clear Distance	6	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	342	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 20268]	Radial	20	2.25	72.76	A615-75	75	100	-	-

ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ORIGINAL (20) 2.25"Ø [ID 20268]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in ⁴)	Axial Load (k)	Shear Load (k)
1	0.314	34.60	11.24	20.612	1380.655	116.70	2.22
2	0.628	29.43	21.38	28.370	2614.804	116.70	1.62
3	0.942	21.38	29.43	33.351	3613.248	116.70	0.85
4	1.257	11.24	34.60	35.068	3994.619	116.70	0.00
5	1.571	0.00	36.38	33.351	3613.248	116.70	0.85
6	1.885	-11.24	34.60	28.370	2614.801	116.70	1.62
7	2.199	-21.38	29.43	20.612	1380.656	116.70	2.22
8	2.513	-29.43	21.38	10.836	382.212	116.70	2.61
9	2.827	-34.60	11.24	0.000	0.839	116.70	2.75
10	3.142	-36.38	0.00	-10.836	382.212	-104.39	2.61
11	3.456	-34.60	-11.24	-20.612	1380.657	-104.39	2.22
12	3.770	-29.43	-21.38	-28.370	2614.801	-104.39	1.62
13	4.084	-21.38	-29.43	-33.351	3613.246	-104.39	0.85
14	4.398	-11.24	-34.60	-35.068	3994.619	-104.39	0.00
15	4.712	0.00	-36.38	-33.351	3613.247	-104.39	0.85
16	5.027	11.24	-34.60	-28.370	2614.803	-104.39	1.62
17	5.341	21.38	-29.43	-20.612	1380.654	-104.39	2.22
18	5.655	29.43	-21.38	-10.836	382.211	-104.39	2.61
19	5.969	34.60	-11.24	0.000	0.839	-104.39	2.75
20	6.283	36.38	0.00	10.836	382.211	116.70	2.61

ASSET: 302465, Colchester CT 6
 CUSTOMER: SPRINT NEXTEL

CODE: ANSI/TIA-222-H
 ENG NO: 13711921

REACTION DISTRIBUTION

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	64"Ø x 0.4375" (12 Sides)	4079.1	61.54	34.70	1.000
Bolt Group	Original (20) 2.25"Ø	4079.1	-	34.70	1.000
TOTALS		4079.09	61.54	34.7	

COMPONENT PROPERTIES

Component	ID	Gross Area (in ²)	Net Area (in ²)	Individual Inertia (in ⁴)	Moment of Inertia (in ⁴)	Threads/in
Pole	64"Ø x 0.4375" (12 Sides)	86.3687	-	-	43623.80	-
Bolt Group	Original (20) 2.25"Ø	3.9761	3.2477	0.8393	39954.58	4.5

EXTERNAL BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter: 64.12 in
 Point-to-Point Diameter: 66.39 in
 Flat Width: 17.182 in
 Flat Radians: 0.524 rad

PLATE PROPERTIES

Neutral Axis: 342 °
 Bend Line Lower Limit: 0.766 rad
 Bend Line Upper Limit: 1.747 rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in ³)	Applied Moment Mu (k-in)	Moment Capacity φMn (k-in)	Ratio
Flat	41.071	0.00	64.173	778.5	3465.3	0.225
Corner	37.304	0.00	58.287	310.0	3147.5	0.099
Circumferential	49.380	0.00	77.157	776.1	4166.5	0.186

PLASTIC ANCHOR ROD ANALYSIS

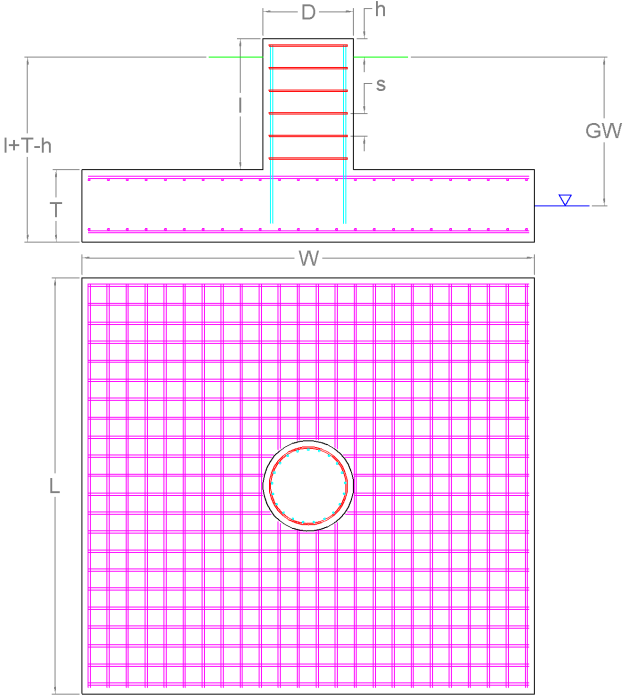
Class	Group Quantity	Rod Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity φPn (k)	Ratio
Original	20	2.25	116.7	2.7	243.6	0.479

Monolithic Mat Foundation Analysis (ANSI/TIA-222-H)

Foundation & Tower Parameters			
Ignore Mat Rebar?		N	
Ignore Pier Rebar?		N	
Foundation has Pier(s)?		Y	
Pier Shape		Round	
Pier Diameter	<i>D</i>	7	ft
Pier Height Above Ground	<i>h</i>	0.5	ft
Pier Length	<i>l</i>	5.5	ft
Mat Base Depth	<i>l+T-h</i>	8.5	ft
Mat Length	<i>L</i>	25	ft
Mat Width	<i>W</i>	25	ft
Mat Thickness	<i>T</i>	3.5	ft
Unit Weight of Concrete		150	pcf
Tower Eccentricity	ecc	0	ft
Tower Face Width	FW	5.3	ft
Tower Leg Count		1	

Reactions			
Moment, M_u		4,079.09	k-ft
Shear, V_u		34.7	k
Axial, P_u		61.54	k
Uplift, T_u		0	k
Tower Weight		61.54	k
Tower Dead Load Factor		0.9	

Soil Parameters			
Water Table Depth [BGL]	<i>GW</i>	10	ft
Unit Weight of Soil		125	pcf
Unit Weight of Soil [Submerged]		62.6	pcf
Shear Friction Coefficient		0.3	
Ultimate Bearing Pressure		10,000	psf
Bearing Pressure Type		Net	
Conical Failure Angle		30	°
Capacity Increase (Transient Loads)		1.00	
Soil Strength Reduction Factor, ϕ_s		0.75	
Dead Load Factor		1.2	



Soil Capacities			
Design Moment, M_u		4,391.39	k-ft
Nominal Moment Capacity, $\phi_m M_n$		9,430.76	k-ft
$M_u / \phi_s M_n$		46.6%	
Net Bearing Pressure		2,219	k
Nominal Bearing Capacity, $\phi_b P_n$		8,296	k
Bearing Pressure Controlling Load Direction		Diagonal to Pad Edge	
$P_u / \phi_s P_n$		26.7%	
Ultimate Friction Resistance		233.32	k
Ultimate Passive Pressure Resistance		73.83	k
Nominal Shear Capacity, $\phi_s V_n$		230.36	k
$V_u / \phi_s V_n$		15.0%	



Mat Reinforcement Parameters

Concrete Compressive Strength, f'_c	4,000	psi
Mat Rebar Quantity [Lower]	30	
Mat Rebar Size # [Lower]	11	
Mat Single Rebar Area [Lower]	1.56	in ²
Mat Rebar Quantity [Upper]	30	
Mat Rebar Size # [Upper]	11	
Mat Single Rebar Area [Upper]	1.56	in ²
Mat Rebar Yield Strength, F_y	60	ksi
Mat Clear Cover	3	in
Bending Reduction Factor, ϕ_B	0.9	
Shear Reduction Factor, ϕ_V	0.75	
Compression Reduction Factor, ϕ_C	0.65	
Steel Elastic Modulus	29,000	ksi

Mat Reinforcement Capacities

Compression Zone Factor, β_1	0.85	
Lower Reinforcement Spacing	10.11	in
Upper Reinforcement Spacing	10.11	in
One Way Design Shear, V_u	140.98	k
One Way Shear Capacity, ϕV_c	945.95	k
One Way Shear Controlling Load Direction	Diagonal to Pad Edge	
$V_u / \phi V_c$	14.9%	
Punching Design Shear Stress, v_u	37.9	psi
Punching Shear Capacity, $\phi_c V_n$	189.74	psi
$v_u / \phi_c V_n$	20.0%	
Moment Transfer Effective Flexural Width, f	17.5	in
Neutral Axis Depth	2.85	in
Moment Transfer Flexural Capacity, $\phi M_{sc,f}$	66,755.09	k-in
$\gamma_f M_{sc} / \phi M_{sc,f}$	0.0%	
Flexure Due to Soil Pressure, M_u	1,612.4	k-ft
Lower Steel Mat Moment Capacity, ϕM_n	7,677.42	k-ft
Flexural Steel Controlling Load Direction	Parallel to Pad Edge	
$M_u / \phi M_n$	21.0%	
Flexure Due to Uplift, M_u	1,164.38	k-ft
Upper Steel Mat Moment Capacity, ϕM_n	7,677.42	k-ft
$M_u / \phi M_n$	15.2%	

Pier Reinforcement Parameters

Concrete Compressive Strength (f'_c)	4,000	psi
Pier Rebar Quantity	30	
Pier Rebar Size #	11	
Pier Single Rebar Area	1.56	in ²
Pier Rebar Yield Strength (F_y)	60	ksi
Tie Rebar Size #	5	
Tie Rebar Area (Single)	0.31	in ²
Tie Rebar Spacing	12	in
Tie Rebar Yield Strength (F_y)	60	ksi
Rebar Cage Diameter	75.38	in

Pier Reinforcement Capacities

Design Moment (M_u)	4,269.94	k-ft
Nominal Moment Capacity ($\phi_B M_n$)	7,768.29	k-ft
$M_u / \phi_B M_n$	55.0%	
Design Shear (V_u)	34.7	k
Nominal Shear Capacity ($\phi_V V_n$)	684.9	k
$V_u / \phi_V V_n$	5.1%	
Design Compression (P_u)	61.54	k
Nominal Compression Capacity ($\phi_P P_n$)	9,763.78	k
$P_u / \phi_P P_n$	0.6%	
Pier Reinforcement Ratio	0.001	-
$M_u / \phi_B M_n + T_u / \phi_T T_n$	55.0%	

