Alex Murshteyn, Site Acquisition Consultant
c/o Cellco Partnership d/b/a Verizon Wireless
Centerline Communications, LLC
750 West Center Street, Floor 3
West Bridgewater, MA 02379
Mobile: (508) 821-0159
AMurshteyn@centerlinecommunications.com

March 10, 2020

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

RE: Notice of Exempt Modification // Site: Woodbury West CT (ATC: 411180)
478 Good Hill Road, Woodbury, CT
N 41.5572 // W 73.2567

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless currently maintains 12 antennas at the top mount on the existing 147-foot monopole tower, located at 478 Good Hill Road, Woodbury, CT. The Council approved Verizon Wireless use of the existing tower in 2004. The property is owned by the Roxbury Land Trust, Inc. The tower is owned by American Tower. Verizon Wireless now intends to remove 6 of its existing antennas to replace with 6 and install them on side-by-side mounts for the LTE (700/850/1900/2100 MHz) replacements for its PCS/LTE/AWS upgrade. Additionally, Verizon Wireless will add 6 remote radio head units (RRUs) and 3 diplexers and 1 over-voltage protector (OVP); altogether updating leased equipment rights, as reflected by the final configuration outlined in the structural analysis and proposed hereby.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Barbara K. Perkinson, First Selectman for the Town of Woodbury, its Town Planner, Maryellen Edwards, Roxbury Land Trust, the ground owner and American Tower, the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2). Enclosed to accommodate this filing are construction drawings dated January 16, 2020, a structural analysis dated December 10, 2019 plus structural mount analysis dated February 20, 2020 by A.T. Engineering Service, PLLC, and radio frequency (RF) analysis table showing worst-case RF emission calculation by Verizon Wireless RF Design Engineering.

1. The proposed modifications will not result in an increase in the height of the existing structure.

2. The proposed modifications will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the new antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and its foundation can support the proposed loading, as shown in the attached structural and mount analyses by A.T. Engineering, PLLC, dated December 10, 2019 and February 20, 2020, respectively.

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

Sincerely,

Alex Murshteyn, Site Acquisition Consultant
c/o Cellco Partnership d/b/a Verizon Wireless
Centerline Communications, LLC
750 West Center Street, Floor 3
West Bridgewater, MA 02379
Mobile: (508) 821-0159
AMurshteyn@centerlinecommunications.com

Attachments

cc: Barbara K. Perkinson, First Selectman - as chief elected official
Maryellen Edwards, Town Planner - as P&Z official
Roxbury Land Trust, Inc. - as ground owner
American Tower Corporation - as tower owner

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

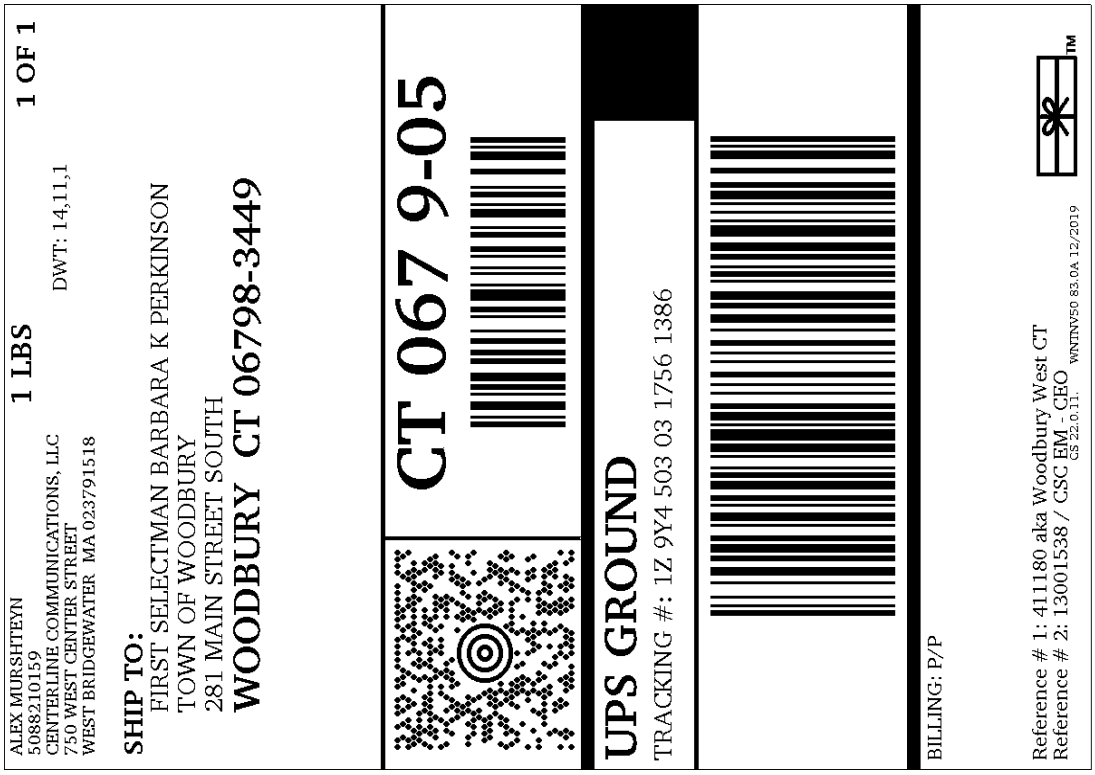
   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 972
555 WASHINGTON ST
SOUTH EASTON ,MA 02375

UPS Access Point™
CVS STORE # 7232
689 DEPOT ST
NORTH EASTON ,MA 02356

UPS Access Point™
TOWN LINE GENERAL STORE
450 E CENTER ST
WEST BRIDGEWATER ,MA 02379

FOLD HERE



UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

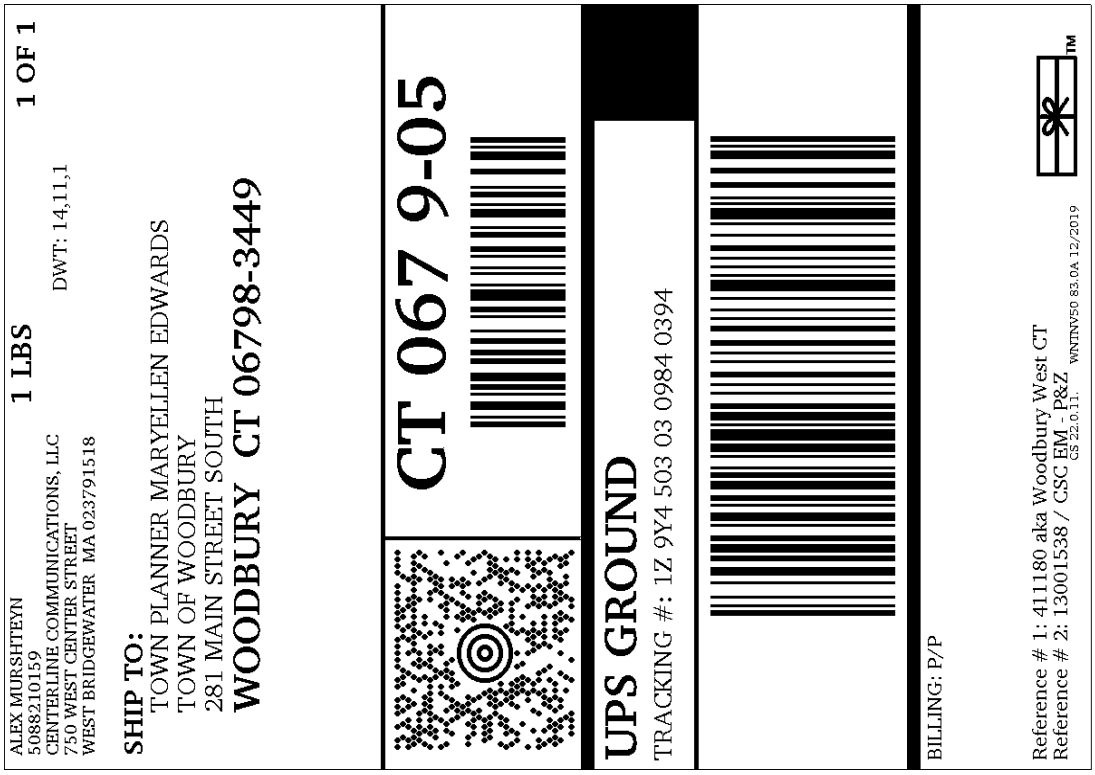
   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 972
555 WASHINGTON ST
SOUTH EASTON ,MA 02375

UPS Access Point™
CVS STORE # 7232
689 DEPOT ST
NORTH EASTON ,MA 02356

UPS Access Point™
TOWN LINE GENERAL STORE
450 E CENTER ST
WEST BRIDGEWATER ,MA 02379

FOLD HERE



UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 972
555 WASHINGTON ST
SOUTH EASTON ,MA 02375

UPS Access Point™
CVS STORE # 7232
689 DEPOT ST
NORTH EASTON ,MA 02356

UPS Access Point™
TOWN LINE GENERAL STORE
450 E CENTER ST
WEST BRIDGEWATER ,MA 02379

FOLD HERE

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

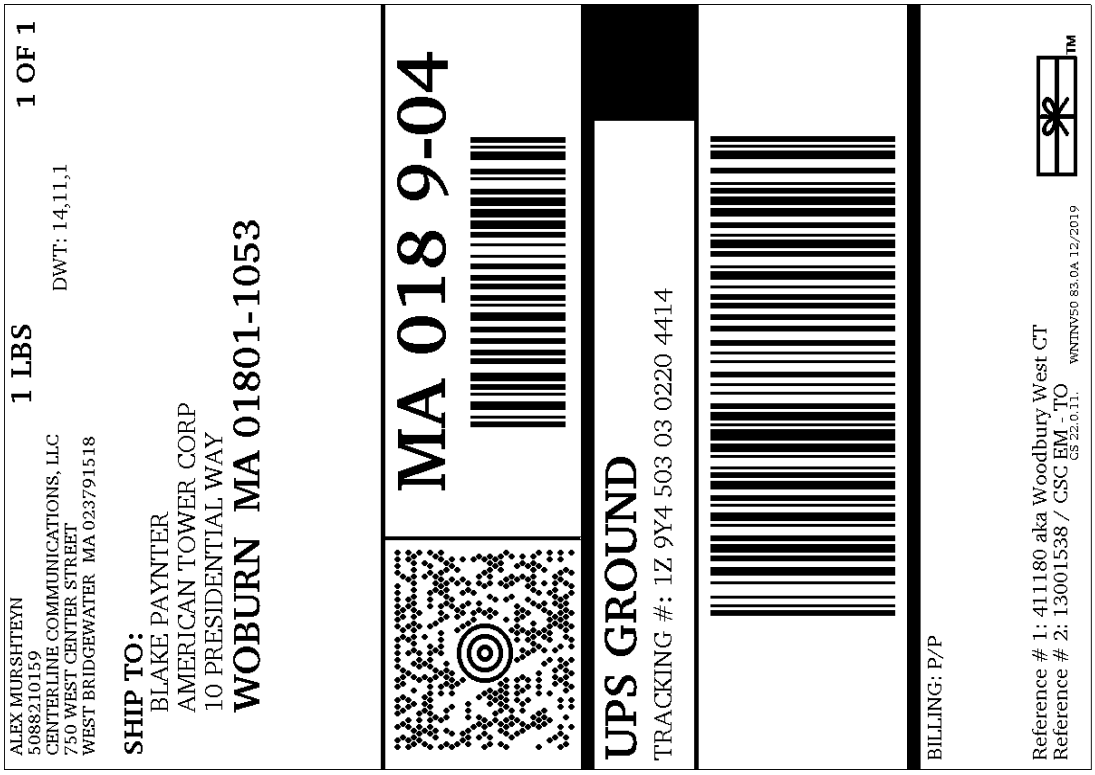
   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 972
555 WASHINGTON ST
SOUTH EASTON ,MA 02375

UPS Access Point™
CVS STORE # 7232
689 DEPOT ST
NORTH EASTON ,MA 02356

UPS Access Point™
TOWN LINE GENERAL STORE
450 E CENTER ST
WEST BRIDGEWATER ,MA 02379

FOLD HERE



Filing Guides
Meetings & Minutes
Public Participation
Audio Link to New Britain Hearing Rooms
Programs & Services
Telecommunications Database
Maps
Publications
Other Resources
Statutes & Regulations
Frequently Asked Questions

Melanie Bachman,
Executive Director

DOCKET NO. 183 - An application by Litchfield Acquisition Corporation d/b/a AT&T Wireless Services for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications tower and associated equipment located at 478 Good Hill Road (Route 317), Woodbury, Connecticut.

Connecticut Siting Council

May 13, 1998

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility at the proposed site in Woodbury, Connecticut, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Litchfield Acquisition Corporation (LAC) d/b/a AT&T Wireless Services, for the construction, operation, and maintenance of a telecommunications tower, associated equipment, and equipment building at the proposed site, located within a 471-acre parcel off Good Hill Road in Woodbury, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of LAC and other telecommunications providers, both public and private, but such tower shall not exceed a height of 150 feet above ground level (AGL).

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include: a final site plan(s) for site development to include plans for vegetative screening; construction plans for site and grading, water drainage, and security fencing around the tower and equipment building; provisions for the installation of erosion and sedimentation controls consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, prior to construction; and specifications for the tower foundation, antennas, equipment building, access road, and underground utility lines.

3. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

4. The Certificate Holder shall provide the Council a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. If the facility does not initially provide, or permanently ceases to provide cellular services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapplication for any continued or new use shall be made to the Council before any such use is made.

7. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and cease to function.

8. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant and Waterbury Republican-American.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant

Litchfield Acquisition Corporation d/b/a AT&T Wireless Services

Its Representative

Douglas A. Cohen, Esq.
Brown, Rudnick, Freed & Gesmer, P.C.
185 Asylum Street, CityPlace I
Hartford, CT 06103-3402 (860) 509-6511

Mitchell Holmgren Site Development Coordinator
AT&T Wireless Services
15 East Midland Avenue
Paramus, NJ 07652 (201) 967-3130

Intervenor

Springwich Cellular Limited Partnership

Its Representative

Peter J. Tyrrell
Senior Counsel
Springwich Cellular Limited Partnership
500 Enterprise Drive
Rocky Hill, CT 06067-3900 (860) 513-7673

Intervenor

Nextel Communications of the Mid-Atlantic, Inc. d/b/a Nextel Communications

Its Representative

Christopher B. Fisher
Cuddy, Feder & Worby
90 Maple Avenue
White Plains, NY 10601-5196 (914) 761-1300

Party

Town of Woodbury

Its Representative

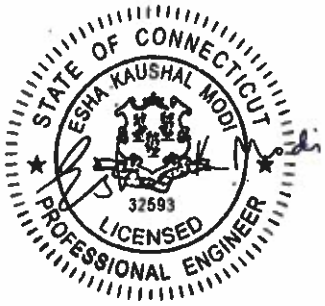
Honorable Richard CraneFirst Selectman
Town of Woodbury
P.O. Box 369281 Main Street
SouthWoodbury, CT 06798-0369 (203) 263-2141

Content Last Modified on 8/9/2002 2:03:18 PM

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**147 ft Monopole**
ATC Site Name	:	**Good Hill CT, CT**
ATC Asset Number	:	**411180**
Engineering Number	:	**13001538_C3_03**
Proposed Carrier	:	**Verizon Wireless**
Carrier Site Name	:	**Woodbury W CT**
Carrier Site Number	:	**469342**
Site Location	:	**481 Good Hill Road** **Woodbury, CT 06798-2507** **41.557200,-73.256800**
County	:	**Litchfield**
Date	:	**December 10, 2019**
Max Usage	:	**37%**
Result	:	**Pass**



Prepared By:
Mark Iakovenko
Engineer Intern

Mark Iakovenko

Reviewed By:

Authorized by "EOR"
11 Dec 2019 05:25:49 cosign

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 147 ft monopole to reflect the change in loading by Verizon Wireless.

Supporting Documents

Tower Drawings	PJF Job #29200-1379, dated September 15, 2000 Mapping by TEP #05593, dated July 6, 2005
Foundation Drawing	PJF Job #29200-1300, dated September 14, 2000
Geotechnical Report	Clarence Welti Job #7081, dated March 27, 2000

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:	93 mph (3-second gust, V_{ASD})/120 mph (3-second gust, V_{ULT})
Basic Wind Speed w/ Ice:	40 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.19, S_1 = 0.06
Site Class:	D - Stiff Soil

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	Antenna	Mount Type	Lines	Carrier
147.0	1	VZW Unused Reserve (18069.81 sqin)	Platform with Handrails	(2) 1 5/8" (1.63"-41.3mm) Fiber (6) 1 5/8" Coax	VERIZON WIRELESS
	6	Commscope JAHH-65B-R3B (63.3 lb)			
	2	Antel LPA-80063/4CF			
	4	Antel LPA-80080/4CF ___			
	1	RFS DB-C1-12C-24AB-0Z			
	1	Generic 3' Yagi		(1) 1/2" Coax	WOODBURY VOLUNTEER FIRE DEPARTMENT
124.0	6	Powerwave Allgon 7770.00	Low Profile Platform	(2) 0.45" (11.5mm) Fiber (4) 0.76" (19.2mm) 8 AWG 6 (12) 1 5/8" Coax	AT&T MOBILITY
	1	Kathrein Scala 800 10764			
	2	KMW AM-X-CD-16-65-00T-RET			
	3	KMW EPBQ-654L8H6-L2			
	6	Ericsson RRUS-11			
	3	Ericsson RRUS 32 B2			
	1	Raycap DC6-48-60-18-8F ("Squid")			
	1	Raycap DC6-48-60-18-8F(32.8 lbs)			
	6	Powerwave Allgon LGP2140X			
	6	Powerwave Allgon LGP21901			
	3	Ericsson RRUS 4478 B14			
117.5	2	Generic 3' Omni-Grid	Stand Off	-	WOODBURY VOLUNTEER FIRE DEPARTMENT
110.0	1	Generic 8' Yagi	Stand Off	(2) 1/2" Coax	

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
147.0	3	Nokia AirScale RRH 4T4R B5 160W AHCA	-	-	VERIZON WIRELESS
	3	Alcatel-Lucent B66A RRH4x45-4R w/o Solar Shield			
	3	Alcatel-Lucent RRH2x60 700			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
147.0	3	Commscope CBC78T-DS-43-2X	Platform with Handrails	-	VERIZON WIRELESS
	3	Samsung B2/B66A RRH-BR049			
	3	Samsung B5/B13 RRH-BR04C			

[1] Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	30%	Pass
Shaft	37%	Pass
Base Plate	23%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2,635.6	23%
Axial (Kips)	53.7	5%
Shear (Kips)	24.4	18%

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) (°)
147.0	Commscope CBC78T-DS-43-2X	VERIZON WIRELESS	0.686	0.450
	Samsung B2/B66A RRH-BR049			
	Samsung B5/B13 RRH-BR04C			

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

AMERICAN TOWER®
CORPORATION

Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC 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:

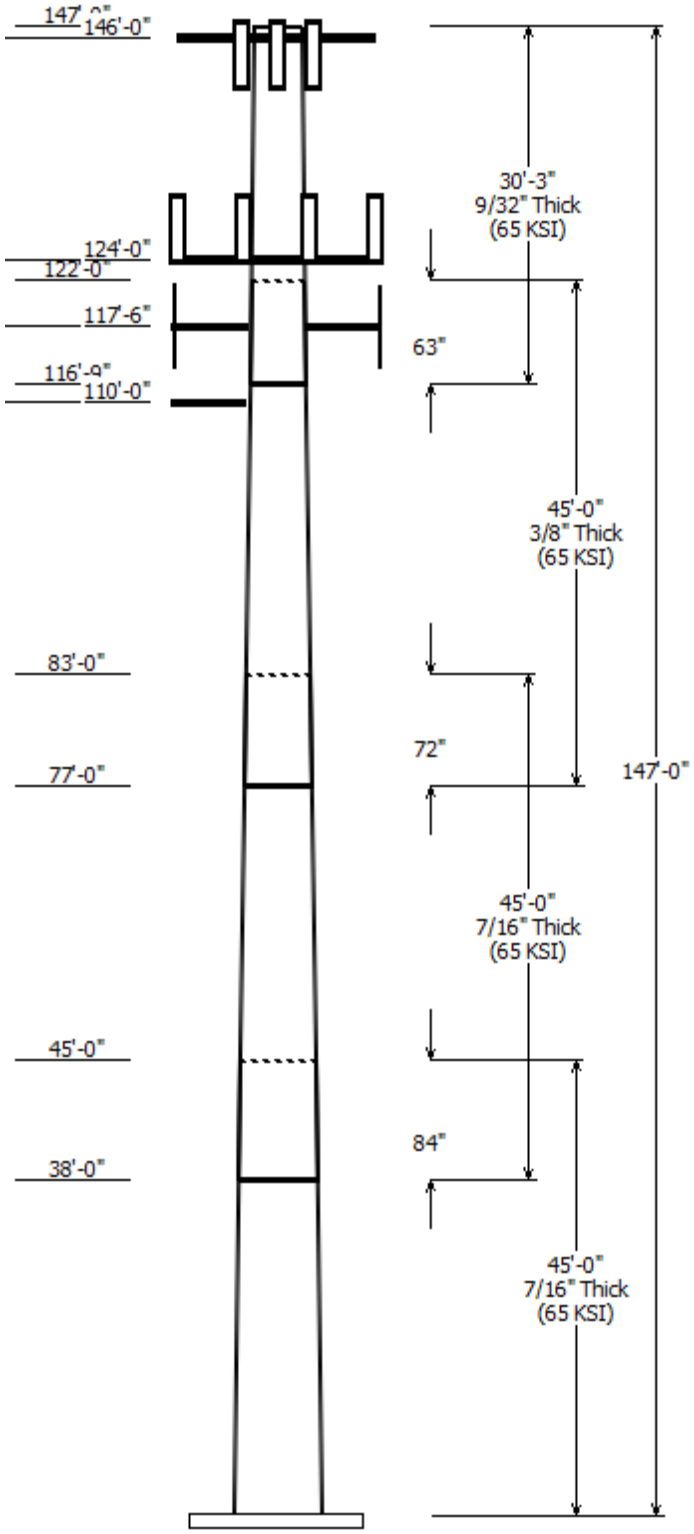
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC 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 Service, PLLC, 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 Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



Job Information

Client :	VERIZON WIRELESS		
Pole :	411180	Code:	ANSI/TIA-222-G
Location :	Good Hill CT, CT		
Description :	147' Summit Monopole	Struct Class :	II
Shape :	18 Sides	Exposure :	B
Height :	147.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.207297 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	45.000	53.32	62.65	0.438		0.000	18 Sides	65
2	45.000	46.31	55.64	0.438	Slip Joint	84.000	18 Sides	65
3	45.000	38.98	48.31	0.375	Slip Joint	72.000	18 Sides	65
4	30.250	34.36	40.63	0.281	Slip Joint	63.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
147.000	147.000	1	VZW Unused Reserve
147.000	147.000	1	Generic 3' Yagi
147.000	146.000	6	Commscope JAHH-65B-R3B
147.000	146.000	2	Antel LPA-80063/4CF
147.000	146.000	4	Antel LPA-80080/4CF ___
147.000	147.000	1	RFS DB-C1-12C-24AB-0Z
147.000	147.000	3	Samsung B5/B13 RRH-BR04C
147.000	147.000	3	Samsung B2/B66A RRH-BR049
147.000	147.000	3	Commscope CBC78T-DS-43-2X
146.000	146.000	1	Flat Platform w/ Handrails
124.000	124.000	1	Round Low Profile Platform
124.000	125.000	3	KMW EPBQ-654L8H6-L2
124.000	125.000	2	KMW AM-X-CD-16-65-00T-RET
124.000	125.000	1	Kathrein Scala 800 10764
124.000	125.000	6	Powerwave Allgon 7770.00
124.000	124.000	6	Ericsson RRUS-11
124.000	125.000	3	Ericsson RRUS 32 B2
124.000	124.000	3	Ericsson RRUS 4478 B14
124.000	125.000	1	Raycap DC6-48-60-18-8F
124.000	125.000	1	Raycap DC6-48-60-18-8F(32.8 lb
124.000	125.000	6	Powerwave Allgon LGP2140X
124.000	125.000	6	Powerwave Allgon LGP21901
117.500	117.500	2	Stand-Off
117.500	117.500	2	Generic 3' Omni-Grid
110.000	110.000	1	Stand-Off
110.000	110.000	1	Generic 8' Yagi

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	110.0	1/2" Coax	No
0.000	124.0	0.45" (11.5mm)	No
0.000	124.0	0.76" (19.2mm) 8	No
0.000	124.0	1 5/8" Coax	No
0.000	147.0	1 5/8" (1.63"-	No
0.000	147.0	1 5/8" Coax	No
0.000	147.0	1/2" Coax	No

Load Cases

1.2D + 1.6W	93 mph with No Ice

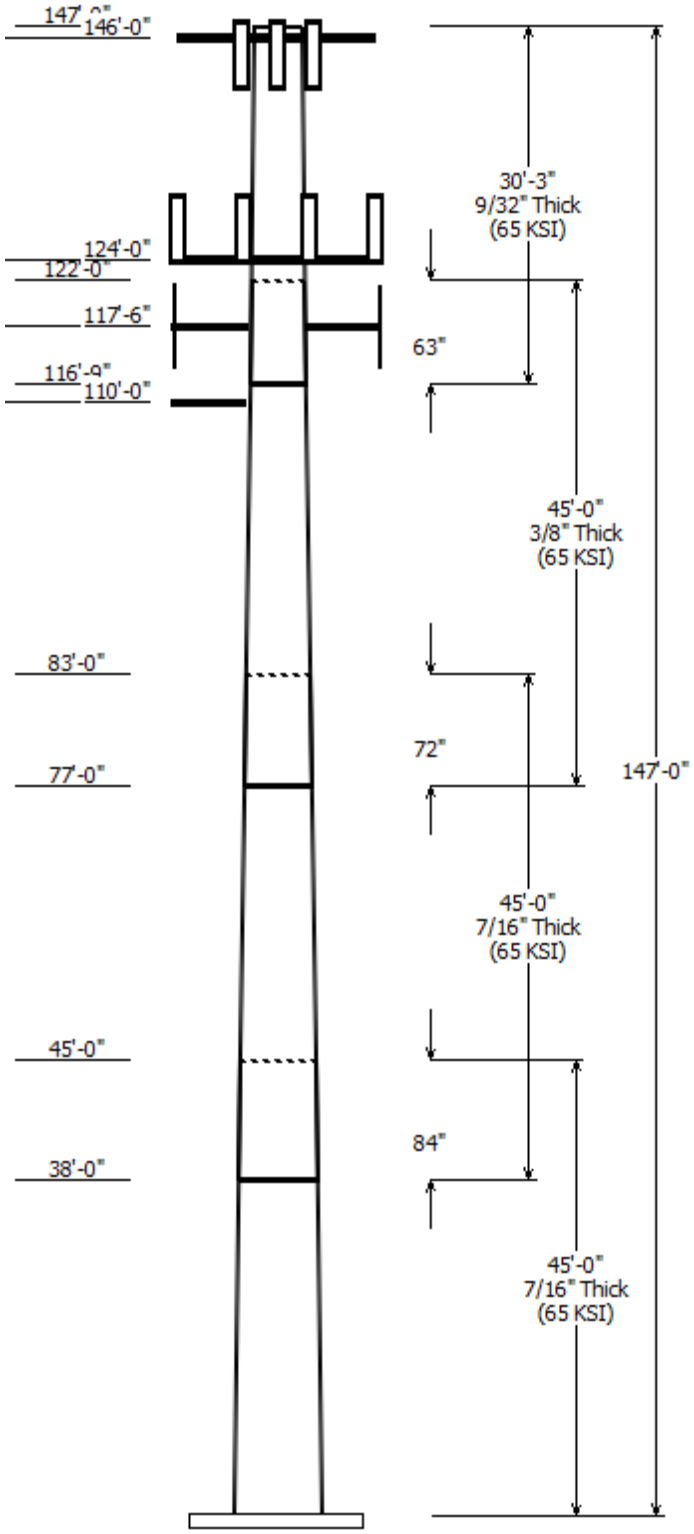
0.9D + 1.6W	93 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

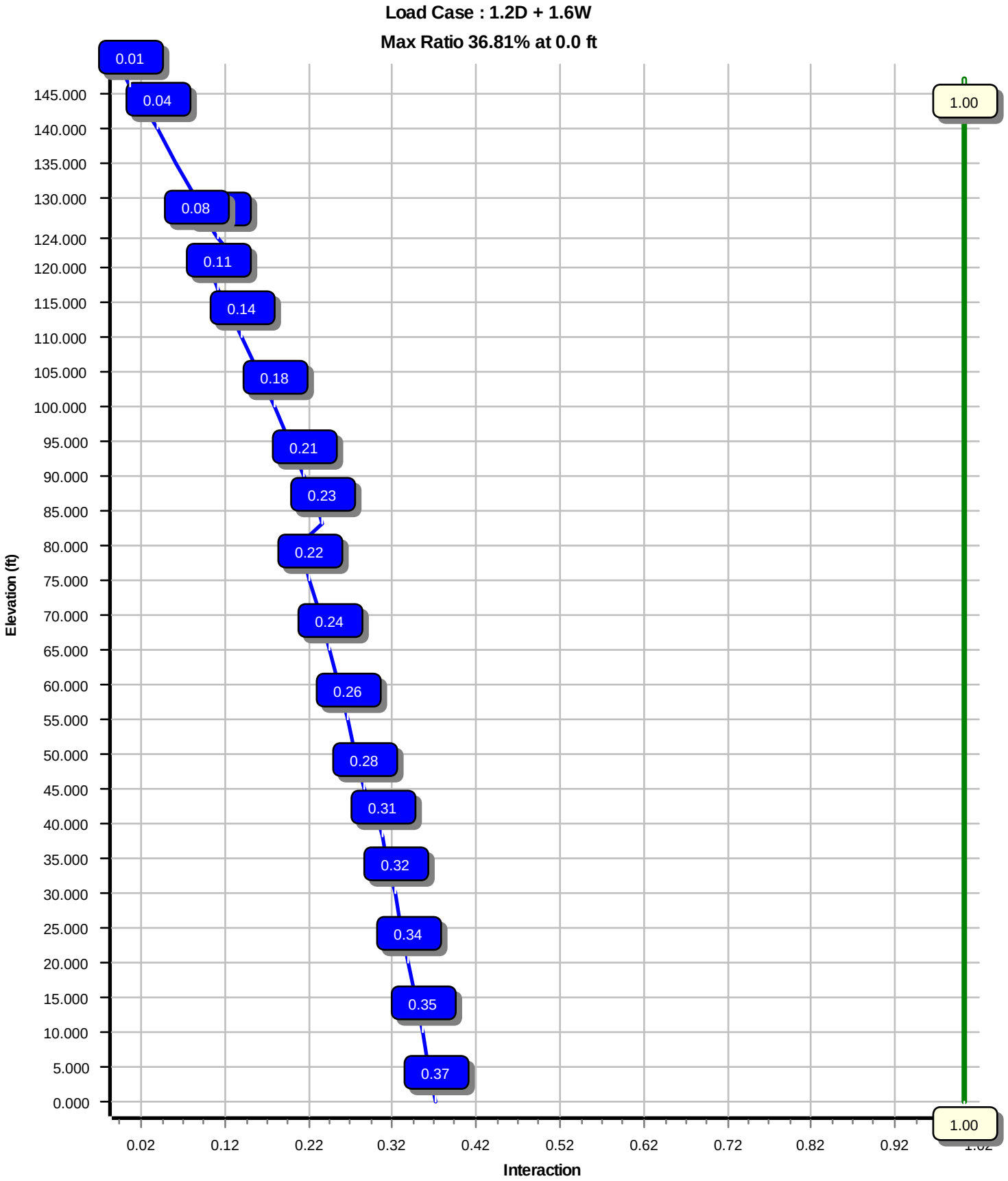
Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2635.57	24.45	53.72
0.9D + 1.6W	2619.90	24.44	40.29
1.2D + 1.0Di + 1.0Wi	541.82	5.09	85.26
(1.2 + 0.2Sds) * DL + E ELFM	212.41	1.88	53.67
(1.2 + 0.2Sds) * DL + E EMAM	291.48	2.46	53.67
(0.9 - 0.2Sds) * DL + E ELFM	210.91	1.88	37.10
(0.9 - 0.2Sds) * DL + E EMAM	289.27	2.46	37.10
1.0D + 1.0W	611.05	5.69	44.79

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000




Load Case : 1.2D + 1.6W
Max Ratio 36.81% at 0.0 ft
0.01
0.04
0.08
0.11
0.14
0.18
0.21
0.23
0.22
0.24
0.26
0.28
0.31
0.32
0.34
0.35
0.37
1.00
1.00
145.000
140.000
135.000
130.000
124.000
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 411180 Code: ANSI/TIA-222-G

Site Name: Good Hill CT, CT Engineering Number:13001538_C3_03 12/10/2019 9:02:18 AM

Customer: VERIZON WIRELESS

Analysis Parameters

Location :	Litchfield County, CT	Height (ft) :	147
Code :	ANSI/TIA-222-G	Base Diameter (in) :	62.65
Shape :	18 Sides	Top Diameter (in) :	34.36
Pole Type :	Taper	Taper (in/ft) :	0.207
Pole Manfacturer :	Summit Manufacturing	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	93 mph
Exposure Category:	B	Design Wind Speed With Ice:	40 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	1.65				
T_L (sec):	6	p:	1	C_s:	0.042
S_s:	0.195	S_1:	0.065	C_s Max:	0.042
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.208	S_{d1}:	0.104		

Load Cases

1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	45.000	0.4375	65		0.00	12,236	62.65	0.00	86.39	42243.1	23.49	143.20	53.32	45.00	73.43	25947.7	19.73	121.88	0.207297
2-18	45.000	0.4375	65	Slip	84.00	10,747	55.64	38.00	76.66	29524.4	20.66	127.19	46.31	83.00	63.71	16945.2	16.90	105.87	0.207297
3-18	45.000	0.3750	65	Slip	72.00	7,887	48.31	77.00	57.06	16566.1	20.95	128.84	38.98	122.00	45.95	8655.0	16.57	103.96	0.207297
4-18	30.250	0.2813	65	Slip	63.00	3,420	40.63	116.75	36.02	7411.5	23.71	144.48	34.36	147.00	30.42	4465.6	19.78	122.19	0.207297
				Shaft Weight		34,290													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
147.00	Commscope CBC78T-DS-43-2X	3	0.75	0.000	20.70	0.552	0.50	42.79	1.060	0.50
147.00	Samsung B2/B66A RRH-BR049	3	0.75	0.000	84.40	1.875	0.50	148.18	2.777	0.50
147.00	Samsung B5/B13 RRH-BR04C	3	0.75	0.000	70.30	1.875	0.50	127.48	2.777	0.50
147.00	Generic 3' Yagi	1	0.75	0.000	10.00	2.980	1.00	99.81	9.244	1.00
147.00	RFS DB-C1-12C-24AB-0Z	1	0.75	0.000	32.00	4.056	1.00	159.05	5.420	1.00
147.00	Antel LPA-80080/4CF ___	4	0.75	-1.000	12.00	5.399	0.62	147.06	3.461	0.62
147.00	Antel LPA-80063/4CF	2	0.75	-1.000	20.00	6.142	0.82	225.71	7.180	0.82
147.00	Commscope JAHH-65B-R3B	6	0.75	-1.000	63.30	9.113	0.69	265.56	11.886	0.69
147.00	VZW Unused Reserve (18069.81	1	0.75	0.000	1,474.00	125.485	0.90	2,500.55	212.878	0.90
146.00	Flat Platform w/ Handrails	1	1.00	0.000	2,000.00	42.400	1.00	3,419.76	63.351	1.00
124.00	Powerwave Allgon LGP21901	6	0.80	1.000	5.50	0.200	0.50	13.04	0.514	0.50
124.00	Powerwave Allgon LGP2140X	6	0.80	1.000	19.00	1.080	0.50	43.38	1.776	0.50
124.00	Raycap DC6-48-60-18-8F(32.8	1	0.80	1.000	32.80	1.470	1.00	93.41	2.156	1.00
124.00	Raycap DC6-48-60-18-8F	1	0.80	1.000	31.80	1.470	1.00	92.41	2.156	1.00
124.00	Ericsson RRUS 4478 B14	3	0.80	0.000	59.90	1.842	0.50	114.22	2.723	0.50
124.00	Ericsson RRUS 32 B2	3	0.80	1.000	53.00	2.743	0.67	125.25	3.892	0.67
124.00	Ericsson RRUS-11	6	0.80	0.000	55.00	3.792	0.61	143.19	5.053	0.61
124.00	Powerwave Allgon 7770.00	6	0.80	1.000	35.00	5.508	0.65	166.92	6.543	0.65
124.00	Kathrein Scala 800 10764	1	0.80	1.000	40.80	5.866	1.00	165.81	7.962	1.00
124.00	KMW AM-X-CD-16-65-00T-RET	2	0.80	1.000	48.50	8.024	0.75	207.59	10.764	0.75
124.00	KMW EPBQ-654L8H6-L2	3	0.80	1.000	72.80	13.237	0.61	319.72	16.045	0.61
124.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	2,136.46	40.561	1.00
117.50	Generic 3' Omni-Grid	2	1.00	0.000	15.00	2.460	0.68	97.54	13.646	0.68
117.50	Stand-Off	2	0.90	0.000	75.00	2.500	0.90	136.29	4.577	0.90
110.00	Stand-Off	1	1.00	0.000	75.00	2.500	1.00	135.77	4.559	1.00
110.00	Generic 8' Yagi	1	1.00	0.000	30.00	12.000	1.00	358.25	44.370	1.00
Totals	Num Loadings:26	70			7,741.50			17,509.28		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

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	147.00	2	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	147.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	147.00	1	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	WOODBURY
0.00	124.00	2	0.45" (11.5mm) Fiber	0.45	0.08	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	124.00	4	0.76" (19.2mm) 8 AWG	0.76	0.53	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	124.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	110.00	2	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	WOODBURY

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	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.4375	62.650	86.387	42,243.1	23.49	143.20	73.8	1328.	0.0	0.0
5.00		0.4375	61.614	84.947	40,166.7	23.07	140.83	74.3	1284.	0.0	1,457.5
10.00		0.4375	60.577	83.508	38,159.5	22.65	138.46	74.8	1240.	0.0	1,433.0
15.00		0.4375	59.541	82.069	36,220.3	22.23	136.09	75.3	1198.	0.0	1,408.6
20.00		0.4375	58.504	80.630	34,348.0	21.82	133.72	75.7	1156.	0.0	1,384.1
25.00		0.4375	57.468	79.191	32,541.3	21.40	131.35	76.2	1115.	0.0	1,359.6
30.00		0.4375	56.431	77.751	30,799.1	20.98	128.99	76.7	1075.	0.0	1,335.1
35.00		0.4375	55.395	76.312	29,120.2	20.56	126.62	77.2	1035.	0.0	1,310.6
38.00	Bot - Section 2	0.4375	54.773	75.449	28,142.8	20.31	125.19	77.5	1012.	0.0	774.6
40.00		0.4375	54.358	74.873	27,503.5	20.14	124.25	77.7	996.6	0.0	1,031.3
45.00	Top - Section 1	0.4375	54.197	74.649	27,257.1	20.08	123.88	77.8	990.6	0.0	2,543.9
50.00		0.4375	53.160	73.209	25,710.7	19.66	121.51	78.3	952.6	0.0	1,257.8
55.00		0.4375	52.124	71.770	24,224.0	19.24	119.14	78.8	915.4	0.0	1,233.3
60.00		0.4375	51.087	70.331	22,795.7	18.83	116.77	79.3	878.9	0.0	1,208.8
65.00		0.4375	50.051	68.892	21,424.7	18.41	114.40	79.7	843.1	0.0	1,184.4
70.00		0.4375	49.014	67.452	20,109.8	17.99	112.03	80.2	808.1	0.0	1,159.9
75.00		0.4375	47.978	66.013	18,849.8	17.57	109.66	80.7	773.8	0.0	1,135.4
77.00	Bot - Section 3	0.4375	47.563	65.438	18,360.9	17.41	108.72	80.9	760.3	0.0	447.3
80.00		0.4375	46.941	64.574	17,643.6	17.16	107.29	81.2	740.3	0.0	1,242.3
83.00	Top - Section 2	0.3750	47.069	55.576	15,309.8	20.37	125.52	77.4	640.6	0.0	1,225.9
85.00		0.3750	46.655	55.083	14,905.6	20.17	124.41	77.7	629.3	0.0	376.5
90.00		0.3750	45.618	53.849	13,926.4	19.69	121.65	78.2	601.3	0.0	926.7
95.00		0.3750	44.582	52.615	12,991.0	19.20	118.88	78.8	573.9	0.0	905.7
100.0		0.3750	43.545	51.382	12,098.5	18.71	116.12	79.4	547.2	0.0	884.7
105.0		0.3750	42.509	50.148	11,247.8	18.22	113.36	80.0	521.2	0.0	863.7
110.0		0.3750	41.472	48.914	10,438.0	17.74	110.59	80.5	495.7	0.0	842.7
115.0		0.3750	40.436	47.681	9,668.0	17.25	107.83	81.1	470.9	0.0	821.7
116.7	Bot - Section 4	0.3750	40.073	47.249	9,407.7	17.08	106.86	81.3	462.4	0.0	282.6
117.5		0.3750	39.918	47.064	9,297.6	17.01	106.45	81.4	458.8	0.0	212.1
120.0		0.3750	39.399	46.447	8,936.9	16.76	105.07	81.7	446.8	0.0	701.0
122.0	Top - Section 3	0.2813	39.547	35.051	6,827.9	23.03	140.61	74.3	340.1	0.0	554.2
124.0		0.2813	39.133	34.681	6,613.9	22.77	139.14	74.6	332.9	0.0	237.3
125.0		0.2813	38.925	34.496	6,508.6	22.64	138.40	74.8	329.3	0.0	117.7
130.0		0.2813	37.889	33.571	5,998.8	21.99	134.72	75.5	311.8	0.0	579.0
135.0		0.2813	36.852	32.645	5,516.4	21.34	131.03	76.3	294.8	0.0	563.3
140.0		0.2813	35.816	31.720	5,060.5	20.69	127.35	77.1	278.3	0.0	547.6
145.0		0.2813	34.779	30.795	4,630.5	20.04	123.66	77.8	262.2	0.0	531.8
146.0		0.2813	34.572	30.610	4,547.5	19.91	122.92	78.0	259.1	0.0	104.5
147.0		0.2813	34.365	30.425	4,465.6	19.78	122.19	78.1	255.9	0.0	103.8
											34,290.2

Load Case: 1.2D + 1.6W — 93 mph with No Ice — 20 Iterations

Gust Response Factor :1.10 — Wind Importance Factor 1.00
Dead Load Factor :1.20
Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		221.4	0.0					0.0	0.0	221.4	0.0	0.0	0.0
5.00		439.1	1,749.0					0.0	124.3	439.1	1,873.3	0.0	0.0
10.00		431.7	1,719.7					0.0	124.3	431.7	1,843.9	0.0	0.0
15.00		424.3	1,690.3					0.0	124.3	424.3	1,814.5	0.0	0.0
20.00		416.9	1,660.9					0.0	124.3	416.9	1,785.1	0.0	0.0
25.00		409.6	1,631.5					0.0	124.3	409.6	1,755.8	0.0	0.0
30.00		407.0	1,602.1					0.0	124.3	407.0	1,726.4	0.0	0.0
35.00		328.7	1,572.7					0.0	124.3	328.7	1,697.0	0.0	0.0
38.00	Bot - Section 2	209.9	929.5					0.0	74.6	209.9	1,004.1	0.0	0.0
40.00		300.8	1,237.5					0.0	49.7	300.8	1,287.3	0.0	0.0
45.00	Top - Section 1	433.8	3,052.7					0.0	124.3	433.8	3,177.0	0.0	0.0
50.00		438.6	1,509.4					0.0	124.3	438.6	1,633.6	0.0	0.0
55.00		441.9	1,480.0					0.0	124.3	441.9	1,604.3	0.0	0.0
60.00		444.1	1,450.6					0.0	124.3	444.1	1,574.9	0.0	0.0
65.00		445.1	1,421.2					0.0	124.3	445.1	1,545.5	0.0	0.0
70.00		445.3	1,391.8					0.0	124.3	445.3	1,516.1	0.0	0.0
75.00		311.4	1,362.5					0.0	124.3	311.4	1,486.7	0.0	0.0
77.00	Bot - Section 3	224.1	536.8					0.0	49.7	224.1	586.5	0.0	0.0
80.00		270.1	1,490.7					0.0	74.6	270.1	1,565.3	0.0	0.0
83.00	Top - Section 2	224.6	1,471.1					0.0	74.6	224.6	1,545.6	0.0	0.0
85.00		313.1	451.9					0.0	49.7	313.1	501.6	0.0	0.0
90.00		445.3	1,112.0					0.0	124.3	445.3	1,236.3	0.0	0.0
95.00		442.0	1,086.8					0.0	124.3	442.0	1,211.1	0.0	0.0
100.00		438.1	1,061.6					0.0	124.3	438.1	1,185.9	0.0	0.0
105.00		433.6	1,036.4					0.0	124.3	433.6	1,160.7	0.0	0.0
110.00	Appurtenance(s)	428.7	1,011.3	545.1	0.0	0.0	126.0	0.0	124.3	973.8	1,261.5	0.0	0.0
115.00		287.0	986.1					0.0	122.5	287.0	1,108.5	0.0	0.0
116.75	Bot - Section 4	105.9	339.2					0.0	42.9	105.9	382.0	0.0	0.0
117.50	Appurtenance(s)	138.3	254.5	283.3	0.0	0.0	216.0	0.0	18.4	421.6	488.9	0.0	0.0
120.00		190.7	841.2					0.0	61.2	190.7	902.5	0.0	0.0
122.00	Top - Section 3	168.5	665.1					0.0	49.0	168.5	714.0	0.0	0.0
124.00	Appurtenance(s)	125.8	284.7	3,729.8	0.0	2,367.7	3,535.8	0.0	49.0	3,855.6	3,869.5	0.0	0.0
125.00		248.9	141.2					0.0	9.9	248.9	151.2	0.0	0.0
130.00		410.8	694.8					0.0	49.7	410.8	744.6	0.0	0.0
135.00		403.9	676.0					0.0	49.7	403.9	725.7	0.0	0.0
140.00		396.7	657.1					0.0	49.7	396.7	706.8	0.0	0.0
145.00		235.3	638.2					0.0	49.7	235.3	687.9	0.0	0.0
146.00	Appurtenance(s)	77.5	125.4	1,728.3	0.0	0.0	2,400.0	0.0	9.9	1,805.8	2,535.3	0.0	0.0
147.00	Appurtenance(s)	38.7	124.6	5,743.3	0.0	-1,870.7	3,012.0	0.0	9.9	5,782.0	3,146.6	0.0	0.0
								Totals:		24,627.1	53,743.4	0.00	0.00

Load Case: 1.2D + 1.6W 93 mph with No Ice 20 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.20
Wind Load Factor :1.60

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	-53.72	-24.45	0.00	-2,635.57	0.00	2,635.57	5,735.95	2,867.97	14,674.9	7,348.40	0.00	0.00	0.368
5.00	-51.81	-24.08	0.00	-2,513.34	0.00	2,513.34	5,677.95	2,838.97	14,282.8	7,152.06	0.05	-0.09	0.361
10.00	-49.94	-23.72	0.00	-2,392.92	0.00	2,392.92	5,618.68	2,809.34	13,892.6	6,956.64	0.18	-0.17	0.353
15.00	-48.09	-23.37	0.00	-2,274.30	0.00	2,274.30	5,558.13	2,779.06	13,504.3	6,762.21	0.41	-0.26	0.345
20.00	-46.27	-23.01	0.00	-2,157.47	0.00	2,157.47	5,496.31	2,748.16	13,118.2	6,568.87	0.73	-0.35	0.337
25.00	-44.48	-22.66	0.00	-2,042.43	0.00	2,042.43	5,433.22	2,716.61	12,734.4	6,376.70	1.14	-0.43	0.329
30.00	-42.73	-22.30	0.00	-1,929.15	0.00	1,929.15	5,368.85	2,684.43	12,353.1	6,185.76	1.65	-0.52	0.320
35.00	-41.01	-22.00	0.00	-1,817.65	0.00	1,817.65	5,303.22	2,651.61	11,974.5	5,996.16	2.24	-0.61	0.311
38.00	-39.99	-21.81	0.00	-1,751.64	0.00	1,751.64	5,263.22	2,631.61	11,748.6	5,883.07	2.64	-0.66	0.305
40.00	-38.68	-21.54	0.00	-1,708.02	0.00	1,708.02	5,236.31	2,618.15	11,598.6	5,807.97	2.92	-0.70	0.302
45.00	-35.48	-21.12	0.00	-1,600.33	0.00	1,600.33	5,225.77	2,612.88	11,540.4	5,778.78	3.70	-0.78	0.284
50.00	-33.82	-20.70	0.00	-1,494.76	0.00	1,494.76	5,157.39	2,578.69	11,168.0	5,592.31	4.56	-0.87	0.274
55.00	-32.20	-20.28	0.00	-1,391.25	0.00	1,391.25	5,087.73	2,543.87	10,798.8	5,407.44	5.51	-0.95	0.264
60.00	-30.60	-19.85	0.00	-1,289.85	0.00	1,289.85	5,016.81	2,508.40	10,432.9	5,224.23	6.54	-1.02	0.253
65.00	-29.04	-19.42	0.00	-1,190.60	0.00	1,190.60	4,944.61	2,472.30	10,070.5	5,042.78	7.66	-1.10	0.242
70.00	-27.51	-18.98	0.00	-1,093.53	0.00	1,093.53	4,871.14	2,435.57	9,711.87	4,863.15	8.85	-1.18	0.231
75.00	-26.01	-18.66	0.00	-998.65	0.00	998.65	4,796.39	2,398.20	9,356.98	4,685.44	10.13	-1.25	0.219
77.00	-25.42	-18.44	0.00	-961.33	0.00	961.33	4,766.14	2,383.07	9,216.13	4,614.92	10.66	-1.28	0.214
80.00	-23.85	-18.15	0.00	-906.03	0.00	906.03	4,720.37	2,360.19	9,006.08	4,509.74	11.48	-1.32	0.206
83.00	-22.30	-17.90	0.00	-851.59	0.00	851.59	3,873.58	1,936.79	7,430.90	3,720.97	12.32	-1.37	0.235
85.00	-21.79	-17.60	0.00	-815.78	0.00	815.78	3,850.55	1,925.28	7,320.62	3,665.75	12.90	-1.39	0.228
90.00	-20.54	-17.14	0.00	-727.81	0.00	727.81	3,792.09	1,896.05	7,046.72	3,528.60	14.40	-1.47	0.212
95.00	-19.32	-16.69	0.00	-642.09	0.00	642.09	3,732.36	1,866.18	6,775.53	3,392.80	15.98	-1.54	0.195
100.00	-18.13	-16.24	0.00	-558.62	0.00	558.62	3,671.36	1,835.68	6,507.21	3,258.44	17.63	-1.60	0.176
105.00	-16.97	-15.79	0.00	-477.40	0.00	477.40	3,609.08	1,804.54	6,241.92	3,125.60	19.34	-1.67	0.158
110.00	-15.72	-14.80	0.00	-398.43	0.00	398.43	3,545.54	1,772.77	5,979.84	2,994.36	21.12	-1.72	0.138
115.00	-14.61	-14.49	0.00	-324.44	0.00	324.44	3,480.72	1,740.36	5,721.12	2,864.81	22.94	-1.77	0.118
116.75	-14.23	-14.37	0.00	-299.09	0.00	299.09	3,457.73	1,728.86	5,631.39	2,819.88	23.60	-1.79	0.110
117.50	-13.75	-13.94	0.00	-288.31	0.00	288.31	3,447.83	1,723.91	5,593.07	2,800.69	23.88	-1.79	0.107
120.00	-12.85	-13.72	0.00	-253.46	0.00	253.46	3,414.62	1,707.31	5,465.93	2,737.03	24.82	-1.81	0.096
122.00	-12.14	-13.53	0.00	-226.02	0.00	226.02	2,344.26	1,172.13	3,784.97	1,895.30	25.59	-1.83	0.125
124.00	-8.39	-9.56	0.00	-196.58	0.00	196.58	2,329.06	1,164.53	3,720.43	1,862.98	26.35	-1.84	0.109
125.00	-8.25	-9.31	0.00	-187.02	0.00	187.02	2,321.37	1,160.69	3,688.23	1,846.86	26.74	-1.85	0.105
130.00	-7.51	-8.88	0.00	-140.48	0.00	140.48	2,282.20	1,141.10	3,528.04	1,766.64	28.70	-1.89	0.083
135.00	-6.80	-8.45	0.00	-96.09	0.00	96.09	2,241.76	1,120.88	3,369.30	1,687.15	30.69	-1.91	0.060
140.00	-6.10	-8.03	0.00	-53.83	0.00	53.83	2,200.04	1,100.02	3,212.17	1,608.47	32.71	-1.93	0.036
145.00	-5.42	-7.78	0.00	-13.66	0.00	13.66	2,157.05	1,078.53	3,056.82	1,530.68	34.74	-1.94	0.011
146.00	-2.95	-5.89	0.00	-5.89	0.00	5.89	2,148.30	1,074.15	3,025.98	1,515.24	35.15	-1.94	0.005
147.00	0.00	-5.78	0.00	0.00	0.00	0.00	2,139.50	1,069.75	2,995.22	1,499.83	35.55	-1.94	0.000

Load Case: 0.9D + 1.6W — 93 mph with No Ice (Reduced DL) — 20 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.60

Wind Importance Factor 1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		221.4	0.0					0.0	0.0	221.4	0.0	0.0	0.0
5.00		439.1	1,311.8					0.0	93.2	439.1	1,405.0	0.0	0.0
10.00		431.7	1,289.7					0.0	93.2	431.7	1,382.9	0.0	0.0
15.00		424.3	1,267.7					0.0	93.2	424.3	1,360.9	0.0	0.0
20.00		416.9	1,245.7					0.0	93.2	416.9	1,338.9	0.0	0.0
25.00		409.6	1,223.6					0.0	93.2	409.6	1,316.8	0.0	0.0
30.00		407.0	1,201.6					0.0	93.2	407.0	1,294.8	0.0	0.0
35.00		328.7	1,179.5					0.0	93.2	328.7	1,272.7	0.0	0.0
38.00	Bot - Section 2	209.9	697.2					0.0	55.9	209.9	753.1	0.0	0.0
40.00		300.8	928.2					0.0	37.3	300.8	965.4	0.0	0.0
45.00	Top - Section 1	433.8	2,289.5					0.0	93.2	433.8	2,382.7	0.0	0.0
50.00		438.6	1,132.0					0.0	93.2	438.6	1,225.2	0.0	0.0
55.00		441.9	1,110.0					0.0	93.2	441.9	1,203.2	0.0	0.0
60.00		444.1	1,088.0					0.0	93.2	444.1	1,181.2	0.0	0.0
65.00		445.1	1,065.9					0.0	93.2	445.1	1,159.1	0.0	0.0
70.00		445.3	1,043.9					0.0	93.2	445.3	1,137.1	0.0	0.0
75.00		311.4	1,021.8					0.0	93.2	311.4	1,115.0	0.0	0.0
77.00	Bot - Section 3	224.1	402.6					0.0	37.3	224.1	439.8	0.0	0.0
80.00		270.1	1,118.0					0.0	55.9	270.1	1,174.0	0.0	0.0
83.00	Top - Section 2	224.6	1,103.3					0.0	55.9	224.6	1,159.2	0.0	0.0
85.00		313.1	338.9					0.0	37.3	313.1	376.2	0.0	0.0
90.00		445.3	834.0					0.0	93.2	445.3	927.2	0.0	0.0
95.00		442.0	815.1					0.0	93.2	442.0	908.3	0.0	0.0
100.00		438.1	796.2					0.0	93.2	438.1	889.4	0.0	0.0
105.00		433.6	777.3					0.0	93.2	433.6	870.5	0.0	0.0
110.00	Appurtenance(s)	428.7	758.4	545.1	0.0	0.0	94.5	0.0	93.2	973.8	946.1	0.0	0.0
115.00		287.0	739.6					0.0	91.8	287.0	831.4	0.0	0.0
116.75	Bot - Section 4	105.9	254.4					0.0	32.1	105.9	286.5	0.0	0.0
117.50	Appurtenance(s)	138.3	190.9	283.3	0.0	0.0	162.0	0.0	13.8	421.6	366.7	0.0	0.0
120.00		190.7	630.9					0.0	45.9	190.7	676.9	0.0	0.0
122.00	Top - Section 3	168.5	498.8					0.0	36.7	168.5	535.5	0.0	0.0
124.00	Appurtenance(s)	125.8	213.6	3,729.8	0.0	2,367.7	2,651.8	0.0	36.7	3,855.6	2,902.1	0.0	0.0
125.00		248.9	105.9					0.0	7.5	248.9	113.4	0.0	0.0
130.00		410.8	521.1					0.0	37.3	410.8	558.4	0.0	0.0
135.00		403.9	507.0					0.0	37.3	403.9	544.3	0.0	0.0
140.00		396.7	492.8					0.0	37.3	396.7	530.1	0.0	0.0
145.00		235.3	478.6					0.0	37.3	235.3	515.9	0.0	0.0
146.00	Appurtenance(s)	77.5	94.0	1,728.3	0.0	0.0	1,800.0	0.0	7.5	1,805.8	1,901.5	0.0	0.0
147.00	Appurtenance(s)	38.7	93.5	5,743.3	0.0	-1,870.7	2,259.0	0.0	7.5	5,782.0	2,359.9	0.0	0.0
								Totals:		24,627.1	40,307.5	0.00	0.00

Load Case: 0.9D + 1.6W — 93 mph with No Ice (Reduced DL) — 20 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :0.90
Wind Load Factor :1.60

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	-40.29	-24.44	0.00	-2,619.90	0.00	2,619.90	5,735.95	2,867.97	14,674.9	7,348.40	0.00	0.00	0.364
5.00	-38.85	-24.05	0.00	-2,497.72	0.00	2,497.72	5,677.95	2,838.97	14,282.8	7,152.06	0.05	-0.09	0.356
10.00	-37.43	-23.68	0.00	-2,377.45	0.00	2,377.45	5,618.68	2,809.34	13,892.6	6,956.64	0.18	-0.17	0.348
15.00	-36.04	-23.30	0.00	-2,259.08	0.00	2,259.08	5,558.13	2,779.06	13,504.3	6,762.21	0.41	-0.26	0.341
20.00	-34.66	-22.93	0.00	-2,142.57	0.00	2,142.57	5,496.31	2,748.16	13,118.2	6,568.87	0.73	-0.35	0.333
25.00	-33.32	-22.56	0.00	-2,027.93	0.00	2,027.93	5,433.22	2,716.61	12,734.4	6,376.70	1.14	-0.43	0.324
30.00	-31.99	-22.19	0.00	-1,915.13	0.00	1,915.13	5,368.85	2,684.43	12,353.1	6,185.76	1.64	-0.52	0.316
35.00	-30.70	-21.89	0.00	-1,804.17	0.00	1,804.17	5,303.22	2,651.61	11,974.5	5,996.16	2.23	-0.60	0.307
38.00	-29.93	-21.69	0.00	-1,738.51	0.00	1,738.51	5,263.22	2,631.61	11,748.6	5,883.07	2.62	-0.66	0.301
40.00	-28.95	-21.41	0.00	-1,695.13	0.00	1,695.13	5,236.31	2,618.15	11,598.6	5,807.97	2.90	-0.69	0.297
45.00	-26.54	-20.98	0.00	-1,588.09	0.00	1,588.09	5,225.77	2,612.88	11,540.4	5,778.78	3.67	-0.78	0.280
50.00	-25.29	-20.56	0.00	-1,483.17	0.00	1,483.17	5,157.39	2,578.69	11,168.0	5,592.31	4.53	-0.86	0.270
55.00	-24.07	-20.14	0.00	-1,380.35	0.00	1,380.35	5,087.73	2,543.87	10,798.8	5,407.44	5.47	-0.94	0.260
60.00	-22.87	-19.70	0.00	-1,279.66	0.00	1,279.66	5,016.81	2,508.40	10,432.9	5,224.23	6.50	-1.02	0.250
65.00	-21.69	-19.27	0.00	-1,181.15	0.00	1,181.15	4,944.61	2,472.30	10,070.5	5,042.78	7.61	-1.09	0.239
70.00	-20.54	-18.82	0.00	-1,084.82	0.00	1,084.82	4,871.14	2,435.57	9,711.87	4,863.15	8.79	-1.17	0.227
75.00	-19.41	-18.51	0.00	-990.70	0.00	990.70	4,796.39	2,398.20	9,356.98	4,685.44	10.06	-1.24	0.216
77.00	-18.97	-18.29	0.00	-953.68	0.00	953.68	4,766.14	2,383.07	9,216.13	4,614.92	10.58	-1.27	0.211
80.00	-17.78	-18.00	0.00	-898.83	0.00	898.83	4,720.37	2,360.19	9,006.08	4,509.74	11.40	-1.31	0.203
83.00	-16.62	-17.76	0.00	-844.82	0.00	844.82	3,873.58	1,936.79	7,430.90	3,720.97	12.24	-1.36	0.231
85.00	-16.24	-17.45	0.00	-809.30	0.00	809.30	3,850.55	1,925.28	7,320.62	3,665.75	12.81	-1.38	0.225
90.00	-15.30	-17.00	0.00	-722.03	0.00	722.03	3,792.09	1,896.05	7,046.72	3,528.60	14.30	-1.46	0.209
95.00	-14.38	-16.56	0.00	-637.01	0.00	637.01	3,732.36	1,866.18	6,775.53	3,392.80	15.87	-1.53	0.192
100.00	-13.49	-16.11	0.00	-554.24	0.00	554.24	3,671.36	1,835.68	6,507.21	3,258.44	17.50	-1.59	0.174
105.00	-12.61	-15.66	0.00	-473.70	0.00	473.70	3,609.08	1,804.54	6,241.92	3,125.60	19.20	-1.65	0.155
110.00	-11.68	-14.67	0.00	-395.38	0.00	395.38	3,545.54	1,772.77	5,979.84	2,994.36	20.96	-1.71	0.135
115.00	-10.85	-14.37	0.00	-322.02	0.00	322.02	3,480.72	1,740.36	5,721.12	2,864.81	22.78	-1.76	0.116
116.75	-10.57	-14.25	0.00	-296.88	0.00	296.88	3,457.73	1,728.86	5,631.39	2,819.88	23.43	-1.77	0.108
117.50	-10.21	-13.82	0.00	-286.19	0.00	286.19	3,447.83	1,723.91	5,593.07	2,800.69	23.71	-1.78	0.105
120.00	-9.54	-13.61	0.00	-251.63	0.00	251.63	3,414.62	1,707.31	5,465.93	2,737.03	24.64	-1.80	0.095
122.00	-9.00	-13.43	0.00	-224.40	0.00	224.40	2,344.26	1,172.13	3,784.97	1,895.30	25.40	-1.81	0.122
124.00	-6.22	-9.49	0.00	-195.17	0.00	195.17	2,329.06	1,164.53	3,720.43	1,862.98	26.16	-1.83	0.108
125.00	-6.11	-9.24	0.00	-185.68	0.00	185.68	2,321.37	1,160.69	3,688.23	1,846.86	26.55	-1.84	0.103
130.00	-5.56	-8.81	0.00	-139.50	0.00	139.50	2,282.20	1,141.10	3,528.04	1,766.64	28.49	-1.87	0.081
135.00	-5.03	-8.39	0.00	-95.44	0.00	95.44	2,241.76	1,120.88	3,369.30	1,687.15	30.47	-1.90	0.059
140.00	-4.51	-7.98	0.00	-53.48	0.00	53.48	2,200.04	1,100.02	3,212.17	1,608.47	32.47	-1.92	0.035
145.00	-4.00	-7.73	0.00	-13.58	0.00	13.58	2,157.05	1,078.53	3,056.82	1,530.68	34.49	-1.93	0.011
146.00	-2.16	-5.86	0.00	-5.86	0.00	5.86	2,148.30	1,074.15	3,025.98	1,515.24	34.89	-1.93	0.005
147.00	0.00	-5.78	0.00	0.00	0.00	0.00	2,139.50	1,069.75	2,995.22	1,499.83	35.30	-1.93	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi — 40 mph with 0.75 in Radial Ice — 19 Iterations

Gust Response Factor :1.10 | Ice Dead Load Factor :1.00 | Wind Importance Factor :1.00
Dead Load Factor :1.20 | Ice Importance Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		49.0	0.0					0.0	0.0	49.0	0.0	0.0	0.0
5.00		97.4	2,204.8					0.0	124.3	97.4	2,329.0	0.0	0.0
10.00		96.1	2,221.0					0.0	124.3	96.1	2,345.2	0.0	0.0
15.00		94.7	2,209.6					0.0	124.3	94.7	2,333.9	0.0	0.0
20.00		93.3	2,189.3					0.0	124.3	93.3	2,313.5	0.0	0.0
25.00		91.8	2,164.3					0.0	124.3	91.8	2,288.5	0.0	0.0
30.00		91.4	2,136.4					0.0	124.3	91.4	2,260.6	0.0	0.0
35.00		73.9	2,106.5					0.0	124.3	73.9	2,230.7	0.0	0.0
38.00	Bot - Section 2	47.2	1,250.1					0.0	74.6	47.2	1,324.6	0.0	0.0
40.00		67.7	1,454.5					0.0	49.7	67.7	1,504.2	0.0	0.0
45.00	Top - Section 1	97.8	3,589.8					0.0	124.3	97.8	3,714.1	0.0	0.0
50.00		99.0	2,042.6					0.0	124.3	99.0	2,166.8	0.0	0.0
55.00		100.0	2,008.5					0.0	124.3	100.0	2,132.7	0.0	0.0
60.00		100.6	1,973.8					0.0	124.3	100.6	2,098.0	0.0	0.0
65.00		101.0	1,938.5					0.0	124.3	101.0	2,062.8	0.0	0.0
70.00		101.2	1,902.8					0.0	124.3	101.2	2,027.0	0.0	0.0
75.00		70.9	1,866.6					0.0	124.3	70.9	1,990.9	0.0	0.0
77.00	Bot - Section 3	51.0	737.7					0.0	49.7	51.0	787.4	0.0	0.0
80.00		61.6	1,794.0					0.0	74.6	61.6	1,868.5	0.0	0.0
83.00	Top - Section 2	51.2	1,771.7					0.0	74.6	51.2	1,846.2	0.0	0.0
85.00		71.5	651.2					0.0	49.7	71.5	700.9	0.0	0.0
90.00		101.9	1,601.6					0.0	124.3	101.9	1,725.9	0.0	0.0
95.00		101.3	1,568.5					0.0	124.3	101.3	1,692.7	0.0	0.0
100.00		100.6	1,535.0					0.0	124.3	100.6	1,659.3	0.0	0.0
105.00		99.8	1,501.4					0.0	124.3	99.8	1,625.7	0.0	0.0
110.00	Appurtenance(s)	98.9	1,467.6	212.7	0.0	0.0	620.0	0.0	124.3	311.5	2,211.8	0.0	0.0
115.00		66.3	1,433.5					0.0	122.5	66.3	1,556.0	0.0	0.0
116.75	Bot - Section 4	24.5	494.9					0.0	42.9	24.5	537.8	0.0	0.0
117.50	Appurtenance(s)	32.0	322.0	115.0	0.0	0.0	683.7	0.0	18.4	147.0	1,024.0	0.0	0.0
120.00		44.1	1,063.7					0.0	61.2	44.1	1,124.9	0.0	0.0
122.00	Top - Section 3	39.0	841.6					0.0	49.0	39.0	890.6	0.0	0.0
124.00	Appurtenance(s)	29.2	459.8	617.1	0.0	353.4	10,105.8	0.0	49.0	646.3	10,614.6	0.0	0.0
125.00		57.8	228.4					0.0	9.9	57.8	238.4	0.0	0.0
130.00		95.5	1,120.7					0.0	49.7	95.5	1,170.5	0.0	0.0
135.00		94.2	1,092.4					0.0	49.7	94.2	1,142.1	0.0	0.0
140.00		92.7	1,063.9					0.0	49.7	92.7	1,113.6	0.0	0.0
145.00		55.1	1,035.2					0.0	49.7	55.1	1,084.9	0.0	0.0
146.00	Appurtenance(s)	18.2	204.5	298.6	0.0	0.0	5,819.8	0.0	9.9	316.8	6,034.2	0.0	0.0
147.00	Appurtenance(s)	9.1	203.3	1,011.5	0.0	-245.9	9,271.8	0.0	9.9	1,020.6	9,485.1	0.0	0.0
								Totals:		5,123.45	85,257.8	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 40 mph with 0.75 in Radial Ice 19 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00 Wind Importance 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	-85.26	-5.09	0.00	-541.82	0.00	541.82	5,735.95	2,867.97	14,674.9	7,348.40	0.00	0.00	0.089
5.00	-82.93	-5.02	0.00	-516.38	0.00	516.38	5,677.95	2,838.97	14,282.8	7,152.06	0.01	-0.02	0.087
10.00	-80.58	-4.94	0.00	-491.31	0.00	491.31	5,618.68	2,809.34	13,892.6	6,956.64	0.04	-0.04	0.085
15.00	-78.24	-4.87	0.00	-466.60	0.00	466.60	5,558.13	2,779.06	13,504.3	6,762.21	0.08	-0.05	0.083
20.00	-75.93	-4.80	0.00	-442.24	0.00	442.24	5,496.31	2,748.16	13,118.2	6,568.87	0.15	-0.07	0.081
25.00	-73.64	-4.73	0.00	-418.25	0.00	418.25	5,433.22	2,716.61	12,734.4	6,376.70	0.24	-0.09	0.079
30.00	-71.38	-4.65	0.00	-394.62	0.00	394.62	5,368.85	2,684.43	12,353.1	6,185.76	0.34	-0.11	0.077
35.00	-69.15	-4.59	0.00	-371.35	0.00	371.35	5,303.22	2,651.61	11,974.5	5,996.16	0.46	-0.12	0.075
38.00	-67.82	-4.55	0.00	-357.58	0.00	357.58	5,263.22	2,631.61	11,748.6	5,883.07	0.54	-0.14	0.074
40.00	-66.32	-4.50	0.00	-348.47	0.00	348.47	5,236.31	2,618.15	11,598.6	5,807.97	0.60	-0.14	0.073
45.00	-62.60	-4.41	0.00	-326.00	0.00	326.00	5,225.77	2,612.88	11,540.4	5,778.78	0.76	-0.16	0.068
50.00	-60.43	-4.32	0.00	-303.96	0.00	303.96	5,157.39	2,578.69	11,168.0	5,592.31	0.94	-0.18	0.066
55.00	-58.30	-4.23	0.00	-282.37	0.00	282.37	5,087.73	2,543.87	10,798.8	5,407.44	1.13	-0.19	0.064
60.00	-56.20	-4.14	0.00	-261.23	0.00	261.23	5,016.81	2,508.40	10,432.9	5,224.23	1.34	-0.21	0.061
65.00	-54.14	-4.04	0.00	-240.55	0.00	240.55	4,944.61	2,472.30	10,070.5	5,042.78	1.57	-0.23	0.059
70.00	-52.11	-3.95	0.00	-220.34	0.00	220.34	4,871.14	2,435.57	9,711.87	4,863.15	1.81	-0.24	0.056
75.00	-50.12	-3.88	0.00	-200.62	0.00	200.62	4,796.39	2,398.20	9,356.98	4,685.44	2.07	-0.26	0.053
77.00	-49.33	-3.83	0.00	-192.87	0.00	192.87	4,766.14	2,383.07	9,216.13	4,614.92	2.18	-0.26	0.052
80.00	-47.46	-3.76	0.00	-181.38	0.00	181.38	4,720.37	2,360.19	9,006.08	4,509.74	2.35	-0.27	0.050
83.00	-45.62	-3.71	0.00	-170.09	0.00	170.09	3,873.58	1,936.79	7,430.90	3,720.97	2.52	-0.28	0.057
85.00	-44.91	-3.64	0.00	-162.67	0.00	162.67	3,850.55	1,925.28	7,320.62	3,665.75	2.64	-0.28	0.056
90.00	-43.19	-3.54	0.00	-144.46	0.00	144.46	3,792.09	1,896.05	7,046.72	3,528.60	2.94	-0.30	0.052
95.00	-41.49	-3.44	0.00	-126.75	0.00	126.75	3,732.36	1,866.18	6,775.53	3,392.80	3.26	-0.31	0.048
100.00	-39.84	-3.34	0.00	-109.53	0.00	109.53	3,671.36	1,835.68	6,507.21	3,258.44	3.60	-0.33	0.044
105.00	-38.21	-3.24	0.00	-92.83	0.00	92.83	3,609.08	1,804.54	6,241.92	3,125.60	3.95	-0.34	0.040
110.00	-36.00	-2.92	0.00	-76.63	0.00	76.63	3,545.54	1,772.77	5,979.84	2,994.36	4.30	-0.35	0.036
115.00	-34.44	-2.85	0.00	-62.03	0.00	62.03	3,480.72	1,740.36	5,721.12	2,864.81	4.67	-0.36	0.032
116.75	-33.91	-2.82	0.00	-57.04	0.00	57.04	3,457.73	1,728.86	5,631.39	2,819.88	4.81	-0.36	0.030
117.50	-32.88	-2.67	0.00	-54.92	0.00	54.92	3,447.83	1,723.91	5,593.07	2,800.69	4.86	-0.36	0.029
120.00	-31.76	-2.62	0.00	-48.25	0.00	48.25	3,414.62	1,707.31	5,465.93	2,737.03	5.05	-0.37	0.027
122.00	-30.87	-2.58	0.00	-43.01	0.00	43.01	2,344.26	1,172.13	3,784.97	1,895.30	5.21	-0.37	0.036
124.00	-20.26	-1.86	0.00	-37.50	0.00	37.50	2,329.06	1,164.53	3,720.43	1,862.98	5.36	-0.37	0.029
125.00	-20.02	-1.81	0.00	-35.63	0.00	35.63	2,321.37	1,160.69	3,688.23	1,846.86	5.44	-0.37	0.028
130.00	-18.85	-1.71	0.00	-26.60	0.00	26.60	2,282.20	1,141.10	3,528.04	1,766.64	5.83	-0.38	0.023
135.00	-17.71	-1.60	0.00	-18.08	0.00	18.08	2,241.76	1,120.88	3,369.30	1,687.15	6.24	-0.38	0.019
140.00	-16.59	-1.51	0.00	-10.05	0.00	10.05	2,200.04	1,100.02	3,212.17	1,608.47	6.64	-0.39	0.014
145.00	-15.51	-1.44	0.00	-2.53	0.00	2.53	2,157.05	1,078.53	3,056.82	1,530.68	7.05	-0.39	0.009
146.00	-9.48	-1.09	0.00	-1.09	0.00	1.09	2,148.30	1,074.15	3,025.98	1,515.24	7.13	-0.39	0.005
147.00	0.00	-1.02	0.00	0.00	0.00	0.00	2,139.50	1,069.75	2,995.22	1,499.83	7.21	-0.39	0.000

Load Case: 1.0D + 1.0W Serviceability 60 mph 19 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
Dead Load Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		51.5	0.0					0.0	0.0	51.5	0.0	0.0	0.0
5.00		102.2	1,457.5					0.0	103.6	102.2	1,561.1	0.0	0.0
10.00		100.5	1,433.0					0.0	103.6	100.5	1,536.6	0.0	0.0
15.00		98.8	1,408.6					0.0	103.6	98.8	1,512.1	0.0	0.0
20.00		97.0	1,384.1					0.0	103.6	97.0	1,487.6	0.0	0.0
25.00		95.3	1,359.6					0.0	103.6	95.3	1,463.1	0.0	0.0
30.00		94.7	1,335.1					0.0	103.6	94.7	1,438.6	0.0	0.0
35.00		76.5	1,310.6					0.0	103.6	76.5	1,414.2	0.0	0.0
38.00	Bot - Section 2	48.9	774.6					0.0	62.1	48.9	836.7	0.0	0.0
40.00		70.0	1,031.3					0.0	41.4	70.0	1,072.7	0.0	0.0
45.00	Top - Section 1	101.0	2,543.9					0.0	103.6	101.0	2,647.5	0.0	0.0
50.00		102.1	1,257.8					0.0	103.6	102.1	1,361.4	0.0	0.0
55.00		102.9	1,233.3					0.0	103.6	102.9	1,336.9	0.0	0.0
60.00		103.4	1,208.8					0.0	103.6	103.4	1,312.4	0.0	0.0
65.00		103.6	1,184.4					0.0	103.6	103.6	1,287.9	0.0	0.0
70.00		103.6	1,159.9					0.0	103.6	103.6	1,263.4	0.0	0.0
75.00		72.5	1,135.4					0.0	103.6	72.5	1,238.9	0.0	0.0
77.00	Bot - Section 3	52.2	447.3					0.0	41.4	52.2	488.7	0.0	0.0
80.00		62.9	1,242.3					0.0	62.1	62.9	1,304.4	0.0	0.0
83.00	Top - Section 2	52.3	1,225.9					0.0	62.1	52.3	1,288.0	0.0	0.0
85.00		72.9	376.5					0.0	41.4	72.9	418.0	0.0	0.0
90.00		103.6	926.7					0.0	103.6	103.6	1,030.2	0.0	0.0
95.00		102.9	905.7					0.0	103.6	102.9	1,009.2	0.0	0.0
100.00		102.0	884.7					0.0	103.6	102.0	988.2	0.0	0.0
105.00		100.9	863.7					0.0	103.6	100.9	967.3	0.0	0.0
110.00	Appurtenance(s)	99.8	842.7	126.9	0.0	0.0	105.0	0.0	103.6	226.7	1,051.3	0.0	0.0
115.00		66.8	821.7					0.0	102.1	66.8	923.8	0.0	0.0
116.75	Bot - Section 4	24.7	282.6					0.0	35.7	24.7	318.4	0.0	0.0
117.50	Appurtenance(s)	32.2	212.1	65.9	0.0	0.0	180.0	0.0	15.3	98.1	407.4	0.0	0.0
120.00		44.4	701.0					0.0	51.0	44.4	752.1	0.0	0.0
122.00	Top - Section 3	39.2	554.2					0.0	40.8	39.2	595.0	0.0	0.0
124.00	Appurtenance(s)	29.3	237.3	868.2	0.0	551.1	2,946.5	0.0	40.8	897.4	3,224.6	0.0	0.0
125.00		57.9	117.7					0.0	8.3	57.9	126.0	0.0	0.0
130.00		95.6	579.0					0.0	41.5	95.6	620.5	0.0	0.0
135.00		94.0	563.3					0.0	41.5	94.0	604.7	0.0	0.0
140.00		92.3	547.6					0.0	41.5	92.3	589.0	0.0	0.0
145.00		54.8	531.8					0.0	41.5	54.8	573.3	0.0	0.0
146.00	Appurtenance(s)	18.0	104.5	402.3	0.0	0.0	2,000.0	0.0	8.3	420.3	2,112.8	0.0	0.0
147.00	Appurtenance(s)	9.0	103.8	1,336.8	0.0	-435.4	2,510.0	0.0	8.3	1,345.8	2,622.1	0.0	0.0
								Totals:		5,732.26	44,786.2	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 19 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00
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	-44.79	-5.69	0.00	-611.05	0.00	611.05	5,735.95	2,867.97	14,674.9	7,348.40	0.00	0.00	0.091
5.00	-43.22	-5.60	0.00	-582.61	0.00	582.61	5,677.95	2,838.97	14,282.8	7,152.06	0.01	-0.02	0.089
10.00	-41.68	-5.51	0.00	-554.61	0.00	554.61	5,618.68	2,809.34	13,892.6	6,956.64	0.04	-0.04	0.087
15.00	-40.17	-5.43	0.00	-527.04	0.00	527.04	5,558.13	2,779.06	13,504.3	6,762.21	0.10	-0.06	0.085
20.00	-38.68	-5.34	0.00	-499.90	0.00	499.90	5,496.31	2,748.16	13,118.2	6,568.87	0.17	-0.08	0.083
25.00	-37.22	-5.26	0.00	-473.19	0.00	473.19	5,433.22	2,716.61	12,734.4	6,376.70	0.27	-0.10	0.081
30.00	-35.78	-5.17	0.00	-446.90	0.00	446.90	5,368.85	2,684.43	12,353.1	6,185.76	0.38	-0.12	0.079
35.00	-34.36	-5.10	0.00	-421.03	0.00	421.03	5,303.22	2,651.61	11,974.5	5,996.16	0.52	-0.14	0.077
38.00	-33.52	-5.06	0.00	-405.72	0.00	405.72	5,263.22	2,631.61	11,748.6	5,883.07	0.61	-0.15	0.075
40.00	-32.45	-4.99	0.00	-395.61	0.00	395.61	5,236.31	2,618.15	11,598.6	5,807.97	0.68	-0.16	0.074
45.00	-29.80	-4.89	0.00	-370.64	0.00	370.64	5,225.77	2,612.88	11,540.4	5,778.78	0.86	-0.18	0.070
50.00	-28.44	-4.80	0.00	-346.17	0.00	346.17	5,157.39	2,578.69	11,168.0	5,592.31	1.06	-0.20	0.067
55.00	-27.10	-4.70	0.00	-322.19	0.00	322.19	5,087.73	2,543.87	10,798.8	5,407.44	1.28	-0.22	0.065
60.00	-25.79	-4.60	0.00	-298.70	0.00	298.70	5,016.81	2,508.40	10,432.9	5,224.23	1.52	-0.24	0.062
65.00	-24.50	-4.50	0.00	-275.71	0.00	275.71	4,944.61	2,472.30	10,070.5	5,042.78	1.77	-0.26	0.060
70.00	-23.23	-4.39	0.00	-253.23	0.00	253.23	4,871.14	2,435.57	9,711.87	4,863.15	2.05	-0.27	0.057
75.00	-21.99	-4.32	0.00	-231.27	0.00	231.27	4,796.39	2,398.20	9,356.98	4,685.44	2.35	-0.29	0.054
77.00	-21.50	-4.27	0.00	-222.63	0.00	222.63	4,766.14	2,383.07	9,216.13	4,614.92	2.47	-0.30	0.053
80.00	-20.20	-4.20	0.00	-209.82	0.00	209.82	4,720.37	2,360.19	9,006.08	4,509.74	2.66	-0.31	0.051
83.00	-18.91	-4.15	0.00	-197.22	0.00	197.22	3,873.58	1,936.79	7,430.90	3,720.97	2.86	-0.32	0.058
85.00	-18.49	-4.07	0.00	-188.93	0.00	188.93	3,850.55	1,925.28	7,320.62	3,665.75	2.99	-0.32	0.056
90.00	-17.46	-3.97	0.00	-168.56	0.00	168.56	3,792.09	1,896.05	7,046.72	3,528.60	3.34	-0.34	0.052
95.00	-16.45	-3.86	0.00	-148.71	0.00	148.71	3,732.36	1,866.18	6,775.53	3,392.80	3.70	-0.36	0.048
100.00	-15.46	-3.76	0.00	-129.39	0.00	129.39	3,671.36	1,835.68	6,507.21	3,258.44	4.08	-0.37	0.044
105.00	-14.50	-3.66	0.00	-110.58	0.00	110.58	3,609.08	1,804.54	6,241.92	3,125.60	4.48	-0.39	0.039
110.00	-13.45	-3.43	0.00	-92.30	0.00	92.30	3,545.54	1,772.77	5,979.84	2,994.36	4.89	-0.40	0.035
115.00	-12.52	-3.35	0.00	-75.17	0.00	75.17	3,480.72	1,740.36	5,721.12	2,864.81	5.32	-0.41	0.030
116.75	-12.20	-3.33	0.00	-69.30	0.00	69.30	3,457.73	1,728.86	5,631.39	2,819.88	5.47	-0.41	0.028
117.50	-11.80	-3.23	0.00	-66.80	0.00	66.80	3,447.83	1,723.91	5,593.07	2,800.69	5.53	-0.42	0.027
120.00	-11.04	-3.18	0.00	-58.73	0.00	58.73	3,414.62	1,707.31	5,465.93	2,737.03	5.75	-0.42	0.025
122.00	-10.45	-3.14	0.00	-52.38	0.00	52.38	2,344.26	1,172.13	3,784.97	1,895.30	5.93	-0.42	0.032
124.00	-7.23	-2.21	0.00	-45.56	0.00	45.56	2,329.06	1,164.53	3,720.43	1,862.98	6.11	-0.43	0.028
125.00	-7.11	-2.16	0.00	-43.34	0.00	43.34	2,321.37	1,160.69	3,688.23	1,846.86	6.20	-0.43	0.027
130.00	-6.49	-2.06	0.00	-32.56	0.00	32.56	2,282.20	1,141.10	3,528.04	1,766.64	6.65	-0.44	0.021
135.00	-5.88	-1.96	0.00	-22.28	0.00	22.28	2,241.76	1,120.88	3,369.30	1,687.15	7.11	-0.44	0.016
140.00	-5.29	-1.86	0.00	-12.48	0.00	12.48	2,200.04	1,100.02	3,212.17	1,608.47	7.58	-0.45	0.010
145.00	-4.72	-1.80	0.00	-3.17	0.00	3.17	2,157.05	1,078.53	3,056.82	1,530.68	8.05	-0.45	0.004
146.00	-2.61	-1.37	0.00	-1.37	0.00	1.37	2,148.30	1,074.15	3,025.98	1,515.24	8.14	-0.45	0.002
147.00	0.00	-1.35	0.00	0.00	0.00	0.00	2,139.50	1,069.75	2,995.22	1,499.83	8.24	-0.45	0.000

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.19	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.21	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.04	
Upper Limit C_s	0.04	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	1.65	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	1.58	
Total Unfactored Dead Load:	44.79	k
Seismic Base Shear (E):	1.88	k

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
38	146.50	112	292	0.006	11	139
37	145.50	113	290	0.006	11	140
36	142.50	573	1,427	0.030	56	712
35	137.50	589	1,386	0.029	54	731
34	132.50	605	1,342	0.028	53	751
33	127.50	620	1,296	0.027	51	770
32	124.50	126	253	0.005	10	156
31	123.00	278	549	0.011	21	345
30	121.00	595	1,144	0.024	45	739
29	118.75	752	1,404	0.029	55	934
28	117.13	227	416	0.009	16	282
27	115.88	318	572	0.012	22	395
26	112.50	924	1,584	0.033	62	1,147
25	107.50	946	1,510	0.031	59	1,175
24	102.50	967	1,432	0.030	56	1,201
23	97.50	988	1,352	0.028	53	1,227
22	92.50	1,009	1,271	0.027	50	1,253
21	87.50	1,030	1,189	0.025	47	1,279
20	84.00	418	452	0.009	18	519
19	81.50	1,288	1,329	0.028	52	1,599
18	78.50	1,304	1,268	0.026	50	1,620
17	76.00	489	451	0.009	18	607
16	72.50	1,239	1,063	0.022	42	1,538

15	67.50	1,263	968	0.020	38	1,569
14	62.50	1,288	874	0.018	34	1,599
13	57.50	1,312	781	0.016	31	1,629
12	52.50	1,337	689	0.014	27	1,660
11	47.50	1,361	599	0.013	23	1,690
10	42.50	2,647	978	0.020	38	3,287
9	39.00	1,073	346	0.007	14	1,332
8	36.50	837	243	0.005	10	1,039
7	32.50	1,414	342	0.007	13	1,756
6	27.50	1,439	268	0.006	10	1,786
5	22.50	1,463	198	0.004	8	1,817
4	17.50	1,488	136	0.003	5	1,847
3	12.50	1,512	81	0.002	3	1,877
2	7.50	1,537	37	0.001	1	1,908
1	2.50	1,561	7	0.000	0	1,938
Commscope CBC78T-DS-	147.00	62	162	0.003	6	77
Samsung B2/B66A RRH-	147.00	253	662	0.014	26	314
Samsung B5/B13 RRH-B	147.00	211	551	0.011	22	262
Generic 3' Yagi	147.00	10	26	0.001	1	12
RFS DB-C1-12C-24AB-0	147.00	32	84	0.002	3	40
Antel LPA-80080/4CF	147.00	48	125	0.003	5	60
Antel LPA-80063/4CF	147.00	40	105	0.002	4	50
Commscope JAHH-65B-R	147.00	380	993	0.021	39	472
VZW Unused Reserve (	147.00	1,474	3,853	0.080	151	1,830
Flat Platform w/ Han	146.00	2,000	5,172	0.108	203	2,483
Powerwave Allgon LGP	124.00	33	66	0.001	3	41
Powerwave Allgon LGP	124.00	114	228	0.005	9	142
Raycap DC6-48-60-18-	124.00	33	66	0.001	3	41
Raycap DC6-48-60-18-	124.00	32	64	0.001	2	39
Ericsson RRUS 4478 B	124.00	180	359	0.007	14	223
Ericsson RRUS 32 B2	124.00	159	318	0.007	12	197
Ericsson RRUS-11	124.00	330	660	0.014	26	410
Powerwave Allgon 777	124.00	210	420	0.009	16	261
Kathrein Scala 800 1	124.00	41	82	0.002	3	51
KMW AM-X-CD-16-65-00	124.00	97	194	0.004	8	120
KMW EPBQ-654L8H6-L2	124.00	218	437	0.009	17	271
Round Low Profile Pl	124.00	1,500	2,999	0.063	117	1,862
Generic 3' Omni-Grid	117.50	30	55	0.001	2	37
Stand-Off	117.50	150	275	0.006	11	186
Stand-Off	110.00	75	124	0.003	5	93
Generic 8' Yagi	110.00	30	50	0.001	2	37
		44,786	47,948	1.000	1,878	55,607

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
38	146.50	112	292	0.006	11	96
37	145.50	113	290	0.006	11	97
36	142.50	573	1,427	0.030	56	492
35	137.50	589	1,386	0.029	54	506
34	132.50	605	1,342	0.028	53	519
33	127.50	620	1,296	0.027	51	533
32	124.50	126	253	0.005	10	108
31	123.00	278	549	0.011	21	239
30	121.00	595	1,144	0.024	45	511
29	118.75	752	1,404	0.029	55	646
28	117.13	227	416	0.009	16	195
27	115.88	318	572	0.012	22	273
26	112.50	924	1,584	0.033	62	793

25	107.50	946	1,510	0.031	59	812
24	102.50	967	1,432	0.030	56	830
23	97.50	988	1,352	0.028	53	848
22	92.50	1,009	1,271	0.027	50	866
21	87.50	1,030	1,189	0.025	47	884
20	84.00	418	452	0.009	18	359
19	81.50	1,288	1,329	0.028	52	1,106
18	78.50	1,304	1,268	0.026	50	1,120
17	76.00	489	451	0.009	18	420
16	72.50	1,239	1,063	0.022	42	1,064
15	67.50	1,263	968	0.020	38	1,085
14	62.50	1,288	874	0.018	34	1,106
13	57.50	1,312	781	0.016	31	1,127
12	52.50	1,337	689	0.014	27	1,148
11	47.50	1,361	599	0.013	23	1,169
10	42.50	2,647	978	0.020	38	2,273
9	39.00	1,073	346	0.007	14	921
8	36.50	837	243	0.005	10	718
7	32.50	1,414	342	0.007	13	1,214
6	27.50	1,439	268	0.006	10	1,235
5	22.50	1,463	198	0.004	8	1,256
4	17.50	1,488	136	0.003	5	1,277
3	12.50	1,512	81	0.002	3	1,298
2	7.50	1,537	37	0.001	1	1,319
1	2.50	1,561	7	0.000	0	1,340
Commscope CBC78T-DS-	147.00	62	162	0.003	6	53
Samsung B2/B66A RRH-	147.00	253	662	0.014	26	217
Samsung B5/B13 RRH-B	147.00	211	551	0.011	22	181
Generic 3' Yagi	147.00	10	26	0.001	1	9
RFS DB-C1-12C-24AB-0	147.00	32	84	0.002	3	27
Antel LPA-80080/4CF	147.00	48	125	0.003	5	41
Antel LPA-80063/4CF	147.00	40	105	0.002	4	34
Commscope JAHH-65B-R	147.00	380	993	0.021	39	326
VZW Unused Reserve (	147.00	1,474	3,853	0.080	151	1,265
Flat Platform w/ Han	146.00	2,000	5,172	0.108	203	1,717
Powerwave Allgon LGP	124.00	33	66	0.001	3	28
Powerwave Allgon LGP	124.00	114	228	0.005	9	98
Raycap DC6-48-60-18-	124.00	33	66	0.001	3	28
Raycap DC6-48-60-18-	124.00	32	64	0.001	2	27
Ericsson RRUS 4478 B	124.00	180	359	0.007	14	154
Ericsson RRUS 32 B2	124.00	159	318	0.007	12	136
Ericsson RRUS-11	124.00	330	660	0.014	26	283
Powerwave Allgon 777	124.00	210	420	0.009	16	180
Kathrein Scala 800 1	124.00	41	82	0.002	3	35
KMW AM-X-CD-16-65-00	124.00	97	194	0.004	8	83
KMW EPBQ-654L8H6-L2	124.00	218	437	0.009	17	187
Round Low Profile Pl	124.00	1,500	2,999	0.063	117	1,288
Generic 3' Omni-Grid	117.50	30	55	0.001	2	26
Stand-Off	117.50	150	275	0.006	11	129
Stand-Off	110.00	75	124	0.003	5	64
Generic 8' Yagi	110.00	30	50	0.001	2	26
		44,786	47,948	1.000	1,878	38,444

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

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	-53.67	-1.88	0.00	-212.41	0.00	212.41	5,735.95	2,867.97	14,674.9	7,348.40	0.00	0.00	0.038
5.00	-51.76	-1.88	0.00	-203.01	0.00	203.01	5,677.95	2,838.97	14,282.8	7,152.06	0.00	-0.01	0.038
10.00	-49.88	-1.89	0.00	-193.59	0.00	193.59	5,618.68	2,809.34	13,892.6	6,956.64	0.01	-0.01	0.037
15.00	-48.04	-1.89	0.00	-184.15	0.00	184.15	5,558.13	2,779.06	13,504.3	6,762.21	0.03	-0.02	0.036
20.00	-46.22	-1.88	0.00	-174.72	0.00	174.72	5,496.31	2,748.16	13,118.2	6,568.87	0.06	-0.03	0.035
25.00	-44.43	-1.88	0.00	-165.30	0.00	165.30	5,433.22	2,716.61	12,734.4	6,376.70	0.09	-0.04	0.034
30.00	-42.68	-1.87	0.00	-155.91	0.00	155.91	5,368.85	2,684.43	12,353.1	6,185.76	0.13	-0.04	0.033
35.00	-41.64	-1.86	0.00	-146.56	0.00	146.56	5,303.22	2,651.61	11,974.5	5,996.16	0.18	-0.05	0.032
38.00	-40.30	-1.85	0.00	-140.98	0.00	140.98	5,263.22	2,631.61	11,748.6	5,883.07	0.21	-0.05	0.032
40.00	-37.02	-1.81	0.00	-137.27	0.00	137.27	5,236.31	2,618.15	11,598.6	5,807.97	0.24	-0.06	0.031
45.00	-35.33	-1.79	0.00	-128.22	0.00	128.22	5,225.77	2,612.88	11,540.4	5,778.78	0.30	-0.06	0.029
50.00	-33.67	-1.77	0.00	-119.26	0.00	119.26	5,157.39	2,578.69	11,168.0	5,592.31	0.37	-0.07	0.028
55.00	-32.04	-1.74	0.00	-110.43	0.00	110.43	5,087.73	2,543.87	10,798.8	5,407.44	0.45	-0.08	0.027
60.00	-30.44	-1.70	0.00	-101.75	0.00	101.75	5,016.81	2,508.40	10,432.9	5,224.23	0.53	-0.08	0.026
65.00	-28.87	-1.67	0.00	-93.23	0.00	93.23	4,944.61	2,472.30	10,070.5	5,042.78	0.62	-0.09	0.024
70.00	-27.33	-1.63	0.00	-84.90	0.00	84.90	4,871.14	2,435.57	9,711.87	4,863.15	0.71	-0.09	0.023
75.00	-26.72	-1.61	0.00	-76.77	0.00	76.77	4,796.39	2,398.20	9,356.98	4,685.44	0.82	-0.10	0.022
77.00	-25.10	-1.56	0.00	-73.56	0.00	73.56	4,766.14	2,383.07	9,216.13	4,614.92	0.86	-0.10	0.021
80.00	-23.51	-1.50	0.00	-68.89	0.00	68.89	4,720.37	2,360.19	9,006.08	4,509.74	0.92	-0.11	0.020
83.00	-22.99	-1.49	0.00	-64.38	0.00	64.38	3,873.58	1,936.79	7,430.90	3,720.97	0.99	-0.11	0.023
85.00	-21.71	-1.44	0.00	-61.41	0.00	61.41	3,850.55	1,925.28	7,320.62	3,665.75	1.04	-0.11	0.022
90.00	-20.45	-1.39	0.00	-54.21	0.00	54.21	3,792.09	1,896.05	7,046.72	3,528.60	1.16	-0.12	0.021
95.00	-19.23	-1.33	0.00	-47.27	0.00	47.27	3,732.36	1,866.18	6,775.53	3,392.80	1.28	-0.12	0.019
100.00	-18.03	-1.28	0.00	-40.60	0.00	40.60	3,671.36	1,835.68	6,507.21	3,258.44	1.41	-0.13	0.017
105.00	-16.85	-1.22	0.00	-34.22	0.00	34.22	3,609.08	1,804.54	6,241.92	3,125.60	1.55	-0.13	0.016
110.00	-15.57	-1.15	0.00	-28.14	0.00	28.14	3,545.54	1,772.77	5,979.84	2,994.36	1.69	-0.13	0.014
115.00	-15.18	-1.12	0.00	-22.41	0.00	22.41	3,480.72	1,740.36	5,721.12	2,864.81	1.83	-0.14	0.012
116.75	-14.90	-1.11	0.00	-20.44	0.00	20.44	3,457.73	1,728.86	5,631.39	2,819.88	1.88	-0.14	0.012
117.50	-13.74	-1.04	0.00	-19.61	0.00	19.61	3,447.83	1,723.91	5,593.07	2,800.69	1.90	-0.14	0.011
120.00	-13.00	-0.99	0.00	-17.02	0.00	17.02	3,414.62	1,707.31	5,465.93	2,737.03	1.98	-0.14	0.010
122.00	-12.66	-0.97	0.00	-15.04	0.00	15.04	2,344.26	1,172.13	3,784.97	1,895.30	2.04	-0.14	0.013
124.00	-8.84	-0.72	0.00	-13.11	0.00	13.11	2,329.06	1,164.53	3,720.43	1,862.98	2.10	-0.14	0.011
125.00	-8.07	-0.67	0.00	-12.39	0.00	12.39	2,321.37	1,160.69	3,688.23	1,846.86	2.13	-0.14	0.010
130.00	-7.32	-0.61	0.00	-9.07	0.00	9.07	2,282.20	1,141.10	3,528.04	1,766.64	2.28	-0.15	0.008
135.00	-6.59	-0.56	0.00	-6.01	0.00	6.01	2,241.76	1,120.88	3,369.30	1,687.15	2.43	-0.15	0.007
140.00	-5.88	-0.50	0.00	-3.24	0.00	3.24	2,200.04	1,100.02	3,212.17	1,608.47	2.59	-0.15	0.005
145.00	-5.74	-0.49	0.00	-0.75	0.00	0.75	2,157.05	1,078.53	3,056.82	1,530.68	2.74	-0.15	0.003
146.00	-3.12	-0.27	0.00	-0.27	0.00	0.27	2,148.30	1,074.15	3,025.98	1,515.24	2.78	-0.15	0.002
147.00	0.00	-0.26	0.00	0.00	0.00	0.00	2,139.50	1,069.75	2,995.22	1,499.83	2.81	-0.15	0.000

Load Case (0.9 - 0.2Sds) * DL + E ELFM Seismic (Reduced DL) Equivalent Lateral Forces Method

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	-37.10	-1.88	0.00	-210.91	0.00	210.91	5,735.95	2,867.97	14,674.9	7,348.40	0.00	0.00	0.035
5.00	-35.79	-1.88	0.00	-201.52	0.00	201.52	5,677.95	2,838.97	14,282.8	7,152.06	0.00	-0.01	0.034
10.00	-34.49	-1.88	0.00	-192.11	0.00	192.11	5,618.68	2,809.34	13,892.6	6,956.64	0.01	-0.01	0.034
15.00	-33.21	-1.88	0.00	-182.70	0.00	182.70	5,558.13	2,779.06	13,504.3	6,762.21	0.03	-0.02	0.033
20.00	-31.95	-1.88	0.00	-173.29	0.00	173.29	5,496.31	2,748.16	13,118.2	6,568.87	0.06	-0.03	0.032
25.00	-30.72	-1.87	0.00	-163.91	0.00	163.91	5,433.22	2,716.61	12,734.4	6,376.70	0.09	-0.03	0.031
30.00	-29.50	-1.86	0.00	-154.57	0.00	154.57	5,368.85	2,684.43	12,353.1	6,185.76	0.13	-0.04	0.030
35.00	-28.79	-1.85	0.00	-145.28	0.00	145.28	5,303.22	2,651.61	11,974.5	5,996.16	0.18	-0.05	0.030
38.00	-27.86	-1.84	0.00	-139.73	0.00	139.73	5,263.22	2,631.61	11,748.6	5,883.07	0.21	-0.05	0.029
40.00	-25.59	-1.80	0.00	-136.05	0.00	136.05	5,236.31	2,618.15	11,598.6	5,807.97	0.23	-0.06	0.028
45.00	-24.42	-1.78	0.00	-127.05	0.00	127.05	5,225.77	2,612.88	11,540.4	5,778.78	0.30	-0.06	0.027
50.00	-23.28	-1.75	0.00	-118.16	0.00	118.16	5,157.39	2,578.69	11,168.0	5,592.31	0.37	-0.07	0.026
55.00	-22.15	-1.72	0.00	-109.40	0.00	109.40	5,087.73	2,543.87	10,798.8	5,407.44	0.44	-0.08	0.025
60.00	-21.04	-1.69	0.00	-100.79	0.00	100.79	5,016.81	2,508.40	10,432.9	5,224.23	0.52	-0.08	0.023
65.00	-19.96	-1.65	0.00	-92.34	0.00	92.34	4,944.61	2,472.30	10,070.5	5,042.78	0.61	-0.09	0.022
70.00	-18.89	-1.61	0.00	-84.08	0.00	84.08	4,871.14	2,435.57	9,711.87	4,863.15	0.71	-0.09	0.021
75.00	-18.48	-1.59	0.00	-76.03	0.00	76.03	4,796.39	2,398.20	9,356.98	4,685.44	0.81	-0.10	0.020
77.00	-17.36	-1.54	0.00	-72.84	0.00	72.84	4,766.14	2,383.07	9,216.13	4,614.92	0.85	-0.10	0.019
80.00	-16.25	-1.49	0.00	-68.21	0.00	68.21	4,720.37	2,360.19	9,006.08	4,509.74	0.92	-0.10	0.019
83.00	-15.89	-1.47	0.00	-63.74	0.00	63.74	3,873.58	1,936.79	7,430.90	3,720.97	0.98	-0.11	0.021
85.00	-15.01	-1.42	0.00	-60.80	0.00	60.80	3,850.55	1,925.28	7,320.62	3,665.75	1.03	-0.11	0.020
90.00	-14.14	-1.37	0.00	-53.68	0.00	53.68	3,792.09	1,896.05	7,046.72	3,528.60	1.15	-0.12	0.019
95.00	-13.29	-1.32	0.00	-46.80	0.00	46.80	3,732.36	1,866.18	6,775.53	3,392.80	1.27	-0.12	0.017
100.00	-12.46	-1.26	0.00	-40.20	0.00	40.20	3,671.36	1,835.68	6,507.21	3,258.44	1.40	-0.13	0.016
105.00	-11.65	-1.20	0.00	-33.88	0.00	33.88	3,609.08	1,804.54	6,241.92	3,125.60	1.53	-0.13	0.014
110.00	-10.77	-1.13	0.00	-27.86	0.00	27.86	3,545.54	1,772.77	5,979.84	2,994.36	1.67	-0.13	0.012
115.00	-10.49	-1.11	0.00	-22.19	0.00	22.19	3,480.72	1,740.36	5,721.12	2,864.81	1.81	-0.14	0.011
116.75	-10.30	-1.09	0.00	-20.24	0.00	20.24	3,457.73	1,728.86	5,631.39	2,819.88	1.86	-0.14	0.010
117.50	-9.50	-1.03	0.00	-19.42	0.00	19.42	3,447.83	1,723.91	5,593.07	2,800.69	1.89	-0.14	0.010
120.00	-8.99	-0.98	0.00	-16.86	0.00	16.86	3,414.62	1,707.31	5,465.93	2,737.03	1.96	-0.14	0.009
122.00	-8.75	-0.96	0.00	-14.90	0.00	14.90	2,344.26	1,172.13	3,784.97	1,895.30	2.02	-0.14	0.012
124.00	-6.11	-0.71	0.00	-12.98	0.00	12.98	2,329.06	1,164.53	3,720.43	1,862.98	2.08	-0.14	0.010
125.00	-5.58	-0.66	0.00	-12.27	0.00	12.27	2,321.37	1,160.69	3,688.23	1,846.86	2.11	-0.14	0.009
130.00	-5.06	-0.61	0.00	-8.98	0.00	8.98	2,282.20	1,141.10	3,528.04	1,766.64	2.26	-0.14	0.007
135.00	-4.56	-0.55	0.00	-5.95	0.00	5.95	2,241.76	1,120.88	3,369.30	1,687.15	2.41	-0.15	0.006
140.00	-4.06	-0.49	0.00	-3.21	0.00	3.21	2,200.04	1,100.02	3,212.17	1,608.47	2.56	-0.15	0.004
145.00	-3.97	-0.48	0.00	-0.74	0.00	0.74	2,157.05	1,078.53	3,056.82	1,530.68	2.72	-0.15	0.002
146.00	-2.15	-0.26	0.00	-0.26	0.00	0.26	2,148.30	1,074.15	3,025.98	1,515.24	2.75	-0.15	0.001
147.00	0.00	-0.26	0.00	0.00	0.00	0.00	2,139.50	1,069.75	2,995.22	1,499.83	2.78	-0.15	0.000

Equivalent Modal Analysis Method

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.19
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.21
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	1.65
Redundancy Factor (p):	1.00

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
38	146.50	112	1.877	1.913	1.116	0.395	30	139
37	145.50	113	1.852	1.784	1.069	0.377	28	140
36	142.50	573	1.776	1.432	0.937	0.327	125	712
35	137.50	589	1.654	0.954	0.745	0.251	99	731
34	132.50	605	1.536	0.592	0.586	0.185	75	751
33	127.50	620	1.422	0.326	0.455	0.128	53	770
32	124.50	126	1.356	0.205	0.388	0.099	8	156
31	123.00	278	1.323	0.154	0.357	0.085	16	345
30	121.00	595	1.281	0.094	0.319	0.069	27	739
29	118.75	752	1.233	0.038	0.280	0.052	26	934
28	117.13	227	1.200	0.005	0.255	0.040	6	282
27	115.88	318	1.174	-0.018	0.236	0.032	7	395
26	112.50	924	1.107	-0.066	0.191	0.014	9	1,147
25	107.50	946	1.011	-0.107	0.137	-0.006	-4	1,175
24	102.50	967	0.919	-0.121	0.095	-0.018	-12	1,201
23	97.50	988	0.831	-0.117	0.063	-0.022	-14	1,227
22	92.50	1,009	0.748	-0.100	0.040	-0.018	-12	1,253
21	87.50	1,030	0.670	-0.077	0.024	-0.010	-7	1,279
20	84.00	418	0.617	-0.059	0.017	-0.002	0	519
19	81.50	1,288	0.581	-0.046	0.013	0.005	4	1,599
18	78.50	1,304	0.539	-0.030	0.009	0.012	11	1,620
17	76.00	489	0.505	-0.018	0.007	0.019	6	607
16	72.50	1,239	0.460	-0.002	0.006	0.027	22	1,538
15	67.50	1,263	0.399	0.019	0.007	0.037	31	1,569
14	62.50	1,288	0.342	0.035	0.009	0.043	37	1,599
13	57.50	1,312	0.289	0.048	0.013	0.048	42	1,629
12	52.50	1,337	0.241	0.057	0.018	0.050	44	1,660
11	47.50	1,361	0.197	0.063	0.024	0.050	45	1,690
10	42.50	2,647	0.158	0.067	0.029	0.049	86	3,287
9	39.00	1,073	0.133	0.069	0.033	0.048	34	1,332
8	36.50	837	0.117	0.070	0.035	0.047	26	1,039
7	32.50	1,414	0.092	0.071	0.038	0.046	43	1,756
6	27.50	1,439	0.066	0.072	0.041	0.044	43	1,786
5	22.50	1,463	0.044	0.071	0.042	0.043	42	1,817

4	17.50	1,488	0.027	0.067	0.040	0.040	40	1,847
3	12.50	1,512	0.014	0.059	0.035	0.035	36	1,877
2	7.50	1,537	0.005	0.044	0.025	0.027	28	1,908
1	2.50	1,561	0.001	0.019	0.010	0.012	13	1,938
Commscope CBC78T-	147.00	62	1.890	1.980	1.140	0.404	17	77
Samsung B2/B66A RRH-	147.00	253	1.890	1.980	1.140	0.404	68	314
Samsung B5/B13 RRH-B	147.00	211	1.890	1.980	1.140	0.404	57	262
Generic 3' Yagi	147.00	10	1.890	1.980	1.140	0.404	3	12
RFS DB-C1-12C-24AB-0	147.00	32	1.890	1.980	1.140	0.404	9	40
Antel LPA-80080/4CF	147.00	48	1.890	1.980	1.140	0.404	13	60
Antel LPA-80063/4CF	147.00	40	1.890	1.980	1.140	0.404	11	50
Commscope JAHH-65B-	147.00	380	1.890	1.980	1.140	0.404	102	472
VZW Unused Reserve (	147.00	1,474	1.890	1.980	1.140	0.404	397	1,830
Flat Platform w/ Han	146.00	2,000	1.864	1.848	1.092	0.386	514	2,483
Powerwave Allgon LGP	124.00	33	1.345	0.187	0.377	0.094	2	41
Powerwave Allgon LGP	124.00	114	1.345	0.187	0.377	0.094	7	142
Raycap DC6-48-60-18-	124.00	33	1.345	0.187	0.377	0.094	2	41
Raycap DC6-48-60-18-	124.00	32	1.345	0.187	0.377	0.094	2	39
Ericsson RRUS 4478 B	124.00	180	1.345	0.187	0.377	0.094	11	223
Ericsson RRUS 32 B2	124.00	159	1.345	0.187	0.377	0.094	10	197
Ericsson RRUS-11	124.00	330	1.345	0.187	0.377	0.094	21	410
Powerwave Allgon 777	124.00	210	1.345	0.187	0.377	0.094	13	261
Kathrein Scala 800 1	124.00	41	1.345	0.187	0.377	0.094	3	51
KMW AM-X-CD-16-65-00	124.00	97	1.345	0.187	0.377	0.094	6	120
KMW EPBQ-654L8H6-L2	124.00	218	1.345	0.187	0.377	0.094	14	271
Round Low Profile Pl	124.00	1,500	1.345	0.187	0.377	0.094	94	1,862
Generic 3' Omni-Grid	117.50	30	1.208	0.012	0.260	0.043	1	37
Stand-Off	117.50	150	1.208	0.012	0.260	0.043	4	186
Stand-Off	110.00	75	1.058	-0.090	0.162	0.003	0	93
Generic 8' Yagi	110.00	30	1.058	-0.090	0.162	0.003	0	37
		44,786	67.339	29.327	24.465	7.901	2,472	55,607

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
38	146.50	112	1.877	1.913	1.116	0.395	30	96
37	145.50	113	1.852	1.784	1.069	0.377	28	97
36	142.50	573	1.776	1.432	0.937	0.327	125	492
35	137.50	589	1.654	0.954	0.745	0.251	99	506
34	132.50	605	1.536	0.592	0.586	0.185	75	519
33	127.50	620	1.422	0.326	0.455	0.128	53	533
32	124.50	126	1.356	0.205	0.388	0.099	8	108
31	123.00	278	1.323	0.154	0.357	0.085	16	239
30	121.00	595	1.281	0.094	0.319	0.069	27	511
29	118.75	752	1.233	0.038	0.280	0.052	26	646
28	117.13	227	1.200	0.005	0.255	0.040	6	195
27	115.88	318	1.174	-0.018	0.236	0.032	7	273
26	112.50	924	1.107	-0.066	0.191	0.014	9	793
25	107.50	946	1.011	-0.107	0.137	-0.006	-4	812
24	102.50	967	0.919	-0.121	0.095	-0.018	-12	830
23	97.50	988	0.831	-0.117	0.063	-0.022	-14	848
22	92.50	1,009	0.748	-0.100	0.040	-0.018	-12	866
21	87.50	1,030	0.670	-0.077	0.024	-0.010	-7	884
20	84.00	418	0.617	-0.059	0.017	-0.002	0	359
19	81.50	1,288	0.581	-0.046	0.013	0.005	4	1,106
18	78.50	1,304	0.539	-0.030	0.009	0.012	11	1,120
17	76.00	489	0.505	-0.018	0.007	0.019	6	420
16	72.50	1,239	0.460	-0.002	0.006	0.027	22	1,064

15	67.50	1,263	0.399	0.019	0.007	0.037	31	1,085
14	62.50	1,288	0.342	0.035	0.009	0.043	37	1,106
13	57.50	1,312	0.289	0.048	0.013	0.048	42	1,127
12	52.50	1,337	0.241	0.057	0.018	0.050	44	1,148
11	47.50	1,361	0.197	0.063	0.024	0.050	45	1,169
10	42.50	2,647	0.158	0.067	0.029	0.049	86	2,273
9	39.00	1,073	0.133	0.069	0.033	0.048	34	921
8	36.50	837	0.117	0.070	0.035	0.047	26	718
7	32.50	1,414	0.092	0.071	0.038	0.046	43	1,214
6	27.50	1,439	0.066	0.072	0.041	0.044	43	1,235
5	22.50	1,463	0.044	0.071	0.042	0.043	42	1,256
4	17.50	1,488	0.027	0.067	0.040	0.040	40	1,277
3	12.50	1,512	0.014	0.059	0.035	0.035	36	1,298
2	7.50	1,537	0.005	0.044	0.025	0.027	28	1,319
1	2.50	1,561	0.001	0.019	0.010	0.012	13	1,340
Commscope CBC78T-	147.00	62	1.890	1.980	1.140	0.404	17	53
Samsung B2/B66A RRH-	147.00	253	1.890	1.980	1.140	0.404	68	217
Samsung B5/B13 RRH-B	147.00	211	1.890	1.980	1.140	0.404	57	181
Generic 3' Yagi	147.00	10	1.890	1.980	1.140	0.404	3	9
RFS DB-C1-12C-24AB-0	147.00	32	1.890	1.980	1.140	0.404	9	27
Antel LPA-80080/4CF	147.00	48	1.890	1.980	1.140	0.404	13	41
Antel LPA-80063/4CF	147.00	40	1.890	1.980	1.140	0.404	11	34
Commscope JAHH-65B-	147.00	380	1.890	1.980	1.140	0.404	102	326
VZW Unused Reserve (	147.00	1,474	1.890	1.980	1.140	0.404	397	1,265
Flat Platform w/ Han	146.00	2,000	1.864	1.848	1.092	0.386	514	1,717
Powerwave Allgon LGP	124.00	33	1.345	0.187	0.377	0.094	2	28
Powerwave Allgon LGP	124.00	114	1.345	0.187	0.377	0.094	7	98
Raycap DC6-48-60-18-	124.00	33	1.345	0.187	0.377	0.094	2	28
Raycap DC6-48-60-18-	124.00	32	1.345	0.187	0.377	0.094	2	27
Ericsson RRUS 4478 B	124.00	180	1.345	0.187	0.377	0.094	11	154
Ericsson RRUS 32 B2	124.00	159	1.345	0.187	0.377	0.094	10	136
Ericsson RRUS-11	124.00	330	1.345	0.187	0.377	0.094	21	283
Powerwave Allgon 777	124.00	210	1.345	0.187	0.377	0.094	13	180
Kathrein Scala 800 1	124.00	41	1.345	0.187	0.377	0.094	3	35
KMW AM-X-CD-16-65-00	124.00	97	1.345	0.187	0.377	0.094	6	83
KMW EPBQ-654L8H6-L2	124.00	218	1.345	0.187	0.377	0.094	14	187
Round Low Profile Pl	124.00	1,500	1.345	0.187	0.377	0.094	94	1,288
Generic 3' Omni-Grid	117.50	30	1.208	0.012	0.260	0.043	1	26
Stand-Off	117.50	150	1.208	0.012	0.260	0.043	4	129
Stand-Off	110.00	75	1.058	-0.090	0.162	0.003	0	64
Generic 8' Yagi	110.00	30	1.058	-0.090	0.162	0.003	0	26
		44,786	67.339	29.327	24.465	7.901	2,472	38,444

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

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	-53.67	-2.46	0.00	-291.48	0.00	291.48	5,735.95	2,867.97	14,674.99	7,348.40	0.00	0.00	0.049
5.00	-51.76	-2.44	0.00	-279.16	0.00	279.16	5,677.95	2,838.97	14,282.89	7,152.06	0.01	-0.01	0.048
10.00	-49.88	-2.42	0.00	-266.94	0.00	266.94	5,618.68	2,809.34	13,892.62	6,956.64	0.02	-0.02	0.047
15.00	-48.03	-2.38	0.00	-254.86	0.00	254.86	5,558.13	2,779.06	13,504.36	6,762.21	0.05	-0.03	0.046
20.00	-46.22	-2.35	0.00	-242.94	0.00	242.94	5,496.31	2,748.16	13,118.25	6,568.87	0.08	-0.04	0.045
25.00	-44.43	-2.31	0.00	-231.20	0.00	231.20	5,433.22	2,716.61	12,734.46	6,376.70	0.13	-0.05	0.044
30.00	-42.67	-2.28	0.00	-219.64	0.00	219.64	5,368.85	2,684.43	12,353.16	6,185.76	0.18	-0.06	0.043
35.00	-41.64	-2.25	0.00	-208.26	0.00	208.26	5,303.22	2,651.61	11,974.52	5,996.16	0.25	-0.07	0.043
38.00	-40.30	-2.22	0.00	-201.50	0.00	201.50	5,263.22	2,631.61	11,748.67	5,883.07	0.30	-0.07	0.042
40.00	-37.02	-2.13	0.00	-197.06	0.00	197.06	5,236.31	2,618.15	11,598.69	5,807.97	0.33	-0.08	0.041
45.00	-35.33	-2.09	0.00	-186.39	0.00	186.39	5,225.77	2,612.88	11,540.40	5,778.78	0.41	-0.09	0.039
50.00	-33.67	-2.05	0.00	-175.92	0.00	175.92	5,157.39	2,578.69	11,168.03	5,592.31	0.51	-0.10	0.038
55.00	-32.04	-2.01	0.00	-165.67	0.00	165.67	5,087.73	2,543.87	10,798.83	5,407.44	0.62	-0.11	0.037
60.00	-30.44	-1.98	0.00	-155.60	0.00	155.60	5,016.81	2,508.40	10,432.96	5,224.23	0.74	-0.12	0.036
65.00	-28.87	-1.95	0.00	-145.72	0.00	145.72	4,944.61	2,472.30	10,070.58	5,042.78	0.87	-0.13	0.035
70.00	-27.33	-1.93	0.00	-135.98	0.00	135.98	4,871.14	2,435.57	9,711.87	4,863.15	1.00	-0.14	0.034
75.00	-26.72	-1.92	0.00	-126.35	0.00	126.35	4,796.39	2,398.20	9,356.98	4,685.44	1.15	-0.15	0.033
77.00	-25.10	-1.91	0.00	-122.51	0.00	122.51	4,766.14	2,383.07	9,216.13	4,614.92	1.21	-0.15	0.032
80.00	-23.50	-1.90	0.00	-116.78	0.00	116.78	4,720.37	2,360.19	9,006.08	4,509.74	1.31	-0.15	0.031
83.00	-22.98	-1.90	0.00	-111.07	0.00	111.07	3,873.58	1,936.79	7,430.90	3,720.97	1.41	-0.16	0.036
85.00	-21.70	-1.91	0.00	-107.26	0.00	107.26	3,850.55	1,925.28	7,320.62	3,665.75	1.47	-0.16	0.035
90.00	-20.45	-1.92	0.00	-97.71	0.00	97.71	3,792.09	1,896.05	7,046.72	3,528.60	1.65	-0.17	0.033
95.00	-19.22	-1.94	0.00	-88.10	0.00	88.10	3,732.36	1,866.18	6,775.53	3,392.80	1.84	-0.18	0.031
100.00	-18.02	-1.95	0.00	-78.43	0.00	78.43	3,671.36	1,835.68	6,507.21	3,258.44	2.03	-0.19	0.029
105.00	-16.85	-1.95	0.00	-68.70	0.00	68.70	3,609.08	1,804.54	6,241.92	3,125.60	2.24	-0.20	0.027
110.00	-15.57	-1.94	0.00	-58.96	0.00	58.96	3,545.54	1,772.77	5,979.84	2,994.36	2.45	-0.21	0.024
115.00	-15.17	-1.93	0.00	-49.27	0.00	49.27	3,480.72	1,740.36	5,721.12	2,864.81	2.68	-0.22	0.022
116.75	-14.89	-1.92	0.00	-45.89	0.00	45.89	3,457.73	1,728.86	5,631.39	2,819.88	2.76	-0.22	0.021
117.50	-13.73	-1.89	0.00	-44.45	0.00	44.45	3,447.83	1,723.91	5,593.07	2,800.69	2.79	-0.22	0.020
120.00	-13.00	-1.86	0.00	-39.73	0.00	39.73	3,414.62	1,707.31	5,465.93	2,737.03	2.91	-0.22	0.018
122.00	-12.65	-1.84	0.00	-36.01	0.00	36.01	2,344.26	1,172.13	3,784.97	1,895.30	3.00	-0.23	0.024
124.00	-8.84	-1.63	0.00	-32.33	0.00	32.33	2,329.06	1,164.53	3,720.43	1,862.98	3.10	-0.23	0.021
125.00	-8.07	-1.58	0.00	-30.69	0.00	30.69	2,321.37	1,160.69	3,688.23	1,846.86	3.14	-0.23	0.020
130.00	-7.32	-1.50	0.00	-22.80	0.00	22.80	2,282.20	1,141.10	3,528.04	1,766.64	3.39	-0.23	0.016
135.00	-6.58	-1.40	0.00	-15.29	0.00	15.29	2,241.76	1,120.88	3,369.30	1,687.15	3.64	-0.24	0.012
140.00	-5.87	-1.27	0.00	-8.29	0.00	8.29	2,200.04	1,100.02	3,212.17	1,608.47	3.89	-0.24	0.008
145.00	-5.73	-1.24	0.00	-1.93	0.00	1.93	2,157.05	1,078.53	3,056.82	1,530.68	4.14	-0.24	0.004
146.00	-3.11	-0.69	0.00	-0.69	0.00	0.69	2,148.30	1,074.15	3,025.98	1,515.24	4.19	-0.24	0.002
147.00	0.00	-0.68	0.00	0.00	0.00	0.00	2,139.50	1,069.75	2,995.22	1,499.83	4.25	-0.24	0.000

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

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	-37.10	-2.46	0.00	-289.27	0.00	289.27	5,735.95	2,867.97	14,674.99	7,348.40	0.00	0.00	0.046
5.00	-35.78	-2.44	0.00	-276.96	0.00	276.96	5,677.95	2,838.97	14,282.89	7,152.06	0.01	-0.01	0.045
10.00	-34.49	-2.41	0.00	-264.76	0.00	264.76	5,618.68	2,809.34	13,892.62	6,956.64	0.02	-0.02	0.044
15.00	-33.21	-2.37	0.00	-252.72	0.00	252.72	5,558.13	2,779.06	13,504.36	6,762.21	0.05	-0.03	0.043
20.00	-31.95	-2.34	0.00	-240.84	0.00	240.84	5,496.31	2,748.16	13,118.25	6,568.87	0.08	-0.04	0.042
25.00	-30.72	-2.30	0.00	-229.15	0.00	229.15	5,433.22	2,716.61	12,734.46	6,376.70	0.13	-0.05	0.042
30.00	-29.50	-2.26	0.00	-217.65	0.00	217.65	5,368.85	2,684.43	12,353.16	6,185.76	0.18	-0.06	0.041
35.00	-28.78	-2.24	0.00	-206.35	0.00	206.35	5,303.22	2,651.61	11,974.52	5,996.16	0.25	-0.07	0.040
38.00	-27.86	-2.20	0.00	-199.64	0.00	199.64	5,263.22	2,631.61	11,748.67	5,883.07	0.29	-0.07	0.039
40.00	-25.59	-2.12	0.00	-195.24	0.00	195.24	5,236.31	2,618.15	11,598.69	5,807.97	0.32	-0.08	0.039
45.00	-24.42	-2.07	0.00	-184.65	0.00	184.65	5,225.77	2,612.88	11,540.40	5,778.78	0.41	-0.09	0.037
50.00	-23.27	-2.03	0.00	-174.27	0.00	174.27	5,157.39	2,578.69	11,168.03	5,592.31	0.51	-0.10	0.036
55.00	-22.15	-1.99	0.00	-164.11	0.00	164.11	5,087.73	2,543.87	10,798.83	5,407.44	0.62	-0.11	0.035
60.00	-21.04	-1.96	0.00	-154.15	0.00	154.15	5,016.81	2,508.40	10,432.96	5,224.23	0.73	-0.12	0.034
65.00	-19.96	-1.93	0.00	-144.36	0.00	144.36	4,944.61	2,472.30	10,070.58	5,042.78	0.86	-0.13	0.033
70.00	-18.89	-1.91	0.00	-134.73	0.00	134.73	4,871.14	2,435.57	9,711.87	4,863.15	0.99	-0.13	0.032
75.00	-18.47	-1.90	0.00	-125.20	0.00	125.20	4,796.39	2,398.20	9,356.98	4,685.44	1.14	-0.14	0.031
77.00	-17.35	-1.89	0.00	-121.40	0.00	121.40	4,766.14	2,383.07	9,216.13	4,614.92	1.20	-0.15	0.030
80.00	-16.25	-1.88	0.00	-115.74	0.00	115.74	4,720.37	2,360.19	9,006.08	4,509.74	1.30	-0.15	0.029
83.00	-15.89	-1.88	0.00	-110.09	0.00	110.09	3,873.58	1,936.79	7,430.90	3,720.97	1.39	-0.16	0.034
85.00	-15.00	-1.89	0.00	-106.32	0.00	106.32	3,850.55	1,925.28	7,320.62	3,665.75	1.46	-0.16	0.033
90.00	-14.14	-1.90	0.00	-96.88	0.00	96.88	3,792.09	1,896.05	7,046.72	3,528.60	1.64	-0.17	0.031
95.00	-13.29	-1.92	0.00	-87.37	0.00	87.37	3,732.36	1,866.18	6,775.53	3,392.80	1.82	-0.18	0.029
100.00	-12.46	-1.93	0.00	-77.79	0.00	77.79	3,671.36	1,835.68	6,507.21	3,258.44	2.02	-0.19	0.027
105.00	-11.65	-1.93	0.00	-68.16	0.00	68.16	3,609.08	1,804.54	6,241.92	3,125.60	2.22	-0.20	0.025
110.00	-10.76	-1.92	0.00	-58.51	0.00	58.51	3,545.54	1,772.77	5,979.84	2,994.36	2.43	-0.21	0.023
115.00	-10.49	-1.91	0.00	-48.92	0.00	48.92	3,480.72	1,740.36	5,721.12	2,864.81	2.65	-0.21	0.020
116.75	-10.29	-1.91	0.00	-45.57	0.00	45.57	3,457.73	1,728.86	5,631.39	2,819.88	2.73	-0.22	0.019
117.50	-9.49	-1.87	0.00	-44.14	0.00	44.14	3,447.83	1,723.91	5,593.07	2,800.69	2.77	-0.22	0.019
120.00	-8.98	-1.84	0.00	-39.46	0.00	39.46	3,414.62	1,707.31	5,465.93	2,737.03	2.88	-0.22	0.017
122.00	-8.74	-1.83	0.00	-35.78	0.00	35.78	2,344.26	1,172.13	3,784.97	1,895.30	2.98	-0.22	0.023
124.00	-6.11	-1.62	0.00	-32.12	0.00	32.12	2,329.06	1,164.53	3,720.43	1,862.98	3.07	-0.23	0.020
125.00	-5.57	-1.57	0.00	-30.50	0.00	30.50	2,321.37	1,160.69	3,688.23	1,846.86	3.12	-0.23	0.019
130.00	-5.06	-1.49	0.00	-22.66	0.00	22.66	2,282.20	1,141.10	3,528.04	1,766.64	3.36	-0.23	0.015
135.00	-4.55	-1.39	0.00	-15.20	0.00	15.20	2,241.76	1,120.88	3,369.30	1,687.15	3.60	-0.24	0.011
140.00	-4.06	-1.26	0.00	-8.24	0.00	8.24	2,200.04	1,100.02	3,212.17	1,608.47	3.85	-0.24	0.007
145.00	-3.96	-1.24	0.00	-1.92	0.00	1.92	2,157.05	1,078.53	3,056.82	1,530.68	4.11	-0.24	0.003
146.00	-2.15	-0.68	0.00	-0.68	0.00	0.68	2,148.30	1,074.15	3,025.98	1,515.24	4.16	-0.24	0.001
147.00	0.00	-0.68	0.00	0.00	0.00	0.00	2,139.50	1,069.75	2,995.22	1,499.83	4.21	-0.24	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	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 + 1.6W	24.45	0.00	53.72	0.00	0.00	2635.57	0.00	0.37
0.9D + 1.6W	24.44	0.00	40.29	0.00	0.00	2619.90	0.00	0.36
1.2D + 1.0Di + 1.0Wi	5.09	0.00	85.26	0.00	0.00	541.82	0.00	0.09
(1.2 + 0.2Sds) * DL + E ELFM	1.88	0.00	53.67	0.00	0.00	212.41	0.00	0.04
(1.2 + 0.2Sds) * DL + E EMAM	2.46	0.00	53.67	0.00	0.00	291.48	0.00	0.05
(0.9 - 0.2Sds) * DL + E ELFM	1.88	0.00	37.10	0.00	0.00	210.91	0.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	2.46	0.00	37.10	0.00	0.00	289.27	0.00	0.05
1.0D + 1.0W	5.69	0.00	44.79	0.00	0.00	611.05	0.00	0.09

Site Name: Good Hill CT, CT
Site Number: 411180
Tower Type: MP
Design Loads (Factored) - Analysis per TIA-222-G Standards

Monolithic Mat & Pier Foundation Analysis

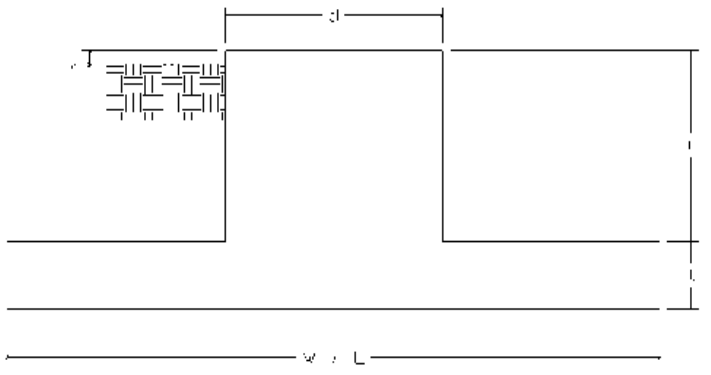
Foundation Analysis Parameters		
Design / Analysis / Mapping:	Analysis	-
Compression/Leg:	53.7	k
Uplift/Leg:	0.0	k
Total Shear:	24.5	k
Moment:	2,635.6	k-ft
Tower + Appurtenance Weight:	53.7	k
Depth to Base of Foundation (l + t - h):	10	ft
Diameter of Pier (d):	9.07	ft
Length of Pier (l):	7.5	ft
Height of Pier above Ground (h):	0.5	ft
Width of Pad (W):	28	ft
Length of Pad (L):	28	ft
Thickness of Pad (t):	3	ft
Tower Leg Center to Center:	0	ft
Number of Tower Legs:	1	-
Tower Center from Mat Center:	0	ft
Depth Below Ground Surface to Water Table:	5	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil Above Water Table:	135	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	72.6	pcf
Friction Angle of Uplift:	15	°
Coefficient of Shear Friction:	0.2	-
Ultimate Compressive Bearing Pressure:	24,000	psf
Ultimate Passive Pressure on Pad Face:	0	psf
$f_{Soil\ and\ Concrete\ Weight}$:	0.9	-
f_{Soil}:	0.75	-

Foundation Steel Parameters		
Concrete Strength (f'_c):	3,000	psi
Pad Tension Steel Depth:	32.0	in
Dead Load Factor:	0.9	-
f_{Shear}:	0.75	-
$f_{Flexure\ /\ Tension}$:	0.9	-
$f_{Compression:}$	0.65	-
b:	0.85	-
Bottom Pad Rebar Size #:	11	-
# of Bottom Pad Rebar:	48	-
Pad Bottom Steel Area:	74.88	in^2
Pad Steel F_y:	60,000	psi
Top Pad Rebar Size #:	11	-
# of Top Pad Rebar:	48	-
Pad Top Steel Area:	74.88	in^2
Pier Rebar Size #:	11	-
Pier Steel Area (Single Bar):	1.56	in^2
# of Pier Rebar:	48	-
Pier Steel F_y:	60,000	psi
Pier Cage Diameter:	100.8	in
Rebar Strain Limit:	0.008	-
Steel Elastic Modulus:	29,000	ksi
Tie Rebar Size #:	5	-
Tie Steel Area (Single Bar):	0.31	in^2
Tie Spacing:	4	in
Tie Steel F_y:	40,000	psi

Overturning Moment Usage		
Design OTM:	2892.3	k-ft
OTM Resistance:	12573.4	k-ft
Design OTM / OTM Resistance:	23%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:	963	psf
Factored Nominal Bearing Pressure:	18000	psf
Factored Nominal (Net) Bearing Pressure:	5%	Pass
Load Direction Controling Design Bearing Pressure:	*Diagonal to Pad Edge*	

Sliding Factor of Safety		
Ultimate Friction Resistance:	181.1	k
Ultimate Passive Pressure Resistance:	0.0	k
Total Factored Sliding Resistance:	135.8	k
Sliding Design / Sliding Resistance:	18%	Pass



Pad Strength Capacity			
Factored One Way Shear (V_u):	147.5	k	
One Way Shear Capacity (fV_c):	883.4	k	*ACI11.3.1.1*
V_u / fV_c:	17%	Pass	
Load Direction Controling Shear Capacity:	*Parallel to Pad Edge*		
Lower Steel Pad Factored Moment (M_u):	988.6	k-ft	
Lower Steel Pad Moment Capacity (fM_n):	10031.8	k-ft	*ACI10.3*
M_u / fM_n:	10%	Pass	
Load Direction Controling Flexural Capacity:	*Parallel to Pad Edge*		
Upper Steel Pad Factored Moment (M_u):	609.7	k-ft	
Upper Steel Pad Moment Capacity (fM_n):	10031.8	k-ft	
M_u / fM_n:	6%	Pass	
Lower Pad Flexural Reinforcement Ratio:	0.0070		*OK - Minimum Reinforcement Ratio Met - ACI10.5.1*
Upper Pad Flexural Reinforcement Ratio:	0.0070		*OK - Minimum Reinforcement Ratio Met - ACI10.5.1*
Pad Shrinkage Reinforcement Ratio:	0.0139		*OK - Shrinkage Reinforcement Ratio Met - ACI7.12.2.1*
Lower Pad Reinforcement Spacing:	7	in	*Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4*
Upper Pad Reinforcement Spacing:	7	in	*Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4*
Factored Punching Shear (V_u):	0.0	k	
Nominal Punching Shear Capacity (f_cV_n):	2326.5	k	*ACI11.12.2.1*
V_u / fV_c:	0%	Pass	

Pier Strength Capacity			
Factored Moment in Pier (M_u):	2818.9	k-ft	
Pier Moment Capacity (fM_n):	16615.6	k-ft	
M_u / fM_n:	17%	Pass	
Factored Shear in Pier (V_u):	24.5	k	
Pier Shear Capacity (fV_n):	1171.5	k	
V_u / fV_c:	2%	Pass	
Pier Shear Reinforcement Ratio:	0.0004		*OK - No Ties Necessary for Shear - ACI11.5.6.1*
Factored Tension in Pier (T_u):	0.0	k	
Pier Tension Capacity (fT_n):	4043.5	k	
T_u / fT_n:	0%	Pass	
Factored Compression in Pier (P_u):	53.7	k	
Pier Compression Capacity (fP_n):	12237.7	k	*ACI10.3.6.2*
P_u / fP_n:	0%	Pass	
Pier Compression Reinforcement Ratio:	0.008		*OK - Reinforcement Ratio Met - ACI10.9.1 & 10.8.4*
Minimum Depth to Develop Vertical Rebar:	31	in	*ACI12.2.3*
Minimum Hook Development Length:	22	in	*ACI12.5*
Minimum Mat Thickness / Edge Distance from Pier:	25.0	in	
Minimum Foundation Depth:	4.93	ft	
$M_u/f_BM_n + T_u/f_TT_n$:	17%	Pass	

Base Plate & Anchor Rod Analysis

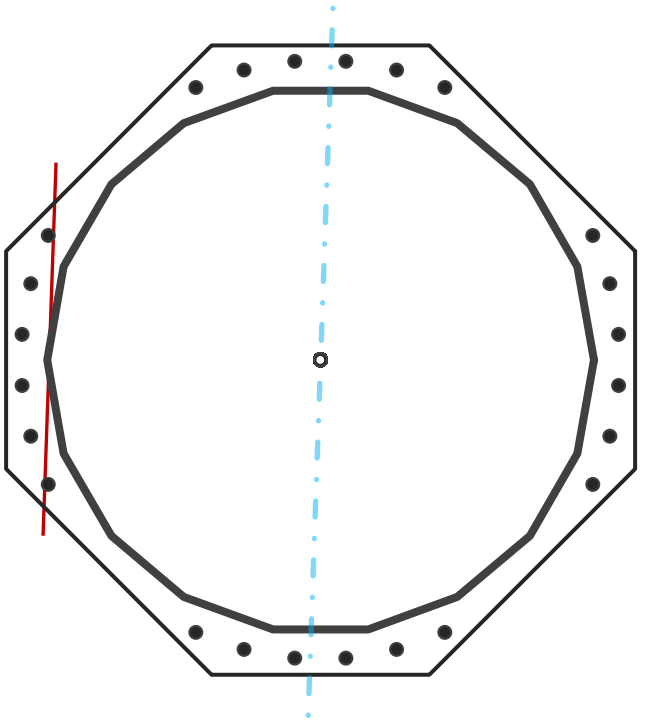
Pole Dimensions		
Number of Sides	18	-
Diameter	62.7	in
Thickness	0.4375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2635.6	k-ft
Axial, Pu	53.7	k
Shear, Vu	24.5	k
Neutral Axis	88	°

Report Capacities		
Component	Capacity	Result
Base Plate	23%	Pass
Anchor Rods	30%	Pass
Dwyidag	-	-

Base Plate		
Shape	Square	-
Width	70	in
Thickness	3	in
Grade	Other	
Yield Strength, Fy	55	ksi
Tensile Strength, Fu	70	ksi
Clip	18	in
Orientation Offset	45	°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	935.3	k
Bending Stress, ϕMn	4014.5	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	24	-
Diameter, ø	2 1/4	in
Bolt Circle	70	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	45	°
Applied Force, Pu	77.4	k
Anchor Rods, ϕPn	259.8	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	24.5	2635.6	1.00
Anchor Rod Forces	24.5	2635.6	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 Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	85.1427	4.7301	0.3029		41263.67
Bolt	3.9761	3.2477	0.8393	4.5	47761.18
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	70	in
Thickness, t	3	in
Yield Strength, Fy	55	ksi
Tensile Strength, Fu	70	ksi
Base Plate Chord	31.124	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	24	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	70	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	77.4	k
Applied Shear, Vu	0.1	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.298	OK
Interaction Capacity	0.299	OK

External Base Plate		
Chord Length AA	36.045	in
Additional AA	0.000	in
Section Modulus, Z	81.101	in^3
Applied Moment, Mu	935.3	k-ft
Bending Capacity, ϕMn	4014.5	k-ft
Capacity, Mu/ϕMn	0.233	OK
Chord Length AB	35.074	in
Additional AB	0.000	in
Section Modulus, Z	78.916	in^3
Applied Moment, Mu	752.7	k-ft
Bending Capacity, ϕMn	3906.3	k-ft
Capacity, Mu/ϕMn	0.193	OK
Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in^3
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in^3
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

AMERICAN TOWER®
CORPORATION

Antenna Mount Analysis Report

ATC Site Name	:	**Good Hill CT, CT**
ATC Site Number	:	**411180**
Engineering Number	:	**13001538_C8_07**
Mount Elevation	:	**146 ft**
Carrier	:	**Verizon Wireless**
Carrier Site Name	:	**WOODBURY W CT**
Carrier Site Number	:	**469342**
Site Location	:	**481 GOOD HILL ROAD** **Woodbury, CT 06798-2507** **41.557222 , -73.256778**
County	:	**Litchfield**
Date	:	**February 20, 2020**
Max Usage	:	**75%**
Result	:	**Contingent Pass**

Prepared By:
Parvin Nikpoorparizi
Structural Engineer I

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32593
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
25 Feb 2020 04:50:07 cosign

COA: PEC.0001553

Table of Contents

Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for Verizon Wireless at 146 ft.

Supporting Documents

Mount Mapping	Infinigy Project #469342, dated November 19, 2019
RFDS	RFDS dated November 25, 2019
Photos	Site photos from 2018

Analysis

This antenna mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

Basic Wind Speed:	93 mph (3-Second Gust, Vasd) / 120 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	40 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Codes:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	S_S = 0.195, S_1 = 0.065
Site Class:	D - Stiff Soil
Live Loads:	L_m = 500 lbs, L_v = 250 lbs

Conclusion

Based on the analysis results, the antenna mount does not meet the requirements per the applicable codes listed above. The mount can support the equipment as described in this report after the below listed modifications are completed:

- Install Site Pro 1 VSK-MHD V-Style monopole reinforcement kits (60" vertical separation) with Site Pro 1 SCX23-K crossover plate kits and Site Pro 1 P30150 (2-7/8" - 150") bulk pipe on the platform approximately 3" below the bottom platform horizontal.

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.

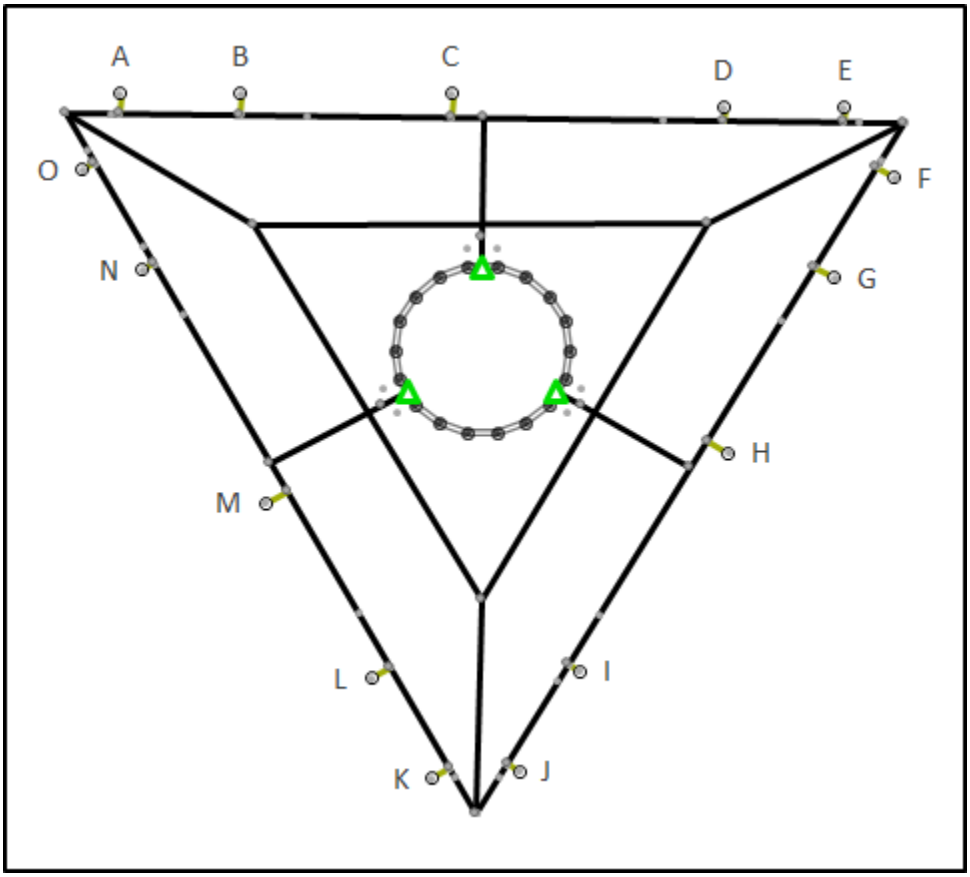
Application Loading

Mount Centerline (ft)	Antenna Centerline (ft)	Qty	Antenna Model
146.0	147.0	6	Commscope JAHH-65B-R3B (63.3 lb)
		2	Antel LPA-80063/4CF
		4	Antel LPA-80080/4CF ___
		3	Commscope CBC78T-DS-43-2X
		1	RFS DB-C1-12C-24AB-0Z
		3	Samsung B2/B66A RRH-BR049
		3	Samsung B5/B13 RRH-BR04C

Structure Usages

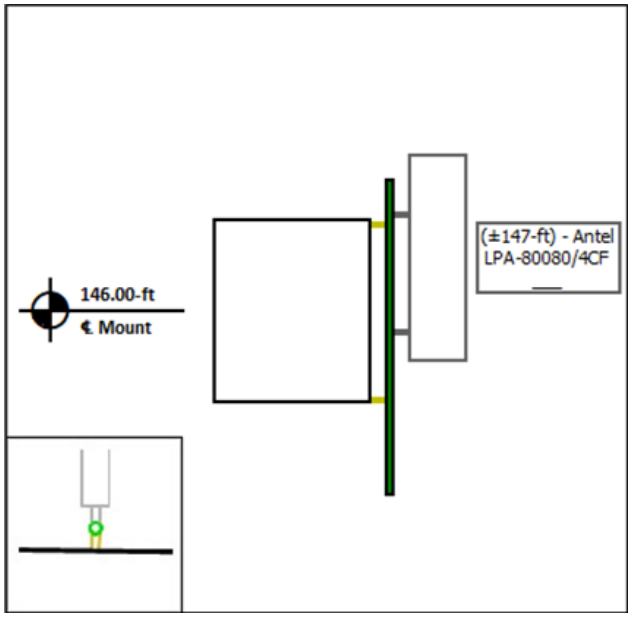
Structural Component	Controlling Usage	Pass/Fail
Horizontals	75%	Pass
Mount Pipes	39%	Pass
Handrails	66%	Pass
Mod-Kits	36%	Pass

Mount Layout

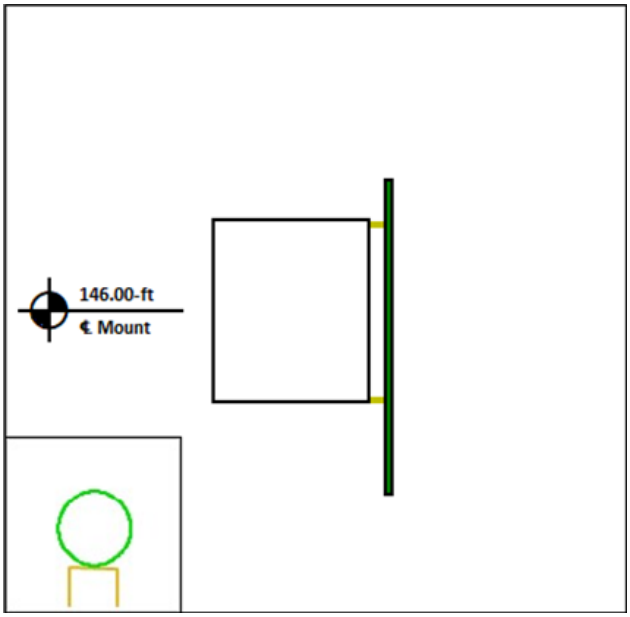


Equipment Layout

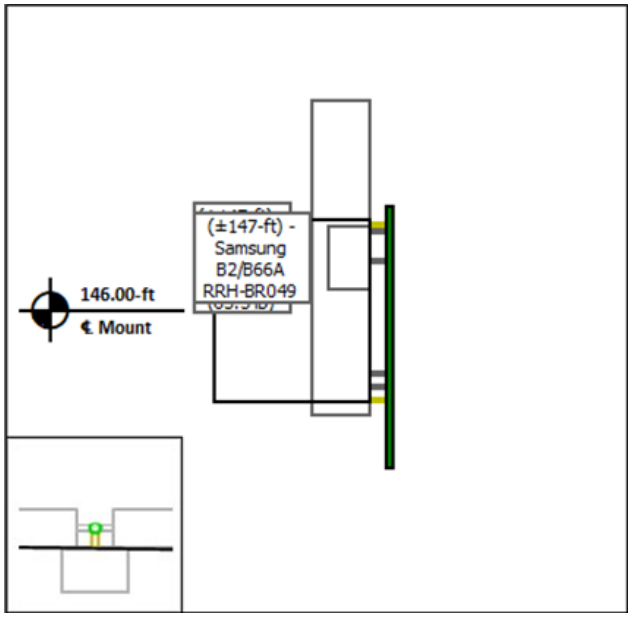
Mount Pipe A



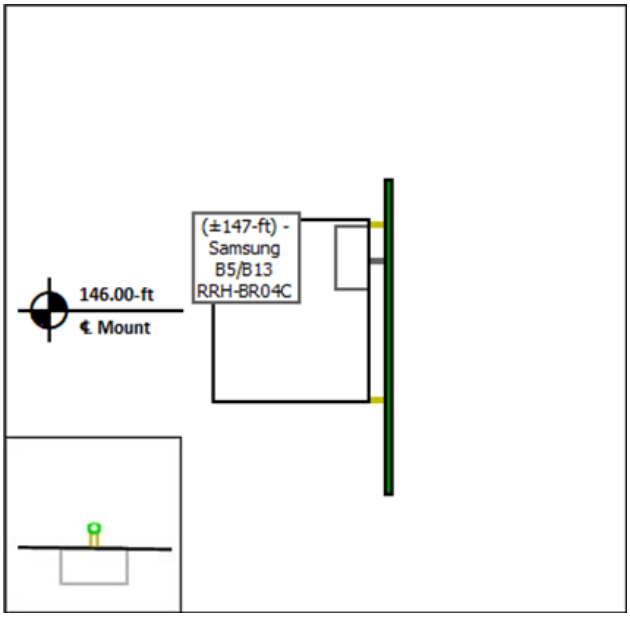
Mount Pipe B



Mount Pipe C

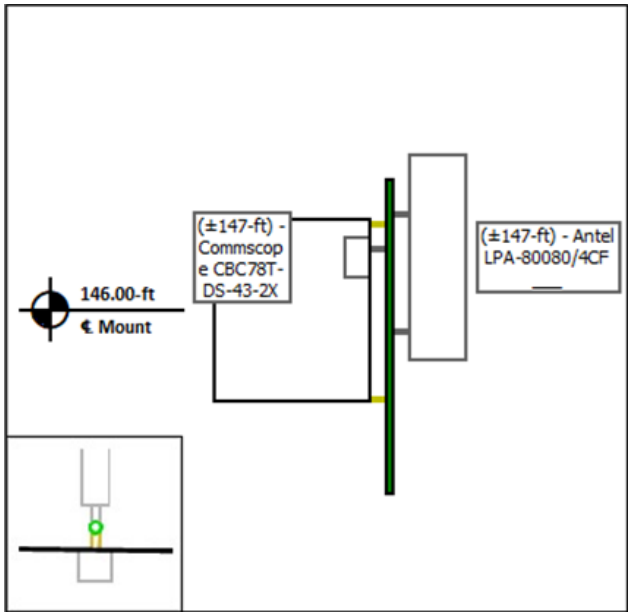


Mount Pipe D

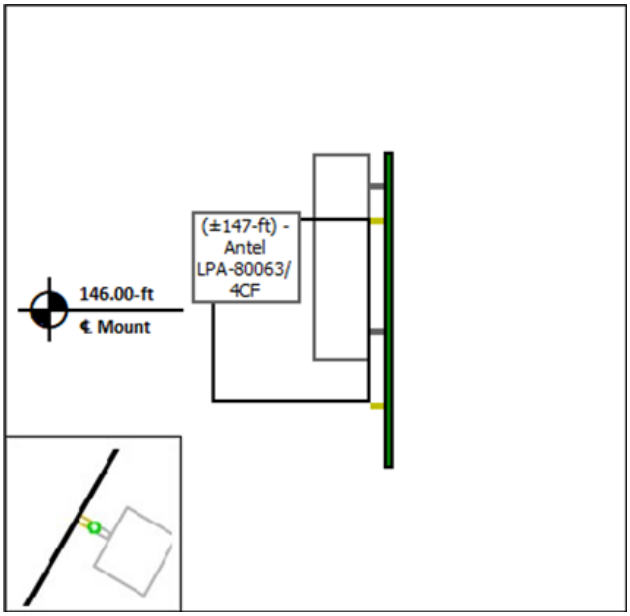


Equipment Layout Cont'd.

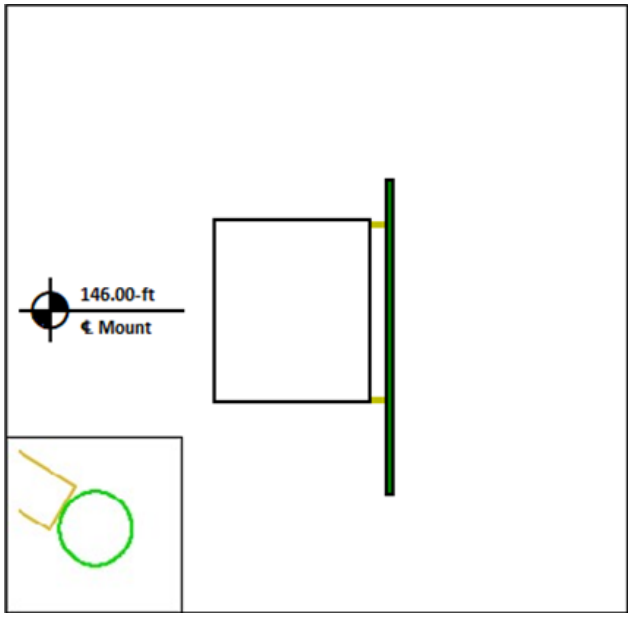
Mount Pipe E



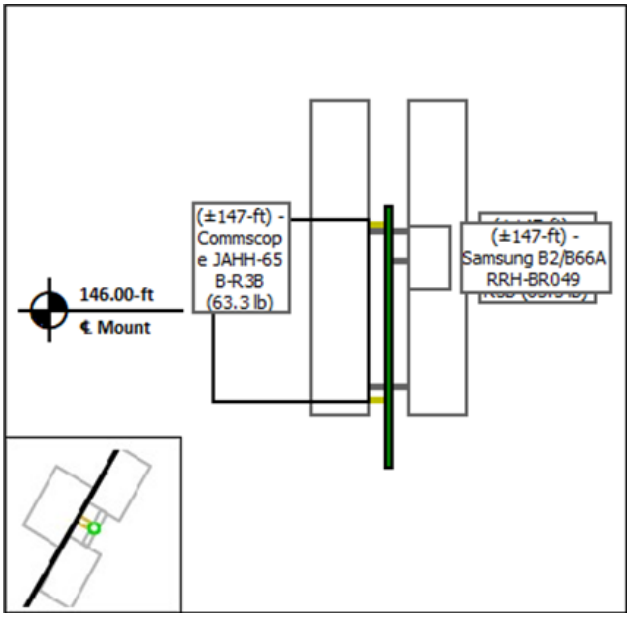
Mount Pipe F



Mount Pipe G

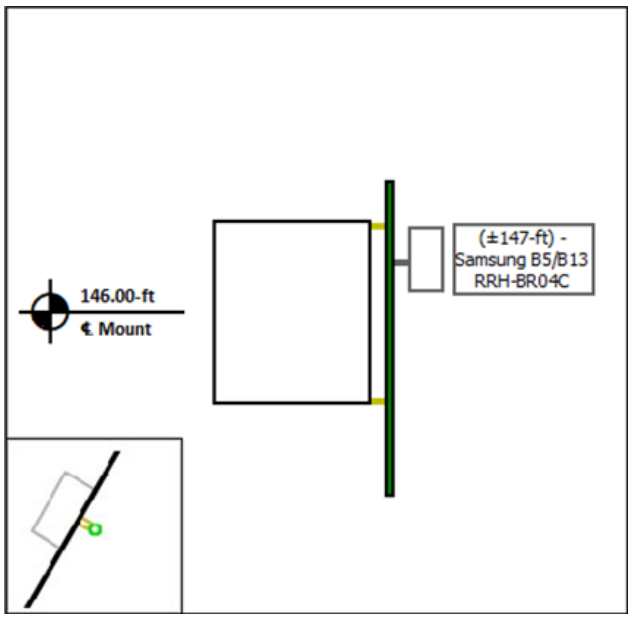


Mount Pipe H

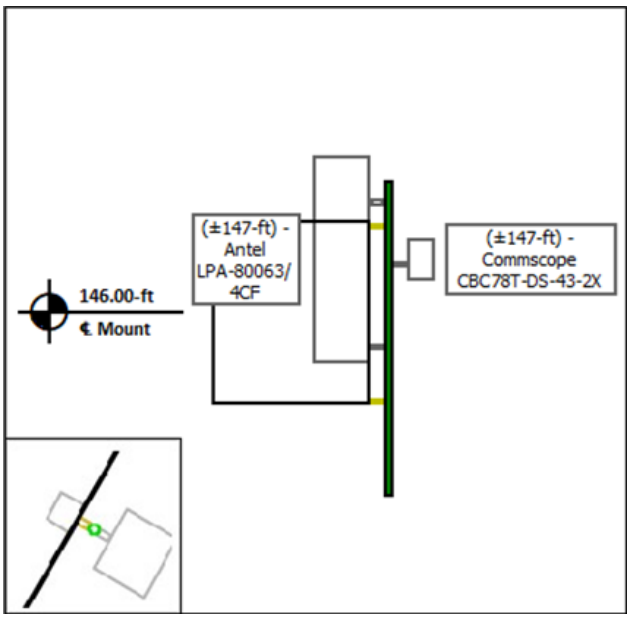


Equipment Layout Cont'd.

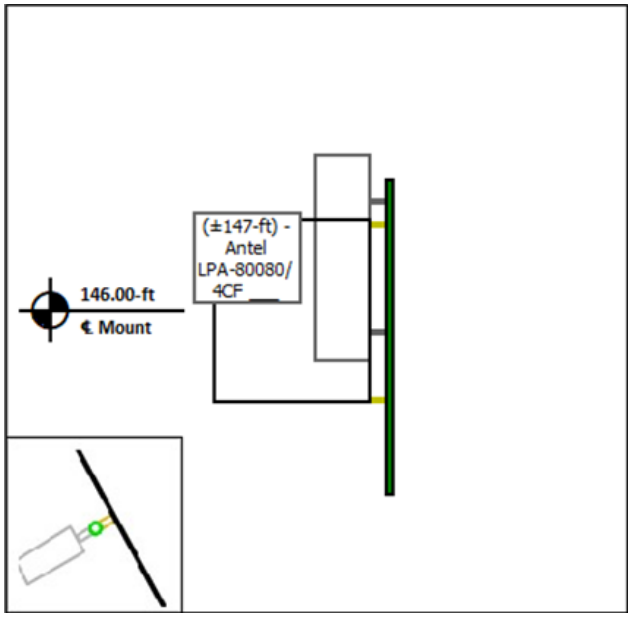
Mount Pipe I



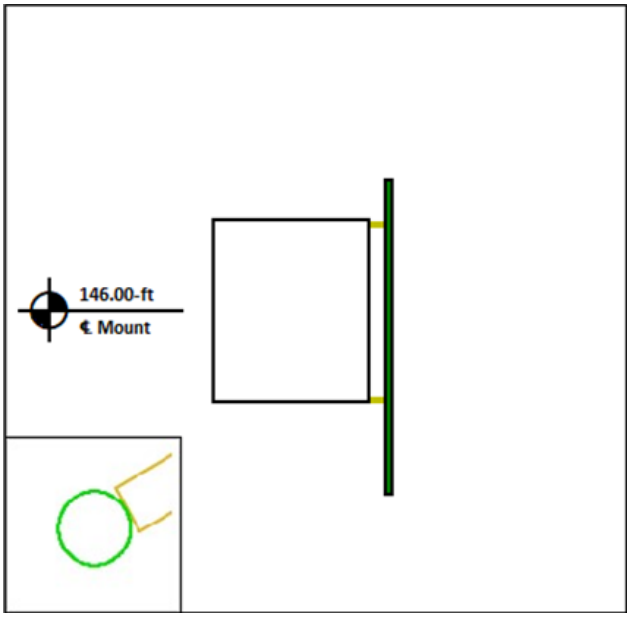
Mount Pipe J



Mount Pipe K

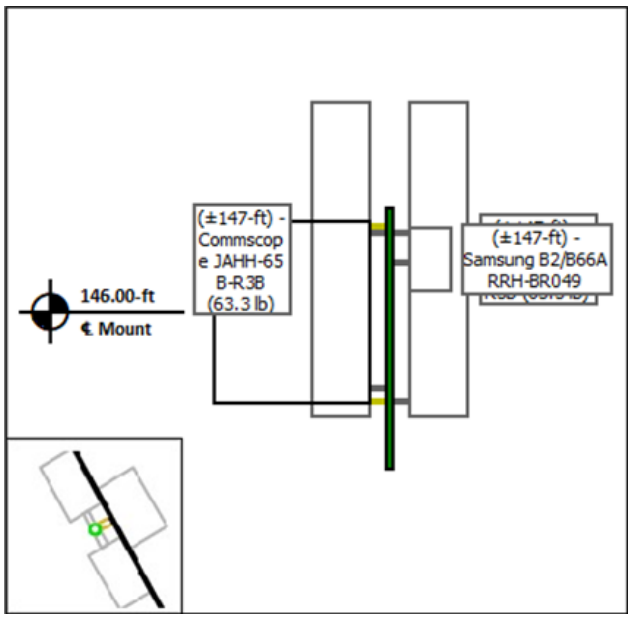


Mount Pipe L

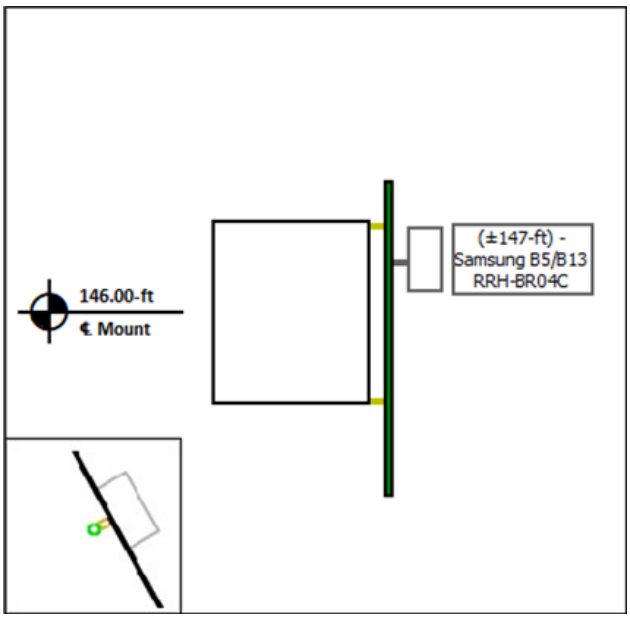


Equipment Layout Cont'd.

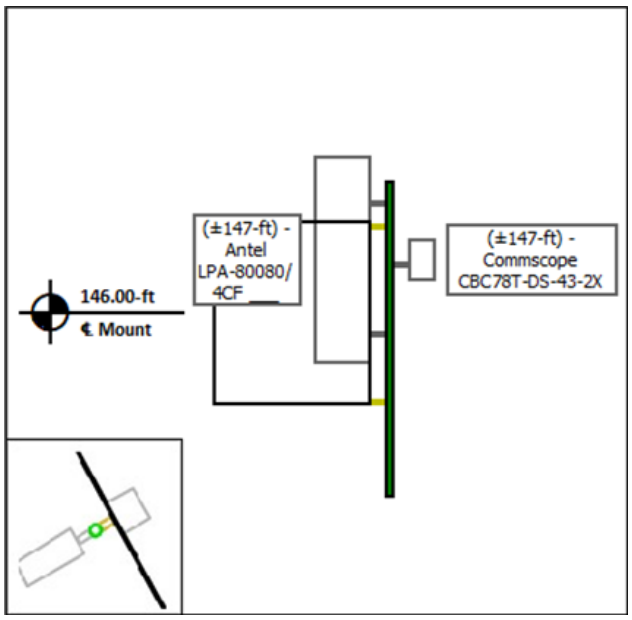
Mount Pipe M



Mount Pipe N



Mount Pipe O



Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC 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 Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC 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.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

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

AMERICAN TOWER®
CORPORATION

Site Number:	*411180*
Project Number:	*13001538_C8_07*
Carrier:	*Verizon Wireless*
Mount Elevation:	*146 ft*
Date:	2/20/2020

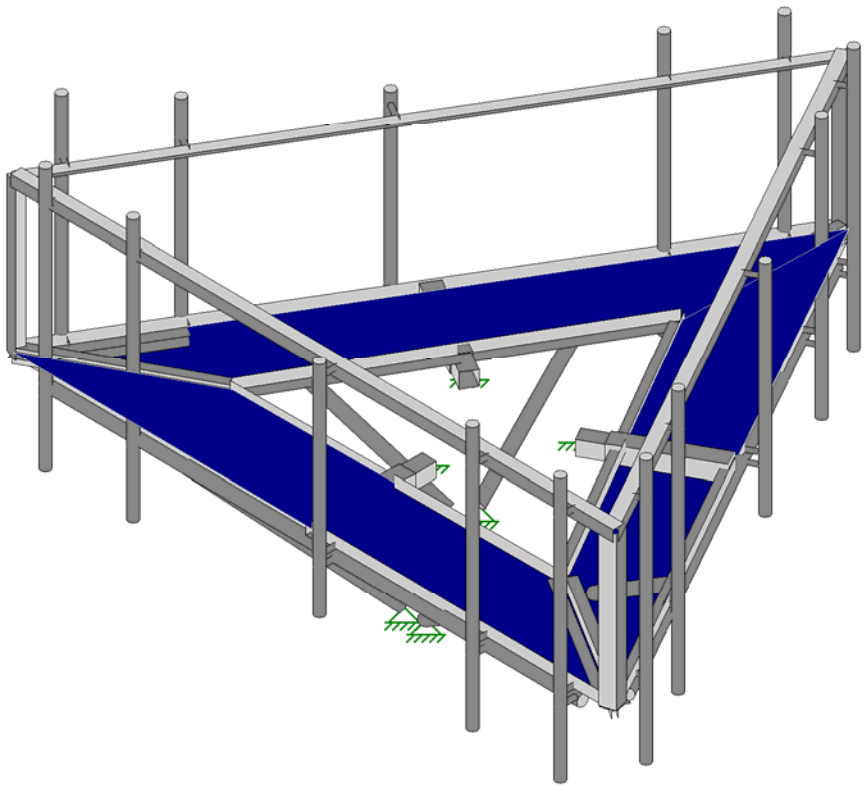
Mount Analysis Force Calculations

Wind & Ice Load Calculations			
Shielding Factor	K_z	1.10	
Topographic Factor	K_{zt}	1.00	
Rooftop Wind Speed-up Factor	K_s	1.00	
Shielding Factor	K_a	0.90	
Ground Elevation Factor	K_e	1.00	
Wind Direction Probability Factor	K_d	0.95	
Basic Wind Speed	V	93	mph
Velocity Pressure	q_z	23.2	psf
Height Escalation Factor	K_{iz}	1.16	
Thickness of Radial Glaze Ice	T_{iz}	1.74	in

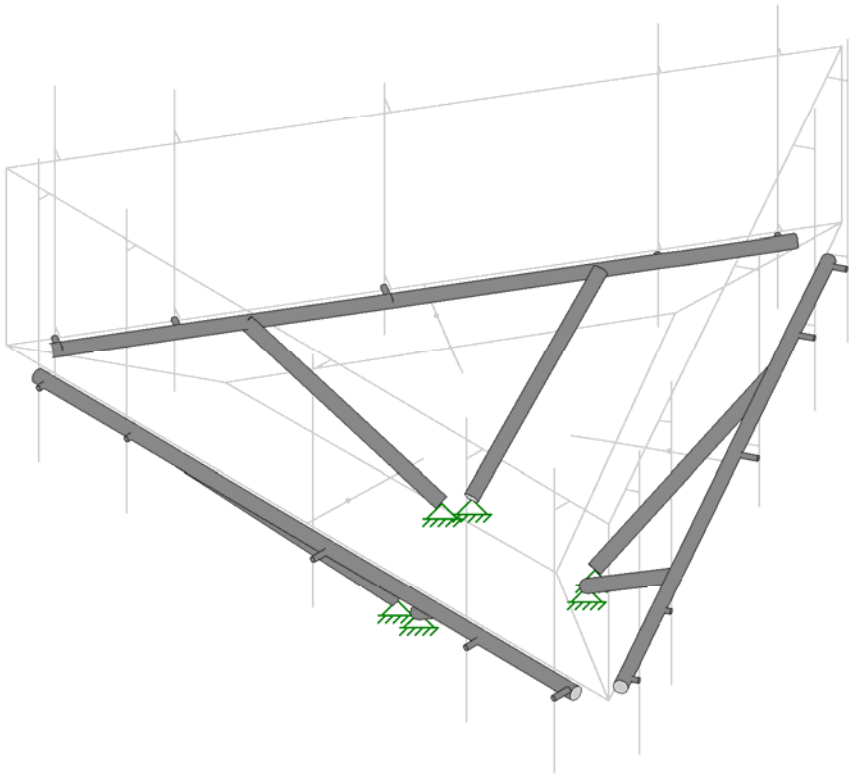
Seismic Load Calculations			
Short Period DSRAP	S_{DS}	0.208	
1 Second DSRAP	S_{D1}	0.104	
Importance Factor	I	1.0	
Response Modification Coefficient	R	2.0	
Seismic Response Coefficient	C_S	0.104	
Amplification Factor	A	1.0	
Total Weight	W	2377.9	lbs
Total Shear Force	V_S	247.3	lbs
Horizontal Seismic Load	Eh	247.3	lbs
Vertical Seismic Load	Ev	98.9	lbs

Antenna Calculations

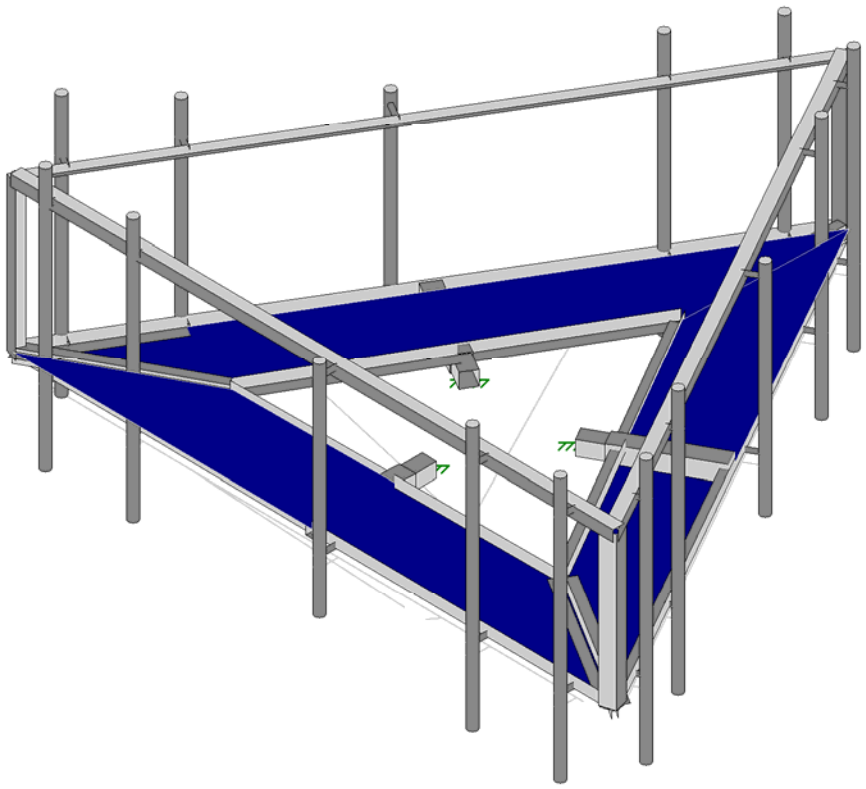
Equipment	Height	Width	Depth	Weight	EPA_N	EPA_T	EPA_{Ni}	EPA_{Ti}
Model #	in	in	in	lbs	sqft	sqft	sqft	sqft
Commscope JAHH-65B-R3B (63.3 lb)	72.0	13.8	8.2	63.3	9.11	2.65	11.96	3.96
Antel LPA-80063/4CF	47.4	15.2	13.2	20.0	6.14	3.36	8.10	4.55
Antel LPA-80080/4CF ___	47.2	5.5	13.2	12.0	2.62	3.34	4.59	4.53
Commscope CBC78T-DS-43-2X	9.6	6.9	6.4	20.7	0.55	0.51	1.13	1.08
RFS DB-C1-12C-24AB-0Z	29.5	16.5	12.6	32.0	4.06	3.10	5.49	4.42
Samsung B2/B66A RRH-BR049	15.0	15.0	10.0	84.4	1.88	1.25	2.85	2.08
Samsung B5/B13 RRH-BR04C	15.0	15.0	8.1	70.3	1.88	1.01	2.85	1.78



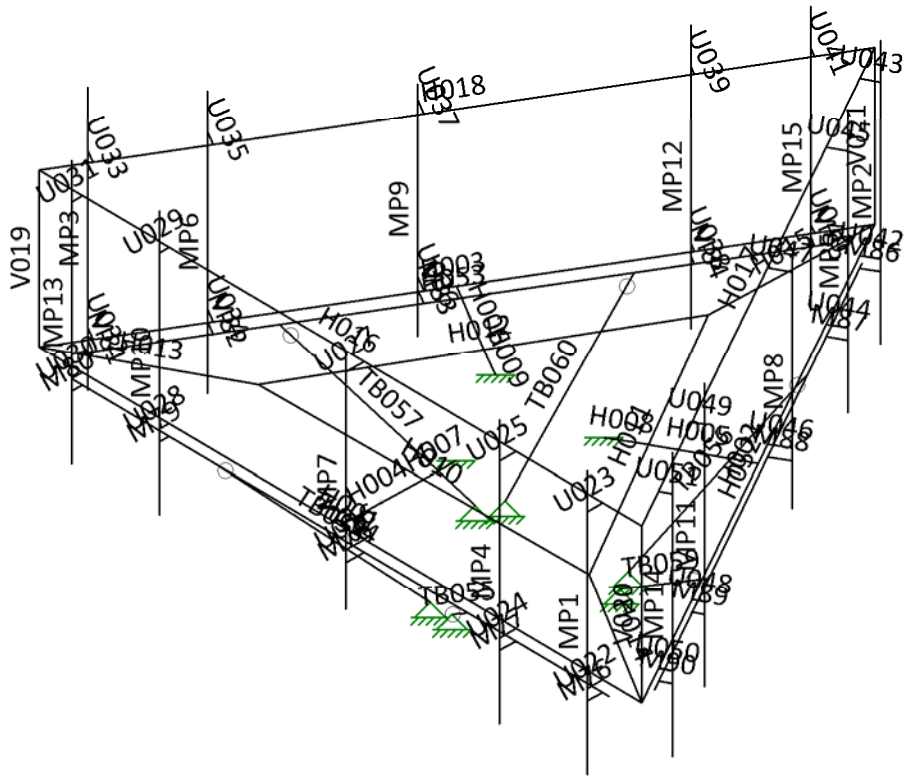
American Tower Corp.		SK - 1
Parvin.NikpoorParizi	411180, Good Hill CT	Feb 25, 2020 at 1:36 PM
13001538_C8_07	3D Rendering (Final Configuration)	R3D. VERIZON WIRELESS @ 411...



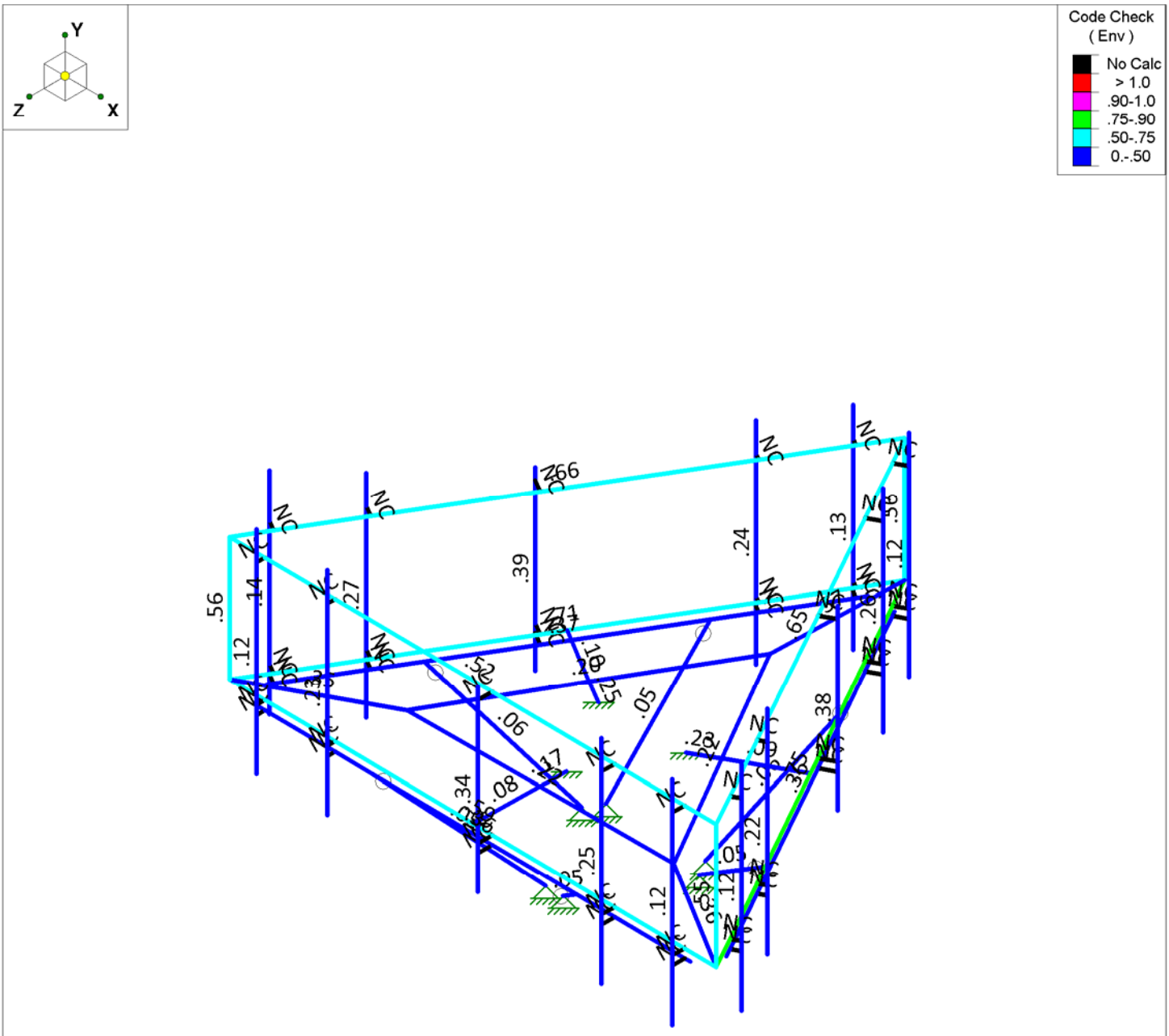
American Tower Corp.		SK - 2
Parvin.NikpoorParizi	411180, Good Hill CT	Feb 25, 2020 at 1:39 PM
13001538_C8_07	3D Rendeering (Proposed Configuration)	R3D. VERIZON WIRELESS @ 411...



American Tower Corp.		SK - 3
Parvin.NikpoorParizi	411180, Good Hill CT	Feb 25, 2020 at 1:39 PM
13001538_C8_07	3D Rendering (Current Configuration)	R3D. VERIZON WIRELESS @ 411...

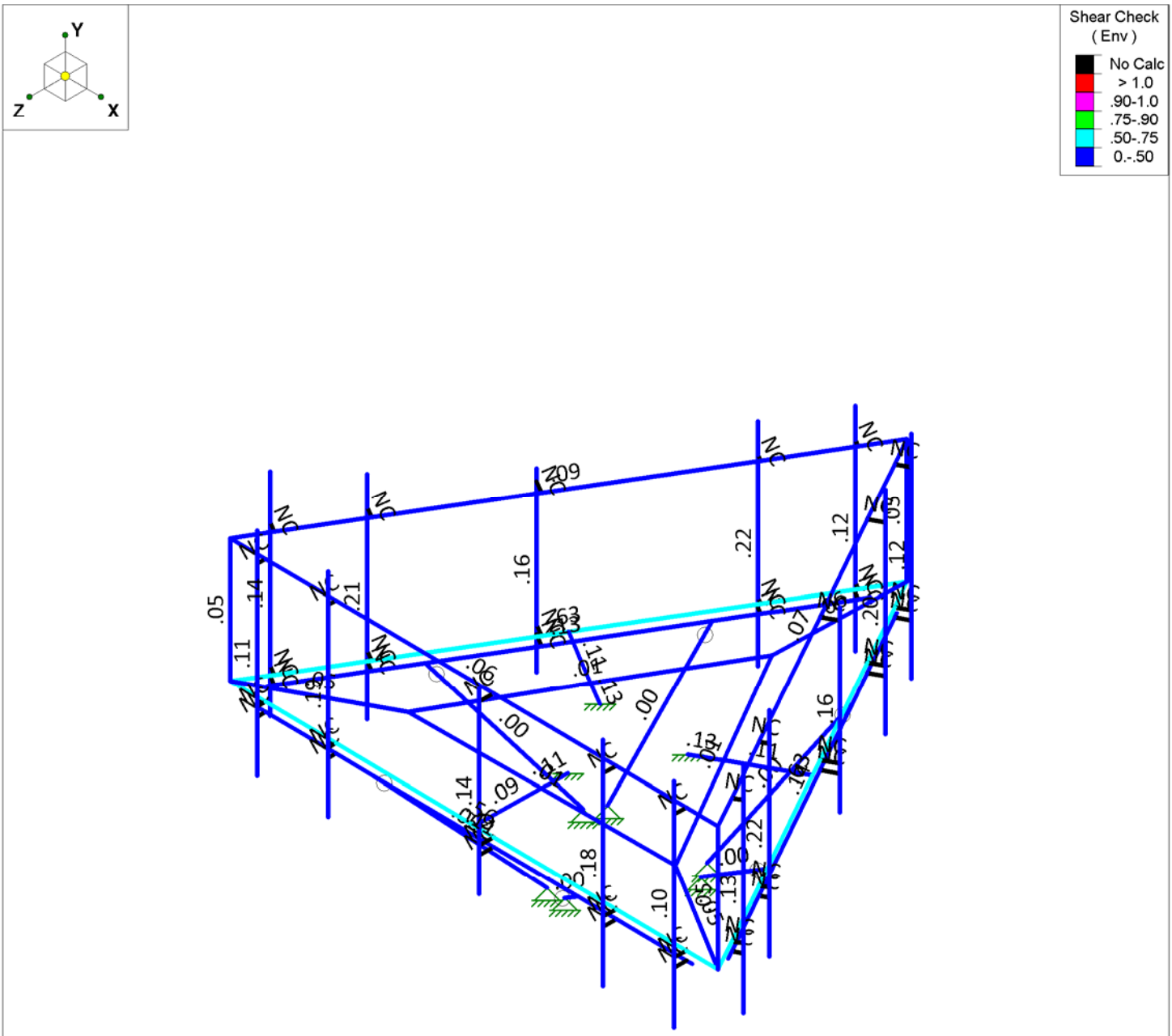


American Tower Corp.		SK - 4
Parvin.NikpoorParizi	411180, Good Hill CT	Feb 25, 2020 at 1:39 PM
13001538_C8_07	Member Labels	R3D. VERIZON WIRELESS @ 411...



Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.4D

American Tower Corp.		SK - 5
Parvin.NikpoorParizi	411180, Good Hill CT	Feb 25, 2020 at 1:40 PM
13001538_C8_07	Unity bending Checks	R3D. VERIZON WIRELESS @ 411...



Member Shear Checks Displayed (Enveloped)
Results for LC 1, 1.4D

American Tower Corp.		SK - 6
Parvin.NikpoorParizi	411180, Good Hill CT	Feb 25, 2020 at 1:40 PM
13001538_C8_07	Shear Checks	R3D. VERIZON WIRELESS @ 411...

Hot Rolled Steel Properties

	Label	E [psi]	G [psi]	Nu	Therm (/1...	Density[lb...	Yield[psi]	Ry	Fu[psi]	Rt
1	A36	2.9e+7	1.115e+7	.3	.65	490	36000	1.5	58000	1.2
2	A572-50	2.9e+7	1.115e+7	.3	.65	490	50000	1.1	65000	1.1
3	A500 Gr. B [RND]	2.9e+7	1.115e+7	.3	.65	527	42000	1.4	58000	1.3
4	A500 Gr. B [SQR]	2.9e+7	1.115e+7	.3	.65	527	46000	1.4	58000	1.3
5	A1085	2.9e+7	1.115e+7	.3	.65	490	50000	1.1	65000	1.1
6	A53 Gr. B	2.9e+7	1.115e+7	.3	.65	490	35000	1.6	60000	1.2
7	A992	2.9e+7	1.115e+7	.3	.65	490	50000	1.1	65000	1.1
8	SAE J429 Gr. 2	2.9e+7	1.115e+7	.3	.65	490	57000	1.1	74000	1.1

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rules
1	H001	N003	N002			L3X3X5	Beam	None	A36	Typical
2	H002	N004	N003			L3X3X5	Beam	None	A36	Typical
3	H003	N002	N004			L3X3X5	Beam	None	A36	Typical
4	H004	N005	N008			HSS4.5X4.5X4	Beam	None	A500 Gr. ...	Typical
5	H005	N006	N009			HSS4.5X4.5X4	Beam	None	A500 Gr. ...	Typical
6	H006	N007	N010			HSS4.5X4.5X4	Beam	None	A500 Gr. ...	Typical
7	H007	N008	N001			HSS4X4X4	Beam	None	A500 Gr. ...	Typical
8	H008	N009	N011			HSS4X4X4	Beam	None	A500 Gr. ...	Typical
9	H009	N010	N012			HSS4X4X4	Beam	None	A500 Gr. ...	Typical
10	H010	N014	N013			L3X3X4	Beam	None	A36	Typical
11	H011	N015	N014			L3X3X4	Beam	None	A36	Typical
12	H012	N013	N015			L3X3X4	Beam	None	A36	Typical
13	H013	N013	N002			LL3x3x4x0	Beam	None	A36	Typical
14	H014	N014	N003			LL3x3x4x0	Beam	None	A36	Typical
15	H015	N015	N004			LL3x3x4x0	Beam	None	A36	Typical
16	H016	N017	N016		90	L3X3X5	Beam	None	A36	Typical
17	H017	N018	N017		90	L3X3X5	Beam	None	A36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rules
18	H018	N016	N018		90	L3X3X5	Beam	None	A36	Typical
19	V019	N016	N002		110	BP4x4x0.25	Column	None	A36	Typical
20	V020	N017	N003		345	BP4x4x0.25	Column	None	A36	Typical
21	V021	N018	N004		220	BP4x4x0.25	Column	None	A36	Typical
22	U022	N028	N029			(1) 1/2 U-Bolt	Beam	None	A36	Typical
23	U023	N019	N030			(1) 1/2 U-Bolt	Beam	None	A36	Typical
24	U024	N031	N032			(1) 1/2 U-Bolt	Beam	None	A36	Typical
25	U025	N022	N033			(1) 1/2 U-Bolt	Beam	None	A36	Typical
26	U026	N034	N035			(1) 1/2 U-Bolt	Beam	None	A36	Typical
27	U027	N025	N036			(1) 1/2 U-Bolt	Beam	None	A36	Typical
28	U028	N043	N044			(1) 1/2 U-Bolt	Beam	None	A36	Typical
29	U029	N037	N045			(1) 1/2 U-Bolt	Beam	None	A36	Typical
30	U030	N046	N047			(1) 1/2 U-Bolt	Beam	None	A36	Typical
31	U031	N040	N048			(1) 1/2 U-Bolt	Beam	None	A36	Typical
32	U032	N049	N050			(1) 1/2 U-Bolt	Beam	None	A36	Typical
33	U033	N021	N051			(1) 1/2 U-Bolt	Beam	None	A36	Typical
34	U034	N052	N053			(1) 1/2 U-Bolt	Beam	None	A36	Typical
35	U035	N024	N054			(1) 1/2 U-Bolt	Beam	None	A36	Typical
36	U036	N055	N056			(1) 1/2 U-Bolt	Beam	None	A36	Typical
37	U037	N027	N057			(1) 1/2 U-Bolt	Beam	None	A36	Typical
38	U038	N058	N059			(1) 1/2 U-Bolt	Beam	None	A36	Typical
39	U039	N039	N060			(1) 1/2 U-Bolt	Beam	None	A36	Typical
40	U040	N061	N062			(1) 1/2 U-Bolt	Beam	None	A36	Typical
41	U041	N042	N063			(1) 1/2 U-Bolt	Beam	None	A36	Typical
42	U042	N064	N065			(1) 1/2 U-Bolt	Beam	None	A36	Typical
43	U043	N020	N066			(1) 1/2 U-Bolt	Beam	None	A36	Typical
44	U044	N067	N068			(1) 1/2 U-Bolt	Beam	None	A36	Typical
45	U045	N023	N069			(1) 1/2 U-Bolt	Beam	None	A36	Typical
46	U046	N070	N071			(1) 1/2 U-Bolt	Beam	None	A36	Typical
47	U047	N026	N072			(1) 1/2 U-Bolt	Beam	None	A36	Typical
48	U048	N073	N074			(1) 1/2 U-Bolt	Beam	None	A36	Typical
49	U049	N038	N075			(1) 1/2 U-Bolt	Beam	None	A36	Typical
50	U050	N076	N077			(1) 1/2 U-Bolt	Beam	None	A36	Typical
51	U051	N041	N078			(1) 1/2 U-Bolt	Beam	None	A36	Typical
52	H052	N084	N080			PIPE_2.5	Beam	None	A53 Gr. B	Typical
53	H053	N082	N081			PIPE_2.5	Beam	None	A53 Gr. B	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rules
54	H054	N083	N079			PIPE_2.5	Beam	None	A53 Gr. B	Typical
55	TB055	N085	N091			PIPE_2.5	Column	None	A53 Gr. B	Typical
56	TB056	N086	N092			PIPE_2.5	Column	None	A53 Gr. B	Typical
57	TB057	N087	N093			PIPE_2.5	Column	None	A53 Gr. B	Typical
58	TB058	N088	N094			PIPE_2.5	Column	None	A53 Gr. B	Typical
59	TB059	N089	N095			PIPE_2.5	Column	None	A53 Gr. B	Typical
60	TB060	N090	N096			PIPE_2.5	Column	None	A53 Gr. B	Typical
61	MP1	MP1t	MP1b			PIPE_2.0	Column	None	A53 Gr. B	Typical
62	MP2	MP2t	MP2b			PIPE_2.0	Column	None	A53 Gr. B	Typical
63	MP3	MP3t	MP3b			PIPE_2.0	Column	None	A53 Gr. B	Typical
64	MP4	MP4t	MP4b			PIPE_2.0	Column	None	A53 Gr. B	Typical
65	MP5	MP5t	MP5b			PIPE_2.0	Column	None	A53 Gr. B	Typical
66	MP6	MP6t	MP6b			PIPE_2.0	Column	None	A53 Gr. B	Typical
67	MP7	MP7t	MP7b			PIPE_2.0	Column	None	A53 Gr. B	Typical
68	MP8	MP8t	MP8b			PIPE_2.0	Column	None	A53 Gr. B	Typical
69	MP9	MP9t	MP9b			PIPE_2.0	Column	None	A53 Gr. B	Typical
70	MP10	MP10t	MP10b			PIPE_2.0	Column	None	A53 Gr. B	Typical
71	MP11	MP11t	MP11b			PIPE_2.0	Column	None	A53 Gr. B	Typical
72	MP12	MP12t	MP12b			PIPE_2.0	Column	None	A53 Gr. B	Typical
73	MP13	MP13t	MP13b			PIPE_2.0	Column	None	A53 Gr. B	Typical
74	MP14	MP14t	MP14b			PIPE_2.0	Column	None	A53 Gr. B	Typical
75	MP15	MP15t	MP15b			PIPE_2.0	Column	None	A53 Gr. B	Typical
76	M76	N142	N143			(1) 1/2 U-Bolt	Beam	None	A36	Typical
77	M77	N144	N145			(1) 1/2 U-Bolt	Beam	None	A36	Typical
78	M78	N146	N147			(1) 1/2 U-Bolt	Beam	None	A36	Typical
79	M79	N148	N149			(1) 1/2 U-Bolt	Beam	None	A36	Typical
80	M80	N150	N151			(1) 1/2 U-Bolt	Beam	None	A36	Typical
81	M81	N152	N153			(1) 1/2 U-Bolt	Beam	None	A36	Typical
82	M82	N154	N155			(1) 1/2 U-Bolt	Beam	None	A36	Typical
83	M83	N156	N157			(1) 1/2 U-Bolt	Beam	None	A36	Typical
84	M84	N158	N159			(1) 1/2 U-Bolt	Beam	None	A36	Typical
85	M85	N097	N161			(1) 1/2 U-Bolt	Beam	None	A36	Typical
86	M86	N162	N163			(1) 1/2 U-Bolt	Beam	None	A36	Typical
87	M87	N164	N165			(1) 1/2 U-Bolt	Beam	None	A36	Typical
88	M88	N166	N167			(1) 1/2 U-Bolt	Beam	None	A36	Typical
89	M89	N168	N169			(1) 1/2 U-Bolt	Beam	None	A36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(d...	Section/Shape	Type	Design List	Material	Design Rules
90	M90	N170	N171			(1) 1/2 U-Bolt	Beam	None	A36	Typical

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Dead	DL		-1			33			
2	Ice	IL					33	45		3
3	Wind -Z	WLZ					36		1	
4	Wind -X	WLX					33		1	
5	Wind -Z (Ice)	WL-Z					33	45	1	
6	Wind -X (Ice)	WL-X					33	45	1	
7	Wind -Z (Working)	WLZP1					33		1	
8	Wind -X (Working)	WLXP1					33		1	
9	Ev -Y (Seismic)	ELY						45		
10	Eh -Z (Seismic)	ELZ						45		
11	Eh -X (Seismic)	ELX						45		
12	Lm (1)	LL				1				
13	Lm (2)	LL				1				
14	Lm (3)	LL				1				
15	Lm (4)	LL				1				
16	Lm (5)	LL				1				
17	Lm (6)	LL				1				
18	Lm (7)	LL				1				
19	Lm (8)	LL				1				
20	Lm (9)	LL				1				
21	Lm (10)	LL				1				
22	Lm (11)	LL				1				
23	Lm (12)	LL				1				
24	Lm (13)	LL				1				
25	Lm (14)	LL				1				
26	Lm (15)	LL				1				
27	BLC 3 Transient Are...	None						89		
28	BLC 4 Transient Are...	None						90		
29	BLC 5 Transient Are...	None						89		
30	BLC 6 Transient Are...	None						90		
31	BLC 7 Transient Are...	None						89		

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
32	BLC 8 Transient Are...	None						90		

Load Combinations

	Descripti...	So...	PD...	SR...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
1	1.4D	Yes	Y		DL	1.4																		
2	1.2D + 1....	Yes	Y		DL	1.2	W...	.001	WLZ	1.6														
3	1.2D + 1....	Yes	Y		DL	1.2	W...	.8	WLZ	1.386														
4	1.2D + 1....	Yes	Y		DL	1.2	W...	1.386	WLZ	.8														
5	1.2D + 1....	Yes	Y		DL	1.2	W...	1.6	WLZ	.001														
6	1.2D + 1....	Yes	Y		DL	1.2	W...	1.386	WLZ	-.8														
7	1.2D + 1....	Yes	Y		DL	1.2	W...	.8	WLZ	-1.3...														
8	1.2D + 1....	Yes	Y		DL	1.2	W...	.001	WLZ	-1.6														
9	1.2D + 1....	Yes	Y		DL	1.2	W...	-.8	WLZ	-1.3...														
10	1.2D + 1....	Yes	Y		DL	1.2	W...	-1.3...	WLZ	-.8														
11	1.2D + 1....	Yes	Y		DL	1.2	W...	-1.6	WLZ	.001														
12	1.2D + 1....	Yes	Y		DL	1.2	W...	-1.3...	WLZ	.8														
13	1.2D + 1....	Yes	Y		DL	1.2	W...	-.8	WLZ	1.386														
14	0.9D + 1....	Yes	Y		DL	.9	W...	.001	WLZ	1.6														
15	0.9D + 1....	Yes	Y		DL	.9	W...	.8	WLZ	1.386														
16	0.9D + 1....	Yes	Y		DL	.9	W...	1.386	WLZ	.8														
17	0.9D + 1....	Yes	Y		DL	.9	W...	1.6	WLZ	.001														
18	0.9D + 1....	Yes	Y		DL	.9	W...	1.386	WLZ	-.8														
19	0.9D + 1....	Yes	Y		DL	.9	W...	.8	WLZ	-1.3...														
20	0.9D + 1....	Yes	Y		DL	.9	W...	.001	WLZ	-1.6														
21	0.9D + 1....	Yes	Y		DL	.9	W...	-.8	WLZ	-1.3...														
22	0.9D + 1....	Yes	Y		DL	.9	W...	-1.3...	WLZ	-.8														
23	0.9D + 1....	Yes	Y		DL	.9	W...	-1.6	WLZ	.001														
24	0.9D + 1....	Yes	Y		DL	.9	W...	-1.3...	WLZ	.8														
25	0.9D + 1....	Yes	Y		DL	.9	W...	-.8	WLZ	1.386														
26	1.2D + 1....	Yes	Y		DL	1.2	IL	1	W...	.001	W...	1												
27	1.2D + 1....	Yes	Y		DL	1.2	IL	1	W...	.5	W...	.866												
28	1.2D + 1....	Yes	Y		DL	1.2	IL	1	W...	.866	W...	.5												
29	1.2D + 1....	Yes	Y		DL	1.2	IL	1	W...	1	W...	.001												
30	1.2D + 1....	Yes	Y		DL	1.2	IL	1	W...	.866	W...	-.5												
31	1.2D + 1....	Yes	Y		DL	1.2	IL	1	W...	.5	W...	-.866												

Load Combinations (Continued)

	Descripti...	So...	PD..	SR...	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact...
32	1.2D + 1....	Yes	Y		DL	1.2	IL	1	W...	.001	W...	-1														
33	1.2D + 1....	Yes	Y		DL	1.2	IL	1	W...	-.5	W...	-.866														
34	1.2D + 1....	Yes	Y		DL	1.2	IL	1	W...	-.866	W...	-.5														
35	1.2D + 1....	Yes	Y		DL	1.2	IL	1	W...	-1	W...	.001														
36	1.2D + 1....	Yes	Y		DL	1.2	IL	1	W...	-.866	W...	.5														
37	1.2D + 1....	Yes	Y		DL	1.2	IL	1	W...	-.5	W...	.866														
38	1.2D + 1....	Yes	Y		DL	1.2	ELY	1	ELZ	1	ELX	.001														
39	1.2D + 1....	Yes	Y		DL	1.2	ELY	1	ELZ	.866	ELX	.5														
40	1.2D + 1....	Yes	Y		DL	1.2	ELY	1	ELZ	.5	ELX	.866														
41	1.2D + 1....	Yes	Y		DL	1.2	ELY	1	ELZ	.001	ELX	1														
42	1.2D + 1....	Yes	Y		DL	1.2	ELY	1	ELZ	-.5	ELX	.866														
43	1.2D + 1....	Yes	Y		DL	1.2	ELY	1	ELZ	-.866	ELX	.5														
44	1.2D + 1....	Yes	Y		DL	1.2	ELY	1	ELZ	-1	ELX	.001														
45	1.2D + 1....	Yes	Y		DL	1.2	ELY	1	ELZ	-.866	ELX	-.5														
46	1.2D + 1....	Yes	Y		DL	1.2	ELY	1	ELZ	-.5	ELX	-.866														
47	1.2D + 1....	Yes	Y		DL	1.2	ELY	1	ELZ	.001	ELX	-1														
48	1.2D + 1....	Yes	Y		DL	1.2	ELY	1	ELZ	.5	ELX	-.866														
49	1.2D + 1....	Yes	Y		DL	1.2	ELY	1	ELZ	.866	ELX	-.5														
50	0.9D + 1....	Yes	Y		DL	.9	ELY	1	ELZ	1	ELX	.001														
51	0.9D + 1....	Yes	Y		DL	.9	ELY	1	ELZ	.866	ELX	.5														
52	0.9D + 1....	Yes	Y		DL	.9	ELY	1	ELZ	.5	ELX	.866														
53	0.9D + 1....	Yes	Y		DL	.9	ELY	1	ELZ	.001	ELX	1														
54	0.9D + 1....	Yes	Y		DL	.9	ELY	1	ELZ	-.5	ELX	.866														
55	0.9D + 1....	Yes	Y		DL	.9	ELY	1	ELZ	-.866	ELX	.5														
56	0.9D + 1....	Yes	Y		DL	.9	ELY	1	ELZ	-1	ELX	.001														
57	0.9D + 1....	Yes	Y		DL	.9	ELY	1	ELZ	-.866	ELX	-.5														
58	0.9D + 1....	Yes	Y		DL	.9	ELY	1	ELZ	-.5	ELX	-.866														
59	0.9D + 1....	Yes	Y		DL	.9	ELY	1	ELZ	.001	ELX	-1														
60	0.9D + 1....	Yes	Y		DL	.9	ELY	1	ELZ	.5	ELX	-.866														
61	0.9D + 1....	Yes	Y		DL	.9	ELY	1	ELZ	.866	ELX	-.5														
62	1.2D + 1....	Yes	Y		DL	1.2	12	1.5	W...	.001	W...	1														
63	1.2D + 1....	Yes	Y		DL	1.2	12	1.5	W...	.5	W...	.866														
64	1.2D + 1....	Yes	Y		DL	1.2	12	1.5	W...	.866	W...	.5														
65	1.2D + 1....	Yes	Y		DL	1.2	12	1.5	W...	1	W...	.001														
66	1.2D + 1....	Yes	Y		DL	1.2	12	1.5	W...	.866	W...	-.5														
67	1.2D + 1....	Yes	Y		DL	1.2	12	1.5	W...	.5	W...	-.866														

Load Combinations (Continued)

	Descripti...	So...	PD...	SR...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...	BLC	Fact...
68	1.2D + 1....	Yes	Y		DL	1.2	12	1.5	W...	.001	W...	-.5														
69	1.2D + 1....	Yes	Y		DL	1.2	12	1.5	W...	-.5	W...	-.866														
70	1.2D + 1....	Yes	Y		DL	1.2	12	1.5	W...	-.866	W...	-.5														
71	1.2D + 1....	Yes	Y		DL	1.2	12	1.5	W...	-1	W...	.001														
72	1.2D + 1....	Yes	Y		DL	1.2	12	1.5	W...	-.866	W...	.5														
73	1.2D + 1....	Yes	Y		DL	1.2	12	1.5	W...	-.5	W...	.866														
74	1.2D + 1....	Yes	Y		DL	1.2	13	1.5	W...	.001	W...	1														
75	1.2D + 1....	Yes	Y		DL	1.2	13	1.5	W...	.5	W...	.866														
76	1.2D + 1....	Yes	Y		DL	1.2	13	1.5	W...	.866	W...	.5														
77	1.2D + 1....	Yes	Y		DL	1.2	13	1.5	W...	1	W...	.001														
78	1.2D + 1....	Yes	Y		DL	1.2	13	1.5	W...	.866	W...	-.5														
79	1.2D + 1....	Yes	Y		DL	1.2	13	1.5	W...	.5	W...	-.866														
80	1.2D + 1....	Yes	Y		DL	1.2	13	1.5	W...	.001	W...	-.5														
81	1.2D + 1....	Yes	Y		DL	1.2	13	1.5	W...	-.5	W...	-.866														
82	1.2D + 1....	Yes	Y		DL	1.2	13	1.5	W...	-.866	W...	-.5														
83	1.2D + 1....	Yes	Y		DL	1.2	13	1.5	W...	-1	W...	.001														
84	1.2D + 1....	Yes	Y		DL	1.2	13	1.5	W...	-.866	W...	.5														
85	1.2D + 1....	Yes	Y		DL	1.2	13	1.5	W...	-.5	W...	.866														
86	1.2D + 1....	Yes	Y		DL	1.2	14	1.5	W...	.001	W...	1														
87	1.2D + 1....	Yes	Y		DL	1.2	14	1.5	W...	.5	W...	.866														
88	1.2D + 1....	Yes	Y		DL	1.2	14	1.5	W...	.866	W...	.5														
89	1.2D + 1....	Yes	Y		DL	1.2	14	1.5	W...	1	W...	.001														
90	1.2D + 1....	Yes	Y		DL	1.2	14	1.5	W...	.866	W...	-.5														
91	1.2D + 1....	Yes	Y		DL	1.2	14	1.5	W...	.5	W...	-.866														
92	1.2D + 1....	Yes	Y		DL	1.2	14	1.5	W...	.001	W...	-.5														
93	1.2D + 1....	Yes	Y		DL	1.2	14	1.5	W...	-.5	W...	-.866														
94	1.2D + 1....	Yes	Y		DL	1.2	14	1.5	W...	-.866	W...	-.5														
95	1.2D + 1....	Yes	Y		DL	1.2	14	1.5	W...	-1	W...	.001														
96	1.2D + 1....	Yes	Y		DL	1.2	14	1.5	W...	-.866	W...	.5														
97	1.2D + 1....	Yes	Y		DL	1.2	14	1.5	W...	-.5	W...	.866														
98	1.2D + 1....	Yes	Y		DL	1.2	15	1.5	W...	.001	W...	1														
99	1.2D + 1....	Yes	Y		DL	1.2	15	1.5	W...	.5	W...	.866														
100	1.2D + 1....	Yes	Y		DL	1.2	15	1.5	W...	.866	W...	.5														
101	1.2D + 1....	Yes	Y		DL	1.2	15	1.5	W...	1	W...	.001														
102	1.2D + 1....	Yes	Y		DL	1.2	15	1.5	W...	.866	W...	-.5														
103	1.2D + 1....	Yes	Y		DL	1.2	15	1.5	W...	.5	W...	-.866														

Load Combinations (Continued)

	Descripti...	So...	PD..	SR...	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact...
104	1.2D + 1....	Yes	Y		DL	1.2	15	1.5	W...	.001	W...	-.5														
105	1.2D + 1....	Yes	Y		DL	1.2	15	1.5	W...	-.5	W...	-.866														
106	1.2D + 1....	Yes	Y		DL	1.2	15	1.5	W...	-.866	W...	-.5														
107	1.2D + 1....	Yes	Y		DL	1.2	15	1.5	W...	-1	W...	.001														
108	1.2D + 1....	Yes	Y		DL	1.2	15	1.5	W...	-.866	W...	.5														
109	1.2D + 1....	Yes	Y		DL	1.2	15	1.5	W...	-.5	W...	.866														
110	1.2D + 1....	Yes	Y		DL	1.2	16	1.5	W...	.001	W...	1														
111	1.2D + 1....	Yes	Y		DL	1.2	16	1.5	W...	.5	W...	.866														
112	1.2D + 1....	Yes	Y		DL	1.2	16	1.5	W...	.866	W...	.5														
113	1.2D + 1....	Yes	Y		DL	1.2	16	1.5	W...	1	W...	.001														
114	1.2D + 1....	Yes	Y		DL	1.2	16	1.5	W...	.866	W...	-.5														
115	1.2D + 1....	Yes	Y		DL	1.2	16	1.5	W...	.5	W...	-.866														
116	1.2D + 1....	Yes	Y		DL	1.2	16	1.5	W...	.001	W...	-.5														
117	1.2D + 1....	Yes	Y		DL	1.2	16	1.5	W...	-.5	W...	-.866														
118	1.2D + 1....	Yes	Y		DL	1.2	16	1.5	W...	-.866	W...	-.5														
119	1.2D + 1....	Yes	Y		DL	1.2	16	1.5	W...	-1	W...	.001														
120	1.2D + 1....	Yes	Y		DL	1.2	16	1.5	W...	-.866	W...	.5														
121	1.2D + 1....	Yes	Y		DL	1.2	16	1.5	W...	-.5	W...	.866														
122	1.2D + 1....	Yes	Y		DL	1.2	17	1.5	W...	.001	W...	1														
123	1.2D + 1....	Yes	Y		DL	1.2	17	1.5	W...	.5	W...	.866														
124	1.2D + 1....	Yes	Y		DL	1.2	17	1.5	W...	.866	W...	.5														
125	1.2D + 1....	Yes	Y		DL	1.2	17	1.5	W...	1	W...	.001														
126	1.2D + 1....	Yes	Y		DL	1.2	17	1.5	W...	.866	W...	-.5														
127	1.2D + 1....	Yes	Y		DL	1.2	17	1.5	W...	.5	W...	-.866														
128	1.2D + 1....	Yes	Y		DL	1.2	17	1.5	W...	.001	W...	-.5														
129	1.2D + 1....	Yes	Y		DL	1.2	17	1.5	W...	-.5	W...	-.866														
130	1.2D + 1....	Yes	Y		DL	1.2	17	1.5	W...	-.866	W...	-.5														
131	1.2D + 1....	Yes	Y		DL	1.2	17	1.5	W...	-1	W...	.001														
132	1.2D + 1....	Yes	Y		DL	1.2	17	1.5	W...	-.866	W...	.5														
133	1.2D + 1....	Yes	Y		DL	1.2	17	1.5	W...	-.5	W...	.866														
134	1.2D + 1....	Yes	Y		DL	1.2	18	1.5	W...	.001	W...	1														
135	1.2D + 1....	Yes	Y		DL	1.2	18	1.5	W...	.5	W...	.866														
136	1.2D + 1....	Yes	Y		DL	1.2	18	1.5	W...	.866	W...	.5														
137	1.2D + 1....	Yes	Y		DL	1.2	18	1.5	W...	1	W...	.001														
138	1.2D + 1....	Yes	Y		DL	1.2	18	1.5	W...	.866	W...	-.5														
139	1.2D + 1....	Yes	Y		DL	1.2	18	1.5	W...	.5	W...	-.866														

Load Combinations (Continued)

	Descripti...	So...	PD..	SR...	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact...
140	1.2D + 1....	Yes	Y		DL	1.2	18	1.5	W...	.001	W...	-.5														
141	1.2D + 1....	Yes	Y		DL	1.2	18	1.5	W...	-.5	W...	-.866														
142	1.2D + 1....	Yes	Y		DL	1.2	18	1.5	W...	-.866	W...	-.5														
143	1.2D + 1....	Yes	Y		DL	1.2	18	1.5	W...	-1	W...	.001														
144	1.2D + 1....	Yes	Y		DL	1.2	18	1.5	W...	-.866	W...	.5														
145	1.2D + 1....	Yes	Y		DL	1.2	18	1.5	W...	-.5	W...	.866														
146	1.2D + 1....	Yes	Y		DL	1.2	19	1.5	W...	.001	W...	1														
147	1.2D + 1....	Yes	Y		DL	1.2	19	1.5	W...	.5	W...	.866														
148	1.2D + 1....	Yes	Y		DL	1.2	19	1.5	W...	.866	W...	.5														
149	1.2D + 1....	Yes	Y		DL	1.2	19	1.5	W...	1	W...	.001														
150	1.2D + 1....	Yes	Y		DL	1.2	19	1.5	W...	.866	W...	-.5														
151	1.2D + 1....	Yes	Y		DL	1.2	19	1.5	W...	.5	W...	-.866														
152	1.2D + 1....	Yes	Y		DL	1.2	19	1.5	W...	.001	W...	-.5														
153	1.2D + 1....	Yes	Y		DL	1.2	19	1.5	W...	-.5	W...	-.866														
154	1.2D + 1....	Yes	Y		DL	1.2	19	1.5	W...	-.866	W...	-.5														
155	1.2D + 1....	Yes	Y		DL	1.2	19	1.5	W...	-1	W...	.001														
156	1.2D + 1....	Yes	Y		DL	1.2	19	1.5	W...	-.866	W...	.5														
157	1.2D + 1....	Yes	Y		DL	1.2	19	1.5	W...	-.5	W...	.866														
158	1.2D + 1....	Yes	Y		DL	1.2	20	1.5	W...	.001	W...	1														
159	1.2D + 1....	Yes	Y		DL	1.2	20	1.5	W...	.5	W...	.866														
160	1.2D + 1....	Yes	Y		DL	1.2	20	1.5	W...	.866	W...	.5														
161	1.2D + 1....	Yes	Y		DL	1.2	20	1.5	W...	1	W...	.001														
162	1.2D + 1....	Yes	Y		DL	1.2	20	1.5	W...	.866	W...	-.5														
163	1.2D + 1....	Yes	Y		DL	1.2	20	1.5	W...	.5	W...	-.866														
164	1.2D + 1....	Yes	Y		DL	1.2	20	1.5	W...	.001	W...	-.5														
165	1.2D + 1....	Yes	Y		DL	1.2	20	1.5	W...	-.5	W...	-.866														
166	1.2D + 1....	Yes	Y		DL	1.2	20	1.5	W...	-.866	W...	-.5														
167	1.2D + 1....	Yes	Y		DL	1.2	20	1.5	W...	-1	W...	.001														
168	1.2D + 1....	Yes	Y		DL	1.2	20	1.5	W...	-.866	W...	.5														
169	1.2D + 1....	Yes	Y		DL	1.2	20	1.5	W...	-.5	W...	.866														
170	1.2D + 1....	Yes	Y		DL	1.2	21	1.5	W...	.001	W...	1														
171	1.2D + 1....	Yes	Y		DL	1.2	21	1.5	W...	.5	W...	.866														
172	1.2D + 1....	Yes	Y		DL	1.2	21	1.5	W...	.866	W...	.5														
173	1.2D + 1....	Yes	Y		DL	1.2	21	1.5	W...	1	W...	.001														
174	1.2D + 1....	Yes	Y		DL	1.2	21	1.5	W...	.866	W...	-.5														
175	1.2D + 1....	Yes	Y		DL	1.2	21	1.5	W...	.5	W...	-.866														

Load Combinations (Continued)

	Descripti...	So...	PD..	SR...	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact...
176	1.2D + 1....	Yes	Y		DL	1.2	21	1.5	W...	.001	W...	-.5														
177	1.2D + 1....	Yes	Y		DL	1.2	21	1.5	W...	-.5	W...	-.866														
178	1.2D + 1....	Yes	Y		DL	1.2	21	1.5	W...	-.866	W...	-.5														
179	1.2D + 1....	Yes	Y		DL	1.2	21	1.5	W...	-1	W...	.001														
180	1.2D + 1....	Yes	Y		DL	1.2	21	1.5	W...	-.866	W...	.5														
181	1.2D + 1....	Yes	Y		DL	1.2	21	1.5	W...	-.5	W...	.866														
182	1.2D + 1....	Yes	Y		DL	1.2	22	1.5	W...	.001	W...	1														
183	1.2D + 1....	Yes	Y		DL	1.2	22	1.5	W...	.5	W...	.866														
184	1.2D + 1....	Yes	Y		DL	1.2	22	1.5	W...	.866	W...	.5														
185	1.2D + 1....	Yes	Y		DL	1.2	22	1.5	W...	1	W...	.001														
186	1.2D + 1....	Yes	Y		DL	1.2	22	1.5	W...	.866	W...	-.5														
187	1.2D + 1....	Yes	Y		DL	1.2	22	1.5	W...	.5	W...	-.866														
188	1.2D + 1....	Yes	Y		DL	1.2	22	1.5	W...	.001	W...	-.5														
189	1.2D + 1....	Yes	Y		DL	1.2	22	1.5	W...	-.5	W...	-.866														
190	1.2D + 1....	Yes	Y		DL	1.2	22	1.5	W...	-.866	W...	-.5														
191	1.2D + 1....	Yes	Y		DL	1.2	22	1.5	W...	-1	W...	.001														
192	1.2D + 1....	Yes	Y		DL	1.2	22	1.5	W...	-.866	W...	.5														
193	1.2D + 1....	Yes	Y		DL	1.2	22	1.5	W...	-.5	W...	.866														
194	1.2D + 1....	Yes	Y		DL	1.2	23	1.5	W...	.001	W...	1														
195	1.2D + 1....	Yes	Y		DL	1.2	23	1.5	W...	.5	W...	.866														
196	1.2D + 1....	Yes	Y		DL	1.2	23	1.5	W...	.866	W...	.5														
197	1.2D + 1....	Yes	Y		DL	1.2	23	1.5	W...	1	W...	.001														
198	1.2D + 1....	Yes	Y		DL	1.2	23	1.5	W...	.866	W...	-.5														
199	1.2D + 1....	Yes	Y		DL	1.2	23	1.5	W...	.5	W...	-.866														
200	1.2D + 1....	Yes	Y		DL	1.2	23	1.5	W...	.001	W...	-.5														
201	1.2D + 1....	Yes	Y		DL	1.2	23	1.5	W...	-.5	W...	-.866														
202	1.2D + 1....	Yes	Y		DL	1.2	23	1.5	W...	-.866	W...	-.5														
203	1.2D + 1....	Yes	Y		DL	1.2	23	1.5	W...	-1	W...	.001														
204	1.2D + 1....	Yes	Y		DL	1.2	23	1.5	W...	-.866	W...	.5														
205	1.2D + 1....	Yes	Y		DL	1.2	23	1.5	W...	-.5	W...	.866														
206	1.2D + 1....	Yes	Y		DL	1.2	24	1.5	W...	.001	W...	1														
207	1.2D + 1....	Yes	Y		DL	1.2	24	1.5	W...	.5	W...	.866														
208	1.2D + 1....	Yes	Y		DL	1.2	24	1.5	W...	.866	W...	.5														
209	1.2D + 1....	Yes	Y		DL	1.2	24	1.5	W...	1	W...	.001														
210	1.2D + 1....	Yes	Y		DL	1.2	24	1.5	W...	.866	W...	-.5														
211	1.2D + 1....	Yes	Y		DL	1.2	24	1.5	W...	.5	W...	-.866														

Load Combinations (Continued)

	Descripti...	So...	PD..	SR...	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact..	BLC	Fact...
212	1.2D + 1....	Yes	Y		DL	1.2	24	1.5	W...	.001	W...	-.5														
213	1.2D + 1....	Yes	Y		DL	1.2	24	1.5	W...	-.5	W...	-.866														
214	1.2D + 1....	Yes	Y		DL	1.2	24	1.5	W...	-.866	W...	-.5														
215	1.2D + 1....	Yes	Y		DL	1.2	24	1.5	W...	-1	W...	.001														
216	1.2D + 1....	Yes	Y		DL	1.2	24	1.5	W...	-.866	W...	.5														
217	1.2D + 1....	Yes	Y		DL	1.2	24	1.5	W...	-.5	W...	.866														
218	1.2D + 1....	Yes	Y		DL	1.2	25	1.5	W...	.001	W...	1														
219	1.2D + 1....	Yes	Y		DL	1.2	25	1.5	W...	.5	W...	.866														
220	1.2D + 1....	Yes	Y		DL	1.2	25	1.5	W...	.866	W...	.5														
221	1.2D + 1....	Yes	Y		DL	1.2	25	1.5	W...	1	W...	.001														
222	1.2D + 1....	Yes	Y		DL	1.2	25	1.5	W...	.866	W...	-.5														
223	1.2D + 1....	Yes	Y		DL	1.2	25	1.5	W...	.5	W...	-.866														
224	1.2D + 1....	Yes	Y		DL	1.2	25	1.5	W...	.001	W...	-.5														
225	1.2D + 1....	Yes	Y		DL	1.2	25	1.5	W...	-.5	W...	-.866														
226	1.2D + 1....	Yes	Y		DL	1.2	25	1.5	W...	-.866	W...	-.5														
227	1.2D + 1....	Yes	Y		DL	1.2	25	1.5	W...	-1	W...	.001														
228	1.2D + 1....	Yes	Y		DL	1.2	25	1.5	W...	-.866	W...	.5														
229	1.2D + 1....	Yes	Y		DL	1.2	25	1.5	W...	-.5	W...	.866														
230	1.2D + 1....	Yes	Y		DL	1.2	26	1.5	W...	.001	W...	1														
231	1.2D + 1....	Yes	Y		DL	1.2	26	1.5	W...	.5	W...	.866														
232	1.2D + 1....	Yes	Y		DL	1.2	26	1.5	W...	.866	W...	.5														
233	1.2D + 1....	Yes	Y		DL	1.2	26	1.5	W...	1	W...	.001														
234	1.2D + 1....	Yes	Y		DL	1.2	26	1.5	W...	.866	W...	-.5														
235	1.2D + 1....	Yes	Y		DL	1.2	26	1.5	W...	.5	W...	-.866														
236	1.2D + 1....	Yes	Y		DL	1.2	26	1.5	W...	.001	W...	-.5														
237	1.2D + 1....	Yes	Y		DL	1.2	26	1.5	W...	-.5	W...	-.866														
238	1.2D + 1....	Yes	Y		DL	1.2	26	1.5	W...	-.866	W...	-.5														
239	1.2D + 1....	Yes	Y		DL	1.2	26	1.5	W...	-1	W...	.001														
240	1.2D + 1....	Yes	Y		DL	1.2	26	1.5	W...	-.866	W...	.5														
241	1.2D + 1....	Yes	Y		DL	1.2	26	1.5	W...	-.5	W...	.866														

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N001	max	3408.101	5	941.746	2	1328.513	14	1007	20	1680.759	5	293.995	4
2		min	-3405.369	11	-452.01	20	-2013.248	8	-1900.298	2	-1622.302	23	-252.513	23
3	N011	max	2433.839	16	1027.407	6	3455.103	3	1068.56	7	2369.957	9	1783.656	6
4		min	-3006.726	10	-539.283	24	-3092.964	21	-580.439	24	-2329.13	15	-1036.857	24
5	N012	max	3109.12	6	1023.633	10	3483.646	13	909.919	9	2458.193	13	1087.191	16
6		min	-2507.173	24	-537.32	16	-3148.578	19	-498.18	15	-2410.025	19	-1874.993	10
7	N085	max	1441.107	9	1378.674	9	1233.599	9	0	241	0	241	0	241
8		min	-725.585	15	-679.617	15	-615.608	15	0	1	0	1	0	1
9	N086	max	362.739	37	1437.891	12	1011.159	18	0	241	0	241	0	241
10		min	-174.58	18	-728.349	18	-1955.936	12	0	1	0	1	0	1
11	N087	max	899.883	23	1463.9	29	660.886	29	0	241	0	241	0	241
12		min	-1888.442	29	-679.185	23	-319.486	23	0	1	0	1	0	1
13	N088	max	635.894	25	1326.428	31	1143.42	31	0	241	0	241	0	241
14		min	-1419.998	31	-574.124	25	-502.501	25	0	1	0	1	0	1
15	N089	max	1645.251	35	1284.876	35	636.887	35	0	241	0	241	0	241
16		min	-744.378	17	-564.151	17	-293.292	17	0	1	0	1	0	1
17	N090	max	116.5	22	1368.685	28	858.567	22	0	241	0	241	0	241
18		min	-287.441	27	-608.875	22	-1863.114	28	0	1	0	1	0	1
19	Totals:	max	5080.817	17	8805.26	37	4660.882	14						
20		min	-5080.817	11	2440.787	14	-4660.882	8						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc...	LC	Shea...	Loc[in]	...	LC	phi*P...	phi*P...	phi*...	phi*...	...	Eqn
1	H001	L3X3X5	.594	0	7	.555	83.435	z	8	11617...	57672	2014....	3766....	...	H2-1
2	H002	L3X3X5	.755	0	11	.629	83.435	z	12	11617...	57672	2014....	3845....	...	H2-1
3	H003	L3X3X5	.707	166...	5	.635	83.435	z	4	11617...	57672	2014....	3792....	...	H2-1
4	H004	HSS4.5X...	.077	22....	13	.094	24.995	z	5	15802...	158976	20907	20907	...	H1-1b
5	H005	HSS4.5X...	.093	24....	5	.106	24.995	z	9	15802...	158976	20907	20907	...	H1-1b
6	H006	HSS4.5X...	.102	24....	11	.110	24.995	z	13	15802...	158976	20907	20907	...	H1-1b
7	H007	HSS4X4X4	.174	6	4	.111	6	z	5	13937...	139518	16180...	16180....	...	H1-1b
8	H008	HSS4X4X4	.229	6	4	.125	6	z	9	13937...	139518	16180...	16180....	...	H1-1b
9	H009	HSS4X4X4	.246	6	12	.129	6	z	13	13937...	139518	16180...	16180....	...	H1-1b
10	H010	L3X3X4	.224	90....	12	.013	45.087	y	4	27503...	46656	1688....	3601....	...	H2-1
11	H011	L3X3X4	.217	90....	16	.015	46.026	y	4	27503...	46656	1688....	3690....	...	H2-1
12	H012	L3X3X4	.199	90....	8	.014	45.087	z	12	27503...	46656	1688....	3664....	...	H2-1

Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc...	LC	Shea...	Loc[in]	...	LC	phi*P...	phi*P...	phi*...	phi*...	...	Eqn
13	H013	LL3x3x4x0	.352	44....	7	.046	0	z	9	77378...	93312	6480	4370....	...	H1-1b
14	H014	LL3x3x4x0	.356	44....	9	.045	0	z	13	77378...	93312	6480	4370....	...	H1-1b
15	H015	LL3x3x4x0	.368	44....	13	.064	0	z	5	77378...	93312	6480	4370....	...	H1-1b
16	H016	L3X3X5	.523	0	6	.055	0	y	3	11617...	57672	2014....	3848....	...	H2-1
17	H017	L3X3X5	.647	0	10	.069	166.871	y	5	11617...	57672	2014....	3793....	...	H2-1
18	H018	L3X3X5	.655	166...	6	.088	0	y	11	11617...	57672	2014....	3803....	...	H2-1
19	V019	BP4x4x0....	.559	42	13	.049	42	z	10	49460...	63050...	2997....	5104....	...	H2-1
20	V020	BP4x4x0....	.554	42	5	.048	42	y	6	49460...	63050...	2997....	5104....	...	H2-1
21	V021	BP4x4x0....	.560	42	7	.049	42	y	10	49460...	63050...	2997....	5104....	...	H2-1
22	H052	PIPE_2.5	.356	38....	13	.137	110.102		11	29787...	50715	3596....	3596....	...	H1-1b
23	H053	PIPE_2.5	.366	38....	5	.128	38.768		5	29787...	50715	3596....	3596....	...	H1-1b
24	H054	PIPE_2.5	.359	38....	9	.114	110.102		7	29787...	50715	3596....	3596....	...	H1-1b
25	TB055	PIPE_2.5	.054	51....	9	.002	51.637		34	43584...	50715	3596....	3596....	...	H1-1...
26	TB056	PIPE_2.5	.056	0	12	.002	0		26	43584...	50715	3596....	3596....	...	H1-1...
27	TB057	PIPE_2.5	.057	0	29	.002	0		30	43584...	50715	3596....	3596....	...	H1-1...
28	TB058	PIPE_2.5	.052	0	31	.002	51.914		30	43512...	50715	3596....	3596....	...	H1-1...
29	TB059	PIPE_2.5	.050	0	35	.002	51.914		34	43512...	50715	3596....	3596....	...	H1-1...
30	TB060	PIPE_2.5	.054	0	28	.002	0		26	43512...	50715	3596....	3596....	...	H1-1...
31	MP1	PIPE_2.0	.123	9.75	73	.102	51.75		8	6195....	32130	1871....	1871....	...	H1-1...
32	MP2	PIPE_2.0	.123	9.75	85	.118	51.75		12	6195....	32130	1871....	1871....	...	H1-1...
33	MP3	PIPE_2.0	.137	57	11	.140	57		4	6195....	32130	1871....	1871....	...	H1-1b
34	MP4	PIPE_2.0	.246	54....	32	.181	51.75		8	6195....	32130	1871....	1871....	...	H1-1b
35	MP5	PIPE_2.0	.261	54....	36	.201	51.75		12	6195....	32130	1871....	1871....	...	H1-1b
36	MP6	PIPE_2.0	.266	54....	28	.215	51.75		4	6195....	32130	1871....	1871....	...	H1-1b
37	MP7	PIPE_2.0	.343	45....	2	.136	46.25		7	8922....	32130	1871....	1871....	...	H1-1b
38	MP8	PIPE_2.0	.382	45....	6	.156	46.25		11	8922....	32130	1871....	1871....	...	H1-1b
39	MP9	PIPE_2.0	.388	45....	10	.156	46.25		5	8922....	32130	1871....	1871....	...	H1-1b
40	MP10	PIPE_2.0	.226	54....	32	.195	51.75		8	6195....	32130	1871....	1871....	...	H1-1b
41	MP11	PIPE_2.0	.219	54....	36	.225	51.75		12	6195....	32130	1871....	1871....	...	H1-1b
42	MP12	PIPE_2.0	.237	54....	28	.219	51.75		4	6195....	32130	1871....	1871....	...	H1-1b
43	MP13	PIPE_2.0	.124	51....	11	.108	51.75		4	6195....	32130	1871....	1871....	...	H1-1b
44	MP14	PIPE_2.0	.123	51....	5	.134	51.75		6	6195....	32130	1871....	1871....	...	H1-1b
45	MP15	PIPE_2.0	.126	51....	7	.123	51.75		10	6195....	32130	1871....	1871....	...	H1-1b

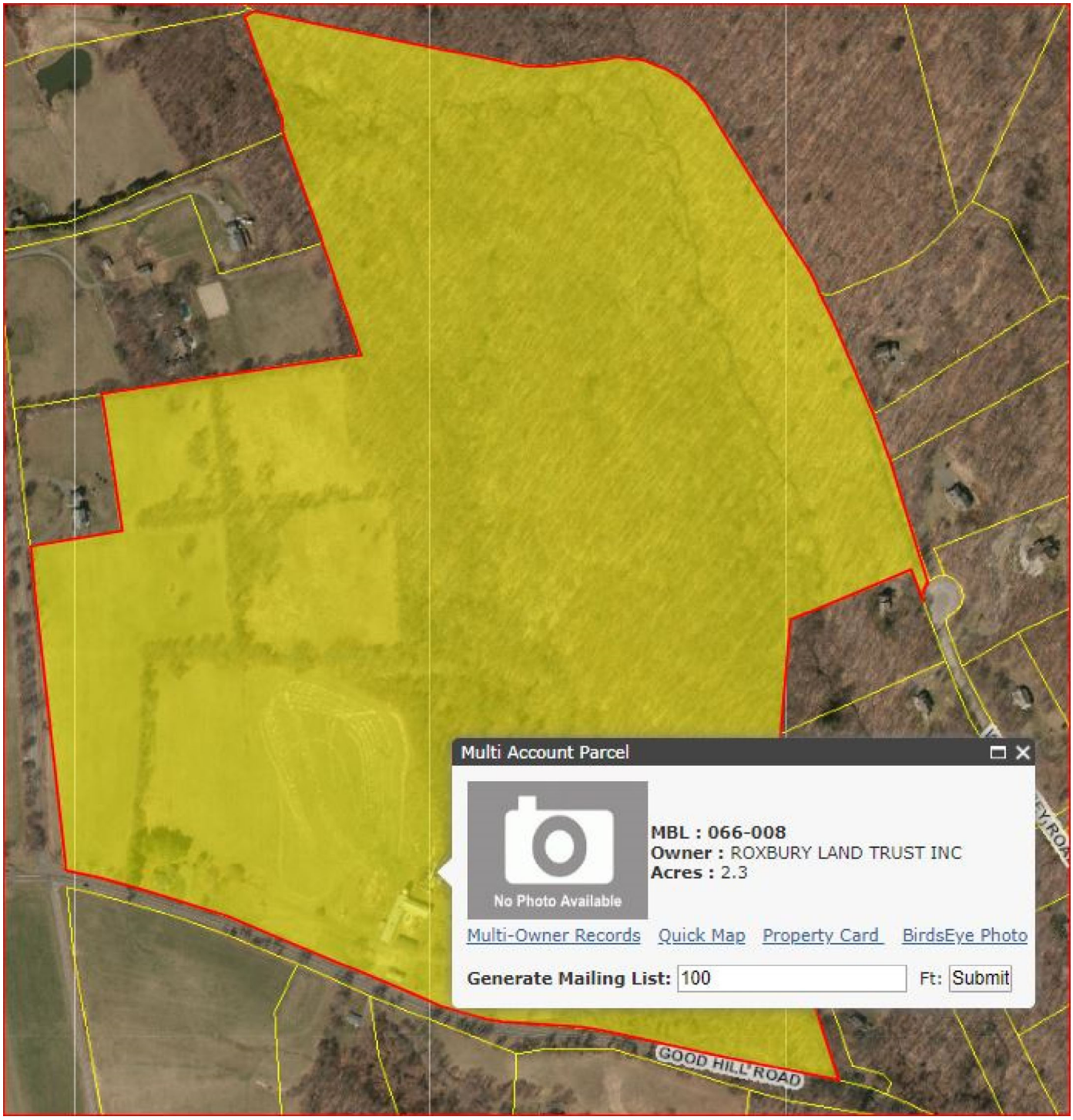
Site Name: WOODBURY W CT
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
VZW PCS	1970	1	1565	1564.58	143.6	0.0273	1.0	2.73%
VZW Cellular CDMA	869	1	500	500	143.6	0.0087	0.579333333	1.51%
VZW Cellular LTE	880	1	500	500	143.6	0.0087	0.586666667	1.49%
VZW AWS	2145	1	1582	1581.61	143.6	0.0276	1.0	2.76%
VZW 700	746	1	955	954.77	143.6	0.0167	0.497333333	3.35%
Total Percentage of Maximum Permissible Exposure								11.83%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Section 1.13101 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

MHz = Megahertz
mW/cm^2 = milliwatts per square centimeter
ERP = Effective Radiated Power

Absolute worst case maximum values used, including the following assumptions:
1. closest accessible point is distance from antenna to base of pole;
2. continuous transmission from all available channels at full power for indefinite time period; and,
3. all RF energy is assumed to be directed solely to the base of the pole


Multi Account Parcel
No Photo Available
MBL : 066-008
Owner : ROXBURY LAND TRUST INC
Acres : 2.3
Multi-Owner Records
Quick Map
Property Card
BirdsEye Photo
Generate Mailing List: 100
Ft:
Submit
GOOD HILL ROAD

Town of Woodbury, CT

Property Listing Report

Map Block Lot	066-008	Building #		Unique Identifier	283410

Property Information

Property Location	478 GOOD HILL RD
Mailing Address	PO BOX 51 ROXBURY CT 06783
Land Use	Residential
Zoning Code	OS100
Neighborhood	24

Owner	ROXBURY LAND TRUST INC
Co-Owner	(ALLTEL - CELL TOWER)
Book / Page	313/ 366
Land Class	Vacant Land
Census Tract	3621
Acreage	2.3

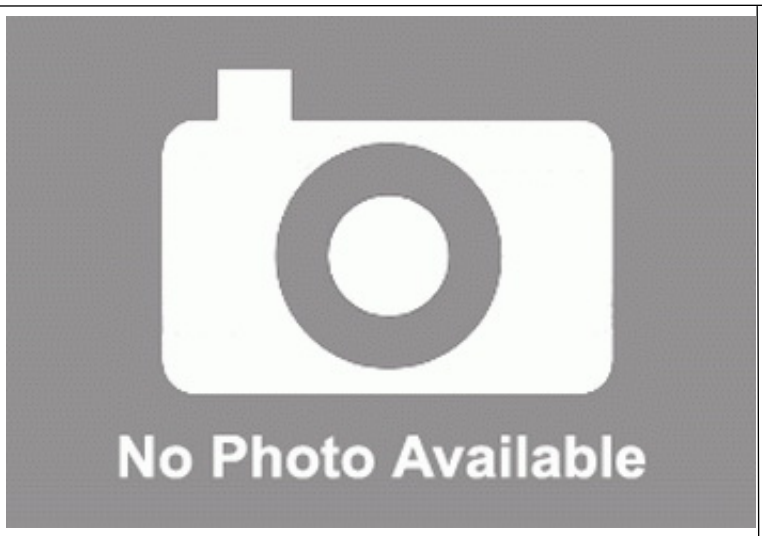
Valuation Summary

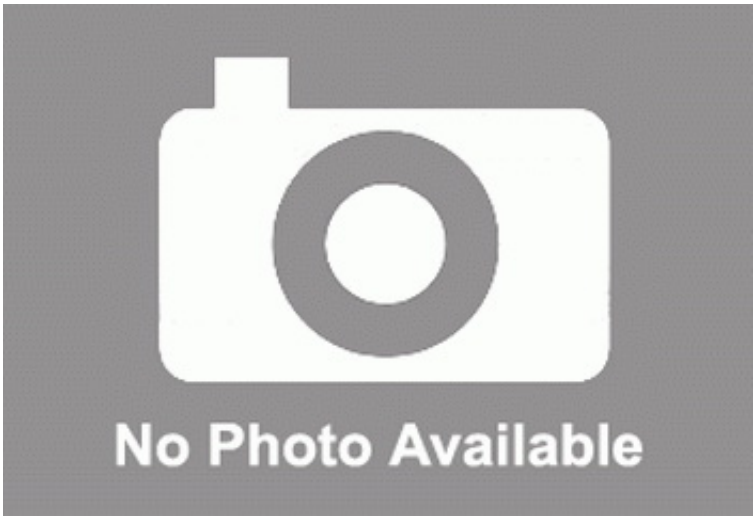
(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	0	0
Outbuildings	317587	222310
Land	196650	137660
Total	514237	0

Utility Information

Electric	No
Gas	No
Sewer	No
Public Water	No
Well	No





Primary Construction Details

Year Built		Heating Fuel		Building Use	
Building Desc.		Heating Type		Building Condition	
Building Style		AC Type		Frame Type	
Stories		Bedrooms		Fireplaces	
Exterior Walls		Full Bathrooms		Bsmt Gar	
Exterior Walls 2		Half Bathrooms		Fin Bsmt Area	
Interior Walls		Extra Fixtures		Fin Bsmt Quality	
Interior Walls 2		Total Rooms		Building Grade	
Interior Floors 1		Bath Style		Roof Style	
Interior Floors 2		Kitchen Style		Roof Cover	
		Occupancy			

Report Created On 3/9/2020

Town of Woodbury, CT

Property Listing Report | Map Block Lot 066-008 | Building # | Unique Identifier 283410

Detached Outbuildings

Type	Description	Area (sq ft)	Condition	Year Built
Cell Towers	Mono Pole	150	Average	2001
Cell Towers	Building/Equipment	336	Average	2001
Cell Towers	Fencing	300	Average	2001
Cell Towers	Building/Equipment	240	Average	2001
Cell Towers	Building/Equipment	240	Average	2001

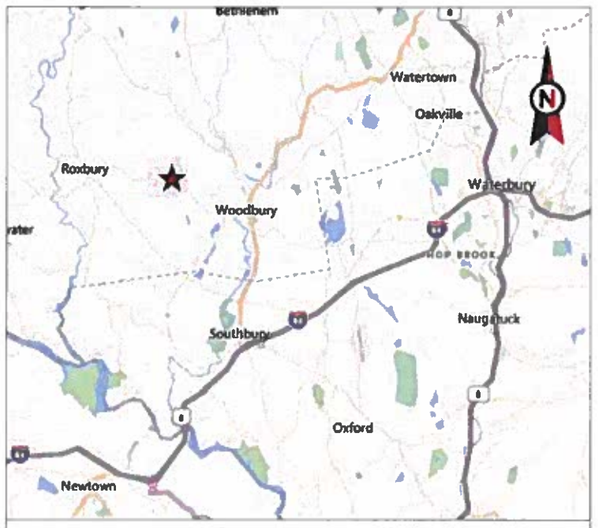
Attached Extra Features

Type	Description	Area (sq ft)	Condition	Year Built

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
ROXBURY LAND TRUST INC	313_ 366	3/23/2004	0
GOOD HILL FARM LLC	249_458+	5/2/2000	0

Report Created On 3/9/2020

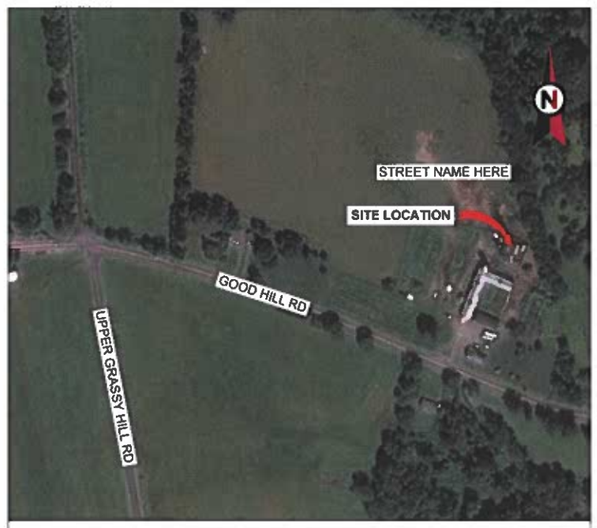


VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: GOOD HILL CT
ATC SITE NUMBER: 411180
VERIZON SITE NAME: WOODBURY W CT
VERIZON SITE NUMBER:469342
SITE ADDRESS: 481 GOOD HILL ROAD WOODBURY, CT 06798

VERIZON WIRELESS
ANTENNA AMENDMENT DRAWINGS



LOCATION MAP

COMPLIANCE CODE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. INTERNATIONAL BUILDING CODE (IBC)
2. NATIONAL ELECTRIC CODE (NEC)
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES

UTILITY COMPANIES

POWER COMPANY: NORTHEAST UTILITY SERVICE
PHONE: (800) 286-2000

TELEPHONE COMPANY: AT&T
PHONE: (800) 225-5288

811
Know what's **below.**
Call before you dig.

PROJECT SUMMARY

SITE ADDRESS:

481 GOOD HILL ROAD
WOODBURY, CT 06798
COUNTY: LITCHFIELD

GEOGRAPHIC COORDINATES:

LATITUDE: 41.557222
LONGITUDE: -73.256778
GROUND ELEVATION: 877' AMSL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

ENGINEER:

ATC TOWER SERVICES, LLC
3500 REGENCY PKWY STE 100
CARY, NC 27518

PROPERTY OWNER:

ROXBURY LAND TRUST, INC.
A CONNECTICUT LAND CORP.
1 SOUTH ST
ROXBURY, CT 06783

APPLICANT:

VERIZON WIRELESS
20 ALEXANDER DRIVE, 2ND FLOOR
WALLINGFORD, CT 06492

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:

REMOVE (6) PANELS AND (6) 1-5/8" COAX CABLES

INSTALL MOUNT MODIFICATIONS, (3) SIDE-BY-SIDE MOUNTS, (6) NEW PANELS, (6) RRUs, (3) DIPLEXERS, AND (2) 1-5/8" HYBRID CABLES

EXISTING (6) PANELS AND(6) 1-5/8" COAX CABLES TO REMAIN

PROJECT NOTES

1. THE FACILITY IS UNMANNED.
2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.
3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.
4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.
5. HANDICAP ACCESS IS NOT REQUIRED.

PROJECT LOCATION DIRECTIONS

FROM HAMDEN / NEW HAVEN TAKE CT-15 WILBUR CROSS PARKWAY S TOWARD NEW YORK CITY. TAKE EXIT 59 CT-69 TURN LEFT ONTO CT-69 TURN LEFT ON LUCY STREET TURN RIGHT ON CT-63 AMITY ROAD TURN LEFT ONTO CT-67 SEYMOUR ROAD CONTINUE ON CT-67 TURN LEFT ON ROXBURY ROAD CT-67 TURN RIGHT ONTO TRANSYLVANIA ROAD TURN LEFT ON GOOD HILL ROAD CT-317 478 GOOD HILL ROAD IS ON THE RIGHT ROXBURY LAND TRUST

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	COVER SHEET	0	01/16/20	CWB
G-002	GENERAL NOTES	0	01/16/20	CWB
C-101	DETAILED SITE PLAN	0	01/16/20	CWB
C-102	TOWER ELEVATION	0	01/16/20	CWB
C-501	RF SCHEDULE AND ANTENNA INSTALLATION	0	01/16/20	CWB
C-502	CONSTRUCTION DETAILS	0	01/16/20	CWB
R-601	SUPPLEMENTAL			

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

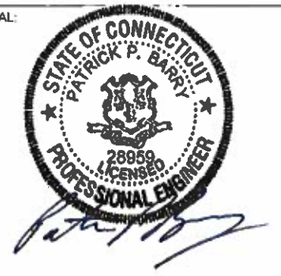
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	CWB	01/16/20

ATC SITE NUMBER:
411180

ATC SITE NAME:
GOOD HILL CT

SITE ADDRESS:
481 GOOD HILL ROAD
WOODBURY, CT 06798

SEAL:



Authorized by "EOR"
Feb verizon Design

DRAWN BY:	CWB
APPROVED BY:	PB
DATE DRAWN:	01/16/20
ATC JOB NO:	13001538
CUSTOMER ID:	WOODBURY W CT
CUSTOMER #:	469342

COVER SHEET

SHEET NUMBER:	REVISION:
G-001	0

GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE VERIZON WIRELESS REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE VERIZON WIRELESS REP PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE VERIZON WIRELESS REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
12. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE VERIZON WIRELESS CONSTRUCTION MANAGER.
13. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
14. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE VERIZON WIRELESS REP IMMEDIATELY.
15. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
16. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
17. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH LANDLORD AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
18. CONTRACTOR SHALL FURNISH VERIZON WIRELESS WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
19. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH VERIZON WIRELESS REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
20. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH VERIZON WIRELESS REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY VERIZON WIRELESS MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
21. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH VERIZON WIRELESS SPECIFICATIONS AND REQUIREMENTS.
22. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO VERIZON WIRELESS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
23. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO VERIZON WIRELESS SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
24. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
25. CONTRACTOR SHALL NOTIFY VERIZON WIRELESS REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
26. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
27. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
28. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE VERIZON WIRELESS REP. ANY WORK FOUND BY THE VERIZON WIRELESS REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
29. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:
   A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE
   B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.
   C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)
   D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS
   E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:
   A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
   B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
   C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
   D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.
   E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
   F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.
   G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING ½" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

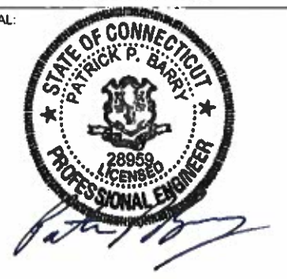
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	CWB	01/16/20

ATC SITE NUMBER:
411180

ATC SITE NAME:
GOOD HILL CT

SITE ADDRESS:
481 GOOD HILL ROAD
WOODBURY, CT 06798

SEAL:



Authorized by "EOR"
Feb 4 20 verizon design

DRAWN BY:	CWB
APPROVED BY:	PB
DATE DRAWN:	01/16/20
ATC JOB NO:	13001538
CUSTOMER ID:	WOODBURY W CT
CUSTOMER #:	469342

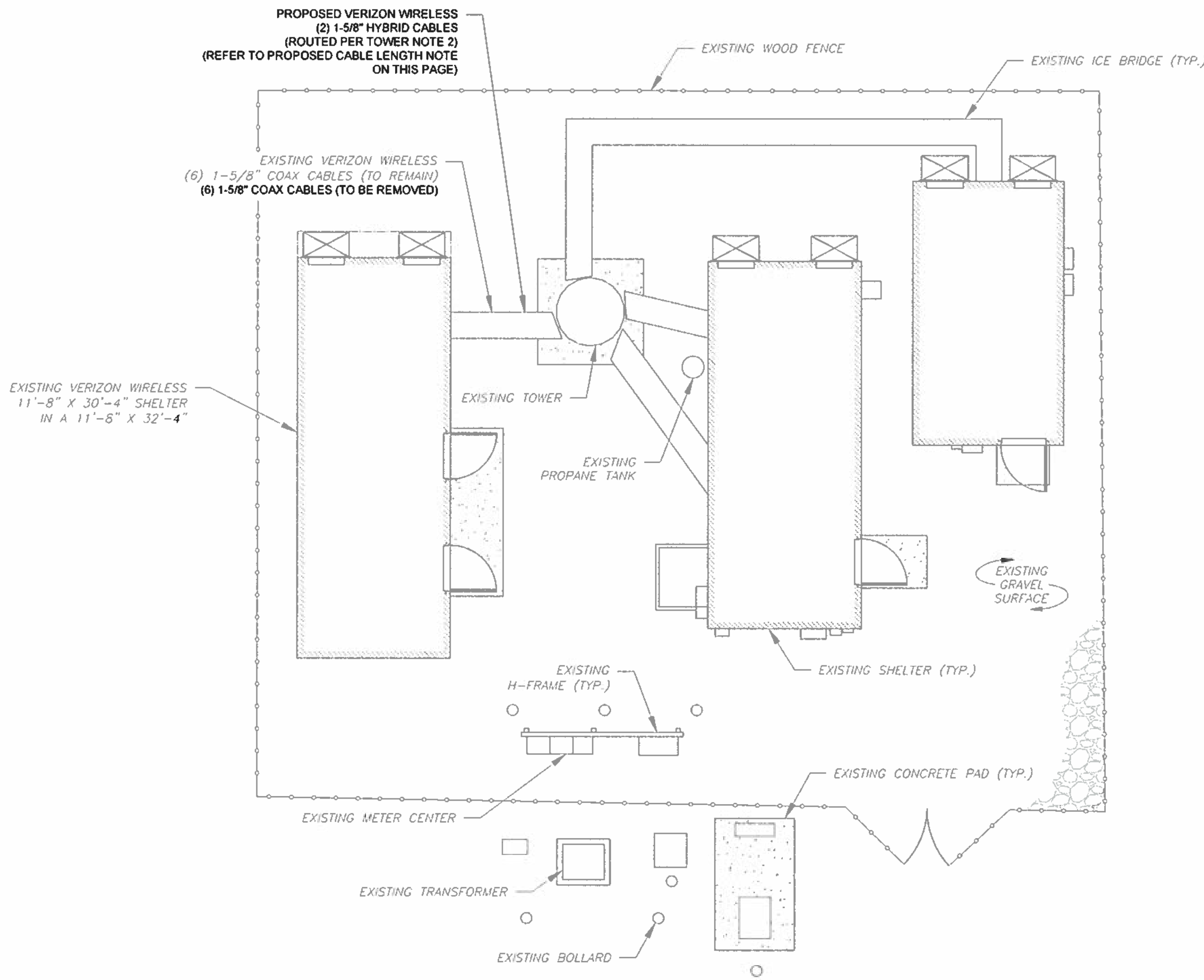
GENERAL NOTES

SHEET NUMBER:	REVISION:
G-002	0

SITE PLAN NOTES:

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.

2. ICE BRIDGE, CABLE LADDER, COAX PORT, CABLE SUPPORTS, AND CABLES ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE INSTALLING NEW CABLE SUPPORT STRUCTURES, COAX PORTS, OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.



1 DETAILED SITE PLAN

0 10' 20'

SCALE: 1"=10' (11X17)
1"=5' (22X34)

PROPOSED CABLE LENGTH:

ESTIMATED LENGTH OF PROPOSED CABLE IS 180'. ESTIMATED LENGTH OF CABLE IS CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES).

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	CWB	01/16/20

ATC SITE NUMBER:
411180

ATC SITE NAME:
GOOD HILL CT

SITE ADDRESS:
481 GOOD HILL ROAD
WOODBURY, CT 06798

SEAL:

STATE OF CONNECTICUT
PATRICK P. BARRY
28959
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
Feb

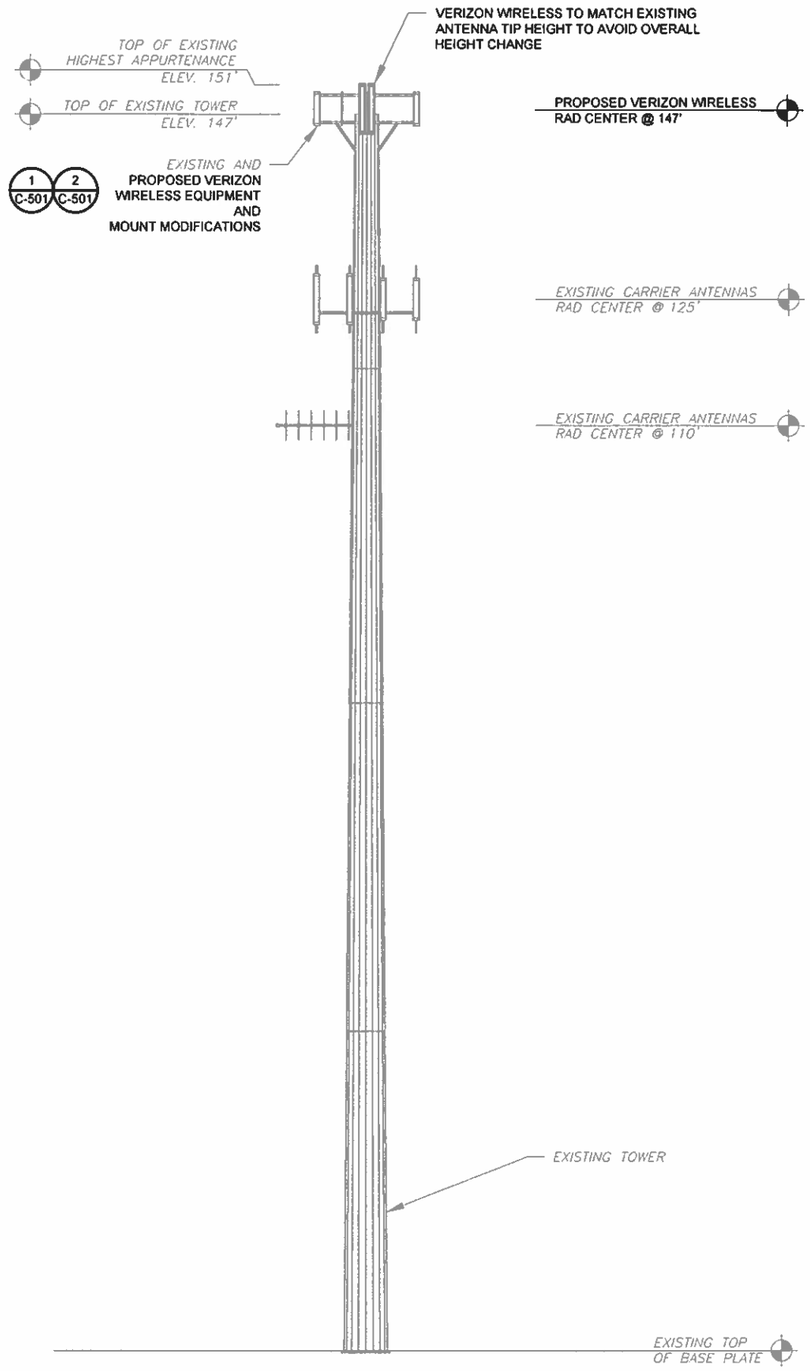
verizon

DRAWN BY:	CWB
APPROVED BY:	PB
DATE DRAWN:	01/16/20
ATC JOB NO:	13001538
CUSTOMER ID:	WOODBURY W CT
CUSTOMER #:	469342

DETAILED SITE PLAN

SHEET NUMBER:	REVISION:
C-101	0

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 02/20/20, THE EXISTING MOUNT CAN NOT ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT



1 TOWER ELEVATION
SCALE: NOT TO SCALE

TOWER NOTE:
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
3. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATIONS.
4. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

ANTENNA NOTES:
1. ALL ANTENNAS TO BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR TO COORDINATE REQUIRED MECHANICAL DOWNTILT FOR EACH ANTENNA WITH VERIZON RF ENGINEER.
2. ANTENNA CENTERLINE HEIGHT IS ABOVE GROUND LEVEL (AGL).
3. CONTRACTOR SHALL VERIFY ANTENNA TYPE, AZIMUTH, DOWNTILT, AND ANTENNA NUMBER PER SECTOR WITH CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.
4. ALL PERSONNEL WORKING ON THE TOWER MUST COMPLY WITH VERIZON'S RF EMISSIONS GUIDELINE POLICY.
5. CHECK WITH RF ENGINEER FOR LATEST ANTENNA TYPE AND AZIMUTH.
6. CONTRACTOR SHALL NOT INSTALL SHRINK WRAP UNTIL AFTER CABLES HAVE BEEN SWEPT.
7. THE USE OF ALTERNATE GROUNDING MEANS (SUCH AS LYNCOLE XIT) SHALL COMPLY WITH O.C.E.I. CONSTRUCTION SPECIFICATIONS AND BUILDING PRACTICES.

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

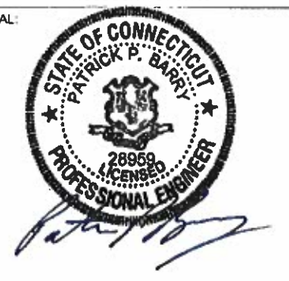
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	CWB	01/16/20

ATC SITE NUMBER:
411180

ATC SITE NAME:
GOOD HILL CT

SITE ADDRESS:
481 GOOD HILL ROAD
WOODBURY, CT 06798

SEAL:

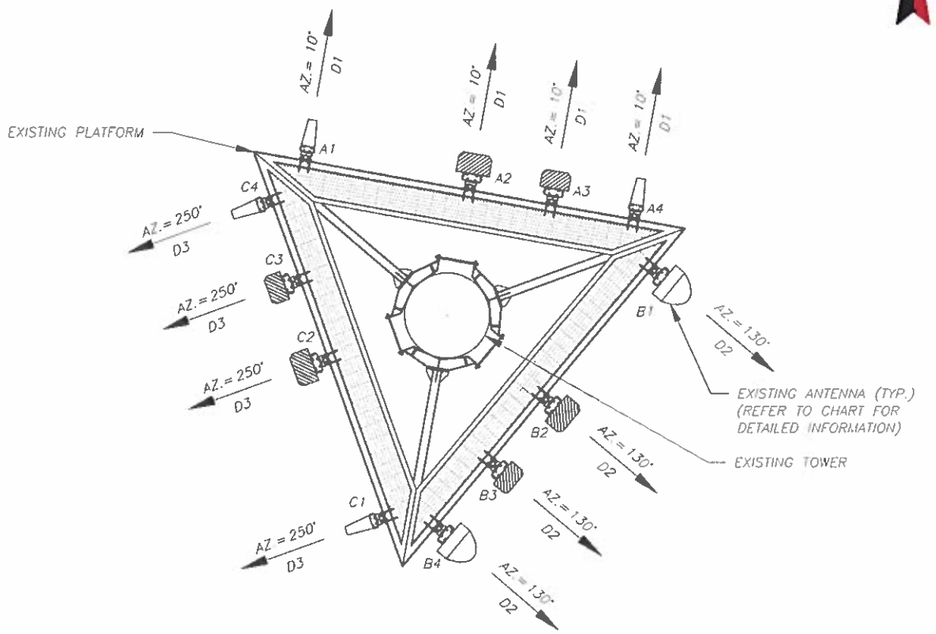


Authorized by "EOR"
Feb verizon Design

DRAWN BY:	CWB
APPROVED BY:	PB
DATE DRAWN:	01/16/20
ATC JOB NO:	13001538
CUSTOMER ID:	WOODBURY W CT
CUSTOMER #:	469342

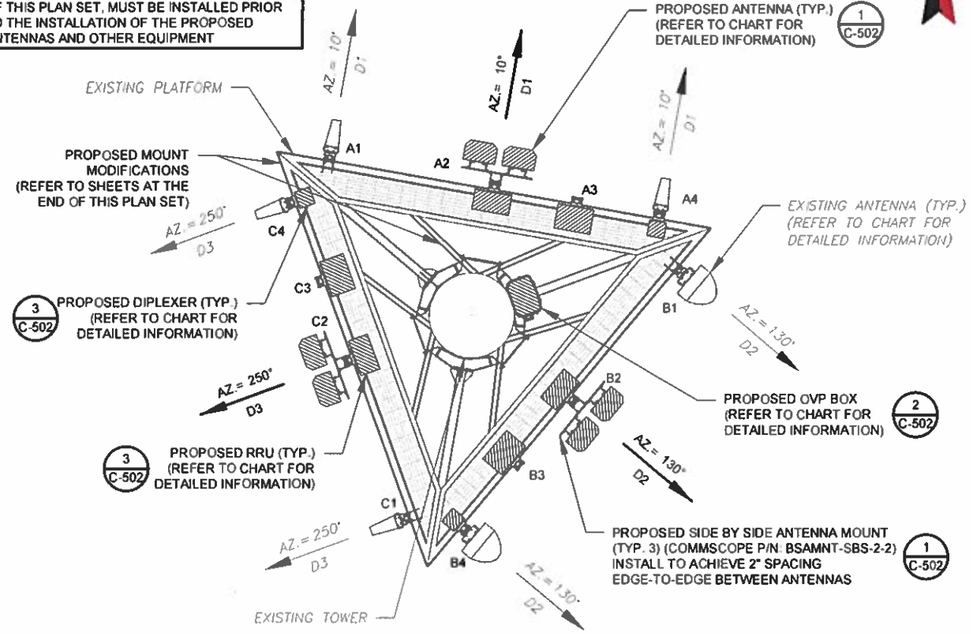
TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-102	0



1 CURRENT ANTENNA PLAN

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 02/20/20, THE EXISTING MOUNT CAN NOT ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT



2 FINAL ANTENNA PLAN

EXISTING ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
D1	147'	10°	A1	LPA-80080/4CF	850 CDMA	RMN	-	-
			A2	BXA-171085	1900 & 2100 LTE	RMV	-	-
			A3	BXA-70063-6CF-2	700 LTE	RMV	-	-
			A4	LPA-80080/4CF	850 CDMA	RMN	-	-
D2	147'	130°	B1	LPA-80080/4CF	850 CDMA	RMN	-	-
			B2	BXA-171085	1900 & 2100 LTE	RMV	-	-
			B3	BXA-70063-6CF-2	700 LTE	RMV	-	-
			B4	LPA-80080/4CF	850 CDMA	RMN	-	-
D3	147'	250°	C1	LPA-80080/4CF	850 CDMA	RMN	-	-
			C2	BXA-171085	1900 & 2100 LTE	RMV	-	-
			C3	BXA-70063-6CF-2	700 LTE	RMV	-	-
			C4	LPA-80080/4CF	850 CDMA	RMN	-	-

NOTES

1. BASED ON APPROVED ATC APPLICATION 13001538, DATED 12/02/2019, CONFIRM WITH VERIZON WIRELESS REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
2. ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIG OR MOUNT CONFIG. CONTRACTOR TO VERIFY MOUNT CONFIG HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (EQUIP) (I.E. CLEARANCES, MOUNT PIPE, SUFFICIENT LENGTH, ETC.).
3. ALL PROPOSED EQUIP INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH ATC'S CM.
4. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
5. POSITIONS START WITH FIRST PIPE ON THE LEFT SIDE (AS VIEWED FROM BEHIND THE MOUNT).

FINAL ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
D1	147'	10°	A1	LPA-80080/4CF	850 CDMA	RMN	-	-
			A2	(2) JAHH-65B-R3B	-	ADD	B2/B66A RRH-BR049	ADD
			A3	-	-	-	B5/B13 RRH-BR04C	ADD
			A4	LPA-80080/4CF	850 CDMA	RMN	CBC78T-DS-43-2X	ADD
D2	147'	130°	B1	LPA-80063/4CF	850 CDMA	RMN	-	-
			B2	(2) JAHH-65B-R3B	-	ADD	B2/B66A RRH-BR049	ADD
			B3	-	-	-	B5/B13 RRH-BR04C	ADD
			B4	LPA-80063/4CF	850 CDMA	RMN	CBC78T-DS-43-2X	ADD
D3	147'	250°	C1	LPA-80080/4CF	850 CDMA	RMN	-	-
			C2	(2) JAHH-65B-R3B	-	ADD	B2/B66A RRH-BR049	ADD
			C3	-	-	-	B5/B13 RRH-BR04C	ADD
			C4	LPA-80080/4CF	850 CDMA	RMN	CBC78T-DS-43-2X	ADD

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	(6) 1-5/8"	-	RMN
-	-	(6) 1-5/8"	-	RMV

STATUS ABBREVIATIONS
RMV: TO BE REMOVED
RMN: TO REMAIN
REL: TO BE RELOCATED
DSC: TO BE DISCONNECTED & REMAIN
ADD: TO BE ADDED

3 EQUIPMENT SCHEDULES

CABLE LENGTHS FOR JUMPERS
FIBER DISTRIBUTION/OVP TO RRU: 15'
RRU TO ANTENNA: 10'

FINAL FIBER DISTRIBUTION/OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
DB-C1-12C-24AB-0Z	ADD	(6) 1-5/8"	-	RMN
-	-	-	(2) 1-5/8"	ADD

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

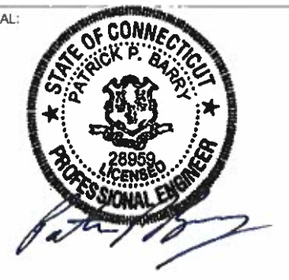
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	CWB	01/16/20

ATC SITE NUMBER:
411180

ATC SITE NAME:
GOOD HILL CT

SITE ADDRESS:
481 GOOD HILL ROAD
WOODBURY, CT 06798

SEAL:

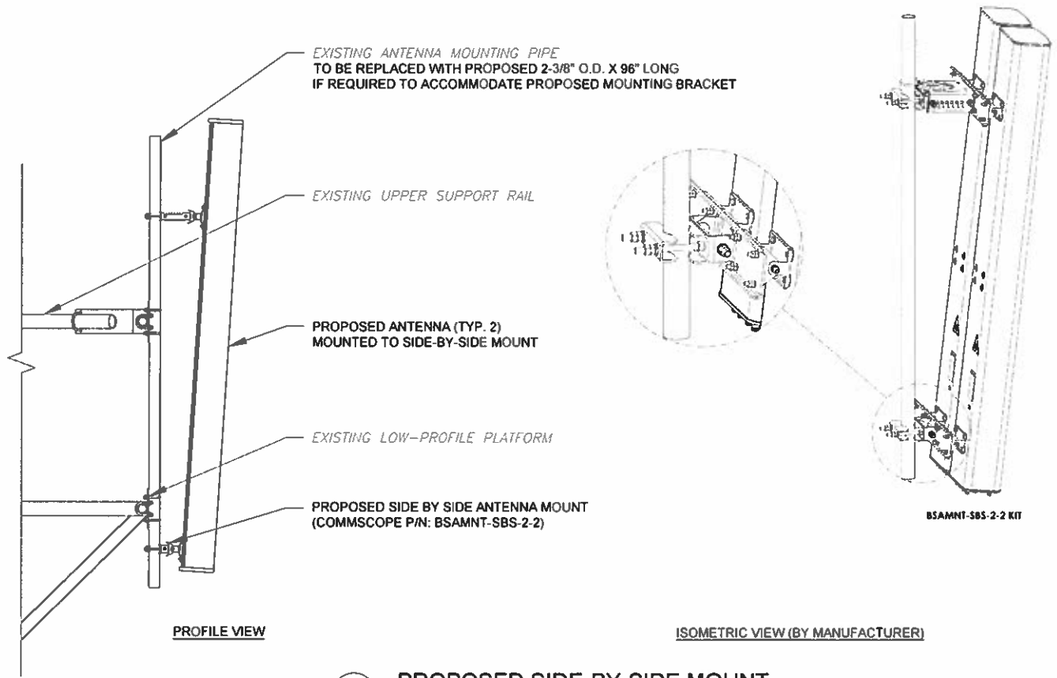


Authorized by "EOR"
Feb verizon

DRAWN BY:	CWB
APPROVED BY:	PB
DATE DRAWN:	01/16/20
ATC JOB NO:	13001538
CUSTOMER ID:	WOODBURY W CT
CUSTOMER #:	469342

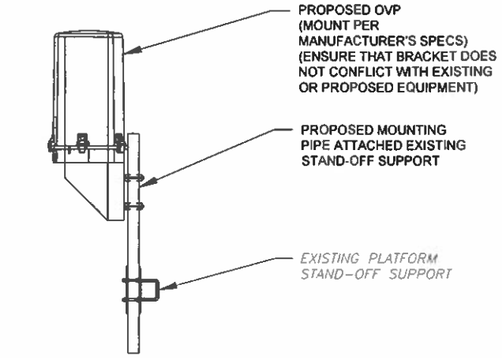
RF SCHEDULE AND ANTENNA INSTALLATION

SHEET NUMBER:	REVISION:
C-501	0



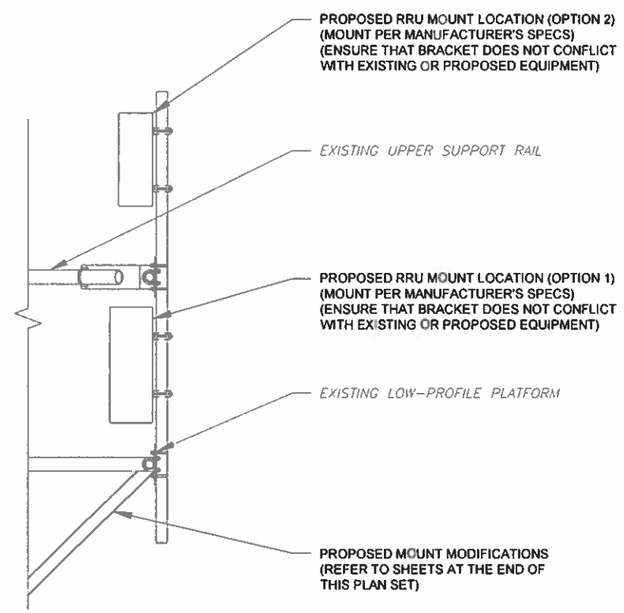
1 PROPOSED SIDE-BY-SIDE MOUNT

SCALE: NOT TO SCALE



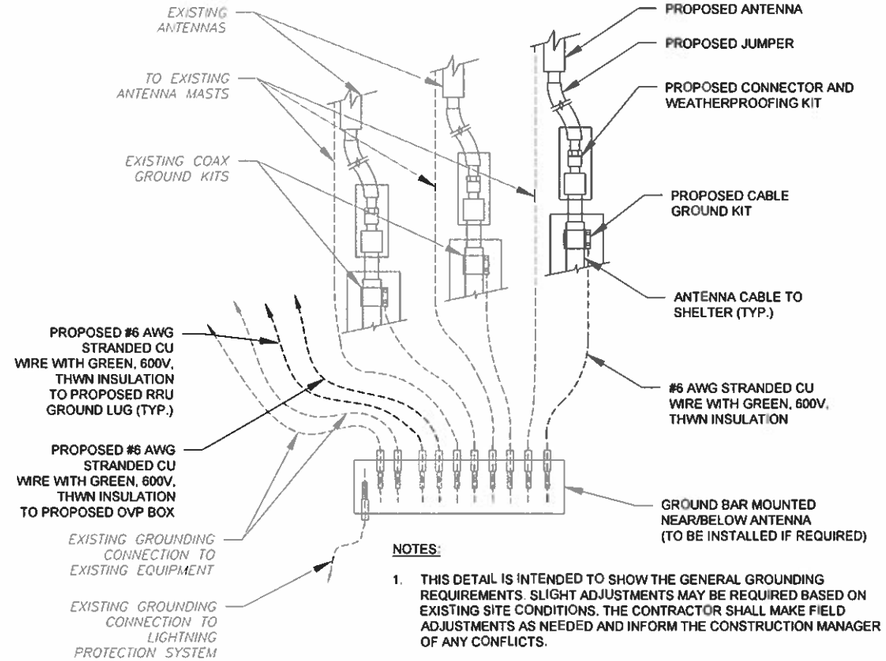
2 PROPOSED OVP MOUNTING

SCALE: NOT TO SCALE



3 PROPOSED RRU MOUNTING DETAIL - TYPICAL

SCALE: NOT TO SCALE



NOTES:

1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH VERIZON WIRELESS GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH VERIZON WIRELESS GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

4 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: NOT TO SCALE

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
PHONE: (919) 468-0112
COA: PEC.0001553

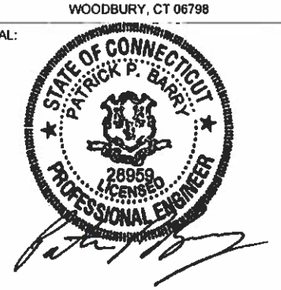
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	CWB	01/16/20
△			
△			
△			
△			

ATC SITE NUMBER:
411180

ATC SITE NAME:
GOOD HILL CT

SITE ADDRESS:
481 GOOD HILL ROAD
WOODBURY, CT 06798

SEAL:



Authorized by "EOR"
Feb

verizon

DRAWN BY:	CWB
APPROVED BY:	PB
DATE DRAWN:	01/16/20
ATC JOB NO:	13001538
CUSTOMER ID:	WOODBURY W CT
CUSTOMER #:	469342

CONSTRUCTION DETAILS

SHEET NUMBER:	REVISION:
C-502	0

AMERICAN TOWER®
CORPORATION

Antenna Mount Analysis Report

ATC Site Name	:	**Good Hill CT, CT**
ATC Site Number	:	**411180**
Engineering Number	:	**13001538_C8_06**
Mount Elevation	:	**146 ft**
Carrier	:	**Verizon Wireless**
Carrier Site Name	:	**WOODBURY W CT**
Carrier Site Number	:	**469342**
Site Location	:	**481 GOOD HILL ROAD** **Woodbury, CT 06798-2507** **41.557222 , -73.256778**
County	:	**Litchfield**
Date	:	**February 20, 2020**
Max Usage	:	**75%**
Result	:	**Contingent Pass**

Prepared By:
Parvin Nikpoorparizi
Structural Engineer I

Reviewed By:

STATE OF CONNECTICUT · ESHA KAUSHAL MODI · 32303 · LICENSED PROFESSIONAL ENGINEER

Authorized by "EOR"
20 Feb 2020 04:00:56 cosign

COA: PEC.0001553

AMERICAN TOWER® CORPORATION

Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for Verizon Wireless at 146 ft.

Supporting Documents

Mount Mapping	Infinigy Project #469342, dated November 19, 2019
RFDS	RFDS dated November 25, 2019
Photos	Site photos from 2018

Analysis

This antenna mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

Basic Wind Speed:	93 mph (3-Second Gust, Vasd) / 120 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	40 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Codes:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.195$, $S_1 = 0.065$
Site Class:	D - Stiff Soil
Live Loads:	$L_m = 500$ lbs, $L_v = 250$ lbs

Conclusion

Based on the analysis results, the antenna mount does not meet the requirements per the applicable codes listed above. The mount can support the equipment as described in this report after the below listed modifications are completed:

- Install Site Pro 1 VSK-MHD V-Style monopole reinforcement kits (60" vertical separation) with Site Pro 1 SCX23-K crossover plate kits and Site Pro 1 P30150 (2-7/8" - 150") bulk pipe on the platform approximately 3" below the bottom platform horizontal.

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.

A.T. Engineering Service, PLLC - 3500 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5414 Fax - www.americantower.com

1 MOUNT ANALYSIS
SCALE: NOT TO SCALE

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERYIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONTRUCTION.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	0