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

January 10, 2018

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

RE: Notice of Exempt Modification // Site: Milford II S CT (ATC: 302535)
185(/203) Research Drive, Milford, CT 06460
N 41.2404 // W 73.0119

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless currently maintains 12 antennas at the 126-foot mount on the existing 183-foot monopole tower, located at (181-)185 aka 203 & 181-1 Research Drive, Milford, CT. The tower is owned by American Tower. The property is owned by D'Amato Investments, LLC. Verizon Wireless facility was approved for colocation by the Council in 1995. Verizon Wireless now intends 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, along with mounting platform reinforcements, for its PCS/AWS/LTE upgrade. Additionally, Verizon Wireless will remove unused cabling and all remote radio head units (RRUs) and replace with a total of 6 RRUs plus 3 combiners; 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 Benjamin G. Blake, Mayor for the City of Milford, its City Planner and Executive Secretary of the P&Z Board, David B. Sulkis, American Tower, the tower owner, and to the ground owner, D'Amato Investments, LLC.

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 December 21, 2018 and a structural analysis dated October 19, 2018 by A.T. Engineering Service, PLLC, a structural mount analysis by Trylon Engineering Services dated

November 15, 2018 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 analyses by A.T. Engineering Service, PLLC, dated October 19, 2018 and Trylon, dated November 15, 2018, pursuant to certain conditions defined therein. Design and engineering is fully illustrated within final mount and handrail reinforcement modification and construction drawings dated December 7, 2018, signed and stamped December 10 & 21, 2018.

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: Benjamin G. Blake, Mayor - as chief elected official
David B. Sulkis, City Planner and Executive Secretary of the P&Z Board - as P&Z official
American Tower Corporation - as tower owner
D'Amato Investments, LLC - as property owner

CENTERLINE COMMUNICATIONS, LLC
750 WEST CENTER STREET
WEST BRIDGEWATER MA 02379

1 LBS

1 OF 1

DWT: 14,10,1

SHIP TO:
CITY OF MILFORD - MAYORS OFFICE
BENJAMIN G. BLAKE, MAYOR
110 RIVER ST
MILFORD CT 06460-3318

CT 066 9-05

UPS GROUND

TRACKING #: 1Z 9Y4 503 03 2314 4039

BILLING: P/P

Reference#1: 302535 aka Milford S II CT
Reference#2: CSC EM - CEO

UIS 21.0.21. WNTNV50 06.0A 10/2018

CENTERLINE COMMUNICATIONS, LLC
750 WEST CENTER STREET
WEST BRIDGEWATER MA 02379

1 LBS

1 OF 1

DWT: 14,10,1

SHIP TO:

DAVID B. SULKIS, CITY PLANNER
EXECUTIVE SECRETARY OF THE P&Z BOAR
70 WEST RIVER STREET
MILFORD CT 06460-3317

CT 066 9-05

UPS GROUND

TRACKING #: 1Z 9Y4 503 03 3040 2648

BILLING: P/P

Reference#1: 302535 aka Milford S II CT
Reference#2: CSC EM - P&Z

UIS 21.0.21. WNTNV50 06.0A 10/2018

™

CENTERLINE COMMUNICATIONS, LLC
750 WEST CENTER STREET
WEST BRIDGEWATER MA 02379

1 LBS

1 OF 1

DWT: 14,10,1

SHIP TO:
BLAKE E. PAYNTER
AMERICAN TOWER CORPORATION
NETWORK DEVELOPMENT - NORTHEAST
10 PRESIDENTIAL WAY
WOBURN MA 01801-1053

MA 018 9-04

UPS GROUND

TRACKING #: 1Z 9Y4 503 03 3117 8425

BILLING: P/P

Reference#1: 302465/Colchester, 302535/Milford
Reference#2: CSC EM - TO

UIS 21.0.21. WNTNV50 06.0A 10/2018

CENTERLINE COMMUNICATIONS, LLC
750 WEST CENTER STREET
WEST BRIDGEWATER MA 02379

1 LBS

1 OF 1

DWT: 14,10,1

SHIP TO:
D'AMATO INVESTMENTS, LLC
183 QUARRY RD
MILFORD CT 06460-2867

CT 066 9-05

UPS GROUND
TRACKING #: 1Z 9Y4 503 03 3385 4253

BILLING: P/P

Reference#1: 302535 aka Milford S II CT
Reference#2: CSC EM - PO

UIS 21.0.21. WNTNV50 06.0A 10/2018

TM

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Structural Analysis Report

Structure	:	**183 ft Monopole**
ATC Site Name	:	**Milford CT 2, CT**
ATC Site Number	:	**302535**
Engineering Number	:	**12616990_C3_01**
Proposed Carrier	:	**Verizon**
Carrier Site Name	:	**Milford S II CT**
Carrier Site Number	:	**PSLC# 468301 - PROJ# 15289713**
Site Location	:	**185 Research Drive** **Milford, CT 06460-7733** **41.240400,-73.011900**
County	:	**New Haven**
Date	:	**October 19, 2018**
Max Usage	:	**98%**
Result	:	**Pass**

Prepared By:
Jeffrey B. DeLuca
Structural Engineer II

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32593
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
Oct 19 2018 5:31 PM cosign

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 183 ft monopole to reflect the change in loading by Verizon.

Supporting Documents

Tower Drawings	Summit Manufacturing Drawing #1237-D1, dated September 9, 1994
Foundation Drawing	Summit Manufacturing Drawing #1237-F1 dated October 10, 1994
Geotechnical Report	French & Parrello Project #93N035CR1, dated November 2, 1993
Modifications	ATC Job #42659834, dated January 16, 2009 ATC Job #43915332, dated September 2, 2009 ATC Job #56682734, dated April 16, 2014

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:	97 mph (3-Second Gust, V_{asd}) / 125 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 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

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
183.0	185.0	2	DragonWave Horizon Compact	Platform w/ Handrails	(3) 1 1/4" Hybriflex (6) 5/16" Coax (2) 2" Conduit (2) 1/2" Coax (1) 1.7" Hybrid	Clearwire
		6	Alcatel-Lucent RRH2x50-08			
		3	Alcatel-Lucent 1900MHz 4x45 RRH			
		3	Decibel DB844H90E-XY			
		3	Nokia 2.5G MAA - AAHC(64T64R)			
		3	Argus LLPX310R			
		2	DragonWave A-ANT-18G-2-C			
		3	Andrew 844G65VTZASX			
		3	Commscope NNVV-65B-R4			
183.0	-	-	-	-	(12) 1 5/8" Coax	Sprint Nextel
171.0	171.0	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax	Metro PCS
167.0	167.0	6	CCI TPX-070821	Platform w/ Handrails	(12) 1 1/4" Coax (6) 0.78" 8 AWG 6 (2) 0.39" Fiber Trunk (2) 2" Conduit	AT&T Mobility
		6	Kaelus DBCT108F1V92-1			
		1	Commscope WCS-IMFQ-AMT			
		6	Powerwave LGP21401			
		2	Raycap DC6-48-60-18-8F (23.5" Height)			
		1	Raycap DC6-48-60-18-8F ("Squid")			
		3	Ericsson RRUS 4426 B66			
		3	Ericsson RRUS 4478 B14			
		3	Ericsson RRUS 4478 B5			
		3	Ericsson RRUS 11 (Band 4)			
		3	Ericsson RRUS 32 B2			
		3	Ericsson RRUS-32 (77 lbs)			
		3	Powerwave 7770.00			
		3	CCI OPA-65R-LCUU-H4			
		3	Quintel QS66512-2			
		3	Kathrein 80010964			
145.0	146.0	3	Kathrein Smart Bias Tee	Low Profile Platform	(18) 1 5/8" Coax (2) 1 5/8" Fiber	T-Mobile
		3	Ericsson KRY 112 144/2			
		3	Ericsson KRY 112 489/2			
		3	Ericsson AIR 32 B2A/B66A			
		3	RFS APXVAARR24_43-U-NA20			
	145.0	3	Ericsson Radio 4449 B12,B71			
126.0	126.0	2	RFS DB-T1-6Z-8AB-0Z	Platform w/ Handrails	(6) 1 5/8" Coax (2) 1 5/8" Fiber	Verizon
		3	Antel BXA-80063/6CF			
		3	Andrew HBXX-6517DS-A2M			
7.0	7.0	2	Thales PCS VP/360/2 Type 8100	Stand-Off	-	T-Mobile

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
126.0	126.0	3	Andrew LNX-4514DS-A1M	-	(6) 1 5/8" Coax	Verizon
		3	Andrew HBXX-6516DS-A2M			
		3	Andrew HBXX-6517DS-A2M			
		6	RFS FD9R6004/1C-3L			
		3	Alcatel-Lucent RRH2X60-1900A-4R			
		3	Alcatel-Lucent RRH2X60-AWS			
		3	Alcatel-Lucent RRH2x40-AWS			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
126.0	126.0	3	RFS FDJ85020Q4-S1	Platform w/ Handrails	-	Verizon
		3	Samsung B2/B66A RRH-BR049			
		3	Samsung B5/B13 RRH-BR04C			
		6	Commscope JAHH-45B-R3B			

[1]Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	75%	Pass
Shaft	90%	Pass
Base Plate	82%	Pass
Flanges	98%	Pass
Reinforcement	79%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	4,858.9	72%
Axial (Kips)	134.0	4%

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) (°)
183.0	DragonWave A-ANT-18G-2-C	Clearwire Corporation	3.350	2.107
126.0	RFS FDJ85020Q4-S1	Verizon	1.486	1.472
	Samsung B2/B66A RRH-BR049			
	Samsung B5/B13 RRH-BR04C			
	Commscope JAHH-45B-R3B			

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

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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:

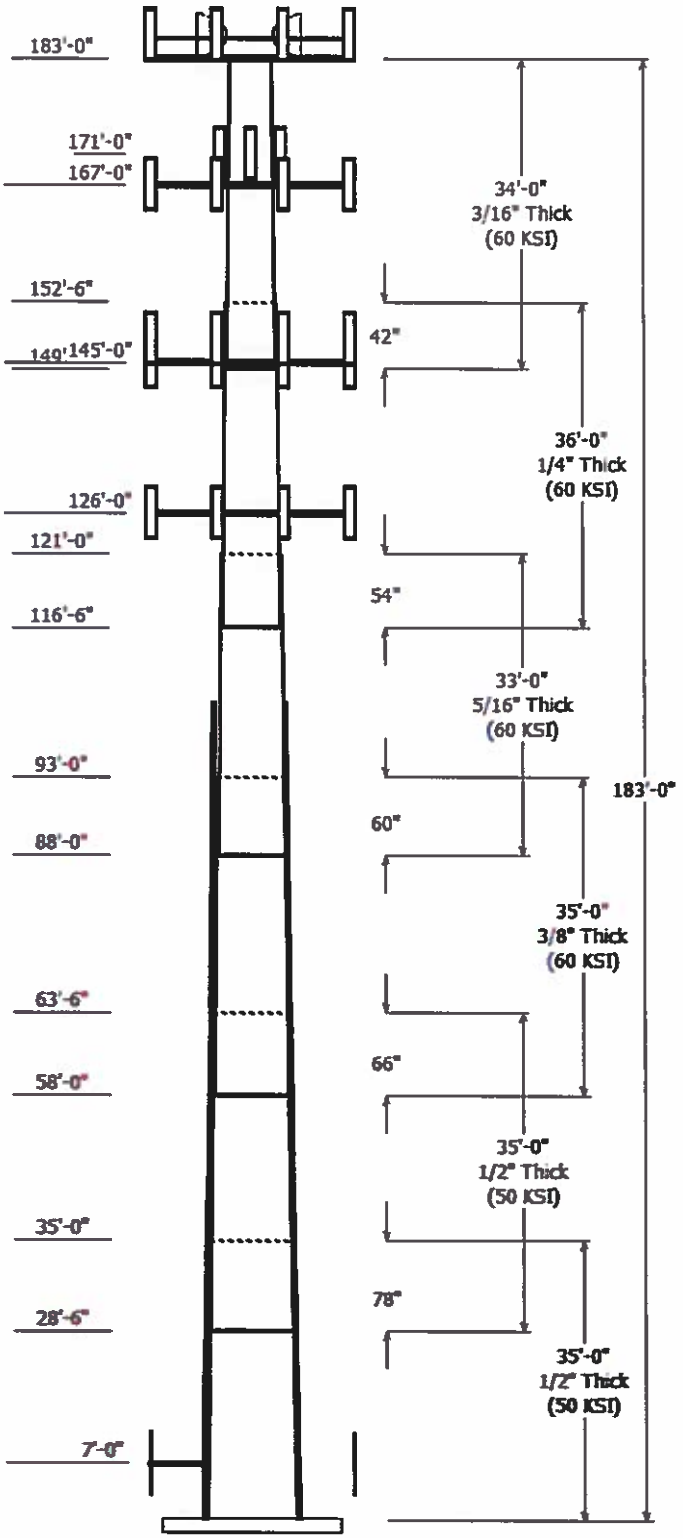
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

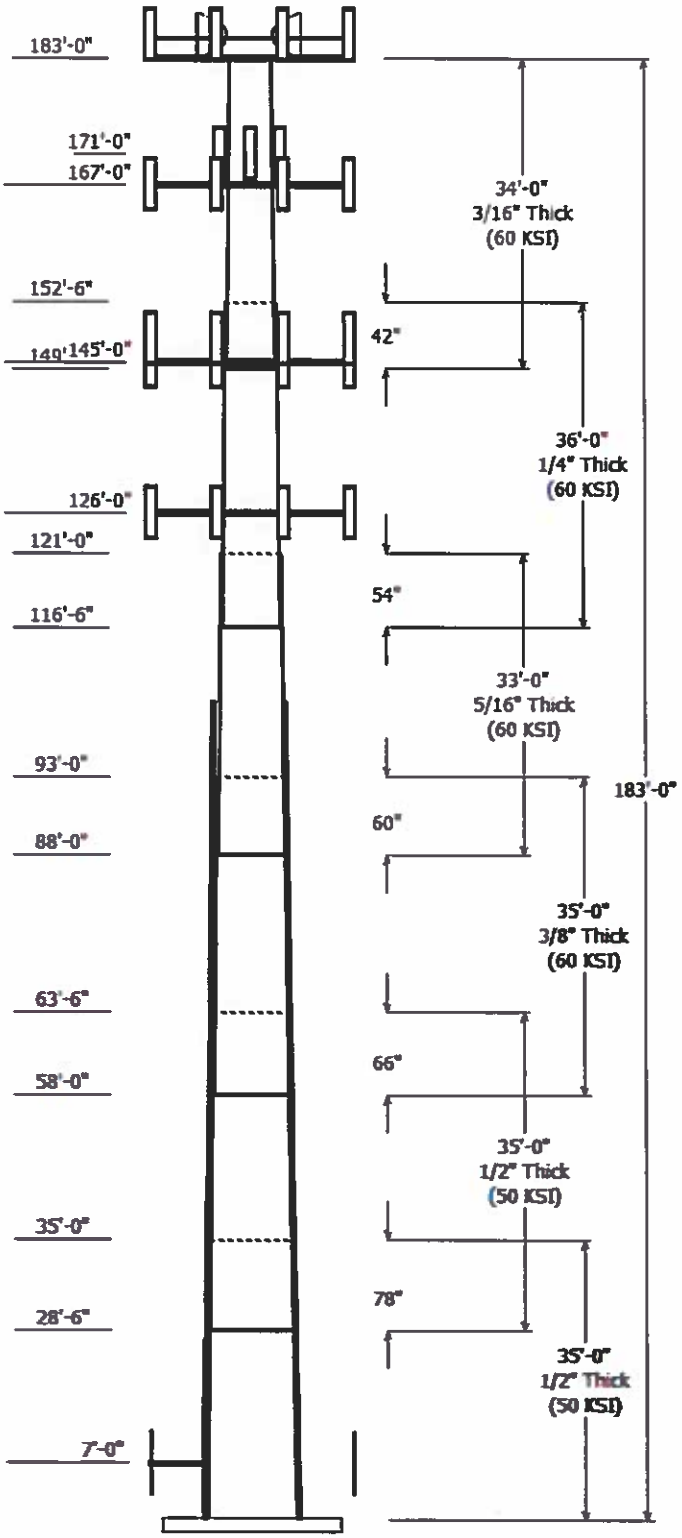
Pole : 302535	Code: ANSI/TIA-222-G
Location : Milford CT 2, CT	
Description : 183 ft Summit Monopole	
Client : VERIZON WIRELESS	Struct Class : II
Shape : 18 Sides	Exposure : B
Height : 183.00 (ft)	Topo : 1
Base Elev (ft): 0.00	
Taper: 0.17491 (in/ft)	

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	35.000	42.498	48.620	0.500		0.000	18 Sides	50
2	35.000	38.513	44.635	0.500	Slip Joint	78.000	18 Sides	50
3	35.000	34.102	40.225	0.375	Slip Joint	66.000	18 Sides	60
4	33.000	29.830	35.602	0.313	Slip Joint	60.000	18 Sides	60
5	36.000	24.820	31.117	0.250	Slip Joint	54.000	18 Sides	60
6	34.000	19.860	25.807	0.188	Slip Joint	42.000	18 Sides	60

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
183.000	185.000	3	Argus LLPX310R
183.000	185.000	3	Nokia 2.5G MAA - AAHC(64T64R)
183.000	185.000	3	Commscope NNVV-65B-R4
183.000	185.000	3	Andrew 844G65VTZASX
183.000	185.000	3	Alcatel-Lucent 1900 MHz 4x45 R
183.000	185.000	6	Alcatel-Lucent RRH2x50-08
183.000	183.000	1	Round Platform w/ Handrails
183.000	185.000	3	Decibel DB844H90E-XY
183.000	185.000	2	DragonWave Horizon Compact
183.000	185.000	2	DragonWave A-ANT-18G-2-C
171.000	171.000	3	RFS APXV18-206517S-C
167.000	167.000	6	CCI TPX-070821
167.000	167.000	3	Quintel QS66512-2
167.000	167.000	3	Ericsson RRUS 32 B2
167.000	167.000	1	Commscope WCS-IMFQ-AMT
167.000	167.000	3	Kathrein Scala 80010964
167.000	167.000	3	CCI OPA-65R-LCUU-H4
167.000	167.000	3	Ericsson RRUS-32 (77 lbs)
167.000	167.000	2	Raycap DC6-48-60-18-8F (23.5"
167.000	167.000	3	Ericsson RRUS 4478 B5
167.000	167.000	3	Ericsson RRUS 4478 B14
167.000	167.000	1	Raycap DC6-48-60-18-8F ("Squid
167.000	167.000	3	Ericsson RRUS 11 (Band 4)
167.000	167.000	3	Ericsson RRUS 4426 B66
167.000	167.000	1	Flat Platform w/ Handrails
167.000	167.000	6	Powerwave Allgon LGP21401
167.000	167.000	3	Powerwave Allgon 7770.00
167.000	167.000	6	Kaelus DBCT108F1V92-1
145.000	145.000	1	Flat Low Profile Platform
145.000	146.000	3	RFS APXVAARR24_43-U-NA20
145.000	146.000	3	Ericsson AIR 32 B2A/B66A
145.000	146.000	3	Ericsson KRY 112 489/2
145.000	146.000	3	Ericsson KRY 112 144/2
145.000	145.000	3	Ericsson Radio 4449 B12,B71
145.000	146.000	3	Kathrein Scala Smart Bias Tee
126.000	126.000	6	Commscope JAHH-45B-R3B
126.000	126.000	3	Samsung B5/B13 RRH-BR04C
126.000	126.000	3	Samsung B2/B66A RRH-BR049
126.000	126.000	3	RFS FDJ85020Q4-S1
126.000	126.000	1	Flat Platform w/ Handrails
126.000	126.000	3	Andrew HBXX-6517DS-A2M



126.000	126.000	3	Antel BXA-80063/6CF
126.000	126.000	2	RFS DB-T1-6Z-8AB-0Z
7.000	7.000	1	Stand-Off
7.000	7.000	2	Thales PCS VP/360/2 Type 8100

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
5.000	126.00	1 5/8" Coax	No
5.000	126.00	1 5/8" Fiber	No
5.000	145.00	1 5/8" Coax	No
5.000	145.00	1 5/8" Coax	Yes
5.000	145.00	1 5/8" Fiber	Yes
5.000	167.00	0.39" Fiber Trunk	No
5.000	167.00	0.78" 8 AWG 6	No
5.000	167.00	1 1/4" Coax	No
5.000	167.00	2" Conduit	No
5.000	171.00	1 5/8" Coax	Yes
5.000	183.00	1 1/4" Hybriflex	Yes
5.000	183.00	1 5/8" Coax	No
5.000	183.00	1.7" Hybrid	Yes
5.000	183.00	1/2" Coax	Yes
5.000	183.00	2" Conduit	Yes
5.000	183.00	5/16" Coax	No
0.000	110.78	#20 Dywidag Bars	Yes

Load Cases

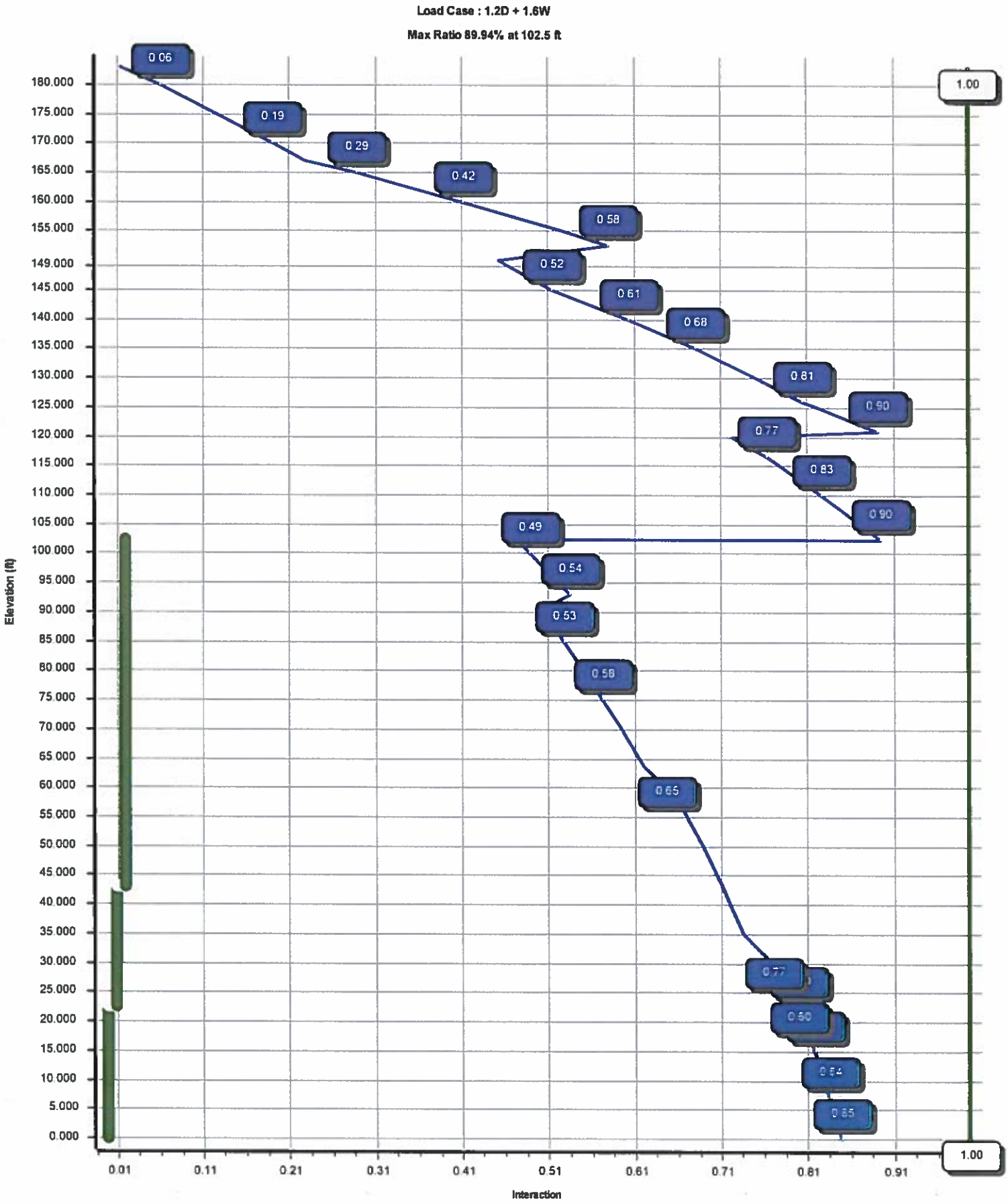
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced 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	4858.91	40.56	73.22
0.9D + 1.6W	4655.58	39.75	54.90
1.2D + 1.0Di + 1.0Wi	1946.70	12.46	134.00
(1.2 + 0.2Sds) * DL + E ELFM	275.78	1.84	73.78
(1.2 + 0.2Sds) * DL + E EMAM	324.70	2.46	73.78
(0.9 - 0.2Sds) * DL + E ELFM	269.17	1.84	51.10
(0.9 - 0.2Sds) * DL + E EMAM	316.17	2.45	51.10
1.0D + 1.0W	1130.54	9.62	61.08

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	183.00	40.196	2.107


Load Case : 1.2D + 1.6W
Max Ratio 89.94% at 102.5 ft
0.06
0.19
0.29
0.42
0.58
0.52
0.61
0.68
0.81
0.90
0.77
0.83
0.90
0.49
0.54
0.53
0.58
0.65
0.77
0.80
0.84
0.85
1.00
1.00
180.000
175.000
170.000
165.000
160.000
155.000
149.000
145.000
140.000
135.000
130.000
125.000
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)
0.01
0.11
0.21
0.31
0.41
0.51
0.61
0.71
0.81
0.91
Interaction

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number: 12616990_C3_01 10/19/2018 2:39:29 PM

Customer: VERIZON WIRELESS

Analysis Parameters

Location :	NEW HAVEN County, CT	Height (ft) :	183
Code :	ANSI/TIA-222-G	Base Diameter (in) :	48.62
Shape :	18 Sides	Top Diameter (in) :	19.86
Pole Type :	Taper	Taper (in/ft) :	0.175
Pole Manfacturer :	Summit Manufacturing	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 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): 3.21

T_L (sec):	6	p:	1	C_s:	0.030
S_s:	0.191	S_1:	0.063	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.204	S_{d1}:	0.101		

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 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

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number: 12616990_C3_01 10/19/2018 2:39:29 PM

Customer: VERIZON WIRELESS

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	35.000	0.5000	50		0.00	8,516	48.62	0.00	76.36	22340.1	15.38	97.24	42.498	35.00	66.65	14852.2	13.22	85.00	0.174917
2-18	35.000	0.5000	50	Slip	78.00	7,763	44.63	28.50	70.04	17236.7	13.98	89.27	38.513	63.50	60.32	11012.7	11.82	77.03	0.174917
3-18	35.000	0.3750	60	Slip	66.00	5,215	40.22	58.00	47.43	9515.8	17.15	107.27	34.102	93.00	40.14	5769.4	14.27	90.94	0.174917
4-18	33.000	0.3125	60	Slip	60.00	3,609	35.60	88.00	35.00	5507.2	18.33	113.93	29.830	121.00	29.28	3222.7	15.07	95.46	0.174917
5-18	36.000	0.2500	60	Slip	54.00	2,694	31.11	116.50	24.49	2948.2	20.18	124.47	24.820	152.50	19.50	1486.9	15.74	99.28	0.174917
6-18	34.000	0.1875	60	Slip	42.00	1,559	25.80	149.00	15.25	1264.3	22.51	137.64	19.860	183.00	11.71	572.4	16.91	105.92	0.174917
				Shaft Weight		29,356													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	Orientation Factor
183.00	Alcatel-Lucent 1900 MHz 4x45 R	3	0.000	2.000	60.00	2.320	0.50
183.00	Alcatel-Lucent RRH2x50-08	6	0.000	2.000	52.90	1.700	0.50
183.00	Andrew 844G65VTZASX	3	0.000	2.000	16.00	5.310	0.71
183.00	Argus LLPX310R	3	0.000	2.000	28.60	4.290	0.63
183.00	Commscope NNVV-65B-R4	3	0.000	2.000	77.40	12.270	0.64
183.00	Decibel DB844H90E-XY	3	0.000	2.000	14.00	3.610	0.74
183.00	DragonWave A-ANT-18G-2-C	2	0.000	2.000	27.10	4.690	1.00
183.00	DragonWave Horizon Compact	2	0.000	2.000	10.60	0.840	0.50
183.00	Nokia 2.5G MAA - AAHC(64T64R)	3	0.000	2.000	103.60	4.200	0.64
183.00	Round Platform w/ Handrails	1	0.000	0.000	2000.00	27.200	1.00
171.00	RFS APXV18-206517S-C	3	0.000	0.000	26.40	5.170	0.68
167.00	CCI OPA-65R-LCUU-H4	3	0.000	0.000	57.00	6.080	0.66
167.00	CCI TPX-070821	6	0.000	0.000	7.50	0.550	0.50
167.00	Commscope WCS-IMFQ-AMT	1	0.000	0.000	29.50	0.990	0.50
167.00	Ericsson RRUS 11 (Band 4)	3	0.000	0.000	44.00	2.570	0.50
167.00	Ericsson RRUS 32 B2	3	0.000	0.000	53.00	2.740	0.50
167.00	Ericsson RRUS 4426 B66	3	0.000	0.000	48.40	1.650	0.50
167.00	Ericsson RRUS 4478 B14	3	0.000	0.000	59.90	1.840	0.50
167.00	Ericsson RRUS 4478 B5	3	0.000	0.000	59.90	1.840	0.50
167.00	Ericsson RRUS-32 (77 lbs)	3	0.000	0.000	77.00	3.310	0.50
167.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
167.00	Kaelus DBCT108F1V92-1	6	0.000	0.000	13.90	0.740	0.50
167.00	Kathrein Scala 80010964	3	0.000	0.000	81.60	10.000	0.62
167.00	Powerwave Allgon 7770.00	3	0.000	0.000	35.00	5.510	0.65
167.00	Powerwave Allgon LGP21401	6	0.000	0.000	14.10	1.100	0.50
167.00	Quintel QS66512-2	3	0.000	0.000	111.00	8.130	0.74
167.00	Raycap DC6-48-60-18-8F ("Squid	1	0.000	0.000	31.80	1.280	1.00
167.00	Raycap DC6-48-60-18-8F (23.5"	2	0.000	0.000	20.00	1.110	1.00
145.00	Ericsson AIR 32 B2A/B66A	3	0.000	1.000	143.30	6.870	0.75
145.00	Ericsson KRY 112 144/2	3	0.000	1.000	9.70	0.560	0.50
145.00	Ericsson KRY 112 489/2	3	0.000	1.000	15.40	0.650	0.50
145.00	Ericsson Radio 4449 B12,B71	3	0.000	0.000	74.00	1.640	0.50
145.00	Flat Low Profile Platform	1	0.000	0.000	1500.00	26.100	1.00
145.00	Kathrein Scala Smart Bias Tee	3	0.000	1.000	3.30	0.090	0.50
145.00	RFS APXVAARR24_43-U-NA20	3	0.000	1.000	127.90	20.240	0.63
126.00	Andrew HBXX-6517DS-A2M	3	0.000	0.000	43.00	8.530	0.68
126.00	Antel BXA-80063/6CF	3	0.000	0.000	14.90	7.580	0.65
126.00	Commscope JAHH-45B-R3B	6	0.000	0.000	83.80	11.400	0.63
126.00	Flat Platform w/ Handrails	1	0.000	0.000	2000.00	42.400	1.00
126.00	RFS DB-T1-6Z-8AB-0Z	2	0.000	0.000	44.00	4.800	0.50
126.00	RFS FDJ85020Q4-S1	3	0.000	0.000	23.60	0.960	0.50
126.00	Samsung B2/B66A RRH-BR049	3	0.000	0.000	84.40	1.880	0.50
126.00	Samsung B5/B13 RRH-BR04C	3	0.000	0.000	70.30	1.880	0.50
7.00	Stand-Off	1	0.000	0.000	75.00	2.500	1.00
7.00	Thales PCS VP/360/2 Type 8100	2	0.000	0.000	0.30	0.030	1.00

Totals Num Loadings: 45 131 13561.30

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
5.00	183.00	3	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	Y	Clearwire Corporation
5.00	183.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel
5.00	183.00	1	1.7" Hybrid	1.70	1.78	N	0.00	Y	Clearwire Corporation
5.00	183.00	2	1/2" Coax	0.63	0.15	N	0.00	Y	Clearwire Corporation
5.00	183.00	2	2" Conduit	2.38	3.65	N	2.38	Y	Clearwire Corporation
5.00	183.00	6	5/16" Coax	0.31	0.05	N	0.00	N	Clearwire
5.00	171.00	6	1 5/8" Coax	1.98	0.82	N	1.98	Y	Metro PCS Inc
5.00	167.00	2	0.39" Fiber Trunk	0.39	0.06	N	0.00	N	AT&T Mobility
5.00	167.00	6	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
5.00	167.00	12	1 1/4" Coax	1.55	0.63	N	0.00	N	AT&T Mobility
5.00	167.00	2	2" Conduit	2.38	3.65	N	0.00	N	AT&T Mobility
5.00	145.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	T-Mobile
5.00	145.00	12	1 5/8" Coax	1.98	0.82	N	0.00	Y	T-Mobile
5.00	145.00	2	1 5/8" Fiber	1.63	1.61	N	0.00	Y	T-Mobile
5.00	126.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon Wireless
5.00	126.00	2	1 5/8" Fiber	1.63	1.61	N	0.00	N	Verizon Wireless
0.00	110.78	4	#20 Dywidag Bars	2.72	0.00	N	5.62	Y	--

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections			Connectors	Continuation?
						Description	Spacing (in)	Len (in)		
0.00	22.50	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	20.00	3.31	5/8" A36 U-Bolt	No
22.50	43.00	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	18.00	3.31	5/8" A36 U-Bolt	Yes
43.00	102.50	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.00	3.31	5/8" A36 U-Bolt	Yes

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)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.5000	48.620	76.363	22,340.1	15.38	97.24	63.5	905.0	0.0	0.0	19.64	7,654.	0.0
5.00		0.5000	47.745	74.975	21,144.0	15.07	95.49	63.5	872.2	0.0	1,287.4	19.64	7,412.	334.0
7.00		0.5000	47.395	74.420	20,677.8	14.95	94.79	63.5	859.3	0.0	508.4	19.64	7,317.	133.6
10.00		0.5000	46.871	73.588	19,991.4	14.77	93.74	63.5	840.1	0.0	755.5	19.64	7,175.	200.4
15.00		0.5000	45.996	72.200	18,881.4	14.46	91.99	63.5	808.5	0.0	1,240.2	19.64	6,941.	334.0
20.00		0.5000	45.121	70.812	17,813.3	14.15	90.24	63.5	777.6	0.0	1,216.6	19.64	6,711.	334.0
22.50	Reinf. Top Reinf	0.5000	44.684	70.118	17,294.7	13.99	89.37	63.5	762.3	0.0	599.4	19.64	6,598.	167.0
25.00		0.5000	44.247	69.424	16,786.3	13.84	88.49	63.5	747.2	0.0	593.5	19.64	6,485.	167.0
28.50	Bot - Section 2	0.5000	43.635	68.452	16,091.4	13.62	87.27	63.5	726.3	0.0	821.0	19.64	6,329.	233.8
30.00		0.5000	43.372	68.036	15,799.5	13.53	86.74	63.5	717.5	0.0	704.8	19.64	6,517.	100.2
35.00	Top - Section 1	0.5000	43.498	68.235	15,938.6	13.58	87.00	63.5	721.7	0.0	2,318.5	19.64	6,295.	334.0
40.00		0.5000	42.623	66.847	14,985.6	13.27	85.25	63.5	692.5	0.0	1,149.1	19.64	6,076.	334.0
43.00	Reinf. Top Reinf	0.5000	42.098	66.014	14,432.5	13.08	84.20	63.5	675.2	0.0	678.1	19.64	5,947.	200.4
45.00		0.5000	41.749	65.459	14,071.5	12.96	83.50	63.5	663.9	0.0	447.4	19.64	5,861.	133.6
50.00		0.5000	40.874	64.071	13,195.2	12.65	81.75	63.5	635.8	0.0	1,101.9	19.64	5,650.	334.0
55.00		0.5000	39.999	62.683	12,356.2	12.34	80.00	63.5	608.4	0.0	1,078.3	19.64	5,443.	334.0
58.00	Bot - Section 3	0.5000	39.475	61.850	11,870.2	12.16	78.95	63.5	592.3	0.0	635.6	19.64	5,321.	200.4
60.00		0.5000	39.125	61.295	11,553.4	12.03	78.25	63.5	581.6	0.0	740.4	19.64	5,414.	133.6
63.50	Top - Section 2	0.3750	39.263	46.284	8,843.2	16.70	104.70	76.2	443.6	0.0	1,279.8	19.64	5,272.	233.8
65.00		0.3750	39.000	45.972	8,665.4	16.57	104.00	76.2	437.6	0.0	235.4	19.64	5,211.	100.2
70.00		0.3750	38.126	44.931	8,090.0	16.16	101.67	76.2	417.9	0.0	773.3	19.64	5,012.	334.0
75.00		0.3750	37.251	43.890	7,540.6	15.75	99.34	76.2	398.7	0.0	755.6	19.64	4,817.	334.0
80.00		0.3750	36.376	42.849	7,016.7	15.34	97.00	76.2	379.9	0.0	737.9	19.64	4,626.	334.0
85.00		0.3750	35.502	41.808	6,517.7	14.93	94.67	76.2	361.6	0.0	720.2	19.64	4,439.	334.0
88.00	Bot - Section 4	0.3750	34.977	41.184	6,229.9	14.68	93.27	76.2	350.8	0.0	423.6	19.64	4,329.	200.4
90.00		0.3750	34.627	40.767	6,042.9	14.52	92.34	76.2	343.7	0.0	515.9	19.64	4,386.	133.6
93.00	Top - Section 3	0.3125	34.727	34.134	5,107.8	17.83	111.13	75.0	289.7	0.0	764.1	19.64	4,277.	200.4
95.00		0.3125	34.378	33.787	4,953.6	17.63	110.01	75.2	283.8	0.0	231.1	19.64	4,204.	133.6
100.00		0.3125	33.503	32.920	4,581.8	17.14	107.21	75.7	269.4	0.0	567.5	19.64	4,026.	334.0
102.50	Reinf. Top	0.3125	33.066	32.486	4,403.1	16.89	105.81	76.0	262.3	0.0	278.2	19.64	3,938.	167.0
105.00		0.3125	32.628	32.052	4,229.1	16.65	104.41	76.2	255.3	0.0	274.5			
110.00		0.3125	31.754	31.185	3,894.9	16.15	101.61	76.2	241.6	0.0	538.0			
115.00		0.3125	30.879	30.317	3,578.9	15.66	98.81	76.2	228.3	0.0	523.2			
116.50	Bot - Section 5	0.3125	30.617	30.057	3,487.5	15.51	97.97	76.2	224.4	0.0	154.1			
120.00		0.3125	30.005	29.450	3,280.4	15.17	96.02	76.2	215.3	0.0	643.2			
121.00	Top - Section 4	0.2500	30.330	23.867	2,728.4	19.63	121.32	73.1	177.2	0.0	181.4			
125.00		0.2500	29.630	23.312	2,542.4	19.14	118.52	73.6	169.0	0.0	321.1			
126.00		0.2500	29.455	23.173	2,497.3	19.01	117.82	73.8	167.0	0.0	79.1			
130.00		0.2500	28.756	22.618	2,322.1	18.52	115.02	74.3	159.0	0.0	311.6			
135.00		0.2500	27.881	21.924	2,114.8	17.90	111.52	74.9	149.4	0.0	378.9			
140.00		0.2500	27.006	21.230	1,920.3	17.28	108.03	75.6	140.0	0.0	367.1			
145.00		0.2500	26.132	20.536	1,738.1	16.67	104.53	76.2	131.0	0.0	355.3			
149.00	Bot - Section 6	0.2500	25.432	19.981	1,600.9	16.17	101.73	76.2	124.0	0.0	275.7			
150.00		0.2500	25.257	19.842	1,567.8	16.05	101.03	76.2	122.3	0.0	119.5			
152.50	Top - Section 5	0.1875	25.195	14.882	1,175.8	21.93	134.37	70.7	91.9	0.0	295.0			
155.00		0.1875	24.758	14.622	1,115.2	21.52	132.04	71.2	88.7	0.0	125.5			
160.00		0.1875	23.883	14.101	1,000.3	20.70	127.38	72.0	82.5	0.0	244.3			
165.00		0.1875	23.008	13.581	893.6	19.87	122.71	72.9	76.5	0.0	235.5			
167.00		0.1875	22.659	13.373	853.1	19.55	120.85	73.2	74.2	0.0	91.7			
170.00		0.1875	22.134	13.060	794.8	19.05	118.05	73.7	70.7	0.0	134.9			
171.00		0.1875	21.959	12.956	775.9	18.89	117.11	73.9	69.6	0.0	44.3			
175.00		0.1875	21.259	12.540	703.5	18.23	113.38	74.6	65.2	0.0	173.5			
180.00		0.1875	20.385	12.019	619.5	17.41	108.72	75.4	59.9	0.0	208.9			
183.00		0.1875	19.860	11.707	572.4	16.91	105.92	76.0	56.8	0.0	121.1			
											29,356.2			6,847.0

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number: 12616990_C3_01 10/19/2018 2:39:29 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W — 97 mph with No Ice — 28 Iterations

Gust Response Factor 1.10 — Wind Importance Factor 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Shaft Segment Forces (Factored)

Seg Top Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf		Ice Thick (in)	Tributary (ft)	Ap (sf)	EPAs (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	16.018	17.620	333.888	0.650		0.000	0.00	0.000	0.00	195.1	0.0	0.0
5.00		1.00	0.70	16.018	17.620	330.885	0.679	*	0.000	5.00	20.386	13.84	331.3	0.0	1,544.9
7.00	Appurtenance(s)	1.00	0.70	16.018	17.620	326.681	1.200	*	0.000	2.00	8.051	9.66	338.6	0.0	610.0
10.00		1.00	0.70	16.018	17.620	323.678	1.200	*	0.000	3.00	11.965	14.36	534.7	0.0	906.5
15.00		1.00	0.70	16.018	17.620	318.873	1.200	*	0.000	5.00	19.646	23.57	658.3	0.0	1,488.2
20.00		1.00	0.70	16.018	17.620	312.867	1.200	*	0.000	5.00	19.276	23.13	486.7	0.0	1,459.9
22.50	Reinf. Top Reinf	1.00	0.70	16.018	17.620	308.362	1.200	*	0.000	2.50	9.499	11.40	319.8	0.0	719.3
25.00		1.00	0.70	16.018	17.620	305.359	1.200	*	0.000	2.50	9.407	11.29	379.2	0.0	712.2
28.50	Bot - Section 2	1.00	0.70	16.018	17.620	301.756	1.200	*	0.000	3.50	13.014	15.62	315.7	0.0	985.2
30.00		1.00	0.70	16.018	17.620	298.753	1.200	*	0.000	1.50	5.649	6.78	417.5	0.0	845.7
35.00	Top - Section 1	1.00	0.72	16.402	18.042	298.366	1.200	*	0.000	5.00	18.589	22.31	650.7	0.0	2,782.2
40.00		1.00	0.75	17.087	18.795	305.417	1.200	*	0.000	5.00	18.219	21.86	528.5	0.0	1,379.0
43.00	Reinf. Top Reinf	1.00	0.77	17.589	19.348	304.837	1.200	*	0.000	3.00	10.754	12.90	333.7	0.0	813.8
45.00		1.00	0.78	17.885	19.674	304.221	1.200	*	0.000	2.00	7.095	8.51	471.4	0.0	536.8
50.00		1.00	0.80	18.281	20.109	303.075	1.200	*	0.000	5.00	17.479	20.97	677.3	0.0	1,322.3
55.00		1.00	0.82	18.811	20.692	300.930	1.200	*	0.000	5.00	17.109	20.53	544.5	0.0	1,294.0
58.00	Bot - Section 3	1.00	0.84	19.210	21.131	298.842	1.200	*	0.000	3.00	10.087	12.10	343.8	0.0	762.8
60.00		1.00	0.85	19.449	21.394	297.387	1.200	*	0.000	2.00	6.778	8.13	383.0	0.0	888.5
63.50	Top - Section 2	1.00	0.86	19.704	21.674	295.665	1.200	*	0.000	3.50	11.719	14.06	348.4	0.0	1,535.8
65.00		1.00	0.87	19.928	21.921	299.741	1.200	*	0.000	1.50	4.967	5.96	452.8	0.0	282.5
70.00		1.00	0.88	20.211	22.232	297.476	1.200	*	0.000	5.00	16.316	19.58	695.6	0.0	928.0
75.00		1.00	0.90	20.628	22.691	293.713	1.200	*	0.000	5.00	15.946	19.13	693.2	0.0	906.7
80.00		1.00	0.92	21.025	23.128	289.643	1.200	*	0.000	5.00	15.576	18.69	689.5	0.0	885.5
85.00		1.00	0.94	21.404	23.544	285.299	1.200	*	0.000	5.00	15.206	18.25	548.6	0.0	864.2
88.00	Bot - Section 4	1.00	0.95	21.696	23.865	281.643	1.200	*	0.000	3.00	8.946	10.73	343.4	0.0	508.3
90.00		1.00	0.96	21.873	24.060	279.283	1.200	*	0.000	2.00	5.996	7.19	345.3	0.0	619.1
93.00	Top - Section 3	1.00	0.96	22.047	24.251	276.867	1.200	*	0.000	3.00	8.882	10.66	344.0	0.0	916.9
95.00		1.00	0.97	22.217	24.439	279.454	1.200	*	0.000	2.00	5.848	7.02	477.6	0.0	277.3
100.0		1.00	0.98	22.450	24.695	275.939	1.200	*	0.000	5.00	14.360	17.23	509.2	0.0	681.0
102.5	Reinf. Top	1.00	0.99	22.694	24.963	272.069	1.200	*	0.000	2.50	7.041	8.45	336.4	0.0	333.8
105.0		1.00	1.00	22.852	25.138	269.432	1.200	*	0.000	2.50	6.949	8.34	499.7	0.0	329.4
110.0		1.00	1.01	23.086	25.394	265.395	1.200	*	0.000	5.00	13.620	16.34	543.7	0.0	645.5
115.0		1.00	1.02	23.387	25.726	259.866	0.776	*	0.000	5.00	13.250	10.28	270.5	0.0	627.8
116.5	Bot - Section 5	1.00	1.03	23.578	25.936	256.189	0.727	*	0.000	1.50	3.903	2.84	198.2	0.0	184.9
120.0		1.00	1.04	23.723	26.095	253.318	0.731	*	0.000	3.50	9.125	6.67	179.0	0.0	771.8
121.0	Top - Section 4	1.00	1.04	23.851	26.236	250.703	0.735	*	0.000	1.00	2.574	1.89	197.0	0.0	217.6
125.0		1.00	1.05	23.991	26.390	251.967	0.734	*	0.000	4.00	10.147	7.45	196.5	0.0	385.3
126.0	Appurtenance(s)	1.00	1.05	24.130	26.543	249.006	0.738	*	0.000	1.00	2.500	1.85	195.4	0.0	94.9
130.0		1.00	1.06	24.266	26.693	246.012	0.743	*	0.000	4.00	9.851	7.32	350.2	0.0	374.0
135.0		1.00	1.07	24.507	26.957	240.544	0.751	*	0.000	5.00	11.981	8.99	386.3	0.0	454.7
140.0		1.00	1.08	24.767	27.244	234.351	0.760	*	0.000	5.00	11.611	8.83	383.0	0.0	440.5
145.0	Appurtenance(s)	1.00	1.09	25.021	27.524	228.044	0.770	*	0.000	5.00	11.241	8.66	341.8	0.0	426.4
149.0	Bot - Section 6	1.00	1.10	25.245	27.769	222.273	0.780	*	0.000	4.00	8.727	6.80	189.3	0.0	330.9
150.0		1.00	1.11	25.367	27.903	219.030	0.785	*	0.000	1.00	2.176	1.71	133.2	0.0	143.4
152.5	Top - Section 5	1.00	1.11	25.451	27.996	216.744	0.789	*	0.000	2.50	5.376	4.24	189.0	0.0	354.0
155.0		1.00	1.12	25.571	28.128	216.712	0.790	*	0.000	2.50	5.284	4.18	280.3	0.0	150.6
160.0		1.00	1.13	25.747	28.322	211.748	0.799	*	0.000	5.00	10.290	8.22	370.5	0.0	293.2
165.0		1.00	1.14	25.978	28.576	205.047	0.812	*	0.000	5.00	9.920	8.06	257.2	0.0	282.6
167.0	Appurtenance(s)	1.00	1.14	26.137	28.751	200.302	0.822	*	0.000	2.00	3.864	3.18	181.9	0.0	110.1
170.0		1.00	1.15	26.249	28.874	196.886	0.829	*	0.000	3.00	5.685	4.71	144.9	0.0	161.9
171.0	Appurtenance(s)	1.00	1.15	26.337	28.971	194.137	0.835	*	0.000	1.00	1.866	1.56	149.6	0.0	53.1

Load Case: 1.2D + 1.6W — 97 mph with No Ice — 28 Iterations

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

175.0	1.00	1.16	26.447	29.092	190.683	0.667 *	0.000	4.00	7.314	4.87	252.8	0.0	208.2
180.0	1.00	1.16	26.642	29.306	184.412	0.675 *	0.000	5.00	8.810	5.94	221.5	0.0	250.7
183.0 Appurtenance(s)	1.00	1.17	26.812	29.493	178.784	0.682 *	0.000	3.00	5.108	3.48	82.2	0.0	145.3
* = Cf Adjusted By Linear Load Ra Effect					Totals:			183.00			19,887.6	0.0	35,227.4

Load Case: 1.2D + 1.6W — 97 mph with No Ice — 28 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		195.1	0.0					0.0	0.0	195.1	0.0	0.0	0.0
5.00		331.3	1,544.9					0.0	400.8	331.3	1,945.7	0.0	0.0
7.00	Appurtenance(s)	338.6	610.0	72.2	0.0	0.0	90.7	51.3	333.2	462.0	1,034.0	0.0	0.0
10.00		534.7	906.5					76.9	499.9	611.6	1,406.4	0.0	0.0
15.00		658.3	1,488.2					128.2	833.1	786.5	2,321.3	0.0	0.0
20.00		486.7	1,459.9					128.2	833.1	614.9	2,293.0	0.0	0.0
22.50	Reinf. Top Reinf Bot	319.8	719.3					64.1	416.5	383.9	1,135.9	0.0	0.0
25.00		379.2	712.2					64.1	416.5	443.3	1,128.8	0.0	0.0
28.50	Bot - Section 2	315.7	985.2					89.7	583.2	405.4	1,568.4	0.0	0.0
30.00		417.5	845.7					38.4	249.9	456.0	1,095.6	0.0	0.0
35.00	Top - Section 1	650.7	2,782.2					130.4	833.1	781.1	3,615.3	0.0	0.0
40.00		528.5	1,379.0					134.4	833.1	662.9	2,212.1	0.0	0.0
43.00	Reinf. Top Reinf Bot	333.7	813.8					82.4	499.9	416.2	1,313.6	0.0	0.0
45.00		471.4	536.8					55.6	333.2	527.1	870.1	0.0	0.0
50.00		677.3	1,322.3					141.4	833.1	818.7	2,155.4	0.0	0.0
55.00		544.5	1,294.0					144.5	833.1	688.9	2,127.0	0.0	0.0
58.00	Bot - Section 3	343.8	762.8					88.0	499.9	431.9	1,262.6	0.0	0.0
60.00		383.0	888.5					59.2	333.2	442.3	1,221.7	0.0	0.0
63.50	Top - Section 2	348.4	1,535.8					104.7	583.2	453.1	2,118.9	0.0	0.0
65.00		452.8	282.5					45.3	249.9	498.0	532.5	0.0	0.0
70.00		695.6	928.0					152.5	833.1	848.0	1,761.1	0.0	0.0
75.00		693.2	906.7					154.8	833.1	848.0	1,739.8	0.0	0.0
80.00		689.5	885.5					157.1	833.1	846.6	1,718.6	0.0	0.0
85.00		548.6	864.2					159.2	833.1	707.9	1,697.3	0.0	0.0
88.00	Bot - Section 4	343.4	508.3					96.5	499.9	440.0	1,008.2	0.0	0.0
90.00		345.3	619.1					64.7	333.2	410.0	952.3	0.0	0.0
93.00	Top - Section 3	344.0	916.9					97.7	499.9	441.7	1,416.8	0.0	0.0
95.00		477.6	277.3					65.5	333.2	543.1	610.6	0.0	0.0
100.00		509.2	681.0					165.1	833.1	674.3	1,514.1	0.0	0.0
102.50	Reinf. Top	336.4	333.8					83.2	416.5	419.7	750.4	0.0	0.0
105.00		499.7	329.4					83.7	216.2	583.4	545.6	0.0	0.0
110.00		543.7	645.5					168.6	432.3	712.3	1,077.8	0.0	0.0
115.00		270.5	627.8					0.0	432.3	270.5	1,060.1	0.0	0.0
116.50	Bot - Section 5	198.2	184.9					0.0	129.7	198.2	314.6	0.0	0.0
120.00		179.0	771.8					0.0	302.6	179.0	1,074.4	0.0	0.0
121.00	Top - Section 4	197.0	217.6					0.0	86.5	197.0	304.1	0.0	0.0
125.00		196.5	385.3					0.0	345.8	196.5	731.1	0.0	0.0
126.00	Appurtenance(s)	195.4	94.9	4,581.8	0.0	0.0	3,959.3	0.0	86.5	4,777.2	4,140.6	0.0	0.0
130.00		350.2	374.0					0.0	306.8	350.2	680.7	0.0	0.0
135.00		386.3	454.7					0.0	383.5	386.3	838.2	0.0	0.0
140.00		383.0	440.5					0.0	383.5	383.0	824.0	0.0	0.0
145.00	Appurtenance(s)	341.8	426.4	3,216.8	0.0	1,974.6	3,145.0	0.0	383.5	3,558.6	3,954.8	0.0	0.0
149.00	Bot - Section 6	189.3	330.9					0.0	220.5	189.3	551.4	0.0	0.0
150.00		133.2	143.4					0.0	55.1	133.2	198.5	0.0	0.0
152.50	Top - Section 5	189.0	354.0					0.0	137.8	189.0	491.8	0.0	0.0
155.00		280.3	150.6					0.0	137.8	280.3	288.4	0.0	0.0
160.00		370.5	293.2					0.0	275.6	370.5	568.8	0.0	0.0
165.00		257.2	282.6					0.0	275.6	257.2	558.2	0.0	0.0
167.00	Appurtenance(s)	181.9	110.1	5,116.8	0.0	0.0	5,033.6	0.0	110.2	5,298.6	5,253.9	0.0	0.0

Load Case: 1.2D + 1.6W — 97 mph with No Ice — 28 Iterations

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

170.00		144.9	161.9					0.0	98.7	144.9	260.6	0.0	0.0
171.00	Appurtenance(s)	149.6	53.1	489.3	0.0	0.0	95.0	0.0	32.9	638.8	181.0	0.0	0.0
175.00		252.8	208.2					0.0	108.0	252.8	316.2	0.0	0.0
180.00		221.5	250.7					0.0	134.9	221.5	385.6	0.0	0.0
183.00	Appurtenance(s)	82.2	145.3	4,168.3	0.0	5,763.6	3,949.9	0.0	81.0	4,250.6	4,176.2	0.0	0.0
								Totals:		40,608.3	073,304.13	0.00	0.00

Load Case: 1.2D + 1.6W — 97 mph with No Ice — 28 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	-73.22	-40.56	0.00	-4,858.91	0.00	4,858.91	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.853
5.00	-71.17	-40.42	0.00	-4,656.12	0.00	4,656.12	4,284.85	2,142.42	8,295.82	4,154.08	0.12	-0.23	0.843
7.00	-70.05	-40.10	0.00	-4,575.28	0.00	4,575.28	4,253.12	2,126.56	8,172.78	4,092.46	0.24	-0.32	0.839
10.00	-68.52	-39.69	0.00	-4,454.99	0.00	4,454.99	4,205.53	2,102.76	7,989.95	4,000.91	0.48	-0.46	0.833
15.00	-66.06	-39.15	0.00	-4,256.53	0.00	4,256.53	4,126.21	2,063.10	7,689.82	3,850.62	1.08	-0.68	0.821
20.00	-63.66	-38.69	0.00	-4,060.79	0.00	4,060.79	4,046.89	2,023.44	7,395.44	3,703.21	1.92	-0.91	0.809
22.50	-62.45	-38.42	0.00	-3,964.06	0.00	3,964.06	4,007.23	2,003.61	7,250.40	3,630.59	2.43	-1.03	0.803
22.50	-62.45	-38.42	0.00	-3,964.06	0.00	3,964.06	4,007.23	2,003.61	7,250.40	3,630.59	2.43	-1.03	0.803
25.00	-61.24	-38.10	0.00	-3,868.02	0.00	3,868.02	3,967.57	1,983.78	7,106.80	3,558.68	3.00	-1.15	0.796
28.50	-59.60	-37.78	0.00	-3,734.67	0.00	3,734.67	3,912.04	1,956.02	6,908.17	3,459.22	3.90	-1.31	0.787
30.00	-58.42	-37.46	0.00	-3,678.00	0.00	3,678.00	3,888.25	1,944.12	6,823.91	3,417.03	4.32	-1.38	0.774
35.00	-54.68	-36.80	0.00	-3,490.72	0.00	3,490.72	3,899.62	1,949.81	6,864.12	3,437.16	5.89	-1.61	0.739
40.00	-52.37	-36.23	0.00	-3,306.74	0.00	3,306.74	3,820.30	1,910.15	6,586.15	3,297.97	7.69	-1.84	0.724
43.00	-51.00	-35.87	0.00	-3,198.04	0.00	3,198.04	3,772.71	1,886.36	6,422.13	3,215.84	8.89	-1.97	0.715
43.00	-51.00	-35.87	0.00	-3,198.04	0.00	3,198.04	3,772.71	1,886.36	6,422.13	3,215.84	8.89	-1.97	0.715
45.00	-50.06	-35.45	0.00	-3,126.29	0.00	3,126.29	3,740.98	1,870.49	6,313.93	3,161.66	9.73	-2.06	0.709
50.00	-47.81	-34.73	0.00	-2,949.05	0.00	2,949.05	3,661.66	1,830.83	6,047.45	3,028.22	12.00	-2.27	0.692
55.00	-45.61	-34.09	0.00	-2,775.41	0.00	2,775.41	3,582.34	1,791.17	5,786.72	2,897.66	14.50	-2.49	0.675
58.00	-44.30	-33.69	0.00	-2,673.14	0.00	2,673.14	3,534.75	1,767.38	5,633.04	2,820.71	16.10	-2.62	0.664
60.00	-43.03	-33.28	0.00	-2,605.76	0.00	2,605.76	3,503.02	1,751.51	5,531.73	2,769.98	17.22	-2.71	0.650
63.50	-40.88	-32.80	0.00	-2,489.29	0.00	2,489.29	3,173.44	1,586.72	5,061.87	2,534.70	19.26	-2.86	0.625
65.00	-40.28	-32.38	0.00	-2,440.09	0.00	2,440.09	3,152.76	1,576.38	4,994.62	2,501.02	20.17	-2.92	0.619
70.00	-38.44	-31.60	0.00	-2,278.18	0.00	2,278.18	3,081.37	1,540.68	4,769.94	2,388.51	23.36	-3.16	0.598
75.00	-36.62	-30.81	0.00	-2,120.16	0.00	2,120.16	3,009.98	1,504.99	4,550.42	2,278.59	26.79	-3.40	0.577
80.00	-34.84	-30.00	0.00	-1,966.11	0.00	1,966.11	2,938.59	1,469.30	4,336.07	2,171.26	30.48	-3.64	0.554
85.00	-33.09	-29.29	0.00	-1,816.11	0.00	1,816.11	2,867.21	1,433.60	4,126.90	2,066.52	34.41	-3.87	0.531
88.00	-32.06	-28.85	0.00	-1,728.24	0.00	1,728.24	2,824.37	1,412.19	4,003.88	2,004.91	36.89	-4.01	0.517
90.00	-31.08	-28.43	0.00	-1,670.55	0.00	1,670.55	2,795.82	1,397.91	3,922.90	1,964.36	38.58	-4.10	0.501
93.00	-29.65	-27.94	0.00	-1,585.26	0.00	1,585.26	2,304.06	1,152.03	3,254.27	1,629.55	41.20	-4.23	0.538
95.00	-29.01	-27.44	0.00	-1,529.37	0.00	1,529.37	2,286.90	1,143.45	3,196.90	1,600.83	42.99	-4.32	0.525
100.00	-27.47	-26.73	0.00	-1,392.18	0.00	1,392.18	2,243.44	1,121.72	3,054.90	1,529.72	47.63	-4.55	0.493
102.50	-26.70	-26.30	0.00	-1,325.35	0.00	1,325.35	2,221.40	1,110.70	2,984.67	1,494.55	50.04	-4.66	0.476
102.50	-26.70	-26.30	0.00	-1,325.35	0.00	1,325.35	2,221.40	1,110.70	2,984.67	1,494.55	50.04	-4.66	0.899
105.00	-26.09	-25.80	0.00	-1,259.60	0.00	1,259.60	2,198.14	1,099.07	2,913.61	1,458.97	52.50	-4.77	0.876
110.00	-24.91	-25.17	0.00	-1,130.62	0.00	1,130.62	2,138.65	1,069.33	2,757.31	1,380.70	57.71	-5.17	0.831
115.00	-23.77	-24.90	0.00	-1,004.80	0.00	1,004.80	2,079.16	1,039.58	2,605.31	1,304.59	63.33	-5.56	0.782
116.50	-23.39	-24.75	0.00	-967.45	0.00	967.45	2,061.32	1,030.66	2,560.55	1,282.18	65.09	-5.68	0.766
120.00	-22.27	-24.53	0.00	-880.83	0.00	880.83	2,019.67	1,009.84	2,457.62	1,230.64	69.34	-5.94	0.727
121.00	-21.91	-24.37	0.00	-856.30	0.00	856.30	1,570.79	785.40	1,940.61	971.75	70.59	-6.02	0.896
125.00	-21.13	-24.17	0.00	-758.81	0.00	758.81	1,545.06	772.53	1,864.04	933.41	75.75	-6.30	0.828
126.00	-17.47	-19.02	0.00	-734.65	0.00	734.65	1,538.54	769.27	1,845.04	923.89	77.08	-6.39	0.807
130.00	-16.72	-18.70	0.00	-658.56	0.00	658.56	1,512.16	756.08	1,769.59	886.11	82.55	-6.70	0.755
135.00	-15.82	-18.31	0.00	-565.07	0.00	565.07	1,478.46	739.23	1,676.61	839.55	89.76	-7.08	0.684
140.00	-14.95	-17.92	0.00	-473.50	0.00	473.50	1,443.96	721.98	1,585.19	793.77	97.34	-7.43	0.607
145.00	-11.43	-13.92	0.00	-381.94	0.00	381.94	1,408.39	704.19	1,495.13	748.68	105.27	-7.74	0.519
149.00	-10.88	-13.69	0.00	-326.26	0.00	326.26	1,370.32	685.16	1,415.01	708.56	111.84	-7.98	0.469
150.00	-10.68	-13.54	0.00	-312.57	0.00	312.57	1,360.80	680.40	1,395.33	698.70	113.51	-8.03	0.456
152.50	-10.19	-13.31	0.00	-278.71	0.00	278.71	947.27	473.64	973.73	487.59	117.74	-8.17	0.583
155.00	-9.90	-13.03	0.00	-245.43	0.00	245.43	936.35	468.18	945.55	473.48	122.04	-8.29	0.530
160.00	-9.33	-12.62	0.00	-180.29	0.00	180.29	913.91	456.96	889.79	445.55	130.84	-8.56	0.416
165.00	-8.79	-12.30	0.00	-117.21	0.00	117.21	890.67	445.33	834.90	418.07	139.90	-8.78	0.291

Load Case: 1.2D + 1.6W 97 mph with No Ice 28 Iterations

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

167.00	-4.40	-6.26	0.00	-92.61	0.00	92.61	881.14	440.57	813.20	407.21	143.57	-8.84	0.233
170.00	-4.16	-6.08	0.00	-73.82	0.00	73.82	866.62	433.31	780.97	391.06	149.14	-8.93	0.194
171.00	-4.08	-5.43	0.00	-67.73	0.00	67.73	861.71	430.86	770.30	385.72	151.00	-8.95	0.180
175.00	-3.80	-5.14	0.00	-46.02	0.00	46.02	841.76	420.88	728.08	364.58	158.51	-9.03	0.131
180.00	-3.45	-4.86	0.00	-20.34	0.00	20.34	816.11	408.05	676.33	338.67	167.97	-9.10	0.064
183.00	0.00	-4.25	0.00	-5.76	0.00	5.76	800.33	400.16	645.87	323.41	173.67	-9.12	0.018

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 28 Iterations

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

Shaft Segment Forces (Factored)

Seg Top Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Ap (sf)	EPAs (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	16.018	17.620	333.888	0.650	0.000	0.00	0.000	0.00	186.8	0.0	0.0
5.00		1.00	0.70	16.018	17.620	330.885	0.650 *	0.000	5.00	20.386	13.25	323.0	0.0	1,158.7
7.00	Appurtenance(s)	1.00	0.70	16.018	17.620	326.681	1.200 *	0.000	2.00	8.051	9.66	338.6	0.0	457.5
10.00		1.00	0.70	16.018	17.620	323.678	1.200 *	0.000	3.00	11.965	14.36	534.7	0.0	679.9
15.00		1.00	0.70	16.018	17.620	318.873	1.200 *	0.000	5.00	19.646	23.57	658.3	0.0	1,116.2
20.00		1.00	0.70	16.018	17.620	312.867	1.200 *	0.000	5.00	19.276	23.13	486.7	0.0	1,094.9
22.50	Reinf. Top Reinf	1.00	0.70	16.018	17.620	308.362	1.200 *	0.000	2.50	9.499	11.40	319.8	0.0	539.5
25.00		1.00	0.70	16.018	17.620	305.359	1.200 *	0.000	2.50	9.407	11.29	379.2	0.0	534.2
28.50	Bot - Section 2	1.00	0.70	16.018	17.620	301.756	1.200 *	0.000	3.50	13.014	15.62	315.7	0.0	738.9
30.00		1.00	0.70	16.018	17.620	298.753	1.200 *	0.000	1.50	5.649	6.78	417.5	0.0	634.3
35.00	Top - Section 1	1.00	0.72	16.402	18.042	298.366	1.200 *	0.000	5.00	18.589	22.31	650.7	0.0	2,086.6
40.00		1.00	0.75	17.087	18.795	305.417	1.200 *	0.000	5.00	18.219	21.86	528.5	0.0	1,034.2
43.00	Reinf. Top Reinf	1.00	0.77	17.589	19.348	304.837	1.200 *	0.000	3.00	10.754	12.90	333.7	0.0	610.3
45.00		1.00	0.78	17.885	19.674	304.221	1.200 *	0.000	2.00	7.095	8.51	471.4	0.0	402.6
50.00		1.00	0.80	18.281	20.109	303.075	1.200 *	0.000	5.00	17.479	20.97	677.3	0.0	991.7
55.00		1.00	0.82	18.811	20.692	300.930	1.200 *	0.000	5.00	17.109	20.53	544.5	0.0	970.5
58.00	Bot - Section 3	1.00	0.84	19.210	21.131	298.842	1.200 *	0.000	3.00	10.087	12.10	343.8	0.0	572.1
60.00		1.00	0.85	19.449	21.394	297.387	1.200 *	0.000	2.00	6.778	8.13	383.0	0.0	666.4
63.50	Top - Section 2	1.00	0.86	19.704	21.674	295.665	1.200 *	0.000	3.50	11.719	14.06	348.4	0.0	1,151.8
65.00		1.00	0.87	19.928	21.921	299.741	1.200 *	0.000	1.50	4.967	5.96	452.8	0.0	211.9
70.00		1.00	0.88	20.211	22.232	297.476	1.200 *	0.000	5.00	16.316	19.58	695.6	0.0	696.0
75.00		1.00	0.90	20.628	22.691	293.713	1.200 *	0.000	5.00	15.946	19.13	693.2	0.0	680.0
80.00		1.00	0.92	21.025	23.128	289.643	1.200 *	0.000	5.00	15.576	18.69	689.5	0.0	664.1
85.00		1.00	0.94	21.404	23.544	285.299	1.200 *	0.000	5.00	15.206	18.25	548.6	0.0	648.2
88.00	Bot - Section 4	1.00	0.95	21.696	23.865	281.643	1.200 *	0.000	3.00	8.946	10.73	343.4	0.0	381.2
90.00		1.00	0.96	21.873	24.060	279.283	1.200 *	0.000	2.00	5.996	7.19	345.3	0.0	464.3
93.00	Top - Section 3	1.00	0.96	22.047	24.251	276.867	1.200 *	0.000	3.00	8.882	10.66	344.0	0.0	687.7
95.00		1.00	0.97	22.217	24.439	279.454	1.200 *	0.000	2.00	5.848	7.02	477.6	0.0	208.0
100.0		1.00	0.98	22.450	24.695	275.939	1.200 *	0.000	5.00	14.360	17.23	509.2	0.0	510.7
102.5	Reinf. Top	1.00	0.99	22.694	24.963	272.069	1.200 *	0.000	2.50	7.041	8.45	336.4	0.0	250.4
105.0		1.00	1.00	22.852	25.138	269.432	1.200 *	0.000	2.50	6.949	8.34	499.7	0.0	247.1
110.0		1.00	1.01	23.086	25.394	265.395	1.200 *	0.000	5.00	13.620	16.34	509.3	0.0	484.2
115.0		1.00	1.02	23.387	25.726	259.866	0.650 *	0.000	5.00	13.250	8.61	229.9	0.0	470.9
116.5	Bot - Section 5	1.00	1.03	23.578	25.936	256.189	0.650 *	0.000	1.50	3.903	2.54	176.5	0.0	138.7
120.0		1.00	1.04	23.723	26.095	253.318	0.650 *	0.000	3.50	9.125	5.93	158.9	0.0	578.8
121.0	Top - Section 4	1.00	1.04	23.851	26.236	250.703	0.650 *	0.000	1.00	2.574	1.67	174.4	0.0	163.2
125.0		1.00	1.05	23.991	26.390	251.967	0.650 *	0.000	4.00	10.147	6.60	173.8	0.0	289.0
126.0	Appurtenance(s)	1.00	1.05	24.130	26.543	249.006	0.650 *	0.000	1.00	2.500	1.62	171.2	0.0	71.2
130.0		1.00	1.06	24.266	26.693	246.012	0.650 *	0.000	4.00	9.851	6.40	304.7	0.0	280.5
135.0		1.00	1.07	24.507	26.957	240.544	0.650 *	0.000	5.00	11.981	7.79	332.4	0.0	341.0
140.0		1.00	1.08	24.767	27.244	234.351	0.650 *	0.000	5.00	11.611	7.55	325.4	0.0	330.4
145.0	Appurtenance(s)	1.00	1.09	25.021	27.524	228.044	0.650 *	0.000	5.00	11.241	7.31	286.9	0.0	319.8
149.0	Bot - Section 6	1.00	1.10	25.245	27.769	222.273	0.650 *	0.000	4.00	8.727	5.67	157.6	0.0	248.2
150.0		1.00	1.11	25.367	27.903	219.030	0.650 *	0.000	1.00	2.176	1.41	109.8	0.0	107.5
152.5	Top - Section 5	1.00	1.11	25.451	27.996	216.744	0.650 *	0.000	2.50	5.376	3.49	155.5	0.0	265.5
155.0		1.00	1.12	25.571	28.128	216.712	0.650 *	0.000	2.50	5.284	3.43	228.8	0.0	112.9
160.0		1.00	1.13	25.747	28.322	211.748	0.650 *	0.000	5.00	10.290	6.69	298.9	0.0	219.9
165.0		1.00	1.14	25.978	28.576	205.047	0.650 *	0.000	5.00	9.920	6.45	205.2	0.0	211.9
167.0	Appurtenance(s)	1.00	1.14	26.137	28.751	200.302	0.650 *	0.000	2.00	3.864	2.51	143.1	0.0	82.5
170.0		1.00	1.15	26.249	28.874	196.886	0.650 *	0.000	3.00	5.685	3.70	113.5	0.0	121.4
171.0	Appurtenance(s)	1.00	1.15	26.337	28.971	194.137	0.650 *	0.000	1.00	1.866	1.21	138.8	0.0	39.8

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 28 Iterations

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

175.0	1.00	1.16	26.447	29.092	190.683	0.650 *	0.000	4.00	7.314	4.75	244.9	0.0	156.2
180.0	1.00	1.16	26.642	29.306	184.412	0.650 *	0.000	5.00	8.810	5.73	212.6	0.0	188.0
183.0 Appurtenance(s)	1.00	1.17	26.812	29.493	178.784	0.650 *	0.000	3.00	5.108	3.32	78.3	0.0	109.0
* = Cf Adjusted By Linear Load Ra Effect					Totals:			183.00			19,107.4	0.0	26,420.6

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 28 Iterations

Gust Response Factor 1.10 — Wind Importance Factor 1.00
Dead Load Factor :0.90
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		186.8	0.0					0.0	0.0	186.8	0.0	0.0	0.0
5.00		323.0	1,158.7					0.0	300.6	323.0	1,459.3	0.0	0.0
7.00	Appurtenance(s)	338.6	457.5	72.2	0.0	0.0	68.0	51.3	249.9	462.0	775.5	0.0	0.0
10.00		534.7	679.9					76.9	374.9	611.6	1,054.8	0.0	0.0
15.00		658.3	1,116.2					128.2	624.8	786.5	1,741.0	0.0	0.0
20.00		486.7	1,094.9					128.2	624.8	614.9	1,719.8	0.0	0.0
22.50	Reinf. Top Reinf Bot	319.8	539.5					64.1	312.4	383.9	851.9	0.0	0.0
25.00		379.2	534.2					64.1	312.4	443.3	846.6	0.0	0.0
28.50	Bot - Section 2	315.7	738.9					89.7	437.4	405.4	1,176.3	0.0	0.0
30.00		417.5	634.3					38.4	187.4	456.0	821.7	0.0	0.0
35.00	Top - Section 1	650.7	2,086.6					130.4	624.8	781.1	2,711.5	0.0	0.0
40.00		528.5	1,034.2					134.4	624.8	662.9	1,659.0	0.0	0.0
43.00	Reinf. Top Reinf Bot	333.7	610.3					82.4	374.9	416.2	985.2	0.0	0.0
45.00		471.4	402.6					55.6	249.9	527.1	652.6	0.0	0.0
50.00		677.3	991.7					141.4	624.8	818.7	1,616.5	0.0	0.0
55.00		544.5	970.5					144.5	624.8	688.9	1,595.3	0.0	0.0
58.00	Bot - Section 3	343.8	572.1					88.0	374.9	431.9	947.0	0.0	0.0
60.00		383.0	666.4					59.2	249.9	442.3	916.3	0.0	0.0
63.50	Top - Section 2	348.4	1,151.8					104.7	437.4	453.1	1,589.2	0.0	0.0
65.00		452.8	211.9					45.3	187.4	498.0	399.3	0.0	0.0
70.00		695.6	696.0					152.5	624.8	848.0	1,320.8	0.0	0.0
75.00		693.2	680.0					154.8	624.8	848.0	1,304.9	0.0	0.0
80.00		689.5	664.1					157.1	624.8	846.6	1,288.9	0.0	0.0
85.00		548.6	648.2					159.2	624.8	707.9	1,273.0	0.0	0.0
88.00	Bot - Section 4	343.4	381.2					96.5	374.9	440.0	756.1	0.0	0.0
90.00		345.3	464.3					64.7	249.9	410.0	714.2	0.0	0.0
93.00	Top - Section 3	344.0	687.7					97.7	374.9	441.7	1,062.6	0.0	0.0
95.00		477.6	208.0					65.5	249.9	543.1	457.9	0.0	0.0
100.00		509.2	510.7					165.1	624.8	674.3	1,135.5	0.0	0.0
102.50	Reinf. Top	336.4	250.4					83.2	312.4	419.7	562.8	0.0	0.0
105.00		499.7	247.1					83.7	162.1	583.4	409.2	0.0	0.0
110.00		509.3	484.2					168.6	324.2	677.9	808.4	0.0	0.0
115.00		229.9	470.9					0.0	324.2	229.9	795.1	0.0	0.0
116.50	Bot - Section 5	176.5	138.7					0.0	97.3	176.5	235.9	0.0	0.0
120.00		158.9	578.8					0.0	227.0	158.9	805.8	0.0	0.0
121.00	Top - Section 4	174.4	163.2					0.0	64.8	174.4	228.1	0.0	0.0
125.00		173.8	289.0					0.0	259.4	173.8	548.4	0.0	0.0
126.00	Appurtenance(s)	171.2	71.2	4,581.8	0.0	0.0	2,969.5	0.0	64.8	4,753.0	3,105.5	0.0	0.0
130.00		304.7	280.5					0.0	230.1	304.7	510.6	0.0	0.0
135.00		332.4	341.0					0.0	287.6	332.4	628.6	0.0	0.0
140.00		325.4	330.4					0.0	287.6	325.4	618.0	0.0	0.0
145.00	Appurtenance(s)	286.9	319.8	3,216.8	0.0	1,974.6	2,358.7	0.0	287.6	3,503.7	2,966.1	0.0	0.0
149.00	Bot - Section 6	157.6	248.2					0.0	165.3	157.6	413.5	0.0	0.0
150.00		109.8	107.5					0.0	41.3	109.8	148.8	0.0	0.0
152.50	Top - Section 5	155.5	265.5					0.0	103.3	155.5	368.9	0.0	0.0
155.00		228.8	112.9					0.0	103.3	228.8	216.3	0.0	0.0
160.00		298.9	219.9					0.0	206.7	298.9	426.6	0.0	0.0
165.00		205.2	211.9					0.0	206.7	205.2	418.6	0.0	0.0
167.00	Appurtenance(s)	143.1	82.5	5,116.8	0.0	0.0	3,775.2	0.0	82.7	5,259.9	3,940.4	0.0	0.0

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 28 Iterations

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

170.00		113.5	121.4					0.0	74.0	113.5	195.4	0.0	0.0
171.00	Appurtenance(s)	138.8	39.8	489.3	0.0	0.0	71.3	0.0	24.7	628.0	135.8	0.0	0.0
175.00		244.9	156.2					0.0	81.0	244.9	237.1	0.0	0.0
180.00		212.6	188.0					0.0	101.2	212.6	289.2	0.0	0.0
183.00	Appurtenance(s)	78.3	109.0	4,168.3	0.0	5,763.6	2,962.4	0.0	60.7	4,246.7	3,132.2	0.0	0.0
								Totals:		39,828.03	54,978.10	0.00	0.00

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number: 12616990_C3_01 10/19/2018 2:39:46 PM

Customer: VERIZON WIRELESS

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 28 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	-54.90	-39.75	0.00	-4,655.58	0.00	4,655.58	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.815
5.00	-53.34	-39.56	0.00	-4,456.85	0.00	4,456.85	4,284.85	2,142.42	8,295.82	4,154.08	0.12	-0.22	0.805
7.00	-52.49	-39.20	0.00	-4,377.72	0.00	4,377.72	4,253.12	2,126.56	8,172.78	4,092.46	0.23	-0.30	0.800
10.00	-51.32	-38.74	0.00	-4,260.13	0.00	4,260.13	4,205.53	2,102.76	7,989.95	4,000.91	0.46	-0.44	0.794
15.00	-49.44	-38.12	0.00	-4,066.46	0.00	4,066.46	4,126.21	2,063.10	7,689.82	3,850.62	1.03	-0.65	0.782
20.00	-47.62	-37.62	0.00	-3,875.85	0.00	3,875.85	4,046.89	2,023.44	7,395.44	3,703.21	1.84	-0.87	0.770
22.50	-46.71	-37.31	0.00	-3,781.80	0.00	3,781.80	4,007.23	2,003.61	7,250.40	3,630.59	2.32	-0.98	0.763
22.50	-46.71	-37.31	0.00	-3,781.80	0.00	3,781.80	4,007.23	2,003.61	7,250.40	3,630.59	2.32	-0.98	0.763
25.00	-45.78	-36.96	0.00	-3,688.52	0.00	3,688.52	3,967.57	1,983.78	7,106.80	3,558.68	2.87	-1.09	0.757
28.50	-44.54	-36.62	0.00	-3,559.15	0.00	3,559.15	3,912.04	1,956.02	6,908.17	3,459.22	3.73	-1.25	0.748
30.00	-43.64	-36.25	0.00	-3,504.22	0.00	3,504.22	3,888.25	1,944.12	6,823.91	3,417.03	4.13	-1.32	0.735
35.00	-40.81	-35.56	0.00	-3,322.96	0.00	3,322.96	3,899.62	1,949.81	6,864.12	3,437.16	5.63	-1.53	0.702
40.00	-39.07	-34.97	0.00	-3,145.16	0.00	3,145.16	3,820.30	1,910.15	6,586.15	3,297.97	7.35	-1.75	0.687
43.00	-38.04	-34.59	0.00	-3,040.26	0.00	3,040.26	3,772.71	1,886.36	6,422.13	3,215.84	8.49	-1.88	0.678
43.00	-38.04	-34.59	0.00	-3,040.26	0.00	3,040.26	3,772.71	1,886.36	6,422.13	3,215.84	8.49	-1.88	0.678
45.00	-37.32	-34.14	0.00	-2,971.08	0.00	2,971.08	3,740.98	1,870.49	6,313.93	3,161.66	9.30	-1.96	0.671
50.00	-35.61	-33.39	0.00	-2,800.41	0.00	2,800.41	3,661.66	1,830.83	6,047.45	3,028.22	11.46	-2.17	0.655
55.00	-33.95	-32.73	0.00	-2,633.48	0.00	2,633.48	3,582.34	1,791.17	5,786.72	2,897.66	13.84	-2.37	0.638
58.00	-32.96	-32.32	0.00	-2,535.28	0.00	2,535.28	3,534.75	1,767.38	5,633.04	2,820.71	15.37	-2.50	0.628
60.00	-32.01	-31.90	0.00	-2,470.64	0.00	2,470.64	3,503.02	1,751.51	5,531.73	2,769.98	16.44	-2.58	0.615
63.50	-30.38	-31.43	0.00	-2,358.99	0.00	2,358.99	3,173.44	1,586.72	5,061.87	2,534.70	18.38	-2.72	0.590
65.00	-29.93	-30.99	0.00	-2,311.85	0.00	2,311.85	3,152.76	1,576.38	4,994.62	2,501.02	19.25	-2.78	0.584
70.00	-28.53	-30.19	0.00	-2,156.91	0.00	2,156.91	3,081.37	1,540.68	4,769.94	2,388.51	22.28	-3.01	0.564
75.00	-27.16	-29.38	0.00	-2,005.97	0.00	2,005.97	3,009.98	1,504.99	4,550.42	2,278.59	25.56	-3.24	0.544
80.00	-25.82	-28.56	0.00	-1,859.09	0.00	1,859.09	2,938.59	1,469.30	4,336.07	2,171.26	29.07	-3.46	0.522
85.00	-24.50	-27.84	0.00	-1,716.31	0.00	1,716.31	2,867.21	1,433.60	4,126.90	2,066.52	32.80	-3.68	0.500
88.00	-23.73	-27.40	0.00	-1,632.78	0.00	1,632.78	2,824.37	1,412.19	4,003.88	2,004.91	35.16	-3.81	0.487
90.00	-22.99	-26.99	0.00	-1,577.98	0.00	1,577.98	2,795.82	1,397.91	3,922.90	1,964.36	36.77	-3.89	0.471
93.00	-21.91	-26.51	0.00	-1,497.02	0.00	1,497.02	2,304.06	1,152.03	3,254.27	1,629.55	39.26	-4.02	0.507
95.00	-21.43	-25.99	0.00	-1,444.00	0.00	1,444.00	2,286.90	1,143.45	3,196.90	1,600.83	40.96	-4.10	0.494
100.00	-20.27	-25.29	0.00	-1,314.03	0.00	1,314.03	2,243.44	1,121.72	3,054.90	1,529.72	45.37	-4.32	0.463
102.50	-19.70	-24.87	0.00	-1,250.79	0.00	1,250.79	2,221.40	1,110.70	2,984.67	1,494.55	47.66	-4.42	0.448
102.50	-19.70	-24.87	0.00	-1,250.79	0.00	1,250.79	2,221.40	1,110.70	2,984.67	1,494.55	47.66	-4.42	0.846
105.00	-19.23	-24.34	0.00	-1,188.62	0.00	1,188.62	2,198.14	1,099.07	2,913.61	1,458.97	50.00	-4.53	0.824
110.00	-18.33	-23.72	0.00	-1,066.93	0.00	1,066.93	2,138.65	1,069.33	2,757.31	1,380.70	54.94	-4.91	0.782
115.00	-17.46	-23.49	0.00	-948.35	0.00	948.35	2,079.16	1,039.58	2,605.31	1,304.59	60.27	-5.28	0.736
116.50	-17.17	-23.35	0.00	-913.12	0.00	913.12	2,061.32	1,030.66	2,560.55	1,282.18	61.95	-5.39	0.721
120.00	-16.32	-23.16	0.00	-831.41	0.00	831.41	2,019.67	1,009.84	2,457.62	1,230.64	65.98	-5.64	0.684
121.00	-16.04	-23.01	0.00	-808.25	0.00	808.25	1,570.79	785.40	1,940.61	971.75	67.17	-5.71	0.843
125.00	-15.44	-22.83	0.00	-716.22	0.00	716.22	1,545.06	772.53	1,864.04	933.41	72.06	-5.98	0.778
126.00	-12.79	-17.82	0.00	-693.40	0.00	693.40	1,538.54	769.27	1,845.04	923.89	73.32	-6.05	0.759
130.00	-12.22	-17.53	0.00	-622.14	0.00	622.14	1,512.16	756.08	1,769.59	886.11	78.51	-6.35	0.711
135.00	-11.53	-17.20	0.00	-534.50	0.00	534.50	1,478.46	739.23	1,676.61	839.55	85.34	-6.71	0.645
140.00	-10.86	-16.86	0.00	-448.52	0.00	448.52	1,443.96	721.98	1,585.19	793.77	92.53	-7.04	0.573
145.00	-8.30	-13.05	0.00	-362.25	0.00	362.25	1,408.39	704.19	1,495.13	748.68	100.05	-7.34	0.490
149.00	-7.88	-12.86	0.00	-310.06	0.00	310.06	1,370.32	685.16	1,415.01	708.56	106.28	-7.56	0.444
150.00	-7.73	-12.74	0.00	-297.20	0.00	297.20	1,360.80	680.40	1,395.33	698.70	107.86	-7.61	0.431
152.50	-7.36	-12.55	0.00	-265.35	0.00	265.35	947.27	473.64	973.73	487.59	111.88	-7.74	0.553
155.00	-7.13	-12.32	0.00	-233.97	0.00	233.97	936.35	468.18	945.55	473.48	115.95	-7.86	0.502
160.00	-6.70	-11.99	0.00	-172.36	0.00	172.36	913.91	456.96	889.79	445.55	124.30	-8.12	0.395
165.00	-6.29	-11.74	0.00	-112.39	0.00	112.39	890.67	445.33	834.90	418.07	132.89	-8.32	0.277

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 28 Iterations

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

167.00	-3.15	-5.97	0.00	-88.91	0.00	88.91	881.14	440.57	813.20	407.21	136.38	-8.39	0.222
170.00	-2.97	-5.83	0.00	-70.99	0.00	70.99	866.62	433.31	780.97	391.06	141.66	-8.47	0.185
171.00	-2.92	-5.20	0.00	-65.16	0.00	65.16	861.71	430.86	770.30	385.72	143.43	-8.49	0.172
175.00	-2.72	-4.92	0.00	-44.38	0.00	44.38	841.76	420.88	728.08	364.58	150.55	-8.57	0.125
180.00	-2.46	-4.67	0.00	-19.77	0.00	19.77	816.11	408.05	676.33	338.67	159.54	-8.64	0.062
183.00	0.00	-4.25	0.00	-5.76	0.00	5.76	800.33	400.16	645.87	323.41	164.95	-8.65	0.018

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number: 12616990_C3_01 10/19/2018 2:39:46 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 29 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

Shaft Segment Forces (Factored)

Seg Top Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Ap (sf)	EPAs (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	4.256	4.682	0.000	1.200	0.000	0.00	0.000	0.00	60.0	0.0	0.0
5.00		1.00	0.70	4.256	4.682	0.000	1.200 *	1.159	5.00	21.351	25.62	83.8	355.0	1,899.9
7.00	Appurtenance(s)	1.00	0.70	4.256	4.682	0.000	1.200 *	1.265	2.00	8.472	10.17	59.2	154.2	764.3
10.00		1.00	0.70	4.256	4.682	0.000	1.200 *	1.310	3.00	12.620	15.14	93.8	237.2	1,143.7
15.00		1.00	0.70	4.256	4.682	0.000	1.200 *	1.361	5.00	20.780	24.94	115.8	403.8	1,892.0
20.00		1.00	0.70	4.256	4.682	0.000	1.200 *	1.408	5.00	20.449	24.54	85.8	410.3	1,870.2
22.50	Reinf. Top Reinf	1.00	0.70	4.256	4.682	0.000	1.200 *	1.435	2.50	10.097	12.12	56.5	207.3	926.7
25.00		1.00	0.70	4.256	4.682	0.000	1.200 *	1.451	2.50	10.011	12.01	67.1	207.7	920.0
28.50	Bot - Section 2	1.00	0.70	4.256	4.682	0.000	1.200 *	1.469	3.50	13.871	16.64	55.9	290.5	1,275.7
30.00		1.00	0.70	4.256	4.682	0.000	1.200 *	1.482	1.50	6.019	7.22	74.0	127.7	973.4
35.00	Top - Section 1	1.00	0.72	4.358	4.794	0.000	1.200 *	1.498	5.00	19.837	23.80	115.4	422.1	3,204.3
40.00		1.00	0.75	4.540	4.994	0.000	1.200 *	1.519	5.00	19.485	23.38	93.9	420.1	1,799.0
43.00	Reinf. Top Reinf	1.00	0.77	4.673	5.141	0.000	1.200 *	1.535	3.00	11.521	13.83	59.4	251.7	1,065.4
45.00		1.00	0.78	4.752	5.227	0.000	1.200 *	1.544	2.00	7.610	9.13	84.1	167.4	704.3
50.00		1.00	0.80	4.857	5.343	0.000	1.200 *	1.556	5.00	18.775	22.53	120.9	413.4	1,735.7
55.00		1.00	0.82	4.998	5.498	0.000	1.200 *	1.571	5.00	18.418	22.10	97.4	409.1	1,703.0
58.00	Bot - Section 3	1.00	0.84	5.104	5.615	0.000	1.200 *	1.583	3.00	10.879	13.05	61.6	244.2	1,007.0
60.00		1.00	0.85	5.168	5.684	0.000	1.200 *	1.590	2.00	7.308	8.77	68.6	165.1	1,053.6
63.50	Top - Section 2	1.00	0.86	5.235	5.759	0.000	1.200 *	1.597	3.50	12.650	15.18	62.5	286.1	1,821.8
65.00		1.00	0.87	5.295	5.825	0.000	1.200 *	1.603	1.50	5.368	6.44	81.3	122.3	404.9
70.00		1.00	0.88	5.370	5.907	0.000	1.200 *	1.611	5.00	17.658	21.19	125.2	401.0	1,329.0
75.00		1.00	0.90	5.481	6.029	0.000	1.200 *	1.623	5.00	17.298	20.76	125.0	395.1	1,301.8
80.00		1.00	0.92	5.586	6.145	0.000	1.200 *	1.634	5.00	16.937	20.32	124.7	388.9	1,274.3
85.00		1.00	0.94	5.687	6.256	0.000	1.200 *	1.644	5.00	16.576	19.89	99.4	382.4	1,246.6
88.00	Bot - Section 4	1.00	0.95	5.765	6.341	0.000	1.200 *	1.652	3.00	9.772	11.73	62.3	227.3	735.7
90.00		1.00	0.96	5.812	6.393	0.000	1.200 *	1.656	2.00	6.548	7.86	62.7	153.1	772.2
93.00	Top - Section 3	1.00	0.96	5.858	6.444	0.000	1.200 *	1.661	3.00	9.713	11.66	62.5	227.1	1,144.0
95.00		1.00	0.97	5.903	6.493	0.000	1.200 *	1.666	2.00	6.403	7.68	87.0	150.4	427.7
100.0		1.00	0.98	5.965	6.562	0.000	1.200 *	1.672	5.00	15.753	18.90	92.8	368.2	1,049.2
102.5	Reinf. Top	1.00	0.99	6.030	6.633	0.000	1.200 *	1.678	2.50	7.740	9.29	61.5	182.5	516.4
105.0		1.00	1.00	6.072	6.679	0.000	1.200 *	1.682	2.50	7.650	9.18	91.5	180.7	510.1
110.0		1.00	1.01	6.134	6.747	0.000	1.200 *	1.688	5.00	15.027	18.03	121.0	353.5	999.0
115.0		1.00	1.02	6.214	6.835	0.000	1.200 *	1.696	5.00	14.663	17.60	78.0	345.9	973.7
116.5	Bot - Section 5	1.00	1.03	6.265	6.891	0.000	1.200 *	1.701	1.50	4.328	5.19	60.0	103.2	288.1
120.0		1.00	1.04	6.303	6.934	0.000	1.200 *	1.704	3.50	10.119	12.14	54.1	240.6	1,012.4
121.0	Top - Section 4	1.00	1.04	6.337	6.971	0.000	1.200 *	1.707	1.00	2.858	3.43	59.4	68.5	286.1
125.0		1.00	1.05	6.375	7.012	0.000	1.200 *	1.711	4.00	11.288	13.55	59.3	268.6	653.9
126.0	Appurtenance(s)	1.00	1.05	6.411	7.052	0.000	1.200 *	1.714	1.00	2.786	3.34	58.6	66.9	161.8
130.0		1.00	1.06	6.448	7.092	0.000	1.200 *	1.718	4.00	10.997	13.20	104.5	262.2	636.2
135.0		1.00	1.07	6.511	7.163	0.000	1.200 *	1.724	5.00	13.418	16.10	114.4	319.5	774.2
140.0		1.00	1.08	6.581	7.239	0.000	1.200 *	1.730	5.00	13.053	15.66	112.4	311.3	751.8
145.0	Appurtenance(s)	1.00	1.09	6.648	7.313	0.000	1.200 *	1.736	5.00	12.688	15.23	99.4	302.9	729.3
149.0	Bot - Section 6	1.00	1.10	6.708	7.378	0.000	1.200 *	1.742	4.00	9.888	11.87	54.7	237.0	567.9
150.0		1.00	1.11	6.740	7.414	0.000	1.200 *	1.745	1.00	2.467	2.96	38.2	59.8	203.2
152.5	Top - Section 5	1.00	1.11	6.762	7.439	0.000	1.200 *	1.747	2.50	6.104	7.32	54.2	147.3	501.3
155.0		1.00	1.12	6.794	7.474	0.000	1.200 *	1.750	2.50	6.013	7.22	80.0	145.2	295.8
160.0		1.00	1.13	6.841	7.525	0.000	1.200 *	1.754	5.00	11.751	14.10	104.9	281.5	574.7
165.0		1.00	1.14	6.902	7.593	0.000	1.200 *	1.759	5.00	11.386	13.66	72.3	272.8	555.3
167.0	Appurtenance(s)	1.00	1.14	6.945	7.639	0.000	1.200 *	1.763	2.00	4.452	5.34	50.6	107.8	217.9
170.0		1.00	1.15	6.974	7.672	0.000	1.200 *	1.766	3.00	6.568	7.88	40.2	158.5	320.4
171.0	Appurtenance(s)	1.00	1.15	6.998	7.698	0.000	1.200 *	1.768	1.00	2.160	2.59	49.4	52.5	105.6

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 29 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

175.0	1.00	1.16	7.027	7.730	0.000	1.200 *	1.770	4.00	8.494	10.19	87.5	204.1	412.4
180.0	1.00	1.16	7.079	7.787	0.000	1.200 *	1.775	5.00	10.289	12.35	76.3	246.2	496.9
183.0 Appurtenance(s)	1.00	1.17	7.124	7.836	0.000	1.200 *	1.779	3.00	5.998	7.20	28.2	144.5	289.9
* = Cf Adjusted By Linear Load Ra Effect						Totals:		183.00			4,249.0	13,052.3	48,279.8

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number: 12616990_C3_01 10/19/2018 2:39:54 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 29 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		60.0	0.0					0.0	0.0	60.0	0.0	0.0	0.0
5.00		83.8	1,899.9					0.0	470.4	83.8	2,370.3	0.0	0.0
7.00	Appurtenance(s)	59.2	764.3	17.4	0.0	0.0	23.2	16.5	508.0	93.1	1,295.5	0.0	0.0
10.00		93.8	1,143.7					25.1	771.9	118.9	1,915.7	0.0	0.0
15.00		115.8	1,892.0					42.5	1,305.7	158.3	3,197.8	0.0	0.0
20.00		85.8	1,870.2					43.1	1,323.3	128.9	3,193.5	0.0	0.0
22.50	Reinf. Top Reinf Bot	56.5	926.7					21.8	666.9	78.2	1,593.6	0.0	0.0
25.00		67.1	920.0					21.9	670.0	89.0	1,589.9	0.0	0.0
28.50	Bot - Section 2	55.9	1,275.7					30.8	942.6	86.7	2,218.3	0.0	0.0
30.00		74.0	973.4					13.3	405.5	87.2	1,378.9	0.0	0.0
35.00	Top - Section 1	115.4	3,204.3					45.5	1,357.8	160.9	4,562.1	0.0	0.0
40.00		93.9	1,799.0					47.7	1,366.2	141.6	3,165.2	0.0	0.0
43.00	Reinf. Top Reinf Bot	59.4	1,065.4					29.6	823.3	89.0	1,888.8	0.0	0.0
45.00		84.1	704.3					20.1	550.3	104.2	1,254.6	0.0	0.0
50.00		120.9	1,735.7					51.6	1,380.4	172.5	3,116.1	0.0	0.0
55.00		97.4	1,703.0					53.4	1,386.6	150.8	3,089.6	0.0	0.0
58.00	Bot - Section 3	61.6	1,007.0					32.8	834.7	94.4	1,841.7	0.0	0.0
60.00		68.6	1,053.6					22.2	557.6	90.8	1,611.2	0.0	0.0
63.50	Top - Section 2	62.5	1,821.8					39.4	977.7	101.9	2,799.6	0.0	0.0
65.00		81.3	404.9					17.1	419.8	98.5	824.6	0.0	0.0
70.00		125.2	1,329.0					58.0	1,402.5	183.2	2,731.4	0.0	0.0
75.00		125.0	1,301.8					59.4	1,407.1	184.5	2,708.9	0.0	0.0
80.00		124.7	1,274.3					60.8	1,411.4	185.4	2,685.8	0.0	0.0
85.00		99.4	1,246.6					62.1	1,415.6	161.5	2,662.2	0.0	0.0
88.00	Bot - Section 4	62.3	735.7					37.8	851.2	100.1	1,586.9	0.0	0.0
90.00		62.7	772.2					25.5	568.2	88.1	1,340.4	0.0	0.0
93.00	Top - Section 3	62.5	1,144.0					38.6	853.5	101.1	1,997.5	0.0	0.0
95.00		87.0	427.7					25.9	569.7	112.9	997.4	0.0	0.0
100.00		92.8	1,049.2					65.6	1,426.7	158.5	2,475.9	0.0	0.0
102.50	Reinf. Top	61.5	516.4					33.2	714.6	94.7	1,231.0	0.0	0.0
105.00		91.5	510.1					33.5	515.1	125.0	1,025.2	0.0	0.0
110.00		121.0	999.0					67.8	1,032.6	188.8	2,031.6	0.0	0.0
115.00		78.0	973.7					0.0	949.9	78.0	1,923.6	0.0	0.0
116.50	Bot - Section 5	60.0	288.1					0.0	280.7	60.0	568.9	0.0	0.0
120.00		54.1	1,012.4					0.0	655.9	54.1	1,668.3	0.0	0.0
121.00	Top - Section 4	59.4	286.1					0.0	187.6	59.4	473.8	0.0	0.0
125.00		59.3	653.9					0.0	751.4	59.3	1,405.3	0.0	0.0
126.00	Appurtenance(s)	58.6	161.8	995.6	0.0	0.0	8,118.0	0.0	188.1	1,054.1	8,467.9	0.0	0.0
130.00		104.5	636.2					0.0	714.3	104.5	1,350.4	0.0	0.0
135.00		114.4	774.2					0.0	894.9	114.4	1,669.1	0.0	0.0
140.00		112.4	751.8					0.0	897.1	112.4	1,648.9	0.0	0.0
145.00	Appurtenance(s)	99.4	729.3	720.7	0.0	369.9	5,853.4	0.0	899.2	820.2	7,481.9	0.0	0.0
149.00	Bot - Section 6	54.7	567.9					0.0	441.1	54.7	1,009.0	0.0	0.0
150.00		38.2	203.2					0.0	110.4	38.2	313.5	0.0	0.0
152.50	Top - Section 5	54.2	501.3					0.0	276.2	54.2	777.5	0.0	0.0
155.00		80.0	295.8					0.0	276.5	80.0	572.2	0.0	0.0
160.00		104.9	574.7					0.0	553.8	104.9	1,128.4	0.0	0.0
165.00		72.3	555.3					0.0	554.9	72.3	1,110.2	0.0	0.0
167.00	Appurtenance(s)	50.6	217.9	4,203.1	0.0	0.0	24,229.1	0.0	222.2	4,253.8	24,669.3	0.0	0.0

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 29 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

170.00		40.2	320.4					0.0	267.0	40.2	587.4	0.0	0.0
171.00	Appurtenance(s)	49.4	105.6	101.0	0.0	0.0	453.9	0.0	89.1	150.4	648.7	0.0	0.0
175.00		87.5	412.4					0.0	244.6	87.5	656.9	0.0	0.0
180.00		76.3	496.9					0.0	306.3	76.3	803.2	0.0	0.0
183.00	Appurtenance(s)	28.2	289.9	980.5	0.0	1,141.6	8,219.2	0.0	184.1	1,008.7	8,693.2	0.0	0.0
								Totals:		12,409.9	2134,008.7	0.00	0.00

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number: 12616990_C3_01 10/19/2018 2:39:54 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 29 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	-134.00	-12.46	0.00	-1,946.70	0.00	1,946.70	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.361
5.00	-131.61	-12.52	0.00	-1,884.41	0.00	1,884.41	4,284.85	2,142.42	8,295.82	4,154.08	0.05	-0.09	0.360
7.00	-130.31	-12.53	0.00	-1,859.38	0.00	1,859.38	4,253.12	2,126.56	8,172.78	4,092.46	0.09	-0.13	0.360
10.00	-128.38	-12.57	0.00	-1,821.79	0.00	1,821.79	4,205.53	2,102.76	7,989.95	4,000.91	0.19	-0.18	0.359
15.00	-125.16	-12.61	0.00	-1,758.92	0.00	1,758.92	4,126.21	2,063.10	7,689.82	3,850.62	0.44	-0.28	0.358
20.00	-121.95	-12.61	0.00	-1,695.88	0.00	1,695.88	4,046.89	2,023.44	7,395.44	3,703.21	0.78	-0.37	0.356
22.50	-120.35	-12.63	0.00	-1,664.35	0.00	1,664.35	4,007.23	2,003.61	7,250.40	3,630.59	0.99	-0.42	0.355
22.50	-120.35	-12.63	0.00	-1,664.35	0.00	1,664.35	4,007.23	2,003.61	7,250.40	3,630.59	0.99	-0.42	0.355
25.00	-118.75	-12.65	0.00	-1,632.78	0.00	1,632.78	3,967.57	1,983.78	7,106.80	3,558.68	1.22	-0.47	0.354
28.50	-116.52	-12.64	0.00	-1,588.51	0.00	1,588.51	3,912.04	1,956.02	6,908.17	3,459.22	1.59	-0.54	0.353
30.00	-115.12	-12.67	0.00	-1,569.54	0.00	1,569.54	3,888.25	1,944.12	6,823.91	3,417.03	1.77	-0.57	0.348
35.00	-110.54	-12.65	0.00	-1,506.19	0.00	1,506.19	3,899.62	1,949.81	6,864.12	3,437.16	2.42	-0.67	0.336
40.00	-107.36	-12.62	0.00	-1,442.93	0.00	1,442.93	3,820.30	1,910.15	6,586.15	3,297.97	3.17	-0.77	0.333
43.00	-105.46	-12.59	0.00	-1,405.08	0.00	1,405.08	3,772.71	1,886.36	6,422.13	3,215.84	3.67	-0.82	0.331
43.00	-105.46	-12.59	0.00	-1,405.08	0.00	1,405.08	3,772.71	1,886.36	6,422.13	3,215.84	3.67	-0.82	0.331
45.00	-104.20	-12.59	0.00	-1,379.90	0.00	1,379.90	3,740.98	1,870.49	6,313.93	3,161.66	4.02	-0.86	0.330
50.00	-101.06	-12.54	0.00	-1,316.94	0.00	1,316.94	3,661.66	1,830.83	6,047.45	3,028.22	4.98	-0.96	0.326
55.00	-97.96	-12.47	0.00	-1,254.24	0.00	1,254.24	3,582.34	1,791.17	5,786.72	2,897.66	6.04	-1.06	0.321
58.00	-96.11	-12.42	0.00	-1,216.84	0.00	1,216.84	3,534.75	1,767.38	5,633.04	2,820.71	6.72	-1.12	0.319
60.00	-94.49	-12.39	0.00	-1,192.00	0.00	1,192.00	3,503.02	1,751.51	5,531.73	2,769.98	7.20	-1.16	0.313
63.50	-91.68	-12.31	0.00	-1,148.64	0.00	1,148.64	3,173.44	1,586.72	5,061.87	2,534.70	8.07	-1.22	0.304
65.00	-90.84	-12.31	0.00	-1,130.18	0.00	1,130.18	3,152.76	1,576.38	4,994.62	2,501.02	8.46	-1.25	0.302
70.00	-88.09	-12.23	0.00	-1,068.66	0.00	1,068.66	3,081.37	1,540.68	4,769.94	2,388.51	9.83	-1.37	0.296
75.00	-85.37	-12.15	0.00	-1,007.50	0.00	1,007.50	3,009.98	1,504.99	4,550.42	2,278.59	11.33	-1.48	0.289
80.00	-82.66	-12.05	0.00	-946.75	0.00	946.75	2,938.59	1,469.30	4,336.07	2,171.26	12.94	-1.59	0.282
85.00	-79.99	-11.94	0.00	-886.49	0.00	886.49	2,867.21	1,433.60	4,126.90	2,066.52	14.66	-1.70	0.274
88.00	-78.39	-11.87	0.00	-850.67	0.00	850.67	2,824.37	1,412.19	4,003.88	2,004.91	15.76	-1.77	0.269
90.00	-77.04	-11.81	0.00	-826.93	0.00	826.93	2,795.82	1,397.91	3,922.90	1,964.36	16.51	-1.82	0.263
93.00	-75.04	-11.72	0.00	-791.49	0.00	791.49	2,304.06	1,152.03	3,254.27	1,629.55	17.67	-1.88	0.285
95.00	-74.03	-11.68	0.00	-768.05	0.00	768.05	2,286.90	1,143.45	3,196.90	1,600.83	18.47	-1.93	0.280
100.00	-71.54	-11.54	0.00	-709.66	0.00	709.66	2,243.44	1,121.72	3,054.90	1,529.72	20.55	-2.04	0.267
102.50	-70.31	-11.47	0.00	-680.81	0.00	680.81	2,221.40	1,110.70	2,984.67	1,494.55	21.64	-2.10	0.260
102.50	-70.31	-11.47	0.00	-680.81	0.00	680.81	2,221.40	1,110.70	2,984.67	1,494.55	21.64	-2.10	0.487
105.00	-69.26	-11.47	0.00	-652.13	0.00	652.13	2,198.14	1,099.07	2,913.61	1,458.97	22.75	-2.16	0.479
110.00	-67.20	-11.45	0.00	-594.78	0.00	594.78	2,138.65	1,069.33	2,757.31	1,380.70	25.12	-2.37	0.462
115.00	-65.25	-11.44	0.00	-537.55	0.00	537.55	2,079.16	1,039.58	2,605.31	1,304.59	27.71	-2.57	0.444
116.50	-64.67	-11.47	0.00	-520.39	0.00	520.39	2,061.32	1,030.66	2,560.55	1,282.18	28.53	-2.64	0.437
120.00	-62.98	-11.44	0.00	-480.25	0.00	480.25	2,019.67	1,009.84	2,457.62	1,230.64	30.51	-2.78	0.422
121.00	-62.49	-11.46	0.00	-468.81	0.00	468.81	1,570.79	785.40	1,940.61	971.75	31.10	-2.82	0.522
125.00	-61.07	-11.44	0.00	-422.96	0.00	422.96	1,545.06	772.53	1,864.04	933.41	33.53	-2.98	0.493
126.00	-52.65	-10.05	0.00	-411.52	0.00	411.52	1,538.54	769.27	1,845.04	923.89	34.16	-3.02	0.480
130.00	-51.27	-10.05	0.00	-371.32	0.00	371.32	1,512.16	756.08	1,769.59	886.11	36.77	-3.20	0.453
135.00	-49.58	-10.02	0.00	-321.08	0.00	321.08	1,478.46	739.23	1,676.61	839.55	40.24	-3.41	0.416
140.00	-47.91	-9.96	0.00	-271.01	0.00	271.01	1,443.96	721.98	1,585.19	793.77	43.92	-3.61	0.375
145.00	-40.47	-8.77	0.00	-220.83	0.00	220.83	1,408.39	704.19	1,495.13	748.68	47.80	-3.80	0.324
149.00	-39.45	-8.70	0.00	-185.75	0.00	185.75	1,370.32	685.16	1,415.01	708.56	51.04	-3.93	0.291
150.00	-39.14	-8.68	0.00	-177.05	0.00	177.05	1,360.80	680.40	1,395.33	698.70	51.86	-3.96	0.282
152.50	-38.35	-8.62	0.00	-155.35	0.00	155.35	947.27	473.64	973.73	487.59	53.96	-4.04	0.359
155.00	-37.77	-8.57	0.00	-133.80	0.00	133.80	936.35	468.18	945.55	473.48	56.09	-4.11	0.323
160.00	-36.64	-8.46	0.00	-90.94	0.00	90.94	913.91	456.96	889.79	445.55	60.47	-4.25	0.245
165.00	-35.53	-8.34	0.00	-48.62	0.00	48.62	890.67	445.33	834.90	418.07	64.97	-4.35	0.157

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number: 12616990_C3_01 10/19/2018 2:39:54 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 29 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

167.00	-11.25	-2.23	0.00	-31.94	0.00	31.94	881.14	440.57	813.20	407.21	66.80	-4.37	0.091
170.00	-10.67	-2.15	0.00	-25.24	0.00	25.24	866.62	433.31	780.97	391.06	69.55	-4.40	0.077
171.00	-10.03	-1.95	0.00	-23.09	0.00	23.09	861.71	430.86	770.30	385.72	70.48	-4.41	0.072
175.00	-9.38	-1.82	0.00	-15.28	0.00	15.28	841.76	420.88	728.08	364.58	74.18	-4.44	0.053
180.00	-8.59	-1.68	0.00	-6.19	0.00	6.19	816.11	408.05	676.33	338.67	78.84	-4.46	0.029
183.00	0.00	-1.01	0.00	-1.14	0.00	1.14	800.33	400.16	645.87	323.41	81.64	-4.47	0.004

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number: 12616990_C3_01 10/19/2018 2:39:54 PM

Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W Serviceability 60 mph 26 Iterations

Gust Response Factor 1.10 Wind Importance Factor 1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Shaft Segment Forces (Factored)

Seg Top Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Ap (sf)	EPAs (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.70	6.129	6.742	206.529	0.650	0.000	0.00	0.000	0.00	44.7	0.0	0.0
5.00		1.00	0.70	6.129	6.742	204.671	0.650 *	0.000	5.00	20.386	13.25	77.2	0.0	1,287.4
7.00	Appurtenance(s)	1.00	0.70	6.129	6.742	202.071	1.200 *	0.000	2.00	8.051	9.66	81.0	0.0	508.4
10.00		1.00	0.70	6.129	6.742	200.213	1.200 *	0.000	3.00	11.965	14.36	127.9	0.0	755.5
15.00		1.00	0.70	6.129	6.742	197.241	1.200 *	0.000	5.00	19.646	23.57	157.4	0.0	1,240.2
20.00		1.00	0.70	6.129	6.742	193.526	1.200 *	0.000	5.00	19.276	23.13	116.4	0.0	1,216.6
22.50	Reinf. Top Reinf	1.00	0.70	6.129	6.742	190.740	1.200 *	0.000	2.50	9.499	11.40	76.5	0.0	599.4
25.00		1.00	0.70	6.129	6.742	188.882	1.200 *	0.000	2.50	9.407	11.29	90.7	0.0	593.5
28.50	Bot - Section 2	1.00	0.70	6.129	6.742	186.653	1.200 *	0.000	3.50	13.014	15.62	75.5	0.0	821.0
30.00		1.00	0.70	6.129	6.742	184.796	1.200 *	0.000	1.50	5.649	6.78	99.8	0.0	704.8
35.00	Top - Section 1	1.00	0.72	6.276	6.903	184.556	1.200 *	0.000	5.00	18.589	22.31	155.6	0.0	2,318.5
40.00		1.00	0.75	6.538	7.191	188.918	1.200 *	0.000	5.00	18.219	21.86	126.4	0.0	1,149.1
43.00	Reinf. Top Reinf	1.00	0.77	6.730	7.403	188.559	1.200 *	0.000	3.00	10.754	12.90	79.8	0.0	678.1
45.00		1.00	0.78	6.843	7.527	188.178	1.200 *	0.000	2.00	7.095	8.51	112.7	0.0	447.4
50.00		1.00	0.80	6.994	7.694	187.469	1.200 *	0.000	5.00	17.479	20.97	162.0	0.0	1,101.9
55.00		1.00	0.82	7.197	7.917	186.142	1.200 *	0.000	5.00	17.109	20.53	130.2	0.0	1,078.3
58.00	Bot - Section 3	1.00	0.84	7.350	8.085	184.851	1.200 *	0.000	3.00	10.087	12.10	82.2	0.0	635.6
60.00		1.00	0.85	7.441	8.186	183.951	1.200 *	0.000	2.00	6.778	8.13	91.6	0.0	740.4
63.50	Top - Section 2	1.00	0.86	7.539	8.293	182.885	1.200 *	0.000	3.50	11.719	14.06	83.3	0.0	1,279.8
65.00		1.00	0.87	7.625	8.387	185.407	1.200 *	0.000	1.50	4.967	5.96	108.3	0.0	235.4
70.00		1.00	0.88	7.733	8.506	184.006	1.200 *	0.000	5.00	16.316	19.58	166.3	0.0	773.3
75.00		1.00	0.90	7.893	8.682	181.678	1.200 *	0.000	5.00	15.946	19.13	165.8	0.0	755.6
80.00		1.00	0.92	8.044	8.849	179.161	1.200 *	0.000	5.00	15.576	18.69	164.9	0.0	737.9
85.00		1.00	0.94	8.189	9.008	176.474	1.200 *	0.000	5.00	15.206	18.25	131.2	0.0	720.2
88.00	Bot - Section 4	1.00	0.95	8.301	9.131	174.212	1.200 *	0.000	3.00	8.946	10.73	82.1	0.0	423.6
90.00		1.00	0.96	8.369	9.206	172.752	1.200 *	0.000	2.00	5.996	7.19	82.6	0.0	515.9
93.00	Top - Section 3	1.00	0.96	8.435	9.279	171.258	1.200 *	0.000	3.00	8.882	10.66	82.3	0.0	764.1
95.00		1.00	0.97	8.501	9.351	172.858	1.200 *	0.000	2.00	5.848	7.02	114.2	0.0	231.1
100.0		1.00	0.98	8.590	9.449	170.684	1.200 *	0.000	5.00	14.360	17.23	121.8	0.0	567.5
102.5	Reinf. Top	1.00	0.99	8.683	9.551	168.290	1.200 *	0.000	2.50	7.041	8.45	80.5	0.0	278.2
105.0		1.00	1.00	8.744	9.618	166.659	1.200 *	0.000	2.50	6.949	8.34	119.5	0.0	274.5
110.0		1.00	1.01	8.833	9.716	164.162	1.200 *	0.000	5.00	13.620	16.34	121.8	0.0	538.0
115.0		1.00	1.02	8.948	9.843	160.742	0.650 *	0.000	5.00	13.250	8.61	55.0	0.0	523.2
116.5	Bot - Section 5	1.00	1.03	9.021	9.924	158.468	0.650 *	0.000	1.50	3.903	2.54	42.2	0.0	154.1
120.0		1.00	1.04	9.077	9.984	156.692	0.650 *	0.000	3.50	9.125	5.93	38.0	0.0	643.2
121.0	Top - Section 4	1.00	1.04	9.126	10.038	155.074	0.650 *	0.000	1.00	2.574	1.67	41.7	0.0	181.4
125.0		1.00	1.05	9.179	10.097	155.856	0.650 *	0.000	4.00	10.147	6.60	41.6	0.0	321.1
126.0	Appurtenance(s)	1.00	1.05	9.232	10.155	154.024	0.650 *	0.000	1.00	2.500	1.62	40.9	0.0	79.1
130.0		1.00	1.06	9.284	10.213	152.173	0.650 *	0.000	4.00	9.851	6.40	72.9	0.0	311.6
135.0		1.00	1.07	9.377	10.314	148.790	0.650 *	0.000	5.00	11.981	7.79	79.5	0.0	378.9
140.0		1.00	1.08	9.476	10.424	144.960	0.650 *	0.000	5.00	11.611	7.55	77.8	0.0	367.1
145.0	Appurtenance(s)	1.00	1.09	9.574	10.531	141.058	0.650 *	0.000	5.00	11.241	7.31	68.6	0.0	355.3
149.0	Bot - Section 6	1.00	1.10	9.659	10.625	137.488	0.650 *	0.000	4.00	8.727	5.67	37.7	0.0	275.7
150.0		1.00	1.11	9.706	10.676	135.482	0.650 *	0.000	1.00	2.176	1.41	26.3	0.0	119.5
152.5	Top - Section 5	1.00	1.11	9.738	10.712	134.069	0.650 *	0.000	2.50	5.376	3.49	37.2	0.0	295.0
155.0		1.00	1.12	9.784	10.762	134.049	0.650 *	0.000	2.50	5.284	3.43	54.7	0.0	125.5
160.0		1.00	1.13	9.851	10.836	130.978	0.650 *	0.000	5.00	10.290	6.69	71.5	0.0	244.3
165.0		1.00	1.14	9.940	10.934	126.833	0.650 *	0.000	5.00	9.920	6.45	49.1	0.0	235.5
167.0	Appurtenance(s)	1.00	1.14	10.000	11.000	123.898	0.650 *	0.000	2.00	3.864	2.51	34.2	0.0	91.7
170.0		1.00	1.15	10.043	11.047	121.785	0.650 *	0.000	3.00	5.685	3.70	27.1	0.0	134.9
171.0	Appurtenance(s)	1.00	1.15	10.077	11.085	120.085	0.650 *	0.000	1.00	1.866	1.21	33.2	0.0	44.3

Load Case: 1.0D + 1.0W Serviceability 60 mph 26 Iterations

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

175.0	1.00	1.16	10.119	11.131	117.948	0.650 *	0.000	4.00	7.314	4.75	58.6	0.0	173.5
180.0	1.00	1.16	10.194	11.213	114.069	0.650 *	0.000	5.00	8.810	5.73	50.8	0.0	208.9
183.0 Appurtenance(s)	1.00	1.17	10.259	11.284	110.588	0.650 *	0.000	3.00	5.108	3.32	18.7	0.0	121.1
* = Cf Adjusted By Linear Load Ra Effect					Totals:			183.00			4,569.2	0.0	29,356.2

Load Case: 1.0D + 1.0W Serviceability 60 mph 26 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		44.7	0.0					0.0	0.0	44.7	0.0	0.0	0.0
5.00		77.2	1,287.4					0.0	334.0	77.2	1,621.4	0.0	0.0
7.00	Appurtenance(s)	81.0	508.4	17.3	0.0	0.0	75.6	13.5	277.7	111.7	861.7	0.0	0.0
10.00		127.9	755.5					20.2	416.5	148.0	1,172.0	0.0	0.0
15.00		157.4	1,240.2					33.6	694.2	191.1	1,934.5	0.0	0.0
20.00		116.4	1,216.6					33.6	694.2	150.0	1,910.8	0.0	0.0
22.50	Reinf. Top Reinf Bot	76.5	599.4					16.8	347.1	93.3	946.6	0.0	0.0
25.00		90.7	593.5					16.8	347.1	107.5	940.7	0.0	0.0
28.50	Bot - Section 2	75.5	821.0					23.5	486.0	99.0	1,307.0	0.0	0.0
30.00		99.8	704.8					10.1	208.3	109.9	913.0	0.0	0.0
35.00	Top - Section 1	155.6	2,318.5					34.4	694.2	190.1	3,012.7	0.0	0.0
40.00		126.4	1,149.1					35.9	694.2	162.3	1,843.4	0.0	0.0
43.00	Reinf. Top Reinf Bot	79.8	678.1					22.2	416.5	102.0	1,094.7	0.0	0.0
45.00		112.7	447.4					15.0	277.7	127.8	725.1	0.0	0.0
50.00		162.0	1,101.9					38.4	694.2	200.3	1,796.2	0.0	0.0
55.00		130.2	1,078.3					39.5	694.2	169.7	1,772.5	0.0	0.0
58.00	Bot - Section 3	82.2	635.6					24.2	416.5	106.4	1,052.2	0.0	0.0
60.00		91.6	740.4					16.3	277.7	107.9	1,018.1	0.0	0.0
63.50	Top - Section 2	83.3	1,279.8					29.0	486.0	112.3	1,765.8	0.0	0.0
65.00		108.3	235.4					12.6	208.3	120.8	443.7	0.0	0.0
70.00		166.3	773.3					42.4	694.2	208.8	1,467.6	0.0	0.0
75.00		165.8	755.6					43.3	694.2	209.1	1,449.8	0.0	0.0
80.00		164.9	737.9					44.2	694.2	209.0	1,432.1	0.0	0.0
85.00		131.2	720.2					45.0	694.2	176.1	1,414.4	0.0	0.0
88.00	Bot - Section 4	82.1	423.6					27.3	416.5	109.5	840.2	0.0	0.0
90.00		82.6	515.9					18.4	277.7	100.9	793.6	0.0	0.0
93.00	Top - Section 3	82.3	764.1					27.8	416.5	110.0	1,180.6	0.0	0.0
95.00		114.2	231.1					18.7	277.7	132.9	508.8	0.0	0.0
100.00		121.8	567.5					47.1	694.2	168.9	1,261.7	0.0	0.0
102.50	Reinf. Top	80.5	278.2					23.8	347.1	104.3	625.3	0.0	0.0
105.00		119.5	274.5					24.0	180.1	143.5	454.6	0.0	0.0
110.00		121.8	538.0					48.5	360.3	170.3	898.2	0.0	0.0
115.00		55.0	523.2					0.0	360.3	55.0	883.4	0.0	0.0
116.50	Bot - Section 5	42.2	154.1					0.0	108.1	42.2	262.2	0.0	0.0
120.00		38.0	643.2					0.0	252.2	38.0	895.3	0.0	0.0
121.00	Top - Section 4	41.7	181.4					0.0	72.1	41.7	253.4	0.0	0.0
125.00		41.6	321.1					0.0	288.2	41.6	609.3	0.0	0.0
126.00	Appurtenance(s)	40.9	79.1	1,095.7	0.0	0.0	3,299.4	0.0	72.1	1,136.6	3,450.5	0.0	0.0
130.00		72.9	311.6					0.0	255.6	72.9	567.3	0.0	0.0
135.00		79.5	378.9					0.0	319.6	79.5	698.5	0.0	0.0
140.00		77.8	367.1					0.0	319.6	77.8	686.7	0.0	0.0
145.00	Appurtenance(s)	68.6	355.3	769.2	0.0	472.2	2,620.8	0.0	319.6	837.9	3,295.7	0.0	0.0
149.00	Bot - Section 6	37.7	275.7					0.0	183.7	37.7	459.5	0.0	0.0
150.00		26.3	119.5					0.0	45.9	26.3	165.4	0.0	0.0
152.50	Top - Section 5	37.2	295.0					0.0	114.8	37.2	409.9	0.0	0.0
155.00		54.7	125.5					0.0	114.8	54.7	240.3	0.0	0.0
160.00		71.5	244.3					0.0	229.6	71.5	474.0	0.0	0.0
165.00		49.1	235.5					0.0	229.6	49.1	465.1	0.0	0.0
167.00	Appurtenance(s)	34.2	91.7	1,223.6	0.0	0.0	4,194.7	0.0	91.9	1,257.8	4,378.3	0.0	0.0

Load Case: 1.0D + 1.0W — Serviceability 60 mph — 26 Iterations

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

170.00		27.1	134.9					0.0	82.2	27.1	217.1	0.0	0.0
171.00	Appurtenance(s)	33.2	44.3	117.0	0.0	0.0	79.2	0.0	27.4	150.2	150.9	0.0	0.0
175.00		58.6	173.5					0.0	90.0	58.6	263.5	0.0	0.0
180.00		50.8	208.9					0.0	112.5	50.8	321.4	0.0	0.0
183.00	Appurtenance(s)	18.7	121.1	996.8	0.0	1,378.3	3,291.6	0.0	67.5	1,015.5	3,480.2	0.0	0.0
								Totals:		9,634.9	161,086.78	0.00	0.00

Site Number: 302535 Code: ANSI/TIA-222-G

Site Name: Milford CT 2, CT Engineering Number: 12616990_C3_01 10/19/2018 2:40:02 PM

Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W Serviceability 60 mph 26 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	-61.08	-9.62	0.00	-1,130.54	0.00	1,130.54	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.207
5.00	-59.45	-9.58	0.00	-1,082.45	0.00	1,082.45	4,284.85	2,142.42	8,295.82	4,154.08	0.03	-0.05	0.204
7.00	-58.59	-9.49	0.00	-1,063.30	0.00	1,063.30	4,253.12	2,126.56	8,172.78	4,092.46	0.05	-0.07	0.203
10.00	-57.41	-9.39	0.00	-1,034.82	0.00	1,034.82	4,205.53	2,102.76	7,989.95	4,000.91	0.11	-0.11	0.201
15.00	-55.47	-9.24	0.00	-987.90	0.00	987.90	4,126.21	2,063.10	7,689.82	3,850.62	0.25	-0.16	0.198
20.00	-53.55	-9.12	0.00	-941.69	0.00	941.69	4,046.89	2,023.44	7,395.44	3,703.21	0.45	-0.21	0.195
22.50	-52.60	-9.05	0.00	-918.89	0.00	918.89	4,007.23	2,003.61	7,250.40	3,630.59	0.56	-0.24	0.193
22.50	-52.60	-9.05	0.00	-918.89	0.00	918.89	4,007.23	2,003.61	7,250.40	3,630.59	0.56	-0.24	0.193
25.00	-51.66	-8.97	0.00	-896.26	0.00	896.26	3,967.57	1,983.78	7,106.80	3,558.68	0.70	-0.27	0.192
28.50	-50.34	-8.89	0.00	-864.88	0.00	864.88	3,912.04	1,956.02	6,908.17	3,459.22	0.91	-0.30	0.189
30.00	-49.43	-8.80	0.00	-851.55	0.00	851.55	3,888.25	1,944.12	6,823.91	3,417.03	1.00	-0.32	0.186
35.00	-46.41	-8.64	0.00	-807.55	0.00	807.55	3,899.62	1,949.81	6,864.12	3,437.16	1.37	-0.37	0.178
40.00	-44.56	-8.49	0.00	-764.37	0.00	764.37	3,820.30	1,910.15	6,586.15	3,297.97	1.79	-0.43	0.174
43.00	-43.46	-8.40	0.00	-738.90	0.00	738.90	3,772.71	1,886.36	6,422.13	3,215.84	2.06	-0.46	0.172
43.00	-43.46	-8.40	0.00	-738.90	0.00	738.90	3,772.71	1,886.36	6,422.13	3,215.84	2.06	-0.46	0.172
45.00	-42.73	-8.29	0.00	-722.10	0.00	722.10	3,740.98	1,870.49	6,313.93	3,161.66	2.26	-0.48	0.170
50.00	-40.93	-8.11	0.00	-680.63	0.00	680.63	3,661.66	1,830.83	6,047.45	3,028.22	2.79	-0.53	0.166
55.00	-39.15	-7.95	0.00	-640.06	0.00	640.06	3,582.34	1,791.17	5,786.72	2,897.66	3.36	-0.58	0.162
58.00	-38.10	-7.85	0.00	-616.20	0.00	616.20	3,534.75	1,767.38	5,633.04	2,820.71	3.74	-0.61	0.159
60.00	-37.08	-7.75	0.00	-600.49	0.00	600.49	3,503.02	1,751.51	5,531.73	2,769.98	3.99	-0.63	0.156
63.50	-35.31	-7.64	0.00	-573.36	0.00	573.36	3,173.44	1,586.72	5,061.87	2,534.70	4.47	-0.66	0.150
65.00	-34.86	-7.53	0.00	-561.91	0.00	561.91	3,152.76	1,576.38	4,994.62	2,501.02	4.68	-0.68	0.148
70.00	-33.39	-7.34	0.00	-524.25	0.00	524.25	3,081.37	1,540.68	4,769.94	2,388.51	5.41	-0.73	0.143
75.00	-31.94	-7.14	0.00	-487.57	0.00	487.57	3,009.98	1,504.99	4,550.42	2,278.59	6.21	-0.79	0.138
80.00	-30.50	-6.94	0.00	-451.88	0.00	451.88	2,938.59	1,469.30	4,336.07	2,171.26	7.06	-0.84	0.133
85.00	-29.09	-6.76	0.00	-417.19	0.00	417.19	2,867.21	1,433.60	4,126.90	2,066.52	7.97	-0.89	0.127
88.00	-28.25	-6.65	0.00	-396.91	0.00	396.91	2,824.37	1,412.19	4,003.88	2,004.91	8.55	-0.93	0.124
90.00	-27.45	-6.55	0.00	-383.61	0.00	383.61	2,795.82	1,397.91	3,922.90	1,964.36	8.94	-0.95	0.120
93.00	-26.27	-6.43	0.00	-363.95	0.00	363.95	2,304.06	1,152.03	3,254.27	1,629.55	9.54	-0.98	0.129
95.00	-25.76	-6.31	0.00	-351.09	0.00	351.09	2,286.90	1,143.45	3,196.90	1,600.83	9.96	-1.00	0.126
100.00	-24.50	-6.13	0.00	-319.56	0.00	319.56	2,243.44	1,121.72	3,054.90	1,529.72	11.03	-1.05	0.118
102.50	-23.87	-6.03	0.00	-304.23	0.00	304.23	2,221.40	1,110.70	2,984.67	1,494.55	11.59	-1.08	0.114
102.50	-23.87	-6.03	0.00	-304.23	0.00	304.23	2,221.40	1,110.70	2,984.67	1,494.55	11.59	-1.08	0.214
105.00	-23.41	-5.90	0.00	-289.16	0.00	289.16	2,198.14	1,099.07	2,913.61	1,458.97	12.16	-1.10	0.209
110.00	-22.51	-5.75	0.00	-259.67	0.00	259.67	2,138.65	1,069.33	2,757.31	1,380.70	13.36	-1.19	0.199
115.00	-21.62	-5.69	0.00	-230.94	0.00	230.94	2,079.16	1,039.58	2,605.31	1,304.59	14.66	-1.28	0.187
116.50	-21.36	-5.66	0.00	-222.39	0.00	222.39	2,061.32	1,030.66	2,560.55	1,282.18	15.06	-1.31	0.184
120.00	-20.46	-5.62	0.00	-202.58	0.00	202.58	2,019.67	1,009.84	2,457.62	1,230.64	16.05	-1.37	0.175
121.00	-20.20	-5.58	0.00	-196.96	0.00	196.96	1,570.79	785.40	1,940.61	971.75	16.33	-1.39	0.216
125.00	-19.59	-5.54	0.00	-174.62	0.00	174.62	1,545.06	772.53	1,864.04	933.41	17.53	-1.45	0.200
126.00	-16.17	-4.33	0.00	-169.08	0.00	169.08	1,538.54	769.27	1,845.04	923.89	17.83	-1.47	0.194
130.00	-15.59	-4.27	0.00	-151.75	0.00	151.75	1,512.16	756.08	1,769.59	886.11	19.10	-1.55	0.182
135.00	-14.89	-4.19	0.00	-130.43	0.00	130.43	1,478.46	739.23	1,676.61	839.55	20.76	-1.63	0.165
140.00	-14.20	-4.11	0.00	-109.49	0.00	109.49	1,443.96	721.98	1,585.19	793.77	22.51	-1.71	0.148
145.00	-10.93	-3.18	0.00	-88.47	0.00	88.47	1,408.39	704.19	1,495.13	748.68	24.35	-1.79	0.126
149.00	-10.47	-3.14	0.00	-75.74	0.00	75.74	1,370.32	685.16	1,415.01	708.56	25.87	-1.84	0.115
150.00	-10.30	-3.11	0.00	-72.60	0.00	72.60	1,360.80	680.40	1,395.33	698.70	26.25	-1.85	0.112
152.50	-9.89	-3.06	0.00	-64.83	0.00	64.83	947.27	473.64	973.73	487.59	27.23	-1.88	0.143
155.00	-9.65	-3.01	0.00	-57.17	0.00	57.17	936.35	468.18	945.55	473.48	28.23	-1.91	0.131
160.00	-9.18	-2.93	0.00	-42.12	0.00	42.12	913.91	456.96	889.79	445.55	30.27	-1.98	0.105
165.00	-8.71	-2.87	0.00	-27.46	0.00	27.46	890.67	445.33	834.90	418.07	32.36	-2.03	0.076

Load Case: 1.0D + 1.0W Serviceability 60 mph 26 Iterations

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

167.00	-4.38	-1.46	0.00	-21.72	0.00	21.72	881.14	440.57	813.20	407.21	33.22	-2.04	0.058
170.00	-4.17	-1.43	0.00	-17.34	0.00	17.34	866.62	433.31	780.97	391.06	34.51	-2.06	0.049
171.00	-4.02	-1.27	0.00	-15.91	0.00	15.91	861.71	430.86	770.30	385.72	34.94	-2.07	0.046
175.00	-3.76	-1.20	0.00	-10.83	0.00	10.83	841.76	420.88	728.08	364.58	36.68	-2.09	0.034
180.00	-3.44	-1.14	0.00	-4.81	0.00	4.81	816.11	408.05	676.33	338.67	38.87	-2.10	0.018
183.00	0.00	-1.02	0.00	-1.38	0.00	1.38	800.33	400.16	645.87	323.41	40.20	-2.11	0.004

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}):	0.20
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	3.21
Redundancy Factor (p):	1.00
Seismic Force Distribution Exponent (k):	2.00
Total Unfactored Dead Load:	61.09 k
Seismic Base Shear (E):	1.83 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)
53	181.50	189	6,212	0.010	18	234
52	177.50	321	10,125	0.016	29	399
51	173.00	263	7,886	0.012	22	327
50	170.50	72	2,084	0.003	6	89
49	168.50	217	6,165	0.010	17	269
48	166.00	184	5,059	0.008	14	228
47	162.50	465	12,283	0.019	35	577
46	157.50	474	11,758	0.018	33	588
45	153.75	240	5,681	0.009	16	298
44	151.25	410	9,376	0.014	27	509
43	149.50	165	3,696	0.006	10	205
42	147.00	459	9,929	0.015	28	570
41	142.50	675	13,704	0.021	39	837
40	137.50	687	12,982	0.020	37	852
39	132.50	698	12,263	0.019	35	867
38	128.00	567	9,294	0.014	26	704
37	125.50	151	2,380	0.004	7	188
36	123.00	609	9,218	0.014	26	756
35	120.50	253	3,680	0.006	10	314
34	118.25	895	12,519	0.019	35	1,111
33	115.75	262	3,512	0.005	10	325
32	112.50	883	11,181	0.017	32	1,096
31	107.50	898	10,380	0.016	29	1,114

30	103.75	455	4,894	0.008	14	564
29	101.25	625	6,411	0.010	18	776
28	97.50	1,262	11,994	0.019	34	1,565
27	94.00	509	4,496	0.007	13	631
26	91.50	1,181	9,885	0.015	28	1,465
25	89.00	794	6,286	0.010	18	985
24	86.50	840	6,286	0.010	18	1,042
23	82.50	1,414	9,627	0.015	27	1,755
22	77.50	1,432	8,602	0.013	24	1,777
21	72.50	1,450	7,621	0.012	22	1,799
20	67.50	1,468	6,687	0.010	19	1,821
19	64.25	444	1,832	0.003	5	551
18	61.75	1,766	6,733	0.010	19	2,191
17	59.00	1,018	3,544	0.005	10	1,263
16	56.50	1,052	3,359	0.005	9	1,306
15	52.50	1,773	4,886	0.008	14	2,199
14	47.50	1,796	4,053	0.006	11	2,229
13	44.00	725	1,404	0.002	4	900
12	41.50	1,095	1,885	0.003	5	1,358
11	37.50	1,843	2,592	0.004	7	2,287
10	32.50	3,013	3,182	0.005	9	3,738
9	29.25	913	781	0.001	2	1,133
8	26.75	1,307	935	0.001	3	1,622
7	23.75	941	531	0.001	1	1,167
6	21.25	947	427	0.001	1	1,174
5	17.50	1,911	585	0.001	2	2,371
4	12.50	1,934	302	0.000	1	2,400
3	8.50	1,172	85	0.000	0	1,454
2	6.00	786	28	0.000	0	975
1	2.50	1,621	10	0.000	0	2,012
DragonWave Horizon C	183.00	21	710	0.001	2	26
Alcatel-Lucent RRH2x	183.00	317	10,629	0.016	30	394
Alcatel-Lucent 1900	183.00	180	6,028	0.009	17	223
Decibel DB844H90E-XY	183.00	42	1,407	0.002	4	52
Nokia 2.5G MAA - AAH	183.00	311	10,408	0.016	29	386
Argus LLPX310R	183.00	86	2,873	0.004	8	106
DragonWave A-ANT-18G	183.00	54	1,815	0.003	5	67
Andrew 844G65VTZASX	183.00	48	1,607	0.002	5	60
Commscope NNVV-65B-R	183.00	232	7,776	0.012	22	288
Round Platform w/ Ha	183.00	2,000	66,978	0.103	189	2,481
RFS APXV18-206517S-C	171.00	79	2,316	0.004	7	98
CCI TPX-070821	167.00	45	1,255	0.002	4	56
Kaelus DBCT108F1V92-	167.00	83	2,326	0.004	7	103
Commscope WCS-IMFQ-A	167.00	30	823	0.001	2	37
Powerwave Allgon LGP	167.00	85	2,359	0.004	7	105
Raycap DC6-48-60-18-	167.00	40	1,116	0.002	3	50
Raycap DC6-48-60-18-	167.00	32	887	0.001	3	39
Ericsson RRUS 4426 B	167.00	145	4,049	0.006	11	180
Ericsson RRUS 4478 B	167.00	180	5,012	0.008	14	223
Ericsson RRUS 4478 B	167.00	180	5,012	0.008	14	223
Ericsson RRUS 11 (Ba	167.00	132	3,681	0.006	10	164
Ericsson RRUS 32 B2	167.00	159	4,434	0.007	13	197
Ericsson RRUS-32 (77	167.00	231	6,442	0.010	18	287
Powerwave Allgon 777	167.00	105	2,928	0.005	8	130
CCI OPA-65R-LCUU-H4	167.00	171	4,769	0.007	13	212
Quintel QS66512-2	167.00	333	9,287	0.014	26	413
Kathrein Scala 80010	167.00	245	6,827	0.011	19	304
Flat Platform w/ Han	167.00	2,000	55,778	0.086	158	2,481
Kathrein Scala Smart	145.00	10	208	0.000	1	12
Ericsson KRY 112 144	145.00	29	612	0.001	2	36
Ericsson KRY 112 489	145.00	46	971	0.001	3	57
Ericsson Radio 4449	145.00	222	4,668	0.007	13	275
Ericsson AIR 32 B2A/	145.00	430	9,039	0.014	26	533
RFS APXVAARR24_43-U-	145.00	384	8,067	0.012	23	476

Flat Low Profile Pla	145.00	1,500	31,538	0.049	89	1,861
RFS FDJ85020Q4-S1	126.00	71	1,124	0.002	3	88
Samsung B2/B66A RRH-	126.00	253	4,020	0.006	11	314
Samsung B5/B13 RRH-B	126.00	211	3,348	0.005	9	262
RFS DB-T1-6Z-8AB-0Z	126.00	88	1,397	0.002	4	109
Antel BXA-80063/6CF	126.00	45	710	0.001	2	55
Andrew HBXX-6517DS-A	126.00	129	2,048	0.003	6	160
Commscope JAHH-45B-R	126.00	503	7,982	0.012	23	624
Flat Platform w/ Han	126.00	2,000	31,752	0.049	90	2,481
Thales PCS VP/360/2	7.00	1	0	0.000	0	1
Stand-Off	7.00	75	4	0.000	0	93
		61,087	648,330	1.000	1,833	75,793

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)
53	181.50	189	6,212	0.010	18	162
52	177.50	321	10,125	0.016	29	276
51	173.00	263	7,886	0.012	22	226
50	170.50	72	2,084	0.003	6	62
49	168.50	217	6,165	0.010	17	187
48	166.00	184	5,059	0.008	14	158
47	162.50	465	12,283	0.019	35	400
46	157.50	474	11,758	0.018	33	407
45	153.75	240	5,681	0.009	16	206
44	151.25	410	9,376	0.014	27	352
43	149.50	165	3,696	0.006	10	142
42	147.00	459	9,929	0.015	28	395
41	142.50	675	13,704	0.021	39	580
40	137.50	687	12,982	0.020	37	590
39	132.50	698	12,263	0.019	35	600
38	128.00	567	9,294	0.014	26	487
37	125.50	151	2,380	0.004	7	130
36	123.00	609	9,218	0.014	26	524
35	120.50	253	3,680	0.006	10	218
34	118.25	895	12,519	0.019	35	769
33	115.75	262	3,512	0.005	10	225
32	112.50	883	11,181	0.017	32	759
31	107.50	898	10,380	0.016	29	772
30	103.75	455	4,894	0.008	14	391
29	101.25	625	6,411	0.010	18	537
28	97.50	1,262	11,994	0.019	34	1,084
27	94.00	509	4,496	0.007	13	437
26	91.50	1,181	9,885	0.015	28	1,014
25	89.00	794	6,286	0.010	18	682
24	86.50	840	6,286	0.010	18	722
23	82.50	1,414	9,627	0.015	27	1,215
22	77.50	1,432	8,602	0.013	24	1,231
21	72.50	1,450	7,621	0.012	22	1,246
20	67.50	1,468	6,687	0.010	19	1,261
19	64.25	444	1,832	0.003	5	381
18	61.75	1,766	6,733	0.010	19	1,517
17	59.00	1,018	3,544	0.005	10	875
16	56.50	1,052	3,359	0.005	9	904
15	52.50	1,773	4,886	0.008	14	1,523
14	47.50	1,796	4,053	0.006	11	1,543
13	44.00	725	1,404	0.002	4	623
12	41.50	1,095	1,885	0.003	5	941
11	37.50	1,843	2,592	0.004	7	1,584

10	32.50	3,013	3,182	0.005	9	2,589
9	29.25	913	781	0.001	2	785
8	26.75	1,307	935	0.001	3	1,123
7	23.75	941	531	0.001	1	808
6	21.25	947	427	0.001	1	813
5	17.50	1,911	585	0.001	2	1,642
4	12.50	1,934	302	0.000	1	1,662
3	8.50	1,172	85	0.000	0	1,007
2	6.00	786	28	0.000	0	675
1	2.50	1,621	10	0.000	0	1,393
DragonWave Horizon C	183.00	21	710	0.001	2	18
Alcatel-Lucent RRH2x	183.00	317	10,629	0.016	30	273
Alcatel-Lucent 1900	183.00	180	6,028	0.009	17	155
Decibel DB844H90E-XY	183.00	42	1,407	0.002	4	36
Nokia 2.5G MAA - AAH	183.00	311	10,408	0.016	29	267
Argus LLPX310R	183.00	86	2,873	0.004	8	74
DragonWave A-ANT-18G	183.00	54	1,815	0.003	5	47
Andrew 844G65VTZASX	183.00	48	1,607	0.002	5	41
Commscope NNVV-65B-R	183.00	232	7,776	0.012	22	200
Round Platform w/ Ha	183.00	2,000	66,978	0.103	189	1,719
RFS APXV18-206517S-C	171.00	79	2,316	0.004	7	68
CCI TPX-070821	167.00	45	1,255	0.002	4	39
Kaelus DBCT108F1V92-	167.00	83	2,326	0.004	7	72
Commscope WCS-IMFQ-A	167.00	30	823	0.001	2	25
Powerwave Allgon LGP	167.00	85	2,359	0.004	7	73
Raycap DC6-48-60-18-	167.00	40	1,116	0.002	3	34
Raycap DC6-48-60-18-	167.00	32	887	0.001	3	27
Ericsson RRUS 4426 B	167.00	145	4,049	0.006	11	125
Ericsson RRUS 4478 B	167.00	180	5,012	0.008	14	154
Ericsson RRUS 4478 B	167.00	180	5,012	0.008	14	154
Ericsson RRUS 11 (Ba	167.00	132	3,681	0.006	10	113
Ericsson RRUS 32 B2	167.00	159	4,434	0.007	13	137
Ericsson RRUS-32 (77	167.00	231	6,442	0.010	18	198
Powerwave Allgon 777	167.00	105	2,928	0.005	8	90
CCI OPA-65R-LCUU-H4	167.00	171	4,769	0.007	13	147
Quintel QS66512-2	167.00	333	9,287	0.014	26	286
Kathrein Scala 80010	167.00	245	6,827	0.011	19	210
Flat Platform w/ Han	167.00	2,000	55,778	0.086	158	1,719
Kathrein Scala Smart	145.00	10	208	0.000	1	9
Ericsson KRY 112 144	145.00	29	612	0.001	2	25
Ericsson KRY 112 489	145.00	46	971	0.001	3	40
Ericsson Radio 4449	145.00	222	4,668	0.007	13	191
Ericsson AIR 32 B2A/	145.00	430	9,039	0.014	26	369
RFS APXVAARR24_43-U-	145.00	384	8,067	0.012	23	330
Flat Low Profile Pla	145.00	1,500	31,538	0.049	89	1,289
RFS FDJ85020Q4-S1	126.00	71	1,124	0.002	3	61
Samsung B2/B66A RRH-	126.00	253	4,020	0.006	11	218
Samsung B5/B13 RRH-B	126.00	211	3,348	0.005	9	181
RFS DB-T1-6Z-8AB-0Z	126.00	88	1,397	0.002	4	76
Antel BXA-80063/6CF	126.00	45	710	0.001	2	38
Andrew HBXX-6517DS-A	126.00	129	2,048	0.003	6	111
Commscope JAHH-45B-R	126.00	503	7,982	0.012	23	432
Flat Platform w/ Han	126.00	2,000	31,752	0.049	90	1,719
Thales PCS VP/360/2	7.00	1	0	0.000	0	1
Stand-Off	7.00	75	4	0.000	0	64
		61,087	648,330	1.000	1,833	52,489

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	-73.78	-1.84	0.00	-275.78	0.00	275.78	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.061
5.00	-72.81	-1.85	0.00	-266.58	0.00	266.58	4,284.85	2,142.42	8,295.82	4,154.08	0.01	-0.01	0.061
7.00	-71.26	-1.86	0.00	-262.88	0.00	262.88	4,253.12	2,126.56	8,172.78	4,092.46	0.01	-0.02	0.061
10.00	-68.86	-1.87	0.00	-257.30	0.00	257.30	4,205.53	2,102.76	7,989.95	4,000.91	0.03	-0.03	0.060
15.00	-66.49	-1.88	0.00	-247.96	0.00	247.96	4,126.21	2,063.10	7,689.82	3,850.62	0.06	-0.04	0.060
20.00	-65.31	-1.89	0.00	-238.55	0.00	238.55	4,046.89	2,023.44	7,395.44	3,703.21	0.11	-0.05	0.059
22.50	-64.14	-1.90	0.00	-233.82	0.00	233.82	4,007.23	2,003.61	7,250.40	3,630.59	0.14	-0.06	0.059
22.50	-64.14	-1.90	0.00	-233.82	0.00	233.82	4,007.23	2,003.61	7,250.40	3,630.59	0.14	-0.06	0.059
25.00	-62.52	-1.90	0.00	-229.08	0.00	229.08	3,967.57	1,983.78	7,106.80	3,558.68	0.17	-0.07	0.059
28.50	-61.39	-1.91	0.00	-222.42	0.00	222.42	3,912.04	1,956.02	6,908.17	3,459.22	0.22	-0.08	0.058
30.00	-57.65	-1.90	0.00	-219.56	0.00	219.56	3,888.25	1,944.12	6,823.91	3,417.03	0.25	-0.08	0.057
35.00	-55.36	-1.90	0.00	-210.06	0.00	210.06	3,899.62	1,949.81	6,864.12	3,437.16	0.34	-0.09	0.055
40.00	-54.00	-1.90	0.00	-200.55	0.00	200.55	3,820.30	1,910.15	6,586.15	3,297.97	0.45	-0.11	0.054
43.00	-53.10	-1.91	0.00	-194.84	0.00	194.84	3,772.71	1,886.36	6,422.13	3,215.84	0.52	-0.12	0.054
43.00	-53.10	-1.91	0.00	-194.84	0.00	194.84	3,772.71	1,886.36	6,422.13	3,215.84	0.52	-0.12	0.054
45.00	-50.88	-1.90	0.00	-191.03	0.00	191.03	3,740.98	1,870.49	6,313.93	3,161.66	0.57	-0.12	0.053
50.00	-48.68	-1.89	0.00	-181.54	0.00	181.54	3,661.66	1,830.83	6,047.45	3,028.22	0.70	-0.13	0.052
55.00	-47.37	-1.89	0.00	-172.09	0.00	172.09	3,582.34	1,791.17	5,786.72	2,897.66	0.85	-0.15	0.051
58.00	-46.11	-1.88	0.00	-166.43	0.00	166.43	3,534.75	1,767.38	5,633.04	2,820.71	0.94	-0.16	0.051
60.00	-43.92	-1.86	0.00	-162.67	0.00	162.67	3,503.02	1,751.51	5,531.73	2,769.98	1.01	-0.16	0.049
63.50	-43.36	-1.86	0.00	-156.17	0.00	156.17	3,173.44	1,586.72	5,061.87	2,534.70	1.13	-0.17	0.048
65.00	-41.54	-1.84	0.00	-153.38	0.00	153.38	3,152.76	1,576.38	4,994.62	2,501.02	1.19	-0.17	0.048
70.00	-39.74	-1.82	0.00	-144.18	0.00	144.18	3,081.37	1,540.68	4,769.94	2,388.51	1.38	-0.19	0.046
75.00	-37.97	-1.80	0.00	-135.06	0.00	135.06	3,009.98	1,504.99	4,550.42	2,278.59	1.59	-0.21	0.045
80.00	-36.21	-1.78	0.00	-126.05	0.00	126.05	2,938.59	1,469.30	4,336.07	2,171.26	1.81	-0.22	0.043
85.00	-35.17	-1.76	0.00	-117.16	0.00	117.16	2,867.21	1,433.60	4,126.90	2,066.52	2.05	-0.24	0.042
88.00	-34.18	-1.75	0.00	-111.86	0.00	111.86	2,824.37	1,412.19	4,003.88	2,004.91	2.20	-0.24	0.041
90.00	-32.72	-1.72	0.00	-108.37	0.00	108.37	2,795.82	1,397.91	3,922.90	1,964.36	2.30	-0.25	0.040
93.00	-32.09	-1.71	0.00	-103.22	0.00	103.22	2,304.06	1,152.03	3,254.27	1,629.55	2.46	-0.26	0.043
95.00	-30.52	-1.67	0.00	-99.81	0.00	99.81	2,286.90	1,143.45	3,196.90	1,600.83	2.57	-0.26	0.042
100.00	-29.75	-1.65	0.00	-91.46	0.00	91.46	2,243.44	1,121.72	3,054.90	1,529.72	2.86	-0.28	0.040
102.50	-29.18	-1.64	0.00	-87.33	0.00	87.33	2,221.40	1,110.70	2,984.67	1,494.55	3.00	-0.29	0.039
102.50	-29.18	-1.64	0.00	-87.33	0.00	87.33	2,221.40	1,110.70	2,984.67	1,494.55	3.00	-0.29	0.072
105.00	-28.07	-1.61	0.00	-83.23	0.00	83.23	2,198.14	1,099.07	2,913.61	1,458.97	3.16	-0.29	0.070
110.00	-26.97	-1.59	0.00	-75.16	0.00	75.16	2,138.65	1,069.33	2,757.31	1,380.70	3.48	-0.32	0.067
115.00	-26.64	-1.59	0.00	-67.21	0.00	67.21	2,079.16	1,039.58	2,605.31	1,304.59	3.83	-0.35	0.064
116.50	-25.53	-1.55	0.00	-64.84	0.00	64.84	2,061.32	1,030.66	2,560.55	1,282.18	3.94	-0.35	0.063
120.00	-25.22	-1.54	0.00	-59.42	0.00	59.42	2,019.67	1,009.84	2,457.62	1,230.64	4.20	-0.37	0.061
121.00	-24.46	-1.52	0.00	-57.88	0.00	57.88	1,570.79	785.40	1,940.61	971.75	4.28	-0.38	0.075
125.00	-24.28	-1.51	0.00	-51.81	0.00	51.81	1,545.06	772.53	1,864.04	933.41	4.61	-0.40	0.071
126.00	-19.48	-1.31	0.00	-50.30	0.00	50.30	1,538.54	769.27	1,845.04	923.89	4.69	-0.40	0.067
130.00	-18.61	-1.28	0.00	-45.06	0.00	45.06	1,512.16	756.08	1,769.59	886.11	5.04	-0.42	0.063
135.00	-17.76	-1.24	0.00	-38.68	0.00	38.68	1,478.46	739.23	1,676.61	839.55	5.50	-0.45	0.058
140.00	-16.92	-1.20	0.00	-32.48	0.00	32.48	1,443.96	721.98	1,585.19	793.77	5.98	-0.47	0.053
145.00	-13.10	-0.99	0.00	-26.46	0.00	26.46	1,408.39	704.19	1,495.13	748.68	6.49	-0.50	0.045
149.00	-12.90	-0.98	0.00	-22.50	0.00	22.50	1,370.32	685.16	1,415.01	708.56	6.91	-0.51	0.041
150.00	-12.39	-0.95	0.00	-21.52	0.00	21.52	1,360.80	680.40	1,395.33	698.70	7.02	-0.52	0.040
152.50	-12.09	-0.93	0.00	-19.15	0.00	19.15	947.27	473.64	973.73	487.59	7.29	-0.52	0.052
155.00	-11.50	-0.90	0.00	-16.81	0.00	16.81	936.35	468.18	945.55	473.48	7.57	-0.53	0.048
160.00	-10.92	-0.86	0.00	-12.32	0.00	12.32	913.91	456.96	889.79	445.55	8.14	-0.55	0.040
165.00	-10.70	-0.85	0.00	-8.01	0.00	8.01	890.67	445.33	834.90	418.07	8.72	-0.57	0.031
167.00	-5.23	-0.44	0.00	-6.32	0.00	6.32	881.14	440.57	813.20	407.21	8.96	-0.57	0.021
170.00	-5.14	-0.44	0.00	-4.99	0.00	4.99	866.62	433.31	780.97	391.06	9.32	-0.58	0.019
171.00	-4.71	-0.41	0.00	-4.55	0.00	4.55	861.71	430.86	770.30	385.72	9.44	-0.58	0.017
175.00	-4.31	-0.37	0.00	-2.93	0.00	2.93	841.76	420.88	728.08	364.58	9.93	-0.58	0.013
180.00	-4.08	-0.35	0.00	-1.06	0.00	1.06	816.11	408.05	676.33	338.67	10.54	-0.59	0.008

183.00	0.00	-0.31	0.00	0.00	0.00	0.00	800.33	400.16	645.87	323.41	10.91	-0.59	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	-51.10	-1.84	0.00	-269.17	0.00	269.17	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.056
5.00	-50.42	-1.84	0.00	-259.98	0.00	259.98	4,284.85	2,142.42	8,295.82	4,154.08	0.01	-0.01	0.056
7.00	-49.35	-1.85	0.00	-256.29	0.00	256.29	4,253.12	2,126.56	8,172.78	4,092.46	0.01	-0.02	0.055
10.00	-47.69	-1.86	0.00	-250.75	0.00	250.75	4,205.53	2,102.76	7,989.95	4,000.91	0.03	-0.03	0.055
15.00	-46.04	-1.86	0.00	-241.46	0.00	241.46	4,126.21	2,063.10	7,689.82	3,850.62	0.06	-0.04	0.055
20.00	-45.23	-1.87	0.00	-232.14	0.00	232.14	4,046.89	2,023.44	7,395.44	3,703.21	0.11	-0.05	0.054
22.50	-44.42	-1.87	0.00	-227.46	0.00	227.46	4,007.23	2,003.61	7,250.40	3,630.59	0.14	-0.06	0.054
22.50	-44.42	-1.87	0.00	-227.46	0.00	227.46	4,007.23	2,003.61	7,250.40	3,630.59	0.14	-0.06	0.054
25.00	-43.30	-1.88	0.00	-222.77	0.00	222.77	3,967.57	1,983.78	7,106.80	3,558.68	0.17	-0.06	0.054
28.50	-42.51	-1.88	0.00	-216.21	0.00	216.21	3,912.04	1,956.02	6,908.17	3,459.22	0.22	-0.07	0.053
30.00	-39.92	-1.87	0.00	-213.39	0.00	213.39	3,888.25	1,944.12	6,823.91	3,417.03	0.24	-0.08	0.052
35.00	-38.34	-1.87	0.00	-204.03	0.00	204.03	3,899.62	1,949.81	6,864.12	3,437.16	0.33	-0.09	0.050
40.00	-37.40	-1.87	0.00	-194.68	0.00	194.68	3,820.30	1,910.15	6,586.15	3,297.97	0.44	-0.10	0.050
43.00	-36.78	-1.87	0.00	-189.07	0.00	189.07	3,772.71	1,886.36	6,422.13	3,215.84	0.50	-0.11	0.049
43.00	-36.78	-1.87	0.00	-189.07	0.00	189.07	3,772.71	1,886.36	6,422.13	3,215.84	0.50	-0.11	0.049
45.00	-35.23	-1.86	0.00	-185.33	0.00	185.33	3,740.98	1,870.49	6,313.93	3,161.66	0.55	-0.12	0.049
50.00	-33.71	-1.85	0.00	-176.03	0.00	176.03	3,661.66	1,830.83	6,047.45	3,028.22	0.68	-0.13	0.048
55.00	-32.80	-1.85	0.00	-166.77	0.00	166.77	3,582.34	1,791.17	5,786.72	2,897.66	0.83	-0.14	0.047
58.00	-31.93	-1.84	0.00	-161.23	0.00	161.23	3,534.75	1,767.38	5,633.04	2,820.71	0.92	-0.15	0.046
60.00	-30.41	-1.82	0.00	-157.56	0.00	157.56	3,503.02	1,751.51	5,531.73	2,769.98	0.98	-0.16	0.045
63.50	-30.03	-1.81	0.00	-151.20	0.00	151.20	3,173.44	1,586.72	5,061.87	2,534.70	1.10	-0.17	0.044
65.00	-28.77	-1.80	0.00	-148.48	0.00	148.48	3,152.76	1,576.38	4,994.62	2,501.02	1.16	-0.17	0.043
70.00	-27.52	-1.78	0.00	-139.49	0.00	139.49	3,081.37	1,540.68	4,769.94	2,388.51	1.34	-0.18	0.042
75.00	-26.29	-1.76	0.00	-130.60	0.00	130.60	3,009.98	1,504.99	4,550.42	2,278.59	1.54	-0.20	0.041
80.00	-25.08	-1.73	0.00	-121.81	0.00	121.81	2,938.59	1,469.30	4,336.07	2,171.26	1.76	-0.21	0.040
85.00	-24.35	-1.72	0.00	-113.16	0.00	113.16	2,867.21	1,433.60	4,126.90	2,066.52	1.99	-0.23	0.038
88.00	-23.67	-1.70	0.00	-108.01	0.00	108.01	2,824.37	1,412.19	4,003.88	2,004.91	2.14	-0.24	0.037
90.00	-22.66	-1.67	0.00	-104.61	0.00	104.61	2,795.82	1,397.91	3,922.90	1,964.36	2.24	-0.24	0.036
93.00	-22.22	-1.66	0.00	-99.61	0.00	99.61	2,304.06	1,152.03	3,254.27	1,629.55	2.39	-0.25	0.039
95.00	-21.14	-1.62	0.00	-96.29	0.00	96.29	2,286.90	1,143.45	3,196.90	1,600.83	2.50	-0.26	0.038
100.00	-20.60	-1.61	0.00	-88.18	0.00	88.18	2,243.44	1,121.72	3,054.90	1,529.72	2.77	-0.27	0.036
102.50	-20.21	-1.59	0.00	-84.17	0.00	84.17	2,221.40	1,110.70	2,984.67	1,494.55	2.92	-0.28	0.035
102.50	-20.21	-1.59	0.00	-84.17	0.00	84.17	2,221.40	1,110.70	2,984.67	1,494.55	2.92	-0.28	0.065
105.00	-19.44	-1.56	0.00	-80.19	0.00	80.19	2,198.14	1,099.07	2,913.61	1,458.97	3.07	-0.28	0.064
110.00	-18.68	-1.54	0.00	-72.36	0.00	72.36	2,138.65	1,069.33	2,757.31	1,380.70	3.38	-0.31	0.061
115.00	-18.45	-1.53	0.00	-64.68	0.00	64.68	2,079.16	1,039.58	2,605.31	1,304.59	3.72	-0.34	0.058
116.50	-17.68	-1.50	0.00	-62.38	0.00	62.38	2,061.32	1,030.66	2,560.55	1,282.18	3.82	-0.34	0.057
120.00	-17.46	-1.49	0.00	-57.15	0.00	57.15	2,019.67	1,009.84	2,457.62	1,230.64	4.08	-0.36	0.055
121.00	-16.94	-1.46	0.00	-55.66	0.00	55.66	1,570.79	785.40	1,940.61	971.75	4.16	-0.37	0.068
125.00	-16.81	-1.46	0.00	-49.82	0.00	49.82	1,545.06	772.53	1,864.04	933.41	4.47	-0.38	0.064
126.00	-13.49	-1.26	0.00	-48.36	0.00	48.36	1,538.54	769.27	1,845.04	923.89	4.55	-0.39	0.061
130.00	-12.89	-1.23	0.00	-43.31	0.00	43.31	1,512.16	756.08	1,769.59	886.11	4.89	-0.41	0.057
135.00	-12.30	-1.19	0.00	-37.16	0.00	37.16	1,478.46	739.23	1,676.61	839.55	5.33	-0.43	0.053
140.00	-11.72	-1.16	0.00	-31.19	0.00	31.19	1,443.96	721.98	1,585.19	793.77	5.80	-0.46	0.047
145.00	-9.07	-0.95	0.00	-25.41	0.00	25.41	1,408.39	704.19	1,495.13	748.68	6.29	-0.48	0.040
149.00	-8.93	-0.94	0.00	-21.61	0.00	21.61	1,370.32	685.16	1,415.01	708.56	6.70	-0.49	0.037
150.00	-8.58	-0.91	0.00	-20.66	0.00	20.66	1,360.80	680.40	1,395.33	698.70	6.80	-0.50	0.036
152.50	-8.37	-0.90	0.00	-18.38	0.00	18.38	947.27	473.64	973.73	487.59	7.06	-0.51	0.047
155.00	-7.96	-0.86	0.00	-16.14	0.00	16.14	936.35	468.18	945.55	473.48	7.33	-0.51	0.043
160.00	-7.56	-0.83	0.00	-11.82	0.00	11.82	913.91	456.96	889.79	445.55	7.88	-0.53	0.035
165.00	-7.41	-0.81	0.00	-7.70	0.00	7.70	890.67	445.33	834.90	418.07	8.45	-0.55	0.027
167.00	-3.62	-0.43	0.00	-6.07	0.00	6.07	881.14	440.57	813.20	407.21	8.68	-0.55	0.019
170.00	-3.56	-0.42	0.00	-4.79	0.00	4.79	866.62	433.31	780.97	391.06	9.03	-0.56	0.016
171.00	-3.26	-0.39	0.00	-4.37	0.00	4.37	861.71	430.86	770.30	385.72	9.14	-0.56	0.015
175.00	-2.99	-0.36	0.00	-2.81	0.00	2.81	841.76	420.88	728.08	364.58	9.61	-0.56	0.011
180.00	-2.83	-0.34	0.00	-1.02	0.00	1.02	816.11	408.05	676.33	338.67	10.20	-0.57	0.006

183.00	0.00	-0.31	0.00	0.00	0.00	0.00	800.33	400.16	645.87	323.41	10.56	-0.57	0.000

Equivalent Modal Forces Analysis

(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}):	0.20
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	3.21
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)
53	181.50	189	1.859	1.821	1.082	0.361	45	234
52	177.50	321	1.778	1.441	0.940	0.308	66	399
51	173.00	263	1.689	1.081	0.798	0.252	44	327
50	170.50	72	1.641	0.910	0.727	0.223	11	89
49	168.50	217	1.602	0.786	0.673	0.201	29	269
48	166.00	184	1.555	0.646	0.611	0.175	21	228
47	162.50	465	1.490	0.477	0.531	0.140	43	577
46	157.50	474	1.400	0.284	0.432	0.096	30	588
45	153.75	240	1.334	0.171	0.367	0.066	11	298
44	151.25	410	1.291	0.108	0.328	0.048	13	509
43	149.50	165	1.261	0.070	0.303	0.036	4	205
42	147.00	459	1.220	0.024	0.270	0.020	6	570
41	142.50	675	1.146	-0.040	0.217	-0.005	-2	837
40	137.50	687	1.067	-0.087	0.167	-0.029	-13	852
39	132.50	698	0.991	-0.112	0.127	-0.046	-22	867
38	128.00	567	0.925	-0.121	0.097	-0.058	-22	704
37	125.50	151	0.889	-0.122	0.083	-0.063	-6	188
36	123.00	609	0.854	-0.119	0.071	-0.066	-27	756
35	120.50	253	0.819	-0.115	0.060	-0.068	-11	314
34	118.25	895	0.789	-0.110	0.051	-0.068	-41	1,111
33	115.75	262	0.756	-0.102	0.042	-0.067	-12	325
32	112.50	883	0.714	-0.091	0.033	-0.064	-37	1,096
31	107.50	898	0.652	-0.071	0.022	-0.053	-32	1,114
30	103.75	455	0.607	-0.056	0.015	-0.042	-13	564
29	101.25	625	0.579	-0.045	0.012	-0.034	-14	776
28	97.50	1,262	0.536	-0.030	0.009	-0.019	-16	1,565
27	94.00	509	0.499	-0.016	0.007	-0.004	-1	631
26	91.50	1,181	0.472	-0.006	0.006	0.006	5	1,465
25	89.00	794	0.447	0.003	0.006	0.016	8	985
24	86.50	840	0.422	0.011	0.006	0.025	14	1,042
23	82.50	1,414	0.384	0.023	0.007	0.037	35	1,755
22	77.50	1,432	0.339	0.036	0.009	0.049	47	1,777
21	72.50	1,450	0.297	0.046	0.013	0.057	55	1,799
20	67.50	1,468	0.257	0.054	0.016	0.061	60	1,821

19	64.25	444	0.233	0.058	0.019	0.063	19	551
18	61.75	1,766	0.215	0.061	0.021	0.063	74	2,191
17	59.00	1,018	0.196	0.063	0.024	0.063	43	1,263
16	56.50	1,052	0.180	0.065	0.026	0.063	44	1,306
15	52.50	1,773	0.156	0.067	0.029	0.063	74	2,199
14	47.50	1,796	0.127	0.070	0.033	0.062	74	2,229
13	44.00	725	0.109	0.071	0.036	0.061	29	900
12	41.50	1,095	0.097	0.071	0.038	0.060	44	1,358
11	37.50	1,843	0.079	0.072	0.040	0.059	73	2,287
10	32.50	3,013	0.060	0.072	0.041	0.058	117	3,738
9	29.25	913	0.048	0.071	0.042	0.057	35	1,133
8	26.75	1,307	0.040	0.070	0.042	0.057	49	1,622
7	23.75	941	0.032	0.069	0.041	0.056	35	1,167
6	21.25	947	0.025	0.067	0.040	0.054	34	1,174
5	17.50	1,911	0.017	0.062	0.037	0.052	66	2,371
4	12.50	1,934	0.009	0.053	0.031	0.047	60	2,400
3	8.50	1,172	0.004	0.042	0.023	0.039	31	1,454
2	6.00	786	0.002	0.032	0.018	0.032	17	975
1	2.50	1,621	0.000	0.015	0.008	0.017	19	2,012
DragonWave Horizon C	183.00	21	1.890	1.980	1.140	0.382	5	26
Alcatel-Lucent RRH2x	183.00	317	1.890	1.980	1.140	0.382	81	394
Alcatel-Lucent 1900	183.00	180	1.890	1.980	1.140	0.382	46	223
Decibel DB844H90E-XY	183.00	42	1.890	1.980	1.140	0.382	11	52
Nokia 2.5G MAA - AAH	183.00	311	1.890	1.980	1.140	0.382	79	386
Argus LLPX310R	183.00	86	1.890	1.980	1.140	0.382	22	106
DragonWave A-ANT-18G	183.00	54	1.890	1.980	1.140	0.382	14	67
Andrew 844G65VTZASX	183.00	48	1.890	1.980	1.140	0.382	12	60
Commscope NNVV-65B-R	183.00	232	1.890	1.980	1.140	0.382	59	288
Round Platform w/ Ha	183.00	2,000	1.890	1.980	1.140	0.382	510	2,481
RFS APXV18-206517S-C	171.00	79	1.650	0.943	0.740	0.229	12	98
CCI TPX-070821	167.00	45	1.574	0.700	0.635	0.185	6	56
Kaelus DBCT108F1V92-	167.00	83	1.574	0.700	0.635	0.185	10	103
Commscope WCS-IMFQ-	167.00	30	1.574	0.700	0.635	0.185	4	37
Powerwave Allgon LGP	167.00	85	1.574	0.700	0.635	0.185	10	105
Raycap DC6-48-60-18-	167.00	40	1.574	0.700	0.635	0.185	5	50
Raycap DC6-48-60-18-	167.00	32	1.574	0.700	0.635	0.185	4	39
Ericsson RRUS 4426 B	167.00	145	1.574	0.700	0.635	0.185	18	180
Ericsson RRUS 4478 B	167.00	180	1.574	0.700	0.635	0.185	22	223
Ericsson RRUS 4478 B	167.00	180	1.574	0.700	0.635	0.185	22	223
Ericsson RRUS 11 (Ba	167.00	132	1.574	0.700	0.635	0.185	16	164
Ericsson RRUS 32 B2	167.00	159	1.574	0.700	0.635	0.185	20	197
Ericsson RRUS-32 (77	167.00	231	1.574	0.700	0.635	0.185	29	287
Powerwave Allgon 777	167.00	105	1.574	0.700	0.635	0.185	13	130
CCI OPA-65R-LCUU-H4	167.00	171	1.574	0.700	0.635	0.185	21	212
Quintel QS66512-2	167.00	333	1.574	0.700	0.635	0.185	41	413
Kathrein Scala 80010	167.00	245	1.574	0.700	0.635	0.185	30	304
Flat Platform w/ Han	167.00	2,000	1.574	0.700	0.635	0.185	247	2,481
Kathrein Scala Smart	145.00	10	1.187	-0.008	0.245	0.008	0	12
Ericsson KRY 112 144	145.00	29	1.187	-0.008	0.245	0.008	0	36
Ericsson KRY 112 489	145.00	46	1.187	-0.008	0.245	0.008	0	57
Ericsson Radio 4449	145.00	222	1.187	-0.008	0.245	0.008	1	275
Ericsson AIR 32 B2A/	145.00	430	1.187	-0.008	0.245	0.008	2	533
RFS APXVAARR24_43-U-	145.00	384	1.187	-0.008	0.245	0.008	2	476
Flat Low Profile Pla	145.00	1,500	1.187	-0.008	0.245	0.008	8	1,861
RFS FDJ85020Q4-S1	126.00	71	0.896	-0.122	0.086	-0.062	-3	88
Samsung B2/B66A RRH-	126.00	253	0.896	-0.122	0.086	-0.062	-10	314
Samsung B5/B13 RRH-B	126.00	211	0.896	-0.122	0.086	-0.062	-9	262
RFS DB-T1-6Z-8AB-0Z	126.00	88	0.896	-0.122	0.086	-0.062	-4	109
Antel BXA-80063/6CF	126.00	45	0.896	-0.122	0.086	-0.062	-2	55
Andrew HBXX-6517DS-A	126.00	129	0.896	-0.122	0.086	-0.062	-5	160
Commscope JAHH-45B-R	126.00	503	0.896	-0.122	0.086	-0.062	-21	624
Flat Platform w/ Han	126.00	2,000	0.896	-0.122	0.086	-0.062	-82	2,481
Thales PCS VP/360/2	7.00	1	0.003	0.036	0.020	0.035	0	1
Stand-Off	7.00	75	0.003	0.036	0.020	0.035	2	93

	61,087	96.982	39.588	34.106	9.351	2,466	75,793

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)
53	181.50	189	1.859	1.821	1.082	0.361	45	162
52	177.50	321	1.778	1.441	0.940	0.308	66	276
51	173.00	263	1.689	1.081	0.798	0.252	44	226
50	170.50	72	1.641	0.910	0.727	0.223	11	62
49	168.50	217	1.602	0.786	0.673	0.201	29	187
48	166.00	184	1.555	0.646	0.611	0.175	21	158
47	162.50	465	1.490	0.477	0.531	0.140	43	400
46	157.50	474	1.400	0.284	0.432	0.096	30	407
45	153.75	240	1.334	0.171	0.367	0.066	11	206
44	151.25	410	1.291	0.108	0.328	0.048	13	352
43	149.50	165	1.261	0.070	0.303	0.036	4	142
42	147.00	459	1.220	0.024	0.270	0.020	6	395
41	142.50	675	1.146	-0.040	0.217	-0.005	-2	580
40	137.50	687	1.067	-0.087	0.167	-0.029	-13	590
39	132.50	698	0.991	-0.112	0.127	-0.046	-22	600
38	128.00	567	0.925	-0.121	0.097	-0.058	-22	487
37	125.50	151	0.889	-0.122	0.083	-0.063	-6	130
36	123.00	609	0.854	-0.119	0.071	-0.066	-27	524
35	120.50	253	0.819	-0.115	0.060	-0.068	-11	218
34	118.25	895	0.789	-0.110	0.051	-0.068	-41	769
33	115.75	262	0.756	-0.102	0.042	-0.067	-12	225
32	112.50	883	0.714	-0.091	0.033	-0.064	-37	759
31	107.50	898	0.652	-0.071	0.022	-0.053	-32	772
30	103.75	455	0.607	-0.056	0.015	-0.042	-13	391
29	101.25	625	0.579	-0.045	0.012	-0.034	-14	537
28	97.50	1,262	0.536	-0.030	0.009	-0.019	-16	1,084
27	94.00	509	0.499	-0.016	0.007	-0.004	-1	437
26	91.50	1,181	0.472	-0.006	0.006	0.006	5	1,014
25	89.00	794	0.447	0.003	0.006	0.016	8	682
24	86.50	840	0.422	0.011	0.006	0.025	14	722
23	82.50	1,414	0.384	0.023	0.007	0.037	35	1,215
22	77.50	1,432	0.339	0.036	0.009	0.049	47	1,231
21	72.50	1,450	0.297	0.046	0.013	0.057	55	1,246
20	67.50	1,468	0.257	0.054	0.016	0.061	60	1,261
19	64.25	444	0.233	0.058	0.019	0.063	19	381
18	61.75	1,766	0.215	0.061	0.021	0.063	74	1,517
17	59.00	1,018	0.196	0.063	0.024	0.063	43	875
16	56.50	1,052	0.180	0.065	0.026	0.063	44	904
15	52.50	1,773	0.156	0.067	0.029	0.063	74	1,523
14	47.50	1,796	0.127	0.070	0.033	0.062	74	1,543
13	44.00	725	0.109	0.071	0.036	0.061	29	623
12	41.50	1,095	0.097	0.071	0.038	0.060	44	941
11	37.50	1,843	0.079	0.072	0.040	0.059	73	1,584
10	32.50	3,013	0.060	0.072	0.041	0.058	117	2,589
9	29.25	913	0.048	0.071	0.042	0.057	35	785
8	26.75	1,307	0.040	0.070	0.042	0.057	49	1,123
7	23.75	941	0.032	0.069	0.041	0.056	35	808
6	21.25	947	0.025	0.067	0.040	0.054	34	813
5	17.50	1,911	0.017	0.062	0.037	0.052	66	1,642
4	12.50	1,934	0.009	0.053	0.031	0.047	60	1,662
3	8.50	1,172	0.004	0.042	0.023	0.039	31	1,007
2	6.00	786	0.002	0.032	0.018	0.032	17	675
1	2.50	1,621	0.000	0.015	0.008	0.017	19	1,393

DragonWave Horizon C	183.00	21	1.890	1.980	1.140	0.382	5	18
Alcatel-Lucent RRH2x	183.00	317	1.890	1.980	1.140	0.382	81	273
Alcatel-Lucent 1900	183.00	180	1.890	1.980	1.140	0.382	46	155
Decibel DB844H90E-XY	183.00	42	1.890	1.980	1.140	0.382	11	36
Nokia 2.5G MAA - AAH	183.00	311	1.890	1.980	1.140	0.382	79	267
Argus LLPX310R	183.00	86	1.890	1.980	1.140	0.382	22	74
DragonWave A-ANT-18G	183.00	54	1.890	1.980	1.140	0.382	14	47
Andrew 844G65VTZASX	183.00	48	1.890	1.980	1.140	0.382	12	41
Commscope NNVV-65B-R	183.00	232	1.890	1.980	1.140	0.382	59	200
Round Platform w/ Ha	183.00	2,000	1.890	1.980	1.140	0.382	510	1,719
RFS APXV18-206517S-C	171.00	79	1.650	0.943	0.740	0.229	12	68
CCI TPX-070821	167.00	45	1.574	0.700	0.635	0.185	6	39
Kaelus DBCT108F1V92-	167.00	83	1.574	0.700	0.635	0.185	10	72
Commscope WCS-IMFQ-	167.00	30	1.574	0.700	0.635	0.185	4	25
Powerwave Allgon LGP	167.00	85	1.574	0.700	0.635	0.185	10	73
Raycap DC6-48-60-18-	167.00	40	1.574	0.700	0.635	0.185	5	34
Raycap DC6-48-60-18-	167.00	32	1.574	0.700	0.635	0.185	4	27
Ericsson RRUS 4426 B	167.00	145	1.574	0.700	0.635	0.185	18	125
Ericsson RRUS 4478 B	167.00	180	1.574	0.700	0.635	0.185	22	154
Ericsson RRUS 4478 B	167.00	180	1.574	0.700	0.635	0.185	22	154
Ericsson RRUS 11 (Ba	167.00	132	1.574	0.700	0.635	0.185	16	113
Ericsson RRUS 32 B2	167.00	159	1.574	0.700	0.635	0.185	20	137
Ericsson RRUS-32 (77	167.00	231	1.574	0.700	0.635	0.185	29	198
Powerwave Allgon 777	167.00	105	1.574	0.700	0.635	0.185	13	90
CCI OPA-65R-LCUU-H4	167.00	171	1.574	0.700	0.635	0.185	21	147
Quintel QS66512-2	167.00	333	1.574	0.700	0.635	0.185	41	286
Kathrein Scala 80010	167.00	245	1.574	0.700	0.635	0.185	30	210
Flat Platform w/ Han	167.00	2,000	1.574	0.700	0.635	0.185	247	1,719
Kathrein Scala Smart	145.00	10	1.187	-0.008	0.245	0.008	0	9
Ericsson KRY 112 144	145.00	29	1.187	-0.008	0.245	0.008	0	25
Ericsson KRY 112 489	145.00	46	1.187	-0.008	0.245	0.008	0	40
Ericsson Radio 4449	145.00	222	1.187	-0.008	0.245	0.008	1	191
Ericsson AIR 32 B2A/	145.00	430	1.187	-0.008	0.245	0.008	2	369
RFS APXVAARR24_43-U-	145.00	384	1.187	-0.008	0.245	0.008	2	330
Flat Low Profile Pla	145.00	1,500	1.187	-0.008	0.245	0.008	8	1,289
RFS FDJ85020Q4-S1	126.00	71	0.896	-0.122	0.086	-0.062	-3	61
Samsung B2/B66A RRH-	126.00	253	0.896	-0.122	0.086	-0.062	-10	218
Samsung B5/B13 RRH-B	126.00	211	0.896	-0.122	0.086	-0.062	-9	181
RFS DB-T1-6Z-8AB-0Z	126.00	88	0.896	-0.122	0.086	-0.062	-4	76
Antel BXA-80063/6CF	126.00	45	0.896	-0.122	0.086	-0.062	-2	38
Andrew HBXX-6517DS-A	126.00	129	0.896	-0.122	0.086	-0.062	-5	111
Commscope JAHH-45B-R	126.00	503	0.896	-0.122	0.086	-0.062	-21	432
Flat Platform w/ Han	126.00	2,000	0.896	-0.122	0.086	-0.062	-82	1,719
Thales PCS VP/360/2	7.00	1	0.003	0.036	0.020	0.035	0	1
Stand-Off	7.00	75	0.003	0.036	0.020	0.035	2	64
		61,087	96.982	39.588	34.106	9.351	2,466	52,489

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	-73.78	-2.46	0.00	-324.70	0.00	324.70	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.070
5.00	-72.81	-2.45	0.00	-312.43	0.00	312.43	4,284.85	2,142.42	8,295.82	4,154.08	0.01	-0.02	0.069
7.00	-71.26	-2.43	0.00	-307.52	0.00	307.52	4,253.12	2,126.56	8,172.78	4,092.46	0.02	-0.02	0.069
10.00	-68.86	-2.38	0.00	-300.24	0.00	300.24	4,205.53	2,102.76	7,989.95	4,000.91	0.03	-0.03	0.068
15.00	-66.48	-2.33	0.00	-288.33	0.00	288.33	4,126.21	2,063.10	7,689.82	3,850.62	0.07	-0.05	0.067
20.00	-65.31	-2.31	0.00	-276.66	0.00	276.66	4,046.89	2,023.44	7,395.44	3,703.21	0.13	-0.06	0.067
22.50	-64.14	-2.28	0.00	-270.89	0.00	270.89	4,007.23	2,003.61	7,250.40	3,630.59	0.16	-0.07	0.067
22.50	-64.14	-2.28	0.00	-270.89	0.00	270.89	4,007.23	2,003.61	7,250.40	3,630.59	0.16	-0.07	0.067
25.00	-62.52	-2.24	0.00	-265.18	0.00	265.18	3,967.57	1,983.78	7,106.80	3,558.68	0.20	-0.08	0.066
28.50	-61.39	-2.21	0.00	-257.33	0.00	257.33	3,912.04	1,956.02	6,908.17	3,459.22	0.26	-0.09	0.066
30.00	-57.65	-2.10	0.00	-254.01	0.00	254.01	3,888.25	1,944.12	6,823.91	3,417.03	0.29	-0.09	0.064
35.00	-55.36	-2.04	0.00	-243.50	0.00	243.50	3,899.62	1,949.81	6,864.12	3,437.16	0.40	-0.11	0.062
40.00	-54.00	-2.01	0.00	-233.31	0.00	233.31	3,820.30	1,910.15	6,586.15	3,297.97	0.52	-0.13	0.061
43.00	-53.10	-1.98	0.00	-227.29	0.00	227.29	3,772.71	1,886.36	6,422.13	3,215.84	0.60	-0.13	0.061
43.00	-53.10	-1.98	0.00	-227.29	0.00	227.29	3,772.71	1,886.36	6,422.13	3,215.84	0.60	-0.13	0.061
45.00	-50.87	-1.91	0.00	-223.33	0.00	223.33	3,740.98	1,870.49	6,313.93	3,161.66	0.66	-0.14	0.060
50.00	-48.68	-1.84	0.00	-213.77	0.00	213.77	3,661.66	1,830.83	6,047.45	3,028.22	0.82	-0.16	0.060
55.00	-47.37	-1.81	0.00	-204.55	0.00	204.55	3,582.34	1,791.17	5,786.72	2,897.66	0.99	-0.17	0.059
58.00	-46.11	-1.77	0.00	-199.13	0.00	199.13	3,534.75	1,767.38	5,633.04	2,820.71	1.10	-0.18	0.059
60.00	-43.92	-1.69	0.00	-195.60	0.00	195.60	3,503.02	1,751.51	5,531.73	2,769.98	1.18	-0.19	0.058
63.50	-43.36	-1.68	0.00	-189.68	0.00	189.68	3,173.44	1,586.72	5,061.87	2,534.70	1.32	-0.20	0.056
65.00	-41.54	-1.62	0.00	-187.17	0.00	187.17	3,152.76	1,576.38	4,994.62	2,501.02	1.38	-0.20	0.056
70.00	-39.74	-1.57	0.00	-179.07	0.00	179.07	3,081.37	1,540.68	4,769.94	2,388.51	1.61	-0.22	0.055
75.00	-37.97	-1.53	0.00	-171.21	0.00	171.21	3,009.98	1,504.99	4,550.42	2,278.59	1.85	-0.24	0.055
80.00	-36.21	-1.50	0.00	-163.56	0.00	163.56	2,938.59	1,469.30	4,336.07	2,171.26	2.12	-0.26	0.054
85.00	-35.17	-1.49	0.00	-156.07	0.00	156.07	2,867.21	1,433.60	4,126.90	2,066.52	2.40	-0.28	0.053
88.00	-34.18	-1.48	0.00	-151.60	0.00	151.60	2,824.37	1,412.19	4,003.88	2,004.91	2.58	-0.29	0.053
90.00	-32.72	-1.48	0.00	-148.63	0.00	148.63	2,795.82	1,397.91	3,922.90	1,964.36	2.71	-0.30	0.052
93.00	-32.09	-1.48	0.00	-144.21	0.00	144.21	2,304.06	1,152.03	3,254.27	1,629.55	2.90	-0.31	0.057
95.00	-30.52	-1.50	0.00	-141.25	0.00	141.25	2,286.90	1,143.45	3,196.90	1,600.83	3.03	-0.32	0.056
100.00	-29.75	-1.51	0.00	-133.77	0.00	133.77	2,243.44	1,121.72	3,054.90	1,529.72	3.38	-0.34	0.055
102.50	-29.18	-1.53	0.00	-129.99	0.00	129.99	2,221.40	1,110.70	2,984.67	1,494.55	3.56	-0.35	0.054
102.50	-29.18	-1.53	0.00	-129.99	0.00	129.99	2,221.40	1,110.70	2,984.67	1,494.55	3.56	-0.35	0.100
105.00	-28.07	-1.57	0.00	-126.17	0.00	126.17	2,198.14	1,099.07	2,913.61	1,458.97	3.75	-0.36	0.099
110.00	-26.97	-1.62	0.00	-118.34	0.00	118.34	2,138.65	1,069.33	2,757.31	1,380.70	4.16	-0.41	0.098
115.00	-26.64	-1.64	0.00	-110.26	0.00	110.26	2,079.16	1,039.58	2,605.31	1,304.59	4.60	-0.45	0.097
116.50	-25.53	-1.68	0.00	-107.81	0.00	107.81	2,061.32	1,030.66	2,560.55	1,282.18	4.75	-0.46	0.096
120.00	-25.21	-1.70	0.00	-101.93	0.00	101.93	2,019.67	1,009.84	2,457.62	1,230.64	5.10	-0.49	0.095
121.00	-24.46	-1.73	0.00	-100.23	0.00	100.23	1,570.79	785.40	1,940.61	971.75	5.20	-0.50	0.119
125.00	-24.27	-1.74	0.00	-93.33	0.00	93.33	1,545.06	772.53	1,864.04	933.41	5.63	-0.53	0.116
126.00	-19.47	-1.86	0.00	-91.59	0.00	91.59	1,538.54	769.27	1,845.04	923.89	5.74	-0.54	0.112
130.00	-18.60	-1.89	0.00	-84.15	0.00	84.15	1,512.16	756.08	1,769.59	886.11	6.22	-0.58	0.107
135.00	-17.75	-1.91	0.00	-74.70	0.00	74.70	1,478.46	739.23	1,676.61	839.55	6.86	-0.63	0.101
140.00	-16.91	-1.91	0.00	-65.17	0.00	65.17	1,443.96	721.98	1,585.19	793.77	7.54	-0.68	0.094
145.00	-13.09	-1.86	0.00	-55.60	0.00	55.60	1,408.39	704.19	1,495.13	748.68	8.28	-0.72	0.084
149.00	-12.88	-1.85	0.00	-48.17	0.00	48.17	1,370.32	685.16	1,415.01	708.56	8.90	-0.76	0.077
150.00	-12.37	-1.84	0.00	-46.32	0.00	46.32	1,360.80	680.40	1,395.33	698.70	9.06	-0.77	0.075
152.50	-12.07	-1.83	0.00	-41.73	0.00	41.73	947.27	473.64	973.73	487.59	9.47	-0.79	0.098
155.00	-11.48	-1.79	0.00	-37.16	0.00	37.16	936.35	468.18	945.55	473.48	9.88	-0.81	0.091
160.00	-10.91	-1.75	0.00	-28.19	0.00	28.19	913.91	456.96	889.79	445.55	10.75	-0.85	0.075
165.00	-10.68	-1.73	0.00	-19.44	0.00	19.44	890.67	445.33	834.90	418.07	11.66	-0.88	0.058
167.00	-5.21	-1.10	0.00	-15.98	0.00	15.98	881.14	440.57	813.20	407.21	12.03	-0.89	0.045
170.00	-5.13	-1.09	0.00	-12.68	0.00	12.68	866.62	433.31	780.97	391.06	12.60	-0.91	0.038
171.00	-4.70	-1.03	0.00	-11.59	0.00	11.59	861.71	430.86	770.30	385.72	12.79	-0.91	0.036
175.00	-4.30	-0.95	0.00	-7.49	0.00	7.49	841.76	420.88	728.08	364.58	13.56	-0.93	0.026
180.00	-4.07	-0.91	0.00	-2.72	0.00	2.72	816.11	408.05	676.33	338.67	14.53	-0.94	0.013

183.00	0.00	-0.84	0.00	0.00	0.00	0.00	800.33	400.16	645.87	323.41	15.12	-0.94	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	-51.10	-2.45	0.00	-316.17	0.00	316.17	4,364.17	2,182.08	8,607.44	4,310.12	0.00	0.00	0.064
5.00	-50.42	-2.44	0.00	-303.91	0.00	303.91	4,284.85	2,142.42	8,295.82	4,154.08	0.01	-0.01	0.063
7.00	-49.35	-2.42	0.00	-299.02	0.00	299.02	4,253.12	2,126.56	8,172.78	4,092.46	0.02	-0.02	0.063
10.00	-47.68	-2.37	0.00	-291.76	0.00	291.76	4,205.53	2,102.76	7,989.95	4,000.91	0.03	-0.03	0.063
15.00	-46.04	-2.31	0.00	-279.93	0.00	279.93	4,126.21	2,063.10	7,689.82	3,850.62	0.07	-0.04	0.062
20.00	-45.23	-2.29	0.00	-268.37	0.00	268.37	4,046.89	2,023.44	7,395.44	3,703.21	0.13	-0.06	0.061
22.50	-44.42	-2.26	0.00	-262.65	0.00	262.65	4,007.23	2,003.61	7,250.40	3,630.59	0.16	-0.07	0.061
22.50	-44.42	-2.26	0.00	-262.65	0.00	262.65	4,007.23	2,003.61	7,250.40	3,630.59	0.16	-0.07	0.061
25.00	-43.30	-2.21	0.00	-257.01	0.00	257.01	3,967.57	1,983.78	7,106.80	3,558.68	0.20	-0.08	0.061
28.50	-42.51	-2.18	0.00	-249.27	0.00	249.27	3,912.04	1,956.02	6,908.17	3,459.22	0.26	-0.09	0.060
30.00	-39.92	-2.07	0.00	-245.99	0.00	245.99	3,888.25	1,944.12	6,823.91	3,417.03	0.28	-0.09	0.059
35.00	-38.34	-2.00	0.00	-235.65	0.00	235.65	3,899.62	1,949.81	6,864.12	3,437.16	0.39	-0.11	0.057
40.00	-37.40	-1.96	0.00	-225.64	0.00	225.64	3,820.30	1,910.15	6,586.15	3,297.97	0.51	-0.12	0.056
43.00	-36.77	-1.94	0.00	-219.74	0.00	219.74	3,772.71	1,886.36	6,422.13	3,215.84	0.59	-0.13	0.056
43.00	-36.77	-1.94	0.00	-219.74	0.00	219.74	3,772.71	1,886.36	6,422.13	3,215.84	0.59	-0.13	0.056
45.00	-35.23	-1.87	0.00	-215.87	0.00	215.87	3,740.98	1,870.49	6,313.93	3,161.66	0.64	-0.14	0.055
50.00	-33.71	-1.80	0.00	-206.53	0.00	206.53	3,661.66	1,830.83	6,047.45	3,028.22	0.79	-0.15	0.055
55.00	-32.80	-1.76	0.00	-197.53	0.00	197.53	3,582.34	1,791.17	5,786.72	2,897.66	0.96	-0.17	0.054
58.00	-31.93	-1.72	0.00	-192.26	0.00	192.26	3,534.75	1,767.38	5,633.04	2,820.71	1.07	-0.18	0.054
60.00	-30.41	-1.64	0.00	-188.82	0.00	188.82	3,503.02	1,751.51	5,531.73	2,769.98	1.14	-0.18	0.053
63.50	-30.03	-1.63	0.00	-183.07	0.00	183.07	3,173.44	1,586.72	5,061.87	2,534.70	1.28	-0.19	0.052
65.00	-28.77	-1.57	0.00	-180.63	0.00	180.63	3,152.76	1,576.38	4,994.62	2,501.02	1.34	-0.20	0.051
70.00	-27.52	-1.52	0.00	-172.79	0.00	172.79	3,081.37	1,540.68	4,769.94	2,388.51	1.56	-0.22	0.051
75.00	-26.29	-1.47	0.00	-165.20	0.00	165.20	3,009.98	1,504.99	4,550.42	2,278.59	1.80	-0.23	0.050
80.00	-25.08	-1.44	0.00	-157.83	0.00	157.83	2,938.59	1,469.30	4,336.07	2,171.26	2.05	-0.25	0.050
85.00	-24.35	-1.43	0.00	-150.61	0.00	150.61	2,867.21	1,433.60	4,126.90	2,066.52	2.33	-0.27	0.049
88.00	-23.67	-1.42	0.00	-146.32	0.00	146.32	2,824.37	1,412.19	4,003.88	2,004.91	2.50	-0.28	0.049
90.00	-22.66	-1.42	0.00	-143.47	0.00	143.47	2,795.82	1,397.91	3,922.90	1,964.36	2.62	-0.29	0.048
93.00	-22.22	-1.42	0.00	-139.21	0.00	139.21	2,304.06	1,152.03	3,254.27	1,629.55	2.81	-0.30	0.053
95.00	-21.13	-1.44	0.00	-136.37	0.00	136.37	2,286.90	1,143.45	3,196.90	1,600.83	2.94	-0.31	0.052
100.00	-20.60	-1.45	0.00	-129.19	0.00	129.19	2,243.44	1,121.72	3,054.90	1,529.72	3.28	-0.33	0.051
102.50	-20.21	-1.47	0.00	-125.55	0.00	125.55	2,221.40	1,110.70	2,984.67	1,494.55	3.45	-0.34	0.050
102.50	-20.21	-1.47	0.00	-125.55	0.00	125.55	2,221.40	1,110.70	2,984.67	1,494.55	3.45	-0.34	0.093
105.00	-19.43	-1.50	0.00	-121.88	0.00	121.88	2,198.14	1,099.07	2,913.61	1,458.97	3.63	-0.35	0.092
110.00	-18.67	-1.55	0.00	-114.37	0.00	114.37	2,138.65	1,069.33	2,757.31	1,380.70	4.02	-0.39	0.092
115.00	-18.45	-1.57	0.00	-106.62	0.00	106.62	2,079.16	1,039.58	2,605.31	1,304.59	4.46	-0.43	0.091
116.50	-17.68	-1.61	0.00	-104.27	0.00	104.27	2,061.32	1,030.66	2,560.55	1,282.18	4.60	-0.45	0.090
120.00	-17.46	-1.62	0.00	-98.64	0.00	98.64	2,019.67	1,009.84	2,457.62	1,230.64	4.93	-0.47	0.089
121.00	-16.93	-1.65	0.00	-97.01	0.00	97.01	1,570.79	785.40	1,940.61	971.75	5.03	-0.48	0.111
125.00	-16.80	-1.66	0.00	-90.40	0.00	90.40	1,545.06	772.53	1,864.04	933.41	5.45	-0.52	0.108
126.00	-13.48	-1.80	0.00	-88.74	0.00	88.74	1,538.54	769.27	1,845.04	923.89	5.56	-0.53	0.105
130.00	-12.88	-1.82	0.00	-81.55	0.00	81.55	1,512.16	756.08	1,769.59	886.11	6.02	-0.56	0.101
135.00	-12.29	-1.84	0.00	-72.43	0.00	72.43	1,478.46	739.23	1,676.61	839.55	6.64	-0.61	0.095
140.00	-11.70	-1.85	0.00	-63.23	0.00	63.23	1,443.96	721.98	1,585.19	793.77	7.30	-0.66	0.088
145.00	-9.06	-1.80	0.00	-54.00	0.00	54.00	1,408.39	704.19	1,495.13	748.68	8.01	-0.70	0.079
149.00	-8.91	-1.80	0.00	-46.80	0.00	46.80	1,370.32	685.16	1,415.01	708.56	8.61	-0.73	0.073
150.00	-8.56	-1.78	0.00	-45.00	0.00	45.00	1,360.80	680.40	1,395.33	698.70	8.77	-0.74	0.071
152.50	-8.36	-1.77	0.00	-40.55	0.00	40.55	947.27	473.64	973.73	487.59	9.16	-0.76	0.092
155.00	-7.95	-1.74	0.00	-36.12	0.00	36.12	936.35	468.18	945.55	473.48	9.57	-0.78	0.085
160.00	-7.55	-1.70	0.00	-27.42	0.00	27.42	913.91	456.96	889.79	445.55	10.41	-0.82	0.070
165.00	-7.39	-1.67	0.00	-18.94	0.00	18.94	890.67	445.33	834.90	418.07	11.28	-0.85	0.054
167.00	-3.61	-1.07	0.00	-15.59	0.00	15.59	881.14	440.57	813.20	407.21	11.64	-0.86	0.042
170.00	-3.55	-1.06	0.00	-12.37	0.00	12.37	866.62	433.31	780.97	391.06	12.19	-0.88	0.036
171.00	-3.25	-1.00	0.00	-11.31	0.00	11.31	861.71	430.86	770.30	385.72	12.38	-0.88	0.033
175.00	-2.98	-0.93	0.00	-7.31	0.00	7.31	841.76	420.88	728.08	364.58	13.12	-0.90	0.024
180.00	-2.81	-0.88	0.00	-2.65	0.00	2.65	816.11	408.05	676.33	338.67	14.07	-0.91	0.011

183.00	0.00	-0.84	0.00	0.00	0.00	0.00	800.33	400.16	645.87	323.41	14.64	-0.91	0.000

Analysis Summary

Load Case	Reactions Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage Elev (ft)	Interaction Ratio
1.2D + 1.6W	40.56	0.00	73.22	0.00	0.00	4858.91	102.50	0.90
0.9D + 1.6W	39.75	0.00	54.90	0.00	0.00	4655.58	102.50	0.85
1.2D + 1.0Di + 1.0Wi	12.46	0.00	134.00	0.00	0.00	1946.70	121.00	0.52
(1.2 + 0.2Sds) * DL + E ELFM	1.84	0.00	73.78	0.00	0.00	275.78	121.00	0.08
(1.2 + 0.2Sds) * DL + E EMAM	2.46	0.00	73.78	0.00	0.00	324.70	121.00	0.12
(0.9 - 0.2Sds) * DL + E ELFM	1.84	0.00	51.10	0.00	0.00	269.17	121.00	0.07
(0.9 - 0.2Sds) * DL + E EMAM	2.45	0.00	51.10	0.00	0.00	316.17	121.00	0.11
1.0D + 1.0W	9.62	0.00	61.08	0.00	0.00	1130.54	121.00	0.22

Additional Steel Summary

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Upper Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Lower Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Max Member Pu (kip)	phiPn (kip)	Ratio
0.00	22.50	(4) SOL-#20 All Thre	204.5	4.1	16.8	0.0	12.0	0	0	0.0	12.0	0	0	270.1	343.1	0.787
22.50	43.00	(4) SOL-#20 All Thre	216.2	3.9	16.8	0.0	12.0	0	0	0.0	12.0	0	0	256.7	345.0	0.744
43.00	102.5	(4) SOL-#20 All Thre	309.8	9.3	16.8	187.3	12.0	16	16	0.0	12.0	0	0	241.5	330.5	0.731

Base Plate & Anchor Rod Analysis

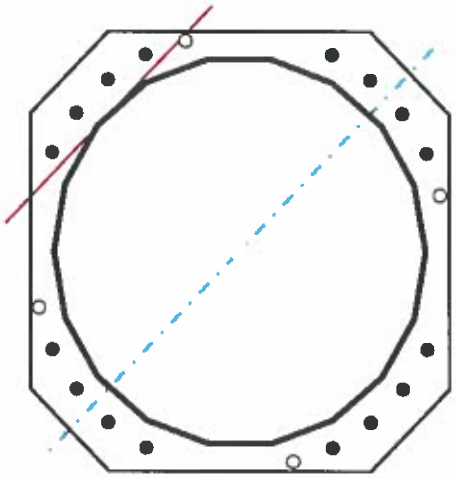
Pole Dimensions		
Number of Sides	18	-
Diameter	48.62	in
Thickness	0.5	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	4858.9	k-ft
Axial, Pu	73.2	k
Shear, Vu	40.5	k
Neutral Axis	45	°

Report Capacities		
Component	Capacity	Result
Base Plate	82%	Pass
Anchor Rods	75%	Pass
Dwyidag	61%	Pass

Base Plate		
Shape	Square	-
Width	56	in
Thickness	2 3/4	in
Grade	A572-50	-
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	10.5	in
Orientation Offset	0	°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	2125.0	k
Bending Stress, ϕMn	2580.1	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	16	-
Diameter, ø	2 1/4	in
Bolt Circle	56	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	195.3	k
Anchor Rods, ϕPn	259.8	k



Dywidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, ø	2.5	in
Bracket Type	Angle	-
Circle	55.50	in
Orientation Offset	15	°
Applied Force, Pu	239.1	k
Dywidag Bar, ϕPn	392.7	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	40.5	3605.7	0.74
Anchor Rod Forces	40.5	3605.7	0.74
Additional Bolt (Grp1) Forces			
Additional Bolt (Grp2) Forces			
Dywidag Forces		1253.2	0.26
Stiffener Forces			

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	75.2036	4.1780	0.3500		21773.35
Bolt	3.9761	3.2477	0.8393	4.5	20382.94
Bolt1					
Bolt2					
Dywidag	4.9087	4.9087	1.9175		7567.74
Stiffener					

Base Plate		
Shape	Square	-
Width, W	56	in
Thickness, t	2.75	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	27.787	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	56	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	195.3	k
Applied Shear, Vu	0.0	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.752	OK
Interaction Capacity	0.752	OK

External Base Plate

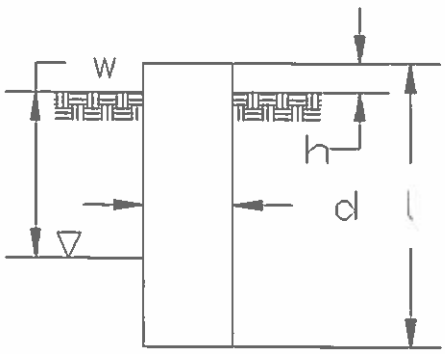
Chord Length AA	30.326	in
Additional AA	0.000	in
Section Modulus, Z	57.335	in^3
Applied Moment, Mu	2125.0	k-ft
Bending Capacity, ϕMn	2580.1	k-ft
Capacity, Mu/ϕMn	0.824	OK
Chord Length AB	29.572	in
Additional AB	0.000	in
Section Modulus, Z	55.910	in^3
Applied Moment, Mu	1837.1	k-ft
Bending Capacity, ϕMn	2515.9	k-ft
Capacity, Mu/ϕMn	0.730	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		

Dywidag Reinforcement		
Dywidag Quantity, N	4	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	55.5	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	239.1	k
Compressive Capacity, ϕPn	392.7	k
Capacity, Pu/ϕPn	0.609	OK

Site Name:	Milford CT2, CT	*Program Last Updated:*	*5/13/2014*
Site Number:	302535	*American Tower Corporation*	
Engineer:	jeffrey.deluca		
Engineering Number:	12616990		
Date:	10/19/18		



Design Base Loads (Factored) - Analysis per TIA-222-G Standards

Analyze or Design a Foundation?	Analyze	
Foundation Mapped:	N	
Moment (M):	4858.9	k-ft
Shear/Leg (V):	40.6	k
Axial Load (P):	73.2	k
Uplift/Leg (U):	0.0	k
Tower Type (GT / SST / MP):	MP	
Diameter of Caisson (d):	6.0	ft
Caisson Embedment (L-h):	20.0	ft
Caisson Height Above Ground (h):	0.5	ft
Depth Below Ground Surface to Water Table (w):	99.0	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Water:	62.4	pcf
Tension Skin Friction/Compression Skin Friction:	1.00	
Pullout Angle:	30.0	degrees

Engineer Notes

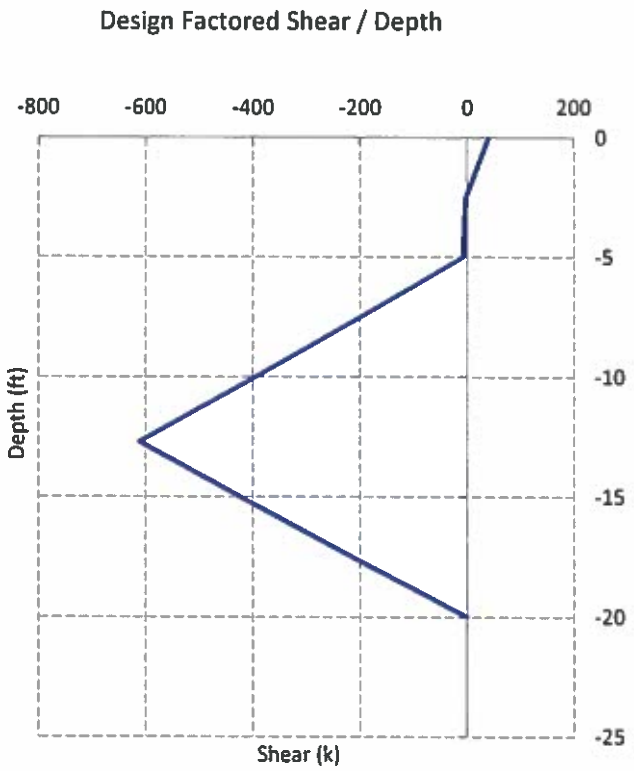
Soil Mechanical Properties

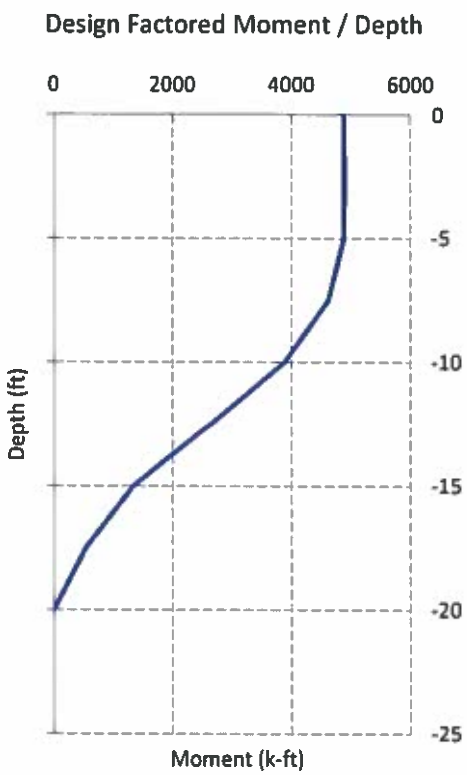
Depth (ft) Top	Depth (ft) Bottom	γ_{soil} (pcf)	Cohesion (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
0.0	3.5	105	0	0	0	0
3.5	21.0	140	5000	0	2250	69294

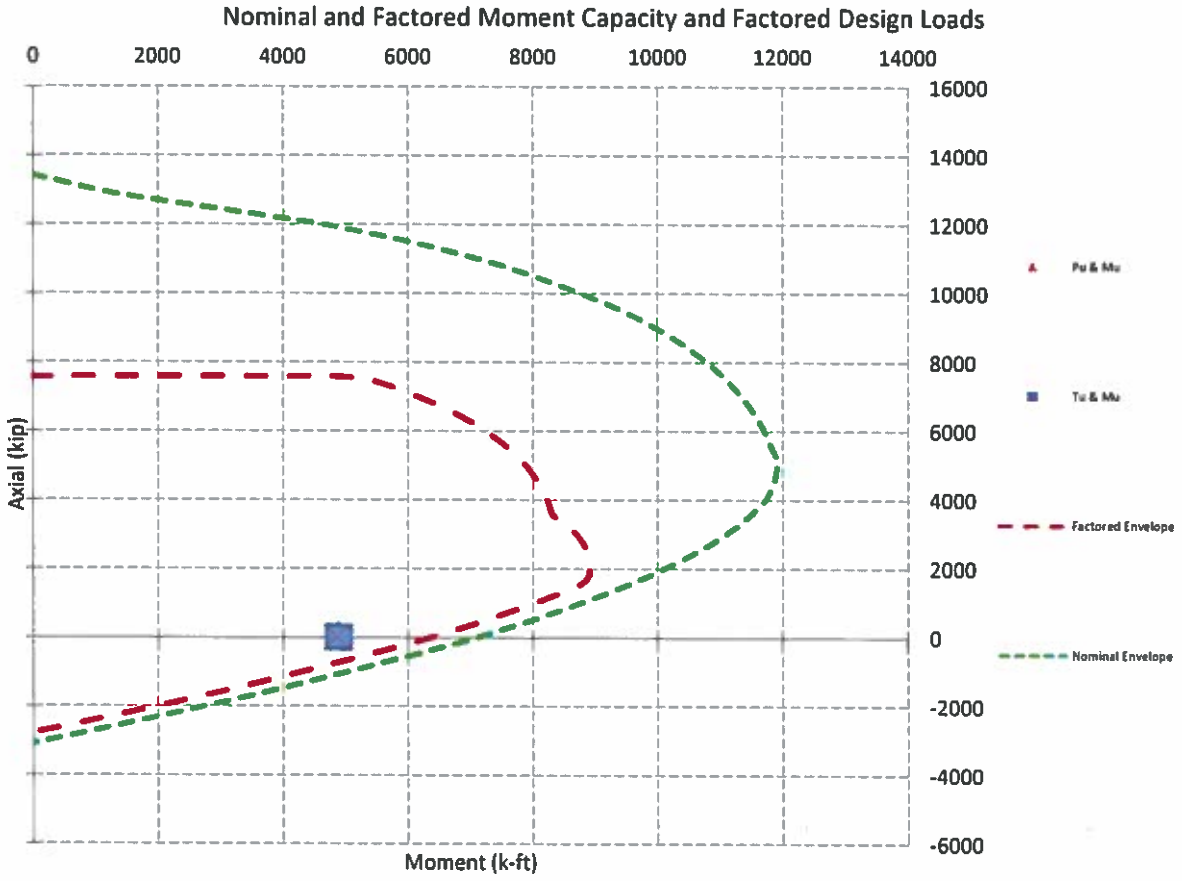
Volume of Concrete:	579.6 ft^3 =	21.5 yd^3
Weight of Concrete (Buoyancy Effect Considered):	86.9 k	
Average Soil Unit Weight:	133.9 pcf	
Skin Friction Resistance:	699.8 k	
Compressive Bearing Resistance:	1959.2 k	
Pullout Weight (Minus Concrete Weight):	665.2 k	
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	498.9 k	
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	1994.3 k	
P_u:	84.2 k	
$T_u/\phi_s T_n$:	0.00 Result: OK	
$P_u/\phi_s P_n$:	0.04 Result: OK	
Total Lateral Resistance:	3454.9 k	
Inflection Point (Below Ground Surface):	12.7 ft	
Design Overturning Moment At Inflection Point (M_D):	5395.0 k-ft	
Nominal Moment Capacity ($\phi_s M_n$):	9794.1 k-ft	
$M_D/\phi_s M_n$:	0.55 Result: OK	
ϕ_s:	0.75	

Caisson Strength Capacity

Concrete Compressive Strength (f'_c):	3000	psi
Vertical Steel Rebar Size #:	11	
Vertical Steel Rebar Area:	1.56	in^2
# of Vertical Steel Rebars:	33	
Vertical Steel Rebar Yield Strength (F_y):	60	ksi
Horizontal Tie / Stirrup Size #:	4	
Horizontal Tie / Stirrup Area:	0.20	in^2
Design Horizontal Tie / Stirrup Spacing:	12.0	in
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60	ksi
Rebar Cage Diameter:	64.0	in
Strength Bending/Tension Reduction Factor (ϕ_B):	0.90	ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor (ϕ_V):	0.75	ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor (ϕ_V):	0.65	ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000	ksi
Design Moment (M_u):	4894.9	k-ft
Nominal Moment Capacity ($\phi_B M_n$):	6808.9	k-ft - ACI318-005 - 10.2
$M_u/\phi_B M_n$:	0.72	Result: OK
Design Tension (T_u):	0.0	k
Nominal Tension Capacity ($\phi_T T_n$):	2779.9	k - ACI318-05 - 10.2
$T_u/\phi_T T_n$:	0.00	Result: OK
Design Compression (P_u):	84.2	k
Nominal Compression Capacity ($\phi_P P_n$):	5330.6	k - ACI318-05 - 10.3.6.2
$P_u/\phi_P P_n$:	0.02	Result: OK
Bending Reinforcement Ratio:	0.013	ACI318-05 - 10.8.4 & 10.9.1
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	0.72	Result: OK


Design Factored Shear / Depth
-800
-600
-400
-200
0
200
0
-5
-10
-15
-20
-25
Depth (ft)
Shear (k)


Design Factored Moment / Depth
0
2000
4000
6000
0
-5
-10
-15
-20
-25
Depth (ft)
Moment (k-ft)

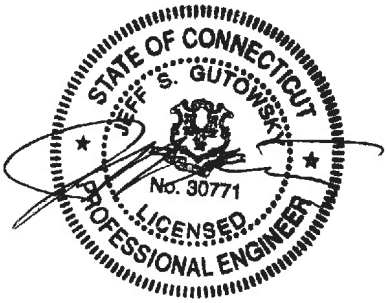

Nominal and Factored Moment Capacity and Factored Design Loads
0
2000
4000
6000
8000
10000
12000
14000
16000
14000
12000
10000
8000
6000
4000
2000
0
-2000
-4000
-6000
Axial (kip)
Moment (k-ft)
Pu & Mu
Tu & Mu
Factored Envelope
Nominal Envelope

Trylon

Prepared For

AMERICAN TOWER®

Mount Analysis



11/15/18 EXP 01/31/20

Milford CT 2

ATC SITE #302535

11/15/18

PASSING WITH

CONDITION (64%)

MOUNT ANALYSIS REPORT

American Tower Corporation
10 Presidential Way
Woburn, MA 01801

Attention: **Mr. Blake Paynter**

Reference: Analysis of the existing Platform mount at **126-ft**elevation

Trylon Job No.:	143862
ATC Site Name:	Milford CT 2
ATC Asset Number:	302535
Verizon Site Name:	MILFORD S II CT
Verizon Site Number:	468301
Site Address:	185 Research Pkwy., Milford, CT 06460
Tower Profile:	Tower Profile

Dear Sir:

We have been provided with RF information, photos and sketches of the structure for above-referenced site. Verizon is proposing to change the equipment configuration on the existing mounting hardware.

A revised antenna, coax and miscellaneous equipment schematic have been provided to us. We have been asked to evaluate this information to determine whether or not the existing mounts are adequate to safely support the proposed loading change. The structural evaluation refers to the Platform mount at **126-ft** elevation of the existing Monopole located at 185 Research Pkwy., Milford, CT 06460.

The proposed changes were provided to us in a RFDS document dated 08/23/18. The antennas are located at **126-ft** elevation on all sectors.

According to the RFDS document, the final configuration of antennas for each sector consists of:

- (1) Commscope HBXX-6517DS-A2M antenna (74.9" x 12" x 6.5" – 40.80lbs) in position #1;
- (2) Commscope JAHH-45B-R3B antenna (72" x 18" x 7" – 83.8lbs) mounted side by side on commscope mounting bracket BSAMNT-SBS-2-2 in position #3;
- (1) Amphenol BXA-80063-6CF-EDIN antenna (71.1" x 11.2" x 4.5" – 14.90lbs) in position #6;

According to the RFDS document, the final configuration of RRHs for each sector consists of:

- (1) B5/B13 RRH-BR04C in position #2;
- (1) B2/B66A RRH-BR049 in position #4;

TMA and Power Squid considered for this analysis:

- (3) FDJ85020Q4-S1 Diplexer
- (2) RRFDC-3315-PF-48 Raycap

The member dimensions that we considered in our evaluation are as per sketches and pictures provided by the site visit crew. The structural members that we considered in our analysis are presented in the attached model sketches.

Steel grades have been assumed as follows, unless noted otherwise:

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Rectangular)	ASTM 500 (GR B-46)
Pipe	ASTM A53 (GR 35)
Connection Bolts	ASTM A325

CONCLUSIONS AND RECOMMENDATIONS

Based on information provided, our calculations conclude that the existing Verizon Platform mount located at **126-ft** elevation of the Monopole at the specified address, are **NOT ADEQUATE** to safely support the proposed equipment, subject to the attached Standard Conditions on page 3.

Reinforcement recommendation:

We recommend to reinforce existing mount as follows,

- **Install "PV-VSK-M V-Stabilizer Kit" with new one handrails (2.875" O.D x 0.25") connecting all antenna pipes at a distance of 12" below from the top face horizontal & the collar mount at a distance of 24" below the top face horizontal.**
- **Install new plate (PL 2x0.25) to the existing diagonal bracing Plate connecting it back to back.**
- **Install new Plan Brace 17" length (PL 2x0.25) connecting the new handrail pipe.**

Should you have any questions, comments or require additional information, please do not hesitate to call.

Sincerely,

Analysis performed by:

Bathrudeen Ishak

Reviewed by:

Kirk R. Hall, P.E.

Trylon

Standard Conditions for Providing Structural Consulting Services on Existing Structures

1. Mounting hardware is analyzed to the best of our ability using all information that is provided or can be obtained during fieldwork (if authorizes by client). If the existing conditions are not as we have represented in this analysis, we should be contacted to evaluate the significance of the deviation and revise the assessment accordingly.

2. The structural analysis has been performed assuming that hardware is in "like new" condition. No allowance was made for excessive corrosion, damaged or missing structural members, loose bolts, misaligned parts, or any reduction in strength due to the age or fatigue of the product.

3. The structural analysis provided is an assessment of the primary load carrying capacity of the hardware. We provide a limited scope of service. In some cases we cannot verify the capacity of every weld, plate, connection detail, etc. In some cases, structural fabrication details are unknown at the time of our analysis, and the detailed field measurement of some of the required details may not be possible. In instances where we cannot perform connection capacity calculations, it is assumed that the existing manufactured connections develop the full capacity of the primary members being connected.

4. We cannot be held responsible for mounting hardware that is installed improperly or hardware that is loose or has a tendency of working loose over the lifetime of the mounting hardware. Our analysis has been performed assuming fully tightened connections, and proper installation and symmetry of the mounting hardware per manufacturer's instructions.

5. The structural analysis has been performed using information currently provided by the client and potentially field verified. We have been provided with a mounting arrangement for all telecommunications equipment, including antennas RRH's, TMA's, RRU's, diplexers, surge protection devices, etc. Our analysis has been based upon a particular mounting arrangement. We are not responsible for deviations in the mounting arrangement that may occur over time. If deviations in equipment type or mounting arrangements are proposed, then we should be contacted to revise the recommendations of this structural report.

6. We cannot be held responsible for temporary and unbalanced loads on mounting hardware. Our analysis is based on a particular mounting arrangement or as-built field condition. We are not responsible for the methods and means of how the mounting arrangement is accomplished by the contractor. These methods and means may include rigging of equipment or hardware to lift and locate, temporary hanging of equipment in locations other than the final arrangement, movement and tie off of tower riggers, personnel, and their equipment, etc.

7. Steel grade and strength is unknown and cannot be field tested. We cannot be held responsible for equipment manufactured from inferior steel or bolts. Our analysis assumes that standard structural grade steel has been used by the equipment manufacturer for all assembled parts of the mounting apparatus. Acceptable steels and connection components are specified by the American Institute of Steel Construction. It is assumed all welded connections are performed in the shop under the latest American Welding Society Code. No field welds are permitted or assumed for the existing pre-manufactured equipment.

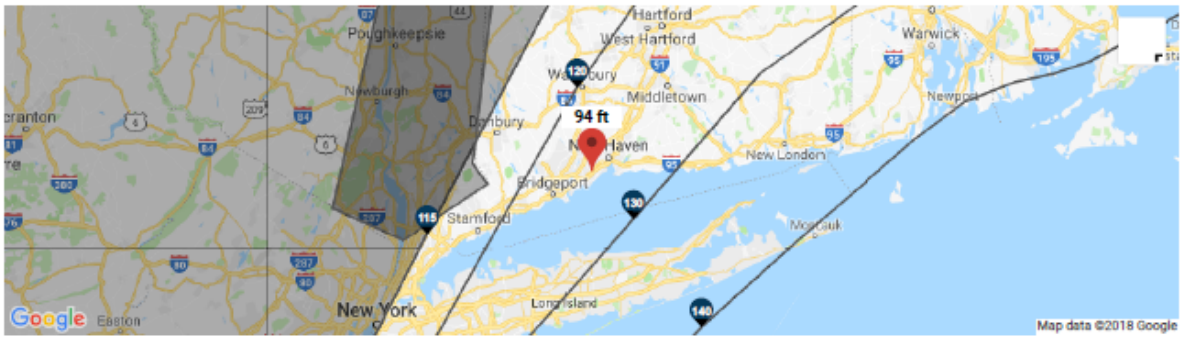
⚠ This is a beta release of the new ATC Hazards by Location website. Please contact us with feedback.

ATC Hazards by Location

Search Information

Coordinates:	41.240419, -73.011942
Timestamp:	2018-11-01T12:22:00.450Z
Hazard Type:	Wind

Map Results



Text Results

ASCE 7-16

MRI 10-Year	75 mph
MRI 25-Year	84 mph
MRI 50-Year	91 mph
MRI 100-Year	98 mph
Risk Category I	110 mph
Risk Category II	120 mph
Risk Category III	⚠ 130 mph

If the structure under consideration is a healthcare facility, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

Risk Category IV	⚠ 134 mph

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

ASCE 7-10

MRI 10-Year	78 mph
MRI 25-Year	87 mph
MRI 50-Year	95 mph
MRI 100-Year	102 mph
Risk Category I	115 mph
Risk Category II	125 mph
Risk Category III-IV	⚠ 135 mph

If the structure under consideration is a healthcare facility, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

Trylon

General Info

Site Code :	**324369**
Site Name :	**MILFORD S II CT**
State	**Connecticut**
County	**New Haven**
Trylon job number:	**143862**
Design by:	**BSI**

Trylon
1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038

Analysis Criteria

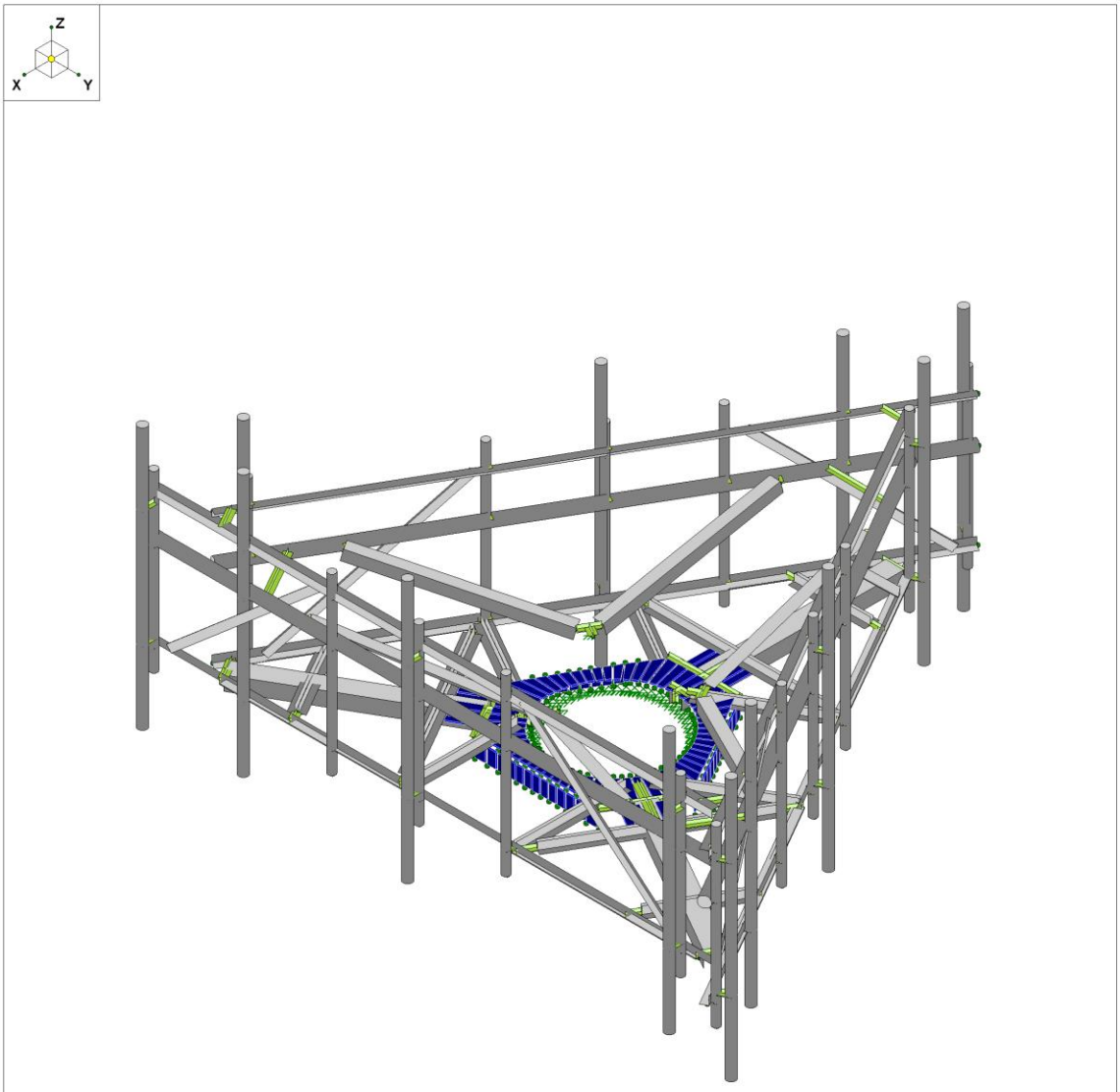
Standard 2015 IBC / ASCE 7-10 / TIA-222-G

The mount structural analysis was performed in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Supporting structure using a 3-second gust wind speed of 96.8 mph with no ice, 50.0 mph with 0.75 inch escalated ice thickness, Exposure Category C and Topographic Category 1 with a crest height of 0 ft.

In addition, the platform has been analysed for various live loading conditions consisting of a 250-pound man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 250-pound man live load applied individually at mount pipe locations using a 3-second gust wind speed of 30 mph.

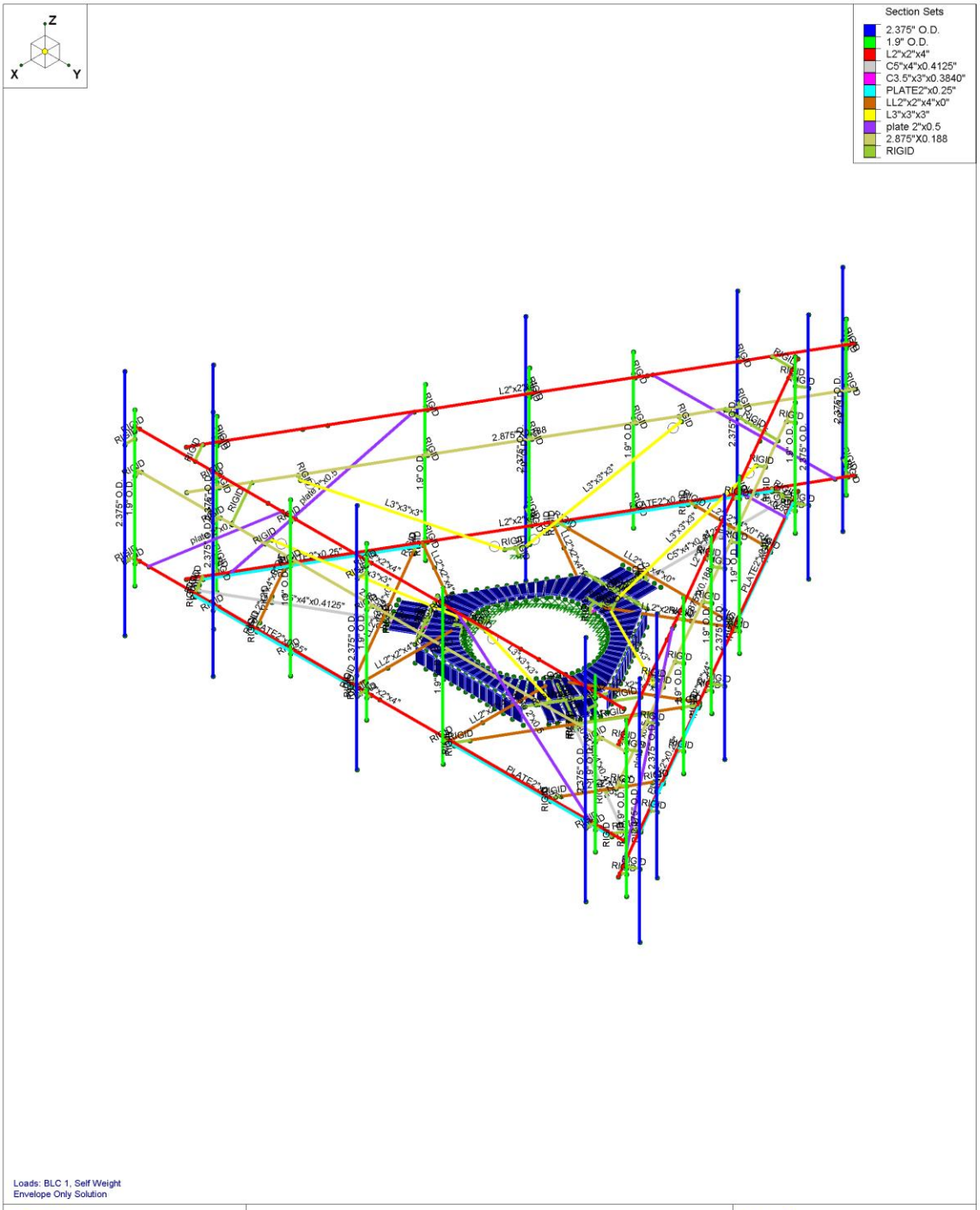
Design Loads

Appurtenances			Dimensions					Wind Forces without ice				Wind Forces with ice			
			Height	Width	Thk.	Weight	ICE Weight	0°	30°	60°	90°	0°	30°	60°	90°
No.	Manufacturer	Model	[in]	[in]	[in]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]	[lbs]
3	Commscope	HBXX-6517DS-A2M	74.9	12.0	6.5	40.8	200.9	258.4	233.5	183.7	158.8	89.1	82.4	69.1	62.4
3	Commscope	2×JAHH-45B-R3B + Mnt Brkt	72.0	36.0	7.0	235.0	482.6	654.4	530.8	283.6	160.1	200.2	165.7	96.7	62.1
3	Amphenol	BXA-80063-6CF-EDIN	71.1	11.2	4.5	14.9	171.1	229.7	200.8	142.9	114.0	80.5	72.6	56.9	49.1
3	Samsung	B5/B13 RRH-BR04C	15.0	15.0	8.1	70.3	49.1	56.8	50.3	37.2	30.7	22.9	20.7	16.4	14.3
3	Samsung	B2/B66A RRH-BR049	15.0	15.0	10.0	84.4	51.7	56.8	52.1	42.6	37.9	22.9	21.3	18.2	16.7
3	RFS	FDJ85020Q4-S1	16.9	6.8	6.3	23.6	32.4	29.0	28.5	27.5	27.1	14.0	13.8	13.5	13.3
2	Raycap	RRFDC-3315-PF-48	25.7	15.7	10.3	32.0	78.2	59.4	54.3	43.9	38.7	21.9	20.3	17.2	15.6



Loads: BLC 1, Self Weight
Envelope Only Solution

Trylon	VZW MILFORD S II CT_ATC 302535_MOUNT ANALYIS	SK - 1
BSI		Nov 15, 2018 at 2:20 PM
143862		MILFORD S II CT_REIN_3.r3d



Trylon	VZW MILFORD S II CT_ATC 302535_MOUNT ANALYIS	SK - 2
BSI		Nov 15, 2018 at 2:20 PM
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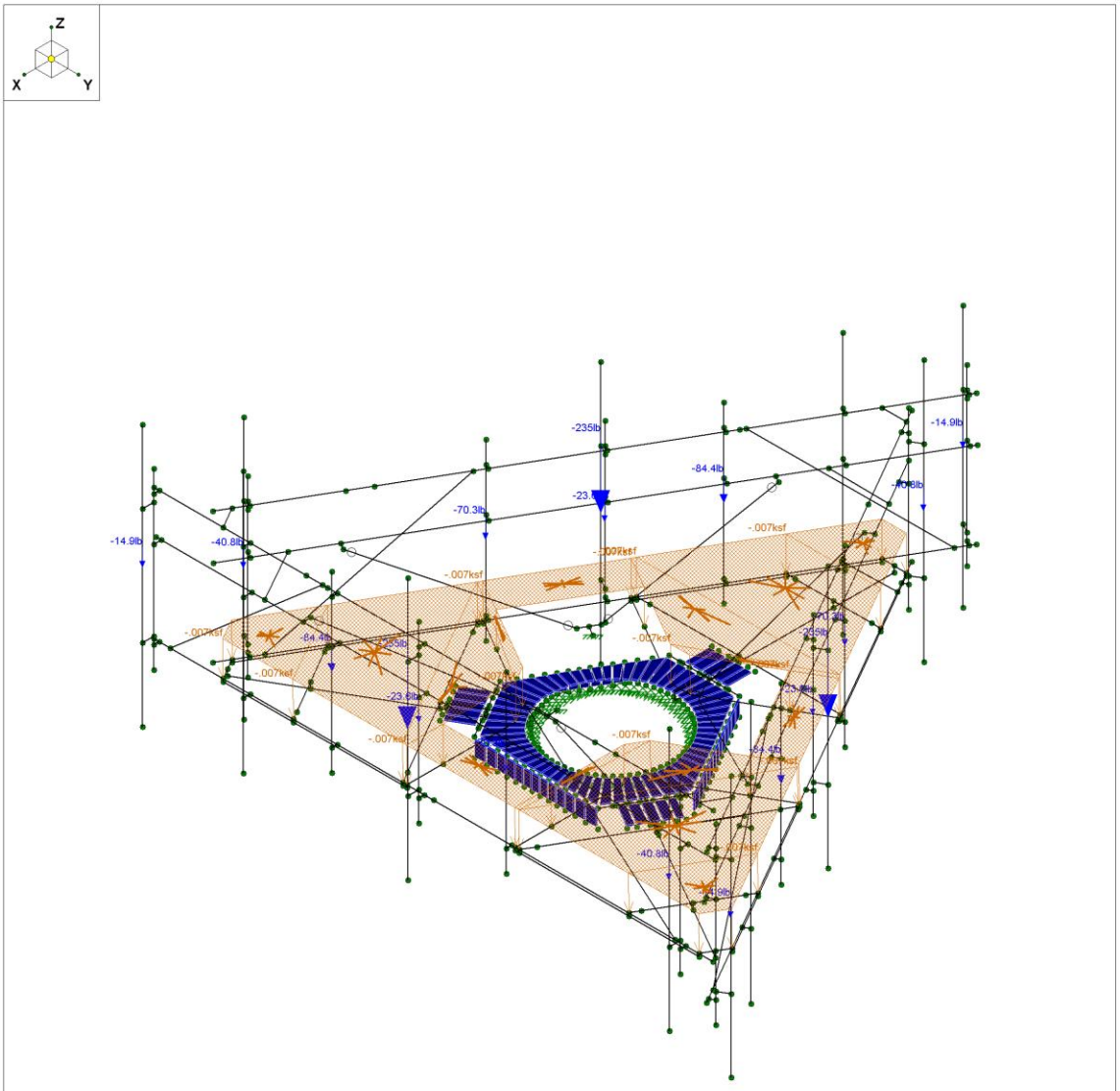
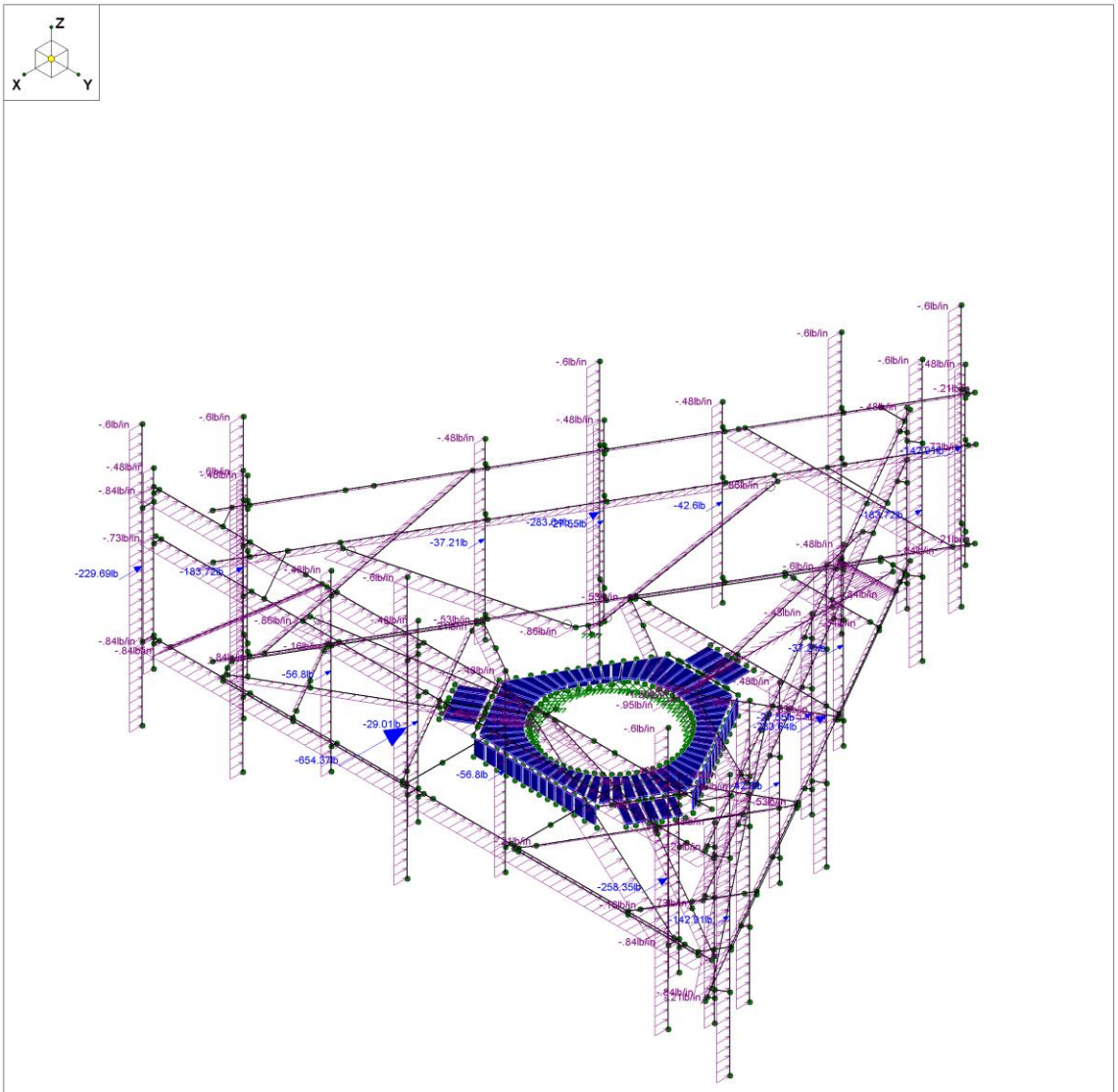


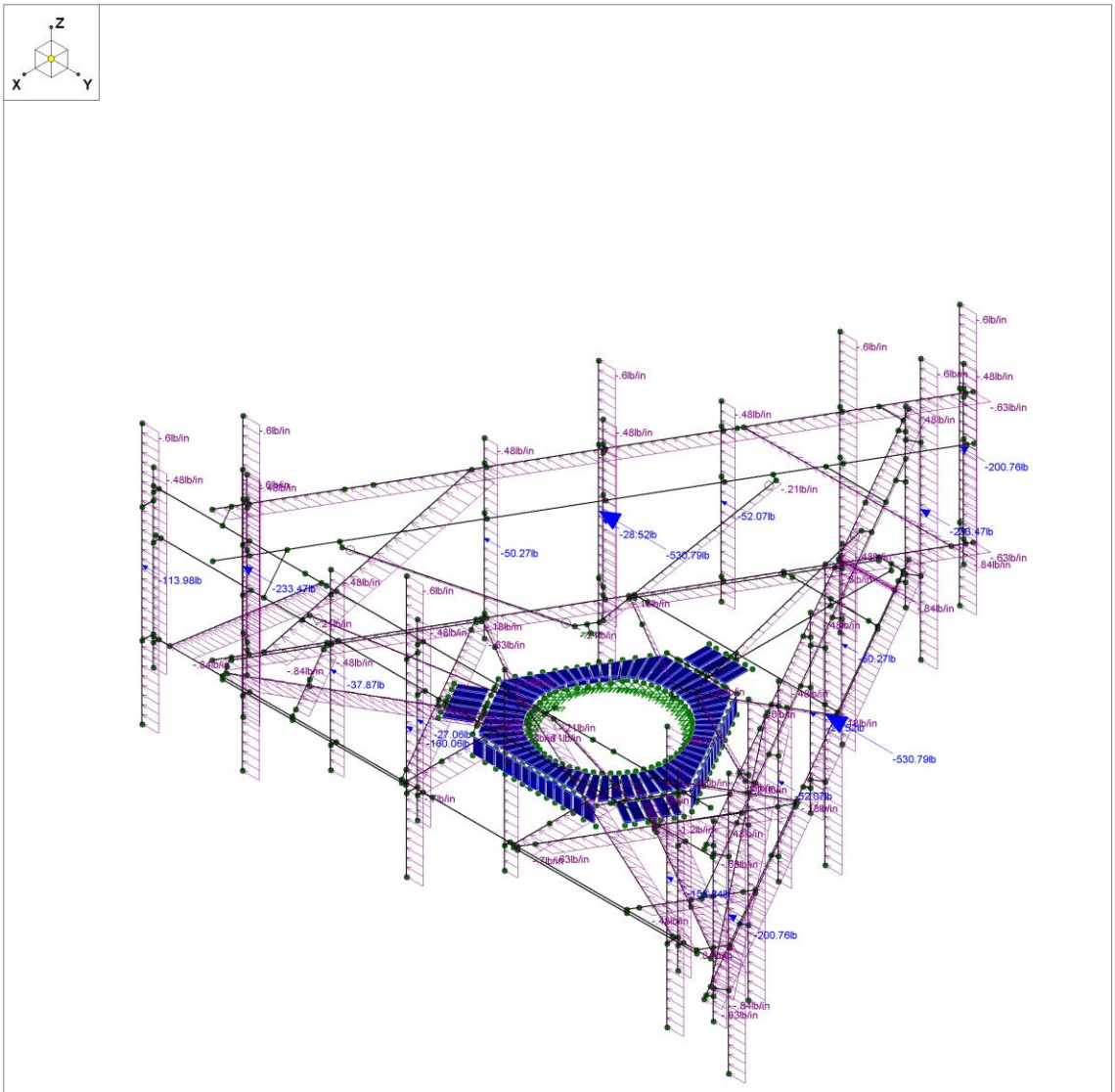
Loads: BLC 2, Weights
Envelope Only Solution

Trylon	VZW MILFORD S II CT_ATC 302535_MOUNT ANALYIS	SK - 3
BSI		Nov 15, 2018 at 2:21 PM
143862		MILFORD S II CT_REIN_3.r3d



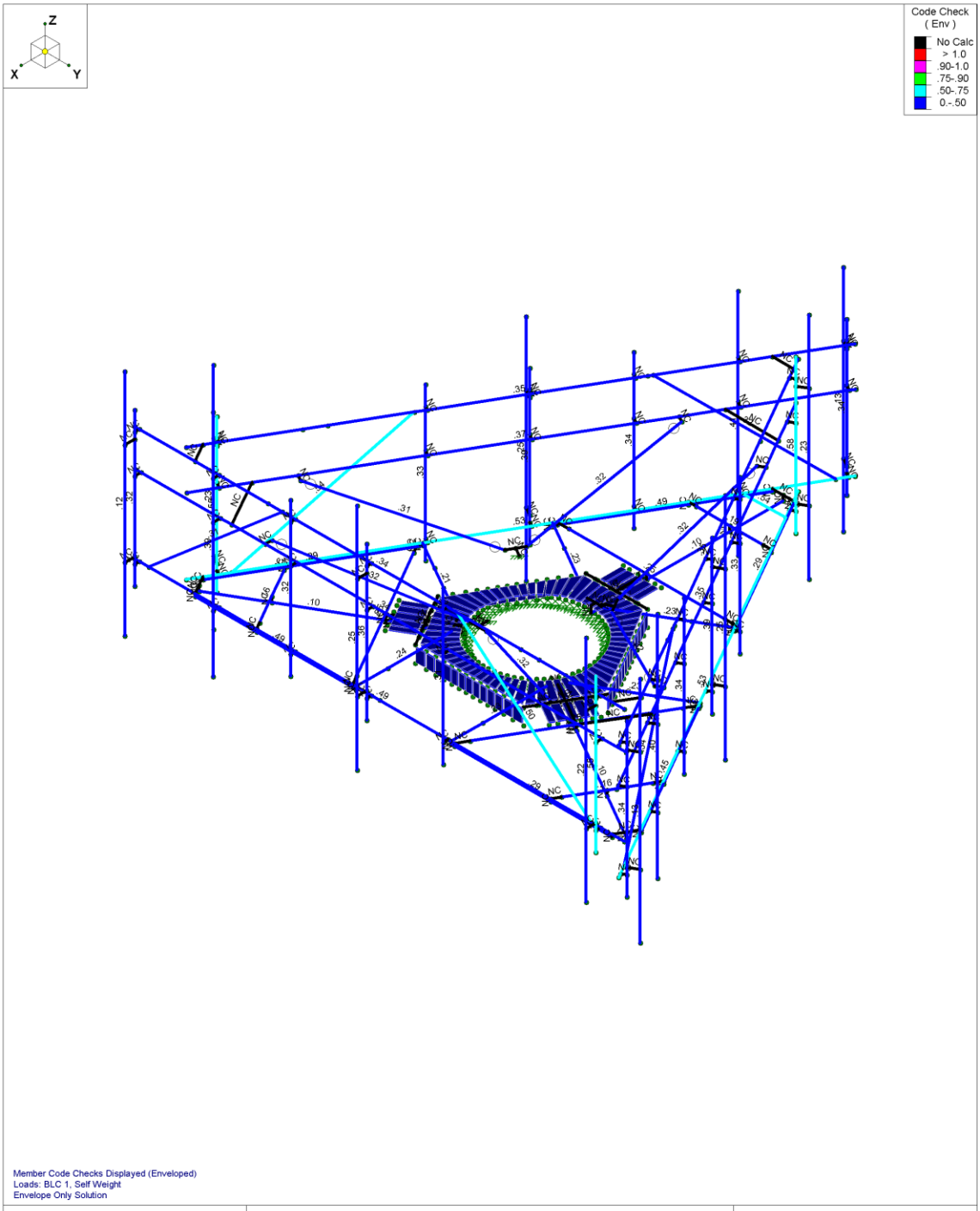
Loads: BLC 4, Wind 0°
Envelope Only Solution

Trylon	VZW MILFORD S II CT_ATC 302535_MOUNT ANALYIS	SK - 4
BSI		Nov 15, 2018 at 2:21 PM
143862		MILFORD S II CT_REIN_3.r3d

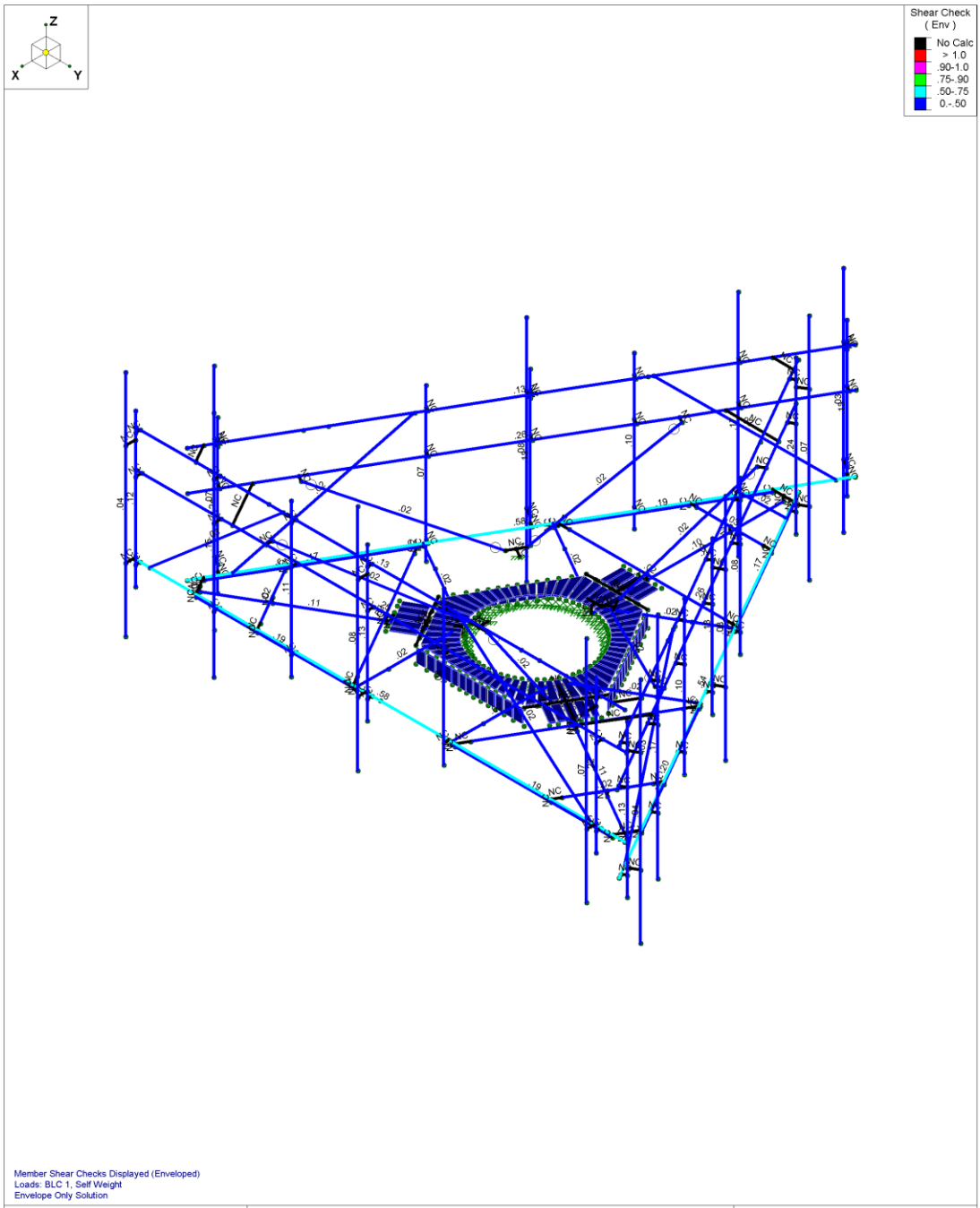


Loads: BLC 7, Wind 90°
Envelope Only Solution

Trylon	VZW MILFORD S II CT_ATC 302535_MOUNT ANALYIS	SK - 5
BSI		Nov 15, 2018 at 2:21 PM
143862		MILFORD S II CT_REIN_3.r3d



Trylon	VZW MILFORD S II CT_ATC 302535_MOUNT ANALYIS	SK - 6
BSI		Nov 15, 2018 at 2:21 PM
143862		MILFORD S II CT_REIN_3.r3d



Trylon	VZW MILFORD S II CT_ATC 302535_MOUNT ANALYIS	SK - 7
BSI		Nov 15, 2018 at 2:21 PM
143862		MILFORD S II CT_REIN_3.r3d

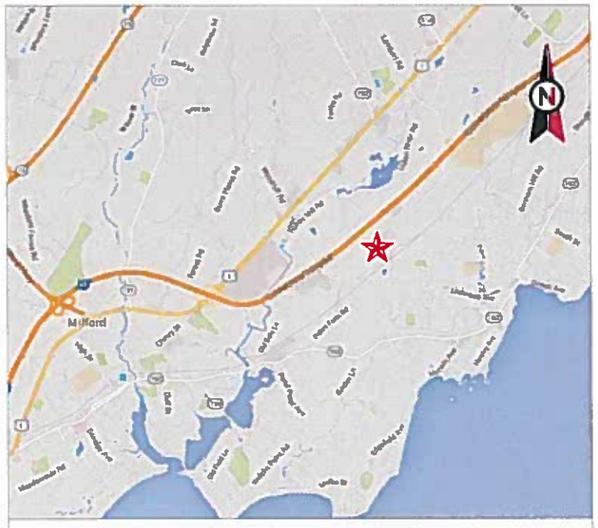
Site Name: ***MILFORD S II CT***
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
VZW 700	746	1	1996	1996	126	0.0452	0.4973	9.09%
VZW Cellular	876	3	400	1199	126	0.0272	0.5840	4.65%
VZW 850 LTE	869	1	2268	2268	126	0.0514	0.5793	8.87%
VZW PCS	1970	1	4265	4265	126	0.0966	1.0000	9.66%
VZW AWS	2145	1	5059	5059	126	0.1146	1.0000	11.46%
Total Percentage of Maximum Permissible Exposure								43.73%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 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.



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: MILFORD CT 2
ATC SITE NUMBER: 302535
VERIZON SITE NAME: MILFORD S II CT
VERIZON SITE NUMBER:468301
SITE ADDRESS: 185 RESEARCH DRIVE
MILFORD, CT 06460

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

PROJECT SUMMARY

SITE ADDRESS:

185 RESEARCH DRIVE
MILFORD, CT 06460
COUNTY: NEW HAVEN

GEOGRAPHIC COORDINATES:

LATITUDE: 41.24041944
LONGITUDE: -73.0119
GROUND ELEVATION: 94' AMSL

PROJECT DESCRIPTION

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

REMOVE (6) PANELS, (9) RRUs, (6) COMBINERS AND (6) 1-5/8" COAX CABLES

INSTALL PLATFORM REINFORCEMENT, (3) DUAL MOUNTS, (6) NEW PANELS, (6) RRUs AND (3) COMBINERS

EXISTING (6) PANELS, (6) 1-5/8" COAX CABLES, (2) 1-5/8" HYBRID CABLES, AND (2) OVPs 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.

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	COVER SHEET	0	12/21/18	JMB
G-002	GENERAL NOTES	0	12/21/18	JMB
C-101	DETAILED SITE PLAN AND TOWER ELEVATION	0	12/21/18	JMB
C-501	RF SCHEDULE AND ANTENNA INSTALLATION	0	12/21/18	JMB
C-502	CONSTRUCTION DETAILS	0	12/21/18	JMB
T01	TITLE PAGE			
C01	PLATFORM REINFORCEMENT			
C02	PART REINFORCEMENT DETAILS			

UTILITY COMPANIES

POWER COMPANY: CL&P
PHONE: (888) 783-6617

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS
PHONE: (877) 870-4601

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

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:

D'AMATO INVESTMENTS, LLC
183 QUARRY RD.
MILFORD, CT 06460

APPLICANT:

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

PROJECT LOCATION DIRECTIONS

FROM NEW HAVEN, CT:

TRAVEL ON I 95 SOUTH TO EXIT 40. TAKE LEFT AT OFF RAMP AND PROCEED TO FIRST SET OF LIGHTS AND TURN LEFT ON RESEARCH DRIVE. FOLLOW TO # 185

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

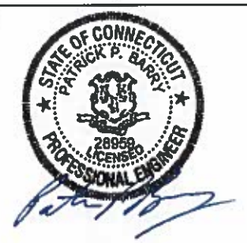
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	JMB	12/21/18

ATC SITE NUMBER:
302535

ATC SITE NAME:
MILFORD CT 2

SITE ADDRESS:
185 RESEARCH DRIVE
MILFORD, CT 06460

SEAL:



Authorized by "EOR"
Dec 21 2018 4:11 PM

cosign
verizon

DRAWN BY:	JMB
APPROVED BY:	SRF
DATE DRAWN:	12/21/18
ATC JOB NO:	12623724
CUSTOMER ID:	MILFORD S II CT
CUSTOMER #:	468301

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 MASTER 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.

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	JMB	12/21/18

ATC SITE NUMBER:
302535

ATC SITE NAME:
MILFORD CT 2

SITE ADDRESS:
185 RESEARCH DRIVE
MILFORD, CT 06460

SEAL:

Authorized by "EOR"
Dec 21 2018 4:11 PM

cosign
verizon

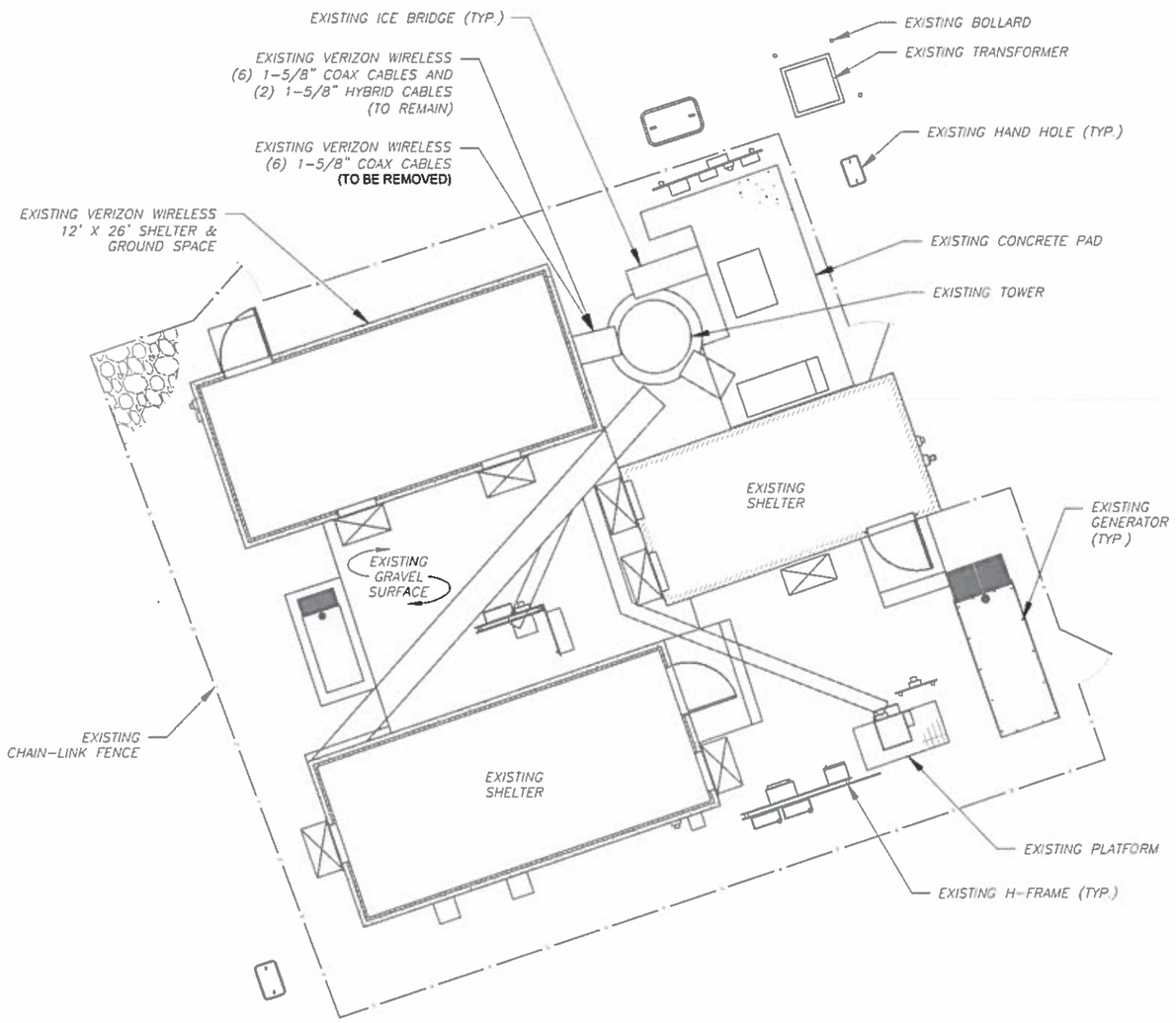
DRAWN BY:	JMB
APPROVED BY:	SRF
DATE DRAWN:	12/21/18
ATC JOB NO:	12623724
CUSTOMER ID:	MILFORD S II CT
CUSTOMER #:	468301

GENERAL NOTES

SHEET NUMBER:	REVISION:
G-002	0

SITE PLAN NOTES:

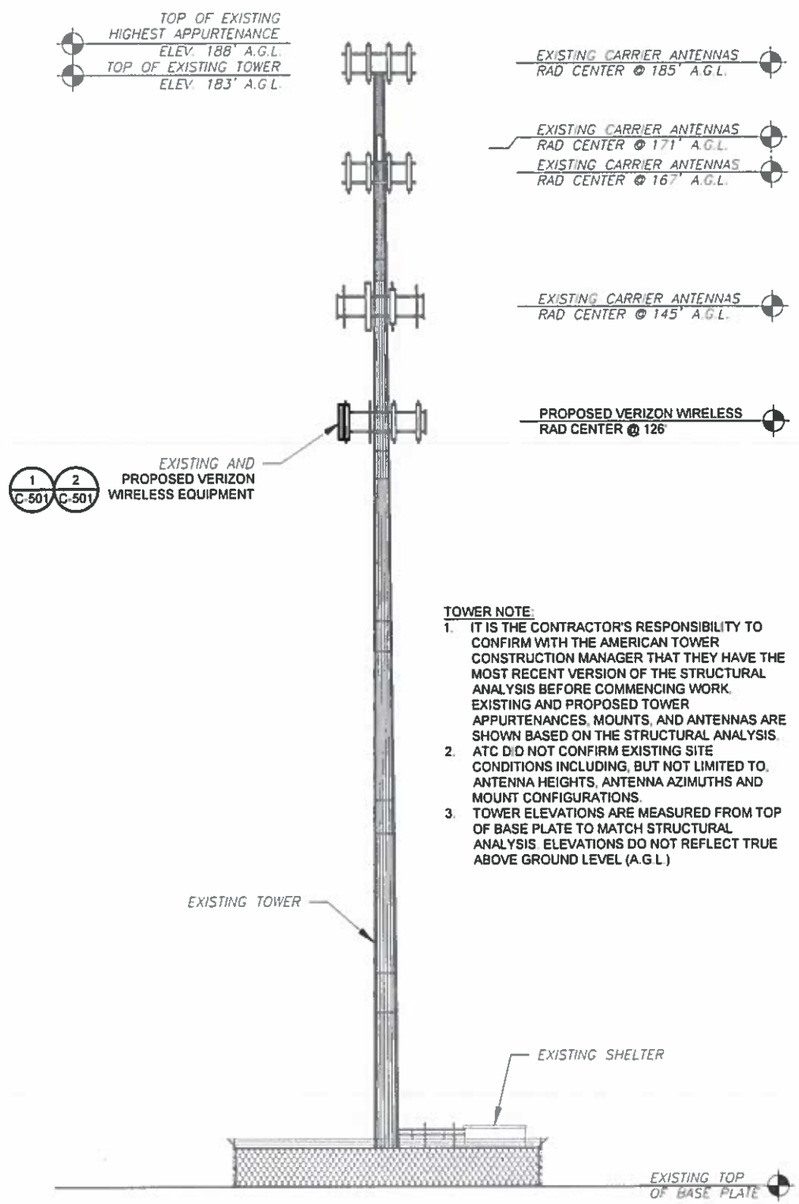
1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, CABLE SUPPORTS, 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.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE ATC CONSTRUCTION MANAGER AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.



1 DETAILED SITE PLAN

0 10' 20'

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



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. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATIONS.
3. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

2 TOWER ELEVATION

SCALE: NOT TO SCALE

AMERICAN TOWER®
A.T. ENGINEERING SERVICE, PLLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
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COA: PEC.0001553

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ATC SITE NUMBER:
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ATC SITE NAME:
MILFORD CT 2

SITE ADDRESS:
185 RESEARCH DRIVE
MILFORD, CT 06460

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Authorized by "EOR"
Dec 21 2018 4:11 PM

cosign
verizon

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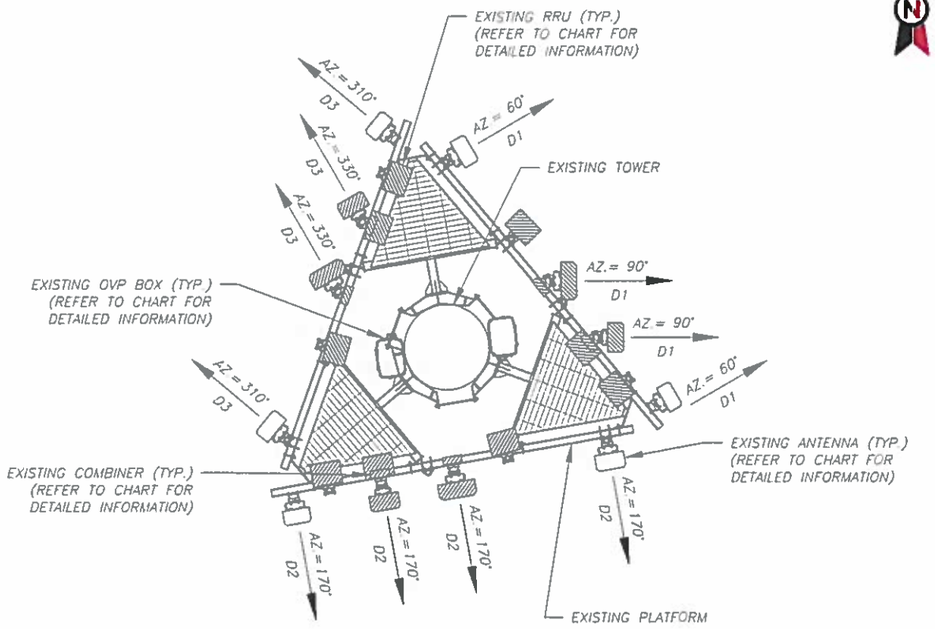
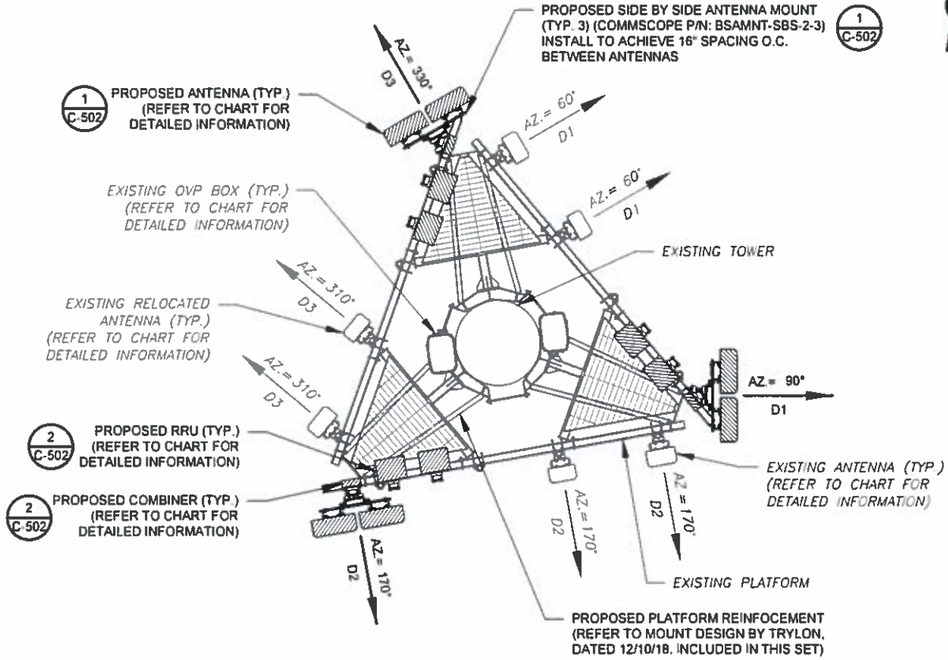
ATC JOB NO:	12623724
CUSTOMER ID:	MILFORD S II CT
CUSTOMER #:	468301

DETAILED SITE PLAN AND TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-101	0



1 CURRENT ANTENNA PLAN



2 PROPOSED ANTENNA PLAN

CURRENT ANTENNA AND RF EQUIPMENT SCHEDULE

LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	BAND	MODEL NUMBER	STATUS	POS	MODEL NUMBER	STATUS
D1	126'	60°	1	LTE AWS	HBXX-6517DS-A2M	RMN	1	UHID B4 RRH 2X40	RMV
		90°	2	LTE 700	LNX-4514DS-A1M	RMV	2	UHBB B13 RRH 2X40	RMV
		90°	3	LTE PCS	HBXX-6516DS-A2M	RMV	3	UHFA B25 RRH 4X30	RMV
		60°	4	850 CDMA	BXA-80063/6CF	RMN	4	(2) FD9R6004/1C-3L	RMV
		-	-	-	-	-	5	-	-
D2	126'	170°	1	LTE AWS	HBXX-6517DS-A2M	RMN	1	UHID B4 RRH 2X40	RMV
		170°	2	LTE 700	LNX-4514DS-A1M	RMV	2	UHBB B13 RRH 2X40	RMV
		170°	3	LTE PCS	HBXX-6516DS-A2M	RMV	3	UHFA B25 RRH 4X30	RMV
		170°	4	850 CDMA	BXA-80063/6CF	RMN	4	(2) FD9R6004/1C-3L	RMV
		-	-	-	-	-	5	-	-
D3	126'	310°	1	LTE AWS	HBXX-6517DS-A2M	RMN	1	UHID B4 RRH 2X40	RMV
		330°	2	LTE 700	LNX-4514DS-A1M	RMV	2	UHBB B13 RRH 2X40	RMV
		330°	3	LTE PCS	HBXX-6516DS-A2M	RMV	3	UHFA B25 RRH 4X30	RMV
		310°	4	850 CDMA	BXA-80063/6CF	RMN	4	(2) FD9R6004/1C-3L	RMV
		-	-	-	-	-	5	-	-

CURRENT FIBER DISTRIBUTION / OVP BOX

LOCATION	POS	BAND	MODEL NUMBER	STATUS
TOWER	-	-	(2) DB-T1-6Z-8AB-0Z	RMN
-	-	-	-	RMV

CURRENT CABLING SUMMARY

COAX	HYBRID	STATUS
(6) 1-5/8"	(2) 1-5/8"	RMN
(6) 1-5/8"	-	RMV

NOTES

1. BASED ON APPROVED ATC APPLICATION 12616990 , DATED 10/10/18 CONFIRM WITH VERIZON WIRELESS REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS.
2. ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIGURATION OR MOUNT CONFIGURATION. CONTRACTOR TO VERIFY MOUNT CONFIGURATION HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (I.E. CLEARANCES, MOUNT PIPE OR SUFFICIENT LENGTH, ETC.) ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.
3. ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH THE ATC CM.
4. CONFIRM SPACING OF PROPOSED EQUIPMENT 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).
6. CABLE LENGTHS SHOWN ESTIMATE MAXIMUM TYPICAL RUN AND INCORPORATE A 15% SAFETY FACTOR.

PROPOSED ANTENNA AND RF EQUIPMENT SCHEDULE

LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY		
SECTOR	RAD	AZ	POS	BAND	MODEL NUMBER	STATUS	POS	MODEL NUMBER	STATUS
D1	126'	60°	1	LTE AWS	HBXX-6517DS-A2M	RMN	1	-	-
		60°	2	850 CDMA	BXA-80063/6CF	RMN	2	FDJ85020Q4-S1	ADD
		90°	3	LTE 700/850/PCS	JAHH-45B-R3B	ADD	3	B5/B13 RRH-BR04C	ADD
		90°	4	LTE 700/850/AWS	JAHH-45B-R3B	ADD	4	B2/B66A RRH-BR049	ADD
		-	-	-	-	-	-	-	-
D2	126'	170°	1	LTE AWS	HBXX-6517DS-A2M	RMN	1	-	-
		170°	2	850 CDMA	BXA-80063/6CF	RMN	2	FDJ85020Q4-S1	ADD
		170°	3	LTE 700/850/PCS	JAHH-45B-R3B	ADD	3	B5/B13 RRH-BR04C	ADD
		170°	4	LTE 700/850/AWS	JAHH-45B-R3B	ADD	4	B2/B66A RRH-BR049	ADD
		-	-	-	-	-	-	-	-
D3	126'	310°	1	LTE AWS	HBXX-6517DS-A2M	RMN	1	-	-
		310°	2	850 CDMA	BXA-80063/6CF	RMN	2	FDJ85020Q4-S1	ADD
		330°	3	LTE 700/850/PCS	JAHH-45B-R3B	ADD	3	B5/B13 RRH-BR04C	ADD
		330°	4	LTE 700/850/AWS	JAHH-45B-R3B	ADD	4	B2/B66A RRH-BR049	ADD
		-	-	-	-	-	-	-	-

PROPOSED FIBER DISTRIBUTION / OVP BOX

LOCATION	POS	BAND	MODEL NUMBER	STATUS
TOWER	-	-	(2) DB-T1-6Z-8AB-0Z	RMN
-	-	-	-	-

PROPOSED CABLING SUMMARY

COAX	HYBRID	STATUS
(6) 1-5/8"	(2) 1-5/8"	RMN
-	-	-

STATUS ABBREVIATIONS

RMV: TO BE REMOVED
RMN: TO REMAIN
REL: TO BE RELOCATED
DSC: TO BE DISCONNECTED AND TO REMAIN

CABLE LENGTHS FOR FOR FIBER AND DC JUMPERS

FROM FIBER DISTRIBUTION / OVP BOX TO RRU: 15' JUMPERS
FROM RRU TO COMBINER: 10' JUMPERS
FROM COMBINER TO ANTENNA: 10' JUMPERS

3 ANTENNA AND RF EQUIPMENT SCHEDULES

AMERICAN TOWER®
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REV.	DESCRIPTION	BY	DATE
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ATC SITE NUMBER:
302535

ATC SITE NAME:
MILFORD CT 2

SITE ADDRESS:
185 RESEARCH DRIVE
MILFORD, CT 06460

SEAL:

Authorized by "EOR"
Dec 21 2018 4:11 PM

cosign
verizon

DRAWN BY:	JMB
APPROVED BY:	SRF
DATE DRAWN:	12/21/18
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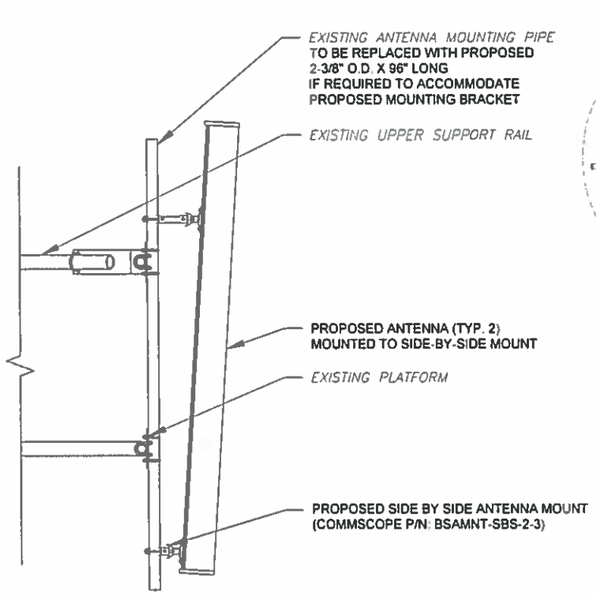
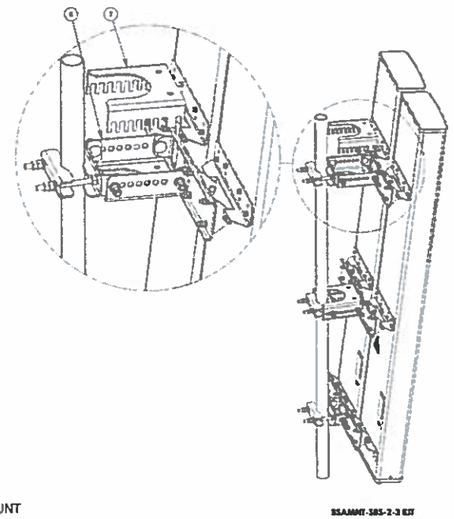
CUSTOMER ID:	MILFORD S II CT
CUSTOMER #:	468301

RF SCHEDULE AND ANTENNA INSTALLATION

SHEET NUMBER:	REVISION:
C-501	0



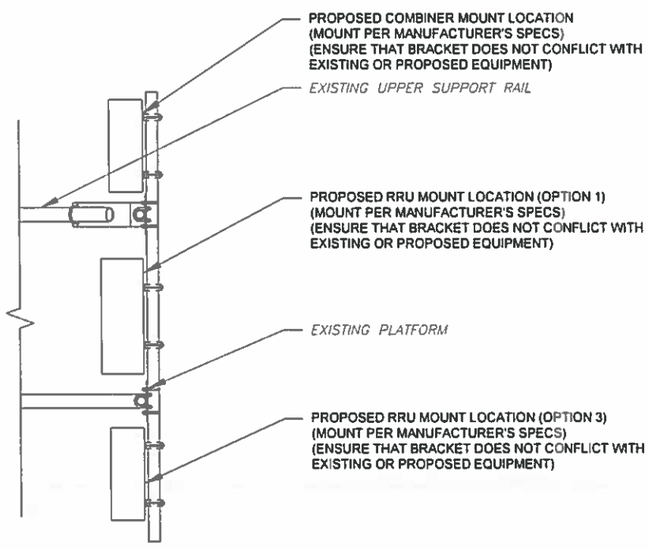
PROFILE VIEW



ISOMETRIC VIEW (BY MANUFACTURER)

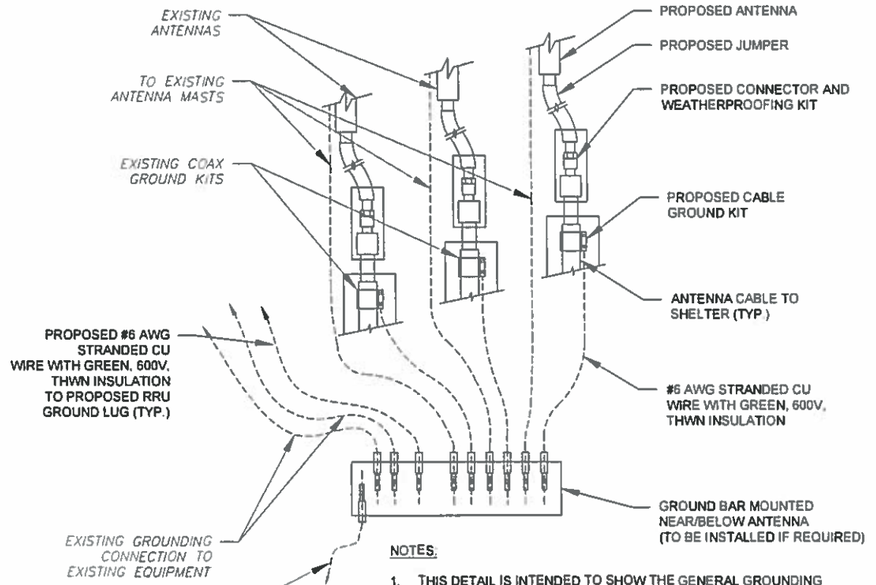
1 PROPOSED SIDE-BY-SIDE MOUNT

SCALE: NOT TO SCALE



2 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.

3 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: NOT TO SCALE

AMERICAN TOWER®
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302535

ATC SITE NAME:
MILFORD CT 2

SITE ADDRESS:
185 RESEARCH DRIVE
MILFORD, CT 06460

SEAL:

Authorized by "EOR"
Dec 21 2018 4:11 PM

cosign
verizon

DRAWN BY:	JMB
APPROVED BY:	SRF
DATE DRAWN:	12/21/18
ATC JOB NO:	12623724
CUSTOMER ID:	MILFORD S II CT
CUSTOMER #:	468301

CONSTRUCTION DETAILS

SHEET NUMBER:	REVISION:
C-502	0

AMERICAN TOWER®

VICINITY MAP

DRIVING DIRECTIONS:

- FROM NEW HAVEN POLICE DEPARTMENT STATION GET ON I-95 S FROM WASHINGTON AVE. AND ELLA T GRASSO BLVD (1.5 MI);
- FOLLOW I-95 S TO WOODMONT RD. IN MILFORD. TAKE EXIT 40 FROM I-95 S (5.7 MI);
- TAKE RESEARCH DR. TO YOUR DESTINATION (0.9 MI)

GENERAL NOTES

1. THIS IS AN UNMANNED TELECOMMUNICATION FACILITY AND NOT FOR HUMAN HABITATION:
-ADA COMPLIANCE NOT REQUIRED.
-POTABLE WATER OR SANITARY SERVICE IS NOT REQUIRED.
-NO OUTDOOR STORAGE OR ANY SOLID WASTE RECEPTACLES REQUIRED.

2. CONTRACTOR SHALL VERIFY ALL PLANS,EXISTING DIMENSIONS,AND CONDITIONS ON JOB SITE. CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK. FAILURE TO NOTIFY THE ARCHITECT/ENGINEER PLACE THE RESPONSIBILITY ON THE CONTRACTOR TO CORRECT THE DISCREPANCIES AT THE CONTRACTOR'S EXPENSE.

BUILDING CODES

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL AUTHORITIES HAVING JURISDICTION

1. 2009 INTERNATIONAL BUILDING CODE
2. 2015 INTERNATIONAL ENERGY CONSERVATION CODE
3. 2009 INTERNATIONAL EXISTING BUILDING CODE
4. 2009 INTERNATIONAL RESIDENTIAL CODE
5. ANSI/TIA-222-G

IF YOU DIG IN ANY STATE DIAL 811
FOR THE LOCAL "ONE CALL CENTER"
IT'S THE LAW

SITE NAME:
MILFORD CT2

SITERRA PROJECT :
PLATFORM REINFORCING

SITERRA SITE #:
468301

ATC SITE #:
302535

SITE ADDRESS:
185 RESEARCH PKWY, MILFORD, CT 06460

SPECIAL STRUCTURAL NOTES

1. TOWER OWNER SHALL PROVIDE GLOBAL STRUCTURAL STABILITY ANALYSIS OF EXISTING ANTENNA SUPPORT STRUCTURE. GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE ALL REQUIRED STRUCTURAL MODIFICATIONS, RE-BUNDLING OF COAXIAL CABLES OR OTHER SPECIAL MODIFICATIONS AS OUTLINED THEREIN.

2. STRUCTURAL DESIGNS AND DETAILS FOR ANTENNA MOUNTS COMPLETED BY TRYLON TSF INC. ON BEHALF OF VERIZON ARE INCLUSIVE OF THE ENTIRE ANTENNA SUPPORT STRUCTURE (GLOBAL STRUCTURAL STABILITY ANALYSIS BY OTHERS), EXISTING TOWER PLATFORM, EXISTING ANTENNA MOUNTS AND ALL OTHER ASPECTS OF THE STRUCTURE THAT WILL SUPPORT THE VERIZON MODERNIZATION EQUIPMENT DEPLOYMENT AS DEPICTED HEREIN.

3. TRYLON TSF INC. ASSUMES THAT THE TOWER IS PROPERLY CONSTRUCTED AND MAINTAINED. ALL STRUCTURAL MEMBERS AND THEIR CONNECTION ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NO DETERIORATION TO ITS MEMBER CAPACITIES.

APPROVALS

CONSTRUCTION MANAGER	RF ENGINEER
LAND USE PLANNER	NETWORK OPERATION
PROPERTY OWNER	CONTRACTOR

PROJECT INFORMATION

SCOPE OF WORK:	REINFORCE THE PLATFORM AS FOLLOWS: • INSTALL A NEW PV-VSK-M V-STABILIZER KIT WITH ONE HANDRAIL 2.875" O.D. x 0.25" CONNECTING ALL VERTICAL WELDED PIPES AT 12" BELOW TOP FACE HORIZONTAL & THE COLLAR MOUNT AT 24" BELOW TOP FACE HORIZONTAL; • INSTALL NEW PLATE (PL 2"x0.25") TO THE EXISTING DIAGONAL BRACING PLATE CONNECTING IT BACK TO BACK; • INSTALL NEW PLAN BRACE 17" LENGTH (PL 2"x0.25") CONNECTING THE NEW HANDRAIL PIPES.
APPLICANT/LESSEE	
NAME:	VERIZON WIRELESS
ADDRESS:	400 FRIBERG PARKWAY WESTBOROUGH, MA 01854
CONTACT:	N/A
PHONE:	N/A
SITE OWNER	
NAME:	-
ADDRESS:	-
CONTACT:	N/A
PHONE:	N/A
DESIGN TEAM	
NAME:	TRYLON TSF
ADDRESS:	1825 W. WALNUT HILL LANE, SUITE 120 IRVING, TX 75038
CONTACT:	KATYA SERAVALLE
PHONE:	1-855-669-5421
TOWER OWNER:	AMERICAN TOWER CORPORATION
SITE NAME:	MILFORD CT2
SITERRA SITE #:	468301
TOWER TYPE:	MONOPOLE
TOWER HEIGHT:	-
GROUND ELEVATION:	-± (AMSL)
LATITUDE:	41.240419
LONGITUDE:	-73.011942
COUNTY:	NEW HAVEN

SHEET INDEX

SHEET #	DESCRIPTION	REVISION #
T01	TITLE PAGE	A
C01	PLATFORM REINFORCEMENT	A
C02	PART REINFORCEMENT DETAILS	A

verizon
128 W. GEMINI DRIVE
TEMPE, AZ 85283

AMERICAN TOWER®
A.T. ENGINEERING SERVICES, PPLC
3500 REGENCY PARKWAY
SUITE 100
CARY, NC 27518
(919)-466-0112

Trylon
1825 W. WALNUT HILL LANE, SUITE 120
IRVING, TEXAS 75038
1-855-669-5421

STATE OF CONNECTICUT
JEFF S. GUTOWSKI
No. 30771
LICENSED PROFESSIONAL ENGINEER
12/10/18 EXP 01/31/19

DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY.

SUBMITTALS

REV	DATE	DESCRIPTION	BY
A	12/07/2018	FOR REVIEW	ML

SITE INFORMATION

SITE NAME:
MILFORD CT2

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185 RESEARCH PKWY,
MILFORD, CT 06460

SHEET DESCRIPTION

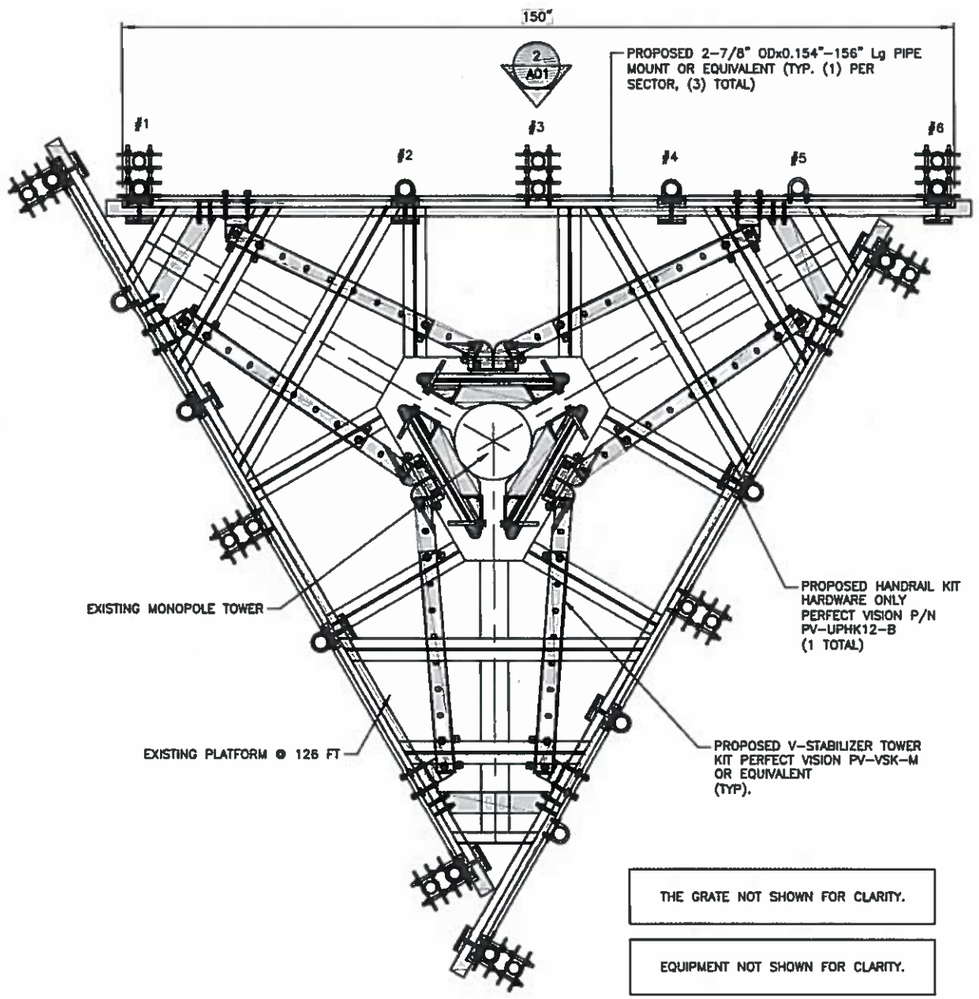
TITLE PAGE

SHEET No.

T01

INSTALLATION NOTES:

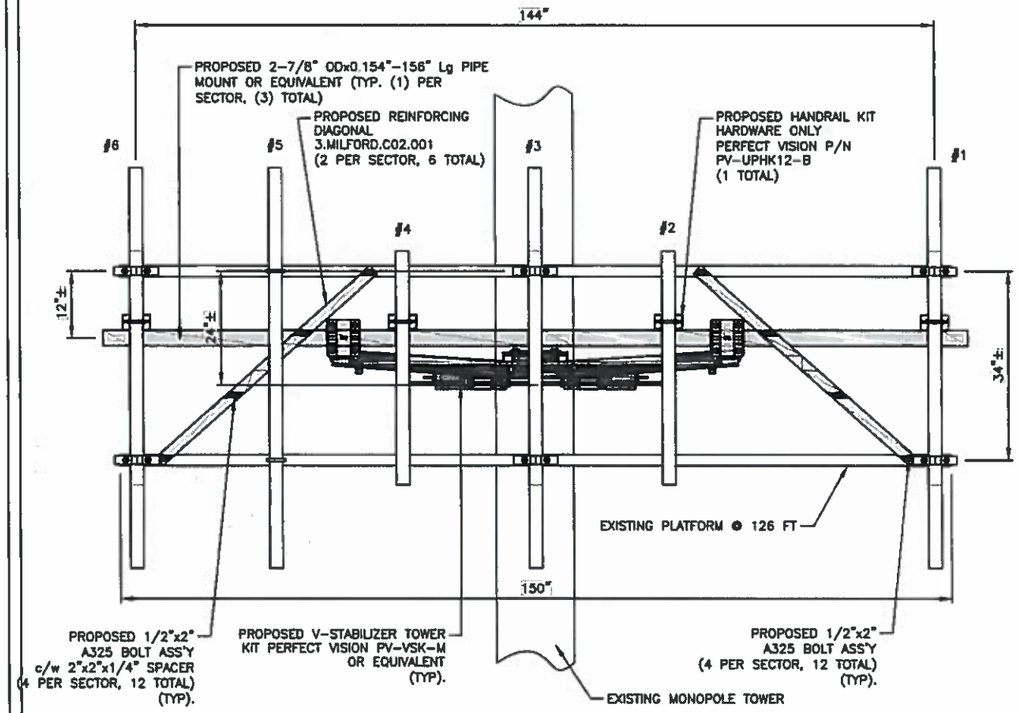
1) THE RRUs WILL BE INSTALLED OUTSIDE OF THE PLATFORM IN ORDER TO ALLOW THE INSTALLATION OF THE HORIZONTAL REINFORCING PIPES.



1 A01 PROPOSED PLAN VIEW
SCALE: 3/4" = 1'-0"

0 0'-6" 1'-4" 2'-8" 4'-0"

BILL OF MATERIALS		
QTY.	KIT NO./PART NO.	DESCRIPTION
1 (1 PER SECTOR, 1 TOTAL)	PV-UPHK12-B	UNIVERSAL HANDRAIL KIT
1 (1 PER SECTOR, 1 TOTAL)	PV-VSK-M	V- STABILIZER TOWER KIT
3 (1 PER SECTOR, 3 TOTAL)	-	2-7/8"OD x 0.250"-156" Lg GALV. PIPE MOUNT
6 (2 PER SECTOR, 6 TOTAL)	3.MILFORD.C02.001	DIAGONAL REINFORCING
24 (8 PER SECTOR, 24 TOTAL)	-	1/2"x2" GALV A325 BOLT ASS'Y
12 (4 PER SECTOR, 12 TOTAL)	-	2"x2"x1/4" SPACER (9/16" HOLE)



2 A01 PROPOSED ELEVATION VIEW
SCALE: 1" = 1'-0"

0 0'-6" 1'-0" 2'-0" 3'-0"

GENERAL NOTES:

1) ALL PIPE STEEL TO BE MINIMUM ASTM A53 (GR 35)
2) THE NEW HORIZONTAL REINFORCING PIPES COULD BE FIELD CUT TO SUIT.
3) THE NEW DIAGONAL REINFORCING WILL BE CUT TO SUIT, SOME 9/16"ø HOLES WILL BE FIELD DRILLED.
4) THE 9/16ø HOLE REQUIRES A MINIMUM OF 1" EDGE DISTANCE.
5) APPLY TWO COATS OF GALVICON TO ALL FIELD CUT OR DRILL EDGES.

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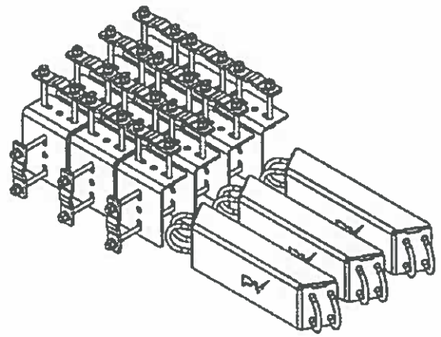
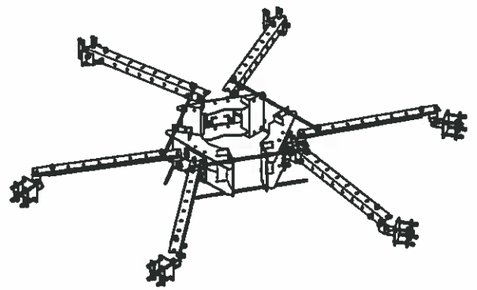
PLATFORM REINFORCEMENT

SHEET No.

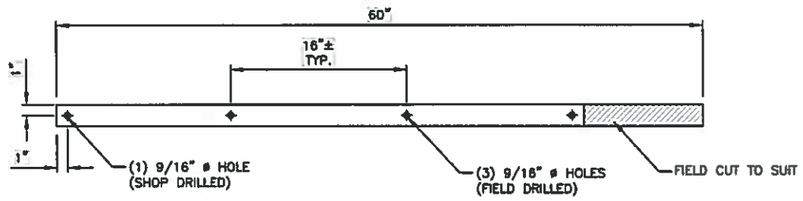
C01



HANDRAIL KIT	
PART NUMBER	DESCRIPTION
PV-UPHK12-B	HANDRAIL KIT HARDWARE ONLY PERFECT VISION



MONOPOLE 3-SECTOR V-STABILIZER	
PART NUMBER	DESCRIPTION
PV-VSK-M	PERFECT VISION



DIAGONAL REINFORCING
PART No: 3.MILFORD.C02.001
MATERIAL: 2"x1/4" FB
BARE UW (lb.): 8.5
GALV. UW (lb.): 8.9

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PART REINFORCEMENT DETAILS

SHEET No.

C02