Robinson+Cole

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September 25, 2015

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

Re: **Notice of Exempt Modification – Facility Modification**
85 Miner Lane, Waterford, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) antennas at the 160-foot level of the existing 180-foot tower at 85 Miner Lane in Waterford, Connecticut (the "Property"). The tower is owned by American Tower Corporation ("ATC"). The Council approved Cellco's use of this tower in 2013. Cellco now intends to replace nine (9) of its existing antennas with three (3) model LNX-6514DS, 700 MHz antennas; three (3) model HBXX-6517DS, 1900 MHz antennas; and three (3) model HBXX-6517DS, 2100 MHz antennas, all at the same level on the tower. Cellco also intends to replace six (6) existing remote radio heads ("RRHs"), and install three (3) new RRHs and two (2) HYBRIFLEX™ fiber optic antenna cables. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cables.

Please accept this letter as notification pursuant to R.C.S.A. § 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 Daniel M. Steward, First Selectman for the Town of Waterford. The Town of Waterford is the owner of the Property. A copy of this letter is also being sent to ATC, the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRH's will be located on its existing platform at the 160-foot level on the tower.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, 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 replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case General Power Density table for Cellco's modified facility is included in Attachment 2.

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

6. The tower and its foundation can support Cellco's proposed modifications. (*See* Structural Analysis Report included in Attachment 3).

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

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Daniel M. Steward, First Selectman
Alex Ignachuck, ATC
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

POWERED BY ANDREW.

LNX-6514DS-VTM

Andrew® Antenna, 698–896 MHz, 65° horizontal beamwidth, RET compatible

- Great solution to maximize network coverage and capacity
- Excellent gain, VSWR, front-to-back ratio, and PIM specifications for robust network performance
- Ideal choice for site collocations and tough zoning restrictions
- Excellent solution for site sharing and maximizing capacity
- Fully compatible with Andrew remote electrical tilt system for greater OpEx savings
- The RF connectors are designed for IP67 rating and the radome for IP56 rating

Electrical Specifications

Frequency Band, MHz	**698–806**	**806–896**
Gain, dBi	15.8	15.9
Beamwidth, Horizontal, degrees	65	64
Beamwidth, Vertical, degrees	12.4	11.2
Beam Tilt, degrees	0–10	0–10
USLS, dB	17	18
Front-to-Back Ratio at 180°, dB	32	30
CPR at Boresight, dB	23	23
CPR at Sector, dB	12	10
Isolation, dB	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.4 | 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153
Input Power per Port, maximum, watts	400	400
Polarization	±45°	±45°
Impedance	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	**698–806**	**806–896**
Gain by all Beam Tilts, average, dBi	15.6	15.7
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.5
Gain by Beam Tilt, average, dBi	0 ° | 15.7 5 ° | 15.7 10 ° | 15.3	0 ° | 15.9 5 ° | 15.8 10 ° | 15.3
Beamwidth, Horizontal Tolerance, degrees	±0.9	±1.4
Beamwidth, Vertical Tolerance, degrees	±0.8	±0.6
USLS, dB	18	20
Front-to-Back Total Power at 180° ± 30°, dB	25	23
CPR at Boresight, dB	25	24
CPR at Sector, dB	15	12

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol®
Band	Single band
Brand	DualPol® | Teletilt®

Product Specifications

LNX-6514DS-VTM

Operating Frequency Band	698 – 896 MHz
Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Aluminum
Radome Material	Fiberglass, UV resistant
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	2
Wind Loading, maximum	617.7 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph

Dimensions

Depth	180.5 mm | 7.1 in
Length	1851.0 mm | 72.9 in
Width	301.0 mm | 11.9 in
Net Weight	14.2 kg | 31.3 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator	LNX-6514DS-A1M
RET System	Teletilt®

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Included Products

DB380 — Pipe Mounting Kit for 2.4"-4.5" (60-115mm) OD round members on wide panel antennas. Includes 2 clamp sets and double nuts.

DB5083 — Downtilt Mounting Kit for 2.4"-4.5" (60 - 115 mm) OD round members. Includes a heavy-duty, galvanized steel downtilt mounting bracket assembly and associated hardware. This kit is compatible with the DB380 pipe mount kit for panel antennas that are equipped with two mounting brackets.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

Product Specifications

COMMSCOPE®

POWERED BY ANDREW.

HBXX-6517DS-VTM

Andrew® Quad Port Antenna, 1710–2180 MHz, 65° horizontal beamwidth, RET compatible

- Superior azimuth tracking and pattern symmetry with excellent passive intermodulation suppression

Electrical Specifications

Frequency Band, MHz	1710–1880	1850–1990	1920–2180
Gain, dBi	19.0	19.1	19.2
Beamwidth, Horizontal, degrees	67	66	65
Beamwidth, Vertical, degrees	5.0	4.7	4.4
Beam Tilt, degrees	0–6	0–6	0–6
USLS, dB	18	18	18
Front-to-Back Ratio at 180°, dB	30	30	30
CPR at Boresight, dB	21	22	21
CPR at Sector, dB	10	11	9
Isolation, dB	30	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.4 | 15.6	1.4 | 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350
Polarization	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	1710–1880	1850–1990	1920–2180
Gain by all Beam Tilts, average, dBi	18.5	18.6	18.8
Gain by all Beam Tilts Tolerance, dB	±0.4	±0.3	±0.4
Gain by Beam Tilt, average, dBi	0 ° | 18.4	0 ° | 18.4	0 ° | 18.7
	3 ° | 18.7	3 ° | 18.7	3 ° | 18.9
	6 ° | 18.4	6 ° | 18.5	6 ° | 18.6
Beamwidth, Horizontal Tolerance, degrees	±2.4	±1.7	±2.9
Beamwidth, Vertical Tolerance, degrees	±0.3	±0.3	±0.3
USLS, dB	18	19	19
Front-to-Back Total Power at 180° ± 30°, dB	25	26	26
CPR at Boresight, dB	22	23	22
CPR at Sector, dB	10	10	9

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol® quad
Band	Single band
Brand	DualPol® | Teletilt®
Operating Frequency Band	1710 – 2180 MHz

Product Specifications

HBXX-6517DS-VTM

Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Low loss circuit board
Radome Material	PVC, UV resistant
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	4
Wind Loading, maximum	668.0 N @ 150 km/h 150.2 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph

Dimensions

Depth	166.0 mm | 6.5 in
Length	1903.0 mm | 74.9 in
Width	305.0 mm | 12.0 in
Net Weight	19.5 kg | 43.0 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator	HBXX-6517DS-A2M
RET System	Teletilt®

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Included Products

600899A-2 — Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

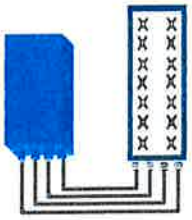
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

Alcatel·Lucent

TECHNICAL SPECIFICATIONS

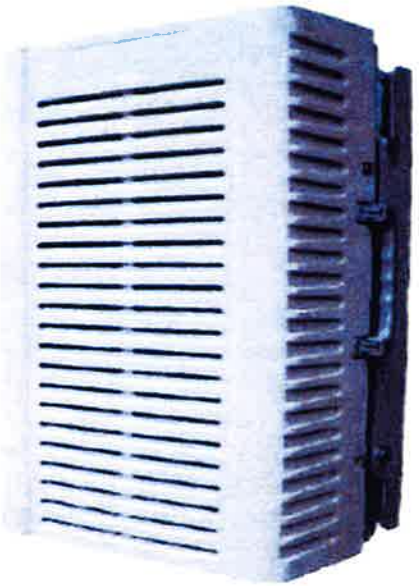
Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (in 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.) Volume in L Weight in kg (ib) (w/o mounting HW)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield) 38 (with solar shield) 26 (57.2) (with solar shield)
DC voltage range DC power consumption	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 550W typical @100% RF load (in 2Tx or 4TX mode)
Environmental conditions Wind load (@150km/h or 93mph)	-40°C (-40°F) /+55°C (+131°F) IP65 Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate7, 9.8 Gbps) SFP single mode dual fiber
AISG interfaces	1 AISG2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

PCS RF MODULES

RRH1900 2X60 - HW CHARACTERISTICS

LA6.0.1/13.3

	RRH2x60
RF Output Power	2x60W
Instantaneous Bandwidth	20MHz
Transmitter	2 TX
Receiver 1900 HW version	2 Branch RX – LA6.0.1
Receiver 1900A HW version	4 Branch RX – LR13.3
Features	AISG 2.0 for RET/TMA
	Internal Smart Bias-T
Power	-48VDC
CPRI Ports	2 CPRI Rate 3 Ports
External Alarms	4 External User Alarms
Monitor Ports	TX
Environmental	GR487 Compliance
RF Connectors	7/16 DIN (top mounted)



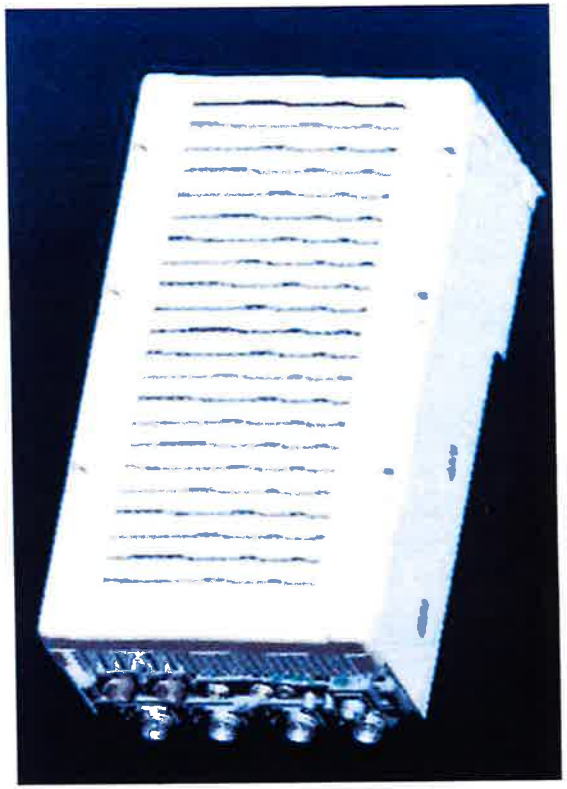
** Not a Verizon Wireless deployed product

Alcatel·Lucent

NEW PCS RF MODULES FOR VZW
RRH2X60 - HW CHARACTERISTICS

LR14.3

	RRH2x60
RF Output Power	2x60W (4x30W HW Ready)
Instantaneous Bandwidth	60MHz
Target Reliability (Annual Return Rate)	<2%
Receiver	4 Branch Rx
Features	AISG 2.0 for RET/TMA
Power	-48VDC
	Internal Smart Bias-T
CPRI Ports	2 CPRI Rate 5 Ports
External Alarms	4 External User Alarms
Monitor Ports	TX, RX
Environmental	GR487 Compliance
RF Connectors	7/16 DIN (downward facing)
Dimensions	22"(h) x 12"(w)x 9.4" (d)**
Weight	55lb**

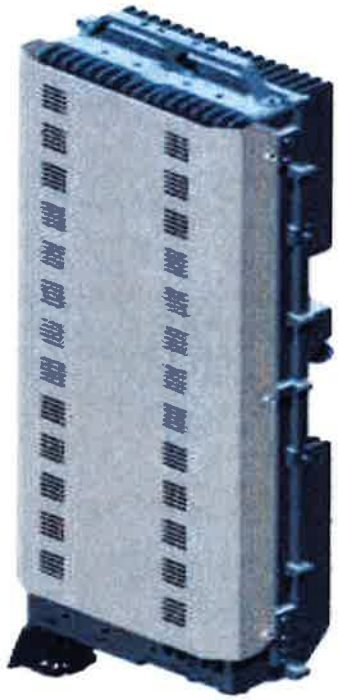


**- Includes solar shield but not mounting brackets (8 lbs.)

Alcatel·Lucent

ALCATEL-LUCENT
WIRELESS PRODUCT DATASHEET
RRH2X60-AWS FOR BAND 4 APPLICATIONS

The Alcatel-Lucent RRH2x60-AWS is a high power, small form factor Remote Radio Head operating in the AWS frequency band (3GPP Band 4) for LTE technology. It is designed with an eco-efficient approach, providing operators with the means to achieve high quality and high capacity coverage with minimum site requirements and efficient operation.



A distributed Node B expands the deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of a Node B to be installed separately, within the same site or several kilometers apart.

The Alcatel-Lucent RRH2x60-AWS is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information.

SUPERIOR RF PERFORMANCE

The Alcatel-Lucent RRH2x60-AWS integrates all the latest technologies. This allows to offer best-in-class characteristics.

It delivers an outstanding 120 watts of total RF power thanks to its two transmit RF paths of 60 W each.

It is ideally suited to support multiple-input multiple-output (MIMO) 2x2 operation.

It includes four RF receivers to natively support 4-way uplink reception diversity. This improves the radio uplink coverage and this can be used to extend the cell radius commensurate with 2x2MIMO 2x60 W for the downlink.

It supports multiple discontinuous LTE carriers within an instantaneous bandwidth of 45 MHz corresponding to the entire AWS B4 spectrum.

The latest generation power amplifiers (PA) used in this product achieve high efficiency (>40%), resulting in improved power consumption figures.

OPTIMIZED TCO

The Alcatel-Lucent RRH2x60-AWS is designed to make available all the benefits of a distributed Node B, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX).

The Alcatel-Lucent RRH2x60-AWS is a very cost-effective solution to deploy LTE MIMO.

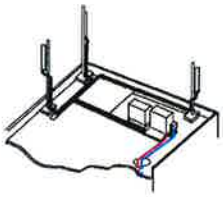
EASY INSTALLATION

The RRH2x60-AWS includes a reversible mounting bracket which allows for ease of installation behind an antenna, or on a rooftop knee wall while providing easy access to the mid body RF connectors.

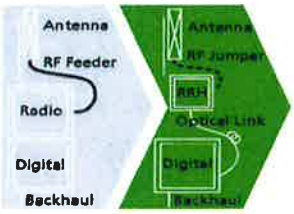
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent RRH2x60-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

The Alcatel-Lucent RRH2x60-AWS is a zero-footprint solution and is convection cooled without fans for silent operation, simplifying negotiations with site property owners and minimizing environmental impacts.

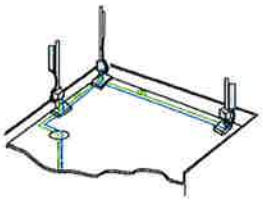
Installation can easily be done by a single person as the Alcatel–Lucent RRH2x60-AWS is compact and weighs about 20 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



Macro



RRH for space-constrained cell sites



Distributed

FEATURES

- RRH2x60-AWS integrates two power amplifiers of 60W rating (at each antenna connector)
- Support multiple carriers over the entire 3GPP band 4
- RRH2x60-AWS is optimized for LTE operation
- RRH2x60-AWS is a very compact and lightweight product
- Advanced power management techniques are embedded to provide power savings, such as PA bias control

BENEFITS

- MIMO LTE operation with only one single unit per sector
- Improved uplink coverage with built-in 4-way receive diversity capability
- RRH can be mounted close to the antenna, eliminating nearly all losses in RF cables and thus reducing power consumption by 50% compared to conventional solutions
- Distributed configurations provide easily deployable and cost-effective solutions, near zero footprint and silent solutions, with minimum impact on the neighborhood, which ease the deployment
- RETA and TMA support without additional hardware thanks to the AISG v2.0 port and the integrated Bias-Tees. Bias-Tees support AISG DC supply and signaling.

TECHNICAL SPECIFICATIONS

Specifications listed are hardware capabilities. Some capabilities depend on support in a specific software release or future release.

Dimensions and weights

- HxWxD : 510x285x186mm (27 l with solar shield)
- Weight : 20 kg (44 lbs)

Electrical Data

- Power Supply : -48V DC (-40.5 to -57V)
- Power Consumption (ETSI average traffic load reference) : 250W @2x60W

RF Characteristics

- Frequency band: 1710-1755, UL / 2110-2155 MHz, DL (3GPP band 4)
- Output power: 2x60W at antenna connectors
- Technology supported: LTE
- Instantaneous bandwidth: 45 MHz
- Rx diversity: 2-way and 4-way uplink reception
- Typical sensitivity without Rx diversity: -105 dBm for LTE

Connectivity

- Two CPRI optical ports for daisychaining and up to six RRHs per fiber
- Type of optical fiber: Single-Mode (SM) and Multi-Mode (MM) SFPs
- Optical fiber length: up to 500m using MM fiber, up to 20km using SM fiber
- TMA/RETA : AISG 2.0 (RS485 connector and internal Bias-Tee)
- Six external alarms
- Surge protection for all external ports (DC and RF)

Environmental specifications

- Operating temperature: -40°C to 55°C including solar load
- Operating relative humidity: 8% to 100%
- Environmental Conditions : ETS 300 019-1-4 class 4.1E
- Ingress Protection : IEC 60529 IP65
- Acoustic Noise : Noiseless (natural convection cooling)

Safety and Regulatory Data

- EMC : 3GPP 25113, EN 301 489-1, EN 301 489-23, GR 1089, GR 3108, OET-65
- Safety : IEC60950-1, EN 60825-1, UL, ANSI/NFPA 70, CAN/CSA-C22.2
- Regulatory : FCC Part 15 Class B, CE Mark – European Directive : 2002/95/EC (ROHS); 2002/96/EC (WEEE); 1999/5/EC (R&TTE)
- Health : EN 50385

Alcatel·Lucent

AT THE SPEED OF IDEAS™

Product Data Sheet HB158-1-08U8-S8J18

HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber

Product Description

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX² accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

Figure 1: HYBRIFLEX Series

Features/Benefits

- Aluminum corrugated armor with outstanding bending characteristics – minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding – Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design – Decreases tower loading
- Robust cabling – Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH – Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable – Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket – Ensures long-lasting cable protection

Technical Specifications

Outer Conductor Armor:	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
Jacket:	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection:	Individual and External Jacket		Yes
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	068 (0.205)
DC-Resistance Power Cable, 8.4mm²(8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[µm]	50/125
Primary Coating (Acrylate)		[µm]	245
Buffer Diameter, Nominal		[µm]	900
Secondary Protection, Jacket, Nominal		[mm (in)]	2.0 (0.08)
Minimum Bending Radius		[mm (in)]	104 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL94-V0, UL1666 RoHS Compliant
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

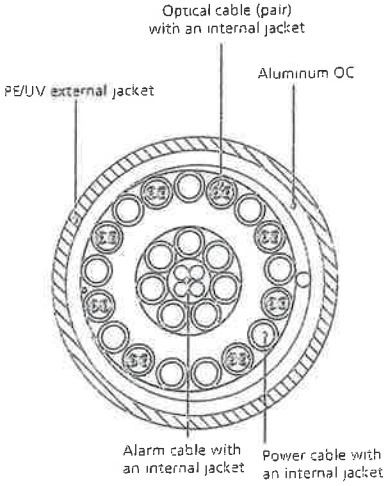


Figure 2: Construction Detail

* This data is provisional and subject to change

ATTACHMENT 2

	General	Power	Density					
Site Name: Waterford SE								
Tower Height: 180ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T UMTS	1	500	153	0.0077	880	0.5867	1.31%	
*AT&T UMTS	2	500	153	0.0154	1900	1.0000	1.54%	
*AT&T GSM	7	296	153	0.0318	880	0.5867	5.43%	
*AT&T GSM	11	427	153	0.0722	1900	1.0000	7.22%	
*AT&T LTE	1	500	153	0.0077	740	0.4933	1.56%	
*Clearwire	6	153	170	0.0115	2500	1.0000	1.15%	
*Town of Waterford	1	100	180	0.0011	851	0.5673	0.20%	
*Town of Waterford	1	100	180	0.0011	851	0.5673	0.20%	
*USA Mobility	1	100	153	0.0015	929.6	0.6197	0.25%	
*Springwich Paging	1	1000	158.5	0.0143	928	0.6187	2.31%	
*Cingular Yagi	2	500	156	0.0148	809	0.5393	2.74%	
*T-Mobile LTE	2	24	130	0.0010	2100	1.0000	0.10%	
*T-Mobile GSM/UMTS	2	12	130	0.0005	1950	1.0000	0.05%	
*T-Mobile UMTS	2	16	130	0.0007	2100	1.0000	0.07%	
Verizon PCS	**1**	**1640**	**160**	**0.0230**	**1970**	**1.0000**	**2.30%**	
Verizon Cellular	**9**	**403**	**160**	**0.0509**	**869**	**0.5793**	**8.79%**	
Verizon AWS	**1**	**1832**	**160**	**0.0257**	**2145**	**1.0000**	**2.57%**	
Verizon 700	**1**	**979**	**160**	**0.0138**	**746**	**0.4973**	**2.77%**	
								40.55%
* Source: Siting Council								

ATTACHMENT 3

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Structural Analysis Report

Structure	:	**180 ft Monopole**
ATC Site Name	:	**Waterford Rebuild CT, CT**
ATC Site Number	:	**310972**
Engineering Number	:	**63042522**
Proposed Carrier	:	**Verizon Wireless**
Carrier Site Name	:	**Waterford SE CT**
Carrier Site Number	:	**270488**
Site Location	:	**15 Miner Lane** **Waterford, CT 06385-3016** **41.329069,-72.124592**
County	:	**New London**
Date	:	**August 18, 2015**
Max Usage	:	**68%**
Result	:	**Pass**

Reviewed by:
William Garrett, PE
Chief Engineer

Aug 21 2015 3:45 PM

Prepared By:
Christopher Clark Poe, E.I.
Structural Engineer I

COA: PEC.0001553

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Table of Contents

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 180 ft monopole to reflect the change in loading by Verizon Wireless.

Supporting Documents

Tower Drawings	FWT Job #23766000, dated July 18, 2001
Foundation Drawing	ATC Job #42693971, dated December 8, 2008
Geotechnical Report	Tower Engineering Professionals Project #082973.01, dated November 7, 2008
Modifications	ATC Job #442108F2, dated November 9, 2009

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:	120 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2003 IBC w/ 2005 CT Supplement & 2009 CT Amendment
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.16, 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					
180.0	186.0	1	Andrew DB806D-Y	Low Profile Platform	(1) 7/8" Coax	Spok Holdings
	185.0	2	10' Omni		(2) 1 5/8" Coax	Town Of Waterford
	180.0	1	TTA			
170.0	170.0	3	KMW HB-X-WM-17-65-00T-TTLNA	Stand-Off	(6) 1 5/8" Coax	Clearwire
		3	KMW HB-X-WM-17-65-00T			
160.0	160.0	1	RFS DB-T1-6Z-8AB-0Z	Low Profile Platform	(12) 1 5/8" Coax	Verizon
		3	Antel BXA-70063/6CF			
150.0	153.0	1	Raycap DC6-48-60-18-8F	Low Profile Platform	(12) 1 1/4" Coax (2) 0.74" 8 AWG 7 (1) 0.28" RG-6	AT&T Mobility
		6	Ericsson RRUS 11 (Band 12)			
		3	KMW AM-X-CD-14-65-00T-RET			
		6	Powerwave 7770.00			
	150.0	6	Powerwave LGP21903			
		6	Powerwave LGP21401			
	149.0	6	RCU			
	158.0	1	12' Omni		(1) 1 1/4" Coax	USA Mobility
128.0	130.0	3	Ericsson KRY 112 144/1	T-Arms	(12) 1 5/8" Coax (1) 1 1/4" Hybriflex	T-Mobile
		3	Ericsson AIR 21, 1.3M, B2A B4P			
		3	Ericsson AIR 21, 1.3M, B4A B2P			

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
160.0	160.0	3	Alcatel-Lucent RRH2x40-AWS	-	-	Verizon
		3	Alcatel-Lucent RRH2x40 (700)			
		6	Antel BXA-171063/12CF__2 FP			
		3	Antel BXA-70063/6CF_			

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
160.0	160.0	3	Alcatel-Lucent RRH 2X60-1900	Low Profile Platform	(2) 1 5/8" Fiber	Verizon
		3	Alcatel-Lucent RRH2X60-AWS			
		3	Alcatel-Lucent RRH2x60 700			
		1	RFS DB-T1-6Z-8AB-0Z			
		3	Commscope LNX-6514DS-A1M			
		6	Commscope HBXX-6517DS-A2M			

[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	66%	Pass
Shaft	68%	Pass
Base Plate	28%	Pass
Flanges	25%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	5,552.0	7,495.3	4,872.9	65%
Shear (Kips)	44.4	59.9	40.4	67%

*** The design reactions are factored by 1.35 per ANSI/TIA-222-G, Sec. 15.5.1**

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
160.0	RFS DB-T1-6Z-8AB-0Z	Verizon Wireless	1.182	0.791
	Alcatel-Lucent RRH 2X60-1900			
	Alcatel-Lucent RRH2X60-AWS			
	Alcatel-Lucent RRH2x60 700			
	Commscope LNX-6514DS-A1M			
	Commscope HBXX-6517DS-A2M			

***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 are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

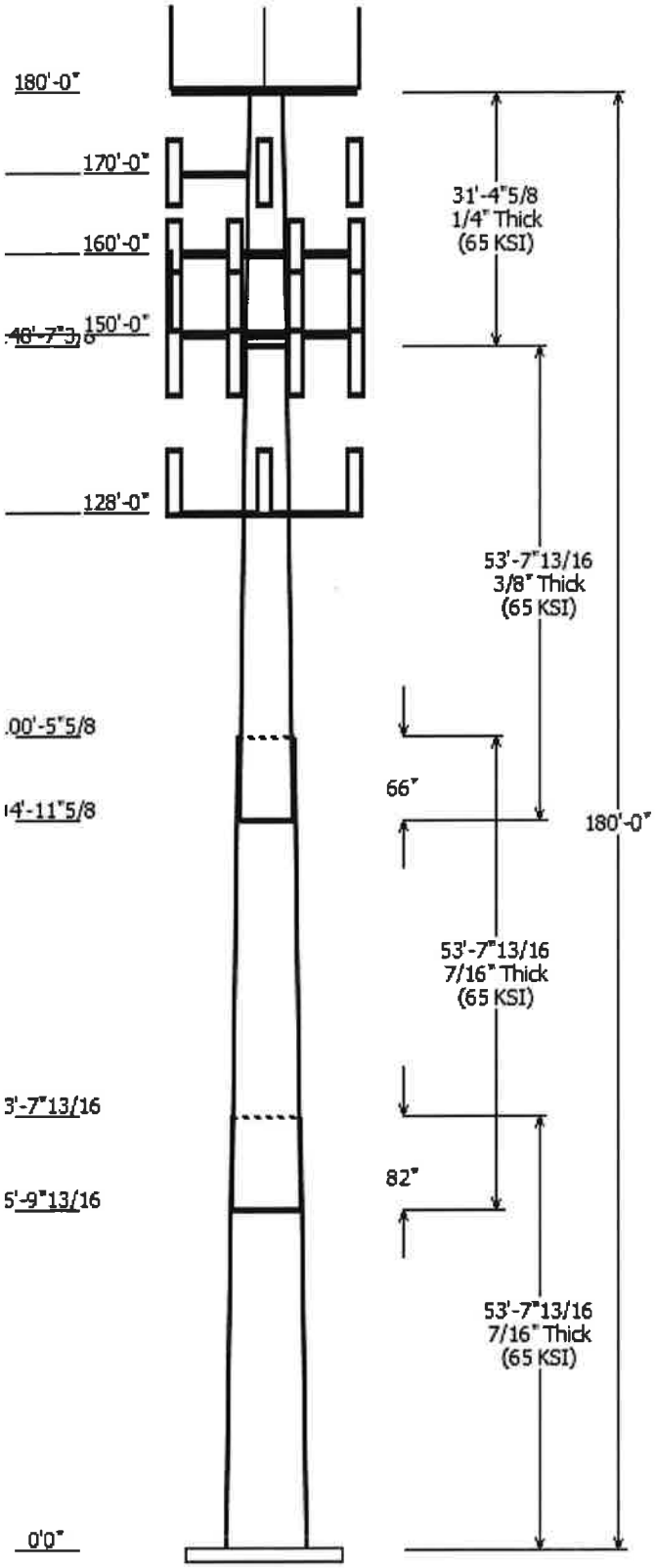
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

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. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

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 we supply.



Job Information

Pole :	310972	Code:	ANSI/TIA-222-G
Description :	180' FWT monopole		
Client :	Verizon Wireless	Struct Class :	II
Location :	Waterford Rebuild CT, CT		
Shape :	18 Sides	Exposure :	B
Height :	180.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.228741(in/ft)		

Sections Properties

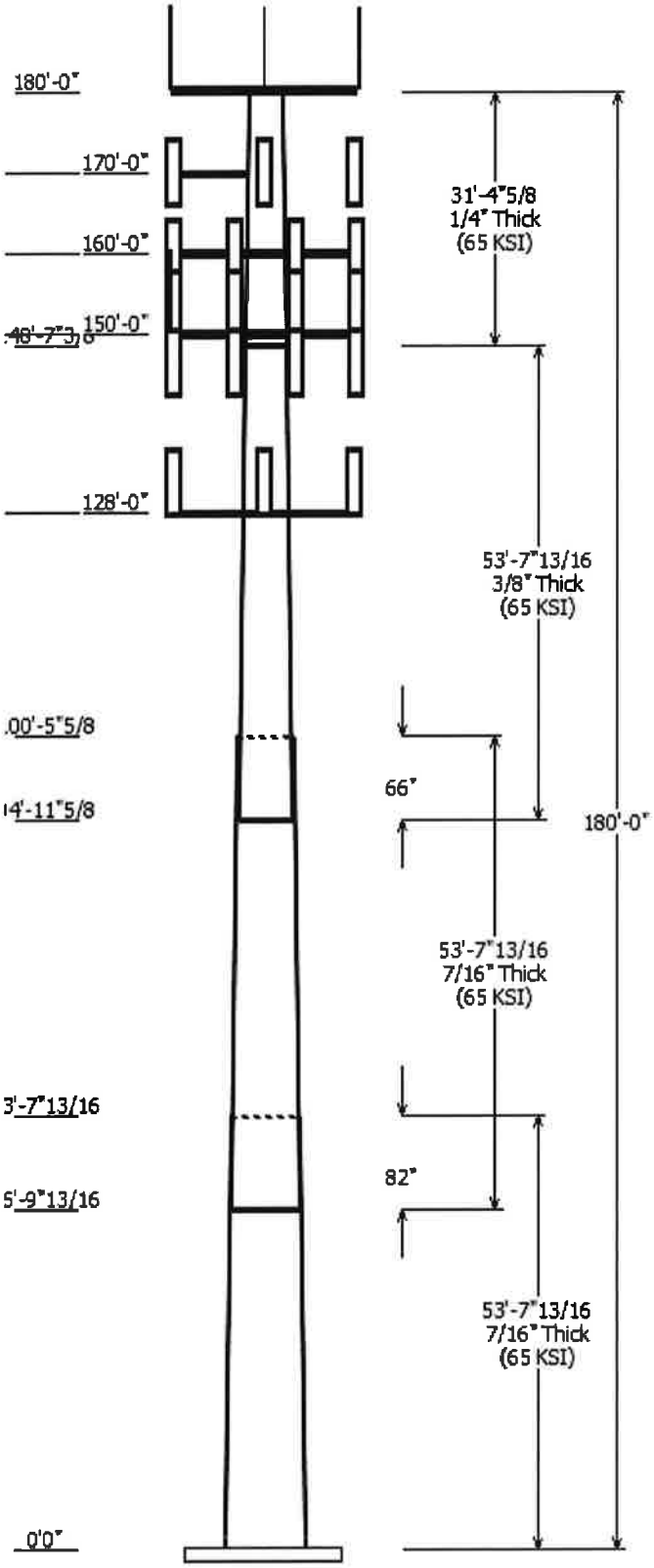
Shaft Section	Length (ft)	Diameter (in) Across Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
1	53.650	50.17	62.45	0.438		0.000	0.228740	65
2	53.650	40.34	52.61	0.438	Slip Joint	82.000	0.228740	65
3	53.650	30.08	42.35	0.375	Slip Joint	66.000	0.228740	65
4	31.384	22.90	30.08	0.250	Butt Joint	0.000	0.228740	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.000	180.000	1	TTA
180.000	185.000	2	10' Omni
180.000	186.000	1	Andrew DB806D-Y
180.000	180.000	1	Round Low Profile Platform
170.000	170.000	1	Stand-Off
170.000	170.000	3	KMW HB-X-WM-17-65-00T-
170.000	170.000	3	KMW HB-X-WM-17-65-00T
160.000	160.000	6	Commscope HBXX-6517DS-
160.000	160.000	3	Commscope LNX-6514DS-A1M
160.000	160.000	3	Alcatel-Lucent RRH2x60 700
160.000	160.000	3	Alcatel-Lucent RRH2X60-AWS
160.000	160.000	3	Alcatel-Lucent RRH 2X60-1900
160.000	160.000	1	RFS DB-T1-6Z-8AB-0Z
160.000	160.000	1	Round Low Profile Platform
160.000	160.000	1	RFS DB-T1-6Z-8AB-0Z
160.000	160.000	3	Antel BXA-70063/6CF
150.000	158.000	1	12' Omni
150.000	149.000	6	RCU
150.000	153.000	1	Raycap DC6-48-60-18-8F
150.000	153.000	3	KMW AM-X-CD-14-65-00T-RET
150.000	153.000	6	Ericsson RRUS 11 (Band 12)
150.000	150.000	6	Powerwave LGP21903
150.000	150.000	6	Powerwave LGP21401
150.000	153.000	6	Powerwave Allgon 7770.00
150.000	150.000	1	Flat Low Profile Platform
128.000	130.000	3	Ericsson AIR 21, 1.3M, B4A B2P
128.000	130.000	3	Ericsson AIR 21, 1.3M, B2A B4P
128.000	130.000	3	Ericsson KRY 112 144/1
128.000	128.000	3	Flat T-Arm

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	128.0	1 1/4" Hybriflex	No
0.000	128.0	1 5/8" Coax	No
0.000	150.0	0.28" RG-6	No
0.000	150.0	0.74" 8 AWG 7	No
0.000	150.0	1 1/4" Coax	No
0.000	150.0	1 1/4" Coax	No
0.000	160.0	1 5/8" Coax	No
0.000	160.0	1 5/8" Fiber	No



0.000	170.0	1 5/8" Coax	No
0.000	180.0	1 5/8" Coax	No
0.000	180.0	7/8" Coax	No

Load Cases

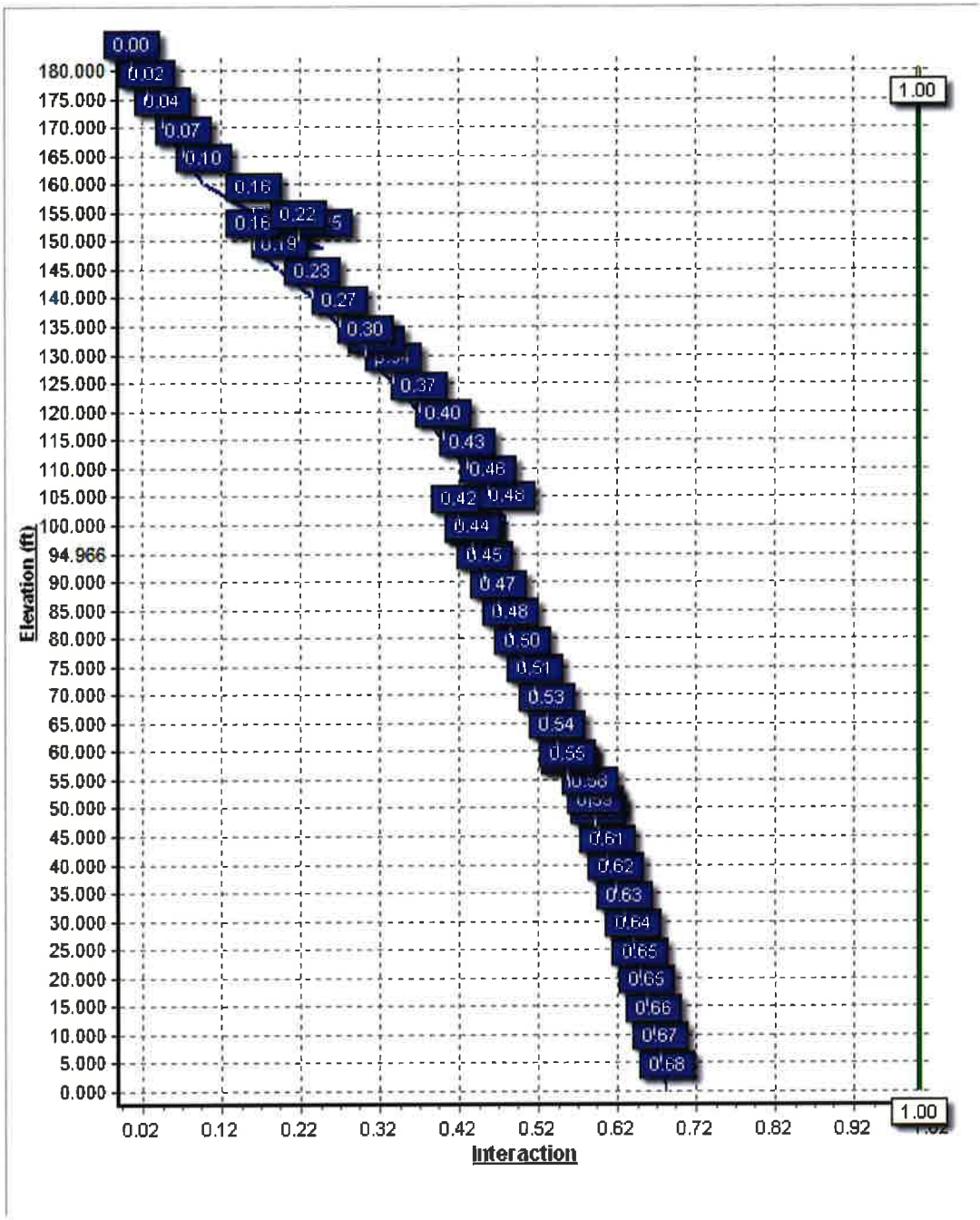
1.2D + 1.6W	120 mph with No Ice
0.9D + 1.6W	120 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) 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	4872.85	40.42	60.16
0.9D + 1.6W	4824.98	40.40	45.10
1.2D + 1.0Di + 1.0Wi	937.83	7.83	85.12
(1.2 + 0.2Sds) * DL + E ELFM	269.17	1.96	59.89
(1.2 + 0.2Sds) * DL + E EMAM	249.29	2.01	59.89
(0.9 - 0.2Sds) * DL + E ELFM	266.03	1.96	42.02
(0.9 - 0.2Sds) * DL + E EMAM	246.23	2.00	42.02
1.0D + 1.0W	757.13	6.31	50.18

Dish Deflections

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


Elevation (ft)
180.000
175.000
170.000
165.000
160.000
155.000
150.000
145.000
140.000
135.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
94.966
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
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction
1.00
1.00

Site Number:	**310972**	**Code: ANSI/TIA-222-G**	
Site Name:	**Waterford Rebuild CT, CT**	**Engineering Number: 63042522**	**8/18/2015 3:43:39 PM**
Customer:	**Verizon Wireless**		

Analysis Parameters

Location:	**New London County, CT**		
Code:	**ANSI/TIA-222-G**	**Height (ft):**	**180**
Shape:	**18 Sides**	**Base Diameter (in):**	**62.45**
Pole Type:	**Taper**	**Top Diameter (in):**	**22.90**
Pole Manfacturer:	**FWT Inc**	**Taper (in/ft) :**	**0.229**

Ice & Wind Parameters

Structure Class:	**II**	**Design Wind Speed Without Ice:**	**120 mph**
Exposure Catagory:	**B**	**Design Wind Speed With Ice:**	**50 mph**
Topographic Catagory:	**1**	**Operational Wind Speed:**	**60 mph**
Crest Height:	**0.0 ft**	**Design Ice Thickness:**	**0.00 in**

Seismic Parameters

Analysis Method:	**Equivalent Modal Analysis & Equivalent Lateral Force Methods**				
Site Class:	**D - Stiff Soil**				
Period Based on Rayleigh Method (sec):	**2.30**				
T_L (sec):	**6**	**p:**	**1.3**	**C_s:**	**0.030**
S_s:	**0.160**	**S_1:**	**0.058**	**C_s Max:**	**0.030**
F_a:	**1.600**	**F_v:**	**2.400**	**C_s Min:**	**0.030**
S_{ds}:	**0.171**	**S_{d1}:**	**0.093**		

Load Cases

1.2D + 1.6W	**120 mph with No Ice**
0.9D + 1.6W	**120 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: 310972 Code: ANSI/TIA-222-G

Site Name: Waterford Rebuild CT, CT Engineering Number: 63042522 8/18/2015 3:43:39 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	53.650	0.4375	65		0.00	14,165	62.45	0.00	86.11	41837.0	23.76	142.74	50.17	53.65	69.07	21590.2	18.81	114.69	0.228740
2-18	53.650	0.4375	65	Slip	82.00	11,672	52.61	46.82	72.45	24923.1	19.80	120.27	40.34	100.47	55.41	11149.7	14.85	92.22	0.228740
3-18	53.650	0.3750	65	Slip	66.00	7,788	42.35	94.97	49.96	11123.0	18.50	112.94	30.08	148.62	35.36	3941.7	12.73	80.21	0.228740
4-18	31.384	0.2500	65	Butt	0.00	2,224	30.08	148.62	23.67	2661.1	19.81	120.32	22.90	180.00	17.97	1165.2	14.74	91.61	0.228740
					Shaft Weight	35,847													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor	Distance From Face (ft)	Vert Ecc (ft)
180.00	10' Omni	2	25.00	3.000	1.00	161.76	5.977	1.00	0.000	5.000
180.00	Andrew DB806D-Y	1	27.00	3.380	1.00	180.24	7.023	1.00	0.000	6.000
180.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,160.24	41.265	1.00	0.000	0.000
180.00	TTA	1	10.00	1.200	0.50	56.83	1.675	0.50	0.000	0.000
170.00	KMW HB-X-WM-17-65-00T	3	30.00	1.920	1.00	142.94	4.246	1.00	0.000	0.000
170.00	KMW HB-X-WM-17-65-00T-	3	15.90	0.970	0.50	51.27	1.426	0.50	0.000	0.000
170.00	Stand-Off	1	560.00	8.500	1.00	1,034.32	15.700	1.00	0.000	0.000
160.00	Alcatel-Lucent RRH 2X60-	3	39.60	1.880	0.50	107.01	2.463	0.50	0.000	0.000
160.00	Alcatel-Lucent RRH2x60 700	3	56.70	2.150	0.67	141.18	2.808	0.67	0.000	0.000
160.00	Alcatel-Lucent RRH2X60-	3	44.00	1.880	0.50	111.41	2.463	0.50	0.000	0.000
160.00	Antel BXA-70063/6CF	3	17.00	7.570	0.65	185.23	8.825	0.65	0.000	0.000
160.00	Commscope HBXX-6517DS-	6	40.80	8.530	0.81	217.94	10.941	0.81	0.000	0.000
160.00	Commscope LNX-6514DS-	3	38.80	8.170	0.83	243.42	9.484	0.83	0.000	0.000
160.00	RFS DB-T1-6Z-8AB-0Z	1	44.00	4.800	0.67	182.70	5.678	0.67	0.000	0.000
160.00	RFS DB-T1-6Z-8AB-0Z	1	44.00	4.800	0.67	182.70	5.678	0.67	0.000	0.000
160.00	Round Low Profile Platform	1	1500.00	21.700	1.00	2,152.40	41.032	1.00	0.000	0.000
150.00	12' Omni	1	40.00	3.600	1.00	199.25	7.640	1.00	0.000	8.000
150.00	Ericsson RRUS 11 (Band 12)	6	50.00	2.570	0.50	131.45	3.221	0.50	0.000	3.000
150.00	Flat Low Profile Platform	1	1500.00	26.100	1.00	2,148.92	45.222	1.00	0.000	0.000
150.00	KMW AM-X-CD-14-65-00T-	3	36.40	4.990	0.78	167.62	5.975	0.78	0.000	3.000
150.00	Powerwave Allgon 7770.00	6	35.00	5.880	0.77	170.01	6.559	0.77	0.000	3.000
150.00	Powerwave LGP21401	6	14.10	1.100	0.33	47.73	1.563	0.33	0.000	0.000
150.00	Powerwave LGP21903	6	5.50	0.270	0.50	19.04	0.472	0.50	0.000	0.000
150.00	Raycap DC6-48-60-18-8F	1	20.00	1.110	1.00	112.90	2.853	1.00	0.000	3.000
150.00	RCU	6	1.00	0.160	0.50	11.18	0.362	0.50	0.000	-1.000
128.00	Ericsson AIR 21, 1.3M, B2A	3	83.00	6.050	0.69	248.64	7.128	0.69	0.000	2.000
128.00	Ericsson AIR 21, 1.3M, B4A	3	81.50	6.090	0.69	247.09	7.173	0.69	0.000	2.000
128.00	Ericsson KRY 112 144/1	3	11.00	0.410	0.50	26.97	0.629	0.50	0.000	2.000
128.00	Flat T-Arm	3	250.00	12.900	0.67	455.89	20.956	0.67	0.000	0.000
	Totals	84	8285.10		18,704.10			Number of Loadings :		29

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
0.00	180.00	2	1 5/8" Coax	1.98	0.82	N	0.00	N	Town of Waterford
0.00	180.00	1	7/8" Coax	1.09	0.33	N	0.00	N	Spok Holdings
0.00	170.00	6	1 5/8" Coax	1.98	0.82	N	0.00	N	Clearwire Corporation
0.00	160.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon Wireless
0.00	160.00	2	1 5/8" Fiber	1.63	1.61	N	0.00	N	Verizon Wireless
0.00	150.00	1	0.28" RG-6	0.28	0.03	N	0.00	N	AT&T Mobility
0.00	150.00	2	0.74" 8 AWG 7	0.74	0.49	N	0.00	N	AT&T Mobility

0.00	150.00	12	1 1/4" Coax	1.55	0.63	N	0.00	N	AT&T Mobility
0.00	150.00	1	1 1/4" Coax	1.55	0.63	N	0.00	N	USA Mobility
0.00	128.00	1	1 1/4" Hybriflex	1.54	1.00	N	0.00	N	T-Mobile
0.00	128.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	T-Mobile

Segment Properties (Max Len : 5.ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.4375	62.450	86.109	41,837.0	23.76	142.74	73.5	1319.	0.0	0.0
5.00		0.4375	61.306	84.521	39,564.6	23.30	140.13	74.0	1271.	0.0	1,451.5
10.00		0.4375	60.163	82.933	37,376.0	22.84	137.51	74.5	1223.	0.0	1,424.5
15.00		0.4375	59.019	81.345	35,269.7	22.38	134.90	75.1	1177.	0.0	1,397.5
20.00		0.4375	57.875	79.757	33,244.0	21.92	132.29	75.6	1131.	0.0	1,370.5
25.00		0.4375	56.731	78.168	31,297.4	21.45	129.67	76.2	1086.	0.0	1,343.5
30.00		0.4375	55.588	76.580	29,428.4	20.99	127.06	76.7	1042.	0.0	1,316.4
35.00		0.4375	54.444	74.992	27,635.2	20.53	124.44	77.3	999.8	0.0	1,289.4
40.00		0.4375	53.300	73.404	25,916.4	20.07	121.83	77.8	957.7	0.0	1,262.4
45.00		0.4375	52.157	71.816	24,270.4	19.61	119.22	78.3	916.5	0.0	1,235.4
46.82	Bot - Section 2	0.4375	51.741	71.239	23,690.2	19.44	118.27	78.5	901.8	0.0	442.1
50.00		0.4375	51.013	70.228	22,695.7	19.15	116.60	78.9	876.3	0.0	1,545.6
53.65	Top - Section 1	0.4375	51.053	70.284	22,749.7	19.17	116.69	78.9	877.7	0.0	1,745.1
55.00		0.4375	50.744	69.855	22,335.9	19.04	115.99	79.0	867.0	0.0	321.9
60.00		0.4375	49.601	68.267	20,846.8	18.58	113.37	79.5	827.8	0.0	1,175.0
65.00		0.4375	48.457	66.679	19,425.5	18.12	110.76	80.1	789.6	0.0	1,148.0
70.00		0.4375	47.313	65.090	18,070.3	17.66	108.14	80.6	752.3	0.0	1,121.0
75.00		0.4375	46.170	63.502	16,779.7	17.20	105.53	81.2	715.8	0.0	1,093.9
80.00		0.4375	45.026	61.914	15,552.0	16.74	102.92	81.7	680.3	0.0	1,066.9
85.00		0.4375	43.882	60.326	14,385.7	16.28	100.30	82.3	645.7	0.0	1,039.9
90.00		0.4375	42.738	58.738	13,279.2	15.81	97.69	82.6	612.0	0.0	1,012.9
94.97	Bot - Section 3	0.4375	41.602	57.161	12,237.8	15.36	95.09	82.6	579.4	0.0	979.3
95.00		0.4375	41.595	57.150	12,230.9	15.35	95.07	82.6	579.2	0.0	12.2
100.0		0.4375	40.451	55.562	11,239.4	14.89	92.46	82.6	547.3	0.0	1,797.1
100.4	Top - Section 2	0.3750	41.094	48.464	10,152.6	17.91	109.58	80.3	486.6	0.0	165.1
105.0		0.3750	40.057	47.230	9,396.5	17.42	106.82	80.9	462.0	0.0	738.1
110.0		0.3750	38.914	45.869	8,607.2	16.89	103.77	81.5	435.7	0.0	792.0
115.0		0.3750	37.770	44.508	7,863.4	16.35	100.72	82.2	410.1	0.0	768.8
120.0		0.3750	36.626	43.146	7,163.8	15.81	97.67	82.6	385.2	0.0	745.7
125.0		0.3750	35.483	41.785	6,506.9	15.27	94.62	82.6	361.2	0.0	722.5
128.0		0.3750	34.796	40.968	6,132.8	14.95	92.79	82.6	347.1	0.0	422.4
130.0		0.3750	34.339	40.424	5,891.5	14.74	91.57	82.6	337.9	0.0	277.0
135.0		0.3750	33.195	39.063	5,316.1	14.20	88.52	82.6	315.4	0.0	676.2
140.0		0.3750	32.051	37.701	4,779.5	13.66	85.47	82.6	293.7	0.0	653.0
145.0		0.3750	30.908	36.340	4,280.3	13.12	82.42	82.6	272.8	0.0	629.9
148.6	Top - Section 3	0.3750	30.080	35.356	3,941.7	12.73	80.21	82.6	258.1	0.0	441.1
148.6	Bot - Section 4	0.2500	30.080	23.670	2,661.1	19.81	120.32	78.1	174.2	0.0	
150.0		0.2500	29.764	23.419	2,577.3	19.58	119.06	78.4	170.6	0.0	110.9
155.0		0.2500	28.620	22.511	2,289.2	18.78	114.48	79.3	157.5	0.0	390.7
160.0		0.2500	27.477	21.604	2,023.3	17.97	109.91	80.3	145.0	0.0	375.3
165.0		0.2500	26.333	20.696	1,778.9	17.16	105.33	81.2	133.1	0.0	359.8
170.0		0.2500	25.189	19.789	1,555.0	16.36	100.76	82.2	121.6	0.0	344.4
175.0		0.2500	24.046	18.881	1,350.7	15.55	96.18	82.6	110.6	0.0	329.0
180.0		0.2500	22.902	17.974	1,165.2	14.74	91.61	82.6	100.2	0.0	313.5
											35,847.5

Site Number: 310972 Code: ANSI/TIA-222-G

Site Name: Waterford Rebuild CT, CT Engineering Number: 63042522 8/18/2015 3:43:39 PM

Customer: Verizon Wireless

Load Case: 1.2D + 1.6W 120 mph with No Ice 24 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

		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		367.1	0.0					0.0	0.0	367.1	0.0	0.0	0.0
5.00		727.4	1,741.8					0.0	239.9	727.4	1,981.8	0.0	0.0
10.00		713.9	1,709.4					0.0	239.9	713.9	1,949.3	0.0	0.0
15.00		700.3	1,677.0					0.0	239.9	700.3	1,916.9	0.0	0.0
20.00		686.7	1,644.6					0.0	239.9	686.7	1,884.5	0.0	0.0
25.00		673.1	1,612.2					0.0	239.9	673.1	1,852.1	0.0	0.0
30.00		667.4	1,579.7					0.0	239.9	667.4	1,819.6	0.0	0.0
35.00		675.2	1,547.3					0.0	239.9	675.2	1,787.2	0.0	0.0
40.00		686.8	1,514.9					0.0	239.9	686.8	1,754.8	0.0	0.0
45.00		472.4	1,482.5					0.0	239.9	472.4	1,722.4	0.0	0.0
46.82	Bot - Section 2	353.0	530.6					0.0	87.2	353.0	617.7	0.0	0.0
50.00		487.3	1,854.7					0.0	152.7	487.3	2,007.5	0.0	0.0
53.65	Top - Section 1	357.5	2,094.1					0.0	175.1	357.5	2,269.3	0.0	0.0
55.00		455.5	386.3					0.0	64.8	455.5	451.1	0.0	0.0
60.00		717.8	1,410.0					0.0	239.9	717.8	1,649.9	0.0	0.0
65.00		717.5	1,377.6					0.0	239.9	717.5	1,617.5	0.0	0.0
70.00		715.6	1,345.1					0.0	239.9	715.6	1,585.0	0.0	0.0
75.00		712.2	1,312.7					0.0	239.9	712.2	1,552.6	0.0	0.0
80.00		707.5	1,280.3					0.0	239.9	707.5	1,520.2	0.0	0.0
85.00		701.6	1,247.9					0.0	239.9	701.6	1,487.8	0.0	0.0
90.00		692.3	1,215.4					0.0	239.9	692.3	1,455.4	0.0	0.0
94.97	Bot - Section 3	345.4	1,175.2					0.0	238.3	345.4	1,413.5	0.0	0.0
95.00		349.7	14.7					0.0	1.6	349.7	16.3	0.0	0.0
100.00		379.5	2,156.6					0.0	239.9	379.5	2,396.5	0.0	0.0
100.47	Top - Section 2	342.7	198.1					0.0	22.4	342.7	220.5	0.0	0.0
105.00		648.1	885.7					0.0	217.5	648.1	1,103.3	0.0	0.0
110.00		669.7	950.4					0.0	239.9	669.7	1,190.3	0.0	0.0
115.00		658.4	922.6					0.0	239.9	658.4	1,162.5	0.0	0.0
120.00		646.3	894.8					0.0	239.9	646.3	1,134.7	0.0	0.0
125.00		508.9	867.0					0.0	239.9	508.9	1,106.9	0.0	0.0
128.00	Appertunance(s)	313.4	506.9	2,623.3	0.0	2,704.3	1,531.8	0.0	143.9	2,936.7	2,182.6	0.0	0.0
130.00		431.0	332.4					0.0	69.9	431.0	402.3	0.0	0.0
135.00		605.8	811.4					0.0	174.9	605.8	986.3	0.0	0.0
140.00		591.0	783.6					0.0	174.9	591.0	958.5	0.0	0.0
145.00		497.9	755.8					0.0	174.9	497.9	930.7	0.0	0.0
148.62	Top - Section 3	283.9	529.4					0.0	126.5	283.9	655.8	0.0	0.0
150.00	Appertunance(s)	353.6	133.0	4,847.2	0.0	9,840.7	2,763.4	0.0	48.4	5,200.8	2,944.8	0.0	0.0
155.00		543.3	468.9					0.0	119.7	543.3	588.6	0.0	0.0
160.00	Appertunance(s)	526.4	450.3	6,692.3	0.0	0.0	2,905.3	0.0	119.7	7,218.6	3,475.3	0.0	0.0
165.00		508.9	431.8					0.0	41.3	508.9	473.1	0.0	0.0
170.00	Appertunance(s)	491.0	413.3	1,011.6	0.0	0.0	837.2	0.0	41.3	1,502.6	1,291.9	0.0	0.0
175.00		472.6	394.8					0.0	11.8	472.6	406.6	0.0	0.0
180.00	Appertunance(s)	231.6	376.2	2,143.3	0.0	2,922.7	1,904.4	0.0	11.8	2,374.9	2,292.4	0.0	0.0
								Totals:		40,704.9	60,215.8	0.00	0.00

Site Number: 310972 Code: ANSI/TIA-222-G

Site Name: Waterford Rebuild CT, CT Engineering Number: 63042522 8/18/2015 3:43:41 PM

Customer: Verizon Wireless

Load Case: 1.2D + 1.6W 120 mph with No Ice 24 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	-60.16	-40.42	0.00	-4,872.85	0.00	4,872.85	5,692.71	2,846.36	14,517.2	7,269.40	0.00	0.00	0.681
5.00	-58.06	-39.86	0.00	-4,670.73	0.00	4,670.73	5,628.96	2,814.48	14,088.0	7,054.50	0.09	-0.16	0.673
10.00	-56.00	-39.30	0.00	-4,471.44	0.00	4,471.44	5,563.66	2,781.83	13,661.1	6,840.71	0.35	-0.33	0.664
15.00	-53.98	-38.74	0.00	-4,274.94	0.00	4,274.94	5,496.81	2,748.41	13,236.6	6,628.15	0.78	-0.49	0.655
20.00	-51.99	-38.19	0.00	-4,081.23	0.00	4,081.23	5,428.41	2,714.21	12,814.8	6,416.93	1.38	-0.66	0.646
25.00	-50.03	-37.64	0.00	-3,890.27	0.00	3,890.27	5,358.46	2,679.23	12,395.9	6,207.17	2.17	-0.83	0.636
30.00	-48.11	-37.09	0.00	-3,702.05	0.00	3,702.05	5,286.96	2,643.48	11,980.1	5,998.96	3.13	-1.00	0.626
35.00	-46.23	-36.53	0.00	-3,516.58	0.00	3,516.58	5,213.91	2,606.96	11,567.6	5,792.42	4.28	-1.18	0.616
40.00	-44.38	-35.94	0.00	-3,333.95	0.00	3,333.95	5,139.31	2,569.66	11,158.7	5,587.66	5.61	-1.36	0.605
45.00	-42.59	-35.51	0.00	-3,154.26	0.00	3,154.26	5,063.16	2,531.58	10,753.5	5,384.79	7.13	-1.53	0.594
46.82	-41.93	-35.21	0.00	-3,089.75	0.00	3,089.75	5,035.11	2,517.56	10,607.3	5,311.57	7.72	-1.60	0.590
50.00	-39.86	-34.75	0.00	-2,977.66	0.00	2,977.66	4,985.46	2,492.73	10,352.4	5,183.92	8.83	-1.72	0.583
53.65	-37.55	-34.38	0.00	-2,850.82	0.00	2,850.82	4,988.22	2,494.11	10,366.4	5,190.93	10.19	-1.85	0.557
55.00	-37.04	-33.99	0.00	-2,804.40	0.00	2,804.40	4,966.99	2,483.49	10,258.8	5,137.03	10.72	-1.90	0.554
60.00	-35.32	-33.32	0.00	-2,634.47	0.00	2,634.47	4,887.37	2,443.69	9,862.91	4,938.79	12.81	-2.07	0.541
65.00	-33.63	-32.64	0.00	-2,467.88	0.00	2,467.88	4,806.21	2,403.11	9,471.50	4,742.79	15.07	-2.25	0.528
70.00	-31.98	-31.96	0.00	-2,304.66	0.00	2,304.66	4,723.50	2,361.75	9,084.80	4,549.15	17.52	-2.42	0.514
75.00	-30.36	-31.28	0.00	-2,144.85	0.00	2,144.85	4,639.24	2,319.62	8,703.02	4,357.98	20.15	-2.60	0.499
80.00	-28.79	-30.59	0.00	-1,988.48	0.00	1,988.48	4,553.42	2,276.71	8,326.39	4,169.38	22.96	-2.77	0.483
85.00	-27.24	-29.89	0.00	-1,835.55	0.00	1,835.55	4,466.06	2,233.03	7,955.13	3,983.48	25.96	-2.95	0.467
90.00	-25.74	-29.20	0.00	-1,686.08	0.00	1,686.08	4,363.94	2,181.97	7,566.55	3,788.90	29.14	-3.12	0.451
94.97	-24.30	-28.82	0.00	-1,541.05	0.00	1,541.05	4,246.74	2,123.37	7,163.57	3,587.11	32.47	-3.29	0.436
95.00	-24.26	-28.50	0.00	-1,540.08	0.00	1,540.08	4,245.95	2,122.97	7,160.88	3,585.76	32.50	-3.29	0.435
100.00	-21.85	-28.02	0.00	-1,397.57	0.00	1,397.57	4,127.96	2,063.98	6,766.40	3,388.23	36.04	-3.46	0.418
100.47	-21.61	-27.69	0.00	-1,384.50	0.00	1,384.50	3,503.95	1,751.97	5,854.84	2,931.77	36.38	-3.48	0.479
105.00	-20.47	-27.04	0.00	-1,258.95	0.00	1,258.95	3,439.09	1,719.55	5,598.79	2,803.55	39.75	-3.63	0.455
110.00	-19.24	-26.35	0.00	-1,123.76	0.00	1,123.76	3,366.08	1,683.04	5,320.51	2,664.21	43.66	-3.81	0.428
115.00	-18.05	-25.67	0.00	-991.99	0.00	991.99	3,291.52	1,645.76	5,046.78	2,527.14	47.74	-3.99	0.398
120.00	-16.89	-24.99	0.00	-863.64	0.00	863.64	3,205.56	1,602.78	4,763.17	2,385.12	52.01	-4.16	0.368
125.00	-15.77	-24.44	0.00	-738.67	0.00	738.67	3,104.43	1,552.22	4,465.87	2,236.25	56.45	-4.32	0.336
128.00	-13.79	-21.36	0.00	-662.65	0.00	662.65	3,043.75	1,521.88	4,292.09	2,149.23	59.19	-4.41	0.313
130.00	-13.39	-20.93	0.00	-619.92	0.00	619.92	3,003.30	1,501.65	4,178.15	2,092.18	61.04	-4.47	0.301
135.00	-12.41	-20.27	0.00	-515.29	0.00	515.29	2,902.16	1,451.08	3,900.01	1,952.91	65.79	-4.60	0.268
140.00	-11.46	-19.63	0.00	-413.94	0.00	413.94	2,801.03	1,400.52	3,631.46	1,818.43	70.68	-4.73	0.232
145.00	-10.55	-19.07	0.00	-315.79	0.00	315.79	2,699.90	1,349.95	3,372.48	1,688.75	75.69	-4.84	0.191
148.62	-9.90	-18.74	0.00	-246.83	0.00	246.83	2,626.75	1,313.38	3,191.14	1,597.94	79.38	-4.91	0.158
148.62	-9.90	-18.74	0.00	-246.83	0.00	246.83	1,663.87	831.93	2,038.41	1,020.72	79.38	-4.91	0.248
150.00	-7.40	-13.31	0.00	-211.06	0.00	211.06	1,651.75	825.87	2,001.92	1,002.45	80.80	-4.93	0.215
155.00	-6.84	-12.73	0.00	-144.49	0.00	144.49	1,606.96	803.48	1,871.53	937.16	86.01	-5.03	0.159
160.00	-4.01	-5.24	0.00	-80.84	0.00	80.84	1,560.63	780.31	1,743.66	873.12	91.31	-5.10	0.095
165.00	-3.58	-4.69	0.00	-54.65	0.00	54.65	1,512.74	756.37	1,618.51	810.46	96.67	-5.14	0.070
170.00	-2.43	-3.08	0.00	-31.19	0.00	31.19	1,463.31	731.65	1,496.32	749.27	102.07	-5.18	0.043
175.00	-2.07	-2.57	0.00	-15.79	0.00	15.79	1,402.77	701.38	1,367.98	685.01	107.50	-5.20	0.025
180.00	0.00	-2.37	0.00	-2.92	0.00	2.92	1,335.35	667.67	1,238.99	620.42	112.94	-5.21	0.005

Site Number: 310972 Code: ANSI/TIA-222-G

Site Name: Waterford Rebuild CT, CT Engineering Number: 63042522 8/18/2015 3:43:41 PM

Customer: Verizon Wireless

Load Case: 0.9D + 1.6W — 120 mph with No Ice (Reduced DL) — 24 Iterations

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

Wind Importance Factor : 1.00

Applied Segment Forces Summary

		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		367.1	0.0					0.0	0.0	367.1	0.0	0.0	0.0
5.00		727.4	1,306.4					0.0	179.9	727.4	1,486.3	0.0	0.0
10.00		713.9	1,282.1					0.0	179.9	713.9	1,462.0	0.0	0.0
15.00		700.3	1,257.7					0.0	179.9	700.3	1,437.7	0.0	0.0
20.00		686.7	1,233.4					0.0	179.9	686.7	1,413.4	0.0	0.0
25.00		673.1	1,209.1					0.0	179.9	673.1	1,389.0	0.0	0.0
30.00		667.4	1,184.8					0.0	179.9	667.4	1,364.7	0.0	0.0
35.00		675.2	1,160.5					0.0	179.9	675.2	1,340.4	0.0	0.0
40.00		686.8	1,136.2					0.0	179.9	686.8	1,316.1	0.0	0.0
45.00		472.4	1,111.8					0.0	179.9	472.4	1,291.8	0.0	0.0
46.82	Bot - Section 2	353.0	397.9					0.0	65.4	353.0	463.3	0.0	0.0
50.00		487.3	1,391.0					0.0	114.6	487.3	1,505.6	0.0	0.0
53.65	Top - Section 1	357.5	1,570.6					0.0	131.3	357.5	1,702.0	0.0	0.0
55.00		455.5	289.7					0.0	48.6	455.5	338.3	0.0	0.0
60.00		717.8	1,057.5					0.0	179.9	717.8	1,237.4	0.0	0.0
65.00		717.5	1,033.2					0.0	179.9	717.5	1,213.1	0.0	0.0
70.00		715.6	1,008.9					0.0	179.9	715.6	1,188.8	0.0	0.0
75.00		712.2	984.5					0.0	179.9	712.2	1,164.5	0.0	0.0
80.00		707.5	960.2					0.0	179.9	707.5	1,140.2	0.0	0.0
85.00		701.6	935.9					0.0	179.9	701.6	1,115.8	0.0	0.0
90.00		692.3	911.6					0.0	179.9	692.3	1,091.5	0.0	0.0
94.97	Bot - Section 3	345.4	881.4					0.0	178.7	345.4	1,060.1	0.0	0.0
95.00		349.7	11.0					0.0	1.2	349.7	12.2	0.0	0.0
100.00		379.5	1,617.4					0.0	179.9	379.5	1,797.4	0.0	0.0
100.47	Top - Section 2	342.7	148.6					0.0	16.8	342.7	165.4	0.0	0.0
105.00		648.1	664.3					0.0	163.1	648.1	827.5	0.0	0.0
110.00		669.7	712.8					0.0	179.9	669.7	892.7	0.0	0.0
115.00		658.4	691.9					0.0	179.9	658.4	871.9	0.0	0.0
120.00		646.3	671.1					0.0	179.9	646.3	851.0	0.0	0.0
125.00		508.9	650.3					0.0	179.9	508.9	830.2	0.0	0.0
128.00	Appertunance(s)	313.4	380.1	2,623.3	0.0	2,704.3	1,148.8	0.0	108.0	2,936.7	1,637.0	0.0	0.0
130.00		431.0	249.3					0.0	52.5	431.0	301.7	0.0	0.0
135.00		605.8	608.6					0.0	131.2	605.8	739.7	0.0	0.0
140.00		591.0	587.7					0.0	131.2	591.0	718.9	0.0	0.0
145.00		497.9	566.9					0.0	131.2	497.9	698.0	0.0	0.0
148.62	Top - Section 3	283.9	397.0					0.0	94.9	283.9	491.9	0.0	0.0
150.00	Appertunance(s)	353.6	99.8	4,847.2	0.0	9,840.7	2,072.5	0.0	36.3	5,200.8	2,208.6	0.0	0.0
155.00		543.3	351.6					0.0	89.8	543.3	441.4	0.0	0.0
160.00	Appertunance(s)	526.4	337.8	6,692.3	0.0	0.0	2,179.0	0.0	89.8	7,218.6	2,606.5	0.0	0.0
165.00		508.9	323.9					0.0	31.0	508.9	354.9	0.0	0.0
170.00	Appertunance(s)	491.0	310.0	1,011.6	0.0	0.0	627.9	0.0	31.0	1,502.6	968.9	0.0	0.0
175.00		472.6	296.1					0.0	8.9	472.6	304.9	0.0	0.0
180.00	Appertunance(s)	231.6	282.2	2,143.3	0.0	2,922.7	1,428.3	0.0	8.9	2,374.9	1,719.3	0.0	0.0
								Totals:		40,704.9	45,161.8	0.00	0.00

Site Number: 310972 Code: ANSI/TIA-222-G

Site Name: Waterford Rebuild CT, CT Engineering Number: 63042522 8/18/2015 3:43:44 PM

Customer: Verizon Wireless

Load Case: 0.9D + 1.6W 120 mph with No Ice (Reduced DL) 24 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	-45.10	-40.40	0.00	-4,824.98	0.00	4,824.98	5,692.71	2,846.36	14,517.2	7,269.40	0.00	0.00	0.672
5.00	-43.51	-39.80	0.00	-4,622.97	0.00	4,622.97	5,628.96	2,814.48	14,088.0	7,054.50	0.09	-0.16	0.663
10.00	-41.94	-39.20	0.00	-4,423.99	0.00	4,423.99	5,563.66	2,781.83	13,661.1	6,840.71	0.34	-0.32	0.654
15.00	-40.39	-38.60	0.00	-4,228.02	0.00	4,228.02	5,496.81	2,748.41	13,236.6	6,628.15	0.77	-0.49	0.645
20.00	-38.87	-38.02	0.00	-4,035.01	0.00	4,035.01	5,428.41	2,714.21	12,814.8	6,416.93	1.37	-0.65	0.636
25.00	-37.38	-37.43	0.00	-3,844.94	0.00	3,844.94	5,358.46	2,679.23	12,395.9	6,207.17	2.15	-0.82	0.627
30.00	-35.92	-36.85	0.00	-3,657.77	0.00	3,657.77	5,286.96	2,643.48	11,980.1	5,998.96	3.10	-0.99	0.617
35.00	-34.48	-36.26	0.00	-3,473.50	0.00	3,473.50	5,213.91	2,606.96	11,567.6	5,792.42	4.23	-1.17	0.606
40.00	-33.07	-35.64	0.00	-3,292.22	0.00	3,292.22	5,139.31	2,569.66	11,158.7	5,587.66	5.55	-1.34	0.596
45.00	-31.72	-35.21	0.00	-3,114.00	0.00	3,114.00	5,063.16	2,531.58	10,753.5	5,384.79	7.05	-1.52	0.585
46.82	-31.21	-34.89	0.00	-3,050.05	0.00	3,050.05	5,035.11	2,517.56	10,607.3	5,311.57	7.64	-1.58	0.581
50.00	-29.65	-34.42	0.00	-2,938.99	0.00	2,938.99	4,985.46	2,492.73	10,352.4	5,183.92	8.73	-1.70	0.573
53.65	-27.90	-34.06	0.00	-2,813.35	0.00	2,813.35	4,988.22	2,494.11	10,366.4	5,190.93	10.08	-1.83	0.548
55.00	-27.51	-33.64	0.00	-2,767.37	0.00	2,767.37	4,966.99	2,483.49	10,258.8	5,137.03	10.60	-1.88	0.544
60.00	-26.20	-32.96	0.00	-2,599.15	0.00	2,599.15	4,887.37	2,443.69	9,862.91	4,938.79	12.66	-2.05	0.532
65.00	-24.92	-32.28	0.00	-2,434.34	0.00	2,434.34	4,806.21	2,403.11	9,471.50	4,742.79	14.90	-2.22	0.519
70.00	-23.67	-31.58	0.00	-2,272.96	0.00	2,272.96	4,723.50	2,361.75	9,084.80	4,549.15	17.32	-2.39	0.505
75.00	-22.44	-30.89	0.00	-2,115.04	0.00	2,115.04	4,639.24	2,319.62	8,703.02	4,357.98	19.91	-2.56	0.490
80.00	-21.24	-30.19	0.00	-1,960.59	0.00	1,960.59	4,553.42	2,276.71	8,326.39	4,169.38	22.69	-2.74	0.475
85.00	-20.08	-29.50	0.00	-1,809.62	0.00	1,809.62	4,466.06	2,233.03	7,955.13	3,983.48	25.65	-2.91	0.459
90.00	-18.94	-28.81	0.00	-1,662.13	0.00	1,662.13	4,363.94	2,181.97	7,566.55	3,788.90	28.79	-3.08	0.443
94.97	-17.86	-28.43	0.00	-1,519.06	0.00	1,519.06	4,246.74	2,123.37	7,163.57	3,587.11	32.09	-3.25	0.428
95.00	-17.82	-28.11	0.00	-1,518.10	0.00	1,518.10	4,245.95	2,122.97	7,160.88	3,585.76	32.11	-3.25	0.428
100.00	-16.00	-27.65	0.00	-1,377.57	0.00	1,377.57	4,127.96	2,063.98	6,766.40	3,388.23	35.60	-3.42	0.411
100.47	-15.82	-27.32	0.00	-1,364.67	0.00	1,364.67	3,503.95	1,751.97	5,854.84	2,931.77	35.94	-3.44	0.470
105.00	-14.96	-26.67	0.00	-1,240.82	0.00	1,240.82	3,439.09	1,719.55	5,598.79	2,803.55	39.28	-3.59	0.447
110.00	-14.03	-25.98	0.00	-1,107.49	0.00	1,107.49	3,366.08	1,683.04	5,320.51	2,664.21	43.13	-3.77	0.420
115.00	-13.13	-25.31	0.00	-977.57	0.00	977.57	3,291.52	1,645.76	5,046.78	2,527.14	47.16	-3.94	0.391
120.00	-12.26	-24.64	0.00	-851.04	0.00	851.04	3,205.56	1,602.78	4,763.17	2,385.12	51.37	-4.10	0.361
125.00	-11.41	-24.09	0.00	-727.86	0.00	727.86	3,104.43	1,552.22	4,465.87	2,236.25	55.75	-4.26	0.329
128.00	-9.98	-21.05	0.00	-652.87	0.00	652.87	3,043.75	1,521.88	4,292.09	2,149.23	58.46	-4.35	0.307
130.00	-9.67	-20.62	0.00	-610.76	0.00	610.76	3,003.30	1,501.65	4,178.15	2,092.18	60.29	-4.41	0.295
135.00	-8.94	-19.98	0.00	-507.67	0.00	507.67	2,902.16	1,451.08	3,900.01	1,952.91	64.98	-4.54	0.263
140.00	-8.23	-19.35	0.00	-407.79	0.00	407.79	2,801.03	1,400.52	3,631.46	1,818.43	69.80	-4.67	0.227
145.00	-7.55	-18.80	0.00	-311.05	0.00	311.05	2,699.90	1,349.95	3,372.48	1,688.75	74.74	-4.77	0.187
148.62	-7.07	-18.49	0.00	-243.05	0.00	243.05	2,626.75	1,313.38	3,191.14	1,597.94	78.38	-4.84	0.155
148.62	-7.07	-18.49	0.00	-243.05	0.00	243.05	1,663.87	831.93	2,038.41	1,020.72	78.38	-4.84	0.243
150.00	-5.29	-13.12	0.00	-207.63	0.00	207.63	1,651.75	825.87	2,001.92	1,002.45	79.78	-4.86	0.211
155.00	-4.88	-12.55	0.00	-142.02	0.00	142.02	1,606.96	803.48	1,871.53	937.16	84.93	-4.96	0.155
160.00	-2.91	-5.13	0.00	-79.27	0.00	79.27	1,560.63	780.31	1,743.66	873.12	90.16	-5.03	0.093
165.00	-2.60	-4.60	0.00	-53.60	0.00	53.60	1,512.74	756.37	1,618.51	810.46	95.44	-5.08	0.068
170.00	-1.76	-3.02	0.00	-30.60	0.00	30.60	1,463.31	731.65	1,496.32	749.27	100.77	-5.11	0.042
175.00	-1.50	-2.52	0.00	-15.52	0.00	15.52	1,402.77	701.38	1,367.98	685.01	106.13	-5.13	0.024
180.00	0.00	-2.37	0.00	-2.92	0.00	2.92	1,335.35	667.67	1,238.99	620.42	111.50	-5.14	0.005

Site Number: 310972 | Code: ANSI/TIA-222-G |

Site Name: Waterford Rebuild CT, CT | Engineering Number: 63042522 | 8/18/2015 3:43:44 PM

Customer: Verizon Wireless

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 23 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

		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		76.3	0.0					0.0	0.0	76.3	0.0	0.0	0.0
5.00		151.5	2,195.4					0.0	239.9	151.5	2,435.3	0.0	0.0
10.00		149.2	2,207.4					0.0	239.9	149.2	2,447.3	0.0	0.0
15.00		146.8	2,191.9					0.0	239.9	146.8	2,431.8	0.0	0.0
20.00		144.2	2,167.4					0.0	239.9	144.2	2,407.3	0.0	0.0
25.00		141.7	2,138.2					0.0	239.9	141.7	2,378.2	0.0	0.0
30.00		140.7	2,106.2					0.0	239.9	140.7	2,346.1	0.0	0.0
35.00		142.6	2,072.1					0.0	239.9	142.6	2,312.0	0.0	0.0
40.00		145.4	2,036.6					0.0	239.9	145.4	2,276.5	0.0	0.0
45.00		100.1	1,999.9					0.0	239.9	100.1	2,239.8	0.0	0.0
46.82	Bot - Section 2	74.9	718.6					0.0	87.2	74.9	805.7	0.0	0.0
50.00		103.4	2,186.9					0.0	152.7	103.4	2,339.7	0.0	0.0
53.65	Top - Section 1	75.9	2,471.7					0.0	175.1	75.9	2,646.9	0.0	0.0
55.00		96.9	525.8					0.0	64.8	96.9	590.6	0.0	0.0
60.00		152.9	1,918.4					0.0	239.9	152.9	2,158.3	0.0	0.0
65.00		153.1	1,878.9					0.0	239.9	153.1	2,118.8	0.0	0.0
70.00		153.0	1,838.9					0.0	239.9	153.0	2,078.8	0.0	0.0
75.00		152.6	1,798.5					0.0	239.9	152.6	2,038.4	0.0	0.0
80.00		151.9	1,757.7					0.0	239.9	151.9	1,997.6	0.0	0.0
85.00		150.9	1,716.6					0.0	239.9	150.9	1,956.5	0.0	0.0
90.00		149.3	1,675.2					0.0	239.9	149.3	1,915.1	0.0	0.0
94.97	Bot - Section 3	74.6	1,622.7					0.0	238.3	74.6	1,861.0	0.0	0.0
95.00		75.6	17.8					0.0	1.6	75.6	19.4	0.0	0.0
100.00		82.0	2,605.4					0.0	239.9	82.0	2,845.3	0.0	0.0
100.47	Top - Section 2	74.2	240.0					0.0	22.4	74.2	262.4	0.0	0.0
105.00		140.6	1,284.0					0.0	217.5	140.6	1,501.5	0.0	0.0
110.00		145.7	1,379.6					0.0	239.9	145.7	1,619.5	0.0	0.0
115.00		143.6	1,341.7					0.0	239.9	143.6	1,581.6	0.0	0.0
120.00		141.3	1,303.6					0.0	239.9	141.3	1,543.5	0.0	0.0
125.00		111.6	1,265.3					0.0	239.9	111.6	1,505.2	0.0	0.0
128.00	Appertunance(s)	68.9	742.2	398.1	0.0	348.2	2,999.1	0.0	143.9	467.0	3,885.2	0.0	0.0
130.00		95.0	487.6					0.0	69.9	95.0	557.6	0.0	0.0
135.00		133.8	1,188.3					0.0	174.9	133.8	1,363.2	0.0	0.0
140.00		131.0	1,149.6					0.0	174.9	131.0	1,324.5	0.0	0.0
145.00		110.7	1,110.7					0.0	174.9	110.7	1,285.6	0.0	0.0
148.62	Top - Section 3	63.3	780.3					0.0	126.5	63.3	906.8	0.0	0.0
150.00	Appertunance(s)	79.1	228.3	765.5	0.0	1,471.3	5,500.9	0.0	48.4	844.6	5,777.6	0.0	0.0
155.00		122.0	801.3					0.0	119.7	122.0	920.9	0.0	0.0
160.00	Appertunance(s)	118.7	771.3	1,003.5	0.0	0.0	6,186.4	0.0	119.7	1,122.2	7,077.4	0.0	0.0
165.00		115.4	741.2					0.0	41.3	115.4	782.6	0.0	0.0
170.00	Appertunance(s)	111.9	711.0	212.3	0.0	0.0	1,636.5	0.0	41.3	324.2	2,388.9	0.0	0.0
175.00		108.4	680.8					0.0	11.8	108.4	692.6	0.0	0.0
180.00	Appertunance(s)	53.3	650.4	447.5	0.0	642.8	2,838.2	0.0	11.8	500.8	3,500.4	0.0	0.0
								Totals:		7,880.79	85,123.5	0.00	0.00

Site Number: 310972 Code: ANSI/TIA-222-G

Site Name: Waterford Rebuild CT, CT Engineering Number: 63042522 8/18/2015 3:43:46 PM

Customer: Verizon Wireless

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 23 Iterations

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

Dead Load Factor : 1.20 Ice Importance Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-85.12	-7.83	0.00	-937.83	0.00	937.83	5,692.71	2,846.36	14,517.2	7,269.40	0.00	0.00	0.144
5.00	-82.68	-7.72	0.00	-898.69	0.00	898.69	5,628.96	2,814.48	14,088.0	7,054.50	0.02	-0.03	0.142
10.00	-80.23	-7.61	0.00	-860.08	0.00	860.08	5,563.66	2,781.83	13,661.1	6,840.71	0.07	-0.06	0.140
15.00	-77.79	-7.51	0.00	-822.01	0.00	822.01	5,496.81	2,748.41	13,236.6	6,628.15	0.15	-0.09	0.138
20.00	-75.38	-7.40	0.00	-784.47	0.00	784.47	5,428.41	2,714.21	12,814.8	6,416.93	0.27	-0.13	0.136
25.00	-73.00	-7.30	0.00	-747.46	0.00	747.46	5,358.46	2,679.23	12,395.9	6,207.17	0.42	-0.16	0.134
30.00	-70.65	-7.19	0.00	-710.98	0.00	710.98	5,286.96	2,643.48	11,980.1	5,998.96	0.60	-0.19	0.132
35.00	-68.34	-7.08	0.00	-675.04	0.00	675.04	5,213.91	2,606.96	11,567.6	5,792.42	0.82	-0.23	0.130
40.00	-66.06	-6.96	0.00	-639.65	0.00	639.65	5,139.31	2,569.66	11,158.7	5,587.66	1.08	-0.26	0.127
45.00	-63.81	-6.88	0.00	-604.83	0.00	604.83	5,063.16	2,531.58	10,753.5	5,384.79	1.37	-0.29	0.125
46.82	-63.01	-6.82	0.00	-592.34	0.00	592.34	5,035.11	2,517.56	10,607.3	5,311.57	1.48	-0.31	0.124
50.00	-60.66	-6.73	0.00	-570.64	0.00	570.64	4,985.46	2,492.73	10,352.4	5,183.92	1.70	-0.33	0.122
53.65	-58.02	-6.65	0.00	-546.08	0.00	546.08	4,988.22	2,494.11	10,366.4	5,190.93	1.96	-0.36	0.117
55.00	-57.42	-6.57	0.00	-537.10	0.00	537.10	4,966.99	2,483.49	10,258.8	5,137.03	2.06	-0.36	0.116
60.00	-55.26	-6.44	0.00	-504.24	0.00	504.24	4,887.37	2,443.69	9,862.91	4,938.79	2.46	-0.40	0.113
65.00	-53.14	-6.30	0.00	-472.04	0.00	472.04	4,806.21	2,403.11	9,471.50	4,742.79	2.90	-0.43	0.111
70.00	-51.06	-6.16	0.00	-440.54	0.00	440.54	4,723.50	2,361.75	9,084.80	4,549.15	3.37	-0.46	0.108
75.00	-49.02	-6.02	0.00	-409.73	0.00	409.73	4,639.24	2,319.62	8,703.02	4,357.98	3.87	-0.50	0.105
80.00	-47.02	-5.88	0.00	-379.63	0.00	379.63	4,553.42	2,276.71	8,326.39	4,169.38	4.41	-0.53	0.101
85.00	-45.06	-5.73	0.00	-350.24	0.00	350.24	4,466.06	2,233.03	7,955.13	3,983.48	4.99	-0.57	0.098
90.00	-43.15	-5.59	0.00	-321.57	0.00	321.57	4,363.94	2,181.97	7,566.55	3,788.90	5.59	-0.60	0.095
94.97	-41.28	-5.51	0.00	-293.80	0.00	293.80	4,246.74	2,123.37	7,163.57	3,587.11	6.23	-0.63	0.092
95.00	-41.26	-5.44	0.00	-293.62	0.00	293.62	4,245.95	2,122.97	7,160.88	3,585.76	6.24	-0.63	0.092
100.00	-38.42	-5.34	0.00	-266.40	0.00	266.40	4,127.96	2,063.98	6,766.40	3,388.23	6.92	-0.66	0.088
100.47	-38.15	-5.28	0.00	-263.91	0.00	263.91	3,503.95	1,751.97	5,854.84	2,931.77	6.98	-0.67	0.101
105.00	-36.65	-5.14	0.00	-239.99	0.00	239.99	3,439.09	1,719.55	5,598.79	2,803.55	7.63	-0.70	0.096
110.00	-35.03	-4.99	0.00	-214.31	0.00	214.31	3,366.08	1,683.04	5,320.51	2,664.21	8.38	-0.73	0.091
115.00	-33.45	-4.85	0.00	-189.35	0.00	189.35	3,291.52	1,645.76	5,046.78	2,527.14	9.16	-0.76	0.085
120.00	-31.91	-4.70	0.00	-165.11	0.00	165.11	3,205.56	1,602.78	4,763.17	2,385.12	9.98	-0.80	0.079
125.00	-30.40	-4.58	0.00	-141.60	0.00	141.60	3,104.43	1,552.22	4,465.87	2,236.25	10.83	-0.83	0.073
128.00	-26.52	-4.07	0.00	-127.51	0.00	127.51	3,043.75	1,521.88	4,292.09	2,149.23	11.35	-0.84	0.068
130.00	-25.96	-3.97	0.00	-119.38	0.00	119.38	3,003.30	1,501.65	4,178.15	2,092.18	11.71	-0.86	0.066
135.00	-24.60	-3.83	0.00	-99.53	0.00	99.53	2,902.16	1,451.08	3,900.01	1,952.91	12.62	-0.88	0.059
140.00	-23.28	-3.68	0.00	-80.39	0.00	80.39	2,801.03	1,400.52	3,631.46	1,818.43	13.56	-0.91	0.053
145.00	-21.99	-3.56	0.00	-61.97	0.00	61.97	2,699.90	1,349.95	3,372.48	1,688.75	14.52	-0.93	0.045
148.62	-21.09	-3.49	0.00	-49.10	0.00	49.10	2,626.75	1,313.38	3,191.14	1,597.94	15.23	-0.94	0.039
148.62	-21.09	-3.49	0.00	-49.10	0.00	49.10	1,663.87	831.93	2,038.41	1,020.72	15.23	-0.94	0.061
150.00	-15.32	-2.55	0.00	-42.80	0.00	42.80	1,651.75	825.87	2,001.92	1,002.45	15.50	-0.95	0.052
155.00	-14.40	-2.42	0.00	-30.06	0.00	30.06	1,606.96	803.48	1,871.53	937.16	16.50	-0.97	0.041
160.00	-7.35	-1.18	0.00	-17.98	0.00	17.98	1,560.63	780.31	1,743.66	873.12	17.52	-0.98	0.025
165.00	-6.56	-1.05	0.00	-12.10	0.00	12.10	1,512.74	756.37	1,618.51	810.46	18.55	-0.99	0.019
170.00	-4.18	-0.68	0.00	-6.87	0.00	6.87	1,463.31	731.65	1,496.32	749.27	19.59	-1.00	0.012
175.00	-3.49	-0.56	0.00	-3.45	0.00	3.45	1,402.77	701.38	1,367.98	685.01	20.64	-1.00	0.008
180.00	0.00	-0.50	0.00	-0.64	0.00	0.64	1,335.35	667.67	1,238.99	620.42	21.69	-1.01	0.001

Site Number: 310972 Code: ANSI/TIA-222-G

Site Name: Waterford Rebuild CT, CT Engineering Number: 63042522 8/18/2015 3:43:47 PM

Customer: Verizon Wireless

Load Case: 1.0D + 1.0W Serviceability 60 mph 22 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		57.4	0.0					0.0	0.0	57.4	0.0	0.0	0.0
5.00		113.7	1,451.5					0.0	199.9	113.7	1,651.5	0.0	0.0
10.00		111.5	1,424.5					0.0	199.9	111.5	1,624.4	0.0	0.0
15.00		109.4	1,397.5					0.0	199.9	109.4	1,597.4	0.0	0.0
20.00		107.3	1,370.5					0.0	199.9	107.3	1,570.4	0.0	0.0
25.00		105.2	1,343.5					0.0	199.9	105.2	1,543.4	0.0	0.0
30.00		104.3	1,316.4					0.0	199.9	104.3	1,516.4	0.0	0.0
35.00		105.5	1,289.4					0.0	199.9	105.5	1,489.3	0.0	0.0
40.00		107.3	1,262.4					0.0	199.9	107.3	1,462.3	0.0	0.0
45.00		73.8	1,235.4					0.0	199.9	73.8	1,435.3	0.0	0.0
46.82	Bot - Section 2	55.2	442.1					0.0	72.6	55.2	514.8	0.0	0.0
50.00		76.1	1,545.6					0.0	127.3	76.1	1,672.9	0.0	0.0
53.65	Top - Section 1	55.9	1,745.1					0.0	145.9	55.9	1,891.1	0.0	0.0
55.00		71.2	321.9					0.0	54.0	71.2	375.9	0.0	0.0
60.00		112.2	1,175.0					0.0	199.9	112.2	1,374.9	0.0	0.0
65.00		112.1	1,148.0					0.0	199.9	112.1	1,347.9	0.0	0.0
70.00		111.8	1,121.0					0.0	199.9	111.8	1,320.9	0.0	0.0
75.00		111.3	1,093.9					0.0	199.9	111.3	1,293.9	0.0	0.0
80.00		110.5	1,066.9					0.0	199.9	110.5	1,266.8	0.0	0.0
85.00		109.6	1,039.9					0.0	199.9	109.6	1,239.8	0.0	0.0
90.00		108.2	1,012.9					0.0	199.9	108.2	1,212.8	0.0	0.0
94.97	Bot - Section 3	54.0	979.3					0.0	198.6	54.0	1,177.9	0.0	0.0
95.00		54.6	12.2					0.0	1.3	54.6	13.6	0.0	0.0
100.00		59.3	1,797.1					0.0	199.9	59.3	1,997.1	0.0	0.0
100.47	Top - Section 2	53.5	165.1					0.0	18.7	53.5	183.8	0.0	0.0
105.00		101.3	738.1					0.0	181.3	101.3	919.4	0.0	0.0
110.00		104.6	792.0					0.0	199.9	104.6	991.9	0.0	0.0
115.00		102.9	768.8					0.0	199.9	102.9	968.8	0.0	0.0
120.00		101.0	745.7					0.0	199.9	101.0	945.6	0.0	0.0
125.00		79.5	722.5					0.0	199.9	79.5	922.4	0.0	0.0
128.00	Appertunance(s)	49.0	422.4	409.9	0.0	422.6	1,276.5	0.0	120.0	458.9	1,818.8	0.0	0.0
130.00		67.4	277.0					0.0	58.3	67.4	335.3	0.0	0.0
135.00		94.7	676.2					0.0	145.7	94.7	821.9	0.0	0.0
140.00		92.3	653.0					0.0	145.7	92.3	798.8	0.0	0.0
145.00		77.8	629.9					0.0	145.7	77.8	775.6	0.0	0.0
148.62	Top - Section 3	44.4	441.1					0.0	105.4	44.4	546.5	0.0	0.0
150.00	Appertunance(s)	55.3	110.9	757.4	0.0	1,537.6	2,302.8	0.0	40.3	812.6	2,454.0	0.0	0.0
155.00		84.9	390.7					0.0	99.7	84.9	490.5	0.0	0.0
160.00	Appertunance(s)	82.2	375.3	1,045.7	0.0	0.0	2,421.1	0.0	99.7	1,127.9	2,896.1	0.0	0.0
165.00		79.5	359.8					0.0	34.4	79.5	394.3	0.0	0.0
170.00	Appertunance(s)	76.7	344.4	158.1	0.0	0.0	697.7	0.0	34.4	234.8	1,076.5	0.0	0.0
175.00		73.8	329.0					0.0	9.8	73.8	338.8	0.0	0.0
180.00	Appertunance(s)	36.2	313.5	334.9	0.0	456.7	1,587.0	0.0	9.8	371.1	1,910.4	0.0	0.0
								Totals:		6,360.14	50,179.8	0.00	0.00

Site Number: 310972 Code: ANSI/TIA-222-G

Site Name: Waterford Rebuild CT, CT Engineering Number: 63042522 8/18/2015 3:43:49 PM

Customer: Verizon Wireless

Load Case: 1.0D + 1.0W Serviceability 60 mph 22 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	-50.18	-6.31	0.00	-757.13	0.00	757.13	5,692.71	2,846.36	14,517.2	7,269.40	0.00	0.00	0.113
5.00	-48.52	-6.22	0.00	-725.57	0.00	725.57	5,628.96	2,814.48	14,088.0	7,054.50	0.01	-0.03	0.111
10.00	-46.90	-6.13	0.00	-694.46	0.00	694.46	5,563.66	2,781.83	13,661.1	6,840.71	0.05	-0.05	0.110
15.00	-45.30	-6.04	0.00	-663.82	0.00	663.82	5,496.81	2,748.41	13,236.6	6,628.15	0.12	-0.08	0.108
20.00	-43.72	-5.95	0.00	-633.63	0.00	633.63	5,428.41	2,714.21	12,814.8	6,416.93	0.22	-0.10	0.107
25.00	-42.18	-5.86	0.00	-603.89	0.00	603.89	5,358.46	2,679.23	12,395.9	6,207.17	0.34	-0.13	0.105
30.00	-40.66	-5.77	0.00	-574.59	0.00	574.59	5,286.96	2,643.48	11,980.1	5,998.96	0.49	-0.16	0.103
35.00	-39.17	-5.68	0.00	-545.74	0.00	545.74	5,213.91	2,606.96	11,567.6	5,792.42	0.66	-0.18	0.102
40.00	-37.70	-5.59	0.00	-517.34	0.00	517.34	5,139.31	2,569.66	11,158.7	5,587.66	0.87	-0.21	0.100
45.00	-36.27	-5.52	0.00	-489.41	0.00	489.41	5,063.16	2,531.58	10,753.5	5,384.79	1.11	-0.24	0.098
46.82	-35.75	-5.47	0.00	-479.39	0.00	479.39	5,035.11	2,517.56	10,607.3	5,311.57	1.20	-0.25	0.097
50.00	-34.08	-5.40	0.00	-461.98	0.00	461.98	4,985.46	2,492.73	10,352.4	5,183.92	1.37	-0.27	0.096
53.65	-32.18	-5.34	0.00	-442.28	0.00	442.28	4,988.22	2,494.11	10,366.4	5,190.93	1.58	-0.29	0.092
55.00	-31.81	-5.28	0.00	-435.07	0.00	435.07	4,966.99	2,483.49	10,258.8	5,137.03	1.67	-0.29	0.091
60.00	-30.43	-5.17	0.00	-408.69	0.00	408.69	4,887.37	2,443.69	9,862.91	4,938.79	1.99	-0.32	0.089
65.00	-29.08	-5.07	0.00	-382.83	0.00	382.83	4,806.21	2,403.11	9,471.50	4,742.79	2.34	-0.35	0.087
70.00	-27.76	-4.96	0.00	-357.50	0.00	357.50	4,723.50	2,361.75	9,084.80	4,549.15	2.72	-0.38	0.084
75.00	-26.46	-4.85	0.00	-332.71	0.00	332.71	4,639.24	2,319.62	8,703.02	4,357.98	3.13	-0.40	0.082
80.00	-25.19	-4.74	0.00	-308.46	0.00	308.46	4,553.42	2,276.71	8,326.39	4,169.38	3.56	-0.43	0.080
85.00	-23.95	-4.64	0.00	-284.74	0.00	284.74	4,466.06	2,233.03	7,955.13	3,983.48	4.03	-0.46	0.077
90.00	-22.74	-4.53	0.00	-261.57	0.00	261.57	4,363.94	2,181.97	7,566.55	3,788.90	4.52	-0.48	0.074
94.97	-21.56	-4.47	0.00	-239.08	0.00	239.08	4,246.74	2,123.37	7,163.57	3,587.11	5.04	-0.51	0.072
95.00	-21.55	-4.42	0.00	-238.93	0.00	238.93	4,245.95	2,122.97	7,160.88	3,585.76	5.05	-0.51	0.072
100.00	-19.55	-4.35	0.00	-216.84	0.00	216.84	4,127.96	2,063.98	6,766.40	3,388.23	5.60	-0.54	0.069
100.47	-19.37	-4.30	0.00	-214.81	0.00	214.81	3,503.95	1,751.97	5,854.84	2,931.77	5.65	-0.54	0.079
105.00	-18.44	-4.19	0.00	-195.34	0.00	195.34	3,439.09	1,719.55	5,598.79	2,803.55	6.17	-0.56	0.075
110.00	-17.45	-4.09	0.00	-174.37	0.00	174.37	3,366.08	1,683.04	5,320.51	2,664.21	6.78	-0.59	0.071
115.00	-16.48	-3.98	0.00	-153.93	0.00	153.93	3,291.52	1,645.76	5,046.78	2,527.14	7.41	-0.62	0.066
120.00	-15.54	-3.88	0.00	-134.02	0.00	134.02	3,205.56	1,602.78	4,763.17	2,385.12	8.08	-0.65	0.061
125.00	-14.61	-3.79	0.00	-114.64	0.00	114.64	3,104.43	1,552.22	4,465.87	2,236.25	8.76	-0.67	0.056
128.00	-12.80	-3.31	0.00	-102.84	0.00	102.84	3,043.75	1,521.88	4,292.09	2,149.23	9.19	-0.68	0.052
130.00	-12.46	-3.25	0.00	-96.21	0.00	96.21	3,003.30	1,501.65	4,178.15	2,092.18	9.48	-0.69	0.050
135.00	-11.64	-3.15	0.00	-79.98	0.00	79.98	2,902.16	1,451.08	3,900.01	1,952.91	10.22	-0.71	0.045
140.00	-10.84	-3.05	0.00	-64.25	0.00	64.25	2,801.03	1,400.52	3,631.46	1,818.43	10.98	-0.73	0.039
145.00	-10.07	-2.96	0.00	-49.01	0.00	49.01	2,699.90	1,349.95	3,372.48	1,688.75	11.75	-0.75	0.033
148.62	-9.52	-2.91	0.00	-38.30	0.00	38.30	2,626.75	1,313.38	3,191.14	1,597.94	12.33	-0.76	0.028
148.62	-9.52	-2.91	0.00	-38.30	0.00	38.30	1,663.87	831.93	2,038.41	1,020.72	12.33	-0.76	0.043
150.00	-7.08	-2.07	0.00	-32.73	0.00	32.73	1,651.75	825.87	2,001.92	1,002.45	12.55	-0.76	0.037
155.00	-6.59	-1.98	0.00	-22.40	0.00	22.40	1,606.96	803.48	1,871.53	937.16	13.36	-0.78	0.028
160.00	-3.71	-0.81	0.00	-12.51	0.00	12.51	1,560.63	780.31	1,743.66	873.12	14.18	-0.79	0.017
165.00	-3.32	-0.73	0.00	-8.46	0.00	8.46	1,512.74	756.37	1,618.51	810.46	15.01	-0.80	0.013
170.00	-2.24	-0.48	0.00	-4.83	0.00	4.83	1,463.31	731.65	1,496.32	749.27	15.85	-0.80	0.008
175.00	-1.90	-0.40	0.00	-2.45	0.00	2.45	1,402.77	701.38	1,367.98	685.01	16.70	-0.81	0.005
180.00	0.00	-0.37	0.00	-0.46	0.00	0.46	1,335.35	667.67	1,238.99	620.42	17.54	-0.81	0.001

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.16	
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}):	0.17	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.09	
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):	2.30	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	1.90	
Total Unfactored Dead Load:	50.18	k
Seismic Base Shear (E):	1.96	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)
42	177.50	323	6,131	0.020	38	399
41	172.50	339	6,084	0.019	38	418
40	167.50	379	6,433	0.020	40	468
39	162.50	394	6,320	0.020	39	487
38	157.50	475	7,175	0.023	45	586
37	152.50	490	6,967	0.022	43	605
36	149.31	151	2,063	0.007	13	187
35	146.81	547	7,222	0.023	45	674
34	142.50	776	9,684	0.031	60	957
33	137.50	799	9,318	0.030	58	986
32	132.50	822	8,936	0.028	56	1,014
31	129.00	335	3,464	0.011	22	414
30	126.50	542	5,399	0.017	34	669
29	122.50	922	8,639	0.028	54	1,138
28	117.50	946	8,181	0.026	51	1,167
27	112.50	969	7,716	0.025	48	1,196
26	107.50	992	7,246	0.023	45	1,224
25	102.73	919	6,161	0.020	38	1,135
24	100.23	184	1,175	0.004	7	227
23	97.50	1,997	12,116	0.039	76	2,465
22	94.98	14	78	0.000	0	17
21	92.48	1,178	6,463	0.021	40	1,454
20	87.50	1,213	5,989	0.019	37	1,497

19	82.50	1,240	5,474	0.017	34	1,530
18	77.50	1,267	4,967	0.016	31	1,563
17	72.50	1,294	4,468	0.014	28	1,597
16	67.50	1,321	3,982	0.013	25	1,630
15	62.50	1,348	3,510	0.011	22	1,663
14	57.50	1,375	3,055	0.010	19	1,697
13	54.32	376	750	0.002	5	464
12	51.82	1,891	3,449	0.011	22	2,334
11	48.41	1,673	2,680	0.009	17	2,065
10	45.91	515	745	0.002	5	635
9	42.50	1,435	1,795	0.006	11	1,771
8	37.50	1,462	1,441	0.005	9	1,805
7	32.50	1,489	1,118	0.004	7	1,838
6	27.50	1,516	829	0.003	5	1,871
5	22.50	1,543	576	0.002	4	1,905
4	17.50	1,570	363	0.001	2	1,938
3	12.50	1,597	195	0.001	1	1,971
2	7.50	1,624	75	0.000	0	2,005
1	2.50	1,651	9	0.000	0	2,038
Round Low Profile Pl	180.00	1,500	29,207	0.093	182	1,851
Andrew DB806D-Y	180.00	27	526	0.002	3	33
10' Omni	180.00	50	974	0.003	6	62
TTA	180.00	10	195	0.001	1	12
KMW HB-X-WM-17-65-00	170.00	90	1,572	0.005	10	111
KMW HB-X-WM-17-65-00	170.00	48	833	0.003	5	59
Stand-Off	170.00	560	9,781	0.031	61	691
Antel BXA-70063/6CF	160.00	51	794	0.003	5	63
RFS DB-T1-6Z-8AB-0Z	160.00	44	685	0.002	4	54
Round Low Profile Pl	160.00	1,500	23,345	0.074	146	1,851
RFS DB-T1-6Z-8AB-0Z	160.00	44	685	0.002	4	54
Alcatel-Lucent RRH 2	160.00	119	1,849	0.006	12	147
Alcatel-Lucent RRH2X	160.00	132	2,054	0.007	13	163
Alcatel-Lucent RRH2x	160.00	170	2,647	0.008	17	210
Commscope LNX-6514DS	160.00	116	1,812	0.006	11	144
Commscope HBXX-6517D	160.00	245	3,810	0.012	24	302
Flat Low Profile Pla	150.00	1,500	20,649	0.066	129	1,851
Powerwave Allgon 777	150.00	210	2,891	0.009	18	259
Powerwave LGP21401	150.00	85	1,165	0.004	7	104
Powerwave LGP21903	150.00	33	454	0.001	3	41
Ericsson RRUS 11 (Ba	150.00	300	4,130	0.013	26	370
KMW AM-X-CD-14-65-00	150.00	109	1,503	0.005	9	135
Raycap DC6-48-60-18-	150.00	20	275	0.001	2	25
RCU	150.00	6	83	0.000	1	7
12' Omni	150.00	40	551	0.002	3	49
Flat T-Arm	128.00	750	7,636	0.024	48	926
Ericsson KRY 112 144	128.00	33	336	0.001	2	41
Ericsson AIR 21, 1.3	128.00	249	2,535	0.008	16	307
Ericsson AIR 21, 1.3	128.00	244	2,489	0.008	16	302
		50,180	313,906	1.000	1,957	61,929

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)
42	177.50	323	6,131	0.020	38	280
41	172.50	339	6,084	0.019	38	293
40	167.50	379	6,433	0.020	40	328
39	162.50	394	6,320	0.020	39	341
38	157.50	475	7,175	0.023	45	411
37	152.50	490	6,967	0.022	43	425

36	149.31	151	2,063	0.007	13	131
35	146.81	547	7,222	0.023	45	473
34	142.50	776	9,684	0.031	60	672
33	137.50	799	9,318	0.030	58	692
32	132.50	822	8,936	0.028	56	712
31	129.00	335	3,464	0.011	22	290
30	126.50	542	5,399	0.017	34	470
29	122.50	922	8,639	0.028	54	799
28	117.50	946	8,181	0.026	51	819
27	112.50	969	7,716	0.025	48	839
26	107.50	992	7,246	0.023	45	859
25	102.73	919	6,161	0.020	38	796
24	100.23	184	1,175	0.004	7	159
23	97.50	1,997	12,116	0.039	76	1,729
22	94.98	14	78	0.000	0	12
21	92.48	1,178	6,463	0.021	40	1,020
20	87.50	1,213	5,989	0.019	37	1,050
19	82.50	1,240	5,474	0.017	34	1,074
18	77.50	1,267	4,967	0.016	31	1,097
17	72.50	1,294	4,468	0.014	28	1,120
16	67.50	1,321	3,982	0.013	25	1,144
15	62.50	1,348	3,510	0.011	22	1,167
14	57.50	1,375	3,055	0.010	19	1,190
13	54.32	376	750	0.002	5	325
12	51.82	1,891	3,449	0.011	22	1,637
11	48.41	1,673	2,680	0.009	17	1,449
10	45.91	515	745	0.002	5	446
9	42.50	1,435	1,795	0.006	11	1,243
8	37.50	1,462	1,441	0.005	9	1,266
7	32.50	1,489	1,118	0.004	7	1,290
6	27.50	1,516	829	0.003	5	1,313
5	22.50	1,543	576	0.002	4	1,336
4	17.50	1,570	363	0.001	2	1,360
3	12.50	1,597	195	0.001	1	1,383
2	7.50	1,624	75	0.000	0	1,407
1	2.50	1,651	9	0.000	0	1,430
Round Low Profile Pl	180.00	1,500	29,207	0.093	182	1,299
Andrew DB806D-Y	180.00	27	526	0.002	3	23
10' Omni	180.00	50	974	0.003	6	43
TTA	180.00	10	195	0.001	1	9
KMW HB-X-WM-17-65-00	170.00	90	1,572	0.005	10	78
KMW HB-X-WM-17-65-00	170.00	48	833	0.003	5	41
Stand-Off	170.00	560	9,781	0.031	61	485
Antel BXA-70063/6CF	160.00	51	794	0.003	5	44
RFS DB-T1-6Z-8AB-0Z	160.00	44	685	0.002	4	38
Round Low Profile Pl	160.00	1,500	23,345	0.074	146	1,299
RFS DB-T1-6Z-8AB-0Z	160.00	44	685	0.002	4	38
Alcatel-Lucent RRH 2	160.00	119	1,849	0.006	12	103
Alcatel-Lucent RRH2X	160.00	132	2,054	0.007	13	114
Alcatel-Lucent RRH2x	160.00	170	2,647	0.008	17	147
Commscope LNX-6514DS	160.00	116	1,812	0.006	11	101
Commscope HBXX-6517D	160.00	245	3,810	0.012	24	212
Flat Low Profile Pla	150.00	1,500	20,649	0.066	129	1,299
Powerwave Allgon 777	150.00	210	2,891	0.009	18	182
Powerwave LGP21401	150.00	85	1,165	0.004	7	73
Powerwave LGP21903	150.00	33	454	0.001	3	29
Ericsson RRUS 11 (Ba	150.00	300	4,130	0.013	26	260
KMW AM-X-CD-14-65-00	150.00	109	1,503	0.005	9	95
Raycap DC6-48-60-18-	150.00	20	275	0.001	2	17
RCU	150.00	6	83	0.000	1	5
12' Omni	150.00	40	551	0.002	3	35
Flat T-Arm	128.00	750	7,636	0.024	48	649
Ericsson KRY 112 144	128.00	33	336	0.001	2	29
Ericsson AIR 21, 1.3	128.00	249	2,535	0.008	16	216

Ericsson AIR 21, 1.3	128.00	244	2,489	0.008	16	212
		50,180	313,906	1.000	1,957	43,449

Site Number: 310972 Code: ANSI/TIA-222-G

Site Name: Waterford Rebuild CT, CT Engineering Number: 63042522 8/18/2015 3:43:49 PM

Customer: Verizon Wireless

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	-59.89	-1.96	0.00	-269.17	0.00	269.17	5,692.71	2,846.36	14,517.2	7,269.40	0.00	0.00	0.048
5.00	-57.89	-1.97	0.00	-259.37	0.00	259.37	5,628.96	2,814.48	14,088.0	7,054.50	0.00	-0.01	0.047
10.00	-55.91	-1.98	0.00	-249.53	0.00	249.53	5,563.66	2,781.83	13,661.1	6,840.71	0.02	-0.02	0.047
15.00	-53.98	-1.98	0.00	-239.64	0.00	239.64	5,496.81	2,748.41	13,236.6	6,628.15	0.04	-0.03	0.046
20.00	-52.07	-1.99	0.00	-229.73	0.00	229.73	5,428.41	2,714.21	12,814.8	6,416.93	0.08	-0.04	0.045
25.00	-50.20	-1.99	0.00	-219.80	0.00	219.80	5,358.46	2,679.23	12,395.9	6,207.17	0.12	-0.05	0.045
30.00	-48.36	-1.99	0.00	-209.86	0.00	209.86	5,286.96	2,643.48	11,980.1	5,998.96	0.17	-0.06	0.044
35.00	-46.55	-1.98	0.00	-199.93	0.00	199.93	5,213.91	2,606.96	11,567.6	5,792.42	0.24	-0.07	0.043
40.00	-44.78	-1.98	0.00	-190.00	0.00	190.00	5,139.31	2,569.66	11,158.7	5,587.66	0.31	-0.08	0.043
45.00	-44.15	-1.98	0.00	-180.10	0.00	180.10	5,063.16	2,531.58	10,753.5	5,384.79	0.40	-0.09	0.042
46.82	-42.08	-1.96	0.00	-176.51	0.00	176.51	5,035.11	2,517.56	10,607.3	5,311.57	0.43	-0.09	0.042
50.00	-39.75	-1.94	0.00	-170.26	0.00	170.26	4,985.46	2,492.73	10,352.4	5,183.92	0.50	-0.10	0.041
53.65	-39.28	-1.94	0.00	-163.17	0.00	163.17	4,988.22	2,494.11	10,366.4	5,190.93	0.57	-0.10	0.039
55.00	-37.59	-1.92	0.00	-160.55	0.00	160.55	4,966.99	2,483.49	10,258.8	5,137.03	0.60	-0.11	0.039
60.00	-35.92	-1.90	0.00	-150.93	0.00	150.93	4,887.37	2,443.69	9,862.91	4,938.79	0.72	-0.12	0.038
65.00	-34.29	-1.88	0.00	-141.41	0.00	141.41	4,806.21	2,403.11	9,471.50	4,742.79	0.85	-0.13	0.037
70.00	-32.70	-1.86	0.00	-132.01	0.00	132.01	4,723.50	2,361.75	9,084.80	4,549.15	0.99	-0.14	0.036
75.00	-31.13	-1.83	0.00	-122.73	0.00	122.73	4,639.24	2,319.62	8,703.02	4,357.98	1.14	-0.15	0.035
80.00	-29.60	-1.79	0.00	-113.59	0.00	113.59	4,553.42	2,276.71	8,326.39	4,169.38	1.30	-0.16	0.034
85.00	-28.11	-1.76	0.00	-104.63	0.00	104.63	4,466.06	2,233.03	7,955.13	3,983.48	1.47	-0.17	0.033
90.00	-26.65	-1.72	0.00	-95.84	0.00	95.84	4,363.94	2,181.97	7,566.55	3,788.90	1.65	-0.18	0.031
94.97	-26.63	-1.72	0.00	-87.31	0.00	87.31	4,246.74	2,123.37	7,163.57	3,587.11	1.84	-0.19	0.031
95.00	-24.17	-1.64	0.00	-87.26	0.00	87.26	4,245.95	2,122.97	7,160.88	3,585.76	1.84	-0.19	0.030
100.00	-23.94	-1.63	0.00	-79.07	0.00	79.07	4,127.96	2,063.98	6,766.40	3,388.23	2.04	-0.20	0.029
100.47	-22.81	-1.59	0.00	-78.31	0.00	78.31	3,503.95	1,751.97	5,854.84	2,931.77	2.06	-0.20	0.033
105.00	-21.58	-1.54	0.00	-71.10	0.00	71.10	3,439.09	1,719.55	5,598.79	2,803.55	2.25	-0.21	0.032
110.00	-20.39	-1.50	0.00	-63.37	0.00	63.37	3,366.08	1,683.04	5,320.51	2,664.21	2.47	-0.22	0.030
115.00	-19.22	-1.44	0.00	-55.89	0.00	55.89	3,291.52	1,645.76	5,046.78	2,527.14	2.70	-0.23	0.028
120.00	-18.08	-1.39	0.00	-48.68	0.00	48.68	3,205.56	1,602.78	4,763.17	2,385.12	2.94	-0.24	0.026
125.00	-17.41	-1.35	0.00	-41.73	0.00	41.73	3,104.43	1,552.22	4,465.87	2,236.25	3.20	-0.24	0.024
128.00	-15.43	-1.24	0.00	-37.67	0.00	37.67	3,043.75	1,521.88	4,292.09	2,149.23	3.35	-0.25	0.023
130.00	-14.41	-1.19	0.00	-35.18	0.00	35.18	3,003.30	1,501.65	4,178.15	2,092.18	3.46	-0.25	0.022
135.00	-13.43	-1.12	0.00	-29.26	0.00	29.26	2,902.16	1,451.08	3,900.01	1,952.91	3.73	-0.26	0.020
140.00	-12.47	-1.06	0.00	-23.64	0.00	23.64	2,801.03	1,400.52	3,631.46	1,818.43	4.00	-0.27	0.017
145.00	-11.79	-1.01	0.00	-18.33	0.00	18.33	2,699.90	1,349.95	3,372.48	1,688.75	4.29	-0.27	0.015
148.62	-11.61	-1.00	0.00	-14.66	0.00	14.66	2,626.75	1,313.38	3,191.14	1,597.94	4.50	-0.28	0.014
148.62	-11.61	-1.00	0.00	-14.66	0.00	14.66	1,663.87	831.93	2,038.41	1,020.72	4.50	-0.28	0.021
150.00	-8.16	-0.74	0.00	-13.28	0.00	13.28	1,651.75	825.87	2,001.92	1,002.45	4.58	-0.28	0.018
155.00	-7.58	-0.70	0.00	-9.56	0.00	9.56	1,606.96	803.48	1,871.53	937.16	4.88	-0.29	0.015
160.00	-4.10	-0.41	0.00	-6.07	0.00	6.07	1,560.63	780.31	1,743.66	873.12	5.18	-0.29	0.010
165.00	-3.63	-0.36	0.00	-4.04	0.00	4.04	1,512.74	756.37	1,618.51	810.46	5.48	-0.29	0.007
170.00	-2.36	-0.24	0.00	-2.23	0.00	2.23	1,463.31	731.65	1,496.32	749.27	5.79	-0.30	0.005
175.00	-1.96	-0.20	0.00	-1.01	0.00	1.01	1,402.77	701.38	1,367.98	685.01	6.11	-0.30	0.003
180.00	0.00	-0.19	0.00	0.00	0.00	0.00	1,335.35	667.67	1,238.99	620.42	6.42	-0.30	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	-42.02	-1.96	0.00	-266.03	0.00	266.03	5,692.71	2,846.36	14,517.2	7,269.40	0.00	0.00	0.044
5.00	-40.61	-1.96	0.00	-256.24	0.00	256.24	5,628.96	2,814.48	14,088.0	7,054.50	0.00	-0.01	0.044
10.00	-39.23	-1.97	0.00	-246.42	0.00	246.42	5,563.66	2,781.83	13,661.1	6,840.71	0.02	-0.02	0.043
15.00	-37.87	-1.97	0.00	-236.57	0.00	236.57	5,496.81	2,748.41	13,236.6	6,628.15	0.04	-0.03	0.043
20.00	-36.53	-1.97	0.00	-226.70	0.00	226.70	5,428.41	2,714.21	12,814.8	6,416.93	0.08	-0.04	0.042
25.00	-35.22	-1.97	0.00	-216.83	0.00	216.83	5,358.46	2,679.23	12,395.9	6,207.17	0.12	-0.05	0.042
30.00	-33.93	-1.97	0.00	-206.96	0.00	206.96	5,286.96	2,643.48	11,980.1	5,998.96	0.17	-0.06	0.041
35.00	-32.66	-1.97	0.00	-197.10	0.00	197.10	5,213.91	2,606.96	11,567.6	5,792.42	0.24	-0.07	0.040
40.00	-31.42	-1.96	0.00	-187.27	0.00	187.27	5,139.31	2,569.66	11,158.7	5,587.66	0.31	-0.08	0.040
45.00	-30.97	-1.96	0.00	-177.47	0.00	177.47	5,063.16	2,531.58	10,753.5	5,384.79	0.39	-0.09	0.039
46.82	-29.52	-1.94	0.00	-173.91	0.00	173.91	5,035.11	2,517.56	10,607.3	5,311.57	0.43	-0.09	0.039
50.00	-27.89	-1.92	0.00	-167.73	0.00	167.73	4,985.46	2,492.73	10,352.4	5,183.92	0.49	-0.10	0.038
53.65	-27.56	-1.92	0.00	-160.71	0.00	160.71	4,988.22	2,494.11	10,366.4	5,190.93	0.56	-0.10	0.036
55.00	-26.37	-1.90	0.00	-158.12	0.00	158.12	4,966.99	2,483.49	10,258.8	5,137.03	0.59	-0.11	0.036
60.00	-25.20	-1.88	0.00	-148.62	0.00	148.62	4,887.37	2,443.69	9,862.91	4,938.79	0.71	-0.12	0.035
65.00	-24.06	-1.86	0.00	-139.22	0.00	139.22	4,806.21	2,403.11	9,471.50	4,742.79	0.84	-0.13	0.034
70.00	-22.94	-1.83	0.00	-129.93	0.00	129.93	4,723.50	2,361.75	9,084.80	4,549.15	0.97	-0.14	0.033
75.00	-21.84	-1.80	0.00	-120.78	0.00	120.78	4,639.24	2,319.62	8,703.02	4,357.98	1.12	-0.15	0.032
80.00	-20.77	-1.77	0.00	-111.77	0.00	111.77	4,553.42	2,276.71	8,326.39	4,169.38	1.28	-0.16	0.031
85.00	-19.72	-1.73	0.00	-102.93	0.00	102.93	4,466.06	2,233.03	7,955.13	3,983.48	1.45	-0.16	0.030
90.00	-18.70	-1.69	0.00	-94.28	0.00	94.28	4,363.94	2,181.97	7,566.55	3,788.90	1.62	-0.17	0.029
94.97	-18.69	-1.69	0.00	-85.88	0.00	85.88	4,246.74	2,123.37	7,163.57	3,587.11	1.81	-0.18	0.028
95.00	-16.96	-1.61	0.00	-85.83	0.00	85.83	4,245.95	2,122.97	7,160.88	3,585.76	1.81	-0.18	0.028
100.00	-16.80	-1.61	0.00	-77.77	0.00	77.77	4,127.96	2,063.98	6,766.40	3,388.23	2.01	-0.19	0.027
100.47	-16.00	-1.57	0.00	-77.02	0.00	77.02	3,503.95	1,751.97	5,854.84	2,931.77	2.03	-0.19	0.031
105.00	-15.14	-1.52	0.00	-69.92	0.00	69.92	3,439.09	1,719.55	5,598.79	2,803.55	2.22	-0.20	0.029
110.00	-14.30	-1.47	0.00	-62.31	0.00	62.31	3,366.08	1,683.04	5,320.51	2,664.21	2.44	-0.21	0.028
115.00	-13.48	-1.42	0.00	-54.96	0.00	54.96	3,291.52	1,645.76	5,046.78	2,527.14	2.66	-0.22	0.026
120.00	-12.69	-1.36	0.00	-47.86	0.00	47.86	3,205.56	1,602.78	4,763.17	2,385.12	2.90	-0.23	0.024
125.00	-12.22	-1.33	0.00	-41.03	0.00	41.03	3,104.43	1,552.22	4,465.87	2,236.25	3.15	-0.24	0.022
128.00	-10.82	-1.22	0.00	-37.04	0.00	37.04	3,043.75	1,521.88	4,292.09	2,149.23	3.30	-0.25	0.021
130.00	-10.11	-1.17	0.00	-34.59	0.00	34.59	3,003.30	1,501.65	4,178.15	2,092.18	3.41	-0.25	0.020
135.00	-9.42	-1.11	0.00	-28.77	0.00	28.77	2,902.16	1,451.08	3,900.01	1,952.91	3.67	-0.26	0.018
140.00	-8.75	-1.04	0.00	-23.24	0.00	23.24	2,801.03	1,400.52	3,631.46	1,818.43	3.95	-0.26	0.016
145.00	-8.27	-1.00	0.00	-18.02	0.00	18.02	2,699.90	1,349.95	3,372.48	1,688.75	4.23	-0.27	0.014
148.62	-8.14	-0.98	0.00	-14.42	0.00	14.42	2,626.75	1,313.38	3,191.14	1,597.94	4.43	-0.27	0.012
148.62	-8.14	-0.98	0.00	-14.42	0.00	14.42	1,663.87	831.93	2,038.41	1,020.72	4.43	-0.27	0.019
150.00	-5.73	-0.73	0.00	-13.06	0.00	13.06	1,651.75	825.87	2,001.92	1,002.45	4.51	-0.28	0.016
155.00	-5.31	-0.69	0.00	-9.40	0.00	9.40	1,606.96	803.48	1,871.53	937.16	4.80	-0.28	0.013
160.00	-2.88	-0.40	0.00	-5.98	0.00	5.98	1,560.63	780.31	1,743.66	873.12	5.10	-0.29	0.009
165.00	-2.55	-0.36	0.00	-3.98	0.00	3.98	1,512.74	756.37	1,618.51	810.46	5.40	-0.29	0.007
170.00	-1.65	-0.24	0.00	-2.19	0.00	2.19	1,463.31	731.65	1,496.32	749.27	5.71	-0.29	0.004
175.00	-1.37	-0.20	0.00	-1.00	0.00	1.00	1,402.77	701.38	1,367.98	685.01	6.02	-0.29	0.002
180.00	0.00	-0.19	0.00	0.00	0.00	0.00	1,335.35	667.67	1,238.99	620.42	6.32	-0.29	0.000

Site Number: 310972 Code: ANSI/TIA-222-G

Site Name: Waterford Rebuild CT, CT Engineering Number: 63042522 8/18/2015 3:43:49 PM

Customer: Verizon Wireless

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):	0.16
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}):	0.17
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.09
Period Based on Rayleigh Method (sec):	2.30
Redundancy Factor (p):	1.30

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)
42	177.50	323	1.838	1.716	1.044	0.296	83	399
41	172.50	339	1.736	1.263	0.871	0.241	71	418
40	167.50	379	1.637	0.896	0.721	0.191	63	468
39	162.50	394	1.540	0.605	0.592	0.147	50	487
38	157.50	475	1.447	0.379	0.482	0.107	44	586
37	152.50	490	1.357	0.207	0.388	0.072	31	605
36	149.31	151	1.300	0.121	0.336	0.053	7	187
35	146.81	547	1.257	0.066	0.300	0.039	18	674
34	142.50	776	1.185	-0.009	0.243	0.018	12	957
33	137.50	799	1.103	-0.068	0.189	-0.002	-2	986
32	132.50	822	1.024	-0.103	0.144	-0.018	-13	1,014
31	129.00	335	0.971	-0.116	0.117	-0.025	-7	414
30	126.50	542	0.933	-0.121	0.101	-0.030	-14	669
29	122.50	922	0.875	-0.121	0.078	-0.034	-27	1,138
28	117.50	946	0.805	-0.113	0.055	-0.035	-29	1,167
27	112.50	969	0.738	-0.098	0.038	-0.032	-27	1,196
26	107.50	992	0.674	-0.079	0.025	-0.025	-21	1,224
25	102.73	919	0.616	-0.059	0.016	-0.015	-12	1,135
24	100.23	184	0.586	-0.048	0.013	-0.010	-2	227
23	97.50	1,997	0.555	-0.036	0.010	-0.004	-6	2,465
22	94.98	14	0.526	-0.026	0.008	0.002	0	17
21	92.48	1,178	0.499	-0.016	0.007	0.008	8	1,454
20	87.50	1,213	0.447	0.003	0.006	0.019	20	1,497
19	82.50	1,240	0.397	0.019	0.007	0.028	30	1,530
18	77.50	1,267	0.350	0.033	0.009	0.035	39	1,563
17	72.50	1,294	0.307	0.044	0.012	0.040	45	1,597
16	67.50	1,321	0.266	0.052	0.015	0.043	49	1,630
15	62.50	1,348	0.228	0.059	0.020	0.045	52	1,663
14	57.50	1,375	0.193	0.064	0.024	0.045	54	1,697
13	54.32	376	0.172	0.066	0.027	0.045	15	464
12	51.82	1,891	0.157	0.067	0.029	0.045	73	2,334
11	48.41	1,673	0.137	0.069	0.032	0.044	64	2,065
10	45.91	515	0.123	0.070	0.034	0.044	19	635
9	42.50	1,435	0.105	0.071	0.036	0.043	54	1,771

8	37.50	1,462	0.082	0.072	0.039	0.042	53	1,805
7	32.50	1,489	0.062	0.072	0.041	0.041	53	1,838
6	27.50	1,516	0.044	0.071	0.042	0.040	53	1,871
5	22.50	1,543	0.030	0.068	0.040	0.038	51	1,905
4	17.50	1,570	0.018	0.063	0.037	0.036	49	1,938
3	12.50	1,597	0.009	0.054	0.031	0.031	43	1,971
2	7.50	1,624	0.003	0.039	0.022	0.024	33	2,005
1	2.50	1,651	0.000	0.015	0.008	0.010	15	2,038
Round Low Profile Pl	180.00	1,500	1.890	1.980	1.140	0.325	423	1,851
Andrew DB806D-Y	180.00	27	1.890	1.980	1.140	0.325	8	33
10' Omni	180.00	50	1.890	1.980	1.140	0.325	14	62
TTA	180.00	10	1.890	1.980	1.140	0.325	3	12
KMW HB-X-WM-17-65-00	170.00	90	1.686	1.069	0.793	0.215	17	111
KMW HB-X-WM-17-65-00	170.00	48	1.686	1.069	0.793	0.215	9	59
Stand-Off	170.00	560	1.686	1.069	0.793	0.215	105	691
Antel BXA-70063/6CF	160.00	51	1.493	0.485	0.535	0.126	6	63
RFS DB-T1-6Z-8AB-0Z	160.00	44	1.493	0.485	0.535	0.126	5	54
Round Low Profile Pl	160.00	1,500	1.493	0.485	0.535	0.126	164	1,851
RFS DB-T1-6Z-8AB-0Z	160.00	44	1.493	0.485	0.535	0.126	5	54
Alcatel-Lucent RRH 2	160.00	119	1.493	0.485	0.535	0.126	13	147
Alcatel-Lucent RRH2X	160.00	132	1.493	0.485	0.535	0.126	14	163
Alcatel-Lucent RRH2x	160.00	170	1.493	0.485	0.535	0.126	19	210
Commscope LNX-	160.00	116	1.493	0.485	0.535	0.126	13	144
Commscope HBXX-	160.00	245	1.493	0.485	0.535	0.126	27	302
Flat Low Profile Pla	150.00	1,500	1.312	0.138	0.347	0.057	74	1,851
Powerwave Allgon 777	150.00	210	1.312	0.138	0.347	0.057	10	259
Powerwave LGP21401	150.00	85	1.312	0.138	0.347	0.057	4	104
Powerwave LGP21903	150.00	33	1.312	0.138	0.347	0.057	2	41
Ericsson RRUS 11 (Ba	150.00	300	1.312	0.138	0.347	0.057	15	370
KMW AM-X-CD-14-65-00	150.00	109	1.312	0.138	0.347	0.057	5	135
Raycap DC6-48-60-18-	150.00	20	1.312	0.138	0.347	0.057	1	25
RCU	150.00	6	1.312	0.138	0.347	0.057	0	7
12' Omni	150.00	40	1.312	0.138	0.347	0.057	2	49
Flat T-Arm	128.00	750	0.956	-0.118	0.111	-0.027	-18	926
Ericsson KRY 112 144	128.00	33	0.956	-0.118	0.111	-0.027	-1	41
Ericsson AIR 21, 1.3	128.00	249	0.956	-0.118	0.111	-0.027	-6	307
Ericsson AIR 21, 1.3	128.00	244	0.956	-0.118	0.111	-0.027	-6	302
		50,180	68.024	21.571	21.611	5.169	2,018	61,929

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)
42	177.50	323	1.838	1.716	1.044	0.296	83	280
41	172.50	339	1.736	1.263	0.871	0.241	71	293
40	167.50	379	1.637	0.896	0.721	0.191	63	328
39	162.50	394	1.540	0.605	0.592	0.147	50	341
38	157.50	475	1.447	0.379	0.482	0.107	44	411
37	152.50	490	1.357	0.207	0.388	0.072	31	425
36	149.31	151	1.300	0.121	0.336	0.053	7	131
35	146.81	547	1.257	0.066	0.300	0.039	18	473
34	142.50	776	1.185	-0.009	0.243	0.018	12	672
33	137.50	799	1.103	-0.068	0.189	-0.002	-2	692
32	132.50	822	1.024	-0.103	0.144	-0.018	-13	712
31	129.00	335	0.971	-0.116	0.117	-0.025	-7	290
30	126.50	542	0.933	-0.121	0.101	-0.030	-14	470
29	122.50	922	0.875	-0.121	0.078	-0.034	-27	799
28	117.50	946	0.805	-0.113	0.055	-0.035	-29	819
27	112.50	969	0.738	-0.098	0.038	-0.032	-27	839

26	107.50	992	0.674	-0.079	0.025	-0.025	-21	859
25	102.73	919	0.616	-0.059	0.016	-0.015	-12	796
24	100.23	184	0.586	-0.048	0.013	-0.010	-2	159
23	97.50	1,997	0.555	-0.036	0.010	-0.004	-6	1,729
22	94.98	14	0.526	-0.026	0.008	0.002	0	12
21	92.48	1,178	0.499	-0.016	0.007	0.008	8	1,020
20	87.50	1,213	0.447	0.003	0.006	0.019	20	1,050
19	82.50	1,240	0.397	0.019	0.007	0.028	30	1,074
18	77.50	1,267	0.350	0.033	0.009	0.035	39	1,097
17	72.50	1,294	0.307	0.044	0.012	0.040	45	1,120
16	67.50	1,321	0.266	0.052	0.015	0.043	49	1,144
15	62.50	1,348	0.228	0.059	0.020	0.045	52	1,167
14	57.50	1,375	0.193	0.064	0.024	0.045	54	1,190
13	54.32	376	0.172	0.066	0.027	0.045	15	325
12	51.82	1,891	0.157	0.067	0.029	0.045	73	1,637
11	48.41	1,673	0.137	0.069	0.032	0.044	64	1,449
10	45.91	515	0.123	0.070	0.034	0.044	19	446
9	42.50	1,435	0.105	0.071	0.036	0.043	54	1,243
8	37.50	1,462	0.082	0.072	0.039	0.042	53	1,266
7	32.50	1,489	0.062	0.072	0.041	0.041	53	1,290
6	27.50	1,516	0.044	0.071	0.042	0.040	53	1,313
5	22.50	1,543	0.030	0.068	0.040	0.038	51	1,336
4	17.50	1,570	0.018	0.063	0.037	0.036	49	1,360
3	12.50	1,597	0.009	0.054	0.031	0.031	43	1,383
2	7.50	1,624	0.003	0.039	0.022	0.024	33	1,407
1	2.50	1,651	0.000	0.015	0.008	0.010	15	1,430
Round Low Profile Pl	180.00	1,500	1.890	1.980	1.140	0.325	423	1,299
Andrew DB806D-Y	180.00	27	1.890	1.980	1.140	0.325	8	23
10' Omni	180.00	50	1.890	1.980	1.140	0.325	14	43
TTA	180.00	10	1.890	1.980	1.140	0.325	3	9
KMW HB-X-WM-17-65-00	170.00	90	1.686	1.069	0.793	0.215	17	78
KMW HB-X-WM-17-65-00	170.00	48	1.686	1.069	0.793	0.215	9	41
Stand-Off	170.00	560	1.686	1.069	0.793	0.215	105	485
Antel BXA-70063/6CF	160.00	51	1.493	0.485	0.535	0.126	6	44
RFS DB-T1-6Z-8AB-0Z	160.00	44	1.493	0.485	0.535	0.126	5	38
Round Low Profile Pl	160.00	1,500	1.493	0.485	0.535	0.126	164	1,299
RFS DB-T1-6Z-8AB-0Z	160.00	44	1.493	0.485	0.535	0.126	5	38
Alcatel-Lucent RRH 2	160.00	119	1.493	0.485	0.535	0.126	13	103
Alcatel-Lucent RRH2X	160.00	132	1.493	0.485	0.535	0.126	14	114
Alcatel-Lucent RRH2x	160.00	170	1.493	0.485	0.535	0.126	19	147
Commscope LNX-	160.00	116	1.493	0.485	0.535	0.126	13	101
Commscope HBXX-	160.00	245	1.493	0.485	0.535	0.126	27	212
Flat Low Profile Pla	150.00	1,500	1.312	0.138	0.347	0.057	74	1,299
Powerwave Allgon 777	150.00	210	1.312	0.138	0.347	0.057	10	182
Powerwave LGP21401	150.00	85	1.312	0.138	0.347	0.057	4	73
Powerwave LGP21903	150.00	33	1.312	0.138	0.347	0.057	2	29
Ericsson RRUS 11 (Ba	150.00	300	1.312	0.138	0.347	0.057	15	260
KMW AM-X-CD-14-65-00	150.00	109	1.312	0.138	0.347	0.057	5	95
Raycap DC6-48-60-18-	150.00	20	1.312	0.138	0.347	0.057	1	17
RCU	150.00	6	1.312	0.138	0.347	0.057	0	5
12' Omni	150.00	40	1.312	0.138	0.347	0.057	2	35
Flat T-Arm	128.00	750	0.956	-0.118	0.111	-0.027	-18	649
Ericsson KRY 112 144	128.00	33	0.956	-0.118	0.111	-0.027	-1	29
Ericsson AIR 21, 1.3	128.00	249	0.956	-0.118	0.111	-0.027	-6	216
Ericsson AIR 21, 1.3	128.00	244	0.956	-0.118	0.111	-0.027	-6	212
		50,180	68.024	21.571	21.611	5.169	2,018	43,449

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	-59.89	-2.01	0.00	-249.29	0.00	249.29	5,692.71	2,846.36	14,517.2	7,269.40	0.00	0.00	0.045
5.00	-57.89	-1.98	0.00	-239.26	0.00	239.26	5,628.96	2,814.48	14,088.0	7,054.50	0.00	-0.01	0.044
10.00	-55.91	-1.95	0.00	-229.36	0.00	229.36	5,563.66	2,781.83	13,661.1	6,840.71	0.02	-0.02	0.044
15.00	-53.98	-1.90	0.00	-219.63	0.00	219.63	5,496.81	2,748.41	13,236.6	6,628.15	0.04	-0.03	0.043
20.00	-52.07	-1.86	0.00	-210.11	0.00	210.11	5,428.41	2,714.21	12,814.8	6,416.93	0.07	-0.03	0.042
25.00	-50.20	-1.81	0.00	-200.82	0.00	200.82	5,358.46	2,679.23	12,395.9	6,207.17	0.11	-0.04	0.042
30.00	-48.36	-1.77	0.00	-191.75	0.00	191.75	5,286.96	2,643.48	11,980.1	5,998.96	0.16	-0.05	0.041
35.00	-46.56	-1.72	0.00	-182.92	0.00	182.92	5,213.91	2,606.96	11,567.6	5,792.42	0.22	-0.06	0.041
40.00	-44.78	-1.67	0.00	-174.32	0.00	174.32	5,139.31	2,569.66	11,158.7	5,587.66	0.29	-0.07	0.040
45.00	-44.15	-1.66	0.00	-165.97	0.00	165.97	5,063.16	2,531.58	10,753.5	5,384.79	0.37	-0.08	0.040
46.82	-42.08	-1.59	0.00	-162.96	0.00	162.96	5,035.11	2,517.56	10,607.3	5,311.57	0.40	-0.08	0.039
50.00	-39.75	-1.52	0.00	-157.90	0.00	157.90	4,985.46	2,492.73	10,352.4	5,183.92	0.45	-0.09	0.038
53.65	-39.29	-1.51	0.00	-152.35	0.00	152.35	4,988.22	2,494.11	10,366.4	5,190.93	0.53	-0.10	0.037
55.00	-37.59	-1.46	0.00	-150.31	0.00	150.31	4,966.99	2,483.49	10,258.8	5,137.03	0.55	-0.10	0.037
60.00	-35.93	-1.41	0.00	-143.03	0.00	143.03	4,887.37	2,443.69	9,862.91	4,938.79	0.66	-0.11	0.036
65.00	-34.30	-1.36	0.00	-136.00	0.00	136.00	4,806.21	2,403.11	9,471.50	4,742.79	0.78	-0.12	0.036
70.00	-32.70	-1.32	0.00	-129.20	0.00	129.20	4,723.50	2,361.75	9,084.80	4,549.15	0.91	-0.13	0.035
75.00	-31.13	-1.28	0.00	-122.62	0.00	122.62	4,639.24	2,319.62	8,703.02	4,357.98	1.05	-0.14	0.035
80.00	-29.60	-1.25	0.00	-116.22	0.00	116.22	4,553.42	2,276.71	8,326.39	4,169.38	1.20	-0.15	0.034
85.00	-28.11	-1.23	0.00	-109.96	0.00	109.96	4,466.06	2,233.03	7,955.13	3,983.48	1.36	-0.16	0.034
90.00	-26.65	-1.23	0.00	-103.80	0.00	103.80	4,363.94	2,181.97	7,566.55	3,788.90	1.53	-0.17	0.034
94.97	-26.64	-1.23	0.00	-97.71	0.00	97.71	4,246.74	2,123.37	7,163.57	3,587.11	1.71	-0.18	0.034
95.00	-24.17	-1.23	0.00	-97.67	0.00	97.67	4,245.95	2,122.97	7,160.88	3,585.76	1.71	-0.18	0.033
100.00	-23.95	-1.23	0.00	-91.53	0.00	91.53	4,127.96	2,063.98	6,766.40	3,388.23	1.90	-0.19	0.033
100.47	-22.81	-1.24	0.00	-90.95	0.00	90.95	3,503.95	1,751.97	5,854.84	2,931.77	1.92	-0.19	0.038
105.00	-21.59	-1.26	0.00	-85.32	0.00	85.32	3,439.09	1,719.55	5,598.79	2,803.55	2.11	-0.20	0.037
110.00	-20.39	-1.29	0.00	-79.00	0.00	79.00	3,366.08	1,683.04	5,320.51	2,664.21	2.32	-0.21	0.036
115.00	-19.22	-1.32	0.00	-72.54	0.00	72.54	3,291.52	1,645.76	5,046.78	2,527.14	2.55	-0.23	0.035
120.00	-18.08	-1.35	0.00	-65.95	0.00	65.95	3,205.56	1,602.78	4,763.17	2,385.12	2.80	-0.24	0.033
125.00	-17.41	-1.36	0.00	-59.22	0.00	59.22	3,104.43	1,552.22	4,465.87	2,236.25	3.05	-0.25	0.032
128.00	-15.42	-1.39	0.00	-55.14	0.00	55.14	3,043.75	1,521.88	4,292.09	2,149.23	3.21	-0.26	0.031
130.00	-14.41	-1.40	0.00	-52.36	0.00	52.36	3,003.30	1,501.65	4,178.15	2,092.18	3.32	-0.26	0.030
135.00	-13.42	-1.40	0.00	-45.36	0.00	45.36	2,902.16	1,451.08	3,900.01	1,952.91	3.61	-0.28	0.028
140.00	-12.47	-1.39	0.00	-38.36	0.00	38.36	2,801.03	1,400.52	3,631.46	1,818.43	3.90	-0.29	0.026
145.00	-11.79	-1.37	0.00	-31.44	0.00	31.44	2,699.90	1,349.95	3,372.48	1,688.75	4.21	-0.30	0.023
148.62	-11.61	-1.36	0.00	-26.50	0.00	26.50	2,626.75	1,313.38	3,191.14	1,597.94	4.44	-0.30	0.021
148.62	-11.61	-1.36	0.00	-26.50	0.00	26.50	1,663.87	831.93	2,038.41	1,020.72	4.44	-0.30	0.033
150.00	-8.16	-1.20	0.00	-24.62	0.00	24.62	1,651.75	825.87	2,001.92	1,002.45	4.52	-0.31	0.029
155.00	-7.57	-1.15	0.00	-18.63	0.00	18.63	1,606.96	803.48	1,871.53	937.16	4.85	-0.32	0.025
160.00	-4.10	-0.82	0.00	-12.87	0.00	12.87	1,560.63	780.31	1,743.66	873.12	5.19	-0.33	0.017
165.00	-3.63	-0.75	0.00	-8.78	0.00	8.78	1,512.74	756.37	1,618.51	810.46	5.54	-0.34	0.013
170.00	-2.35	-0.54	0.00	-5.02	0.00	5.02	1,463.31	731.65	1,496.32	749.27	5.89	-0.34	0.008
175.00	-1.96	-0.46	0.00	-2.30	0.00	2.30	1,402.77	701.38	1,367.98	685.01	6.25	-0.34	0.005
180.00	0.00	-0.45	0.00	0.00	0.00	0.00	1,335.35	667.67	1,238.99	620.42	6.62	-0.35	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	-42.02	-2.00	0.00	-246.23	0.00	246.23	5,692.71	2,846.36	14,517.2	7,269.40	0.00	0.00	0.041
5.00	-40.61	-1.98	0.00	-236.21	0.00	236.21	5,628.96	2,814.48	14,088.0	7,054.50	0.00	-0.01	0.041
10.00	-39.23	-1.94	0.00	-226.32	0.00	226.32	5,563.66	2,781.83	13,661.1	6,840.71	0.02	-0.02	0.040
15.00	-37.87	-1.90	0.00	-216.63	0.00	216.63	5,496.81	2,748.41	13,236.6	6,628.15	0.04	-0.02	0.040
20.00	-36.53	-1.85	0.00	-207.15	0.00	207.15	5,428.41	2,714.21	12,814.8	6,416.93	0.07	-0.03	0.039
25.00	-35.22	-1.80	0.00	-197.91	0.00	197.91	5,358.46	2,679.23	12,395.9	6,207.17	0.11	-0.04	0.038
30.00	-33.93	-1.75	0.00	-188.90	0.00	188.90	5,286.96	2,643.48	11,980.1	5,998.96	0.16	-0.05	0.038
35.00	-32.66	-1.70	0.00	-180.14	0.00	180.14	5,213.91	2,606.96	11,567.6	5,792.42	0.22	-0.06	0.037
40.00	-31.42	-1.65	0.00	-171.63	0.00	171.63	5,139.31	2,569.66	11,158.7	5,587.66	0.28	-0.07	0.037
45.00	-30.97	-1.64	0.00	-163.36	0.00	163.36	5,063.16	2,531.58	10,753.5	5,384.79	0.36	-0.08	0.036
46.82	-29.53	-1.57	0.00	-160.39	0.00	160.39	5,035.11	2,517.56	10,607.3	5,311.57	0.39	-0.08	0.036
50.00	-27.89	-1.50	0.00	-155.39	0.00	155.39	4,985.46	2,492.73	10,352.4	5,183.92	0.45	-0.09	0.036
53.65	-27.56	-1.49	0.00	-149.91	0.00	149.91	4,988.22	2,494.11	10,366.4	5,190.93	0.52	-0.09	0.034
55.00	-26.37	-1.43	0.00	-147.90	0.00	147.90	4,966.99	2,483.49	10,258.8	5,137.03	0.55	-0.10	0.034
60.00	-25.20	-1.38	0.00	-140.73	0.00	140.73	4,887.37	2,443.69	9,862.91	4,938.79	0.65	-0.11	0.034
65.00	-24.06	-1.34	0.00	-133.81	0.00	133.81	4,806.21	2,403.11	9,471.50	4,742.79	0.77	-0.12	0.033
70.00	-22.94	-1.29	0.00	-127.12	0.00	127.12	4,723.50	2,361.75	9,084.80	4,549.15	0.89	-0.13	0.033
75.00	-21.84	-1.26	0.00	-120.65	0.00	120.65	4,639.24	2,319.62	8,703.02	4,357.98	1.03	-0.14	0.032
80.00	-20.77	-1.23	0.00	-114.37	0.00	114.37	4,553.42	2,276.71	8,326.39	4,169.38	1.18	-0.15	0.032
85.00	-19.72	-1.21	0.00	-108.23	0.00	108.23	4,466.06	2,233.03	7,955.13	3,983.48	1.34	-0.16	0.032
90.00	-18.70	-1.20	0.00	-102.19	0.00	102.19	4,363.94	2,181.97	7,566.55	3,788.90	1.50	-0.17	0.031
94.97	-18.69	-1.20	0.00	-96.23	0.00	96.23	4,246.74	2,123.37	7,163.57	3,587.11	1.68	-0.18	0.031
95.00	-16.96	-1.20	0.00	-96.19	0.00	96.19	4,245.95	2,122.97	7,160.88	3,585.76	1.68	-0.18	0.031
100.00	-16.80	-1.21	0.00	-90.17	0.00	90.17	4,127.96	2,063.98	6,766.40	3,388.23	1.87	-0.19	0.031
100.47	-16.00	-1.22	0.00	-89.60	0.00	89.60	3,503.95	1,751.97	5,854.84	2,931.77	1.89	-0.19	0.035
105.00	-15.14	-1.24	0.00	-84.08	0.00	84.08	3,439.09	1,719.55	5,598.79	2,803.55	2.08	-0.20	0.034
110.00	-14.30	-1.27	0.00	-77.88	0.00	77.88	3,366.08	1,683.04	5,320.51	2,664.21	2.29	-0.21	0.033
115.00	-13.49	-1.30	0.00	-71.55	0.00	71.55	3,291.52	1,645.76	5,046.78	2,527.14	2.52	-0.22	0.032
120.00	-12.69	-1.32	0.00	-65.07	0.00	65.07	3,205.56	1,602.78	4,763.17	2,385.12	2.76	-0.24	0.031
125.00	-12.22	-1.34	0.00	-58.46	0.00	58.46	3,104.43	1,552.22	4,465.87	2,236.25	3.01	-0.25	0.030
128.00	-10.82	-1.37	0.00	-54.46	0.00	54.46	3,043.75	1,521.88	4,292.09	2,149.23	3.17	-0.25	0.029
130.00	-10.11	-1.38	0.00	-51.72	0.00	51.72	3,003.30	1,501.65	4,178.15	2,092.18	3.28	-0.26	0.028
135.00	-9.42	-1.38	0.00	-44.82	0.00	44.82	2,902.16	1,451.08	3,900.01	1,952.91	3.55	-0.27	0.026
140.00	-8.74	-1.37	0.00	-37.93	0.00	37.93	2,801.03	1,400.52	3,631.46	1,818.43	3.84	-0.28	0.024
145.00	-8.27	-1.35	0.00	-31.10	0.00	31.10	2,699.90	1,349.95	3,372.48	1,688.75	4.15	-0.29	0.021
148.62	-8.14	-1.34	0.00	-26.23	0.00	26.23	2,626.75	1,313.38	3,191.14	1,597.94	4.37	-0.30	0.020
148.62	-8.14	-1.34	0.00	-26.23	0.00	26.23	1,663.87	831.93	2,038.41	1,020.72	4.37	-0.30	0.031
150.00	-5.72	-1.18	0.00	-24.37	0.00	24.37	1,651.75	825.87	2,001.92	1,002.45	4.46	-0.30	0.028
155.00	-5.31	-1.14	0.00	-18.46	0.00	18.46	1,606.96	803.48	1,871.53	937.16	4.78	-0.31	0.023
160.00	-2.88	-0.81	0.00	-12.76	0.00	12.76	1,560.63	780.31	1,743.66	873.12	5.11	-0.32	0.016
165.00	-2.55	-0.75	0.00	-8.71	0.00	8.71	1,512.74	756.37	1,618.51	810.46	5.46	-0.33	0.012
170.00	-1.65	-0.54	0.00	-4.98	0.00	4.98	1,463.31	731.65	1,496.32	749.27	5.81	-0.34	0.008
175.00	-1.37	-0.46	0.00	-2.28	0.00	2.28	1,402.77	701.38	1,367.98	685.01	6.16	-0.34	0.004
180.00	0.00	-0.45	0.00	0.00	0.00	0.00	1,335.35	667.67	1,238.99	620.42	6.52	-0.34	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	40.42	0.00	60.16	0.00	0.00	4872.85	0.00	0.68
0.9D + 1.6W	40.40	0.00	45.10	0.00	0.00	4824.98	0.00	0.67
1.2D + 1.0Di + 1.0Wi	7.83	0.00	85.12	0.00	0.00	937.83	0.00	0.14
(1.2 + 0.2Sds) * DL + E ELFM	1.96	0.00	59.89	0.00	0.00	269.17	0.00	0.05
(1.2 + 0.2Sds) * DL + E EMAM	2.01	0.00	59.89	0.00	0.00	249.29	0.00	0.04
(0.9 - 0.2Sds) * DL + E ELFM	1.96	0.00	42.02	0.00	0.00	266.03	0.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	2.00	0.00	42.02	0.00	0.00	246.23	0.00	0.04
1.0D + 1.0W	6.31	0.00	50.18	0.00	0.00	757.13	0.00	0.11

Base/Flange Plate	Plate Type	***Baseplate***	
	Pole Diameter	62.45	in
	Pole Thickness	0.4375	in
	Plate Diameter	75	in
	Plate Thickness	2.75	in
	Plate Fy	60	ksi
	Weld Length	0.3125	in
	ϕ_s Resistance	1001.50	k-in
	Applied	284.50	k-in
Stiffeners	#	***0***	

Bolts	#	***20***	
	Bolt Circle	69	in
	(R)adial / (S)quare	R	
●	Diameter	2.25	in
	Hole Diameter	2.625	in
	Type	A615-75	
	Fy	75	ksi
	Fu	100	ksi
	ϕ_s Resistance	259.82	k
	Applied	172.42	k
Reinforcement ●	#	***0***	
Extra Bolts O	#	***0***	

Code Rev. **G**

1.00

Moment 4872.9 k-ft

Axial 60.2 k

Date	8/18/2015
Engineer	CCP
Site #	310972
Carrier	Verizon

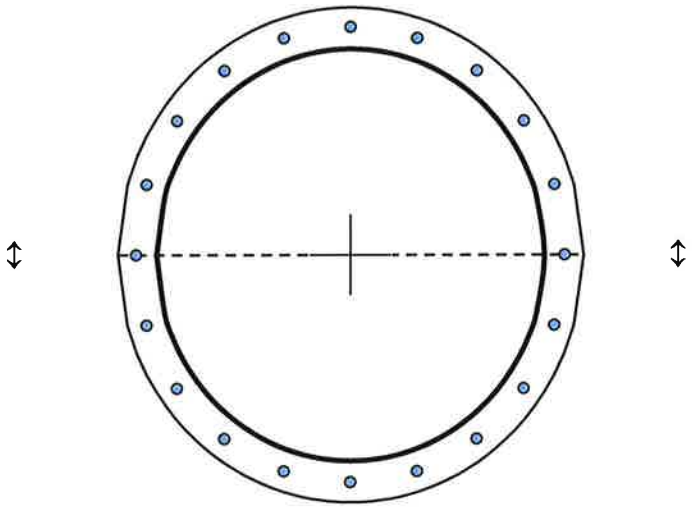


Plate Stress Ratio:

0.28 (Pass)

Bolt Stress Ratio:

0.66 (Pass)

Base/Flange Plate		
	Plate Type	***Flange @ 148.6 ft***
	Pole Diameter	30.08 in
	Pole Thickness	0.25 in
	Plate Diameter	37.5 in
	Plate Thickness	2 in
	Plate Fy	50 ksi
	Weld Length	0.3125 in
	Allowable	177.19 k-in
	Applied	18.98 k-in
Stiffeners		
	#	***0***

Bolts		
	#	***24***
	Bolt Circle	34.5 in
	(R)adial / (S)quare	R
●	Diameter	1 in
	Hole Diameter	1.0625 in
	Type	A325
	Fy	92 ksi
	Fu	120 ksi
	Allowable	54.52 k
	Applied	13.89 k
Reinforcement ●		
	#	***0***
Extra Bolts O		
	#	***0***

Code Rev. ***G***

Date	8/18/2015
Engineer	CCP
Site #	310972
Carrier	Verizon

Moment	246.8 k-ft
Axial	9.9 k

Required Flange Thickness:
0.65 in OK

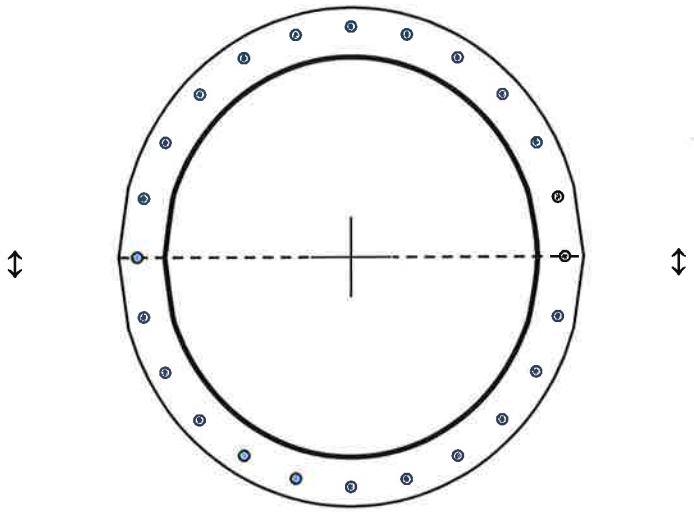


Plate Stress Ratio:
0.11 (Pass)

Bolt Stress Ratio:
0.25 (Pass)