Robinson+Cole

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Also admitted in Massachusetts

August 30, 2016

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

Re: **Notice of Exempt Modification – Facility Modification**
Lane Street, Shelton, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains fifteen (15) wireless telecommunications antennas at the top of an existing 120-foot monopine tower off Lane Street in Shelton, Connecticut (the "Property"). The tower is owned by American Tower Corporation ("ATC"). Cellco's use of the tower was approved by the Council in 2009 (Docket No. 382). Cellco now intends to modify its facility by replacing all of its existing antennas with three (3) model SBNHH-1D65B, 700/1900 MHz antennas; and three (3) model SBNHH-1D65B, 2100 MHz antennas, all on the same antenna platform at top of the tower. Cellco also intends to install six (6) remote radio heads ("RRHs") and one (1) HYBRIFLEX™ fiber optic antenna cable inside of the monopine tower. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cable.

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 notice is being sent to Mark A. Lauretti, Mayor of the City of Shelton. A copy of this letter is also being sent to Brownson Country Club, the owner of the Property and 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 new antennas and RRHs will be installed on its T-Arm mounting structure at the top of the existing 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 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).

A copy of the Shelton Assessor's Parcel Map and property owner information is included in Attachment 4.

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:
Mark A. Lauretti, Shelton Mayor
Brownson Country Club
ATC
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

SBNHH-1D65B

Multiband Antenna, 698–896 and 2x 1695–2360 MHz, 65° horizontal beamwidth, internal RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.9	14.7	17.7	18.2	18.6	18.6
Beamwidth, Horizontal, degrees	68	66	69	66	63	58
Beamwidth, Vertical, degrees	12.1	10.7	5.6	5.2	5.0	4.5
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	14	13	15	15	15	13
Front-to-Back Ratio at 180°, dB	27	29	28	28	28	27
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.5	14.3	17.4	17.9	18.2	18.3
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.8	±0.4	±0.3	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0 ° | 14.6	0 ° | 14.5	0 ° | 17.4	0 ° | 17.8	0 ° | 18.1	0 ° | 18.2
	7 ° | 14.6	7 ° | 14.4	3 ° | 17.5	3 ° | 17.9	3 ° | 18.3	3 ° | 18.4
	14 ° | 14.2	14 ° | 13.6	7 ° | 17.4	7 ° | 17.9	7 ° | 18.2	7 ° | 18.4
Beamwidth, Horizontal Tolerance, degrees	±2.2	±3.4	±2	±4.6	±5.7	±4.3
Beamwidth, Vertical Tolerance, degrees	±0.8	±1	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	16	14	16	16	16	15
Front-to-Back Total Power at 180° ± 30°, dB	25	26	27	26	26	26
CPR at Boresight, dB	22	23	21	20	20	22
CPR at Sector, dB	13	11	16	12	11	4

* 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 Type	Sector with internal RET
Band	Multiband
Brand	DualPol®
Operating Frequency Band	1695 – 2360 MHz | 698 – 896 MHz
Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground

Product Specifications

SBNHH-1D65B

Radiator Material	Aluminum | Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	6
Wind Loading, frontal	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Loading, lateral	197.0 N @ 150 km/h 44.3 lbf @ 150 km/h
Wind Loading, rear	728.0 N @ 150 km/h 163.7 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Depth	180.0 mm | 7.1 in
Length	1851.0 mm | 72.9 in
Width	301.0 mm | 11.9 in
Net Weight, without mounting kit	18.4 kg | 40.6 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal RET	High band (1) | Low band (1)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Multi-RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	1 female | 1 male

Packed Dimensions

Depth	296.0 mm | 11.7 in
Length	2025.0 mm | 79.7 in
Width	390.0 mm | 15.4 in
Shipping Weight	31.0 kg | 68.3 lb

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

Product Specifications

SBNHH-1D65B

Included Products

BSAMNT-1 — Wide Profile Antenna 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.

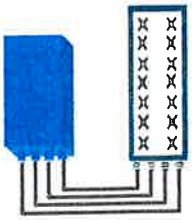
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

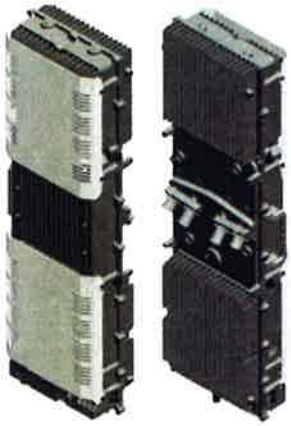
Can be switched between modes via SW w/o site visit

Alcatel·Lucent

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 (lb) (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

ALCATEL-LUCENT
WIRELESS PRODUCT DATASHEET
B4 RRH2X60-4R FOR AWS BAND APPLICATIONS

The Alcatel-Lucent B4 RRH2x60-4R 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 B4 RRH2x60-4R 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 B4 RRH2x60-4R integrates all the latest technologies. This allows operators 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 B4 RRH2x60-4R 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 B4 RRH2x60-4R is a very cost-effective solution to deploy LTE MIMO.

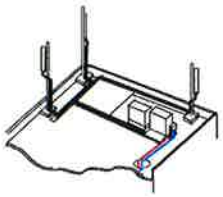
EASY INSTALLATION

The B4 RRH2x60-4R 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.

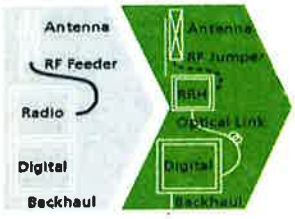
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent B4 RRH2x60-4R installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

The Alcatel-Lucent B4 RRH2x60-4R is a zero-footprint solution and is convection cooled without fans for silent operation, simplifying negotiations with site property owners and minimizing environmental impacts.

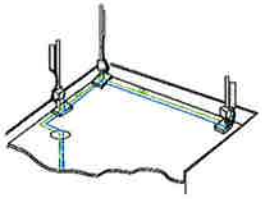
Installation can easily be done by a single person as the Alcatel–Lucent B4 RRH2x60-4R is compact and weighs about 25 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



Macro



RRH for space-constrained cell sites



Distributed

FEATURES

- B4 RRH2x60-4R integrates two power amplifiers of 60W rating (at each antenna connector)
- Support multiple carriers over the entire 3GPP band 4
- B4 RRH2x60-4R is optimized for LTE operation
- B4 RRH2x60-4R 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 : 930x270x146 mm (with solar shield)
- Weight : 25 kg (55 lbs) (with solar shield)

Electrical Data

- Power Supply : -48V DC (-38 to -57V)
- Power Consumption: 346W typ. @2x30W (100%RF), 560W typ. @2x60W (100%RF)

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 (3-6) 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 300m using MM fiber, up to 15km using SM fiber
- TMA/RETA : AISG 2.0 (RS485 connector and internal Bias-Tee)
- Four 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
- Health : EN 50385

Alcatel·Lucent

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 CELLFLEX® 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)

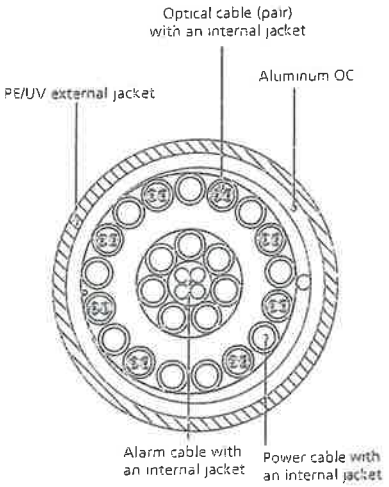


Figure 2: Construction Detail

* This data is provisional and subject to change

ATTACHMENT 2

Site Name: HUNTINGTON, CT
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissable Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
VZW PCS	1970	1	1482	1482	120	0.0370	1.0	3.70%
VZW Cellular	869	9	403	3627	120	0.0906	0.579333333	15.64%
VZW AWS	2145	1	2199	2199	120	0.0549	1.0	5.49%
VZW 700	746	1	543	543	120	0.0136	0.497333333	2.73%

Total Percentage of Maximum Permissible Exposure 27.55%

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

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

Absolute worst case maximum values used.

ATTACHMENT 3

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**120.6 ft Monopole**
ATC Site Name	:	**Brownson Country Club CT,CT**
ATC Site Number	:	**415438**
Engineering Number	:	**66512521**
Proposed Carrier	:	**Verizon**
Carrier Site Name	:	**Huntington CT**
Carrier Site Number	:	**N/A**
Site Location	:	**15 Soundview Avenue** **Shelton, CT 06484-2844** **41.295000,-73.137222**
County	:	**Fairfield**
Date	:	**May 18, 2016**
Max Usage	:	**86%**
Result	:	**Pass**

Reviewed by:
Raphael Mohamed, PE
Senior Strategic Implementation Lead

Prepared By:
Annika A. Venning, E.I.
Structural Engineer I

May 19 2016 4:44 PM

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

Eng. Number 66512521
May 18, 2016

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 120.6 ft monopole to reflect the change in loading by Verizon.

Supporting Documents

Tower Drawings	EEI Project #16219, dated March 1, 2012
Foundation Drawing	Mapping by TPS Report #TPS-FL-CT-438, dated September 10, 2015
Geotechnical Report	FDH Velocitel Project #15BXNW1600, dated August 21, 2015

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/EIA-222.

Basic Wind Speed:	85 mph (Fastest Mile)
Basic Wind Speed w/ Ice:	74 mph (Fastest Mile)w/ 1/2" radial ice concurrent
Code:	ANSI/TIA/EIA-222-F / 2003 IBC , Sec. 1609.1.1, Exception (5) & Sec. 3108.4 w/ 2005 CT Supplement & 2009 CT Amendment

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					
118.0	118.0	6	Decibel DB846F65ZAXY	T-Arms	(17) 1 5/8" Coax	Verizon
		3	Antel BXA-70063-6CF-EDIN-2			
		1	VZW Unused Reserve: 16,064 sq in			

Equipment to be Removed

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
118.0	118.0	6	48" x 12" Panel	-	(1) 1 5/8" Coax	Verizon

Proposed Equipment

Elevation[1] (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
118.0	118.0	6	Commscope SBNHH-1D65B	T-Arms	(1) 1 5/8" Hybriflex Cable	Verizon
		3	Alcatel-Lucent RRH2X60-AWS			
		3	Alcatel-Lucent RRH2x60 700			
		1	RFS DB-T1-6Z-8AB-0Z			

[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	79%	Pass
Shaft	74%	Pass
Base Plate	86%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	6,014.1	27%
Axial (Kips)	43.3	3%

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
118.0	Alcatel-Lucent RRH2X60-AWS	Verizon	1.043	0.856
	Alcatel-Lucent RRH2x60 700			
	RFS DB-T1-6Z-8AB-0Z			

***Deflection and Sway was evaluated considering a design wind speed of 50 mph (Fastest Mile) per ANSI/TIA/EIA-222-F.**

AMERICAN TOWER®
CORPORATION

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:

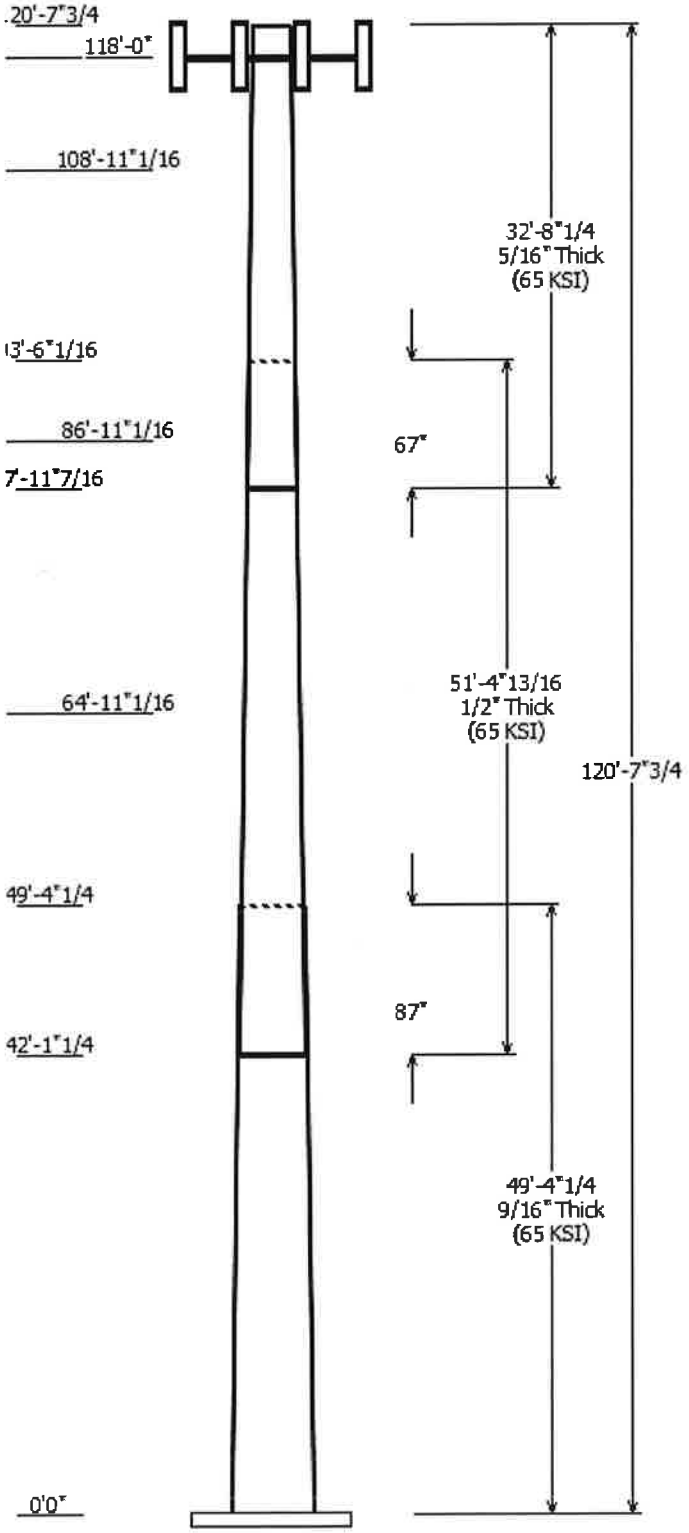
-- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.

-- 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 :	415438
Code:	TIA/EIA-222-F
Description :	
Client :	VERIZON WIRELESS
Location :	Brownson Country Club CT,CT
Shape :	18 Sides
Height :	120.65 (ft)
Base Elev (ft):	0.00
Taper:	0.31003 (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	49.354	50.69	66.00	0.563		0.000	0.310000	65
2	51.401	38.01	53.94	0.500	Slip Joint	86.969	0.310000	65
3	32.690	30.22	40.35	0.313	Slip Joint	66.625	0.310000	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
118.000	118.000	1	VZW Unused Reserve: 16,064
118.000	118.000	6	Commscope SBNHH-1D65B
118.000	118.000	1	RFS DB-T1-6Z-8AB-0Z
118.000	118.000	3	Alcatel-Lucent RRH2x60 700
118.000	118.000	3	Alcatel-Lucent RRH2X60-AWS
118.000	118.000	3	Amphenol Antel BXA-70063-
118.000	118.000	6	Decibel DB846F65ZAXY
118.000	118.000	3	Flat T-Arm
108.920	108.920	1	Branch 3
86.920	86.920	1	Branch 2
64.920	64.920	1	Branch 1

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	118.0	1 5/8" Coax	No
0.000	118.0	1 5/8" Hybriflex	No

Load Cases

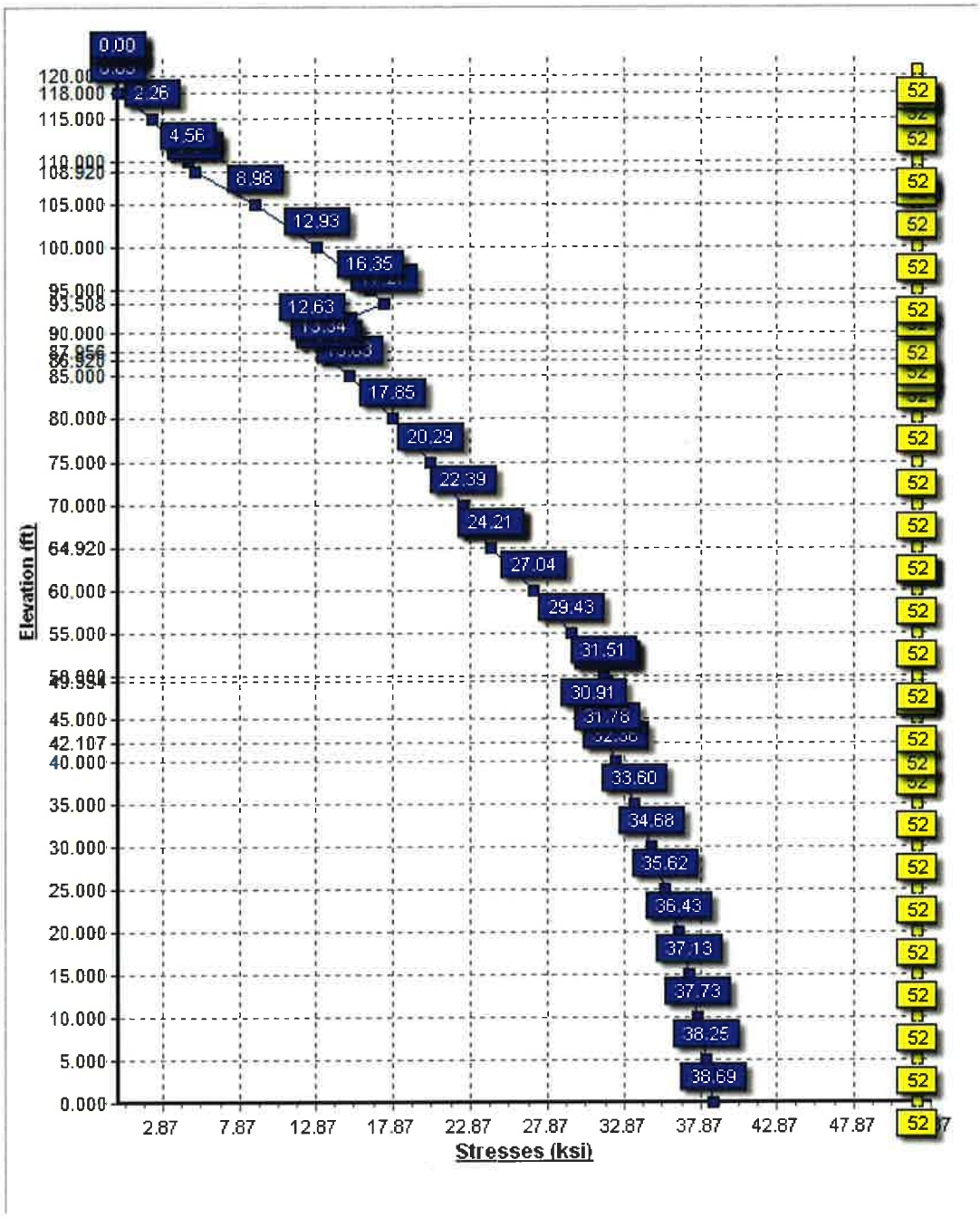
No Ice	85.00 mph Wind with No Ice
Ice	73.61 mph Wind with Ice
Twist/Sway	50.00 mph Wind with No Ice

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
No Ice	6014.08	69.52	43.27
Ice	1451.57	16.47	42.50
Twist/Sway	2081.46	24.06	43.35

Dish Deflections

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


0.00
2.26
4.56
8.98
12.93
16.35
12.63
17.85
20.29
22.39
24.21
27.04
29.43
31.51
30.91
33.60
34.68
35.62
36.43
37.13
37.73
38.25
38.69
52
Elevation (ft)
120.000
118.000
115.000
110.000
108.920
105.000
100.000
95.000
93.508
90.000
87.956
86.920
85.000
80.000
75.000
70.000
64.920
60.000
55.000
49.554
45.000
42.107
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
2.87
7.87
12.87
17.87
22.87
27.87
32.87
37.87
42.87
47.87
Stresses (ksi)

Site Number:	**415438**	**Code: TIA/EIA-222-F**	
Site Name:	**Brownson Country Club CT,CT**	**Engineering Number: 66512521**	**5/18/2016 6:39:47 PM**
Customer:	**VERIZON WIRELESS**		

Analysis Parameters

Location:	**Fairfield County, CT**		
Code:	**TIA/EIA-222-F**	**Height (ft):**	**120.**
Shape:	**18 Sides**	**Base Diameter (in):**	**66.00**
Pole Type:	**Taper**	**Top Diameter (in):**	**30.22**
Pole Manfacturer:	**EEI**	**Taper (in/ft) :**	**0.310**

Load Cases

No Ice	**85.00 mph Wind with No Ice**
Ice	**73.61 mph Wind with Ice**
Twist/Sway	**50.00 mph Wind with No Ice**

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip 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	49.354	0.5625	65		0.00	17,326	66.00	0.00	116.83	63204.4	19.28	117.33	50.69	49.35	89.51	28426.1	14.48	90.13	0.310033
2-18	51.401	0.5000	65	Slip	86.97	12,623	53.94	42.11	84.81	30608.9	17.61	107.89	38.00	93.51	59.53	10581.3	11.99	76.02	0.310033
3-18	32.690	0.3125	65	Slip	66.63	3,859	40.35	87.96	39.72	8046.1	21.36	129.14	30.22	120.65	29.66	3352.5	15.64	96.71	0.310033
				Shaft Weight		33,808													

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)
118.00	Alcatel-Lucent RRH2x60 700	3	56.70	2.510	0.67	0.00	0.000	0.67	0.000	0.000
118.00	Alcatel-Lucent RRH2X60-	3	44.00	2.190	0.67	0.00	0.000	0.67	0.000	0.000
118.00	Amphenol Antel BXA-70063-	3	17.00	7.730	0.77	59.50	8.540	0.77	0.000	0.000
118.00	Commscope SBNHH-1D65B	6	40.60	8.430	0.82	0.00	0.000	0.82	0.000	0.000
118.00	Decibel DB846F65ZAXY	6	21.00	7.030	0.94	0.00	7.810	0.94	0.000	0.000
118.00	Flat T-Arm	3	250.00	12.900	0.67	314.00	15.300	0.67	0.000	0.000
118.00	RFS DB-T1-6Z-8AB-0Z	1	44.00	5.600	0.67	44.30	3.280	0.67	0.000	0.000
118.00	VZW Unused Reserve:	1	1733.30	111.65	1.00	2,167.00	139.600	1.00	0.000	0.000
108.92	Branch 3	1	1125.00	290.50	1.00	0.00	0.000	1.00	0.000	0.000
86.92	Branch 2	1	1575.00	406.70	1.00	0.00	0.000	1.00	0.000	0.000
64.92	Branch 1	1	1800.00	464.80	1.00	0.00	0.000	1.00	0.000	0.000
	Totals	29	7750.00		3,331.80			Number of Loadings :		11

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	No Ice Weight (lb/ft)	No Ice CaAa (sf/ft)	Ice Weight (lb/ft)	Ice CaAa (sf/ft)	Exposed To Wind
0.00	118.00	17	1 5/8" Coax	13.94	0.00	0.00	0.00	N
0.00	118.00	1	1 5/8" Hybriflex Cable	1.30	0.00	0.00	0.00	N
			Total Weight	1,798.32 (lb)		0.00 (lb)		

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)	Fb (ksi)	Fa (ksi)	Weight (lb)
0.00		0.5625	66.000	116.826	63,204.4	19.28	117.33	65	52	0	0.0
5.00		0.5625	64.450	114.059	58,818.1	18.79	114.58	65	52	0	1,964.1
10.00		0.5625	62.900	111.291	54,639.7	18.31	111.82	65	52	0	1,917.0
15.00		0.5625	61.350	108.524	50,664.0	17.82	109.07	65	52	0	1,870.0
20.00		0.5625	59.799	105.756	46,885.9	17.33	106.31	65	52	0	1,822.9
25.00		0.5625	58.249	102.989	43,300.5	16.85	103.55	65	52	0	1,775.8
30.00		0.5625	56.699	100.221	39,902.8	16.36	100.80	65	52	0	1,728.7
35.00		0.5625	55.149	97.454	36,687.6	15.88	98.04	65	52	0	1,681.6
40.00		0.5625	53.599	94.686	33,649.9	15.39	95.29	65	52	0	1,634.5
42.11	Bot - Section 2	0.5625	52.946	93.520	32,421.9	15.19	94.13	65	52	0	674.6
45.00		0.5625	52.049	91.919	30,784.7	14.91	92.53	65	52	0	1,740.8
49.35	Top - Section 1	0.5000	51.699	81.249	26,908.4	16.82	103.40	65	52	0	2,563.7
50.00		0.5000	51.498	80.931	26,593.9	16.75	103.00	65	52	0	178.2
55.00		0.5000	49.948	78.471	24,241.8	16.20	99.90	65	52	0	1,356.0
60.00		0.5000	48.398	76.011	22,032.7	15.66	96.80	65	52	0	1,314.2
64.92		0.5000	46.873	73.591	19,994.0	15.12	93.75	65	52	0	1,252.3
65.00		0.5000	46.848	73.551	19,962.0	15.11	93.70	65	52	0	20.0
70.00		0.5000	45.298	71.091	18,025.2	14.56	90.60	65	52	0	1,230.5
75.00		0.5000	43.748	68.631	16,218.0	14.02	87.50	65	52	0	1,188.6
80.00		0.5000	42.197	66.171	14,535.8	13.47	84.39	65	52	0	1,146.8
85.00		0.5000	40.647	63.711	12,974.2	12.92	81.29	65	52	0	1,104.9
86.92		0.5000	40.052	62.767	12,405.6	12.71	80.10	65	52	0	413.2
87.96	Bot - Section 3	0.5000	39.731	62.257	12,105.9	12.60	79.46	65	52	0	220.3
90.00		0.5000	39.097	61.251	11,528.6	12.38	78.19	65	52	0	703.7
93.51	Top - Section 2	0.3125	38.634	38.009	7,052.4	20.39	123.63	65	52	0	1,180.9
95.00		0.3125	38.172	37.550	6,800.1	20.13	122.15	65	52	0	191.8
100.0		0.3125	36.622	36.013	5,998.5	19.25	117.19	65	52	0	625.8
105.0		0.3125	35.072	34.475	5,262.6	18.38	112.23	65	52	0	599.6
108.9		0.3125	33.856	33.270	4,729.6	17.69	108.34	65	52	0	451.8
110.0		0.3125	33.521	32.938	4,589.4	17.50	107.27	65	52	0	121.7
115.0		0.3125	31.971	31.400	3,976.2	16.63	102.31	65	52	0	547.3
118.0		0.3125	31.041	30.478	3,636.0	16.10	99.33	65	52	0	315.8
120.0		0.3125	30.421	29.863	3,420.3	15.75	97.35	65	52	0	205.3
120.6		0.3125	30.221	29.664	3,352.5	15.64	96.71	65	52	0	65.4
											33,807.9

Site Number: 415438 Code: TIA/EIA-222-F

Site Name: Brownson Country Club CT,CT Engineering Number: 66512521 5/18/2016 6:39:47 PM

Customer: VERIZON WIRELESS

Load Case: No Ice 85.00 mph Wind with No Ice 17 Iterations

Gust Response Factor : 1.69
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		276.1	0.0					0.0	0.0	276.1	0.0	0.0	0.0
5.00		545.6	1,964.1					0.0	76.2	545.6	2,040.3	0.0	0.0
10.00		532.5	1,917.0					0.0	76.2	532.5	1,993.2	0.0	0.0
15.00		519.4	1,870.0					0.0	76.2	519.4	1,946.2	0.0	0.0
20.00		506.2	1,822.9					0.0	76.2	506.2	1,899.1	0.0	0.0
25.00		493.1	1,775.8					0.0	76.2	493.1	1,852.0	0.0	0.0
30.00		480.0	1,728.7					0.0	76.2	480.0	1,804.9	0.0	0.0
35.00		475.4	1,681.6					0.0	76.2	475.4	1,757.8	0.0	0.0
40.00		339.8	1,634.5					0.0	76.2	339.8	1,710.7	0.0	0.0
42.11	Bot - Section 2	243.0	674.6					0.0	32.1	243.0	706.7	0.0	0.0
45.00		355.7	1,740.8					0.0	44.1	355.7	1,784.9	0.0	0.0
49.35	Top - Section 1	245.5	2,563.7					0.0	66.4	245.5	2,630.1	0.0	0.0
50.00		276.9	178.2					0.0	9.8	276.9	188.1	0.0	0.0
55.00		489.1	1,356.0					0.0	76.2	489.1	1,432.2	0.0	0.0
60.00		482.0	1,314.2					0.0	76.2	482.0	1,390.4	0.0	0.0
64.92		241.9	1,252.3					0.0	75.0	241.9	1,327.3	0.0	0.0
65.00		243.1	20.0					0.0	1.2	243.1	21.2	0.0	0.0
70.00		475.2	1,230.5					0.0	76.2	475.2	1,306.7	0.0	0.0
75.00		468.1	1,188.6					0.0	76.2	468.1	1,264.8	0.0	0.0
80.00		460.0	1,146.8					0.0	76.2	460.0	1,223.0	0.0	0.0
85.00		314.0	1,104.9					0.0	76.2	314.0	1,181.1	0.0	0.0
86.92		132.4	413.2					0.0	29.3	132.4	442.4	0.0	0.0
87.96	Bot - Section 3	138.2	220.3					0.0	15.8	138.2	236.1	0.0	0.0
90.00		247.8	703.7					0.0	31.2	247.8	734.8	0.0	0.0
93.51	Top - Section 2	221.3	1,180.9					0.0	53.5	221.3	1,234.4	0.0	0.0
95.00		281.2	191.8					0.0	22.7	281.2	214.6	0.0	0.0
100.00		425.5	625.8					0.0	76.2	425.5	702.0	0.0	0.0
105.00		369.8	599.6					0.0	76.2	369.8	675.8	0.0	0.0
108.92		203.4	451.8					0.0	59.7	203.4	511.6	0.0	0.0
110.00		240.2	121.7					0.0	16.5	240.2	138.1	0.0	0.0
115.00		311.5	547.3					0.0	76.2	311.5	623.5	0.0	0.0
118.00	Appertunance(s)	189.8	315.8	11,235.5	0.0	0.0	3,250.0	0.0	45.7	11,425.3	3,611.6	0.0	0.0
120.00		99.1	205.3					0.0	0.0	99.1	205.3	0.0	0.0
120.65		24.0	65.4					0.0	0.0	24.0	65.4	0.0	0.0
								Totals:		22,582.4	38,856.2	0.00	0.00

Site Number: 415438 Code: TIA/EIA-222-F

Site Name: Brownson Country Club CT,CT Engineering Number: 66512521 5/18/2016 6:39:48 PM

Customer: VERIZON WIRELESS

Load Case: No Ice 85.00 mph Wind with No Ice 17 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-69.523	-43.273	0.000	0.000	0.000	-6,014.085	0.000	0.000	0.000	0.000
5.00	-69.070	-41.074	0.000	0.000	0.000	-5,666.473	-0.072	0.000	0.072	-0.131
10.00	-68.622	-38.923	0.000	0.000	0.000	-5,321.126	-0.282	0.000	0.282	-0.264
15.00	-68.178	-36.820	0.000	0.000	0.000	-4,978.022	-0.633	0.000	0.633	-0.398
20.00	-67.738	-34.765	0.000	0.000	0.000	-4,637.138	-1.124	0.000	1.124	-0.533
25.00	-67.303	-32.759	0.000	0.000	0.000	-4,298.452	-1.757	0.000	1.757	-0.669
30.00	-66.873	-30.802	0.000	0.000	0.000	-3,961.939	-2.532	0.000	2.532	-0.805
35.00	-66.439	-28.895	0.000	0.000	0.000	-3,627.577	-3.449	0.000	3.449	-0.940
40.00	-66.114	-27.081	0.000	0.000	0.000	-3,295.385	-4.508	0.000	4.508	-1.074
42.11	-65.889	-26.301	0.000	0.000	0.000	-3,156.099	-4.996	0.000	4.996	-1.132
45.00	-65.538	-24.414	0.000	0.000	0.000	-2,965.469	-5.707	0.000	5.707	-1.209
49.35	-65.258	-21.717	0.000	0.000	0.000	-2,680.110	-6.865	0.000	6.865	-1.323
50.00	-65.006	-21.448	0.000	0.000	0.000	-2,637.964	-7.045	0.000	7.045	-1.340
55.00	-64.527	-19.883	0.000	0.000	0.000	-2,312.937	-8.522	0.000	8.522	-1.472
60.00	-64.047	-18.370	0.000	0.000	0.000	-1,990.306	-10.135	0.000	10.135	-1.599
64.92	-46.110	-15.717	0.000	0.000	0.000	-1,675.198	-11.848	0.000	11.848	-1.715
65.00	-45.882	-15.657	0.000	0.000	0.000	-1,671.509	-11.876	0.000	11.876	-1.717
70.00	-45.393	-14.280	0.000	0.000	0.000	-1,442.101	-13.736	0.000	13.736	-1.828
75.00	-44.907	-12.952	0.000	0.000	0.000	-1,215.136	-15.709	0.000	15.709	-1.933
80.00	-44.424	-11.674	0.000	0.000	0.000	-990.603	-17.788	0.000	17.788	-2.030
85.00	-44.077	-10.462	0.000	0.000	0.000	-768.487	-19.963	0.000	19.963	-2.116
86.92	-27.120	-9.064	0.000	0.000	0.000	-683.859	-20.821	0.000	20.821	-2.146
87.96	-26.976	-8.823	0.000	0.000	0.000	-655.771	-21.288	0.000	21.288	-2.162
90.00	-26.706	-8.079	0.000	0.000	0.000	-600.624	-22.221	0.000	22.221	-2.192
93.51	-26.441	-6.839	0.000	0.000	0.000	-506.944	-23.850	0.000	23.850	-2.240
95.00	-26.158	-6.611	0.000	0.000	0.000	-467.488	-24.554	0.000	24.554	-2.260
100.0	-25.713	-5.893	0.000	0.000	0.000	-336.697	-26.969	0.000	26.969	-2.344
105.0	-25.320	-5.212	0.000	0.000	0.000	-208.134	-29.462	0.000	29.462	-2.409
108.9	-12.287	-4.123	0.000	0.000	0.000	-108.882	-31.457	0.000	31.457	-2.442
110.0	-12.042	-3.992	0.000	0.000	0.000	-95.612	-32.010	0.000	32.010	-2.449
115.0	-11.705	-3.380	0.000	0.000	0.000	-35.401	-34.587	0.000	34.587	-2.469
118.0	-0.135	-0.265	0.000	0.000	0.000	-0.286	-36.141	0.000	36.141	-2.473
120.0	-0.027	-0.064	0.000	0.000	0.000	-0.017	-37.176	0.000	37.176	-2.473
120.6	-0.024	0.000	0.000	0.000	0.000	0.000	-37.511	0.000	37.511	-2.473

Load Case: No Ice — 85.00 mph Wind with No Ice — 17 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)	Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
0.00	0.37	1.20	0.00	0.00	0.00	38.26	38.69	52.0	0.0	0.744
5.00	0.36	1.22	0.00	0.00	0.00	37.83	38.25	52.0	0.0	0.736
10.00	0.35	1.24	0.00	0.00	0.00	37.32	37.73	52.0	0.0	0.726
15.00	0.34	1.27	0.00	0.00	0.00	36.73	37.13	52.0	0.0	0.714
20.00	0.33	1.29	0.00	0.00	0.00	36.03	36.43	52.0	0.0	0.701
25.00	0.32	1.32	0.00	0.00	0.00	35.23	35.62	52.0	0.0	0.685
30.00	0.31	1.34	0.00	0.00	0.00	34.30	34.68	52.0	0.0	0.667
35.00	0.30	1.37	0.00	0.00	0.00	33.22	33.60	52.0	0.0	0.646
40.00	0.29	1.41	0.00	0.00	0.00	31.98	32.36	52.0	0.0	0.623
42.11	0.28	1.42	0.00	0.00	0.00	31.40	31.78	52.0	0.0	0.611
45.00	0.27	1.44	0.00	0.00	0.00	30.55	30.91	52.0	0.0	0.595
49.35	0.27	1.62	0.00	0.00	0.00	31.37	31.76	52.0	0.0	0.611
50.00	0.27	1.62	0.00	0.00	0.00	31.12	31.51	52.0	0.0	0.606
55.00	0.25	1.66	0.00	0.00	0.00	29.03	29.43	52.0	0.0	0.566
60.00	0.24	1.70	0.00	0.00	0.00	26.64	27.04	52.0	0.0	0.520
64.92	0.21	1.26	0.00	0.00	0.00	23.93	24.24	52.0	0.0	0.466
65.00	0.21	1.26	0.00	0.00	0.00	23.90	24.21	52.0	0.0	0.466
70.00	0.20	1.29	0.00	0.00	0.00	22.08	22.39	52.0	0.0	0.431
75.00	0.19	1.32	0.00	0.00	0.00	19.97	20.29	52.0	0.0	0.390
80.00	0.18	1.35	0.00	0.00	0.00	17.52	17.85	52.0	0.0	0.343
85.00	0.16	1.39	0.00	0.00	0.00	14.67	15.03	52.0	0.0	0.289
86.92	0.14	0.87	0.00	0.00	0.00	13.45	13.68	52.0	0.0	0.263
87.96	0.14	0.87	0.00	0.00	0.00	13.11	13.34	52.0	0.0	0.257
90.00	0.13	0.88	0.00	0.00	0.00	12.41	12.63	52.0	0.0	0.243
93.51	0.18	1.40	0.00	0.00	0.00	16.92	17.27	52.0	0.0	0.332
95.00	0.18	1.40	0.00	0.00	0.00	15.99	16.35	52.0	0.0	0.314
100.00	0.16	1.44	0.00	0.00	0.00	12.52	12.93	52.0	0.0	0.249
105.00	0.15	1.48	0.00	0.00	0.00	8.45	8.98	52.0	0.0	0.173
108.92	0.12	0.74	0.00	0.00	0.00	4.75	5.04	52.0	0.0	0.097
110.00	0.12	0.74	0.00	0.00	0.00	4.25	4.56	52.0	0.0	0.088
115.00	0.11	0.75	0.00	0.00	0.00	1.73	2.26	52.0	0.0	0.043
118.00	0.01	0.01	0.00	0.00	0.00	0.01	0.03	52.0	0.0	0.001
120.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000
120.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000

Site Number: 415438 Code: TIA/EIA-222-F

Site Name: Brownson Country Club CT,CT Engineering Number: 66512521 5/18/2016 6:39:48 PM

Customer: VERIZON WIRELESS

Load Case: Ice 73.61 mph Wind with Ice 16 Iterations

Gust Response Factor : 1.69
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		210.2	0.0					0.0	0.0	210.2	0.0	0.0	0.0
5.00		415.5	2,164.5					0.0	76.2	415.5	2,240.7	0.0	0.0
10.00		405.7	2,112.7					0.0	76.2	405.7	2,188.9	0.0	0.0
15.00		395.9	2,060.8					0.0	76.2	395.9	2,137.0	0.0	0.0
20.00		386.0	2,008.9					0.0	76.2	386.0	2,085.1	0.0	0.0
25.00		376.2	1,957.1					0.0	76.2	376.2	2,033.3	0.0	0.0
30.00		366.3	1,905.2					0.0	76.2	366.3	1,981.4	0.0	0.0
35.00		363.0	1,853.3					0.0	76.2	363.0	1,929.5	0.0	0.0
40.00		259.6	1,801.5					0.0	76.2	259.6	1,877.7	0.0	0.0
42.11	Bot - Section 2	185.6	744.1					0.0	32.1	185.6	776.2	0.0	0.0
45.00		271.8	1,836.4					0.0	44.1	271.8	1,880.5	0.0	0.0
49.35	Top - Section 1	187.7	2,704.0					0.0	66.4	187.7	2,770.3	0.0	0.0
50.00		211.7	198.9					0.0	9.8	211.7	208.8	0.0	0.0
55.00		374.1	1,511.7					0.0	76.2	374.1	1,587.9	0.0	0.0
60.00		369.0	1,465.1					0.0	76.2	369.0	1,541.3	0.0	0.0
64.92		185.3	1,396.1					0.0	75.0	185.3	1,471.1	0.0	0.0
65.00		186.3	22.4					0.0	1.2	186.3	23.6	0.0	0.0
70.00		364.3	1,371.8					0.0	76.2	364.3	1,448.0	0.0	0.0
75.00		359.1	1,325.1					0.0	76.2	359.1	1,401.3	0.0	0.0
80.00		353.1	1,278.5					0.0	76.2	353.1	1,354.7	0.0	0.0
85.00		241.2	1,231.9					0.0	76.2	241.2	1,308.1	0.0	0.0
86.92		101.8	461.2					0.0	29.3	101.8	490.5	0.0	0.0
87.96	Bot - Section 3	106.2	246.0					0.0	15.8	106.2	261.8	0.0	0.0
90.00		190.6	754.4					0.0	31.2	190.6	785.6	0.0	0.0
93.51	Top - Section 2	170.2	1,265.7					0.0	53.5	170.2	1,319.1	0.0	0.0
95.00		216.5	227.4					0.0	22.7	216.5	250.2	0.0	0.0
100.00		327.8	740.3					0.0	76.2	327.8	816.5	0.0	0.0
105.00		285.2	709.4					0.0	76.2	285.2	785.6	0.0	0.0
108.92		157.0	534.9					0.0	59.7	157.0	594.7	0.0	0.0
110.00		185.6	144.3					0.0	16.5	185.6	160.8	0.0	0.0
115.00		240.9	647.5					0.0	76.2	240.9	723.7	0.0	0.0
118.00	Appertunance(s)	146.9	374.2	7,972.9	0.0	0.0	3,331.8	0.0	45.7	8,119.8	3,751.8	0.0	0.0
120.00		76.7	243.5					0.0	0.0	76.7	243.5	0.0	0.0
120.65		18.6	77.6					0.0	0.0	18.6	77.6	0.0	0.0
								Totals:		16,664.5	42,506.8	0.00	0.00

Load Case: Ice — 73.61 mph Wind with Ice — 16 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-16.466	-42.502	0.000	0.000	0.000	-1,451.574	0.000	0.000	0.000	0.000
5.00	-16.072	-40.252	0.000	0.000	0.000	-1,369.246	-0.017	0.000	0.017	-0.032
10.00	-15.686	-38.055	0.000	0.000	0.000	-1,288.887	-0.068	0.000	0.068	-0.064
15.00	-15.308	-35.910	0.000	0.000	0.000	-1,210.458	-0.153	0.000	0.153	-0.096
20.00	-14.937	-33.817	0.000	0.000	0.000	-1,133.921	-0.272	0.000	0.272	-0.129
25.00	-14.574	-31.776	0.000	0.000	0.000	-1,059.237	-0.426	0.000	0.426	-0.163
30.00	-14.219	-29.788	0.000	0.000	0.000	-986.367	-0.614	0.000	0.614	-0.196
35.00	-13.865	-27.851	0.000	0.000	0.000	-915.272	-0.838	0.000	0.838	-0.230
40.00	-13.609	-25.969	0.000	0.000	0.000	-845.945	-1.098	0.000	1.098	-0.264
42.11	-13.427	-25.189	0.000	0.000	0.000	-817.275	-1.218	0.000	1.218	-0.279
45.00	-13.156	-23.304	0.000	0.000	0.000	-778.427	-1.394	0.000	1.394	-0.299
49.35	-12.960	-20.531	0.000	0.000	0.000	-721.144	-1.681	0.000	1.681	-0.329
50.00	-12.754	-20.319	0.000	0.000	0.000	-712.774	-1.726	0.000	1.726	-0.334
55.00	-12.382	-18.726	0.000	0.000	0.000	-649.005	-2.096	0.000	2.096	-0.371
60.00	-12.013	-17.179	0.000	0.000	0.000	-587.095	-2.504	0.000	2.504	-0.407
64.92	-11.822	-15.706	0.000	0.000	0.000	-527.990	-2.942	0.000	2.942	-0.442
65.00	-11.641	-15.680	0.000	0.000	0.000	-527.044	-2.950	0.000	2.950	-0.443
70.00	-11.273	-14.228	0.000	0.000	0.000	-468.842	-3.433	0.000	3.433	-0.478
75.00	-10.910	-12.824	0.000	0.000	0.000	-412.475	-3.953	0.000	3.953	-0.513
80.00	-10.551	-11.466	0.000	0.000	0.000	-357.926	-4.509	0.000	4.509	-0.547
85.00	-10.301	-10.157	0.000	0.000	0.000	-305.172	-5.100	0.000	5.100	-0.579
86.92	-10.196	-9.665	0.000	0.000	0.000	-285.394	-5.336	0.000	5.336	-0.592
87.96	-10.088	-9.403	0.000	0.000	0.000	-274.835	-5.465	0.000	5.465	-0.598
90.00	-9.892	-8.617	0.000	0.000	0.000	-254.212	-5.724	0.000	5.724	-0.611
93.51	-9.709	-7.297	0.000	0.000	0.000	-219.513	-6.181	0.000	6.181	-0.632
95.00	-9.493	-7.045	0.000	0.000	0.000	-205.025	-6.380	0.000	6.380	-0.640
100.0	-9.160	-6.227	0.000	0.000	0.000	-157.560	-7.072	0.000	7.072	-0.678
105.0	-8.867	-5.441	0.000	0.000	0.000	-111.761	-7.801	0.000	7.801	-0.710
108.9	-8.704	-4.846	0.000	0.000	0.000	-77.001	-8.394	0.000	8.394	-0.730
110.0	-8.517	-4.686	0.000	0.000	0.000	-67.601	-8.559	0.000	8.559	-0.735
115.0	-8.268	-3.965	0.000	0.000	0.000	-25.014	-9.339	0.000	9.339	-0.749
118.0	-0.099	-0.320	0.000	0.000	0.000	-0.211	-9.811	0.000	9.811	-0.752
120.0	-0.020	-0.077	0.000	0.000	0.000	-0.013	-10.126	0.000	10.126	-0.752
120.6	-0.019	0.000	0.000	0.000	0.000	0.000	-10.228	0.000	10.228	-0.752

Load Case: Ice — 73.61 mph Wind with Ice — 16 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses							Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
	Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)			
0.00	0.36	0.28	0.00	0.00	0.00	9.23	9.61	52.0	0.0	0.185
5.00	0.35	0.28	0.00	0.00	0.00	9.14	9.51	52.0	0.0	0.183
10.00	0.34	0.28	0.00	0.00	0.00	9.04	9.39	52.0	0.0	0.181
15.00	0.33	0.28	0.00	0.00	0.00	8.93	9.27	52.0	0.0	0.178
20.00	0.32	0.28	0.00	0.00	0.00	8.81	9.14	52.0	0.0	0.176
25.00	0.31	0.29	0.00	0.00	0.00	8.68	9.00	52.0	0.0	0.173
30.00	0.30	0.29	0.00	0.00	0.00	8.54	8.85	52.0	0.0	0.170
35.00	0.29	0.29	0.00	0.00	0.00	8.38	8.68	52.0	0.0	0.167
40.00	0.27	0.29	0.00	0.00	0.00	8.21	8.50	52.0	0.0	0.163
42.11	0.27	0.29	0.00	0.00	0.00	8.13	8.42	52.0	0.0	0.162
45.00	0.25	0.29	0.00	0.00	0.00	8.02	8.29	52.0	0.0	0.159
49.35	0.25	0.32	0.00	0.00	0.00	8.44	8.71	52.0	0.0	0.168
50.00	0.25	0.32	0.00	0.00	0.00	8.41	8.68	52.0	0.0	0.167
55.00	0.24	0.32	0.00	0.00	0.00	8.15	8.40	52.0	0.0	0.162
60.00	0.23	0.32	0.00	0.00	0.00	7.86	8.10	52.0	0.0	0.156
64.92	0.21	0.32	0.00	0.00	0.00	7.54	7.77	52.0	0.0	0.150
65.00	0.21	0.32	0.00	0.00	0.00	7.54	7.77	52.0	0.0	0.149
70.00	0.20	0.32	0.00	0.00	0.00	7.18	7.40	52.0	0.0	0.142
75.00	0.19	0.32	0.00	0.00	0.00	6.78	6.99	52.0	0.0	0.134
80.00	0.17	0.32	0.00	0.00	0.00	6.33	6.53	52.0	0.0	0.126
85.00	0.16	0.33	0.00	0.00	0.00	5.82	6.01	52.0	0.0	0.116
86.92	0.15	0.33	0.00	0.00	0.00	5.61	5.80	52.0	0.0	0.111
87.96	0.15	0.33	0.00	0.00	0.00	5.50	5.67	52.0	0.0	0.109
90.00	0.14	0.33	0.00	0.00	0.00	5.25	5.42	52.0	0.0	0.104
93.51	0.19	0.51	0.00	0.00	0.00	7.33	7.57	52.0	0.0	0.146
95.00	0.19	0.51	0.00	0.00	0.00	7.01	7.25	52.0	0.0	0.140
100.00	0.17	0.51	0.00	0.00	0.00	5.86	6.10	52.0	0.0	0.117
105.00	0.16	0.52	0.00	0.00	0.00	4.54	4.78	52.0	0.0	0.092
108.92	0.15	0.53	0.00	0.00	0.00	3.36	3.62	52.0	0.0	0.070
110.00	0.14	0.52	0.00	0.00	0.00	3.01	3.28	52.0	0.0	0.063
115.00	0.13	0.53	0.00	0.00	0.00	1.23	1.63	52.0	0.0	0.031
118.00	0.01	0.01	0.00	0.00	0.00	0.01	0.02	52.0	0.0	0.000
120.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000
120.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000

Load Case: Twist/Sway — 50.00 mph Wind with No Ice — 16 Iterations

Gust Response Factor : 1.69
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		95.5	0.0					0.0	0.0	95.5	0.0	0.0	0.0
5.00		188.8	1,964.1					0.0	76.2	188.8	2,040.3	0.0	0.0
10.00		184.3	1,917.0					0.0	76.2	184.3	1,993.2	0.0	0.0
15.00		179.7	1,870.0					0.0	76.2	179.7	1,946.2	0.0	0.0
20.00		175.2	1,822.9					0.0	76.2	175.2	1,899.1	0.0	0.0
25.00		170.6	1,775.8					0.0	76.2	170.6	1,852.0	0.0	0.0
30.00		166.1	1,728.7					0.0	76.2	166.1	1,804.9	0.0	0.0
35.00		164.5	1,681.6					0.0	76.2	164.5	1,757.8	0.0	0.0
40.00		117.6	1,634.5					0.0	76.2	117.6	1,710.7	0.0	0.0
42.11	Bot - Section 2	84.1	674.6					0.0	32.1	84.1	706.7	0.0	0.0
45.00		123.1	1,740.8					0.0	44.1	123.1	1,784.9	0.0	0.0
49.35	Top - Section 1	85.0	2,563.7					0.0	66.4	85.0	2,630.1	0.0	0.0
50.00		95.8	178.2					0.0	9.8	95.8	188.1	0.0	0.0
55.00		169.2	1,356.0					0.0	76.2	169.2	1,432.2	0.0	0.0
60.00		166.8	1,314.2					0.0	76.2	166.8	1,390.4	0.0	0.0
64.92		83.7	1,252.3					0.0	75.0	83.7	1,327.3	0.0	0.0
65.00		84.1	20.0					0.0	1.2	84.1	21.2	0.0	0.0
70.00		164.4	1,230.5					0.0	76.2	164.4	1,306.7	0.0	0.0
75.00		162.0	1,188.6					0.0	76.2	162.0	1,264.8	0.0	0.0
80.00		159.2	1,146.8					0.0	76.2	159.2	1,223.0	0.0	0.0
85.00		108.7	1,104.9					0.0	76.2	108.7	1,181.1	0.0	0.0
86.92		45.8	413.2					0.0	29.3	45.8	442.4	0.0	0.0
87.96	Bot - Section 3	47.8	220.3					0.0	15.8	47.8	236.1	0.0	0.0
90.00		85.8	703.7					0.0	31.2	85.8	734.8	0.0	0.0
93.51	Top - Section 2	76.6	1,180.9					0.0	53.5	76.6	1,234.4	0.0	0.0
95.00		97.3	191.8					0.0	22.7	97.3	214.6	0.0	0.0
100.00		147.2	625.8					0.0	76.2	147.2	702.0	0.0	0.0
105.00		128.0	599.6					0.0	76.2	128.0	675.8	0.0	0.0
108.92		70.4	451.8					0.0	59.7	70.4	511.6	0.0	0.0
110.00		83.1	121.7					0.0	16.5	83.1	138.1	0.0	0.0
115.00		107.8	547.3					0.0	76.2	107.8	623.5	0.0	0.0
118.00	Appertunance(s)	65.7	315.8	3,887.7	0.0	0.0	3,250.0	0.0	45.7	3,953.4	3,611.6	0.0	0.0
120.00		34.3	205.3					0.0	0.0	34.3	205.3	0.0	0.0
120.65		8.3	65.4					0.0	0.0	8.3	65.4	0.0	0.0
								Totals:		7,813.99	38,856.2	0.00	0.00

Site Number: 415438 Code: TIA/EIA-222-F

Site Name: Brownson Country Club CT,CT Engineering Number: 66512521 5/18/2016 6:39:49 PM

Customer: VERIZON WIRELESS

Load Case: Twist/Sway 50.00 mph Wind with No Ice 16 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Shaft Forces and Deflections

Seg Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	X Deflect (in)	Z Deflect (in)	Total Deflect (in)	Rotation (deg)
0.00	-24.056	-43.346	0.000	0.000	0.000	-2,081.457	0.000	0.000	0.000	0.000
5.00	-23.899	-41.287	0.000	0.000	0.000	-1,961.181	-0.025	0.000	0.025	-0.045
10.00	-23.744	-39.275	0.000	0.000	0.000	-1,841.688	-0.098	0.000	0.098	-0.091
15.00	-23.591	-37.310	0.000	0.000	0.000	-1,722.969	-0.219	0.000	0.219	-0.138
20.00	-23.439	-35.392	0.000	0.000	0.000	-1,605.018	-0.389	0.000	0.389	-0.185
25.00	-23.289	-33.522	0.000	0.000	0.000	-1,487.824	-0.608	0.000	0.608	-0.232
30.00	-23.141	-31.699	0.000	0.000	0.000	-1,371.379	-0.876	0.000	0.876	-0.278
35.00	-22.992	-29.923	0.000	0.000	0.000	-1,255.676	-1.194	0.000	1.194	-0.325
40.00	-22.880	-28.200	0.000	0.000	0.000	-1,140.719	-1.560	0.000	1.560	-0.372
42.11	-22.802	-27.484	0.000	0.000	0.000	-1,092.517	-1.729	0.000	1.729	-0.392
45.00	-22.681	-25.687	0.000	0.000	0.000	-1,026.546	-1.975	0.000	1.975	-0.419
49.35	-22.585	-23.049	0.000	0.000	0.000	-927.788	-2.376	0.000	2.376	-0.458
50.00	-22.499	-22.851	0.000	0.000	0.000	-913.202	-2.439	0.000	2.439	-0.464
55.00	-22.334	-21.403	0.000	0.000	0.000	-800.710	-2.950	0.000	2.950	-0.510
60.00	-22.169	-19.998	0.000	0.000	0.000	-689.041	-3.508	0.000	3.508	-0.553
64.92	-15.960	-16.928	0.000	0.000	0.000	-579.971	-4.101	0.000	4.101	-0.594
65.00	-15.882	-16.902	0.000	0.000	0.000	-578.694	-4.111	0.000	4.111	-0.594
70.00	-15.714	-15.587	0.000	0.000	0.000	-499.285	-4.755	0.000	4.755	-0.633
75.00	-15.546	-14.314	0.000	0.000	0.000	-420.717	-5.438	0.000	5.438	-0.669
80.00	-15.380	-13.085	0.000	0.000	0.000	-342.986	-6.158	0.000	6.158	-0.703
85.00	-15.260	-11.900	0.000	0.000	0.000	-266.088	-6.911	0.000	6.911	-0.732
86.92	-9.389	-9.957	0.000	0.000	0.000	-236.789	-7.208	0.000	7.208	-0.743
87.96	-9.340	-9.720	0.000	0.000	0.000	-227.064	-7.369	0.000	7.369	-0.748
90.00	-9.246	-8.984	0.000	0.000	0.000	-207.971	-7.692	0.000	7.692	-0.759
93.51	-9.155	-7.749	0.000	0.000	0.000	-175.537	-8.257	0.000	8.257	-0.776
95.00	-9.057	-7.533	0.000	0.000	0.000	-161.876	-8.500	0.000	8.500	-0.782
100.0	-8.903	-6.829	0.000	0.000	0.000	-116.590	-9.337	0.000	9.337	-0.811
105.0	-8.768	-6.152	0.000	0.000	0.000	-72.073	-10.200	0.000	10.200	-0.834
108.9	-4.255	-4.582	0.000	0.000	0.000	-37.704	-10.890	0.000	10.890	-0.845
110.0	-4.170	-4.444	0.000	0.000	0.000	-33.109	-11.082	0.000	11.082	-0.848
115.0	-4.053	-3.822	0.000	0.000	0.000	-12.259	-11.974	0.000	11.974	-0.855
118.0	-0.046	-0.270	0.000	0.000	0.000	-0.099	-12.512	0.000	12.512	-0.856
120.0	-0.009	-0.065	0.000	0.000	0.000	-0.006	-12.871	0.000	12.871	-0.856
120.6	-0.008	0.000	0.000	0.000	0.000	0.000	-12.987	0.000	12.987	-0.856

Load Case: Twist/Sway — 50.00 mph Wind with No Ice — 16 Iterations

Gust Response Factor : 1.69
Dead Load Factor : 1.00
Wind Load Factor : 1.00

Calculated Stresses

Seg Elev (ft)	Applied Stresses Axial (Y) (ksi)	Shear (X) (ksi)	Shear (Z) (ksi)	Torsion (ksi)	Bending (X) (ksi)	Bending (Z) (ksi)	Combined (ksi)	Allowable Stress (Fb) (ksi)	Allowable Stress (Fa) (ksi)	Stress Ratio
0.00	0.37	0.41	0.00	0.00	0.00	13.24	13.63	52.0	0.0	0.262
5.00	0.36	0.42	0.00	0.00	0.00	13.09	13.47	52.0	0.0	0.259
10.00	0.35	0.43	0.00	0.00	0.00	12.92	13.29	52.0	0.0	0.256
15.00	0.34	0.44	0.00	0.00	0.00	12.71	13.08	52.0	0.0	0.252
20.00	0.33	0.45	0.00	0.00	0.00	12.47	12.83	52.0	0.0	0.247
25.00	0.33	0.46	0.00	0.00	0.00	12.19	12.54	52.0	0.0	0.241
30.00	0.32	0.47	0.00	0.00	0.00	11.87	12.22	52.0	0.0	0.235
35.00	0.31	0.48	0.00	0.00	0.00	11.50	11.84	52.0	0.0	0.228
40.00	0.30	0.49	0.00	0.00	0.00	11.07	11.40	52.0	0.0	0.219
42.11	0.29	0.49	0.00	0.00	0.00	10.87	11.20	52.0	0.0	0.215
45.00	0.28	0.50	0.00	0.00	0.00	10.57	10.89	52.0	0.0	0.209
49.35	0.28	0.56	0.00	0.00	0.00	10.86	11.19	52.0	0.0	0.215
50.00	0.28	0.56	0.00	0.00	0.00	10.77	11.10	52.0	0.0	0.214
55.00	0.27	0.57	0.00	0.00	0.00	10.05	10.37	52.0	0.0	0.200
60.00	0.26	0.59	0.00	0.00	0.00	9.22	9.54	52.0	0.0	0.184
64.92	0.23	0.44	0.00	0.00	0.00	8.28	8.55	52.0	0.0	0.164
65.00	0.23	0.44	0.00	0.00	0.00	8.27	8.54	52.0	0.0	0.164
70.00	0.22	0.45	0.00	0.00	0.00	7.64	7.90	52.0	0.0	0.152
75.00	0.21	0.46	0.00	0.00	0.00	6.91	7.17	52.0	0.0	0.138
80.00	0.20	0.47	0.00	0.00	0.00	6.07	6.32	52.0	0.0	0.122
85.00	0.19	0.48	0.00	0.00	0.00	5.08	5.33	52.0	0.0	0.103
86.92	0.16	0.30	0.00	0.00	0.00	4.66	4.84	52.0	0.0	0.093
87.96	0.16	0.30	0.00	0.00	0.00	4.54	4.73	52.0	0.0	0.091
90.00	0.15	0.30	0.00	0.00	0.00	4.30	4.47	52.0	0.0	0.086
93.51	0.20	0.49	0.00	0.00	0.00	5.86	6.12	52.0	0.0	0.118
95.00	0.20	0.49	0.00	0.00	0.00	5.54	5.80	52.0	0.0	0.112
100.00	0.19	0.50	0.00	0.00	0.00	4.34	4.61	52.0	0.0	0.089
105.00	0.18	0.51	0.00	0.00	0.00	2.93	3.23	52.0	0.0	0.062
108.92	0.14	0.26	0.00	0.00	0.00	1.64	1.84	52.0	0.0	0.035
110.00	0.13	0.26	0.00	0.00	0.00	1.47	1.67	52.0	0.0	0.032
115.00	0.12	0.26	0.00	0.00	0.00	0.60	0.85	52.0	0.0	0.016
118.00	0.01	0.00	0.00	0.00	0.00	0.01	0.01	52.0	0.0	0.000
120.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000
120.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	52.0	0.0	0.000

Analysis Summary

	Reactions						Max Stresses			
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
No Ice	69.5	0.00	43.27	0.00	0.00	6014.08	38.69	52.0	0.00	0.744
Ice	16.5	0.00	42.50	0.00	0.00	1451.57	9.61	52.0	0.00	0.185
Twist/Sway	24.1	0.00	43.35	0.00	0.00	2081.46	13.63	52.0	0.00	0.262

Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
			6,014.08	43.35	69.52	

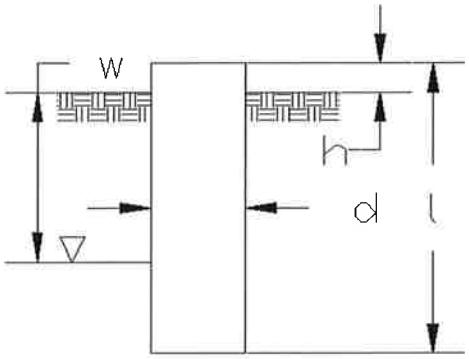
Base Plate

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Moment (kip-in)	Allow Stress (ksi)	Applied Stress (ksi)	Stress Ratio
50.0	3.250	80.000	Round	0	0.00	7.481	563.48	50.00	42.78	0.86

Anchor Bolts

Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Start Angle (deg)	Compression Force (kip)	Compression Allow (kip)	Compression Ratio	Tension Force (kip)	Tension Allow (kip)	Tension Ratio
74.00	28	2.25" A615-	2.25	75.00	100.00	Radial	0.00	0.0	140.87	195.00	0.72	137.77	174.94	0.79

Site Name:	Brownson Country Club CT, CT	*Program Last Updated:*	*5/13/2014*
Site Number:	415438	*American Tower Corporation*	
Engineer:	A. Venning		
Engineering Number:	66512521		
Date:	05/18/16		



Design Base Loads (Unfactored) - Analysis per TIA-222-F Standards

Analyze or Design a Foundation?	Analyze	
Foundation Mapped:	Y	
Moment (M):	6014.1	k-ft
Shear/Leg (V):	69.5	k
Axial Load (P):	43.3	k
Uplift/Leg (U):	0.0	k
Tower Type (GT / SST / MP):	MP	
Diameter of Caisson (d):	8.0	ft
Caisson Embedment (L-h):	24.0	ft
Caisson Height Above Ground (h):	0.5	ft
Depth Below Ground Surface to Water Table (w):	99.0	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Water:	62.4	pcf
Tension Skin Friction/Compression Skin Friction:	1.00	
Pullout Angle:	30.0	degrees

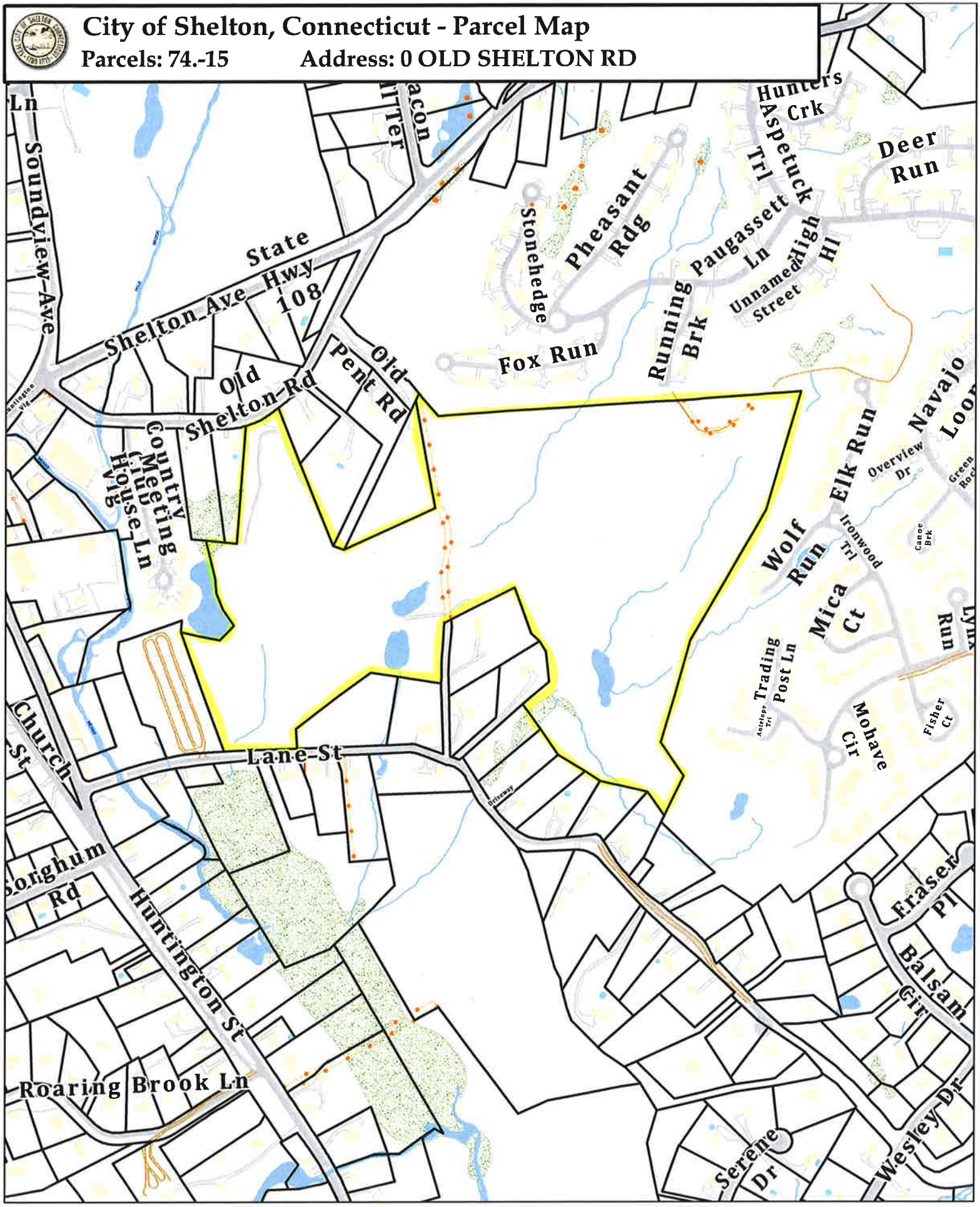
Engineer Notes

Soil Mechanical Properties

Depth (ft) Top	Depth (ft) Bottom	γ_{Soil} (pcf)	Cohesion (psf)	ϕ (degree)	Allowable Skin Friction (psf)	Allowable Bearing Pressure (psf)
0.0	2.0	130	0	0	0	0
2.0	4.0	115	0	30	76	0
4.0	6.0	135	0	36	159	0
6.0	9.0	150	15000	0	3750	0
9.0	24.0	140	10000	0	2500	15000

Required Embedment:	16.4	ft - OK, Caisson Embedment Satisfactory
Volume of Concrete:	1231.5	ft^3 = 45.6 yd^3
Weight of Concrete (Buoyancy Effect Considered):	184.7	k
Average Soil Unit Weight:	137.9	pcf
Skin Friction Resistance:	1237.0	k
Compressive Bearing Resistance:	754.0	k
Pullout Weight (Minus Concrete Weight):	1241.9	k
Allowable Uplift Capacity (U_{Allow}):	768.7	k
Allowable Compressive Capacity (P_{Allow}):	1991.0	k
Compressive Design Load (P):	57.9	k
U / U_{Allow}:	0.00	Result: OK
P / P_{Allow}:	0.03	Result: OK
Total Lateral Resistance:	10791.4	k
Inflection Point (Below Ground Surface):	14.4	ft
Design Overturning Moment At Inflection Point (M_D):	7049.5	k-ft
Nominal Moment Capacity (M_{Allow}):	51349.2	k-ft
M_{Allow} / M_D Factor of Safety:	7.28	Result: OK

ATTACHMENT 4



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Approximate Scale: 1:6,000

0 100 200 300 400 500 600 700 800 900 1000 1100 Feet

Map Produced
October 2014

Disclaimer: This map is for informational purposes only.
All information is subject to verification by any user.
The City of Shelton and its mapping contractors assume
no legal responsibility for the information contained herein.

City of Shelton
Property Listing Report

Parcel ID 74.-15

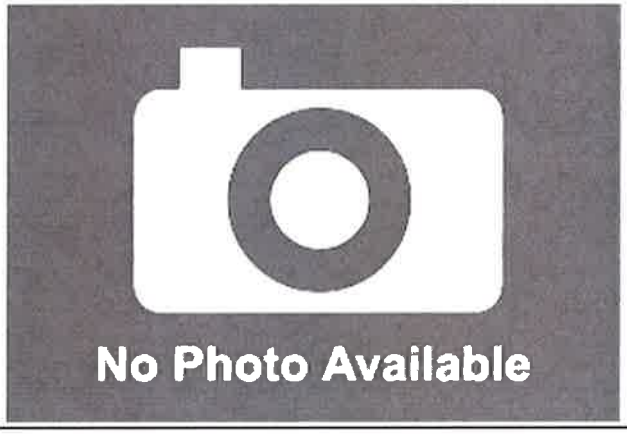
Account 5673

Property Information

Owner	BROWNSON HARRY B
Address	0 OLD SHELTON RD
Mailing Address	15 SOUNDVIEW AVE SHELTON , CT 06484
Land Use	- MIXED
Land Class	2-5

Census Tract	1103
Neighborhood	
Zoning	R-1
Acreage	55
Utilities	ELECTRIC
Lot Setting/ Desc	/

Photo



PARCEL VALUATIONS (Assessed value = 70% of Appraised Value)

	Appraised	Assessed
Buildings		
Outbuildings		
Improvements		
Extras		
Land		
Total	836900	585830
Previous		

Construction Details

Year Built	
Stories	
Building Style	
Building Use	
Building Condition	
Total Rooms	
Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	
Roof Cover	

EXTERIOR WALLS:	
Primary	
Secondary	
INTERIOR WALLS:	
Primary	
Secondary	
FLOORS:	
Primary	
Secondary	
HEATING/AC:	
Heating Type	
Heating Fuel	
AC Type	

BUILDING AREA:	
Effective Building Area	
Gross Building Area	
Total Living Area	

SALES HISTORY:	
Sale Date	19630912
Sale Price	0
Book/ Page	

Report Created On 8/24/2016