Robinson+Cole

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts

February 7, 2017

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

Re: **Notice of Exempt Modification – Facility Modification**
57 Cook Road, Montville, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 169-foot level on an existing 190-foot monopole tower at 57 Cook Road in Montville, Connecticut (the "Property"). The tower is owned by Wireless Solutions. The Council approved Cellco's shared use of this tower in 1998. Cellco now intends to modify its facility by replacing six (6) of its existing remote radio heads ("RRHs") with six (6) newer model RRHs and install three (3) new RRHs, all behind Cellco's existing antennas.

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 Ronald K. McDaniel, Mayor of the Town of Montville, Marcia Vlaun, Montville's Town Planner, Robert W. and Karen A. Kingsborough, the owners of the Property and Wireless Solutions, 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. The RRHs will be located at the same 169-foot level on the 190-foot 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 modified facility 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 General Power Density table with 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 Montville 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:
Ronald K. McDaniel, Montville Mayor
Marcia Vlaun, Montville Town Planner
Robert W. and Karen A. Kingsborough
Wireless Solutions
Tim Parks

ATTACHMENT 1

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.

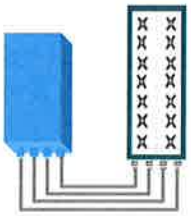
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the 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 B25 RRH4X30

Alcatel-Lucent Band 25 Remote Radio Head 4x30W is the new 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 B25 RRH4x30 allows operators to have a compact radio solution to deploy LTE in the PCS band (1.9 GHz, 3GPP band 25), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B25 RRH4x30 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, LTE carriers from 3 MHz up to 20 MHz and up to 65 MHz instantaneous bandwidth.

The Alcatel-Lucent B25 RRH4x30 is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

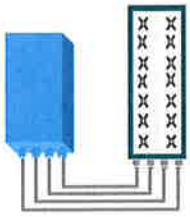
Its compactness and slim design makes the Alcatel-Lucent B25 RRH4x30 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 1.9 GHz band (PCS, 3GPP band 2 & 25)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- Ready for 3, 5, 10, 15 or 20MHz LTE carrier operation with 4Rx Diversity
- Ready to support up to 4 carriers anywhere in 65MHz instantaneous bandwidth
- Convection-cooled (fan-less)
- Supports AISG 2.0 devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in PCS band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Full flexibility for multiple carriers operation over entire PCS spectrum
- Improves downlink spectral efficiency and cell edge throughput through MIMO4
- Increases LTE coverage thanks to 4-way Rx 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	3GPP bands 2 & 25 (PCS-G) DL: 1930 - 1995 MHz UL: 1850 - 1915 MHz
Instantaneous bandwidth - #carriers	65MHz – Up to 4 LTE carriers (in 40MHz occupied bandwidth)
LTE carrier bandwidth	3, 5, 10, 15 or 20 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure (3GPP band 2) **RX Diversity scheme**	2.0 dB typ. (<2.5 dB max) 2 or 4 way Rx diversity
Sizes (HxWxD)(w/ solar shield) in mm (in.) **Volume (w/ solar shield) in L** **Weight (w/ solar shield) in kg (lb)**	538 x 304 x 182 (21.2" x 12.0" x 7.2") 30 24 (53)
DC voltage range **DC power consumption**	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 580W typical @100% RF load
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 (> 14dB)
CPRI ports	2 CPRI ports (HW ready for Rate7 / 9.8 Gbps)
AISG interfaces	1 AISG2.0 output (RS485), +24V/2A DC power Integrated Smart Bias Tees (x2)
Misc. Interfaces	1 external alarms connector (4 alarms) 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 B66A RRH4X45

The Alcatel-Lucent B66a Remote Radio Head 4x45 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. Its operational range covers beyond that of B4 (AWS) and B10 (AWS+).

Supporting 2Tx/4Tx MIMO and 2-way/4-way Rx diversity, the Alcatel-Lucent B66a RRH4x45 allows operators to have a compact radio solution to deploy LTE in the 2100 band (3GPP band 4, 10, and 66), providing them with the means to achieve high capacity, high quality, high reliability, large instantaneous bandwidth, and high coverage with minimum site requirements.

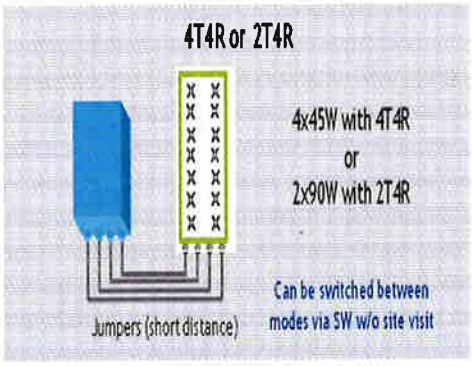
The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.

The Alcatel-Lucent B66a RRH4x45 is a compact (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 B66a RRH4x45 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 2110 - 2180 MHz band/DL, 1710-1780MHz/UL (3GPP band 4, 10, and 66a)
- LTE 2Tx or 4Tx MIMO (SW selectable)
- Configuration: 2T2R/2T4R/4T4R
- Output power: Up to 2x90W or 4x45W (SW configurable)
- 70MHz 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 AWS 1-3 band
- Selection of MIMO configuration (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through 4Tx MIMO
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall

TECHNICAL SPECIFICATIONS

Features & Performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R selectable by SW)
Frequency band	AWS 1-3, B4/B66a DL: 2110-2180 MHz / UL: 1710-1780 MHz
Instantaneous bandwidth - #carriers	70 MHz – 4 LTE MIMO carriers (in 70 MHz occupied bandwidth)
LTE carrier bandwidth	5, 10, 15, 20 MHz
RF output power	2x90W or 4x45W (selectable by SW)
Noise figure – RX Diversity scheme **Receiver Sensivity (FRC A1-3)**	2 dB typical (<2.5 dB max) – 2 or 4 way Rx diversity -104.5 dBm maximum
Sizes (HxWxD) in mm (in.) **Volume in Liters** **Weight in kg (lb) (w/o mounting HW)**	655x299x182 (25.8x11.8x7.2) (with solar shield) 640x290x160 (25.2x11.4x6.3) (without solar shield) 35.5 (with solar shield) 29.7 (without solar shield) 25.8kg (56.8lb) (with solar shield)
DC voltage range **DC power consumption**	Nominal: -48V, -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 750W typical @100% RF load (in 2Tx or 4Tx mode); Add 58W for 2A*29V for AISG
Environmental conditions **Wind load (@150km/h or 93mph)**	-40°C (-40°F) /+55°C (+131°F) UL50E Type 4 Enclosure 250N (56lb) Frontal/150N (34lb) Lateral
Antenna ports	4 ports 4.3-10 female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate 7, 9.8 Gbps) SFP: SMDF (HW supports also SMSF and MMDF)
AISG interfaces	1 AISG 2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-487 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27 / FCC Part 15 / GR-3178-CORE

ATTACHMENT 2

	General	Power	Density					
Site Name: Montville 4								
Tower Height: 190Ft.								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T	2	565	180	880	0.0134	0.5867	0.23%	
*AT&T	2	875	180	1900	0.0208	1.0000	0.21%	
*AT&T	1	283	180	880	0.0034	0.5867	0.06%	
*AT&T	4	525	180	1900	0.0249	1.0000	0.25%	
*AT&T	1	1615	180	734	0.0192	0.4893	0.39%	
*Clearwire	6	286	120	2500	0.0474	1.0000	0.47%	
*Nextel	12	100	134	851	0.0263	0.5673	0.46%	
*Sprint	4	693	151	1900	0.0474	1.0000	0.47%	
*Sprint	1	390	151	850	0.0067	0.5667	0.12%	
*T-Mobile	2	1610	190	2100	0.0342	1.0000	0.34%	
*T-Mobile	1	676	188	700	0.0073	0.4667	0.16%	
*T-Mobile	2	805	190	1900	0.0171	1.0000	0.17%	
*T-Mobile	2	805	190	2100	0.0171	1.0000	0.17%	
Verizon PCS	**1**	**2996**	**169**	**0.0377**	**1970**	**1.0000**	**3.77%**	
Verizon Cellular	**9**	**251**	**169**	**0.0284**	**869**	**0.5793**	**4.91%**	
Verizon AWS	**1**	**6987**	**169**	**0.0880**	**2145**	**1.0000**	**8.80%**	
Verizon 700	**1**	**1609**	**169**	**0.0203**	**746**	**0.4973**	**4.07%**	
								25.06%
* Source: Siting Council								

ATTACHMENT 3

STRUCTURAL ANALYSIS REPORT

For

MONTVILLE 4 CT

57 COOK DRIVE
MONTVILLE, CT 06382

Antennas Mounted to the Guyed Tower

Prepared for:

verizon

99 East River Road, 9th Floor
East Hartford, CT 06108

Dated: February 1, 2017

Prepared by:

Hudson Design Group LLC

1600 Osgood Street Bldg. 20N Suite 3090
North Andover, MA 01845
(P) 978.557.5553 (F) 978.336.5586
www.hudsondesigngroupllc.com

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by Verizon to conduct a structural evaluation of the 193' guyed tower supporting the proposed Verizon's antennas located at elevation 169' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of Verizon's existing and proposed antennas listed below.

Record drawings of the existing tower were not available for our use. This office conducted an on-site visual survey and tower mapping on October 15, 2012 to record dimensional properties of the existing tower and its appurtenances.

The previous structural analysis report prepared by Centek Engineering Inc., dated May 6, 2015, was available and obtained for our use.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing tower and foundation **are in conformance** with the ANSI/TIA-222-G Standard for the loading considered under the criteria listed in this report. The tower structure is rated at **88.2%** - (Guys at EL.162.6' Controlling).

Hudson Design Group LLC

APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	(6) AIR 21 Antennas	188'	Boom Gate
	(3) TMAs	188'	Boom Gate
	20' Omni	189'	Side Mount Standoff
	6' Omni	180'	Side Mount Standoff
	(6) Powerwave 7770 Antennas	179'	Boom Gate
	SBNH-1D6565C Antenna	179'	Boom Gate
	AM-X-CD-16-65-00 Antenna	179'	Boom Gate
	P65-17-XLH-RR Antenna	179'	Boom Gate
	(6) TT19-08BP111 TMAs	179'	Boom Gate
	(6) Diplexers	179'	Boom Gate
	(6) RRUS 11	179'	Boom Gate
	Surge Arrestor DC6-48-60-18-8F	179'	Boom Gate
Verizon	(3) LPA-80080-4CF Antennas	169'	T - Frame
Verizon	(9) SBNHH-1D65B Antennas	169'	T - Frame
Verizon	***(3) RRH2X60 700***	169'	T - Frame
Verizon	***(3) RRH2X60 PCS***	169'	T - Frame
Verizon	***(3) RRH4X45***	169'	T - Frame
Verizon	(2) DB-T1-6Z-8AB-0Z	169'	T - Frame
	4 Bay Dipole	156'	Side Mount Standoff
	(3) APXVSPP18-C Antennas	150'	Boom Gate
	(3) FD-RRH-4X40 1900	150'	Boom Gate
	(3) FD-RRH-2X50 800	150'	Boom Gate
	(6) Kathrein 800 10504 Antennas	130'	T - Frame
	(6) Kathrein 860 10025	130'	T - Frame
	Junction Box	130'	T - Frame
	GPS	130'	T - Frame
	DB408	126'	Side Mount Standoff
	(2) PD220	121'	Side Mount Standoff
	(3) LLPX310R Antennas	120'	T - Frame
	(3) RRH	120'	T - Frame
	Junction Box	120'	T - Frame
	Dipole	111'	Pipe Mount
	2' Omni	106'	Side Mount Standoff

Proposed Verizon Appurtenances shown in Bold.

Hudson Design Group LLC

VERIZON EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
Verizon	(12) 1 5/8" Cables	169'	Face of Tower
Verizon	(2) Fiber Cables	169'	Face of Tower

Proposed Verizon Coax Cables shown in Bold.

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Leg	79.7 %	100 – 120	PASS	
Diagonal	58.5 %	20 – 40	PASS	
Horizontal	2.3 %	0 – 5	PASS	
Sec. Horizontals	27.5 %	160 – 180	PASS	
Top Girt	11.7 %	20 – 40	PASS	
Bottom Girt	33.3 %	5 – 20	PASS	
Guy	**88.2 %**	162.6	PASS	**Controlling**
Torque Arm	61.0 %	162.6	PASS	

Hudson Design Group LLC

DESIGN CRITERIA:

1. EIA/TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures

   City/Town: Montville, CT
   Wind Load: 105 mph (3 second gust)
   Structural Class: II
   Exposure Category: B
   Topographic Category: 1
   Nominal Ice Thickness: 0.75 inch

2. Approximate height above grade to proposed antennas: 169'

Calculations and referenced documents are attached

ASSUMPTIONS:

1. Material strength of the existing structure was not available for structural analysis, and was assumed as follows:

   Tower Legs (Pipes): Fy=50 ksi
   Tower Diagonals (Pipes): Fy=42 ksi
   Angles and Channels: Fy=36 ksi

2. The appurtenances configuration is as stated in the previous structural analysis report prepared by Centek Engineering Inc., dated May 6, 2015. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.

3. The tower and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.

4. The support mounts and platforms are not analyzed and are considered adequate to support the loading. The analysis is limited to the primary support structure itself.

5. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.

SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed RRHs be mounted on the existing steel frames supported by the tower.

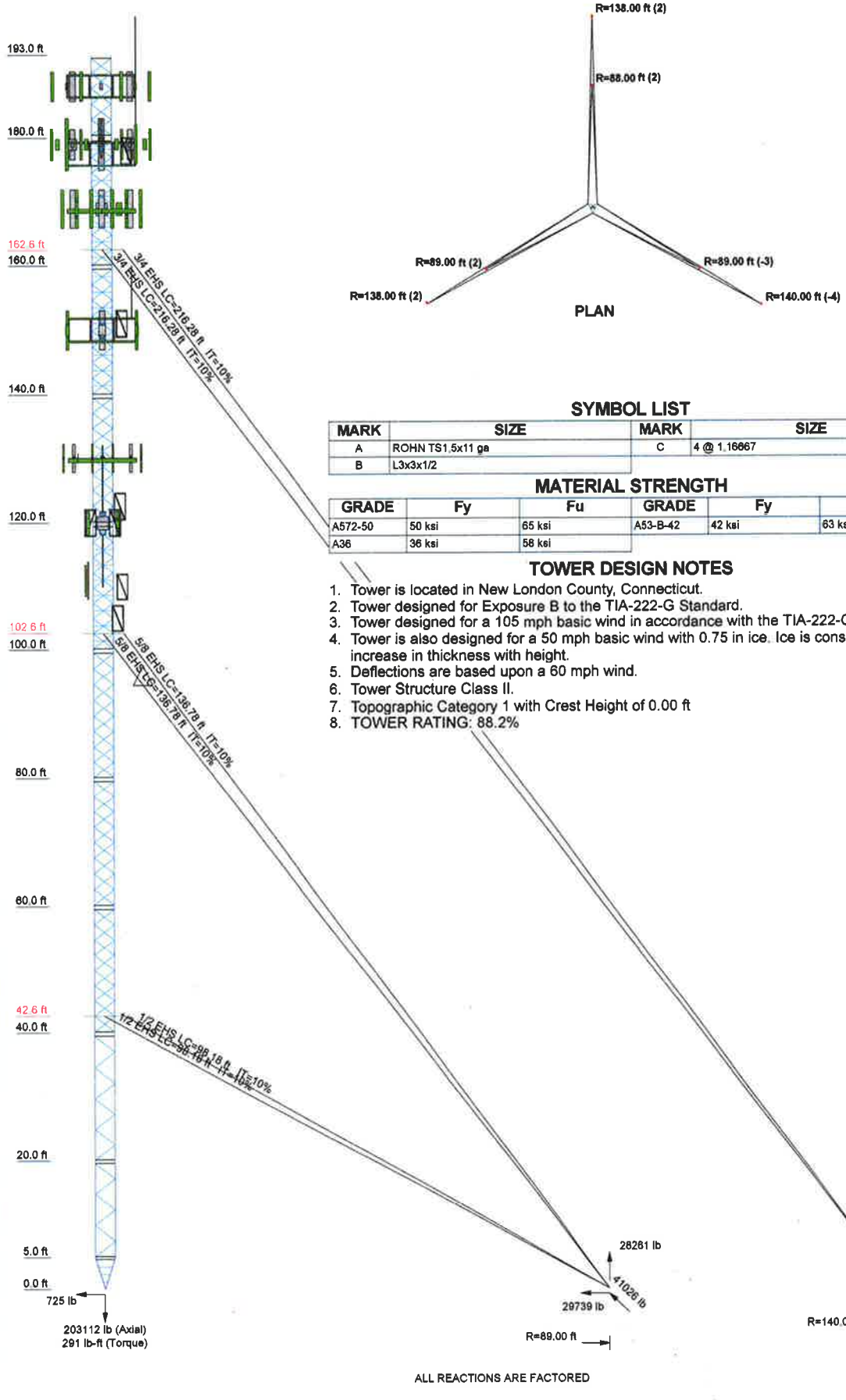
Hudson Design Group LLC

Photo 1: Photo illustrating the Tower with Appurtenances shown.

Hudson Design Group LLC

CALCULATIONS

Section	T11	T10	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs			ROHN 3 EH					ROHN 2.5 EH	ROHN 2.5 EH (CT2171)		ROHN 2.5 EH
Leg Grade						A572-50					
Diagonals	N.A.	A	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga	L1 3/4x1 3/4x3/16	ROHN TS1.5x16 ga	L2x2x1/4	ROHN TS1.5x11 ga		L2x2x1/4	
Diagonal Grade	N.A.		A53-B-42		A36	A53-B-42	A36	A53-B-42		A36	
Top Girts	B	A	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga		ROHN TS1.5x16 ga	L2x2x1/4	ROHN TS1.5x11 ga		L2x2x1/4	
Bottom Girts	N.A.	A	ROHN TS1.5x16 ga	ROHN TS1.5x11 ga		ROHN TS1.5x16 ga	L2x2x1/4	ROHN TS1.5x11 ga		L2x2x1/4	
Horizontals	B					N.A.					
Sec. Horizontals			N.A.				L2x2x1/4	N.A.	L2x2x1/4	N.A.	3.42
Face Width (ft)											
# Panels @ (ft)	C					75 @ 2.41667					
Weight (lb)	13526.5	631.6	724.0	1598.3	1076.9	813.8	2489.4	862.3	1558.1	2888.1	765.5



PLAN

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	ROHN TS1.5x11 ga	C	4 @ 1.16667
B	L3x3x1/2		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A53-B-42	42 ksi	63 ksi
A36	36 ksi	58 ksi			

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 105 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 88.2%

ALL REACTIONS ARE FACTORED

Hudson Design Group LLC
1600 Osgood Street Bldg. 20N Suite 3090
North Andover, MA 01845
Phone: (978) 557-5553
FAX: (978) 336-5586

Job: MONTVILLE 4 CT			
Project: 193 ft Guyed Tower			
Client: VERIZON	Drawn by: kw	App'd:	
Code: TIA-222-G	Date: 02/01/17	Scale: NTS	
Path:		Dwg No. E-1	

Hudson Design Group LLC
1600 Osgood Street Bldg. 20N Suite 3090
North Andover, MA 01845
Phone: (978) 557-5553
FAX: (978) 336-5586

Job	Page
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Project	**Date**
193 ft Guyed Tower	13:34:54 02/01/17
Client	**Designed by**
VERIZON	kw

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 193.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.42 ft at the top and tapered at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New London County, Connecticut.
Basic wind speed of 105 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Safety factor used in guy design is 1.
Stress ratio used in tower member design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	193.00-180.00			3.42	1	13.00
T2	180.00-160.00			3.42	1	20.00
T3	160.00-140.00			3.42	1	20.00
T4	140.00-120.00			3.42	1	20.00
T5	120.00-100.00			3.42	1	20.00
T6	100.00-80.00			3.42	1	20.00
T7	80.00-60.00			3.42	1	20.00
T8	60.00-40.00			3.42	1	20.00
T9	40.00-20.00			3.42	1	20.00
T10	20.00-5.00			3.42	1	15.00
T11	5.00-0.00			3.42	1	5.00

Tower Section Geometry *(cont'd)*

Tower Section	*Tower Elevation*	*Diagonal Spacing*	*Bracing Type*	*Has K Brace End Panels*	*Has Horizontals*	*Top Girt Offset*	*Bottom Girt Offset*
	ft	*ft*				*in*	*in*
T1	193.00-180.00	2.42	X Brace	No	No	6.0000	5.0000
T2	180.00-160.00	2.42	X Brace	No	Yes	6.0000	2.0000

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T3	160.00-140.00	2.42	X Brace	No	Yes	6.0000	2.0000
T4	140.00-120.00	2.42	CX Brace	No	No	6.0000	2.0000
T5	120.00-100.00	2.42	X Brace	No	Yes	6.0000	2.0000
T6	100.00-80.00	2.42	CX Brace	No	No	6.0000	2.0000
T7	80.00-60.00	2.42	X Brace	No	No	6.0000	2.0000
T8	60.00-40.00	2.42	CX Brace	No	No	6.0000	2.0000
T9	40.00-20.00	2.42	K Brace Left	No	No	6.0000	2.0000
T10	20.00-5.00	2.42	K Brace Left	No	No	5.0000	1.0000
T11	5.00-0.00	1.17	X Brace	No	Yes	4.0000	0.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 193.00-180.00	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T2 180.00-160.00	Pipe	ROHN 2.5 EH (CT2171)	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T3 160.00-140.00	Pipe	ROHN 2.5 EH (CT2171)	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T4 140.00-120.00	Pipe	ROHN 2.5 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T5 120.00-100.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T6 100.00-80.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T7 80.00-60.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L1 3/4x1 3/4x3/16	A36 (36 ksi)
T8 60.00-40.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T9 40.00-20.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T10 20.00-5.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T11 5.00-0.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 193.00-180.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T2 180.00-160.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T3 160.00-140.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T4 140.00-120.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T5 120.00-100.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T6 100.00-80.00	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T7 80.00-60.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T8 60.00-40.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T9 40.00-20.00	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T10 20.00-5.00	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x11 ga	A53-B-42 (42 ksi)
T11 5.00-0.00	Equal Angle	L3x3x1/2	A36 (36 ksi)	Equal Angle	L3x3x1/2	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T11 5.00-0.00	None	Solid Round		A572-50 (50 ksi)	Equal Angle	L3x3x1/2	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Secondary Horizontal Type	Secondary Horizontal Size	Secondary Horizontal Grade	Inner Bracing Type	Inner Bracing Size	Inner Bracing Grade
T2 180.00-160.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T3 160.00-140.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)
T5 120.00-100.00	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A572-50 (50 ksi)

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension lb	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
162.583	EHS	A	3/4	5830.00	10%	19000	1.155	210.20	138.00	0.0000	2.00	100%
		B	3/4	5830.00	10%	19000	1.155	216.08	140.00	0.0000	-4.00	100%
		C	3/4	5830.00	10%	19000	1.155	210.20	138.00	0.0000	2.00	100%
102.583	EHS	A	5/8	4240.00	10%	21000	0.813	132.20	88.00	0.0000	2.00	100%
		B	5/8	4240.00	10%	21000	0.813	136.67	89.00	0.0000	-3.00	100%
		C	5/8	4240.00	10%	21000	0.813	132.85	89.00	0.0000	2.00	100%
42.5833	EHS	A	1/2	2690.00	10%	21000	0.517	94.98	88.00	0.0000	2.00	100%
		B	1/2	2690.00	10%	21000	0.517	98.10	89.00	0.0000	-3.00	100%
		C	1/2	2690.00	10%	21000	0.517	95.88	89.00	0.0000	2.00	100%

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
162.583	Torque Arm	7.33	0.0000	Channel	A36 (36 ksi)	Channel	C15x50
102.583	Torque Arm	7.33	0.0000	Channel	A36 (36 ksi)	Channel	C15x40
42.5833	Torque Arm	7.33	0.0000	Channel	A36 (36 ksi)	Channel	C12x25

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
1 5/8	A	No	Ar (CaAa)	188.00 - 8.00	0.0000	-0.3	6	3	0.0000	1.9800		1.04
1 5/8	B	No	Ar (CaAa)	188.00 - 8.00	0.0000	0.35	6	3	0.0000	1.9800		1.04
1 5/8 Fiber Cable	B	No	Ar (CaAa)	188.00 - 8.00	0.0000	0.23	1	1	0.0000	1.9800		1.04
7/8 **********	B	No	Ar (CaAa)	179.00 - 8.00	3.0000	0.25	1	1	0.0000	1.1100		0.54
1 1/4 (AT&T)	C	No	Ar (CaAa)	177.50 - 8.00	0.0000	0.3	12	6	0.0000	1.5500		0.66
FB-L98B-002	C	No	Ar (CaAa)	177.50 - 8.00	0.0000	0.42	1	1	0.0000	0.4000		0.25
WR-VG122S T-BRDA **********	C	No	Ar (CaAa)	177.50 - 8.00	0.0000	0.4	2	2	0.0000	0.4000		0.25
1 5/8 (VERIZON - existing)	B	No	Ar (CaAa)	169.00 - 8.00	0.0000	-0.2	12	6	0.0000	1.9800		1.04
1 5/8 Fiber Cable **********	B	No	Ar (CaAa)	169.00 - 8.00	0.0000	0	2	2	1.9800	1.9800		1.04
1 1/4	C	No	Ar (CaAa)	152.00 - 8.00	0.0000	-0.4	1	1	0.0000	1.5500		0.66
1 5/8	A	No	Ar (CaAa)	150.00 - 8.00	0.0000	0.3	6	3	0.0000	1.9800		1.04
1 5/8 Fiber Cable	A	No	Ar (CaAa)	150.00 - 8.00	2.5000	0.1	1	1	0.0000	1.9800		1.04
7/8	C	No	Ar (CaAa)	144.00 - 8.00	0.0000	-0.35	1	1	0.0000	1.1100		0.54
1 5/8	C	No	Ar (CaAa)	130.00 - 8.00	0.0000	0	12	6	0.0000	1.9800		1.04
1/2	C	No	Ar (CaAa)	130.00 - 8.00	0.0000	-0.2	1	1	0.0000	0.5800		0.25
1 1/4	C	No	Ar (CaAa)	122.00 - 8.00	0.0000	-0.4	1	1	0.0000	1.5500		0.66
2" Conduit	A	No	Ar (CaAa)	120.00 - 8.00	0.0000	-0.1	1	1	0.0000	2.0000		2.80
1 5/8	C	No	Ar (CaAa)	110.00 - 8.00	0.0000	-0.3	2	2	0.0000	1.8000		1.04
1/2	A	No	Ar (CaAa)	105.00 - 8.00	0.0000	0.1	2	2	0.0000	0.5800		0.25
1 1/4	C	No	Ar (CaAa)	108.00 - 8.00	2.0000	-0.4	1	1	0.0000	1.5500		0.66

Discrete Tower Loads

Hudson Design Group LLC
1600 Osgood Street Bldg. 20N Suite 3090
North Andover, MA 01845
Phone: (978) 557-5553
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MONTVILLE 4 CT	5 of 16
Project	**Date**
193 ft Guyed Tower	13:34:54 02/01/17
Client	**Designed by**
VERIZON	kw

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Rohn 6'x12' Boom Gate (3)	A	None		0.0000	188.00	No Ice	49.80	49.80	1680.00
						1/2" Ice	59.30	59.30	2100.00
						1" Ice	68.80	68.80	2520.00
(2) AIR 21 w/ Mount Pipe	A	From Leg	5.00	0.0000	188.00	No Ice	6.29	5.70	111.68
			0.00			1/2" Ice	6.73	6.48	168.60
			0.00			1" Ice	7.17	7.19	232.26
(2) AIR 21 w/ Mount Pipe	B	From Leg	5.00	0.0000	188.00	No Ice	6.29	5.70	111.68
			0.00			1/2" Ice	6.73	6.48	168.60
			0.00			1" Ice	7.17	7.19	232.26
(2) AIR 21 w/ Mount Pipe	C	From Leg	5.00	0.0000	188.00	No Ice	6.29	5.70	111.68
			0.00			1/2" Ice	6.73	6.48	168.60
			0.00			1" Ice	7.17	7.19	232.26
KRY 112 71/2	A	From Leg	5.00	0.0000	188.00	No Ice	0.58	0.45	13.20
			0.00			1/2" Ice	0.69	0.54	18.69
			0.00			1" Ice	0.80	0.64	25.81
KRY 112 71/2	B	From Leg	5.00	0.0000	188.00	No Ice	0.58	0.45	13.20
			0.00			1/2" Ice	0.69	0.54	18.69
			0.00			1" Ice	0.80	0.64	25.81
KRY 112 71/2	C	From Leg	5.00	0.0000	188.00	No Ice	0.58	0.45	13.20
			0.00			1/2" Ice	0.69	0.54	18.69
			0.00			1" Ice	0.80	0.64	25.81
**********									
Pirod 6' Side Mount Standoff (1)	B	From Leg	3.00	0.0000	178.00	No Ice	4.97	4.97	70.00
			0.00			1/2" Ice	6.12	6.12	130.00
			0.00			1" Ice	7.27	7.27	190.00
Omni 3"x20'	B	From Leg	5.00	0.0000	189.00	No Ice	6.00	6.00	50.00
			0.00			1/2" Ice	8.03	8.03	93.17
			0.00			1" Ice	10.08	10.08	149.01
3' Side Mount Standoff	A	From Leg	1.50	0.0000	178.00	No Ice	1.50	1.50	45.00
			0.00			1/2" Ice	2.20	2.20	70.00
			0.00			1" Ice	2.90	2.90	95.00
Omni 3"x6'	A	From Leg	3.00	0.0000	180.00	No Ice	1.77	1.77	20.00
			0.00			1/2" Ice	2.13	2.13	33.24
			0.00			1" Ice	2.50	2.50	50.59
**********									
Rohn 6'x15' Boom Gate (3) (AT&T - Existing)	A	None		0.0000	177.50	No Ice	53.20	53.20	1790.00
						1/2" Ice	63.30	63.30	2230.00
						1" Ice	73.40	73.40	2670.00
(2) Powerwave 7770 w/mount pipe	A	From Leg	5.00	0.0000	179.00	No Ice	5.65	4.10	57.25
			0.00			1/2" Ice	6.03	4.75	103.17
			0.00			1" Ice	6.42	5.42	155.38
(2) Powerwave 7770 w/mount pipe	B	From Leg	5.00	0.0000	179.00	No Ice	5.65	4.10	57.25
			0.00			1/2" Ice	6.03	4.75	103.17
			0.00			1" Ice	6.42	5.42	155.38
(2) Powerwave 7770 w/mount pipe	C	From Leg	5.00	0.0000	179.00	No Ice	5.65	4.10	57.25
			0.00			1/2" Ice	6.03	4.75	103.17
			0.00			1" Ice	6.42	5.42	155.38
SBNH-1D6565C w/mount pipe	A	From Leg	5.00	0.0000	179.00	No Ice	11.69	10.29	113.11
			0.00			1/2" Ice	12.40	11.81	206.76
			0.00			1" Ice	13.11	13.16	311.52
KMW AM-X-CD-16-65-00T-RET w/mount pipe	B	From Leg	5.00	0.0000	179.00	No Ice	8.26	6.30	74.05
			0.00			1/2" Ice	8.82	7.48	139.04
			0.00			1" Ice	9.35	8.37	211.91
Powerwave P65-17-XLH-RR w/mount pipe	C	From Leg	5.00	0.0000	179.00	No Ice	11.75	9.39	122.11
			0.00			1/2" Ice	12.47	10.90	212.11
			0.00			1" Ice	13.18	12.24	313.12
(2) Powerwave	A	From Leg	5.00	0.0000	179.00	No Ice	0.55	0.45	16.00

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1600 Osgood Street Bldg. 20N Suite 3090
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Project	**Date**
193 ft Guyed Tower	13:34:54 02/01/17
Client	**Designed by**
VERIZON	kw

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
TT19-08BP111-001			0.00			1/2" Ice	0.65	0.53	21.80
			0.00			1" Ice	0.75	0.63	29.22
(2) Powerwave	B	From Leg	5.00	0.0000	179.00	No Ice	0.55	0.45	16.00
TT19-08BP111-001			0.00			1/2" Ice	0.65	0.53	21.80
			0.00			1" Ice	0.75	0.63	29.22
(2) Powerwave	C	From Leg	5.00	0.0000	179.00	No Ice	0.55	0.45	16.00
TT19-08BP111-001			0.00			1/2" Ice	0.65	0.53	21.80
			0.00			1" Ice	0.75	0.63	29.22
(2) Powerwave	A	From Leg	5.00	0.0000	179.00	No Ice	0.37	0.25	6.50
CM1007-DBPXBC			0.00			1/2" Ice	0.45	0.32	9.99
			0.00			1" Ice	0.54	0.39	14.78
(2) Powerwave	B	From Leg	5.00	0.0000	179.00	No Ice	0.37	0.25	6.50
CM1007-DBPXBC			0.00			1/2" Ice	0.45	0.32	9.99
			0.00			1" Ice	0.54	0.39	14.78
(2) Powerwave	C	From Leg	5.00	0.0000	179.00	No Ice	0.37	0.25	6.50
CM1007-DBPXBC			0.00			1/2" Ice	0.45	0.32	9.99
			0.00			1" Ice	0.54	0.39	14.78
(2) Ericsson RRUS-11	A	From Leg	4.00	0.0000	179.00	No Ice	2.79	1.19	50.70
			0.00			1/2" Ice	3.00	1.34	71.57
			0.00			1" Ice	3.21	1.50	95.48
(2) Ericsson RRUS-11	B	From Leg	4.00	0.0000	179.00	No Ice	2.79	1.19	50.70
			0.00			1/2" Ice	3.00	1.34	71.57
			0.00			1" Ice	3.21	1.50	95.48
(2) Ericsson RRUS-11	C	From Leg	4.00	0.0000	179.00	No Ice	2.79	1.19	50.70
			0.00			1/2" Ice	3.00	1.34	71.57
			0.00			1" Ice	3.21	1.50	95.48
DC6-48-60-18-8F	A	From Leg	0.50	0.0000	179.00	No Ice	0.79	0.79	20.00
			0.00			1/2" Ice	1.27	1.27	35.12
			0.00			1" Ice	1.45	1.45	52.57
**********									
PiROD 15' T-Frame	A	From Leg	1.50	0.0000	169.00	No Ice	15.00	15.00	500.00
(VERIZON - existing)			0.00			1/2" Ice	20.60	20.60	650.00
			0.00			1" Ice	26.20	26.20	800.00
PiROD 15' T-Frame	B	From Leg	1.50	0.0000	169.00	No Ice	15.00	15.00	500.00
			0.00			1/2" Ice	20.60	20.60	650.00
			0.00			1" Ice	26.20	26.20	800.00
PiROD 15' T-Frame	C	From Leg	1.50	0.0000	169.00	No Ice	15.00	15.00	500.00
			0.00			1/2" Ice	20.60	20.60	650.00
			0.00			1" Ice	26.20	26.20	800.00
LPA-80080-4CF w/mount	A	From Leg	3.00	0.0000	169.00	No Ice	2.87	6.59	30.25
pipe			0.00			1/2" Ice	3.24	7.22	76.66
			0.00			1" Ice	3.62	7.87	129.00
(3) SBNHH-1D65B w/	A	From Leg	3.00	0.0000	169.00	No Ice	8.42	7.09	66.55
Mount Pipe			0.00			1/2" Ice	8.98	8.27	135.68
			0.00			1" Ice	9.50	9.17	212.84
LPA-80080-4CF w/mount	B	From Leg	3.00	0.0000	169.00	No Ice	2.87	6.59	30.25
pipe			0.00			1/2" Ice	3.24	7.22	76.66
			0.00			1" Ice	3.62	7.87	129.00
(3) SBNHH-1D65B w/	B	From Leg	3.00	0.0000	169.00	No Ice	8.42	7.09	66.55
Mount Pipe			0.00			1/2" Ice	8.98	8.27	135.68
			0.00			1" Ice	9.50	9.17	212.84
LPA-80080-4CF w/mount	C	From Leg	3.00	0.0000	169.00	No Ice	2.87	6.59	30.25
pipe			0.00			1/2" Ice	3.24	7.22	76.66
			0.00			1" Ice	3.62	7.87	129.00
(3) SBNHH-1D65B w/	C	From Leg	3.00	0.0000	169.00	No Ice	8.42	7.09	66.55
Mount Pipe			0.00			1/2" Ice	8.98	8.27	135.68
			0.00			1" Ice	9.50	9.17	212.84

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
**********											
RRH2x60-700 (VERIZON - proposed)	A	From Leg	3.00	0.00	0.00	0.0000	169.00	No Ice	3.50	1.82	60.00
								1/2" Ice	3.76	2.05	82.72
								1" Ice	4.03	2.29	109.06
RRH2x60-700	B	From Leg	3.00	0.00	0.00	0.0000	169.00	No Ice	3.50	1.82	60.00
								1/2" Ice	3.76	2.05	82.72
								1" Ice	4.03	2.29	109.06
RRH2x60-700	C	From Leg	3.00	0.00	0.00	0.0000	169.00	No Ice	3.50	1.82	60.00
								1/2" Ice	3.76	2.05	82.72
								1" Ice	4.03	2.29	109.06
RRH2x60 PCS	A	From Leg	3.00	0.00	0.00	0.0000	169.00	No Ice	2.15	1.35	55.00
								1/2" Ice	2.34	1.50	72.75
								1" Ice	2.54	1.67	93.35
RRH2x60 PCS	B	From Leg	3.00	0.00	0.00	0.0000	169.00	No Ice	2.15	1.35	55.00
								1/2" Ice	2.34	1.50	72.75
								1" Ice	2.54	1.67	93.35
RRH2x60 PCS	C	From Leg	3.00	0.00	0.00	0.0000	169.00	No Ice	2.15	1.35	55.00
								1/2" Ice	2.34	1.50	72.75
								1" Ice	2.54	1.67	93.35
B66A RRH 4X45	A	From Leg	3.00	0.00	0.00	0.0000	169.00	No Ice	2.66	1.59	64.00
								1/2" Ice	2.88	1.77	84.35
								1" Ice	3.10	1.96	107.85
B66A RRH 4X45	B	From Leg	3.00	0.00	0.00	0.0000	169.00	No Ice	2.66	1.59	64.00
								1/2" Ice	2.88	1.77	84.35
								1" Ice	3.10	1.96	107.85
B66A RRH 4X45	C	From Leg	3.00	0.00	0.00	0.0000	169.00	No Ice	2.66	1.59	64.00
								1/2" Ice	2.88	1.77	84.35
								1" Ice	3.10	1.96	107.85
RFS DB-T1-6Z-8AB-0Z	A	From Leg	1.50	0.00	0.00	0.0000	169.00	No Ice	4.80	2.00	44.00
								1/2" Ice	5.07	2.19	80.13
								1" Ice	5.35	2.39	120.22
RFS DB-T1-6Z-8AB-0Z	B	From Leg	1.50	0.00	0.00	0.0000	169.00	No Ice	4.80	2.00	44.00
								1/2" Ice	5.07	2.19	80.13
								1" Ice	5.35	2.39	120.22
**********											
Rohn 6'x15' Boom Gate (3) (SPRINT)	A	None				0.0000	150.00	No Ice	53.20	53.20	1790.00
								1/2" Ice	63.30	63.30	2230.00
								1" Ice	73.40	73.40	2670.00
APXVSPP18-C w/mount pipe	A	From Leg	5.00	0.00	0.00	0.0000	150.00	No Ice	8.26	6.95	82.55
								1/2" Ice	8.82	8.13	150.56
								1" Ice	9.35	9.02	226.53
APXVSPP18-C w/mount pipe	B	From Leg	5.00	0.00	0.00	0.0000	150.00	No Ice	8.26	6.95	82.55
								1/2" Ice	8.82	8.13	150.56
								1" Ice	9.35	9.02	226.53
APXVSPP18-C w/mount pipe	C	From Leg	5.00	0.00	0.00	0.0000	150.00	No Ice	8.26	6.95	82.55
								1/2" Ice	8.82	8.13	150.56
								1" Ice	9.35	9.02	226.53
FD-RRH4x40 1900	A	From Leg	5.00	0.00	0.00	0.0000	150.00	No Ice	2.24	2.32	60.00
								1/2" Ice	2.44	2.53	83.13
								1" Ice	2.65	2.74	109.50
FD-RRH4x40 1900	B	From Leg	5.00	0.00	0.00	0.0000	150.00	No Ice	2.24	2.32	60.00
								1/2" Ice	2.44	2.53	83.13
								1" Ice	2.65	2.74	109.50
FD-RRH4x40 1900	C	From Leg	5.00	0.00	0.00	0.0000	150.00	No Ice	2.24	2.32	60.00
								1/2" Ice	2.44	2.53	83.13
								1" Ice	2.65	2.74	109.50
FD-RRH2x50 800	A	From Leg	5.00			0.0000	150.00	No Ice	2.06	1.93	64.00

Hudson Design Group LLC
1600 Osgood Street Bldg. 20N Suite 3090
North Andover, MA 01845
Phone: (978) 557-5553
FAX: (978) 336-5586

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Project	**Date**
193 ft Guyed Tower	13:34:54 02/01/17
Client	**Designed by**
VERIZON	kw

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30
FD-RRH2x50 800	B	From Leg	5.00	0.0000	150.00	No Ice	2.06	1.93	64.00
			0.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30
FD-RRH2x50 800	C	From Leg	5.00	0.0000	150.00	No Ice	2.06	1.93	64.00
			0.00			1/2" Ice	2.24	2.11	86.12
			0.00			1" Ice	2.43	2.29	111.30
**********									
3.5' Side Mount Standoff	B	From Leg	2.00	0.0000	151.00	No Ice	1.70	1.70	50.00
			0.00			1/2" Ice	2.50	2.50	80.00
			0.00			1" Ice	3.30	3.30	110.00
8' 4-Bay Dipole	B	From Leg	4.00	0.0000	156.00	No Ice	1.60	1.60	25.00
			0.00			1/2" Ice	2.42	2.42	37.45
			0.00			1" Ice	3.24	3.24	55.14
**********									
PiROD 12' Lightweight T-Frame	A	From Leg	1.50	0.0000	130.00	No Ice	10.20	10.20	253.00
			0.00			1/2" Ice	16.20	16.20	355.00
			0.00			1" Ice	22.20	22.20	457.00
PiROD 12' Lightweight T-Frame	B	From Leg	1.50	0.0000	130.00	No Ice	10.20	10.20	253.00
			0.00			1/2" Ice	16.20	16.20	355.00
			0.00			1" Ice	22.20	22.20	457.00
PiROD 12' Lightweight T-Frame	C	From Leg	1.50	0.0000	130.00	No Ice	10.20	10.20	253.00
			0.00			1/2" Ice	16.20	16.20	355.00
			0.00			1" Ice	22.20	22.20	457.00
(2) Kathrein 800 10504 w/mount pipe	A	From Leg	3.00	0.0000	130.00	No Ice	3.71	3.29	41.90
			0.00			1/2" Ice	4.18	4.11	75.82
			0.00			1" Ice	4.62	4.82	115.69
(2) Kathrein 800 10504 w/mount pipe	B	From Leg	3.00	0.0000	130.00	No Ice	3.71	3.29	41.90
			0.00			1/2" Ice	4.18	4.11	75.82
			0.00			1" Ice	4.62	4.82	115.69
(2) Kathrein 800 10504 w/mount pipe	C	From Leg	3.00	0.0000	130.00	No Ice	3.71	3.29	41.90
			0.00			1/2" Ice	4.18	4.11	75.82
			0.00			1" Ice	4.62	4.82	115.69
(2) Kathrein 860 10025 RCU	A	From Leg	3.00	0.0000	130.00	No Ice	0.14	0.12	1.20
			0.00			1/2" Ice	0.20	0.17	2.76
			0.00			1" Ice	0.26	0.23	5.24
(2) Kathrein 860 10025 RCU	B	From Leg	3.00	0.0000	130.00	No Ice	0.14	0.12	1.20
			0.00			1/2" Ice	0.20	0.17	2.76
			0.00			1" Ice	0.26	0.23	5.24
(2) Kathrein 860 10025 RCU	C	From Leg	3.00	0.0000	130.00	No Ice	0.14	0.12	1.20
			0.00			1/2" Ice	0.20	0.17	2.76
			0.00			1" Ice	0.26	0.23	5.24
Box 8"x8"x2"	A	From Leg	3.00	0.0000	130.00	No Ice	0.53	0.14	10.00
			0.00			1/2" Ice	0.63	0.20	13.73
			0.00			1" Ice	0.73	0.26	18.81
GPS	C	From Leg	3.00	0.0000	130.00	No Ice	0.21	0.21	5.00
			0.00			1/2" Ice	0.31	0.31	7.52
			0.00			1" Ice	0.42	0.42	11.31
**********									
3' Side Mount Standoff	B	From Leg	1.50	0.0000	122.50	No Ice	1.50	1.50	45.00
			0.00			1/2" Ice	2.20	2.20	70.00
			0.00			1" Ice	2.90	2.90	95.00
DB408	B	From Leg	3.00	0.0000	126.00	No Ice	1.90	1.90	17.00
			0.00			1/2" Ice	3.42	3.42	22.10
			0.00			1" Ice	4.94	4.94	27.20
3.5' Side Mount Standoff	A	From Leg	2.00	0.0000	110.00	No Ice	1.70	1.70	50.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00			1/2" Ice	2.50	2.50	80.00
			0.00			1" Ice	3.30	3.30	110.00
PD220	A	From Leg	4.00	0.0000	121.00	No Ice	3.08	3.08	23.00
			0.00			1/2" Ice	5.30	5.30	48.68
			0.00			1" Ice	7.54	7.54	88.10
3.5' Side Mount Standoff	B	From Leg	2.00	0.0000	110.00	No Ice	1.70	1.70	50.00
			0.00			1/2" Ice	2.50	2.50	80.00
			0.00			1" Ice	3.30	3.30	110.00
PD220	B	From Leg	4.00	0.0000	121.00	No Ice	3.08	3.08	23.00
			0.00			1/2" Ice	5.30	5.30	48.68
			0.00			1" Ice	7.54	7.54	88.10
**********									
1' Standoff T-Arm (6' face width)	A	From Leg	0.50	0.0000	120.00	No Ice	3.50	3.50	85.00
			0.00			1/2" Ice	4.20	4.20	110.00
			0.00			1" Ice	4.90	4.90	135.00
1' Standoff T-Arm (6' face width)	B	From Leg	0.50	0.0000	120.00	No Ice	3.50	3.50	85.00
			0.00			1/2" Ice	4.20	4.20	110.00
			0.00			1" Ice	4.90	4.90	135.00
1' Standoff T-Arm (6' face width)	C	From Leg	0.50	0.0000	120.00	No Ice	3.50	3.50	85.00
			0.00			1/2" Ice	4.20	4.20	110.00
			0.00			1" Ice	4.90	4.90	135.00
Argus LLPX310R w/mount pipe	A	From Leg	1.00	0.0000	120.00	No Ice	4.41	2.81	43.60
			0.00			1/2" Ice	4.73	3.32	80.16
			0.00			1" Ice	5.06	3.85	121.97
Argus LLPX310R w/mount pipe	B	From Leg	1.00	0.0000	120.00	No Ice	4.41	2.81	43.60
			0.00			1/2" Ice	4.73	3.32	80.16
			0.00			1" Ice	5.06	3.85	121.97
Argus LLPX310R w/mount pipe	C	From Leg	1.00	0.0000	120.00	No Ice	4.41	2.81	43.60
			0.00			1/2" Ice	4.73	3.32	80.16
			0.00			1" Ice	5.06	3.85	121.97
RRH	A	From Leg	1.00	0.0000	120.00	No Ice	2.39	1.45	51.00
			0.00			1/2" Ice	2.58	1.61	72.75
			0.00			1" Ice	2.78	1.77	97.53
RRH	B	From Leg	1.00	0.0000	120.00	No Ice	2.39	1.45	51.00
			0.00			1/2" Ice	2.58	1.61	72.75
			0.00			1" Ice	2.78	1.77	97.53
RRH	C	From Leg	1.00	0.0000	120.00	No Ice	2.39	1.45	51.00
			0.00			1/2" Ice	2.58	1.61	72.75
			0.00			1" Ice	2.78	1.77	97.53
Junction Box 2'x2'	A	From Leg	0.50	0.0000	120.00	No Ice	4.80	1.27	15.00
			0.00			1/2" Ice	5.07	1.43	44.78
			0.00			1" Ice	5.35	1.60	78.26
**********									
3"x6' pipe	C	From Leg	1.00	0.0000	111.00	No Ice	1.93	1.93	47.00
			0.00			1/2" Ice	2.29	2.29	62.18
			0.00			1" Ice	2.67	2.67	81.53
5' Dipole	C	From Leg	1.50	0.0000	111.00	No Ice	1.65	1.65	15.00
			0.00			1/2" Ice	2.49	2.49	36.10
			0.00			1" Ice	2.81	2.81	61.02
2' Side Mount Standoff	B	From Leg	1.00	0.0000	105.00	No Ice	1.00	1.00	30.00
			0.00			1/2" Ice	1.50	1.50	50.00
			0.00			1" Ice	2.00	2.00	70.00
Omni 2"x2'	B	From Leg	2.00	0.0000	106.00	No Ice	0.30	0.30	10.00
			0.00			1/2" Ice	0.43	0.43	13.28
			0.00			1" Ice	0.57	0.57	18.14

Hudson Design Group LLC
1600 Osgood Street Bldg. 20N Suite 3090
North Andover, MA 01845
Phone: (978) 557-5553
FAX: (978) 336-5586

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Mast	Max. Vert	23	203112.18	162.89	-40.09
	Max. H_x	12	126975.54	556.32	335.86
	Max. H_z	11	158079.33	-209.63	553.21
	Max. M_x	1	0.00	3.14	9.78
	Max. M_z	1	0.00	3.14	9.78
	Max. Torsion	9	28.09	-566.88	-168.35
	Min. Vert	1	91109.54	3.14	9.78
	Min. H_x	4	125989.79	-617.05	380.36
	Min. H_z	8	126232.48	10.19	-695.71
	Min. M_x	1	0.00	3.14	9.78
	Min. M_z	1	0.00	3.14	9.78

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Project	**Date**
193 ft Guyed Tower	13:34:54 02/01/17
Client	**Designed by**
VERIZON	kw

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Min. Torsion	3	-291.01	-451.88	-381.68
Guy C @ 138 ft Elev 2 ft Azimuth 240 deg	Max. Vert	10	-442.71	-192.05	111.03
	Max. H_x	10	-442.71	-192.05	111.03
	Max. H_z	3	-44574.18	-33186.73	19768.20
	Min. Vert	5	-44622.71	-33749.21	18877.47
	Min. H_x	5	-44622.71	-33749.21	18877.47
	Min. H_z	10	-442.71	-192.05	111.03
Guy B @ 140 ft Elev -4 ft Azimuth 120 deg	Max. Vert	6	-495.33	215.04	124.13
	Max. H_x	11	-45489.27	33679.82	18826.52
	Max. H_z	13	-45487.30	33140.08	19758.21
	Min. Vert	11	-45489.27	33679.82	18826.52
	Min. H_x	6	-495.33	215.04	124.13
	Min. H_z	6	-495.33	215.04	124.13
Guy A @ 138 ft Elev 2 ft Azimuth 0 deg	Max. Vert	2	-442.67	0.15	-221.80
	Max. H_x	10	-38595.06	803.35	-33358.67
	Max. H_z	2	-442.67	0.15	-221.80
	Min. Vert	7	-44616.15	-532.10	-38660.95
	Min. H_x	6	-38627.95	-795.39	-33386.60
	Min. H_z	7	-44616.15	-532.10	-38660.95
Guy C @ 89 ft Elev 2 ft Azimuth 240 deg	Max. Vert	10	-401.78	-418.33	241.81
	Max. H_x	10	-401.78	-418.33	241.81
	Max. H_z	3	-26528.83	-25553.11	14968.10
	Min. Vert	5	-26601.90	-25810.58	14677.35
	Min. H_x	5	-26601.90	-25810.58	14677.35
	Min. H_z	10	-401.78	-418.33	241.81
Guy B @ 89 ft Elev -3 ft Azimuth 120 deg	Max. Vert	6	-472.04	418.62	241.60
	Max. H_x	11	-28261.32	25857.60	14692.20
	Max. H_z	13	-28264.20	25648.04	15048.75
	Min. Vert	13	-28264.20	25648.04	15048.75
	Min. H_x	6	-472.04	418.62	241.60
	Min. H_z	6	-472.04	418.62	241.60
Guy A @ 88 ft Elev 2 ft Azimuth 0 deg	Max. Vert	2	-410.36	0.25	-478.53
	Max. H_x	11	-14445.39	381.03	-15891.63
	Max. H_z	2	-410.36	0.25	-478.53
	Min. Vert	7	-26921.22	-202.12	-29733.18
	Min. H_x	5	-14523.53	-377.60	-15964.35
	Min. H_z	7	-26921.22	-202.12	-29733.18

Tower Mast Reaction Summary

Load Combination	Vertical lb	$Shear_x$ lb	$Shear_z$ lb	Overturning Moment, M_x lb-ft	Overturning Moment, M_z lb-ft	Torque lb-ft
Dead Only	91109.54	-3.14	-9.78	0.00	0.00	76.56

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Project	**Date**
193 ft Guyed Tower	13:34:54 02/01/17
Client	**Designed by**
VERIZON	kw

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy	172145.53	58.08	616.52	0.00	0.00	264.38
1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy	156716.62	451.88	381.68	0.00	0.00	291.01
1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy	125989.79	617.05	-380.36	0.00	0.00	243.19
1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy	155907.72	-89.33	-552.45	0.00	0.00	197.52
1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy	170316.57	-470.84	-293.27	0.00	0.00	164.10
1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy	156041.29	-513.50	165.89	0.00	0.00	97.41
1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy	126232.48	-10.19	695.71	0.00	0.00	-21.95
1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy	157020.26	566.88	168.35	0.00	0.00	-28.09
1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy	172402.14	571.94	-288.75	0.00	0.00	3.57
1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy	158079.33	209.63	-553.21	0.00	0.00	47.98
1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy	126975.54	-556.32	-335.86	0.00	0.00	95.40
1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy	157910.72	-357.68	439.81	0.00	0.00	180.45
1.2 Dead+1.0 Ice+1.0 Temp+Guy	200398.66	-21.39	-48.26	0.00	0.00	165.61
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	203040.75	-14.39	-217.51	0.00	0.00	210.25
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	202498.33	60.05	-198.28	0.00	0.00	219.27
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	202098.71	119.69	-133.56	0.00	0.00	208.00
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	202514.93	144.00	-45.52	0.00	0.00	186.00
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	203059.59	123.53	34.52	0.00	0.00	166.34
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	202558.09	64.30	92.33	0.00	0.00	145.50
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	202168.56	-24.22	115.24	0.00	0.00	123.89
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	202577.43	-109.67	95.50	0.00	0.00	114.12
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	203112.18	-162.89	40.09	0.00	0.00	125.47
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	202537.08	-180.27	-37.92	0.00	0.00	147.55
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	202092.86	-153.31	-125.74	0.00	0.00	168.14
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	202500.89	-90.57	-193.26	0.00	0.00	188.17
Dead+Wind 0 deg - Service+Guy	91401.57	0.60	-206.77	0.00	0.00	92.91
Dead+Wind 30 deg - Service+Guy	91423.89	97.76	-183.11	0.00	0.00	100.52
Dead+Wind 60 deg - Service+Guy	91481.62	168.52	-110.52	0.00	0.00	98.83
Dead+Wind 90 deg - Service+Guy	91575.52	194.25	-11.49	0.00	0.00	90.39
Dead+Wind 120 deg - Service+Guy	91662.76	165.30	86.40	0.00	0.00	82.51
Dead+Wind 150 deg -	91591.94	94.03	160.11	0.00	0.00	72.41

Hudson Design Group LLC
1600 Osgood Street Bldg. 20N Suite 3090
North Andover, MA 01845
Phone: (978) 557-5553
FAX: (978) 336-5586

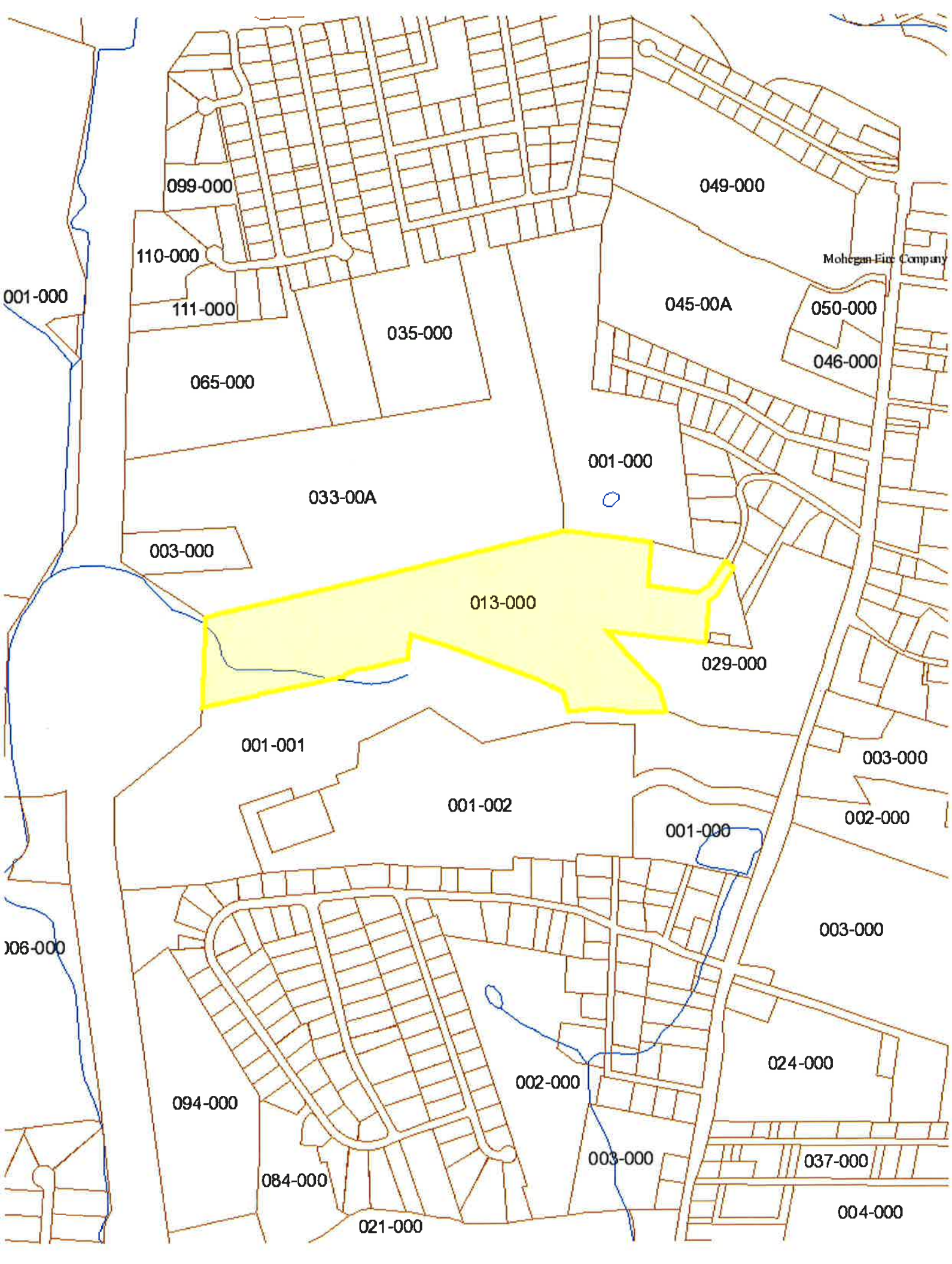
Job	Page
MONTVILLE 4 CT	13 of 16
Project	**Date**
193 ft Guyed Tower	13:34:54 02/01/17
Client	**Designed by**
VERIZON	kw

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	lb	lb	lb	lb-ft	lb-ft	lb-ft
Service+Guy						
Dead+Wind 180 deg - Service+Guy	91509.35	-5.50	187.50	0.00	0.00	60.07
Dead+Wind 210 deg - Service+Guy	91455.33	-104.40	163.05	0.00	0.00	51.95
Dead+Wind 240 deg - Service+Guy	91428.39	-173.64	91.53	0.00	0.00	53.83
Dead+Wind 270 deg - Service+Guy	91294.55	-199.55	-5.81	0.00	0.00	62.03
Dead+Wind 300 deg - Service+Guy	91232.95	-170.73	-105.80	0.00	0.00	70.34
Dead+Wind 330 deg - Service+Guy	91279.52	-97.58	-180.42	0.00	0.00	80.02

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	% Error
1	0.00	-38431.23	0.00	-1.80	38431.22	-1.31	0.006%
2	-5.35	-45807.93	-59588.67	5.29	45807.76	59585.77	0.004%
3	29556.05	-45633.55	-51195.61	-29556.08	45633.45	51193.60	0.003%
4	50757.87	-45458.88	-29301.50	-50756.43	45458.85	29302.64	0.002%
5	59121.03	-45617.39	1.86	-59118.48	45617.24	-0.41	0.004%
6	51606.40	-45779.23	29797.57	-51604.41	45779.10	-29796.42	0.003%
7	29563.51	-45616.89	51204.80	-29560.97	45616.74	-51203.32	0.004%
8	5.35	-45458.18	58612.75	-3.00	45458.15	-58612.07	0.003%
9	-29556.05	-45632.54	51195.61	29554.29	45632.44	-51194.64	0.003%
10	-51603.04	-45807.23	29789.45	51600.51	45807.07	-29788.06	0.004%
11	-59121.03	-45648.70	-1.86	59119.21	45648.59	2.85	0.003%
12	-50761.23	-45486.88	-29309.61	50760.70	45486.84	29308.43	0.002%
13	-29563.51	-45649.20	-51204.80	29563.45	45649.10	51202.73	0.003%
14	0.00	-135066.62	0.00	-0.10	135066.62	-0.36	0.000%
15	-5.87	-135211.00	-14775.60	5.83	135210.99	14774.73	0.001%
16	7347.39	-135067.05	-12728.75	-7347.58	135067.03	12727.70	0.001%
17	12707.28	-134922.81	-7332.10	-12706.47	134922.80	7331.80	0.001%
18	14705.43	-135055.05	2.52	-14704.56	135055.03	-1.85	0.001%
19	12799.08	-135189.53	7391.88	-12798.34	135189.51	-7391.46	0.001%
20	7356.14	-135054.62	12738.86	-7355.12	135054.61	-12738.44	0.001%
21	5.87	-134922.24	14674.79	-5.67	134922.23	-14673.95	0.001%
22	-7347.39	-135066.20	12728.75	7346.42	135066.19	-12728.40	0.001%
23	-12794.58	-135210.43	7382.50	12793.83	135210.41	-7382.11	0.001%
24	-14705.43	-135078.20	-2.52	14704.55	135078.18	3.15	0.001%
25	-12711.78	-134943.72	-7341.48	12710.90	134943.70	7340.91	0.001%
26	-7356.14	-135078.62	-12738.86	7356.24	135078.61	12737.75	0.001%
27	-1.09	-38466.93	-12160.95	1.06	38466.92	12160.31	0.002%
28	6031.85	-38431.34	-10448.08	-6031.89	38431.33	10447.02	0.003%
29	10358.75	-38395.68	-5979.90	-10357.85	38395.67	5979.41	0.003%
30	12065.52	-38428.04	0.38	-12064.59	38428.03	0.15	0.003%
31	10531.92	-38461.07	6081.14	-10531.39	38461.06	-6080.83	0.002%
32	6033.37	-38427.93	10449.96	-6032.44	38427.93	-10449.42	0.003%
33	1.09	-38395.54	11961.79	-1.06	38395.53	-11960.77	0.003%
34	-6031.85	-38431.13	10448.08	6030.92	38431.12	-10447.59	0.003%
35	-10531.23	-38466.78	6079.48	10530.67	38466.78	-6079.19	0.002%
36	-12065.52	-38434.43	-0.38	12064.53	38434.42	0.88	0.003%
37	-10359.43	-38401.40	-5981.55	10358.41	38401.39	5980.95	0.003%
38	-6033.37	-38434.53	-10449.96	6033.31	38434.52	10448.85	0.003%

ATTACHMENT 4


099-000
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Mohegan-Fire Company
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033-00A
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Property Card: 57 COOK RD

Town of Montville, CT

Parcel Information

Parcel ID:	040-013-000	**Map:**	040
Vision ID:	2568	**Lot:**	013-000
Owner:	KINGSBOROUGH ROBERT W & KAREN A	**Use Description:**	Single Family
Co-Owner:		**Zone:**	C-3
Mailing Address:	57 COOK RD UNCASVILLE, CT 06382	**Land Area in Acres:**	45.3

Sale History		Assessed Value	
Book/Page:	0546/0511	**Land:**	$57,950
Sale Date:	3/4/2010	**Buildings:**	$693,410
Sale Price:	$0	**Extra Bldg Features:**	$920
		Outbuildings:	$487,770
		Total:	$751,360

Building Details: Building # 1

Model:	Residential	**Int Wall Desc 1:**	Drywall
Living Area:	3462	**Int Wall Desc 2:**	
Appr. Year Built:	1989	**Ext Wall Desc 1:**	Vinyl Siding
Style:	Ranch	**Ext Wall Desc 2:**	
Stories:	1	**Roof Cover:**	Asphalt
Occupancy:	1	**Roof Structure:**	Gable
No. Total Rooms:	9	**Heat Type:**	Hot Water
No. Bedrooms:	05	**Heat Fuel:**	Oil
No. Baths:	3	**A/C Type:**	None
No. Half Baths:	0		