Robinson+Cole

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Also admitted in Massachusetts

December 12, 2014

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

Re: **Notice of Exempt Modification – Facility Modification**
7 Broadway Avenue Extension, Stonington, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) antennas at the 93-foot level of the existing 155-foot water tank at 7 Broadway Avenue Extension in Stonington (the "Property"). The water tank is owned by Planeta Properties and is managed by Message Center Management. The Council approved Cellco's shared use of this water tank in 2005. Cellco now intends to modify its facility by replacing three (3) of its existing antennas with three (3) model LNX-6514DS-VTM, 700 MHZ antennas, at the same 93-foot level on the tank. Cellco also intends to install three (3) remote radio heads ("RRHs"), behind its new 700 MHz antennas. Included in Attachment 1 are specifications for Cellco's new antennas and RRHs.

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 George Crouse, First Selectman for the Town of Stonington. A copy of this letter is also being sent to Planeta Properties, the owner of the Property.

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

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1. The proposed modifications will not result in an increase in the height of the existing water tower. Cellco's replacement antennas and RRHs will be located at the 93-foot level of the 155-foot water tank.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.

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

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative 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 water tank and its foundation, with certain modifications, can support Cellco's proposed modifications. (*See* Structural Analysis Report and Reinforcement Design included in Attachment 3).

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

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
George Crouse, First Selectman
Planeta Properties
Sandy M. Carter

ATTACHMENT 1

Product Specifications

COMMSCOPE®

LNX-6514DS-VTM

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

POWERED BY ANDREW.

Electrical Specifications

Frequency Band, MHz	698–806	806–896
Gain, dBi	15.7	16.3
Beamwidth, Horizontal, degrees	65	65
Beamwidth, Vertical, degrees	12.5	11.2
Beam Tilt, degrees	0–10	0–10
USLS, typical, dB	17	18
Front-to-Back Ratio at 180°, dB	32	30
CPR at Boresight, dB	20	20
CPR at Sector, dB	10	10
Isolation, dB	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.4 | 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153
Input Power per Port, maximum, watts	400	400
Polarization	±45°	±45°

Electrical Specifications, BASTA*

Frequency Band, MHz	698–806	806–896
Beamwidth, Horizontal Tolerance, degrees	±3	±3

* 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.

Mechanical Specifications

Color | Radome Material	Light gray | Fiberglass, UV resistant
Connector Interface | Location | Quantity	7-16 DIN Female | Bottom | 2
Wind Loading, maximum	617.7 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph
Antenna Dimensions, L x W x D	1847.0 mm x 301.0 mm x 181.0 mm | 72.7 in x 11.9 in x 7.1 in
Net Weight	14.2 kg | 31.3 lb
Model with factory installed AISG 2.0 RET	LNX-6514DS-A1M

Alcatel-Lucent RRH2x40-07-U

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-07-U is a high-power, small form-factor Remote Radio Head (RRH) operating in the North American Digital Dividend / 700MHz frequency band (3GPP Band 13). The Alcatel-Lucent RRH2x40-07-U is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.

A distributed eNodeB expands 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 an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-07-U 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. The Alcatel-Lucent RRH2x40-07-U has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to two-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 10 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-07-U is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-07-U installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-07-U is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-07-U is compact and weights less than 23 kg (50 lb), 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 — a fraction of the time required for a traditional BTS.

Excellent RF performance

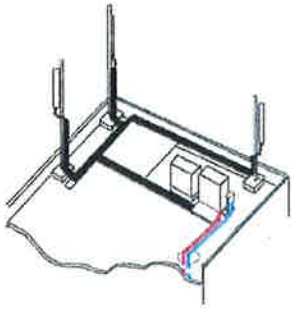
Because of its small size and weight, the Alcatel-Lucent RRH2x40-07-U can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-07-U where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent RRH2x40-07-U provides more RF power while at the same time consuming less electricity.

Features

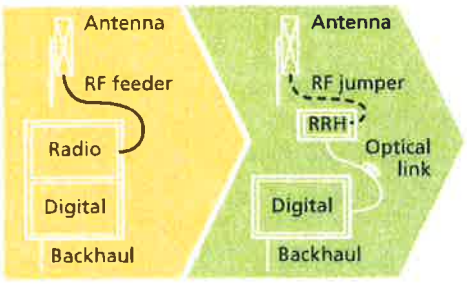
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless), noise-free, and heaterless unit
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

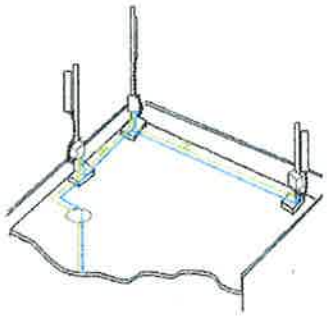
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



Macro



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 390 mm (15.4 in.)
- Width: 380 mm (15 in.)
- Depth: 210 mm (8.2 in.)
- Weight (without mounting kit): less than 23 kg (50 lb)

Power

- Power supply: -48V

Operating environment

- Outdoor temperature range:
  - ¬ With solar load: -40°C to +50°C (-40°F to +122°F)
  - ¬ Without solar load: -40°C to +55°C (-40°F to +131°F)
- Passive convection cooling (no fans)
- Enclosure protection
  - ¬ IP65 (International Protection rating)

RF characteristics

- Frequency band: 700 MHz; 3GPP Band 13
- Bandwidth: up to 10 MHz
- RF output power at antenna port:
  - ¬ 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way
- Noise figure: below 2.5 dB typical
- ALD features
  - ¬ TMA
  - ¬ Remote electrical tilt (RET) support (AISG v2.0)

Optical characteristics

Type/number of fibers

- Up to 3.12 Gb/s line bit rate
- Single-mode variant
  - ¬ One SM fiber (9/125 µm) per RRH2x, carrying UL and DL using CWDM (at 1550/1310 nm)
- Multi-mode variant
  - ¬ Two MM fibers (50/125 µm) per RRH2x: one carrying UL, the other carrying DL (at 850 nm)

Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

Alarms and ports

- Six external alarms
- Two optical ports to support daisy-chaining

Alcatel·Lucent

ATTACHMENT 2

	General	Power	Density					
Site Name: Mystic S (Stonington)								
Tower Height: 155ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*American Messaging	1	100	143	0.0018	929	0.6193	0.28%	
*Town of Stonington	receive only							
*Sprint	12	250	143	0.0528	1962.5	1.0000	5.28%	
*AT&T microwave	1	1216	140	0.0223	6004	1.0000	2.23%	
*T-Mobile GSM/UMTS	2	12.0815	116.5	0.0006	1950	1.0000	0.06%	
*T-Mobile UMTS	2	16.10868	116.5	0.0009	2100	1.0000	0.09%	
*T-Mobile LTE	2	24.16301	116.5	0.0013	2100	1.0000	0.13%	
*AT&T GSM	2	427	143	0.0150	1900	1.0000	1.50%	
*AT&T GSM	4	296	143	0.0208	880	0.5867	3.55%	
*AT&T UMTS	1	500	143	0.0088	880	0.5867	1.50%	
*AT&T LTE	1	500	143	0.0088	740	0.4933	1.78%	
Verizon PCS	**15**	**309**	**93**	**0.1927**	**1970**	**1.0000**	**19.27%**	
Verizon Cellular	**9**	**239**	**93**	**0.0894**	**869**	**0.5793**	**15.44%**	
Verizon AWS	**1**	**1746**	**93**	**0.0726**	**2145**	**1.0000**	**7.26%**	
Verizon 700	**1**	**725**	**93**	**0.0301**	**746**	**0.4973**	**6.06%**	
								64.42%
* Source: Siting Council								

ATTACHMENT 3

ALL-POINTS
TECHNOLOGY CORPORATION

STRUCTURAL ANALYSIS REPORT
155'± WATER TOWER
MYSTIC, CONNECTICUT

Prepared for
Verizon Wireless

Verizon Site: Mystic

October 10, 2014

APT Project #CT141153

□ 3 SADDLEBROOK DRIVE · KILLINGWORTH, CT 06419 · PHONE 860-663-1697 · FAX 860-663-0935
⊗ 116 GRANDVIEW ROAD · CONWAY, NH 03818 · PHONE 603-496-5853 · FAX 603-447-2124

STRUCTURAL ANALYSIS REPORT
of
155'± WATER TOWER
MYSTIC, CONNECTICUT
prepared for
Verizon Wireless

EXECUTIVE SUMMARY:

All-Points Technology Corporation, P.C. (APT) performed a structural analysis of this 155'± water tower. The analysis was performed for Verizon Wireless's proposed replacement of three of their existing twelve panel antennas, removal of six existing diplexers and installation of three Alcatel-Lucent RRH2x40 remote radio heads (RRHs). The equipment will be fed by the existing hybrid power/fiber line and twelve 1-5/8" waveguide cables.

Our analysis indicates the water tower does **not** meet the requirements of the Connecticut State Building Code with the proposed equipment changes. Our analysis indicates bracing upgrades will be required to support the proposed changes.

INTRODUCTION:

A structural analysis was performed on the above-mentioned water tower by APT for Verizon Wireless. The tower is located at 7 Broadway Avenue Extension in Mystic, Connecticut.

APT previously climbed the structure on July 9, 2002 to record information regarding physical and dimensional properties of the structure and its appurtenances. This analysis also relied on a structural analysis by Infinigy Engineering for AT&T Mobility dated July 15, 2014 and an equipment inventory dated September 2014 provided by Message Center Management.

The structure is a 155'± painted steel, four-legged water tower. A schematic drawing with a listing of existing, reserved and proposed equipment is provided in Appendix A.

STRUCTURAL ANALYSIS:

Methodology:

The structural analysis was done in accordance with Connecticut State Building Code, EIA/TIA-222-F, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and the American Institute of Steel Construction (AISC), Manual of Steel

Construction, Allowable Stress Design, Ninth Edition. The analysis was conducted using a wind speed of 85 miles per hour in accordance with the and EIA/TIA Standard for this area of Connecticut.

The following table summarizes the results of the analysis based on stresses of individual leg and bracing members:

Elevation	Legs	Bracing
117'-138'	6%	56%
92'-117'	13%	84%
65'-92'	21%	**109%**
35'-65'	33%	85%
0'-35'	48%	99%

Evaluation of the existing base foundations could not be performed, as information on their design or construction was not available to APT. Base reactions with the proposed equipment changes are as follows:

Compression:	148.1 kips
Uplift:	98.1 kips
Shear:	32.8 kips
Overturning Moment:	6266 ft-kips

CONCLUSIONS AND RECOMMENDATIONS:

Our structural analysis indicates the 155-foot self-supporting water tank located at 7 Broadway Avenue Extension in Mystic, Connecticut does **not** meet requirements of the Connecticut State Building Code with the equipment changes proposed by Verizon Wireless. One section of X-bracing requires upgrade.

LIMITATIONS:

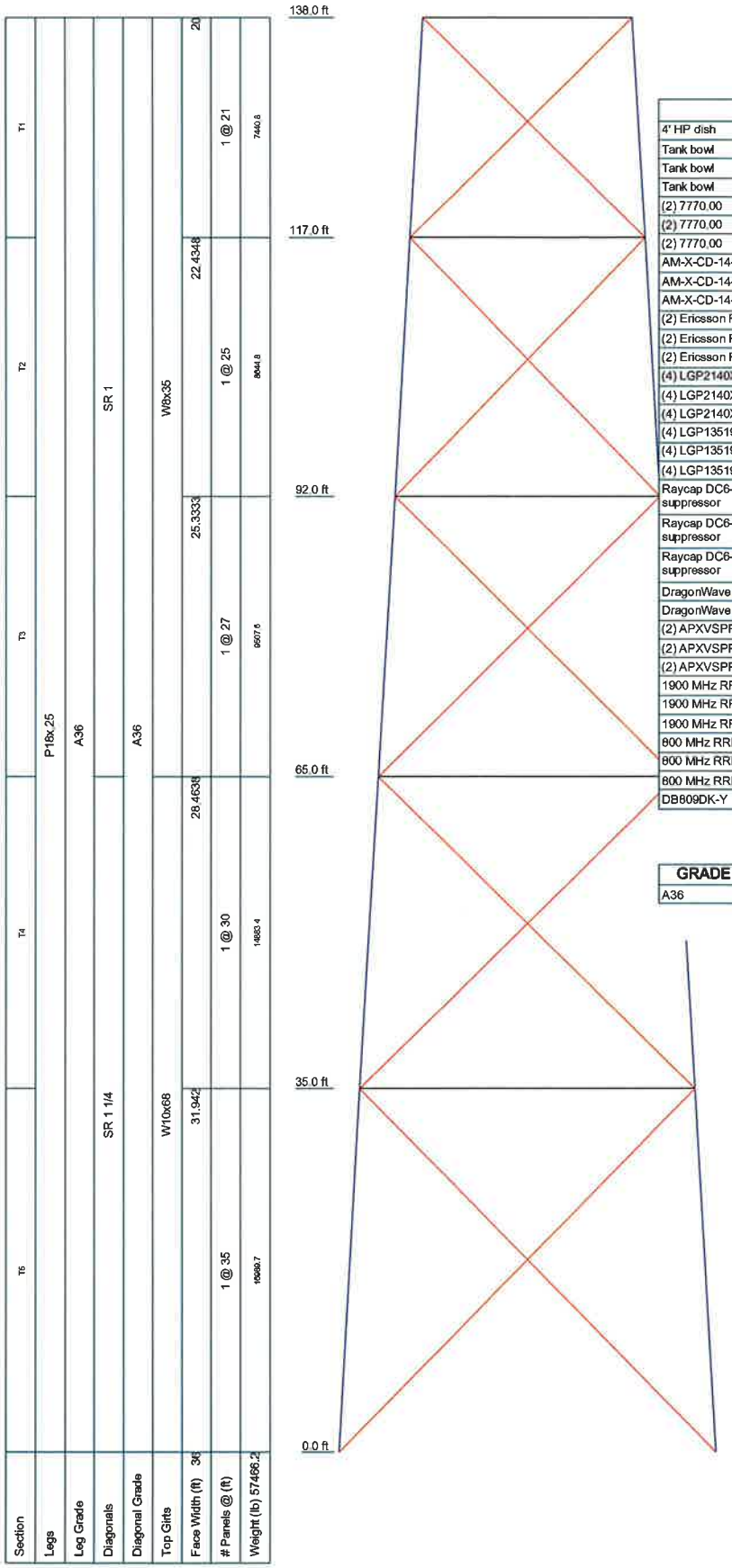
All-Points Technology Corporation, P.C. (APT) is not responsible for any modifications completed hereafter which APT is not directly involved. Modifications include but are not limited to:

1. Replacing or strengthening bracing members.
2. Reinforcing leg members in any manner.
3. Installing antennas and/or mounting brackets or side arms.

APT hereby states that this document represents the entire report and that it assumes no liability for any factual changes that may occur after the date of this report. All representations, recommendations, and conclusions are based upon the information contained and set forth herein. If you are aware of any information which is contrary to that which is contained herein, or you are aware of any defects arising from the original design, material, fabrication and erection deficiencies, you should disregard this report and immediately contact APT. APT disclaims all liability for any representation, recommendation, or conclusion not expressly stated herein.

Appendix A

Tower Schematic



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
4' HP dish	140	10' 2-bay dipole	138
Tank bowl	138	Tank bowl	138
Tank bowl	138	APX16DWV-16DWVS	117
Tank bowl	138	APX16DWV-16DWVS	117
(2) 7770.00	138	(2) AIR 21 B2A B4P panel	117
(2) 7770.00	138	(2) AIR 21 B2A B4P panel	117
(2) 7770.00	138	(2) AIR 21 B2A B4P panel	117
AM-X-CD-14-65	138	KRY 112 7 1/2 TMA	117
AM-X-CD-14-65	138	KRY 112 7 1/2 TMA	117
AM-X-CD-14-65	138	KRY 112 7 1/2 TMA	117
(2) Ericsson RRUS-11	138	APX16DWV-16DWVS	117
(2) Ericsson RRUS-11	138	(2) 800-10504	103
(2) Ericsson RRUS-11	138	(2) 800-10504	103
(4) LGP2140X TMA	138	(2) 860-10025 RCU	103
(4) LGP2140X TMA	138	(2) 860-10025 RCU	103
(4) LGP2140X TMA	138	(2) 860-10025 RCU	103
(4) LGP13519 Diplexer	138	(2) 800-10504	103
(4) LGP13519 Diplexer	138	LNX-6514DS-VTM	93
(4) LGP13519 Diplexer	138	LNX-6514DS-VTM	93
Raycap DC6-48-60-18-8F surge suppressor	138	BXA-171063/12	93
		BXA-171063/12	93
Raycap DC6-48-60-18-8F surge suppressor	138	BXA-171063/12	93
		BXA-80080/4	93
Raycap DC6-48-60-18-8F surge suppressor	138	BXA-80080/4	93
		BXA-80080/4	93
DragonWave Horizon Compact+ ODU	138	MG D5-800TX	93
DragonWave Horizon Compact+ ODU	138	MG D5-800TX	93
(2) APXVSPP18-C-A20	138	MG D5-800TX	93
(2) APXVSPP18-C-A20	138	(2) ALU RRH2x40 w/bracket	93
(2) APXVSPP18-C-A20	138	(2) ALU RRH2x40 w/bracket	93
1900 MHz RRH	138	(2) ALU RRH2x40 w/bracket	93
1900 MHz RRH	138	RFS DB-E1-2C-4AB-0Z D-box	93
1900 MHz RRH	138	RFS DB-E1-2C-4AB-0Z D-box	93
800 MHz RRH	138	RFS DB-E1-2C-4AB-0Z D-box	93
800 MHz RRH	138	RFS DB-T1-6Z-8AB-0Z D-box	93
800 MHz RRH	138	LNX-6514DS-VTM	93
DB809DK-Y	138	GPS on 3' standoff	68

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi			

MAX. CORNER REACTIONS AT BASE:
DOWN: 148088 lb
SHEAR: 13074 lb

UPLIFT: -98051 lb
SHEAR: 32812 lb

AXIAL
132351 lb

SHEAR
63082 lb

MOMENT
5459391 lb-ft

TORQUE 73712 lb-ft
74 mph WIND - 0.5000 in ICE

AXIAL
99532 lb

SHEAR
71578 lb

MOMENT
6266224 lb-ft

TORQUE 87752 lb-ft
REACTIONS - 85 mph WIND

All-Points Technology Corporation
116 Grandview Road
Conway, NH 03818
Phone: (603) 496-5853
FAX: (603) 447-2124

Job: *Mystic Water Tank*			
Project: *CT141153 Mystic*			
Client: Verizon Wireless	Drawn by: Rob Adair	App'd:	
Code: TIA/EIA-222-F	Date: 10/08/14	Scale: NTS	
Path: C:\Users\Rob Adair\Documents\Mobile\2 Verizon LTE\CT141150 Mystic\CT141153 Mystic.eri		Dwg No. E-1	

Appendix B

Calculations

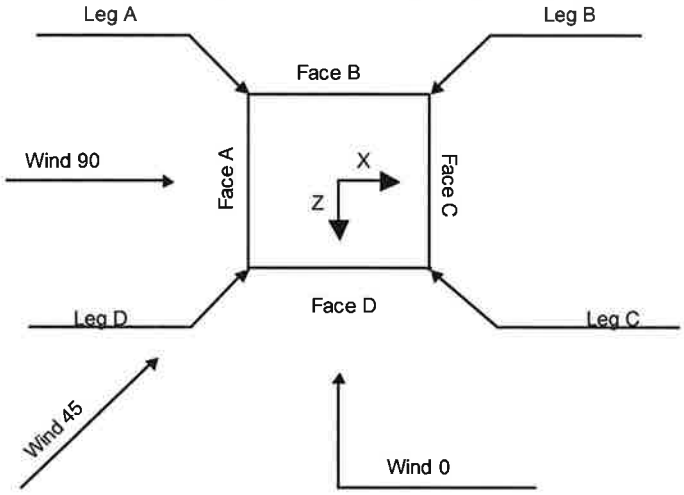
MYSTIC WATER TANK INVENTORY		9/29/2014			
Carrier	**Antenna Type**	**Mount Height**	**Mount Location**	**Coax**	**Notes**
AT&T	(6) Powerwave 7770 Panels	140'	Cat Walk Railing	1-5/8" X 12	Active
AT&T	(3) KMW14-65	140'	Cat Walk Railing	1-5/8" X 6	Active
AT&T	(12) Powerwave LGP21401 - TMA	140'	Cat Walk Railing		Active
AT&T	(12) Powerwave LGP13519 - Diplexer	140'	Cat Walk Railing		Active
AT&T	(6) RRU11 RRHs	140'	Cat Walk Railing	3" Flex for DC/Fiber X 1	Active
AT&T	(1) Ericsson 4' Dish VHLPX4-6W-4WH/B	140'			
AT&T	(2) ODU Radios TN 6L/2X 143T/64X HP	140'			
AT&T	(3) Surge Suppressors	140'	Cat Walk Railing		Active
Sprint	(3) RFS APXVSPP18-C-A20 Panels	140'	Cat Walk Railing	(3) 1-1/4" Hybriflex	Active
Sprint	(3) RFS APXVSPP18-C-A20 Panels	140'	Cat Walk Railing	(3) 1-1/4" Hybriflex	Reserved.
Sprint	(3) ALU 800 MHz RRUs	140'	Cat Walk Railing		Active
Sprint	(3) ALU 1900 MHz RRUs	140'	Cat Walk Railing		Active
American Messaging	DB809	140'	Cat Walk Railing	7/8" X 1	Active
Town of Stonington	Omni Dipole	140'	Cat Walk Railing	7/8" X 1	Active
T-Mobile	(6) Ericsson AIR21	117'	Upper Cross Brace	1-1/4" X 6	Active
T-Mobile	(3) TMAs Ericsson KRY 112 71/x	117'	Upper Cross Brace	1-1/4" Hybrid Fiber X 3	Active
T-Mobile	(3) RFS APX16DWV-16 DWV-s	117'	Upper Cross Brace	1-5/8" X 6	Active
MetroPCS	(6) Kathrein 800-10504	103'	Cross Brace	1-5/8" X 12	Active
MetroPCS	(6) Kathrein RETs 86010025/86010118	103'	Cross Brace		Active
Verizon	(3) BXA-70063-6CF (6) LPA-80080/4CF (3)MG D5-800TX	93'	Cross Brace	1-5/8" X 12	Active
Sprint	GPS	68'	Leg Mount	1/2" X 1	Active

tnxTower	Job	Page
	Mystic Water Tank	1 of 8
All-Points Technology Corporation 116 Grandview Road Conway, NH 03818 Phone: (603) 496-5853 FAX: (603) 447-2124	**Project** CT141153 Mystic	**Date** 14:54:52 10/08/14
	Client Verizon Wireless	**Designed by** Rob Adair

Tower Input Data

The main tower is a 4x free standing tower with an overall height of 138.00 ft above the ground line.
The face width of the tower is 20.00 ft at the top and 36.00 ft at the base.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Basic wind speed of 85 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 74 mph is used in combination with ice.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.



Square Tower

Tower Section Geometry

Tower Section	*Tower Elevation*	*Assembly Database*	*Description*	*Section Width*	*Number of Sections*	*Section Length*
	ft			*ft*		*ft*
T1	138.00-117.00			20.00	1	21.00
T2	117.00-92.00			22.43	1	25.00
T3	92.00-65.00			25.33	1	27.00
T4	65.00-35.00			28.46	1	30.00
T5	35.00-0.00			31.94	1	35.00

Tower Section Geometry *(cont'd)*

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
T1	138.00-117.00	21.00	TX Brace	No	Yes	0.0000	0.0000
T2	117.00-92.00	25.00	TX Brace	No	Yes	0.0000	0.0000
T3	92.00-65.00	27.00	TX Brace	No	Yes	0.0000	0.0000
T4	65.00-35.00	30.00	TX Brace	No	Yes	0.0000	0.0000
T5	35.00-0.00	35.00	TX Brace	No	Yes	0.0000	0.0000

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 138.00-117.00	Pipe	P18x.25	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T2 117.00-92.00	Pipe	P18x.25	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T3 92.00-65.00	Pipe	P18x.25	A36 (36 ksi)	Solid Round	1	A36 (36 ksi)
T4 65.00-35.00	Pipe	P18x.25	A36 (36 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T5 35.00-0.00	Pipe	P18x.25	A36 (36 ksi)	Solid Round	1 1/4	A36 (36 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 138.00-117.00	Wide Flange	W8x35	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 117.00-92.00	Wide Flange	W8x35	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T3 92.00-65.00	Wide Flange	W8x35	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T4 65.00-35.00	Wide Flange	W10x68	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T5 35.00-0.00	Wide Flange	W10x68	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 138.00-117.00	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 117.00-92.00	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 92.00-65.00	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 65.00-35.00	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 35.00-0.00	Flange	1.2500 A307	4	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Feed Line/Linear Appurtenances

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	C	Yes	Ar (CfAe)	138.00 - 8.00	0.0000	0.5	18	6	0.5000	1.9800		1.04
7/8	C	Yes	Ar (CfAe)	138.00 - 8.00	0.0000	0.5	2	2	0.5000	1.1100		0.54
1-1/4" Hybrid fiber-power cable	D	Yes	Ar (CfAe)	138.00 - 8.00	0.0000	0.5	6	3	0.5000	1.2500		0.66
1 1/4	B	Yes	Ar (CfAe)	117.00 - 8.00	0.0000	0.5	9	5	0.5000	1.5500		0.66
1 5/8	B	Yes	Ar (CfAe)	117.00 - 8.00	0.0000	0.5	6	3	0.5000	1.9800		1.04
1 5/8	A	Yes	Ar (CfAe)	103.00 - 8.00	0.0000	0.5	12	6	0.5000	1.9800		1.04
1 5/8	D	Yes	Ar (CfAe)	93.00 - 8.00	0.0000	0.5	12	6	0.5000	1.9800		1.04
1.57" Hybrid fiber-power cable	D	Yes	Ar (CfAe)	93.00 - 8.00	0.0000	0.5	1	1	0.5000	1.5700		0.66
Feedline Ladder (Af)	C	Yes	Af (CfAe)	138.00 - 10.00	0.0000	0.5	1	1	3.0000	3.0000	12.0000	8.40

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight plf
36" standpipe	A	No	CaAa (Out Of Face)	130.00 - 0.00	-120.0000	0	1	No Ice	3.60	47.44
								1/2" Ice	3.70	69.74

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
Tank bowl	A	None		0.0000	138.00	No Ice	75.66	75.66	5844.00
						1/2" Ice	76.96	76.96	6893.00
Tank bowl	B	None		0.0000	138.00	No Ice	75.66	75.66	5844.00
						1/2" Ice	76.96	76.96	6893.00
Tank bowl	C	None		0.0000	138.00	No Ice	75.66	75.66	5844.00
						1/2" Ice	76.96	76.96	6893.00
Tank bowl	D	None		0.0000	138.00	No Ice	75.66	75.66	5844.00
						1/2" Ice	76.96	76.96	6893.00
(2) 7770.00	A	From Leg	3.00 0.00 2.00	0.0000	138.00	No Ice	5.88	2.93	35.00
						1/2" Ice	6.31	3.27	67.63
(2) 7770.00	B	From Leg	3.00 0.00 2.00	0.0000	138.00	No Ice	5.88	2.93	35.00
						1/2" Ice	6.31	3.27	67.63
(2) 7770.00	C	From Leg	3.00 0.00 2.00	0.0000	138.00	No Ice	5.88	2.93	35.00
						1/2" Ice	6.31	3.27	67.63
AM-X-CD-14-65	A	From Leg	3.00 0.00 2.00	0.0000	138.00	No Ice	5.51	2.83	40.00
						1/2" Ice	5.90	3.14	71.95
AM-X-CD-14-65	B	From Leg	3.00 0.00 2.00	0.0000	138.00	No Ice	5.51	2.83	40.00
						1/2" Ice	5.90	3.14	71.95
AM-X-CD-14-65	C	From Leg	3.00 0.00 2.00	0.0000	138.00	No Ice	5.51	2.83	40.00
						1/2" Ice	5.90	3.14	71.95
(2) Ericsson RRUS-11	A	From Leg	2.50	0.0000	138.00	No Ice	2.94	1.19	55.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft	°	ft		ft^2	ft^2	lb
			0.00			1/2" Ice	3.17	1.35	74.32
			2.00						
(2) Ericsson RRUS-11	B	From Leg	2.50	0.0000	138.00	No Ice	2.94	1.19	55.00
			0.00			1/2" Ice	3.17	1.35	74.32
			2.00						
(2) Ericsson RRUS-11	C	From Leg	2.50	0.0000	138.00	No Ice	2.94	1.19	55.00
			0.00			1/2" Ice	3.17	1.35	74.32
			2.00						
(4) LGP2140X TMA	A	From Leg	2.50	0.0000	138.00	No Ice	1.26	0.38	20.00
			0.00			1/2" Ice	1.42	0.49	27.13
			2.00						
(4) LGP2140X TMA	B	From Leg	2.50	0.0000	138.00	No Ice	1.26	0.38	20.00
			0.00			1/2" Ice	1.42	0.49	27.13
			2.00						
(4) LGP2140X TMA	C	From Leg	2.50	0.0000	138.00	No Ice	1.26	0.38	20.00
			0.00			1/2" Ice	1.42	0.49	27.13
			2.00						
(4) LGP13519 Diplexer	A	From Leg	2.50	0.0000	138.00	No Ice	0.27	0.13	6.00
			0.00			1/2" Ice	0.34	0.18	8.41
			2.00						
(4) LGP13519 Diplexer	B	From Leg	2.50	0.0000	138.00	No Ice	0.27	0.13	6.00
			0.00			1/2" Ice	0.34	0.18	8.41
			2.00						
(4) LGP13519 Diplexer	C	From Leg	2.50	0.0000	138.00	No Ice	0.27	0.13	6.00
			0.00			1/2" Ice	0.34	0.18	8.41
			2.00						
Raycap DC6-48-60-18-8F surge suppressor	A	From Leg	2.50	0.0000	138.00	No Ice	1.19	1.19	30.00
			0.00			1/2" Ice	1.37	1.37	44.34
			2.00						
Raycap DC6-48-60-18-8F surge suppressor	B	From Leg	2.50	0.0000	138.00	No Ice	1.19	1.19	30.00
			0.00			1/2" Ice	1.37	1.37	44.34
			2.00						
Raycap DC6-48-60-18-8F surge suppressor	C	From Leg	2.50	0.0000	138.00	No Ice	1.19	1.19	30.00
			0.00			1/2" Ice	1.37	1.37	44.34
			2.00						
DragonWave Horizon Compact+ ODU	A	From Leg	3.00	0.0000	138.00	No Ice	0.81	0.37	10.00
			0.00			1/2" Ice	0.93	0.46	15.82
			2.00						
DragonWave Horizon Compact+ ODU	B	From Leg	3.00	0.0000	138.00	No Ice	0.81	0.37	10.00
			0.00			1/2" Ice	0.93	0.46	15.82
			2.00						
(2) APXVSPP18-C-A20	A	From Leg	3.00	0.0000	138.00	No Ice	8.26	5.28	107.00
			0.00			1/2" Ice	8.81	5.74	156.52
			2.00						
(2) APXVSPP18-C-A20	B	From Leg	3.00	0.0000	138.00	No Ice	8.26	5.28	107.00
			0.00			1/2" Ice	8.81	5.74	156.52
			2.00						
(2) APXVSPP18-C-A20	C	From Leg	3.00	0.0000	138.00	No Ice	8.26	5.28	107.00
			0.00			1/2" Ice	8.81	5.74	156.52
			2.00						
1900 MHz RRH	A	From Leg	3.00	0.0000	138.00	No Ice	3.80	2.91	144.00
			0.00			1/2" Ice	4.06	3.14	175.27
			2.00						
1900 MHz RRH	B	From Leg	3.00	0.0000	138.00	No Ice	3.80	2.91	144.00
			0.00			1/2" Ice	4.06	3.14	175.27
			2.00						
1900 MHz RRH	C	From Leg	3.00	0.0000	138.00	No Ice	3.80	2.91	144.00
			0.00			1/2" Ice	4.06	3.14	175.27
			2.00						

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
800 MHz RRH	A	From Leg	3.00	0.0000	138.00	No Ice	2.83	3.45	82.00
			0.00			1/2" Ice	3.06	3.70	112.15
			2.00						
800 MHz RRH	B	From Leg	3.00	0.0000	138.00	No Ice	2.83	3.45	82.00
			0.00			1/2" Ice	3.06	3.70	112.15
			2.00						
800 MHz RRH	C	From Leg	3.00	0.0000	138.00	No Ice	2.83	3.45	82.00
			0.00			1/2" Ice	3.06	3.70	112.15
			2.00						
DB809DK-Y	C	From Leg	3.00	0.0000	138.00	No Ice	3.39	3.39	32.00
			0.00			1/2" Ice	4.55	4.55	56.57
			2.00						
10' 2-bay dipole	C	From Leg	3.00	0.0000	138.00	No Ice	2.50	2.50	75.00
			0.00			1/2" Ice	3.53	3.53	93.64
			2.00						
APX16DWV-16DWVS	A	From Leg	1.00	0.0000	117.00	No Ice	6.70	2.00	25.00
			0.00			1/2" Ice	7.13	2.33	56.34
			0.00						
APX16DWV-16DWVS	B	From Leg	1.00	0.0000	117.00	No Ice	6.70	2.00	25.00
			0.00			1/2" Ice	7.13	2.33	56.34
			0.00						
APX16DWV-16DWVS	C	From Leg	1.00	0.0000	117.00	No Ice	6.70	2.00	25.00
			0.00			1/2" Ice	7.13	2.33	56.34
			0.00						
(2) AIR 21 B2A B4P panel	A	From Leg	1.00	0.0000	117.00	No Ice	6.59	4.31	95.00
			0.00			1/2" Ice	7.03	4.72	136.89
			0.00						
(2) AIR 21 B2A B4P panel	B	From Leg	1.00	0.0000	117.00	No Ice	6.59	4.31	95.00
			0.00			1/2" Ice	7.03	4.72	136.89
			0.00						
(2) AIR 21 B2A B4P panel	C	From Leg	1.00	0.0000	117.00	No Ice	6.59	4.31	95.00
			0.00			1/2" Ice	7.03	4.72	136.89
			0.00						
KRY 112 7 1/2 TMA	A	From Leg	1.00	0.0000	117.00	No Ice	0.73	0.44	15.00
			0.00			1/2" Ice	0.86	0.55	20.32
			0.00						
KRY 112 7 1/2 TMA	B	From Leg	1.00	0.0000	117.00	No Ice	0.73	0.44	15.00
			0.00			1/2" Ice	0.86	0.55	20.32
			0.00						
KRY 112 7 1/2 TMA	C	From Leg	1.00	0.0000	117.00	No Ice	0.73	0.44	15.00
			0.00			1/2" Ice	0.86	0.55	20.32
			0.00						
(2) 800-10504	A	From Leg	2.00	0.0000	103.00	No Ice	3.35	1.86	25.00
			0.00			1/2" Ice	3.70	2.19	43.03
			0.00						
(2) 800-10504	B	From Leg	2.00	0.0000	103.00	No Ice	3.35	1.86	25.00
			0.00			1/2" Ice	3.70	2.19	43.03
			0.00						
(2) 800-10504	C	From Leg	2.00	0.0000	103.00	No Ice	3.35	1.86	25.00
			0.00			1/2" Ice	3.70	2.19	43.03
			0.00						
(2) 860-10025 RCU	A	From Leg	2.00	0.0000	103.00	No Ice	0.14	0.11	3.00
			0.00			1/2" Ice	0.20	0.17	4.36
			0.00						
(2) 860-10025 RCU	B	From Leg	2.00	0.0000	103.00	No Ice	0.14	0.11	3.00
			0.00			1/2" Ice	0.20	0.17	4.36
			0.00						
(2) 860-10025 RCU	C	From Leg	2.00	0.0000	103.00	No Ice	0.14	0.11	3.00
			0.00			1/2" Ice	0.20	0.17	4.36

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement		C_AA_A Front	C_AA_A Side	Weight
			ft	°	ft		ft^2	ft^2	lb
			0.00						
LNX-6514DS-VTM	A	From Leg	1.00	0.0000	93.00	No Ice	8.41	4.17	30.00
			0.00			1/2" Ice	8.96	4.61	74.68
			0.00						
LNX-6514DS-VTM	B	From Leg	1.00	0.0000	93.00	No Ice	8.41	4.17	30.00
			0.00			1/2" Ice	8.96	4.61	74.68
			0.00						
LNX-6514DS-VTM	C	From Leg	1.00	0.0000	93.00	No Ice	8.41	4.17	30.00
			0.00			1/2" Ice	8.96	4.61	74.68
			0.00						
BXA-171063/12	A	From Leg	1.00	0.0000	93.00	No Ice	4.79	3.62	25.00
			0.00			1/2" Ice	5.24	4.06	52.45
			0.00						
BXA-171063/12	B	From Leg	1.00	0.0000	93.00	No Ice	4.79	3.62	25.00
			0.00			1/2" Ice	5.24	4.06	52.45
			0.00						
BXA-171063/12	C	From Leg	1.00	0.0000	93.00	No Ice	4.79	3.62	25.00
			0.00			1/2" Ice	5.24	4.06	52.45
			0.00						
BXA-80080/4	A	From Leg	1.00	0.0000	93.00	No Ice	5.25	2.84	20.00
			0.00			1/2" Ice	5.64	3.15	51.00
			0.00						
BXA-80080/4	B	From Leg	1.00	0.0000	93.00	No Ice	5.25	2.84	20.00
			0.00			1/2" Ice	5.64	3.15	51.00
			0.00						
BXA-80080/4	C	From Leg	1.00	0.0000	93.00	No Ice	5.25	2.84	20.00
			0.00			1/2" Ice	5.64	3.15	51.00
			0.00						
MG D5-800TX	A	From Leg	1.00	0.0000	93.00	No Ice	3.23	2.37	25.00
			0.00			1/2" Ice	3.57	2.70	45.03
			0.00						
MG D5-800TX	B	From Leg	1.00	0.0000	93.00	No Ice	3.23	2.37	25.00
			0.00			1/2" Ice	3.57	2.70	45.03
			0.00						
MG D5-800TX	C	From Leg	1.00	0.0000	93.00	No Ice	3.23	2.37	25.00
			0.00			1/2" Ice	3.57	2.70	45.03
			0.00						
(2) ALU RRH2x40 w/bracket	A	From Leg	1.00	0.0000	93.00	No Ice	3.32	1.59	131.00
			0.00			1/2" Ice	3.57	1.80	151.90
			0.00						
(2) ALU RRH2x40 w/bracket	B	From Leg	1.00	0.0000	93.00	No Ice	3.32	1.59	131.00
			0.00			1/2" Ice	3.57	1.80	151.90
			0.00						
(2) ALU RRH2x40 w/bracket	C	From Leg	1.00	0.0000	93.00	No Ice	3.32	1.59	131.00
			0.00			1/2" Ice	3.57	1.80	151.90
			0.00						
RFS DB-E1-2C-4AB-0Z D-box	A	From Leg	1.00	0.0000	93.00	No Ice	1.08	1.34	10.00
			0.00			1/2" Ice	1.22	1.50	21.80
			0.00						
RFS DB-E1-2C-4AB-0Z D-box	B	From Leg	1.00	0.0000	93.00	No Ice	1.08	1.34	10.00
			0.00			1/2" Ice	1.22	1.50	21.80
			0.00						
RFS DB-E1-2C-4AB-0Z D-box	C	From Leg	1.00	0.0000	93.00	No Ice	1.08	1.34	10.00
			0.00			1/2" Ice	1.22	1.50	21.80
			0.00						
RFS DB-T1-6Z-8AB-0Z D-box	C	From Leg	1.00	0.0000	93.00	No Ice	5.60	2.33	45.00
			0.00			1/2" Ice	5.92	2.56	81.13
			0.00						
GPS on 3' standoff	C	From Leg	1.00	0.0000	68.00	No Ice	0.60	0.60	50.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight lb
			0.00 0.00			1/2" Ice	0.79	0.79	55.81

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight lb
4' HP dish	A	Paraboloid w/Shroud (HP)	From Leg	3.00 0.00 0.00	0.0000		140.00	4.00	No Ice 1/2" Ice	12.57 13.10	150.00 217.33

Solution Summary

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	138 - 117	1.403	10	0.0033	0.0196
T2	117 - 92	1.310	10	0.0033	0.0180
T3	92 - 65	1.085	10	0.0048	0.0149
T4	65 - 35	0.738	10	0.0066	0.0106
T5	35 - 0	0.420	10	0.0044	0.0065

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
140.00	4' HP dish	10	1.403	0.0033	0.0196	209983
138.00	Tank bowl	10	1.403	0.0033	0.0196	209983
117.00	APX16DWV-16DWVS	10	1.310	0.0033	0.0180	52235
103.00	(2) 800-10504	10	1.202	0.0039	0.0165	52818
93.00	LNX-6514DS-VTM	10	1.097	0.0047	0.0151	56651
68.00	GPS on 3' standoff	10	0.775	0.0065	0.0110	77764

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt lb	Allowable Load lb	Ratio Load / Allowable	Allowable Ratio	Criteria
T5	35	Leg	A307	1.2500	4	16205.30	24543.70	0.660 ✔	1.333	Bolt Tension

tnxTower	Job	Page
	Mystic Water Tank	8 of 8
All-Points Technology Corporation 116 Grandview Road Conway, NH 03818 Phone: (603) 496-5853 FAX: (603) 447-2124	**Project** CT141153 Mystic	**Date** 14:54:52 10/08/14
	Client Verizon Wireless	**Designed by** Rob Adair

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	**138 - 117**	**Leg**	**P18x.25**	**3**	**-21478.90**	**356177.59**	**6.0**	**Pass**
		Diagonal	1	14	12679.50	22613.81	56.1	Pass
		Top Girt	W8x35	7	-5211.81	216033.97	2.4	Pass
T2	**117 - 92**	**Leg**	**P18x.25**	**19**	**-44441.10**	**344319.22**	**12.9**	**Pass**
		Diagonal	1	30	19033.50	22613.81	84.2	Pass
		Top Girt	W8x35	23	-11354.60	200473.86	5.7	Pass
T3	**92 - 65**	**Leg**	**P18x.25**	**35**	**-72173.00**	**338046.12**	**21.4**	**Pass**
		Diagonal	1	46	24709.90	22613.81	109.3	Fail ✗
		Top Girt	W8x35	39	-15530.30	180570.84	8.6	Pass
T4	**65 - 35**	**Leg**	**P18x.25**	**51**	**-106971.00**	**328224.58**	**32.6**	**Pass**
		Diagonal	1 1/4	62	30163.20	35334.10	85.4	Pass
		Top Girt	W10x68	55	-19752.60	386711.28	5.1	Pass
T5	**35 - 0**	**Leg**	**P18x.25**	**67**	**-147948.00**	**310778.27**	**47.6** **49.5 (b)**	**Pass**
		Diagonal	1 1/4	78	34798.30	35334.10	98.5	Pass
		Top Girt	W10x68	71	-23133.90	350253.73	6.6	Pass
							Summary	
						Leg (T5)	49.5	Pass
						Diagonal (T3)	109.3	Fail ✗
						Top Girt (T3)	8.6	Pass
						Bolt Checks	66.0	Pass
						RATING =	**109.3**	**Fail ✗**

ALL-POINTS
TECHNOLOGY CORPORATION

November 14, 2014

Verizon Wireless
99 East River Drive, 9th Floor
East Hartford, CT 06108

Attn: Jim Smith
Re: Water Tank Equipment Changes, Mystic, CT
Verizon Site: Mystic South

Dear Jim,

All-Points Technology Corporation, P.C. (APT) evaluated the 155' water tower located at 7 Broadway Avenue Extension in Mystic, Connecticut for equipment changes proposed by Verizon Wireless. Our analysis indicated reinforcement was required for the tower to meet the current structural code. Results were provided in a report dated October 10, 2014.

Reinforcement design was conducted in accordance with the Connecticut State Building Code and TIA-222-F, *Structural Standard for Antenna Supporting Structures and Antennas* using a wind speed of 85-mph and ¾" radial ice for Verizon Wireless's proposed replacement of three of their existing twelve panel antennas, removal of six existing diplexers and installation of three Alcatel-Lucent RRH2x40 remote radio heads. The equipment will be fed by the existing hybrid power/fiber line and twelve 1-5/8" waveguide cables.

The attached reinforcement drawing depicts required replacement of bracing members to support the proposed equipment changes. Completion of the attached modifications will result in a tower structure suitable for installation of Verizon Wireless's proposed changes.

Please feel free to call if you have any questions.

Sincerely,
All-Points Technology Corporation, P.C.

STATE OF CONNECTICUT
ROBERT E. ADAIR
No. 20278
LICENSED PROFESSIONAL ENGINEER

Robert E. Adair, P.E.
Principal

CT141154 Mystic APT reinf ltr 11-14-14.doc

□ 3 SADDLEBROOK DRIVE · KILLINGWORTH, CT 06419 · PHONE 860-663-1697 · FAX 860-663-0935
⊗ 116 GRANDVIEW ROAD · CONWAY, NH 03818 · PHONE 603-496-5853 · FAX 603-447-2124

VERIZON WIRELESS
155' WATER TANK
MYSTIC, CONNECTICUT
VERIZON SITE: MYSTIC SOUTH


Overview photos of 155' water tank.


Photos of existing antennas.

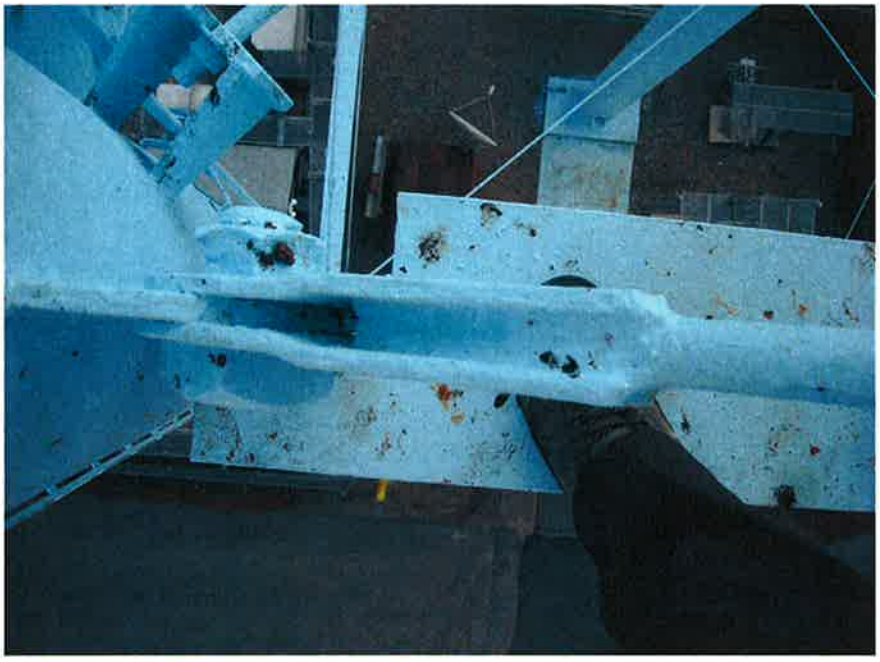
Photos taken by All-Points Technology Corporation, P.C. on October 30, 2014.

VERIZON WIRELESS
155' WATER TANK
MYSTIC, CONNECTICUT
VERIZON SITE: MYSTIC SOUTH

Photos of existing bracing connection.

Photos taken by All-Points Technology Corporation, P.C. on October 30, 2014.

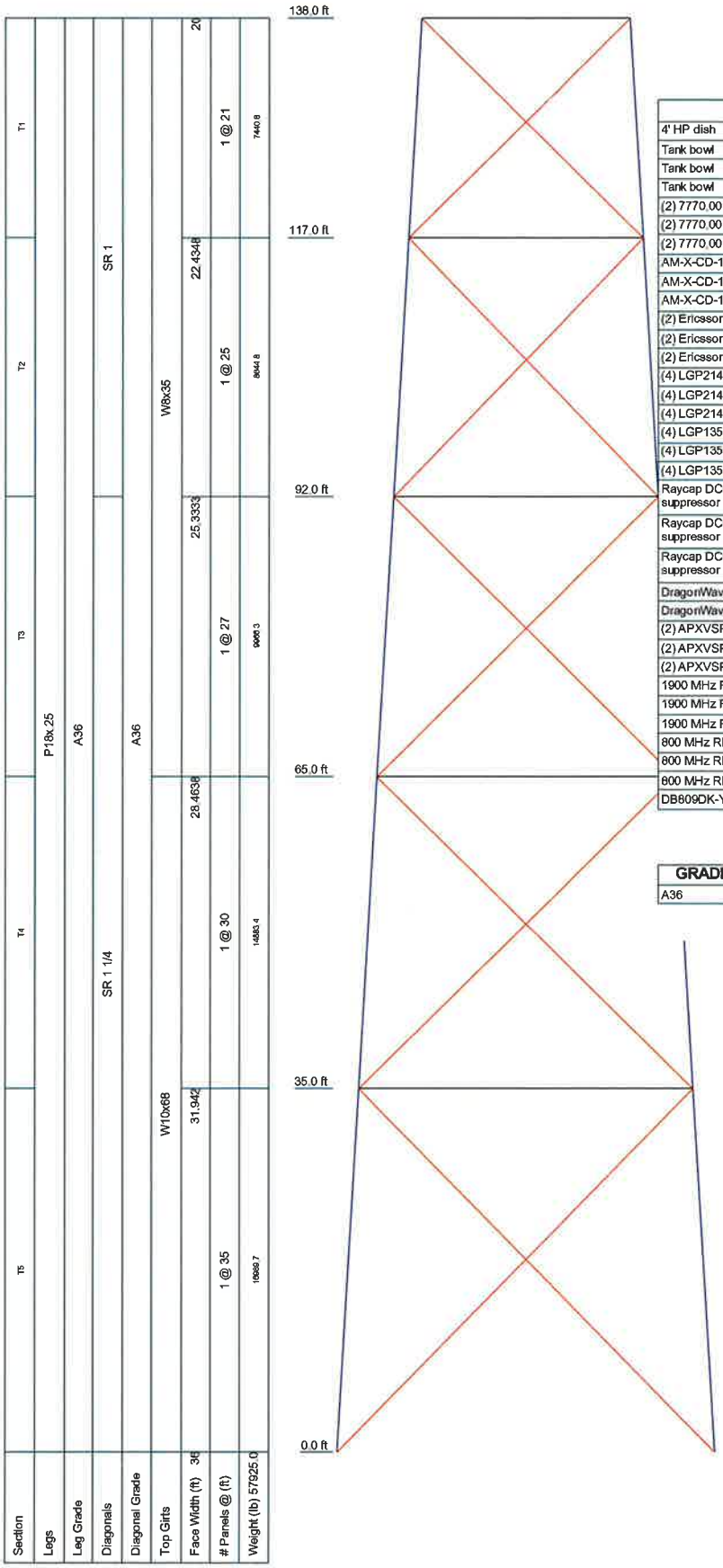
VERIZON WIRELESS
155' WATER TANK
MYSTIC, CONNECTICUT
VERIZON SITE: MYSTIC SOUTH



Top view of existing bracing connection.

Photo of turnbuckle on existing brace.

Photos taken by All-Points Technology Corporation, P.C. on October 30, 2014.



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
4' HP dish	140	10' 2-bay dipole	138
Tank bowl	138	Tank bowl	138
Tank bowl	138	APX16DWV-16DWVS	117
Tank bowl	138	APX16DWV-16DWVS	117
(2) 7770.00	138	(2) AIR 21 B2A B4P panel	117
(2) 7770.00	138	(2) AIR 21 B2A B4P panel	117
(2) 7770.00	138	(2) AIR 21 B2A B4P panel	117
AM-X-CD-14-65	138	KRY 112 7 1/2 TMA	117
AM-X-CD-14-65	138	KRY 112 7 1/2 TMA	117
AM-X-CD-14-65	138	KRY 112 7 1/2 TMA	117
(2) Ericsson RRUS-11	138	APX16DWV-16DWVS	117
(2) Ericsson RRUS-11	138	(2) 800-10504	103
(2) Ericsson RRUS-11	138	(2) 800-10504	103
(4) LGP2140X TMA	138	(2) 860-10025 RCU	103
(4) LGP2140X TMA	138	(2) 860-10025 RCU	103
(4) LGP2140X TMA	138	(2) 860-10025 RCU	103
(4) LGP13519 Diplexer	138	(2) 800-10504	103
(4) LGP13519 Diplexer	138	LNX-6514DS-VTM	93
(4) LGP13519 Diplexer	138	LNX-6514DS-VTM	93
Raycap DC6-48-60-18-8F surge suppressor	138	BXA-171063/12	93
		BXA-171063/12	93
Raycap DC6-48-60-18-8F surge suppressor	138	BXA-171063/12	93
		BXA-80080/4	93
Raycap DC6-48-60-18-8F surge suppressor	138	BXA-80080/4	93
		BXA-80080/4	93
DragonWave Horizon Compact+ ODU	138	MG D5-800TX	93
DragonWave Horizon Compact+ ODU	138	MG D5-800TX	93
(2) APXVSPP18-C-A20	138	MG D5-800TX	93
(2) APXVSPP18-C-A20	138	(2) ALU RRH2x40 w/bracket	93
(2) APXVSPP18-C-A20	138	(2) ALU RRH2x40 w/bracket	93
1900 MHz RRH	138	(2) ALU RRH2x40 w/bracket	93
1900 MHz RRH	138	RFS DB-E1-2C-4AB-0Z D-box	93
1900 MHz RRH	138	RFS DB-E1-2C-4AB-0Z D-box	93
800 MHz RRH	138	RFS DB-E1-2C-4AB-0Z D-box	93
800 MHz RRH	138	RFS DB-T1-6Z-8AB-0Z D-box	93
800 MHz RRH	138	LNX-6514DS-VTM	93
DB809DK-Y	138	GPS on 3' standoff	68

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi			

MAX. CORNER REACTIONS AT BASE:
DOWN: 151293 lb
SHEAR: 13290 lb

UPLIFT: -99326 lb
SHEAR: 33539 lb

AXIAL
148656 lb

SHEAR
68884 lb

MOMENT
5804651 lb-ft

TORQUE 78964 lb-ft
74 mph WIND - 0.7500 in ICE

AXIAL
100248 lb

SHEAR
73149 lb

MOMENT
6341210 lb-ft

TORQUE 89231 lb-ft
REACTIONS - 85 mph WIND

All-Points Technology Corporation
116 Grandview Road
Conway, NH 03818
Phone: (603) 496-5853
FAX: (603) 447-2124

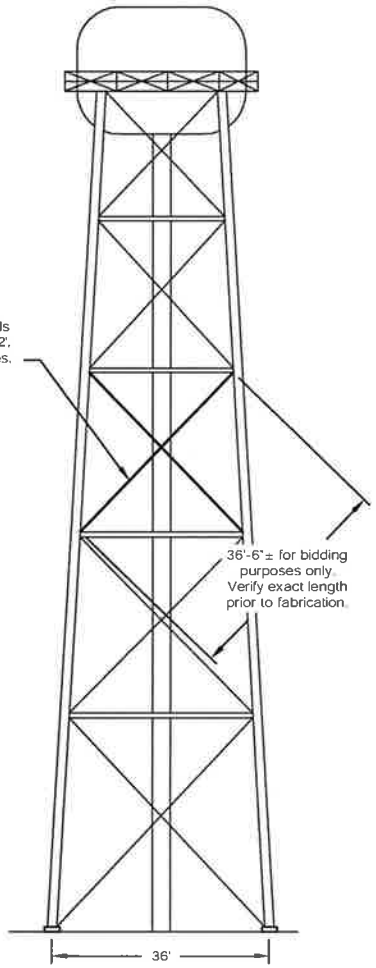
Job: **Mystic Water Tank**			
Project: **CT141154 Mystic**			
Client: Verizon Wireless	Drawn by: Rob Adair		App'd:
Code: TIA/EIA-222-F	Date: 11/14/14		Scale: NTS
Path: C:\Users\Rob Adair\Documents\Job\2 Verizon\1 TEV\CT141150 Mystic\CT141154 Mystic.eri			Dwg No. E-1

tnxTower	Job	Page
	Mystic Water Tank	1 of 1
All-Points Technology Corporation 116 Grandview Road Conway, NH 03818 Phone: (603) 496-5853 FAX: (603) 447-2124	**Project** CT141154 Mystic	**Date** 17:48:00 11/14/14
	Client Verizon Wireless	**Designed by** Rob Adair

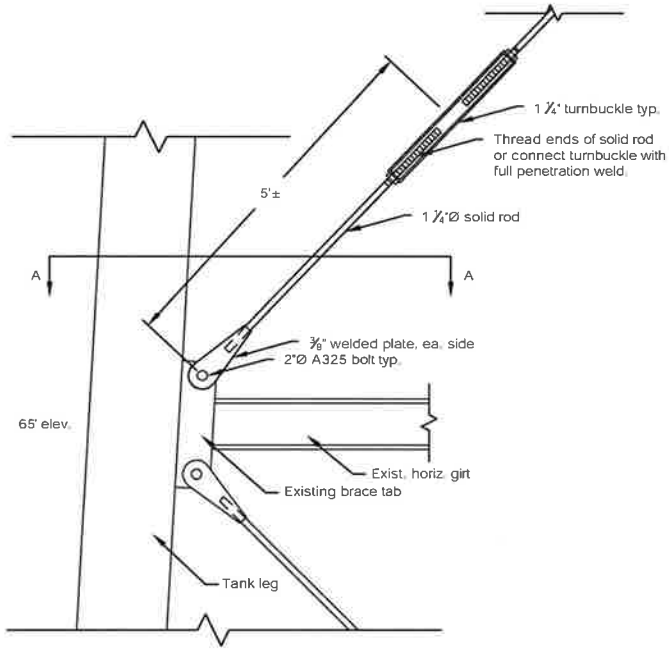
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$SF*P_{allow}$ lb	% Capacity	Pass Fail
T1	**138 - 117**	**Leg**	**P18x.25**	**3**	**-22705.50**	**356177.59**	**6.4**	**Pass**
		Diagonal	1	14	12781.40	22613.81	56.5	Pass
		Top Girt	W8x35	7	-5249.45	216033.97	2.4	Pass
T2	**117 - 92**	**Leg**	**P18x.25**	**19**	**-44833.70**	**344319.22**	**13.0**	**Pass**
		Diagonal	1	30	18177.50	22613.81	80.4	Pass
		Top Girt	W8x35	23	-11078.00	200473.86	5.5	Pass
T3	**92 - 65**	**Leg**	**P18x.25**	**35**	**-73235.90**	**338046.12**	**21.7**	**Pass**
		Diagonal	1 1/4	46	25907.10	35334.10	73.3	Pass
		Top Girt	W8x35	39	-15712.80	180570.84	8.7	Pass
T4	**65 - 35**	**Leg**	**P18x.25**	**51**	**-108117.00**	**328224.58**	**32.9**	**Pass**
		Diagonal	1 1/4	62	29730.00	35334.10	84.1	Pass
		Top Girt	W10x68	55	-19962.30	386711.28	5.2	Pass
T5	**35 - 0**	**Leg**	**P18x.25**	**67**	**-150508.00**	**310778.27**	**48.4** **49.8 (b)**	**Pass**
		Diagonal	1 1/4	78	35229.30	35334.10	99.7	Pass
		Top Girt	W10x68	71	-23145.00	350253.73	6.6	Pass
							Summary	
						Leg (T5)	49.8	Pass
						Diagonal (T5)	99.7	Pass
						Top Girt (T3)	8.7	Pass
						Bolt Checks	66.4	Pass
						RATING =	**99.7**	**Pass**

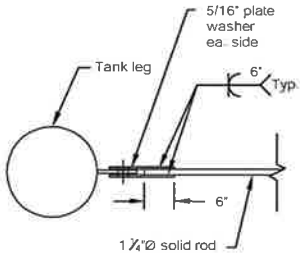
Existing antennas and equipment not shown



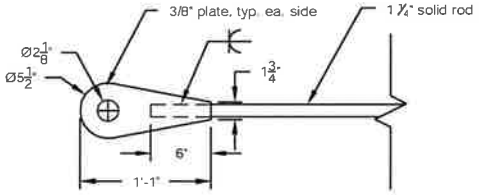
Tower Elevation
Scale: 1" = 20'



Bracing Connection Detail
Scale: ½" = 1'-0"



Section A-A
Scale: ½" = 1'-0"



Bracing End Detail
Scale: 1" = 1'-0"

GENERAL:
1. Coordinate work to minimize disruption of existing facilities.
2. Work may require temporary relocation of utilities/hangers.
3. Verify all dimensions and existing conditions prior to fabrication. Bring discrepancies to the attention of the Engineer before proceeding with the affected portion of the work.
4. Provide shoring or temporary bracing as required to complete the work.
5. Details shown on any drawing are considered typical for all similar conditions unless otherwise noted.

STRUCTURAL STEEL:
1. All structural steel work shall conform to the requirements of the American Institute of Steel Construction and all applicable building codes.
2. Welders shall be certified per AWS D1.1 for the positions and procedures to be used. Submit welder certifications for review prior to conducting the work.
3. Grind paint and/or galvanizing from areas to be welded.
4. Weld with E70XX electrodes in accordance with AWS D1.1.
5. Provide all necessary temporary bracing required to support loads and erect and hold the steel frame in alignment.
6. Structural steel rods to be ASTM A36 steel.
7. All bolts shall be galvanized ASTM Grade A325 with lock washers.
8. Prime & paint steel to match after fabrication.
9. Prime & paint after final tensioning and any field cut, welded, or drilled surfaces.

WELD INSPECTION:
1. An independent non-destructive testing (NDT) firm shall conduct visual and magnetic particle testing of completed welds.
2. Visually inspect completed welds per AWS B1.11.
3. Magnetic particle inspect completed welds per ASTM E709.

All-Points Technology Corp., P.C.
116 GRANDVIEW ROAD
CONWAY, NH 03818
PHONE: (603) 496-5853
FAX: (603) 447-2124
www.allpointstech.com

TANK PLATFORM PLAN	
SHEET: 1 OF 1	
SCALE: AS NOTED	DRAWN BY: REA
DATE: 14 NOV 2014	APT JOB #CT141154

verizon wireless
99 EAST RIVER DRIVE
9TH FLOOR
E. HARTFORD, CT 06108

VERIZON PROJECT:
MYSTIC SOUTH

155'± WATER TOWER
MYSTIC, CONNECTICUT