

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:	:	
	:	
A PETITION OF CELLCO PARTNERSHIP	:	PETITION NO. ____
D/B/A VERIZON WIRELESS FOR A	:	
DECLARATORY RULING ON THE NEED TO	:	
OBTAIN A SITING COUNCIL CERTIFICATE	:	
FOR THE INSTALLATION OF A ROOF-TOP	:	
WIRELESS TELECOMMUNICATIONS	:	
FACILITY AT 212 DEANS MILL ROAD,	:	
STONINGTON, CONNECTICUT	:	DECEMBER 8, 2015

PETITION FOR A DECLARATORY RULING:
INSTALLATION HAVING NO
SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT

I. Introduction

Pursuant to Sections 16-50j-38 and 16-50j-39 of the Regulations of Connecticut State Agencies (“R.C.S.A.”), Cellco Partnership d/b/a Verizon Wireless (“Cellco”) hereby petitions the Connecticut Siting Council (the “Council”) for a declaratory ruling (“Petition”) that no Certificate of Environmental Compatibility and Public Need (“Certificate”) is required under Section 16-50k(a) of the Connecticut General Statutes (“C.G.S.”) to install a new telecommunications tower on the roof of an existing barn at 212 Deans Mill Road in Stonington, Connecticut (the “Property”). The Property is owned by Phyllis B. Borges and Martha S. Demattia. Cellco has designated this site as its “Mystic SC1 Facility”.

II. Factual Background

The Property is a 4.4-acre parcel in Stonington’s GB-130 zone. The Property is surrounded by low density residential uses and immediately south of Interstate 95. *See Attachment 1 – Site Vicinity and Site Schematic Maps (Aerial Photograph).*

Cellco is licensed to provide wireless telecommunications services in the 850 MHz, 1900 MHz, 700 MHz and 2100 MHz frequency ranges in Stonington and throughout the State of Connecticut. Initially, the proposed Mystic SC1 Facility described above will provide wireless service in Cellco's 2100 MHz frequency range only.

III. Proposed Mystic SC1 Facility

The proposed Mystic SC1 Facility would consist of a small tower attached to the roof of the existing barn on the Property. The tower will support a single panel antenna (Model HBX-6513DS), and a remote radio head ("RRH") (Model RRH2x60-AWS). The tower, antenna and RRH will be concealed inside a cupola structure. The cupola will extend to a height of approximately 26.5' above ground level, 6.5 feet above the peak of the roof. Equipment associated with the Mystic SC1 Facility will be located on an 8' x 8' concrete pad along the north side of the barn. Power and telephone service to the Mystic SC1 Facility will extend from existing service on the Property. (See Cellco's Project Plans included in Attachment 2). Specifications for the Mystic SC1 Facility antenna and RRH are included in Attachment 3.

IV. Discussion

A. The Proposed Facility Modifications Will Not Have A Substantial Adverse Environmental Effect

The Public Utility Environmental Standards Act (the "Act"), C.G.S. § 16-50g et seq., provides for the orderly and environmentally compatible development of telecommunications towers in the state to avoid "a significant impact on the environment and ecology of the State of Connecticut." C.G.S. § 16-50g. To achieve these goals, the Act established the Council, and requires a Certificate of Environmental Compatibility and Public Need for the construction of cellular telecommunication towers "that may, as determined by the council, have a substantial adverse environmental effect". C.G.S. § 16-50k(a).

1. Physical Environmental Effects

Cellco respectfully submits that the installation of a concealed tower on the roof of the barn supporting a single canister antenna and one (1) RRH and the placement of associated radio equipment on the ground along the north side of the building, will not involve a significant alteration in the physical and environmental characteristics of the Property.

2. Visual Effects

The installation of a small tower, antenna and RRH on the roof of the existing barn, concealed inside a cupola structure, would have minimal visual effects on the Property and the surrounding area. (See Limited Visual Assessment and Photo-Simulations (“Visual Assessment”) included in Attachment 4). As concluded in the Visual Assessment, the visibility of the proposed roof-top installation described above is limited to locations on the Property within approximately 200 feet of the barn and would have no adverse effect on existing views.

3. FCC Compliance

Radio frequency (“RF”) emissions from the proposed installation will be well below the standards adopted by the Federal Communications Commission (“FCC”). Included in Attachment 5 is a Far Field table, which demonstrates that Cellco’s Mystic SC1 Facility will operate well within the FCC safety standard (9.5% of the Standard).

4. FAA Summary Report

Included in Attachment 6 is a Federal Airways & Airspace Summary Report (the “FAA Report”) verifying that the cupola structure on the roof of the barn would not constitute an obstruction or hazard to air navigation and that notification to the FAA is not required.

B. Notice to the Town, Property Owner and Abutting Landowners

On December 8, 2015, a copy of this Petition was sent to Stonington's First Selectman Rob Simmons and to Phyllis B. Borges and Martha S. Demattia, the Property owners. Copies of the letters sent to the First Selectman and the Property owners are included in Attachment 7. A copy of Cellco's Petition was also sent to the owners of land that abuts the Property. A sample abutter's letter, and the list of those abutting landowners who were sent notice of the filing of the Petition is included in Attachment 8.

V. Conclusion

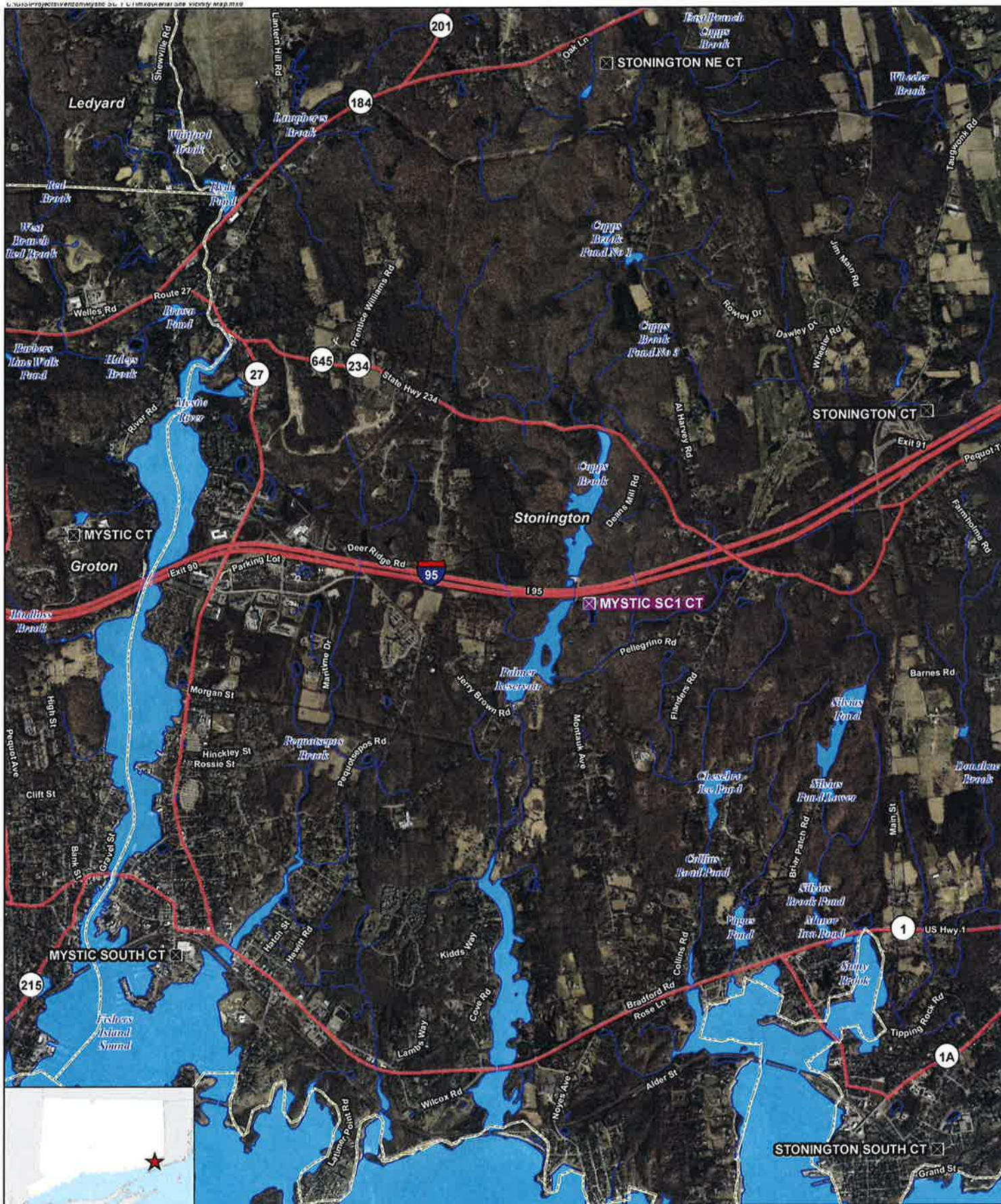
Based on the information provided above, Cellco respectfully requests that the Council issue a determination in the form of a declaratory ruling that the installation of an approximately 6.5-foot tall cupola structure on the roof of the barn, concealing a small tower, panel antenna and RRH and the installation of ground-mounted equipment cabinets will not have a substantial adverse environmental effect and does not require the issuance of a Certificate of Environmental Compatibility and Public Need pursuant to § 16-50k of the General Statutes.

Respectfully submitted,

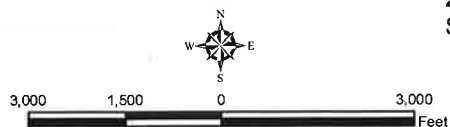
CELLCO PARTNERSHIP d/b/a VERIZON
WIRELESS

By  _____
Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597
(860) 275-8200
Its Attorneys

ATTACHMENT 1



Base Map Source: ESRI World Imagery, NAIP 7/12/2014
 Map Scale: 1 inch = 3,000 feet
 Map Date: November 2015



Site Vicinity Map

Proposed Small Cell Facility
 Mystic SC1 CT
 212 Deans Mill Road
 Stonington, Connecticut

verizon





Legend

- Subject Property
- Proposed Equipment

Map Notes:
 Base Map Source: ESRI World Imagery, NAIP 7/12/2014
 Map Scale: 1 inch = 150 feet
 Map Date: November 2015



Site Schematic

Proposed Small Cell Facility
 Mystic SC1 CT
 212 Deans Mill Road
 Stonington, Connecticut

verizon



ATTACHMENT 2

Cellco Partnership

d.b.a. **verizon**wireless

WIRELESS COMMUNICATIONS FACILITY

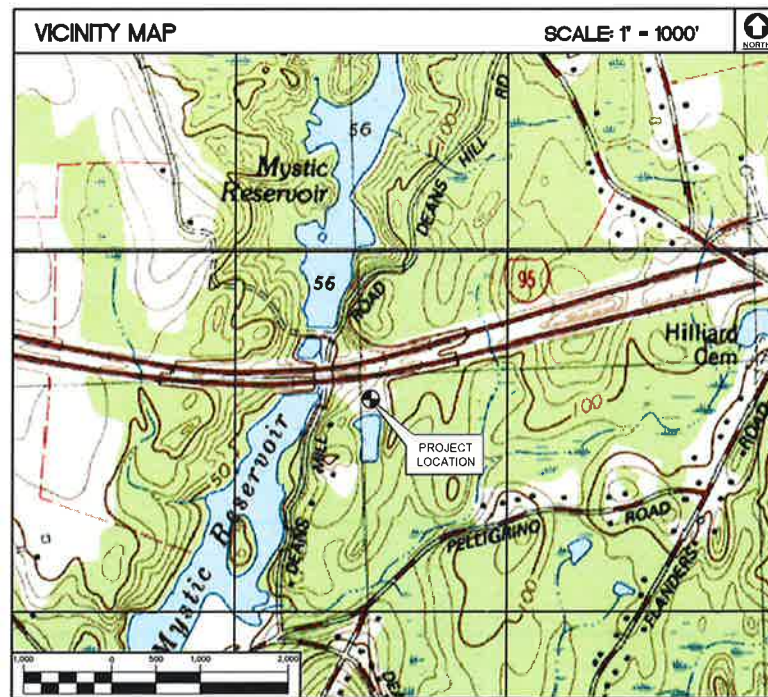
MYSTIC SC1

212 DEANS MILL ROAD
STONINGTON, CT 06378

SITE DIRECTIONS		
FROM:	99 EAST RIVER DRIVE EAST HARTFORD, CONNECTICUT	TO: 212 DEANS MILL ROAD STONINGTON, CONNECTICUT
1. Head northeast on E River Dr.	0.1 mi	
2. Merge onto I-84 E via ramp on left towards CT-2 E	0.2 mi	
3. Merge onto CT-2 E, exit 55	23.9 mi	
4. Take exit 19	7.6 mi	
5. Take E Haddam Rd/CT-82	1.1 mi	
6. Enter next roundabout and take 1st exit onto CT-85	10.4 mi	
7. Take I-95 N.	9.1 mi	
8. Take exit 90	0.3 mi	
9. Turn left onto Coogan Blvd	0.7 mi	
10. Turn right onto Jerry Brown Rd	1.1 mi	
11. Turn left onto Deans Mill Rd. Destination is on the	0.4 mi	

GENERAL NOTES
1. PROPOSED ANTENNA LOCATIONS AND HEIGHTS PROVIDED BY CELCO PARTNERSHIP.

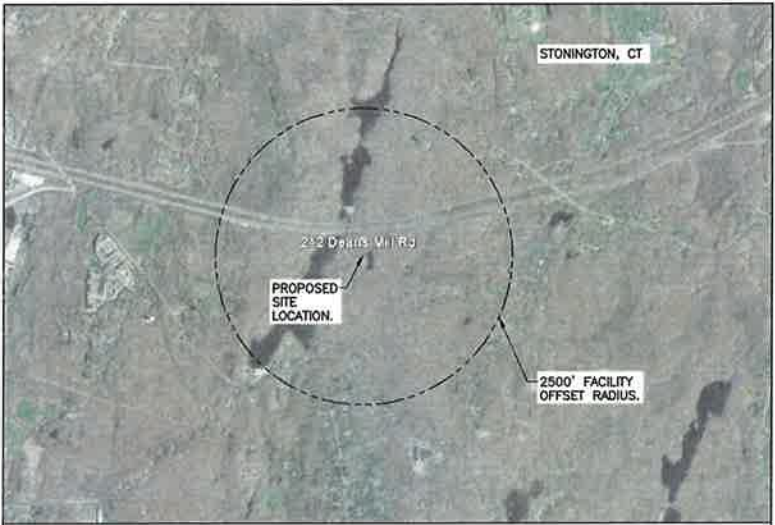
PROJECT SCOPE
1. THE PROPOSED SCOPE OF WORK GENERALLY INCLUDES THE INSTALLATION OF A TOTAL OF (1) ANTENNA, (1) REMOTE RADIO HEAD, ASSOCIATED CABLES AND APPURTENANCES MOUNTED WITHIN PROPOSED ANTENNA CONCEALMENT CUPOLA ATOP SUBJECT BARN.
2. PROPOSED EQUIPMENT CABINET BE INSTALLED WITHIN THE PROPOSED EQUIPMENT LEASE AREA AT GRADE ADJACENT TO THE EXISTING STRUCTURE.
3. POWER AND TELCO UTILITIES DEPICTED HEREIN ARE TENTATIVE. FINAL ROUTING TO BE DETERMINED DURING THE CONSTRUCTION DOCUMENT PHASE OF PROJECT.
4. THE PROPOSED WIRELESS FACILITY INSTALLATION WILL BE DESIGNED IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2009 CONNECTICUT SUPPLEMENT.



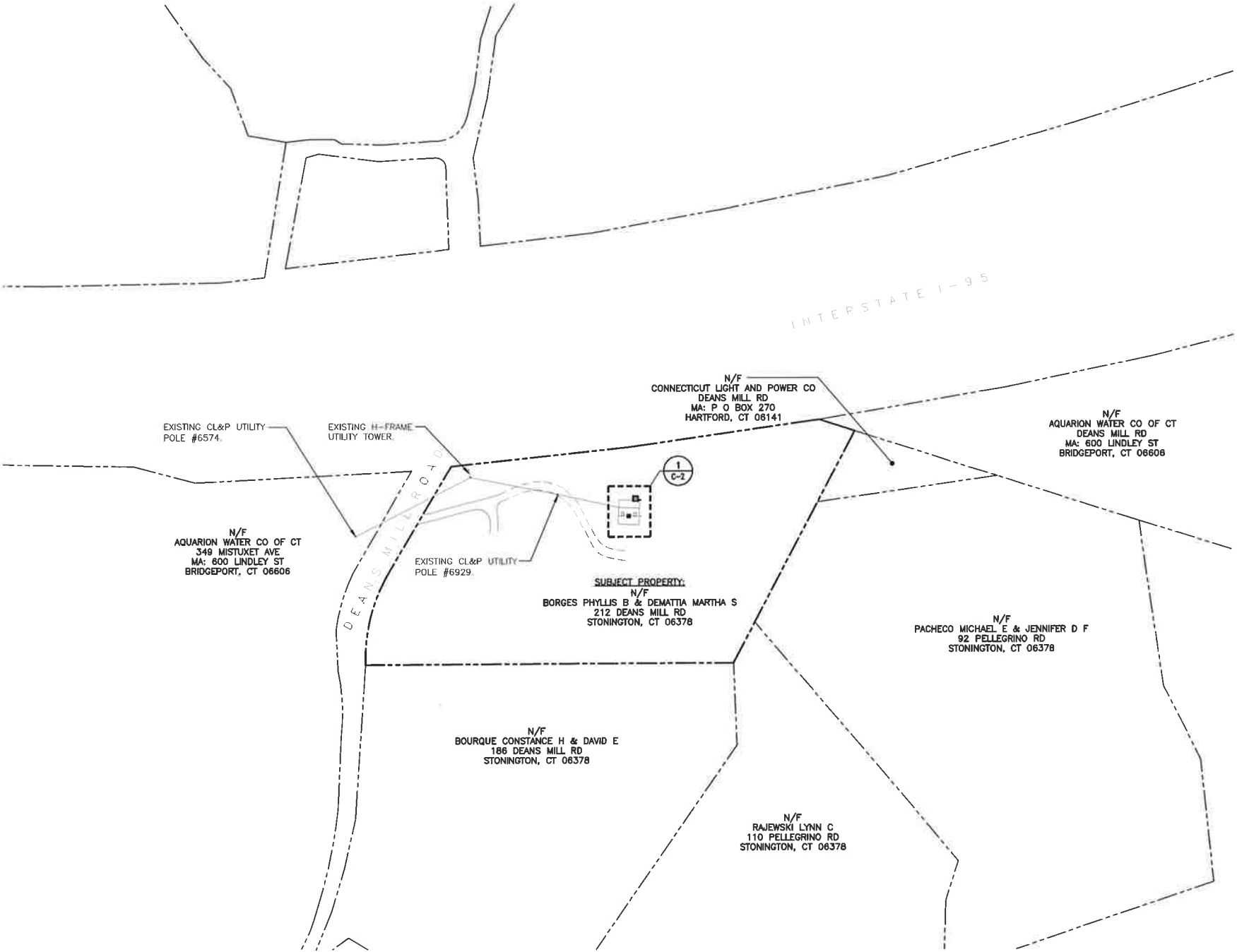
PROJECT SUMMARY	
SITE NAME:	MYSTIC SC1
SITE ADDRESS:	212 DEANS MILL ROAD STONINGTON, CONNECTICUT 06378
CELLCO PARTNERSHIP/TENANT:	CELLCO PARTNERSHIP d.b.a. VERIZON WIRELESS 99 EAST RIVER DRIVE EAST HARTFORD, CT 06108
VERIZON SITE ACQUISITION CONTACT:	JIM SMITH CELLCO PARTNERSHIP (860) 608-0028
LEGAL/REGULATORY COUNSEL:	KENNETH C. BALDWIN, ESQ. ROBINSON & COLE LLP (860) 275-8345
SITE COORDINATES:	LATITUDE: 41°-22'-17.333" N LONGITUDE: 71°-55'-43.738" W GROUND ELEVATION: ±82.25' A.M.S.L. COORDINATES AND GROUND ELEVATION REFERENCED FROM FAA 2-C SURVEY CERTIFICATION AS PREPARED FOR VERIZON WIRELESS, BY CENTEK ENGINEERING, DATED DECEMBER 3, 2015.

SHEET INDEX		
SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	0
C-1	ABUTTERS MAP	0
C-2	PARTIAL SITE PLAN, ELEVATION AND ANTENNA CONFIG.	0

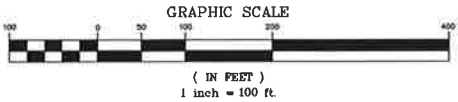
PROFESSIONAL ENGINEER SEAL	DATE	12/04/15	ISSUED FOR	CSO-CLIENT REVIEW
Cellco Partnership d.b.a. verizon wireless	DATE	12/04/15	ISSUED FOR	CSO-CLIENT REVIEW
CENTEK engineering Centralized Solutions (203) 488-0580 (203) 488-0587 Fax 63 North Stonford Road Branford, CT 06405 www.CentekEng.com	DATE	12/04/15	ISSUED FOR	CSO-CLIENT REVIEW
Cellco Partnership d/b/a Verizon Wireless WIRELESS COMMUNICATIONS FACILITY MYSTIC SC1 212 DEANS MILL ROAD STONINGTON, CT 06378	DATE	12/04/15	ISSUED FOR	CSO-CLIENT REVIEW
TITLE SHEET	DATE	12/03/15	SCALE	AS NOTED
T-1	JOB NO.	15211.000		
Sheet No. 1 of 3				



MUNICIPALITY NOTIFICATION LIMIT MAP



1 ABUTTERS MAP
C-1 SCALE: 1" = 100'



MAP REFERENCE NOTE:

PROPERTY LINES AND PROPERTY OWNER INFORMATION SHOWN HEREIN ARE REFERENCED FROM THE TOWN OF STONINGTON GIS DATA BASE. SITE FEATURES SHOWN HEREIN ARE REFERENCED FROM AVAILABLE MAPPING ON GOOGLE EARTH PRO.

PROFESSIONAL ENGINEER SEAL		REV.		0	12/04/15	JTD	DMD	ISSUED FOR CSC-CLIENT REVIEW
Cellco Partnership d.b.a. Verizon Wireless		REV.		0	12/04/15	JTD	DMD	ISSUED FOR CSC-CLIENT REVIEW
CENTEK Engineering Centers on Solutions		REV.		0	12/04/15	JTD	DMD	ISSUED FOR CSC-CLIENT REVIEW
Cellco Partnership d/b/a Verizon Wireless WIRELESS COMMUNICATIONS FACILITY		REV.		0	12/04/15	JTD	DMD	ISSUED FOR CSC-CLIENT REVIEW
MYSTIC SC1 212 DEANS MILL ROAD STONINGTON, CT 06378		REV.		0	12/04/15	JTD	DMD	ISSUED FOR CSC-CLIENT REVIEW
DATE: 12/03/15		REV.		0	12/04/15	JTD	DMD	ISSUED FOR CSC-CLIENT REVIEW
SCALE: AS NOTED		REV.		0	12/04/15	JTD	DMD	ISSUED FOR CSC-CLIENT REVIEW
JOB NO. 15211.000		REV.		0	12/04/15	JTD	DMD	ISSUED FOR CSC-CLIENT REVIEW
ABUTTERS MAP		REV.		0	12/04/15	JTD	DMD	ISSUED FOR CSC-CLIENT REVIEW
C-1		REV.		0	12/04/15	JTD	DMD	ISSUED FOR CSC-CLIENT REVIEW
Sheet No. 2 of 3		REV.		0	12/04/15	JTD	DMD	ISSUED FOR CSC-CLIENT REVIEW

PROPOSED CELLCO PARTNERSHIP
GROUNDING OF ANTENNA AND EQUIPMENT
VIA GROUND TRIAD SYSTEM AT GRADE.

PROPOSED CELLCO PARTNERSHIP POWER AND
TELCO UTILITY CONDUITS ROUTED ALONG
EXTERIOR OF BARN AND TO PROPOSED
EQUIPMENT LOCATION.

PROPOSED CELLCO PARTNERSHIP SUBMETER TO BE
INSTALLED AS PART OF EXISTING METER CENTER.
EXISTING ELECTRICAL CAPACITY TO BE VERIFIED.

PROPOSED CELLCO PARTNERSHIP FIBER TELCO
UTILITY ROUTED WITH EXISTING OVERHEAD
LINES FROM EXISTING CL&P UTILITY POLE TO
EXTERIOR WALL OF BARN AND ALONG BARN TO
PROPOSED EQUIPMENT LOCATION.

PROPOSED CELLCO PARTNERSHIP GROUNDING
CONDUITS ROUTED U/G FROM GROUND TRIAD, INTO
ATTIC SPACE AND TO PROPOSED ANTENNA LOCATION.

PROPOSED CELLCO PARTNERSHIP ANTENNA AND RRH
MOUNTED WITHIN PROPOSED ANTENNA CONCEALMENT
CUPOLA ATOP SUBJECT BARN.

PROPOSED CELLCO PARTNERSHIP ANTENNA
CONCEALMENT CUPOLA ATOP SUBJECT BARN.

PROPOSED CELLCO PARTNERSHIP GROUNDING
CONDUITS ROUTED U/G TO PROPOSED EQUIPMENT
CABINET AT GRADE.

PROPOSED CELLCO PARTNERSHIP $\pm 8' \times 8'$
LEASE AREA FOR PROPOSED EQUIPMENT ON
CONC. PAD AT GRADE SURROUNDED BY 8'
TALL VINYL FENCE W/ 4' WIDE ACCESS GATE.

PROPOSED CELLCO PARTNERSHIP ANTENNA CABLE
ROUTED ALONG EXTERIOR OF BARN, INTO ATTIC
SPACE AND TO PROPOSED ANTENNA LOCATION.

EXISTING SKYLIGHT, TYP. OF 2.

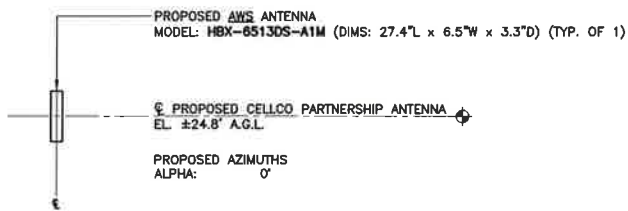
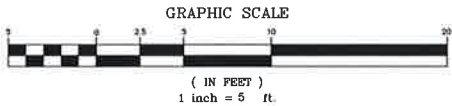
OUTLINE OF EXISTING BARN ROOF.

OUTLINE OF EXISTING BARN EXTERIOR.

HEIGHTS SHOWN HEREIN ARE REFERENCED FROM
FAA 2-C SURVEY CERTIFICATION AS PREPARED
FOR VERIZON WIRELESS, BY CENTEK ENGINEERING,
DATED DECEMBER 3, 2015.

1 PARTIAL SITE PLAN

SCALE: 1" = 5'



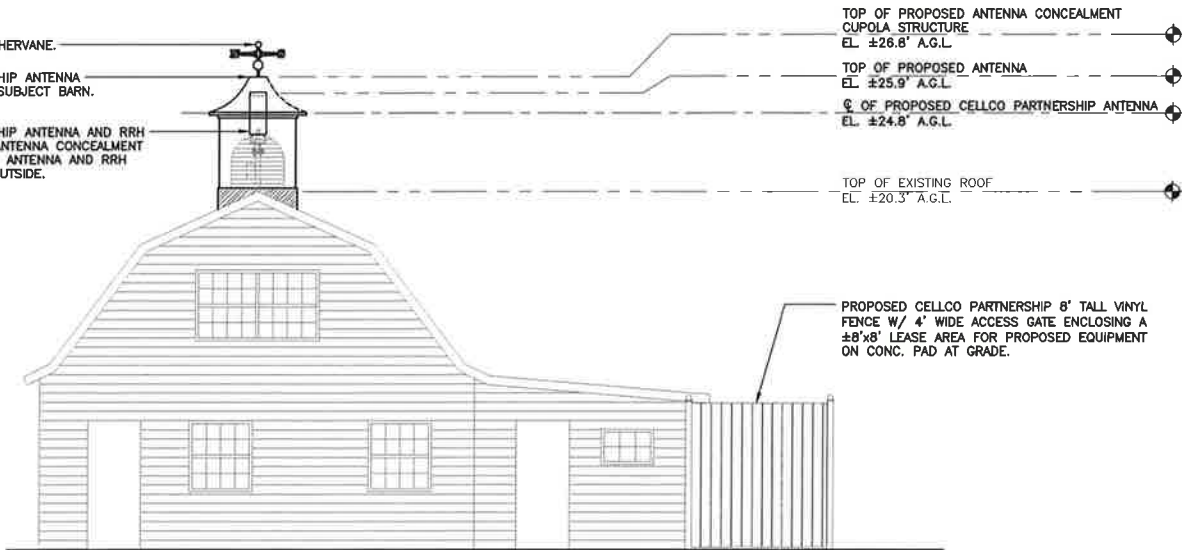
RRH/DISTRIBUTION BOX MOUNTING NOTE

- AWS RRH MODEL: ALJ RRH2x80-AWS
(DIMS: 38.7"L x 10.6"W x 5.8"D) (TYP. OF 1)

ANTENNA AND RRH MOUNTED WITHIN PROPOSED ANTENNA
CONCEALMENT CUPOLA ATOP SUBJECT BARN.

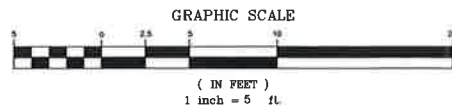
3 TYP. ANTENNA MOUNTING CONFIGURATION

NOT TO SCALE



2 EAST ELEVATION

SCALE: 1" = 5'



Cellco Partnership d/b/a Verizon Wireless

WIRELESS COMMUNICATIONS FACILITY

MYSTIC SC1

212 DEANS MILL ROAD
STONINGTON, CT 06378

DATE: 12/03/15
SCALE: AS NOTED
JOB NO. 15211.000

PARTIAL SITE PLAN
ELEVATION &
ANTENNA CONFIG.

C-2

Sheet No. 3 of 3

CENTEK engineering
Centered on Solutions

(203) 488-0580
(203) 488-8587 Fax
632 North Branford Road
Branford, CT 06405

www.CentekEng.com

PROFESSIONAL ENGINEER SEAL

Cellco Partnership
d.b.a. Verizon Wireless

REV. DATE 12/04/15 JTD QMD ISSUED FOR CSC-CLIENT REVIEW
DRAWN BY CHK'D BY DESCRIPTION

ATTACHMENT 3



HBX-6513DS-VTM

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

- Rugged, reliable design with excellent passive intermodulation suppression

Electrical Specifications

Frequency Band, MHz	1710–1880	1850–1990	1920–2180
Gain, dBi	15.0	15.0	15.5
Beamwidth, Horizontal, degrees	68	66	64
Beamwidth, Vertical, degrees	15.0	14.1	13.5
Beam Tilt, degrees	0–18	0–18	0–18
USLS, dB	16	16	16
Front-to-Back Ratio at 180°, dB	28	30	28
CPR at Boresight, dB	20	19	19
CPR at Sector, dB	7	8	8
Isolation, dB	30	30	30
VSWR Return Loss, dB	1.4 15.6	1.4 15.6	1.4 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350
Polarization	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	1710–1880	1850–1990	1920–2180
Gain by all Beam Tilts, average, dBi	14.3	14.4	14.6
Gain by all Beam Tilts Tolerance, dB	±0.7	±0.7	±0.8
	0 ° 14.7	0 ° 14.8	0 ° 15.2
Gain by Beam Tilt, average, dBi	9 ° 14.4	9 ° 14.6	9 ° 14.6
	18 ° 13.5	18 ° 13.5	18 ° 13.7
Beamwidth, Horizontal Tolerance, degrees	±2.1	±1.4	±3.1
Beamwidth, Vertical Tolerance, degrees	±1.2	±0.7	±1
USLS, dB	17	17	18
Front-to-Back Total Power at 180° ± 30°, dB	24	24	23
CPR at Boresight, dB	20	18	18
CPR at Sector, dB	6	8	10

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

General Specifications

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

Product Specifications

HBX-6513DS-VTM



Performance Note Outdoor usage

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Low loss circuit board
Radome Material	PVC, UV resistant
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	2
Wind Loading, maximum	119.0 N @ 150 km/h 26.8 lbf @ 150 km/h
Wind Speed, maximum	241.5 km/h 150.1 mph

Dimensions

Depth	83.0 mm 3.3 in
Length	695.0 mm 27.4 in
Width	166.0 mm 6.5 in
Net Weight	2.8 kg 6.2 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator	HBX-6513DS-A1M
RET System	Teletilt®

Regulatory Compliance/Certifications

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



Included Products

- DB390 — Pipe Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Use for narrow panel antennas. Includes two pipe mounts.
- DB5098 — Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members

* Footnotes

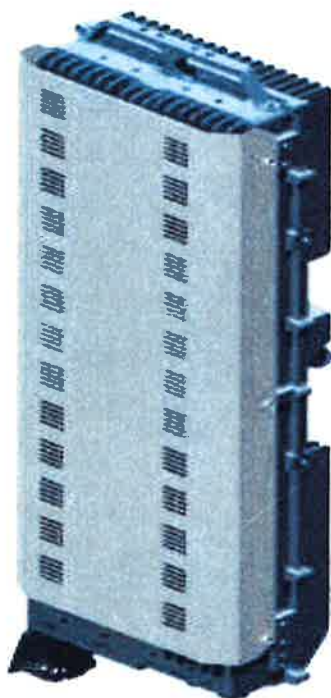
Performance Note	Severe environmental conditions may degrade optimum performance
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ALCATEL-LUCENT

WIRELESS PRODUCT DATASHEET

RRH2X60-AWS FOR BAND 4 APPLICATIONS

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



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

The Alcatel-Lucent RRH2x60-AWS is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals

along with operations, administration and maintenance (OA&M) information.

SUPERIOR RF PERFORMANCE

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

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

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

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

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

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

OPTIMIZED TCO

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

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

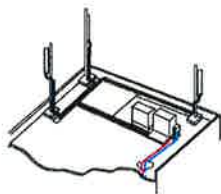
EASY INSTALLATION

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

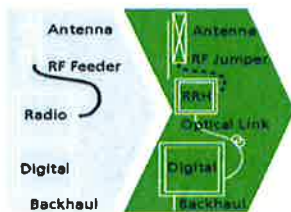
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent RRH2x60-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation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

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

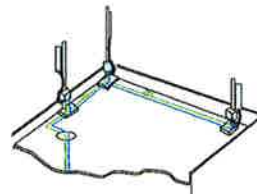
Installation can easily be done by a single person as the Alcatel-Lucent RRH2x60-AWS is compact and weighs about 20 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



Macro



RRH for space-constrained cell sites



Distributed

FEATURES

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

BENEFITS

- MIMO LTE operation with only one single unit per sector
- Improved uplink coverage with built-in 4-way receive diversity capability
- RRH can be mounted close to the antenna, eliminating nearly all losses in RF cables and thus reducing power consumption by 50% compared to conventional solutions
- Distributed configurations provide easily deployable and cost-effective solutions, near zero footprint and

silent solutions, with minimum impact on the neighborhood, which ease the deployment

- RETA and TMA support without additional hardware thanks to the AISG v2.0 port and the integrated Bias-Tees. Bias-Tees support AISG DC supply and signaling.

TECHNICAL SPECIFICATIONS

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

Dimensions and weights

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

Electrical Data

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

RF Characteristics

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

Connectivity

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

Environmental specifications

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

Safety and Regulatory Data

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

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ATTACHMENT 4

Limited Visual Assessment and Photo-Simulations

MYSTIC SC1
212 DEANS MILL ROAD
STONINGTON, CT 06378



Prepared in December 2015 by:
All-Points Technology Corporation, P.C.
3 Saddlebrook Drive
Killingworth, CT 06141

Prepared for Verizon Wireless



LIMITED VISUAL ASSESSMENT & PHOTO-SIMULATIONS

At the request of Cellco partnership LLC d/b/a Verizon Wireless, All-Points Technology Corporation, P.C. ("APT") completed a limited visual assessment and prepared computer-generated photo-simulations depicting the proposed installation of a small cell wireless telecommunications Facility at 212 Deans Mill Road in Stonington, Connecticut (the "Property").

Project Setting and Description

The Property is located on the east side of Deans Mill Road and south of Interstate 95 in a sparsely developed residential area. The Property is currently developed with a single family residence and detached barn. The proposed Facility would include the installation of a pipe-mounted single panel antenna and remote radio head/distribution box concealed within a new cupola on the barn's roof behind RF-transparent louvers. The antenna, pipe mast and associated mounting equipment would not be visible from the outside. The cupola has been designed to match the existing building architecture and colors. It would extend approximately 6.5 feet above the roof peak (and about 26.5 feet above the ground level). Exterior ground equipment would be located within an 8-foot tall vinyl fence-enclosure (measuring 8-foot by 8-foot) on the barn's northern side.

Methodology

On November 23, 2015, APT personnel conducted field reconnaissance and photo-documented existing conditions. Three (3) nearby locations were selected to depict existing and proposed conditions with the new installation. At each photo location, the geographic coordinates of the camera's position were logged using global positioning system ("GPS") technology. Photographs were taken with a Canon EOS 6D digital camera body and Canon EF 24 to 105 millimeter ("mm") zoom lens, with the lens set to 50 mm.

"The lens that most closely approximates the view of the unaided human eye is known as the normal focal-length lens. For the 35 mm camera format, which gives a 24x36 mm image, the normal focal length is about 50 mm."¹

Three-dimensional computer models were developed for the building and proposed small cell components from AutoCAD information. Photographic simulations were then generated to portray scaled renderings of the proposed installation. Using field data, site plan information and image editing software, the proposed Facility was scaled to the correct location and height, relative to the existing structure and surrounding area. For presentation purposes in this report, all of the photographs were produced in an approximate 7-inch by 10.5-inch format². A photolog map and copies of the existing conditions and photo-simulations are attached.

¹ Warren, Bruce. *Photography*, West Publishing Company, Eagan, MN, c. 1993, (page 70).

² When viewing in this format size, we believe it is important to provide the largest representational image while maintaining an

Conclusions

The visibility of the proposed installation would be limited to immediate areas on the Property within approximately 200 feet of the barn. Views of the cupola would not extend off the Property as it is surrounded by mature tree cover and neighboring properties are remote from the project site. Further, the result of concealing the antenna within the cupola is no rooftop equipment being visible from exterior locations. The ground enclosure will be located behind the barn, behind a vinyl clad screening fence, prohibiting direct views of the equipment cabinets. Based on the results of this assessment, it is our opinion that the proposed installation of Verizon Wireless equipment would have no adverse effect on views beyond the limits of the Property.

ATTACHMENTS

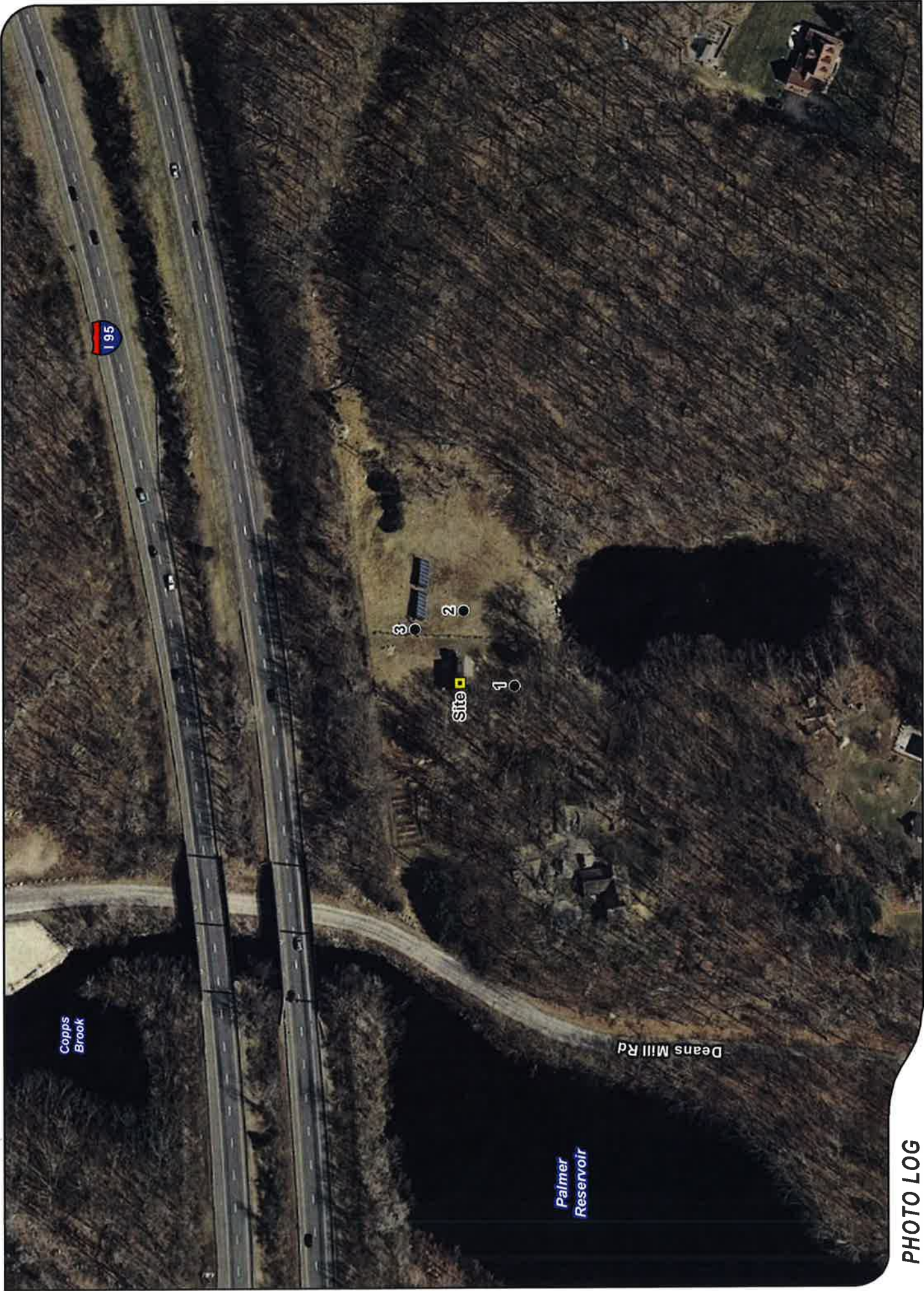
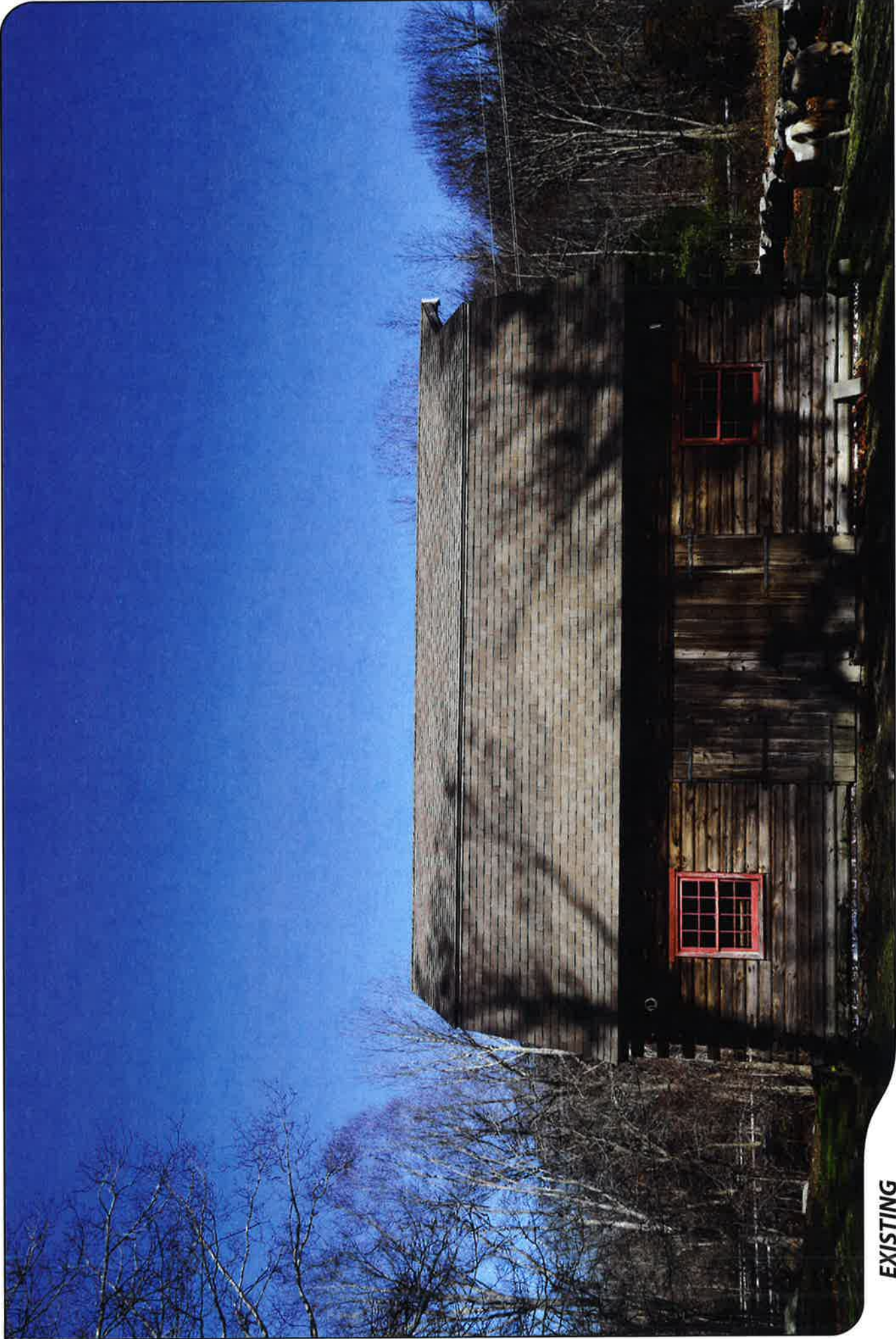


PHOTO LOG

- Legend
- Site
 - Photo Location





EXISTING

PHOTO

1

LOCATION

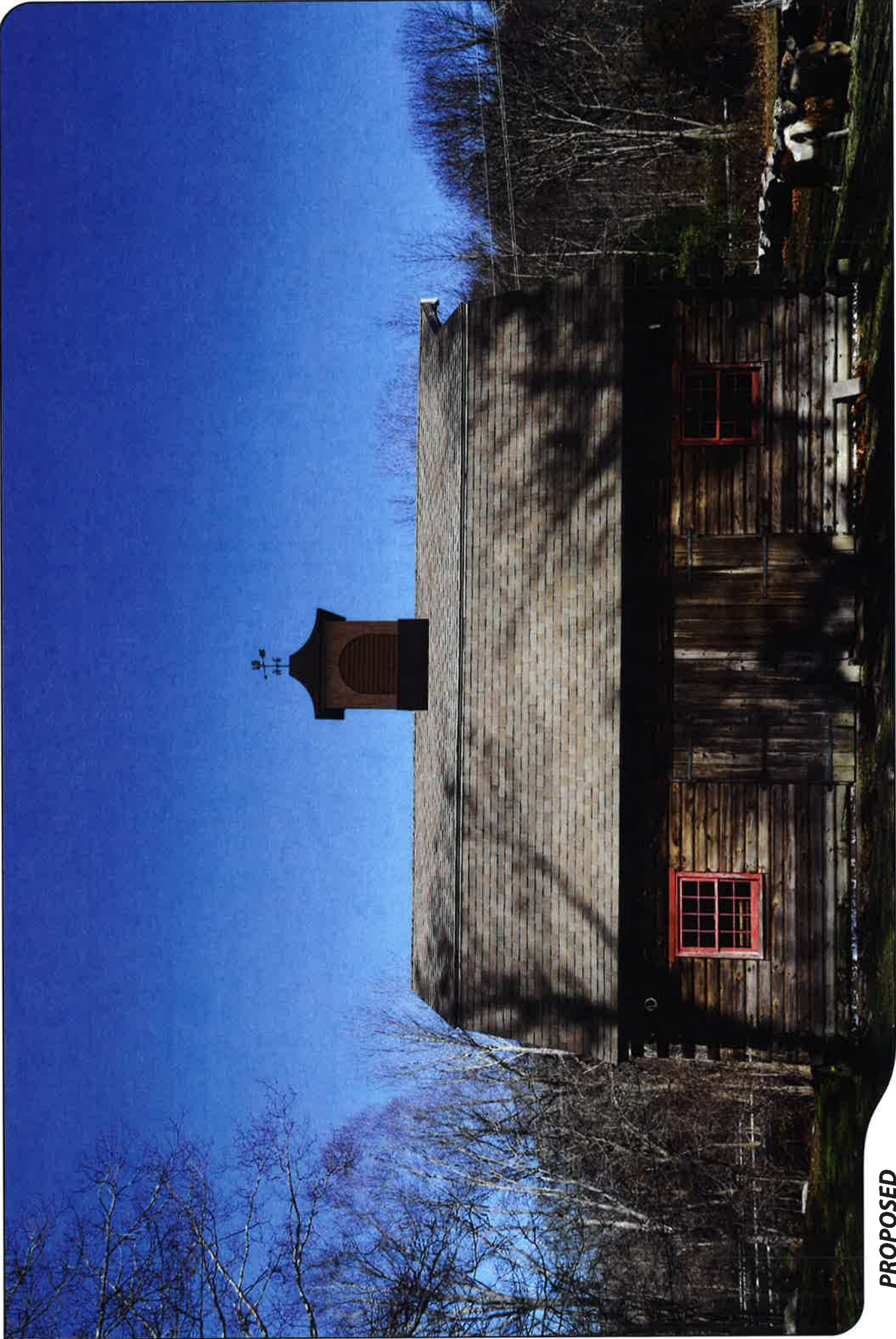
HOST PROPERTY (35mm Focal Length)

ORIENTATION

NORTH

DISTANCE TO SITE

+/- 65 FEET



PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE
1	HOST PROPERTY (35mm Focal Length)	NORTH	+/- 65 FEET



EXISTING

PHOTO

2

LOCATION

HOST PROPERTY

ORIENTATION

WEST

DISTANCE TO SITE

+/- 88 FEET



PROPOSED

PHOTO

2

LOCATION

HOST PROPERTY

DISTANCE TO SITE

+/- 88 FEET

ORIENTATION

WEST



EXISTING

PHOTO

3

LOCATION

HOST PROPERTY

DISTANCE TO SITE

+/- 86 FEET

ORIENTATION

SOUTHWEST



PROPOSED

PHOTO

3

LOCATION

HOST PROPERTY

ORIENTATION

SOUTHWEST

DISTANCE TO SITE

+/- 86 FEET

ATTACHMENT 5

Estimated Radiated Emission

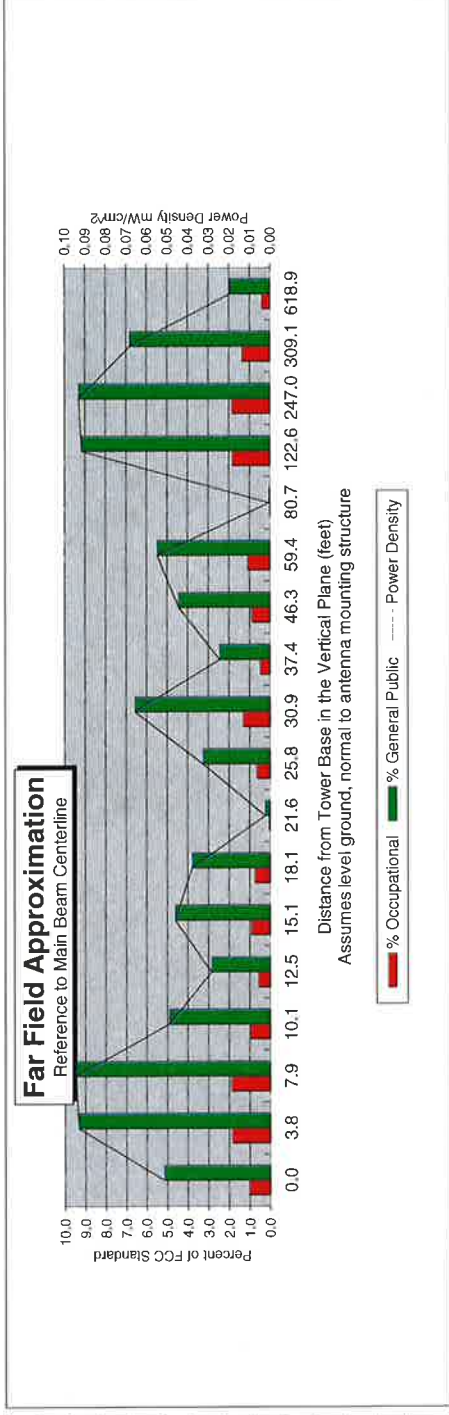
Single Emitter Far Field Model

Dipole / Wire/ Yagi Antenna Types



Location:	Mystic SC 1, CT
Site #:	
Date:	11/19/15
Name:	Ray Paradis
File Name:	Mystic SC 1, CT - FF Power

Operating Freq. (MHz)	2145.0
Antenna Height (ft):	24.6
Antenna Gain (dBi):	13.3
Antenna Size (in.):	27.4
Downtilt (degrees):	0.0
Feedline Loss (dB):	0.0
Power @ J4 (w):	2550.0
Number of channels:	1



Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	21.6	21.9	23.0	23.8	24.9	26.4	28.2	30.6	33.6	37.7	43.2	51.1	63.2	83.5	124.5	248.0	309.8	619.2
Distance from Antenna Structure Base in Horizontal plane	0.0	3.8	7.9	10.1	12.5	15.1	18.1	21.6	25.8	30.9	37.4	46.3	59.4	80.7	122.6	247.0	309.1	618.9
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	25.31	22.59	22.11	24.66	26.62	24.05	24.32	35.62	23.45	19.41	22.51	18.46	15.71	34.89	7.58	1.53	0.94	0.35
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm²)	0.05	0.09	0.09	0.05	0.03	0.05	0.04	0.00	0.03	0.07	0.02	0.04	0.05	0.00	0.09	0.09	0.07	0.02
Percent of Occupational Standard	1.0	1.9	1.9	1.0	0.6	0.9	0.8	0.0	0.7	1.3	0.5	0.9	1.1	0.0	1.8	1.9	1.4	0.4
Percent of General Population Standard	5.1	9.3	9.5	4.9	2.8	4.6	3.8	0.2	3.3	6.6	2.4	4.4	5.5	0.0	9.2	9.3	6.8	2.0

Antenna Type HBX-6513DS-A1M
Max% 9.47%

Instructions:

- 1) Fill in Site Location, Site number, Date, Name of Person Responsible for Data, and enter File Name to be saved as.
- 2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
- 3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Power Density.
- 4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
- 5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
- 6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
- 7) An odd distance may be entered in the rightmost column of the lower table.

ATTACHMENT 6

MYSTIC_SC_1_CT.txt

* Federal Airways & Airspace *
* Summary Report: New Construction *
* Antenna Structure *

Airspace User: Your Name

File: MYSTIC_SC_1_CT

Location: Stonington, CT

Latitude: 41°-22'-17.21" Longitude: 71°-55'-44.01"

SITE ELEVATION AMSL.....85 ft.
STRUCTURE HEIGHT.....30 ft.
OVERALL HEIGHT AMSL.....115 ft.

NOTICE CRITERIA

FAR 77.9(a): NNR (DNE 200 ft AGL)
FAR 77.9(b): NNR (DNE Notice Slope)
FAR 77.9(c): NNR (Not a Traverse Way)
FAR 77.9: NNR FAR 77.9 IFR Straight-In Notice Criteria for GON
FAR 77.9: NNR FAR 77.9 IFR Straight-In Notice Criteria for WST
FAR 77.9(d): NNR (Off Airport Construction)

NR = Notice Required

NNR = Notice Not Required

PNR = Possible Notice Required (depends upon actual IFR procedure)
For new construction review Air Navigation Facilities at bottom
of this report.

Notice to the FAA is not required at the analyzed location and height for
slope, height or Straight-In procedures. Please review the 'Air Navigation'
section for notice requirements for offset IFR procedures and EMI.

OBSTRUCTION STANDARDS

FAR 77.17(a)(1): DNE 499 ft AGL
FAR 77.17(a)(2): DNE - Airport Surface
FAR 77.19(a): DNE - Horizontal Surface
FAR 77.19(b): DNE - Conical Surface
FAR 77.19(c): DNE - Primary Surface
FAR 77.19(d): DNE - Approach Surface
FAR 77.19(e): DNE - Transitional Surface

VFR TRAFFIC PATTERN AIRSPACE FOR: GON: GROTON-NEW LONDON

Type: A RD: 32525.89 RE: 6.4

FAR 77.17(a)(1): DNE
FAR 77.17(a)(2): DNE - Height No Greater Than 200 feet AGL.
VFR Horizontal Surface: DNE
VFR Conical Surface: DNE
VFR Approach Slope: DNE
VFR Transitional Slope: DNE

VFR TRAFFIC PATTERN AIRSPACE FOR: WST: WESTERLY STATE

Type: A RD: 33816.7 RE: 51.1

FAR 77.17(a)(1): DNE
FAR 77.17(a)(2): DNE - Height No Greater Than 200 feet AGL.
VFR Horizontal Surface: DNE
VFR Conical Surface: DNE
VFR Approach Slope: DNE
VFR Transitional Slope: DNE

MYSTIC_SC_1_CT.txt

TERPS DEPARTURE PROCEDURE (FAA Order 8260.3, volume 4)
 FAR 77.17(a)(3) Departure Surface Criteria (40:1)
 DNE Departure Surface

MINIMUM OBSTACLE CLEARANCE ALTITUDE (MOCA)
 FAR 77.17(a)(4) MOCA Altitude Enroute Criteria
 The Maximum Height Permitted is 500 ft AMSL

PRIVATE LANDING FACILITIES

FACIL IDENT TYP NAME	BEARING To FACIL	RANGE IN NM	DELTA ARP ELEVATION	FAA IFR
CT80 AIR STONINGTON AIRPARK No Impact to Private Landing Facility. DNE 200 ft AGL within 3 NM of Airport.	126.76	2.43	+108	
CT48 AIR WYCHWOOD FIELD No Impact to VFR Transitional Surface. Below surface height of 291 ft above ARP.	2.39	3.91	-201	
69CT HEL THE SHORE No Impact to Private Landing Facility Structure is beyond notice limit by 20702 feet.	223.2	4.23	+104	
RI23 HEL WESTERLY HOSPITAL No Impact to Private Landing Facility Structure 0 ft below heliport.	96.47	4.79	-5	

AIR NAVIGATION ELECTRONIC FACILITIES

APCH BEAR	FAC IDNT	TYPE	ST AT	FREQ	VECTOR	DIST (ft)	DELTA ELEVA	ST LOCATION	GRND ANGLE
	GON	VOR/DME	R	110.8	246.08	36957	+106	CT GROTON	.16
	ORW	VOR/DME	I	110.0	344.04	70099	-195	CT NORWICH	-.16
	SEY	VOR/DME	R	117.8	127.59	122204	+15	RI SANDY POINT	.01
	PVD	RADAR	Y	2735.	35.29	156174	-461	RI THEODORE FRANCIS	-.17
	PVD	VORTAC	R	115.6	46.58	187652	+66	RI PROVIDENCE	.02
	HFD	VOR/DME	R	114.9	300.31	195850	-734	CT HARTFORD	-.21
	HTO	VORTAC	I	113.6	212.81	196438	+93	NY HAMPTON	.03
	MAD	VOR/DME	R	110.4	264.03	210648	-105	CT MADISON	-.03

CFR Title 47, §1.30000-§1.30004

AM STUDY NOT REQUIRED: Structure is not near a FCC licensed AM station.
 Movement Method Proof as specified in §73.151(c) is not required.
 Please review 'AM Station Report' for details.

Nearest AM Station: WBLQ @ 7811 meters.

MYSTIC_SC_1_CT.txt

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11-19-2015
16:06:30

ATTACHMENT 7

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

December 8, 2015

Via Certificate of Mailing

Robert Simmons, First Selectman
Town of Stonington
152 Elm Street
Stonington, CT 06378

Re: Proposed Installation of a Roof-Top Wireless Telecommunications Facility at 212 Deans Mill Road, Mystic (Stonington), Connecticut

Dear Mr. Simmons:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed a Petition for Declaratory Ruling ("Petition") with the Connecticut Siting Council ("Council") seeking approval to install a new telecommunications facility on the roof of the barn at 212 Deans Mill Road in Stonington, Connecticut (the "Property"). The facility will include the installation of a small roof-top tower, supporting a single panel antenna and remote radio head (RRH). The tower, antenna and RRH will be concealed by a cupola structure which will extend approximately 6.5 feet above the peak of the roof of the barn. Equipment associated with the facility will be located on an 8' x 8' concrete pad along the northerly side of the barn.

A copy of the Petition is attached for your review. Landowners whose property abuts the Property were also sent notice of this filing along with a copy of the Petition.

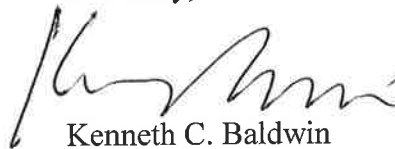
14316006-v1

Robinson + Cole

Robert Simmons
December 8, 2015
Page 2

Please contact me if you have any questions regarding this proposal.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ken Baldwin', written over the printed name.

Kenneth C. Baldwin

Attachment

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

December 8, 2015

Via Certificate of Mailing

Phyllis B. Borges and Martha S. Demattia
212 Deans Mill Road
Stonington, CT 06378

Re: **Proposed Installation of a Roof-Top Wireless Telecommunications Facility at 212 Deans Mill Road, Mystic (Stonington), Connecticut**

Dear Ms. Borges and Ms. Demattia:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed a Petition for Declaratory Ruling ("Petition") with the Connecticut Siting Council ("Council") seeking approval to install a new telecommunications facility on the roof of the barn at 212 Deans Mill Road in Stonington, Connecticut (the "Property"). The facility will include the installation of a small roof-top tower, supporting a single panel antenna and remote radio head (RRH). The tower, antenna and RRH will be concealed by a cupola structure which will extend approximately 6.5 feet above the peak of the roof of the barn. Equipment associated with the facility will be located on an 8' x 8' concrete pad along the northerly side of the barn.

A copy of the Petition is attached for your review. Landowners whose property abuts the Property were also sent notice of this filing along with a copy of the Petition.

14344089-v1

Robinson + Cole

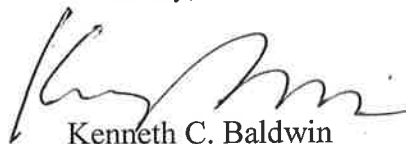
Phyllis B. Borges and Martha S. Demattia

December 8, 2015

Page 2

Please contact me if you have any questions regarding this proposal.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ken Baldwin', written over the printed name.

Kenneth C. Baldwin

Attachment

ATTACHMENT 8

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

December 8, 2015

Via Certificate of Mailing

«Name_and_Address»

Re: Notice of Intent to File a Petition for Declaratory Ruling with the Connecticut Siting Council for the Installation of a Roof-Top Wireless Telecommunications Facility at 212 Deans Mill Road, Mystic (Stonington), Connecticut

Dear «Salutation»:

This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”). Today, Cellco filed a Petition for Declaratory Ruling (“Petition”) with the Connecticut Siting Council (“Council”) seeking approval to install a new telecommunications facility on the roof of the barn at 212 Deans Mill Road in Stonington, Connecticut (the “Property”). The facility will include the installation of a small roof-top tower, supporting a single panel antenna and remote radio head (RRH). The tower, antenna and RRH will be concealed by a cupola structure which will extend approximately 6.5 feet above the peak of the roof of the barn. Equipment associated with the facility will be located on an 8’ x 8’ concrete pad along the northerly side of the barn. A copy of the Petition is attached for your review.

This notice is being sent to you because you are listed on the Town Assessor’s records as an owner of land that abuts the Property. If you have any questions regarding the Petition, the Council’s process for reviewing the Petition or the details of the filing itself, please feel free to contact me at the number listed above. You may also contact the Council directly at 860-827-2935.

December 8, 2015
Page 2

Sincerely,

A handwritten signature in black ink, appearing to read "Kenneth C. Baldwin". The signature is fluid and cursive, with a long horizontal stroke at the end.

Kenneth C. Baldwin

Attachment

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS

ABUTTERS LIST

**212 DEANS MILL ROAD
MYSTIC (STONINGTON), CONNECTICUT**

	<u>Property Address</u>	<u>Owner and Mailing Address</u>
1.	349 Mistuxet Avenue	Aquarion Water Co. of CT 600 Lindley Street Bridgeport, CT 06606
2.	186 Deans Mill Road	David E. and Constance H. Bourque 186 Deans Mill Road Stonington, CT 06378
3.	110 Pellegrino Road	Lynn C. Rajewski 110 Pellegrino Road Stonington, CT 06378
4.	92 Pellegrino Road	Michael E. and Jennifer D.F. Pacheco 92 Pellegrino Road Stonington, CT 06378
5.	Deans Mill Road	Connecticut Light & Power Co. Attn: Property Tax Department P.O. Box 270 Hartford, CT 06141
6.	Deans Mill Road	Aquarion Water Co. of CT 600 Lindley Street Bridgeport, CT 06606