

Property is surrounded by recreational and residential uses along Middlebury Road. *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 Middlebury and throughout the State of Connecticut. Initially, the proposed Middlebury Quassy Facility described above will provide wireless service in Cellco’s 700 MHz and 2100 MHz frequency ranges only.

III. Proposed Middlebury Quassy Facility

The proposed Middlebury Quassy Facility would consist of a small tower attached to an existing maintenance building in the northeasterly portion of the Property. The tower will support a single canister antenna (Model NH360QS-DG-F0M), and two (2) remote radio heads (“RRHs”) (Models ALU RH2X60-700U and ALU RH2X60-AWS). The tower and antenna will extend to a height of approximately 14.3 feet above the peak of the roof of the maintenance building; approximately 31.2 feet above ground level. Equipment associated with the Middlebury Quassy Facility will be located on an 8-foot x 8-foot concrete pad along the west side of the maintenance building. The equipment will be surrounded by an 8-foot stockade fence. Power and telephone service to the Middlebury Quassy Facility will extend from existing service inside the building. (*See* Cellco’s Project Plans included in Attachment 2).

Specifications for the Middlebury Quassy Facility antenna and RRHs 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 small tower attached to the existing maintenance building, supporting a single canister antenna and two (2) RRHs and the placement of associated radio equipment on the ground, adjacent to the maintenance 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 supporting a canister antenna and RRHs on the existing maintenance building at the Property 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). The Visual Assessment concludes that the visibility of the proposed installation described above would be limited to immediate areas surrounding the maintenance building and northeast portions of the existing parking lot. Ground-mounted equipment, screened by a stockade fence, will not be highly visible.

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 General Power Density table, which demonstrates that Cellco’s Middlebury Quassy Facility will operate well within the FCC safety standard (16.84% of the Standard).

4. FAA Summary Report

Included in Attachment 6 is a Federal Airways & Airspace Summary Report (the “FAA Report”) verifying that the tower and antenna attached to the building at the Property 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 January 8, 2016, a copy of this Petition was sent to Middlebury’s First Selectman Edward B. St. John and to Lake Quassapaug Amusement Park, the Property owner. Copies of the letters sent to the First Selectman and the Property owner 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 a tower, canister antenna and RRHs attached to the existing maintenance building at the Property 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.

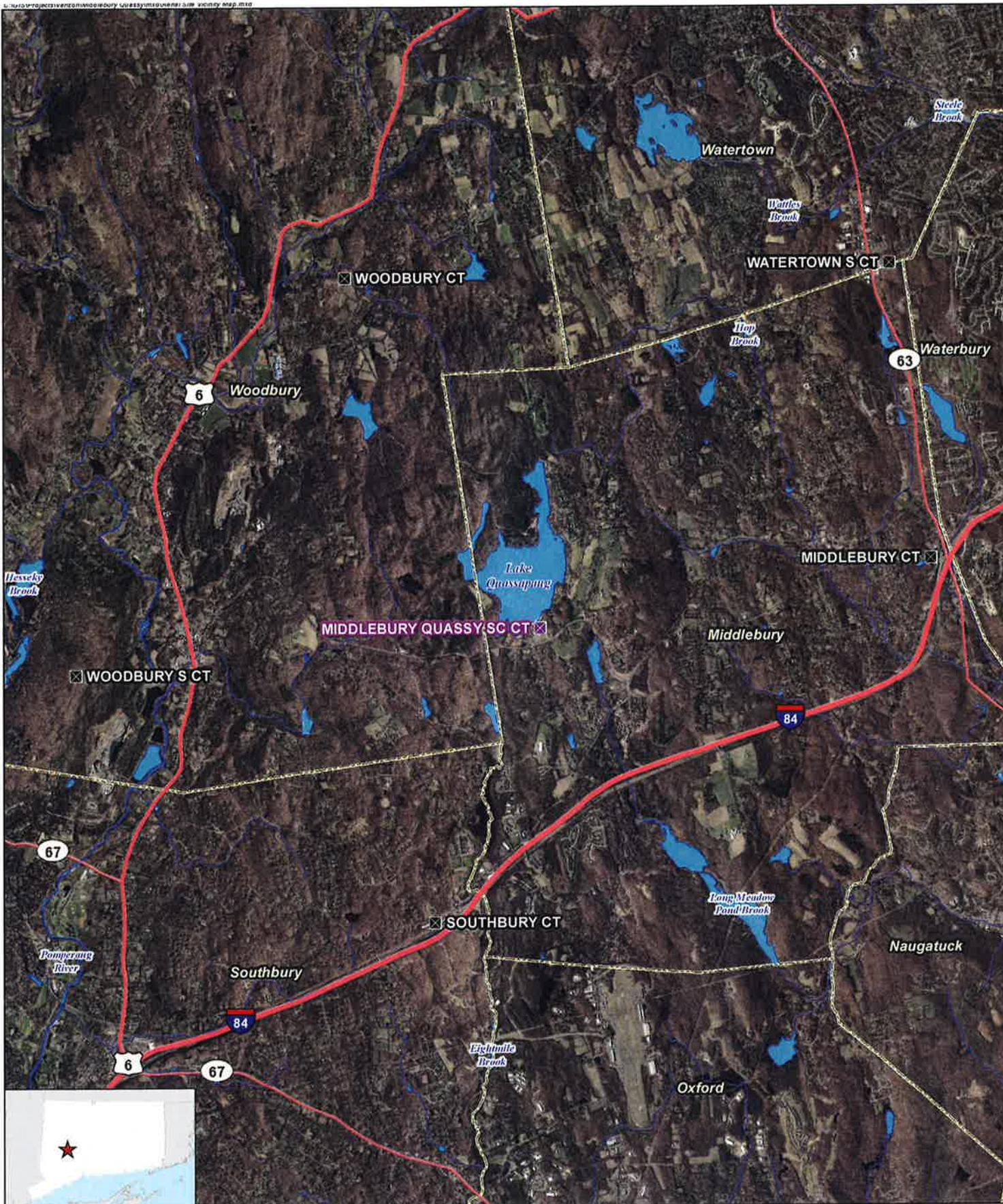
Respectfully submitted,

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



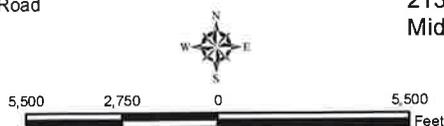
Legend

- Proposed Verizon Small Cell Facility
- Surrounding Verizon Wireless Facilities
- Municipal Boundary
- Watercourse
- Waterbody
- Major Road

Site Vicinity Map

Proposed Small Cell Installation
 Middlebury Quassy SC CT
 2132 Middlebury Road
 Middlebury, Connecticut

Base Map Source: 2012 Aerial Photograph (CTECO)
 Map Scale: 1 inch = 5,500 feet
 Map Date: December 2015

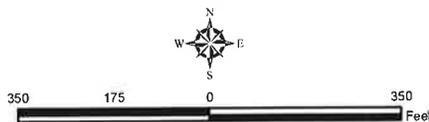




Legend

-  Host Property
-  Approximate Parcel Boundary (CTDEEP GIS)

Map Notes:
 Base Map Source: 2012 Aerial Photograph (CTECO)
 Map Scale: 1 inch = 350 feet
 Map Date: December 2015



Site Schematic

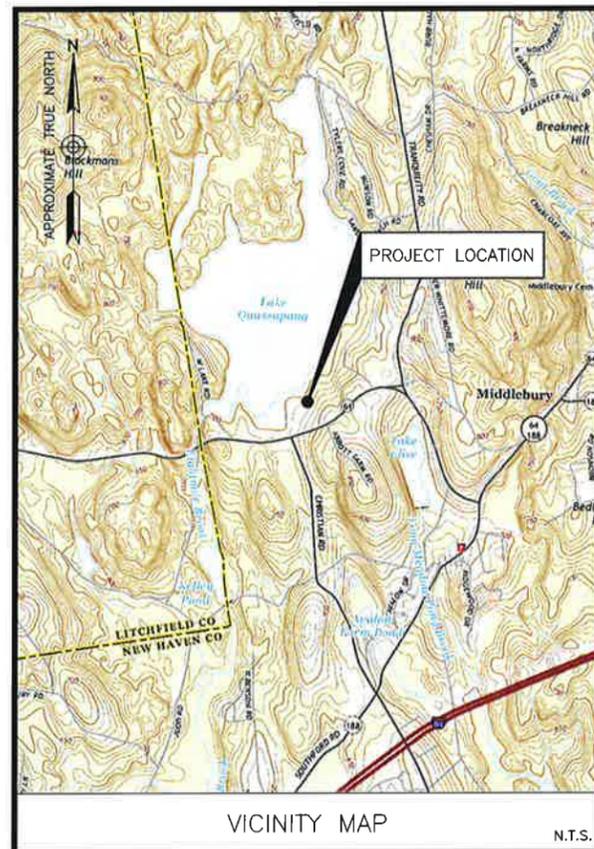
Proposed Small Cell Installation
 Middlebury Quassy SC CT
 2132 Middlebury Road
 Middlebury, Connecticut



ATTACHMENT 2

CELLCO PARTNERSHIP d/b/a **Verizon** WIRELESS

PROPOSED WIRELESS FACILITY SITE NAME: MIDDLEBURY QUASSY SC CT 2132 MIDDLEBURY ROAD MIDDLEBURY, CT 06762



DIRECTIONS FROM 99 EAST RIVER DRIVE, EAST HARTFORD, CT:

FOLLOW I-84 WEST AND TAKE EXIT 17 FOR CT-64 WEST/CHASE PKWY IN MIDDLEBURY. FOLLOW CT-64 WEST FOR APPROXIMATELY 3.4 MILES. TURN RIGHT TO STAY ON CT-64 WEST/MIDDLEBURY ROAD. FOLLOW MIDDLEBURY ROAD FOR APPROXIMATELY 1.2 MILES. DESTINATION WILL BE ON THE RIGHT.

SITE COORDINATES:
LATITUDE: 41° 31' 39.601"N
LONGITUDE: 73° 08' 57.518"W
(BASED ON 2-C CERTIFICATION)

ELEVATION DATA
GRADE ELEVATION AT BUILDING = 719.8'± A.M.S.L.
(BASED ON 2-C CERTIFICATION)

ELEVATION (TO TOP OF ANTENNA)
ELEVATION = 30.0'± A.G.L., 749.8'± A.M.S.L.

PROJECT INFORMATION

- THE SCOPE OF WORK SHALL INCLUDE:
1. THE INSTALLATION OF PROPOSED CELLCO PARTNERSHIP EQUIPMENT CABINETS LOCATED IN A FENCED COMPOUND AT GRADE.
 2. A TOTAL OF UP TO ONE (1) PROPOSED CELLCO PARTNERSHIP ANTENNA AND ASSOCIATED APPURTENANCES ARE TO BE MOUNTED TO BUILDING EXTERIOR ON A PIPE MAST WITH A TOP ELEVATION OF 26'± A.G.L.
 3. POWER AND TELCO UTILITIES SHALL BE ROUTED FROM EXISTING DEMARCS INSIDE BUILDING TO THE PROPOSED CELLCO PARTNERSHIP EQUIPMENT COMPOUND AT GRADE. ROUTING SHOWN HEREIN IS SHOWN AS CONCEPTUAL. FINAL UTILITY DEMARC LOCATIONS AND ROUTING WILL BE COORDINATED WITH THE BUILDING OWNER AND LOCAL UTILITY COMPANIES.
 4. THE PROPOSED WIRELESS FACILITY INSTALLATION WILL BE DESIGNED IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2013 CONNECTICUT SUPPLEMENT.
- SCOPE OF WORK

SITE NAME:
MIDDLEBURY QUASSY SC CT

SITE ADDRESS:
2132 MIDDLEBURY ROAD
MIDDLEBURY, CT 06762
NEW HAVEN COUNTY

PROPERTY OWNER:
LAKE QUASSAUG AMUSEMENT PARK INC
PO BOX 887
MIDDLEBURY, CT 06762-0887

APPLICANT:
CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS
99 EAST RIVER DRIVE
EAST HARTFORD, CT 06108

SITE ACQUISITION CONTACT:
STEPHEN SCHADLER
VITALSITE SERVICES, INC.
(508) 887-0357

LEGAL/REGULATORY CONTACT:
KENNETH C. BALDWIN, ESQ.
ROBINSON & COLE
(860) 275-8345

PROJECT INFORMATION

SHEET NUMBER	DESCRIPTION
T-1	TITLE SHEET
C-1	ABUTTERS MAP
C-2	SITE PLAN
C-3	SOUTHEAST ELEVATION
SHEET INDEX	

CELLCO PARTNERSHIP
d/b/a **Verizon** WIRELESS

MIDDLEBURY QUASSY SC CT

CSC DRAWINGS		
1	01/08/16	FINAL DRAWINGS
0	01/05/16	FINAL DRAWINGS
B	12/29/15	REVISED PER COMMENTS
A	12/15/15	FOR COMMENT

Dewberry
Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973 739 9400
FAX: 973 739 9710

JIANG YU, P.E.
CONNECTICUT LICENSE NO. 0023222

DRAWN BY: AL

REVIEWED BY: BH

CHECKED BY: GHN

PROJECT NUMBER: 50067815

JOB NUMBER: 50067830

SITE ADDRESS

2132 MIDDLEBURY ROAD
MIDDLEBURY, CT 06762

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

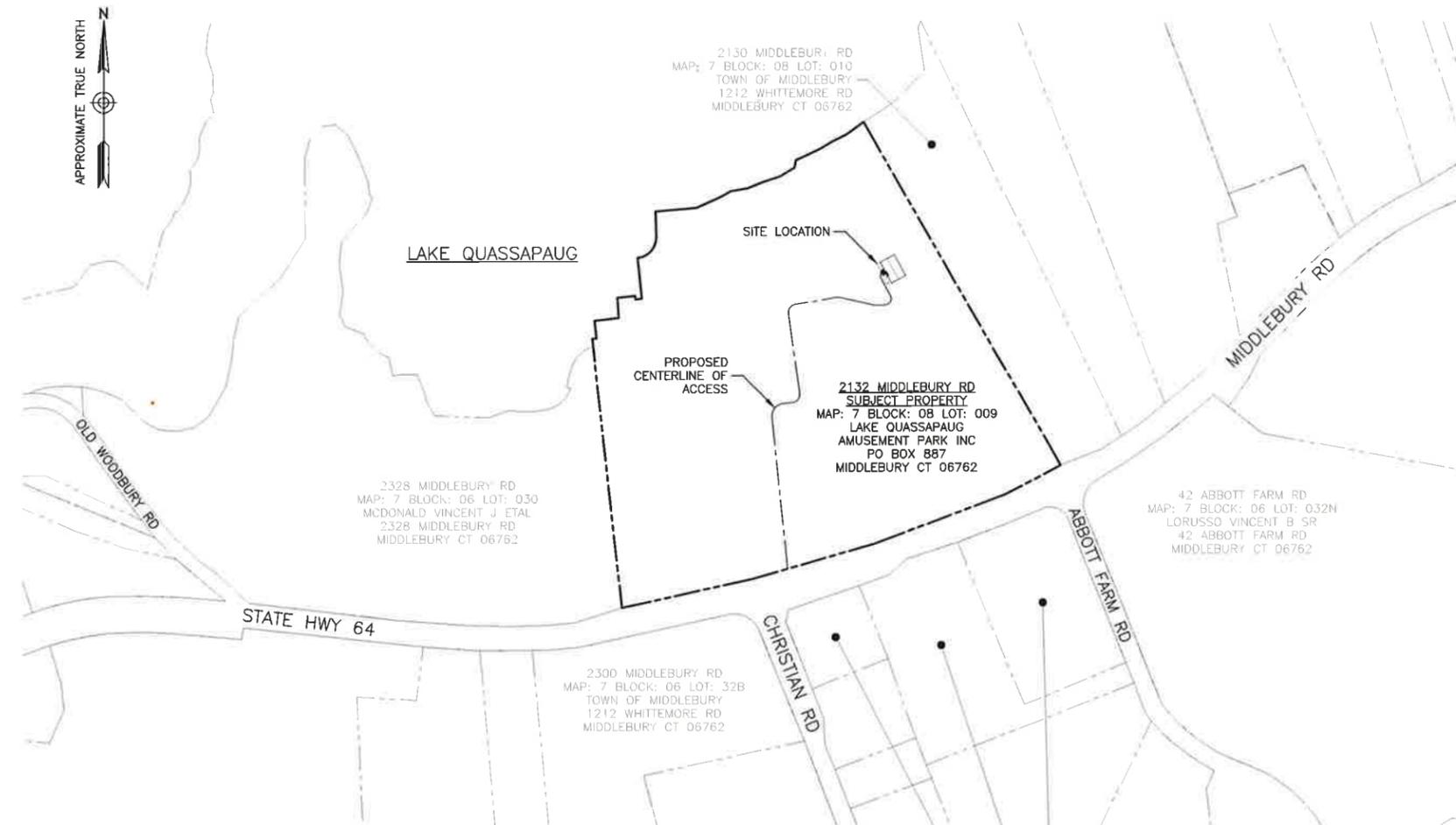


MUNICIPALITY NOTIFICATION LIMIT MAP

SCALE: 1"=2000' FOR 11"x17"
1"=1000' FOR 22"x34"



1



NOTE:

1. ABUTTERS MAP BASED ON INFORMATION OBTAINED FROM THE TOWN OF MIDDLEBURY PROPERTY MAPS & TAX ASSESSOR INFORMATION.

ABUTTERS MAP

SCALE: 1"=400' FOR 11"x17"
1"=200' FOR 22"x34"



2

CELLCO
PARTNERSHIP
d/b/a **verizon**
WIRELESS

**MIDDLEBURY
QUASSY SC CT**

CSC DRAWINGS		
1	01/08/16	FINAL DRAWINGS
0	01/05/16	FINAL DRAWINGS
B	12/29/15	REVISED PER COMMENTS
A	12/15/15	FOR COMMENT

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2132 MIDDLEBURY ROAD
MIDDLEBURY, CT 06762

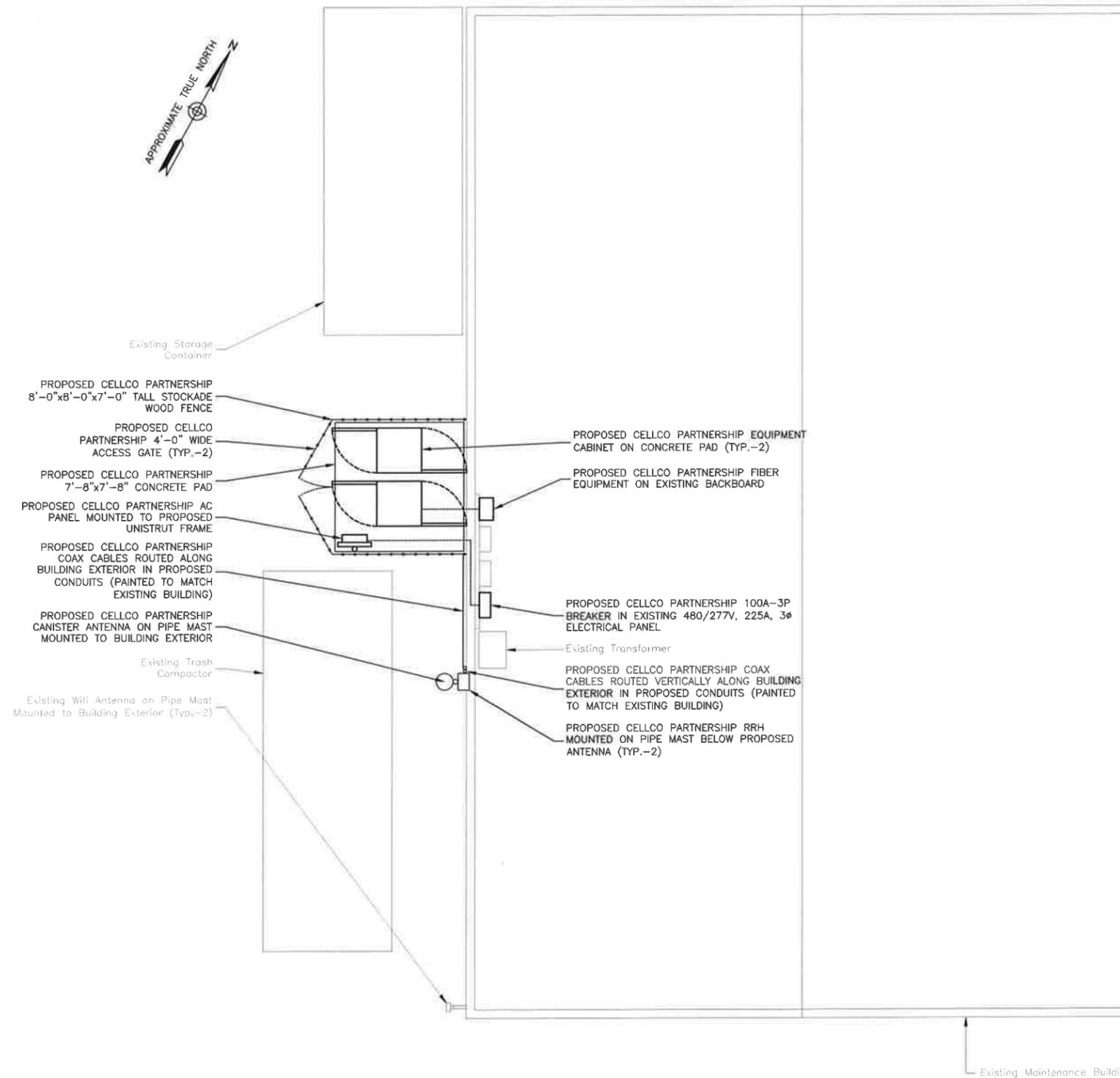
SHEET TITLE

ABUTTERS MAP

SHEET NUMBER

NOTES:

1. NORTH SHOWN AS APPROXIMATE.
2. SOME EXISTING AND PROPOSED INFORMATION NOT SHOWN FOR CLARITY.
3. THESE DRAWINGS ARE PROVIDED FOR SITING COUNCIL REVIEW. CONSTRUCTION LEVEL DRAWINGS WILL BE DEVELOPED SUBSEQUENT TO THE APPROVAL OF THESE DRAWINGS.
4. LOCATION & ORIENTATION OF ALL ANTENNAS, COAX & EQUIPMENT PENDING A STRUCTURAL ANALYSIS.
5. GPS ANTENNA WILL BE INTEGRATED WITH THE CANISTER ANTENNA.
6. GROUND WILL BE TO DRIVEN GROUND ROD OUTSIDE BUILDING AT GRADE.
7. SITE PLAN & ELEVATION BASED ON SITE VISIT BY DEWBERRY ENGINEERS INC. ON 02/20/15.



SITE PLAN 1

SCALE: 1/8"=1' FOR 11"x17"
1/4"=1' FOR 22"x34"

0' 2' 4' 8'

MIDDLEBURY QUASSY SC CT

CSC DRAWINGS

REV	DATE	DESCRIPTION
1	01/08/16	FINAL DRAWINGS
0	01/05/16	FINAL DRAWINGS
B	12/29/15	REVISED PER COMMENTS
A	12/15/15	FOR COMMENT

Dewberry
Dewberry Engineers Inc.
600 PARSIPPANY ROAD
SUITE 301
PARSIPPANY, NJ 07054
PHONE: 973.739.9400
FAX: 973.739.9710

JIANG YU, P.E.
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REVIEWED BY: BH

CHECKED BY: GHN

PROJECT NUMBER: 50067815

JOB NUMBER: 50067830

SITE ADDRESS

2132 MIDDLEBURY ROAD
MIDDLEBURY, CT 06762

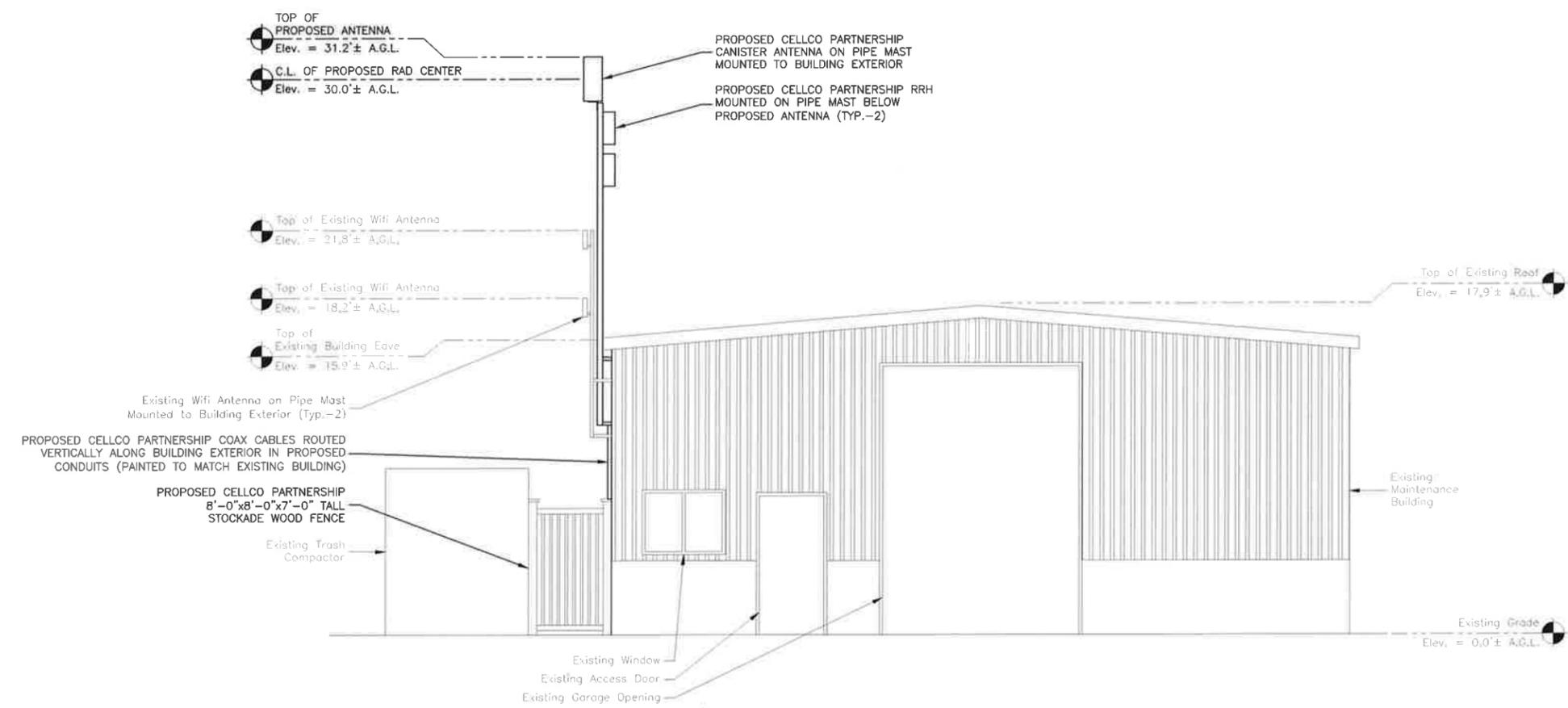
SHEET TITLE

SITE PLAN

SHEET NUMBER

NOTES:

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7. SITE PLAN & ELEVATION BASED ON SITE VISIT BY DEWBERRY ENGINEERS INC. ON 02/20/15.



SOUTHEAST ELEVATION ①
 SCALE: 1/8"=1' FOR 11"x17"
 1/4"=1' FOR 22"x34"
 0' 2' 4' 8'

CELLCO
 PARTNERSHIP
 d/b/a **verizon**
 WIRELESS

**MIDDLEBURY
 QUASSY SC CT**

CSC DRAWINGS		
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0	01/05/16	FINAL DRAWINGS
B	12/29/15	REVISED PER COMMENTS
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2132 MIDDLEBURY ROAD
 MIDDLEBURY, CT 06762

SHEET TITLE

SOUTHEAST ELEVATION

SHEET NUMBER

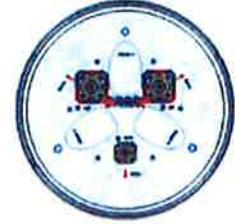
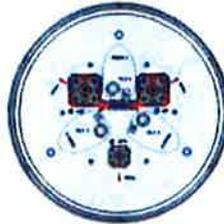
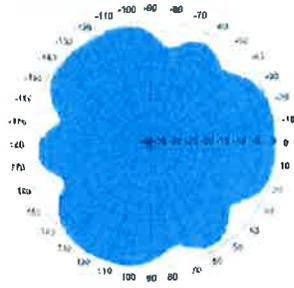
ATTACHMENT 3

Metro Cell Antennas with Internal Diplexer and GPS Antenna

Dualband Quasi-Omni (360°), Metro Cell Antenna

NH360QS-DG-F0M

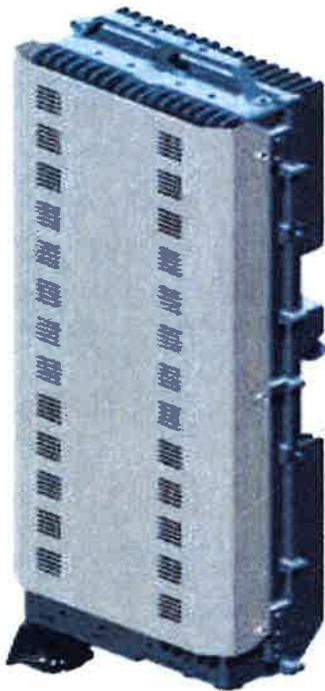
NH360QT-DG-F0



ELECTRICAL SPECIFICATIONS										
Operating Frequency Range	698 - 896 and 1710 - 2170 MHz					698 - 896 and 1710 - 2170 MHz				
	698 - 806	806 - 896	1710 - 1880	1850 - 1990	1920 - 2170	698 - 806	806 - 896	1710 - 1880	1850 - 1990	1920 - 2170
Frequency Bands, MHz	698 - 806	806 - 896	1710 - 1880	1850 - 1990	1920 - 2170	698 - 806	806 - 896	1710 - 1880	1850 - 1990	1920 - 2170
Polarization	±45°	±45°	±45°	±45°	±45°	±45°	±45°	±45°	±45°	±45°
Gain, dBi	4.3	5.3	8.0	8.1	8.5	1.3	2.3	4.0	4.2	4.5
Beamwidth, Horizontal, degrees	360	360	360	360	360	360	360	360	360	360
Beamwidth, Vertical, degrees	30.0	24.0	16.0	15.0	14.0	60.0	55.0	32.5	30.0	28.5
USLS, dB	12	12	14	13	13	-	-	14	12	11
Beam Tilt, degrees	0	0	0-16	0-16	0-16	0	0	0	0	0
Isolation, dB	25	25	25	25	25	25	25	25	25	25
VSWR (Return Loss, dB)	1.5 (14.0)	1.5 (14.0)	1.5 (14.0)	1.5 (14.0)	1.5 (14.0)	1.5 (14.0)	1.5 (14.0)	1.5 (14.0)	1.5 (14.0)	1.5 (14.0)
PIM, 3rd Order, 2 x 20 W, dBc	-1.50	-1.50	-1.50	-1.50	-1.50	-1.50	-1.50	-1.50	-1.50	-1.50
Input Power per Port, maximum, watts	250	250	250	250	250	250	250	250	250	250
MECHANICAL SPECIFICATIONS										
Connector Interface	7 - 16 DIN Female					7 - 16 DIN Female				
Connector Quantity, Location	2, Bottom					2, Bottom				
GPS Connector Interface	4.1/9.5 DIN Female					4.1/9.5 DIN Female				
GPS Connector Quantity, Location	1, Bottom					1, Bottom				
Length, mm (inch)	730 (28.7)					360 (14.2)				
Outer Diameter, mm (inch)	305 (12.0)					305 (12.0)				
Wind Speed, maximum, km/h (mph)	241.4 (150)					241.4 (150)				
Net Weight, kg (lb)	20.0 (44.1)					12.0 (26.5)				
AVAILABILITY										
Expected Ready Date for Manufacturing	March 2014					June 2014				

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 (O&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.

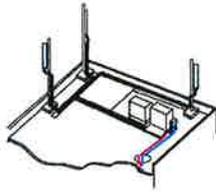
EASY INSTALLATION

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.

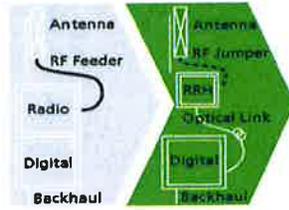
The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment. However, many of these sites can host an Alcatel-Lucent RRH2x60-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation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

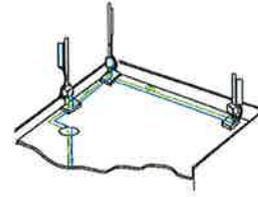
Installation can easily be done by a single person as the Alcatel-Lucent RRH2x60-AWS is compact and weighs about 20 kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day.



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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.....Alcatel-Lucent

AT THE SPEED OF IDEAS™



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.

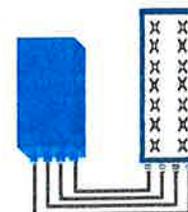
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

TECHNICAL SPECIFICATIONS

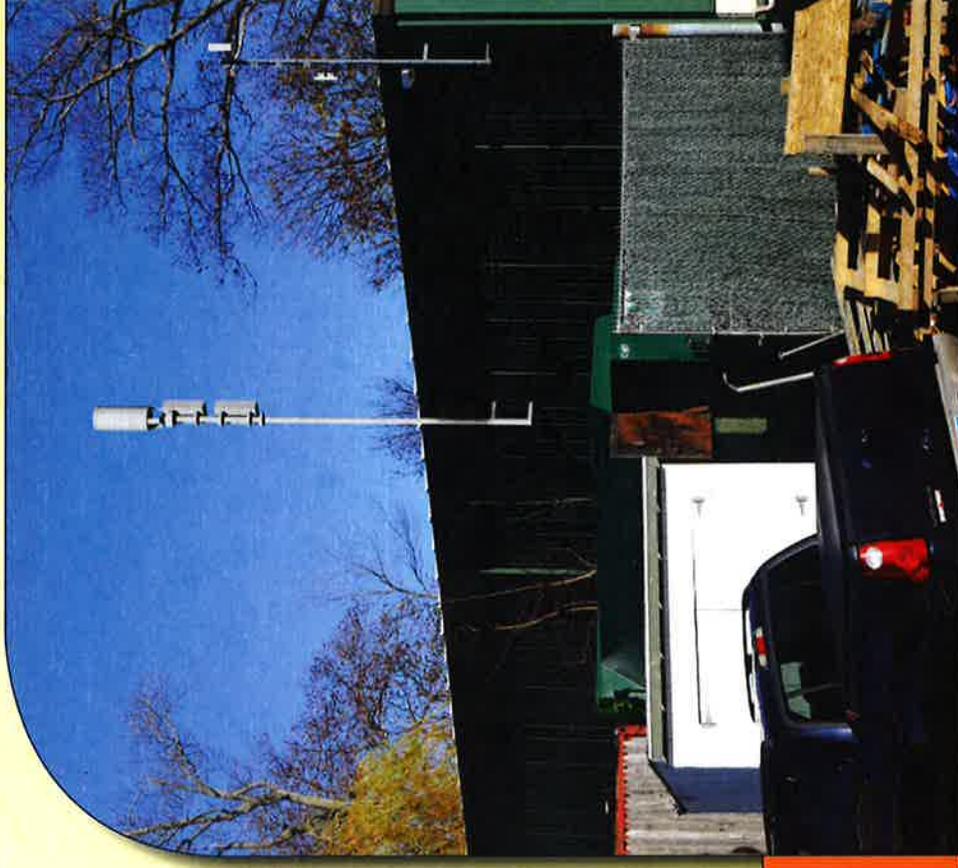
Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (in 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield)
Volume in L	38 (with solar shield)
Weight in kg (lb) (w/o mounting HW)	26 (57.2) (with solar shield)
DC voltage range	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	550W typical @100% RF load (in 2Tx or 4Tx mode)
Environmental conditions	-40°C (-40°F) / +55°C (+131°F)
Wind load (@150km/h or 93mph)	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

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ATTACHMENT 4

Visual Assessment and Photo-Simulations

MIDDLEBURY QUASSY SC CT
2132 MIDDLEBURY ROAD
MIDDLEBURY, CT 06762



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

Prepared for Verizon Wireless



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 2132 Middlebury Road in Middlebury, New Haven County, Connecticut (the "Property").

Project Setting

The 19.53-acre Property is located along the north side of Middlebury Road (Route 64) and is developed as Lake Quassapaug Amusement Park. The Property is improved with various buildings, facilities, and infrastructure that comprise the amusement park. The northern portion of the Property is comprised of a sandy beach along the southern shore of Lake Quassapaug.

The proposed Facility would include the installation of a single canister antenna and two (2) remote radio heads ("RRH") affixed to a pipe mast mounted on the west face of the park's maintenance building; the installation would extend approximately 12 feet above the existing roof to a total height of 30 feet above grade. Existing Wi-Fi antenna are similarly mounted to the building's southwest corner and rise to a height of 21.8 feet above grade. New ground equipment would be located at grade within an exterior, 8-foot by 8-foot, 7-foot tall vinyl fence-enclosed compound adjacent to a trash compactor.

Methodology

On November 20, 2015 APT personnel conducted a field reconnaissance to photo-document existing conditions. Three (3) nearby locations were selected to represent where the existing building is visible and depict proposed conditions with the proposed Facility 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

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

Photographic simulations were generated to portray scaled renderings of the proposed installation from representative locations where it would be visible. Using field data, site plan information, and 3D modeling software, the spatially referenced models of the project area, the existing structure and the proposed installation were generated and merged. The geographic coordinates obtained in the field for the photograph locations were incorporated into the model to produce virtual camera positions within the spatial 3D model. Photo simulations were then created using a combination of renderings generated in the 3D model and photo-rendering software programs, depicting the proposed installation 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.

Conclusions

The visibility of the proposed antenna installation would be limited to immediate areas surrounding the maintenance building and service area for the amusement park, as well as a few locations within the northeastern portion of the parking lot. The ground equipment enclosure would not be highly visible, if at all, due to its central location along the building face and intervening permanent equipment and vegetation from park vantage points. No views of the antenna would extend off the Property, including locations along the lake or out to Middlebury Road. Based on the results of this assessment, it is APT's opinion that the proposed installation of Verizon Wireless equipment at the Property would not be highly visible or have a significant impact on aesthetics in the area.

Limitations

This analysis does not claim to depict the only areas, or all locations, where visibility may occur; it is intended to provide a representation of those areas where the Facility is likely to be seen. The locations simulated were chosen in the field because they presented unobstructed view lines towards the existing structure and proposed installations, to the greatest extent feasible. They are however static in nature and do not necessarily fairly characterize the prevailing views from all locations within a given area. The simulations provide a representation of the proposed installation under similar settings as those encountered during the field reconnaissance. Views of the installation can change substantially throughout the seasons as well as the time of day, and are dependent on weather and other atmospheric conditions including but not necessarily limited to haze, fog, and clouds; the location, angle and intensity of the sun; light conditions, and the specific viewer location. Weather conditions on the day of the reconnaissance included mostly sunny skies and the photo-simulations presented in this report provide an accurate portrayal of the Facility during comparable conditions.

² When viewing in this format size, we believe it is important to provide the largest representational image while maintaining an accurate relation of sizes between objects within the frame of the photograph and depicting the subject in a way similar to what an observer might see, to the greatest extent possible.

ATTACHMENTS

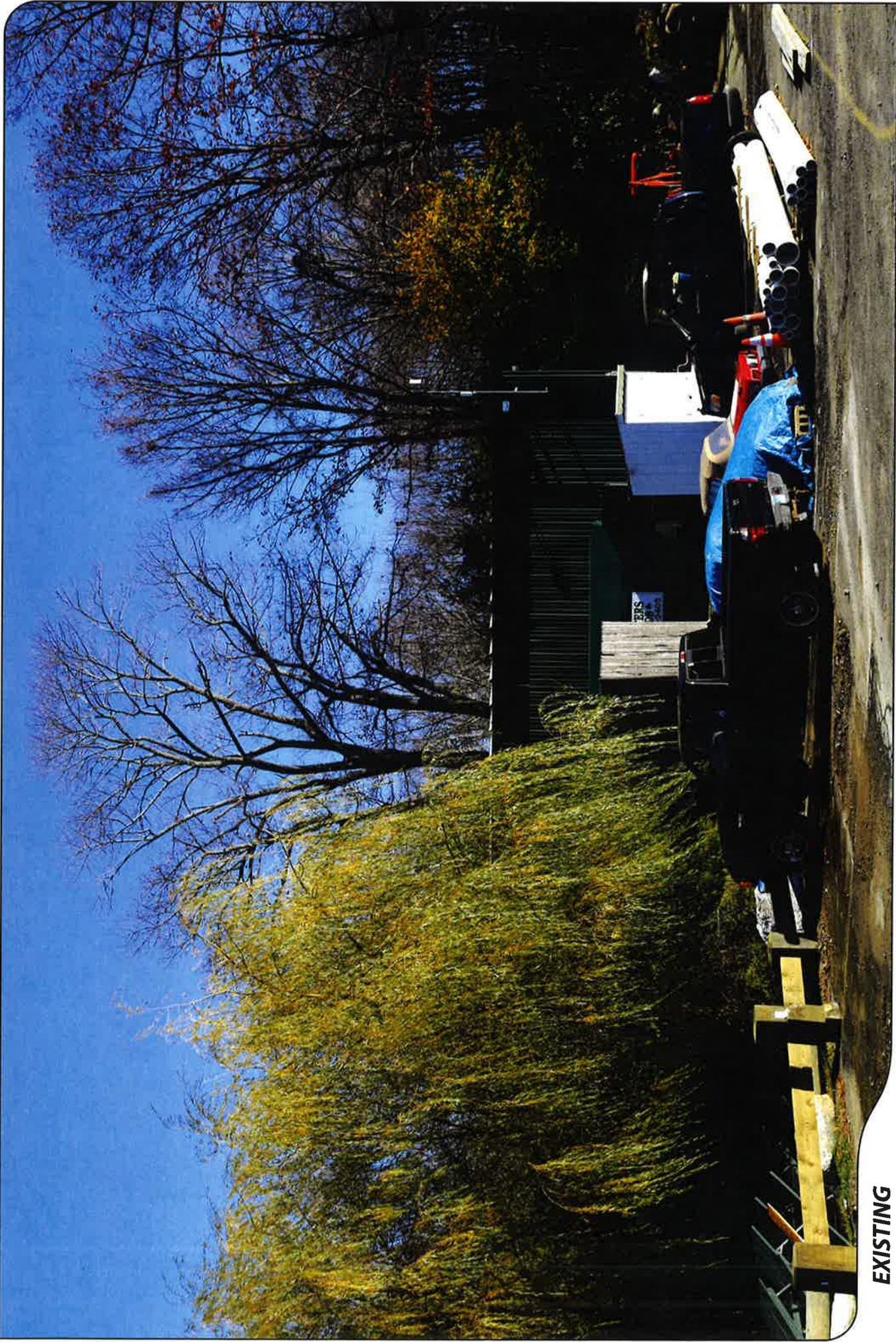


PHOTO LOG

Legend

- Site
- Photo Location

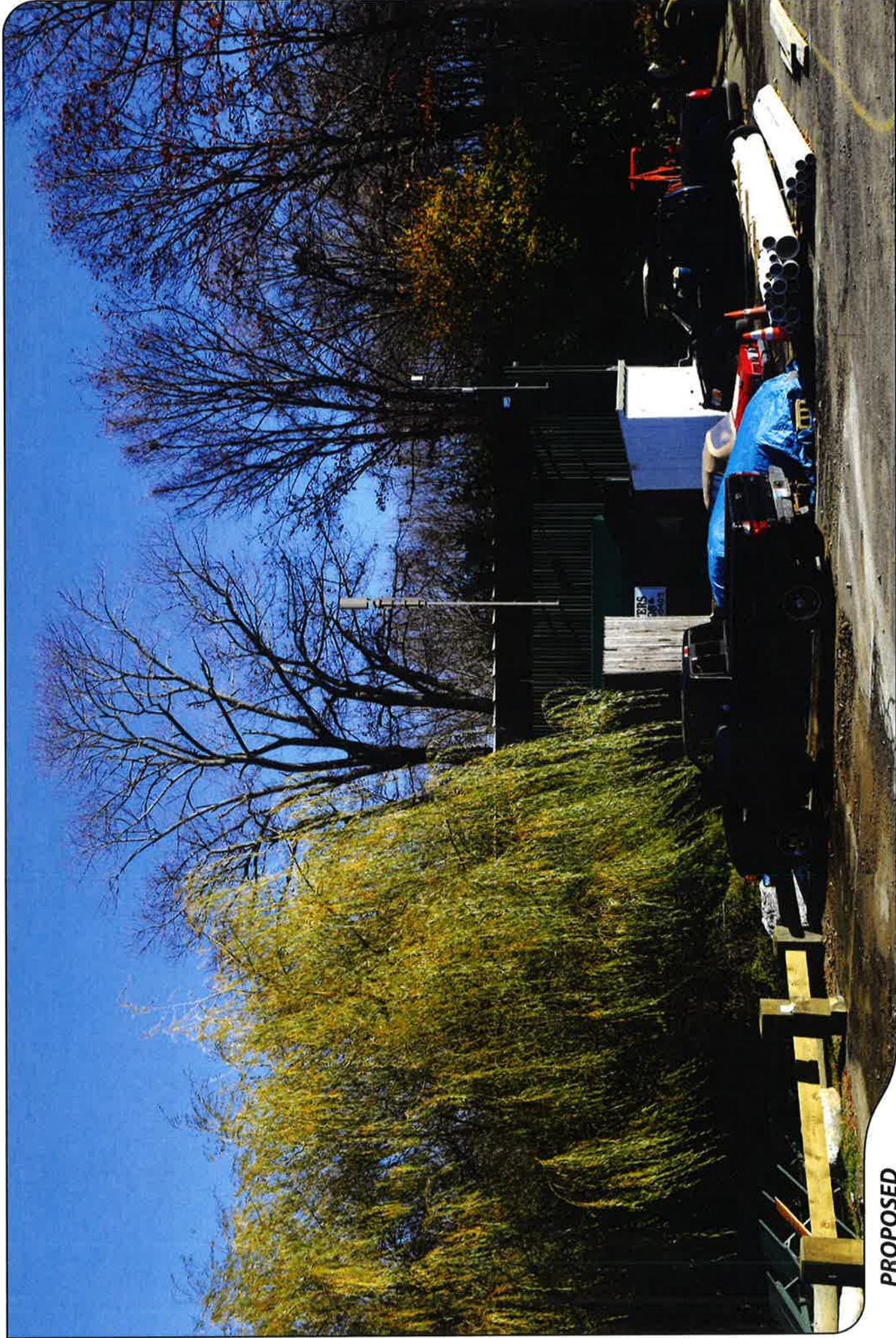




EXISTING

PHOTO 1	LOCATION HOST PROPERTY	ORIENTATION NORTHEAST	DISTANCE TO SITE +/- 140 FEET
------------	---------------------------	--------------------------	----------------------------------





PROPOSED

PHOTO

1

LOCATION

HOST PROPERTY

ORIENTATION

NORTHEAST

DISTANCE TO SITE

+/- 140 FEET



ALL-POINTS
TECHNOLOGY CORPORATION





EXISTING

PHOTO

2

LOCATION

HOST PROPERTY

ORIENTATION

NORTH

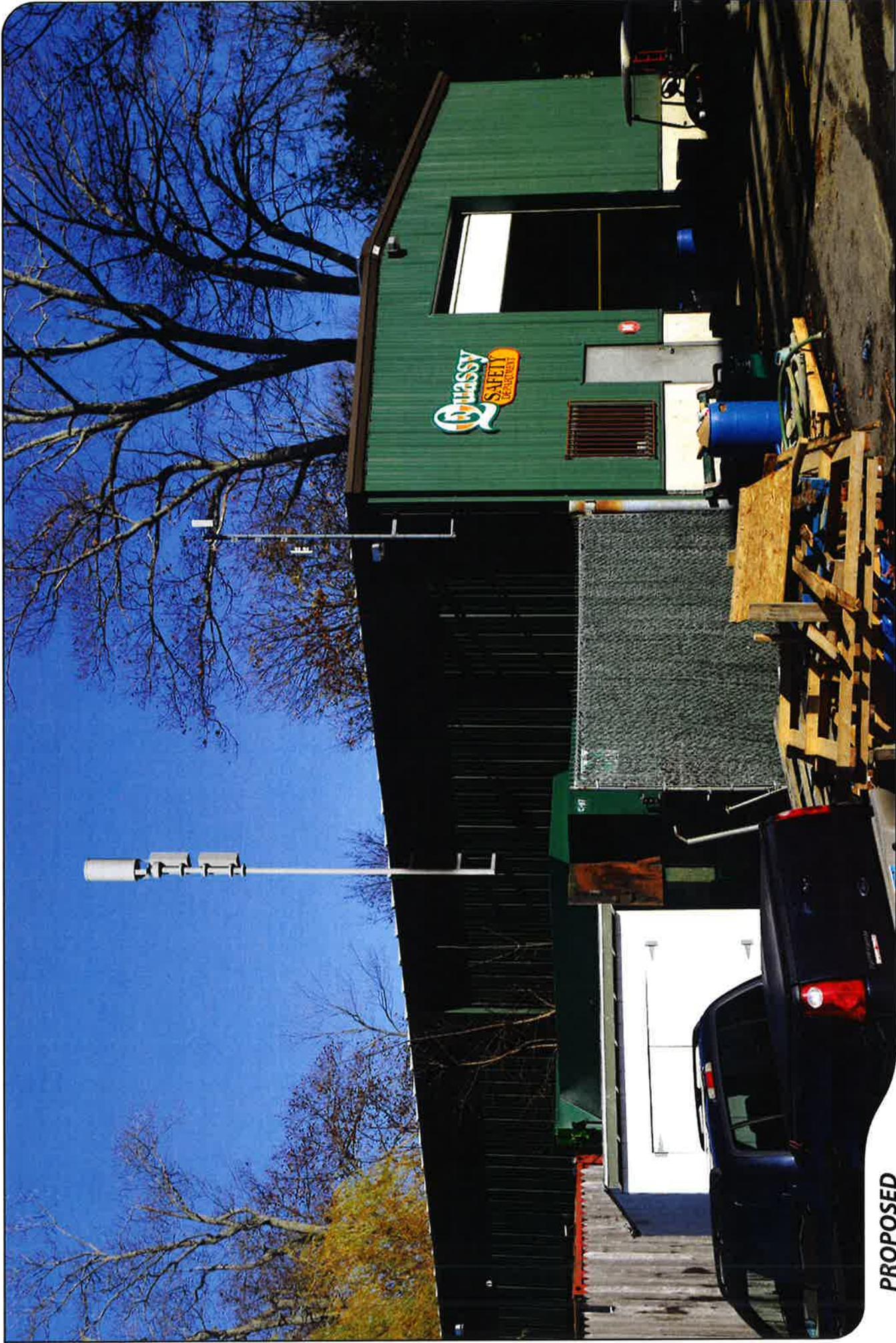
DISTANCE TO SITE

+/- 90 FEET



**ALL-POINTS
TECHNOLOGY CORPORATION**





PROPOSED

PHOTO

2

LOCATION

HOST PROPERTY

ORIENTATION

NORTH

DISTANCE TO SITE

+/- 90 FEET



ALL-POINTS
TECHNOLOGY CORPORATION

verizon



EXISTING

PHOTO

3

LOCATION

HOST PROPERTY

ORIENTATION

NORTHWEST

DISTANCE TO SITE

+/- 203 FEET



PROPOSED

PHOTO

3

LOCATION

HOST PROPERTY

DISTANCE TO SITE

+/- 203 FEET

ORIENTATION

NORTHWEST



ATTACHMENT 5

Site Name: **MIDDLEBURY QUASSY SC CT**
 Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm ²)	(mW/cm ²)	(%)
VZW 700	746	1	72	72	30	0.0289	0.4973	5.81%
VZW Cellular	869							
VZW PCS	1970							
VZW AWS	2145	1	32	276	30	0.1103	1.0000	11.03%
Total Percentage of Maximum Permissible Exposure								16.84%

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

MHz = Megahertz

mW/cm² = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used.

ATTACHMENT 6

* Federal Airways & Airspace *
* Summary Report: Alteration Of Existing Structure *
* Antenna Structure *

*

Airspace User: Not Identified

File: MIDDLEBURY_QUASSY_SC_CT

Location: Middlebury, CT

Latitude: 41°-31'-39.60" Longitude:

73°-8'-57.52"

SITE ELEVATION AMSL.....719.8 ft.

STRUCTURE HEIGHT.....31 ft.

OVERALL HEIGHT AMSL.....751 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 OXC
- FAR 77.9: NNR FAR 77.9 IFR Straight-In Notice Criteria for N41
- 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.

If the proposed construction is an alteration to an existing structure, notice requirements may be superceded by the item exemptions listed below.

The location and analysis were based upon an existing structure. However, no existing aeronautical study number was identified. If the 'existing' structure penetrates an obstruction surface defined by CFR 77.17, 77.19, 77.21 or 77.23 (see below) it is strongly recommended the FAA be notified of the 'existing' structure to determine obstruction marking or lighting

of requirements. It is not uncommon for the FAA to issue a Determination
to No Hazard (DNH) for an existing structure and modify the airspace
to accommodate the structure, should that be required. If the FAA
issues a DNH enter the aeronautical study number (ASN) in the space provided
on the Airspace Analysis Window Form and re-run Airspace.

No frequencies were identified in this alteration are included in
the FAA's Co-Location Policy published in the Federal Register November 15,
2007.

Therefore, application of the Co-Location Policy notice exemption
rule can not be applied.

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: OXC: WATERBURY-OXFORD

Type: A RD: 15510.14 RE: 724.8

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: N41: WATERBURY

Type: A RD: 46726.92 RE: 850

FAR 77.17(a)(1): DNE
FAR 77.17(a)(2): Does Not Apply.
VFR Horizontal Surface: DNE
VFR Conical Surface: DNE
VFR Approach Slope: DNE
VFR Transitional Slope: DNE

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 1500 ft AMSL

PRIVATE LANDING FACILITIES

ARP FAA	FACIL	BEARING	RANGE	DELTA
ELEVATION IFR	IDENT TYP NAME	To FACIL	IN NM	
+220	CT25 HEL MIRY DAM No Impact to Private Landing Facility Structure is beyond notice limit by 8003 feet.	33.99	2.14	+22
+220	5CT1 HEL RONDO No Impact to Private Landing Facility Structure is beyond notice limit by 26474 feet.	102.96	5.18	
+450	1CT3 HEL ST MARY'S No Impact to Private Landing Facility Structure is beyond notice limit by 26960 feet.	74.09	5.26	
	CT59 AIR GOOD HILL FARM No Impact to VFR Transitional Surface. Below surface height of 427 ft above ARP.	287.03	5.27	-201

AIR NAVIGATION ELECTRONIC FACILITIES

GRND	FAC	ST	DIST	DELTA				
ANGLE	APCH	AT	FREQ	ELEVA				
BEAR	IDNT	TYPE	VECTOR	ST				
			(ft)	LOCATION				
	OXC	LOCALIZER	I	109.5	167.16	14865	+33	CT RWY 36
WATERBURY-	.13	5						
0.00	OXC	ATCT	Y	A/G	170.42	17655	-1	CT OXFORD ATCT
.19	JWE	NDB	I	36	169.21	53899	+180	CT CLERA
.35	HVN	VOR/DME	R	109.8	143.23	120837	+745	CT NEW HAVEN
.32	BDR	VOR/DME	R	108.8	177.09	133895	+742	CT BRIDGEPORT
.21	MAD	VOR/DME	R	110.4	122.01	147620	+531	CT MADISON
.02	CMK	VOR/DME	I	116.6	232.58	148944	+57	NY CARMEL
-.19	PWL	VOR/DME	I	114.3	305.73	151625	-499	NY PAWLING
-.03	HFD	VOR/DME	R	114.9	75.71	169777	-98	CT HARTFORD

.05	IGN	VOR/DME	R	117.6	285.48	190789	+169	NY	KINGSTON
.15	BDL	RADAR	ON		40.25	196608	+515	CT	BRADLEY INTL
COUNT	HPN	RADAR	ON	2735.	222.99	227304	+241	NY	WESTCHESTER
				.06					

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: WFNW @ 8144 meters.

Airspace® Summary Version 15.11.404

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12-18-2015
08:30:35

ATTACHMENT 7

January 8, 2016

Via Certificate of Mailing

Edward B. St. John, First Selectman
Middlebury Town Hall
1212 Whittamore Road
Middlebury, CT 06762

Re: Proposed Installation of a Building-Mounted Wireless Telecommunications Facility at Quassy Amusement Park, 2132 Middlebury Road, Middlebury, Connecticut

Dear Mr. St. John:

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 at Quassy Amusement Park, 2132 Middlebury Road in Middlebury (the “Property”). The facility will consist of a small tower attached to an existing maintenance building in the northeasterly portion of the Property. The tower would support a single canister antenna and two (2) remote radio heads (RRHs). The tower and antenna would extend approximately 14.3 feet above the peak of the building roof, 31.2 feet above ground level. Equipment associated with the facility will be located on an 8-foot x 8-foot concrete pad on the ground next to the building. Cellco’s equipment will be surrounded by a stockade fence for screening.

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.

14421322-v1

Robinson+Cole

Edward B. St. John
January 8, 2016
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 a light blue horizontal line.

Kenneth C. Baldwin

Attachment

January 8, 2016

Via Certificate of Mailing

Quassy Amusement Park Inc.
P.O. Box 887
Middlebury, CT 06762

Re: **Proposed Installation of a Building-Mounted Wireless Telecommunications Facility at Quassy Amusement Park, 2132 Middlebury Road, Middlebury, Connecticut**

Dear Sir or Madam:

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 at Quassy Amusement Park, 2132 Middlebury Road in Middlebury (the “Property”). The facility will consist of a small tower attached to an existing maintenance building in the northeasterly portion of the Property. The tower would support a single canister antenna and two (2) remote radio heads (RRHs). The tower and antenna would extend approximately 14.3 feet above the peak of the building roof, 31.2 feet above ground level. Equipment associated with the facility will be located on an 8-foot x 8-foot concrete pad on the ground next to the building. Cellco’s equipment will be surrounded by a stockade fence for screening.

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.

14421335-v1

Robinson + Cole

Quassy Amusement Park Inc.
January 8, 2016
Page 2

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

Sincerely,



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

January 8, 2016

Via Certificate of Mailing

«Name_and_Address»

Re: Proposed Installation of a Building-Mounted Wireless Telecommunications Facility at Quassy Amusement Park, 2132 Middlebury Road, Middlebury, 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 at Quassy Amusement Park, 2132 Middlebury Road in Middlebury (the “Property”). The facility will consist of a small tower attached to an existing maintenance building in the northeasterly portion of the Property. The tower would support a single canister antenna and two (2) remote radio heads (RRHs). The tower and antenna would extend approximately 14.3 feet above the peak of the building roof, 31.2 feet above ground level. Equipment associated with the facility will be located on an 8-foot x 8-foot concrete pad on the ground next to the building. Cellco’s equipment will be surrounded by a stockade fence for screening. A copy of Cellco’s 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.

January 8, 2016
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

ABUTTING PROPERTY OWNERS

**2132 MIDDLEBURY ROAD
MIDDLEBURY, CONNECTICUT**

	Property Address	Owner's and Mailing Address
1.	2130 Middlebury Road	Town of Middlebury 1212 Whittemore Road Middlebury, CT 06762
2.	2328 Middlebury Road	Vincent J. McDonald, Et Al. 2328 Middlebury Road Middlebury, CT 06762
3.	42 Abbott Farm Road	Vincent B. Lorusso, Sr. 42 Abbott Farm Road Middlebury, CT 06762
4.	11 Abbott Farm Road	Donna M. Mychaskiw and Donna M. Cipriano 11 Abbott Farm Road Middlebury, CT 06762
5.	19 Abbott Farm Road	David N. and Linda H. Shapiro 19 Abbott Farm Road Middlebury, CT 06762
6.	20 Christian Road	Matthew Cusak 20 Christian Road Middlebury, CT 06762
7.	2300 Middlebury Road	Town of Middlebury 1212 Whittemore Road Middlebury, CT 06762