

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 1663 SOUTH MAIN STREET,	:	
WATERBURY, CONNECTICUT	:	NOVEMBER 3, 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 industrial building at 1663 South Main Street in Waterbury, Connecticut (the “Property”). The Property is owned by 1663 South Main LLC. Cellco has designated this site as its “Waterbury SC5 Facility”.

II. Factual Background

The Property is a 0.56- acre parcel in Waterbury’s General Commercial (GC) zone. The Property is surrounded by commercial and industrial uses to the east, north and south along South Main Street and residential uses to the east along Althea Street and Middle Street. *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 Waterbury and throughout the State of Connecticut. Initially, the proposed Waterbury SC5 Facility described above will provide wireless service in Cellco’s 2100 MHz frequency range only. The Waterbury SC5 Facility will provide coverage to existing gaps in 2100 MHz service and capacity relief to Cellco’s network in the central Waterbury area.

III. Proposed Waterbury SC5 Facility

The proposed Waterbury SC5 Facility would consist of a small tower attached to the roof of the existing building. The tower will support two (2) panel antennas (Model SBNHH-1D65A), and two (2) remote radio heads (“RRHs”) (Model RRH2x60-AWS). The tower, antennas and RRHs will be concealed inside a faux chimney screening structure. The faux chimney will extend to a height of approximately 10 feet above the roof, approximately 60’-6” above ground level at the northerly end of the building. Equipment associated with the Waterbury SC5 Facility will be located inside the building. A small A/C condenser unit and GPS antenna will also be located on the roof. Power and telephone service to the Waterbury SC5 Facility will extend from existing service inside the building. (See Cellco’s Project Plans included in Attachment 2). Specifications for the Waterbury SC5 Facility antennas 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 concealed tower on the roof of the building supporting two (2) panel antennas and two (2) RRHs and the placement of associated radio equipment inside 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, antennas and RRHs on the roof of the existing commercial building at the Property concealed inside a faux chimney 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 nearby locations surrounding the Property 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 General Power Density table, which demonstrates that Cellco’s Waterbury SC5 Facility will operate well within the FCC safety standard (33.56 % of the Standard).

4. FAA Summary Report

Included in Attachment 6 is a Federal Airways & Airspace Summary Report (the “FAA Report”) verifying that the faux chimney and antennas inside 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 November 3, 2015, a copy of this Petition was sent to Waterbury’s Mayor Neil M. O’Leary and to 1663 South Main LLC, the Property owner. Copies of the letters sent to Mayor O’Leary 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 an approximately ten (10) foot tall faux chimney structure on the roof of the building, concealing a small tower, panel antennas and RRHs 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.

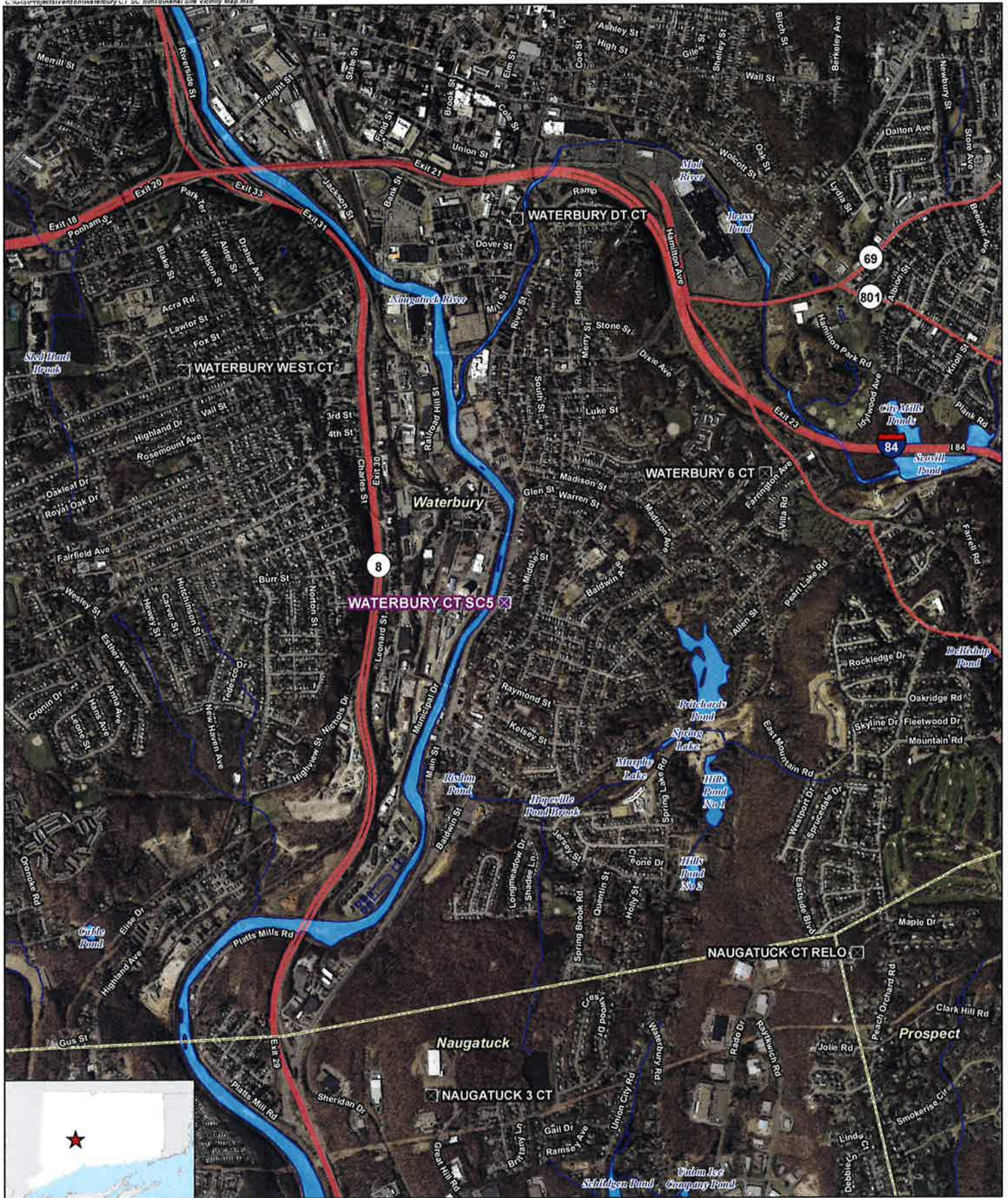
Respectfully submitted,

CELLCO PARTNERSHIP d/b/a VERIZON  
WIRELESS

By  \_\_\_\_\_

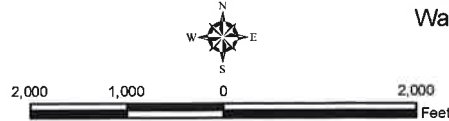
Kenneth C. Baldwin, Esq.  
Robinson & Cole LLP  
280 Trumbull Street  
Hartford, CT 06103-3597  
(860) 275-8200  
Its Attorneys

# **ATTACHMENT 1**



- Legend**
- ✳ Proposed Verizon Wireless Facility
  - Surrounding Verizon Wireless Facilities
  - Municipal Boundary
  - ~ Watercourse (CTDEEP)
  - ☪ Waterbody (CTDEEP)

Base Map Source: 2012 Aerial Photograph (CTECO)  
 Map Scale: 1 inch = 2,000 feet  
 Map Date: September 2015



**Site Vicinity Map**

Proposed Small Cell Facility  
 Waterbury CT SC5  
 1663 South Main Street  
 Waterbury, Connecticut



Proposed Small Cell Antenna Mounted Inside Faux Chimney on Atop Roof

Proposed Equipment Room

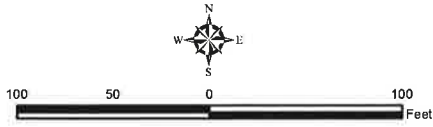
Proposed Stairs to Equipment Room

- Legend**
- Proposed Equipment
  - Approximate Subject Property
  - Approximate Parcel Boundary (CTDEEP GIS)

**Site Schematic**

Proposed Small Cell Facility  
 Waterbury CT SC5  
 1663 South Main Street  
 Waterbury, Connecticut

Map Notes:  
 Base Map Source: CTECO 2012 Aerial Photograph  
 Map Scale: 1 in = 100 ft  
 Map Date: October 2015





# **ATTACHMENT 2**

# CELLCO PARTNERSHIP

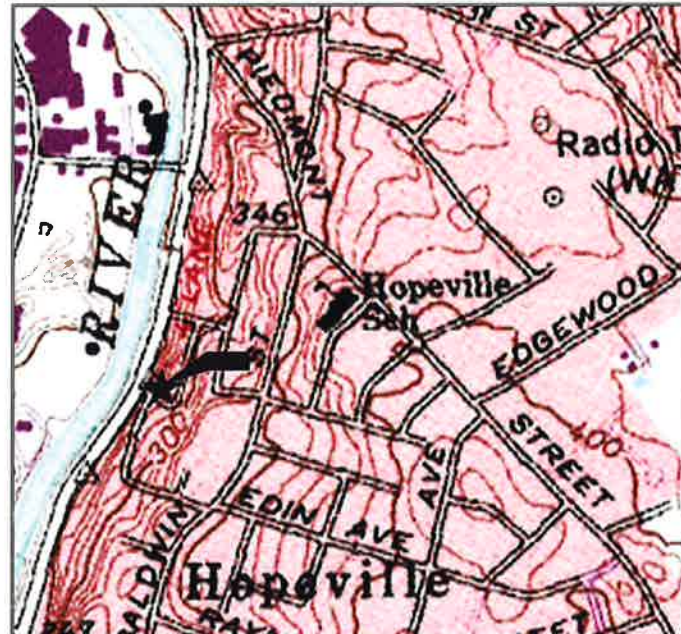


d.b.a. **verizon**wireless

WIRELESS COMMUNICATIONS FACILITY

# WATERBURY CT SC5

1663 SOUTH MAIN STREET  
WATERBURY, CT 06706



VICINITY MAP SCALE: 1"=500'

DIRECTIONS TO SITE: FROM 99 EAST RIVE DRIVE

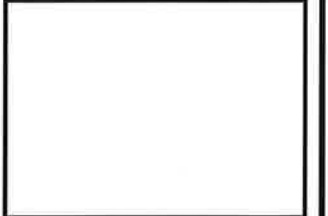
GET ONTO I-84 W  
TAKE EXIT 23 FOR CT-69/HAMILTON AVE.  
TURN RIGHT ONTO CT-69 N/HAMILTON AVE.  
TURN LEFT ONTO WASHINGTON ST.  
TURN LEFT ONTO BALDWIN ST.  
TURN RIGHT ONTO GLEN ST.  
TURN LEFT ONTO S. MAIN ST.  
TURN LEFT ONTO THOMAS ST.  
DESTINATION ON LEFT.

CONSULTANT TEAM	
<b>PROJECT ENGINEER</b>	
HUDSON DESIGN GROUP, LLC 1600 OSGOOD STREET BUILDING 20 NORTH, SUITE 3090 NORTH ANDOVER, MA 01845 TEL: 1-(978)-557-5553 FAX: 1-(978)-336-5586	
<b>MEP ENGINEER</b>	
HUDSON DESIGN GROUP, LLC 1600 OSGOOD STREET BUILDING 20 NORTH, SUITE 3090 NORTH ANDOVER, MA 01845 TEL: 1-(978)-557-5553 FAX: 1-(978)-336-5586	

PROJECT SUMMARY	
<b>SITE NAME:</b>	WATERBURY CT SC5
<b>SITE ADDRESS:</b>	1663 SOUTH MAIN STREET WATERBURY, CT. 06706
<b>PROPERTY OWNER:</b>	1663 SOUTH MAIN LLC 3 BROOKSIDE DR MIDDLEBURY, CT 06762
<b>APPLICANT:</b>	CELLCO PARTNERSHIP d/b/a VERIZON WIRELESS 99 EAST RIVER DRIVE EAST HARTFORD, CT 06108
<b>SITE ACQUISITION CONTACT:</b>	HOLLIS REDDING STRUCTURE CONSULTING GROUP (806) 966-0989
<b>LEGAL/REGULATORY COUNSEL:</b>	KENNETH C. BALDWIN ESQ. ROBINSON + COLE LLP (860)275-8345
<b>LATITUDE:</b>	N41° 32' 0.40"
<b>LONGITUDE:</b>	W73° 02' 11.84"

SCOPE OF WORK INFO.	
VERIZON WIRELESS IS PROPOSING TO INSTALL THE FOLLOWING IMPROVEMENTS TO THE EXISTING TELECOMMUNICATION SITE:	
<ul style="list-style-type: none"> <li>NEW PANEL ANTENNAS: (1) ANTENNA PER SECTOR WITH (2) SECTORS, FOR A TOTAL OF (2) ANTENNAS.</li> <li>NEW RRHs: (1) RRHs PER SECTOR WITH (2) SECTORS, FOR A TOTAL OF (2) RRHs</li> </ul> ITEMS LISTED ABOVE TO BE MOUNTED ON PROPOSED BALLAST FRAME ON ROOFTOP.	
<ul style="list-style-type: none"> <li>NEW 4 HOUR BATTERY.</li> <li>NEW VERIZON SMALL CELL CABINET</li> <li>NEW ELECTRICAL PANEL</li> </ul> ITEMS LISTED ABOVE TO BE INSTALLED WITHIN PROPOSED 8'x11'-6" EQUIPMENT ROOM INSIDE EXISTING BUILDING.	

SHEET INDEX	
SHT. NO.	DESCRIPTION
T-1	TITLE SHEET
C-1	ABUTTERS PLAN
A-1	ROOF AND EQUIPMENT ROOM PLANS
A-2	ELEVATION



*Daniel P. Hamm*

CHECKED BY: DJR

APPROVED BY: DPH

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
1	06/01/15	ISSUED FOR REVIEW	GC
0	07/06/15	ISSUED FOR REVIEW	KMS

SITE NAME:  
**WATERBURY CT SC5**

SITE ADDRESS:  
1663 SOUTH MAIN STREET  
WATERBURY, CT 06706

SHEET TITLE  
**TITLE SHEET**

SHEET NUMBER  
**T-1**

PARCEL ID:  
0438-0322-0008  
N/F  
YANKEE GAS SERVICE CO.  
47 EAGLE ST.  
WATERBURY, CT. 06706

PARCEL ID:  
0461-0326-0015  
N/F  
PRIMO ENTERPRISES LLC  
1657 SOUTH MAIN ST.  
WATERBURY, CT. 06706

PARCEL ID:  
0482-0325-0172  
N/F  
RICCIO HELEN MAY  
STANLEY  
7 ALTHENA ST.  
WATERBURY, CT. 06706

PARCEL ID:  
0461-0325-0171  
N/F  
MCCUSKER, FRANCIS T.  
8 ALTHENA ST.  
WATERBURY, CT. 06706

PARCEL ID:  
0461-0325-0017  
N/F  
BRIGHTMAN, JAYNE &  
DARIC RIGON (TC)  
9 ALTHENA ST.  
WATERBURY, CT. 06706

PARCEL ID:  
0482-0325-0281  
N/F  
BRIGHTMAN, JAYNE &  
DARIC RIGON (TC)  
9 ALTHENA ST.  
WATERBURY, CT. 06706

PARCEL ID:  
0482-0325-0228  
N/F  
BRIGHTMAN, JAYNE &  
DARIC RIGON (TC)  
9 ALTHENA ST.  
WATERBURY, CT. 06706

PARCEL ID:  
0482-0325-0282  
N/F  
BRIGHTMAN, JAYNE &  
DARIC RIGON (TC)  
9 ALTHENA ST.  
WATERBURY, CT. 06706

PARCEL ID:  
0482-0326-0027  
N/F  
GFS FIRST ASSET LC  
17 THOMAS ST.  
WATERBURY, CT. 06706

PROPOSED ANTENNAS  
WITHIN FAUX  
CHIMNEY FLUE  
ON ROOF

N/F  
1663 SOUTH MAIN LLC  
3 BROOKSIDE DR  
MIDDLEBURY, CT 06762  
PARCEL ID: 0461-0326-0016  
AREA= .56 ± ACRES

**SOURCE:**

TOWN OF WATERBURY, CT. ASSESSORS MAP AND GIS ONLINE MAPS

**SITE SPECIFIC NOTES:**

1. PROPERTY LINE INFORMATION IS COMPILED FROM ASSESSORS PLAN AND RECORD DOCUMENTS AND IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD BOUNDARY SURVEY, AND IS SUBJECT TO CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. A FULL BOUNDARY SURVEY WAS NOT PERFORMED.
2. VERIFY AZIMUTHS W/ RF ENGINEER.

**LEGEND:**

- PROPERTY LINE-SUBJECT PARCEL
- PROPERTY LINE - ABUTTERS
- - - ZONING BOUNDARY LINE
- ▨ EXISTING BUILDING

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.



1600 OSGOOD STREET  
BUILDING 20 NORTH, SUITE 3090 TEL: (978) 557-5553  
N. ANDOVER, MA 01845 FAX: (978) 336-5586



CHECKED BY: DJR

APPROVED BY: DPH

**SUBMITTALS**

REV.	DATE	DESCRIPTION	BY
1	08/01/15	ISSUED FOR REVIEW	GC
0	07/06/15	ISSUED FOR REVIEW	KMS

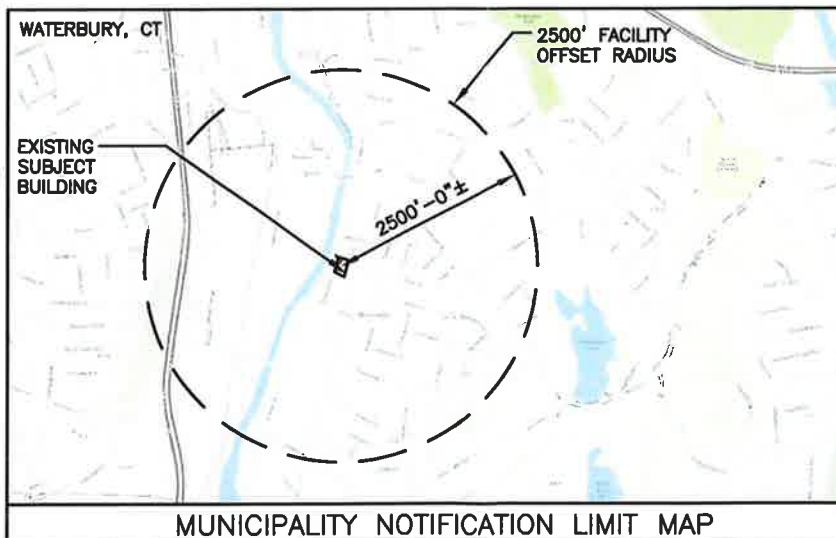
SITE NAME:  
WATERBURY CT SC5

SITE ADDRESS:  
1663 SOUTH MAIN STREET  
WATERBURY, CT 06706

SHEET TITLE  
ABUTTERS PLAN

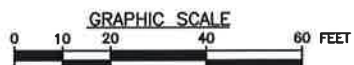
SHEET NUMBER

C-1



**ABUTTERS PLAN**  
22x34 SCALE: 1"=20'-0"  
11x17 SCALE: 1"=40'-0"

1  
C-1



SOUTH MAIN STREET

THOMAS STREET

ALTHENA STREET



CHECKED BY: DJR  
 APPROVED BY: DPH

SUBMITTALS

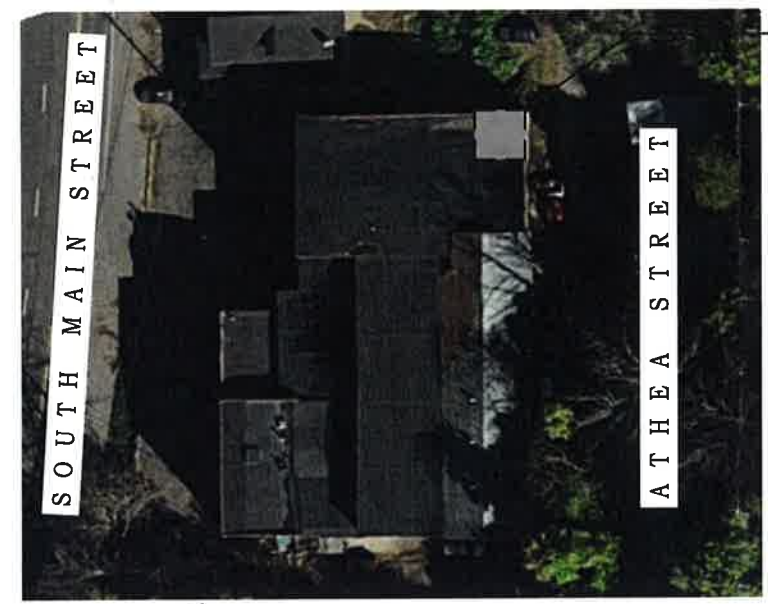
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0	07/06/15	ISSUED FOR REVIEW	KMS

SITE NAME:  
**WATERBURY CT SC5**

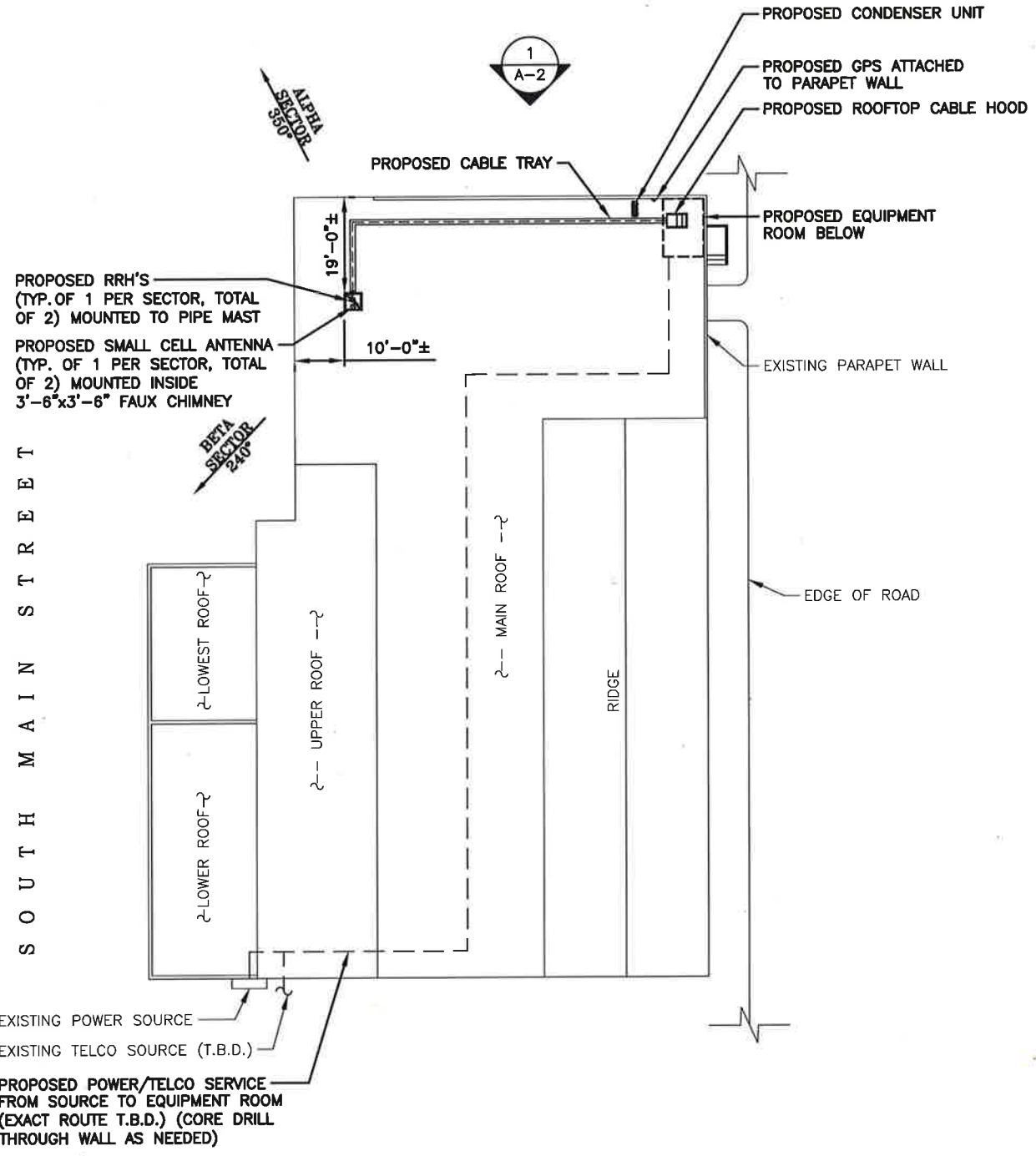
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 1663 SOUTH MAIN STREET  
 WATERBURY, CT 06706

SHEET TITLE  
**ROOF AND EQUIPMENT ROOM PLANS**

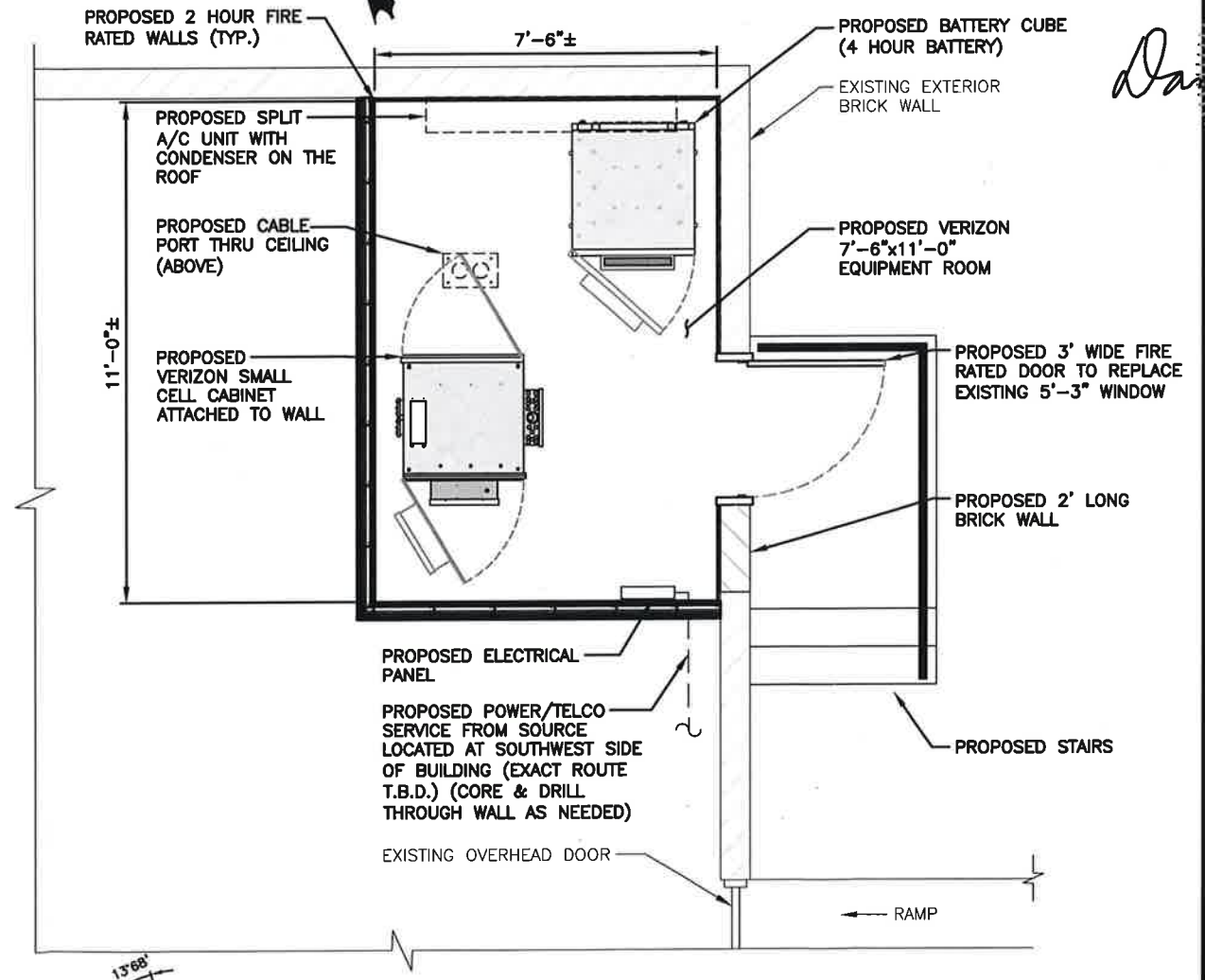
SHEET NUMBER  
**A-1**



**LOCUS MAP**  
 SCALE: N.T.S.



**ROOF PLAN**  
 22x34 SCALE: 1/16"=1'-0"  
 11x17 SCALE: 1/32"=1'-0"  
 GRAPHIC SCALE  
 0 8 16 32 48 FEET



**EQUIPMENT ROOM PLAN**  
 22x34 SCALE: 1/2"=1'-0"  
 11x17 SCALE: 1/4"=1'-0"  
 GRAPHIC SCALE  
 0 1 2 4 6 FEET

**NOTE:**  
 AN ANALYSIS OF THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THE PROPOSED LOADING HAS NOT BEEN COMPLETED BY HUDSON DESIGN GROUP, LLC. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF A STRUCTURAL ANALYSIS.

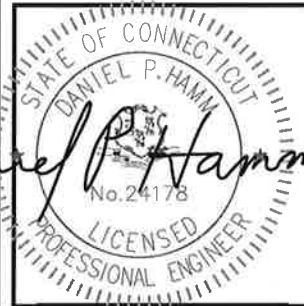
APPROXIMATE COORDINATES: LAT: N41° 32' 0.40" LON: W73° 02' 11.84"



**Hudson**  
Design Group LLC

1600 OSGOOD STREET  
BUILDING 20 NORTH SUITE 3090  
N. ANDOVER, MA 01845

TEL: (978) 557-5553  
FAX: (978) 336-5586



CHECKED BY: DJR

APPROVED BY: DPH

**SUBMITTALS**

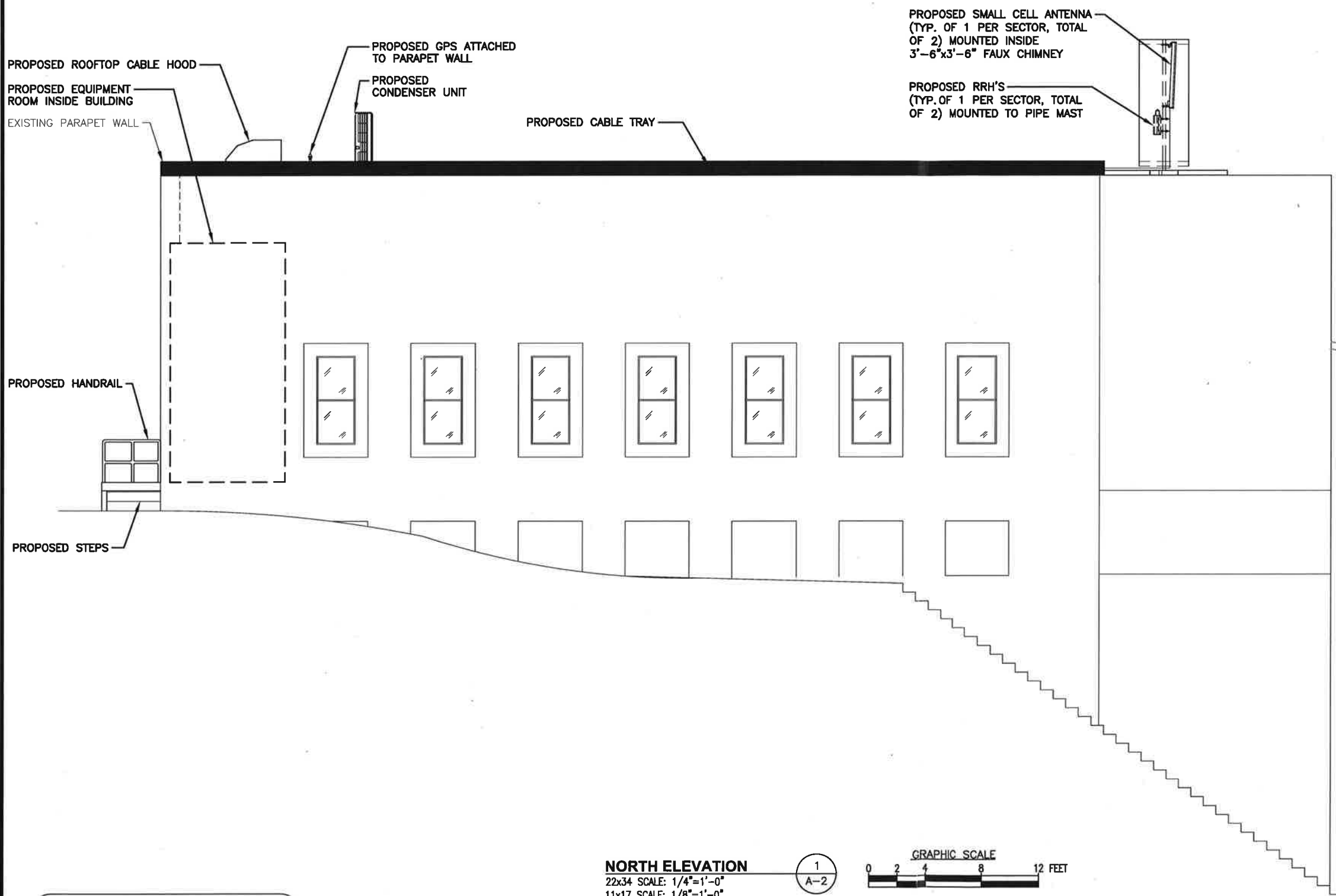
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0	07/06/15	ISSUED FOR REVIEW	KMS

SITE NAME:  
**WATERBURY CT SC5**

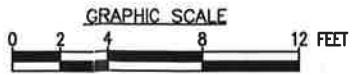
SITE ADDRESS:  
1663 SOUTH MAIN STREET  
WATERBURY, CT 06706

SHEET TITLE  
**ELEVATION**

SHEET NUMBER  
**A-2**



**NORTH ELEVATION**  
22x34 SCALE: 1/4"=1'-0"  
11x17 SCALE: 1/8"=1'-0"



**PROPOSED ANTENNA INFORMATION**

SECTOR	STATUS	AZIMUTH	CABLE LENGTH
ALPHA	PROPOSED	350°	85'
BETA	PROPOSED	240°	95'

NOTE: CABLE LENGTH = EXACT LENGTH PLUS 25'

APPROXIMATE COORDINATES: LAT: N41° 32' 0.40" LON: W73° 02' 11.84"

**NOTE:**  
AN ANALYSIS OF THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THE PROPOSED LOADING HAS NOT BEEN COMPLETED BY HUDSON DESIGN GROUP, LLC. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF A STRUCTURAL ANALYSIS.

# **ATTACHMENT 3**

# Product Specifications



SBNHH-1D65A

**Andrew® Tri-band Antenna, 698–896 and 2x 1695–2360 MHz, 65° horizontal beamwidth, internal RET. Both high bands share the same electrical tilt.**

POWERED BY



## Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2180	2300–2360
Gain, dBi	13.6	13.7	16.5	16.9	17.1	17.6
Beamwidth, Horizontal, degrees	66	61	70	65	62	61
Beamwidth, Vertical, degrees	17.6	15.9	7.1	6.6	6.2	5.5
Beam Tilt, degrees	0–18	0–18	0–10	0–10	0–10	0–10
USLS, dB	16	13	13	13	12	12
Front-to-Back Ratio at 180°, dB	25	27	28	28	27	29
CPR at Boresight, dB	20	16	20	23	17	20
CPR at Sector, dB	10	5	11	6	1	4
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR   Return Loss, dB	1.5   14.0	1.5   14.0	1.5   14.0	1.5   14.0	1.5   14.0	1.5   14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°

## Electrical Specifications, BASTA\*

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2180	2300–2360
Gain by all Beam Tilts, average, dBi	13.1	13.1	16.1	16.5	16.7	17.2
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.5	±0.5	±0.3	±0.5	±0.4
Gain by Beam Tilt, average, dBi	0°   13.4	0°   13.4	0°   16.0	0°   16.3	0°   16.5	0°   17.0
	9°   13.1	9°   13.1	5°   16.2	5°   16.5	5°   16.8	5°   17.3
	18°   12.7	18°   12.7	10°   16.1	10°   16.5	10°   16.6	10°   16.9
Beamwidth, Horizontal Tolerance, degrees	±3.1	±5.4	±2.8	±4	±6.6	±4.6
Beamwidth, Vertical Tolerance, degrees	±1.8	±1.4	±0.3	±0.4	±0.5	±0.3
USLS, dB	15	14	15	15	15	14
Front-to-Back Total Power at 180° ± 30°, dB	22	21	26	26	24	25
CPR at Boresight, dB	22	16	22	25	21	22
CPR at Sector, dB	10	6	12	8	5	4

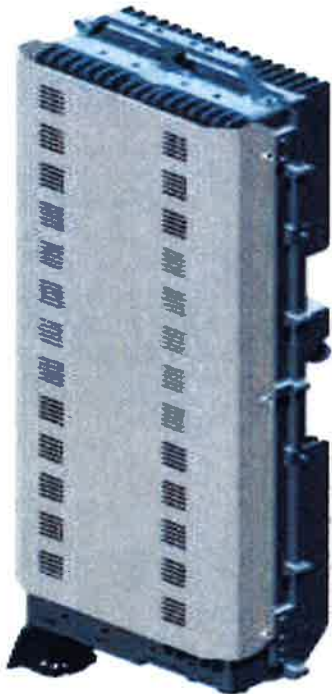
\* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, [download the whitepaper Time to Raise the Bar on BSAs.](#)

## Mechanical Specifications

Color   Radome Material	Light gray   Fiberglass, UV resistant
Connector Interface   Location   Quantity	7-16 DIN Female   Bottom   6
Wind Loading, maximum	445.0 N @ 150 km/h 100.0 lbf @ 150 km/h
Wind Speed, maximum	241.4 km/h   150.0 mph
Antenna Dimensions, L x W x D	1409.0 mm x 301.0 mm x 180.0 mm   55.5 in x 11.9 in x 7.1 in
Net Weight	15.2 kg   33.5 lb

# 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

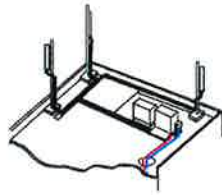
The RRH2x60-AWS includes a reversible mounting bracket which allows for ease of installation behind an antenna, or on a rooftop knee wall while providing easy access to the mid body RF connectors.

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.

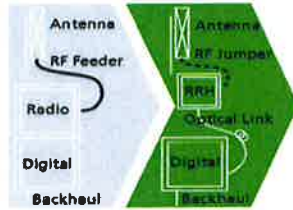
The Alcatel-Lucent RRH2x60-AWS is a zero-footprint solution and is convection cooled without fans for silent operation, simplifying negotiations with site property owners and minimizing environmental impacts.

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.

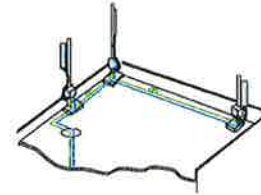




Macro



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 Assessments and Photo-Simulations

WATERBURY SC5  
1663 SOUTH MAIN STREET  
WATERBURY, CT 06706



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

Prepared for Verizon Wireless



ALL-POINTS  
TECHNOLOGY CORPORATION

# 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 1663 South Main Street in Waterbury, Connecticut (the "Property").

## Project Setting

The Property is located east of the Naugatuck River and South Main Street in a mixed industrial and residential area. The Property is currently developed with a multi-story, irregularly shaped building. The proposed Facility would include the installation of two (2) panel antennas and two (2) remote radio heads affixed to a pipe mast mounted to the northwest corner of the roof, all to be located within a radio frequency transparent enclosure designed to resemble a brick chimney. A condenser unit would also be placed on the roof in its north east corner. Supporting equipment will be located within the building.

## Methodology

On October 23, 2015, APT personnel conducted field reconnaissance and photo-documented existing conditions. Four (4) 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 lens set to 50 mm for two (2) of the four (4) photographs. Photo locations 1 and 4 were shot using a 35 mm and 24 mm lens setting, respectively, to provide a greater depth of field for presentation in this report. Focal lengths ranging from 24 mm to 50 mm approximate views similar to that achieved by the human eye. However, two key aspects of an image can be directly affected by the specific focal length that is selected: field of view and relation of sizes between objects in the frame. Focal lengths of 24 mm and 35 mm provide a wider field of view, representative of the extent the human eyes may see (including some peripheral vision), but the relation of sizes between objects at the edges of the photos can become minimally skewed. A 50 mm focal length has a narrower field of view than the human eye but the relation of sizes between objects is represented similar to what the human eye might perceive.

*"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.<sup>1</sup>"*

---

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

When taking photographs for these analyses, APT prefers a focal length of 50 mm; however there are times when wider views (requiring the use of alternate lens settings, as in this case) can better reflect “real world” viewing conditions by providing greater context to the scene. Regardless of the lens setting, the scale of the subject in the photograph and corresponding simulation remains proportional to its surroundings.

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 format<sup>2</sup>. A photolog map and copies of the existing conditions and photo-simulations are attached.

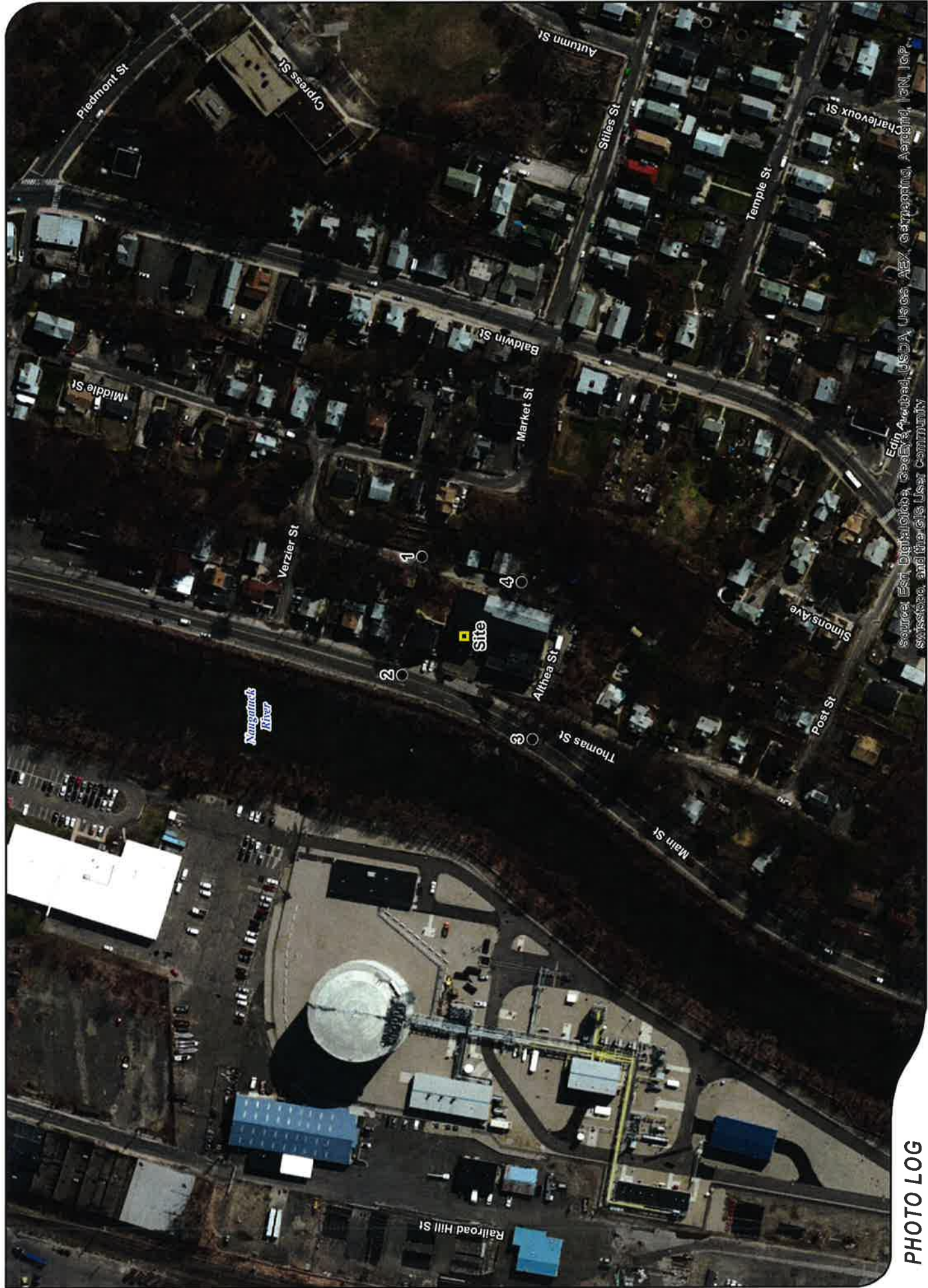
## Conclusions

The visibility of the proposed installation would be limited to nearby locations surrounding the building within a few hundred feet, generally from areas that currently have views of the northern portion of the building's roof. The proposed installation's concealment within the faux chimney structure results in no antennas being visible from exterior locations. The design of the concealment structure will be consistent with the style and colors of the existing building. The condenser unit's location in the northeast corner of the roof-top limits its visibility to locations on the Property. Based on the results of this assessment, it is our opinion that the proposed installation of Verizon Wireless equipment at the Property would have little to no adverse effect on existing views.

---

<sup>2</sup> 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**

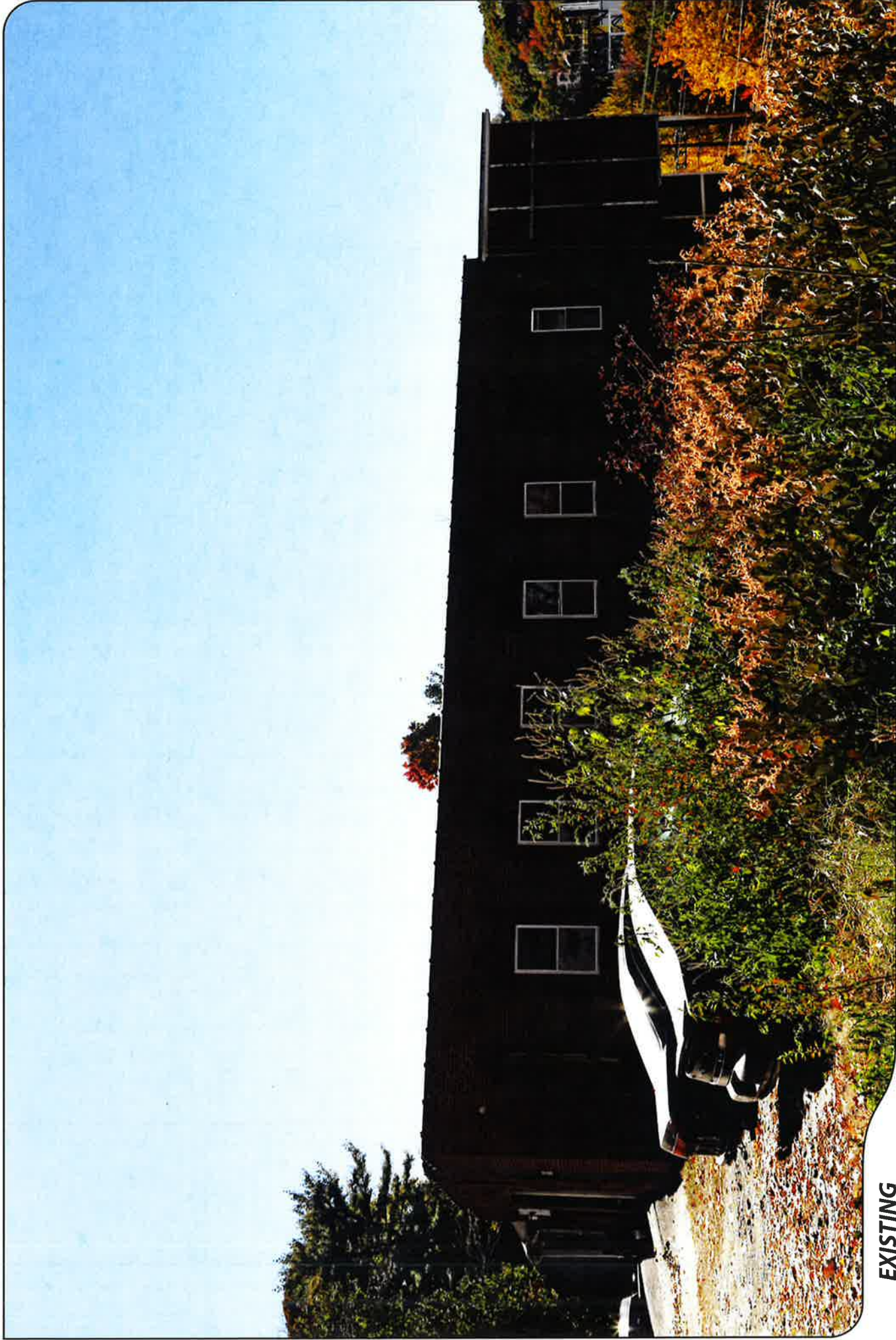


Edin, Georgia, USA Uses AEX, Gartrapping, Aergrid, ION, IGP, Source: Est, DigitalGlobe, GeoEye & Orbital, USA Uses AEX, Gartrapping, Aergrid, ION, IGP, systems, and the eIS User Community

# PHOTO LOG

- Legend
- Site
  - Photo Location





**EXISTING**

PHOTO

1

LOCATION

HOST PROPERTY (35mm Focal Length)

ORIENTATION

**SOUTHWEST**

DISTANCE TO SITE

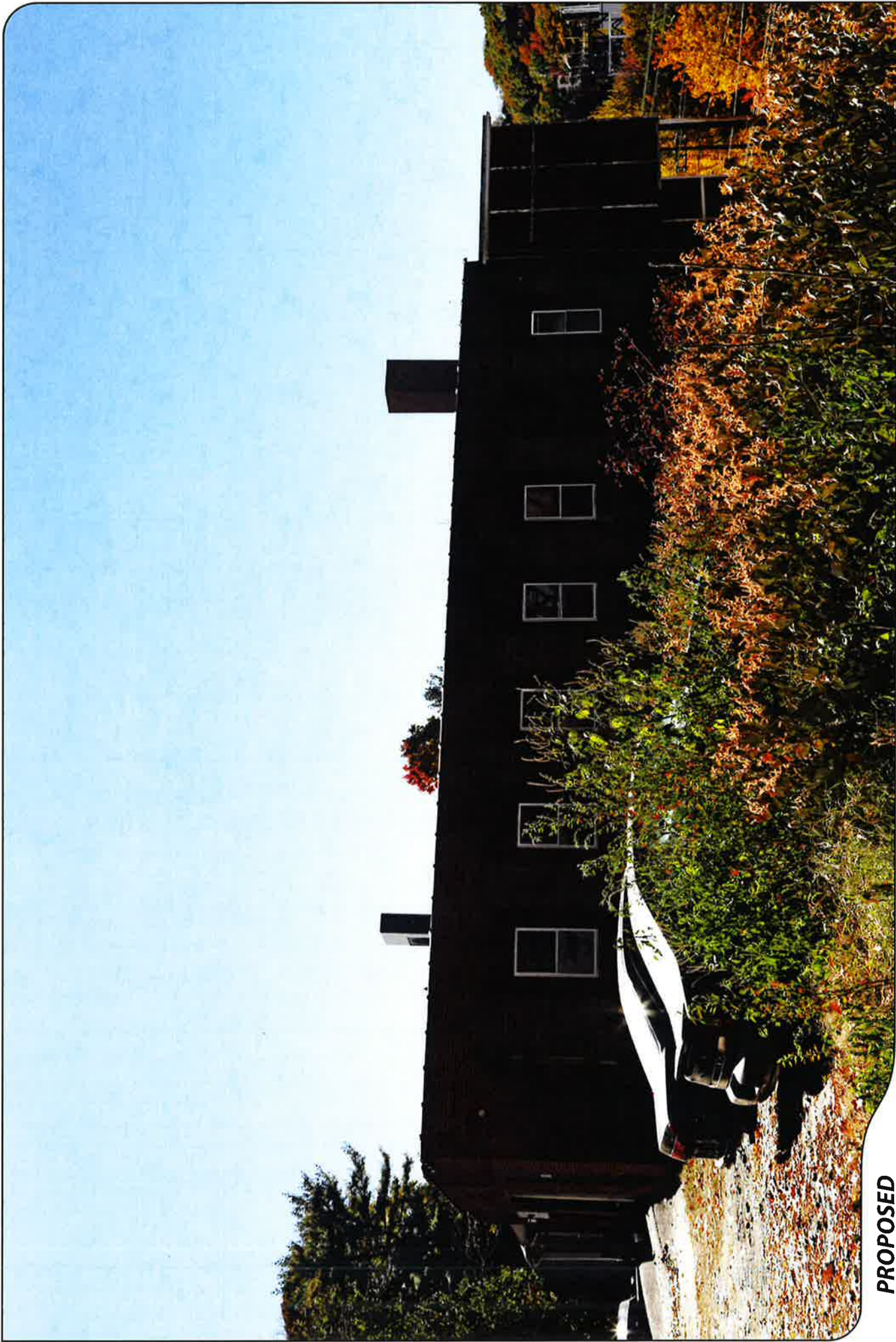
**+/- 136 FEET**



ALL-POINTS  
TECHNOLOGY CORPORATION

**verizon**





**PROPOSED**

PHOTO

1

LOCATION

HOST PROPERTY (35mm Focal Length)

ORIENTATION

**SOUTHWEST**

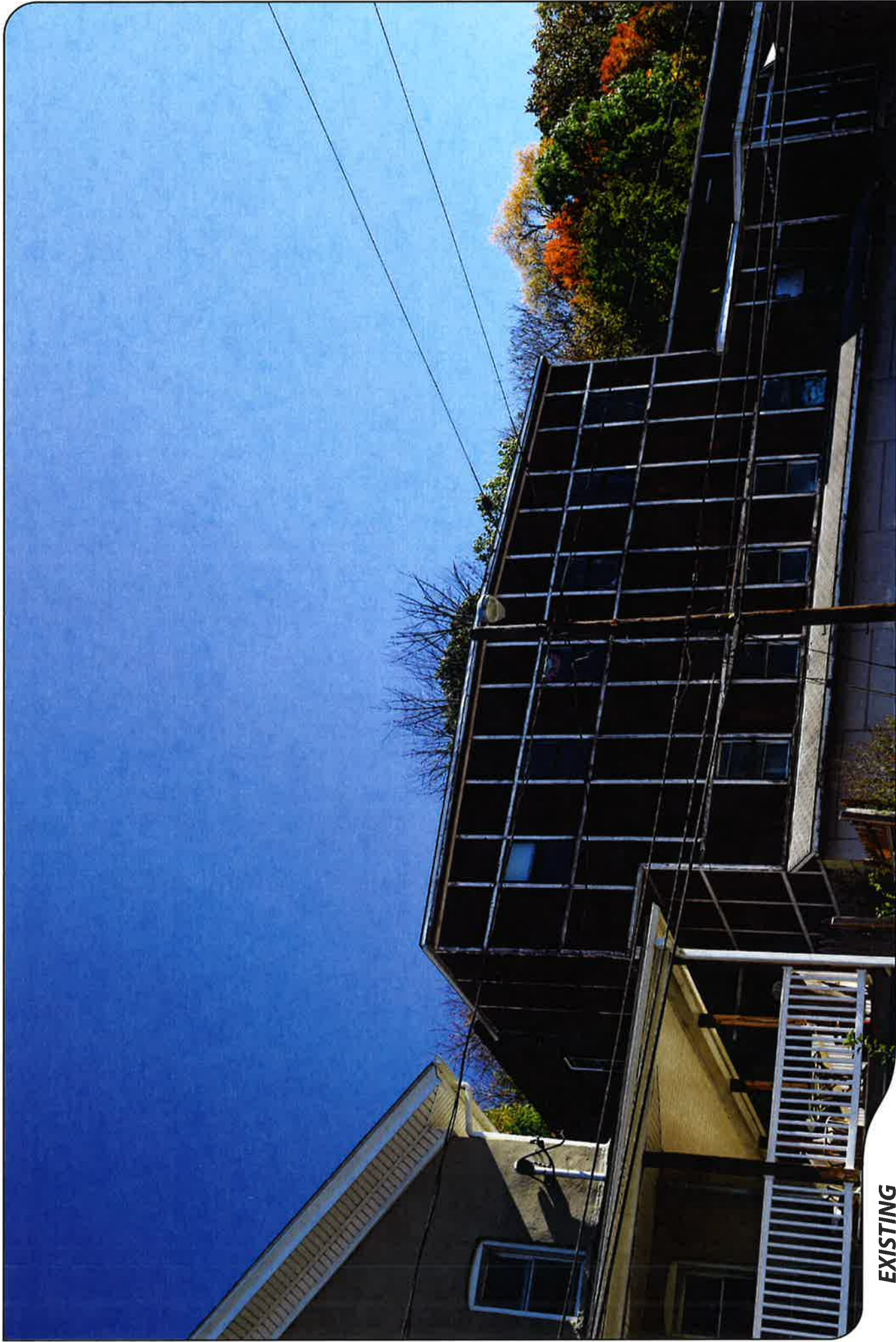
DISTANCE TO SITE

**+/- 136 FEET**



ALL-POINTS  
TECHNOLOGY CORPORATION

**verizon**



**EXISTING**

PHOTO

2

LOCATION

**SOUTH MAIN STREET**

ORIENTATION

**SOUTHEAST**

DISTANCE TO SITE

**+/- 118 FEET**



ALL-POINTS  
TECHNOLOGY CORPORATION

**verizon**



**PROPOSED**

PHOTO

2

LOCATION

**SOUTH MAIN STREET**

ORIENTATION

**SOUTHEAST**

DISTANCE TO SITE

**+/- 118 FEET**



ALL-POINTS  
TECHNOLOGY CORPORATION

**verizon**



**EXISTING**

PHOTO

3

LOCATION

**SOUTH MAIN STREET**

ORIENTATION

**NORTHEAST**

DISTANCE TO SITE

**+/- 209 FEET**



**ALL-POINTS  
TECHNOLOGY CORPORATION**





**PROPOSED**

PHOTO

3

LOCATION

**SOUTH MAIN STREET**

ORIENTATION

**NORTHEAST**

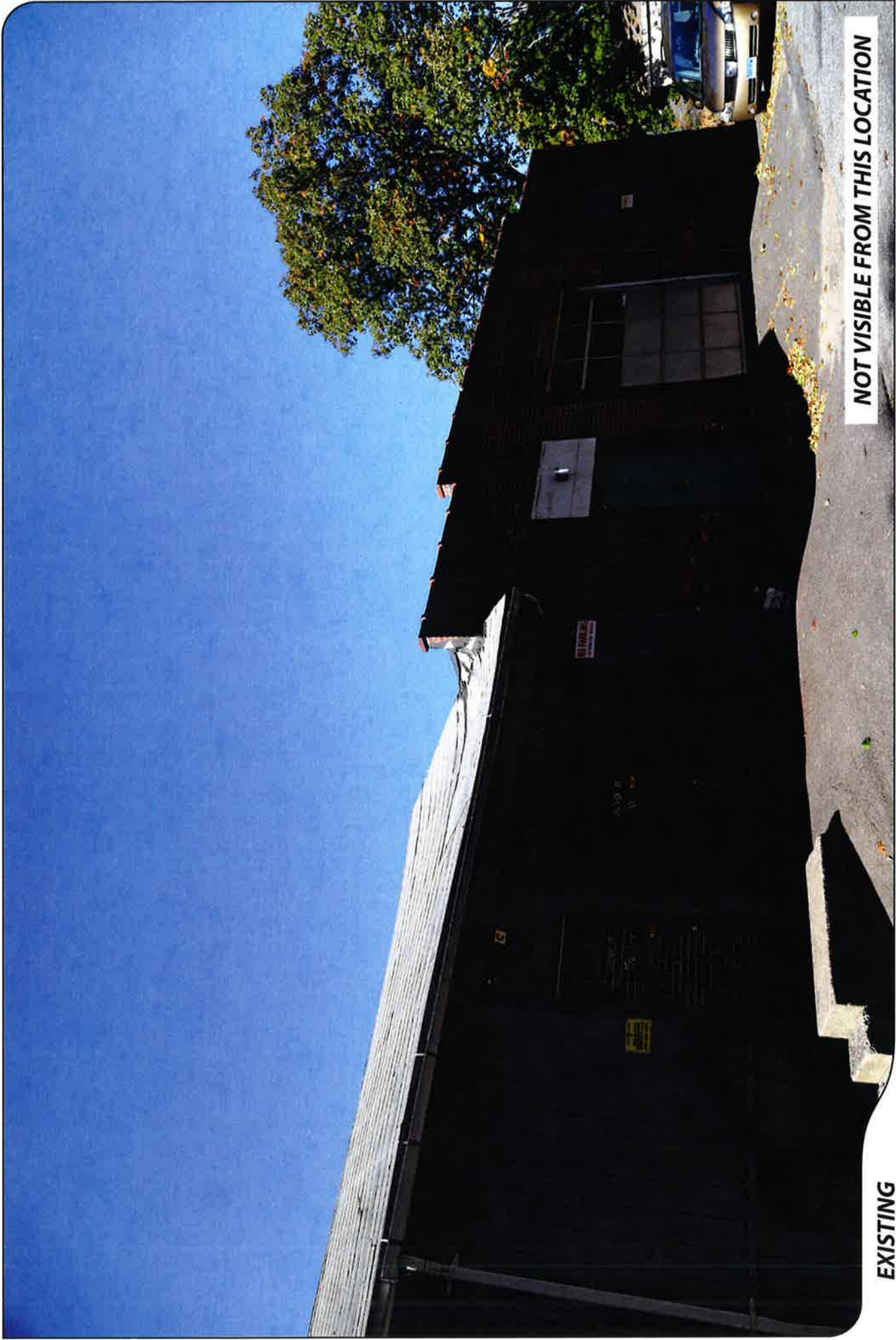
DISTANCE TO SITE

**+/- 209 FEET**



**ALL-POINTS  
TECHNOLOGY CORPORATION**

**verizon**



**EXISTING**

PHOTO

4

LOCATION

HOST PROPERTY (24mm Focal Length)

ORIENTATION

NORTHWEST

DISTANCE TO SITE

+/- 128 FEET

**NOT VISIBLE FROM THIS LOCATION**



ALL-POINTS  
TECHNOLOGY CORPORATION

verizon

# **ATTACHMENT 5**

Site Name: **WATERBURY CT SC5**  
 Cumulative Power Density

Operator	Operating Frequency (MHz)	Number of Trans.	ERP Per Trans. (watts)	Total ERP (watts)	Distance to Target (feet)	Calculated Power Density (mW/cm <sup>2</sup> )	Maximum Permissible Exposure* (mW/cm <sup>2</sup> )	Fraction of MPE (%)
VZW 700	746	0	0	0	50	0.0000	0.4973	0.00%
VZW Cellular	869	0	0	0	50	0.0000	0.5793	0.00%
VZW PCS	1970	0	0	0	50	0.0000	1.0000	0.00%
VZW AWS	2145	1	2333	2333	50	0.3356	1.0000	33.56%
<b>Total Percentage of Maximum Permissible Exposure</b>								<b>33.56%</b>

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

MHz = Megahertz

mW/cm<sup>2</sup> = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used.



# **ATTACHMENT 6**

\*\*\*\*\*

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

\*

\*\*\*\*\*

Airspace User: Jaime Laredo

File: WATERBURY\_CT\_SC5

Location: Waterbury, CT

Latitude: 41°-32'-0.40" Longitude:  
73°-2'-11.84"

SITE ELEVATION AMSL.....259 ft.  
STRUCTURE HEIGHT.....61 ft.  
OVERALL HEIGHT AMSL.....320 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.

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: OXC: WATERBURY-OXFORD

Type: A RD: 32423.21 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: 35341.77 RE: 853.4

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	
-210	1CT3 HEL ST MARY'S No Impact to Private Landing Facility Structure is beyond notice limit by 1623 feet.	359.24	1.09	+20
-210	5CT1 HEL RONDO No Impact to Private Landing Facility Structure 0 ft below heliport.	181.03	1.51	
-408	CT25 HEL MIRY DAM No Impact to Private Landing Facility Structure 5 ft below heliport.	290.2	4.14	

AIR NAVIGATION ELECTRONIC FACILITIES

GRND	FAC	ST	DIST	DELTA					
APCH	IDNT	TYPE	AT	FREQ	VECTOR	(ft)	ELEVA	ST	LOCATION

ANGLE BEAR

---

	JWE	NDB	I	36	200.67	58846	-251	CT CLERA
-.24	HVN	VOR/DME	R	109.8	157.24	107178	+314	CT NEW HAVEN
.17	MAD	VOR/DME	R	110.4	130.38	123806	+100	CT MADISON
.05	BDR	VOR/DME	R	108.8	190.04	137952	+311	CT BRIDGEPORT
.13	HFD	VOR/DME	R	114.9	73.5	139463	-529	CT HARTFORD
-.22	CMK	VOR/DME	I	116.6	238.11	175643	-374	NY CARMEL
-.12	BDL	VORTAC	D	109.0	32.49	176296	+160	CT BRADLEY
.05	BDL	RADAR	ON		33.1	176451	+84	CT BRADLEY INTL
.03	PWL	VOR/DME	I	114.3	299.38	176540	-930	NY PAWLING
-.3								

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: WATR @ 620 meters.

Airspace® Summary Version 15.9.401

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09-18-2015

15:34:18

# **ATTACHMENT 7**

November 3, 2015

*Via Certificate of Mailing*

Neil M. O'Leary, Mayor  
City of Waterbury  
City Hall Building  
235 Grand Street  
Waterbury, CT 06702

Re: **Proposed Installation of a Roof-Top Wireless Telecommunications Facility at 1663 South Main Street, Waterbury, Connecticut**

Dear Mayor O'Leary:

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 building at 1663 South Main Street in Waterbury (the "Property"). The facility will include the installation of a small roof-top tower supporting two (2) panel antennas and two (2) remote radio heads (RRHs). The tower, antennas and RRHs will be concealed by a faux chimney structure and will extend approximately 10 feet above the roof of the building. Equipment associated with the facility will be located inside the building.

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.

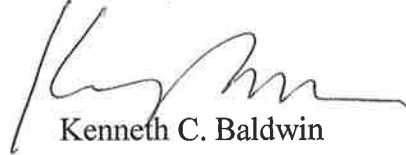
14254320-v1

# Robinson + Cole

Neil M. O'Leary  
November 3, 2015  
Page 2

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

Sincerely,



Kenneth C. Baldwin

Attachment

November 3, 2015

*Via Certificate of Mailing*

Clara F. Stevens  
1663 South Main LLC  
3 Brookside Drive  
Middlebury, CT 06762

Re: **Proposed Installation of a Roof-Top Wireless Telecommunications Facility at 1663 South Main Street, Waterbury, Connecticut**

Dear Ms. Stevens:

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 building at 1663 South Main Street in Waterbury (the “Property”). The facility will include the installation of a small roof-top tower supporting two (2) panel antennas and two (2) remote radio heads (RRHs). The tower, antennas and RRHs will be concealed by a faux chimney structure and will extend approximately 10 feet above the roof of the building. Equipment associated with the facility will be located inside the building.

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.

14254420-v1




# Robinson + Cole

Clara F. Stevens  
November 3, 2015  
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

November 3, 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 1663 South Main Street, Waterbury, 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 building at 1663 South Main Street in Waterbury (the “Property”). The facility will include the installation of a small roof-top tower supporting two (2) panel antennas and two (2) remote radio heads (RRHs). The tower, antennas and RRHs will be concealed by a faux chimney structure and will extend approximately 10 feet above the roof of the building. Equipment associated with the facility will be located inside the building. 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.

November 3, 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**

**ABUTTING PROPERTY OWNERS**

**1663 SOUTH MAIN STREET, WATERBURY, CONNECTICUT**

	<b>Property Address</b>	<b>Owner's and Mailing Address</b>
1.	47 Eagle Street	Yankee Gas Service Co. P.O. Box 270 Hartford, CT 06141
2.	17 Thomas Street	GFS First Asset LC 8441 E 32 <sup>nd</sup> Street N Wichita, KS 67226
3.	1657 South Main Street	Primo Enterprises LLC 153 Forest Street Naugatuck, CT 06770
4.	7 Althea Street	Helen May and Stanley Riccio 2419 N Warner Street Tacoma, WA 98406-6132
5.	8 Althea Street	Francis T. McCusker 8 Althea Street Waterbury, CT 06706
6.	9 Althea Street	Daric Rigon and Jayne Brightman 3233 East Main Street Waterbury, CT 06705
7.	Althea Street	Daric Rigon and Jayne Brightman 3233 East Main Street Waterbury, CT 06705
8.	Althea Street	Daric Rigon and Jayne Brightman 3233 East Main Street Waterbury, CT 06705
9.	Althea Street	Daric Rigon and Jayne Brightman 3233 East Main Street Waterbury, CT 06705

	<b>Property Address</b>	<b>Owner's and Mailing Address</b>
10.	Althea Street	Chetram Bhagwandi and Cecilia DeSilva 1514 Baldwin Street Waterbury, CT 06706