

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 777 BOSTON POST ROAD, :
DARIEN, CONNECTICUT : APRIL 19, 2017

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 attach two (2) new telecommunications tower masts to the building at 777 Boston Post Road in Darien, Connecticut (the “Property”). The Property and building are owned by The Fidelity Building Company (“Fidelity”). Cellco has designated this proposed cell site as its “Darien 6 Facility”.

II. Factual Background

The Property is a 0.9-acre parcel in Darien’s Design Business (DB-1) zone. *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

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 two (2) tower masts, attached to the roof of the Fidelity building, supporting a total of six (6) antennas and six (6) RRHs behind RF transparent screening panels, will not involve a significant alteration in the physical and environmental characteristics of the Property.

2. Visual Effects

Cellco respectfully submits that the Darien 6 Facility will not have an adverse impact on existing views of the building or the Property and would not impact the character of the community surrounding the Property. (See Visual Assessment & Photo-Simulations (“Visual Assessment”) included in Attachment 4). Views of the proposed Darien 6 Facility described above would be limited to locations along Boston Post Road, a busy commercial corridor, within approximately 500 feet of the Property. The use of screen walls designed to match the finish of the building and their overall low heights above the roof line help give the appearance that these structures are part of the design of the building. The Visual Assessment concludes that the proposed installation will not have an adverse visual impact on existing views of the building or the character of the community.

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 Calculated Radio Frequency Emissions report which demonstrates that

Cellco's Darien 6 Facility will operate well within the FCC safety limits (11.98% of the Standard).

4. FAA Summary Report

Included in Attachment 6 is a Federal Airways & Airspace Summary Report (the "FAA Report") verifying that the two tower masts, antennas, RRHs and screening panels 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 April 19, 2017, a copy of this Petition was sent to Darien's First Selectman, Jayme J. Stevenson, Jeremy Ginsberg, Darien's Planning and Zoning Director and to Fidelity, the owner of the Property. Copies of the letters sent to First Selectman Stevenson, Mr. Ginsberg and Fidelity 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 this 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 two (2) tower masts, supporting six (6) antennas and six (6) RRHs on the roof of the Fidelity building behind screening panels 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.

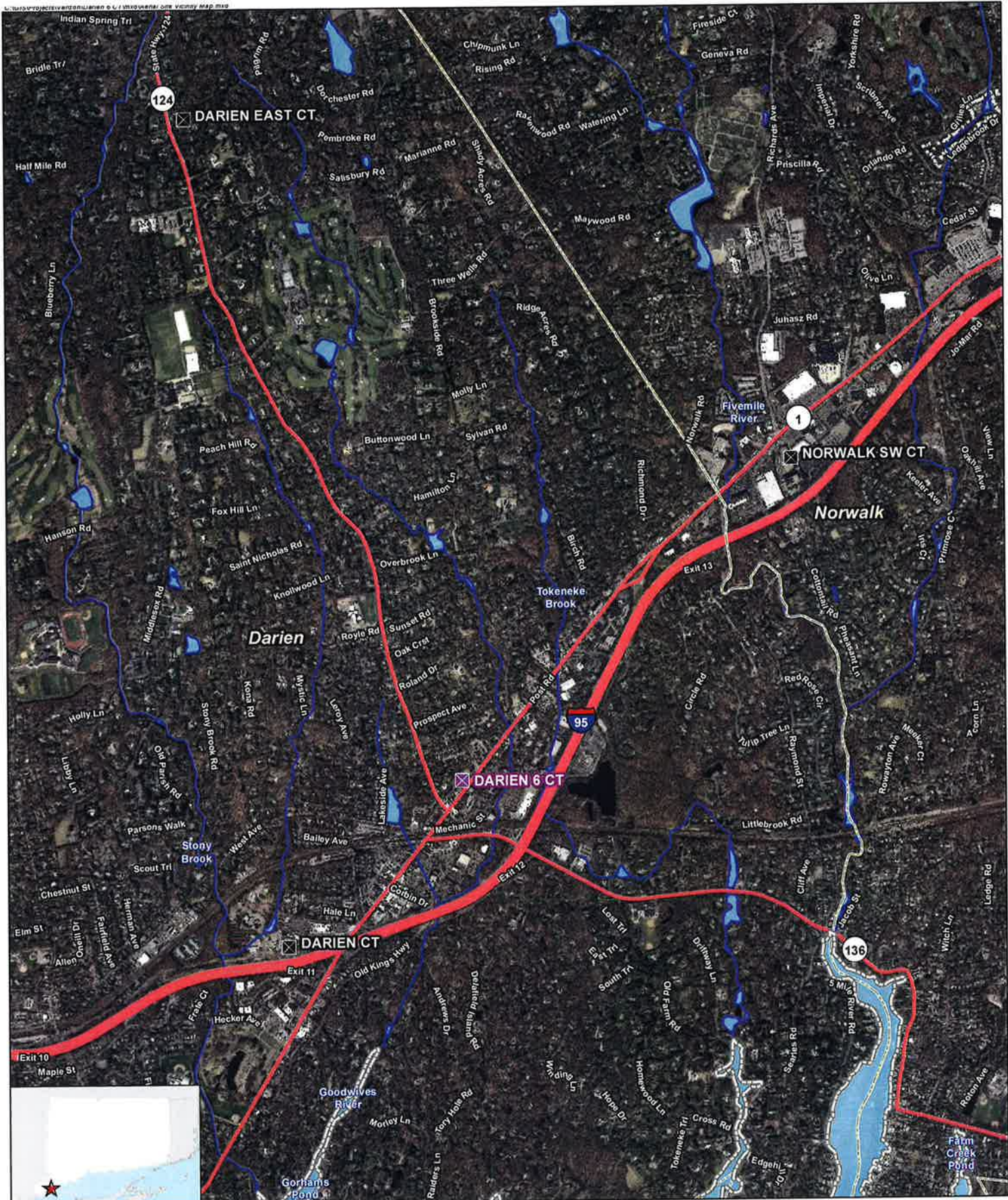
Respectfully submitted,

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



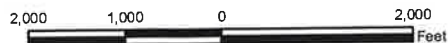
- Legend**
- Proposed Verizon Wireless Facility
 - Surrounding Verizon Wireless Facilities
 - Watercourse (CTDEEP)
 - Waterbody
 - Municipal Boundary
 - State Line

Site Vicinity Map

Proposed Wireless Telecommunications Facility
 Darien 6 CT
 777 Boston Post Road
 Darien, Connecticut








Base Map Source: CTECO 2012 Aerial Imagery
 Map Scale: 1 inch = 2,000 feet
 Map Date: September 2016





Legend

-  Subject Property
-  Existing Utility Room
-  Proposed Equipment
-  Proposed Underground Electrical Conduit
-  Proposed Stockade Fence and Retaining Wall

Site Schematic

Proposed Wireless
Telecommunications Facility
Daien 6 CT
777 Boston Post Road
Darien, Connecticut



Map Notes:
Base Map Source: CTECO 2012 Aerial Imagery
Map Scale: 1 inch = 150 feet
Map Date: September 2016



ATTACHMENT 2



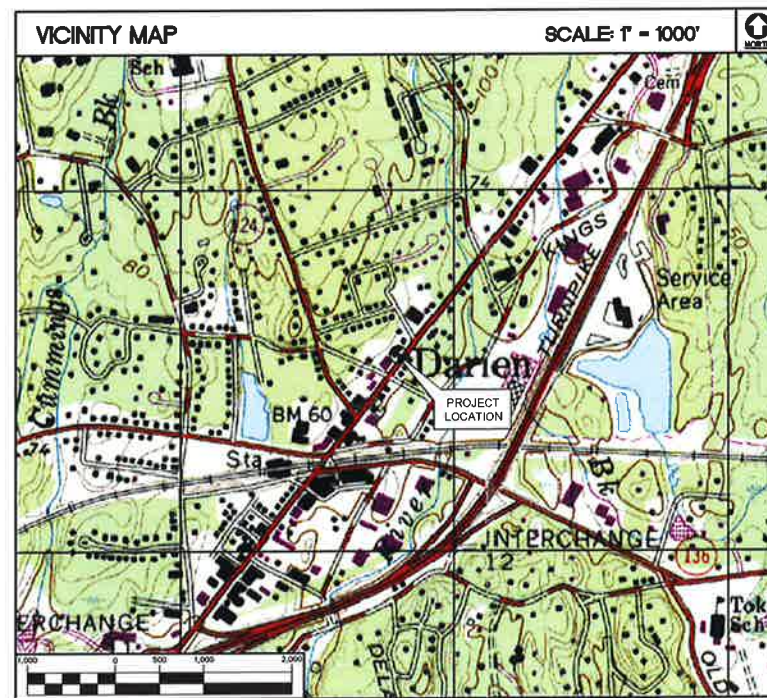
WIRELESS COMMUNICATIONS FACILITY

DARIEN 6 CT
 777 BOSTON POST ROAD
 DARIEN, CT 06820

SITE DIRECTIONS	
FROM: 99 EAST RIVER DRIVE EAST HARTFORD, CONNECTICUT	TO: 777 BOSTON POST ROAD DARIEN, CONNECTICUT
1. HEAD SOUTH ON E RIVER DR TOWARD PITKIN ST	0.85 MI
2. STAY STRAIGHT TO GO ONTO E RIVER DR EXT	0.34 MI
3. MERGE ONTO US-5 TOWARDS I-91 S	1.05 MI
4. MERGE ONTO I-91 S VIA EXIT 86	36.73 MI
5. MERGE ONTO I-95 S VIA EXIT ON THE LEFT TOWARDS NY CITY	34.48 MI
6. TAKE THE US-1 EXIT, EXIT 13	0.12 MI
7. TURN LEFT ONTO POST RD/US-1 S	0.85 MI
8. 777 BOSTON POST ROAD IS ON THE RIGHT	

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

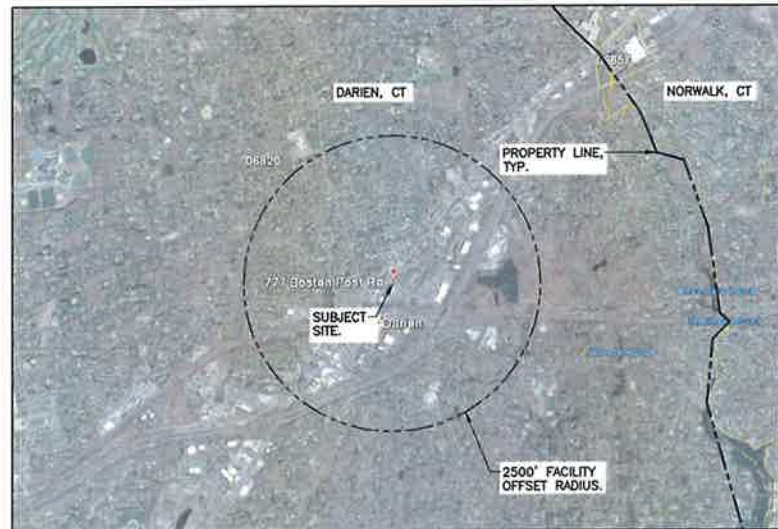
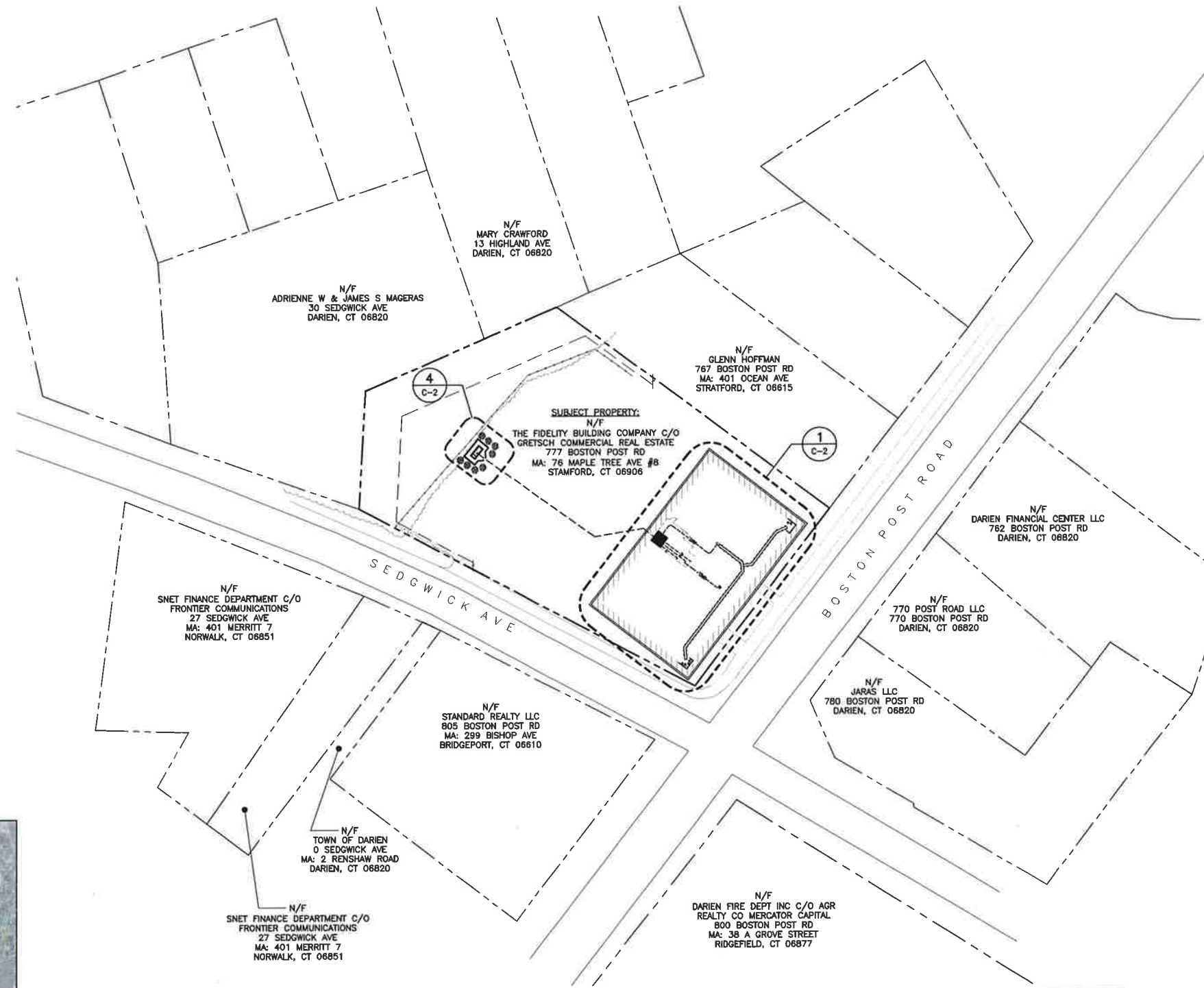
PROJECT SCOPE
1. THE PROPOSED SCOPE OF WORK GENERALLY INCLUDES THE INSTALLATION OF (3) SECTORS WITH (2) ANTENNAS EACH, FOR A TOTAL OF (6) ANTENNAS, ASSOCIATED CABLES AND APPURTENANCES MOUNTED TO PROPOSED PIPE MAST WITHIN PROPOSED ANTENNA CONCEALMENT ENCLOSURE.
2. THE PROPOSED CELCO PARTNERSHIP EQUIPMENT WILL BE INSTALLED INSIDE BASEMENT LEVEL OF EXISTING BUILDING.
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:	DARIEN 6 CT
SITE ADDRESS:	777 BOSTON POST ROAD DARIEN, CT 06820
CELLCO PARTNERSHIP/TENANT:	CELLCO PARTNERSHIP d.b.a. VERIZON WIRELESS 99 EAST RIVER DRIVE EAST HARTFORD, CT 06108
VERIZON SITE ACQUISITION CONTACT:	CHRIS BISSON CELLCO PARTNERSHIP (203) 217-6200
LEGAL/REGULATORY COUNSEL:	KENNETH C. BALDWIN, ESQ. ROBINSON & COLE (860) 257-8345
TOWER COORDINATES:	LATITUDE: 41°-04'-46.058" N LONGITUDE: 73°-28'-05.644" W GROUND ELEVATION: ±55.5' A.M.S.L.
COORDINATES AND GROUND ELEVATION REFERENCED FROM FAA 1-A SURVEY CERTIFICATION AS PREPARED BY MARTINEZ, COUCH AND ASSOCIATES LLC, DATED MARCH 11, 2015, REVISED AUGUST 17, 2016.	

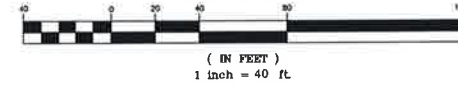
SHEET INDEX		
SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	0
C-1	ABUTTERS MAP	0
C-2	ROOF PLAN, ELEVATION AND ANTENNA CONFIG.	0

PROFESSIONAL ENGINEER SEAL					
Cellco Partnership d/b/a Verizon Wireless WIRELESS COMMUNICATIONS FACILITY DARIEN 6 CT 777 BOSTON POST ROAD DARIEN, CT 06820					
(203) 496-0960 (203) 496-8587 Fax 632 North Branford Road Branford, CT 06405 www.CentekEng.com					
DATE: 09/20/16					
SCALE: AS NOTED					
JOB NO. 14351.000					
TITLE SHEET					
T-1					
Sheet No. 1 of 3					



MUNICIPALITY NOTIFICATION LIMIT MAP

1 ABUTTERS MAP
C-1 SCALE: 1" = 40'



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

REV.	DATE	BY	CHK'D BY	DESCRIPTION
0	10/05/16	JTD	HMR	ISSUED FOR CSC-CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL



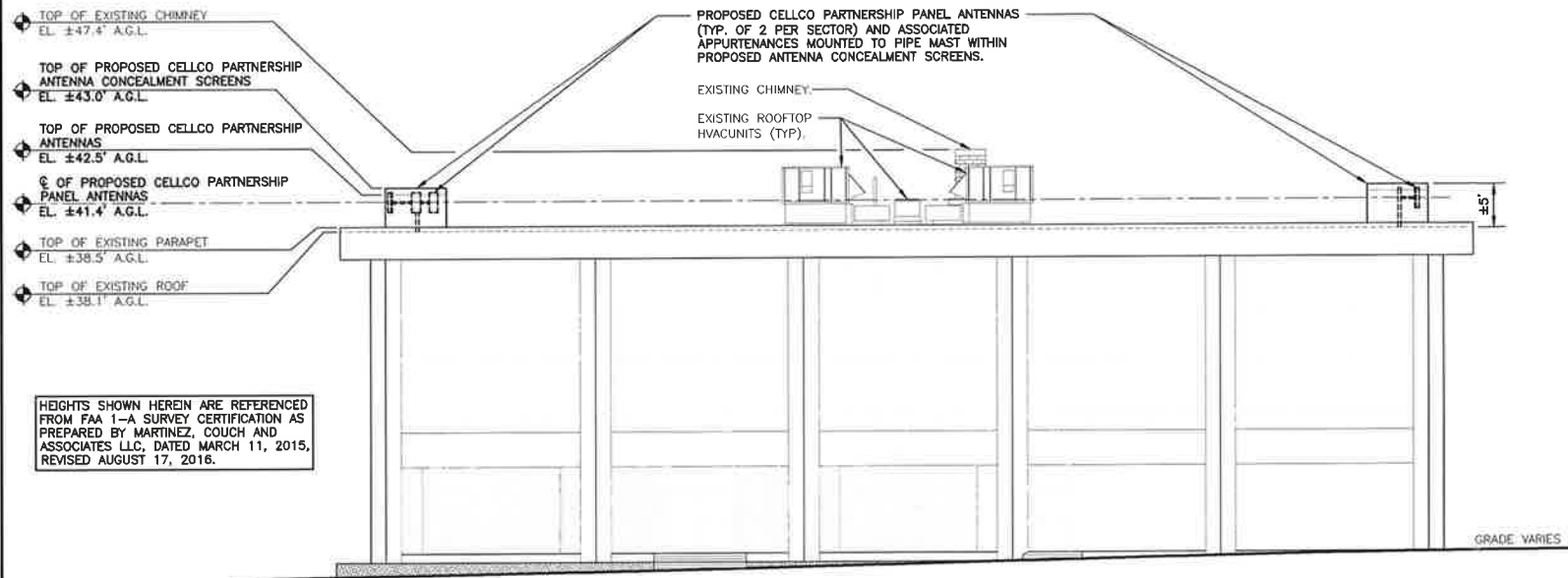
CENITEK engineering
Call us on Saturdays
[203] 486-0860
[203] 486-8887 Fax
632 North Branford Road
Branford, CT 06405
www.CentekEng.com

Cellco Partnership d/b/a Verizon Wireless
WIRELESS COMMUNICATIONS FACILITY
DARIEN 6 CT
777 BOSTON POST ROAD
DARIEN, CT 06820

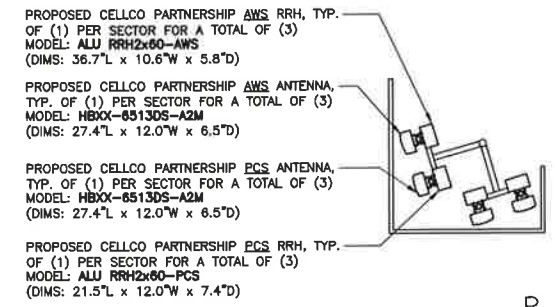
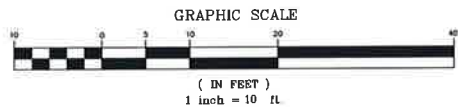
DATE: 09/20/16
SCALE: AS NOTED
JOB NO. 14351.000

ABUTTERS MAP

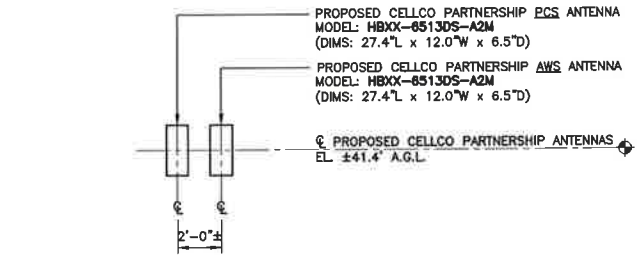
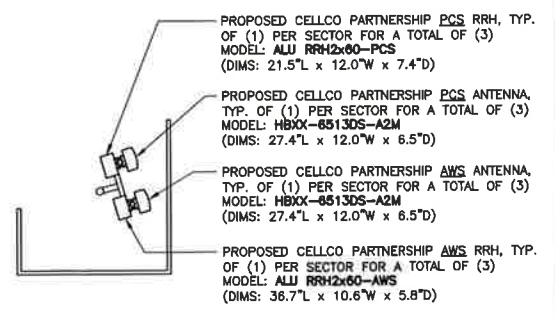
C-1
Sheet No. 2 of 3



2 SOUTH EAST ELEVATION
C-2 SCALE: 1" = 10'

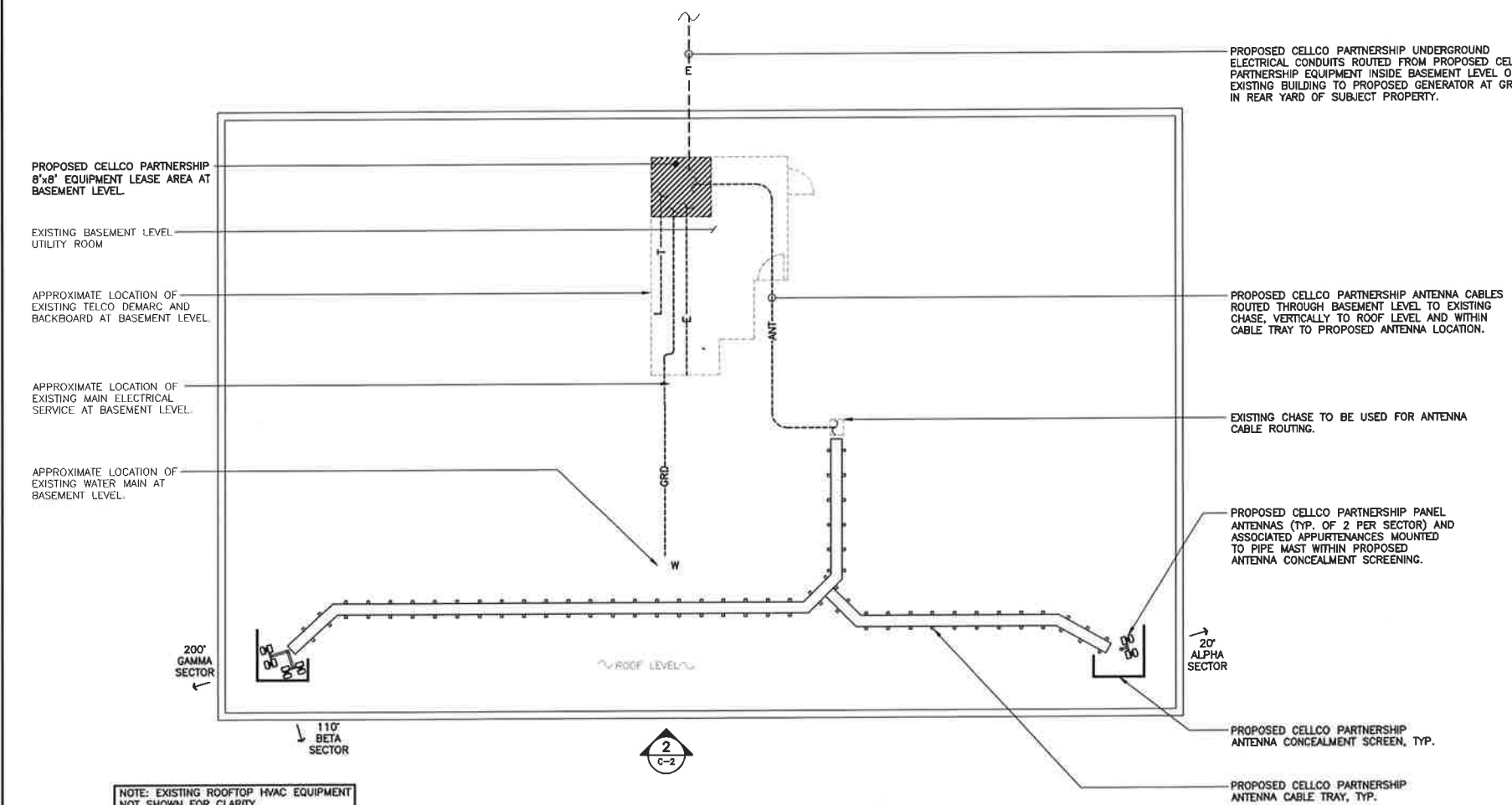


PLAN

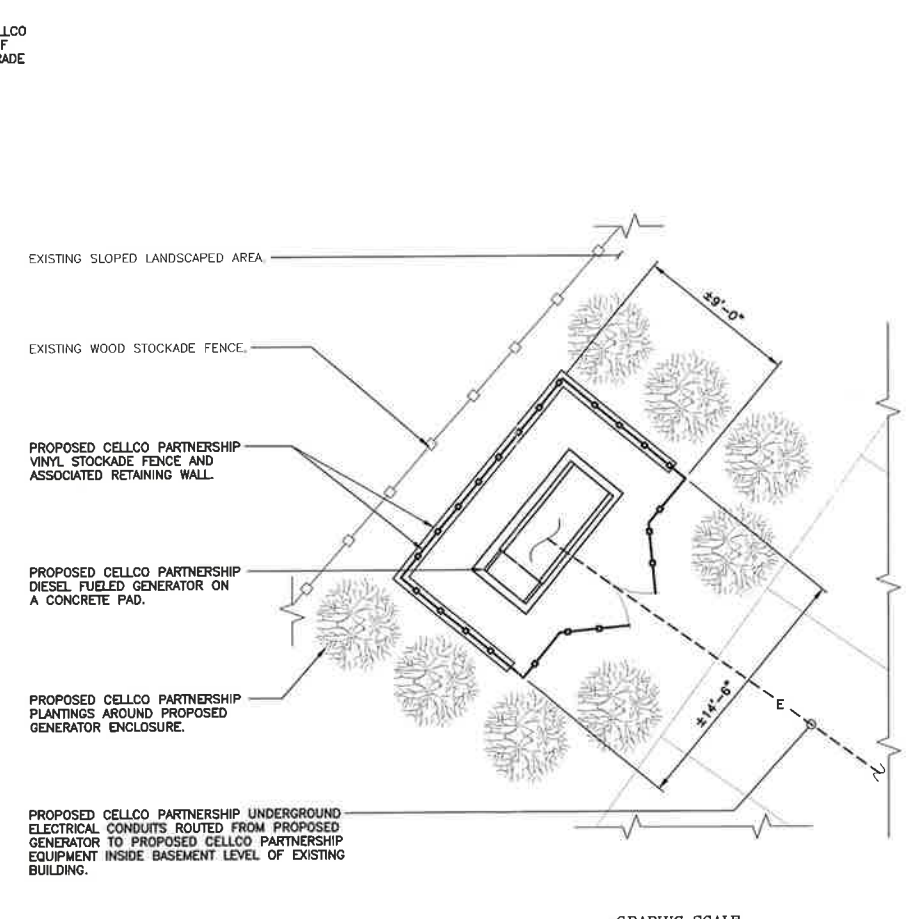
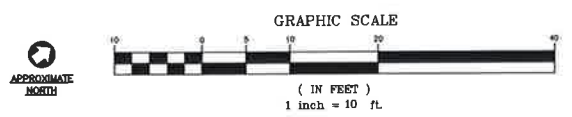


ELEVATION

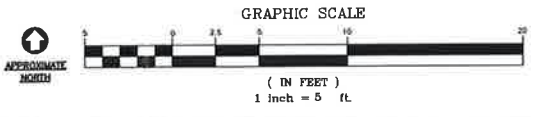
3 TYP. ANTENNA MOUNTING CONFIGURATION
C-2 NOT TO SCALE



1 ROOF PLAN
C-2 SCALE: 1" = 10'



4 PARTIAL SITE PLAN
C-2 SCALE: 1" = 5'



NOTE: EXISTING ROOFTOP HVAC EQUIPMENT NOT SHOWN FOR CLARITY.

PROFESSIONAL ENGINEER SEAL

REV.	DATE	DRAWN BY	CHECKED BY	ISSUED FOR	DESCRIPTION
0	10/05/16	JTD	HMR	CSC-CLIENT REVIEW	

verizon

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Celco Partnership d/b/a Verizon Wireless
WIRELESS COMMUNICATIONS FACILITY
DARIEN 6 CT
777 BOSTON POST ROAD
DARIEN, CT 06820

DATE: 09/20/16
SCALE: AS NOTED
JOB NO. 14351.000

ROOF PLAN, ELEVATION & ANTENNA CONFIG.

C-2
Sheet No. 3 of 3

ATTACHMENT 3

Product Specifications

COMMSCOPE®

HBXX-6513DS-VTM

Andrew® Quad Port Teletilt® Antenna, 1710–2170 MHz, 65° horizontal beamwidth, RET compatible

POWERED BY



Electrical Specifications

Frequency Band, MHz	1710–1880	1850–1990	1920–2170
Gain, dBi	14.5	14.6	14.9
Beamwidth, Horizontal, degrees	67	66	64
Beamwidth, Vertical, degrees	14.8	14.0	13.4
Beam Tilt, degrees	0–12	0–12	0–12
USLS, dB	15	15	15
Front-to-Back Ratio at 180°, dB	30	30	30
Front-to-Back Total Power at 180° ± 30°, dB	26	27	27
CPR at Boresight, dB	22	22	22
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	-150	-150	-150
Input Power per Port, maximum, watts	350	350	350
Polarization	±45°	±45°	±45°

Electrical Specifications, BASTA*

Frequency Band, MHz	1710–1880	1850–1990	1920–2170
Gain by all Beam Tilts, average, dBi	14.2	14.3	14.6
Gain by all Beam Tilts Tolerance, dB	±0.8	±0.7	±0.7
Gain by Beam Tilt, average, dBi	0 ° 14.6 6 ° 14.4 12 ° 13.5	0 ° 14.7 6 ° 14.5 12 ° 13.7	0 ° 15.0 6 ° 14.7 12 ° 13.8
Beamwidth, Horizontal Tolerance, degrees	±3.7	±3.3	±3.5
Beamwidth, Vertical Tolerance, degrees	±1.4	±0.9	±1.1
USLS, dB	15	15	16
CPR at Boresight, dB	22	22	22
CPR at Sector, dB	7	8	8

* 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 PVC, UV resistant
Connector Interface Location Quantity	7-16 DIN Female Bottom 4
Wind Loading, maximum	223.0 N @ 150 km/h 50.1 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h 149.8 mph
Antenna Dimensions, L x W x D	695.0 mm x 305.0 mm x 166.0 mm 27.4 in x 12.0 in x 6.5 in
Net Weight	7.9 kg 17.4 lb
Model with factory installed AISG 2.0 RET	HBXX-6513DS-A2M

ALCATEL-LUCENT B25 RRH4X30

Alcatel-Lucent Band 25 Remote Radio Head 4x30W is the new addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B25 RRH4x30 allows operators to have a compact radio solution to deploy LTE in the PCS band (1.9 GHz, 3GPP band 25), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B25 RRH4x30 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity, LTE carriers from 3 MHz up to 20 MHz and up to 65 MHz instantaneous bandwidth.

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

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

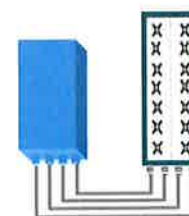


FEATURES

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

BENEFITS

- Compact to reduce additional footprint when adding LTE in PCS band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Full flexibility for multiple carriers operation over entire PCS spectrum
- Improves downlink spectral efficiency and cell edge throughput through MIMO4
- Increases LTE coverage thanks to 4-way Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options (Pole or Wall)



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between
modes via SW w/o site
visit

TECHNICAL SPECIFICATIONS

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	3GPP bands 2 & 25 (PCS-G) DL: 1930 - 1995 MHz UL: 1850 - 1915 MHz
Instantaneous bandwidth - #carriers	65MHz – Up to 4 LTE carriers (in 40MHz occupied bandwidth)
LTE carrier bandwidth	3, 5, 10, 15 or 20 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure (3GPP band 2) RX Diversity scheme	2.0 dB typ. (<2.5 dB max) 2 or 4 way Rx diversity
Sizes (HxWxD)(w/ solar shield) in mm (in.) Volume (w/ solar shield) in L Weight (w/ solar shield) in kg (lb)	538 x 304 x 182 (21.2" x 12.0" x 7.2") 30 24 (53)
DC voltage range DC power consumption	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 580W typical @100% RF load
Environmental conditions Wind load (@150km/h or 93mph)	-40°C (-40°F) / +55°C (+131°F) IP65 Frontal: <200N / Lateral : <150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5 (> 14dB)
CPRI ports	2 CPRI ports (HW ready for Rate7 / 9.8 Gbps)
AISG interfaces	1 AISG2.0 output (RS485), +24V/2A DC power Integrated Smart Bias Tees (x2)
Misc. Interfaces	1 external alarms connector (4 alarms) 4 RF Tx & 4 RF Rx monitor ports 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

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ALCATEL-LUCENT B66A RRH4X45

The Alcatel-Lucent B66a Remote Radio Head 4x45 is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering. Its operational range covers beyond that of B4 (AWS) and B10 (AWS+).

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

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



The Alcatel-Lucent B66a RRH4x45 is a compact (near zero-footprint) solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

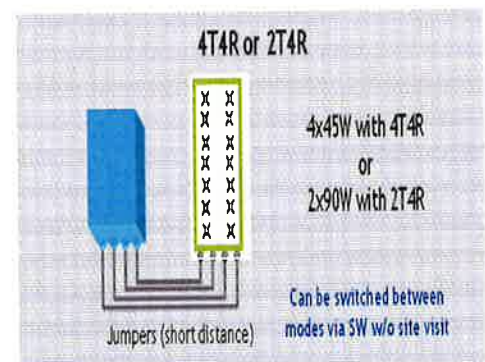
Its compactness and slim design makes the Alcatel-Lucent B66a RRH4x45 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 2110 - 2180 MHz band/DL, 1710-1780MHz/UL (3GPP band 4, 10, and 66a)
- LTE 2Tx or 4Tx MIMO (SW selectable)
- Configuration: 2T2R/2T4R/4T4R
- Output power: Up to 2x90W or 4x45W (SW configurable)
- 70MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in AWS 1-3 band
- Selection of MIMO configuration (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through 4Tx MIMO
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



TECHNICAL SPECIFICATIONS

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

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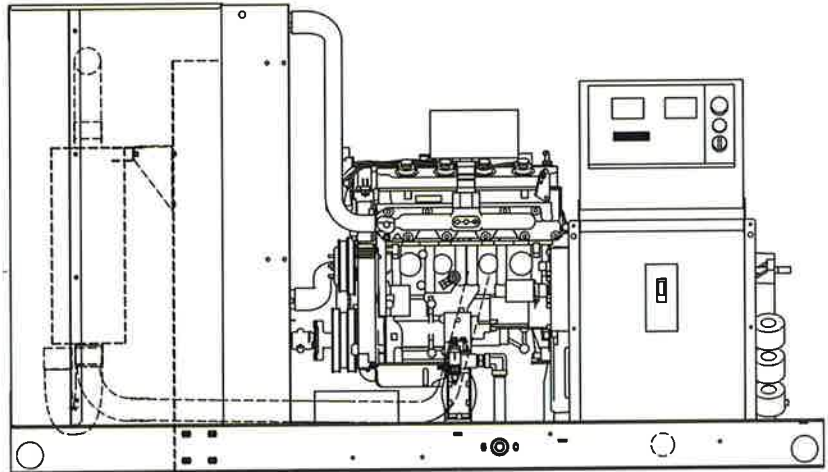
Industrial Gaseous Generator Set

EPA Certified Stationary Emergency

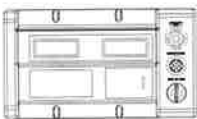
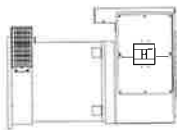
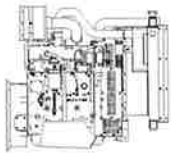
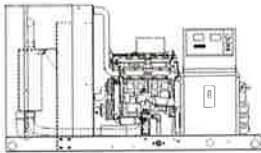
QT025A 25kW

1 of

Standby Power Rating
31kVA 25kW 60Hz



Generator image used for illustration purposes only



features

benefits

Generator Set

- PROTOTYPE & TORSIONALLY TESTED
- UL2200 TESTED
- RHINOCOAT PAINT SYSTEM
- ▶ PROVIDES A PROVEN UNIT
- ▶ ENSURES A QUALITY PRODUCT
- ▶ IMPROVES RESISTANCE TO ELEMENTS

Engine

- EPA COMPLIANT
- INDUSTRIAL TESTED, GENERAC APPROVED
- POWER-MATCHED OUTPUT
- INDUSTRIAL GRADE
- ▶ ENVIRONMENTALLY FRIENDLY
- ▶ ENSURES INDUSTRIAL STANDARDS
- ▶ ENGINEERED FOR PERFORMANCE
- ▶ IMPROVES LONGEVITY AND RELIABILITY

Alternator

- TWO-THIRDS PITCH
- LAYER WOUND ROTOR & STATOR
- CLASS H MATERIALS
- DIGITAL 3-PHASE VOLTAGE CONTROL
- ▶ ELIMINATES HARMFUL 3RD HARMONIC
- ▶ IMPROVES COOLING
- ▶ HEAT TOLERANT DESIGN
- ▶ FAST AND ACCURATE RESPONSE

Controls

- ENCAPSULATED BOARD W/ SEALED HARNESS
- 4-20mA VOLTAGE-TO-CURRENT SENSORS
- SURFACE-MOUNT TECHNOLOGY
- ADVANCED DIAGNOSTICS & COMMUNICATIONS
- ▶ EASY, AFFORDABLE REPLACEMENT
- ▶ NOISE RESISTANT 24/7 MONITORING
- ▶ PROVIDES VIBRATION RESISTANCE
- ▶ HARDENED RELIABILITY

primary codes and standards



QT025A

application and engineering data

ENGINE SPECIFICATIONS

General

Make	Generac
EPA Emissions Compliance	Stationary Emergency
EPA Emissions Engine Reference	See Emissions Data Sheet
Cylinder #	4
Type	In-line
Displacement - L	2.4
Bore - mm (in.)	86.61 (3.41)
Stroke - mm (in.)	100.08 (3.94)
Compression Ratio	9.5:1
Intake Air Method	Naturally Aspirated
Number of Main Bearings	5
Connecting Rods	Forged
Cylinder Head	Aluminum
Cylinder Liners	No
Ignition	High Energy
Pistons	Aluminum Alloy
Crankshaft	Cast
Lifter Type	Overhead Cam
Intake Valve Material	Steel Alloy
Exhaust Valve Material	Hardened Steel
Hardened Valve Seats	Yes

Lubrication System

Oil Pump Type	Gear
Oil Filter Type	Full-flow spin-on cartridge
Crankcase Capacity - L (qts)	3.8 (4)

Cooling System

Cooling System Type	Pressurized Closed
Water Pump Flow	11 gal/min
Fan Type	Pusher
Fan Speed (rpm)	2150
Fan Diameter mm (in.)	457 (18)
Coolant Heater Wattage	1500
Coolant Heater Standard Voltage	120VAC

Fuel System

Fuel Type	Natural Gas, Propane Vapor
Carburetor	Down Draft
Secondary Fuel Regulator	Standard
Fuel Shut Off Solenoid	Standard
Operating Fuel Pressure	5" - 14" H2O*

*Fuel pressure must remain within specified range and not drop more than 1 in. w.c. from static (no-load) to full load.

Engine Electrical System

System Voltage	12VDC
Battery Charging Alternator (Amps)	30
Battery Size (at 0°C)	525CCA
Battery Group	26
Battery Voltage	12VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	390mm
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<50
Standard Excitation	Brush Type
Bearings	Sealed Ball
Coupling	Flexible Disc
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes

Voltage Regulator Type	Full Digital
Number of Sensed Phases	3
Regulation Accuracy (Steady State)	+/- 0.25%

Engine Governing

Governor	Electronic
Frequency Regulation (Steady State)	+/- 0.25%

CODES AND STANDARDS COMPLIANCE (WHERE APPLICABLE)

NFPA 99	BS5514
NFPA 110	SAE J1349
ISO 8528-5	DIN6271
ISO 1708A.5	IEEE C62.41 TESTING
ISO 3046	NEMA ICS 1
	UL2200

Rating Definitions:

Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability. (Max. load factor = 70%)

QT025A

operating data (60Hz)

POWER RATINGS (kW)

	Natural Gas		Propane Vapor	
	kW	Amps	kW	Amps
Single-Phase 120/240VAC @1.0pf	25	104	25	104
Three-Phase 120/208VAC @0.8pf	25	87	25	87
Three-Phase 120/240VAC @0.8pf	25	75	25	75
Three-Phase 277/480VAC @0.8pf	25	38	25	38

STARTING CAPABILITIES (sKVA)

Alternator	kW	sKVA vs. Voltage Dip											
		480VAC						208/240VAC					
		10%	15%	20%	25%	30%	35%	10%	15%	20%	25%	30%	35%
Standard	25	16	25	33	41	49	57	12	19	25	31	37	43

FUEL

Fuel Consumption Rates*

Natural Gas			Propane Vapor		
Percent Load	ft ³ /hr	m ³ /hr	Percent Load	ft ³ /hr	m ³ /hr
25%	140	3.9	25%	56	1.6
50%	220	6.2	50%	87	2.5
75%	300	8.5	75%	119	3.4
100%	380	10.8	100%	151	4.3

* Refer to "Emissions Data Sheet" for maximum fuel flow for EPA and SCAQMD permitting purposes.

COOLING

		STANDBY
Air Flow (inlet air combustion and radiator)	ft ³ /min (m ³ /min)	1500 (42.48)
System Coolant Capacity	Gal (Liters)	2.5 (9.46)
Heat Rejection to Coolant	BTU/hr	95,000
Max. Operating Air Temp on Radiator	°F (°C)	122 (50)
Max. Ambient Temperature	°F (°C)	104 (40)
Maximum Radiator Backpressure	in H ₂ O	1.5

COMBUSTION AIR REQUIREMENTS

		STANDBY
Flow at Rated Power	cfm	70

ENGINE

		STANDBY
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	40
Piston Speed	ft/min	1182
BMEP	psi	120

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

EXHAUST

		STANDBY
Exhaust Flow (Rated Output)	cfm (m ³ /min)	220 (6.2)
Maximum Recommended Back Pressure	inHg	1.5
Exhaust Temp (Rated Output)	°F (°C)	975 (524)
Exhaust Outlet Size	in	2.5

QT025A

standard features and options

GENERATOR SET

● Genset Vibration Isolation	Std
○ Extended warranty	Opt
○ Gen-Link™ Communications Software	Opt
○ Steel Enclosure	Opt
○ Aluminum Enclosure	Opt

ENGINE SYSTEM

General

● Oil Drain Extension	Std
● Critical Exhaust Silencer	Std
● Air cleaner	Std
● Fan guard	Std
● Radiator duct adapter	Std

Fuel System

● Fuel lockoff solenoid	Std
● Secondary Fuel Regulator	Std
● Flexible fuel lines	Std

Cooling System

● 120VAC Coolant Heater	Std
● Closed Coolant Recovery System	Std
● UV/Ozone resistant hoses	Std
● Factory-Installed Radiator	Std
● Radiator Drain Extension	Std

Engine Electrical System

● Battery charging alternator	Std
● Battery cables	Std
● Battery tray	Std
● Solenoid activated starter motor	Std
● 10A UL float/equalize battery charger	Std
● Rubber-booted engine electrical connections	Std

ALTERNATOR SYSTEM

● UL2200 GENprotect™	Std
● Main Line Circuit Breaker	Std

CONTROL SYSTEM

Control Panel

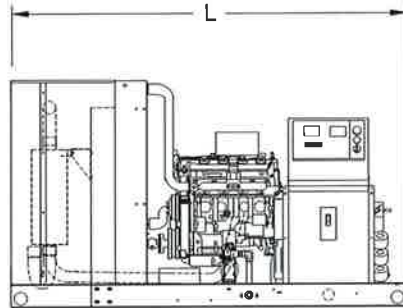
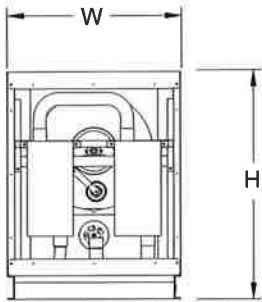
● Digital H Control Panel - Dual 4x20 Display	Std
● Programmable Crank Limiter	Std
○ 21-Light Remote Annunciator	Opt
○ Remote Relay Panel (8 or 16)	Opt
● 7-Day Programmable Exerciser	Std
● Special Applications Programmable PLC	Std
● RS-232 Communications	Std
● RS-485 Communications	Std
● All-Phase Sensing DVR	Std
● Full System Status	Std
● Utility Monitoring (Req. H-Transfer Switch)	Std
● 2-Wire Start Compatible	Std
● Power Output (kW)	Std
● Power Factor	Std
● Reactive Power	Std
● All phase AC Voltage	Std
● All phase Currents	Std
● Oil Pressure	Std
● Coolant Temperature	Std
● Coolant Level	Std
● Fuel Pressure	Std
● Engine Speed	Std
● Battery Voltage	Std
● Frequency	Std
● Isochronous Governor Control	Std
● -40deg C - 70deg C Operation	Std
● Waterproof Plug-In Connectors	Std
● Audible Alarms and Shutdowns	Std
● Not in Auto (Flashing Light)	Std
● Auto/Off/Manual Switch	Std
● E-Stop (Red Mushroom-Type)	Std
● NFPA 110 Level I and II (Programmable)	Std
● Remote Communication - RS232	Std

Alarms (Programmable Tolerances, Pre-Alarms and Shutdowns)

● Low Fuel Pressure	Std
● Oil Pressure (Pre-programmed Low Pressure Shutdown)	Std
● Coolant Temperature (Pre-programmed High Temp Shutdown)	Std
● Coolant Level (Pre-programmed Low Level Shutdown)	Std
● Engine Speed (Pre-programmed Overspeed Shutdown)	Std
● Voltage (Pre-programmed Overvoltage Shutdown)	Std
● Battery Voltage	Std

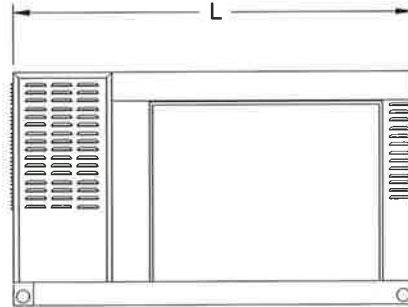
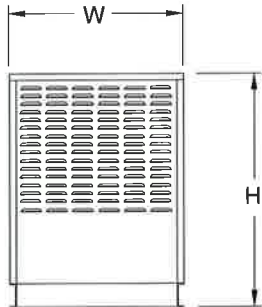
QT025A

dimensions, weights and sound levels



OPEN SET

L	W	H	WT	dBA*
77	34	43	1163	83



LEVEL 1 ACOUSTIC ENCLOSURE

L	W	H	WT	dBA*
77	34	46	1414	60

*All measurements are approximate and *All measurements are approximate and for estimation purposes only. Sound levels measured at 23ft (7m) under normal operation and do not account for ambient site conditions, estimation purposes only. Sound levels measured at 23ft (7m) and does not account for ambient site conditions.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

ATTACHMENT 4

Visual Assessments and Photo-Simulations

DARIEN 6 CT
777 BOSTON POST ROAD
DARIEN, CT 06820



Prepared in October 2016 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 this visual assessment and prepared computer-generated photo-simulations depicting the proposed installation of a wireless telecommunications Facility at 777 Boston Post Road in Darien, Connecticut (the "Property").

Project Setting

The Property is located northwest of the intersection of Boston Post Road and Sedgewick Avenue and is developed with a three-story commercial office building. The proposed Verizon Wireless Facility design includes multiple antennas and appurtenances mounted to pipe-masts on the east side of the building, all behind two separate radio frequency-transparent concealment screen walls. The concealment screens would extend approximately 4.5 feet above the roof's parapet wall. Associated equipment would be located within the building's basement. An emergency, back-up power generator would be installed on the west side of the building in a landscaped area beyond the parking lot.

Methodology

On September 29, 2016, APT personnel conducted field reconnaissance and photo-documented existing conditions. Several nearby locations were selected to depict existing and proposed conditions. These locations also represent the approximate limits of visibility associated with the proposed 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 to present a consistent field of view.

Three-dimensional computer models were developed for the building and proposed Facility 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. A photolog map and copies of the existing conditions and photo-simulations are attached.

Four (4) locations were simulated where the proposed concealment screens will be visible; a fifth (5th) location depicts the proposed generator area. The simulations are static in nature and do not necessarily fairly

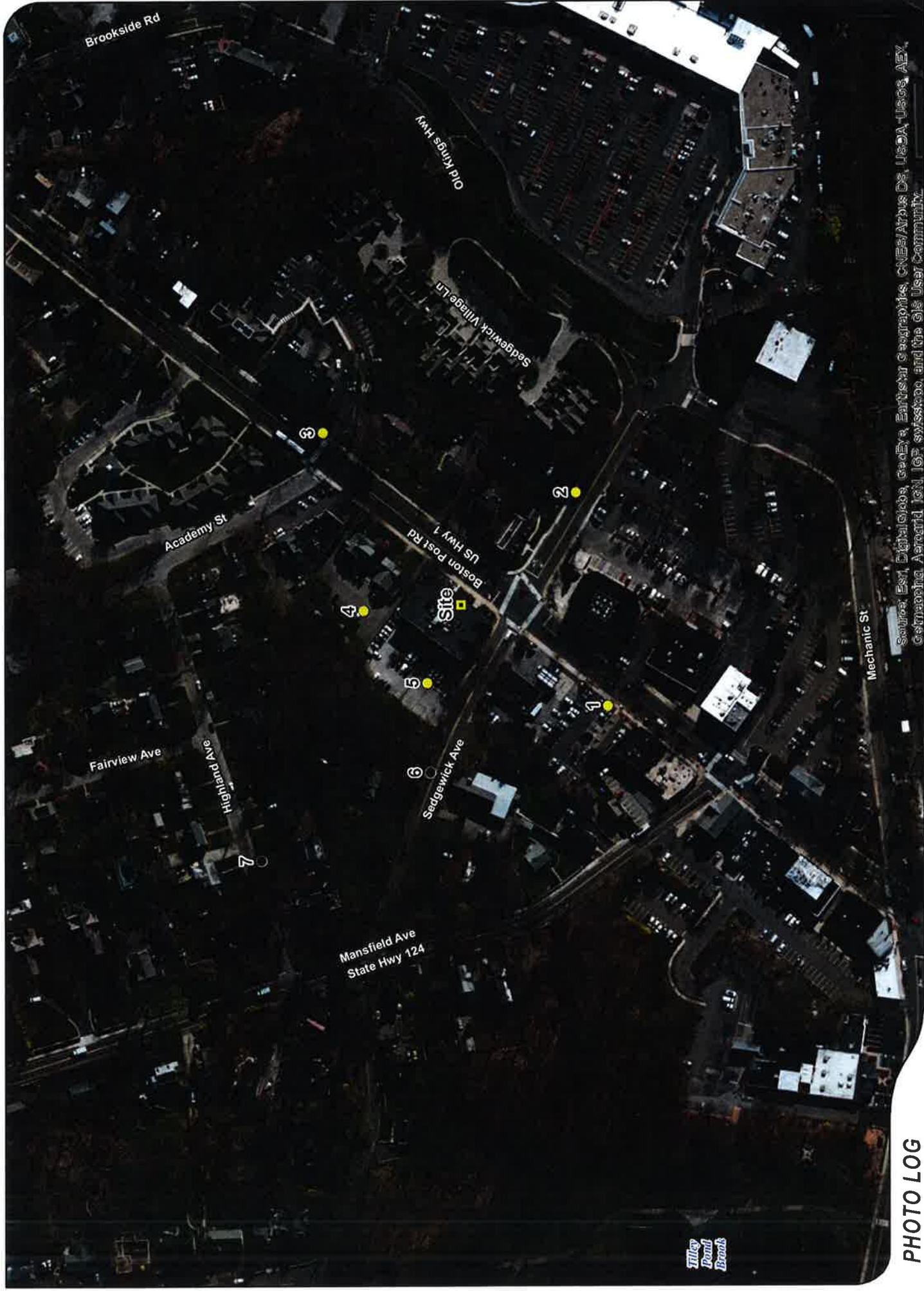
characterize the prevailing views from all locations within a given area. They provide a representation of the proposed Facility under similar settings as those encountered during the field reconnaissance. Views of the Facility can change substantially throughout the seasons as well as the time of day, 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.

Conclusions

The visibility of the proposed installation would be generally confined to locations along Boston Post Road within approximately 500 feet or less of the building. The combination of the concealment screens and their low heights above the roof line would result in the Facility appearing to be part of the building architecture.

Based on the results of this assessment, it is our opinion that the proposed installation of the Verizon Wireless communications facility will not have an adverse visual impact on existing views of this building or the character of the community.

ATTACHMENTS



Brookside Rd

Old Kings Hwy

Sedgewick Village Ln

Academy St

Boston Post Rd
US Hwy 1

Sedgewick Ave

Fairview Ave

Hillside Ave

Mansfield Ave
State Hwy 124

Mechanic St

Site

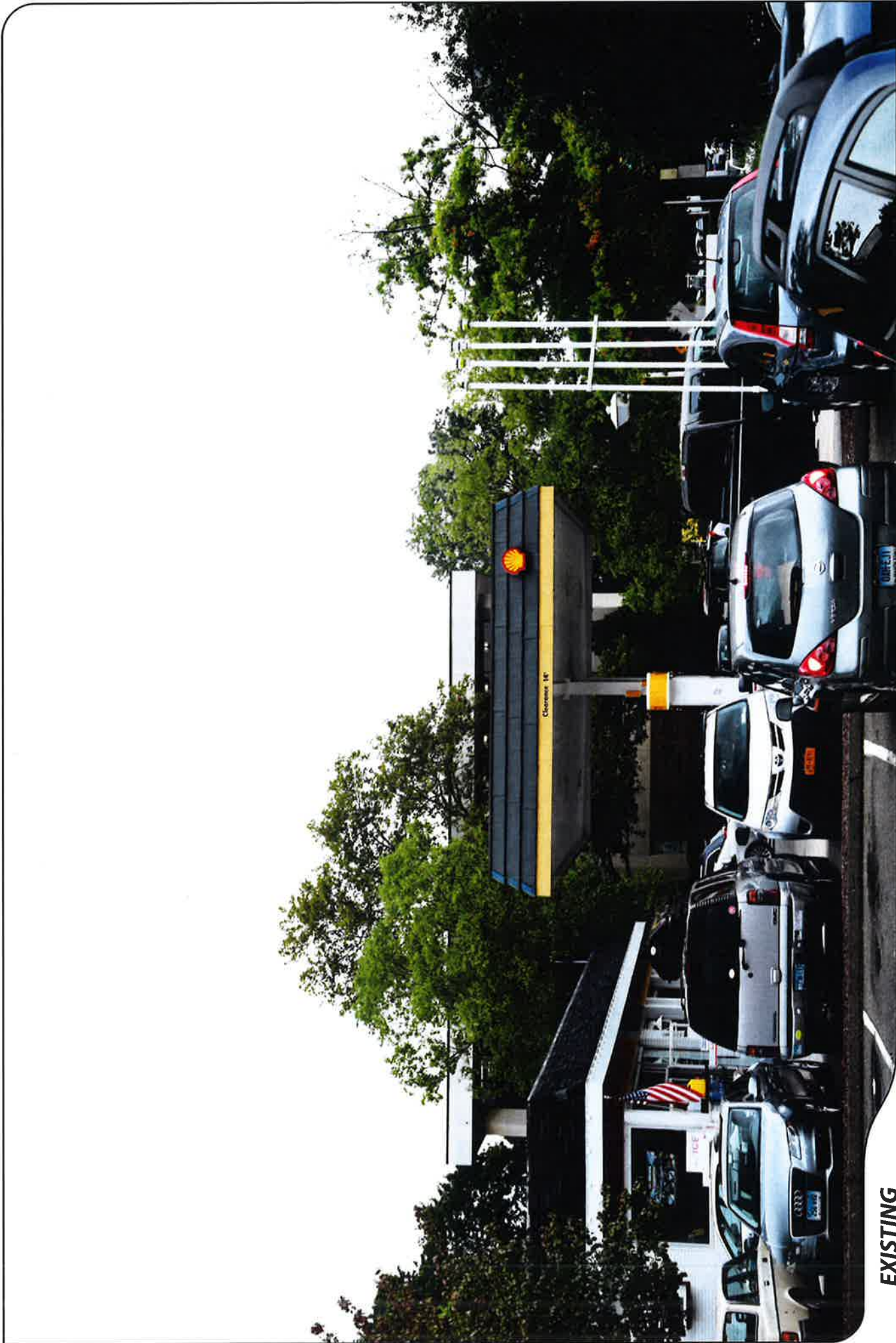
Tilly
Point
Brook

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroX, Getmapdata, Aeroid, IGN, IGP, swisstopo, and the GIS User Community

PHOTO LOG

- Legend
- Site
 - Year-Round Visibility
 - Not Visible





EXISTING

PHOTO

1

LOCATION

STARBUCKS PARKING LOT

ORIENTATION

NORTHEAST

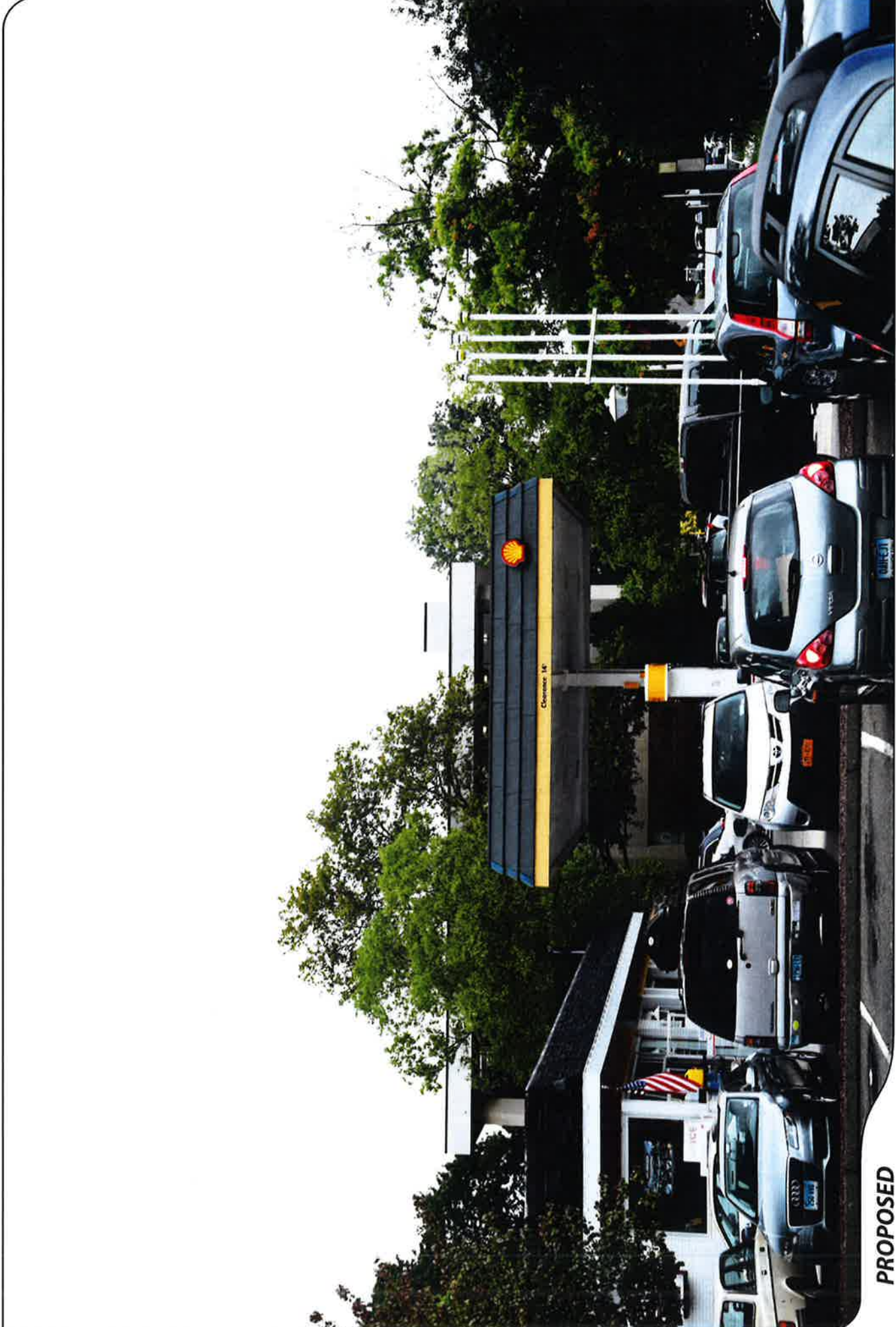
DISTANCE TO SITE

+/- 287 FEET



ALL-POINTS
TECHNOLOGY CORPORATION





PROPOSED

PHOTO

1

LOCATION

STARBUCKS PARKING LOT

ORIENTATION

NORTHEAST

DISTANCE TO SITE

+/- 287 FEET





EXISTING

PHOTO

2

LOCATION

SEDGEWICK AVENUE

ORIENTATION

NORTHWEST

DISTANCE TO SITE

+/- 258 FEET



ALL-POINTS
TECHNOLOGY CORPORATION





PROPOSED

PHOTO

2

LOCATION

SEDGEWICK AVENUE

ORIENTATION

NORTHWEST

DISTANCE TO SITE

+/- 258 FEET





EXISTING

PHOTO

3

LOCATION

BOSTON POST ROAD

ORIENTATION

SOUTHWEST

DISTANCE TO SITE

+/- 356 FEET





PROPOSED

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE
3	BOSTON POST ROAD	SOUTHWEST	+/- 356 FEET





EXISTING

PHOTO

4

LOCATION

ADJACENT TO HOST PROPERTY

ORIENTATION

SOUTH

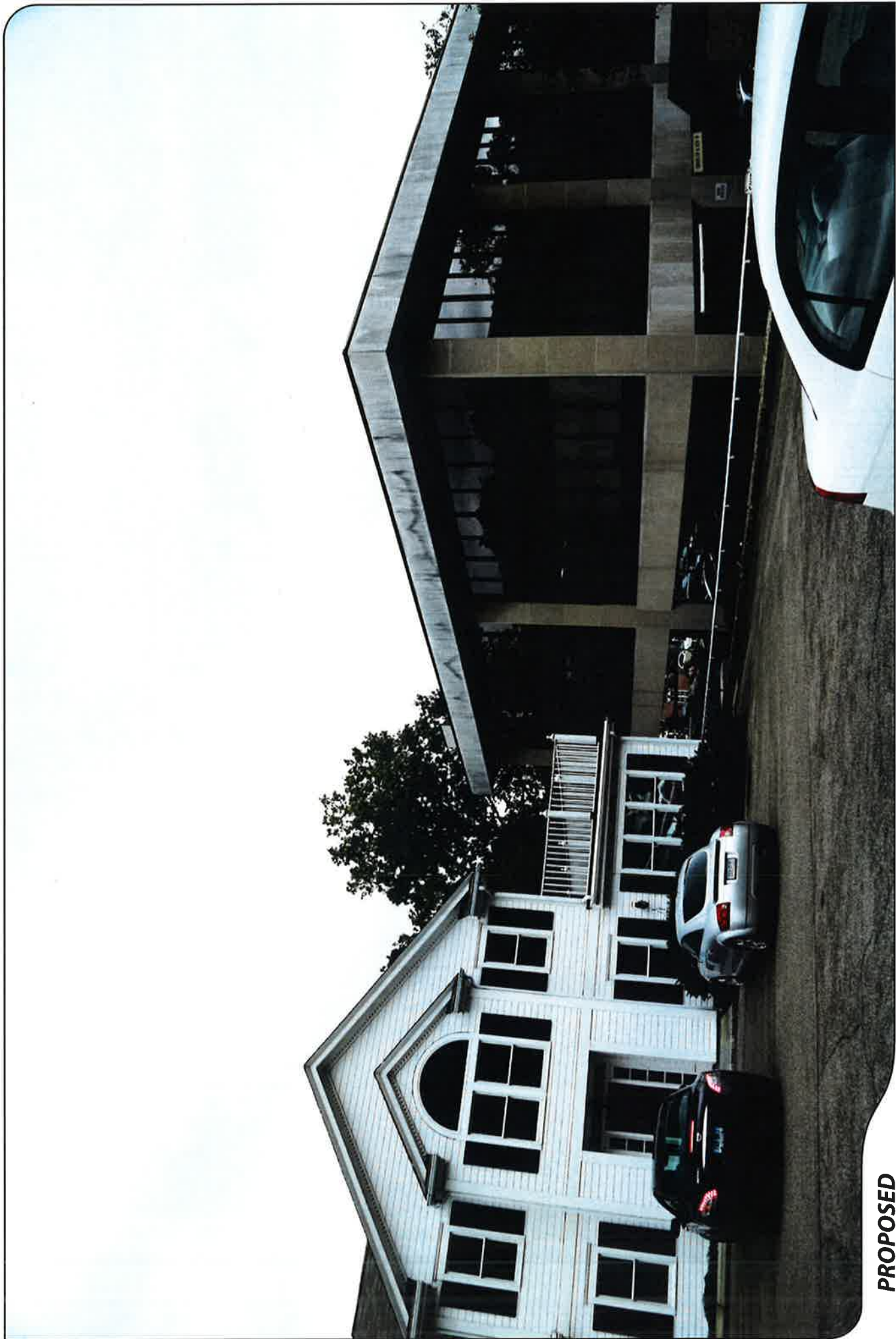
DISTANCE TO SITE

+/- 167 FEET



ALL-POINTS
TECHNOLOGY CORPORATION





PROPOSED

PHOTO

4

LOCATION

ADJACENT TO HOST PROPERTY

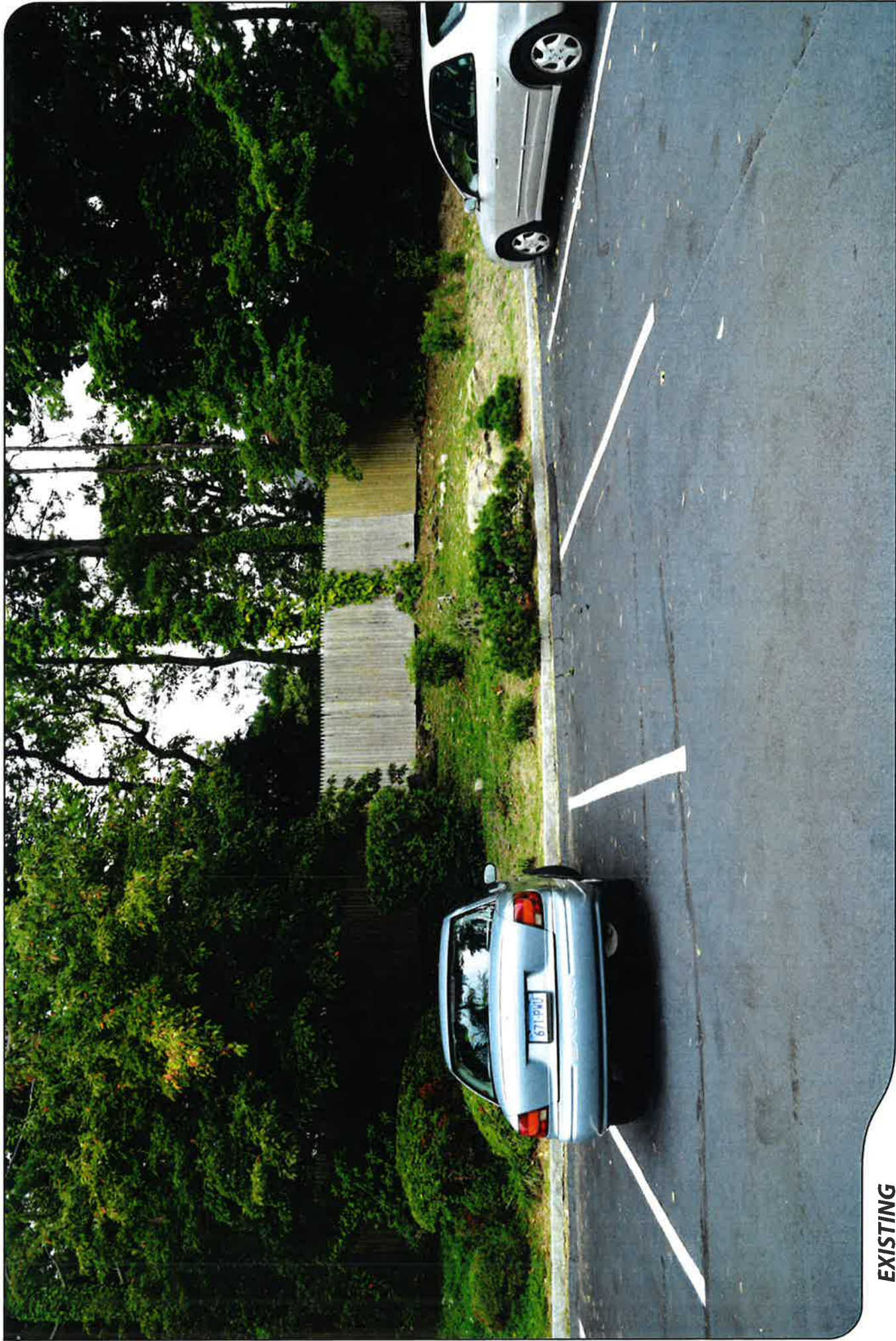
ORIENTATION

SOUTH

DISTANCE TO SITE

+/- 167 FEET





EXISTING

PHOTO

5

LOCATION

HOST PROPERTY

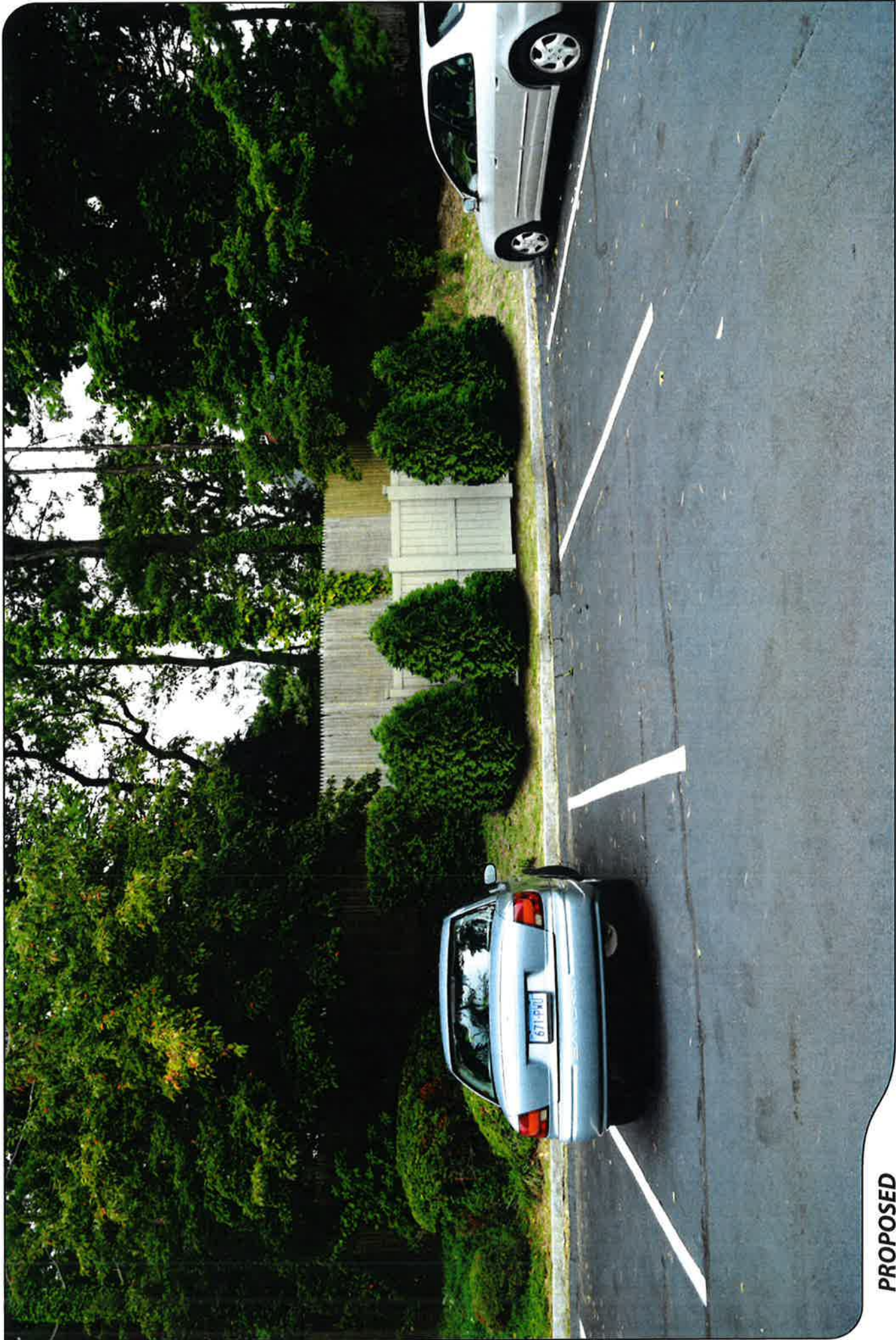
ORIENTATION

NORTHWEST

DISTANCE TO SITE

+/- 60 FEET





PROPOSED

PHOTO

5

LOCATION

HOST PROPERTY

ORIENTATION

NORTHWEST

DISTANCE TO SITE

+/- 60 FEET





NOT VISIBLE FROM THIS LOCATION

EXISTING

PHOTO

6

LOCATION

SEDGEWICK AVENUE

ORIENTATION

SOUTHEAST

DISTANCE TO SITE

+/- 262 FEET





NOT VISIBLE FROM THIS LOCATION

EXISTING

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE
7	HIGHLAND AVENUE	SOUTHEAST	+/- 0.10 MILE



verizon

ATTACHMENT 5



C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com

Calculated Radio Frequency Emissions Report



Darien SC1 CT

777 Post Road, Darien, CT 06820

June 12, 2015

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed installation of Verizon Wireless antenna arrays on the rooftop of the building located at 777 Post Road in Darien, CT. The coordinates of the building are 41° 04' 46.06" N, 73° 28' 05.64" W.

Verizon Wireless is proposing to install the following:

- 1) Install three 1900MHz LTE antennas (one per sector);
- 2) Install three 2100MHz LTE antennas (one per sector);
- 3) Install six remote radio units (RRUs) for 1900MHz & 2100MHz LTE (two per sector).

This report uses the planned antenna configuration for Verizon Wireless to derive the resulting % MPE, once the proposed installation has been completed.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

$$\text{Power Density} = \left(\frac{\text{EIRP}}{\pi \times R^2} \right) \times \text{Off Beam Loss}$$

Where:

EIRP = Effective Isotropic Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Off Beam Loss is determined by the selected antenna patterns

Ground reflection factor of 2.0

These calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not take into account actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final configuration.

The percent of MPE values presented in this report reflect levels that one may encounter from one sector of each carrier's antennas. Most carriers use 3 sectors per site with azimuths approximately 120 degrees apart, therefore one could not be standing in the main beam of all 3 sectors at the same time. Although carriers are free to orient their antennas in whichever direction necessary to support their network coverage objectives, this report assumes that all carriers are using the same azimuth for each sector. In cases where downtilt and antenna models are not uniform across all 3 sectors, the downtilt and antenna model with the highest gain was used for the calculations. This results in a conservative or "worst case" assumption for percent of MPE calculations.

4. Antenna Inventory

Table 1 below outlines Verizon Wireless' proposed antenna configuration for the site. The associated data sheets and antenna patterns for these specific antenna models are included in Attachment C.

Operator	Sector	TX Freq (MHz)	Power at Antenna (Watts)	Ant Gain (dBd)	Power ERP (Watts)	Antenna Model	Beam Width	Mech. Tilt	Length (ft)	Antenna Centerline Height (ft)
Verizon	Alpha	1900	160	12.5	2845	HBXX-6513DS-A2M 6	66	0	2.3	41.4
		2100	160	12.8	3049	HBXX-6513DS-A2M 6	64	0	2.3	41.4
	Beta	1900	160	12.5	2845	HBXX-6513DS-A2M 8	66	0	2.3	41.4
		2100	160	12.8	3049	HBXX-6513DS-A2M 8	64	0	2.3	41.4
	Gamma	1900	160	12.5	2845	HBXX-6513DS-A2M 6	66	0	2.3	41.4
		2100	160	12.8	3049	HBXX-6513DS-A2M 6	64	0	2.3	41.4

Table 1: Proposed Antenna Inventory^{1 2}

¹ Antenna heights are in reference to the Centek Engineering Zoning Drawings, dated May 27, 2015.

² In the case where antenna models are not uniform across all 3 sectors for the same frequency band, the antenna model with the highest gain/maximum downtilt was used for the calculations to present a worse-case scenario. Transmit power assumes 0dB of cable loss.

5. Calculation Results

The calculated power density results are shown in Figure 1 below. For completeness, the calculations for this analysis range from 0 feet horizontal distance (directly below the antennas) to a value of 1,000 feet horizontal distance from the site. In addition to the other worst case scenario considerations that were previously mentioned, the power density calculations to each horizontal distance point away from the antenna was completed using a local maximum off beam antenna gain (within ± 5 degrees of the true mathematical angle) to incorporate a realistic worst-case scenario.

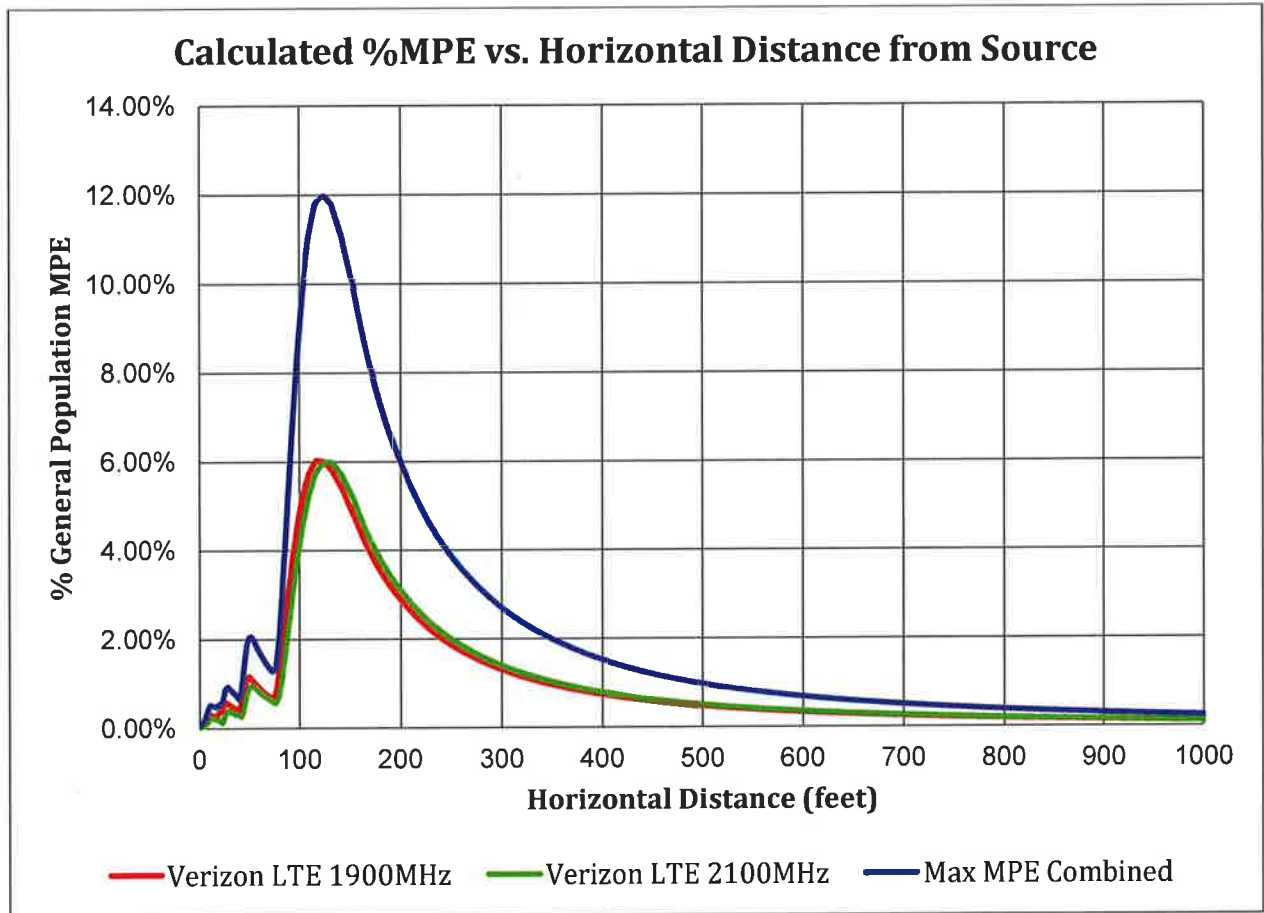


Figure 1: Graph of Percent of General Population MPE vs. Distance

The highest percent of MPE (11.98% of the General Population limit) was calculated to occur at a horizontal distance of 123 feet from the site. Please note that the percent of MPE calculations close to the site take into account off beam loss, which is determined from the vertical pattern of the antennas used. Therefore, RF power density levels may increase as the distance from the site increases. At distances of approximately 200 feet and beyond, one would now be in the main beam of the antenna pattern and off beam loss is no longer considered. Beyond this point, RF levels become calculated solely on distance from the site and the percent of MPE decreases significantly as distance from the site increases.

Table 2 below lists percent of MPE values as well as the associated parameters that were included in the calculations. The highest percent of MPE value was calculated to occur at a horizontal distance of 123 feet from the site (reference Figure 1).

As stated in Section 3, all calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. In addition, 6 feet was subtracted from the height of the antennas for this analysis to account for average human height. As a result, the predicted signal levels are significantly higher than the actual signal levels will be from the final configuration.

Carrier	Number of Trans.	Power out of Base Station Per Transmitter (Watts)	Antenna Height (Feet)	Distance to the Base of Antennas (Feet)	Power Density (mW/cm ²)	Limit (mW/cm ²)	%MPE
Verizon LTE 1900MHz	2	60.0	41.4	123	0.060093	1.000	6.01%
Verizon LTE 2100MHz	2	60.0	41.4	123	0.059678	1.000	5.97%
Total							11.98%

Table 2: Maximum Percent of General Population Exposure Values³

³ Frequencies listed in Table 2 are representative of the operating band of the particular carrier and are not the carriers' specific operating frequency.

6. Conclusion

The above analysis verifies that RF exposure levels from the proposed Verizon Wireless antenna installation will be well below the maximum levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using the conservative calculation methods and parameters detailed above, the maximum percent of MPE calculated at 6 feet above ground level is **11.98%** of the FCC General Population limit. This maximum percent of MPE value is calculated to occur 123 feet away from the site.

7. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in ANSI/IEEE Std. C95.3, ANSI/IEEE Std. C95.1 and FCC OET Bulletin 65 Edition 97-01.



Daniel L. Goulet
C Squared Systems, LLC

June 12, 2015

Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure⁴

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f ²)*	6
30-300	61.4	0.163	1.0	6
300-1500	-	-	f/300	6
1500-100,000	-	-	5	6

(B) Limits for General Population/Uncontrolled Exposure⁵

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	-	-	f/1500	30
1500-100,000	-	-	1.0	30

f = frequency in MHz * Plane-wave equivalent power density

Table 3: FCC Limits for Maximum Permissible Exposure

⁴ Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

⁵ General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

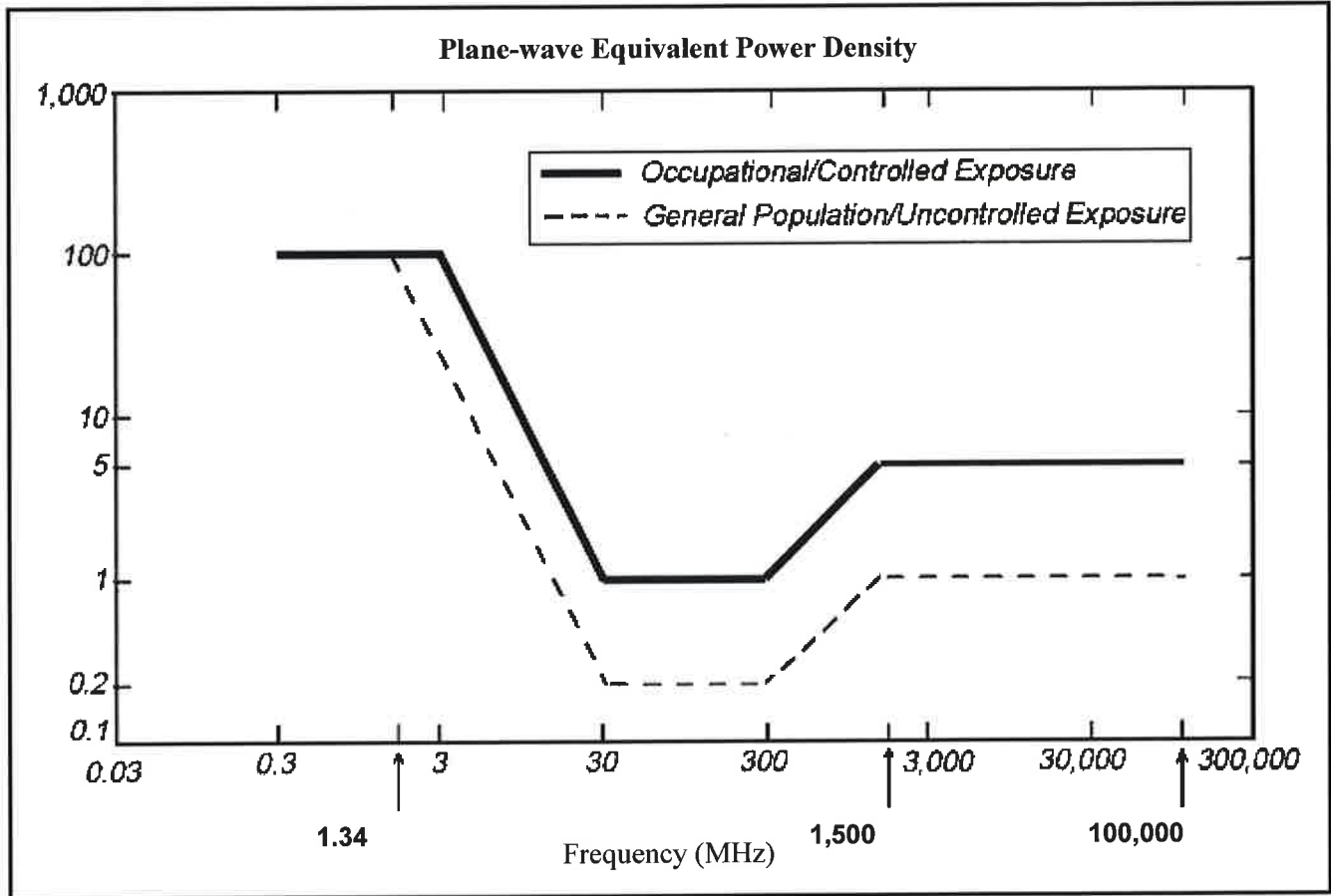
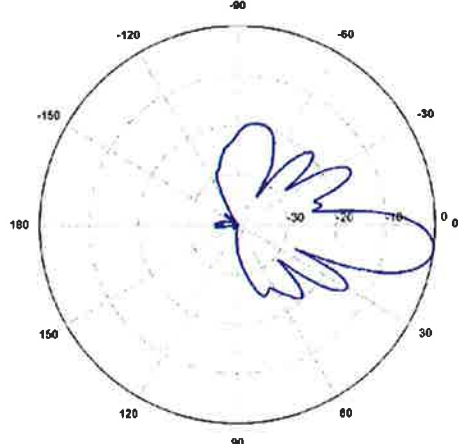
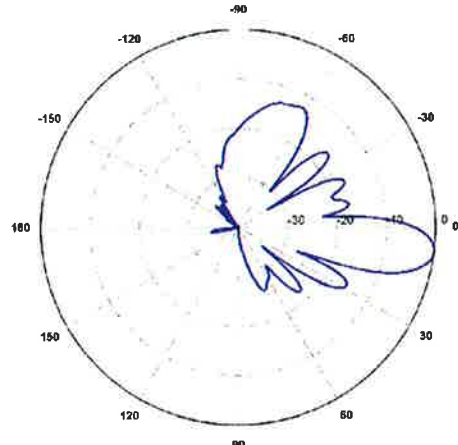


Figure 2: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: Verizon Wireless' Antenna Model Data Sheets and Electrical Patterns

<p>1900 MHz LTE</p> <p>Manufacturer: Commscope Model #: HBXX-6513DS-A2M_8 Frequency Band: 1850-1990 MHz Gain: 12.5 dBd Vertical Beamwidth: 14° Horizontal Beamwidth: 66° Polarization: ± 45° Size L x W x D: 27.4" x 12.0" x 6.5"</p>	
<p>2100 MHz LTE</p> <p>Manufacturer: Commscope Model #: HBXX-6513DS-A2M_8 Frequency Band: 1920-2170 MHz Gain: 12.8 dBd Vertical Beamwidth: 13.4° Horizontal Beamwidth: 64° Polarization: ± 45° Size L x W x D: 27.4" x 12.0" x 6.5"</p>	

ATTACHMENT 6

Darien 6, CT - FAA Analysis.txt

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

Airspace User: Your Name

File: DARIEN_6_CT

Location: Norwalk, CT

Latitude: 41°-04'-46.06"

Longitude: 73°-28'-05.64"

SITE ELEVATION AMSL.....55.5 ft.

STRUCTURE HEIGHT.....48 ft.

OVERALL HEIGHT AMSL.....104 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 HPN
- FAR 77.9: NNR (No Expected TERPS® impact BDR)
- 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: HPN: WESTCHESTER COUNTY

- Type: A RD: 64141.32 RE: 387.7
- FAR 77.17(a)(1): DNE
- FAR 77.17(a)(2): DNE - Greater Than 5.99 NM.
- VFR Horizontal Surface: DNE
- VFR Conical Surface: DNE
- VFR Approach Slope: DNE
- VFR Transitional Slope: DNE

VFR TRAFFIC PATTERN AIRSPACE FOR: BDR: IGOR I SIKORSKY MEMORIAL

- Type: A RD: 96875.88 RE: 5.7
- FAR 77.17(a)(1): DNE
- FAR 77.17(a)(2): DNE - Greater Than 5.99 NM.
- VFR Horizontal Surface: DNE
- VFR Conical Surface: DNE
- VFR Approach Slope: DNE

Darrien 6, CT - FAA Analysis.txt
 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 1000 ft AMSL

PRIVATE LANDING FACILITIES

FACIL IDENT TYP NAME	BEARING To FACIL	RANGE IN NM	DELTA ARP ELEVATION	FAA IFR
CT56 HEL 50 WASHINGTON STREET No Impact to Private Landing Facility Structure 0 ft below heliport.	60.47	2.5	-40	
5CT4 HEL NORWALK HOSPITAL No Impact to Private Landing Facility Structure 0 ft below heliport.	48.05	2.84	-53	
5CT8 HEL CANAL STREET No Impact to Private Landing Facility Structure is beyond notice limit by 16752 feet.	233.45	3.58	+53	
1CT0 HEL NORDEN SYSTEMS No Impact to Private Landing Facility Structure is beyond notice limit by 20216 feet.	61.2	4.15	+43	
9CT1 HEL THE TOWERS No Impact to Private Landing Facility Structure 0 ft below heliport.	24.74	4.29	-177	
CT91 HEL USSC No Impact to Private Landing Facility Structure 0 ft below heliport.	23.07	4.74	-62	

AIR NAVIGATION ELECTRONIC FACILITIES

APCH BEAR	FAC	ST	DIST	DELTA	GRND	
IDNT	TYPE	AT	FREQ	VECTOR (ft)	ELEVA ST LOCATION	ANGLE
HPN	RADAR	ON	2735.	267.86	68182 -406 NY WESTCHESTER COUNT	-.34
No Impact. This structure does not require Notice based upon EMI. The studied location is within 20 NM of a Radar facility. The calculated Radar Line-Of-Sight (LOS) distance is: 40 NM. This location and height is within the Radar Line-Of-Sight.						
CMK	VOR/DME	I	116.6	336.97	79449 -590 NY CARMEL	-.43
BDR	VOR/DME	R	108.8	72.54	99233 +94 CT BRIDGEPORT	.05
DPK	VOR/DME	I	117.7	156.6	114274 -20 NY DEER PARK	-.01
ISP	RADAR	ON	2735.	134.13	143167 -78 NY LONG ISLAND MacAR	-.03
LGA	VOR/DME	R	113.1	225.62	154435 +94 NY LA GUARDIA	.03
HVN	VOR/DME	R	109.8	67.27	173807 +98 CT NEW HAVEN	.03

Darien 6, CT - FAA Analysis.txt

JFK	RADAR	ON	2755.	207.14	180256	+16	NY JOHN F KENNEDY IN	.01
JFK	VOR/DME	I	115.9	207.17	183043	+92	NY KENNEDY	.03
KOKX	RADAR WXL	Y		115.23	184192	-92	NY NEW YORK	-.03
TEB	VOR/DME	R	108.4	242.67	184343	+100	NJ TETERBORO	.03
CCC	VOR/DME	R	117.2	106.68	192666	+18	NY CALVERTON	.01
CRI	VOR/DME	R	112.3	214.59	207011	+94	NY CANARSIE	.03
JFK	RADAR WXL	Y	05647.	212.4	212031	-20	NY FLOYD BENNETT TDW	-.01
QVH	RADAR ARSR	Y	1326.9	108.99	227718	-248	NY RIVERHEAD	-.06
SWF	RADAR	Y	2765.	310.74	230505	-618	NY STEWART INTERNATI	-.15
EWR	RADAR	Y		233.21	238359	-46	NJ NEWARK ASDE	-.01

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: WNLK @ 4862 meters.

Airspace® Summary Version 16.7.421

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09-15-2016
16:36:45

ATTACHMENT 7

April 19, 2017

Via Certificate of Mailing

Jayne J. Stevenson, First Selectman
Town of Darien
2 Renshaw Road
Darien, CT 06820

Re: **Proposed Installation of a Telecommunications Facility at 777 Boston Post Road, Darien, Connecticut**

Dear Ms. Stevenson:

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 777 Boston Post Road, Darien (the “Property”). The facility will consist of two (2) tower masts on the roof on the building, supporting a total of six (6) antennas and six (6) remote radio heads (“RRHs”). The masts, antennas and RRHs will be located behind radio frequency (RF) transparent screening panels designed to match the building’s existing architecture. Equipment associated with the facility will be located inside the building. An emergency back-up generator will be located on the ground in the westerly portion of the Property and will be screened by plantings.

The proposed facility will provide improved wireless service and capacity relief to Cellco’s existing cell sites in Darien. 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 full Petition.

16203636-v1

Jayne J. Stevenson
April 19, 2017
Page 2

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

Sincerely,



Kenneth C. Baldwin

KCB/kmd
Attachment

April 19, 2017

Via Certificate of Mailing

Jeremy Ginsberg, Planning and Zoning Director
Town of Darien
2 Renshaw Road
Darien, CT 06820

**Re: Proposed Installation of a Telecommunications Facility at 777 Boston Post Road,
Darien, Connecticut**

Dear Mr. Ginsberg:

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 777 Boston Post Road, Darien (the “Property”). The facility will consist of two (2) tower masts on the roof on the building, supporting a total of six (6) antennas and six (6) remote radio heads (“RRHs”). The masts, antennas and RRHs will be located behind radio frequency (RF) transparent screening panels designed to match the building’s existing architecture. Equipment associated with the facility will be located inside the building. An emergency back-up generator will be located on the ground in the westerly portion of the Property and will be screened by plantings.

The proposed facility will provide improved wireless service and capacity relief to Cellco’s existing cell sites in Darien. 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 full Petition.

16203642-v1

Robinson+Cole

Jeremy Ginsberg
April 19, 2017
Page 2

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

Sincerely,



Kenneth C. Baldwin

KCB/kmd
Attachment

April 19, 2017

Via Certificate of Mailing

The Fidelity Building Company
Gretsch Commercial Real Estate
76 Maple Tree Avenue, #8
Stamford, CT 06906

Re: **Proposed Installation of a Telecommunications Facility at 777 Boston Post Road,
Darien, 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 777 Boston Post Road, Darien (the “Property”). The facility will consist of two (2) tower masts on the roof on the building, supporting a total of six (6) antennas and six (6) remote radio heads (“RRHs”). The masts, antennas and RRHs will be located behind radio frequency (RF) transparent screening panels designed to match the building’s existing architecture. Equipment associated with the facility will be located inside the building. An emergency back-up generator will be located on the ground in the westerly portion of the Property and will be screened by plantings.

The proposed facility will provide improved wireless service and capacity relief to Cellco’s existing cell sites in Darien. 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 full Petition.

16203673-v1

Robinson+Cole

The Fidelity Building Company
April 19, 2017
Page 2

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

Sincerely,



Kenneth C. Baldwin

KCB/kmd
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

April 19, 2017

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 Telecommunications Facility at 777 Boston Post Road, Darien,, 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 777 Boston Post Road, Darien (the “Property”). The facility will consist of two (2) tower masts on the roof on the building, supporting a total of six (6) antennas and six (6) remote radio heads (“RRHs”). The masts, antennas and RRHs will be located behind radio frequency (RF) transparent screening panels designed to match the building’s existing architecture. Equipment associated with the facility will be located inside the building. An emergency back-up generator will located on the ground in the westerly portion of the Property and will be screened by plantings.

This notice is being sent to you because you are listed 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.

April 19, 2017
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

KCB/kmd
Attachment

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS

ABUTTING PROPERTY OWNERS

**777 BOSTON POST ROAD
DARIEN, CONNECTICUT**

	Property Address	Owner's and Mailing Address
1.	805 Boston Post Road	Standard Realty LLC 299 Bishop Avenue Bridgeport, CT 06610
2.	Sedgwick Avenue	Town of Darien 2 Renshaw Road Darien, CT 06820
3.	27 Sedgwick Avenue	SNET Finance Dept. c/o Frontier Communications 401 Merritt 7 Norwalk, CT 06851
4.	30 Sedgwick Avenue	James S. and Adrienne W. Mageras 30 Sedgwick Avenue Darien, CT 06820
5.	13 Highland Avenue	Mary Crawford 13 Highland Avenue Darien, CT 06820
6.	767 Boston Post Road	Glenn Hoffman c/o Allison Ball 6 Bates Farm Road Darien, CT 06820
7.	762 Boston Post Road	Darien Financial Center LLC 762 Boston Post Road Darien, CT 06820
8.	770 Boston Post Road	770 Post Road LLC 770 Boston Post Road Darien, CT 06820

	Property Address	Owner's and Mailing Address
9.	780 Boston Post Road	Jaras LLC 780 Boston Post Road Darien, CT 06820
10.	800 Boston Post Road	Darien Fire Dept. Inc. c/o AGR Realty Co. Mercator Capital 38 A Grove Street Ridgefield, CT 06877