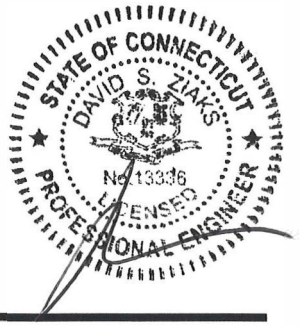
Hesketh

Civil & Traffic Engineers • Surveyors • Planners • Landscape Architects

F. A. Hesketh
& Associates, Inc.

F. A. HESKETH & ASSOCIATES, INC.
3 Creamery Brook
East Granby, CT 06026
(860) 653-8000 (860) 844-8600(Fax)
email: dziaks@fahesketh.com



MEMORANDUM

To: **Attorney David Sherwood** **Date: June 13, 2022**

From: **David S. Ziaks, PE**
President

Subject: **Proposed Wireless Telecommunications Facility**
1837 Ponus Ridge Road - New Canaan

Our File: **22052**

I have completed a preliminary review of the plans and reports submitted in support of the application before the Siting Council. Below, I have provided my initial comments and observations:

- The site is moderately wooded, steeply sloped and the soils are comprised primarily of Charlton-Chatfield complex which is a very rocky/ledge soil condition. In all likelihood, blasting and considerable rock excavation will be required given the extensive 50 ft. high slope cut that will be required to construct the access driveway and tower pad site. A geotechnical investigation with soil borings is required to properly design this driveway and slope cut and stabilization. I did not find a geotechnical report in the documents submitted.
- The submitted plans indicate that 103 trees will be removed and a significant slope excavation is required. When this type of extensive site preparation work is required, a multi-phase erosion and sedimentation control narrative and plan is required prepared accordance with the CTDEEP Guidelines for Erosion and Sediment Control. I did not find such a detailed narrative or plan in the plan set submitted.
- Runoff patterns will change, volume will increase and peak flow rates will intensify with the driveway and pad site construction. Existing dispersed sheet runoff following along the natural contours to Ponus Ridge Road will now be concentrated to three drainage outlet points. Large riprap plunge pools are proposed at the these outlets. Calculations following standards from Chapter 8 of the CTDOT Drainage Manual

MEMORANDUM

demonstrating that scour erosion is effectively controlled should be provided. It would seem there are better design alternatives to investigate, such as the construction of level spreaders in lieu of riprap point discharges to better mimic existing runoff conditions and lesson the probability of ongoing slope erosion. Ongoing sediment runoff to the town roadway potentially reaching the shore line of the reservoir is of concern. Similar comments and concerns have been raised by the town staff and others in various emails/memos in the record.

- Based on my field observations, Ponus Ridge Road is more of a country road than a modern suburban roadway with little formal drainage infrastructure and little crown and cross slope. It relies primarily on sheet runoff to both edges of the roadway. On the southerly side of the roadway, that sheet runoff is currently directed to the reservoir. Gutter flow calculations completed in accordance with CTDOT and town engineering standards should be completed to demonstrate that the increase in peak flowrates and volume from the project to the northerly side of the roadway does not overtop the roadway crown causing potential hazardous driving conditions during heavily rainfall and snow melt and icing events. Should the calculations indicate drainage capacity issues, then reconstruction of the town roadway and/or drainage system may be warranted.
- The proposed 12 ft. wide driveway has paved sections with an 18% slope. It also has gravel sections with a 10% slope. Driveway slopes greater than 12-15% are considered excessive by general accepted design standards and are difficult and potentially dangerous to navigate. The project proposes emergency generators fueled by propane. Of concern would be the ability of a fully loaded propane truck to safely access the site using a driveway with an 18% slope. This has not been addressed in any of the documents submitted.
- In summary, the steep grades, rocky soils, extensive clearing and site work proposed, and the lack of the geotechnical investigation and drainage study necessary to properly address these challenges in designing the proposed facility, preclude any meaningful engineering evaluation of its potential effect on the environment.

DAVID S. ZIAKS, P. E.
President & Principal Engineer
F. A. Hesketh & Associates, Inc.
East Granby, CT

BACKGROUND

Over 42 years of professional experience in private civil engineering practice with emphasis on site, utility infrastructure and roadway planning, design and construction. Extensive experience in all aspects relating to the planning, design, permitting and construction of retail, commercial and industrial sites, residential subdivisions, multi-family, active adult and affordable housing communities. Strong emphasis on the preparation of concept layout and facility plans, site design, roadway design, utility engineering, sub-surface sewage disposal systems, water and wastewater pumping stations, hydraulics and stormwater management including detention/retention facilities, LID design, construction coordination and inspection, environmental impact studies, erosion and sediment control plans, FEMA floodplain applications and other environmental considerations relating to site development, roadway design and construction activities.

EDUCATION

M. Eng. - Civil & Environmental Engineering and Management Science,
Stevens Institute of Technology, Hoboken, N. J. (1982)

B. S. - Civil Engineering, University of New Haven (1977)

Additional graduate studies in sanitary engineering at Virginia Polytechnic and State University, (1979)

PROFESSIONAL QUALIFICATIONS

Licensed Professional Engineer - CT

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers (Life Member)

PROFESSIONAL EXPERIENCE

F. A. Hesketh & Associates, Inc.
East Granby, Connecticut

2003 - Present President and Principal Engineer
1987 - 2003 Chief Engineer

Principal Engineer responsible for overall supervision and coordination of the firm's professional staff engaged in a wide variety of land planning, and civil and traffic engineering projects for both the private sector and governmental agencies. Extensive experience with public presentations and hearing testimony.

Megson & Heagle, C.E. & L. S.
Glastonbury, Connecticut

1983 - 1987 Project Manager

Project Manager/Senior Staff Engineer responsible for supervision and coordination of engineering personnel engaged in a diverse range of land planning, site engineering, and land surveying projects. Extensive involvement in soils testing and design of septic systems, detention basin design, and master planning for multi-family communities. Responsible for the organization and direction of projects, client liaison, preparation of reports, plans, estimates, and specifications, presentations and public hearing testimony, and construction administration.

Clinton Bogart Associates
Fort Lee, New Jersey

1981 –1983 Project Engineer

Project Engineer responsible for the preparation of reports, plans, estimates and specifications for a variety of commercial and industrial projects in the public and private sector in northern New Jersey. Scope of work for projects included environmental permit evaluations, layout, grading and utility design, hydraulic calculations and completion of permit applications.

Burns & Roe Industrial Services Corp.
Paramus, New Jersey

1979 – 1981 Project Engineer

Project Engineer in a large, multi-discipline engineering office with experience in the preparation of reports, plans, specifications and estimates for major industrial and energy projects in both the governmental and private sectors. Extensive involvement in nationwide projects related to determining the effects of the discharge of industrial wastewater to large municipal treatment facilities.

Cascio, Bechir, and Associates
North Haven, Connecticut

1977 - 1979 Junior Engineer

Junior Staff Engineer responsible for layout, design, and drafting of a variety of municipal, commercial and residential projects under the supervision of the Chief Engineer. Design experience in the preparation of facility plans, roadway plans, drainage analysis, septic system design and design of municipal sanitary sewer and water main distribution systems.

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Civil & Traffic Engineers • Surveyors • Planners • Landscape Architects

F. A. Hesketh
& Associates, Inc.

June 15, 2022

David F. Sherwood
Moriarty, Paetzold & Sherwood
2230 Main Street
P.O. Box 1420
Glastonbury, Connecticut 06033-6620

RE: 359 Dan's Hwy & 1837 Ponus Ridge
Our File: 22052

Dear David,

Pursuant to your request we have reviewed the following maps,

Exhibit A- Subdivision of Section 2A prepared for The Scot-Alan Corporation at New Canaan, Conn. Scale 1" = 100 FT. by Harry S. Bryan. New Canaan Town Clerk Map # 3880.

Exhibit B- Map Showing Subdivision of Property Owned by The Stamford Water Company New Canaan, Connecticut Scale 1" = 100' by Edward F. Verplanck office of Merritt R. Moody. New Canaan Town Clerk Map # 5246.

Exhibit C- Site Survey "CT050" 1837 Ponus Ridge Road New Canaan, CT 06840 Fairfield County, issued final 11/30/21, by Earle C. Newman, Northeast Tower Surveying, Inc.

The depiction of Land of the Stamford Water Company, Lot 57 and 1837 Ponus Ridge Road, differs on all three maps. A summary of our findings are listed below:

Exhibit A, Map # 3880- Lot 84 mathematically closes. The easterly, northerly, and westerly lines of Land of the Stamford Water Company depicted thereon are the same as the easterly and northerly lines of Lot 57 and the easterly, northerly & westerly lines of Lot 56 depicted on Map # 5246 (with one very minor exception). The map does not provide a bearing and distance along the line depicted connecting the southeasterly corner of Lot 87 with the Southwesterly corner of Lot 84.

Exhibit B, Map # 5246- The overall perimeter boundary of the map closes mathematically, and are the same as the easterly, northerly, and westerly lines of land shown as Land of the Stamford Water Company depicted on Map # 3880. The dividing line between Lot 56 and Lot 57 does not make a mathematically closed figure for either lot. (See detail attached).

Exhibit C, Site Survey "CT050"- The map mathematically closes. The easterly line matches both map # 3880 and Map # 5246. The Northerly line matches the Lot line between Lot 56 & 57 on Map # 5246 with one exception (see Highlighted markup). The Bearings and distances along the westerly line (along Ponus Ridge match Map # 5246. The southerly Lines do not match those of Map # 5246.

3 Creamery Brook • East Granby, CT 06026

Tel 860.653.8000 • Fax 860.844.8600
www.fahesketh.com

Also, attached are the following Sketches mark markups:

Exhibit D- Sketch combining the outline of the 3 maps and depicting the differences along the street lines of both Ponus Road and Dan's Highway.

Exhibit E- Sketch highlighting the differences in the maps and detail of the mis-closure lot line between Lot 56 and Lot 57 on Map # 5246, and the lot differences highlighted between the maps.

Based upon review of the maps, three ambiguities exist, the location of the northeasterly street line of Ponus Ridge Road, the location of the northerly street line of Dan's Highway, and the common lot line between Lot 56 and Lot 57.

Please feel free to contact me should you have any questions, concerns or require additional information.

Sincerely,

F. A. Hesketh & Associates, Inc.

Todd S. Hesketh, L.S.
Chief of Survey

TODD S. HESKETH, L. S.
Chief of Survey
Chief Financial Officer
F. A. Hesketh & Associates, Inc.

BACKGROUND

More than 35 years experience in surveying practice with emphasis on boundary, topographic, construction and industrial surveys.

EDUCATION

B. S. Surveying & Photogrammetry — California State University - Fresno, California (1983)
Certificate - Surveying & Mapping — Orange Coast Community College (1981)

PROFESSIONAL LICENSES

Licensed Surveyor - Connecticut #17945

PROFESSIONAL AFFILIATIONS

Connecticut Association of Land Surveyors (1987)

EXPERIENCE

F. A. Hesketh & Associates, Inc.
East Granby, CT

1988 - Present Chief of Survey

Responsible for boundary, topographic, construction and road surveys. Responsibilities include supervision of survey personnel, preparation and certification of final maps, title research, and client contact.

Optical Measurements, Inc.

1984 - 1988 Field Engineer

Field Engineer with experience in optical certification of industrial tooling, industrial surveying, sales of Kern Electronic Coordinate and Determination System. Responsibilities included direction of field crews, sales of Kern ECDS, and technical support and training to Kern users. Industries services included automotive, aerospace, ship building and antennas.

Kern Instruments, Inc.

1983 – 1984 Field Representative

Field Representative experienced in hardware and software development of surveying and photogrammetric equipment sales. Responsibilities included sales and demonstration of newly developed ECDS to automotive, aerospace, shipbuilding, etc. and report to software development industry requirements for the ECDS.

N

APPROX. MAG.

LOT 88
AREA = 4.341 ± AC.
(EXCLUSIVE OF ACCESSWAY)
AREA = 4.520 ± AC.
(INCLUDES ACCESSWAY)

LOT 87
AREA = 4.092 ± AC.

LOT 86
AREA = 4.344 ± AC.

LOT 85
AREA = 4.539 ± AC.

LOT 80
AREA = 4.230 ± AC.

LOT 81
AREA = 4.080 ± AC.

LOT 82
AREA = 5.039 ± AC.

LOT 83
AREA = 4.710 ± AC.
(EXCLUSIVE OF ACCESSWAY)
AREA = 4.912 ± AC.
(INCLUDES ACCESSWAY)

LOT 84
AREA = 4.600 ± AC.

LOT 43

LOT 44

LOT 89

LAND OF THE SCOT-ALAN CORPORATION SECTION 2B

ACCESSWAY TO LOT 44

WHITE FALL LANE

LOST DISTRICT DRIVE

SQUIRES LANE

PONUS RIDGE

DANS HIGHWAY

LAND OF STAMFORD WATER COMPANY

LAND OF THE SCOT-ALAN CORPORATION

LAND OF BANCROFT G. DAVIS

LAND OF FREDERICK Z. B. FARNAM

SLOPE RIGHTS LINE

LEDGE

MON.

PARCEL A-3
AREA = 0.053 AC.
AREA DEDICATED TO THE TOWN OF NEW CANAAN FOR HIGHWAY USE.

DRAINAGE EASEMENT NO. 6

℄ PRODUCED 70' BEYOND C.P.

ACCESSWAY TO LOT 80 AND LOT 79

LOCATION MAP

STATE LINE
NEW YORK
CONNECTICUT
THE SCOT-ALAN CORPORATION
SECTION ONE
SECTION 2A
Lake Stamford
Laurel Reservoir
Rippowam R.
TOWN LINE

#3880

SUBDIVISION OF SECTION 2A

PREPARED FOR

THE SCOT-ALAN CORPORATION

AT

NEW CANAAN, CONN.

SCALE: 1" = 100 FT.

0 50 100 200 300

MARCH 31, 1965

Exhibit A

NOTES:
1. REFER TO MAP NO. 2649 ON FILE IN THE NEW CANAAN LAND RECORDS.
2. PROPERTY IS LOCATED IN FOUR ACRE ZONE.
3. LOTS TO BE SERVED BY PRIVATE SEPTIC SYSTEMS.
4. LOTS TO BE SERVED BY PRIVATE WELLS.

DEVELOPER:
THE SCOT-ALAN CORPORATION
℅ THE BOSSERT CORPORATION
431 EAST STATE STREET
WESTPORT, CONN.

THE TOWN PLANNING AND ZONING COMMISSION OF THE TOWN OF NEW CANAAN APPROVES GRADE, LAYOUT, LOCATION, WIDTH AND IMPROVEMENT OF PRIVATE ROADWAY AS SHOWN HEREON AND HEREBY CERTIFIES SUCH APPROVAL TO THE TOWN CLERK.
DATED 27 APRIL 1965
Chester Bliss
Allen Cole
Edward Bell
Alexander Cotton

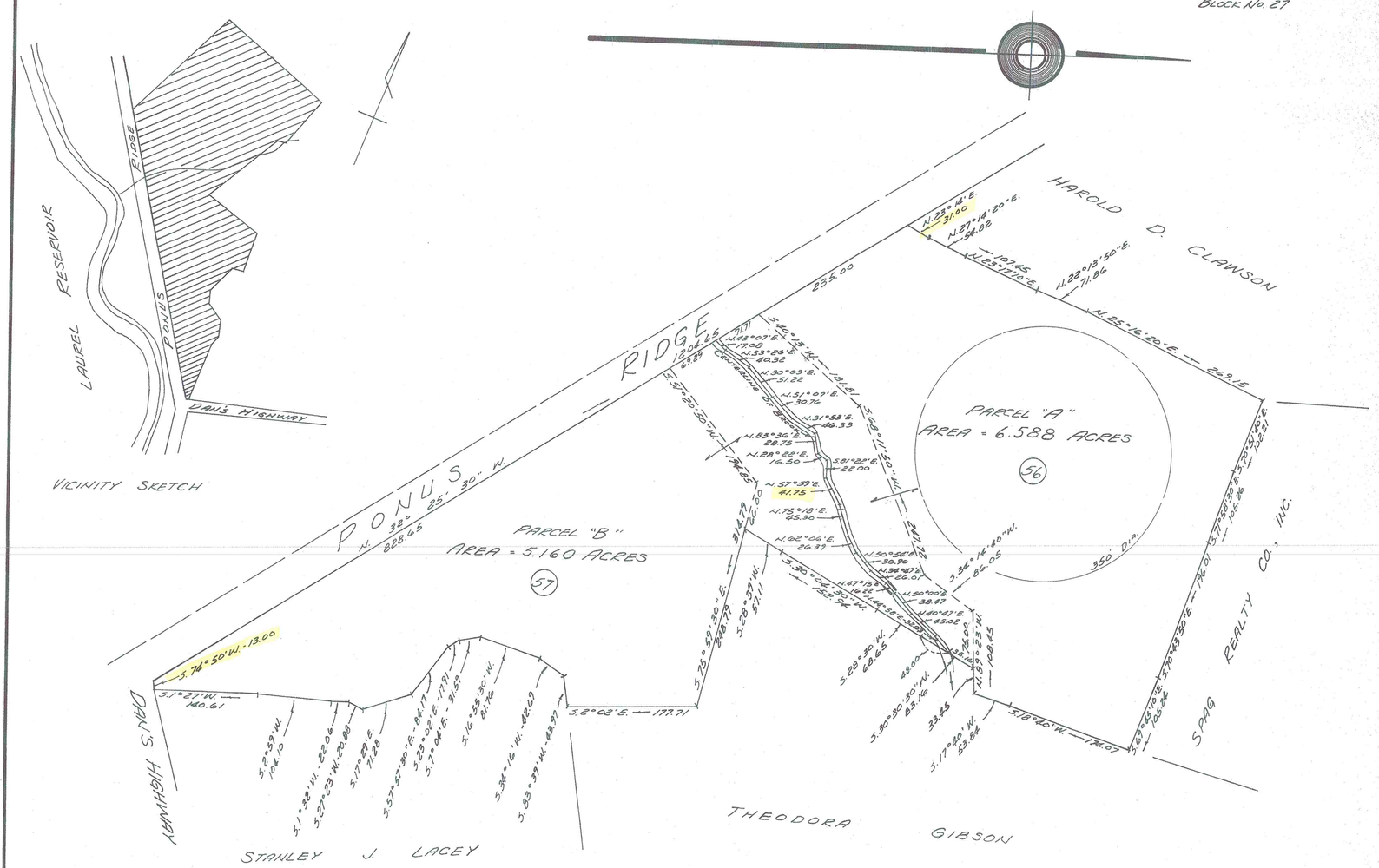
SUBDIVISION PLAN HEREON APPROVED
DATE 27 APRIL 1965
TOWN PLANNING AND ZONING COMMISSION.
William D. Hoyt, Jr.
ACTING SECRETARY

CERTIFIED SUBSTANTIALLY CORRECT
BY Harry E. Bryan
P.E. & L.S. CONN. REG. NO. 2379
SAMUEL W. HOYT, JR., CO., INC.
NORWALK, CONN.

STATE OF CONNECTICUT HARRY E. BRYAN No. 2379 REGISTERED LAND SURVEYOR

Received for Filing June 18, 1965 at 11:07 A.M. Mary L. Cotter, Asst Town Clerk

MAP No. 4
BLOCK No. 27



MAP # 5246

SHOWING SUBDIVISION OF PROPERTY OWNED BY

THE STAMFORD WATER COMPANY

NEW CANAAN, CONNECTICUT

REFER TO VARIANCE GRANTED BY THE NEW CANAAN ZONING BOARD OF APPEALS NUMBER 3283, GRANTED FOR PERMITTING A LOT WITHOUT THE REQUIRED 350 FOOT DIAMETER CIRCLE.

DRIVEWAY ENTRANCES INTO THE TWO PARCELS SHALL BE APPROVED BY THE ASSISTANT TOWN ENGINEER PRIOR TO CONSTRUCTION.

SUBDIVISION PLAN HEREON APPROVED
DECEMBER 3 19 68
TOWN PLANNING AND ZONING COMMISSION
Elizabeth P. Morgan
SECRETARY

SUBDIVISION PLAN HEREON APPROVED
AUGUST 27 19 68
TOWN PLANNING AND ZONING COMMISSION
SECRETARY
PRO TEM

Exhibit B

SCALE = 1" = 100'

CERTIFIED "SUBSTANTIALLY CORRECT"
EDWARD F. VERPLANCK, L.S. No. 3779
NEW CANAAN, CONNECTICUT, JULY 2, 1968
REVISED OCTOBER 3, 1968
Edward F. Verplanck
OFFICE OF MERRITT R. MOODY

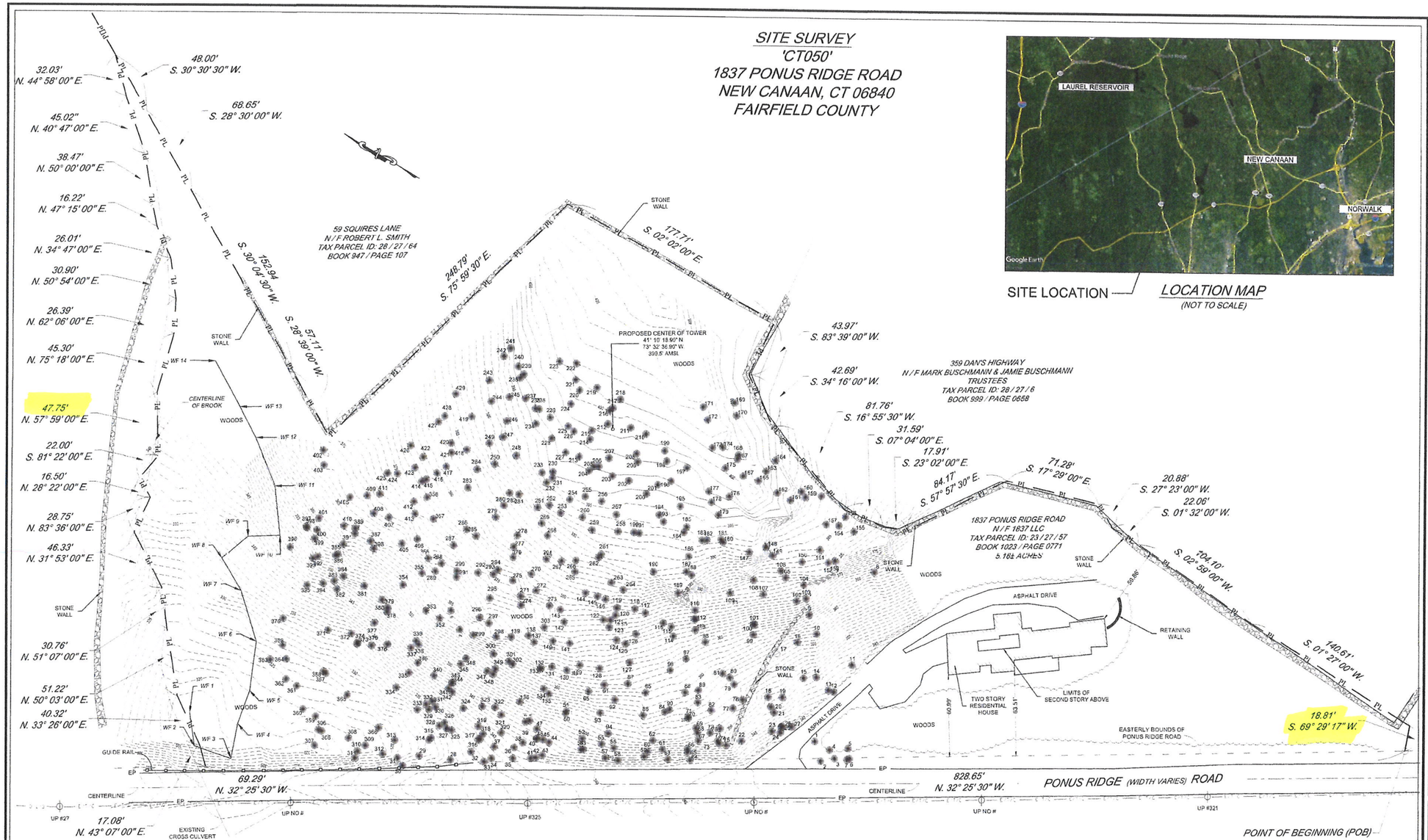
Recd for filing Dec 12, 1968 at 3.30 PM Raymond J. Rapuzzi Town Clerk

10

SITE SURVEY
'CT050'
1837 PONUS RIDGE ROAD
NEW CANAAN, CT 06840
FAIRFIELD COUNTY

SITE LOCATION

LOCATION MAP
(NOT TO SCALE)



GENERAL NOTES:

1. SUBSURFACE UTILITIES WERE NOT LOCATED OR SURVEYED BY NORTHEAST TOWER SURVEYING, INC. AS PART OF THIS SURVEY. PERSONS DEPENDING ON THIS DOCUMENT SHOULD CONTACT THE LOCAL UNDERGROUND UTILITY LOCATING AGENCY PRIOR TO COMMENCING ANY EARTH MOVING OPERATIONS OR OTHER NEW CONSTRUCTION ACTIVITIES OR CALL 811 OR 1-800-922-4455.
2. VERTICAL DATUM IS NAVD 1988 AND ESTABLISHED BY GPS OBSERVATIONS REFERENCED TO THE NGS CORS NETWORK. PERMANENT SITE CONTROL HAS BEEN ESTABLISHED ON SITE.
3. HORIZONTAL DATUM IS NAD 83, STATE PLANE COORDINATES OF CONNECTICUT AND ESTABLISHED GPS OBSERVATIONS REFERENCED TO THE NGS CORS NETWORK. DEED BEARINGS ARE SHOWN HEREON AND NOT RELATED TO CURRENT HORIZONTAL CONTROL.
4. SURVEY MAY BE SUBJECT TO EASEMENTS AND RIGHT-OF-WAYS OF RECORD, BOTH RECORDED AND UNRECORDED.
5. ONLY COPIES FROM THE ORIGINAL SURVEY MAP EMBOSSED WITH AN ORIGINAL OF THE LAND SURVEYOR'S STAMP AND SIGNATURE SHALL BE CONSIDERED TO BE TRUE AND VALID COPIES.
6. SURVEY NOT INTENDED FOR THE CONVEYANCE OF THE REAL PROPERTY. SURVEY ONLY PROVIDED IN CONJUNCTION WITH PLANNING, ZONING AND PERMITTING REQUIREMENTS. USE OF THIS SURVEY BY ANYONE OTHER THAN HOMELAND TOWER, LLC IS STRICTLY PROHIBITED.
7. PROPERTY LINES ESTABLISHED USING A COMBINATION OF EXISTING FIELD MONUMENTATION, PARENT PARCEL DEED AND OTHER RECORD DOCUMENTATION.
8. TOPOGRAPHIC FEATURES SHOWN HEREON ARE BASED UPON ACTUAL FIELD DATA COLLECTED ON APRIL 12-15, 2021.
9. ADDITIONAL BOUNDARY INFORMATION SHOWN HEREON IS BASED ON THE TOWN OF NEW CANAAN GIS DATA AS OF MAY 7, 2021 AND IS NOT INTENDED TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD BOUNDARY SURVEY.
10. FOR REFERENCE, SEE MAP NUMBER 5246 FILED IN THE TOWN OF NEW CANAAN CLERK'S OFFICE AND IS ENTITLED "MAP SHOWING SUBDIVISION OF PROPERTY OWNED BY THE STAMFORD WATER COMPANY, NEW CANAAN, CONNECTICUT."

FAA-1A CERTIFICATION

I HEREBY CERTIFY THAT THE LATITUDE, LONGITUDE AND GROUND ELEVATION SHOWN HEREON MEETS THE REQUIREMENTS AS ESTABLISHED BY THE FAA TO THE FOLLOWING TOLERANCES:

THREE (3) FEET VERTICALLY
FIFTEEN (15) FEET HORIZONTALLY

11 / 29 / 2021
EARLE C. NEWMAN, L.S. LSX15616 DATE

LEGEND

MH	MANHOLE
GM	GAS METER
LP	LIGHT STANDARD
DS	DRAINAGE STRUCT.
HYD.	FIRE HYDRANT
ICV	VALVE / IRRIGATION CONTROL VALVE
I.P. \ MON.	EXISTING IRON PIPE
UP	UTILITY POLE
PL	PROPERTY LINE
	EASEMENT LINE
	CENTERLINE
	SUBLOT LINE
	GUIDE RAIL
	ROW LINE
x x x	FENCE
	TREE
	EDGE OF WOODS
	BRUSH LINE
E/T/C	OVERHEAD UTILITIES

PLANS PREPARED FOR:

HOMELAND TOWERS
9 Harmony Street
Danbury, Connecticut 06810

SURVEY LICENSE:

STATE OF CONNECTICUT
EARLE C. NEWMAN
No. 15616
LICENSED
LAND SURVEYOR
11/29/21

EARLE C. NEWMAN P.L.S. - NO. LSX15616

CONSULTANT:

Northeast Tower Surveying, Inc.
140 West Maplemere Road Williamsville, New York 14221
(716) 548-2894
Norteast Tower Surveying, Inc. Project #21-025

DRAWING NOTICE:

REVISIONS:

DESCRIPTION	DATE	BY	REV
ISSUED FINAL	11/30/21	DSA	ECN
ISSUED DRAFT	05/07/21	DSA	ECN

SITE NAME:

NEW CANAAN NORTHWEST

SITE NUMBER:

CT050

SITE ADDRESS:

1837 PONUS RIDGE ROAD
NEW CANAAN, CT 06840
FAIRFIELD COUNTY

SHEET DESCRIPTION:

SITE SURVEY

SHEET NUMBER:

EX-1

EXHIBIT C

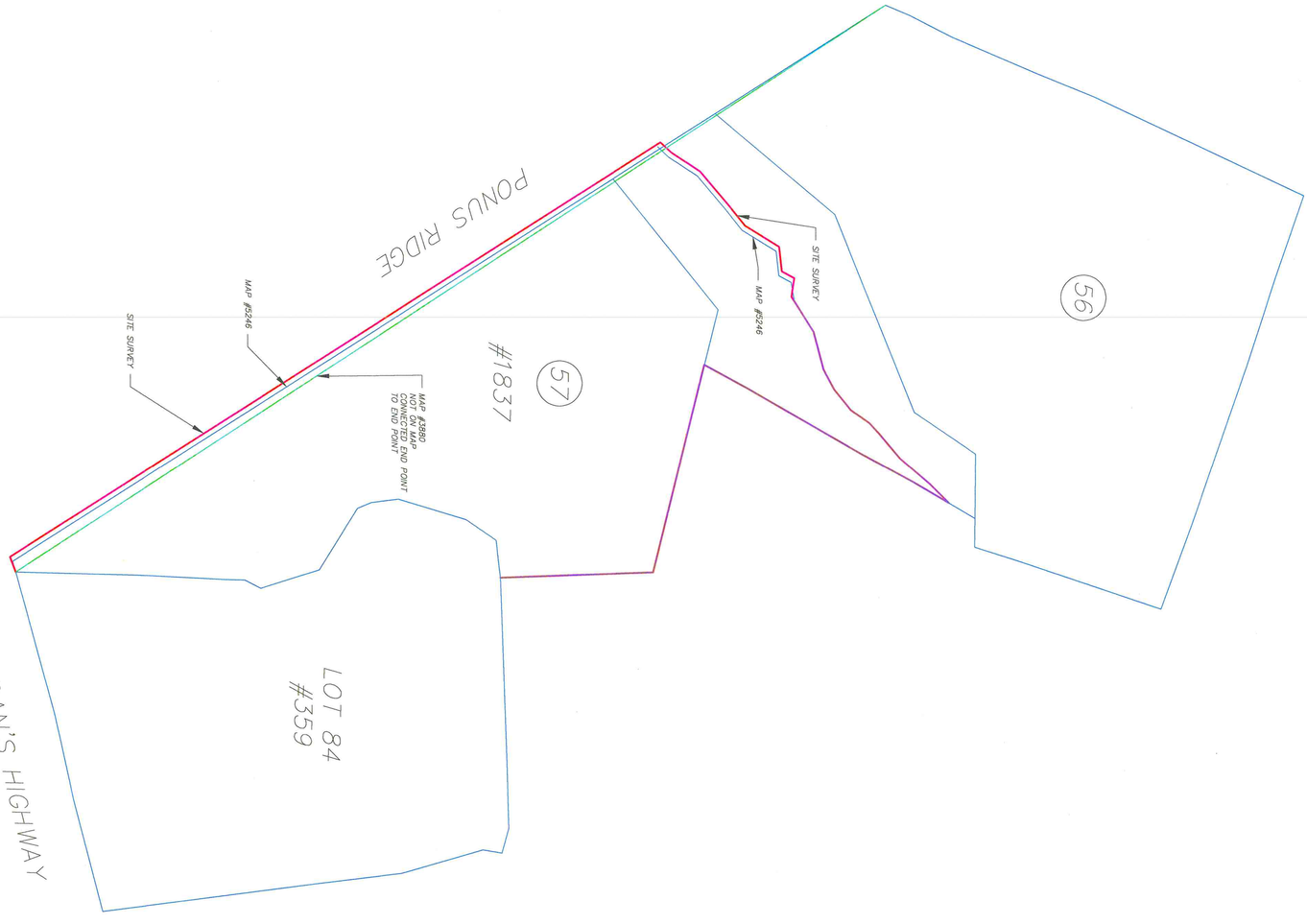


Exhibit D

GRAPHIC SCALE
(IN FEET)
1 inch = 80 ft.
0
40
80
160
320

CS-1

COMPOSITE SKETCH
3 MAPS COMBINED
PONUS RIDGE ROAD & DAN'S HIGHWAY
NEW CANAAN, CONNECTICUT

Date: 06-14-2022 | Drawn by: KJD | Job no: 22052
Scale: 1" = 80' | Checked by: TSH | Sheet no: 1 OF 1

Revisions:

No.	Date	Description

F. A. Hesketh & Associates, Inc.
3 Creamery Brook, East Granby, CT 06026
Phone (860) 653-8000 Fax (860) 844-8600
Civil & Traffic Engineers · Surveyors · Planners · Landscape Architects
www.fahesketh.com · mail@fahesketh.com

Q:\2022\22052-cell tower new cannan\Survey\BOUNDARY 1.dwg, SHEET 2, Jun. 16, 2022 - 8:04:37 AM

Exhibit E

GRAPHIC SCALE

120 0 60 120 240 480

(IN FEET)
1 inch = 120 ft.

F. A. Hesketh & Associates, Inc.
3 Creamery Brook, East Granby, CT 06026
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Civil & Traffic Engineers • Surveyors • Planners • Landscape Architects
www.fahesketh.com - mail@fahesketh.com

Revisions:

No.	Date	Description

MAP SKETCHES
PONUS RIDGE ROAD & DAN'S HIGHWAY
NEW CANAAN, CONNECTICUT

Date: 06-14-2022 | Drawn by: KJD | Job no: 22052
Scale: 1" = 120' | Checked by: TSH | Sheet no: 1 OF 1

MS-1

G:\2022\22052-cell tower new canaan\Survey\BOUNDARY 1.dwg, SHEET 1, Jun 16, 2022 - 7:39:33 AM

DATE: June 16, 2022

TO: Connecticut Siting Council

FROM: Michael W. Klemens, PhD

RE: DOCKET NO. 509 - Homeland Towers, LLC and New Cingular Wireless PCS, LLC d/b/a AT&T application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 1837 Ponus Ridge Road, New Canaan, Connecticut

M E M O R A N D U M

At the request of Mark Buschmann, intervenor to this proceeding, I have reviewed the Connecticut Siting Council file on Docket 509, the proposed construction of a telecommunications facility at 1837 Ponus Ridge Road, New Canaan, CT. My comments fall into three general categories as follows:

I. The Applicants' Desk-top Analyses Are an Inadequate Methodology to Assess the Environmental Impacts of the Proposed Telecommunications Facility

The applicants propose to locate the telecommunications facility in the central portion of the property at 1837 Ponus Ridge Road in an area that is comprised of mature upland hardwood forest dominated by an overstory of red, white, and black oak and sugar maples. There are areas of rock and ledge outcropping as well surficial glacial deposits, containing cobbles and boulders. Steep slopes drop 70-80 feet down to an intermittent watercourse and associated wetlands. The watercourse and wetlands run along the north boundary of the property, and drain directly into to Laurel Reservoir, a public drinking water supply.

Access will be from Ponus Ridge Road along an existing paved driveway that serves the existing residence on the property and then along a proposed 12-foot-wide access road for approximately 500 feet. Because of the steepness of the terrain the access road will have a switchback. Utilities are proposed to be buried along the shoulder of the proposed access road.

The applicants propose to clear an area approximately 40,000 sq. ft. They propose to remove 103 trees in order to construct the compound and access drive, thirty-nine of which are 14" or greater diameter at breast height. The NDDB letter of January 7, 2022 calls out the significance of trees 12" or more in diameter as bat habitat. The applicant has summarized the tree removal count into three categories. The second summary category 10-14" DBH (n=36 trees) obscures the number of "larger diameter trees 12" DBH or greater" which "are more valuable to these bats" according to the NDDB. The applicants estimate that site work will require 5,170 cubic yards of excavation and 315 cubic yards of material will be brought to the site for the construction of the compound and drive.

It is apparent from this summary description that any development on this property will present significant challenges. The property is located less than 100 feet from Laurel Reservoir, and the proposed telecommunications facility itself will be only several hundred feet from the Reservoir. Were the property owned by a water company, it would be classified as Class I watershed land and subject to the restrictions contained in C.G.S. § 25-32. In fact, the property was owned previously by Aquarion Water Company's predecessor, Stamford Water Company, but was sold in 1968 to a private developer, prior to the enactment of the statute. The proximity of the property to Laurel Reservoir, its steep slopes and rocky soil, make the proposed site poorly suited for use as a telecommunications tower location.

The CSC is being requested to render a decision concerning the environmental compatibility of the proposed construction and operation of this facility. The assessment of the potential for environmental harm and/or compatibility requires detailed analyses of the resources by field investigation. In order to be valid, such investigation should be conducted by individuals with the necessary education, training and experience to assess the range of species present on a site, and to evaluate the potential for the occurrence of other species where suitable habitat is present and the site falls within the expected bio-geographic range.

The desk-top analyses that accompany this application are inadequate to allow the CSC to reach a threshold determination of environmental compatibility. The applicants undertook no field investigation or study of site hydrology, wildlife inventory, habitat and utilization, wetlands and watercourse functions and values, or potential short- and long-term environmental impacts of the construction and operation of the proposed facility. The only field work that was conducted was a partial delineation of the wetlands on the property, and identification of the trees.[1] Without such investigations, the applicants' assurances that "the proposed Facility will have little to no impact on water flow or water quality," and that "[n]o direct impacts to any wetlands or watercourses are anticipated," are meaningless.[2]

The applicants' statement that "[t]he remaining land of the lessor would remain unchanged by the construction and operation of the facility" serves to illustrate their lack of understanding of the distinction between the development footprint versus the ecological footprint (Johnson and Klemens 2005, Klemens et al. 2021. 241-255), and the inadequacy of their analysis.[3] Edge effects from forest clearing can reasonably be anticipated to extend 300 feet beyond the cleared forest affecting the species and ecological integrity of the forest (Glennon and Krester, 2013; Klemens et al., 2021:180-182). Not only will these edge effects, including invasive species, light spillage, and desiccation, affect a significant portion of the lessor's land, these edge effects will significantly affect the ecological integrity of the forest on adjacent properties. Examination of page 7 of 18 of Attachment 4 to the application

[1] Attachment 4 to the application at page 5 of 18 presents a tree survey table. The site was visited twice, on 5/7/2022 and 11/30/2022, yet the surveyor was unable to identify 50 of the 429 trees surveyed. The species of trees to be removed is of significance because Chiropterans (bats), several species of which have been reported near the site, favor certain types of large trees, 12 inches DBH or greater exhibiting loose rough bark (e.g., maples, hickories, and oaks). See NDDB letter January 7, 2022 (pp. 40-42 of 42 in Attachment 9 to the application).
[2] See the "Narrative" accompanying the application at page 17 of 28.
[3] See Attachment 5 to the application at page 2 of 22.

shows that the Smith property line is a mere 72 feet from the area of proposed clearing and the Demou property line is approximately 225 feet. The forest on both these properties will be affected by the proposed clearing.

Examination of EX-2[4] further calls into question the qualifications of the person compiling the tree inventory. A forester is able to assign a tree to species using bark alone. The large dead trees should have been easily identified, as well as the smaller trees categorized as "unknown". In addition, there are no species breakdown on the list, just generic terms such as birch, oak, beech, or maple. In order to evaluate the impact to bats, it's important to identify the species of tree, not just a common name. In the case of oaks this catch-all could contain least five if not more species (e.g., white oak, red oak, black oak, chestnut oak, and pin oak). In the case of maples, these could be the invasive Norway maple (common in southwestern CT) or the sugar maple. Why this matters is that bark of certain trees such as sugar maples provide excellent bat roosting habitat, in contrast to the smooth barked Norway maple. Likewise, certain oak species are especially good candidates to serve as bat roosting areas.

Sheet SP-2[5] doesn't tie the trees proposed for removal to the list on EX-2 so one has no idea as to the species or size of the trees slated for removal. Even more confusing is the legend which has the same symbol for tree to remain versus tree to be removed. Close examination of the plan shows a light X drawn through certain trees which the legend indicates are those to be removed. This is hard to discern with all the other marks on the plans including contour lines. Close examination of Sheet SP-2 shows trees that appear to remain that are very near areas of cuts and fills. Some of these have tree protection around them. Are these uniform tree "dots" representative of the full extent of the drip line, (and roots) of all trees? If not, larger and more important trees with large crowns and drip-lines may over time perish. The inventory on Sheet EX-2 and the plan on Sheet SP-2 taken in tandem make it impossible to assess the actual impact of the proposed forest loss of the proposed action.

II. Listed Species and the "Check the Box Conservation" Review

Desk-top analyses are symptomatic of a phenomenon referred to as "check-the-box conservation" (*see* Klemens et al 2021: 254). This is exemplified by the Docket 509 application which is replete with various standardized forms and boilerplate reporting, giving the volumetric appearance a comprehensive analysis of environmental impacts would have. This is obviously not the case.

This may best be illustrated by the applicants' use of the U.S. Fish and Wildlife Service's ("USFWS") Information, Planning, and Conservation System ("IPaC") and the submission of a NDDB review request with the Connecticut Department of Energy and Environmental Protection to identify State-listed Endangered, Threatened, and Special Concern species in its "investigation" of the listed species occurring at the property. This IPaC analysis is largely dependent upon data that the applicant provides to the USFWS. The fundamental scientific problem here is that, without site-specific field investigations, the only data sets available for these analyses are what are termed "presence data." No consideration is given to what species may potentially occur there. In short, species that are not

[4] See Attachment 4 to the application, page 5 of 18.
[5] See Attachment 4 to the application, page 8 of 18.

recorded in presence data sets such as the NDDB database are not evidence that these species do not occur (i.e., absence data) on the site, rather that no one has properly looked for them. When I say properly, it is relatively easy to determine presence, however to conclusively determine absence requires significant effort. The USFWS recovery plan for the northern population of the threatened bog turtle (*Clemmys* [=*Glyptemys*] *muhlenbergii*) (2001: Appendix B) is an excellent example of how difficult it is to conclusively determine the absence of a secretive species. The recovery plan specified the number of site visits, the amount of researcher effort expended per acre, the seasonal timing of the surveys, and the appropriate weather conditions to conduct the surveys. Only after four site visits following these protocols, could the absence of this species from a particular site be determined with accuracy.

The applicants' NDDB review letter is quite clear that the consultation with the NDDB is not a substitution for site-specific field surveys.[6] The NDDB letter is the beginning (not the end-point) of a study that requires on-site field investigations by qualified individuals "familiar with preferred habitats to assist you with proper techniques to ensure the best protection strategies are employed on your site." Listed species matter because they are the elements of the State's biodiversity most at risk from development and other types of ecological disruptions. The presence or potential presence of listed species is one indication that a particular area may have ecological qualities that are worthy of on-site field investigation and potential conservation actions. The current situation where the CSC relies solely on desk-top analyses is a relatively recent development. The CSC website contains numerous dockets and petitions where *de novo* field work was required of the applicant, who then conducted field work to determine the species that actually occur on site. A few examples include Docket 387 Barkhamsted (2009), Docket 441 Washington (2013), Petitions 983 and 984 Colebrook (2011), Petition 1310 Brooklyn (2017).

Reptiles are especially vulnerable to habitat loss and fragmentation. They have poor dispersal abilities, and therefore become locally extinct (i.e., extirpated) because of development activities. Long-lived species (exemplified by many turtle species), have a unique set of conservation challenges that set them apart from many other species. The loss of even one or two adult turtles is not sustainable from the aspect of population biology. The NDDB lists one such species as potentially occurring on site, the eastern box turtle (*Terrapene carolina*) however the site is proximal to reports of two other long-lived turtle species, the wood turtle (*Glyptemys insculpta*) and the spotted turtle (*Clemmys guttata*). Another GCN species (Greatest Conservation Need--Connecticut Wildlife Action Plan, 2015) the black racer (*Coluber constrictor*) has been reported nearby and is also of concern (for all these *see* Klemens, 1993 and Klemens et al., 2021). There are no data whatsoever on the reptile or amphibian fauna of the site.

Several species of bats including the State-endangered little brown bat (*Myotis lucifugus*) and State-special concern red bat (*Lasiurus borealis*) are specifically touched on in the application. Bats forage at the interface between water bodies and uplands, drawn by concentrations airborne insects. Bats require foraging as well as roosting habitat. In addition, the NDDB states that "forested areas of Connecticut's

[6] Attachment 9 to the application, pages 40-42 of 42.

coastal towns may also serve as important migratory habitat for red bats. Numbers of bats utilizing these areas can increase dramatically as bats from other northeast locations pass through Connecticut during the spring and autumn migration."

Dowhan and Craig (1976:26) illustrate that the site is located at the interface between the Coastal Hardwoods Zone (V-A) and the Southern Hills-Central Hardwoods Zone (IV-A). In the tri-town area of Greenwich, Stamford, and New Canaan the majority of contiguous forested habitats occur in the area roughly demarcated as lying north of the Merritt Parkway. This is a function of historical land use patterns in what is referred colloquially to as the "back country." Once dominated by large estates, the area has been subsequently developed with large lot zoning as illustrated in the New Canaan POCD. As such, the site may be ideal for bat migratory use, as well as supporting populations of various bat species. There is no way of credibly evaluating this potential using the application materials because the materials submitted by the applicants for Docket 509 contain no site-specific bat field data. Bat study is a very specialized subset of field investigation, and requires the services of a person trained and licensed in this type of survey. Field surveying techniques include mist netting or using devices that record the echolocation calls emitted by flying bats. Without actually knowing the species and numbers of bats on and adjacent to the site, statements concerning the lack of impact resulting from the proposed clearing and construction are highly speculative. Speculation does not make for sound environmental policy decisions.

Consideration of potential impacts on birds again is limited by the absence of *de novo* site-specific field data. Of particular interest is that many of the metrics used by the applicants to discuss potential ornithological impacts are human-created spatial or location metrics. Bird sampling survey routes are designed to transect specific habitats to count birds. As such, they are sampling constructs that *in and of themselves possess no distinctive ecological properties when compared with many other areas within a town or region*. These routes illustrated in the application depict that the site is spatially-removed from the survey routes, but that fact has no ecological significance, and cannot be used to attribute impact or lack of impact to the site based on its geographical proximity or lack thereof. IBAs (Important Bird Areas) are designated areas of importance, but that doesn't logically follow that other areas are unimportant, or that distances from IBAs should be construed that the site does not contain important resources. In short, the maps and illustrations in Docket 509 concerning ornithological "impacts" are not scientifically credible. Maybe a simpler way to explain this is that designation of certain areas as State parks and forests does not mean that other areas lack importance, rather these are areas that the State has been able to acquire and protect. The Urban Wildlife Interface Map illustrated in Klemens et al 2021: 248 shows large areas of the State where significant unprotected habitats occur.

Given the presence of listed species in the area, and the applicants' failure to conduct the investigations necessary to demonstrate that they do not occur at this site, there is no ability to scientifically conclude whether the proposed telecommunications facility would cause unreasonable harm to these irreplaceable biological resources.

III. The Critical Role of The Connecticut Siting Council in Evaluating the Environmental Impact of the Proposed telecommunications Facility.

The Connecticut Siting Council has been entrusted by the legislature to be the sole arbiter in evaluating the environmental impacts of proposed telecommunication facilities, a function which would otherwise be carried out by municipal land use agencies, such as the local Conservation Commissions, Inland Wetlands and Watercourses Agencies, and Planning and Zoning Commissions, and by the Connecticut Department of Energy and Environmental Protection. In determining the environmental impact of a proposal, these agencies typically conduct comprehensive analyses of all potential adverse impacts of proposals pending before them.

Conservation Commissions, authorized under C.G.S. § 7-131a, are charged with researching and coordinating natural resources, including water resources, within their municipalities.[7] Inland Wetlands and Watercourses Agencies, authorized under C.G.S. § 22a-42, are empowered to carry out and effectuate the policies of sections 22a-36 to 22a-45a of the statutes and to regulate activities affecting the wetlands and watercourses within their municipalities. They undertake rigorous review of any activities with potential adverse environmental impacts.[8] Under Chapters 124 and 126 of the

[7] C.G.S. § 7-131a (b) provides: A conservation commission shall conduct research into the utilization and possible utilization of land areas of the municipality and may coordinate the activities of unofficial bodies organized for similar purposes, and may advertise, prepare and distribute books, maps, charts, plans and pamphlets as necessary for its purposes. It may propose a greenways plan for inclusion in the plan of conservation and development of the municipality prepared pursuant to section 8-23. It may inventory natural resources and formulate watershed management and drought management plans. Such plans shall be consistent with water supply management plans prepared pursuant to section 25-32d. It shall keep an index of all open areas, publicly or privately owned, including open marshlands, swamps and other wetlands, for the purpose of obtaining information on the proper use of such areas, and may from time to time recommend to the planning commission or, if none, to the chief executive officer or the legislative body plans and programs for the development and use of such areas. It may make recommendations to zoning commissions, planning commissions, inland wetlands agencies and other municipal agencies on proposed land use changes. It may, with the approval of such legislative body, acquire land and easements in the name of the municipality and promulgate rules and regulations, including but not limited to the establishment of reasonable charges for the use of land and easements, for any of its purposes as set out in this section. It may supervise and manage municipally-owned open space or park property upon delegation of such authority by the entity which has supervisory or management responsibilities for such space or property. It shall keep records of its meetings and activities and shall make an annual report to the municipality in the manner required of other agencies of the respective municipalities. The commission may receive gifts in the name of the municipality for any of its purposes and shall administer the same for such purposes subject to the terms of the gift.

[8] C.G.S. § 22a-41 provides that the Commissioner of the Department of Energy and Environmental Protection, or the local inland wetlands and watercourses agency, if one has been constituted, has the following responsibilities when reviewing regulated activities:

Sec. 22a-41. Factors for consideration of commissioner. Finding of no feasible and prudent alternative. Wetlands or watercourses. Habitats. Jurisdiction of municipal inland wetlands agencies.

(a) In carrying out the purposes and policies of sections 22a-36 to 22a-45a, inclusive, including matters relating to regulating, licensing and enforcing of the provisions thereof, the commissioner shall take into consideration all relevant facts and circumstances, including but not limited to:

(1) The environmental impact of the proposed regulated activity on wetlands or watercourses;

(2) The applicant's purpose for, and any feasible and prudent alternatives to, the proposed regulated activity which alternatives would cause less or no environmental impact to wetlands or watercourses;

Connecticut General Statutes, Planning and Zoning Commissions exercise jurisdiction over most aspects of site planning and development, including regulation of permissible and appropriate uses of properties, the height, size and location of structures, drainage design, sedimentation and erosion control, and the availability of and access to utilities. The Connecticut Department of Energy and Environmental Protection has broad supervisory powers over the environmental functions of these local agencies. The Connecticut Siting Council, however, supplants them all in its review of telecommunications facilities under C.G.S. § 16-50p, evaluating environmental impact of proposed facilities and balancing them against the public need. In tandem with this delegation of broad authority comes an equally important public trust responsibility.

There is, however, an important difference between CSC review of telecommunications facilities and the reviews conducted by municipal land use agencies, and that difference is of particular importance in CSC review of the present application. Local land-use agencies consider environmental impacts of a proposed development, and potential mitigation of adverse effects, as part of the application process and these environmental concerns are subject to public review and comment prior to approval process.

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(3) The relationship between the short-term and long-term impacts of the proposed regulated activity on wetlands or watercourses and the maintenance and enhancement of Jong-term productivity of such wetlands or watercourses;

(4) Irreversible and irretrievable loss of wetland or watercourse resources which would be caused by the proposed regulated activity, including the extent to which such activity would foreclose a future ability to protect, enhance or restore such resources, and any mitigation measures which may be considered as a condition of issuing a permit for such activity including, but not limited to, measures to (A) prevent or minimize pollution or other environmental damage, (B) maintain or enhance existing environmental quality, or (C) in the following order of priority: Restore, enhance and create productive wetland or watercourse resources;

(5) The character and degree of injury to, or interference with, safety, health or the reasonable use of property which is caused or threatened by the proposed regulated activity; and

(6) Impacts of the proposed regulated activity on wetlands or watercourses outside the area for which the activity is proposed and future activities associated with, or reasonably related to, the proposed regulated activity which are made inevitable by the proposed regulated activity and which may have an impact on wetlands or watercourses.

(b) (1) In the case of an application which received a public hearing pursuant to (A) subsection (k) of section 22a-39, or (B) a finding by the inland wetlands agency that the proposed activity may have a significant impact on wetlands or watercourses, a permit shall not be issued unless the commissioner finds on the basis of the record that a feasible and prudent alternative does not exist. In making his finding the commissioner shall consider the facts and circumstances set forth in subsection (a). The finding and the reasons therefor shall be stated on the record in writing.

(2) In the case of an application which is denied on the basis of a finding that there may be feasible and prudent alternatives to the proposed regulated activity which have less adverse impact on wetlands or watercourses, the commissioner or the inland wetlands agency, as the case may be, shall propose on the record in writing the types of alternatives which the applicant may investigate provided this subdivision shall not be construed to shift the burden from the applicant to prove that he is entitled to the permit or to present alternatives to the proposed regulated activity.

(c) For purposes of this section, (1) "wetlands or watercourses" includes aquatic, plant or animal life and habitats in wetlands or watercourses, and (2) "habitats" means areas or environments in which an organism or biological population normally lives or occurs.

(d) A municipal inland wetlands agency shall not deny or condition an application for a regulated activity in an area outside wetlands or watercourses on the basis of an impact or effect on aquatic, plant, or animal life unless such activity will likely impact or affect the physical characteristics of such wetlands or watercourses.

The current CSC practice is to issue a Certificate of Environmental Compatibility and Public Need *prior* to detailed consideration of site development plans, including strategies for mitigation of potential environmental impacts, which are examined post approval in the formulation and review of the Development and Management Plan.

With respect to the Docket 509 application, this practice hinders the public from making a meaningful contribution to CSC consideration of the environmental impacts of the proposed facility. We have seen that no adequate field investigation has been done which would allow evaluation of the impacts to the natural resources at the site and in its vicinity. The steep grades, rocky soils, extensive clearing and site work proposed, and the applicants' apparent failure to conduct the geotechnical investigation and drainage study necessary to the preparation of anything but a conceptual site plan, preclude public participation and comment on potential adverse effects on the environment and how they might be mitigated. In light of its location upgradient of the reservoir on a site with steep slopes and shallow soils, it is reasonably likely that the development of this property as proposed will negatively impact the water quality of the onsite wetlands and watercourse and the public drinking water supply reservoir. What if, upon further study, the adverse impacts cannot be fully mitigated? Even if the natural resources of the site were adequately characterized – and they are not - how can an agency reach the threshold conclusion of environmental compatibility when many of the details of required mitigation are omitted until after the issuance of Certificate of Environmental Compatibility? During the Development and Management Plan phase, only the applicants will be heard on facility construction and operation. This segmentation of the review process serves neither the environment nor the public interest. In fact, the Laurel Reservoir, which provides drinking water to 120,000 households in Fairfield County, and lies less than 100 feet downstream of the proposed construction site, is not even called out on the site development plan set except on the cover sheet (T-1).[9]

A Certificate of Environmental Compatibility cannot responsibly be issued on the basis of desk top biological analyses, and a tentative and incomplete engineering design. What if, during the course of developing the site, listed species are encountered? These questions cannot be left to the post-approval Development and Management Plan, a one-sided process that largely excludes any public participation and is founded on assumption that each and every environmental obstacle or challenge can be mitigated. Recent experience tells us that while we have an impressive arsenal of environmental management tools, too often they fail especially in the period of climate change, which amplifies the challenges of stormwater management.[10]

For this application, which potentially impacts the irreplaceable natural resource of a public water supply reservoir, the CSC should incorporate the Development and Management Plan review into its public hearings on the Certificate of Environmental Compatibility and Public Need, require the applicant

[9] Attachment 4 to the application, page 4 of 18.

[10] Examination of the application makes no mention of the increased risks brought on by climate change, which often cause catastrophic failures by overwhelming the stormwater management train on a site. This resiliency risk should not be lost on the CSC. The CSC has experienced catastrophic stormwater failures on some of its approved sites (e.g., Petition 1056 East Lyme, Petition 1178 Sprague). In these the CSC approval fell short of the stochastic challenges of climate change.

to conduct the biological and engineering investigations and analyses necessary to adequately characterize the environmental impact of the facility on the natural resources of the State of Connecticut and prove that there is no prudent and feasible alternative to construction and operation of this facility at this location. Without such a demonstration, the proposed telecommunications facility is reasonably likely to cause unreasonable harm to the natural resources of the State.

Literature Cited

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USFWS (US Fish and Wildlife Service). 2001. Bog turtle (*Clemmys muhlenbergii*) northern population recovery plan.

MICHAEL W. KLEMENS

POB 432
Falls Village, CT 06031
203-448-8068
fenbois@aol.com

EDUCATION

PhD Ecology/Conservation Biology
University of Kent at Canterbury, U.K. (1990)
Dissertation: The herpetofauna of southwestern New England.

MSc Zoology
University of Connecticut (1978)
Thesis: Variation and distribution of the turtle, Chrysemys picta (Schneider) in Connecticut.

BSc Education
University of Connecticut (1975)

CONSERVATION, RESEARCH, AND EDUCATION POSTS

Adirondack Wild: Friends of the Forest Preserve

Consulting Conservation Biologist, March 2011-April 2013
Landscape Conservation Advisor May 2013-present

Adirondack Wild advocates for the core wilderness values of one of the Northeast's largest intact forests. Dr. Klemens provided expert testimony on behalf of Adirondack Wild in an adjudicatory hearing concerning the largest-ever proposed resort within the Adirondack Park and in conjunction with that testimony conducted rapid biological assessments of streams and wetlands. He is continuing his role as conservation science advisor to this advocacy group, integrating conservation biology to their efforts to protect the biological integrity and wilderness values of the Adirondack Park.

Cary Institute of Ecosystem Studies

Research and Policy Conservationist & Founding Director, Metropolitan Conservation Alliance, July 1, 2008-June 30, 2011

Effective July 1, 2008, the Metropolitan Conservation Alliance (MCA) moved from WCS to the Cary Institute of Ecosystem studies where MCA provides leadership and education to communities in the New York's Hudson valley, Adirondack region, and Connecticut on the integration of complex ecological information into the local land-use decision-making process. MCA produces multi-town biodiversity conservation strategies

and best development and management practices, using scientific information as the under-pinning of policy recommendations. MCA works with communities to implement those strategies into their local land use practices capitalizing on the broad authority available to local jurisdictions devolved from the state land-use enabling legislation.

Scenic Hudson

Director of Conservation Science, 2007—April 2008
Conservation Science Advisor, April 2008--current

Responsibilities include the scientific accuracy of the organization's core programs of land use advocacy, land acquisition, parks, and policy as well as representing the organization at the regional level concerning issues and opportunities of biodiversity conservation. Developed adaptive, precautionary strategies to address climate change in the Hudson Valley. These adaptive strategies included climate change precautionary zoning, brown-field mitigation, and carbon footprint reduction.

Wildlife Conservation Society (WCS)

Senior Conservationist, 2002–June 30, 2008 &
Founding Director, Metropolitan Conservation Alliance, 1998-June 30, 2008.

The Metropolitan Conservation Alliance (MCA) provides leadership and education to more than 89 communities in the New York tri-State area on the integration of complex ecological information into the local land-use decision-making process. MCA produces multi-town biodiversity conservation strategies and works with communities to implement those strategies into their local land use practices through the adoption of innovative best management practices, capitalizing on the broad authority available to local jurisdictions devolved from the state land-use enabling legislation.

Director for Program Development, 1994-1998.

Worked with the various divisions of WCS to produce programs that united field conservation, facilities (i.e., zoo), and veterinary services to address complex field conservation problems. Sought financial support (both corporate and foundation) for these programs and developed methodologies that more equitably divided responsibilities for seeking/reporting on grants between project scientists and the development and financial offices of WCS.

Research Fellow, 1992-1994.

In partnership with the American Museum of Natural History, developed a multi-year program (that continued through 1998) of biodiversity assessment and monitoring in the National Parks of Tanzania. This program received multi-year consecutive funding from the John D. and Catherine T. Mac Arthur Foundation. The goals of the program were to build national capacity in biodiversity assessment, specimen collection, and data management. This program was conducted in partnership with the University of Dar es Salaam and several Tanzanian government agencies charged with wildlife and parks management. The program also provided academic training to promising Tanzanian nationals and professional development opportunities for faculty at the University of Dar es Salaam. This program was expanded to train MSc level students in the UK through the Darwin Initiative at the University of Kent. This joint program of the University of

Kent and WCS selected promising students from WCS field sites in three African nations, Malagasy Republic, Tanzania, and Zaire. A total of nine students received scholarships to attend university in the UK through the Darwin Initiative component of the program.

American Museum of Natural History (AMNH)

Research Associate in Herpetology, May 1994-current.

After leaving AMNH to join WCS, I continued my strong relationship with the Museum, including biodiversity assessment and expeditionary studies in Africa and the eastern United States, which resulted in significant collections of more than 18,000 specimens that have been added to the permanent research collections. Publications focus on African amphibians, biogeography and conservation of northeastern US amphibians and reptiles, and biochemical studies of polyploid and unisexual salamanders.

Director, Special Projects, Center for Biodiversity and Conservation, 1993-1994 & Director, Environmental Initiatives, 1990-1993.

Envisioned and created the Museum's Center for Biodiversity and Conservation to make available to policy and decision-making, as well as public information, the accumulated data contained in more than 30 million samples of biodiversity collected around the globe. Worked with Museum scientists to enable them to become disseminators of that data, to secure funding for these endeavors, and to maintain the scientific integrity of the information while recognizing that the requirements for information to inform decision-making is at times different from that of more traditional scientific inquiry. Since its inception, the Center has continued to be a voice for biodiversity conservation, treading carefully the interface between scholarly investigation and the need for scientific engagement in the ever-growing biodiversity crisis.

Senior Scientific Assistant/Scientific Assistant, Herpetology, 1979-1989.

Joining the AMNH as a technical officer in 1979, my responsibilities were assisting curators in their research and the management (cataloging and data retrieval) of the preserved collection of amphibians and reptiles, which at that time included about 300,000 specimens.

Michael W. Klemens, LLC

Managing Director, 2002-current.

Provides technical services on a for-profit basis to NGO's, government agencies, municipalities, and private entities on the integration of biodiversity conservation and best management practices as they pertain to land-use decision making and ecologically-appropriate (i.e., "green") development. Client list available upon request.

Center for Humans and Nature

Senior Consultant, 2007-2008.

Developed a program to link the Consortium of Colleges and University of the Hudson Valley, American Museum of Natural History, New York Historical Society, and the Center for Human and Nature in a multi-year exploration of the cultural norms that underlie our collective relationship with the natural world. The ultimate goal of this

program is to create a forum that will allow communities (broadly defined) to envision their sustainable future free from the traditional encumbrances of positional arguments and pre-conceived outcomes. The project seeks to develop a culture of democratic ecological citizenship through engagement and participation within the Hudson Valley region. Current work with the CHN focuses on a project that examines the interfaces between ecological systems and human economic models.

Pace University, School of Law, Land Use Law Center

Course Lecturer, Land Use Leadership Alliance (LULA) Training Program, 1998-current

This innovative program seeks to instill a different culture in land-use decision-making, by making information available to local leaders, and training them in how to use that information in a conflict-neutral manner. My involvement in the program is teaching modules on biodiversity conservation at the local level, integration of sustainable development techniques, and community visioning techniques.

University of Maine, Department of Plant, Soil, and Environmental Sciences

***Adjunct Graduate Faculty,* 2003-2008**

Co-supervising and advising MSc and PhD students.

Columbia University, Center for Environmental Education and Conservation

Research Associate, 1998-2008.

University of Massachusetts, Amherst

Adjunct Assistant Professor, 1996-2002.

IUCN -The World Conservation Union

Editor, Species, Journal of the World Conservation Union, Species Survival Commission, 1999-2000.
Vice Chairman, Tortoise and Freshwater Turtle Specialist Group, 1991-1998.
Action Plan Director, Tortoise and Freshwater Turtle Specialist Group, 1989-1998.
Member, African Amphibian and Reptile Specialist Group, 1992-current.
Member, Repatriation and Relocation Specialist Group, 1993-current.

University of Kent, Durrell Institute of Conservation and Ecology

Visiting Research Fellow, 1990-1995.

Turtle Recovery Program

Founder/Director, 1989-2000.

Simon's Rock College
Adjunct Faculty, 1986-1988.

Massachusetts Division of Fisheries and Wildlife
Cooperating Wildlife Researcher, 1984-1990.

United States Department of the Interior, National Park Service
Herpetologist, Roosevelt-Vanderbilt National Historic Site, 1988.

University of Michigan, Museum of Zoology
Curatorial Assistant, 1978-1979.

University of Connecticut, Museum of Natural History
Curatorial Assistant, 1975-1978.

Town of Vernon, Connecticut
Environmental Educator, Valley Falls Park, 1975-1977.

CURRENT AND FORMER APPOINTMENTS: COMMISSIONS, BOARDS & PANELS

State of Connecticut, Connecticut Siting Council
Gubernatorial appointment October 2013-May 2019

State of Connecticut, Council on Environmental Quality
Gubernatorial appointment April 2013-2015

State of Connecticut Department of Environmental Protection
Non-harvested Wildlife--Amphibian and Reptile Expert Advisory Committee

Town of Salisbury, Connecticut Planning and Zoning Commission
Elected (municipal elections) November 2007
Chairman -November 2010--present

Westchester Land Trust
Advisory Board

The Bay Foundation and the Josephine Bay Paul and C. Michael Paul Foundation, Inc.
Biodiversity Leadership Awards Elector

The H. John Heinz III Center for Science, Economics and the Environment

Urban and Suburban Work Group Member, Designing a Report on the State of the Nation's Ecosystems Project

New Jersey Highlands Water Protection and Planning Council

New Jersey Landscape Project

Technical Advisory Committee

City of Rye, NY

Chairman, Master Plan Update Task Force, 2000-2003.
Chairman, Planning Commission, 1997-2003.
Vice Chairman, Planning Commission, 1996-1997.
Member, Planning Commission, 1992-1996.

New York League of Conservation Voters, Westchester Chapter Board

Board Member, 2000-2001.

American Rivers

Science and Technical Advisory Board, 1992-2001.

Stewart Airport Lands Citizens Advisory Committee (gubernatorial appointment)

1998-1999.

Hudsonia, Ltd.

Board of Directors, 1995-1999.

The Jay Heritage Center, Rye, New York

Interpretive Planning Panel, 1998.

Westchester Land Trust

Board of Directors, 1997-1999.

PROFESSIONAL DISTINCTIONS

Herpetological Journal

Editorial Board, 1992-1994.

Chelonian Conservation and Biology

Editorial Board, 1993-2006.

Nature in Fragments: The Legacy of Urban Sprawl, Spring Symposium, 2000
Conference Co-organizer, 2000.

Society for the Study of Amphibians and Reptiles
Conservation Committee Chairman, 1998-1999.

Land Use Law Center, Pace University School of Law
Community Leadership Alliance Graduate, 1997.

Catalogue of American Amphibians and Reptiles
Editor, Testudines, 1991-1994.

Conservation, Restoration, and Management of Tortoises and Turtles-
An International Conference
Chairman and Conference Organizer, 1993.

AWARDS & TRIBUTES

Friends of Hudsonia-Dover NY
2010 Award for two decades of assistance to the Town of Dover in assessing and protecting their biological resources.

American Planning Association, Connecticut Chapter
2007 Award for excellence in "integrating complex ecological processes into local land-use decisions.

Resolution from the City of Rye
Commending Michael Klemens for his service to the City (Conservation Commission Advisory Committee/Planning Commission/Chair of Planning Commission.) March 10, 2004.

Office of the County Executive Certificate of Appreciation
Westchester County, October 2003. In grateful appreciation for service rendered to the County of Westchester.

Science and Technical Advisory Committee Achievement Award
American Rivers, October 2001. In recognition of outstanding contribution and commitment to river conservation.

21 New Yorkers to Watch in the 21st Century
Daily News, January 1, 2000, p. 22.

Orange Environment Award
November 13, 1999.

The Edith G. Read Conservation Award
For drafting Rye City's Wetlands Ordinance, 1991.

The Nature Conservancy, Connecticut Chapter
Recipient, White Oak Award for Conservation Research, 1980.

American Museum of Natural History
Associate Patron

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INVITED PAPERS & PRESENTATIONS

Ecological Stewardship: Empowering Communities to Protect the Commons.

Ramapo College of New Jersey April 11, 2013. *Re-invited by popular demand to give the same lecture that was given in February 2012.*

Ecological Sustainability and Economic Development: Can they Work Together?

Keynote Address. CACIWC's 35th Annual Meeting and Environmental Conference. Meriden, CT. November 17, 2012.

Ecological Stewardship: Empowering Communities to Protect the Commons.

Creating a Sustainable World: Voices of Key Practitioners. Ramapo College of New Jersey. February 23, 2012

Ecological Stewardship and Economic Development: Do We Have To Choose?

Keynote Address, CT Association of Wetland Scientists 14th annual Meeting, North Haven, CT. February 23, 2011

Ecological Thinking: A Toolbox for Landscape Professionals.

NOFA Annual Gathering-Storrs, CT December 7, 2010.

Biodiversity and Land Use Policy at the Urban/Suburban Frontier—Westchester Copunty (NY).

The Pocantico River Watershed Conservancy at Pace University. September 17, 2012.

Our Land, Air and Water

A Symposium on Sustainable Development and Western Connecticut's Future. Co-moderated by Congressmen Earl Blumenauer (OR) and Christopher Murphy (CT). June 26,2010.

Ecological Stewardship and Economic Development: Do We Have to Choose?

Millbrook Garden Club, Millbrook, NY, April 14, 2010

Eastern Westchester Biotic Corridor: A Ten Year Retrospective: 2000 – 2010

North Salem Improvement Society, April 11, 2010

Ridgefield's Prospect

Ridgefield Conservation Commission, April 7, 2010

Keynote Address: Ecological Stewardship and Economic Development: Do We Have to Choose?

Cary Institute of Ecosystem Studies, March 6, 2010

Keynote Address: Can We Have Both: Conservation and Economic Development?

Mahopac Library, Mahopac NY, February 25, 2010

Ridgefield's Prospect

Ridgefield Garden Club, January 26, 2010

Biodiversity Inventory of Headwaters and Vernal Pools: Barkhamsted, CT

Barkhamsted, CT January 11 & January 20, 2010

Where the Wet Things Are!!: Citizen Science Vernal Pool Survey

Town of Washington, New York, December 2, 2009

Managing the Ecological Footprint: Creating Human Communities in Harmony with Nature

South West Regional Planning Agency (SWRPA)Lecture Series – Stamford Government Center, November 4, 2009

Bridging the Gap Between Conservation Science and Land-use Planning: Where Science Ends and Policy Begins

Connecting our Landscape: A Roundtable on Integrating Connectivity into Land Use Planning, Two Countries-One Forest- Lake Clear, New York, October 5-6, 2009

Ecologically-informed Land Use Planning: Local Opportunities and Responsibilities.

6th Annual Town Board Breakfast, Dutchess Land Conservancy, Millbrook, NY. May 18, 2009.

Where the Wet Things Are: Citizen-science Vernal Pool Surveys/Public Policy.

Town Board of Washington, Washington, NY. February 12, 2009

Where the Wet Things Are: Citizen-science Vernal Pool Surveys/Public Policy.

Cornell Cooperative Extension, Washington, NY. February 9, 2009.

Eastern Westchester Biotic Corridor.

Town of Bedford Environmental Summit. Bedford, NY. January 31, 2009.

Status of Amphibians and Reptiles in the Tri-State New York Metro Region.

Highstead Arboretum, Redding, CT. October 18, 2008.

Mediation: Wood Turtle (*Clemmys insculpta*) Research/Conservation and Agriculture: Great Swamp. Pawling NY August 4, 2008.

Effective Preservation of Biological Communities: Local and Regional Strategies. Keynote Speaker. Annual Meeting of the Winnakee Land Trust. Norrie Point Environmental Center, Staatsburg, NY. July 30, 2008

Effective Preservation of Biological Communities: Local and Regional Strategies. Lake George Watershed Conference: 4th Annual Forum on Water Quality & Resource Conservation, Fort William Henry Conference Center, Lake George, NY, June 18, 2008,

Planning and Designing for Biodiversity

Adirondack Research Consortium, 15th Annual Conference on the Adirondacks, Lake Placid, NY May 21-22, 2008.

Effective Preservation of Biological Communities: Local and Regional Strategies. Keynote Address: Planning for Biodiversity: Strategies for Developers and Municipalities sponsored by the Hudson Valley Smart Growth Alliance, Marist College, April 29, 2008.

Status of Amphibians and Reptiles in the Tri-State New York Metro Region. The Hotchkiss School, Lakeville, CT. February 14, 2008.

Effective Preservation of Biological Communities: Local and Regional Strategies. Yale University, New Haven, CT. February 5, 2008.

The North Castle Biodiversity Plan. Town Hall, Armonk, NY. January 9, 2008.

Planning and Designing for Biodiversity. Bedford-Somers Continuing Education Course for Land-use Decision Makers: Biodiversity Lecture Series. Katonah Library, Katonah, NY . December 6, 2007

Effective Preservation of Biological Communities: Local and Regional Strategies. Keynote Address, Connecticut Association of Inland Wetlands and Conservation Commissions (CACIWC) 30th Annual Meeting and Environmental Conference, Wallingford, CT. November 10, 2007.

Keeping Connected: Securing Biodiversity in a Changing Landscape. New York City Bar Association Annual Conference on Animals and the Law. NY, NY. September 29, 2007.

Stream Pirates, Clones and Island Hoppers: A Herpetological View of Coastal New England. Henry L. Ferguson Museum. Fishers Island, NY August 19, 2007.

Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. United States Society for Ecological Economics, 4th Biennial Conference. Pace University NY City Campus. June 25, 2007.

The Metropolitan Conservation Alliance: Confronting Sprawl Through Enlightened and Use Planning in the NYC Watershed. Open Space Institute Lunch Seminar. NY, NY May 9, 2007.

The Metropolitan Conservation Alliance: Confronting Sprawl Through Enlightened Land Use Planning in the NYC Watershed. Presented in conjunction with Nature-Network to Ted Kheel and Nurture New York's Nature. NY, NY. May 9, 2007.

Keynote Address: Dutchess County Planning Federation: Annual Awards Dinner. Bridging the Gap Between Conservation Science and Land-use Planning. Poughkeepsie, NY. April 30, 2007.

Bedford Biodiversity Study. Bedford Town Hall, Bedford, NY. April 4, 2007.

Biodiversity Conservation in a Rapidly Developing Environment. Penn State Schuylkill Library. Co-sponsored by the Schuylkill Conservation District, Schuylkill County Sportsmen's Advisory Board, DCNR-Bureau of Forestry, and the Schuylkill County Conservancy. March 28, 2007.

Local Land Use Planning and Herpetofauna Conservation. NYTTS Seminar, American Museum of Natural History, NY, NY. March 25, 2007.

Biodiversity Planning and Agriculture. Marlborough, NY. February 28, 2007.

Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Ridgefield Conservation Commission. Ridgefield, CT. April 6, 2006.

Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Great Swamp Biodiversity Partnership Workshop. Dover, NY. March 30, 2006.

Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Philipstown Town Council. Philipstown, NY. March 9, 2006.

Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. University of Chicago. Chicago, IL. February 9, 2006.

Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Chicago Wilderness. Peggy Notebaert Nature Museum. Chicago, IL. February 8, 2006.

Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Lake Forest College. Chicago, IL. February 7, 2006.

Nature in Fragments: Confronting Sprawl Through Enlightened Land Use Planning. Professor Caleb Gordon's Conservation Biology Class. Lake Forest College. Chicago, IL. February 7, 2006.

Our Extraordinary Backyards: Realizing the Croton-to-Highlands Biodiversity Plan. Keynote address. *Our Extraordinary Backyards.* Workshop co-sponsored by WCS/MCA, Westchester Land Trust, and Cortlandt Land Trust. Cortlandt, NY. January 21, 2006.

Gotham's Footprint: Can Science and Planning Save our Biological Heritage? CUNY Nature of New York Course. New York, NY. November 29, 2005.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. South Carolina Coastal Conservation League. Charleston, SC. November 28, 2005.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. Humans, Nature, and Democracy Conference. Graduate Center, New School for Social Research, New York, NY. November 17-18, 2005.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. Scenic Hudson. Poughkeepsie, NY. October 31, 2005.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. Association of New Jersey Environmental Commissions 32nd Annual Environmental Congress. The Conference Center at Mercer. Mercer Community College, West Windsor, NJ. October 21, 2005.

The Link Between Intact Ecosystems and Livable Human Communities. Association of New Jersey Environmental Commissions 32nd Annual Environmental Congress. The Conference Center at Mercer. Mercer Community College, West Windsor, NJ. October 21, 2005.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. Washington, CT Environmental Council. Washington, CT. July 14, 2005.

Gotham's Footprint: Can Science and Planning Save our Biological Heritage? CUNY Nature of New York Course. New York, NY. June 13, 2005.

Integrating Biodiversity Principles into Land Use Decisions. Connecticut Land Use Leadership Alliance (LULA). June 3, 2005.

Wildlife Conservation in an Urbanizing World. WCS International Conservation Committee. Bronx Zoo. May 5, 2005.

Wildlife Conservation in an Urbanizing World. WCS Lunchtime Lecture Series. Central Park Zoo. May 4, 2005.

Integrating Biodiversity Principles into Land Use Decisions. Connecticut Land Use Leadership Alliance (LULA). Ellington, CT. April 29, 2005.

Finding the Forest between the Trees: The Challenges of Ecologically Scaling Land Use Decisions. *Conserving our Local Landscapes: Build Your Tool-Kit of Land Management Practices.* Symposium funded by The Henry Philip Kraft Family Memorial Fund of the Westchester Community Foundation. Edith May Conference Center, Briarcliff Manor, NY. April 28, 2005.

Biodiversity & Local Land Use Planning. *Southern Wallkill Biodiversity Meeting* – Towns of Chester, Goshen, and Warwick. Warwick Town Hall, Warwick, NY. April 27, 2005.

The Ecological Basis for Conservation Overlay Districts. Dutchess County Environmental Management Council. Farm and Home Center, Millbrook, NY. April 21, 2005.

Postcards from the Edge: Nature at the Suburban-Rural Frontier. *Nature Network Launching Conference.* The Graduate Center, City University of New York, New York, NY. April 14, 2005.

Status of Amphibians and Reptiles in the Tri-State New York Metro Region. *Nature Network Launching Conference.* The Graduate Center, City University of New York, New York, NY. April 13, 2005.

Planning with Nature in New Jersey. *Biodiversity & Land Use Planning Workshop* – New Jersey Townships of Chester, Washington, and Lebanon. Lebanon Township Municipal Building, Glen Gardner, NJ. March 19, 2005.

Moving Forward: The Eastern Westchester Biotic Corridor and Beyond. *Our Extraordinary Backyards*. Lewisboro Land Trust & Waccabuc Landowners Council. Waccabuc County Club, Waccabuc, NY. March 5, 2005.

Planning for Nature and **Wetlands, Biodiversity.** *Planning for Nature Workshop*. Connecticut Southwest Conservation District. The Center Building, Woodbridge, CT. February 19, 2005.

Tools for Local Land Use Planning. *Planning for Nature Workshop*. Connecticut Southwest Conservation District. The Center Building, Woodbridge, CT. February 19, 2005.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. New Jersey Intermunicipal Meeting – Chester, Lebanon, and Washington Townships. Lebanon Township Municipal Building, Glen Gardner, NJ. January 27, 2005.

Planning for Nature. *Planning for Nature Workshop*. Connecticut North Central Conservation District. Tolland County Agricultural Center, Vernon, CT. January 22, 2005.

Wetlands, Biodiversity, and Tools for Local Land Use Planning. *Planning for Nature Workshop*. Connecticut North Central Conservation District. Tolland County Agricultural Center, Vernon, CT. January 22, 2005.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. Falls Village Inland Wetlands/Conservation Commission. Housatonic Valley Regional High School, Falls Village, CT. January 21, 2005.

Gotham's Footprint: Can Science and Planning Save our Biological Heritage? . CUNY *Nature of New York* course. The School of Professional Studies at the University Center, New York, NY. December 12, 2004.

Natural Systems, Human Systems, Planning and Design. American Institute of Architects – *Conservation, Planning and Architecture: Biodiversity at Home and Abroad Session One: The MCA.* Center for Architecture, New York, NY. November 15, 2004.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. Warwick Valley Chamber of Commerce Annual Membership Dinner. Warwick Valley Country Club, Warwick, NY. November 12, 2004.

Croton-to-Highlands Biodiversity Plan. Town of New Castle Town Board Meeting. New Castle, NY Town Hall. November 9, 2004.

Gaining Ground Clinics: Celebrating Successful Local Leaders. Natural Resource Protection. The New York State Judicial Institute, Pace University School of Law. White Plains, NY. November 6, 2004.

The Wild Choice: Intelligent Planning for Wildlife and Wild Places. Rockefeller Brothers Fund. Tarrytown, NY. November 4, 2004.

Protecting Biodiversity While Planning for Growth. Pace University Land Use Law Center, Land Use Leadership Alliance. Hudson Valley Center, New Windsor, NY. October 29, 2004.

Moving Forward: The Eastern Westchester Biotic Corridor and Beyond. Eastern Westchester Biotic Corridor Implementation Meeting. North Salem, NY. October 21, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Association of New Jersey Environmental Commissions (ANJEC), *Beyond Home Rule: Protecting the Environment through Regional Planning*. Mercer County Community College, West Windsor, New Jersey. October 15, 2004.

Creative Planning to Conserve Wildlife: An Update from the Bronx Zoo's Backyard. WCS International, Bronx Zoo. Bronx, NY. September 15, 2004.

Croton-to-Highlands Biodiversity Plan. Town of Putnam Valley Town Board Meeting. Putnam Valley, NY Town Hall. September 22, 2004.

Croton-to-Highlands Biodiversity Plan. Town of Yorktown Town Board Meeting. Yorktown, NY Town Hall. September 7, 2004.

Will Better Land Use Decisions Protect our Region's Biodiversity? Society for Conservation Biology 18th Annual Meeting. Columbia University, New York, NY. July 30 – August 2, 2004.

Extreme Frogs: A Celebration of the Second Plague. American Museum of Natural History. *Extreme Frogs*. Kaufman Theater, New York, NY. June 29, 2004.

Croton-to-Highlands Biodiversity Plan: Implementation Phase. Meeting with the towns of Cortlandt, New Castle, Putnam Valley, and Yorktown to discuss implementation strategies and priorities. Town of New Castle, NY. June 14, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Westchester Land Trust & Westchester Community Foundation Conference. *Smart Growth from the Ground Up: How Community-Based Planning is Reshaping our Region's Land Use Policies.* Manhattanville College, Purchase, NY. May 18, 2004**.**

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. *Norfolk Inland Wetlands Agency***.** Norfolk, CT. April 24, 2004.

Croton-to-Highlands Biodiversity Plan Press Conference. Turkey Mountain Nature Preserve, Town of Yorktown, NY. April 22, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Annual meeting of the *Goshen Land Trust*. St. Thomas Church, Goshen, CT. April 16, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Meeting of the *Association of New Jersey Environmental Commissions (ANJEC)*. March 29, 2004.

Keeping Connected: Securing Biodiversity in a Changing Landscape. Conference of New England Governors and Eastern Canadian Premiers, Suffolk University Law School, Boston, MA. March 15-16, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation in Connecticut. The Hotchkiss School, Lakeville, CT. March 2, 2004.

Amphibians & Reptiles of Connecticut: 1975-Present. Hotchkiss School. Lakeville, CT. March 2, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation in the Wallkill Valley. Inter-Municipal Biodiversity Project Meeting, Goshen Town Hall, Goshen NY. February 2, 2004.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation in the Wallkill Valley. Inter-Municipal Biodiversity Project Meeting, Lloyd Town Hall, Lloyd, NY. February 4, 2004.

Intelligent Planning for Wildlife and Wild Places. The Linnaean Society of New York. New York, NY. January 13, 2004.

Linking Conservation to Scale in Westchester County. Manhattanville College, Purchase, NY. December 10, 2003.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Connecticut Land Trust, Norwalk, CT. November 18, 2003.

Wetlands: Is there life after Avalon? Connecticut Association of Conservation and Inland Wetland Commissions, Wallingford, CT. November 15, 2003.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Connecticut Association of Conservation and Inland Wetland Commissions, Wallingford, CT. November 15, 2003.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. CERC – Graduate Seminar, Columbia University, New York, NY. November 11, 2003.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Croton-to-Highlands Corridor Meeting – Towns of Cortlandt, New Castle, Putnam Valley, & Yorktown, NY. October 27, 2003.

Whose Water Is It? Dutchess County Environmental Management Council, Vassar College, NY.

What is Biodiversity? Audubon Greenwich, Greenwich, CT. October 24, 2003.

Wetlands and Vernal Pools. Westchester County Park Curators Vernal Pool Walk/Lecture, Rye, NY. October 10, 2003.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. Eastern Connecticut District Workshop, Norwich, CT. September 29, 2003.

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. New York Bar Association, Fall Meeting, Hancock, MA. September 20, 2003

Assembling the Pieces: A Bricks and Mortar Approach to Conservation. The Society for Conservation Biology, Annual Meeting, Duluth, MN. June 28 – July 1, 2003.

Planning for Nature: Integrating Biodiversity into Local Land-Use Decisions. CT River Coastal Conservation District, Inc. – Planning for Nature Workshop, Haddam, CT. June 14, 2003.

Intelligent Planning For Wildlife and Wild Places. Sherman Conservation Commission – Conservation and Responsible Growth Workshop, Sherman, CT. June 7, 2003.

Planning for Nature: Integrating Biodiversity into Local Land-Use Decisions. Torrington, CT. May 17, 2003.

Intelligent Planning for Wildlife and Wild Places. Pomperaug River Watershed Coalition, Inc., Southbury, CT. April 30, 2003.

Conservation Practices and Strategies in the New York City Region. Society Wide Educator Meeting: Conservation Update – "WCS, leading the fight to save and protect our planet's Living Landscapes", Bronx Zoo, Bronx, NY. April 21, 2003.

Sustaining Biodiversity at the Suburban-Rural Frontier. Knollwood Garden Club, Greenwich, CT. April 8, 2003.

Intelligent Planning for Wildlife and Wild Places. CT Green Building Council; CT Chapter American Society of Landscape Architects – "Let Nature Do the Work!", New Haven, CT. March 21, 2003.

Planning for Nature. Planning For Nature Workshop, New Paltz, NY. March 19, 2003.

MCA Program and FoSA Analysis. Town of Lloyd Town Board Workshop, Lloyd, NY. March 5, 2003.

Intelligent Planning for Wildlife and Wild Places. Shawangunk Biodiversity Partnership: Eighth Annual Winter Lecture Series. SUNY New Paltz, New Paltz, NY. February 27, 2003.

Local Conservation Issues. The Little Garden Club of Rye, Rye, NY. February 11, 2003.

Biodiversity and the Empire State: Conserving our Landscapes. TNC, CERC, & SIPA – "Biodiversity on the Brink: Challenges in Science and Policy." Columbia University, New York, NY. February 6, 2003.

Assessing the Needs of the Towns Within the Croton-to-Highlands Corridor. Meeting of towns within the Croton-to-Highlands Corridor. Cortlandt, New Castle, Putnam Valley, and Yorktown, NY. January 16, 2003.

Conserving Vernal Pools for Biodiversity and Public Health. Northeastern Mosquito Control Association Annual Meeting. Mystic, CT. December 2, 2002.

Discovering and Defending the City's Wildlife: A Conversation with Conservationists. New York Public Library Public Program. Urban Neighbors, Urban Neighborhoods: Celebrating and Protecting New York's Wildlife and Green Spaces. New York, NY. November 7, 2002.

Intelligent Planning for Wildlife and Wild Places. Let Nature Do the Work. Federated Conservationists of Westchester County Informational Seminar. Pace University, Pleasantville, NY. October 18, 2002.

Conservation at the Suburban-Rural Frontier. Litchfield County Conservation District Annual Meeting. Bridgewater, CT. October 17, 2002.

Connecticut Chapter of the American Planning Association Meeting. Biodiversity Protection and Conservation Area Overlay Districts. Rocky Hill, CT. June 21, 2002.

Land Trusts, Public Officials and Scientists: Collaborating on Quality Communities. Tenth Anniversary New York Land Trust Conference. Saratoga Springs, NY. June 1, 2002.

Biodiversity Protection: New Opportunities for Land Trusts and Public Agencies. Tenth Anniversary New York Land Trust Conference. Saratoga Springs, NY. June 1, 2002.

Eastern Westchester Biotic Corridor. North Salem Town Board Meeting. North Salem, NY. May 28, 2002.

Defenders of Wildlife National Workshop on Land-Use Planning & Biodiversity Conservation. Aspen Wye River Conference Center, Maryland. February 28-March 1, 2002.

Sustaining Ecosystems in Westchester County: Making Smart Growth Work for Wildlife. Backyard Biodiversity: Conservation at the Community Level. Irvington Garden Club. February 19, 2002.

Uncovering and Covering: The Region's Unexplored Environmental Stories - Society of Environmental Journalists 2002 Boston-to-Baltimore Briefing. Sponsored by SEJ, EOHSI, the Hudson River Foundation and the New Jersey Center for Environmental Indicators. January 18, 2002.

Biodiversity and Land-Use Advisory Meeting. Island Press, Washington, DC. December 17-18, 2001.

Examples of Regional Biodiversity Initiatives. Farmington River Watershed Workshop, Simsbury, CT. November 30, 2001.

Sustaining Ecosystems in Westchester County: Making Smart Growth Work for Wildlife. PACE University Lecture, Anna Giorgeou class, White Plains, NY. November 29, 2001.

Sustaining Ecosystems in Westchester County: Making Smart Growth Work for Wildlife. Westchester Land Trust Conference: Growing Smarter: How to Plan for Quality Communities, White Plains, NY. November 17, 2001.

Sustaining Ecosystems in a Changing Landscape. Farmington River Watershed Association (FRWA) Meeting, Simsbury, CT. November 15, 2001.

Sustaining Ecosystems in a Changing Landscape. PACE University Seminar, Dr. Josh Schwartz class, Pleasantville, NY. October 19, 2001.

Sustaining Ecosystems in a Changing Landscape. Stamford Land Conservation Trust Annual Meeting, Stamford, CT. October 16, 2001.

Biodiversity and Agriculture. Wallkill Valley Community Leadership Alliance Training Program. Cold Spring, NY. October 15, 2001.

The Metropolitan Conservation Alliance: Protecting Wildlife at the Rural/Suburban Frontier. Conservation Medicine in the New York Bioscape: A Research, Education, and Policy Agenda - Wildlife Trust, Tarrytown, NY. October 5, 2001.

Conservation Strategies Combined with Local Land-Use Planning. Tools for Watershed Management Workshop. Brooklyn, NY. October 3, 2001.

The Geological and Ecological Framework of the Wallkill Valley. Wallkill Valley Community Leadership Alliance Training Program. Cold Spring, NY. October 1, 2001.

Wise Use in the Absence of Wisdom. Property and the Commons: Rights and Responsibilities, Humans and Nature Consortium, July 17-18, 2001. Sponsored by The Hastings Center. Chicago, IL. July 18, 2001.

Wallkill Valley Conservation: Placing Growth in an Ecological Context. Informative Slideshow & Public Discussion: Wildlife in the Wallkill Valley - How we can learn about and protect it. Sponsored by the Wallkill River Task Force - Ulster Branch. New Paltz, NY. July 11, 2001.

Sustaining Ecosystems in a Changing Landscape. Orange County Land Trust Dinner. Warwick Center, Warwick, NY. June 14, 2001.

Stormwater Design and Its Impact on Biodiversity. 2001 Southeast NY Stormwater Conference and Trade Show, June 13-14. Sponsored by the Lower Hudson Coalition of Conservation Districts and Hudson Valley Regional Council. Fishkill, NY. June 13, 2001.

Repatriation, Relocation, and Translocation: Real Solutions. 57th Annual Northeast Fish and Wildlife Conference, April 22-25, 2001. Sponsored by the New York State Department of Environmental Conservation. Saratoga Springs, NY. April 24, 2001.

Biodiversity and Agriculture. 2001 APA National Planning Conference, March 10-14, 2001. Sponsored by the American Planning Association. New Orleans, LA. March 12, 2001.

Wildlife-Friendly Transportation Planning. 2001 APA National Planning Conference, March 10-14, 2001. Sponsored by the American Planning Association. New Orleans, LA. March 11, 2001.

Sustaining Biodiversity in a Changing Landscape. Massachusetts Association of Conservation Commissions - 2001 Annual Meeting. Worcester, MA. March 3, 2001.

Strategies for Providing Biodiversity Data to Key Decision-Makers (panel speaker). Status of the States: Innovative State Strategies for Biodiversity Conservation. National Biodiversity Symposium. Sponsored by the Environmental Law Institute, January 17-18, 2001. Washington, DC. January 18, 2001.

Justice: Humans, Nature and Time. Humans, Nature, and Environmental Justice, Humans and Nature Consortium, January 15-16, 2001. Sponsored by The Hastings Center. St. Helen Island, SC. January 16, 2001.

Biodiversity Conservation at the Suburban-Rural Frontier: New Opportunities for Land Trusts. National Land Trust Rally 2000, October 12-22, 2000. Sponsored by the Land Trust Alliance. Portland, OR. October 22, 2000.

Sustaining Biodiversity in a Changing Landscape. Presentation to the Selectmen and interested public officials in the towns of Granby, East Granby, Simsbury, Avon, Canton, and Farmington Towns, Farmington Valley, CT. September 21, 2000.

Sustaining Biodiversity in a Changing Landscape-Special Multi-Town Meeting. Hosted by the Planning & Zoning Board/Inland Wetland Commission, Ridgefield Town Hall Annex, Ridgefield, CT. June 21, 2000.

Biodiversity at the Rural Suburban Frontier: A U.S. Perspective. The Consultative Group on Biological Diversity 2000 Annual Meeting, The Colony Hotel, Kennebunkport, ME. June 15, 2000.

Wild New York: Local Conservation Strategies in the Metropolitan Region. Wine and Cheese Evenings with Experts, Wild New York Speaking Engagement, Central Park Zoo New York, NY. May 3, 2000.

Sustaining Biodiversity in a Changing Landscape. The Institute of Ecosystem Study and the Conservation Committee of the Millbrook Garden Club Lecture, Millbrook, NY. April 28, 2000.

No Place Like Home – The Metropolitan Conservation Alliance. Wildlife Conservation Society Annual Meeting 2000, Lincoln Center, New York, NY. April 17, 2000.

Ecological Effects of Poorly Planned Development. Nature in Fragments: The Legacy of Urban Sprawl, Spring Symposium, American Museum of Natural History, New York, NY. April 13, 2000.

Conservation of Wetland Landscapes in the NY Metropolitan Region: Science, Awareness, Policy, and Practice. Environmental Protection Agency, Vernal Pools of the Northeast Conference, University of Rode Island, Kingston, RI. April 1, 2000.

Keynote Address: Wetlands and Wildlife: Conservation Issues. Connecticut Association of Wetland Scientists 2000 Annual Meeting, Ramada Plaza Hotel, Meriden, CT. February 17, 2000.

Keynote Address: Landscape Conservation: Implications for the Protection and Management of Reptiles and Amphibians. Conservation and Ecology of Turtles of the Mid-Atlantic Region Conference, National Wildlife Visitor Center, Patuxent Research Refuge, Laurel, MD. October 30, 1999.

Linking Conservation, Land-Use Regulation, and Science. American Planning Association Symposium, Chicago, IL. September 17-18, 1999.

The Big Apple's Biodiversity: Prospects for Survival in the Post-Eisenhowerian Era. Biodiversity and Climate Change: Center for Biodiversity and Conservation Spring Symposium, American Museum of Natural History, New York, NY. May 1, 1999.

Conservation of Amphibians and Reptiles in the Northeast. Fifty-fifth Annual Northeast Fish and Wildlife Conference, Holiday Inn, Manchester, NH. April 13, 1999.

Sustaining Biodiversity in a Changing Landscape. The Colebrook Land Conservancy Annual Meeting, YMCA Camp Jewel, Colebrook, CT. April 8, 1999.

The Role of Veterinarians in Monitoring the Health Status of Free-Ranging Chelonians. Association of Reptilian and Amphibian Veterinarians Fifth Annual Conference, Crowne Plaza, Kansas City, MO. September 28, 1998.

Keynote Address: Ephemeral Wetlands – Ephemeral Protection? Our Hidden Wetlands: A Symposium on Vernal Pools in Connecticut, Wesleyan University, Wesleyan, CT. November 15, 1997.

Urban Growth and Biodiversity: Can They Co-Exist? Lecture for the Westchester Environmental Management Council and Federated Conservationists of Westchester County, Texaco, Inc. October 27, 1995**.**

Post-glacial Landscape Ecology of the Long Island Sound Basin: A Herpetological Perspective. Jay Heritage Center Annual Meeting, Rye, NY. June 7, 1995.

Global Conservation in a Changing Environment. Biotechnologies for the Ecological, Evolutionary and Conservation Sciences Earth Day Symposium, University of Florida, Gainesville, FL. April 29, 1995.

From Kilimanjaro to Storm King: International Perspectives on Conserving Local Biodiversity. Environmental Problem Solving in Dutchess County Lecture Series, Vassar College, Poughkeepsie, NY. January 26, 1995.

Local Wetlands and Their Associated Uplands: A Conservation Challenge. Wetlands Watch Lecture (Sierra Club), Chappaqua, NY. November 1, 1994.

Turtle at the Crossroads. A Symposium on the Status and Conservation of Florida Turtles, Eckerd College, St. Petersburg, FL. April 3, 1994.

Reptiles and Amphibians of the Metropolitan Region: Threats, Causes, Solutions. Eco Impact Lectures, American Museum of Natural History, New York, NY. February 24, 1994.

Conservation of Amphibians and Reptiles in the Hudson Valley. Our Own Backyard. The Hudson River and New York Harbor: A Natural History, American Museum of Natural History, New York, NY. February 9, 1994.

The Role of Museums and Systematics in the Biodiversity Crisis. Durrell Institute of Conservation and Ecology, University of Kent, U.K. November 11, 1993.

Conservation Action Planning. World Conservation Monitoring Centre, Cambridge, U.K. November 9, 1993.

The Biological Significance of Aquatic Ecosystems. The Future of America's Rivers/A Celebration of the 25th Anniversary of the National Wild and Scenic Rivers Act, Washington, DC. November 5, 1993.

Preserving Local Biodiversity: Lessons from Herpetology. 1993 New York State Conference on the Environment, White Plains, NY. October 23, 1993.

Baseline Health Parameters of Free-ranging Pancake Tortoises, *Malacochersus tornieri*, in Tanzania. Conservation, Restoration, and Management of Tortoises and Turtles-An International Conference, Purchase, NY. July 11-16, 1993.

Status and Exploitation of the Pancake Tortoise (*Malacochersus tornieri)* in Tanzania. Eighteenth Annual Symposium, Desert Tortoise Council, Palm Springs, CA. May 14-16, 1993.

Conservation Efforts: Past Experiences, Future Needs. Symposium on the Status and Conservation of Turtles of the Northeast, Worcester College. March 20, 1993.

At Risk-Local Biodiversity. Millbrook Garden Club, Salisbury, CT. October 19, 1992.

Worldwide Turtle and Tortoise Conservation Efforts by the Turtle Recovery Program. Minnesota Herpetological Society, Saint Paul, MN. May 1, 1992.

Worldwide Turtle and Tortoise Conservation Efforts. University of Minnesota, Conservation Biology Program, Minneapolis, MN. April 30, 1992.

Turtles in Crisis-The Problems and Possible Solutions. Brookfield Zoological Society, Brookfield, IL. April 29, 1992.

Tortoise and Fresh Water Turtle Recovery Program. Chicago Herpetological Society, Chicago, IL. April 28, 1992.

Tortoise and Fresh Water Turtle Recovery Program. 633rd Meeting of The Kennicott Club, Chicago, IL. April 27, 1992.

Building Conservation Partnerships to Conserve Turtles. 17th Annual Symposium. Desert Tortoise Council, Las Vegas, NV. March 6-9, 1992.

Nonmarine Turtle Decline. Northeast Nongame Technical Committee Meeting, Luray, VA. September 26, 1991.

Conservation Status of the Amphibians and Reptiles of Connecticut. 71st Annual Meeting of the American Society of Ichthyologists and Herpetologists, New York, NY. June 15-20, 1991.

Building a Coalition for Conserving Chelonian Biodiversity: The IUCN/SSC Action Plan. 71st Annual Meeting of the American Society of Ichthyologists and Herpetologists, New York, NY. June 15-20, 1991.

Massachusetts and Connecticut Bog Turtle Situations and Projects. Bog Turtle Research Symposium, Moravian College, Lehigh, PA. April 27, 1991.

Turtle Action Plan Initiative (IUCN). Bog Turtle Research Symposium, Moravian College, Lehigh, PA. April 27, 1991.

The IUCN's Tortoise and Freshwater Turtle Conservation Action Plan: Reporting the First Year of Progress. Seminar, Middlebury College, VT. April 4, 1991.

The IUCN/Tortoise and Freshwater Turtle Specialist Group Conservation Action Plan: Report of the First Year's Progress. 16th Annual Symposium. Desert Tortoise Council. Las Vegas, NV. March 8-11, 1991.

Tortoises and Freshwater Turtles: An Action Plan for Their Conservation. Joint initiative of the American Museum of Natural History and the World Conservation Union Species Survival Commission (IUCN/SSC), Special Members Lecture, American Museum of Natural History, New York, NY. February 6, 1991.

IUCN Global Action Plan for the Conservation of Freshwater Turtles and Tortoises and **Recommendations on an Upland Habitat Acquisition Program for the Gopher Tortoise Council**. Twelfth Annual Meeting of the Gopher Tortoise Council, Brooksville, FL. October 26-28, 1990.

Implementing the International Union for the Conservation of Nature Tortoise and Freshwater Turtle Action Plan. Symposium on Turtles and Tortoises: Conservation and Captive Husbandry. Chapman College, Orange, CA. August 9-12, 1990.

Think Globally Act Locally: The Importance of Maintaining Local Wildlife Populations. Long Island's Natural Habitat Management Series: Managing and Protecting Long Island's Endangered Species, Suffolk Community College, Long Island, NY. June 8, 1990.

The IUCN Global Action Plan for the Conservation of Tortoises and Freshwater Turtles. New York Turtle and Tortoise Society Fifth Annual Seminar, Fordham University, Bronx, NY. April 28, 1990.

Postglacial Hybridization of *Ambystoma jeffersonianum* and *Ambystoma laterale* (Amphibia: Caudata) in the northeastern United States. First World Congress of Herpetology, Canterbury, UK. September 11-19, 1989.

FUNDRAISING EXPERIENCE: AWARDS RECEIVED

State of Connecticut Department of Environmental Protection

Support for "Barkhamsted Low Impact Development Project 2010
Support for "Planning for Nature in Connecticut" workshop series, Wildlife Conservation Society, Metropolitan Conservation Alliance, 2003 – 2005.
Support for "Farmington Valley Biodiversity Project" and "From Planning to Action: Biodiversity Conservation in Connecticut Towns", Wildlife Conservation Society, Metropolitan Conservation Alliance, 2004 – current.

New York State Department of Environmental Conservation

Funding for "Integrating Biodiversity Conservation into Municipal Planning Goals and Pracitces", Wildlife Conservation Society, Metropolitan Conservation Alliance, 2004 – 2007.
Funding for "Integrating Biodiversity Conservation into Municipal Planning Goals and Pracitces for Target Communities", Wildlife Conservation Society, Metropolitan Conservation Alliance, 2001 – 2003.

Geraldine R. Dodge Foundation

Support for "A Cooperative, Science-Based Approach to Improving Wildlife Management in New Jersey", Wildlife Conservation Society, Metropolitan Conservation Alliance, 2003, renewal grant 2005.

Westchester Community Foundation

Renewed support for Westchester Biotic Corridor projects, Wildlife Conservation Society, Metropolitan Conservation Alliance Program. 1999 - 2010.

Gage Fund

Renewed annual support for Eastern Westchester Biotic Corridor. 2002-2010

Surdna Foundation, Inc.

Funding for Wildlife Conservation Society, Metropolitan Conservation Alliance Program, 1998-2000.

Funding for Wildlife Conservation Society, NY Metro Program, 1997.

Sweet Water Trust

Support for "Wetland Landscapes of the Northeast," 1999-2000.

Support for "Inventory, Information, and Research Accomplishments in the Great Swamp," Wildlife Conservation Society, NY Metro Program, 1997.

Doris Duke Charitable Foundation

Funding for Wildlife Conservation Society, Metropolitan Conservation Alliance Program, 1999, 2001.

Leo Model Foundation

Wildlife Conservation Society, Tanzania Biodiversity and Training Program, 1997.

The Bay Foundation

Support for "Assessment of Amphibian and Reptile Biodiversity in Tanzania's National Parks," 1995-1997.

Support for integrating conservation science into Scenic Hudson 2008

Support for MCA at Cary Institute, 2010-2011.

Geoffrey Hughes Foundation

Support for Massachusetts/Connecticut bog turtle ecosystem study, 1995-1997.

The Norcross Wildlife Foundation

Funding for the Wildlife Conservation Society, International Programs, 1995-1997.

Support for the publication of "Amphibians and Reptiles of Connecticut and Adjacent Regions," 1993.

Funding for Turtle Recovery Program, American Museum of Natural History, 1991-1992.

Field Day Foundation

Support for Metropolitan Conservation Alliance 2009-2011.

United States Department of Agriculture (Forest Service)

Support for "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference," 1993.

United States Department of Defense (Legacy Program)

Support for "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference," 1993.

National Science Foundation

Support for "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference", 1993.

United State Department of the Interior (Bureau of Land Management)

Support for preparing conference proceedings "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference," 1993.

Support for "Conservation, Restoration, and Management of Tortoises and Freshwater Turtles-An International Conference", 1992.

Wildlife Conservation International (Now WCS International Programs)

Field Assessment of the Status and Exploitation of the Pancake Tortoise *(Malacochersus tornieri)* in Tanzania, 1992.

John D. and Catherine T. MacArthur Foundation

Tropical Rainforests: Can We Regain Paradise Lost? (educational programming grant), 1990.

Capacity building in Tanzanian National Parks: Biodiversity assessment and monitoring, 1994-1998.

FUNDRAISING EXPERIENCE: NGO, COPORATE & INDIVIDUAL SUPPORT

Acorn Foundation

American Federation of Herpetoculturists

Aquarion Co.

Bay and Paul Foundation *(multiple awards to support conservation and biodiversity activities)*

Roland Betts

Brystie, Inc.

California Turtle and Tortoise Club

Camden House Publishing

Chelonia Institute

Chicago Zoological Society

Conservation and Research Foundation

Conservation International *(2 grant awards)*

Desert Tortoise Council *(2 grant awards)*

Martin Diamond *(multiple grant awards)*

Doris Duke Charitable Trust

Dorothy R. Donnelley Charitable Trust *(6 grant awards)*

Gordon and Jean (Phipps) Douglas (*multiple awards to support policy activities*)

Field Day Foundation

Robert and Alexandra Goelet (*multiple awards to support conservation activities*)

Institute for Herpetological Research.

J. P. Morgan & Co

IUCN/SSC Trade Specialist Group

Jersey Wildlife Preservation Trust *(2 grant awards)*

Knoxville Zoological Gardens

Leyland Alliance

John D. and Catherine T. MacArthur Foundation

Model Foundation

New York Return A Gift to Wildlife *(2 grant awards)*

New York Turtle and Tortoise Society *(3 grant awards)*

Norcross Wildlife Foundation *(3 grant awards)*

Oklahoma City Zoological Park

Peter Scott Fund-IUCN *(3 grant awards)*

Sabin Conservation Fund *(7 grant awards)*

Saint Augustine Alligator Farm

Surdna Foundation (*2 grant awards*)

Sweet Water Trust *(2 grant awards)*

Tampa Bay Herpetological Society

Tennessee Aquarium

Tipton and Maglione

US Fish and Wildlife Service

Dr. Lucy (Rockefeller) Waletzky (*multiple awards to support conservation activities*)

Westchester Community Foundation (*multiple awards to support biodiversity research*)

15 June 2022

David F. Sherwood
Moriarty, Paetzold & Sherwood
2230 Main Street
P.O. Box 1420
Glastonbury, Connecticut 06033-6620

Re: DOCKET NO. 509 - Homeland Towers, LLC and New Cingular Wireless PCS, LLC d/b/a AT&T application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 1837 Ponus Ridge Road, New Canaan, Connecticut

I. INTRODUCTION

360°RF was engaged by party/CEPA intervenor Mark Buschmann to review C Squared Systems LLC's "Radio Frequency Analysis Report" dated November 18, 2021, and constituting Attachment No. 1 to the application of Homeland Towers, LLC and New Cingular Wireless PCS, LLC d/b/a AT&T for a Certificate of Environmental Compatibility and Public Need for a proposed telecommunications facility to be located at 1837 Ponus Ridge Road, New Canaan, Connecticut.[1]

[1] According to Attachment No. 1, "C Squared Systems was retained by New Cingular Wireless PCS, LLC ("AT&T") to evaluate the proposed wireless communications facility at 1837 Ponus Ridge Road, New Canaan, CT at 106 feet AGL." Source: TECH REPORT AT_T.pdf, p. 4 of 15. The Homeland Towers, LLC/New Cingular Wireless PCS, LLC d/b/a AT&T application, however, proposes a tower of "110' in height with faux branches extending an additional 5'above the top of the pole, bringing the total height of the so-called "monopine" to approximately 115'." Source: CT050-Homeland-Towers-New-Canaan-NW-Application-Narrative-Final, p. 5 of 28.

This review concludes that C Squared Systems has demonstrated that AT&T has a gap in reliable coverage in northwestern and central western New Canaan, but has failed to establish that the proposed telecommunications facility will provide AT&T with the desired coverage within that service gap. This review further examines feasible and prudent alternatives to the proposed facility and identifies (1) alternate sites at 982 Oenoke Ridge Road and 40 Dans Highway which appear to offer better coverage at similar or lower heights, (2) utility pole mounted antennas which, individually or in combination, could provide similar or better coverage in northwestern and central western New Canaan, and, when in combination, allow for less traffic loading than at a single site, and (3), an alternate site for the EMS Dispatch repeater antenna on 155.175 MHz (WXB951) at 168 Lost District Drive which offers broad coverage for western New Canaan and beyond. Notably, none of these alternative locations were identified in the "Site Search Summary" provided by Homeland Towers and constituting Attachment No. 2 to the application.

II. EXISITING COVERAGE

Attachment 3 to C Squared Systems' "Radio Frequency Analysis Report" (Attachment No. 1 to the application), entitled "'CT1458 Existing 700 MHz LTE Coverage' for the Current AT&T Network" depicts 700 MHz LTE coverage from existing sites in northwest New Canaan and demonstrates that there are currently gaps in 700 MHz LTE coverage affecting service within the targeted area. The coverage shown in Attachment 3 is where the signal strengths are greater than -83 dBm (minimum level required reliable, high-quality service and performance at 700 MHz) (in green), and greater than -93 dBm (minimum required for adequate level of service at 700 MHz) (in orange).[2] 360°RF agrees with this analysis.

[2] "AT&T's 4G LTE technology is designed to thresholds of -83 dBm and -93 dBm for their 700 MHz LTE and -86 dBm and -96 dBm for their 1900 MHz LTE.1 The stronger thresholds (-83 dBm and -86 dBm) yield greater throughputs and improved customer experience. The -93 dBm and -96 dBm thresholds are the minimum acceptable levels required to meet customer expectations for 4G service." (CSC-Application-Attachment-1 & TECH REPORT AT_T.pdf)

III. COVERAGE – PROPOSED TOWER AT 1837 PONUS RIDGE ROAD

In this section 360°RF analyzes the coverage anticipated for the 1837 Ponus Ridge site over the 700~850 MHz frequency range, because the application provides the most comprehensive data relative to this range, and because this general frequency range was active at the existing AT&T site at 135 Main Street in New Canaan.[3]

Exhibit 1 to this memorandum includes two signal maps. The map at the top of Exhibit 1 shows the signal coverage provided from the proposed tower at 1837 Ponus Ridge Road in green to indicate coverage at the minimum level required to provide reliable, high-quality service and performance at 700 MHz and in orange to indicate coverage at the minimum level required for adequate service at 700 MHz. 360°RF has added red arrows to highlight the white coverage gaps which would remain even if the proposed tower at 1837 Ponus Ridge Road were operational, which will be discussed in more detail below.

The map at the bottom of Exhibit 1 is from 2014 showing a similar AT&T frequency map to document the coverage at that time, including approved sites.[4] This map uses a slightly different color scheme to represent signal strength. As with the prior map, green indicates coverage at the minimum level required to provide reliable, high-quality service and performance at 700 MHz, orange indicates coverage at the minimum level required for adequate service at 700 MHz. and a new color, yellow is intermediate between the two aforementioned signal strengths. The 2014 map shows large areas of white indicating coverage gaps in western New Canaan, particularly in the central west and northwest.

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[3] See Exhibit 12 to this memorandum, "Active Frequencies observed at AT&T site name CT2110 at 135 Main Street New Canaan." Both 739 MHz and 885 MHz are marked on the exhibit's frequency sweeps conducted by 360°RF on 04.27.22.

[4] Source: Wireless Market Study of the Town of New Canaan, https://cms3.revize.com/revize/newcanaanct/Commissions/Utilities/6.New_Canaan_Wireless_Market_Study_Report_R4-orn.pdf, p. 46 of 67.

Another gap is seen in northeast New Canaan.

Exhibit 2 to this memorandum shows the two signal maps from Exhibit 1 superimposed (as best as practicable). Notice that even with the addition of the proposed 1837 Ponus Ridge tower, significant coverage gaps remain, which appear in white on the map. The proposed 1837 Ponus Ridge tower propagates to a limited area in northwest New Canaan with a significant gap even there. Further south, in west-central New Canaan, service would be spotty at best. The proposed tower at 1837 Ponus Ridge Road would not address significant parts of the coverage gaps identified in the 2014 coverage map.

Review of the response of Cellco Partnership d/b/a Verizon Wireless to the Connecticut Siting Council's first set of interrogatories, Question no. 13, and of Attachment 2 to its responses at pages 37 and 38, also shows that very significant coverage gaps remain even with the addition of the proposed tower at 1837 Ponus Ridge Road, which are similar to the gaps discussed above and illustrated in Exhibit 2.

Exhibit 3 to this memorandum shows ground elevations in the vicinity of the proposed 1837 Ponus Ridge Road tower. The application indicates that 1837 Ponus Ridge Road has a ground elevation of 394 feet AMSL.[5] Installation of a tower at 1837 Ponus Ridge Road, with a ground elevation of 394 feet AMSL and an antenna at 106 feet, would yield a total elevation of 500 feet AMSL. Exhibit 3 illustrates that a tower installed on property located along the ridgeline to the immediate east of 1837 Ponus Ridge Road would be significantly higher, and would yield significantly better coverage. The topography to the east also explains, in part, why a tower at 1837 Ponus Ridge Road would not fill in more of the coverage gaps identified by AT&T. Line of Sight (LoS) is required for signal propagation with only free path losses (i.e., losses from the distance through air and nothing else). The most effective signal propagation occurs when the

[5] CSC-Application-Attachment-3.pdf, p. 4.

receiving antenna (tower or cell phone) can “see” the transmitting antenna (tower or cell phone).

Anything in that LoS will create varying losses. Signal strength will be reduced somewhat when encountering vegetation or buildings, but a hillside will effectively terminate propagation. (Note that signal not pointed or aimed down towards the ground from a tower will not be usable on the ground.)

IV. COVERAGE - ALTERNATIVE SITES

360°RF has identified three alternate sites which would provide coverage comparable equal or better coverage to 1837 Ponus Ridge Road in northwestern and central western New Canaan and northeastern Stamford:

- **982 Oenoke Ridge Road, New Canaan, CT**
  Map Block Lot 34 31 88
  Owner: The Simon Family Trust
  Zoning District: 4 Acre Residential Zone
  Parcel Size: 4.00 acres
  Lat/Long: 41.17688501015760 5N/73.51904066094508W
  Ground Elevation 551’ +/- AMSL

- **40 Dan’s Highway, New Canaan, CT 06840**
  Map Block Lot 27 25 101
  Owners: Patricia L. R. Fowler and Gordon B. Fowler, Jr.
  Zoning District: 4 Acre Residential Zone
  Parcel Size: 6.32 acres
  Lat/Long: 41.1682238674322N/73.52949471555743W
  Ground Elevation: 373’ +/- AMSL

- **40 River Wind Road, New Canaan, CT**

Map Block Lot 28 25 46
Owners: Elisabeth C. Rapport and Michael J. Rapport
Zoning District: 2 Acre Residential Zone
Parcel Size: 2.93 acres
Lat/Long: 41.170226256089855N/73.537671702062664W
Ground Elevation: 303' +/- AMSL

Exhibits 4 through 10 to this memorandum show 360°RF-generated signal coverage maps for these alternative sites superimposed over the boundaries of the Town of New Canaan. On these maps, the red coloration equates to the green coloration on the AT&T maps, and the yellow coloration equates to the orange coloration on the AT&T maps.[6] The maps generated by 360°RF do not have the same level of precision as the AT&T maps, but are useful in making direct comparisons of coverage between the proposed site at 1837 Ponus Ridge Road and the prospective alternative sites listed above.[7]

These exhibits are arranged according to 360°RF's assessment of apparent solution fitness of the development sites considered, and are arranged from best (982 Oenoke Ridge at 110 ft, Exhibit 4) to worst (a half-sized tower, 50 ft., at 40 Dan's Highway, Exhibit 10).

Comparing these map coverage exhibits, it is readily apparent that the 982 Oenoke Ridge Road and 40 Dan's Highway sites offer superior or substantially similar coverage at the same or lower tower height to the 1837 Ponus Ridge Road site, and address most of the coverage gaps in New Canaan identified by

[6] The use of red and yellow colors avoids confusion of propagation with topography. The base topographic map uses green for features such as state parks and forests. AT&T uses a different, partial, topographic base map that can be confusing because it does not clearly depict resultant coverage gaps in west and central west New Canaan that would persist with the proposed tower at 1837 Ponus Ridge Road.
[7] The pattern of coverage on the 1837 Ponus Ridge Road coverage map generated by 360°RF is similar to the pattern on the AT&T map, but gives a more generous representation of coverage. 360°RF considers the AT&T 1837 Ponus Ridge Road predicted coverage map credible.

AT&T, and most of those in northeastern Stamford.[8] The 40 River Wind Road site with the addition of 10' of tower height would also offer similar coverage to the 1837 Ponus Ridge Road site.

V. COVERAGE – EXISTING INFRASTRUCTURE ALTERNATIVES

360°RF also examined the possibility of utilizing other existing elevated structures in the area for network equipment colocation. 360°RF analyzed the effectiveness of utilizing these structures on the west side of New Canaan individually, or in combinations of two, to address AT&T identified coverage gaps. These options would utilize existing standard height 40 ft. utility poles comparable to the height of the existing tower at 135 Main St., New Canaan (44 ft. AGL).

Exhibit 11 is a table providing information on 360°RF's analysis of utility poles in northwestern New Canaan which might be utilized to address existing coverage gaps identified by the applicants.

The coverage maps comprising Exhibit 13 demonstrate that antennas located at the locations identified represent viable alternatives to the proposed cell tower at 1837 Ponus Ridge Road.

Importantly, one of the existing utility pole locations adjacent to either 388 West Road or 403 West Road would provide substantially similar or better coverage than the 110-foot tower proposed for 1837 Ponus Ridge Road. See Exhibit 13 (A).

Further, antennas located on a utility pole at 288 Elm Street (Exhibit 13 (E)), in conjunction with another utility pole at 1 Barnegat Road (Exhibit 13 (C)) or 40

[8] Notably, an antenna located on a utility pole adjacent to either 388 West Road or 403 West Road would also provide substantially similar or better coverage than the 1837 Ponus Ridge Road site. See the discussion below in Section V and Exhibit 13 (A).

River Wind Road (Exhibit 13 (D)) would provide broad coverage of the gaps identified by AT&T. Such a two-site combination would address gaps in coverage in central western New Canaan which are not addressed by the proposed tower at 1837 Ponus Ridge Road, as, for example, the gaps west and southwest of the western terminus of Country Club Road.[9] Use of either of these two combinations would not only provide more needed coverage, but would also allow for less traffic loading at any one site.

VI. PUBLIC SAFETY BROADBAND ALTERNATIVES

In this section, 360°RF examines alternatives to the proposed tower at 1837 Ponus Ridge Road for First Responder use. Exhibit 15 to this memorandum shows the anticipated coverage that an Emergency Medical Services antenna would have if located on a potential tower at 1837 Ponus Ridge Road and at 40 Dans Highway at elevations of either 50- or 110-feet above ground level. A first responder antenna presence situated atop either of the above-noted Utility Pole locations on West Road (388 or 403) would also provide effective coverage for the west half New Canaan.

All shown heights and locations in Exhibit 15 appear to provide good WXB951 coverage on the western side of New Canaan when compared to the existing 982 Oenoke 9-meter (30-foot) high antenna, which is on one of the highest ground levels in New Canaan at 168-meters (approximately 551 feet) AMSL.

New Canaan Police and fire frequencies are very similar to EMS frequencies, and thus will propagate more or less the same. They also seem to largely share locations for most of their other antennas in town. The License links below leads to maps with pins showing locations of antennas for each:

[9] The western terminus of Country Club Road is approximately 41°09'59.8"N 73°30'59.1"W.

Frequency	License	Type	Tone	Alpha Tag	Description	Mode	Tag
155.64000	KNEN600	BM	840 NAC	NCPD 1	Police Operations	P25	Law Dispatch
155.77500	KNEN600	BM	840 NAC	NCPD 2	Police Secondary	P25	Law Tac
155.94750	WPVC929	RM	343 DPL	NCFD DISP	Fire Operations	FMN	Fire Dispatch
153.95000	WPVC929	M	343 DPL	NCFD 3 FG	Fireground	FMN	Fire-Tac
155.17500	WXB951	RM	464 DPL	NCFD EMS	EMS Operations	FMN	EMS Dispatch
154.35500	KCI423	RM	840 NAC	NC HIGH DEPT	Public Works	P25	Public Works

If the EMS dispatch repeater antenna on 155.175 MHz (WXB951) at 982 Oenoke Ridge Road (red pin # 6 on Exhibit 14) were to be relocated, New Canaan residents Don and Nancy Carmel have offered use of the high elevation ground on their property at 168 Lost District Drive. The 155.175 MHz (WXB951) propagation for this potential location has been modeled at heights of 40-, 60-, 80-, and 100- feet above ground level and the signal coverage maps for each are shown at the bottom of Exhibit 15. These maps show broad coverage for the western half of New Canaan and beyond.

The Town of New Canaan undertook its own comparison of the existing antenna at 982 Oenoke Ridge Road and an antenna on the proposed tower at 1837 Ponus Ridge Road with respect to First Responders handheld radio coverage. The coverage maps attached as Exhibit 16, prepared by or on behalf of the Town of New Canaan and obtained through a FOIA request, represent projections of useable signal strength for a First Responders' handheld radio (in green) based

on antennas at these sites.

Exhibit 16 demonstrates that relocation of the existing antenna from 982 Oenoke Road to 1837 Ponus Ridge Road would result in a new gap in coverage. The red arrow (added by 360°RF) indicates the location of the gap, which, for example, includes a large portion of Michigan Road. No apparent benefit accrues from relocation of the existing antenna.

VII. CONCLUSION

The proposed cell tower at 1837 Ponus Ridge Road with an antenna elevation of 106-feet above ground would be taller than more than two-thirds of all other communications antennas in New Canaan and surrounding towns, i.e., Darien, Norwalk, Stamford, and Wilton.[10] The applicants have failed to consider and pursue viable sites which would provide similar or better coverage of the gaps identified in their marketing study, comport with the recommendations and requirements of New Canaan Plan of Conservation and Development and Zoning Regulations, and which would not present the potential significant adverse environmental impacts of development of a site within 83 feet of a public water supply reservoir.

[10] Source: https://www.radioreference.com/apps/db/?ctid=304. As noted in footnote 1, C Squared Systems LLC's "Radio Frequency Analysis Report" assumes a tower height of 106 feet, although the site plan shows a tower height of 110 feet. For purposes of comparison with the proposed tower at 1837 Ponus Ridge Road, the highest antenna at each location is used for computations. Of 150 local sites with listed heights on Exhibit 13, 99 are lower than 106 feet. The 18 sites where the height is not listed are in-building and rooftops, which are assumed to be lower, bringing the total number of existing towers lower than the proposed tower to 117.

VI. CERTIFICATION

I certify to the best of my knowledge, information and belief that the statements made herein are true, accurate and complete.

____S/ ALAN E. BURG_____

Alan E. Burg

360°RF

EXHIBITS

1. **"'CT 1458 – Existing 700 MHz LTE Coverage With Proposed SITE' for the AT&T Network' and "Figure 25: AT&T Active & Approved Sites – 850 MHz Predicted Coverage"**

2. **Superimposed: "'AT&T Active & Approved Sites' plus 'CT 1458 – Existing 700 MHz LTE Coverage With Proposed SITE' for the AT&T Network'"**

3. **New Canaan Ground Elevations**

4. **982 Oenoke Ridge, 800 MHz, 110'**

5. **982 Oenoke Ridge, 800 MHz, 80'**

6. **40 Dans Hwy, 800 MHz, 110'**

7. **1837 Ponus Ridge Rd, 800 MHz, 110'**

8. **40 River Wind Road, 800 MHz, 120'**

9. **1837 Ponus Ridge Road, 800 MHz, 50'**

10. **40 Dans Hwy, 800 MHz, 50'**

11. **Existing Utility Poles – Northwestern New Canaan**

12. **Active Freq.'s 739 MHz 885 MHz marked**

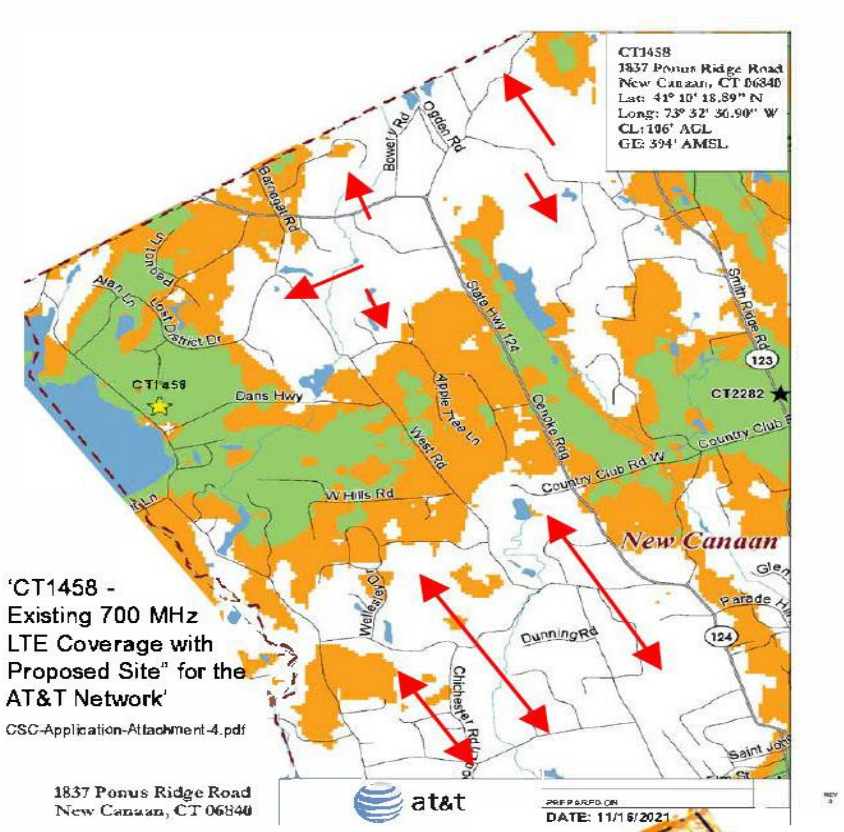
13. **Utility Pole Coverage Maps**

14. **FCC Callsign: WXB951 (New Canaan Volunteer Ambulance)**

15. **Existing EMS Dispatch: 982 Oenoke Ridge / 156 MHz**

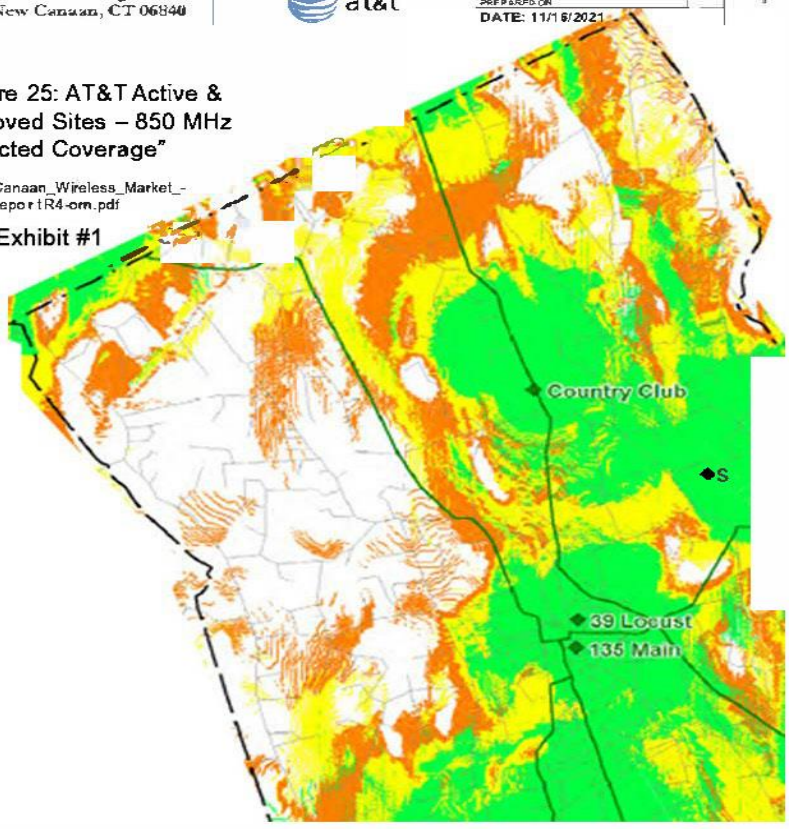
16. **APX Radio Comparison - 982 Oenoke Road vs. 1837 Ponus Ridge Road**

17. **Resume of Alan E. Burg**



'CT1458 - Existing 700 MHz LTE Coverage with Proposed Site" for the AT&T Network'

CSC-Application-Attachment-4.pdf



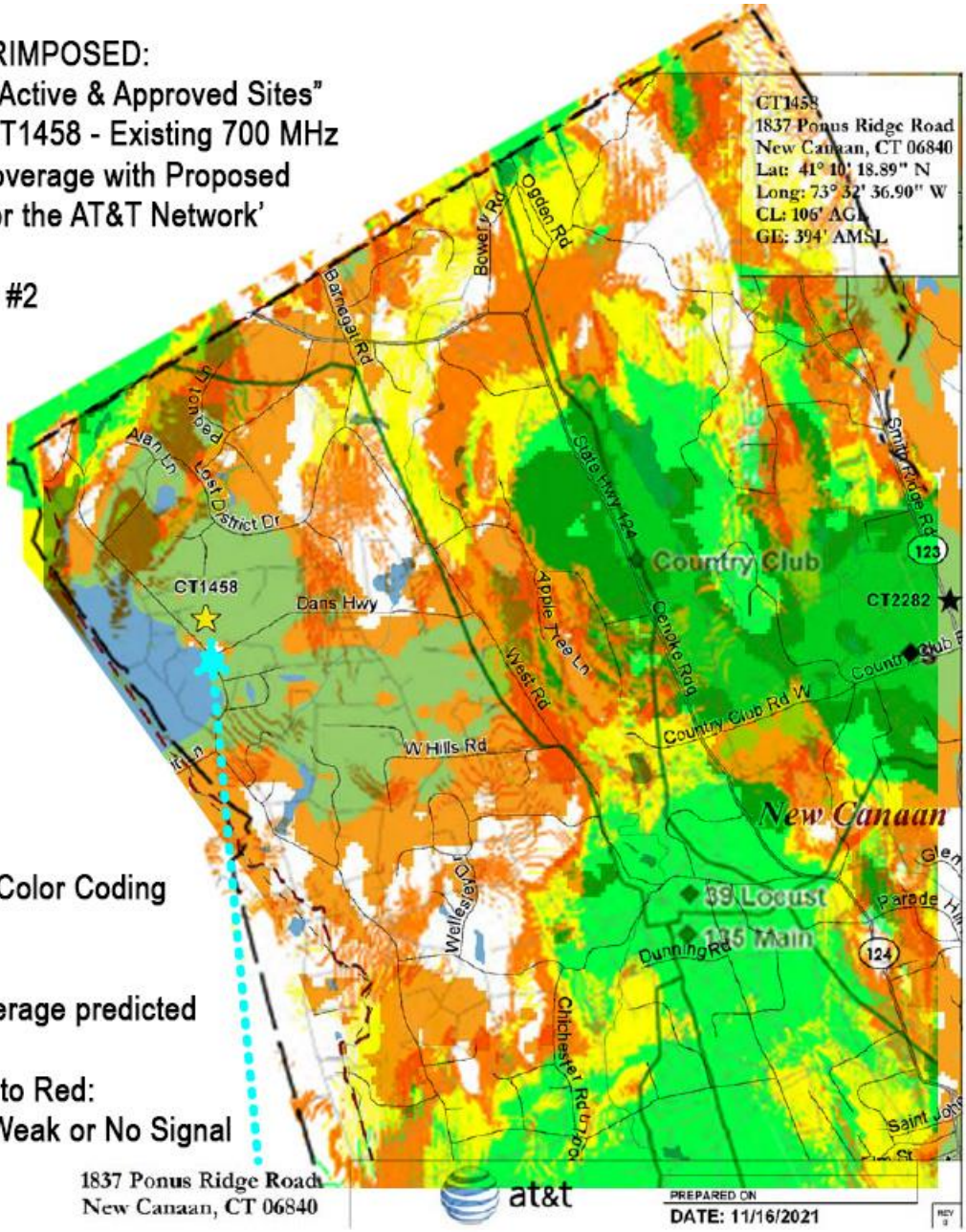
"Figure 25: AT&T Active & Approved Sites – 850 MHz Predicted Coverage"

6.New_Canaan_Wireless_Market_-Study_Report4-orn.pdf

Exhibit #1

SUPERIMPOSED:
"AT&T Active & Approved Sites" plus 'CT1458 - Existing 700 MHz LTE Coverage with Proposed Site" for the AT&T Network'

Exhibit #2



Typical Color Coding

White:
No Coverage predicted

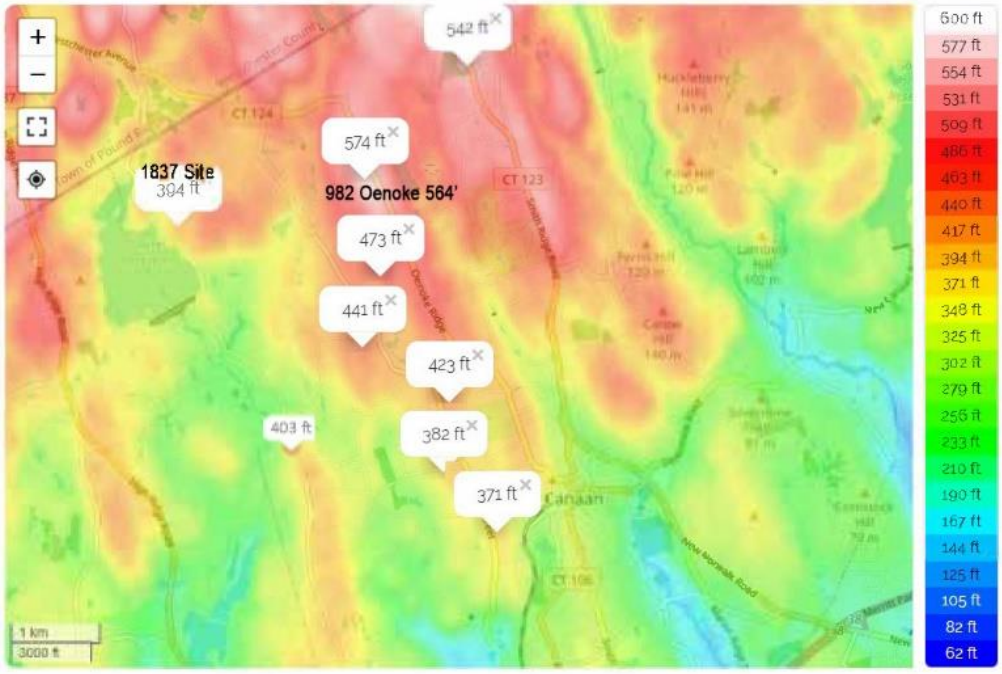
Orange to Red:
Fair to Weak or No Signal

New Canaan

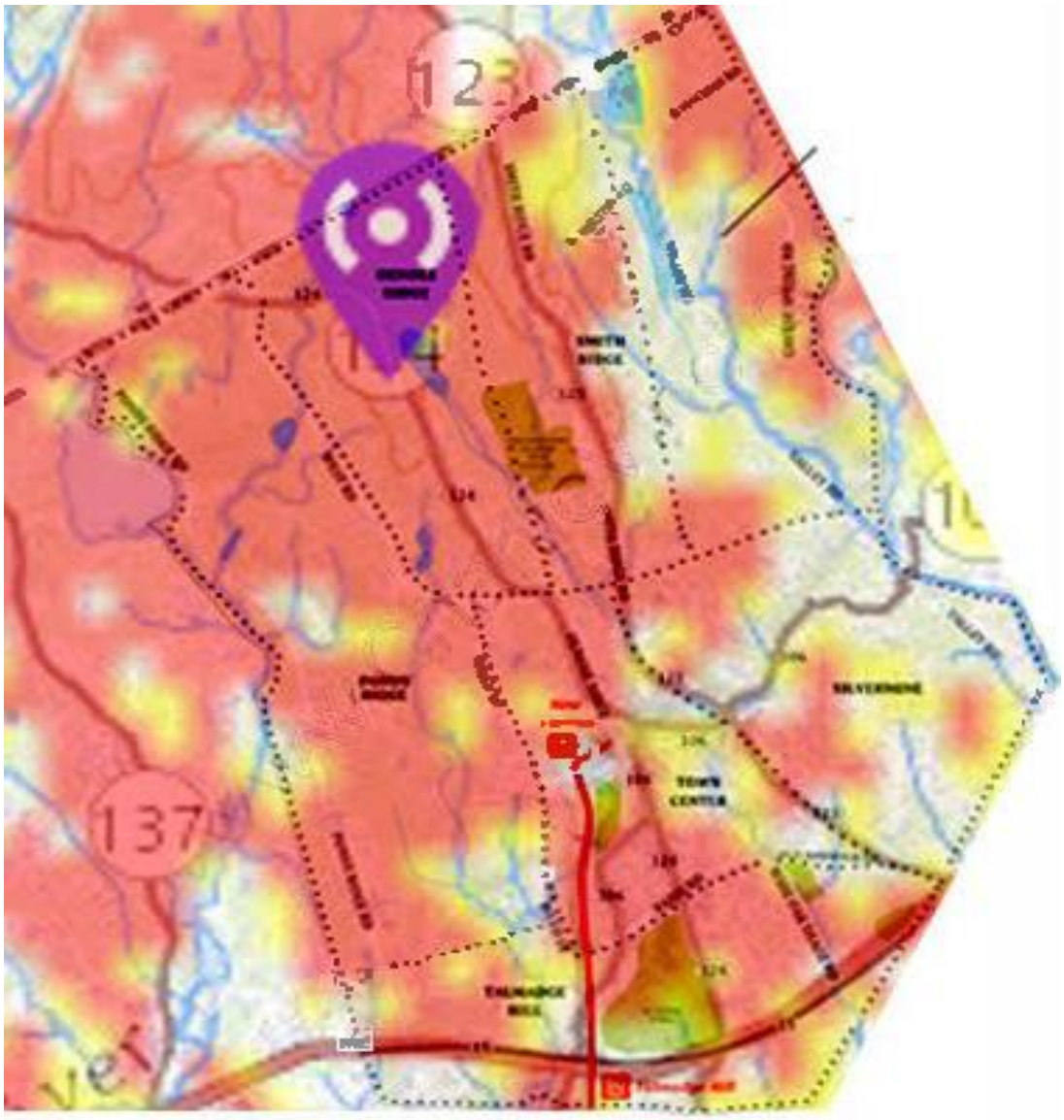
Topographic maps> United States> Connecticut> Fairfield County> New Canaan> New Canaan

New Canaan Ground Elevations **Exhibit #3**

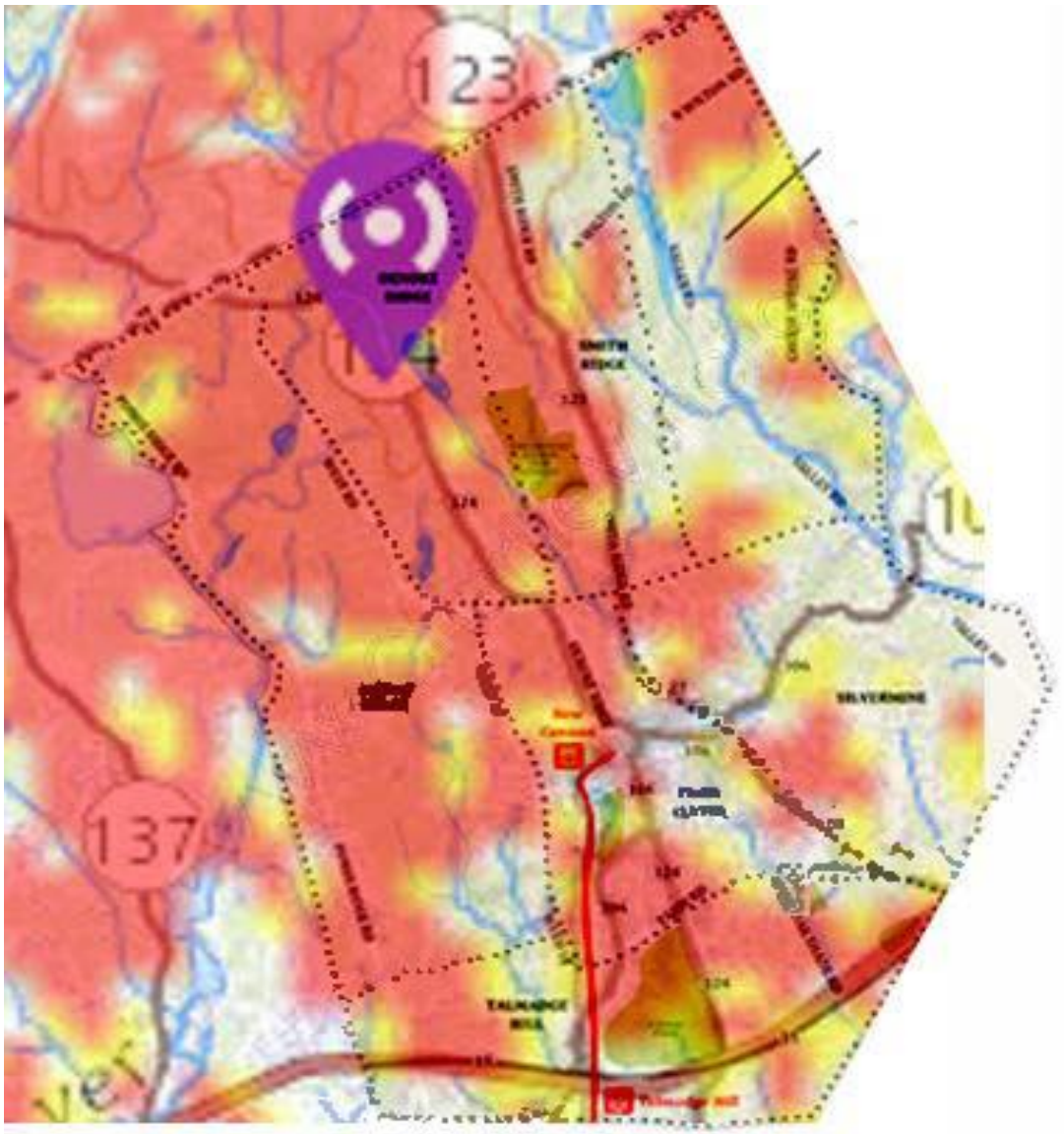
https://en-us.topographic-map.com/maps/v18j/New-Canaan



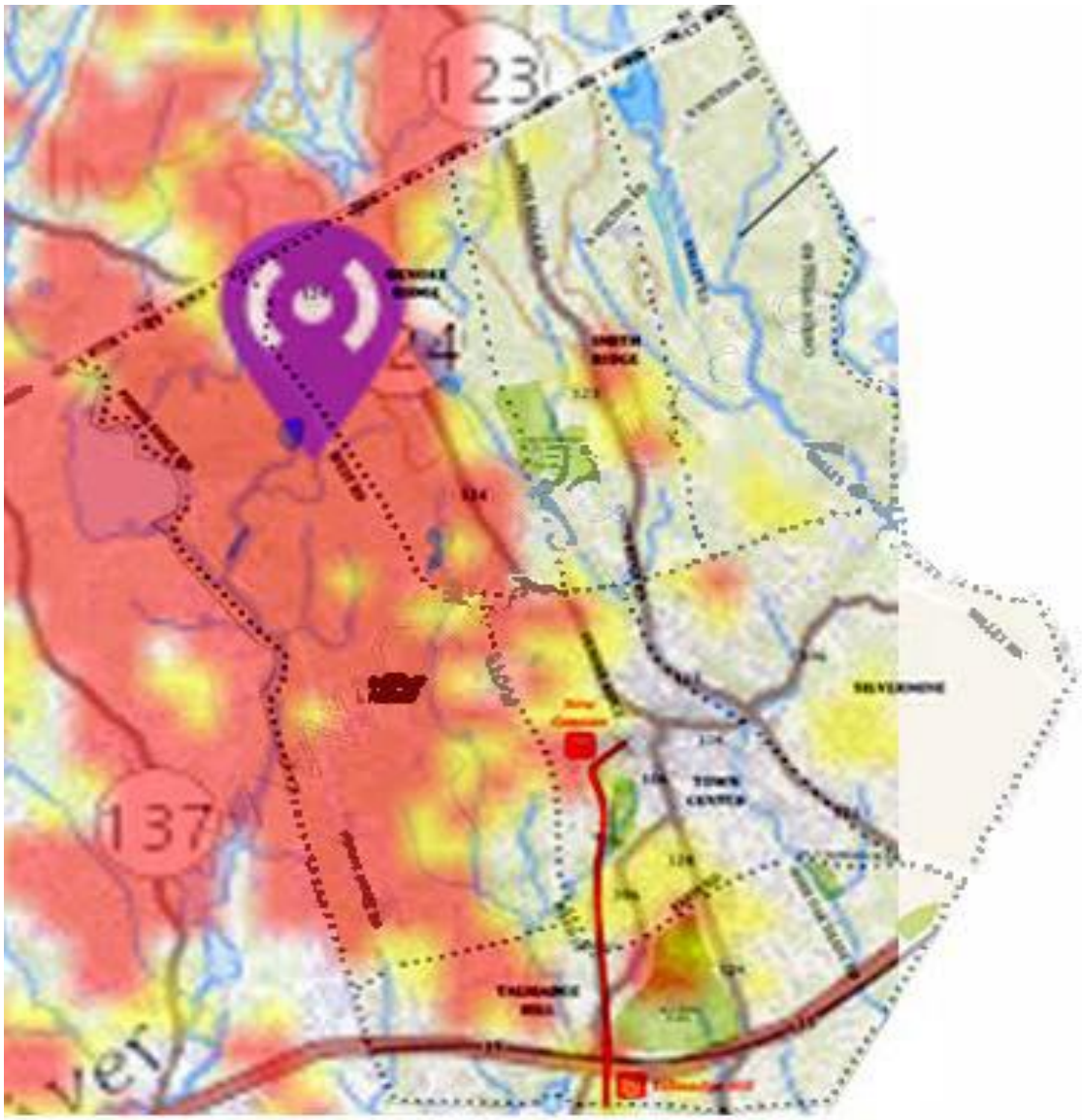
New Canaan, Fairfield County, Connecticut, 06840, United States



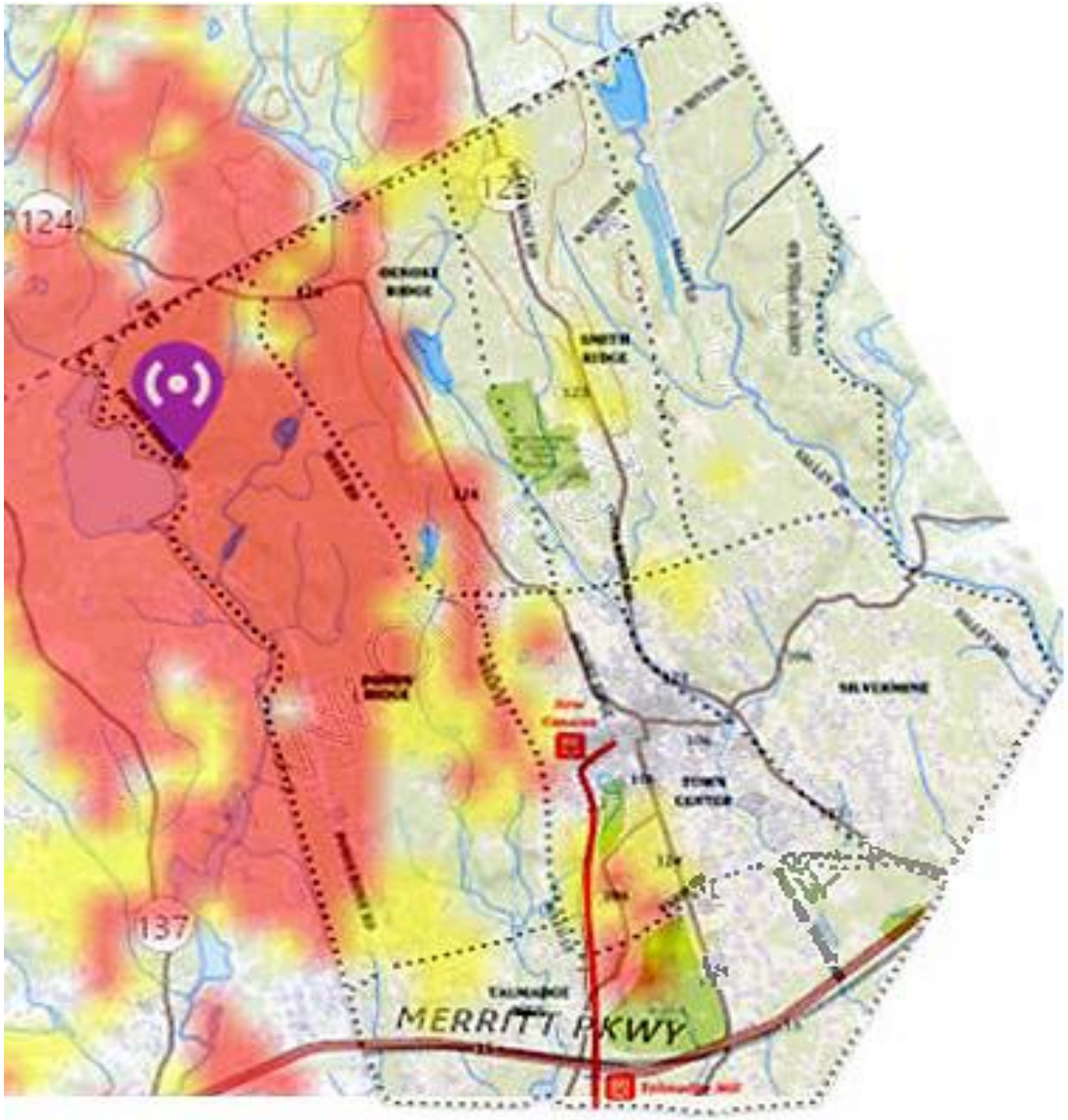
982 Oenoke Ridge, 800 MHz, 110' Exhibit #4



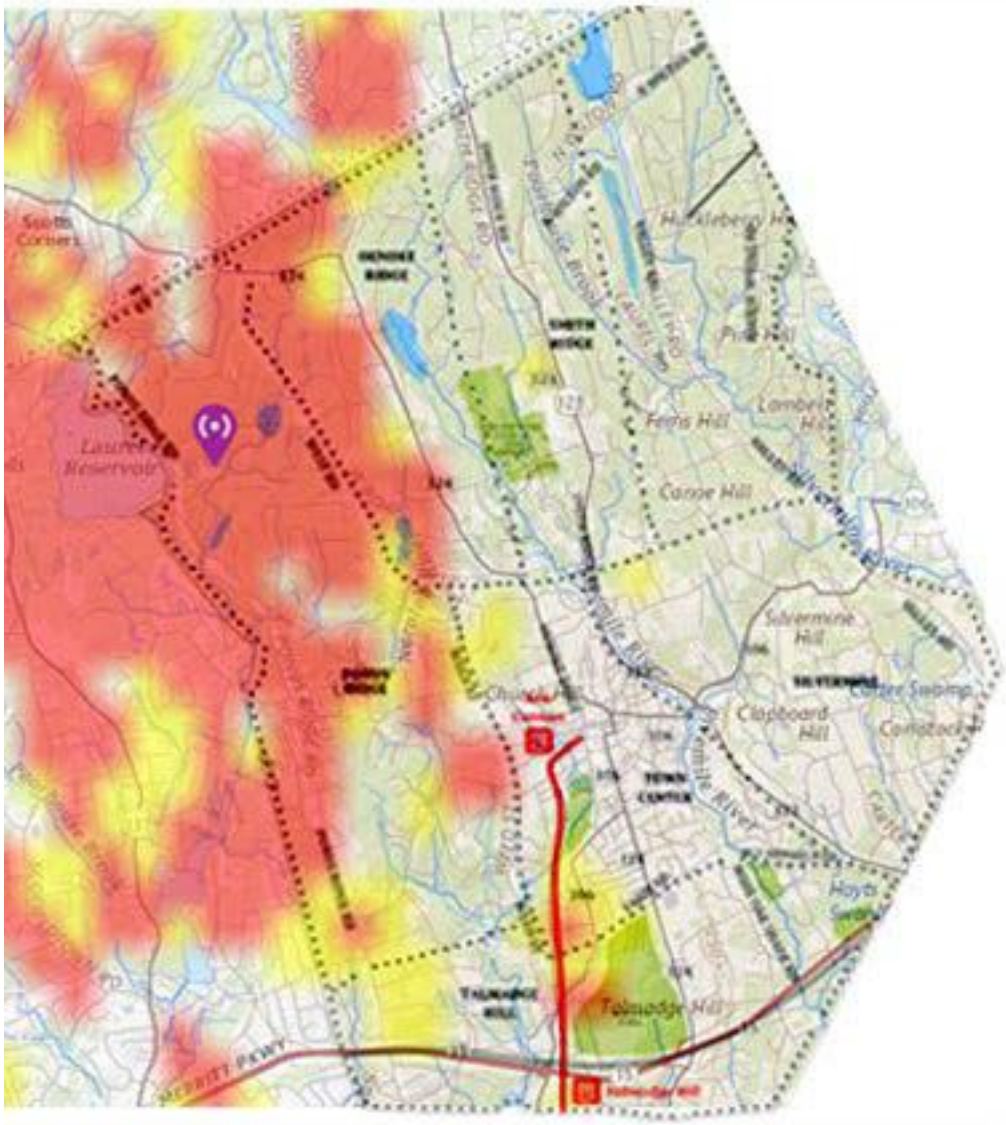
982 Oenoke Ridge, 800 MHz, 80' Exhibit #5



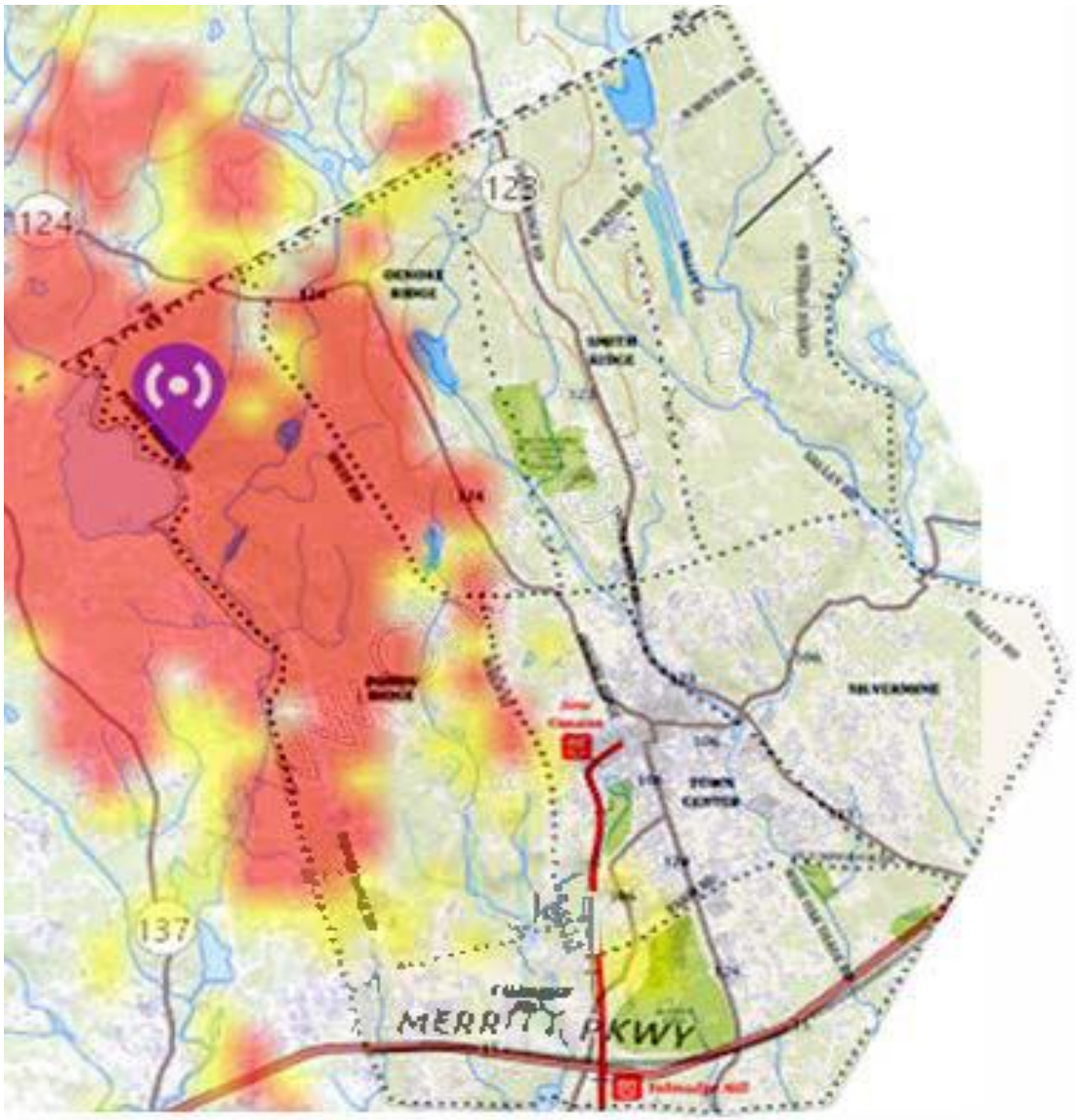
40 Dans Hwy, 800 MHz, 110' Exhibit #6



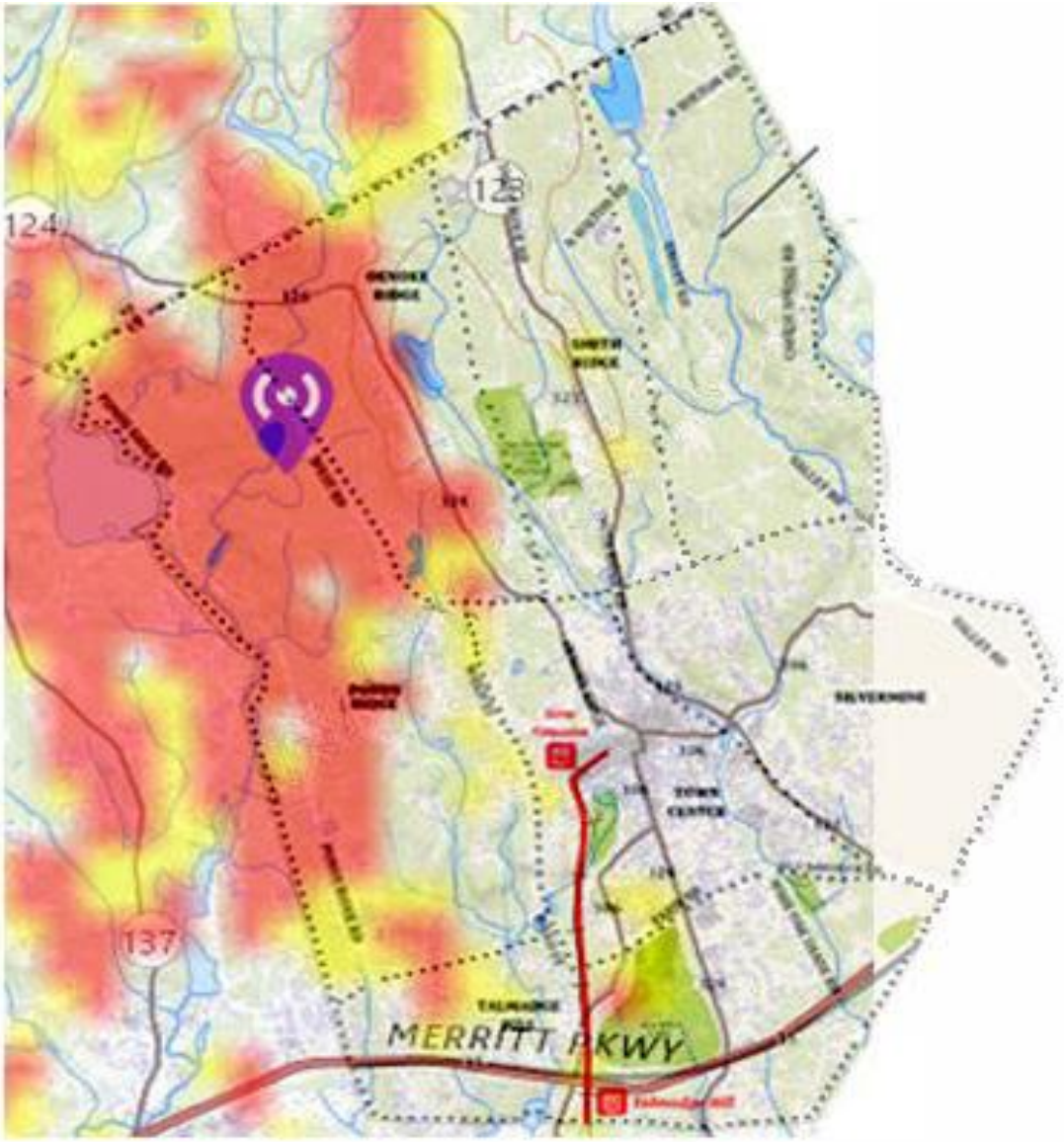
1837 Ponus Ridge Rd, 800 MHz, 110' Exhibit #7



40 River Wind Road, 800 MHz, 120' Exhibit #8



1837 Ponus Ridge Rd, 800 MHz, 50' Exhibit #9

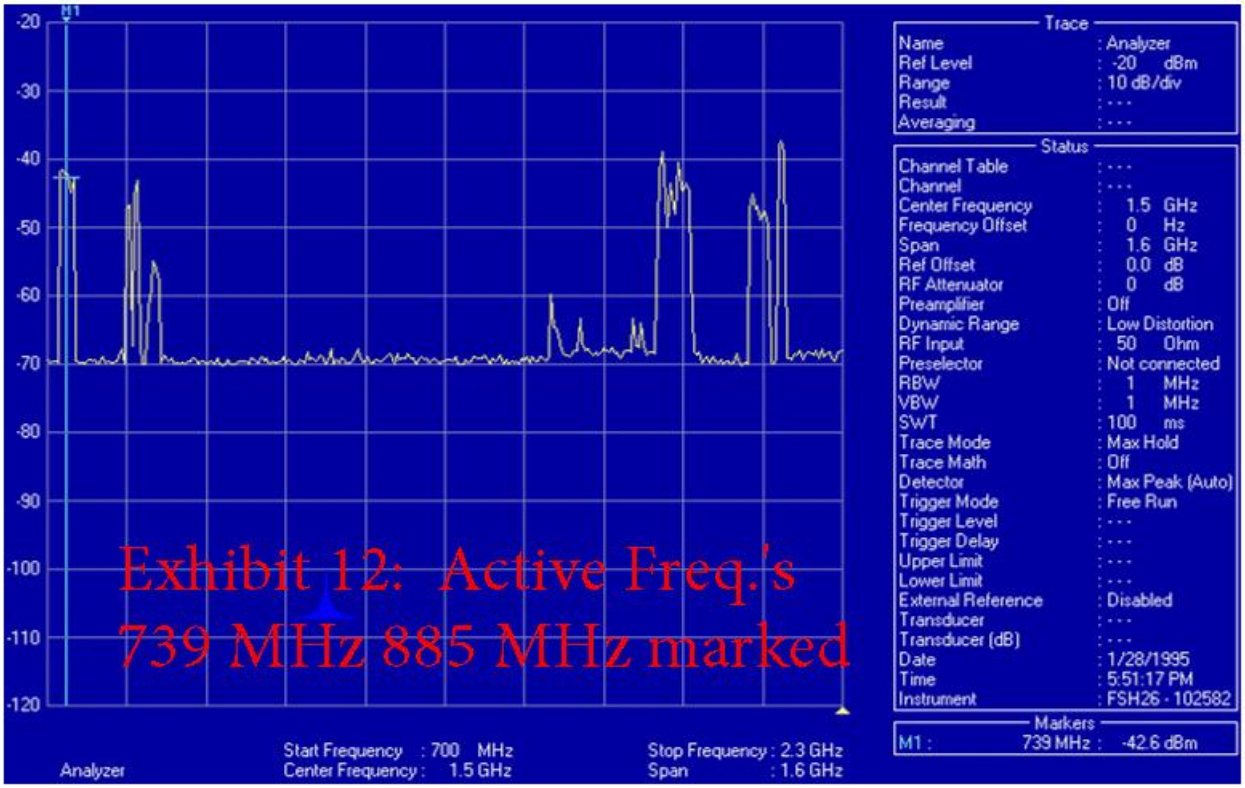


40 Dans Hwy, 800 MHz, 50' Exhibit #10

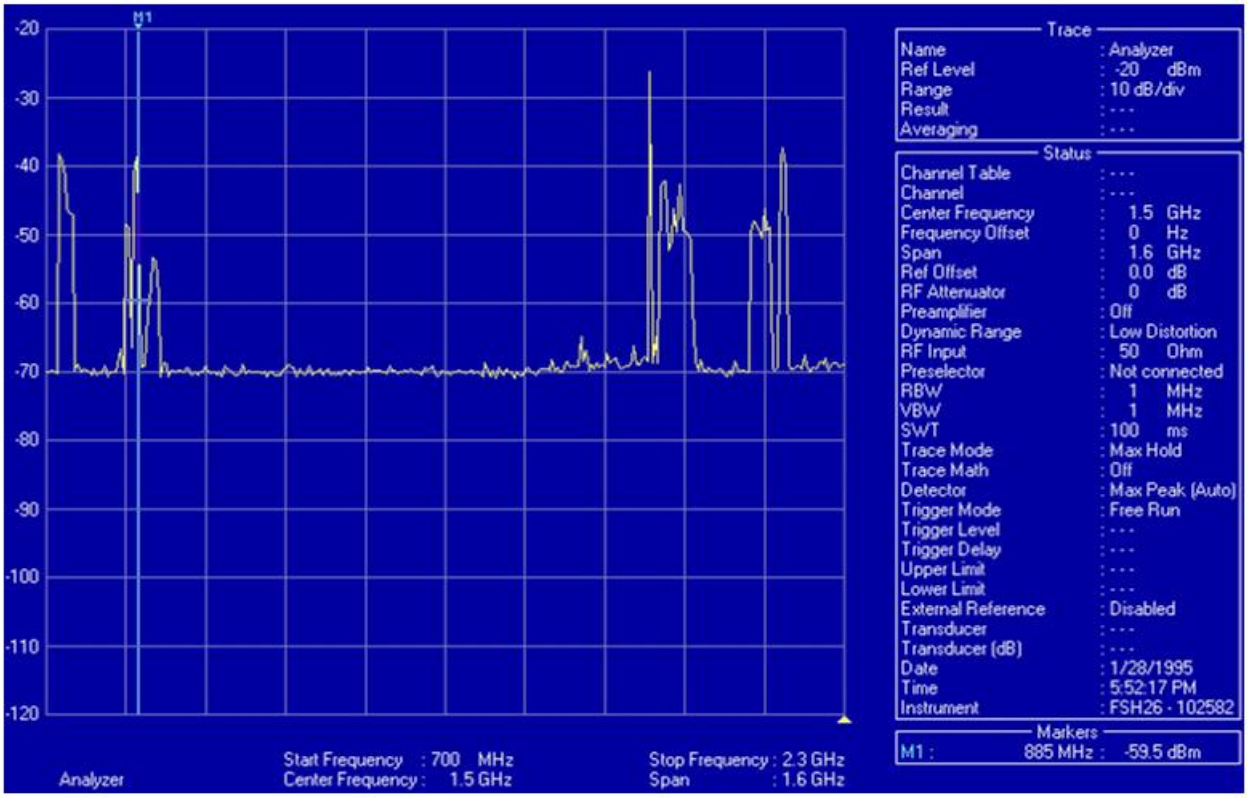
ADDRESS	LATITUDE	LONGITUDE	ASML (feet)	ASML w/40' Pole
388 West Road [11]	41.16396679	73.51924225	438	478
958 Ponus Ridge Road	41.14555996	73.52727723	374	414
1 Barnegat Road	41.18589123	73.53361694	181	221
40 River Wind Road			303	343
288 Elm Street (in front of Acme Market)	41.14488615	73.50033205	310	350

EXHIBIT 11

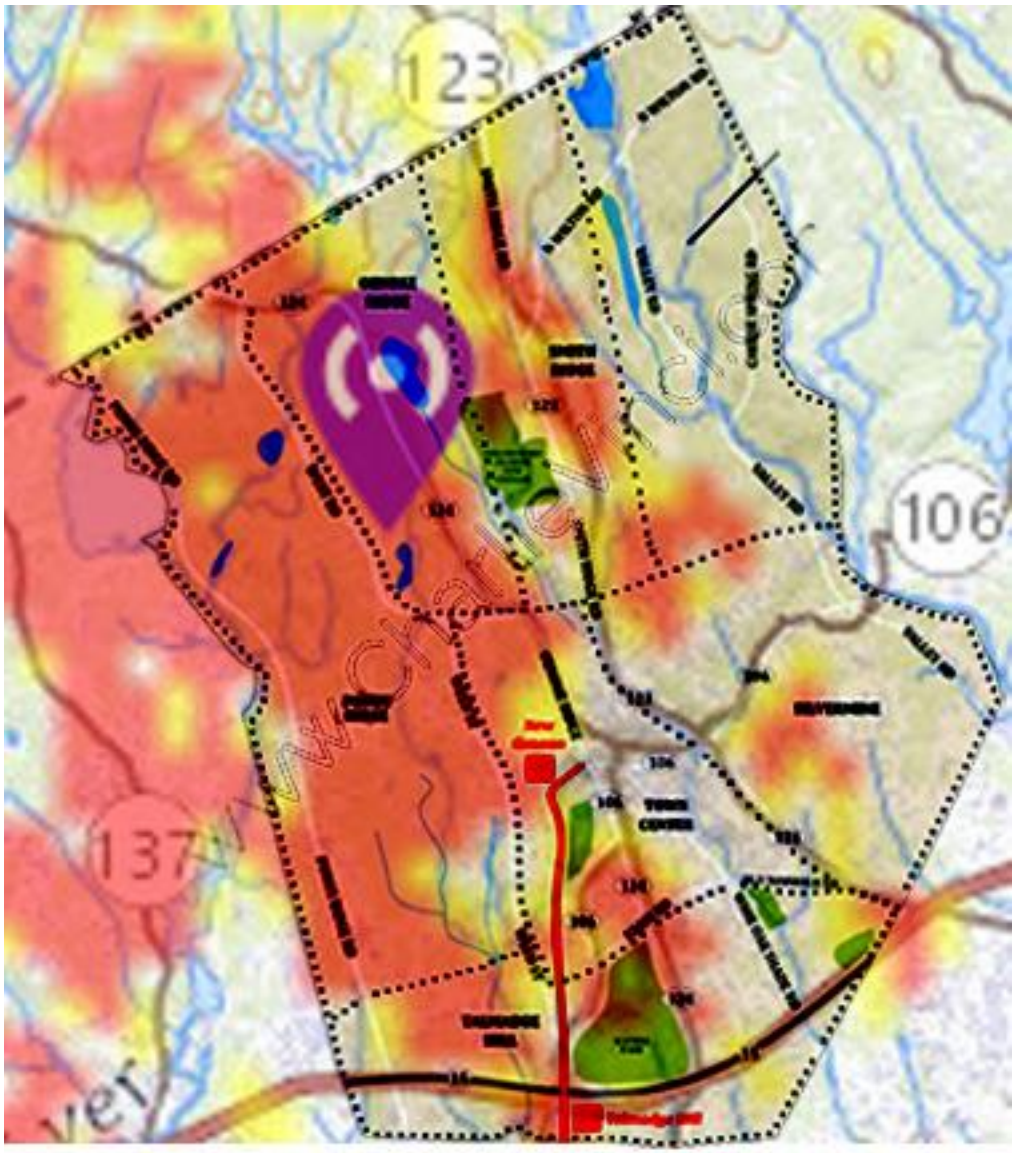
[11] 403 West Road is similar, though slightly lower.



135 Main St. – Existing AT&T cell site

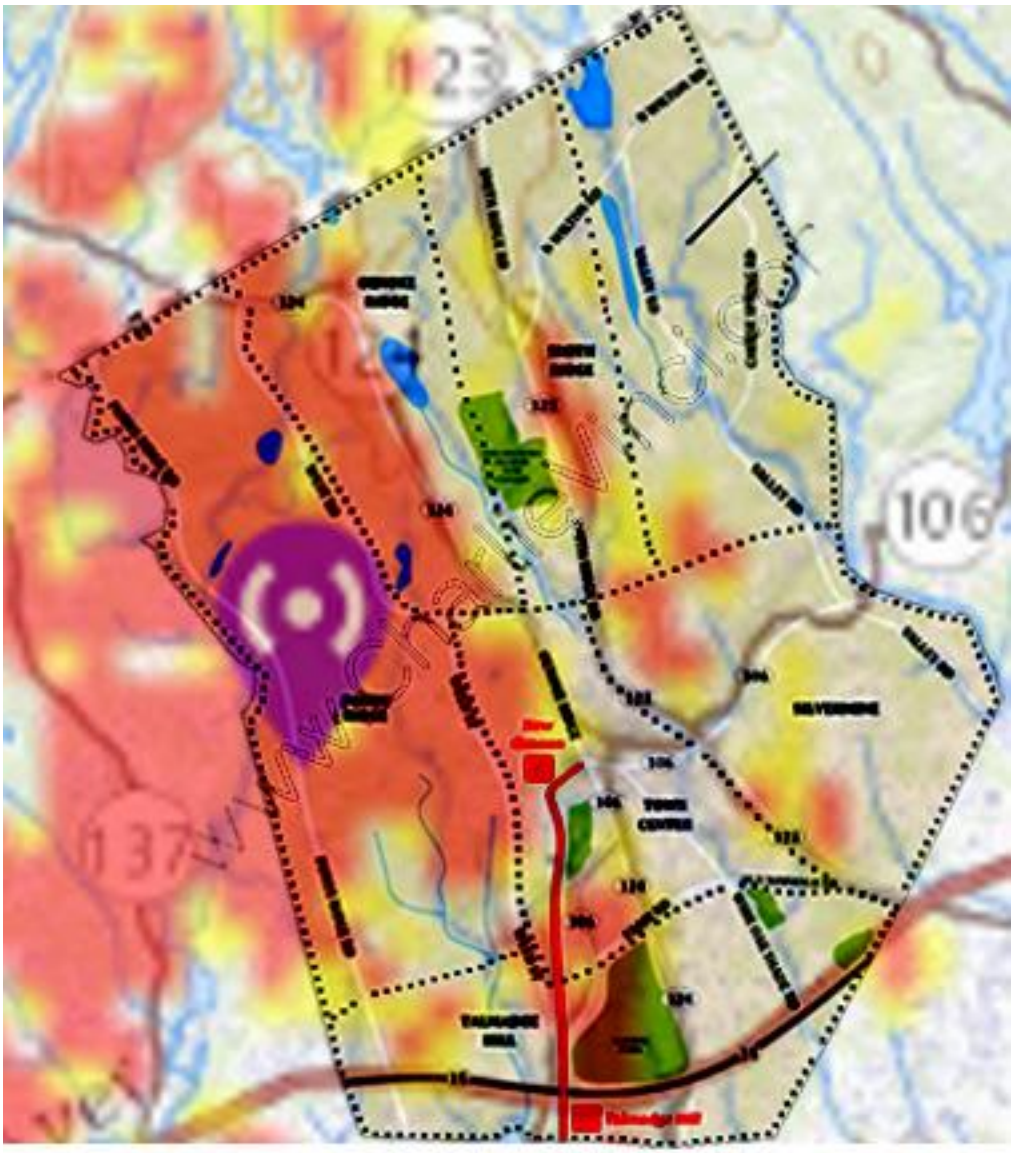


Active Frequencies observed at AT&T site name CT2110 at 135 Main Street New Canaan



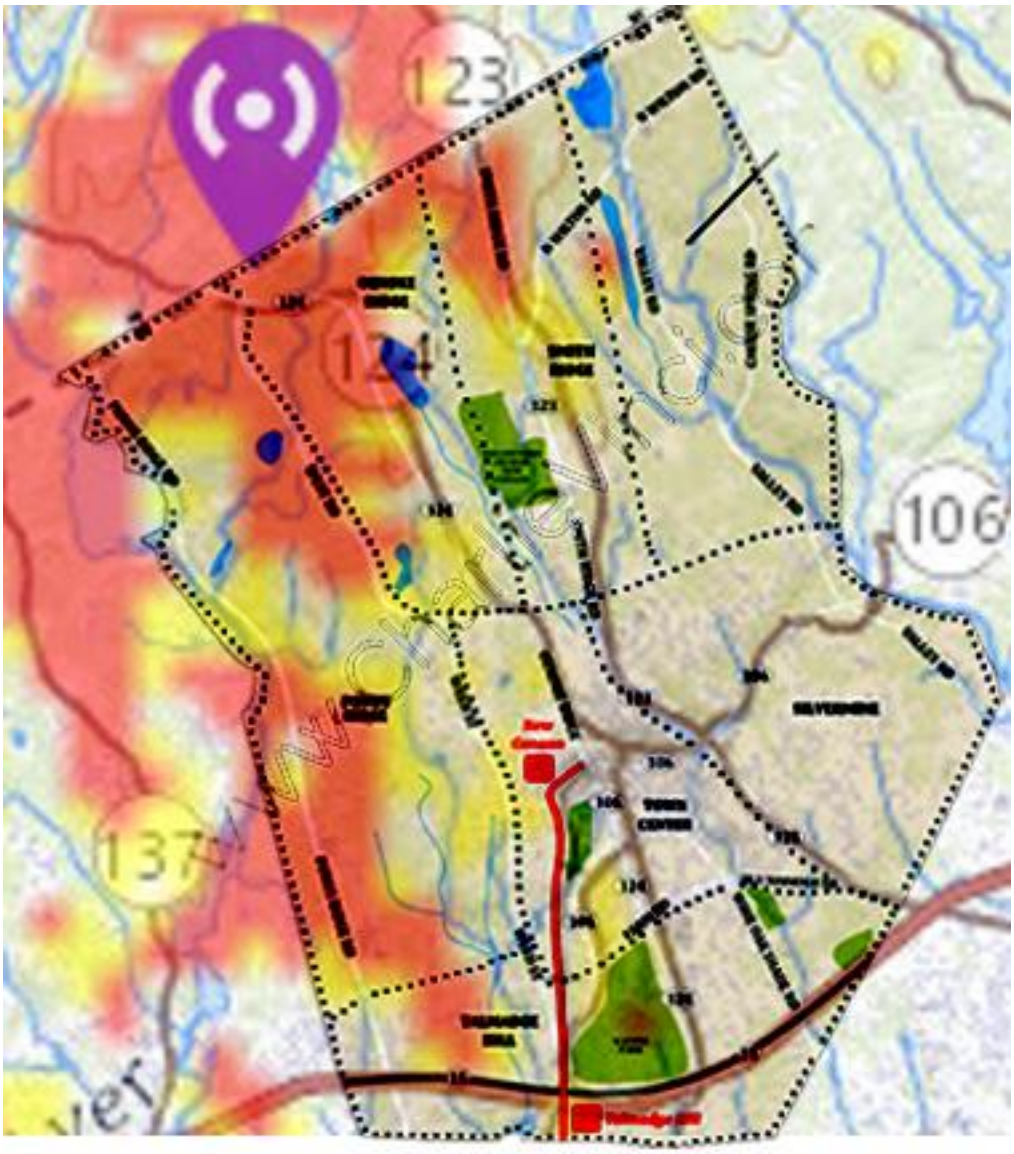
388 West Road, 800 MHz, 40' Ex: 13(A)

EXHIBIT 13 (A)



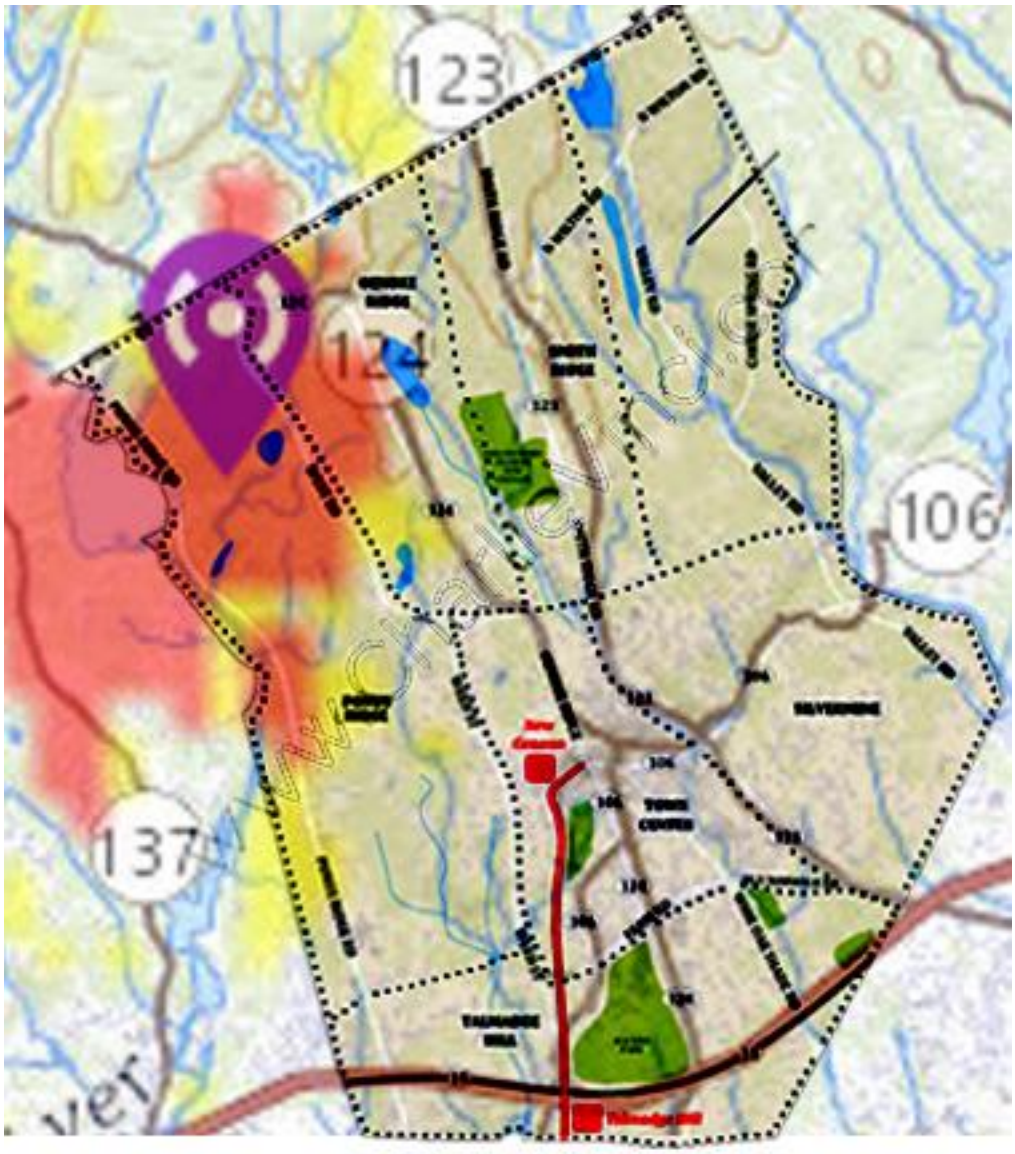
958 Ponus Rdg Rd, 800 MHz, 40' Ex: 13(B)

EXHIBIT 13 (B)



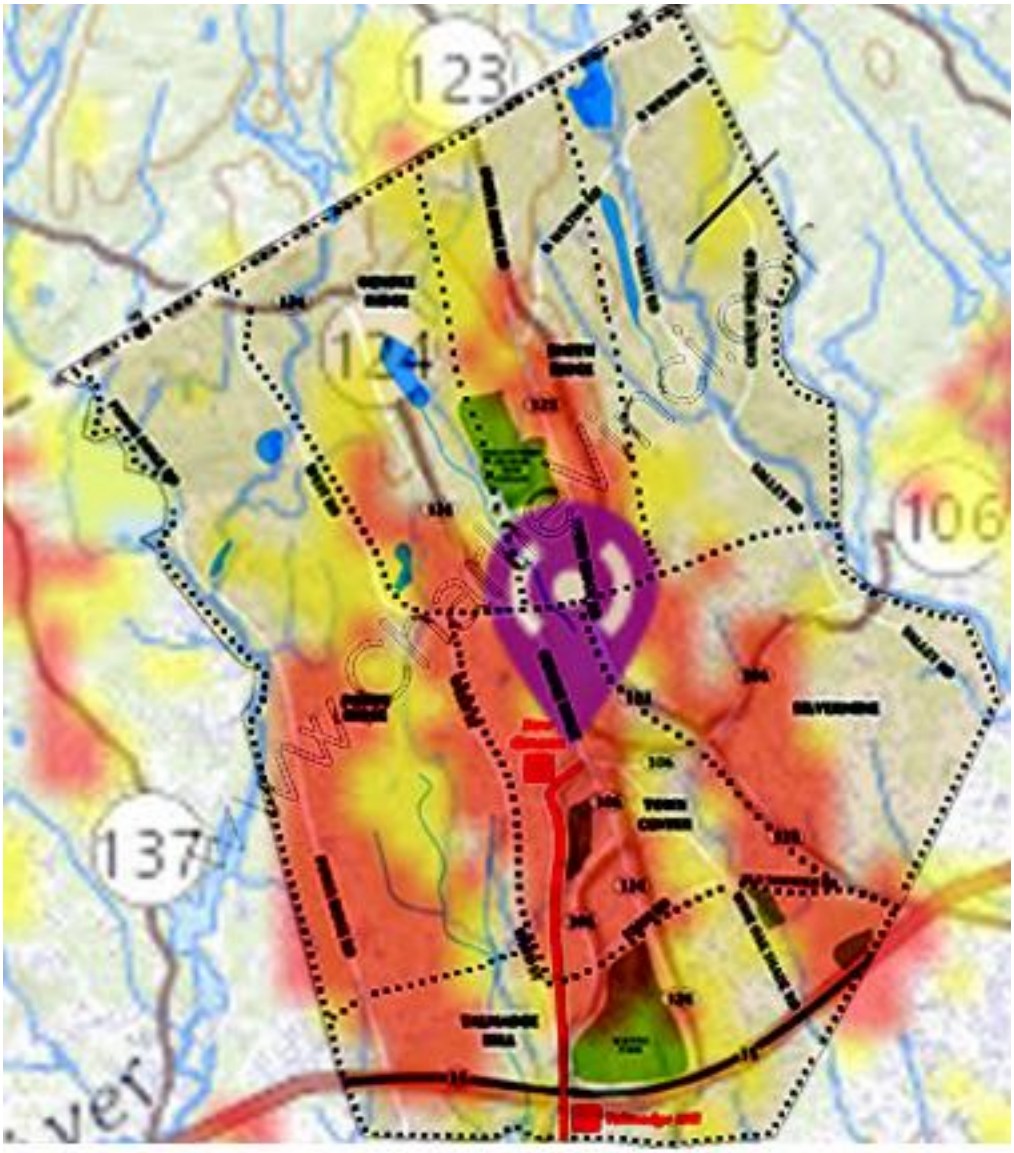
1 Barnegat Road, 800 MHz, 40’ Ex: 13(C)

EXHIBIT 13 (C)



40 River Wind Rd, 800 MHz, 40' Ex:13(D)

EXHIBIT 13 (D)



288 Elm/ACME Mk, 800 MHz, 40' Ex: 13(E)

EXHIBIT 13 (E)

Source: https://www.radioreference.com/apps/db/?ctid=304

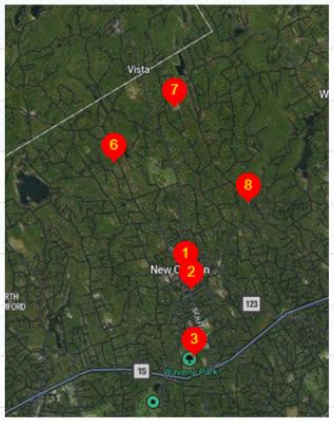
FCC Callsign: WXB951 (NEW CANAAN VOLUNTEI AMBULANCE)

Exhibit #14

Licensee:	NEW CANAAN VOLUNTEER AMBULANCE
Callsign:	WXB951
FRN:	0003225992
Status:	**Active** (Effective: 08/22/2018 - Expires: 09/03/2023)
County:	FAIRFIELD
State:	CT
Radio Service:	PW: Public Safety Pool, Conventional
Notes:	APPLICANT PROVIDES EMS SERVICE FOR THE TOWN OF NE CANAAN. RADIOS WILL BE USED TO COORDINATE ACTIVITIES.

Locations

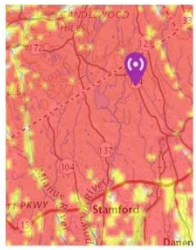
#	TWR ID	Type	Antenna Height	Structure Height	Elevation	Address
1	N/A	B	3.0	21.0	91.0	77 MAIN ST
2	N/A	B	3.0	18.0	94.0	174 SOUTH AVE
3	N/A	B	3.0	24.0	98.0	WAVENY PARK
4			0.0	0.0	0.0	
5			0.0	0.0	0.0	
6		BMAST	9.0	9.0	168.0	982 OENOKE RIDGE
7		BMAST	15.0	15.0	142.0	377 NORTH WILTON RD
8		BMAST	12.0	12.0	77.0	208 VALLEY RD



Source: https://www.radioreference.com/db/fcc/callsign/WXB951

Existing EMS Dispatch: 982 Oenoke Ridge / 156 MHz

Exhibit #15



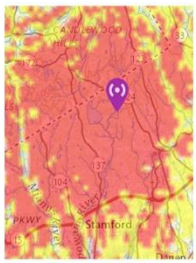
30'

1837 Ponus Ridge Road / 156 MHz

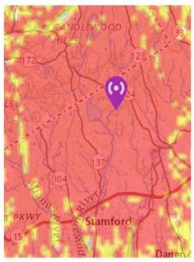
50'

110'

40 Dans Highway / 156 MHz



50'

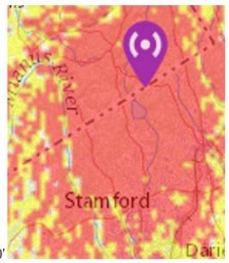


110'

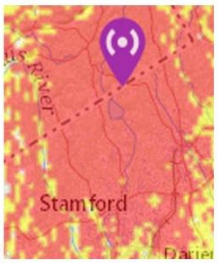
168 Lost District Dr. / 156 MHz

40'

60'



80'

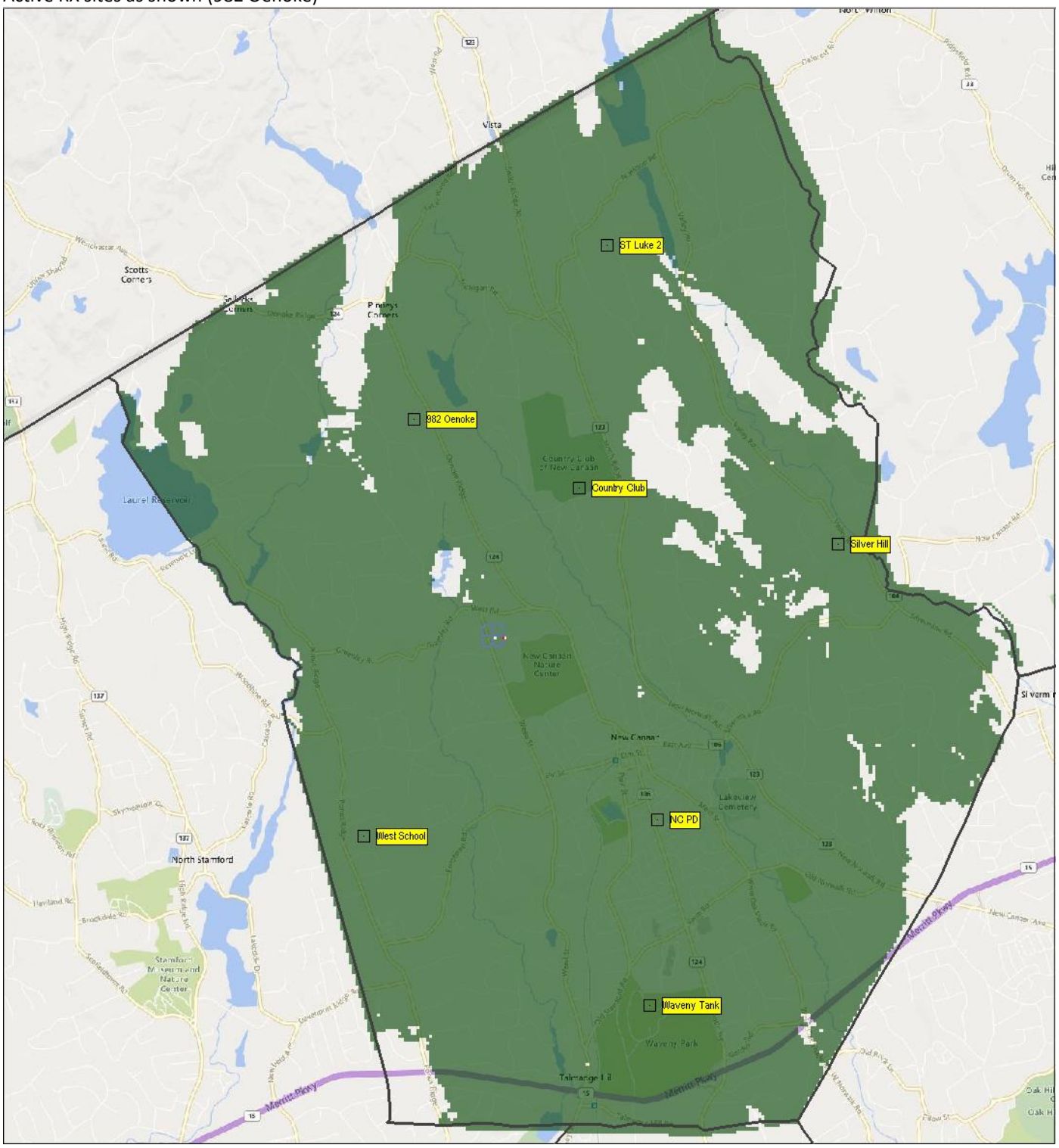


100'

Talk In from Analog Portable **EXHIBIT 16**

APX Radio on Hip In Light Residential Building

Active RX sites as shown (982 Oenoke)

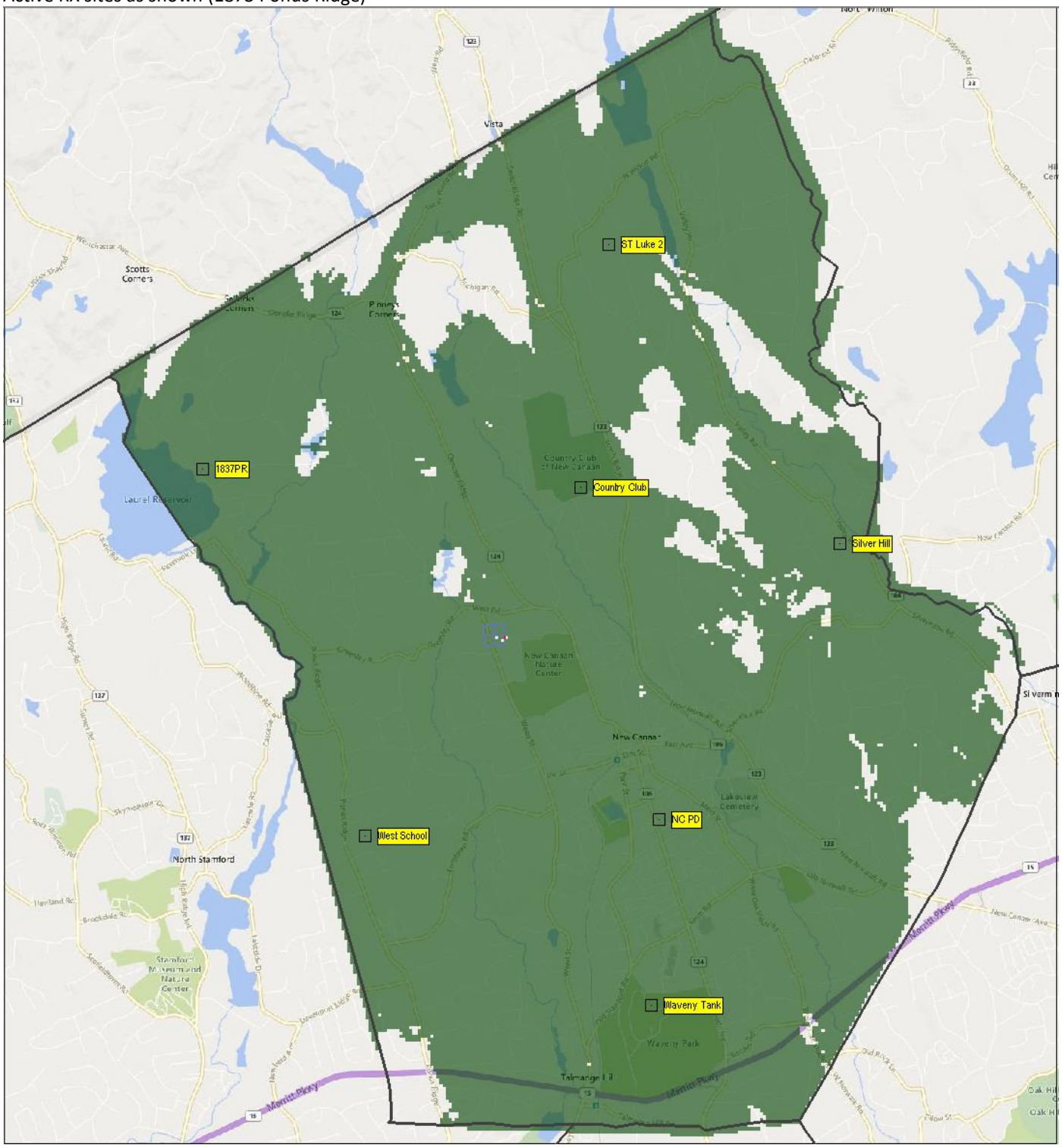


Maps are to be used for reference and budgeting purposes only. Performance is not guaranteed.

Talk In from Analog Portable

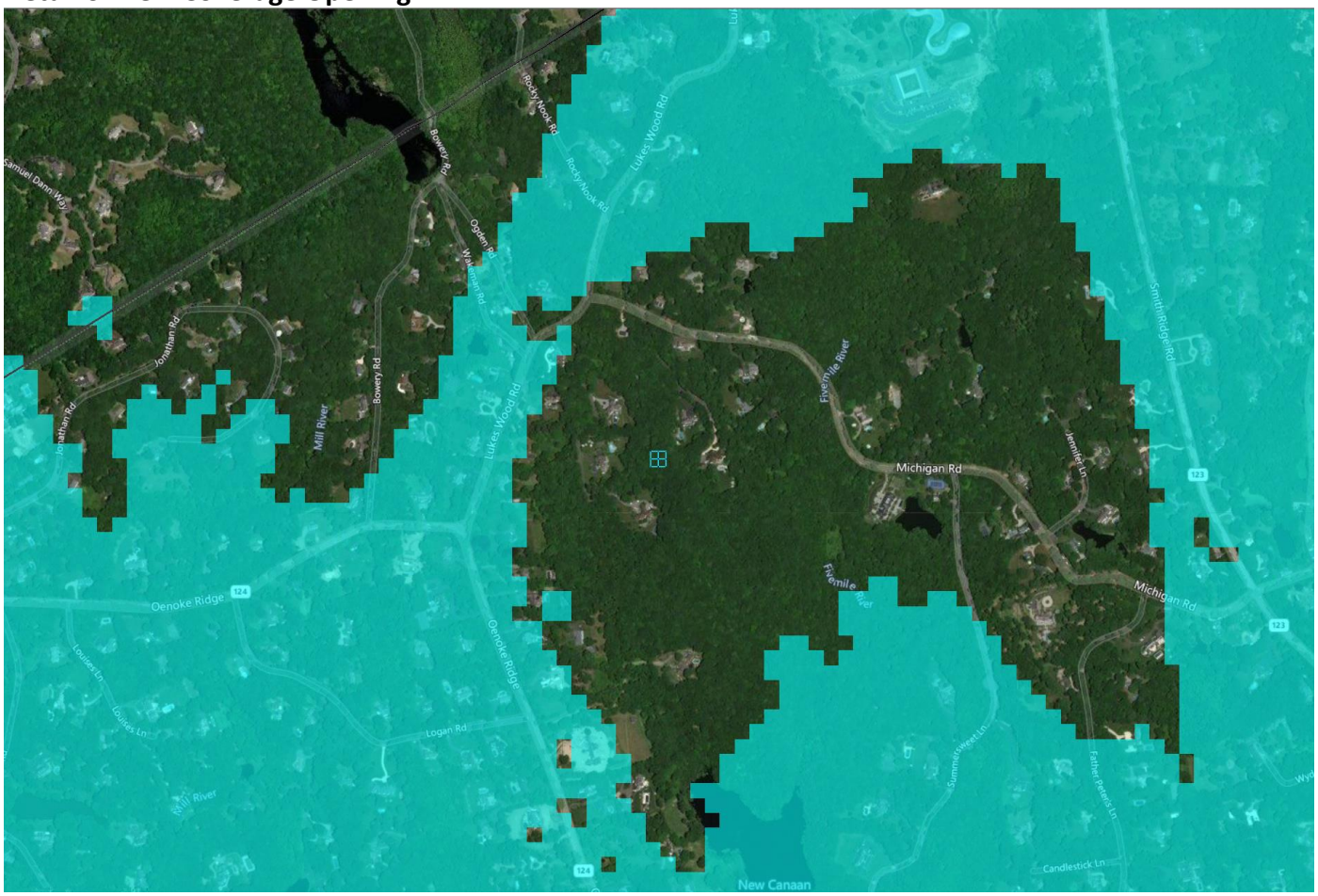
APX Radio on Hip In Light Residential Building

Active RX sites as shown (1873 Ponus Ridge)



Maps are to be used for reference and budgeting purposes only. Performance is not guaranteed.

Detail of New Coverage Opening



Maps are to be used for reference and budgeting purposes only. Performance is not guaranteed.

ALAN E. BURG
RF COMMUNICATIONS AND TEST ENGINEER

SUMMARY OF QUALIFICATIONS

RF communications and test engineer with extensive experience in leading the successful installation, configuration, and maintenance of RF (radio) communications systems. Broad background in RF communications systems: HF, VHF, UHF, satellite uplink/downlink, antennas, RADAR, GPS, testing and verification in both commercial, law enforcement, and military environments. Possess all FCC commercial and "ham" radio licenses. Proficient with RF/lab test equipment such as spectrum analyzers. Performed extensive RF signal propagation and RFI/EMI analyses.

Additional Strengths and Competencies

RF Analysis and Design
IT/Computer System Administration | Hardware Troubleshooting | Hardware Maintenance

PRE 360°RF PROFESSIONAL EXPERIENCE

2015 to 2017 **Engineer**, NTM, ABC Television Network (ABC TV)

Configure, diagnose problems, and analyze a wide range of current and proposed RF communication systems, including point-to-point, repeaters, satellite uplink/downlink, and Local wireless. Involved with signal level calculation, related to modeling of various radio propagation scenarios. Monitor systems, including video transmission and remote feeds.

2002 to Present (**Part-Time) Executive Officer**, 105th Task Force, New York Guard

Provide wireless communication and activity coordination for the 105th task force of the NY Guard, attached to the 105th AW of the NY Air National Guard at Stewart ANGB. Provide guidance and expertise in the areas of local and wide-area RF communications involving both commercial and military equipment and requirements.

1996 to 2014 **Team Leader**, Xerox Business Services, LLC

Team leader of RF communications and IT support group, providing 24X7 support of critical systems. Systems included servers, wireless point—to-point equipment. Provided propagation and coverage analysis for various client sites for wi-fi and high-power links for internal use and for various clients. Managed several large wireless and IT projects.

Employment prior to 1996:

System Engineer/Manager. *Republic National Bank*.

System Manager, *Coopers and Lybrand*.

System Engineer/Manager, *Grumman Aerospace.*

Electronic Engineer, *Loral Electronic Systems*.

Electronic Engineer, Singer Kearfott.

Radio Officer, *US Merchant Marine*.

Education:	**MS, Electrical Engineering**, *City University of New York* **BA, Mathematics**, *Lehman College, CUNY* Various: Many computer and networking courses at professional training centers.
Miscellaneous:	FCC licenses: Radiotelegraph First Class with RADAR Endorsement Radiotelephone General Certificate with RADAR Endorsement Amateur Extra Class (ham radio) FAA licenses: Commercial pilot & instrument rating US Coast Guard: Radio Officer license Officer in NY Guard Certified/Sworn (Retired) Part-time Peace Officer, NY State
Foreign Languages:	Spanish, also knowledge of German & Russian

17 June 2022

David F. Sherwood
Moriarty, Paetzold & Sherwood
2230 Main Street
P.O. Box 1420
Glastonbury, Connecticut 06033-6620

Re: DOCKET NO. 509 - Homeland Towers, LLC and New Cingular Wireless PCS, LLC d/b/a AT&T application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 1837 Ponus Ridge Road, New Canaan, Connecticut

IIIa. COVERAGE ADDENDUM – PROPOSED TOWER AT 1837 PONUS RIDGE ROAD

Updating section III, in this addendum 360°RF continues the analysis of the coverage anticipated for the 1837 Ponus Ridge site compared to alternatives at the 700~850 MHz frequency range.

Addendum Exhibits 18 and 19 show signal maps of two different lots on Oenoke Lane. The format of these maps is unchanged from those previously described.

IVa. COVERAGE – ADDITIONAL ALTERNATIVE SITES

360°RF has identified two additional alternate sites which would provide

coverage comparable equal or better coverage to 1837 Ponus Ridge Road in northwestern and central western New Canaan and northeastern Stamford:

- **Oenoke Lane, New Canaan, CT**
  Map Block Lot 204 900
  Owner: Emily B Nissley
  Zoning District: 4 Acre Residential Zone
  Parcel Size: 1.03 acres
  Lat/Long: 41.148429/73.499845
  Ground Elevation 299' +/- AMSL

- **Oenoke Lane, New Canaan, CT**
  Map Block Lot 204 901
  Owner: Emily B Nissley
  Zoning District: 4 Acre Residential Zone
  Parcel Size: 1.66 acres
  Lat/Long: 41.148098/73.499255
  Ground Elevation 299' +/- AMSL

As with prior signal map exhibits, 360°RF-generated signal coverage maps for these alternative sites have been superimposed over the boundaries of the Town of New Canaan. As before, the red coloration on the maps equates to the green coloration on the AT&T maps, and the yellow coloration equates to the orange coloration on the AT&T maps. The maps generated by 360°RF do not have the same level of precision as the AT&T maps, but are useful in making direct comparisons of coverage between the proposed site at 1837 Ponus Ridge Road and the prospective alternative sites listed above.[1]

Comparing these map coverage exhibits, it is seen that the equivalently sized

[1] The pattern of coverage on the 1837 Ponus Ridge Road coverage map generated by 360°RF is similar to the pattern on the AT&T map, but gives a more generous representation of coverage. 360°RF considers the AT&T 1837 Ponus Ridge Road predicted coverage map credible.

towers at either of the Oenoke Lane lots provides for the good coverage of all the AT&T gaps identified in the proposed 1837 Ponus Ridge Road site. The Oenoke lanes do offer spottier coverage East, Northeast of approximately 40 River Wind Road area. Some of this same area is not well covered by the proposed 1837 Ponus Ridge Road site either.

VIa. PUBLIC SAFETY BROADBAND ALTERNATIVES

Exhibit 20 to this memorandum shows the anticipated coverage that an Emergency Medical Services antenna would have if located atop a 110-foot tower on Oenoke Lane on either lot as discussed above.

As seen in Exhibit 20, excellent WXB951 coverage is predicted on the western side of New Canaan,[2] representing a good additional presence or replacement of the existing 982 Oenoke 9-meter (30-foot) high antenna, which is on one of the highest ground levels in New Canaan at 168-meters (approximately 551 feet) AMSL.

As previously discussed and illustrated in Exhibit 16, relocation of the existing antenna from 982 Oenoke Road to 1837 Ponus Ridge Road would result in a new gap in coverage, which includes a large portion of Michigan Road.

VIIa. CONCLUSION

As previously observed, the applicants have failed to consider and pursue viable alternative sites which would provide similar or better coverage of the gaps identified in their marketing study, comport with the recommendations and

[2] New Canaan Police and fire frequencies are very similar to EMS frequencies, and thus will propagate more or less the same.

requirements of New Canaan Plan of Conservation and Development and Zoning Regulations, and which would not present the potential significant adverse environmental impacts of development of a site within 83 feet of a public water supply reservoir.

VIa. CERTIFICATION

I certify to the best of my knowledge, information and belief that the statements made herein are true, accurate and complete.

s/ Alan E. Burg_____
Alan E. Burg
360°RF

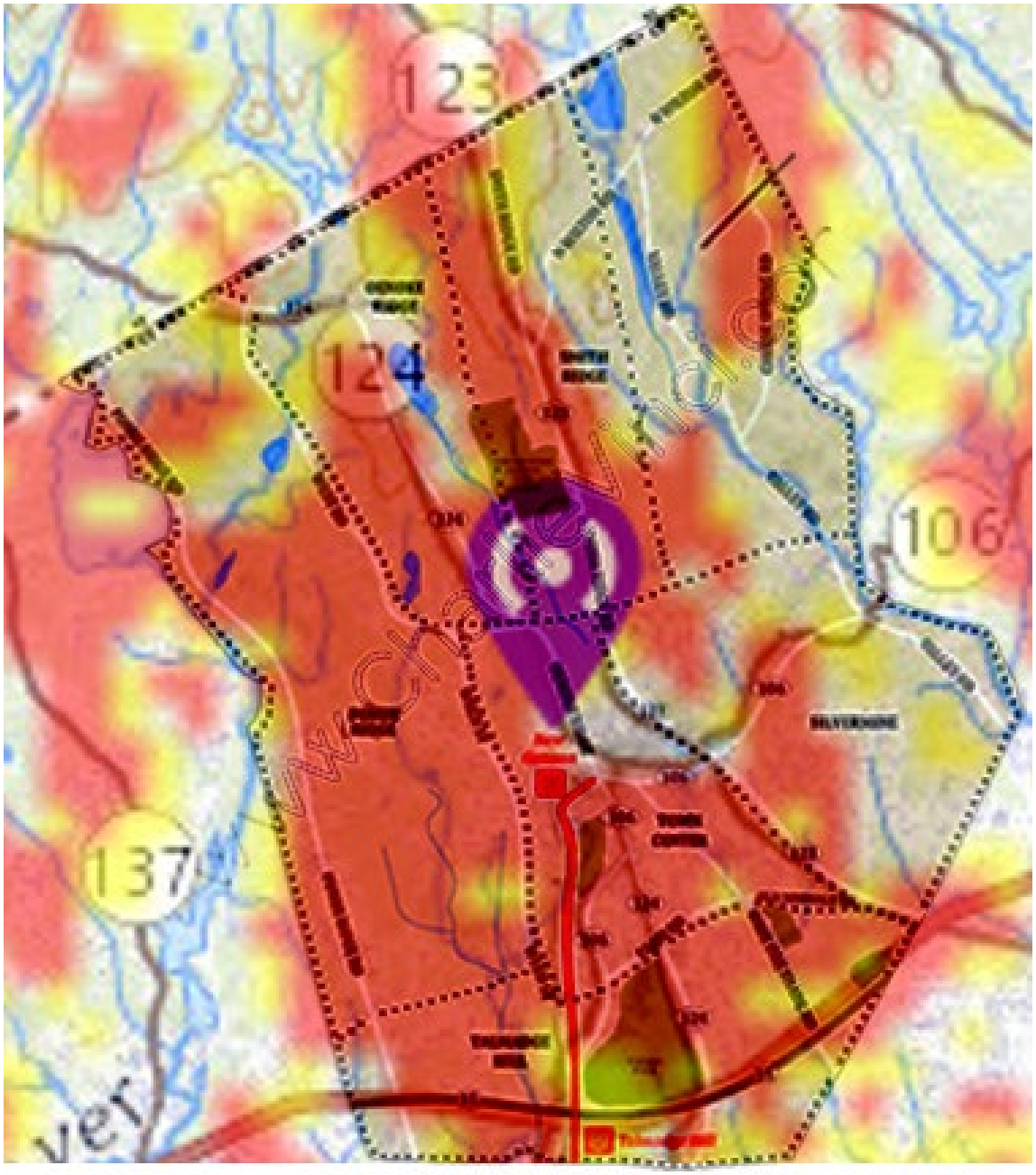
EXHIBITS

18. MBL 204 900 (30 Oenoke Ridge), 800 MHz, 110'

19. MBL 204 901 (30 Oenoke Ridge), 800 MHz, 110'

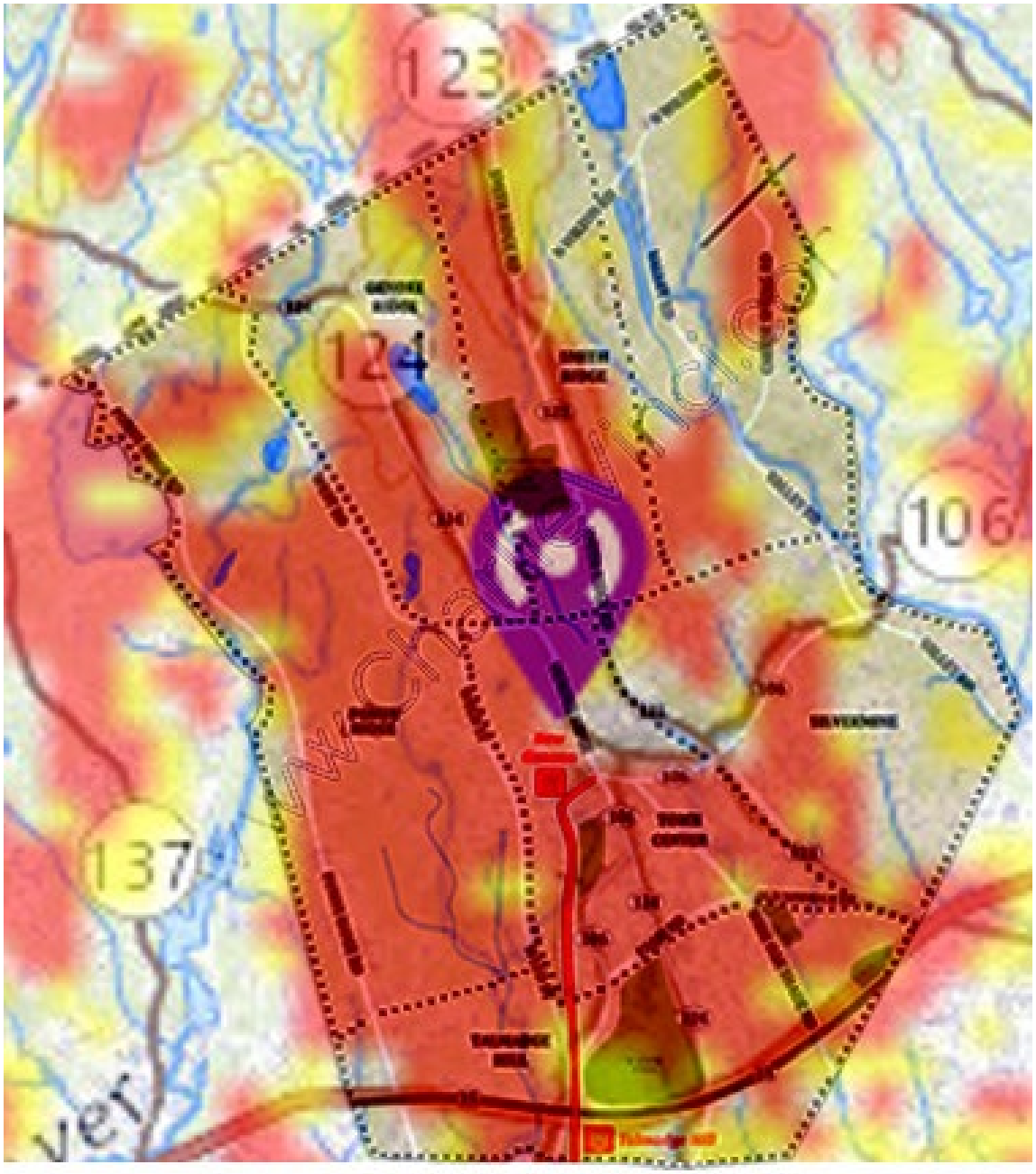
20. Lots 204-900/901 With EMS Antenna Atop 110' Tower, 156 MHz

Exhibit #18



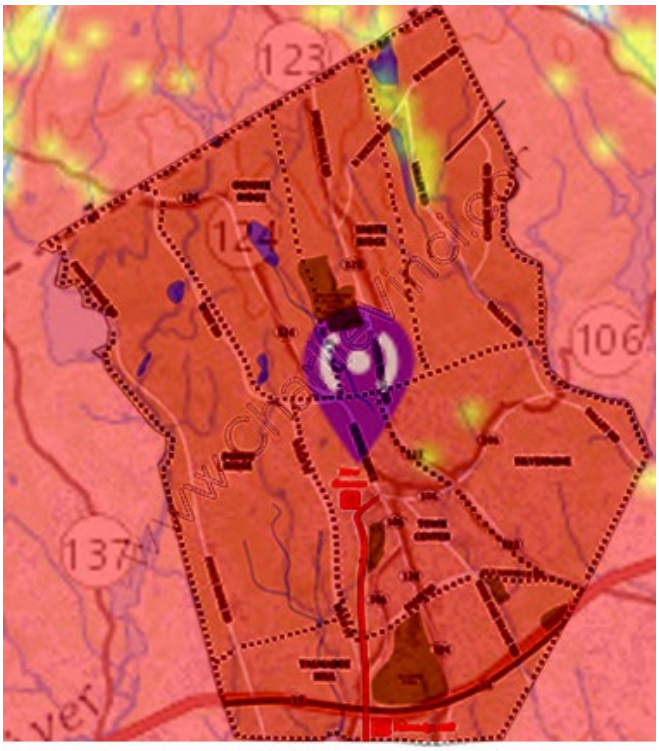
MBL 204 900 (30 Oenoke), 800 MHz, 110'

Exhibit #19

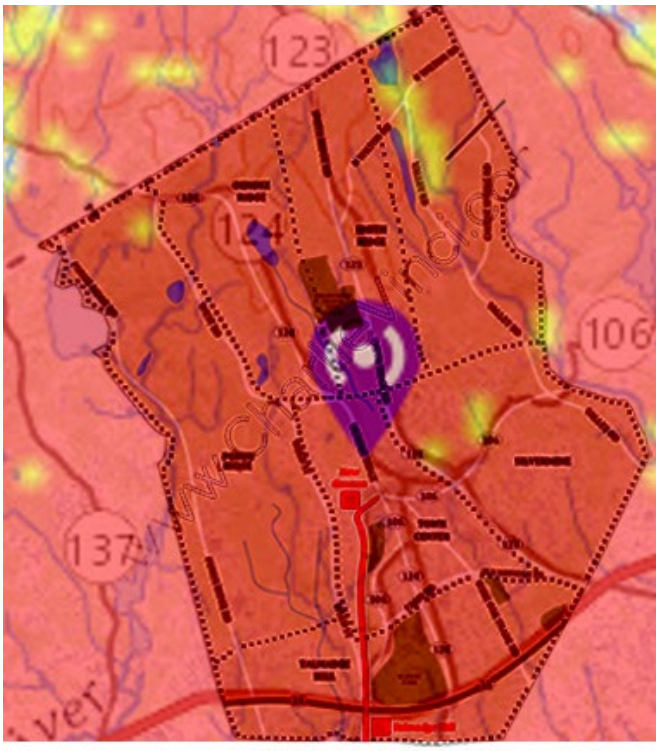


MBL 204 901 (30 Oenoke), 800 MHz, 110'

Exhibit #20



MBL 204 900 (30 Oenoke), 800 MHz, 110'



MBL 204 901 (30 Oenoke), 800 MHz, 110'