PETITION NO. 942

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

RE: Petition of Clear Wireless LLC, DBA Clearwire for a Declaratory Ruling that a Modification to an Existing Telecommunications Facility at 82 Lovely Street, Farmington CT, Does Not Require a Certificate of Environmental Compatibility and Public Need as the Proposed Modification will not have a substantial Adverse Environmental Effect

PETITION NO. 942

April 16, 2010

INTRODUCTION

Clear Wireless LLC, hereinafter referred to as Clearwire, hereby Petitions the Connecticut Siting Council (Council) for a Declaratory Ruling that a Certificate of Environmental Compatibility and Public Need (Certificate) is not required pursuant to Section 16-50 et seq of the Connecticut General Statutes (CGS) for the modification of an existing telecommunications facility described herein. The modification involves the installation of a 10' extension to an existing 105' monopole structure for a total structure height of 115'. The extension would accommodate the proposed installation of Clearwire antenna array of 3 panel antennas, 3 microwave dishes and 3 remote radio heads on the proposed extension. Clearwire submits that no Certificate is required because the proposed modification, a 10' height increase, will not have a substantial adverse environmental impact.

CLEARWIRE AS PETITIONER

Clearwire is licensed by the Federal Communications Commission (FCC) to provide wireless telecommunications service in the State of Connecticut, which includes the area to be served by this proposed installation.

DESCRIPTION OF THE PROJECT

The existing facility is comprised of a 105' monopole and associated equipment compound located at 82 Lovely Street, Farmington (Unionville), CT (Facility). As shown on the attached aerial map the facility is located on a .67 acre parcel of land that is a switching station for the CT&T and Cingular telephone network. The property is in Farmington's R-20 Zone. The coordinates for the site are Lat 41 45 42 W Long 72 53 13 N. The tower is in a residential use area. The closest residence is more than 150' away.

The tower currently supports AT&T at a XXX105' centerline, Nextel at a 95'and 85' centerline and Clearwire at a proposed 113' centerline. Clearwire proposes to install a 10' extension to the existing monopole in order to install 3 new panel antennas, 3 microwave dishes and 3 remote radio heads. To support the antennas, Clearwire proposes to install one equipment

cabinet on a 6' by 6' concrete pad within a 7' by 7' lease area. Clearwire's lease area is completely within the existing compound. The 10'extension will increase the height of the monopole from 105' to 115'. Cables will run from the equipment to the tower on an ice tray. Utilities will be provided from existing sources in the compound. A structural analysis done by GPD Associates and dated February 24, 2010, which is attached to this petition, confirms that the tower can support the proposed extension.

SURROUNDING LAND USES

As discussed above the proposed project area is in a R-20 Zone. Abutting property owners have been notified by certified mail, return receipt requested. A list of the abutting property owners is attached hereto.

PROPOSED SERVICE AREA

As can be seen in the attached propagation maps, Clearwire's antennas will be used to create new coverage for its system in the greater Waterbury area. As Clearwire does not currently operate a wireless telecommunications system in Connecticut, the coverage from this site is an essential component of the new system. This part of Unionville\Farmington is a critical portion of the overall system Clearwire is creating.

THE PROJECT WILL NOT HAVE A SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT

The project will not have a substantial adverse environmental impact for the following reasons:

1. Clearwire's installation of a 10' extension to the existing monopole will have no adverse visual impact. The tower is located in an area in which a 10' increase will have a minimal visual effect. The overall height of the tower after the extension will be 115'. While the tower is visible from the some of the surrounding areas, the extended facility will not create a significant visual impact. The attached photo-simulations demonstrate that fact. The new base equipment will be in the existing compound and will create no new visual impact to the surrounding area.
2. The project will have very limited construction activity and a very minor disturbance to the area. No cutting of any vegetation is proposed.
3. Clearwire's utility routing will be done via underground conduits and within the existing easements and compound.
4. The operation of the facility will not increase the total RF power density, as measured at the bottom of the pole and by current FCC standards to a level above that permitted by the FCC. The worst case RF power density for the site with the Clearwire antennas is 19.70. See attached power density report.
5. Clearwire's installation will have no impact on water flow, water quality or air quality and will comply with all applicable noise regulations.

CONCLUSION

Clearwire will not have a need to construct a new telecommunications tower to provide coverage for the target area if the Council determines that no Certificate is required. This project involves the installation of a 10' extension to the monopole that will look exactly like the existing structure.. It will involve a minimal amount of construction activity to the existing compound. Clearwire plans to use a 6' by 6' concrete pad rather than a shelter to support its equipment. The utility routing will be minimal, with all work within the existing compound. This project is consistent with the legislative policy set forth is CGS 16-50g and 16-50aa which encourages the use of existing structures and seeks to avoid the unnecessary proliferation of towers in the state.

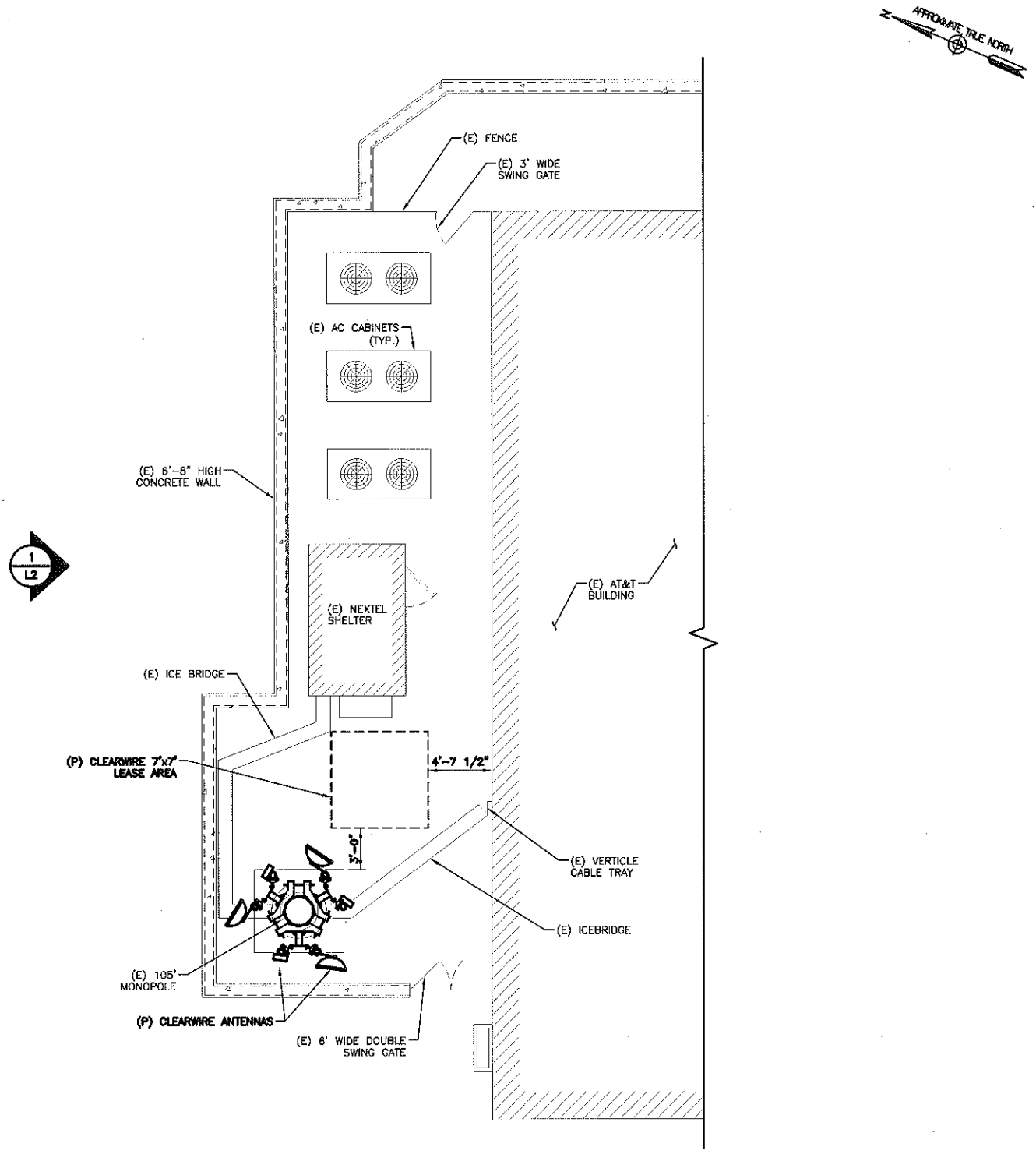
CGS 16-50k(a) provides that a Certificate of Environmental Compatibility and Public Need is not required for a proposed modification of a facility that the Council determines does not have a "substantial adverse effect". The environmental effects of the proposed extension have been evaluated and will not result in a substantial adverse effect on the environment or ecology, nor will there be damage to the existing scenic, historical or recreational values. Accordingly, we request that the Council determine that the proposed modifications to an existing facility will have no such substantial adverse effect and , therefore, that no Certificate is required.

Please direct all communications regarding this Petition for a Declaratory Ruling to:

Respectfully submitted,

Thomas F. Flynn III
Site Development Project Manager
Maxton Technology Inc.
1296 Blue Hills Avenue
Bloomfield, CT 06002
508-821-6974
Tom.Flynn@maxtontech.com
Agent for Clearwire

Cc: Town Manager Kathleen Eagan
Town of Farmington



COMPOUND PLAN 1

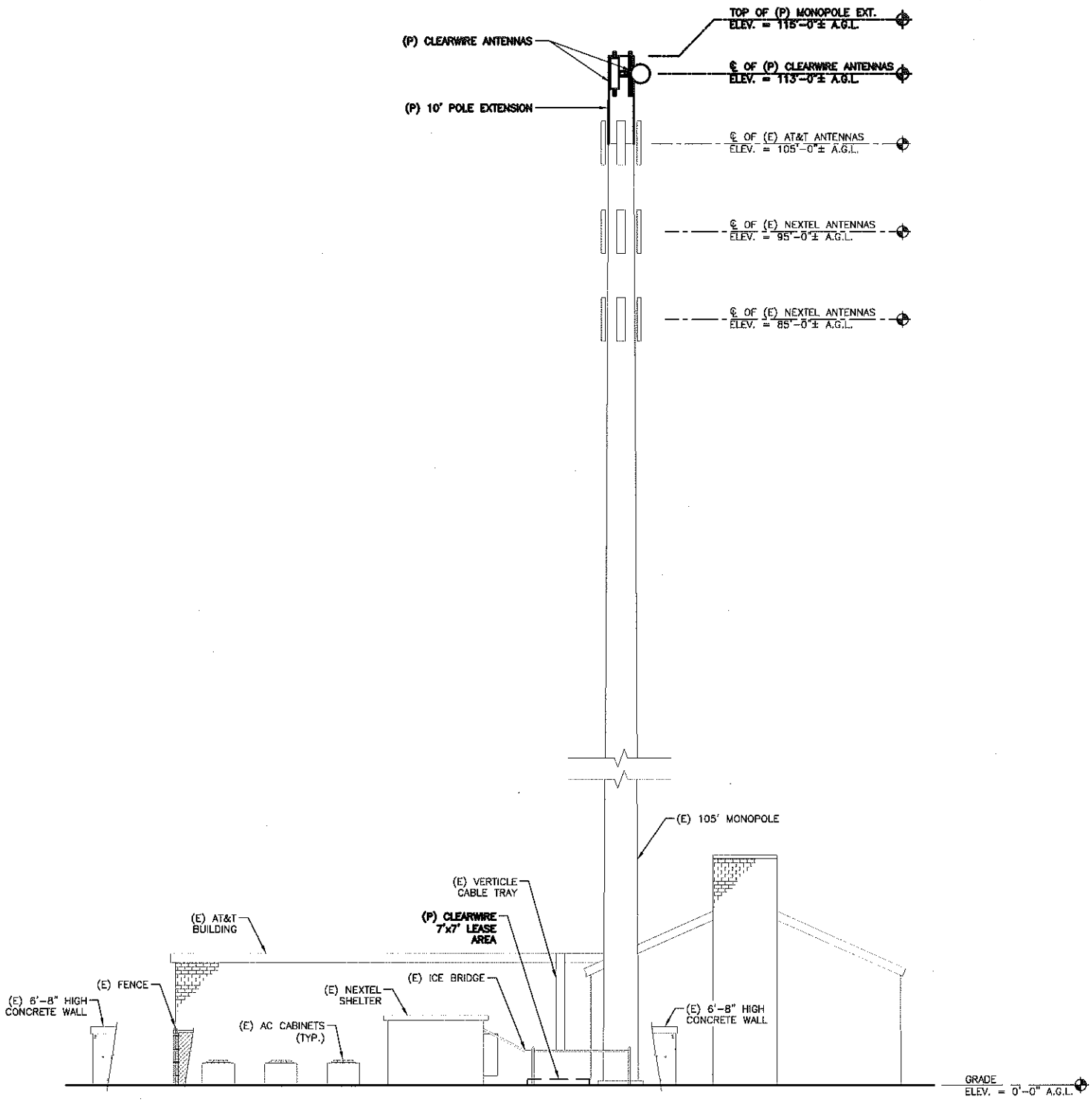
SCALE: N.T.S

(E) EXISTING
(P) PROPOSED

MAXTON
BAY STATE DESIGN
241 BOSTON POST RD WEST
MARLBOROUGH, MA. 01752
Phone: 508-229-4100
Fax: 508-485-5321
Bay State Design, Inc.
Architects • Engineers
241 BOSTON POST RD WEST
MARLBOROUGH, MA. 01752
Phone: 508-229-4100
Fax: 508-485-5321

clearw're
5808 LAKE WASHINGTON BLVD.
NE SUITE 300
KIRKLAND, WA 98033

PROJECT LOCATION: UNIONVILLE CT-HFD0064D 82 LOVELY ST. UNIONVILLE, CT 06085	SITE TYPE: MONOPOLE COLOCATION		BSDA PROJ. #: 2908.059
	PROJECT MANAGER: JP	DRAWN BY: DR	SHEET: L1
APPROVED BY:	DATE: 1/18/10	REVISION: C	



ELEVATION 1

SCALE: N.T.S

(E) EXISTING
(P) PROPOSED

MAXTON
BAY STATE DESIGN
241 BOSTON POST RD WEST
MARLBOROUGH, MA. 01752
Phone: 508-229-4100
Fax: 508-485-5321

Bay State Design, Inc.
Architects • Engineers
241 BOSTON POST RD WEST
MARLBOROUGH, MA. 01752
Phone: 508-229-4100
Fax: 508-485-5321

clearwire
5808 LAKE WASHINGTON BLVD.
NE SUITE 300
KIRKLAND, WA 98033

PROJECT LOCATION: UNIONVILLE CT-HFD0064D 82 LOVELY ST. UNIONVILLE, CT 06085	SITE TYPE: MONOPOLE COLOCATION		BSDA PROJ. #: 2908.059
	PROJECT MANAGER: JP	DRAWN BY: DR	SHEET: L2
APPROVED BY:	DATE: 1/18/10	REVISION: C	

at&t
Glynn Walker
AT&T Mobility
5405 Windward Parkway
Alpharetta, GA 30004
(770) 708-6122

GPD ASSOCIATES
Kevin Clements
520 South Main St., Suite 2531
Akron, Ohio 44311
(330) 572-2195
kclements@gpdgroup.com

GPD# 2010261.35 Rev. 1
February 24, 2010

REVISED STRUCTURAL ANALYSIS REPORT

AT&T DESIGNATION:	Site USID:	59358
	Site FA:	10035037
	Site Name:	UNIONVILLE SBC CO
CLEARWIRE DESIGNATION:	**Site Name:**	**Unionville SBC**
	Site Number:	**CT-HFD0064**
ANALYSIS CRITERIA:	**Codes:**	**TIA/EIA-222-F & 2003 IBC**
		80-mph with 0" ice
		69-mph with 1/2" ice
SITE DATA:		**82 Lovely Street, Unionville, CT 06085, Hartford County**
		Latitude 41° 45' 40.968" N, Longitude 72° 53' 15.107" W
		100' Monopole w/ Proposed 15' Extension

Mr. Walker,

GPD is pleased to submit this Revised Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the addition of the following proposed loading configuration:

Elev. 113' (3) Argus LLPX310R Antennas, pipe mounted w/ (6) 5/16" internal coax
(3) Dragonwave A-ANT-18G-2-C Dishes on the same mounts w/ (3) 1/2" internal coax
(3) Dragonwave Horizon ODUs mounted behind the dishes
(3) Samsung U-RAS BTS units on the same mounts

Based on our analysis we have determined the designs of the **tower and its foundation are sufficient** for the proposed, existing, and reserved loadings as referenced in Appendix A.

We at GPD appreciate the opportunity of providing our continuing professional services to you and AT&T. If you have any questions please do not hesitate to call.

Respectfully submitted,

David Granger, P.E.
Connecticut #: 17557

STATE OF CONNECTICUT
DAVID S. GRANGER, P.E.
NO. 17557
LICENSED
PROFESSIONAL ENGINEER

SUMMARY & RESULTS

The purpose of this analysis was to verify whether the existing structure is capable of carrying the proposed loading configuration as specified by Clearwire to AT&T. This report was commissioned by Mr. Glynn Walker of AT&T.

The design of the proposed extension and its connection is beyond the scope of this report and needs to be engineered.

The proposed coax to 113' shall be run internal to the monopole in order for the analysis results to be valid.

TOWER SUMMARY AND RESULTS

Member	Capacity	Results
Monopole	78.2%	Pass
Base Plate	99.5%	Pass
Anchor Rods	31.5%	Pass
Foundation	27.7%	Pass

ANALYSIS METHOD

RISA Tower (Version 5.3.1.0), a commercially available software program, was used to create a three-dimensional model of the tower and calculate primary member stresses for various dead, live, wind, and ice load cases. Selected output from the analysis is included in Appendix B. The following table details the information provided to complete this structural analysis. This analysis is solely based on this information.

DOCUMENTS PROVIDED

Document	Remarks	Source
Preliminary Tower Summary	Clearwire Co-location document	Siterra
Site Lease Application	Clearwire Application, dated 10/27/2009	Siterra
Tower Mapping	GPD Associates & STG, dated 2/18/2010	GPD
Geotechnical Report	WEI, Project #: 2010-1010, dated 2/16/2010	GPD
Foundation Exploration Report	WEI, Project #: 2010-1010, dated 2/16/2010	GPD

ASSUMPTIONS

This structural analysis is based on the theoretical capacity of the members and is not a condition assessment of the monopole. This analysis is from information supplied, and therefore, its results are based on and are as accurate as that supplied data. GPD has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural analysis.

1. The monopole shaft sizes and shape are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated in the materials section.
2. The antenna configuration is as supplied and/or as modeled in the analysis. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements
3. Some assumptions are made regarding antennas and mount sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type and industry practice.
4. All mounts, if applicable, are considered adequate to support the loading. No actual analysis of the mount(s) is performed; this analysis is limited to analyzing the tower only.
5. The soil parameters are as per data supplied or as assumed and stated in the calculations. If no data is available, the foundation system is not verified. In the case of absent foundation data, it is the tower owner's responsibility to insure that the foundation system is adequate to support the structure with its new reactions.
6. The tower and structures have been properly maintained in accordance TIA Standard and/or with manufacturer's specifications.
7. All welds and connections are assumed to develop at least the member capacity, unless determined otherwise and explicitly stated in this report.
8. All prior structural modifications, if any, are assumed to be as per data supplied/available, to have been properly installed and to be fully effective.
9. All proposed coax are assumed to be internal to the monopole.
10. Tower Mounted Amplifiers are assumed to be installed behind antennas.
11. Foundations are properly designed and constructed to resist the original design loads indicated on the documents provided.
12. All existing loading was obtained from a tower mapping by GPD Associates & STG Communication Services, Inc., dated 2/18/2010, tower photos and the provided preliminary tower summary and is assumed to be accurate.
13. The Clearwire application states that the proposed BTS units be mounted at a RAD center line of 80'. However, instruction from Mr. Glynn Walker of AT&T was given to change the RAD center line to 113'.

If any of these assumptions are not valid or have been made in error, this analysis may be affected, and GPD Associates should be allowed to review any new information to determine its effect on the structural integrity of the tower.

DISCLAIMER OF WARRANTIES

GPD ASSOCIATES has performed a site visit to the tower to verify the member sizes or antenna/coax loading. If the existing conditions are not as represented on the tower elevation contained in this report, we should be contacted immediately to evaluate the significance of the discrepancy. This is not a condition assessment of the tower or foundation. This report does not replace a full tower inspection. The tower and foundations are assumed to have been properly fabricated, erected, maintained, in good condition, twist free and plumb.

The engineering services rendered by GPD ASSOCIATES in connection with this Structural Analysis are limited to a computer analysis of the tower structure and theoretical capacity of its main structural members. All tower components have been assumed to only resist dead loads when no other loads are applied. No allowance was made for any damaged, bent, missing, loose, or rusted members (above and below ground). No allowance was made for loose bolts or cracked welds.

GPD ASSOCIATES does not analyze the fabrication of the structure (including welding). It is not possible to have all the very detailed information needed to perform a thorough analysis of every structural sub-component and connection of an existing tower. GPD ASSOCIATES provides a limited scope of service in that we cannot verify the adequacy of every weld, plate connection detail, etc. The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines to the structure.

It is the owner's responsibility to determine the amount of ice accumulation, if any, that should be considered in the structural analysis.

The attached sketches are a schematic representation of the analyzed tower. If any material is fabricated from these sketches, the contractor shall be responsible for field verifying the existing conditions, proper fit, and clearance in the field. Any mentions of structural modifications are reasonable estimates and should not be used as a precise construction document. Precise modification drawings are obtainable from GPD ASSOCIATES, but are beyond the scope of this report.

Miscellaneous items such as antenna mounts, etc. have not been designed or detailed as a part of our work. We recommend that material of adequate size and strength be purchased from a reputable tower manufacturer.

GPD ASSOCIATES makes no warranties, expressed and/or implied in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. GPD ASSOCIATES will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of GPD ASSOCIATES pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A

Tower Analysis Summary Form

Tower Analysis Summary Form

General Info

Site Name	UNIONVILLE SBC CO
Site Number	59358
FA Number	10035037
Date of Analysis	2/24/2010
Company Performing Analysis	GPD

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Tower Info	Description	Date
Tower Type (G, SST, MP)	MP	
Tower Height (top of steel AGL)	100' w/ Proposed 15' extension	
Tower Manufacturer	n/a	
Tower Model	n/a	
Tower Design	n/a	
Foundation Design	n/a	
Geotech Report	WEI Project #: 2010-1010	2/16/2010
Tower Mapping	GPD Associates & STG	2/18/2010
Previous Structural Analysis	n/a	
Modification As-Built Drawings	n/a	
Foundation Mapping	WEI Project #: 2010-1010	2/16/2010

Design Parameters

Design Code Used	TIA/EIA-222-F
Location of Tower (County, State)	Hartford, Connecticut
Basic Wind Speed (mph)	80-fastest
Ice Thickness (in)	0.5
Structure Classification (I, II, III)	
Exposure Category (B, C, D)	
Topographic Category (1 to 5)	

Note: The design of the proposed extension and its connection is beyond the scope of this report and needs to be engineered.

Analysis Results (% Maximum Usage)

Existing/Reserved + Future + Proposed Condition	
Tower	99.5%
Foundation	27.7%
Guy Wire	n/a

Steel Yield Strength (ksi)

Pole	60
Base Plate	50
Anchor Rods	75

Note: Steel strengths assumed.

Existing / Reserved Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Internal/External
AT&T Mobility	100	100	3	Panel	EMS	MB98RR900200DPBL	30/150/270	3	Unknown	Pipe mounts	9	Unknown	1-1/4"	Internal
AT&T Mobility	100	100	4	Diplexer	Unknown	12"x9"x2.5"								
Nextel	88	88	3	Panel	Kathrein	AP11-880/090D/XP	30/150/270	3	Unknown	Pipe mounts	6	Unknown	7/8"	Internal
Nextel	81	81	3	Panel	Kathrein	AP11-880/090D/XP	30/150/270	3	Unknown	Pipe mounts	6	Unknown	7/8"	Internal

Proposed Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Internal/External
Clearwire	113	113	3	Panel	Argus	LLPX310R	30/150/270	3	Unknown	3"x64" Pipes	6	9207	5/16"	Internal
Clearwire	113	113	3	Dish	Dragonwave	A-ANT-18G-2-C	30/150/270			on same mounts	3	LDF4-50A	1/2"	Internal
Clearwire	113	113	3	ODU	Dragonwave	Horizon ODU				behind dishes				
Clearwire	113	113	3	BTS	Samsung	U-RAS				on same mounts				

Future Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Internal/External

Revision: 1
Date: 2/24/2010

APPENDIX B

RISA Tower Output File

RISATower	Job	Page
	59358 UNIONVILLE SBC CO	1 of 3
GPD Associates 520 S. Main St. Suite 2531 Akron, OH 44311 Phone: 330-572-2221 FAX: 330-572-1235	Project 2010261.35 Rev. 1	Date 16:11:54 02/24/10
	Client AT&T Mobility	Designed by jhershberger

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 0.5000 in.
Ice density of 56 pcf.
A wind speed of 69 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feedline supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF4-50A (1/2 FOAM)	B	No	Inside Pole	113.00 - 8.00	3	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
9207 (5/16")	B	No	Inside Pole	113.00 - 8.00	6	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
LDF6-50A (1-1/4 FOAM)	C	No	Inside Pole	100.00 - 2.00	9	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
LDF5-50A (7/8 FOAM)	A	No	Inside Pole	88.00 - 2.00	6	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
LDF5-50A (7/8 FOAM)	A	No	Inside Pole	81.00 - 2.00	6	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
LLPX310R w/ (3" x 64") Mount Pipe	A	From Leg	1.00 0.00 0.00	0.0000	113.00	No Ice 1/2" Ice	4.84 5.19	3.59 4.19	0.069 0.116
LLPX310R w/ (3" x 64") Mount Pipe	B	From Leg	1.00 0.00 0.00	0.0000	113.00	No Ice 1/2" Ice	4.84 5.19	3.59 4.19	0.069 0.116
LLPX310R w/ (3" x 64") Mount Pipe	C	From Leg	1.00 0.00 0.00	0.0000	113.00	No Ice 1/2" Ice	4.84 5.19	3.59 4.19	0.069 0.116

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Horizon ODU	A	From Leg	1.00		0.0000	113.00	No Ice	0.87	0.43	0.012
			0.00				1/2" Ice	1.00	0.53	0.018
			0.00							
Horizon ODU	B	From Leg	1.00		0.0000	113.00	No Ice	0.87	0.43	0.012
			0.00				1/2" Ice	1.00	0.53	0.018
			0.00							
Horizon ODU	C	From Leg	1.00		0.0000	113.00	No Ice	0.87	0.43	0.012
			0.00				1/2" Ice	1.00	0.53	0.018
			0.00							
URAS-FLEXIBLE	A	From Leg	0.50		0.0000	113.00	No Ice	1.80	0.78	0.033
			0.00				1/2" Ice	1.99	0.92	0.045
			0.00							
URAS-FLEXIBLE	B	From Leg	0.50		0.0000	113.00	No Ice	1.80	0.78	0.033
			0.00				1/2" Ice	1.99	0.92	0.045
			0.00							
URAS-FLEXIBLE	C	From Leg	0.50		0.0000	113.00	No Ice	1.80	0.78	0.033
			0.00				1/2" Ice	1.99	0.92	0.045
			0.00							
MB96RR900200DPBL w/Mount Pipe	A	From Leg	1.00		0.0000	100.00	No Ice	11.47	9.48	0.065
			0.00				1/2" Ice	12.08	10.90	0.149
			0.00							
MB96RR900200DPBL w/Mount Pipe	B	From Leg	1.00		0.0000	100.00	No Ice	11.47	9.48	0.065
			0.00				1/2" Ice	12.08	10.90	0.149
			0.00							
MB96RR900200DPBL w/Mount Pipe	C	From Leg	1.00		0.0000	100.00	No Ice	11.47	9.48	0.065
			0.00				1/2" Ice	12.08	10.90	0.149
			0.00							
12"x9"x2.5" Diplexer	A	From Leg	1.00		0.0000	100.00	No Ice	1.05	0.29	0.015
			0.00				1/2" Ice	1.26	0.44	0.020
			0.00							
12"x9"x2.5" Diplexer	B	From Leg	1.00		0.0000	100.00	No Ice	1.05	0.29	0.015
			0.00				1/2" Ice	1.26	0.44	0.020
			0.00							
(2) 12"x9"x2.5" Diplexer	C	From Leg	1.00		0.0000	100.00	No Ice	1.05	0.29	0.015
			0.00				1/2" Ice	1.26	0.44	0.020
			0.00							
AP11-880/090/XP	A	From Leg	1.00		0.0000	88.00	No Ice	5.16	2.50	0.018
			0.00				1/2" Ice	5.56	2.82	0.046
			0.00							
AP11-880/090/XP	B	From Leg	1.00		0.0000	88.00	No Ice	5.16	2.50	0.018
			0.00				1/2" Ice	5.56	2.82	0.046
			0.00							
AP11-880/090/XP	C	From Leg	1.00		0.0000	88.00	No Ice	5.16	2.50	0.018
			0.00				1/2" Ice	5.56	2.82	0.046
			0.00							
AP11-880/090/XP	A	From Leg	1.00		0.0000	81.00	No Ice	5.16	2.50	0.018
			0.00				1/2" Ice	5.56	2.82	0.046
			0.00							
AP11-880/090/XP	B	From Leg	1.00		0.0000	81.00	No Ice	5.16	2.50	0.018
			0.00				1/2" Ice	5.56	2.82	0.046
			0.00							
AP11-880/090/XP	C	From Leg	1.00		0.0000	81.00	No Ice	5.16	2.50	0.018
			0.00				1/2" Ice	5.56	2.82	0.046
			0.00							

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral / Vert (ft)	Azimuth Adjustment (°)	3 dB Beam Width (°)	Elevation (ft)	Outside Diameter (ft)		Aperture Area (ft^2)	Weight (K)
A-ANT-18G-2-C	A	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	0.0000		113.00	2.17	No Ice 1/2" Ice	3.72 4.01	0.030 0.060
A-ANT-18G-2-C	B	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	0.0000		113.00	2.17	No Ice 1/2" Ice	3.72 4.01	0.030 0.060
A-ANT-18G-2-C	C	Paraboloid w/Shroud (HP)	From Leg	1.00 0.00 0.00	0.0000		113.00	2.17	No Ice 1/2" Ice	3.72 4.01	0.030 0.060

Critical Deflections and Radius of Curvature - Service Wind

Elevation (ft)	Appurtenance	Gov. Load Comb.	Deflection (in)	Tilt (°)	Twist (°)	Radius of Curvature (ft)
113.00	A-ANT-18G-2-C	29	32.905	2.3950	0.0015	27106
100.00	MB96RR900200DPBL w/Mount Pipe	29	26.418	2.3543	0.0013	6310
88.00	AP11-880/090/XP	29	20.702	2.1646	0.0008	3528
81.00	AP11-880/090/XP	29	17.585	1.9952	0.0006	2932

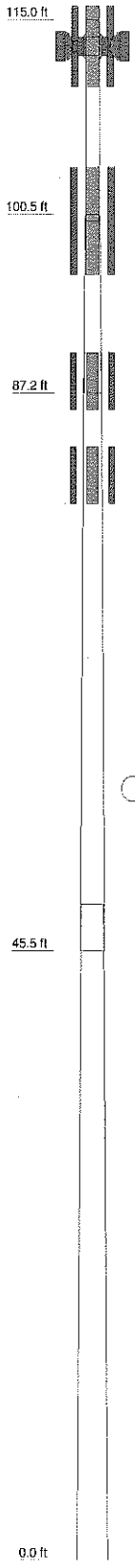
Section Capacity Table

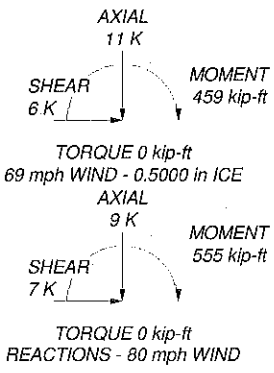
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	115 - 100.5	Pole	TP12.75x12.75x0.375	1	-1.000	699.260	9.3	Pass
L2	100.5 - 100	Pole	TP14.4933x12.75x0.375	2	-1.000	699.260	9.3	Pass
L3	100 - 87.1667	Pole	TP16.2634x14.4933x0.1875	3	-1.494	447.292	34.5	Pass
L4	87.1667 - 45.5	Pole	TP21.6355x15.4746x0.25	4	-4.136	795.945	72.0	Pass
L5	45.5 - 0	Pole	TP27.4112x20.6527x0.3125	5	-9.050	1289.847	78.2	Pass
							Summary	
						Pole (L5)	78.2	Pass
						RATING =	**78.2**	**Pass**

APPENDIX C

Tower Elevation Drawing

Section	5	4	3	2	1
Length (ft)	49.00	44.67	12.83	0.50	14.50
Number of Sides	18	18	18	1	1
Thickness (in)	0.3125	0.2500	0.1875	0.3750	0.3750
Lap Splice (ft)		3.50	3.00		
Top Dia (in)	20.6527	15.4746	14.4933	12.7500	12.7500
Bot Dia (in)	27.4112	21.6355	16.2634	14.4933	12.7500
Grade		A572-60			
Weight (K)	3.9	2.2	0.4	0.0	0.7





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
LLPX310R w/ (3" x 64") Mount Pipe	113	12"x9"x2.5" Diplexer	100
LLPX310R w/ (3" x 64") Mount Pipe	113	12"x9"x2.5" Diplexer	100
LLPX310R w/ (3" x 64") Mount Pipe	113	(2) 12"x9"x2.5" Diplexer	100
Horizon ODU	113	MB96RR900200DPBL w/Mount Pipe	100
Horizon ODU	113	MB96RR900200DPBL w/Mount Pipe	100
Horizon ODU	113	MB96RR900200DPBL w/Mount Pipe	100
URAS-FLEXIBLE	113	AP11-880/090/XP	88
URAS-FLEXIBLE	113	AP11-880/090/XP	88
URAS-FLEXIBLE	113	AP11-880/090/XP	88
A-ANT-18G-2-C	113	AP11-880/090/XP	81
A-ANT-18G-2-C	113	AP11-880/090/XP	81
A-ANT-18G-2-C	113	AP11-880/090/XP	81

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-60	60 ksi	75 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 69 mph basic wind with 0.50 in ice.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 78.2%

GPD Associates
520 S. Main St. Suite 2531
Akron, OH 44311
Phone: 330-572-2221
FAX: 330-572-1235

Job: 59358 UNIONVILLE SBC CO			
Project: 2010261.35 Rev. 1			
Client: AT&T Mobility	Drawn by: jhershberger	App'd:	
Code: TIA/EIA-222-F	Date: 02/24/10	Scale: NTS	
Path: N:\2010\2010261\35\RISA\59358 Unionville.eri		Dwg No. E-	

CLEAR

4400 Carillon Point
Kirkland, WA 98033

To: Maxton
From: Frantz Pierre – Radio Frequency Engineer
Cc: Micah Hawthorne
Subject: Power Density Report for CT-HFD0064
Date: March 28, 2010

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1. Introduction:

This report is the result of Electromagnetic Field Intensities (EMF – Power Densities) study for the Clearwire broadband antenna installation on a Steel Monopole at 82 Lovely Street, Unionville, CT, 06085. This study incorporates the most conservative consideration for determining the practical combined worst case power density levels that would be theoretically encountered from locations surrounding the transmitting location:

2: Discussion:

The following assumptions were used in the calculations:

1) The emissions from Clearwire transmitters are in the (2496 – 2960) Frequency Band
2) The emissions from the Clearwire Microwave dishes are in the 11 GHz Frequency Band
3) The model number for Clearwire Antenna is Argus LLPX310R
4) The model number for the Microwave dish is Andrew VHLP2-23 with 24" Diameter.
5) The Clearwire Panel antenna centerline is 115 feet.
6) The Clearwire Microwave dish centerline is 115 feet.
7) The Maximum Transmit power from any Clearwire panel antenna is 251 Watts Effective Isotropic Radiated Power (EiRP) assuming 2 channels per sector.
8) The Maximum Transmit power from any Clearwire Microwave Dish is 346 Watts Effective Isotropic Radiated Power (EiRP) assuming 1 channel per dish.
9) All antennas are simultaneously transmitting and receiving 24 hours per day.
10) The average ground level of the studied area does not change significantly with respect to the transmitting location.

Equations given in "FCC OET Bulletin 65, Edition 97-01" were used with the above information to perform the calculations.

3: Conclusion:

Based on the above worst case assumptions, the power density calculation from the Clearwire antenna installation on a Steel Monopole at 82 Lovely Street, Unionville, CT, 06085 is 0.003667 mW/cm^2. This value represents 0.37% of the Maximum Permissible Exposure (MPE) standard of 1 milliwatt per square centimeter (mW/cm^2) set forth in the FCC/ANSI/IEEE C95-1-1991. Furthermore, the proposed antenna location for Clearwire will not interfere with existing public safety communications, AM or FM radio broadcasts, TV, Police Communications, HAM Radio communications or any other signals in the area.

The combined Power Density from all other carriers is 0.0 %. The combined Power Density for this site is 0.37% of the M.P.E. standard.

LIST OF ABUTTING PROPERTY OWNERS
82 LOVELY STREET, FARMINGTON CT

1. ARLENE QUIGLEY
   100 LOVELY STREET
   FARMINGTON, CT 06085

2. THEODORE LINDQUIST III
   99 LOVELY STREET
   FARMINGTON, CT 06085

3. DENNIS A. TEIXEIRA
   87 LOVELY STREET
   FARMINGTON, CT 06085

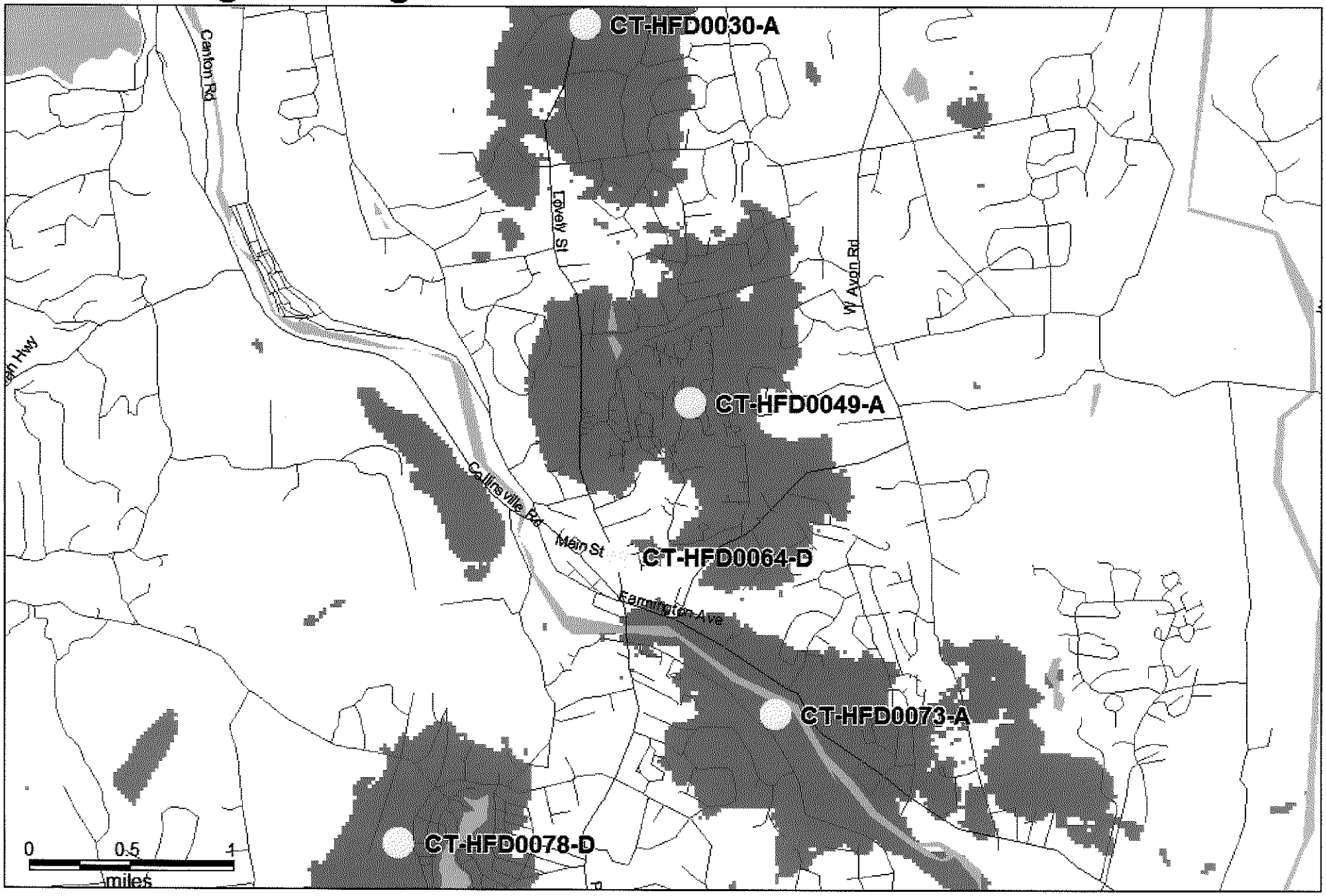
4. SHERRYL HORTON
   71 LOVELY STREET
   FARMINGTON, CT 06085

5. LINDA TAYLOR
   15 SYLVAN STREET
   FARMINGTON, CT 06085

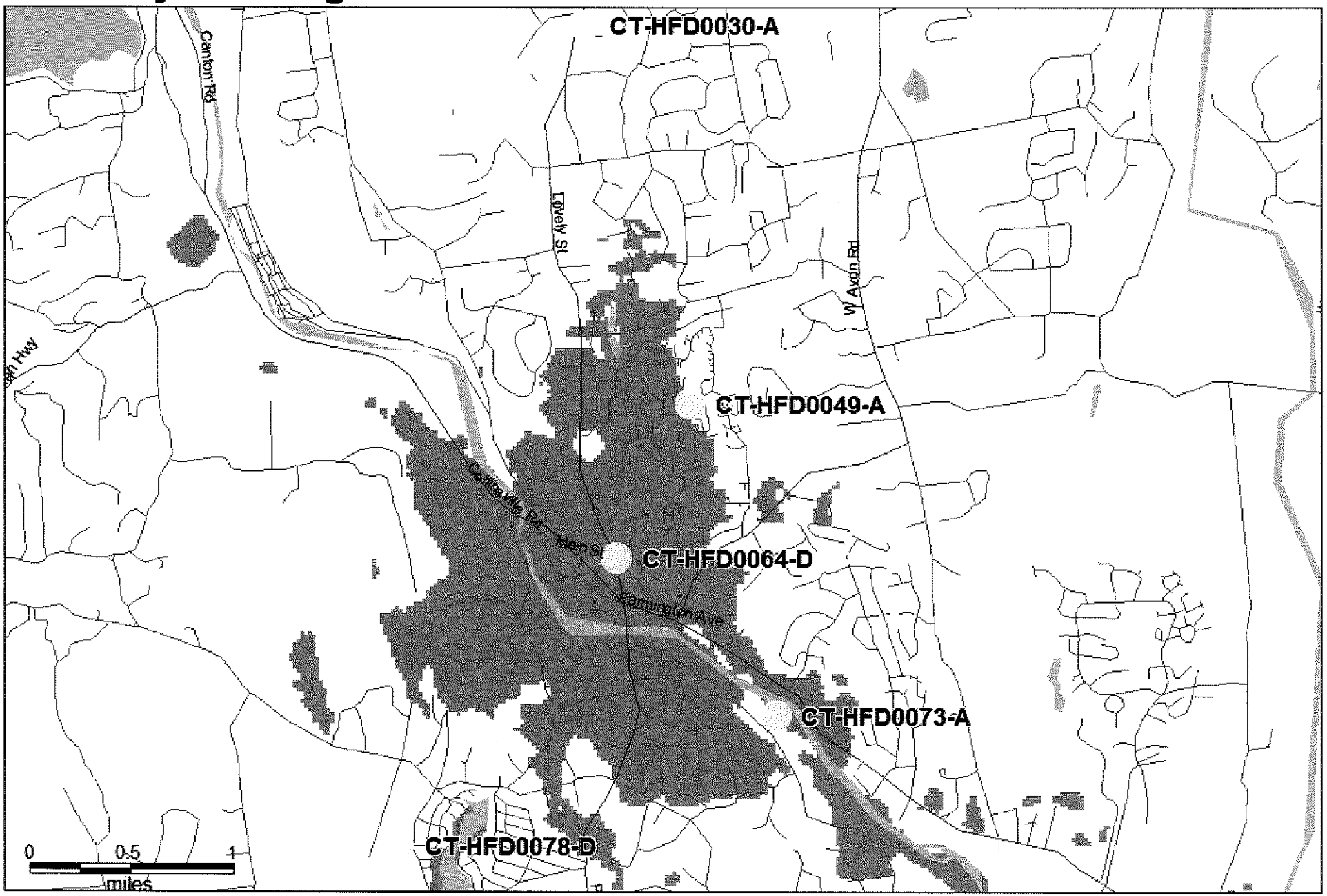
6. NANCY A. CUBELLI
   20 MERRIMAN STREET
   FARMINGTON, CT 06085

82 Lovely Street

Unionville
Clearwire Site: CT-HFD0064
Surrounding Coverage



Unionville
Clearwire Site: CT-HFD0064
Site Only Coverage



Unionville
Clearwire Site: CT-HFD0064
Composite Coverage