

June 9, 2016

VIA EMAIL AND OVERNIGHT DELIVERY

Ms. Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: T-Mobile Northeast LLC – CTFF702F
Tower Share Application
Old Stagecoach Road/Aspen Ledges Road (a/k/a 320 Old Stagecoach Road)
LAT: 41.330308 N
LNG: -73.516819 W

Dear Ms. Bachman:

This letter and attachments are submitted on behalf of T-Mobile Northeast LLC ("T-Mobile"). T-Mobile plans to install antennas and related equipment at the Homeland Towers/InSite Towers site located at Old Stagecoach Road/Aspen Ledges Road in Ridgefield, CT.

T-Mobile will install six (6) 700/1900/2100 MHz antennas and six (6) RRH's at the 126' level of the existing 150' monopole. One (1) hybrid cable will also be installed inside the monopole. T-Mobile's equipment cabinets will be placed on a 10' x 20' concrete pad within the existing fenced equipment compound. Included are plans prepared by All-Points Technology Corporation dated April 27, 2016, depicting the planned changes and attached as **Exhibit A**. Also included is a structural analysis prepared by Infinigy dated May 13, 2016 confirming that the existing tower is structurally capable of supporting T-Mobile's equipment and attached as **Exhibit B**.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50aa, of T-Mobile's intent to share a telecommunications facility pursuant to R.C.S.A. 16-50j-88. In accordance with R.C.S.A., a copy of this letter is being sent to Rudy Marconi, First Selectman, as well as the property/tower owner, InSite Towers Development, LLC. Also, please see the attached letter from InSite Towers authorizing the proposed shared use of the facility attached as **Exhibit C**.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-89.

1. The proposed modifications will not result in an increase in the height of the existing structure. The top of the monopole is approximately 150' AGL; T-Mobile's proposed antennas will be located at a centerline height of 126' AGL.

2. The proposed modifications will not require the extension of the site boundary as depicted on the attached site plan. T-Mobile's equipment will be located entirely within the existing compound area.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria. The incremental effect of the proposed changes will be negligible.
4. The operation of the proposed antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard. As indicated in the attached power density calculations, T-Mobile's operations at the site will result in a power density of 3.02%; the combined site operations will result in a total power density of 23.16% as evidenced by the power density calculations attached as **Exhibit D**.
5. The proposed equipment will not cause a change or alteration in the physical or environmental characteristics of the site. Please see the Programmatic Agreement Letter from InSite Towers dated June 7, 2016 attached as **Exhibit E**.

Respectfully submitted,

By: 

Eric Dahl, Agent for T-Mobile

edahl@comcast.net

860-227-1975

Attachments

cc: Rudy Marconi, First Selectman, Town of Ridgefield
InSite Towers Development, LLC - as property and tower owner
Homeland Towers

EXHIBIT A



ALL-POINTS
TECHNOLOGY CORPORATION

3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM

PHONE: (860)-663-1697
FAX: (860)-663-0935

APT FILING NUMBER: CT409-120

LE-1

SCALE: AS NOTED

DRAWN BY: BJP

DATE: 04/27/16

CHECKED BY: SMC

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002
OFFICE: (860)-692-7100

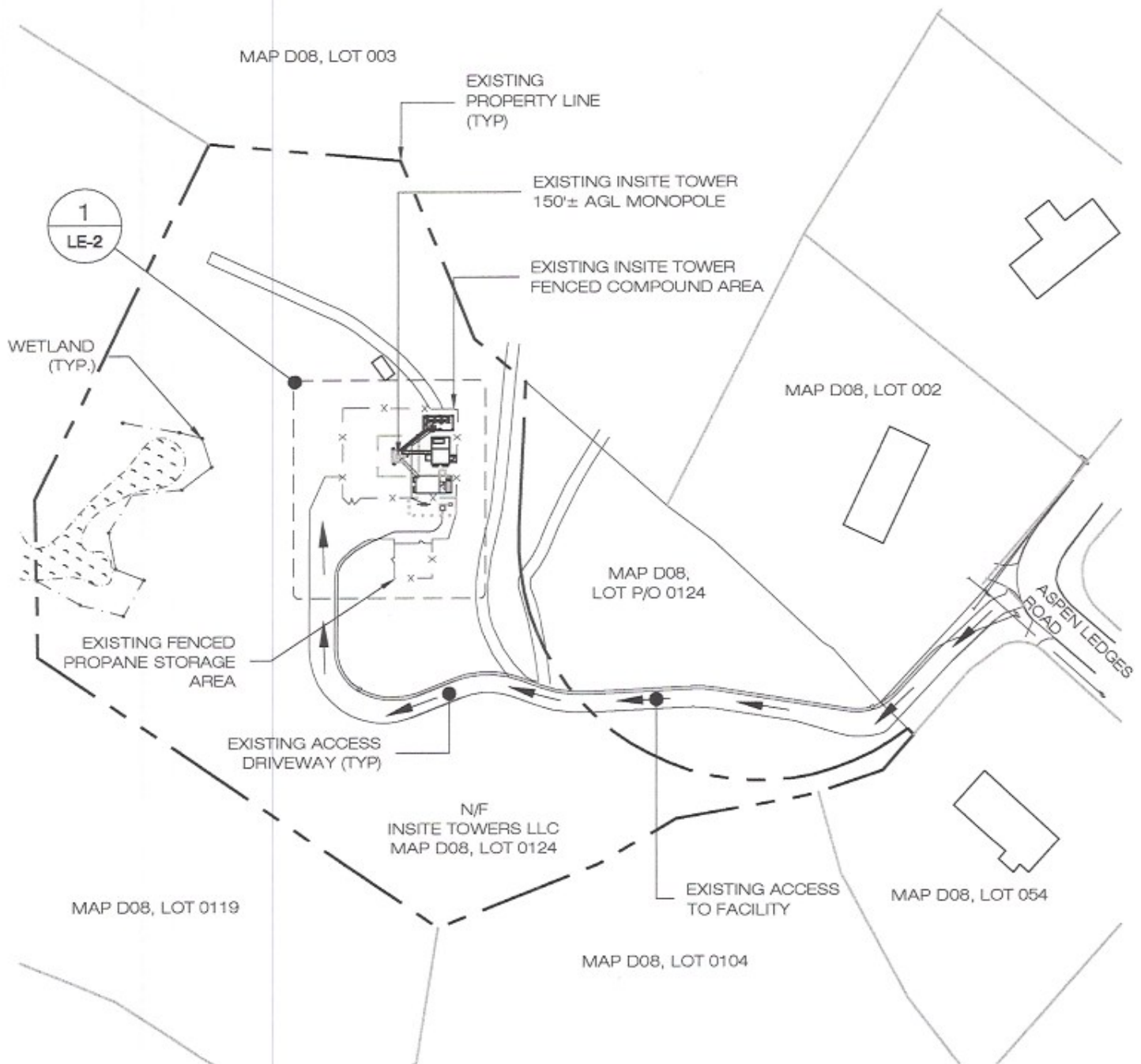
T-MOBILE:

CTFF702F -

TOWN OF RIDGEFIELD

"RIDGEFIELD"

ASPEN LEDGES ROAD
RIDGEFIELD, CT 06877



SITE PLAN

SCALE: 1" = 100'-0"

REV1: 05/18/16: CLIENT REVISIONS: RCB

NOTE: EXACT LOCATION AND ORIENTATION OF PROPOSED LEASE AREA PENDING SITE SURVEY & FURTHER ENGINEERING REVIEW AND ANALYSIS. PROPOSED UTILITY ROUTING AND R.O.W. EXTENTS TO BE DETERMINED BY LOCAL UTILITY PROVIDERS.



ALL-POINTS
TECHNOLOGY CORPORATION

3 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTS TECH.COM

PHONE: (860)-663-1697
FAX: (860)-663-0935

APT FILING NUMBER: CT409-120

LE-2

SCALE: AS NOTED

DRAWN BY: BJP

DATE: 04/27/16

CHECKED BY: SMC

T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002
OFFICE: (860)-692-7100

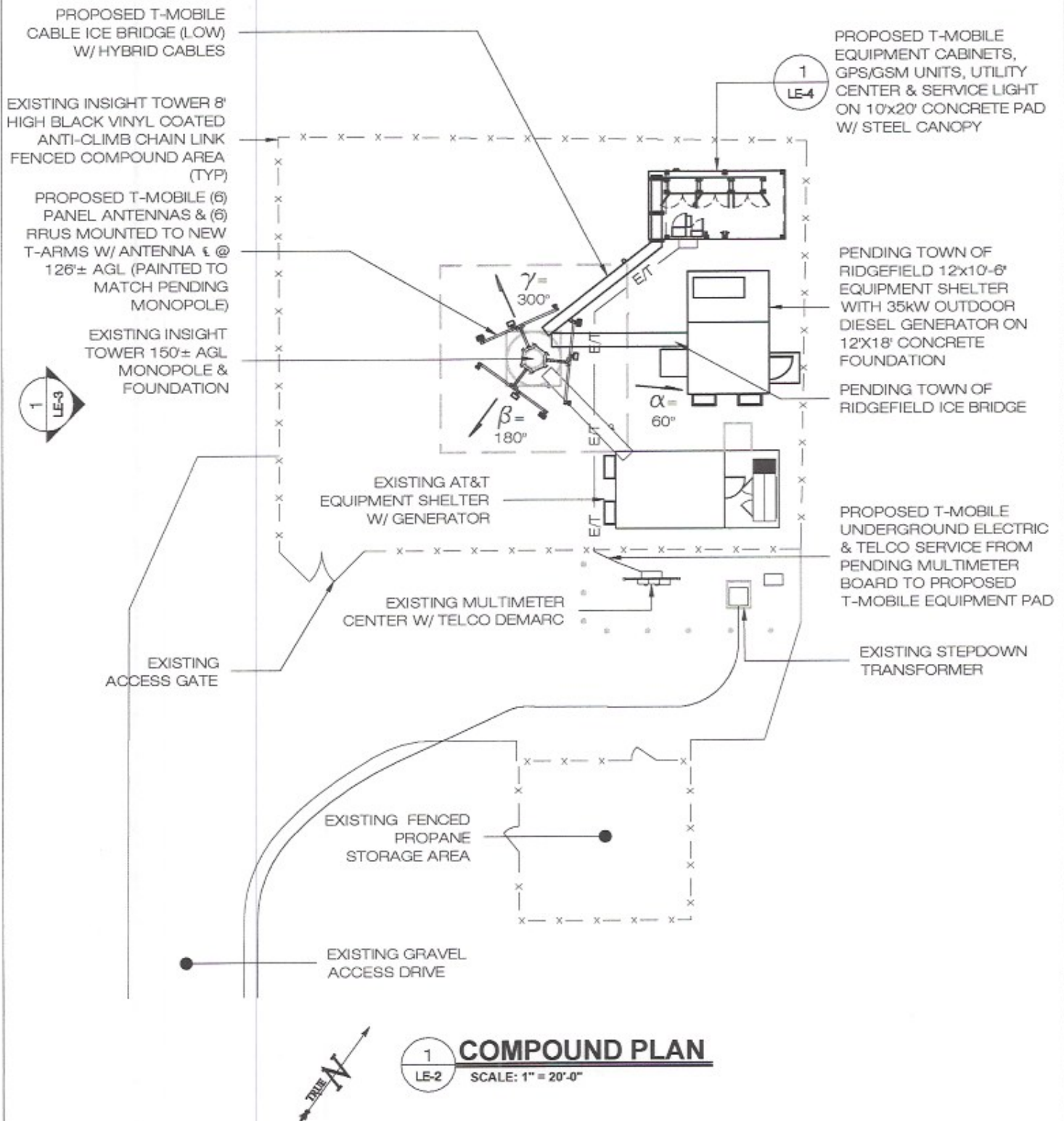
T-MOBILE:

CTFF702F -

TOWN OF RIDGEFIELD

"RIDGEFIELD"

**ASPEN LEDGES ROAD
RIDGEFIELD, CT 06877**



REV1: 05/18/16: CLIENT REVISIONS: RCB

NOTE: EXACT LOCATION AND ORIENTATION OF PROPOSED LEASE AREA PENDING SITE SURVEY & FURTHER ENGINEERING REVIEW AND ANALYSIS. PROPOSED UTILITY ROUTING AND R.O.W. EXTENTS TO BE DETERMINED BY LOCAL UTILITY PROVIDERS.



ALL-POINTS
TECHNOLOGY CORPORATION

1 SADDLEBROOK DRIVE
KILLINGWORTH, CT 06419
WWW.ALLPOINTSTECH.COM

PHONE: (860)-663-1697
FAX: (860)-663-0935

APT FILING NUMBER: CT409-120

LE-3

SCALE: AS NOTED

DRAWN BY: BJP

DATE: 04/27/16

CHECKED BY: SMC

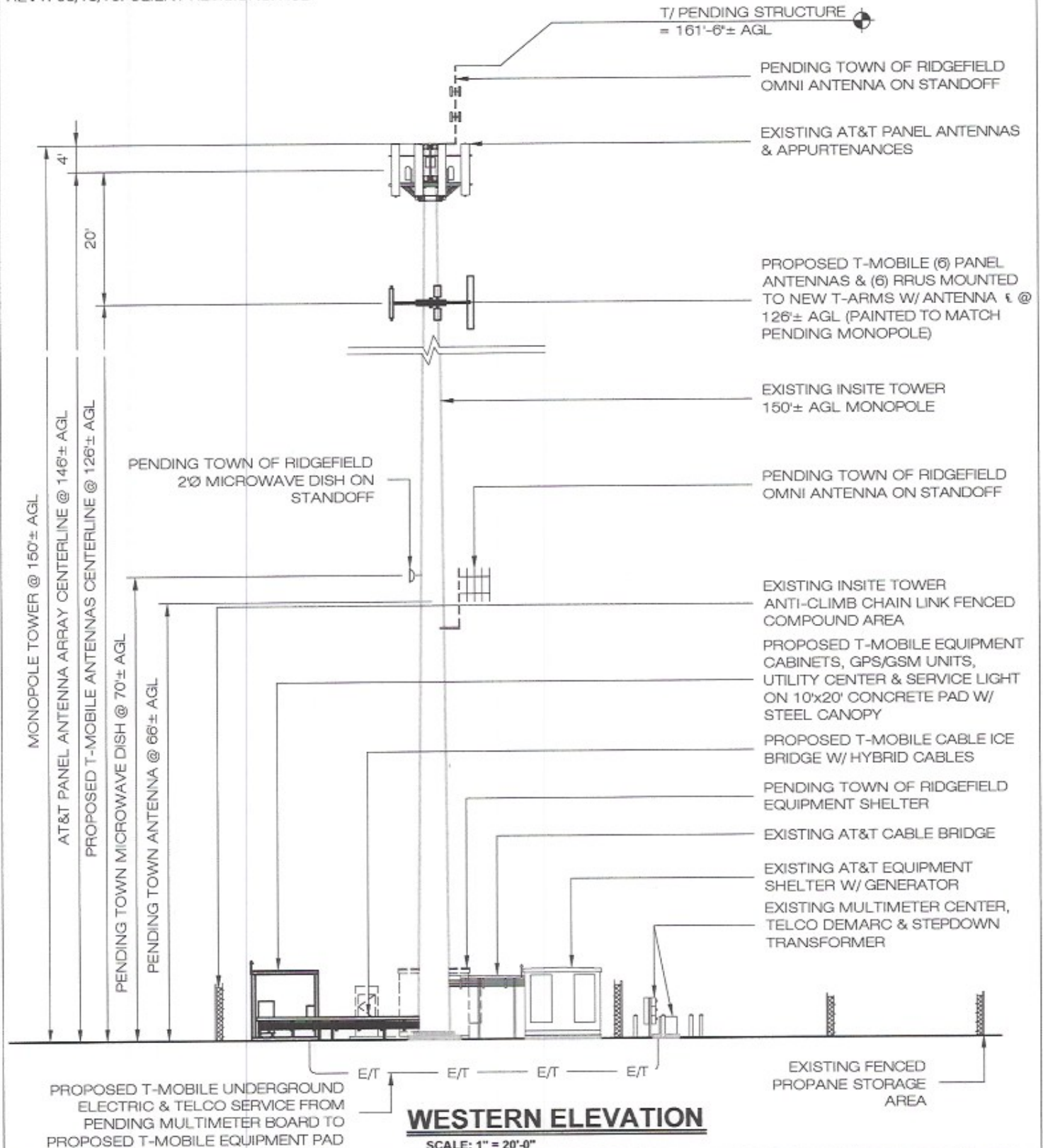
T-Mobile

35 GRIFFIN ROAD
BLOOMFIELD, CT 06002
OFFICE: (860)-692-7100

T-MOBILE:

CTFF702F -
TOWN OF RIDGEFIELD
"RIDGEFIELD"
ASPEN LEDGES ROAD
RIDGEFIELD, CT 06877

REV1: 05/18/16: CLIENT REVISIONS: RCB



NOTE: EXACT LOCATION AND ORIENTATION OF PROPOSED LEASE AREA PENDING SITE SURVEY & FURTHER ENGINEERING REVIEW AND ANALYSIS. PROPOSED UTILITY ROUTING AND R.O.W. EXTENTS TO BE DETERMINED BY LOCAL UTILITY PROVIDERS.

EXHIBIT B

Structural Analysis Report

May 13, 2016

Site Name	CT897 Ridgefield
Infinigy Job Number	337-000
Client	Insite Wireless
Proposed Carrier	T-Mobile
Site Location	320 Old Stagecoach Road, Ridgefield, CT 06877 41° 19' 49.1088" N NAD83 73° 31' 0.5478" W NAD83
Structure Type	Monopole
Structural Usage Ratio	47.6%
Overall Result	PASS

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.



Aaron Estabrooks
Structural Engineer I

Contents

Introduction.....	3
Supporting Documentation.....	3
Analysis Code Requirements.....	3
Conclusion.....	3
Existing and Reserved Loading.....	4
To Be Removed Loading.....	4
Proposed Loading.....	4
Final Configuration.....	5
Structure Usages.....	5
Foundation Reactions.....	5
Deflection, Twist, and Sway.....	6
Assumptions and Limitations.....	6
Calculations.....	Appended

May 13, 2016

Introduction

Infinigy Engineering has been requested to perform a structural analysis on the existing Monopole. All supporting documents have been obtained from the client and are assumed to be accurate and applicable to this site. The tower was analyzed using tnxTower version 7.0.5.1 tower analysis software.

Supporting Documentation

Design Drawings:	Valmont Order # 273806-P1, dated November 25, 2014
Existing Loading:	AT&T Exhibit A-1, dated December 18, 2014
Existing Loading:	Town of Ridgefield Exhibit A, dated April 12, 2016
Proposed Loading:	T-Mobile Exhibit A, dated May 31, 2016

Analysis Code Requirements

Wind Speed	100 mph (3-Second Gust)
Wind Speed w/ ice	50 mph (3-Second Gust) w/ 3/4" Ice
TIA Revision	ANSI/TIA-222-G
Adopted IBC	2003 IBC
Jurisdictional Code	2005 CT Supplement & 2009 CT Amendment
Structure Class	II
Exposure Category	B
Topographic Category	5
Calculated Crest Height	137.55 ft

Conclusion

Upon reviewing the results of this analysis, it is our opinion that the structure meets the specified TIA code requirements. The tower and foundations are therefore deemed adequate to support the existing and proposed loading as listed in this report.

If you have any questions, require additional information, or actual conditions differ from those as detailed in this report please contact me via the information below:

Aaron Estabrooks
Structural Engineer I | **INFINIGY**
1033 Watervliet Shaker Road, Albany, NY 12205
(O) (518) 690-0790 | (M) (518) 944-4097
aestabrooks@infinigy.com | www.infinigy.com

Structural Analysis Report

May 13, 2016

Existing and Reserved Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
150.0	1	RFI BA40-41	Side Arm	(1) 7/8"	Town of Ridgefield
146.0	4	Raycap DC6-48-60-18-8F	Low Profile Platform	(2) 1/2" Fiber (3) 3/8" RET (8) 5/8" DC Power	New Cingular Wireless
	3	Ericsson RRUS- 32			
	3	Ericsson RRUS- E2			
	6	Ericsson A2 Module			
	6	Ericsson RRUS-12			
	9	Ericsson RRUS-11			
	12	CCI HPA-65R-BUU-118			
70.0	1	Commscope VHLP3-11W-6GR	Leg	(1) EW90	Town of Ridgefield
66.0	1	Sinclair SD210R-SF2P90LDF	Side Arm	(1) 7/8"	

To Be Removed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
No Loads are considered To Be Removed					

Proposed Loading

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
126.0	3	Commscope LNX-6515DS-A1M	T-Arm	(1) 1/2" Fiber Trunk	T-Mobile
	3	Ericsson RRUS-11 B12			
	3	Ericsson RRUS-11 B4			
	3	RFS APXV18-206516S-A20			

May 13, 2016

Final Configuration

Mount Height (ft)	Qty.	Appurtenance	Mount Type	Coax & Lines	Carrier
150.0	1	RFI BA40-41	Side Arm	(1) 7/8"	Town of Ridgefield
146.0	4	Raycap DC6-48-60-18-8F	Low Profile Platform	(2) 1/2" Fiber (3) 3/8" RET (8) 5/8" DC Power	New Cingular Wireless
	3	Ericsson RRUS-32			
	3	Ericsson RRUS-E2			
	6	Ericsson A2 Module			
	6	Ericsson RRUS-12			
	9	Ericsson RRUS-11			
	12	CCI HPA-65R-BUU-118			
126.0	3	Commscope LNX-6515DS-AIM	T-Arm	(1) 1/2" Fiber Trunk	T-Mobile
	3	Ericsson RRUS-11 B12			
	3	Ericsson RRUS-11 B4			
	3	RFS APXV18-206516S-A20			
70.0	1	Commscope VHLP3-11W-6GR	Leg	(1) EW90	Town of Ridgefield
66.0	1	Sinclair SD210R-SF2P90LDF	Side Arm	(1) 7/8"	

Install proposed coax inside monopole.

Structure Usages

Pole (L2)	45.1	Pass
Base Plate	47.6	Pass
RATING =	47.6	Pass

Foundation Reactions

Reaction Data	Design Reactions	Analysis Reactions	Result
Moment (kip-ft)	6846.0	2907.2	42.5%
Shear (kip)	59.0	28.5	48.3%
Axial (kip)	57.6	41.1	71.4%

Tower base reactions are acceptable when compared to the original design reactions.

May 13, 2016

Deflection, Twist, and Sway

Antenna Elevation (ft)	Deflection (in)	Twist (°)	Sway (°)
126.0	8.931	0.012	0.738

*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural deflection limit is 3% of structure height.

*Per ANSI/TIA-222-G Section 2.8.2 maximum serviceability structural twist and sway limit is 4 degrees.

*Per ANSI/TIA-222-G Section 2.8.3 deflection, Twist, and sway values were calculated using a basic 3-second gust wind speed of 60 mph.

*It is the responsibility of the client to ensure their proposed and/or existing equipment will meet ANSI/TIA-222-G Annex D or other appropriate microwave signal degradation limits based on the provided values above.

Assumptions and Limitations

Our structural calculations are completed assuming all information provided to Infinigy Engineering is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural defects. The structure owner and/or contractor shall verify the structure's condition prior to installation of any proposed equipment. If actual conditions differ from those described in this report Infinigy Engineering should be notified immediately to complete a revised evaluation.

Our evaluation is completed using standard TIA, AISC, ACI, and ASCE methods and procedures. Our structural results are proprietary and should not be used by others as their own. Infinigy Engineering is not responsible for decisions made by others that are or are not based on our supplied assumptions and conclusions.

This report is an evaluation of the tower structure only and does not reflect adequacy of any existing antenna mounts, mount connections, or coax mounting attachments. These elements are assumed to be adequate for the purposes of this analysis and are assumed to have been installed per their manufacturer requirements.

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	32.33	18	0.2190	4.33	20.5000	28.6100	AS72-65	1858.8
2	31.75	18	0.3130	5.25	27.2583	35.4300	AS72-65	3330.6
3	48.25	18	0.4380	6.42	33.4528	45.8600	AS72-65	8951.7
4	52.87	18	0.5000	43.3340	56.8800			14103.9
								25260.0

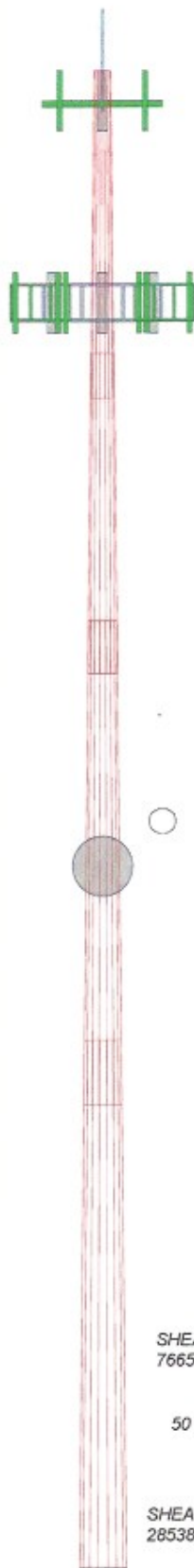
149.0 ft

116.7 ft

89.3 ft

46.3 ft

0.0 ft



DESIGNED APPURTENANCE LOADING

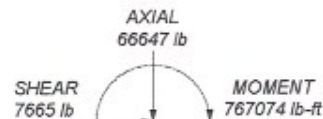
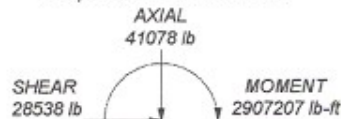
TYPE	ELEVATION	TYPE	ELEVATION
BA40-41 (Town of Ridgefield)	150	DC6-48-60-18-8F (New Cingular Wireless)	146
Angle Side Arm (Town of Ridgefield)	150	DC6-48-60-18-8F (New Cingular Wireless)	146
(4) HPA-65R-BUJ-H8 (New Cingular Wireless)	146	Angle Low Profile Platform (new Cingular Wireless)	146
(4) HPA-65R-BUJ-H8 (New Cingular Wireless)	146	APXV18-206516S-A20 (T-Mobile)	126
(4) HPA-65R-BUJ-H8 (New Cingular Wireless)	146	APXV18-206516S-A20 (T-Mobile)	126
(3) RRUS-11 (New Cingular Wireless)	146	APXV18-206516S-A20 (T-Mobile)	126
(3) RRUS-11 (New Cingular Wireless)	146	LNK-6515DS-A1M (T-Mobile)	126
(3) RRUS-11 (New Cingular Wireless)	146	LNK-6515DS-A1M (T-Mobile)	126
(2) A2 Module (New Cingular Wireless)	146	LNK-6515DS-A1M (T-Mobile)	126
(2) A2 Module (New Cingular Wireless)	146	Angle T-Arm (T-Mobile)	126
(2) A2 Module (New Cingular Wireless)	146	Angle T-Arm (T-Mobile)	126
(2) A2 Module (New Cingular Wireless)	146	Angle T-Arm (T-Mobile)	126
RRUS- E2 (New Cingular Wireless)	146	RRUS 11 (Band 4) (T-Mobile)	126
RRUS- E2 (New Cingular Wireless)	146	RRUS 11 (Band 4) (T-Mobile)	126
RRUS- E2 (New Cingular Wireless)	146	RRUS 11 (Band 12) (T-Mobile)	126
(2) RRUS-12 (New Cingular Wireless)	146	RRUS 11 (Band 12) (T-Mobile)	126
(2) RRUS-12 (New Cingular Wireless)	146	RRUS 11 (Band 12) (T-Mobile)	126
RRUS- 32 (New Cingular Wireless)	146	Dish Pipe Mount (Town of Ridgefield)	70
RRUS- 32 (New Cingular Wireless)	146	VHLP3-11W-6GR (Town of Ridgefield)	70
RRUS- 32 (New Cingular Wireless)	146	Angle Side Arm (Town of Ridgefield)	66
RRUS- 32 (New Cingular Wireless)	146	SD210R-SF2P90LDF (Town of Ridgefield)	66
(2) DC6-48-60-18-8F (new Cingular Wireless)	146		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 100 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 5 with Crest Height of 137.55 ft
8. TOWER RATING: 47.6%

ALL REACTIONS
ARE FACTOREDTORQUE 4317 lb-ft
50 mph WIND - 0.7500 in ICETORQUE 17417 lb-ft
REACTIONS - 100 mph WIND

Infinigy Engineering, PLLC
 1033 Watervliet Shaker Road
 Albany, NY 12205
 Phone: (518) 690-0790
 FAX: (518) 690-0793

Job: **CT897 Ridgefield**
 Project: **337-000**
 Client: **Insite** Drawn by: **ATE** App'd:
 Code: **TIA-222-G** Date: **05/13/16** Scale: **N**
 Path: Dwg No. **E**

tnxTower Infinigy Engineering, PLLC 1033 Watervliet Shaker Road Albany, NY 12205 Phone: (518) 690-0790 FAX: (518) 690-0793	Job	CT897 Ridgefield	Page	1 of 10
	Project	337-000	Date	09:54:09 05/13/16
	Client	Insite	Designed by	ATE

Tower Input Data

There is a pole section.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Fairfield County, Connecticut.

Basic wind speed of 100 mph.

Structure Class II.

Exposure Category B.

Topographic Category 5.

Crest Height 137.55 ft.

SEAW RSM-03 procedures for wind speed-up calculations are used.

Topographic Feature: Continuous Escarpment.

Slope Distance L: 1425.60 ft.

Distance from Crest x: 26.00 ft.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	√ Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	√ All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	Bypass Mast Stability Checks	Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-G Bracing Resist. Exemption
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
√ Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
√ Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	√ Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric		

Tapered Pole Section Geometry

tnxTower Infinigy Engineering, PLLC 1033 Watervliet Shaker Road Albany, NY 12205 Phone: (518) 690-0790 FAX: (518) 690-0793	Job	CT897 Ridgefield	Page	2 of 10
	Project	337-000	Date	09:54:09 05/13/16
	Client	Insite	Designed by	ATE

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	149.00-116.67	32.33	4.33	18	20.5000	28.8100	0.2190	0.8760	A572-65 (65 ksi)
L2	116.67-89.25	31.75	5.25	18	27.2583	35.4300	0.3130	1.2520	A572-65 (65 ksi)
L3	89.25-46.25	48.25	6.42	18	33.4528	45.8600	0.4380	1.7520	A572-65 (65 ksi)
L4	46.25-0.00	52.67		18	43.3340	56.8800	0.5000	2.0000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	<i>I</i> in ⁴	<i>r</i> in	<i>C</i> in	<i>I/C</i> in ³	<i>J</i> in ⁴	<i>It/Q</i> in ²	<i>w</i> in	<i>w/t</i>
L1	20.8162	14.0974	732.5826	7.1998	10.4140	70.3459	1466.1291	7.0501	3.2226	14.715
	29.2544	19.8738	2052.4686	10.1498	14.6355	140.2392	4107.6379	9.9388	4.6851	21.393
L2	28.8113	26.7691	2455.4840	9.5656	13.8472	177.3270	4914.1989	13.3871	4.2466	13.567
	35.9766	34.8874	5435.5179	12.4665	17.9984	301.9994	10878.1881	17.4470	5.6848	18.162
L3	35.3397	45.8975	6320.3829	11.7202	16.9940	371.9183	12649.0823	22.9531	5.1168	11.682
	46.5675	63.1462	16459.5229	16.1248	23.2969	706.5119	32940.7036	31.5791	7.3005	16.668
L4	45.6783	67.9775	15757.2224	15.2061	22.0137	715.7929	31535.1786	33.9952	6.7468	13.494
	57.7575	89.4751	35932.6785	20.0149	28.8950	1243.5587	71912.6381	44.7460	9.1309	18.262

Tower Elevation ft	Gusset Area (per face) ft ²	Gusset Thickness in	Gusset Grade	Adjust. Factor <i>A_f</i>	Adjust. Factor <i>A_r</i>	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 149.00-116.67				1	1	1			
L2 116.67-89.25				1	1	1			
L3 89.25-46.25				1	1	1			
L4 46.25-0.00				1	1	1			

Monopole Base Plate Data

Base Plate Data

Base plate is square	
Base plate is grouted	
Anchor bolt grade	A615
Anchor bolt size	2.2500 in
Number of bolts	22
Embedment length	54.0000 in
<i>f_c</i>	4 ksi
Grout space	2.0000 in
Base plate grade	A572-50
Base plate thickness	3.5000 in
Bolt circle diameter	64.2500 in
Outer diameter	70.2500 in
Inner diameter	55.5000 in
Base plate type	Plain Plate

tnxTower Infinigy Engineering, PLLC 1033 Watervliet Shaker Road Albany, NY 12205 Phone: (518) 690-0790 FAX: (518) 690-0793	Job	CT897 Ridgfield	Page	3 of 10
	Project	337-000	Date	09:54:09 05/13/16
	Client	Insite	Designed by	ATE

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		$C_A A_A$ ft ² /ft	Weight plf
7/8" (Town of Ridgfield)	A	No	Inside Pole	149.00 - 5.00	1	No Ice	0.00	0.54
						1/2" Ice	0.00	0.54
						1" Ice	0.00	0.54
1/2" Fiber (new cingular wireless)	A	No	Inside Pole	146.00 - 5.00	2	No Ice	0.00	0.09
						1/2" Ice	0.00	0.09
						1" Ice	0.00	0.09
3/8" RET (new cingular wireless)	A	No	Inside Pole	146.00 - 5.00	3	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
5/8" DC Power (new cingular wireless)	A	No	Inside Pole	146.00 - 5.00	8	No Ice	0.00	0.40
						1/2" Ice	0.00	0.40
						1" Ice	0.00	0.40
7/8" (Town of Ridgfield)	A	No	Inside Pole	66.00 - 5.00	1	No Ice	0.00	0.54
						1/2" Ice	0.00	0.54
						1" Ice	0.00	0.54
EW90 (Town of Ridgfield)	A	No	Inside Pole	70.00 - 5.00	1	No Ice	0.00	0.32
						1/2" Ice	0.00	0.32
						1" Ice	0.00	0.32
1/2" Fiber Trunk (T-Mobile)	A	No	Inside Pole	126.00 - 5.00	1	No Ice	0.00	0.57
						1/2" Ice	0.00	0.57
						1" Ice	0.00	0.57

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight lb
L1	149.00-116.67	A	0.000	0.000	0.000	0.000	128.73
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L2	116.67-89.25	A	0.000	0.000	0.000	0.000	129.46
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L3	89.25-46.25	A	0.000	0.000	0.000	0.000	221.31
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00
L4	46.25-0.00	A	0.000	0.000	0.000	0.000	230.26
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	$C_A A_A$ In Face ft ²	$C_A A_A$ Out Face ft ²	Weight lb
L1	149.00-116.67	A	1.832	0.000	0.000	0.000	0.000	128.73
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00
L2	116.67-89.25	A	1.798	0.000	0.000	0.000	0.000	129.46
		B		0.000	0.000	0.000	0.000	0.00

tnxTower Infinigy Engineering, PLLC 1033 Watervliet Shaker Road Albany, NY 12205 Phone: (518) 690-0790 FAX: (518) 690-0793	Job	CT897 Ridgefield	Page	4 of 10
	Project	337-000	Date	09:54:09 05/13/16
	Client	Insite	Designed by	ATE

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight lb
L3	89.25-46.25	C	1.738	0.000	0.000	0.000	0.000	0.00
		A		0.000	0.000	0.000	0.000	221.31
		B		0.000	0.000	0.000	0.000	0.00
L4	46.25-0.00	C	1.576	0.000	0.000	0.000	0.000	0.00
		A		0.000	0.000	0.000	0.000	230.26
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
---------------	----------------------	-------------	-------------------------	-----------------------	--------------------

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight lb
BA40-41 (Town of Ridgefield)	A	From Leg	4.00	0.0000	150.00	No Ice	3.85	31.97
			0.00			1/2" Ice	6.50	69.13
			0.00			1" Ice	7.20	113.93
Angle Side Arm (Town of Ridgefield)	A	From Leg	3.00	0.0000	150.00	No Ice	0.82	150.00
			0.00			1/2" Ice	1.10	230.00
			0.00			1" Ice	1.40	310.00

(4) HPA-65R-BUU-H8 (New Cingular Wireless)	A	From Leg	4.00	0.0000	146.00	No Ice	9.66	51.00
			0.00			1/2" Ice	10.13	113.99
			0.00			1" Ice	10.61	183.38
(4) HPA-65R-BUU-H8 (New Cingular Wireless)	B	From Leg	4.00	0.0000	146.00	No Ice	9.66	51.00
			0.00			1/2" Ice	10.13	113.99
			0.00			1" Ice	10.61	183.38
(4) HPA-65R-BUU-H8 (New Cingular Wireless)	C	From Leg	4.00	0.0000	146.00	No Ice	9.66	51.00
			0.00			1/2" Ice	10.13	113.99
			0.00			1" Ice	10.61	183.38
(3) RRUS-11 (New Cingular Wireless)	A	From Leg	4.00	0.0000	146.00	No Ice	3.79	55.00
			0.00			1/2" Ice	4.04	80.77
			0.00			1" Ice	4.29	109.98
(3) RRUS-11 (New Cingular Wireless)	B	From Leg	4.00	0.0000	146.00	No Ice	3.79	55.00
			0.00			1/2" Ice	4.04	80.77
			0.00			1" Ice	4.29	109.98
(3) RRUS-11 (New Cingular Wireless)	C	From Leg	4.00	0.0000	146.00	No Ice	3.79	55.00
			0.00			1/2" Ice	4.04	80.77
			0.00			1" Ice	4.29	109.98
(2) A2 Module (New Cingular Wireless)	A	From Leg	4.00	0.0000	146.00	No Ice	1.60	21.20
			0.00			1/2" Ice	1.76	31.53
			0.00			1" Ice	1.92	44.07
(2) A2 Module (New Cingular Wireless)	B	From Leg	4.00	0.0000	146.00	No Ice	1.60	21.20
			0.00			1/2" Ice	1.76	31.53
			0.00			1" Ice	1.92	44.07
(2) A2 Module	C	From Leg	4.00	0.0000	146.00	No Ice	1.60	21.20

tnxTower Infinigy Engineering, PLLC 1033 Watervliet Shaker Road Albany, NY 12205 Phone: (518) 690-0790 FAX: (518) 690-0793	Job	CT897 Ridgefield	Page	5 of 10
	Project	337-000	Date	09:54:09 05/13/16
	Client	Insite	Designed by	ATE

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment "	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight lb
(New Cingular Wireless)			0.00			1/2" Ice 1.76	0.47	31.53
			0.00			1" Ice 1.92	0.57	44.07
RRUS- E2	A	From Leg	4.00	0.0000	146.00	No Ice 3.40	1.82	76.98
(New Cingular Wireless)			0.00			1/2" Ice 3.63	2.09	108.45
			0.00			1" Ice 3.86	2.38	144.12
RRUS- E2	B	From Leg	4.00	0.0000	146.00	No Ice 3.40	1.82	76.98
(New Cingular Wireless)			0.00			1/2" Ice 3.63	2.09	108.45
			0.00			1" Ice 3.86	2.38	144.12
RRUS- E2	C	From Leg	4.00	0.0000	146.00	No Ice 3.40	1.82	76.98
(New Cingular Wireless)			0.00			1/2" Ice 3.63	2.09	108.45
			0.00			1" Ice 3.86	2.38	144.12
(2) RRUS-12	A	From Leg	4.00	0.0000	146.00	No Ice 3.15	1.29	50.00
(New Cingular Wireless)			0.00			1/2" Ice 3.36	1.44	73.22
			0.00			1" Ice 3.59	1.60	99.64
(2) RRUS-12	B	From Leg	4.00	0.0000	146.00	No Ice 3.15	1.29	50.00
(New Cingular Wireless)			0.00			1/2" Ice 3.36	1.44	73.22
			0.00			1" Ice 3.59	1.60	99.64
(2) RRUS-12	C	From Leg	4.00	0.0000	146.00	No Ice 3.15	1.29	50.00
(New Cingular Wireless)			0.00			1/2" Ice 3.36	1.44	73.22
			0.00			1" Ice 3.59	1.60	99.64
RRUS- 32	A	From Leg	4.00	0.0000	146.00	No Ice 2.69	1.92	67.30
(New Cingular Wireless)			0.00			1/2" Ice 2.91	2.23	93.17
			0.00			1" Ice 3.14	2.56	123.05
RRUS- 32	B	From Leg	4.00	0.0000	146.00	No Ice 2.69	1.92	67.30
(New Cingular Wireless)			0.00			1/2" Ice 2.91	2.23	93.17
			0.00			1" Ice 3.14	2.56	123.05
RRUS- 32	C	From Leg	4.00	0.0000	146.00	No Ice 2.69	1.92	67.30
(New Cingular Wireless)			0.00			1/2" Ice 2.91	2.23	93.17
			0.00			1" Ice 3.14	2.56	123.05
(2) DC6-48-60-18-8F	A	From Leg	4.00	0.0000	146.00	No Ice 1.90	1.90	20.00
(new Cingular Wireless)			0.00			1/2" Ice 2.09	2.09	39.25
			0.00			1" Ice 2.28	2.28	61.47
DC6-48-60-18-8F	B	From Leg	4.00	0.0000	146.00	No Ice 1.90	1.90	20.00
(New Cingular Wireless)			0.00			1/2" Ice 2.09	2.09	39.25
			0.00			1" Ice 2.28	2.28	61.47
DC6-48-60-18-8F	C	From Leg	4.00	0.0000	146.00	No Ice 1.90	1.90	20.00
(New Cingular Wireless)			0.00			1/2" Ice 2.09	2.09	39.25
			0.00			1" Ice 2.28	2.28	61.47
Angle Low Profile Platform	A	From Leg	3.00	0.0000	146.00	No Ice 26.10	26.10	1500.00
(new Cingular Wireless)			0.00			1/2" Ice 31.60	31.60	1700.00
			0.00			1" Ice 37.10	37.10	1900.00

Dish Pipe Mount	A	From Leg	0.50	0.0000	70.00	No Ice 1.94	1.94	54.66
(Town of Ridgefield)			0.00			1/2" Ice 2.46	2.46	80.59
			0.00			1" Ice 2.85	2.85	110.49

SD210R-SF2P90LDF	A	From Leg	4.00	0.0000	66.00	No Ice 27.00	27.00	37.00
(Town of Ridgefield)			0.00			1/2" Ice 27.64	27.64	346.98
			0.00			1" Ice 28.28	28.28	668.04
Angle Side Arm	A	From Leg	3.00	0.0000	66.00	No Ice 0.82	6.23	150.00
(Town of Ridgefield)			0.00			1/2" Ice 1.10	8.47	230.00
			0.00			1" Ice 1.40	10.20	310.00

APXV18-206516S-A20	A	From Leg	4.00	0.0000	126.00	No Ice 3.76	2.60	15.00
(T-Mobile)			0.00			1/2" Ice 4.11	2.94	38.02
			0.00			1" Ice 4.47	3.29	65.52
APXV18-206516S-A20	B	From Leg	4.00	0.0000	126.00	No Ice 3.76	2.60	15.00

tnxTower Infinigy Engineering, PLLC 1033 Watervliet Shaker Road Albany, NY 12205 Phone: (518) 690-0790 FAX: (518) 690-0793	Job	CT897 Ridgefield	Page	6 of 10
	Project	337-000	Date	09:54:09 05/13/16
	Client	Insite	Designed by	ATE

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight lb
(T-Mobile)			0.00			1/2" Ice 4.11	2.94	38.02
			0.00			1" Ice 4.47	3.29	65.52
APXV18-206516S-A20	C	From Leg	4.00	0.0000	126.00	No Ice 3.76	2.60	15.00
(T-Mobile)			0.00			1/2" Ice 4.11	2.94	38.02
			0.00			1" Ice 4.47	3.29	65.52
LNX-6515DS-A1M	A	From Leg	4.00	0.0000	126.00	No Ice 11.47	7.72	43.70
(T-Mobile)			0.00			1/2" Ice 12.09	8.31	109.70
			0.00			1" Ice 12.72	8.91	183.38
LNX-6515DS-A1M	B	From Leg	4.00	0.0000	126.00	No Ice 11.47	7.72	43.70
(T-Mobile)			0.00			1/2" Ice 12.09	8.31	109.70
			0.00			1" Ice 12.72	8.91	183.38
LNX-6515DS-A1M	C	From Leg	4.00	0.0000	126.00	No Ice 11.47	7.72	43.70
(T-Mobile)			0.00			1/2" Ice 12.09	8.31	109.70
			0.00			1" Ice 12.72	8.91	183.38
Angle T-Arm	A	From Leg	3.00	0.0000	126.00	No Ice 12.90	4.39	250.00
(T-Mobile)			0.00			1/2" Ice 15.30	6.00	314.00
			0.00			1" Ice 17.70	7.61	378.00
Angle T-Arm	B	From Leg	3.00	0.0000	126.00	No Ice 12.90	4.39	250.00
(T-Mobile)			0.00			1/2" Ice 15.30	6.00	314.00
			0.00			1" Ice 17.70	7.61	378.00
Angle T-Arm	C	From Leg	3.00	0.0000	126.00	No Ice 12.90	4.39	250.00
(T-Mobile)			0.00			1/2" Ice 15.30	6.00	314.00
			0.00			1" Ice 17.70	7.61	378.00
RRUS 11 (Band 4)	A	From Leg	4.00	0.0000	126.00	No Ice 2.57	1.07	44.00
(T-Mobile)			0.00			1/2" Ice 2.76	1.21	63.57
			0.00			1" Ice 2.97	1.36	86.08
RRUS 11 (Band 4)	B	From Leg	4.00	0.0000	126.00	No Ice 2.57	1.07	44.00
(T-Mobile)			0.00			1/2" Ice 2.76	1.21	63.57
			0.00			1" Ice 2.97	1.36	86.08
RRUS 11 (Band 4)	C	From Leg	4.00	0.0000	126.00	No Ice 2.57	1.07	44.00
(T-Mobile)			0.00			1/2" Ice 2.76	1.21	63.57
			0.00			1" Ice 2.97	1.36	86.08
RRUS 11 (Band 12)	A	From Leg	4.00	0.0000	126.00	No Ice 2.52	1.07	55.00
(T-Mobile)			0.00			1/2" Ice 2.72	1.21	74.32
			0.00			1" Ice 2.92	1.36	96.56
RRUS 11 (Band 12)	B	From Leg	4.00	0.0000	126.00	No Ice 2.52	1.07	55.00
(T-Mobile)			0.00			1/2" Ice 2.72	1.21	74.32
			0.00			1" Ice 2.92	1.36	96.56
RRUS 11 (Band 12)	C	From Leg	4.00	0.0000	126.00	No Ice 2.52	1.07	55.00
(T-Mobile)			0.00			1/2" Ice 2.72	1.21	74.32
			0.00			1" Ice 2.92	1.36	96.56

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 lb
VHLP3-11W-6GR	A	Paraboloid	From	1.00	0.0000		70.00	3.00	No Ice 7.07	67.90
(Town of Ridgefield)		w/Shroud (HP)	Leg	0.00					1/2" Ice 7.47	106.25

tnxTower Infinigy Engineering, PLLC 1033 Watervliet Shaker Road Albany, NY 12205 Phone: (518) 690-0790 FAX: (518) 690-0793	Job	CT897 Ridgefield	Page	7 of 10
	Project	337-000	Date	09:54:09 05/13/16
	Client	Insite	Designed by	ATE

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				ft	°	°	ft	ft	ft ²	lb
				0.00				1" Ice	7.86	144.59

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 90 deg - No Ice
5	0.9 Dead+1.6 Wind 90 deg - No Ice
6	1.2 Dead+1.6 Wind 180 deg - No Ice
7	0.9 Dead+1.6 Wind 180 deg - No Ice
8	1.2 Dead+1.0 Ice+1.0 Temp
9	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
10	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
11	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
12	Dead+Wind 0 deg - Service
13	Dead+Wind 90 deg - Service
14	Dead+Wind 180 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149 - 116.667	12.902	12	0.8741	0.0000
L2	121 - 89.2503	8.151	12	0.7036	0.0000
L3	94.5003 - 46.2503	4.760	12	0.5012	0.0000
L4	52.667 - 0	1.425	13	0.2519	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	BA40-41	12	12.902	0.8741	0.0240	34016
146.00	(4) HPA-65R-BUU-H8	12	12.366	0.8573	0.0223	34016
126.00	APXV18-206516S-A20	12	8.931	0.7378	0.0122	7394
70.00	VHLP3-11W-6GR	13	2.519	0.3442	0.0039	8863
66.00	SD210R-SF2P90LDF	13	2.230	0.3219	0.0036	8814

Maximum Tower Deflections - Design Wind

tnxTower Infinigy Engineering, PLLC 1033 Watervliet Shaker Road Albany, NY 12205 Phone: (518) 690-0790 FAX: (518) 690-0793	Job	CT897 Ridgefield	Page	8 of 10
	Project	337-000	Date	09:54:09 05/13/16
	Client	Insite	Designed by	ATE

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149 - 116.667	63.302	4	4.1322	0.0000
L2	121 - 89.2503	40.425	4	3.4538	0.0000
L3	94.5003 - 46.2503	23.699	4	2.4861	0.0000
L4	52.667 - 0	7.103	4	1.2555	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
150.00	BA40-41	4	63.302	4.1322	0.1191	7776
146.00	(4) HPA-65R-BUU-H8	4	60.732	4.0703	0.1107	7776
126.00	APXV18-206516S-A20	4	44.208	3.6023	0.0607	1688
70.00	VHLP3-11W-6GR	4	12.556	1.7125	0.0192	1787
66.00	SD210R-SF2P90LDF	4	11.117	1.6025	0.0177	1778

Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual Allowable Ratio Bolt Tension lb	Actual Allowable Ratio Bolt Compression lb	Actual Allowable Ratio Plate Stress ksi	Actual Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
3.5000	22	2.2500	95852.28	99585.34	14.753		Bolt T	0.48
			201288.96	334139.67	45.000			✓
			0.48	0.30	0.33			

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _n ft	Kl/r	A in ²	P _n lb	φP _n lb	Ratio P _v φP _n
L1	149 - 116.667 (1)	TP28.81x20.5x0.219	32.33	149.00	183.3	19.0996	-7082.87	128420.00	0.055
L2	116.667 - 89.2503 (2)	TP35.43x27.2583x0.313	31.75	149.00	149.2	33.5450	-10983.40	340599.00	0.032
L3	89.2503 - 46.2503 (3)	TP45.86x33.4528x0.438	48.25	149.00	115.1	60.8523	-21690.80	1038320.00	0.021
L4	46.2503 - 0 (4)	TP56.88x43.334x0.5	52.67	149.00	89.3	89.4751	-41063.70	2532460.00	0.016

tnxTower Infinigy Engineering, PLLC 1033 Watervliet Shaker Road Albany, NY 12205 Phone: (518) 690-0790 FAX: (518) 690-0793	Job	CT897 Ridgefield	Page	9 of 10
	Project	337-000	Date	09:54:09 05/13/16
	Client	Insite	Designed by	ATE

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{xx} lb-ft	ϕM_{xx} lb-ft	Ratio $\frac{M_{xx}}{\phi M_{xx}}$	M_{yy} lb-ft	ϕM_{yy} lb-ft	Ratio $\frac{M_{yy}}{\phi M_{yy}}$
L1	149 - 116.667 (1)	TP28.81x20.5x0.219	284745.00	750611.67	0.379	0.00	750611.67	0.000
L2	116.667 - 89.2503 (2)	TP35.43x27.2583x0.313	709700.83	1694158.33	0.419	0.00	1694158.33	0.000
L3	89.2503 - 46.2503 (3)	TP45.86x33.4528x0.438	1543883.33	4060708.33	0.380	0.00	4060708.33	0.000
L4	46.2503 - 0 (4)	TP56.88x43.334x0.5	2907208.33	7454024.67	0.390	0.00	7454024.67	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_u lb	Ratio $\frac{V_u}{\phi V_u}$	Actual T_u lb-ft	ϕT_u lb-ft	Ratio $\frac{T_u}{\phi T_u}$
L1	149 - 116.667 (1)	TP28.81x20.5x0.219	14870.90	664304.00	0.022	8791.25	1503058.33	0.006
L2	116.667 - 89.2503 (2)	TP35.43x27.2583x0.313	17239.90	1221690.00	0.014	8777.92	3392450.00	0.003
L3	89.2503 - 46.2503 (3)	TP45.86x33.4528x0.438	23227.20	2260510.00	0.010	17427.25	8131341.33	0.002
L4	46.2503 - 0 (4)	TP56.88x43.334x0.5	28558.10	3217940.00	0.009	17417.50	14926249.33	0.001

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{xx}}{\phi M_{xx}}$	Ratio $\frac{M_{yy}}{\phi M_{yy}}$	Ratio $\frac{V_u}{\phi V_u}$	Ratio $\frac{T_u}{\phi T_u}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	149 - 116.667 (1)	0.055	0.379	0.000	0.022	0.006	0.435	1.000	4.8.2 ✓
L2	116.667 - 89.2503 (2)	0.032	0.419	0.000	0.014	0.003	0.451	1.000	4.8.2 ✓
L3	89.2503 - 46.2503 (3)	0.021	0.380	0.000	0.010	0.002	0.401	1.000	4.8.2 ✓
L4	46.2503 - 0 (4)	0.016	0.390	0.000	0.009	0.001	0.406	1.000	4.8.2 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
-------------	-----------------	-------------------	------	---------------------	---------	------------------------	---------------	--------------

tnxTower Infinigy Engineering, PLLC 1033 Watervliet Shaker Road Albany, NY 12205 Phone: (518) 690-0790 FAX: (518) 690-0793	Job	CT897 Ridgefield	Page	10 of 10
	Project	337-000	Date	09:54:09 05/13/16
	Client	Insite	Designed by	ATE

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	149 - 116.667	Pole	TP28.81x20.5x0.219	1	-7082.87	128420.00	43.5	Pass
L2	116.667 - 89.2503	Pole	TP35.43x27.2583x0.313	2	-10983.40	340599.00	45.1	Pass
L3	89.2503 - 46.2503	Pole	TP45.86x33.4528x0.438	3	-21690.80	1038320.00	40.1	Pass
L4	46.2503 - 0	Pole	TP56.88x43.334x0.5	4	-41063.70	2532460.00	40.6	Pass
							Summary	
							Pole (L2)	45.1 Pass
							Base Plate	47.6 Pass
							RATING =	47.6 Pass

Program Version 7.0.5.1 - 2/1/2016 File:C:/Users/aestabrooks/Desktop/Projects/Projects 2016/May 2016/May 11th/CT897 Ridgefield/Structural/Structural Calculations/CT897 Ridgefield.eri

EXHIBIT C



June 1, 2016

Eric Dahl
Vertical Development
55 Lynn Road
Ivoryton, CT 06442

RE: InSite Towers Development, LLC Site ID: CT897 Ridgefield
T-Mobile Northeast LLC ("T-Mobile") Site ID: CTFF702F
Telecommunication Facility at 320 Old Stagecoach Road, Ridgefield, CT 06887

Dear Mr. Dahl:

InSite Towers Development, LLC, as owner of the above-referenced property, hereby authorizes T-Mobile and/or its agent to apply for and obtain all necessary permits and approvals from all applicable Town of Ridgefield or State of Connecticut boards, agencies and commissions for the proposed installation of T-Mobile's equipment consisting of antennas and related equipment at the above-referenced site.

Please contact us should you have any questions.

Sincerely,

INSITE TOWERS DEVELOPMENT, LLC

By: _____

Printed Name: _____

Title: _____

Date: _____

EXHIBIT D



EBI Consulting

environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CTFF702F

Ridgefield
320 Old Stagecoach Rd
Ridgefield, CT 06877

June 3, 2016

EBI Project Number: 6216002679

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	23.16 %



June 3, 2016

T-Mobile USA
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, CT 06002

Emissions Analysis for Site: **CTFF702F – Ridgefield**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **320 Old Stagecoach Rd, Ridgefield, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limit for the 700 MHz Band is approximately $467 \mu\text{W}/\text{cm}^2$, and the general population exposure limit for the PCS and AWS bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **320 Old Stagecoach Rd, Ridgefield, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 4 UMTS channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 3) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.
- 4) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.



- 5) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 6) The antennas used in this modeling are the **RFS APXV18-206516S-C-A20** for 2100 MHz (AWS) channels and the **Commscope LNX-6515DS-VTM** for 700 MHz channels. This is based on feedback from the carrier with regards to anticipated antenna selection. The **RFS APXV18-206516S-C-A20** has a maximum gain of **16.3 dBd** at its main lobe at 2100 MHz. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe at 700 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 7) The antenna mounting height centerline of the proposed antennas is **126 feet** above ground level (AGL).
- 8) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.



T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20	Make / Model:	RFS APXV18-206516S-C-A20
Gain:	16.3 dBd	Gain:	16.3 dBd	Gain:	16.3 dBd
Height (AGL):	126	Height (AGL):	126	Height (AGL):	126
Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz(PCS) / 2100 MHz (AWS)
Channel Count	6	Channel Count	6	Channel Count	6
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	10,237.91	ERP (W):	10,237.91	ERP (W):	10,237.91
Antenna A1 MPE%	2.56	Antenna B1 MPE%	2.56	Antenna C1 MPE%	2.56
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	126	Height (AGL):	126	Height (AGL):	126
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power(W):	30	Total TX Power(W):	30	Total TX Power(W):	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A2 MPE%	0.46	Antenna B2 MPE%	0.46	Antenna C2 MPE%	0.46

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	3.02 %
Police	1.86 %
Fire	8.30 %
Microwave	0.01 %
AT&T	9.97 %
Site Total MPE %:	23.16 %

T-Mobile Sector 1 Total:	3.02 %
T-Mobile Sector 2 Total:	3.02 %
T-Mobile Sector 3 Total:	3.02 %
Site Total:	23.16 %

T-Mobile_per sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 2100 MHz (AWS) LTE	2	2559.48	126	12.78	2100	1000	1.28 %
T-Mobile 2100 MHz (AWS) UMTS	4	1279.74	126	12.78	2100	1000	1.28 %
T-Mobile 700 MHz LTE	1	865.21	126	2.16	700	467	0.46 %
						Total:	3.02 %



Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector 1:	3.02 %
Sector 2:	3.02 %
Sector 3:	3.02 %
T-Mobile Per Sector Maximum:	3.02 %
Site Total:	23.16 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **23.16%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.

EXHIBIT E



June 7, 2016

VIA EMAIL

T-Mobile Northeast LLC
c/o Eric Dahl
Vertical Development
55 Lynn Road
Ivoryton, CT 06442

Re: Certification of Historic Preservation Compliance for the Following Antenna Structure:

InSite Site Name:	CT897 Ridgefield
T-Mobile Site ID:	CTFF702F
Address/Location:	320 Old Stagecoach Road Ridgefield, CT 06887

Latitude: 41-19-49 N Longitude: 73-31-00.6 W

In connection with a Specific Collocation of Antennas as Described and Proposed by the Following Collocation Licensee: T-Mobile

Dear Mr. Dahl:

InSite Towers Development, LLC ("InSite") is the owner of the above-identified antenna structure (the "Tower"), a structure constructed for the sole or primary purpose of supporting telecommunications antennas authorized by the Federal Communications Commission ("FCC") and their associated facilities. The Tower is subject to the provisions of that certain Nationwide Programmatic Agreement Regarding the Section 106 National Historic Preservation Act Review Process (47 C.F.R. Part 1, Appendix C) ("NPA"), adopted by the FCC, and its corollary programmatic agreement entitled Nationwide Programmatic Agreement for the Collocation of Wireless Antennas (the "Collocation NPA") (47 C.F.R. Part 1, Appendix B).

The Collocation NPA exempts from review, under Section 106 of the National Historic Preservation Act (16 U.S.C. § 470f) and its implementing regulations, certain collocations, where the term collocation is defined as the mounting or installation of an antenna on an existing tower, building or structure for the purpose of transmitting and/or receiving radio frequency signals for communications purposes.

TOWERS • DAS

1199 N. Fairfax Street • Suite 700 • Alexandria, VA 22314
703.535.3009 • insitewireless.com



For the purpose of confirming for the party proposing to collocate on the Tower (the "Collocation Licensee") whether the collocation on the above-identified Tower, as proposed and described to InSite by the Collocation Licensee, is exempt from review under the consultation process set forth in either 36 C.F.R. Part 800, Subpart B, (the "Section 106 regulations") or the NPA, as applicable, InSite represents the following:

1. One of the two statements below, either 1.a or 1.b. as indicated applies to this Tower:
 - ☐ a. The Tower was constructed on or before March 16, 2001; or
 - ☒ b. The Tower was constructed after March 16, 2001, and environmental review has been completed for this Tower, including both the Section 106 review process as provided under either the Section 106 regulations or the NPA, as applicable, and any associated environmental review required under the FCC's regulations (47 C.F.R. Part 1, Subpart I);
2. Based upon InSite's knowledge of its own plans and actions to be undertaken in connection with this Tower, if any, and relying on express representations relevant to each of the following assertions made to InSite by the Collocation Licensee, the collocation of new antennas and equipment will not result in a "substantial increase in the size of the tower" as defined in the Collocation NPA, and specifically:
 - a. The mounting of the proposed antennas on the Tower will not increase the existing height of the tower by either: (1) more than 10%; or (2) the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty feet, whichever is greater, unless the size limits set forth in this paragraph will be exceeded as necessary to avoid interference with existing antennas;
 - b. The mounting of the proposed antennas will not involve the installation of more than the standard number of new equipment cabinets for the technology involved, not to exceed four, or more than one new equipment shelter;
 - c. The mounting of the proposed antennas will not involve adding an appurtenance to the body of the tower that would protrude from the edge of the tower either: (1) more than twenty feet; or (2) more than the width of the tower structure at the level of the appurtenance, whichever is greater, except as necessary to shelter the antenna from inclement weather or to connect the antenna to the tower via cable; and
 - d. The mounting of the proposed antennas will not involve excavation outside the current tower site, defined as the current boundaries of the leased or owned property surrounding the tower and any access or utility easements currently related to the site.
3. The tower has not been determined by the FCC to have an effect on one or more historic properties, or if such has been determined, the effect has been found to be not adverse through a "no adverse effect" finding, or if found to be adverse or potentially adverse, has been resolved, such as through a "conditional no adverse effect" determination, a Memorandum of Agreement ("MOA"), a programmatic agreement, or otherwise in compliance with Section 106 and either the Section 106 rules, or the NPA;



4. Neither InSite, nor as far as InSite is aware, the Collocation Licensee, has received written or electronic notification that the FCC is in receipt of a written complaint from a member of the public, a SHPO or the Advisory Council n Historic Preservation, asserting that the proposed collocation has or will have an adverse effect on one or more historic properties; and
5. If the Tower was constructed on or before March 16, 2001, it is not the subject of a pending environmental review or related proceeding before the FCC involving compliance with Section 106.

Please feel free to contact me with any questions about the representations contained herein.

Very truly yours,
InSite Towers Development, LLC

A handwritten signature in blue ink that reads "Melissa Park". The signature is written in a cursive, flowing style.

By: Melissa Park
Tower Operations Coordinator, InSite Wireless
Group, LLC, Manager