STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:	:	
	:	
A PETITION OF CELLCO PARTNERSHIP	:	SUB-PETITION NO. 1133
D/B/A VERIZON WIRELESS FOR A	:	28 GREAT OAK LANE,
DECLARATORY RULING FOR	:	REDDING, CONNECTICUT
APPROVAL OF AN ELIGIBLE FACILITY	:	
REQUEST FOR MODIFICATIONS TO AN	:	
EXISTING TELECOMMUNICATIONS	:	
TOWER AT 28 GREAT OAK LANE,	:	
REDDING, CONNECTICUT	:	AUGUST 17, 2015

SUB-PETITION FOR DECLARATORY RULING:
ELIGIBLE FACILITIES REQUEST FOR MODIFICATIONS
THAT WILL NOT SUBSTANTIALLY CHANGE THE
PHYSICAL DIMENSIONS OF AN EXISTING TOWER

I. Introduction

Pursuant to Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012, codified at 47 U.S.C. § 1455(a) ("Section 6409(a)") and the October 21, 2014 Report and Order (FCC-14-533) issued by the Federal Communications Commission ("FCC") (the "FCC Order"), Cellco Partnership d/b/a Verizon Wireless ("Cellco") hereby petitions the Connecticut Siting Council (the "Council") for a declaratory ruling ("Sub-Petition") that the proposed modifications to an existing New Cingular Wireless PCS, LLC ("AT&T") tower located on property owned by the Town of Redding at 28 Great Oak Lane, Redding, Connecticut constitutes an Eligible Facilities Request ("EFR") under the FCC Order. Cellco has designated this site as its "Redding South Facility".

II. Factual Background

The Town of Redding (the "Town") owns a 6.5-acre parcel at 28 Great Oak Lane in Redding, Connecticut (the "Property"). The Property is currently the home of the Redding Town

Highway Department Garage. In the northerly portion of the Property, AT&T Wireless LLC ("AT&T") owns and operates a 180-foot self-supporting flagpole tower. (*See* Attachment 1 – Site Vicinity Map and Site Schematic (Aerial Photograph)). AT&T maintains antennas at the 174.5 and 165.5-foot levels and tower-mounted amplifiers (TMA) at the 156.5-foot level. Equipment associated with AT&T's antennas is located in a shelter near the base of the tower within a 33-foot by 73-foot fenced compound and leased area.

III. Proposed East Hampton 3 Facility

Cellco intends to install a total of three (3) (Model HTXCW631619) antennas at the 147.5-foot level inside the flagpole tower. Equipment associated with Cellco's antennas and a propane-fueled back-up generator will be located inside a 12' x 30' shelter located within the existing facility compound. A 1,000 gallon propane tank will be installed in the northeast corner of the compound. Power and telephone service to Cellco's shelter will extend from the existing utility backboard at the compound entrance. Project Plans for Cellco's Redding South Facility are included in Attachment 2. Specifications for Cellco's antennas are included in Attachment 3. A Structural Analysis confirming that the AT&T tower can support Cellco's shared use is included in Attachment 4.

IV. Discussion

A. The Proposed Modification Will Not Cause a Substantial Change to the Physical Dimensions of the Existing Tower or Base Station

Section 6409(a) provides, in relevant part, that "a State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station." Pursuant to the FCC Order, the proposed modification does not substantially change the physical dimensions of the tower or base station if the following criteria are satisfied.

1. *The proposed modified facility will not increase the height of the tower by more than ten (10) percent or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty (20) feet, whichever is greater.* Cellco proposes to install its antennas at the 147.5-foot level on the existing 180-foot tower.

2. *The proposed facility will not protrude from the edge of the structure more than six (6) feet.* The proposed antennas will be located within the concealed portion of the flagpole tower and will not protrude beyond the face of the tower.

3. *The proposed facility does not involve installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets.* Cellco intends to install a single equipment shelter to house its radio equipment and back-up generator.

4. *The proposed facility does not entail any excavation or deployment outside the current site of the base station.* All of Cellco's site improvements will occur within the limits of the existing fenced compound.

5. *The proposed facility does not defeat the existing concealment elements of the base station.* All existing antennas and equipment and Cellco's proposed antennas on the AT&T tower will be concealed inside the upper portion of the flagpole tower.

6. *The proposed facility complies with conditions associated with the prior approval of construction or modification of the base station.* The AT&T tower was approved by the Council in 2011 in Docket No. 404. Cellco's shared use of the AT&T tower is consistent with the Council's conditions of approval.

B. FCC Compliance

Operation of Cellco's facility will not increase the radio frequency ("RF") emissions at the AT&T tower site to a level at or above the FCC Safety standard. A cumulative General Power Density table, including Cellco's proposed antennas is included in Attachment 5.

C. Notice to the Town, Property Owner and Abutting Landowners

On August 17, 2015, a copy of this Sub-Petition was sent to the Redding's First Selectman, Julia Pemberton. The Town is the owner of the Property. A copy of the Sub-Petition has also been sent to AT&T Wireless, the owner of the tower. *See* Attachment 6.

A copy of this Sub-Petition was also sent to each owner of land that abuts the Property. A sample abutter's cover letter and the list of those abutting landowners who were sent notice and a copy of the Sub-Petition is included in Attachment 7.

V. Conclusion

Based on the information provided above, Cellco respectfully submits that the proposed modification of the existing base station at the Property constitutes an "eligible facilities request" under Section 6409(a) and the FCC Order.

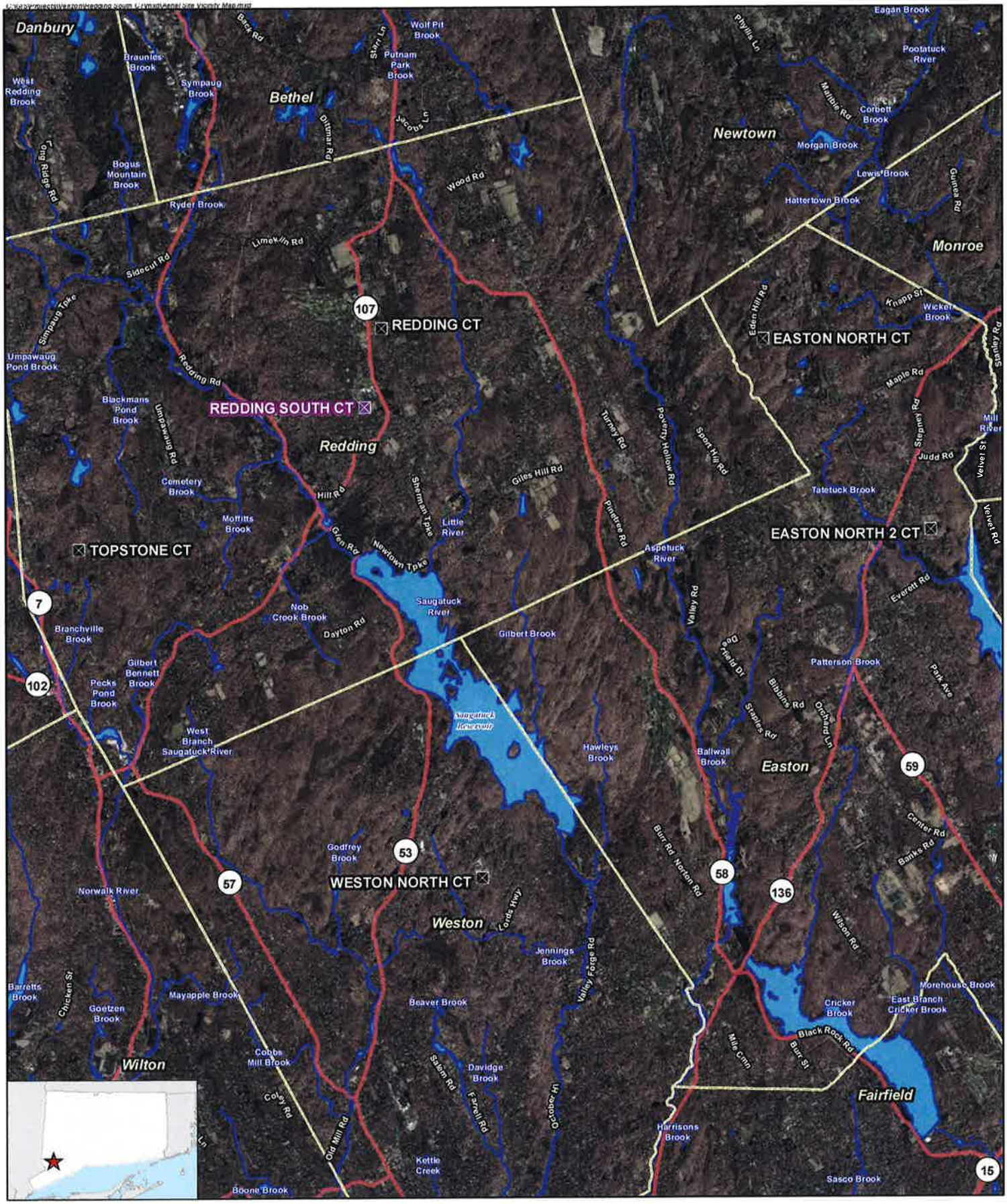
Respectfully submitted,

CELLCO PARTNERSHIP d/b/a VERIZON WIRELESS

By _____

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

ATTACHMENT 1



Legend

- Proposed Verizon Wireless Facility
- Surrounding Verizon Wireless Facilities
- Watercourse (CTDEEP)
- Waterbody (CTDEEP)
- Municipal Boundary

N
W E
S

6,500 3,250 0 6,500 Feet

Base Map Source: 2012 Aerial Photograph (CTECO)
Map Scale: 1 inch = 6,500 feet
Map Date: July 2015

Site Vicinity Map

Proposed Wireless
Telecommunications Facility
Redding South CT
28 Great Oak Lane
Redding, Connecticut

Legend

- Existing 180'-6" Concealment Tower (by others)
- Existing Fenced Compound (by others)
- Proposed Equipment
- Subject Property
- Approximate Parcel Boundary (CTDEEP GIS)

N
W E
S

200 100 0 200
Feet

Site Schematic

Proposed Wireless
Telecommunications Facility
Redding South CT
28 Great Oak Lane
Redding, Connecticut

verizon wireless

ALL-POINTS

Map Notes:
Base Map Source: ESRI Imagery (July 2014)
Map Scale: 1 inch = 200 feet
Map Date: July 2015

ATTACHMENT 2

Cellco Partnership

d.b.a. verizon wireless

WIRELESS COMMUNICATIONS FACILITY

REDDING SOUTH

28 GREAT OAK LANE

REDDING, CT 06896

SITE DIRECTIONS

FROM: 99 EAST RIVER DRIVE
EAST HARTFORD, CONNECTICUT

TO: 28 GREAT OAK LANE
REDDING, CT 06896

1. Head northeast on E River Dr toward Darlin St	0.3 mi
2. Turn left to stay on E River Dr	0.08 mi
3. Take the 1st left onto Connecticut Blvd/US-44 W	0.1 mi
4. Merge onto I-84 W via ramp on the left toward Hartford	51.2 mi
5. Take the CT-25 exit via exit 9, toward Brookfield	0.3 mi
6. Keep left to take the ramp toward Newtown	0.02 mi
7. Turn left onto CT-25/Hawleyville Rd	0.5 mi
8. Turn right onto Mount Pleasant Rd/US-6 W. Continue to follow US-6 W	1.4 mi
9. Turn left onto Old Hawleyville Rd	2.4 mi
10.Turn right onto CT-302/Dodgingtown Rd. Continue to follow CT-302	1.3 mi
11.Turn left onto Putnam Park Rd/CT-58	2.8 mi
12.Turn right onto Putnam Park Rd/CT-107	0.8 mi
13.Turn left onto CT-107/Lonetown Rd. Continue to follow CT-107	2.1 mi
14.Turn right onto Great Oak Lane	0.3 mi
15.208 Great Oak Lane is on the right.	

GENERAL NOTES

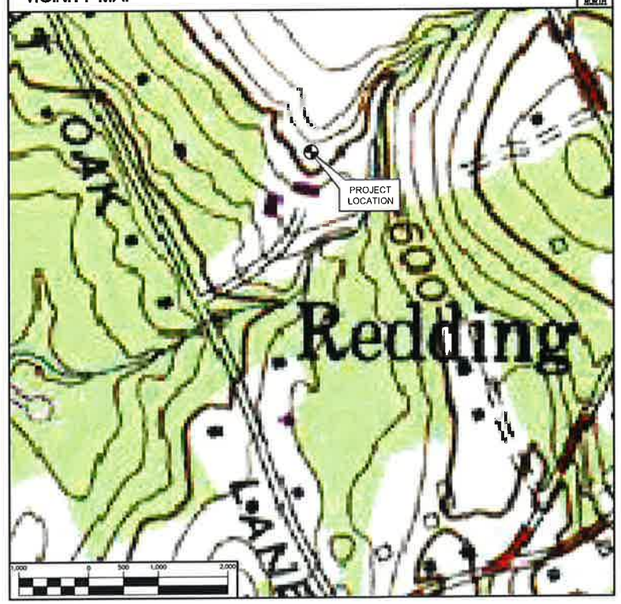
1. PROPOSED ANTENNA LOCATIONS AND HEIGHTS PROVIDED BY CELLCO PARTNERSHIP.

PROJECT SCOPE

1. THE PROPOSED SCOPE OF WORK GENERALLY INCLUDES THE INSTALLATION OF A ±12'x30' PREFABRICATED WIRELESS EQUIPMENT SHELTER ON A CONCRETE FOUNDATION, ALL OF WHICH ARE LOCATED WITHIN THE EXISTING WIRELESS COMMUNICATIONS LEASE AREA.
2. A TOTAL OF THREE (3) PANEL ANTENNAS ARE PROPOSED TO BE MOUNTED ON AN EXISTING 179' TALL CONCEALMENT TOWER AT A CENTERLINE ELEVATION OF 147.5' A.G.L.
3. ELECTRIC AND TELCO UTILITIES SHALL BE ROUTED UNDERGROUND TO THE PROPOSED EQUIPMENT SHELTER FROM AN EXISTING UTILITY BACKBOARD LOCATED ADJACENT TO FENCED COMPOUND.
4. FINAL DESIGN FOR TOWER AND ANTENNA MOUNTS SHALL BE INCLUDED IN THE D&M PLANS.
5. THE PROPOSED WIRELESS FACILITY INSTALLATION WILL BE DESIGNED IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2009 CONNECTICUT SUPPLEMENT.

VICINITY MAP

SCALE: 1" = 1000'



PROJECT SUMMARY

SITE NAME:	REDDING SOUTH
SITE ADDRESS:	28 GREAT OAK LANE REDDING, CT 06896
LESSEE/TENANT:	CELLCO PARTNERSHIP d.b.a. VERIZON WIRELESS 99 EAST RIVER DRIVE EAST HARTFORD, CT 06108
CONTACT PERSON:	ALEKSEY TYURIN CELLCO PARTNERSHIP (860) 803-8213
LEGAL/REGULATORY COUNSEL:	KENNETH C. BALDWIN, ESQ. ROBINSON & COLE (860) 275-8345
TOWER COORDINATES:	LATITUDE: 41°-18'-24.5"N LONGITUDE: 73°-23'-10.7"W GROUND ELEVATION: ±618'AMSL COORDINATES & GROUND ELEVATION ARE REFERENCED FROM CT SITING COUNCIL WEB LOG.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	2
C-1	ABUTTERS MAP	2
C-2	COMPOUND PLAN, ELEVATION AND ANTENNA CONFIGURATION	2

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	08/12/15	KAW	DMD	ISSUED FOR CSC
1	07/31/15	KNL	HMR	ISSUED FOR CSC - CLIENT REVIEW
0	07/01/15	KAW	HMR	ISSUED FOR CSC - CLIENT REVIEW

PROFESSIONAL ENGINEER SEAL

Pittsfield Cellular Telephone Company
d.b.a Verizon wireless

CENTEK engineering
Centered on Solutions
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

PITTSFIELD CELLULAR TELEPHONE COMPANY

WIRELESS COMMUNICATIONS FACILITY

REDDING SOUTH

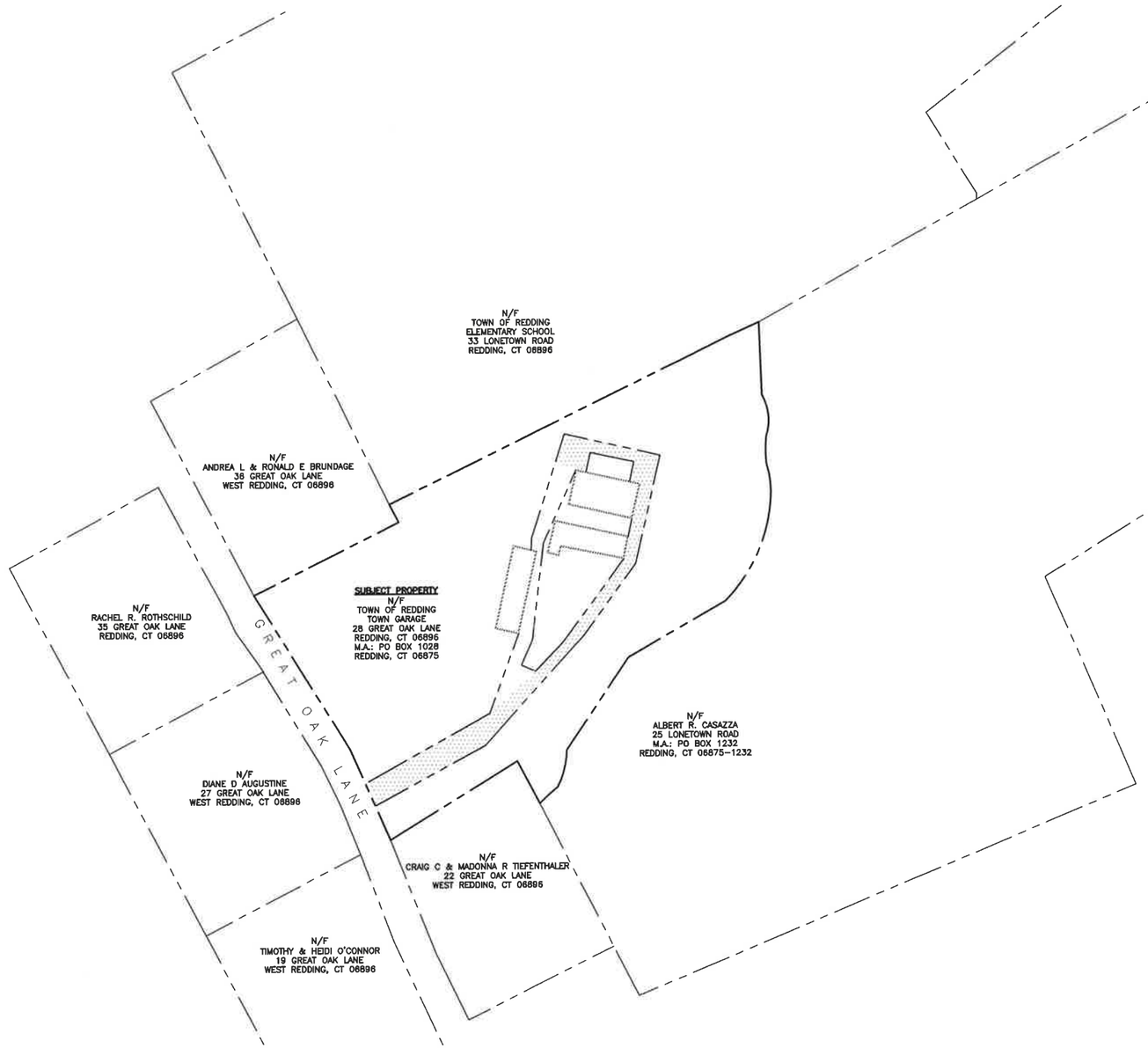
28 GREAT OAK LANE
REDDING, CT 06896

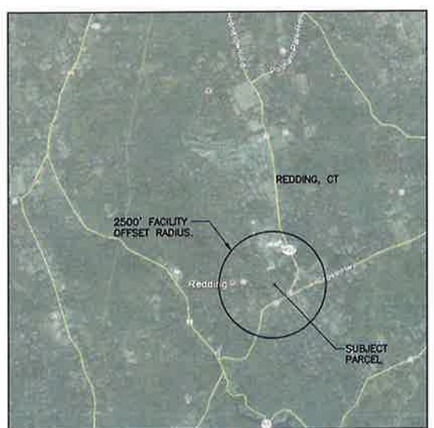
DATE: 06/30/15
SCALE: AS NOTED
JOB NO. 15105.000

TITLE SHEET

T-1

Sheet No. 1 of 3





MUNICIPALITY NOTIFICATION LIMIT MAP

1 / C-1 **ABUTTERS MAP**
SCALE: 1" = 100'

APPROXIMATE NORTH

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 100 ft.

MAP REFERENCE NOTE:

PROPERTY LINES SHOWN HEREIN ARE REFERENCED FROM GOOGLE EARTH. PARCEL OWNERSHIP INFORMATION CONTAINED HEREIN REFERENCED FROM THE VISION GOVERNMENT SOLUTIONS ON-LINE DATABASE.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	08/12/15	KAW	DMD	ISSUED FOR CSC
1	07/31/15	KNL	HMR	ISSUED FOR CSC - CLIENT REVIEW
0	07/01/15	KAW	HMR	ISSUED FOR CSC - CLIENT REVIEW

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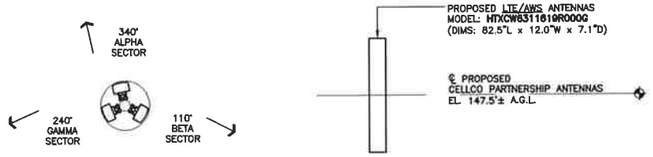
WIRELESS COMMUNICATIONS FACILITY
REDDING SOUTH
28 GREAT OAK LANE
REDDING, CT 06896

DATE: 06/30/15
SCALE: AS NOTED
JOB NO. 15105.000

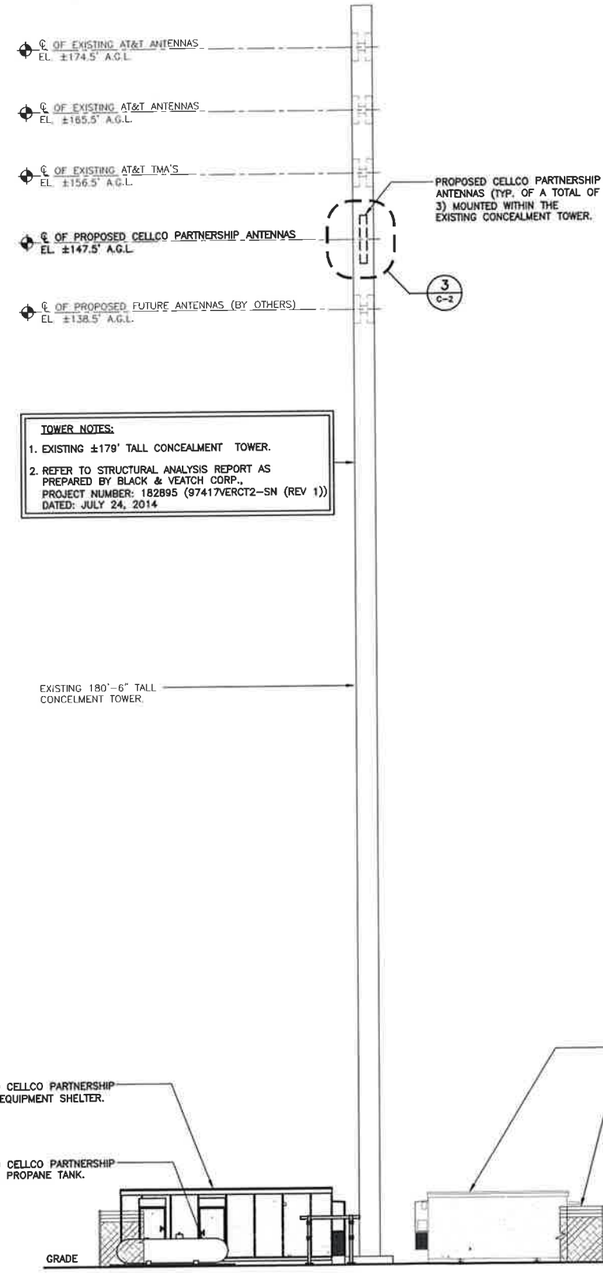
ABUTTERS MAP

C-1

Sheet No. 2 of 3

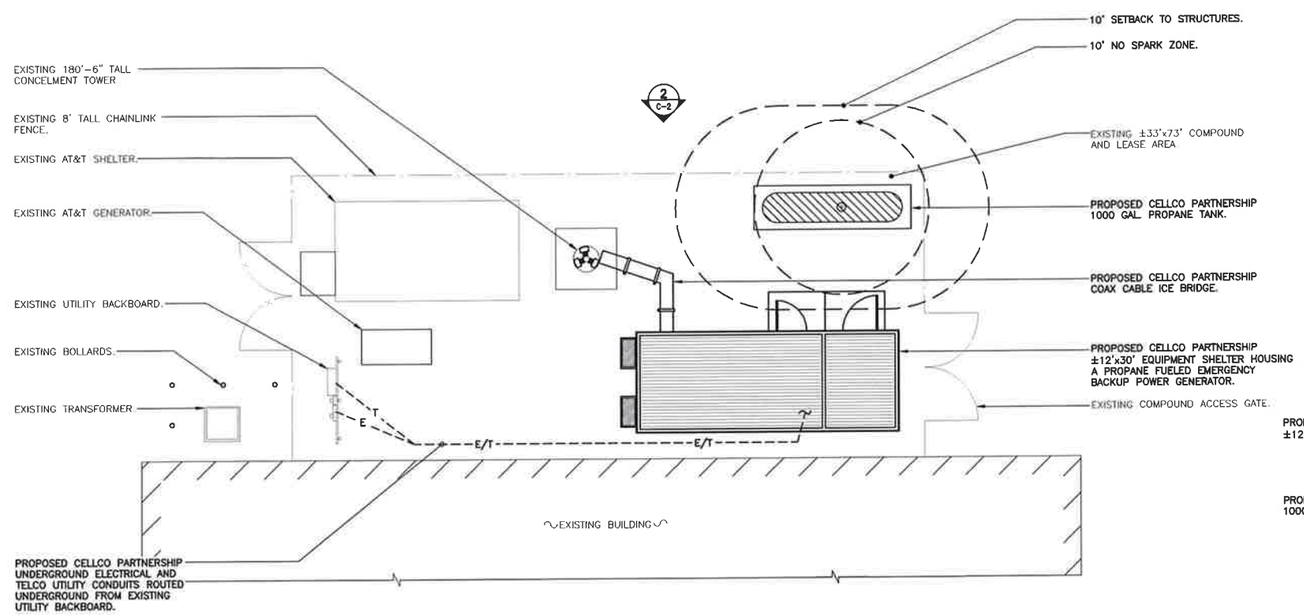


3 / C-2 **ANTENNA MOUNTING CONFIGURATION**
NOT TO SCALE



TOWER NOTES:

1. EXISTING ±179' TALL CONCEALMENT TOWER.
2. REFER TO STRUCTURAL ANALYSIS REPORT AS PREPARED BY BLACK & VEATCH CORP., PROJECT NUMBER: 182895 (97417VERCT2-SN (REV 1)) DATED: JULY 24, 2014



1 / C-2 **COMPOUND PLAN**
SCALE: 1" = 8'

APPROXIMATE NORTH

GRAPHIC SCALE
(IN FEET)
1 inch = 8 ft.

2 / C-2 **TOWER ELEVATION**
SCALE: 1" = 10'

GRAPHIC SCALE
1 inch = 10 ft. (IN FEET)

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
2	08/12/15	KAW	DMD	ISSUED FOR CSC - CLIENT REVIEW
1	07/31/15	NNL	HMR	ISSUED FOR CSC - CLIENT REVIEW
0	07/01/15	KAW	HMR	ISSUED FOR CSC - CLIENT REVIEW

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REDDING SOUTH
28 GREAT OAK LANE
REDDING, CT 06896

DATE: 06/30/15
SCALE: AS NOTED
JOB NO. 15105.000

COMPOUND PLAN, ELEVATION AND ANTENNA CONFIGURATION

C-2

Sheet No. 3 of 3

ATTACHMENT 3

HTXCW631619x000

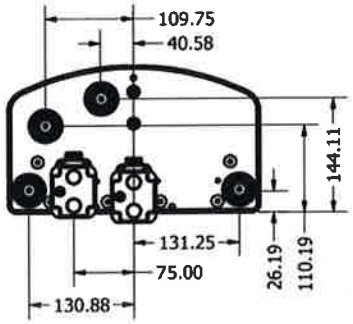
XX-Pol | Dual Band VET Panel | 63° / 63° | 15.9 / 18.0 dBi

Ordering Options					
When ordering...	Replace "x" with "M" for Manual Electrical Tilt or "R" for Remote Electrical Tilt				
Manual Electrical Tilt	HTXCW631619M000				
Remote Electrical Tilt AISG v1.1	HTXCW631619R000				
Remote Electrical Tilt AISG v2.0 / 3GPP	HTXCW631619R000G				
Remote Electrical Tilt Ericsson Proprietary	HTXCW631619R000E				
Electrical Characteristics	696-960 MHz		1710-2170 MHz		
Frequency bands	696-806	806-960	1710-1880	1850-1990	1920-2170
Polarization	±45°		±45°		
Horizontal beamwidth	65°	63°	65°	63°	61°
Vertical beamwidth	9°	8.5°	6°	5.5°	5°
Gain	15.4 dBi	15.9 dBi	17.0 dBi	17.5 dBi	18.0 dBi
Electrical downtilt	2-10°		2-10°		
Impedance	50Ω				
VSWR	≤1.5:1		≤1.5:1		
Upper sidelobe suppression (0°)	> 16 dB		> 16 dB		
Front-to-back ratio (+/-30°)	> 30 dB		> 30 dB		
Isolation between ports	< -25 dB				
IM3 (2x20W carrier)	< -153 dBc				
Input power	500 W		250 W		
Lightning protection	Direct Ground				
Connector(s)	4 Ports / EDIN / Female / Bottom				
Mechanical Characteristics					
Dimensions HTXCW631619M000 (LxWxH)	2095 x 304 x 180 mm		82.5 x 12.0 x 7.1 in		
Dimensions HTXCW631619R000 (LxWxH)	2274 x 304 x 194 mm		89.5 x 12.0 x 7.6 in		
Weight without mounting brackets	19.0 kg		41.9 lbs		
Survival wind speed	> 200 km/hr		> 125 mph		
Wind loads (160 km/hr or 100 mph)	Front: 780 N; Side: 462 N		Front: 175 lbf, Side: 104 lbf		
Remote Electrical Downtilt Control					
Remote Electrical Tilt (RET) Control	The remote control of the electrical tilt is managed by an external unit.				
RET Module Part Number (two per antenna)	RETU-EB01 for AISG v1.1 protocol (two units included with HTXCW631619R000)				
	RETU-EG01 for AISG v2.0 / 3GPP protocol (two units included with HTXCW631619R000G)				
	RETU-EE01 for Ericsson Proprietary protocol (two units included with HTXCW631619R000E)				

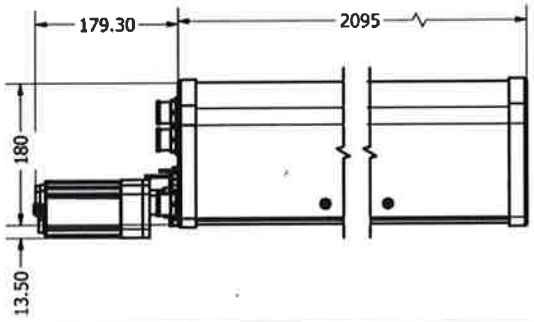
Mounting Options	Part Number	Fits Pipe Diameter		Weight
Pole Mounting Bracket Kit	MKS04P01	40-115 mm	2.0-4.5 in	2.9 kg 6.4 lbs
Scissor Tilt Bracket Kit	MKS04T03	40-115 mm	2.0-4.5 in	4.1 kg 9.0 lbs

HTXCW631619R000

Bottom View/Dimensions



Side View/Dimensions

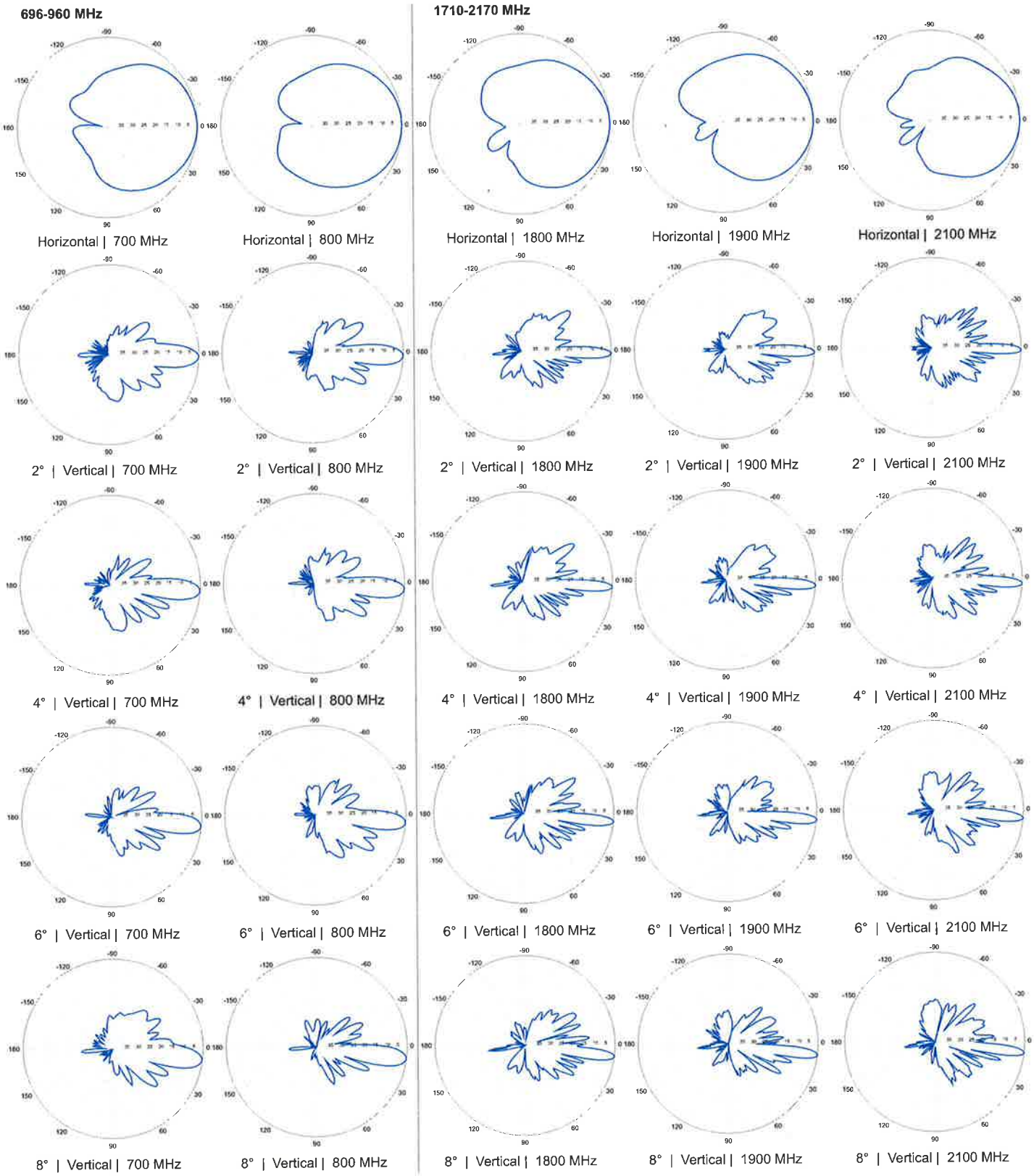


Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

HTXCW631619x000

XX-Pol | Dual Band VET Panel | 63° / 63° | 15.9 / 18.0 dBi

696-960 MHz | **1710-2170 MHz**



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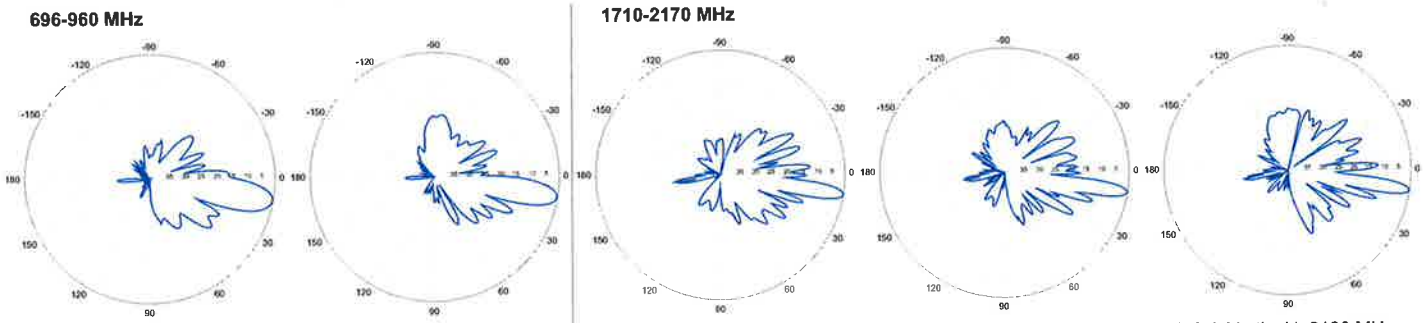
HTXCW631619x000

XX-Pol | Dual Band VET Panel | 63° / 63° | 15.9 / 18.0 dBi

696-960 MHz **1710-2170 MHz**



10° | Vertical | 700 MHz | 10° | Vertical | 800 MHz | 10° | Vertical | 1800 MHz | 10° | Vertical | 1900 MHz | 10° | Vertical | 2100 MHz

ATTACHMENT 4

AT&T Towers
2300 Northlake Center Drive Suite 405
Tucker, GA 30084
770-708-6100

Ping Jiang
Black & Veatch Corp.
10950 Grandview Drive
Overland Park, KS 66210
(913) 458-7245
JiangP@bv.com

Wednesday, May 13, 2015

STRUCTURAL ANALYSIS
179' Stealth

AT&T DESIGNATION:	Site ID:	97417
	Site FA:	10050764
	Site Name:	REDDING GREAT OAK LANE
	AT&T Project:	Verizon Colocation 12/30/2014
	BV Project:	182895 (97417VERCT2-SN (Rev 1))
ANALYSIS CRITERIA:	Codes:	TIA/EIA-222-F 80 mph Fastest-Mile 2005 CT Building Code

SITE DATA: 28 Great Oak Lane, Redding, CT 06896, Fairfield County
Latitude 41.306833, Longitude -73.386306
Market: MA/RI/VT/NH/ME/CT
179' Stealth

Black & Veatch Corp. is pleased to submit this 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 existing and proposed loading configuration detailed in the analysis report.

Analysis Results

Tower Stress Level with Proposed Equipment:	51.20%	Pass
Connection Stress Level with Proposed Equipment:	91.60%	Pass
Foundation Ratio with Proposed Equipment:	96.47%	Pass

We at Black & Veatch Corp. appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully Submitted by: Black & Veatch Corp.

Analysis Prepared by: Amitkumar Kolhar

Analysis Reviewed by: Ping Jiang, P.E.

This analysis was prepared by me or under my direct supervision and to the best of my knowledge and ability complies with the applicable provisions of the governing codes and ordinances.

05/13/2015

Black & Veatch Corp.
10950 Grandview Drive
Overland Park, KS 66210
B&V: 182895 (97417VERCT2-SN (Rev 1))

Documents

Document	Description	Source
Site Photos from 2013	Site Condition Data	AT&T Siterra
Carrier Co-Location Documents (Applications, Leases, Initial Co-Location Analyses, Modification Request for Information Form, etc.)	Tower Loading Data	AT&T Siterra
Structural Analysis completed by Black & Veatch, Corp., dated 01/26/2015	Previous Structural Analysis w/Tower Geometry & Loading Data	AT&T Siterra
Design Structural completed by Sabre Communications Crop., dated 02/11/2013	Tower Geometry Data	AT&T Siterra
Foundation Design completed by Sabre Communications Crop., dated 02/11/2013	Foundation Data	AT&T Siterra
Geotechnical Report completed by Dr. Clarence Welti, P.E., P.C, dated 07/07/2008	Geotechnical Data	AT&T Siterra

Black & Veatch Corp.
10950 Grandview Drive
Overland Park, KS 66210
B&V: 182895 (97417VERCT2-SN (Rev 1))

Assumptions, Disclaimers, and Notes

1. This analysis was performed under the assumption that all information provided to Black & Veatch is current and correct. This is to include site data, existing/proposed appurtenance loading, tower/foundation details, and geotechnical data. If this information is not current and correct, this report should be considered obsolete and further analysis will be required.
2. This analysis assumes that the tower structural components and mounts, including all steel sections and attachment hardware, are in good working order and in their original state, free of rust or other forms of corrosion. Furthermore, it is assumed that the tower and the tower foundation have been properly maintained and monitored since the time of construction. This report should be considered obsolete and further analysis will be required if the tower and/or foundation does not meet all of the above specifications.
3. This analysis assumes that all existing and/or proposed equipment mounts on the tower will have adequate capacity to support the existing and proposed equipment loading.
4. Capacity of the structural members is based on theoretical values as shown in the attached TAS form.
5. When applicable, this structural analysis is only valid if the proposed coax cables are stacked as shown in the attached feedline sketch.
6. This analysis assumes that all existing and proposed port cuts are properly installed such that the overall structural capacity of the monopole is not reduced.
7. This analysis was revised due to changes in the proposed loading outlined in the attached TAS form as requested by the client.

Tower Analysis Summary Form

General Info

Site Name	REDDING GREAT OAK LANE
Site Number	97417VERCT2-SN (Rev 1)
FA Number	10050764
Date of Analysis	5/13/2015
Company Performing Analysis	Black & Veatch Corp.

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	N/A
Tower Height (Top of Steel)	179 ft	N/A
Tower Manufacturer	Sabre Communications Crop.	N/A
Tower Model	N/A	N/A
Tower Design	Sabre Communications Crop.	2/11/2013
Foundation Design	Sabre Communications Crop.	2/11/2013
Geotech Report	Dr. Clarence Welti, P.E., P.C	7/7/2008
Tower Mapping	N/A	N/A
Previous Structural Analysis	Black & Veatch, Corp.	1/26/2015
Foundation Mapping	N/A	N/A

Design Parameters

Design Code Used	TIA/EIA-222-F 2005 CT Building Code
Location of Tower (County, State)	Fairfield County, CT
Wind Speed (mph)	80
Ice Thickness (in)	0.75
Structure Classification (I, II, III)	
Exposure Category (B, C, D)	
Topographic Category (1 to 5)	

Analysis Results (% Maximum Usage)

Existing/Reserved + Future + Proposed Condition	
Tower (%)	51.20%
Connection (%)	91.60%
Foundation (%)	96.47%
Foundation Adequate?	Yes

Analysis Results (% Maximum Usage)

Existing/Reserved	REV G	REV F
Tower (%)		
Connection (%)		
Foundation (%)		
Foundation Adequate?	N/A	N/A

Analysis Results (% Maximum Usage)

Existing/Reserved + Proposed Condition	
Tower (%)	
Connection (%)	
Foundation (%)	
Foundation Adequate?	N/A

Steel Yield Strength (ksi)

Pole	A572-65
Base Plate	A572-50
Anchor Bolts	A615-75

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 Inside/Outside
AT&T	174.5	174.5	3	Panel	Andrew	SBNH-1D6565C	30, 150, 270	1	Unknown	36" x 9' Canister	6	Unknown	1 5/8"	Inside
AT&T	174.5	174.5						1	Unknown	18" x 9' Mast Pipe				
AT&T	165.5	166	3	Panel	Andrew	SBNH-1D6565C	30, 150, 270	1	Unknown	36" x 9' Canister	6	Unknown	1 5/8"	Inside
AT&T	165.5	165.5						1	Unknown	18" x 9' Mast Pipe				
AT&T	156.5	157.5	3	TMA	CCI	DTMABP7819VG12A		1	Unknown	36" x 9' Canister				
AT&T	156.5	155.5	3	TMA	CCI	DTMABP7819VG12A		1	Unknown	18" x 9' Mast Pipe				
AT&T	147.5	147.5						1	Unknown	36" x 9' Canister				
AT&T	147.5	147.5						1	Unknown	18" x 9' Mast Pipe				
AT&T	138.5	138.5						1	Unknown	36" x 9' Canister				
AT&T	138.5	138.5						1	Unknown	18" x 9' Mast Pipe				
AT&T	129.5	129.5						1	Unknown	36" x 9' Canister				
AT&T	129.5	129.5						1	Unknown	18" x 9' Mast Pipe				

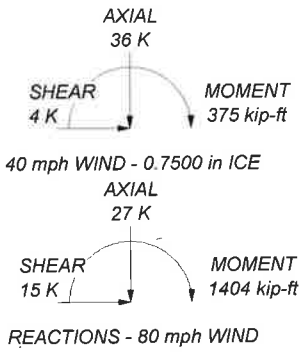
Proposed Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face
Verizon	147.5	147	3	Panel	Amphenol	HTXCW631619	110, 240, 340				6	Unknown	1 5/8"	Inside
Verizon	147.5	147	6	Diplexer	RFS	FD9R								

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 Leg/Face
AT&T	138.5	139	3	Panel	Andrew	SBNH-1D6565C	30, 150, 270				6	Unknown	1 5/8"	Inside

Section	1	2	3
Length (ft)	30.50	53.50	53.25
Number of Sides	18	18	18
Thickness (in)	0.2500	0.3125	0.3125
Socket Length (ft)	5.75	6.50	
Top Dia (in)	36.0000	39.2166	45.6402
Bot Dia (in)	40.5800	47.2400	53.6300
Grade	A572-65		
Weight (K)	3.1	7.7	8.9



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
SBNH-1D6565C (ATT-Existing)	174.5	DTMABPO721VG12A: TMA (ATT-Existing)	156.5
SBNH-1D6565C (ATT-Existing)	174.5	36" x 9' Canister (Existing)	156.5
SBNH-1D6565C (ATT-Existing)	174.5	18" x 9' Mast Pipe (Existing)	156.5
36" x 9' Canister (Existing)	174.5	HTXCW631619 (Verizon-Proposed)	147.5
18" x 9' Mast Pipe (Existing)	174.5	HTXCW631619 (Verizon-Proposed)	147.5
SBNH-1D6565C (ATT-Existing)	165.5	HTXCW631619 (Verizon-Proposed)	147.5
SBNH-1D6565C (ATT-Existing)	165.5	(2) FD9R (Verizon-Proposed)	147.5
SBNH-1D6565C (ATT-Existing)	165.5	(2) FD9R (Verizon-Proposed)	147.5
36" x 9' Canister (Existing)	165.5	(2) FD9R (Verizon-Proposed)	147.5
18" x 9' Mast Pipe (Existing)	165.5	36" x 9' Canister (Existing)	147.5
DTMABPO721VG12A: TMA (ATT-Existing)	156.5	18" x 9' Mast Pipe (Existing)	147.5
DTMABPO721VG12A: TMA (ATT-Existing)	156.5	SBNH-1D6565C (ATT-Future)	138.5
DTMABPO721VG12A: TMA (ATT-Existing)	156.5	SBNH-1D6565C (ATT-Future)	138.5
DTMABPO721VG12A: TMA (ATT-Existing)	156.5	SBNH-1D6565C (ATT-Future)	138.5
DTMABPO721VG12A: TMA (ATT-Existing)	156.5	36" x 9' Canister (Existing)	138.5
		18" x 9' Mast Pipe (Existing)	138.5
		36" x 9' Canister (Existing)	129.5
		18" x 9' Mast Pipe (Existing)	129.5

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 a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 40 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 51.2%

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Black & Veatch, Corp.
10950 Grandview Drive
Overland Park, KS 66210
Phone: (913) 458-7245
FAX: (913) 458-8136

Job: 97417 REDDING GREAT OAK LANE			
Project: 182895 (97417VERCT2-SN (Rev 1))			
Client: AT&T	Drawn by: Gunjan Shetye	App'd:	
Code: TIA/EIA-222-F	Date: 05/13/15	Scale: N	
Path:		Dwg No.	

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 Fairfield County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 0.7500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 40 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, feed line 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
LDF7-50A (1-5/8 FOAM) (AT&T Existing/Future)	C	No	Inside Pole	125.00 - 8.00	18	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM) (Verizon Proposed)	C	No	Inside Pole	125.00 - 8.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82

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
SBNH-1D6565C (AT&T-Existing)	A	From Face	0.50 0.00 0.00	30.0000	174.50	No Ice	0.00	0.00	0.06
						1/2" Ice	0.00	0.00	0.06
						1" Ice	0.00	0.00	0.06
						2" Ice	0.00	0.00	0.06
						4" Ice	0.00	0.00	0.06
SBNH-1D6565C (AT&T-Existing)	B	From Face	0.50 0.00 0.00	30.0000	174.50	No Ice	0.00	0.00	0.06
						1/2" Ice	0.00	0.00	0.06
						1" Ice	0.00	0.00	0.06
						2" Ice	0.00	0.00	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice	0.00	0.00	0.06
SBNH-1D6565C (AT&T-Existing)	C	From Face	0.50 0.00 0.00	30.0000	174.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.06 0.06 0.06 0.06 0.06
SBNH-1D6565C (AT&T-Existing)	A	From Face	0.50 0.00 0.50	30.0000	165.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.06 0.06 0.06 0.06 0.06
SBNH-1D6565C (AT&T-Existing)	B	From Face	0.50 0.00 0.50	30.0000	165.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.06 0.06 0.06 0.06 0.06
SBNH-1D6565C (AT&T-Existing)	C	From Face	0.50 0.00 0.50	30.0000	165.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.06 0.06 0.06 0.06 0.06
DTMABPO721VG12A: TMA (AT&T-Existing)	C	From Face	0.50 0.00 1.00	30.0000	156.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.02 0.02 0.02 0.02 0.02
DTMABPO721VG12A: TMA (AT&T-Existing)	A	From Face	0.50 0.00 1.00	30.0000	156.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.02 0.02 0.02 0.02 0.02
DTMABPO721VG12A: TMA (AT&T-Existing)	B	From Face	0.50 0.00 1.00	30.0000	156.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.02 0.02 0.02 0.02 0.02
DTMABPO721VG12A: TMA (AT&T-Existing)	C	From Face	0.50 0.00 -1.00	30.0000	156.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.02 0.02 0.02 0.02 0.02
DTMABPO721VG12A: TMA (AT&T-Existing)	A	From Face	0.50 0.00 -1.00	30.0000	156.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.02 0.02 0.02 0.02 0.02
DTMABPO721VG12A: TMA (AT&T-Existing)	B	From Face	0.50 0.00 -1.00	30.0000	156.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.02 0.02 0.02 0.02 0.02
HTXCW631619 (Verizon-Proposed)	A	From Face	0.50 0.00 -0.50	-20.0000	147.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.00 0.00 0.00 0.00 0.00	0.00 0.00 0.00 0.00 0.00	0.06 0.06 0.06 0.06 0.06
HTXCW631619	B	From Face	0.50	-10.0000	147.50	No Ice	0.00	0.00	0.06

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(Verizon-Proposed)			0.00 -0.50			1/2" Ice	0.00	0.00	0.06
						1" Ice	0.00	0.00	0.06
						2" Ice	0.00	0.00	0.06
						4" Ice	0.00	0.00	0.06
HTXCW631619 (Verizon-Proposed)	C	From Face	0.50 0.00 -0.50	0.0000	147.50	No Ice	0.00	0.00	0.06
						1/2" Ice	0.00	0.00	0.06
						1" Ice	0.00	0.00	0.06
						2" Ice	0.00	0.00	0.06
						4" Ice	0.00	0.00	0.06
(2) FD9R (Verizon-Proposed)	A	From Face	0.50 0.00 -0.50	-20.0000	147.50	No Ice	0.00	0.00	0.00
						1/2" Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.01
						2" Ice	0.00	0.00	0.02
						4" Ice	0.00	0.00	0.06
(2) FD9R (Verizon-Proposed)	B	From Face	0.50 0.00 -0.50	-10.0000	147.50	No Ice	0.00	0.00	0.00
						1/2" Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.01
						2" Ice	0.00	0.00	0.02
						4" Ice	0.00	0.00	0.06
(2) FD9R (Verizon-Proposed)	C	From Face	0.50 0.00 -0.50	0.0000	147.50	No Ice	0.00	0.00	0.00
						1/2" Ice	0.00	0.00	0.00
						1" Ice	0.00	0.00	0.01
						2" Ice	0.00	0.00	0.02
						4" Ice	0.00	0.00	0.06
SBNH-1D6565C (AT&T-Future)	A	From Face	0.50 0.00 0.50	30.0000	138.50	No Ice	0.00	0.00	0.06
						1/2" Ice	0.00	0.00	0.06
						1" Ice	0.00	0.00	0.06
						2" Ice	0.00	0.00	0.06
						4" Ice	0.00	0.00	0.06
SBNH-1D6565C (AT&T-Future)	B	From Face	0.50 0.00 0.50	30.0000	138.50	No Ice	0.00	0.00	0.06
						1/2" Ice	0.00	0.00	0.06
						1" Ice	0.00	0.00	0.06
						2" Ice	0.00	0.00	0.06
						4" Ice	0.00	0.00	0.06
SBNH-1D6565C (AT&T-Future)	C	From Face	0.50 0.00 0.50	30.0000	138.50	No Ice	0.00	0.00	0.06
						1/2" Ice	0.00	0.00	0.06
						1" Ice	0.00	0.00	0.06
						2" Ice	0.00	0.00	0.06
						4" Ice	0.00	0.00	0.06
36" x 9' Canister (Existing)	C	None		0.0000	174.50	No Ice	19.20	19.20	0.12
						1/2" Ice	19.98	19.98	0.33
						1" Ice	20.77	20.77	0.55
						2" Ice	22.40	22.40	1.00
						4" Ice	25.77	25.77	2.03
18" x 9' Mast Pipe (Existing)	C	None		0.0000	174.50	No Ice	0.00	0.00	0.64
						1/2" Ice	0.00	0.00	0.64
						1" Ice	0.00	0.00	0.64
						2" Ice	0.00	0.00	0.64
						4" Ice	0.00	0.00	0.64
36" x 9' Canister (Existing)	C	None		0.0000	165.50	No Ice	19.20	19.20	0.12
						1/2" Ice	19.98	19.98	0.33
						1" Ice	20.77	20.77	0.55
						2" Ice	22.40	22.40	1.00
						4" Ice	25.77	25.77	2.03
18" x 9' Mast Pipe (Existing)	C	None		0.0000	165.50	No Ice	0.00	0.00	0.64
						1/2" Ice	0.00	0.00	0.64
						1" Ice	0.00	0.00	0.64

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	0.00	0.00	0.64
						4" Ice	0.00	0.00	0.64
36" x 9' Canister (Existing)	C	None		0.0000	156.50	No Ice	19.20	19.20	0.12
						1/2" Ice	19.98	19.98	0.33
						1" Ice	20.77	20.77	0.55
						2" Ice	22.40	22.40	1.00
						4" Ice	25.77	25.77	2.03
18" x 9' Mast Pipe (Existing)	C	None		0.0000	156.50	No Ice	0.00	0.00	0.64
						1/2" Ice	0.00	0.00	0.64
						1" Ice	0.00	0.00	0.64
						2" Ice	0.00	0.00	0.64
						4" Ice	0.00	0.00	0.64
36" x 9' Canister (Existing)	C	None		0.0000	147.50	No Ice	19.20	19.20	0.12
						1/2" Ice	19.98	19.98	0.33
						1" Ice	20.77	20.77	0.55
						2" Ice	22.40	22.40	1.00
						4" Ice	25.77	25.77	2.03
18" x 9' Mast Pipe (Existing)	C	None		0.0000	147.50	No Ice	0.00	0.00	0.64
						1/2" Ice	0.00	0.00	0.64
						1" Ice	0.00	0.00	0.64
						2" Ice	0.00	0.00	0.64
						4" Ice	0.00	0.00	0.64
36" x 9' Canister (Existing)	C	None		0.0000	138.50	No Ice	19.20	19.20	0.12
						1/2" Ice	19.98	19.98	0.33
						1" Ice	20.77	20.77	0.55
						2" Ice	22.40	22.40	1.00
						4" Ice	25.77	25.77	2.03
18" x 9' Mast Pipe (Existing)	C	None		0.0000	138.50	No Ice	0.00	0.00	0.64
						1/2" Ice	0.00	0.00	0.64
						1" Ice	0.00	0.00	0.64
						2" Ice	0.00	0.00	0.64
						4" Ice	0.00	0.00	0.64
36" x 9' Canister (Existing)	C	None		0.0000	129.50	No Ice	19.20	19.20	0.12
						1/2" Ice	19.98	19.98	0.33
						1" Ice	20.77	20.77	0.55
						2" Ice	22.40	22.40	1.00
						4" Ice	25.77	25.77	2.03
18" x 9' Mast Pipe (Existing)	C	None		0.0000	129.50	No Ice	0.00	0.00	0.64
						1/2" Ice	0.00	0.00	0.64
						1" Ice	0.00	0.00	0.64
						2" Ice	0.00	0.00	0.64
						4" Ice	0.00	0.00	0.64

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	125 - 94.5	10.981	30	0.7346	0.0000
L2	100.25 - 46.75	7.426	30	0.6294	0.0000
L3	53.25 - 0	2.312	30	0.3820	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
174.50	SBNH-1D6565C	30	10.981	0.7346	0.0000	67200
165.50	SBNH-1D6565C	30	10.981	0.7346	0.0000	67200
156.50	DTMABPO721VG12A: TMA	30	10.981	0.7346	0.0000	67200
147.50	HTXCW631619	30	10.981	0.7346	0.0000	67200
138.50	SBNH-1D6565C	30	10.981	0.7346	0.0000	67200
129.50	36" x 9' Canister	30	10.981	0.7346	0.0000	67200

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	125 - 94.5	28.104	2	1.8803	0.0000
L2	100.25 - 46.75	19.005	2	1.6108	0.0000
L3	53.25 - 0	5.917	2	0.9777	0.0000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
174.50	SBNH-1D6565C	2	28.104	1.8803	0.0000	26300
165.50	SBNH-1D6565C	2	28.104	1.8803	0.0000	26300
156.50	DTMABPO721VG12A: TMA	2	28.104	1.8803	0.0000	26300
147.50	HTXCW631619	2	28.104	1.8803	0.0000	26300
138.50	SBNH-1D6565C	2	28.104	1.8803	0.0000	26300
129.50	36" x 9' Canister	2	28.104	1.8803	0.0000	26300

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	125 - 94.5	Pole	TP40.58x36x0.25	1	-8.19	543.86	23.7	Pass
L2	94.5 - 46.75	Pole	TP47.24x39.2166x0.3125	2	-16.47	1071.48	33.4	Pass
L3	46.75 - 0	Pole	TP53.63x45.6402x0.3125	3	-27.43	1545.19	51.2	Pass
							Summary	
						Pole (L3)	51.2	Pass
						RATING =	**51.2**	**Pass**

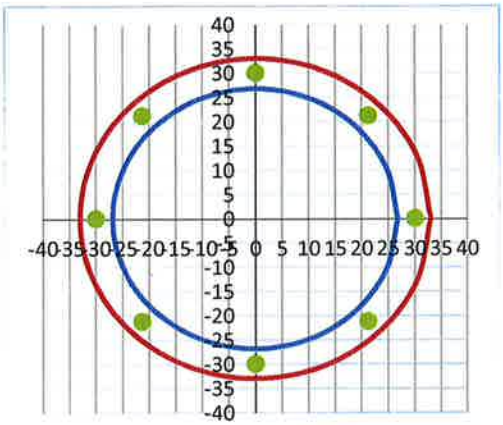
BLACK & VEATCH Building a world of difference.	Client:	AT&T	Design:	Amitkumar
10950 Grandview Drive Overland Park, KS 66210 Phone: (913) 458-2000	Project:	182895	Date:	5/13/2015
	Site:	97417VERCT2-SN (Rev 1)	Verify:	Gunjan S.
	Title:	Base Plate Capacity Calculation	Date:	5/13/2015
			Code:	TIA/EIA-222-F

Template Version 1.3

3.0 ANALYSIS:

Base Plate Information:

Bolt Grade:	A615-75	
Bolt Diameter:	2 1/4	in
Number of Bolts, n:	8	
Base Plate Grade:	A572-50	
Base Plate Thickness, tp:	1.50	in
Bolt Circle Diameter, DBC:	60.0	in
Plate Outside Diameter, Do:	66.0	in
Pole Diameter, Dp:	53.630	in
Pole to Base Plate Weld Size:	5/16	in
Base Plate Type:	Plain Plate	
Grout Spacing:	3.0	in
Number of Leveling Nuts per bolt:	1.0	
Number of Stiffeners, ns:		
Stiffener Thickness, ts:		in
Stiffener Height, hs:		in



Tower Reactions (Per tnxTower):

Axial, Pu:	27	kip
Shear, Vu:	15	kip
Overturning Moment, Mu:	1404	kip-ft

Design Resistance Factor:

ASD Overstress Factor:	1.333
Bolts Tension Reduction Factor:	0.33
Bolts Shear Reduction Factor:	0.17
Bolts Flexure Reduction Factor:	0.75
Plate Flexure Reduction Factor:	0.75

Calculation:

Anchor Bolt Capacity Check:

Max Axial Force:	143.78	kip
Max Shear Force:	1.88	kip
Max Bending Moment due to Shear:	0.99	kip-in
Allowable Bolt Design Tensile Capacity:	194.81	kip
Allowable Bolt Design Shear Capacity:	90.10	kip
Allowable Bolt Design Flexural Capacity:	83.85	kip-in

Controlling Anchor Bolt Capacity: **73.8%**

Conclusion:

Existing anchor bolt has adequate capacity to support the existing and proposed loads.

BLACK & VEATCH Building a world of difference.	Client:	AT&T	Design:	Amitkumar
	Project:	182895	Date:	5/13/2015
10950 Grandview Drive Overland Park, KS 66210 Phone: (913) 458-2000	Site:	97417VERCT2-SN (Rev 1)	Verify:	Gunjan S.
	Title:	Base Plate Capacity Calculation	Date:	5/13/2015
			Code:	TIA/EIA-222-F

Template Version 1.3

Base Plate Capacity Check:

Bolt Spacing:	23.56	in
Distance Between Bolts to Pole, c:	2.74	in
Angle Between Bolts, θ:	45	degree
Effective Width, b_{eff}:	22.96	in
Plate stress, σ:	45.80	ksi

Base Plate Capacity: **91.6%**

Conclusion:

Existing base plate has adequate capacity to support the existing and proposed loads.

Dimensional Solutions Mat3D		Version	6.0.0	Date	5/13/2015
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Designed By:	Black&Veatch Corp.	Engineer	AK	Checker	GS
Filename:					

DETAIL REPORT

PROJECT INFORMATION

Project Name:	AT&T Tower Analysis
Project Number:	97417VERCT2-SN (Rev 1) (182895)
Client:	AT&T
Project Location	
Foundation Description	7417VERCT2-SN (REV 1) FOUNDATION ANALYSIS

DESIGN CODE ACI 318 - 2005 **INPUT UNITS** English **OUTPUT UNITS** English

CONCRETE PARAMETERS:

Compressive Strength (psi)	4000
Unit Weight (pcf)	150
Pier Concrete Cover - X Dir (in)	3
Pier Concrete Cover - Z Dir (in)	3
Footing Side Concrete Cover - X Dir (in)	3
Footing Side Concrete Cover - Z Dir (in)	3
Footing Top Concrete Cover (in)	3
Footing Bottom Concrete Cover - X Dir (in)	3

REINFORCING STEEL PARAMETERS:

Yield Strength (ksi)	60
Unit Weight (pcf)	490
Modulus of Elasticity (ksi)	29000
Pier Min Rebar Spacing (in)	3
Footing Min Rebar Spacing (in)	3
Footing Max Rebar Spacing (in)	3

SOIL PARAMETERS:

Unit Weight (pcf)	125
Allowable Net Bearing Capacity (psf)	4000
Bearing Capacity Method	Reduced Effective Area
Soil Type	Granular
Passive Pressure Coefficient Kp	3.53
Soil To Concrete Friction f	0.6

Allowable Increase in Soil Pressure due to Short Term Loads (%)

Wind 0 Earthquake 0 Test 0

Min Stability Ratio	1.5
Safety Factor against Lateral Forces	1.5

REBAR PARAMETERS:

Max Long Bar Size	8
Min Long Bar Size	8
Max Tie Bar Size	4
Min Tie Bar Size	4
Max Ftg Bar Size	8
Min Ftg Bar Size	8
Temp & Shrinkage Steel Ratio	0.0009

MINIMUM FOUNDATION CRITERIA:

Depth of Footing Below Grade (ft)	5.5
Minimum Soil Cover (ft)	3.5
Grade Elevation (ft)	0

BUOYANCY CRITERIA:

Consider Buoyancy:	No
Consider soil for buoyancy:	No
Water table below grade (ft)	7

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DETAIL REPORT

APPLIED LOADS

P1

Load Case	Axial (kips)	Shear X (kips)	Mom Z (kip ft)	Shear Z (kips)	Mom X (kip ft)
1 - Dead	27.00	0.00	0.00	0.00	0.00
2 - Wind	0.00	15.00	1404.00	0.00	0.00

UNFACTORED (ALLOWABLE) LOAD COMBINATIONS

P1

Load Comb	Axial (kips)	Shear X (kips)	Mom Z (kip ft)	Shear Z (kips)	Mom X (kip ft)
1 - Dead	27.00	0.00	0.00	0.00	0.00
2 - Dead + Wind	27.00	15.00	1404.00	0.00	0.00

FACTORED (ULTIMATE) LOAD COMBINATIONS

P1

Load Comb	Axial (kips)	Shear X (kips)	Mom Z (kip ft)	Shear Z (kips)	Mom X (kip ft)
1 - 1.4Dead	37.80	0.00	0.00	0.00	0.00
2 - 1.2Dead + 1.6Wind	32.40	24.00	2246.40	0.00	0.00
3 - 0.9Dead + 1.6Wind	24.30	24.00	2246.40	0.00	0.00

BEARING CAPACITY - REDUCED EFFECTIVE AREA METHOD

Load Comb	Max Pressure (ksf)	All Pressure (ksf)	Ecc Z Dir (ft)	Ecc X Dir (ft)	Moment Z axis (kip-ft)	Moment X axis (kip-ft)	Rem
1 - Dead	0.84	4.69	0.00	0.00	0.00	0.00	
2 - Dead + Wind	1.93	4.69	0.00	5.20	1501.50	0.00	
	SR = 17.91%						
	SR = 41.15%						

STABILITY RATIO / SLIDING SAFETY FACTOR

Load Comb	S.R. Z Dir	S.R. X Dir	All S.R.	Sliding FS - Z	Sliding FS - X	All FS	Remarks
1 - Dead	100.00	100.00	1.50	100.00	100.00	1.50	
2 - Dead + Wind	100.00	1.78	1.50	100.00	17.26	1.50	
		SR = 1.50%			SR = 1.50%		
		SR = 84.27%			SR = 8.69%		

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DETAIL REPORT

FOOTING DESIGN INFORMATION

X Dim (ft)	18.50
Z Dim (ft)	18.50
Thickness (ft)	2.00

Top Steel

Governing Combination	No of Bars	Bar Size	Bar Spac (in)	Area Prov (sq in/ft)	Area Req (sq in/ft)	Moment (kip ft/ft)	Direction
2. 1.2Dead + 1.6Wind	20	8	11	0.85	0.24	-16.32	X
3. 0.9Dead + 1.6Wind	20	8	11	0.85	0	0	Z
				SR = 28.24%			
				SR = 0.00%			

Bottom Steel

Governing Combination	No of Bars	Bar Size	Bar Spac (in)	Area Prov (sq in/ft)	Area Req (sq in/ft)	Moment (kip ft/ft)	Direction
3. 0.9Dead + 1.6Wind	20	8	11	0.85	0.82	72.48	X
1. 1.4Dead	20	8	11	0.85	0.26	4.1	Z
				SR = 96.47%			
				SR = 30.59%			

PUNCHING SHEAR

P1

Control Comb	Net Ult Load (kips)	Punch. Stress (psi)	All Stress (psi)	Rem
2. 1.2Dead + 1.6Wind	55.82	7.39	189.74	
		SR = 3.89%		

MAXIMUM SHEAR - X DIRECTION

Load Comb	Left Dist (ft)	Max Shear (kips)	Shear Stress (psi)	All Stress (psi)	Rem
1 - 1.4Dead	14.02	-17.97	4.05	94.87	SR = 4.27%
2 - 1.2Dead + 1.6Wind	14.02	-225.29	50.74	94.87	SR = 53.48%
3 - 0.9Dead + 1.6Wind	14.02	-215.59	48.56	94.87	SR = 51.19%

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MAXIMUM SHEAR - Z DIRECTION

Load Comb	Bottom Dist (ft)	Max Shear (kips)	Shear Stress (psi)	All Stress (psi)	Rem
1 - 1.4Dead	14.02	-17.97	4.05	94.87	SR = 4.27%
2 - 1.2Dead + 1.6Wind	4.48	15.40	3.47	94.87	SR = 3.66%
3 - 0.9Dead + 1.6Wind	4.48	11.55	2.60	94.87	SR = 2.74%

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Filename:					

DETAIL REPORT

PIER/BASE PLATE DESIGN INFORMATION

	P1
X Dim (ft)	7.00
Z Dim (ft)	7.00
Height above grade (ft)	1.00
X Offset (ft)	9.25
Z Offset (ft)	9.25
Requested Reinft. Ratio	0.0009
Provided Reinft. Ratio	0.0051
Long Bar Size	8
Bars in X Dir	36
Bars in Z Dir	32
Total Long Bars	36
Tie Bar Size	4
Total No. of Ties	6
Major Tie Spacing (in)	14

PIER ULTIMATE LOAD CAPACITIES

	P1				
Load Comb	Axial Load (kips)	Axial Capa. (kips)	Mom (kip ft)	Mom Capa (kip ft)	Rem
1 - 1.4Dead	74.17	6909.55	24.65	2296.64	
2 - 1.2Dead + 1.6Wind	63.57	133.57	2354.45	4947.38	
3 - 0.9Dead + 1.6Wind	47.68	98.58	2354.43	4868.73	
	SR= 1.07%		SR= 1.07%		
	SR= 47.59%		SR= 47.59%		
	SR= 48.37%		SR= 48.36%		

Dimensional Solutions Mat3D		Version	6.0.0	Date	5/13/2015
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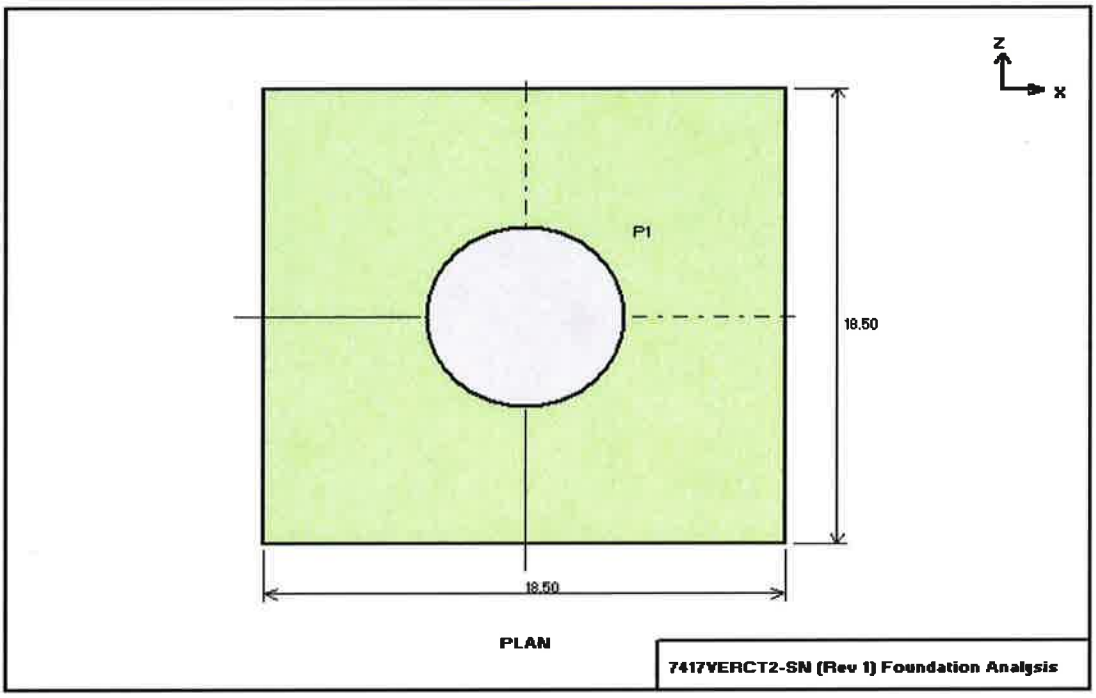
DETAIL REPORT



ATTACHMENT 5

	General	Power	Density					
Site Name: Redding S								
Tower Height: 179Ft.								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T UMTS	1	500	177	0.0057	880	0.5867	0.98%	
*AT&T UMTS	1	500	177	0.0057	1900	1.0000	0.57%	
*AT&T GSM	3	296	167	0.0114	880	0.5867	1.95%	
*AT&T GSM	1	427	167	0.0055	1900	1.0000	0.55%	
Verizon AWS	**1**	**1750**	**147**	**0.0291**	**2145**	**1.0000**	**2.91%**	
Verizon 700	**1**	**719**	**147**	**0.0120**	**746**	**0.4973**	**2.41%**	
								9.37%
* Source: Siting Council								

ATTACHMENT 6

Robinson + Cole

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts

August 17, 2015

Via Certificate of Mailing

Julia Pemberton, First Selectman
Town of Redding
100 Hill Road
Redding, CT 06896

Re: **Proposed Modifications to Telecommunications Facility at 28 Great Oak Lane, Redding, Connecticut**

Dear Ms. Pemberton:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed a Sub-Petition for Declaratory Ruling ("Sub-Petition") with the Connecticut Siting Council ("Council") seeking approval to share the wireless telecommunications facility at 28 Great Oak Lane in Redding (the "Property"). Cellco plans to install three (3) antennas at the 147.5-foot level of the 180-foot flagpole tower at the Property. All antennas will be concealed behind screening panels. Equipment associated with Cellco's antennas and a propane-fueled back-up generator will be located inside a 12' x 30' shelter installed near the base of the tower. A 1,000 gallon propane tank will also be installed in the northeast portion of the tower compound.

As presented in the Sub-Petition, the proposed facility improvements at the Property constitute an eligible facility request pursuant to Section 6409(a) of the Federal Middle Class Tax Relief and Job Creation act of 2012 (47 U.S.C. § 1455(a)) and the October 21, 2014 Order of the Federal Communications Commission (FCC-14-533). A copy of the full Sub-Petition is attached for your review. Landowners whose property abuts the Property were also sent a copy of this Sub-Petition.

Pursuant to its decision in Petition No. 1133, comments or concerns regarding this proposal should be submitted to the Council within thirty (30) days of the date of the attached Sub-Petition.

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

Sincerely,

Kenneth C. Baldwin

Attachment

Robinson + Cole

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts

August 17, 2015

Via Certificate of Mailing

AT&T
100 Hill Road
Redding, CT 06896

Re: **Proposed Modifications to Telecommunications Facility at 28 Great Oak Lane, Redding, Connecticut**

Dear Sir or Madam:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed a Sub-Petition for Declaratory Ruling ("Sub-Petition") with the Connecticut Siting Council ("Council") seeking approval to share the wireless telecommunications facility at 28 Great Oak Lane in Redding (the "Property"). Cellco plans to install three (3) antennas at the 147.5-foot level of the 180-foot flagpole tower at the Property. All antennas will be concealed behind screening panels. Equipment associated with Cellco's antennas and a propane-fueled back-up generator will be located inside a 12' x 30' shelter installed near the base of the tower. A 1,000 gallon propane tank will also be installed in the northeast portion of the tower compound.

As presented in the Sub-Petition, the proposed facility improvements at the Property constitute an eligible facility request pursuant to Section 6409(a) of the Federal Middle Class Tax Relief and Job Creation act of 2012 (47 U.S.C. § 1455(a)) and the October 21, 2014 Order of the Federal Communications Commission (FCC-14-533). A copy of the full Sub-Petition is attached for your review. Landowners whose property abuts the Property were also sent a copy of this Sub-Petition.

Pursuant to its decision in Petition No. 1133, comments or concerns regarding this proposal should be submitted to the Council within thirty (30) days of the date of the attached Sub-Petition.

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

Sincerely,

Kenneth C. Baldwin

Attachment

ATTACHMENT 7

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts

August 17, 2015

Via Certificate of Mailing

«Name_and_Address»

Re: **Sub-Petition for Declaratory Ruling Filed with the Connecticut Siting Council for Modifications to a Telecommunications Facility at 28 Great Oak Lane, Redding, Connecticut**

Dear «Salutation»:

This firm represents Cellco Partnership d/b/a Verizon Wireless ("Cellco"). Today, Cellco filed a Sub-Petition for Declaratory Ruling ("Sub-Petition") with the Connecticut Siting Council ("Council") seeking approval to share the wireless telecommunications facility at 28 Great Oak Lane in Redding (the "Property"). Cellco plans to install three (3) antennas at the 147.5-foot level of the 180-foot flagpole tower at the Property. All antennas will be concealed behind screening panels. Equipment associated with Cellco's antennas and a propane-fueled back-up generator will be located inside a 12' x 30' shelter installed near the base of the tower. A 1,000 gallon propane tank will also be installed in the northeast portion of the tower compound.

The facility improvements constitute a eligible facility request pursuant to Section 6409(a) of the Federal Middle Class Tax Relief and Job Creation Act of 2012 (47 U.S.C. § 1455(a)) and the October 21, 2014 Order of the Federal Communications Commission (FCC-14-533). A copy of the full Sub-Petition is attached for your review.

Pursuant to its decision in Petition No. 1133, comments or concerns regarding this proposal should be submitted to the Council within thirty (30) days of the date of the Sub-Petition.

This notice is being sent to you because you are listed as an owner of land that abuts the Property. If you have any questions regarding the Sub-Petition, the Council's process for reviewing the Sub-Petition or the details of the filing itself, please feel free to contact me at the number listed above. You may also contact the Council directly at 860-827-2935.

Sincerely,

Kenneth C. Baldwin

Attachment

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS

ABUTTERS LIST

28 GREAT OAK LANE
REDDING, CONNECTICUT

	Property Address	Owner and Mailing Address
1.	25 Lonetown Road	Albert R. Casazza P.O. Box 1232 Redding, CT 06875-1232
2.	22 Great Oak Lane	Craig C. and Madonna R. Tiefenthaler 22 Great Oak Lane West Redding, CT 06896
3.	19 Great Oak Lane	Timothy and Heidi O'Connor 19 Great Oak Lane West Redding, CT 06896
4.	27 Great Oak Lane	Diane D. Augustine 27 Great Oak Lane West Redding, CT 06896
5.	35 Great Oak Lane	Rachel R. Rothschild 35 Great Oak Lane West Redding, CT 06896
6.	36 Great Oak Lane	Andrea L. and Ronald E. Brundage 36 Great Oak Lane West Redding, CT 06896
7.	33 Lonetown Road	Town of Redding 33 Lonetown Road West Redding, CT 06896