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June 7, 2016

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

Notice of Exempt Modification
50 Rockland Road, Norwalk, CT 06584
Latitude- 41.08185200
Longitude- -73.43045800

Dear Ms. Bachman,

T-Mobile currently maintains (9) existing antennas at the 173' level of the existing 182' lattice tower at 50 Rockland Road. The tower and property are owned by Crown Castle. T-Mobile now intends to replace (3) existing antennas with (3) new 1900 MHz antennas. These antennas would be installed at the same 173' of the tower. T-Mobile also intends to install (1) new fiber cable.

This facility was approved by the Council in Docket No.73 on April 1, 1987. This approval included conditions which are not violated by this modification. This modification complies with these conditions. A copy of Docket No. 73 is attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. 16-50j-72(b)(2). In accordance with R.C.S.A. 16-50j-73, a copy of this letter is being sent to Harry Rilling, Mayor of the City of Norwalk, as well as the tower and property owner Crown Castle.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. 16-50j-72(b)(2).

1. The proposed modification will not result in an increase in the height of the existing structure
2. The proposed modifications will not require the extension of the site boundary.
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.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modification will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, T-Mobile respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitute an exempt modification under R.C.S.A. 16-50j-72(b)(2).

Sincerely,

Kyle Richers

Kyle Richers
Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, New Jersey 07430
908-447-4716
krichers@transcendwireless.com

cc: Harry Rilling – Mayor, City of Norwalk
Crown Castle—Tower and Property Owner

AN APPLICATION OF METRO MOBILE CTS OF FAIRFIELD COUNTY, INC., FOR CERTIFICATES OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE, AND OPERATION OF THREE FACILITIES CONSISTING OF TELECOMMUNICATIONS TOWERS AND ASSOCIATED EQUIPMENT FOR THE PURPOSE OF PROVIDING DOMESTIC PUBLIC CELLULAR RADIO TELECOMMUNICATIONS SERVICE IN THE TOWN OF GREENWICH AND IN THE CITIES OF NORWALK AND STAMFORD, CONNECTICUT. : CONNECTICUT SITING COUNCIL : April 1, 1987

D E C I S I O N A N D O R D E R

Pursuant to the foregoing opinion, the Connecticut Siting Council (Council) hereby directs that a Certificate of Environmental Compatibility and Public Need, as provided by Section 16-50k of the General Statutes of Connecticut (CGS), be issued to Metro Mobile CTS of Fairfield County, Inc., for the construction, operation, and maintenance of cellular mobile telecommunications equipment in the Town of Greenwich, and the Cities of Norwalk and Stamford, Connecticut.

The facilities shall be constructed, operated, and maintained as specified in the Council's record on this matter, and subject to the following conditions.

1. The Norwalk tower, including antennas, shall be no taller than necessary to provide the proposed service, and in no event shall exceed 193 feet.
2. A fence not lower than eight feet shall surround the Norwalk tower.
3. Unless necessary to comply with condition number four, below, no lights shall be installed on the Norwalk tower.
4. The facilities shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations.

5. The certificate holder shall prepare a development and management (D&M) plan for the Norwalk site in compliance with sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies. The D&M plan shall provide for evergreen screening around the perimeter of the fence at this site, and for other landscaping to improve the appearance of the facility.
6. The receive antennas at the Greenwich and Stamford sites shall be mounted below the high points of the facades of their respective buildings to minimize their visibility.
7. No construction activities shall take place outside the hours of 7:00 A.M. to 7:00 P.M., Monday through Saturday.
8. The certificate holder or its successor shall notify the Council if and when directional antennas or any equipment other than that listed in this application is added to these facilities.
9. The certificate holder or its successor shall permit public or private entities to share space on the Norwalk tower, for due consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
10. If these facilities do not provide or permanently cease to provide cellular service following completion of construction, this Decision and Order shall be void, and the tower and all associated equipment in this application shall be dismantled and removed or reapplication for any new use shall be made to the Council before any such new use is made.

11. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this Decision and Order, or within three years of the completion of any appeal taken in this Decision.
12. The certificate holder shall comply with any future radio frequency (RF) standards promulgated by state or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facilities granted in this Decision shall continue to be in compliance with such standards.

Pursuant to CGS section 16-50p, we hereby direct that a copy of the Decision and Order be served on each person listed below. A notice of the issuance shall be published in the Stamford Advocate, the Greenwich Times, the Norwalk Hour, and the Bridgeport Post.

The parties to the proceeding are:

Mr. Armand Mascioli
General Manager
Metro Mobile CTS of Fairfield
County, Inc.
5 Eversley Avenue
Norwalk, Connecticut 06855

(Applicant)

Howard L. Slater, Esquire
Byrne, Slater, Sandler,
Shulman & Rouse, P.C.
330 Main Street
P.O. Box 3216
Hartford, Connecticut 06103

(its attorney)

Richard Rubin, Esquire
Fleischman and Walsh, P.C.
1725 N Street, N.W.
Washington, D.C. 20036

(its attorney)

Southern New England
Telephone Company

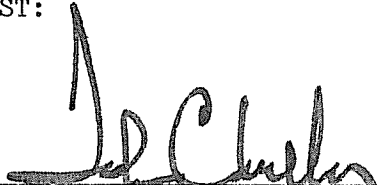
(its attorney)

Mr. Peter J. Tyrrell
Senior Attorney
Southern New England
Telephone Company
227 Church Street
New Haven, Connecticut 06506

STATE OF CONNECTICUT)
 :
COUNTY OF HARTFORD) ss. New Britain, April 1, 1987

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

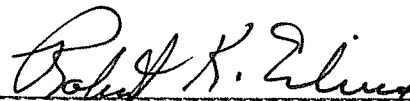
ATTEST:



John C. Kelly
Executive Director
Connecticut Siting Council

I certify that a copy of the opinion and decision and order have been forwarded by mail to all parties of record on April 3, 1987.

ATTEST:



Robert K. Erling
Siting Analyst
Connecticut Siting Council

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

T-Mobile Existing Facility

Site ID: CT11114D

**Norwalk/ South Norwalk
50 Rockland Road
Norwalk, CT 06854**

June 1, 2016

EBI Project Number: 6216002644

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	72.97 %

June 1, 2016

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

Emissions Analysis for Site: **CT11114D – Norwalk/ South Norwalk**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **50 Rockland Road, Norwalk, 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 **50 Rockland Road, Norwalk, 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) 2 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 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.
- 4) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 5) 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.
- 6) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

- 7) 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.
- 8) For the following calculations the sample point was the top of a six-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.
- 9) The antennas used in this modeling are the **Ericsson AIR32 B2A/B66Aa & Ericsson AIR21 B2A/B4P** for 1900 MHz (PCS) and 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 **Ericsson AIR32 B2A/B66Aa & Ericsson AIR21 B2A/B4P** have a maximum gain of **15.9 dBd** at their main lobe at 1900 MHz and 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.
- 10) The antenna mounting height centerline of the proposed antennas is **173 feet** above ground level (AGL).
- 11) 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:	Ericsson AIR32 B2A/B66Aa	Make / Model:	Ericsson AIR32 B2A/B66Aa	Make / Model:	Ericsson AIR32 B2A/B66Aa
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	173	Height (AGL):	173	Height (AGL):	173
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	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240	Total TX Power(W):	240	Total TX Power(W):	240
ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08
Antenna A1 MPE%	1.20	Antenna B1 MPE%	1.20	Antenna C1 MPE%	1.20
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9 dBd	Gain:	15.9 dBd	Gain:	15.9 dBd
Height (AGL):	173	Height (AGL):	173	Height (AGL):	173
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):	180	Total TX Power(W):	180	Total TX Power(W):	180
ERP (W):	7,002.81	ERP (W):	7,002.81	ERP (W):	7,002.81
Antenna A2 MPE%	0.90	Antenna B2 MPE%	0.90	Antenna C2 MPE%	0.90
Antenna #:	3	Antenna #:	3	Antenna #:	3
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):	173	Height (AGL):	173	Height (AGL):	173
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 A3 MPE%	0.24	Antenna B3 MPE%	0.24	Antenna C3 MPE%	0.24

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	2.34 %
AT&T	16.44 %
MetroPCS	13.98 %
Clearwire	1.02 %
Verizon Wireless	31.97 %
Sprint	7.22 %
Site Total MPE %:	72.97 %

T-Mobile Sector 1 Total:	2.34 %
T-Mobile Sector 2 Total:	2.34 %
T-Mobile Sector 3 Total:	2.34 %
Site Total:	72.97 %

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 1900 MHz (AWS) LTE	2	2334.27	173	6.02	1900	1000	0.60 %
T-Mobile 2100 MHz (AWS) LTE	2	2334.27	173	6.02	2100	1000	0.60 %
T-Mobile 1900 MHz (PCS) GSM	2	1167.14	173	3.01	1900	1000	0.30 %
T-Mobile 1900 MHz (PCS) UMTS	2	1167.14	173	3.01	1900	1000	0.30 %
T-Mobile 2100 MHz (AWS) UMTS	2	1167.14	173	3.01	2100	1000	0.30 %
T-Mobile 700 MHz LTE	1	865.21	173	1.12	700	467	0.24 %
Total:						2.34 %	

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:	2.34 %
Sector 2:	2.34 %
Sector 3:	2.34 %
T-Mobile Per Sector Maximum:	2.34 %
Site Total:	72.97 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **72.97%** 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.



Date: **May 18, 2016**

Sean Dempsey
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277

Velocitel, Inc., d.b.a. FDH Velocitel
6521 Meridien Drive, Suite 107
Raleigh, North Carolina 27616
9197551012

Subject: Structural Analysis Report

Carrier Designation:	T-Mobile Co-Locate	
	Carrier Site Number:	CT11114D
Crown Castle Designation:	Crown Castle BU Number:	807133
	Crown Castle Site Name:	BRG 134 943057
	Crown Castle JDE Job Number:	375963
	Crown Castle Work Order Number:	1236315
	Crown Castle Application Number:	344035 Rev. 4
Engineering Firm Designation:	FDH Velocitel Project Number:	16BIIG1400

**Site Data: 50 ROCKLAND ROADNORWALK OFC - MTSO, SO NORWALK, Fairfield County, CT
Latitude 41° 4' 54.44", Longitude -73° 25' 49.52"
180 Foot - Self Support Tower**

Dear Sean Dempsey,

FDH Velocitel is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural ‘Statement of Work’ and the terms of Crown Castle Purchase Order Number 903140, in accordance with application 344035, revision 4.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

The analysis has been performed in accordance with the TIA/EIA-222-F standard based upon a wind speed of 85 mph fastest mile.

We at *FDH Velocitel* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Phylicia D. Hicks
Project Engineer I

Reviewed by:

Dennis D. Abel, PE
Director – Structural Engineering
CT PE License No. 23247



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1) INTRODUCTION

This tower is a 180 ft Self Support tower designed by ROHN in July of 1987. The tower was originally designed for E.I.A. Zone A. This tower has been modified per reinforcement drawings prepared by Vertical Structures, Inc. in November of 2004. These modifications were considered in this analysis.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 85 mph with no ice, 37.6 mph with 0.75 inch ice thickness and 50 mph under service loads.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
170.0	173.0	3	ericsson	AIR -32 B2A/B66AA w/ Mount Pipe	1	7/8	-

Table 2 - Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
178.0	178.0	2	-	Side Arm Mount [SO 306-1]	-	-	1
170.0	173.0	3	ericsson	ERICSSON AIR 21 B4A B2P w/ Mount Pipe	13	1-5/8	1
		3	ericsson	ERICSSON AIR 21 B2A B4P w/ Mount Pipe			
		3	commscope	LNx-6515DS-VTM w/ Mount Pipe			
		3	ericsson	RRUS 11 B12			
		3	ericsson	KRY 112 144/1			
		1	-	Sector Mount [SM 602-3]			
157.0	157.0	2	andrew	VHLP2-18	2	7983A	1
		2	-	Side Arm Mount [SO 202-1]			
148.0	148.0	3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe	3	1-1/4	1
		3	alcatel lucent	TD-RRH8x20-25			
		3	rfs celwave	APXVSP18-C-A20 w/ Mount Pipe			
		9	rfs celwave	ACU-A20-N			
		3	site pro	VFA12-U w/ 12' Stiff Arm			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note			
143.0	145.0	3	alcatel lucent	800 EXTERNAL NOTCH FILTER	-	-	1			
		3	alcatel lucent	PCS 1900MHz 4x45W-65MHz						
	3	alcatel lucent	TME-800MHZ 2X50W RRH							
	143.0	1	-	Side Arm Mount [SO 312-3]						
	142.0	3	alcatel lucent	PCS 1900MHz 4x45W-65MHz						
134.0	135.0	1	andrew	VHLP2-23	6 1	5/16 1/2	1			
		3	argus tech	LLPX310R w/ Mount Pipe						
		3	samsung telecommunications	RRH-2WB						
	134.0	1	-	Pipe Mount [PM 601-1]						
	1	-	Sector Mount [SM 502-3]							
126.0	130.0	1	gps	GPS_A	19 1	1-5/8 1/2	1			
	128.0	2	andrew	LNx-6514DS-T4M w/ Mount Pipe						
		4	decibel	DB844G65ZAXY w/ Mount Pipe						
		2	decibel	DB844H80-XY w/ Mount Pipe						
		3	rymsa wireless	MG D3-800TV w/ Mount Pipe						
		1	powerwave tech	P65.16.XL.2 w/ Mount Pipe						
		3	alcatel lucent	RRH2X40-AWS						
		1	rfs celwave	DB-T1-6Z-8AB-0Z						
	126.0	3	commscope	HBX-6516DS-VTM w/ Mount Pipe				-	-	2
	126.0	1	-	Sector Mount [SM 410-3]				-	-	1
112.0	112.0	3	kathrein	800 10504 w/ Mount Pipe	6	1-5/8	1			
		1	-	Sector Mount [SM 104-3]						
102.0	102.0	3	quintel tech	QS66512-2 w/ Mount Pipe	2 1	5/8 3/8	2			
		6	cci antennas	TPX-070821						
		3	ericsson	RRUS 32						
		1	raycap	DC6-48-60-18-8F						
		3	powerwave tech	7770.00 w/ Mount Pipe	12 1 2	1-5/8 3/8 5/8	1			
		3	powerwave tech	P65-16-XLH-RR w/ Mount Pipe						
		6	powerwave tech	LGP2140X						
		3	ericsson	RRUS 11 B2						
		3	ericsson	RRUS 12						
		1	raycap	DC6-48-60-18-8F						
		1	-	Sector Mount [SM 301-3]						

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
48.0	48.0	1	gps	GPS_A	2	1/2	1
		2	-	Side Arm Mount [SO 701-1]			
	47.0	1	gps	GPS_A			

Notes:

- 1) Existing Equipment
- 2) Reserved Equipment; Considered in Analysis
- 3) Existing Equipment to be Removed; Not Considered in Analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
217.0	217.0	4	celwave	PD10017	-	-
207.0	207.0	6	celwave	PD1132	-	-
180.0	180.0	3	-	8' Dish	-	-
170.0	170.0	1	-	8' Dish	-	-
156.0	156.0	1	-	8' Dish	-	-
150.0	150.0	1	-	8' Dish	-	-
130.0	130.0	1	celwave	PD1109	-	-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	FDH Engineering, Inc.	2311843	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	Paul J. Ford	821566	CCISITES
4-TOWER MANUFACTURER DRAWINGS	Rohn	392878	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	Vertical Structures, Inc.	1257479	CCISITES
4-POST-MODIFICATION INSPECTION	All Points Technology Corp.	4065020	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) Tower and structures were built in accordance with the manufacturer's specifications.
- 2) The tower and structures have been maintained in accordance with the manufacturer's specification.
- 3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
- 4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.

This analysis may be affected if any assumptions are not valid or have been made in error. FDH Velocitel should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
T1	180 - 160	Leg	ROHN 3 EH	1	-9.58	96.06	10.0	Pass
T2	160 - 153.333	Leg	ROHN 4 EH	36	-14.17	139.07	10.2	Pass
T3	153.333 - 146.667	Leg	ROHN 4 EH	43	-20.72	139.07	14.9	Pass
T4	146.667 - 140	Leg	ROHN 4 EH	55	-28.62	139.07	20.6	Pass
T5	140 - 120	Leg	ROHN 5 EH	67	-59.67	206.29	28.9	Pass
T6	120 - 100	Leg	ROHN 6 EHS	88	-97.25	236.06	41.2	Pass
T7	100 - 80	Leg	ROHN 6 EH	109	-134.06	264.29	50.7	Pass
T8	80 - 70	Leg	ROHN 8 EHS	124	-153.00	338.72	45.2	Pass
T9	70 - 60	Leg	ROHN 8 EHS	133	-172.16	338.72	50.8	Pass
T10	60 - 40	Leg	ROHN 8 EHS	142	-209.27	338.72	61.8	Pass
T11	40 - 20	Leg	ROHN 8 EH	157	-245.23	435.22	56.3	Pass
T12	20 - 0	Leg	ROHN 8 EH	172	-280.49	435.22	64.4	Pass
T1	180 - 160	Diagonal	L2x2x3/16	15	-2.14	6.68	32.0 35.8 (b)	Pass
T2	160 - 153.333	Diagonal	L2 1/2x2 1/2x1/4	41	-2.60	13.09	19.8 27.9 (b)	Pass
T3	153.333 - 146.667	Diagonal	L2 1/2x2 1/2x1/4	53	-3.16	11.83	26.7 33.3 (b)	Pass
T4	146.667 - 140	Diagonal	L2 1/2x2 1/2x1/4	65	-4.54	10.74	42.3 49.2 (b)	Pass
T5	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	74	-6.98	8.26	84.5	Pass
T6	120 - 100	Diagonal	L3x3x1/4	95	-8.59	11.62	73.9 84.2 (b)	Pass
T7	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	116	-10.33	12.51	82.5 84.9 (b)	Pass
T8	80 - 70	Diagonal	L3 1/2x3 1/2x1/4	131	-10.64	11.69	91.0	Pass
T9	70 - 60	Diagonal	2L3 1/2x3 1/2x1/4x3/8	136	-11.26	17.99	62.6 64.1 (b)	Pass
T10	60 - 40	Diagonal	L4x4x1/4	146	-11.61	13.65	85.1 92.4 (b)	Pass
T11	40 - 20	Diagonal	L4x4x5/16	161	-12.06	14.28	84.4	Pass
T12	20 - 0	Diagonal	2L4x4x5/16x3/8	176	-12.98	20.68	62.8 73.9 (b)	Pass
T1	180 - 160	Top Girt	L2x2x1/8	5	-0.09	2.79	3.2	Pass
T3	153.333 -	Top Girt	L2x2x1/8	46	-0.19	1.36	14.0	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
	146.667							
T4	146.667 - 140	Top Girt	L2x2x1/8	60	0.12	8.50	1.4 2.9 (b)	Pass
T1	180 - 160	Mid Girt	L2x2x1/8	7	-0.49	2.05	23.9	Pass
							Summary	
							Leg (T12)	64.4 Pass
							Diagonal (T10)	92.4 Pass
							Top Girt (T3)	14.0 Pass
							Mid Girt (T1)	23.9 Pass
							Bolt Checks	92.4 Pass
							RATING =	92.4 Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	55.6	Pass
1	Base Foundation	0	72.7	Pass

Structure Rating (max from all components) =	92.4%
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Notes:

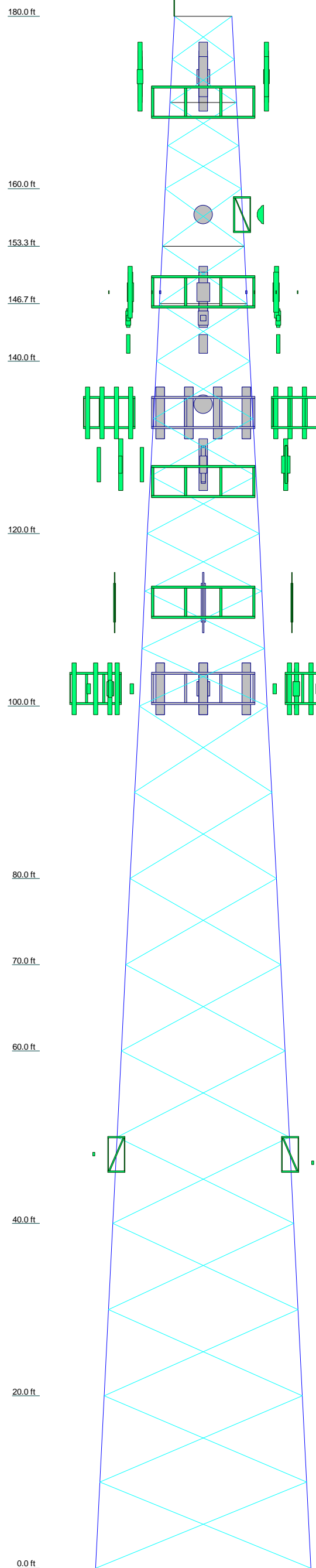
- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundations have sufficient capacity to carry the existing, reserved, and proposed loads. No modifications are required at this time.

APPENDIX A
TNXTOWER OUTPUT

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12
Legs	ROHN 3 EH	ROHN 4 EH	ROHN 5 EH	ROHN 6 EHS	ROHN 6 EH	ROHN 8 EHS	ROHN 8 EH	ROHN 8 EHS	ROHN 8 EH	ROHN 8 EH	ROHN 8 EH	ROHN 8 EH
Leg Grade	L2x2x3/16	A36	L2x2x1/8	L2x2x1/8	L2x2x1/8	L3x3x1/4	A572-50	L3 1/2x3 1/2x1/4	L3 1/2x3 1/2x1/4	L4x4x1/4	L4x4x5/16	2L4x4x5/16x3/8
Diagonals												
Diagonal Grade												
Top Girts												
Mid Girts												
Face Width (ft)	6.8875	8.76042	9.45052	10.1432	10.8333	12.9167	14.8542	16.9896	17.9948	19	21	23
# Panels @ (ft)	4 @ 5	0.6	0.6	0.7	0.6	2.7	3.0	1.7	2.5	3.8	5.0	7.7
Weight (K)												



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	180	VHLP2-23	134
Empty Pipe Mount	178	DB844G65ZAXY w/ Mount Pipe	126
Empty Pipe Mount	178	DB844G65ZAXY w/ Mount Pipe	126
Side Arm Mount [SO 306-1]	178	(2) DB844G65ZAXY w/ Mount Pipe	126
Side Arm Mount [SO 306-1]	178	LNx-6514DS-T4M w/ Mount Pipe	126
AIR -32 B2A/B66AA w/ Mount Pipe	170	LNx-6514DS-T4M w/ Mount Pipe	126
AIR -32 B2A/B66AA w/ Mount Pipe	170	MG D3-800TV w/ Mount Pipe	126
AIR -32 B2A/B66AA w/ Mount Pipe	170	MG D3-800TV w/ Mount Pipe	126
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	170	MG D3-800TV w/ Mount Pipe	126
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	170	DB844H80-XY w/ Mount Pipe	126
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	170	DB844H80-XY w/ Mount Pipe	126
LNx-6515DS-VTM w/ Mount Pipe	170	GPS_A	126
LNx-6515DS-VTM w/ Mount Pipe	170	P65.16.XL.2 w/ Mount Pipe	126
LNx-6515DS-VTM w/ Mount Pipe	170	RRH2X40-AWS	126
KRY 112 144/1	170	RRH2X40-AWS	126
KRY 112 144/1	170	RRH2X40-AWS	126
KRY 112 144/1	170	DB-T1-6Z-8AB-0Z	126
RRUS 11 B12	170	Sector Mount [SM 410-3]	126
RRUS 11 B12	170	HBX-6516DS-VTM w/ Mount Pipe	126
RRUS 11 B12	170	HBX-6516DS-VTM w/ Mount Pipe	126
Sector Mount [SM 602-3]	170	HBX-6516DS-VTM w/ Mount Pipe	126
Empty Pipe Mount	170	Sector Mount [SM 104-3]	112
Empty Pipe Mount	170	Empty Mount Pipe	112
Empty Pipe Mount	170	Empty Mount Pipe	112
Side Arm Mount [SO 202-1]	157	Empty Mount Pipe	112
Side Arm Mount [SO 202-1]	157	800 10504 w/ Mount Pipe	112
VHLP2-18	157	800 10504 w/ Mount Pipe	112
VHLP2-18	157	800 10504 w/ Mount Pipe	112
APXVSP18-C-A20 w/ Mount Pipe	148	P65-16-XLH-RR w/ Mount Pipe	102
APXVTM14-C-120 w/ Mount Pipe	148	P65-16-XLH-RR w/ Mount Pipe	102
APXVTM14-C-120 w/ Mount Pipe	148	P65-16-XLH-RR w/ Mount Pipe	102
APXVTM14-C-120 w/ Mount Pipe	148	(2) LGP2140X	102
(3) ACU-A20-N	148	(2) LGP2140X	102
(3) ACU-A20-N	148	(2) LGP2140X	102
(3) ACU-A20-N	148	RRUS 11 B2	102
TD-RRH8x20-25	148	RRUS 11 B2	102
TD-RRH8x20-25	148	RRUS 11 B2	102
TD-RRH8x20-25	148	RRUS 12	102
(3) Site Pro VFA12-U w/ 12" Stiff Arm	148	RRUS 12	102
APXVSP18-C-A20 w/ Mount Pipe	148	RRUS 12	102
APXVSP18-C-A20 w/ Mount Pipe	148	DC6-48-60-18-8F	102
PCS 1900MHz 4x45W-65MHz	143	QS66512-2 w/ Mount Pipe	102
PCS 1900MHz 4x45W-65MHz	143	QS66512-2 w/ Mount Pipe	102
PCS 1900MHz 4x45W-65MHz	143	QS66512-2 w/ Mount Pipe	102
PCS 1900MHz 4x45W-65MHz	143	(2) TPX-070821	102
TME-800MHZ 2X50W RRH	143	(2) TPX-070821	102
TME-800MHZ 2X50W RRH	143	(2) TPX-070821	102
TME-800MHZ 2X50W RRH	143	RRUS 32	102
800 EXTERNAL NOTCH FILTER	143	RRUS 32	102
800 EXTERNAL NOTCH FILTER	143	RRUS 32	102
800 EXTERNAL NOTCH FILTER	143	DC6-48-60-18-8F	102
Side Arm Mount [SO 312-3]	143	Sector Mount [SM 301-3]	102
PCS 1900MHz 4x45W-65MHz	143	Empty Mount Pipe	102
PCS 1900MHz 4x45W-65MHz	143	Empty Mount Pipe	102
LLPX310R w/ Mount Pipe	134	Empty Mount Pipe	102
RRH-2WB	134	7770.00 w/ Mount Pipe	102
RRH-2WB	134	7770.00 w/ Mount Pipe	102
RRH-2WB	134	7770.00 w/ Mount Pipe	102
Pipe Mount [PM 601-1]	134	Side Arm Mount [SO 701-1]	48
Sector Mount [SM 502-3]	134	GPS_A	48
LLPX310R w/ Mount Pipe	134	GPS_A	48
LLPX310R w/ Mount Pipe	134	Side Arm Mount [SO 701-1]	48

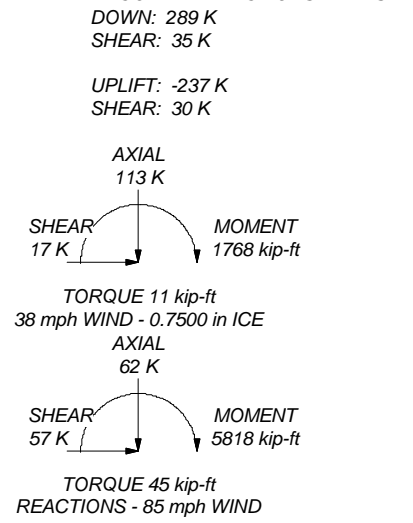
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Fairfield County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 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: 92.4%

MAX. CORNER REACTIONS AT BASE:



	FDH Velocitel 6521 Meridien Drive, Suite 107 Raleigh, North Carolina 27616 Phone: 9197551012 FAX: 9197551031	Job: BRG 134 943057, 807133 Project: 16BIG1400 Client: Crown Castle Code: TIA/EIA-222-F Path:	Drawn by: PHicks Date: 05/18/16 App'd: Scale: NTS Dwg No. E-1
	Tower Analysis		

tnxTower FDH Velocitel 6521 Meridien Drive, Suite 107 Raleigh, North Carolina 27616 Phone: 9197551012 FAX: 9197551031	Job BRG 134 943057, 807133	Page 1 of 29
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	Client Crown Castle	Designed by PHicks

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 180.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 6.69 ft at the top and 25.00 ft at the base.

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 85 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 38 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.

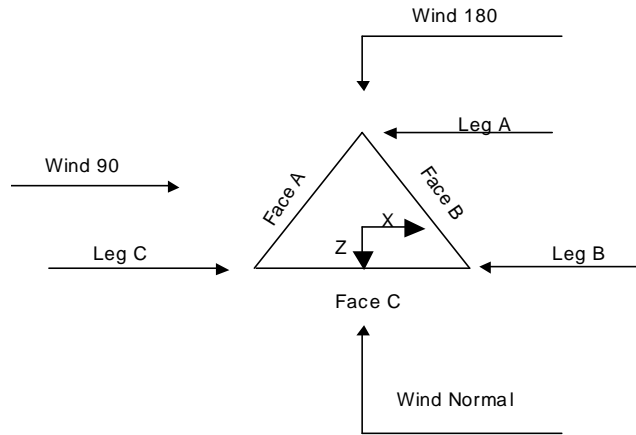
Stress ratio used in tower member design is 1.333.

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		

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Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	<i>ft</i>			<i>ft</i>		<i>ft</i>
T1	180.00-160.00			6.69	1	20.00
T2	160.00-153.33			8.76	1	6.67
T3	153.33-146.67			9.45	1	6.67
T4	146.67-140.00			10.14	1	6.67
T5	140.00-120.00			10.83	1	20.00
T6	120.00-100.00			12.92	1	20.00
T7	100.00-80.00			14.85	1	20.00
T8	80.00-70.00			16.99	1	10.00
T9	70.00-60.00			17.99	1	10.00
T10	60.00-40.00			19.00	1	20.00
T11	40.00-20.00			21.00	1	20.00
T12	20.00-0.00			23.00	1	20.00

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T1	180.00-160.00	5.00	X Brace	No	No	0.0000	0.0000
T2	160.00-153.33	6.67	X Brace	No	No	0.0000	0.0000
T3	153.33-146.67	6.67	X Brace	No	No	0.0000	0.0000

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Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T4	146.67-140.00	6.67	X Brace	No	No	0.0000	0.0000
T5	140.00-120.00	6.67	X Brace	No	No	0.0000	0.0000
T6	120.00-100.00	6.67	X Brace	No	No	0.0000	0.0000
T7	100.00-80.00	10.00	X Brace	No	No	0.0000	0.0000
T8	80.00-70.00	10.00	X Brace	No	No	0.0000	0.0000
T9	70.00-60.00	10.00	X Brace	No	No	0.0000	0.0000
T10	60.00-40.00	10.00	X Brace	No	No	0.0000	0.0000
T11	40.00-20.00	10.00	X Brace	No	No	0.0000	0.0000
T12	20.00-0.00	10.00	X Brace	No	No	0.0000	0.0000

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 180.00-160.00	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Single Angle	L2x2x3/16	A36 (36 ksi)
T2 160.00-153.33	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T3 153.33-146.67	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T4 146.67-140.00	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T5 140.00-120.00	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Single Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T6 120.00-100.00	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Single Angle	L3x3x1/4	A572-50 (50 ksi)
T7 100.00-80.00	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T8 80.00-70.00	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Single Angle	L3 1/2x3 1/2x1/4	A572-50 (50 ksi)
T9 70.00-60.00	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Double Equal Angle	2L3 1/2x3 1/2x1/4x3/8	A36 (36 ksi)
T10 60.00-40.00	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Single Angle	L4x4x1/4	A572-50 (50 ksi)
T11 40.00-20.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Single Angle	L4x4x5/16	A572-50 (50 ksi)
T12 20.00-0.00	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Double Equal Angle	2L4x4x5/16x3/8	A36 (36 ksi)

Tower Section Geometry (cont'd)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 180.00-160.00	Equal Angle	L2x2x1/8	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T3 153.33-146.67	Equal Angle	L2x2x1/8	A36 (36 ksi)	Single Angle		A36 (36 ksi)
T4 146.67-140.00	Single Angle	L2x2x1/8	A36 (36 ksi)	Single Angle		A36 (36 ksi)

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Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T11 40.00-20.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 20.00-0.00	0.0000	1	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 180.00-160.00	Flange	0.8750 A325X	4	0.6250 A325X	1	0.6250 A325X	1	0.0000 A325X	0	0.6250 A325X	1	0.6250 A325X	0	0.6250 A325N	0
T2 160.00-153.33	Flange	0.0000 A325X	0	0.6250 A325X	1	0.0000 A325X	0	0.0000 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	0
T3 153.33-146.67	Flange	0.0000 A325X	0	0.6250 A325X	1	0.6250 A325X	1	0.0000 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	0
T4 146.67-140.00	Flange	1.0000 A325X	4	0.6250 A325X	1	0.6250 A325X	1	0.0000 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	0
T5 140.00-120.00	Flange	1.0000 A325X	6	0.6250 A325X	1	0.0000 A325X	0	0.0000 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	0
T6 120.00-100.00	Flange	1.0000 A325X	6	0.6250 A325X	1	0.0000 A325X	0	0.0000 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	0
T7 100.00-80.00	Flange	1.0000 A325X	8	0.7500 A325X	1	0.0000 A325X	0	0.0000 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	0
T8 80.00-70.00	Flange	0.0000 A325X	0	0.7500 A325X	1	0.0000 A325X	0	0.0000 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	0
T9 70.00-60.00	Flange	1.0000 A325X	8	0.7500 A325X	1	0.0000 A325X	0	0.0000 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	0
T10 60.00-40.00	Flange	1.0000 A325X	8	0.7500 A325X	1	0.0000 A325X	0	0.0000 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	0
T11 40.00-20.00	Flange	1.0000 A325X	8	0.7500 A325X	1	0.0000 A325X	0	0.0000 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	0
T12 20.00-0.00	Flange	1.0000 A449	10	0.7500 A325X	1	0.0000 A325X	0	0.0000 A325X	0	0.6250 A325X	0	0.6250 A325X	0	0.6250 A325N	0

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
Safety Line 3/8	B	No	Ar (Leg)	180.00 - 0.00	0.0000	0	1	1	0.3750	0.3750		0.00
Feedline Ladder (Af) 1.5"	A	Yes	Af (CfAe)	157.00 - 0.00	0.0000	-0.4	2	2	24.0000 1.5000	1.5000	6.0000	0.00
Feedline Ladder (Af)	A	Yes	Af (CfAe)	172.00 - 0.00	0.0000	0	2	2	24.0000 1.5000	1.5000	6.0000	0.00

tnxTower FDH Velocitel 6521 Meridien Drive, Suite 107 Raleigh, North Carolina 27616 Phone: 9197551012 FAX: 9197551031	Job	BRG 134 943057, 807133	Page	7 of 29
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	Client	Crown Castle	Designed by	PHicks

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
1.5" Feedline Ladder (Af)	B	Yes	Af (CfAe)	112.00 - 0.00	0.0000	0.35	2	2	24.0000 1.5000	1.5000	6.0000	0.00
1.5" Feedline Ladder (Af)	C	Yes	Af (CfAe)	126.00 - 0.00	-1.0000	-0.3	4	2	24.0000 1.5000	1.5000	6.0000	0.00
1.5" 2" Rigid Conduit	A	Yes	Ar (CfAe)	134.00 - 0.00	0.0000	-0.4	1	1	2.0000	2.0000		0.00
***** ***** *****												
MLE Hybrid 9Power/18Fiber RL 2(1 5/8)	A	Yes	Ar (CfAe)	170.00 - 0.00	4.0000	-0.05	1	1	0.5000	1.6250		0.00
LCF158-50JA -A0(1 5/8")	A	Yes	Ar (CfAe)	170.00 - 0.00	0.0000	0	12	9	0.5000	1.9800		0.00
MLC Hybrid 6/6(7/8)	A	Yes	Ar (CfAe)	170.00 - 0.00	4.0000	-0.05	1	1	0.4000	0.4000		0.00
*** 7983A(1/2")	A	Yes	Ar (CfAe)	157.00 - 0.00	0.0000	-0.47	2	2	0.5000	0.5800		0.00
*** HB114-21U3 M12-XXXX(1 -1/4")	A	Yes	Ar (CfAe)	148.00 - 0.00	0.0000	-0.375	4	4	0.5000	1.5400		0.00
*** LDF4-50A(1/ 2")	A	Yes	Ar (CfAe)	134.00 - 0.00	0.0000	-0.47	1	1	0.5000	0.6300		0.00
9207(5/16")	A	Yes	Ar (CfAe)	134.00 - 0.00	0.0000	0	6	6	0.3300	0.0000		0.00
2" Rigid Conduit	A	Yes	Ar (CfAe)	134.00 - 0.00	0.0000	-0.45	2	2	0.5000	2.0000		0.00
*** 561(1-5/8")	C	Yes	Ar (CfAe)	126.00 - 0.00	-4.0000	-0.3	19	10	0.5000	1.6250		0.00
LDF4-50A(1/ 2")	C	Yes	Ar (CfAe)	126.00 - 0.00	-1.0000	-0.345	1	1	0.5000	0.6300		0.00
*** LDF7-50A(1- 5/8")	B	Yes	Ar (CfAe)	112.00 - 0.00	0.0000	0.35	6	6	0.5000	1.9800		0.00
*** CR 50 1873(1-5/8")	C	Yes	Ar (CfAe)	102.00 - 0.00	0.0000	0.425	12	8	0.5000	1.9800		0.00
2" Rigid Conduit	C	Yes	Ar (CfAe)	102.00 - 0.00	2.0000	0.435	1	1	0.5000	2.0000		0.00
FB-L98-002-XXX(3/8)	C	Yes	Ar (CfAe)	102.00 - 0.00	0.0000	0.425	1	1	0.5000	0.0000		0.00
WR-VG82ST-BRDA(5/8")	C	Yes	Ar (CfAe)	102.00 - 0.00	0.0000	0.425	2	2	0.5000	0.0000		0.00
*** LDF4-50A(1/ 2")	C	Yes	Ar (CfAe)	48.00 - 0.00	0.0000	0.35	2	2	0.5000	0.6300		0.00
*** FB-L98-002-XXX(3/8")	C	Yes	Ar (CfAe)	102.00 - 0.00	1.0000	0.5	1	1	0.3937	0.3937		0.00
WR-VG82ST-BRDA(5/8)	C	Yes	Ar (CfAe)	102.00 - 0.00	1.0000	0.5	2	2	0.6450	0.6450		0.00

Feed Line/Linear Appurtenances Section Areas

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	<p>Client</p> <p>Crown Castle</p>	<p>Designed by</p> <p>PHicks</p>

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 K
T1	180.00-160.00	A	16.538	3.000	0.000	0.000	0.22
		B	0.625	0.000	0.000	0.000	0.00
		C	0.625	0.000	0.000	0.000	0.00
T2	160.00-153.33	A	11.379	2.583	0.000	0.000	0.16
		B	0.208	0.000	0.000	0.000	0.00
		C	0.208	0.000	0.000	0.000	0.00
T3	153.33-146.67	A	12.354	3.333	0.000	0.000	0.20
		B	0.208	0.000	0.000	0.000	0.00
		C	0.208	0.000	0.000	0.000	0.00
T4	146.67-140.00	A	15.092	3.333	0.000	0.000	0.22
		B	0.208	0.000	0.000	0.000	0.00
		C	0.208	0.000	0.000	0.000	0.00
T5	140.00-120.00	A	53.010	10.000	0.000	0.000	0.84
		B	0.625	0.000	0.000	0.000	0.00
		C	9.065	1.500	0.000	0.000	0.26
T6	120.00-100.00	A	56.325	10.000	0.000	0.000	0.91
		B	12.505	3.000	0.000	0.000	0.16
		C	32.012	5.000	0.000	0.000	0.88
T7	100.00-80.00	A	56.325	10.000	0.000	0.000	0.91
		B	20.425	5.000	0.000	0.000	0.27
		C	61.298	5.000	0.000	0.000	1.13
T8	80.00-70.00	A	28.163	5.000	0.000	0.000	0.46
		B	10.213	2.500	0.000	0.000	0.14
		C	30.649	2.500	0.000	0.000	0.57
T9	70.00-60.00	A	28.163	5.000	0.000	0.000	0.46
		B	10.213	2.500	0.000	0.000	0.14
		C	30.649	2.500	0.000	0.000	0.57
T10	60.00-40.00	A	56.325	10.000	0.000	0.000	0.91
		B	20.425	5.000	0.000	0.000	0.27
		C	62.138	5.000	0.000	0.000	1.14
T11	40.00-20.00	A	56.325	10.000	0.000	0.000	0.91
		B	20.425	5.000	0.000	0.000	0.27
		C	63.398	5.000	0.000	0.000	1.14
T12	20.00-0.00	A	56.325	10.000	0.000	0.000	0.91
		B	20.425	5.000	0.000	0.000	0.27
		C	63.398	5.000	0.000	0.000	1.14

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 K
T1	180.00-160.00	A	0.913	7.903	21.968	0.000	0.000	0.62
		B		3.668	0.000	0.000	0.000	0.03
		C		3.668	0.000	0.000	0.000	0.00
T2	160.00-153.33	A	0.904	5.969	16.012	0.000	0.000	0.45
		B		1.213	0.000	0.000	0.000	0.01
		C		1.213	0.000	0.000	0.000	0.00
T3	153.33-146.67	A	0.899	6.916	18.301	0.000	0.000	0.52
		B		1.208	0.000	0.000	0.000	0.01
		C		1.208	0.000	0.000	0.000	0.00
T4	146.67-140.00	A	0.895	8.372	21.006	0.000	0.000	0.59
		B		1.202	0.000	0.000	0.000	0.01
		C		1.202	0.000	0.000	0.000	0.00
T5	140.00-120.00	A	0.884	38.597	67.767	0.000	0.000	2.10
		B		3.572	0.000	0.000	0.000	0.03
		C		6.468	12.241	0.000	0.000	0.52

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _{AA} In Face ft ²	C _{AA} Out Face ft ²	Weight K
T6	120.00-100.00	A	0.867	43.922	69.686	0.000	0.000	2.22
		B		7.227	17.711	0.000	0.000	0.44
		C		15.619	43.918	0.000	0.000	1.82
T7	100.00-80.00	A	0.846	43.304	69.503	0.000	0.000	2.19
		B		9.565	29.426	0.000	0.000	0.71
		C		38.127	72.551	0.000	0.000	2.67
T8	80.00-70.00	A	0.828	21.377	34.670	0.000	0.000	1.08
		B		4.721	14.673	0.000	0.000	0.35
		C		18.789	36.235	0.000	0.000	1.32
T9	70.00-60.00	A	0.814	21.166	34.607	0.000	0.000	1.07
		B		4.674	14.641	0.000	0.000	0.35
		C		18.577	36.204	0.000	0.000	1.31
T10	60.00-40.00	A	0.788	41.575	68.991	0.000	0.000	2.11
		B		9.181	29.170	0.000	0.000	0.68
		C		37.869	73.049	0.000	0.000	2.60
T11	40.00-20.00	A	0.750	40.425	68.650	0.000	0.000	2.05
		B		8.925	29.000	0.000	0.000	0.66
		C		38.798	74.008	0.000	0.000	2.57
T12	20.00-0.00	A	0.750	40.425	68.650	0.000	0.000	2.05
		B		8.925	29.000	0.000	0.000	0.66
		C		38.798	74.008	0.000	0.000	2.57

Feed Line Shielding

Section	Elevation ft	Face	A _R ft ²	A _R Ice ft ²	A _F ft ²	A _F Ice ft ²
T1	180.00-160.00	A	0.000	2.732	1.881	2.993
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T2	160.00-153.33	A	0.000	1.290	1.081	1.783
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T3	153.33-146.67	A	0.000	2.041	1.578	2.671
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T4	146.67-140.00	A	0.000	2.314	1.825	3.041
		B	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000
T5	140.00-120.00	A	0.000	5.596	4.520	7.911
		B	0.000	0.000	0.000	0.000
		C	0.000	0.798	0.713	1.128
T6	120.00-100.00	A	0.000	5.648	5.520	9.776
		B	0.000	1.086	1.238	1.879
		C	0.000	2.786	3.028	4.823
T7	100.00-80.00	A	0.000	3.883	4.570	8.033
		B	0.000	1.247	1.709	2.579
		C	0.000	3.635	4.526	7.519
T8	80.00-70.00	A	0.000	1.839	2.228	3.889
		B	0.000	0.592	0.833	1.251
		C	0.000	1.724	2.206	3.645
T9	70.00-60.00	A	0.000	1.775	2.199	3.818
		B	0.000	0.572	0.822	1.230
		C	0.000	1.665	2.177	3.582
T10	60.00-40.00	A	0.000	3.352	4.944	8.504
		B	0.000	1.083	1.849	2.747
		C	0.000	3.215	4.958	8.157

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Section	Elevation	Face	A_R	A_R	A_F	A_F
	ft		ft ²	Ice ft ²	ft ²	Ice ft ²
T11	40.00-20.00	A	0.000	3.087	4.858	8.233
		B	0.000	1.002	1.816	2.671
		C	0.000	3.058	4.964	8.155
T12	20.00-0.00	A	0.000	3.045	4.791	8.119
		B	0.000	0.988	1.791	2.634
		C	0.000	3.016	4.895	8.042

Feed Line Center of Pressure

Section	Elevation	CP_x	CP_z	CP_x	CP_z
	ft	in	in	Ice in	Ice in
T1	180.00-160.00	-4.6141	-2.5735	-2.4104	-1.2587
T2	160.00-153.33	-9.4160	-3.7741	-6.8041	-2.4165
T3	153.33-146.67	-10.2391	-2.6539	-6.9044	-1.5557
T4	146.67-140.00	-12.8229	-1.5787	-8.2590	-1.0164
T5	140.00-120.00	-13.7899	1.9247	-9.6826	1.5647
T6	120.00-100.00	-4.8063	8.1068	-3.2176	6.5497
T7	100.00-80.00	-10.3043	14.8816	-8.3961	12.3492
T8	80.00-70.00	-10.3487	15.0067	-8.6626	12.7867
T9	70.00-60.00	-10.8374	15.7508	-9.0894	13.4451
T10	60.00-40.00	-11.2628	16.2901	-9.4143	13.9560
T11	40.00-20.00	-12.4273	17.8322	-10.2863	15.1969
T12	20.00-0.00	-13.2486	19.0610	-10.9842	16.2646

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C_{AA} Front ft ²	C_{AA} Side ft ²	Weight K	

Lightning Rod	C	From Leg	0.00	0.0000	180.00	No Ice	0.25	0.25	0.03
			0.00			1/2" Ice	0.66	0.66	0.03
			2.00			1" Ice	0.97	0.97	0.04
						2" Ice	1.49	1.49	0.06
						4" Ice	2.68	2.68	0.14

Empty Pipe Mount	A	From Leg	4.00	0.0000	178.00	No Ice	1.00	1.00	0.01
			0.00			1/2" Ice	1.39	1.39	0.02
			0.00			1" Ice	1.70	1.70	0.03
						2" Ice	2.35	2.35	0.06
Empty Pipe Mount	B	From Leg	4.00	0.0000	178.00	No Ice	1.00	1.00	0.01
			0.00			1/2" Ice	1.39	1.39	0.02
			0.00			1" Ice	1.70	1.70	0.03
						2" Ice	2.35	2.35	0.06
						4" Ice	3.78	3.78	0.18

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz Lateral	Vert						°
Side Arm Mount [SO 306-1]	A	From Leg	0.00	0.00	0.0000	178.00	No Ice	0.98	2.18	0.04
			0.00	0.00			1/2" Ice	1.70	3.80	0.06
			0.00	0.00			1" Ice	2.42	5.42	0.08
							2" Ice	3.86	8.66	0.12
							4" Ice	6.74	15.14	0.20
Side Arm Mount [SO 306-1]	B	From Leg	0.00	0.00	0.0000	178.00	No Ice	0.98	2.18	0.04
			0.00	0.00			1/2" Ice	1.70	3.80	0.06
			0.00	0.00			1" Ice	2.42	5.42	0.08
							2" Ice	3.86	8.66	0.12
							4" Ice	6.74	15.14	0.20

AIR -32 B2A/B66AA w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	170.00	No Ice	7.34	6.15	0.15
			0.00	0.00			1/2" Ice	7.87	7.01	0.21
			3.00	0.00			1" Ice	8.39	7.80	0.28
				0.00			2" Ice	9.47	9.43	0.44
				0.00			4" Ice	11.76	12.91	0.89
AIR -32 B2A/B66AA w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	170.00	No Ice	7.34	6.15	0.15
			0.00	0.00			1/2" Ice	7.87	7.01	0.21
			3.00	0.00			1" Ice	8.39	7.80	0.28
				0.00			2" Ice	9.47	9.43	0.44
				0.00			4" Ice	11.76	12.91	0.89
AIR -32 B2A/B66AA w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	170.00	No Ice	7.34	6.15	0.15
			0.00	0.00			1/2" Ice	7.87	7.01	0.21
			3.00	0.00			1" Ice	8.39	7.80	0.28
				0.00			2" Ice	9.47	9.43	0.44
				0.00			4" Ice	11.76	12.91	0.89
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	170.00	No Ice	6.83	5.64	0.11
			0.00	0.00			1/2" Ice	7.35	6.48	0.17
			3.00	0.00			1" Ice	7.86	7.26	0.23
				0.00			2" Ice	8.93	8.86	0.38
				0.00			4" Ice	11.18	12.29	0.81
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	170.00	No Ice	6.83	5.64	0.11
			0.00	0.00			1/2" Ice	7.35	6.48	0.17
			3.00	0.00			1" Ice	7.86	7.26	0.23
				0.00			2" Ice	8.93	8.86	0.38
				0.00			4" Ice	11.18	12.29	0.81
ERICSSON AIR 21 B2A B4P w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	170.00	No Ice	6.83	5.64	0.11
			0.00	0.00			1/2" Ice	7.35	6.48	0.17
			3.00	0.00			1" Ice	7.86	7.26	0.23
				0.00			2" Ice	8.93	8.86	0.38
				0.00			4" Ice	11.18	12.29	0.81
LNX-6515DS-VTM w/ Mount Pipe	A	From Leg	4.00	0.00	0.0000	170.00	No Ice	11.68	9.84	0.08
			0.00	0.00			1/2" Ice	12.40	11.37	0.17
			3.00	0.00			1" Ice	13.14	12.91	0.27
				0.00			2" Ice	14.60	15.27	0.51
				0.00			4" Ice	17.87	20.14	1.15
LNX-6515DS-VTM w/ Mount Pipe	B	From Leg	4.00	0.00	0.0000	170.00	No Ice	11.68	9.84	0.08
			0.00	0.00			1/2" Ice	12.40	11.37	0.17
			3.00	0.00			1" Ice	13.14	12.91	0.27
				0.00			2" Ice	14.60	15.27	0.51
				0.00			4" Ice	17.87	20.14	1.15
LNX-6515DS-VTM w/ Mount Pipe	C	From Leg	4.00	0.00	0.0000	170.00	No Ice	11.68	9.84	0.08
			0.00	0.00			1/2" Ice	12.40	11.37	0.17
			3.00	0.00			1" Ice	13.14	12.91	0.27
				0.00			2" Ice	14.60	15.27	0.51
				0.00			4" Ice	17.87	20.14	1.15
KRY 112 144/1	A	From Leg	4.00	0.00	0.0000	170.00	No Ice	0.41	0.19	0.01

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	Client	Crown Castle	Designed by	PHicks

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz	Lateral						°
			0.00			1/2" Ice	0.50	0.26	0.01	
			3.00			1" Ice	0.60	0.33	0.02	
						2" Ice	0.82	0.51	0.03	
						4" Ice	1.36	0.97	0.08	
KRY 112 144/1	B	From Leg	4.00		0.0000	170.00	No Ice	0.41	0.19	0.01
			0.00				1/2" Ice	0.50	0.26	0.01
			3.00				1" Ice	0.60	0.33	0.02
							2" Ice	0.82	0.51	0.03
							4" Ice	1.36	0.97	0.08
KRY 112 144/1	C	From Leg	4.00		0.0000	170.00	No Ice	0.41	0.19	0.01
			0.00				1/2" Ice	0.50	0.26	0.01
			3.00				1" Ice	0.60	0.33	0.02
							2" Ice	0.82	0.51	0.03
							4" Ice	1.36	0.97	0.08
RRUS 11 B12	A	From Leg	4.00		0.0000	170.00	No Ice	3.31	1.36	0.05
			0.00				1/2" Ice	3.55	1.54	0.07
			3.00				1" Ice	3.80	1.73	0.10
							2" Ice	4.33	2.13	0.15
							4" Ice	5.50	3.04	0.31
RRUS 11 B12	B	From Leg	4.00		0.0000	170.00	No Ice	3.31	1.36	0.05
			0.00				1/2" Ice	3.55	1.54	0.07
			3.00				1" Ice	3.80	1.73	0.10
							2" Ice	4.33	2.13	0.15
							4" Ice	5.50	3.04	0.31
RRUS 11 B12	C	From Leg	4.00		0.0000	170.00	No Ice	3.31	1.36	0.05
			0.00				1/2" Ice	3.55	1.54	0.07
			3.00				1" Ice	3.80	1.73	0.10
							2" Ice	4.33	2.13	0.15
							4" Ice	5.50	3.04	0.31
Sector Mount [SM 602-3]	C	None			0.0000	170.00	No Ice	33.11	33.11	1.54
							1/2" Ice	44.90	44.90	2.16
							1" Ice	56.69	56.69	2.78
							2" Ice	80.27	80.27	4.01
							4" Ice	127.43	127.43	6.49
Empty Pipe Mount	A	From Leg	4.00		0.0000	170.00	No Ice	1.05	1.05	0.02
			0.00				1/2" Ice	1.67	1.67	0.03
			3.00				1" Ice	2.09	2.09	0.04
							2" Ice	2.85	2.85	0.08
							4" Ice	4.48	4.48	0.21
Empty Pipe Mount	B	From Leg	4.00		0.0000	170.00	No Ice	1.05	1.05	0.02
			0.00				1/2" Ice	1.67	1.67	0.03
			3.00				1" Ice	2.09	2.09	0.04
							2" Ice	2.85	2.85	0.08
							4" Ice	4.48	4.48	0.21
Empty Pipe Mount	C	From Leg	4.00		0.0000	170.00	No Ice	1.05	1.05	0.02
			0.00				1/2" Ice	1.67	1.67	0.03
			3.00				1" Ice	2.09	2.09	0.04
							2" Ice	2.85	2.85	0.08
							4" Ice	4.48	4.48	0.21

Side Arm Mount [SO 202-1]	A	From Leg	0.00		0.0000	157.00	No Ice	2.96	2.53	0.11
			0.00				1/2" Ice	4.10	3.51	0.13
			0.00				1" Ice	5.24	4.49	0.16
							2" Ice	7.52	6.45	0.20
							4" Ice	12.08	10.37	0.30
Side Arm Mount [SO 202-1]	B	From Leg	0.00		0.0000	157.00	No Ice	2.96	2.53	0.11
			0.00				1/2" Ice	4.10	3.51	0.13

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Description	Face or Leg	Offset Type	Offsets:			Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert	Lateral				
			ft	ft	ft	ft	ft ²	ft ²	K
			0.00			1" Ice	5.24	4.49	0.16
						2" Ice	7.52	6.45	0.20
						4" Ice	12.08	10.37	0.30

APXVSP18-C-A20 w/ Mount Pipe	A	From Leg	4.00	0.0000	148.00	No Ice	8.50	6.95	0.08
			0.00			1/2" Ice	9.15	8.13	0.15
			0.00			1" Ice	9.77	9.02	0.23
						2" Ice	11.03	10.84	0.41
						4" Ice	13.68	14.85	0.91
APXVSP18-C-A20 w/ Mount Pipe	B	From Leg	4.00	0.0000	148.00	No Ice	8.50	6.95	0.08
			0.00			1/2" Ice	9.15	8.13	0.15
			0.00			1" Ice	9.77	9.02	0.23
						2" Ice	11.03	10.84	0.41
						4" Ice	13.68	14.85	0.91
APXVSP18-C-A20 w/ Mount Pipe	C	From Leg	4.00	0.0000	148.00	No Ice	8.50	6.95	0.08
			0.00			1/2" Ice	9.15	8.13	0.15
			0.00			1" Ice	9.77	9.02	0.23
						2" Ice	11.03	10.84	0.41
						4" Ice	13.68	14.85	0.91
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00	0.0000	148.00	No Ice	7.13	4.96	0.08
			0.00			1/2" Ice	7.66	5.75	0.13
			0.00			1" Ice	8.18	6.47	0.19
						2" Ice	9.26	8.01	0.34
						4" Ice	11.53	11.41	0.75
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00	0.0000	148.00	No Ice	7.13	4.96	0.08
			0.00			1/2" Ice	7.66	5.75	0.13
			0.00			1" Ice	8.18	6.47	0.19
						2" Ice	9.26	8.01	0.34
						4" Ice	11.53	11.41	0.75
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00	0.0000	148.00	No Ice	7.13	4.96	0.08
			0.00			1/2" Ice	7.66	5.75	0.13
			0.00			1" Ice	8.18	6.47	0.19
						2" Ice	9.26	8.01	0.34
						4" Ice	11.53	11.41	0.75
(3) ACU-A20-N	A	From Leg	4.00	0.0000	148.00	No Ice	0.08	0.14	0.00
			0.00			1/2" Ice	0.12	0.19	0.00
			0.00			1" Ice	0.17	0.25	0.00
						2" Ice	0.30	0.40	0.01
						4" Ice	0.67	0.80	0.04
(3) ACU-A20-N	B	From Leg	4.00	0.0000	148.00	No Ice	0.08	0.14	0.00
			0.00			1/2" Ice	0.12	0.19	0.00
			0.00			1" Ice	0.17	0.25	0.00
						2" Ice	0.30	0.40	0.01
						4" Ice	0.67	0.80	0.04
(3) ACU-A20-N	C	From Leg	4.00	0.0000	148.00	No Ice	0.08	0.14	0.00
			0.00			1/2" Ice	0.12	0.19	0.00
			0.00			1" Ice	0.17	0.25	0.00
						2" Ice	0.30	0.40	0.01
						4" Ice	0.67	0.80	0.04
TD-RRH8x20-25	A	From Leg	4.00	0.0000	148.00	No Ice	4.72	1.70	0.07
			0.00			1/2" Ice	5.01	1.92	0.10
			0.00			1" Ice	5.32	2.14	0.13
						2" Ice	5.95	2.62	0.20
						4" Ice	7.31	3.68	0.40
TD-RRH8x20-25	B	From Leg	4.00	0.0000	148.00	No Ice	4.72	1.70	0.07
			0.00			1/2" Ice	5.01	1.92	0.10
			0.00			1" Ice	5.32	2.14	0.13

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			Horz ft	Lateral ft					
TD-RRH8x20-25	C	From Leg	4.00	0.0000	148.00	2" Ice	5.95	2.62	0.20
						4" Ice	7.31	3.68	0.40
						No Ice	4.72	1.70	0.07
						1/2" Ice	5.01	1.92	0.10
						1" Ice	5.32	2.14	0.13
(3) Site Pro VFA12-U w/ 12' Stiff Arm	C	None		0.0000	148.00	2" Ice	5.95	2.62	0.20
						4" Ice	7.31	3.68	0.40
						No Ice	33.02	33.02	1.67
						1/2" Ice	47.36	47.36	2.22
						1" Ice	61.70	61.70	2.77
*** PCS 1900MHz 4x45W-65MHz	A	From Leg	4.00	0.0000	143.00	2" Ice	5.95	2.62	0.20
						4" Ice	7.31	3.68	0.40
						No Ice	4.72	1.70	0.07
						1/2" Ice	5.01	1.92	0.10
						1" Ice	5.32	2.14	0.13
PCS 1900MHz 4x45W-65MHz	A	From Leg	4.00	0.0000	143.00	2" Ice	5.95	2.62	0.20
						4" Ice	7.31	3.68	0.40
						No Ice	33.02	33.02	1.67
						1/2" Ice	47.36	47.36	2.22
						1" Ice	61.70	61.70	2.77
PCS 1900MHz 4x45W-65MHz	B	From Leg	4.00	0.0000	143.00	2" Ice	5.95	2.62	0.20
						4" Ice	7.31	3.68	0.40
						No Ice	4.72	1.70	0.07
						1/2" Ice	5.01	1.92	0.10
						1" Ice	5.32	2.14	0.13
PCS 1900MHz 4x45W-65MHz	B	From Leg	4.00	0.0000	143.00	2" Ice	5.95	2.62	0.20
						4" Ice	7.31	3.68	0.40
						No Ice	33.02	33.02	1.67
						1/2" Ice	47.36	47.36	2.22
						1" Ice	61.70	61.70	2.77
PCS 1900MHz 4x45W-65MHz	C	From Leg	4.00	0.0000	143.00	2" Ice	5.95	2.62	0.20
						4" Ice	7.31	3.68	0.40
						No Ice	33.02	33.02	1.67
						1/2" Ice	47.36	47.36	2.22
						1" Ice	61.70	61.70	2.77
PCS 1900MHz 4x45W-65MHz	C	From Leg	4.00	0.0000	143.00	2" Ice	5.95	2.62	0.20
						4" Ice	7.31	3.68	0.40
						No Ice	33.02	33.02	1.67
						1/2" Ice	47.36	47.36	2.22
						1" Ice	61.70	61.70	2.77
TME-800MHz 2X50W RRH	A	From Leg	4.00	0.0000	143.00	2" Ice	5.95	2.62	0.20
						4" Ice	7.31	3.68	0.40
						No Ice	4.72	1.70	0.07
						1/2" Ice	5.01	1.92	0.10
						1" Ice	5.32	2.14	0.13
TME-800MHz 2X50W RRH	B	From Leg	4.00	0.0000	143.00	2" Ice	5.95	2.62	0.20
						4" Ice	7.31	3.68	0.40
						No Ice	4.72	1.70	0.07
						1/2" Ice	5.01	1.92	0.10
						1" Ice	5.32	2.14	0.13
TME-800MHz 2X50W RRH	C	From Leg	4.00	0.0000	143.00	2" Ice	5.95	2.62	0.20
						4" Ice	7.31	3.68	0.40
						No Ice	4.72	1.70	0.07
						1/2" Ice	5.01	1.92	0.10
						1" Ice	5.32	2.14	0.13

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			Horz ft	Lateral ft					
800 EXTERNAL NOTCH FILTER	A	From Leg	4.00	0.0000	143.00	4" Ice	4.46	3.93	0.32
			0.00			No Ice	0.77	0.37	0.01
			2.00			1/2" Ice	0.89	0.46	0.02
						1" Ice	1.02	0.56	0.02
						2" Ice	1.30	0.79	0.04
800 EXTERNAL NOTCH FILTER	B	From Leg	4.00	0.0000	143.00	4" Ice	1.97	1.34	0.11
			0.00			No Ice	0.77	0.37	0.01
			2.00			1/2" Ice	0.89	0.46	0.02
						1" Ice	1.02	0.56	0.02
						2" Ice	1.30	0.79	0.04
800 EXTERNAL NOTCH FILTER	C	From Leg	4.00	0.0000	143.00	4" Ice	1.97	1.34	0.11
			0.00			No Ice	0.77	0.37	0.01
			2.00			1/2" Ice	0.89	0.46	0.02
						1" Ice	1.02	0.56	0.02
						2" Ice	1.30	0.79	0.04
Side Arm Mount [SO 312-3]	C	None		0.0000	143.00	4" Ice	1.97	1.34	0.11
						No Ice	7.87	7.87	0.21
						1/2" Ice	11.82	11.82	0.32
						1" Ice	15.77	15.77	0.43
						2" Ice	23.67	23.67	0.65
***					4" Ice	39.47	39.47	1.08	
LLPX310R w/ Mount Pipe	A	From Leg	4.00	0.0000	134.00	No Ice	5.07	2.98	0.05
			0.00			1/2" Ice	5.48	3.53	0.08
			1.00			1" Ice	5.91	4.09	0.13
						2" Ice	6.79	5.31	0.23
						4" Ice	8.70	8.13	0.54
LLPX310R w/ Mount Pipe	B	From Leg	4.00	0.0000	134.00	No Ice	5.07	2.98	0.05
			0.00			1/2" Ice	5.48	3.53	0.08
			1.00			1" Ice	5.91	4.09	0.13
						2" Ice	6.79	5.31	0.23
						4" Ice	8.70	8.13	0.54
LLPX310R w/ Mount Pipe	C	From Leg	4.00	0.0000	134.00	No Ice	5.07	2.98	0.05
			0.00			1/2" Ice	5.48	3.53	0.08
			1.00			1" Ice	5.91	4.09	0.13
						2" Ice	6.79	5.31	0.23
						4" Ice	8.70	8.13	0.54
RRH-2WB	A	From Leg	4.00	0.0000	134.00	No Ice	2.69	0.85	0.04
			0.00			1/2" Ice	2.91	1.01	0.06
			1.00			1" Ice	3.14	1.18	0.08
						2" Ice	3.63	1.55	0.12
						4" Ice	4.72	2.38	0.25
RRH-2WB	B	From Leg	4.00	0.0000	134.00	No Ice	2.69	0.85	0.04
			0.00			1/2" Ice	2.91	1.01	0.06
			1.00			1" Ice	3.14	1.18	0.08
						2" Ice	3.63	1.55	0.12
						4" Ice	4.72	2.38	0.25
RRH-2WB	C	From Leg	4.00	0.0000	134.00	No Ice	2.69	0.85	0.04
			0.00			1/2" Ice	2.91	1.01	0.06
			1.00			1" Ice	3.14	1.18	0.08
						2" Ice	3.63	1.55	0.12
						4" Ice	4.72	2.38	0.25
Pipe Mount [PM 601-1]	A	From Leg	4.00	0.0000	134.00	No Ice	3.00	0.90	0.07
			0.00			1/2" Ice	3.74	1.12	0.08
			0.00			1" Ice	4.48	1.34	0.09
						2" Ice	5.96	1.78	0.12
						4" Ice	8.92	2.66	0.18

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz Lateral	Vert					
Sector Mount [SM 502-3]	C	None			0.0000	134.00	No Ice 33.02 1/2" Ice 47.36 1" Ice 61.70 2" Ice 90.38 4" Ice 147.74	33.02 47.36 61.70 90.38 147.74	1.67 2.22 2.77 3.88 6.08

HBX-6516DS-VTM w/ Mount Pipe	A	From Leg	4.00 0.00 2.00		0.0000	126.00	No Ice 3.56 1/2" Ice 3.96 1" Ice 4.38 2" Ice 5.32 4" Ice 7.31	3.24 3.91 4.56 5.91 8.88	0.03 0.06 0.10 0.20 0.50
HBX-6516DS-VTM w/ Mount Pipe	B	From Leg	4.00 0.00 2.00		0.0000	126.00	No Ice 3.56 1/2" Ice 3.96 1" Ice 4.38 2" Ice 5.32 4" Ice 7.31	3.24 3.91 4.56 5.91 8.88	0.03 0.06 0.10 0.20 0.50
HBX-6516DS-VTM w/ Mount Pipe	C	From Leg	4.00 0.00 2.00		0.0000	126.00	No Ice 3.56 1/2" Ice 3.96 1" Ice 4.38 2" Ice 5.32 4" Ice 7.31	3.24 3.91 4.56 5.91 8.88	0.03 0.06 0.10 0.20 0.50
DB844G65ZAXY w/ Mount Pipe	A	From Leg	4.00 0.00 2.00		0.0000	126.00	No Ice 4.90 1/2" Ice 5.35 1" Ice 5.80 2" Ice 6.73 4" Ice 8.73	4.92 5.60 6.28 7.71 10.83	0.03 0.08 0.13 0.26 0.62
DB844G65ZAXY w/ Mount Pipe	B	From Leg	4.00 0.00 2.00		0.0000	126.00	No Ice 4.90 1/2" Ice 5.35 1" Ice 5.80 2" Ice 6.73 4" Ice 8.73	4.92 5.60 6.28 7.71 10.83	0.03 0.08 0.13 0.26 0.62
(2) DB844G65ZAXY w/ Mount Pipe	C	From Leg	4.00 0.00 2.00		0.0000	126.00	No Ice 4.90 1/2" Ice 5.35 1" Ice 5.80 2" Ice 6.73 4" Ice 8.73	4.92 5.60 6.28 7.71 10.83	0.03 0.08 0.13 0.26 0.62
LNx-6514DS-T4M w/ Mount Pipe	A	From Leg	4.00 0.00 2.00		0.0000	126.00	No Ice 8.57 1/2" Ice 9.22 1" Ice 9.84 2" Ice 11.10 4" Ice 13.75	7.00 8.19 9.08 10.90 14.93	0.06 0.13 0.20 0.38 0.89
LNx-6514DS-T4M w/ Mount Pipe	B	From Leg	4.00 0.00 2.00		0.0000	126.00	No Ice 8.57 1/2" Ice 9.22 1" Ice 9.84 2" Ice 11.10 4" Ice 13.75	7.00 8.19 9.08 10.90 14.93	0.06 0.13 0.20 0.38 0.89
MG D3-800TV w/ Mount Pipe	A	From Leg	4.00 0.00 2.00		0.0000	126.00	No Ice 3.57 1/2" Ice 3.98 1" Ice 4.39 2" Ice 5.33 4" Ice 7.34	3.42 4.12 4.78 6.16 9.18	0.04 0.07 0.11 0.21 0.52
MG D3-800TV w/ Mount Pipe	B	From Leg	4.00 0.00 2.00		0.0000	126.00	No Ice 3.57 1/2" Ice 3.98 1" Ice 4.39 2" Ice 5.33 4" Ice 7.34	3.42 4.12 4.78 6.16 9.18	0.04 0.07 0.11 0.21 0.52
MG D3-800TV w/ Mount	C	From Leg	4.00		0.0000	126.00	No Ice 3.57	3.42	0.04

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	Client		Crown Castle		Designed by		PHicks	

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz Lateral	Vert						°
Pipe			0.00			1/2" Ice	3.98	4.12	0.07	
			2.00			1" Ice	4.39	4.78	0.11	
						2" Ice	5.33	6.16	0.21	
						4" Ice	7.34	9.18	0.52	
DB844H80-XY w/ Mount Pipe	A	From Leg	4.00		0.0000	126.00	No Ice	3.10	5.15	0.03
			0.00				1/2" Ice	3.48	5.83	0.07
			2.00				1" Ice	3.88	6.52	0.11
							2" Ice	4.76	7.96	0.22
							4" Ice	6.66	11.09	0.55
DB844H80-XY w/ Mount Pipe	B	From Leg	4.00		0.0000	126.00	No Ice	3.10	5.15	0.03
			0.00				1/2" Ice	3.48	5.83	0.07
			2.00				1" Ice	3.88	6.52	0.11
							2" Ice	4.76	7.96	0.22
							4" Ice	6.66	11.09	0.55
GPS_A	B	From Leg	4.00		0.0000	126.00	No Ice	0.30	0.30	0.00
			0.00				1/2" Ice	0.37	0.37	0.00
			4.00				1" Ice	0.46	0.46	0.01
							2" Ice	0.65	0.65	0.02
							4" Ice	1.15	1.15	0.08
P65.16.XL.2 w/ Mount Pipe	C	From Leg	4.00		0.0000	126.00	No Ice	8.64	5.78	0.06
			0.00				1/2" Ice	9.29	6.95	0.12
			2.00				1" Ice	9.91	7.83	0.19
							2" Ice	11.18	9.63	0.36
							4" Ice	13.83	13.44	0.84
RRH2X40-AWS	A	From Leg	4.00		0.0000	126.00	No Ice	2.52	1.59	0.04
			0.00				1/2" Ice	2.75	1.80	0.06
			2.00				1" Ice	2.99	2.01	0.08
							2" Ice	3.50	2.46	0.13
							4" Ice	4.61	3.48	0.28
RRH2X40-AWS	B	From Leg	4.00		0.0000	126.00	No Ice	2.52	1.59	0.04
			0.00				1/2" Ice	2.75	1.80	0.06
			2.00				1" Ice	2.99	2.01	0.08
							2" Ice	3.50	2.46	0.13
							4" Ice	4.61	3.48	0.28
RRH2X40-AWS	C	From Leg	4.00		0.0000	126.00	No Ice	2.52	1.59	0.04
			0.00				1/2" Ice	2.75	1.80	0.06
			2.00				1" Ice	2.99	2.01	0.08
							2" Ice	3.50	2.46	0.13
							4" Ice	4.61	3.48	0.28
DB-T1-6Z-8AB-0Z	B	From Leg	4.00		0.0000	126.00	No Ice	5.60	2.33	0.04
			0.00				1/2" Ice	5.92	2.56	0.08
			2.00				1" Ice	6.24	2.79	0.12
							2" Ice	6.91	3.28	0.21
							4" Ice	8.37	4.37	0.45
Sector Mount [SM 410-3]	C	None			0.0000	126.00	No Ice	23.96	23.96	1.10
							1/2" Ice	34.06	34.06	1.60
							1" Ice	44.16	44.16	2.10
							2" Ice	64.36	64.36	3.10
							4" Ice	104.76	104.76	5.09

800 10504 w/ Mount Pipe	A	From Leg	4.00		0.0000	112.00	No Ice	3.59	3.18	0.04
			0.00				1/2" Ice	4.01	3.91	0.07
			0.00				1" Ice	4.42	4.58	0.11
							2" Ice	5.34	5.98	0.21
							4" Ice	7.38	8.98	0.51
800 10504 w/ Mount Pipe	B	From Leg	4.00		0.0000	112.00	No Ice	3.59	3.18	0.04
			0.00				1/2" Ice	4.01	3.91	0.07

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Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral	Vert					
			0.00							
800 10504 w/ Mount Pipe	C	From Leg	4.00	0.0000	112.00	1" Ice	4.42	4.58	0.11	
			0.00			2" Ice	5.34	5.98	0.21	
			0.00			4" Ice	7.38	8.98	0.51	
			0.00			No Ice	3.59	3.18	0.04	
			0.00			1/2" Ice	4.01	3.91	0.07	
Sector Mount [SM 104-3]	C	None	4.00	0.0000	112.00	1" Ice	4.42	4.58	0.11	
			0.00			2" Ice	5.34	5.98	0.21	
			0.00			4" Ice	7.38	8.98	0.51	
			0.00			No Ice	30.02	30.02	0.95	
			0.00			1/2" Ice	40.48	40.48	1.40	
Empty Mount Pipe	A	From Leg	4.00	0.0000	112.00	1" Ice	50.94	50.94	1.86	
			0.00			2" Ice	71.86	71.86	2.76	
			0.00			4" Ice	113.70	113.70	4.57	
			0.00			No Ice	1.40	1.40	0.03	
			0.00			1/2" Ice	2.13	2.13	0.04	
Empty Mount Pipe	B	From Leg	4.00	0.0000	112.00	1" Ice	2.68	2.68	0.06	
			0.00			2" Ice	3.56	3.56	0.10	
			0.00			4" Ice	5.42	5.42	0.26	
			0.00			No Ice	1.40	1.40	0.03	
			0.00			1/2" Ice	2.13	2.13	0.04	
Empty Mount Pipe	C	From Leg	4.00	0.0000	112.00	1" Ice	2.68	2.68	0.06	
			0.00			2" Ice	3.56	3.56	0.10	
			0.00			4" Ice	5.42	5.42	0.26	
			0.00			No Ice	1.40	1.40	0.03	
			0.00			1/2" Ice	2.13	2.13	0.04	

7770.00 w/ Mount Pipe	A	From Leg	4.00	0.0000	102.00	No Ice	6.12	4.25	0.06	
			0.00			1/2" Ice	6.63	5.01	0.10	
			0.00			1" Ice	7.13	5.71	0.16	
			0.00			2" Ice	8.16	7.16	0.29	
			0.00			4" Ice	10.36	10.41	0.66	
7770.00 w/ Mount Pipe	B	From Leg	4.00	0.0000	102.00	No Ice	6.12	4.25	0.06	
			0.00			1/2" Ice	6.63	5.01	0.10	
			0.00			1" Ice	7.13	5.71	0.16	
			0.00			2" Ice	8.16	7.16	0.29	
			0.00			4" Ice	10.36	10.41	0.66	
7770.00 w/ Mount Pipe	C	From Leg	4.00	0.0000	102.00	No Ice	6.12	4.25	0.06	
			0.00			1/2" Ice	6.63	5.01	0.10	
			0.00			1" Ice	7.13	5.71	0.16	
			0.00			2" Ice	8.16	7.16	0.29	
			0.00			4" Ice	10.36	10.41	0.66	
P65-16-XLH-RR w/ Mount Pipe	A	From Leg	4.00	0.0000	102.00	No Ice	8.64	6.36	0.08	
			0.00			1/2" Ice	9.29	7.54	0.14	
			0.00			1" Ice	9.91	8.43	0.22	
			0.00			2" Ice	11.18	10.24	0.39	
			0.00			4" Ice	13.83	14.10	0.89	
P65-16-XLH-RR w/ Mount Pipe	B	From Leg	4.00	0.0000	102.00	No Ice	8.64	6.36	0.08	
			0.00			1/2" Ice	9.29	7.54	0.14	
			0.00			1" Ice	9.91	8.43	0.22	
			0.00			2" Ice	11.18	10.24	0.39	
			0.00			4" Ice	13.83	14.10	0.89	
P65-16-XLH-RR w/ Mount Pipe	C	From Leg	4.00	0.0000	102.00	No Ice	8.64	6.36	0.08	
			0.00			1/2" Ice	9.29	7.54	0.14	
			0.00			1" Ice	9.91	8.43	0.22	

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz Lateral	Vert					
						2" Ice	11.18	10.24	0.39
						4" Ice	13.83	14.10	0.89
(2) LGP2140X	A	From Leg	4.00	0.0000	102.00	No Ice	1.26	0.38	0.01
			0.00			1/2" Ice	1.42	0.49	0.02
			0.00			1" Ice	1.58	0.62	0.03
						2" Ice	1.94	0.89	0.05
						4" Ice	2.75	1.54	0.13
(2) LGP2140X	B	From Leg	4.00	0.0000	102.00	No Ice	1.26	0.38	0.01
			0.00			1/2" Ice	1.42	0.49	0.02
			0.00			1" Ice	1.58	0.62	0.03
						2" Ice	1.94	0.89	0.05
						4" Ice	2.75	1.54	0.13
(2) LGP2140X	C	From Leg	4.00	0.0000	102.00	No Ice	1.26	0.38	0.01
			0.00			1/2" Ice	1.42	0.49	0.02
			0.00			1" Ice	1.58	0.62	0.03
						2" Ice	1.94	0.89	0.05
						4" Ice	2.75	1.54	0.13
RRUS 11 B2	A	From Leg	4.00	0.0000	102.00	No Ice	3.31	1.36	0.05
			0.00			1/2" Ice	3.55	1.54	0.07
			0.00			1" Ice	3.80	1.73	0.10
						2" Ice	4.33	2.13	0.15
						4" Ice	5.50	3.04	0.31
RRUS 11 B2	B	From Leg	4.00	0.0000	102.00	No Ice	3.31	1.36	0.05
			0.00			1/2" Ice	3.55	1.54	0.07
			0.00			1" Ice	3.80	1.73	0.10
						2" Ice	4.33	2.13	0.15
						4" Ice	5.50	3.04	0.31
RRUS 11 B2	C	From Leg	4.00	0.0000	102.00	No Ice	3.31	1.36	0.05
			0.00			1/2" Ice	3.55	1.54	0.07
			0.00			1" Ice	3.80	1.73	0.10
						2" Ice	4.33	2.13	0.15
						4" Ice	5.50	3.04	0.31
RRUS 12	A	From Leg	4.00	0.0000	102.00	No Ice	3.67	1.49	0.06
			0.00			1/2" Ice	3.93	1.67	0.08
			0.00			1" Ice	4.19	1.87	0.11
						2" Ice	4.75	2.28	0.17
						4" Ice	5.96	3.21	0.34
RRUS 12	B	From Leg	4.00	0.0000	102.00	No Ice	3.67	1.49	0.06
			0.00			1/2" Ice	3.93	1.67	0.08
			0.00			1" Ice	4.19	1.87	0.11
						2" Ice	4.75	2.28	0.17
						4" Ice	5.96	3.21	0.34
RRUS 12	C	From Leg	4.00	0.0000	102.00	No Ice	3.67	1.49	0.06
			0.00			1/2" Ice	3.93	1.67	0.08
			0.00			1" Ice	4.19	1.87	0.11
						2" Ice	4.75	2.28	0.17
						4" Ice	5.96	3.21	0.34
DC6-48-60-18-8F	C	From Leg	4.00	0.0000	102.00	No Ice	2.57	4.32	0.03
			0.00			1/2" Ice	2.80	4.60	0.06
			0.00			1" Ice	3.04	4.88	0.10
						2" Ice	3.54	5.49	0.18
						4" Ice	4.66	6.80	0.40
QS66512-2 w/ Mount Pipe	A	From Leg	4.00	0.0000	102.00	No Ice	8.64	8.46	0.14
			0.00			1/2" Ice	9.29	9.66	0.21
			0.00			1" Ice	9.91	10.62	0.30
						2" Ice	11.18	12.61	0.49
						4" Ice	13.83	16.81	1.03

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Lateral					
QS66512-2 w/ Mount Pipe	B	From Leg	4.00	0.0000	102.00	No Ice	8.64	8.46	0.14
			0.00			1/2" Ice	9.29	9.66	0.21
			0.00			1" Ice	9.91	10.62	0.30
						2" Ice	11.18	12.61	0.49
						4" Ice	13.83	16.81	1.03
QS66512-2 w/ Mount Pipe	C	From Leg	4.00	0.0000	102.00	No Ice	8.64	8.46	0.14
			0.00			1/2" Ice	9.29	9.66	0.21
			0.00			1" Ice	9.91	10.62	0.30
						2" Ice	11.18	12.61	0.49
						4" Ice	13.83	16.81	1.03
(2) TPX-070821	A	From Leg	4.00	0.0000	102.00	No Ice	0.55	0.12	0.01
			0.00			1/2" Ice	0.65	0.17	0.01
			0.00			1" Ice	0.76	0.24	0.02
						2" Ice	1.02	0.39	0.03
						4" Ice	1.63	0.80	0.08
(2) TPX-070821	B	From Leg	4.00	0.0000	102.00	No Ice	0.55	0.12	0.01
			0.00			1/2" Ice	0.65	0.17	0.01
			0.00			1" Ice	0.76	0.24	0.02
						2" Ice	1.02	0.39	0.03
						4" Ice	1.63	0.80	0.08
(2) TPX-070821	C	From Leg	4.00	0.0000	102.00	No Ice	0.55	0.12	0.01
			0.00			1/2" Ice	0.65	0.17	0.01
			0.00			1" Ice	0.76	0.24	0.02
						2" Ice	1.02	0.39	0.03
						4" Ice	1.63	0.80	0.08
RRUS 32	A	From Leg	4.00	0.0000	102.00	No Ice	3.33	1.98	0.06
			0.00			1/2" Ice	3.60	2.21	0.08
			0.00			1" Ice	3.87	2.45	0.10
						2" Ice	4.44	2.96	0.16
						4" Ice	5.68	4.07	0.34
RRUS 32	B	From Leg	4.00	0.0000	102.00	No Ice	3.33	1.98	0.06
			0.00			1/2" Ice	3.60	2.21	0.08
			0.00			1" Ice	3.87	2.45	0.10
						2" Ice	4.44	2.96	0.16
						4" Ice	5.68	4.07	0.34
RRUS 32	C	From Leg	4.00	0.0000	102.00	No Ice	3.33	1.98	0.06
			0.00			1/2" Ice	3.60	2.21	0.08
			0.00			1" Ice	3.87	2.45	0.10
						2" Ice	4.44	2.96	0.16
						4" Ice	5.68	4.07	0.34
DC6-48-60-18-8F	A	From Leg	4.00	0.0000	102.00	No Ice	2.57	4.32	0.03
			0.00			1/2" Ice	2.80	4.60	0.06
			0.00			1" Ice	3.04	4.88	0.10
						2" Ice	3.54	5.49	0.18
						4" Ice	4.66	6.80	0.40
Sector Mount [SM 301-3]	C	None		0.0000	102.00	No Ice	29.61	1.00	1.30
						1/2" Ice	39.80	1.20	1.84
						1" Ice	49.99	1.40	2.38
						2" Ice	70.37	1.80	3.46
						4" Ice	111.13	2.60	5.63
Empty Mount Pipe	A	From Leg	4.00	0.0000	102.00	No Ice	1.40	1.40	0.03
			0.00			1/2" Ice	2.13	2.13	0.04
			0.00			1" Ice	2.68	2.68	0.06
						2" Ice	3.56	3.56	0.10
						4" Ice	5.42	5.42	0.26
Empty Mount Pipe	B	From Leg	4.00	0.0000	102.00	No Ice	1.40	1.40	0.03
			0.00			1/2" Ice	2.13	2.13	0.04

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight K
			0.00			1" Ice 2.68	2.68	0.06
						2" Ice 3.56	3.56	0.10
						4" Ice 5.42	5.42	0.26
Empty Mount Pipe	C	From Leg	4.00	0.0000	102.00	No Ice 1.40	1.40	0.03
			0.00			1/2" Ice 2.13	2.13	0.04
			0.00			1" Ice 2.68	2.68	0.06
						2" Ice 3.56	3.56	0.10
						4" Ice 5.42	5.42	0.26

GPS_A	B	From Leg	3.00	0.0000	48.00	No Ice 0.30	0.30	0.00
			0.00			1/2" Ice 0.37	0.37	0.00
			-1.00			1" Ice 0.46	0.46	0.01
						2" Ice 0.65	0.65	0.02
						4" Ice 1.15	1.15	0.08
GPS_A	C	From Leg	3.00	0.0000	48.00	No Ice 0.30	0.30	0.00
			0.00			1/2" Ice 0.37	0.37	0.00
			0.00			1" Ice 0.46	0.46	0.01
						2" Ice 0.65	0.65	0.02
						4" Ice 1.15	1.15	0.08
Side Arm Mount [SO 701-1]	B	From Leg	0.00	0.0000	48.00	No Ice 0.85	1.67	0.07
			0.00			1/2" Ice 1.14	2.34	0.08
			0.00			1" Ice 1.43	3.01	0.09
						2" Ice 2.01	4.35	0.12
						4" Ice 3.17	7.03	0.18
Side Arm Mount [SO 701-1]	C	From Leg	0.00	0.0000	48.00	No Ice 0.85	1.67	0.07
			0.00			1/2" Ice 1.14	2.34	0.08
			0.00			1" Ice 1.43	3.01	0.09
						2" Ice 2.01	4.35	0.12
						4" Ice 3.17	7.03	0.18

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K

*										
VHLP2-18	A	Paraboloid w/o Radome	From Leg	2.00 0.00 0.00	-10.0000		157.00	2.17	No Ice 3.72 1/2" Ice 4.01 1" Ice 4.30 2" Ice 4.88 4" Ice 6.04	0.03 0.05 0.07 0.11 0.20
VHLP2-18	B	Paraboloid w/o Radome	From Leg	2.00 0.00 0.00	-40.0000		157.00	2.17	No Ice 3.72 1/2" Ice 4.01 1" Ice 4.30 2" Ice 4.88 4" Ice 6.04	0.03 0.05 0.07 0.11 0.20

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Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft	Aperture Area ft ²	Weight K

VHLP2-23	A	Paraboloid w/o Radome	From Leg	4.00 0.00 1.00	0.0000		134.00	2.17	No Ice 3.72 1/2" Ice 4.01 1" Ice 4.30 2" Ice 4.88 4" Ice 6.04	0.03 0.05 0.07 0.11 0.20

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Tower Deflections - Service Wind

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 160	3.406	35	0.1410	0.0137
T2	160 - 153.333	2.807	35	0.1385	0.0136
T3	153.333 - 146.667	2.611	35	0.1363	0.0135
T4	146.667 - 140	2.418	35	0.1333	0.0134
T5	140 - 120	2.226	35	0.1293	0.0131
T6	120 - 100	1.677	35	0.1163	0.0116
T7	100 - 80	1.187	35	0.0979	0.0097
T8	80 - 70	0.777	35	0.0787	0.0076
T9	70 - 60	0.602	35	0.0694	0.0065
T10	60 - 40	0.456	35	0.0591	0.0058
T11	40 - 20	0.214	35	0.0374	0.0035
T12	20 - 0	0.059	35	0.0194	0.0012

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.00	Lightning Rod	35	3.406	0.1410	0.0137	945112
178.00	Empty Pipe Mount	35	3.346	0.1409	0.0137	945112
170.00	AIR -32 B2A/B66AA w/ Mount Pipe	35	3.105	0.1403	0.0137	472560
157.00	VHLP2-18	35	2.718	0.1376	0.0136	180691
148.00	APXVSP18-C-A20 w/ Mount Pipe	35	2.456	0.1340	0.0134	341522
143.00	PCS 1900MHz 4x45W-65MHz	35	2.312	0.1311	0.0133	216822
135.00	VHLP2-23	35	2.085	0.1262	0.0128	116889
134.00	LLPX310R w/ Mount Pipe	35	2.057	0.1256	0.0128	113851
126.00	HBX-6516DS-VTM w/ Mount Pipe	35	1.837	0.1206	0.0121	94252
112.00	800 10504 w/ Mount Pipe	35	1.472	0.1095	0.0108	68314
102.00	7770.00 w/ Mount Pipe	35	1.233	0.0999	0.0098	56005
48.00	GPS_A	35	0.303	0.0459	0.0045	66464

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 160	9.756	10	0.4038	0.0395
T2	160 - 153.333	8.040	10	0.3966	0.0393
T3	153.333 - 146.667	7.478	10	0.3901	0.0390
T4	146.667 - 140	6.925	10	0.3814	0.0386
T5	140 - 120	6.376	10	0.3699	0.0380
T6	120 - 100	4.805	10	0.3327	0.0334
T7	100 - 80	3.402	10	0.2800	0.0279
T8	80 - 70	2.229	10	0.2250	0.0220
T9	70 - 60	1.727	10	0.1984	0.0187
T10	60 - 40	1.309	10	0.1691	0.0169
T11	40 - 20	0.614	10	0.1071	0.0100
T12	20 - 0	0.171	10	0.0555	0.0036

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Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
180.00	Lightning Rod	10	9.756	0.4038	0.0395	333328
178.00	Empty Pipe Mount	10	9.583	0.4035	0.0395	333328
170.00	AIR -32 B2A/B66AA w/ Mount Pipe	10	8.894	0.4018	0.0395	166664
157.00	VHLP2-18	10	7.786	0.3939	0.0392	63551
148.00	APXVSP18-C-A20 w/ Mount Pipe	10	7.035	0.3834	0.0387	118938
143.00	PCS 1900MHz 4x45W-65MHz	10	6.622	0.3752	0.0383	75977
135.00	VHLP2-23	10	5.972	0.3611	0.0371	40887
134.00	LLPX310R w/ Mount Pipe	10	5.891	0.3594	0.0369	39825
126.00	HBX-6516DS-VTM w/ Mount Pipe	10	5.262	0.3450	0.0350	32974
112.00	800 10504 w/ Mount Pipe	10	4.219	0.3132	0.0312	23872
102.00	7770.00 w/ Mount Pipe	10	3.532	0.2857	0.0284	19552
48.00	GPS_A	10	0.869	0.1311	0.0131	23310

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	180	Leg	A325X	0.8750	4	1.62	26.46	0.061	1.333	Bolt Tension
		Diagonal	A325X	0.6250	1	2.17	4.55	0.477	1.333	Member Block Shear
		Top Girt	A325X	0.6250	1	0.07	3.04	0.023	1.333	Member Block Shear
		Mid Girt	A325X	0.6250	1	0.47	3.04	0.156	1.333	Member Block Shear
T2	160	Diagonal	A325X	0.6250	1	2.53	6.80	0.372	1.333	Member Bearing
T3	153.333	Diagonal	A325X	0.6250	1	3.02	6.80	0.444	1.333	Member Bearing
		Top Girt	A325X	0.6250	1	0.32	3.04	0.105	1.333	Member Block Shear
T4	146.667	Leg	A325X	1.0000	4	5.32	34.56	0.154	1.333	Bolt Tension
		Diagonal	A325X	0.6250	1	4.46	6.80	0.656	1.333	Member Bearing
		Top Girt	A325X	0.6250	1	0.12	3.04	0.039	1	Member Block Shear
T5	140	Leg	A325X	1.0000	6	7.72	34.56	0.223	1.333	Bolt Tension
		Diagonal	A325X	0.6250	1	6.97	6.80	1.026	1.333	Member Bearing
T6	120	Leg	A325X	1.0000	6	12.95	34.56	0.375	1.333	Bolt Tension
		Diagonal	A325X	0.6250	1	8.55	7.62	1.123	1.333	Member Bearing
T7	100	Leg	A325X	1.0000	8	13.64	34.56	0.395	1.333	Bolt Tension
		Diagonal	A325X	0.7500	1	10.34	9.14	1.131	1.333	Member Bearing
T8	80	Diagonal	A325X	0.7500	1	10.46	9.14	1.144	1.333	Member Bearing
T9	70	Leg	A325X	1.0000	8	17.76	34.56	0.514	1.333	Bolt Tension
		Diagonal	A325X	0.7500	1	11.03	12.91	0.854	1.333	Gusset Bearing
T10	60	Leg	A325X	1.0000	8	21.69	34.56	0.628	1.333	Bolt Tension
		Diagonal	A325X	0.7500	1	11.26	9.14	1.232	1.333	Member Bearing
T11	40	Leg	A325X	1.0000	8	25.40	34.56	0.735	1.333	Bolt Tension
		Diagonal	A325X	0.7500	1	11.77	11.43	1.030	1.333	Member Bearing
T12	20	Leg	A449	1.0000	10	23.05	31.10	0.741	1.333	Bolt Tension
		Diagonal	A325X	0.7500	1	12.72	12.91	0.985	1.333	Gusset Bearing

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Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _a ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T1	180 - 160	ROHN 3 EH	20.04	5.01	52.9	23.893	3.0159	-9.58	72.06	0.133
T2	160 - 153.333	ROHN 4 EH	6.68	6.68	54.3 K=1.00	23.671	4.4074	-14.17	104.33	0.136
T3	153.333 - 146.667	ROHN 4 EH	6.68	6.68	54.3 K=1.00	23.671	4.4074	-20.72	104.33	0.199
T4	146.667 - 140	ROHN 4 EH	6.68	6.68	54.3 K=1.00	23.671	4.4074	-28.62	104.33	0.274
T5	140 - 120	ROHN 5 EH	20.04	6.68	43.6 K=1.00	25.320	6.1120	-59.67	154.75	0.386
T6	120 - 100	ROHN 6 EHS	20.03	6.68	36.0 K=1.00	26.380	6.7133	-97.25	177.09	0.549
T7	100 - 80	ROHN 6 EH	20.04	10.02	54.8 K=1.00	23.589	8.4049	-134.06	198.26	0.676
T8	80 - 70	ROHN 8 EHS	10.02	10.02	40.6 K=1.00	25.754	9.8666	-153.00	254.10	0.602
T9	70 - 60	ROHN 8 EHS	10.02	10.02	40.6 K=1.00	25.754	9.8666	-172.16	254.10	0.678
T10	60 - 40	ROHN 8 EHS	20.03	10.02	40.6 K=1.00	25.754	9.8666	-209.27	254.10	0.824
T11	40 - 20	ROHN 8 EH	20.03	10.02	41.8 K=1.00	25.582	12.7627	-245.23	326.50	0.751
T12	20 - 0	ROHN 8 EH	20.03	10.02	41.8 K=1.00	25.582	12.7627	-280.49	326.50	0.859

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _a ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
T1	180 - 160	L2x2x3/16	9.86	4.79	146.0 K=1.00	7.007	0.7150	-2.14	5.01	0.427
T2	160 - 153.333	L2 1/2x2 1/2x1/4	11.29	5.51	134.5 K=1.00	8.249	1.1900	-2.60	9.82	0.265
T3	153.333 - 146.667	L2 1/2x2 1/2x1/4	11.85	5.79	141.5 K=1.00	7.461	1.1900	-3.16	8.88	0.356
T4	146.667 - 140	L2 1/2x2 1/2x1/4	12.43	6.08	148.5 K=1.00	6.769	1.1900	-4.54	8.06	0.564
T5	140 - 120	L2 1/2x2 1/2x1/4	14.23	6.93	169.3 K=1.00	5.207	1.1900	-6.98	6.20	1.126
T6	120 - 100	L3x3x1/4	15.99	7.75	157.1 K=1.00	6.053	1.4400	-8.59	8.72	0.985
T7	100 - 80	L3 1/2x3 1/2x1/4	19.26	9.48	164.0 K=1.00	5.554	1.6900	-10.33	9.39	1.100
T8	80 - 70	L3 1/2x3 1/2x1/4	20.15	9.81	169.6 K=1.00	5.190	1.6900	-10.64	8.77	1.213

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T9	70 - 60	2L3 1/2x3 1/2x1/4x3/8	21.03	10.25	193.4 K=1.00	3.993	3.3800	-11.26	13.50	0.835
T10	60 - 40	2L 'a' > 58.7386 in - 136 L4x4x1/4	22.81	11.14	168.2 K=1.00	5.279	1.9400	-11.61	10.24	1.134
T11	40 - 20	L4x4x5/16	24.62	12.06	182.9 K=1.00	4.463	2.4000	-12.06	10.71	1.126
T12	20 - 0	2L4x4x5/16x3/8 2L 'a' > 74.5105 in - 176	26.46	12.98	214.9 K=1.00	3.233	4.8000	-12.98	15.52	0.837

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	180 - 160	L2x2x1/8	6.69	6.16	185.8 K=1.00	4.324	0.4844	-0.09	2.09	0.043
T3	153.333 - 146.667	L2x2x1/8 KL/R > 200 (C) - 46	9.45	8.84	266.7 K=1.00	2.099	0.4844	-0.19	1.02	0.186

Mid Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	180 - 160	L2x2x1/8 KL/R > 200 (C) - 7	7.72	7.19	217.1 K=1.00	3.168	0.4844	-0.49	1.53	0.318

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	180 - 160	ROHN 3 EH	20.04	5.01	52.9	30.000	3.0159	6.49	90.48	0.072
T2	160 - 153.333	ROHN 4 EH	6.68	6.68	54.3	30.000	4.4074	10.55	132.22	0.080
T3	153.333 - 146.667	ROHN 4 EH	6.68	6.68	54.3	30.000	4.4074	15.47	132.22	0.117
T4	146.667 - 140	ROHN 4 EH	6.68	6.68	54.3	30.000	4.4074	21.27	132.22	0.161
T5	140 - 120	ROHN 5 EH	20.04	6.68	43.6	30.000	6.1120	46.33	183.36	0.253
T6	120 - 100	ROHN 6 EHS	20.03	6.68	36.0	30.000	6.7133	77.72	201.40	0.386
T7	100 - 80	ROHN 6 EH	20.04	10.02	54.8	30.000	8.4049	109.16	252.15	0.433

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Section No.	Elevation ft	Size	L ft	L _a ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T8	80 - 70	ROHN 8 EHS	10.02	10.02	40.6	30.000	9.8666	125.79	296.00	0.425
T9	70 - 60	ROHN 8 EHS	10.02	10.02	40.6	30.000	9.8666	142.11	296.00	0.480
T10	60 - 40	ROHN 8 EHS	20.03	10.02	40.6	30.000	9.8666	173.51	296.00	0.586
T11	40 - 20	ROHN 8 EH	20.03	10.02	41.8	30.000	12.7627	203.21	382.88	0.531
T12	20 - 0	ROHN 8 EH	20.03	10.02	41.8	30.000	12.7627	230.46	382.88	0.602

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _a ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	180 - 160	L2x2x3/16	9.86	4.79	95.6	29.000	0.4308	2.17	12.49	0.174
T2	160 - 153.333	L2 1/2x2 1/2x1/4	11.29	5.51	87.8	29.000	0.7519	2.53	21.80	0.116
T3	153.333 - 146.667	L2 1/2x2 1/2x1/4	11.85	5.79	92.2	29.000	0.7519	3.02	21.80	0.138
T4	146.667 - 140	L2 1/2x2 1/2x1/4	12.43	6.08	96.7	29.000	0.7519	4.46	21.80	0.205
T5	140 - 120	L2 1/2x2 1/2x1/4	14.23	6.93	110.0	29.000	0.7519	6.97	21.80	0.320
T6	120 - 100	L3x3x1/4	15.99	7.75	101.5	32.500	0.9394	8.55	30.53	0.280
T7	100 - 80	L3 1/2x3 1/2x1/4	19.26	9.48	105.9	32.500	1.1034	10.34	35.86	0.288
T8	80 - 70	L3 1/2x3 1/2x1/4	20.15	9.81	109.5	32.500	1.1034	10.46	35.86	0.292
T9	70 - 60	2L3 1/2x3 1/2x1/4x3/8 2L 'a' > 58.7386 in - 137	21.03	10.25	114.3	29.000	2.2069	11.03	64.00	0.172
T10	60 - 40	L4x4x1/4	22.81	11.14	108.3	32.500	1.2909	11.26	41.96	0.268
T11	40 - 20	L4x4x5/16	23.71	11.60	113.6	32.500	1.5949	11.77	51.84	0.227
T12	20 - 0	2L4x4x5/16x3/8 2L 'a' > 74.5105 in - 175	26.46	12.98	126.9	29.000	3.1898	12.72	92.51	0.137

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _a ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	180 - 160	L2x2x1/8	6.69	6.16	122.6	29.000	0.2930	0.07	8.50	0.008
T3	153.333 - 146.667	L2x2x1/8	9.45	8.84	173.9	29.000	0.2930	0.32	8.50	0.037
T4	146.667 - 140	L2x2x1/8	10.14	9.53	187.2	29.000	0.2930	0.12	8.50	0.014*

* DL controls

Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _a ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio P P _a
T1	180 - 160	L2x2x1/8	7.72	7.19	142.4	29.000	0.2930	0.47	8.50	0.056

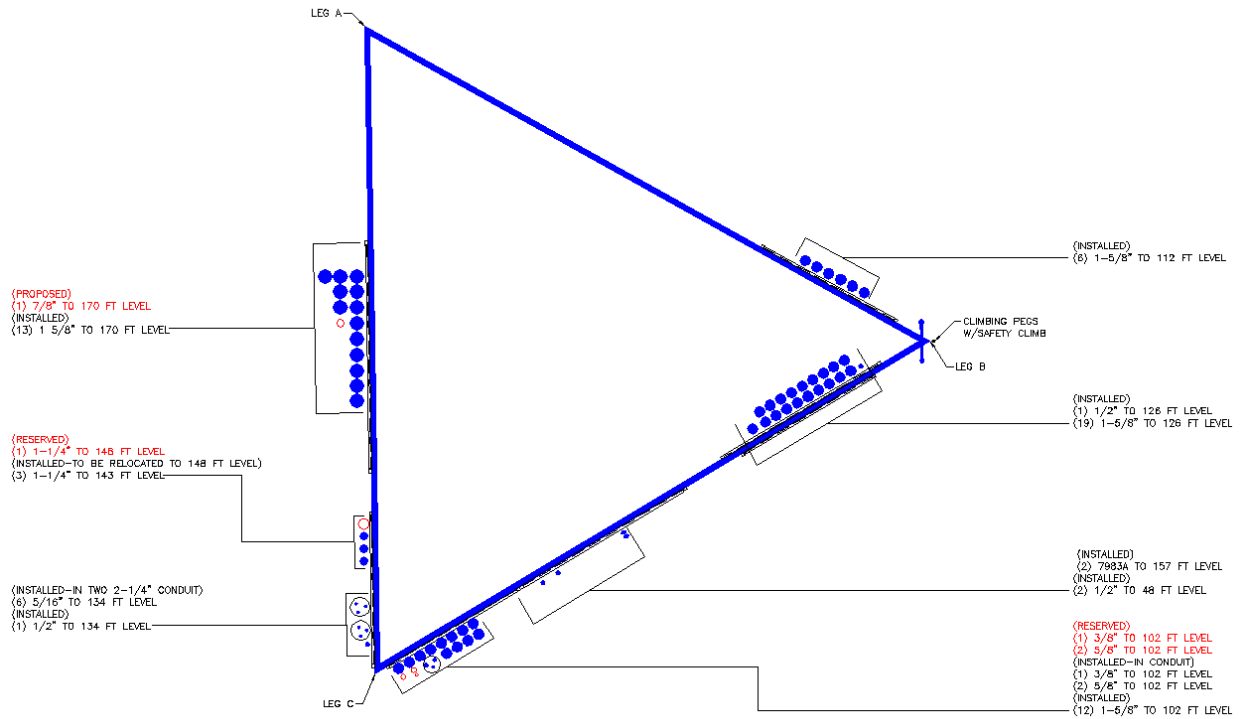
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Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
T1	180 - 160	Leg	ROHN 3 EH	1	-9.58	96.06	10.0	Pass
T2	160 - 153.333	Leg	ROHN 4 EH	36	-14.17	139.07	10.2	Pass
T3	153.333 - 146.667	Leg	ROHN 4 EH	43	-20.72	139.07	14.9	Pass
T4	146.667 - 140	Leg	ROHN 4 EH	55	-28.62	139.07	20.6	Pass
T5	140 - 120	Leg	ROHN 5 EH	67	-59.67	206.29	28.9	Pass
T6	120 - 100	Leg	ROHN 6 EHS	88	-97.25	236.06	41.2	Pass
T7	100 - 80	Leg	ROHN 6 EH	109	-134.06	264.29	50.7	Pass
T8	80 - 70	Leg	ROHN 8 EHS	124	-153.00	338.72	45.2	Pass
T9	70 - 60	Leg	ROHN 8 EHS	133	-172.16	338.72	50.8	Pass
T10	60 - 40	Leg	ROHN 8 EHS	142	-209.27	338.72	61.8	Pass
T11	40 - 20	Leg	ROHN 8 EH	157	-245.23	435.22	56.3	Pass
T12	20 - 0	Leg	ROHN 8 EH	172	-280.49	435.22	64.4	Pass
T1	180 - 160	Diagonal	L2x2x3/16	15	-2.14	6.68	32.0	Pass
							35.8 (b)	
T2	160 - 153.333	Diagonal	L2 1/2x2 1/2x1/4	41	-2.60	13.09	19.8	Pass
							27.9 (b)	
T3	153.333 - 146.667	Diagonal	L2 1/2x2 1/2x1/4	53	-3.16	11.83	26.7	Pass
							33.3 (b)	
T4	146.667 - 140	Diagonal	L2 1/2x2 1/2x1/4	65	-4.54	10.74	42.3	Pass
							49.2 (b)	
T5	140 - 120	Diagonal	L2 1/2x2 1/2x1/4	74	-6.98	8.26	84.5	Pass
T6	120 - 100	Diagonal	L3x3x1/4	95	-8.59	11.62	73.9	Pass
							84.2 (b)	
T7	100 - 80	Diagonal	L3 1/2x3 1/2x1/4	116	-10.33	12.51	82.5	Pass
							84.9 (b)	
T8	80 - 70	Diagonal	L3 1/2x3 1/2x1/4	131	-10.64	11.69	91.0	Pass
T9	70 - 60	Diagonal	2L3 1/2x3 1/2x1/4x3/8	136	-11.26	17.99	62.6	Pass
							64.1 (b)	
T10	60 - 40	Diagonal	L4x4x1/4	146	-11.61	13.65	85.1	Pass
							92.4 (b)	
T11	40 - 20	Diagonal	L4x4x5/16	161	-12.06	14.28	84.4	Pass
T12	20 - 0	Diagonal	2L4x4x5/16x3/8	176	-12.98	20.68	62.8	Pass
							73.9 (b)	
T1	180 - 160	Top Girt	L2x2x1/8	5	-0.09	2.79	3.2	Pass
T3	153.333 - 146.667	Top Girt	L2x2x1/8	46	-0.19	1.36	14.0	Pass
T4	146.667 - 140	Top Girt	L2x2x1/8	60	0.12	8.50	1.4	Pass
							2.9 (b)	
T1	180 - 160	Mid Girt	L2x2x1/8	7	-0.49	2.05	23.9	Pass
							Summary	
							Leg (T12)	Pass
							Diagonal (T10)	Pass
							Top Girt (T3)	Pass
							Mid Girt (T1)	Pass
							Bolt Checks	Pass
							RATING = 92.4	Pass

<i>tnxTower</i> <i>FDH Velocitel</i> 6521 Meridien Drive, Suite 107 Raleigh, North Carolina 27606 Phone: 9197551031 FAX: 9197551031	Job BRG 134 943057, 807133	Page 29 of 29
	Project 16BIIG1400	Date 11:52:42 05/18/16
Program Version 16.5A 2/16 File://full-server/Projects/2016 Effective - Client Jobs/CROWNC_Crown Castle USA Inc/CT/807133/043057/16BIIG1400/ASO/TMO/R.O/Analysis/ReportedTower/BRG 134 943057	Client Crown Castle	Designed by PHicks

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Rock Anchor Foundation Calculations

TNX Reactions:

$$P_{uplift} := 237 \text{ kip} \quad P_{comp} := 289 \text{ kip}$$

Concrete Bearing Check:

$$w_c := (6.25 \text{ ft} \cdot 8.75 \text{ ft} \cdot 9 \text{ ft}) \cdot 150 \text{ pcf} = 73.828 \text{ kip}$$

$$q_{ult} := 30 \text{ ksf} \quad (\text{Ultimate bearing pressure per FDH Project No. 08-07100E G1})$$

$$A_{bearing} := 6.25 \text{ ft} \cdot 8.75 \text{ ft} = 54.688 \text{ ft}^2$$

$$P_{total} := P_{comp} + w_c = 362.828 \text{ kip}$$

$$q_n := \frac{P_{total}}{A_{bearing}} = 6.635 \text{ ksf}$$

$$Capacity := \frac{q_n}{0.5 \cdot q_{ult}} \cdot 100 = 44.23 \%$$

Tensile Yielding Check: (4) #11 A615 Gr. 60 Anchor Bars

$$\Omega := 1.67 \quad N := 4 \quad d := 1.410 \text{ in} \quad F_y := 60 \text{ ksi} \quad A_g := \left(\frac{\pi}{4}\right) \cdot d^2 = 1.561 \text{ in}^2$$

$$P_u := \frac{P_{uplift} - w_c}{N} = 40.793 \text{ kip}$$

$$P_n := \frac{F_y \cdot A_g}{\Omega} = 56.1 \text{ kip}$$

$$Capacity := \frac{P_u}{P_n} \cdot 100 = 72.715 \%$$

Tensile Rupture Check: (4) #11 A615 Gr. 60 Anchor Bars

$$\Omega := 2.0 \quad N := 4 \quad d := 1.410 \text{ in} \quad F_u := 80 \text{ ksi} \quad A_e := \left(\frac{\pi}{4}\right) \cdot d^2 = 1.561 \text{ in}^2$$

$$P_u := \frac{P_{\text{uplift}} - w_c}{N} = 40.793 \text{ kip}$$

$$P_n := \frac{F_u \cdot A_e}{\Omega} = 62.458 \text{ kip}$$

$$\text{Capacity} := \frac{P_u}{P_n} \cdot 100 = 65.313 \quad \%$$

Uplift Check / Soil-Grout Interaction:

$$\Omega := 2.0 \quad Q_{\text{ult}} := 16.0 \text{ ksf} \quad (\text{Ultimate skin friction from FDH Project No. 08-07100 E G1})$$

$$P_u := \frac{P_{\text{uplift}} - w_c}{N} = 40.793 \text{ kip}$$

$$P_n := \frac{\pi \cdot (2.25 \text{ in}) \cdot 14.0 \text{ ft} \cdot Q_{\text{ult}}}{\Omega} = 65.973 \text{ kip}$$

$$\text{Capacity} := \frac{P_u}{P_n} \cdot 100 = 61.832 \quad \% \quad \text{Passing}$$

SITE NUMBER: CT11114D

50 ROCKLAND ROAD
NORWALK, CT 06854
FAIRFIELD COUNTY

SITE NAME: NORWALK/SOUTH NORWALK

RF DESIGN GUIDELINE: 792DB

T-MOBILE TECHNICIAN SITE SAFETY NOTES

LOCATION	SPECIAL RESTRICTIONS
SECTOR A: ANTENNA/TMA/RRH	ACCESS NOT PERMITTED
SECTOR B: ANTENNA/TMA/RRH	ACCESS NOT PERMITTED
SECTOR C: ANTENNA/TMA/RRH	ACCESS NOT PERMITTED
GPS/LMU:	UNRESTRICTED
RADIO CABINETS:	UNRESTRICTED
PPC DISCONNECT:	UNRESTRICTED
MAIN CIRCUIT D/C:	UNRESTRICTED
NIU/T DEMARC:	UNRESTRICTED
OTHER/SPECIAL:	NONE

T-MOBILE NORTHEAST LLC

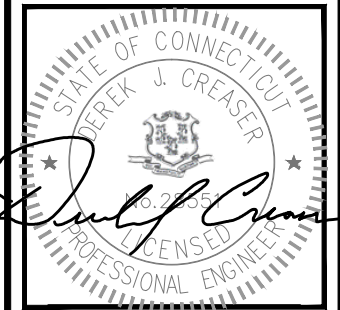
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BUILDING 20 NORTH, SUITE 3090
N. ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586



CHECKED BY: DR

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	05/04/16	ISSUED FOR REVIEW	VP

SITE NUMBER:
CT11114D
CROWN CASTLE SITE ID:
807133
SITE NAME:
NORWALK/SOUTH
NORWALK
SITE ADDRESS:
50 ROCKLAND ROAD
NORWALK, CT 06854
FAIRFIELD COUNTY

SHEET TITLE

TITLE SHEET

SHEET NUMBER

T-1

GENERAL NOTES

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF T-MOBILE. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T-MOBILE NORTHEAST, LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SPECIAL STRUCTURAL NOTES

TOWER OWNER SHALL PROVIDE GLOBAL STRUCTURAL STABILITY ANALYSIS OF EXISTING ANTENNA SUPPORT STRUCTURE. GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE ALL REQUIRED STRUCTURAL MODIFICATIONS, RE-BUNDLING OF COAXIAL CABLES OR OTHER SPECIAL MODIFICATIONS AS OUTLINED THEREIN.

STRUCTURAL DESIGNS AND DETAILS FOR ANTENNA MOUNTS COMPLETED BY HUDSON DESIGN ON BEHALF OF T-MOBILE ARE INCLUSIVE OF THE ENTIRE ANTENNA SUPPORT STRUCTURE (GLOBAL STRUCTURAL STABILITY ANALYSIS BY OTHERS), EXISTING TOWER PLATFORM, EXISTING ANTENNA MOUNTS AND ALL OTHER ASPECTS OF THE STRUCTURE THAT WILL SUPPORT THE T-MOBILE MODERNIZATION EQUIPMENT DEPLOYMENT AS DEPICTED HEREIN.

HUDSON DESIGN ASSUMES THAT THE TOWER IS PROPERLY CONSTRUCTED AND MAINTAINED. ALL STRUCTURAL MEMBERS AND THEIR CONNECTION ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NO DETERIORATION TO ITS MEMBER CAPACITIES



PROJECT SUMMARY

SCOPE OF WORK: UNMANNED TELECOMMUNICATIONS FACILITY T-MOBILE EQUIPMENT INSTALLATION

ZONING JURISDICTION: BASED ON INFORMATION PROVIDED BY T-MOBILE, THIS TELECOMMUNICATIONS EQUIPMENT DEPLOYMENT IS AN ELIGIBLE FACILITY UNDER THE TAX RELIEF ACT OF 2012, 47 USC 1455(A), AND IS SUBJECT TO AN EXPEDITED ELIGIBLE FACILITIES REQUEST/REVIEW AND ZONING PRE-EMPTION FOR LOCAL DISCRETIONARY PERMITS (VARIANCE, SPECIAL PERMIT, SITE PLAN REVIEW).

SITE ADDRESS: 50 ROCKLAND ROAD
NORWALK, CT 06854

LATITUDE: 41° 04' 54.67" N

LONGITUDE: 73° 25' 49.65" W

JURISDICTION: NATIONAL, STATE & LOCAL CODES OR ORDINANCES

CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY

TOWER OWNER: CROWN CASTLE INTERNATIONAL
12 GILL STREET, SUITE 5800
WOBURN, MA 01801

CROWN CASTLE
SITE ID: 807133

APPROVALS

APPROVAL	DATE
PROJECT MANAGER	DATE
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING / SITE ACQ.	DATE
OPERATIONS	DATE
TOWER OWNER	DATE

DRIVING DIRECTIONS:

HEAD NORTHEAST ON GRIFFIN RD S AND TURN RIGHT ONTO DAY HILL RD. USE THE RAMP TO MERGE ONTO I-91 S. TAKE EXIT 17 TO MERGE ONTO CT-15 S. CONTINUE ON CT-15 S THEN TAKE EXIT 52 FOR STATE ROAD 108 S. KEEP LEFT, FOLLOW SIGNS FOR CT-8 S. MERGE ONTO CT-8 S. TAKE THE I-95 S EXIT TOWARD N.Y. CONTINUE ON I-95 S THEN TAKE EXIT 15 FOR US-7. KEEP RIGHT AND FOLLOW SIGNS FOR S NORWALK. USE THE LEFT 2 LANES TO TURN LEFT ONTO WEST AVE. WEST AVE BECOMES DR. MARTIN LUTHER KING JR DR. TURN RIGHT ONTO ROCKLAND AVE. DESTINATION WILL BE ON THE LEFT.

ARRIVE AT 50 ROCKLAND ROAD NORWALK, CT 06854.



CALL BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455 OR CALL 811
UNDERGROUND SERVICE ALERT



DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
GN-1	GENERAL NOTES	0
A-1	COMPOUND PLAN & EQUIPMENT PLAN	0
A-2	ANTENNA LAYOUT & ELEVATION	0
A-3	DETAILS	0
E-1	GROUNDING DIAGRAM	0

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR – TRANSCEND WIRELESS
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – T-MOBILE
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T-MOBILE SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. APPLICABLE BUILDING CODES:
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.
 BUILDING CODE: 2003 IBC WITH 2005 CT SUPPLEMENT, + 2009 & 2013 CT AMENDMENTS
 ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
 LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-F, STRUCTURAL STANDARDS FOR STEEL

EQUIPMENT AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS CONFLICT BETWEEN A GENERAL REQUIREMENT AND A SPECIFIC REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ABBREVIATIONS					
AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

T-MOBILE NORTHEAST LLC

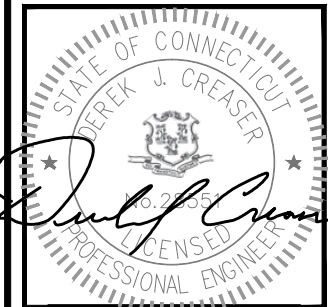
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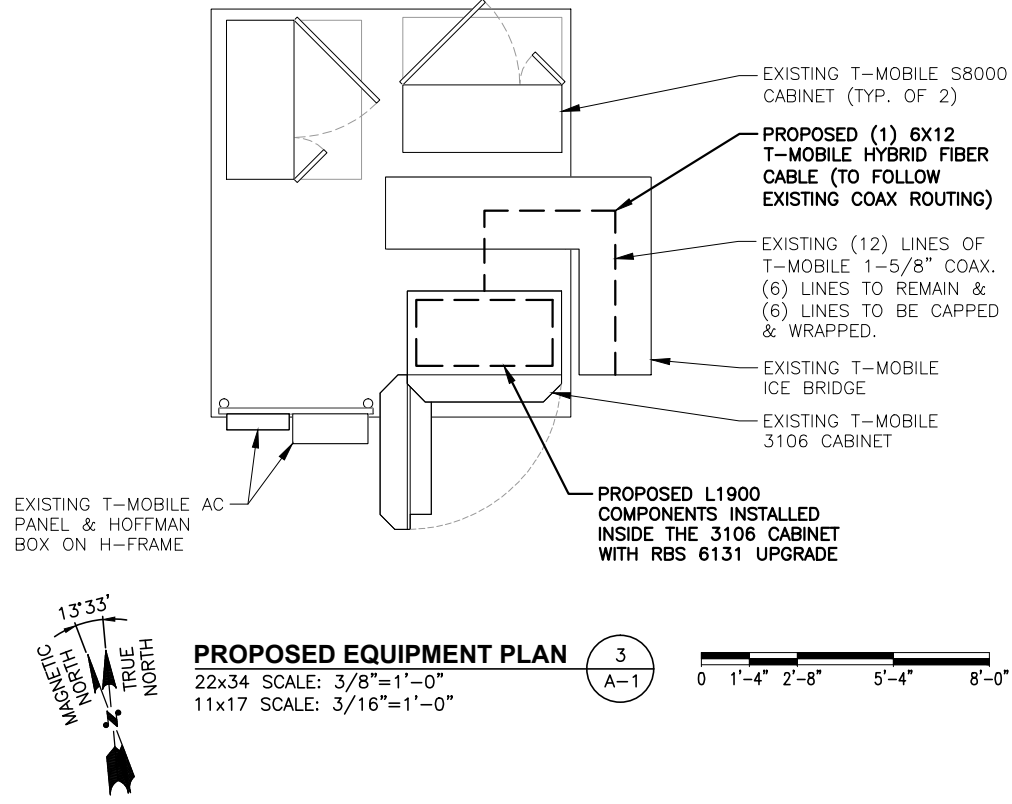
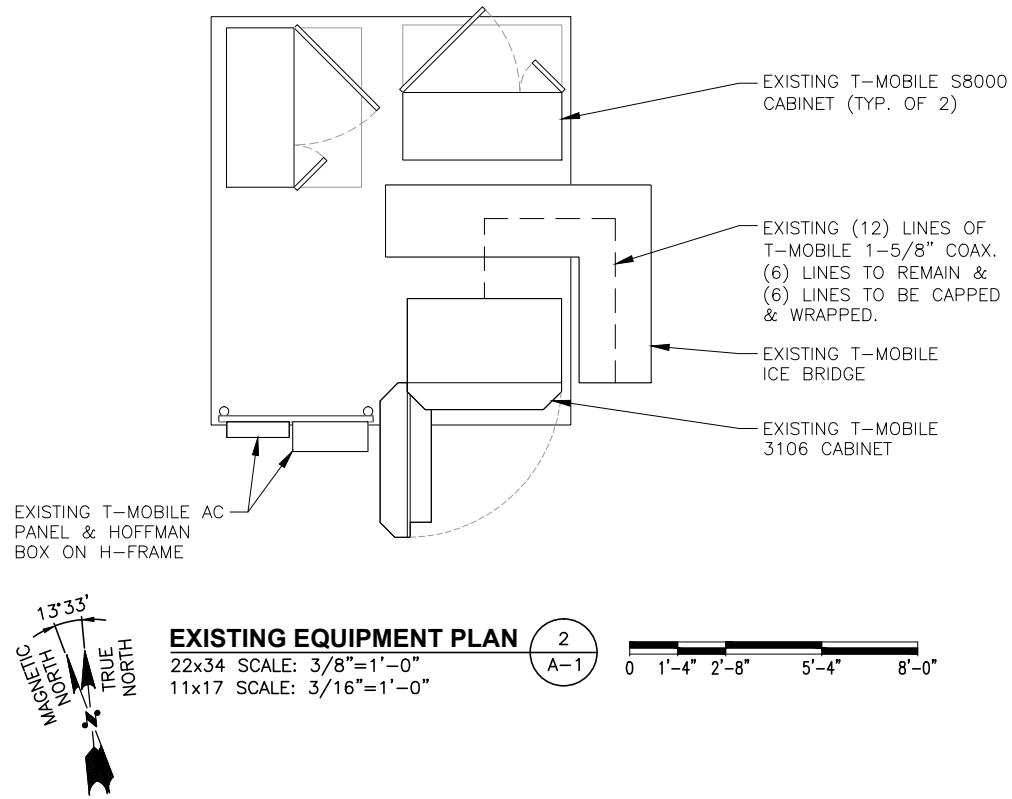
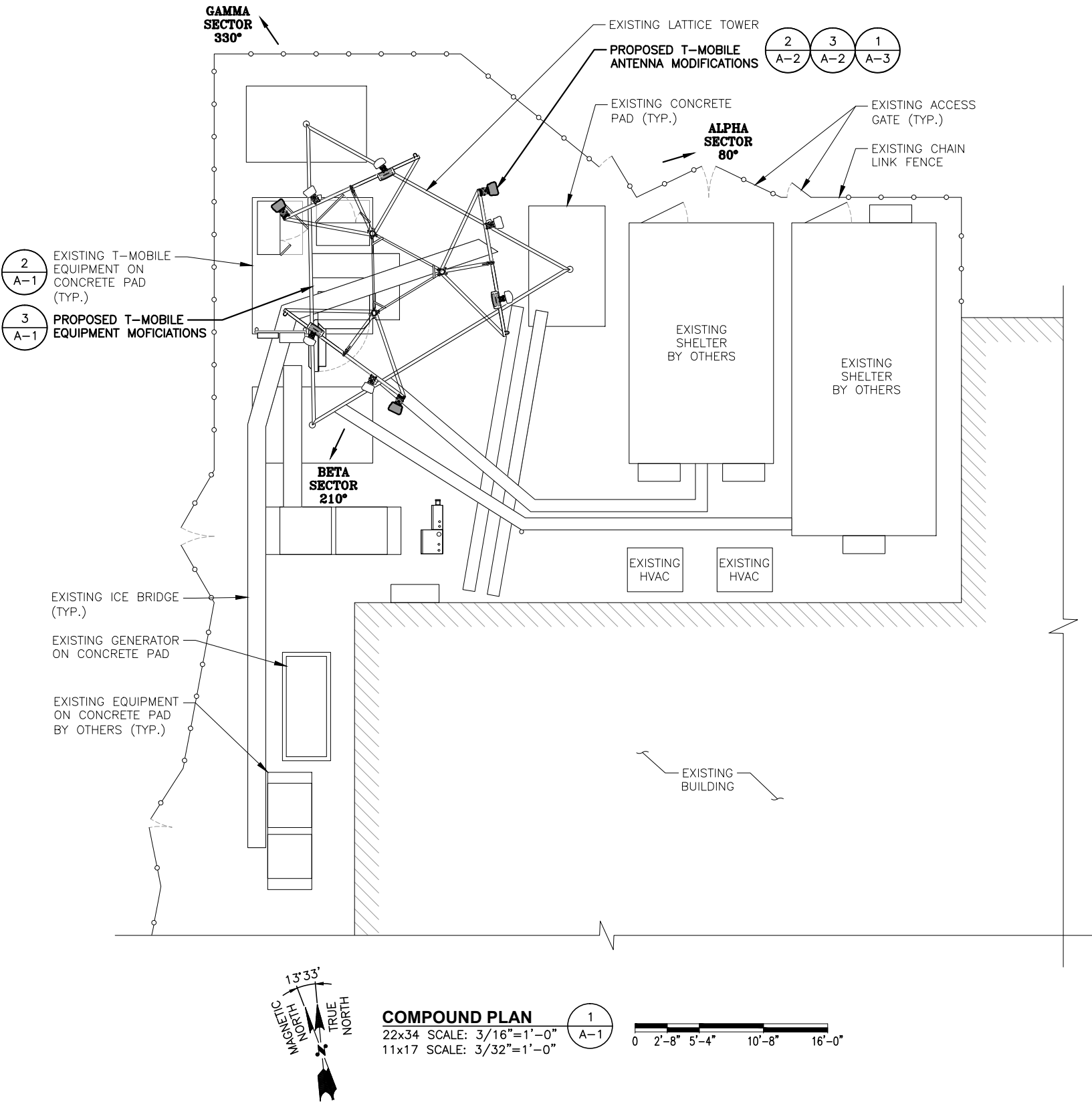
SITE NUMBER:
 CT11114D
 CROWN CASTLE SITE ID:
 807133
 SITE NAME:
 NORWALK/SOUTH
 NORWALK
 SITE ADDRESS:
 50 ROCKLAND ROAD
 NORWALK, CT 06854
 FAIRFIELD COUNTY

SHEET TITLE
 GENERAL NOTES

SHEET NUMBER
 GN-1

STRUCTURAL NOTES:
 PRIOR TO COMMENCING CONSTRUCTION, GC SHALL REFER TO STRUCTURAL ANALYSIS PROVIDED BY TOWER OWNER TO DETERMINE IF THERE ANY SUPPLEMENTAL OR SPECIAL INSTALLATION REQUIREMENTS, OR RELOCATION ARRANGEMENTS.

NOTE:
 *RF DATA BASED ON PRELIMINARY INFORMATION. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



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CHECKED BY: DR

APPROVED BY: DPH

SUBMITTALS

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SITE NUMBER:
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 NORWALK
 SITE ADDRESS:
 50 ROCKLAND ROAD
 NORWALK, CT 06854
 FAIRFIELD COUNTY

SHEET TITLE
 COMPOUND &
 EQUIPMENT PLAN

SHEET NUMBER
A-1

STRUCTURAL NOTES:
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NOTE:
 *RF DATA BASED ON PRELIMINARY INFORMATION. REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

TOP OF EXISTING LATTICE TOWER
 ELEV. = 182'-0"± A.G.L.
 C OF EXISTING & PROPOSED T-MOBILE ANTENNAS
 ELEV. = 173'-0"± A.G.L.

EXISTING T-MOBILE L700 ANTENNAS
 (TYP. OF 1 PER SECTOR, TOTAL OF 3)
 (TO REMAIN)

EXISTING T-MOBILE AIR21 ANTENNAS (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO REMAIN)

PROPOSED T-MOBILE L1900 ANTENNAS (TYP. OF 1 PER SECTOR, TOTAL OF 3) (TO REPLACE EXISTING ANTENNAS)

1,2
 A-3

EXISTING ANTENNAS BY OTHERS (TYP.)

EXISTING ANTENNAS BY OTHERS (TYP.)

PROPOSED (1) 6X12 T-MOBILE HYBRID FIBER CABLE (TO FOLLOW EXISTING COAX ROUTING)

EXISTING (12) LINES OF T-MOBILE 1-5/8" COAX. (6) LINES TO REMAIN & (6) LINES TO BE CAPPED & WRAPPED.

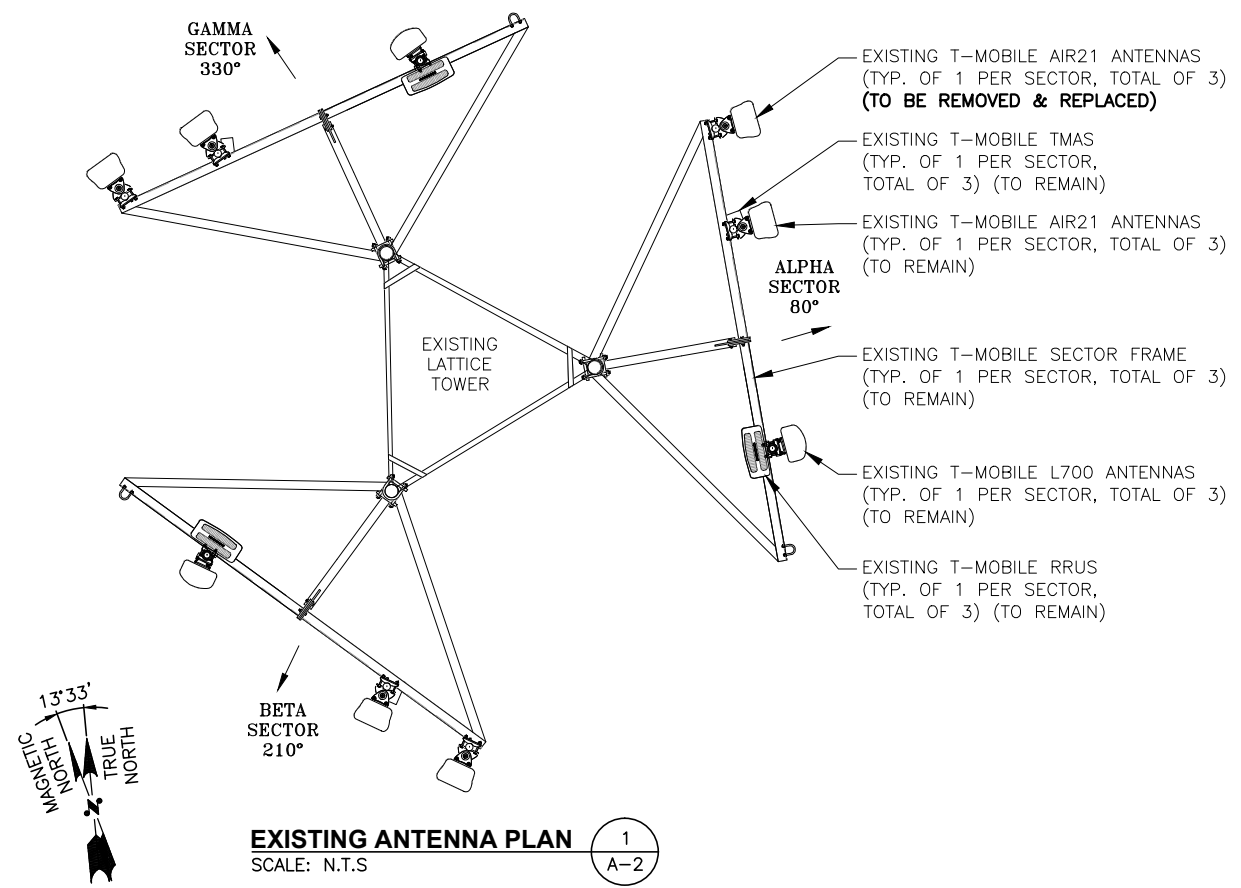
EXISTING LATTICE TOWER

NOTE:
 *GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

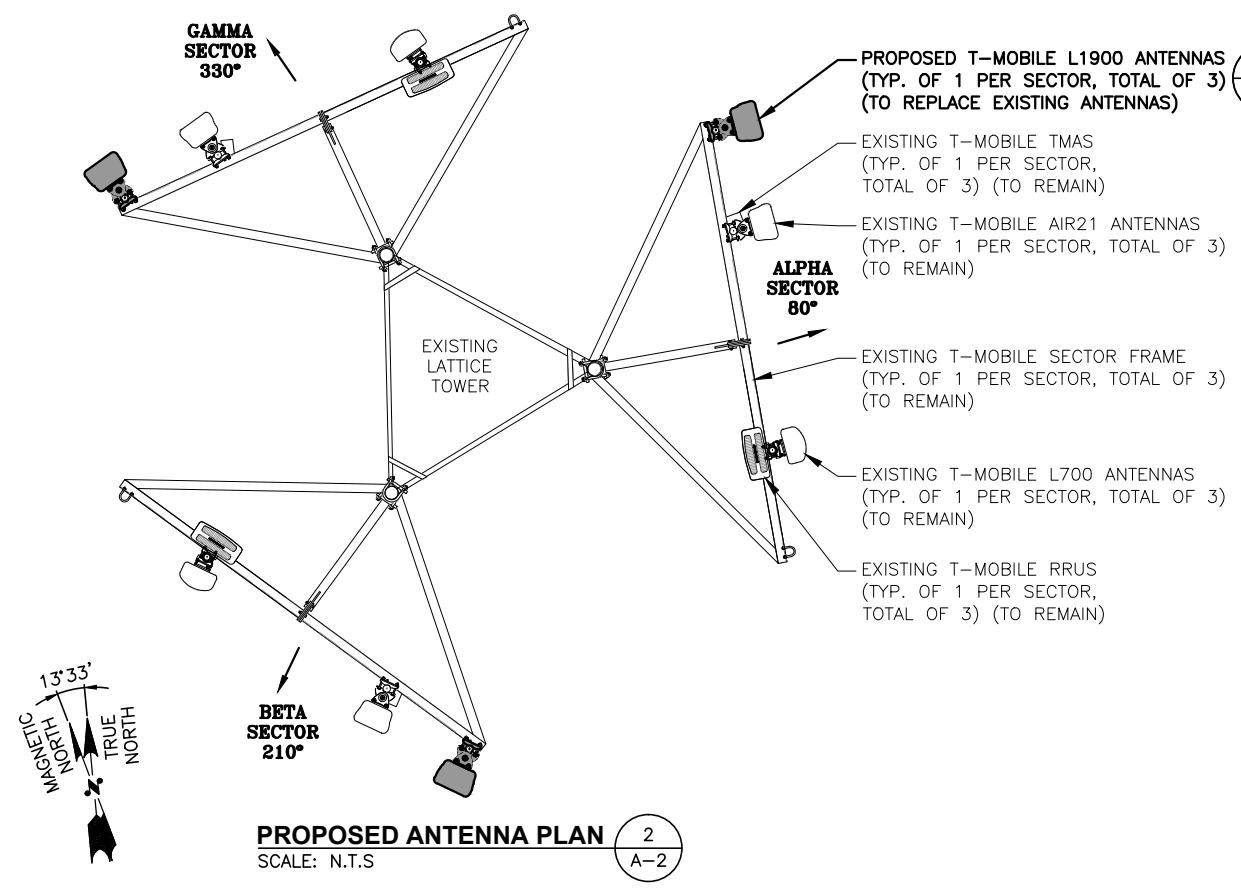
GROUND LEVEL
 ELEV. = 0'-0"± A.G.L.

TOWER ELEVATION
 22x34 SCALE: 3/32"=1'-0"
 11x17 SCALE: 3/64"=1'-0"

3
 A-2



EXISTING ANTENNA PLAN
 SCALE: N.T.S. 1
 A-2



PROPOSED ANTENNA PLAN
 SCALE: N.T.S. 2
 A-2

T-MOBILE NORTHEAST LLC

35 GRIFFIN ROAD SOUTH
 BLOOMFIELD, CT 06002
 OFFICE: (860) 648-1116



TRANSCEND WIRELESS
 10 INDUSTRIAL AVE
 MAHWAH, NJ 07430
 TEL: (201) 684-0055
 FAX: (201) 684-0066



1600 OSGOOD STREET
 BUILDING 20 NORTH, SUITE 3090
 N. ANDOVER, MA 01845
 TEL: (978) 557-5553
 FAX: (978) 336-5586



CHECKED BY: DR

APPROVED BY: DPH

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
0	05/04/16	ISSUED FOR REVIEW	VP

SITE NUMBER:
 CT11114D
 CROWN CASTLE SITE ID:
 807133
 SITE NAME:
 NORWALK/SOUTH
 NORWALK
 SITE ADDRESS:
 50 ROCKLAND ROAD
 NORWALK, CT 06854
 FAIRFIELD COUNTY

SHEET TITLE
 ANTENNA LAYOUT
 & ELEVATION

SHEET NUMBER
A-2

**T-MOBILE
NORTHEAST LLC**

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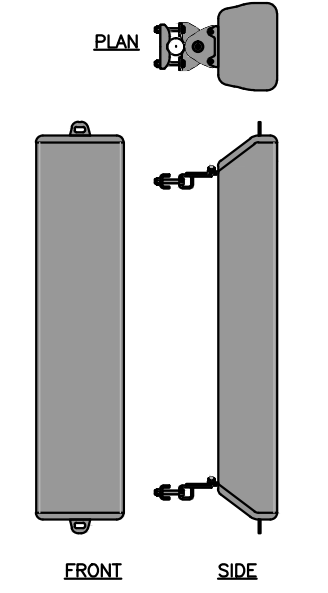
SITE NUMBER:
CT11114D
CROWN CASTLE SITE ID:
807133
SITE NAME:
**NORWALK/SOUTH
NORWALK**
SITE ADDRESS:
50 ROCKLAND ROAD
NORWALK, CT 06854
FAIRFIELD COUNTY

SHEET TITLE
DETAILS

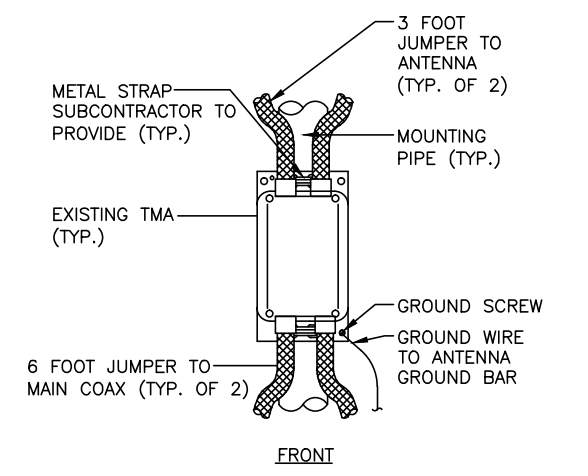
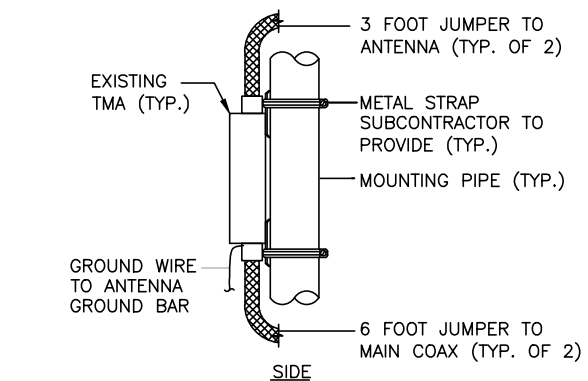
SHEET NUMBER
A-3

**L1900 ANTENNA
DIMENSIONS**

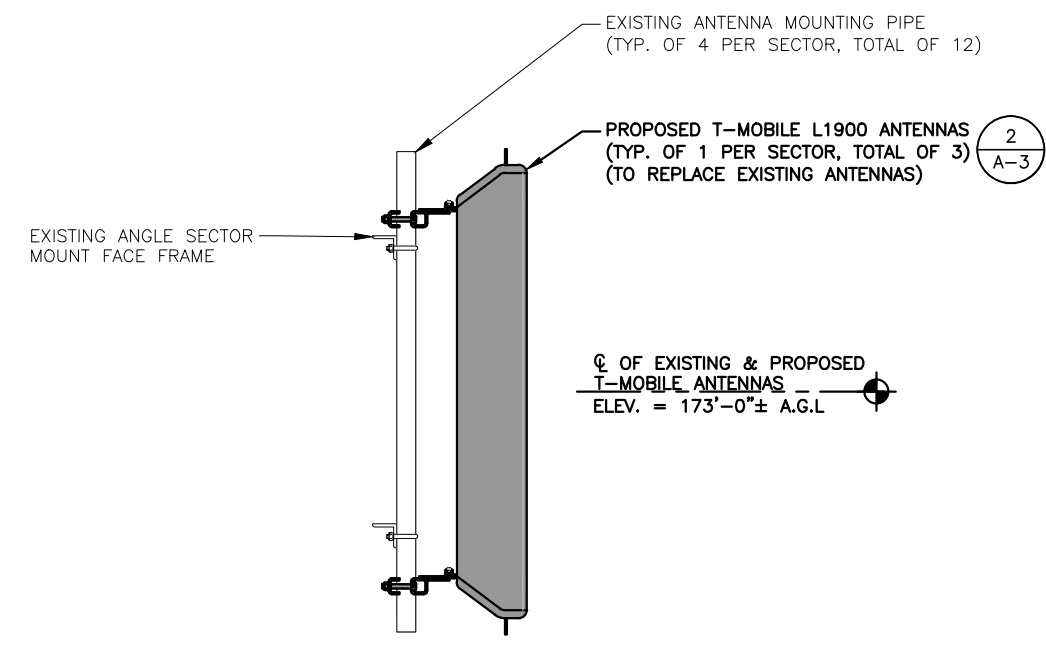
MODEL #	AIR 32 B66Aa/B2a
MANUF.	ERICSSON
WIDTH	12.9"
DEPTH	8.7"
HEIGHT	56.6"
WEIGHT	132.2 LBS



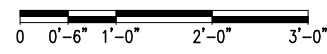
L1900 ANTENNA DETAIL
SCALE: N.T.S.



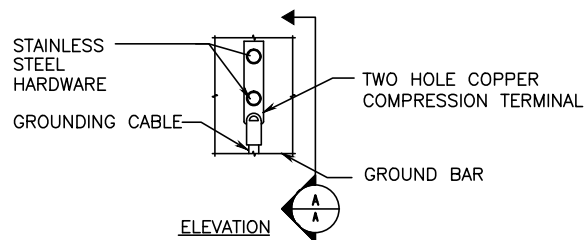
TMA MOUNTING DETAIL
SCALE: N.T.S.



PROPOSED L1900 ANTENNA MOUNT
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"



☉ OF EXISTING & PROPOSED
T-MOBILE ANTENNAS
ELEV. = 173'-0"± A.G.L.

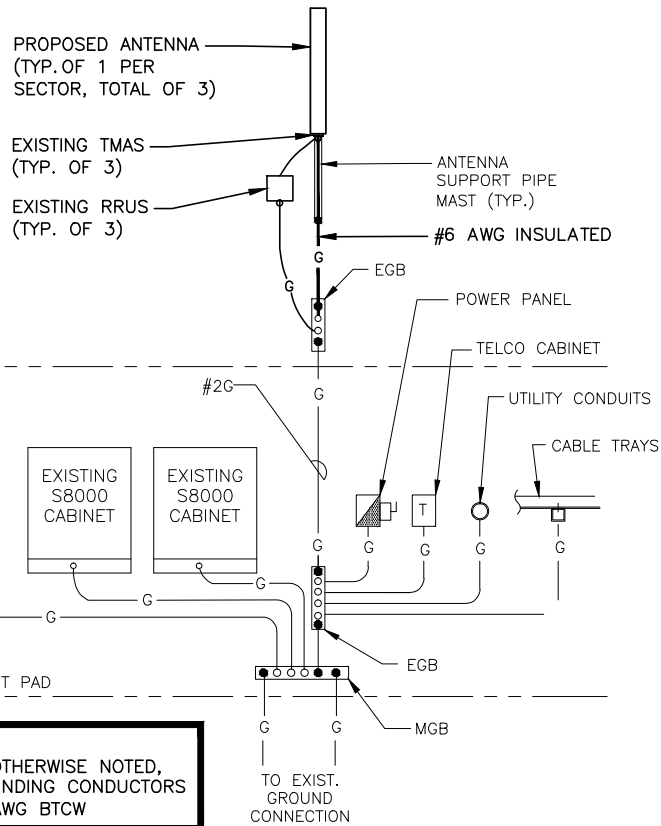


- NOTE:**
- "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
 - OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.
 - CADWELD DOWNLEADS FROM UPPER AGB/EGB, LOWER EGB, AND MGB.

TYPICAL GROUND BAR CONNECTION DETAIL
SCALE: N.T.S

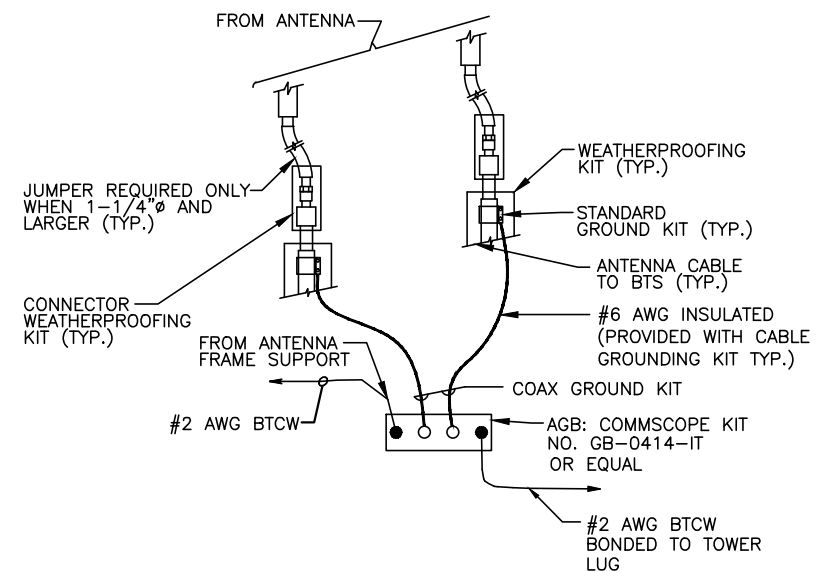
NOTE:

G.C. TO VERIFY THAT THE EXISTING CONDUITS AND WIRE SIZES ARE ADEQUATE FOR THE PROPOSED LOADING AND INCLUDE ELECTRICAL UPGRADES IN THE SCOPE OF WORK AS REQUIRED.



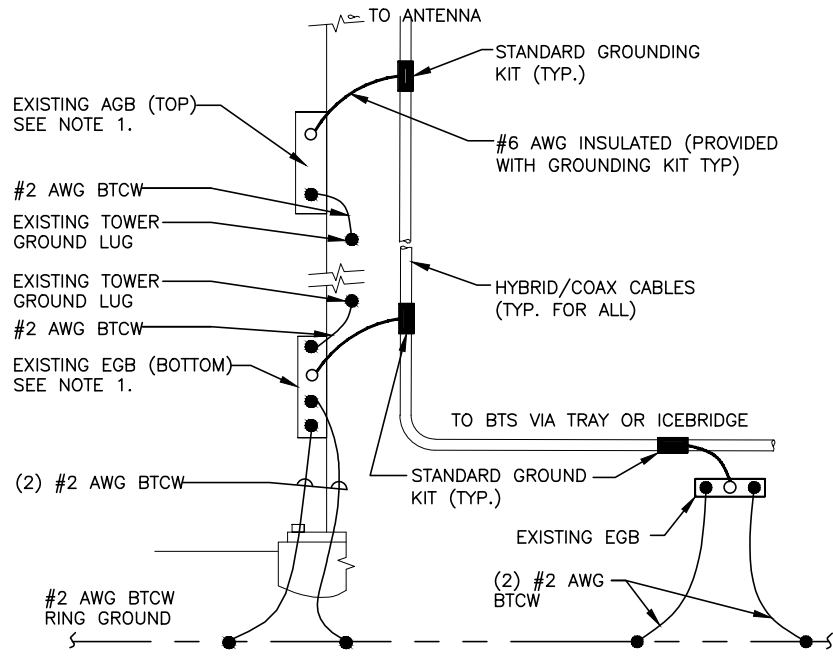
NOTE:
UNLESS OTHERWISE NOTED, ALL GROUNDING CONDUCTORS ARE #2 AWG BTCW

GROUNDING RISER DIAGRAM
SCALE: N.T.S



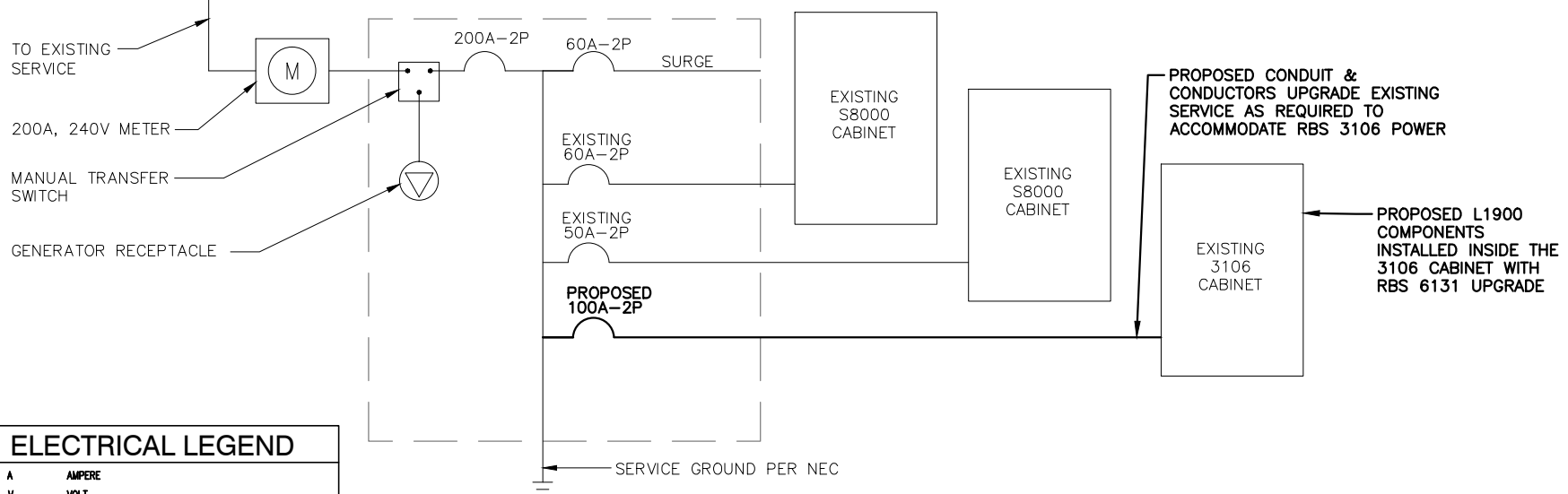
NOTE:
INSTALL CABLE GROUND KIT ABOVE HORIZONTAL BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO AGB/EGB.

TOWER TOP CABLE GROUNDING DETAIL
SCALE: N.T.S



- NOTE:**
- NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE ADDITIONAL AGB/EGB AS REQUIRED.
 - A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

TOWER BOTTOM CABLE GROUNDING DETAIL
SCALE: N.T.S



ELECTRICAL LEGEND

A	AMPERE
V	VOLT
KWH	KILOWATT - HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
BTCW	BARE TINNED (SOLID) COPPER WIRE (#2 AWG, UNLESS NOTES OTHERWISE)
G	GROUND
MGB	MASTER GROUND BAR
AGB/EGB	EQUIPMENT GROUND BAR/ANTENNA GROUND BAR
G	GROUND COPPER WIRE, SIZE AS NOTED
---	EXPOSED WIRING
---	INSULATED GROUNDING CONDUCTOR (#6 AWG STRANDED, UNLESS NOTED OTHERWISE)
○	5/8"Ø COPPER CLAD STAINLESS STEEL GROUND ROD
●	EXOTHERMIC (CAD WELD) OR MECHANICAL (COMPRESSION TYPE) CONNECTION
□	POWER PROTECTION CABINET
⊗	OMNI-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL

- ELECTRICAL & GROUNDING NOTES:**
- ELECTRICAL & GROUNDING NOTES**
- ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
 - ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
 - THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
 - GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
 - RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.
 - ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THIN INSULATION.
 - RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
 - RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A-1. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
 - ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
 - GROUNDING SHALL COMPLY WITH NEC ART. 250.
 - GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
 - USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
 - ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
 - ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
 - CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON-SURGING OBJECTS (EGB GROUND IN BTS UNIT).
 - CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
 - APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
 - BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
 - BOND ANTENNA EGB'S AND MGB TO WATER MAIN.
 - TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION.
 - BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.
 - VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.

T-MOBILE NORTHEAST LLC

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BLOOMFIELD, CT 06002
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Transcend Wireless

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MAHWAH, NJ 07430
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Hudson Design Group

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N. ANDOVER, MA 01845
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CHECKED BY: DR

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
0	05/04/16	ISSUED FOR REVIEW	VP

SITE NUMBER:
CT11114D
CROWN CASTLE SITE ID:
807133
SITE NAME:
NORWALK/SOUTH NORWALK
SITE ADDRESS:
50 ROCKLAND ROAD
NORWALK, CT 06854
FAIRFIELD COUNTY

SHEET TITLE
GROUNDING DIAGRAM

SHEET NUMBER
E-1

50 ROCKLAND RD

Location 50 ROCKLAND RD

Mblu 5/ 82/ 58/ 0/

Acct# 25665

Owner CROWN ATLANTIC COMPANY
LLC

Assessment \$1,007,240

Appraisal \$1,438,900

PID 25665

Building Count 1

Assessing Distri...

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$991,370	\$447,530	\$1,438,900

Assessment			
Valuation Year	Improvements	Land	Total
2015	\$693,970	\$313,270	\$1,007,240

Owner of Record

Owner CROWN ATLANTIC COMPANY LLC
Co-Owner
Address PMB 353
4017 WASHINGTON RD
McMURRAY, PA 15317-0000

Sale Price \$1,600,000
Certificate
Book & Page 3701/331
Sale Date 04/16/1999

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
CROWN ATLANTIC COMPANY LLC	\$1,600,000		3701/331	04/16/1999
CELLCO PARTNERSHIP,	\$1,020,000		3489/348	04/03/1998
DEVIVO MARIO + WENCHE	\$0		0/0	

Building Information

Building 1 : Section 1

Year Built: 1987
Living Area: 21,115
Replacement Cost: \$1,084,957
Building Percent 47