



April 2, 2014

David Martin and  
Members of the Siting Council  
Connecticut Siting Council  
Ten Franklin Square  
New Britain, CT 06051

RE: Notice of Exempt Modification  
45 Fargo Road, Waterford, CT 06385  
N 41.389337  
W 72.171392  
*T-Mobile #: CT11473A*

Dear Mr. Martin and Members of the Siting Council:

On behalf of T-Mobile, SBA Communications is submitting an exempt modification application to the Connecticut Siting council for modification of existing equipment at a tower facility located at 45 Fargo Road, Waterford, CT 06385.

The 45 Fargo Road facility consists of a 185' Monopole owned and operated by SBA Properties, LLC. In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile plans to modify the equipment configurations at many of its existing cell sites. Please accept this letter and attachments as notification, pursuant to R.C.S.A. Section 16-50j-73, of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2). In compliance with R.C.S.A. Section 16-50j-73, a copy of this letter and attachments is being sent to the chief elected official of the municipality in which the affected cell site is located.

As part of T-Mobile's modernization project, T-Mobile desires to upgrade their equipment to meet the new standards of 4G technology. The new equipment will allow customers to download files and browse the internet at a high rate of speed while also allowing their phones to be compatible with the latest 4G technology.

Attached is a summary of the planned modifications, including power density calculations reflecting the change in T-Mobile's operations at the site along with the required fee of \$625.

The changes to the facility do not constitute modifications as defined in Connecticut General Statutes ("C.G.S.") Section 16-50i(d) because the general physical characteristics of the facility will not be

significantly changed or altered. Rather, the planned changes to the facility fall squarely within those activities explicitly provided for in R.C.S.A. Section 16-50j-72(b)(2).

1. The overall height of the structure will be unaffected.
2. The proposed changes will not extend the site boundaries. There will be no effect on the site compound other than the new equipment cabinets.
3. The proposed changes will not increase the noise level at the existing facility by six decibels or more.
4. The changes in radio frequency power density will not increase the calculated "worst case" power density for the combined operations at the site to a level at or above the applicable standard for uncontrolled environments as calculated for a mixed frequency site.

For the foregoing reasons, SBA Communications on behalf of T-Mobile, respectfully submits that the proposed changes at the referenced site constitute exempt modifications under R.C.S.A. Section 16-50j-72(b)(2).

Please feel free to call me at 508.251.0720 x 3804 with any questions you may have concerning this matter.

Thank you,



Kri Pelletier  
SBA Communications Corporation  
33 Boston Post Road West Suite 320  
Marlborough, MA 01752  
508-251-0720 x 3804 + T  
508-251-1755 + F  
203-446-7700 + C  
[kpelletier@sbsite.com](mailto:kpelletier@sbsite.com)



## T-Mobile Equipment Modification

45 Fargo Road, Waterford, CT 06385  
Site number CT11473A

**Tower Owner:** SBA Properties, LLC

**Equipment Configuration:** Monopole

### Current and/or approved:

- (12) EMS RR9017C2DP
- (6) Allen FE15501P77/75 TMAs
- (12) 1-5/8" Feed Lines

### Planned Modifications:

- (3) Ericsson Air B2A B4P
- (3) Ericsson Air B4A B2P
- (3) Ericsson KRY112144 TMAs
- (12) 1-5/8" Feed Lines
- (1) 1-5/8" Fiber

### Structural Information:

The attached structural analysis demonstrates that the tower and foundation will have adequate structural capacity to accommodate the proposed modifications.

### Power Density:

The anticipated Maximum Composite contributions from the T-Mobile facility are 0.530% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 40.910% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE %		
Carrier	MPE %	
T-Mobile	0.530%	
Clearwire	0.700%	
Verizon Wireless	7.540%	
AT&T	20.780%	
Nextel	2.910%	*** On Adjacent structure***
Sprint	5.080%	*** On Adjacent structure***
Town of Waterford	3.370%	*** On Adjacent structure***
<b>Total Site MPE %</b>	<b>40.910%</b>	



April 2, 2014

Mr. Dan Steward  
First Selectman  
Town of Waterford  
15 Rope Ferry Road  
Waterford, CT 06385

RE: Telecommunications Facility @ 45 Fargo Road, Waterford, CT 06385

Dear Mr. Steward,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile will be changing its equipment configuration at certain cell sites.

As required by Regulations of Connecticut State Agencies (R.C.S.A.) Section 16-50j-73, the Connecticut Siting Council has been notified of the changes and will review T-Mobile's proposal. Please accept this letter as notification under Section 16-50j-73 of construction which constitutes an exempt modification pursuant to R.C.S.A. Section 16-50j-72(b)(2).

The accompanying letter to the Siting Council fully describes T-Mobile's proposal for the referenced cell site. However, if you have any questions or require any further information on our plans or the Siting Council's procedures, please call me at 508.251.0720 x 3804.

Thank you,

A handwritten signature in black ink, appearing to read "Kri Pelletier", with a long horizontal flourish extending to the right.

Kri Pelletier  
SBA Communications Company  
33 Boston Post Road West Suite 320  
Marlborough, MA 01752  
508-251-0720 x 3804 + T  
508-251-1755 + F  
203-446-7700 + C  
[kpelletier@sbsite.com](mailto:kpelletier@sbsite.com)

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

T-Mobile Existing Facility

Site ID: CT11473A

Waterford / Route 8 / Douglas

45 Fargo Road  
Waterford, CT 06385

**April 1, 2014**

**EBI Project Number: 62141997**

April 1, 2014

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

Re: Emissions Values for Site: **CT11473A - Waterford / Route 8 / Douglas**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 45 Fargo Road, Waterford, 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 cellular band is  $567 \mu\text{W}/\text{cm}^2$ , 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 45 Fargo Road, Waterford, 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, the actual antenna pattern gain value in the direction of the sample area was used. For this report the sample point is 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 / UMTS channels (1935.000 MHz to 1945.000 MHz / 1983.000 MHz to 1984.000 MHz ) were considered for each sector of the proposed installation.
- 2) 4 UMTS / LTE channels (2110.000 to 2120.000 MHz / 2140.000 MHz to 2145.000 MHz) were considered for each sector of the proposed installation
- 3) 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.
- 4) For the following calculations the sample point was the top of a six foot person standing at the base of the tower. The actual gain in this direction was used per the manufactures supplied specifications.
- 5) The antenna used in this modeling is the Ericsson AIR21 for LTE, UMTS and GSM. This is based on feedback from the carrier with regards to anticipated antenna selection. This antenna has a 15.6 dBd gain value at its main lobe. Actual antenna gain values were used for all calculations as per the manufacturers specifications

- 6) The antenna mounting height centerline of the proposed antennas is **152 feet** above ground level (AGL)
- 7) 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 calculation were done with respect to uncontrolled / general public threshold limits

Site ID	CT11473A - Waterford / Route 8 / Douglas
Site Address	45 Fargo Road, Waterford, CT 06385
Site Type	Monopole

Sector 1																	
Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	152	146	None	0	0	48.326044	0.815045	0.08150%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-	-	-	0	-3.95	152	146	None	0	0	0	0	0.00000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	152	146	None	0	0	24.163022	0.407522	0.04075%
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	152	146	None	0	0	32.217363	0.543363	0.05434%
															Sector total Power Density Value: 0.177%		
Sector 2																	
Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	152	146	None	0	0	48.326044	0.815045	0.08150%
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															Sector total Power Density Value: 0.177%		
Sector 3																	
Antenna Number	Antenna Make	Antenna Model	Status	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain in direction of sample point (dBd)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss	ERP	Power Density Value	Power Density Percentage
1a	Ericsson	AIR21 B4A/B2P	Active	AWS - 2100 MHz	LTE	60	2	120	-3.95	152	146	None	0	0	48.326044	0.815045	0.08150%
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Site Composite MPE %		
Carrier	MPE %	
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Nextel	2.910%	*** On Adjacent structure***
Sprint	5.080%	*** On Adjacent structure***
Town of Waterford	3.370%	*** On Adjacent structure***
<b>Total Site MPE %</b>	<b>40.910%</b>	

## Summary

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

The anticipated Maximum Composite contributions from the T-Mobile facility are **0.530% (0.177% from each sector)** of the allowable FCC established general public limit considering all three sectors simultaneously sampled at the ground level.

The anticipated composite MPE value for this site assuming all carriers present is **40.910%** 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.



**Scott Heffernan**  
RF Engineering Director

**EBI Consulting**  
21 B Street  
Burlington, MA 01803



FDH Engineering, Inc., 6521 Meriden Drive Raleigh, NC 27616, Ph. 919.755.1012

**Structural Analysis for  
SBA Network Services, Inc.**

**183' Monopole Tower**

**SBA Site Name: Waterford  
SBA Site ID: CT01002-S  
T-Mobile Site ID: CT11473A**

FDH Project Number 1424KJ1400

**Analysis Results**

Tower Components	93.3 %	Sufficient
Foundation	93.4 %	Sufficient

Prepared By:

Cary J. Webb, PE  
Project Engineer

Reviewed By:

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

**FDH Engineering, Inc.**  
6521 Meriden Drive  
Raleigh, NC 27616  
(919) 755-1012  
info@fdh-inc.com



March 20, 2014

*Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and the 2005 Connecticut State Building Code*

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## EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the monopole located in Waterford, CT to determine whether the tower is structurally adequate to support both the existing and proposed loads pursuant to the *Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, TIA/EIA-222-F and the 2005 Connecticut State Building Code (CSBC)*. Information pertaining to the existing/proposed antenna loading, current tower geometry, geotechnical data, and member sizes was obtained from:

- A. Nudd Corp. (Project No. 6637) Design of 183' Monopole dated May 7, 1999
- Semaan Engineering Solutions, Inc. (Site No. CT-4284) Structural Analysis and Modification Package for the Original Design Loads dated May 7, 2002
- FDH Engineering, Inc. (Project No. 10-08045E S2) Modification Drawings For A 183' Monopole Tower dated November 4, 2010
- FDH Engineering, Inc. (Project No. 10-08045E S2) Post Construction Inspection Report dated February 4, 2011
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and 2005 CSBC is 85 mph without ice and 74 mph with 1/2" radial ice. Ice is considered to increase in thickness with height.

## Conclusions

With the existing and proposed antennas from T-Mobile in place at 152 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards 2005 CSBC provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see Fred. A Nudd Corp. Project No. 6637), the foundation should have the necessary capacity to support the existing and proposed loading. For a more detailed description of the analysis of the tower, see the **Results** section of this report.

Our structural analysis has been performed assuming all information provided to FDH Engineering, Inc. is accurate (i.e., the steel data, tower layout, existing antenna loading, and proposed antenna loading) and that the tower has been properly erected and maintained per the original design drawings.

## Recommendations

To ensure the requirements of the *TIA/EIA-222-F* standards 2005 CSBC are met with the existing and proposed loading in place, we have the following recommendations:

1. Proposed coax should be installed inside the monopole's shaft.
2. The existing TMAs should be installed directly behind the proposed panel antennas.

## APPURTENANCE LISTING

The proposed and existing antennas with their corresponding cables/coax lines are shown in **Table 1**. *If the actual layout determined in the field deviates from the layout, FDH Engineering, Inc. should be contacted to perform a revised analysis.*

**Table 1 - Appurtenance Loading**

**Existing Loading:**

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
183	(12) Decibel DB844H90E-XY	(12) 1-1/4"	Nextel	181	(1) Low Profile Platform
173	(3) Antel BXA-70063/6CF (4) Antel LPA-80080/4CF (6) Antel LPA-185080/8CF (2) RFS APL866513	(18) 1-5/8"	Verizon	172	(1) Low Profile Platform
163 <sup>2</sup>	(3) Argus LLPX310R (3) Samsung DAP Radio Heads	(3) 9/16" (3) 5/16"	Clearwire	162	(1) Low Profile Platform
153	(12) EMS RR9017C2DP (6) Allen FE15501P77/75 TMAs	(12) 1-5/8"	T-Mobile	152	(1) Low Profile Platform
143	(3) Powerwave 7770 (2) KMW AM-X-CD-16-65-00T (2) Andrew SBNH-1D6565C (2) Powerwave P65-17-XLH-RR (6) ADC Cleargain 850-1900 TMAs (6) Ericsson RRUS11 RRUs (3) Powerwave LGP13519 Diplexers (3) CSS DBC-750 Diplexers (1) Raycap DC6-48-60-18-8F Surge Arrestor	(12) 1-1/4" (2) 3/4" DC Power (1) 7/16" Fiber	New Cingular	143	(1) Low Profile Platform

1. Coax installed inside the pole's shaft unless otherwise noted.
2. Coax is installed inside (1) 3" conduit.

**Proposed Loading:**

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
152	(3) Ericsson Air B2A B4P (3) Ericsson Air B4A B2P (3) Ericsson KRY112144 TMAs	(12) 1-5/8" (1) 1-5/8" Fiber	T-Mobile	152	(1) Low Profile Platform

## RESULTS

The following yield strength of steel for individual members was used for analysis:

**Table 2 - Material Strength**

Member Type	Yield Strength
Tower Shaft Sections	76 ksi, 65 ksi, 63 ksi, and 56 ksi
Flange Plate	65 ksi
Base Plate	50 ksi
Anchor Bolts	105 ksi and 150 ksi

**Table 3** displays the summary of the ratio (as a percentage) of force in the member to their capacities. Values greater than 100% indicate locations where the maximum force in the member exceeds its capacity. **Table 4** displays the maximum foundation reactions.

If the assumptions outlined in this report differ from actual field conditions, FDH Engineering, Inc. should be contacted to perform a revised analysis. Furthermore, as no information pertaining to the allowable twist and sway requirements for the existing or proposed appurtenances was provided, deflection and rotation were not taken into consideration when performing this analysis.

See the **Appendix** for detailed modeling information

**Table 3 - Summary of Working Percentage of Structural Components**

Section No.	Elevation ft	Component Type	Size	% Capacity*	Pass Fail
L1	183 - 180	Pole	TP24x24x0.281	3.4	Pass
L2	180 - 135	Pole	TP34.125x24x0.25	63.7	Pass
L3	135 - 130	Pole	TP35.25x34.125x0.5	36.4	Pass
L4	130 - 125	Pole	TP38.625x35.25x0.25	77.8	Pass
	125 - 110	Modification	(3) C6x10.5 Channels	68.3	Pass
L5	115 - 91	Pole	TP44.025x38.625x0.3125	86.9	Pass
	95 - 65	Modification	(6) C6x10.5 Channels	74.6	Pass
L6	91 - 85	Pole	TP45.375x44.025x0.625	45.8	Pass
L7	85 - 81	Pole	TP46.275x45.375x0.3125	91.5	Pass
L8	81 - 71	Pole	TP48.525x46.275x0.375	92.6	Pass
L9	71 - 51	Pole	TP53.025x48.525x0.375	87.3	Pass
L10	51 - 48	Pole	TP53.7x53.025x0.375	73.4	Pass
L11	48 - 41	Pole	TP55.275x53.7x0.75	37.7	Pass
L12	41 - 0	Pole	TP64.5x55.275x0.375	86.1	Pass
		Anchor Bolts	(24) 2" Ø on 58" BC	63.3	Pass
		Anchor Bolts	(9) 1.375" Ø on 82" BC	74.9	Pass
		Base Plate	PL 1.50" thk x 64.5" Ø	93.3	Pass

\*Capacities include 1/3 allowable increase for wind.

**Table 4 - Maximum Base Reactions**

Base Reactions	Current Analysis (TIA/EIA-222-F)	Original Design (TIA/EIA-222-F)
Axial	51 k	---
Shear	36 k	39 k
Moment	4,695 k-ft	5,027 k-ft

## **GENERAL COMMENTS**

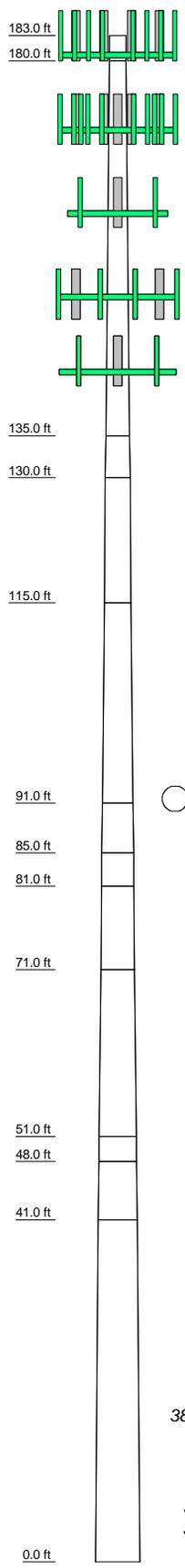
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading information) modeled. If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, FDH Engineering, Inc. should be notified immediately to perform a revised analysis.

## **LIMITATIONS**

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied, or distributed for any other purpose without the written consent of FDH Engineering, Inc.

## **APPENDIX**

Section	1	2	3	4	5	6	7	8	9	10	11	12
Length (ft)	3.00	45.00	5.00	15.00	24.00	6.00	4.00	10.00	20.00	3.00	7.00	41.00
Number of Slides	1	18	18	18	18	18	18	18	18	18	18	18
Thickness (in)	0.2810	0.2500	0.5000	0.2500	0.3125	0.3125	0.3125	0.3750	0.3750	0.3750	0.7500	0.3750
Top Dia (in)	24.0000	24.0000	34.1250	35.2500	38.6250	44.0250	46.2750	48.5250	48.5250	53.0250	55.2750	64.5000
Bot Dia (in)	24.0000	34.1250	35.2500	38.6250	44.0250	46.2750	48.5250	48.5250	53.0250	55.2750	55.2750	64.5000
Grade	A36											
Weight (K)	0.2	3.5	0.9	1.5	3.3	1.8	0.6	1.9	4.1	0.6	3.0	9.9



### DESIGNED APPURTENANCE LOADING

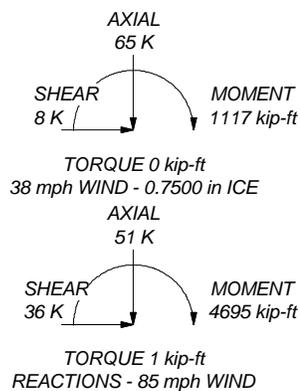
TYPE	ELEVATION	TYPE	ELEVATION
(4) DB844H90E-XY w/Mount Pipe	181	KRY 112 144/1	152
(4) DB844H90E-XY w/Mount Pipe	181	KRY 112 144/1	152
(4) DB844H90E-XY w/Mount Pipe	181	KRY 112 144/1	152
Low Profile Platform	181	Low Profile Platform	152
BXA-70063/6CF W/Mount Pipe	172	7770.00 W/Mount Pipe	143
BXA-70063/6CF W/Mount Pipe	172	7770.00 W/Mount Pipe	143
BXA-70063/6CF W/Mount Pipe	172	7770.00 W/Mount Pipe	143
(2) LPA-80080/4CF W/Mount Pipe	172	AM-X-CW-16-65-00T-RET w/Mount Pipe	143
LPA-80080/4CF W/Mount Pipe	172	AM-X-CW-16-65-00T-RET w/Mount Pipe	143
LPA-80080/4CF W/Mount Pipe	172	AM-X-CW-16-65-00T-RET w/Mount Pipe	143
(2) LPA-185080/8CF W/Mount Pipe	172	SBNH-1D6565C w/ Mount Pipe	143
(2) LPA-185080/8CF W/Mount Pipe	172	SBNH-1D6565C w/ Mount Pipe	143
(2) LPA-185080/8CF W/Mount Pipe	172	SBNH-1D6565C w/ Mount Pipe	143
APL866513 w/ Mount Pipe	172	P65-17-XLH-RR w/Mount Pipe	143
APL866513 w/ Mount Pipe	172	P65-17-XLH-RR w/Mount Pipe	143
Low Profile Platform	172	(2) ADC 850-1900 Dual Band TMAs	143
LLPX310R W/ Mount Pipe	162	(2) ADC 850-1900 Dual Band TMAs	143
LLPX310R W/ Mount Pipe	162	(2) ADC 850-1900 Dual Band TMAs	143
LLPX310R W/ Mount Pipe	162	(2) RRRUS 11	143
DAP Radio Head	162	(2) RRRUS 11	143
DAP Radio Head	162	(2) RRRUS 11	143
DAP Radio Head	162	(2) RRRUS 11	143
Low Profile Platform	162	LGP 13519	143
AIR B2A/B4P w/Mount Pipe	152	LGP 13519	143
AIR B2A/B4P w/Mount Pipe	152	LGP 13519	143
AIR B2A/B4P w/Mount Pipe	152	LGP 13519	143
AIR B4A/B2P w/Mount Pipe	152	DBC-750 Diplexer	143
AIR B4A/B2P w/Mount Pipe	152	DBC-750 Diplexer	143
AIR B4A/B2P w/Mount Pipe	152	DBC-750 Diplexer	143
AIR B4A/B2P w/Mount Pipe	152	DC6-48-60-18-8F Surge Arrestor	143
AIR B4A/B2P w/Mount Pipe	152	DC6-48-60-18-8F Surge Arrestor	143
AIR B4A/B2P w/Mount Pipe	152	Low Profile Platform	143

### MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi	A500M-63	63 ksi	80 ksi
A572-65	65 ksi	80 ksi	Fy = 76	76 ksi	91 ksi
Fy = 56 ksi	56 ksi	71 ksi			

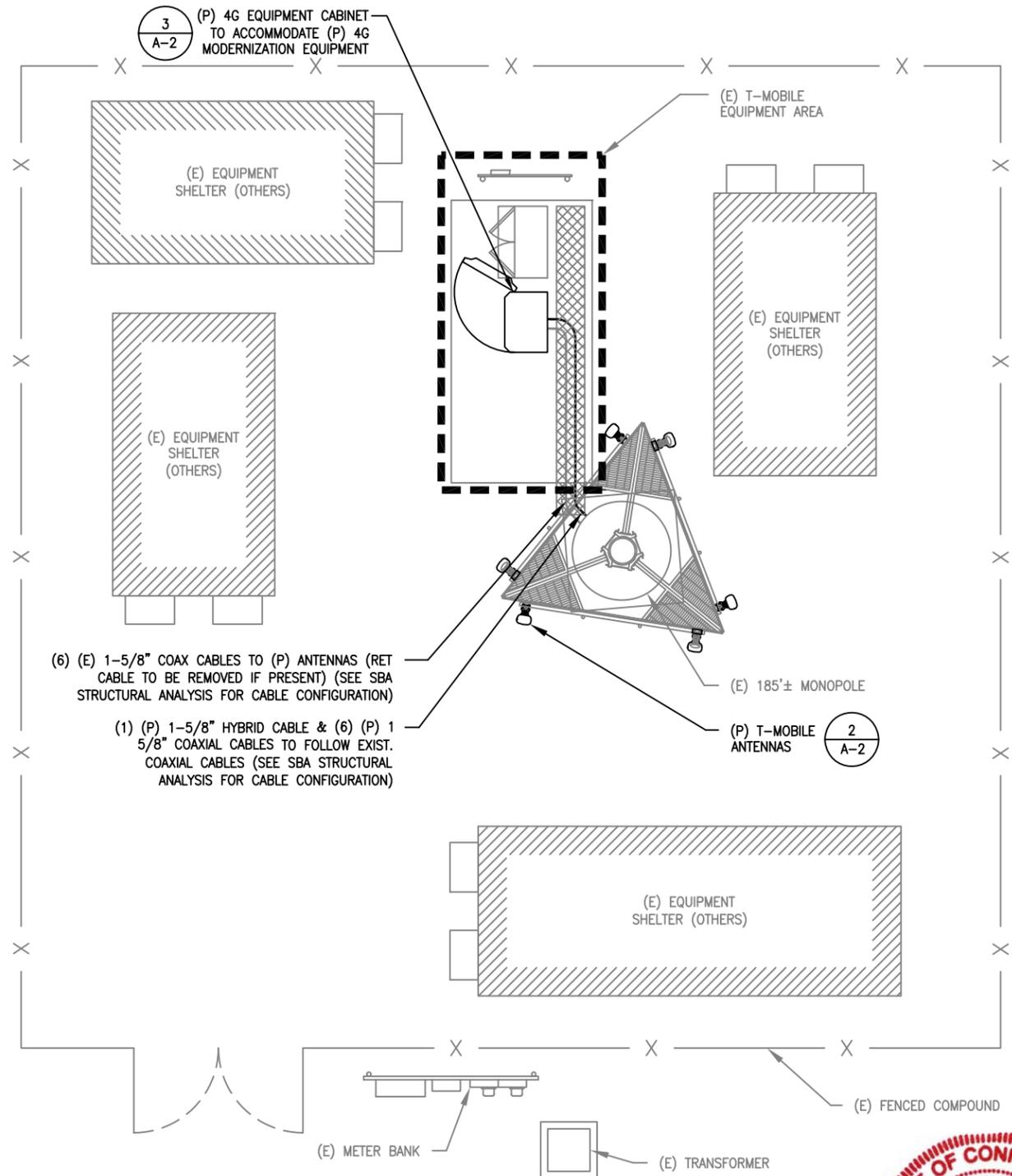
### TOWER DESIGN NOTES

1. Tower is located in New London 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.
4. Deflections are based upon a 50 mph wind.



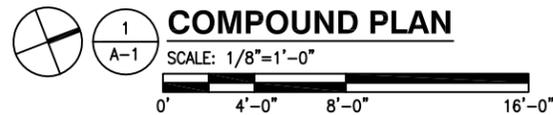
**FDH Engineering, Inc.**  
 6521 Meridian Drive, Suite 107  
 Raleigh, NC 27616  
 Phone: 9197551012  
 FAX: 9197551031

Job: **Waterford, CT01002-S**  
 Project: **1424KJ1400**  
 Client: **SBA Network Services, Inc.** Drawn by: **Cary Webb** App'd:  
 Code: **TIA/EIA-222-F** Date: **03/20/14** Scale: **NTS**  
 Path: \_\_\_\_\_ Dwg No. **E-1**



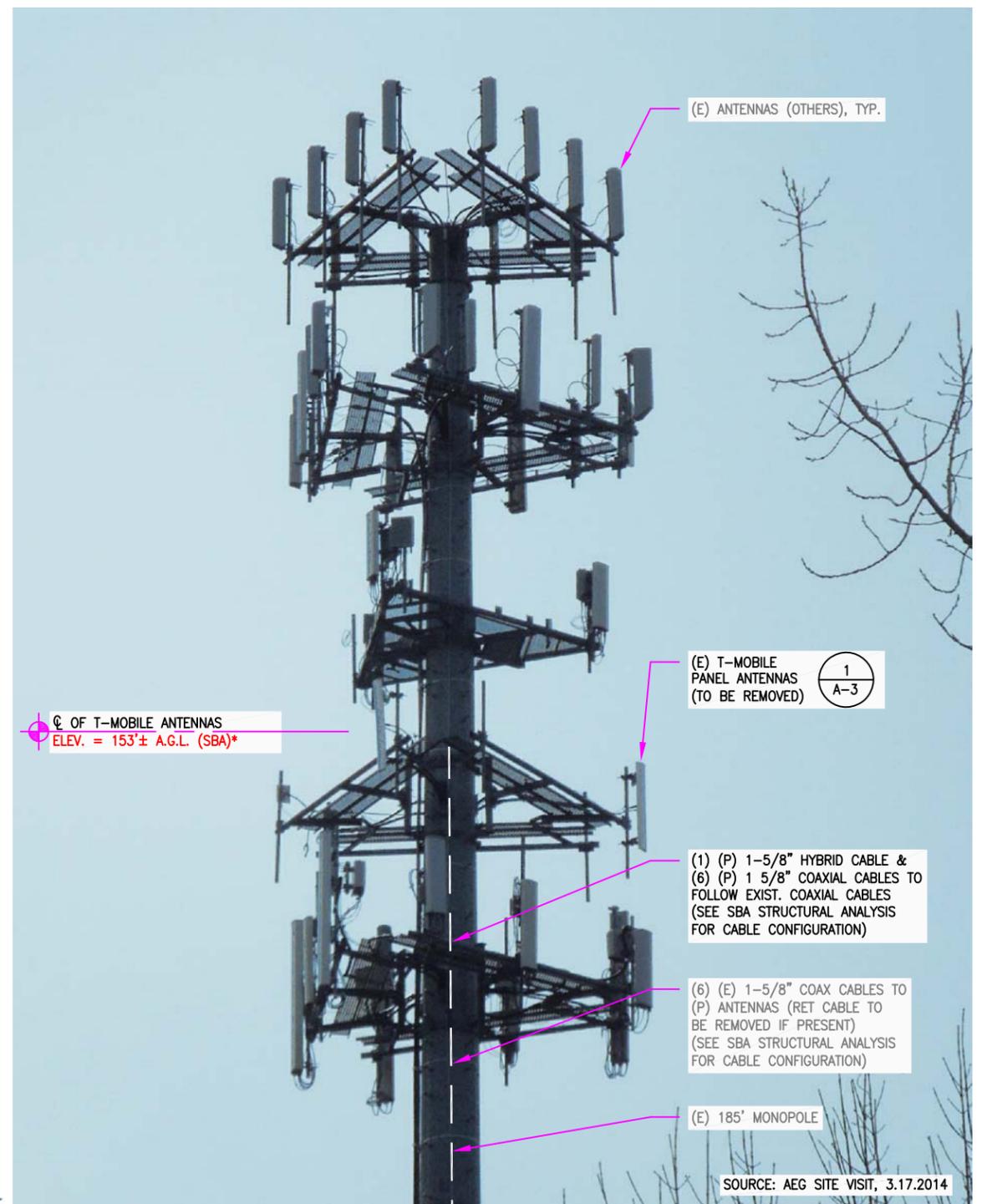
(6) (E) 1-5/8" COAX CABLES TO (P) ANTENNAS (RET CABLE TO BE REMOVED IF PRESENT) (SEE SBA STRUCTURAL ANALYSIS FOR CABLE CONFIGURATION)

(1) (P) 1-5/8" HYBRID CABLE & (6) (P) 1 5/8" COAXIAL CABLES TO FOLLOW EXIST. COAXIAL CABLES (SEE SBA STRUCTURAL ANALYSIS FOR CABLE CONFIGURATION)



**COMPOUND PLAN**

SCALE: 1/8"=1'-0"



NOTE: GROUND EQUIPMENT NOT SHOWN FOR CLARITY

**EXISTING ELEVATION**

SCALE: NTS

NOTE: ANTENNA ELEVATION BASED ON CLIENT-PROVIDED INFORMATION

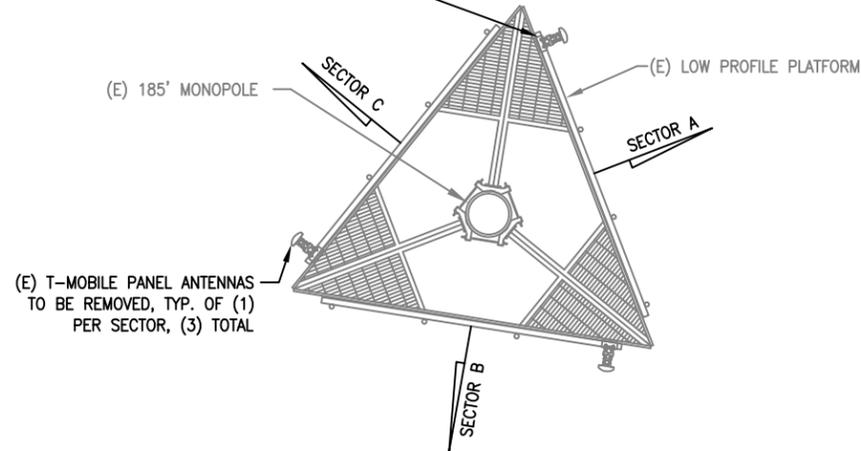


**SITE NUMBER: CT11473A**  
**SITE NAME: WATERFORD / RT. 85 / DOUGLAS**  
 45 FARGO ROAD  
 WATERFORD, CT 06385

**T-MOBILE NORTHEAST LLC**  
 35 GRIFFIN ROAD SOUTH  
 BLOOMFIELD, CT 06002  
 OFFICE: (860) 648-1116

				T-MOBILE				
				COMPOUND PLAN AND ELEVATION				
NO.	DATE	REVISIONS	BY	CHK	APP'D	JOB NUMBER	DRAWING NUMBER	REV
0	03/20/14	CONSTRUCTION	MER	SB	MRC	CT11473A	A-1	0
SCALE: AS SHOWN			DESIGNED BY: MRC	DRAWN BY: MER				

(E) TMAs TO BE REMOVED  
(1) PER SECTOR, TOTAL OF (3)



**1**  
A-2  
**EXISTING ANTENNA PLAN**  
SCALE: 1/8"=1'-0"  
0' 4'-0" 8'-0"

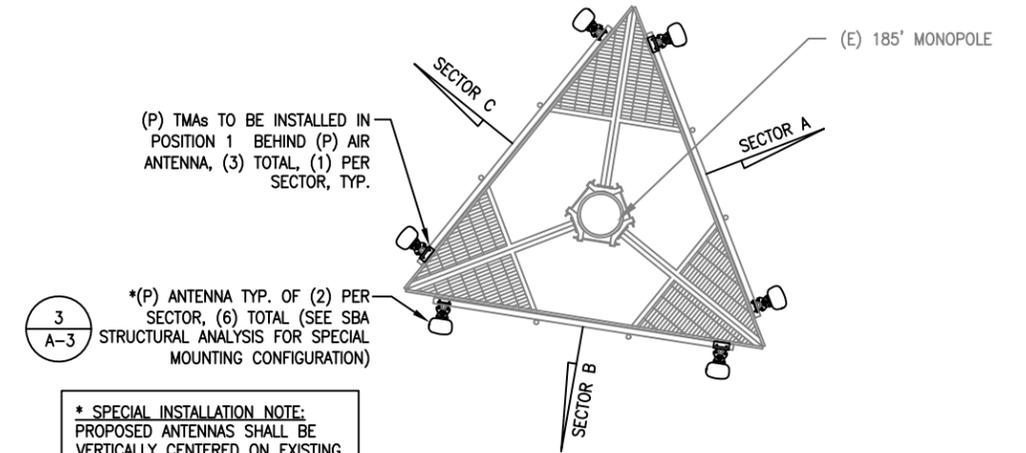
EXISTING ANTENNA SCHEDULE			
SECTOR	MAKE	MODEL#	SIZE (INCHES)
SECTOR A:	EMS	RR90-17-02DP	8x2.8x56
SECTOR B:	EMS	RR90-17-02DP	8x2.8x56
SECTOR C:	EMS	RR90-17-02DP	8x2.8x56

PROPOSED ANTENNA SCHEDULE			
SECTOR	MAKE	MODEL#	SIZE (INCHES)
SECTOR A:	ERICSSON	AIR21 B2A/B4P	12x8x56
	ERICSSON	AIR21 B4A/B2P	12x8x56
SECTOR B:	ERICSSON	AIR21 B2A/B4P	12x8x56
	ERICSSON	AIR21 B4A/B2P	12x8x56
SECTOR C:	ERICSSON	AIR21 B2A/B4P	12x8x56
	ERICSSON	AIR21 B4A/B2P	12x8x56

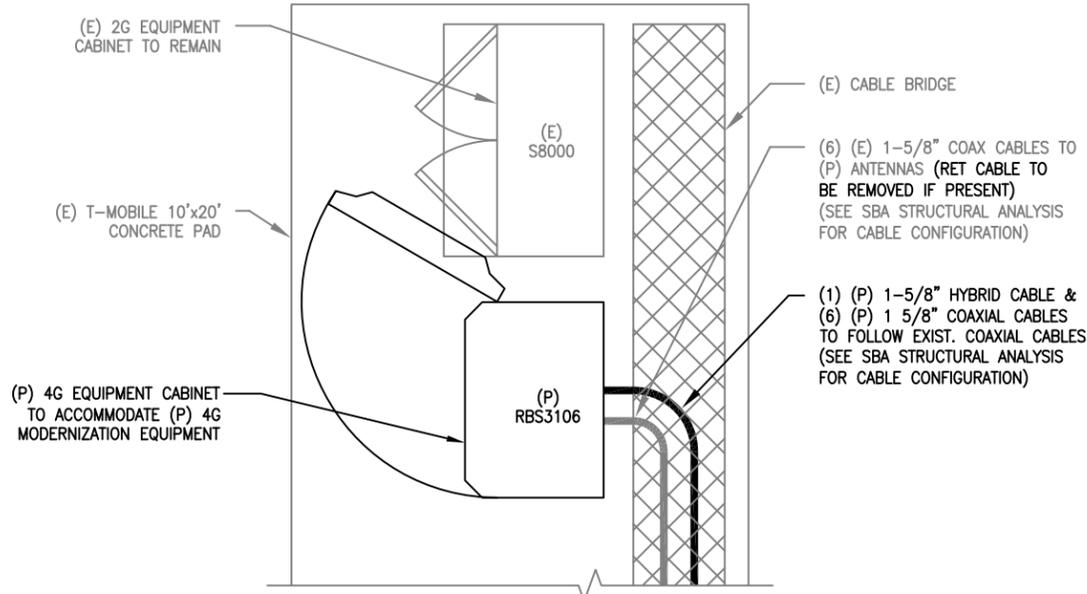
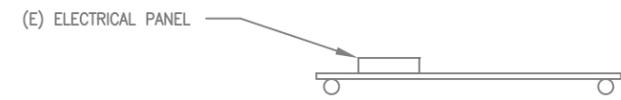
**NOTE:**  
1. REFER TO FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

(P) TMAs TO BE INSTALLED IN POSITION 1 BEHIND (P) AIR ANTENNA, (3) TOTAL, (1) PER SECTOR, TYP.



**\* SPECIAL INSTALLATION NOTE:**  
PROPOSED ANTENNAS SHALL BE VERTICALLY CENTERED ON EXISTING PLATFORM RAIL. ADJUST ANTENNA MOUNTING PIPE AS REQUIRED.

**2**  
A-2  
**PROPOSED ANTENNA PLAN**  
SCALE: 1/8"=1'-0"  
0' 4'-0" 8'-0"



**3**  
A-2  
**EQUIPMENT PLAN**  
SCALE: 1/4"=1'-0"  
0' 2'-0" 4'-0"



**4**  
A-3  
**EXISTING EQUIPMENT AREA.**  
N.T.S.



0	03/20/14	CONSTRUCTION	MER	SB	MRC
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: MRC	DRAWN BY: MER		



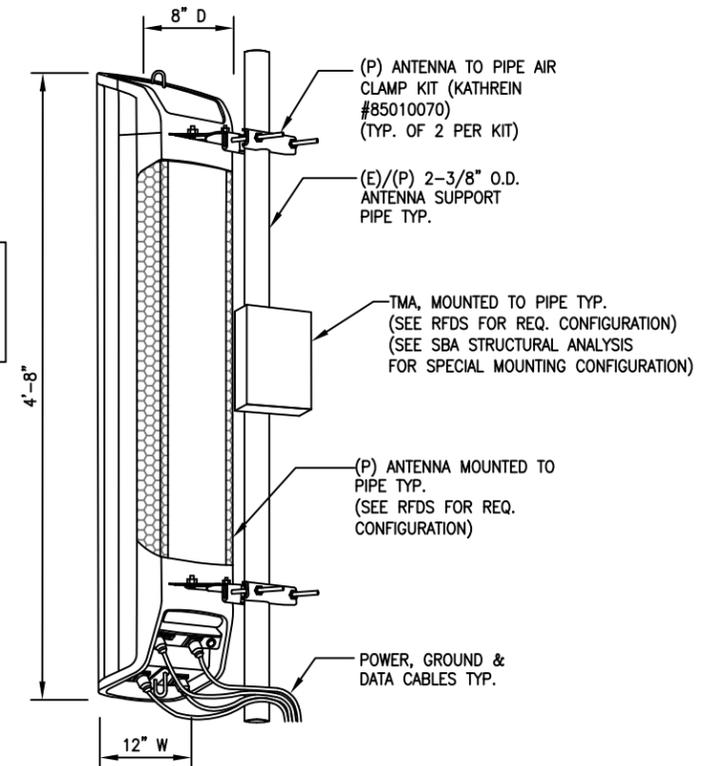
SOURCE: AEG SITE VISIT, 3.17.2014

**1 EXISTING ANTENNA MOUNT TYP.**  
A-3 N.T.S.

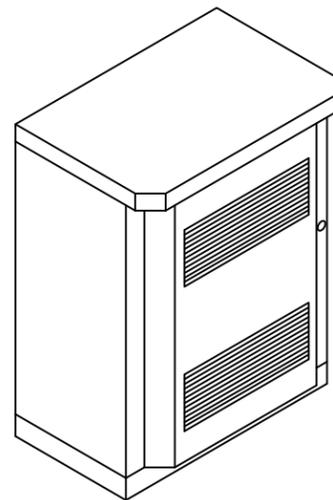


SOURCE: AEG SITE VISIT, 3.17.2014

**2 PROPOSED ANTENNA MOUNT TYP.**  
A-3 N.T.S.



**3 ANTENNA MOUNT TYP.**  
A-3 SCALE: N.T.S.



NOTE:  
ANCHOR (P) EQUIPMENT TO  
(E) CONCRETE PAD PER  
MANUFACTURER'S RECOMMENDATIONS

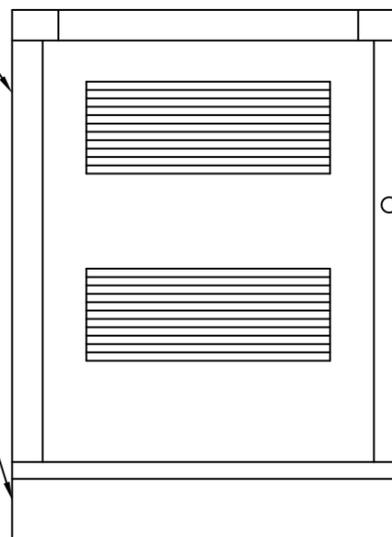
DIMENSIONS		
CABINET	DEPTH x WIDTH x HEIGHT	APPROX. MAX. WEIGHT
OUTDOOR RBS3106	36.45" x 51.18" x 64.17"	1874 LBS.

**4 PROPOSED EQUIPMENT CABINET**  
A-3 SCALE: N.T.S.

(P) RBS 3106 CABINET MOUNTED TO (P) 3106 BASE PER MANUFACTURER'S REQUIREMENTS (SEE RFDS FOR INTERNAL EQUIPMENT CONFIGURATION)

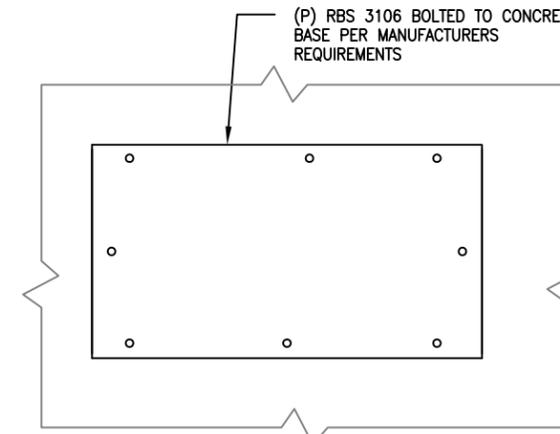
(P) 3106 BASE BOLTED TO CONCRETE BASE PER MANUFACTURERS REQUIREMENTS

(E) CONCRETE FLOOR



ELEVATION

**5 CABINET MOUNTING DETAIL**  
A-3 SCALE: N.T.S.



PLAN

