March 20, 2015

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

RE: Notice of Exempt Modification
310 Watertown Road, Bethlehem, CT 06763
N 41° 40' 2.53"
W 73° 10' 14.01"
T-Mobile Site #: CTNH357C_L700

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 310 Watertown Road, Bethlehem, CT 06763.

The 310 Watertown Road, Bethlehem, CT facility consists of a 195' Monopole Tower 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 L700 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 he 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@sbasite.com

T-Mobile
Equipment Modification

310 Watertown Road, Bethlehem, CT 06763
Site number CTNH357C_L700

Tower Owner: SBA Properties, LLC

Equipment Configuration: Monopole

Current and/or approved:

- (3) RFS APXV18-209014-CT2
- (3) Remec S20057A1
- (6) 1-5/8" feed lines

Planned Modifications:

- (3) RFS APXV18-209014-CT2
- (3) Remec S20057A1
- (3) Commscope LNX-6515DS
- (3) Kathrein 782 11056 Bias-T
- (3) Ericsson KRY 112 144/1
- (12) 1-5/8" feed lines

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 4.11% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 28.92% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE%	
Carrier	MPE%
T-Mobile	4.11
Nextel	1.67 %
Sprint	2.20 %
AT&T	11.81 %
Verizon Wireless	9.13 %
Site Total MPE %:	28.92 %

March 20, 2015

Leonard Assard, First Selectman
Town of Bethlehem
36 Main St South
Bethlehem, CT 06751

RE: Telecommunications Facility @ 310 Watertown Road, Bethlehem, CT 06763

Dear Mr. Assard,

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 above 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,

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@sbasite.com

March 20, 2015

Gary J. & Amy Swingle
310 Watertown Road
Morris, CT 06763-1902

RE: Telecommunications Facility @ 310 Watertown Road, Bethlehem, CT 06763

Dear Mr. and Mrs. Swingle:

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 above 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,

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@sbasite.com

Structural Analysis for SBA Network Services, Inc.

195' Monopole Tower

SBA Site Name: Morris
SBA Site ID: CT01501-S-06
T-Mobile Site ID: CTNH357C
Site Name Address: 310 Watertown Road, Bethlehem, CT 06763-1902

FDH Project Number 15BFGK1400

Analysis Results

Tower Components	82.9%	Sufficient
Foundation	82.4%	Sufficient

Prepared By:

Sergio J. Magallon, EIT
Project Engineer I

Reviewed By:

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

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

STATE OF CONNECTICUT DENNIS D. ABEL No. 23247 LICENSED PROFESSIONAL ENGINEER

03-06-2015

March 6, 2015

Prepared pursuant to TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures & 2005 Connecticut 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 Bethlehem, 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 Building Code (CTBC)*. Information pertaining to the existing/proposed antenna loading, current tower geometry, geotechnical data, and member sizes was obtained from:

- Fred A. Nudd Corporation (Drawing No. 00-7627-1) original design drawings dated May 8, 2000
- o2wireless Solutions (Job No. 2230-043) Monopole Tower Structural Analysis Report dated September 4, 2002
- Vertical Structures, Inc. (Job No. 2008-007-002) Structural Analysis Report dated January 8, 2008
- Vertical Structures, Inc. (Job No. 2008-007-002) Structural Opinion Letter dated September 18, 2008
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and the *2005 CTBC* is 80 mph without ice and 28 mph with 3/4" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the existing and proposed antennas from T-Mobile in place at 155 ft, the tower meets the requirements of the *TIA/EIA-222-F standards* and the *2005 Connecticut Building Code* 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 Drawing No. 00-7627-1), the foundation should have the necessary capacity to support both the proposed and existing 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 and the *2005 CTBC* are met with the existing and proposed loading in place, we have the following recommendations:

1. The proposed feed lines should be installed inside the pole's shaft.
2. The existing and proposed TMAs should be installed directly behind the existing and proposed panel antennas.
3. The tower modifications outlined in o2wireless Solutions (Job No. 2230-043) Monopole Tower Structural Analysis Report dated September 4, 2002 must be in place for this analysis to be valid.

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	Feed Lines[1]	Carrier	Mount Elevation (ft)	Mount Type
195	(3) RFS APXVSPP18-C-A20 (3) Alcatel Lucent 1900 MHz RRH (3) Alcatel Lucent 800 MHz RRH (3) Alcatel Lucent 800 MHz Filter (4) RFS ACU-A20-N	(3) 1-1/4" Fiber	Sprint	195	(1) 14' Low Profile Platform
175	(6) Antel LPA-80080/6CF (3) Antel BXA-70063/6CF (3) Antel BXA-171085-12CF-2 (6) RFS FD9R6004/2C-3L	(12) 1-5/8"	Verizon	175	(1) 14' Low Profile Platform
165	(6) Powerwave 7770.00 (2) Kathrein 800 10764 (1) KMW AM-X-CD-16-65-00T-RET (12) Powerwave LGP21401 (6) Ericsson RRUs (1) Andrew ABT-DF-DMADBH (1) Raycap DC6-48-60-18-8F	(12) 1-5/8" (1) 7/16" Fiber[2] (2) 3/4" DC Power[2]	New Cingular	165	(1) 14' Low Profile Platform
155	(3) RFS APXV18-209014-CT2 (3) Remec S20057A1	(6) 1-5/8"	T-Mobile	155	(1) 14' Low Profile Platform

1. Feed lines installed inside the pole's shaft unless otherwise noted.
2. (1) 7/16" and (2) 3/4 DC Power feed lines for New Cingular will be installed in (1) 3" conduit.

Proposed Carrier Final Loading:

Antenna Elevation (ft)	Description	Feed Lines	Carrier	Mount Elevation (ft)	Mount Type
155	(3) RFS APXV18-209014-CT2 (3) Remec S20057A1 (3) Commscope LNX-6515DS (3) Kathrein 782 11056 Bias-T (3) Ericsson KRY 112 144/1	(12) 1-5/8"	T-Mobile	155	(1) 14' 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	65 ksi
Flange Plate	45 ksi
Flange Bolts	Fu=120 ksi
Base Plate	45 ksi
Anchor Bolts	Fu=125 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. *Note: Capacities up to 105% are considered acceptable.* 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	195 - 180	Pole	TP24x24x0.281	9.9	Pass
	180	Flange Bolts	(18) 1/2"Ø w/ BC = 27"	42.8	Pass
	180	Flange Plate	PL 30"Ø x 1/2" Thick	63.2	Pass
L2	180 - 130	Pole	TP35.9444x24x0.25	67.7	Pass
L3	130 - 85	Pole	TP46.1944x34.25x0.3125	77.1	Pass
L4	85 - 81	Pole	TP46.525x44.1361x0.3125	81.7	Pass
L5	81 - 41	Pole	TP55.4556x46.525x0.375	73.9	Pass
L6	41 - 0	Pole	TP64.5x53.1427x0.375	82.9	Pass
		Anchor Bolts	(24) 2"Ø w/ BC = 58"	79.1	Pass
		Base Plate w/ Stiffeners	PL 64.5"Ø x 1.5" Thick	70.2	Pass

*Capacities include 1/3 allowable stress increase for wind per *TIA/EIA-222-F* standards.

Table 4 - Maximum Base Reactions

Base Reactions	Current Analysis *(TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Axial*	47 k	- - -
Shear*	30 k	36 k
Moment	4,021 k-ft	4,878 k-ft

*Per our experience with foundations of similar type, the axial and shear loading should not control this analysis.

GENERAL COMMENTS

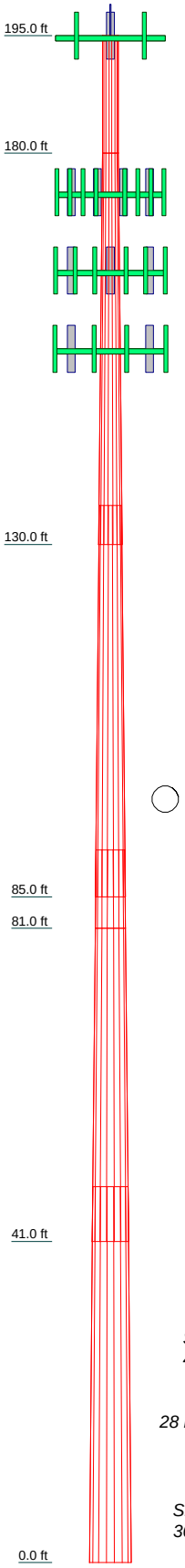
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading 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.

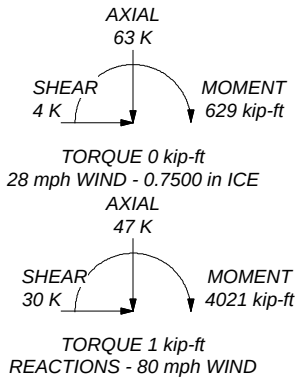
LIMITATIONS

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	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	15.00	18	0.2810		24.0000	24.0000		1.1
2	50.00	18	0.2500	5.00	24.0000	35.9444		4.0
3	50.00	18	0.3125	6.00	34.2500	46.1944	A572-65	6.7
4	10.00	18	0.3125		44.1361	46.5250		1.5
5	40.00	18	0.3750	7.00	46.5250	55.4556		8.2
6	48.00	18	0.3750		53.1427	64.5000		11.4
								32.9





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
(1) 14' Low Profile Platform	195	(2) 7770.00 w/Mount Pipe	165
APXVSPP18-C-A20 w/Mount Pipe	195	(2) 7770.00 w/Mount Pipe	165
APXVSPP18-C-A20 w/Mount Pipe	195	(2) 7770.00 w/Mount Pipe	165
APXVSPP18-C-A20 w/Mount Pipe	195	800 10764 w/ Mount Pipe	165
1900 MHz RRH	195	800 10764 w/ Mount Pipe	165
1900 MHz RRH	195	AM-X-CW-16-65-00T-RET w/Mount Pipe	165
1900 MHz RRH	195	(4) LGP21401 TMA	165
800 MHz RRH	195	(4) LGP21401 TMA	165
800 MHz RRH	195	(4) LGP21401 TMA	165
800 MHz RRH	195	(2) RRU	165
800 MHz Filter	195	(2) RRU	165
800 MHz Filter	195	(2) RRU	165
800 MHz Filter	195	Andrew ABT-DF-DMADBH Surge Arrestor	165
(2) ACU-A20-N RET	195	DC6-48-60-18-8F Surge Arrestor	165
ACU-A20-N RET	195	(1) 14' Low Profile Platform	165
ACU-A20-N RET	195	APXV18-209014 w/Mount Pipe	155
Lightning Rod	195	APXV18-209014 w/Mount Pipe	155
(2) LPA-80080/6CF w/ Mount Pipe	175	APXV18-209014 w/Mount Pipe	155
(2) LPA-80080/6CF w/ Mount Pipe	175	S20057A1	155
(2) LPA-80080/6CF w/ Mount Pipe	175	S20057A1	155
BXA-70063/6CF W/Mount Pipe	175	S20057A1	155
BXA-70063/6CF W/Mount Pipe	175	(1) 14' Low Profile Platform	155
BXA-70063/6CF W/Mount Pipe	175	LNX-6515DS w/ Mount Pipe	155
BXA-171085-12CF-EDIN-X w/Mount Pipe	175	LNX-6515DS w/ Mount Pipe	155
BXA-171085-12CF-EDIN-X w/Mount Pipe	175	LNX-6515DS w/ Mount Pipe	155
BXA-171085-12CF-EDIN-X w/Mount Pipe	175	782 11056	155
(2) FD9R6004/2C-3L Diplexer	175	782 11056	155
(2) FD9R6004/2C-3L Diplexer	175	782 11056	155
(2) FD9R6004/2C-3L Diplexer	175	KRY 112 144/1	155
(1) 14' Low Profile Platform	175	KRY 112 144/1	155
		KRY 112 144/1	155

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Litchfield County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 28 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: 82.9%

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, North Carolina 27616
Phone: 9197551012
FAX: 9197551031

Tower Analysis

Job: Morris, CT01501-S-06			
Project: 15BFGK1400			
Client: SBA Network Services, Inc.	Drawn by: SMagallon	App'd:	
Code: TIA/EIA-222-F	Date: 03/06/15	Scale: NTS	
Path:		Dwg No. E-1	

EBI Consulting
environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CTNH357C

SBA Bethlehem
310 Watertown Road
Bethlehem, CT 06763

March 18, 2015

EBI Project Number: 6215001637

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	28.92 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

March 18, 2015

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

Emissions Analysis for Site: **CTNH357C – SBA Bethlehem**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **310 Watertown Road, Bethlehem, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ 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 ($\mu W/cm^2$). The general population exposure limit for the 700 MHz Band is 467 $\mu W/cm^2$, and the general population exposure limit for the PCS and AWS bands is 1000 $\mu W/cm^2$. 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 **310 Watertown Road, Bethlehem, 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 (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 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.

4) 1 LTE channel (700 MHz Band) was considered for each sector of the proposed installation. This channel has a transmit power of 30 Watts.

5) 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.

6) 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.

7) The antennas used in this modeling are the **RFS APXV18-209014** 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 **RFS APXV18-209014** has a maximum gain of **14.4 dBd** at its main lobe. The **Commscope LNX-6515DS-VTM** has a maximum gain of **14.6 dBd** at its main lobe. 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.

8) The antenna mounting height centerline of the proposed antennas is **155 feet** above ground level (AGL).

9) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	RFS APXV18-209014	Make / Model:	RFS APXV18-209014	Make / Model:	RFS APXV18-209014
Gain:	14.4 dBd	Gain:	14.4 dBd	Gain:	14.4 dBd
Height (AGL):	155	Height (AGL):	155	Height (AGL):	155
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	# PCS Channels:	6
Total TX Power:	240	Total TX Power:	240	# AWS Channels:	240
ERP (W):	6,610.15	ERP (W):	6,610.15	ERP (W):	6,610.15
Antenna A1 MPE%	1.07	Antenna B1 MPE%	1.07	Antenna C1 MPE%	1.07
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM	Make / Model:	Commscope LNX-6515DS-VTM
Gain:	14.6 dBd	Gain:	14.6 dBd	Gain:	14.6 dBd
Height (AGL):	155	Height (AGL):	155	Height (AGL):	155
Frequency Bands	700 MHz	Frequency Bands	700 MHz	Frequency Bands	700 MHz
Channel Count	1	Channel Count	1	Channel Count	1
Total TX Power:	30	Total TX Power:	30	Total TX Power:	30
ERP (W):	865.21	ERP (W):	865.21	ERP (W):	865.21
Antenna A2 MPE%	0.30	Antenna B2 MPE%	0.30	Antenna C2 MPE%	0.30

Site Composite MPE%	
Carrier	**MPE%**
T-Mobile	**4.11**
Nextel	1.67 %
Sprint	2.20 %
AT&T	11.81 %
Verizon Wireless	9.13 %
Site Total MPE %:	**28.92 %**

T-Mobile Sector 1 Total:	1.37 %
T-Mobile Sector 2 Total:	1.37 %
T-Mobile Sector 3 Total:	1.37 %
Site Total:	28.92 %

EBI Consulting
environmental | engineering | due diligence

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:

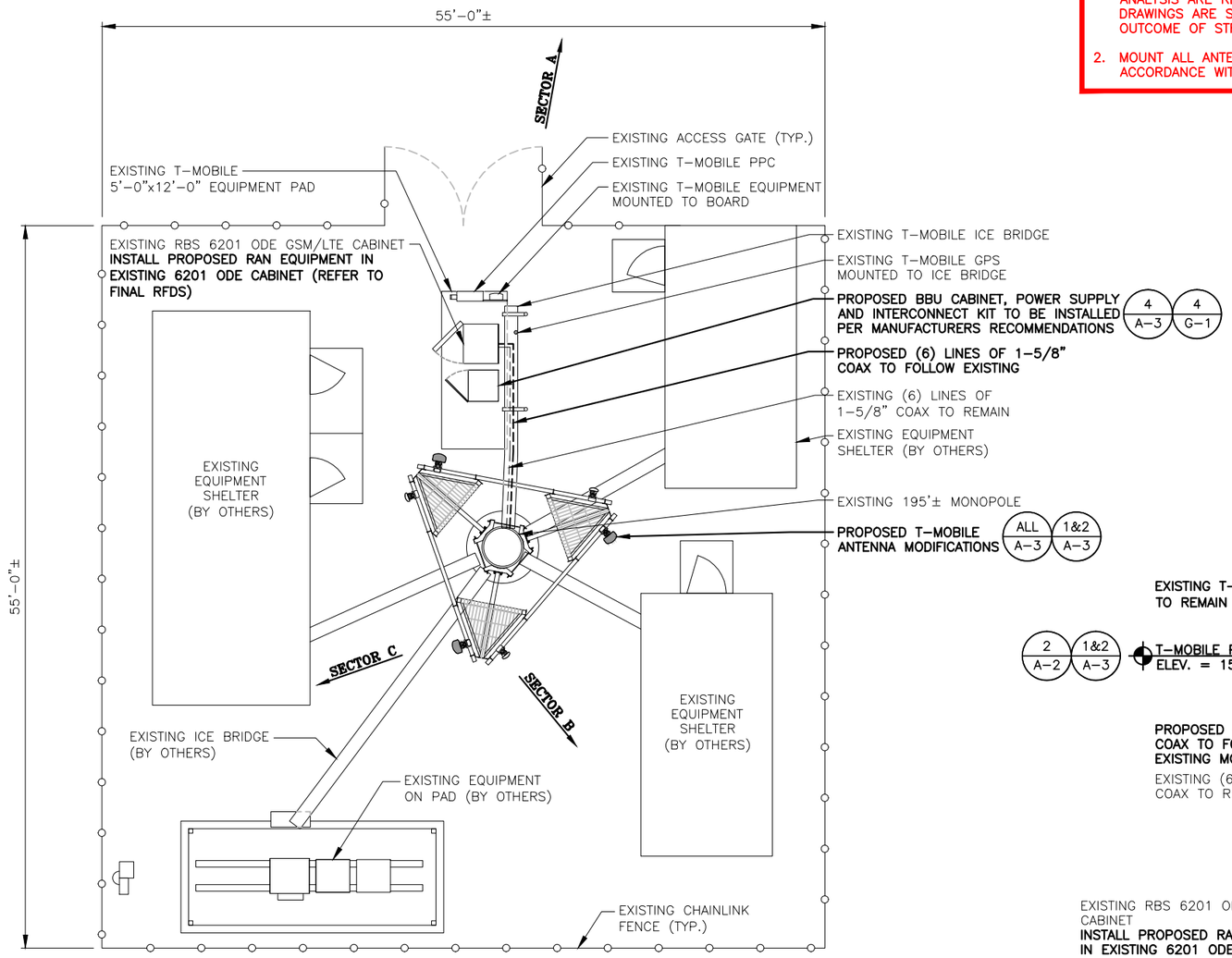
T-Mobile Sector	Power Density Value (%)
Sector 1:	1.37 %
Sector 2:	1.37 %
Sector 3 :	1.37 %
T-Mobile Total:	4.11 %
Site Total:	28.92 %
Site Compliance Status:	**COMPLIANT**

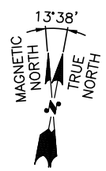
The anticipated composite MPE value for this site assuming all carriers present is **28.92%** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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





COMPOUND PLAN 1/A-1
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

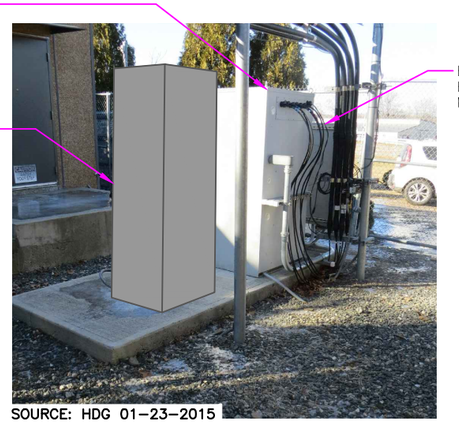
0 2'-8" 5'-4" 10'-8" 16'-0"

STRUCTURAL NOTES:
1. ADDITIONAL TOWER MAPPING AND STRUCTURAL ANALYSIS ARE REQUIRED PRIOR TO CONSTRUCTION. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF STRUCTURAL ANALYSIS.
2. MOUNT ALL ANTENNAS, COAX, ETC. IN ACCORDANCE WITH STRUCTURAL ANALYSIS.

ANTENNA MOUNT STRUCTURAL ASSESSMENT REQUIREMENT:
ENGINEER OF RECORD HAS MADE A VISUAL ASSESSMENT ONLY AND DETERMINED THAT THE EXISTING ANTENNA MOUNT IS ADEQUATE TO ACCOMMODATE ADDITIONAL EQUIPMENT LOADS. STRUCTURAL DESIGNS AND DETAILS AS SHOWN HEREIN FOR STRUCTURAL MODIFICATIONS OF THE EXISTING ANTENNA MOUNT ARE PRELIMINARY ONLY AND FINAL CONSTRUCTION DETAILS ARE SUBJECT TO CHANGE PENDING THE COMPLETION OF AN ANTENNA MOUNT STRUCTURAL ASSESSMENT.

SOURCE: HDG 02-04-2015

PARTIAL ELEVATION PHOTO DETAIL 2/A-1
SCALE: N.T.S



SOURCE: HDG 01-23-2015

EQUIPMENT PHOTO DETAIL 3/A-1
SCALE: N.T.S

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

SBA COMMUNICATIONS CORP.
33 BOSTON POST ROAD WEST, SUITE 320 TEL: (508) 251-0720
MARLBOROUGH, MA 01752 FAX: (508) 251-1755

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

STATE OF CONNECTICUT
DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

Daniel P. Hamm

CHECKED BY: KB

APPROVED BY: DPH

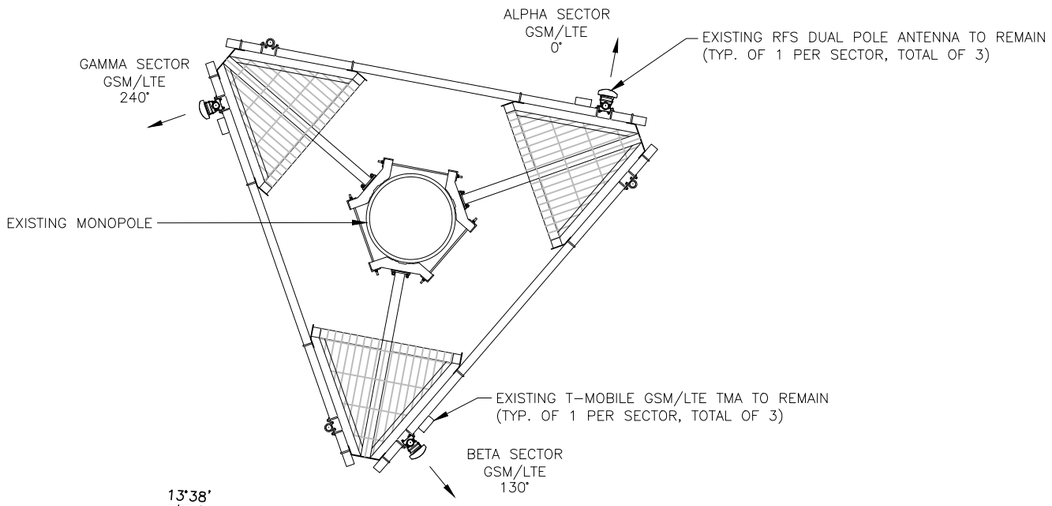
SUBMITTALS

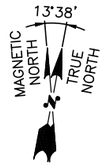
REV.	DATE	DESCRIPTION	BY
1	03/11/15	ISSUED FOR CONSTRUCTION	KMS
0	02/26/15	ISSUED FOR CONSTRUCTION	KMS

SITE NUMBER:
CTNH357C
SITE NAME:
NH357/SBA_BETHLEHEM
SITE ADDRESS:
310 WATERTOWN ROAD
BETHLEHEM, CT 06763
LITCHFIELD COUNTY

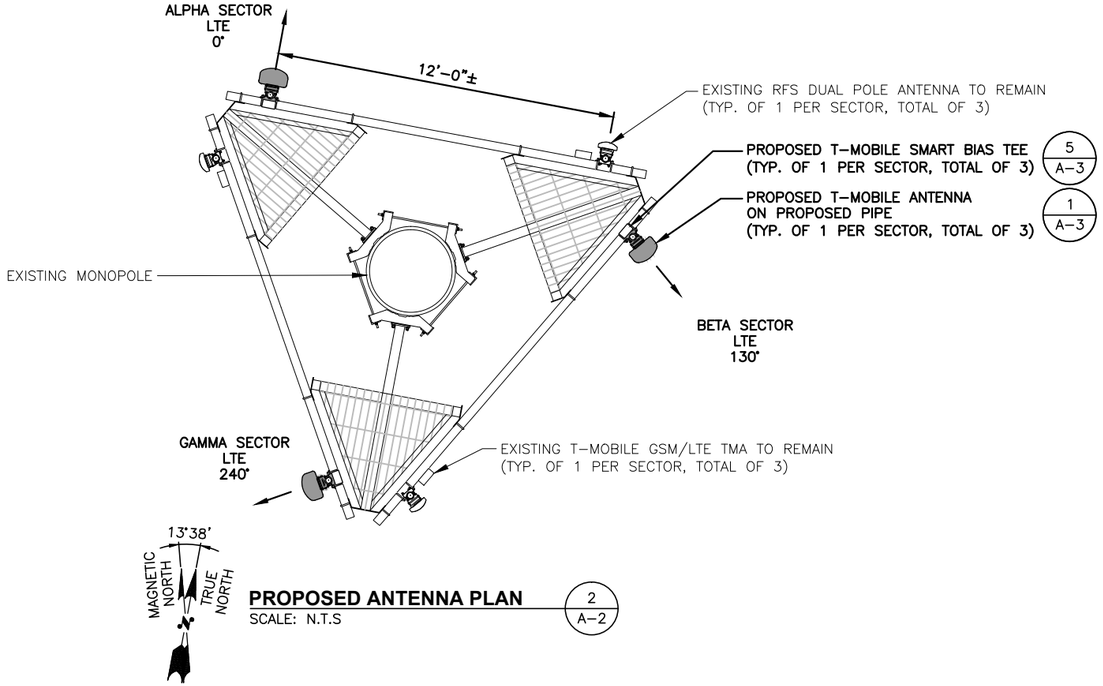
SHEET TITLE
COMPOUND PLAN & ELEVATION

SHEET NUMBER
A-1





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



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

STRUCTURAL NOTES:
1. ADDITIONAL TOWER MAPPING AND STRUCTURAL ANALYSIS ARE REQUIRED PRIOR TO CONSTRUCTION. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF STRUCTURAL ANALYSIS.
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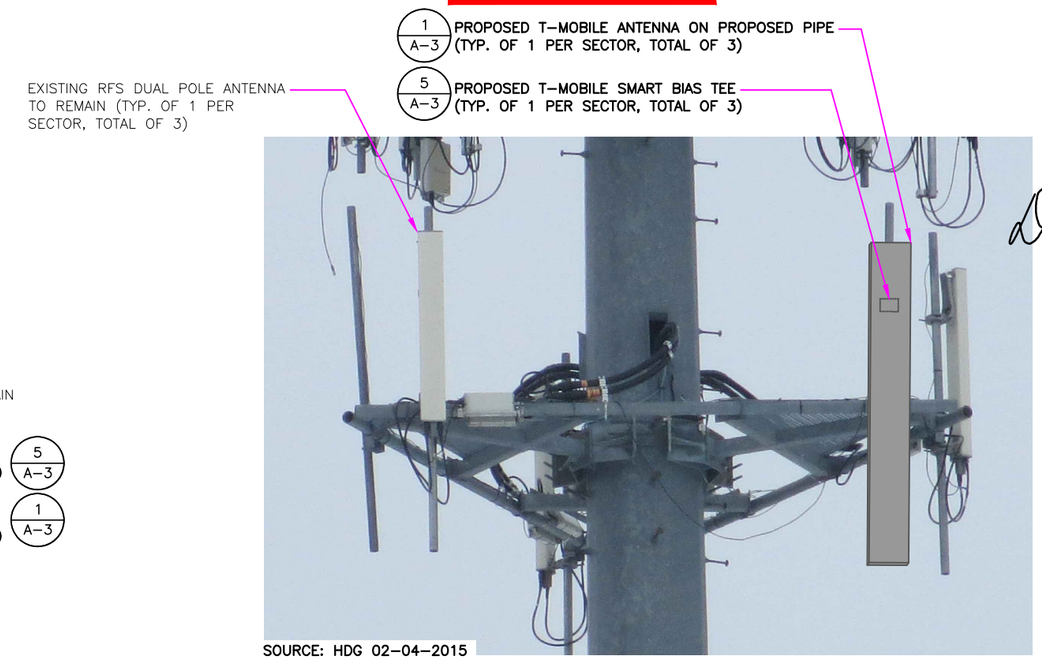
SPECIAL WORK NOTE:
VERTICALLY CENTER ON EXISTING MOUNTING RAIL, THE PIPE MAST AND ANTENNA



SOURCE: HDG 02-04-2015

PROPOSED ANTENNA PHOTO DETAIL (3 / A-2)
SCALE: N.T.S

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

SBA COMMUNICATIONS CORP.
33 BOSTON POST ROAD WEST, SUITE 320 TEL: (508) 251-0720
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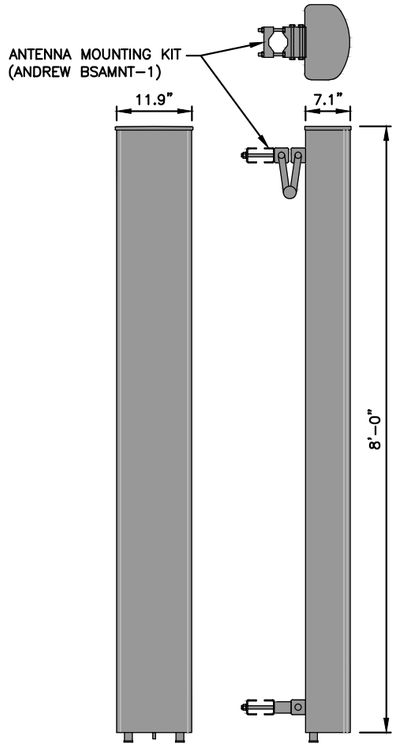
1	03/11/15	ISSUED FOR CONSTRUCTION	KMS
0	02/26/15	ISSUED FOR CONSTRUCTION	KMS

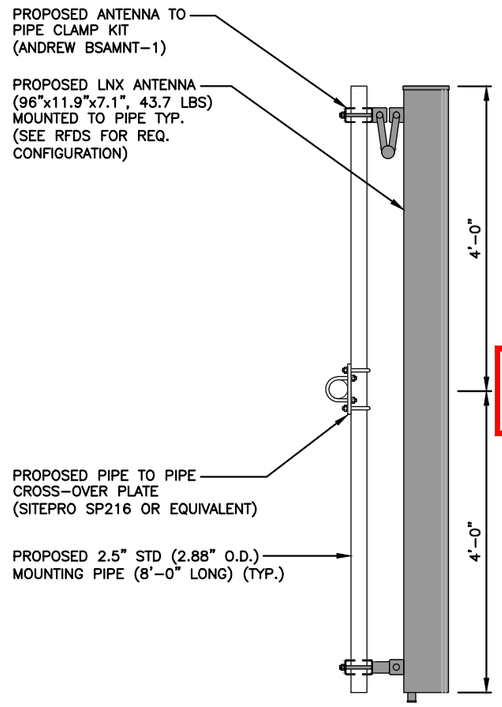
SITE NUMBER:
CTNH357C
SITE NAME:
NH357/SBA_BETHLEHEM
SITE ADDRESS:
310 WATERTOWN ROAD
BETHLEHEM, CT 06763
LITCHFIELD COUNTY

SHEET TITLE
EXISTING & PROPOSED ANTENNA PLANS

SHEET NUMBER
A-2



LNX ANTENNA DETAIL 1 / A-3
SCALE: N.T.S



PROPOSED ANTENNA MOUNTING DETAIL 2 / A-3
SCALE: N.T.S

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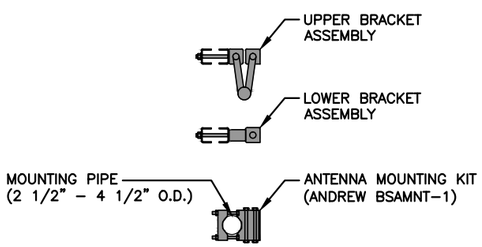
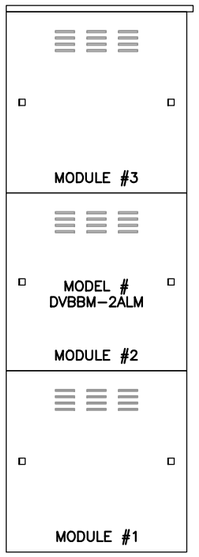
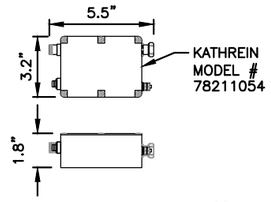


ANTENNA MOUNTING BRACKET 3 / A-3
SCALE: N.T.S

BBU DIMENSIONS	
MODEL #	DVBBM-2ALM
MANUF.	MSF DATA SERVICES
WIDTH	28.45"
DEPTH	28.45"
HEIGHT	29.67"
WEIGHT	1,264 LBS
MOUNT BASE WITH (4) 1/2" DROP IN ANCHOR'S WITH 2" MINIMUM EMBEDMENT (INSTALL PER MANUFACTURER'S INSTALLATION GUIDELINES)	



BATTERY CABINET (BBU) 4 / A-3
SCALE: N.T.S



SMART BIAS TEE (SBT) 5 / A-3
SCALE: N.T.S

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002
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33 BOSTON POST ROAD WEST, SUITE 320 TEL: (508) 251-0720
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LITCHFIELD COUNTY

SHEET TITLE
DETAILS

SHEET NUMBER
A-3