



August 06, 2014

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

RE: Notice of Exempt Modification
130 Welles Road
Groton, CT 06340
T-Mobile #: CTNL225A
N 41° 23' 33.6"
W -71° 58' 11.3"

Dear Mr. Martin and Members of the Siting Council:

On behalf of T-Mobile Northeast LLC, SBA Communications is submitting an exempt modification application to the Connecticut Siting Council for modification of existing equipment at a tower facility located at 130 Welles Road, Groton CT.

The 130 Welles Road facility consists of a 118' MONOPOLE Tower owned and operated by SBA 2012 TC Assets, LLC. In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile Northeast LLC 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.

T-Mobile Northeast LLC wishes 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 Sprint'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 Northeast LLC, 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 3807 with any questions you may have concerning this matter.

Thank you,

A handwritten signature in blue ink, appearing to read "Peter Nute".

Peter Nute
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-0720 x 3807 + T
508-251-1755 + F
Pnute@sbsite.com



**T-Mobile Northeast LLC
Equipment Modification**

130 Welles Road, Groton CT
Site number CTNL225A

Tower Owner: SBA 2012 TC Assets, LLC

Equipment Configuration: MONOPOLE Tower

Current and/or approved:

- (3) Kathrein 742 351
- (12) 1-5/8" Feed Lines

Planned Modifications:

- (3) Ericsson Air 21 B2A/B4P
- (3) Ericsson Air 21 B4A/B2P
- (1) 1-5/8" Fiber
- (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 1.085% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 6.265% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE %	
Carrier	MPE %
T-Mobile	1.085%
Sprint	5.180%
Total Site MPE %	6.265%



August 06, 2014

Mr. Mark R. Oefinger
Town Manager
Town of Groton
Town Hall
45 Fort Hill Road
Groton, CT 06340

RE: Telecommunications Facility @ 130 Welles Rd, Groton, CT 06340

Dear Mr. Oefinger,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile Northeast LLC 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 Sprint'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 3807.

Thank you,

A handwritten signature in blue ink, appearing to read "Peter Nute", is positioned below the "Thank you," text.

Peter Nute
SBA Communications Corporation
33 Boston Post Road West Suite 320
Marlborough, MA 01752
508-251-0720 x 3807 + T
508-251-1755 + F
Pnute@sbsite.com

August 06, 2014

Town of Groton
45 Fort Hill Road
Groton CT 06430

RE: Telecommunications Facility @ 130 Welles Road, Groton CT

To Whom It May Concern,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, T-Mobile Northeast LLC 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 Sprint'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 3807.

Thank you,



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

T-Mobile Existing Facility

Site ID: CTNL225A

Tower Co Groton Monopole

52 New Britain Avenue
Rocky Hill, CT 06067

July 25, 2014

EBI Project Number: 62144003

July 25, 2014

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

Re: Emissions Values for Site: **CTNL225A – Tower Co Groton Monopole**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at 130 Welles Road, Groton, 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 130 Welles Road, Groton, 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 **108 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 calculations were done with respect to uncontrolled / general public threshold limits.

Site ID	CTNL225A - Tower Co Groton Monopole
Site Address	130 Welles Road, Groton, CT 06340
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	108	102	None	0	0	48.326	1.670	0.167%
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-	-	-	0	-3.95	108	102	None	0	0	0.000	0.000	0.000%
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	108	102	None	0	0	24.163	0.835	0.083%
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	108	102	None	0	0	32.217	1.113	0.111%

Sector total Power Density Value: 0.362%

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	108	102	None	0	0	48.326	1.670	0.002
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-	-	-	0	-3.95	108	102	None	0	0	0.000	0.000	0.000
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	108	102	None	0	0	24.163	0.835	0.001
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	108	102	None	0	0	32.217	1.113	0.001

Sector total Power Density Value: 0.362%

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	108	102	None	0	0	48.326	1.670	0.002
1b	Ericsson	AIR21 B4A/B2P	Not Used	-	-	-	-	0	-3.95	108	102	None	0	0	0.000	0.000	0.000
2a	Ericsson	AIR21 B2A / B4P	Active	PCS - 1950 MHz	GSM / UMTS	30	2	60	-3.95	108	102	None	0	0	24.163	0.835	0.001
1b	Ericsson	AIR21 B4A/B2P	Passive	AWS - 2100 MHz	UMTS	40	2	80	-3.95	108	102	None	0	0	32.217	1.113	0.001

Sector total Power Density Value: 0.362%

Site Composite MPE %	
Carrier	MPE %
T-Mobile	1.085%
Sprint	5.180%
Total Site MPE %	6.265%

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 **1.085% (0.362% 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 **6.265%** 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.**

118' Monopole Tower

**SBA Site Name: South Ledyard- Town Dump
SBA Site ID: CT46142-A-02
T-Mobile Site ID: CTNL225A**

FDH Project Number 1466F61400

Analysis Results

Tower Components	73.8%	Sufficient
Foundation	79.1%	Sufficient

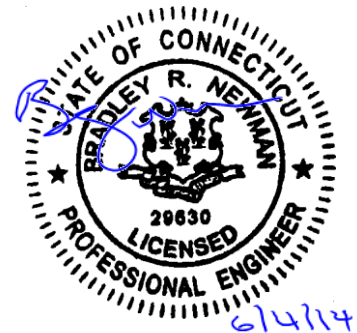
Prepared By:

Virginia Chriscoe
Project Engineer

Reviewed By:

Bradley R. Newman, PE
Senior Project Engineer
CT License No. 29630

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



June 4, 2014

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

- Paul J. Ford and Company (Job No. 29203-0083) original design drawings dated April 24, 2003
- Paul J. Ford and Company (Job No. 29203-0083) foundation design drawings dated September 12, 2003
- Criscuolo Shepard Associates, PC (File No. 2001.916) Geotechnical and Geophysical Testing Report dated April 10, 2001
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and *2005 CBC* is 85 mph without ice and 38 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 108 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and *2005 CBC* provided the **Recommendation** listed below is satisfied. Furthermore, provided the foundation was designed and constructed to support the original design reactions (see Paul J. Ford and Company Job No. 29203-0083), 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.

Recommendation

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

1. The proposed coax should be installed inside the monopole's shaft.

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 ¹	Carrier	Mount Elevation (ft)	Mount Type
117.5	(3) RFS APXVSPP18-C-A20 (3) RFS APXVTM14-C-I20 (3) ALU TD-RRH8x20-25 RRHs (3) ALU 1900 MHz RRUs (3) ALU 800 MHz RRUs (4) RFS ACU-A20-N RETs (3) ALU 800 MHz Filters	(4) 1-1/4" Fiber	Sprint	117.5	(1) Low Profile Platform
108	(3) Kathrein 742 351	(12) 1-5/8"	T-Mobile	108	(3) T-Arms

1. Coax installed inside pole's shaft unless otherwise noted.

Proposed Final Carrier Loading:

Antenna Elevation (ft)	Description	Coax and Lines	Carrier	Mount Elevation (ft)	Mount Type
108	(3) Ericsson Air 21 B2A/B4P (3) Ericsson Air 21 B4A/B2P	(1) 1-5/8" Fiber (12) 1-5/8"	T-Mobile	108	(3) T-Arms

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
Base Plate	55 ksi
Anchor Bolts	75 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 100% 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	118 - 77.25	Pole	TP28.153x22x0.1875	54.9	Pass
L2	77.25 - 40.75	Pole	TP33.29x27.2495x0.25	69.2	Pass
L3	40.75 - 0	Pole	TP38.943x32.1482x0.3125	73.8	Pass
		Anchor Bolts	(8) 2.25" Ø w/ BC = 45"	78.1	Pass
		Base Plate	44" SQ PL x 2.5" thk.	65.6	Pass

*Capacities include a 1/3 allowable stress increase due to 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	15 k	19 k
Shear	13 k	17 k
Moment*	1,156 k-ft	1,461 k-ft

*Per our experience with foundations of similar type, the moment loading should control the foundation analysis.

GENERAL COMMENTS

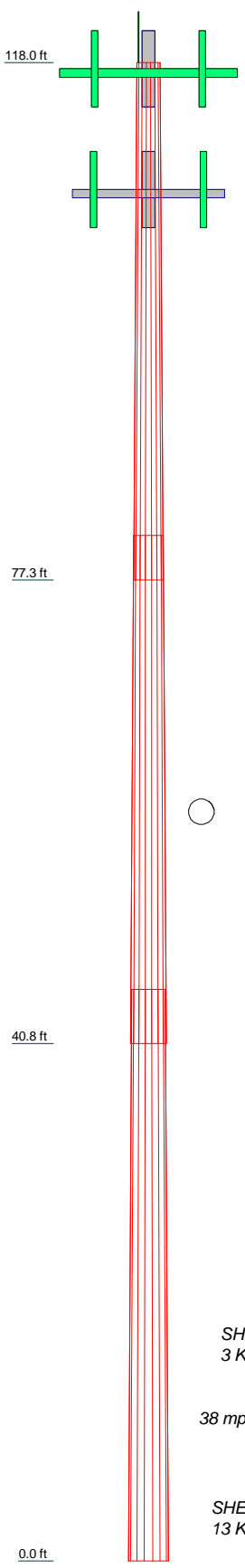
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading 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	1	2	3
Length (ft)	40.75	40.00	45.00
Number of Sides	18	18	18
Thickness (in)	0.1875	0.2500	0.3125
Socket Length (ft)	3.50	4.25	32.1482
Top Dia (in)	22.0000	27.2495	38.9430
Bot Dia (in)	28.1530	33.2900	38.9430
Grade	A607-65	A607-65	A607-65
Weight (K)	2.1	3.2	5.4



DESIGNED APPURTENANCE LOADING

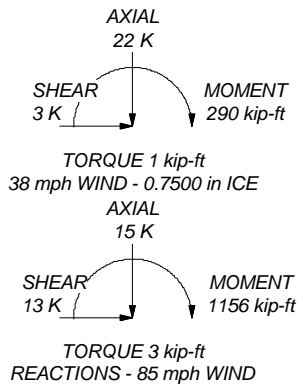
TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	118	800 MHz RRH	117.5
APXVSP18-C-A20 w/Mount Pipe	117.5	(2) ACU-A20-N RET	117.5
APXVSP18-C-A20 w/Mount Pipe	117.5	ACU-A20-N RET	117.5
APXVSP18-C-A20 w/Mount Pipe	117.5	ACU-A20-N RET	117.5
APXVTM14-C-I20 w/Mount Pipe	117.5	800 MHz Filter	117.5
APXVTM14-C-I20 w/Mount Pipe	117.5	800 MHz Filter	117.5
APXVTM14-C-I20 w/Mount Pipe	117.5	800 MHz Filter	117.5
TD-RRH8x20-25	117.5	(1) Low Profile Platform	117.5
TD-RRH8x20-25	117.5	AIR 21 B2A/B4P w/Mount Pipe	108
TD-RRH8x20-25	117.5	AIR 21 B2A/B4P w/Mount Pipe	108
1900 MHz RRH	117.5	AIR 21 B4A/B2P w/Mount Pipe	108
1900 MHz RRH	117.5	AIR 21 B4A/B2P w/Mount Pipe	108
1900 MHz RRH	117.5	AIR 21 B4A/B2P w/Mount Pipe	108
800 MHz RRH	117.5	(3) T-Arms	108
800 MHz RRH	117.5	AIR 21 B2A/B4P w/Mount Pipe	108

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 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. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 73.8%



FDH Engineering, Inc. 6521 Meriden Drive, Suite 107 Raleigh, North Carolina 27616 Phone: 9197551012 FAX: 9197551031 Tower Analysis	Job: South Ledyard, CT46142-A-02		
	Project: 1466F61400		
	Client: SBA Network Services, Inc. Code: TIA/EIA-222-F	Drawn by: vChriscoe Date: 06/04/14	App'd: Scale: NTS
	Path:		Dwg No. E-1

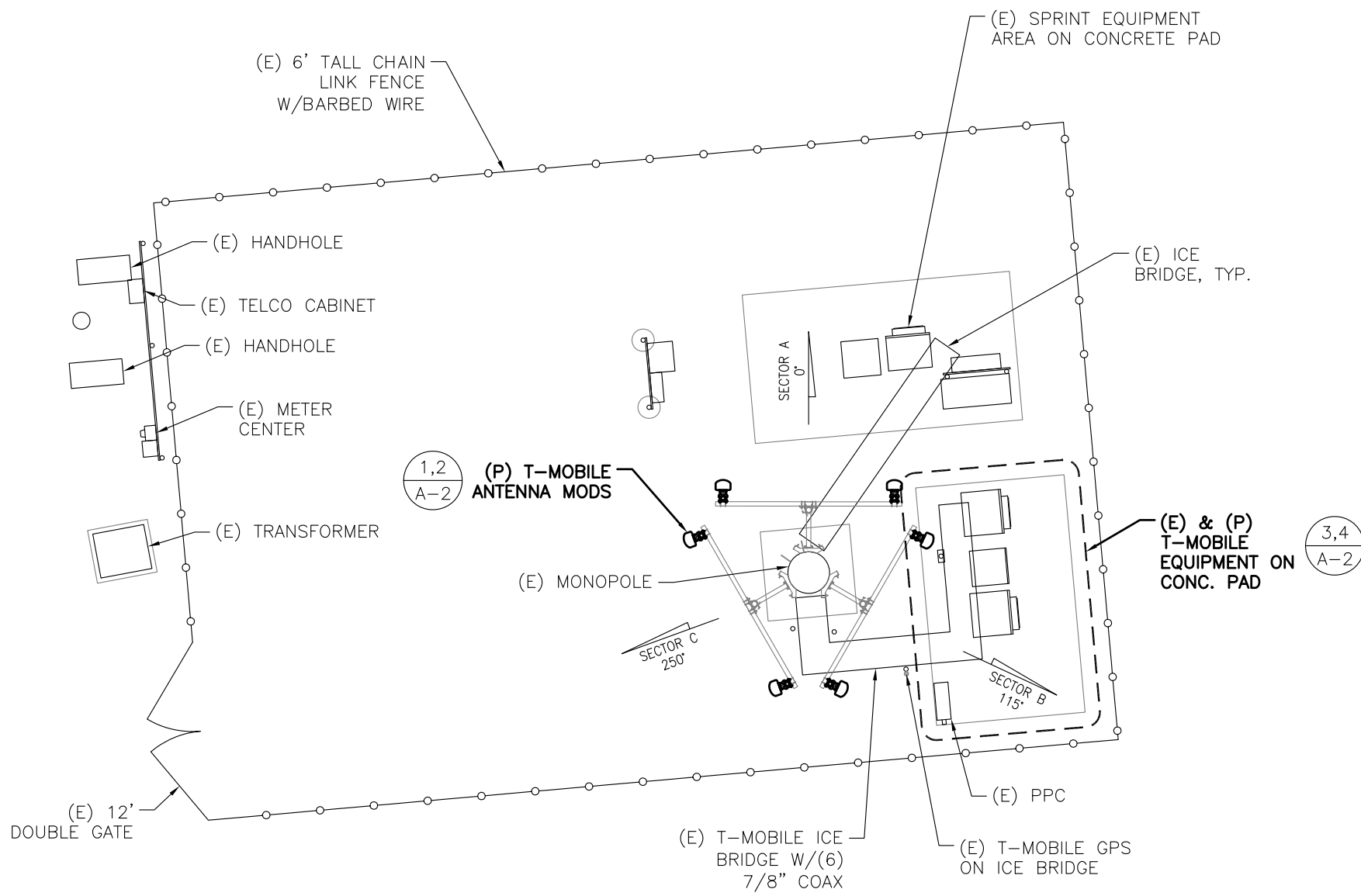


IMAGE SOURCE: PROTERRA 06/04/14

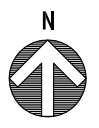
EXISTING ELEVATION

SCALE: N.T.S.

2
A-1

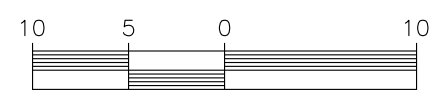
NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

* NOTE:
ANTENNA ELEVATION BASED ON CLIENT-PROVIDED INFORMATION

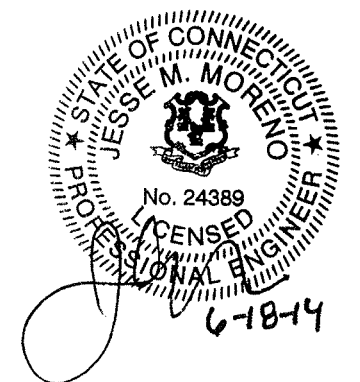


COMPOUND PLAN

SCALE: 1"=10' (11x17)
1"=5' (22x34)



1
A-1



ProTerra
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1 Short Street
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Ph: (413)320-4918
Fax: (413)320-4917

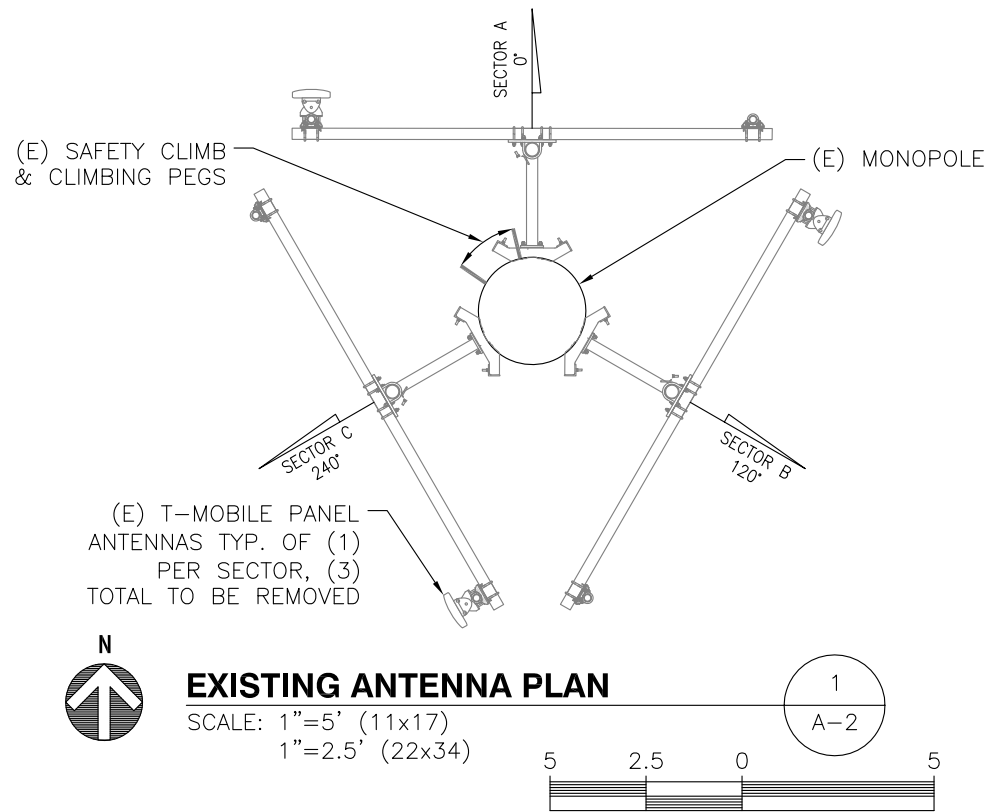
SBA
SBA COMMUNICATIONS CORPORATION
33 BOSTON POST ROAD WEST, SUITE 320
MARLBOROUGH, MA 01752
PHONE: 508-251-0720

SITE NUMBER: CTNL225A
SITE NAME: TOWER CO GROTON MONOPOLE
130 WELLES ROAD, GROTON, CT 06340

T-Mobile
T-MOBILE NORTHEAST LLC
15 COMMERCE WAY, SUITE B
NORTON, MA 02766

NO.	DATE	REVISIONS	BY	CHK	APP'D
0	06/18/14	CONSTRUCTION	BLM	TEJ	JMM
SCALE: AS SHOWN		DESIGNED BY: JMM/TEJ	DRAWN BY: BLM		

T-MOBILE
COMPOUND PLAN AND ELEVATION
JOB NUMBER: #13-062
SHEET: A-1
REV: 0



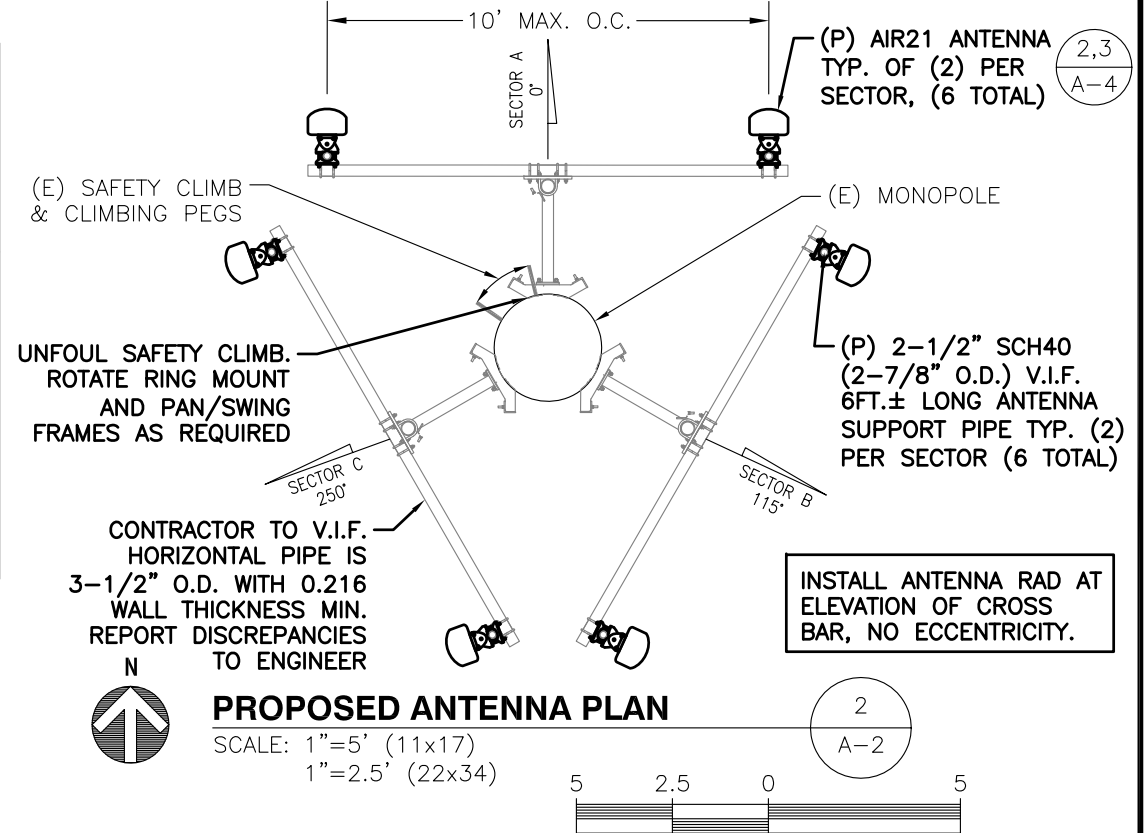
EXISTING ANTENNA PLAN

SCALE: 1"=5' (11x17)
1"=2.5' (22x34)

EXISTING ANTENNA SCHEDULE			
SECTOR	MAKE	MODEL#	SIZE (INCHES)
SECTOR A:	KATHREIN	742-351	11.8x2.7x51.3
SECTOR B:	KATHREIN	742-351	11.8x2.7x51.3
SECTOR C:	KATHREIN	742-351	11.8x2.7x51.3

PROPOSED ANTENNA SCHEDULE			
SECTOR	MAKE	MODEL#	SIZE (INCHES)
SECTOR A:	ERICSSON	AIR21 B2A/B4P	12x7.8x55.9
	ERICSSON	AIR21 B4A/B2P	12x7.8x55.9
SECTOR B:	ERICSSON	AIR21 B2A/B4P	12x7.8x55.9
	ERICSSON	AIR21 B4A/B2P	12x7.8x55.9
SECTOR C:	ERICSSON	AIR21 B2A/B4P	12x7.8x55.9
	ERICSSON	AIR21 B4A/B2P	12x7.8x55.9

NOTE:
1. REFER TO FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.
2. EXISTING ANTENNA APPEARS TO BE A DIFFERENT MODEL THAN SBA RECORDS SHOW.



PROPOSED ANTENNA PLAN

SCALE: 1"=5' (11x17)
1"=2.5' (22x34)

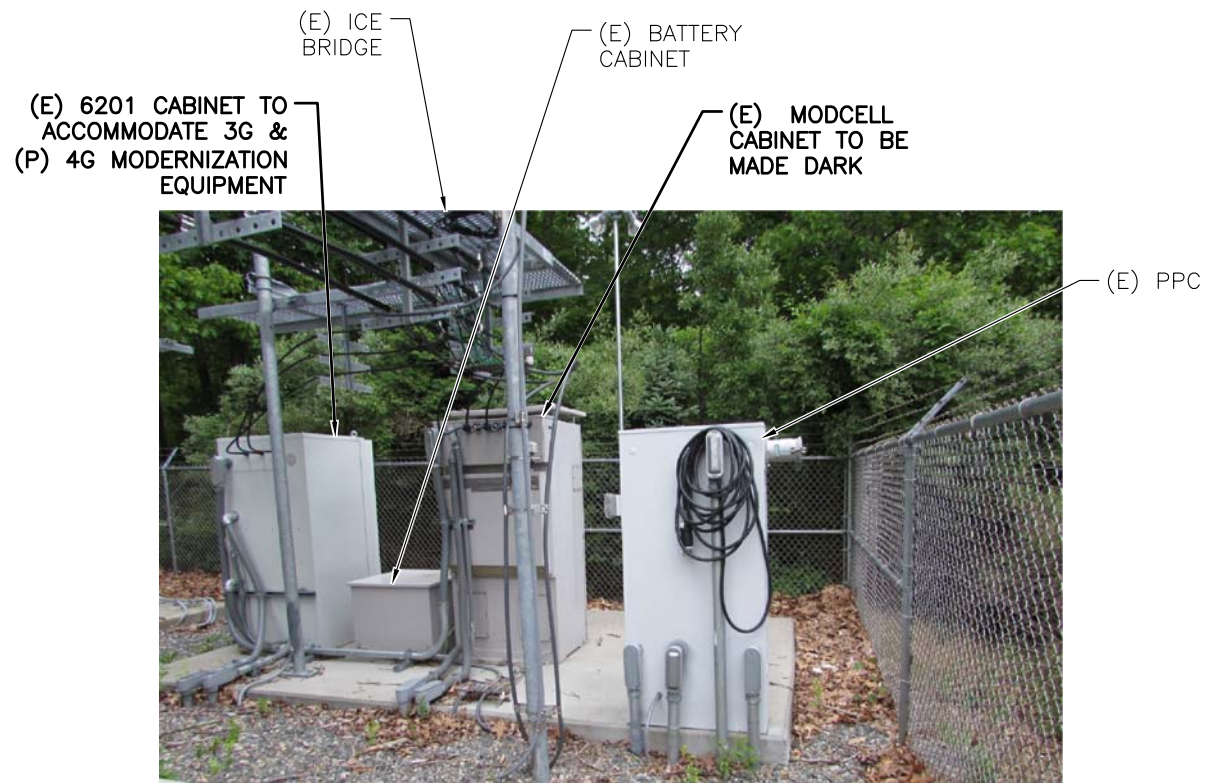
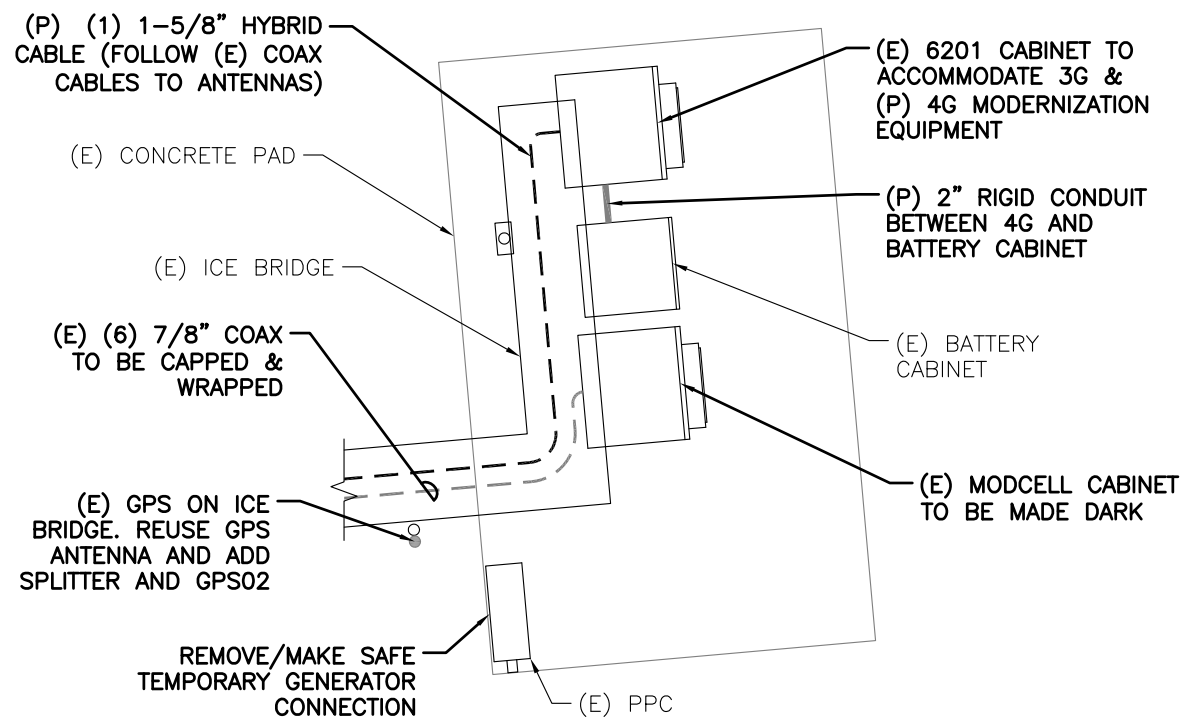


IMAGE SOURCE: PROTERRA 06/04/14

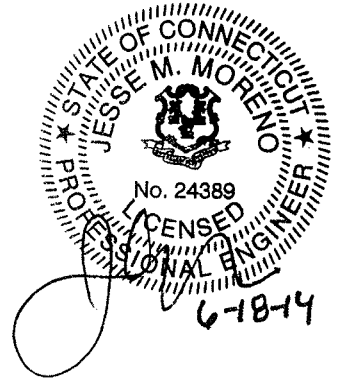
EXISTING EQUIPMENT AREA

SCALE: N.T.S.



PROPOSED EQUIPMENT AREA

SCALE: 1"=5' (11x17)
1"=2.5' (22x34)



NO.	DATE	REVISIONS	BY	CHK	APP'D
0	06/18/14	CONSTRUCTION	BLM	TEJ	JMM

SCALE: AS SHOWN DESIGNED BY: JMM/TEJ DRAWN BY: BLM