May 28, 2014

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

RE: Notice of Exempt Modification
2577 Main Street
Glastonbury, CT 06033
Sprint Site #: NV2.5_CT43XC822
N 41° 42' 51.80"
W -72° 36' 46.90"

Dear Mr. Martin and Members of the Siting Council:

On behalf of Sprint Spectrum, SBA Communications is submitting an exempt modification application to the Connecticut Siting council for modification of existing equipment at a tower facility located at 2577 Main Street, Glastonbury, CT.

The 2577 Main Street facility consists of a 130' SELF SUPPORT Tower owned and operated by SBA 2012 TC Assets, Inc. In order to accommodate technological changes and enhance system performance in the State of Connecticut, Sprint Spectrum 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 Sprint's Network Vision modification project, Sprint 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 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 Sprint Spectrum, 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

Sprint Spectrum
Equipment Modification

2577 Main Street, Glastonbury, CT
Site number CT43XC822

Tower Owner: SBA 2012 TC Assets, INC.

Equipment Configuration: SELF SUPPORT Tower

Current and/or approved:

Elevation 118.5

- (2) RFS APXVSPP18-C-A20
- (1) Powerwave P40-16-XLPP-RR-A
- (3) Alcatel Lucent 1900 MHz RRUs
- (3) Alcatel Lucent 800 MHz RRUs
- (4) RFS ACU-A20-N RETs
- (3) Alcatel Lucent 800 MHz Filters
- (3) 1-1/4" feed lines

Planned Modifications:

Elevation 120:

- (3) RFS APXVTM14-CI20
- (3) Alcatel Lucent TD-RRH8x20-25 RRHs
- (1) 1-1/4" feed lines

Elevation 118.5:

- (2) RFS APXVSPP18-C-A20
- (1) Powerwave P40-16-XLPP-RR-A
- (3) Alcatel Lucent 1900 MHz RRUs
- (3) Alcatel Lucent 800 MHz RRUs
- (4) RFS ACU-A20-N RETs
- (3) Alcatel Lucent 800 MHz Filters
- (3) 1-1/4" 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 Sprint facility are 1.00% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 68.02% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE %	
Carrier	MPE %
Sprint	1.00%
T-Mobile	0.40%
MetroPCS	12.16%
Clearwire	1.16%
Nextel	3.48%
AT&T	29.59%
Verizon Wireless	20.23%
Total Site MPE %	68.02%

May 28, 2014

Mr. Richard J. Johnson
Town Manager
Town of Glastonbury
Town Hall
2155 Main Street
Glastonbury, CT 06033

RE: Telecommunications Facility @ 2577 Main Street, Glastonbury, CT

Dear Mr. Johnson,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, Sprint Spectrum 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 Sprint'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 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

May 29, 2014

Saint Pauls Roman Catholic Church
2577 Main St.
Glastonbury, CT 06033

RE: Telecommunications Facility @ 2577 Main Street, Glastonbury, CT

To Whom It May Concern,

In order to accommodate technological changes and enhance system performance in the State of Connecticut, Sprint Spectrum 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 Sprint'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).

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EBI Consulting
environmental | engineering | due diligence

RADIO FREQUENCY FCC REGULATORY COMPLIANCE MAXIMUM PERMISSIBLE EXPOSURE (MPE) ASSESSMENT

Sprint Existing Facility

<u>Site ID: CT43XC822</u>

Glastonbury Nextel

2577 Main Street
Glastonbury, CT 06033

May 27, 2014

EBI Project Number: 62143112

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

May 27, 2014

Sprint
Attn: RF Engineering Manager
1 International Boulevard, Suite 800
Mahwah, NJ 07495

Re: Radio Frequency Maximum Permissible Exposure (MPE) Assessment for Site:
CT43XC822 - Glastonbury Nextel

Site Total: 68.02% - MPE% in full compliance

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 2577 Main Street, Glastonbury, CT, for the purpose of determining whether the radio frequency (RF) exposure levels from the proposed Sprint equipment upgrades 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 μW/cm2 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 cellular band (850 MHz Band) is approximately 567 $\mu W/cm^2$, and the general population exposure limit for the 1900 MHz and 2500 MHz 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 upgrades to the existing Sprint Wireless antenna facility located at 2577 Main Street, Glastonbury, CT, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. 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 emissions were calculated using the following assumptions:

1) 4 channels in the 1900 MHz Band were considered for each sector of the proposed installation.
2) 1 channel in the 800 MHz Band was considered for each sector of the proposed installation
3) 2 channels in the 2500 MHz Band were considered for each sector of the proposed installation.
4) 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.
5) 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.

6) The antennas used in this modeling are the RFS APXVSPP18-C-A20, the Powerwave P40-16-XLPP-RR-A and the RFS APXVTMM-C-120. This is based on feedback from the carrier with regards to anticipated antenna selection. The RFS APXVSPP18-C-A20 has a 15.9 dBd gain value at its main lobe at 1900 MHz and 13.4 dBd at its main lobe for 850 MHz. The Powerwave P40-16-XLPP-RR-A has a 15.9 dBd gain value at its main lobe at 1900 MHz and 14.2 dBd at its main lobe for 850 MHz. The RFS APXVTMM-C-120 has a 15.9 dBd gain value at its main lobe at 2500 MHz. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
7) The antenna mounting height centerline for the proposed antennas is **118.5feet** above ground level (AGL) for the 1900MHz / 850 MHz antennas and **120 feet** above ground level (AGL) for the 2500 MHz antennas.
8) 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	CT43XC822 - Glastonbury Nextel
Site Addresss	2577 Main Street, Glastonbury, CT, 06033
Site Type	Self Support Tower

Sector 1

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
1a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	4	80	1.59	118.5	112.5	1/2 "	0.5	3	51.53	0.15%
1a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	1.34	118.5	112.5	1/2 "	0.5	3	12.16	0.06%
1B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	1.59	120	114	1/2 "	0.5	3	25.77	0.13%
														Sector total Power Density Value:	0.33%	

Sector 2

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
2a	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	4	80	1.59	118.5	112.5	1/2 "	0.5	3	51.53	0.15%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	1.34	118.5	112.5	1/2 "	0.5	3	12.16	0.06%
2B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	1.59	120	114	1/2 "	0.5	3	25.77	0.13%
														Sector total Power Density Value:	0.33%	

Sector 3

Antenna Number	Antenna Make	Antenna Model	Radio Type	Frequency Band	Technology	Power Out Per Channel (Watts)	Number of Channels	Composite Power	Antenna Gain (10 db reduction)	Antenna Height (ft)	analysis height	Cable Size	Cable Loss (dB)	Additional Loss (dB)	ERP	Power Density Percentage
3a	Powerwave	P40-16-XLPP-RR-A	RRH	1900 MHz	CDMA / LTE	20	4	80	1.59	118.5	112.5	1/2 "	0.5	3	51.53	0.15%
3a	Powerwave	P40-16-XLPP-RR-A	RRH	850 MHz	CDMA / LTE	20	1	20	1.42	118.5	112.5	1/2 "	0.5	3	12.39	0.06%
3B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	1.59	120	114	1/2 "	0.5	3	25.77	0.13%
														Sector total Power Density Value:	0.33%	

Site Composite MPE %

Carrier	MPE %
Sprint	1.00%
T-Mobile	0.40%
MetroPCS	12.16%
Clearwire	1.16%
Nextel	3.48%
AT&T	29.59%
Verizon Wireless	20.23%
Total Site MPE %	**68.02%**

EBI Consulting
environmental | engineering | due diligence

Summary

All calculations performed for this analysis yielded results that were well within the allowable limits for general public Maximum Permissible Exposure (MPE) to radio frequency energy.

The anticipated Maximum Composite contributions from the Sprint facility are **1.00% (0.33% from sector 1, 0.33% from sector 2 and 0.33% from sector 3)** 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 **68.02%** of the allowable FCC established general public limit sampled at 6 feet above ground level. This total composite site value is based upon MPE 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 Meridien Drive Raleigh, NC 27616, Ph. 919.755.1012

Structural Analysis for
SBA Network Services, Inc.

130' Self-Support Tower

SBA Site Name: Glastonbury-Main St
SBA Site ID: CT46126-A-03
Sprint Site ID: CT43XC822

FDH Project Number 1462HD1400

Analysis Results

Tower Components	90.1 %	Sufficient
Foundation	68.8 %	Sufficient

Prepared By:

Diana Tang, EIT
Project Engineer

Reviewed By:

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

4/10/14

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

April 10, 2014

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

TABLE OF CONTENTS

EXECUTIVE SUMMARY

At the request of SBA Network Services, Inc., FDH Engineering, Inc. performed a structural analysis of the existing self-supported tower located in Glastonbury, 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, the member sizes, geotechnical data, and foundation dimensions was obtained from:

- ❑ Fred A. Nudd Corporation (Project No. 6893) Design of 130' Lattice Tower dated September 12, 1999
- ❑ Vertical Solutions, Inc. (Site No. CT46126-A) Modification Drawings for a 130' Self-Support Tower dated December 6, 2012
- ❑ Tectonic Engineering Consultants, P.C. (W.O. No. 1170.C057) Boring Logs and Results of Laboratory Testing dated August 26, 1999
- ❑ FDH Engineering, Inc. (Project No. 1338401400) Modification Drawings for a 130' Self-Support Tower dated June 17, 2013
- ❑ FDH Engineering, Inc. (Project No. 13SB5C1400) Modification Drawings for a 130' Self-Support Tower dated September 10, 2013
- ❑ FDH, Inc. (Job No. 1304001700) Modification Inspection Report dated November 1, 2013
- ❑ FDH, Inc. (Job No. 1305911700) Modification Inspection Report dated February 25, 2014
- ❑ 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 38 mph with 1" radial ice. Ice is considered to increase in thickness with height.

Conclusions

With the existing and proposed antennas from Sprint in place at 120 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and the *2005 CTBC* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundation was constructed per the original design drawings (see Fred A. Nudd Corporation Project No. 6893), and using the given geotechnical data (see Tectonic Engineering Consultants, P.C. W.O. No. 1170.C057), 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. Feed lines must be installed double stacked as shown in the Feed Line Plan in **Figure 1** (see **Appendix**).
2. RRU/RRH Stipulation: The proposed equipment may be installed in any arrangement as determined by the client.

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	Carrier	Mount Elevation (ft)	Mount Type
128 [3]	(12) Decibel DB844H90E-M	(12) 1-1/4"	Nextel	128 [1]	(3) T-Frames
128	(2) Argus technologies LLPX310R (1) Kathrein 840 10054 (3) 24"x14"x9" TMAs (1) Motorola TIMING 2000	(6) 5/16" (4) 1/2"	Sprint/Clearwire		
124	(3) IDU Modem (3) Andrew VHLP2.5 Dishes				
118.5	(2) RFS APXVSPP18-C-A20 (1) Powerwave P40-16-XLPP-RR-A (3) Alcatel Lucent 1900 MHz RRUs (3) Alcatel Lucent 800 MHz RRUs (4) RFS ACU-A20-N RETs (3) Alcatel Lucent 800 MHz Filters	(3) 1-1/4"	Sprint	118.5	(3) T-Arms
110	(6) Allgon 7700.00 (2) KMW AM-X-CD-16-65-00T-RET (1) Andrew SBNH-1D6565C (6) Powerwave LGP13519 TMAs (6) Powerwave LGP21401 TMAs (6) Ericsson RRUS-11 1900MHz RRUs (1) Raycap DC6-48-60-18-8F Surge Arrestor	(12) 1-1/4" (1) 3/8"	AT&T	110 [2]	(3) T-Frames
100	(3) RFS APXV18-206517S-C	(6) 1-5/8"	Pocket	100	(3) Standoffs
93	(3) Ericsson AIR 21 B2A/B4P (3) Ericsson AIR 21 B4A/B2P (3) Ericsson KRY 112 144/1 TMAs	(12) 1-5/8" (1) 1-5/8" Fiber	T-Mobile	93	(3) T-Frames
80	(6) Amphenol BXA-70063/6CF (6) Amphenol BXA-171062/12CF (3) Alcatel Lucent RRH2x40-700-U RRUs (3) Alcatel Lucent RRH2x40-AWS RRUs (1) RFS DB-T1-6Z-8AB-0Z Distribution Box	(2) 1-5/8" Hybrid	Verizon	80	(3) T-Frames (C_AA_A = 18.81 ft^2 each)
55.5	(1) GPS	(1) 1/2"	---	55.5	(1) Standoff
50.5	(2) GPS	(2) 1/2"	---	50.5	(2) Standoffs

1. Sprint/Clearwire has (6) 5/16" and (2) 1/2" coax installed inside (2) 2" conduits.
2. AT&T has (1) 3/8" coax installed inside (1) 3" conduit.
3. According to information provided by SBA, Nextel will remove its existing loading at 128 ft prior to the installation of the proposed loading listed below. Nextel equipment was not considered in this analysis.

Proposed Loading:

Antenna Elevation (ft)	Description	Feed Lines	Carrier	Mount Elevation (ft)	Mount Type
120	(3) RFS APXVTM14-CI20 (3) Alcatel Lucent TD-RRH8x20-25 RRHs	(1) 1-1/4"	Sprint	118.5	(3) T-Arms
118.5	(2) RFS APXVSPP18-C-A20 (1) Powerwave P40-16-XLPP-RR-A (3) Alcatel Lucent 1900 MHz RRUs (3) Alcatel Lucent 800 MHz RRUs (4) RFS ACU-A20-N RETs (3) Alcatel Lucent 800 MHz Filters	(3) 1-1/4"			

RESULTS

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

Table 2 - Material Strength

Member Type	Yield Strength
Legs	45, 50, & 54 ksi
Bracing	36 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. **Table 5** displays the maximum antennas rotations at service wind speeds (dishes only).

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
T1	130 - 120	Leg	1 1/2	15.2	Pass
		Diagonal	1/2	52.8	Pass
		Horizontal	L1 1/4x1 1/4x3/16	4.0	Pass
		Top Girt	L1 1/4x1 1/4x3/16	0.4	Pass
T2	120 - 117.143	Leg	2	15.8	Pass
		Diagonal	3/4	24.1	Pass
		Top Girt	L1 1/4x1 1/4x3/16	1.1	Pass
		Bottom Girt	L1 1/4x1 1/4x3/16	3.1	Pass
T3	117.143 - 114.286	Leg	2	19.2	Pass
		Diagonal	3/4	36.6	Pass
		Top Girt	L1 1/4x1 1/4x3/16	0.9	Pass
T4	114.286 - 111.429	Leg	2	26.9	Pass

Section No.	Elevation (ft)	Component Type	Size	% Capacity*	Pass Fail
		Diagonal	3/4	33.8	Pass
		Top Girt	L1 1/4x1 1/4x3/16	10.4	Pass
T5	111.429 - 108.571	Leg	2	36.0	Pass
		Diagonal	3/4	44.3	Pass
		Top Girt	L1 1/4x1 1/4x3/16	8.0	Pass
T6	108.571 - 105.714	Leg	2	46.7	Pass
		Diagonal	3/4	57.4	Pass
		Top Girt	L1 1/4x1 1/4x3/16	12.2	Pass
T7	105.714 - 102.857	Leg	2	58.5	Pass
		Diagonal	3/4	58.1	Pass
		Top Girt	L1 1/4x1 1/4x3/16	20.7	Pass
T8	102.857 - 100	Leg	2	57.4	Pass
		Diagonal	3/4	68.0	Pass
		Secondary Horizontal	L2x2x1/8	8.6 21.4 (b)	Pass
		Top Girt	L1 1/4x1 1/4x3/16	24.6	Pass
		Bottom Girt	L1 1/4x1 1/4x3/16	18.7	Pass
T9	100 - 96	Leg	P4x.237 (4.50 OD)	55.1	Pass
		Diagonal	L1 1/2x1 1/2x3/16	36.8 71.1 (b)	Pass
T10	96 - 92	Leg	P4x.237 (4.50 OD)	64.6	Pass
		Diagonal	L2x2x1/4	19.3 51.3 (b)	Pass
T11	92 - 88	Leg	P4x.237 (4.50 OD)	67.2	Pass
		Diagonal	2L1 1/2x1 1/2x3/16x3/8	23.2 54.6 (b)	Pass
		Secondary Horizontal	4x3/8	18.3 25.9 (b)	Pass
T12	88 - 84	Leg	P4.5x0.237 + P5.5625x0.375 [129°] - 12B	49.1	Pass
		Diagonal	2L1 1/2x1 1/2x3/16x3/8	21.4 51.3 (b)	Pass
		Secondary Horizontal	4x3/8	22.5 28.4 (b)	Pass
T13	84 - 80	Leg	P4.5x0.237 + P5.5625x0.375 [129°] - 12B	54.6	Pass
		Diagonal	2L1 1/2x1 1/2x3/16x3/8	19.9 47.9 (b)	Pass
		Secondary Horizontal	4x3/8	22.6 24.5 (b)	Pass
T14	80 - 75	Leg	P6x.28 (6.625 OD)	57.0	Pass
		Diagonal	L2x2x1/4	34.4 77.9 (b)	Pass
T15	75 - 70	Leg	P6x.28 (6.625 OD)	65.0	Pass
		Diagonal	2L1 3/4x1 3/4x3/16x3/8	25.5 61.0 (b)	Pass
T16	70 - 65	Leg	P6x.28 (6.625 OD)	72.4	Pass
		Diagonal	2L1 3/4x1 3/4x3/16x3/8	23.4 55.3 (b)	Pass
T17	65 - 60	Leg	P6x.28 (6.625 OD)	79.2	Pass
		Diagonal	2L1 3/4x1 3/4x3/16x3/8	23.6	Pass

Section No.	Elevation (ft)	Component Type	Size	% Capacity*	Pass Fail
				55.1 (b)	
T18	60 - 55	Leg	P6x.28 (6.625 OD)	81.1	Pass
		Diagonal	2L1 1/2x1 1/2x3/16x3/8	30.5 63.5 (b)	Pass
		Secondary Horizontal	L2x2x1/8	30.1 69.4 (b)	Pass
T19	55 - 50	Leg	P6.625x0.28 + P7.625x0.301 [136°] - 12B	67.1	Pass
		Diagonal	2L1 1/2x1 1/2x3/16x3/8	27.2 54.0 (b)	Pass
T20	50 - 45	Leg	P6.625x0.28 + P7.625x0.301 [136°] - 12B	71.2	Pass
		Diagonal	2L1 1/2x1 1/2x3/16x3/8	29.6 57.8 (b)	Pass
T21	45 - 40	Leg	P6.625x0.28 + P7.625x0.301 [136°] - 12B	72.3	Pass
		Diagonal	L2x2x1/4	34.7 69.6 (b)	Pass
		Secondary Horizontal	L3x3x5/16	9.1 72.5 (b)	Pass
T22	40 - 20	Leg	P6x.432 (6.625 OD)	85.9	Pass
		Diagonal	2L1 3/4x1 3/4x3/16x3/8	32.6 56.4 (b)	Pass
T23	20 - 13.3333	Leg	P6x.432 (6.625 OD)	90.1	Pass
		Diagonal	L2x2x3/16	70.9 83.6 (b)	Pass
T24	13.3333 - 6.66667	Leg	P6x.432 (6.625 OD)	87.3	Pass
		Diagonal	L2x2x3/16	71.3 75.5 (b)	Pass
		Secondary Horizontal	L2x2x1/4	31.8 52.6 (b)	Pass
T25	6.66667 - 0	Leg	P6.625x0.432 + P7.625x0.301 [136°] - 12B	79.3	Pass
		Diagonal	2L2x2x3/16x3/8	28.5 66.4 (b)	Pass

*Capacities include a 1/3 allowable stress increase for wind per *TIA/EIA-222-F* standards.
**Diagonal sizes from 120' to 100' taken from Vertical Solutions, Inc. (Project No. 121081 Rev 0) Rigorous Structural Analysis dated June 4, 2012

Table 4 - Maximum Base Reactions

Load Type	Direction	Current Analysis* *(TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Individual Foundation	Horizontal	18 k	22 k
	Uplift	299 k	253 k
	Compression	322 k	---
Overturning Moment	---	2,033 k-ft	1,685 k-ft

* Foundation determined to be adequate per independent analysis.

Table 5 - Maximum Antenna Rotations at Service Wind Speeds (Dishes Only)

Centerline Elevation (ft)	Antenna	Tilt* (deg)	Twist* (deg)
124	(3) Andrew VHLP2.5 Dishes	0.8804	0.0398

* Allowable tilt and twist values to be determined by the carrier.

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

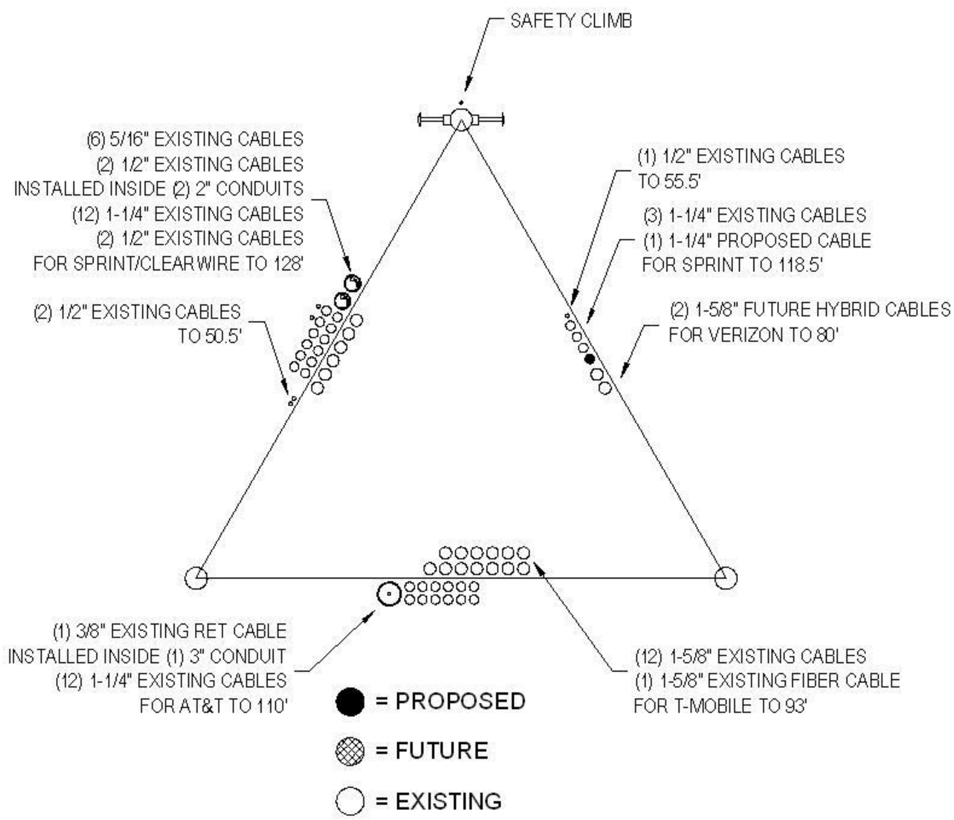
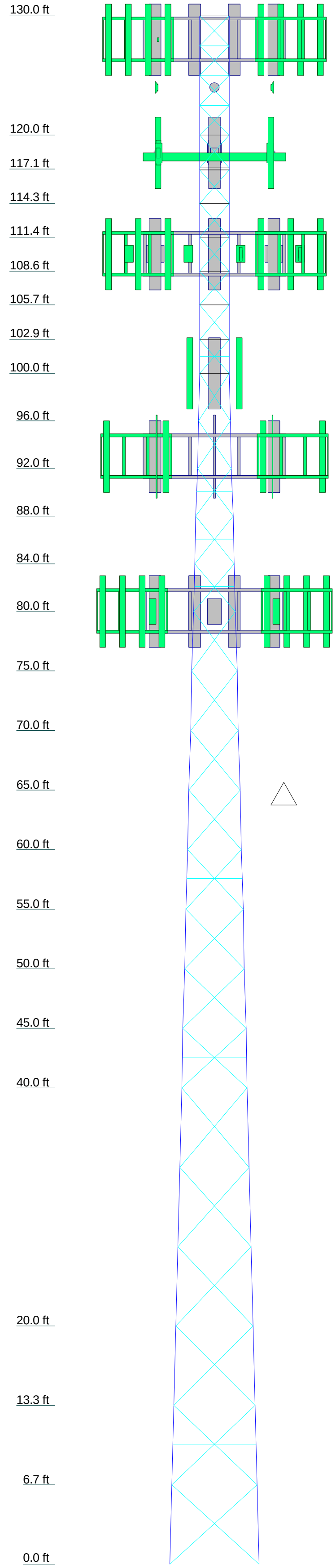


Figure 1 – Feed Line Layout

Section	Legs	Leg Grade	Diagonals	Diagonal Grade	Top Girts	Bottom Girts	Horizontals	Sec. Horizontals	Face Width (ft)	# Panels @ (ft)	Weight (K)
T1	SR 1 1/2	A570-45	SR 1/2	A36	L1 1/4x1 1/4x3/16	N.A.	L1 1/4x1 1/4x3/16	N.A.	2.5	4 @ 2.5	0.3
T2	SR 2	A570-45	SR 3/4	A36	L1 1/4x1 1/4x3/16	G	N.A.	N.A.		2 @ 2.77381	0.1
T3	SR 2	A570-45	SR 3/4	A36	L1 1/4x1 1/4x3/16	N.A.	N.A.	N.A.		2 @ 2.77381	0.1
T4	SR 2	A570-45	SR 3/4	A36	L1 1/4x1 1/4x3/16	N.A.	N.A.	N.A.		5 @ 2.85714	0.1
T5	SR 2	A570-45	SR 3/4	A36	L1 1/4x1 1/4x3/16	N.A.	N.A.	N.A.		5 @ 2.85714	0.1
T6	SR 2	A570-45	SR 3/4	A36	L1 1/4x1 1/4x3/16	N.A.	N.A.	N.A.		5 @ 2.85714	0.1
T7	SR 2	A570-45	SR 3/4	A36	L1 1/4x1 1/4x3/16	N.A.	N.A.	N.A.		5 @ 2.85714	0.1
T8	SR 2	A570-45	SR 3/4	A36	L1 1/4x1 1/4x3/16	G	N.A.	H		5 @ 2.85714	0.2
T9	P4x.237 (4.50 OD)	A500M-54	D	A36	N.A.	N.A.	N.A.	N.A.		5 @ 4	0.2
T10	P4x.237 (4.50 OD)	A500M-54	E	A36	N.A.	N.A.	N.A.	N.A.	2.7	5 @ 4	0.2
T11	P4x.237 (4.50 OD)	A500M-54	2L1 1/2x1 1/2x3/16x3/8	A36	N.A.	N.A.	N.A.	4x3/8	2.9	5 @ 4	0.3
T12	A	A572-50	2L1 1/2x1 1/2x3/16x3/8	A36	N.A.	N.A.	N.A.	4x3/8	3.1	5 @ 4	0.4
T13	A	A572-50	2L1 1/2x1 1/2x3/16x3/8	A36	N.A.	N.A.	N.A.	4x3/8	3.3	5 @ 4	0.4
T14	P6x.28 (6.625 OD)	A500M-54	L2x2x1/4	A36	N.A.	N.A.	N.A.	N.A.	3.5	8 @ 5	0.4
T15	P6x.28 (6.625 OD)	A500M-54	2L1 3/4x1 3/4x3/16x3/8	A36	N.A.	N.A.	N.A.	N.A.	3.75	8 @ 5	0.4
T16	P6x.28 (6.625 OD)	A500M-54	2L1 3/4x1 3/4x3/16x3/8	A36	N.A.	N.A.	N.A.	N.A.	4	8 @ 5	0.4
T17	P6x.28 (6.625 OD)	A500M-54	2L1 3/4x1 3/4x3/16x3/8	A36	N.A.	N.A.	N.A.	N.A.	4.25	8 @ 5	0.5
T18	P6x.28 (6.625 OD)	A500M-54	2L1 1/2x1 1/2x3/16x3/8	A36	N.A.	N.A.	N.A.	L2x2x1/8	4.5	8 @ 5	0.5
T19	P6x.28 (6.625 OD)	A500M-54	2L1 1/2x1 1/2x3/16x3/8	A36	N.A.	N.A.	N.A.	N.A.	4.75	8 @ 5	0.6
T20	B	A572-50	2L1 1/2x1 1/2x3/16x3/8	A36	N.A.	N.A.	N.A.	N.A.	5	8 @ 5	0.6
T21	B	A572-50	L2x2x1/4	A36	N.A.	N.A.	N.A.	L3x3x5/16	5.25	8 @ 5	0.7
T22	P6x.432 (6.625 OD)	A500M-54	2L1 3/4x1 3/4x3/16x3/8	A36	N.A.	N.A.	N.A.	N.A.	5.5	6 @ 6.66667	2.4
T23	P6x.432 (6.625 OD)	A500M-54	L2x2x3/16	A36	N.A.	N.A.	N.A.	N.A.	6.5	6 @ 6.66667	0.7
T24	P6x.432 (6.625 OD)	A500M-54	L2x2x3/16	A36	N.A.	N.A.	N.A.	L2x2x1/4	6.83333	6 @ 6.66667	0.8
T25	C	A572-50	F	A36	N.A.	N.A.	N.A.	N.A.	7.16667	6 @ 6.66667	1.0
									7.5		11.7



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
LLPX310R w/ Mount Pipe	128	(2) 7700.00 w/Mount Pipe	110
LLPX310R w/ Mount Pipe	128	(2) 7700.00 w/Mount Pipe	110
840 10054 w/ Mount Pipe	128	AM-X-CD-16-65-00T-RET w/ Mount Pipe	110
24"x14"x9" TMA	128	AM-X-CD-16-65-00T-RET w/ Mount Pipe	110
24"x14"x9" TMA	128	SBNH-1D6565C w/ Mount Pipe	110
24"x14"x9" TMA	128	(2) LGP13519 TMA	110
TIMING 2000	128	(2) LGP13519 TMA	110
IDU Modem	128	(2) LGP13519 TMA	110
IDU Modem	128	APXV18-206517S-C w/Mount Pipe	100
IDU Modem	128	APXV18-206517S-C w/Mount Pipe	100
(3) T-Frames	128	APXV18-206517S-C w/Mount Pipe	100
VHLP2.5 Dish	128	(3) Standoffs	100
VHLP2.5 Dish	128	(2) Empty Mount Pipe	93
VHLP2.5 Dish	128	(2) Empty Mount Pipe	93
1900 MHz RRH	118.5	(2) Empty Mount Pipe	93
1900 MHz RRH	118.5	(3) T-Frames	93
1900 MHz RRH	118.5	AIR 21 B4A/B2P w/Mount Pipe	93
800 MHz RRH	118.5	KRY 112 144/1 TMA	93
800 MHz RRH	118.5	KRY 112 144/1 TMA	93
800 MHz RRH	118.5	KRY 112 144/1 TMA	93
(2) ACU-A20-N RET	118.5	AIR 21 B2A/B4P w/Mount Pipe	93
ACU-A20-N RET	118.5	AIR 21 B2A/B4P w/Mount Pipe	93
ACU-A20-N RET	118.5	AIR 21 B2A/B4P w/Mount Pipe	93
800 MHz External Notch Filter	118.5	AIR 21 B4A/B2P w/Mount Pipe	93
800 MHz External Notch Filter	118.5	AIR 21 B4A/B2P w/Mount Pipe	93
800 MHz External Notch Filter	118.5	RRH2X40-AWS	80
(3) T-Arms	118.5	RRH2X40-AWS	80
APXVTM14-C-I20 w/ Mount Pipe	118.5	RRH2X40-AWS	80
APXVTM14-C-I20 w/ Mount Pipe	118.5	DB-T1-6Z-8AB-0Z	80
APXVTM14-C-I20 w/ Mount Pipe	118.5	(3) T-Frames	80
TD-RRH8x20-25	118.5	(2) BXA-171062/12CF w/Mount Pipe	80
TD-RRH8x20-25	118.5	(2) BXA-171062/12CF w/Mount Pipe	80
TD-RRH8x20-25	118.5	(2) BXA-171062/12CF w/Mount Pipe	80
APXVSPP18-C-A20 w/Mount Pipe	118.5	(2) BXA-70063/6CF w/ Mount Pipe	80
APXVSPP18-C-A20 w/Mount Pipe	118.5	(2) BXA-70063/6CF w/ Mount Pipe	80
P40-16-XLPP-RR-A w/ Mount Pipe	118.5	(2) BXA-70063/6CF w/ Mount Pipe	80
(2) LGP21401 TMA	110	RRH2X40-700-U	80
(2) LGP21401 TMA	110	RRH2X40-700-U	80
(2) LGP21401 TMA	110	RRH2X40-700-U	80
(2) RRUS-11 1900MHz	110	GPS	55.5
(2) RRUS-11 1900MHz	110	Standoff	55.5
(2) RRUS-11 1900MHz	110	Standoff	50.5
DC6-48-60-18-8F Surge Arrestor	110	GPS	50.5
(3) T-Frames	110	Standoff	50.5
(2) 7700.00 w/Mount Pipe	110	GPS	50.5

SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P4.5x0.237 + P5.5625x0.375 [129°] - 12B	E	L2x2x1/4
B	P6.625x0.28 + P7.625x0.301 [136°] - 12B	F	2L2x2x3/16x3/8
C	P6.625x0.432 + P7.625x0.301 [136°] - 12B	G	L1 1/4x1 1/4x3/16
D	L1 1/2x1 1/2x3/16	H	L2x2x1/8

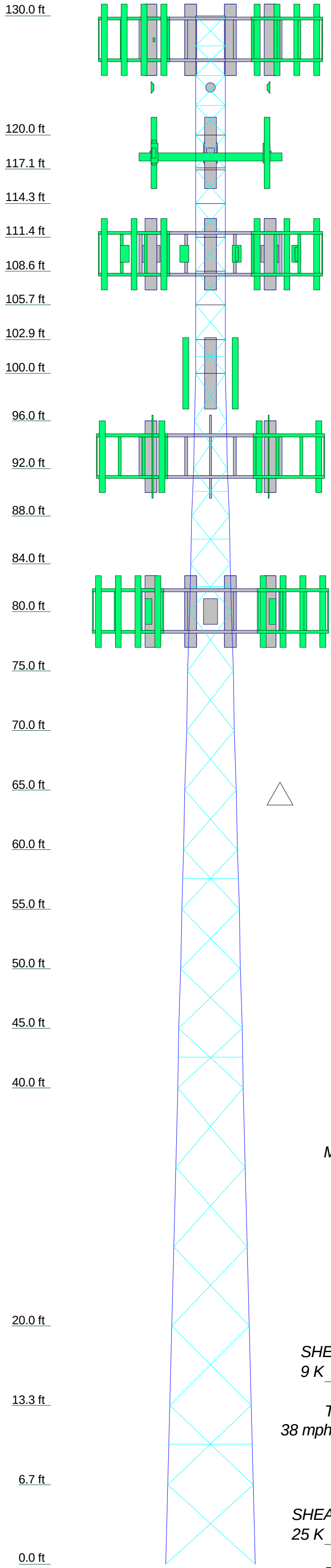
MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A570-45	45 ksi	60 ksi	A500M-54	54 ksi	70 ksi
A36	36 ksi	58 ksi	A572-50	50 ksi	65 ksi

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, North Carolina 27616
Phone: (919) 755-1012
FAX: (919) 755-1031
Tower Analysis

Job: **Glastonbury-Main St, CT46126-A-03**			
Project: **1462HD1400**			
Client: SBA Network Services, Inc.	Drawn by: DTang	App'd:	
Code: TIA/EIA-222-F	Date: 04/10/14	Scale: NTS	
Path:		Dwg No. E-1	

Section	Legs	Leg Grade	Diagonals	Diagonal Grade	Top Girts	Bottom Girts	Horizontals	Sec. Horizontals	Face Width (ft)	# Panels @ (ft)	Weight (K)
T1	SR 1 1/2	A570-45	SR 1/2	A36		N.A.	L1 1/4x1 1/4x3/16		2.5	4 @ 2.5	0.3
T2	SR 2		SR 3/4		L1 1/4x1 1/4x3/16	G	N.A.	N.A.		2 @ 2.77381	0.1
T3						N.A.					0.1
T4										5 @ 2.85714	0.1
T5											0.1
T6											0.1
T7											0.1
T8						G		H			0.2
T9	P4x.237 (4.50 OD)	A500M-54	D		N.A.	N.A.		N.A.		5 @ 4	0.2
T10			E						2.7		0.2
T11			2L1 1/2x1 1/2x3/16x3/8					4x3/8	2.9		0.3
T12	A	A572-50							3.1		0.4
T13									3.3		0.4
T14	P6x.28 (6.625 OD)	A500M-54	L2x2x1/4					N.A.	3.5	8 @ 5	0.4
T15			2L1 3/4x1 3/4x3/16x3/8						3.75		0.4
T16									4		0.4
T17									4.25		0.5
T18			2L1 1/2x1 1/2x3/16x3/8					L2x2x1/8	4.5		0.5
T19	B	A572-50						N.A.	4.75		0.6
T20									5		0.6
T21			L2x2x1/4					L3x3x5/16	5.25		0.7
T22	P6x.432 (6.625 OD)	A500M-54	2L1 3/4x1 3/4x3/16x3/8					N.A.	5.5	6 @ 6.66667	2.4
T23			L2x2x3/16						6.5		0.7
T24								L2x2x1/4	6.83333		0.8
T25	C	A572-50	F					N.A.	7.16667		1.0
									7.5		11.7



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	P4.5x0.237 + P5.5625x0.375 [129°] - 12B	E	L2x2x1/4
B	P6.625x0.28 + P7.625x0.301 [136°] - 12B	F	2L2x2x3/16x3/8
C	P6.625x0.432 + P7.625x0.301 [136°] - 12B	G	L1 1/4x1 1/4x3/16
D	L1 1/2x1 1/2x3/16	H	L2x2x1/8

TOWER DESIGN NOTES

1. Tower is located in Hartford 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 38 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 90.1%

MAX. CORNER REACTIONS AT BASE:
DOWN: 322 K
SHEAR: 18 K

UPLIFT: -299 K
SHEAR: 17 K

AXIAL 63 K
SHEAR 9 K
MOMENT 740 kip-ft
TORQUE 1 kip-ft
38 mph WIND - 1.0000 in ICE

AXIAL 28 K
SHEAR 25 K
MOMENT 2033 kip-ft
TORQUE 2 kip-ft
REACTIONS - 80 mph WIND

FDH Engineering, Inc. 6521 Meridien Drive, Raleigh, North Carolina 27616, Phone: (919) 755-1012, FAX: (919) 755-1031 — Tower Analysis	Job: Glastonbury-Main St, CT46126-A-03		
	Project: 1462HD1400		
	Client: SBA Network Services, Inc.	Drawn by: DTang	App'd:
	Code: TIA/EIA-222-F	Date: 04/10/14	Scale: NTS
	Path:		Dwg No. E-1

(Bearing and Stability Checks) Tool for TIA Rev F or G - Application (MP, SST with unitbase)

Site Data

Site ID:	*CT46126-A-03*
Site Name:	*Glastonbury-Main Street*
Job No.	*1462HD1400*

Monopole Base Reaction Forces		
TIA Revision:	F	<--Pull Down
Unfactored DL Axial, PD:	28	kips
Unfactored WL Axial, PW:	0	kips
Unfactored WL Shear, V:	25	kips
Unfactored WL Moment, M:	2033	ft-kips

Enter Load Factors Below:		
For P (DL)	1.2	<---- Enter Factor
For P,V, and M (WL)	1.35	<---- Enter Factor

Load Factor	Shaft Factored Loads		
1.20	1.2D+1.6W, Pu:	33.6	kips
0.90	0.9D+1.6W, Pu:	25.2	kips
1.35	Vu:	33.75	kips
	Mu:	2744.55	ft-kips

Pad & Pier Data		
Base PL Dist. Above Pier:	0	in
Pier Dist. Above Grade:	6	in
Pad Bearing Depth, D:	4	ft
Pad Thickness, T:	3	ft
Pad Width=Length, L:	26	ft
Pier Cross Section Shape:	Square	<--Pull Down
Enter Pier Side Width:	5.20	ft
Concrete Density:	150.0	pcf
Pier Cross Section Area:	27.00	ft^2
Pier Height:	1.50	ft
Soil (above pad) Height:	1.00	ft

1.2D+1.6W Load Combination, Bearing Results:

(**No Soil Wedges**) [Reaction+Conc+Soil]	479.92	P1="1.2D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil), M1	2879.75	ft-kips

Orthogonal Direction:

ecc1 = M1/P1 =	6.00	ft
Orthogonal qu=	1.37	ksf
qu/ϕ*qn Ratio=	**30.34%**	**Pass**

Soil Parameters		
Unit Weight, γ:	95.0	pcf
Ultimate Bearing Capacity, qn:	6.00	ksf
Strength Reduct. factor, ϕ:	0.75	
Angle of Friction, Φ:	0.0	degrees
Undrained Shear Strength, Cu:	0.00	ksf
Allowable Bearing: ϕ*qn:	4.50	ksf
Passive Pres. Coeff., Kp	1.00	

Diagonal Direction:

ecc2 = (0.707M1)/P1 =	4.24	ft
Diagonal qu=	1.56	ksf
qu/ϕ*qn Ratio=	**34.76%**	**Pass**

Run <-- Press Upon Completing All Input

Forces/Moments due to Wind and Lateral Soil		
Minimum of (φ*Ultimate Pad Passive Force, Vu):	13.9	kips
Pad Force Location Above D:	1.20	ft
ϕ(Passive Pressure Moment):	16.67	ft-kips
Factored O.T. M(WL), "1.6W":	2896.4	ft-kips
Factored OT (MW-Msoil), M1	2879.75	ft-kips

Overturning Stability Check

0.9D+1.6W Load Combination, Bearing Results:

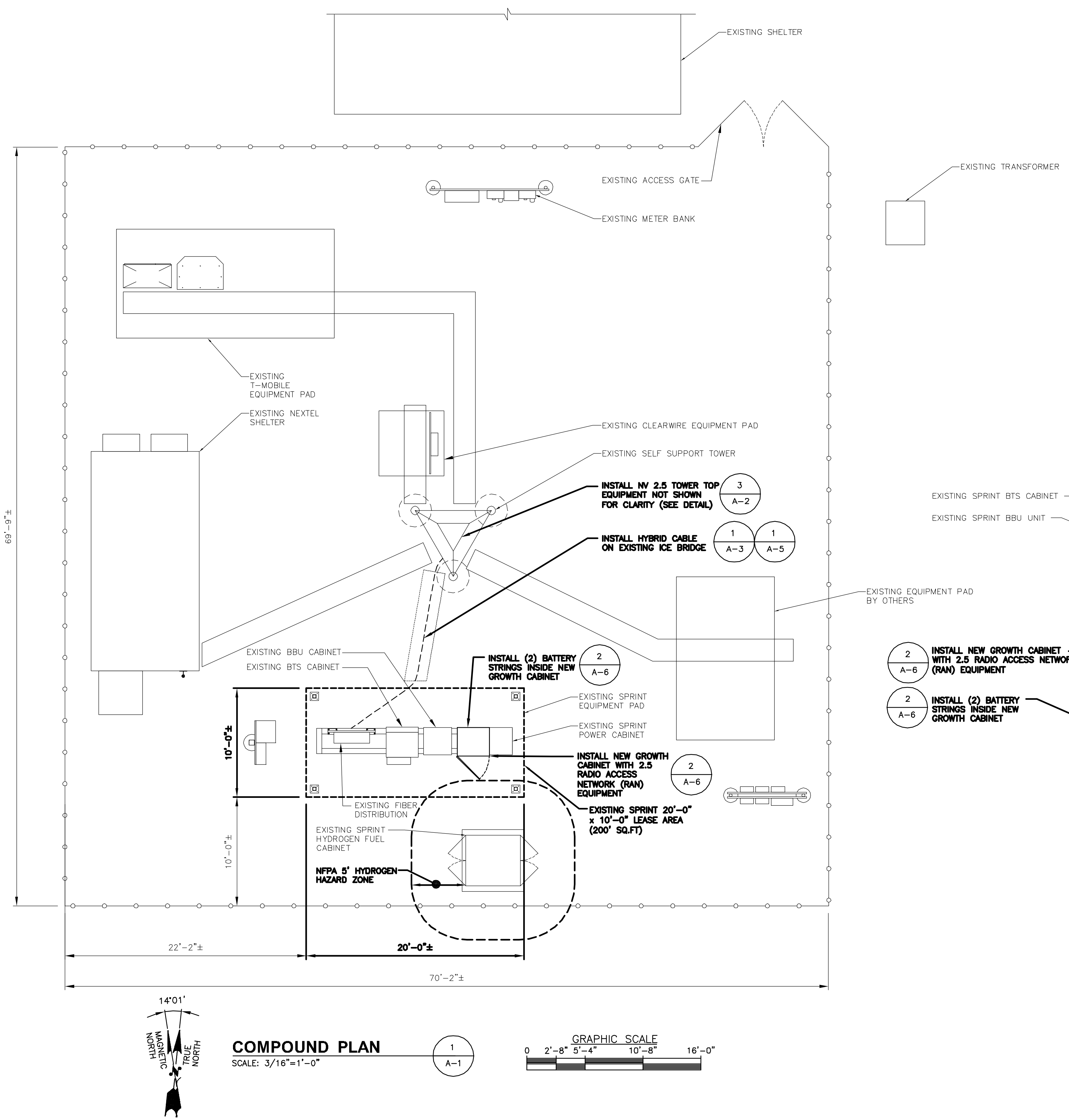
(**w/ Soil Wedges**) [Reaction+Conc+Soil]	359.94	P2="0.9D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil) - 0.9(M of Wedge + M of Cohesion), M2	2879.75	ft-kips

Resistance due to Foundation Gravity		
Soil Wedge Projection grade, a:	0.00	ft
Sum of Soil Wedges Wt:	0.00	kips
Soil Wedges ecc, K1:	0.00	ft
Ftg+Soil above Pad wt:	371.9	kips
Unfactored (Total ftg-soil Wt):	371.93	kips
1.2D. **No Soil Wedges.**	479.92	kips
0.9D. **With Soil Wedges**	359.94	kips

Orthogonal ecc3 = M2/P2 =	8.00	ft
Ortho Non Bearing Length,NBL=	16.00	ft
Orthogonal qu=	1.38	ksf
Diagonal qu=	1.67	ksf

Resistance due to Cohesion (Vertical)		
ϕ*(1/2*Cu)(Total Vert. Planes)	0.00	kips
Cohesion Force Eccentricity, K2	0.00	ft

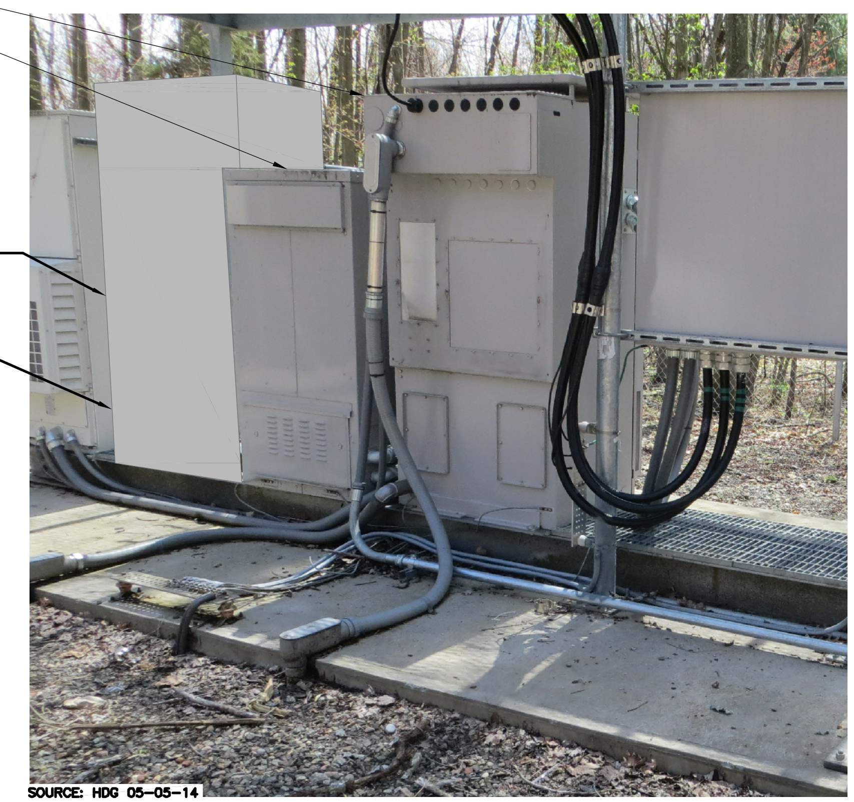
Max Reaction Moment (ft-kips) so that qu=φ*qn = 100% Capacity Rating			
Actual M:	2033.00		
M Orthogonal:	2955.80	**68.78%**	**Pass**
M Diagonal:	2955.80	**68.78%**	**Pass**



COMPOUND PLAN 1 A-1
SCALE: 3/16"=1'-0"

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

EXISTING SPRINT BTS CABINET
EXISTING SPRINT BBU UNIT
INSTALL NEW GROWTH CABINET WITH 2.5 RADIO ACCESS NETWORK (RAN) EQUIPMENT 2 A-6
INSTALL (2) BATTERY STRINGS INSIDE NEW GROWTH CABINET 2 A-6



SOURCE: HDG 05-05-14

RAN EQUIPMENT PHOTO DETAIL 2 A-1
SCALE: N.T.S.

Sprint
1 INTERNATIONAL BLVD, SUITE 800
MAHWAH, NJ 07495
TEL: (800) 357-7641

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

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

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

CHECKED BY: KB

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	05/16/14	ISSUED FOR CONSTRUCTION	SF
0	05/12/14	ISSUED FOR CONSTRUCTION	SF

SITE NUMBER:
CT43XC822-B
SITE NAME:
GLASTONBURY/NEXTEL

SITE ADDRESS:
2577 MAIN STREET
GLASTONBURY, CT 06033

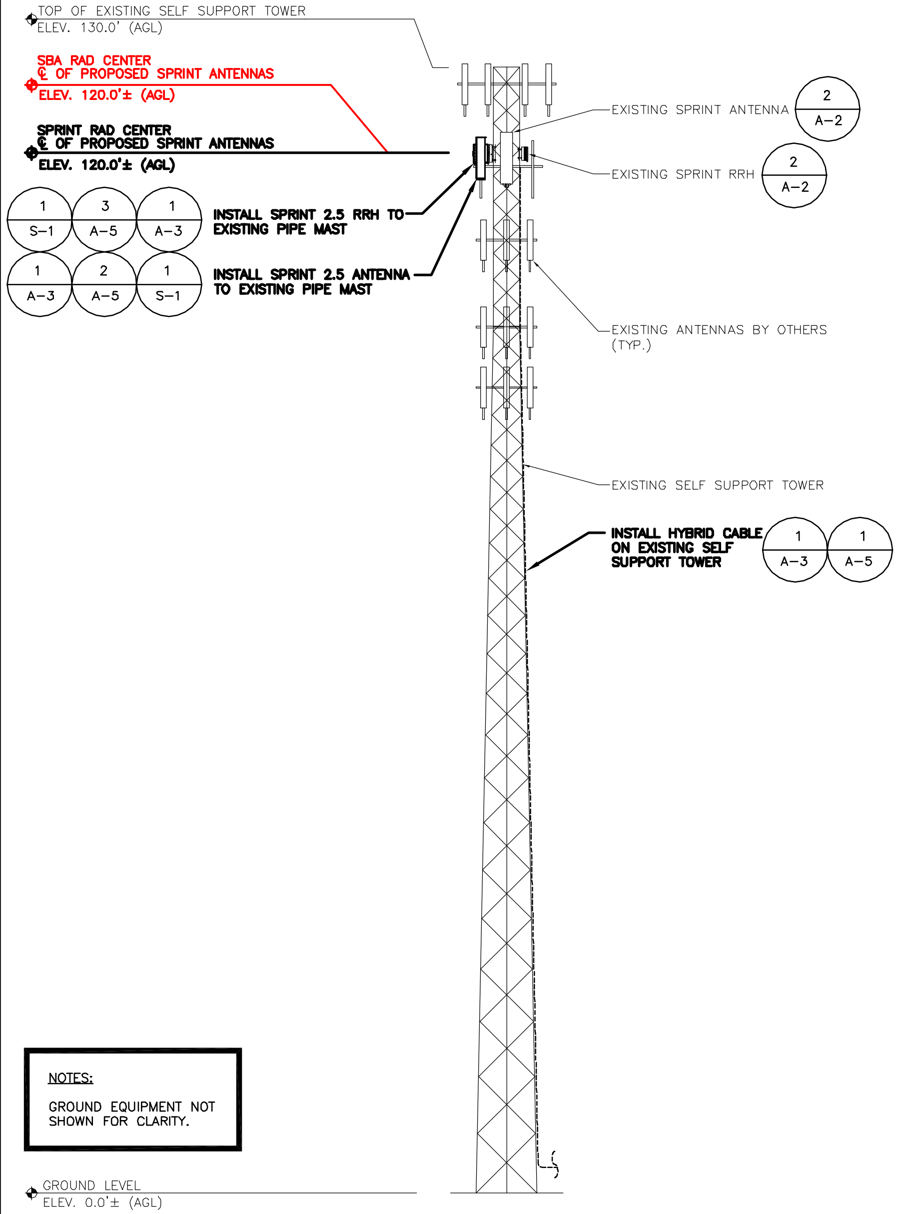
SHEET TITLE
COMPOUND PLAN

SHEET NUMBER
A-1

SPECIAL CONSTRUCTION NOTE:
SPRINT TOWER TOP WORK IS CONTINGENT ON THE FOLLOWING:
* COMPLETION OF A GLOBAL STRUCTURAL STABILITY ANALYSIS (PROVIDED BY TOWER OWNER).
* COMPLETION OF AN ANTENNA/RRH MOUNT STRUCTURAL ASSESSMENT (PROVIDED BY A&E VENDOR).
* GC SHALL FURNISH, INSTALL AND COMPLETE ALL REQUIRED STRUCTURAL MODIFICATIONS AS INDICATED IN BEFORE–MENTIONED ANALYSIS AND ASSESSMENT.
* SBA COMMUNICATIONS CORPORATION SHALL PROVIDE WRITTEN ACCEPTANCE/APPROVAL FOR THE COMPLETION OF ALL TOWER/FOUNDATION STRUCTURAL MODIFICATIONS INCLUDING (AS NECESSARY) CONTROLLED CONSTRUCTION INSPECTIONS, SHOP–DRAWING APPROVALS, MATERIALS TEST RESULTS, AND FINAL ENGINEER'S AFFIDAVIT.

NOTE:
EXISTING AZIMUTHS FROM SPRINT CONSTRUCTION DRAWINGS 06/17/13

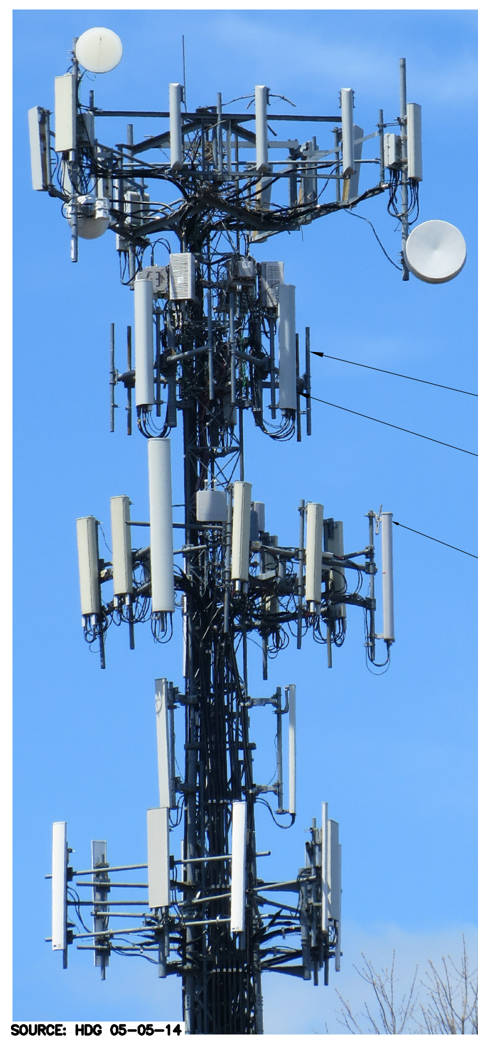
NOTE:
SPRINT RAD CENTER SHOWN IN RED TEXT BASED ON SBA–PROVIDED COLLOCATION APPLICATION, EQUIPMENT DATABASE, AND STRUCTURAL ANALYSIS. THE SBA–PROVIDED ANTENNA RAD CENTER SHALL SUPERSEDE ANY CONFLICTING INFORMATION DERIVED FROM THE SPRINT NV 2.5 RFDS.



NOTES:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

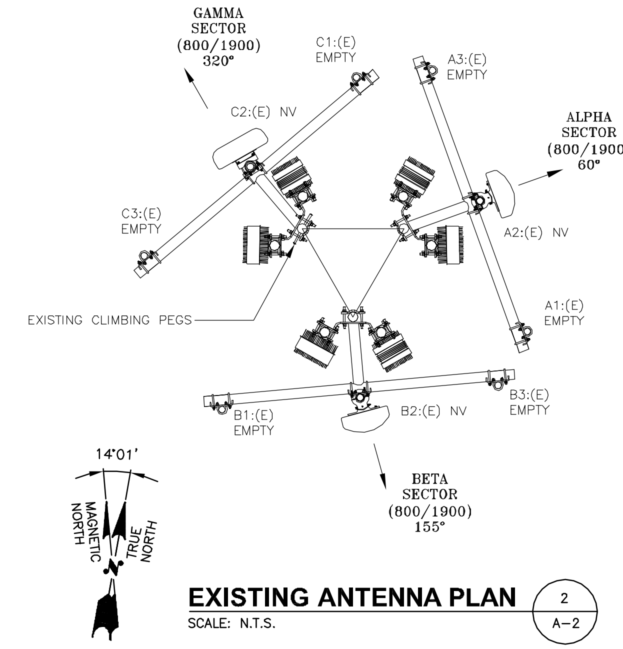
ELEVATION (1 / A–2)
SCALE: 3/32"=1'-0"

GRAPHIC SCALE: 0 5'-4" 10'-8" 21'-4" 32'-0"



SOURCE: HDG 05-05-14

EXISTING PARTIAL ELEVATION PHOTO DETAIL
SCALE: N.T.S.

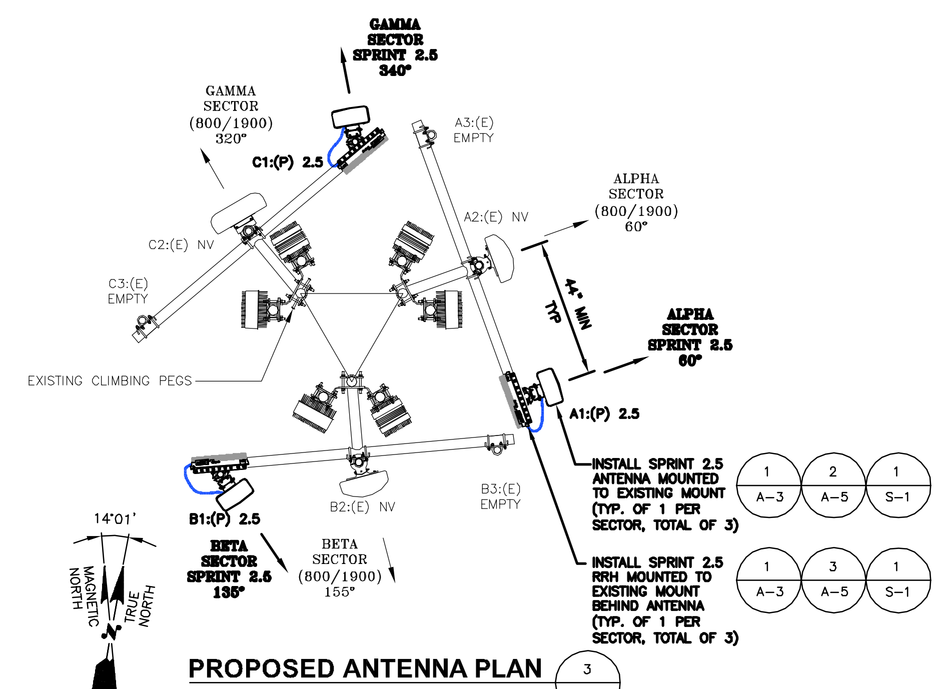


EXISTING ANTENNA PLAN (2 / A–2)
SCALE: N.T.S.

SPECIAL WORK NOTE:
JUMPERS FROM 2.5 RRH TO 2.5 ANTENNA CAN NOT EXCEED 15'. NOTIFY SPRINT CONSTRUCTION MANAGER OF ANY DISCREPANCY.

NOTE:
VERIFY PROPOSED AZIMUTHS WITH RF ENGINEER PRIOR TO INSTALLATION

ANTENNA STATUS LEGEND:
EMPTY – EMPTY PIPE
(E) – EXISTING
(P) – INSTALL
NV – SPRINT ANTENNA MODEL #APXVSPP18–C–A20
2.5 – SPRINT ANTENNA



PROPOSED ANTENNA PLAN (3 / A–2)
SCALE: N.T.S.

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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
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0	05/12/14	ISSUED FOR CONSTRUCTION	SF

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SITE ADDRESS:
2577 MAIN STREET
GLASTONBURY, CT 06033

SHEET TITLE
ELEVATION AND ANTENNA PLANS

SHEET NUMBER
A–2