August 01, 2014

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

RE: Notice of Exempt Modification
46 Meadow Road
Clinton, CT 06413
Sprint Site #: NV2.5_CT54XC764
N 41° 16' 30.74"
W -72° 29' 51.76"

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 46 Meadow Road, Clinton CT.

The 46 Meadow Road facility consists of a 199' Lattice Tower owned and operated by SBA Towers, LLC. 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 3807 with any questions you may have concerning this matter.

Thank you,

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@sbasite.com

Sprint Spectrum
Equipment Modification

46 Meadow Road, Clinton, CT
Site number CT54XC764

Tower Owner: SBA Towers, LLC

Equipment Configuration: Lattice Tower

Current and/or approved:

- (3) RFS APXVSPP18-C-A20
- (3) ALU 1900 MHZ RRUs
- (3) ALU 800 MHZ RRUs
- (3) ALU 800 MHZ Filters
- (4) RFS ACU-A20-N RETs
- (3) 1-1/4" Fiber

Planned Modifications:

- (3) RFS APXVTM14-C-I20
- (3) Alcatel Lucent TD-RRH8x20-25
- (3) RFS APXVSPP18-C-A20
- (3) ALU 1900 MHZ RRUs
- (3) ALU 800 MHZ RRUs
- (3) ALU 800 MHZ Filters
- (4) RFS ACU-A20-N RETs
- (4) 1-1/4" Fiber

Structural Information:

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

Power Density:

The anticipated Maximum Composite contributions from the Sprint facility are 1.82% of the allowable FCC established general public limit. The anticipated composite MPE value for this site assuming all carriers present is 27.22% of the allowable FCC established general public limit sampled at the ground level.

Site Composite MPE %	
Carrier	MPE %
Sprint	1.82%
T-Mobile	0.09%
Verizon Wireless	19.40%
AT&T	5.91%
Total Site MPE %	27.22%

August 01, 2014

William W. Fritz
First Selectman
Town of Clinton
Town Hall
54 East Main Street
Clinton, CT 06413

RE: Telecommunications Facility @ 46 Meadow Road, Clinton, CT

Dear Mr. Fritz,

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 3807.

Thank you,

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@sbasite.com

August 01, 2014

Property Owner:

Michael R. Charney
41 South Main St.
Westbrook CT 06498-1902
Robert M. Charney
205 Greens Farm Road
Brandford CT 06405-5912

RE: Telecommunications Facility @ 46 Meadow Road, Clinton, CT

Dear Mr. Charney,

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 3807.

Thank you,

Peter Nute
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EBI Consulting
environmental | engineering | due diligence

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

Sprint Existing Facility

Site ID: CT54XC764

Clinton SBA

46 Meadow Street
Clinton, CT 06413

July 27, 2014

EBI Project Number: 62143985

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

EBI Consulting
environmental | engineering | due diligence

July 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:
CT54XC764 - Clinton SBA

Site Total: 27.22% - MPE% in full compliance

EBI Consulting was directed to analyze the proposed upgrades to the existing Sprint facility located at 46 Meadow Street, Clinton, 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 46 Meadow Street, Clinton, 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) 3 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 and the RFS APXVTM14-C-I20. 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 RFS APXVTM14-C-I20 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 **182 feet** above ground level (AGL).
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	CT54XC764 - Clinton SBA
Site Addresss	46 Meadow Street, Clinton, CT, 06413
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	3	60	5.9	182	176	1/2 "	0.5	0	208.04	0.24%
1a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	182	176	1/2 "	0.5	0	39.00	0.08%
1B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	182	176	1/2 "	0.5	0	138.69	0.28%
														Sector total Power Density Value:		0.61%

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	3	60	5.9	182	176	1/2 "	0.5	0	208.04	0.24%
2a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	182	176	1/2 "	0.5	0	39.00	0.08%
2B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	182	176	1/2 "	0.5	0	138.69	0.28%
														Sector total Power Density Value:		0.61%

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	RFS	APXVSPP18-C-A20	RRH	1900 MHz	CDMA / LTE	20	3	60	5.9	182	176	1/2 "	0.5	0	208.04	0.24%
3a	RFS	APXVSPP18-C-A20	RRH	850 MHz	CDMA / LTE	20	1	20	3.4	182	176	1/2 "	0.5	0	39.00	0.08%
3B	RFS	APXVTMM14-C-120	RRH	2500 MHz	CDMA / LTE	20	2	40	5.9	182	176	1/2 "	0.5	0	138.69	0.28%
														Sector total Power Density Value:		0.61%

Site Composite MPE %	
Carrier	MPE %
Sprint	1.82%
T-Mobile	0.09%
Verizon Wireless	19.40%
AT&T	5.91%
Total Site MPE %	**27.22%**

EBI Consulting
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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 **1.82% (0.61% from sector 1, 0.61% from sector 2 and 0.61% 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 **27.22%** 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

Structural Analysis for SBA Network Services, Inc.

195' Self-Support Tower

SBA Site Name: Clinton 4 CT
SBA Site ID: CT01879-S-03
Sprint Site ID: CT54XC764

FDH Project Number 1465YH1400

Analysis Results

Tower Components	98.2%	Sufficient
Foundation	98.8%	Sufficient

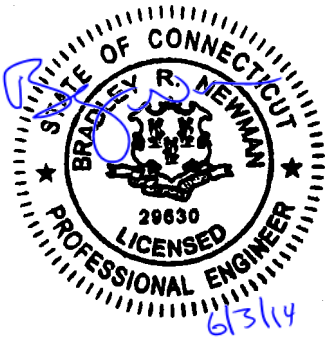
Prepared By:

Sean M. O'Sullivan, EI
Project Engineer II

Reviewed By:

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

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



June 3, 2014

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

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EXECUTIVE SUMMARY

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

- Sabre Communications Corporation (Job No. 00-10101) Structural Design Report dated November 19, 1999
- Jaworski Geotech, Inc. (Job No. 99500G) Field Soil Screening dated December 13, 1999
- FDH Engineering, Inc. (Project No. 1465YH1400) Modification Drawings for a 195' Self-Support Tower dated June 3, 2014
- SBA Network Services, Inc.

The *basic design wind speed* per the *TIA/EIA-222-F* standards and the *2005 CSBC* 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 Sprint in place at 182 ft, the tower meets the requirements of the *TIA/EIA-222-F* standards and the *2005 CSBC* provided the **Recommendations** listed below are satisfied. Furthermore, provided the foundations were designed and constructed to support the original design reactions (see Sabre Job No. 00-10101), the foundations 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 CSBC* are met with the existing and proposed loading in place, we have the following recommendations:

1. Feed lines must be installed as shown in **Figure 1**.
2. RRH/RRU Stipulation: The proposed equipment may be installed in any arrangement as determined by the client.
3. Modifications must be installed per FDH Engineering, Inc. (Project No. 1465YH1400) Modification Drawings for a 195' Self-Support Tower dated June 3, 2014 in order 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	Carrier	Mount Elevation (ft)	Mount Type
192.5	(3) Ericsson AIR B2A B4P (3) Ericsson AIR B4A B2P (3) Ericsson KRY 112 144-1 Double TMAs	(12) 1-5/8" (1) 1-5/8" Fiber	T-Mobile	192	(3) T-Frames
191.8	(1) Celwave PD1151 Omni	(1) 7/8"	Town of Clinton	184	(1) Standoff
182	(3) RFS APXVSPP18-C-A20 (3) ALU 1900 MHZ RRUs (3) ALU 800 MHZ RRUs (3) ALU 800 MHZ Filters (4) RFS ACU-A20-N RETs	(3) 1-1/4" Fiber	Sprint	182	(3) T-Frames
162	(3) Antel BXA-70063/6CF (4) Antel LPA-80063/4CF (2) Antel BXA-171063/8BF (1) Antel BXA-171063/12CF (2) Antel LPA-80063/6CF (6) RFS FD9R6004/2C-3L Diplexers	(12) 1-5/8"	Verizon	162	(3) T-Frames
152	(9) KMW AM-X-CD-14-65-00T (3) Powerwave 7770 (6) Powerwave TT19-08BP111-001 TMAs (3) Powerwave LGP13519 Diplexers (3) CSS DBC-750 Combiners (6) Ericsson RRUS-11 RRHs (1) Raycap DC6-48-60-18-8F Surge Arrestor	(12) 1-5/8" (1) 3" Rigid Conduit	AT&T	152	(3) T-Frames
143.5	(3) Sinclair SD312HL Dipoles	(3) 7/8"	Town of Clinton	140	(3) Standoffs
100	(1) Radiowaves RDH4518A Dish	(2) CAT 5e		100	(1) Pipe Mount

Proposed Loading:

Antenna Elevation (ft)	Description	Feed Lines	Carrier	Mount Elevation (ft)	Mount Type
182	(3) RFS APXVTM14-C-I20 (3) Alcatel Lucent TD-RRH8x20-25 (3) RFS APXVSPP18-C-A20 (3) ALU 1900 MHZ RRUs (3) ALU 800 MHZ RRUs (3) ALU 800 MHZ Filters (4) RFS ACU-A20-N RETs	(4) 1-1/4" Fiber	Sprint	182	(3) T-Frames

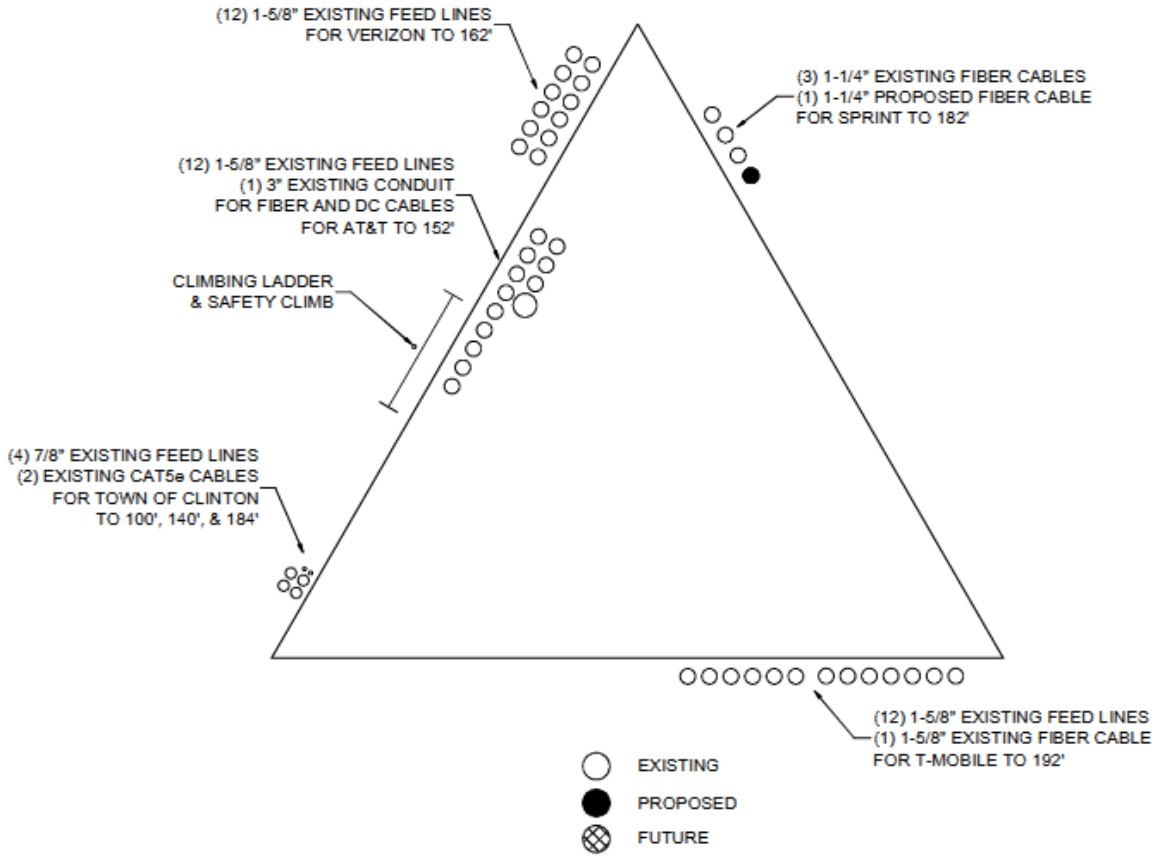


Figure 1 – Feed Line Layout

RESULTS

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

Table 2 - Material Strength

Member Type	Yield Strength
Legs	50 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 antenna 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	195 - 180	Leg	P2x.154 (2.38 OD)	34.5	Pass
		Diagonal	L1 3/4x1 3/4x3/16	26.7 35.4 (b)	Pass
		Top Girt	L1 3/4x1 3/4x3/16	2.5 2.7 (b)	Pass
T2	180 - 160	Leg	P3x.216 (3.5 OD)	53.6	Pass
		Diagonal	L1 3/4x1 3/4x3/16	58.2	Pass
		Top Girt	L1 3/4x1 3/4x3/16	7.7	Pass
T3	160 - 140	Leg	P3x.300 (3.50 OD)	79.0	Pass
		Diagonal	L2x2x3/16	81.0	Pass
T4	140 - 120	Leg	P4x.337 (4.50 OD)	78.8	Pass
		Diagonal	L2 1/2x2 1/2x3/16	71.8	Pass
T5	120 - 100	Leg	P5x.375 (5.5625 OD)	68.7	Pass
		Diagonal	L2 1/2x2 1/2x3/16	96.9	Pass
T6	100 - 80	Leg	P6x.28 (6.625 OD)	87.6	Pass
		Diagonal	L3x3x3/16	75.5	Pass
T7	80 - 70	Leg	P6x.432 (6.625 OD)	69.8	Pass
		Diagonal	L3x3x1/4	89.8	Pass
T8	70 - 60	Leg	P6x.432 (6.625 OD)	75.5	Pass
		Diagonal	L3x3x3/8	70.6	Pass
T9	60 - 50	Leg	P8x.322 (8.625 OD)	74.3	Pass
		Diagonal	L3x3 1/2x1/4	89.1	Pass
T10	50 - 40	Leg	P8x.322 (8.625 OD)	79.3	Pass
		Diagonal	L3x3x3/8	88.7	Pass
T11	40 - 20	Leg	P8x.322 (8.625 OD)	89.0	Pass
		Diagonal	L3 1/2x3 1/2x1/4	98.2	Pass
T12	20 - 10	Leg	P8x.5 (8.625 OD)	62.2	Pass
		Diagonal	L3 1/2x4x1/4	88.8	Pass
T13	10 - 0	Leg	P8x.5 (8.625 OD)	65.2	Pass

Section No.	Elevation ft	Component Type	Size	% Capacity*	Pass Fail
		Diagonal	L4x4x1/4	81.2	Pass

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

Table 4 - Maximum Base Reactions

Load Type	Direction	Current Analysis *(TIA/EIA-222-F)*	Original Design *(TIA/EIA-222-F)*
Individual Foundation	Horizontal*	30 k	29 k
	Uplift	255 k	258 k
	Compression	290 k	306 k
Overturning Moment	---	5,511 k-ft	5,764 k-ft

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

Table 5 – Maximum Antenna Rotations at Service Wind Speed (Dishes Only)

Centerline Elevation (ft)	Antenna	Tilt (deg)*	Twist (deg)*
100	(1) Radiowaves RDH4518A Dish	0.1651	0.0072

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

GENERAL COMMENTS

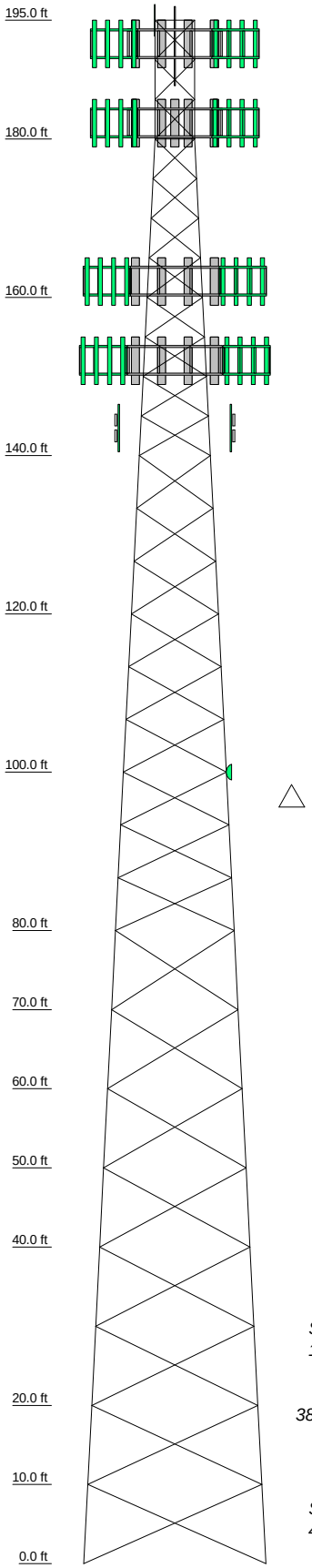
This engineering analysis is based upon the theoretical capacity of the structure. It is not a condition assessment of the tower and its foundation. It is the responsibility of SBA Network Services, Inc. to verify that the tower modeled and analyzed is the correct structure (with accurate antenna loading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

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13
Legs	P2x.154 (2.38 OD)	P3x.216 (3.5 OD)	P3x.300 (3.50 OD)	P4x.337 (4.50 OD)	P5x.375 (5.5625 OD)	P6x.28 (6.625 OD)	P6x.432 (6.625 OD)				P8x.322 (8.625 OD)		P8x.5 (8.625 OD)
Leg Grade	A572-50												
Diagonals	L4x4x1/4	L3 1/2x4x1/4	L3 1/2x3 1/2x1/4	L3x3x3/8	L3x3 1/2x1/4	L3x3x3/16	L3x3x1/4	L3x3x3/8	L3x3 1/2x1/4	L3x3x3/8	L3 1/2x3 1/2x1/4	L3 1/2x4x1/4	
Diagonal Grade	A36												
Top Girts	L1 3/4x1 3/4x3/16		L2x2x3/16	L2 1/2x2 1/2x3/16									
Face Width (ft)	5	7	9	11	13	15	16	17	18	19	21	22	23
# Panels @ (ft)	11 @ 5			9 @ 6.66667			8 @ 10						
Weight (K)	0.5	0.9	1.2	1.6	2.0	2.2	1.4	1.7	1.5	1.8	3.3	2.2	2.3



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod	195	(2) LPA-80063/4CF w/ Mount Pipe	162
AIR 21 B2A/B4P w/Mount Pipe	192	LPA-80063/4CF w/ Mount Pipe	162
AIR 21 B2A/B4P w/Mount Pipe	192	LPA-80063/4CF w/ Mount Pipe	162
AIR 21 B2A/B4P w/Mount Pipe	192	BXA-171063/8BF w/ Mount Pipe	162
AIR 21 B4A/B2P w/Mount Pipe	192	BXA-171063/8BF w/ Mount Pipe	162
AIR 21 B4A/B2P w/Mount Pipe	192	BXA-171063/12CF w/ Mount Pipe	162
AIR 21 B4A/B2P w/Mount Pipe	192	LPA-80063/6CF w/ Mount Pipe	162
KRY 112 144/1	192	LPA-80063/6CF w/ Mount Pipe	162
KRY 112 144/1	192	(2) RFS FD9R6004/2C-3L Diplexer	162
KRY 112 144/1	192	(2) RFS FD9R6004/2C-3L Diplexer	162
(3) T-Frames	192	(2) RFS FD9R6004/2C-3L Diplexer	162
PD1151	184	(3) T-Frames	162
Standoff	184	(2) RRUS-11	152
APXVTM14-C-I20 w/Mount Pipe	182	(2) RRUS-11	152
APXVTM14-C-I20 w/Mount Pipe	182	(2) RRUS-11	152
APXVTM14-C-I20 w/Mount Pipe	182	Raycap DC6-48-60-18-8F	152
TD-RRH8x20-25	182	(3) T-Frames	152
TD-RRH8x20-25	182	(3) AM-X-CD-14-65-00T w/ Mount Pipe	152
TD-RRH8x20-25	182	(3) AM-X-CD-14-65-00T w/ Mount Pipe	152
APXVSPP18-C-A20 w/Mount Pipe	182	(3) AM-X-CD-14-65-00T w/ Mount Pipe	152
APXVSPP18-C-A20 w/Mount Pipe	182	7770 w/ Mount Pipe	152
APXVSPP18-C-A20 w/Mount Pipe	182	7770 w/ Mount Pipe	152
RRU-ALU 1900MHZ	182	7770 w/ Mount Pipe	152
RRU-ALU 1900MHZ	182	(2) TT19-08BP111-001 TMA	152
RRU-ALU 1900MHZ	182	(2) TT19-08BP111-001 TMA	152
RRU-ALU 800MHZ	182	(2) TT19-08BP111-001 TMA	152
RRU-ALU 800MHZ	182	TMA - LGP13519	152
RRU-ALU 800MHZ	182	TMA - LGP13519	152
Filter- ALU 800MHZ	182	TMA - LGP13519	152
Filter- ALU 800MHZ	182	Combiner - CSS DBC-750	152
Filter- ALU 800MHZ	182	Combiner - CSS DBC-750	152
(2) ACU-A20-N RET	182	Combiner - CSS DBC-750	152
ACU-A20-N RET	182	Sinclair SD312HL	140
ACU-A20-N RET	182	Sinclair SD312HL	140
(3) T-Frames	182	Sinclair SD312HL	140
BXA-70063/6CF w/ Mount Pipe	162	(3) Standoffs	140
BXA-70063/6CF w/ Mount Pipe	162	Pipe Mount	100
BXA-70063/6CF w/ Mount Pipe	162	RDH4518A	100

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Middlesex 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: 98.2%

MAX. CORNER REACTIONS AT BASE:
DOWN: 300 K
SHEAR: 30 K

UPLIFT: -255 K
SHEAR: 27 K

AXIAL
83 K
SHEAR
14 K
MOMENT
1670 kip-ft

TORQUE 5 kip-ft
38 mph WIND - 0.7500 in ICE

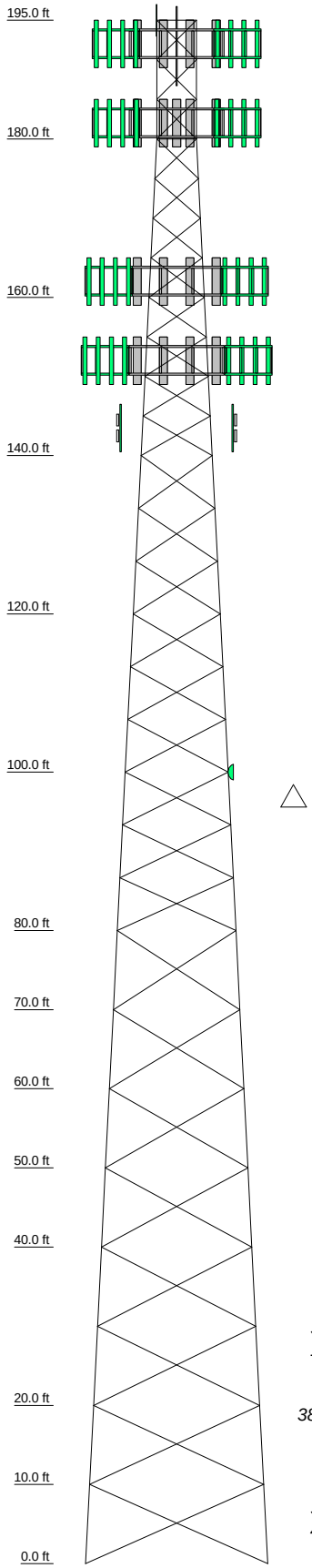
AXIAL
41 K
SHEAR
49 K
MOMENT
5511 kip-ft

TORQUE 17 kip-ft
REACTIONS - 85 mph WIND

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC
Phone: 919-755-1012
FAX: 919-755-1031
Tower Analysis

Job: Clinton 4, CT01879-S-03			
Project: 1465YH1400			
Client: SBA Network Services, Inc.	Drawn by: Sean O'Sullivan	App'd:	
Code: TIA/EIA-222-F	Date: 06/03/14	Scale: NTS	
Path:		Dwg No. E-1	

Section		T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13		
Legs		P2x.154 (2.38 OD)	P3x.216 (3.5 OD)	P3x.300 (3.50 OD)	P4x.337 (4.50 OD)	P5x.375 (5.5625 OD)	P6x.28 (6.625 OD)	P6x.432 (6.625 OD)			P8x.322 (8.625 OD)		P8x.5 (8.625 OD)			
Leg Grade		A572-50														
Diagonals		L4x4x1/4	L3 1/2x4x1/4	L3 1/2x3 1/2x1/4	L3x3x3/8	L3x3 1/2x1/4	L3x3x3/8	L3x3x1/4	L3x3x3/16	L2 1/2x2 1/2x3/16		L2x2x3/16	L1 3/4x1 3/4x3/16			
Diagonal Grade		A36														
Top Girts		N.A.										L1 3/4x1 3/4x3/16				
Face Width (ft)	23	22	21	19	18	17	16	15	13	11	9	7	5			
# Panels @ (ft)		8 @ 10						9 @ 6.66667				11 @ 5				
Weight (K)	22.3	2.3	2.2	3.3	1.8	1.5	1.7	1.4	2.2	2.0	1.6	1.2	0.9	0.5		



MATERIAL STRENGTH

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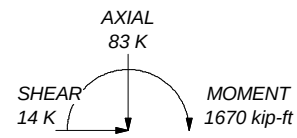
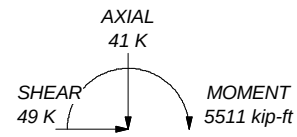
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 98.2%

MAX. CORNER REACTIONS AT BASE:
DOWN: 290 K
SHEAR: 30 K

UPLIFT: -255 K
SHEAR: 27 K



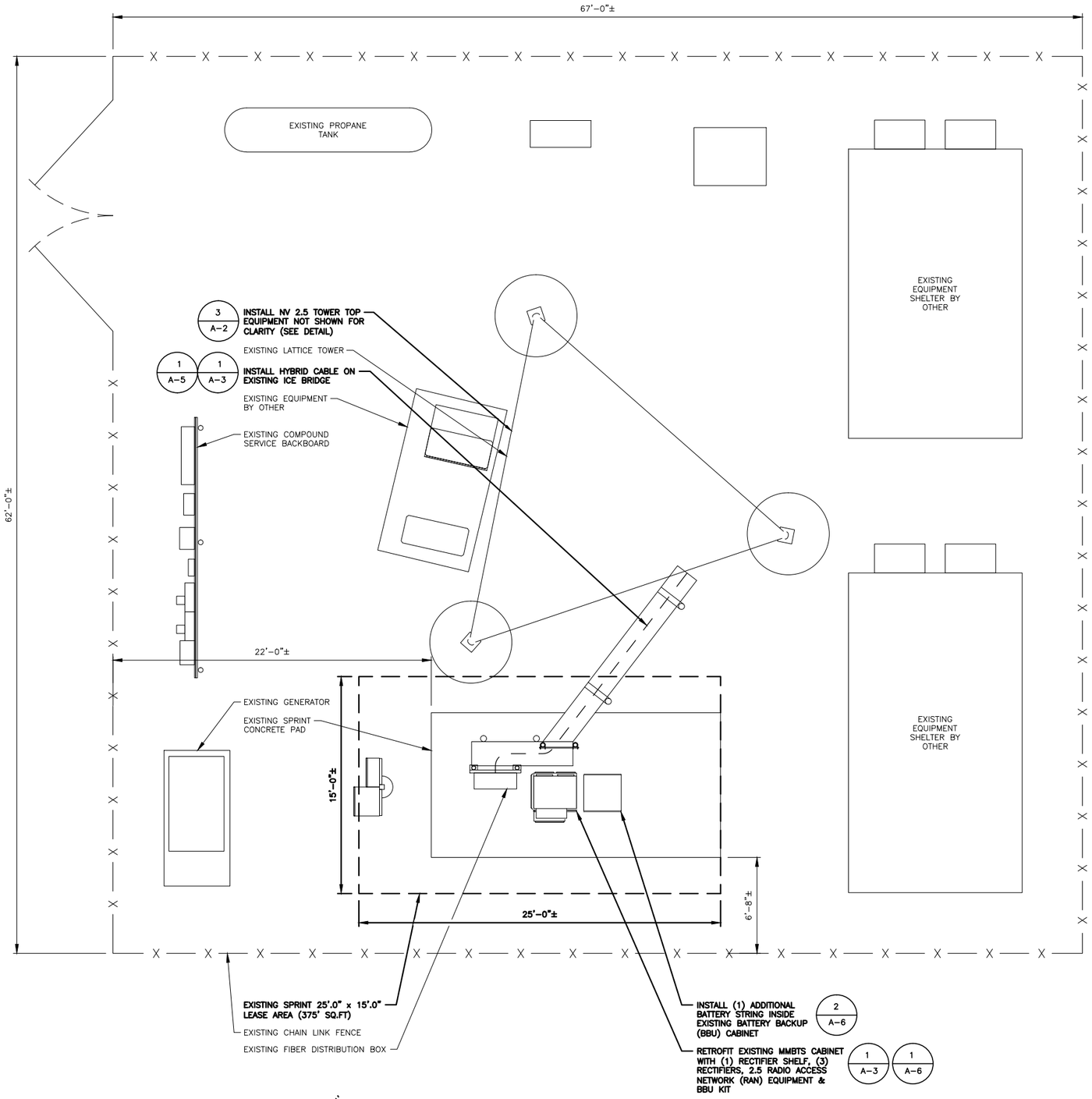
TORQUE 5 kip-ft
38 mph WIND - 0.7500 in ICE



TORQUE 17 kip-ft
REACTIONS - 85 mph WIND

FDH Engineering, Inc.
6521 Meridien Drive
Raleigh, NC
Phone: 919-755-1012
FAX: 919-755-1031
Tower Analysis

Job: Clinton 4, CT01879-S-03			
Project: 1465YH1400			
Client: SBA Network Services, Inc.	Drawn by: Sean O'Sullivan	App'd:	
Code: TIA/EIA-222-F	Date: 06/03/14	Scale: NTS	
Path:		Dwg No. E-1	



COMPOUND PLAN
SCALE: 1/4"=1'-0" (1 A-1)

GRAPHIC SCALE

SOURCE: HDG 05-01-14

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

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

Daniel P. Hamm

CHECKED BY: KB

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	05/22/14	ISSUED FOR CONSTRUCTION	SF
0	05/09/14	ISSUED FOR CONSTRUCTION	SF

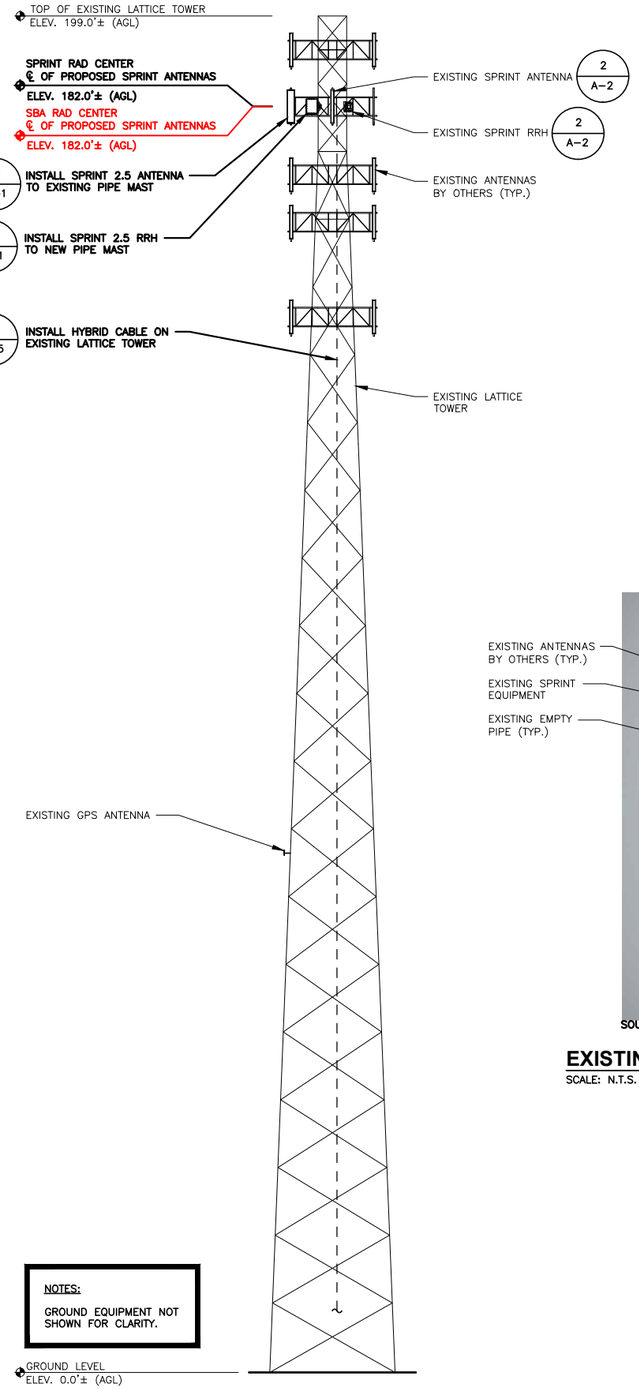
SITE NUMBER:
CT54XC764-B

SITE NAME:
CLINTON-SBA

SITE ADDRESS:
46 MEADOW ROAD
CLINTON, CT 06413

SHEET TITLE
COMPOUND PLAN

SHEET NUMBER
A-1



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 05-01-14

EXISTING PARTIAL ELEVATION PHOTO DETAIL

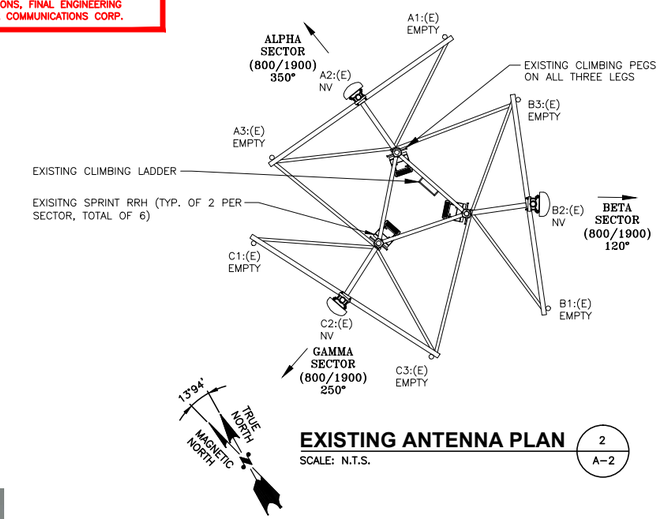
SCALE: N.T.S.

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.

SPECIAL CONSTRUCTION NOTE:
THE SPRINT NETWORK VISION 2.5 GHZ TOWER TOP WORK IS CONTINGENT UPON COMPLETION OF ALL REQUIRED STRUCTURAL MODIFICATIONS, ENGINEERING CONSTRUCTION CONTROL INSPECTIONS, FINAL ENGINEERING AFFIDAVIT, AND ACCEPTENCE/APPROVAL BY SBA COMMUNICATIONS CORP.

NOTE:

EXISTING AZIMUTHS FROM EXISTING FINAL CD DATED 11/02/12



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:

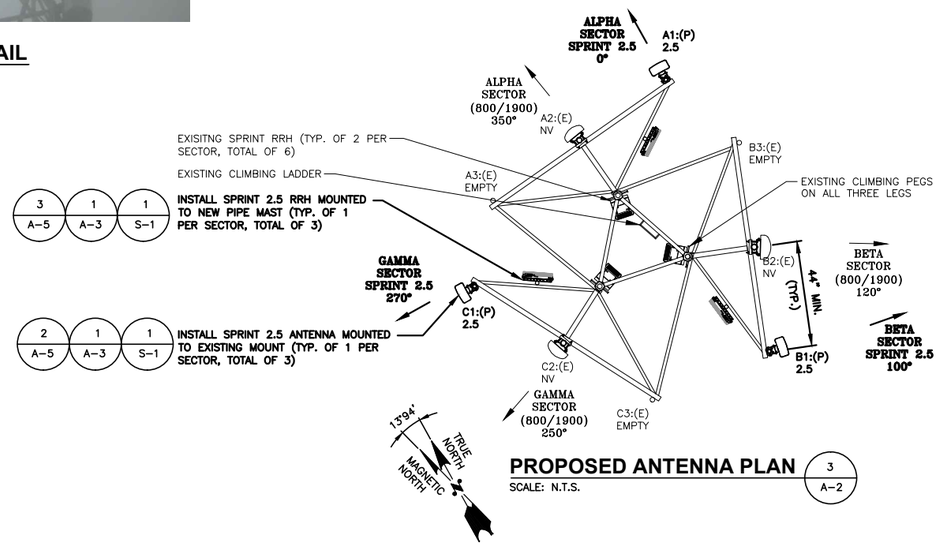
EMPTY – EMPTY PIPE

(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.

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

SBA
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SUBMITTALS

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CT54XC764-B

SITE NAME:
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SITE ADDRESS:
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CLINTON, CT 06413

SHEET TITLE

ELEVATION AND ANTENNA PLANS

SHEET NUMBER

A-2