

February 21, 2018

Melanie A. Bachman, Esq.  
Executive Director/Staff Attorney  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

Re: **Notice of Exempt Modification – Facility Modification**  
**150 Willow Street, Hamden, Connecticut**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) antennas at the 147-foot level of an existing 157-foot monopole tower at 150 Willow Street in Hamden, Connecticut (the “Property”). The tower is owned by Sprint Sites USA (“Sprint”). Cellco’s use of the tower was approved by the Council in 2008. Cellco now intends to replace six (6) of its existing antennas with three (3) model JAHH-65B-R3B, 700/2100 MHz antennas and three (3) model JAHH-65B-R3B, 850 MHz antennas, all at the same level on the tower. Cellco also intends to install nine (9) new remote radio heads (“RRHs”) behind its antennas. Included in Attachment 1 are specifications for Cellco’s replacement antennas and RRHs.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Hamden Mayor Curt B. Leng; Daniel Kops, Hamden’s Town Planner; Hamden Fish & Game Protective Association, the owner of the Property; and Sprint, the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco’s replacement antennas and new RRHs will be installed at the same 147-foot level on the tower.

17527564-v1


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2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table for Cellco's modified facility is included behind Attachment 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support Cellco's proposed modifications. (See Structural Analysis Report included in Attachment 3).

A copy of the parcel map and owner information for the Property is included in Attachment 4. A Certificate of Mailing verifying that this filing was sent to municipal officials and the owner of the Property is included in Attachment 5.

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,



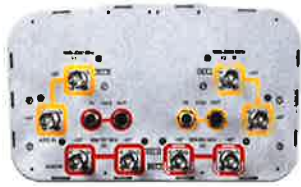
Kenneth C. Baldwin

Enclosures

Copy to:

Curt B. Leng, Hamden Mayor  
Daniel Kops, Hamden Town Planner  
Sprint Sites USA  
Hamden Fish & Game Protective Association  
Tim Parks

# **ATTACHMENT 1**



## JAHH-65B-R3B

**8-port sector antenna, 2x 698–787, 2x 824–894 and 4x 1695–2360 MHz, 65° HPBW, 3x RET and low bands have diplexers. Internal SBT's on first LB(Port 1) and first HB (Port 5).**

- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One RET for 700MHz, one RET for 850MHz, and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO
- Internal filter on low band and interleaved dipole technology providing for attractive, low wind load mechanical package
- Separate RS-485 RET input/output for low and high band

### Electrical Specifications

Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.5	15.8	18.0	18.4	18.5	18.8
Beamwidth, Horizontal, degrees	67	65	63	63	65	68
Beamwidth, Vertical, degrees	12.4	10.5	5.7	5.2	4.9	4.4
Beam Tilt, degrees	2–14	2–14	0–10	0–10	0–10	0–10
USLS (First Lobe), dB	18	18	20	20	21	23
Front-to-Back Ratio at 180°, dB	32	34	31	35	36	38
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
VSWR   Return Loss, dB	1.5   14.0	1.5   14.0	1.5   14.0	1.5   14.0	1.5   14.0	1.5   14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

### Electrical Specifications, BASTA\*

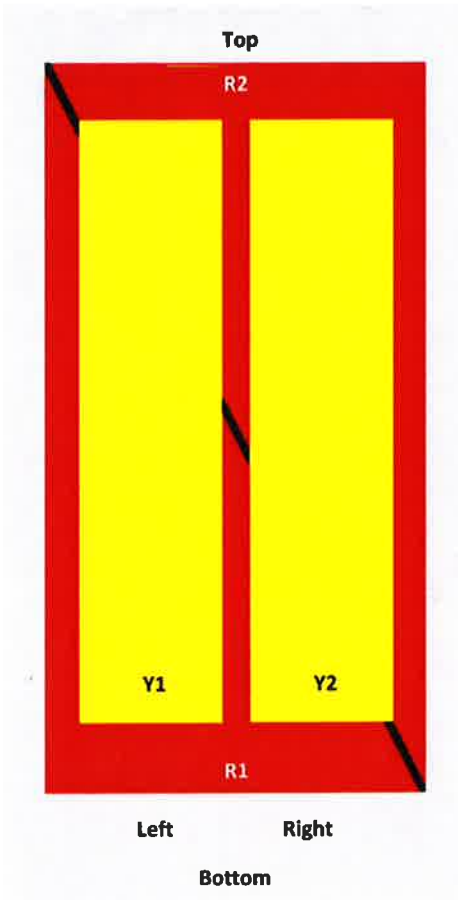
Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.3	14.9	17.6	18.1	18.2	18.5
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.5	±0.6	±0.4	±0.5	±0.6
Gain by Beam Tilt, average, dBi	2°   14.3	2°   15.0	0°   17.2	0°   17.6	0°   17.7	0°   17.9
	8°   14.3	8°   14.9	5°   17.6	5°   18.2	5°   18.3	5°   18.7
	14°   14.3	14°   15.4	10°   17.6	10°   18.2	10°   18.3	10°   18.7
Beamwidth, Horizontal Tolerance, degrees	±1.2	±1.4	±4	±2.4	±2.9	±2.7
Beamwidth, Vertical Tolerance, degrees	±0.9	±0.5	±0.3	±0.2	±0.3	±0.1
USLS, beampeak to 20° above beampeak, dB	18	17	17	18	19	18
Front-to-Back Total Power at 180° ± 30°, dB	25	24	26	29	27	29
CPR at Boresight, dB	22	23	20	21	21	24
CPR at Sector, dB	11	12	11	11	11	8

\* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, [download the whitepaper Time to Raise the Bar on BSAs.](#)

JAHH-65B-R3B

## Array Layout

JAHH-65A-R3B JAHH-65B-R3B JAHH-65C-R3B



Array	Freq (MHz)	Conns	RET (SRET)	AISG RET UID
R1	698-798	1-2	1	ANXXXXXXXXXXXXX1
R2	824-894	3-4	2	ANXXXXXXXXXXXXX2
Y1	1695-2360	5-6	3	ANXXXXXXXXXXXXX3
Y2	1695-2360	7-8		

View from the front of the antenna

(Sizes of colored boxes are not true depictions of array sizes)

## General Specifications

Operating Frequency Band	1695 – 2360 MHz   698 – 787 MHz   824 – 894 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage

## Mechanical Specifications

RF Connector Quantity, total	8
RF Connector Quantity, low band	4
RF Connector Quantity, high band	4
RF Connector Interface	4.3-10 Female

JAHH-65BR3B

Color	Light gray
Grounding Type	RF connector body grounded to reflector and mounting bracket
Radiator Material	Aluminum   Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	746.0 N @ 150 km/h 167.7 lbf @ 150 km/h
Wind Loading, lateral	243.0 N @ 150 km/h 54.6 lbf @ 150 km/h
Wind Loading, rear	776.0 N @ 150 km/h 174.5 lbf @ 150 km/h
Wind Speed, maximum	241 km/h   150 mph

## Dimensions

Length	1828.0 mm   72.0 in
Width	350.0 mm   13.8 in
Depth	208.0 mm   8.2 in
Net Weight, without mounting kit	28.7 kg   63.3 lb

## Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1   Port 5
Internal RET	High band (1)   Low band (2)
Power Consumption, idle state, maximum	2 W
Power Consumption, normal conditions, maximum	13 W
Protocol	3GPP/AISG 2.0 (Single RET)
RET Interface	8-pin DIN Female   8-pin DIN Male
RET Interface, quantity	2 female   2 male

## Packed Dimensions

Length	1975.0 mm   77.8 in
Width	456.0 mm   18.0 in
Depth	357.0 mm   14.1 in
Shipping Weight	42.0 kg   92.6 lb

## Regulatory Compliance/Certifications

<b>Agency</b>	<b>Classification</b>
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system



JAHH-65B-R3B

## Included Products

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BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

## \* Footnotes

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Performance Note      Severe environmental conditions may degrade optimum performance

# ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

**Supporting 2Tx/4Tx MIMO and 4-way Rx diversity**, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

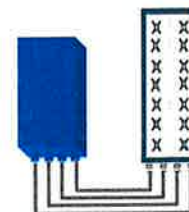


## FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

## BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R  
or  
2x60W with 2T4R  
Can be switched between  
modes via SW w/o site  
visit



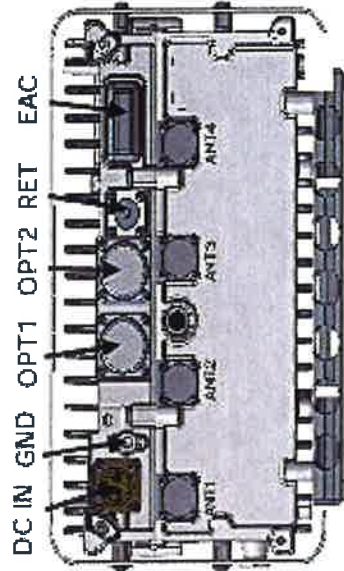
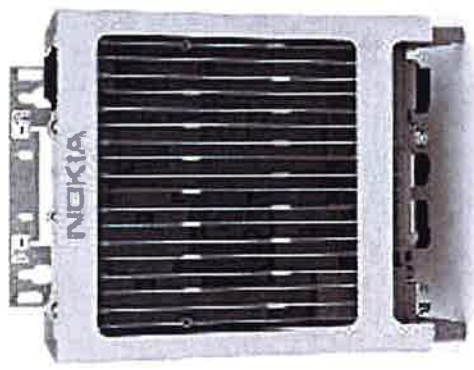
## TECHNICAL SPECIFICATIONS

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (in 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield)
Volume in L	38 (with solar shield)
Weight in kg (lb) (w/o mounting HW)	26 (57.2) (with solar shield)
DC voltage range	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	550W typical @100% RF load ( in 2Tx or 4Tx mode)
Environmental conditions	-40°C (-40°F) /+55°C (+131°F)
Wind load (@150km/h or 93mph)	IP65 Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate7, 9.8 Gbps) SFP single mode dual fiber
AISG interfaces	1 AISG2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

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# AHCA AirScale RRH 4T4R B5 160W

Supported Frequency bands	3GPP band 5
Frequencies	DL 869-894MHz, UL 824-849MHz
Number of TX/RX paths/pipes	4TX/4RX
Instantaneous Bandwidth IBW	25MHz (Full Band)
Occupied Bandwidth OBW	25MHz (Full Band)
Output Power	4T4R @ 40W / 2T4R @ 60W
RF Sharing	LTE, WCDMA, LTE + NB-IoT supported
256 QAM Back Off	No backoff at 40W and 0.8dB at 60W.
Supply Voltage / Voltage Range	DC-48V / -36V to -60V
Typical Power Consumption	365W [50% ETSI Busy Hour Load at 4 TX @ 40W]
	529W [100% RF Load at 4 TX @ 40W]
	574W [100% RF Load at 4 TX @ 40W with SBT and AISG ON]
Antenna Ports	4 Ports, 4.3-10+
Optical Ports	2x CPRI 9.8 Gbps
ALD Control Interfaces	AISG.0 from ANT1, 2, 3, 4 and RET (Power supply ANT1 and ANT3)
Other Interfaces	External Alarm MOR-26 Serial connector (4 inputs, 1 Output) DC Circular Power Connector



Operational Temperature Range	-40°C to 55°C (with solar cover)
Dimensions (mm)	337 x 295 x 165 (radio only)
Height x width x depth	13.3" x 11.7" x 6.5" 428 x 324 x 208 (with bracket and enclosure) 16.9" x 12.8" x 8.2"
Volume (liters)	16.5
Weight (kg)	16/ 35.3 lb - w/o bracket
Ingress protection class	IP65
Installation options	Pole or Wall, Vertical or Horizontal Book Mount
Surge protection	Class II 5kA



# B66a RRH4x45W

## Datasheet

Radio Technology

FDD-LTE

### Feature description:

- Remote Radio Head 4x4.5W or 2x90W Switchable via SW

Power Output 4 x 4.5 W or 2x90W (SW Switchable)  
w/o fans

IBW

70MHz

OBW

60 MHz

RF Sharing

LTE

Mass/Volume

25.8kg/56.9 lb Weight  
655H x 299W x 182D mm  
25.8" x 11.8" x 7.2"  
29.7L / 35.5L

Antenna Conf.

4Tx/4Rx

Temperature

-40 to 55 °C

IP class

IP65

Input Power

DC 48 V

Cooling

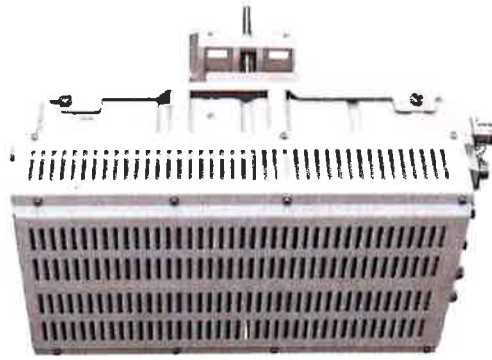
Natural Convection

Mounting

Wall, Pole mount

BBU connection

2x 9.8Gbps SFP(Rate 7 HW ready)



## B66a RRH 4x45 – Interfaces

### Power:

- Max power: 816W (add 58W for AISG)
- Breaker size: 25A
- Max distance with 6ga power feed and 5.5V drop: 284 feet

### RF Interfaces:

- 4.3/10 Connectors
- No monitoring ports(Spectrum analyzer SW takes place of monitoring ports)

### AISG:

- Two Smart Bias-T
- One AISG port

## B66 Details

- Max power for a single carrier is:
  - 2x60W for 10,15,20 MHz carrier
  - 2x40W for 5 MHz carrier
- Multi-Carrier Support with AWS-1 carriers: 15.1
- Multi-Carrier Support with AWS-3 carriers: 16.2

### Carrier power: Multi-carrier

- Assuming 2 Tx power can be assigned per carrier subject to 40W max for 5Mhz, 60W for larger in 2T, cut that power in half for 4T
- Example:B4 (20Mhz) and AWS3 (10MHz)
  - Power can be varied between those two carriers, can go 60W for 20 MHz carrier, 30W for 10 MHz carrier to use the 90W in 2T.
  - It could be 45/45 for 20Mhz/10Mhz if desired.

# **ATTACHMENT 2**

Site Name: Hamden North 2 Tower Height: 157'		General		Power		Density					
CARRIER	# OF CHAN.	WATTS ERP	HEIGHT	CALC. POWER DENS	FREQ.	MAX. PERMISS. EXP.	FRACTION MPE	Total			
*T-Mobile	2	2334	137	2100	0.0978	1.0000	0.98%				
*T-Mobile	2	809	137	2100	0.0339	1.0000	0.34%				
*T-Mobile	4	1167	137	1900	0.0978	1.0000	0.98%				
*T-Mobile	1	865	137	700	0.0181	0.4667	0.39%				
*Sprint	1	310	157.5	850	0.0049	0.5667	0.09%				
*Sprint	2	310	157.5	850	0.0097	0.5667	0.17%				
*Sprint	5	495	157.5	1900	0.0388	1.0000	0.39%				
*Sprint	2	1236	157.5	1900	0.0387	1.0000	0.39%				
*Sprint	8	778	157.5	2500	0.0975	1.0000	0.98%				
*Pocket (now MetroPCS)	3	631	137	2130	0.0397	1.0000	0.40%				
<b>Verizon PCS</b>	<b>1</b>	<b>0</b>	<b>147</b>	<b>0.0000</b>	<b>1970</b>	<b>1.0000</b>	<b>0.00%</b>				
<b>Verizon Cellular</b>	<b>3</b>	<b>245</b>	<b>147</b>	<b>0.0122</b>	<b>876</b>	<b>0.5840</b>	<b>2.09%</b>				
<b>Verizon Cellular</b>	<b>1</b>	<b>1451</b>	<b>147</b>	<b>0.0241</b>	<b>869</b>	<b>0.5793</b>	<b>4.17%</b>				
<b>Verizon AWS</b>	<b>1</b>	<b>3214</b>	<b>147</b>	<b>0.0535</b>	<b>2145</b>	<b>1.0000</b>	<b>5.35%</b>				
<b>Verizon 700</b>	<b>1</b>	<b>945</b>	<b>147</b>	<b>0.0157</b>	<b>746</b>	<b>0.4973</b>	<b>3.16%</b>				
								<b>19.9%</b>			
* Source: Siting Council											

# **ATTACHMENT 3**





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## Structural Analysis Report

Prepared for:

**Sprint Sites USA - GA 2**

**1765 Grassland Parkway**

**Suite A**

**Alpharetta, GA 30004**

**ATTN: Ms. Debby MacMaster**

**Structure** : 157 ft Monopole  
**Site ID** : CT54XC773  
**Proposed Carrier** : Verizon  
**Site Name** : Hamden, CT  
**Site Location** : 150 Willow Street  
Hamden, CT  
41.44939, -72.90457  
**County** : New Haven  
**Date** : January 5, 2018  
**Max Usage** : 54%  
**Result** : Pass

Prepared By:  
Courtney Bateman  
Structural Engineer

*Courtney Bateman*





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## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 157 ft monopole to reflect the change in loading by Verizon.

## Supporting Documents

<b>Tower Drawings</b>	EEl Project #14977, dated July 17, 2007
<b>Foundation Drawing</b>	EEl Project #14977, dated July 17, 2007
<b>Geotechnical Report</b>	JGI Project #J2075344, dated June 29, 2007

## Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

<b>Basic Wind Speed:</b>	105 mph (3-Second Gust) Vasd / 136 mph (3-Second Gust) Vult
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2012 IBC w/ 2005 CT Supplement & 2009 CT Amendment
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	B
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Spectral Response:</b>	$S_s = 0.19, S_1 = 0.06$
<b>Site Class:</b>	D - Stiff Soil

## Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact Semaan Engineering Solutions at 402-289-1888.



### Existing and Reserved Equipment

Elevation <sup>1</sup> (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	RAD					
157.0	157.5	3	800MHz RRH	Platform w/ Rail	(12) 1 5/8" Fiber (3) 1 1/4" Fiber (1) Trunk Line (2) 1/2" (3) RET	Sprint
		6	TD-RRH-8X20			
		3	APXVTM14-C-I20			
		3	96" x 14" x 7" Panel			
		12	16" x 9" x 6" Combiners			
		2	26" Microwave			
		1	GPS Antenna			
		9	RET Kit			
		2	ODU			
		6	1900MHz RRH			
		6	800 MHz Notch Filter			
		3	APXVSP18-C-A20			
		147.0	147.0			
6	FD9R6004-2C-3L					

### Equipment to be Removed

Elevation <sup>1</sup> (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	RAD					
147.0	147.0	3	MG D3-800T0	-	-	Verizon
		1	BXA-70080/6CF			
		2	BXA-70063/6CF			

### Proposed Equipment

Elevation <sup>1</sup> (ft)		Qty.	Antenna	Mount Type	Coax (in)	Carrier
Mount	RAD					
147.0	147.0	3	RRH 2x60 LTE	Existing Low Profile Platform	-	Verizon
		3	RRH 90W AWS			
		2	DB-T1-6Z-8AB-OZ			
		6	JAHH-65B-R3B			
		3	RRH 4x40-850			

<sup>1</sup>Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).



### Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	23%	Pass
Shaft	54%	Pass
Base Plate	24%	Pass

### Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	3,220.5	37%
Axial (Kips)	80.1	37%
Shear (Kips)	28.3	23%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

### Deflection and Sway\*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
157.0	26" Microwave	Sprint	0.996	0.834
147.0	RRH 2x60 LTE	Verizon	0.853	0.794
	RRH 90W AWS			
	DB-T1-6Z-8AB-0Z			
	JAHH-65B-R3B			
	RRH 4x40-850			

\*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G



## **Standard Conditions**

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of Semaan Engineering Solutions, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Semaan Engineering Solutions Holdings and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

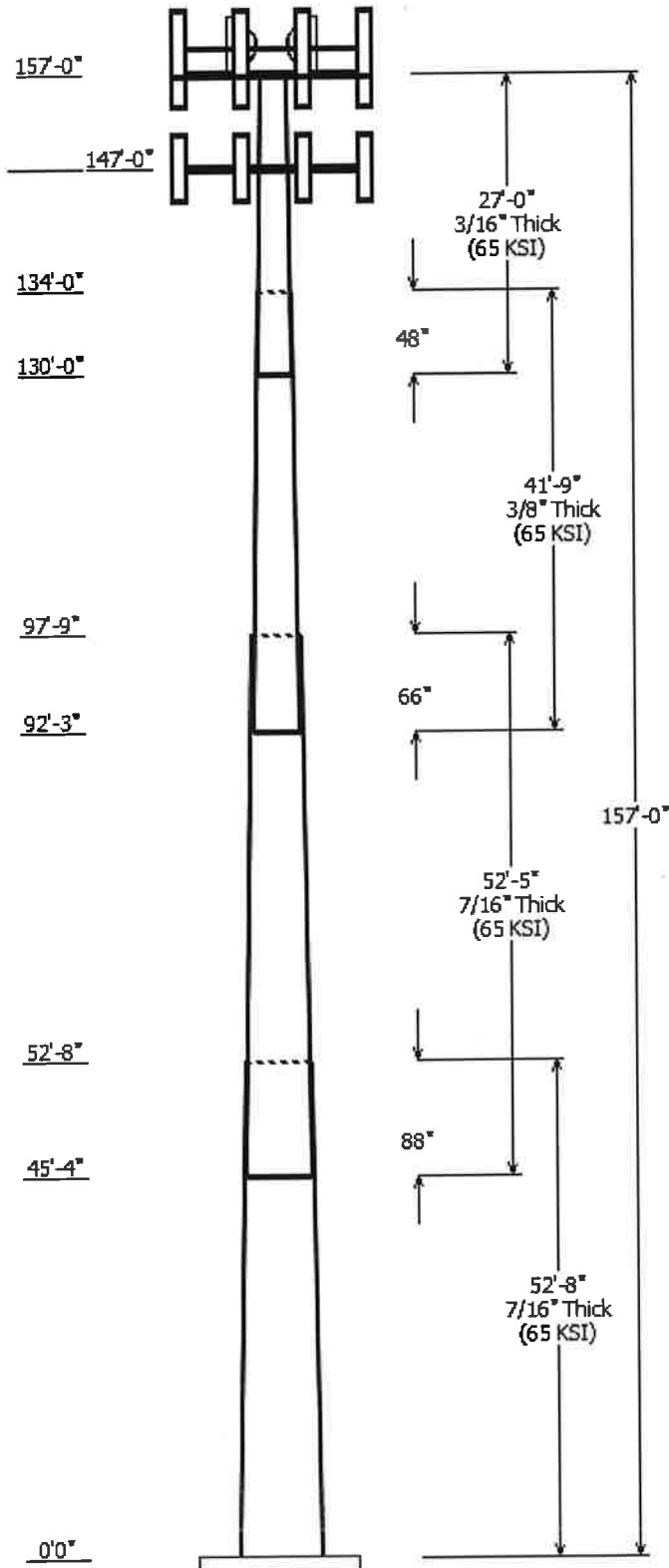
Unless explicitly agreed by both the client and Semaan Engineering Solutions, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Semaan Engineering Solutions Holdings is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

**SEMAAN ENGINEERING SOLUTIONS, LLC**

1079 N.205<sup>th</sup> Street  
 Elkhorn, NE 68022  
 Phone: 402-289-1888  
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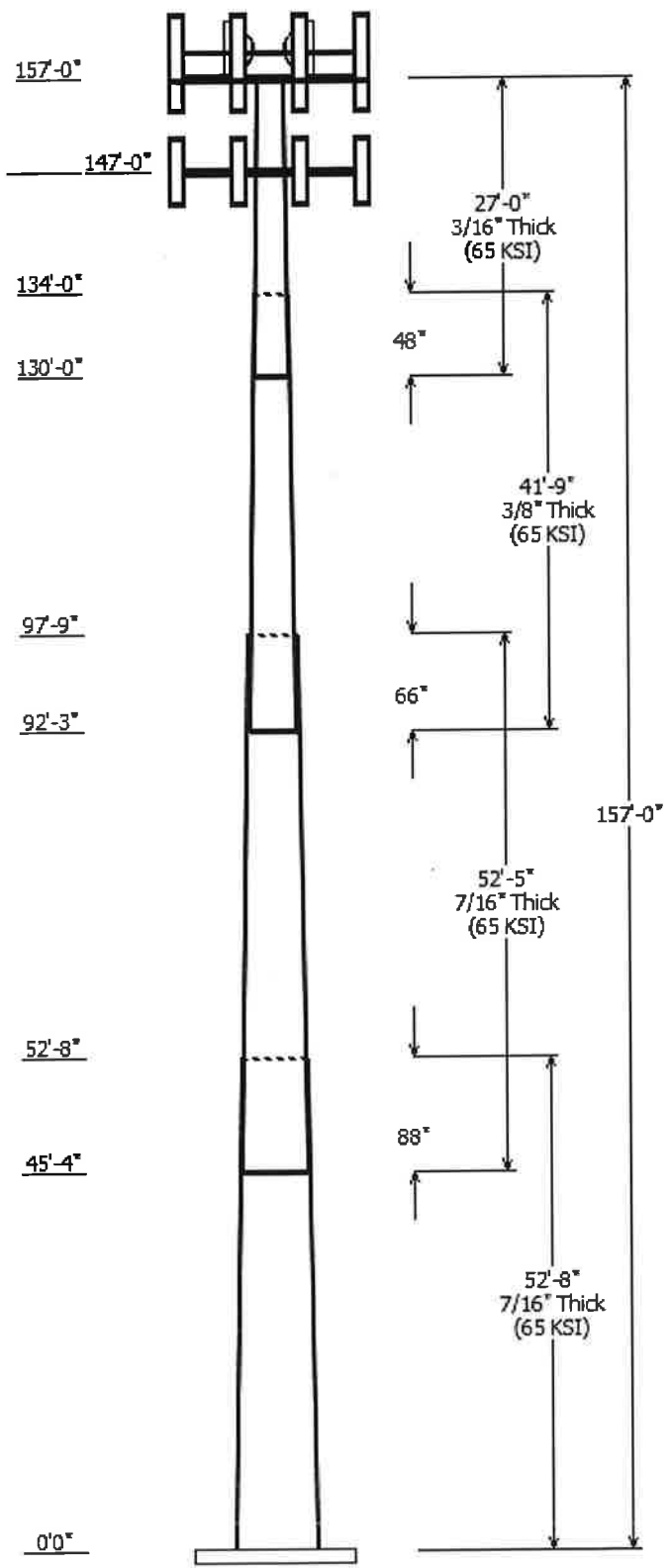
Job Information	
Pole :	CT54XC773
Code:	ANSI/TIA-222-G
Description :	
Client :	Sprint Sites USA - GA 2
Struct Class :	II
Location :	Hamden, CT
Shape :	18 Sides
Exposure :	B
Height :	157.00 (ft)
Topo :	1
Base Elev (ft):	1.00
Taper:	0.32802(in/ft)

Sections Properties								
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
		Across Top	Flats Bottom					
1	52.667	50.72	68.00	0.438		0.000	0.328026	65
2	52.417	36.81	54.00	0.438	Slip Joint	88.000	0.328026	65
3	41.750	25.67	39.36	0.375	Slip Joint	66.000	0.328026	65
4	27.000	18.50	27.35	0.188	Slip Joint	48.000	0.328026	65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
157.000	157.000	2	ODU
157.000	157.500	9	RET Kit
157.000	157.500	1	GPS Antenna
157.000	157.500	2	26" Microwave
157.000	157.500	12	16" x 9" x 6" Combiners
157.000	157.500	3	96" x 14" x 7" Panel
157.000	157.500	3	APXVTM14-C-I20
157.000	157.500	6	TD-RRH-8X20
157.000	157.500	1	Collar Mount
157.000	157.500	3	800MHz RRH
157.000	157.500	3	APXVSP18-C-A20
157.000	157.500	6	800 MHz Notch Filter
157.000	158.500	1	Platform w/ Rail
157.000	157.500	6	1900MHz RRH
147.000	147.000	3	RRH 4x40-850
147.000	147.000	6	JAHH-65B-R3B
147.000	147.000	2	DB-T1-6Z-8AB-0Z
147.000	147.000	3	RRH 90W AWS
147.000	147.000	3	RRH 2x60 LTE
147.000	147.000	6	LPA-80080/4CF
147.000	147.000	1	Low Profile Platform
147.000	147.000	6	FD9R6004-2C-3L

Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
0.000	147.0	1 5/8" Coax	No
0.000	147.0	1 5/8" Fiber	No
0.000	157.0	1 1/4" Fiber	No
0.000	157.0	1 5/8" Fiber	No
0.000	157.0	1/2" Coax	No
0.000	157.0	RET Cable	No
0.000	157.0	Trunk Line	No

Load Cases	
1.2D + 1.6W	105 mph with No Ice
0.9D + 1.6W	105 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method

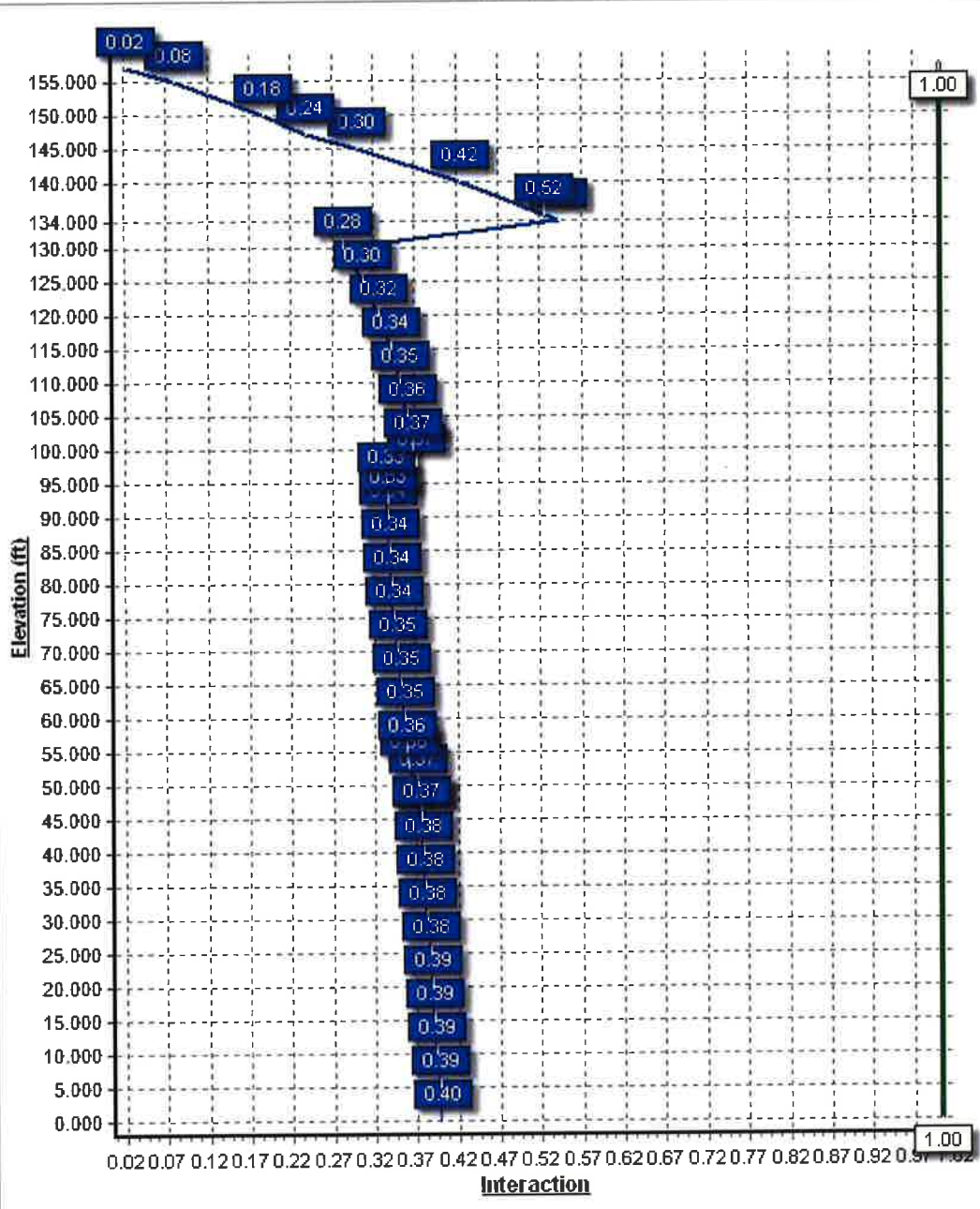


$(1.2 + 0.2Sds) * DL + E$	Seismic Equivalent Modal Analysis Method
$(0.9 - 0.2Sds) * DL + E$	Seismic (Reduced DL) Equivalent Lateral
$(0.9 - 0.2Sds) * DL + E$	Seismic (Reduced DL) Equivalent Modal
$1.0D + 1.0W$	Serviceability 60 mph

Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	3220.54	28.34	55.29
0.9D + 1.6W	3197.69	28.33	41.46
1.2D + 1.0Di + 1.0Wi	712.15	6.62	80.14
$(1.2 + 0.2Sds) * DL + E$ E LFM	263.58	2.13	54.94
$(1.2 + 0.2Sds) * DL + E$ EMAM	421.27	3.31	54.94
$(0.9 - 0.2Sds) * DL + E$ E LFM	261.38	2.13	38.12
$(0.9 - 0.2Sds) * DL + E$ EMAM	417.41	3.31	38.12
1.0D + 1.0W	654.41	5.78	46.09

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	157.00	12.009	0.838





Site Number: CT54XC773  
Site Name: Hamden, CT  
Customer: Sprint Sites USA - GA 2

Code: ANSI/TIA-222-G  
Engineering Number: REV08

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### Analysis Parameters

Location:	New Haven County, CT	Height (ft):	157
Code:	ANSI/TIA-222-G	Base Diameter (in):	68.00
Shape:	18 Sides	Top Diameter (in):	18.50
Pole Type:	Taper	Taper (in/ft) :	0.328
Pole Manufacturer:	EE		

### Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	105 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	0.50 in

### Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	1.89		
T <sub>L</sub> (sec):	6	p:	1.3
S <sub>s</sub> :	0.186	S <sub>1</sub> :	0.063
F <sub>a</sub> :	1.600	F <sub>v</sub> :	2.400
S <sub>ds</sub> :	0.198	S <sub>d1</sub> :	0.101
		C <sub>s</sub> :	0.036
		C <sub>s</sub> Max:	0.036
		C <sub>s</sub> Min:	0.030

### Load Cases

1.2D + 1.6W	105 mph with No Ice
0.9D + 1.6W	105 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2S <sub>ds</sub> ) * DL + EELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2S <sub>ds</sub> ) * DL + EEMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2S <sub>ds</sub> ) * DL + EELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2S <sub>ds</sub> ) * DL + EEMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: CT54XC773  
 Site Name: Hamden, CT  
 Customer: Sprint Sites USA - GA 2

Code: ANSI/TIA-222-G

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Engineering Number: REV08

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**Shaft Section Properties**

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	52.667	0.4375	65		0.00	14,663	68.00	0.00	93.82	54105.3	26.00	155.43	50.72	52.67	69.83	22308.8	19.03	115.94	0.328026
2-18	52.417	0.4375	65	Slip	88.00	11,138	54.00	45.33	74.38	26965.9	20.35	123.44	36.81	97.75	50.51	8442.3	13.43	84.14	0.328026
3-18	41.750	0.3750	65	Slip	66.00	5,435	39.36	92.25	46.41	8913.0	17.10	104.97	25.67	134.00	30.11	2433.6	10.66	68.45	0.328026
4-18	27.000	0.1875	65	Slip	48.00	1,243	27.35	130.00	16.17	1507.9	24.32	145.90	18.50	157.00	10.90	461.7	15.99	98.67	0.328026
Shaft Weight						32,479													

**Discrete Appurtenance Properties**

Attach Elev (ft)	Description	Qty	No Ice			Ice			Distance From Face (ft)	Vert Ecc (ft)
			Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor		
157.00	16" x 9" x 6" Combiners	12	10.00	1.200	0.50	36.40	2.531	0.50	0.000	0.500
157.00	1900MHz RRH	6	60.00	3.010	0.67	168.11	3.276	0.67	0.000	0.500
157.00	26" Microwave	2	90.00	3.960	1.00	223.24	5.152	1.00	0.000	0.500
157.00	800 MHz Notch Filter	6	8.82	0.750	0.50	33.31	1.013	0.50	0.000	0.500
157.00	800MHz RRH	3	64.00	2.480	0.67	154.95	3.636	0.67	0.000	0.500
157.00	96" x 14" x 7" Panel	3	70.00	13.000	0.79	358.36	14.651	0.79	0.000	0.500
157.00	APXVSPP18-C-A20	3	57.00	8.260	0.80	257.78	9.321	0.80	0.000	0.500
157.00	APXVTM14-C-I20	3	54.90	6.430	0.76	208.66	7.021	0.76	0.000	0.500
157.00	Collar Mount	1	250.00	5.000	1.00	863.62	13.766	1.00	0.000	0.500
157.00	GPS Antenna	1	1.00	0.388	1.00	20.18	0.651	1.00	0.000	0.500
157.00	ODU	2	11.00	0.910	1.00	46.59	1.320	1.00	0.000	0.000
157.00	Platform w/ Rail	1	2500.00	35.850	1.00	6,006.39	52.014	1.00	0.000	1.500
157.00	RET Kit	9	1.04	0.136	0.50	9.51	0.304	0.50	0.000	0.500
157.00	TD-RRH-8X20	6	70.00	4.800	0.67	184.18	4.951	0.67	0.000	0.500
147.00	DB-T1-6Z-8AB-0Z	2	44.00	5.600	1.00	187.39	5.672	1.00	0.000	0.000
147.00	FD9R6004-2C-3L	6	3.10	0.367	0.50	11.11	0.816	0.50	0.000	0.000
147.00	JAHH-65B-R3B	6	63.30	9.110	0.83	260.20	11.541	0.83	0.000	0.000
147.00	Low Profile Platform	1	1600.00	25.550	1.00	3,341.69	31.716	1.00	0.000	0.000
147.00	LPA-80080/ACF	6	12.00	6.057	0.71	147.02	6.390	0.71	0.000	0.000
147.00	RRH 2x60 LTE	3	57.00	2.160	0.67	138.52	2.788	0.67	0.000	0.000
147.00	RRH 4x40-850	3	88.00	2.890	0.67	213.27	3.135	0.67	0.000	0.000
147.00	RRH 90W AWS	3	62.00	2.470	0.67	138.86	3.167	0.67	0.000	0.000
Totals		88	7432.38			20,903.57			Number of Loadings :	22

**Linear Appurtenance Properties**

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Protected Flat	Width (in)	Exposed To Wind	Carrier
0.00	157.00	3	1 1/4" Fiber	1.25	0.95	N	0.00	N	Sprint
0.00	157.00	12	1 5/8" Fiber	1.98	1.78	N	0.00	N	Sprint
0.00	157.00	2	1/2" Coax	0.65	0.16	N	0.00	N	Sprint
0.00	157.00	3	RET Cable	0.44	0.08	N	0.00	N	Sprint
0.00	157.00	1	Trunk Line	1.25	0.95	N	0.00	N	Sprint
0.00	147.00	12	1 5/8" Coax	1.98	1.04	N	0.00	N	Verizon
0.00	147.00	2	1 5/8" Fiber	1.98	1.04	N	0.00	N	Verizon

Site Number: CT54XC773

Code: ANSI/TIA-222-G

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Site Name: Hamden, CT

Engineering Number: REV08

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Customer: Sprint Sites USA - GA 2

**Segment Properties** (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Fy (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)
0.00		0.4375	68.000	93.816	54,105.3	26.00	155.43	70.8	1567.	0.0	0.0
5.00		0.4375	66.360	91.538	50,259.8	25.33	151.68	71.6	1491.	0.0	1,576.8
10.00		0.4375	64.720	89.261	46,601.0	24.67	147.93	72.4	1418.	0.0	1,538.0
15.00		0.4375	63.080	86.983	43,124.3	24.01	144.18	73.2	1346.	0.0	1,499.3
20.00		0.4375	61.439	84.706	39,824.9	23.35	140.43	73.9	1276.	0.0	1,460.5
25.00		0.4375	59.799	82.428	36,698.2	22.69	136.68	74.7	1208.	0.0	1,421.8
30.00		0.4375	58.159	80.151	33,739.6	22.03	132.94	75.5	1142.	0.0	1,383.1
35.00		0.4375	56.519	77.874	30,944.5	21.37	129.19	76.3	1078.	0.0	1,344.3
40.00		0.4375	54.879	75.596	28,308.2	20.71	125.44	77.0	1016.	0.0	1,305.6
45.00		0.4375	53.239	73.319	25,826.0	20.05	121.69	77.8	955.5	0.0	1,266.8
45.33	Bot - Section 2	0.4375	53.130	73.167	25,665.9	20.00	121.44	77.9	951.5	0.0	83.1
50.00		0.4375	51.599	71.041	23,493.4	19.39	117.94	78.6	896.8	0.0	2,309.3
52.67	Top - Section 1	0.4375	51.599	71.042	23,493.7	19.39	117.94	78.6	896.8	0.0	1,289.3
55.00		0.4375	50.834	69.979	22,455.0	19.08	116.19	79.0	870.0	0.0	559.8
60.00		0.4375	49.193	67.701	20,333.2	18.42	112.44	79.7	814.1	0.0	1,171.2
65.00		0.4375	47.553	65.424	18,349.5	17.75	108.69	80.5	760.0	0.0	1,132.5
70.00		0.4375	45.913	63.146	16,499.1	17.09	104.94	81.3	707.8	0.0	1,093.7
75.00		0.4375	44.273	60.869	14,777.6	16.43	101.20	82.1	657.4	0.0	1,055.0
80.00		0.4375	42.633	58.592	13,180.1	15.77	97.45	82.6	608.9	0.0	1,016.2
85.00		0.4375	40.993	56.314	11,702.2	15.11	93.70	82.6	562.3	0.0	977.5
90.00		0.4375	39.353	54.037	10,339.0	14.45	89.95	82.6	517.5	0.0	938.7
92.25	Bot - Section 3	0.4375	38.615	53.012	9,761.9	14.15	88.26	82.6	497.9	0.0	409.8
95.00		0.4375	37.713	51.759	9,086.1	13.79	86.20	82.6	474.5	0.0	919.4
97.75	Top - Section 2	0.3750	37.561	44.258	7,732.1	16.25	100.16	82.3	405.5	0.0	897.7
100.0		0.3750	36.822	43.380	7,280.8	15.90	98.19	82.6	389.4	0.0	335.5
105.0		0.3750	35.182	41.428	6,341.4	15.13	93.82	82.6	355.0	0.0	721.5
110.0		0.3750	33.542	39.476	5,486.6	14.36	89.45	82.6	322.2	0.0	688.2
115.0		0.3750	31.902	37.524	4,712.2	13.59	85.07	82.6	290.9	0.0	655.0
120.0		0.3750	30.262	35.572	4,014.4	12.82	80.70	82.6	261.3	0.0	621.8
125.0		0.3750	28.622	33.620	3,389.1	12.05	76.32	82.6	233.2	0.0	588.6
130.0	Bot - Section 4	0.3750	26.982	31.667	2,832.4	11.28	71.95	82.6	206.8	0.0	555.4
134.0	Top - Section 3	0.1875	26.045	15.388	1,299.8	23.08	138.90	74.3	98.3	0.0	635.2
135.0		0.1875	25.717	15.192	1,251.0	22.77	137.15	74.6	95.8	0.0	52.0
140.0		0.1875	24.076	14.216	1,025.0	21.23	128.41	76.4	83.9	0.0	250.2
145.0		0.1875	22.436	13.240	828.1	19.69	119.66	78.2	72.7	0.0	233.6
147.0		0.1875	21.780	12.850	757.0	19.07	116.16	79.0	68.5	0.0	88.8
150.0		0.1875	20.796	12.264	658.1	18.15	110.91	80.1	62.3	0.0	128.2
155.0		0.1875	19.156	11.288	513.2	16.60	102.17	81.9	52.8	0.0	200.4
157.0		0.1875	18.500	10.898	461.7	15.99	98.67	82.6	49.2	0.0	75.5
<b>32,479.3</b>											

Site Number: CT54XC773  
 Site Name: Hamden, CT  
 Customer: Sprint Sites USA - GA 2

Code: ANSI/TIA-222-G

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Engineering Number: REV08

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**Load Case: 1.2D + 1.6W**

105 mph with No Ice

21 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		305.1	0.0					0.0	0.0	305.1	0.0	0.0	0.0
5.00		602.8	1,892.2					0.0	241.8	602.8	2,133.9	0.0	0.0
10.00		587.9	1,845.7					0.0	241.8	587.9	2,087.4	0.0	0.0
15.00		573.1	1,799.2					0.0	241.8	573.1	2,040.9	0.0	0.0
20.00		558.2	1,752.7					0.0	241.8	558.2	1,994.4	0.0	0.0
25.00		543.3	1,706.2					0.0	241.8	543.3	1,947.9	0.0	0.0
30.00		536.9	1,659.7					0.0	241.8	536.9	1,901.4	0.0	0.0
35.00		540.9	1,613.2					0.0	241.8	540.9	1,854.9	0.0	0.0
40.00		545.2	1,566.7					0.0	241.8	545.2	1,808.4	0.0	0.0
45.00		291.5	1,520.2					0.0	241.8	291.5	1,761.9	0.0	0.0
45.33	Bot - Section 2	277.6	99.7					0.0	16.1	277.6	115.8	0.0	0.0
50.00		407.3	2,771.1					0.0	225.7	407.3	2,996.8	0.0	0.0
52.67	Top - Section 1	277.0	1,547.1					0.0	128.9	277.0	1,676.1	0.0	0.0
55.00		404.3	671.8					0.0	112.8	404.3	784.6	0.0	0.0
60.00		547.6	1,405.5					0.0	241.8	547.6	1,647.3	0.0	0.0
65.00		541.4	1,359.0					0.0	241.8	541.4	1,600.8	0.0	0.0
70.00		533.8	1,312.5					0.0	241.8	533.8	1,554.3	0.0	0.0
75.00		524.8	1,266.0					0.0	241.8	524.8	1,507.8	0.0	0.0
80.00		514.7	1,219.5					0.0	241.8	514.7	1,461.3	0.0	0.0
85.00		503.4	1,173.0					0.0	241.8	503.4	1,414.8	0.0	0.0
90.00		358.7	1,126.5					0.0	241.8	358.7	1,368.3	0.0	0.0
92.25	Bot - Section 3	245.0	491.8					0.0	108.8	245.0	600.6	0.0	0.0
95.00		268.1	1,103.3					0.0	133.0	268.1	1,236.3	0.0	0.0
97.75	Top - Section 2	240.3	1,077.2					0.0	133.0	240.3	1,210.2	0.0	0.0
100.00		340.4	402.6					0.0	108.8	340.4	511.4	0.0	0.0
105.00		458.7	865.7					0.0	241.8	458.7	1,107.5	0.0	0.0
110.00		443.1	825.9					0.0	241.8	443.1	1,067.7	0.0	0.0
115.00		426.8	786.0					0.0	241.8	426.8	1,027.8	0.0	0.0
120.00		409.8	746.2					0.0	241.8	409.8	988.0	0.0	0.0
125.00		392.1	706.3					0.0	241.8	392.1	948.1	0.0	0.0
130.00	Bot - Section 4	340.1	666.5					0.0	241.8	340.1	908.2	0.0	0.0
134.00	Top - Section 3	184.8	762.2					0.0	193.4	184.8	955.6	0.0	0.0
135.00		211.4	62.4					0.0	48.4	211.4	110.8	0.0	0.0
140.00		340.6	300.2					0.0	241.8	340.6	542.0	0.0	0.0
145.00		228.7	280.3					0.0	241.8	228.7	522.1	0.0	0.0
147.00	Appertunance(s)	155.2	106.5	5,446.8	0.0	0.0	3,335.3	0.0	96.7	5,602.0	3,538.5	0.0	0.0
150.00		236.7	153.8					0.0	92.6	236.7	246.5	0.0	0.0
155.00		199.7	240.4					0.0	154.4	199.7	394.8	0.0	0.0
157.00	Appertunance(s)	54.9	90.6	8,010.6	0.0	5,872.2	5,583.6	0.0	61.8	8,065.6	5,735.9	0.0	0.0
<b>Totals:</b>										<b>28,609.4</b>	<b>55,311.0</b>	<b>0.00</b>	<b>0.00</b>

Site Number: CT54XC773

Code: ANSI/TIA-222-G

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Site Name: Hamden, CT

Engineering Number: REV08

1/5/2018 11:35:45 AM

Customer: Sprint Sites USA - GA 2

Load Case: 1.2D + 1.6W

105 mph with No Ice

21 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-55.29	-28.34	0.00	-3,220.54	0.00	3,220.54	5,980.07	2,990.03	16,624.4	8,324.57	0.00	0.00	0.396
5.00	-53.12	-27.82	0.00	-3,078.82	0.00	3,078.82	5,898.95	2,949.47	15,998.2	8,011.02	0.04	-0.08	0.393
10.00	-50.99	-27.30	0.00	-2,939.73	0.00	2,939.73	5,814.64	2,907.32	15,374.6	7,698.77	0.18	-0.17	0.391
15.00	-48.91	-26.80	0.00	-2,803.22	0.00	2,803.22	5,727.15	2,863.57	14,754.3	7,388.14	0.40	-0.26	0.388
20.00	-46.87	-26.30	0.00	-2,669.23	0.00	2,669.23	5,636.47	2,818.23	14,137.9	7,079.47	0.72	-0.35	0.385
25.00	-44.89	-25.82	0.00	-2,537.72	0.00	2,537.72	5,542.60	2,771.30	13,526.0	6,773.06	1.13	-0.44	0.383
30.00	-42.95	-25.34	0.00	-2,408.61	0.00	2,408.61	5,445.54	2,722.77	12,919.3	6,469.26	1.64	-0.53	0.380
35.00	-41.06	-24.85	0.00	-2,281.90	0.00	2,281.90	5,345.30	2,672.65	12,318.4	6,168.38	2.26	-0.63	0.378
40.00	-39.21	-24.36	0.00	-2,157.64	0.00	2,157.64	5,241.87	2,620.94	11,724.0	5,870.75	2.97	-0.74	0.375
45.00	-37.43	-24.08	0.00	-2,035.85	0.00	2,035.85	5,135.25	2,567.63	11,136.8	5,576.69	3.80	-0.84	0.372
45.33	-37.29	-23.84	0.00	-2,027.82	0.00	2,027.82	5,128.03	2,564.02	11,097.9	5,557.22	3.86	-0.85	0.372
50.00	-34.27	-23.43	0.00	-1,916.59	0.00	1,916.59	5,025.45	2,512.73	10,557.3	5,286.54	4.74	-0.95	0.369
52.67	-32.58	-23.16	0.00	-1,854.11	0.00	1,854.11	5,025.47	2,512.73	10,557.4	5,286.58	5.29	-1.01	0.357
55.00	-31.77	-22.78	0.00	-1,800.08	0.00	1,800.08	4,973.14	2,486.57	10,289.9	5,152.60	5.80	-1.07	0.356
60.00	-30.09	-22.26	0.00	-1,686.16	0.00	1,686.16	4,858.66	2,429.33	9,723.06	4,868.75	6.97	-1.18	0.353
65.00	-28.45	-21.75	0.00	-1,574.84	0.00	1,574.84	4,740.99	2,370.50	9,165.59	4,589.61	8.27	-1.29	0.349
70.00	-26.87	-21.23	0.00	-1,466.12	0.00	1,466.12	4,620.14	2,310.07	8,618.17	4,315.49	9.68	-1.41	0.346
75.00	-25.33	-20.72	0.00	-1,359.96	0.00	1,359.96	4,496.10	2,248.05	8,081.43	4,046.72	11.22	-1.53	0.342
80.00	-23.84	-20.22	0.00	-1,256.35	0.00	1,256.35	4,353.06	2,176.53	7,528.68	3,769.93	12.89	-1.66	0.339
85.00	-22.39	-19.73	0.00	-1,155.25	0.00	1,155.25	4,183.86	2,091.93	6,951.89	3,481.11	14.70	-1.79	0.337
90.00	-21.00	-19.36	0.00	-1,056.61	0.00	1,056.61	4,014.66	2,007.33	6,398.09	3,203.80	16.64	-1.92	0.335
92.25	-20.39	-19.12	0.00	-1,013.05	0.00	1,013.05	3,938.51	1,969.26	6,156.38	3,082.77	17.56	-1.98	0.334
95.00	-19.14	-18.84	0.00	-960.47	0.00	960.47	3,845.45	1,922.73	5,867.28	2,938.00	18.73	-2.06	0.332
97.75	-17.91	-18.57	0.00	-908.67	0.00	908.67	3,277.70	1,638.85	4,997.17	2,502.30	19.94	-2.14	0.369
100.00	-17.38	-18.25	0.00	-866.88	0.00	866.88	3,222.92	1,611.46	4,815.14	2,411.15	20.97	-2.21	0.365
105.00	-16.24	-17.79	0.00	-775.63	0.00	775.63	3,077.89	1,538.94	4,389.42	2,197.97	23.37	-2.37	0.358
110.00	-15.14	-17.35	0.00	-686.67	0.00	686.67	2,932.86	1,466.43	3,983.41	1,994.67	25.94	-2.54	0.350
115.00	-14.08	-16.92	0.00	-599.93	0.00	599.93	2,787.83	1,393.91	3,597.10	1,801.22	28.69	-2.70	0.338
120.00	-13.07	-16.50	0.00	-515.34	0.00	515.34	2,642.80	1,321.40	3,230.49	1,617.64	31.61	-2.87	0.324
125.00	-12.09	-16.09	0.00	-432.86	0.00	432.86	2,497.76	1,248.88	2,883.58	1,443.93	34.71	-3.04	0.305
130.00	-11.17	-15.73	0.00	-352.39	0.00	352.39	2,352.73	1,176.37	2,556.37	1,280.08	37.98	-3.20	0.280
134.00	-10.20	-15.51	0.00	-289.47	0.00	289.47	1,028.31	514.15	1,093.21	547.42	40.72	-3.33	0.540
135.00	-10.06	-15.32	0.00	-273.96	0.00	273.96	1,020.22	510.11	1,070.76	536.17	41.42	-3.37	0.522
140.00	-9.48	-14.99	0.00	-197.37	0.00	197.37	977.89	488.95	959.91	480.67	45.09	-3.63	0.421
145.00	-8.93	-14.75	0.00	-122.45	0.00	122.45	932.37	466.18	851.90	426.58	49.03	-3.86	0.298
147.00	-5.77	-8.92	0.00	-92.96	0.00	92.96	913.27	456.63	809.64	405.42	50.66	-3.93	0.236
150.00	-5.53	-8.68	0.00	-66.19	0.00	66.19	883.66	441.83	747.38	374.24	53.16	-4.02	0.183
155.00	-5.14	-8.46	0.00	-22.79	0.00	22.79	831.77	415.88	647.00	323.98	57.42	-4.12	0.077
157.00	0.00	-8.07	0.00	-5.87	0.00	5.87	809.65	404.83	607.80	304.35	59.15	-4.13	0.020



Site Number: CT54XC773  
 Site Name: Hamden, CT  
 Customer: Sprint Sites USA - GA 2

Code: ANSI/TIA-222-G  
 Engineering Number: REV08

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1/5/2018 11:35:46 AM

**Load Case: 0.9D + 1.6W**

105 mph with No Ice (Reduced DL)

21 Iterations

Gust Response Factor : 1.10  
 Dead Load Factor : 0.90  
 Wind Load Factor : 1.60

Wind Importance Factor : 1.00

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-41.46	-28.33	0.00	-3,197.69	0.00	3,197.69	5,980.07	2,990.03	16,624.4	8,324.57	0.00	0.00	0.391
5.00	-39.82	-27.79	0.00	-3,056.02	0.00	3,056.02	5,898.95	2,949.47	15,998.2	8,011.02	0.04	-0.08	0.388
10.00	-38.22	-27.25	0.00	-2,917.08	0.00	2,917.08	5,814.64	2,907.32	15,374.6	7,698.77	0.18	-0.17	0.386
15.00	-36.65	-26.73	0.00	-2,780.81	0.00	2,780.81	5,727.15	2,863.57	14,754.3	7,388.14	0.40	-0.25	0.383
20.00	-35.11	-26.22	0.00	-2,647.15	0.00	2,647.15	5,636.47	2,818.23	14,137.9	7,079.47	0.71	-0.34	0.380
25.00	-33.61	-25.72	0.00	-2,516.05	0.00	2,516.05	5,542.60	2,771.30	13,526.0	6,773.06	1.12	-0.44	0.378
30.00	-32.15	-25.23	0.00	-2,387.43	0.00	2,387.43	5,445.54	2,722.77	12,919.3	6,469.26	1.63	-0.53	0.375
35.00	-30.72	-24.73	0.00	-2,261.29	0.00	2,261.29	5,345.30	2,672.65	12,318.4	6,168.38	2.24	-0.63	0.372
40.00	-29.33	-24.22	0.00	-2,137.66	0.00	2,137.66	5,241.87	2,620.94	11,724.0	5,870.75	2.95	-0.73	0.370
45.00	-27.99	-23.94	0.00	-2,016.57	0.00	2,016.57	5,135.25	2,567.63	11,136.8	5,576.69	3.77	-0.83	0.367
45.33	-27.88	-23.68	0.00	-2,008.59	0.00	2,008.59	5,128.03	2,564.02	11,097.9	5,557.22	3.83	-0.84	0.367
50.00	-25.61	-23.28	0.00	-1,898.06	0.00	1,898.06	5,025.45	2,512.73	10,557.3	5,286.54	4.70	-0.94	0.364
52.67	-24.33	-23.00	0.00	-1,835.99	0.00	1,835.99	5,025.47	2,512.73	10,557.4	5,286.58	5.25	-1.00	0.352
55.00	-23.72	-22.62	0.00	-1,782.32	0.00	1,782.32	4,973.14	2,486.57	10,289.9	5,152.60	5.75	-1.06	0.351
60.00	-22.45	-22.09	0.00	-1,669.21	0.00	1,669.21	4,858.66	2,429.33	9,723.06	4,868.75	6.92	-1.17	0.348
65.00	-21.22	-21.57	0.00	-1,558.73	0.00	1,558.73	4,740.99	2,370.50	9,165.59	4,589.61	8.20	-1.28	0.344
70.00	-20.02	-21.05	0.00	-1,450.88	0.00	1,450.88	4,620.14	2,310.07	8,618.17	4,315.49	9.60	-1.40	0.341
75.00	-18.86	-20.54	0.00	-1,345.63	0.00	1,345.63	4,496.10	2,248.05	8,081.43	4,046.72	11.13	-1.52	0.337
80.00	-17.74	-20.03	0.00	-1,242.94	0.00	1,242.94	4,353.06	2,176.53	7,528.68	3,769.93	12.78	-1.64	0.334
85.00	-16.65	-19.54	0.00	-1,142.78	0.00	1,142.78	4,183.86	2,091.93	6,951.89	3,481.11	14.57	-1.77	0.332
90.00	-15.60	-19.17	0.00	-1,045.10	0.00	1,045.10	4,014.66	2,007.33	6,398.09	3,203.80	16.49	-1.90	0.330
92.25	-15.14	-18.93	0.00	-1,001.97	0.00	1,001.97	3,938.51	1,969.26	6,156.38	3,082.77	17.41	-1.97	0.329
95.00	-14.19	-18.65	0.00	-949.91	0.00	949.91	3,845.45	1,922.73	5,867.28	2,938.00	18.56	-2.04	0.327
97.75	-13.27	-18.39	0.00	-898.63	0.00	898.63	3,277.70	1,638.85	4,997.17	2,502.30	19.76	-2.12	0.363
100.00	-12.86	-18.06	0.00	-857.25	0.00	857.25	3,222.92	1,611.46	4,815.14	2,411.15	20.78	-2.19	0.360
105.00	-12.00	-17.61	0.00	-766.93	0.00	766.93	3,077.89	1,538.94	4,389.42	2,197.97	23.16	-2.35	0.353
110.00	-11.17	-17.16	0.00	-678.90	0.00	678.90	2,932.86	1,466.43	3,983.41	1,994.67	25.71	-2.51	0.344
115.00	-10.37	-16.73	0.00	-593.09	0.00	593.09	2,787.83	1,393.91	3,597.10	1,801.22	28.42	-2.68	0.333
120.00	-9.61	-16.31	0.00	-509.44	0.00	509.44	2,642.80	1,321.40	3,230.49	1,617.64	31.32	-2.84	0.319
125.00	-8.87	-15.91	0.00	-427.88	0.00	427.88	2,497.76	1,248.88	2,883.58	1,443.93	34.38	-3.01	0.300
130.00	-8.17	-15.56	0.00	-348.32	0.00	348.32	2,352.73	1,176.37	2,556.37	1,280.08	37.62	-3.17	0.276
134.00	-7.44	-15.34	0.00	-286.10	0.00	286.10	1,028.31	514.15	1,093.21	547.42	40.33	-3.30	0.531
135.00	-7.33	-15.14	0.00	-270.76	0.00	270.76	1,020.22	510.11	1,070.76	536.17	41.03	-3.33	0.513
140.00	-6.88	-14.81	0.00	-195.04	0.00	195.04	977.89	488.95	959.91	480.67	44.66	-3.60	0.414
145.00	-6.47	-14.57	0.00	-120.99	0.00	120.99	932.37	466.18	851.90	426.58	48.55	-3.82	0.292
147.00	-4.19	-8.81	0.00	-91.85	0.00	91.85	913.27	456.63	809.64	405.42	50.17	-3.89	0.232
150.00	-4.01	-8.57	0.00	-65.42	0.00	65.42	883.66	441.83	747.38	374.24	52.64	-3.98	0.180
155.00	-3.72	-8.35	0.00	-22.57	0.00	22.57	831.77	415.88	647.00	323.98	56.86	-4.07	0.075
157.00	0.00	-8.07	0.00	-5.87	0.00	5.87	809.65	404.83	607.80	304.35	58.57	-4.09	0.020



Site Number: CT54XC773  
 Site Name: Hamden, CT  
 Customer: Sprint Sites USA - GA 2

Code: ANSI/TIA-222-G

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Engineering Number: REV08

1/5/2018 11:35:46 AM

**Load Case:** 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

20 Iterations

Gust Response Factor : 1.10

Ice Dead Load Factor : 1.00

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Ice Importance Factor : 1.00

Wind Load Factor : 1.00

### Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		82.6	0.0					0.0	0.0	82.6	0.0	0.0	0.0
5.00		163.6	2,399.4					0.0	241.8	163.6	2,641.2	0.0	0.0
10.00		160.1	2,387.4					0.0	241.8	160.1	2,629.2	0.0	0.0
15.00		156.5	2,353.0					0.0	241.8	156.5	2,594.8	0.0	0.0
20.00		152.7	2,310.1					0.0	241.8	152.7	2,551.9	0.0	0.0
25.00		149.0	2,262.5					0.0	241.8	149.0	2,504.3	0.0	0.0
30.00		147.6	2,211.9					0.0	241.8	147.6	2,453.7	0.0	0.0
35.00		149.0	2,159.2					0.0	241.8	149.0	2,400.9	0.0	0.0
40.00		150.5	2,104.9					0.0	241.8	150.5	2,346.6	0.0	0.0
45.00		80.6	2,049.3					0.0	241.8	80.6	2,291.1	0.0	0.0
45.33	Bot - Section 2	76.8	135.1					0.0	16.1	76.8	151.2	0.0	0.0
50.00		112.8	3,263.7					0.0	225.7	112.8	3,489.4	0.0	0.0
52.67	Top - Section 1	76.8	1,826.1					0.0	128.9	76.8	1,955.1	0.0	0.0
55.00		112.3	913.6					0.0	112.8	112.3	1,026.4	0.0	0.0
60.00		152.4	1,910.7					0.0	241.8	152.4	2,152.5	0.0	0.0
65.00		151.1	1,852.1					0.0	241.8	151.1	2,093.8	0.0	0.0
70.00		149.4	1,792.8					0.0	241.8	149.4	2,034.6	0.0	0.0
75.00		147.3	1,733.2					0.0	241.8	147.3	1,974.9	0.0	0.0
80.00		144.9	1,673.0					0.0	241.8	144.9	1,914.8	0.0	0.0
85.00		142.2	1,612.5					0.0	241.8	142.2	1,854.3	0.0	0.0
90.00		101.5	1,551.7					0.0	241.8	101.5	1,793.5	0.0	0.0
92.25	Bot - Section 3	69.5	680.4					0.0	108.8	69.5	789.2	0.0	0.0
95.00		76.2	1,333.7					0.0	133.0	76.2	1,466.7	0.0	0.0
97.75	Top - Section 2	68.4	1,303.1					0.0	133.0	68.4	1,436.0	0.0	0.0
100.00		97.2	584.4					0.0	108.8	97.2	693.2	0.0	0.0
105.00		131.3	1,254.0					0.0	241.8	131.3	1,495.7	0.0	0.0
110.00		127.5	1,198.7					0.0	241.8	127.5	1,440.4	0.0	0.0
115.00		123.4	1,143.1					0.0	241.8	123.4	1,384.9	0.0	0.0
120.00		119.1	1,087.4					0.0	241.8	119.1	1,329.1	0.0	0.0
125.00		114.7	1,031.4					0.0	241.8	114.7	1,273.2	0.0	0.0
130.00	Bot - Section 4	100.0	975.3					0.0	241.8	100.0	1,217.0	0.0	0.0
134.00	Top - Section 3	54.5	1,002.0					0.0	193.4	54.5	1,195.4	0.0	0.0
135.00		62.8	121.8					0.0	48.4	62.8	170.2	0.0	0.0
140.00		101.8	579.9					0.0	241.8	101.8	821.7	0.0	0.0
145.00		68.8	543.2					0.0	241.8	68.8	785.0	0.0	0.0
147.00	Appertunance(s)	47.1	209.1	925.0	0.0	0.0	7,570.9	0.0	96.7	972.0	7,876.7	0.0	0.0
150.00		72.3	301.5					0.0	92.6	72.3	394.2	0.0	0.0
155.00		61.4	469.3					0.0	154.4	61.4	623.7	0.0	0.0
157.00	Appertunance(s)	17.0	179.5	1,491.7	0.0	1,129.8	12,653.4	0.0	61.8	1,508.7	12,894.7	0.0	0.0
<b>Totals:</b>									<b>6,689.42</b>	<b>80,141.3</b>	<b>0.00</b>	<b>0.00</b>	

Site Number: CT54XC773  
 Site Name: Hamden, CT  
 Customer: Sprint Sites USA - GA 2

Code: ANSI/TIA-222-G  
 Engineering Number: REV08

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<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice	20 Iterations
Gust Response Factor : 1.10	Ice Dead Load Factor : 1.00	Wind Importance Factor : 1.00
Dead Load Factor : 1.20		Ice Importance Factor : 1.00
Wind Load Factor : 1.00		

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-80.14	-6.62	0.00	-712.15	0.00	712.15	5,980.07	2,990.03	16,624.4	8,324.57	0.00	0.00	0.099
5.00	-77.50	-6.48	0.00	-679.06	0.00	679.06	5,898.95	2,949.47	15,998.2	8,011.02	0.01	-0.02	0.098
10.00	-74.87	-6.34	0.00	-646.66	0.00	646.66	5,814.64	2,907.32	15,374.6	7,698.77	0.04	-0.04	0.097
15.00	-72.27	-6.21	0.00	-614.94	0.00	614.94	5,727.15	2,863.57	14,754.3	7,388.14	0.09	-0.06	0.096
20.00	-69.72	-6.08	0.00	-583.89	0.00	583.89	5,636.47	2,818.23	14,137.9	7,079.47	0.16	-0.08	0.095
25.00	-67.21	-5.95	0.00	-553.50	0.00	553.50	5,542.60	2,771.30	13,526.0	6,773.06	0.25	-0.10	0.094
30.00	-64.75	-5.82	0.00	-523.76	0.00	523.76	5,445.54	2,722.77	12,919.3	6,469.26	0.36	-0.12	0.093
35.00	-62.35	-5.69	0.00	-494.65	0.00	494.65	5,345.30	2,672.65	12,318.4	6,168.38	0.50	-0.14	0.092
40.00	-60.00	-5.56	0.00	-466.19	0.00	466.19	5,241.87	2,620.94	11,724.0	5,870.75	0.65	-0.16	0.091
45.00	-57.71	-5.48	0.00	-438.41	0.00	438.41	5,135.25	2,567.63	11,136.8	5,576.69	0.83	-0.18	0.090
45.33	-57.56	-5.42	0.00	-436.58	0.00	436.58	5,128.03	2,564.02	11,097.9	5,557.22	0.85	-0.19	0.090
50.00	-54.07	-5.31	0.00	-411.30	0.00	411.30	5,025.45	2,512.73	10,557.3	5,286.54	1.04	-0.21	0.089
52.67	-52.11	-5.24	0.00	-397.14	0.00	397.14	5,025.47	2,512.73	10,557.4	5,286.58	1.16	-0.22	0.085
55.00	-51.08	-5.14	0.00	-384.93	0.00	384.93	4,973.14	2,486.57	10,289.9	5,152.60	1.27	-0.23	0.085
60.00	-48.93	-4.99	0.00	-359.25	0.00	359.25	4,858.66	2,429.33	9,723.06	4,868.75	1.52	-0.26	0.084
65.00	-46.84	-4.85	0.00	-334.28	0.00	334.28	4,740.99	2,370.50	9,165.59	4,589.61	1.80	-0.28	0.083
70.00	-44.80	-4.71	0.00	-310.02	0.00	310.02	4,620.14	2,310.07	8,618.17	4,315.49	2.11	-0.30	0.082
75.00	-42.82	-4.57	0.00	-286.45	0.00	286.45	4,496.10	2,248.05	8,081.43	4,046.72	2.44	-0.33	0.080
80.00	-40.91	-4.44	0.00	-263.58	0.00	263.58	4,353.06	2,176.53	7,528.68	3,769.93	2.80	-0.36	0.079
85.00	-39.05	-4.30	0.00	-241.39	0.00	241.39	4,183.86	2,091.93	6,951.89	3,481.11	3.19	-0.38	0.079
90.00	-37.26	-4.20	0.00	-219.88	0.00	219.88	4,014.66	2,007.33	6,398.09	3,203.80	3.61	-0.41	0.078
92.25	-36.47	-4.14	0.00	-210.43	0.00	210.43	3,938.51	1,969.26	6,156.38	3,082.77	3.81	-0.43	0.078
95.00	-35.00	-4.06	0.00	-199.05	0.00	199.05	3,845.45	1,922.73	5,867.28	2,938.00	4.06	-0.44	0.077
97.75	-33.56	-3.99	0.00	-187.89	0.00	187.89	3,277.70	1,638.85	4,997.17	2,502.30	4.32	-0.46	0.085
100.00	-32.87	-3.90	0.00	-178.92	0.00	178.92	3,222.92	1,611.46	4,815.14	2,411.15	4.54	-0.47	0.084
105.00	-31.37	-3.77	0.00	-159.43	0.00	159.43	3,077.89	1,538.94	4,389.42	2,197.97	5.05	-0.51	0.083
110.00	-29.93	-3.65	0.00	-140.56	0.00	140.56	2,932.86	1,466.43	3,983.41	1,994.67	5.60	-0.54	0.081
115.00	-28.55	-3.53	0.00	-122.31	0.00	122.31	2,787.83	1,393.91	3,597.10	1,801.22	6.18	-0.57	0.078
120.00	-27.22	-3.41	0.00	-104.66	0.00	104.66	2,642.80	1,321.40	3,230.49	1,617.64	6.80	-0.61	0.075
125.00	-25.94	-3.30	0.00	-87.59	0.00	87.59	2,497.76	1,248.88	2,883.58	1,443.93	7.45	-0.64	0.071
130.00	-24.72	-3.20	0.00	-71.09	0.00	71.09	2,352.73	1,176.37	2,556.37	1,280.08	8.14	-0.67	0.066
134.00	-23.53	-3.14	0.00	-58.29	0.00	58.29	1,028.31	514.15	1,093.21	547.42	8.72	-0.70	0.129
135.00	-23.36	-3.09	0.00	-55.15	0.00	55.15	1,020.22	510.11	1,070.76	536.17	8.87	-0.71	0.126
140.00	-22.54	-2.99	0.00	-39.73	0.00	39.73	977.89	488.95	959.91	480.67	9.64	-0.76	0.106
145.00	-21.75	-2.92	0.00	-24.77	0.00	24.77	932.37	466.18	851.90	426.58	10.46	-0.81	0.081
147.00	-13.89	-1.84	0.00	-18.92	0.00	18.92	913.27	456.63	809.64	405.42	10.80	-0.82	0.062
150.00	-13.49	-1.77	0.00	-13.39	0.00	13.39	883.66	441.83	747.38	374.24	11.33	-0.84	0.051
155.00	-12.87	-1.70	0.00	-4.53	0.00	4.53	831.77	415.88	647.00	323.98	12.22	-0.86	0.029
157.00	0.00	-1.51	0.00	-1.13	0.00	1.13	809.65	404.83	607.80	304.35	12.58	-0.86	0.004

Site Number: CT54XC773  
 Site Name: Hamden, CT  
 Customer: Sprint Sites USA - GA 2

Code: ANSI/TIA-222-G  
 Engineering Number: REV08

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**Load Case: 1.0D + 1.0W**

**Serviceability 60 mph**

**20 Iterations**

Gust Response Factor : 1.10  
 Dead Load Factor : 1.00  
 Wind Load Factor : 1.00

**Wind Importance Factor : 1.00**

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		62.3	0.0					0.0	0.0	62.3	0.0	0.0	0.0
5.00		123.0	1,576.8					0.0	201.5	123.0	1,778.3	0.0	0.0
10.00		120.0	1,538.0					0.0	201.5	120.0	1,739.5	0.0	0.0
15.00		116.9	1,499.3					0.0	201.5	116.9	1,700.8	0.0	0.0
20.00		113.9	1,460.5					0.0	201.5	113.9	1,662.0	0.0	0.0
25.00		110.9	1,421.8					0.0	201.5	110.9	1,623.3	0.0	0.0
30.00		109.6	1,383.1					0.0	201.5	109.6	1,584.5	0.0	0.0
35.00		110.4	1,344.3					0.0	201.5	110.4	1,545.8	0.0	0.0
40.00		111.3	1,305.6					0.0	201.5	111.3	1,507.0	0.0	0.0
45.00		59.5	1,266.8					0.0	201.5	59.5	1,468.3	0.0	0.0
45.33	Bot - Section 2	56.7	83.1					0.0	13.4	56.7	96.5	0.0	0.0
50.00		83.1	2,309.3					0.0	188.0	83.1	2,497.3	0.0	0.0
52.67	Top - Section 1	56.5	1,289.3					0.0	107.5	56.5	1,396.7	0.0	0.0
55.00		82.5	559.8					0.0	94.0	82.5	653.9	0.0	0.0
60.00		111.8	1,171.2					0.0	201.5	111.8	1,372.7	0.0	0.0
65.00		110.5	1,132.5					0.0	201.5	110.5	1,334.0	0.0	0.0
70.00		108.9	1,093.7					0.0	201.5	108.9	1,295.2	0.0	0.0
75.00		107.1	1,055.0					0.0	201.5	107.1	1,256.5	0.0	0.0
80.00		105.0	1,016.2					0.0	201.5	105.0	1,217.7	0.0	0.0
85.00		102.7	977.5					0.0	201.5	102.7	1,179.0	0.0	0.0
90.00		73.2	938.7					0.0	201.5	73.2	1,140.2	0.0	0.0
92.25	Bot - Section 3	50.0	409.8					0.0	90.7	50.0	500.5	0.0	0.0
95.00		54.7	919.4					0.0	110.8	54.7	1,030.2	0.0	0.0
97.75	Top - Section 2	49.0	897.7					0.0	110.8	49.0	1,008.5	0.0	0.0
100.00		69.5	335.5					0.0	90.7	69.5	426.2	0.0	0.0
105.00		93.6	721.5					0.0	201.5	93.6	922.9	0.0	0.0
110.00		90.4	688.2					0.0	201.5	90.4	889.7	0.0	0.0
115.00		87.1	655.0					0.0	201.5	87.1	856.5	0.0	0.0
120.00		83.6	621.8					0.0	201.5	83.6	823.3	0.0	0.0
125.00		80.0	588.6					0.0	201.5	80.0	790.1	0.0	0.0
130.00	Bot - Section 4	69.4	555.4					0.0	201.5	69.4	756.9	0.0	0.0
134.00	Top - Section 3	37.7	635.2					0.0	161.2	37.7	796.3	0.0	0.0
135.00		43.1	52.0					0.0	40.3	43.1	92.3	0.0	0.0
140.00		69.5	250.2					0.0	201.5	69.5	451.7	0.0	0.0
145.00		46.7	233.6					0.0	201.5	46.7	435.1	0.0	0.0
147.00	Appertunance(s)	31.7	88.8	1,111.6	0.0	0.0	2,779.4	0.0	80.6	1,143.3	2,948.8	0.0	0.0
150.00		48.3	128.2					0.0	77.2	48.3	205.4	0.0	0.0
155.00		40.8	200.4					0.0	128.7	40.8	329.0	0.0	0.0
157.00	Appertunance(s)	11.2	75.5	1,634.8	0.0	1,198.4	4,653.0	0.0	51.5	1,646.0	4,779.9	0.0	0.0
<b>Totals:</b>										<b>5,838.65</b>	<b>46,092.5</b>	<b>0.00</b>	<b>0.00</b>

Site Number: CT54XC773

Code: ANSI/TIA-222-G

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Site Name: Hamden, CT

Engineering Number: REV08

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Customer: Sprint Sites USA - GA 2

Load Case: 1.0D + 1.0W

Serviceability 60 mph

20 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.00

Wind Load Factor : 1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-46.09	-5.78	0.00	-654.41	0.00	654.41	5,980.07	2,990.03	16,624.4	8,324.57	0.00	0.00	0.086
5.00	-44.31	-5.67	0.00	-625.50	0.00	625.50	5,898.95	2,949.47	15,998.2	8,011.02	0.01	-0.02	0.086
10.00	-42.57	-5.56	0.00	-597.13	0.00	597.13	5,814.64	2,907.32	15,374.6	7,698.77	0.04	-0.03	0.085
15.00	-40.87	-5.46	0.00	-569.31	0.00	569.31	5,727.15	2,863.57	14,754.3	7,388.14	0.08	-0.05	0.084
20.00	-39.20	-5.36	0.00	-542.01	0.00	542.01	5,636.47	2,818.23	14,137.9	7,079.47	0.15	-0.07	0.084
25.00	-37.58	-5.26	0.00	-515.23	0.00	515.23	5,542.60	2,771.30	13,526.0	6,773.06	0.23	-0.09	0.083
30.00	-35.99	-5.16	0.00	-488.95	0.00	488.95	5,445.54	2,722.77	12,919.3	6,469.26	0.33	-0.11	0.082
35.00	-34.45	-5.05	0.00	-463.17	0.00	463.17	5,345.30	2,672.65	12,318.4	6,168.38	0.46	-0.13	0.082
40.00	-32.94	-4.95	0.00	-437.90	0.00	437.90	5,241.87	2,620.94	11,724.0	5,870.75	0.60	-0.15	0.081
45.00	-31.47	-4.89	0.00	-413.14	0.00	413.14	5,135.25	2,567.63	11,136.8	5,576.69	0.77	-0.17	0.080
45.33	-31.37	-4.84	0.00	-411.50	0.00	411.50	5,128.03	2,564.02	11,097.9	5,557.22	0.78	-0.17	0.080
50.00	-28.87	-4.76	0.00	-388.90	0.00	388.90	5,025.45	2,512.73	10,557.3	5,286.54	0.96	-0.19	0.079
52.67	-27.48	-4.71	0.00	-376.20	0.00	376.20	5,025.47	2,512.73	10,557.4	5,286.58	1.07	-0.21	0.077
55.00	-26.82	-4.63	0.00	-365.23	0.00	365.23	4,973.14	2,486.57	10,289.9	5,152.60	1.18	-0.22	0.076
60.00	-25.45	-4.52	0.00	-342.09	0.00	342.09	4,858.66	2,429.33	9,723.06	4,868.75	1.42	-0.24	0.076
65.00	-24.11	-4.41	0.00	-319.48	0.00	319.48	4,740.99	2,370.50	9,165.59	4,589.61	1.68	-0.26	0.075
70.00	-22.81	-4.31	0.00	-297.41	0.00	297.41	4,620.14	2,310.07	8,618.17	4,315.49	1.97	-0.29	0.074
75.00	-21.56	-4.21	0.00	-275.86	0.00	275.86	4,496.10	2,248.05	8,081.43	4,046.72	2.28	-0.31	0.073
80.00	-20.34	-4.10	0.00	-254.84	0.00	254.84	4,353.06	2,176.53	7,528.68	3,769.93	2.62	-0.34	0.072
85.00	-19.16	-4.00	0.00	-234.32	0.00	234.32	4,183.86	2,091.93	6,951.89	3,481.11	2.98	-0.36	0.072
90.00	-18.02	-3.93	0.00	-214.32	0.00	214.32	4,014.66	2,007.33	6,398.09	3,203.80	3.38	-0.39	0.071
92.25	-17.52	-3.88	0.00	-205.48	0.00	205.48	3,938.51	1,969.26	6,156.38	3,082.77	3.57	-0.40	0.071
95.00	-16.48	-3.82	0.00	-194.82	0.00	194.82	3,845.45	1,922.73	5,867.28	2,938.00	3.80	-0.42	0.071
97.75	-15.48	-3.77	0.00	-184.31	0.00	184.31	3,277.70	1,638.85	4,997.17	2,502.30	4.05	-0.44	0.078
100.00	-15.05	-3.70	0.00	-175.83	0.00	175.83	3,222.92	1,611.46	4,815.14	2,411.15	4.26	-0.45	0.078
105.00	-14.12	-3.61	0.00	-157.33	0.00	157.33	3,077.89	1,538.94	4,389.42	2,197.97	4.74	-0.48	0.076
110.00	-13.23	-3.52	0.00	-139.28	0.00	139.28	2,932.86	1,466.43	3,983.41	1,994.67	5.27	-0.51	0.074
115.00	-12.38	-3.43	0.00	-121.69	0.00	121.69	2,787.83	1,393.91	3,597.10	1,801.22	5.82	-0.55	0.072
120.00	-11.55	-3.35	0.00	-104.54	0.00	104.54	2,642.80	1,321.40	3,230.49	1,617.64	6.42	-0.58	0.069
125.00	-10.76	-3.26	0.00	-87.81	0.00	87.81	2,497.76	1,248.88	2,883.58	1,443.93	7.05	-0.62	0.065
130.00	-10.00	-3.19	0.00	-71.49	0.00	71.49	2,352.73	1,176.37	2,556.37	1,280.08	7.71	-0.65	0.060
134.00	-9.21	-3.15	0.00	-58.73	0.00	58.73	1,028.31	514.15	1,093.21	547.42	8.27	-0.68	0.116
135.00	-9.11	-3.11	0.00	-55.58	0.00	55.58	1,020.22	510.11	1,070.76	536.17	8.41	-0.68	0.113
140.00	-8.66	-3.04	0.00	-40.04	0.00	40.04	977.89	488.95	959.91	480.67	9.15	-0.74	0.092
145.00	-8.22	-2.99	0.00	-24.84	0.00	24.84	932.37	466.18	851.90	426.58	9.95	-0.78	0.067
147.00	-5.29	-1.81	0.00	-18.86	0.00	18.86	913.27	456.63	809.64	405.42	10.28	-0.80	0.052
150.00	-5.08	-1.76	0.00	-13.43	0.00	13.43	883.66	441.83	747.38	374.24	10.79	-0.82	0.042
155.00	-4.76	-1.72	0.00	-4.63	0.00	4.63	831.77	415.88	647.00	323.98	11.66	-0.84	0.020
157.00	0.00	-1.65	0.00	-1.20	0.00	1.20	809.65	404.83	607.80	304.35	12.01	-0.84	0.004

**Equivalent Lateral Forces Method Analysis**

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period ( $S_g$ ):	0.19
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
Long-Period Transition Period ( $T_L$ ):	6
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.20
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Seismic Response Coefficient ( $C_s$ ):	0.04
Upper Limit $C_s$	0.04
Lower Limit $C_s$	0.03
Period based on Rayleigh Method (sec):	1.89
Redundancy Factor ( $\rho$ ):	1.30
Seismic Force Distribution Exponent ( $k$ ):	1.70
Total Unfactored Dead Load:	46.09 k
Seismic Base Shear (E):	2.13 k

**Load Case (1.2 + 0.2Sds) \* DL + E ELMF**

**Seismic Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
38	156.00	127	665	0.007	16	157
37	152.50	329	1,659	0.018	39	408
36	148.50	205	990	0.011	23	255
35	146.00	169	793	0.009	19	210
34	142.50	435	1,955	0.021	46	539
33	137.50	452	1,911	0.021	45	560
32	134.50	92	376	0.004	9	114
31	132.00	796	3,144	0.035	74	987
30	127.50	757	2,817	0.031	66	938
29	122.50	790	2,748	0.030	64	979
28	117.50	823	2,668	0.029	62	1,021
27	112.50	857	2,578	0.028	60	1,062
26	107.50	890	2,480	0.027	58	1,103
25	102.50	923	2,372	0.026	56	1,144
24	98.88	426	1,031	0.011	24	528
23	96.38	1,008	2,335	0.026	55	1,250
22	93.63	1,030	2,271	0.025	53	1,277
21	91.13	500	1,054	0.012	25	620
20	87.50	1,140	2,241	0.025	52	1,414
19	82.50	1,179	2,097	0.023	49	1,462
18	77.50	1,218	1,948	0.021	46	1,510
17	72.50	1,256	1,795	0.020	42	1,558
16	67.50	1,295	1,639	0.018	38	1,606

Site Number: CT54XC773

Code: ANSI/TIA-222-G

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Site Name: Hamden, CT

Engineering Number: REV08

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Customer: Sprint Sites USA - GA 2

15	62.50	1,334	1,482	0.016	35	1,654
14	57.50	1,373	1,324	0.015	31	1,702
13	53.83	654	564	0.006	13	811
12	51.33	1,397	1,111	0.012	26	1,731
11	47.67	2,497	1,752	0.019	41	3,096
10	45.17	97	62	0.001	1	120
9	42.50	1,468	848	0.009	20	1,820
8	37.50	1,507	704	0.008	16	1,868
7	32.50	1,546	566	0.006	13	1,916
6	27.50	1,585	437	0.005	10	1,964
5	22.50	1,623	319	0.004	7	2,012
4	17.50	1,662	213	0.002	5	2,060
3	12.50	1,701	123	0.001	3	2,108
2	7.50	1,740	53	0.001	1	2,156
1	2.50	1,778	8	0.000	0	2,204
800MHz RRH	157.00	192	1,017	0.011	24	238
Collar Mount	157.00	250	1,324	0.015	31	310
TD-RRH-8X20	157.00	420	2,225	0.024	52	521
APXVTM 14-C-I20	157.00	165	873	0.010	20	204
96" x 14" x 7" Panel	157.00	210	1,112	0.012	26	260
16" x 9" x 6" Combin	157.00	120	636	0.007	15	149
26" Microwave	157.00	180	954	0.010	22	223
GPS Antenna	157.00	1	5	0.000	0	1
RET Kit	157.00	9	50	0.001	1	12
ODU	157.00	22	117	0.001	3	27
1900MHz RRH	157.00	360	1,907	0.021	45	446
Platform w/ Rail	157.00	2,500	13,244	0.146	310	3,099
800 MHz Notch Filter	157.00	53	280	0.003	7	66
APXV SPP18-C-A20	157.00	171	906	0.010	21	212
RRH 2x60 LTE	147.00	171	810	0.009	19	212
RRH 90W AWS	147.00	186	881	0.010	21	231
DB-T1-6Z-8AB-0Z	147.00	88	417	0.005	10	109
JAHH-65B-R3B	147.00	380	1,800	0.020	42	471
RRH 4x40-850	147.00	264	1,251	0.014	29	327
LPA-80080/4CF	147.00	72	341	0.004	8	89
FD9R6004-2C-3L	147.00	19	88	0.001	2	23
Low Profile Platform	147.00	1,600	7,581	0.083	177	1,983
		46,093	90,956	1.000	2,128	57,140

Load Case (0.9 - 0.2Sds) \* DL + E ELMF

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
38	156.00	127	665	0.007	16	109
37	152.50	329	1,659	0.018	39	283
36	148.50	205	990	0.011	23	177
35	146.00	169	793	0.009	19	146
34	142.50	435	1,955	0.021	46	374
33	137.50	452	1,911	0.021	45	389
32	134.50	92	376	0.004	9	79
31	132.00	796	3,144	0.035	74	685
30	127.50	757	2,817	0.031	66	651
29	122.50	790	2,748	0.030	64	680
28	117.50	823	2,668	0.029	62	708
27	112.50	857	2,578	0.028	60	737
26	107.50	890	2,480	0.027	58	765
25	102.50	923	2,372	0.026	56	794
24	98.88	426	1,031	0.011	24	367
23	96.38	1,008	2,335	0.026	55	868
22	93.63	1,030	2,271	0.025	53	886

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21	91.13	500	1,054	0.012	25	431
20	87.50	1,140	2,241	0.025	52	981
19	82.50	1,179	2,097	0.023	49	1,014
18	77.50	1,218	1,948	0.021	46	1,048
17	72.50	1,256	1,795	0.020	42	1,081
16	67.50	1,295	1,639	0.018	38	1,114
15	62.50	1,334	1,482	0.016	35	1,148
14	57.50	1,373	1,324	0.015	31	1,181
13	53.83	654	564	0.006	13	563
12	51.33	1,397	1,111	0.012	26	1,202
11	47.67	2,497	1,752	0.019	41	2,148
10	45.17	97	62	0.001	1	83
9	42.50	1,468	848	0.009	20	1,263
8	37.50	1,507	704	0.008	16	1,297
7	32.50	1,546	566	0.006	13	1,330
6	27.50	1,585	437	0.005	10	1,363
5	22.50	1,623	319	0.004	7	1,397
4	17.50	1,662	213	0.002	5	1,430
3	12.50	1,701	123	0.001	3	1,463
2	7.50	1,740	53	0.001	1	1,497
1	2.50	1,778	8	0.000	0	1,530
800MHz RRH	157.00	192	1,017	0.011	24	165
Collar Mount	157.00	250	1,324	0.015	31	215
TD-RRH-8X20	157.00	420	2,225	0.024	52	361
APXV/TM 14-C-I20	157.00	165	873	0.010	20	142
96" x 14" x 7" Panel	157.00	210	1,112	0.012	26	181
16" x 9" x 6" Combin	157.00	120	636	0.007	15	103
26" Microwave	157.00	180	954	0.010	22	155
GPS Antenna	157.00	1	5	0.000	0	1
RET Kit	157.00	9	50	0.001	1	8
ODU	157.00	22	117	0.001	3	19
1900MHz RRH	157.00	360	1,907	0.021	45	310
Platform w/ Rail	157.00	2,500	13,244	0.146	310	2,151
800 MHz Notch Filter	157.00	53	280	0.003	7	46
APXV/SPP18-C-A20	157.00	171	906	0.010	21	147
RRH 2x60 LTE	147.00	171	810	0.009	19	147
RRH 90W AWS	147.00	186	881	0.010	21	160
DB-T1-6Z-8AB-0Z	147.00	88	417	0.005	10	76
JAHH-65B-R3B	147.00	380	1,800	0.020	42	327
RRH 4x40-850	147.00	264	1,251	0.014	29	227
LPA-80080/4CF	147.00	72	341	0.004	8	62
FD9R6004-2C-3L	147.00	19	88	0.001	2	16
Low Profile Platform	147.00	1,600	7,581	0.083	177	1,377
		46,093	90,956	1.000	2,128	39,654

**Load Case (1.2 + 0.2Sds) \* DL + E ELMF**

**Seismic Equivalent Lateral Forces Method**

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-54.94	-2.13	0.00	-263.58	0.00	263.58	5,980.07	2,990.03	16,624.4	8,324.57	0.00	0.00	0.041
5.00	-52.78	-2.14	0.00	-252.92	0.00	252.92	5,898.95	2,949.47	15,998.2	8,011.02	0.00	-0.01	0.041
10.00	-50.67	-2.14	0.00	-242.25	0.00	242.25	5,814.64	2,907.32	15,374.6	7,698.77	0.01	-0.01	0.040
15.00	-48.61	-2.14	0.00	-231.55	0.00	231.55	5,727.15	2,863.57	14,754.3	7,388.14	0.03	-0.02	0.040
20.00	-46.60	-2.14	0.00	-220.86	0.00	220.86	5,636.47	2,818.23	14,137.9	7,079.47	0.06	-0.03	0.039
25.00	-44.63	-2.13	0.00	-210.17	0.00	210.17	5,542.60	2,771.30	13,526.0	6,773.06	0.09	-0.04	0.039
30.00	-42.72	-2.12	0.00	-199.51	0.00	199.51	5,445.54	2,722.77	12,919.3	6,469.26	0.14	-0.04	0.039
35.00	-40.85	-2.11	0.00	-188.90	0.00	188.90	5,345.30	2,672.65	12,318.4	6,168.38	0.19	-0.05	0.038
40.00	-39.03	-2.10	0.00	-178.34	0.00	178.34	5,241.87	2,620.94	11,724.0	5,870.75	0.25	-0.06	0.038
45.00	-38.91	-2.10	0.00	-167.87	0.00	167.87	5,135.25	2,567.63	11,136.8	5,576.69	0.31	-0.07	0.038
45.33	-35.81	-2.05	0.00	-167.17	0.00	167.17	5,128.03	2,564.02	11,097.9	5,557.22	0.32	-0.07	0.037
50.00	-34.08	-2.03	0.00	-157.58	0.00	157.58	5,025.45	2,512.73	10,557.3	5,286.54	0.39	-0.08	0.037
52.67	-33.27	-2.02	0.00	-152.16	0.00	152.16	5,025.47	2,512.73	10,557.4	5,286.58	0.44	-0.08	0.035
55.00	-31.57	-1.99	0.00	-147.45	0.00	147.45	4,973.14	2,486.57	10,289.9	5,152.60	0.48	-0.09	0.035
60.00	-29.91	-1.96	0.00	-137.51	0.00	137.51	4,858.66	2,429.33	9,723.06	4,868.75	0.58	-0.10	0.034
65.00	-28.31	-1.92	0.00	-127.72	0.00	127.72	4,740.99	2,370.50	9,165.59	4,589.61	0.68	-0.11	0.034
70.00	-26.75	-1.88	0.00	-118.12	0.00	118.12	4,620.14	2,310.07	8,618.17	4,315.49	0.80	-0.12	0.033
75.00	-25.24	-1.84	0.00	-108.73	0.00	108.73	4,496.10	2,248.05	8,081.43	4,046.72	0.92	-0.13	0.032
80.00	-23.78	-1.79	0.00	-99.55	0.00	99.55	4,353.06	2,176.53	7,528.68	3,769.93	1.06	-0.14	0.032
85.00	-22.36	-1.74	0.00	-90.62	0.00	90.62	4,183.86	2,091.93	6,951.89	3,481.11	1.21	-0.15	0.031
90.00	-21.74	-1.71	0.00	-81.94	0.00	81.94	4,014.66	2,007.33	6,398.09	3,203.80	1.37	-0.16	0.031
92.25	-20.47	-1.66	0.00	-78.09	0.00	78.09	3,938.51	1,969.26	6,156.38	3,082.77	1.44	-0.16	0.031
95.00	-19.22	-1.60	0.00	-73.53	0.00	73.53	3,845.45	1,922.73	5,867.28	2,938.00	1.54	-0.17	0.030
97.75	-18.69	-1.58	0.00	-69.13	0.00	69.13	3,277.70	1,638.85	4,997.17	2,502.30	1.64	-0.17	0.033
100.00	-17.54	-1.52	0.00	-65.58	0.00	65.58	3,222.92	1,611.46	4,815.14	2,411.15	1.72	-0.18	0.033
105.00	-16.44	-1.46	0.00	-57.98	0.00	57.98	3,077.89	1,538.94	4,389.42	2,197.97	1.91	-0.19	0.032
110.00	-15.38	-1.40	0.00	-50.66	0.00	50.66	2,932.86	1,466.43	3,983.41	1,994.67	2.12	-0.20	0.031
115.00	-14.36	-1.34	0.00	-43.65	0.00	43.65	2,787.83	1,393.91	3,597.10	1,801.22	2.34	-0.22	0.029
120.00	-13.38	-1.27	0.00	-36.96	0.00	36.96	2,642.80	1,321.40	3,230.49	1,617.64	2.57	-0.23	0.028
125.00	-12.44	-1.21	0.00	-30.59	0.00	30.59	2,497.76	1,248.88	2,883.58	1,443.93	2.81	-0.24	0.026
130.00	-11.45	-1.13	0.00	-24.56	0.00	24.56	2,352.73	1,176.37	2,556.37	1,280.08	3.07	-0.25	0.024
134.00	-11.34	-1.12	0.00	-20.03	0.00	20.03	1,028.31	514.15	1,093.21	547.42	3.29	-0.26	0.048
135.00	-10.78	-1.08	0.00	-18.91	0.00	18.91	1,020.22	510.11	1,070.76	536.17	3.34	-0.26	0.046
140.00	-10.24	-1.03	0.00	-13.52	0.00	13.52	977.89	488.95	959.91	480.67	3.62	-0.28	0.039
145.00	-10.03	-1.01	0.00	-8.36	0.00	8.36	932.37	466.18	851.90	426.58	3.93	-0.30	0.030
147.00	-6.33	-0.66	0.00	-6.33	0.00	6.33	913.27	456.63	809.64	405.42	4.05	-0.30	0.023
150.00	-5.92	-0.62	0.00	-4.34	0.00	4.34	883.66	441.83	747.38	374.24	4.24	-0.31	0.018
155.00	-5.76	-0.61	0.00	-1.22	0.00	1.22	831.77	415.88	647.00	323.98	4.57	-0.31	0.011
157.00	0.00	-0.58	0.00	0.00	0.00	0.00	809.65	404.83	607.80	304.35	4.70	-0.31	0.000



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Customer: Sprint Sites USA - GA 2

**Load Case (0.9 - 0.2Sds) \* DL + E ELFM**

**Seismic (Reduced DL) Equivalent Lateral Forces Method**

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-38.12	-2.13	0.00	-261.38	0.00	261.38	5,980.07	2,990.03	16,624.4	8,324.57	0.00	0.00	0.038
5.00	-36.63	-2.13	0.00	-250.73	0.00	250.73	5,898.95	2,949.47	15,998.2	8,011.02	0.00	-0.01	0.038
10.00	-35.16	-2.13	0.00	-240.07	0.00	240.07	5,814.64	2,907.32	15,374.6	7,698.77	0.01	-0.01	0.037
15.00	-33.73	-2.13	0.00	-229.40	0.00	229.40	5,727.15	2,863.57	14,754.3	7,388.14	0.03	-0.02	0.037
20.00	-32.34	-2.13	0.00	-218.74	0.00	218.74	5,636.47	2,818.23	14,137.9	7,079.47	0.06	-0.03	0.037
25.00	-30.97	-2.12	0.00	-208.10	0.00	208.10	5,542.60	2,771.30	13,526.0	6,773.06	0.09	-0.04	0.036
30.00	-29.64	-2.11	0.00	-197.49	0.00	197.49	5,445.54	2,722.77	12,919.3	6,469.26	0.13	-0.04	0.036
35.00	-28.35	-2.10	0.00	-186.93	0.00	186.93	5,345.30	2,672.65	12,318.4	6,168.38	0.18	-0.05	0.036
40.00	-27.08	-2.08	0.00	-176.43	0.00	176.43	5,241.87	2,620.94	11,724.0	5,870.75	0.24	-0.06	0.035
45.00	-27.00	-2.08	0.00	-166.03	0.00	166.03	5,135.25	2,567.63	11,136.8	5,576.69	0.31	-0.07	0.035
45.33	-24.85	-2.04	0.00	-165.33	0.00	165.33	5,128.03	2,564.02	11,097.9	5,557.22	0.32	-0.07	0.035
50.00	-23.65	-2.02	0.00	-155.81	0.00	155.81	5,025.45	2,512.73	10,557.3	5,286.54	0.39	-0.08	0.034
52.67	-23.09	-2.00	0.00	-150.44	0.00	150.44	5,025.47	2,512.73	10,557.4	5,286.58	0.43	-0.08	0.033
55.00	-21.91	-1.97	0.00	-145.76	0.00	145.76	4,973.14	2,486.57	10,289.9	5,152.60	0.47	-0.09	0.033
60.00	-20.76	-1.94	0.00	-135.90	0.00	135.90	4,858.66	2,429.33	9,723.06	4,868.75	0.57	-0.10	0.032
65.00	-19.64	-1.90	0.00	-126.20	0.00	126.20	4,740.99	2,370.50	9,165.59	4,589.61	0.68	-0.11	0.032
70.00	-18.56	-1.86	0.00	-116.68	0.00	116.68	4,620.14	2,310.07	8,618.17	4,315.49	0.79	-0.11	0.031
75.00	-17.51	-1.82	0.00	-107.37	0.00	107.37	4,496.10	2,248.05	8,081.43	4,046.72	0.92	-0.12	0.030
80.00	-16.50	-1.77	0.00	-98.29	0.00	98.29	4,353.06	2,176.53	7,528.68	3,769.93	1.05	-0.13	0.030
85.00	-15.52	-1.72	0.00	-89.44	0.00	89.44	4,183.86	2,091.93	6,951.89	3,481.11	1.20	-0.14	0.029
90.00	-15.09	-1.69	0.00	-80.86	0.00	80.86	4,014.66	2,007.33	6,398.09	3,203.80	1.35	-0.15	0.029
92.25	-14.20	-1.64	0.00	-77.05	0.00	77.05	3,938.51	1,969.26	6,156.38	3,082.77	1.43	-0.16	0.029
95.00	-13.33	-1.58	0.00	-72.54	0.00	72.54	3,845.45	1,922.73	5,867.28	2,938.00	1.52	-0.17	0.028
97.75	-12.97	-1.56	0.00	-68.19	0.00	68.19	3,277.70	1,638.85	4,997.17	2,502.30	1.62	-0.17	0.031
100.00	-12.17	-1.50	0.00	-64.68	0.00	64.68	3,222.92	1,611.46	4,815.14	2,411.15	1.70	-0.18	0.031
105.00	-11.41	-1.44	0.00	-57.17	0.00	57.17	3,077.89	1,538.94	4,389.42	2,197.97	1.89	-0.19	0.030
110.00	-10.67	-1.38	0.00	-49.94	0.00	49.94	2,932.86	1,466.43	3,983.41	1,994.67	2.10	-0.20	0.029
115.00	-9.96	-1.32	0.00	-43.02	0.00	43.02	2,787.83	1,393.91	3,597.10	1,801.22	2.31	-0.21	0.027
120.00	-9.28	-1.26	0.00	-36.41	0.00	36.41	2,642.80	1,321.40	3,230.49	1,617.64	2.54	-0.22	0.026
125.00	-8.63	-1.19	0.00	-30.13	0.00	30.13	2,497.76	1,248.88	2,883.58	1,443.93	2.78	-0.24	0.024
130.00	-7.95	-1.11	0.00	-24.18	0.00	24.18	2,352.73	1,176.37	2,556.37	1,280.08	3.04	-0.25	0.022
134.00	-7.87	-1.11	0.00	-19.72	0.00	19.72	1,028.31	514.15	1,093.21	547.42	3.25	-0.26	0.044
135.00	-7.48	-1.06	0.00	-18.61	0.00	18.61	1,020.22	510.11	1,070.76	536.17	3.30	-0.26	0.042
140.00	-7.10	-1.02	0.00	-13.31	0.00	13.31	977.89	488.95	959.91	480.67	3.58	-0.28	0.035
145.00	-6.96	-1.00	0.00	-8.23	0.00	8.23	932.37	466.18	851.90	426.58	3.88	-0.29	0.027
147.00	-4.39	-0.65	0.00	-6.23	0.00	6.23	913.27	456.63	809.64	405.42	4.01	-0.30	0.020
150.00	-4.11	-0.61	0.00	-4.27	0.00	4.27	883.66	441.83	747.38	374.24	4.19	-0.30	0.016
155.00	-4.00	-0.60	0.00	-1.20	0.00	1.20	831.77	415.88	647.00	323.98	4.52	-0.31	0.009
157.00	0.00	-0.58	0.00	0.00	0.00	0.00	809.65	404.83	607.80	304.35	4.65	-0.31	0.000

Site Number: CT54XC773  
 Site Name: Hamden, CT  
 Customer: Sprint Sites USA - GA 2

Code: ANSI/TIA-222-G

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### Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period ( $S_g$ ):	0.19
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.20
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Period Based on Rayleigh Method (sec):	1.89
Redundancy Factor (p):	1.30

**Load Case** (1.2 + 0.2Sds) \* DL + E EMAM

### Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
38	156.00	127	1.866	1.856	1.095	0.366	40	157
37	152.50	329	1.783	1.463	0.949	0.313	89	408
36	148.50	205	1.691	1.088	0.801	0.257	46	255
35	146.00	169	1.634	0.889	0.718	0.225	33	210
34	142.50	435	1.557	0.651	0.613	0.183	69	539
33	137.50	452	1.450	0.385	0.485	0.130	51	560
32	134.50	92	1.387	0.260	0.419	0.102	8	114
31	132.00	796	1.336	0.174	0.369	0.081	56	987
30	127.50	757	1.246	0.053	0.291	0.047	31	938
29	122.50	790	1.151	-0.037	0.220	0.017	12	979
28	117.50	823	1.059	-0.090	0.162	-0.006	-4	1,021
27	112.50	857	0.970	-0.116	0.117	-0.021	-16	1,062
26	107.50	890	0.886	-0.122	0.082	-0.029	-22	1,103
25	102.50	923	0.806	-0.113	0.055	-0.030	-24	1,144
24	98.88	426	0.750	-0.101	0.041	-0.028	-10	528
23	96.38	1,008	0.712	-0.091	0.032	-0.024	-21	1,250
22	93.63	1,030	0.672	-0.078	0.025	-0.019	-17	1,277
21	91.13	500	0.637	-0.066	0.019	-0.013	-6	620
20	87.50	1,140	0.587	-0.048	0.013	-0.004	-4	1,414
19	82.50	1,179	0.522	-0.024	0.008	0.009	10	1,462
18	77.50	1,218	0.461	-0.002	0.006	0.022	23	1,510
17	72.50	1,256	0.403	0.017	0.006	0.033	36	1,558
16	67.50	1,295	0.349	0.033	0.009	0.041	46	1,606
15	62.50	1,334	0.300	0.045	0.012	0.046	53	1,654
14	57.50	1,373	0.254	0.055	0.017	0.049	58	1,702
13	53.83	654	0.222	0.060	0.020	0.049	28	811
12	51.33	1,397	0.202	0.063	0.023	0.050	60	1,731
11	47.67	2,497	0.174	0.066	0.027	0.049	107	3,096
10	45.17	97	0.156	0.067	0.029	0.049	4	120
9	42.50	1,468	0.138	0.069	0.032	0.048	62	1,820
8	37.50	1,507	0.108	0.071	0.036	0.047	62	1,868
7	32.50	1,546	0.081	0.072	0.039	0.046	62	1,916
6	27.50	1,585	0.058	0.072	0.041	0.045	61	1,964
5	22.50	1,623	0.039	0.070	0.041	0.043	60	2,012

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4	17.50	1,662	0.023	0.066	0.039	0.040	58	2,060
3	12.50	1,701	0.012	0.057	0.033	0.036	52	2,108
2	7.50	1,740	0.004	0.042	0.024	0.027	41	2,156
1	2.50	1,778	0.000	0.017	0.009	0.012	19	2,204
800MHz RRH	157.00	192	1.890	1.980	1.140	0.381	63	238
Collar Mount	157.00	250	1.890	1.980	1.140	0.381	83	310
TD-RRH-8X20	157.00	420	1.890	1.980	1.140	0.381	139	521
APXVTM 14-C-I20	157.00	165	1.890	1.980	1.140	0.381	54	204
96" x 14" x 7" Panel	157.00	210	1.890	1.980	1.140	0.381	69	260
16" x 9" x 6" Combin	157.00	120	1.890	1.980	1.140	0.381	40	149
26" Microwave	157.00	180	1.890	1.980	1.140	0.381	59	223
GPS Antenna	157.00	1	1.890	1.980	1.140	0.381	0	1
RET Kit	157.00	9	1.890	1.980	1.140	0.381	3	12
ODU	157.00	22	1.890	1.980	1.140	0.381	7	27
1900MHz RRH	157.00	360	1.890	1.980	1.140	0.381	119	446
Platform w/ Rail	157.00	2,500	1.890	1.980	1.140	0.381	826	3,099
800 MHz Notch Filter	157.00	53	1.890	1.980	1.140	0.381	17	66
APXVSP18-C-A20	157.00	171	1.890	1.980	1.140	0.381	57	212
RRH 2x60 LTE	147.00	171	1.657	0.966	0.750	0.237	35	212
RRH 90W AWS	147.00	186	1.657	0.966	0.750	0.237	38	231
DB-T1-6Z-8AB-0Z	147.00	88	1.657	0.966	0.750	0.237	18	109
JAHH-65B-R3B	147.00	380	1.657	0.966	0.750	0.237	78	471
RRH 4x40-850	147.00	264	1.657	0.966	0.750	0.237	54	327
LPA-80080/4CF	147.00	72	1.657	0.966	0.750	0.237	15	89
FD9R6004-2C-3L	147.00	19	1.657	0.966	0.750	0.237	4	23
Low Profile Platform	147.00	1,600	1.657	0.966	0.750	0.237	329	1,983
		46,093	65.402	42.317	28.920	9.525	3,321	57,140

**Load Case (0.9 - 0.2Sds) \* DL + E EMAM**

**Seismic (Reduced DL) Equivalent Modal Analysis Method**

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
38	156.00	127	1.866	1.856	1.095	0.366	40	109
37	152.50	329	1.783	1.463	0.949	0.313	89	283
36	148.50	205	1.691	1.088	0.801	0.257	46	177
35	146.00	169	1.634	0.889	0.718	0.225	33	146
34	142.50	435	1.557	0.651	0.613	0.183	69	374
33	137.50	452	1.450	0.385	0.485	0.130	51	389
32	134.50	92	1.387	0.260	0.419	0.102	8	79
31	132.00	796	1.336	0.174	0.369	0.081	56	685
30	127.50	757	1.246	0.053	0.291	0.047	31	651
29	122.50	790	1.151	-0.037	0.220	0.017	12	680
28	117.50	823	1.059	-0.090	0.162	-0.006	-4	708
27	112.50	857	0.970	-0.116	0.117	-0.021	-16	737
26	107.50	890	0.886	-0.122	0.082	-0.029	-22	765
25	102.50	923	0.806	-0.113	0.055	-0.030	-24	794
24	98.88	426	0.750	-0.101	0.041	-0.028	-10	367
23	96.38	1,008	0.712	-0.091	0.032	-0.024	-21	868
22	93.63	1,030	0.672	-0.078	0.025	-0.019	-17	886
21	91.13	500	0.637	-0.066	0.019	-0.013	-6	431
20	87.50	1,140	0.587	-0.048	0.013	-0.004	-4	981
19	82.50	1,179	0.522	-0.024	0.008	0.009	10	1,014
18	77.50	1,218	0.461	-0.002	0.006	0.022	23	1,048
17	72.50	1,256	0.403	0.017	0.006	0.033	36	1,081
16	67.50	1,295	0.349	0.033	0.009	0.041	46	1,114
15	62.50	1,334	0.300	0.045	0.012	0.046	53	1,148
14	57.50	1,373	0.254	0.055	0.017	0.049	58	1,181
13	53.83	654	0.222	0.060	0.020	0.049	28	563
12	51.33	1,397	0.202	0.063	0.023	0.050	60	1,202

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11	47.67	2,497	0.174	0.066	0.027	0.049	107	2,148
10	45.17	97	0.156	0.067	0.029	0.049	4	83
9	42.50	1,468	0.138	0.069	0.032	0.048	62	1,263
8	37.50	1,507	0.108	0.071	0.036	0.047	62	1,297
7	32.50	1,546	0.081	0.072	0.039	0.046	62	1,330
6	27.50	1,585	0.058	0.072	0.041	0.045	61	1,363
5	22.50	1,623	0.039	0.070	0.041	0.043	60	1,397
4	17.50	1,662	0.023	0.066	0.039	0.040	58	1,430
3	12.50	1,701	0.012	0.057	0.033	0.036	52	1,463
2	7.50	1,740	0.004	0.042	0.024	0.027	41	1,497
1	2.50	1,778	0.000	0.017	0.009	0.012	19	1,530
800MHz RRH	157.00	192	1.890	1.980	1.140	0.381	63	165
Collar Mount	157.00	250	1.890	1.980	1.140	0.381	83	215
TD-RRH-8X20	157.00	420	1.890	1.980	1.140	0.381	139	361
APXVTM14-C-I20	157.00	165	1.890	1.980	1.140	0.381	54	142
96" x 14" x 7" Panel	157.00	210	1.890	1.980	1.140	0.381	69	181
16" x 9" x 6" Combin	157.00	120	1.890	1.980	1.140	0.381	40	103
26" Microwave	157.00	180	1.890	1.980	1.140	0.381	59	155
GPS Antenna	157.00	1	1.890	1.980	1.140	0.381	0	1
RET Kit	157.00	9	1.890	1.980	1.140	0.381	3	8
ODU	157.00	22	1.890	1.980	1.140	0.381	7	19
1900MHz RRH	157.00	360	1.890	1.980	1.140	0.381	119	310
Platform w/ Rail	157.00	2,500	1.890	1.980	1.140	0.381	826	2,151
800 MHz Notch Filter	157.00	53	1.890	1.980	1.140	0.381	17	46
APXVSP18-C-A20	157.00	171	1.890	1.980	1.140	0.381	57	147
RRH 2x60 LTE	147.00	171	1.657	0.966	0.750	0.237	35	147
RRH 90W AWS	147.00	186	1.657	0.966	0.750	0.237	38	160
DB-T1-6Z-8AB-0Z	147.00	88	1.657	0.966	0.750	0.237	18	76
JAHH-65B-R3B	147.00	380	1.657	0.966	0.750	0.237	78	327
RRH 4x40-850	147.00	264	1.657	0.966	0.750	0.237	54	227
LPA-80080/4CF	147.00	72	1.657	0.966	0.750	0.237	15	62
FD9R6004-2C-3L	147.00	19	1.657	0.966	0.750	0.237	4	16
Low Profile Platform	147.00	1,600	1.657	0.966	0.750	0.237	329	1,377
		46,093	65.402	42.317	28.920	9.525	3,321	39,654

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**Load Case (1.2 + 0.2Sds) \* DL + E EMAM**

**Seismic Equivalent Modal Analysis Method**

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-54.94	-3.31	0.00	-421.27	0.00	421.27	5,980.07	2,990.03	16,624.4	8,324.57	0.00	0.00	0.060
5.00	-52.78	-3.28	0.00	-404.74	0.00	404.74	5,898.95	2,949.47	15,998.2	8,011.02	0.01	-0.01	0.059
10.00	-50.67	-3.23	0.00	-388.36	0.00	388.36	5,814.64	2,907.32	15,374.6	7,698.77	0.02	-0.02	0.059
15.00	-48.61	-3.18	0.00	-372.20	0.00	372.20	5,727.15	2,863.57	14,754.3	7,388.14	0.05	-0.03	0.059
20.00	-46.60	-3.13	0.00	-356.28	0.00	356.28	5,636.47	2,818.23	14,137.9	7,079.47	0.09	-0.05	0.059
25.00	-44.63	-3.08	0.00	-340.62	0.00	340.62	5,542.60	2,771.30	13,526.0	6,773.06	0.15	-0.06	0.058
30.00	-42.71	-3.02	0.00	-325.23	0.00	325.23	5,445.54	2,722.77	12,919.3	6,469.26	0.22	-0.07	0.058
35.00	-40.84	-2.97	0.00	-310.10	0.00	310.10	5,345.30	2,672.65	12,318.4	6,168.38	0.30	-0.08	0.058
40.00	-39.02	-2.92	0.00	-295.25	0.00	295.25	5,241.87	2,620.94	11,724.0	5,870.75	0.39	-0.10	0.058
45.00	-38.90	-2.92	0.00	-280.67	0.00	280.67	5,135.25	2,567.63	11,136.8	5,576.69	0.51	-0.11	0.058
45.33	-35.81	-2.81	0.00	-279.70	0.00	279.70	5,128.03	2,564.02	11,097.9	5,557.22	0.51	-0.11	0.057
50.00	-34.08	-2.75	0.00	-266.60	0.00	266.60	5,025.45	2,512.73	10,557.3	5,286.54	0.63	-0.13	0.057
52.67	-33.26	-2.73	0.00	-259.26	0.00	259.26	5,025.47	2,512.73	10,557.4	5,286.58	0.71	-0.14	0.056
55.00	-31.56	-2.67	0.00	-252.90	0.00	252.90	4,973.14	2,486.57	10,289.9	5,152.60	0.77	-0.14	0.055
60.00	-29.91	-2.62	0.00	-239.55	0.00	239.55	4,858.66	2,429.33	9,723.06	4,868.75	0.93	-0.16	0.055
65.00	-28.30	-2.58	0.00	-226.44	0.00	226.44	4,740.99	2,370.50	9,165.59	4,589.61	1.11	-0.18	0.055
70.00	-26.74	-2.55	0.00	-213.55	0.00	213.55	4,620.14	2,310.07	8,618.17	4,315.49	1.30	-0.19	0.055
75.00	-25.23	-2.53	0.00	-200.81	0.00	200.81	4,496.10	2,248.05	8,081.43	4,046.72	1.51	-0.21	0.055
80.00	-23.77	-2.52	0.00	-188.18	0.00	188.18	4,353.06	2,176.53	7,528.68	3,769.93	1.75	-0.23	0.055
85.00	-22.36	-2.52	0.00	-175.59	0.00	175.59	4,183.86	2,091.93	6,951.89	3,481.11	2.00	-0.25	0.056
90.00	-21.74	-2.53	0.00	-162.96	0.00	162.96	4,014.66	2,007.33	6,398.09	3,203.80	2.27	-0.27	0.056
92.25	-20.46	-2.55	0.00	-157.26	0.00	157.26	3,938.51	1,969.26	6,156.38	3,082.77	2.40	-0.28	0.056
95.00	-19.21	-2.57	0.00	-150.26	0.00	150.26	3,845.45	1,922.73	5,867.28	2,938.00	2.56	-0.29	0.056
97.75	-18.68	-2.58	0.00	-143.20	0.00	143.20	3,777.70	1,638.85	4,997.17	2,502.30	2.74	-0.30	0.063
100.00	-17.53	-2.60	0.00	-137.40	0.00	137.40	3,222.92	1,611.46	4,815.14	2,411.15	2.88	-0.32	0.062
105.00	-16.43	-2.63	0.00	-124.38	0.00	124.38	3,077.89	1,538.94	4,389.42	2,197.97	3.23	-0.34	0.062
110.00	-15.37	-2.64	0.00	-111.26	0.00	111.26	2,932.86	1,466.43	3,983.41	1,994.67	3.60	-0.37	0.061
115.00	-14.34	-2.65	0.00	-98.05	0.00	98.05	2,787.83	1,393.91	3,597.10	1,801.22	4.00	-0.39	0.060
120.00	-13.36	-2.63	0.00	-84.82	0.00	84.82	2,642.80	1,321.40	3,230.49	1,617.64	4.42	-0.42	0.057
125.00	-12.42	-2.60	0.00	-71.65	0.00	71.65	2,497.76	1,248.88	2,883.58	1,443.93	4.88	-0.45	0.055
130.00	-11.44	-2.54	0.00	-58.63	0.00	58.63	2,352.73	1,176.37	2,556.37	1,280.08	5.37	-0.48	0.051
134.00	-11.32	-2.54	0.00	-48.46	0.00	48.46	1,028.31	514.15	1,093.21	547.42	5.78	-0.50	0.100
135.00	-10.76	-2.49	0.00	-45.93	0.00	45.93	1,020.22	510.11	1,070.76	536.17	5.88	-0.50	0.096
140.00	-10.22	-2.42	0.00	-33.49	0.00	33.49	977.89	488.95	959.91	480.67	6.44	-0.55	0.080
145.00	-10.01	-2.39	0.00	-21.40	0.00	21.40	932.37	466.18	851.90	426.58	7.03	-0.59	0.061
147.00	-6.32	-1.73	0.00	-16.62	0.00	16.62	913.27	456.63	809.64	405.42	7.28	-0.60	0.048
150.00	-5.91	-1.64	0.00	-11.42	0.00	11.42	883.66	441.83	747.38	374.24	7.67	-0.62	0.037
155.00	-5.75	-1.60	0.00	-3.20	0.00	3.20	831.77	415.88	647.00	323.98	8.32	-0.63	0.017
157.00	0.00	-1.54	0.00	0.00	0.00	0.00	809.65	404.83	607.80	304.35	8.59	-0.63	0.000

**Load Case (0.9 - 0.2Sds) \* DL + E EMAM**

**Seismic (Reduced DL) Equivalent Modal Analysis Method**

**Calculated Forces**

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-38.12	-3.31	0.00	-417.41	0.00	417.41	5,980.07	2,990.03	16,624.4	8,324.57	0.00	0.00	0.057
5.00	-36.63	-3.27	0.00	-400.88	0.00	400.88	5,898.95	2,949.47	15,998.2	8,011.02	0.01	-0.01	0.056
10.00	-35.16	-3.22	0.00	-384.53	0.00	384.53	5,814.64	2,907.32	15,374.6	7,698.77	0.02	-0.02	0.056
15.00	-33.73	-3.17	0.00	-368.40	0.00	368.40	5,727.15	2,863.57	14,754.3	7,388.14	0.05	-0.03	0.056
20.00	-32.34	-3.12	0.00	-352.54	0.00	352.54	5,636.47	2,818.23	14,137.9	7,079.47	0.09	-0.05	0.056
25.00	-30.97	-3.06	0.00	-336.95	0.00	336.95	5,542.60	2,771.30	13,526.0	6,773.06	0.15	-0.06	0.055
30.00	-29.64	-3.01	0.00	-321.63	0.00	321.63	5,445.54	2,722.77	12,919.3	6,469.26	0.21	-0.07	0.055
35.00	-28.34	-2.95	0.00	-306.60	0.00	306.60	5,345.30	2,672.65	12,318.4	6,168.38	0.30	-0.08	0.055
40.00	-27.08	-2.89	0.00	-291.85	0.00	291.85	5,241.87	2,620.94	11,724.0	5,870.75	0.39	-0.10	0.055
45.00	-27.00	-2.89	0.00	-277.38	0.00	277.38	5,135.25	2,567.63	11,136.8	5,576.69	0.50	-0.11	0.055
45.33	-24.85	-2.78	0.00	-276.42	0.00	276.42	5,128.03	2,564.02	11,097.9	5,557.22	0.51	-0.11	0.055
50.00	-23.65	-2.73	0.00	-263.43	0.00	263.43	5,025.45	2,512.73	10,557.3	5,286.54	0.63	-0.13	0.055
52.67	-23.08	-2.70	0.00	-256.16	0.00	256.16	5,025.47	2,512.73	10,557.4	5,286.58	0.70	-0.14	0.053
55.00	-21.90	-2.64	0.00	-249.86	0.00	249.86	4,973.14	2,486.57	10,289.9	5,152.60	0.77	-0.14	0.053
60.00	-20.75	-2.59	0.00	-236.64	0.00	236.64	4,858.66	2,429.33	9,723.06	4,868.75	0.92	-0.16	0.053
65.00	-19.64	-2.55	0.00	-223.67	0.00	223.67	4,740.99	2,370.50	9,165.59	4,589.61	1.10	-0.17	0.053
70.00	-18.56	-2.52	0.00	-210.91	0.00	210.91	4,620.14	2,310.07	8,618.17	4,315.49	1.29	-0.19	0.053
75.00	-17.51	-2.50	0.00	-198.33	0.00	198.33	4,496.10	2,248.05	8,081.43	4,046.72	1.50	-0.21	0.053
80.00	-16.49	-2.49	0.00	-185.85	0.00	185.85	4,353.06	2,176.53	7,528.68	3,769.93	1.73	-0.23	0.053
85.00	-15.51	-2.49	0.00	-173.41	0.00	173.41	4,183.86	2,091.93	6,951.89	3,481.11	1.97	-0.25	0.054
90.00	-15.08	-2.50	0.00	-160.95	0.00	160.95	4,014.66	2,007.33	6,398.09	3,203.80	2.24	-0.27	0.054
92.25	-14.19	-2.52	0.00	-155.32	0.00	155.32	3,938.51	1,969.26	6,156.38	3,082.77	2.37	-0.28	0.054
95.00	-13.33	-2.54	0.00	-148.40	0.00	148.40	3,845.45	1,922.73	5,867.28	2,938.00	2.53	-0.29	0.054
97.75	-12.96	-2.55	0.00	-141.43	0.00	141.43	3,277.70	1,638.85	4,997.17	2,502.30	2.70	-0.30	0.060
100.00	-12.16	-2.57	0.00	-135.70	0.00	135.70	3,222.92	1,611.46	4,815.14	2,411.15	2.85	-0.31	0.060
105.00	-11.40	-2.59	0.00	-122.84	0.00	122.84	3,077.89	1,538.94	4,389.42	2,197.97	3.19	-0.34	0.060
110.00	-10.66	-2.61	0.00	-109.88	0.00	109.88	2,932.86	1,466.43	3,983.41	1,994.67	3.56	-0.36	0.059
115.00	-9.95	-2.61	0.00	-96.83	0.00	96.83	2,787.83	1,393.91	3,597.10	1,801.22	3.95	-0.39	0.057
120.00	-9.27	-2.60	0.00	-83.76	0.00	83.76	2,642.80	1,321.40	3,230.49	1,617.64	4.37	-0.42	0.055
125.00	-8.62	-2.57	0.00	-70.75	0.00	70.75	2,497.76	1,248.88	2,883.58	1,443.93	4.83	-0.44	0.052
130.00	-7.93	-2.51	0.00	-57.89	0.00	57.89	2,352.73	1,176.37	2,556.37	1,280.08	5.31	-0.47	0.049
134.00	-7.85	-2.51	0.00	-47.84	0.00	47.84	1,028.31	514.15	1,093.21	547.42	5.71	-0.49	0.095
135.00	-7.46	-2.45	0.00	-45.34	0.00	45.34	1,020.22	510.11	1,070.76	536.17	5.81	-0.50	0.092
140.00	-7.09	-2.39	0.00	-33.06	0.00	33.06	977.89	488.95	959.91	480.67	6.36	-0.54	0.076
145.00	-6.94	-2.36	0.00	-21.13	0.00	21.13	932.37	466.18	851.90	426.58	6.95	-0.58	0.057
147.00	-4.38	-1.71	0.00	-16.41	0.00	16.41	913.27	456.63	809.64	405.42	7.20	-0.59	0.045
150.00	-4.10	-1.62	0.00	-11.27	0.00	11.27	883.66	441.83	747.38	374.24	7.58	-0.61	0.035
155.00	-3.99	-1.58	0.00	-3.16	0.00	3.16	831.77	415.88	647.00	323.98	8.22	-0.62	0.015
157.00	0.00	-1.54	0.00	0.00	0.00	0.00	809.65	404.83	607.80	304.35	8.49	-0.63	0.000

Site Number: CT54XC773

Code: ANSI/TIA-222-G

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Site Name: Hamden, CT

Engineering Number: REV08

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Customer: Sprint Sites USA - GA 2

**Analysis Summary**

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	28.34	0.00	55.29	0.00	0.00	3220.54	134.00	0.54
0.9D + 1.6W	28.33	0.00	41.46	0.00	0.00	3197.69	134.00	0.53
1.2D + 1.0Di + 1.0Wi	6.62	0.00	80.14	0.00	0.00	712.15	134.00	0.13
(1.2 + 0.2Sds) * DL + E ELFM	2.13	0.00	54.94	0.00	0.00	263.58	134.00	0.05
(1.2 + 0.2Sds) * DL + E EMAM	3.31	0.00	54.94	0.00	0.00	421.27	134.00	0.10
(0.9 - 0.2Sds) * DL + E ELFM	2.13	0.00	38.12	0.00	0.00	261.38	134.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	3.31	0.00	38.12	0.00	0.00	417.41	134.00	0.10
1.0D + 1.0W	5.78	0.00	46.09	0.00	0.00	654.41	134.00	0.12

Site Number: CT54XC773  
 Site Name: Hamden, CT  
 Customer: Sprint Sites USA - GA 2

Code: ANSI/TIA-222-G  
 Engineering Number: REV08

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**Base Summary**

**Reactions**

Original Design			Analysis			Moment Design %
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	
7,151.38	68.80	61.40	3,220.54	80.14	28.34	45.03

**Base Plate**

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Mu (kip-in)	Phi Mn (kip-in)	Ratio
50.0	3.000	82.000	Round	0	0.00	43.884	1045.34	4443.28	0.24

**Anchor Bolts**

Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Start Angle (deg)	Compression			Tension		
									Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
76.00	36	2.25" 18J	2.25	75.00	100.00	Radial	0.00	0.0	58.73	260.00	0.23	54.27	260.00	0.21



Site Number: **CT54XC773**  
 Site Name: **Hamden, CT**  
 Job Number: **REV08**  
 Engineer: **CRB**  
 Date: **1/5/2018**

**Base Plate and Bolt Analysis**

Moment: **3220.5 k-ft**  
 Shear/Leg: **28.3 k**  
 Compression/Leg: **80.1 k**

TIA-222 Code Revision (F/G): **G**  
 Anchor Bolt Arrangement: **Round**  
 Monopole Shaft Diameter (Across Flats): **68.0 in**  
 Lower Monopole Thickness: **0.438 in**  
 # of Sides of Pole: **18**  
 Monopole Shaft Yield Strength: **65 ksi**  
 Baseplate Diameter / Length: **82.00**  
 Base Plate Thickness: **3.00 in**  
 Base Plate Yield Strength: **50 ksi**  
 Baseplate Detail Type: **D**  
 Include Plate Thickness Beyond Bolt Circle: **Y**  
 Stress Increase: **1.00**  
 Fillet Weld Size: **0.375 in**  
 Weld Type (CJP or F/F): **CJP**  
 Weld Strength: **70 ksi**

**Anchor Bolts**

Anchor Bolt Yield Strength: **75 ksi**  
 Anchor Bolt Ultimate Strength: **100 ksi**  
 Anchor Bolt Diameter: **2.25 in**  
 Anchor Bolt Circle: **76.00 in**  
 # of Anchor Bolts: **36**  
 Minimum Anchor Bolt Separation: **6.00 in**  
 Additional Anchor Bolts Installed: **N**

Failure Mode:	Effective Width (in)	Baseplate Flexural Capacity				Baseplate Shear Capacity			
		Moment (k-in)	S/Z (in <sup>3</sup> )	Capacity (k-in)	Usage	Shear (k)	Area (in <sup>2</sup> )	Capacity (k)	Usage
AA	39.94	819.8	89.9	4044.0	0.20	285.0	119.8	3235.2	0.09
AB	47.03	1073.2	105.8	4761.9	0.23	285.0	141.1	3809.5	0.07
BA	37.75	670.3	84.9	3822.5	0.18	285.0	113.3	3058.0	0.09
BB	43.46	1045.4	97.8	4399.9	0.24	285.0	130.4	3519.9	0.08

**Anchor Bolt Capacity**

Area of Bolt: **3.25 in<sup>2</sup>**  
 Inertia of Bolt: **0.84 in<sup>4</sup>**  
 Total Bolt Inertia: **84444.0 in<sup>4</sup>**  
 Maximum Bolt Tension: **54.3 k**  
 Maximum Bolt Compression: **58.7 k**  
 Bolt Shear: **0.8 k**  
 Tensile Bolt Capacity: **259.8 k**  
 Compressive Bolt Capacity: **259.8 k**  
 Shear Bolt Capacity: **140.3 k**  
 Interaction Equation: **0.23 Result: OK**

**Base Weld Capacity**

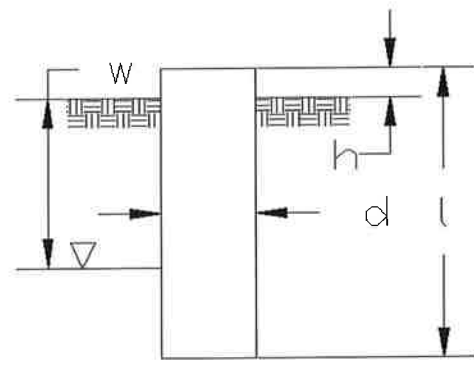
Force / Weld: **8.5 k/in**  
 Weld Capacity: **28.9 k/in**  
 Interaction Equation: **0.29 Result: OK**  
 SES Base Plate Design Moment: **234.8 k-in**  
 Design Stress: **17.6 ksi**  
 SES Base Plate Allowable Stress / Moment Capacity: **600.8 ksi / k-in**  
 Usage: **0.39**  
 Moment Factor: **4.45**  
 Length Factor: **7.32**

Site Name: Hamden, CT  
 Site Number: CT54XC773  
 Engineer: C. Bateman  
 Engineering Number: REV08  
 Date: 01/05/18

Program Last Updated: 5/13/2014  
 American Tower Corporation

**Design Base Loads (Factored) - Analysis per TIA-222-G Standards**

Analyze or Design a Foundation? **Analyze**  
 Foundation Mapped: **N**  
 Moment (M): 3220.5 k-ft  
 Shear/Leg (V): 28.3 k  
 Axial Load (P): 80.1 k  
 Uplift/Leg (U): 0.0 k  
 Tower Type (GT / SST / MP): **MP**



Diameter of Caisson (d): 8.0 ft  
 Caisson Embedment (L-h): 47.0 ft  
 Caisson Height Above Ground (h): 1.0 ft  
 Depth Below Ground Surface to Water Table (w): 15.0 ft  
 Unit Weight of Concrete: 150.0 pcf  
 Unit Weight of Water: 62.4 pcf  
 Tension Skin Friction/Compression Skin Friction: 1.00  
 Pullout Angle: 30.0 degrees

**Engineer Notes**

**Soil Mechanical Properties**

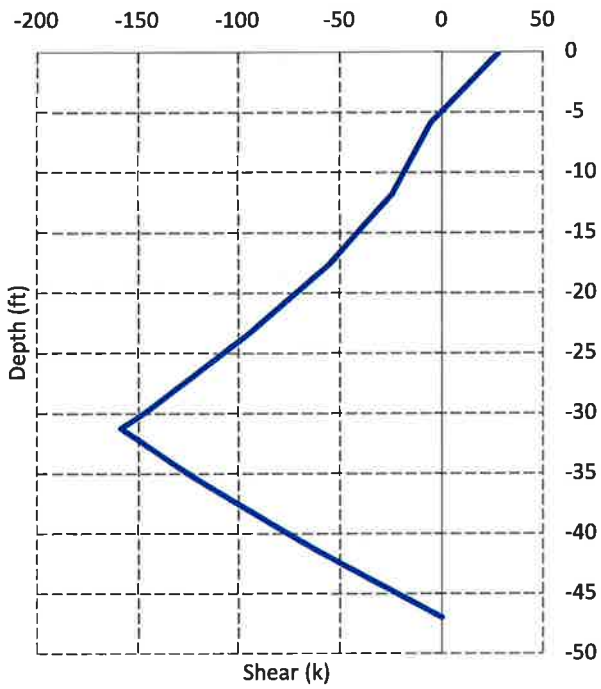
Depth (ft)		$\gamma_{soil}$ (pcf)	Cohesion (psf)	$\phi$ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
Top	Bottom					
0.0	2.5	120	0	25	0	0
2.5	48.0	120	0	28	0	12000

Required Embedment: 21.0 ft - OK, Caisson Embedment Satisfactory  
 Volume of Concrete: 2412.7 ft<sup>3</sup> = 89.4 yd<sup>3</sup>  
 Weight of Concrete (Buoyancy Effect Considered): 261.5 k  
 Average Soil Unit Weight: 77.2 pcf  
 Skin Friction Resistance: 0.0 k  
 Compressive Bearing Resistance: 603.2 k  
 Pullout Weight (Minus Concrete Weight): 4032.5 k  
 Nominal Uplift Capacity per Leg ( $\phi_s T_n$ ): 196.2 k  
 Nominal Compressive Capacity per Leg ( $\phi_s P_n$ ): 452.4 k  
 $P_u$ : 166.2 k  
 $T_u / \phi_s T_n$ : 0.00 Result: OK  
 $P_u / \phi_s P_n$ : 0.37 Result: OK  
 Total Lateral Resistance: 5978.1 k  
 Inflection Point (Below Ground Surface): 31.2 ft  
 Design Overturning Moment At Inflection Point ( $M_D$ ): 4133.6 k-ft  
 Nominal Moment Capacity ( $\phi_s M_n$ ): 43302.9 k-ft  
 $M_D / \phi_s M_n$ : 0.10 Result: OK  
 $\phi_s$ : 0.75

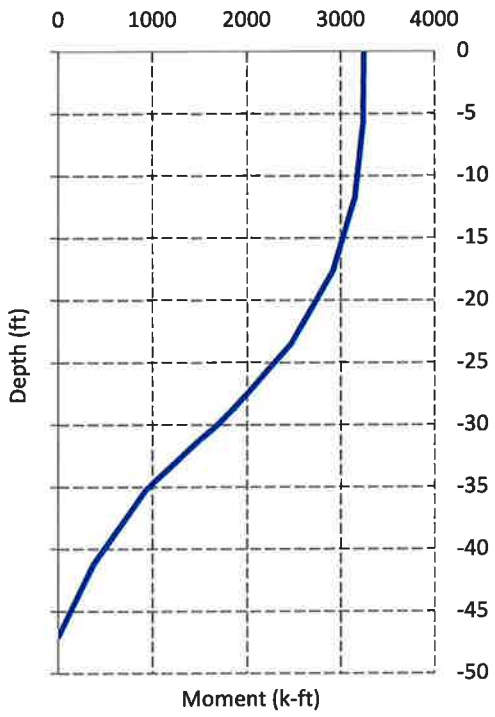
## Caisson Strength Capacity

Concrete Compressive Strength ( $f'_c$ ):	4000 psi
Vertical Steel Rebar Size #:	8
Vertical Steel Rebar Area:	0.79 in <sup>2</sup>
# of Vertical Steel Rebars:	58
Vertical Steel Rebar Yield Strength ( $F_y$ ):	60 ksi
Horizontal Tie / Stirrup Size #:	5
Horizontal Tie / Stirrup Area:	0.31 in <sup>2</sup>
Design Horizontal Tie / Stirrup Spacing:	12.0 in
Horizontal Tie / Stirrup Steel Yield Strength ( $F_y$ ):	60 ksi
Rebar Cage Diameter:	88.0 in
Strength Bending/Tension Reduction Factor ( $\phi_B$ ):	0.90 ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor ( $\phi_V$ ):	0.75 ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor ( $\phi_C$ ):	0.65 ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000 ksi
Design Moment ( $M_u$ ):	3248.9 k-ft
Nominal Moment Capacity ( $\phi_B M_n$ ):	8871.0 k-ft - ACI318-005 - 10.2
$M_u / \phi_B M_n$ :	0.37 Result: OK
Design Shear ( $V_u$ ):	158.6 k
Nominal Shear Capacity ( $\phi_V V_n$ ):	690.5 k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u / \phi_V V_n$ :	0.23 Result: OK
Design Tension ( $T_u$ ):	0.0 k
Nominal Tension Capacity ( $\phi_T T_n$ ):	2474.3 k - ACI318-05 - 10.2
$T_u / \phi_T T_n$ :	0.00 Result: OK
Design Compression ( $P_u$ ):	166.2 k
Nominal Compression Capacity ( $\phi_P P_n$ ):	12716.2 k - ACI318-05 - 10.3.6.2
$P_u / \phi_P P_n$ :	0.01 Result: OK
Bending Reinforcement Ratio:	0.006 ACI318-05 - 10.8.4 & 10.9.1
$M_u / \phi_B M_n + T_u / \phi_T T_n$ :	0.37 Result: OK

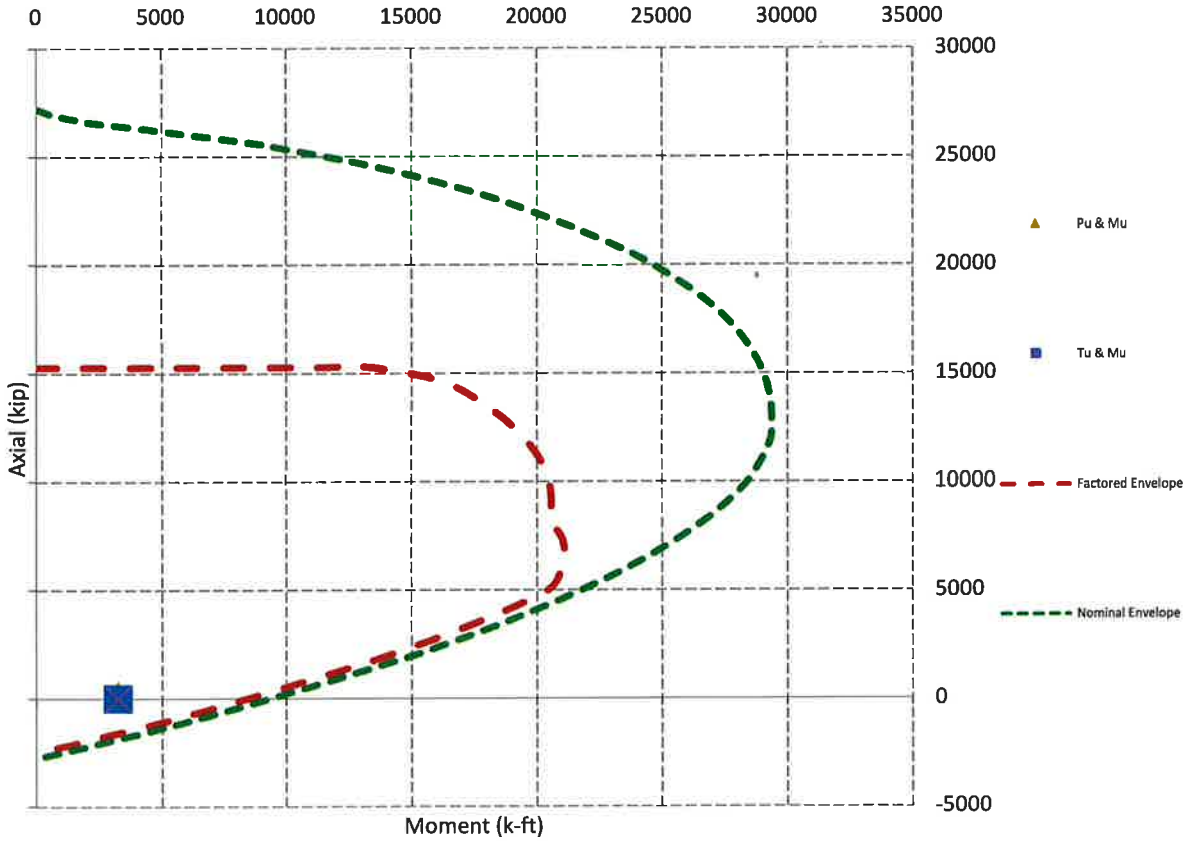
Design Factored Shear / Depth



Design Factored Moment / Depth



Nominal and Factored Moment Capacity and Factored Design Loads



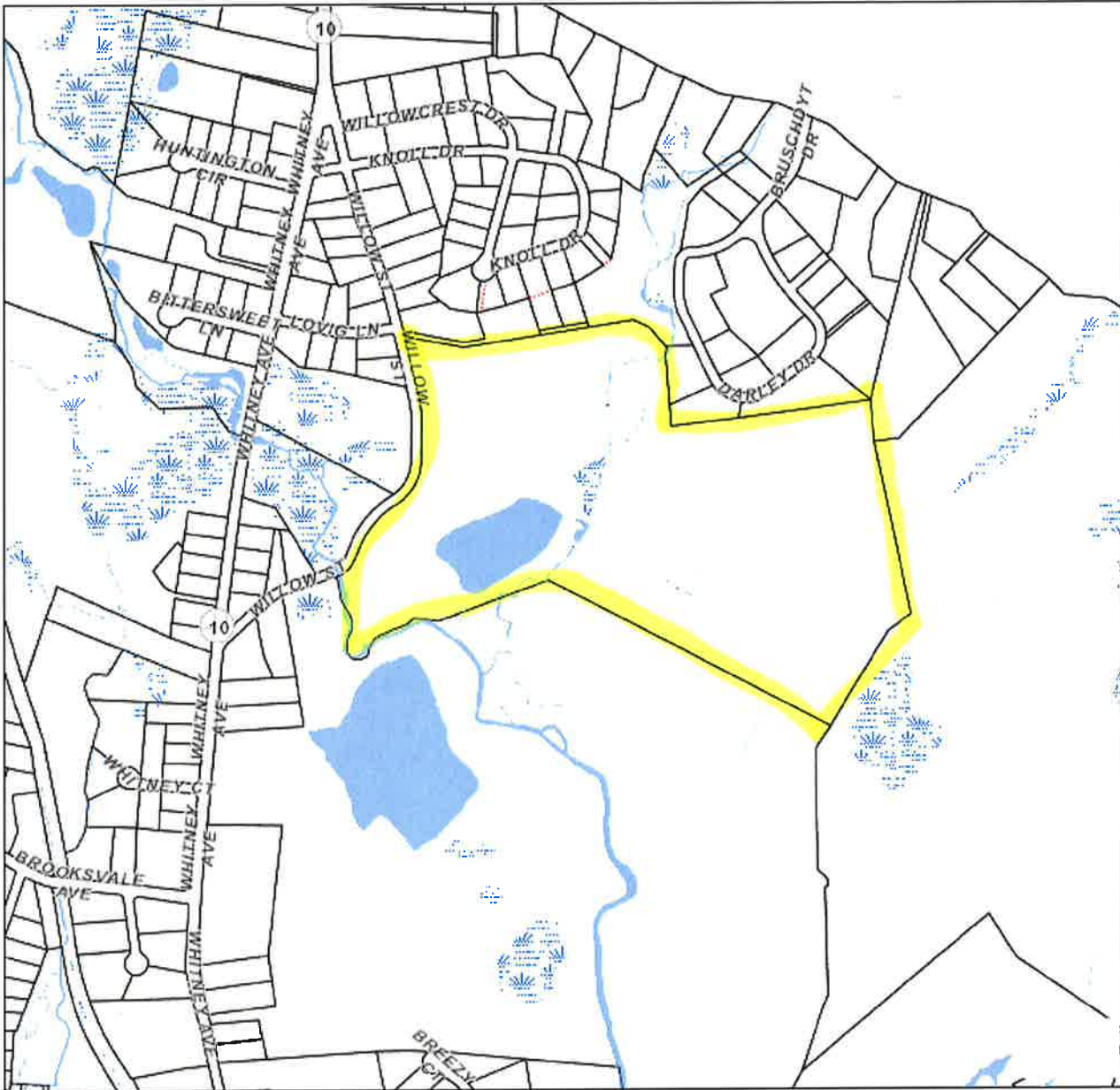
# **ATTACHMENT 4**

# Town of Hamden

## Geographic Information System (GIS)



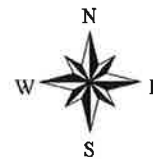
Date Printed: 1/10/2018



**MAP DISCLAIMER - NOTICE OF LIABILITY**

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Hamden and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 800 feet





Property Information

Property Location	150 WILLOW ST
Owner	HAMDEN FISH & GAME PROTECTIVE AS
Co-Owner	
Mailing Address	P O BOX 5619 HAMDEN CT 06518-0619
Land Use	3850 FISH&GAME
Land Class	C
Zoning Code	T1
Census Tract	2
Sub Lot	
Neighborhood	130
Acreage	85.58
Lot Setting/Desc	Suburban Level
Survey Map	
Utilities	Public Water,Public Sewer,Gas/Electric
Additional Info	

Photo



3430-001-00-0000 04/23/2015

Sketch



Primary Construction Details

Year Built	1900
Stories	2
Building Style	Clubs/Lodges
Building Use	Comm/Ind
Building Condition	C
Floors	Vinyl/Asphalt
Total Rooms	

Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Gable/Hip
Roof Cover	Asphalt

Exterior Walls	Vinyl Siding
Interior Walls	K PINE/A WD
Heating Type	Forced Air-Duc
Heating Fuel	Oil
AC Type	
Gross Bldg Area	5759
Total Living Area	3081



# Town of Hamden, CT

Property Listing Report

Map Block Lot

3430-001-00-0000

Account

## Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	164900	115430
Extras	5300	3710
Outbuildings	17000	11900
Land	1172000	288530
<b>Total</b>	<b>1359200</b>	<b>419570</b>

## Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Upper Story, Finished	1748	1748
Garage	1550	0
Patio	450	0
Enclosed Porch, Unfinished	78	0
Porch, Open	600	0
First Floor	1333	1333
Slab	0	0
<b>Total Area</b>	<b>5759</b>	<b>3081</b>

## Outbuilding and Extra Items

Type	Description
FIREPLACE AVG	1.00 UNITS
SHED FRAME	740.00 S.F.
SHED COM MAS	64.00 S.F.
SHED COM MAS	360.00 S.F.
AIR CONDITIONING	1288.00 S.F.
FIREPLACE	1.00 UNITS
W/LOFT-AVG	576.00 S.F.

## Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
HAMDEN FISH & GAME PROTECTIVE AS	232/ 49	10/10/1945	0



# **ATTACHMENT 5**



**Certificate of Mailing — Firm**

Name and Address of Sender

Kenneth C. Baldwin, Esq.  
Robinson & Cole LLP  
280 Trumbull Street  
Hartford, CT 06103

TOTAL NO.  
of Pieces Listed by Sender

3

TOTAL NO.  
of Pieces Received at Post Office™

Affix Stamp Here  
Postmark with Date of Receipt.

neopost  
02/21/2018  
**US POSTAGE \$002.38**  
ZIP 06103  
041112203660

OLD STATE HOUSE  
STATION 06103  
FEB 21 2018  
USPS

Postmaster, per (name of receiving employee)

*[Handwritten signature]*

USPS® Tracking Number  
Firm-specific Identifier

Address  
(Name, Street, City, State, and ZIP Code™)

Postage

Fee

Special Handling

Parcel Airlift

1.

Curt B. Leng, Mayor  
Town of Hamden  
2750 Dixwell Avenue  
Hamden, CT 06518

2.

Daniel Kops, Town Planner  
Town of Hamden  
2750 Dixwell Avenue  
Hamden, CT 06518

3.

Hamden Fish & Game Protective  
Association  
P.O. Box 3619  
Hamden, CT 06518

4.

5.

6.