



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

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### VIA ELECTRONIC MAIL

October 19, 2018

Jeffrey Barbadora  
Real Estate Specialist  
Crown Castle  
12 Gill Street, Suite 5800  
Woburn, MA 01801

RE: **EM-SPRINT-058-181009** – Sprint notice of intent to modify an existing telecommunications facility located at 1439 Voluntown Road, Griswold, Connecticut.

Dear Mr. Barbadora:

The Connecticut Siting Council (Council) is in receipt of your correspondence of October 19, 2018 submitted in response to the Council's October 10, 2018 notification of an incomplete request for exempt modification with regard to the above-referenced matter.

The submission renders the request for exempt modification complete and the Council will process the request in accordance with the Federal Communications Commission 60-day timeframe.

Thank you for your attention and cooperation.

Sincerely,

Melanie A. Bachman  
Executive Director

MAB/FOC/IN



## **Robidoux, Evan**

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**From:** Barbadora, Jeff <Jeff.Barbadora@crowncastle.com>  
**Sent:** Friday, October 19, 2018 8:58 AM  
**To:** Robidoux, Evan  
**Cc:** CSC-DL Siting Council  
**Subject:** RE: Council Incomplete Letter for EM-SPRINT-058-181009-VoluntownRd-Griswold  
**Attachments:** MA.pdf

Good morning Evan,

Attached is the mount analysis as requested in the CSC 10/10/18 letter.

Please let me know if I should send hard copies of the MA to the council.

Thanks,

**Jeffrey Barbadora**  
781-970-0053  
12 Gill Street, Suite 5800, Woburn, MA 01801  
[CrownCastle.com](http://CrownCastle.com)

**From:** Robidoux, Evan  
**Sent:** Thursday, October 11, 2018 4:16 PM  
**To:** Barbadora, Jeff  
**Cc:** CSC-DL Siting Council  
**Subject:** Council Incomplete Letter for EM-SPRINT-058-181009-VoluntownRd-Griswold

Please see the attached correspondence.

Evan Robidoux  
Clerk Typist  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

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**HUDSON**

Design Professionals

Date: May 23, 2018  
June 13, 2018 (Rev.1)

Marianne Dunst  
Crown Castle  
2000 Corporate Drive  
Canonsburg, PA 15317  
(724) 416-2000

Hudson Design Group LLC  
45 Beechwood Drive  
N. Andover, MA 01845  
(978) 557-5553

**Subject:** Mount Structural Analysis

**Carrier Designation:** Sprint Equipment Change-Out  
**Carrier Site Number:** CT33XC011  
**Carrier Site Name:** WAPPINGERS FALLS/BOB'S ANTIQ

**Crown Castle Designation:** **Crown Castle BU Number:** 876367  
**Crown Castle Site Name:** WAPPINGERS FALLS/BOB'S ANTIQ  
**Crown Castle JDE Number:** 447229  
**Crown Castle PO Number:** 1201949  
**Crown Castle Application Number:** 397072 Rev.3

**Engineering Firm Designation:** **Crown Castle Report Designation:** 3876261

**Site Data:** 1439 Voluntown Road, Griswold, CT, 06384  
Latitude: 41° 34' 33.99" Longitude: -71° 53' 16.96"

**Structure Information:** **Tower Height & Type:** 180 ft Monopole  
**Mount Elevation:** 177 ft  
**Mount Width & Type:** 12 ft Platform

Dear Marianne Dunst,

Hudson Design Group LLC (HDG) is pleased to submit this "Mount Structural Analysis Report" to determine the structural integrity of Sprint's antenna mounting system with the proposed appurtenance and equipment addition on the abovementioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

Based upon our analysis, we have determined the adequacy of the antenna mounting system that will support the existing and proposed loading to be:

Platform

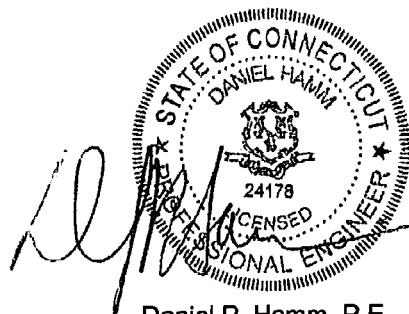
Conditional

This analysis has been performed in accordance with the 2012 International Building Code and the TIA-222-G based on a basic wind speed of 120 mph as required for use in the TIA-222-G Standard Annex B. Exposure Category C with a maximum topographic factor,  $K_{zt}$ , of 1.0 and Risk Category II were used in this analysis.

We at HDG appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects, please give us a call.

Mount structural analysis prepared by: HDG  
Respectfully Submitted by:

Michael Cabral  
Structural Dept. Head  
CCI Mount Analysis Report - Version 1.0.0



Daniel P. Hamm, P.E.  
Principal

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### 1) INTRODUCTION

This mount is a 12' platform. No original structural design documents or fabrication drawings were available for the existing mounts. A mount mapping was not performed at this site. HDG performed a visual assessment using field photographs and mount mapping data from similar mounts to perform this analysis. The mount is installed at an elevation of 177 ft on the 180 ft Monopole.

### 2) ANALYSIS CRITERIA

The mount structural analysis was conducted in accordance with the requirements of TIA-222-G, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a basic wind speed of 120 mph with no ice, 50 mph with a 1.77 inch escalated ice thickness, Exposure Category C and Topographic category 1 with a crest height of 0 ft. In addition, the mounts have been analyzed for various live loading conditions consisting of a 250 pound man live load applied individually at the midpoint and cantilevered ends of horizontal members as well as a 500 pound man live load applied individually at mount pipe locations using a 3-second gust wind speed of 30 mph.

**Table 1 - Proposed Equipment Loading Information**

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Proposed Mount Type	Note
177	177	3	Commscope	NNVV-65B-R4	-	1,2
		3	RFS/Cellwave	APXVTM14-ALU-I20	-	1,2
		3	Alcatel Lucent	PCS 1900MHZ 4X45W-65MHZ	-	1,2
		6	Alcatel Lucent	RRH2X50-800	-	1,2
		3	Alcatel Lucent	TD-RRH8x20-25	-	1,2

Notes:

- 1) Proposed Equipment
- 2) Existing Mount to Remain

**Table 2 - Existing and Reserved Equipment Loading Information**

Mount Centerline (ft)	Antenna Centerline (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Existing Mount Type	Note
177	-	-	-	-	12' Platform	1

Notes:

- 1) Existing Equipment

### 3) ANALYSIS PROCEDURE

**Table 3 - Documents Provided**

Document	Remarks	Reference	Source
RFDS	Sprint	-	ON FILE

#### 3.1) Analysis Method

RAM Elements (Version 14.0.1), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

**3.2) Assumptions**

- 1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
- 2) The configuration of antennas, mounts, and other appurtenances are as specified in Table 1 and 2 and the referenced drawings.
- 3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
- 4) Steel grades have been assumed as follows, unless noted otherwise:
 

Channel, Solid Round, Angle, Plate	ASTM A36 (GR 36)
HSS (Square, Rectangular)	ASTM A500 (GR B)
Pipe	ASTM A53 (GR 53)
Connection Bolts	ASTM A325

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the antenna mounting system.

**4) ANALYSIS RESULTS**

**Table 4(a) - Mount Component Stresses vs. Capacity (Platform, Alpha Sector)**

Notes	Component	Member No.	Centerline (ft)	% Capacity	Pass / Fail
1	Face Horizontal	57	177	32	Pass
1	Standoff Members	61	177	53	Pass
2	Mount-to-Tower Connection	-	177	48	Pass

**Table 4(b) - Mount Component Stresses vs. Capacity (Platform, Beta Sector)**

Notes	Component	Beam No.	Centerline (ft)	% Capacity	Pass / Fail
1	Face Horizontal	57	177	32	Pass
1	Standoff Members	61	177	53	Pass
2	Mount-to-Tower Connection	-	177	48	Pass

**Table 4(c) - Mount Component Stresses vs. Capacity (Platform, Gamma Sector)**

Notes	Component	Beam No.	Centerline (ft)	% Capacity	Pass / Fail
1	Face Horizontal	57	177	32	Pass
1	Standoff Members	61	177	53	Pass
2	Mount-to-Tower Connection	-	177	48	Pass

<b>Structure Rating (max from all components) =</b>	<b>82%</b>
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Notes:

- 1) See additional documentation in "Appendix C – Analysis Output" for calculations supporting the % Capacity consumed.
- 2) See additional documentation in "Appendix D – Additional Calculations" for calculations supporting the % capacity consumed.

**4.1) Recommendations**

The mount has sufficient capacity to support the existing and proposed loading with the following modifications:

- Install new mount, SitePro1 (P/N RMQP-496) (or approved equal).
- Vertically center the proposed pipe masts on the proposed platform mount (typ. of 3 per sector, total of 9).
- Install new 2-1/2" std. (2.88" O.D.) steel pipe masts secured to the proposed platform mount (typ. of 1 per sector, total of 3).