

**Cellco Partnership d/b/a  
Verizon Wireless**

**Alex Murshteyn**  
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September 2, 2020

Members of the Connecticut Siting Council  
Connecticut Siting Council  
10 Franklin Square  
New Britain, Connecticut 06051

**Re: Request for Tower Share  
Cellco Partnership d/b/a Verizon Wireless (“Verizon”) Request for Approval of the  
Shared Use of an Existing Tower at 309 East Hill Rd (aka 4 Hoffman Road, aka Off  
Hoffmann Road; 200’ east of Hoffmann Road at East Hill Road), Canton, CT 06019  
Verizon site: Southington 3 CT (ATC: 302475)**

Dear Members of the Council:

Verizon proposes to share an existing telecommunications tower located at 309 East Hill Road (aka 4 Hoffmann Road) in Canton, CT (the facility). The subject parcel is identified by the Town of Canton as Map 19, Block 243, Lot 0309. The property is owned by James H Hart & Katherine E Hart c/o American Tower Corp. The tower is owned by American Tower Corp. The property is roughly 2.01± acres and accommodates an existing telecommunication compound with two shelters and two concrete pads with telecommunications carriers’ cabinets and a generator, as well as the monopole tower within the fenced compound. The facility is and will continue to be owned and operated by American Tower.

Pursuant to Connecticut General Statutes Section 16-50aa (the Statute), Verizon requests a finding from the Connecticut Siting Council that the shared use of this facility is technically, legally, environmentally and economically feasible, will meet safety concerns, will avoid the unnecessary proliferation of towers and is in the public interest. It further requests an order approving the shared use of this facility.

The purpose of this request is to use an existing tower to develop Verizon’s wireless network to provide high speed wireless data and wireless service within the State of Connecticut and in this part of Canton: avoiding the need for an additional tower in Canton, CT.

Verizon is licensed by the Federal Communications Commission (“FCC”) to provide multiple technologies, including PCS, as well as long-term evolution (“LTE”) services and AWS

(700/850/1900/2100 MHz) in Hartford County. Verizon is building and enhancing its network to take advantage of its licensed spectrum, and improve its broadband high speed wireless voice and data services.

### **Existing Facility & Proposed Modification**

The existing facility is and will continue to be a 150' monopole tower located at 309 East Hill Road (aka 4 Hoffmann Road) in Canton. Site coordinates (NAD83) are N41° 51' 19.08" and W72° 53' 33.00" (or 41.8553, -72.8925). Currently there are two other major commercial wireless carriers located on this tower, as well as two other sets of minor antenna users, whereby Verizon now intends to use the vacant space on the lowest part of the tower, beneath T-Mobile and the Town of Canton. The site plan of the facility is included in the proposed Modifications drawings and Construction drawings, prepared by A.T. Engineering Service, PLLC dated July 8, 2020 and August 5, 2020, respectively, and enclosed herewith.

Verizon intends to install six (6) NHH-65B-R4 Commscope panel antennas and six (6) Samsung RRUs and one (1) OVP on an antenna platform mount with sector frames, as shown in the construction drawing, to be attached to the monopole tower at the 118' mount level. Verizon will also install two (2) 1-5/8" hybrid fiber cable on the tower. In order to enable this installation, the tower will be reinforced per the Modifications drawings. Down below, inside the existing fenced compound, it will add a 12' x 30' lease area with two (2) concrete pads and one (1) H-frame.

Verizon intends to enter into a new agreement, at this tower height, in order to license the portion of space within the existing and proposed compound for the new 4'-0" x 4'-0" concrete pad with one (1) new cabinet, H-frame with one (1) ILC cabinet, one (1) meter and disconnect, one (1) junction box, one (1) GPS antenna and one (1) work lamp, on concrete piers. The second pad will be 3'-6" x 8'-0" and will contain one (1) 30 KW diesel generator. A new ice bridge will also be installed in order to connect the equipment with the tower, along with power and telco conduits on the other side of the H-frame.

Consistent with the requirements of the Statute, it is feasible for Verizon to collocate at this facility. Verizon is proposing to collocate on the existing monopole tower that will continue to remain in the ownership of American Tower Corp. Included with this application is a Post-Modification Structural Analysis Report from A.T. Engineering Service PLLC dated August 13, 2020 that shows that the existing tower can support Verizon's proposed equipment once modified. Additionally, an Antenna Mount Analysis Report from A.T. Engineering Service PLLC dated April 8, 2020 is also enclosed and it shows that the mounting system can support the proposed equipment.

### **The Proposal is Legally Feasible.**

The Council has authority, pursuant to statute, to issue an order approving of the shared use of this tower. By issuing an order approving Verizon's shared use of this tower, Verizon will be able to proceed with obtaining a building permit for the proposed installation. American Tower Corp has executed a Letter of Authorization that approved Verizon's Request for Tower Share filing, which approval is included with this application. Verizon's proposal is legally feasible.

Verizon is a telecommunication provider licensed by the FCC to provide service in the State of Connecticut, including but not limited to Hartford County. Verizon will enter into an agreement with the owner of this facility, American Tower Corp, for the location of this proposed equipment on the existing tower so that it may provide telecommunications services to the surrounding community. Consequently, the proposal is legally feasible.

**The Proposal is Environmentally Feasible.**

Pursuant to the Statute, the proposal will be environmentally feasible for the following reasons:

- The overall impact on the Town of Canton will be decreased with the sharing of a single tower versus the proliferation of multiple towers.
- There will be no material increase in the visibility of the tower with the addition of the antennas and associated equipment on the tower.
- There will be no increased impact on air quality because no air pollutants will be generated during normal operation of the facility.
- There will only be a brief, slight increase in noise pollution while the site is under construction.
- During construction, the proposed project will generate a small amount of traffic as construction takes place. Upon completion, traffic will be limited to an average of one trip per month for maintenance and inspections.
- There will be no adverse impact to the health and safety of the surrounding community or workers at the facility due to the addition of Verizon's new antennas to the tower. Verizon has performed an analysis of the radio frequency field emanating from the transmitting antennas on the tower to ensure compliance with the National Council on Radiation Protection and measurements (NCRP) standard for maximum permissible exposure (MPE) adopted by the FCC. The analysis indicates that Verizon and other antennas on the tower will cumulatively emit 59.36% of the NCRP standard for maximum permissible exposure. The report indicates that maximum level of exposure will be well below the FCC's mandated radio frequency exposure limits. The report is enclosed herewith.
- Verizon expects to enhance safety in this portion of Canton by improving wireless telecommunications for local residents and travelers. Verizon is currently developing its network to provide its customers with quality and reliable coverage to comply with their FCC license, the site is a necessary part of Verizon's network development.
- Specifically, this proposal is designed to provide reliable wireless coverage for this section of Canton, CT.

**Conclusions:**

For the reasons stated above, the attachment of Verizon's antennas and associated equipment to the tower would meet all the requirements set forth in the Statute. The proposal is legally, technically, economically and environmentally feasible and meets all public safety concerns. Therefore, Verizon respectfully requests that the Council approve this request for the shared use of this tower located at 309 East Hill Road (aka 4 Hoffmann Road), Canton, CT.

Respectfully yours,



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Alex Murshteyn  
Real Estate Consultant – Site Acquisition  
c/o Cellco Partnership d/b/a Verizon Wireless  
Centerline Communications, LLC  
750 West Center Street, Floor 3 / Suite 301  
West Bridgewater, MA 02379  
Mobile: (508) 821-0159  
[AMurshteyn@centerlinecommunications.com](mailto:AMurshteyn@centerlinecommunications.com)

Enclosures (9)

cc: Robert Bessel, First Selectman, Town of Canton - chief elected official  
Neil Pade, AICP, Director of Planning and Community Development - P&Z official  
James H and Katharine E Hart - property owners  
American Tower Corp - tower owner  
Verizon Wireless





**LETTER OF AUTHORIZATION**

**SITE NO: 302488 SITE NAME: Cntn - Canton**

**PROJECT: 13201406**

**ADDRESS: 4 Hoffmann Road, Canton, CT 06019-2123**

I, Margaret Robinson, Senior Counsel, US Tower Division on behalf of American Tower\*, owner of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize Verizon Wireless, its successors and assigns, to act as American Tower's non-exclusive agent for the purpose of filing and securing any zoning, land-use, building permit and/or electrical permit application(s) and approvals of the applicable jurisdiction for and to conduct the construction of the installation of antennas and related telecommunications equipment on the Tower Facility located at the above address. This installation shall not affect adjoining lands and will occur only within the area leased by American Tower.

American Tower understands that the application may be denied, modified, or approved with conditions. The above authorization is limited to the acceptance by American Tower of conditions related to American Tower's installation. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit Verizon Wireless to modify or alter any existing permit(s) and/or zoning or land-use conditions or impose any additional conditions unrelated to American Tower's installation of telecommunications equipment without the prior written approval of American Tower.

Signature: \_\_\_\_\_

Margaret Robinson, Senior Counsel  
US Tower Division

**NOTARY BLOCK**

COMMONWEALTH OF MASSACHUSETTS  
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel of American Tower (Tower Facility owner and/or operator), personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same.

WITNESS my hand and official seal, this 1st day of September, 2020.

NOTARY SEAL



**GERARD T. HEFFRON**  
Notary Public  
Commonwealth of Massachusetts  
My Commission Expires  
August 9, 2024

Notary Public   
My Commission Expires: August 9<sup>th</sup>, 2024

\* American Tower as used herein is defined as American Tower Corporation and any of its affiliates or subsidiaries.

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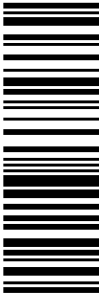
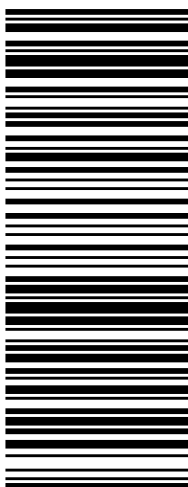

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<p>ALEX MURSHTEYN 5088210159 CENTERLINE COMMUNICATIONS, LLC 750 WEST CENTER STREET WEST BRIDGEWATER MA 02379</p> <p><b>SHIP TO:</b> JAMES H AND KATHARINE E HART 90 PARK ROAD <b>BARKHAMSTED CT 06063-4113</b></p>	<p><b>1 LBS</b> <b>1 OF 1</b> DWT: 14,11,1</p> <p><b>CT 067 9-02</b></p> 	<p><b>UPS GROUND</b> TRACKING #: 1Z 9Y4 503 03 1 122 3234</p> 	<p><b>BILLING: P/P</b></p> <p>Reference # 1: 302488 / 13201406 aka Canton 3 CT Reference # 2: CSC IS - PO CS 22.0.11. WINTNV50 31.0A 07/2020*</p> 
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**LETTER OF AUTHORIZATION**

**SITE NO: 302488 SITE NAME: Cntn - Canton**

**PROJECT: 13201406**

**ADDRESS: 4 Hoffmann Road, Canton, CT 06019-2123**

I, Margaret Robinson, Senior Counsel, US Tower Division on behalf of American Tower\*, owner of the tower facility located at the address identified above (the "Tower Facility"), do hereby authorize Centerline Communications, LLC, its successors and assigns, to act as American Tower's non-exclusive agent for the purpose of filing and securing any zoning, land-use, building permit and/or electrical permit application(s) and approvals of the applicable jurisdiction for and to conduct the construction of the installation of antennas and related telecommunications equipment on the Tower Facility located at the above address. This installation shall not affect adjoining lands and will occur only within the area leased by American Tower.

American Tower understands that the application may be denied, modified, or approved with conditions. The above authorization is limited to the acceptance by American Tower of conditions related to American Tower's installation. Any such conditions of approval or modifications will not be effective unless approved in writing by American Tower.

The above authorization does not permit Centerline Communications, LLC to modify or alter any existing permit(s) and/or zoning or land-use conditions or impose any additional conditions unrelated to American Tower's installation of telecommunications equipment without the prior written approval of American Tower.

Signature: \_\_\_\_\_

Margaret Robinson, Senior Counsel  
US Tower Division

**NOTARY BLOCK**

**COMMONWEALTH OF MASSACHUSETTS**  
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Senior Counsel of American Tower (Tower Facility owner and/or operator), personally known to me (or proved to me on the basis of satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same.

WITNESS my hand and official seal, this 31st day of July, 2020.

NOTARY SEAL



**GERARD T. HEFFRON**  
Notary Public  
Commonwealth of Massachusetts  
My Commission Expires  
August 9, 2024

Notary Public \_\_\_\_\_

My Commission Expires: August 9<sup>th</sup>, 2024

\* American Tower as used herein is defined as American Tower Corporation and any of its affiliates or subsidiaries.



**AMERICAN TOWER®**  
CORPORATION

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## Post Modification Structural Analysis Report

**Structure** : 150 ft Monopole  
**ATC Site Name** : Cntn - Canton, CT  
**ATC Asset Number** : 302488  
**Engineering Number** : 13201406\_C4\_06  
**Proposed Carrier** : VERIZON WIRELESS  
**Carrier Site Name** : CANTON 3 CT  
**Carrier Site Number** : 467157  
**Site Location** : 4 Hoffmann Road  
Canton, CT 06019-2122  
41.855300, -72.892500  
**County** : Hartford  
**Date** : August 13, 2020  
**Max Usage** : 98%  
**Result** : Pass

Prepared By:  
Isaac P. Dodson  
Structural Engineer III

Reviewed By:

**COA: PEC.0001553**



**Table of Contents**

Introduction .....	1
Supporting Documents .....	1
Analysis .....	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
Equipment to be Removed.....	2
Proposed Equipment .....	2
Structure Usages .....	3
Foundations .....	3
Deflection, Twist, and Sway.....	3
Standard Conditions .....	4
Calculations .....	Attached





## Introduction

The purpose of this report is to summarize results of a post modification structural analysis performed on the 150 ft monopole to reflect the change in loading by VERIZON WIRELESS.

## Supporting Documents

<b>Tower Drawings</b>	ITT Meyer, AT&T Spec. AT-8935 B, dated April 13, 1984
<b>Foundation Drawing</b>	Girard & Co. Drawing dated April 22, 1986 Mapping by ETS Job #201898, dated April 28, 2020
<b>Geotechnical Report</b>	GEOServices Project #21-07254, dated September 12, 2008
<b>Modifications</b>	ATC Project #51822034, dated March 14, 2013 ATC Project #OAA694941_C6_06, dated May 11, 2017 ATC Project #13201406_C6_05, dated July 8, 2020 (Pending)

## 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>	93 mph (3-Second Gust, Vasd) / 120 mph (3-Second Gust, Vult)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 1" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
<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>	$S_s = 0.18, S_1 = 0.06$
<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 the pending modifications cited in the supporting documents table are not completed, the results of this analysis are no longer valid, and VERIZON WIRELESS should contact American Tower's Site Manager for further direction on how to proceed.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



**Existing and Reserved Equipment**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
163.0	1	Generic 12' Omni	Platform with Handrails	(1) 1 5/8" Coax	SPOK HOLDINGS, INC.
161.0	1	Generic 12' Dipole		(1) 7/8" Coax	TOWN OF CANTON
155.5	1	Generic 6' Yagi		(1) 1/2" Coax	SPOK HOLDINGS, INC.
152.0	3	CCI HPA-65R-BUU-H8		(2) 0.39" Fiber Trunk (4) 0.78" 8 AWG 6 (12) 1 1/4" Coax (2) 3" conduit	AT&T MOBILITY
150.0	3	Ericsson RRUS 11 (Band 12)			
	3	Generic Round Stand-Off			
	6	Powerwave Allgon 7770.00A			
	1	Raycap DC6-48-60-18-8F(32.8 lbs)			
	6	Powerwave Allgon TT19-08BP111-001			
	6	Powerwave Allgon 7020.00 Dual Band RET			
	3	Andrew ABT-DMDF-ADBH			
3	Ericsson RRUS 32 B2				
140.0	3	RFS ATMPP1412D-1CWA	Platform with Handrails	(1) 1 1/4" Hybriflex Cable (12) 1 5/8" Coax	T-MOBILE
	6	Ericsson AIR 21 B4A B2P			
	3	Andrew LNX-6515DS-A1M			
	3	RFS ATMAA1412D-1A20			
123.0	1	Generic 75" x 16.8" Panel	Stand-Off	(1) 7/8" Coax	TOWN OF CANTON
10.0	1	Channel Master Type 120	Flush	(1) 0.28" RG-6	SPOK HOLDINGS, INC.

**Equipment to be Removed**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
No loading was considered as removed as part of this analysis.					

**Proposed Equipment**

Elev. <sup>1</sup> (ft)	Qty	Antenna	Mount Type	Lines	Carrier
118.0	3	Samsung B2/B66A RRH-BR049	SITEPRO RMQP-496-HK Platform with Handrails	(2) 1 5/8" Hybriflex	VERIZON WIRELESS
	3	Samsung B5/B13 RRH-BR04C			
	1	Raycap RCMDC-6627-PF-48			
	6	Commscope NHH-65B-R2B			

<sup>1</sup> Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Install proposed coax inside the pole shaft.



**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	90%	Pass
Shaft	89%	Pass
Base Plate	64%	Pass
Flange	86%	Pass
Reinforcement	98%	Pass

**Foundations**

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2,784.1	56%
Axial (Kips)	46.2	14%
Shear (Kips)	27.2	24%

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) (°)
118.0	Samsung B2/B66A RRH-BR049	VERIZON WIRELESS	1.636	1.423
	Samsung B5/B13 RRH-BR04C			
	Raycap RCMDC-6627-PF-48			
	Commscope NHH-65B-R2B			
10.0	Channel Master Type 120	SPOK HOLDINGS, INC.	0.012	0.140

\*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 performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

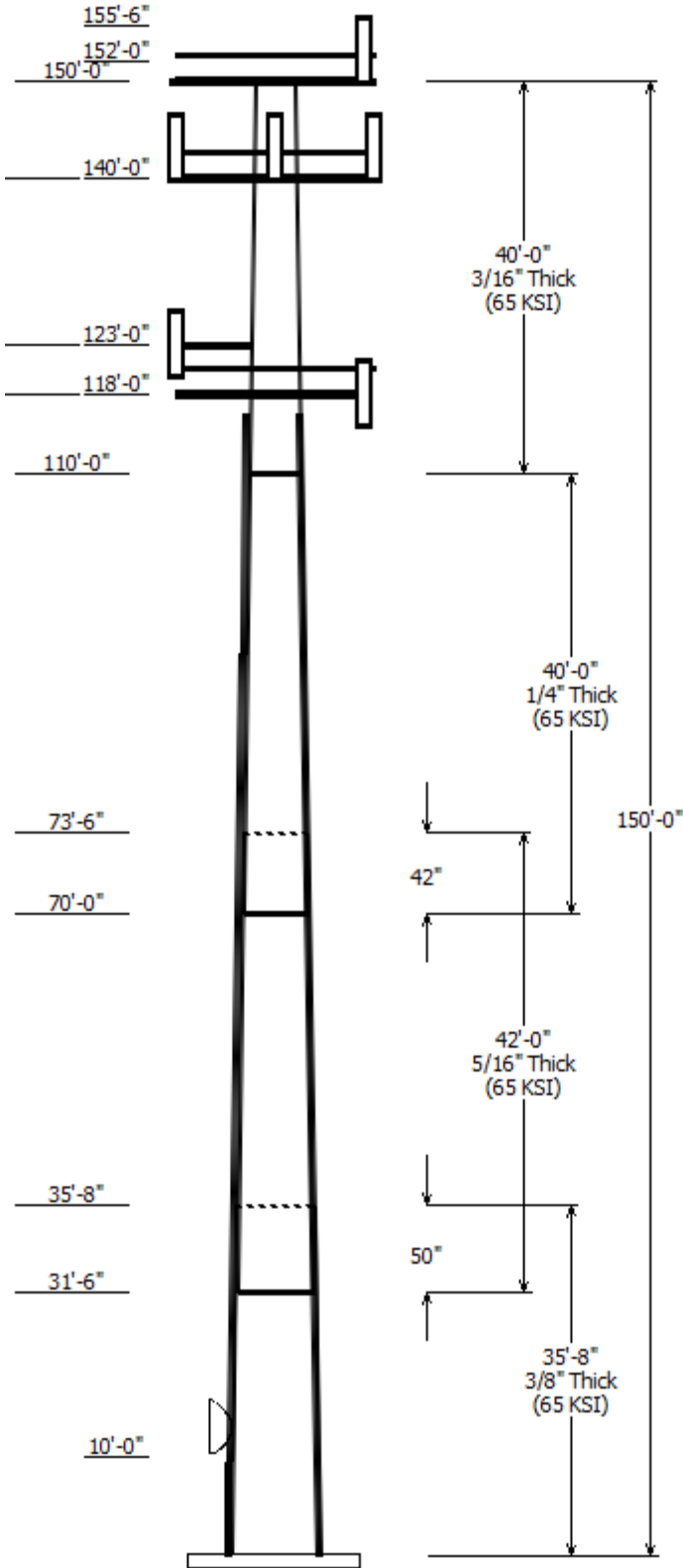
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

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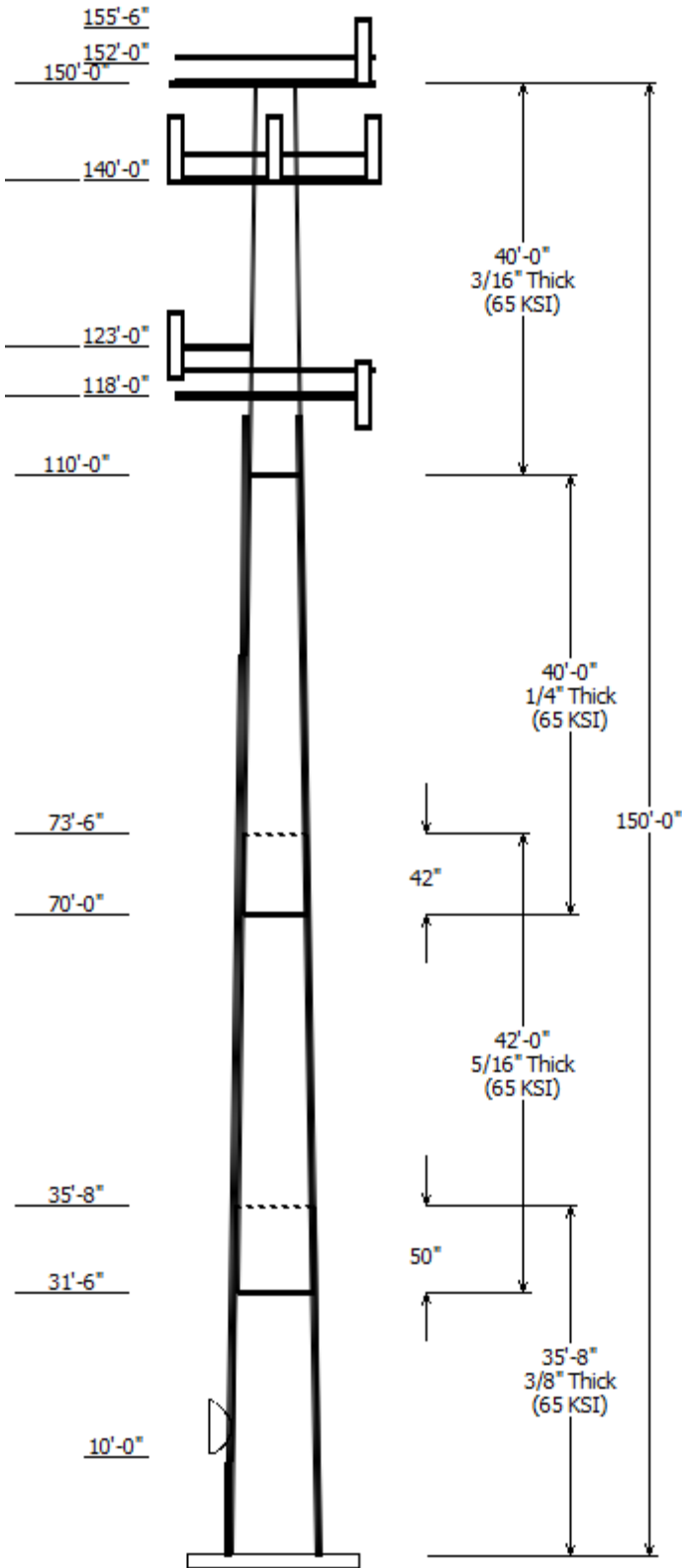
Job Information	
Client : VERIZON WIRELESS	Code: ANSI/TIA-222-G
Pole : 302488	
Location : Cntn - Canton, CT	
Description : 150 ft ITT Meyer Type "B" Tower	Struct. Class : II
Shape : 12 Sides	Exposure : B
Height : 150.00 (ft)	Topo : 1
Base Elev (ft): 0.00	
Taper: 0.156707(in/ft)	

Sections Properties						
Shaft Section	Length (ft)	Diameter (in)		Joint Type	Overlap Length (in)	Steel Grade
		Across Top	Across Bottom			
1	35.666	31.79	37.38	0.375	0.000	12 Sides 65
2	42.000	26.48	33.06	0.313 Slip Joint	50.000	12 Sides 65
3	40.000	21.26	27.53	0.250 Slip Joint	42.000	12 Sides 65
4	40.001	14.99	21.26	0.188 Butt Joint	0.000	12 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
163.000	163.000	1	Generic 12' Omni
161.000	161.000	1	Generic 12' Dipole
155.500	155.500	1	Generic 6' Yagi
152.000	153.000	3	CCI HPA-65R-BUU-H8
150.000	150.000	3	Stand-Off
150.000	150.000	1	Round Platform w/ Handrails
150.000	153.000	6	Powerwave Allgon 7770.00A
150.000	153.000	3	Ericsson RRUS 32 B2
150.000	153.000	3	Ericsson RRUS 11 (Band 12)
150.000	153.000	1	Raycap DC6-48-60-18-8F(32.8 lb
150.000	153.000	6	Powerwave Allgon TT19-
150.000	150.000	6	Powerwave Allgon 7020.00
150.000	150.000	3	Andrew ABT-DMDF-ADBH
140.000	140.000	1	Round Platform w/ Handrails
140.000	141.000	3	Andrew LNX-6515DS-A1M
140.000	141.000	6	Ericsson AIR 21 B4A B2P
140.000	140.000	3	RFS ATMPP1412D-1CWA
140.000	140.000	3	RFS ATMAA1412D-1A20
123.000	123.000	1	Stand-Off
123.000	123.000	1	Generic 75" x 16.8" Panel
118.000	118.000	1	Generic Round Platform with
118.000	118.000	6	Commscope NHH-65B-R2B
118.000	118.000	1	Raycap RCMD-6627-PF-48
118.000	118.000	3	Samsung B5/B13 RRH-BR04C
118.000	118.000	3	Samsung B2/B66A RRH-BR049
10.000	11.000	1	Channel Master Type 120

Linear Appurtenance			
Elev (ft) From	To	Description	Exposed To Wind
84.920	120.5	reinforcement	Yes
84.920	120.5	reinforcement	Yes
84.920	120.5	reinforcement	Yes
84.920	120.5	reinforcement	Yes
84.920	120.5	reinforcement	Yes
84.920	120.5	reinforcement	Yes
15.500	95.500	reinforcement	Yes
15.500	95.500	reinforcement	Yes
15.500	95.500	reinforcement	Yes
15.500	95.500	reinforcement	Yes





0.000	118.0	1 5/8" Hybriflex	No
0.000	10.000	0.28" (7mm) RG-6	No
0.000	15.500	reinforcement	Yes
0.000	15.500	reinforcement	Yes
0.000	15.500	reinforcement	Yes
0.000	15.500	reinforcement	Yes
0.000	123.0	7/8" Coax	No
0.000	140.0	1 1/4" Hybriflex	Yes
0.000	140.0	1 5/8" Coax	Yes
0.000	140.0	1 5/8" Coax	No
0.000	150.0	0.39" (10mm)	No
0.000	150.0	0.78" (19.7mm) 8	No
0.000	150.0	1 1/4" Coax	No
0.000	150.0	3" conduit	No
0.000	155.5	1/2" Coax	No
0.000	161.0	7/8" Coax	No
0.000	163.0	1 5/8" Coax	No

### Load Cases

1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 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

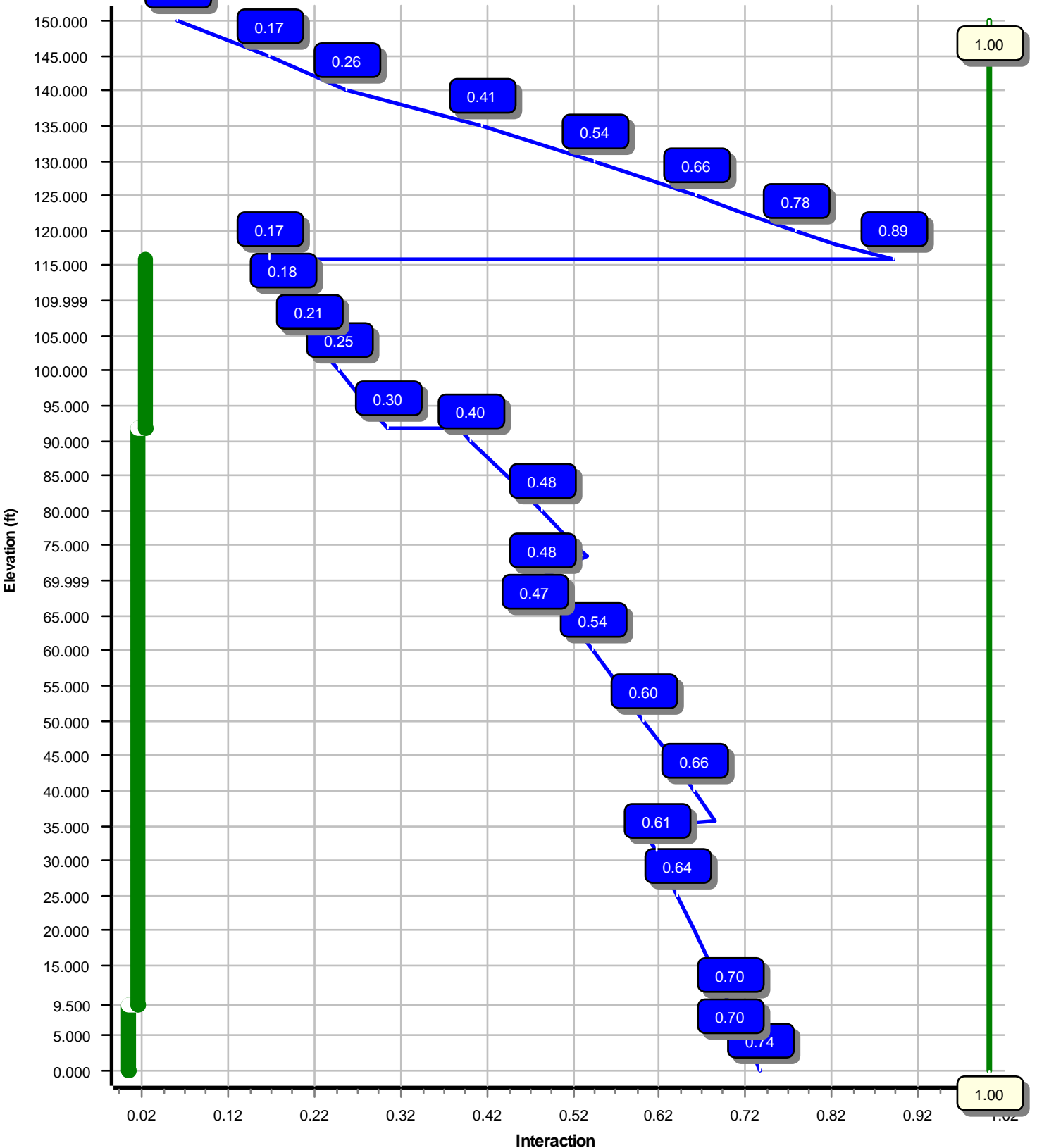
### Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2784.13	27.16	46.15
0.9D + 1.6W	2702.19	26.93	34.60
1.2D + 1.0Di + 1.0Wi	1226.38	11.42	77.41
(1.2 + 0.2Sds) * DL + E ELFM	193.61	1.51	45.98
(1.2 + 0.2Sds) * DL + E EMAM	291.10	2.33	45.98
(0.9 - 0.2Sds) * DL + E ELFM	188.80	1.51	32.00
(0.9 - 0.2Sds) * DL + E EMAM	283.21	2.32	32.00
1.0D + 1.0W	634.58	6.27	38.51

### Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	10.00	0.148	0.140

Load Case : 1.2D + 1.6W  
Max Ratio 88.93% at 115.9 ft



Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:01 AM

Customer: VERIZON WIRELESS

### Analysis Parameters

Location :	Hartford County, CT	Height (ft) :	150
Code :	ANSI/TIA-222-G	Base Diameter (in) :	37.38
Shape :	12 Sides	Top Diameter (in) :	15.00
Pole Type :	Taper	Taper (in/ft) :	0.157
Pole Manufacturer :	ITT Meyer	Rotation (deg) :	0.00

### Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	93 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	1.00 in

### Seismic Parameters

Analysis Method: Equivalent Modal Analysis & Equivalent Lateral Force Methods

Site Class: D - Stiff Soil

Period Based on Rayleigh Method (sec): 3.04

$T_L$ (sec):	6	$p$ :	1.3	$C_s$ :	0.030
$S_s$ :	0.179	$S_1$ :	0.065	$C_s$ Max:	0.030
$F_a$ :	1.600	$F_v$ :	2.400	$C_s$ Min:	0.030
$S_{ds}$ :	0.191	$S_{d1}$ :	0.104		

### Load Cases

1.2D + 1.6W	93 mph with No Ice
0.9D + 1.6W	93 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntrn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:01 AM

Customer: VERIZON WIRELESS

**Shaft Section Properties**

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	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)
1-12	35.666	0.3750	65		0.00	5,013	37.38	0.00	44.68	7810.1	24.03	99.68	31.79	35.67	37.93	4778.8	20.04	84.78	0.156707
2-12	42.000	0.3125	65	Slip	50.00	4,237	33.06	31.50	32.96	4514.2	25.67	105.82	26.48	73.50	26.34	2303.2	20.03	84.76	0.156707
3-12	40.000	0.2500	65	Slip	42.00	2,646	27.53	70.00	21.96	2087.3	26.83	110.14	21.26	110.00	16.92	953.9	20.11	85.07	0.156707
4-12	40.001	0.1875	65	Butt	0.00	1,475	21.26	110.00	12.73	721.8	27.71	113.43	14.99	150.00	8.94	250.4	18.75	79.99	0.156707
Shaft Weight						13,372													

**Discrete Appurtenance Properties**

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor	Weight (lb)	Ice EPAa (sf)	Orientation Factor
163.00	Generic 12' Omni	1	1.00	0.000	40.00	3.600	1.00	161.10	9.330	1.00
161.00	Generic 12' Dipole	1	1.00	0.000	40.00	4.510	1.00	217.85	14.057	1.00
155.50	Generic 6' Yagi	1	1.00	0.000	25.00	8.950	1.00	364.40	40.769	1.00
152.00	CCI HPA-65R-BUU-H8	3	0.75	1.000	68.00	12.976	0.67	410.73	17.751	0.67
150.00	Andrew ABT-DMDF-ADBH	3	0.75	0.000	1.10	0.045	0.50	4.07	0.276	0.50
150.00	Powerwave Allgon 7020.00 Dual	6	0.75	0.000	2.20	0.339	0.50	15.83	0.885	0.50
150.00	Powerwave Allgon TT19-	6	0.75	3.000	16.00	0.553	0.50	42.94	1.235	0.50
150.00	Raycap DC6-48-60-18-8F(32.8	1	0.75	3.000	32.80	1.470	0.50	115.09	2.402	0.50
150.00	Ericsson RRUS 11 (Band 12)	3	0.75	3.000	50.00	2.566	0.50	140.92	3.963	0.50
150.00	Ericsson RRUS 32 B2	3	0.75	3.000	53.00	2.743	0.50	151.10	4.303	0.50
150.00	Stand-Off	3	1.00	0.000	100.00	3.000	1.00	165.05	5.091	1.00
150.00	Powerwave Allgon 7770.00A	6	0.75	3.000	27.00	5.555	0.65	179.14	8.404	0.65
150.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,728.35	59.804	1.00
140.00	RFS ATMAA1412D-1A20	3	0.75	0.000	13.00	1.000	0.50	48.13	1.884	0.50
140.00	RFS ATMPP1412D-1CWA	3	0.75	0.000	12.50	1.001	0.50	44.85	1.905	0.50
140.00	Ericsson AIR 21 B4A B2P	6	0.75	1.000	90.00	5.800	0.71	277.02	8.567	0.71
140.00	Andrew LNX-6515DS-A1M	3	0.75	1.000	49.80	11.410	0.70	353.22	15.706	0.70
140.00	Round Platform w/ Handrails	1	1.00	0.000	2,000.00	27.200	1.00	3,716.26	59.576	1.00
123.00	Stand-Off	1	1.00	0.000	100.00	3.000	0.67	163.80	5.051	0.67
123.00	Generic 75" x 16.8" Panel	1	1.00	0.000	31.20	11.264	1.00	333.75	15.042	1.00
118.00	Samsung B2/B66A RRH-BR049	3	0.75	0.000	84.40	1.875	0.50	167.54	3.051	0.50
118.00	Samsung B5/B13 RRH-BR04C	3	0.75	0.000	70.30	1.875	0.50	144.85	3.051	0.50
118.00	Raycap RCMDC-6627-PF-48	1	0.75	0.000	32.00	4.056	0.50	197.63	5.835	0.50
118.00	Commscope NHH-65B-R2B	6	0.75	0.000	43.70	8.079	0.69	270.92	11.710	0.69
118.00	Generic Round Platform with	1	1.00	0.000	2,500.00	27.200	1.00	4,610.90	59.057	1.00
10.00	Channel Master Type 120	1	1.00	1.000	126.00	20.190	1.00	335.07	23.250	1.00
Totals	Num Loadings:26	71			9,506.70			23,550.64		

**Linear Appurtenance Properties** Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Dist Azimuth (deg)	Dist From Face (in)	Exposed To Wind Carrier
0.00	163.00	1	1 5/8" Coax	1.98	0.82	N	1	0.00	0.00	0	N SPOK HOLDINGS,
0.00	161.00	1	7/8" Coax	1.09	0.33	N	1	0.00	0.00	0	N TOWN OF CANTON
0.00	155.50	1	1/2" Coax	0.63	0.15	N	1	0.00	0.00	0	N SPOK HOLDINGS,
0.00	150.00	2	0.39" (10mm) Fiber	0.39	0.06	N	2	0.00	0.00	0	N AT&T MOBILITY
0.00	150.00	4	0.78" (19.7mm) 8 AWG	0.78	0.59	N	4	0.00	0.00	0	N AT&T MOBILITY
0.00	150.00	12	1 1/4" Coax	1.55	0.63	N	6	0.00	0.00	0	N AT&T MOBILITY
0.00	150.00	2	3" conduit	3.50	7.58	N	2	0.00	0.00	0	N AT&T MOBILITY
0.00	140.00	1	1 1/4" Hybriflex Cable	1.54	1.00	N	1	0.00	0.00	300	Y T-MOBILE
0.00	140.00	6	1 5/8" Coax	1.98	0.82	N	3	0.00	0.00	300	Y T-MOBILE

Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:02 AM

Customer: VERIZON WIRELESS

0.00	140.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	123.00	1	7/8" Coax	1.09	0.33	N	1	0.00	0.00	0	0.00	N	TOWN OF CANTON
84.92	120.50	1	reinforcement	4.00	0.00	N	1	0.00	0.00	0	8.28	Y	--
84.92	120.50	1	reinforcement	4.00	0.00	N	1	0.00	0.00	120	8.28	Y	--
84.92	120.50	1	reinforcement	4.00	0.00	N	1	0.00	0.00	240	8.28	Y	--
84.92	120.50	1	reinforcement	2.49	6.30	N	1	0.00	0.00	0	2.90	Y	--
84.92	120.50	1	reinforcement	2.49	6.30	N	1	0.00	0.00	120	2.90	Y	--
84.92	120.50	1	reinforcement	2.49	6.30	N	1	0.00	0.00	240	2.90	Y	--
0.00	118.00	2	1 5/8" Hybriflex	1.98	1.30	N	2	0.00	0.00	0	0.00	N	VERIZON WIRELESS
15.50	95.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	90	0.00	Y	--
15.50	95.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	180	0.00	Y	--
15.50	95.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	270	0.00	Y	--
15.50	95.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	0	0.00	Y	--
0.00	15.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	90	0.00	Y	--
0.00	15.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	180	0.00	Y	--
0.00	15.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	270	0.00	Y	--
0.00	15.50	1	reinforcement	4.00	4.68	N	1	0.00	0.00	0	0.00	Y	--
0.00	10.00	1	0.28" (7mm) RG-6	0.28	0.03	N	1	0.00	0.00	0	0.00	N	SPOK HOLDINGS,

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections		Connectors	Continuation?	
					Description	Spacing (in)	Len (in)			
0.00	9.50	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	40.0	3.31	5/8" A36 U-Bolt	No
9.50	91.67	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	Yes
91.67	115.9	3	SOL #20 All Thread	80	8.25	6" T Bracket	30.0	3.31	5/8" A36 U-Bolt	No



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	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)	Additional Reinforcing		
												Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	Weight (lb)
0.00		0.3750	37.380	44.684	7,810.1	24.03	99.68	78.5	403.6	0.0	0.0	19.64	4,816	0.0
5.00		0.3750	36.596	43.737	7,324.4	23.47	97.59	79.1	386.6	0.0	752.2	19.64	4,648	334.0
9.50	Reinf. Top Reinf	0.3750	35.891	42.886	6,904.9	22.97	95.71	79.7	371.7	0.0	663.2	19.64	4,498	300.6
10.00		0.3750	35.813	42.791	6,859.3	22.91	95.50	79.7	370.0	0.0	72.9	19.64	4,482	33.4
15.00		0.3750	35.029	41.845	6,414.3	22.35	93.41	80.3	353.7	0.0	720.0	19.64	4,319	334.0
20.00		0.3750	34.246	40.899	5,989.0	21.79	91.32	80.9	337.8	0.0	703.9	19.64	4,159	334.0
25.00		0.3750	33.462	39.953	5,582.9	21.23	89.23	81.6	322.3	0.0	687.8	19.64	4,003	334.0
30.00		0.3750	32.679	39.007	5,195.6	20.67	87.14	81.9	307.1	0.0	671.7	19.64	3,849	334.0
31.50	Bot - Section 2	0.3750	32.444	38.723	5,083.0	20.50	86.52	81.9	302.7	0.0	198.3	19.64	3,804	100.2
35.00		0.3750	31.895	38.061	4,826.6	20.11	85.05	81.9	292.3	0.0	846.7	19.64	3,818	233.8
35.67	Top - Section 1	0.3125	32.416	32.304	4,249.6	25.12	103.73	77.3	253.3	0.0	159.4	19.64	3,798	44.5
40.00		0.3125	31.737	31.621	3,985.5	24.53	101.56	78.0	242.6	0.0	471.4	19.64	3,668	289.5
45.00		0.3125	30.953	30.832	3,694.8	23.86	99.05	78.7	230.6	0.0	531.3	19.64	3,521	334.0
50.00		0.3125	30.170	30.044	3,418.5	23.19	96.54	79.4	218.9	0.0	517.9	19.64	3,377	334.0
55.00		0.3125	29.386	29.255	3,156.4	22.52	94.04	80.2	207.5	0.0	504.5	19.64	3,236	334.0
60.00		0.3125	28.603	28.467	2,908.0	21.85	91.53	80.9	196.4	0.0	491.0	19.64	3,098	334.0
65.00		0.3125	27.819	27.678	2,673.0	21.17	89.02	81.6	185.6	0.0	477.6	19.64	2,963	334.0
70.00	Bot - Section 3	0.3125	27.036	26.890	2,451.1	20.50	86.51	81.9	175.1	0.0	464.2	19.64	2,831	334.0
70.00		0.3125	27.035	26.890	2,451.0	20.50	86.51	81.9	175.1	0.0	0.1	19.64	2,915	0.0
73.50	Top - Section 2	0.2500	26.987	21.523	1,963.9	26.25	107.95	76.1	140.6	0.0	575.8	19.64	2,823	233.8
75.00		0.2500	26.752	21.334	1,912.6	25.99	107.01	76.4	138.1	0.0	109.4	19.64	2,784	100.2
80.00		0.2500	25.968	20.703	1,747.9	25.15	103.87	77.3	130.0	0.0	357.6	19.64	2,656	334.0
85.00		0.2500	25.185	20.073	1,593.0	24.31	100.74	78.2	122.2	0.0	346.9	19.64	2,531	334.0
90.00		0.2500	24.401	19.442	1,447.5	23.47	97.61	79.1	114.6	0.0	336.1	19.64	2,409	334.0
91.67	Reinf. Top Reinf	0.2500	24.140	19.232	1,401.0	23.19	96.56	79.4	112.1	0.0	109.7	19.64	2,370	111.3
95.00		0.2500	23.618	18.811	1,311.1	22.63	94.47	80.0	107.2	0.0	215.8	14.73	3,350	167.0
100.0		0.2500	22.834	18.180	1,183.6	21.79	91.34	80.9	100.1	0.0	314.7	14.73	3,228	250.5
105.0		0.2500	22.051	17.550	1,064.6	20.95	88.20	81.9	93.3	0.0	304.0	14.73	3,108	250.5
110.0	Top - Section 3	0.2500	21.267	16.919	953.9	20.11	85.07	81.9	86.7	0.0	293.2	14.73	2,991	250.5
110.0	Bot - Section 4	0.1875	21.267	12.727	721.8	27.71	113.43	74.5	65.6	0.0	0.0	14.73	2,991	0.0
110.0		0.1875	21.267	12.727	721.8	27.71	113.43	74.5	65.6	0.0	0.0	14.73	2,991	0.0
115.0		0.1875	20.484	12.254	644.3	26.59	109.25	75.7	60.8	0.0	212.5	14.73	2,876	250.5
115.9	Reinf. Top	0.1875	20.337	12.165	630.4	26.38	108.46	75.9	59.9	0.0	38.9	14.73	2,854	47.0
118.0		0.1875	20.014	11.970	600.6	25.92	106.74	76.4	58.0	0.0	84.7			
120.0		0.1875	19.700	11.781	572.5	25.47	105.07	76.9	56.1	0.0	80.8			
123.0		0.1875	19.230	11.497	532.1	24.80	102.56	77.7	53.5	0.0	118.8			
125.0		0.1875	18.917	11.308	506.3	24.35	100.89	78.2	51.7	0.0	77.6			
130.0		0.1875	18.133	10.835	445.4	23.23	96.71	79.4	47.4	0.0	188.4			
135.0		0.1875	17.350	10.362	389.5	22.11	92.53	80.6	43.4	0.0	180.3			
140.0		0.1875	16.566	9.889	338.6	20.99	88.35	81.8	39.5	0.0	172.3			
145.0		0.1875	15.782	9.415	292.3	19.87	84.17	81.9	35.8	0.0	164.2			
150.0		0.1875	14.999	8.942	250.4	18.75	79.99	81.9	32.3	0.0	156.2			
											13,371.8			7,339.3

<b>Load Case:</b> 1.2D + 1.6W	93 mph with No Ice	27 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		248.1	0.0					0.0	0.0	248.1	0.0	0.0	0.0
5.00		466.9	902.6					103.7	754.9	570.5	1,657.5	0.0	0.0
9.50	Reinf. Top Reinf	242.8	795.9					93.3	679.4	336.1	1,475.3	0.0	0.0
10.00	Appurtenance(s)	261.6	87.5	523.2	0.0	523.2	151.2	8.7	75.5	793.6	314.2	0.0	0.0
15.00		469.9	864.0					88.6	754.7	558.4	1,618.7	0.0	0.0
20.00		459.4	844.7					90.6	754.7	550.0	1,599.4	0.0	0.0
25.00		448.9	825.4					92.7	754.7	541.6	1,580.1	0.0	0.0
30.00		287.8	806.0					94.8	754.7	382.6	1,560.8	0.0	0.0
31.50	Bot - Section 2	224.7	237.9					29.1	226.3	253.8	464.3	0.0	0.0
35.00		189.1	1,016.0					70.2	528.4	259.3	1,544.4	0.0	0.0
35.67	Top - Section 1	229.9	191.3					13.7	100.5	243.6	291.9	0.0	0.0
40.00		431.9	565.6					90.4	654.2	522.2	1,219.8	0.0	0.0
45.00		466.4	637.5					109.9	754.7	576.3	1,392.3	0.0	0.0
50.00		468.5	621.4					115.8	754.7	584.3	1,376.2	0.0	0.0
55.00		468.9	605.3					121.7	754.7	590.6	1,360.1	0.0	0.0
60.00		467.9	589.2					127.4	754.7	595.3	1,344.0	0.0	0.0
65.00		465.6	573.2					133.0	754.7	598.7	1,327.9	0.0	0.0
70.00	Bot - Section 3	232.1	557.0					138.6	754.6	370.7	1,311.6	0.0	0.0
70.00		164.3	0.1					0.0	0.1	164.4	0.2	0.0	0.0
73.50	Top - Section 2	234.4	691.0					100.3	528.2	334.7	1,219.2	0.0	0.0
75.00		302.2	131.3					43.3	226.5	345.5	357.8	0.0	0.0
80.00		461.3	429.1					147.9	754.7	609.2	1,183.9	0.0	0.0
85.00		455.2	416.3					291.9	756.6	747.1	1,172.8	0.0	0.0
90.00		300.5	403.4					299.6	868.1	600.1	1,271.5	0.0	0.0
91.67	Reinf. Top Reinf	222.3	131.6					101.6	289.4	323.9	421.0	0.0	0.0
95.00		366.1	258.9					205.7	512.0	571.8	770.9	0.0	0.0
100.00		432.3	377.6					314.8	666.9	747.2	1,044.5	0.0	0.0
105.00		423.3	364.7					259.1	655.6	682.5	1,020.4	0.0	0.0
110.00	Top - Section 3	209.4	351.8					263.6	655.5	473.0	1,007.4	0.0	0.0
110.00		204.5	0.0					0.0	0.1	204.5	0.1	0.0	0.0
115.00		242.2	255.0					268.1	655.6	510.3	910.6	0.0	0.0
115.94	Reinf. Top	120.2	46.7					50.8	122.9	170.9	169.7	0.0	0.0
118.00	Appurtenance(s)	161.5	101.6	2,225.6	0.0	0.0	3,910.0	112.2	146.4	2,499.3	4,158.0	0.0	0.0
120.00		196.0	97.0					109.5	135.8	305.5	232.8	0.0	0.0
123.00	Appurtenance(s)	196.2	142.6	515.2	0.0	0.0	157.4	165.6	147.0	877.0	447.0	0.0	0.0
125.00		276.7	93.1					0.0	89.6	276.7	182.7	0.0	0.0
130.00		393.8	226.0					0.0	224.0	393.8	450.1	0.0	0.0
135.00		372.2	216.4					0.0	224.0	372.2	440.4	0.0	0.0
140.00	Appurtenance(s)	317.1	206.7	2,659.3	0.0	1,473.2	3,319.1	79.2	224.0	3,055.7	3,749.8	0.0	0.0
145.00		276.9	197.1					0.0	159.0	276.9	356.1	0.0	0.0
150.00	Appurtenance(s)	135.7	187.4	2,512.6	0.0	2,976.5	3,499.6	0.0	159.0	2,648.3	3,846.0	0.0	0.0
<b>Totals:</b>										25,766.3	45,851.1	0.00	0.00

Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:06 AM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W

93 mph with No Ice

27 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	-46.15	-27.16	0.00	-2,784.13	0.00	2,784.13	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.735
5.00	-44.36	-26.81	0.00	-2,648.31	0.00	2,648.31	3,114.35	1,557.18	4,645.51	2,294.24	0.16	-0.31	0.716
9.50	-42.81	-26.58	0.00	-2,527.64	0.00	2,527.64	3,074.93	1,537.47	4,496.49	2,220.65	0.59	-0.58	0.699
9.50	-42.81	-26.58	0.00	-2,527.64	0.00	2,527.64	3,074.93	1,537.47	4,496.49	2,220.65	0.59	-0.58	0.699
10.00	-42.43	-25.91	0.00	-2,513.83	0.00	2,513.83	3,070.50	1,535.25	4,480.00	2,212.50	0.65	-0.61	0.697
15.00	-40.68	-25.55	0.00	-2,384.28	0.00	2,384.28	3,025.61	1,512.80	4,315.88	2,131.45	1.46	-0.92	0.678
20.00	-38.96	-25.18	0.00	-2,256.53	0.00	2,256.53	2,979.67	1,489.84	4,153.23	2,051.12	2.59	-1.23	0.658
25.00	-37.26	-24.80	0.00	-2,130.64	0.00	2,130.64	2,932.70	1,466.35	3,992.16	1,971.58	4.04	-1.54	0.638
30.00	-35.63	-24.49	0.00	-2,006.64	0.00	2,006.64	2,875.19	1,437.60	3,820.15	1,886.63	5.81	-1.84	0.619
31.50	-35.10	-24.32	0.00	-1,969.92	0.00	1,969.92	2,854.28	1,427.14	3,764.46	1,859.13	6.41	-1.94	0.614
35.00	-33.52	-24.08	0.00	-1,884.78	0.00	1,884.78	2,805.45	1,402.73	3,636.04	1,795.70	7.91	-2.15	0.594
35.67	-33.17	-23.92	0.00	-1,868.74	0.00	1,868.74	2,248.06	1,124.03	2,973.88	1,468.69	8.21	-2.19	0.681
40.00	-31.85	-23.51	0.00	-1,765.09	0.00	1,765.09	2,218.58	1,109.29	2,872.19	1,418.47	10.32	-2.46	0.657
45.00	-30.36	-23.03	0.00	-1,647.56	0.00	1,647.56	2,183.59	1,091.79	2,755.72	1,360.95	13.07	-2.77	0.629
50.00	-28.90	-22.54	0.00	-1,532.40	0.00	1,532.40	2,147.56	1,073.78	2,640.25	1,303.92	16.14	-3.09	0.600
55.00	-27.46	-22.02	0.00	-1,419.71	0.00	1,419.71	2,110.50	1,055.25	2,525.88	1,247.44	19.53	-3.39	0.570
60.00	-26.04	-21.48	0.00	-1,309.62	0.00	1,309.62	2,072.39	1,036.20	2,412.72	1,191.55	23.25	-3.70	0.540
65.00	-24.65	-20.92	0.00	-1,202.24	0.00	1,202.24	2,033.25	1,016.62	2,300.87	1,136.31	27.28	-4.00	0.509
70.00	-23.31	-20.51	0.00	-1,097.67	0.00	1,097.67	1,982.07	991.04	2,178.36	1,075.81	31.62	-4.29	0.481
70.00	-23.29	-20.39	0.00	-1,097.65	0.00	1,097.65	1,982.06	991.03	2,178.34	1,075.80	31.62	-4.29	0.473
73.50	-22.05	-20.01	0.00	-1,026.31	0.00	1,026.31	1,473.95	736.98	1,624.53	802.30	34.83	-4.48	0.533
75.00	-21.66	-19.71	0.00	-996.27	0.00	996.27	1,466.26	733.13	1,601.72	791.03	36.25	-4.57	0.521
80.00	-20.44	-19.11	0.00	-897.71	0.00	897.71	1,439.98	719.99	1,526.06	753.66	41.19	-4.85	0.481
85.00	-19.25	-18.35	0.00	-802.17	0.00	802.17	1,412.66	706.33	1,451.06	716.62	46.42	-5.13	0.440
90.00	-17.98	-17.69	0.00	-710.40	0.00	710.40	1,384.29	692.15	1,376.80	679.95	51.92	-5.39	0.399
91.67	-17.56	-17.37	0.00	-680.92	0.00	680.92	1,374.61	687.30	1,352.23	667.81	53.82	-5.48	0.386
91.67	-17.56	-17.37	0.00	-680.92	0.00	680.92	1,374.61	687.30	1,352.23	667.81	53.82	-5.48	0.303
95.00	-16.79	-16.78	0.00	-623.02	0.00	623.02	1,354.89	677.44	1,303.39	643.69	57.69	-5.64	0.280
100.00	-15.78	-15.97	0.00	-539.15	0.00	539.15	1,324.45	662.22	1,230.93	607.91	63.69	-5.82	0.245
105.00	-14.80	-15.23	0.00	-459.28	0.00	459.28	1,292.96	646.48	1,159.52	572.64	69.86	-5.98	0.211
110.00	-13.83	-14.67	0.00	-383.14	0.00	383.14	1,247.09	623.55	1,077.74	532.25	76.18	-6.12	0.181
110.00	-13.83	-14.67	0.00	-383.14	0.00	383.14	853.22	426.61	741.75	366.32	76.18	-6.12	0.212
110.00	-13.83	-14.48	0.00	-383.13	0.00	383.13	853.22	426.61	741.74	366.32	76.19	-6.12	0.212
115.00	-12.96	-13.89	0.00	-310.72	0.00	310.72	834.98	417.49	698.66	345.04	82.66	-6.25	0.173
115.94	-12.80	-13.71	0.00	-297.69	0.00	297.69	831.44	415.72	690.62	341.07	83.89	-6.28	0.166
115.94	-12.80	-13.71	0.00	-297.69	0.00	297.69	831.44	415.72	690.62	341.07	83.89	-6.28	0.889
118.00	-8.92	-10.80	0.00	-269.40	0.00	269.40	823.53	411.76	672.98	332.36	86.61	-6.32	0.822
120.00	-8.67	-10.51	0.00	-247.81	0.00	247.81	815.69	407.84	655.93	323.94	89.30	-6.57	0.776
123.00	-8.28	-9.63	0.00	-216.28	0.00	216.28	803.62	401.81	630.51	311.38	93.53	-6.92	0.705
125.00	-8.07	-9.38	0.00	-197.02	0.00	197.02	795.36	397.68	613.66	303.06	96.47	-7.14	0.661
130.00	-7.61	-9.00	0.00	-150.10	0.00	150.10	774.00	387.00	571.95	282.46	104.19	-7.62	0.542
135.00	-7.17	-8.61	0.00	-105.13	0.00	105.13	751.59	375.80	530.89	262.19	112.38	-8.03	0.411
140.00	-3.87	-5.07	0.00	-60.60	0.00	60.60	728.15	364.07	490.59	242.29	120.94	-8.34	0.256

Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:06 AM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W

93 mph with No Ice

27 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 1.20

Wind Load Factor : 1.60

145.00	-3.55	-4.75	0.00	-35.25	0.00	35.25	694.01	347.01	444.97	219.76	129.76	-8.54	0.166
150.00	0.00	-4.17	0.00	-11.49	0.00	11.49	659.14	329.57	401.13	198.10	138.73	-8.65	0.058

Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:06 AM

Customer: VERIZON WIRELESS

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

93 mph with No Ice (Reduced DL)

26 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 0.90

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		248.1	0.0					0.0	0.0	248.1	0.0	0.0	0.0
5.00		466.9	677.0					103.7	566.2	570.5	1,243.2	0.0	0.0
9.50	Reinf. Top Reinf	242.8	596.9					93.3	509.6	336.1	1,106.5	0.0	0.0
10.00	Appurtenance(s)	261.6	65.6	523.2	0.0	523.2	113.4	8.7	56.6	793.6	235.6	0.0	0.0
15.00		469.9	648.0					88.6	566.1	558.4	1,214.1	0.0	0.0
20.00		459.4	633.5					90.6	566.1	550.0	1,199.6	0.0	0.0
25.00		448.9	619.0					92.7	566.1	541.6	1,185.1	0.0	0.0
30.00		287.8	604.5					94.8	566.1	382.6	1,170.6	0.0	0.0
31.50	Bot - Section 2	224.7	178.5					29.1	169.7	253.8	348.2	0.0	0.0
35.00		189.1	762.0					70.2	396.3	259.3	1,158.3	0.0	0.0
35.67	Top - Section 1	229.9	143.5					13.7	75.4	243.6	218.9	0.0	0.0
40.00		431.9	424.2					90.4	490.7	522.2	914.9	0.0	0.0
45.00		466.4	478.2					109.9	566.1	576.3	1,044.2	0.0	0.0
50.00		468.5	466.1					115.8	566.1	584.3	1,032.1	0.0	0.0
55.00		468.9	454.0					121.7	566.1	590.6	1,020.1	0.0	0.0
60.00		467.9	441.9					127.4	566.1	595.3	1,008.0	0.0	0.0
65.00		465.6	429.9					133.0	566.1	598.7	995.9	0.0	0.0
70.00	Bot - Section 3	232.1	417.7					138.6	566.0	370.7	983.7	0.0	0.0
70.00		164.3	0.1					0.0	0.1	164.4	0.2	0.0	0.0
73.50	Top - Section 2	234.4	518.2					100.3	396.2	334.7	914.4	0.0	0.0
75.00		302.2	98.5					43.3	169.9	345.5	268.4	0.0	0.0
80.00		461.3	321.8					147.9	566.1	609.2	887.9	0.0	0.0
85.00		455.2	312.2					291.9	567.4	747.1	879.6	0.0	0.0
90.00		300.5	302.5					299.6	651.1	600.1	953.6	0.0	0.0
91.67	Reinf. Top Reinf	222.3	98.7					101.6	217.0	323.9	315.7	0.0	0.0
95.00		366.1	194.2					205.7	384.0	571.8	578.2	0.0	0.0
100.00		432.3	283.2					314.8	500.1	747.2	783.4	0.0	0.0
105.00		423.3	273.6					259.1	491.7	682.5	765.3	0.0	0.0
110.00	Top - Section 3	209.4	263.9					263.6	491.6	473.0	755.5	0.0	0.0
110.00		204.5	0.0					0.0	0.1	204.5	0.1	0.0	0.0
115.00		242.2	191.3					268.1	491.7	510.3	683.0	0.0	0.0
115.94	Reinf. Top	120.2	35.1					50.8	92.2	170.9	127.3	0.0	0.0
118.00	Appurtenance(s)	161.5	76.2	2,225.6	0.0	0.0	2,932.5	112.2	109.8	2,499.3	3,118.5	0.0	0.0
120.00		196.0	72.7					109.5	101.8	305.5	174.6	0.0	0.0
123.00	Appurtenance(s)	180.9	106.9	515.2	0.0	0.0	118.1	165.6	110.2	861.7	335.2	0.0	0.0
125.00		220.7	69.8					0.0	67.2	220.7	137.1	0.0	0.0
130.00		308.4	169.5					0.0	168.0	308.4	337.6	0.0	0.0
135.00		327.6	162.3					0.0	168.0	327.6	330.3	0.0	0.0
140.00	Appurtenance(s)	317.1	155.0	2,659.3	0.0	1,473.2	2,489.3	79.2	168.0	3,055.7	2,812.4	0.0	0.0
145.00		276.9	147.8					0.0	119.3	276.9	267.0	0.0	0.0
150.00	Appurtenance(s)	135.7	140.6	2,512.6	0.0	2,976.5	2,624.7	0.0	119.3	2,648.3	2,884.5	0.0	0.0
<b>Totals:</b>										25,565.1	34,388.3	0.00	0.00



Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:11 AM

Customer: VERIZON WIRELESS

Load Case: 0.9D + 1.6W

93 mph with No Ice (Reduced DL)

26 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 0.90

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	-34.60	-26.93	0.00	-2,702.19	0.00	2,702.19	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.711
5.00	-33.22	-26.52	0.00	-2,567.55	0.00	2,567.55	3,114.35	1,557.18	4,645.51	2,294.24	0.16	-0.30	0.692
9.50	-32.05	-26.26	0.00	-2,448.23	0.00	2,448.23	3,074.93	1,537.47	4,496.49	2,220.65	0.57	-0.57	0.675
9.50	-32.05	-26.26	0.00	-2,448.23	0.00	2,448.23	3,074.93	1,537.47	4,496.49	2,220.65	0.57	-0.57	0.675
10.00	-31.75	-25.55	0.00	-2,434.58	0.00	2,434.58	3,070.50	1,535.25	4,480.00	2,212.50	0.63	-0.60	0.673
15.00	-30.41	-25.14	0.00	-2,306.82	0.00	2,306.82	3,025.61	1,512.80	4,315.88	2,131.45	1.41	-0.89	0.654
20.00	-29.10	-24.72	0.00	-2,181.14	0.00	2,181.14	2,979.67	1,489.84	4,153.23	2,051.12	2.51	-1.19	0.634
25.00	-27.80	-24.29	0.00	-2,057.56	0.00	2,057.56	2,932.70	1,466.35	3,992.16	1,971.58	3.91	-1.49	0.614
30.00	-26.56	-23.96	0.00	-1,936.11	0.00	1,936.11	2,875.19	1,437.60	3,820.15	1,886.63	5.63	-1.78	0.596
31.50	-26.16	-23.77	0.00	-1,900.18	0.00	1,900.18	2,854.28	1,427.14	3,764.46	1,859.13	6.20	-1.87	0.591
35.00	-24.96	-23.52	0.00	-1,816.98	0.00	1,816.98	2,805.45	1,402.73	3,636.04	1,795.70	7.66	-2.08	0.571
35.67	-24.69	-23.33	0.00	-1,801.32	0.00	1,801.32	2,248.06	1,124.03	2,973.88	1,468.69	7.95	-2.12	0.655
40.00	-23.68	-22.89	0.00	-1,700.19	0.00	1,700.19	2,218.58	1,109.29	2,872.19	1,418.47	9.99	-2.37	0.631
45.00	-22.55	-22.39	0.00	-1,585.73	0.00	1,585.73	2,183.59	1,091.79	2,755.72	1,360.95	12.64	-2.68	0.603
50.00	-21.43	-21.87	0.00	-1,473.78	0.00	1,473.78	2,147.56	1,073.78	2,640.25	1,303.92	15.61	-2.98	0.575
55.00	-20.34	-21.33	0.00	-1,364.45	0.00	1,364.45	2,110.50	1,055.25	2,525.88	1,247.44	18.89	-3.28	0.546
60.00	-19.26	-20.77	0.00	-1,257.81	0.00	1,257.81	2,072.39	1,036.20	2,412.72	1,191.55	22.48	-3.57	0.517
65.00	-18.21	-20.20	0.00	-1,153.97	0.00	1,153.97	2,033.25	1,016.62	2,300.87	1,136.31	26.37	-3.85	0.487
70.00	-17.20	-19.80	0.00	-1,052.99	0.00	1,052.99	1,982.07	991.04	2,178.36	1,075.81	30.55	-4.13	0.460
70.00	-17.18	-19.67	0.00	-1,052.98	0.00	1,052.98	1,982.06	991.03	2,178.34	1,075.80	30.55	-4.13	0.452
73.50	-16.25	-19.30	0.00	-984.16	0.00	984.16	1,473.95	736.98	1,624.53	802.30	33.65	-4.32	0.510
75.00	-15.95	-18.99	0.00	-955.20	0.00	955.20	1,466.26	733.13	1,601.72	791.03	35.02	-4.40	0.498
80.00	-15.03	-18.38	0.00	-860.26	0.00	860.26	1,439.98	719.99	1,526.06	753.66	39.78	-4.68	0.459
85.00	-14.13	-17.63	0.00	-768.36	0.00	768.36	1,412.66	706.33	1,451.06	716.62	44.81	-4.94	0.420
90.00	-13.19	-16.98	0.00	-680.23	0.00	680.23	1,384.29	692.15	1,376.80	679.95	50.12	-5.19	0.381
91.67	-12.87	-16.66	0.00	-651.93	0.00	651.93	1,374.61	687.30	1,352.23	667.81	51.94	-5.27	0.368
91.67	-12.87	-16.66	0.00	-651.93	0.00	651.93	1,374.61	687.30	1,352.23	667.81	51.94	-5.27	0.289
95.00	-12.30	-16.07	0.00	-596.40	0.00	596.40	1,354.89	677.44	1,303.39	643.69	55.68	-5.43	0.266
100.00	-11.55	-15.28	0.00	-516.06	0.00	516.06	1,324.45	662.22	1,230.93	607.91	61.45	-5.60	0.233
105.00	-10.82	-14.56	0.00	-439.64	0.00	439.64	1,292.96	646.48	1,159.52	572.64	67.39	-5.75	0.201
110.00	-10.10	-14.02	0.00	-366.88	0.00	366.88	1,247.09	623.55	1,077.74	532.25	73.48	-5.89	0.172
110.00	-10.10	-14.02	0.00	-366.88	0.00	366.88	853.22	426.61	741.75	366.32	73.48	-5.89	0.201
110.00	-10.10	-13.83	0.00	-366.87	0.00	366.87	853.22	426.61	741.74	366.32	73.48	-5.89	0.201
115.00	-9.46	-13.26	0.00	-297.72	0.00	297.72	834.98	417.49	698.66	345.04	79.71	-6.02	0.164
115.94	-9.34	-13.08	0.00	-285.29	0.00	285.29	831.44	415.72	690.62	341.07	80.89	-6.04	0.157
115.94	-9.34	-13.08	0.00	-285.29	0.00	285.29	831.44	415.72	690.62	341.07	80.89	-6.04	0.849
118.00	-6.48	-10.29	0.00	-258.30	0.00	258.30	823.53	411.76	672.98	332.36	83.51	-6.09	0.786
120.00	-6.29	-9.99	0.00	-237.73	0.00	237.73	815.69	407.84	655.93	323.94	86.11	-6.32	0.742
123.00	-6.01	-9.13	0.00	-207.75	0.00	207.75	803.62	401.81	630.51	311.38	90.18	-6.65	0.675
125.00	-5.85	-8.93	0.00	-189.49	0.00	189.49	795.36	397.68	613.66	303.06	93.00	-6.87	0.633
130.00	-5.49	-8.62	0.00	-144.85	0.00	144.85	774.00	387.00	571.95	282.46	100.44	-7.34	0.520
135.00	-5.15	-8.29	0.00	-101.73	0.00	101.73	751.59	375.80	530.89	262.19	108.32	-7.73	0.395
140.00	-2.77	-4.89	0.00	-58.82	0.00	58.82	728.15	364.07	490.59	242.29	116.55	-8.02	0.247

Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:11 AM

Customer: VERIZON WIRELESS

Load Case: 0.9D + 1.6W

93 mph with No Ice (Reduced DL)

26 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load Factor : 0.90

Wind Load Factor : 1.60

145.00	-2.53	-4.58	0.00	-34.39	0.00	34.39	694.01	347.01	444.97	219.76	125.04	-8.22	0.160
150.00	0.00	-4.17	0.00	-11.49	0.00	11.49	659.14	329.57	401.13	198.10	133.69	-8.33	0.058

Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:11 AM

Customer: VERIZON WIRELESS

<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice	27 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		48.4	0.0					0.0	0.0	48.4	0.0	0.0	0.0
5.00		91.6	1,284.1					164.6	934.9	256.2	2,219.0	0.0	0.0
9.50	Reinf. Top Reinf	47.9	1,172.4					148.3	862.9	196.2	2,035.3	0.0	0.0
10.00	Appurtenance(s)	51.9	130.5	108.8	0.0	108.8	330.7	16.4	96.6	177.2	557.9	0.0	0.0
15.00		93.5	1,296.7					163.8	972.3	257.3	2,269.0	0.0	0.0
20.00		91.9	1,283.4					162.4	981.3	254.3	2,264.7	0.0	0.0
25.00		90.2	1,266.1					160.8	988.3	251.0	2,254.3	0.0	0.0
30.00		58.0	1,246.2					159.2	994.0	217.2	2,240.2	0.0	0.0
31.50	Bot - Section 2	45.4	370.6					47.8	290.8	93.2	661.4	0.0	0.0
35.00		38.2	1,329.0					113.4	680.5	151.6	2,009.4	0.0	0.0
35.67	Top - Section 1	46.6	251.1					21.8	129.7	68.4	380.7	0.0	0.0
40.00		87.7	949.5					145.8	845.3	233.5	1,794.8	0.0	0.0
45.00		95.1	1,075.4					171.9	978.2	267.0	2,053.7	0.0	0.0
50.00		95.9	1,054.0					175.4	981.2	271.3	2,035.2	0.0	0.0
55.00		96.4	1,031.9					178.2	983.8	274.7	2,015.7	0.0	0.0
60.00		96.7	1,009.2					180.6	986.3	277.3	1,995.5	0.0	0.0
65.00		96.6	986.0					182.6	988.6	279.2	1,974.6	0.0	0.0
70.00	Bot - Section 3	48.3	962.3					184.1	990.6	232.4	1,952.9	0.0	0.0
70.00		34.2	0.2					0.0	0.1	34.3	0.3	0.0	0.0
73.50	Top - Section 2	48.9	976.1					129.7	694.6	178.5	1,670.7	0.0	0.0
75.00		63.3	253.0					56.3	298.2	119.6	551.2	0.0	0.0
80.00		96.9	825.5					188.2	994.6	285.1	1,820.1	0.0	0.0
85.00		96.1	804.2					190.3	1,003.4	286.4	1,807.5	0.0	0.0
90.00		63.7	782.6					276.8	1,434.8	340.5	2,217.4	0.0	0.0
91.67	Reinf. Top Reinf	47.3	257.2					92.8	479.2	140.1	736.4	0.0	0.0
95.00		78.3	506.0					186.3	892.9	264.5	1,398.8	0.0	0.0
100.00		92.9	738.6					244.3	1,116.1	337.1	1,854.7	0.0	0.0
105.00		91.5	716.3					241.3	1,093.8	332.8	1,810.1	0.0	0.0
110.00	Top - Section 3	45.4	693.8					242.1	1,096.3	287.6	1,790.1	0.0	0.0
110.00		44.7	0.1					0.0	0.1	44.7	0.2	0.0	0.0
115.00		52.9	587.2					242.9	1,099.1	295.8	1,686.3	0.0	0.0
115.94	Reinf. Top	26.4	108.8					45.6	206.4	72.0	315.2	0.0	0.0
118.00	Appurtenance(s)	35.6	236.4	723.9	0.0	0.0	7,569.9	100.4	330.3	859.9	8,136.6	0.0	0.0
120.00		43.3	226.1					97.4	314.5	140.8	540.5	0.0	0.0
123.00	Appurtenance(s)	43.0	332.5	129.2	0.0	0.0	483.6	96.2	246.8	268.4	1,062.8	0.0	0.0
125.00		59.2	218.2					57.2	133.7	116.3	351.9	0.0	0.0
130.00		83.2	528.0					141.9	334.7	225.1	862.7	0.0	0.0
135.00		81.2	507.9					140.3	335.2	221.5	843.1	0.0	0.0
140.00	Appurtenance(s)	79.2	487.7	844.4	0.0	379.9	6,627.9	138.5	335.7	1,062.2	7,451.4	0.0	0.0
145.00		77.1	467.5					0.0	159.0	77.1	626.5	0.0	0.0
150.00	Appurtenance(s)	38.0	447.0	854.6	0.0	841.0	6,706.3	0.0	159.0	892.5	7,312.3	0.0	0.0
<b>Totals:</b>										10,689.0	75,561.3	0.00	0.00

Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:16 AM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 1.00 in Radial Ice

27 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	-77.41	-11.42	0.00	-1,226.38	0.00	1,226.38	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.336
5.00	-75.16	-11.33	0.00	-1,169.30	0.00	1,169.30	3,114.35	1,557.18	4,645.51	2,294.24	0.07	-0.13	0.329
9.50	-73.11	-11.21	0.00	-1,118.34	0.00	1,118.34	3,074.93	1,537.47	4,496.49	2,220.65	0.26	-0.26	0.321
9.50	-73.11	-11.21	0.00	-1,118.34	0.00	1,118.34	3,074.93	1,537.47	4,496.49	2,220.65	0.26	-0.26	0.321
10.00	-72.54	-11.13	0.00	-1,112.63	0.00	1,112.63	3,070.50	1,535.25	4,480.00	2,212.50	0.29	-0.27	0.320
15.00	-70.25	-11.02	0.00	-1,057.00	0.00	1,057.00	3,025.61	1,512.80	4,315.88	2,131.45	0.64	-0.41	0.312
20.00	-67.96	-10.91	0.00	-1,001.90	0.00	1,001.90	2,979.67	1,489.84	4,153.23	2,051.12	1.14	-0.54	0.304
25.00	-65.68	-10.79	0.00	-947.35	0.00	947.35	2,932.70	1,466.35	3,992.16	1,971.58	1.79	-0.68	0.295
30.00	-63.43	-10.64	0.00	-893.39	0.00	893.39	2,875.19	1,437.60	3,820.15	1,886.63	2.57	-0.82	0.287
31.50	-62.76	-10.62	0.00	-877.43	0.00	877.43	2,854.28	1,427.14	3,764.46	1,859.13	2.83	-0.86	0.285
35.00	-60.74	-10.49	0.00	-840.27	0.00	840.27	2,805.45	1,402.73	3,636.04	1,795.70	3.50	-0.95	0.276
35.67	-60.35	-10.49	0.00	-833.28	0.00	833.28	2,248.06	1,124.03	2,973.88	1,468.69	3.63	-0.97	0.316
40.00	-58.53	-10.36	0.00	-787.82	0.00	787.82	2,218.58	1,109.29	2,872.19	1,418.47	4.57	-1.09	0.306
45.00	-56.46	-10.19	0.00	-736.04	0.00	736.04	2,183.59	1,091.79	2,755.72	1,360.95	5.79	-1.23	0.293
50.00	-54.41	-10.00	0.00	-685.11	0.00	685.11	2,147.56	1,073.78	2,640.25	1,303.92	7.15	-1.37	0.280
55.00	-52.38	-9.80	0.00	-635.10	0.00	635.10	2,110.50	1,055.25	2,525.88	1,247.44	8.67	-1.51	0.266
60.00	-50.37	-9.59	0.00	-586.09	0.00	586.09	2,072.39	1,036.20	2,412.72	1,191.55	10.32	-1.65	0.253
65.00	-48.38	-9.36	0.00	-538.16	0.00	538.16	2,033.25	1,016.62	2,300.87	1,136.31	12.11	-1.78	0.239
70.00	-46.43	-9.12	0.00	-491.36	0.00	491.36	1,982.07	991.04	2,178.36	1,075.81	14.05	-1.91	0.226
70.00	-46.42	-9.12	0.00	-491.35	0.00	491.35	1,982.06	991.03	2,178.34	1,075.80	14.05	-1.91	0.222
73.50	-44.75	-8.93	0.00	-459.44	0.00	459.44	1,473.95	736.98	1,624.53	802.30	15.48	-2.00	0.251
75.00	-44.19	-8.86	0.00	-446.04	0.00	446.04	1,466.26	733.13	1,601.72	791.03	16.11	-2.03	0.245
80.00	-42.36	-8.60	0.00	-401.74	0.00	401.74	1,439.98	719.99	1,526.06	753.66	18.31	-2.16	0.227
85.00	-40.55	-8.33	0.00	-358.75	0.00	358.75	1,412.66	706.33	1,451.06	716.62	20.64	-2.29	0.208
90.00	-38.34	-7.95	0.00	-317.10	0.00	317.10	1,384.29	692.15	1,376.80	679.95	23.10	-2.40	0.189
91.67	-37.60	-7.81	0.00	-303.86	0.00	303.86	1,374.61	687.30	1,352.23	667.81	23.95	-2.44	0.183
91.67	-37.60	-7.81	0.00	-303.86	0.00	303.86	1,374.61	687.30	1,352.23	667.81	23.95	-2.44	0.148
95.00	-36.20	-7.54	0.00	-277.81	0.00	277.81	1,354.89	677.44	1,303.39	643.69	25.68	-2.51	0.137
100.00	-34.36	-7.16	0.00	-240.12	0.00	240.12	1,324.45	662.22	1,230.93	607.91	28.35	-2.59	0.120
105.00	-32.55	-6.79	0.00	-204.31	0.00	204.31	1,292.96	646.48	1,159.52	572.64	31.10	-2.66	0.105
110.00	-30.78	-6.43	0.00	-170.38	0.00	170.38	1,247.09	623.55	1,077.74	532.25	33.93	-2.73	0.091
110.00	-30.78	-6.43	0.00	-170.38	0.00	170.38	853.22	426.61	741.75	366.32	33.93	-2.73	0.107
110.00	-30.77	-6.40	0.00	-170.37	0.00	170.37	853.22	426.61	741.74	366.32	33.93	-2.73	0.107
115.00	-29.10	-6.04	0.00	-138.36	0.00	138.36	834.98	417.49	698.66	345.04	36.82	-2.79	0.089
115.94	-28.79	-5.96	0.00	-132.69	0.00	132.69	831.44	415.72	690.62	341.07	37.37	-2.80	0.086
115.94	-28.79	-5.96	0.00	-132.69	0.00	132.69	831.44	415.72	690.62	341.07	37.37	-2.80	0.424
118.00	-20.70	-4.73	0.00	-120.39	0.00	120.39	823.53	411.76	672.98	332.36	38.58	-2.82	0.387
120.00	-20.15	-4.61	0.00	-110.93	0.00	110.93	815.69	407.84	655.93	323.94	39.78	-2.93	0.367
123.00	-19.10	-4.33	0.00	-97.10	0.00	97.10	803.62	401.81	630.51	311.38	41.67	-3.08	0.336
125.00	-18.74	-4.25	0.00	-88.44	0.00	88.44	795.36	397.68	613.66	303.06	42.99	-3.18	0.316
130.00	-17.88	-4.03	0.00	-67.21	0.00	67.21	774.00	387.00	571.95	282.46	46.44	-3.40	0.261
135.00	-17.04	-3.81	0.00	-47.04	0.00	47.04	751.59	375.80	530.89	262.19	50.10	-3.58	0.202
140.00	-9.67	-2.29	0.00	-27.61	0.00	27.61	728.15	364.07	490.59	242.29	53.93	-3.72	0.127

Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:16 AM

Customer: VERIZON WIRELESS

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

50 mph with 1.00 in Radial Ice

27 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

145.00	-9.04	-2.19	0.00	-16.15	0.00	16.15	694.01	347.01	444.97	219.76	57.88	-3.81	0.087
150.00	0.00	-1.58	0.00	-5.21	0.00	5.21	659.14	329.57	401.13	198.10	61.90	-3.86	0.026

Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:16 AM

Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W

Serviceability 60 mph

25 Iterations

Gust Response Factor : 1.10

Wind Importance Factor : 1.00

Dead Load 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		57.7	0.0					0.0	0.0	57.7	0.0	0.0	0.0
5.00		108.7	752.2					24.1	629.1	132.8	1,381.3	0.0	0.0
9.50	Reinf. Top Reinf	56.5	663.2					21.7	566.2	78.2	1,229.4	0.0	0.0
10.00	Appurtenance(s)	60.9	72.9	121.8	0.0	121.8	126.0	2.0	62.9	184.7	261.8	0.0	0.0
15.00		109.4	720.0					20.6	628.9	130.0	1,348.9	0.0	0.0
20.00		106.9	703.9					21.1	628.9	128.0	1,332.8	0.0	0.0
25.00		104.5	687.8					21.6	628.9	126.1	1,316.8	0.0	0.0
30.00		67.0	671.7					22.1	628.9	89.1	1,300.7	0.0	0.0
31.50	Bot - Section 2	52.3	198.3					6.8	188.6	59.1	386.9	0.0	0.0
35.00		44.0	846.7					16.3	440.3	60.4	1,287.0	0.0	0.0
35.67	Top - Section 1	53.5	159.4					3.2	83.8	56.7	243.2	0.0	0.0
40.00		100.5	471.4					21.0	545.2	121.6	1,016.5	0.0	0.0
45.00		108.6	531.3					25.6	628.9	134.1	1,160.2	0.0	0.0
50.00		109.0	517.9					27.0	628.9	136.0	1,146.8	0.0	0.0
55.00		109.2	504.5					28.3	628.9	137.5	1,133.4	0.0	0.0
60.00		108.9	491.0					29.6	628.9	138.6	1,120.0	0.0	0.0
65.00		108.4	477.6					31.0	628.9	139.3	1,106.6	0.0	0.0
70.00	Bot - Section 3	54.0	464.2					32.3	628.9	86.3	1,093.0	0.0	0.0
70.00		38.3	0.1					0.0	0.1	38.3	0.2	0.0	0.0
73.50	Top - Section 2	54.6	575.8					23.3	440.2	77.9	1,016.0	0.0	0.0
75.00		70.3	109.4					10.1	188.8	80.4	298.2	0.0	0.0
80.00		107.4	357.6					34.4	628.9	141.8	986.6	0.0	0.0
85.00		106.0	346.9					67.9	630.5	173.9	977.3	0.0	0.0
90.00		69.9	336.1					69.7	723.4	139.7	1,059.6	0.0	0.0
91.67	Reinf. Top Reinf	51.7	109.7					23.6	241.1	75.4	350.8	0.0	0.0
95.00		85.2	215.8					47.9	426.6	133.1	642.4	0.0	0.0
100.00		100.6	314.7					73.3	555.7	173.9	870.4	0.0	0.0
105.00		98.5	304.0					60.3	546.3	158.8	850.3	0.0	0.0
110.00	Top - Section 3	48.7	293.2					61.4	546.3	110.1	839.5	0.0	0.0
110.00		47.6	0.0					0.0	0.1	47.6	0.1	0.0	0.0
115.00		56.4	212.5					62.4	546.3	118.8	758.9	0.0	0.0
115.94	Reinf. Top	28.0	38.9					11.8	102.4	39.8	141.4	0.0	0.0
118.00	Appurtenance(s)	37.6	84.7	518.0	0.0	0.0	3,258.3	26.1	122.0	581.7	3,465.0	0.0	0.0
120.00		45.6	80.8					25.5	113.1	71.1	194.0	0.0	0.0
123.00	Appurtenance(s)	42.1	118.8	119.9	0.0	0.0	131.2	38.5	122.5	200.6	372.5	0.0	0.0
125.00		51.4	77.6					0.0	74.7	51.4	152.3	0.0	0.0
130.00		71.8	188.4					0.0	186.7	71.8	375.1	0.0	0.0
135.00		76.2	180.3					0.0	186.7	76.2	367.0	0.0	0.0
140.00	Appurtenance(s)	73.8	172.3	619.0	0.0	342.9	2,765.9	18.4	186.7	711.2	3,124.9	0.0	0.0
145.00		64.5	164.2					0.0	132.5	64.5	296.7	0.0	0.0
150.00	Appurtenance(s)	31.6	156.2	584.8	0.0	692.8	2,916.3	0.0	132.5	616.4	3,205.0	0.0	0.0
Totals:										5,950.58	38,209.3	0.00	0.00

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Load Case: 1.0D + 1.0W

Serviceability 60 mph

25 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	-38.51	-6.27	0.00	-634.58	0.00	634.58	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.174
5.00	-37.13	-6.18	0.00	-603.23	0.00	603.23	3,114.35	1,557.18	4,645.51	2,294.24	0.04	-0.07	0.169
9.50	-35.89	-6.12	0.00	-575.43	0.00	575.43	3,074.93	1,537.47	4,496.49	2,220.65	0.13	-0.13	0.165
9.50	-35.89	-6.12	0.00	-575.43	0.00	575.43	3,074.93	1,537.47	4,496.49	2,220.65	0.13	-0.13	0.165
10.00	-35.63	-5.96	0.00	-572.25	0.00	572.25	3,070.50	1,535.25	4,480.00	2,212.50	0.15	-0.14	0.164
15.00	-34.27	-5.87	0.00	-542.45	0.00	542.45	3,025.61	1,512.80	4,315.88	2,131.45	0.33	-0.21	0.160
20.00	-32.93	-5.77	0.00	-513.12	0.00	513.12	2,979.67	1,489.84	4,153.23	2,051.12	0.59	-0.28	0.155
25.00	-31.61	-5.68	0.00	-484.25	0.00	484.25	2,932.70	1,466.35	3,992.16	1,971.58	0.92	-0.35	0.150
30.00	-30.31	-5.60	0.00	-455.86	0.00	455.86	2,875.19	1,437.60	3,820.15	1,886.63	1.32	-0.42	0.146
31.50	-29.92	-5.56	0.00	-447.45	0.00	447.45	2,854.28	1,427.14	3,764.46	1,859.13	1.46	-0.44	0.145
35.00	-28.63	-5.50	0.00	-427.98	0.00	427.98	2,805.45	1,402.73	3,636.04	1,795.70	1.80	-0.49	0.140
35.67	-28.38	-5.46	0.00	-424.32	0.00	424.32	2,248.06	1,124.03	2,973.88	1,468.69	1.87	-0.50	0.160
40.00	-27.36	-5.36	0.00	-400.64	0.00	400.64	2,218.58	1,109.29	2,872.19	1,418.47	2.35	-0.56	0.155
45.00	-26.19	-5.25	0.00	-373.82	0.00	373.82	2,183.59	1,091.79	2,755.72	1,360.95	2.97	-0.63	0.148
50.00	-25.04	-5.13	0.00	-347.57	0.00	347.57	2,147.56	1,073.78	2,640.25	1,303.92	3.67	-0.70	0.141
55.00	-23.90	-5.01	0.00	-321.91	0.00	321.91	2,110.50	1,055.25	2,525.88	1,247.44	4.44	-0.77	0.134
60.00	-22.78	-4.88	0.00	-296.87	0.00	296.87	2,072.39	1,036.20	2,412.72	1,191.55	5.29	-0.84	0.127
65.00	-21.67	-4.75	0.00	-272.46	0.00	272.46	2,033.25	1,016.62	2,300.87	1,136.31	6.21	-0.91	0.120
70.00	-20.58	-4.66	0.00	-248.71	0.00	248.71	1,982.07	991.04	2,178.36	1,075.81	7.19	-0.97	0.113
70.00	-20.58	-4.63	0.00	-248.71	0.00	248.71	1,982.06	991.03	2,178.34	1,075.80	7.19	-0.97	0.112
73.50	-19.56	-4.54	0.00	-232.51	0.00	232.51	1,473.95	736.98	1,624.53	802.30	7.92	-1.02	0.126
75.00	-19.26	-4.47	0.00	-225.70	0.00	225.70	1,466.26	733.13	1,601.72	791.03	8.25	-1.04	0.123
80.00	-18.27	-4.33	0.00	-203.34	0.00	203.34	1,439.98	719.99	1,526.06	753.66	9.37	-1.10	0.114
85.00	-17.29	-4.16	0.00	-181.68	0.00	181.68	1,412.66	706.33	1,451.06	716.62	10.56	-1.16	0.104
90.00	-16.23	-4.01	0.00	-160.90	0.00	160.90	1,384.29	692.15	1,376.80	679.95	11.81	-1.22	0.095
91.67	-15.88	-3.93	0.00	-154.22	0.00	154.22	1,374.61	687.30	1,352.23	667.81	12.24	-1.24	0.092
91.67	-15.88	-3.93	0.00	-154.22	0.00	154.22	1,374.61	687.30	1,352.23	667.81	12.24	-1.24	0.074
95.00	-15.24	-3.79	0.00	-141.12	0.00	141.12	1,354.89	677.44	1,303.39	643.69	13.12	-1.28	0.068
100.00	-14.37	-3.61	0.00	-122.15	0.00	122.15	1,324.45	662.22	1,230.93	607.91	14.48	-1.32	0.060
105.00	-13.52	-3.44	0.00	-104.10	0.00	104.10	1,292.96	646.48	1,159.52	572.64	15.88	-1.36	0.052
110.00	-12.69	-3.31	0.00	-86.90	0.00	86.90	1,247.09	623.55	1,077.74	532.25	17.32	-1.39	0.045
110.00	-12.69	-3.31	0.00	-86.90	0.00	86.90	853.22	426.61	741.75	366.32	17.32	-1.39	0.053
110.00	-12.69	-3.27	0.00	-86.90	0.00	86.90	853.22	426.61	741.74	366.32	17.32	-1.39	0.053
115.00	-11.93	-3.14	0.00	-70.55	0.00	70.55	834.98	417.49	698.66	345.04	18.80	-1.42	0.044
115.94	-11.79	-3.09	0.00	-67.61	0.00	67.61	831.44	415.72	690.62	341.07	19.07	-1.42	0.042
115.94	-11.79	-3.09	0.00	-67.61	0.00	67.61	831.44	415.72	690.62	341.07	19.07	-1.42	0.212
118.00	-8.34	-2.43	0.00	-61.23	0.00	61.23	823.53	411.76	672.98	332.36	19.69	-1.44	0.194
120.00	-8.14	-2.36	0.00	-56.37	0.00	56.37	815.69	407.84	655.93	323.94	20.31	-1.49	0.184
123.00	-7.77	-2.16	0.00	-49.28	0.00	49.28	803.62	401.81	630.51	311.38	21.27	-1.57	0.168
125.00	-7.62	-2.12	0.00	-44.96	0.00	44.96	795.36	397.68	613.66	303.06	21.94	-1.62	0.158
130.00	-7.24	-2.05	0.00	-34.37	0.00	34.37	774.00	387.00	571.95	282.46	23.70	-1.73	0.131
135.00	-6.88	-1.97	0.00	-24.13	0.00	24.13	751.59	375.80	530.89	262.19	25.56	-1.83	0.101
140.00	-3.77	-1.16	0.00	-13.93	0.00	13.93	728.15	364.07	490.59	242.29	27.51	-1.90	0.063

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Serviceability 60 mph

25 Iterations

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145.00	-3.48	-1.09	0.00	-8.12	0.00	8.12	694.01	347.01	444.97	219.76	29.52	-1.94	0.042
150.00	0.00	-0.97	0.00	-2.67	0.00	2.67	659.14	329.57	401.13	198.10	31.57	-1.97	0.014



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Customer: VERIZON WIRELESS

### Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.18
Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	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 ( $S_{ds}$ ):	0.19
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Seismic Response Coefficient ( $C_s$ ):	0.03
Upper Limit $C_s$	0.03
Lower Limit $C_s$	0.03
Period based on Rayleigh Method (sec):	3.04
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	2.00
Total Unfactored Dead Load:	38.52 k
Seismic Base Shear (E):	1.50 k

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

#### Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
40	147.50	289	6,280	0.020	30	357
39	142.50	297	6,025	0.019	28	367
38	137.50	359	6,787	0.021	32	444
37	132.50	367	6,443	0.020	30	454
36	127.50	375	6,097	0.019	29	464
35	124.00	152	2,341	0.007	11	189
34	121.50	241	3,562	0.011	17	299
33	119.00	194	2,747	0.009	13	240
32	116.97	207	2,828	0.009	13	256
31	115.47	141	1,885	0.006	9	175
30	112.50	759	9,604	0.030	45	940
29	110.00	0	1	0.000	0	0
28	107.50	839	9,701	0.030	46	1,039
27	102.50	850	8,933	0.028	42	1,053
26	97.50	870	8,274	0.026	39	1,078
25	93.33	642	5,596	0.018	26	795
24	90.83	351	2,894	0.009	14	434
23	87.50	1,060	8,113	0.025	38	1,312
22	82.50	977	6,652	0.021	31	1,210
21	77.50	987	5,926	0.019	28	1,222
20	74.25	298	1,644	0.005	8	369
19	71.75	1,016	5,230	0.016	25	1,258
18	70.00	0	1	0.000	0	0

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17	67.50	1,093	4,980	0.016	23	1,353
16	62.50	1,107	4,323	0.014	20	1,370
15	57.50	1,120	3,703	0.012	17	1,387
14	52.50	1,133	3,124	0.010	15	1,403
13	47.50	1,147	2,588	0.008	12	1,420
12	42.50	1,160	2,096	0.007	10	1,437
11	37.83	1,017	1,455	0.005	7	1,259
10	35.33	243	304	0.001	1	301
9	33.25	1,287	1,423	0.004	7	1,594
8	30.75	387	366	0.001	2	479
7	27.50	1,301	984	0.003	5	1,610
6	22.50	1,317	667	0.002	3	1,630
5	17.50	1,333	408	0.001	2	1,650
4	12.50	1,349	211	0.001	1	1,670
3	9.75	136	13	0.000	0	168
2	7.25	1,229	65	0.000	0	1,522
1	2.50	1,381	9	0.000	0	1,710
Generic 12' Omni	150.00	40	900	0.003	4	50
Generic 12' Dipole	150.00	40	900	0.003	4	50
Generic 6' Yagi	150.00	25	563	0.002	3	31
CCI HPA-65R-BUU-H8	150.00	204	4,590	0.014	22	253
Andrew ABT-DMDF-ADBH	150.00	3	74	0.000	0	4
Powerwave Allgon 702	150.00	13	297	0.001	1	16
Powerwave Allgon TT1	150.00	96	2,160	0.007	10	119
Raycap DC6-48-60-18-	150.00	33	738	0.002	3	41
Ericsson RRUS 11 (Ba	150.00	150	3,375	0.011	16	186
Ericsson RRUS 32 B2	150.00	159	3,577	0.011	17	197
Stand-Off	150.00	300	6,750	0.021	32	371
Powerwave Allgon 777	150.00	162	3,645	0.011	17	201
Round Platform w/ Ha	150.00	2,000	45,000	0.141	212	2,476
RFS ATMAA1412D-1A20	140.00	39	764	0.002	4	48
RFS ATMPP1412D-1CWA	140.00	38	735	0.002	3	46
Ericsson AIR 21 B4A	140.00	540	10,584	0.033	50	669
Andrew LNX-6515DS-A1	140.00	149	2,928	0.009	14	185
Round Platform w/ Ha	140.00	2,000	39,200	0.123	185	2,476
Stand-Off	123.00	100	1,513	0.005	7	124
Generic 75" x 16.8"	123.00	31	472	0.001	2	39
Samsung B2/B66A RRH-	118.00	253	3,526	0.011	17	314
Samsung B5/B13 RRH-B	118.00	211	2,937	0.009	14	261
Raycap RCMDC-6627-PF	118.00	32	446	0.001	2	40
Commscope NHH-65B-R2	118.00	262	3,651	0.011	17	325
Generic Round Platfo	118.00	2,500	34,810	0.109	164	3,095
Channel Master Type	10.00	126	13	0.000	0	156
		38,518	318,428	1.000	1,502	47,693

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

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)
40	147.50	289	6,280	0.020	30	249
39	142.50	297	6,025	0.019	28	256
38	137.50	359	6,787	0.021	32	309
37	132.50	367	6,443	0.020	30	316
36	127.50	375	6,097	0.019	29	323
35	124.00	152	2,341	0.007	11	131
34	121.50	241	3,562	0.011	17	208
33	119.00	194	2,747	0.009	13	167
32	116.97	207	2,828	0.009	13	178
31	115.47	141	1,885	0.006	9	122
30	112.50	759	9,604	0.030	45	654

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Customer: VERIZON WIRELESS

29	110.00	0	1	0.000	0	0
28	107.50	839	9,701	0.030	46	723
27	102.50	850	8,933	0.028	42	733
26	97.50	870	8,274	0.026	39	750
25	93.33	642	5,596	0.018	26	554
24	90.83	351	2,894	0.009	14	302
23	87.50	1,060	8,113	0.025	38	913
22	82.50	977	6,652	0.021	31	842
21	77.50	987	5,926	0.019	28	850
20	74.25	298	1,644	0.005	8	257
19	71.75	1,016	5,230	0.016	25	876
18	70.00	0	1	0.000	0	0
17	67.50	1,093	4,980	0.016	23	942
16	62.50	1,107	4,323	0.014	20	954
15	57.50	1,120	3,703	0.012	17	965
14	52.50	1,133	3,124	0.010	15	977
13	47.50	1,147	2,588	0.008	12	988
12	42.50	1,160	2,096	0.007	10	1,000
11	37.83	1,017	1,455	0.005	7	876
10	35.33	243	304	0.001	1	210
9	33.25	1,287	1,423	0.004	7	1,109
8	30.75	387	366	0.001	2	333
7	27.50	1,301	984	0.003	5	1,121
6	22.50	1,317	667	0.002	3	1,135
5	17.50	1,333	408	0.001	2	1,149
4	12.50	1,349	211	0.001	1	1,163
3	9.75	136	13	0.000	0	117
2	7.25	1,229	65	0.000	0	1,060
1	2.50	1,381	9	0.000	0	1,190
Generic 12' Omni	150.00	40	900	0.003	4	34
Generic 12' Dipole	150.00	40	900	0.003	4	34
Generic 6' Yagi	150.00	25	563	0.002	3	22
CCI HPA-65R-BUU-H8	150.00	204	4,590	0.014	22	176
Andrew ABT-DMDF-ADBH	150.00	3	74	0.000	0	3
Powerwave Allgon 702	150.00	13	297	0.001	1	11
Powerwave Allgon TT1	150.00	96	2,160	0.007	10	83
Raycap DC6-48-60-18-	150.00	33	738	0.002	3	28
Ericsson RRUS 11 (Ba	150.00	150	3,375	0.011	16	129
Ericsson RRUS 32 B2	150.00	159	3,577	0.011	17	137
Stand-Off	150.00	300	6,750	0.021	32	259
Powerwave Allgon 777	150.00	162	3,645	0.011	17	140
Round Platform w/ Ha	150.00	2,000	45,000	0.141	212	1,724
RFS ATMAA1412D-1A20	140.00	39	764	0.002	4	34
RFS ATMPP1412D-1CWA	140.00	38	735	0.002	3	32
Ericsson AIR 21 B4A	140.00	540	10,584	0.033	50	465
Andrew LNX-6515DS-A1	140.00	149	2,928	0.009	14	129
Round Platform w/ Ha	140.00	2,000	39,200	0.123	185	1,724
Stand-Off	123.00	100	1,513	0.005	7	86
Generic 75" x 16.8"	123.00	31	472	0.001	2	27
Samsung B2/B66A RRH-	118.00	253	3,526	0.011	17	218
Samsung B5/B13 RRH-B	118.00	211	2,937	0.009	14	182
Raycap RCMD-6627-PF	118.00	32	446	0.001	2	28
Commscope NHH-65B-R2	118.00	262	3,651	0.011	17	226
Generic Round Platfo	118.00	2,500	34,810	0.109	164	2,155
Channel Master Type	10.00	126	13	0.000	0	109
		38,518	318,428	1.000	1,502	33,196

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

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	-45.98	-1.51	0.00	-193.61	0.00	193.61	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.061
5.00	-44.46	-1.53	0.00	-186.06	0.00	186.06	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.02	0.059
9.50	-44.29	-1.53	0.00	-179.19	0.00	179.19	3,074.93	1,537.47	4,496.49	2,220.65	0.04	-0.04	0.059
9.50	-44.29	-1.53	0.00	-179.19	0.00	179.19	3,074.93	1,537.47	4,496.49	2,220.65	0.04	-0.04	0.059
10.00	-42.46	-1.54	0.00	-178.43	0.00	178.43	3,070.50	1,535.25	4,480.00	2,212.50	0.05	-0.04	0.058
15.00	-40.81	-1.55	0.00	-170.73	0.00	170.73	3,025.61	1,512.80	4,315.88	2,131.45	0.10	-0.07	0.057
20.00	-39.18	-1.56	0.00	-162.97	0.00	162.97	2,979.67	1,489.84	4,153.23	2,051.12	0.18	-0.09	0.056
25.00	-37.57	-1.57	0.00	-155.16	0.00	155.16	2,932.70	1,466.35	3,992.16	1,971.58	0.29	-0.11	0.054
30.00	-37.09	-1.58	0.00	-147.31	0.00	147.31	2,875.19	1,437.60	3,820.15	1,886.63	0.41	-0.13	0.053
31.50	-35.50	-1.57	0.00	-144.95	0.00	144.95	2,854.28	1,427.14	3,764.46	1,859.13	0.45	-0.14	0.053
35.00	-35.20	-1.58	0.00	-139.44	0.00	139.44	2,805.45	1,402.73	3,636.04	1,795.70	0.56	-0.15	0.052
35.67	-33.94	-1.57	0.00	-138.39	0.00	138.39	2,248.06	1,124.03	2,973.88	1,468.69	0.58	-0.16	0.059
40.00	-32.50	-1.57	0.00	-131.58	0.00	131.58	2,218.58	1,109.29	2,872.19	1,418.47	0.74	-0.18	0.057
45.00	-31.08	-1.57	0.00	-123.72	0.00	123.72	2,183.59	1,091.79	2,755.72	1,360.95	0.93	-0.20	0.055
50.00	-29.68	-1.56	0.00	-115.89	0.00	115.89	2,147.56	1,073.78	2,640.25	1,303.92	1.16	-0.22	0.053
55.00	-28.29	-1.55	0.00	-108.09	0.00	108.09	2,110.50	1,055.25	2,525.88	1,247.44	1.41	-0.25	0.051
60.00	-26.92	-1.53	0.00	-100.36	0.00	100.36	2,072.39	1,036.20	2,412.72	1,191.55	1.68	-0.27	0.048
65.00	-25.56	-1.51	0.00	-92.70	0.00	92.70	2,033.25	1,016.62	2,300.87	1,136.31	1.97	-0.29	0.046
70.00	-25.56	-1.52	0.00	-85.14	0.00	85.14	1,982.07	991.04	2,178.36	1,075.81	2.29	-0.32	0.044
70.00	-24.31	-1.49	0.00	-85.14	0.00	85.14	1,982.06	991.03	2,178.34	1,075.80	2.29	-0.32	0.043
73.50	-23.94	-1.48	0.00	-79.93	0.00	79.93	1,473.95	736.98	1,624.53	802.30	2.53	-0.33	0.049
75.00	-22.71	-1.45	0.00	-77.71	0.00	77.71	1,466.26	733.13	1,601.72	791.03	2.64	-0.34	0.048
80.00	-21.50	-1.42	0.00	-70.44	0.00	70.44	1,439.98	719.99	1,526.06	753.66	3.00	-0.36	0.045
85.00	-20.19	-1.38	0.00	-63.32	0.00	63.32	1,412.66	706.33	1,451.06	716.62	3.39	-0.38	0.041
90.00	-19.76	-1.37	0.00	-56.40	0.00	56.40	1,384.29	692.15	1,376.80	679.95	3.80	-0.40	0.038
91.67	-18.96	-1.34	0.00	-54.12	0.00	54.12	1,374.61	687.30	1,352.23	667.81	3.95	-0.41	0.037
91.67	-18.96	-1.34	0.00	-54.12	0.00	54.12	1,374.61	687.30	1,352.23	667.81	3.95	-0.41	0.031
95.00	-17.88	-1.30	0.00	-49.64	0.00	49.64	1,354.89	677.44	1,303.39	643.69	4.24	-0.42	0.029
100.00	-16.83	-1.25	0.00	-43.14	0.00	43.14	1,324.45	662.22	1,230.93	607.91	4.69	-0.44	0.026
105.00	-15.79	-1.20	0.00	-36.86	0.00	36.86	1,292.96	646.48	1,159.52	572.64	5.15	-0.45	0.023
110.00	-15.79	-1.21	0.00	-30.84	0.00	30.84	1,247.09	623.55	1,077.74	532.25	5.63	-0.46	0.021
110.00	-15.79	-1.21	0.00	-30.84	0.00	30.84	853.22	426.61	741.75	366.32	5.63	-0.46	0.025
110.00	-14.85	-1.15	0.00	-30.84	0.00	30.84	853.22	426.61	741.74	366.32	5.63	-0.46	0.024
115.00	-14.68	-1.15	0.00	-25.07	0.00	25.07	834.98	417.49	698.66	345.04	6.12	-0.47	0.021
115.94	-14.42	-1.13	0.00	-24.00	0.00	24.00	831.44	415.72	690.62	341.07	6.21	-0.47	0.021
115.94	-14.42	-1.13	0.00	-24.00	0.00	24.00	831.44	415.72	690.62	341.07	6.21	-0.47	0.088
118.00	-10.15	-0.87	0.00	-21.67	0.00	21.67	823.53	411.76	672.98	332.36	6.42	-0.48	0.078
120.00	-9.85	-0.86	0.00	-19.92	0.00	19.92	815.69	407.84	655.93	323.94	6.62	-0.50	0.074
123.00	-9.50	-0.84	0.00	-17.36	0.00	17.36	803.62	401.81	630.51	311.38	6.94	-0.53	0.068
125.00	-9.03	-0.81	0.00	-15.69	0.00	15.69	795.36	397.68	613.66	303.06	7.17	-0.54	0.063
130.00	-8.58	-0.78	0.00	-11.65	0.00	11.65	774.00	387.00	571.95	282.46	7.76	-0.58	0.052
135.00	-8.14	-0.74	0.00	-7.76	0.00	7.76	751.59	375.80	530.89	262.19	8.39	-0.61	0.040
140.00	-4.35	-0.42	0.00	-4.04	0.00	4.04	728.15	364.07	490.59	242.29	9.04	-0.63	0.023
145.00	-3.99	-0.39	0.00	-1.94	0.00	1.94	694.01	347.01	444.97	219.76	9.71	-0.65	0.015
150.00	0.00	-0.34	0.00	0.00	0.00	0.00	659.14	329.57	401.13	198.10	10.39	-0.65	0.000

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Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

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Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

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	-32.00	-1.51	0.00	-188.80	0.00	188.80	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.056
5.00	-30.94	-1.52	0.00	-181.26	0.00	181.26	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.02	0.055
9.50	-30.83	-1.52	0.00	-174.43	0.00	174.43	3,074.93	1,537.47	4,496.49	2,220.65	0.04	-0.04	0.054
9.50	-30.83	-1.52	0.00	-174.43	0.00	174.43	3,074.93	1,537.47	4,496.49	2,220.65	0.04	-0.04	0.054
10.00	-29.56	-1.53	0.00	-173.67	0.00	173.67	3,070.50	1,535.25	4,480.00	2,212.50	0.04	-0.04	0.054
15.00	-28.41	-1.53	0.00	-166.04	0.00	166.04	3,025.61	1,512.80	4,315.88	2,131.45	0.10	-0.06	0.053
20.00	-27.27	-1.54	0.00	-158.36	0.00	158.36	2,979.67	1,489.84	4,153.23	2,051.12	0.18	-0.08	0.052
25.00	-26.15	-1.54	0.00	-150.66	0.00	150.66	2,932.70	1,466.35	3,992.16	1,971.58	0.28	-0.11	0.050
30.00	-25.82	-1.55	0.00	-142.94	0.00	142.94	2,875.19	1,437.60	3,820.15	1,886.63	0.40	-0.13	0.049
31.50	-24.71	-1.54	0.00	-140.62	0.00	140.62	2,854.28	1,427.14	3,764.46	1,859.13	0.44	-0.13	0.049
35.00	-24.50	-1.55	0.00	-135.22	0.00	135.22	2,805.45	1,402.73	3,636.04	1,795.70	0.55	-0.15	0.048
35.67	-23.62	-1.54	0.00	-134.19	0.00	134.19	2,248.06	1,124.03	2,973.88	1,468.69	0.57	-0.15	0.055
40.00	-22.62	-1.54	0.00	-127.51	0.00	127.51	2,218.58	1,109.29	2,872.19	1,418.47	0.72	-0.17	0.053
45.00	-21.63	-1.53	0.00	-119.83	0.00	119.83	2,183.59	1,091.79	2,755.72	1,360.95	0.91	-0.20	0.051
50.00	-20.65	-1.52	0.00	-112.18	0.00	112.18	2,147.56	1,073.78	2,640.25	1,303.92	1.13	-0.22	0.049
55.00	-19.69	-1.51	0.00	-104.59	0.00	104.59	2,110.50	1,055.25	2,525.88	1,247.44	1.37	-0.24	0.047
60.00	-18.73	-1.49	0.00	-97.06	0.00	97.06	2,072.39	1,036.20	2,412.72	1,191.55	1.63	-0.26	0.045
65.00	-17.79	-1.47	0.00	-89.61	0.00	89.61	2,033.25	1,016.62	2,300.87	1,136.31	1.92	-0.29	0.043
70.00	-17.79	-1.47	0.00	-82.28	0.00	82.28	1,982.07	991.04	2,178.36	1,075.81	2.23	-0.31	0.041
70.00	-16.92	-1.44	0.00	-82.28	0.00	82.28	1,982.06	991.03	2,178.34	1,075.80	2.23	-0.31	0.040
73.50	-16.66	-1.44	0.00	-77.22	0.00	77.22	1,473.95	736.98	1,624.53	802.30	2.46	-0.32	0.045
75.00	-15.81	-1.41	0.00	-75.07	0.00	75.07	1,466.26	733.13	1,601.72	791.03	2.56	-0.33	0.044
80.00	-14.97	-1.38	0.00	-68.02	0.00	68.02	1,439.98	719.99	1,526.06	753.66	2.92	-0.35	0.041
85.00	-14.05	-1.34	0.00	-61.13	0.00	61.13	1,412.66	706.33	1,451.06	716.62	3.29	-0.37	0.038
90.00	-13.75	-1.33	0.00	-54.44	0.00	54.44	1,384.29	692.15	1,376.80	679.95	3.69	-0.39	0.035
91.67	-13.20	-1.30	0.00	-52.23	0.00	52.23	1,374.61	687.30	1,352.23	667.81	3.83	-0.40	0.034
91.67	-13.20	-1.30	0.00	-52.23	0.00	52.23	1,374.61	687.30	1,352.23	667.81	3.83	-0.40	0.028
95.00	-12.45	-1.26	0.00	-47.90	0.00	47.90	1,354.89	677.44	1,303.39	643.69	4.11	-0.41	0.026
100.00	-11.71	-1.21	0.00	-41.62	0.00	41.62	1,324.45	662.22	1,230.93	607.91	4.55	-0.42	0.023
105.00	-10.99	-1.16	0.00	-35.56	0.00	35.56	1,292.96	646.48	1,159.52	572.64	5.00	-0.44	0.020
110.00	-10.99	-1.16	0.00	-29.74	0.00	29.74	1,247.09	623.55	1,077.74	532.25	5.46	-0.45	0.018
110.00	-10.99	-1.16	0.00	-29.74	0.00	29.74	853.22	426.61	741.75	366.32	5.46	-0.45	0.022
110.00	-10.34	-1.11	0.00	-29.74	0.00	29.74	853.22	426.61	741.74	366.32	5.46	-0.45	0.021
115.00	-10.21	-1.11	0.00	-24.16	0.00	24.16	834.98	417.49	698.66	345.04	5.94	-0.46	0.018
115.94	-10.04	-1.09	0.00	-23.13	0.00	23.13	831.44	415.72	690.62	341.07	6.03	-0.46	0.018
115.94	-10.04	-1.09	0.00	-23.13	0.00	23.13	831.44	415.72	690.62	341.07	6.03	-0.46	0.080
118.00	-7.06	-0.84	0.00	-20.88	0.00	20.88	823.53	411.76	672.98	332.36	6.23	-0.46	0.071
120.00	-6.85	-0.83	0.00	-19.19	0.00	19.19	815.69	407.84	655.93	323.94	6.42	-0.48	0.068
123.00	-6.61	-0.81	0.00	-16.71	0.00	16.71	803.62	401.81	630.51	311.38	6.73	-0.51	0.062
125.00	-6.29	-0.78	0.00	-15.10	0.00	15.10	795.36	397.68	613.66	303.06	6.95	-0.53	0.058
130.00	-5.97	-0.75	0.00	-11.21	0.00	11.21	774.00	387.00	571.95	282.46	7.52	-0.56	0.047
135.00	-5.66	-0.72	0.00	-7.47	0.00	7.47	751.59	375.80	530.89	262.19	8.13	-0.59	0.036
140.00	-3.02	-0.40	0.00	-3.89	0.00	3.89	728.15	364.07	490.59	242.29	8.76	-0.61	0.020
145.00	-2.78	-0.37	0.00	-1.86	0.00	1.86	694.01	347.01	444.97	219.76	9.41	-0.63	0.012
150.00	0.00	-0.34	0.00	0.00	0.00	0.00	659.14	329.57	401.13	198.10	10.07	-0.63	0.000

Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

### Equivalent Modal Analysis Method

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

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.18
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 ( $S_{ds}$ ):	0.19
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Period Based on Rayleigh Method (sec):	3.04
Redundancy Factor ( $\rho$ ):	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)
40	147.50	289	1.828	1.667	1.025	0.320	80	357
39	142.50	297	1.706	1.144	0.823	0.247	64	367
38	137.50	359	1.588	0.742	0.654	0.183	57	444
37	132.50	367	1.475	0.441	0.513	0.126	40	454
36	127.50	375	1.366	0.222	0.397	0.077	25	464
35	124.00	152	1.292	0.109	0.329	0.048	6	189
34	121.50	241	1.240	0.046	0.286	0.029	6	299
33	119.00	194	1.190	-0.005	0.247	0.012	2	240
32	116.97	207	1.149	-0.038	0.219	0.000	0	256
31	115.47	141	1.120	-0.058	0.199	-0.009	-1	175
30	112.50	759	1.063	-0.088	0.165	-0.023	-15	940
29	110.00	0	1.016	-0.105	0.140	-0.034	0	0
28	107.50	839	0.971	-0.116	0.117	-0.042	-30	1,039
27	102.50	850	0.883	-0.121	0.081	-0.053	-39	1,053
26	97.50	870	0.799	-0.112	0.053	-0.056	-42	1,078
25	93.33	642	0.732	-0.096	0.036	-0.053	-29	795
24	90.83	351	0.693	-0.085	0.029	-0.048	-15	434
23	87.50	1,060	0.643	-0.068	0.020	-0.040	-36	1,312
22	82.50	977	0.572	-0.043	0.012	-0.022	-19	1,210
21	77.50	987	0.505	-0.018	0.007	-0.001	-1	1,222
20	74.25	298	0.463	-0.003	0.006	0.012	3	369
19	71.75	1,016	0.432	0.008	0.006	0.021	18	1,258
18	70.00	0	0.412	0.014	0.006	0.027	0	0
17	67.50	1,093	0.383	0.023	0.007	0.034	33	1,353
16	62.50	1,107	0.328	0.039	0.010	0.046	44	1,370
15	57.50	1,120	0.278	0.050	0.014	0.052	51	1,387
14	52.50	1,133	0.232	0.058	0.019	0.055	54	1,403
13	47.50	1,147	0.190	0.064	0.025	0.056	56	1,420
12	42.50	1,160	0.152	0.068	0.030	0.056	56	1,437
11	37.83	1,017	0.120	0.070	0.034	0.055	48	1,259
10	35.33	243	0.105	0.071	0.037	0.054	11	301
9	33.25	1,287	0.093	0.071	0.038	0.053	60	1,594
8	30.75	387	0.079	0.072	0.040	0.053	18	479
7	27.50	1,301	0.064	0.072	0.041	0.052	59	1,610

Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

6	22.50	1,317	0.043	0.070	0.042	0.050	58	1,630
5	17.50	1,333	0.026	0.067	0.040	0.048	56	1,650
4	12.50	1,349	0.013	0.059	0.034	0.044	51	1,670
3	9.75	136	0.008	0.052	0.030	0.040	5	168
2	7.25	1,229	0.004	0.043	0.024	0.035	37	1,522
1	2.50	1,381	0.001	0.018	0.010	0.017	20	1,710
Generic 12' Omni	150.00	40	1.890	1.980	1.140	0.360	12	50
Generic 12' Dipole	150.00	40	1.890	1.980	1.140	0.360	12	50
Generic 6' Yagi	150.00	25	1.890	1.980	1.140	0.360	8	31
CCI HPA-65R-BUU-H8	150.00	204	1.890	1.980	1.140	0.360	64	253
Andrew ABT-DMDF-	150.00	3	1.890	1.980	1.140	0.360	1	4
Powerwave Allgon 702	150.00	13	1.890	1.980	1.140	0.360	4	16
Powerwave Allgon TT1	150.00	96	1.890	1.980	1.140	0.360	30	119
Raycap DC6-48-60-18-	150.00	33	1.890	1.980	1.140	0.360	10	41
Ericsson RRUS 11 (Ba	150.00	150	1.890	1.980	1.140	0.360	47	186
Ericsson RRUS 32 B2	150.00	159	1.890	1.980	1.140	0.360	50	197
Stand-Off	150.00	300	1.890	1.980	1.140	0.360	94	371
Powerwave Allgon 777	150.00	162	1.890	1.980	1.140	0.360	51	201
Round Platform w/ Ha	150.00	2,000	1.890	1.980	1.140	0.360	624	2,476
RFS ATMAA1412D-1A20	140.00	39	1.646	0.929	0.735	0.214	7	48
RFS ATMPP1412D-1CWA	140.00	38	1.646	0.929	0.735	0.214	7	46
Ericsson AIR 21 B4A	140.00	540	1.646	0.929	0.735	0.214	100	669
Andrew LNX-6515DS-A1	140.00	149	1.646	0.929	0.735	0.214	28	185
Round Platform w/ Ha	140.00	2,000	1.646	0.929	0.735	0.214	371	2,476
Stand-Off	123.00	100	1.271	0.082	0.311	0.040	3	124
Generic 75" x 16.8"	123.00	31	1.271	0.082	0.311	0.040	1	39
Samsung B2/B66A RRH-	118.00	253	1.170	-0.022	0.233	0.006	1	314
Samsung B5/B13 RRH-B	118.00	211	1.170	-0.022	0.233	0.006	1	261
Raycap RCMDC-6627-PF	118.00	32	1.170	-0.022	0.233	0.006	0	40
Commscope NHH-65B-	118.00	262	1.170	-0.022	0.233	0.006	1	325
Generic Round Platfo	118.00	2,500	1.170	-0.022	0.233	0.006	13	3,095
Channel Master Type	10.00	126	0.008	0.052	0.030	0.040	4	156
		38,518	66.451	34.895	26.155	7.421	2,333	47,693

**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)
40	147.50	289	1.828	1.667	1.025	0.320	80	249
39	142.50	297	1.706	1.144	0.823	0.247	64	256
38	137.50	359	1.588	0.742	0.654	0.183	57	309
37	132.50	367	1.475	0.441	0.513	0.126	40	316
36	127.50	375	1.366	0.222	0.397	0.077	25	323
35	124.00	152	1.292	0.109	0.329	0.048	6	131
34	121.50	241	1.240	0.046	0.286	0.029	6	208
33	119.00	194	1.190	-0.005	0.247	0.012	2	167
32	116.97	207	1.149	-0.038	0.219	0.000	0	178
31	115.47	141	1.120	-0.058	0.199	-0.009	-1	122
30	112.50	759	1.063	-0.088	0.165	-0.023	-15	654
29	110.00	0	1.016	-0.105	0.140	-0.034	0	0
28	107.50	839	0.971	-0.116	0.117	-0.042	-30	723
27	102.50	850	0.883	-0.121	0.081	-0.053	-39	733
26	97.50	870	0.799	-0.112	0.053	-0.056	-42	750
25	93.33	642	0.732	-0.096	0.036	-0.053	-29	554
24	90.83	351	0.693	-0.085	0.029	-0.048	-15	302
23	87.50	1,060	0.643	-0.068	0.020	-0.040	-36	913
22	82.50	977	0.572	-0.043	0.012	-0.022	-19	842
21	77.50	987	0.505	-0.018	0.007	-0.001	-1	850
20	74.25	298	0.463	-0.003	0.006	0.012	3	257



Site Number: 302488

Code: ANSI/TIA-222-G

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Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

19	71.75	1,016	0.432	0.008	0.006	0.021	18	876
18	70.00	0	0.412	0.014	0.006	0.027	0	0
17	67.50	1,093	0.383	0.023	0.007	0.034	33	942
16	62.50	1,107	0.328	0.039	0.010	0.046	44	954
15	57.50	1,120	0.278	0.050	0.014	0.052	51	965
14	52.50	1,133	0.232	0.058	0.019	0.055	54	977
13	47.50	1,147	0.190	0.064	0.025	0.056	56	988
12	42.50	1,160	0.152	0.068	0.030	0.056	56	1,000
11	37.83	1,017	0.120	0.070	0.034	0.055	48	876
10	35.33	243	0.105	0.071	0.037	0.054	11	210
9	33.25	1,287	0.093	0.071	0.038	0.053	60	1,109
8	30.75	387	0.079	0.072	0.040	0.053	18	333
7	27.50	1,301	0.064	0.072	0.041	0.052	59	1,121
6	22.50	1,317	0.043	0.070	0.042	0.050	58	1,135
5	17.50	1,333	0.026	0.067	0.040	0.048	56	1,149
4	12.50	1,349	0.013	0.059	0.034	0.044	51	1,163
3	9.75	136	0.008	0.052	0.030	0.040	5	117
2	7.25	1,229	0.004	0.043	0.024	0.035	37	1,060
1	2.50	1,381	0.001	0.018	0.010	0.017	20	1,190
Generic 12' Omni	150.00	40	1.890	1.980	1.140	0.360	12	34
Generic 12' Dipole	150.00	40	1.890	1.980	1.140	0.360	12	34
Generic 6' Yagi	150.00	25	1.890	1.980	1.140	0.360	8	22
CCI HPA-65R-BUU-H8	150.00	204	1.890	1.980	1.140	0.360	64	176
Andrew ABT-DMDF-	150.00	3	1.890	1.980	1.140	0.360	1	3
Powerwave Allgon 702	150.00	13	1.890	1.980	1.140	0.360	4	11
Powerwave Allgon TT1	150.00	96	1.890	1.980	1.140	0.360	30	83
Raycap DC6-48-60-18-	150.00	33	1.890	1.980	1.140	0.360	10	28
Ericsson RRUS 11 (Ba	150.00	150	1.890	1.980	1.140	0.360	47	129
Ericsson RRUS 32 B2	150.00	159	1.890	1.980	1.140	0.360	50	137
Stand-Off	150.00	300	1.890	1.980	1.140	0.360	94	259
Powerwave Allgon 777	150.00	162	1.890	1.980	1.140	0.360	51	140
Round Platform w/ Ha	150.00	2,000	1.890	1.980	1.140	0.360	624	1,724
RFS ATMAA1412D-1A20	140.00	39	1.646	0.929	0.735	0.214	7	34
RFS ATMPP1412D-1CWA	140.00	38	1.646	0.929	0.735	0.214	7	32
Ericsson AIR 21 B4A	140.00	540	1.646	0.929	0.735	0.214	100	465
Andrew LNX-6515DS-A1	140.00	149	1.646	0.929	0.735	0.214	28	129
Round Platform w/ Ha	140.00	2,000	1.646	0.929	0.735	0.214	371	1,724
Stand-Off	123.00	100	1.271	0.082	0.311	0.040	3	86
Generic 75" x 16.8"	123.00	31	1.271	0.082	0.311	0.040	1	27
Samsung B2/B66A RRH-	118.00	253	1.170	-0.022	0.233	0.006	1	218
Samsung B5/B13 RRH-B	118.00	211	1.170	-0.022	0.233	0.006	1	182
Raycap RCMD-6627-PF	118.00	32	1.170	-0.022	0.233	0.006	0	28
Commscope NHH-65B-	118.00	262	1.170	-0.022	0.233	0.006	1	226
Generic Round Platfo	118.00	2,500	1.170	-0.022	0.233	0.006	13	2,155
Channel Master Type	10.00	126	0.008	0.052	0.030	0.040	4	109
		38,518	66.451	34.895	26.155	7.421	2,333	33,196

Site Number: 302488

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Site Name: Cntn - Canton, CT

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Customer: VERIZON WIRELESS

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	-45.98	-2.33	0.00	-291.10	0.00	291.10	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.086
5.00	-44.46	-2.31	0.00	-279.47	0.00	279.47	3,114.35	1,557.18	4,645.51	2,294.24	0.02	-0.03	0.084
9.50	-44.29	-2.32	0.00	-269.07	0.00	269.07	3,074.93	1,537.47	4,496.49	2,220.65	0.06	-0.06	0.083
9.50	-44.29	-2.32	0.00	-269.07	0.00	269.07	3,074.93	1,537.47	4,496.49	2,220.65	0.06	-0.06	0.083
10.00	-42.46	-2.28	0.00	-267.91	0.00	267.91	3,070.50	1,535.25	4,480.00	2,212.50	0.07	-0.06	0.083
15.00	-40.81	-2.24	0.00	-256.54	0.00	256.54	3,025.61	1,512.80	4,315.88	2,131.45	0.15	-0.10	0.081
20.00	-39.18	-2.20	0.00	-245.33	0.00	245.33	2,979.67	1,489.84	4,153.23	2,051.12	0.27	-0.13	0.079
25.00	-37.57	-2.16	0.00	-234.32	0.00	234.32	2,932.70	1,466.35	3,992.16	1,971.58	0.43	-0.16	0.078
30.00	-37.09	-2.16	0.00	-223.50	0.00	223.50	2,875.19	1,437.60	3,820.15	1,886.63	0.62	-0.20	0.077
31.50	-35.49	-2.10	0.00	-220.27	0.00	220.27	2,854.28	1,427.14	3,764.46	1,859.13	0.68	-0.21	0.076
35.00	-35.19	-2.10	0.00	-212.91	0.00	212.91	2,805.45	1,402.73	3,636.04	1,795.70	0.85	-0.23	0.074
35.67	-33.93	-2.06	0.00	-211.51	0.00	211.51	2,248.06	1,124.03	2,973.88	1,468.69	0.88	-0.24	0.085
40.00	-32.50	-2.01	0.00	-202.60	0.00	202.60	2,218.58	1,109.29	2,872.19	1,418.47	1.11	-0.27	0.083
45.00	-31.08	-1.97	0.00	-192.54	0.00	192.54	2,183.59	1,091.79	2,755.72	1,360.95	1.41	-0.30	0.081
50.00	-29.67	-1.93	0.00	-182.69	0.00	182.69	2,147.56	1,073.78	2,640.25	1,303.92	1.75	-0.34	0.079
55.00	-28.28	-1.89	0.00	-173.05	0.00	173.05	2,110.50	1,055.25	2,525.88	1,247.44	2.12	-0.38	0.077
60.00	-26.91	-1.85	0.00	-163.63	0.00	163.63	2,072.39	1,036.20	2,412.72	1,191.55	2.54	-0.42	0.074
65.00	-25.56	-1.82	0.00	-154.38	0.00	154.38	2,033.25	1,016.62	2,300.87	1,136.31	3.00	-0.45	0.072
70.00	-25.56	-1.83	0.00	-145.26	0.00	145.26	1,982.07	991.04	2,178.36	1,075.81	3.49	-0.49	0.070
70.00	-24.30	-1.81	0.00	-145.26	0.00	145.26	1,982.06	991.03	2,178.34	1,075.80	3.49	-0.49	0.069
73.50	-23.93	-1.81	0.00	-138.93	0.00	138.93	1,473.95	736.98	1,624.53	802.30	3.86	-0.52	0.080
75.00	-22.71	-1.81	0.00	-136.21	0.00	136.21	1,466.26	733.13	1,601.72	791.03	4.03	-0.53	0.078
80.00	-21.50	-1.83	0.00	-127.16	0.00	127.16	1,439.98	719.99	1,526.06	753.66	4.60	-0.57	0.075
85.00	-20.18	-1.87	0.00	-117.99	0.00	117.99	1,412.66	706.33	1,451.06	716.62	5.22	-0.61	0.071
90.00	-19.75	-1.89	0.00	-108.65	0.00	108.65	1,384.29	692.15	1,376.80	679.95	5.88	-0.65	0.067
91.67	-18.95	-1.92	0.00	-105.50	0.00	105.50	1,374.61	687.30	1,352.23	667.81	6.11	-0.66	0.066
91.67	-18.95	-1.92	0.00	-105.50	0.00	105.50	1,374.61	687.30	1,352.23	667.81	6.11	-0.66	0.054
95.00	-17.87	-1.95	0.00	-99.12	0.00	99.12	1,354.89	677.44	1,303.39	643.69	6.58	-0.69	0.051
100.00	-16.82	-1.99	0.00	-89.35	0.00	89.35	1,324.45	662.22	1,230.93	607.91	7.31	-0.72	0.046
105.00	-15.78	-2.01	0.00	-79.41	0.00	79.41	1,292.96	646.48	1,159.52	572.64	8.08	-0.74	0.042
110.00	-15.78	-2.02	0.00	-69.35	0.00	69.35	1,247.09	623.55	1,077.74	532.25	8.87	-0.77	0.038
110.00	-15.78	-2.02	0.00	-69.35	0.00	69.35	853.22	426.61	741.75	366.32	8.87	-0.77	0.045
110.00	-14.84	-2.02	0.00	-69.35	0.00	69.35	853.22	426.61	741.74	366.32	8.87	-0.77	0.045
115.00	-14.66	-2.02	0.00	-59.24	0.00	59.24	834.98	417.49	698.66	345.04	9.69	-0.79	0.039
115.94	-14.40	-2.02	0.00	-57.34	0.00	57.34	831.44	415.72	690.62	341.07	9.84	-0.80	0.038
115.94	-14.40	-2.02	0.00	-57.34	0.00	57.34	831.44	415.72	690.62	341.07	9.84	-0.80	0.185
118.00	-10.13	-1.95	0.00	-53.17	0.00	53.17	823.53	411.76	672.98	332.36	10.19	-0.81	0.172
120.00	-9.83	-1.95	0.00	-49.27	0.00	49.27	815.69	407.84	655.93	323.94	10.54	-0.86	0.164
123.00	-9.48	-1.94	0.00	-43.43	0.00	43.43	803.62	401.81	630.51	311.38	11.10	-0.92	0.151
125.00	-9.01	-1.92	0.00	-39.54	0.00	39.54	795.36	397.68	613.66	303.06	11.50	-0.97	0.142
130.00	-8.55	-1.89	0.00	-29.94	0.00	29.94	774.00	387.00	571.95	282.46	12.56	-1.07	0.117
135.00	-8.11	-1.83	0.00	-20.51	0.00	20.51	751.59	375.80	530.89	262.19	13.73	-1.15	0.089
140.00	-4.33	-1.18	0.00	-11.36	0.00	11.36	728.15	364.07	490.59	242.29	14.96	-1.20	0.053
145.00	-3.97	-1.09	0.00	-5.46	0.00	5.46	694.01	347.01	444.97	219.76	16.24	-1.24	0.031
150.00	0.00	-1.01	0.00	0.00	0.00	0.00	659.14	329.57	401.13	198.10	17.55	-1.25	0.000

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Customer: VERIZON WIRELESS

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	-32.00	-2.32	0.00	-283.21	0.00	283.21	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.081
5.00	-30.94	-2.30	0.00	-271.61	0.00	271.61	3,114.35	1,557.18	4,645.51	2,294.24	0.02	-0.03	0.079
9.50	-30.83	-2.30	0.00	-261.26	0.00	261.26	3,074.93	1,537.47	4,496.49	2,220.65	0.06	-0.06	0.078
9.50	-30.83	-2.30	0.00	-261.26	0.00	261.26	3,074.93	1,537.47	4,496.49	2,220.65	0.06	-0.06	0.078
10.00	-29.55	-2.26	0.00	-260.11	0.00	260.11	3,070.50	1,535.25	4,480.00	2,212.50	0.07	-0.06	0.078
15.00	-28.40	-2.21	0.00	-248.84	0.00	248.84	3,025.61	1,512.80	4,315.88	2,131.45	0.15	-0.09	0.076
20.00	-27.27	-2.17	0.00	-237.77	0.00	237.77	2,979.67	1,489.84	4,153.23	2,051.12	0.27	-0.13	0.075
25.00	-26.15	-2.12	0.00	-226.92	0.00	226.92	2,932.70	1,466.35	3,992.16	1,971.58	0.42	-0.16	0.073
30.00	-25.81	-2.11	0.00	-216.31	0.00	216.31	2,875.19	1,437.60	3,820.15	1,886.63	0.60	-0.19	0.072
31.50	-24.70	-2.06	0.00	-213.14	0.00	213.14	2,854.28	1,427.14	3,764.46	1,859.13	0.66	-0.20	0.071
35.00	-24.49	-2.05	0.00	-205.94	0.00	205.94	2,805.45	1,402.73	3,636.04	1,795.70	0.82	-0.23	0.070
35.67	-23.62	-2.01	0.00	-204.57	0.00	204.57	2,248.06	1,124.03	2,973.88	1,468.69	0.85	-0.23	0.080
40.00	-22.62	-1.96	0.00	-195.87	0.00	195.87	2,218.58	1,109.29	2,872.19	1,418.47	1.08	-0.26	0.078
45.00	-21.63	-1.91	0.00	-186.08	0.00	186.08	2,183.59	1,091.79	2,755.72	1,360.95	1.37	-0.29	0.076
50.00	-20.65	-1.87	0.00	-176.52	0.00	176.52	2,147.56	1,073.78	2,640.25	1,303.92	1.69	-0.33	0.074
55.00	-19.68	-1.82	0.00	-167.19	0.00	167.19	2,110.50	1,055.25	2,525.88	1,247.44	2.06	-0.37	0.072
60.00	-18.73	-1.78	0.00	-158.09	0.00	158.09	2,072.39	1,036.20	2,412.72	1,191.55	2.46	-0.40	0.070
65.00	-17.79	-1.75	0.00	-149.18	0.00	149.18	2,033.25	1,016.62	2,300.87	1,136.31	2.90	-0.44	0.067
70.00	-17.78	-1.76	0.00	-140.41	0.00	140.41	1,982.07	991.04	2,178.36	1,075.81	3.38	-0.48	0.066
70.00	-16.91	-1.74	0.00	-140.41	0.00	140.41	1,982.06	991.03	2,178.34	1,075.80	3.38	-0.48	0.065
73.50	-16.65	-1.74	0.00	-134.32	0.00	134.32	1,473.95	736.98	1,624.53	802.30	3.74	-0.50	0.075
75.00	-15.80	-1.74	0.00	-131.72	0.00	131.72	1,466.26	733.13	1,601.72	791.03	3.90	-0.51	0.073
80.00	-14.96	-1.76	0.00	-123.02	0.00	123.02	1,439.98	719.99	1,526.06	753.66	4.46	-0.55	0.070
85.00	-14.04	-1.80	0.00	-114.22	0.00	114.22	1,412.66	706.33	1,451.06	716.62	5.06	-0.59	0.067
90.00	-13.74	-1.81	0.00	-105.24	0.00	105.24	1,384.29	692.15	1,376.80	679.95	5.69	-0.63	0.063
91.67	-13.18	-1.84	0.00	-102.22	0.00	102.22	1,374.61	687.30	1,352.23	667.81	5.92	-0.64	0.062
91.67	-13.18	-1.84	0.00	-102.22	0.00	102.22	1,374.61	687.30	1,352.23	667.81	5.92	-0.64	0.050
95.00	-12.43	-1.88	0.00	-96.08	0.00	96.08	1,354.89	677.44	1,303.39	643.69	6.37	-0.66	0.047
100.00	-11.70	-1.92	0.00	-86.67	0.00	86.67	1,324.45	662.22	1,230.93	607.91	7.08	-0.69	0.043
105.00	-10.97	-1.94	0.00	-77.08	0.00	77.08	1,292.96	646.48	1,159.52	572.64	7.82	-0.72	0.039
110.00	-10.97	-1.95	0.00	-67.37	0.00	67.37	1,247.09	623.55	1,077.74	532.25	8.59	-0.74	0.035
110.00	-10.97	-1.95	0.00	-67.37	0.00	67.37	853.22	426.61	741.75	366.32	8.59	-0.74	0.042
110.00	-10.32	-1.96	0.00	-67.37	0.00	67.37	853.22	426.61	741.74	366.32	8.59	-0.74	0.041
115.00	-10.20	-1.96	0.00	-57.59	0.00	57.59	834.98	417.49	698.66	345.04	9.38	-0.77	0.036
115.94	-10.02	-1.96	0.00	-55.75	0.00	55.75	831.44	415.72	690.62	341.07	9.53	-0.77	0.035
115.94	-10.02	-1.96	0.00	-55.75	0.00	55.75	831.44	415.72	690.62	341.07	9.53	-0.77	0.176
118.00	-7.04	-1.90	0.00	-51.72	0.00	51.72	823.53	411.76	672.98	332.36	9.87	-0.78	0.164
120.00	-6.83	-1.90	0.00	-47.92	0.00	47.92	815.69	407.84	655.93	323.94	10.21	-0.83	0.156
123.00	-6.59	-1.89	0.00	-42.22	0.00	42.22	803.62	401.81	630.51	311.38	10.75	-0.90	0.144
125.00	-6.26	-1.87	0.00	-38.44	0.00	38.44	795.36	397.68	613.66	303.06	11.13	-0.94	0.135
130.00	-5.94	-1.83	0.00	-29.10	0.00	29.10	774.00	387.00	571.95	282.46	12.17	-1.03	0.111
135.00	-5.63	-1.78	0.00	-19.94	0.00	19.94	751.59	375.80	530.89	262.19	13.29	-1.11	0.084
140.00	-3.01	-1.15	0.00	-11.06	0.00	11.06	728.15	364.07	490.59	242.29	14.49	-1.17	0.050
145.00	-2.76	-1.06	0.00	-5.32	0.00	5.32	694.01	347.01	444.97	219.76	15.74	-1.20	0.028
150.00	0.00	-1.01	0.00	0.00	0.00	0.00	659.14	329.57	401.13	198.10	17.00	-1.22	0.000

Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

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	27.16	0.00	46.15	0.00	0.00	2784.13	115.94	0.89
0.9D + 1.6W	26.93	0.00	34.60	0.00	0.00	2702.19	115.94	0.85
1.2D + 1.0Di + 1.0Wi	11.42	0.00	77.41	0.00	0.00	1226.38	115.94	0.42
(1.2 + 0.2Sds) * DL + E ELFM	1.51	0.00	45.98	0.00	0.00	193.61	115.94	0.09
(1.2 + 0.2Sds) * DL + E EMAM	2.33	0.00	45.98	0.00	0.00	291.10	115.94	0.19
(0.9 - 0.2Sds) * DL + E ELFM	1.51	0.00	32.00	0.00	0.00	188.80	115.94	0.08
(0.9 - 0.2Sds) * DL + E EMAM	2.32	0.00	32.00	0.00	0.00	283.21	115.94	0.18
1.0D + 1.0W	6.27	0.00	38.51	0.00	0.00	634.58	115.94	0.21

Site Number: 302488

Code: ANSI/TIA-222-G

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Site Name: Cntn - Canton, CT

Engineering Number: 13201406\_C4\_06

8/14/2020 10:10:21 AM

Customer: VERIZON WIRELESS

Additional Steel Summary

			Intermediate Connectors				Max Member		
Elev From (ft)	Elev To (ft)	Member	VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Ratio	Pu (kip)	phiPn (kip)	Ratio
0.00	9.50	(4) SOL-#20 All Thread Bar	244.8	9.8	16.8	0.582	291.0	313.6	0.928
9.50	91.67	(4) SOL-#20 All Thread Bar	352.2	10.6	16.8	0.629	282.7	330.5	0.855
91.67	115.94	(3) SOL-#20 All Thread Bar	385.6	11.6	16.8	0.688	181.6	330.5	0.549

			Upper Termination Connectors				Lower Termination Connectors					
Elev From (ft)	Elev To (ft)	Member	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio	MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio
0.00	9.50	(4) SOL-#20 All Thread Bar	0.0	12.0	0	0	0.000	0.0	12.0	0	0	0.000
9.50	91.67	(4) SOL-#20 All Thread Bar	165.0	12.0	14	14	0.982	0.0	12.0	0	0	0.000
91.67	115.94	(3) SOL-#20 All Thread Bar	99.0	12.0	9	12	0.687	179.0	12.0	15	16	0.932



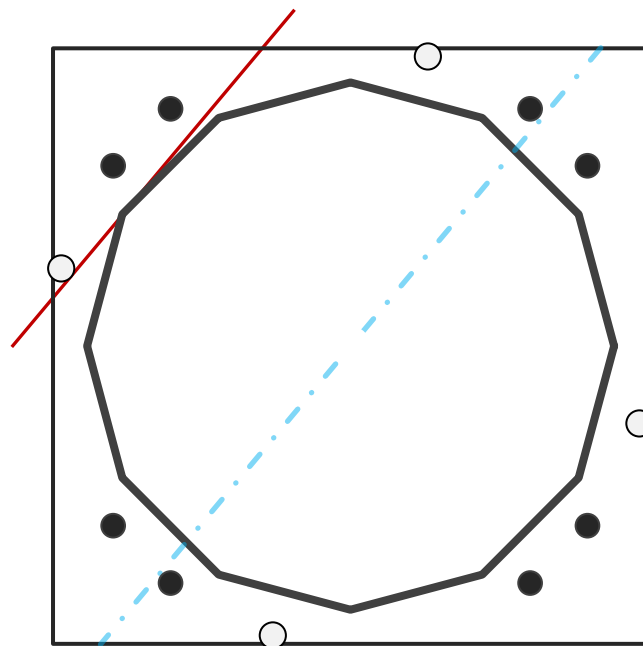
## Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	12	-
Diameter	37.38	in
Thickness	3/8	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2784.1	k-ft
Axial, Pu	46.2	k
Shear, Vu	27.2	k
Neutral Axis	50	°

Report Capacities		
Component	Capacity	Result
Base Plate	64%	Pass
Anchor Rods	90%	Pass
Dwyidag	70%	Pass

Base Plate		
Shape	Square	-
Width	44	in
Thickness	2 1/2	in
Grade	A572-60	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	0	in
Orientation Offset	0	°
Anchor Rod Detail	c	$\eta=0.55$
Clear Distance	N/A	in
Applied Moment, Mu	1334.3	k
Bending Stress, $\phi Mn$	2075.2	k



Dwyidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, $\phi$	2.5	in
Bracket Type	Angle	-
Circle	44.26	in
Orientation Offset	-15	°
Applied Force, Pu	274.3	k
Dwyidag Bar, $\phi Pn$	392.7	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	8	-
Diameter, $\phi$	2 1/4	in
Bolt Circle	44	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	232.7	k
Anchor Rods, $\phi Pn$	259.8	k

# Calculations for Monopole Base Plate & Anchor Rod Analysis

## Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	27.2	1684.7	0.61
Anchor Rod Forces	27.2	1684.7	0.61
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	1099.4	0.39
Stiffener Forces	0.0	0.0	0.00

## Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in <sup>2</sup>	in <sup>2</sup>	in <sup>4</sup>	#	in <sup>4</sup>
Pole	43.0992	3.5916	0.1692		7379.37
Bolt	3.9761	3.2477	0.8393	4.5	6294.24
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	4.9087	4.9087	1.9175		4815.65
Stiffener	0.0000	0.0000	0.0000		0.00

### Base Plate

Shape	Square	-
Width, W	44	in
Thickness, t	2.5	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	23.211	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

### Anchor Rods

Anchor Rod Quantity, N	8	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	44	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	232.7	k
Applied Shear, Vu	0.3	k
Compressive Capacity, $\phi P_n$	259.8	k
Tensile Capacity, $\phi R_n$	0.896	OK
Interaction Capacity	0.898	OK

### External Base Plate

Chord Length AA	24.595	in
Additional AA	0.000	in
Section Modulus, Z	38.430	in <sup>3</sup>
Applied Moment, Mu	1334.3	k-ft
Bending Capacity, $\phi M_n$	2075.2	k-ft
Capacity, Mu/ $\phi M_n$	0.643	OK

Chord Length AB	23.268	in
Additional AB	0.000	in
Section Modulus, Z	36.356	in <sup>3</sup>
Applied Moment, Mu	1029.0	k-ft
Bending Capacity, $\phi M_n$	1963.2	k-ft
Capacity, Mu/ $\phi M_n$	0.524	OK

Bend Line Length	0.000	in
Additional Bend Line	0.000	in
Section Modulus, Z	0.000	in <sup>3</sup>
Applied Moment, Mu	0.0	k-ft
Bending Capacity, $\phi M_n$	0.0	k-ft
Capacity, Mu/ $\phi M_n$		

### Internal Base Plate

Arc Length	0.000	in
Section Modulus, Z	0.000	in <sup>3</sup>
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, $\phi M_n$	0.0	k-ft
Capacity, Mu/ $\phi M_n$		

### Dywidag Reinforcement

Dywidag Quantity, N	4	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	44.26	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	274.3	k
Compressive Capacity, $\phi P_n$	392.7	k
Capacity, Pu/ $\phi P_n$	0.698	OK



# Flange Plate Analysis

<b>Flange Plate</b>	Plate Type	<b>Flange</b>	<b>@ 110 ft</b>
	Pole Diameter	21.25	in
	Pole Thickness	3/16	in
	Plate Diameter	28 1/2	in
	Plate Thickness	1	in
	Plate Fy	60	ksi
	Weld Length	1/4	in
	f <sub>s</sub> Resistance	148.00	k-in
	Applied	83.85	k-in

Code Rev.	<b>G</b>
Moment	383.1 k-ft
Axial	13.8 k

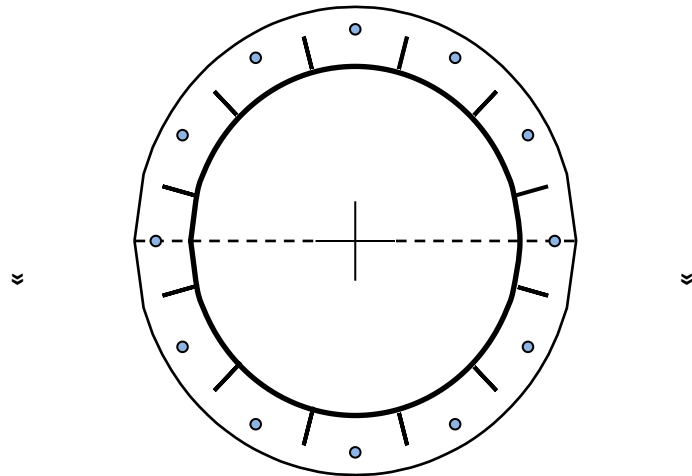
Date	8/14/2020
Engineer	I. Dodson
Site #	302488
Carrier	Verizon Wireless

<b>Stiffeners</b>	#	<b>12</b>	<b>Show</b>
	Thickness	1/4	in
	Length	3	in
	Height	6	in
	Chamfer	3/4	in
	Offset Angle	0	°
	Fy	36	ksi

<b>Bolts</b>	#	<b>12</b>	
	Bolt Circle	25.75	in
	(R)adial / (S)quare	R	
	Diameter	1	in
	Hole Diameter	1 1/8	in
	Type	A490	
	Fy	130	ksi
	Fu	150	ksi
	f <sub>s</sub> Resistance	68.15	k
Applied	58.33	k	

<b>Reinforcement</b>	#	<b>0</b>	
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<b>Extra Bolts</b>	#	<b>0</b>	
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**Plate Stress Ratio:**

57% Pass

**Bolt Stress Ratio:**

86% Pass

**Site Name:** Cntn - Canton, CT  
**Site Number:** 302488  
**Tower Type:** MP  
**Design Loads (Factored) - Analysis per TIA-222-G Standards**

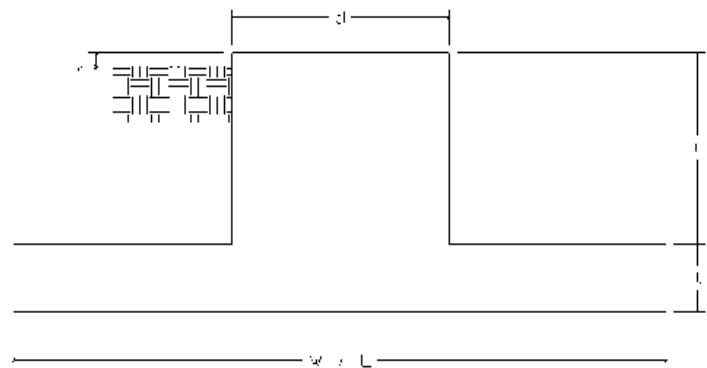
## Monolithic Mat & Pier Foundation Analysis

Foundation Analysis Parameters		
Design / Analysis / Mapping:	Mapping	-
Compression/Leg:	46.2	k
Uplift/Leg:		k
Total Shear:	27.2	k
Moment:	2,784.1	k-ft
Tower + Appurtenance Weight:	46.2	k
Depth to Base of Foundation (l + t - h):	5.375	ft
Diameter of Pier (d):	4.958333	ft
Length of Pier (l):	4.125	ft
Height of Pier above Ground (h):	0.75	ft
Width of Pad (W):	26	ft
Length of Pad (L):	26	ft
Thickness of Pad (t):	2	ft
Tower Leg Center to Center:	0	ft
Number of Tower Legs:	1	-
Tower Center from Mat Center:	0	ft
Depth Below Ground Surface to Water Table:	3.5	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil Above Water Table:	115	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	52.6	pcf
Friction Angle of Uplift:	15	°
Coefficient of Shear Friction:	0.35	-
Ultimate Compressive Bearing Pressure:	12,000	psf
Ultimate Passive Pressure on Pad Face:	0	psf
$f_{\text{Soil and Concrete Weight}}$ :	0.9	-
$f_{\text{Soil}}$ :	0.75	-

Overturning Moment Usage		
Design OTM:	2950.5	k-ft
OTM Resistance:	5276.8	k-ft
Design OTM / OTM Resistance:	56%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:	1217	psf
Factored Nominal Bearing Pressure:	9000	psf
Factored Nominal (Net) Bearing Pressure:	14%	Pass
Load Direction Controlling Design Bearing Pressure:	<i>Diagonal to Pad Edge</i>	

Sliding Factor of Safety		
Ultimate Friction Resistance:	150.1	k
Ultimate Passive Pressure Resistance:	0.0	k
Total Factored Sliding Resistance:	112.6	k
Sliding Design / Sliding Resistance:	24%	Pass





**AMERICAN TOWER®**  
CORPORATION

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## Antenna Mount Analysis Report

**ATC Site Name** : Cntn - Canton, CT  
**ATC Site Number** : 302488  
**Engineering Number** : 13201406\_C8\_03  
**Mount Elevation** : 118 ft  
**Carrier** : Verizon Wireless  
**Carrier Site Name** : CANTON 3 CT  
**Carrier Site Number** : 467157  
**Site Location** : 4 Hoffmann Road  
Canton, CT 06019-2122  
41.85527778 , -72.8925  
**County** : Hartford  
**Date** : April 8, 2020  
**Max Usage** : 38%  
**Result** : Pass

Prepared By:  
Michael Ellis  
Structural Engineer

Reviewed By:



**COA: PEC.0001553**



**Table of Contents**

Introduction ..... 1

Supporting Documents..... 1

Analysis..... 1

Conclusion..... 1

Antenna Loading..... 2

Structure Usages..... 2

Mount Layout ..... 3

Equipment Layout ..... 4

Standard Conditions .....7

Calculations ..... Attached



## Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for Verizon Wireless at 118 ft.

## Supporting Documents

<b>Specifications Sheet</b>	Pite Pro RMQP-496-HK, dated July 14, 2014
<b>Radio Frequency Data Sheet</b>	RFDS ID #467157, dated February 4, 2020

## Analysis

This antenna mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

<b>Basic Wind Speed:</b>	93 mph (3-Second Gust, Vasd) / 119 mph (3-Second Gust, Vult)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 1" radial ice concurrent
<b>Codes:</b>	ANSI/TIA-222-G/2015 IBC/2018 Connecticut State Building Code
<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>	Ss = 0.179, S1 = 0.065
<b>Site Class:</b>	D - Stiff Soil
<b>Live Loads:</b>	Lm = 500 lbs

## Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



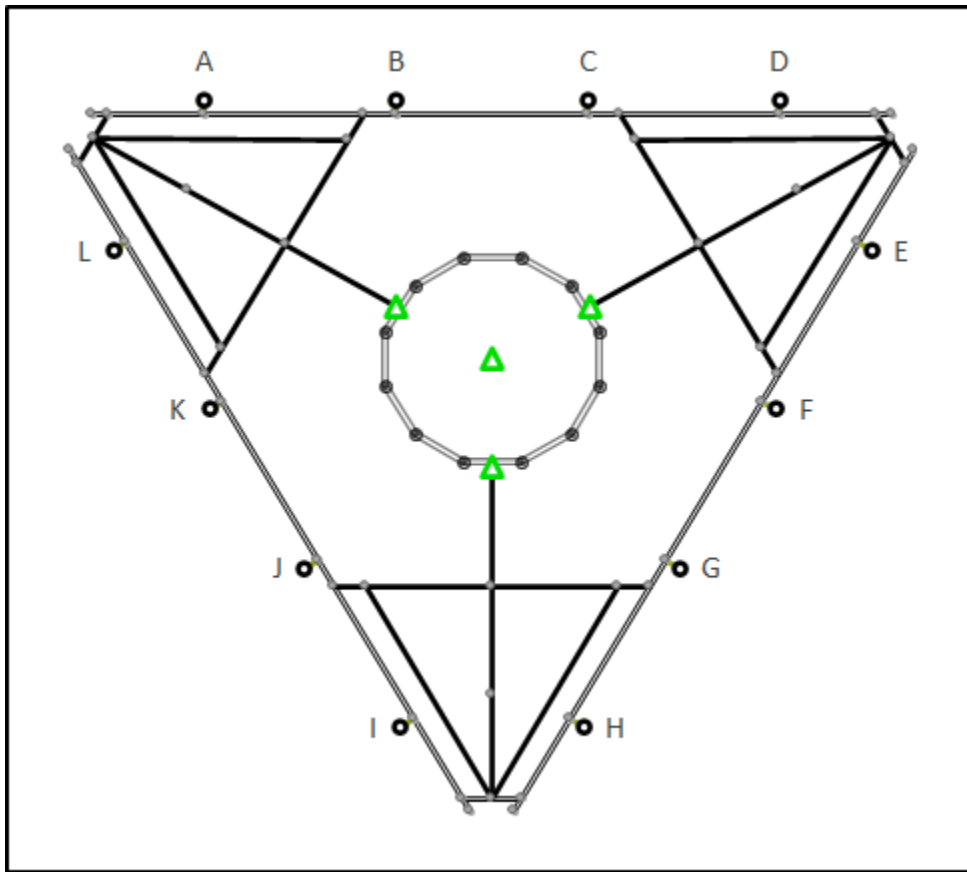
**Application Loading**

Mount Centerline (ft)	Antenna Centerline (ft)	Qty	Antenna Model
118.0	118.0	6	Commscope NHH-65B-R2B
		1	Raycap RCMDC-6627-PF-48
		3	Samsung B5/B13 RRH-BR04C
		3	Samsung B2/B66A RRH-BR049

**Structure Usages**

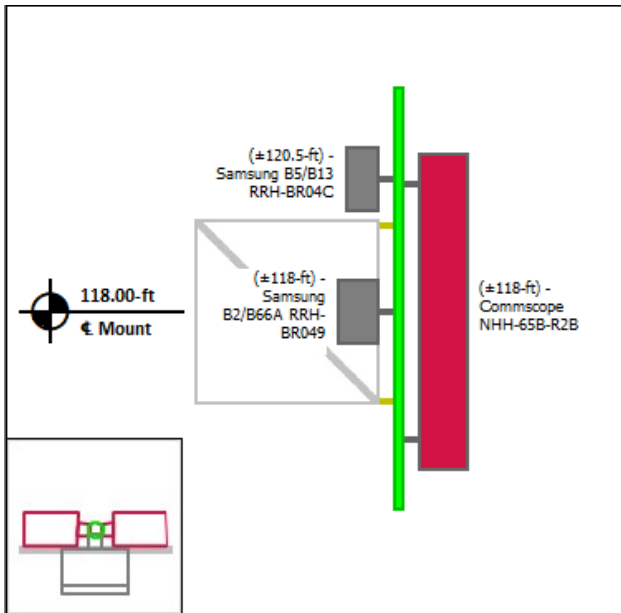
Structural Component	Controlling Usage	Pass/Fail
Horizontals	28%	Pass
Diagonals	11%	Pass
Mount Pipes	38%	Pass
Handrail	7%	Pass

Mount Layout

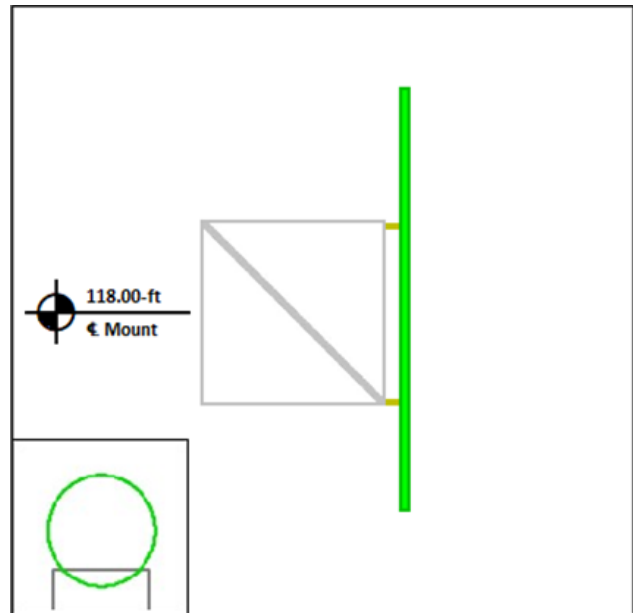


**Equipment Layout**

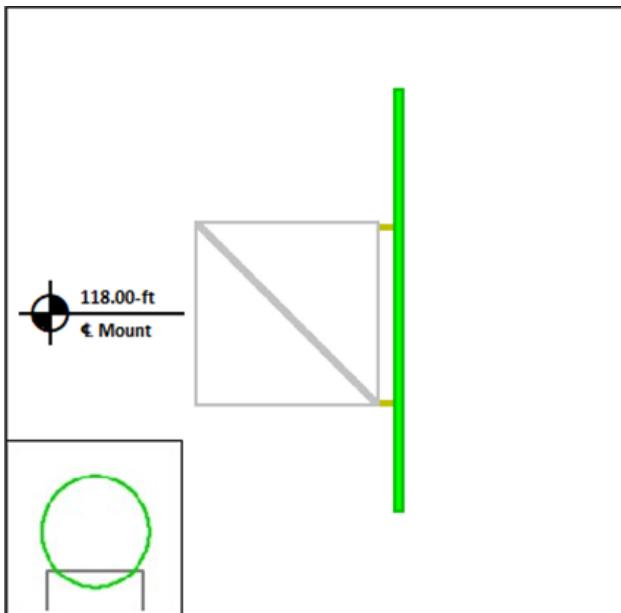
**Mount Pipe A**



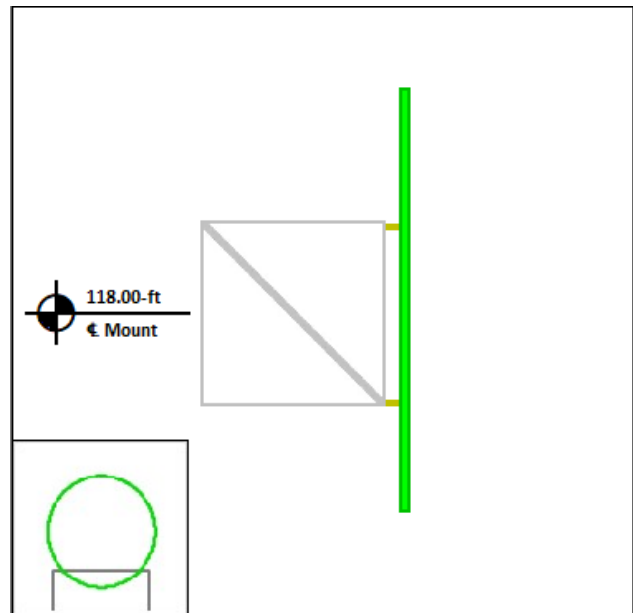
**Mount Pipe B**



**Mount Pipe C**



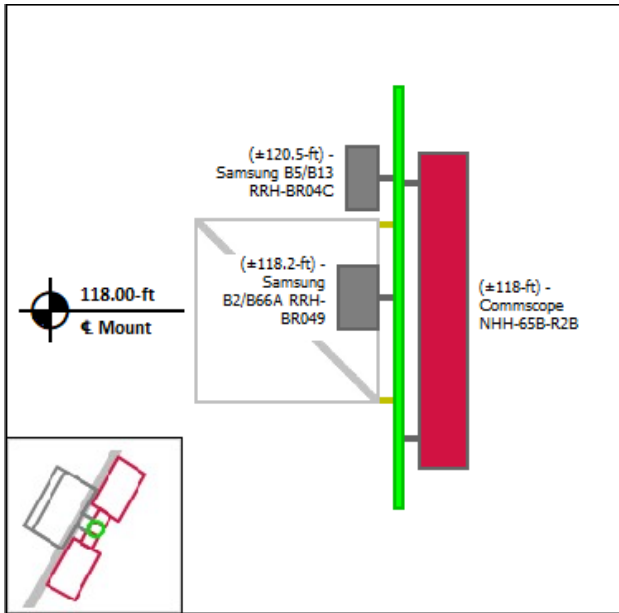
**Mount Pipe D**



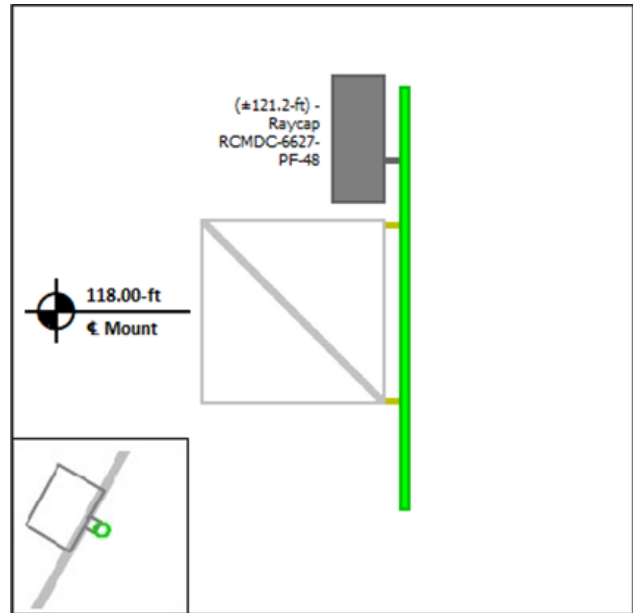


**Equipment Layout Cont'd.**

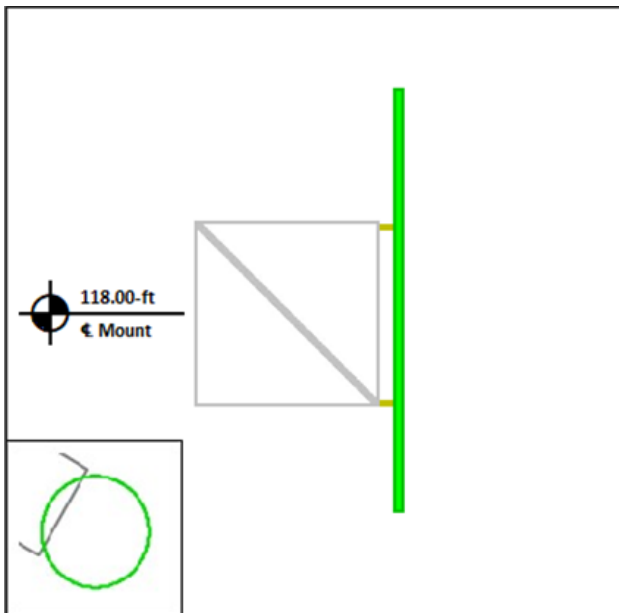
**Mount Pipe E**



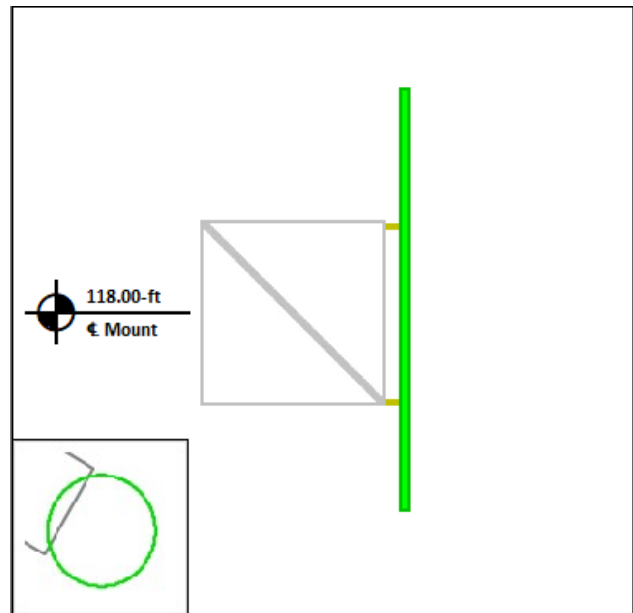
**Mount Pipe F**



**Mount Pipe G**

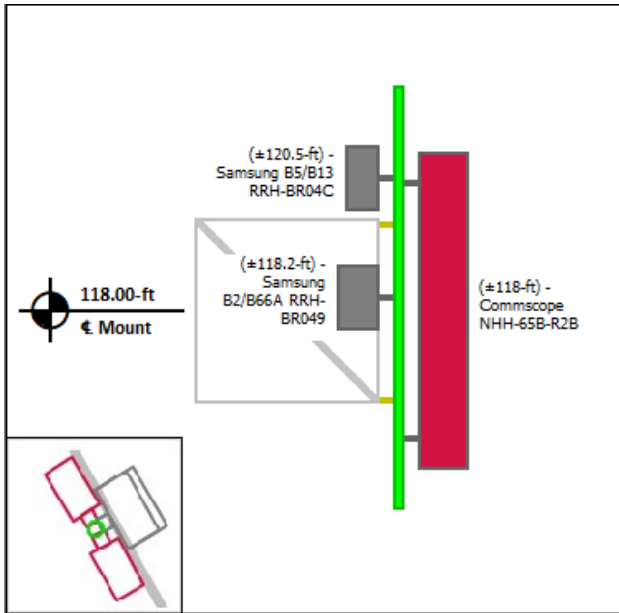


**Mount Pipe H**

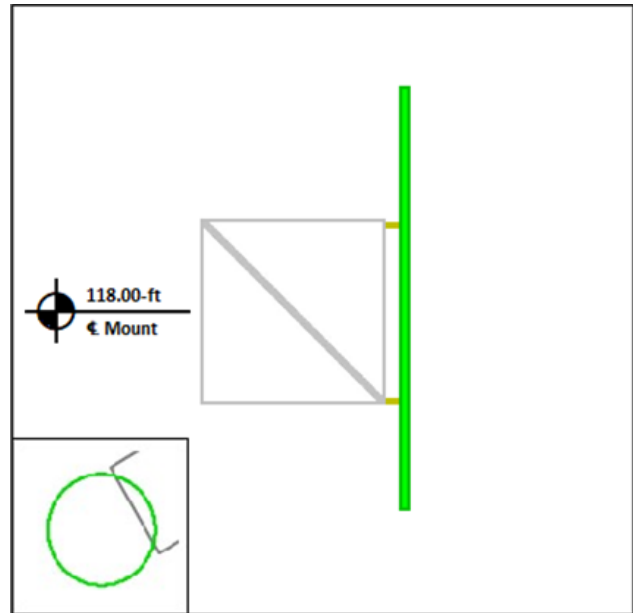


**Equipment Layout Cont'd.**

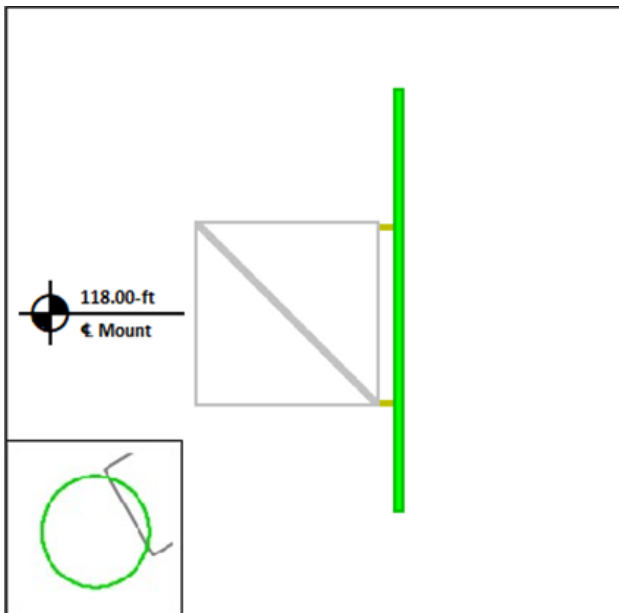
**Mount Pipe I**



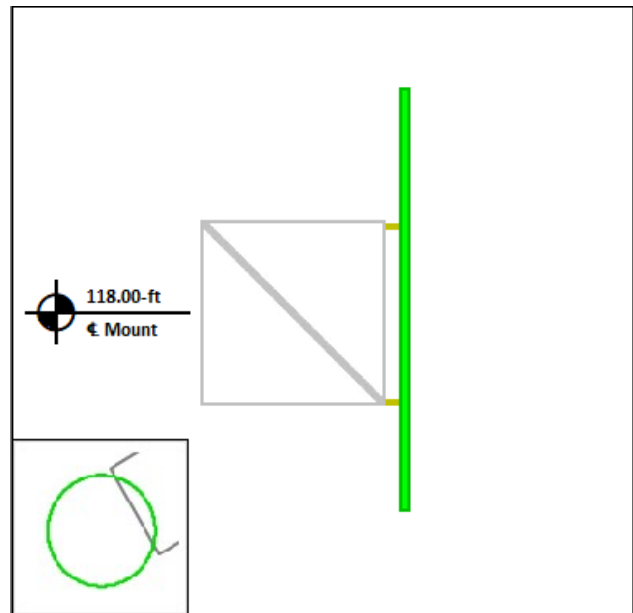
**Mount Pipe J**



**Mount Pipe K**



**Mount Pipe L**





### **Standard Conditions**

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



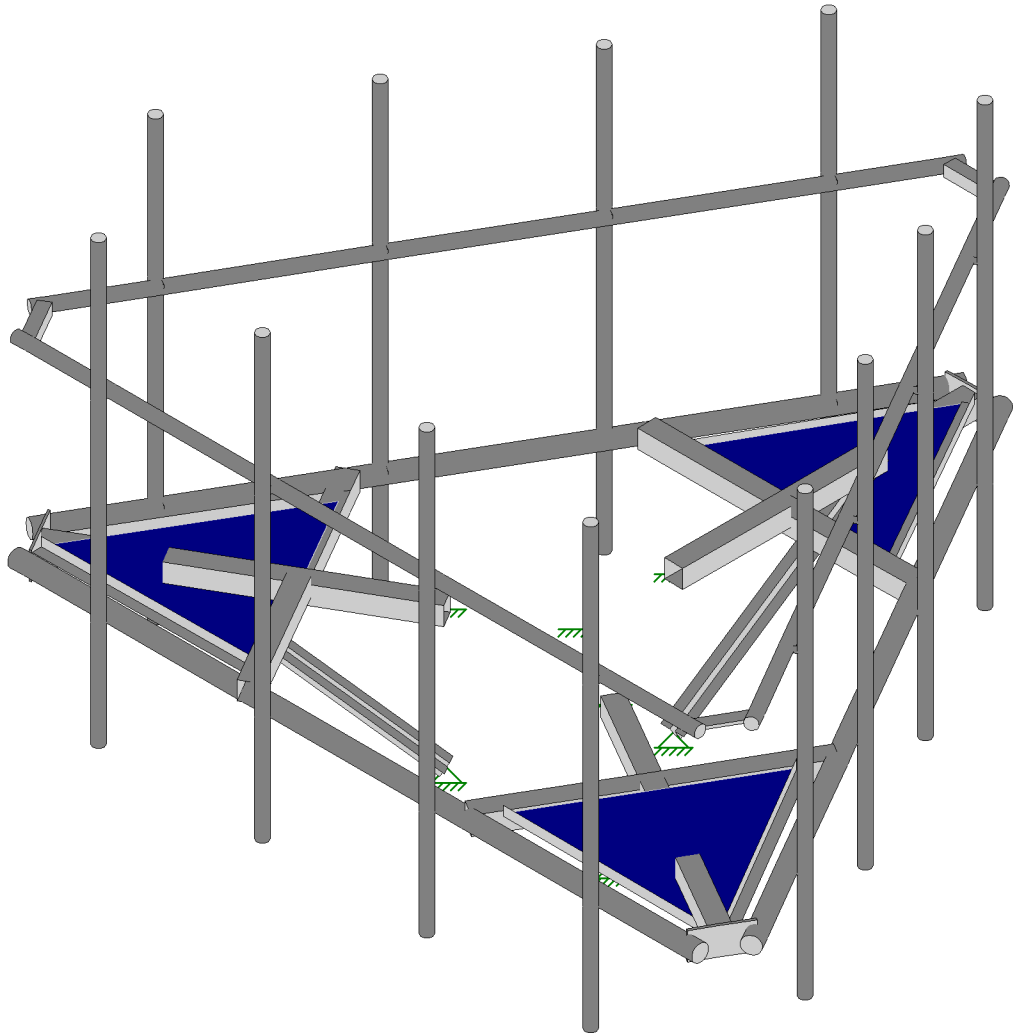
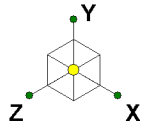
**Site Number:** 302488  
**Project Number:** 13201406\_C8\_03  
**Carrier:** Verizon Wireless  
**Mount Elevation:** 118 ft  
**Date:** 4/8/2020

## Mount Analysis Force Calculations

Wind & Ice Load Calculations			
Velocity Pressure Coefficient	$K_z$	1.04	
Topographic Factor	$K_{zt}$	1.00	
Rooftop Wind Speed-up Factor	$K_s$	1.00	
Shielding Factor	$K_a$	0.90	
Ground Elevation Factor	$K_e$	1.00	
Wind Direction Probability Factor	$K_d$	0.95	
Basic Wind Speed	$V$	93	mph
Velocity Pressure	$q_z$	21.8	psf
Height Escalation Factor	$K_{iz}$	1.14	
Thickness of Radial Glaze Ice	$T_{iz}$	2.27	in

Seismic Load Calculations			
Short Period DSRAP	$S_{DS}$	0.191	
1 Second DSRAP	$S_{D1}$	0.104	
Importance Factor	$I$	1.0	
Response Modification Coefficient	$R$	2.0	
Seismic Response Coefficient	$C_s$	0.095	
Amplification Factor	$A$	1.0	
Total Weight	$W$	980.9	lbs
Total Shear Force	$V_s$	93.6	lbs
Horizontal Seismic Load	$E_h$	93.6	lbs
Vertical Seismic Load	$E_v$	37.5	lbs

Antenna Calculations								
Equipment	Height	Width	Depth	Weight	$EPA_N$	$EPA_T$	$EPA_{Ni}$	$EPA_{Ti}$
Model #	in	in	in	lbs	sqft	sqft	sqft	sqft
Commscope NHH-65B-R2B	72.0	11.9	7.1	43.7	8.08	2.54	11.87	4.42
Raycap RCMDC-6627-PF-48	29.5	16.5	12.6	32.0	4.06	3.10	5.97	4.86
Samsung B5/B13 RRH-BR04C	15.0	15.0	8.1	70.3	1.88	1.01	3.18	2.06
Samsung B2/B66A RRH-BR049	15.0	15.0	10.0	84.4	1.88	1.25	3.18	2.37



American Tower Corp.

Michael.Ellis

13201406\_C8\_03

302488, Cntn - Canton

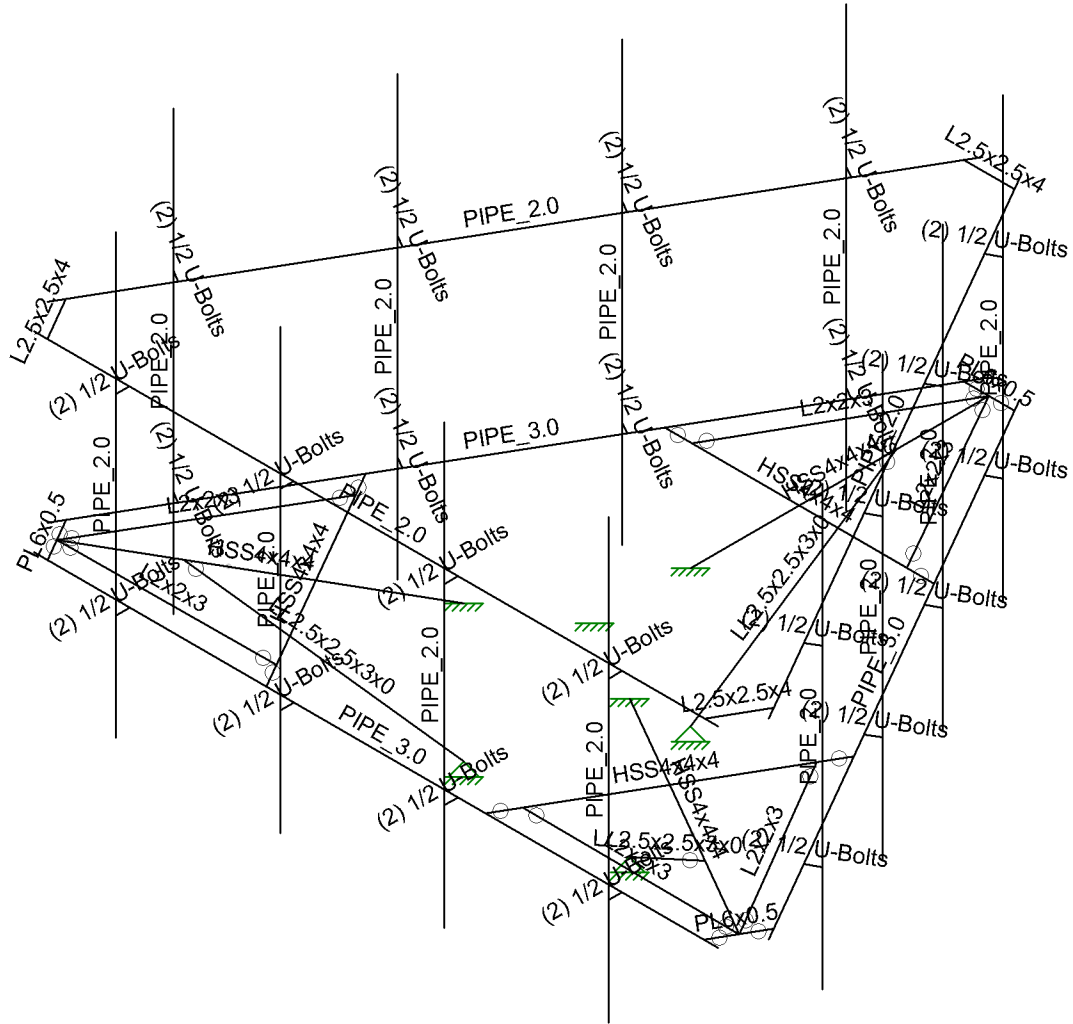
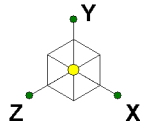
3D Rendering

SK - 1

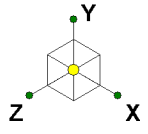
Apr 8, 2020 at 10:14 AM

R3D. VERIZON WIRELESS @ 302...



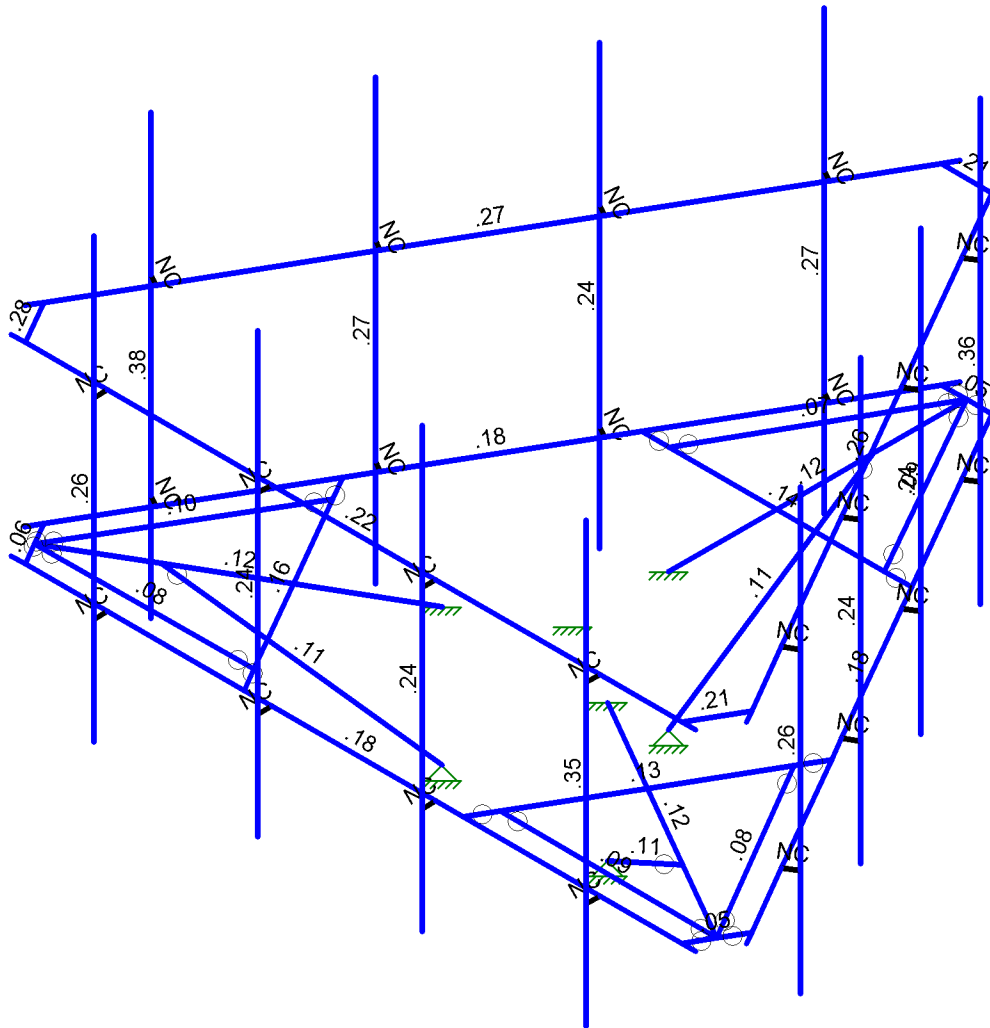


American Tower Corp.	302488, Cntn - Canton Member Shapes	SK - 3
Michael.Ellis		Apr 8, 2020 at 10:14 AM
13201406_C8_03		R3D. VERIZON WIRELESS @ 302...



Code Check (Env)

Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50



Member Code Checks Displayed (Enveloped)  
Results for LC 1, 1.4D

American Tower Corp.	302488, Cntn - Canton Unity Bending Checks	SK - 4
Michael.Ellis		Apr 8, 2020 at 10:15 AM
13201406_C8_03		R3D. VERIZON WIRELESS @ 302...









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I	b e i	i J e F H i i	i	F F i e	e	
I J	b e J	F G e i i H H	i	F F i e	e	
I e	b e e	F e	F e	I G	e	
I F	b e F	i e i G G H	F e	F I F	e	
I G	b e G	F i i e i i i i	F e	F I F	e	
I H	b e H	F i G	F e	F i J	e	
I i	b e i	F G e i i G i	F e	H i e H i G	e	
I i	b e i	H i e H e i	F e	F G i e i H G	e	
I i	b e i	F G	F e	F i J	e	
I i	b e i	F i H e i i G i	F e	i i e F F i H	e	
I i	b e i	i i e H e i	F e	J i e i i i	e	
I J	b e J	J e	F e	F i J	e	
I e	b e e	F i F e i i G i	F e	J i e i i i	e	
I F	b e F	i e H e i	F e	i i e F F i H	e	
I G	b e G	i	F e	F i J	e	
I H	b e H	F i J e i i G i	F e	F G i e i H G	e	
I i	b e i	J e H e i	F e	H i e H i G	e	
I i	b e i	F i G	F e	F i i	e	
I i	b e i	F i G	F i e	F i J	e	
I i	b e i	F i G	F i e	F i i	e	
I i	b e i	F G	F e	F i i	e	
I J	b e J	F G	F i e	F i J	e	
I e	b e e	F G	F i e	F i i	e	
I F	b e F	J e	F e	F i i	e	
I G	b e G	J e	F i e	F i J	e	
I H	b e H	J e	F i e	F i i	e	
I i	b e i	i	F e	F i i	e	
I i	b e i	i	F i e	F i J	e	
I i	b e i	i	F i e	F i i	e	
I i	b e i	H i e H e i F	F e	F H e i i H G	e	
I i	b e i	H i e H e i	F i e	F G i e i H G	e	
I J	b e J	H i e H e i F	F i e	F H e i i H G	e	
I e	b e e	i i e H e i F	F e	J J e i i i	e	
I F	b e F	i i e H e i	F i e	J i e i i i	e	
I G	b e G	i i e H e i F	F i e	J J e i i i	e	
I H	b e H	i i e H e i F	F e	i i e F F i H	e	
I i	b e i	i e H e i	F i e	i i e F F i H	e	
I i	b e i	i i e H e i F	F i e	i i e F F i H	e	
I i	b e i	J H e H e i F	F e	H i e H i G	e	
I i	b e i	J e H e i	F i e	H i e H i G	e	
I i	b e i	J H e H e i F	F i e	H i e H i G	e	
I J	b e J	F G G e i J G F J	F e	H i e H i G	e	
J e	b e e	F G e i i G i	F i e	H i e H i G	e	
J F	b e F	F G G e i J G F J	F i e	H i e H i G	e	
J G	b e G	F i e e i J G F J	F e	i i e F F i H	e	
J H	b e H	F i H e i i G i	F i e	i i e F F i H	e	
J i	b e i	F i e e i J G F J	F i e	i i e F F i H	e	
J i	b e i	F i i e i J G F J	F e	J J e i i i	e	
J i	b e i	F i F e i i G i	F i e	J i e i i i	e	
J i	b e i	F i i e i J G F J	F i e	J J e i i i	e	
J i	b e i	F i i e i J G F J	F e	F H e i i H G	e	





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**A Ya Vyf Dfja Ufm8 UUf7 cbh7bi YXL**

	Saa^	Qa^c	Ra^c	Sa^c	U[ cae Q^* D U^ a q ] U[ cae ^	V ] ^	O^ a } A^ c	Tae^ a e	O^ a } A^ ^ ^	
I	P E E	P E F F	P E F I			U S I q e E	O ^ a e	P [ ] ^	O E i G E e	V ^ } a e e
I	P E E	P E E G	P E F I			P U U I e l e l	O ^ a e	P [ ] ^	O e e / O : E a e	V ^ } a e e
I	P E E	P E E H	P E F I			P U U I e l e l	O ^ a e	P [ ] ^	O e e / O : E a e	V ^ } a e e
I	P E E	P E E I	P E F J			P U U I e l e l	O ^ a e	P [ ] ^	O e e / O : E a e	V ^ } a e e
J	P E E J	P E F E	P E E I			U Q J O H E	O ^ a e	P [ ] ^	O E H A O : E A O	V ^ } a e e
F E	P E F E	P E G F	P E G I			P U U I e l e l	O ^ a e	P [ ] ^	O e e / O : E a e	V ^ } a e e
F F	P E F F	P E G G	P E G I			P U U I e l e l	O ^ a e	P [ ] ^	O e e / O : E a e	V ^ } a e e
F G	P E F G	P E G E	P E G H			P U U I e l e l	O ^ a e	P [ ] ^	O e e / O : E a e	V ^ } a e e
F H	P E F H	P E F I	P E G J			S G e Q e H	O ^ a e	P [ ] ^	O E I	V ^ } a e e
F I	P E F I	P E F I	P E H E			S G e Q e H	O ^ a e	P [ ] ^	O E I	V ^ } a e e
F I	P E F I	P E F J	P E H F			S G e Q e H	O ^ a e	P [ ] ^	O E I	V ^ } a e e
F I	P E F I	P E F I	P E H G			S G e Q e H	O ^ a e	P [ ] ^	O E I	V ^ } a e e
F I	P E F I	P E F I	P E H H			S G e Q e H	O ^ a e	P [ ] ^	O E I	V ^ } a e e
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F J	P E F J	P E H I	P E H I			U Q J O G E	O ^ a e	P [ ] ^	O E H A O : E A O	V ^ } a e e
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I H	T U G	T U G c	T U G a			U Q J O G E	O [ ] ^ { }	P [ ] ^	O E H A O : E A O	V ^ } a e e
I I	T U H	T U H c	T U H a			U Q J O G E	O [ ] ^ { }	P [ ] ^	O E H A O : E A O	V ^ } a e e
I I	T U I	T U I c	T U I a			U Q J O G E	O [ ] ^ { }	P [ ] ^	O E H A O : E A O	V ^ } a e e
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U Q J O G E O A ^ . a } A i E E A M M O K E A T A T A J H O E A O U Q U P A Q I O S O U A O A H E G I i E O } q A O a q } A e E i E e G E A F I ^ O E D E H















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F	T Ú F G	S	Y	È €

**A Ya Vyf'Dc]bh@UXg'f6 @ '% ' 8 YUKL**

	T ^ { a^ / a^ ^	Ö a^ & q }	T a^ } a^ á Z a^ f a^ E c á	Š & a^ } Ž Ě á
F	T Ú F	Y	È F È I	G F È I
G	T Ú F	Y	È F È I	I J È È
H	T Ú F	Y	È F È I	G F È I
I	T Ú F	Y	È F È I	I J È È
Í	T Ú F	Y	È I È	I È G
Ī	T Ú F	Y	È € H	G È G
İ	T Ú G	Y	È F È I	G F È I
ì	T Ú G	Y	È F È I	I J È È
J	T Ú G	Y	È F È I	G F È I
F€	T Ú G	Y	È F È I	I J È È
FF	T Ú G	Y	È I È	I I È G
FG	T Ú G	Y	È € H	G È G
FH	T Ú H	Y	È F È I	G F È I
FI	T Ú H	Y	È F È I	I J È È
FÍ	T Ú H	Y	È F È I	G F È I
FĪ	T Ú H	Y	È F È I	I J È È
Fì	T Ú H	Y	È I È	I I È G
Fİ	T Ú H	Y	È € H	G È G
FJ	T Ú I	Y	È H G	F I È G

**A Ya Vyf'Dc]bh@UXg'f6 @ ' & ' : ' WYL**

	T ^ { a^ / a^ ^	Ö a^ & q }	T a^ } a^ á Z a^ f a^ E c á	Š & a^ } Ž Ě á
F	T Ú F	Y	È F I F È I H	G F È I
G	T Ú F	Y	È F I F È I H	I J È È
H	T Ú F	Y	È F I F È I H	G F È I
I	T Ú F	Y	È F I F È I H	I J È È
Í	T Ú F	Y	È € J È U J	I È G
Ī	T Ú F	Y	È J È G	G È G
İ	T Ú G	Y	È F I F È I H	G F È I
ì	T Ú G	Y	È F I F È I H	I J È È
J	T Ú G	Y	È F I F È I H	G F È I
F€	T Ú G	Y	È F I F È I H	I J È È
FF	T Ú G	Y	È € J È U J	I I È G
FG	T Ú G	Y	È J È G	G È G
FH	T Ú H	Y	È F I F È I H	G F È I
FI	T Ú H	Y	È F I F È I H	I J È È
FÍ	T Ú H	Y	È F I F È I H	G F È I
FĪ	T Ú H	Y	È F I F È I H	I J È È
Fì	T Ú H	Y	È € J È U J	I I È G
Fİ	T Ú H	Y	È J È G	G È G
FJ	T Ú I	Y	È G È È G J	F I È G

**A Ya Vyf'Dc]bh@UXg'f6 @ ' " : ' K ] b X ' ! N L**

	T ^ { a^ / a^ ^	Ö a^ & q }	T a^ } a^ á Z a^ f a^ E c á	Š & a^ } Ž Ě á
F	T Ú F	Z	È € € G	G F È I











0{ } a^ ^ K Q^ A^ a^ A[ , A^ A[ ] E  
 O^ a} A K T a @ | | a  
 P a A^ { a^ K F H G E F I e ' O i ' e H  
 T [ a^ / a^ a^ ^ K H E G I i E O } q A O a^ d }

Q : A E G E E  
 F e F I A O F  
 O @ & ^ a A O k E

**A Ya Vyf'8 jgfv'vi hyx' @ Uxg'f6 @ ) : 'K jbx'!NfHWL'f7 cbh'bi YXL**

	T^ ( a^ / a^ a^ ^)	O a^ & a }	U c a o A^ a^ } a^ a^ Z a D a ( E ) a A^ a^ } a^ a^ Z a D a ( E ) U c a o A^ a^ } a^ a^ } Z a E a^ a^ } O ) a A^ a^ } Z a E a^ a^ }	€	€	€	€
HE	TUH	Z	E E E I G	E E E I G	€	€	A FEE
HF	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HG	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HH	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HI	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HJ	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HK	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HL	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HM	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HN	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HO	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HP	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HQ	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HR	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HS	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HT	TUI	Z	E E E I G	E E E I G	€	€	A FEE
HU	TUFG	Z	E E E I G	E E E I G	€	€	A FEE

**A Ya Vyf'8 jgfv'vi hyx' @ Uxg'f6 @ \* : 'K jbx'!L fHWL**

	T^ ( a^ / a^ a^ ^)	O a^ & a }	U c a o A^ a^ } a^ a^ Z a D a ( E ) a A^ a^ } a^ a^ Z a D a ( E ) U c a o A^ a^ } a^ a^ } Z a E a^ a^ } O ) a A^ a^ } Z a E a^ a^ }	€	€	€	€
F	PEEF	Y	E E E I G	E E E I G	€	€	A FEE
G	PEEG	Y	E E E I G	E E E I G	€	€	A FEE
H	PEEH	Y	E E E I G	E E E I G	€	€	A FEE
I	PEEI	Y	E E E I G	E E E I G	€	€	A FEE
J	PEEJ	Y	E E E I G	E E E I G	€	€	A FEE
FE	PEFE	Y	E E E I G	E E E I G	€	€	A FEE
FF	PEFF	Y	E E E I G	E E E I G	€	€	A FEE
FG	PEFG	Y	E E E I G	E E E I G	€	€	A FEE
FH	PEFH	Y	E E E I G	E E E I G	€	€	A FEE
FI	PEFI	Y	E E E I G	E E E I G	€	€	A FEE
FJ	PEFJ	Y	E E E I G	E E E I G	€	€	A FEE
GE	PEGE	Y	E E E I G	E E E I G	€	€	A FEE
GF	PEGF	Y	E E E I G	E E E I G	€	€	A FEE
GG	PEGG	Y	E E E I G	E E E I G	€	€	A FEE
GH	PEGH	Y	E E E I G	E E E I G	€	€	A FEE
GI	PEGI	Y	E E E I G	E E E I G	€	€	A FEE
GJ	PEGJ	Y	E E E I G	E E E I G	€	€	A FEE
GO	PEGO	Y	E E E I G	E E E I G	€	€	A FEE
GP	PEGP	Y	E E E I G	E E E I G	€	€	A FEE
GQ	PEGQ	Y	E E E I G	E E E I G	€	€	A FEE
GR	PEGR	Y	E E E I G	E E E I G	€	€	A FEE
GS	PEGS	Y	E E E I G	E E E I G	€	€	A FEE
GT	TUFG	Y	E E E I G	E E E I G	€	€	A FEE
HU	TUH	Y	E E E I G	E E E I G	€	€	A FEE
HF	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HG	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HH	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HI	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HJ	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HK	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HL	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HM	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HN	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HO	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HP	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HQ	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HR	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HS	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HT	TUI	Y	E E E I G	E E E I G	€	€	A FEE
HU	TUFG	Y	E E E I G	E E E I G	€	€	A FEE









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 O^ a} A K T & @ | | a  
 P^ A^ { a^ K F H G E F E O i ' e H  
 T{ a^ / a^ ^ K H E G i i E O } q A^ O a^ d }

Q : A E G E G E  
 F e K i A O F  
 O @ & ^ a^ A^ K E

**A Ya Vyf'8 jgfl'Vi hYX' @ UXg'f6 @ '%. '9\ 'l' fGY]ga jVl'f7 cb]bi YXL**

	T{ a^ / a^ ^	Oä^&çj}	ÙcæA æ} æ^ à^ Z a D e H O } a A T æ} æ^ à^ Z a D e H O } ÙcæO S } &æj } Z Æ á	O) a S } &æj } Z Æ á
FÍ	P€Í	Ý	€	À F€€
FÌ	P€Ì	Ý	€	À F€€
FĪ	P€Ī	Ý	€	À F€€
Fİ	P€İ	Ý	€	À F€€
FJ	P€J	Ý	€	À F€€
G€	P€G€	Ý	€	À F€€
G€	P€G€	Ý	€	À F€€
GF	P€GF	Ý	€	À F€€
GG	P€GG	Ý	€	À F€€
GH	P€GH	Ý	€	À F€€
G	P€G	Ý	€	À F€€
Ġ	Ö€Ġ	Ý	€	À F€€
G̈	Ö€G̈	Ý	€	À F€€
G̃	Ö€G̃	Ý	€	À F€€
Ḡ	T Ú F	Ý	€	À F€€
G̅	T Ú G	Ý	€	À F€€
H€	T Ú H	Ý	€	À F€€
HF	T Ú I	Ý	€	À F€€
HG	T Ú I	Ý	€	À F€€
HH	T Ú I	Ý	€	À F€€
HI	T Ú I	Ý	€	À F€€
HĪ	T Ú I	Ý	€	À F€€
Hİ	T Ú I	Ý	€	À F€€
HĴ	T Ú J	Ý	€	À F€€
HĶ	T Ú F€	Ý	€	À F€€
Hĸ	T Ú F€	Ý	€	À F€€
HJ	T Ú F€	Ý	€	À F€€

**A Ya Vyf'8 jgfl'Vi hYX' @ UXg'f6 @ '& ' : '6 @ ' " HfUbg]Ybh5 f YU @ UXgk**

	T{ a^ / a^ ^	Oä^&çj}	ÙcæA æ} æ^ à^ Z a D e H O } a A T æ} æ^ à^ Z a D e H O } ÙcæO S } &æj } Z Æ á	O) a S } &æj } Z Æ á
F	P€F	Z	€	FÍ €
G	P€G	Z	€	FÍ €
H	P€H	Z	€	FF€H
I	P€I	Z	€	FF€H
Í	P€Í	Z	€	FF€H
Ì	P€Ì	Z	€	Í Í € Ī
Ī	P€Ī	Z	€	Í Í € Ī
İ	P€İ	Z	€	FÍ €
J	P€J	Z	€	Í J € Ī
F€	P€F€	Z	€	Í J € Ī
FF	P€FF	Z	€	Í J € Ī
FG	P€FG	Z	€	Í J € Ī
FH	P€FH	Z	€	Í J € Ī
FI	P€FI	Z	€	Í J € Ī
FĪ	P€Ī	Z	€	Í J € Ī
Fİ	P€İ	Z	€	Í J € Ī
FĴ	P€J	Z	€	FÍ €
FĶ	P€G€	Z	€	FÍ €
G€	P€G€	Z	€	FÍ €
GF	P€GF	Z	€	FF€H
GG	P€GG	Z	€	FF€H
GH	P€GH	Z	€	FF€H









0{ } a^ ^ K Q^ A^ a^ A[ , A^ A[ ] E  
 O^ a} A^ K T a^ a^ a^ a^ a^  
 F^ a^ a^ { a^ K F H G E F I e^ O^ i^ e H  
 T{ a^ A^ a^ A^ K H E G i i e O^ } q^ A^ O^ a^ q^ }

Q^ : A^ E^ G^ E^  
 F e K^ I^ A^ O^ F  
 O^ a^ A^ A^ O^ K^ E^

**A Ya Vyf'8 jgfl]Vi hYX' @ UXg'f6 @ ' &+ : ' 6 @ ' \* 'HfUbg]Ybh5 f YU @ UXgk'f7 c bh]bi YXL**

	T^ { a^ / A^ a^ }	O^ a^ & a^ }	U^ c a^ O^ a^ } a^ a^ a^ a^ a^ a^ } a^ a^ a^ a^ a^ a^ } U^ c a^ O^ a^ } a^ a^ a^ a^ a^ a^ }	U^ c a^ O^ a^ } a^ a^ a^ a^ a^ a^ }	U^ c a^ O^ a^ } a^ a^ a^ a^ a^ a^ }	U^ c a^ O^ a^ } a^ a^ a^ a^ a^ a^ }	U^ c a^ O^ a^ } a^ a^ a^ a^ a^ a^ }
G	P E E	Y	E G I I	E G I I	E	F F E H	
H	P E E	Y	E G I I	E G I I	E	F F E H	
I	P E E	Y	E G I I	E G I I	E	I I E H	
I	P E E	Y	E E H	E E H	E	I I E H	
I	P E E	Y	E E H	E E H	E	I I E H	
I	P E E J	Y	E E F I	E E F I	E	F I E	
I	P E E E	Y	E E O I	E E O I	E	I J E H	
J	P E F F	Y	E E O I	E E O I	E	I J E H	
F E	P E F H	Y	E E I I	E E I I	E	I I E I I	
FF	P E F I	Y	E E E J	E E E J	E	I I E I I	
FG	P E F I	Y	E E I I	E E I I	E	I I E I I	
FH	P E F I	Y	E E I I	E E I I	E	I I E I I	
FI	P E F I	Y	E E I I	E E I I	E	I I E I I	
F I	P E F I	Y	E E E J	E E E J	E	I I E I I	
F I	P E G E	Y	E E E I I	E E E I I	E	F I E	
F I	P E G F	Y	E E E I I	E E E I I	E	F I E	
F I	P E G G	Y	E E E G	E E E G	E	F F E H	
F J	P E G H	Y	E E E G	E E E G	E	F F E H	
G E	O E G	Y	E E E F I	E E E F I	E	I I E H	
G F	O E G	Y	E E E J	E E E J	E	I I E H	
G G	O E G	Y	E E E J	E E E J	E	I I E H	
G H	W E G	Y	E E I I	E E I I	E	H	
G	W E G J	Y	E E I I	E E I I	E	H	
G	W E H E	Y	E E I I	E E I I	E	H	
G	W E F	Y	E E I I	E E I I	E	H	
G	W E H G	Y	E E I I	E E I I	E	H	
G	W E H	Y	E E I I	E E I I	E	H	
G J	W E H	Y	E E I I	E E I I	E	H	
H E	W E I	Y	E E I I	E E I I	E	H	
H F	W E I	Y	E E H	E E H	E	H	
H G	W E I	Y	E E H	E E H	E	H	
H H	W E I	Y	E E H	E E H	E	H	
H I	W E J	Y	E E H	E E H	E	H	
H I	W E E	Y	E E H	E E H	E	H	
H I	W E F	Y	E E H	E E H	E	H	
H I	W E G	Y	E E H	E E H	E	H	
H I	W E H	Y	E E H	E E H	E	H	
H J	W E I	Y	E E H	E E H	E	H	
I E	W E I	Y	E E H	E E H	E	H	
I F	W E I	Y	E E H	E E H	E	H	
I G	W E I	Y	E E H	E E H	E	H	
I H	W E I	Y	E E H	E E H	E	H	
I I	W E J	Y	E E H	E E H	E	H	
I I	W E E	Y	E E H	E E H	E	H	
I I	W E F	Y	E E H	E E H	E	H	
I I	T U F	Y	E E I I	E E I I	E	J I	
I I	T U G	Y	E E I I	E E I I	E	J I	
I J	T U H	Y	E E I I	E E I I	E	J I	
I E	T U I	Y	E E I I	E E I I	E	J I	
I F	T U I	Y	E E I I	E E I I	E	J I	
I G	T U I	Y	E E I I	E E I I	E	J I	
I H	T U I	Y	E E I I	E E I I	E	J I	



Ô( { ] a} ^ K QË ^ Á[ , Á/Ô( ] É  
 Ô• a} ^ K T & @ | Ô | jã  
 R à Á ^ { à ^ K FHGEFI é ' Ô | ' €H  
 T [ à ^ / P æ ^ K HEG I I Ê( ) ç / Ô æ ç }

Ç : Á Ê Ç È É  
 F € K I Á Ç  
 Ô @ & ^ à Á Ô K È

**A Ya Vyf'8 jglfjVi hYX' @ UXg'f6 @ ' &+ : '6 @ ' \* 'HfUbgjYbh5 f YU @ UXgk'f7 c bhjbi YXL**

	T \ ( à ^ / Á æ ^ \	Ö ä ^ & ç }	Ù ç æ Á æ } æ à ^ ç á ç ( ) á Á æ } æ à ^ ç á ç ( ) Ù ç æ Ô ( & ç } ç Æ á	Ò ) á Á ( & ç } ç Æ á	
í	T Ù	Ý	Ë È Ì	€	J
í	T Ú	Ý	Ë È Ì	€	J
í	T Ú F €	Ý	Ë È Ì	€	J
í	T Ú F F	Ý	Ë È Ì	€	J
í	T Ú F G	Ý	Ë È Ì	€	J

**A Ya Vyf'8 jglfjVi hYX' @ UXg'f6 @ ' & : '6 @ ' + 'HfUbgjYbh5 f YU @ UXgk'**

	T \ ( à ^ / Á æ ^ \	Ö ä ^ & ç }	Ù ç æ Á æ } æ à ^ ç á ç ( ) á Á æ } æ à ^ ç á ç ( ) Ù ç æ Ô ( & ç } ç Æ á	Ò ) á Á ( & ç } ç Æ á	
F	P € F	Z	Ë È Ì	€	F I €
G	P € G	Z	Ë È Ì	€	F I €
H	P € H	Z	Ë È Ç	€	F F È Ì
I	P € I	Z	Ë È F G	€	F F È Ì
Í	P € Í	Z	Ë È F G	€	F F È Ì
Î	P € Î	Z	Ë È é	€	Í Î È Ì
Ï	P € Ï	Z	Ë È é	€	Í Î È Ì
Ì	P € J	Z	Ë È Ì	€	F I €
J	P € J	Z	Ë È é	€	Í Î È Ì
F €	P € F	Z	Ë È é	€	Í Î È Ì
FF	P € F G	Z	Ë È F I	€	Í Î È Ì
FG	P € F H	Z	Ë È Ç F	€	Í Î È Ì
FH	P € F I	Z	Ë È é	€	Í Î È Ì
FI	P € F I	Z	Ë È Ç	€	Í Î È Ì
FÍ	P € Í	Z	Ë È Ç F	€	Í Î È Ì
FÌ	P € Ì	Z	Ë È Ç	€	Í Î È Ì
FÎ	P € Î	Z	Ë È é	€	Í Î È Ì
FÏ	P € J	Z	Ë È Ì	€	F I €
FJ	P € Ç	Z	Ë È G	€	F I €
Ç	P € G	Z	Ë È G	€	F I €
Ç	P € G G	Z	Ë È Í	€	F F È Ì
Ç	P € G H	Z	Ë È Í	€	F F È Ì
Ç	P € G	Z	Ë È F	€	F F È Ì
G	Ö € G	Z	Ë È Ì	€	Í Î È H
G	Ö € G	Z	Ë È H	€	Í Î È H
G	Ö € G	Z	Ë È H	€	Í Î È H
G	W È I	Z	Ë È Ì	€	H
G	W È I	Z	Ë È Ì	€	H
G	W È I	Z	Ë È Ì	€	H
H €	W È U	Z	Ë È Ì	€	H
HF	W È €	Z	Ë È Ì	€	H
HG	W È F	Z	Ë È Ì	€	H
HH	W È G	Z	Ë È Ì	€	H
HI	W È H	Z	Ë È Ì	€	H
HÍ	W È Í	Z	Ë È Ì	€	H
HÌ	W È Ì	Z	Ë È Ì	€	H
HÎ	W È Î	Z	Ë È Ì	€	H
HÏ	W È Ï	Z	Ë È Ì	€	H
HJ	W È J	Z	Ë È Ì	€	H
I €	W È J	Z	Ë È Ì	€	H
IF	W È €	Z	Ë È Ì	€	H
IG	W È F	Z	Ë È Ì	€	H
IH	T Ú F	Z	Ë È Ì	€	J



0{ } a^ ^ K Oe ^ i a a A[ , ^ i A[ ] E  
 O^ a } ^ K T & @ | | a  
 F a A^ ^ { a^ K F H G E F i ^ O i ^ e H  
 T [ a^ / a a ^ K H E G i i E O } q A Z O a q }

Oq : A E O E E  
 F e K i A O F  
 O @ & ^ a A O ^ K E

**A Ya Vyf'8 jgfvI hYX' @ UXg'f6 @ '& : '6 @ ' + HfUbgjYbh5 f YU @ UXgk'f7 c bhbi YXL**

	T { a^ / a a ^ }	O a ^ & a }	U c a o A a e } a ^ a ^ Z a D a ( E E ) a A a e } a ^ a ^ Z a D a ( E E ) U c a o S i } & a a } Z a E a a	O ) a A S i } & a a } Z a E a a		
II	T UG	Z	U U I	U U I	€	J I
I I	T UH	Z	U U I	U U I	€	J I
I I	T UI	Z	U U I	U U I	€	J I
I I	T U I	Z	U U I	U U I	€	J I
I I	T U I	Z	U U I	U U I	€	J I
I J	T U I	Z	U U I	U U I	€	J I
I €	T U I	Z	U U I	U U I	€	J I
I F	T U J	Z	U U I	U U I	€	J I
I G	T U F €	Z	U U I	U U I	€	J I
I H	T U F F	Z	U U I	U U I	€	J I
I I	T U F G	Z	U U I	U U I	€	J I

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G	P E €	Y	U U F	U U F	€	F F E H
H	P E €	Y	U U F	U U F	€	F F E H
I	P E €	Y	U U F	U U F	€	I I E H
I	P E €	Y	U U F	U U F	€	I I E H
I	P E €	Y	U U F	U U F	€	I I E H
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I	P E €	Y	U U F	U U F	€	I J E H
J	P E F F	Y	U U F	U U F	€	I J E H
F €	P E F H	Y	U U I	U U I	€	I I E I
FF	P E F I	Y	U U E H	U U E H	€	I I E I
FG	P E F I	Y	U U I G	U U I G	€	I I E I
FH	P E F I	Y	U U I	U U I	€	I I E I
FI	P E F I	Y	U U I G	U U I G	€	I I E I
F I	P E F I	Y	U U E H	U U E H	€	I I E I
F I	P E € €	Y	U U G	U U G	€	F I €
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F I	P E € G	Y	U U I G	U U I G	€	F F E H
F J	P E € H	Y	U U I G	U U I G	€	F F E H
G €	O € G	Y	U U F	U U F	€	I I E H
G F	O € G	Y	U U	U U	€	I I E H
G G	O € G	Y	U U	U U	€	I I E H
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G	W € J	Y	U U E	U U E	€	H
G	W € E	Y	U U E	U U E	€	H
G	W € F	Y	U U E	U U E	€	H
G	W € G	Y	U U E	U U E	€	H
G	W € H	Y	U U E	U U E	€	H
G J	W € I	Y	U U E	U U E	€	H
H €	W € I	Y	U U E	U U E	€	H
H F	W € I	Y	U U € G	U U € G	€	H
H G	W € I	Y	U U € G	U U € G	€	H
H H	W € I	Y	U U € G	U U € G	€	H
H I	W € J	Y	U U € G	U U € G	€	H
H I	W € €	Y	U U € G	U U € G	€	H
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F H	P E F H	S G q Q H	E i E	G E E	F i	E E i	E	^	G	F e i J E i J	G H U G	i i E E	F e i E G F	F E i H	P G E
F i	P E F i	S G q Q H	E i i	G E E	F J	E E i	E	^	H G	F e i J E i J	G H U G	i i E E	F e i E G F	F E i H	P G E
F i	P E F i	S G q Q H	E i i	G E E	G H	E E i	i i E E	^	H i	F e i J E i J	G H U G	i i E E	F e i E G F	F E i H	P G E
F i	P E F i	S G q Q H	E J G	G E E	G	E E i	i i E E	^	H i	F e i J E i J	G H U G	i i E E	F e i E G F	F E i H	P G E
F i	P E F i	S G q Q H	E F	G E E	F i	E E i	i i E E	^	G	F e i J E i J	G H U G	i i E E	F e i E G F	F E i H	P G E
F i	P E F i	S G q Q H	E J i	G E E	G F	E E i	i i E E	^	H G	F e i J E i J	G H U G	i i E E	F e i E G F	F E i H	P G E
F J	P E F J	U O J O ' G E	E G F	E E E	G	E F i	H E G		G	i G i E G	H G F H E	F i F E G	F i F E G	G E i G	P F E a
G E	P E G E	U O J O ' G E	E i E	E E E	i	E H G	H E G		i	i G i E G	H G F H E	F i F E G	F i F E G	H E i G	P F E a
G F	P E G F	U O J O ' G E	E i i	F G J E	i	E G	F i E E		F E	i G i E G	H G F H E	F i F E G	F i F E G	G E i F	P F E a
G G	P E G G	S G e c e d	E E i	E	J	E i E	E	^	F H	H F e e i F	H i i i	F F H E i i	G H E i i	G E i i	P G E
G H	P E G H	S G e c e d	E E i	E	i	E i J	E	:	J	H F e e i F	H i i i	F F H E i i	G H E i i	G E i i	P G E
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G	O E G	S S G e c e c e E	E F E	i i E E	H E	E E G	i i E E	^	H E	i i i J E i i	i i H G E	H E e E i	G i i E i	F E i H	P F E a E
G	T U F	U O J O ' G E	E i H	i G	H i	E i J	i G		J	H i i E i J	H G F H E	F i F E G	F i F E G	G E i i	P F E a e
G J	T U G	U O J O ' G E	E i G	i G	G	E i i	i G		F G	H i i E i J	H G F H E	F i F E G	F i F E G	F E i H	P F E a e
H E	T U H	U O J O ' G E	E i i	i G	H F	E i i	i G		i	H i i E i J	H G F H E	F i F E G	F i F E G	F E i J	P F E a e
H F	T U i	U O J O ' G E	E H i	i G	J i	E G J	i G		i	H i i E i J	H G F H E	F i F E G	F i F E G	G E H	P F E a e
H G	T U i	U O J O ' G E	E H U	i G	F i	E i i	i G		F E	H i i E i J	H G F H E	F i F E G	F i F E G	F E i	P F E a e
H H	T U i	U O J O ' G E	E i i	i G	F F	E H G	i G		F H	H i i E i J	H G F H E	F i F E G	F i F E G	F E i F G	P F E a
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H i	T U i	U O J O ' G E	E i E	i G	F i F	E i F	i G		F E	H i i E i J	H G F H E	F i F E G	F i F E G	F E i	P F E a e
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H i	T U F E	U O J O ' G E	E i i	i G	F i H	E i H	i G		F E	H i i E i J	H G F H E	F i F E G	F i F E G	G E H	P F E a e
H i	T U F F	U O J O ' G E	E i i	i G	F i J	E i i	i G		F H	H i i E i J	H G F H E	F i F E G	F i F E G	F E i H	P F E a e
H J	T U F G	U O J O ' G E	E i i	i G	G E	E i J	i G		i	H i i E i J	H G F H E	F i F E G	F i F E G	G E F G	P F E a e

General Power Density

Site Name: Canton 3, CT  
 Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm <sup>2</sup> )	(mW/cm <sup>2</sup> )	(%)
VZW PCS	1970	1	6685	6685	118	0.1727	1.0	17.27%
VZW Cellular LTE	869	1	2765	2765	118	0.0714	0.5793333333	12.33%
VZW AWS	2145	1	5985	5985	118	0.1546	1.0	15.46%
VZW 700	746	1	2755	2755	118	0.0712	0.4973333333	14.31%

**Total Percentage of Maximum Permissible Exposure** 59.36%

\*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Section 1.13101 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.

MHz = Megahertz

mW/cm<sup>2</sup> = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used, including the following assumptions:

1. closest accessible point is distance from antenna to base of pole;
2. continuous transmission from all available channels at full power for indefinite time period; and,
3. all RF energy is assumed to be directed solely to the base of the pole.



DOCKET NO. 62

AN APPLICATION OF THE SOUTHERN NEW ENGLAND : CONNECTICUT SITING  
TELEPHONE COMPANY FOR A CERTIFICATE OF  
ENVIRONMENTAL COMPATIBILITY AND PUBLIC :  
NEED FOR THE CONSTRUCTION, MAINTENANCE, : COUNCIL  
AND OPERATION OF FACILITIES TO PROVIDE  
CELLULAR SERVICE IN THE TOWN OF  
CANTON, CONNECTICUT. : August 4, 1986

DECISION AND ORDER

Pursuant to the foregoing Opinion, the Connecticut Siting Council (Council) hereby directs that a certificate of environmental compatibility and public need (certificate) as provided by section 16-50k of the General Statutes of Connecticut (CGS) be issued to the Southern New England Telephone Company (SNET) for the construction, maintenance, and operation of a cellular mobile telephone telecommunication tower and associated equipment in the Town of Canton, subject to the conditions below.

1. The tower shall be no taller than necessary to provide the proposed service, and in no event shall exceed 167', including antennas, at the Hoffmann Road site.
2. A fence not lower than eight feet shall surround the tower and associated equipment building.
3. The applicant or its successor shall notify the Council if and when directional antennas or any other equipment is added to these facilities.
4. The applicant or its successor shall permit, in accordance with representations made by it during the proceeding, public or private entities to share space on the tower, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

5. Unless necessary to comply with condition number six, below, no lights shall be installed on this tower.
6. The facilities shall be constructed, operated, and maintained as specified in the Council's record on this matter, and shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations.
7. The applicant shall submit a Development and Management Plan (D&M) for the tower site pursuant to sections 16-50j-75 through 16-50j-77 of the Regulations of State Agencies, except that irrelevant items in section 16-50j-76 need only be identified as such. In addition to the requirements of section 16-50j-76, the D&M plan shall provide a plan for evergreen screening around the fenced perimeter of the tower site. The D&M plan must be approved prior to facility construction. Any changes to specifications in the D&M plan must be approved by the Council prior to facility operation.
8. Construction activities shall take place during daylight working hours.
9. The certificate holder shall comply with any future radiofrequency (RF) standards promulgated by state or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facilities granted in this decision shall comply with such standards.
10. This decision and order shall be void and the towers and associated equipment shall be dismantled and removed, or reapplication for any new use shall be made to the Council before any such new use is made, if the tower does not provide or permanently ceases to provide cellular service following completion of construction.

11. This Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this decision, or within three years of the completion of any appeal if appeal of this decision is taken, unless otherwise approved by the Council.

Pursuant to CGS section 16-50p, we hereby direct that a copy of the Decision and Order shall be served on each person listed below. A notice of the issuance shall be published in the Hartford Courant and the Farmington Valley Herald.

The parties to the proceeding are:

Southern New England Telephone  
Company  
c/o Peter J. Tyrrell  
Senior Attorney  
Room 1021  
227 Church Street  
New Haven, Connecticut 06506  
(203) 771-7381

(Applicant)

The Hartford Cellular Company

represented by:

Howard L. Slater  
Byrne, Slater, Sandler,  
Shulman & Rouse, P.C.  
111 Pearl Street  
P.O. Box 3216  
Hartford, Connecticut 06103

Town of Simsbury

represented by:

Mr. Leonard D. Tolisano  
Town Planner  
Town of Simsbury  
P.O. Box 495  
Simsbury, Connecticut 06070

Town of Canton

represented by:

Mr. Marshall K. Berger, Jr.  
Attorney at Law  
Suite 308  
60 Washington Street  
Hartford, Connecticut 06106

Ms. Karen Berger

represented by:

Mr. Marshall K. Berger, Jr.  
Attorney at Law  
Suite 308  
60 Washington Street  
Hartford, Connecticut 06106  
(service waived)

Mr. Harvey Jassem  
243 East Hill Road  
Canton, Connecticut 06019

Ms. Judy Friedman  
101 Lawton Road  
Canton, Connecticut 06019

(service waived)

Mr. Gilbert Small  
315 East Hill Road  
Canton, Connecticut 06019

(service waived)

John G. Petrasch  
330 East Hill Road  
Canton, Connecticut 06019

(service waived)

CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut, this 4th day of August, 1986.

<u>Council Members</u>	<u>Vote Cast</u>
<u>Gloria Dibble Pond</u> Gloria Dibble Pond Chairperson	Yes
<u>Edward Moehringa</u> Commissioner John Downey Designee: Edward Moehringa	Yes
<u>Brian Emerick</u> Commissioner Stanley Pac Designee: Brian Emerick	Abstain
<u>Owen L. Clark</u> Owen L. Clark	Yes
<u>Mortimer A. Gelston</u> Mortimer A. Gelston	Absent
<u>James G. Horsfall</u> James G. Horsfall	Absent
<u>Pamela B. Katz</u> Pamela B. Katz	No
<u>William H. Smith</u> William H. Smith	Absent
<u>Colin C. Tait</u> Colin C. Tait	Yes

STATE OF CONNECTICUT )  
                                  :  
COUNTY OF HARTFORD )

ss.           New Britain, August 4, 1986

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

*Gloria Dibble Pond*  
\_\_\_\_\_  
Gloria Dibble Pond, Chairperson  
Connecticut Siting Council

# Town of Canton

Geographic Information System (GIS)



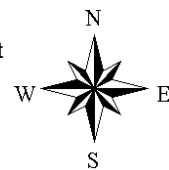
Date Printed: 7/28/2020



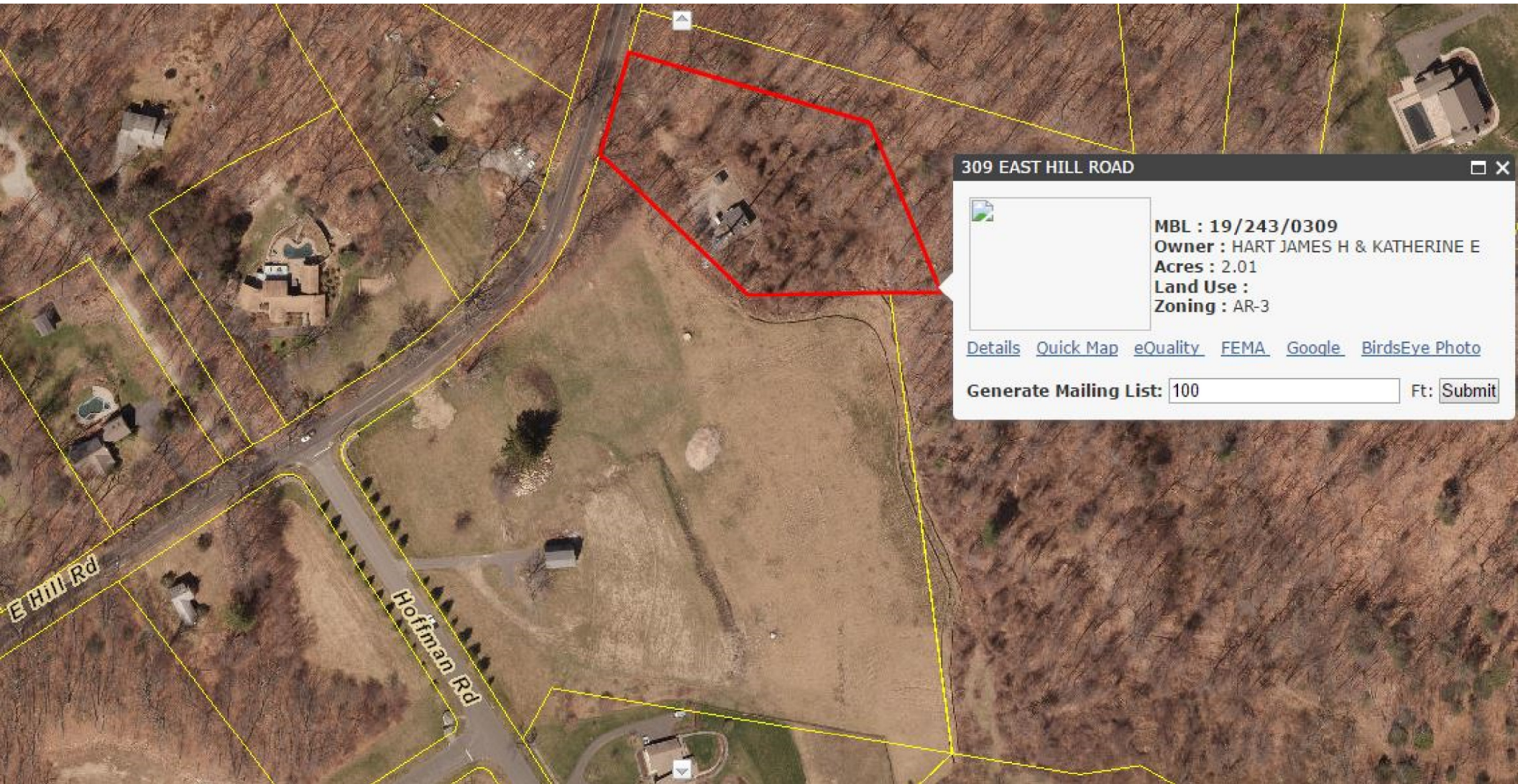
**MAP DISCLAIMER - NOTICE OF LIABILITY**

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 Canton and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 150 feet







309 EAST HILL ROAD



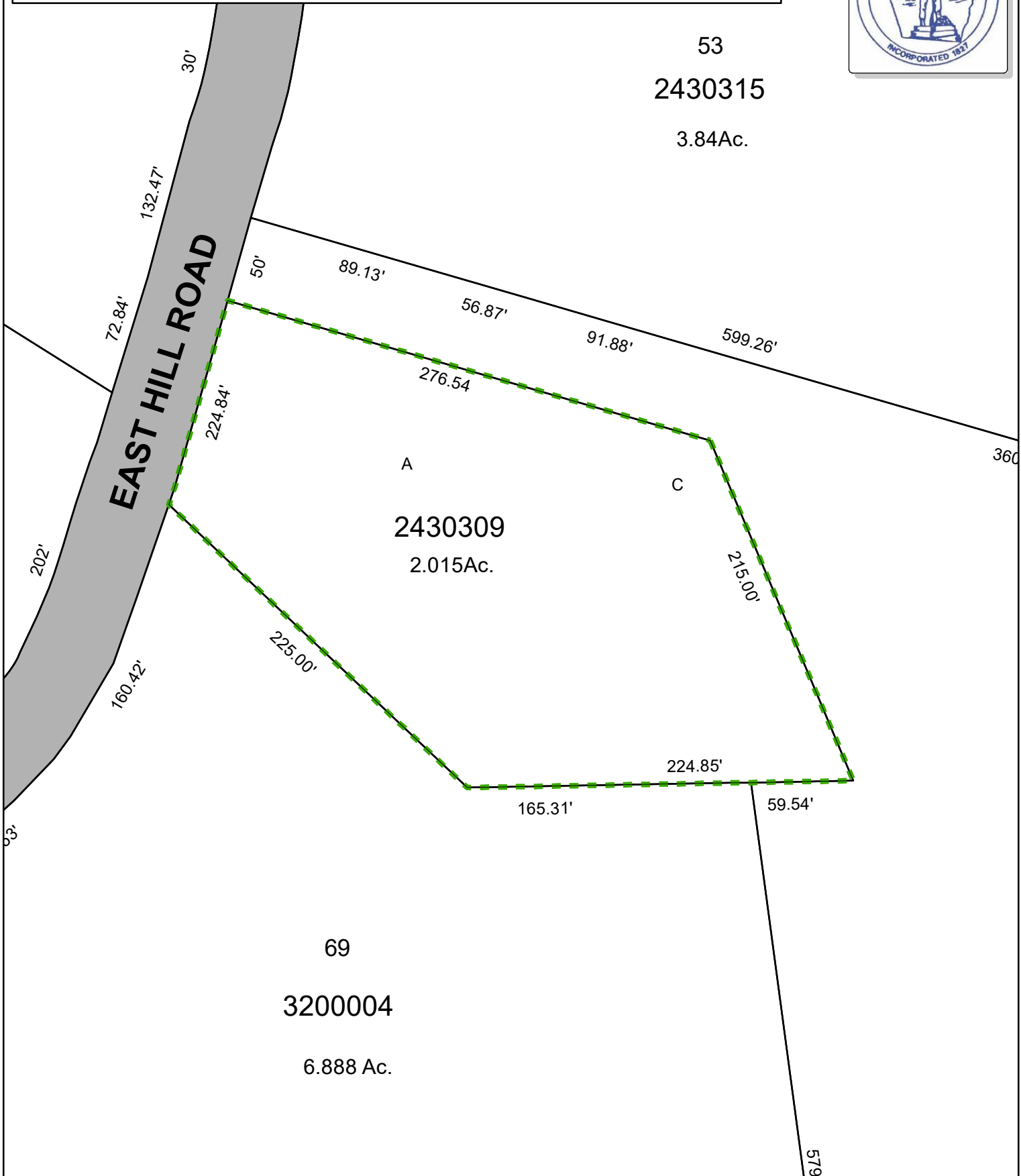
**MBL :** 19/243/0309  
**Owner :** HART JAMES H & KATHERINE E  
**Acres :** 2.01  
**Land Use :**  
**Zoning :** AR-3

[Details](#) [Quick Map](#) [eQuality](#) [FEMA](#) [Google](#) [BirdsEye Photo](#)

**Generate Mailing List:**  Ft:



**Town of Canton, Connecticut - Assessment Parcel Map**  
**Unique ID: 2430309    Address: 309 EAST HILL ROAD**



**Approximate Scale:**  
1 inch = 75 feet

**Disclaimer:**  
 This map is for informational purposes only.  
 All information is subject to verification by any user.  
 The Town of Canton and its mapping contractors  
 assume no legal responsibility for the information contained herein.

**Map Produced**  
June 2020

- - - Sublot
- - - Easement
- 4850007 Parcel ID
- 89' Dimension

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



# TOWN OF CANTON<sub>CT</sub>

Information on the Property Records for the Municipality of Canton was last updated on 7/27/2020.

## Parcel Information

Location:	309 EAST HILL ROAD	Property Use:	Vacant Land	Primary Use:	Commercial Vacant Land
Unique ID:	2430309	Map Block Lot:	19/243/0309	Acres:	2.01
490 Acres:	0.00	Zone:	R-3	Volume / Page:	360/841
Developers Map / Lot:	B	Census:			

## Value Information

	Appraised Value	Assessed Value
Land	150,240	105,170
Buildings	0	0
Detached Outbuildings	0	0
Total	150,240	105,170

## Owner's Information

### Owner's Data

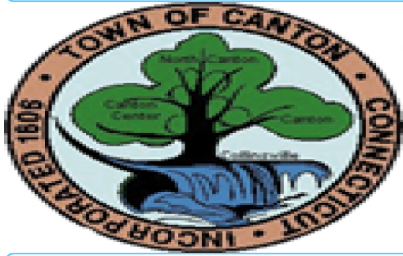
HART JAMES H & KATHERINE E  
90 PARK ROAD  
BARKHAMSTEAD, CT 06063

## Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
HART JAMES H & KATHERINE E	0360	0841			No	\$0
HOFFMANN HERMAN A &	0123	0628			No	\$0

Information Published With Permission From The Assessor

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



# TOWN OF CANTON<sub>CT</sub>

Information on the Property Records for the Municipality of Canton was last updated on 7/27/2020.

## Property Summary Information

Parcel Data And Values

Sales

### Parcel Information

Location:	309 T EAST HILL ROAD	Property Use:	Vacant Land	Primary Use:	Commercial Vacant Land
Unique ID:	2439309T	Map Block Lot:	19/243/9309	Acres:	0.23
490 Acres:	0.00	Zone:	AR-3	Volume / Page:	403/ 796
Developers Map / Lot:		Census:			

### Value Information

	Appraised Value	Assessed Value
Land	400,000	280,000
Buildings	0	0

	Appraised Value	Assessed Value
Detached Outbuildings	0	0
Total	400,000	280,000

### Owner's Information

#### Owner's Data

SPRINGWICH CELLULAR TOWER HOLDINGS LLC  
ATTN: PROPERTY TAX DEPT  
1010 PINE ST, 9E-L-01  
ST LOUIS MO 63101

[Back To Search \(JavaScript>window.history.back\(1\);\)](#)

[Print View \(PrintPage.aspx?towncode=023&uniqueid=2439309T\)](#)

Information Published With Permission From The Assessor

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



# TOWN OF CANTON<sub>CT</sub>

Information on the Property Records for the Municipality of Canton was last updated on 7/27/2020.

## Parcel Information

Location:	4 HOFFMANN ROAD	Property Use:	Vacant Land	Primary Use:	Residential
Unique ID:	3200004	Map Block Lot:	23/320/0004	Acres:	6.88
490 Acres:	0.00	Zone:	R-3	Volume / Page:	0421/1046
Developers Map / Lot:	A	Census:			

## Value Information

	Appraised Value	Assessed Value
Land	264,347	185,040
Buildings	0	0
Detached Outbuildings	12,499	8,750
Total	276,846	193,790

## Owner's Information

### Owner's Data

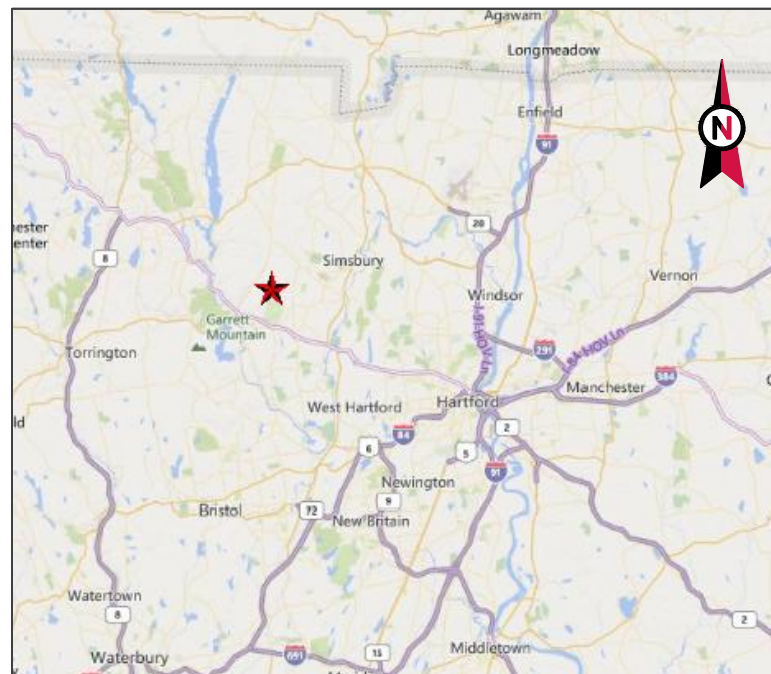
BISKUPIAK BRIAN &  
BISKUPIAK KELLEY  
14 CROWN POINT  
CANTON, CT 09019

## Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Detatched Frame Garage	1985	31.00	24.00	744

## Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
BISKUPIAK BRIAN &	0421	1046	09/23/2015		Yes	\$300,000
MACK IV LLC	0403	1013	04/23/2013		Yes	\$260,000
HART JAMES H &	0360	0841			No	\$0
HOFFMANN EDITH L	0123	0628			No	\$0
HOFFMANN HERMAN A &	0123	0628			No	\$0
HOFFMANN HERMAN A - ESTATE OF &	0123	0628			No	\$0



VICINITY MAP



**AMERICAN TOWER®**

SITE NAME: CNTN - CANTON  
 SITE NUMBER: 302488  
 ATC PROJECT NUMBER: 13201406\_C6\_05  
 SITE ADDRESS: 4 HOFFMANN ROAD  
 CANTON, CT 06019



LOCATION MAP

150 FT MONOPOLE MODIFICATIONS

**AMERICAN TOWER®**  
 A.T. ENGINEERING SERVICE, PLLC  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:  
302488

ATC SITE NAME:  
CNTN - CANTON  
CONNECTICUT

SITE ADDRESS:  
4 HOFFMANN ROAD  
CANTON, CT 06019



DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

COVER

SHEET NUMBER:  
**G-001**

REVISION:  
**0**

PROJECT TEAM	PROJECT DESCRIPTION	SHEET	SHEET TITLE	REV.
<p><b>TOWER OWNER</b> AMERICAN TOWER 10 PRESIDENTAL WAY WOBURN, MA 01801</p> <p><b>ENGINEERED BY</b> ATC TOWER SERVICES 3500 REGENCY PARKWAY, SUITE 100 CARY, NC 27518</p> <p><b>CARRIER INFORMATION</b> CARRIER: VERIZON WIRELESS CARRIER SITE NAME: CANTON 3 CT CARRIER SITE NUMBER: 467157</p>	<p>THE MODIFICATIONS PRESENTED ON THESE DRAWINGS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED UNDER ENGINEERING PROJECT NUMBER 13201406_C3_02 DATED 05/19/20. SATISFACTORY COMPLETION OF THE WORK INDICATED ON THESE DRAWINGS WILL RESULT IN THE STRUCTURE MEETING THE REQUIREMENTS OF THE SPECIFICATIONS UNDER WHICH THE STRUCTURAL WAS COMPLETED.</p> <p><b>COMPLIANCE CODE</b></p> <p>ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.</p> <p>1. ANSI/TIA/EIA: STRUCTURAL STANDARDS (222-G EDITION)            2. INTERNATIONAL BUILDING CODE (2015 IBC)            3. CONNECTICUT STATE BUILDING CODE (2018)</p> <p><b>PROJECT LOCATION</b></p> <p><b>GEOGRAPHIC COORDINATES</b>            LATITUDE: 41.85527778            LONGITUDE: -72.8925</p>	G-002	IBC GENERAL NOTES	0
		G-003	SPECIAL INSPECTION CHECKLIST	0
		G-004	BILL OF MATERIALS	0
		C-101	DETAILED SITE PLAN	0
		S-201	MODIFICATION PROFILE	0
		S-501	REINFORCEMENT INSTALLATION DETAILS	0
		S-502	REINFORCEMENT INSTALLATION DETAILS	0
		S-503	REINFORCEMENT INSTALLATION DETAILS (CONT'D)	0
		S-504	#20 STEP BOLT BRACKET INSTALLATION DETAILS	0
		Z-501	TRANSITION BRACKET WELDMENT FABRICATION DETAILS	0
Z-502	#20 BEARING PLATE FABRICATION DETAILS	0		



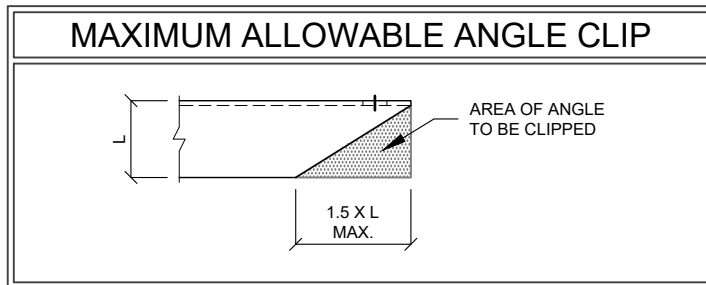


**GENERAL**

- ALL WORK TO BE COMPLETED PER APPLICABLE LOCAL, STATE, FEDERAL CODES AND ORDINANCES AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS FOR WIRELESS TOWER SITES. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND ABIDING BY ALL REQUIRED PERMITS.
- ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TOWER AND FOUNDATION CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY OF ANY INSTALLATION INTERFERENCES. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. DETAILS NOT SPECIFICALLY SHOWN ON THE DRAWINGS SHALL FOLLOW SIMILAR DETAILS FOR THIS JOB.
- ANY SUBSTITUTIONS SHALL CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
- ANY MANUFACTURED DESIGN ELEMENTS SHALL CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS AND SHOULD BE SIMILAR TO THOSE SHOWN. THESE DESIGN ELEMENTS MUST BE STAMPED BY AN ENGINEER PROFESSIONALLY REGISTERED IN THE STATE OF THE PROJECT, AND SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH LOCAL CODES AND OSHA SAFETY REGULATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY, PER ANSI/TIA-322 AND ANSI/ASSE A10.48, TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.
- CONTRACTOR'S PROPOSED INSTALLATION SHALL NOT INTERFERE, NOR DENY ACCESS TO, ANY EXISTING OPERATIONAL AND SAFETY EQUIPMENT.

**STRUCTURAL STEEL**

- ALL DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS, LATEST EDITION.
- ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
- ALL U-BOLTS SHALL BE ASTM A36 OR EQUIVALENT, WITH LOCKING DEVICE, UNLESS NOTED OTHERWISE.
- FIELD CUT EDGES, EXCEPT DRILLED HOLES, SHALL BE GROUND SMOOTH.
- ALL FIELD CUT SURFACES, FIELD DRILLED HOLES & GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.
- ALL STRUCTURAL STEEL EMBEDDED IN THE CONCRETE SHALL BE APPLIED WITH (2) BRUSHED COATS OF POLYGUARD CA-14 MASTIC OR EQUIVALENT. REFER TO THE MANUFACTURER SPECIFICATIONS FOR SURFACE PREPARATION AND APPLICATION. APPLICATION OF POLYGUARD 400 WRAP IS NOT ESSENTIAL.
- CONTRACTOR SHALL PERFORM WORK ON ONLY ONE (1) TOWER FACE AND REPLACE/REINFORCE ONE (1) BOLT/MEMBER AT A TIME.
- ALL FIELD DRILLED HOLES TO BE USED FOR FIELD BOLTING INSTALLATION SHALL BE STANDARD HOLES, AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.



**PAINT**

- AS REQUIRED, CLEAN AND PAINT PROPOSED STEEL ACCORDING TO FAA ADVISORY CIRCULAR AC 70/7460-1L.

**WELDING**

- ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
- ALL WELDS SHALL BE INSPECTED VISUALLY. IF DIRECTED BY ENGINEER OF RECORD, 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE (100% IF REJECTABLE DEFECTS ARE FOUND) TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
- INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
- ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER AND/OR BASE METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
- IN CASES WHERE BASE METAL GRADE IS UNKNOWN, ALL WELDING ON LATTICE TOWERS SHALL BE DONE WITH E70XX ELECTRODES; ALL WELDING ON POLE STRUCTURES SHALL BE DONE WITH E80XX ELECTRODES, UNLESS NOTED OTHERWISE.
- PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

**BOLT TIGHTENING PROCEDURE**

- STRUCTURAL CONNECTIONS TO BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH RCSC SPECIFICATIONS.
- FLANGE BOLTS SHALL BE INSTALLED AND TIGHTENED USING DIRECT TENSION INDICATING (DTI) SQUIRTER WASHERS. DTI SQUIRTER WASHERS ARE TO BE INSTALLED AND ORIENTED / TIGHTENED PER MANUFACTURER SPECIFICATIONS TO ACHIEVE DESIRED LEVEL OF BOLT PRE-TENSION.
- IN LIEU OF USING DTI SQUIRTER WASHERS, FLANGE BOLTS MAY BE TIGHTENED USING AISC / RCSC "TURN-OF-THE-NUT" METHOD, PENDING APPROVAL BY THE ENGINEER OF RECORD (EOR). TIGHTEN FLANGE BOLTS USING THE CHART BELOW:

**BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS**

1/2"	BOLTS UP TO AND INCLUDING 2.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
5/8"	BOLTS UP TO AND INCLUDING 2.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
3/4"	BOLTS UP TO AND INCLUDING 3.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
7/8"	BOLTS UP TO AND INCLUDING 3.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1"	BOLTS UP TO AND INCLUDING 4.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/8"	BOLTS UP TO AND INCLUDING 4.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/4"	BOLTS UP TO AND INCLUDING 5.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-3/8"	BOLTS UP TO AND INCLUDING 5.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/2"	BOLTS UP TO AND INCLUDING 6.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT

**BOLT LENGTHS OVER FOUR DIAMETERS BUT NOT EXCEEDING EIGHT DIAMETERS**

1/2"	BOLTS 2.25 TO 4.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
5/8"	BOLTS 2.75 TO 5.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
3/4"	BOLTS 3.25 TO 6.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
7/8"	BOLTS 3.75 TO 7.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1"	BOLTS 4.25 TO 8.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/8"	BOLTS 4.75 TO 9.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/4"	BOLTS 5.25 TO 10.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-3/8"	BOLTS 5.75 TO 11.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/2"	BOLTS 6.25 TO 12.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT

- SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8.2.1 OF THE AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS", LOCATED IN THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS PARAPHRASED AS FOLLOWS:

FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8.2.1 THROUGH 8.2.4.

**8.2.1 TURN-OF-NUT PRETENSIONING**

BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1, UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.

- ALL OTHER BOLTED CONNECTIONS SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1 OF THE SPECIFICATION.

ALL BOLT HOLES SHALL BE ALIGNED TO PERMIT INSERTION OF THE BOLTS WITHOUT UNDUE DAMAGE TO THE THREADS. BOLTS SHALL BE PLACED IN ALL HOLES WITH WASHERS POSITIONED AS REQUIRED AND NUTS THREADED TO COMPLETE THE ASSEMBLY. COMPACTING THE JOINT TO THE SNUG-TIGHT CONDITION SHALL PROGRESS SYSTEMATICALLY FROM THE MOST RIGID PART OF THE JOINT. THE SNUG-TIGHTENED CONDITION IS THE TIGHTNESS THAT IS ATTAINED WITH A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER USING AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.

**APPLICABLE CODES AND STANDARDS**

- ANSI/TIA: STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES, 222-G EDITION.
- 2015 INTERNATIONAL BUILDING CODE.
- 2018 CONNECTICUT STATE BUILDING CODE.
- ACI 318: AMERICAN CONCRETE INSTITUTE, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE. REFERENCE LATEST APPROPRIATE EDITION TO MATCH LOCAL AND/OR INTERNATIONAL BUILDING CODE(S) LISTED ABOVE.
- CRSI: CONCRETE REINFORCING STEEL INSTITUTE, MANUAL OF STANDARD PRACTICE, LATEST EDITION.
- AISC: AMERICAN INSTITUTE OF STEEL CONSTRUCTION, MANUAL OF STEEL CONSTRUCTION, LATEST EDITION.
- AWS: AMERICAN WELDING SOCIETY D1.1, STRUCTURAL WELDING CODE, LATEST EDITION.

**SPECIAL INSPECTION**

- A QUALIFIED INDEPENDENT TESTING LABORATORY, EMPLOYED BY THE OWNER, SHALL PERFORM INSPECTION AND TESTING IN ACCORDANCE WITH IBC 2015, SECTION 1704 AS REQUIRED BY PROJECT SPECIFICATIONS FOR THE FOLLOWING CONSTRUCTION WORK:
  - a) STRUCTURAL WELDING (CONTINUOUS INSPECTION OF FIELD WELD ONLY)
  - b) HIGH STRENGTH BOLTS (PERIODIC INSPECTION OF A325 EXTENSION FLANGE BOLTS TO BE TIGHTENED PER "TURN-OF-THE-NUT" METHOD)
- THE INSPECTION AGENCY SHALL SUBMIT INSPECTION AND TEST REPORTS TO THE BUILDING DEPARTMENT, THE ENGINEER OF RECORD, AND THE OWNER IN ACCORDANCE WITH IBC 2015, SECTION 1704, UNLESS THE FABRICATOR IS APPROVED BY THE BUILDING OFFICIAL TO PERFORM SUCH WORK WITHOUT THE SPECIAL INSPECTIONS.

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0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:  
**302488**

ATC SITE NAME:  
**CNTN - CANTON**  
**CONNECTICUT**

SITE ADDRESS:  
4 HOFFMANN ROAD  
CANTON, CT 06019



DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

**IBC GENERAL NOTES**

SHEET NUMBER:	REVISION:
<b>G-002</b>	<b>0</b>

**MODIFICATION INSPECTION NOTES**

THE SPECIAL INSPECTION (SI) PROCEDURE IS INTENDED TO CONFIRM THAT CONSTRUCTION AND INSTALLATION MEETS ENGINEERING DESIGN, ATC PROCEDURES AND ATC STANDARD SPECIFICATIONS FOR WIRELESS TOWER SITES.

TO ENSURE THAT THE REQUIREMENTS OF THE SI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR AND THE INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PO IS RECEIVED FROM AMERICAN TOWER CORPORATION (ATC). IT IS EXPECTED THAT EACH PARTY WILL PROACTIVELY REACH OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN, CONTACT YOUR AMERICAN TOWER POINT OF CONTACT.

**SPECIAL INSPECTOR**

THE SPECIAL INSPECTOR IS REQUIRED TO CONTACT THE GENERAL CONTRACTOR AS SOON AS RECEIVING A PO FROM ATC. UPON RECEIVING A PO FROM ATC THE SPECIAL INSPECTOR AT A MINIMUM MUST:

- REVIEW THE REQUIREMENTS OF THE SI CHECKLIST.
- WORK WITH THE GENERAL CONTRACTOR TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
- ANY CONCERNS WITH THE SCOPE OF WORK OR PROJECT COMMITMENT MUST BE RELAYED TO THE ATC POINT OF CONTACT IMMEDIATELY.

THE SPECIAL INSPECTOR IS RESPONSIBLE FOR COLLECTING ALL GENERAL CONTRACTOR INSPECTION AND TEST REPORTS, REVIEWING THESE DOCUMENTS FOR ADHERENCE TO CONTRACT DOCUMENTS, CONDUCTING THE IN-FIELD INSPECTIONS, AND SUBMITTING THE SI REPORT TO AMERICAN TOWER CORPORATION.

**GENERAL CONTRACTOR**

THE GENERAL CONTRACTOR IS REQUIRED TO CONTACT THE SI INSPECTOR AS SOON AS RECEIVING A PO FOR THE MODIFICATION INSTALLATION OR TURNKEY PROJECT TO, AT A MINIMUM:

- REVIEW THE REQUIREMENTS OF THE SI CHECKLIST.
- WORK WITH THE SI TO DEVELOP A SCHEDULE TO CONDUCT ON-SITE INSPECTIONS, INCLUDING FOUNDATION INSPECTIONS.
- BETTER UNDERSTAND ALL INSPECTION AND TESTING REQUIREMENTS.

THE GENERAL CONTRACTOR SHALL PERFORM AND RECORD THE TEST AND INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE SI CHECKLIST.

**SPECIAL INSPECTION CHECKLIST**

INSPECTION DOCUMENT	DESCRIPTION	INSPECTION TESTING REQUIRED	RESPONSIBILITY	SI REVIEW REQUIRED			INSPECTION FREQUENCY	
				PRE CX	DURING CX	POST CX	PERIODIC	CONTINUOUS
SPECIAL INSPECTION FIELD WORK & REPORT	DOCUMENTATION AND SITE VISIT CONDUCTED BY AN ATC APPROVED SPECIAL INSPECTOR AS REQUIRED BY ATC AND OTHER AUTHORITIES HAVING JURISDICTION. INSPECTION PARAMETERS TO FOLLOW ATC'S STANDARD SPECIFICATION FOR WIRELESS TOWER SITES.	✓	SI			✓		
ENGINEERING ASSEMBLY DRAWINGS	GC SHALL SUBMIT DRAWINGS TO SI FOR INCLUSION IN SI REPORT	✓	GC	✓				
FABRICATED MATERIAL VERIFICATION & INSPECTION	MTR AND OR MILL CERTIFICATIONS FOR SUPPLIED MATERIALS GC SHALL SUPPLY SI WITH REPORTS TO BE INCLUDED IN SI REPORT WHEN REQUIRED BY ATC	✓	SI	✓				
CERTIFIED WELD INSPECTION	INSPECTION AND REPORT OF STRUCTURAL WELDING PERFORMED DURING PROJECT COMPLETED BY A CWI AND INCLUDED WITHIN SI REPORT		GC / TA					
FOUNDATION INSPECTION & VERIFICATION	VISUAL OBSERVATION AND APPROVAL OF FOUNDATION EXCAVATION, REBAR PLACEMENT, CASING/SHORING/FORMING PLACEMENT, AND ANCHOR TEMPLATE AND ANCHOR PLACEMENT - TO BE SI APPROVED PRIOR TO CONCRETE POUR AND DOCUMENTED IN THE SI REPORT		SI					
ANCHOR, ROCK ANCHOR OR HELICAL PULL-OUT TEST	PULL TESTING OF INSTALLED ANCHORS TO BE COMPLETED AND DOCUMENTED IN SI REPORT		GC / TA					
CONCRETE INSPECTION & VERIFICATION	CONCRETE MIX DESIGN, SLUMP TEST, COMPRESSIVE TESTING, AND SAMPLE GATHERING TECHNIQUES ARE TO BE PROVIDED FOR INCLUSION IN THE SI REPORT. SI SHALL VERIFY CONCRETE PLACEMENT AS REQUIRED BY THE DESIGN DOCUMENTS (INSPECTION FREQUENCY IS MARKED CONTINUOUS)		GC / TA					
DYWIDAG PLACEMENT/ANCHOR BOLT EMBEDMENT - EPOXY/GROUT INSTALL	ANCHOR/BAR EMBEDMENT, HOLE SIZE, EPOXY/GROUT TYPE, INSTALLATION TEMPERATURE AND INSTALLATION SHALL BE VERIFIED BY THE SI AND INCLUDED IN THE SI REPORT		GC / SI					
BASE PLATE GROUT INSPECTION & VERIFICATION	BASE PLATE GROUTING TYPE AND PLACEMENT SHALL BE CONFIRMED BY THE SI AND INCLUDED IN THE SI REPORT		GC / SI					
EARTHWORK INSPECTION & VERIFICATION	EXCAVATION, FILL, SLOPE, GRADE AND OTHER EARTHWORK REQUIREMENTS PER PLANS SHALL BE VERIFIED BY THE SI AND INCLUDED IN THE SI REPORT		GC / TA					
COMPACTION VERIFICATION	CONTRACTOR SHALL PROVIDE AN INDEPENDENT THIRD PARTY CERTIFIED INSPECTION WHICH PROVIDES TEST RESULTS FOR COMPACTION TEST OF SOILS IN PLACE TO ASTM STANDARDS.		GC / TA					
GROUND TESTING & VERIFICATION	GC SHALL PROVIDE DOCUMENTATION SHOWING THAT THE GROUNDING SYSTEM SHALL HAVE A MEASURED RESISTANCE TO THE GROUND OF NOT MORE THAN THE RECOMMENDED 10 OHMS. PER THE ATC CONSTRUCTION SPECIFICATION UNDER SECTION 2.15 THIS DOCUMENTATION MUST BE AN INDEPENDENT CERTIFICATION.		GC					
STEEL CONSTRUCTION INSPECTION & VERIFICATION	VISUAL OBSERVATION AND APPROVAL OF STEEL CONSTRUCTION TO BE PERFORMED BY THE SI. INSPECTION TO INCLUDE VERIFICATION OF NEW CONSTRUCTION OR MODIFICATION OF EXISTING CONSTRUCTION PER ENGINEERED PLANS. DETAILED VERIFICATION SHALL BE INCLUDED IN SI REPORT.	✓	SI			✓	✓	
ON-SITE COLD GALVANIZING VERIFICATION	SI SHALL VERIFY WITH GC ALL COLD GALVANIZATION TYPE AND APPLICATION AND INCLUDE SUMMARY IN SI REPORT	✓	GC			✓	✓	
GUY WIRE TENSIONING & TOWER ALIGNMENT REPORT	GC SHALL PROVIDE SI EVIDENCE OF PROPER GUY TENSIONING AND TOWER PLUMB PER PLANS. SI SHALL VERIFY AND INCLUDE PLUMB AND TENSION REPORTING IN SI REPORT.		GC					
GC AS-BUILT DRAWINGS WITH CONSTRUCTION RED-LINES	GC SHALL SUBMIT "AS-BUILT" DRAWINGS INDICATING ANY APPROVED CHANGES TO ENGINEERED PLANS TO SI FOR APPROVAL/REVIEW AND INCLUSION IN SI REPORT	✓	GC			✓		
SI AS-BUILT DRAWINGS WITH INSPECTION RED-LINES (AS REQUIRED)	SI SHALL SUBMIT "AS-BUILT" DRAWINGS INDICATING ANY APPROVED CHANGES TO ENGINEERED PLANS WITHIN SI REPORT	✓	SI			✓		
TIA INSPECTION	SI SHALL COMPLETE TIA INSPECTION AND PROVIDE SEPARATE TIA INSPECTION DOCUMENTATION TO ATC CM		SI					
PHOTOGRAPHS	PHOTOGRAPHIC EVIDENCE OF SPECIAL INSPECTION, ON SITE REMEDIATION, AND ITEMS FAILING INSPECTION & REQUIRING FOLLOW UP TO BE INCLUDED WITHIN THE SI REPORT. COMPLETE PHOTO LOG IS TO BE SUBMITTED WITHIN SI REPORT.	✓	GC / SI			✓		

NOTE: SPECIAL INSPECTIONS ARE INTENDED TO BE A COLLABORATIVE EFFORT BETWEEN GC AND SI. WHENEVER POSSIBLE GC IS TO PROVIDE SI WITH PHOTOGRAPHIC OR OTHER ACCEPTABLE EVIDENCE OF PROPER INSTALLATION IF PERIODIC INSPECTION FREQUENCY IS ACCEPTABLE. THE GC AND SI SHALL WORK TO COMPILE EVIDENCE OF PROPER CONSTRUCTION AND LIMIT THE NUMBER OF SI SITE VISITS REQUIRED.

TABLE KEY:  
 SI - ATC APPROVED SPECIAL INSPECTOR  
 GC - GENERAL CONTRACTOR  
 TA - 3RD PARTY TESTING AGENCY  
 CX - CONSTRUCTION  
 CM - CONSTRUCTION MANAGER  
 ATC - AMERICAN TOWER CORPORATION



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**A.T. ENGINEERING SERVICE, PLLC**  
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 PHONE: (919) 468-0112  
 COA: PEC.0001553

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:  
**302488**  
 ATC SITE NAME:  
**CNTN - CANTON**  
**CONNECTICUT**  
 SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019



DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

**SPECIAL INSPECTION CHECKLIST**

SHEET NUMBER: **G-003**      REVISION: **0**

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## BILL OF MATERIALS

QUANTITY REQUIRED	QUANTITY PROVIDED	PART NUMBER	DESCRIPTION	LENGTH	SHEET LIST	PART WEIGHT	WEIGHT (lb)	NOTES
<b>#20 DYWIDAG REINFORCEMENT MATERIAL &amp; HARDWARE</b>								
2	2	DYD-20-ATR-30	#20 ALL THREAD ROD 30'	30'-0"	S-501	501.0	1002	GALVANIZED
1	1	DYD-20-ATR-PF	#20 ALL THREAD ROD (PER FT)	14'-0"	S-501	233.8	234	GALVANIZED
1	1	DYD-20-ATR-PF	#20 ALL THREAD ROD (PER FT)	16'-6"	S-501	275.6	276	GALVANIZED
2	2	DYD-20-ATR-PF	#20 ALL THREAD ROD (PER FT)	5'-7"	S-501	93.2	186	GALVANIZED
3	3	DYD-20-COUP-00	#20 COUPLING HDG	----	----	----	----	GALVANIZED
10	10	DYD-20-HN-00	#20 HEX NUT HDG	----	----	----	----	GALVANIZED
4	4	BR-20C	L 6" X 3 1/2" X 3/8"	1'-0"	S-501	12.3	49	CONCENTRIC
22	22	W821-20	W8X21	1'-3"	S-501	27.6	607	#20 T-BRACKET
4	4	W821-8U-S	TERMINATION WELDMENT	2'-5 1/2"	S-501	61.2	245	#20 T-BRACKET
3	3	W821-12U-S	TERMINATION WELDMENT	3'-6 3/4"	S-501	89.1	267	#20 T-BRACKET
4	4	BP-20	PL 1 1/2" X 5"	0'-5"	S-501, Z-502	8.3	33	
1	1	302488-1	TRANSITION BRACKET WELDMENT	4'-8 1/2"	S-501, Z-501	313.0	306	
149	156	UB-580-3125	U-BOLT ASSEMBLIES FOR #20 ROD	----	----	----	----	GALVANIZED
109	114	NG-0625-0875-A490	NEXGEN2 BLIND BOLT ASSEMB., M20 W/ SPRING SLEEVE, A490	----	----	----	----	ALLFASTENERS - 2NG2060
29	34	#20SB	STEP BOLT WELDMENT	0'-7 1/4"	S-504	2.5	85	
						<b>TOTAL WEIGHT (lb)</b>	<b>3,290</b>	



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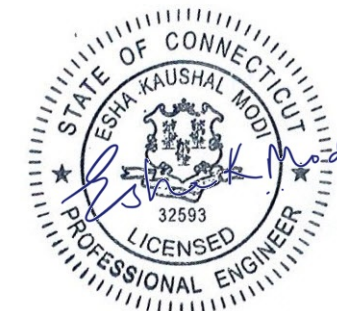
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**CONNECTICUT**

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**BILL OF MATERIALS**

SHEET NUMBER: <b>G-004</b>	REVISION: <b>0</b>
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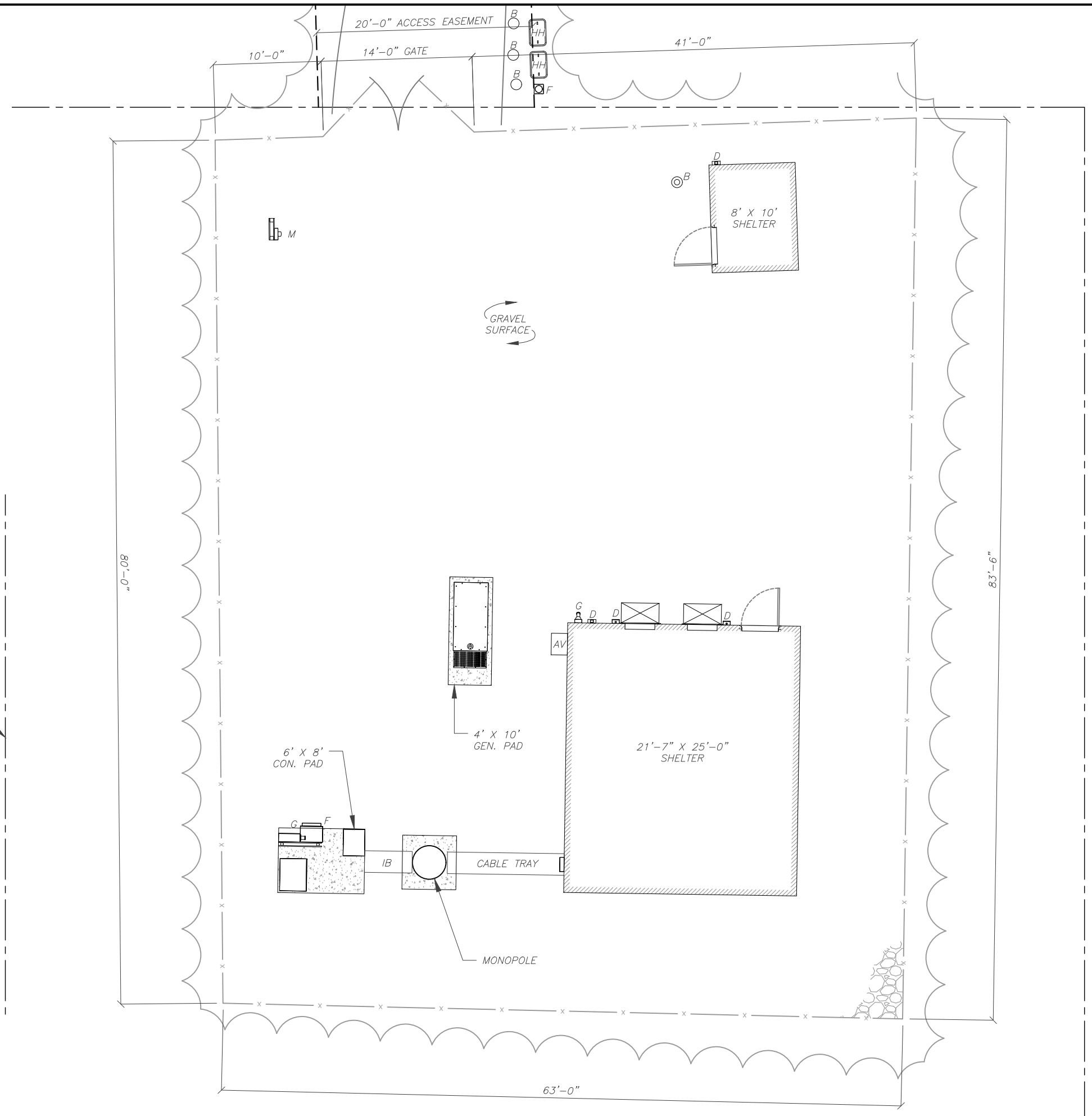
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APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

**DETAILED SITE PLAN**

SHEET NUMBER:	REVISION:
<b>C-101</b>	<b>0</b>

**LEGEND**

⊗	GROUNDING TEST WELL
AV, A/V	AIR VENT
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
C	CABINET
CS	COAX SHROUD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACLE
HH, V	HAND HOLE, VAULT
HFC	HYDROGEN FUEL CELL
HSM	HYDROGEN STORAGE MATERIAL
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
LPG	LIQUID PROPANE GAS
M	METER
OHW	OVERHEAD WIRE
P	POWER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
---	PROPERTY LINE
- - -	ADJACENT PROPERTY LINE
- - - -	LEASE AREA
- - - - -	EASEMENT
○ ○ ○ ○	WOOD FENCE
— — — —	WIRE FENCE
□ □ □ □	METAL FENCE
— — — —	GUARD RAIL
x x x x	CHAINLINK FENCE
— — — —	ROAD (DIRT)
— — — —	ROAD (STONE)
— — — —	ROAD (PAVED)



LEASE AREA  
 BOUNDARY LINE (TYP.)

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CANTON, CT 06019



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ATC JOB NO:	13201406_C6_05

MODIFICATION PROFILE

SHEET NUMBER:	REVISION:
S-201	0

EL: 150.0'  
[TOP OF STRUCTURE]

SECTION 4

EL: 110.0'

SECTION 3

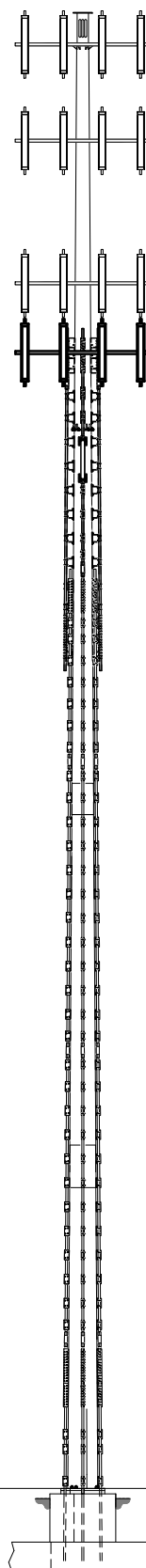
EL: 73.5'

SECTION 2

EL: 35.7'

SECTION 1

EL: 0.0'  
[BOTTOM OF STRUCTURE]



INSTALL (2) DYWIDAG  
#20 ALL THREAD RODS  
FROM EL: 84.9'± TO 120.5'± &  
INSTALL (1) DYWIDAG  
#20 ALL THREAD ROD  
FROM EL: 95.5'± TO 120.5'±.  
SEE SHEETS S-501 TO S-504  
FOR INSTALLATION DETAILS.

VERIZON WIRELESS  
EL: 118.0' [PROPOSED]

TOWER ELEVATION VIEW

NOTES:

1. PROPOSED VERIZON WIRELESS COAX TO BE INSTALLED INSIDE MONOPOLE.
2. BASE FLANGE WELD AND STIFFENER PLATE WELDS (WHEN PRESENT) ARE TO BE INSPECTED VISUALLY AND BY NDT METHODS BY A CERTIFIED WELD INSPECTOR WITH NDT LEVEL II CERTIFICATION. RESULTS ARE TO BE SENT TO [PMI@AMERICANTOWER.COM](mailto:PMI@AMERICANTOWER.COM).
3. CONTACT AMERICAN TOWER FIELD OPERATIONS WHEN EXISTING EQUIPMENT INTERFERES WITH INSTALLATION OF MODIFICATIONS. ONCE APPROVED, EXISTING EQUIPMENT MAY BE TEMPORARILY MOVED DURING INSTALLATION & REINSTALLED TO THE ORIGINAL HEIGHT & LOCATION BY CONTRACTOR POST COMPLETION OF MODIFICATIONS.



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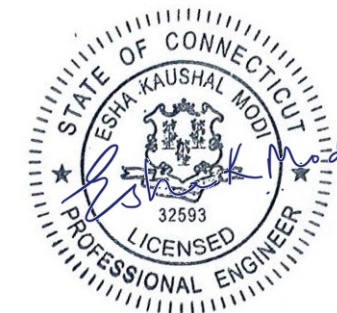
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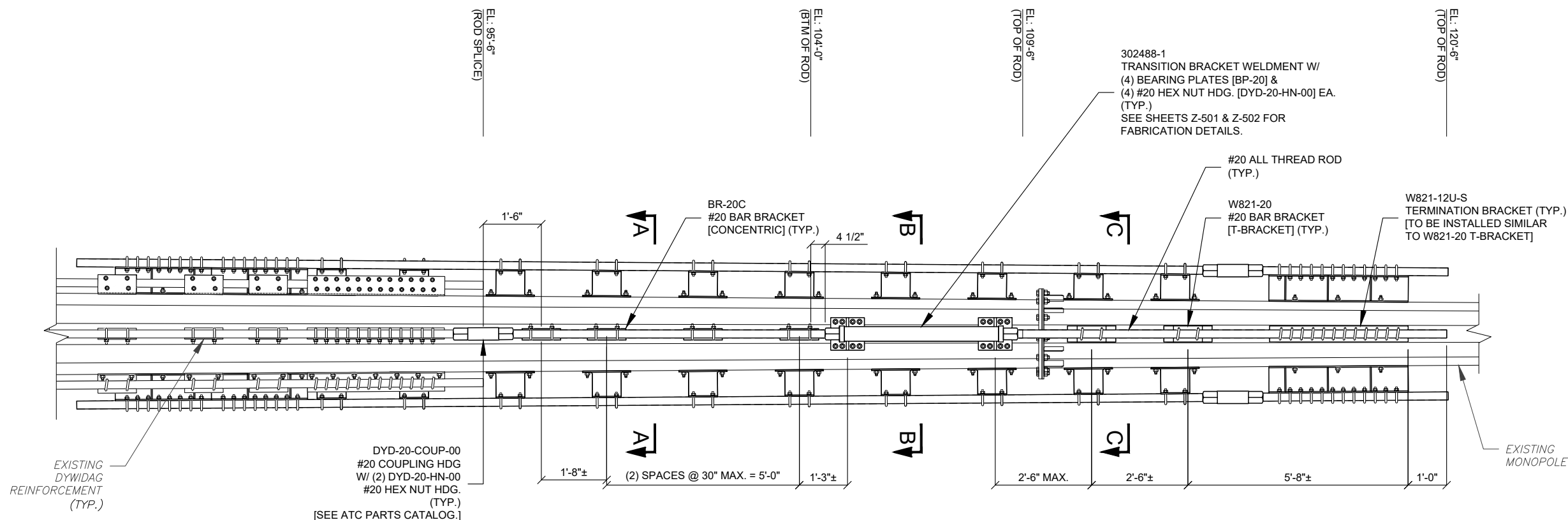


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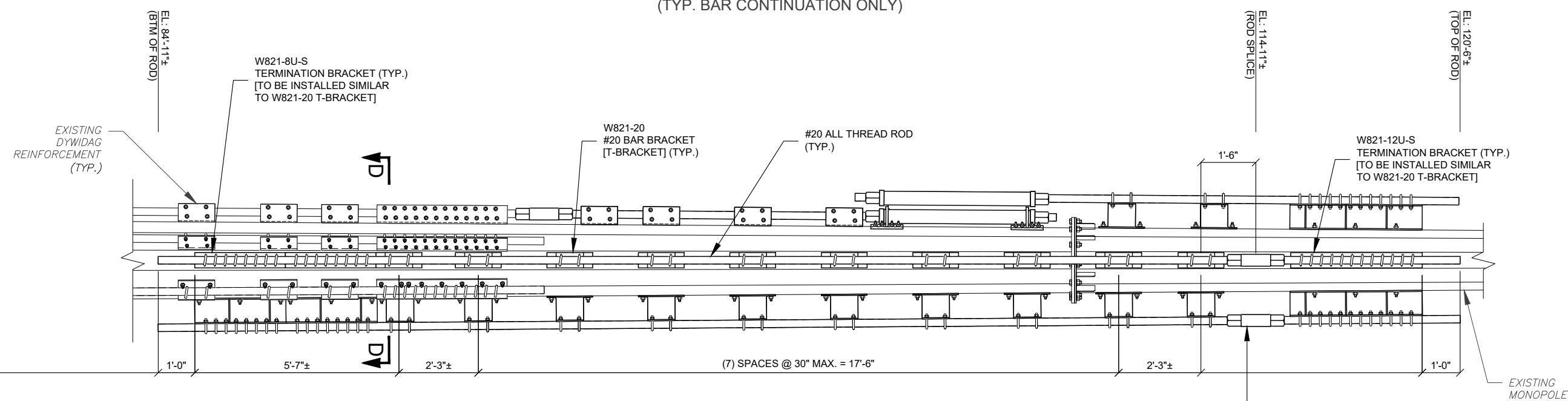
**REINFORCEMENT  
INSTALLATION DETAILS**

SHEET NUMBER:  
**S-501**

REVISION:  
**0**



ELEVATION VIEW  
#20 BAR BRACKET SPACING DETAIL  
(TYP. BAR CONTINUATION ONLY)



ELEVATION VIEW  
#20 BAR BRACKET SPACING DETAIL  
(TYP. [2] STANDALONE BAR LOCATIONS)

- NOTES:**
1. REPLACE ANY EXISTING STEP BOLTS THAT INTERFERE WITH THE NEW #20 ALL THREAD ROD REINFORCEMENTS. THE NEW STEP BOLTS SHALL BE ATTACHED TO THE #20 ALL THREAD RODS IN THE SAME APPROXIMATE LOCATION. SEE SHEET S-504 FOR INSTALLATION DETAILS.
  2. PLACE A BRACKET (W821-20 OR BR-20C) DIRECTLY ABOVE AND BELOW ANY EXISTING PORTHOLE AS REQUIRED.
  3. SEE SHEET S-503 FOR #20 ALL THREAD ROD BRACKET INSTALLATION DETAILS.
  4. NG-0938-1438-A490 NEXGEN2 BOLT KITS ARE SUPPLIED AS REQUIRED FOR BAR BRACKET CONNECTIONS THAT FALL WITHIN SLIP JOINT LOCATIONS.



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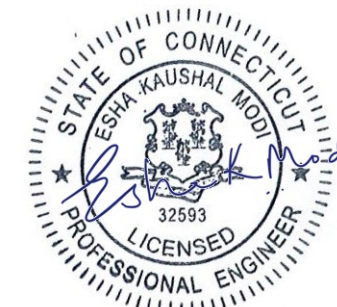
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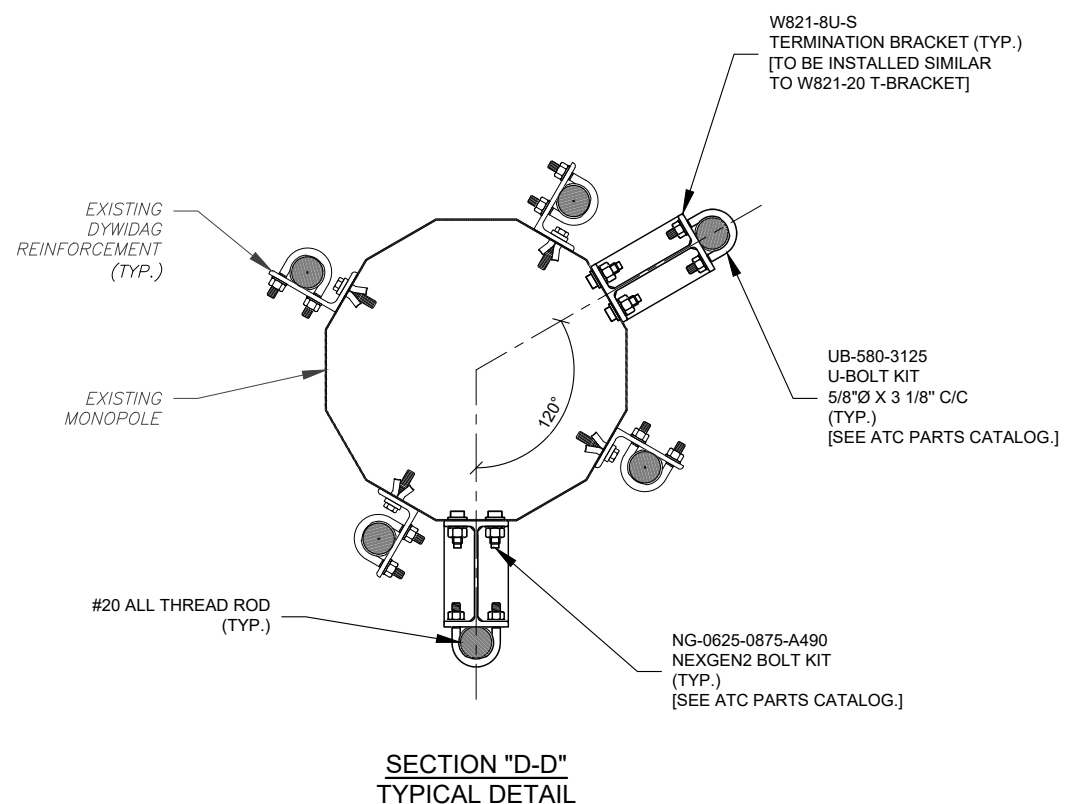
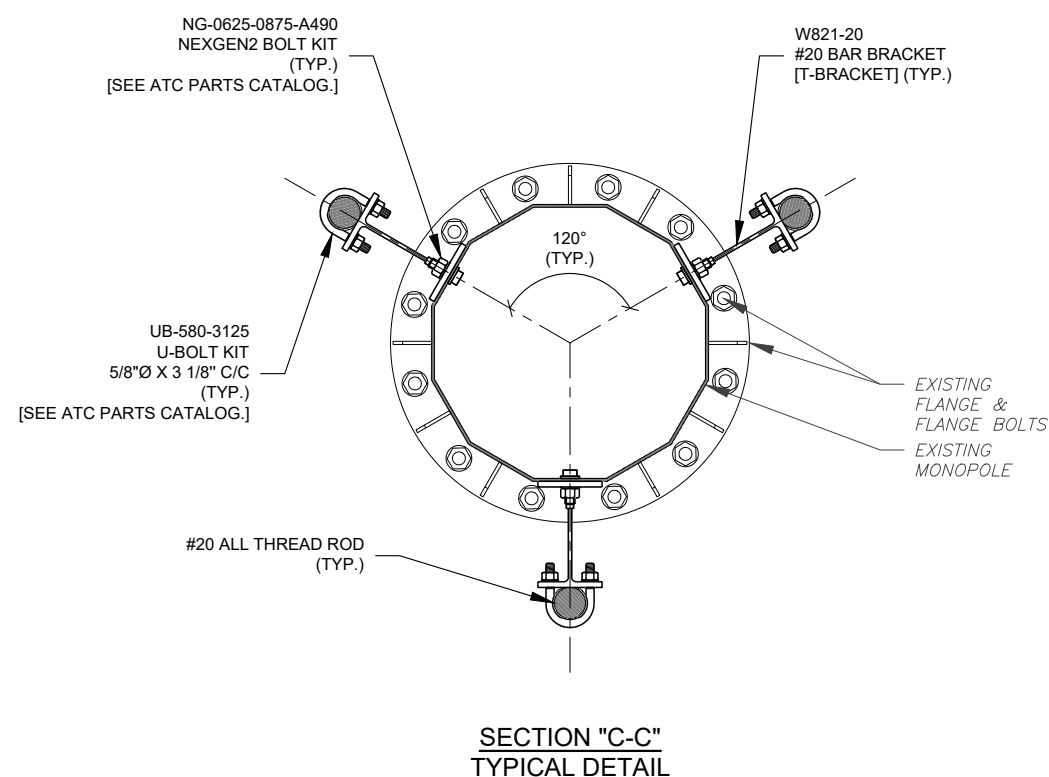
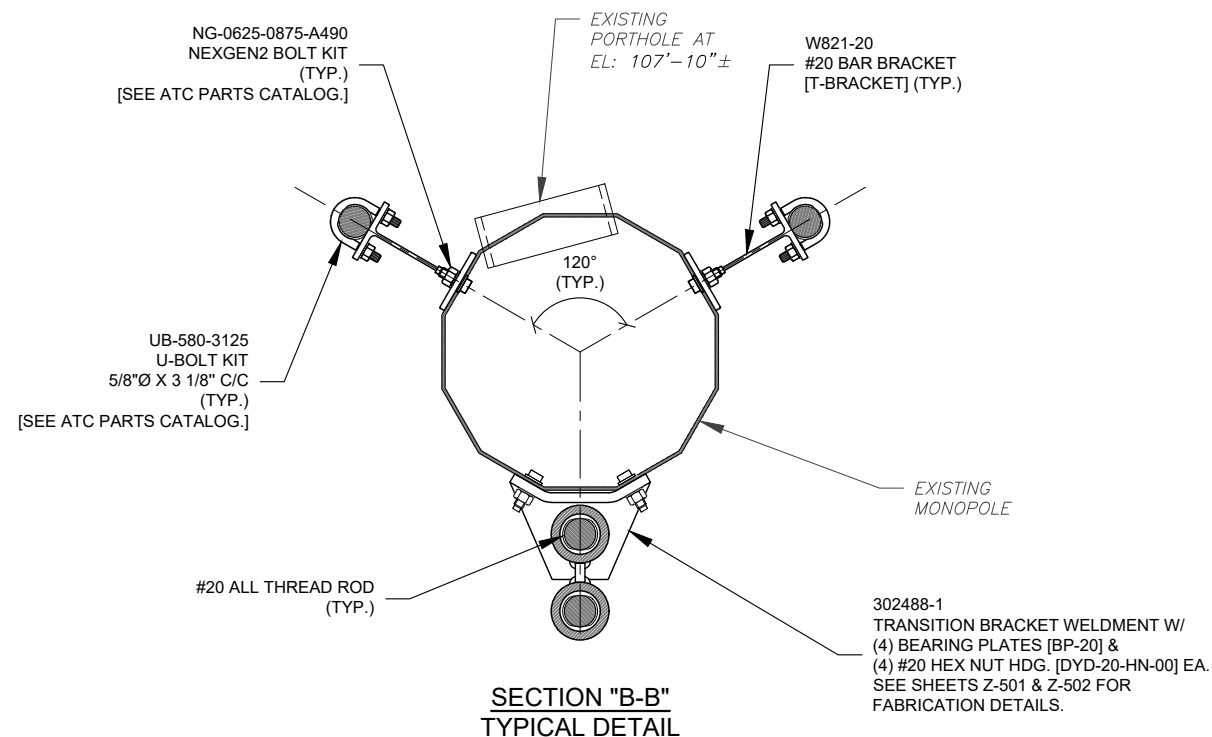
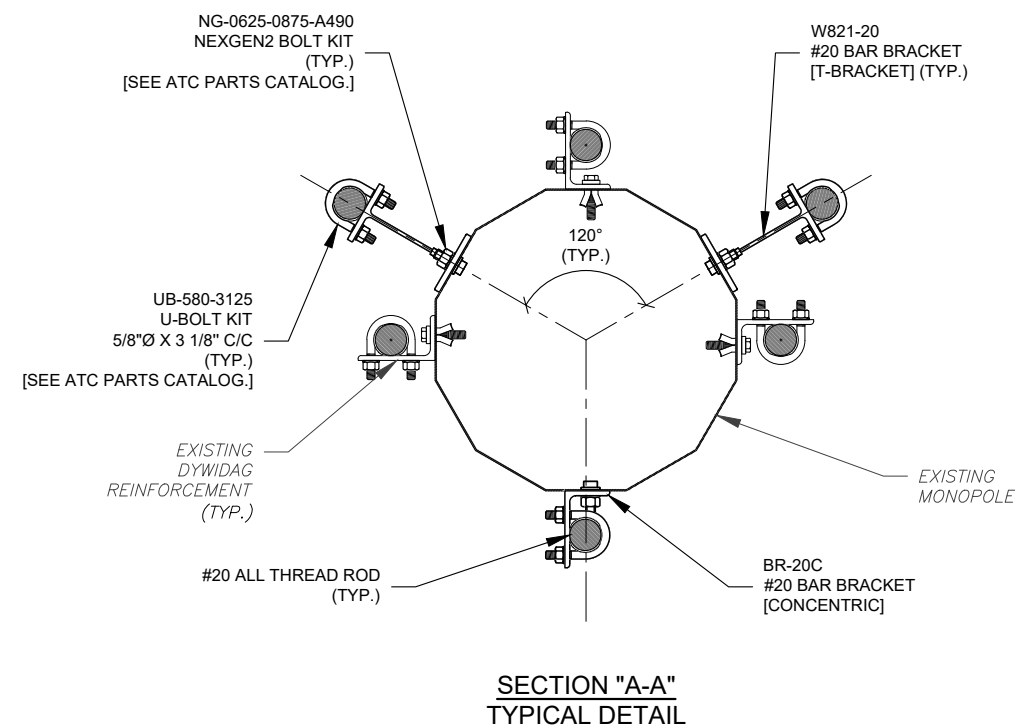


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**REINFORCEMENT  
 INSTALLATION DETAILS**

SHEET NUMBER:  
**S-502**

REVISION:  
**0**





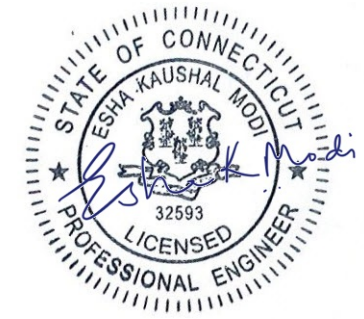


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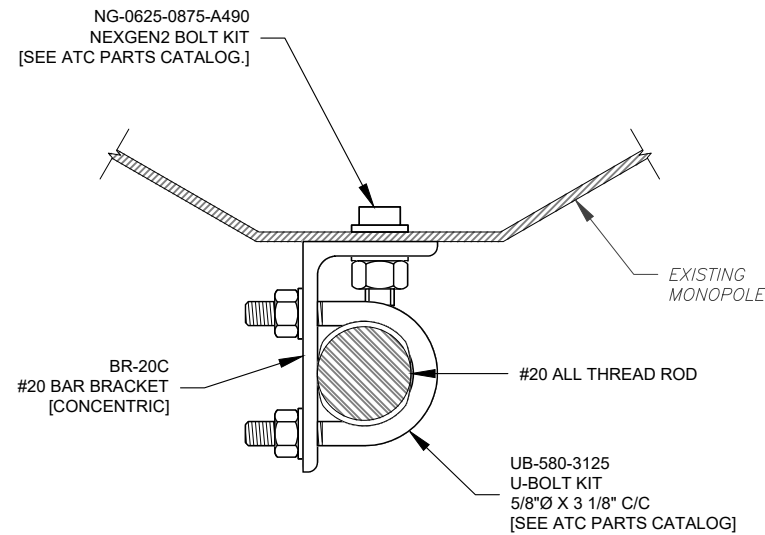
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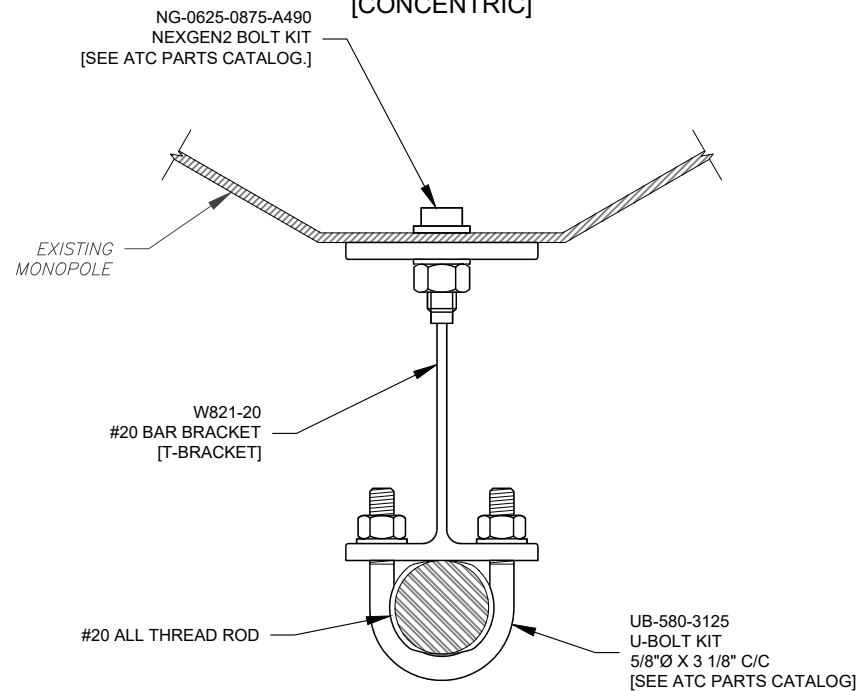
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**REINFORCEMENT  
 INSTALLATION DETAILS  
 (CONT'D)**

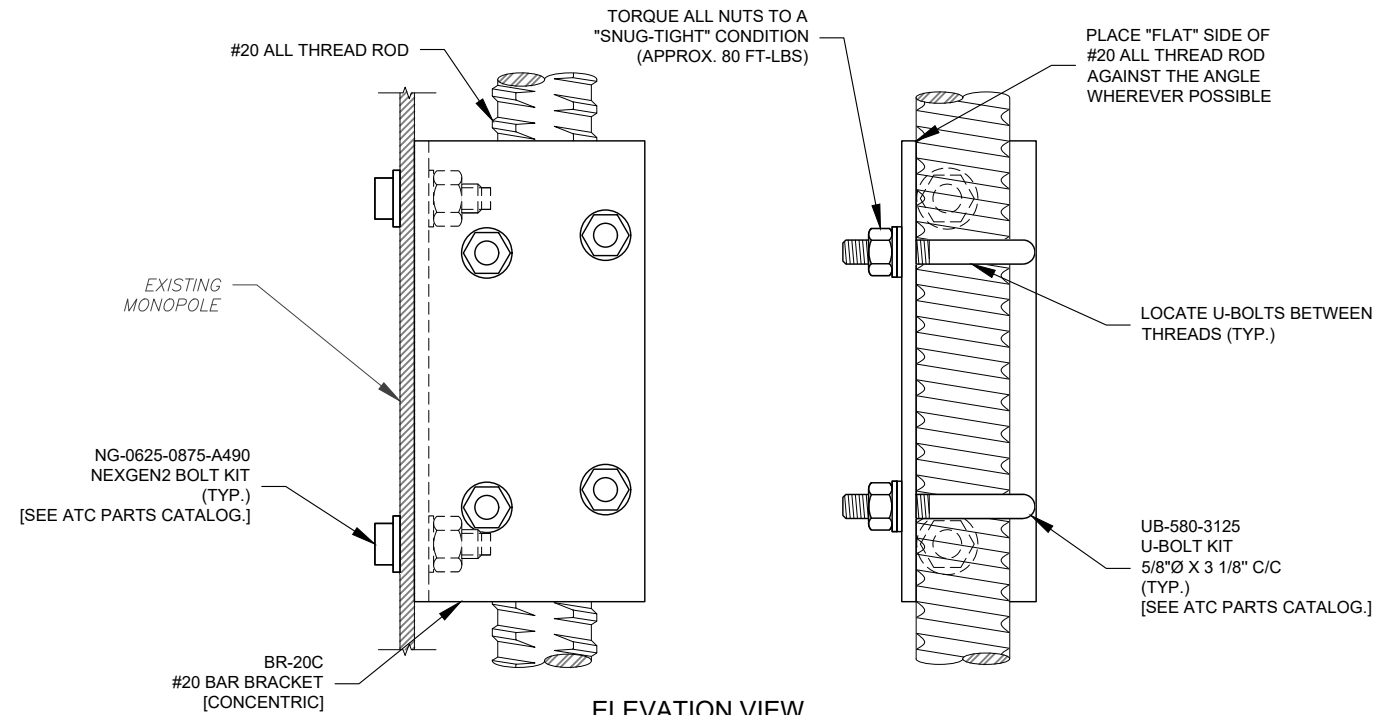
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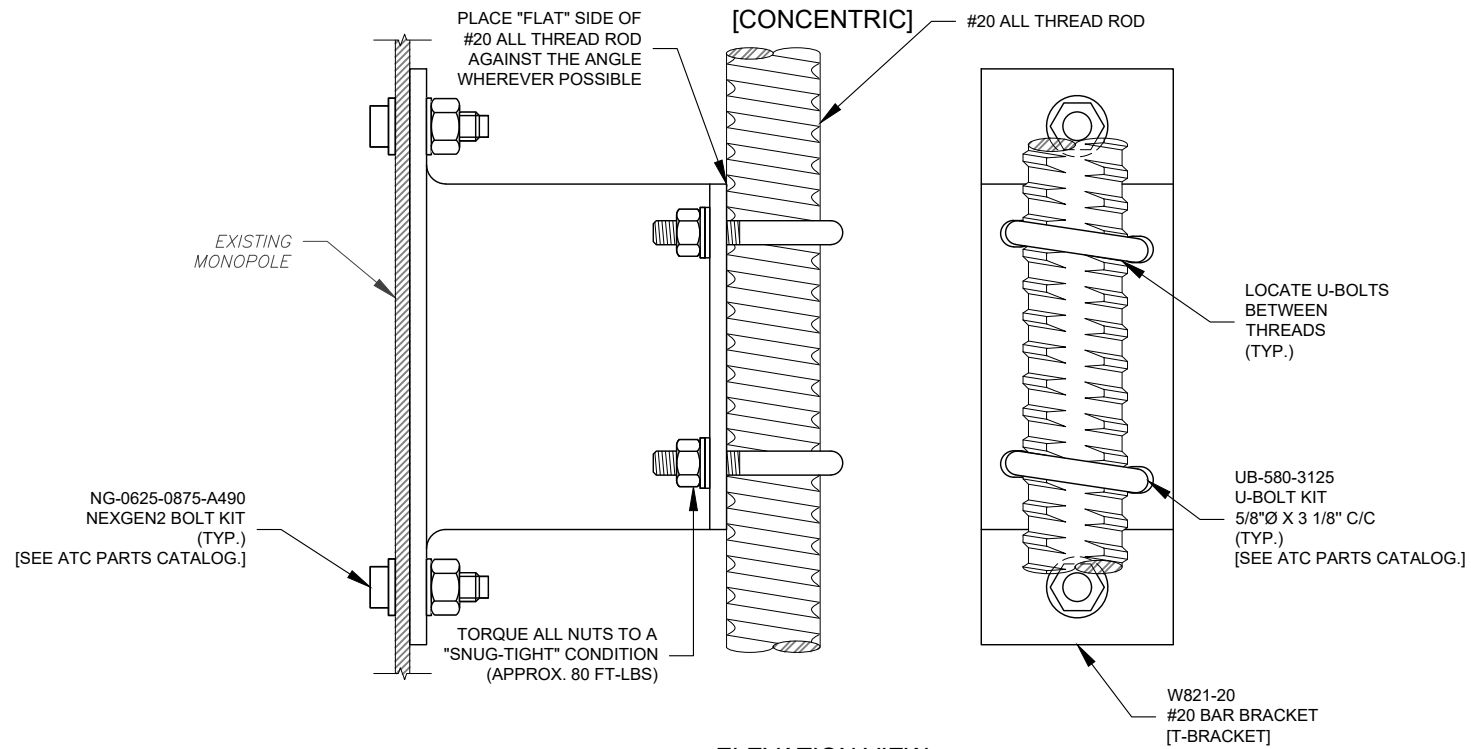
**PLAN VIEW  
 #20 BAR BRACKET ORIENTATION  
 [CONCENTRIC]**



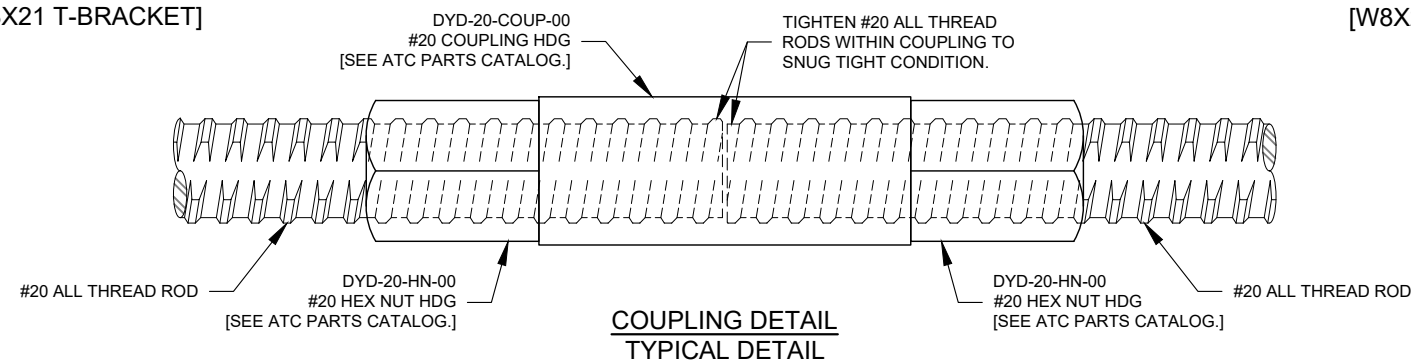
**PLAN VIEW  
 #20 BAR BRACKET ORIENTATION  
 [W8X21 T-BRACKET]**



**ELEVATION VIEW  
 #20 BAR BRACKET ORIENTATION  
 [CONCENTRIC]**



**ELEVATION VIEW  
 #20 BAR BRACKET ORIENTATION  
 [W8X21 T-BRACKET]**



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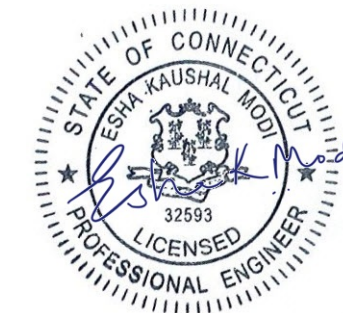


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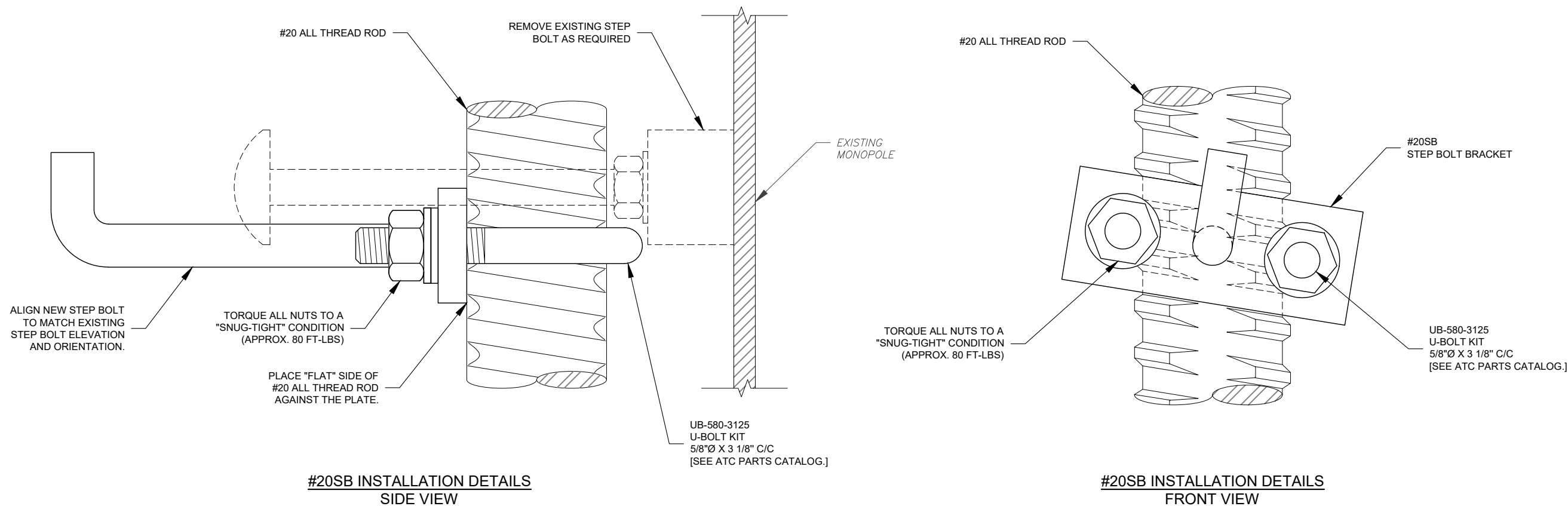


DRAWN BY:	LPG
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**#20 STEP BOLT BRACKET  
 INSTALLATION DETAILS**

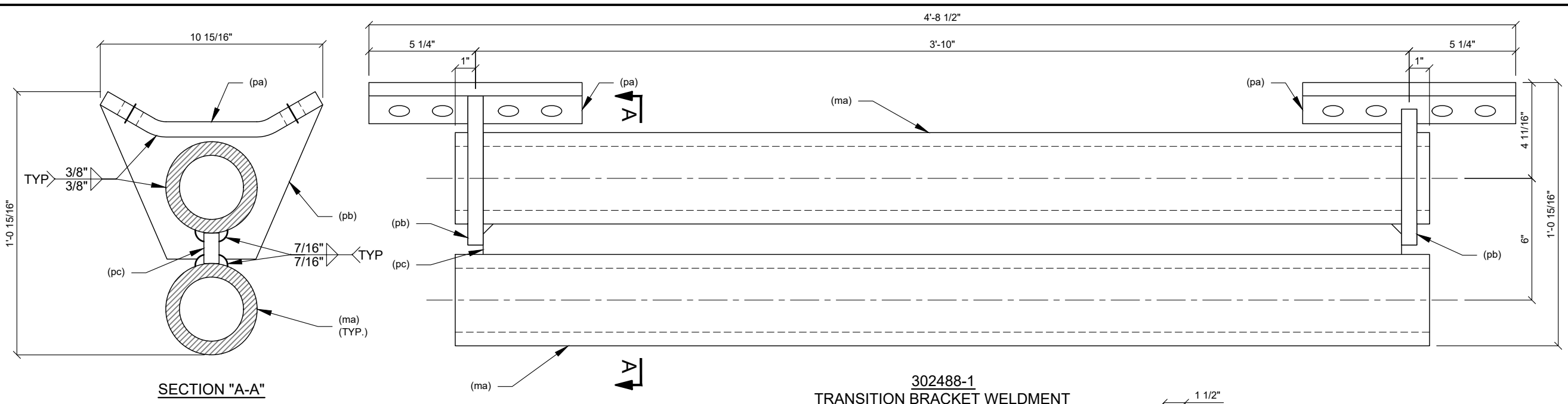
SHEET NUMBER:  
**S-504**

REVISION:  
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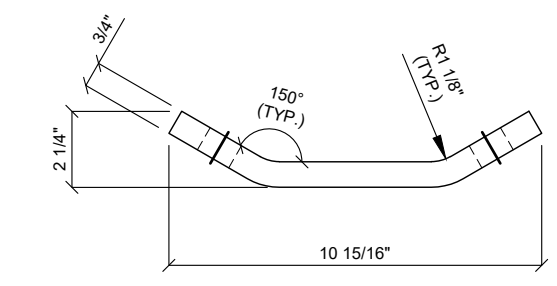
**NOTE:**  
 STEP PEG SPACING IS NOT TO EXCEED 15" MAX. STAGGERED OR 30" MAX. ON ANY SINGLE SIDE OF THE DYWIDAG BAR.

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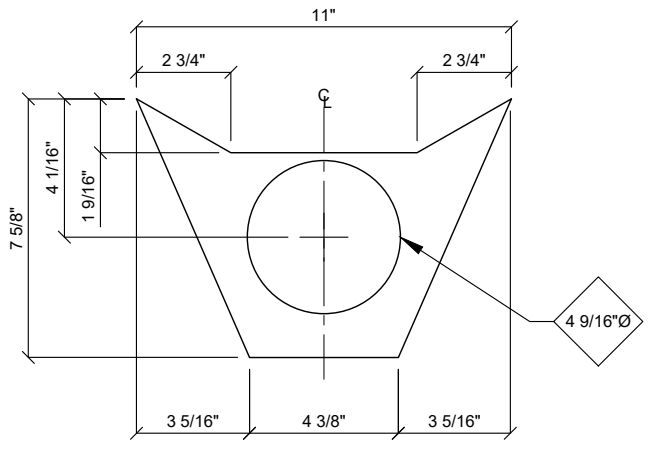


SECTION "A-A"

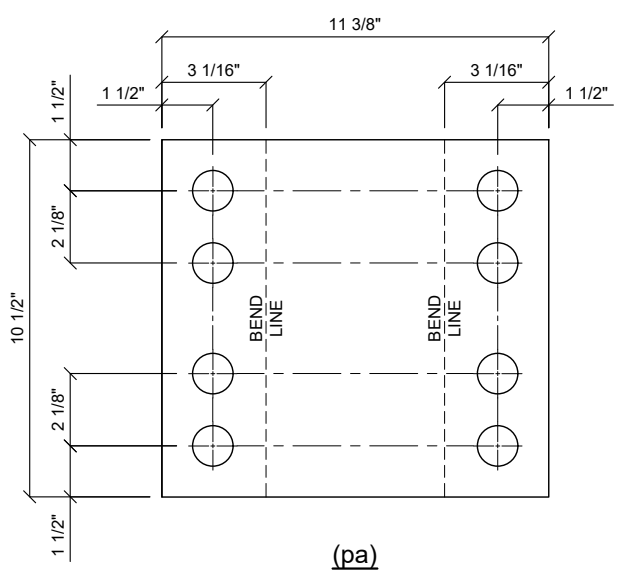
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TRANSITION BRACKET WELDMENT



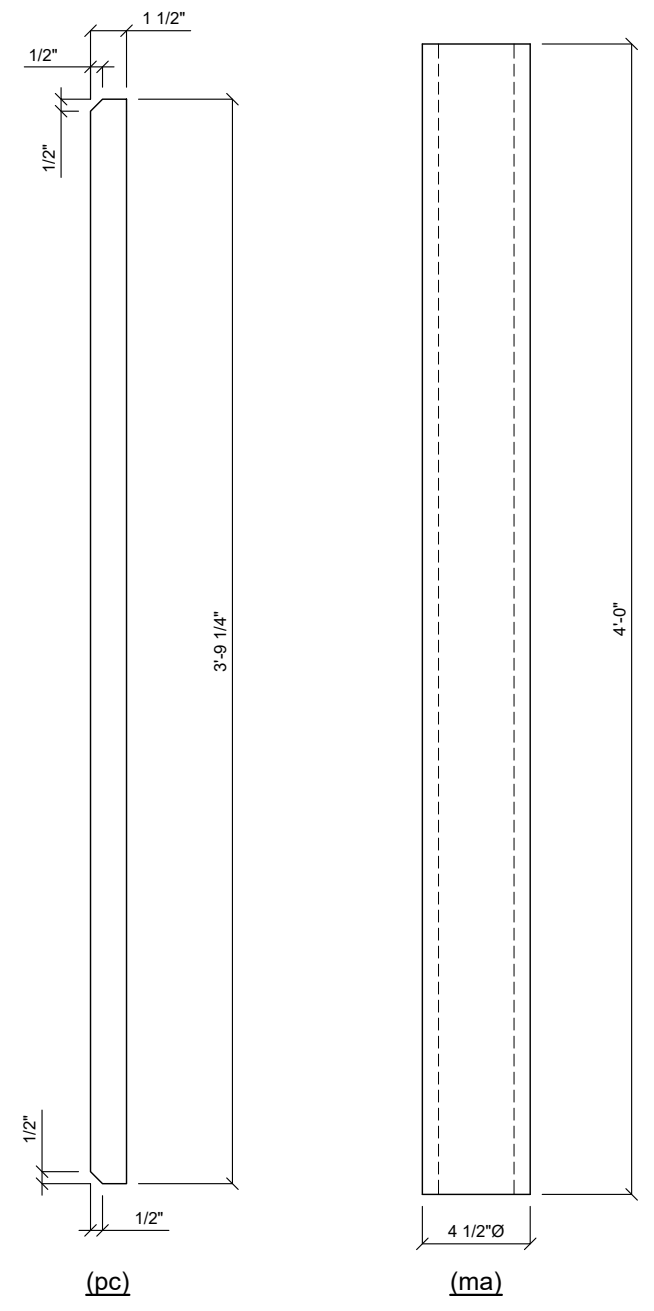
(pa)  
BENT VIEW



(pb)



(pa)  
FLAT PLAN VIEW



(pc)

(ma)

PART NO.	QTY	DESCRIPTION	LENGTH	NOTES	BLK WT
(ma)	2	PIPE 4.500" OD X 0.074"	4'-0"	A53 GR. B	220.3#
(pc)	1	PL 3/4" X 1 1/2"	3'-9 1/4"		14.4#
(pb)	2	PL 3/4" X 7 5/8"	0'-11"	SHAPE	12.6#
(pa)	2	PL 3/4" X 10 1/2"	0'-11 3/8"		50.8#
302488-1	1	TRANSITION BRACKET WELDMENT	4'-8 1/2"		298.1#
<b>MATERIAL:</b>		A572 GR. 50 U.N.O.	<b>FINISH:</b> GALVANIZED	<b>HOLES:</b> 1 3/16"Ø U.N.O.	<b>GALV WT:</b> 313.0#

**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:  
**302488**

ATC SITE NAME:  
**CNTN - CANTON**

CONNECTICUT

SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019



DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

TRANSITION BRACKET  
 WELDMENT  
 FABRICATION DETAILS

SHEET NUMBER:	REVISION:
<b>Z-501</b>	<b>0</b>

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	LPG	07/08/20

ATC SITE NUMBER:  
**302488**

ATC SITE NAME:  
**CNTN - CANTON**  
**CONNECTICUT**

SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019

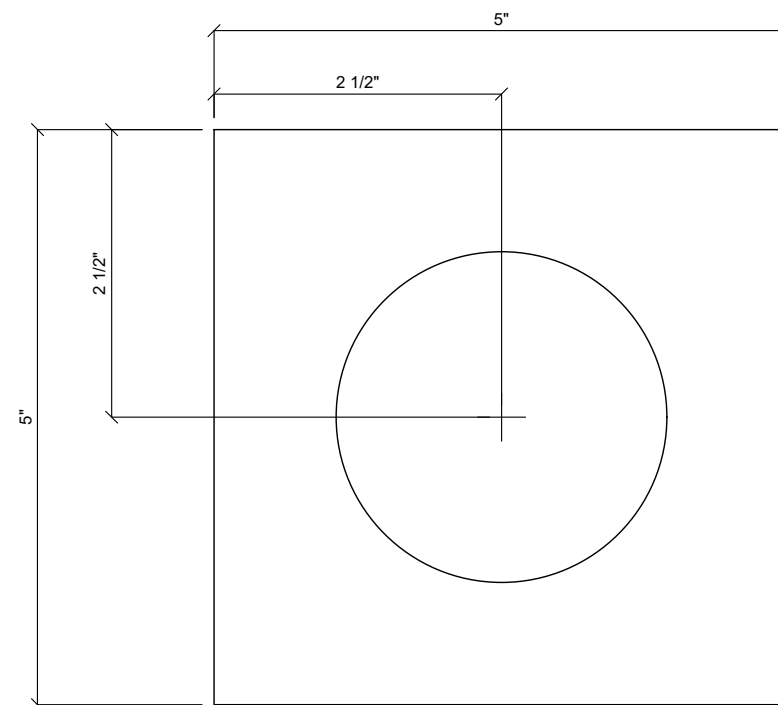


DRAWN BY:	LPG
APPROVED BY:	IPD
DATE DRAWN:	07/08/20
ATC JOB NO:	13201406_C6_05

**#20 BEARING PLATE**  
**FABRICATION DETAILS**

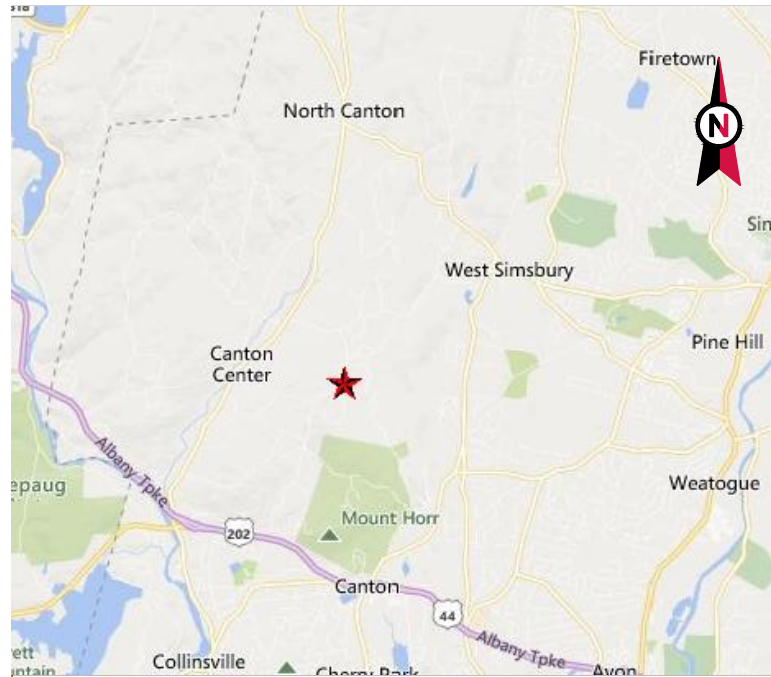
SHEET NUMBER:  
**Z-502**

REVISION:  
**0**



**BP-20**  
**BEARING PLATE**

PART NO.	DESCRIPTION	LENGTH	NOTES	BLK WT	GALV WT
BP-20	PL 1 1/2" X 5"	0'-5"		7.9#	8.3#
<b>MATERIAL: A572 GR. 50</b>		<b>FINISH: GALVANIZED</b>		<b>HOLES: 2 7/8"Ø</b>	



VICINITY MAP




**AMERICAN TOWER®**

ATC SITE NAME: CNTN - CANTON  
 ATC SITE NUMBER: 302488  
 VERIZON SITE NAME: CANTON 3 CT  
 VERIZON SITE NUMBER: 467157  
 SITE ADDRESS: 4 HOFFMANN ROAD  
 CANTON, CT 06019



LOCATION MAP

**VERIZON WIRELESS  
 COLLOCATION PLAN**

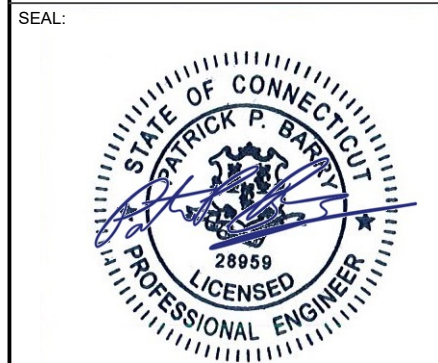


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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20
1	MOUNT NAME	TR	08/05/20

ATC SITE NUMBER:  
**302488**  
 ATC SITE NAME:  
**CNTN - CANTON**  
 SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019



DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**TITLE SHEET**

SHEET NUMBER:  
**G-001**

REVISION:  
**1**

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.  1. INTERNATIONAL BUILDING CODE (IBC) 2. NATIONAL ELECTRIC CODE (NEC) 3. LOCAL BUILDING CODE 4. CITY/COUNTY ORDINANCES	<u>SITE ADDRESS:</u>  4 HOFFMANN ROAD CANTON, CT 06019 COUNTY: HARTFORD  <u>GEOGRAPHIC COORDINATES:</u>  LATITUDE: 41.85527778 LONGITUDE: -72.8925 GROUND ELEVATION: 784' AMSL	THE PROPOSED PROJECT INCLUDES PLACING EQUIPMENT CABINETS ON A PROPOSED CONCRETE PAD INSIDE A 12' X 30' GROUND SPACE WITHIN THE EXISTING COMPOUND, AND PLACING NEW ANTENNAS ON A PROPOSED PLATFORM MOUNTED TO THE EXISTING TOWER.	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<u>PROJECT TEAM</u>  <u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801  <u>ENGINEER:</u> ATC TOWER SERVICES, LLC 3500 REGENCY PKWY STE 100 CARY, NC 27518  <u>PROPERTY OWNER:</u> JAMES H HART & KATHERINE E HART 90 PARK RD BARKHAMSTED, CT 06063	<u>PROJECT NOTES</u>  1. THE FACILITY IS UNMANNED.  2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.  3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.  4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.  5. HANDICAP ACCESS IS NOT REQUIRED.	G-001 TITLE SHEET G-002 GENERAL NOTES V-101 EXISTING SURVEY V-102 EXISTING SURVEY C-101 DETAILED SITE PLAN C-102 TOWER ELEVATION C-501 ANTENNA INFORMATION & SCHEDULE C-502 CONSTRUCTION DETAILS C-503 CONSTRUCTION DETAILS C-504 CONSTRUCTION DETAILS C-505 CONSTRUCTION DETAILS E-101 GROUNDING PLAN AND SCHEMATIC E-102 ONE-LINE & PANEL SCHEDULE E-501 GROUNDING DETAILS E-502 GROUNDING DETAILS R-601 SUPPLEMENTAL				
<u>UTILITY COMPANIES</u>  POWER COMPANY: CONNECTICUT LIGHT & POWER PHONE: (800) 286-2000  TELEPHONE COMPANY: AT&T PHONE: (800) 288-2020	<u>PROJECT LOCATION DIRECTIONS</u>  I-84 TO RT 179 N. FOLLOW 179 TO CANTON CENTER. TURN RIGHT ON EAST HILL RD. FOLLOW FOR A COUPLE OF MILES. TOWER IS ON THE RIGHT.						



Know what's below.  
 Call before you dig.



**GENERAL CONSTRUCTION NOTES:**

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC MASTER SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE VERIZON REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE VERIZON REP PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE VERIZON REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
12. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE VERIZON CONSTRUCTION MANAGER.
13. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
14. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE VERIZON REP IMMEDIATELY.
15. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
16. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
17. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH LANDLORD AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
18. CONTRACTOR SHALL FURNISH VERIZON WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
19. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH VERIZON REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.
20. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH VERIZON REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY VERIZON MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
21. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH VERIZON SPECIFICATIONS AND REQUIREMENTS.
22. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO VERIZON FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
23. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO VERIZON SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
24. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
25. CONTRACTOR SHALL NOTIFY VERIZON REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
26. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
27. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY

THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.

28. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE VERIZON REP. ANY WORK FOUND BY THE VERIZON REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
29. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.

**CONCRETE AND REINFORCING STEEL NOTES:**

1. DESIGN AND CONSTRUCTION OF ALL CONCRETE ELEMENTS SHALL CONFORM TO THE LATEST EDITIONS OF ALL APPLICABLE CODES INCLUDING: ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", ACI 117 "SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS", AND ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
2. MIX DESIGN SHALL BE APPROVED BY VERIZON REP PRIOR TO PLACING CONCRETE.
3. CONCRETE SHALL BE NORMAL WEIGHT, 6 % AIR ENTRAINED (+/- 1.5%) WITH A SLUMP RANGE OF 3-6" AND HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 4000 PSI UNLESS OTHERWISE NOTED.
4. THE FOLLOWING MATERIALS SHALL BE USED:  
 PORTLAND CEMENT: ASTM C 150, TYPE 2  
 REINFORCEMENT: ASTM A 185, PLAIN STEEL WELDED WIRE FABRIC  
 REINFORCEMENT BARS: ASTM A 615, GRADE 60, DEFORMED  
 NORMAL WEIGHT AGGREGATE: ASTM C 33  
 WATER: ASTM C 94/C 94M  
 ADMIXTURES:  
 -WATER-REDUCING AGENT: ASTM C 494/C 494M, TYPE A  
 -AIR-ENTERING AGENT: ASTM C 260/C 260M  
 -SUPERPLASTICIZER: ASTM C 494, TYPE F OR TYPE G  
 -RETARDING: ASTM C 494/C 494M, TYPE B
5. MINIMUM CONCRETE COVER FOR REINFORCING STEEL SHALL BE NO LESS THAN 3".
6. A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE IN ACCORDANCE WITH ACI 301 SECTION 4.2.4, UNLESS NOTED OTHERWISE.
7. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL, OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR VERIZON REP APPROVAL WHEN DRILLING HOLES IN CONCRETE.
8. ADMIXTURES SHALL CONFORM TO THE APPROPRIATE ASTM STANDARD AS REFERENCED IN "METHOD 1" OF ACI 301.
9. DO NOT WELD OR TACK WELD REINFORCING STEEL.
10. ALL DOWELS, ANCHOR BOLTS, EMBEDDED STEEL, ELECTRICAL CONDUITS, PIPE SLEEVES, GROUNDS AND ALL OTHER EMBEDDED ITEMS AND FORMED DETAILS SHALL BE IN PLACE BEFORE START OF CONCRETE PLACEMENT.
11. REINFORCEMENT SHALL BE COLD BENT WHENEVER BENDING IS REQUIRED.
12. DO NOT PLACE CONCRETE IN WATER, ICE, OR ON FROZEN GROUND.
13. DO NOT ALLOW REINFORCEMENT, CONCRETE OR SUBBASE TO FREEZE DURING CONCRETE CURING AND SETTING PERIOD, OR FOR A MINIMUM OF 3 DAYS AFTER PLACEMENT.
14. FOR COLD-WEATHER(ACI 306) AND HOT-WEATHER(ACI 301M) CONCRETE PLACEMENT, CONFORM TO APPLICABLE ACI CODES AND RECOMMENDATIONS. IN EITHER CASE, MATERIALS CONTAINING CHLORIDE, CALCIUM, SALTS, ETC. SHALL NOT BE USED. PROTECT FRESH CONCRETE FROM WEATHER FOR 7 DAYS, MINIMUM.
15. ALL CONCRETE SHALL HAVE A "SMOOTH FORM FINISH."
16. UNLESS OTHERWISE NOTED:  
 A. ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615/A 615M/A-996, GRADE 60.  
 B. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
17. SPLICING OF REINFORCEMENT IS PERMITTED ONLY AT LOCATIONS SHOWN IN THE CONTRACT DRAWINGS OR AS ACCEPTED BY THE ENGINEER. UNLESS OTHERWISE SHOWN OR NOTED REINFORCING STEEL SHALL BE SPLICED TO DEVELOP ITS FULL TENSILE CAPACITY (CLASS A) IN ACCORDANCE WITH ACI 318.
18. REINFORCING BAR DEVELOPMENT LENGTHS, AS COMPUTED IN ACCORDANCE WITH ACI 318, FORM THE BASIS FOR BAR EMBEDMENT LENGTHS AND BAR SPLICED LENGTHS SHOWN IN THE

DRAWINGS. APPLY APPROPRIATE MODIFICATION FACTORS FOR TOP STEEL, BAR SPACING, COVER AND THE LIKE.

19. DETAILING OF REINFORCING STEEL SHALL CONFORM TO "ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" (ACI 315).
20. ALL SLAB CONSTRUCTION SHALL BE CAST MONOLITHICALLY WITHOUT HORIZONTAL CONSTRUCTION JOINTS, UNLESS SHOWN IN THE CONTRACT DRAWINGS.
21. LOCATION OF ALL CONSTRUCTION JOINTS ARE SUBJECT TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, CONFORMANCE WITH ACI 318, AND ACCEPTANCE OF THE ENGINEER. DRAWINGS SHOWING LOCATION OF DETAILS OF THE PROPOSED CONSTRUCTION JOINTS SHALL BE SUBMITTED WITH REINFORCING STEEL PLACEMENT DRAWINGS.
22. SPLICES OF WWF, AT ALL SPLICED EDGES, SHALL BE SUCH THAT THE OVERLAP MEASURED BETWEEN OUTERMOST CROSS WIRES OF EACH FABRIC SHEET IS NOT LESS THAN THE SPACING OF THE CROSS WIRE PLUS 2 INCHES, NOR LESS THAN 6".
23. BAR SUPPORTS SHALL BE ALL-GALVANIZED METAL WITH PLASTIC TIPS.
24. ALL REINFORCEMENT SHALL BE SECURELY TIED IN PLACE TO PREVENT DISPLACEMENT BY CONSTRUCTION TRAFFIC OR CONCRETE. TIE WIRE SHALL BE OF SUFFICIENT STRENGTH FOR INTENDED PURPOSE, BUT NOT LESS THAN NO. 18 GAUGE.
25. SLAB ON GROUND:  
 A. COMPACT STRUCTURAL FILL TO 95% DENSITY AND THEN PLACE 6" GRAVEL BENEATH SLAB.  
 B. PROVIDE VAPOR BARRIER BENEATH SLAB ON GROUND.

**STRUCTURAL STEEL NOTES:**

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
2. STRUCTURAL STEEL ROLLED SHAPES, PLATES AND BARS SHALL CONFORM TO THE FOLLOWING ASTM DESIGNATIONS:  
 A. ASTM A-572, GRADE 50 - ALL W SHAPES, UNLESS NOTED OR A992 OTHERWISE  
 B. ASTM A-36 - ALL OTHER ROLLED SHAPES, PLATES AND BARS UNLESS NOTED OTHERWISE.  
 C. ASTM A-500, GRADE B - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND)  
 D. ASTM A-325, TYPE SC OR N - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS  
 E. ASTM F-1554 07 - ALL ANCHOR BOLTS, UNLESS NOTED OTHERWISE
3. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
4. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES AND GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.
5. DO NOT DRILL HOLES THROUGH STRUCTURAL STEEL MEMBERS EXCEPT AS SHOWN AND DETAILED ON STRUCTURAL DRAWINGS.
6. CONNECTIONS:  
 A. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.  
 B. ALL WELDS SHALL BE INSPECTED VISUALLY. 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.  
 C. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.  
 D. IT IS THE CONTRACTORS RESPONSIBILITY TO PROVIDE BURNING/WELDING PERMITS AS REQUIRED BY LOCAL GOVERNING AUTHORITY AND IF REQUIRED SHALL HAVE FIRE DEPARTMENT DETAIL FOR ANY WELDING ACTIVITY.  
 E. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.  
 F. MINIMUM WELD SIZE TO BE 0.1875 INCH FILLET WELDS, UNLESS NOTED OTHERWISE.  
 G. PRIOR TO FIELD WELDING GALVANIZING MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.



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**A.T. ENGINEERING SERVICE, PLLC**  
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REV.	DESCRIPTION	BY	DATE
△	FOR CONSTRUCTION	IC	05/06/20
△			
△			
△			
△			

ATC SITE NUMBER:

**302488**

ATC SITE NAME:

**CNTN - CANTON**

SITE ADDRESS:

4 HOFFMANN ROAD  
 CANTON, CT 06019

SEAL:



DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**GENERAL NOTES**

SHEET NUMBER:

**G-002**

REVISION:

**0**



# CANTON CT - 0024



### ELEVATION DATUM

TOWER TYPE: MONOPOLE  
 ALL ELEVATIONS ARE BASED ON NAVD 1988 DATUM (+/-)  
 GROUND ELEVATION: 784'  
 STRUCTURE HEIGHT: 155.1' ABOVE GROUND LEVEL  
 ELEVATION OF TOP OF TOWER: 939.1'  
 ELEVATION OF HIGHEST POINT: 942.6'

### LATITUDE & LONGITUDE

LATITUDE AND LONGITUDE OF EXISTING TOWER IS BASED ON THE NAD 1983.

LATITUDE: 41° 51' 19.0"  
 LONGITUDE: 72° 53' 33.0"

BASIS OF BEARINGS:  
 NORTH AMERICAN DATUM (NAD83)

THIS IS TO CERTIFY THAT THE GEOGRAPHICAL LOCATION SHOWN ABOVE IS ACCURATE TO WITHIN PLUS OR MINUS 15' HORIZONTALLY AND PLUS OR MINUS 3' VERTICALLY.

### SURVEY LEGEND

- ⊕ BENCHMARK
- X 1000.0 SPOT ELEVATION
- P.O.B. POINT OF BEGINNING
- P.O.C. POINT OF COMMENCEMENT
- OHW OVERHEAD WIRE
- CP CONCRETE PAD

### FLOOD NOTE:

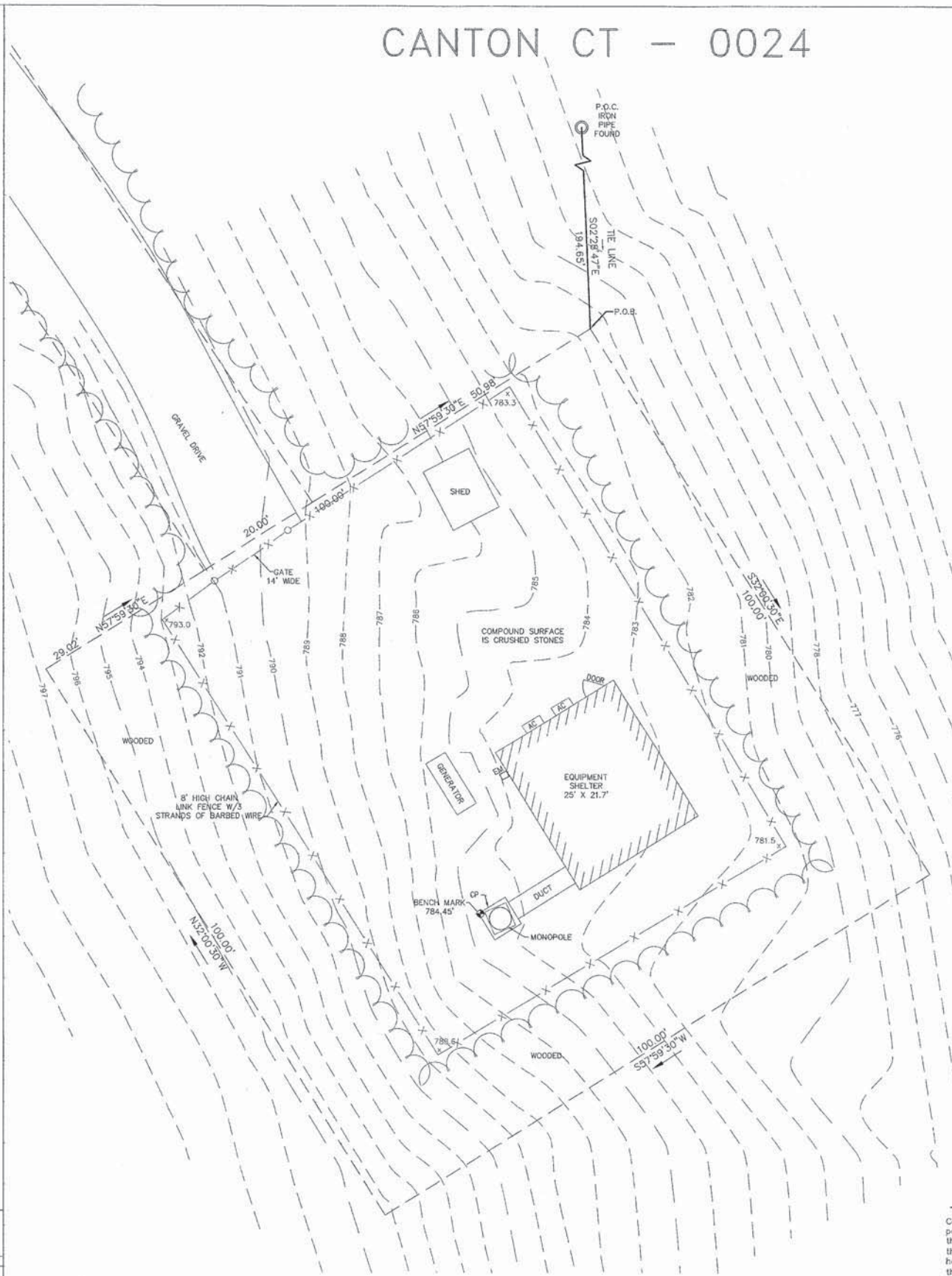
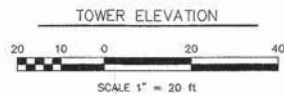
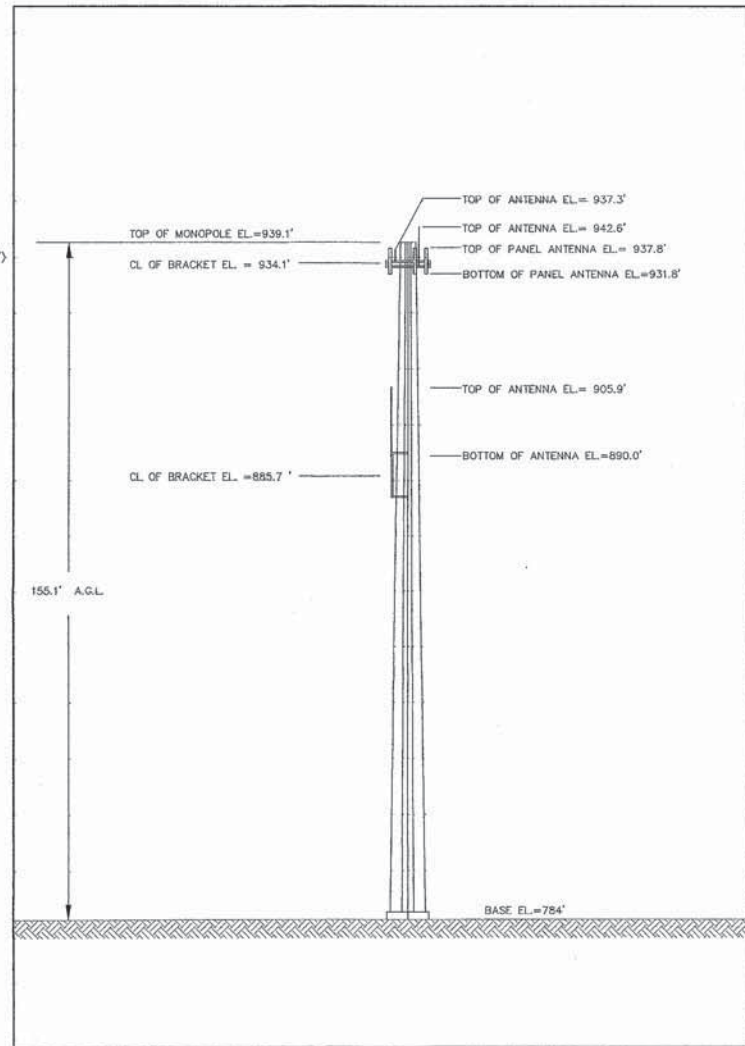
BY GRAPHIC PLOTTING ONLY, SUBJECT PREMISES ARE IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 090135 0001 C, WHICH BEARS AN EFFECTIVE DATE OF 03/19/91 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

### UTILITY NOTE:

THE UTILITIES AS SHOWN ON THIS DRAWING WERE DEVELOPED FROM THE INFORMATION AVAILABLE, THIS IS NOT IMPLIED NOR INTENDED TO BE THE COMPLETE INVENTORY OF UTILITIES IN THIS AREA. IT IS THE CLIENT'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES (WHETHER SHOWN OR NOT) AND PROTECT SAID UTILITIES FROM ANY DAMAGE.

### GENERAL NOTES:

1. ACCORDING TO THE TITLE COMMITMENT PROVIDED, THE OWNER OF THE PARENT PARCEL IS HERMAN A. AND EDITH L. HOFFMAN.
2. LINEAR MEASUREMENT OF CHAIN LINK FENCE AROUND COMPOUND IS 292', COMPRISING AN AREA OF 5,245 SQUARE FEET.
3. THE LEASE AREA LIES WHOLLY WITHIN THE PARENT PARCEL.



COMPOUND PLAN VIEW



### LEASE AREA LEGAL DESCRIPTION-AS SURVEYED

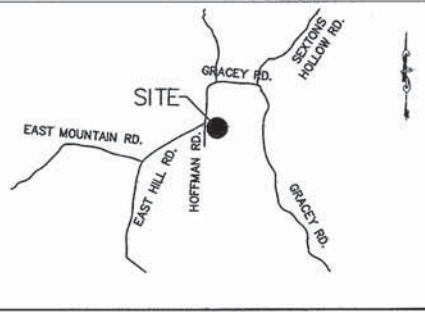
Commencing at an iron pipe at an angle in the northerly line of the parent parcel, said point being 89.13 feet easterly of the northwest lot corner of the parent parcel;  
 thence, S 02° 28' 47" E, 194.65 feet to the point of beginning of the herein described lease area;  
 thence, S 32° 00' 30" E, 100.00 feet to a point;  
 thence, S 57° 59' 30" W, 100.00 feet to a point;  
 thence, N 32° 00' 30" W, 100.00 feet to a point;  
 thence, N 57° 59' 30" E, 100.00 feet to the point of beginning.  
 Containing 10,000 square feet.



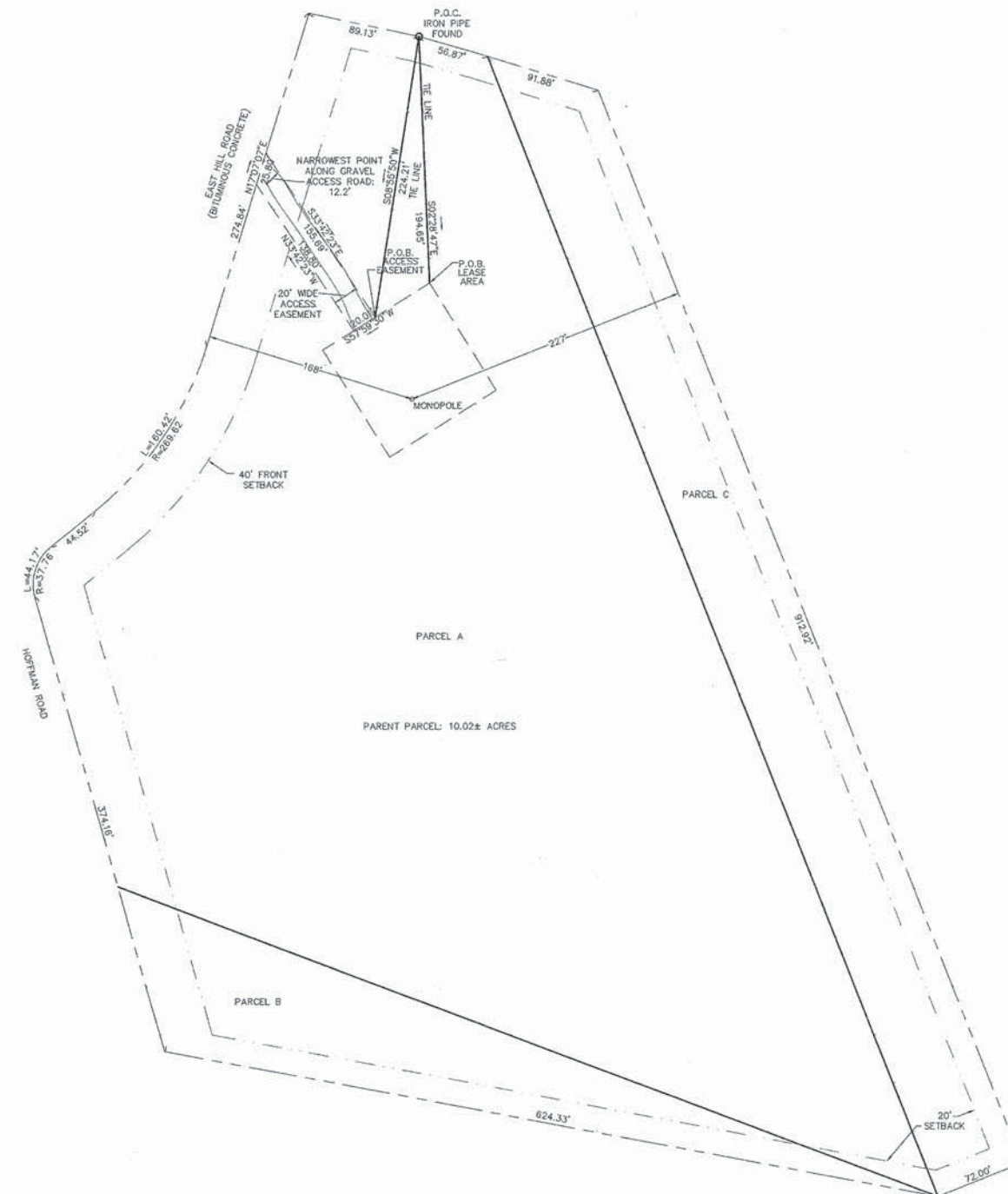
Work Coordinated by:  1254 MAIN STREET WALTHAM, MA 02451 TELEPHONE 781.853.6477 FAX 781.853.7091	Surveyor:  PREPARED BY <b>CONECO</b> Engineers, Scientists & Land Surveyors 4 First Street - Bridgewater, Massachusetts 02324 Telephone: (508) 697-3191 Toll free: (800) 548-3355 Facsimile: (508) 697-5998	SHEET 1 of 2 Date 12/11/01 Dwn. By TSB Apprd. By CTC Dwg. No. 1409 Proj. No. 1409 REVISIONS DESCRIPTION: DATE:
SPECTRASITE CONSTRUCTION AS-BUILT LAND SURVEY SCOPE REVISION 1		



# CANTON CT - 0024



VICINITY MAP  
NOT TO SCALE



### ACCESS EASEMENT LEGAL DESCRIPTION-AS SURVEYED

Commencing at an iron pipe at an angle in the northerly line of the parent parcel, said point being 89.13 feet easterly of the northwest lot corner of the parent parcel;  
 thence, S 08° 55' 50" W, 224.21 feet to the point of beginning of the herein described 20 foot wide access easement;  
 thence, S 57° 59' 30" W, 20.00 feet to a point;  
 thence, N 33° 42' 23" W, 138.80 feet to a point on the easterly line of East Hill Road;  
 thence, N 17° 07' 07" E, along said easterly line, 25.80 feet to a point;  
 thence, S 33° 42' 23" E, 155.69 feet to the point of beginning.

### ZONING DATA

ZONE: AR-3 (AGRICULTURAL RESIDENTIAL)  
 SETBACKS:  
 FRONT: 40'  
 REAR: 20'  
 SIDE: 20'

### PARENT PARCEL LEGAL DESCRIPTION-AS PROVIDED

A certain piece or parcel of land, containing 10.022 acres, more or less, with the buildings and improvements thereon, situated in the Town of Canton, County of Hartford and State of Connecticut, and being shown as Parcels A, B and C on a map entitled "Map of Land Owned By Herman & Edith L. Hoffmann Hoffman Road & East Hill Road Canton, Conn. Scale: 1" = 40' Oct. 1983" which map is certified substantially correct by B. Nascimbeni and Robert E. Johns, Surveyors and a copy of which map is to be filed in the Canton Town Clerk's office; said premises are more particularly bounded and described as follows:

Commencing at a point on the southeast highway line of East Hill Road, which point marks a northerly corner of the premises herein described and a westerly corner of land now or formerly of Ruth G. Small, thence running S 58° 13' 30" E, 89.13 feet; thence running south 54° 04' 40" E, 56.87 feet; thence running S 53° 15' 46" E, 91.88 feet, said first three courses being along land now or formerly of Ruth G. Small, being the center line of a stone wall; thence running S 1° 40' 16" E, 912.92 feet; thence running S 88° 19' 44" W, 72.0 feet; thence running N 59° 28' 58" W, 624.33 feet, the last three courses being along other land of the Grantors; thence running N 4° 05' 36" E, along the easterly highway line of Hoffman Road, 374.16 feet; thence on a curve to the right having a radius of 37.76 feet and marking the intersection of Hoffman Road and East Hill Road, 44.17 feet; thence running N 71° 06' 37" E, 44.52 feet; thence on a curve to the left having a radius of 269.62 feet for a distance of 160.42 feet; thence running N 37° 01' 09" E, 274.84 feet, to the point or place of beginning, the last three courses being along the southeasterly highway line of East Hill Road; and being bounded:

- Northeasterly by land now or formerly of Ruth G. Small;
- Easterly and Southwesterly by other land of the Grantors herein;
- Westerly by Hoffman Road; and
- Northwesterly by East Hill Road.

And being a portion of the premises conveyed to the Grantors herein by Quit Claim Deed of Ernest A. Hoffmann dated April 30, 1942 and recorded in Volume 38 at Page 44 of the Canton Land Records; Bessie L. Hoffmann hereby releasing her life use of the herein-described premises which was reserved in said deed of Ernest A. Hoffmann.

Parcel A, which lies within the herein-described premises, was previously conveyed by the following Quit Claim Deeds recorded in the Canton Land Records; James C. Hoffmann, et al, to Herman A. Hoffmann dated June 13, 1946 and recorded in Volume 41 at Page 85; James C. Hoffmann, et al, to Herman A. Hoffmann dated September 19, 1958 and recorded in Volume 55 at Page 217; Herman A. Hoffmann to Helen S. Kilburn dated September 19, 1958 and recorded in Volume 55 at Page 218; and Helen S. Kilburn to Herman A. Hoffmann and Edith L. Hoffmann dated September 19, 1958 and recorded in Volume 55 at Page 219.

### ACCESS NOTE

Access to the site is gained by turning southeasterly onto a gravel drive off of East Hill Road which is a public way. The narrowest width of the gravel access drive is 12.2 feet.

### NOTES CORRESPONDING TO SCHEDULE B:

THE COMMITMENT FOR TITLE INSURANCE ISSUED BY FIRST AMERICAN TITLE INSURANCE COMPANY DATED DECEMBER 21, 2000 CONTAINS THE FOLLOWING EXCEPTIONS WHICH ARE SURVEY MATTERS:  
 There are no schedule B items that affect the lease area or the access easement.

### SURVEYOR'S CERTIFICATE:

I, **CHARLES T. CAMP** DO HEREBY CERTIFY TO SPECTRASITE COMMUNICATIONS, INC., **FIRST AMERICAN TITLE INSURANCE COMPANY**, THAT THIS SURVEY WAS MADE ON THE GROUND UNDER MY PERSONAL SUPERVISION AND THAT THIS IS A TRUE, CORRECT REPRESENTATION OF THE FACTS AS FOUND AT THIS TIME OF THE SURVEY, AND MORE SPECIFICALLY, I SO HEREBY CERTIFY THAT THE SURVEY CONFORMS TO THE CONDITIONS AND STIPULATIONS AS CHECKED (X) BELOW (NOTE: ON LEASED PARCELS, "SUBJECT PROPERTY" IS DEFINED AS THE LEASED PREMISES AND ITS APPURTENANT EASEMENTS; AND THIS SURVEY SHALL NOT BE CONSTRUED AS A FULL BOUNDARY SURVEY OF THE PARENT TRACT):

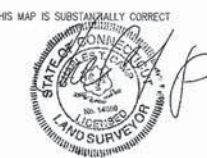
- (X) 1. CORRECTLY SHOWS THE LOCATION AND DIMENSION OF ALL ALLEYS, STREETS, ROADS, RIGHTS-OF-WAY, EASEMENTS AND OTHER MATTERS OF RECORD WHICH THE SURVEYOR HAS BEEN ADVISED AFFECTS THE SUBJECT PROPERTY (EACH HAS BEEN IDENTIFIED BY INSTRUMENT VOLUME AND PAGE NUMBER IF AVAILABLE).
- (X) 2. EXCEPT AS SHOWN THERE ARE NO VISIBLE EASEMENTS, RIGHTS-OF-WAY, PARTY WALLS OR CONFLICTS.
- (X) 3. ACCESS IS CONTIGUOUS BETWEEN THE SUBJECT PROPERTY AND A PUBLIC RIGHT-OF-WAY, AS SHOWN.
- (X) 4. THE LEGAL DESCRIPTION DEPICTED HEREON IS THE SAME DEMISED IN THE TITLE COMMITMENT OR CURRENT LEASE REFERENCED HEREON.
- (X) 5. SURVEY MEETS OR EXCEEDS THE MINIMUM TECHNICAL STANDARDS FOR AS-BUILT LAND SURVEYS SET FORTH BY CONNECTICUT STATE LAW.

**CHARLES T. CAMP** DATE: 12/11/01  
 CT LICENSED LAND SURVEYOR #14650  
 NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL SEAL OF A CONNECTICUT LICENSED SURVEYOR.

THIS MAP AND SURVEY WERE PREPARED IN ACCORDANCE WITH SECTIONS THROUGH 20-300B-20, OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT", PREPARED AND ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996. IT IS A "COMPILATION PLAN" AND CONFORMS TO HORIZONTAL ACCURACY "CLASS D". THIS PLAN WAS PREPARED FROM RECORD RESEARCH, OTHER MAPS, LIMITED FIELD MEASUREMENTS AND OTHER SOURCES. IT IS NOT TO BE CONSTRUED AS A PROPERTY/BOUNDARY OR LIMITED PROPERTY/BOUNDARY SURVEY AND IS SUBJECT TO SUCH FACTS AS SURVEYS MAY DISCLOSE. THE TOPOGRAPHIC INFORMATION SHOWN HEREON HAS BEEN FIELD LOCATED AND INTERPOLATED AND CONFORMS TO "CLASS 1-2" ACCURACY. ELEVATIONS ARE BASED ON NAVD83 DATUM.

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

CHARLES T. CAMP, L.S. #14650

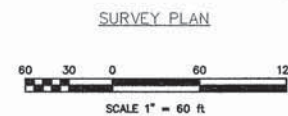


SHEET 2 of 2

Date	12/11/01
Drawn By	TSP
Acquired By	CTC
Drawn No.	1409
Proj. No.	1409

REVISIONS	
DESCRIPTION	DATE

Work Coordinated by:  134 MAIN STREET WALTHAM, MASSACHUSETTS TELEPHONE: (781) 861-6777 FAX: (781) 861-1091	Surveyor:  PREPARED BY <b>CONECO</b> Engineers, Scientists & Land Surveyors 4 First Street - Bridgewater, Massachusetts 02324 Telephone: (508) 697-3191 Toll free: (800) 548-3355 Facsimile: (508) 697-9406	SPECTRASITE CONSTRUCTION AS-BUILT LAND SURVEY SCOPE REVISION 1
Prepared For:  100 REGENCY FOREST DRIVE, SUITE 400 CARY, NC. 27511	Project Location: CANTON, CT Project Address: 4 HOFFMAN RD. Site Name: CNTN-CANTON SpectraSite Number: CT-0024	SHEET 2 of 2



**SITE PLAN NOTES:**

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.

LEGEND	
⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
x	CHAINLINK FENCE

**1 DETAILED SITE PLAN**

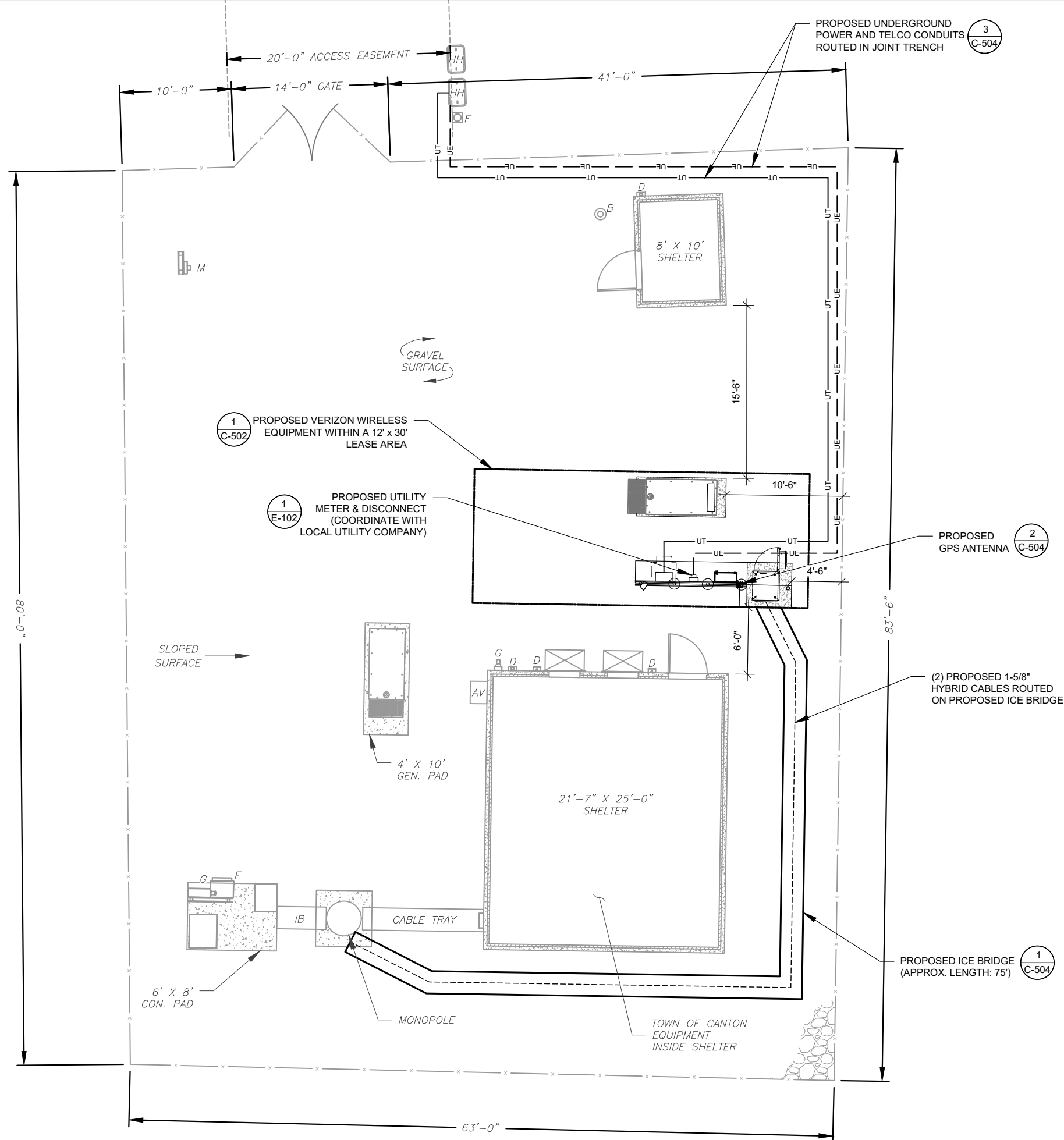


SCALE: 1"=10' (11X17)  
1"=5' (22X34)



**PROPOSED CABLE LENGTH:**

1. ESTIMATED LENGTH OF PROPOSED CABLE IS 220'. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES). CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.



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**A.T. ENGINEERING SERVICE, PLLC**  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20
1			
2			
3			

ATC SITE NUMBER:  
**302488**  
 ATC SITE NAME:  
**CNTN - CANTON**  
 SITE ADDRESS:  
 4 HOFFMANN ROAD  
 CANTON, CT 06019



DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

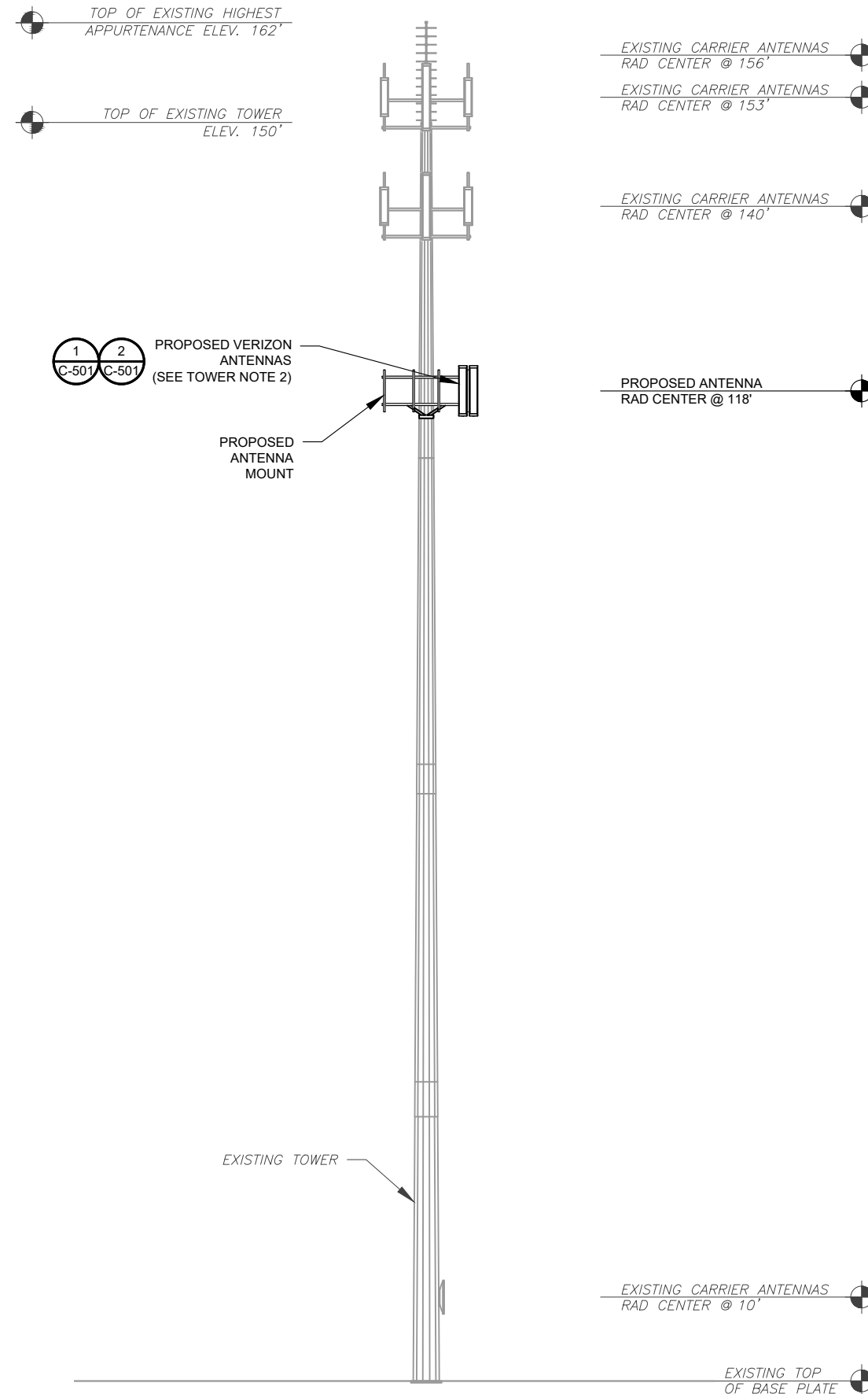
**DETAILED SITE PLAN**

SHEET NUMBER:	REVISION:
<b>C-101</b>	<b>0</b>

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PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 04/08/2020, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING



**TOWER NOTE:**

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
- THE PROPOSED PROJECT INCLUDES INSTALLING TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:
  - INSTALL (6) PANELS, (6) RRUs, (1) OVP, AND (2) 1-5/8" HYBRID CABLES ON A PROPOSED PLATFORM

**2 TOWER ELEVATION**  
SCALE: NOT TO SCALE



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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20

ATC SITE NUMBER:

**302488**

ATC SITE NAME:

**CNTN - CANTON**

SITE ADDRESS:

4 HOFFMANN ROAD  
 CANTON, CT 06019

SEAL:

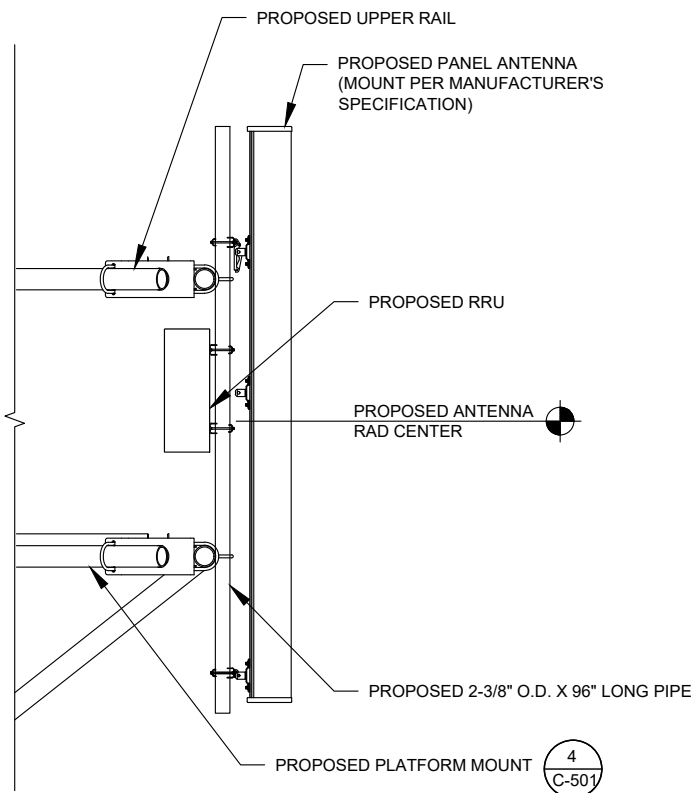


DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

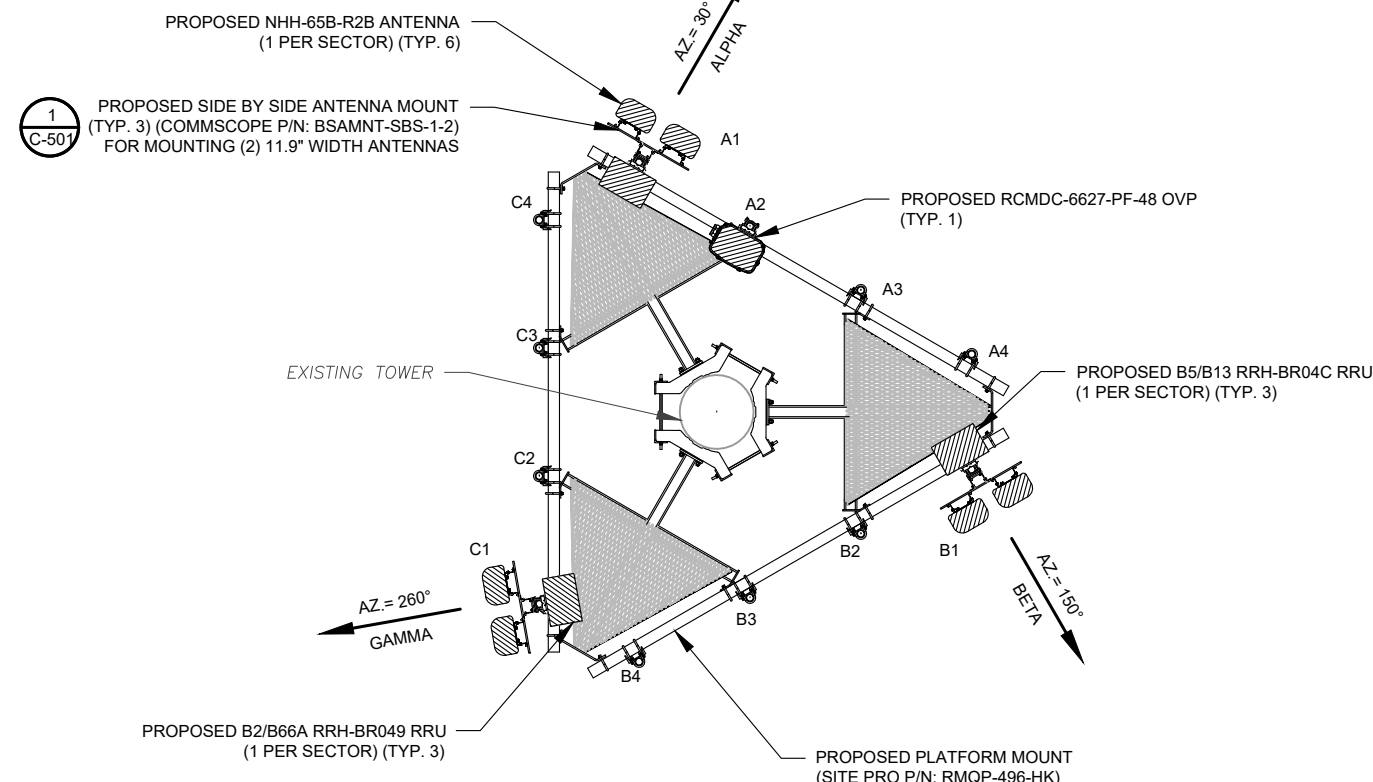
**TOWER ELEVATION**

SHEET NUMBER:	REVISION:
<b>C-102</b>	<b>0</b>

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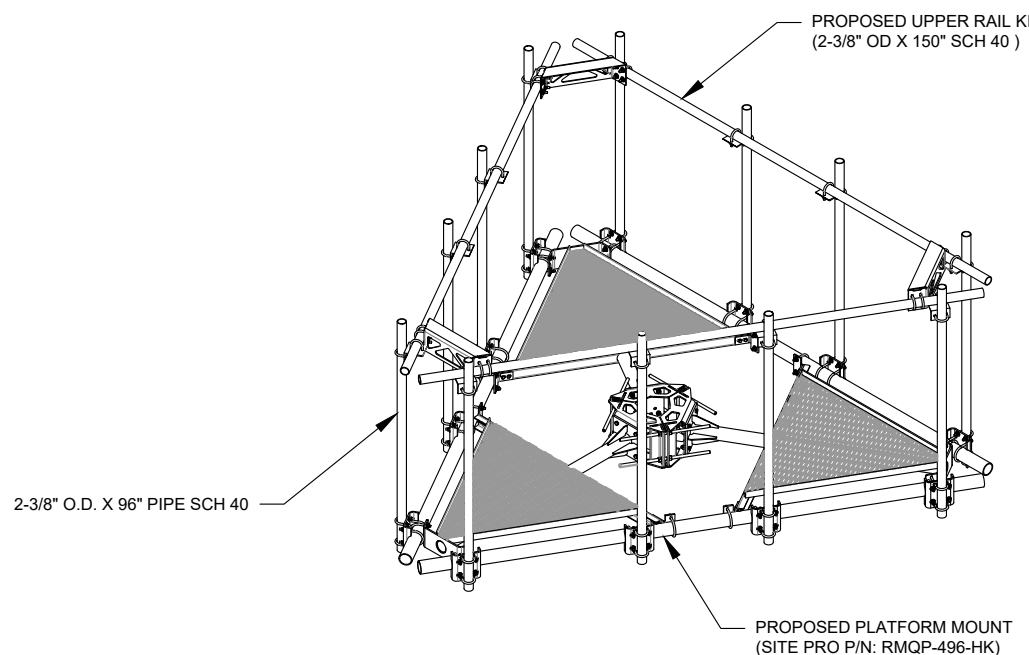
**1 PROPOSED ANTENNA MOUNTING DETAIL (ELEVATION)**  
SCALE: NOT TO SCALE



**2 PROPOSED ANTENNA PLAN**

**NOTES:**

- ALL PROPOSED EQUIPMENT INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH THE ATC CM.
- SPACING OF PROPOSED EQUIPMENT SHALL BE CONFIRMED FOR TOWER CONFLICTS AND PROPOSED MOUNTS SHALL NOT IMPEDE TOWER CLIMBING PEGS.




**4 ISOMETRIC PLATFORM DETAIL**  
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED 04/08/2020, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING

FINAL ANTENNA/ COAX SCHEDULE								
SECTOR	ANT.	PANEL MODEL #	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT	ANTENNA COAX DESCRIPTION
ALPHA	A1	(2) NHH-65B-R2B	118'-0"	30°	0°	2°	B5/B13 RRH-BR04C B2/B66A RRH-BR049	(2) 1-5/8" HYBRID CABLES (LENGTH: 220')
ALPHA	A2	-	118'-0"	30°	-	-	RCMDC-6627-PF-48	
ALPHA	A3	-	118'-0"	30°	-	-	-	
ALPHA	A4	-	118'-0"	30°	-	-	-	
BETA	B1	(2) NHH-65B-R2B	118'-0"	150°	2°	4°	B5/B13 RRH-BR04C B2/B66A RRH-BR049	
BETA	B2	-	118'-0"	150°	-	-	-	
BETA	B3	-	118'-0"	150°	-	-	-	
BETA	B4	-	118'-0"	150°	-	-	-	
GAMMA	C1	(2) NHH-65B-R2B	118'-0"	260°	0°	2°	B5/B13 RRH-BR04C B2/B66A RRH-BR049	
GAMMA	C2	-	118'-0"	260°	-	-	-	
GAMMA	C3	-	118'-0"	260°	-	-	-	
GAMMA	C4	-	118'-0"	260°	-	-	-	

**3 ANTENNA SCHEDULE**

1. BASED ON APPROVED ATC APPLICATION 13201406, DATED 03-26-2020. CONFIRM WITH VERIZON REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS.



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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20
1	MOUNT NAME	TR	08/05/20


ATC SITE NUMBER:  
**302488**

ATC SITE NAME:  
**CNTN - CANTON**

SITE ADDRESS:  
4 HOFFMANN ROAD  
CANTON, CT 06019

SEAL:





DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**ANTENNA INFORMATION & SCHEDULE**

SHEET NUMBER: <b>C-501</b>	REVISION: <b>1</b>
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0	FOR CONSTRUCTION	IC	05/06/20

ATC SITE NUMBER:

**302488**

ATC SITE NAME:

**CNTN - CANTON**

SITE ADDRESS:

4 HOFFMANN ROAD  
 CANTON, CT 06019

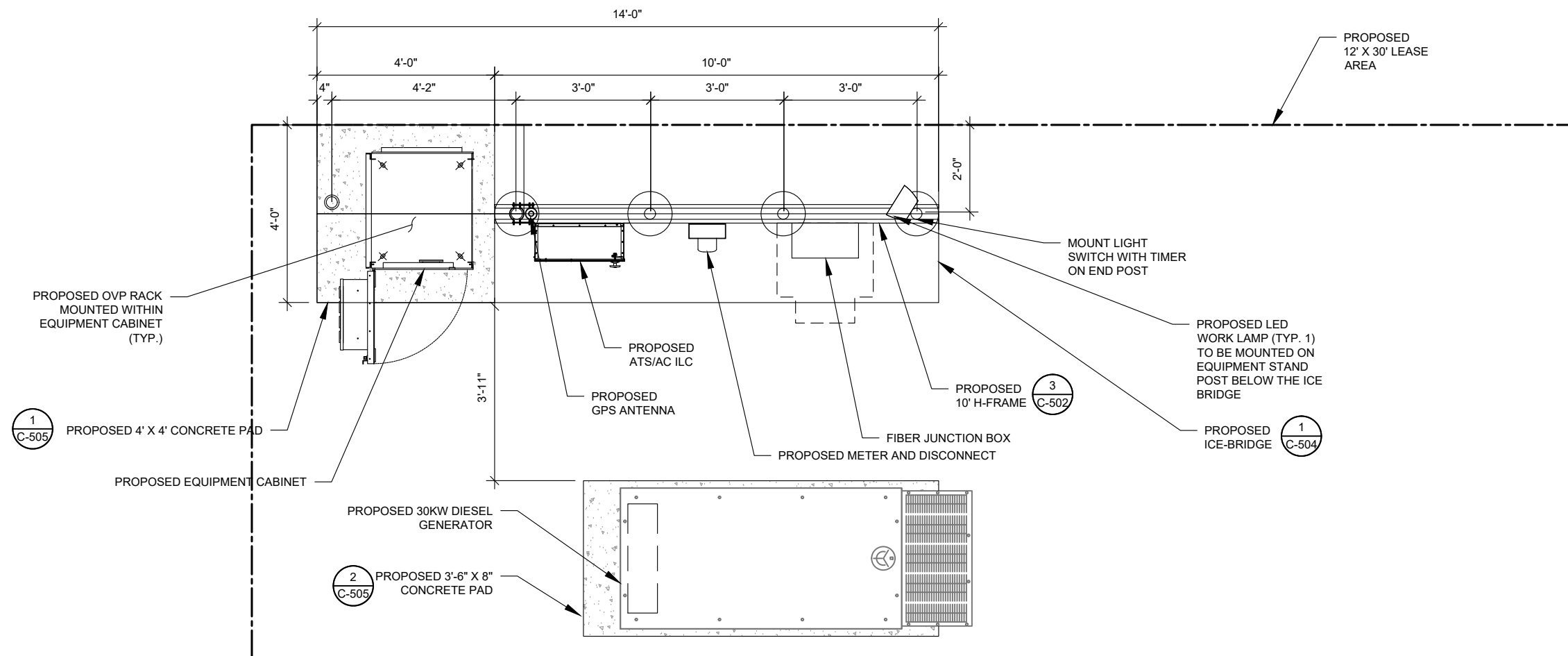
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APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**CONSTRUCTION  
 DETAILS**

SHEET NUMBER:	REVISION:
<b>C-502</b>	<b>0</b>



**1 DETAILED EQUIPMENT LAYOUT**  
 SCALE: NOT TO SCALE

**VERIZON WIRELESS PROVIDED EQUIPMENT**

- CHARLES INDUSTRIES CUBE-SS4B231PX2 EQUIPMENT WITH BATTERY CHARGER
- RAYCAP OVP-12 (RCMDC-6627-PF-48)

**CONTRACTOR PROVIDED EQUIPMENT**

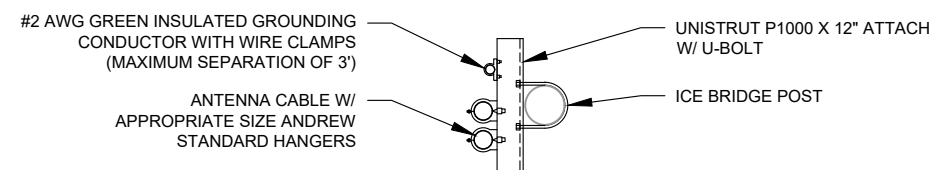
\* THIS IS NOT A COMPREHENSIVE LIST. IT SHOULD BE ASSUMED BY THE CONTRACTOR THAT ALL OTHER ITEMS DETAILED IN THIS SET OF DRAWINGS SHALL BE PROVIDED BY THE CONTRACTOR.

- 18"X18" FIBER JUNCTION BOX, NEMA 3R CABINET ENCLOSURE WITH WOODEN BACKBOARD, PADLOCK LATCH, AND COMBINATION LOCK (USE FOR DARK FIBER)

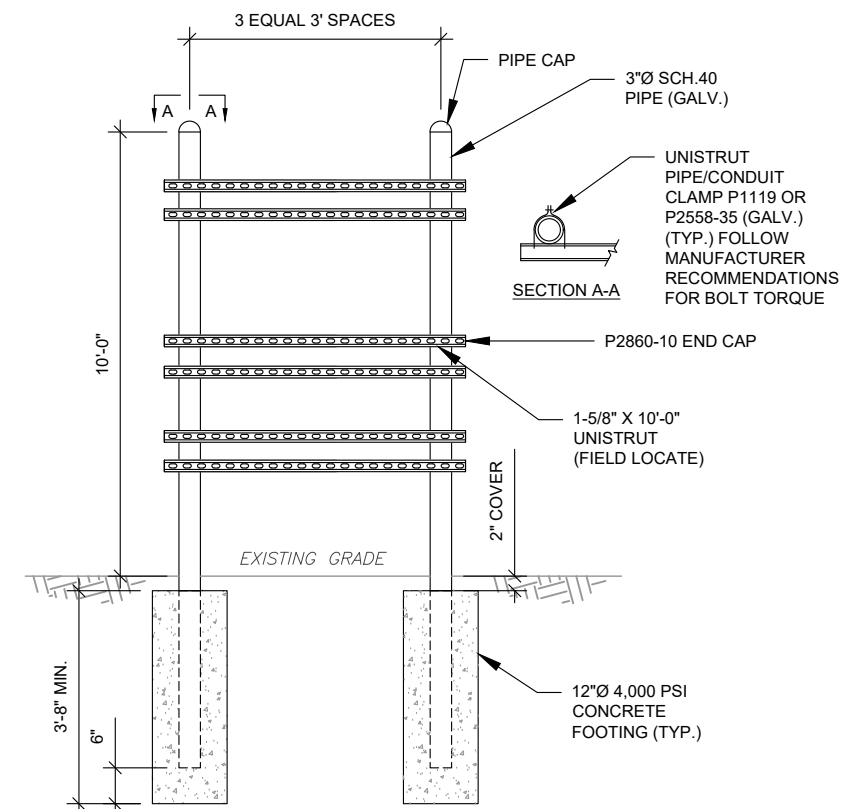
- 26.2" WIDE X 78" TALL X 12.3" DEEP ASCO D300L SERIES POWER TRANSFER LOAD CENTER MODEL AA300G-1PH-N-3R INTEGRATED LOAD CENTER "ILC" WITH COMBINATION PAD LOCK.

- 22" WIDE X 26" TALL X 20" DEEP CHARLES INDUSTRIES CUBE-RL1003C-1 WITH HEAT EXCHANGER (120V) WITH TRIPP-LITE UPS PART #SM1200RML2UTAA INSIDE (ONLY REQUIRED WHEN VZT PROVIDES LIT FIBER. UTILITY COORDINATOR MUST VERIFY IF NEEDED)

- COORDINATE ADDITIONAL ENTRY GATE LOCK(S) WITH CONSTRUCTION MANAGER

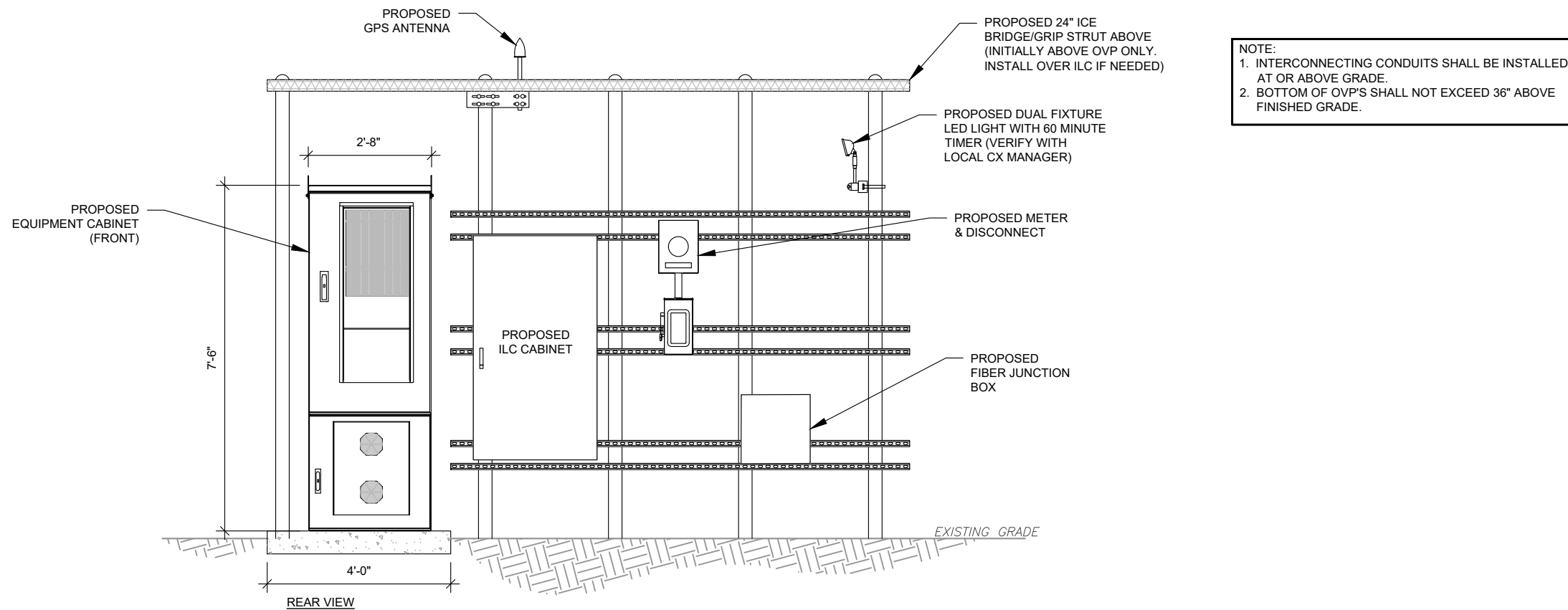
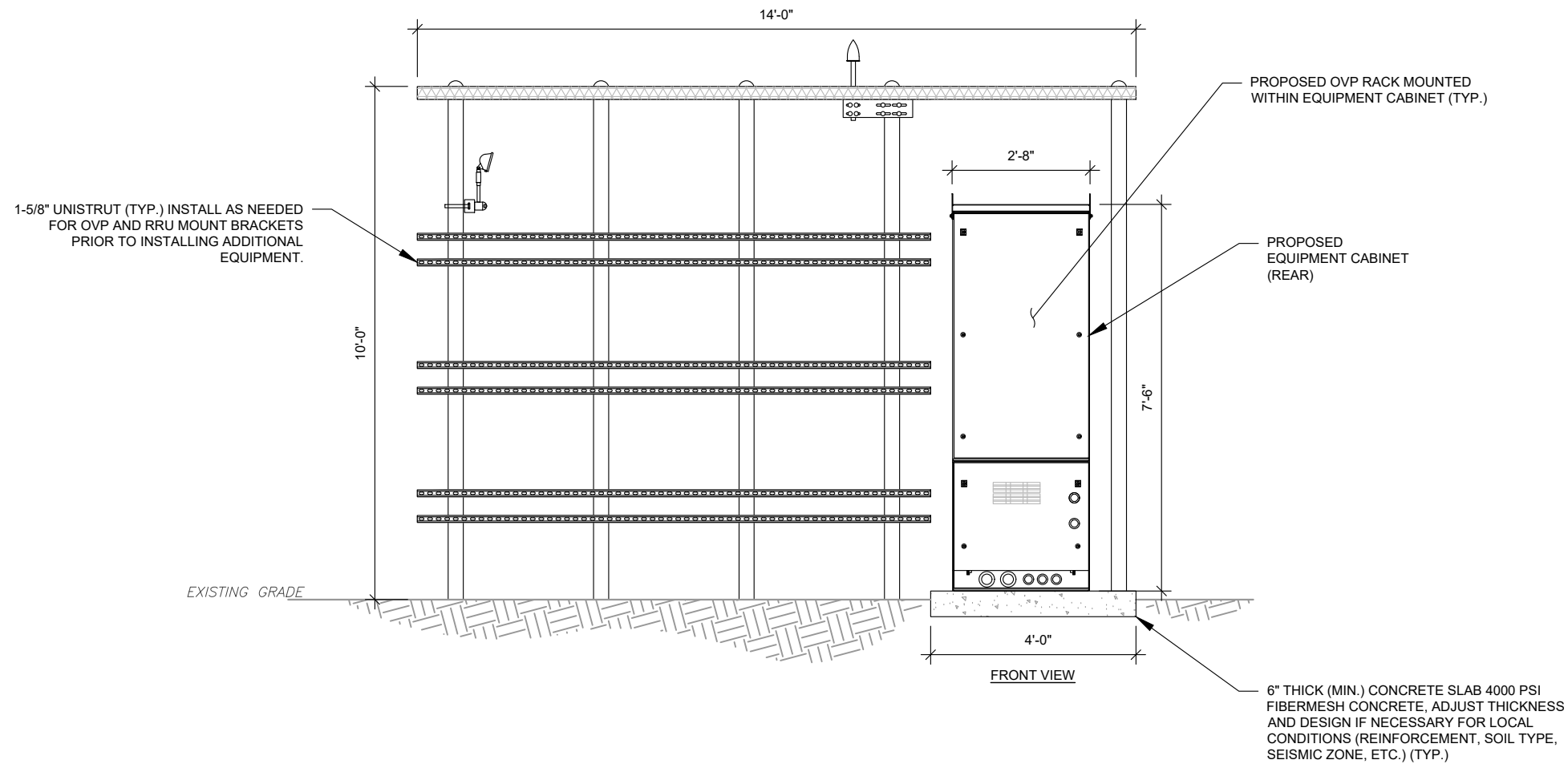


**2 WAVEGUIDE UNISTRUT**  
 SCALE: NOT TO SCALE



**3 TYPICAL H-FRAME AND ICE BRIDGE POST DETAIL**  
 SCALE: NOT TO SCALE

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NOTE:  
 1. INTERCONNECTING CONDUITS SHALL BE INSTALLED AT OR ABOVE GRADE.  
 2. BOTTOM OF OVP'S SHALL NOT EXCEED 36" ABOVE FINISHED GRADE.

1 DETAILED H-FRAME LAYOUT  
 SCALE: NOT TO SCALE



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VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**CONSTRUCTION  
 DETAILS**

SHEET NUMBER:  
**C-503**

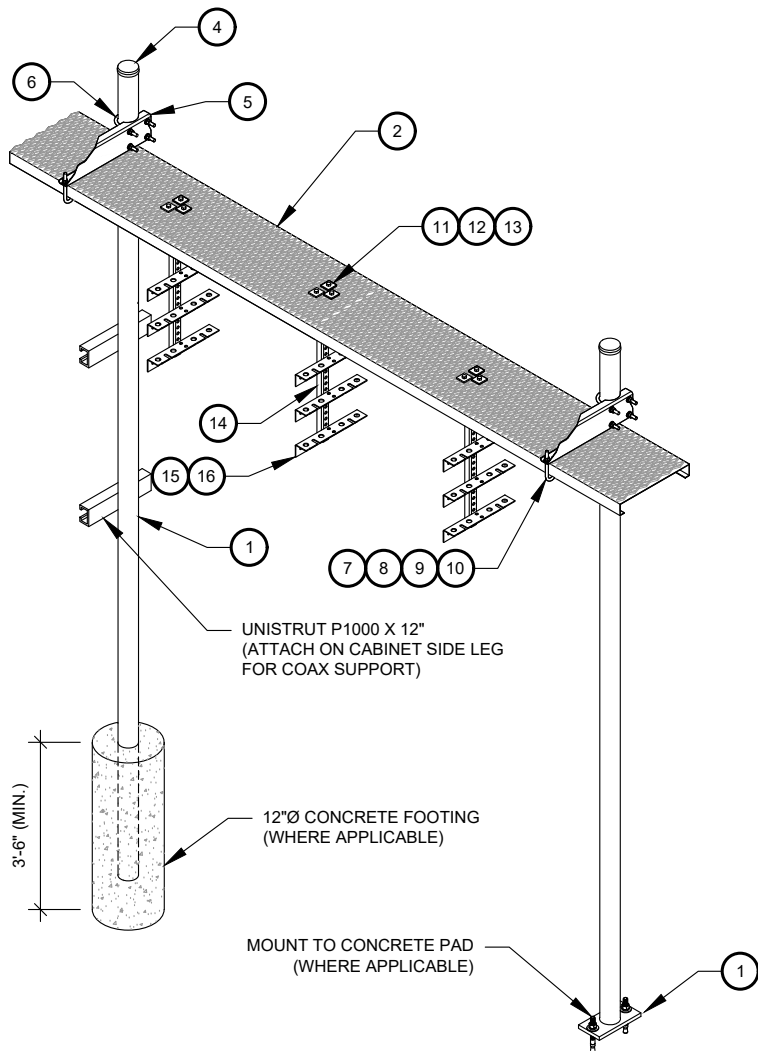
REVISION:  
**0**

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**CONSTRUCTION NOTE:**

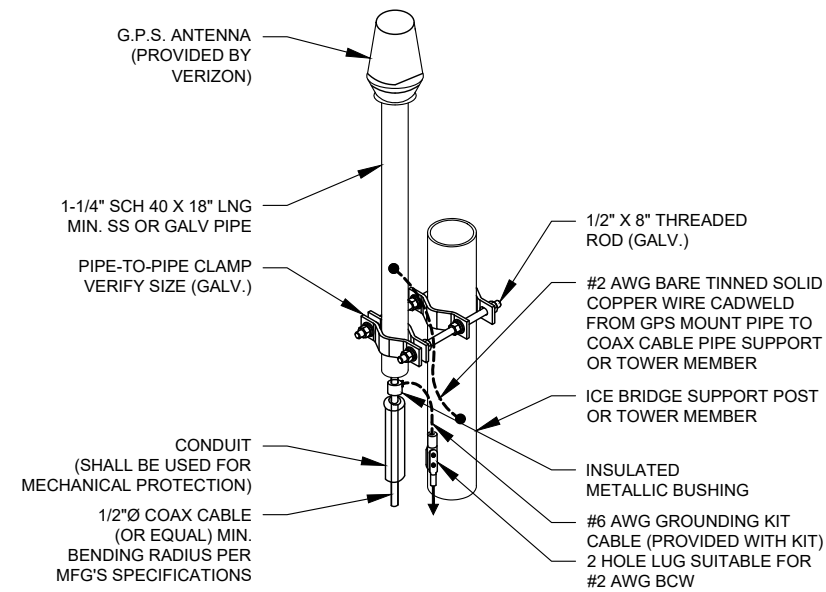
1. INSTALL ICE BRIDGE TO ALLOW 7 FEET CLEARANCE ABOVE GRADE TO LOWEST APPURTENANCE.



WB-K210-B WAVEGUIDE BRIDGE KIT - BILL OF MATERIALS (INCLUDED WITH KIT UNLESS NOTED OTHERWISE)					
ITEM	PART NUMBER	DESCRIPTION	ITEM	PART NUMBER	DESCRIPTION
1	MF126.01 MF-130	10'-4" COLUMN & BASE SHOE* 13'-4" PIPE COLUMN	9	GWL-04	1/2" GALV LOCK WASHER
2	WB-CY210	SAFETY GRATING 24" X 10'	10	GN-04	1/2" GALV HEX NUT
3	WBK110BHK	HARDWARE KIT (ITEMS 4-16)	11	GB-03205	3/8" X 2" GALV BOLT KIT
4	PC-034	PIPE CAP 3-1/2"	12	MT-387	SQUARE WASHER, 1-1/2" X 1-1/2" W/ 7/16" HOLE
5	WBLB243.08	24" WAVEGUIDE BRIDGE SUPPORT BRACKET	13	GWF-03	3/8" GALV FLAT WASHER
6	GUB-4356	1/2" X 3-5/8" X 6" GALV U-BOLT	14	WBT243.01	VERTICAL TRAPEZE SECTION
7	WB-JB-6	1/2" J-BOLT	15	GB-03105	3/8" X 1" GALV BOLT KIT
8	GWF-04	1/2" GALV FLAT WASHER	16	WBT243.02	HORIZONTAL TRAPEZE SECTION

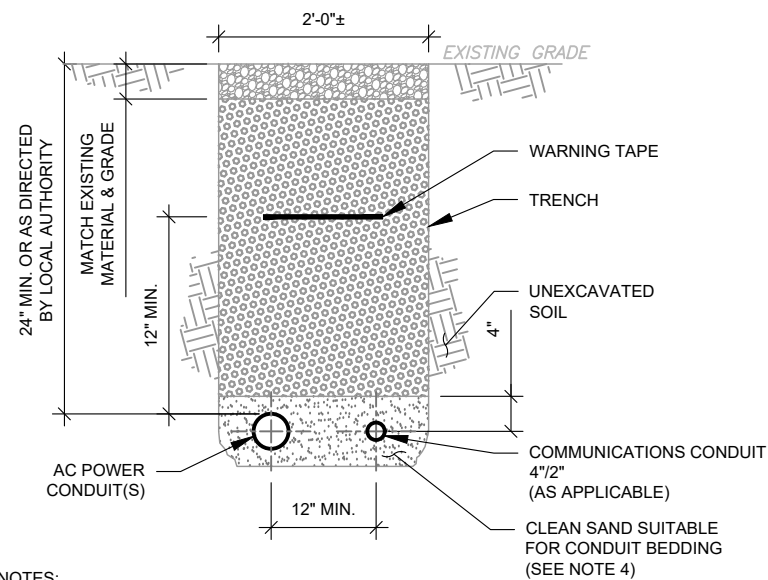
CONTRACTOR SHALL USE PARTS MANUFACTURED BY COMMSCOPE OR APPROVED EQUIVALENT.  
\*BASE SHOE NOT INCLUDED IN WB-K210-B KIT, ORDER COLUMN SEPARATELY OR KIT WB-K210-S.

**1 WAVEGUIDE BRIDGE KIT**  
SCALE: NOT TO SCALE



- NOTE:
1. GPS SHALL BE PLACED WITH CLEAR SIGHT LINE TO THE SOUTHERN SKY.
  2. CONTRACTOR TO SUPPLY COAX FOR GPS UNIT.

**2 GPS ANTENNA ATTACHMENT DETAIL**  
SCALE: NOT TO SCALE



**TRENCH NOTES:**

1. IF FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL, EXCAVATED MATERIAL MAY BE USED FOR BACKFILL. IF NOT, PROVIDE CLEAN, COMPACTIBLE MATERIAL.
2. COMPACT IN 8" LIFTS. REMOVE ANY LARGE ROCKS PRIOR TO BACKFILLING. CONTRACTOR TO VERIFY LOCATION OF EXISTING U/G UTILITIES PRIOR TO DIGGING.
3. IF CURRENT AS-BUILT DRAWINGS ARE NOT AVAILABLE CONTRACTOR SHALL HAND DIG U/G TRENCHING.
4. USE COMMUNICATIONS ONLY TRENCH FOR COMMUNICATIONS CONDUIT UNLESS TRAVELING UNDER PATH OF VEHICLE TRAVEL, THEN CONDUIT MUST BE 24" MIN. BELOW GRADE.
5. CONFIRM SPACING AND DEPTH WITH NEC OR LOCAL CODE REQUIREMENTS

**3 POWER/TELCO CONDUIT TRENCH DETAILS**  
SCALE: N.T.S.



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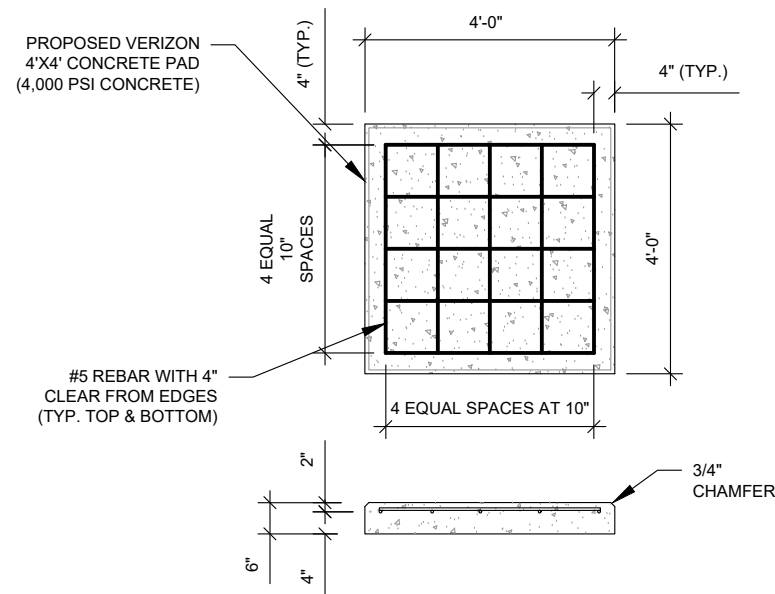
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VERIZON #:	467157

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DETAILS**

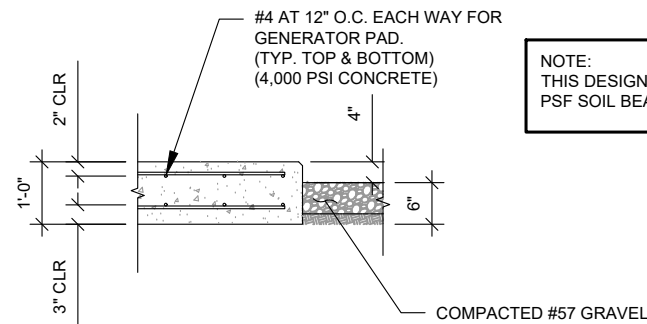
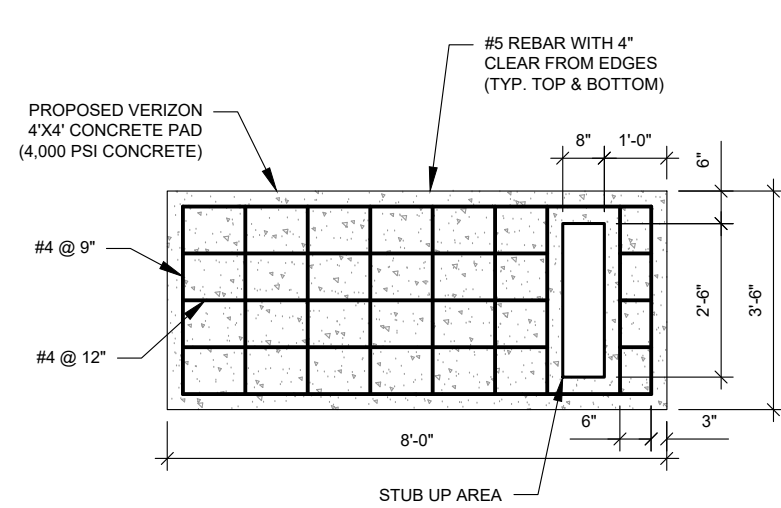
SHEET NUMBER:	REVISION:
<b>C-504</b>	<b>0</b>



**PAD NOTES:**

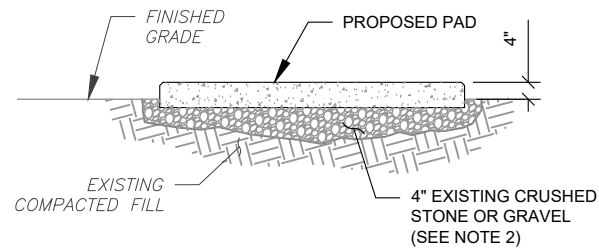
1. PADS SHALL BE PRE-CAST MATCHING THIS DESIGN WHERE ALLOWED BY LOCAL JURISDICTION.
2. REFER TO CONCRETE & REINFORCED STEEL NOTES ON SHEET G-002 & ATC SPEC 033000 FOR CAST-IN-PLACE PADS.

**1 CONCRETE EQUIPMENT PAD DESIGN**  
SCALE: N.T.S.



NOTE:  
THIS DESIGN ASSUMES A 1500  
PSF SOIL BEARING PRESSURE

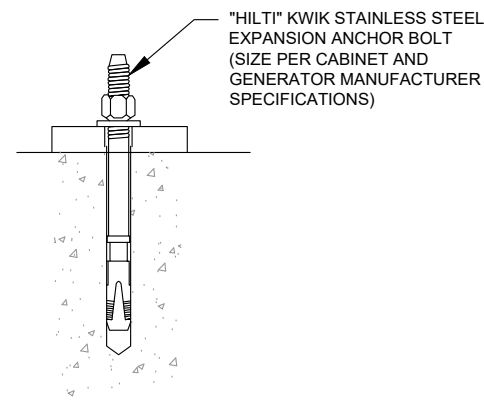
**2 CONCRETE GENERATOR PAD DESIGN**  
SCALE: N.T.S.



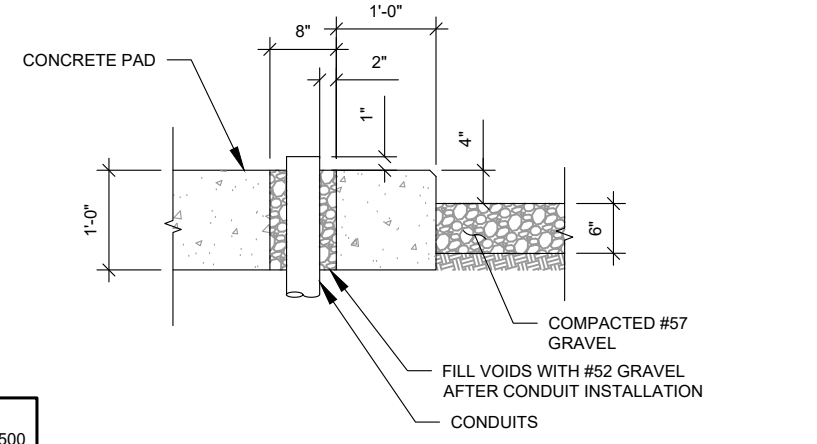
**PAD NOTES:**

1. SUBGRADE AND FILL SHALL CONSIST OF CLEAN SOIL. DELETERIOUS MATERIAL AND ORGANICS SHALL BE REMOVED.
2. MECHANICALLY COMPACT FOOTPRINT OF PAD PLUS 2' PERIMETER.
3. USE GALVANIZED HILTI EXPANSION ANCHORS OR, APPROVED EQUAL, FOR EQUIPMENT ANCHORAGE.
4. FOR SIZE AND LOCATION OF ANCHORS AND OTHER REQUIREMENT, SEE EQUIPMENT VENDOR DRAWINGS.

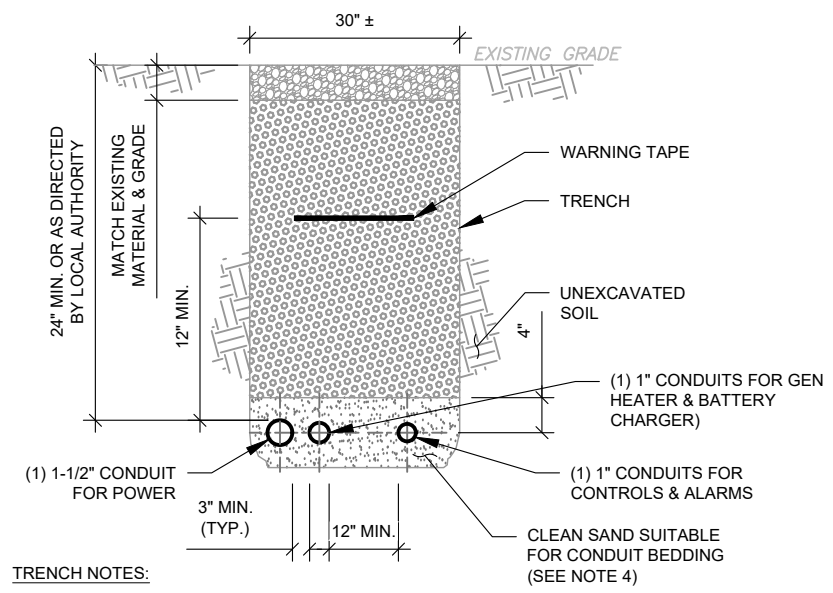
**4 GRAVEL PREPARATION**  
SCALE: NOT TO SCALE



**5 EXPANSION ANCHOR DETAIL**  
SCALE: N.T.S.



**3 GENERATOR CONDUIT STUB UP DETAIL**  
SCALE: N.T.S.



**TRENCH NOTES:**

1. IF FREE OF ORGANIC OR OTHER DELETERIOUS MATERIAL, EXCAVATED MATERIAL MAY BE USED FOR BACKFILL. IF NOT, PROVIDE CLEAN, COMPACTIBLE MATERIAL.
2. COMPACT IN 8" LIFTS. REMOVE ANY LARGE ROCKS PRIOR TO BACKFILLING. CONTRACTOR TO VERIFY LOCATION OF EXISTING U/G UTILITIES PRIOR TO DIGGING.
3. IF CURRENT AS-BUILT DRAWINGS ARE NOT AVAILABLE CONTRACTOR SHALL HAND DIG U/G TRENCHING.
4. USE COMMUNICATIONS ONLY TRENCH FOR COMMUNICATIONS CONDUIT UNLESS TRAVELING UNDER PATH OF VEHICLE TRAVEL, THEN CONDUIT MUST BE 24" MIN. BELOW GRADE.
5. CONFIRM SPACING AND DEPTH WITH NEC OR LOCAL CODE REQUIREMENTS

**6 GENERATOR CONDUIT TRENCH DETAILS**  
SCALE: N.T.S.



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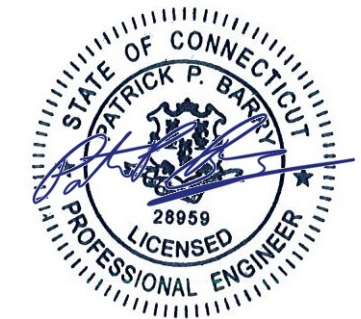
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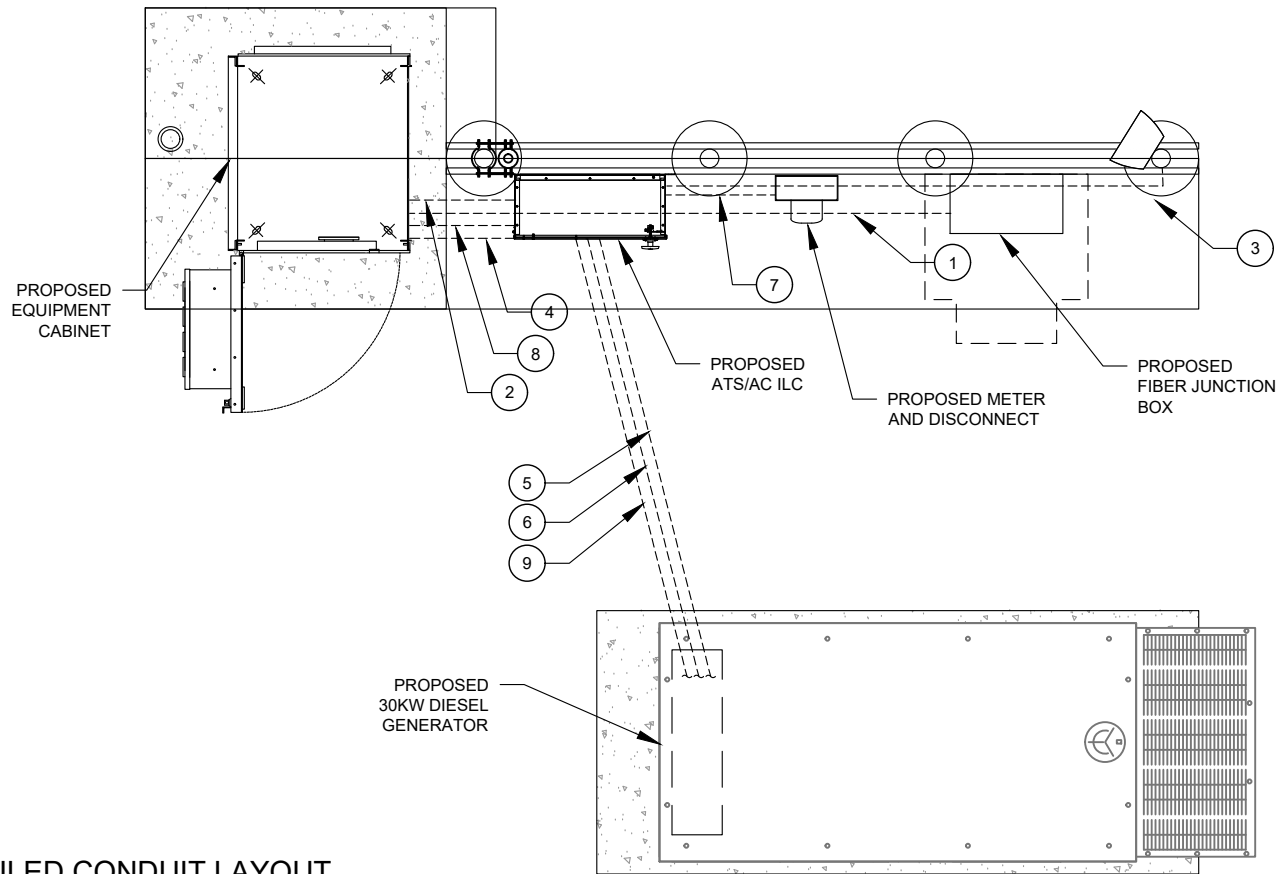
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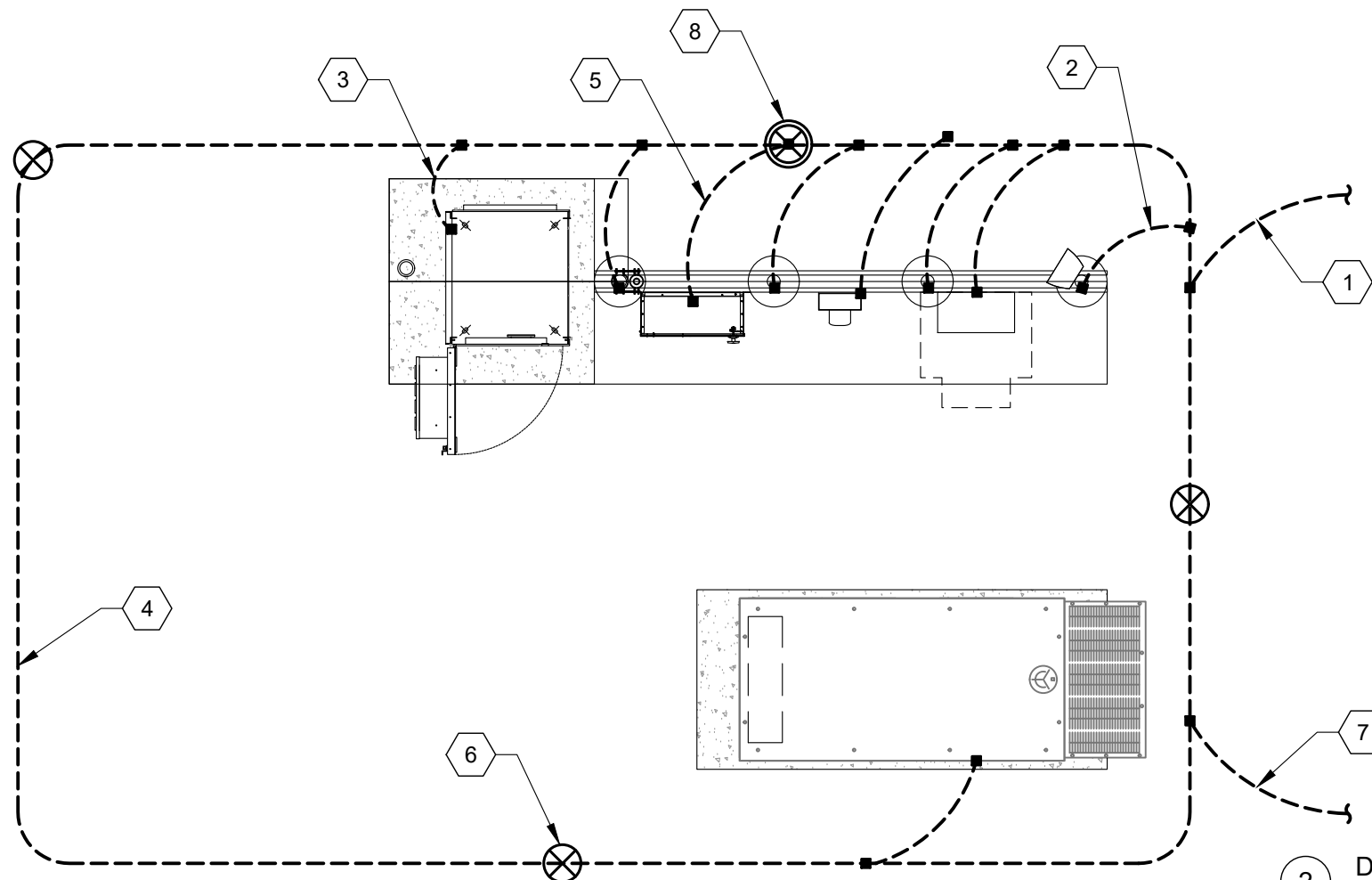
CONDUIT KEYED NOTES:

- ① **FIBER CONDUITS**  
(1) 2" SCH. 40 PVC CONDUIT WITH MULE TAPE FROM TELCO BOX TO THE EQUIPMENT CABINET.
- ② **AC POWER CONDUITS**  
(1) 1-1/2" CONDUIT WITH (8) #10 & (1) #10 G FROM THE ILC TO THE EQUIPMENT CABINET FOR (4) 30 AMP 2-POLE CIRCUITS.
- ③ (1) 1" CONDUIT WITH (2) #12 & (1) #12 G FROM ILC TO GFI RECEPTACLE/LIGHT.
- ④ (1) 1-1/2" CONDUIT WITH PULLSTRING FOR FUTURE RECTIFIER CIRCUITS FROM EQUIPMENT CABINET TO ILC.
- ⑤ (1) 1-1/2" CONDUIT WITH (3) #1/0 & (1) #6 G FROM THE ILC TO THE GENERATOR.
- ⑥ (1) 1" CONDUIT WITH (4) #12 & (1) #12 G FROM ILC TO GENERATOR. (GEN HEATER & BATTERY CHARGER)
- ⑦ (1) 2" CONDUIT WITH (3) #3/0 & (1) #6 G FROM ILC TO METER/DISCONNECT.
- ⑧ **ALARM/MISCELLANEOUS CONDUITS**  
(1) 1" CONDUIT FROM ILC TO EQUIPMENT CABINET FOR ILC ALARMS.
- ⑨ (1) 1" CONDUIT FROM ILC TO GENERATOR FOR GEN CONTROLS & ALARMS.

**NOTE:**  
BELOW GRADE CONDUIT SHALL BE SCHEDULE 80 PVC. ABOVE GRADE CONDUIT SHALL BE GALVANIZED RIGID CONDUIT. BELOW GRADE PVC CONDUIT SHALL TRANSITION TO GRC PRIOR TO RISING ABOVE GRADE. ALL BENDS SHALL HAVE MINIMUM 24" RADIUS. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. VERIFY CONDUIT TYPE WITH LOCAL CONSTRUCTION MANAGER AND ADJUST AS NECESSARY. ALL CONDUIT SHALL MEET NEC, STATE, AND LOCAL CODE REQUIREMENTS AS REQUIRED.



① **DETAILED CONDUIT LAYOUT**  
SCALE: NOT TO SCALE



GROUNDING KEYED NOTES:

- ① BOND TO TOWER GROUND RING
- ② #2 AWG BOND FROM VERTICAL H-FRAME AND ICE BRIDGE POST TO EXTERNAL GROUND RING (TYP. EVERY POST).
- ③ EQUIPMENT BOND TO GROUND RING (TYP.).
- ④ #2 GROUND RING
- ⑤ GROUNDING ELECTRODE CONDUCTOR PER NEC
- ⑥ GROUNDING ELECTRODE (TYP.)
- ⑦ BOND TO COMPOUND GROUND RING
- ⑧ GROUNDING ELECTRODE WITH TEST WELL

② **DETAILED GROUNDING LAYOUT**  
SCALE: NOT TO SCALE



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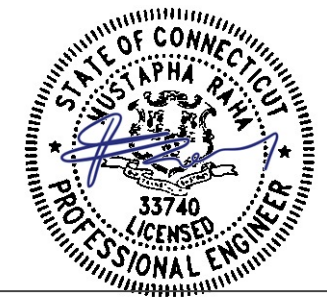
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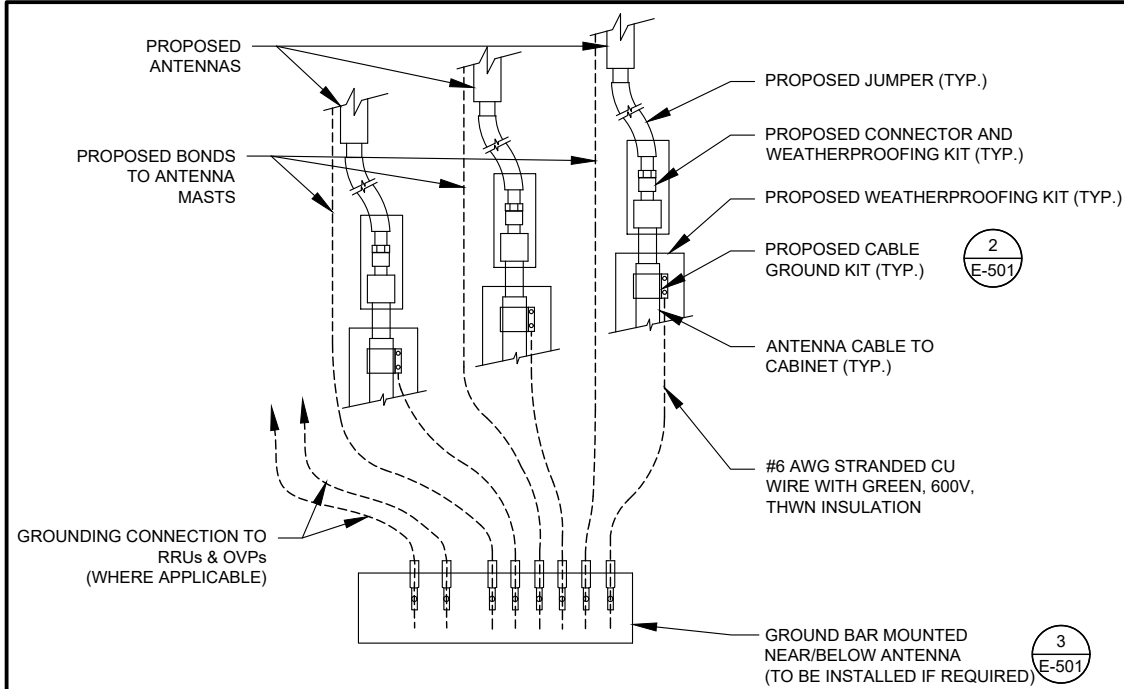
**GROUNDING PLAN AND SCHEMATIC**

SHEET NUMBER:	REVISION:
<b>E-101</b>	<b>0</b>







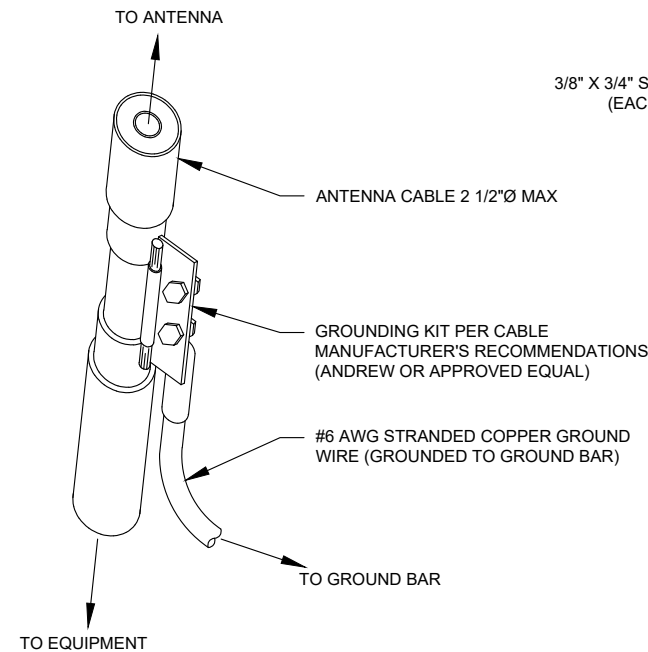


**NOTES:**

1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH VERIZONGROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH VERIZONGROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

**1 TYPICAL ANTENNA GROUNDING DIAGRAM**

SCALE: NOT TO SCALE

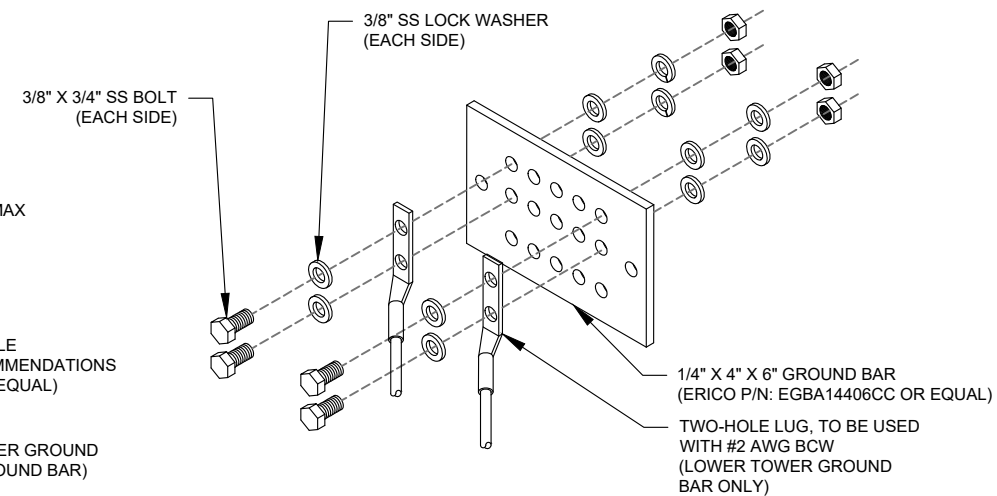


**GROUND KIT NOTES:**

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

**2 CABLE GROUND KIT CONNECTION DETAIL**

SCALE: NOT TO SCALE

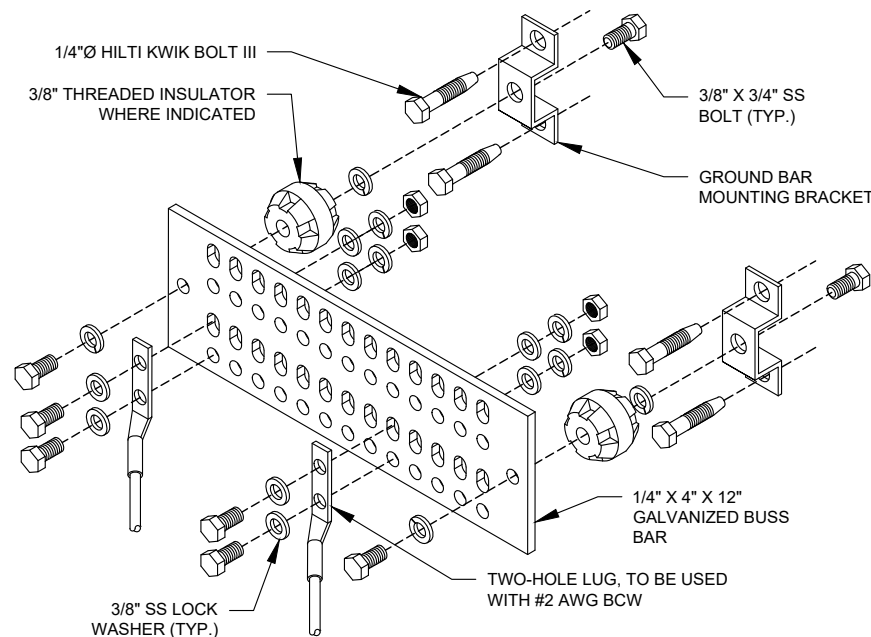


**GROUND BAR NOTES:**

1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

**3 TOWER GROUND BAR DETAIL**

SCALE: NOT TO SCALE

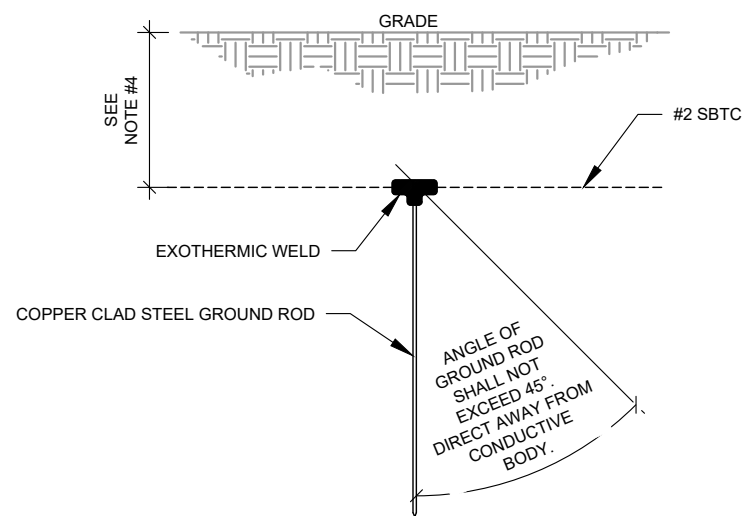


**GROUND BAR NOTES**

1. GROUND KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR SHALL BE BOLTED TO STRUCTURAL MEMBER OR ANCHORED TO CONCRETE SLAB W/ HILTI KWIK BOLT III.

**4 MAIN GROUND BAR DETAIL**

SCALE: NOT TO SCALE

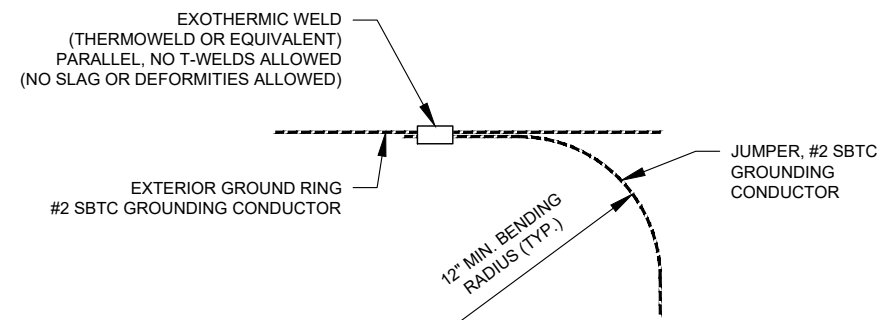


**NOTES:**

1. SEPARATION DIMENSION TO BE VERIFIED WITH LOCAL UTILITY COMPANY REQUIREMENTS.
2. COORDINATE UTILITY, LOCATE BEFORE DIGGING.
3. CONDUIT TRENCHING DEPTHS AT 36" OR 6" BELOW FROST LINE, WHICHEVER IS GREATER.
4. ALL RING AND RADIAL DEPTHS AT 30" OR 6" BELOW FROST LINE, WHICHEVER IS GREATER.

**5 GROUND ROD DETAIL**

SCALE: NOT TO SCALE



**6 TIE CONNECTION DETAIL**

SCALE: NOT TO SCALE

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 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	IC	05/06/20

ATC SITE NUMBER:

**302488**

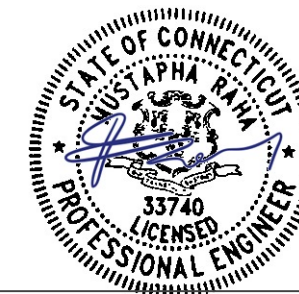
ATC SITE NAME:

**CNTN - CANTON**

SITE ADDRESS:

4 HOFFMANN ROAD  
 CANTON, CT 06019

SEAL:



**verizon**

DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**GROUNDING DETAILS**

SHEET NUMBER:

**E-501**

REVISION:

**0**

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0	FOR CONSTRUCTION	IC	05/06/20

ATC SITE NUMBER:

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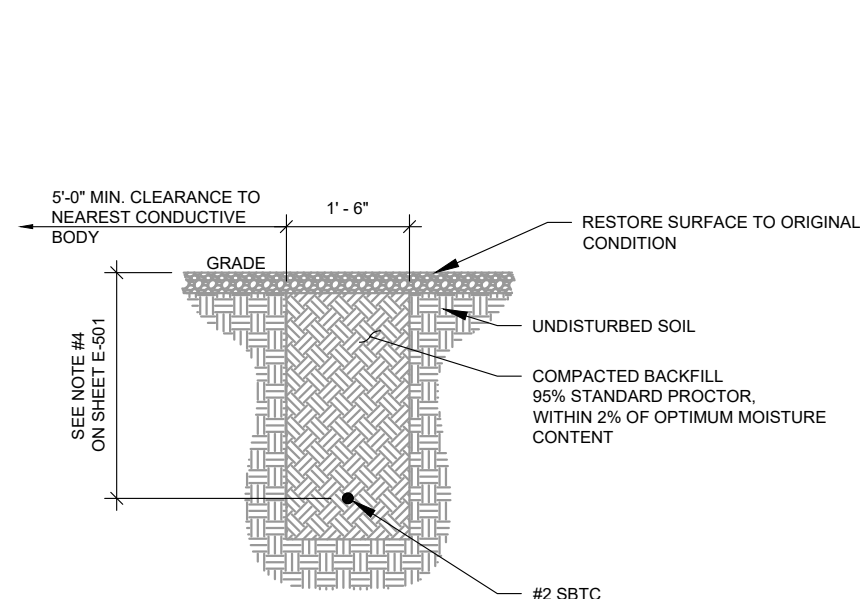
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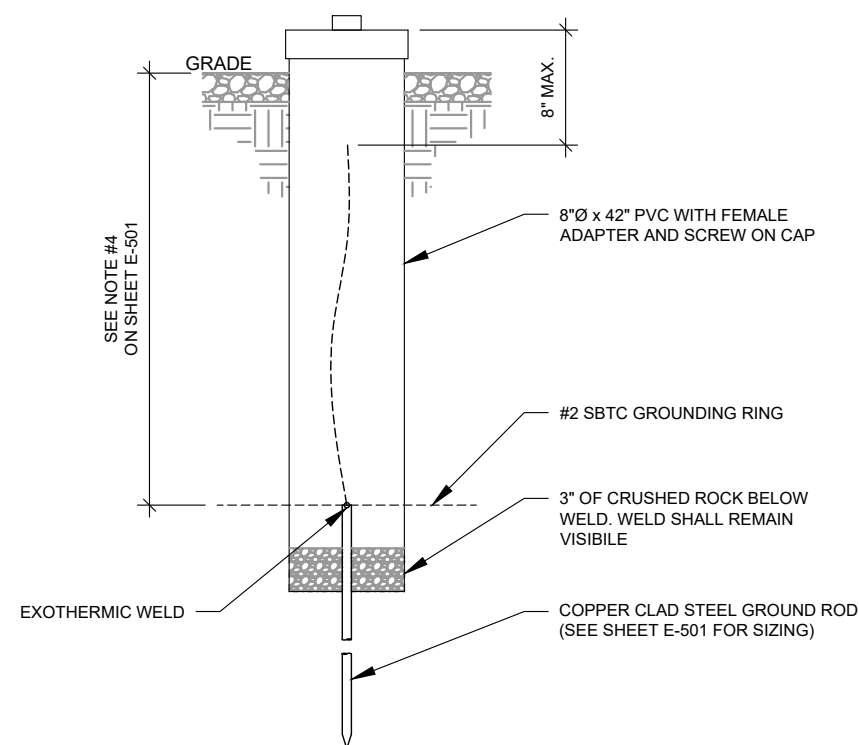
DRAWN BY:	IC
APPROVED BY:	PBB
DATE DRAWN:	05/06/20
ATC JOB NO:	13201406_G2
VERIZON ID:	CANTON 3 CT
VERIZON #:	467157

**GROUNDING DETAILS**

SHEET NUMBER:	REVISION:
<b>E-502</b>	<b>0</b>



**1** GROUND CONNECTION TRENCH DETAIL (STD.)  
 SCALE: NOT TO SCALE



**2** TEST WELL DETAIL  
 SCALE: NOT TO SCALE

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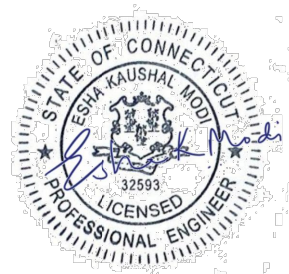


## Antenna Mount Analysis Report

**ATC Site Name** : Cntn - Canton, CT  
**ATC Site Number** : 302488  
**Engineering Number** : 13201406\_C8\_03  
**Mount Elevation** : 118 ft  
**Carrier** : Verizon Wireless  
**Carrier Site Name** : CANTON 3 CT  
**Carrier Site Number** : 467157  
**Site Location** : 4 Hoffmann Road  
 Canton, CT 06019-2122  
 41.85527778 , -72.8925  
  
**County** : Hartford  
**Date** : April 8, 2020  
**Max Usage** : 38%  
**Result** : Pass

Prepared By:  
 Michael Ellis  
 Structural Engineer

Reviewed By:



Authorized by "EOR"  
 08 Apr 2020 05:50:43 cosign

COA: PEC.0001553

A.T. Engineering Service, PLLC - 3500 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5414 Fax - www.americantower.com



Eng. Number 13201406\_C8\_03  
 April 8, 2020  
 Page 1

### Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for Verizon Wireless at 118 ft.

### Supporting Documents

Specifications Sheet	Pite Pro RMQP-496-HK, dated July 14, 2014
Radio Frequency Data Sheet	RFDS ID #467157, dated February 4, 2020

### Analysis

This antenna mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

Basic Wind Speed:	93 mph (3-Second Gust, Vasd) / 119 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Codes:	ANSI/TIA-222-G/2015 IBC/2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.179, S1 = 0.065
Site Class:	D - Stiff Soil
Live Loads:	Lm = 500 lbs

### Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

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NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONSTRUCTION.

SUPPLEMENTAL

SHEET NUMBER: <b>R-601</b>	REVISION: <b>0</b>
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