Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

September 19, 2023

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

RE: **Notice of Exempt Modification for Verizon**
Crown #876390_Crown_VZW
116 Grant Hill Road, Brooklyn, CT 06234
Latitude: 41° 47′ 29.64″/ Longitude: -72° 0′ 54.04″

Dear Ms. Bachman:

Verizon Wireless is requesting to file an exempt modification for an existing tower located at 116 Grant Hill Road, Brooklyn, CT 06234. The property and tower are owned by Global Signal/Crown Castle. Verizon now intends to add three (3) interference mitigation filters to be installed at the 119-foot level of the tower of the 150-foot monopole. This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:

Tower:

Installed New:
(3) Kaelus BSF0020F3V1-1 Twin Bandstop 900MHZ Interference Mitigation Filters

The proposed work in this application only pertains to the installation of interference mitigation filter(s) and does not involve any additional equipment that may be called out in the Mount Analysis and/or in Table 1 of the Structural Analysis Reports.

The facility was approved by the Town of Brooklyn though the original zoning documents have not been located despite diligent inquiry and effort. The original Building Permit #5802 was issued on April 14, 2000 by the Town of Brooklyn. No conditions of the approval are known. The Connecticut Siting Council approved tower sharing on July 8, 2003. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectman Austin Tanner and Town Planner Jana Butts Roberson for the municipality. Global Signal/Crown Castle is the property and tower owner. The proposed modifications will not result in an increase in the height of the existing tower.

1. The proposed modifications will not require the extension of the site boundary.

2. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
3. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
4. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
5. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, Verizon respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Domenica Tatasciore.

Sincerely,

Domenica Tatasciore
Site Acquisition Specialist
1800 W. Park Drive
Westborough, MA 01581
(508) 621-9161/ Domenica.Tatasciore@crowncastle.com

Attachments
cc:

First Selectman Austin Tanner
Town of Brooklyn
4 Wolf Den Road
Brooklyn, CT 06234
860-779-3411

Jana Butts Roberson, Town Planner
Town of Brooklyn
4 Wolf Den Road
Brooklyn, CT 06234
860-779-3411

Global Signal/Crown Castle, Property & Tower Owner

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 773364567020: Your package has been delivered
Date: Tuesday, September 19, 2023 10:36:44 AM

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi. Your package was delivered Tue, 09/19/2023 at 10:29am.

Delivered to 4 WOLF DEN RD, BROOKLYN, CT 06234
Received by K.BISSON

OBTAIN PROOF OF DELIVERY

How was your delivery ?

TRACKING NUMBER	773364567020
FROM	Crown Castle 1800 West Park Drive Suite 200 WESTBOROUGH, MA, US, 01581
TO	Town of Brooklyn First Selectman Austin Tanner 4 Wolf Den Road BROOKLYN, CT, US, 06234
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 9/18/2023 05:50 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	BROOKLYN, CT, US, 06234
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

Wondering when a package will arrive?

Enter your tracking number to see your estimated delivery time within a 4-hour window.

TRACK A PACKAGE

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 773364580050: Your package has been delivered
Date: Tuesday, September 19, 2023 10:36:47 AM

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Hi. Your package was delivered Tue, 09/19/2023 at 10:29am.

Delivered to 4 WOLF DEN RD, BROOKLYN, CT 06234
Received by K.BISSON

OBTAIN PROOF OF DELIVERY

How was your delivery ?

TRACKING NUMBER	773364580050
FROM	Crown Castle 1800 West Park Drive Suite 200 WESTBOROUGH, MA, US, 01581
TO	Town of Brooklyn Jana Butts Roberson, Town Planner 4 Wolf Den Road BROOKLYN, CT, US, 06234
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 9/18/2023 05:50 PM
DELIVERED TO	Receptionist/Front Desk
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TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

Wondering when a package will arrive?

Enter your tracking number to see your estimated delivery time within a 4-hour window.

TRACK A PACKAGE

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051
Phone: (860) 827-2935 Fax: (860) 827-2950
E-Mail: siting.council@po.state.ct.us
Web Site: www.state.ct.us/csc/index.htm

July 9, 2003

Stephen J. Humes
LeBoeuf, Lamb, Greene & MacRae
Goodwin Square
225 Asylum Street
Hartford, CT 06103

RE: **TS-T-MOBILE-019-030617** - Omnipoint Communications, Inc. request for an order to approve tower sharing at an existing telecommunications facility located at 116 Grant Hill Road, Brooklyn, Connecticut.

Dear Attorney Humes:

At a public meeting held July 8, 2003, the Connecticut Siting Council (Council) ruled that the shared use of this existing tower site is technically, legally, environmentally, and economically feasible and meets public safety concerns, and therefore, in compliance with General Statutes § 16-50aa, the Council has ordered the shared use of this facility to avoid the unnecessary proliferation of tower structures. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility may require an explicit request to this agency pursuant to General Statutes § 16-50aa or notice pursuant to Regulations of Connecticut State Agencies Section 16-50j-73, as applicable. Such request or notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

This decision applies only to this request for tower sharing and is not applicable to any other request or construction.

The proposed shared use is to be implemented as specified in your letter dated June 17, 2003.

Thank you for your attention and cooperation.

Very truly yours,

Pamela B. Katz, P.E.
Chairman

PBK/laf

c: Honorable Maurice F. Bowen, First Selectman, Town of Brooklyn
Chester Dobrowski, Zoning Enforcement Officer, Town of Brooklyn
Thomas J. Regan, Esq., Brown Rudnick Berlack Israels, LLP
Christopher B. Fisher, Esq., Cuddy & Feder LLP

APPLICATION FOR BUILDING PERMIT

PERMIT NO. Nº 005802

(Application must be typed or printed)

TOWN OF BROOKLYN
CONNECTICUT

LOCATION OF JOB (NO. & STREET)		CARD NO.	MAP	BLOCK	LOT
116 Grant Hill			4		5
OWNER: Robert Bemis	TEL.	ADDRESS (NO., STREET, TOWN, STATE, ZIP): Same			
APPLICANT: Sprint Spectrum	TEL.	ADDRESS (NO., STREET, TOWN, STATE, ZIP): 9 Barnes Ind. Rd Wallingford Ct 06492			
BUILDER	TEL.	ADDRESS (NO., STREET, TOWN, STATE, ZIP)			
LICENSE #		NAME & TEL. # OF PERSON RESPONSIBLE			

All Permits Must Be Posted And Visible From The Street

SIZE OF BUILDING

STORIES _____ NO. OF FAMILIES _____

HEIGHT _____ DEPTH _____ FRONT _____

TOTAL FLOOR AREA (NEW) _____ SQ.FT.

TYPE OF WORK BEING DONE

☐ ORIG. CONSTRUCTION ☐ REPAIR
☐ ALTERATION ☐ DEMOLITION
☐ ADDITION _____

CONSTRUCTION VALUE

ESTIMATED _____

ACTUAL _____

TYPE OF HEAT

☐ ELECTRIC ☐ SOLAR
☐ GAS ☐ OTHER
☐ OIL _____

DISTANCES FROM LOT LINE
(Circle Front Lot Line)

EAST _____ WEST _____ NORTH _____ SOUTH _____

PROPOSED USE

☐ NEW HOME (Single Family)
☐ MULTI FAMILY _____
OF BEDROOMS _____
WATER SUPPLY _____

☐ ADDITION _____
☐ GARAGE _____
☐ DECK/PORCH _____
☐ SHED _____
☐ POOL _____
☐ COMMERCIAL/PUBLIC _____
☐ OTHER _____

BUILDING PLANS — REQUIRED _____ ATTACHED _____

MATERIALS LIST — ON PLANS _____ ATTACHED _____

OTHER REQUIREMENTS

ZONING PERMIT — REQ'D. _____ ATTACHED _____

PLOT PLAN — REQ'D. _____ ATTACHED _____

SEPTIC PERMIT — REQ'D. _____ ATTACHED _____

APPROVALS

ZONING _____ FIRE MARSHAL _____

WETLAND _____ ENGINEER _____

SANITATION _____ STREET SUPT. _____

FEE COVERS

	VALUE	FEE
☑ CONSTRUCTION	118,000	836.-
☐ PLUMBING		
☐ HEATING		
☐ ELECTRICAL		
☐ SEPTIC		
☑ ZONING		35.-
☐ OTHER		
TOTAL		871.-

CHECK # 0588 DATE PAID 4-17-00

DESCRIPTION OF WORK / REMARKS:

150' telecommunications tower

All work covered by this application has been authorized by the (owner) or (agent) of this property and will be done according to state regulations. This permit shall lapse if work does not commence within 6 months.

4/17/00 — Date

Owner/Agent Signature

☑ APPROVED ☐ DISAPPROVED

4/17/00 — Date

Building Official

Office Copy - White Owner Copy - Yellow Assessor's Copy – Pink Building Official – Green Building Official - Goldenrod

116 GRANT HILL RD

Location	116 GRANT HILL RD	**Mblu**	4/ / 5/ CELL/
Acct#	00024910	**Owner**	SPRINT SPECTRUM
Assessment	$845,500	**Appraisal**	$1,207,800
PID	3735	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$1,207,800	$0	$1,207,800

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$845,500	$0	$845,500

Owner of Record

Owner	SPRINT SPECTRUM
Co-Owner	C/O GLOBAL SIGNAL AC1 II LLC
Care Of	
Address	PMB353 4017 WASHINGTON RD MCMURRAY, PA 15317

Sale Price	$0
Certificate	
Book	0000
Page	0000
Sale Date	10/01/2009
Instrument	
Qualified	U

Ownership History

Ownership History						
Owner	**Sale Price**	**Certificate**	**Instrument**	**Sale Date**	**Book**	**Page**
SPRINT SPECTRUM	$0			10/01/2009	0000	0000

Building Information

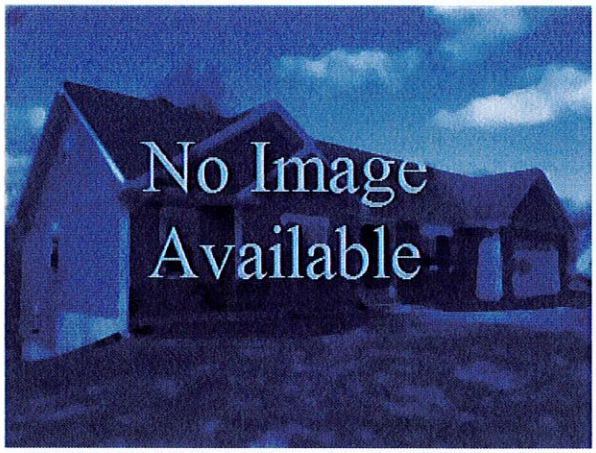
Building 1 : Section 1

Year Built:	
Living Area:	0
Replacement Cost:	$0
Building Percent Good:	

Replacement Cost
Less Depreciation: $0

Building Attributes	
Field	**Description**
Style:	Outbuildings
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Cndtn	
Num Park	
Fireplaces	
Fndtn Cndtn	
Basement	

Building Photo



(https://images.vgsi.com/photos/BrooklynCTPhotos//default.jpg)

Building Layout

Building Layout (ParcelSketch.ashx?pid=3735&bid=3668)

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	4300
Description	TEL TWR MDL00
Zone	
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0
Frontage	
Depth	
Assessed Value	$0
Appraised Value	$0

Outbuildings

Outbuildings — Legend

Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
SHD5	Cell Shed			360.00 SF	$54,000	1
FN3	FENCE-6' CHAIN			280.00 L.F.	$1,300	1
TWR	CELL TOWER			1.00 UNITS	$90,000	1
ARY	CELL ARRAY			5.00 UNIT	$1,062,500	1

Valuation History

Appraisal

Valuation Year	Improvements	Land	Total
2020	$1,207,800	$0	$1,207,800
2019	$1,055,300	$0	$1,055,300
2018	$1,055,300	$0	$1,055,300

Assessment

Valuation Year	Improvements	Land	Total
2020	$845,500	$0	$845,500
2019	$738,700	$0	$738,700
2018	$738,700	$0	$738,700

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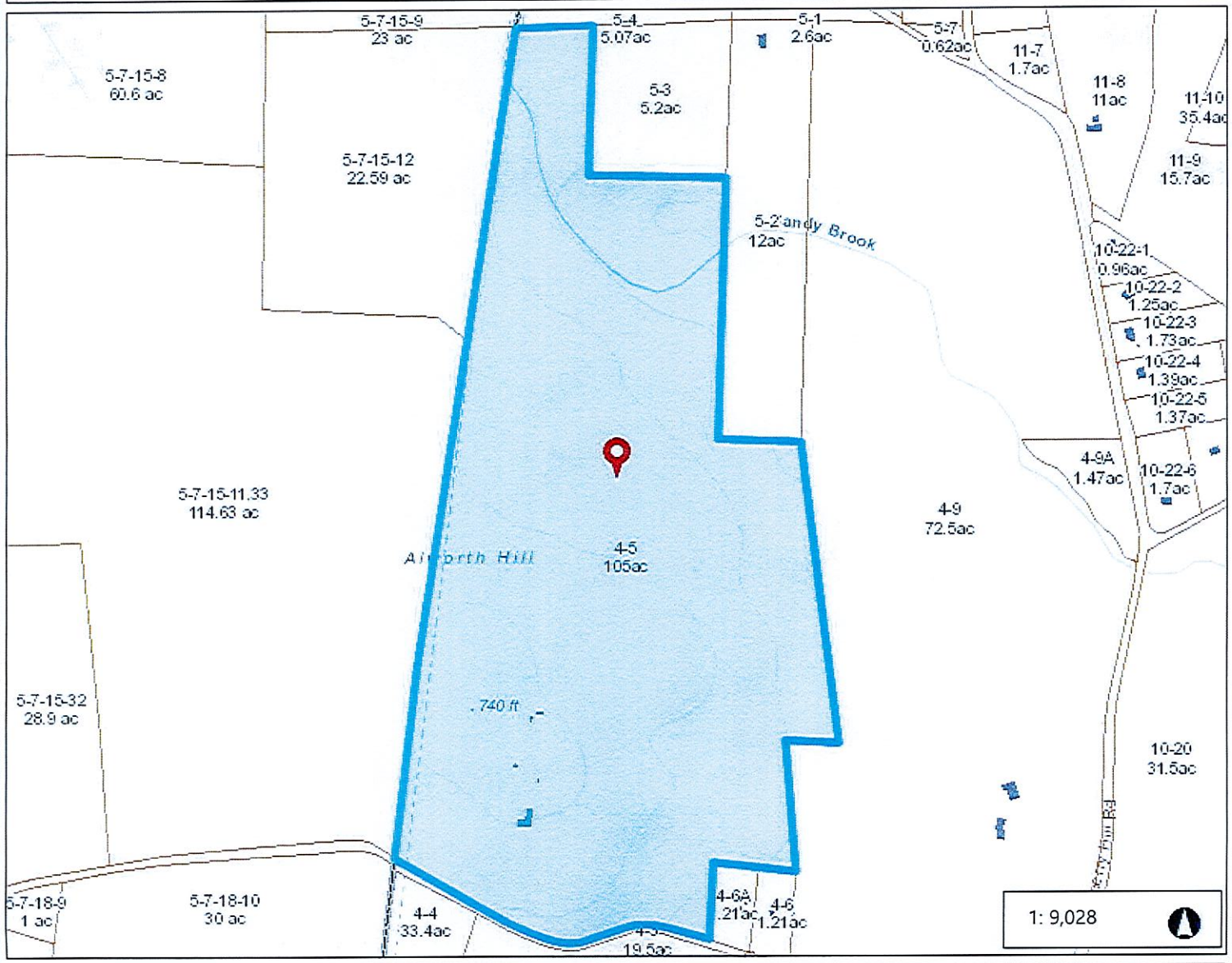
neccog



Legend

- Town
- Buildings 2012
- Parcels

Notes

116 Grant Hill Road, Brooklyn, CT

0.3 0 0.14 0.3 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere

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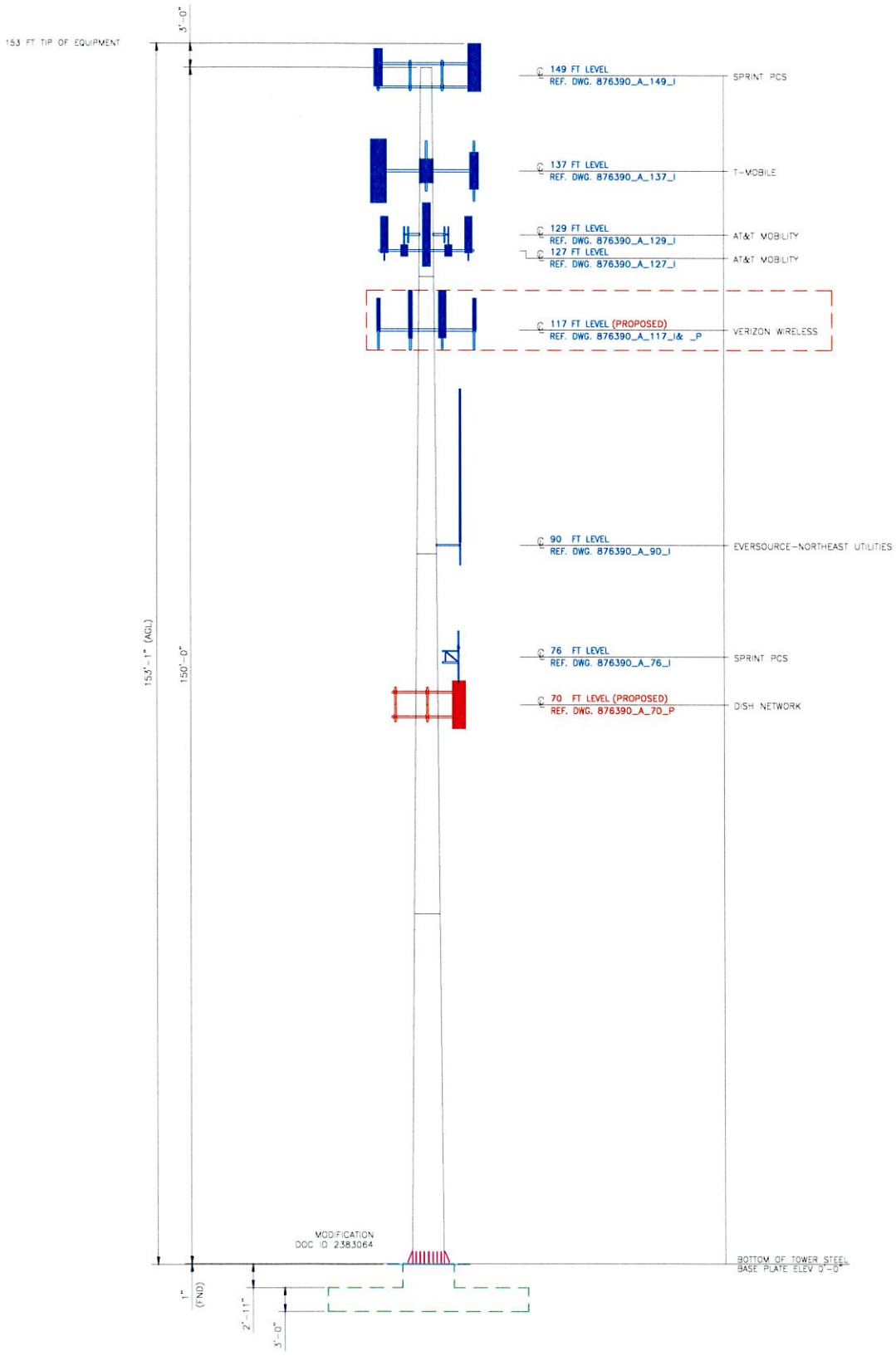
This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION


153 FT TIP OF EQUIPMENT
3'-0"
153'-1" (AGL)
150'-0"
149 FT LEVEL
REF. DWG. 876390_A_149_I
SPRINT PCS
137 FT LEVEL
REF. DWG. 876390_A_137_I
T-MOBILE
129 FT LEVEL
REF. DWG. 876390_A_129_I
AT&T MOBILITY
127 FT LEVEL
REF. DWG. 876390_A_127_I
AT&T MOBILITY
117 FT LEVEL (PROPOSED)
REF. DWG. 876390_A_117_I& _P
VERIZON WIRELESS
90 FT LEVEL
REF. DWG. 876390_A_90_I
EVERSOURCE-NORTHEAST UTILITIES
76 FT LEVEL
REF. DWG. 876390_A_76_I
SPRINT PCS
70 FT LEVEL (PROPOSED)
REF. DWG. 876390_A_70_P
DISH NETWORK
MODIFICATION
DOC ID 2383064
BOTTOM OF TOWER STEEL
BASE PLATE ELEV 0'-0"
1"
(FND)
2'-11"
3'-0"

BSF0020F3V1-1

TWIN BANDSTOP 900MHZ INTERFERENCE MITIGATION FILTER

The BSF0020 is ideal for co-located 700, 850 and 900 networks. Utilising a 2.6MHz guardband the BSF0020 provides rejection of the 900 UL band while passing 700/850 UL and DL bands. Capable of being used in an outdoor environment the BSF0020 contains two identical bandstop filters, suitable for 2x2 MIMO configuration, offering excellent insertion loss, group delay and rejection.

FEATURES

- Passes full 700 and 850 bands
- Low insertion loss
- Rejection of 900MHz uplink
- DC/AISG pass
- Twin unit
- Dual twin mounting available

TECHNICAL SPECIFICATIONS

BAND NAME	700 PATH / 850 UPLINK PATH	850 DOWNLINK PATH
Passband	698 - 849MHz	869 - 891.5MHz
Insertion loss	0.1dB typical / 0.3dB maximum	0.5dB typical, 1.45dB maximum
Return loss	24dB typical, 18dB minimum	
Maximum input power (Per Port)	100W average	200W average and 66W per 5MHz
Rejection	53dB minimum @ 894.1 - 896.5MHz	

ELECTRICAL	
Impedance	50Ohms
Intermodulation products	-160dBc maximum in UL Band (assuming 20MHz Signal), with 2 x 43dBm carriers -153dBc maximum with 2 x 43dBm

DC / AISG	
Passband	0 - 13MHz
Insertion loss	0.3dB maximum
Return loss	15dB minimum
Input voltage range	± 33V
DC current rating	2A continuous, 4A peak
Compliance	3GPP TS 25.461

ENVIRONMENTAL	
For further details of environmental compliance, please contact Kaelus.	
Temperature range	-20ºC to +60ºC | -4°F to +140°F
Ingress protection	IP67
Altitude	2600m | 8530ft
Lightning protection	RF port: ±5kA maximum (8/20us), IEC 61000-4-5 – Unit must be terminated with some lightning protection circuits.
MTBF	>1,000,000 hours
Compliance	ETSI EN 300 019 class 4.1H, RoHS, NEBS GR-487-CORE

MECHANICAL	
Dimensions H x D x W	269 x 277 x 80mm | 10.60 x 10.90 x 3.15in (Excluding brackets and connectors)
Weight	8.0 kg | 17.6 lbs (no bracket)
Finish	Powder coated, light grey (RAL7035)
Connectors	RF: 4.3-10 (F) x 4
Mounting	Optional pole/wall bracket supplied with two metal clamps 45-178mm diameter poles or custom bracket. See ordering information.

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Contact Us: +1 303 768 8080 | +61 (0) 7 3907 1200 | www.kaelus.com

ORDERING INFORMATION

PART NUMBER	CONFIGURATION	OPTIONAL FEATURES	CONNECTORS
BSF0020F3V1	TWIN, 2 in / 2 out	DC/AISG PASS NO BRACKET	4.3-10 (F)
BSF0020F3V1-1	TWIN, 2 in / 2 out	DC/AISG PASS	4.3-10 (F)
BSF0020F3V1-2	QUAD, 4 in / 4 out	DC/AISG PASS	4.3-10 (F)

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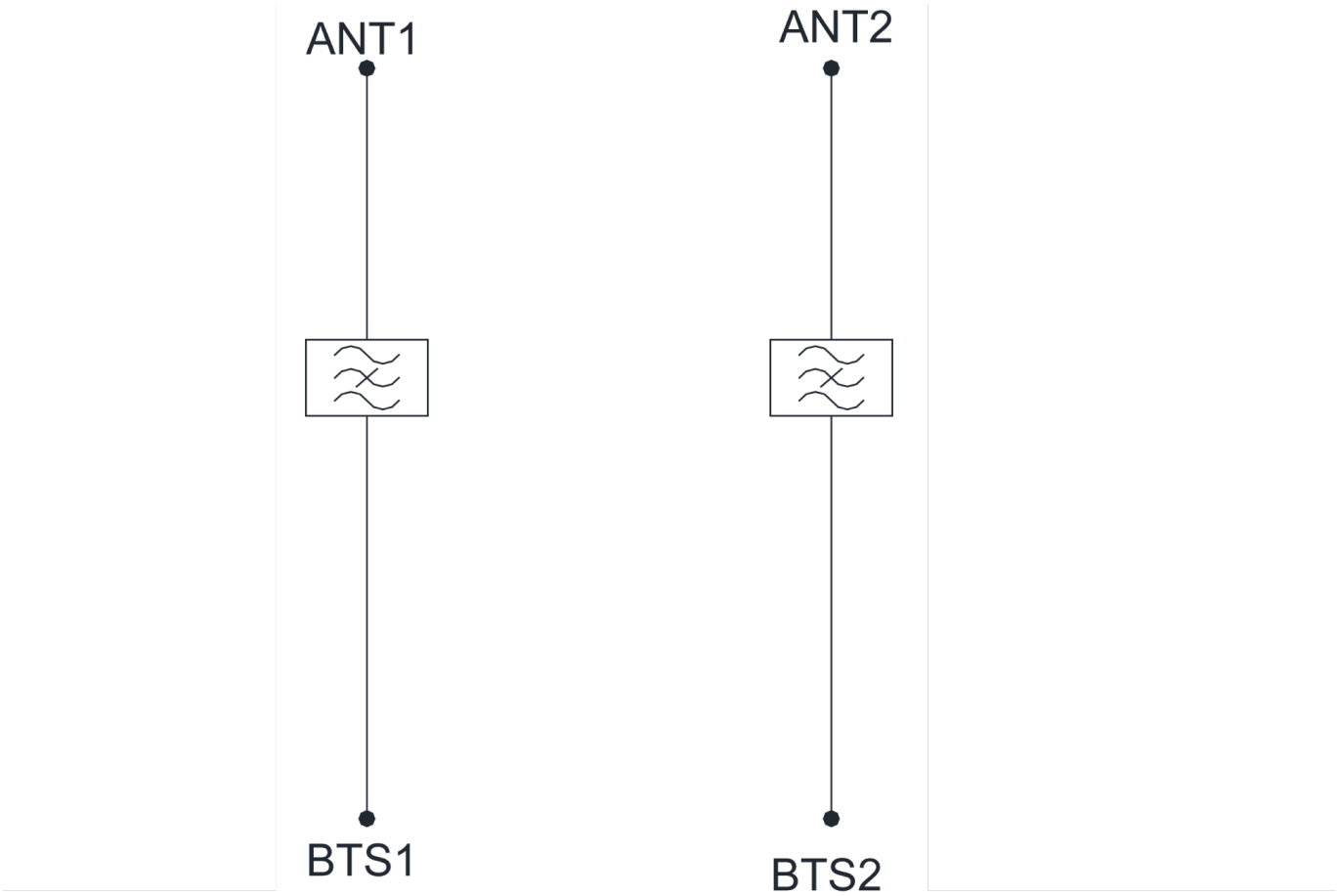
ELECTRICAL BLOCK DIAGRAM



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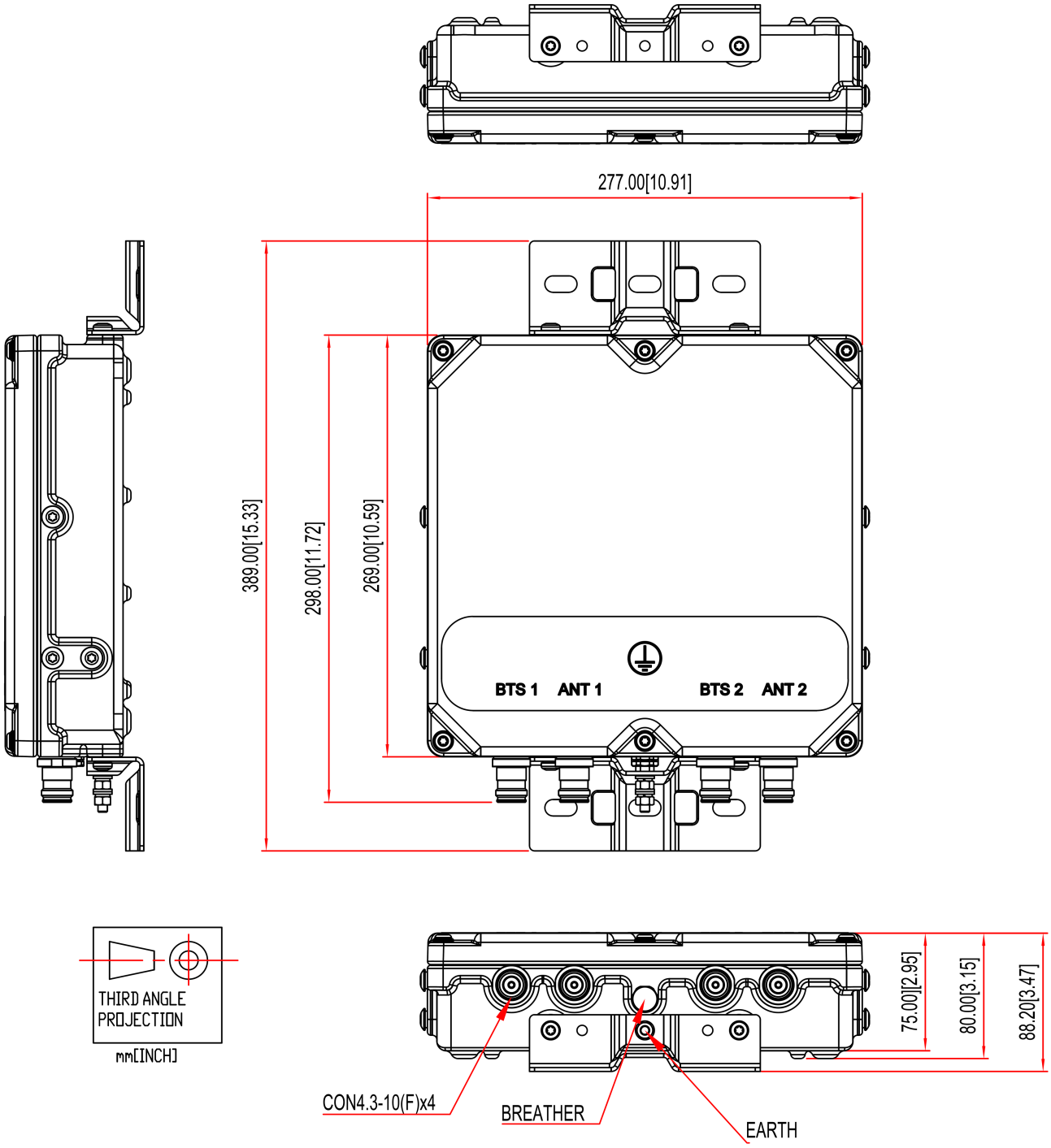
MECHANICAL BLOCK DIAGRAM



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Colliers Engineering & Design CT, PC
1055 Washington Boulevard
Stamford, CT 06901
203.324.0800
peter.albano@collierseng.com

Antenna Mount Analysis Report and PMI Requirements

Mount ReAnalysis

SMART Tool Project #: 10206413
Colliers Engineering & Design CT, PC Project #: 23777060

July 10, 2023

Site Information	*Site ID:*	*5000397339-VZW / BROOKLYN WEST CT*
	Site Name:	*BROOKLYN WEST CT*
	Carrier Name:	*Verizon Wireless*
	Address:	*116 Grant Hill Road* *Brooklyn, Connecticut 06234* *Windham County*
	Latitude:	*41.791806°*
	Longitude:	*-72.014775°*
Structure Information	*Tower Type:*	*140-Ft Monopole*
	Mount Type:	*12.08-Ft Platform*

FUZE ID # 17123681

Analysis Results

Platform: **43.8% Pass***

***Antennas and equipment to be installed in compliance with PMI Requirements of this mount analysis.**

******Contractor PMI Requirements*:**
Included at the end of this MA report
Available & Submitted via portal at https://pmi.vzwsmart.com

For additional questions and support, please reach out to:
pmisupport@colliersengineering.com

Report Prepared By: Vincent DiGirolamo

Executive Summary:

The objective of this report is to determine the capacity of the antenna support mount at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

This analysis is inclusive of the mount structure only and does not address the structural capacity of the supporting structure. This mounting frame was not analyzed as an anchor attachment point for fall protection. All climbing activities are required to have a fall protection plan completed by a competent person.

Sources of Information:

Document Type	Remarks
Radio Frequency Data Sheet (RFDS)	*Verizon RFDS Site ID: 674854* *Dated July 27, 2021*
Previous Mount Modification Report	*Maser Consulting Connecticut Project #: 21777307A* *Dated November 12, 2021*
Post Modification Inspection	*Colliers Engineering & Design CT, PC Project #: 21777307* *Dated March 21, 2023*
Mount Mapping Report	*Structural Components Site ID: 16272122* *Dated October 20, 2021*
Filter Add Scope	*Provided by Verizon Wireless*

Analysis Criteria:

Codes and Standards:	ANSI/TIA-222-H 2022 Connecticut State Building Code (DSBC), Effective October 1, 2022	
Wind Parameters:	Basic Wind Speed (Ultimate 3-sec. Gust), V_{ULT}:	125 mph
	Ice Wind Speed (3-sec. Gust):	50 mph
	Design Ice Thickness:	1.00 in
	Risk Category:	II
	Exposure Category:	B
	Topographic Category:	1
	Topographic Feature Considered:	N/A
	Topographic Method:	N/A
	Ground Elevation Factor, K_e:	0.975
Seismic Parameters:	S_S:	0.184 g
	S_1:	0.054 g
Maintenance Parameters:	Wind Speed (3-sec. Gust):	30 mph
	Maintenance Load, Lv:	250 lbs.
	Maintenance Load, Lm:	500 lbs.
Analysis Software:	RISA-3D (V17)	

Final Loading Configuration:

The following equipment has been considered for the analysis of the mount:

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
113.00	115.00	6	Antel	LPA-80080/4CF	Retained
		6	Commscope	NHH-65B-R2B	
		3	Samsung	MT6407-77A	
		1	Raycap	RVZDC-6627-PF-48	
		3	Samsung	RF4440d-13A	
		3	Samsung	RF4439d-25A	
		6	KAelus	BSF0020F3V1-1	Added

It is acceptable to install up to any three (3) of the OVP model numbers listed below as required at any location other than the mount face without affecting the structural capacity of the mount. If OVP units are installed on the mount face, a mount re-analysis may be required unless replacing an existing OVP.

Model Number	Ports	AKA
DB-B1-6C-12AB-0Z	6	OVP-6
RVZDC-6627-PF-48	12	OVP-12

Standard Conditions:

1. All engineering services are performed on the basis that the information provided to Colliers Engineering & Design CT, PC and used in this analysis is current and correct. The existing equipment loading has been applied at locations determined from the supplied documentation. Any deviation from the loading locations specified in this report shall be communicated to Colliers Engineering & Design CT, PC to verify deviation will not adversely impact the analysis.

2. Mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

   Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping and reported in the Mount Mapping Report are assumed to be corrected and documented as part of the PMI process and are not considered in the mount analysis.

   The mount analysis and the mount mapping are not a condition assessment of the mount. Proper maintenance and condition assessments are still required post analysis.

3. For mount analyses completed from other data sources (including new replacement mounts) and not specifically mapped in accordance with the NSTD-446 Standard, the mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

4. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.

5. The mount was checked up to, and including, the bolts that fasten it to the mount collar/attachment and threaded rod connections in collar members if applicable. Local deformation and interaction between the mount collar/attachment and the supporting tower structure are outside the scope of this analysis.

6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Colliers Engineering & Design is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.

7. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:
   - Channel, Solid Round, Angle, Plate — ASTM A36 (Gr. 36)
   - HSS (Rectangular) — ASTM 500 (Gr. B-46)
   - Pipe — ASTM A53 (Gr. B-35)
   - Threaded Rod — F1554 (Gr. 36)
   - Bolts — ASTM A325

Discrepancies between in-field conditions and the assumptions listed above may render this analysis invalid unless explicitly approved by Colliers Engineering & Design CT, PC.

Analysis Results:

Component	Utilization %	Pass/Fail
Face Horizontal	*13.6*	*Pass*
Standoff Horizontal	*30.4*	*Pass*
Corner Plate	*20.0*	*Pass*
Platform Crossmember	*17.1*	*Pass*
Grating Support	*15.7*	*Pass*
Mount Pipe	*36.7*	*Pass*
Cross Arm Plate	*25.1*	*Pass*
Support Rail	*18.4*	*Pass*
Support Rail Angle	*32.4*	*Pass*
Mount Connection	*43.8*	*Pass*

Structure Rating – *(Controlling Utilization of all Components)*	**43.8%**

Mount Steel (EPA)a per ANSI/TIA-222-H Section 2.6.11.2:

Ice Thickness (In)	Mount Pipes Excluded		Mount Pipes Included	
	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)	Front (EPA)a (Sq. Ft.)	Side (EPA)a (Sq. Ft.)
0	24.5	24.5	37.6	37.6
0.5	31.8	31.8	50.5	50.5
1	38.6	38.6	62.7	62.7

Notes:
- (EPA)a values listed above may be used in the absence of more precise information
- (EPA)a values in the table above include 3 sector(s).
- Ka factors included in (EPA)a calculations

Requirements:

The existing mount is **SUFFICIENT** for the final loading configuration shown in attachment 2 and do not require modifications. Additional requirements are noted below.

If required, ANSI/ASSP rigging plan review services compliant with the requirements of ANSI/TIA 322 are available for a Construction Class IV site or other. Separate review fees will apply.

Attachments:

1. **Contractor Required Post Installation Inspection (PMI) Report Deliverables**
2. Antenna Placement Diagrams
3. Mount Photos
4. Mount Mapping Report (for reference only)
5. Analysis Calculations

Mount Desktop – Post Modification Inspection (PMI) Report Requirements

Documents & Photos Required from Contractor – Passing Mount Analysis

Passing Mount Analysis requires a PMI due to a modification in loading.

Electronic pdf version of this can be downloaded at https://pmi.vzwsmart.com.

For additional questions and support, please reach out to pmisupport@colliersengineering.com

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MDG #: 5000397339 SMART Project #: 10206413 Fuze Project ID: 17123681

Purpose – to provide SMART Tool structural vendor the proper documentation in order to complete the required Mount Desktop review of the Post Modification Inspection Report.

- Contractor is responsible for making certain the photos provided as noted below provide confirmation that the installation was completed in accordance with this Passing Mount Analysis.
- Contractor shall relay any data that can impact the performance of the mount, this includes safety issues.

Base Requirements:

- If installation will cause damage to the structure, the climbing facility, or safety climb if present or any installed system, SMART Tool vendor to be notified prior to install. Any special photos outside of the standard requirements will be indicated on the drawings.
- Provide "as built mount drawings" showing contractor's name, contact information, preparer's signature, and date. Any deviations from the drawings (Proposed modification) shall be shown. NOTE: If loading is different than what is conveyed in the passing mount analysis (MA) contact the SMART Tool vendor immediately.
- Each photo should be time and date stamped
- Photos should be high resolution.
- Contractor shall ensure that the safety climb wire rope is supported and not adversely impacted by the install of the modification components. This may involve the install of wire rope guides, or other items to protect the wire rope. If there is conflict, contact the SMART Tool engineer for recommendations.
- The PMI can be accessed at the following portal: ***https://pmi.vzwsmart.com***

Photo Requirements:

- *Photos taken at ground level*
  - Photo of Gate Signs showing the tower owner, site name, and number.
  - Overall tower structure after installation.
  - Photos of the mount after installation; if the mounts are at different rad elevations, pictures must be provided for all elevations that equipment was installed.
- *Photos taken at Mount Elevation*
  - Photos showing the safety climb wire rope above and below the mount prior to installation.
  - Photos showing the climbing facility and safety climb if present.
  - Photos showing each individual sector after installation. Each entire sector shall be in one photo to show the interconnection of members.

        - These photos shall also certify that the placement and geometry of the equipment on the mount is as depicted in the antenna placement diagram in this form.
    - Photos that show the model number of each antenna and piece of equipment installed per sector.

Antenna & equipment placement and Geometry Confirmation:

- The contractor shall certify that the antenna & equipment placement and geometry is in accordance with the sketch and table as included in the mount analysis and noted below.

☐ The contractor certifies that the photos support and the equipment on the mount is as depicted on the sketch and table included in this form and with the mount analysis provided.

OR

☐ The contractor notes that the equipment on the mount is not in accordance with the sketch and has noted the differences below and provided photo documentation of any alterations.

Special Instructions / Validation as required from the MA or any other information the contractor deems necessary to share that was identified:

Issue:

Response:

Special Instruction Confirmation:

☐ The contractor has read and acknowledges the above special instructions.

☐ All hardware listed in the Special Instructions above (if applicable) has been properly installed, and the existing hardware was inspected.

☐ The material utilized was as specified in the SMART Tool engineering vendor Special Instructions above (if applicable) and included in the material certification folder is a packing list or invoice for these materials.

OR

☐ The material utilized was approved by a SMART Tool engineering vendor as an “equivalent” and this approval is included as part of the contractor submission.

Comments:

Contractor certifies that the climbing facility / safety climb was not damaged prior to starting work:

☐ Yes ☐ No

Contractor certifies no new damage created during the current installation:

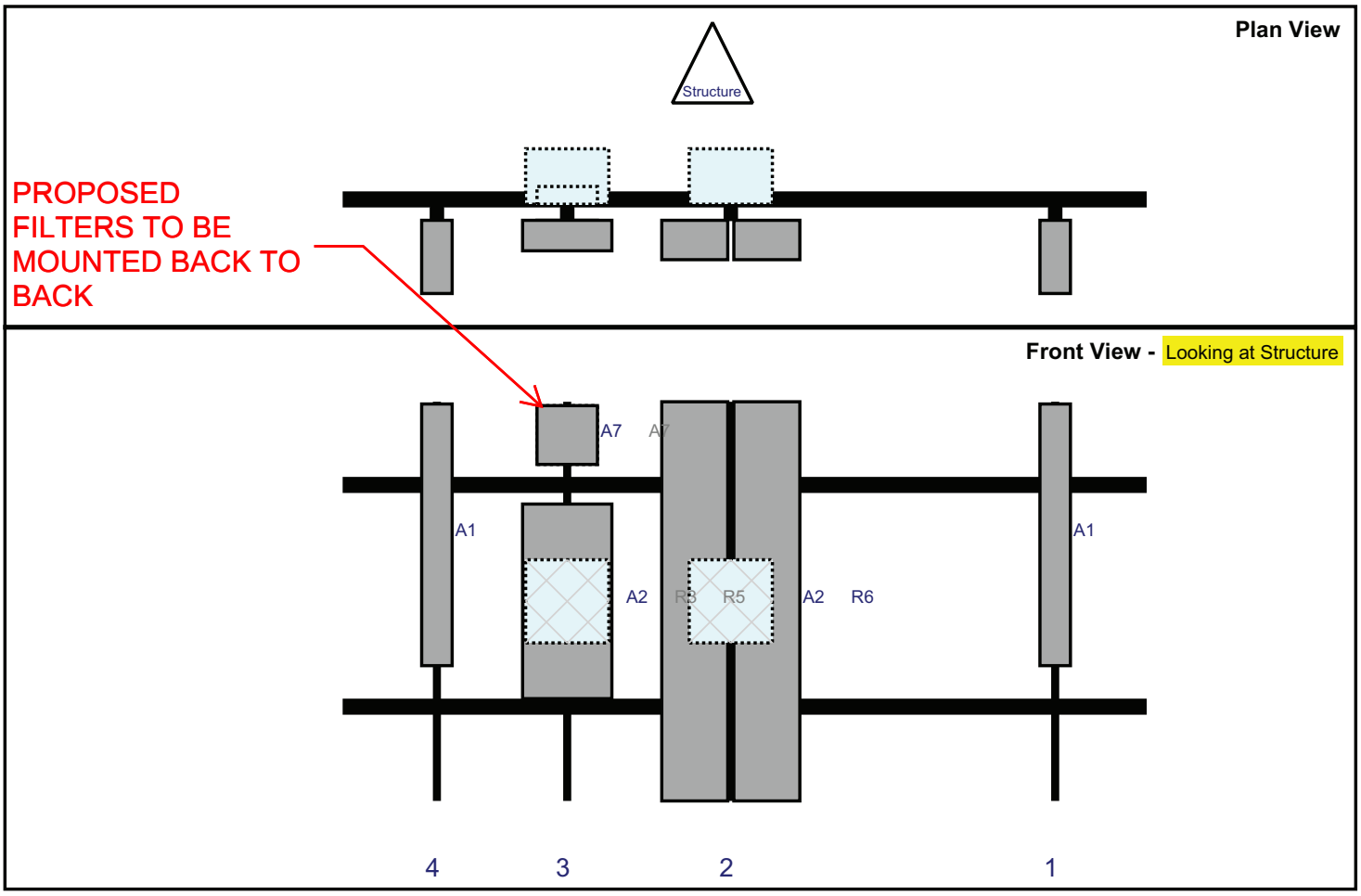
☐ Yes ☐ No

Contractor to certify the condition of the safety climb and verify no damage when leaving the site:

☐ Safety Climb in Good Condition ☐ Safety Climb Damaged

Certifying Individual:

Company:	
Employee Name:	
Contact Phone:	
Email:	
Date:	



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A2	NHH-65B-R2B	72	11.9	70	2	a	Front	36	-6.5	Retained	03/07/2023
A2	NHH-65B-R2B	72	11.9	70	2	b	Front	36	6.5	Retained	03/07/2023
R6	RF4439d-25A	15	15	70	2	a	Behind	36	0	Retained	03/07/2023
R3	MT6407-77A	35.1	16.1	40.5	3	a	Front	36	0	Retained	03/07/2023
R5	RF4440d-13A	15	15	40.5	3	a	Behind	36	0	Retained	03/07/2023
A7	BSF0020F3V1-1	10.6	10.9	40.5	3	a	Behind	6	0	Added	
A7	BSF0020F3V1-1	10.6	10.9	40.5	3	b	Front	6	0	Added	
A1	LPA-80080/4CF ___	47.2	5.5	17	4	a	Front	24	0	Retained	03/07/2023

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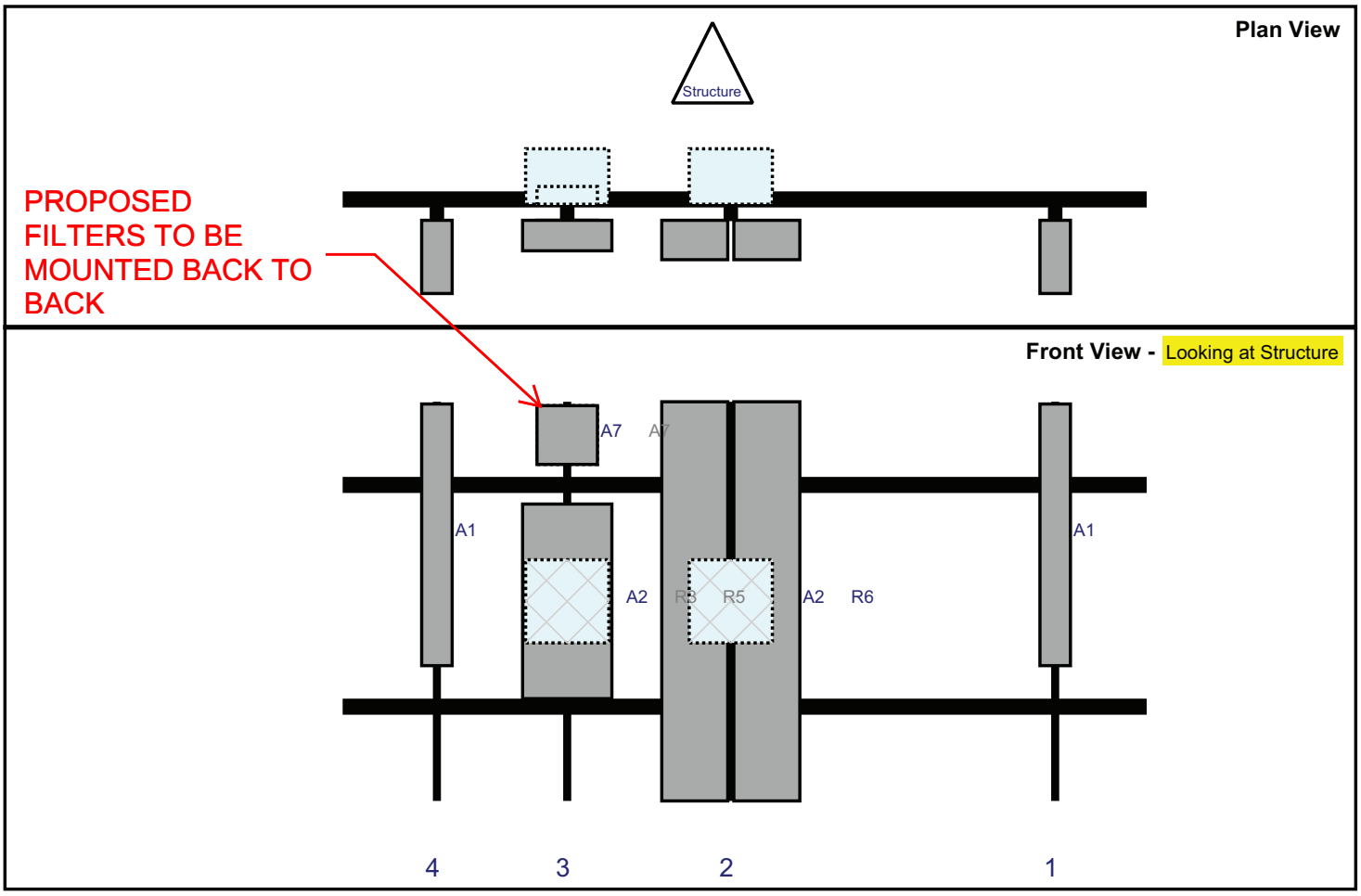

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A2	NHH-65B-R2B	72	11.9	70	2	b	Front	36	6.5	Retained	03/07/2023
R6	RF4439d-25A	15	15	70	2	a	Behind	36	0	Retained	03/07/2023
R3	MT6407-77A	35.1	16.1	40.5	3	a	Front	36	0	Retained	03/07/2023
R5	RF4440d-13A	15	15	40.5	3	a	Behind	36	0	Retained	03/07/2023
A7	BSF0020F3V1-1	10.6	10.9	40.5	3	a	Behind	6	0	Added	
A7	BSF0020F3V1-1	10.6	10.9	40.5	3	b	Front	6	0	Added	
A1	LPA-80080/4CF ___	47.2	5.5	17	4	a	Front	24	0	Retained	03/07/2023

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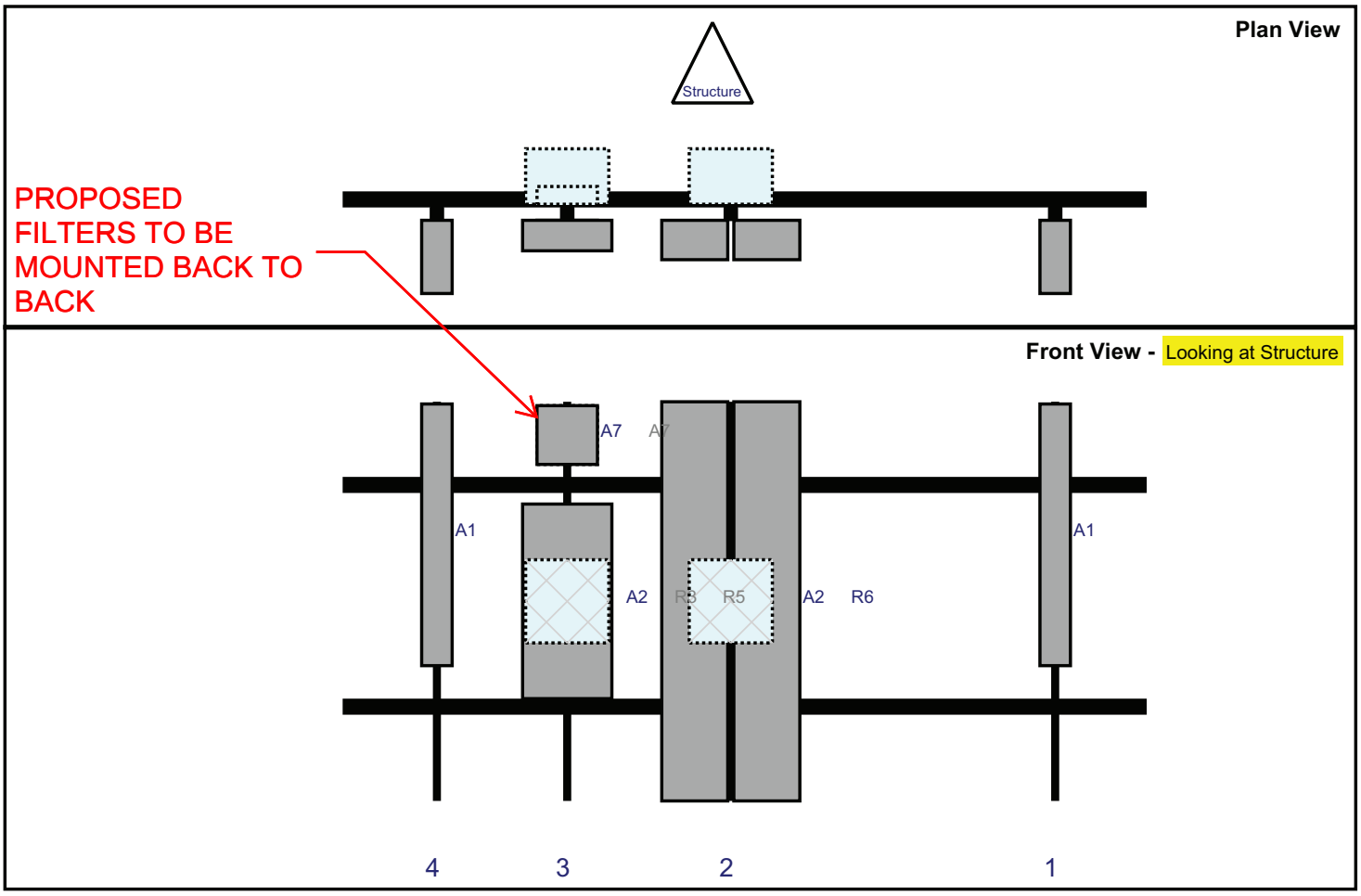
Structure: 5000397339-VZW - BROOKLYN WEST CT

Sector: **A** 7/10/2023

Structure Type: Monopole 10206413

Mount Elev: 113.00 Page: 1



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R6	RF4439d-25A	15	15	70	2	a	Behind	36	0	Retained	03/07/2023
R3	MT6407-77A	35.1	16.1	40.5	3	a	Front	36	0	Retained	03/07/2023
R5	RF4440d-13A	15	15	40.5	3	a	Behind	36	0	Retained	03/07/2023
A7	BSF0020F3V1-1	10.6	10.9	40.5	3	a	Behind	6	0	Added	
A7	BSF0020F3V1-1	10.6	10.9	40.5	3	b	Front	6	0	Added	
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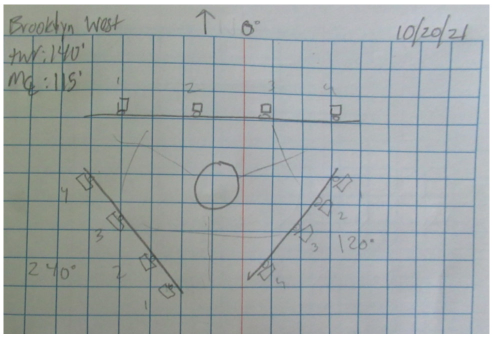

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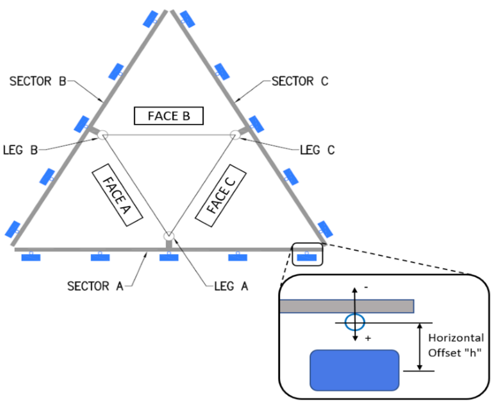

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FACE C
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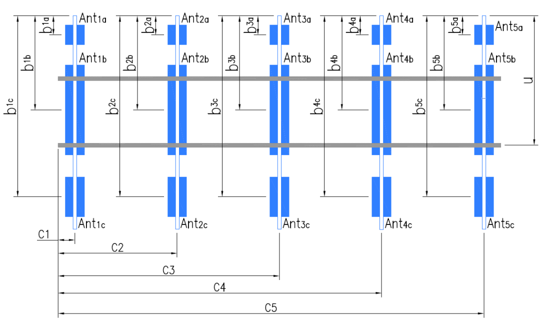

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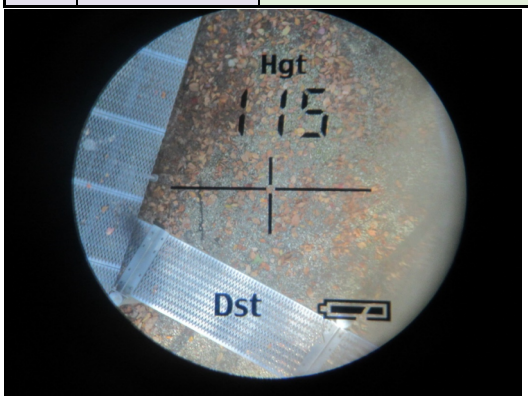

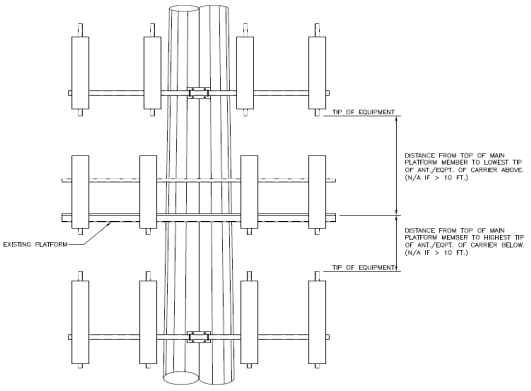

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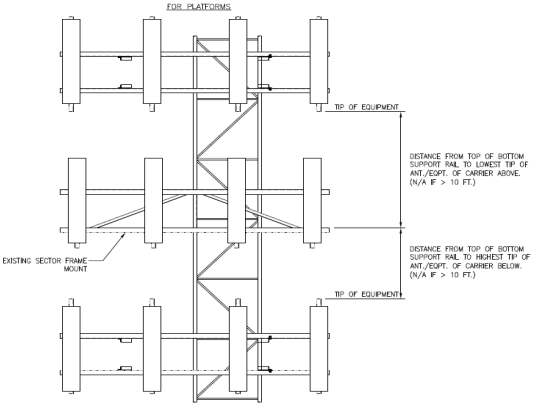

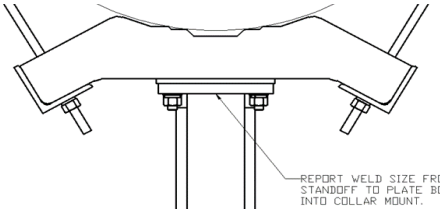

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West Brooklyn CT

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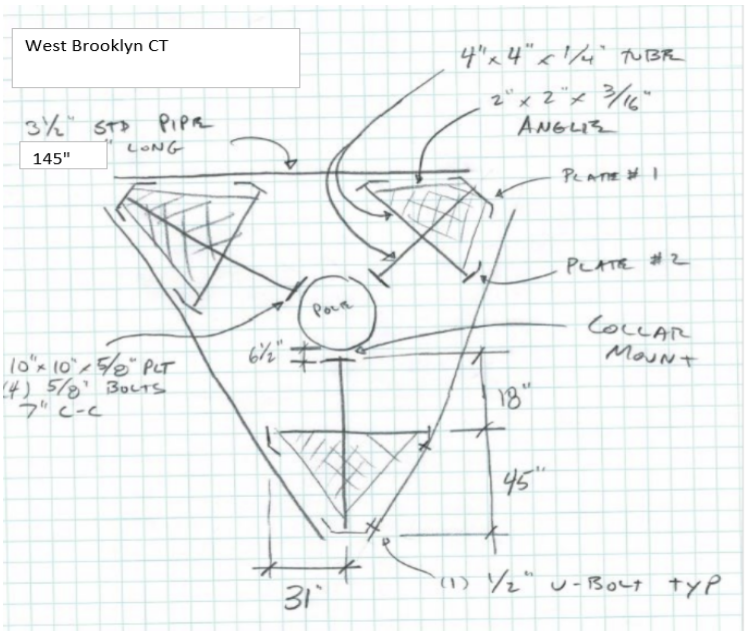

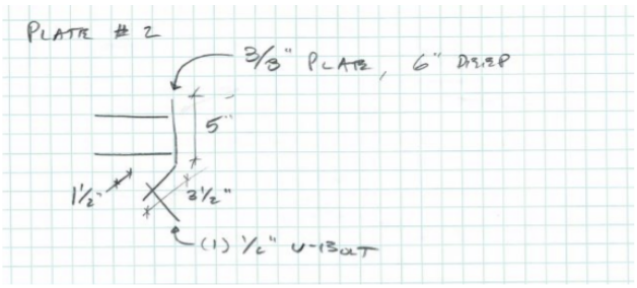

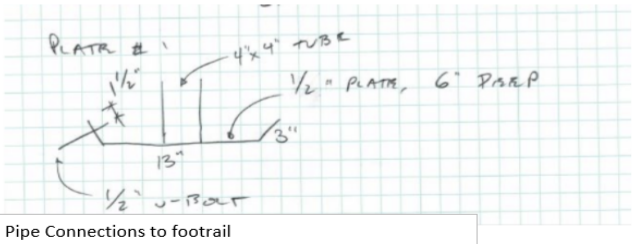

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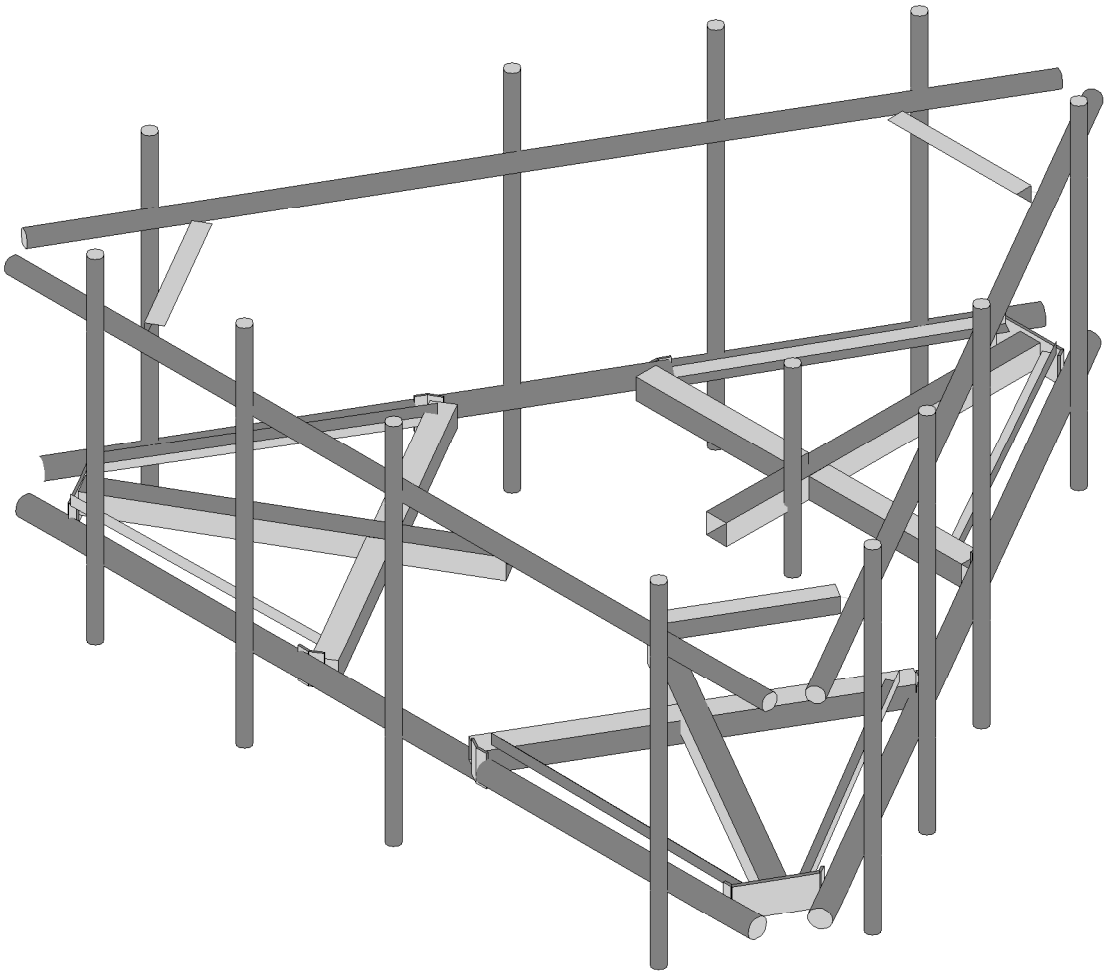
(4) 1/2" u-bolts



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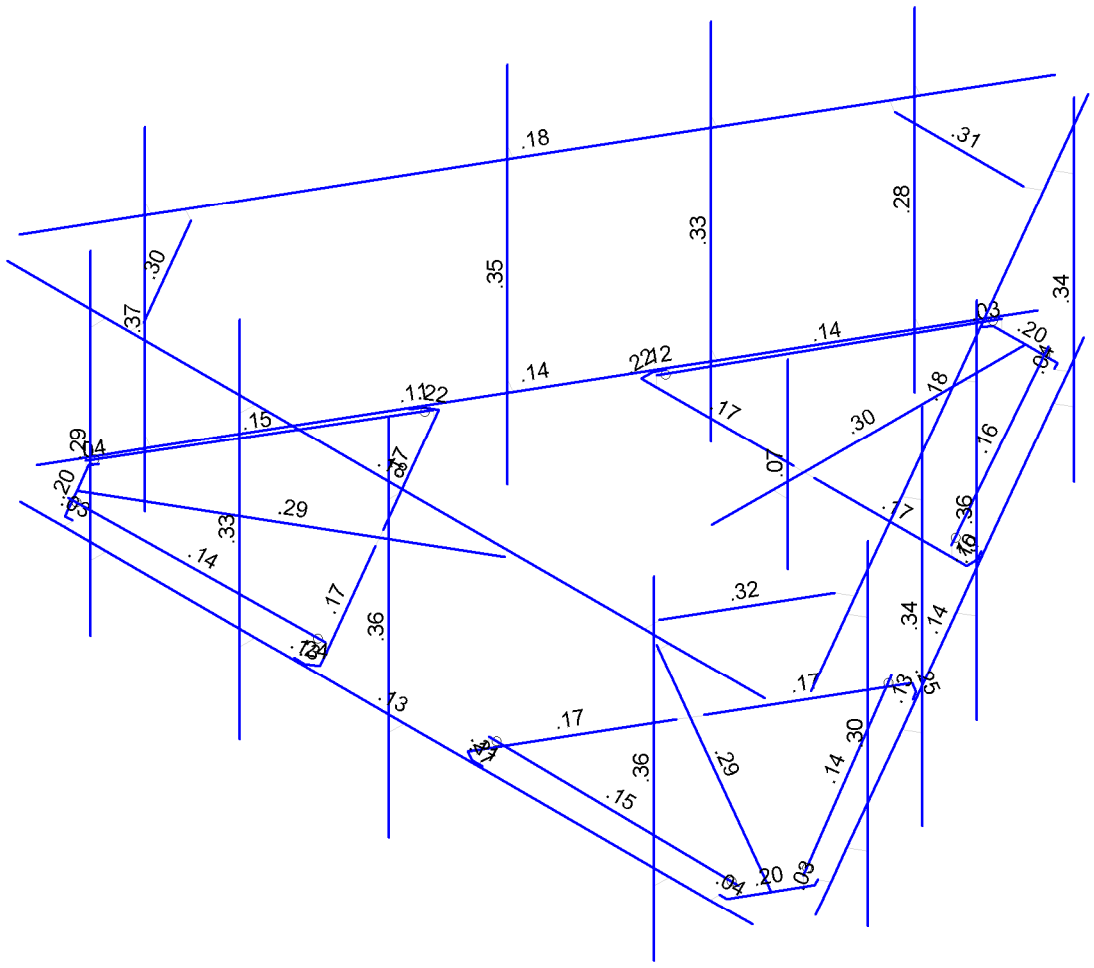

Member Code Checks Displayed (Enveloped)
Envelope Only Solution

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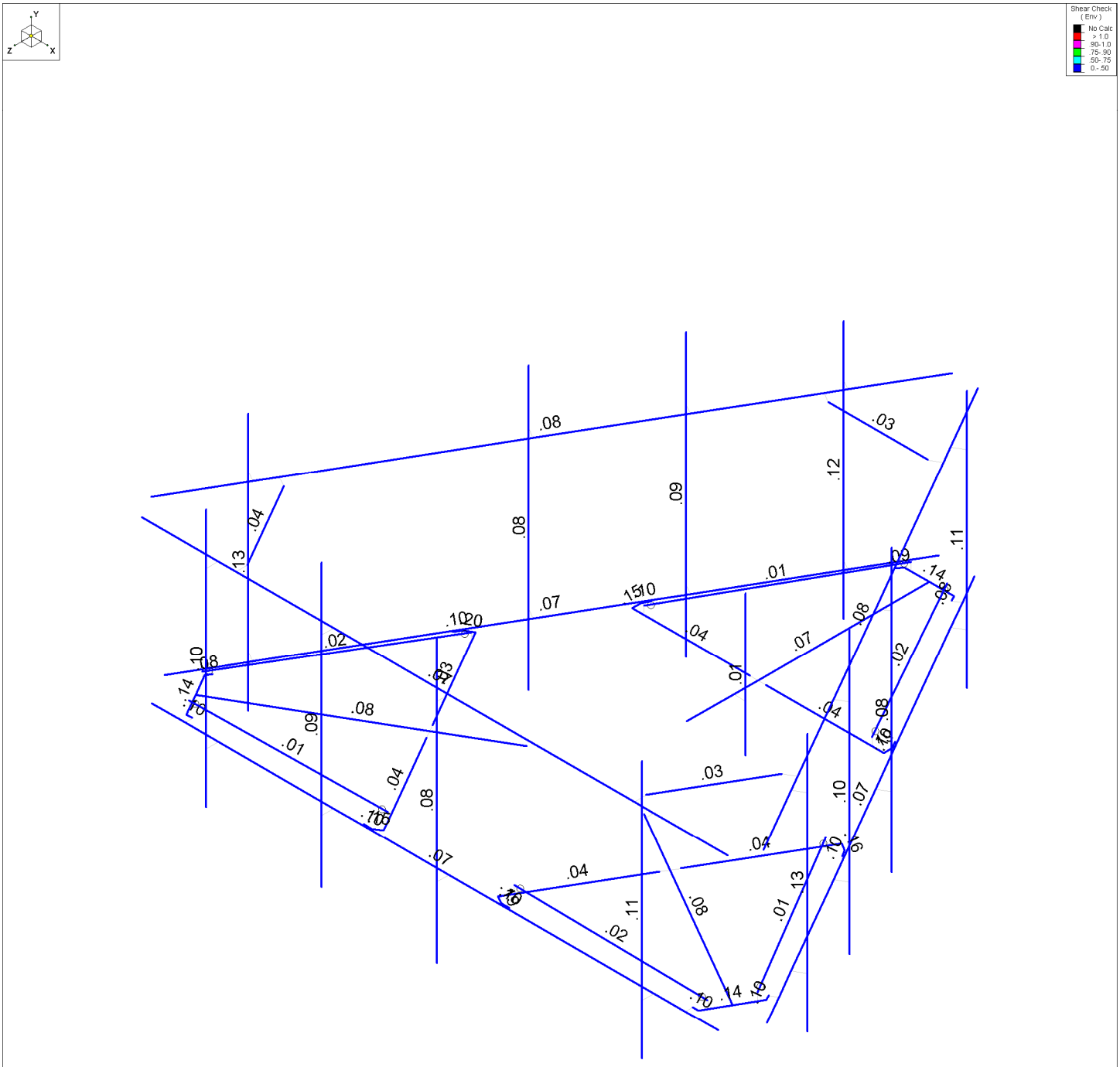

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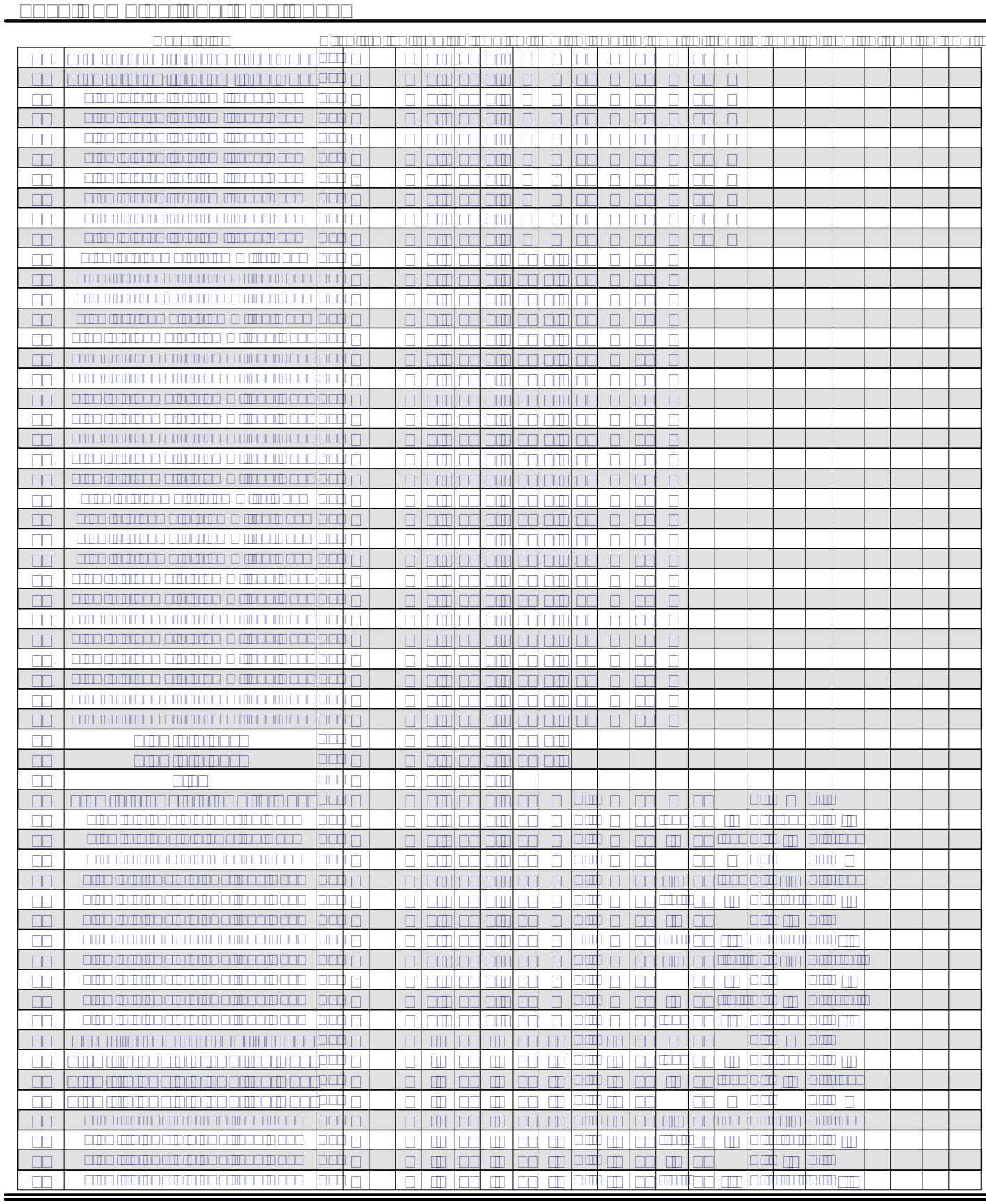

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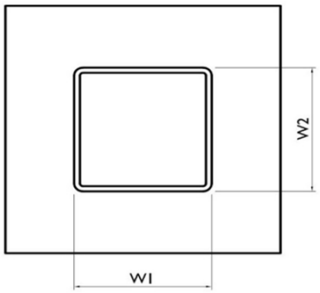

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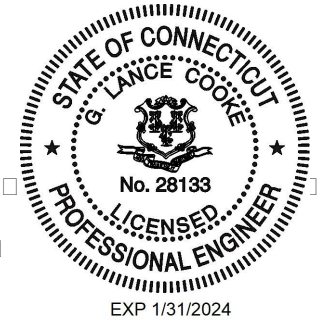

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Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.00	NNVV-65B-R4 w/ Mount Pipe	40	35.768	2.2081	0.0086	16822
137.00	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	40	30.297	2.1082	0.0059	6470
129.00	TME-RRUS-11	40	26.777	2.0276	0.0048	4028
127.00	(2) 7770.00 w/ Mount Pipe	40	25.923	2.0044	0.0045	3762
117.00	(2) LPA-80080/4CF w/ Mount Pipe	40	21.843	1.8652	0.0036	3506
90.00	DS9A09F36D-N	40	12.523	1.3838	0.0027	3253
76.00	KS24019-L112A	40	8.732	1.1298	0.0021	3149
70.00	MX08FRO665-21 w/ Mount Pipe	40	7.334	1.0244	0.0018	3106

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 123.29	157.107	4	9.6423	0.0399
L2	126.71 - 88.88	112.026	4	8.7230	0.0195
L3	93.13 - 43.8	58.567	4	6.2819	0.0119
L4	49.22 - 0	15.582	4	2.9671	0.0038

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
149.00	NNVV-65B-R4 w/ Mount Pipe	4	155.119	9.6101	0.0388	4189
137.00	APX16DWV-16DWV-S-E-A20 w/ Mount Pipe	4	131.476	9.1938	0.0260	1608
129.00	TME-RRUS-11	4	116.254	8.8417	0.0207	998
127.00	(2) 7770.00 w/ Mount Pipe	4	112.558	8.7386	0.0196	931
117.00	(2) LPA-80080/4CF w/ Mount Pipe	4	94.891	8.1294	0.0155	854
90.00	DS9A09F36D-N	4	54.452	6.0286	0.0116	762
76.00	KS24019-L112A	4	37.978	4.9206	0.0090	735
70.00	MX08FRO665-21 w/ Mount Pipe	4	31.903	4.4613	0.0077	723

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	150 - 123.29 (1)	TP22.9x17x0.1875	26.71	0.00	0.0	13.0672	-12.96	764.43	0.017
L2	123.29 - 88.88 (2)	TP30x21.7696x0.3125	37.83	0.00	0.0	28.5292	-21.41	1668.96	0.013
L3	88.88 - 43.8 (3)	TP39.2x28.4504x0.375	49.33	0.00	0.0	44.8057	-35.41	2621.13	0.014
L4	43.8 - 0 (4)	TP48x37.2689x0.4375	49.22	0.00	0.0	66.0465	-52.23	3863.72	0.014

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	150 - 123.29 (1)	TP22.9x17x0.1875	223.76	413.83	0.541	0.00	413.83	0.000
L2	123.29 - 88.88 (2)	TP30x21.7696x0.3125	934.82	1249.92	0.748	0.00	1249.92	0.000
L3	88.88 - 43.8 (3)	TP39.2x28.4504x0.375	2157.64	2537.12	0.850	0.00	2537.12	0.000
L4	43.8 - 0 (4)	TP48x37.2689x0.4375	3819.72	4628.73	0.825	0.00	4628.73	0.000

Pole Shear Design Data

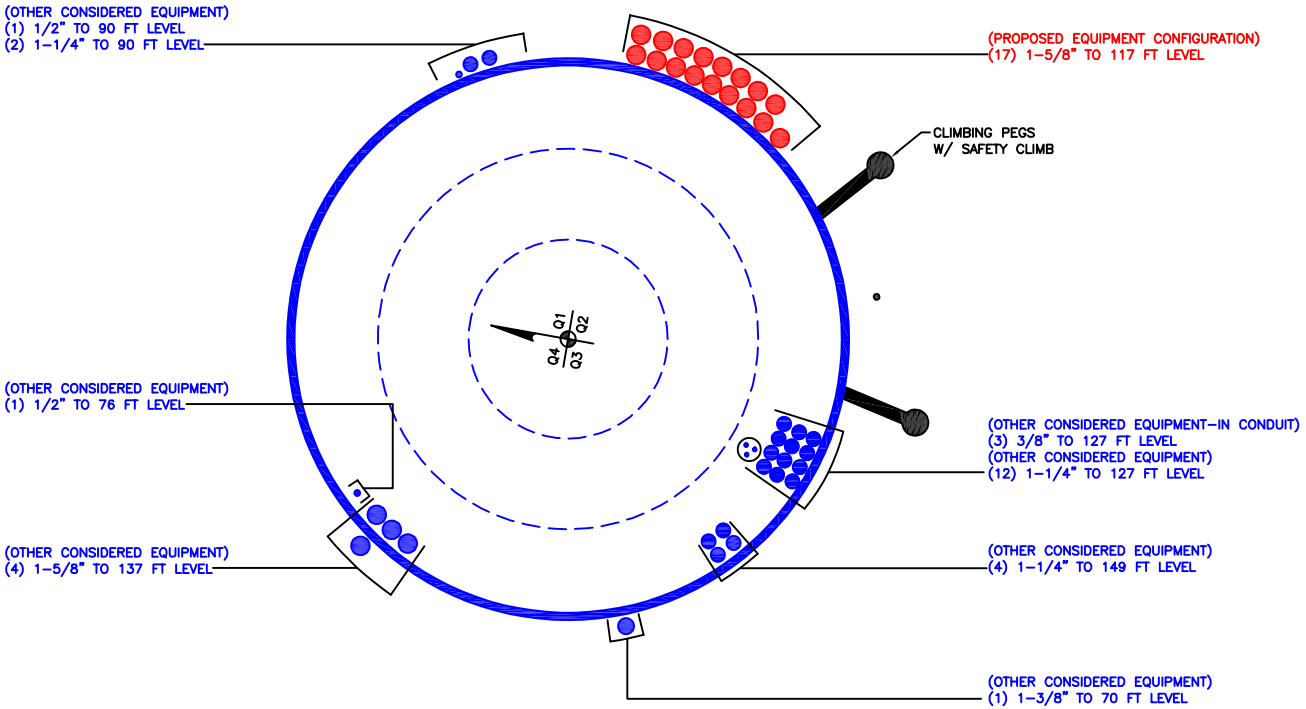
Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	150 - 123.29 (1)	TP22.9x17x0.1875	16.74	229.33	0.073	0.42	440.97	0.001
L2	123.29 - 88.88 (2)	TP30x21.7696x0.3125	23.53	500.69	0.047	1.53	1261.18	0.001
L3	88.88 - 43.8 (3)	TP39.2x28.4504x0.375	31.71	786.34	0.040	0.00	2592.30	0.000
L4	43.8 - 0 (4)	TP48x37.2689x0.4375	35.75	1159.12	0.031	0.00	4828.05	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	150 - 123.29 (1)	0.017	0.541	0.000	0.073	0.001	0.563	1.050	4.8.2
L2	123.29 - 88.88 (2)	0.013	0.748	0.000	0.047	0.001	0.763	1.050	4.8.2
L3	88.88 - 43.8 (3)	0.014	0.850	0.000	0.040	0.000	0.866	1.050	4.8.2
L4	43.8 - 0 (4)	0.014	0.825	0.000	0.031	0.000	0.840	1.050	4.8.2

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	150 - 123.29	Pole	TP22.9x17x0.1875	1	-12.96	802.65	53.6	Pass
L2	123.29 - 88.88	Pole	TP30x21.7696x0.3125	2	-21.41	1752.41	72.7	Pass
L3	88.88 - 43.8	Pole	TP39.2x28.4504x0.375	3	-35.41	2752.19	82.4	Pass
L4	43.8 - 0	Pole	TP48x37.2689x0.4375	4	-52.23	4056.91	80.0	Pass
							Summary	
						Pole (L3)	82.4	Pass
						RATING =	**82.4**	**Pass**



BUSINESS UNIT: 876390 TOWER ID:C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

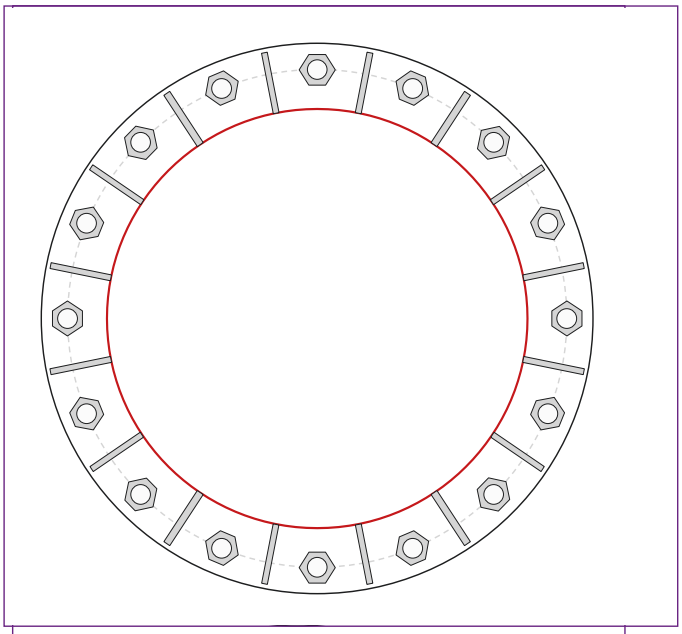
Monopole Base Plate Connection

Site Info	
BU #	876390
Site Name	Hampton / Bernier
Order #	654639 Rev. 1

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	1

Applied Loads	
Moment (kip-ft)	3819.73
Axial Force (kips)	52.23
Shear Force (kips)	35.75

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

(16) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 57" BC

Base Plate Data

63" OD x 2" Plate (A871 Gr. 60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

(16) 18"H x 7"W x 0.75"T, Notch: 0.75"
plate: Fy= 50 ksi ; weld: Fy= 70 ksi
horiz. weld: 0.375" groove, 45° dbl bevelFALSE
vert. weld: 0.375" fillet

Pole Data

48" x 0.4375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary		*(units of kips, kip-in)*
Pu_t = 197.65	ϕPn_t = 243.75	**Stress Rating**
Vu = 2.23	ϕVn = 149.1	**77.2%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary		
Max Stress (ksi):	35.28	(Roark's Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**62.2%**	**Pass**

Stiffener Summary		
Horizontal Weld:	**64.2%**	**Pass**
Vertical Weld:	**49.0%**	**Pass**
Plate Flexure+Shear:	**22.8%**	**Pass**
Plate Tension+Shear:	**64.9%**	**Pass**
Plate Compression:	**71.5%**	**Pass**
Pole Summary		
Punching Shear:	**12.6%**	**Pass**

Pier and Pad Foundation

BU # :	876390
Site Name:	Hampton / Bernier
App. Number:	654639 Rev. 1

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☑
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	52.27	kips
Base Shear, Vu_comp:	35.69	kips
Moment, M_u:	3819.73	ft-kips
Tower Height, **H**:	150	ft
BP Dist. Above Fdn, bp_{dist}:	3.25	in

Pier Properties		
Pier Shape:	Square	
Pier Diameter, **dpier**:	6.5	ft
Ext. Above Grade, **E**:	1	ft
Pier Rebar Size, **Sc**:	9	
Pier Rebar Quantity, **mc**:	27	
Pier Tie/Spiral Size, **St**:	4	
Pier Tie/Spiral Quantity, **mt**:	4	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	5	ft
Pad Width, W_1:	25.25	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Top dir.2), Sp_{top2}:	9	
Pad Rebar Quantity (Top dir. 2), mp_{top2}:	20	
Pad Rebar Size (Bottom dir. 2), Sp_2:	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	35	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	125	pcf
Ultimate Net Bearing, Qnet:	12.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	30	degrees
SPT Blow Count, N_{blows}:	6	
Base Friction, μ:	0.5	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	13	ft

<--Toggle between Gross and Net

Seismic Design Category:	B

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating***	**Check**
Lateral (Sliding) (kips)	217.57	35.69	**15.6%**	**Pass**
Bearing Pressure (ksf)	9.47	2.74	**28.9%**	**Pass**
*Overturning (kip*ft)*	5378.60	4043.54	**75.2%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	4131.62	3926.80	**90.5%**	**Pass**
Pier Compression (kip)	26891.28	75.09	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	4770.48	1890.84	**37.7%**	**Pass**
Pad Shear - 1-way (kips)	899.95	277.76	**29.4%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.190	0.041	**20.8%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	4566.12	2356.08	**49.1%**	**Pass**

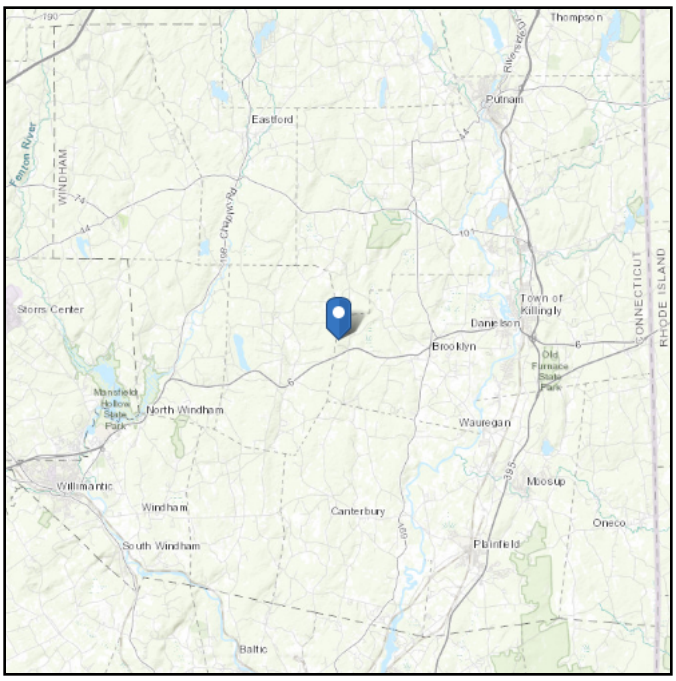
**Rating per TIA-222-H Section 15.5*

Structural Rating*:	**90.5%**
Soil Rating*:	**75.2%**

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	41.791567
Risk Category:	II	**Longitude:**	-72.015011
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	720.9157298343945 ft (NAVD 88)



Wind

Results:

Wind Speed	121 Vmph
10-year MRI	75 Vmph
25-year MRI	85 Vmph
50-year MRI	94 Vmph
100-year MRI	100 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Fri Jul 21 2023

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Seismic

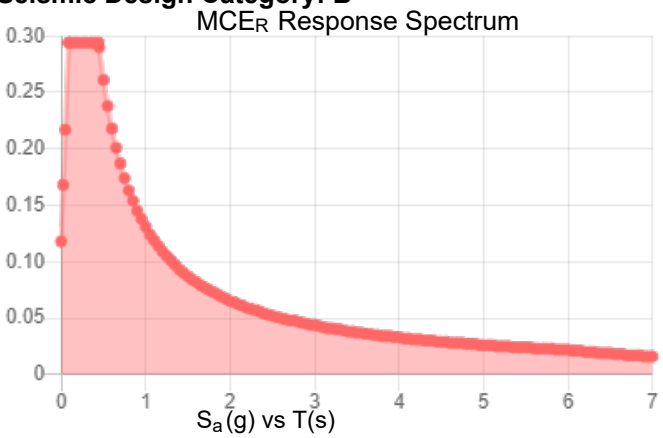
D - Default (see Section 11.4.3)

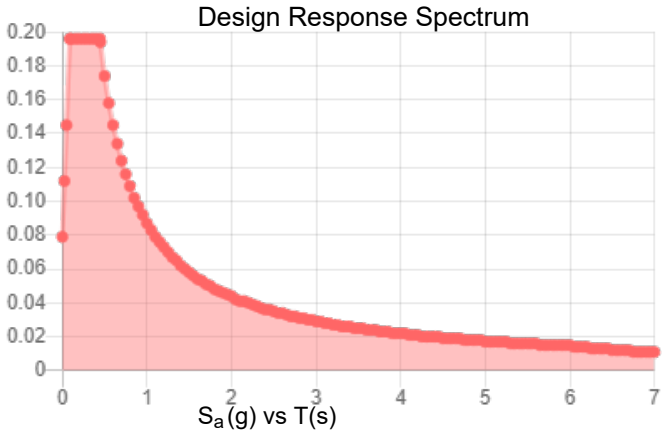
Site Soil Class:

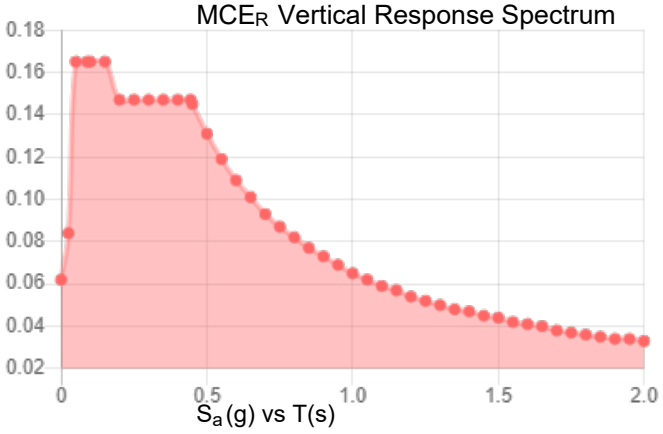
Results:

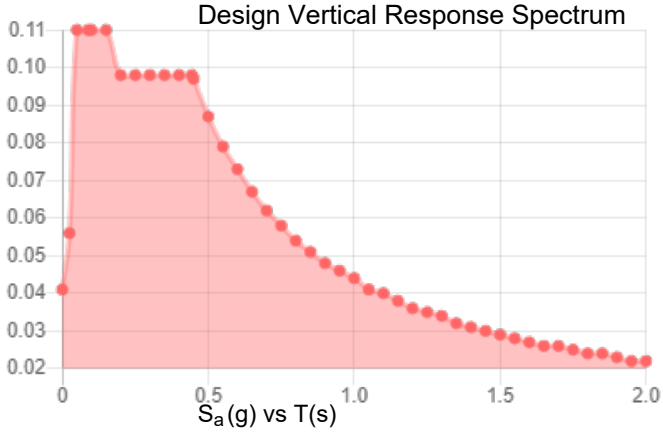
S_S :	0.184	S_{D1} :	0.087
S_1 :	0.054	T_L :	6
F_a :	1.6	PGA :	0.099
F_v :	2.4	PGA_M :	0.159
S_{MS} :	0.294	F_{PGA} :	1.6
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.196	C_v :	0.7

Seismic Design Category: B









Data Accessed: **Fri Jul 21 2023**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri Jul 21 2023

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

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