

April 9, 2020

Via Electronic Mail

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

Re: **Notice of Exempt Modification – Facility Modification
60 Industrial Park Road, Vernon, Connecticut**

Dear Attorney Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) antennas at the 153-foot level of the 175-foot tower at 60 Industrial Park Road in Vernon (the “Property”). The Property is owned by Industrial Park Road LLC. The tower is owned by Millenicom, LLC. The tower was approved by the Town of Vernon (“Town”) in February 2000. Cellco’s shared use of the tower was approved by the Council in 2000 (TS-VER-146-001113). A copy of the Town’s Building Permit No. 29885 is included in Attachment 1.

On July 19, 2019, the Council approved Cellco’s request for certain modifications to its existing facility (EM-VER-146-190612). That approval is due to expire on July 19, 2020 and Cellco recently requested a six-month extension to that deadline. Cellco anticipates that this work will be completed in the third quarter of this year.

In addition to the replacement of the antennas and remote radio heads approved in EM-VER-146-190612, Cellco also intends to modify its facility further by replacing six (6) antennas with three (3) newer model antennas and three (3) antenna/remote radio head integrated units. A set of project plans showing these additional proposed facility modifications and specifications for the new antennas and antenna/remote radio head units to be installed are included in Attachment 2.

Melanie A. Bachman, Esq.
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Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Vernon Mayor, Daniel A. Champagne; George McGregor, Town Planner; Millenicom, LLC, the tower owner; and Industrial Park Road LLC, the Property owner.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and antenna/remote radio head units will be located at the 153-foot level on the 175-foot tower.
2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The installation of new antennas and antenna/remote radio head units will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative General Power Density table for Cellco's modified facility is included in Attachment 3.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower, its foundation and mounts, with certain modifications can support Cellco's proposed facility modifications. (See Structural Analysis Report included in Attachment 4 and Mount Structural Analysis Report included in Attachment 5).

A copy of the parcel map and Property owner information is included in Attachment 6. A Certificate of Mailing verifying that this filing was sent to municipal officials and the owner of the Property is included in Attachment 7.

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

Robinson+Cole

Melanie A. Bachman, Esq.
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Page 3

Sincerely,

A handwritten signature in black ink, appearing to read 'Kenneth C. Baldwin', with a stylized, flowing script.

Kenneth C. Baldwin

Enclosures

Copy to:

Daniel A. Champagne, Vernon Mayor
George Mc Gregor, Town Planner
Industrial Park Road LLC
Millenicom, LLC
Tim Parks

ATTACHMENT 1

(Continued from the other side)

MASONRY CONSTRUCTION

WOOD CONSTRUCTION

[illegible]

Can Before You Dig It:

22. All work covered by this application has been authorized by the (owner) or (agent) of this property and will be done according to approved plans and all local codes and regulations. Notice must be given to the Building Department when job is ready for inspection and when job is completed.

25 February, 2020 APPLICANT J. Jonathan Shober,
Attorney for Defendant Communications Inc.

Town of Vernon, Conn.
 BUILDING PERMIT
 and
 CERTIFICATE OF ZONING COMPLIANCE
 No. 29885
 ESTIMATED COST \$ 95,000.00
 Structural
 Plumbing
 Heating
 Wiring
 FEE \$ 950.00
 March 8 192000

APPLICANT'S PERMIT

Permission is hereby granted to
 installation of telecommunications tower
 To
 on the side of No. 60 Industrial Park Road Owner: Beauregard

Class	Size	Heating	Air Condition
Type			Oil Burner
Foundations	Porch X		Cement
Ext Walls			Earth
Roof			
Roofing			Lavatory
Interior			
No. of Rooms	1st Floor 2nd Floor		Insulation
Floors			Cement
Flooring			
Joists			
		Breezeway X	

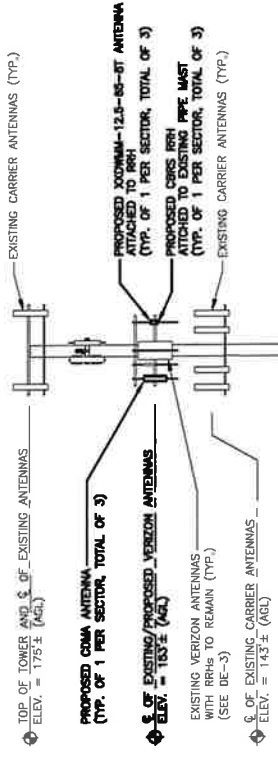
BUILDING DEPARTMENT TOWN OF VERNON, CONN.
 This permit expires six (6) months from the above date.
 All building permits are approved subject to field inspection.
 Gene J. Ballo
 Building Official/
 Zoning Enforcement Officer

ATTACHMENT 2

DE-1
SHEET NUMBER

DESIGN EXHIBIT

NOTE:
STRUCTURAL ANALYSIS OF THE CAPACITY OF THE
EXISTING STRUCTURE TO SUPPORT THE PROPOSED LOADING
HAS BEEN COMPLETED BY HUDSON DESIGN GROUP LLC
DATED: NOVEMBER 20, 2019
A MOUNT ANALYSIS OF THE CAPACITY OF THE EXISTING
MOUNT TO SUPPORT THE PROPOSED LOADING
HAS BEEN COMPLETED BY HUDSON DESIGN GROUP LLC
DATED: NOVEMBER 15, 2019



EXISTING 175' MONOPOLE

EXISTING VERIZON EQUIPMENT SHELTER

EXISTING GRADE
ELEV. = 0'-0" ± (AGL)

ELEVATION
22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"
GRAPHIC SCALE
0 5'-0" 10'-0" 20'-0" 30'-0"

PREPARED FOR: CIBICO PARTNERSHIP D.L.A.

HUDSON
Design Group LLC
45 BECHTOLD DRIVE
14 WESTPORT, MA 01886
TEL: (978) 557-2553
FAX: (978) 557-0580

DAVID P. HANNON
REGISTERED PROFESSIONAL ENGINEER
STATE OF MASSACHUSETTS
LICENSE NO. 10615
EXPIRATION DATE: 12/31/2020

CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS		
REV	DATE	DESCRIPTION
1	11/20/19	ISSUED FOR REVIEW
2		
3		
4		
5		
6		
7		
8		
9		
10		

SITE NAME:
VERNON 2 CT

SITE ADDRESS:
60 INDUSTRIAL PARK ROAD
VERNON, CT 06066

SHEET TITLE:
ELEVATION

SHEET NUMBER:
DE-2

DESIGN EXHIBIT

RETURNED FOR: CLECO FARMINGTON, U.S.A.





HUDSON
Design Group LLC

6 BEECHWOOD DRIVE
H. HODGINS, MA 01845

TEL: 978.537.5537
FAX: 978.715.0583



CHECKED BY: JX

APPROVED BY: DPH

SUBMITTALS

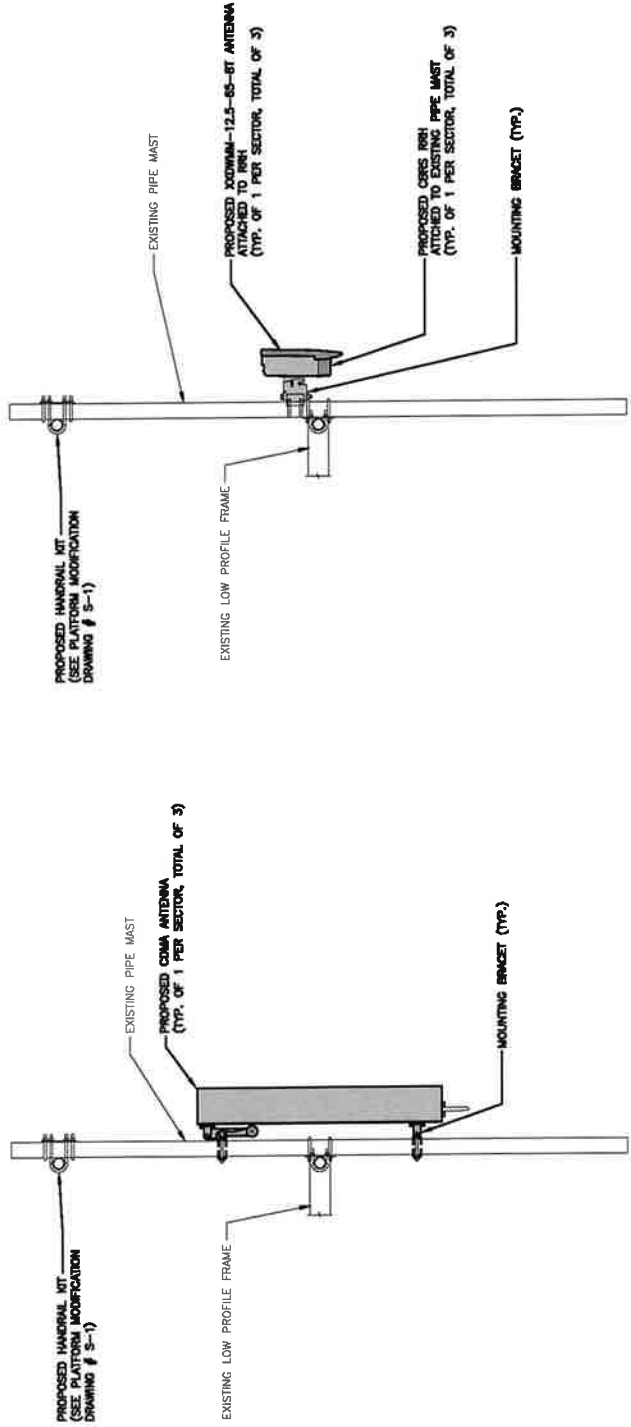
REV	DATE	DESCRIPTION	BY
1	11/29/19	ISSUED FOR REVIEW	SK

SITE NAME:
VERNON 2 CT

SITE ADDRESS:
60 INDUSTRIAL PARK ROAD
VERNON, CT 06066

SHEET TITLE:
**ANTENNA MOUNTING
DETAIL**

SHEET NUMBER:
DE-4



ANTENNA MOUNTING DETAIL 1 DE-4
22x34 SCALE: N.T.S.

ANTENNA AND RHH MOUNTING DETAIL 2 DE-4
22x34 SCALE: N.T.S.

DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-G STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.

- SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):**

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN CONNECTION WITH THE SPECIAL INSPECTION CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN CONNECTION WITH THE SPECIAL INSPECTION CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED

N/A	SHOP DRAWINGS ¹
N/A	MATERIAL SPECIFICATIONS REPORT ²
N/A	FABRICATOR WIDE INSPECTION
N/A	PACKING SLIPS ³

DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM

REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT
N/A	WELD INSPECTION
N/A	HIGH WIND ZONE INSPECTIONS *
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE CRACKS, SPALLS, SCLIP, TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION †
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHMOB: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING
N/A	CUT WIRE TENSION REPORT

AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTION REQUIRED

REQUIRED		ON RECORD DRAWINGS *
N/A		POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED		PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:		

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.

4. HIGH WIND ZONE INSPECTION OF WALLS, ANCHORING, TYPICAL DETAIL
5. TESTING OF REPAIRS AND ANCHORS SHALL HAVE BEEN COMPLETED AND APPROVED BY THE ENGINEER BEFORE TESTING IN ACCORDANCE WITH ACI 308.4A AND FCC-ES ACQOB FOR CRACKED CONCRETE AND SEISMIC REPAIRS. THE REPAIRS SHALL BE TESTED IN ACCORDANCE WITH HAS BASED ON ACI 308.4A TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A DRILLING BIT WITH A MAXIMUM DIAMETER OF 1-1/2" AND FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED INSTALLER. THE ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS: 11.0.9.2.2 INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 308-11 0.8.2.4. THE FOLLOWING SHALL BE REQUIRED FOR ANY FIELD CHANGES TO THE ITEMS IN
- 6.

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED TO EXISTING CONCRETE.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF TRUSS SYSTEM. THE CONTRACTOR SHALL PROVIDE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE VERTICALLY LOCATED OVER THE EXISTING BRICK MASONRY.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND

APPROVE _____

HUDSON
Design Group LLC

45 NEEC HWOOD DRIVE
ANDOVER, MA 01810
TEL. (978) 557-5551
E-MAIL: info@hudson-dg.com

CHECKED BY:	JX
APPROVED BY:	DPH

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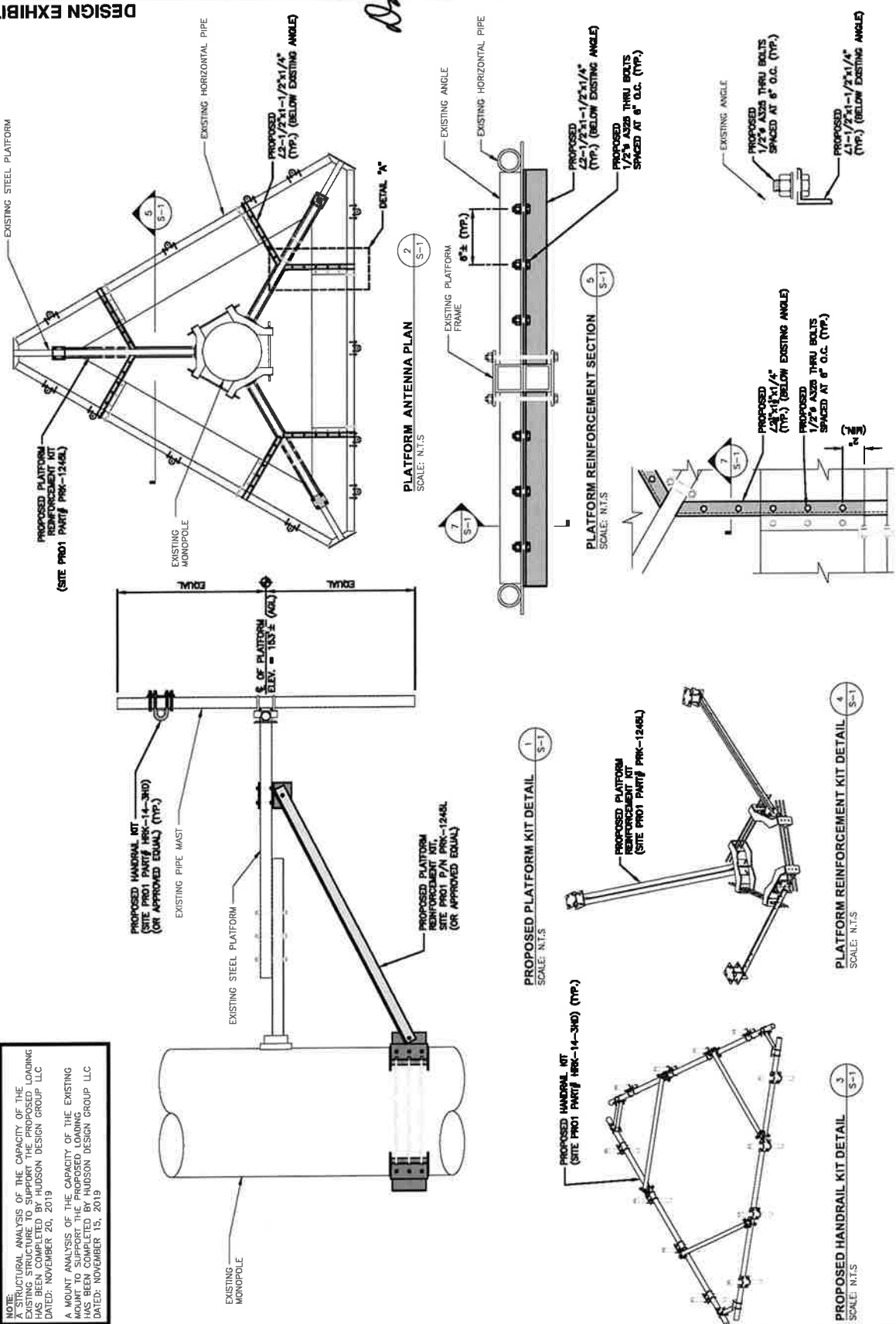
SITE NAME:
VERNON 2 CT

SITE ADDRESS:
**60 INDUSTRIAL PARK ROAD
VERNON, CT 06066**

SHEET TITLE
STRUCTURAL NOTES
AND SPECIAL
INSPECTIONS

SHEET NUMBER
SN-1

NOTE:
A STRUCTURAL ANALYSIS OF THE CAPACITY OF THE
EXISTING MONOPOLE PROVIDED FOR THE PROPOSED
LOADING HAS BEEN COMPLETED BY HUDSON DESIGN GROUP LLC
DATED: NOVEMBER 20, 2019
A MOUNT ANALYSIS OF THE CAPACITY OF THE EXISTING
MONOPOLE PROVIDED FOR THE PROPOSED LOADS
HAS BEEN COMPLETED BY HUDSON DESIGN GROUP LLC
DATED: NOVEMBER 15, 2019



DESIGN EXHIBIT

DESIGNED FOR: CELCO PARTS/SHOPS, INC.

HUDSON
Design Group LLC

40 BECKWOOD DRIVE
N. HAVEN, CT 06474
TEL: 203.353.5533
FAX: 203.353.1533

Daniel P. Hannon

CHECKED BY: JH
APPROVED BY: DPH

SUBMITTALS

REV	DATE	DESCRIPTION	BY
1	11/20/19	ISSUED FOR REVIEW	DPH

SITE NAME:
VERNON 2 CT

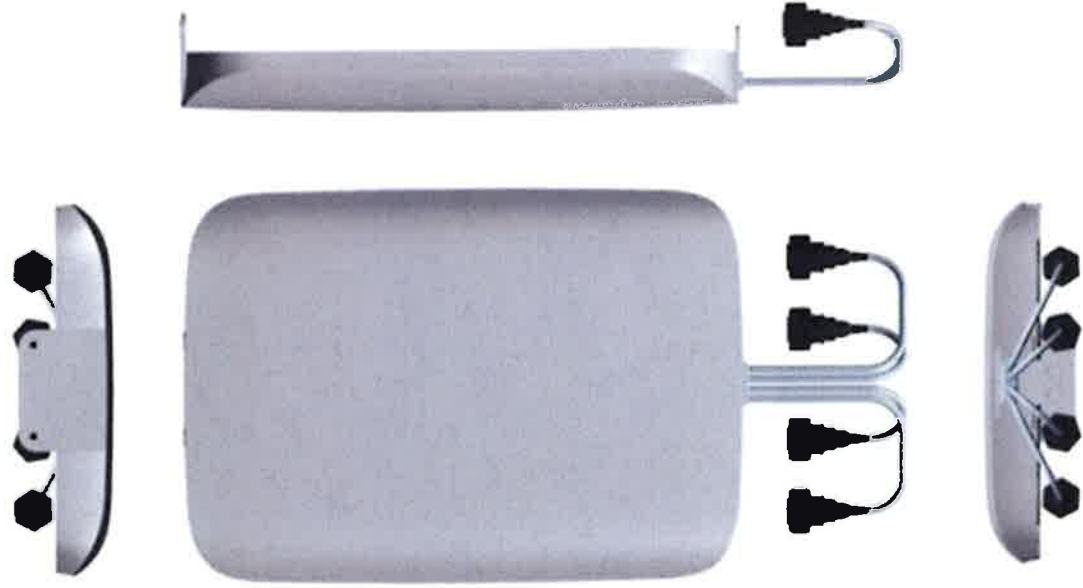
SITE ADDRESS:
60 INDUSTRIAL PARK ROAD
VERNON, CT 06066

SHEET TITLE:
**PLATFORM
MODIFICATION
DRAINWG**

SHEET NUMBER:
S-1

[CBRS] Clip-on Antenna Specifications

VzW accepted IP45 in FLD, but IP55 is Samsung Spec.

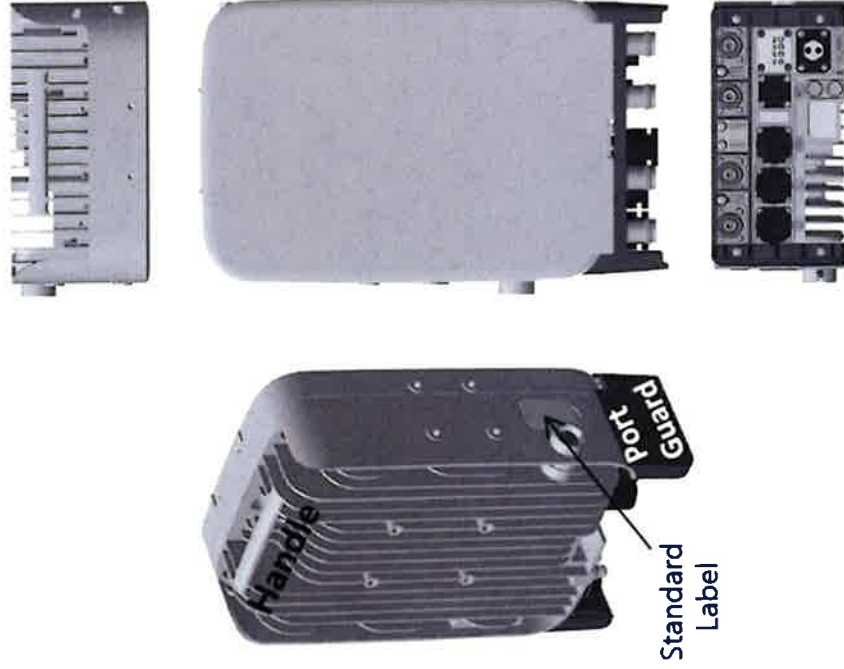


Antenna includes integrated cable with connector
★ Design is subject to minor change

Items	Clip-on Antenna, BASTA**
Antenna Gain	12.5 ± 0.5 dBi (Max 13 dBi)
Horizontal BW (-3dB)	$65^\circ \pm 5^\circ$
Vertical BW (-3dB)	$17^\circ \pm 3^\circ$
Electrical Tilt	8° (fixed) $\pm 2^\circ$
Front-to-Back Ratio	> 25 dB
Port-to-Port Tracking	< 3 dB
VSWR	< 1.5
Isolation	> 25 dB
Ingress Protection	IP55
Size	220(W)×313(H)×34.3(D) mm (*) (8.7×12.3×1.4 inch.)
Weight	< 2.0 kg [Typ. 1.3 kg]
It is required that the radio should be weatherproofed properly with JMA WPS Boot with external antenna or with Weatherproof Boot for clip-on antennas.	

** Ant. spec. follows NGMN recommendations on Base Station Antenna Standards (BASTA). For example, 'mean $\pm$ tolerance of 86.6%' is applied to double-sided specification of statistical RF parameters.

[CBRS RRH] Spec.



Current Size: 216 x 307 x 105.5 mm (6.99L)
(8.5 x 12.1 x 4.1 inch., excluding Port Guard)
Design is subject to minor change

Item	Specification
Band	Band 48 (3.5 GHz)
Frequency	3550~3700 MHz
IBW	150 MHz
OBW	80 MHz
# of Carriers	5/10/15/20 MHz x 4 carriers
RF Chain	4TX / 4RX
RF Output Power & EIRP	4 path x 5 W (Total: 20 W = 43 dBm) (EIRP: 47 dBm / 10 MHz)
RX Sensitivity	Typical : -101.5 dBm @ 1 Rx (3GPP 36.104, Wide Area)
Modulation	256-QAM support (1024-QAM with 1~2dB power back-off) -48 VDC (-38 to -57 VDC, 1 SKU), with clip-on AC-DC converter (Option)
Input Power	
Power Consumption	About 160 Watt @ 100% RF load, typical conditions
Volume	Under 7L (w/o Antenna), Under 9.6L (with antenna)
Weight	Under 8.0 kg (18.64 lb) (w/o Antenna), Under 10.5 Kg (with ant.)
Operating Temperature	-40°C (-40°F) ~ 55°C (131°F) (W/o solar load)
Cooling	Natural convection
Unwanted Emission	3GPP 36.104 Category A [B48] : FCC 47 CFR 96.41 e)
Optic Interface	20km, 2 ports (9.8Gbps x 2), SFP, single mode, duplex or Bi-Di
CPRI Cascade	Not supported
# of Antenna Port	4
External Alarm (UDA)	4
RET	AISG 2.2
TMA & built-in Bias-T I//F and PIM cancellation	Not supported
Mounting Options	Pole, wall, tower, back to back, side by side (for external ant), 3 RRH with Clip-on Antenna on the pole
Antenna Type	Integrated (Clip-on) antenna (Option), External antenna (Option)
NB-IoT	Not Supported (HW Resource reserved for 1 Guard Band NB-IoT per LTE carrier)
Spectrum Analyzer	TX/RX Support
External Alarm (UDA)	4
5G NR	Support with S/W upgrade
XRAN	Support with S/W upgrade

LNX-6512DS-VTM | LNX-6512DS-A1M



2-port sector antenna, 2x 698–896 MHz, 65° HPBW, RET compatible

- Excellent choice to maximize both coverage and capacity in suburban and rural applications
- Ideal choice for site collocations and tough zoning restrictions
- Extended elevation tilt for maximum flexibility in urban core areas
- Remote beam tilt management is an optional feature using Andrew's Teletilt® system
- The RF connectors are designed for IP67 rating and the radome for IP56 rating

OBSOLETE

This product was discontinued on: December 31, 2017

Replaced By

LNX-6512DS-A1M

2-port sector antenna, 2x 698–896 MHz, 65° HPBW, RET compatible

Electrical Specifications

Frequency Band, MHz	698–806	806–896
Gain, dBi	14.1	15.0
Beamwidth, Horizontal, degrees	65	65
Beamwidth, Vertical, degrees	19.0	17.0
Beam Tilt, degrees	0–15	0–15
USLS, typical, dB	17	18
Front-to-Back Ratio at 180°, dB	28	28
CPR at Boresight, dB	12	12
CPR at Sector, dB	10	10
Isolation, Cross Polarization, dB	30	30
VSWR Return Loss, dB	1.4 15.6	1.4 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153
Input Power per Port, maximum, watts	400	400
Polarization	±45°	±45°
Impedance	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698–806	806–896
Beamwidth, Horizontal Tolerance, degrees	±3	±3

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

General Specifications

Operating Frequency Band	698 – 896 MHz
Antenna Type	Sector
Band	Single band
Performance Note	Outdoor usage

LNX-6512DS-VTM | LNX-6512DS-A1M

Mechanical Specifications

RF Connector Quantity, total	2
RF Connector Quantity, low band	2
RF Connector Interface	7-16 DIN Female
Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Radiator Material	Aluminum
Radome Material	Fiberglass, UV resistant
RF Connector Location	Bottom
Wind Loading, frontal	380.0 N @ 150 km/h 85.4 lbf @ 150 km/h
Wind Loading, lateral	122.0 N @ 150 km/h 27.4 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 150 mph

Dimensions

Length	1232.0 mm 48.5 in
Width	301.0 mm 11.9 in
Depth	181.0 mm 7.1 in
Net Weight, without mounting kit	13.0 kg 28.7 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 2.0 Actuator LNX-6512DS-A1M

Packed Dimensions

Length	1548.0 mm 60.9 in
Width	411.0 mm 16.2 in
Depth	284.0 mm 11.2 in
Shipping Weight	29.5 kg 65.0 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
ISO 9001:2015	Designed, manufactured and/or distributed under this quality management system
China RoHS SJ/T 11364-2014	Above Maximum Concentration Value (MCV)



LNx-6512DS-VTM | LNx-6512DS-A1M

Included Products

BSAMNT-3 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

* Footnotes

Performance Note Severe environmental conditions may degrade optimum performance

ATTACHMENT 3

ATTACHMENT 4

STRUCTURAL ANALYSIS REPORT

For

VERNON 2 CT

60 INDUSTRIAL PARK ROAD
VERNON, CT 06066

Antennas Mounted to the Monopole



Prepared for:

verizon✓

20 Alexander Drive
Wallingford, CT 06492

Dated: November 20, 2019

Prepared by:



HUDSON
Design Group LLC

45 Beechwood Drive
North Andover, MA 01845
(P) 978.557.5553 (F) 978.336.5586
www.hudsondesigngroupllc.com





HUDSON
Design Group LLC

SCOPE OF WORK:

Hudson Design Group LLC (HDG) has been authorized by Verizon to conduct a structural evaluation of the 175' monopole supporting the existing and proposed Verizon's antennas located at elevation 153' above the ground level.

This report represents this office's findings, conclusions and recommendations pertaining to the support of Verizon's existing and proposed antennas listed below.

Record drawings of the existing monopole prepared by Pirod Inc., dated January 28, 2000, were available for our use. The previous structural analysis report prepared by Vertical Solutions, Inc., dated August 25, 2015, was available for our use. The previous structural analysis report prepared by Maser Consulting, dated December 4, 2017, was also available and obtained for our use.

CONCLUSION SUMMARY:

Based on our evaluation, we have determined that the existing monopole and foundation **ARE IN CONFORMANCE** with the ANSI/TIA-222-G Standard for the loading considered under the criteria listed in this report. The monopole structure is rated at **97.3%** - (Base Plate at EL.0' Controlling).



APPURTENANCES CONFIGURATION:

Tenant	Appurtenances	Elev.	Mount
	(6) LNX-6514DS Antennas	178'	Steel Platform
	(3) APX16DWV-16DWVS-C Antennas	178'	Steel Platform
	(3) ATSBT-TOP-MF-4G	178'	Steel Platform
	(6) TMA	178'	Steel Platform
	(3) 800 10121 Antennas	168'	Steel Platform
	(3) Quintel QS66512-2 Antennas	168'	Steel Platform
	(3) OPA-65R-LCUU-H6 Antennas	168'	Steel Platform
	(6) RRUS-32	168'	Steel Platform
	(3) RRUS-11	168'	Steel Platform
	(3) B14 4478	168'	Steel Platform
	(6) TMA	168'	Steel Platform
	(2) DC6-48-60-18-8F	168'	Steel Platform
VERIZON	(6) NHH-65B-R2B Antennas	153'	Steel Platform w/ New Handrail and reinforcement kits
VERIZON	(3) LNX-6512DS-VTM Antennas	153'	Steel Platform w/ New Handrail and reinforcement kits
VERIZON	(3) XXDWMM Antennas	153'	Steel Platform w/ New Handrail and reinforcement kits
VERIZON	(3) B5/B13 RRH-BR04C	153'	Steel Platform w/ New Handrail and reinforcement kits
VERIZON	(3) B2/B66A RRH-BR049	153'	Steel Platform w/ New Handrail and reinforcement kits
VERIZON	(3) CBRS RRH-RT4401	153'	Steel Platform w/ New Handrail and reinforcement kits
VERIZON	(1) OVP Box	153'	Steel Platform w/ New Handrail and reinforcement kits
	(12) Mount Pipes	145'	Steel Platform

**Proposed VERIZON Appurtenances shown in Bold.*

VERIZON EXISTING/PROPOSED COAX CABLES:

Tenant	Coax Cables	Elev.	Mount
VERIZON	(6) 1 5/8" Cables	153'	Inside Monopole
VERIZON	(2) Fiber Cables	153'	Inside Monopole

**Proposed VERIZON Coax Cables shown in Bold.*



HUDSON
Design Group LLC

ANALYSIS RESULTS SUMMARY:

Component	Max. Stress Ratio	Elev. of Component (ft)	Pass/Fail	Comments
Pole Section-L1	20.9 %	160 – 175	PASS	
Pole Section-L2	48.8 %	140 – 160	PASS	
Pole Section-L3	69.8 %	120 – 140	PASS	
Pole Section-L4	82.1 %	100 – 120	PASS	
Pole Section-L5	88.4 %	80 – 100	PASS	
Pole Section-L6	91.6 %	60 – 80	PASS	
Pole Section-L7	93.0 %	40 – 60	PASS	
Pole Section-L8	82.2 %	20 – 40	PASS	
Pole Section-L9	75.9 %	0 – 20	PASS	
Base Plate & Anchor Bolts	97.3 %	0	PASS	Controlling
Foundation	93.4 %	-	PASS	



HUDSON
Design Group LLC

DESIGN CRITERIA:

1. EIA/TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures
2. 2018 Connecticut State Building Code
 - County: Tolland
 - City/Town: Vernon
 - Wind Load: 97 mph (3 second gust)
 - Structural Class: II
 - Exposure Category: B
 - Topographic Category: 1
 - Ice Thickness: 1.0 inch
3. Approximate height above grade to proposed antennas: 153'

ASSUMPTIONS:

1. The monopole dimensions, member sizes and material strength are as indicated in the previous structural analysis report prepared by Maser Consulting, dated December 4, 2017.
2. The appurtenances configuration is as stated in the previous structural analysis reports. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
3. The monopole and foundation are properly constructed and maintained. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
4. All prior structural modification, if any, are assumed to be as per the data supplied (if available), and installed properly.

SUPPORT RECOMMENDATIONS:

HDG recommends that the proposed antennas and RRUs be mounted on the existing steel platform supported by the monopole.



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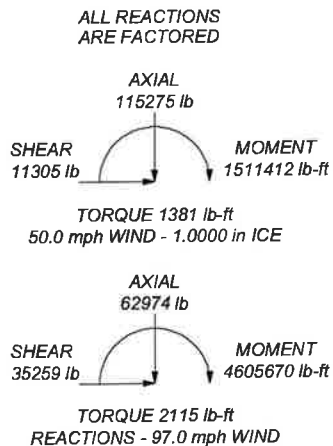
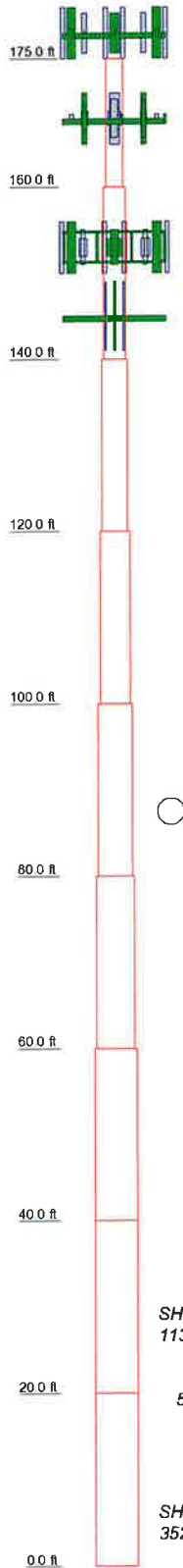
Photo 1: Photo illustrating the Monopole with Appurtenances shown.



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CALCULATIONS

1	P24x3/8	15.00	A53-B-42	1420.6
2	P30x3/8	20.00		2375.2
3	P36x3/8	20.00		2856.3
4	P42x3/8	20.00		3337.3
5	P48x3/8	20.00		3818.4
6	P54x3/8	20.00		4299.5
7	P60x3/8	20.00		4780.5
8	P60x1/2	20.00		6360.7
9	P60x3/8	20.00		7804.1
Section				37182.6
Size				
Length (ft)				
Grade				
Weight (lb)				



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
PIROD 15' Low Profile Platform	178	B14 4478	168
(2) LNX-6514DS-A1M w/ Mount Pipe	178	B14 4478	168
(2) LNX-6514DS-A1M w/ Mount Pipe	178	(2) Gen TMA	168
(2) LNX-6514DS-A1M w/ Mount Pipe	178	(2) Gen TMA	168
APX16DWV-16DWVS-C w/mount pipe	178	(2) Gen TMA	168
APX16DWV-16DWVS-C w/mount pipe	178	DC6-48-60-18-8F	168
APX16DWV-16DWVS-C w/mount pipe	178	DC6-48-60-18-8F	168
ATSBT-TOP-MF-4G	178	PIROD 15' Platform with handrail (VERIZON - existing)	153
ATSBT-TOP-MF-4G	178	(2) NHH-65B-R2B w/ Mount Pipe	153
ATSBT-TOP-MF-4G	178	(2) NHH-65B-R2B w/ Mount Pipe	153
(2) Ericsson KRY 112 71/2	178	(2) NHH-65B-R2B w/ Mount Pipe	153
(2) Ericsson KRY 112 71/2	178	B5/B13 RRH-BR04C	153
(2) Ericsson KRY 112 71/2	178	B5/B13 RRH-BR04C	153
PIROD 15' Low Profile Platform (ATI)	168	B5/B13 RRH-BR04C	153
Kathrein 800 10121 w/mount pipe	168	B2/B66A RRH-BR049	153
Kathrein 800 10121 w/mount pipe	168	B2/B66A RRH-BR049	153
Kathrein 800 10121 w/mount pipe	168	B2/B66A RRH-BR049	153
Quintel QS66512-2 w/mpount pipe	168	DB-C1-12C-24AB-OZ	153
Quintel QS66512-2 w/mpount pipe	168	LNX-6512DS-VTM w/ Mount Pipe (VERIZON - proposed)	153
Quintel QS66512-2 w/mpount pipe	168	LNX-6512DS-VTM w/ Mount Pipe	153
OPA-65R-LCUU-H6 w/mount pipe	168	LNX-6512DS-VTM w/ Mount Pipe	153
OPA-65R-LCUU-H6 w/mount pipe	168	XXDWMM	153
Ericsson RRUS-32	168	XXDWMM	153
Ericsson RRUS-32	168	XXDWMM	153
Ericsson RRUS-32	168	CBRS RRH-RT4401	153
Ericsson RRUS-11	168	CBRS RRH-RT4401	153
Ericsson RRUS-11	168	CBRS RRH-RT4401	153
Ericsson RRUS-11	168	PIROD 15' Low Profile Platform	145
Ericsson RRUS-32	168	(4) 2"x8' pipe	145
Ericsson RRUS-32	168	(4) 2"x8' pipe	145
Ericsson RRUS-32	168	(4) 2"x8' pipe	145
B14 4478	168		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A53-B-42	42 ksi	63 ksi			

TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 97.0 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50.0 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60.0 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 93%

Hudson Design Group LLC

45 Beechwood Drive
North Andover, MA 01845
Phone: (978) 557-5553
FAX: (978) 336-5586

Job: **VERNON 2 CT**
Project: **81 ft Monopole**

Client: VERIZON	Drawn by: kw	App'd.
Code: TIA-222-G	Date: 11/20/19	Scale: NTS
Path:		Dwg No. E-1

tnxTower Hudson Design Group LLC 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 336-5586	Job	VERNON 2 CT	Page	1 of 8
	Project	81 ft Monopole	Date	11:12:13 11/20/19
	Client	VERIZON	Designed by	kw

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Tolland County, Connecticut.

Basic wind speed of 97.0 mph.

Structure Class II.

Exposure Category B.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56.0 pcf.

A wind speed of 50.0 mph is used in combination with ice.

Temperature drop of 50.0 °F.

Deflections calculated using a wind speed of 60.0 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Pole Section Geometry

Section	Elevation	Section Length	Pole Size	Pole Grade	Socket Length
	ft	ft			ft
L1	175.00-160.00	15.00	P24x3/8	A53-B-42 (42 ksi)	
L2	160.00-140.00	20.00	P30x3/8	A53-B-42 (42 ksi)	
L3	140.00-120.00	20.00	P36x3/8	A53-B-42 (42 ksi)	
L4	120.00-100.00	20.00	P42x3/8	A53-B-42 (42 ksi)	
L5	100.00-80.00	20.00	P48x3/8	A53-B-42 (42 ksi)	
L6	80.00-60.00	20.00	P54x3/8	A53-B-42 (42 ksi)	
L7	60.00-40.00	20.00	P60x3/8	A53-B-42 (42 ksi)	
L8	40.00-20.00	20.00	P60x1/2	A53-B-42 (42 ksi)	
L9	20.00-0.00	20.00	P60x5/8	A53-B-42 (42 ksi)	

Feed Line/Linear Appurtenances - Entered As Area

tnxTower Hudson Design Group LLC 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 336-5586	Job	VERNON 2 CT	Page	2 of 8
	Project	81 ft Monopole	Date	11:12:13 11/20/19
	Client	VERIZON	Designed by	kw

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C _A A _A ft ² /ft	Weight plf
LDF7-50A (1-5/8 FOAM)	A	No	No	Inside Pole	175.00 - 0.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	A	No	No	Inside Pole	124.00 - 0.00	12	No Ice	0.00	0.82
							1/2" Ice	0.00	0.82
							1" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM)	C	No	No	CaAa (Out Of Face)	145.00 - 124.00	2	No Ice	0.20	0.82
							1/2" Ice	0.30	2.33
							1" Ice	0.40	4.46
LDF7-50A (1-5/8 FOAM)	C	No	No	CaAa (Out Of Face)	145.00 - 124.00	10	No Ice	0.20	0.82
							1/2" Ice	0.30	2.33
							1" Ice	0.40	4.46
1 5/8 Fiber Cable	C	No	No	Inside Pole	165.00 - 0.00	1	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04

1 5/8 (VERIZON - existing)	B	No	No	Inside Pole	153.00 - 0.00	6	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04
1 5/8 Fiber Cable	B	No	No	Inside Pole	153.00 - 0.00	2	No Ice	0.00	1.04
							1/2" Ice	0.00	1.04
							1" Ice	0.00	1.04

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight lb
PIROD 15' Low Profile Platform	A	None		0.0000	178.00	No Ice	17.30	17.30	1500.00
						1/2" Ice	22.10	22.10	2030.00
						1" Ice	26.90	26.90	2560.00
(2) LNX-6514DS-A1M w/ Mount Pipe	A	From Face	3.00 0.00 0.00	0.0000	178.00	No Ice	8.42	7.09	56.85
						1/2" Ice	8.98	8.27	125.98
						1" Ice	9.50	9.17	203.14
(2) LNX-6514DS-A1M w/ Mount Pipe	B	From Face	3.00 0.00 0.00	0.0000	178.00	No Ice	8.42	7.09	56.85
						1/2" Ice	8.98	8.27	125.98
						1" Ice	9.50	9.17	203.14
(2) LNX-6514DS-A1M w/ Mount Pipe	C	From Face	3.00 0.00 0.00	0.0000	178.00	No Ice	8.42	7.09	56.85
						1/2" Ice	8.98	8.27	125.98
						1" Ice	9.50	9.17	203.14
APX16DWV-16DWVS-C w/mount pipe	A	From Face	3.00 0.00 0.00	0.0000	178.00	No Ice	6.91	3.60	62.60
						1/2" Ice	7.39	4.44	112.14
						1" Ice	7.86	5.15	168.24
APX16DWV-16DWVS-C w/mount pipe	B	From Face	3.00 0.00 0.00	0.0000	178.00	No Ice	6.91	3.60	62.60
						1/2" Ice	7.39	4.44	112.14
						1" Ice	7.86	5.15	168.24
APX16DWV-16DWVS-C w/mount pipe	C	From Face	3.00 0.00 0.00	0.0000	178.00	No Ice	6.91	3.60	62.60
						1/2" Ice	7.39	4.44	112.14
						1" Ice	7.86	5.15	168.24
ATSBT-TOP-MF-4G	A	From Face	3.00 0.00 0.00	0.0000	178.00	No Ice	0.17	0.09	2.00
						1/2" Ice	0.23	0.14	3.67
						1" Ice	0.29	0.19	6.27

tnxTower Hudson Design Group LLC 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 336-5586	Job	VERNON 2 CT	Page	3 of 8
	Project	81 ft Monopole	Date	11:12:13 11/20/19
	Client	VERIZON	Designed by	kw

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb
ATSBT-TOP-MF-4G	B	From Face	3.00 0.00 0.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	0.17 0.23 0.29	0.09 0.14 0.19	2.00 3.67 6.27
ATSBT-TOP-MF-4G	C	From Face	3.00 0.00 0.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	0.17 0.23 0.29	0.09 0.14 0.19	2.00 3.67 6.27
(2) Ericsson KRY 112 71/2	A	From Face	3.00 0.00 0.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	0.58 0.69 0.80	0.40 0.49 0.59	13.20 18.38 25.16
(2) Ericsson KRY 112 71/2	B	From Face	3.00 0.00 0.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	0.58 0.69 0.80	0.40 0.49 0.59	13.20 18.38 25.16
(2) Ericsson KRY 112 71/2	C	From Face	3.00 0.00 0.00	0.0000	178.00	No Ice 1/2" Ice 1" Ice	0.58 0.69 0.80	0.40 0.49 0.59	13.20 18.38 25.16

PiROD 15' Low Profile Platform (AT&T)	A	None		0.0000	168.00	No Ice 1/2" Ice 1" Ice	17.30 22.10 26.90	17.30 22.10 26.90	1500.00 2030.00 2560.00
Kathrein 800 10121 w/mount pipe	A	From Leg	3.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	5.40 5.78 6.17	4.77 5.43 6.10	64.55 112.69 167.17
Kathrein 800 10121 w/mount pipe	B	From Leg	3.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	5.40 5.78 6.17	4.77 5.43 6.10	64.55 112.69 167.17
Kathrein 800 10121 w/mount pipe	C	From Leg	3.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	5.40 5.78 6.17	4.77 5.43 6.10	64.55 112.69 167.17
Quintel QS66512-2 w/mpount pipe	A	From Leg	3.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	8.61 9.27 9.90	8.70 9.99 11.12	140.20 218.50 305.14
Quintel QS66512-2 w/mpount pipe	B	From Leg	3.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	8.61 9.27 9.90	8.70 9.99 11.12	140.20 218.50 305.14
Quintel QS66512-2 w/mpount pipe	C	From Leg	3.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	8.61 9.27 9.90	8.70 9.99 11.12	140.20 218.50 305.14
OPA-65R-LCUU-H6 w/mount pipe	A	From Leg	3.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	9.95 10.50 11.04	7.53 8.56 9.45	112.53 192.76 282.09
OPA-65R-LCUU-H6 w/mount pipe	B	From Leg	3.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	9.95 10.50 11.04	7.53 8.56 9.45	112.53 192.76 282.09
OPA-65R-LCUU-H6 w/mount pipe	C	From Leg	3.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	9.95 10.50 11.04	7.53 8.56 9.45	112.53 192.76 282.09
Ericsson RRUS-32	A	From Leg	3.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	77.00 104.93 136.47
Ericsson RRUS-32	B	From Leg	3.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	77.00 104.93 136.47
Ericsson RRUS-32	C	From Leg	3.00 0.00 0.00	0.0000	168.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	77.00 104.93 136.47
Ericsson RRUS-11	A	From Leg	3.00 0.00	0.0000	168.00	No Ice 1/2" Ice	2.79 3.00	1.19 1.34	50.70 71.57

tnxTower Hudson Design Group LLC 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 336-5586	Job	VERNON 2 CT	Page	4 of 8
	Project	81 ft Monopole	Date	11:12:13 11/20/19
	Client	VERIZON	Designed by	kw

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight lb
			0.00			1" Ice	3.21	1.50	95.48
Ericsson RRUS-11	B	From Leg	3.00	0.0000	168.00	No Ice	2.79	1.19	50.70
			0.00			1/2" Ice	3.00	1.34	71.57
			0.00			1" Ice	3.21	1.50	95.48
Ericsson RRUS-11	C	From Leg	3.00	0.0000	168.00	No Ice	2.79	1.19	50.70
			0.00			1/2" Ice	3.00	1.34	71.57
			0.00			1" Ice	3.21	1.50	95.48
Ericsson RRUS-32	A	From Leg	3.00	0.0000	168.00	No Ice	3.31	2.42	77.00
			0.00			1/2" Ice	3.56	2.64	104.93
			0.00			1" Ice	3.81	2.86	136.47
Ericsson RRUS-32	B	From Leg	3.00	0.0000	168.00	No Ice	3.31	2.42	77.00
			0.00			1/2" Ice	3.56	2.64	104.93
			0.00			1" Ice	3.81	2.86	136.47
Ericsson RRUS-32	C	From Leg	3.00	0.0000	168.00	No Ice	3.31	2.42	77.00
			0.00			1/2" Ice	3.56	2.64	104.93
			0.00			1" Ice	3.81	2.86	136.47
B14 4478	A	From Leg	3.00	0.0000	168.00	No Ice	1.65	0.93	60.00
			0.00			1/2" Ice	1.81	1.05	74.37
			0.00			1" Ice	1.98	1.19	91.23
B14 4478	B	From Leg	3.00	0.0000	168.00	No Ice	1.65	0.93	60.00
			0.00			1/2" Ice	1.81	1.05	74.37
			0.00			1" Ice	1.98	1.19	91.23
B14 4478	C	From Leg	3.00	0.0000	168.00	No Ice	1.65	0.93	60.00
			0.00			1/2" Ice	1.81	1.05	74.37
			0.00			1" Ice	1.98	1.19	91.23
(2) Gen. TMA	A	From Leg	3.00	0.0000	168.00	No Ice	0.58	0.40	13.20
			0.00			1/2" Ice	0.69	0.49	18.38
			0.00			1" Ice	0.80	0.59	25.16
(2) Gen. TMA	B	From Leg	3.00	0.0000	168.00	No Ice	0.58	0.40	13.20
			0.00			1/2" Ice	0.69	0.49	18.38
			0.00			1" Ice	0.80	0.59	25.16
(2) Gen. TMA	B	From Leg	3.00	0.0000	168.00	No Ice	0.58	0.40	13.20
			0.00			1/2" Ice	0.69	0.49	18.38
			0.00			1" Ice	0.80	0.59	25.16
DC6-48-60-18-8F	A	From Leg	3.00	0.0000	168.00	No Ice	0.79	0.79	20.00
			0.00			1/2" Ice	1.27	1.27	35.12
			0.00			1" Ice	1.45	1.45	52.57
DC6-48-60-18-8F	B	From Leg	3.00	0.0000	168.00	No Ice	0.79	0.79	20.00
			0.00			1/2" Ice	1.27	1.27	35.12
			0.00			1" Ice	1.45	1.45	52.57

PiROD 15' Platform with handrail	A	None		0.0000	153.00	No Ice	33.80	33.80	2043.00
(VERIZON - existing)						1/2" Ice	43.60	43.60	2748.00
						1" Ice	53.40	53.40	3453.00
(2) NHH-65B-R2B w/ Mount Pipe	A	From Face	3.00	0.0000	153.00	No Ice	8.32	7.00	69.25
			0.00			1/2" Ice	8.88	8.19	137.80
			0.00			1" Ice	9.40	9.08	214.31
(2) NHH-65B-R2B w/ Mount Pipe	B	From Face	3.00	0.0000	153.00	No Ice	8.32	7.00	69.25
			0.00			1/2" Ice	8.88	8.19	137.80
			0.00			1" Ice	9.40	9.08	214.31
(2) NHH-65B-R2B w/ Mount Pipe	C	From Face	3.00	0.0000	153.00	No Ice	8.32	7.00	69.25
			0.00			1/2" Ice	8.88	8.19	137.80
			0.00			1" Ice	9.40	9.08	214.31
B5/B13 RRH-BR04C	A	From Face	3.00	0.0000	153.00	No Ice	1.88	1.01	82.00
			0.00			1/2" Ice	2.05	1.14	98.43
			0.00			1" Ice	2.22	1.28	117.53
B5/B13 RRH-BR04C	B	From Face	3.00	0.0000	153.00	No Ice	1.88	1.01	82.00

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	Project	81 ft Monopole	Date	11:12:13 11/20/19
	Client	VERIZON	Designed by	kw

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight lb	
B5/B13 RRH-BR04C	C	From Face	0.00	0.0000	153.00	1/2" Ice	2.05	98.43	
			0.00			1" Ice	2.22	1.14	117.53
			3.00			No Ice	1.88	1.01	82.00
			0.00			1/2" Ice	2.05	1.14	98.43
			0.00			1" Ice	2.22	1.28	117.53
B2/B66A RRH-BR049	A	From Face	3.00	0.0000	153.00	No Ice	1.88	1.25	97.50
			0.00			1/2" Ice	2.05	1.39	115.84
			0.00			1" Ice	2.22	1.54	136.97
			3.00			No Ice	1.88	1.25	97.50
			0.00			1/2" Ice	2.05	1.39	115.84
B2/B66A RRH-BR049	B	From Face	0.00	0.0000	153.00	1" Ice	2.22	1.54	136.97
			3.00			No Ice	1.88	1.25	97.50
			0.00			1/2" Ice	2.05	1.39	115.84
			0.00			1" Ice	2.22	1.54	136.97
			3.00			No Ice	1.88	1.25	97.50
B2/B66A RRH-BR049	C	From Face	0.00	0.0000	153.00	1/2" Ice	2.05	1.39	115.84
			0.00			1" Ice	2.22	1.54	136.97
			3.00			No Ice	1.88	1.25	97.50
			0.00			1/2" Ice	2.05	1.39	115.84
			0.00			1" Ice	2.22	1.54	136.97
DB-C1-12C-24AB-0Z	B	From Face	3.00	0.0000	153.00	No Ice	4.06	3.10	32.00
			0.00			1/2" Ice	4.32	3.34	68.49
			0.00			1" Ice	4.58	3.58	108.97
			0.00			1/2" Ice	4.32	3.34	68.49
			0.00			1" Ice	4.58	3.58	108.97

LNx-6512DS-VTM w/ Mount Pipe (VERIZON - proposed)	A	From Face	3.00	0.0000	153.00	No Ice	5.32	4.52	47.25
			0.00			1/2" Ice	5.70	5.13	95.35
			0.00			1" Ice	6.10	5.75	149.50
			3.00			No Ice	5.32	4.52	47.25
			0.00			1/2" Ice	5.70	5.13	95.35
LNx-6512DS-VTM w/ Mount Pipe	B	From Face	0.00	0.0000	153.00	1" Ice	6.10	5.75	149.50
			3.00			No Ice	5.32	4.52	47.25
			0.00			1/2" Ice	5.70	5.13	95.35
			0.00			1" Ice	6.10	5.75	149.50
			3.00			No Ice	5.32	4.52	47.25
LNx-6512DS-VTM w/ Mount Pipe	C	From Face	0.00	0.0000	153.00	1/2" Ice	5.70	5.13	95.35
			0.00			1" Ice	6.10	5.75	149.50
			3.00			No Ice	5.32	4.52	47.25
			0.00			1/2" Ice	5.70	5.13	95.35
			0.00			1" Ice	6.10	5.75	149.50
XXDWMM	A	From Face	3.00	0.0000	153.00	No Ice	4.80	2.40	20.00
			0.00			1/2" Ice	5.07	2.60	59.31
			0.00			1" Ice	5.35	2.81	102.70
			3.00			No Ice	4.80	2.40	20.00
			0.00			1/2" Ice	5.07	2.60	59.31
XXDWMM	B	From Face	0.00	0.0000	153.00	1" Ice	5.35	2.81	102.70
			3.00			No Ice	4.80	2.40	20.00
			0.00			1/2" Ice	5.07	2.60	59.31
			0.00			1" Ice	5.35	2.81	102.70
			3.00			No Ice	4.80	2.40	20.00
XXDWMM	C	From Face	0.00	0.0000	153.00	1/2" Ice	5.07	2.60	59.31
			0.00			1" Ice	5.35	2.81	102.70
			3.00			No Ice	4.80	2.40	20.00
			0.00			1/2" Ice	5.07	2.60	59.31
			0.00			1" Ice	5.35	2.81	102.70
CBRS RRH-RT4401	A	From Face	3.00	0.0000	153.00	No Ice	2.16	1.42	44.00
			0.00			1/2" Ice	2.36	1.59	61.40
			0.00			1" Ice	2.57	1.77	81.69
			3.00			No Ice	2.16	1.42	44.00
			0.00			1/2" Ice	2.36	1.59	61.40
CBRS RRH-RT4401	B	From Face	0.00	0.0000	153.00	1" Ice	2.57	1.77	81.69
			3.00			No Ice	2.16	1.42	44.00
			0.00			1/2" Ice	2.36	1.59	61.40
			0.00			1" Ice	2.57	1.77	81.69
			3.00			No Ice	2.16	1.42	44.00
CBRS RRH-RT4401	C	From Face	0.00	0.0000	153.00	1/2" Ice	2.36	1.59	61.40
			0.00			1" Ice	2.57	1.77	81.69
			3.00			No Ice	2.16	1.42	44.00
			0.00			1/2" Ice	2.36	1.59	61.40
			0.00			1" Ice	2.57	1.77	81.69

PiROD 15' Low Profile Platform	A	None		0.0000	145.00	No Ice	17.30	17.30	1500.00
						1/2" Ice	22.10	22.10	2030.00
						1" Ice	26.90	26.90	2560.00
(4) 2"x8' pipe	A	From Face	0.00	0.0000	145.00	No Ice	1.90	1.90	30.00
			0.00			1/2" Ice	2.73	2.73	44.37
			0.00			1" Ice	3.40	3.40	64.01
(4) 2"x8' pipe	B	From Face	0.00	0.0000	145.00	No Ice	1.90	1.90	30.00
			0.00			1/2" Ice	2.73	2.73	44.37
			0.00			1" Ice	3.40	3.40	64.01
(4) 2"x8' pipe	C	From Face	0.00	0.0000	145.00	No Ice	1.90	1.90	30.00
			0.00			1/2" Ice	2.73	2.73	44.37
			0.00			1" Ice	3.40	3.40	64.01

tnxTower Hudson Design Group LLC 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 336-5586	Job	VERNON 2 CT	Page	6 of 8
	Project	81 ft Monopole	Date	11:12:13 11/20/19
	Client	VERIZON	Designed by	kw

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight lb
			0.00		1" Ice	3.40	3.40	64.01

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	26	115274.79	0.00	0.00
	Max. H _x	21	47230.19	35258.69	-3.84
	Max. H _z	2	62973.59	-3.84	35237.14
	Max. M _x	2	4602061.36	-3.84	35237.14
	Max. M _z	8	4605669.75	-35258.68	3.84
	Max. Torsion	25	2114.66	17626.02	30514.34
	Min. Vert	13	47230.19	-17626.02	-30514.34
	Min. H _x	9	47230.19	-35258.69	3.84
	Min. H _z	14	62973.59	3.84	-35237.14
	Min. M _x	14	-4602162.80	3.84	-35237.14
	Min. M _z	20	-4605375.84	35258.68	-3.84
	Min. Torsion	13	-2115.26	-17626.02	-30514.34

Tower Mast Reaction Summary

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _z lb-ft	Torque lb-ft
Dead Only	52477.99	0.00	0.00	40.83	-112.18	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	62973.59	3.84	-35237.14	-4602061.36	-527.82	-1756.49
0.9 Dead+1.6 Wind 0 deg - No Ice	47230.19	3.84	-35237.14	-4561345.40	-484.43	-1765.34
1.2 Dead+1.6 Wind 30 deg - No Ice	62973.59	17632.66	-30518.17	-3985676.70	-2303236.74	-936.71
0.9 Dead+1.6 Wind 30 deg - No Ice	47230.19	17632.66	-30518.17	-3950417.05	-2282814.29	-943.02
1.2 Dead+1.6 Wind 60 deg - No Ice	62973.59	30536.83	-17621.89	-2301324.48	-3988833.47	134.25
0.9 Dead+1.6 Wind 60 deg - No Ice	47230.19	30536.83	-17621.89	-2280971.53	-3953493.33	132.13
1.2 Dead+1.6 Wind 90 deg - No Ice	62973.59	35258.68	-3.84	-326.26	-4605669.75	1169.46
0.9 Dead+1.6 Wind 90 deg - No Ice	47230.19	35258.69	-3.84	-336.16	-4564866.34	1172.13
1.2 Dead+1.6 Wind 120 deg - No Ice	62973.59	30533.00	17615.25	2300774.53	-3988468.65	1891.35
0.9 Dead+1.6 Wind 120 deg - No Ice	47230.19	30533.00	17615.25	2280400.52	-3953128.48	1898.09
1.2 Dead+1.6 Wind 150 deg - No Ice	62973.59	17626.02	30514.34	3985404.50	-2302600.63	2106.27

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	Client	VERIZON	Designed by	kw

Load Combination	Vertical lb	Shear _x lb	Shear _y lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _y lb-ft	Torque lb-ft
0.9 Dead+1.6 Wind 150 deg - No Ice	47230.19	17626.02	30514.34	3950120.99	-2282179.21	2115.26
1.2 Dead+1.6 Wind 180 deg - No Ice	62973.59	-3.84	35237.14	4602162.80	213.24	1756.60
0.9 Dead+1.6 Wind 180 deg - No Ice	47230.19	-3.84	35237.14	4561420.66	253.70	1765.44
1.2 Dead+1.6 Wind 210 deg - No Ice	62973.59	-17632.66	30518.17	3985783.87	2302932.91	936.19
0.9 Dead+1.6 Wind 210 deg - No Ice	47230.19	-17632.66	30518.17	3950496.50	2282591.45	942.53
1.2 Dead+1.6 Wind 240 deg - No Ice	62973.59	-30536.83	17621.89	2301425.19	3988539.98	-134.88
0.9 Dead+1.6 Wind 240 deg - No Ice	47230.19	-30536.83	17621.89	2281046.25	3953278.07	-132.77
1.2 Dead+1.6 Wind 270 deg - No Ice	62973.59	-35258.68	3.84	414.79	4605375.84	-1169.57
0.9 Dead+1.6 Wind 270 deg - No Ice	47230.19	-35258.69	3.84	401.97	4564650.78	-1172.24
1.2 Dead+1.6 Wind 300 deg - No Ice	62973.59	-30533.00	-17615.25	-2300691.73	3988163.98	-1890.83
0.9 Dead+1.6 Wind 300 deg - No Ice	47230.19	-30533.00	-17615.25	-2280338.93	3952905.03	-1897.56
1.2 Dead+1.6 Wind 330 deg - No Ice	62973.59	-17626.02	-30514.34	-3985315.25	2302285.62	-2105.66
0.9 Dead+1.6 Wind 330 deg - No Ice	47230.19	-17626.02	-30514.34	-3950054.67	2281948.19	-2114.66
1.2 Dead+1.0 Ice+1.0 Temp	115274.79	0.00	0.00	1705.03	2140.24	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	115274.79	0.14	-11301.08	-1505834.50	2491.86	-1167.02
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	115274.79	5652.64	-9787.10	-1303805.25	-751752.68	-640.44
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	115274.79	9790.52	-5650.66	-751892.88	-1303906.97	57.72
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	115274.79	11305.04	-0.14	2019.23	-1506023.70	740.42
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	115274.79	9790.38	5650.42	755923.24	-1303945.89	1224.70
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	115274.79	5652.40	9786.96	1307812.32	-751818.09	1380.78
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	115274.79	-0.14	11301.08	1509807.05	2419.52	1166.85
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	115274.79	-5652.64	9787.10	1307780.77	756669.48	640.23
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	115274.79	-9790.52	5650.66	755865.20	1308829.05	-57.95
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	115274.79	-11305.04	0.14	1946.90	1510945.63	-740.61
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	115274.79	-9790.38	-5650.42	-751960.08	1308862.40	-1224.84
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	115274.79	-5652.40	-9786.96	-1303845.95	756729.33	-1380.92
Dead+Wind 0 deg - Service	52477.99	0.82	-7539.37	-979574.21	-200.20	-379.08
Dead+Wind 30 deg - Service	52477.99	3772.70	-6529.70	-848369.88	-490361.25	-202.31
Dead+Wind 60 deg - Service	52477.99	6533.69	-3770.40	-489834.39	-849162.79	28.67
Dead+Wind 90 deg - Service	52477.99	7543.98	-0.82	-36.95	-980464.40	251.98
Dead+Wind 120 deg - Service	52477.99	6532.87	3768.98	489781.80	-849083.95	407.78
Dead+Wind 150 deg - Service	52477.99	3771.28	6528.88	848375.41	-490224.55	454.30
Dead+Wind 180 deg - Service	52477.99	-0.82	7539.37	979658.90	-42.10	379.09
Dead+Wind 210 deg - Service	52477.99	-3772.70	6529.70	848454.79	490119.35	202.29
Dead+Wind 240 deg - Service	52477.99	-6533.69	3770.40	489919.05	848921.27	-28.70
Dead+Wind 270 deg - Service	52477.99	-7543.98	0.82	121.15	980222.87	-251.99

tnxTower Hudson Design Group LLC 45 Beechwood Drive North Andover, MA 01845 Phone: (978) 557-5553 FAX: (978) 336-5586	Job	VERNON 2 CT	Page	8 of 8
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	Client	VERIZON	Designed by	kw

Load Combination	Vertical lb	Shear _x lb	Shear _y lb	Overturning Moment, M _x lb-ft	Overturning Moment, M _y lb-ft	Torque lb-ft
Dead+Wind 300 deg - Service	52477.99	-6532.87	-3768.98	-489697.81	848842.01	-407.76
Dead+Wind 330 deg - Service	52477.99	-3771.28	-6528.88	-848291.17	489982.22	-454.28

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	175 - 160	18.2578	42	0.9400	0.0008
L2	160 - 140	15.3326	42	0.9132	0.0010
L3	140 - 120	11.6485	42	0.8287	0.0011
L4	120 - 100	8.4046	42	0.7062	0.0009
L5	100 - 80	5.7061	42	0.5722	0.0006
L6	80 - 60	3.5686	42	0.4412	0.0004
L7	60 - 40	1.9667	42	0.3183	0.0003
L8	40 - 20	0.8621	42	0.2050	0.0001
L9	20 - 0	0.2158	42	0.1003	0.0001

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
178.00	PiROD 15' Low Profile Platform	42	18.2578	0.9400	0.0008	60328
168.00	PiROD 15' Low Profile Platform	42	16.8845	0.9300	0.0009	43091
153.00	PiROD 15' Platform with handrail	42	14.0047	0.8900	0.0010	15179
145.00	PiROD 15' Low Profile Platform	42	12.5351	0.8546	0.0011	11856

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
L1	175 - 160	Pole	P24x3/8	1	-7681.38	1052070.00	20.9	Pass
L2	160 - 140	Pole	P30x3/8	2	-16644.80	1311060.00	48.8	Pass
L3	140 - 120	Pole	P36x3/8	3	-20695.10	1490100.00	69.8	Pass
L4	120 - 100	Pole	P42x3/8	4	-25591.50	1668870.00	82.1	Pass
L5	100 - 80	Pole	P48x3/8	5	-31093.00	1847490.00	88.4	Pass
L6	80 - 60	Pole	P54x3/8	6	-37189.20	2026000.00	91.6	Pass
L7	60 - 40	Pole	P60x3/8	7	-43875.30	2204430.00	93.0	Pass
L8	40 - 20	Pole	P60x1/2	8	-52469.70	3125690.00	82.2	Pass
L9	20 - 0	Pole	P60x5/8	9	-62965.80	4139150.00	75.9	Pass
							Summary	
							Pole (L7)	Pass
							RATING = 93.0	Pass

Stiffened or Unstiffened, UngROUTed, Circular Base Plate - Any Rod Material

TIA Rev G
Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#:	0
Site Name:	VERNON 2 CT
App #:	0
Pole Manufacturer:	Other

Anchor Rod Data

Qty:	52	
Diam:	1.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	67	in

Plate Data

Diam:	73	in
Thick:	1.5	in
Grade:	36	ksi
Single-Rod B-eff:	3.62	in

Stiffener Data (Welding at both sides)

Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.3125	in
Fillet V. Weld:	0.3125	in
Width:	3	in
Height:	6.5	in
Thick:	0.375	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data

Diam:	60	in
Thick:	0.625	in
Grade:	42	ksi
# of Sides:	0	"0" IF Round
Fu	63	ksi
Reinf. Fillet Weld	0	"0" if None

Reactions

Mu:	4606	ft-kips
Axial, Pu:	63	kips
Shear, Vu:	35	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

If No stiffeners, Criteria:

AISC LRFD

<-Only Applicable to Unstiffened Cases

Anchor Rod Results

Max Rod ($C_u + V_u/\eta$): 66.0 Kips
 Allowable Axial, $\phi^*F_u \cdot A_{net}$: 77.5 Kips
 Anchor Rod Stress Ratio: 85.2% **Pass**

Stiffened
AISC LRFD
ϕ^*T_n

Base Plate Results

Base Plate Stress: 7.2 ksi
 Allowable Plate Stress: 19.4 ksi
 Base Plate Stress Ratio: 37.0% **Pass**

Shear Check Only

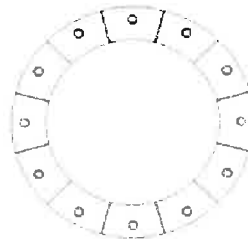
Stiffened
AISC LRFD
ϕ^*F_y
Y.L. Length:
N/A, Roark

Stiffener Results

Horizontal Weld : 68.2% **Pass**
 Vertical Weld: 32.9% **Pass**
 Plate Flex+Shear, $f_b/F_b + (f_v/F_v)^2$: 47.9% **Pass**
 Plate Tension+Shear, $f_t/F_t + (f_v/F_v)^2$: 96.0% **Pass**
 Plate Comp. (AISC Bracket): 97.3% **Pass**

Pole Results

Pole Punching Shear Check: 9.7% **Pass**



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

 ** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Monopole Pier and Pad Foundation

BU # :

Site Name: VERNON 2 CT

App. Number:

TIA-222 Revision: G

Design Reactions		
Shear, S:	35.3	kips
Moment, M:	4606	ft-kips
Tower Height, H:	175	ft
Tower Weight, Wt:	63	kips
Base Diameter, BD:	5.00	ft

Foundation Dimensions		
Depth, D:	10	ft
Pad Width, W:	20	ft
Neglected Depth, N:	0	ft
Thickness, T:	3.00	ft
Pier Diameter, Pd:	7.00	ft
Ext. Above Grade, E:	0.50	ft
BP Dist. Above Pier:	3	in.
Clear Cover, Cc:	3.0	in

Soil Properties		
Soil Unit Weight, γ:	0.120	kcf
Ult. Bearing Capacity, Bc:	10.0	ksf
Angle of Friction, Φ:	34	deg
Cohesion, Cc:	0.000	ksf
Passive Pressure, Pp:	0.000	ksf
Base Friction, μ:	0.30	

Material Properties		
Rebar Yield Strength, Fy:	60000	psi
Concrete Strength, F'c:	3000	psi
Concrete Unit Weight, δc:	0.150	kcf
Seismic Zone, z:		

Rebar Properties		
Pier Rebar Size, Sp:	9	
Pier Rebar Quantity, mp:	34	28
Pad Rebar Size, Spad:	8	
Pad Rebar Quantity, mpad:	23	14
Pier Tie Size, St:	4	3
Tie Quantity, mt:	12	7

Design Checks			
	Capacity/ Availability	Demand/ Limits	Check
<i>Req'd Pier Diam.(ft)</i>	7	7	OK
<i>Overturning (ft-kips)</i>	5085.56	4606.00	90.6%
<i>Shear Capacity (kips)</i>	174.06	35.30	20.3%
<i>Bearing (ksf)</i>	7.50	7.00	93.4%
<i>Pad Shear - 1-way (kips)</i>	640.84	451.11	70.4%
<i>Pad Shear - 2-way (kips)</i>	1954.52	123.61	6.3%
<i>Pad Moment Capacity (k-ft)</i>	2584.54	1685.45	65.2%
<i>Pier Moment Capacity (k-ft)</i>	9815.92	4870.75	49.6%

ATTACHMENT 5



November 15, 2019



20 Alexander Drive
Wallingford, CT 06492

RE: Site Name: VERNON 2 CT (CAOLE)
Site Address: 60 Industrial Park Road
Vernon, CT 06066

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by Verizon to perform a mount analysis on the existing Verizon antenna mount to determine their capability of supporting the following equipment loading:

- (6) NHH-65B-R2B Antennas (72.0"x11.9"x7.1" – Wt. = 44 lbs. /each)
- (3) B2/B66A RRH-BR049 RRH's (15.0"x15.0"x10.0" – Wt. = 98 lbs. /each)
- (3) B5/B13 RRH-BR04C RRH's (15.0"x15.0"x8.1" – Wt. = 82 lbs. /each)
- (1) Junction Box (28.9"x15.7"x10.3" – Wt. = 32 lbs.)
- **(3) LNX-6512DS-A1M Antennas (48.5"x11.9"x7.1" – Wt. = 29 lbs. /each)**
- **(3) XXDWM-12.5 Antennas w/ CBR5 RRH Clip on (16.2"x11.4"x5.5" – Wt. = 24 lbs. /each)**

**Proposed equipment shown in bold.*

No original structural design documents or fabrication drawings were available for the existing mount. HDG's subconsultant, ProVertic LLC, conducted a survey climb of the existing Verizon antenna mount on November 4, 2019.

Based on our analysis, we have determined that the existing antenna mount **IS CAPABLE** of supporting the proposed installation with the following modifications:

- **Install new platform reinforcement kit, SitePro1 P/N PRK-1245L (or approved equal).**
- **Install a new handrail kit, SitePro1 P/N HRK14-3HD (or approved equal).**
- **Reinforce existing angles with new L1-1/2x2-1/2x1/4 steel angles (typ. of 2 per sector, total of 6).**

	Member	Controlling Load Case	Stress Ratio	Pass/Fail
Existing Mount Rating	54	LC3	470%	FAIL
Modified Mount Rating	12	LC1	82%	PASS

This analysis was conducted in accordance with EIA/TIA-222-G, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures and the International Building Code 2015. (See the attached analysis).

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to Verizon's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC



Michael Cabral
Vice President



Daniel P. Hamm, PE
Principal

FIELD PHOTOS:





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Wind & Ice Calculations

Date: 11/15/2019
 Project Name: VERNON 2 CT
 Designed By: LBW Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

$$K_z = 2.01 (z/z_g)^{2/\alpha}$$

$K_z =$ **1.116**
 $z =$ **153 (ft)**
 $z_g =$ **1200 (ft)**
 $\alpha =$ **7.0**

$$K_{zmin} \leq K_z \leq 2.01$$

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_e
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.4 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$$K_{zt} = [1 + (K_e K_t / K_{ht})]^2$$

$$K_{ht} = e^{-(fz/H)}$$

$$K_{zt} =$$
 #DIV/0!

$$K_t =$$
 #DIV/0!

$$K_e =$$
 0.9 (from Table 2-4)

$$K_t =$$
 0 (from Table 2-5)

$$f =$$
 0 (from Table 2-5)

$$z =$$
 153

$$H =$$
 0 (Ht. of the crest above surrounding terrain)

$$K_{zt} =$$
 1.00

$$K_{iz} =$$
 1.17 (from Sec. 2.6.8)

(If Category 1 then $K_{zt} = 1.0$)

Category= **1**

2.6.8 Design Ice Thickness

Max Ice Thickness =

$$t_i =$$
 1.00 in

Importance Factor, $I_{ice} =$

$$I_{ice} =$$
 1.00 (from Table 2-3)

$$t_{iz} = 2.0 * t_i * I_{ice} * K_{iz} * (K_z t)^{0.35}$$

$$t_{iz} =$$
 2.33 in

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2.6.7 Gust Effect Factor

2.6.7.1 Self Supporting Lattice Structures

Gh = 1.0 Latticed Structures > 600 ft

Gh = 0.85 Latticed Structures 450 ft or less

Gh = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h= 175 Gh= 0.85

2.6.7.2 Guyed Masts

Gh= 0.85

2.6.7.3 Pole Structures

Gh= 1.1

2.6.9 Appurtenances

Gh= 1.0

2.6.7.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

Gh= 1.35 Gh= 1.00

2.6.9.2 Design Wind Force on Appurtenances

$$F = q_z * Gh * (EPA)_A$$

$$q_z = 0.00256 * K_z * K_{zt} * K_d * V_{max}^2 * I$$

q_z= 29.92

q_{z (ice)}= 6.78

K_z= 1.116

K_{zt}= 1.0

K_d= 0.95 (from Table 2-2)

V_{max}= 105

V_{max (ice)}= 50

I= 1.0 (from Table 2-3)

I_{wice}= 1.0 (from Table 2-3)

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95

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Determine C_a :

Table 2-8

Force Coefficients (C_a) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		C_a	C_a	C_a
Flat		1.2	1.4	2.0
Round	$C < 32$ (Subcritical)	0.7	0.8	1.2
	$32 \leq C \leq 64$ (Transitional)	$3.76/(C^{0.485})$	$3.37/(C^{0.415})$	$38.4/(C^{1.0})$
	$C > 64$ (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance, and the section length considered to have uniform wind load).

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **2.33 in**

Appurtenances	Height	Width	Depth	Flat Area	ASPECT Ratio	C_a	Force (lbs)	Force (lbs) / foot
NHH-65B-R2B Antenna	72.0	11.9	7.1	5.95	6.05	1.36	242	81
LNK-6512DS-A1M Antenna	48.5	11.9	7.1	4.01	4.08	1.27	152	53
XXDWM-12.5 Antennas w/ CBRS RRH Clip O	16.2	11.4	5.5	1.28	1.42	1.20	46	19
B2/B66A RRH-BR049 RRH	15.0	15.0	10.0	1.56	1.00	1.20	56	22
B2/B66A RRH-BR049 RRH (Shielded)	15.0	3.1	10.0	0.32	4.84	1.30	13	9
B5/B13 RRH-BR04C RRH	15.0	15.0	8.1	1.56	1.00	1.20	56	22
Junction Box	28.9	15.7	10.3	3.15	1.84	1.20	113	39
2" Pipe	2.4	12.0		0.20	0.20	1.20	7	7
3" Pipe	3.5	12.0		0.29	0.29	1.20	10	8
1-1/2x2-1/2 Angle	1.5	12.0		0.13	0.13	2.00	7	10
3x3 HSS	3.0	12.0		0.25	0.25	1.25	9	8
6x3/8 Plate	6.0	12.0		0.50	0.50	2.00	30	17

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 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 60 (deg)

Ice Thickness = 2.33 in.

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area	Flat Area	Ratio	Ratio	Ca	Ca	Force (lbs)	Force (lbs)	Force (lbs)
NHH-65B-R2B Antenna	72.0	11.9	7.1	5.95	9.55	6.05	10.14	1.36	1.50	242	160	180
LNK-6512DS-A1M Antenna	48.5	11.9	7.1	4.01	2.39	4.08	6.83	1.27	1.39	152	100	113
XDXWM-12.5 Antennas w/ CBRS RRH C	16.2	11.4	5.5	1.28	0.62	1.42	2.95	1.20	1.22	46	23	28
B2/B66A RRH-BR049 RRH	15.0	15.0	10.0	1.56	1.04	1.00	1.50	1.20	1.20	56	37	42
B2/B66A RRH-BR049 RRH (Shielded)	15.0	7.5	10.0	0.78	1.04	2.00	1.50	1.20	1.20	28	37	35
B5/B13 RRH-BR04C RRH	15.0	15.0	8.1	1.56	0.84	1.00	1.85	1.20	1.20	56	30	37
Junction Box	28.9	15.7	10.3	9.15	2.07	1.84	2.81	1.20	1.21	113	75	85

WIND LOADS WITH ICE:

NHH-65B-R2B Antenna	76.7	16.6	11.8	8.82	6.26	4.63	6.52	1.29	1.38	77	59	63
LNK-6512DS-A1M Antenna	53.2	16.6	11.8	6.11	4.34	3.21	4.52	1.23	1.29	51	38	41
XDXWM-12.5 Antennas w/ CBRS RRH C	20.9	16.1	10.2	2.33	1.47	1.30	2.05	1.20	1.20	19	12	14
B2/B66A RRH-BR049 RRH	19.7	19.7	14.7	2.68	2.00	1.00	1.34	1.20	1.20	22	16	18
B2/B66A RRH-BR049 RRH (Shielded)	19.7	9.8	14.7	1.34	2.00	2.00	1.34	1.20	1.20	11	16	15
B5/B13 RRH-BR04C RRH	19.7	19.7	12.8	2.68	1.74	1.00	1.54	1.20	1.20	22	14	16
Junction Box	33.6	20.4	15.0	4.75	3.49	1.65	2.24	1.20	1.20	39	28	31

Date: 11/15/2019

Project Name: VERNON 2 CT

Designed By: LBW Checked By: MSC



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ICE WEIGHT CALCULATIONS

Thickness of ice: 2.33 in.

Density of ice: 56 pcf

NHH-65B-R2B Antenna

Weight of ice based on total radial SF area:

Height (in): 72.0

Width (in): 11.9

Depth (in): 7.1

Total weight of ice on object: 276 lbs

Weight of object: 44.0 lbs

Combined weight of ice and object: 320 lbs

LNx-6512DS-A1M Antenna

Weight of ice based on total radial SF area:

Height (in): 48.5

Width (in): 11.9

Depth (in): 7.1

Total weight of ice on object: 186 lbs

Weight of object: 29.0 lbs

Combined weight of ice and object: 215 lbs

XXDWM-12.5 Antennas w/ CBRs RRH Clip On

Weight of ice based on total radial SF area:

Height (in): 16.2

Width (in): 11.4

Depth (in): 5.5

Total weight of ice on object: 58 lbs

Weight of object: 24.0 lbs

Combined weight of ice and object: 82 lbs

B2/B66A RRH-BR049 RRH

Weight of ice based on total radial SF area:

Height (in): 15.0

Width (in): 15.0

Depth (in): 10.0

Total weight of ice on object: 72 lbs

Weight of object: 98.0 lbs

Combined weight of ice and object: 170 lbs

B5/B13 RRH-BR04C RRH

Weight of ice based on total radial SF area:

Height (in): 15.0

Width (in): 15.0

Depth (in): 8.1

Total weight of ice on object: 69 lbs

Weight of object: 82.0 lbs

Combined weight of ice and object: 151 lbs

Junction Box

Weight of ice based on total radial SF area:

Height (in): 28.9

Width (in): 15.7

Depth (in): 10.3

Total weight of ice on object: 145 lbs

Weight of object: 32.0 lbs

Combined weight of ice and object: 177 lbs

2" pipe

Per foot weight of ice:

diameter (in): 2.38

Per foot weight of ice on object: 13 plf

3" Pipe

Per foot weight of ice:

diameter (in): 3.5

Per foot weight of ice on object: 17 plf

L 1-1/2x2-1/2 Angles

Weight of ice based on total radial SF area:

Height (in): 1.5

Width (in): 2.5

Per foot weight of ice on object: 15 plf

HSS 3x3

Weight of ice based on total radial SF area:

Height (in): 3

Width (in): 3

Per foot weight of ice on object: 19 plf

PL 6x3/8

Weight of ice based on total radial SF area:

Height (in): 6

Width (in): 0.375

Per foot weight of ice on object: 24 plf

L 2-1/2x2-1/2 Angles

Weight of ice based on total radial SF area:

Height (in): 2.5

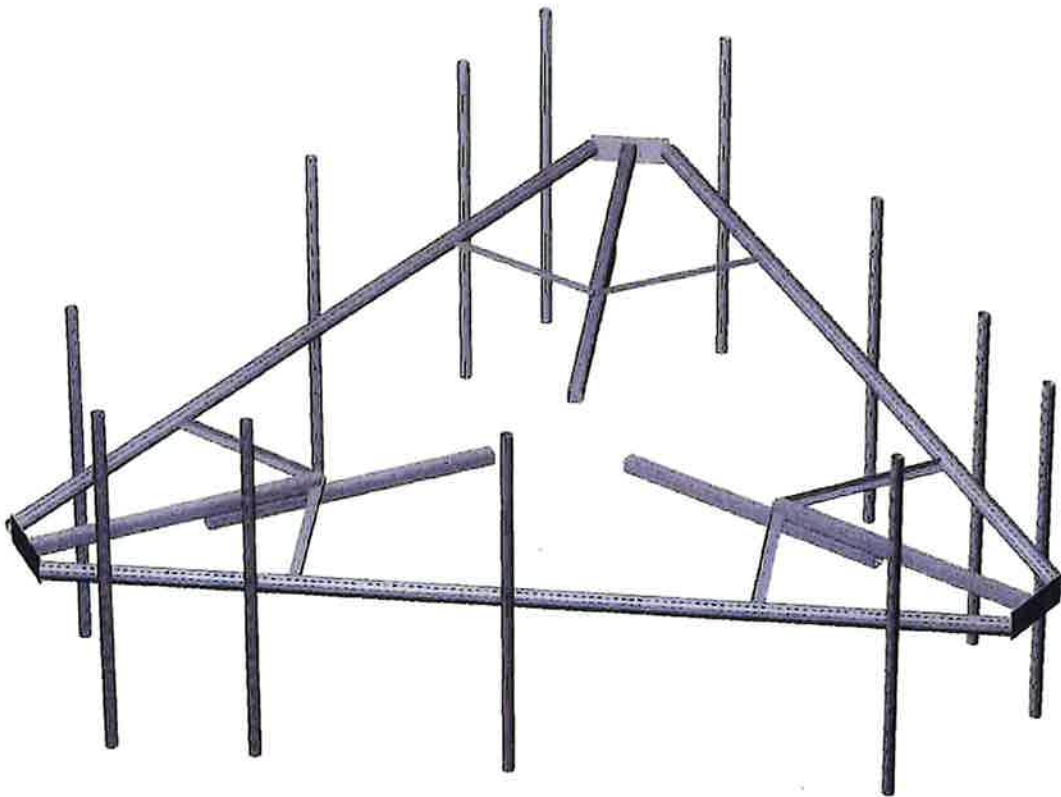
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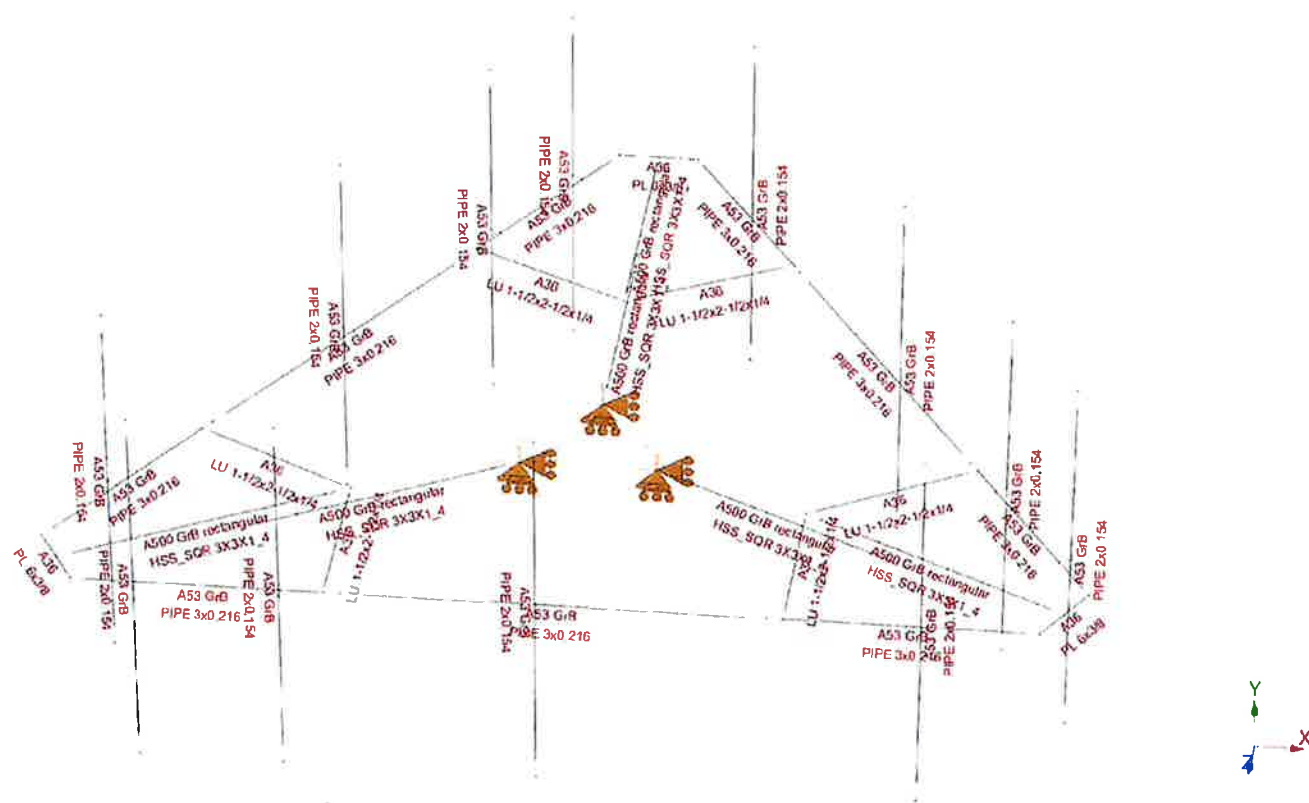
Per foot weight of ice on object: 17 plf



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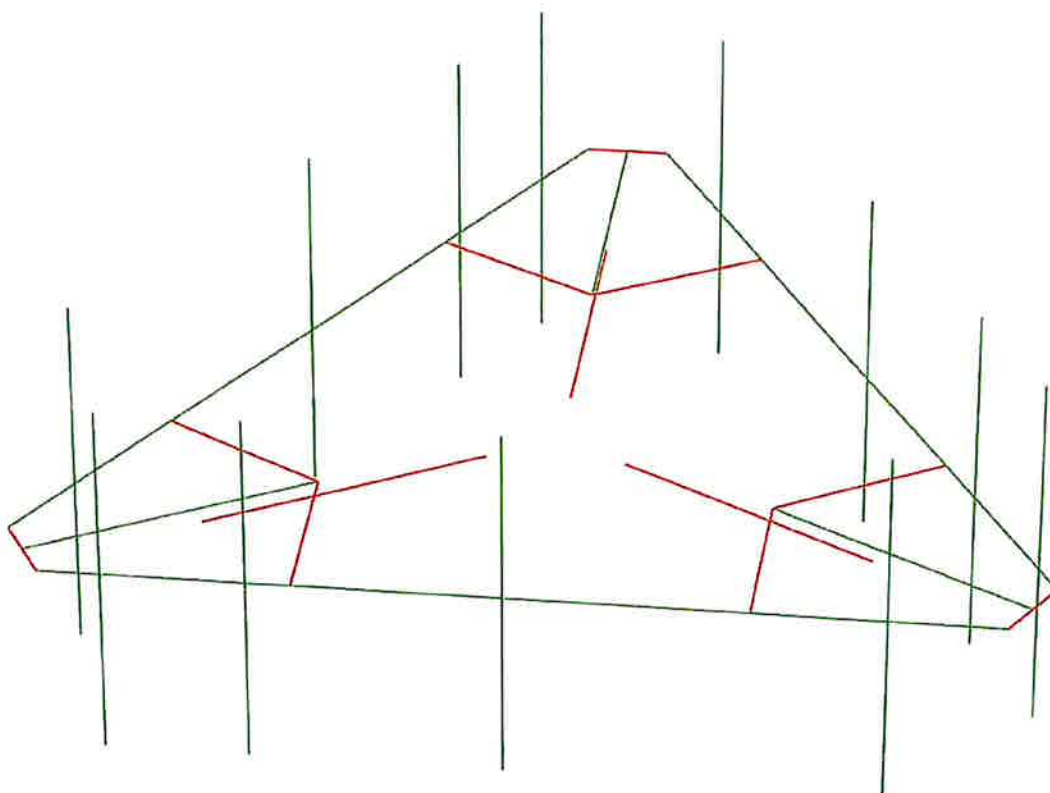
**Mount Calculations
(Existing Conditions)**





- Design status

-  Not designed
-  Error on design
-  Design O.K.
-  With warnings

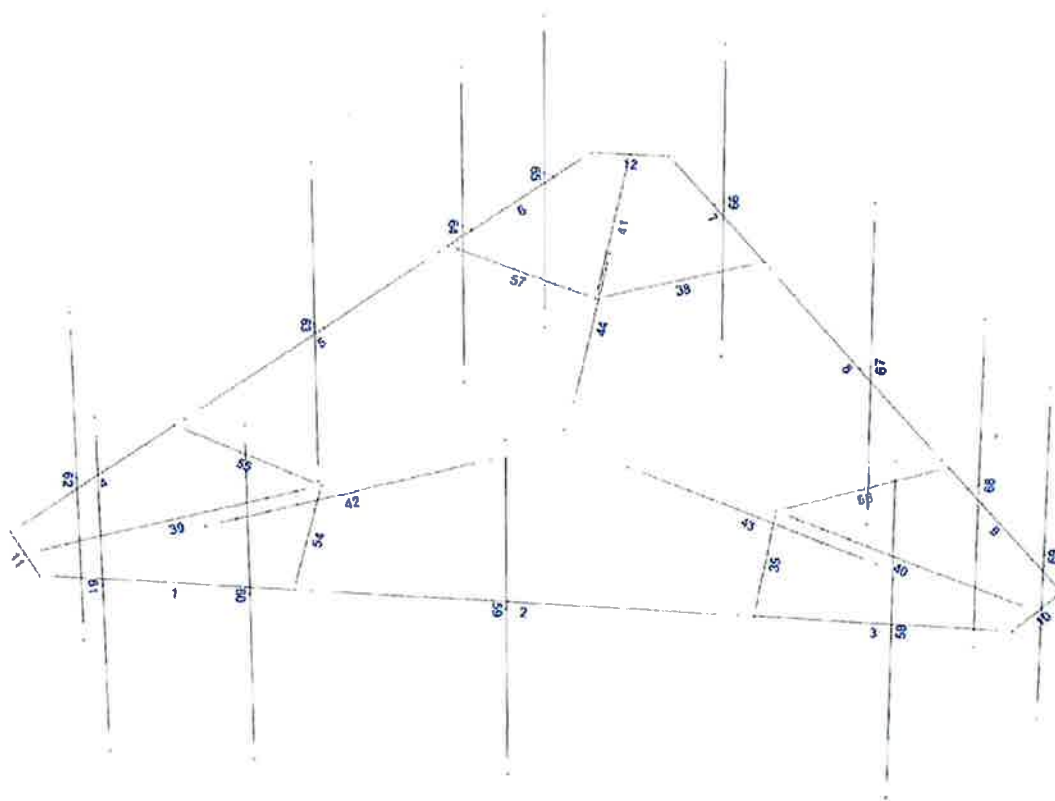




Current Date: 11/15/2019 9:37 AM

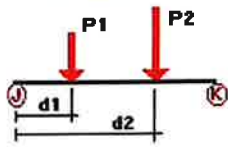
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Di	40	z	-0.009	0.00	0.00	No	0.00	No
	41	z	-0.009	0.00	0.00	No	0.00	No
	42	z	-0.009	0.00	0.00	No	0.00	No
	43	z	-0.009	0.00	0.00	No	0.00	No
	44	z	-0.009	0.00	0.00	No	0.00	No
	54	z	-0.007	0.00	0.00	No	0.00	No
	55	z	-0.007	0.00	0.00	No	0.00	No
	56	z	-0.007	0.00	0.00	No	0.00	No
	57	z	-0.007	0.00	0.00	No	0.00	No
	62	z	-0.007	0.00	0.00	No	0.00	No
	63	z	-0.007	0.00	0.00	No	0.00	No
	64	z	-0.007	0.00	0.00	No	0.00	No
	65	z	-0.007	0.00	0.00	No	0.00	No
	66	z	-0.007	0.00	0.00	No	0.00	No
	67	z	-0.007	0.00	0.00	No	0.00	No
	68	z	-0.007	0.00	0.00	No	0.00	No
	69	z	-0.007	0.00	0.00	No	0.00	No
	1	y	-0.017	0.00	0.00	No	0.00	No
	2	y	-0.017	0.00	0.00	No	0.00	No
	3	y	-0.017	0.00	0.00	No	0.00	No
	4	y	-0.017	0.00	0.00	No	0.00	No
	5	y	-0.017	0.00	0.00	No	0.00	No
	6	y	-0.017	0.00	0.00	No	0.00	No
	7	y	-0.017	0.00	0.00	No	0.00	No
	8	y	-0.017	0.00	0.00	No	0.00	No
	9	y	-0.017	0.00	0.00	No	0.00	No
	10	y	-0.024	0.00	0.00	No	0.00	No
	11	y	-0.024	0.00	0.00	No	0.00	No
	12	y	-0.024	0.00	0.00	No	0.00	No
	35	y	-0.015	0.00	0.00	No	0.00	No
	38	y	-0.015	0.00	0.00	No	0.00	No
	39	y	-0.019	0.00	0.00	No	0.00	No
	40	y	-0.019	0.00	0.00	No	0.00	No
	41	y	-0.019	0.00	0.00	No	0.00	No
	42	y	-0.019	0.00	0.00	No	0.00	No
	43	y	-0.019	0.00	0.00	No	0.00	No
	44	y	-0.019	0.00	0.00	No	0.00	No
	54	y	-0.015	0.00	0.00	No	0.00	No
	55	y	-0.015	0.00	0.00	No	0.00	No
	56	y	-0.015	0.00	0.00	No	0.00	No
	57	y	-0.015	0.00	0.00	No	0.00	No
	58	y	-0.013	0.00	0.00	No	0.00	No
	59	y	-0.013	0.00	0.00	No	0.00	No
	60	y	-0.013	0.00	0.00	No	0.00	No
	61	y	-0.013	0.00	0.00	No	0.00	No
	62	y	-0.013	0.00	0.00	No	0.00	No
	63	y	-0.013	0.00	0.00	No	0.00	No
	64	y	-0.013	0.00	0.00	No	0.00	No
	65	y	-0.013	0.00	0.00	No	0.00	No
	66	y	-0.013	0.00	0.00	No	0.00	No
	67	y	-0.013	0.00	0.00	No	0.00	No
	68	y	-0.013	0.00	0.00	No	0.00	No
	69	y	-0.013	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Klp]	Dist1 [ft]	%
DL	58	y	-0.012	2.50	No
		y	-0.012	3.50	No
	59	y	-0.044	0.50	No
		y	-0.044	5.50	No
	60	y	-0.098	2.00	No
		y	-0.032	1.50	No
	61	y	-0.082	4.00	No
		y	-0.015	1.50	No
	62	y	-0.015	4.50	No
		y	-0.012	2.50	No
	63	y	-0.012	3.50	No
		y	-0.044	0.50	No
	64	y	-0.044	5.50	No
		y	-0.098	2.00	No
	65	y	-0.082	1.50	No
		y	-0.015	1.50	No
	66	y	-0.015	4.50	No
		y	-0.012	2.50	No
	67	y	-0.012	3.50	No
		y	-0.044	0.50	No
	68	y	-0.044	5.50	No
		y	-0.098	2.00	No
Wo	58	z	-0.023	2.50	No
		z	-0.023	3.50	No
	59	z	-0.242	0.50	No
		z	-0.242	5.50	No
	60	z	-0.013	2.00	No
		z	-0.113	1.50	No
	61	z	-0.056	4.00	No
		z	-0.076	1.50	No
	62	z	-0.076	4.50	No
		z	-0.014	2.50	No
	63	z	-0.014	3.50	No
		z	-0.18	0.50	No
	64	z	-0.18	5.50	No
		z	-0.035	2.00	No
	65	z	-0.037	1.50	No
		z	-0.057	1.50	No
	66	z	-0.057	4.50	No
		z	-0.014	2.50	No
	67	z	-0.014	3.50	No
		z	-0.18	0.50	No
	68	z	-0.18	5.50	No
		z	-0.035	2.00	No
Wi	58	z	-0.037	1.50	No
		z	-0.057	1.50	No
	59	z	-0.057	4.50	No
		z	-0.014	2.50	No
	60	z	-0.014	3.50	No
		z	-0.18	0.50	No
	61	z	-0.18	5.50	No
		z	-0.035	2.00	No

		z	-0.009	2.00	No
	60	z	-0.039	1.50	No
		z	-0.022	4.00	No
	61	z	-0.027	1.50	No
		z	-0.027	4.50	No
	62	z	-0.007	2.50	No
		z	-0.007	3.50	No
	63	z	-0.063	0.50	No
		z	-0.063	5.50	No
		z	-0.015	2.00	No
	64	z	-0.016	1.50	No
	65	z	-0.021	1.50	No
		z	-0.021	4.50	No
	66	z	-0.007	2.50	No
		z	-0.007	3.50	No
	67	z	-0.063	0.50	No
		z	-0.063	5.50	No
		z	-0.015	2.00	No
	68	z	-0.016	1.50	No
	69	z	-0.021	1.50	No
		z	-0.021	4.50	No
Di	58	y	-0.029	2.50	No
		y	-0.029	3.50	No
	59	y	-0.276	0.50	No
		y	-0.276	5.50	No
		y	-0.072	2.00	No
	60	y	-0.145	1.50	No
		y	-0.069	4.00	No
	61	y	-0.093	1.50	No
		y	-0.093	4.50	No
	62	y	-0.029	2.50	No
		y	-0.029	3.50	No
	63	y	-0.276	0.50	No
		y	-0.276	5.50	No
		y	-0.072	2.00	No
	64	y	-0.069	1.50	No
	65	y	-0.093	1.50	No
		y	-0.093	4.50	No
	66	y	-0.029	2.50	No
		y	-0.029	3.50	No
	67	y	-0.276	0.50	No
		y	-0.276	5.50	No
		y	-0.072	2.00	No
	68	y	-0.069	1.50	No
	69	y	-0.093	1.50	No
		y	-0.093	4.50	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (No Ice)	No	0.00	0.00	0.00
Wi	Wind Load (With Ice)	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
Wo	0.00	0.00	0.00
Wi	0.00	0.00	0.00
Di	0.00	0.00	0.00



Current Date: 11/15/2019 9:37 AM

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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+1.6Wo

LC2=0.9DL+1.6Wo

LC3=1.2DL+Wi+Di

LC4=1.2DL

LC5=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
HSS_SQR 3X3X1_4		39	LC3 at 0.00%	0.25	OK	Eq. H1-1b
		40	LC3 at 100.00%	0.24	OK	Eq. H1-1b
		41	LC3 at 100.00%	0.24	OK	Eq. H1-1b
		42	LC3 at 0.00%	1.76	N.G.	Eq. H1-1b
		43	LC3 at 100.00%	1.61	N.G.	Eq. H1-1b
		44	LC3 at 0.00%	1.57	N.G.	Eq. H1-1b
LU 1-1/2x2-1/2x1/4		35	LC3 at 100.00%	4.44	N.G.	Eq. H2-1
		38	LC3 at 100.00%	4.26	N.G.	Eq. H2-1
		54	LC3 at 0.00%	4.70	N.G.	Eq. H2-1
		55	LC3 at 100.00%	4.43	N.G.	Eq. H2-1
		56	LC3 at 0.00%	4.34	N.G.	Eq. H2-1
		57	LC3 at 0.00%	4.35	N.G.	Eq. H2-1
PIPE 2x0.154		58	LC1 at 50.00%	0.02	OK	Eq. H1-1b
		59	LC1 at 50.00%	0.78	OK	Eq. H1-1b
		60	LC1 at 46.88%	0.19	OK	Eq. H1-1b
		61	LC1 at 50.00%	0.15	OK	Eq. H1-1b
		62	LC1 at 50.00%	0.05	OK	Eq. H1-1b
		63	LC1 at 50.00%	0.62	OK	Eq. H1-1b
		64	LC1 at 46.88%	0.10	OK	Eq. H1-1b
		65	LC1 at 50.00%	0.15	OK	Eq. H1-1b
		66	LC1 at 50.00%	0.05	OK	Eq. H1-1b
		67	LC1 at 50.00%	0.62	OK	Eq. H1-1b
		68	LC1 at 46.88%	0.10	OK	Eq. H1-1b
		69	LC1 at 50.00%	0.15	OK	Eq. H1-1b
PIPE 3x0.216		1	LC3 at 0.00%	0.49	OK	Eq. H3-6
		2	LC3 at 100.00%	0.49	OK	Eq. H1-1b
		3	LC3 at 6.25%	0.62	OK	Eq. H3-6
		4	LC3 at 93.75%	0.64	OK	Eq. H3-6
		5	LC3 at 0.00%	0.50	OK	Eq. H1-1b
		6	LC3 at 6.25%	0.48	OK	Eq. H3-6
		7	LC3 at 93.75%	0.59	OK	Eq. H3-6
		8	LC3 at 0.00%	0.44	OK	Eq. H1-1b
		9	LC3 at 100.00%	0.47	OK	Eq. H3-6
PL 6x3/8		10	LC3 at 50.00%	1.64	N.G.	Eq. H1-1b
		11	LC3 at 50.00%	1.69	N.G.	Eq. H1-1b
		12	LC3 at 50.00%	1.47	N.G.	Eq. H1-1b



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Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	0.00	0.00	0
4	8.0593	0.00	3.8871	0
5	0.6633	0.00	-8.9231	0
13	-0.6633	0.00	-8.9231	0
14	-8.0593	0.00	3.8871	0
16	-7.396	0.00	5.036	0
17	7.396	0.00	5.036	0
24	2.7363	0.00	-5.3326	0
25	5.9863	0.00	0.2966	0
30	-5.9863	0.00	0.2966	0
31	-2.7363	0.00	-5.3326	0
32	3.25	0.00	5.036	0
33	-3.25	0.00	5.036	0
74	-7.7277	0.00	4.4616	0
75	7.7277	0.00	4.4616	0
76	0.00	0.00	-8.9231	0
77	2.6113	0.00	-5.5491	0
78	6.1113	0.00	0.5131	0
83	-6.1113	0.00	0.5131	0
84	-2.6113	0.00	-5.5491	0
85	3.50	0.00	5.036	0

86	-3.50	0.00	5.036	0
87	3.5507	0.00	2.0498	0
90	-0.0001	0.00	-4.0999	0
91	-3.5506	0.00	2.0501	0
92	-1.0825	-0.25	0.625	0
93	0.00	-0.25	-1.25	0
94	1.0825	-0.25	0.625	0
95	5.2036	-0.25	3.0029	0
98	-0.0012	-0.25	-6.0079	0
99	-5.2023	-0.25	3.005	0
115	-3.8943	-0.25	2.248	0
124	5.604	3.00	5.236	0
125	-0.229	3.00	5.236	0
126	-4.146	3.00	5.236	0
127	-6.376	3.00	5.236	0
128	-7.3365	3.00	2.2352	0
129	-4.42	3.00	-2.8163	0
130	-2.4615	3.00	-6.2085	0
132	1.7325	3.00	-7.4712	0
133	4.649	3.00	-2.4197	0
134	6.6075	3.00	0.9725	0
135	7.7225	3.00	2.9038	0
136	5.604	-3.00	5.236	0
137	-0.229	-3.00	5.236	0
138	-4.146	-3.00	5.236	0
139	-6.376	-3.00	5.236	0
140	-7.3365	-3.00	2.2352	0
141	-4.42	-3.00	-2.8163	0
142	-2.4615	-3.00	-6.2085	0
143	-1.3465	-3.00	-8.1398	0
144	1.7325	-3.00	-7.4712	0
145	4.649	-3.00	-2.4197	0
146	6.6075	-3.00	0.9725	0
147	7.7225	-3.00	2.9038	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
92	1	1	1	1	1	1
93	1	1	1	1	1	1
94	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	16	33		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
2	33	32		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
3	32	17		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
4	14	30		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
5	30	31		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00

6	31	13	PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
7	5	24	PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
8	24	25	PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
9	25	4	PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
10	4	17	PL 6x3/8	A36	0.00	0.00	0.00
11	14	16	PL 6x3/8	A36	0.00	0.00	0.00
12	5	13	PL 6x3/8	A36	0.00	0.00	0.00
35	85	87	LU 1-1/2x2-1/2x1/4	A36	0.00	0.00	0.00
38	77	90	LU 1-1/2x2-1/2x1/4	A36	0.00	0.00	0.00
39	91	74	HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
40	75	87	HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
41	76	90	HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
42	92	99	HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
43	95	94	HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
44	93	98	HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
54	91	86	LU 1-1/2x2-1/2x1/4	A36	0.00	0.00	0.00
55	83	91	LU 1-1/2x2-1/2x1/4	A36	0.00	0.00	0.00
56	87	78	LU 1-1/2x2-1/2x1/4	A36	0.00	0.00	0.00
57	90	84	LU 1-1/2x2-1/2x1/4	A36	0.00	0.00	0.00
58	124	136	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
59	125	137	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
60	126	138	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
61	127	139	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
62	128	140	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
63	129	141	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
64	130	142	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
65	131	143	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
66	132	144	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
67	133	145	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
68	134	146	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
69	135	147	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00



HUDSON
Design Group LLC

**Mount Calculations
(Modified Conditions)**



Bentley

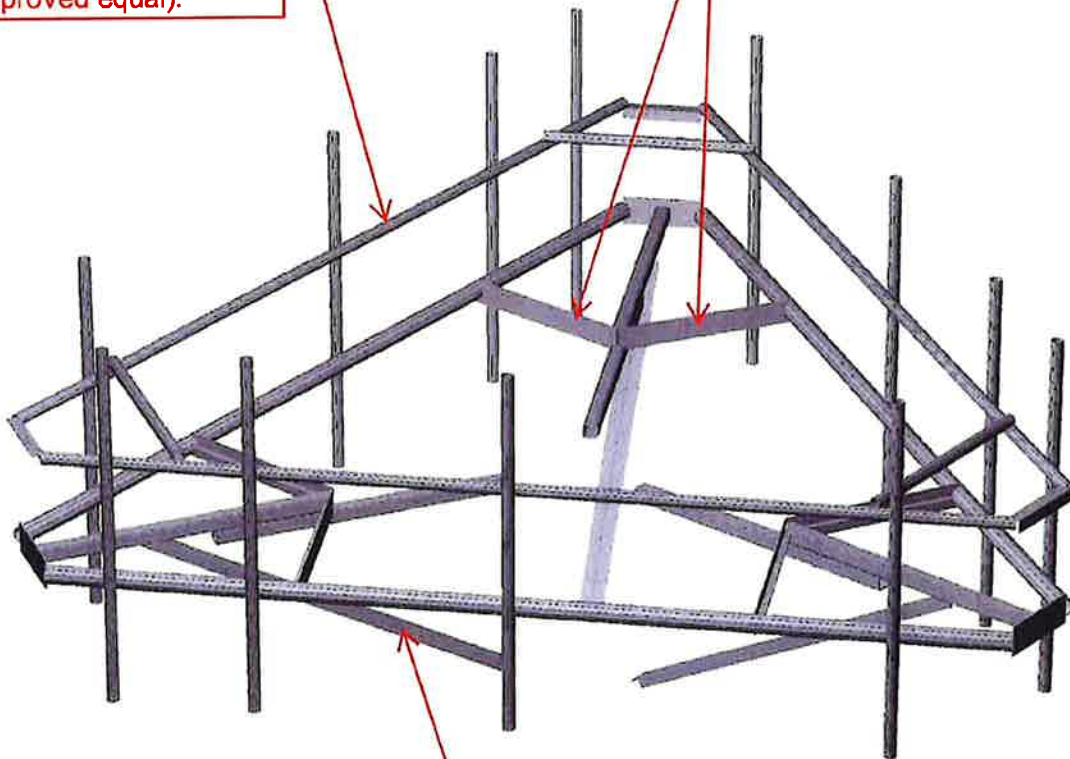
Current Date: 11/15/2019 4:38 PM

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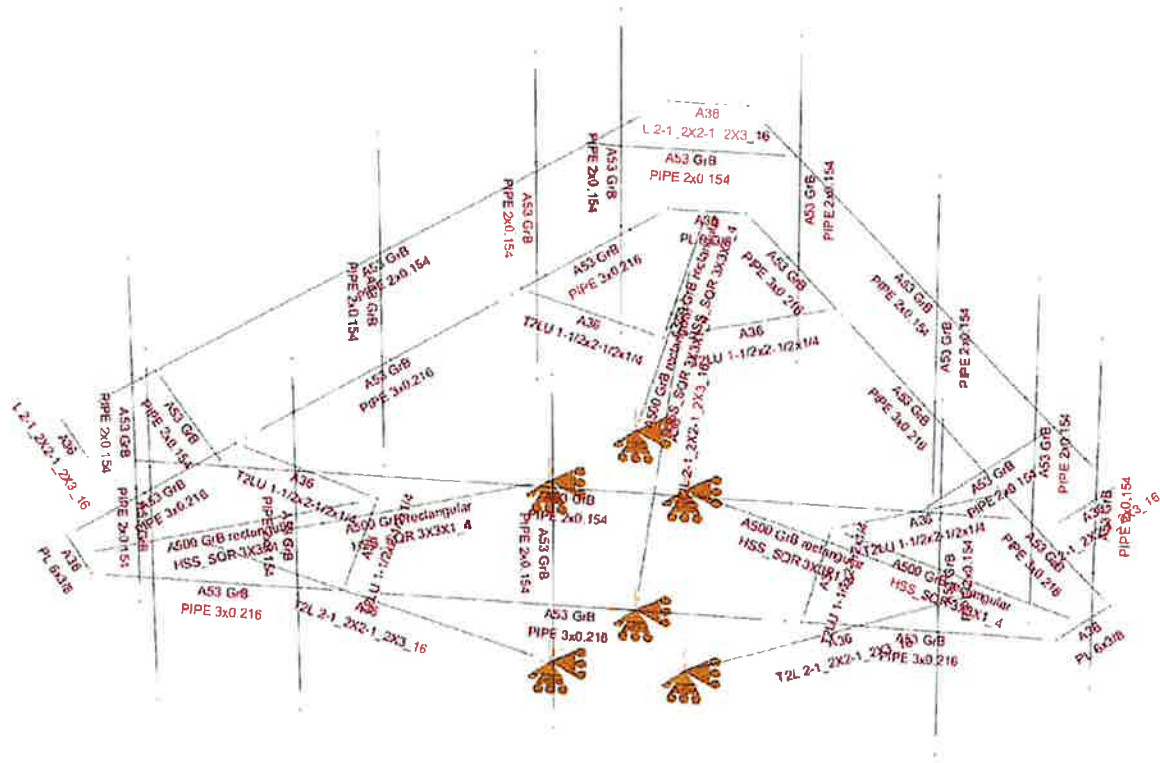
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Reinforce existing angles with new
L2-1/2x1-1/2x1/4 steel angles (typ.
of 2 per sector, total of 6).

Install new handrail kit,
SitePro1 P/N HRK14-3HD
(or approved equal).

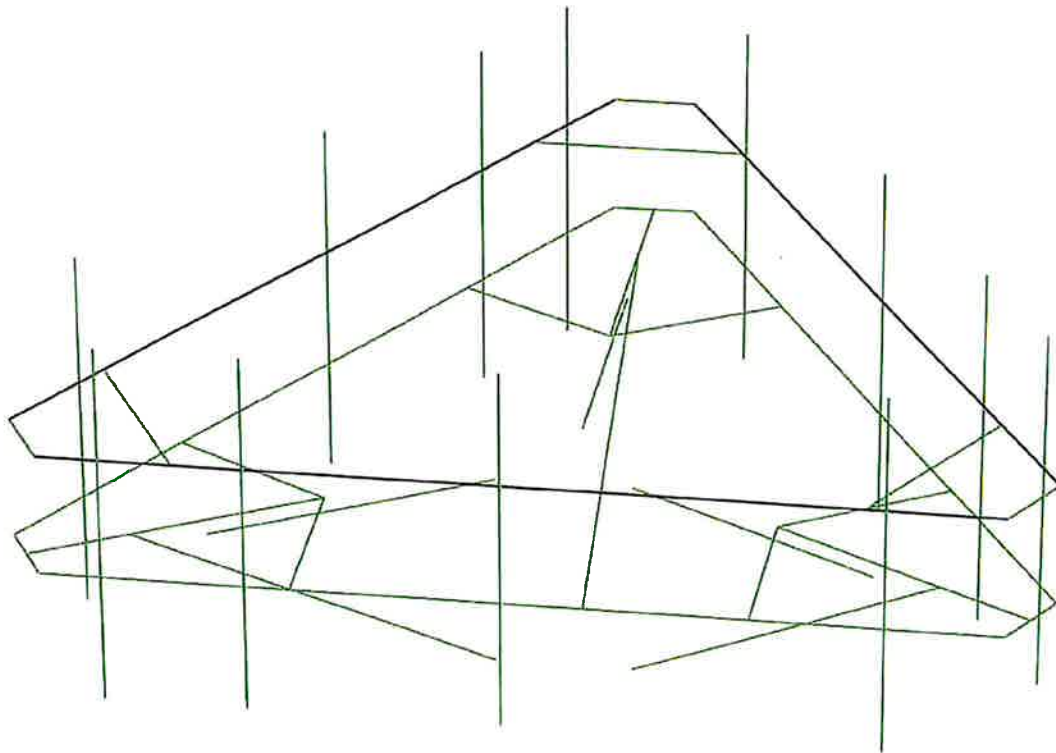


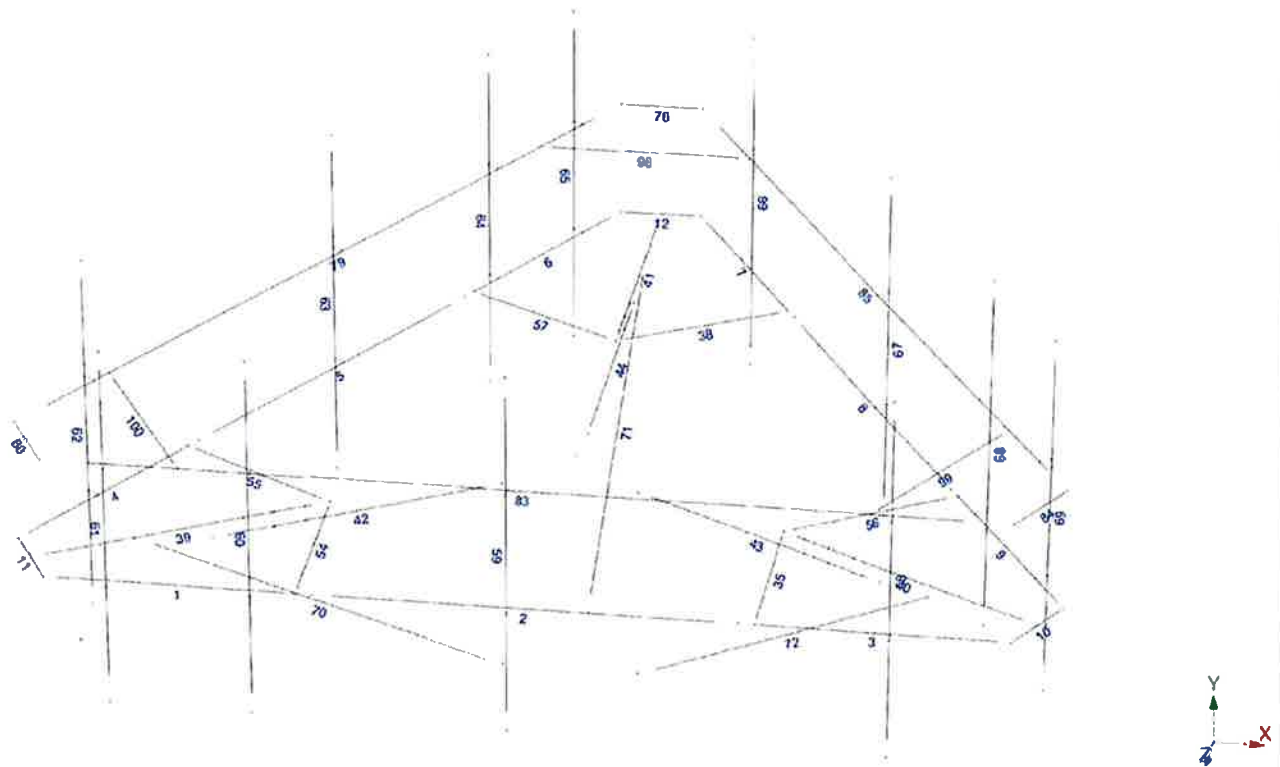
Install new platform reinforcement
kit, SitePro1 P/N PRK-1245L (or
approved equal).



Design status

-  Not designed
-  Error on design
-  Design O.K.
-  With warnings







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Load data

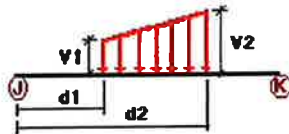
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
DL	Dead Load	No	DL
Wo	Wind Load (No Ice)	No	WIND
Wi	Wind Load (With Ice)	No	WIND
Di	Ice Load	No	LL

Distributed force on members



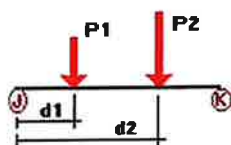
Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	35	y	-0.01	0.00	0.00	No	0.00	No
	38	y	-0.01	0.00	0.00	No	0.00	No
	39	y	-0.01	0.00	0.00	No	0.00	No
	40	y	-0.01	0.00	0.00	No	0.00	No
	41	y	-0.01	0.00	0.00	No	0.00	No
	54	y	-0.01	0.00	0.00	No	0.00	No
	55	y	-0.01	0.00	0.00	No	0.00	No
	56	y	-0.01	0.00	0.00	No	0.00	No
	57	y	-0.01	0.00	0.00	No	0.00	No
	58	y	-0.01	0.00	0.00	No	0.00	No
Wo	1	z	-0.01	0.00	0.00	No	0.00	No
	2	z	-0.01	0.00	0.00	No	0.00	No
	3	z	-0.01	0.00	0.00	No	0.00	No
	4	z	-0.01	0.00	0.00	No	0.00	No
	5	z	-0.01	0.00	0.00	No	0.00	No
	6	z	-0.01	0.00	0.00	No	0.00	No
	7	z	-0.01	0.00	0.00	No	0.00	No
	8	z	-0.01	0.00	0.00	No	0.00	No
	9	z	-0.01	0.00	0.00	No	0.00	No
	10	z	-0.03	0.00	0.00	No	0.00	No
	11	z	-0.03	0.00	0.00	No	0.00	No
	12	z	-0.03	0.00	0.00	No	0.00	No
	35	z	-0.007	0.00	0.00	No	0.00	No
	38	z	-0.007	0.00	0.00	No	0.00	No
	39	z	-0.009	0.00	0.00	No	0.00	No

Di

40	z	-0.009	0.00	0.00	No	0.00	No
41	z	-0.009	0.00	0.00	No	0.00	No
42	z	-0.009	0.00	0.00	No	0.00	No
43	z	-0.009	0.00	0.00	No	0.00	No
44	z	-0.009	0.00	0.00	No	0.00	No
54	z	-0.007	0.00	0.00	No	0.00	No
55	z	-0.007	0.00	0.00	No	0.00	No
56	z	-0.007	0.00	0.00	No	0.00	No
57	z	-0.007	0.00	0.00	No	0.00	No
62	z	-0.007	0.00	0.00	No	0.00	No
63	z	-0.007	0.00	0.00	No	0.00	No
64	z	-0.007	0.00	0.00	No	0.00	No
65	z	-0.007	0.00	0.00	No	0.00	No
66	z	-0.007	0.00	0.00	No	0.00	No
67	z	-0.007	0.00	0.00	No	0.00	No
68	z	-0.007	0.00	0.00	No	0.00	No
69	z	-0.007	0.00	0.00	No	0.00	No
70	z	-0.012	0.00	0.00	No	0.00	No
71	z	-0.012	0.00	0.00	No	0.00	No
72	z	-0.012	0.00	0.00	No	0.00	No
76	z	-0.012	0.00	0.00	No	0.00	No
79	z	-0.007	0.00	0.00	No	0.00	No
80	z	-0.012	0.00	0.00	No	0.00	No
83	z	-0.007	0.00	0.00	No	0.00	No
84	z	-0.012	0.00	0.00	No	0.00	No
85	z	-0.007	0.00	0.00	No	0.00	No
1	y	-0.017	0.00	0.00	No	0.00	No
2	y	-0.017	0.00	0.00	No	0.00	No
3	y	-0.017	0.00	0.00	No	0.00	No
4	y	-0.017	0.00	0.00	No	0.00	No
5	y	-0.017	0.00	0.00	No	0.00	No
6	y	-0.017	0.00	0.00	No	0.00	No
7	y	-0.017	0.00	0.00	No	0.00	No
8	y	-0.017	0.00	0.00	No	0.00	No
9	y	-0.017	0.00	0.00	No	0.00	No
10	y	-0.024	0.00	0.00	No	0.00	No
11	y	-0.024	0.00	0.00	No	0.00	No
12	y	-0.024	0.00	0.00	No	0.00	No
35	y	-0.015	0.00	0.00	No	0.00	No
38	y	-0.015	0.00	0.00	No	0.00	No
39	y	-0.019	0.00	0.00	No	0.00	No
40	y	-0.019	0.00	0.00	No	0.00	No
41	y	-0.019	0.00	0.00	No	0.00	No
42	y	-0.019	0.00	0.00	No	0.00	No
43	y	-0.019	0.00	0.00	No	0.00	No
44	y	-0.019	0.00	0.00	No	0.00	No
54	y	-0.015	0.00	0.00	No	0.00	No
55	y	-0.015	0.00	0.00	No	0.00	No
56	y	-0.015	0.00	0.00	No	0.00	No
57	y	-0.015	0.00	0.00	No	0.00	No
58	y	-0.013	0.00	0.00	No	0.00	No
59	y	-0.013	0.00	0.00	No	0.00	No
60	y	-0.013	0.00	0.00	No	0.00	No
61	y	-0.013	0.00	0.00	No	0.00	No
62	y	-0.013	0.00	0.00	No	0.00	No
63	y	-0.013	0.00	0.00	No	0.00	No
64	y	-0.013	0.00	0.00	No	0.00	No
65	y	-0.013	0.00	0.00	No	0.00	No
66	y	-0.013	0.00	0.00	No	0.00	No
67	y	-0.013	0.00	0.00	No	0.00	No

68	y	-0.013	0.00	0.00	No	0.00	No
69	y	-0.013	0.00	0.00	No	0.00	No
70	y	-0.017	0.00	0.00	No	0.00	No
71	y	-0.017	0.00	0.00	No	0.00	No
72	y	-0.017	0.00	0.00	No	0.00	No
76	y	-0.017	0.00	0.00	No	0.00	No
79	y	-0.013	0.00	0.00	No	0.00	No
80	y	-0.017	0.00	0.00	No	0.00	No
83	y	-0.013	0.00	0.00	No	0.00	No
84	y	-0.017	0.00	0.00	No	0.00	No
85	y	-0.013	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	58	y	-0.012	2.50	No
		y	-0.012	3.50	No
	59	y	-0.044	0.50	No
		y	-0.044	5.50	No
	60	y	-0.098	1.50	No
		y	-0.032	5.00	No
	61	y	-0.082	1.50	No
		y	-0.015	4.50	No
	62	y	-0.015	2.50	No
		y	-0.012	3.50	No
	63	y	-0.044	0.50	No
		y	-0.044	5.50	No
	64	y	-0.098	1.50	No
		y	-0.082	1.50	No
	65	y	-0.015	1.50	No
		y	-0.015	4.50	No
	66	y	-0.012	2.50	No
		y	-0.012	3.50	No
	67	y	-0.044	0.50	No
		y	-0.044	5.50	No
	68	y	-0.098	1.50	No
		y	-0.082	1.50	No
	69	y	-0.015	1.50	No
		y	-0.015	4.50	No
Wo	58	z	-0.023	2.50	No
		z	-0.023	3.50	No
	59	z	-0.242	0.50	No
		z	-0.242	5.50	No
	60	z	-0.013	1.50	No
		z	-0.113	5.00	No
	61	z	-0.056	1.50	No
		z	-0.076	4.50	No
		z	-0.076	1.50	No
		z	-0.076	4.50	No

Wi	62	z	-0.014	2.50	No
		z	-0.014	3.50	No
	63	z	-0.18	0.50	No
		z	-0.18	5.50	No
		z	-0.035	1.50	No
	64	z	-0.037	1.50	No
	65	z	-0.057	1.50	No
		z	-0.057	4.50	No
	66	z	-0.014	2.50	No
		z	-0.014	3.50	No
	67	z	-0.18	0.50	No
		z	-0.18	5.50	No
		z	-0.035	1.50	No
	68	z	-0.037	1.50	No
	69	z	-0.057	1.50	No
		z	-0.057	4.50	No
	58	z	-0.01	2.50	No
		z	-0.01	3.50	No
	59	z	-0.081	0.50	No
		z	-0.081	5.50	No
		z	-0.009	1.50	No
	60	z	-0.039	1.50	No
		z	-0.022	5.00	No
	61	z	-0.027	1.50	No
		z	-0.027	4.50	No
	62	z	-0.007	2.50	No
		z	-0.007	3.50	No
	63	z	-0.063	0.50	No
		z	-0.063	5.50	No
		z	-0.015	1.50	No
	64	z	-0.016	1.50	No
	65	z	-0.021	1.50	No
		z	-0.021	4.50	No
	66	z	-0.007	2.50	No
		z	-0.007	3.50	No
	67	z	-0.063	0.50	No
		z	-0.063	5.50	No
		z	-0.015	1.50	No
	68	z	-0.016	1.50	No
	69	z	-0.021	1.50	No
		z	-0.021	4.50	No
Di	58	y	-0.029	2.50	No
		y	-0.029	3.50	No
	59	y	-0.276	0.50	No
		y	-0.276	5.50	No
		y	-0.072	1.50	No
	60	y	-0.145	1.50	No
		y	-0.069	5.00	No
	61	y	-0.093	1.50	No
		y	-0.093	4.50	No
	62	y	-0.029	2.50	No
		y	-0.029	3.50	No
	63	y	-0.276	0.50	No
		y	-0.276	5.50	No
		y	-0.072	1.50	No
	64	y	-0.069	1.50	No
	65	y	-0.093	1.50	No
		y	-0.093	4.50	No
	66	y	-0.029	2.50	No
		y	-0.029	3.50	No

67	y	-0.276	0.50	No
	y	-0.276	5.50	No
	y	-0.072	1.50	No
68	y	-0.069	1.50	No
69	y	-0.093	1.50	No
	y	-0.093	4.50	No

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
DL	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (No Ice)	No	0.00	0.00	0.00
Wi	Wind Load (With Ice)	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
DL	0.00	0.00	0.00
Wo	0.00	0.00	0.00
Wi	0.00	0.00	0.00
Di	0.00	0.00	0.00



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Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\VERIZON\CT\Veron 2 CT\CAOLE 2019\Veron 2 CT (CAOLE 2019)(MODS).rctx

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+1.6Wo

LC2=0.9DL+1.6Wo

LC3=1.2DL+Wi+Di

LC4=1.2DL

LC5=0.9DL

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
<i>HSS_SQR 3X3X1_4</i>		39	LC3 at 65.00%	0.29	OK	Eq. H1-1b
		40	LC3 at 100.00%	0.26	OK	Eq. H1-1b
		41	LC3 at 33.75%	0.26	OK	Eq. H1-1b
		42	LC1 at 0.00%	0.39	OK	Eq. H1-1b
		43	LC1 at 100.00%	0.31	OK	Eq. H1-1b
		44	LC3 at 0.00%	0.16	OK	Eq. H1-1b
<i>L 2-1_2X2-1_2X3_16</i>		76	LC1 at 100.00%	0.07	OK	Sec. F1
		80	LC2 at 100.00%	0.09	OK	Eq. H2-1
		84	LC2 at 100.00%	0.09	OK	Eq. H2-1
<i>PIPE 2x0.154</i>		58	LC3 at 64.58%	0.46	OK	Eq. H1-1b
		59	LC1 at 64.58%	0.74	OK	Eq. H1-1b
		60	LC1 at 64.58%	0.47	OK	Eq. H1-1b
		61	LC3 at 64.58%	0.28	OK	Eq. H1-1b
		62	LC3 at 64.58%	0.31	OK	Eq. H1-1b
		63	LC2 at 64.58%	0.49	OK	Eq. H1-1b
		64	LC1 at 33.33%	0.40	OK	Eq. H1-1b
		65	LC1 at 64.58%	0.35	OK	Eq. H1-1b
		66	LC3 at 64.58%	0.51	OK	Eq. H1-1b
		67	LC2 at 64.58%	0.48	OK	Eq. H1-1b
		68	LC3 at 64.58%	0.27	OK	Eq. H1-1b
		69	LC3 at 64.58%	0.26	OK	Eq. H1-1b
		79	LC1 at 51.79%	0.41	With warnings	Eq. H1-1b
		83	LC3 at 87.50%	0.35	With warnings	Eq. H1-1b
		85	LC1 at 15.18%	0.44	With warnings	Eq. H1-1b
		98	LC1 at 0.00%	0.11	OK	Eq. H1-1b
		99	LC1 at 0.00%	0.17	OK	Eq. H1-1b
		100	LC2 at 0.00%	0.25	OK	Eq. H1-1b
<i>PIPE 3x0.216</i>		1	LC1 at 93.75%	0.23	OK	Eq. H1-1b
		2	LC3 at 46.88%	0.38	OK	Eq. H1-1b
		3	LC1 at 6.25%	0.24	OK	Eq. H1-1b
		4	LC3 at 43.75%	0.16	OK	Eq. H3-1
		5	LC3 at 53.13%	0.32	OK	Eq. H1-1b
		6	LC1 at 6.25%	0.22	OK	Eq. H1-1b
		7	LC1 at 93.75%	0.24	OK	Eq. H1-1b
		8	LC3 at 53.13%	0.33	OK	Eq. H1-1b
		9	LC3 at 6.25%	0.13	OK	Eq. H3-1
<i>PL 6x3/8</i>		10	LC1 at 100.00%	0.50	OK	Eq. H1-1b
		11	LC1 at 100.00%	0.54	OK	Eq. H1-1b
		12	LC1 at 50.00%	0.82	OK	Eq. H1-1b

T2L 2-1_2X2-1_2X3_16	70	LC3 at 100.00%	0.82	OK	Eq. H2-1
	71	LC3 at 0.00%	0.77	OK	Eq. H2-1
	72	LC3 at 0.00%	0.74	OK	Eq. H2-1
T2LU 1-1/2x2-1/2x1/4	35	LC3 at 100.00%	0.56	OK	Eq. H2-1
	38	LC3 at 100.00%	0.52	OK	Eq. H2-1
	54	LC3 at 0.00%	0.61	OK	Eq. H2-1
	55	LC3 at 100.00%	0.56	OK	Eq. H2-1
	56	LC3 at 0.00%	0.51	OK	Eq. H2-1
	57	LC3 at 0.00%	0.54	OK	Eq. H2-1



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Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	0.00	0.00	0
4	8.0593	0.00	3.8871	0
5	0.6633	0.00	-8.9231	0
13	-0.6633	0.00	-8.9231	0
14	-8.0593	0.00	3.8871	0
16	-7.396	0.00	5.036	0
17	7.396	0.00	5.036	0
24	2.7363	0.00	-5.3326	0
25	5.9863	0.00	0.2966	0
30	-5.9863	0.00	0.2966	0
31	-2.7363	0.00	-5.3326	0
32	3.25	0.00	5.036	0
33	-3.25	0.00	5.036	0
74	-7.7277	0.00	4.4616	0
75	7.7277	0.00	4.4616	0
76	0.00	0.00	-8.9231	0
77	2.6113	0.00	-5.5491	0
78	6.1113	0.00	0.5131	0
83	-6.1113	0.00	0.5131	0
84	-2.6113	0.00	-5.5491	0
85	3.50	0.00	5.036	0

86	-3.50	0.00	5.036	0
87	3.5507	0.00	2.0498	0
91	-3.5506	0.00	2.0501	0
92	-1.0825	-0.25	0.625	0
93	0.00	-0.25	-1.25	0
94	1.0825	-0.25	0.625	0
95	5.2036	-0.25	3.0029	0
99	-5.2023	-0.25	3.005	0
124	5.604	4.00	5.236	0
125	-0.229	4.00	5.236	0
126	-4.146	4.00	5.236	0
127	-6.376	4.00	5.236	0
128	-7.3365	4.00	2.2352	0
129	-4.42	4.00	-2.8163	0
130	-2.4615	4.00	-6.2085	0
131	-1.3465	4.00	-8.1398	0
132	1.7325	4.00	-7.4712	0
133	4.649	4.00	-2.4197	0
134	6.6075	4.00	0.9725	0
135	7.7225	4.00	2.9038	0
136	5.604	-2.00	5.236	0
137	-0.229	-2.00	5.236	0
138	-4.146	-2.00	5.236	0
139	-6.376	-2.00	5.236	0
140	-7.3365	-2.00	2.2352	0
141	-4.42	-2.00	-2.8163	0
142	-2.4615	-2.00	-6.2085	0
143	-1.3465	-2.00	-8.1398	0
144	1.7325	-2.00	-7.4712	0
145	4.649	-2.00	-2.4197	0
146	6.6075	-2.00	0.9725	0
147	7.7225	-2.00	2.9038	0
148	-1.0825	-3.50	0.625	0
149	0.00	-3.50	-1.25	0
150	1.0825	-3.50	0.625	0
152	8.0593	2.00	3.8871	0
154	0.6633	2.00	-8.9231	0
155	-0.6633	2.00	-8.9231	0
158	-8.0593	2.00	3.8871	0
159	-7.396	2.00	5.036	0
162	7.396	2.00	5.036	0
187	0.00	0.00	-7.25	0
188	6.2787	0.00	3.625	0
189	-6.2787	0.00	3.625	0
190	-5.261	2.00	5.036	0
191	-1.7308	2.00	-7.0742	0
192	1.7308	2.00	-7.0742	0
193	6.9918	2.00	2.0382	0
194	5.261	2.00	5.036	0
195	-6.9918	2.00	2.0382	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
92	1	1	1	1	1	1
93	1	1	1	1	1	1
94	1	1	1	1	1	1
148	1	1	1	1	1	1
149	1	1	1	1	1	1
150	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	16	33		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
2	33	32		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
3	32	17		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
4	14	30		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
5	30	31		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
6	31	13		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
7	5	24		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
8	24	25		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
9	25	4		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
10	4	17		PL 6x3/8	A36	0.00	0.00	0.00
11	14	16		PL 6x3/8	A36	0.00	0.00	0.00
12	5	13		PL 6x3/8	A36	0.00	0.00	0.00
35	85	87		T2LU 1-1/2x2-1/2x1/4	A36	0.00	0.00	0.00
38	77	90		T2LU 1-1/2x2-1/2x1/4	A36	0.00	0.00	0.00
39	91	74		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
40	75	87		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
41	76	90		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
42	92	99		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
43	95	94		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
44	93	98		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
54	91	86		T2LU 1-1/2x2-1/2x1/4	A36	0.00	0.00	0.00
55	83	91		T2LU 1-1/2x2-1/2x1/4	A36	0.00	0.00	0.00
56	87	78		T2LU 1-1/2x2-1/2x1/4	A36	0.00	0.00	0.00
57	90	84		T2LU 1-1/2x2-1/2x1/4	A36	0.00	0.00	0.00
58	124	136		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
59	125	137		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
60	126	138		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
61	127	139		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
62	128	140		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
63	129	141		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
64	130	142		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
65	131	143		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
66	132	144		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
67	133	145		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
68	134	146		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
69	135	147		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
70	148	189		T2L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
71	149	187		T2L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
72	150	188		T2L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
76	154	155		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
79	158	155		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
80	158	159		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
83	159	162		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
84	152	162		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
85	154	152		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

98	191	192	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
99	193	194	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
100	190	195	PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
35	270.00	0	0.00	0.00	0.00
38	270.00	0	0.00	0.00	0.00
54	270.00	0	0.00	0.00	0.00
55	270.00	0	0.00	0.00	0.00
56	270.00	0	0.00	0.00	0.00
57	270.00	0	0.00	0.00	0.00
58	0.00	2	1.00	0.00	0.00
59	0.00	2	1.00	0.00	0.00
60	0.00	2	1.00	0.00	0.00
61	0.00	2	1.00	0.00	0.00
62	0.00	2	1.00	0.00	0.00
63	0.00	2	1.00	0.00	0.00
64	0.00	2	1.00	0.00	0.00
65	0.00	2	1.00	0.00	0.00
66	0.00	2	1.00	0.00	0.00
67	0.00	2	1.00	0.00	0.00
68	0.00	2	1.00	0.00	0.00
69	0.00	2	1.00	0.00	0.00
76	90.00	0	0.00	0.00	0.00
80	90.00	0	0.00	0.00	0.00
84	90.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
71	0.00	-1.50	0.00	0.00	-1.50	0.00
72	0.00	-1.50	0.00	0.00	-1.50	0.00
76	0.00	-1.50	0.00	0.00	-1.50	0.00
98	0.00	2.00	0.00	0.00	2.00	0.00
99	0.00	2.00	0.00	0.00	2.00	0.00
100	0.00	2.00	0.00	0.00	2.00	0.00

ATTACHMENT 6



INDUSTRIAL PARK ROAD LLC
75 GERBER ROAD EAST
SOUTH WINDSOR, CT 06074
CENSUS TRACT: 530600

Neighborhood Number
12100
Neighborhood Name
General Commercial
TAXING DISTRICT INFORMATION
Jurisdiction Name
Town of Vernon
Area
146
Routing Number
5044

Site Description
Topography
Public Utilities
Water, Sewer, Gas, Electric
Street or Road
Paved
Neighborhood
Zoning:
Industrial
Legal Acres:
5.1000

Transfer of Ownership			
Owner	Consideration	Transfer Date	Deed Book/Page Deed Type
DJV REAL ESTATE LLC	0	03/22/2018	2546 253 W
LILYMAXJACK LLC	700000	10/30/2017	2529 193 W
BEAUREGARD GEORGE W	0	07/05/2005	1744 267 Q
BEAUREGARD GEORGE W & KAREN S	0	07/05/2005	1744 264 Q
BEAUREGARD KAREN S & GEORGE W	0	03/07/2000	1244 40 Q
BEAUREGARD GEORGE W	0	04/13/1999	1200 11 Q

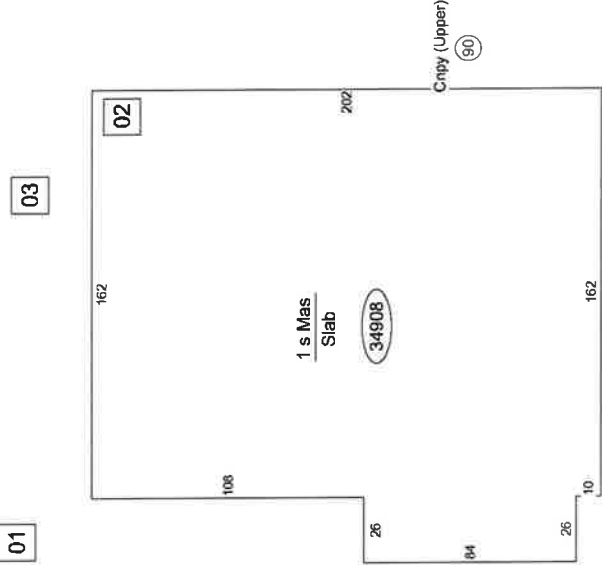
Valuation Record				
Assessment Year	2011	2016	2017	2018
Reason for Change	2011 REVAL	2016 Reval	BAA	2018 ASMT
Market	L I T	313380 668250 981630	245720 1449820 1695540	245720 574280 820000
70% Assessed/Use	L I T	219370 467770 687140	172000 1014880 1186880	172000 401990 573990



Land Size				
Land Type	Rating, Soil ID - or - Actual Frontage	Acreage - or - Effective Frontage	Square Feet - or - Effective Depth	Influence Factor

Physical Characteristics

ROOFING									
Built-up									
Insulation									
WALLS									
Frame	B	1	2	U					
Guard	Yes	Yes	Yes	Yes					
FRAMING									
F Res	B	1	2	U					
	0	34908	0	4000					
FINISH									
UF	SF	FO	FD						
1	34908	0	0	0					
U	4000	0	0	0					
Total	38908	0	0	0					
HEATING AND AIR CONDITIONING									
Heat	B	1	2	U					
Sprink	0	34908	0	4000					
	0	34908	0	4000					
PLUMBING Residential Commercial									
Full Baths	#	TF	#	TF					
Half Baths			3	6					
Extra Fixtures									
TOTAL		0		6					



Special Features

Description

Summary of Improvements

ID	USE	Story Height	Const Type	Grade	Year Cons	Eff Year	Cond	Size or Area
C	LMFG	0.00		Fair	1968	1970	FR	34908
01	PAVING	0.00	85	Avg	1968	1968	AV	23800
02	MEZZSF	1.00		Fair	1968	1968	AV	4000
03	TOWERMON	0.00		Avg	2000	2000	AV	380

ATTACHMENT 7



Certificate of Mailing — Firm

Name and Address of Sender		TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here Postmark with Date of Receipt.			
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		Postmaster, per (name of receiving employee)					
		Address (Name, Street, City, State, and ZIP Code™)					
1.		Daniel A. Champagne, Mayor Town of Vernon 14 Park Place Vernon, CT 06066					
2.		George McGregor, Town Planner Town of Vernon 14 Park Place Vernon, CT 06066					
3.		Industrial Park Road LLC 75 Gerber Road East South Windsor, CT 06074					
4.							
5.							
6.							