



Sharon (Sherri) Bateman, Project Manager
c/o Cellco Partnership d/b/a Verizon Wireless
Centerline Communications, LLC
750 West Center Street, Floor 3
West Bridgewater, MA 02379
Mobile: (425) 241 -0085
sbateman@clinellc.com

November 8, 2022

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

**RE: Notice of Exempt Modification // Site: ROCKY HILL IV CT (ATC: 302479)
699 West Street Rocky Hill, CT 06067
N 41.6518 // W 72.6685**

Dear Ms. Bachman,

Cellco Partnership d/b/a Verizon Wireless currently maintains 12 antennas at the 90-ft level on the existing 100-foot monopole tower, located at 699 West Street Rocky Hill, CT. The tower is owned by American Tower. The property is also owned by The Connecticut Light and Power Co. The Council approved Verizon Wireless use of the existing tower in 2008. Verizon Wireless now intends to remove 3 antennas and install 3 new ones for the LTE (3700 MHz) replacements for its 5G upgrade. Additionally, Verizon Wireless will remove 6 Remote Radio Heads (RRHs) and install with 12 new RRHs, remove 1 OVPs and install with 1 new OVP, and remove (2) Non Li- Hybrid Cables and replace with (2) 6x12 1-5/8" Hybrid Cables; altogether updating leased equipment rights, as reflected by the final configuration outlined in the structural analysis and proposed hereby.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Lisa Marotta, Mayor of Rocky Hill, its Zoning Enforcement Officer, Kim Ricci, the tower owner, American Tower, and the property owner, The Connecticut Light and Power Co.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2). Enclosed to accommodate this filing are construction drawings dated August 9, 2021, by Dewberry Engineers, Inc., a structural analysis dated June 14, 2021, by A.T. Engineering, PLLC., and a structural mount analysis by Maser Consulting Connecticut date July 9, 2021, and radio frequency (RF) analysis table showing worst-case RF emission calculation by Verizon Wireless RF Design Engineering.

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the new antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading, as shown in the attached structural analysis by A.T. Engineering, PLLC, dated June 14, 2021, and a structural mount analysis by Maser Consulting Connecticut, dated July 9, 2021, pursuant to certain conditions defined therein. Design and engineering is fully illustrated within final construction drawings, signed and stamped dated August 9, 2021.

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

Sincerely,



Sharon (Sherri) Bateman, Project Manager
c/o Cellco Partnership d/b/a Verizon Wireless
Centerline Communications, LLC
750 West Center Street, Floor 3
West Bridgewater, MA 02379
Mobile: (425) 241 -0085
sbateman@clinellc.com

Attachments

cc: Lisa Marotta, Mayor of Rocky Hill – Chief Elected Official
Mary Ann Chinatti, Town Planner of Plainfield - as P&Z official
American Tower Corporation - as tower owner
The Connecticut Light and Power Co. - as ground owner

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.
2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.
3. **GETTING YOUR SHIPMENT TO UPS**
Customers with a Daily Pickup
Your driver will pickup your shipment(s) as usual.

Customers without a Daily Pickup
Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
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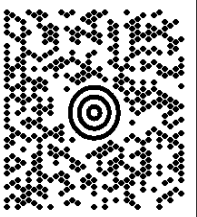
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FOLD HERE

CASSANDRA ROSENKRANZ
CENTERLINE COMMUNICATIONS, LLC
750 WEST CENTER STREET
WEST BRIDGEWATER MA 02379

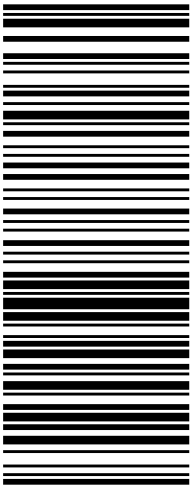
SHIP TO:
LISA MAROTTA OR KIM RICCI
860-258-2700
TOWN OF ROCKY HILL
761 OLD MAIN ST
ROCKY HILL CT 06067-1519

CT 061 9-02



UPS GROUND

TRACKING #: 1Z 9Y4 503 03 0409 1971



BILLING: P/P

Reference # 1: 302479 Rkhl - Rocky Hill
CS 23.6.00. WNTNV50 46.0A 11/2022*



Sharon Bateman

From: UPS <pkginfo@ups.com>
Sent: Wednesday, November 9, 2022 6:16 AM
To: Sharon Bateman
Subject: UPS Ship Notification, Tracking Number 1Z9Y45030304091971



You have a package coming.

Scheduled Delivery Date: Thursday, 11/10/2022

This message was sent to you at the request of CENTERLINE SITE ACQUISITION to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	CENTERLINE SITE ACQUISITION
Tracking Number:	1Z9Y45030304091971
Ship To:	Lisa Marotta or Kim Ricci Town of Rocky Hill 761 Old Main St ROCKY HILL, CT 060671519 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	11/10/2022
Weight:	0.5 LBS
Reference Number 1:	302479 Rkhl - Rocky Hill

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Your driver will pickup your shipment(s) as usual.

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Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
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FOLD HERE

SHIP TO:
LAND MANAGEMENT
7814287250
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN MA 01801-1053

SHIP TO:
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7814287250
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN MA 01801-1053

MA 018 9-04

UPS GROUND

TRACKING #: 1Z 9Y4 503 03 3888 3267

BILLING: P/P

CS 22.0.18. WNTNV50 33.0A 08/2021*

Proof of Delivery

Dear Customer,

This notice serves as proof of delivery for the shipment listed below.

Tracking Number

1Z9Y45030338883267

Weight

5.00 LBS

Service

UPS Ground

Shipped / Billed On

08/27/2021

Delivered On

10/14/2021 11:19 A.M.

Delivered To

WOBURN, MA, US

Received By

ANCRI

Left At

Front Desk

Thank you for giving us this opportunity to serve you. Details are only available for shipments delivered within the last 120 days. Please print for your records if you require this information after 120 days.

Sincerely,

UPS

Tracking results provided by UPS: 01/26/2022 4:31 P.M. EST

Tracking Number:

Remove X

9405503699300391360560

Copy Add to Informed Delivery
(<https://informedelivery.usps.com/>)

Latest Update

Your item has been delivered and is available at a PO Box at 6:38 am on November 12, 2022 in HARTFORD, CT 06141.

Feedback

Get More Out of USPS Tracking:

USPS Tracking Plus®

Delivered

Delivered, PO Box
HARTFORD, CT 06141
November 12, 2022, 6:38 am

Arrived at Post Office
HARTFORD, CT 06101
November 12, 2022, 6:30 am

Departed USPS Regional Facility
SPRINGFIELD MA NETWORK DISTRIBUTION CENTER
November 12, 2022, 3:44 am

Arrived at USPS Regional Facility
SPRINGFIELD MA NETWORK DISTRIBUTION CENTER
November 11, 2022, 8:00 am

Arrived at USPS Regional Origin Facility
NASHUA NH DISTRIBUTION CENTER

- November 10, 2022, 10:17 pm
- USPS in possession of item
EAST BRIDGEWATER, MA 02333
November 10, 2022, 5:13 pm
- Departed Post Office
WEST BRIDGEWATER, MA 02379
November 10, 2022, 5:02 pm
- USPS picked up item
WEST BRIDGEWATER, MA 02379
November 10, 2022, 9:57 am
- Pre-Shipment Info Sent to USPS, USPS Awaiting Item
November 10, 2022
- Hide Tracking History

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Feedback

USPS Tracking Plus®

Product Information

See Less

Track Another Package

Enter tracking or barcode numbers

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FAQs

DOCKET NO. 151 - An application of
Springwich Cellular Limited Partnership
for a Certificate of Environmental
Compatibility and Public Need for the
construction, maintenance, and operation
of a cellular telephone telecommunications
tower, associated equipment, and building
in the Town of Rocky Hill, Connecticut.
The facility is proposed to be constructed
on property owned by the Connecticut Light
and Power Company (CL&P) located on
West Street, adjacent to the CL&P substation
at Exit 23 off Route 91.

Connecticut

Siting

Council

August 18, 1992

DECISION AND ORDER

Pursuant to the foregoing Findings of Fact, and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a cellular telecommunications tower and equipment building at the proposed Town of Rocky Hill, Connecticut, site including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need as provided by section 16-50k of the Connecticut General Statutes (CGS), be issued to the Springwich Cellular Limited Partnership (Springwich), for the construction, operation, and maintenance of a cellular telecommunications tower, associated equipment, and building within property owned by Connecticut Light and Power Company (CL&P), adjacent to the existing CL&P Rocky Hill Substation located on West Street, Rocky Hill, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The self-supporting monopole tower shall be no taller than necessary to provide the proposed communications service and in no event shall the tower exceed a total height of 120 feet above ground level, with antennas and appurtenances.
2. The Certificate holder shall prepare a Development and Management (D&M) plan for this site in compliance with sections 16-50-j-75 through 16-50j-77 of the Regulations of State Agencies. The D&M plan shall include detailed plans of the tower, tower foundation, tower pedestal, equipment building, access road, utility line trench, and security fence. In addition, the D&M plan shall include detailed plans for a facility designed to occupy an area as compact as possible with techniques to minimize vegetation

clearing; a site plan orienting the facility, access road, and utilities to avoid drainage areas; and detailed plans for drainage, erosion, and sedimentation controls consistent with the Connecticut Guidelines for Erosion and Sedimentation Control. The plan shall be submitted to the Council for approval prior to the commencement of proposed clearing and construction; however, selective removal of vegetation will be allowed to permit reconnaissance necessary to prepare this plan.

3. The Certificate Holder shall comply with any existing and future radio frequency (RF) standard promulgated by State or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted herein shall be brought into compliance with such standards.
4. The Certificate Holder shall provide the Council a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels originally calculated and provided in the application.
5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.
6. If the facility does not initially provide, or permanently ceases to provide cellular or other services following completion of construction, this Decision and Order shall be void, and the tower and all associated equipment shall be dismantled and removed or reapplication for any continued or new use shall be made to the Council before any such use is made.
7. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the effective date of this Decision and Order or within three years after all appeals to this Decision and Order have been resolved.

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

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with section 16-50j-17 of the Regulations of State Agencies.

The party and intervenor to this proceeding are:

PARTY

The Springwich Cellular
Limited Partnership
555 Long Wharf Drive
New Haven, CT 06506

ITS REPRESENTATIVE

Peter J. Tyrrell
Senior Attorney
SNET Cellular, Inc.
227 Church Street
Room 1021
New Haven, CT 06506
(203) 771-7381

INTERVENOR

Metro Mobile CTS, Inc.

ITS REPRESENTATIVE

Christopher Foster
Robinson and Cole
One Commercial Plaza
Hartford, CT 06103-3597
(203) 275-8200

TEF/bd

6330E



Maser Consulting Connecticut
2000 Midlantic Drive, Suite 100
Mount Laurel, NJ 08054
856.797.0412
Peter.Albano@colliersengineering.com

Post-Mod Antenna Mount Analysis Report and PMI Requirements

Mount Fix

SMART Tool Project #: 10082847
Maser Consulting Connecticut Project #: 21777941A

July 9, 2021

Site Information

Site ID: 535833-VZW / ROCKY HILL 4 CT
Site Name: ROCKY HILL 4 CT
Carrier Name: Verizon Wireless
Address: 2 West Street
Rocky Hill, Connecticut 06067
Hartford County
Latitude: 41.651764°
Longitude: -72.668472°

Structure Information

Tower Type: 107-Ft Monopole
Mount Type: 12.00-Ft Platform

FUZE ID # 16502069

Analysis Results

Platform: 41.4% Pass

***Contractor PMI Requirements:

Included at the end of this MA report

Available & Submitted via portal at <https://pmi.vzwsmart.com>

Contractor - Please Review Specific Site PMI Requirements Upon Award

Requirements also Noted on Mount Modification Drawings

Requirements may also be Noted on A & E drawings

Report Prepared By: Lauren Luzier



Digitally signed by Derek Hartzell
Date: 2021.07.09 08:58:59-07'00'

Executive Summary:

The objective of this report is to summarize the analysis results of the antenna support mount including the proposed modifications at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards.

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

Sources of Information:

Document Type	Remarks
<i>Radio Frequency Data Sheet (RFDS)</i>	<i>Verizon RFDS, Site ID 675027, dated May 3, 2021</i>
<i>Mount Mapping Report</i>	<i>Structural Components, Site ID: 16502069, May 4, 2021</i>
<i>Previous Mount Analysis Report</i>	<i>Maser Consulting Connecticut Project #: 21777941A, dated June 25, 2021</i>
<i>Mount Modification Drawings</i>	<i>Maser Consulting Connecticut Project #: 21777941A, dated July 8, 2021</i>

Analysis Criteria:

Codes and Standards:	ANSI/TIA-222-H
Wind Parameters:	Basic Wind Speed (Ultimate 3-sec. Gust), V_{ULT} : 118 mph Ice Wind Speed (3-sec. Gust): 50 mph Design Ice Thickness: 1.50 in Risk Category: II Exposure Category: C Topographic Category: 1 Topographic Feature Considered: N/A Topographic Method: N/A Ground Elevation Factor, K_e : 0.993
Seismic Parameters:	S_s : 0.201 S_1 : 0.055
Maintenance Parameters:	Wind Speed (3-sec. Gust): 30 mph Maintenance Live Load, L_v : 250 lbs. Maintenance Live Load, L_m : 500 lbs.
Analysis Software:	RISA-3D (V17)

Final Loading Configuration:

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

Mount Elevation (ft)	Equipment Elevation (ft)	Quantity	Manufacturer	Model	Status
89.50	91.50	3	Samsung	MT6407-77A	Added
	90.00	3	Commscope	LNK-6514DS-A1M	Retained
		6	Andrew	SBNHH-1D65B	
		3	Samsung	B2/B66A RRH-BR049	Added
		3	Samsung	B5/B13 RRH-BR04C	
		1	Raycap	RVZDC-6627-PF-48	
	88.00	3	Samsung	XXDWMM-12.5-65 - CBR5	

The recent mount mapping did not report existing OVP units. However, it is acceptable to install up to any three (3) of the OVP model numbers listed below as required at any location other than the mount face without affecting the structural capacity of the mount. If OVP units are installed on the mount face, a mount re-analysis may be required.

Model Number	Ports	AKA
RC3DC-3315-PF-48	6	OVP-6
RHSDC-6627-PF-48	12	OVP-12

Standard Conditions:

1. All engineering services are performed on the basis that the information provided to Maser Consulting and used in this analysis is current and correct. The existing equipment loading has been applied at locations determined from the supplied documentation. Any deviation from the loading locations specified in this report shall be communicated to Maser Consulting to verify deviation will not adversely impact the analysis.
2. Mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.

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

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

3. For mount analyses completed from other data sources (including new replacement mounts) and not specifically mapped by Maser Consulting, the mounts are assumed to have been properly fabricated, installed and maintained in good condition, twist free and plumb in accordance with its original design and manufacturer's specifications.
4. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
5. The mount was checked up to, and including, the bolts that fasten it to the mount collar/attachment and threaded rod connections in collar members if applicable. Local deformation and interaction between the mount collar/attachment and the supporting tower structure are outside the scope of this analysis.

6. All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Maser Consulting is not responsible for the conclusion, opinions, and recommendations made by others based on the information supplied.
7. Structural Steel Grades have been assumed as follows, if applicable, unless otherwise noted in this analysis:
 - Channel, Solid Round, Angle, Plate ASTM A36 (Gr. 36)
 - HSS (Rectangular) ASTM 500 (Gr. B-46)
 - Pipe ASTM A53 (Gr. B-35)
 - Threaded Rod F1554 (Gr. 36)
 - Bolts ASTM A325
8. Any mount modifications listed under Sources of Information are assumed to have been installed per the design specifications.

Discrepancies between in-field conditions and the assumptions listed above may render this analysis invalid unless explicitly approved by Maser Consulting.

Analysis Results:

Component	Utilization %	Pass/Fail
<i>Standoff Horizontal</i>	<i>15.9 %</i>	<i>Pass</i>
<i>Platform Crossmember</i>	<i>32.4 %</i>	<i>Pass</i>
<i>Dual Mount Pipe</i>	<i>24.6 %</i>	<i>Pass</i>
<i>Mount Pipe</i>	<i>30.9 %</i>	<i>Pass</i>
<i>Grating Support</i>	<i>19.8 %</i>	<i>Pass</i>
<i>Face Horizontal</i>	<i>12.2 %</i>	<i>Pass</i>
<i>Cross Arm Plate</i>	<i>41.4 %</i>	<i>Pass</i>
<i>Corner Plate</i>	<i>40.6 %</i>	<i>Pass</i>
<i>Kickers</i>	<i>8.7 %</i>	<i>Pass</i>
<i>Support Rail</i>	<i>13.4 %</i>	<i>Pass</i>
<i>Support Rail Corner</i>	<i>20.7 %</i>	<i>Pass</i>
<i>Mount Connection</i>	<i>22.2 %</i>	<i>Pass</i>

Structure Rating – (Controlling Utilization of all Components)	41.4%
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Recommendation:

The existing mount will be **SUFFICIENT** for the final loading after the proposed modifications are successfully completed.

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

Attachments:

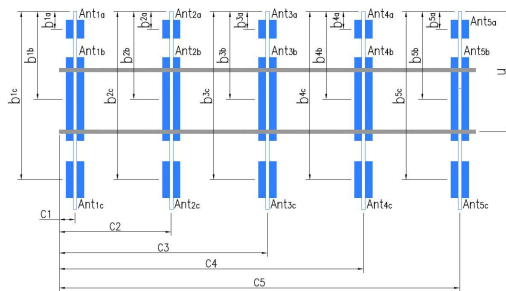
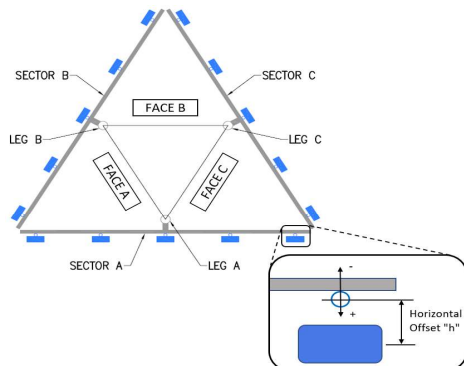
1. Mount Photos
2. Mount Mapping Report (for reference only)
3. Analysis Calculations
4. **Contractor Required PMI Report Deliverables**
5. Antenna Placement Diagrams
6. TIA Adoption and Wind Speed Usage Letter



FCC #
1286220

Tower Owner:	American Tower	Mapping Date:	5/4/2021
Site Name:	RKHL - Rocky hill	Tower Type:	Monopole
Site Number or ID:	16502069	Tower Height (Ft.):	107
Mapping Contractor:	Structural Components	Mount Elevation (Ft.):	88

Please insert the sketches of the antenna mount from the "Sketches" tab with dimensions and members here.



Antenna Layout (Looking Out From Tower)

Mount Pipe Configuration and Geometries [Unit = Inches]							
Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "u"	Horizontal Offset "C1, C2, C3, etc."	Sector / Position	Mount Pipe Size & Length	Vertical Offset Dimension "u"	Horizontal Offset "C1, C2, C3, etc."
A1	2-3/8x .16x 72	38.00	16.00	C1	2-3/8x .16x 72	38.50	16.00
A2	2-3/8x .16x 72	38.25	51.50	C2	2-3/8x .16x 72	38.25	51.50
A3	2-3/8x .16x 72	38.50	103.75	C3	2-3/8x .16x 72	39.00	102.75
A4	2-3/8x .16x 72	38.00	127.75	C4	2-3/8x .16x 72	38.25	126.75
A5				C5			
A6				C6			
B1	2-3/8x .16x 72	38.00	17.00	D1			
B2	2-3/8x .16x 72	38.00	52.50	D2			
B3	2-3/8x .16x 72	38.00	94.25	D3			
B4	2-3/8x .16x 72	38.25	127.25	D4			
B5				D5			
B6				D6			
Distance between bottom rail and mount CL elevation (dim d). Unit is inches. See 'Mount Elev Ref' tab for details. :							0.00
Distance from top of bottom support rail to lowest tip of ant./eqpt. of Carrier above. (N/A if > 10 ft.) :							44
Distance from top of bottom support rail to highest tip of ant./eqpt. of Carrier below. (N/A if > 10 ft.) :							59
Please enter additional information or comments below.							
Column R31 keeps changing my fractions and decimals for weld size into dates it was 3/8 inch							
Tower Face Width at Mount Elev. (ft.):		Tower Leg Size or Pole Shaft Diameter at Mount Elev. (in.):					14.8
For T-Arms/Platforms on monopoles, report the weld size from the main standoff to the plate bolting into the collar mount							
							8-Mar

[illegible]

Observed Safety and Structural Issues During the Mount Mapping		
Issue #	Description of Issue	Photo #
1	Missing a large amount of step pegs and extremely loose step pegs in a lot of spots.	2-8&303-305
2	Safety climb was tagged out unsafe by the general manager.	306&307
3		
4		
5		
6		
7		
8		

Observed Obstructions to Tower Lighting System		
If the tower lighting system is being obstructed by the carrier's equipment (for example: a light nested by the antennas), please provide photos and fill in the information below.		
Description of Obstruction:		Photo #
Type of Light:	Photo #	Additional Comments:
Lighting Technology:	Photo #	
Elevation (AGL) at base of light (Ft.):	Photo #	
Is a service loop available?	Photo #	
Is beacon installed on an extension?	Photo #	

Mapping Notes
1. Please report any visible structural or safety issues observed on the antenna mounts (Damaged members, loose connections, tilting mounts, safety climb issues, etc.) 2. If the thickness of the existing pipes or tubing can't be obtained from a general tool (such as Caliper), please use an ultrasonic measurement tool (thickness gauge) to measure the thickness. 3. Please create all required detail sketches of the mounts and insert them into the "Sketches" tab. 4. Please measure and enter the bolt sizes and types under the Members Box in the spreadsheet of the mount type. 5. Take and label the photos of the tower, mounts, connections, antennas and all measurements. Minimum 50 photos are required. 6. Please measure and report the size and length of all existing antenna mounting pipes. 7. Please measure and report the antenna information for all sectors. 8. Don't delete or rearrange any sheet or contents of any sheet from this mapping form.

Standard Conditions
1. Obvious safety and structural issues/deficiencies noticed at the time of the mount mapping are to be reported in this mapping. However, this mount mapping is not a condition assessment of the mount.

Site Name: **ROCKY HILL 4 CT**
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm^2)	(mW/cm^2)	(%)
VZW 700	751	4	697	2788	90	0.0124	0.5007	2.47%
VZW CDMA	869	2	402	804	90	0.0036	0.5793	0.62%
VZW Cellular	869	4	826	3304	90	0.0147	0.5793	2.53%
VZW PCS	1970	4	1593	6372	90	0.0283	1.0000	2.83%
VZW AWS	2110	4	1563	6252	90	0.0278	1.0000	2.78%
VZW CBAND	3730.08	4	6531	26124	91.5	0.1122	1.0000	11.22%
VZW CBRS	3625	4	12	48	88	0.0002	1.0000	0.02%
Total Percentage of Maximum Permissible Exposure								22.47%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Part 1 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1992

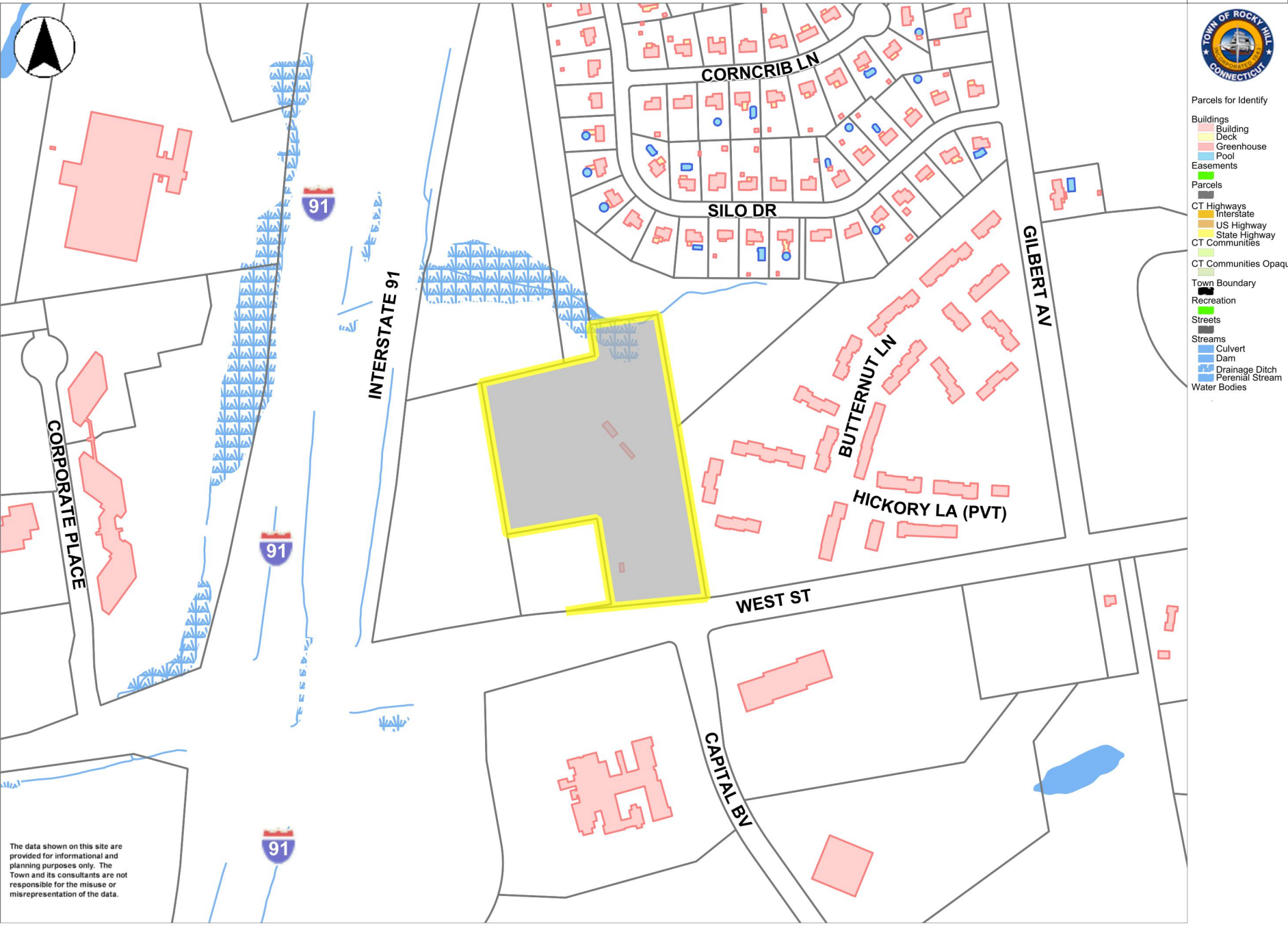
**Calculation includes a -10 dB Off Beam Antenna Pattern Adjustment pursuant to Attachments B and C of the Siting Council's November 10, 2015 Memorandum for Exempt Modification filings

MHz = Megahertz

mW/cm^2 = milliwatts per square centimeter

ERP = Effective Radiated Power

Absolute worst case maximum values used.



- Parcels for Identify
- Buildings
 - Building
 - Deck
 - Greenhouse
 - Pool
 - Easements
 - Parcels
 - CT Highways
 - Interstate
 - US Highway
 - State Highway
 - CT Communities Opaque
 - Town Boundary
 - Recreation
 - Streets
 - Streams
 - Culvert
 - Dam
 - Drainage Ditch
 - Perennial Stream
 - Water Bodies

0 550 1100 ft

Printed on 08/31/2021 at 08:00 AM

MapsOnline by PeopleGIS

Situs : 699 WEST STREET		PARCEL ID: 1181		Class: 400V		Card: 1 of 1		Printed: March 5, 2020	
CURRENT OWNER			GENERAL INFORMATION						
CONNECTICUT LIGHT + POWER CO THE PO BOX 270 HARTFORD CT 06141-0270 139/448 07/01/1982			Living Units Neighborhood I Alternate ID 001195 Vol / Pg 139/448 Map/Lot 12-192 Zoning R-20 Class COMMERCIAL						
Property Notes									
									
12-192-001 11/05/2012									
Land Information									
Type	Size	Influence Factors	Influence %	Value					
Primary	AC	5.0000		900,000					
Excess	AC	4.9800		99,600					
Total Acres: 9.98 Spot: Location:									
Assessment Information									
	Assessed	Appraised	Cost	Income	Market				
Land	699,720	999,600	999,600	0	0				
Building	143,570	205,100	205,100	0	0				
Total	843,290	1,204,700	1,204,700	0	0				
Manual Override Reason Base Date of Value Effective Date of Value									
Value Flag Gross Building:									
Entrance Information									
Date	ID	Entry Code	Source						
12/16/13	ST	Hearing No Change	From Conversion						
01/27/09	ST	Hearing No Change	From Conversion						
Permit Information									
Date Issued	Number	Price	Purpose	% Complete					
04/25/18	2018-428	25,000	CM	At&T, An Existing Tenant On The I 0					
01/18/17	2017-323	15,000	RE	Verizon Wireless Is Replacing Ant 0					
03/07/13	2013-0266	15,000	CM	Install Antenna'S And All Related E 0					
11/30/12	2013-0148	2,900	EL	Wiring For Antennas 0					
09/07/12	2013-0079	20,000	CM	Replace And Wire Anttenas On Ex 0					
Sales/Ownership History									
Transfer Date	Price	Type	Validity	Deed Reference	Deed Type	Grantee			
07/01/82		Vacant - Land Only Sale	No Consideration	139/448	No Consideration	CONNECTICUT LIGHT + POWER CO THE			

Inspection Witnessed By _____

Situs : 699 WEST STREET

Parcel Id: 1181

Class: 400V

Card: 1 of 1

Printed: March 5, 2020

Building Information		Building Other Features															
Year Built/Eff Year	/	Line	Type	+/-	Meas1	Meas2	# Stops	Ident	Units	Line	Type	+/-	Meas1	Meas2	# Stops	Ident	Units
Building #																	
Structure Type																	
Identical Units																	
Total Units																	
Grade																	
# Covered Parking																	
# Uncovered Parking																	
DBA																	

Interior/Exterior Information														
Line	Level From - To	Int Fin	Area	Perim	Use Type	Wall Height	Ext Walls	Construction	Partitions	Heating	Cooling	Plumbing	Physical	Functional

Interior/Exterior Valuation Detail						Outbuilding Data									
Line	Area	Use Type	% Good	% Complete	Use Value/RCNLD	Line	Type	Yr Blt	Meas1	Meas2	Qty	Area	Grade	Phy Fun	Value
						1	Frame Shed	2003			1	312	A	G	3,280
						2	Miscellane	2018			1	1	C	G	
						3	Tower Cell	2008			1	150	C	G	198,000
						4	Frame Shed	2003			1	360	A	G	3,780

Situs : 699 WEST STREET	Parcel Id: 1181	Class: 400V	Card: 1 of 1	Printed: March 5, 2020
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Additional Property Photos

Situs : 699 WEST STREET	Parcel Id: 1181	Class: 400V	Card: 1 of 1	Printed: March 5, 2020
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Income Detail (Includes all Buildings on Parcel)																	
Use Mod Grp	Inc Type	Model Description	Units	Net Area	Income Rate	Econ Adjust	Potential Gross Income	Vac Model	Vac Adj	Additional Income	Effective Gross Income	Expense Model %	Expense Adj %	Expense Adj	Other Expenses	Total Expenses	Net Operating Income

Apartment Detail - Building 1 of 1								Building Cost Detail - Building 1 of 1			
Line	Use Type	Per Bldg	Beds	Baths	Units	Rent	Income				
								Total Gross Building Area			
								Replace, Cost New Less Depr			
								Percent Complete			
								Number of Identical Units			
								Economic Condition Factor			
								Final Building Value			
								Value per SF			

Notes - Building 1 of 1								Income Summary (Includes all Building on Parcel)			
								Total Gross Rent Area			
								Total Gross Building Area			



Structural Analysis Report

Structure : 100 ft Monopole
ATC Asset Name : Rkhl - Rocky Hill
ATC Asset Number : 302479
Engineering Number : 13678056_C3_03
Proposed Carrier : VERIZON WIRELESS
Carrier Site Name : ROCKY HILL IV CT
Carrier Site Number : 535833
Site Location : 699 West Street
Rocky Hill, CT 06067-1924
41.6518, -72.6685
County : Hartford
Date : October 27, 2022
Max Usage : 92%
Analysis Result : Pass

Prepared By:

Thomas Ambrosio
Structural Engineer I

A handwritten signature in black ink, appearing to read 'T. Ambrosio', written over a light blue rectangular background.

Reviewed



COA: PEC.0001553

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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 100 ft Monopole tower to reflect the change in loading by VERIZON WIRELESS.

Supporting Documents

Tower Drawing:	ITT Meyer Type D, AT&T Technologies #AT-8935, dated April 13, 1984 Mapping by Hightower Solutions, Project #1981, dated August 9, 2007
Foundation Drawing:	SNET Site: Rocky Hill, Conn, dated November 12, 1991
Geotechnical Report:	S&ME Job #1261-08-049Q, dated April 24, 2008
Modification:	ATC Engineering #40737338, dated May 5, 2008 ATC Engineering #13683394_C8_01, dated November 1, 2021

Analysis

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

Basic Wind Speed:	118 mph (3-second gust)
Basic Wind Speed w/ Ice:	50 mph (3-second gust) w/ 1.50" radial ice concurrent
Code(s):	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Spectral Response:	$S_s = 0.20$, $S_i = 0.06$
Site Class:	D - Stiff Soil - Default

Conclusion

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

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

Existing/Reserved Loading

Elev.*	Qty	Equipment	Lines	Carrier
105.0'	3	CCI HPA-65R-BUU-H6	(2) 0.92" (23.4mm) Cable (6) 1 5/8" Coax (1) 2" conduit (2) 0.40" (10.3mm) Fiber (2) 0.82" (20.8mm) 8 AWG 6 (1) 0.92" (23.4mm) Cable (3) 2" conduit	AT&T MOBILITY
	3	Ericsson AIR 6419 N77G		
104.9'	2	Raycap DC6-48-60-18-8F (23.5" Height)		
103.0'	1	Raycap DC9-48-60-24-8C-EV		
	3	CCI DMP65R-BU6DA		
	3	CCI TPA-65R-BU6DA-K		
	3	Quintel QS66512-2		
101.0'	3	Ericsson AIR 6449 n77D		
100.0'	1	Triangular Platform with Handrails		
	3	Ericsson RRUS 32 B30		
	3	Ericsson RRUS 32 B66A		
	3	Ericsson RRUS 4415 B25		
	3	Ericsson RRUS 4449 B5, B12		
	3	Ericsson RRUS 4478 B14		
90.0'	1	Triangular Low Profile Platform	-	VERIZON WIRELESS
80.0'	3	RFS APXV18-206517S-C	(6) 1 5/8" Coax	METRO PCS INC

(If table breaks across pages, please see previous page for data in merged cells)

*Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Proposed Carrier Final Loading

Elev.*	Qty	Equipment	Lines	Carrier
90.2'	1	48" x 16" Panel	(6) 1 5/8" Coax (2) 1 5/8" Hybriflex	VERIZON WIRELESS
90.0'	2	Raycap RCMD-6627-PF-48		
	3	Andrew LNX-6514DS-VTM		
	3	Samsung B2/B66A RRH-BR049		
	3	Samsung B5/B13 RRH-BR04C		
	3	Samsung MT6407-77A		
	3	Samsung Outdoor CBRS 20W RRH –Clip-on Antenna		
	3	Samsung RT4401-48A		
	6	Andrew SBNHH-1D65B		

(If table breaks across pages, please see previous page for data in merged cells)

*Contracted elevations are shown for appurtenances within contracted installation tolerances. Appurtenances outside of contract limits are shown at installed elevations.

Structure Usages

Structural Component	Usage	Pass/Fail
Anchor Rods	9%	Pass
Base Plate	45%	Pass
Shaft	92%	Pass
Reinforcement	92%	Pass

Foundation Reactions & Usages

Reaction Component	Analysis Reactions	Usage
Moment (k-ft)	1120.2	41%
Axial (k)	28.1	10%
Shear (k)	14.3	12%

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

Antenna Deflection and Sway

Elev.	Antenna	Carrier	Deflection	Sway [Rotation]
90.2'	48" x 16" Panel	VERIZON WIRELESS	0.775'	1.050°
90.0'	Raycap RCMDC-6627-PF-48		0.772'	1.050°
	Andrew LNX-6514DS-VTM		0.772'	1.050°
	Samsung B2/B66A RRH-BR049		0.772'	1.050°
	Samsung B5/B13 RRH-BR04C		0.772'	1.050°
	Samsung MT6407-77A		0.772'	1.050°
	Samsung Outdoor CBRS 20W RRH –Clip-on Antenna		0.772'	1.050°
	Samsung RT4401-48A		0.772'	1.050°
	Andrew SBNHH-1D65B		0.772'	1.050°

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

Standard Conditions

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

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

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

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

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

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

ANALYSIS PARAMETERS

Nominal Wind:	118 mph	Ice Wind:	50 mph w/ 1.5" ice	Service Wind:	60 mph
Risk Category:	II	Exposure:	B	S _s :	0.201
Topo Category:	1	Topo Factor:	Method 1	S _i :	0.055
Structure Height:	100 ft	Base Elevation:	0.00 ft	Topo Feature:	
Base Diameter:	30 in	Base Rotation:	0°	Structure Type:	Taper
				Taper:	0.1640 (in/ft)

POLE SECTION PROPERTIES

Section	Length (ft)	Flat Diameter (in)		Thick (in)	Joint Type	Joint Length (in)	Pole Shape	Yield Strength (ksi)
		Top	Bottom					
1	32.830	24.62	30.00	0.250		0.000	12 Sides	65
2	36.420	19.73	25.70	0.250	Slip Joint	42.000	12 Sides	50
3	37.083	14.50	20.57	0.188	Slip Joint	34.000	12 Sides	50

DISCRETE APPURTENANCE

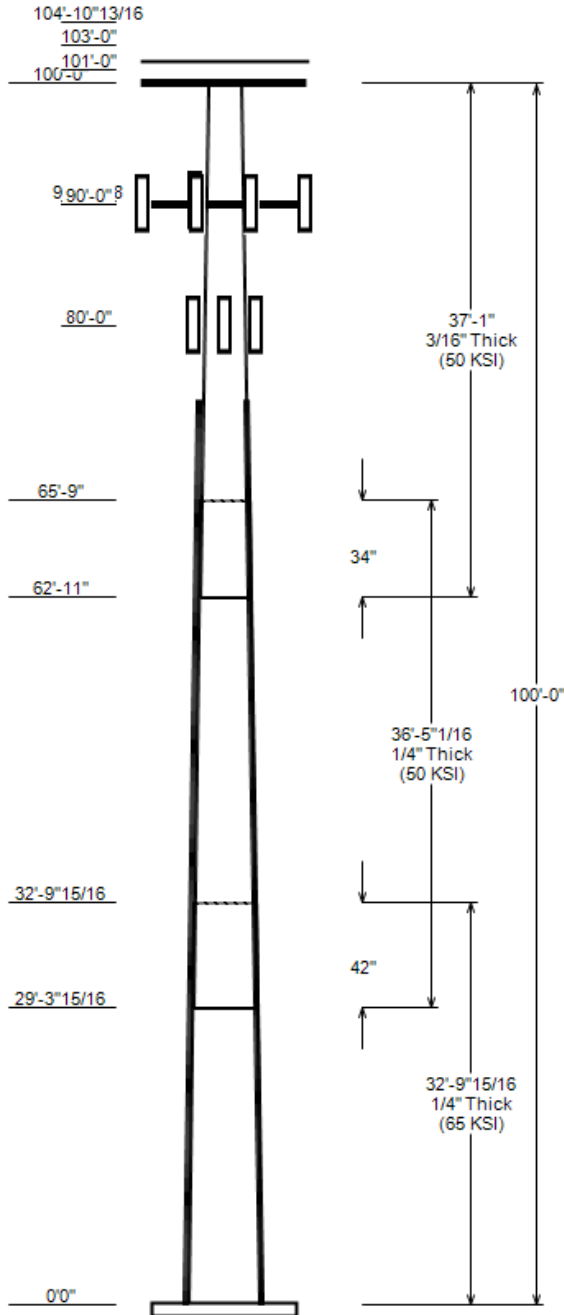
Elev (ft)	Description
105.0	(3) Ericsson AIR 6419 N77G
105.0	(3) CCI HPA-65R-BUU-H6
104.9	(2) Raycap DC6-48-60-18-8F (23.5"
103.0	(1) Raycap DC9-48-60-24-8C-EV
103.0	(3) Quintel QS66512-2
103.0	(3) CCI DMP65R-BU6DA
103.0	(3) CCI TPA-65R-BU6DA-K
101.0	(3) Ericsson AIR 6449 n77D
100.0	(3) Ericsson RRUS 4415 B25
100.0	(3) Ericsson RRUS 4449 B5, B12
100.0	(3) Ericsson RRUS 4478 B14
100.0	(3) Ericsson RRUS 32 B66A
100.0	(3) Ericsson RRUS 32 B30
100.0	(1) Generic Round Platform with Ha
90.2	(1) Generic 48" x 16" Panel
90.0	(3) Samsung Outdoor CBRS 20W RRH –
90.0	(3) Samsung RT4401-48A
90.0	(3) Samsung B5/B13 RRH-BR04C
90.0	(3) Samsung B2/B66A RRH-BR049
90.0	(2) Raycap RCMD-6627-PF-48
90.0	(3) Samsung MT6407-77A
90.0	(3) Andrew LNX-6514DS-VTM
90.0	(6) Andrew SBNHH-1D65B
90.0	(1) Round Low Profile Platform
80.0	(3) RFS APXV18-206517S-C

LINEAR APPURTENANCE

Elev To (ft)	Description
103.0	(1) 2" conduit
103.0	(6) 1 5/8" Coax
103.0	(2) 0.92" (23.4mm) Cable
100.0	(3) 2" conduit
100.0	(1) 0.92" (23.4mm) Cable
100.0	(2) 0.82" (20.8mm) 8 AWG 6
100.0	(2) 0.40" (10.3mm) Fiber
90.0	(2) 1 5/8" Hybriflex
90.0	(6) 1 5/8" Coax
80.0	(6) 1 5/8" Coax
78.4	(1) #20 w/ Angle Brackets
78.4	(1) #20 w/ Angle Brackets
78.4	(1) #20 w/ Angle Brackets
78.4	(1) #20 w/ Angle Brackets

LOAD CASE KEY

1.2D + 1.0W	118 mph Wind with No Ice
0.9D + 1.0W	118 mph Wind with No Ice (Reduced)
1.2D + 1.0Di + 1.0Wi	50 mph Wind with 1.5" Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice



GLOBAL BASE REACTIONS

Load Case	Moment (kip-ft)	Axial (kip)	Shear (kip)
1.2D + 1.0W	1120.23	28.13	14.28
0.9D + 1.0W	1105.46	21.09	14.26
1.2D + 1.0Di + 1.0Wi	423.11	48.13	5.68
1.2D + 1.0Ev + 1.0Eh	62.26	27.99	0.71
0.9D - 1.0Ev + 1.0Eh	61.25	19.30	0.71
1.0D + 1.0W	257.07	23.47	3.30

ANALYSIS PARAMETERS			
Location:	Hartford County,CT	Height:	100 ft
Type and Shape:	Taper, 12 Sides	Base Diameter:	30.00 in
Manufacturer:	ITT Meyer	Top Diameter:	14.50 in
K _d (non-service):	0.95	Taper:	0.1640 in/ft
K _e :	0.99	Rotation:	0.000°

ICE & WIND PARAMETERS			
Risk Category:	II	Design Wind Speed:	118 mph
Exposure Category:	B	Design Wind Speed w/ Ice:	50 mph
Topo Factor Procedure:	Method 1	Design Ice Thickness:	1.50 in
Topographic Category:	1	Service Wind Speed:	60 mph
Crest Height:	0 ft	HMSL:	200.00 ft

SEISMIC PARAMETERS					
Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):		2.10	
T _L (sec):	6	P:	1	C _s :	0.030
S _s :	0.201	S ₁ :	0.055	C _s Max:	0.030
F _a :	1.600	F _v :	2.400	C _s Min:	0.030
S _{ds} :	0.214	S _{d1} :	0.088		

LOAD CASES	
1.2D + 1.0W	118 mph Wind with No Ice
0.9D + 1.0W	118 mph Wind with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph Wind with 1.5" Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

ASSET: 302479, Rkhl - Rocky Hill
CUSTOMER: VERIZON WIRELESS

CODE: ANSI/TIA-222-H
PROJECT: 13678056_C3_03

SHAFT SECTION PROPERTIES

Section	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Bottom						Top						D/t Ratio	Taper (in/ft)
						Weight (lb)	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio		
1-12	32.83	0.2500	65		0.00	2,434	30.00	0.000	23.95	2,705.5	29.47	120.00	24.62	32.83	19.62	1,487.8	23.71	98.50	0.1638
2-12	36.42	0.2500	50	Slip	42.00	2,241	25.70	29.330	20.48	1,693.1	24.86	102.79	19.73	65.75	15.68	759.9	18.47	78.93	0.1638
3-12	37.08	0.1880	50	Slip	34.00	1,325	20.57	62.917	12.34	654.5	26.64	109.43	14.50	100.00	8.66	226.5	17.99	77.13	0.1638
Total Shaft Weight						6,000													

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice			Ice		
					Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor
105.00	Ericsson AIR 6419 N77G	3	0.75	0.000	70.00	3.925	0.57	160.01	5.227	0.57
105.00	CCI HPA-65R-BUU-H6	3	0.75	0.000	51.00	9.658	0.69	261.58	12.319	0.69
104.90	Raycap DC6-48-60-18-8F (23.5"	2	0.75	0.000	20.00	1.260	1.00	70.54	1.892	1.00
103.00	CCI TPA-65R-BU6DA-K	3	0.75	0.000	79.60	15.270	0.60	366.96	18.017	0.60
103.00	CCI DMP65R-BU6DA	3	0.75	0.000	79.40	12.709	0.63	326.64	15.386	0.63
103.00	Quintel QS66512-2	3	0.75	3.000	111.00	8.133	0.74	302.27	10.809	0.74
103.00	Raycap DC9-48-60-24-8C-EV	1	0.75	0.000	16.00	4.788	1.00	139.91	6.200	1.00
101.00	Ericsson AIR 6449 n77D	3	0.75	0.000	81.60	4.028	0.65	180.63	5.345	0.65
100.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	4054.62	50.662	1.00
100.00	Ericsson RRUS 32 B30	3	0.75	0.000	60.00	2.743	0.67	130.61	3.865	0.67
100.00	Ericsson RRUS 32 B66A	3	0.75	0.000	50.70	2.720	0.67	121.04	3.837	0.67
100.00	Ericsson RRUS 4478 B14	3	0.75	0.000	59.40	2.021	0.67	118.30	2.926	0.67
100.00	Ericsson RRUS 4415 B25	3	0.75	0.000	46.00	1.842	0.50	93.06	2.703	0.50
100.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.969	0.50	132.86	2.864	0.50
90.20	Generic 48" x 16" Panel	1	0.80	0.000	30.00	6.519	1.00	175.44	8.348	1.00
90.00	Samsung RT4401-48A	3	0.80	0.000	18.60	0.996	0.50	44.24	1.646	0.50
90.00	Samsung B5/B13 RRH-BR04C	3	0.80	0.000	70.30	1.875	0.50	124.61	2.732	0.50
90.00	Samsung B2/B66A RRH-BR049	3	0.80	0.000	84.40	1.875	0.50	144.97	2.732	0.50
90.00	Samsung Outdoor CBRS 20W RRH –	3	0.80	0.000	4.40	0.892	0.50	21.49	1.499	0.50
90.00	Raycap RCMDC-6627-PF-48	2	0.80	0.000	32.00	4.056	0.79	152.67	5.352	0.79
90.00	Samsung MT6407-77A	3	0.80	0.000	81.60	4.709	0.61	178.38	6.151	0.61
90.00	Andrew LNX-6514DS-VTM	3	0.80	0.000	33.10	8.079	0.69	198.64	10.724	0.69
90.00	Andrew SBNHH-1D65B	6	0.80	0.000	50.70	8.173	0.69	217.31	10.860	0.69
90.00	Round Low Profile Platform	1	1.00	0.000	1500.00	21.700	1.00	2115.15	39.929	1.00
80.00	RFS APXV18-206517S-C	3	1.00	0.000	26.40	5.160	0.68	113.31	7.379	0.68
Totals	Row Count: 25	68			7,689.70			17,294.20		

LINEAR APPURTENANCE PROPERTIES

Elev From (ft)	Elev To (ft)	Qty	Description	Diameter (in)	Weight (lb/ft)	Flat	Max/ Row	Distance Between Rows(in)	Distance Between Cols(in)	Distance Azimuth (deg)	Distance From Face (in)	Exposed To Wind	Carrier
0.00	103.00	6	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	103.00	2	0.92" (23.4mm) Cable	0.92	0.89	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	103.00	1	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	100.00	3	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	100.00	2	0.82" (20.8mm) 8 AWG	0.82	0.62	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	100.00	2	0.40" (10.3mm) Fiber	0.4	0.09	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	100.00	1	0.92" (23.4mm) Cable	0.92	0.89	N	0	0	0	0	0	N	AT&T MOBILITY
5.00	90.00	6	1 5/8" Coax	1.98	0.82	N	6	1	1	160	1	Y	VERIZON WIRELESS
5.00	90.00	2	1 5/8" Hybriflex	1.98	1.3	N	1	1	1	160	1	Y	VERIZON WIRELESS
5.00	80.00	6	1 5/8" Coax	1.98	0.82	N	3	1	1	200	1	Y	METRO PCS INC
0.00	78.40	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	0	3.6	Y	
0.00	78.40	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	90	3.6	Y	
0.00	78.40	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	270	3.6	Y	
0.00	78.40	1	#20 w/ Angle Brackets	4	4.68	N	1	0	0	180	3.6	Y	

ADDITIONAL STEEL

Elev From	Elev To	Qty	Description	Fy (ksi)	Intermediate Connectors			Spacing (in)	Length (in)	Connectors	Continuation?
					Offset (in)	Bracket Type					

ASSET: 302479, Rkhl - Rocky Hill
CUSTOMER: VERIZON WIRELESS

CODE: ANSI/TIA-222-H
PROJECT: 13678056_C3_03

(ft)	(ft)													
0.00	74.00	4	SOL #20 All Thread Bar	80	2.20	6" Angle Bracket	30.00	3.31	5/8" A36 U-Bolt	N				

SEGMENT PROPERTIES

Seg Top Elev (ft)	Description	(Max Length: 5 ft)	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in ³)	Z (in ³)	Weight (lb)	Additional Reinforcing		
													Area (in ²)	Ix (in ⁴)	Weight (lb)
0.00			0.2500	30.000	23.949	2,705.50	29.47	120.00	72.6	174.2	0.0	0.0	19.640	3,350.40	0.0
5.00			0.2500	29.181	23.290	2,488.20	28.60	116.72	73.5	164.7	0.0	401.9	19.640	3,203.70	334.0
10.00			0.2500	28.362	22.630	2,282.80	27.72	113.45	74.5	155.5	0.0	390.6	19.640	3,060.30	334.0
15.00			0.2500	27.544	21.971	2,089.10	26.84	110.17	75.4	146.5	0.0	379.4	19.640	2,920.20	334.0
20.00			0.2500	26.725	21.312	1,906.70	25.96	106.90	76.4	137.8	0.0	368.2	19.640	2,783.40	334.0
25.00			0.2500	25.906	20.653	1,735.20	25.09	103.62	77.4	129.4	0.0	357.0	19.640	2,649.80	334.0
29.33	Bot - Section 2		0.2500	25.197	20.082	1,595.30	24.33	100.79	78.2	122.3	0.0	300.1	19.640	2,536.80	289.2
30.00			0.2500	25.087	19.994	1,574.30	24.21	100.35	78.3	121.2	0.0	92.3	19.640	2,598.70	44.8
32.83	Top - Section 1		0.2500	25.124	20.023	1,581.30	24.25	100.50	62.7	121.6	0.0	385.3	19.640	2,525.30	189.0
35.00			0.2500	24.768	19.737	1,514.50	23.87	99.07	63	118.1	0.0	146.8	19.640	2,469.80	145.0
40.00			0.2500	23.950	19.078	1,367.70	22.99	95.80	63	110.3	0.0	330.2	19.640	2,344.10	334.0
45.00			0.2500	23.131	18.419	1,230.80	22.11	92.52	63	102.8	0.0	319.0	19.640	2,221.70	334.0
50.00			0.2500	22.312	17.760	1,103.40	21.23	89.25	63	95.5	0.0	307.8	19.640	2,102.60	334.0
55.00			0.2500	21.493	17.101	985.00	20.36	85.97	63	88.5	0.0	296.6	19.640	1,986.80	334.0
60.00			0.2500	20.674	16.442	875.40	19.48	82.70	63	81.8	0.0	285.3	19.640	1,874.30	334.0
62.92	Bot - Section 3		0.2500	20.197	16.057	815.50	18.97	80.79	63	78.0	0.0	161.3	19.640	1,810.20	194.8
65.00			0.2500	19.856	15.783	774.30	18.60	79.42	63	75.3	0.0	199.6	19.640	1,814.90	139.2
65.75	Top - Section 2		0.1880	20.109	12.059	610.80	25.98	106.96	61.4	58.7	0.0	71.0	19.640	1,798.50	50.1
70.00			0.1880	19.413	11.638	549.00	24.99	103.26	62.2	54.6	0.0	171.4	19.640	1,707.40	283.9
74.00	Reinf. Top		0.1880	18.758	11.241	494.80	24.06	99.78	62.8	51.0	0.0	155.7	19.640	1,623.80	267.2
75.00			0.1880	18.594	11.142	481.80	23.82	98.90	63	50.1	0.0	38.1			
80.00			0.1880	17.775	10.647	420.30	22.65	94.55	63	45.7	0.0	185.4			
85.00			0.1880	16.956	10.151	364.30	21.49	90.19	63	41.5	0.0	176.9			
90.00			0.1880	16.138	9.655	313.50	20.32	85.84	63	37.5	0.0	168.5			
90.20			0.1880	16.105	9.635	311.60	20.27	85.66	63	37.4	0.0	6.6			
95.00			0.1880	15.319	9.160	267.70	19.15	81.48	63	33.8	0.0	153.5			
100.00			0.1880	14.500	8.664	226.50	17.99	77.13	63	30.2	0.0	151.6			
Totals:												6,000.1	4,943.2		

CALCULATED FORCES

Load Case: 1.2D + 1.0W			118 mph Wind with No Ice										22 Iterations	
Gust Response Factor:		1.10												
Dead load Factor:		1.20												
Wind Load Factor:		1.00												
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio	
0.00	-28.13	-14.28	0.00	-1,120.2	0.00	1,120.23	1,564.13	420.30	1,179.53	948.21	0	0	0.539	
5.00	-26.93	-13.95	0.00	-1,048.8	0.00	1,048.85	1,541.14	408.73	1,115.51	908.35	0.14	-0.25	0.515	
10.00	-25.68	-13.63	0.00	-979.1	0.00	979.11	1,517.02	397.16	1,053.28	868.61	0.54	-0.51	0.492	
15.00	-24.44	-13.33	0.00	-911.0	0.00	910.96	1,491.76	385.60	992.84	829.05	1.21	-0.76	0.468	
20.00	-23.22	-13.03	0.00	-844.3	0.00	844.33	1,465.37	374.03	934.18	789.73	2.14	-1.01	0.444	
25.00	-22.02	-12.77	0.00	-779.2	0.00	779.16	1,437.84	362.46	877.31	750.70	3.33	-1.26	0.420	
29.33	-21.00	-12.61	0.00	-723.9	0.00	723.87	1,413.08	352.44	829.50	717.19	4.57	-1.47	0.398	
30.00	-20.78	-12.53	0.00	-715.4	0.00	715.41	1,409.18	350.89	822.22	712.03	4.77	-1.5	0.388	
32.83	-19.88	-12.38	0.00	-680.0	0.00	679.96	1,130.06	270.32	634.34	571.84	5.7	-1.63	0.469	
35.00	-19.36	-12.19	0.00	-653.1	0.00	653.10	1,119.11	266.45	616.35	558.13	6.47	-1.74	0.456	
40.00	-18.20	-11.91	0.00	-592.1	0.00	592.14	1,081.73	257.56	575.89	521.29	8.41	-1.96	0.429	
45.00	-17.06	-11.63	0.00	-532.6	0.00	532.59	1,044.36	248.66	536.79	485.71	10.58	-2.17	0.401	
50.00	-15.93	-11.34	0.00	-474.4	0.00	474.45	1,006.99	239.76	499.08	451.39	12.97	-2.38	0.371	
55.00	-14.82	-11.04	0.00	-417.8	0.00	417.75	969.61	230.86	462.73	418.33	15.57	-2.58	0.340	
60.00	-13.74	-10.79	0.00	-362.5	0.00	362.53	932.24	221.96	427.76	386.52	18.37	-2.77	0.308	
62.92	-13.11	-10.63	0.00	-331.1	0.00	331.07	910.44	216.77	408.00	368.55	20.1	-2.87	0.288	
65.00	-12.56	-10.52	0.00	-308.9	0.00	308.94	894.87	213.06	394.17	355.97	21.37	-2.94	0.268	
65.75	-12.36	-10.39	0.00	-301.0	0.00	301.05	666.75	162.80	305.95	270.38	21.83	-2.97	0.293	
70.00	-11.53	-10.13	0.00	-256.9	0.00	256.89	651.10	157.11	284.95	254.72	24.54	-3.1	0.256	
74.00	-10.76	-9.94	0.00	-216.4	0.00	216.38	635.86	151.76	265.87	240.20	27.19	-3.22	0.221	

CALCULATED FORCES													
74.00	-10.76	-9.94	0.00	-216.4	0.00	216.38	635.86	151.76	265.87	240.20	27.19	-3.22	0.922
75.00	-10.60	-9.83	0.00	-206.4	0.00	206.44	631.77	150.42	261.20	236.53	27.86	-3.25	0.894
80.00	-9.95	-9.25	0.00	-157.3	0.00	157.27	603.66	143.73	238.49	215.85	31.56	-3.79	0.749
85.00	-9.51	-9.04	0.00	-111.0	0.00	111.04	575.56	137.04	216.81	196.12	35.78	-4.24	0.587
90.00	-6.05	-5.79	0.00	-65.8	0.00	65.83	547.45	130.35	196.16	177.33	40.41	-4.58	0.384
90.20	-6.01	-5.50	0.00	-64.7	0.00	64.67	546.33	130.08	195.35	176.60	40.6	-4.6	0.379
95.00	-5.70	-5.27	0.00	-38.3	0.00	38.29	519.35	123.65	176.54	159.49	45.34	-4.82	0.253
100.00	0.00	-4.76	0.00	-12.0	0.00	11.96	491.24	116.96	157.96	142.60	50.47	-4.96	0.086

CALCULATED FORCES

Load Case: 0.9D + 1.0W

118 mph Wind with No Ice (Reduced DL)

21 Iterations

Gust Response Factor: 1.10
 Dead load Factor: 0.90
 Wind Load Factor: 1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-21.09	-14.26	0.00	-1,105.5	0.00	1,105.46	1,564.13	420.30	1,179.53	948.21	0	0	0.529
5.00	-20.18	-13.90	0.00	-1,034.2	0.00	1,034.16	1,541.14	408.73	1,115.51	908.35	0.14	-0.25	0.506
10.00	-19.22	-13.56	0.00	-964.7	0.00	964.67	1,517.02	397.16	1,053.28	868.61	0.53	-0.5	0.482
15.00	-18.28	-13.23	0.00	-896.9	0.00	896.89	1,491.76	385.60	992.84	829.05	1.19	-0.75	0.459
20.00	-17.36	-12.91	0.00	-830.8	0.00	830.76	1,465.37	374.03	934.18	789.73	2.11	-0.99	0.435
25.00	-16.44	-12.63	0.00	-766.2	0.00	766.20	1,437.84	362.46	877.31	750.70	3.28	-1.24	0.411
29.33	-15.68	-12.47	0.00	-711.5	0.00	711.51	1,413.08	352.44	829.50	717.19	4.5	-1.44	0.390
30.00	-15.51	-12.38	0.00	-703.2	0.00	703.16	1,409.18	350.89	822.22	712.03	4.7	-1.48	0.379
32.83	-14.83	-12.22	0.00	-668.1	0.00	668.14	1,130.06	270.32	634.34	571.84	5.62	-1.61	0.459
35.00	-14.43	-12.02	0.00	-641.6	0.00	641.61	1,119.11	266.45	616.35	558.13	6.38	-1.71	0.445
40.00	-13.56	-11.73	0.00	-581.5	0.00	581.49	1,081.73	257.56	575.89	521.29	8.28	-1.93	0.419
45.00	-12.69	-11.44	0.00	-522.8	0.00	522.82	1,044.36	248.66	536.79	485.71	10.42	-2.14	0.392
50.00	-11.84	-11.15	0.00	-465.6	0.00	465.60	1,006.99	239.76	499.08	451.39	12.77	-2.34	0.363
55.00	-11.01	-10.86	0.00	-409.8	0.00	409.84	969.61	230.86	462.73	418.33	15.33	-2.54	0.332
60.00	-10.19	-10.60	0.00	-355.6	0.00	355.56	932.24	221.96	427.76	386.52	18.09	-2.72	0.300
62.92	-9.72	-10.44	0.00	-324.6	0.00	324.64	910.44	216.77	408.00	368.55	19.78	-2.82	0.281
65.00	-9.30	-10.34	0.00	-302.9	0.00	302.88	894.87	213.06	394.17	355.97	21.03	-2.89	0.261
65.75	-9.15	-10.21	0.00	-295.1	0.00	295.12	666.75	162.80	305.95	270.38	21.49	-2.92	0.286
70.00	-8.52	-9.95	0.00	-251.7	0.00	251.73	651.10	157.11	284.95	254.72	24.14	-3.05	0.249
74.00	-7.94	-9.78	0.00	-211.9	0.00	211.92	635.86	151.76	265.87	240.20	26.75	-3.16	0.215
74.00	-7.94	-9.78	0.00	-211.9	0.00	211.92	635.86	151.76	265.87	240.20	26.75	-3.16	0.899
75.00	-7.82	-9.65	0.00	-202.1	0.00	202.14	631.77	150.42	261.20	236.53	27.41	-3.19	0.871
80.00	-7.33	-9.05	0.00	-153.9	0.00	153.88	603.66	143.73	238.49	215.85	31.05	-3.72	0.729
85.00	-6.98	-8.83	0.00	-108.6	0.00	108.62	575.56	137.04	216.81	196.12	35.19	-4.16	0.570
90.00	-4.44	-5.65	0.00	-64.4	0.00	64.45	547.45	130.35	196.16	177.33	39.74	-4.5	0.373
90.20	-4.42	-5.36	0.00	-63.3	0.00	63.32	546.33	130.08	195.35	176.60	39.93	-4.51	0.368
95.00	-4.18	-5.13	0.00	-37.6	0.00	37.61	519.35	123.65	176.54	159.49	44.58	-4.73	0.246
100.00	0.00	-4.76	0.00	-12.0	0.00	11.96	491.24	116.96	157.96	142.60	49.61	-4.86	0.086

CALCULATED FORCES

Load Case: 1.2D + 1.0Di + 1.0Wi			50 mph Wind with 1.5" Radial Ice								21 Iterations			
Gust Response Factor:		1.10	Ice Dead Load Factor			1.00			Ice Importance Factor					1.00
Dead load Factor:		1.20												
Wind Load Factor:		1.00												
Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio	
0.00	-48.13	-5.68	0.00	-423.1	0.00	423.11	1,564.13	420.30	1,179.53	948.21	0	0	0.216	
5.00	-46.61	-5.64	0.00	-394.7	0.00	394.69	1,541.14	408.73	1,115.51	908.35	0.05	-0.1	0.207	
10.00	-44.77	-5.55	0.00	-366.5	0.00	366.48	1,517.02	397.16	1,053.28	868.61	0.2	-0.19	0.196	
15.00	-42.91	-5.45	0.00	-338.7	0.00	338.72	1,491.76	385.60	992.84	829.05	0.45	-0.29	0.186	
20.00	-41.05	-5.35	0.00	-311.4	0.00	311.45	1,465.37	374.03	934.18	789.73	0.8	-0.38	0.175	
25.00	-39.20	-5.23	0.00	-284.7	0.00	284.71	1,437.84	362.46	877.31	750.70	1.25	-0.47	0.164	
29.33	-37.60	-5.13	0.00	-262.0	0.00	262.04	1,413.08	352.44	829.50	717.19	1.71	-0.54	0.155	
30.00	-37.29	-5.11	0.00	-258.6	0.00	258.60	1,409.18	350.89	822.22	712.03	1.79	-0.56	0.151	
32.83	-36.01	-5.04	0.00	-244.1	0.00	244.13	1,130.06	270.32	634.34	571.84	2.13	-0.61	0.181	
35.00	-35.21	-4.97	0.00	-233.2	0.00	233.19	1,119.11	266.45	616.35	558.13	2.41	-0.64	0.175	
40.00	-33.37	-4.82	0.00	-208.3	0.00	208.32	1,081.73	257.56	575.89	521.29	3.13	-0.72	0.163	
45.00	-31.55	-4.66	0.00	-184.2	0.00	184.20	1,044.36	248.66	536.79	485.71	3.93	-0.8	0.150	
50.00	-29.73	-4.49	0.00	-160.9	0.00	160.89	1,006.99	239.76	499.08	451.39	4.8	-0.87	0.137	
55.00	-27.94	-4.24	0.00	-138.4	0.00	138.44	969.61	230.86	462.73	418.33	5.74	-0.93	0.123	
60.00	-26.16	-4.00	0.00	-117.2	0.00	117.23	932.24	221.96	427.76	386.52	6.75	-0.99	0.110	
62.92	-25.13	-3.85	0.00	-105.6	0.00	105.57	910.44	216.77	408.00	368.55	7.37	-1.03	0.102	
65.00	-24.29	-3.74	0.00	-97.6	0.00	97.56	894.87	213.06	394.17	355.97	7.83	-1.05	0.094	
65.75	-23.99	-3.68	0.00	-94.8	0.00	94.76	666.75	162.80	305.95	270.38	7.99	-1.06	0.103	
70.00	-22.57	-3.44	0.00	-79.1	0.00	79.13	651.10	157.11	284.95	254.72	8.95	-1.1	0.089	
74.00	-21.24	-3.23	0.00	-65.4	0.00	65.36	635.86	151.76	265.87	240.20	9.89	-1.14	0.076	
74.00	-21.24	-3.23	0.00	-65.4	0.00	65.36	635.86	151.76	265.87	240.20	9.89	-1.14	0.306	
75.00	-20.98	-3.18	0.00	-62.1	0.00	62.13	631.77	150.42	261.20	236.53	10.13	-1.15	0.296	
80.00	-19.53	-2.85	0.00	-46.2	0.00	46.25	603.66	143.73	238.49	215.85	11.42	-1.31	0.247	
85.00	-18.77	-2.72	0.00	-32.0	0.00	31.98	575.56	137.04	216.81	196.12	12.86	-1.44	0.196	
90.00	-12.11	-1.67	0.00	-18.4	0.00	18.39	547.45	130.35	196.16	177.33	14.42	-1.54	0.126	
90.20	-11.93	-1.60	0.00	-18.0	0.00	18.05	546.33	130.08	195.35	176.60	14.49	-1.54	0.124	
95.00	-11.43	-1.53	0.00	-10.4	0.00	10.39	519.35	123.65	176.54	159.49	16.07	-1.6	0.087	
100.00	0.00	-1.21	0.00	-2.7	0.00	2.73	491.24	116.96	157.96	142.60	17.77	-1.64	0.019	

CALCULATED FORCES

Load Case: 1.0D + 1.0W

60 mph Wind with No Ice

20 Iterations

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

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (ft-kips)	Phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-23.47	-3.30	0.00	-257.1	0.00	257.07	1,564.13	420.30	1,179.53	948.21	0	0	0.129
5.00	-22.52	-3.22	0.00	-240.6	0.00	240.57	1,541.14	408.73	1,115.51	908.35	0.03	-0.06	0.124
10.00	-21.52	-3.14	0.00	-224.5	0.00	224.48	1,517.02	397.16	1,053.28	868.61	0.12	-0.12	0.118
15.00	-20.53	-3.07	0.00	-208.8	0.00	208.77	1,491.76	385.60	992.84	829.05	0.28	-0.17	0.112
20.00	-19.55	-3.00	0.00	-193.4	0.00	193.43	1,465.37	374.03	934.18	789.73	0.49	-0.23	0.107
25.00	-18.58	-2.93	0.00	-178.4	0.00	178.45	1,437.84	362.46	877.31	750.70	0.76	-0.29	0.101
29.33	-17.75	-2.90	0.00	-165.8	0.00	165.75	1,413.08	352.44	829.50	717.19	1.05	-0.34	0.096
30.00	-17.58	-2.88	0.00	-163.8	0.00	163.81	1,409.18	350.89	822.22	712.03	1.09	-0.34	0.093
32.83	-16.85	-2.84	0.00	-155.7	0.00	155.67	1,130.06	270.32	634.34	571.84	1.31	-0.37	0.112
35.00	-16.44	-2.80	0.00	-149.5	0.00	149.51	1,119.11	266.45	616.35	558.13	1.48	-0.4	0.109
40.00	-15.50	-2.73	0.00	-135.5	0.00	135.53	1,081.73	257.56	575.89	521.29	1.93	-0.45	0.103
45.00	-14.57	-2.66	0.00	-121.9	0.00	121.88	1,044.36	248.66	536.79	485.71	2.43	-0.5	0.096
50.00	-13.65	-2.60	0.00	-108.6	0.00	108.57	1,006.99	239.76	499.08	451.39	2.97	-0.55	0.089
55.00	-12.74	-2.53	0.00	-95.6	0.00	95.58	969.61	230.86	462.73	418.33	3.57	-0.59	0.082
60.00	-11.85	-2.47	0.00	-82.9	0.00	82.94	932.24	221.96	427.76	386.52	4.21	-0.63	0.074
62.92	-11.33	-2.43	0.00	-75.7	0.00	75.74	910.44	216.77	408.00	368.55	4.61	-0.66	0.070
65.00	-10.88	-2.41	0.00	-70.7	0.00	70.67	894.87	213.06	394.17	355.97	4.9	-0.67	0.065
65.75	-10.72	-2.38	0.00	-68.9	0.00	68.87	666.75	162.80	305.95	270.38	5	-0.68	0.071
70.00	-10.03	-2.32	0.00	-58.8	0.00	58.76	651.10	157.11	284.95	254.72	5.62	-0.71	0.062
74.00	-9.39	-2.28	0.00	-49.5	0.00	49.48	635.86	151.76	265.87	240.20	6.23	-0.74	0.054
74.00	-9.39	-2.28	0.00	-49.5	0.00	49.48	635.86	151.76	265.87	240.20	6.23	-0.74	0.221
75.00	-9.29	-2.25	0.00	-47.2	0.00	47.20	631.77	150.42	261.20	236.53	6.39	-0.74	0.215
80.00	-8.78	-2.11	0.00	-36.0	0.00	35.95	603.66	143.73	238.49	215.85	7.23	-0.87	0.181
85.00	-8.45	-2.07	0.00	-25.4	0.00	25.38	575.56	137.04	216.81	196.12	8.2	-0.97	0.144
90.00	-5.39	-1.32	0.00	-15.1	0.00	15.06	547.45	130.35	196.16	177.33	9.26	-1.05	0.095
90.20	-5.35	-1.25	0.00	-14.8	0.00	14.79	546.33	130.08	195.35	176.60	9.3	-1.05	0.094
95.00	-5.08	-1.20	0.00	-8.8	0.00	8.77	519.35	123.65	176.54	159.49	10.39	-1.1	0.065
100.00	0.00	-1.10	0.00	-2.8	0.00	2.77	491.24	116.96	157.96	142.60	11.57	-1.13	0.019

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.201
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.055
Long-Period Transition Period (T_L - Seconds):	6
Importance Factor (I_e):	1.000
Site Coefficient F_a :	1.600
Site Coefficient F_v :	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.214
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.088
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_s :	0.030
Lower Limit C_s :	0.030
Period based on Rayleigh Method (sec):	2.100
Redundancy Factor (p):	1.000
Seismic Force Distribution Exponent (k):	1.800
Total Unfactored Dead Load:	23.470 k
Seismic Base Shear (E):	0.700 k

SEISMIC FORCES

1.2D + 1.0Ev + 1.0Eh

Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
26	97.5	270	1,015	0.023	16	335
25	92.6	267	915	0.021	14	332
24	90.1	11	37	0.001	1	14
23	87.5	324	1,004	0.023	16	403
22	82.5	333	927	0.021	15	413
21	77.5	429	1,069	0.024	17	534
20	74.5	93	215	0.005	3	115
19	72	642	1,401	0.032	22	798
18	67.875	688	1,350	0.030	21	855
17	65.375	162	298	0.007	5	202
16	63.9583	453	799	0.018	13	563
15	61.4583	516	847	0.019	13	641
14	57.5	893	1,301	0.029	21	1,110
13	52.5	904	1,119	0.025	18	1,124
12	47.5	916	946	0.021	15	1,138
11	42.5	927	784	0.018	12	1,152
10	37.5	938	634	0.014	10	1,166
9	33.915	411	232	0.005	4	510
8	31.415	729	358	0.008	6	907
7	29.665	174	77	0.002	1	216
6	27.165	826	313	0.007	5	1,027
5	22.5	965	260	0.006	4	1,199
4	17.5	976	168	0.004	3	1,213
3	12.5	987	93	0.002	1	1,227
2	7.5	998	37	0.001	1	1,241
1	2.5	948	5	0.000	0	1,178
Ericsson AIR 6419 N77G	100	210	827	0.019	13	261
CCI HPA-65R-BUU-H6	100	153	603	0.014	10	190
Raycap DC6-48-60-18-8F (23.5" Height)	100	40	158	0.004	2	50
Raycap DC9-48-60-24-8C-EV	100	16	63	0.001	1	20
Quintel QS66512-2	100	333	1,312	0.030	21	414
CCI DMP65R-BU6DA	100	238	938	0.021	15	296
CCI TPA-65R-BU6DA-K	100	239	941	0.021	15	297
Ericsson AIR 6449 n77D	100	245	964	0.022	15	304
Ericsson RRUS 4415 B25	100	138	544	0.012	9	172
Ericsson RRUS 4449 B5, B12	100	213	839	0.019	13	265
Ericsson RRUS 4478 B14	100	178	702	0.016	11	221
Ericsson RRUS 32 B66A	100	152	599	0.014	9	189

ASSET: 302479, Rkhl - Rocky Hill
 CUSTOMER: VERIZON WIRELESS

CODE: ANSI/TIA-222-H
 PROJECT: 13678056_C3_03

SEISMIC FORCES

1.2D + 1.0Ev + 1.0Eh

Seismic

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
Ericsson RRUS 32 B30	100	180	709	0.016	11	224
Generic Round Platform with Handrails	100	2,500	9,847	0.221	156	3,107
Generic 48" x 16" Panel	90.2	30	98	0.002	2	37
Samsung Outdoor CBRS 20W RRH –Clip-on Antenna	90	13	43	0.001	1	16
Samsung RT4401-48A	90	56	182	0.004	3	69
Samsung B5/B13 RRH-BR04C	90	211	687	0.015	11	262
Samsung B2/B66A RRH-BR049	90	253	825	0.018	13	315
Raycap RCMDC-6627-PF-48	90	64	209	0.005	3	80
Samsung MT6407-77A	90	245	798	0.018	13	304
Andrew LNX-6514DS-VTM	90	99	324	0.007	5	123
Andrew SBNHH-1D65B	90	304	991	0.022	16	378
Round Low Profile Platform	90	1,500	4,889	0.110	77	1,864
RFS APXV18-206517S-C	80	79	209	0.005	3	98
Totals:		23,470	44,500	1.000	704	29,170

SEISMIC FORCES

0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
26	97.5	270	1,015	0.023	16	231
25	92.6	267	915	0.021	14	229
24	90.1	11	37	0.001	1	10
23	87.5	324	1,004	0.023	16	278
22	82.5	333	927	0.021	15	285
21	77.5	429	1,069	0.024	17	368
20	74.5	93	215	0.005	3	80
19	72	642	1,401	0.032	22	550
18	67.875	688	1,350	0.030	21	590
17	65.375	162	298	0.007	5	139
16	63.9583	453	799	0.018	13	388
15	61.4583	516	847	0.019	13	442
14	57.5	893	1,301	0.029	21	766
13	52.5	904	1,119	0.025	18	775
12	47.5	916	946	0.021	15	785
11	42.5	927	784	0.018	12	794
10	37.5	938	634	0.014	10	804
9	33.915	411	232	0.005	4	352
8	31.415	729	358	0.008	6	625
7	29.665	174	77	0.002	1	149
6	27.165	826	313	0.007	5	708
5	22.5	965	260	0.006	4	827
4	17.5	976	168	0.004	3	837
3	12.5	987	93	0.002	1	846
2	7.5	998	37	0.001	1	856
1	2.5	948	5	0.000	0	812
Ericsson AIR 6419 N77G	100	210	827	0.019	13	180
CCI HPA-65R-BUU-H6	100	153	603	0.014	10	131
Raycap DC6-48-60-18-8F (23.5" Height)	100	40	158	0.004	2	34
Raycap DC9-48-60-24-8C-EV	100	16	63	0.001	1	14
Quintel QS66512-2	100	333	1,312	0.030	21	285
CCI DMP65R-BU6DA	100	238	938	0.021	15	204
CCI TPA-65R-BU6DA-K	100	239	941	0.021	15	205
Ericsson AIR 6449 n77D	100	245	964	0.022	15	210
Ericsson RRUS 4415 B25	100	138	544	0.012	9	118
Ericsson RRUS 4449 B5, B12	100	213	839	0.019	13	183
Ericsson RRUS 4478 B14	100	178	702	0.016	11	153
Ericsson RRUS 32 B66A	100	152	599	0.014	9	130
Ericsson RRUS 32 B30	100	180	709	0.016	11	154
Generic Round Platform with Handrails	100	2,500	9,847	0.221	156	2,143
Generic 48" x 16" Panel	90.2	30	98	0.002	2	26
Samsung Outdoor CBRS 20W RRH –Clip-on Antenna	90	13	43	0.001	1	11

ASSET: 302479, Rkhl - Rocky Hill
CUSTOMER: VERIZON WIRELESS

CODE: ANSI/TIA-222-H
PROJECT: 13678056_C3_03

SEISMIC FORCES

0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
Samsung RT4401-48A	90	56	182	0.004	3	48
Samsung B5/B13 RRH-BR04C	90	211	687	0.015	11	181
Samsung B2/B66A RRH-BR049	90	253	825	0.018	13	217
Raycap RCMDC-6627-PF-48	90	64	209	0.005	3	55
Samsung MT6407-77A	90	245	798	0.018	13	210
Andrew LNX-6514DS-VTM	90	99	324	0.007	5	85
Andrew SBNHH-1D65B	90	304	991	0.022	16	261
Round Low Profile Platform	90	1,500	4,889	0.110	77	1,286
RFS APXV18-206517S-C	80	79	209	0.005	3	68
Totals:		23,470	44,500	1.000	704	20,116

1.2D + 1.0Ev + 1.0Eh

Seismic

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-27.99	-0.71	0.00	-62.26	0.00	62.26	1,564.13	420.30	1,180	948.21	0.00	0.00	0.04
5.00	-26.75	-0.71	0.00	-58.72	0.00	58.72	1,541.14	408.73	1,116	908.35	0.01	-0.01	0.04
10.00	-25.52	-0.72	0.00	-55.16	0.00	55.16	1,517.02	397.16	1,053	868.61	0.03	-0.03	0.04
15.00	-24.31	-0.72	0.00	-51.57	0.00	51.57	1,491.76	385.60	993	829.05	0.07	-0.04	0.04
20.00	-23.11	-0.72	0.00	-47.98	0.00	47.98	1,465.37	374.03	934	789.73	0.12	-0.06	0.03
25.00	-22.08	-0.72	0.00	-44.37	0.00	44.37	1,437.84	362.46	877	750.70	0.19	-0.07	0.03
29.33	-21.87	-0.72	0.00	-41.26	0.00	41.26	1,413.08	352.44	830	717.19	0.26	-0.08	0.03
30.00	-20.96	-0.72	0.00	-40.78	0.00	40.78	1,409.18	350.89	822	712.03	0.27	-0.08	0.03
32.83	-20.45	-0.71	0.00	-38.75	0.00	38.75	1,130.06	270.32	634	571.84	0.32	-0.09	0.04
35.00	-19.28	-0.70	0.00	-37.20	0.00	37.20	1,119.11	266.45	616	558.13	0.36	-0.10	0.03
40.00	-18.13	-0.69	0.00	-33.68	0.00	33.68	1,081.73	257.56	576	521.29	0.47	-0.11	0.03
45.00	-16.99	-0.68	0.00	-30.21	0.00	30.21	1,044.36	248.66	537	485.71	0.60	-0.12	0.03
50.00	-15.87	-0.66	0.00	-26.81	0.00	26.81	1,006.99	239.76	499	451.39	0.73	-0.13	0.03
55.00	-14.76	-0.64	0.00	-23.50	0.00	23.50	969.61	230.86	463	418.33	0.88	-0.15	0.03
60.00	-14.12	-0.63	0.00	-20.29	0.00	20.29	932.24	221.96	428	386.52	1.04	-0.16	0.02
62.92	-13.56	-0.62	0.00	-18.45	0.00	18.45	910.44	216.77	408	368.55	1.14	-0.16	0.02
65.00	-13.35	-0.61	0.00	-17.17	0.00	17.17	894.87	213.06	394	355.97	1.21	-0.17	0.02
65.75	-12.50	-0.59	0.00	-16.71	0.00	16.71	666.75	162.80	306	270.38	1.23	-0.17	0.02
70.00	-11.70	-0.57	0.00	-14.21	0.00	14.21	651.10	157.11	285	254.72	1.39	-0.18	0.02
74.00	-11.59	-0.56	0.00	-11.94	0.00	11.94	635.86	151.76	266	240.20	1.54	-0.18	0.07
74.00	-11.59	-0.56	0.00	-11.94	0.00	11.94	635.86	151.76	266	240.20	1.54	-0.18	0.02
75.00	-11.05	-0.55	0.00	-11.38	0.00	11.38	631.77	150.42	261	236.53	1.57	-0.18	0.07
80.00	-10.54	-0.53	0.00	-8.64	0.00	8.64	603.66	143.73	238	215.85	1.78	-0.21	0.06
85.00	-10.14	-0.52	0.00	-5.98	0.00	5.98	575.56	137.04	217	196.12	2.02	-0.24	0.05
90.00	-6.71	-0.36	0.00	-3.38	0.00	3.38	547.45	130.35	196	177.33	2.28	-0.26	0.03
90.20	-6.34	-0.35	0.00	-3.31	0.00	3.31	546.33	130.08	195	176.60	2.29	-0.26	0.03
95.00	-6.01	-0.33	0.00	-1.65	0.00	1.65	519.35	123.65	177	159.49	2.55	-0.27	0.02
100.00	0.00	-0.30	0.00	0.00	0.00	0.00	491.24	116.96	158	142.60	2.84	-0.27	0.00

0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-19.30	-0.71	0.00	-61.25	0.00	61.25	1,564.13	420.30	1,180	948.21	0.00	0.00	0.04
5.00	-18.45	-0.71	0.00	-57.72	0.00	57.72	1,541.14	408.73	1,116	908.35	0.01	-0.01	0.03
10.00	-17.60	-0.71	0.00	-54.18	0.00	54.18	1,517.02	397.16	1,053	868.61	0.03	-0.03	0.03
15.00	-16.77	-0.71	0.00	-50.62	0.00	50.62	1,491.76	385.60	993	829.05	0.07	-0.04	0.03
20.00	-15.94	-0.71	0.00	-47.05	0.00	47.05	1,465.37	374.03	934	789.73	0.12	-0.06	0.03
25.00	-15.23	-0.71	0.00	-43.49	0.00	43.49	1,437.84	362.46	877	750.70	0.18	-0.07	0.03
29.33	-15.08	-0.71	0.00	-40.42	0.00	40.42	1,413.08	352.44	830	717.19	0.25	-0.08	0.03
30.00	-14.46	-0.70	0.00	-39.94	0.00	39.94	1,409.18	350.89	822	712.03	0.26	-0.08	0.03
32.83	-14.10	-0.70	0.00	-37.95	0.00	37.95	1,130.06	270.32	634	571.84	0.32	-0.09	0.03
35.00	-13.30	-0.69	0.00	-36.42	0.00	36.42	1,119.11	266.45	616	558.13	0.36	-0.10	0.03

ASSET: 302479, Rkhl - Rocky Hill
CUSTOMER: VERIZON WIRELESS

CODE: ANSI/TIA-222-H
PROJECT: 13678056_C3_03

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
40.00	-12.50	-0.68	0.00	-32.96	0.00	32.96	1,081.73	257.56	576	521.29	0.47	-0.11	0.03
45.00	-11.72	-0.67	0.00	-29.55	0.00	29.55	1,044.36	248.66	537	485.71	0.59	-0.12	0.03
50.00	-10.94	-0.65	0.00	-26.21	0.00	26.21	1,006.99	239.76	499	451.39	0.72	-0.13	0.03
55.00	-10.18	-0.63	0.00	-22.96	0.00	22.96	969.61	230.86	463	418.33	0.86	-0.14	0.02
60.00	-9.74	-0.62	0.00	-19.81	0.00	19.81	932.24	221.96	428	386.52	1.02	-0.15	0.02
62.92	-9.35	-0.60	0.00	-18.01	0.00	18.01	910.44	216.77	408	368.55	1.11	-0.16	0.02
65.00	-9.21	-0.60	0.00	-16.75	0.00	16.75	894.87	213.06	394	355.97	1.18	-0.16	0.02
65.75	-8.62	-0.58	0.00	-16.30	0.00	16.30	666.75	162.80	306	270.38	1.21	-0.16	0.02
70.00	-8.07	-0.55	0.00	-13.85	0.00	13.85	651.10	157.11	285	254.72	1.36	-0.17	0.02
74.00	-7.99	-0.55	0.00	-11.64	0.00	11.64	635.86	151.76	266	240.20	1.51	-0.18	0.06
74.00	-7.99	-0.55	0.00	-11.64	0.00	11.64	635.86	151.76	266	240.20	1.51	-0.18	0.02
75.00	-7.62	-0.54	0.00	-11.08	0.00	11.08	631.77	150.42	261	236.53	1.54	-0.18	0.06
80.00	-7.27	-0.52	0.00	-8.41	0.00	8.41	603.66	143.73	238	215.85	1.75	-0.21	0.05
85.00	-6.99	-0.50	0.00	-5.81	0.00	5.81	575.56	137.04	217	196.12	1.98	-0.23	0.04
90.00	-4.63	-0.35	0.00	-3.29	0.00	3.29	547.45	130.35	196	177.33	2.23	-0.25	0.03
90.20	-4.37	-0.34	0.00	-3.22	0.00	3.22	546.33	130.08	195	176.60	2.24	-0.25	0.03
95.00	-4.14	-0.32	0.00	-1.60	0.00	1.60	519.35	123.65	177	159.49	2.50	-0.26	0.02
100.00	0.00	-0.30	0.00	0.00	0.00	0.00	491.24	116.96	158	142.60	2.78	-0.27	0.00

ANALYSIS SUMMARY

Load Case	Base Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	14.28	0.00	28.13	0.00	0.00	1120.23	74.00	0.92
0.9D + 1.0W	14.26	0.00	21.09	0.00	0.00	1105.46	74.00	0.9
1.2D + 1.0Di + 1.0Wi	5.68	0.00	48.13	0.00	0.00	423.11	74.00	0.31
1.2D + 1.0Ev + 1.0Eh	0.72	0.00	27.99	0.00	0.00	62.26	74.00	0.07
0.9D - 1.0Ev + 1.0Eh	0.71	0.00	19.30	0.00	0.00	61.25	74.00	0.06
1.0D + 1.0W	3.30	0.00	23.47	0.00	0.00	257.07	74.00	0.22

ADDITIONAL STEEL SUMMARY

Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors				Max Member		
			VQ/I (k/in)	Shear Applied (kips)	phiVn (kips)	Ratio	Pu (kip)	phiPn (kip)	Ratio
0.00	74.00	SOL #20 All Thread Bar	295.6	8.9	16.8	0.5276	204.3	330.5	0.6181

Elev From (ft)	Elev To (ft)	Member	Upper Termination Connectors					Lower Termination Connectors				
			MQ/I (kips)	phiVn (kips)	Number Required	Number Actual	Ratio	MQ/I (kips)	phiVn (kip)	Number Required	Number Actual	Ratio
0.00	74.00	SOL #20 All Thread Bar	77.1991	12	7	7	0.9190	0	12	0	0	0.0000

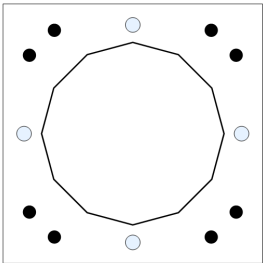
BASE PLATE ANALYSIS @ 0 FT

APPLIED REACTIONS

Moment (k-ft)	Axial (k)	Shear (k)
1120.23	28.13	14.28

PLATE PARAMETERS (ID# 22102)

Width:	44	in
Shape:	Square	
Thickness:	2	in
Grade:	A572-60	
Yield Strength:	60	ksi
Tensile Strength:	75	ksi
Clip Length:	0	in
Rod Detail Type:	c	
Clear Distance	-	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Elastic	
Neutral Axis:	45	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	F _y (ksi)	F _u (ksi)	Spacing (in)	Offset (°)
Original [ID#22686]	Cluster	8	2.25	44	A615-75	75	100	6	-

DYWIDAG BAR PARAMETERS

Quantity	Bar Size	Bar Diameter (in)	F _y (ksi)	F _u (ksi)	Bracket Type	Bracket Offset (in)	Circle (in)	Offset (°)
4 [ID# 1882]	#20	2.5	80	100	Angle	2.19	36.88	-

COMPONENT PROPERTIES

Component	ID	Gross Area (in²)	Net Area (in²)	Individual Inertia (in⁴)	Moment of Inertia (in⁴)	Threads/in
Pole	30"ø x 0.25" (12 Sides)	23.0996	-	-	2556.06	-
Bolt Group	Original (8) 2.25"ø	3.9761	3.2477	0.8393	5566.40	4.5
Dywidag Group	(4) #20	4.9087	4.9087	1.9175	3345.94	-

REACTION DISTRIBUTION

Component	ID	Moment M _u (k-ft)	Axial Load P _u (k)	Shear V _u (k)	Moment Factor
Pole	30"ø x 0.25" (12 Sides)	485.2	28.13	14.28	0.433
Bolt Group	Original (8) 2.25"ø	485.2	-	14.28	0.433
Dywidag Group	(4) #20	635.1	-	-	0.567

BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES					PLATE PROPERTIES		
Flat-to-Flat Diameter:	30.12	in	Flat Width:	8.072	in	Neutral Axis:	45°
Point-to-Point Diameter:	31.19	in	Flat Radians:	0.524	rad		
Orientation Offset:	-	°					
Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in³)	Applied Moment M _u (k-in)	Moment Capacity ΦM _n (k-in)	Flexure Result M _u /ΦM _n	
Flats	32.100	0.00	32.100	773.0	1733.4	44.6%	✓
Corners	31.038	0.00	31.038	697.4	1676.0	41.6%	✓

ELASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load P_u (k)	Applied Shear Load V_u (k)	Compressive Capacity ΦP_n (k)	Compressive Result	Interaction Result
Original	8	2.25	71.1	0.4	243.6	0.292	8.5% 

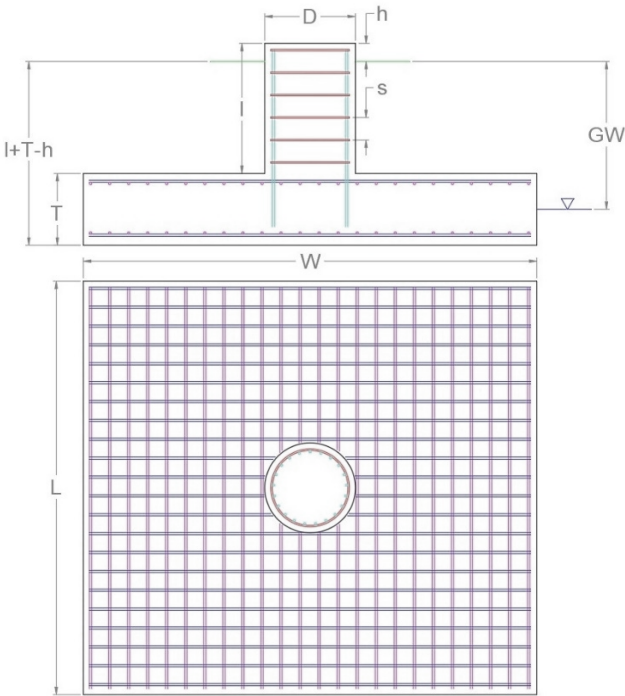
DYWIDAG BAR ANALYSIS

Group Quantity	Bar Size	Bar Circle (in)	Applied Axial Load P_u (k)	Compressive Capacity ΦP_n (k)	Compressive Result $P_u / \Phi P_n$
4	#20	36.88	149.8	368.2	40.7% 

MONOLITHIC MAT & PIER FOUNDATION ANALYSIS

APPLIED GLOBAL REACTIONS		
Moment (k-ft)	Axial (k)	Shear (k)
1,120.23	28.13	14.28

FOUNDATION PARAMETERS			
Mat Length:	L	18	ft
Mat Width:	W	18	ft
Mat Thickness:	T	3	ft
Base Depth:	L+T-h	8	ft
Pier Shape:		Square	
Pier Width:	D	6	ft
Pier Height above Grade:	h	0.5	ft
Concrete Compressive Strength:		3,000	psi
Mat Top Rebar:		(35) #5 bars [60 ksi]	
Mat Bottom Rebar:		(35) #10 bars [60 ksi]	
Pier Vertical Rebar:		(14) #11 bars [60 ksi]	
Pier Rebar Ties:	s	#4 bars @ 12.0" c/c [60 ksi]	
Rebar Clear Cover:		3.0	in
Tower Eccentricity:	ecc	0	ft
Tower Leg Count		1	



SOIL PARAMETERS		
Water Table Depth [BGL]:	GW	ft
Soil Unit Weight:		100 pcf
Ultimate Skin Friction:		0 psf
Ultimate Bearing Pressure:		30,000 psf
Bearing Pressure Type:		Gross
Coefficient of Shear Friction:		0.35

SOIL STRENGTH ANALYSIS			
Soil Strength Reduction Factor, Φ_s	Uplift Strength Reduction Factor, Φ_s	Asset Dead Load Factor	Dead Load Factor
0.75	0.75	0.9	1.2

SOIL OVERTURNING ANALYSIS		
Design Moment, $M_{u,Design}$ (k-ft)	Nominal Overturning Capacity, $\Phi_m M_n$ (k-ft)	Soil Overturning Usage, $M_{u,Design} / \Phi_m M_n$
1,241.61	3,033.94	40.9%

SOIL BEARING ANALYSIS			
Net Bearing Pressure, $P_{u,Net}$ (psf)	Nominal Bearing Capacity, $\Phi_b P_n$ (k-ft)	Bearing Pressure Controlling Load Direction	Soil Bearing Usage, $P_{u,net} / \Phi_b P_n$
1,683.00	22,500.00	Diagonal to Pad Edge	7.5%

SOIL SLIDING SHEAR ANALYSIS					
Applied Shear Force, V_u (k)	Friction Resistance (k)	Passive Pressure (psf)	Passive Pressure Resistance (k)	Nominal Shear Capacity, $\Phi_s V_n$ (k)	Soil Sliding Shear Usage, $V_u / \Phi_s V_n$
14.28	0.00	650.0	35.10	116.35	12.0%

MAT REINFORCING STEEL STRENGTH ANALYSIS

Steel Elastic Modulus, E (ksi)	Strength Bending/Tension Reduction Factor, Φ_b	Strength Shear Reduction Factor, Φ_v	Strength Compression Reduction Factor, Φ_c
29,000	0.9	0.75	0.65

MAT REINFORCING ONE WAY SHEAR ANALYSIS

One Way Design Shear, V_u (k)	Nominal One Way Shear Capacity, $\Phi_c V_n$ (k)	One Way Shear Controlling Load Direction	Mat One Way Shear Usage, $V_u / \Phi_c V_n$
44.27	443.37	Diagonal to Pad Edge	10.0% 

MAT REINFORCING PUNCHING SHEAR ANALYSIS

Punching Shear Design Stress, v_u (psi)	Nominal Punching Shear Capacity, $\Phi_c V_n$ (psi)	Mat Punching Shear Usage, $v_u / \Phi_c V_n$
16.9	164.3	10.3% 

MAT REINFORCING MOMENT TRANSFER ANALYSIS

Moment Transfer Effective Flexural Width, w_t (in)	Neutral Axis Depth (in)	Pier Moment at Joint, M_{ut} (k-in)	Nominal Moment Transfer Capacity, $\Phi M_{sc,f}$ (k-in)	Mat Moment Transfer Usage, $0.6 M_{ut} / \Phi M_{sc,f}$
15.00	5.02	0.00	61,401.1	0.0% 

MAT REINFORCING FLEXURE ANALYSIS – UPPER STEEL

Factored Moment, M_u (k-ft)	Nominal Flexural Capacity, ΦM_n (k-ft)	Flexural Steel Controlling Load Direction	Mat Upper Rebar Flexure Usage, $M_u / \Phi M_n$
307.80	1,525.67	Parallel to Pad Edge	20.2% 

MAT REINFORCING FLEXURE ANALYSIS – LOWER STEEL

Factored Moment, M_u (k-ft)	Nominal Flexural Capacity, ΦM_n (k-ft)	Flexural Steel Controlling Load Direction	Mat Lower Rebar Flexure Usage, $M_u / \Phi M_n$
385.60	5,939.17	Parallel to Pad Edge	6.5% 

PIER REINFORCING STEEL STRENGTH ANALYSIS

Rebar Cage Diameter (in)	Steel Elastic Modulus, E (ksi)	Strength Bending/Tension Reduction Factor, Φ_b	Strength Shear Reduction Factor, Φ_v	Strength Compression Reduction Factor, Φ_c
63.62	29,000	0.9	0.75	0.65

PIER REINFORCING MOMENT ANALYSIS

Design Moment, M_u (k-ft)	Nominal Moment Capacity, $\Phi_b M_n$ (k-ft)	Bending Reinforcement Ratio	Pier Rebar Flexure Usage, $M_u / \Phi_b M_n$
1,198.77	3,069.41	0.004	39.1% 

PIER REINFORCING COMPRESSION ANALYSIS

Design Compression, P_u (k)	Nominal Compressive Capacity, $\Phi_p P_n$ (k)	Pier Rebar Compressive Usage, $P_u / \Phi_p P_n$
28.13	6,893.70	0.4% 

PIER REINFORCING SHEAR ANALYSIS

Design Shear, V_u (k)	Nominal Shear Capacity, $\Phi_v V_n$ (k)	Pier Rebar Shear Usage, $V_u / \Phi_v V_n$
14.28	513.46	2.8% 