

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

March 24, 2020

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

**RE: Notice of Exempt Modification // Site: Wallingford 3 CT (ATC: 302467)
90 North Plains Industrial Road, Wallingford, CT 06492
N 41.4807 // W -72.8177**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless currently maintains 12 antennas at the 138-foot mount on the existing 178.5-foot monopole tower, located at 90 North Plains Industrial Road, Wallingford, CT. The tower is owned by American Tower. The Council approved Verizon Wireless use of this tower in 2001. Verizon Wireless now intends to replace 3 existing antennas with 3 new antennas with integrated remote radio head unit (RRUs) clip-ons and update existing equipment as part of its PCS/AWS/LTE/CBRS (700/850/1900/2100/3500 MHz) upgrade. Additionally, Verizon Wireless will replace all of its remaining remote radio head units (RRUs) with 6 other new RRUs and 3 new diplexers, and remove and upgrade certain cabling; 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 William W. Dickinson, Jr., Mayor for the Town of Wallingford, Town Planner Kacie Hand, including for its Planning & Zoning Department, American Tower, the current tower owner, and the ground owner, R L R Investments LLC.

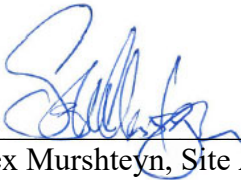
The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2). Enclosed to accommodate this filing are construction drawings by dated March 20, 2020, structural analysis dated December 19, 2019 and antenna

mount analysis dated January 24, 2020, as well as 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 and mount analyses by A.T. Engineering Service, PLLC, dated December 19, 2019 and January 24, 2020, respectively.

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,



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

Attachments

cc: William W. Dickinson, Jr., Mayor - as elected official
Kacie Hand, Town Planner - as P&Z official
American Tower Corporation - as tower owner
R L R Investments LLC - as property owner



Town of Wallingford, Connecticut

WILLIAM E. AUSTIN
CHAIRMAN PLANNING & ZONING COMMISSION

LINDA A. BUSH, AICP
TOWN PLANNER

WALLINGFORD TOWN HALL
45 SOUTH MAIN STREET
WALLINGFORD, CT 06482
TELEPHONE (203) 294-2090

LEGAL NOTICE

At a February 8, 1999 meeting, the Wallingford Planning and Zoning Commission voted to take the following actions.

They voted to approve:

1. A Site Plan for a 592 sq.ft. Accessory Apartment for Leary and Sveitiks at 209 Williams Road. Zoned RU-120 #201-99
2. A Site Plan of Nextel Communications for a 180 foot high wireless telecommunications monopole with a 200 sq.ft. equipment building at 90 North Plains Industrial Road. Zoned I-40 #202-99
3. A Site Plan for a 448 sq.ft. Accessory Apartment for Woronick at 23 North Branford Road. Zoned RU-120 #203-99
4. The application of the Wallingford Planning and Zoning Commission to amend Section 7.4. (the signing and sealing of maps) of the Wallingford Zoning Regulations. #905-98
5. The application of the Wallingford Planning and Zoning Commission to add Section 6.28. (guardrail installation) and Section 6.29. (fire protection) to the Wallingford Zoning Regulations. #905-98
6. The application of the Wallingford Planning and Zoning Department to amend Section VI D (streetline monuments), Section VI B (property corner markers), and Section V J.2. (certification of pins and monuments) of the Wallingford Subdivision Regulations. #906-98

Several of the above were approved with conditions.

WALLINGFORD PLANNING AND ZONING COMMISSION

Armand Menard

ARMAND MENARD, SECRETARY

DATED AT WALLINGFORD
February 09, 1999

PUBLICATION DATED
February 13, 1999

*Town of Wallingford, Connecticut***CERTIFIED LETTER #7-597-210-404**

WILLIAM E. AUSTIN

CHIEF PLANNING & ZONING COMMISSIONER

LINDA A. BUSH, AICP

TOWN PLANNER

WALLINGFORD TOWN HALL
45 SOUTH MAIN STREET
WALLINGFORD, CT 06492
TELEPHONE (203) 294-2090

February 10, 1999

*Nextel Communications of the Mid-Atlantic, Inc.
100 Corporate Drive
Rocky Hill, CT 06067***RE: SITE PLAN APPLICATION #202-99
90 North Plains Industrial Road**

Gentlemen:

*Enclosed is a Legal Notice of Action taken by the Planning and Zoning Commission at their meeting held on February 8, 1999, on the above-referenced application.**Your application for:**A 180 foot high wireless telecommunications facility, with a
200 sq.ft. utility building**has been approved with the conditions listed on the enclosed Zoning Permit.**Please forward to this office four (4) copies of your final plans.**Should you have any questions regarding this matter please contact this office.*

Sincerely,

**Thomas M. Talbot
Assistant Town Planner**

Enclosure

/ss

TOWN OF WALLINGFORD, CONNECTICUT
 BUILDING DEPARTMENT
 45 SOUTH MAIN STREET
 TELEPHONE NO. (203) 294-2005

BUILDING PERMIT

AMOUNT PAID
 APPLICANT COPY
 THIS PERMIT NOT VALID UNLESS
 PROPERLY RECEIVED BY CASHIER
 C/C # 0722
 VALIDATION

PERMIT NO. **13740**

APPLICANT 3 MIET A.C.S. SOFT SITE DATE 3-12-01 ADDRESS 541 SPRING ST. WINDSOR - STREETS CT. (CONTR'S LICENSE)

PERMIT TO REPAIR (TYPE OF IMPROVEMENT) () STORY NO. 13 (PROPOSED USE) NUMBER OF DWELLING UNITS

AT (LOCATION) 70 No. Plains Rd (NO.) (STREET) ZONING DISTRICT 2-400
 BETWEEN (CROSS STREET) AND (CROSS STREET)

SUBDIVISION LOT BLOCK LOT SIZE

BUILDING IS TO BE FT. WIDE BY FT. LONG BY FT. IN HEIGHT AND SHALL CONFORM IN CONSTRUCTION

TO TYPE USE GROUP 5 BASEMENT WALLS OR FOUNDATION (TYPE)

REMARKS: REPAIR ON EXIST BLDG

AREA OR VOLUME (CUBIC/SQUARE FEET) ESTIMATED COST \$ 10,000 PERMIT FEE \$ 475

OWNER MIET A.C.S. ADDRESS 541 SPRING ST. WINDSOR CT. BUILDING DEPT. BY [Signature]

FORM NO. BOCA - BP 1994

- MINIMUM OF THREE CALLED INSPECTIONS REQUIRED FOR ALL CONSTRUCTION WORK:
- FOUNDATIONS OR FOOTINGS.
 - PRIOR TO COVERING STRUCTURAL MEMBERS (READY FOR LAH) OR FINISH COVERING)
 - FINAL INSPECTION BEFORE OCCUPANCY

APPROVED PLANS MUST BE RETAINED ON JOB AND THIS CARD KEPT POSTED UNTIL FINAL INSPECTION HAS BEEN MADE. WHERE A CERTIFICATE OF OCCUPANCY IS REQUIRED, SUCH BUILDING SHALL NOT BE OCCUPIED UNTIL FINAL INSPECTION HAS BEEN MADE.

PERMITS ARE REQUIRED FOR ELECTRICAL, PLUMBING AND MECHANICAL INSTALLATIONS

POST THIS CARD SO IT IS VISIBLE FROM STREET

BUILDING INSPECTION APPROVALS	PLUMBING INSPECTION APPROVALS	ELECTRICAL INSPECTION APPROVALS
1	1	1
2	2	2
3	HEATING INSPECTION APPROVALS	REFRIGERATION INSPECTION APPROVALS
	1	1
OTHER	2	2

WORK SHALL NOT PROCEED UNTIL THE INSPECTOR HAS APPROVED THE VARIOUS STAGES OF CONSTRUCTION.

PERMIT WILL BECOME NULL AND VOID IF CONSTRUCTION WORK IS NOT STARTED WITHIN SIX MONTHS OF DATE THE PERMIT IS ISSUED AS NOTED ABOVE.

INSPECTIONS INDICATED ON THIS CARD CAN BE ARRANGED FOR BY TELEPHONE OR WRITTEN NOTIFICATION



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 178.5 ft Monopole
ATC Site Name : Bilkays Express, CT
ATC Asset Number : 302467
Engineering Number : 13014253_C3_01
Proposed Carrier : Verizon Wireless
Carrier Site Name : Wallingford III
Carrier Site Number : 469297
Site Location : 90 North Plains Industrial Rd.
Wallingford, CT 06492-2334
41.480800,-72.817700
County : New Haven
Date : December 19, 2019
Max Usage : 57%
Result : Pass

Prepared By:
Peter Giordano
Structural Engineer II

Reviewed By:



COA: PEC.0001553



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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 178.5 ft monopole to reflect the change in loading by VERIZON WIRELESS.

Supporting Documents

Tower Drawings	FWT Job #18357, dated March 19, 1999
Foundation Drawing	FWT Job #18357, dated March 19, 1999
Geotechnical Report	Tectonic Work Order #1170.C947C, dated March 11, 1999

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:	97 mph (3-Second Gust, Vasd) / 115 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.24$, $S_1 = 0.06$
Site Class:	D - Stiff Soil

Conclusion

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

If 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 and Reserved Equipment

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
182.0	12	Decibel DB844H90E-XY	Low Profile Platform	(12) 1 5/8" Coax	SPRINT NEXTEL
171.0	1	DragonWave A-ANT-11G-2-C	Clearwire Side Arm	(2) 1/2" Coax (6) 5/16" (0.31"-7.9mm) Coax (1) 2" conduit	CLEARWIRE CORPORATION
	3	Argus LLPX310R			
	3	NextNet BTS-2500			
	2	DragonWave Horizon Compact			
	1	DragonWave A-ANT-18G-2-C			
165.0	1	Generic 18" x 12" Junction Box			
160.0	3	Ericsson RRUS 32 B2	Low Profile Platform	(2) 0.39" (10mm) Fiber Trunk (6) 0.78" (19.7mm) 8 AWG 6 (12) 1 5/8" Coax (3) 2" conduit (2) 3" conduit (1) 3/8" (0.38"-9.5mm) RET Control Cable	AT&T MOBILITY
	3	Ericsson RRUS 11 (Band 7)			
	3	Ericsson RRUS-32 (77 lbs)			
	1	Raycap DC6-48-60-18-8C-EV			
	3	Powerwave Allgon 7770.00			
	3	Ericsson RRUS 4478 B5 (56.1 lbs)			
	3	Ericsson RRUS 4478 B14			
	3	Ericsson RRUS 4426 B66			
	2	Raycap DC6-48-60-18-8F (23.5" Height)			
	6	Powerwave Allgon LGP21401			
	9	Kaelus DBCT108F1V92-1			
	6	Powerwave Allgon 7020			
	3	Quintel QS66512-2			
	3	Kathrein Scala 80010965			
3	CCI OPA-65R-LCUU-H6				
152.0	3	Ericsson RRUS 11 B12			
148.0	3	Ericsson KRY 112 144/1	T-Arm with Platform	(2) 1 1/4" (1.25"-31.8mm) Fiber (1) 1 1/4" Hybriflex Cable (12) 1 5/8" Coax	T-MOBILE
	3	Ericsson Radio 4449 B12,B71			
	3	Ericsson AIR 21, 1.3 M, B2A B4P			
	3	Ericsson AIR32 B66Aa/B2a			
	3	RFS APXVAARR24_43-U-NA20			
138.0	3	Amphenol Antel BXA-80063-6BF-EDIN-X	Low Profile Platform	(12) 1 5/8" Coax (2) 1 5/8" Hybriflex	VERIZON WIRELESS
	2	RFS DB-T1-6Z-8AB-OZ			
	6	Commscope JAHH-65B-R3B			
128.0	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax (1) 7/8" Coax	METRO PCS INC
	1	Nortel NTGB01MA			
122.0	3	Alcatel-Lucent 1900 MHz 4X45 RRH	Low Profile Platform	(4) 1 1/4" Hybriflex Cable	SPRINT NEXTEL
	3	Alcatel-Lucent 800 MHz RRH			
	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
118.0	3	RFS APXV9TM14-ALU-I20*			
	3	RFS APXVSPP18-C-A20			
20.0	1	PCTEL GPS-TMG-HR-26N	Stand-Off	(1) 1/2" Coax	



Equipment to be Removed

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
138.0	3	Nokia B5 RRH4x40-850	-	(6) 1 5/8" Coax	VERIZON WIRELESS
	3	Alcatel-Lucent RRH 2X60-1900			
	3	Commscope SBNHH-1D65B			
	3	Alcatel-Lucent B66A RRH4x45-4R w/o Solar Shield			
	3	Alcatel-Lucent RRH2x60 700			

Proposed Equipment

Elev. ¹ (ft)	Qty	Antenna	Mount Type	Lines	Carrier
138.0	3	Commscope CBC78T-DS-43-2X	Low Profile Platform	-	VERIZON WIRELESS
	3	Samsung Outdoor CBRS 20W RRH			
	3	Samsung Outdoor CBRS 20W RRH –Clip-on Antenna			
	6	Samsung B5/B13 RRH-BR04C			
	6	Samsung B2/B66A RRH-BR049			

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

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	57%	Pass
Shaft	51%	Pass
Base Plate	10%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	4,523.7	56%
Axial (Kips)	140.3	26%
Shear (Kips)	36.5	50%

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



Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
171.0	DragonWave A-ANT-11G-2-C	CLEARWIRE CORPORATION	1.160	0.704
	DragonWave A-ANT-18G-2-C			
138.0	Commscope CBC78T-DS-43-2X	VERIZON WIRELESS	0.768	0.642
	Samsung Outdoor CBRS 20W RRH			
	Samsung Outdoor CBRS 20W RRH -Clip-on Antenna			
	Samsung B5/B13 RRH-BR04C			
	Samsung B2/B66A RRH-BR049			

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



Standard Conditions

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

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

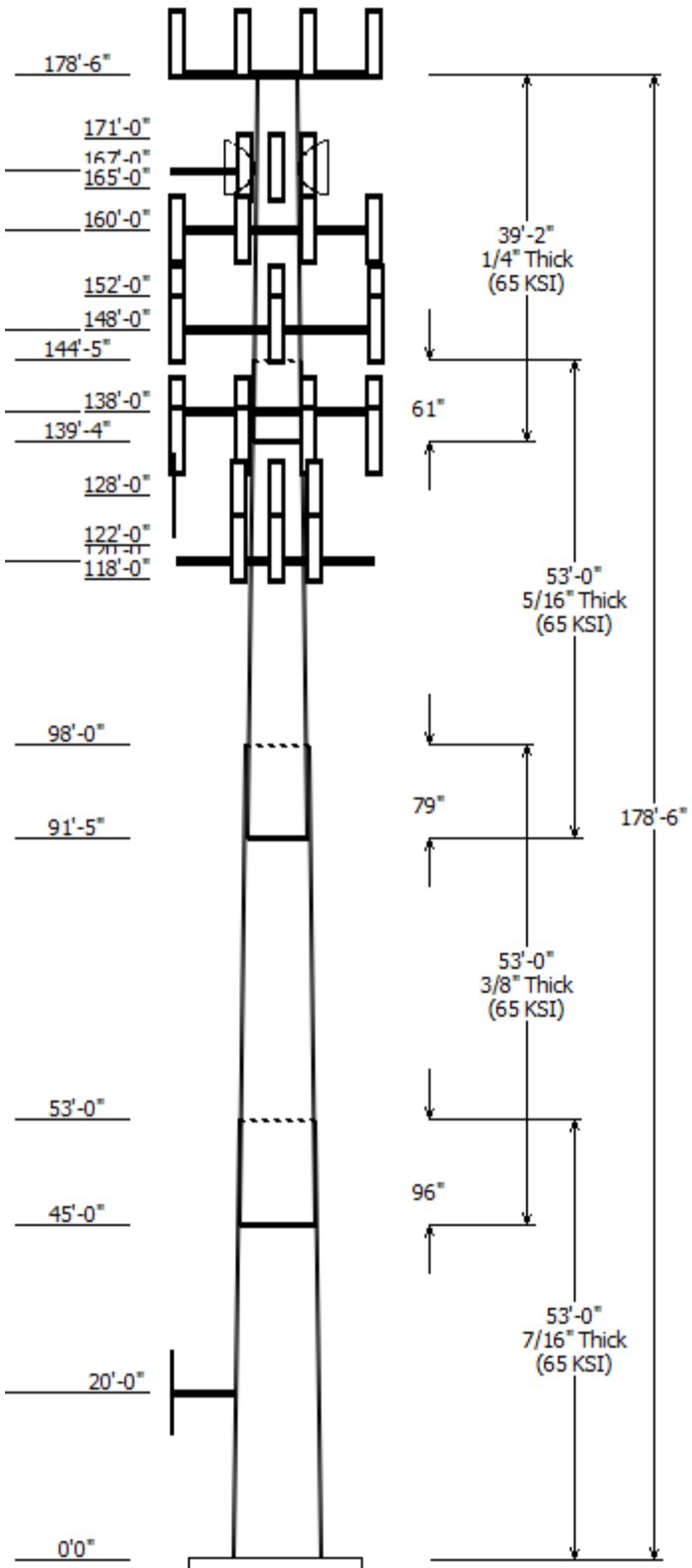
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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

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

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

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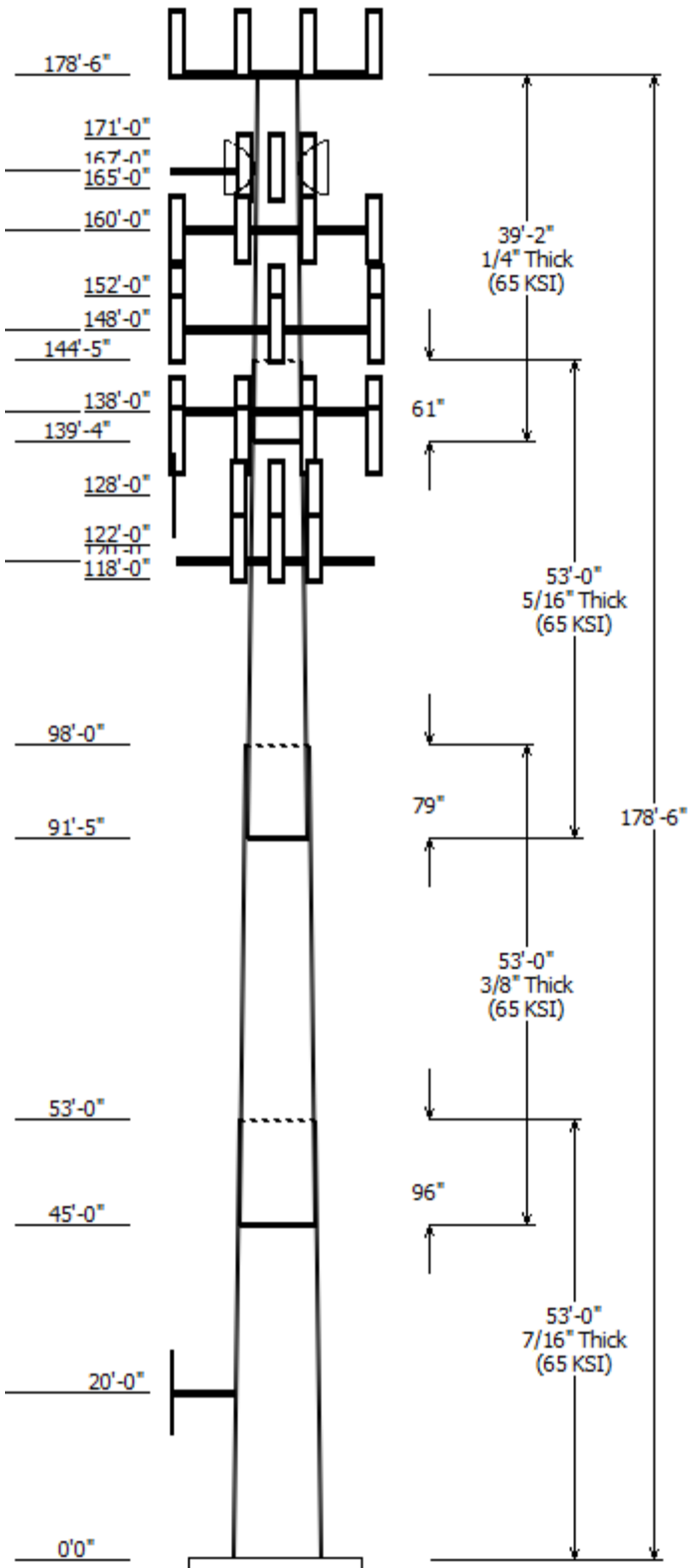


Job Information	
Client : VERIZON WIRELESS	Code: ANSI/TIA-222-G
Pole : 302467	
Location : Bilkays Express, CT	Struct Class : II
Description : 178.5' FWT Monopole	Exposure : B
Shape : 18 Sides	Topo : 1
Height : 178.50 (ft)	
Base Elev (ft): 0.00	
Taper: 0.25140(in/ft)	

Sections Properties							
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Steel Grade
		Across Flats Top	Across Flats Bottom				
1	53.000	58.67	72.00	0.438		0.000	18 Sides 65
2	53.000	48.11	61.43	0.375	Slip Joint	96.000	18 Sides 65
3	53.000	37.06	50.39	0.313	Slip Joint	79.000	18 Sides 65
4	39.167	29.00	38.84	0.250	Slip Joint	61.000	18 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
178.500	182.000	12	Decibel DB844H90E-XY
178.500	178.500	1	Flat Low Profile Platform
171.000	168.000	1	DragonWave A-ANT-18G-2-C
171.000	168.000	1	DragonWave A-ANT-11G-2-C
171.000	168.000	3	Argus LLPX310R
171.000	168.000	3	NextNet BTS-2500
171.000	168.000	2	DragonWave Horizon Compact
167.000	167.000	1	Side Arms
165.000	165.000	1	Generic 18" x 12" Junction Box
160.000	160.000	1	Flat Low Profile Platform
160.000	160.000	3	Kathrein Scala 80010965
160.000	160.000	3	CCI OPA-65R-LCUU-H6
160.000	160.000	3	Quintel QS66512-2
160.000	160.000	3	Powerwave Allgon 7770.00
160.000	160.000	1	Raycap DC6-48-60-18-8C-EV
160.000	160.000	3	Ericsson RRUS-32 (77 lbs)
160.000	160.000	3	Ericsson RRUS 11 (Band 7)
160.000	158.000	3	Ericsson RRUS 32 B2
160.000	160.000	3	Ericsson RRUS 4478 B5 (56.1 lb
160.000	160.000	3	Ericsson RRUS 4478 B14
160.000	160.000	3	Ericsson RRUS 4426 B66
160.000	160.000	2	Raycap DC6-48-60-18-8F (23.5"
160.000	160.000	6	Powerwave Allgon LGP21401
160.000	160.000	9	Kaelus DBCT108F1V92-1
160.000	160.000	6	Powerwave Allgon 7020
152.000	152.000	3	Ericsson RRUS 11 B12
148.000	148.000	1	T-Arm with Platform
148.000	148.000	3	RFS APXVAARR24_43-U-NA20
148.000	148.000	3	Ericsson AIR32 B66Aa/B2a
148.000	152.000	3	Ericsson AIR 21, 1.3 M, B2A B4
148.000	148.000	3	Ericsson Radio 4449 B12,B71
148.000	152.000	3	Ericsson KRY 112 144/1
138.000	138.000	1	Round Low Profile Platform
138.000	136.000	6	Commscope JAHH-65B-R3B
138.000	138.000	3	Amphenol Antel BXA-80063-
138.000	140.000	2	RFS DB-T1-6Z-8AB-0Z
138.000	138.000	6	Samsung B2/B66A RRH-BR049
138.000	138.000	6	Samsung B5/B13 RRH-BR04C
138.000	138.000	3	Samsung Outdoor CBRS 20W
138.000	138.000	3	Samsung Outdoor CBRS 20W
138.000	138.000	3	Commscope CBC78T-DS-43-2X
128.000	128.000	3	RFS APXV18-206517S-C
128.000	128.000	1	Nortel NTGB01MA
122.000	122.000	3	Alcatel-Lucent TD-RRH8x20-25

122.000	122.000	3	Alcatel-Lucent 1900 MHz 4X45
122.000	122.000	3	Alcatel-Lucent 800 MHz RRH
120.000	120.000	1	Round Low Profile Platform
118.000	122.000	3	RFS APXVSP18-C-A20
118.000	122.000	3	RFS APXV9TM14-ALU-I20*
20.000	20.000	1	Standoff
20.000	20.000	1	PCTEL GPS-TMG-HR-26N



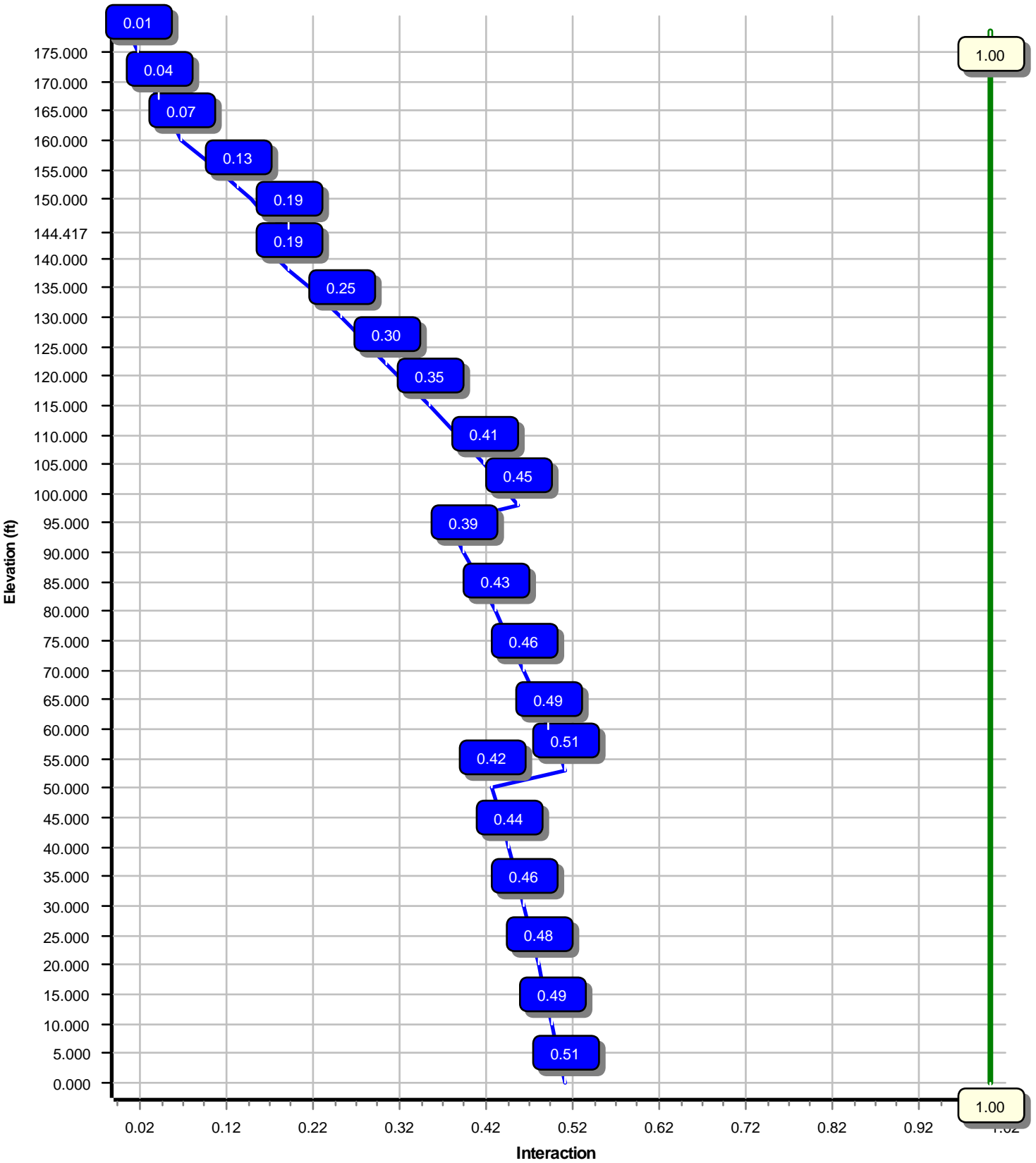
Linear Appurtenance			
Elev (ft)		Description	Exposed To Wind
From	To		
0.000	20.000	1/2" Coax	Yes
0.000	116.0	1 1/4" Hybriflex	Yes
0.000	118.0	1 1/4" Hybriflex	Yes
0.000	128.0	1 5/8" Coax	Yes
0.000	128.0	7/8" Coax	No
0.000	138.0	1 5/8" Coax	No
0.000	138.0	1 5/8" Hybriflex	Yes
0.000	148.0	1 1/4" (1.25"-	Yes
0.000	148.0	1 1/4" Hybriflex	Yes
0.000	148.0	1 5/8" Coax	Yes
0.000	160.0	0.39" (10mm)	No
0.000	160.0	0.78" (19.7mm) 8	No
0.000	160.0	1 5/8" Coax	No
0.000	160.0	2" conduit	No
0.000	160.0	3" conduit	No
0.000	160.0	3/8" (0.38"-	No
0.000	165.0	2" conduit	Yes
0.000	171.0	1/2" Coax	Yes
0.000	171.0	5/16" (0.31"-	No
0.000	182.0	1 5/8" Coax	No

Load Cases	
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	4523.74	36.46	81.19
0.9D + 1.6W	4480.13	36.43	60.89
1.2D + 1.0Di + 1.0Wi	2872.83	30.45	140.29
(1.2 + 0.2Sds) * DL + E ELFM	278.84	2.03	82.04
(1.2 + 0.2Sds) * DL + E EMAM	324.83	2.76	82.04
(0.9 - 0.2Sds) * DL + E ELFM	275.46	2.03	55.65
(0.9 - 0.2Sds) * DL + E EMAM	320.62	2.75	55.65
1.0D + 1.0W	961.92	7.80	67.69

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	171.00	13.922	0.704
1.0D + 1.0W	171.00	13.922	0.704

Load Case : 1.2D + 1.6W
Max Ratio 50.88% at 53.0 ft



Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:06 AM

Customer: VERIZON WIRELESS

Analysis Parameters

Location :	New Haven County, CT	Height (ft) :	178.5
Code :	ANSI/TIA-222-G	Base Diameter (in) :	72.00
Shape :	18 Sides	Top Diameter (in) :	29.00
Pole Type :	Taper	Taper (in/ft) :	0.251
Pole Manufacturer :	FWT	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method: Equivalent Modal Analysis & Equivalent Lateral Force Methods

Site Class: D - Stiff Soil

Period Based on Rayleigh Method (sec): 2.24

T_L (sec):	6	p :	1	C_s :	0.030
S_s :	0.240	S_1 :	0.062	C_s Max:	0.030
F_a :	1.600	F_v :	2.400	C_s Min:	0.030
S_{ds} :	0.256	S_{d1} :	0.099		

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:06 AM

Customer: VERIZON WIRELESS

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom						Top							
							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	D/t Ratio	Taper (in/ft)	
1-18	53.000	0.4375	65		0.00	16,253	72.00	0.00	99.37	64295.3	27.26	164.57	58.67	53.00	80.87	34653.6	21.89	134.12	0.251401	
2-18	53.000	0.3750	65	Slip	96.00	11,677	61.43	45.00	72.68	34236.4	27.12	163.83	48.11	98.00	56.82	16359.2	20.86	128.30	0.251401	
3-18	53.000	0.3125	65	Slip	79.00	7,766	50.39	91.42	49.67	15739.6	26.67	161.26	37.06	144.42	36.46	6222.7	19.15	118.62	0.251401	
4-18	39.167	0.2500	65	Slip	61.00	3,561	38.84	139.33	30.63	5764.1	25.64	155.39	29.00	178.50	22.81	2382.3	18.69	116.00	0.251401	
Shaft Weight						39,257														

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor	Weight (lb)	Ice EPAa (sf)	Orientation Factor
178.50	Decibel DB844H90E-XY	12	0.80	3.500	14.00	3.615	0.73	126.96	3.938	0.73
178.50	Flat Low Profile Platform	1	1.00	0.000	1,500.00	26.100	1.00	2,159.96	45.548	1.00
171.00	DragonWave Horizon Compact	2	0.80	-3.000	10.60	0.721	0.50	33.42	1.299	0.50
171.00	NextNet BTS-2500	3	0.80	-3.000	35.00	1.817	0.50	82.07	2.747	0.50
171.00	Argus LLPX310R	3	0.80	-3.000	28.60	4.292	0.63	120.07	5.970	0.63
171.00	DragonWave A-ANT-11G-2-C	1	1.00	-3.000	27.00	4.688	1.00	125.91	5.981	1.00
171.00	DragonWave A-ANT-18G-2-C	1	1.00	-3.000	27.10	4.688	1.00	126.15	5.981	1.00
167.00	Side Arms	1	1.00	0.000	560.00	8.500	1.00	1,033.89	15.693	1.00
165.00	Generic 18" x 12" Junction Box	1	1.00	0.000	15.00	1.800	1.00	71.44	2.709	1.00
160.00	Powerwave Allgon 7020	6	0.80	0.000	2.20	0.339	0.50	12.48	0.751	0.50
160.00	Kaelus DBCT108F1V92-1	9	0.80	0.000	13.90	0.633	0.50	39.24	1.182	0.50
160.00	Powerwave Allgon LGP21401	6	0.80	0.000	14.10	1.104	0.50	39.22	1.823	0.50
160.00	Raycap DC6-48-60-18-8F (23.5"	2	0.80	0.000	20.00	1.260	1.00	73.02	1.923	1.00
160.00	Ericsson RRUS 4426 B66	3	0.80	0.000	48.40	1.650	0.50	93.35	2.505	0.50
160.00	Ericsson RRUS 4478 B14	3	0.80	0.000	59.40	2.021	0.50	121.20	2.971	0.50
160.00	Ericsson RRUS 4478 B5 (56.1 lbs)	3	0.80	0.000	56.10	2.036	0.50	116.47	2.989	0.50
160.00	Ericsson RRUS 32 B2	3	0.80	-2.000	53.00	2.743	0.50	127.06	3.921	0.50
160.00	Ericsson RRUS 11 (Band 7)	3	0.80	0.000	50.70	2.791	0.50	123.61	3.895	0.50
160.00	Ericsson RRUS-32 (77 lbs)	3	0.80	0.000	77.00	3.314	0.50	174.93	4.607	0.50
160.00	Raycap DC6-48-60-18-8C-EV	1	0.80	0.000	16.00	4.788	1.00	146.03	6.269	1.00
160.00	Powerwave Allgon 7770.00	3	0.80	0.000	35.00	5.508	0.65	170.99	6.571	0.65
160.00	Quintel QS66512-2	3	0.80	0.000	111.00	8.133	0.74	311.66	10.940	0.74
160.00	CCI OPA-65R-LCUU-H6	3	0.80	0.000	73.00	9.658	0.66	277.94	12.449	0.66
160.00	Kathrein Scala 80010965	3	0.80	0.000	97.60	13.814	0.62	366.06	16.886	0.62
160.00	Flat Low Profile Platform	1	1.00	0.000	1,500.00	26.100	1.00	2,152.40	45.325	1.00
152.00	Ericsson RRUS 11 B12	3	0.80	0.000	50.70	2.791	0.50	123.30	3.891	0.50
148.00	Ericsson KRY 112 144/1	3	0.80	4.000	11.00	0.351	0.50	21.76	0.757	0.50
148.00	Ericsson Radio 4449 B12,B71	3	0.80	0.000	74.00	1.639	0.50	129.97	2.483	0.50
148.00	Ericsson AIR 21, 1.3 M, B2A B4P	3	0.80	4.000	83.00	6.049	0.71	228.90	8.210	0.71
148.00	Ericsson AIR32 B66Aa/B2a	3	0.80	0.000	132.20	6.510	0.71	291.76	8.700	0.71
148.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.243	0.63	520.36	23.951	0.63
148.00	T-Arm with Platform	1	1.00	0.000	1,500.00	21.700	1.00	2,147.69	40.893	1.00
138.00	Commscope CBC78T-DS-43-2X	3	0.80	0.000	20.70	0.552	0.50	42.63	1.056	0.50
138.00	Samsung Outdoor CBRS 20W	3	0.80	0.000	18.60	0.857	0.50	42.42	1.479	0.50
138.00	Samsung Outdoor CBRS 20W	3	0.80	0.000	4.40	0.892	0.50	22.27	1.526	0.50
138.00	Samsung B5/B13 RRH-BR04C	6	0.80	0.000	70.30	1.875	0.50	127.08	2.771	0.50
138.00	Samsung B2/B66A RRH-BR049	6	0.80	0.000	84.40	1.875	0.50	147.73	2.771	0.50
138.00	RFS DB-T1-6Z-8AB-0Z	2	0.80	2.000	44.00	4.800	0.72	168.94	6.211	0.72
138.00	Amphenol Antel BXA-80063-6BF-	3	0.80	0.000	19.20	7.262	0.66	162.33	9.904	0.66
138.00	Commscope JAHH-65B-R3B	6	0.80	-2.000	60.60	9.113	0.69	261.42	11.867	0.69
138.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	2,143.13	40.758	1.00
128.00	Nortel NTGB01MA	1	1.00	0.000	1.00	0.090	1.00	6.33	0.264	1.00
128.00	RFS APXV18-206517S-C	3	1.00	0.000	26.40	5.160	0.68	117.68	7.490	0.68
122.00	Alcatel-Lucent 800 MHz RRH	3	0.75	0.000	53.00	2.134	0.50	125.39	3.093	0.50
122.00	Alcatel-Lucent 1900 MHz 4X45	3	0.75	0.000	60.00	2.322	0.50	139.04	3.382	0.50
122.00	Alcatel-Lucent TD-RRH8x20-25	3	0.75	0.000	70.00	4.046	0.50	162.69	5.348	0.50
120.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	2,134.36	40.498	1.00

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:06 AM

Customer: VERIZON WIRELESS

118.00	RFS APXV9TM14-ALU-I20*	3	0.75	4.000	55.10	6.342	0.66	189.63	8.470	0.66
118.00	RFS APXVSPP18-C-A20	3	0.75	4.000	57.00	8.024	0.69	225.54	10.749	0.69
20.00	PCTEL GPS-TMG-HR-26N	1	1.00	0.000	0.60	0.090	1.00	4.52	0.236	1.00
20.00	Standoff	1	1.00	0.000	75.00	2.500	1.00	146.50	3.906	1.00
Totals	Num Loadings:51	154			14,817.60			32,246.49		

Linear Appurtenance Properties Load Case Azimuth (deg) : 190

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Max Flat	Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Dist To Wind Carrier	Exposed
0.00	182.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	SPRINT NEXTEL
0.00	171.00	2	1/2" Coax	0.63	0.15	N	2	0.00	0.00	130	0.00	Y	CLEARWIRE
0.00	171.00	6	5/16" (0.31"-7.9mm)	0.31	0.05	N	0	0.00	0.00	0	0.00	N	CLEARWIRE
0.00	165.00	1	2" conduit	2.38	3.65	N	1	0.00	0.00	135	0.00	Y	CLEARWIRE
0.00	160.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	160.00	6	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	160.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	160.00	3	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	160.00	2	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	160.00	1	3/8" (0.38"- 9.5mm)	0.38	0.23	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	148.00	2	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N	2	0.00	0.00	250	0.00	Y	T-MOBILE
0.00	148.00	1	1 1/4" Hybriflex Cable	1.54	1.00	N	1	0.00	0.00	265	0.00	Y	T-MOBILE
0.00	148.00	12	1 5/8" Coax	1.98	0.82	N	6	0.00	0.00	260	0.00	Y	T-MOBILE
0.00	138.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	138.00	2	1 5/8" Hybriflex	1.98	1.30	N	2	0.00	0.00	0	0.00	Y	VERIZON WIRELESS
0.00	128.00	6	1 5/8" Coax	1.98	0.82	N	6	0.00	0.00	200	0.00	Y	METRO PCS INC
0.00	128.00	1	7/8" Coax	1.09	0.33	N	0	0.00	0.00	0	0.00	N	METRO PCS INC
0.00	118.00	3	1 1/4" Hybriflex Cable	1.54	1.00	N	3	0.00	0.00	170	0.00	Y	SPRINT NEXTEL
0.00	116.00	1	1 1/4" Hybriflex Cable	1.54	1.00	N	1	0.00	0.00	175	0.00	Y	SPRINT NEXTEL
0.00	20.00	1	1/2" Coax	0.63	0.15	N	1	0.00	0.00	180	0.00	Y	SPRINT NEXTEL

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	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)
0.00		0.4375	72.000	99.370	64,295.3	27.26	164.57	69.3	1758.	0.0	0.0
5.00		0.4375	70.743	97.624	60,966.4	26.75	161.70	69.9	1697.	0.0	1,675.8
10.00		0.4375	69.486	95.879	57,754.4	26.24	158.83	70.5	1637.	0.0	1,646.1
15.00		0.4375	68.229	94.134	54,657.3	25.74	155.95	71.1	1577.	0.0	1,616.4
20.00		0.4375	66.972	92.388	51,672.9	25.23	153.08	71.7	1519.	0.0	1,586.7
25.00		0.4375	65.715	90.643	48,799.2	24.72	150.21	72.3	1462.	0.0	1,557.0
30.00		0.4375	64.458	88.897	46,034.1	24.22	147.33	72.9	1406.	0.0	1,527.3
35.00		0.4375	63.201	87.152	43,375.4	23.71	144.46	73.5	1351.	0.0	1,497.6
40.00		0.4375	61.944	85.406	40,821.1	23.20	141.59	74.1	1298.	0.0	1,467.9
45.00	Bot - Section 2	0.4375	60.687	83.661	38,369.2	22.70	138.71	74.7	1245.	0.0	1,438.2
50.00		0.4375	59.430	81.915	36,017.4	22.19	135.84	75.3	1193.	0.0	2,632.3
53.00	Top - Section 1	0.3750	59.426	70.283	30,963.7	26.18	158.47	70.6	1026.	0.0	1,552.9
55.00		0.3750	58.923	69.684	30,179.4	25.94	157.13	70.9	1008.	0.0	476.3
60.00		0.3750	57.666	68.188	28,277.0	25.35	153.78	71.6	965.8	0.0	1,172.9
65.00		0.3750	56.409	66.692	26,456.3	24.76	150.42	72.3	923.8	0.0	1,147.4
70.00		0.3750	55.152	65.196	24,715.5	24.17	147.07	73.0	882.7	0.0	1,122.0
75.00		0.3750	53.895	63.700	23,052.8	23.58	143.72	73.7	842.5	0.0	1,096.5
80.00		0.3750	52.638	62.204	21,466.3	22.99	140.37	74.4	803.2	0.0	1,071.1
85.00		0.3750	51.381	60.708	19,954.4	22.40	137.02	75.1	764.9	0.0	1,045.6
90.00		0.3750	50.124	59.212	18,515.2	21.81	133.66	75.8	727.6	0.0	1,020.1
91.42	Bot - Section 3	0.3750	49.768	58.788	18,120.3	21.64	132.71	76.0	717.1	0.0	284.4
95.00		0.3750	48.867	57.715	17,146.9	21.21	130.31	76.4	691.1	0.0	1,310.5
98.00	Top - Section 2	0.3125	48.738	48.030	14,230.2	25.74	155.96	71.1	575.1	0.0	1,078.7
100.0		0.3125	48.235	47.531	13,791.5	25.45	154.35	71.5	563.2	0.0	325.2
105.0		0.3125	46.978	46.285	12,734.5	24.74	150.33	72.3	533.9	0.0	798.1
110.0		0.3125	45.721	45.038	11,732.9	24.03	146.31	73.1	505.4	0.0	776.9
115.0		0.3125	44.464	43.791	10,785.2	23.33	142.28	74.0	477.8	0.0	755.7
118.0		0.3125	43.710	43.043	10,241.9	22.90	139.87	74.5	461.5	0.0	443.2
120.0		0.3125	43.207	42.544	9,890.0	22.62	138.26	74.8	450.8	0.0	291.2
122.0		0.3125	42.704	42.046	9,546.3	22.33	136.65	75.1	440.3	0.0	287.8
125.0		0.3125	41.950	41.298	9,045.8	21.91	134.24	75.6	424.7	0.0	425.4
128.0		0.3125	41.196	40.550	8,563.1	21.48	131.83	76.1	409.4	0.0	417.8
130.0		0.3125	40.693	40.051	8,251.0	21.20	130.22	76.5	399.4	0.0	274.3
135.0		0.3125	39.436	38.804	7,504.2	20.49	126.19	77.3	374.8	0.0	670.8
138.0		0.3125	38.682	38.056	7,078.5	20.06	123.78	77.8	360.4	0.0	392.3
139.3	Bot - Section 4	0.3125	38.347	37.724	6,894.6	19.87	122.71	78.0	354.1	0.0	171.9
140.0		0.3125	38.179	37.557	6,803.9	19.78	122.17	78.1	351.0	0.0	154.7
144.4	Top - Section 3	0.2500	37.569	29.611	5,210.3	24.73	150.27	72.3	273.2	0.0	1,007.8
145.0		0.2500	37.422	29.495	5,149.1	24.63	149.69	72.4	271.0	0.0	58.7
148.0		0.2500	36.668	28.896	4,842.0	24.10	146.67	73.1	260.1	0.0	298.0
150.0		0.2500	36.165	28.497	4,644.2	23.74	144.66	73.5	252.9	0.0	195.3
152.0		0.2500	35.662	28.098	4,451.8	23.39	142.65	73.9	245.9	0.0	192.6
155.0		0.2500	34.908	27.500	4,173.4	22.86	139.63	74.5	235.5	0.0	283.8
160.0		0.2500	33.651	26.503	3,735.6	21.97	134.60	75.6	218.6	0.0	459.4
165.0		0.2500	32.394	25.505	3,329.5	21.08	129.58	76.6	202.4	0.0	442.4
167.0		0.2500	31.891	25.106	3,175.7	20.73	127.56	77.0	196.1	0.0	172.2
170.0		0.2500	31.137	24.508	2,954.0	20.20	124.55	77.6	186.9	0.0	253.2
171.0		0.2500	30.886	24.308	2,882.4	20.02	123.54	77.9	183.8	0.0	83.1
175.0		0.2500	29.880	23.510	2,607.8	19.31	119.52	78.7	171.9	0.0	325.4
178.5		0.2500	29.000	22.812	2,382.3	18.69	116.00	79.4	161.8	0.0	275.8
											39,257.1

Load Case: 1.2D + 1.6W	97 mph with No Ice	23 Iterations
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :1.20		
Wind Load Factor :1.60		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		276.7	0.0					0.0	0.0	276.7	0.0	0.0	0.0
5.00		548.5	2,011.0					0.0	532.3	548.5	2,543.2	0.0	0.0
10.00		538.7	1,975.3					0.0	532.3	538.7	2,507.6	0.0	0.0
15.00		529.0	1,939.7					0.0	532.3	529.0	2,472.0	0.0	0.0
20.00	Appurtenance(s)	519.2	1,904.1	73.0	0.0	0.0	90.7	0.0	532.3	592.2	2,527.1	0.0	0.0
25.00		509.5	1,868.4					0.0	531.4	509.5	2,399.8	0.0	0.0
30.00		505.7	1,832.8					0.0	531.4	505.7	2,364.2	0.0	0.0
35.00		512.1	1,797.2					0.0	531.4	512.1	2,328.5	0.0	0.0
40.00		521.5	1,761.5					0.0	531.4	521.5	2,292.9	0.0	0.0
45.00	Bot - Section 2	531.8	1,725.9					0.0	531.4	531.8	2,257.3	0.0	0.0
50.00		431.5	3,158.8					0.0	531.4	431.5	3,690.2	0.0	0.0
53.00	Top - Section 1	271.1	1,863.5					0.0	318.8	271.1	2,182.3	0.0	0.0
55.00		381.0	571.5					0.0	212.5	381.0	784.1	0.0	0.0
60.00		545.3	1,407.4					0.0	531.4	545.3	1,938.8	0.0	0.0
65.00		545.8	1,376.9					0.0	531.4	545.8	1,908.3	0.0	0.0
70.00		545.0	1,346.4					0.0	531.4	545.0	1,877.7	0.0	0.0
75.00		543.2	1,315.8					0.0	531.4	543.2	1,847.2	0.0	0.0
80.00		540.4	1,285.3					0.0	531.4	540.4	1,816.6	0.0	0.0
85.00		536.8	1,254.7					0.0	531.4	536.8	1,786.1	0.0	0.0
90.00		342.7	1,224.2					0.0	531.4	342.7	1,755.5	0.0	0.0
91.42	Bot - Section 3	267.3	341.3					0.0	150.6	267.3	491.9	0.0	0.0
95.00		351.6	1,572.6					0.0	380.8	351.6	1,953.4	0.0	0.0
98.00	Top - Section 2	265.5	1,294.5					0.0	318.8	265.5	1,613.3	0.0	0.0
100.00		368.2	390.2					0.0	212.5	368.2	602.8	0.0	0.0
105.00		521.3	957.7					0.0	531.4	521.3	1,489.1	0.0	0.0
110.00		514.2	932.3					0.0	531.4	514.2	1,463.6	0.0	0.0
115.00		406.4	906.8					0.0	531.4	406.4	1,438.2	0.0	0.0
118.00	Appurtenance(s)	251.2	531.9	921.5	0.0	3,686.1	403.6	0.0	316.4	1,172.7	1,251.8	0.0	0.0
120.00	Appurtenance(s)	199.3	349.5	909.8	0.0	0.0	1,800.0	0.0	202.9	1,109.1	2,352.4	0.0	0.0
122.00	Appurtenance(s)	246.9	345.4	402.9	0.0	0.0	658.8	0.0	202.9	649.8	1,207.2	0.0	0.0
125.00		293.6	510.5					0.0	304.4	293.6	814.9	0.0	0.0
128.00	Appurtenance(s)	242.4	501.3	453.4	0.0	0.0	96.2	0.0	304.4	695.8	902.0	0.0	0.0
130.00		334.0	329.1					0.0	190.3	334.0	519.5	0.0	0.0
135.00		377.8	805.0					0.0	475.9	377.8	1,280.8	0.0	0.0
138.00	Appurtenance(s)	202.0	470.8	3,515.9	0.0	-2,138.5	3,682.2	0.0	285.5	3,717.9	4,438.5	0.0	0.0
139.33	Bot - Section 4	93.1	206.3					0.0	107.0	93.1	313.3	0.0	0.0
140.00		236.9	185.7					0.0	53.5	236.9	239.1	0.0	0.0
144.42	Top - Section 3	232.6	1,209.4					0.0	354.4	232.6	1,563.8	0.0	0.0
145.00		164.4	70.4					0.0	46.8	164.4	117.2	0.0	0.0
148.00	Appurtenance(s)	226.9	357.6	3,391.2	0.0	1,925.0	3,341.2	0.0	240.7	3,618.1	3,939.5	0.0	0.0
150.00		177.8	234.4					0.0	129.4	177.8	363.8	0.0	0.0
152.00	Appurtenance(s)	219.4	231.1	150.2	0.0	0.0	182.5	0.0	129.4	369.6	543.1	0.0	0.0
155.00		344.6	340.5					0.0	194.1	344.6	534.7	0.0	0.0
160.00	Appurtenance(s)	421.2	551.3	5,190.7	0.0	-298.6	4,515.0	0.0	323.6	5,611.9	5,389.9	0.0	0.0
165.00	Appurtenance(s)	288.9	530.9	82.7	0.0	0.0	18.0	0.0	84.5	371.6	633.5	0.0	0.0
167.00	Appurtenance(s)	201.4	206.7	391.7	0.0	0.0	672.0	0.0	25.1	593.1	903.7	0.0	0.0
170.00		159.6	303.9					0.0	37.6	159.6	341.5	0.0	0.0
171.00	Appurtenance(s)	195.1	99.7	859.6	0.0	-2,578.8	319.3	0.0	12.5	1,054.7	431.5	0.0	0.0

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:13 AM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W

97 mph with No Ice

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

175.00	288.3	390.5						0.0	47.2	288.3	437.8	0.0	0.0
178.50	Appurtenance(s)	132.7	331.0	2,422.2	0.0	4,187.5	2,001.6	0.0	41.3	2,554.9	2,373.9	0.0	0.0
Totals:										36,665.0	81,224.6	0.00	0.00

Load Case: 1.2D + 1.6W

97 mph with No Ice

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-81.19	-36.46	0.00	-4,523.74	0.00	4,523.74	6,201.63	3,100.82	18,267.6	9,147.40	0.00	0.00	0.508
5.00	-78.59	-36.04	0.00	-4,341.45	0.00	4,341.45	6,145.05	3,072.53	17,781.1	8,903.77	0.05	-0.10	0.501
10.00	-76.02	-35.63	0.00	-4,161.24	0.00	4,161.24	6,086.60	3,043.30	17,295.1	8,660.43	0.21	-0.20	0.493
15.00	-73.49	-35.22	0.00	-3,983.09	0.00	3,983.09	6,026.28	3,013.14	16,810.0	8,417.51	0.47	-0.30	0.486
20.00	-70.90	-34.74	0.00	-3,806.99	0.00	3,806.99	5,964.08	2,982.04	16,326.1	8,175.18	0.84	-0.40	0.478
25.00	-68.45	-34.33	0.00	-3,633.30	0.00	3,633.30	5,900.01	2,950.01	15,843.6	7,933.57	1.31	-0.50	0.470
30.00	-66.03	-33.92	0.00	-3,461.64	0.00	3,461.64	5,834.07	2,917.04	15,362.8	7,692.84	1.89	-0.60	0.461
35.00	-63.64	-33.50	0.00	-3,292.02	0.00	3,292.02	5,766.26	2,883.13	14,884.1	7,453.12	2.58	-0.71	0.453
40.00	-61.29	-33.06	0.00	-3,124.51	0.00	3,124.51	5,696.58	2,848.29	14,407.7	7,214.56	3.38	-0.81	0.444
45.00	-58.99	-32.61	0.00	-2,959.20	0.00	2,959.20	5,625.02	2,812.51	13,933.9	6,977.32	4.29	-0.92	0.435
50.00	-55.26	-32.20	0.00	-2,796.16	0.00	2,796.16	5,551.60	2,775.80	13,463.0	6,741.53	5.31	-1.03	0.425
53.00	-53.05	-31.93	0.00	-2,699.58	0.00	2,699.58	4,466.37	2,233.18	10,853.4	5,434.80	5.98	-1.09	0.509
55.00	-52.23	-31.61	0.00	-2,635.71	0.00	2,635.71	4,445.78	2,222.89	10,710.8	5,363.40	6.45	-1.14	0.503
60.00	-50.23	-31.13	0.00	-2,477.65	0.00	2,477.65	4,392.99	2,196.49	10,355.0	5,185.21	7.70	-1.26	0.489
65.00	-48.27	-30.65	0.00	-2,321.98	0.00	2,321.98	4,338.33	2,169.16	10,000.3	5,007.61	9.08	-1.38	0.475
70.00	-46.35	-30.15	0.00	-2,168.76	0.00	2,168.76	4,281.80	2,140.90	9,647.15	4,830.75	10.59	-1.50	0.460
75.00	-44.45	-29.65	0.00	-2,018.00	0.00	2,018.00	4,223.39	2,111.70	9,295.72	4,654.77	12.23	-1.62	0.444
80.00	-42.59	-29.15	0.00	-1,869.74	0.00	1,869.74	4,163.12	2,081.56	8,946.35	4,479.82	13.99	-1.74	0.428
85.00	-40.76	-28.64	0.00	-1,724.01	0.00	1,724.01	4,100.97	2,050.48	8,599.32	4,306.05	15.87	-1.86	0.411
90.00	-38.98	-28.29	0.00	-1,580.82	0.00	1,580.82	4,036.95	2,018.47	8,254.94	4,133.61	17.88	-1.98	0.392
91.42	-38.47	-28.04	0.00	-1,540.74	0.00	1,540.74	4,018.47	2,009.23	8,157.89	4,085.01	18.47	-2.01	0.387
95.00	-36.50	-27.67	0.00	-1,440.25	0.00	1,440.25	3,971.06	1,985.53	7,913.50	3,962.63	20.01	-2.09	0.373
98.00	-34.87	-27.38	0.00	-1,357.24	0.00	1,357.24	3,074.73	1,537.36	6,126.65	3,067.88	21.35	-2.16	0.454
100.00	-34.24	-27.04	0.00	-1,302.47	0.00	1,302.47	3,057.08	1,528.54	6,027.83	3,018.39	22.27	-2.21	0.443
105.00	-32.71	-26.54	0.00	-1,167.26	0.00	1,167.26	3,011.64	1,505.82	5,781.46	2,895.03	24.65	-2.34	0.414
110.00	-31.22	-26.03	0.00	-1,034.59	0.00	1,034.59	2,964.33	1,482.16	5,536.34	2,772.28	27.16	-2.46	0.384
115.00	-29.76	-25.60	0.00	-904.46	0.00	904.46	2,915.15	1,457.57	5,292.74	2,650.30	29.80	-2.58	0.352
118.00	-28.54	-24.40	0.00	-823.96	0.00	823.96	2,884.74	1,442.37	5,147.43	2,577.54	31.44	-2.65	0.330
120.00	-26.22	-23.21	0.00	-775.15	0.00	775.15	2,864.09	1,432.05	5,050.96	2,529.23	32.56	-2.69	0.316
122.00	-25.02	-22.52	0.00	-728.74	0.00	728.74	2,843.15	1,421.57	4,954.82	2,481.09	33.70	-2.73	0.303
125.00	-24.20	-22.22	0.00	-661.17	0.00	661.17	2,811.17	1,405.58	4,811.29	2,409.22	35.44	-2.80	0.283
128.00	-23.32	-21.50	0.00	-594.52	0.00	594.52	2,778.51	1,389.26	4,668.62	2,337.78	37.21	-2.85	0.263
130.00	-22.79	-21.16	0.00	-551.53	0.00	551.53	2,756.37	1,378.18	4,574.03	2,290.41	38.42	-2.89	0.249
135.00	-21.51	-20.74	0.00	-445.72	0.00	445.72	2,699.70	1,349.85	4,339.46	2,172.95	41.49	-2.98	0.213
138.00	-17.26	-16.81	0.00	-383.49	0.00	383.49	2,664.80	1,332.40	4,200.13	2,103.19	43.38	-3.03	0.189
139.33	-16.95	-16.70	0.00	-361.08	0.00	361.08	2,649.07	1,324.54	4,138.57	2,072.36	44.23	-3.05	0.181
140.00	-16.71	-16.46	0.00	-349.94	0.00	349.94	2,641.16	1,320.58	4,107.88	2,056.99	44.65	-3.06	0.177
144.42	-15.15	-16.16	0.00	-277.23	0.00	277.23	1,927.04	963.52	2,958.38	1,481.39	47.51	-3.11	0.195
145.00	-15.04	-15.99	0.00	-267.80	0.00	267.80	1,922.70	961.35	2,940.04	1,472.21	47.89	-3.12	0.190
148.00	-11.30	-12.17	0.00	-217.90	0.00	217.90	1,899.96	949.98	2,845.93	1,425.08	49.86	-3.16	0.159
150.00	-10.94	-11.98	0.00	-193.56	0.00	193.56	1,884.42	942.21	2,783.42	1,393.78	51.19	-3.19	0.145
152.00	-10.41	-11.58	0.00	-169.61	0.00	169.61	1,868.59	934.30	2,721.13	1,362.59	52.53	-3.21	0.130
155.00	-9.89	-11.21	0.00	-134.86	0.00	134.86	1,844.28	922.14	2,628.12	1,316.02	54.56	-3.24	0.108

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:13 AM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W

97 mph with No Ice

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

160.00	-4.83	-5.31	0.00	-78.79	0.00	78.79	1,802.26	901.13	2,474.43	1,239.06	57.97	-3.27	0.066
165.00	-4.21	-4.90	0.00	-52.26	0.00	52.26	1,758.37	879.19	2,322.64	1,163.05	61.41	-3.30	0.047
167.00	-3.34	-4.26	0.00	-42.45	0.00	42.45	1,740.29	870.15	2,262.53	1,132.94	62.79	-3.31	0.039
170.00	-3.01	-4.08	0.00	-29.68	0.00	29.68	1,712.61	856.30	2,173.05	1,088.14	64.87	-3.32	0.029
171.00	-2.64	-3.00	0.00	-25.60	0.00	25.60	1,703.23	851.62	2,143.42	1,073.30	65.56	-3.32	0.025
175.00	-2.22	-2.69	0.00	-13.60	0.00	13.60	1,664.97	832.49	2,025.94	1,014.48	68.35	-3.33	0.015
178.50	0.00	-2.55	0.00	-4.19	0.00	4.19	1,630.52	815.26	1,924.60	963.73	70.78	-3.33	0.004

Load Case: 0.9D + 1.6W	97 mph with No Ice (Reduced DL)	23 Iterations
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :0.90		
Wind Load Factor :1.60		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		276.7	0.0					0.0	0.0	276.7	0.0	0.0	0.0
5.00		548.5	1,508.2					0.0	399.2	548.5	1,907.4	0.0	0.0
10.00		538.7	1,481.5					0.0	399.2	538.7	1,880.7	0.0	0.0
15.00		529.0	1,454.8					0.0	399.2	529.0	1,854.0	0.0	0.0
20.00	Appurtenance(s)	519.2	1,428.1	73.0	0.0	0.0	68.0	0.0	399.2	592.2	1,895.3	0.0	0.0
25.00		509.5	1,401.3					0.0	398.5	509.5	1,799.8	0.0	0.0
30.00		505.7	1,374.6					0.0	398.5	505.7	1,773.1	0.0	0.0
35.00		512.1	1,347.9					0.0	398.5	512.1	1,746.4	0.0	0.0
40.00		521.5	1,321.1					0.0	398.5	521.5	1,719.7	0.0	0.0
45.00	Bot - Section 2	531.8	1,294.4					0.0	398.5	531.8	1,692.9	0.0	0.0
50.00		431.5	2,369.1					0.0	398.5	431.5	2,767.6	0.0	0.0
53.00	Top - Section 1	271.1	1,397.6					0.0	239.1	271.1	1,636.7	0.0	0.0
55.00		381.0	428.6					0.0	159.4	381.0	588.1	0.0	0.0
60.00		545.3	1,055.6					0.0	398.5	545.3	1,454.1	0.0	0.0
65.00		545.8	1,032.7					0.0	398.5	545.8	1,431.2	0.0	0.0
70.00		545.0	1,009.8					0.0	398.5	545.0	1,408.3	0.0	0.0
75.00		543.2	986.9					0.0	398.5	543.2	1,385.4	0.0	0.0
80.00		540.4	963.9					0.0	398.5	540.4	1,362.5	0.0	0.0
85.00		536.8	941.0					0.0	398.5	536.8	1,339.6	0.0	0.0
90.00		342.7	918.1					0.0	398.5	342.7	1,316.7	0.0	0.0
91.42	Bot - Section 3	267.3	256.0					0.0	112.9	267.3	368.9	0.0	0.0
95.00		351.6	1,179.4					0.0	285.6	351.6	1,465.0	0.0	0.0
98.00	Top - Section 2	265.5	970.8					0.0	239.1	265.5	1,210.0	0.0	0.0
100.00		368.2	292.7					0.0	159.4	368.2	452.1	0.0	0.0
105.00		521.3	718.3					0.0	398.5	521.3	1,116.8	0.0	0.0
110.00		514.2	699.2					0.0	398.5	514.2	1,097.7	0.0	0.0
115.00		406.4	680.1					0.0	398.5	406.4	1,078.6	0.0	0.0
118.00	Appurtenance(s)	251.2	398.9	921.5	0.0	3,686.1	302.7	0.0	237.3	1,172.7	938.9	0.0	0.0
120.00	Appurtenance(s)	199.3	262.1	909.8	0.0	0.0	1,350.0	0.0	152.2	1,109.1	1,764.3	0.0	0.0
122.00	Appurtenance(s)	246.9	259.1	402.9	0.0	0.0	494.1	0.0	152.2	649.8	905.4	0.0	0.0
125.00		293.6	382.9					0.0	228.3	293.6	611.2	0.0	0.0
128.00	Appurtenance(s)	242.4	376.0	453.4	0.0	0.0	72.2	0.0	228.3	695.8	676.5	0.0	0.0
130.00		334.0	246.8					0.0	142.8	334.0	389.6	0.0	0.0
135.00		377.8	603.7					0.0	356.9	377.8	960.6	0.0	0.0
138.00	Appurtenance(s)	201.9	353.1	3,515.9	0.0	-2,138.5	2,761.6	0.0	214.1	3,717.8	3,328.9	0.0	0.0
139.33	Bot - Section 4	92.8	154.7					0.0	80.2	92.8	235.0	0.0	0.0
140.00		234.9	139.2					0.0	40.1	234.9	179.4	0.0	0.0
144.42	Top - Section 3	230.4	907.0					0.0	265.8	230.4	1,172.8	0.0	0.0
145.00		162.3	52.8					0.0	35.1	162.3	87.9	0.0	0.0
148.00	Appurtenance(s)	225.0	268.2	3,391.2	0.0	1,925.0	2,505.9	0.0	180.5	3,616.2	2,954.7	0.0	0.0
150.00		177.8	175.8					0.0	97.1	177.8	272.8	0.0	0.0
152.00	Appurtenance(s)	219.4	173.3	150.2	0.0	0.0	136.9	0.0	97.1	369.6	407.3	0.0	0.0
155.00		344.6	255.4					0.0	145.6	344.6	401.0	0.0	0.0
160.00	Appurtenance(s)	421.2	413.5	5,190.7	0.0	-298.6	3,386.2	0.0	242.7	5,611.9	4,042.4	0.0	0.0
165.00	Appurtenance(s)	288.9	398.2	82.7	0.0	0.0	13.5	0.0	63.4	371.6	475.1	0.0	0.0
167.00	Appurtenance(s)	201.4	155.0	391.7	0.0	0.0	504.0	0.0	18.8	593.1	677.8	0.0	0.0
170.00		159.6	227.9					0.0	28.2	159.6	256.1	0.0	0.0
171.00	Appurtenance(s)	195.1	74.7	859.6	0.0	-2,578.8	239.5	0.0	9.4	1,054.7	323.6	0.0	0.0

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:20 AM

Customer: VERIZON WIRELESS

Load Case: 0.9D + 1.6W

97 mph with No Ice (Reduced DL)

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

175.00	288.3	292.9						0.0	35.4	288.3	328.3	0.0	0.0
178.50	Appurtenance(s)	132.7	248.3	2,422.2	0.0	4,187.5	1,501.2	0.0	31.0	2,554.9	1,780.5	0.0	0.0
Totals:										36,656.4	60,918.4	0.00	0.00

Load Case: 0.9D + 1.6W

97 mph with No Ice (Reduced DL)

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-60.89	-36.43	0.00	-4,480.13	0.00	4,480.13	6,201.63	3,100.82	18,267.6	9,147.40	0.00	0.00	0.500
5.00	-58.92	-35.98	0.00	-4,297.98	0.00	4,297.98	6,145.05	3,072.53	17,781.1	8,903.77	0.05	-0.10	0.492
10.00	-56.98	-35.54	0.00	-4,118.07	0.00	4,118.07	6,086.60	3,043.30	17,295.1	8,660.43	0.21	-0.20	0.485
15.00	-55.07	-35.10	0.00	-3,940.39	0.00	3,940.39	6,026.28	3,013.14	16,810.0	8,417.51	0.47	-0.29	0.477
20.00	-53.11	-34.59	0.00	-3,764.91	0.00	3,764.91	5,964.08	2,982.04	16,326.1	8,175.18	0.83	-0.39	0.470
25.00	-51.26	-34.15	0.00	-3,591.99	0.00	3,591.99	5,900.01	2,950.01	15,843.6	7,933.57	1.30	-0.50	0.462
30.00	-49.43	-33.72	0.00	-3,421.22	0.00	3,421.22	5,834.07	2,917.04	15,362.8	7,692.84	1.87	-0.60	0.453
35.00	-47.63	-33.27	0.00	-3,252.63	0.00	3,252.63	5,766.26	2,883.13	14,884.1	7,453.12	2.55	-0.70	0.445
40.00	-45.85	-32.81	0.00	-3,086.26	0.00	3,086.26	5,696.58	2,848.29	14,407.7	7,214.56	3.35	-0.81	0.436
45.00	-44.11	-32.34	0.00	-2,922.20	0.00	2,922.20	5,625.02	2,812.51	13,933.9	6,977.32	4.25	-0.91	0.427
50.00	-41.30	-31.92	0.00	-2,760.52	0.00	2,760.52	5,551.60	2,775.80	13,463.0	6,741.53	5.26	-1.02	0.417
53.00	-39.64	-31.66	0.00	-2,664.76	0.00	2,664.76	4,466.37	2,233.18	10,853.4	5,434.80	5.92	-1.08	0.499
55.00	-39.02	-31.32	0.00	-2,601.45	0.00	2,601.45	4,445.78	2,222.89	10,710.8	5,363.40	6.38	-1.12	0.494
60.00	-37.51	-30.82	0.00	-2,444.86	0.00	2,444.86	4,392.99	2,196.49	10,355.0	5,185.21	7.62	-1.24	0.480
65.00	-36.03	-30.32	0.00	-2,290.75	0.00	2,290.75	4,338.33	2,169.16	10,000.3	5,007.61	8.98	-1.36	0.466
70.00	-34.57	-29.81	0.00	-2,139.16	0.00	2,139.16	4,281.80	2,140.90	9,647.15	4,830.75	10.47	-1.48	0.451
75.00	-33.14	-29.30	0.00	-1,990.11	0.00	1,990.11	4,223.39	2,111.70	9,295.72	4,654.77	12.09	-1.60	0.436
80.00	-31.74	-28.79	0.00	-1,843.61	0.00	1,843.61	4,163.12	2,081.56	8,946.35	4,479.82	13.83	-1.72	0.419
85.00	-30.36	-28.27	0.00	-1,699.69	0.00	1,699.69	4,100.97	2,050.48	8,599.32	4,306.05	15.69	-1.83	0.402
90.00	-29.02	-27.92	0.00	-1,558.35	0.00	1,558.35	4,036.95	2,018.47	8,254.94	4,133.61	17.67	-1.95	0.384
91.42	-28.63	-27.67	0.00	-1,518.79	0.00	1,518.79	4,018.47	2,009.23	8,157.89	4,085.01	18.26	-1.98	0.379
95.00	-27.14	-27.30	0.00	-1,419.64	0.00	1,419.64	3,971.06	1,985.53	7,913.50	3,962.63	19.78	-2.07	0.365
98.00	-25.92	-27.02	0.00	-1,337.74	0.00	1,337.74	3,074.73	1,537.36	6,126.65	3,067.88	21.10	-2.14	0.445
100.00	-25.44	-26.67	0.00	-1,283.70	0.00	1,283.70	3,057.08	1,528.54	6,027.83	3,018.39	22.00	-2.18	0.434
105.00	-24.29	-26.16	0.00	-1,150.34	0.00	1,150.34	3,011.64	1,505.82	5,781.46	2,895.03	24.36	-2.31	0.406
110.00	-23.16	-25.65	0.00	-1,019.55	0.00	1,019.55	2,964.33	1,482.16	5,536.34	2,772.28	26.84	-2.43	0.376
115.00	-22.06	-25.23	0.00	-891.31	0.00	891.31	2,915.15	1,457.57	5,292.74	2,650.30	29.44	-2.54	0.344
118.00	-21.15	-24.04	0.00	-811.93	0.00	811.93	2,884.74	1,442.37	5,147.43	2,577.54	31.07	-2.61	0.323
120.00	-19.42	-22.86	0.00	-763.85	0.00	763.85	2,864.09	1,432.05	5,050.96	2,529.23	32.17	-2.65	0.309
122.00	-18.53	-22.19	0.00	-718.13	0.00	718.13	2,843.15	1,421.57	4,954.82	2,481.09	33.29	-2.70	0.296
125.00	-17.91	-21.89	0.00	-651.56	0.00	651.56	2,811.17	1,405.58	4,811.29	2,409.22	35.01	-2.76	0.277
128.00	-17.25	-21.17	0.00	-585.91	0.00	585.91	2,778.51	1,389.26	4,668.62	2,337.78	36.76	-2.82	0.257
130.00	-16.85	-20.84	0.00	-543.57	0.00	543.57	2,756.37	1,378.18	4,574.03	2,290.41	37.95	-2.85	0.244
135.00	-15.89	-20.43	0.00	-439.38	0.00	439.38	2,699.70	1,349.85	4,339.46	2,172.95	40.98	-2.94	0.208
138.00	-12.75	-16.55	0.00	-378.10	0.00	378.10	2,664.80	1,332.40	4,200.13	2,103.19	42.84	-2.99	0.185
139.33	-12.51	-16.45	0.00	-356.03	0.00	356.03	2,649.07	1,324.54	4,138.57	2,072.36	43.68	-3.01	0.177
140.00	-12.34	-16.21	0.00	-345.06	0.00	345.06	2,641.16	1,320.58	4,107.88	2,056.99	44.10	-3.02	0.173
144.42	-11.17	-15.93	0.00	-273.46	0.00	273.46	1,927.04	963.52	2,958.38	1,481.39	46.92	-3.07	0.191
145.00	-11.08	-15.76	0.00	-264.17	0.00	264.17	1,922.70	961.35	2,940.04	1,472.21	47.29	-3.08	0.185
148.00	-8.32	-12.00	0.00	-214.95	0.00	214.95	1,899.96	949.98	2,845.93	1,425.08	49.24	-3.12	0.155
150.00	-8.05	-11.81	0.00	-190.95	0.00	190.95	1,884.42	942.21	2,783.42	1,393.78	50.55	-3.14	0.141
152.00	-7.66	-11.42	0.00	-167.33	0.00	167.33	1,868.59	934.30	2,721.13	1,362.59	51.88	-3.17	0.127
155.00	-7.28	-11.06	0.00	-133.07	0.00	133.07	1,844.28	922.14	2,628.12	1,316.02	53.87	-3.19	0.105

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:21 AM

Customer: VERIZON WIRELESS

Load Case: 0.9D + 1.6W

97 mph with No Ice (Reduced DL)

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

160.00	-3.55	-5.23	0.00	-77.77	0.00	77.77	1,802.26	901.13	2,474.43	1,239.06	57.24	-3.23	0.065
165.00	-3.10	-4.83	0.00	-51.62	0.00	51.62	1,758.37	879.19	2,322.64	1,163.05	60.63	-3.25	0.046
167.00	-2.45	-4.20	0.00	-41.95	0.00	41.95	1,740.29	870.15	2,262.53	1,132.94	62.00	-3.26	0.038
170.00	-2.21	-4.03	0.00	-29.34	0.00	29.34	1,712.61	856.30	2,173.05	1,088.14	64.05	-3.27	0.028
171.00	-1.94	-2.96	0.00	-25.31	0.00	25.31	1,703.23	851.62	2,143.42	1,073.30	64.74	-3.27	0.025
175.00	-1.63	-2.65	0.00	-13.47	0.00	13.47	1,664.97	832.49	2,025.94	1,014.48	67.48	-3.28	0.014
178.50	0.00	-2.55	0.00	-4.19	0.00	4.19	1,630.52	815.26	1,924.60	963.73	69.89	-3.29	0.004

Load Case: 1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice	24 Iterations
Gust Response Factor :1.10	Ice Dead Load Factor :1.00	Wind Importance Factor :1.00
Dead Load Factor :1.20		Ice Importance Factor :1.00
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		87.5	0.0					0.0	0.0	87.5	0.0	0.0	0.0
5.00		173.9	2,533.0					702.7	763.1	876.6	3,296.2	0.0	0.0
10.00		171.4	2,548.9					696.4	790.7	867.8	3,339.6	0.0	0.0
15.00		168.7	2,533.2					688.0	805.0	856.7	3,338.2	0.0	0.0
20.00	Appurtenance(s)	165.9	2,507.2	19.4	0.0	0.0	241.7	678.9	815.0	864.2	3,563.9	0.0	0.0
25.00		163.0	2,475.8					669.5	815.9	832.5	3,291.7	0.0	0.0
30.00		162.1	2,441.1					659.8	822.1	821.8	3,263.3	0.0	0.0
35.00		164.4	2,404.2					665.6	827.5	830.0	3,231.6	0.0	0.0
40.00		167.7	2,365.5					682.8	832.1	850.4	3,197.6	0.0	0.0
45.00	Bot - Section 2	171.2	2,325.6					696.6	836.2	867.8	3,161.8	0.0	0.0
50.00		139.0	3,760.4					707.6	840.0	846.6	4,600.4	0.0	0.0
53.00	Top - Section 1	87.4	2,223.0					428.8	505.6	516.3	2,728.7	0.0	0.0
55.00		123.0	810.4					290.4	337.7	413.4	1,148.1	0.0	0.0
60.00		176.3	1,996.0					730.6	846.5	906.8	2,842.5	0.0	0.0
65.00		176.7	1,957.9					735.6	849.5	912.3	2,807.4	0.0	0.0
70.00		176.7	1,919.3					739.1	852.2	915.9	2,771.5	0.0	0.0
75.00		176.5	1,880.2					741.2	854.7	917.7	2,734.9	0.0	0.0
80.00		175.9	1,840.6					742.0	857.2	917.9	2,697.8	0.0	0.0
85.00		175.0	1,800.7					741.7	859.4	916.7	2,660.2	0.0	0.0
90.00		111.8	1,760.5					740.3	861.6	852.2	2,622.1	0.0	0.0
91.42	Bot - Section 3	87.3	492.8					209.4	244.5	296.7	737.3	0.0	0.0
95.00		114.9	1,954.7					528.6	619.2	643.6	2,573.9	0.0	0.0
98.00	Top - Section 2	86.9	1,610.8					441.3	519.1	528.2	2,129.9	0.0	0.0
100.00		120.7	599.6					296.4	346.5	417.1	946.0	0.0	0.0
105.00		171.1	1,469.7					738.2	867.5	909.3	2,337.2	0.0	0.0
110.00		169.1	1,433.5					733.5	869.3	902.6	2,302.8	0.0	0.0
115.00		133.9	1,397.0					728.1	871.0	862.0	2,268.1	0.0	0.0
118.00	Appurtenance(s)	82.9	822.2	204.7	0.0	819.0	1,649.1	433.9	516.1	721.6	2,987.4	0.0	0.0
120.00	Appurtenance(s)	65.8	541.4	282.0	0.0	0.0	3,934.4	223.2	318.8	571.0	4,794.5	0.0	0.0
122.00	Appurtenance(s)	81.7	535.5	93.1	0.0	0.0	1,940.1	222.4	319.0	397.2	2,794.6	0.0	0.0
125.00		97.3	791.3					332.1	478.9	429.4	1,270.2	0.0	0.0
128.00	Appurtenance(s)	80.4	778.0	110.2	0.0	0.0	455.6	330.2	479.3	520.8	1,712.9	0.0	0.0
130.00		111.0	511.8					166.8	277.5	277.8	789.3	0.0	0.0
135.00		125.7	1,249.3					413.7	694.4	539.5	1,943.7	0.0	0.0
138.00	Appurtenance(s)	67.3	733.3	876.4	0.0	-463.1	10,189.5	245.9	417.1	1,189.6	11,339.9	0.0	0.0
139.33	Bot - Section 4	31.0	322.2					65.3	154.5	96.2	476.7	0.0	0.0
140.00		78.5	244.1					32.6	77.3	111.0	321.4	0.0	0.0
144.42	Top - Section 3	77.0	1,586.8					214.6	512.2	291.6	2,099.0	0.0	0.0
145.00		54.3	120.1					28.4	67.7	82.8	187.8	0.0	0.0
148.00	Appurtenance(s)	75.4	608.9	812.6	0.0	443.9	9,067.1	145.6	348.3	1,033.7	10,024.3	0.0	0.0
150.00		59.7	400.0					69.7	144.6	129.4	544.6	0.0	0.0
152.00	Appurtenance(s)	73.8	394.7	34.8	0.0	0.0	552.4	69.1	144.7	177.7	1,091.8	0.0	0.0
155.00		116.2	581.5					102.5	217.1	218.7	798.5	0.0	0.0
160.00	Appurtenance(s)	142.4	940.1	1,235.4	0.0	-70.9	13,167.7	167.8	361.9	1,545.6	14,469.7	0.0	0.0
165.00	Appurtenance(s)	98.0	907.1	20.7	0.0	0.0	89.4	163.9	123.0	282.5	1,119.6	0.0	0.0
167.00	Appurtenance(s)	68.5	355.3	120.1	0.0	0.0	1,705.9	64.4	33.5	253.0	2,094.6	0.0	0.0
170.00		54.4	522.1					95.4	50.2	149.8	572.4	0.0	0.0
171.00	Appurtenance(s)	66.6	172.0	194.1	0.0	-582.3	1,244.6	31.5	16.8	292.2	1,433.3	0.0	0.0

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:28 AM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

24 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Wind Importance Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

175.00	98.7	671.2						0.0	47.2	98.7	718.4	0.0	0.0
178.50	Appurtenance(s)	45.5	570.3	571.7	0.0	757.5	5,517.1	0.0	41.3	617.2	6,128.7	0.0	0.0
Totals:										30,457.2	140,306.	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

24 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Wind Importance Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg	Pu	Vu	Tu	Mu	Mu	Resultant	phi	phi	phi	phi	Total		
Elev	FY (-)	FX (-)	MY	MZ	MX	Moment	Pn	Vn	Tn	Mn	Deflect	Rotation	Ratio
(ft)	(kips)	(kips)	(ft-kips)	(ft-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(ft-kips)	(ft-kips)	(in)	(deg)	
0.00	-140.29	-30.45	0.00	-2,872.83	0.00	2,872.83	6,201.63	3,100.82	18,267.6	9,147.40	0.00	0.00	0.337
5.00	-136.96	-29.72	0.00	-2,720.59	0.00	2,720.59	6,145.05	3,072.53	17,781.1	8,903.77	0.03	-0.06	0.328
10.00	-133.59	-28.99	0.00	-2,572.01	0.00	2,572.01	6,086.60	3,043.30	17,295.1	8,660.43	0.13	-0.12	0.319
15.00	-130.23	-28.26	0.00	-2,427.07	0.00	2,427.07	6,026.28	3,013.14	16,810.0	8,417.51	0.30	-0.19	0.310
20.00	-126.64	-27.52	0.00	-2,285.76	0.00	2,285.76	5,964.08	2,982.04	16,326.1	8,175.18	0.52	-0.25	0.301
25.00	-123.32	-26.80	0.00	-2,148.17	0.00	2,148.17	5,900.01	2,950.01	15,843.6	7,933.57	0.82	-0.31	0.292
30.00	-120.03	-26.09	0.00	-2,014.16	0.00	2,014.16	5,834.07	2,917.04	15,362.8	7,692.84	1.17	-0.37	0.282
35.00	-116.78	-25.36	0.00	-1,883.73	0.00	1,883.73	5,766.26	2,883.13	14,884.1	7,453.12	1.59	-0.43	0.273
40.00	-113.57	-24.60	0.00	-1,756.95	0.00	1,756.95	5,696.58	2,848.29	14,407.7	7,214.56	2.07	-0.49	0.264
45.00	-110.39	-23.82	0.00	-1,633.95	0.00	1,633.95	5,625.02	2,812.51	13,933.9	6,977.32	2.61	-0.55	0.254
50.00	-105.78	-23.01	0.00	-1,514.88	0.00	1,514.88	5,551.60	2,775.80	13,463.0	6,741.53	3.22	-0.61	0.244
53.00	-103.04	-22.52	0.00	-1,445.85	0.00	1,445.85	4,466.37	2,233.18	10,853.4	5,434.80	3.61	-0.64	0.289
55.00	-101.88	-22.17	0.00	-1,400.82	0.00	1,400.82	4,445.78	2,222.89	10,710.8	5,363.40	3.89	-0.66	0.284
60.00	-99.03	-21.33	0.00	-1,289.99	0.00	1,289.99	4,392.99	2,196.49	10,355.0	5,185.21	4.62	-0.73	0.271
65.00	-96.21	-20.49	0.00	-1,183.33	0.00	1,183.33	4,338.33	2,169.16	10,000.3	5,007.61	5.41	-0.79	0.259
70.00	-93.43	-19.63	0.00	-1,080.89	0.00	1,080.89	4,281.80	2,140.90	9,647.15	4,830.75	6.27	-0.85	0.246
75.00	-90.69	-18.76	0.00	-982.74	0.00	982.74	4,223.39	2,111.70	9,295.72	4,654.77	7.20	-0.91	0.233
80.00	-87.99	-17.89	0.00	-888.93	0.00	888.93	4,163.12	2,081.56	8,946.35	4,479.82	8.18	-0.97	0.220
85.00	-85.33	-17.01	0.00	-799.49	0.00	799.49	4,100.97	2,050.48	8,599.32	4,306.05	9.22	-1.02	0.207
90.00	-82.72	-16.16	0.00	-714.45	0.00	714.45	4,036.95	2,018.47	8,254.94	4,133.61	10.33	-1.08	0.193
91.42	-81.98	-15.88	0.00	-691.56	0.00	691.56	4,018.47	2,009.23	8,157.89	4,085.01	10.65	-1.09	0.190
95.00	-79.41	-15.24	0.00	-634.64	0.00	634.64	3,971.06	1,985.53	7,913.50	3,962.63	11.48	-1.13	0.180
98.00	-77.28	-14.70	0.00	-588.93	0.00	588.93	3,074.73	1,537.36	6,126.65	3,067.88	12.20	-1.16	0.217
100.00	-76.34	-14.31	0.00	-559.53	0.00	559.53	3,057.08	1,528.54	6,027.83	3,018.39	12.70	-1.18	0.210
105.00	-74.01	-13.42	0.00	-487.96	0.00	487.96	3,011.64	1,505.82	5,781.46	2,895.03	13.96	-1.23	0.193
110.00	-71.71	-12.53	0.00	-420.84	0.00	420.84	2,964.33	1,482.16	5,536.34	2,772.28	15.28	-1.29	0.176
115.00	-69.46	-11.66	0.00	-358.19	0.00	358.19	2,915.15	1,457.57	5,292.74	2,650.30	16.65	-1.33	0.159
118.00	-66.48	-10.90	0.00	-322.38	0.00	322.38	2,884.74	1,442.37	5,147.43	2,577.54	17.50	-1.36	0.148
120.00	-61.70	-10.23	0.00	-300.59	0.00	300.59	2,864.09	1,432.05	5,050.96	2,529.23	18.07	-1.38	0.140
122.00	-58.91	-9.79	0.00	-280.13	0.00	280.13	2,843.15	1,421.57	4,954.82	2,481.09	18.66	-1.39	0.134
125.00	-57.65	-9.35	0.00	-250.77	0.00	250.77	2,811.17	1,405.58	4,811.29	2,409.22	19.54	-1.42	0.125
128.00	-55.95	-8.80	0.00	-222.73	0.00	222.73	2,778.51	1,389.26	4,668.62	2,337.78	20.44	-1.44	0.115
130.00	-55.16	-8.53	0.00	-205.12	0.00	205.12	2,756.37	1,378.18	4,574.03	2,290.41	21.04	-1.45	0.110
135.00	-53.23	-7.96	0.00	-162.48	0.00	162.48	2,699.70	1,349.85	4,339.46	2,172.95	22.58	-1.49	0.095
138.00	-41.92	-6.48	0.00	-138.60	0.00	138.60	2,664.80	1,332.40	4,200.13	2,103.19	23.52	-1.50	0.082
139.33	-41.45	-6.38	0.00	-129.95	0.00	129.95	2,649.07	1,324.54	4,138.57	2,072.36	23.94	-1.51	0.078
140.00	-41.13	-6.27	0.00	-125.70	0.00	125.70	2,641.16	1,320.58	4,107.88	2,056.99	24.16	-1.51	0.077
144.42	-39.04	-5.93	0.00	-98.01	0.00	98.01	1,927.04	963.52	2,958.38	1,481.39	25.57	-1.53	0.086
145.00	-38.85	-5.85	0.00	-94.55	0.00	94.55	1,922.70	961.35	2,940.04	1,472.21	25.75	-1.54	0.084
148.00	-28.86	-4.55	0.00	-76.57	0.00	76.57	1,899.96	949.98	2,845.93	1,425.08	26.72	-1.55	0.069
150.00	-28.32	-4.41	0.00	-67.47	0.00	67.47	1,884.42	942.21	2,783.42	1,393.78	27.38	-1.56	0.063
152.00	-27.23	-4.21	0.00	-58.65	0.00	58.65	1,868.59	934.30	2,721.13	1,362.59	28.03	-1.57	0.058
155.00	-26.44	-3.97	0.00	-46.03	0.00	46.03	1,844.28	922.14	2,628.12	1,316.02	29.02	-1.58	0.049

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:28 AM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

24 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Wind Importance Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

160.00	-12.02	-2.03	0.00	-26.17	0.00	26.17	1,802.26	901.13	2,474.43	1,239.06	30.68	-1.59	0.028
165.00	-10.90	-1.72	0.00	-16.03	0.00	16.03	1,758.37	879.19	2,322.64	1,163.05	32.35	-1.60	0.020
167.00	-8.82	-1.40	0.00	-12.60	0.00	12.60	1,740.29	870.15	2,262.53	1,132.94	33.02	-1.60	0.016
170.00	-8.25	-1.24	0.00	-8.39	0.00	8.39	1,712.61	856.30	2,173.05	1,088.14	34.02	-1.60	0.013
171.00	-6.82	-0.91	0.00	-7.15	0.00	7.15	1,703.23	851.62	2,143.42	1,073.30	34.36	-1.60	0.011
175.00	-6.11	-0.79	0.00	-3.52	0.00	3.52	1,664.97	832.49	2,025.94	1,014.48	35.70	-1.61	0.007
178.50	0.00	-0.62	0.00	-0.76	0.00	0.76	1,630.52	815.26	1,924.60	963.73	36.88	-1.61	0.001

Load Case: 1.0D + 1.0W	Serviceability 60 mph	22 Iterations
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :1.00		
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		59.2	0.0					0.0	0.0	59.2	0.0	0.0	0.0
5.00		117.4	1,675.8					0.0	443.6	117.4	2,119.4	0.0	0.0
10.00		115.3	1,646.1					0.0	443.6	115.3	2,089.7	0.0	0.0
15.00		113.2	1,616.4					0.0	443.6	113.2	2,060.0	0.0	0.0
20.00	Appurtenance(s)	111.1	1,586.7	15.6	0.0	0.0	75.6	0.0	443.6	126.7	2,105.9	0.0	0.0
25.00		109.0	1,557.0					0.0	442.8	109.0	1,999.8	0.0	0.0
30.00		108.2	1,527.3					0.0	442.8	108.2	1,970.1	0.0	0.0
35.00		109.6	1,497.6					0.0	442.8	109.6	1,940.4	0.0	0.0
40.00		111.6	1,467.9					0.0	442.8	111.6	1,910.7	0.0	0.0
45.00	Bot - Section 2	113.8	1,438.2					0.0	442.8	113.8	1,881.0	0.0	0.0
50.00		92.3	2,632.3					0.0	442.8	92.3	3,075.1	0.0	0.0
53.00	Top - Section 1	58.0	1,552.9					0.0	265.7	58.0	1,818.6	0.0	0.0
55.00		81.5	476.3					0.0	177.1	81.5	653.4	0.0	0.0
60.00		116.7	1,172.9					0.0	442.8	116.7	1,615.7	0.0	0.0
65.00		116.8	1,147.4					0.0	442.8	116.8	1,590.2	0.0	0.0
70.00		116.6	1,122.0					0.0	442.8	116.6	1,564.8	0.0	0.0
75.00		116.2	1,096.5					0.0	442.8	116.2	1,539.3	0.0	0.0
80.00		115.6	1,071.1					0.0	442.8	115.6	1,513.9	0.0	0.0
85.00		114.8	1,045.6					0.0	442.8	114.8	1,488.4	0.0	0.0
90.00		73.3	1,020.1					0.0	442.8	73.3	1,462.9	0.0	0.0
91.42	Bot - Section 3	57.2	284.4					0.0	125.5	57.2	409.9	0.0	0.0
95.00		75.2	1,310.5					0.0	317.3	75.2	1,627.8	0.0	0.0
98.00	Top - Section 2	56.8	1,078.7					0.0	265.7	56.8	1,344.4	0.0	0.0
100.00		78.8	325.2					0.0	177.1	78.8	502.3	0.0	0.0
105.00		111.5	798.1					0.0	442.8	111.5	1,240.9	0.0	0.0
110.00		110.0	776.9					0.0	442.8	110.0	1,219.7	0.0	0.0
115.00		87.0	755.7					0.0	442.8	87.0	1,198.5	0.0	0.0
118.00	Appurtenance(s)	53.7	443.2	197.2	0.0	788.7	336.3	0.0	263.7	250.9	1,043.2	0.0	0.0
120.00	Appurtenance(s)	42.6	291.2	194.7	0.0	0.0	1,500.0	0.0	169.1	237.3	1,960.4	0.0	0.0
122.00	Appurtenance(s)	52.8	287.8	86.2	0.0	0.0	549.0	0.0	169.1	139.0	1,006.0	0.0	0.0
125.00		62.8	425.4					0.0	253.7	62.8	679.1	0.0	0.0
128.00	Appurtenance(s)	51.9	417.8	97.0	0.0	0.0	80.2	0.0	253.7	148.9	751.6	0.0	0.0
130.00		71.5	274.3					0.0	158.6	71.5	432.9	0.0	0.0
135.00		80.8	670.8					0.0	396.6	80.8	1,067.4	0.0	0.0
138.00	Appurtenance(s)	43.2	392.3	752.3	0.0	-457.6	3,068.5	0.0	237.9	795.5	3,698.7	0.0	0.0
139.33	Bot - Section 4	19.9	171.9					0.0	89.2	19.9	261.1	0.0	0.0
140.00		50.3	154.7					0.0	44.6	50.3	199.3	0.0	0.0
144.42	Top - Section 3	49.3	1,007.8					0.0	295.3	49.3	1,303.2	0.0	0.0
145.00		34.7	58.7					0.0	39.0	34.7	97.7	0.0	0.0
148.00	Appurtenance(s)	48.1	298.0	725.6	0.0	411.9	2,784.3	0.0	200.6	773.7	3,282.9	0.0	0.0
150.00		38.0	195.3					0.0	107.9	38.0	303.2	0.0	0.0
152.00	Appurtenance(s)	46.9	192.6	32.1	0.0	0.0	152.1	0.0	107.9	79.1	452.5	0.0	0.0
155.00		73.7	283.8					0.0	161.8	73.7	445.6	0.0	0.0
160.00	Appurtenance(s)	90.1	459.4	1,110.6	0.0	-63.9	3,762.5	0.0	269.7	1,200.7	4,491.5	0.0	0.0
165.00	Appurtenance(s)	61.8	442.4	17.7	0.0	0.0	15.0	0.0	70.5	79.5	527.9	0.0	0.0
167.00	Appurtenance(s)	43.1	172.2	83.8	0.0	0.0	560.0	0.0	20.9	126.9	753.1	0.0	0.0
170.00		34.2	253.2					0.0	31.3	34.2	284.6	0.0	0.0
171.00	Appurtenance(s)	41.7	83.1	183.9	0.0	-551.8	266.1	0.0	10.4	225.7	359.6	0.0	0.0

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:35 AM

Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W

Serviceability 60 mph

22 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

175.00	61.7	325.4						0.0	39.4	61.7	364.8	0.0	0.0
178.50	Appurtenance(s)	28.4	275.8	518.3	0.0	896.0	1,668.0	0.0	34.4	546.7	1,978.3	0.0	0.0
Totals:										7,843.05	67,687.2	0.00	0.00

Load Case: 1.0D + 1.0W

Serviceability 60 mph

22 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-67.69	-7.80	0.00	-961.92	0.00	961.92	6,201.63	3,100.82	18,267.6	9,147.40	0.00	0.00	0.116
5.00	-65.56	-7.70	0.00	-922.94	0.00	922.94	6,145.05	3,072.53	17,781.1	8,903.77	0.01	-0.02	0.114
10.00	-63.47	-7.61	0.00	-884.43	0.00	884.43	6,086.60	3,043.30	17,295.1	8,660.43	0.04	-0.04	0.113
15.00	-61.41	-7.52	0.00	-846.39	0.00	846.39	6,026.28	3,013.14	16,810.0	8,417.51	0.10	-0.06	0.111
20.00	-59.30	-7.41	0.00	-808.80	0.00	808.80	5,964.08	2,982.04	16,326.1	8,175.18	0.18	-0.08	0.109
25.00	-57.30	-7.32	0.00	-771.76	0.00	771.76	5,900.01	2,950.01	15,843.6	7,933.57	0.28	-0.11	0.107
30.00	-55.32	-7.23	0.00	-735.16	0.00	735.16	5,834.07	2,917.04	15,362.8	7,692.84	0.40	-0.13	0.105
35.00	-53.38	-7.13	0.00	-699.02	0.00	699.02	5,766.26	2,883.13	14,884.1	7,453.12	0.55	-0.15	0.103
40.00	-51.47	-7.04	0.00	-663.35	0.00	663.35	5,696.58	2,848.29	14,407.7	7,214.56	0.72	-0.17	0.101
45.00	-49.59	-6.94	0.00	-628.16	0.00	628.16	5,625.02	2,812.51	13,933.9	6,977.32	0.91	-0.20	0.099
50.00	-46.51	-6.85	0.00	-593.47	0.00	593.47	5,551.60	2,775.80	13,463.0	6,741.53	1.13	-0.22	0.096
53.00	-44.69	-6.79	0.00	-572.92	0.00	572.92	4,466.37	2,233.18	10,853.4	5,434.80	1.27	-0.23	0.115
55.00	-44.03	-6.72	0.00	-559.34	0.00	559.34	4,445.78	2,222.89	10,710.8	5,363.40	1.37	-0.24	0.114
60.00	-42.42	-6.62	0.00	-525.73	0.00	525.73	4,392.99	2,196.49	10,355.0	5,185.21	1.64	-0.27	0.111
65.00	-40.82	-6.51	0.00	-492.65	0.00	492.65	4,338.33	2,169.16	10,000.3	5,007.61	1.93	-0.29	0.108
70.00	-39.26	-6.40	0.00	-460.09	0.00	460.09	4,281.80	2,140.90	9,647.15	4,830.75	2.25	-0.32	0.104
75.00	-37.71	-6.30	0.00	-428.07	0.00	428.07	4,223.39	2,111.70	9,295.72	4,654.77	2.60	-0.34	0.101
80.00	-36.20	-6.19	0.00	-396.60	0.00	396.60	4,163.12	2,081.56	8,946.35	4,479.82	2.97	-0.37	0.097
85.00	-34.71	-6.08	0.00	-365.67	0.00	365.67	4,100.97	2,050.48	8,599.32	4,306.05	3.37	-0.39	0.093
90.00	-33.24	-6.00	0.00	-335.29	0.00	335.29	4,036.95	2,018.47	8,254.94	4,133.61	3.80	-0.42	0.089
91.42	-32.83	-5.95	0.00	-326.79	0.00	326.79	4,018.47	2,009.23	8,157.89	4,085.01	3.92	-0.43	0.088
95.00	-31.20	-5.87	0.00	-305.47	0.00	305.47	3,971.06	1,985.53	7,913.50	3,962.63	4.25	-0.44	0.085
98.00	-29.86	-5.81	0.00	-287.86	0.00	287.86	3,074.73	1,537.36	6,126.65	3,067.88	4.53	-0.46	0.104
100.00	-29.36	-5.74	0.00	-276.24	0.00	276.24	3,057.08	1,528.54	6,027.83	3,018.39	4.73	-0.47	0.101
105.00	-28.11	-5.63	0.00	-247.56	0.00	247.56	3,011.64	1,505.82	5,781.46	2,895.03	5.24	-0.50	0.095
110.00	-26.89	-5.52	0.00	-219.42	0.00	219.42	2,964.33	1,482.16	5,536.34	2,772.28	5.77	-0.52	0.088
115.00	-25.69	-5.43	0.00	-191.83	0.00	191.83	2,915.15	1,457.57	5,292.74	2,650.30	6.33	-0.55	0.081
118.00	-24.65	-5.17	0.00	-174.76	0.00	174.76	2,884.74	1,442.37	5,147.43	2,577.54	6.68	-0.56	0.076
120.00	-22.69	-4.92	0.00	-164.41	0.00	164.41	2,864.09	1,432.05	5,050.96	2,529.23	6.92	-0.57	0.073
122.00	-21.69	-4.78	0.00	-154.57	0.00	154.57	2,843.15	1,421.57	4,954.82	2,481.09	7.16	-0.58	0.070
125.00	-21.01	-4.71	0.00	-140.25	0.00	140.25	2,811.17	1,405.58	4,811.29	2,409.22	7.53	-0.59	0.066
128.00	-20.26	-4.56	0.00	-126.12	0.00	126.12	2,778.51	1,389.26	4,668.62	2,337.78	7.90	-0.61	0.061
130.00	-19.82	-4.49	0.00	-117.00	0.00	117.00	2,756.37	1,378.18	4,574.03	2,290.41	8.16	-0.61	0.058
135.00	-18.76	-4.40	0.00	-94.57	0.00	94.57	2,699.70	1,349.85	4,339.46	2,172.95	8.81	-0.63	0.050
138.00	-15.07	-3.56	0.00	-81.38	0.00	81.38	2,664.80	1,332.40	4,200.13	2,103.19	9.21	-0.64	0.044
139.33	-14.81	-3.54	0.00	-76.63	0.00	76.63	2,649.07	1,324.54	4,138.57	2,072.36	9.39	-0.65	0.043
140.00	-14.61	-3.49	0.00	-74.27	0.00	74.27	2,641.16	1,320.58	4,107.88	2,056.99	9.48	-0.65	0.042
144.42	-13.30	-3.43	0.00	-58.85	0.00	58.85	1,927.04	963.52	2,958.38	1,481.39	10.09	-0.66	0.047
145.00	-13.21	-3.39	0.00	-56.85	0.00	56.85	1,922.70	961.35	2,940.04	1,472.21	10.17	-0.66	0.045
148.00	-9.93	-2.58	0.00	-46.26	0.00	46.26	1,899.96	949.98	2,845.93	1,425.08	10.59	-0.67	0.038
150.00	-9.63	-2.54	0.00	-41.10	0.00	41.10	1,884.42	942.21	2,783.42	1,393.78	10.87	-0.68	0.035
152.00	-9.18	-2.46	0.00	-36.01	0.00	36.01	1,868.59	934.30	2,721.13	1,362.59	11.16	-0.68	0.031
155.00	-8.73	-2.38	0.00	-28.64	0.00	28.64	1,844.28	922.14	2,628.12	1,316.02	11.58	-0.69	0.027

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:35 AM

Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W

Serviceability 60 mph

22 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

160.00	-4.25	-1.13	0.00	-16.73	0.00	16.73	1,802.26	901.13	2,474.43	1,239.06	12.31	-0.69	0.016
165.00	-3.73	-1.04	0.00	-11.10	0.00	11.10	1,758.37	879.19	2,322.64	1,163.05	13.04	-0.70	0.012
167.00	-2.98	-0.90	0.00	-9.02	0.00	9.02	1,740.29	870.15	2,262.53	1,132.94	13.33	-0.70	0.010
170.00	-2.69	-0.87	0.00	-6.31	0.00	6.31	1,712.61	856.30	2,173.05	1,088.14	13.77	-0.70	0.007
171.00	-2.34	-0.64	0.00	-5.44	0.00	5.44	1,703.23	851.62	2,143.42	1,073.30	13.92	-0.70	0.006
175.00	-1.97	-0.57	0.00	-2.89	0.00	2.89	1,664.97	832.49	2,025.94	1,014.48	14.51	-0.71	0.004
178.50	0.00	-0.55	0.00	-0.90	0.00	0.90	1,630.52	815.26	1,924.60	963.73	15.03	-0.71	0.001

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.24
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.26
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.24
Redundancy Factor (ρ):	1.00
Seismic Force Distribution Exponent (k):	1.87
Total Unfactored Dead Load:	67.69 k
Seismic Base Shear (E):	2.03 k

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
49	176.75	310	4,941	0.013	26	388
48	173.00	365	5,580	0.015	30	456
47	170.50	93	1,392	0.004	7	117
46	168.50	285	4,144	0.011	22	356
45	166.00	193	2,734	0.007	15	242
44	162.50	513	6,979	0.018	37	642
43	157.50	729	9,357	0.025	50	912
42	153.50	446	5,450	0.014	29	558
41	151.00	300	3,564	0.009	19	376
40	149.00	303	3,508	0.009	19	379
39	146.50	499	5,590	0.015	30	624
38	144.71	98	1,070	0.003	6	122
37	142.21	1,303	13,818	0.036	74	1,631
36	139.67	199	2,043	0.005	11	249
35	138.67	261	2,641	0.007	14	327
34	136.50	630	6,190	0.016	33	789
33	132.50	1,067	9,916	0.026	53	1,335
32	129.00	433	3,825	0.010	20	542
31	126.50	671	5,720	0.015	31	840
30	123.50	679	5,531	0.015	30	850
29	121.00	457	3,582	0.009	19	572
28	119.00	460	3,498	0.009	19	576
27	116.50	707	5,163	0.014	28	884

26	112.50	1,198	8,199	0.022	44	1,500
25	107.50	1,220	7,665	0.020	41	1,526
24	102.50	1,241	7,133	0.019	38	1,553
23	99.00	502	2,706	0.007	14	628
22	96.50	1,344	6,904	0.018	37	1,682
21	93.21	1,628	7,834	0.021	42	2,037
20	90.71	410	1,875	0.005	10	513
19	87.50	1,463	6,256	0.016	33	1,830
18	82.50	1,488	5,702	0.015	31	1,862
17	77.50	1,514	5,160	0.014	28	1,894
16	72.50	1,539	4,631	0.012	25	1,926
15	67.50	1,565	4,119	0.011	22	1,958
14	62.50	1,590	3,625	0.010	19	1,990
13	57.50	1,616	3,151	0.008	17	2,022
12	54.00	653	1,133	0.003	6	818
11	51.50	1,819	2,887	0.008	15	2,275
10	47.50	3,075	4,196	0.011	22	3,848
9	42.50	1,881	2,085	0.005	11	2,354
8	37.50	1,911	1,676	0.004	9	2,391
7	32.50	1,940	1,302	0.003	7	2,428
6	27.50	1,970	968	0.003	5	2,465
5	22.50	2,000	675	0.002	4	2,502
4	17.50	2,030	428	0.001	2	2,540
3	12.50	2,060	232	0.001	1	2,577
2	7.50	2,090	90	0.000	0	2,615
1	2.50	2,119	12	0.000	0	2,652
Decibel DB844H90E-XY	178.50	168	2,725	0.007	15	210
Flat Low Profile Pla	178.50	1,500	24,328	0.064	130	1,877
DragonWave Horizon C	171.00	21	317	0.001	2	27
NextNet BTS-2500	171.00	105	1,572	0.004	8	131
Argus LLPX310R	171.00	86	1,284	0.003	7	107
DragonWave A-ANT-11G	171.00	27	404	0.001	2	34
DragonWave A-ANT-18G	171.00	27	406	0.001	2	34
Side Arms	167.00	560	8,019	0.021	43	701
Generic 18" x 12" Ju	165.00	15	210	0.001	1	19
Powerwave Allgon 702	160.00	13	174	0.000	1	17
Kaelus DBCT108F1V92-	160.00	125	1,654	0.004	9	157
Powerwave Allgon LGP	160.00	85	1,118	0.003	6	106
Raycap DC6-48-60-18-	160.00	40	529	0.001	3	50
Ericsson RRUS 4426 B	160.00	145	1,919	0.005	10	182
Ericsson RRUS 4478 B	160.00	178	2,355	0.006	13	223
Ericsson RRUS 4478 B	160.00	168	2,225	0.006	12	211
Ericsson RRUS 32 B2	160.00	159	2,102	0.006	11	199
Ericsson RRUS 11 (Ba	160.00	152	2,010	0.005	11	190
Ericsson RRUS-32 (77	160.00	231	3,053	0.008	16	289
Raycap DC6-48-60-18-	160.00	16	211	0.001	1	20
Powerwave Allgon 777	160.00	105	1,388	0.004	7	131
Quintel QS66512-2	160.00	333	4,402	0.012	24	417
CCI OPA-65R-LCUU-H6	160.00	219	2,895	0.008	15	274
Kathrein Scala 80010	160.00	293	3,870	0.010	21	366
Flat Low Profile Pla	160.00	1,500	19,827	0.052	106	1,877
Ericsson RRUS 11 B12	152.00	152	1,827	0.005	10	190
Ericsson KRY 112 144	148.00	33	377	0.001	2	41
Ericsson Radio 4449	148.00	222	2,536	0.007	14	278
Ericsson AIR 21, 1.3	148.00	249	2,845	0.007	15	312
Ericsson AIR32 B66Aa	148.00	397	4,531	0.012	24	496
RFS APXVAARR24_43-U-	148.00	384	4,384	0.012	23	480
T-Arm with Platform	148.00	1,500	17,138	0.045	92	1,877
Commscope CBC78T-DS-	138.00	62	623	0.002	3	78
Samsung Outdoor CBRS	138.00	56	559	0.001	3	70
Samsung Outdoor CBRS	138.00	13	132	0.000	1	17
Samsung B5/B13 RRH-B	138.00	422	4,228	0.011	23	528
Samsung B2/B66A RRH-	138.00	506	5,076	0.013	27	634
RFS DB-T1-6Z-8AB-OZ	138.00	88	882	0.002	5	110

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

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Customer: VERIZON WIRELESS

Amphenol Antel BXA-8	138.00	58	577	0.002	3	72
Commscope JAHH-65B-R	138.00	364	3,645	0.010	20	455
Round Low Profile PI	138.00	1,500	15,036	0.040	80	1,877
Nortel NTGB01MA	128.00	1	9	0.000	0	1
RFS APXV18-206517S-C	128.00	79	690	0.002	4	99
Alcatel-Lucent 800 M	122.00	159	1,266	0.003	7	199
Alcatel-Lucent 1900	122.00	180	1,433	0.004	8	225
Alcatel-Lucent TD-RR	122.00	210	1,672	0.004	9	263
Round Low Profile PI	120.00	1,500	11,579	0.031	62	1,877
RFS APXV9TM14-ALU-I2	118.00	165	1,236	0.003	7	207
RFS APXVSP18-C-A20	118.00	171	1,279	0.003	7	214
PCTEL GPS-TMG-HR-26N	20.00	1	0	0.000	0	1
Standoff	20.00	75	20	0.000	0	94
		67,687	379,460	1.000	2,031	84,690

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

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
49	176.75	310	4,941	0.013	26	263
48	173.00	365	5,580	0.015	30	310
47	170.50	93	1,392	0.004	7	79
46	168.50	285	4,144	0.011	22	242
45	166.00	193	2,734	0.007	15	164
44	162.50	513	6,979	0.018	37	435
43	157.50	729	9,357	0.025	50	619
42	153.50	446	5,450	0.014	29	378
41	151.00	300	3,564	0.009	19	255
40	149.00	303	3,508	0.009	19	257
39	146.50	499	5,590	0.015	30	423
38	144.71	98	1,070	0.003	6	83
37	142.21	1,303	13,818	0.036	74	1,106
36	139.67	199	2,043	0.005	11	169
35	138.67	261	2,641	0.007	14	222
34	136.50	630	6,190	0.016	33	535
33	132.50	1,067	9,916	0.026	53	906
32	129.00	433	3,825	0.010	20	367
31	126.50	671	5,720	0.015	31	570
30	123.50	679	5,531	0.015	30	576
29	121.00	457	3,582	0.009	19	388
28	119.00	460	3,498	0.009	19	391
27	116.50	707	5,163	0.014	28	600
26	112.50	1,198	8,199	0.022	44	1,017
25	107.50	1,220	7,665	0.020	41	1,035
24	102.50	1,241	7,133	0.019	38	1,053
23	99.00	502	2,706	0.007	14	426
22	96.50	1,344	6,904	0.018	37	1,141
21	93.21	1,628	7,834	0.021	42	1,382
20	90.71	410	1,875	0.005	10	348
19	87.50	1,463	6,256	0.016	33	1,242
18	82.50	1,488	5,702	0.015	31	1,263
17	77.50	1,514	5,160	0.014	28	1,285
16	72.50	1,539	4,631	0.012	25	1,307
15	67.50	1,565	4,119	0.011	22	1,328
14	62.50	1,590	3,625	0.010	19	1,350
13	57.50	1,616	3,151	0.008	17	1,371
12	54.00	653	1,133	0.003	6	555
11	51.50	1,819	2,887	0.008	15	1,544
10	47.50	3,075	4,196	0.011	22	2,610
9	42.50	1,881	2,085	0.005	11	1,597

8	37.50	1,911	1,676	0.004	9	1,622
7	32.50	1,940	1,302	0.003	7	1,647
6	27.50	1,970	968	0.003	5	1,672
5	22.50	2,000	675	0.002	4	1,697
4	17.50	2,030	428	0.001	2	1,723
3	12.50	2,060	232	0.001	1	1,749
2	7.50	2,090	90	0.000	0	1,774
1	2.50	2,119	12	0.000	0	1,799
Decibel DB844H90E-XY	178.50	168	2,725	0.007	15	143
Flat Low Profile Pla	178.50	1,500	24,328	0.064	130	1,273
DragonWave Horizon C	171.00	21	317	0.001	2	18
NextNet BTS-2500	171.00	105	1,572	0.004	8	89
Argus LLPX310R	171.00	86	1,284	0.003	7	73
DragonWave A-ANT-11G	171.00	27	404	0.001	2	23
DragonWave A-ANT-18G	171.00	27	406	0.001	2	23
Side Arms	167.00	560	8,019	0.021	43	475
Generic 18" x 12" Ju	165.00	15	210	0.001	1	13
Powerwave Allgon 702	160.00	13	174	0.000	1	11
Kaelus DBCT108F1V92-	160.00	125	1,654	0.004	9	106
Powerwave Allgon LGP	160.00	85	1,118	0.003	6	72
Raycap DC6-48-60-18-	160.00	40	529	0.001	3	34
Ericsson RRUS 4426 B	160.00	145	1,919	0.005	10	123
Ericsson RRUS 4478 B	160.00	178	2,355	0.006	13	151
Ericsson RRUS 4478 B	160.00	168	2,225	0.006	12	143
Ericsson RRUS 32 B2	160.00	159	2,102	0.006	11	135
Ericsson RRUS 11 (Ba	160.00	152	2,010	0.005	11	129
Ericsson RRUS-32 (77	160.00	231	3,053	0.008	16	196
Raycap DC6-48-60-18-	160.00	16	211	0.001	1	14
Powerwave Allgon 777	160.00	105	1,388	0.004	7	89
Quintel QS66512-2	160.00	333	4,402	0.012	24	283
CCI OPA-65R-LCUU-H6	160.00	219	2,895	0.008	15	186
Kathrein Scala 80010	160.00	293	3,870	0.010	21	249
Flat Low Profile Pla	160.00	1,500	19,827	0.052	106	1,273
Ericsson RRUS 11 B12	152.00	152	1,827	0.005	10	129
Ericsson KRY 112 144	148.00	33	377	0.001	2	28
Ericsson Radio 4449	148.00	222	2,536	0.007	14	188
Ericsson AIR 21, 1.3	148.00	249	2,845	0.007	15	211
Ericsson AIR32 B66Aa	148.00	397	4,531	0.012	24	337
RFS APXVAARR24_43-U-	148.00	384	4,384	0.012	23	326
T-Arm with Platform	148.00	1,500	17,138	0.045	92	1,273
Commscope CBC78T-DS-	138.00	62	623	0.002	3	53
Samsung Outdoor CBRS	138.00	56	559	0.001	3	47
Samsung Outdoor CBRS	138.00	13	132	0.000	1	11
Samsung B5/B13 RRH-B	138.00	422	4,228	0.011	23	358
Samsung B2/B66A RRH-	138.00	506	5,076	0.013	27	430
RFS DB-T1-6Z-8AB-OZ	138.00	88	882	0.002	5	75
Amphenol Antel BXA-8	138.00	58	577	0.002	3	49
Commscope JAHH-65B-R	138.00	364	3,645	0.010	20	309
Round Low Profile PI	138.00	1,500	15,036	0.040	80	1,273
Nortel NTGB01MA	128.00	1	9	0.000	0	1
RFS APXV18-206517S-C	128.00	79	690	0.002	4	67
Alcatel-Lucent 800 M	122.00	159	1,266	0.003	7	135
Alcatel-Lucent 1900	122.00	180	1,433	0.004	8	153
Alcatel-Lucent TD-RR	122.00	210	1,672	0.004	9	178
Round Low Profile PI	120.00	1,500	11,579	0.031	62	1,273
RFS APXV9TM14-ALU-I2	118.00	165	1,236	0.003	7	140
RFS APXVSP18-C-A20	118.00	171	1,279	0.003	7	145
PCTEL GPS-TMG-HR-26N	20.00	1	0	0.000	0	1
Standoff	20.00	75	20	0.000	0	64
		67,687	379,460	1.000	2,031	57,453

Site Number: 302467

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

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Customer: VERIZON WIRELESS

Load Case (1.2 + 0.2Sds) * DL + E ELFM Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-82.04	-2.03	0.00	-278.84	0.00	278.84	6,201.63	3,100.82	18,267.6	9,147.40	0.00	0.00	0.044
5.00	-79.42	-2.04	0.00	-268.67	0.00	268.67	6,145.05	3,072.53	17,781.1	8,903.77	0.00	-0.01	0.043
10.00	-76.85	-2.05	0.00	-258.46	0.00	258.46	6,086.60	3,043.30	17,295.1	8,660.43	0.01	-0.01	0.042
15.00	-74.31	-2.05	0.00	-248.22	0.00	248.22	6,026.28	3,013.14	16,810.0	8,417.51	0.03	-0.02	0.042
20.00	-71.71	-2.06	0.00	-237.95	0.00	237.95	5,964.08	2,982.04	16,326.1	8,175.18	0.05	-0.02	0.041
25.00	-69.24	-2.06	0.00	-227.67	0.00	227.67	5,900.01	2,950.01	15,843.6	7,933.57	0.08	-0.03	0.040
30.00	-66.81	-2.06	0.00	-217.38	0.00	217.38	5,834.07	2,917.04	15,362.8	7,692.84	0.12	-0.04	0.040
35.00	-64.42	-2.05	0.00	-207.09	0.00	207.09	5,766.26	2,883.13	14,884.1	7,453.12	0.16	-0.04	0.039
40.00	-62.07	-2.05	0.00	-196.82	0.00	196.82	5,696.58	2,848.29	14,407.7	7,214.56	0.21	-0.05	0.038
45.00	-58.22	-2.03	0.00	-186.58	0.00	186.58	5,625.02	2,812.51	13,933.9	6,977.32	0.27	-0.06	0.037
50.00	-55.95	-2.02	0.00	-176.43	0.00	176.43	5,551.60	2,775.80	13,463.0	6,741.53	0.33	-0.06	0.036
53.00	-55.13	-2.01	0.00	-170.38	0.00	170.38	4,466.37	2,233.18	10,853.4	5,434.80	0.37	-0.07	0.044
55.00	-53.11	-2.00	0.00	-166.36	0.00	166.36	4,445.78	2,222.89	10,710.8	5,363.40	0.40	-0.07	0.043
60.00	-51.12	-1.98	0.00	-156.37	0.00	156.37	4,392.99	2,196.49	10,355.0	5,185.21	0.48	-0.08	0.042
65.00	-49.16	-1.96	0.00	-146.45	0.00	146.45	4,338.33	2,169.16	10,000.3	5,007.61	0.57	-0.09	0.041
70.00	-47.23	-1.94	0.00	-136.63	0.00	136.63	4,281.80	2,140.90	9,647.15	4,830.75	0.66	-0.09	0.039
75.00	-45.34	-1.92	0.00	-126.91	0.00	126.91	4,223.39	2,111.70	9,295.72	4,654.77	0.76	-0.10	0.038
80.00	-43.48	-1.89	0.00	-117.32	0.00	117.32	4,163.12	2,081.56	8,946.35	4,479.82	0.87	-0.11	0.037
85.00	-41.65	-1.86	0.00	-107.87	0.00	107.87	4,100.97	2,050.48	8,599.32	4,306.05	0.99	-0.12	0.035
90.00	-41.13	-1.85	0.00	-98.58	0.00	98.58	4,036.95	2,018.47	8,254.94	4,133.61	1.12	-0.12	0.034
91.42	-39.10	-1.81	0.00	-95.96	0.00	95.96	4,018.47	2,009.23	8,157.89	4,085.01	1.16	-0.13	0.033
95.00	-37.41	-1.77	0.00	-89.48	0.00	89.48	3,971.06	1,985.53	7,913.50	3,962.63	1.25	-0.13	0.032
98.00	-36.79	-1.76	0.00	-84.18	0.00	84.18	3,074.73	1,537.36	6,126.65	3,067.88	1.34	-0.14	0.039
100.00	-35.23	-1.72	0.00	-80.66	0.00	80.66	3,057.08	1,528.54	6,027.83	3,018.39	1.39	-0.14	0.038
105.00	-33.71	-1.68	0.00	-72.08	0.00	72.08	3,011.64	1,505.82	5,781.46	2,895.03	1.54	-0.15	0.036
110.00	-32.21	-1.63	0.00	-63.70	0.00	63.70	2,964.33	1,482.16	5,536.34	2,772.28	1.70	-0.15	0.034
115.00	-31.32	-1.61	0.00	-55.53	0.00	55.53	2,915.15	1,457.57	5,292.74	2,650.30	1.87	-0.16	0.032
118.00	-30.33	-1.57	0.00	-50.71	0.00	50.71	2,884.74	1,442.37	5,147.43	2,577.54	1.97	-0.17	0.030
120.00	-27.88	-1.49	0.00	-47.56	0.00	47.56	2,864.09	1,432.05	5,050.96	2,529.23	2.04	-0.17	0.029
122.00	-26.34	-1.43	0.00	-44.59	0.00	44.59	2,843.15	1,421.57	4,954.82	2,481.09	2.11	-0.17	0.027
125.00	-25.50	-1.40	0.00	-40.30	0.00	40.30	2,811.17	1,405.58	4,811.29	2,409.22	2.22	-0.17	0.026
128.00	-24.86	-1.37	0.00	-36.11	0.00	36.11	2,778.51	1,389.26	4,668.62	2,337.78	2.33	-0.18	0.024
130.00	-23.52	-1.32	0.00	-33.36	0.00	33.36	2,756.37	1,378.18	4,574.03	2,290.41	2.40	-0.18	0.023
135.00	-22.73	-1.28	0.00	-26.77	0.00	26.77	2,699.70	1,349.85	4,339.46	2,172.95	2.60	-0.19	0.021
138.00	-18.57	-1.09	0.00	-22.92	0.00	22.92	2,664.80	1,332.40	4,200.13	2,103.19	2.71	-0.19	0.018
139.33	-18.32	-1.08	0.00	-21.46	0.00	21.46	2,649.07	1,324.54	4,138.57	2,072.36	2.77	-0.19	0.017
140.00	-16.69	-1.00	0.00	-20.74	0.00	20.74	2,641.16	1,320.58	4,107.88	2,056.99	2.79	-0.19	0.016
144.42	-16.57	-1.00	0.00	-16.31	0.00	16.31	1,927.04	963.52	2,958.38	1,481.39	2.97	-0.19	0.020
145.00	-15.94	-0.97	0.00	-15.73	0.00	15.73	1,922.70	961.35	2,940.04	1,472.21	2.99	-0.19	0.019
148.00	-12.08	-0.76	0.00	-12.83	0.00	12.83	1,899.96	949.98	2,845.93	1,425.08	3.12	-0.20	0.015
150.00	-11.71	-0.74	0.00	-11.31	0.00	11.31	1,884.42	942.21	2,783.42	1,393.78	3.20	-0.20	0.014
152.00	-10.96	-0.70	0.00	-9.82	0.00	9.82	1,868.59	934.30	2,721.13	1,362.59	3.28	-0.20	0.013
155.00	-10.05	-0.65	0.00	-7.71	0.00	7.71	1,844.28	922.14	2,628.12	1,316.02	3.41	-0.20	0.011
160.00	-4.70	-0.33	0.00	-4.47	0.00	4.47	1,802.26	901.13	2,474.43	1,239.06	3.62	-0.20	0.006
165.00	-4.44	-0.31	0.00	-2.83	0.00	2.83	1,758.37	879.19	2,322.64	1,163.05	3.83	-0.20	0.005
167.00	-3.38	-0.24	0.00	-2.21	0.00	2.21	1,740.29	870.15	2,262.53	1,132.94	3.92	-0.20	0.004
170.00	-3.26	-0.23	0.00	-1.49	0.00	1.49	1,712.61	856.30	2,173.05	1,088.14	4.05	-0.21	0.003

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:35 AM

Customer: VERIZON WIRELESS

171.00	-2.47	-0.18	0.00	-1.25	0.00	1.25	1,703.23	851.62	2,143.42	1,073.30	4.09	-0.21	0.003
175.00	-2.09	-0.15	0.00	-0.53	0.00	0.53	1,664.97	832.49	2,025.94	1,014.48	4.26	-0.21	0.002
178.50	0.00	-0.14	0.00	0.00	0.00	0.00	1,630.52	815.26	1,924.60	963.73	4.41	-0.21	0.000

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

Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-55.65	-2.03	0.00	-275.46	0.00	275.46	6,201.63	3,100.82	18,267.6	9,147.40	0.00	0.00	0.039
5.00	-53.88	-2.04	0.00	-265.30	0.00	265.30	6,145.05	3,072.53	17,781.1	8,903.77	0.00	-0.01	0.039
10.00	-52.13	-2.04	0.00	-255.11	0.00	255.11	6,086.60	3,043.30	17,295.1	8,660.43	0.01	-0.01	0.038
15.00	-50.41	-2.04	0.00	-244.90	0.00	244.90	6,026.28	3,013.14	16,810.0	8,417.51	0.03	-0.02	0.037
20.00	-48.65	-2.05	0.00	-234.68	0.00	234.68	5,964.08	2,982.04	16,326.1	8,175.18	0.05	-0.02	0.037
25.00	-46.97	-2.04	0.00	-224.45	0.00	224.45	5,900.01	2,950.01	15,843.6	7,933.57	0.08	-0.03	0.036
30.00	-45.33	-2.04	0.00	-214.23	0.00	214.23	5,834.07	2,917.04	15,362.8	7,692.84	0.12	-0.04	0.036
35.00	-43.70	-2.04	0.00	-204.02	0.00	204.02	5,766.26	2,883.13	14,884.1	7,453.12	0.16	-0.04	0.035
40.00	-42.11	-2.03	0.00	-193.84	0.00	193.84	5,696.58	2,848.29	14,407.7	7,214.56	0.21	-0.05	0.034
45.00	-39.50	-2.01	0.00	-183.69	0.00	183.69	5,625.02	2,812.51	13,933.9	6,977.32	0.26	-0.06	0.033
50.00	-37.95	-2.00	0.00	-173.65	0.00	173.65	5,551.60	2,775.80	13,463.0	6,741.53	0.33	-0.06	0.033
53.00	-37.40	-1.99	0.00	-167.66	0.00	167.66	4,466.37	2,233.18	10,853.4	5,434.80	0.37	-0.07	0.039
55.00	-36.03	-1.98	0.00	-163.68	0.00	163.68	4,445.78	2,222.89	10,710.8	5,363.40	0.40	-0.07	0.039
60.00	-34.68	-1.96	0.00	-153.81	0.00	153.81	4,392.99	2,196.49	10,355.0	5,185.21	0.47	-0.08	0.038
65.00	-33.35	-1.94	0.00	-144.01	0.00	144.01	4,338.33	2,169.16	10,000.3	5,007.61	0.56	-0.09	0.036
70.00	-32.04	-1.92	0.00	-134.32	0.00	134.32	4,281.80	2,140.90	9,647.15	4,830.75	0.65	-0.09	0.035
75.00	-30.76	-1.89	0.00	-124.73	0.00	124.73	4,223.39	2,111.70	9,295.72	4,654.77	0.75	-0.10	0.034
80.00	-29.49	-1.86	0.00	-115.28	0.00	115.28	4,163.12	2,081.56	8,946.35	4,479.82	0.86	-0.11	0.033
85.00	-28.25	-1.83	0.00	-105.97	0.00	105.97	4,100.97	2,050.48	8,599.32	4,306.05	0.98	-0.11	0.031
90.00	-27.90	-1.82	0.00	-96.83	0.00	96.83	4,036.95	2,018.47	8,254.94	4,133.61	1.10	-0.12	0.030
91.42	-26.52	-1.78	0.00	-94.25	0.00	94.25	4,018.47	2,009.23	8,157.89	4,085.01	1.14	-0.12	0.030
95.00	-25.38	-1.74	0.00	-87.88	0.00	87.88	3,971.06	1,985.53	7,913.50	3,962.63	1.23	-0.13	0.029
98.00	-24.95	-1.73	0.00	-82.66	0.00	82.66	3,074.73	1,537.36	6,126.65	3,067.88	1.32	-0.13	0.035
100.00	-23.90	-1.69	0.00	-79.20	0.00	79.20	3,057.08	1,528.54	6,027.83	3,018.39	1.37	-0.14	0.034
105.00	-22.86	-1.65	0.00	-70.76	0.00	70.76	3,011.64	1,505.82	5,781.46	2,895.03	1.52	-0.14	0.032
110.00	-21.85	-1.60	0.00	-62.52	0.00	62.52	2,964.33	1,482.16	5,536.34	2,772.28	1.68	-0.15	0.030
115.00	-21.25	-1.58	0.00	-54.51	0.00	54.51	2,915.15	1,457.57	5,292.74	2,650.30	1.84	-0.16	0.028
118.00	-20.57	-1.54	0.00	-49.78	0.00	49.78	2,884.74	1,442.37	5,147.43	2,577.54	1.94	-0.16	0.026
120.00	-18.91	-1.46	0.00	-46.69	0.00	46.69	2,864.09	1,432.05	5,050.96	2,529.23	2.01	-0.17	0.025
122.00	-17.87	-1.40	0.00	-43.77	0.00	43.77	2,843.15	1,421.57	4,954.82	2,481.09	2.08	-0.17	0.024
125.00	-17.30	-1.37	0.00	-39.56	0.00	39.56	2,811.17	1,405.58	4,811.29	2,409.22	2.18	-0.17	0.023
128.00	-16.86	-1.35	0.00	-35.44	0.00	35.44	2,778.51	1,389.26	4,668.62	2,337.78	2.29	-0.18	0.021
130.00	-15.96	-1.29	0.00	-32.75	0.00	32.75	2,756.37	1,378.18	4,574.03	2,290.41	2.37	-0.18	0.020
135.00	-15.42	-1.26	0.00	-26.28	0.00	26.28	2,699.70	1,349.85	4,339.46	2,172.95	2.56	-0.18	0.018
138.00	-12.60	-1.07	0.00	-22.50	0.00	22.50	2,664.80	1,332.40	4,200.13	2,103.19	2.67	-0.19	0.015
139.33	-12.43	-1.06	0.00	-21.07	0.00	21.07	2,649.07	1,324.54	4,138.57	2,072.36	2.72	-0.19	0.015
140.00	-11.32	-0.98	0.00	-20.36	0.00	20.36	2,641.16	1,320.58	4,107.88	2,056.99	2.75	-0.19	0.014
144.42	-11.24	-0.98	0.00	-16.02	0.00	16.02	1,927.04	963.52	2,958.38	1,481.39	2.92	-0.19	0.017
145.00	-10.82	-0.95	0.00	-15.45	0.00	15.45	1,922.70	961.35	2,940.04	1,472.21	2.95	-0.19	0.016
148.00	-8.20	-0.75	0.00	-12.61	0.00	12.61	1,899.96	949.98	2,845.93	1,425.08	3.07	-0.19	0.013
150.00	-7.94	-0.73	0.00	-11.11	0.00	11.11	1,884.42	942.21	2,783.42	1,393.78	3.15	-0.19	0.012
152.00	-7.43	-0.69	0.00	-9.65	0.00	9.65	1,868.59	934.30	2,721.13	1,362.59	3.23	-0.20	0.011
155.00	-6.81	-0.64	0.00	-7.58	0.00	7.58	1,844.28	922.14	2,628.12	1,316.02	3.36	-0.20	0.009
160.00	-3.19	-0.32	0.00	-4.39	0.00	4.39	1,802.26	901.13	2,474.43	1,239.06	3.56	-0.20	0.005
165.00	-3.01	-0.31	0.00	-2.79	0.00	2.79	1,758.37	879.19	2,322.64	1,163.05	3.77	-0.20	0.004
167.00	-2.29	-0.24	0.00	-2.18	0.00	2.18	1,740.29	870.15	2,262.53	1,132.94	3.86	-0.20	0.003
170.00	-2.21	-0.23	0.00	-1.46	0.00	1.46	1,712.61	856.30	2,173.05	1,088.14	3.98	-0.20	0.003

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:35 AM

Customer: VERIZON WIRELESS

171.00	-1.68	-0.18	0.00	-1.23	0.00	1.23	1,703.23	851.62	2,143.42	1,073.30	4.03	-0.20	0.002
175.00	-1.42	-0.15	0.00	-0.52	0.00	0.52	1,664.97	832.49	2,025.94	1,014.48	4.20	-0.20	0.001
178.50	0.00	-0.14	0.00	0.00	0.00	0.00	1,630.52	815.26	1,924.60	963.73	4.34	-0.20	0.000

Equivalent Modal Analysis Method

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

Spectral Response Acceleration for Short Period (S_s):	0.24
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.26
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.24
Redundancy Factor (ρ):	1.00

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
49	176.75	310	1.853	1.791	1.071	0.450	93	388
48	173.00	365	1.775	1.429	0.935	0.386	94	456
47	170.50	93	1.724	1.217	0.853	0.346	22	117
46	168.50	285	1.684	1.063	0.790	0.315	60	356
45	166.00	193	1.635	0.889	0.718	0.278	36	242
44	162.50	513	1.566	0.678	0.625	0.229	78	642
43	157.50	729	1.471	0.433	0.509	0.166	81	912
42	153.50	446	1.398	0.279	0.429	0.121	36	558
41	151.00	300	1.353	0.200	0.384	0.096	19	376
40	149.00	303	1.317	0.145	0.351	0.076	15	379
39	146.50	499	1.273	0.085	0.313	0.054	18	624
38	144.71	98	1.242	0.048	0.287	0.039	3	122
37	142.21	1,303	1.200	0.004	0.254	0.019	17	1,631
36	139.67	199	1.157	-0.032	0.224	0.001	0	249
35	138.67	261	1.141	-0.044	0.213	-0.005	-1	327
34	136.50	630	1.105	-0.067	0.190	-0.018	-8	789
33	132.50	1,067	1.041	-0.097	0.153	-0.039	-28	1,335
32	129.00	433	0.987	-0.113	0.125	-0.054	-16	542
31	126.50	671	0.949	-0.119	0.108	-0.063	-28	840
30	123.50	679	0.905	-0.122	0.089	-0.070	-32	850
29	121.00	457	0.868	-0.121	0.076	-0.075	-23	572
28	119.00	460	0.840	-0.118	0.066	-0.077	-24	576
27	116.50	707	0.805	-0.113	0.055	-0.078	-37	884
26	112.50	1,198	0.751	-0.101	0.041	-0.076	-60	1,500
25	107.50	1,220	0.685	-0.082	0.027	-0.066	-54	1,526
24	102.50	1,241	0.623	-0.061	0.017	-0.050	-42	1,553
23	99.00	502	0.581	-0.046	0.013	-0.036	-12	628
22	96.50	1,344	0.552	-0.035	0.010	-0.024	-22	1,682
21	93.21	1,628	0.515	-0.022	0.008	-0.008	-9	2,037
20	90.71	410	0.488	-0.012	0.007	0.004	1	513
19	87.50	1,463	0.454	0.000	0.006	0.019	18	1,830
18	82.50	1,488	0.404	0.017	0.006	0.039	39	1,862
17	77.50	1,514	0.356	0.031	0.008	0.055	55	1,894
16	72.50	1,539	0.312	0.043	0.011	0.065	67	1,926

15	67.50	1,565	0.270	0.052	0.015	0.072	75	1,958
14	62.50	1,590	0.232	0.058	0.019	0.075	80	1,990
13	57.50	1,616	0.196	0.063	0.024	0.076	82	2,022
12	54.00	653	0.173	0.066	0.027	0.076	33	818
11	51.50	1,819	0.157	0.067	0.029	0.076	92	2,275
10	47.50	3,075	0.134	0.069	0.032	0.075	154	3,848
9	42.50	1,881	0.107	0.071	0.036	0.074	92	2,354
8	37.50	1,911	0.083	0.072	0.039	0.072	92	2,391
7	32.50	1,940	0.063	0.072	0.041	0.071	91	2,428
6	27.50	1,970	0.045	0.071	0.042	0.069	90	2,465
5	22.50	2,000	0.030	0.068	0.041	0.067	89	2,502
4	17.50	2,030	0.018	0.063	0.037	0.063	85	2,540
3	12.50	2,060	0.009	0.054	0.031	0.056	77	2,577
2	7.50	2,090	0.003	0.039	0.022	0.044	61	2,615
1	2.50	2,119	0.000	0.016	0.008	0.020	29	2,652
Decibel DB844H90E-XY	178.50	168	1.890	1.980	1.140	0.482	54	210
Flat Low Profile Pla	178.50	1,500	1.890	1.980	1.140	0.482	482	1,877
DragonWave Horizon C	171.00	21	1.735	1.257	0.869	0.354	5	27
NextNet BTS-2500	171.00	105	1.735	1.257	0.869	0.354	25	131
Argus LLPX310R	171.00	86	1.735	1.257	0.869	0.354	20	107
DragonWave A-ANT-11G	171.00	27	1.735	1.257	0.869	0.354	6	34
DragonWave A-ANT-18G	171.00	27	1.735	1.257	0.869	0.354	6	34
Side Arms	167.00	560	1.654	0.957	0.746	0.292	109	701
Generic 18" x 12" Ju	165.00	15	1.615	0.825	0.690	0.264	3	19
Powerwave Allgon 702	160.00	13	1.519	0.548	0.565	0.197	2	17
Kaelus DBCT108F1V92-	160.00	125	1.519	0.548	0.565	0.197	16	157
Powerwave Allgon LGP	160.00	85	1.519	0.548	0.565	0.197	11	106
Raycap DC6-48-60-18-	160.00	40	1.519	0.548	0.565	0.197	5	50
Ericsson RRUS 4426 B	160.00	145	1.519	0.548	0.565	0.197	19	182
Ericsson RRUS 4478 B	160.00	178	1.519	0.548	0.565	0.197	23	223
Ericsson RRUS 4478 B	160.00	168	1.519	0.548	0.565	0.197	22	211
Ericsson RRUS 32 B2	160.00	159	1.519	0.548	0.565	0.197	21	199
Ericsson RRUS 11 (Ba	160.00	152	1.519	0.548	0.565	0.197	20	190
Ericsson RRUS-32 (77	160.00	231	1.519	0.548	0.565	0.197	30	289
Raycap DC6-48-60-18-	160.00	16	1.519	0.548	0.565	0.197	2	20
Powerwave Allgon 777	160.00	105	1.519	0.548	0.565	0.197	14	131
Quintel QS66512-2	160.00	333	1.519	0.548	0.565	0.197	44	417
CCI OPA-65R-LCUU-H6	160.00	219	1.519	0.548	0.565	0.197	29	274
Kathrein Scala 80010	160.00	293	1.519	0.548	0.565	0.197	38	366
Flat Low Profile Pla	160.00	1,500	1.519	0.548	0.565	0.197	197	1,877
Ericsson RRUS 11 B12	152.00	152	1.370	0.230	0.402	0.106	11	190
Ericsson KRY 112 144	148.00	33	1.299	0.120	0.335	0.067	1	41
Ericsson Radio 4449	148.00	222	1.299	0.120	0.335	0.067	10	278
Ericsson AIR 21, 1.3	148.00	249	1.299	0.120	0.335	0.067	11	312
Ericsson AIR32 B66Aa	148.00	397	1.299	0.120	0.335	0.067	18	496
RFS APXVAARR24_43-U-	148.00	384	1.299	0.120	0.335	0.067	17	480
T-Arm with Platform	148.00	1,500	1.299	0.120	0.335	0.067	67	1,877
Commscope CBC78T-	138.00	62	1.130	-0.052	0.206	-0.009	0	78
Samsung Outdoor	138.00	56	1.130	-0.052	0.206	-0.009	0	70
Samsung Outdoor	138.00	13	1.130	-0.052	0.206	-0.009	0	17
Samsung B5/B13 RRH-B	138.00	422	1.130	-0.052	0.206	-0.009	-3	528
Samsung B2/B66A RRH-	138.00	506	1.130	-0.052	0.206	-0.009	-3	634
RFS DB-T1-6Z-8AB-0Z	138.00	88	1.130	-0.052	0.206	-0.009	-1	110
Amphenol Antel BXA-8	138.00	58	1.130	-0.052	0.206	-0.009	0	72
Commscope JAHH-65B-	138.00	364	1.130	-0.052	0.206	-0.009	-2	455
Round Low Profile PI	138.00	1,500	1.130	-0.052	0.206	-0.009	-9	1,877
Nortel NTGB01MA	128.00	1	0.972	-0.116	0.118	-0.058	0	1
RFS APXV18-206517S-C	128.00	79	0.972	-0.116	0.118	-0.058	-3	99
Alcatel-Lucent 800 M	122.00	159	0.883	-0.121	0.081	-0.073	-8	199
Alcatel-Lucent 1900	122.00	180	0.883	-0.121	0.081	-0.073	-9	225
Alcatel-Lucent TD-RR	122.00	210	0.883	-0.121	0.081	-0.073	-10	263
Round Low Profile PI	120.00	1,500	0.854	-0.120	0.071	-0.076	-76	1,877
RFS APXV9TM14-ALU-I2	118.00	165	0.826	-0.116	0.062	-0.077	-9	207
RFS APXVSP18-C-A20	118.00	171	0.826	-0.116	0.062	-0.077	-9	214

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:35 AM

Customer: VERIZON WIRELESS

PCTEL GPS-TMG-HR- Standoff	20.00	1	0.024	0.066	0.039	0.065	0	1
	20.00	75	0.024	0.066	0.039	0.065	3	94
		67,687	103.032	28.406	31.536	9.430	2,781	84,690

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
49	176.75	310	1.853	1.791	1.071	0.450	93	263
48	173.00	365	1.775	1.429	0.935	0.386	94	310
47	170.50	93	1.724	1.217	0.853	0.346	22	79
46	168.50	285	1.684	1.063	0.790	0.315	60	242
45	166.00	193	1.635	0.889	0.718	0.278	36	164
44	162.50	513	1.566	0.678	0.625	0.229	78	435
43	157.50	729	1.471	0.433	0.509	0.166	81	619
42	153.50	446	1.398	0.279	0.429	0.121	36	378
41	151.00	300	1.353	0.200	0.384	0.096	19	255
40	149.00	303	1.317	0.145	0.351	0.076	15	257
39	146.50	499	1.273	0.085	0.313	0.054	18	423
38	144.71	98	1.242	0.048	0.287	0.039	3	83
37	142.21	1,303	1.200	0.004	0.254	0.019	17	1,106
36	139.67	199	1.157	-0.032	0.224	0.001	0	169
35	138.67	261	1.141	-0.044	0.213	-0.005	-1	222
34	136.50	630	1.105	-0.067	0.190	-0.018	-8	535
33	132.50	1,067	1.041	-0.097	0.153	-0.039	-28	906
32	129.00	433	0.987	-0.113	0.125	-0.054	-16	367
31	126.50	671	0.949	-0.119	0.108	-0.063	-28	570
30	123.50	679	0.905	-0.122	0.089	-0.070	-32	576
29	121.00	457	0.868	-0.121	0.076	-0.075	-23	388
28	119.00	460	0.840	-0.118	0.066	-0.077	-24	391
27	116.50	707	0.805	-0.113	0.055	-0.078	-37	600
26	112.50	1,198	0.751	-0.101	0.041	-0.076	-60	1,017
25	107.50	1,220	0.685	-0.082	0.027	-0.066	-54	1,035
24	102.50	1,241	0.623	-0.061	0.017	-0.050	-42	1,053
23	99.00	502	0.581	-0.046	0.013	-0.036	-12	426
22	96.50	1,344	0.552	-0.035	0.010	-0.024	-22	1,141
21	93.21	1,628	0.515	-0.022	0.008	-0.008	-9	1,382
20	90.71	410	0.488	-0.012	0.007	0.004	1	348
19	87.50	1,463	0.454	0.000	0.006	0.019	18	1,242
18	82.50	1,488	0.404	0.017	0.006	0.039	39	1,263
17	77.50	1,514	0.356	0.031	0.008	0.055	55	1,285
16	72.50	1,539	0.312	0.043	0.011	0.065	67	1,307
15	67.50	1,565	0.270	0.052	0.015	0.072	75	1,328
14	62.50	1,590	0.232	0.058	0.019	0.075	80	1,350
13	57.50	1,616	0.196	0.063	0.024	0.076	82	1,371
12	54.00	653	0.173	0.066	0.027	0.076	33	555
11	51.50	1,819	0.157	0.067	0.029	0.076	92	1,544
10	47.50	3,075	0.134	0.069	0.032	0.075	154	2,610
9	42.50	1,881	0.107	0.071	0.036	0.074	92	1,597
8	37.50	1,911	0.083	0.072	0.039	0.072	92	1,622
7	32.50	1,940	0.063	0.072	0.041	0.071	91	1,647
6	27.50	1,970	0.045	0.071	0.042	0.069	90	1,672
5	22.50	2,000	0.030	0.068	0.041	0.067	89	1,697
4	17.50	2,030	0.018	0.063	0.037	0.063	85	1,723
3	12.50	2,060	0.009	0.054	0.031	0.056	77	1,749
2	7.50	2,090	0.003	0.039	0.022	0.044	61	1,774
1	2.50	2,119	0.000	0.016	0.008	0.020	29	1,799
Decibel DB844H90E-XY	178.50	168	1.890	1.980	1.140	0.482	54	143
Flat Low Profile Pla	178.50	1,500	1.890	1.980	1.140	0.482	482	1,273

DragonWave Horizon C	171.00	21	1.735	1.257	0.869	0.354	5	18
NextNet BTS-2500	171.00	105	1.735	1.257	0.869	0.354	25	89
Argus LLPX310R	171.00	86	1.735	1.257	0.869	0.354	20	73
DragonWave A-ANT-11G	171.00	27	1.735	1.257	0.869	0.354	6	23
DragonWave A-ANT-18G	171.00	27	1.735	1.257	0.869	0.354	6	23
Side Arms	167.00	560	1.654	0.957	0.746	0.292	109	475
Generic 18" x 12" Ju	165.00	15	1.615	0.825	0.690	0.264	3	13
Powerwave Allgon 702	160.00	13	1.519	0.548	0.565	0.197	2	11
Kaelus DBCT108F1V92-	160.00	125	1.519	0.548	0.565	0.197	16	106
Powerwave Allgon LGP	160.00	85	1.519	0.548	0.565	0.197	11	72
Raycap DC6-48-60-18-	160.00	40	1.519	0.548	0.565	0.197	5	34
Ericsson RRUS 4426 B	160.00	145	1.519	0.548	0.565	0.197	19	123
Ericsson RRUS 4478 B	160.00	178	1.519	0.548	0.565	0.197	23	151
Ericsson RRUS 4478 B	160.00	168	1.519	0.548	0.565	0.197	22	143
Ericsson RRUS 32 B2	160.00	159	1.519	0.548	0.565	0.197	21	135
Ericsson RRUS 11 (Ba	160.00	152	1.519	0.548	0.565	0.197	20	129
Ericsson RRUS-32 (77	160.00	231	1.519	0.548	0.565	0.197	30	196
Raycap DC6-48-60-18-	160.00	16	1.519	0.548	0.565	0.197	2	14
Powerwave Allgon 777	160.00	105	1.519	0.548	0.565	0.197	14	89
Quintel QS66512-2	160.00	333	1.519	0.548	0.565	0.197	44	283
CCI OPA-65R-LCUU-H6	160.00	219	1.519	0.548	0.565	0.197	29	186
Kathrein Scala 80010	160.00	293	1.519	0.548	0.565	0.197	38	249
Flat Low Profile Pla	160.00	1,500	1.519	0.548	0.565	0.197	197	1,273
Ericsson RRUS 11 B12	152.00	152	1.370	0.230	0.402	0.106	11	129
Ericsson KRY 112 144	148.00	33	1.299	0.120	0.335	0.067	1	28
Ericsson Radio 4449	148.00	222	1.299	0.120	0.335	0.067	10	188
Ericsson AIR 21, 1.3	148.00	249	1.299	0.120	0.335	0.067	11	211
Ericsson AIR32 B66Aa	148.00	397	1.299	0.120	0.335	0.067	18	337
RFS APXVAARR24_43-U-	148.00	384	1.299	0.120	0.335	0.067	17	326
T-Arm with Platform	148.00	1,500	1.299	0.120	0.335	0.067	67	1,273
Commscope CBC78T-	138.00	62	1.130	-0.052	0.206	-0.009	0	53
Samsung Outdoor	138.00	56	1.130	-0.052	0.206	-0.009	0	47
Samsung Outdoor	138.00	13	1.130	-0.052	0.206	-0.009	0	11
Samsung B5/B13 RRH-B	138.00	422	1.130	-0.052	0.206	-0.009	-3	358
Samsung B2/B66A RRH-	138.00	506	1.130	-0.052	0.206	-0.009	-3	430
RFS DB-T1-6Z-8AB-OZ	138.00	88	1.130	-0.052	0.206	-0.009	-1	75
Amphenol Antel BXA-8	138.00	58	1.130	-0.052	0.206	-0.009	0	49
Commscope JAHH-65B-	138.00	364	1.130	-0.052	0.206	-0.009	-2	309
Round Low Profile PI	138.00	1,500	1.130	-0.052	0.206	-0.009	-9	1,273
Nortel NTGB01MA	128.00	1	0.972	-0.116	0.118	-0.058	0	1
RFS APXV18-206517S-C	128.00	79	0.972	-0.116	0.118	-0.058	-3	67
Alcatel-Lucent 800 M	122.00	159	0.883	-0.121	0.081	-0.073	-8	135
Alcatel-Lucent 1900	122.00	180	0.883	-0.121	0.081	-0.073	-9	153
Alcatel-Lucent TD-RR	122.00	210	0.883	-0.121	0.081	-0.073	-10	178
Round Low Profile PI	120.00	1,500	0.854	-0.120	0.071	-0.076	-76	1,273
RFS APXV9TM14-ALU-I2	118.00	165	0.826	-0.116	0.062	-0.077	-9	140
RFS APXVSP18-C-A20	118.00	171	0.826	-0.116	0.062	-0.077	-9	145
PCTEL GPS-TMG-HR-	20.00	1	0.024	0.066	0.039	0.065	0	1
Standoff	20.00	75	0.024	0.066	0.039	0.065	3	64
		67,687	103.032	28.406	31.536	9.430	2,781	57,453

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-82.04	-2.76	0.00	-324.83	0.00	324.83	6,201.63	3,100.82	18,267.65	9,147.40	0.00	0.00	0.049
5.00	-79.42	-2.70	0.00	-311.05	0.00	311.05	6,145.05	3,072.53	17,781.11	8,903.77	0.00	-0.01	0.048
10.00	-76.85	-2.64	0.00	-297.53	0.00	297.53	6,086.60	3,043.30	17,295.15	8,660.43	0.02	-0.01	0.047
15.00	-74.31	-2.56	0.00	-284.34	0.00	284.34	6,026.28	3,013.14	16,810.04	8,417.51	0.03	-0.02	0.046
20.00	-71.71	-2.48	0.00	-271.54	0.00	271.54	5,964.08	2,982.04	16,326.10	8,175.18	0.06	-0.03	0.045
25.00	-69.24	-2.39	0.00	-259.16	0.00	259.16	5,900.01	2,950.01	15,843.60	7,933.57	0.09	-0.04	0.044
30.00	-66.81	-2.31	0.00	-247.20	0.00	247.20	5,834.07	2,917.04	15,362.84	7,692.84	0.14	-0.04	0.044
35.00	-64.42	-2.22	0.00	-235.65	0.00	235.65	5,766.26	2,883.13	14,884.11	7,453.12	0.18	-0.05	0.043
40.00	-62.07	-2.14	0.00	-224.53	0.00	224.53	5,696.58	2,848.29	14,407.71	7,214.56	0.24	-0.06	0.042
45.00	-58.22	-1.99	0.00	-213.85	0.00	213.85	5,625.02	2,812.51	13,933.93	6,977.32	0.31	-0.07	0.041
50.00	-55.95	-1.90	0.00	-203.91	0.00	203.91	5,551.60	2,775.80	13,463.06	6,741.53	0.38	-0.07	0.040
53.00	-55.13	-1.87	0.00	-198.22	0.00	198.22	4,466.37	2,233.18	10,853.47	5,434.80	0.43	-0.08	0.049
55.00	-53.11	-1.79	0.00	-194.48	0.00	194.48	4,445.78	2,222.89	10,710.87	5,363.40	0.46	-0.08	0.048
60.00	-51.12	-1.71	0.00	-185.54	0.00	185.54	4,392.99	2,196.49	10,355.02	5,185.21	0.55	-0.09	0.047
65.00	-49.16	-1.64	0.00	-176.97	0.00	176.97	4,338.33	2,169.16	10,000.35	5,007.61	0.65	-0.10	0.047
70.00	-47.23	-1.58	0.00	-168.75	0.00	168.75	4,281.80	2,140.90	9,647.15	4,830.75	0.76	-0.11	0.046
75.00	-45.34	-1.53	0.00	-160.85	0.00	160.85	4,223.39	2,111.70	9,295.72	4,654.77	0.88	-0.12	0.045
80.00	-43.48	-1.49	0.00	-153.20	0.00	153.20	4,163.12	2,081.56	8,946.35	4,479.82	1.01	-0.13	0.045
85.00	-41.65	-1.48	0.00	-145.73	0.00	145.73	4,100.97	2,050.48	8,599.32	4,306.05	1.15	-0.14	0.044
90.00	-41.13	-1.48	0.00	-138.33	0.00	138.33	4,036.95	2,018.47	8,254.94	4,133.61	1.30	-0.15	0.044
91.42	-39.10	-1.49	0.00	-136.24	0.00	136.24	4,018.47	2,009.23	8,157.89	4,085.01	1.34	-0.15	0.043
95.00	-37.41	-1.51	0.00	-130.90	0.00	130.90	3,971.06	1,985.53	7,913.50	3,962.63	1.46	-0.16	0.042
98.00	-36.79	-1.52	0.00	-126.37	0.00	126.37	3,074.73	1,537.36	6,126.65	3,067.88	1.56	-0.17	0.053
100.00	-35.23	-1.57	0.00	-123.32	0.00	123.32	3,057.08	1,528.54	6,027.83	3,018.39	1.63	-0.17	0.052
105.00	-33.71	-1.62	0.00	-115.49	0.00	115.49	3,011.64	1,505.82	5,781.46	2,895.03	1.82	-0.18	0.051
110.00	-32.21	-1.69	0.00	-107.38	0.00	107.38	2,964.33	1,482.16	5,536.34	2,772.28	2.01	-0.19	0.050
115.00	-31.32	-1.72	0.00	-98.95	0.00	98.95	2,915.15	1,457.57	5,292.74	2,650.30	2.22	-0.21	0.048
118.00	-30.32	-1.77	0.00	-93.78	0.00	93.78	2,884.74	1,442.37	5,147.43	2,577.54	2.36	-0.21	0.047
120.00	-27.87	-1.86	0.00	-90.25	0.00	90.25	2,864.09	1,432.05	5,050.96	2,529.23	2.45	-0.22	0.045
122.00	-26.34	-1.91	0.00	-86.54	0.00	86.54	2,843.15	1,421.57	4,954.82	2,481.09	2.54	-0.22	0.044
125.00	-25.50	-1.94	0.00	-80.80	0.00	80.80	2,811.17	1,405.58	4,811.29	2,409.22	2.68	-0.23	0.043
128.00	-24.85	-1.96	0.00	-74.98	0.00	74.98	2,778.51	1,389.26	4,668.62	2,337.78	2.83	-0.24	0.041
130.00	-23.52	-1.98	0.00	-71.06	0.00	71.06	2,756.37	1,378.18	4,574.03	2,290.41	2.93	-0.24	0.040
135.00	-22.73	-1.99	0.00	-61.14	0.00	61.14	2,699.70	1,349.85	4,339.46	2,172.95	3.19	-0.26	0.037
138.00	-18.56	-2.00	0.00	-55.16	0.00	55.16	2,664.80	1,332.40	4,200.13	2,103.19	3.36	-0.26	0.033
139.33	-18.31	-2.00	0.00	-52.50	0.00	52.50	2,649.07	1,324.54	4,138.57	2,072.36	3.43	-0.27	0.032
140.00	-16.68	-1.97	0.00	-51.17	0.00	51.17	2,641.16	1,320.58	4,107.88	2,056.99	3.47	-0.27	0.031
144.42	-16.56	-1.97	0.00	-42.46	0.00	42.46	1,927.04	963.52	2,958.38	1,481.39	3.72	-0.28	0.037
145.00	-15.94	-1.95	0.00	-41.31	0.00	41.31	1,922.70	961.35	2,940.04	1,472.21	3.75	-0.28	0.036
148.00	-12.08	-1.79	0.00	-35.46	0.00	35.46	1,899.96	949.98	2,845.93	1,425.08	3.93	-0.28	0.031
150.00	-11.70	-1.77	0.00	-31.87	0.00	31.87	1,884.42	942.21	2,783.42	1,393.78	4.05	-0.29	0.029
152.00	-10.95	-1.72	0.00	-28.32	0.00	28.32	1,868.59	934.30	2,721.13	1,362.59	4.17	-0.29	0.027
155.00	-10.04	-1.64	0.00	-23.15	0.00	23.15	1,844.28	922.14	2,628.12	1,316.02	4.35	-0.30	0.023
160.00	-4.69	-1.04	0.00	-14.96	0.00	14.96	1,802.26	901.13	2,474.43	1,239.06	4.67	-0.30	0.015
165.00	-4.43	-1.00	0.00	-9.76	0.00	9.76	1,758.37	879.19	2,322.64	1,163.05	4.98	-0.31	0.011
167.00	-3.38	-0.83	0.00	-7.76	0.00	7.76	1,740.29	870.15	2,262.53	1,132.94	5.11	-0.31	0.009
170.00	-3.26	-0.80	0.00	-5.29	0.00	5.29	1,712.61	856.30	2,173.05	1,088.14	5.31	-0.31	0.007

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:36 AM

Customer: VERIZON WIRELESS

171.00	-2.47	-0.64	0.00	-4.49	0.00	4.49	1,703.23	851.62	2,143.42	1,073.30	5.37	-0.31	0.006
175.00	-2.08	-0.55	0.00	-1.92	0.00	1.92	1,664.97	832.49	2,025.94	1,014.48	5.63	-0.31	0.003
178.50	0.00	-0.54	0.00	0.00	0.00	0.00	1,630.52	815.26	1,924.60	963.73	5.86	-0.31	0.000

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-55.65	-2.75	0.00	-320.62	0.00	320.62	6,201.63	3,100.82	18,267.65	9,147.40	0.00	0.00	0.044
5.00	-53.88	-2.70	0.00	-306.85	0.00	306.85	6,145.05	3,072.53	17,781.11	8,903.77	0.00	-0.01	0.043
10.00	-52.13	-2.63	0.00	-293.35	0.00	293.35	6,086.60	3,043.30	17,295.15	8,660.43	0.01	-0.01	0.042
15.00	-50.41	-2.55	0.00	-280.21	0.00	280.21	6,026.28	3,013.14	16,810.04	8,417.51	0.03	-0.02	0.042
20.00	-48.65	-2.46	0.00	-267.46	0.00	267.46	5,964.08	2,982.04	16,326.10	8,175.18	0.06	-0.03	0.041
25.00	-46.97	-2.38	0.00	-255.15	0.00	255.15	5,900.01	2,950.01	15,843.60	7,933.57	0.09	-0.04	0.040
30.00	-45.33	-2.29	0.00	-243.26	0.00	243.26	5,834.07	2,917.04	15,362.84	7,692.84	0.13	-0.04	0.039
35.00	-43.70	-2.20	0.00	-231.80	0.00	231.80	5,766.26	2,883.13	14,884.11	7,453.12	0.18	-0.05	0.039
40.00	-42.11	-2.12	0.00	-220.79	0.00	220.79	5,696.58	2,848.29	14,407.71	7,214.56	0.24	-0.06	0.038
45.00	-39.50	-1.96	0.00	-210.21	0.00	210.21	5,625.02	2,812.51	13,933.93	6,977.32	0.30	-0.06	0.037
50.00	-37.95	-1.87	0.00	-200.39	0.00	200.39	5,551.60	2,775.80	13,463.06	6,741.53	0.37	-0.07	0.037
53.00	-37.40	-1.84	0.00	-194.77	0.00	194.77	4,466.37	2,233.18	10,853.47	5,434.80	0.42	-0.08	0.044
55.00	-36.03	-1.76	0.00	-191.09	0.00	191.09	4,445.78	2,222.89	10,710.87	5,363.40	0.45	-0.08	0.044
60.00	-34.68	-1.69	0.00	-182.27	0.00	182.27	4,392.99	2,196.49	10,355.02	5,185.21	0.54	-0.09	0.043
65.00	-33.35	-1.61	0.00	-173.85	0.00	173.85	4,338.33	2,169.16	10,000.35	5,007.61	0.64	-0.10	0.042
70.00	-32.04	-1.55	0.00	-165.78	0.00	165.78	4,281.80	2,140.90	9,647.15	4,830.75	0.75	-0.11	0.042
75.00	-30.76	-1.50	0.00	-158.03	0.00	158.03	4,223.39	2,111.70	9,295.72	4,654.77	0.87	-0.12	0.041
80.00	-29.49	-1.46	0.00	-150.54	0.00	150.54	4,163.12	2,081.56	8,946.35	4,479.82	0.99	-0.13	0.041
85.00	-28.25	-1.44	0.00	-143.24	0.00	143.24	4,100.97	2,050.48	8,599.32	4,306.05	1.13	-0.14	0.040
90.00	-27.90	-1.45	0.00	-136.02	0.00	136.02	4,036.95	2,018.47	8,254.94	4,133.61	1.28	-0.15	0.040
91.42	-26.52	-1.45	0.00	-133.97	0.00	133.97	4,018.47	2,009.23	8,157.89	4,085.01	1.32	-0.15	0.039
95.00	-25.38	-1.48	0.00	-128.76	0.00	128.76	3,971.06	1,985.53	7,913.50	3,962.63	1.44	-0.16	0.039
98.00	-24.95	-1.49	0.00	-124.34	0.00	124.34	3,074.73	1,537.36	6,126.65	3,067.88	1.54	-0.16	0.049
100.00	-23.90	-1.53	0.00	-121.36	0.00	121.36	3,057.08	1,528.54	6,027.83	3,018.39	1.61	-0.17	0.048
105.00	-22.86	-1.59	0.00	-113.71	0.00	113.71	3,011.64	1,505.82	5,781.46	2,895.03	1.79	-0.18	0.047
110.00	-21.85	-1.65	0.00	-105.78	0.00	105.78	2,964.33	1,482.16	5,536.34	2,772.28	1.98	-0.19	0.046
115.00	-21.25	-1.69	0.00	-97.54	0.00	97.54	2,915.15	1,457.57	5,292.74	2,650.30	2.19	-0.20	0.044
118.00	-20.57	-1.73	0.00	-92.48	0.00	92.48	2,884.74	1,442.37	5,147.43	2,577.54	2.32	-0.21	0.043
120.00	-18.91	-1.82	0.00	-89.03	0.00	89.03	2,864.09	1,432.05	5,050.96	2,529.23	2.41	-0.22	0.042
122.00	-17.86	-1.88	0.00	-85.39	0.00	85.39	2,843.15	1,421.57	4,954.82	2,481.09	2.50	-0.22	0.041
125.00	-17.29	-1.91	0.00	-79.75	0.00	79.75	2,811.17	1,405.58	4,811.29	2,409.22	2.64	-0.23	0.039
128.00	-16.86	-1.92	0.00	-74.04	0.00	74.04	2,778.51	1,389.26	4,668.62	2,337.78	2.79	-0.24	0.038
130.00	-15.95	-1.95	0.00	-70.19	0.00	70.19	2,756.37	1,378.18	4,574.03	2,290.41	2.89	-0.24	0.036
135.00	-15.42	-1.96	0.00	-60.44	0.00	60.44	2,699.70	1,349.85	4,339.46	2,172.95	3.14	-0.25	0.034
138.00	-12.59	-1.97	0.00	-54.56	0.00	54.56	2,664.80	1,332.40	4,200.13	2,103.19	3.30	-0.26	0.031
139.33	-12.42	-1.97	0.00	-51.94	0.00	51.94	2,649.07	1,324.54	4,138.57	2,072.36	3.38	-0.26	0.030
140.00	-11.32	-1.95	0.00	-50.63	0.00	50.63	2,641.16	1,320.58	4,107.88	2,056.99	3.41	-0.26	0.029
144.42	-11.23	-1.94	0.00	-42.03	0.00	42.03	1,927.04	963.52	2,958.38	1,481.39	3.66	-0.27	0.034
145.00	-10.81	-1.93	0.00	-40.90	0.00	40.90	1,922.70	961.35	2,940.04	1,472.21	3.69	-0.27	0.033
148.00	-8.19	-1.77	0.00	-35.12	0.00	35.12	1,899.96	949.98	2,845.93	1,425.08	3.87	-0.28	0.029
150.00	-7.93	-1.75	0.00	-31.58	0.00	31.58	1,884.42	942.21	2,783.42	1,393.78	3.98	-0.28	0.027
152.00	-7.43	-1.70	0.00	-28.07	0.00	28.07	1,868.59	934.30	2,721.13	1,362.59	4.10	-0.29	0.025
155.00	-6.81	-1.62	0.00	-22.96	0.00	22.96	1,844.28	922.14	2,628.12	1,316.02	4.28	-0.29	0.021
160.00	-3.18	-1.03	0.00	-14.85	0.00	14.85	1,802.26	901.13	2,474.43	1,239.06	4.59	-0.30	0.014
165.00	-3.01	-0.99	0.00	-9.69	0.00	9.69	1,758.37	879.19	2,322.64	1,163.05	4.91	-0.30	0.010
167.00	-2.29	-0.82	0.00	-7.71	0.00	7.71	1,740.29	870.15	2,262.53	1,132.94	5.03	-0.30	0.008
170.00	-2.21	-0.80	0.00	-5.25	0.00	5.25	1,712.61	856.30	2,173.05	1,088.14	5.23	-0.31	0.006

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:36 AM

Customer: VERIZON WIRELESS

171.00	-1.68	-0.64	0.00	-4.45	0.00	4.45	1,703.23	851.62	2,143.42	1,073.30	5.29	-0.31	0.005
175.00	-1.41	-0.54	0.00	-1.90	0.00	1.90	1,664.97	832.49	2,025.94	1,014.48	5.55	-0.31	0.003
178.50	0.00	-0.54	0.00	0.00	0.00	0.00	1,630.52	815.26	1,924.60	963.73	5.77	-0.31	0.000

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: 13014253_C3_01

12/19/2019 9:56:36 AM

Customer: VERIZON WIRELESS

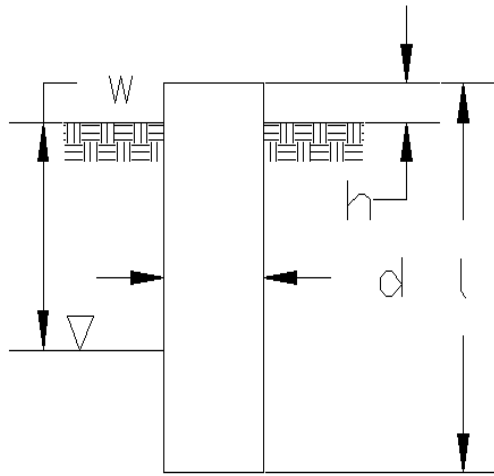
Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	36.46	0.00	81.19	0.00	0.00	4523.74	53.00	0.51
0.9D + 1.6W	36.43	0.00	60.89	0.00	0.00	4480.13	0.00	0.50
1.2D + 1.0Di + 1.0Wi	30.45	0.00	140.29	0.00	0.00	2872.83	0.00	0.34
(1.2 + 0.2Sds) * DL + E ELFM	2.03	0.00	82.04	0.00	0.00	278.84	0.00	0.04
(1.2 + 0.2Sds) * DL + E EMAM	2.76	0.00	82.04	0.00	0.00	324.83	98.00	0.05
(0.9 - 0.2Sds) * DL + E ELFM	2.03	0.00	55.65	0.00	0.00	275.46	53.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	2.75	0.00	55.65	0.00	0.00	320.62	98.00	0.05
1.0D + 1.0W	7.80	0.00	67.69	0.00	0.00	961.92	0.00	0.12

Site Name: Bilkays Express, CT
Site Number: 302467
Tower Type: MP
Design Base Loads (Factored) - Analysis per TIA-222-G Standards

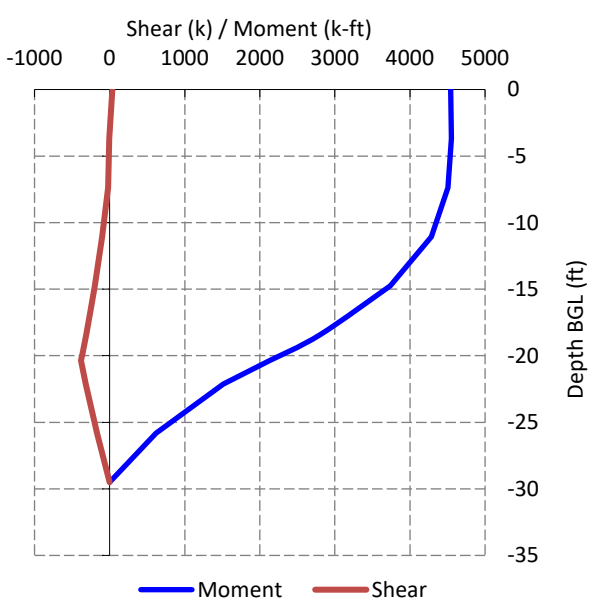
Pier Foundation Analysis

Foundation Analysis Parameters		
Analyze or Design a Foundation?	Analyze	-
Foundation Mapped:	N	-
Moment (M):	4,523.7	k-ft
Shear/Leg (V):	36.5	k
Axial Load (P):	81.2	k
Uplift/Leg (U):	0.0	k
Diameter of Caisson (d):	8.5	ft
Caisson Embedment (L-h):	29.5	ft
Caisson Height Above Ground (h):	0.5	ft
Depth Below Ground Surface to Water Table (w):	6	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Water:	62.4	pcf
Tension/Compression Skin Friction Factor:	0.75	-
Pullout Angle:	30	°



Depth (ft)		γ_{Soil} (pcf)	C_u (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
Top	Bottom					
0	5	120	0	0	0	0
5	15	122	0	34	480	0
15	20	122	0	34	690	0
20	30.5	122	0	34	820	5,000

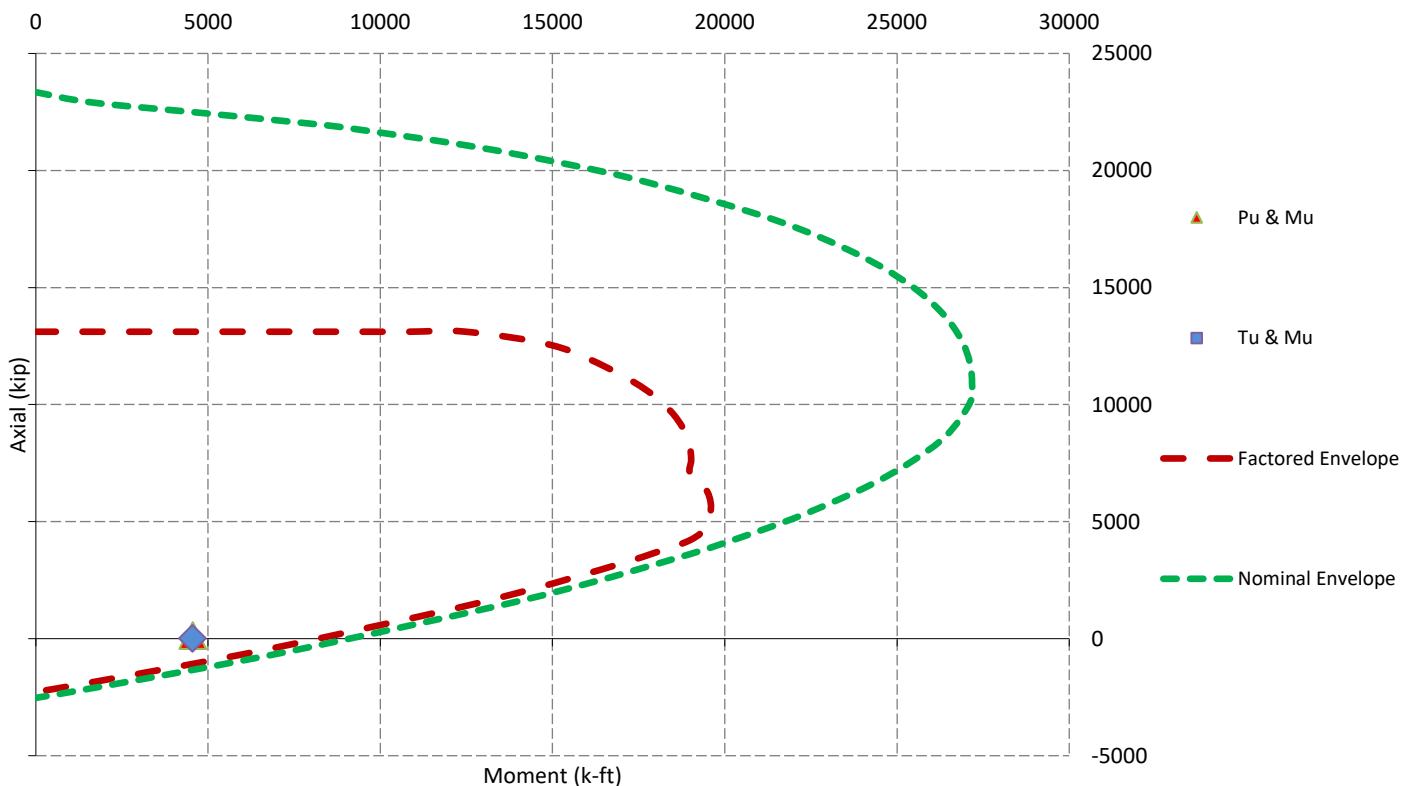
Soil Strength Capacities		
Required Embedment:	21.8	ft
Volume of Concrete:	1702.4	ft ³
Buoyant Weight of Concrete:	172.1	k
Average Soil Unit Weight:	72.0	pcf
Skin Friction Resistance:	428.3	k
Compressive Bearing Resistance:	283.7	k
Pullout Weight (Minus Concrete Weight):	1127.5	k
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	240.9	k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	534.0	k
T_u :	0.0	k
$T_u / \phi_s T_n$:	0%	Pass
P_u :	138.1	k
$P_u / \phi_s P_n$:	26%	Pass
Total Lateral Resistance:	2700.8	k
Inflection Point (Below Ground Surface):	20.4	ft
Moment At Inflection Point (M_D):	5285.2	k-ft
Nominal Moment Capacity ($\phi_s M_n$):	11292.1	k-ft
ϕ_s :	0.75	-
$M_D / \phi_s M_n$:	47%	Pass



Caisson Strength Capacities

Concrete Compressive Strength (f'_c):	3,000	psi	
Vertical Steel Rebar Size #:	11	-	
Vertical Steel Rebar Area:	1.56	in ²	
# of Vertical Steel Rebars:	27	-	
Vertical Steel Rebar Yield Strength (F_y):	60	ksi	
Horizontal Tie / Stirrup Size #:	5	-	
Horizontal Tie / Stirrup Area:	0.31	in ²	
Design Horizontal Tie / Stirrup Spacing:	18	in	
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60	ksi	
Rebar Cage Diameter:	94.0	in	
Strength Bending/Tension Reduction Factor (ϕ_B):	0.9	-	<i>ACI318-05 - 9.3.2.1</i>
Strength Shear Reduction Factor (ϕ_V):	0.85	-	<i>ACI318-05 - 9.3.2.3</i>
Strength Compression Reduction Factor (ϕ_C):	0.65	-	<i>ACI318-05 - 9.3.2.2</i>
Wind Design Factor:	1	-	<i>ACI318-05 - 9.2.1</i>
Steel Elastic Modulus:	29000	ksi	
Design Moment (M_u):	4551.7	k-ft	
Nominal Moment Capacity ($\phi_B M_n$):	8066.2	k-ft	<i>ACI318-005 - 10.2</i>
$M_u / \phi_B M_n$:	56%	Pass	
Design Shear (V_u):	381.3	k	
Nominal Shear Capacity ($\phi_V V_n$):	764.6	k	<i>ACI318-05 - 11.3.1.1 or 11.5.7.2</i>
$V_u / \phi_V V_n$:	50%	Pass	
Design Tension (T_u):	0.0	k	
Nominal Tension Capacity ($\phi_T T_n$):	2274.5	k	<i>ACI318-05 - 10.2</i>
$T_u / \phi_T T_n$:	0%	Pass	
Design Compression (P_u):	138.1	k	
Nominal Compression Capacity ($\phi_P P_n$):	12093.4	k	<i>ACI318-05 - 10.3.6.2</i>
$P_u / \phi_P P_n$:	1%	Pass	
Bending Reinforcement Ratio:	0.005	-	
$M_u / \phi_B M_n + T_u / \phi_T T_n$:	56%	Pass	<i>ACI318-05 - 10.8.4 & 10.9.1</i>

Nominal and Factored Moment Capacity and Factored Design Loads





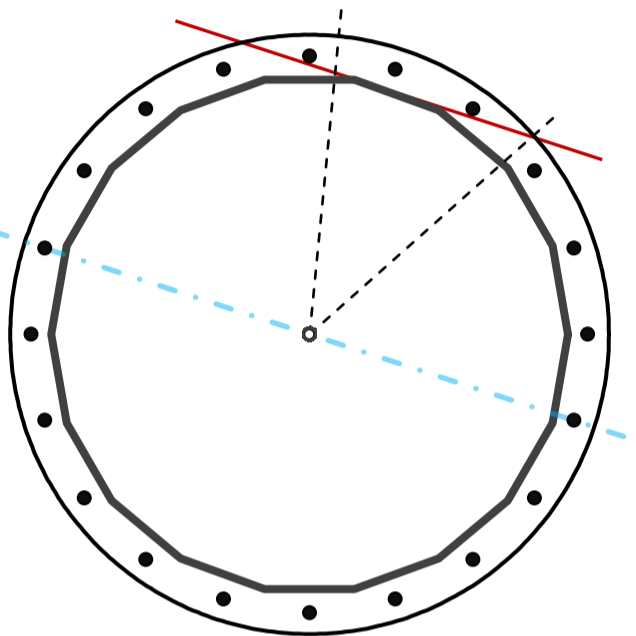
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	72	in
Thickness	0.4375	in
Orientation Offset		°

Base Reactions		
Moment, Mu	4523.7	k-ft
Axial, Pu	81.2	k
Shear, Vu	36.5	k
Neutral Axis	342	°

Report Capacities		
Component	Capacity	Result
Base Plate	10%	Pass
Anchor Rods	57%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ϕ	85	in
Thickness	2 3/4	in
Grade	A633 Gr. E	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	d	$\eta=0.5$
Clear Distance	3	in
Applied Moment, Mu	318.7	k
Bending Stress, ϕMn	3290.3	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	20	-
Diameter, ϕ	2 1/4	in
Bolt Circle	79	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	12.4	in
Orientation Offset		°
Applied Force, Pu	145.7	k
Anchor Rods, ϕPn	259.8	k

Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	36.5	4523.7	1.00
Anchor Rod Forces	36.5	4523.7	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in ²	in ²	in ⁴	#	in ⁴
Pole	97.8602	5.4367	0.3479		62651.39
Bolt	3.9761	3.2477	0.8393	4.5	47687.92
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate

Shape	Round	-
Diameter, D	85	in
Thickness, t	2.75	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Base Plate Chord	45.177	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods

Anchor Rod Quantity, N	20	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	79	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	145.7	k
Applied Shear, Vu	0.9	k
Compressive Capacity, ϕP_n	259.8	k
Tensile Capacity, ϕR_n	0.561	OK
Interaction Capacity	0.568	OK

External Base Plate

Chord Length AA	37.712	in
Additional AA	5.500	in
Section Modulus, Z	81.698	in ³
Applied Moment, Mu	405.4	k-ft
Bending Capacity, ϕM_n	4411.7	k-ft
Capacity, Mu/ ϕM_n	0.092	OK

Chord Length AB	35.495	in
Additional AB	5.500	in
Section Modulus, Z	77.506	in ³
Applied Moment, Mu	237.5	k-ft
Bending Capacity, ϕM_n	4185.3	k-ft
Capacity, Mu/ ϕM_n	0.057	OK

Bend Line Length	32.229	in
Additional Bend Line	0.000	in
Section Modulus, Z	60.932	in ³
Applied Moment, Mu	318.7	k-ft
Bending Capacity, ϕM_n	3290.3	k-ft
Capacity, Mu/ ϕM_n	0.097	OK

Internal Base Plate

Arc Length	0.000	in
Section Modulus, Z	0.000	in ³
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕM_n	0.0	k-ft
Capacity, Mu/ ϕM_n		



AMERICAN TOWER®
CORPORATION

Antenna Mount Analysis Report

ATC Site Name : Bilkays Express, CT
ATC Site Number : 302467
Engineering Number : 13014253_C8_03
Mount Elevation : 137 ft
Carrier : Verizon Wireless
Carrier Site Name : WALLINGFORD III
Carrier Site Number : 469297
Site Location : 90 North Plains Industrial Rd.
Wallingford, CT 06492-2334
41.48076111 , -72.8177
County : New Haven
Date : January 24, 2020
Max Usage : 56%
Result : Pass

Prepared By:
Mitchell Chen
Structural Engineer

Reviewed By:



COA: PEC.0001553



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Structure Usages..... 2

Mount Layout 3

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Calculations Attached



Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for Verizon Wireless at 137 ft.

Supporting Documents

Mount Mapping	Infinigy Project #1009-Z0003-H/317-505, dated November 18, 2019
RFDS	RFDS dated December 4, 2019
Photos	Site photos from 2019

Analysis

This antenna mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D v17

Basic Wind Speed:	97 mph (3-Second Gust, Vasd) / 124 mph (3-Second Gust, Vult)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Codes:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.24, S_1 = 0.062$
Site Class:	D - Stiff Soil
Live Loads:	$L_m = 500 \text{ lbs}, L_v = 250 \text{ lbs}$

Conclusion

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

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



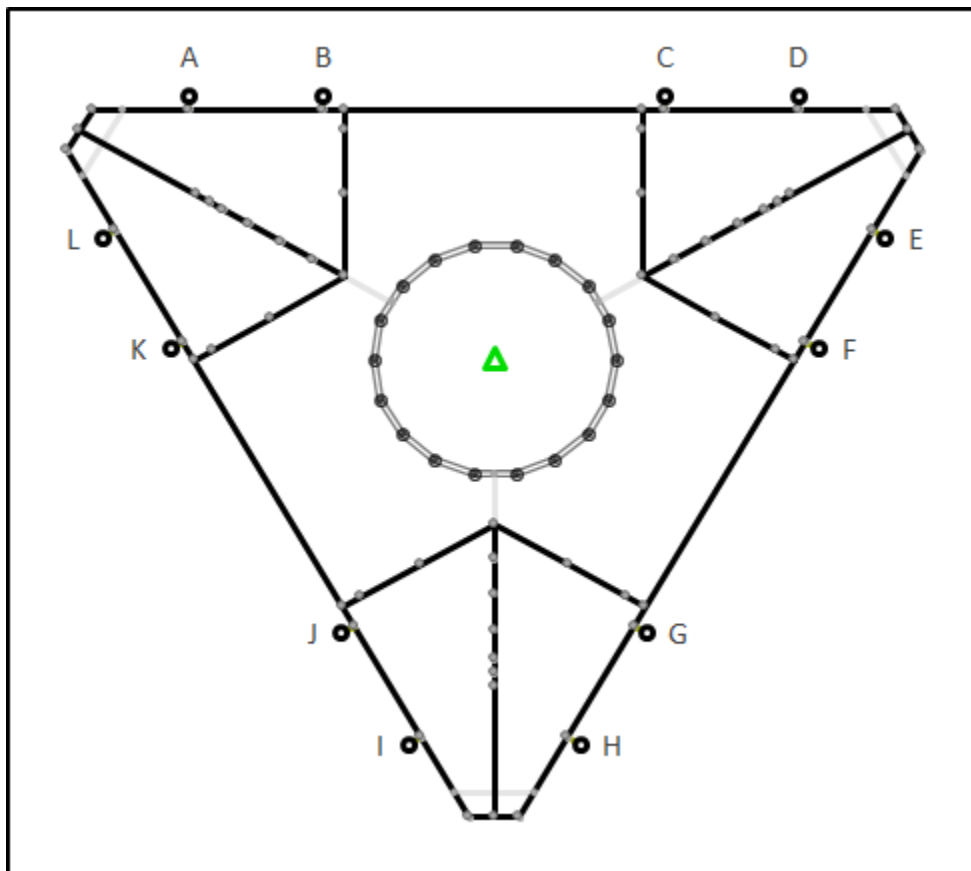
Application Loading

Mount Centerline (ft)	Antenna Centerline (ft)	Qty	Antenna Model
137.0	138.0	3	Amphenol Antel BXA-80063-6BF-EDIN-X
		6	Commscope JAHH-65B-R3B
		3	Samsung Outdoor CBRS 20W RRH –Clip-on Antenna
		3	Commscope CBC78T-DS-43-2X
		2	RFS DB-T1-6Z-8AB-0Z
		3	Samsung B2/B66A RRH-BR049
		3	Samsung Outdoor CBRS 20W RRH
		3	Samsung B5/B13 RRH-BR04C

Structure Usages

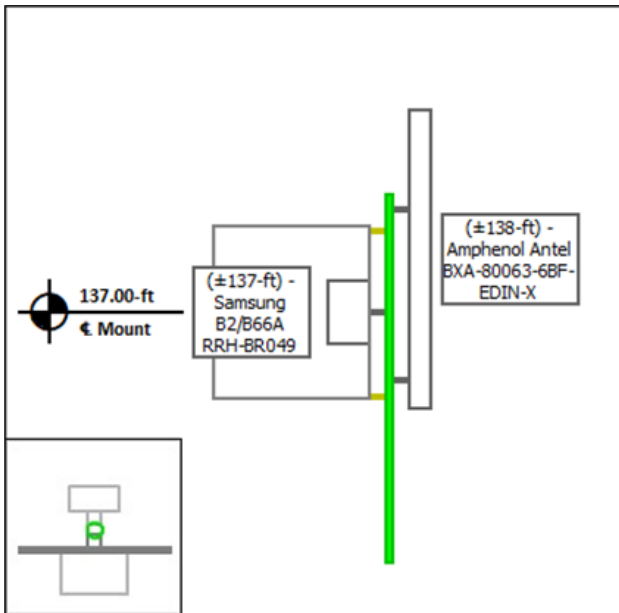
Structural Component	Controlling Usage	Pass/Fail
Horizontals	50%	Pass
Tie-Backs	11%	Pass
Mount Pipes	56%	Pass
Handrails	35%	Pass

Mount Layout

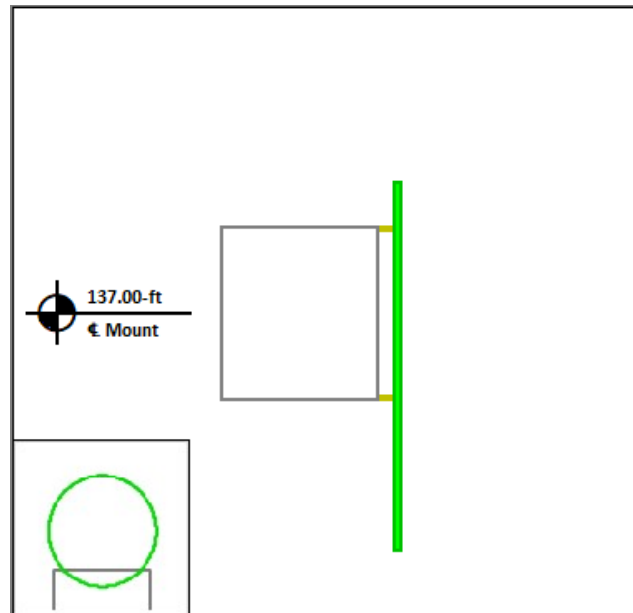


Equipment Layout

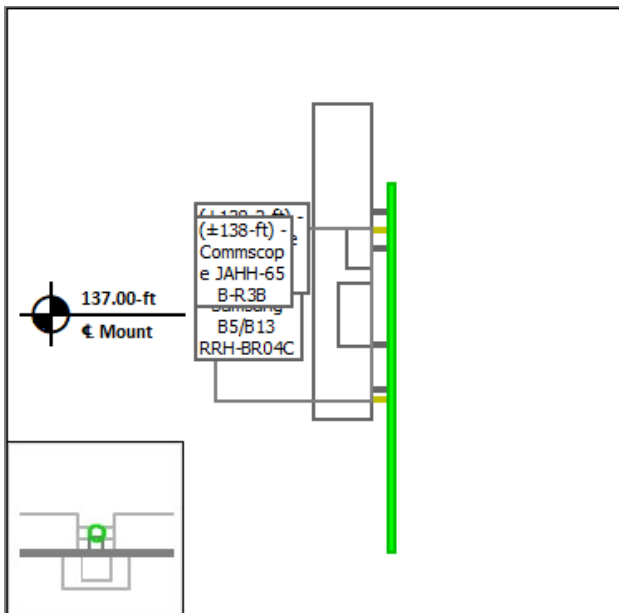
Mount Pipe A



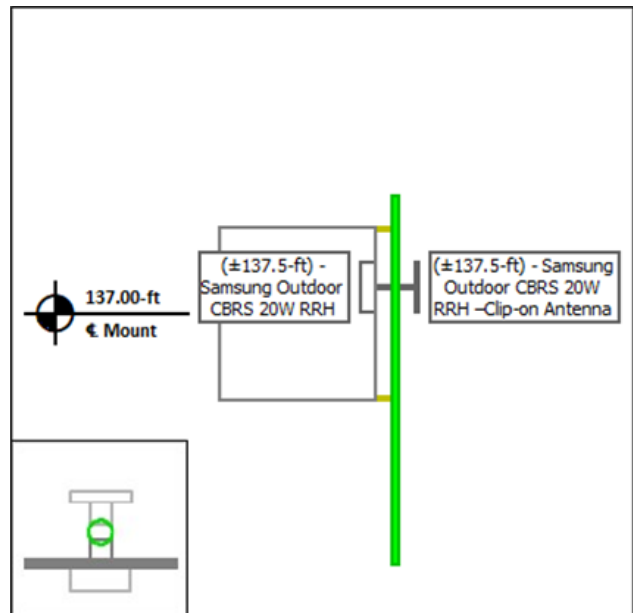
Mount Pipe B



Mount Pipe C

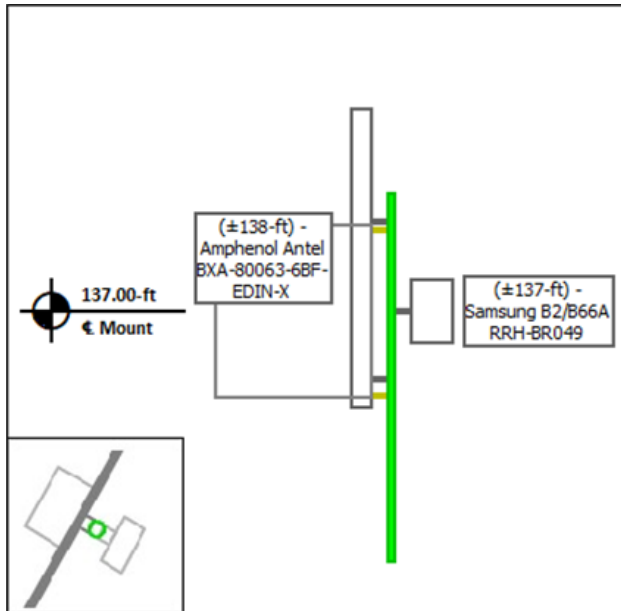


Mount Pipe D

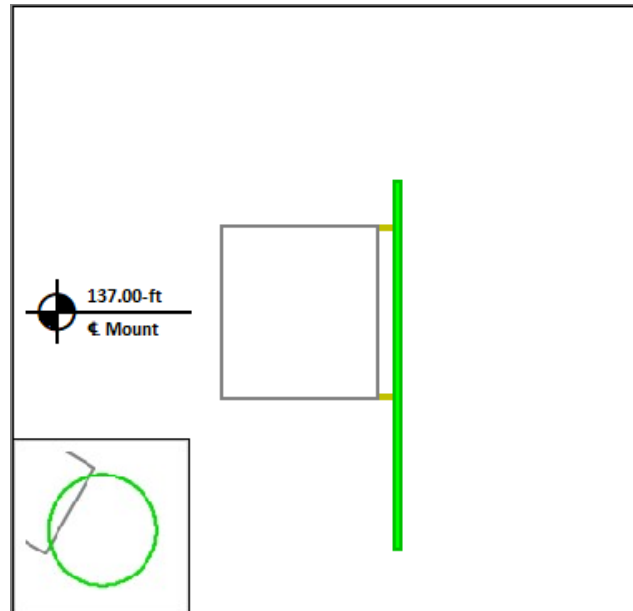


Equipment Layout Cont'd.

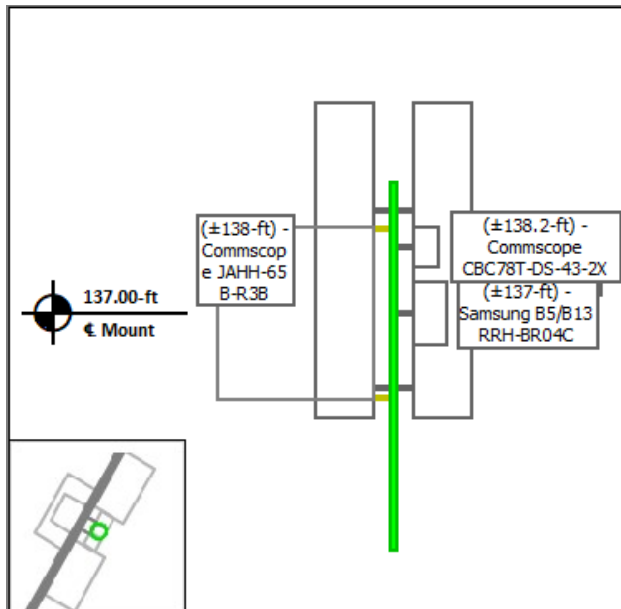
Mount Pipe E



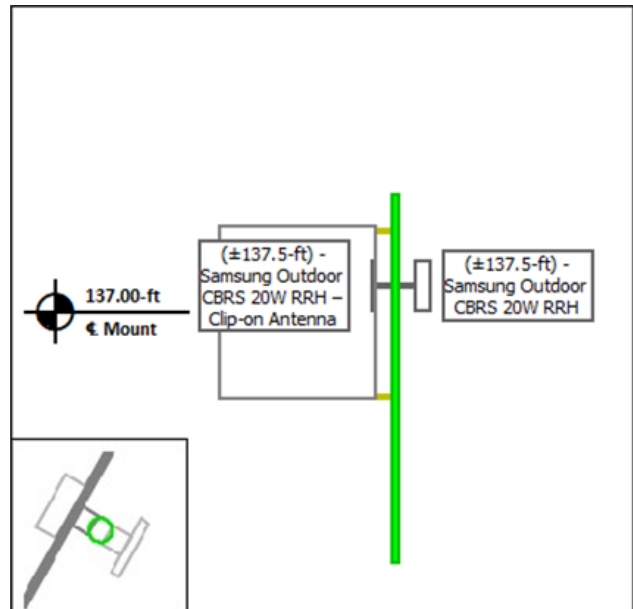
Mount Pipe F



Mount Pipe G

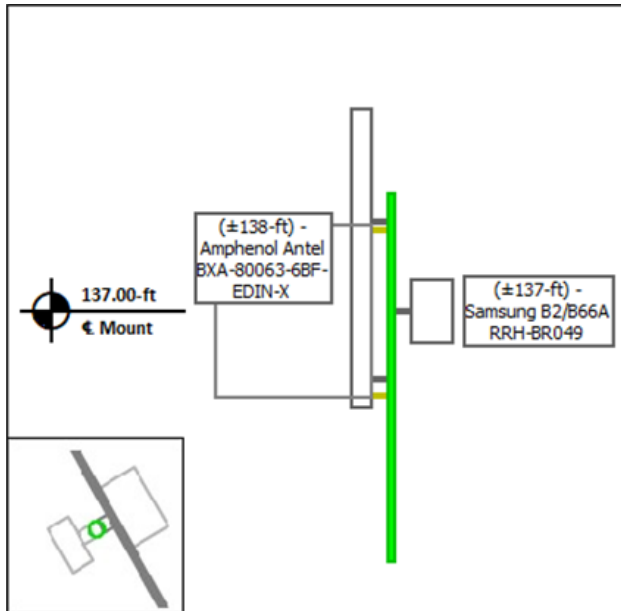


Mount Pipe H

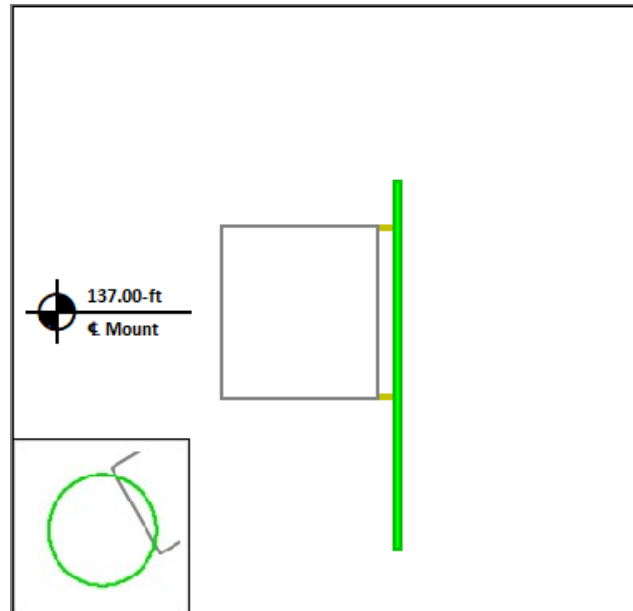


Equipment Layout Cont'd.

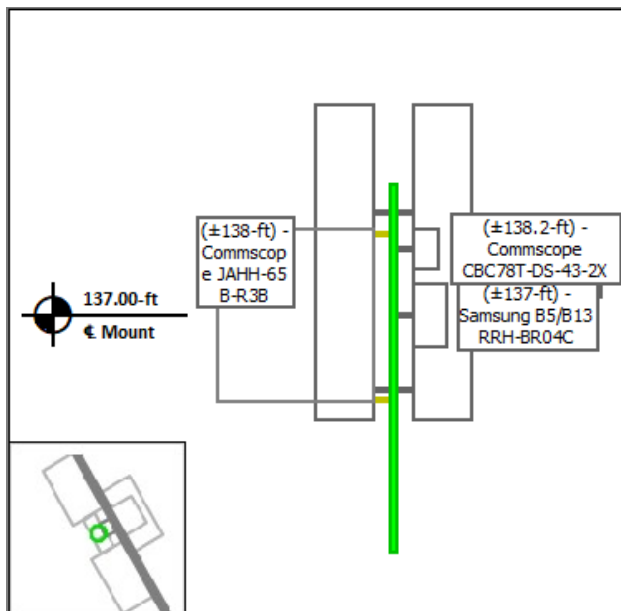
Mount Pipe I



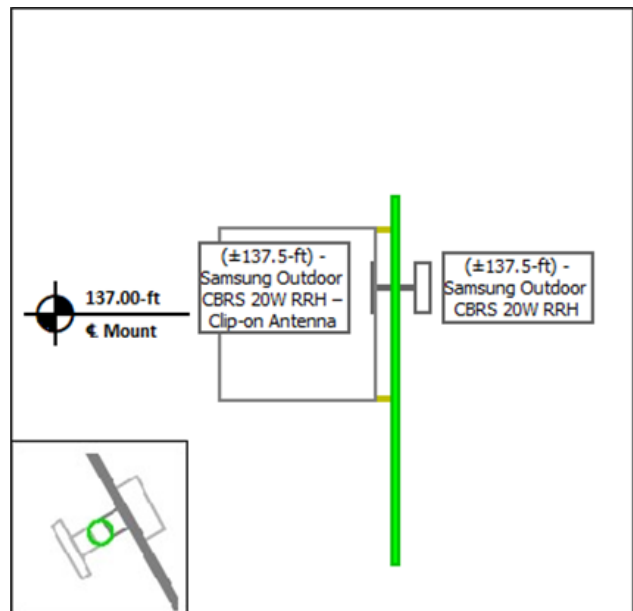
Mount Pipe J



Mount Pipe K



Mount Pipe L





Standard Conditions

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

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

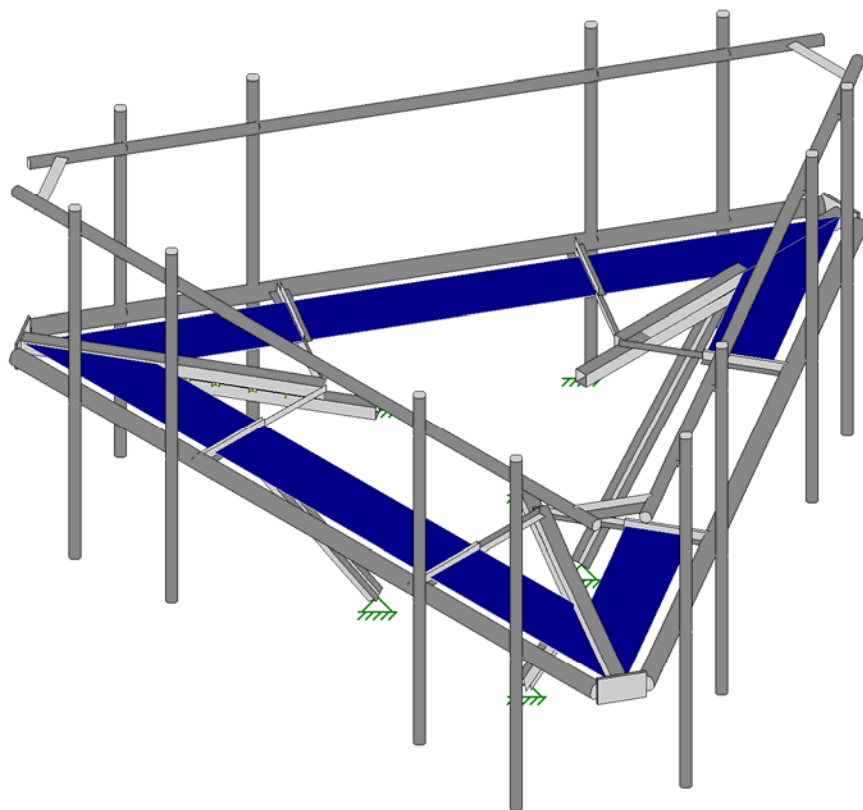
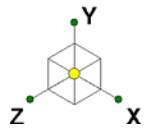
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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

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

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

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



American Tower Corp.

Mitchell.Chen

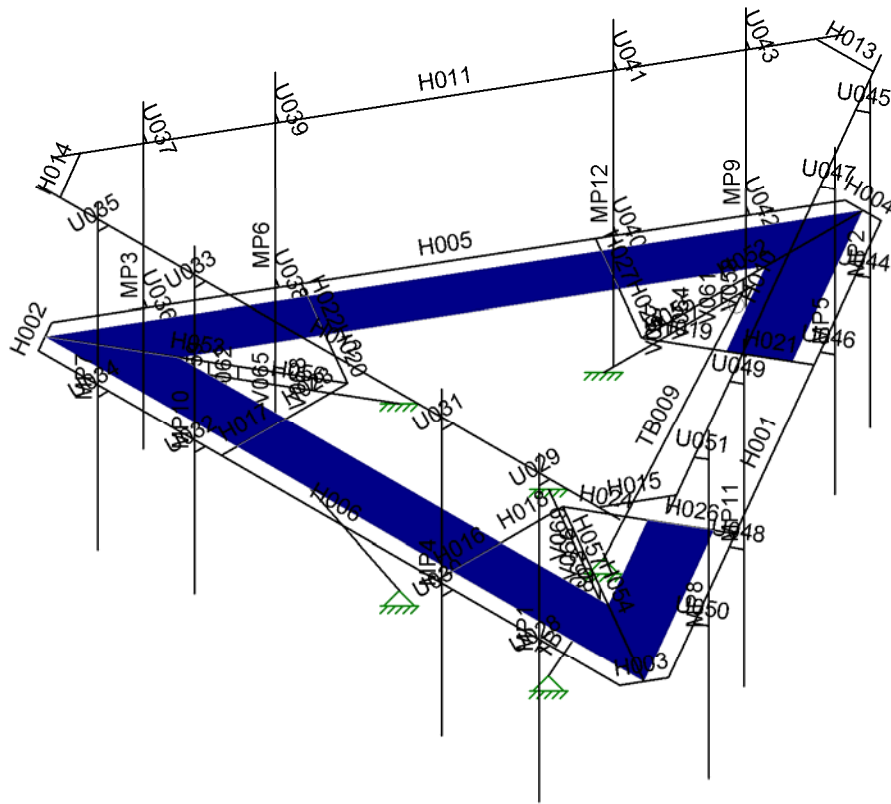
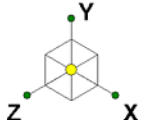
13014253_C8_03

302467, Bilkays Express
3D Rendering

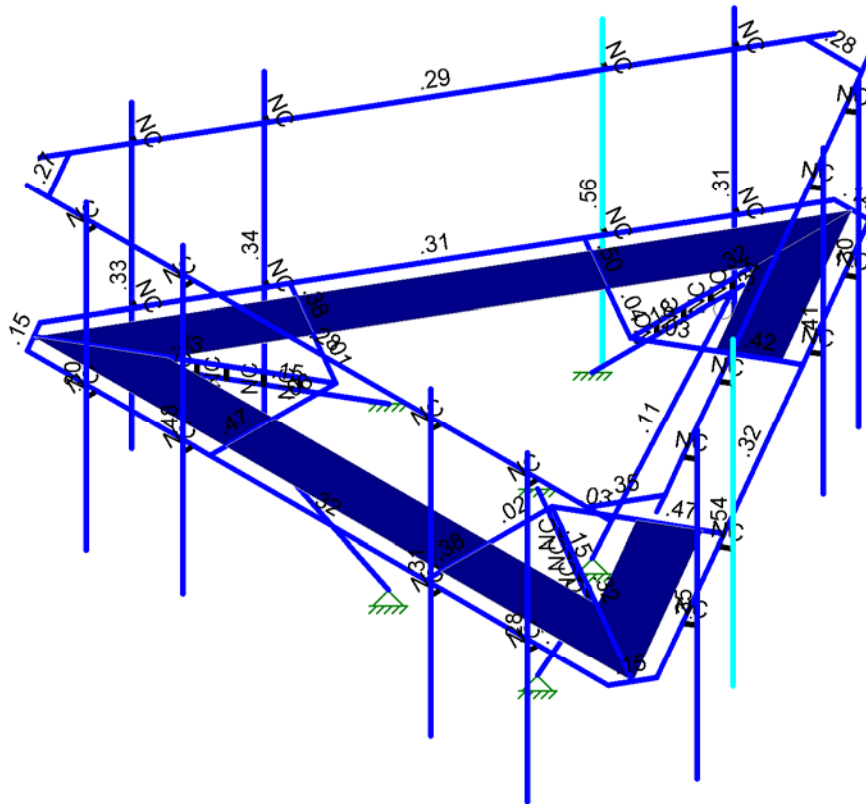
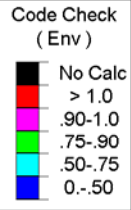
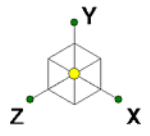
SK - 1

Jan 24, 2020 at 5:34 PM

R3D. VERIZON WIRELESS @ 302...

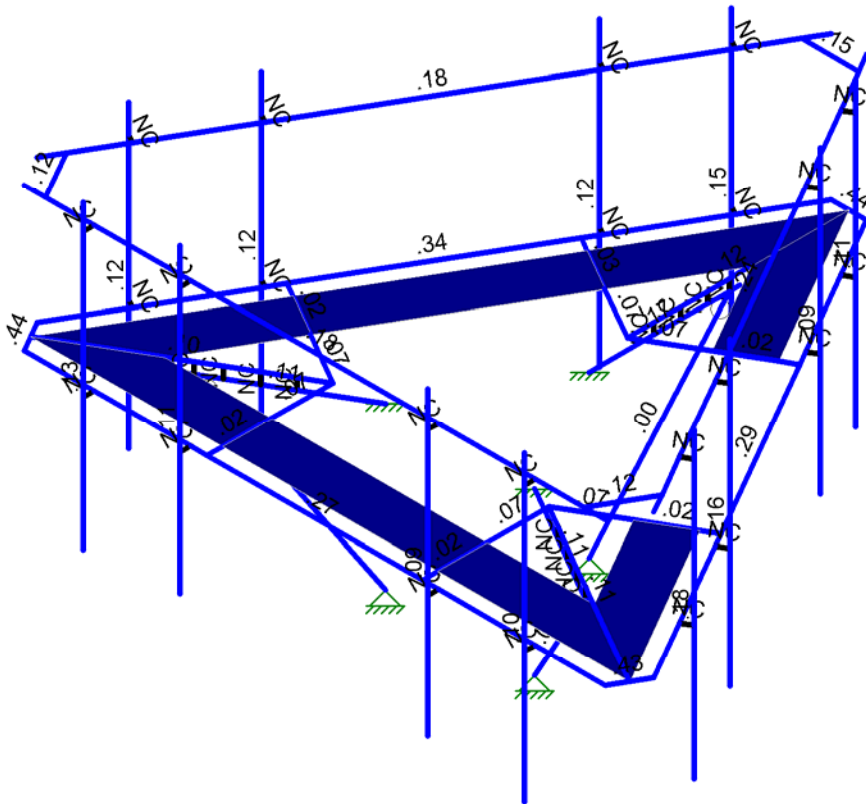
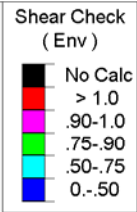
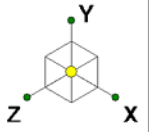


American Tower Corp.	302467, Bilkays Express Member Labels	SK - 2
Mitchell.Chen		Jan 24, 2020 at 5:34 PM
13014253_C8_03		R3D. VERIZON WIRELESS @ 302...



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

American Tower Corp.	302467, Bilkays Express	SK - 3
Mitchell.Chen	Unity Bending Checks	Jan 24, 2020 at 5:34 PM
13014253_C8_03		R3D. VERIZON WIRELESS @ 302...



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

American Tower Corp.	302467, Bilkays Express	SK - 4
Mitchell.Chen	Shear Checks	Jan 24, 2020 at 5:34 PM
13014253_C8_03		R3D. VERIZON WIRELESS @ 302...



Company : American Tower Corp.
 Designer : Mitchell.Chen
 Job Number : 13014253_C8_03
 Model Name : 302467, Bilkays Express

Jan 24, 2020
 5:35 PM
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Hot Rolled Steel Properties

	Label	E [psi]	G [psi]	Nu	Therm (/1E...	Density[lb/f...	Yield[psi]	Ry	Fu[psi]	Rt
1	A36	2.9e+7	1.115e+7	.3	.65	490	36000	1.5	58000	1.2
2	A572-50	2.9e+7	1.115e+7	.3	.65	490	50000	1.1	65000	1.1
3	A500 Gr. B [RND]	2.9e+7	1.115e+7	.3	.65	527	42000	1.4	58000	1.3
4	A500 Gr. B [SQR]	2.9e+7	1.115e+7	.3	.65	527	46000	1.4	58000	1.3
5	A1085	2.9e+7	1.115e+7	.3	.65	490	50000	1.1	65000	1.1
6	A53 Gr. B	2.9e+7	1.115e+7	.3	.65	490	35000	1.6	60000	1.2
7	A992	2.9e+7	1.115e+7	.3	.65	490	50000	1.1	65000	1.1
8	SAE J429 Gr. 2	2.9e+7	1.115e+7	.3	.65	490	57000	1.1	74000	1.1

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	H001	N003	N002			Pipe_3.0x0.120"	Beam	None	A53 Gr. B	Typical
2	H002	N004	N007			PL6x0.625	Beam	None	A572-50	Typical
3	H003	N005	N003			PL6x0.625	Beam	None	A572-50	Typical
4	H004	N002	N006			PL6x0.625	Beam	None	A572-50	Typical
5	H005	N004	N006			Pipe_3.0x0.120"	Beam	None	A53 Gr. B	Typical
6	H006	N005	N007			Pipe_3.0x0.120"	Beam	None	A53 Gr. B	Typical
7	TB007	N012	N111			LL2.5x2.5x3x0	Column	None	A36	Typical
8	TB008	N013	N112			LL2.5x2.5x3x0	Column	None	A36	Typical
9	TB009	N014	N110			LL2.5x2.5x3x0	Column	None	A36	Typical
10	H010	N015	N018			PIPE 2.0	Beam	None	A53 Gr. B	Typical
11	H011	N016	N019			PIPE 2.0	Beam	None	A53 Gr. B	Typical
12	H012	N017	N020			PIPE 2.0	Beam	None	A53 Gr. B	Typical
13	H013	N026	N022		90	L2.5x2.5x4	Beam	None	A36	Typical
14	H014	N024	N023		90	L2.5x2.5x4	Beam	None	A36	Typical
15	H015	N025	N021		90	L2.5x2.5x4	Beam	None	A36	Typical
16	H016	N032	N030		180	LL2x2x4x0	Beam	None	A36	Typical
17	H017	N033	N031		180	LL2x2x4x0	Beam	None	A36	Typical
18	H018	N037	N032		270	L 1.5x1.5x4	Beam	None	A36	Typical
19	H019	N036	N034		270	L 1.5x1.5x4	Beam	None	A36	Typical
20	H020	N044	N038		270	L 1.5x1.5x4	Beam	None	A36	Typical
21	H021	N034	N039		180	LL2x2x4x0	Beam	None	A36	Typical
22	H022	N038	N040		180	LL2x2x4x0	Beam	None	A36	Typical
23	H023	N044	N033			L 1.5x1.5x4	Beam	None	A36	Typical
24	H024	N037	N043			L 1.5x1.5x4	Beam	None	A36	Typical
25	H025	N036	N035			L 1.5x1.5x4	Beam	None	A36	Typical
26	H026	N043	N041		180	LL2x2x4x0	Beam	None	A36	Typical
27	H027	N035	N042		180	LL2x2x4x0	Beam	None	A36	Typical
28	U028	N056	N068			(2) 1/2 U-Bolts	Beam	None	A36	Typical
29	U029	N069	N070			(2) 1/2 U-Bolts	Beam	None	A36	Typical
30	U030	N059	N071			(2) 1/2 U-Bolts	Beam	None	A36	Typical
31	U031	N072	N073			(2) 1/2 U-Bolts	Beam	None	A36	Typical
32	U032	N065	N074			(2) 1/2 U-Bolts	Beam	None	A36	Typical
33	U033	N075	N076			(2) 1/2 U-Bolts	Beam	None	A36	Typical
34	U034	N062	N077			(2) 1/2 U-Bolts	Beam	None	A36	Typical
35	U035	N078	N079			(2) 1/2 U-Bolts	Beam	None	A36	Typical
36	U036	N058	N080			(2) 1/2 U-Bolts	Beam	None	A36	Typical
37	U037	N081	N082			(2) 1/2 U-Bolts	Beam	None	A36	Typical
38	U038	N061	N083			(2) 1/2 U-Bolts	Beam	None	A36	Typical
39	U039	N084	N085			(2) 1/2 U-Bolts	Beam	None	A36	Typical



Company : American Tower Corp.
 Designer : Mitchell.Chen
 Job Number : 13014253_C8_03
 Model Name : 302467, Bilkeys Express

Jan 24, 2020
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Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
40	U040	N067	N086			(2) 1/2 U-Bolts	Beam	None	A36	Typical
41	U041	N087	N088			(2) 1/2 U-Bolts	Beam	None	A36	Typical
42	U042	N064	N089			(2) 1/2 U-Bolts	Beam	None	A36	Typical
43	U043	N090	N091			(2) 1/2 U-Bolts	Beam	None	A36	Typical
44	U044	N057	N092			(2) 1/2 U-Bolts	Beam	None	A36	Typical
45	U045	N093	N094			(2) 1/2 U-Bolts	Beam	None	A36	Typical
46	U046	N060	N095			(2) 1/2 U-Bolts	Beam	None	A36	Typical
47	U047	N096	N097			(2) 1/2 U-Bolts	Beam	None	A36	Typical
48	U048	N066	N098			(2) 1/2 U-Bolts	Beam	None	A36	Typical
49	U049	N099	N100			(2) 1/2 U-Bolts	Beam	None	A36	Typical
50	U050	N063	N101			(2) 1/2 U-Bolts	Beam	None	A36	Typical
51	U051	N102	N103			(2) 1/2 U-Bolts	Beam	None	A36	Typical
52	H052	N036	N027			HSS3x3x6	Beam	None	A500 Gr. ...	Typical
53	H053	N044	N028			HSS3x3x6	Beam	None	A500 Gr. ...	Typical
54	H054	N037	N029			HSS3x3x6	Beam	None	A500 Gr. ...	Typical
55	H055	N010	N104			HSS3x3x6	Beam	None	A500 Gr. ...	Typical
56	H056	N008	N105			HSS3x3x6	Beam	None	A500 Gr. ...	Typical
57	H057	N009	N106			HSS3x3x6	Beam	None	A500 Gr. ...	Typical
58	V058	N110	N107			RIGID	None	None	RIGID	Typical
59	V059	N111	N108			RIGID	None	None	RIGID	Typical
60	V060	N112	N109			RIGID	None	None	RIGID	Typical
61	V061	N126	N120			RIGID	None	None	RIGID	Typical
62	V062	N129	N123			RIGID	None	None	RIGID	Typical
63	V063	N130	N124			RIGID	None	None	RIGID	Typical
64	V064	N119	N125			RIGID	None	None	RIGID	Typical
65	V065	N121	N127			RIGID	None	None	RIGID	Typical
66	V066	N122	N128			RIGID	None	None	RIGID	Typical
67	V067	N116	N115			RIGID	None	None	RIGID	Typical
68	V068	N117	N113			RIGID	None	None	RIGID	Typical
69	V069	N118	N114			RIGID	None	None	RIGID	Typical
70	MP1	MP1t	MP1b			PIPE 2.0	Column	None	A53 Gr. B	Typical
71	MP2	MP2t	MP2b			PIPE 2.0	Column	None	A53 Gr. B	Typical
72	MP3	MP3t	MP3b			PIPE 2.0	Column	None	A53 Gr. B	Typical
73	MP4	MP4t	MP4b			PIPE 2.0	Column	None	A53 Gr. B	Typical
74	MP5	MP5t	MP5b			PIPE 2.0	Column	None	A53 Gr. B	Typical
75	MP6	MP6t	MP6b			PIPE 2.0	Column	None	A53 Gr. B	Typical
76	MP7	MP7t	MP7b			PIPE 2.0	Column	None	A53 Gr. B	Typical
77	MP8	MP8t	MP8b			PIPE 2.0	Column	None	A53 Gr. B	Typical
78	MP9	MP9t	MP9b			PIPE 2.0	Column	None	A53 Gr. B	Typical
79	MP10	MP10t	MP10b			PIPE 2.0	Column	None	A53 Gr. B	Typical
80	MP11	MP11t	MP11b			PIPE 2.0	Column	None	A53 Gr. B	Typical
81	MP12	MP12t	MP12b			PIPE 2.0	Column	None	A53 Gr. B	Typical

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Dead	DL		-1			33		
2	Ice	IL					33	57	8
3	Wind -Z	WLZ					34		1
4	Wind -X	WLX					33		1
5	Wind -Z (Ice)	WL-Z					33	57	1
6	Wind -X (Ice)	WL-X					33	57	1
7	Wind -Z (Working)	WLZP1					33		1
8	Wind -X (Working)	WLXP1					33		1
9	Ev -Y (Seismic)	ELY						57	
10	Eh -Z (Seismic)	ELZ						57	



Company : American Tower Corp.
 Designer : Mitchell.Chen
 Job Number : 13014253_C8_03
 Model Name : 302467, Bilkays Express

Jan 24, 2020
 5:35 PM
 Checked By: -

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
11	Eh -X (Seismic)	ELX						57	
12	Lm (1)	LL				1			
13	Lm (2)	LL				1			
14	Lm (3)	LL				1			
15	Lm (4)	LL				1			
16	Lm (5)	LL				1			
17	Lm (6)	LL				1			
18	Lm (7)	LL				1			
19	Lm (8)	LL				1			
20	Lm (9)	LL				1			
21	Lm (10)	LL				1			
22	Lm (11)	LL				1			
23	Lm (12)	LL				1			
24	BLC 3 Transient Area...	None						63	
25	BLC 4 Transient Area...	None						71	
26	BLC 5 Transient Area...	None						63	
27	BLC 6 Transient Area...	None						71	
28	BLC 7 Transient Area...	None						63	
29	BLC 8 Transient Area...	None						71	

Load Combinations

	Description	So...	P...	S...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...	BLCFac...
1	1.4D	Yes	Y		DL 1.4								
2	1.2D + 1.6Wo [0°]	Yes	Y		DL 1.2	W... .001	W... 1.6						
3	1.2D + 1.6Wo [30°]	Yes	Y		DL 1.2	W... .8	W... 1.3...						
4	1.2D + 1.6Wo [60°]	Yes	Y		DL 1.2	W... 1.3...	W... .8						
5	1.2D + 1.6Wo [90°]	Yes	Y		DL 1.2	W... 1.6	W... .001						
6	1.2D + 1.6Wo [120°]	Yes	Y		DL 1.2	W... 1.3...	W... -.8						
7	1.2D + 1.6Wo [150°]	Yes	Y		DL 1.2	W... .8	W... -1.3...						
8	1.2D + 1.6Wo [180°]	Yes	Y		DL 1.2	W... .001	W... -1.6						
9	1.2D + 1.6Wo [210°]	Yes	Y		DL 1.2	W... -.8	W... -1.3...						
10	1.2D + 1.6Wo [240°]	Yes	Y		DL 1.2	W... -1.3...	W... -.8						
11	1.2D + 1.6Wo [270°]	Yes	Y		DL 1.2	W... -1.6	W... .001						
12	1.2D + 1.6Wo [300°]	Yes	Y		DL 1.2	W... -1.3...	W... .8						
13	1.2D + 1.6Wo [330°]	Yes	Y		DL 1.2	W... -.8	W... 1.3...						
14	0.9D + 1.6Wo [0°]	Yes	Y		DL .9	W... .001	W... 1.6						
15	0.9D + 1.6Wo [30°]	Yes	Y		DL .9	W... .8	W... 1.3...						
16	0.9D + 1.6Wo [60°]	Yes	Y		DL .9	W... 1.3...	W... .8						
17	0.9D + 1.6Wo [90°]	Yes	Y		DL .9	W... 1.6	W... .001						
18	0.9D + 1.6Wo [120°]	Yes	Y		DL .9	W... 1.3...	W... -.8						
19	0.9D + 1.6Wo [150°]	Yes	Y		DL .9	W... .8	W... -1.3...						
20	0.9D + 1.6Wo [180°]	Yes	Y		DL .9	W... .001	W... -1.6						
21	0.9D + 1.6Wo [210°]	Yes	Y		DL .9	W... -.8	W... -1.3...						
22	0.9D + 1.6Wo [240°]	Yes	Y		DL .9	W... -1.3...	W... -.8						
23	0.9D + 1.6Wo [270°]	Yes	Y		DL .9	W... -1.6	W... .001						
24	0.9D + 1.6Wo [300°]	Yes	Y		DL .9	W... -1.3...	W... .8						
25	0.9D + 1.6Wo [330°]	Yes	Y		DL .9	W... -.8	W... 1.3...						
26	1.2D + 1.0Di + 1.0Wi [0...	Yes	Y		DL 1.2	IL 1	W... .001	W... 1					
27	1.2D + 1.0Di + 1.0Wi [3...	Yes	Y		DL 1.2	IL 1	W... .5	W... .866					
28	1.2D + 1.0Di + 1.0Wi [6...	Yes	Y		DL 1.2	IL 1	W... .866	W... .5					
29	1.2D + 1.0Di + 1.0Wi [9...	Yes	Y		DL 1.2	IL 1	W... 1	W... .001					
30	1.2D + 1.0Di + 1.0Wi [1...	Yes	Y		DL 1.2	IL 1	W... .866	W... -.5					
31	1.2D + 1.0Di + 1.0Wi [1...	Yes	Y		DL 1.2	IL 1	W... .5	W... .866					
32	1.2D + 1.0Di + 1.0Wi [1...	Yes	Y		DL 1.2	IL 1	W... .001	W... -1					
33	1.2D + 1.0Di + 1.0Wi [2...	Yes	Y		DL 1.2	IL 1	W... -.5	W... .866					



Load Combinations (Continued)

Id	Description	So...	P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
34	1.2D + 1.0Di + 1.0Wi [2...	Yes	Y		DL 1.2	IL 1	W...-.866	W...-.5						
35	1.2D + 1.0Di + 1.0Wi [2...	Yes	Y		DL 1.2	IL 1	W...-1	W...-.001						
36	1.2D + 1.0Di + 1.0Wi [3...	Yes	Y		DL 1.2	IL 1	W...-.866	W...-.5						
37	1.2D + 1.0Di + 1.0Wi [3...	Yes	Y		DL 1.2	IL 1	W...-.5	W...-.866						
38	1.2D + 1.0Ev + 1.0Eh [0°]	Yes	Y		DL 1.2	ELY 1	ELZ 1	ELX .001						
39	1.2D + 1.0Ev + 1.0Eh [3...	Yes	Y		DL 1.2	ELY 1	ELZ .866	ELX .5						
40	1.2D + 1.0Ev + 1.0Eh [6...	Yes	Y		DL 1.2	ELY 1	ELZ .5	ELX .866						
41	1.2D + 1.0Ev + 1.0Eh [9...	Yes	Y		DL 1.2	ELY 1	ELZ .001	ELX 1						
42	1.2D + 1.0Ev + 1.0Eh [1...	Yes	Y		DL 1.2	ELY 1	ELZ -.5	ELX .866						
43	1.2D + 1.0Ev + 1.0Eh [1...	Yes	Y		DL 1.2	ELY 1	ELZ-.866	ELX .5						
44	1.2D + 1.0Ev + 1.0Eh [1...	Yes	Y		DL 1.2	ELY 1	ELZ -1	ELX .001						
45	1.2D + 1.0Ev + 1.0Eh [2...	Yes	Y		DL 1.2	ELY 1	ELZ-.866	ELX -.5						
46	1.2D + 1.0Ev + 1.0Eh [2...	Yes	Y		DL 1.2	ELY 1	ELZ -.5	ELX-.866						
47	1.2D + 1.0Ev + 1.0Eh [2...	Yes	Y		DL 1.2	ELY 1	ELZ .001	ELX -1						
48	1.2D + 1.0Ev + 1.0Eh [3...	Yes	Y		DL 1.2	ELY 1	ELZ .5	ELX-.866						
49	1.2D + 1.0Ev + 1.0Eh [3...	Yes	Y		DL 1.2	ELY 1	ELZ .866	ELX -.5						
50	0.9D + 1.0Ev + 1.0Eh [0°]	Yes	Y		DL .9	ELY 1	ELZ 1	ELX .001						
51	0.9D + 1.0Ev + 1.0Eh [3...	Yes	Y		DL .9	ELY 1	ELZ .866	ELX .5						
52	0.9D + 1.0Ev + 1.0Eh [6...	Yes	Y		DL .9	ELY 1	ELZ .5	ELX .866						
53	0.9D + 1.0Ev + 1.0Eh [9...	Yes	Y		DL .9	ELY 1	ELZ .001	ELX 1						
54	0.9D + 1.0Ev + 1.0Eh [1...	Yes	Y		DL .9	ELY 1	ELZ -.5	ELX .866						
55	0.9D + 1.0Ev + 1.0Eh [1...	Yes	Y		DL .9	ELY 1	ELZ-.866	ELX .5						
56	0.9D + 1.0Ev + 1.0Eh [1...	Yes	Y		DL .9	ELY 1	ELZ -1	ELX .001						
57	0.9D + 1.0Ev + 1.0Eh [2...	Yes	Y		DL .9	ELY 1	ELZ-.866	ELX -.5						
58	0.9D + 1.0Ev + 1.0Eh [2...	Yes	Y		DL .9	ELY 1	ELZ -.5	ELX-.866						
59	0.9D + 1.0Ev + 1.0Eh [2...	Yes	Y		DL .9	ELY 1	ELZ .001	ELX -1						
60	0.9D + 1.0Ev + 1.0Eh [3...	Yes	Y		DL .9	ELY 1	ELZ .5	ELX-.866						
61	0.9D + 1.0Ev + 1.0Eh [3...	Yes	Y		DL .9	ELY 1	ELZ .866	ELX -.5						
62	1.2D + 1.5Lm(1) + 1.0W...	Yes	Y		DL 1.2	12 1.5	W...-.001	W...-1						
63	1.2D + 1.5Lm(1) + 1.0W...	Yes	Y		DL 1.2	12 1.5	W...-.5	W...-.866						
64	1.2D + 1.5Lm(1) + 1.0W...	Yes	Y		DL 1.2	12 1.5	W...-.866	W...-.5						
65	1.2D + 1.5Lm(1) + 1.0W...	Yes	Y		DL 1.2	12 1.5	W...-1	W...-.001						
66	1.2D + 1.5Lm(1) + 1.0W...	Yes	Y		DL 1.2	12 1.5	W...-.866	W...-.5						
67	1.2D + 1.5Lm(1) + 1.0W...	Yes	Y		DL 1.2	12 1.5	W...-.5	W...-.866						
68	1.2D + 1.5Lm(1) + 1.0W...	Yes	Y		DL 1.2	12 1.5	W...-.001	W...-.5						
69	1.2D + 1.5Lm(1) + 1.0W...	Yes	Y		DL 1.2	12 1.5	W...-.5	W...-.866						
70	1.2D + 1.5Lm(1) + 1.0W...	Yes	Y		DL 1.2	12 1.5	W...-.866	W...-.5						
71	1.2D + 1.5Lm(1) + 1.0W...	Yes	Y		DL 1.2	12 1.5	W...-1	W...-.001						
72	1.2D + 1.5Lm(1) + 1.0W...	Yes	Y		DL 1.2	12 1.5	W...-.866	W...-.5						
73	1.2D + 1.5Lm(1) + 1.0W...	Yes	Y		DL 1.2	12 1.5	W...-.5	W...-.866						
74	1.2D + 1.5Lm(2) + 1.0W...	Yes	Y		DL 1.2	13 1.5	W...-.001	W...-1						
75	1.2D + 1.5Lm(2) + 1.0W...	Yes	Y		DL 1.2	13 1.5	W...-.5	W...-.866						
76	1.2D + 1.5Lm(2) + 1.0W...	Yes	Y		DL 1.2	13 1.5	W...-.866	W...-.5						
77	1.2D + 1.5Lm(2) + 1.0W...	Yes	Y		DL 1.2	13 1.5	W...-1	W...-.001						
78	1.2D + 1.5Lm(2) + 1.0W...	Yes	Y		DL 1.2	13 1.5	W...-.866	W...-.5						
79	1.2D + 1.5Lm(2) + 1.0W...	Yes	Y		DL 1.2	13 1.5	W...-.5	W...-.866						
80	1.2D + 1.5Lm(2) + 1.0W...	Yes	Y		DL 1.2	13 1.5	W...-.001	W...-.5						
81	1.2D + 1.5Lm(2) + 1.0W...	Yes	Y		DL 1.2	13 1.5	W...-.5	W...-.866						
82	1.2D + 1.5Lm(2) + 1.0W...	Yes	Y		DL 1.2	13 1.5	W...-.866	W...-.5						
83	1.2D + 1.5Lm(2) + 1.0W...	Yes	Y		DL 1.2	13 1.5	W...-1	W...-.001						
84	1.2D + 1.5Lm(2) + 1.0W...	Yes	Y		DL 1.2	13 1.5	W...-.866	W...-.5						
85	1.2D + 1.5Lm(2) + 1.0W...	Yes	Y		DL 1.2	13 1.5	W...-.5	W...-.866						
86	1.2D + 1.5Lm(3) + 1.0W...	Yes	Y		DL 1.2	14 1.5	W...-.001	W...-1						
87	1.2D + 1.5Lm(3) + 1.0W...	Yes	Y		DL 1.2	14 1.5	W...-.5	W...-.866						
88	1.2D + 1.5Lm(3) + 1.0W...	Yes	Y		DL 1.2	14 1.5	W...-.866	W...-.5						
89	1.2D + 1.5Lm(3) + 1.0W...	Yes	Y		DL 1.2	14 1.5	W...-1	W...-.001						
90	1.2D + 1.5Lm(3) + 1.0W...	Yes	Y		DL 1.2	14 1.5	W...-.866	W...-.5						



Load Combinations (Continued)

So...P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
91	1.2D + 1.5Lm(3) + 1.0W...Yes Y	DL	1.2	14	1.5	W...	.5	W...	-.866				
92	1.2D + 1.5Lm(3) + 1.0W...Yes Y	DL	1.2	14	1.5	W...	.001	W...	-.5				
93	1.2D + 1.5Lm(3) + 1.0W...Yes Y	DL	1.2	14	1.5	W...	-.5	W...	-.866				
94	1.2D + 1.5Lm(3) + 1.0W...Yes Y	DL	1.2	14	1.5	W...	-.866	W...	-.5				
95	1.2D + 1.5Lm(3) + 1.0W...Yes Y	DL	1.2	14	1.5	W...	-.1	W...	.001				
96	1.2D + 1.5Lm(3) + 1.0W...Yes Y	DL	1.2	14	1.5	W...	-.866	W...	.5				
97	1.2D + 1.5Lm(3) + 1.0W...Yes Y	DL	1.2	14	1.5	W...	-.5	W...	.866				
98	1.2D + 1.5Lm(4) + 1.0W...Yes Y	DL	1.2	15	1.5	W...	.001	W...	.1				
99	1.2D + 1.5Lm(4) + 1.0W...Yes Y	DL	1.2	15	1.5	W...	.5	W...	.866				
100	1.2D + 1.5Lm(4) + 1.0W...Yes Y	DL	1.2	15	1.5	W...	.866	W...	.5				
101	1.2D + 1.5Lm(4) + 1.0W...Yes Y	DL	1.2	15	1.5	W...	.1	W...	.001				
102	1.2D + 1.5Lm(4) + 1.0W...Yes Y	DL	1.2	15	1.5	W...	.866	W...	-.5				
103	1.2D + 1.5Lm(4) + 1.0W...Yes Y	DL	1.2	15	1.5	W...	.5	W...	-.866				
104	1.2D + 1.5Lm(4) + 1.0W...Yes Y	DL	1.2	15	1.5	W...	.001	W...	-.5				
105	1.2D + 1.5Lm(4) + 1.0W...Yes Y	DL	1.2	15	1.5	W...	-.5	W...	-.866				
106	1.2D + 1.5Lm(4) + 1.0W...Yes Y	DL	1.2	15	1.5	W...	-.866	W...	-.5				
107	1.2D + 1.5Lm(4) + 1.0W...Yes Y	DL	1.2	15	1.5	W...	-.1	W...	.001				
108	1.2D + 1.5Lm(4) + 1.0W...Yes Y	DL	1.2	15	1.5	W...	-.866	W...	.5				
109	1.2D + 1.5Lm(4) + 1.0W...Yes Y	DL	1.2	15	1.5	W...	-.5	W...	.866				
110	1.2D + 1.5Lm(5) + 1.0W...Yes Y	DL	1.2	16	1.5	W...	.001	W...	.1				
111	1.2D + 1.5Lm(5) + 1.0W...Yes Y	DL	1.2	16	1.5	W...	.5	W...	.866				
112	1.2D + 1.5Lm(5) + 1.0W...Yes Y	DL	1.2	16	1.5	W...	.866	W...	.5				
113	1.2D + 1.5Lm(5) + 1.0W...Yes Y	DL	1.2	16	1.5	W...	.1	W...	.001				
114	1.2D + 1.5Lm(5) + 1.0W...Yes Y	DL	1.2	16	1.5	W...	.866	W...	-.5				
115	1.2D + 1.5Lm(5) + 1.0W...Yes Y	DL	1.2	16	1.5	W...	.5	W...	-.866				
116	1.2D + 1.5Lm(5) + 1.0W...Yes Y	DL	1.2	16	1.5	W...	.001	W...	-.5				
117	1.2D + 1.5Lm(5) + 1.0W...Yes Y	DL	1.2	16	1.5	W...	-.5	W...	-.866				
118	1.2D + 1.5Lm(5) + 1.0W...Yes Y	DL	1.2	16	1.5	W...	-.866	W...	-.5				
119	1.2D + 1.5Lm(5) + 1.0W...Yes Y	DL	1.2	16	1.5	W...	-.1	W...	.001				
120	1.2D + 1.5Lm(5) + 1.0W...Yes Y	DL	1.2	16	1.5	W...	-.866	W...	.5				
121	1.2D + 1.5Lm(5) + 1.0W...Yes Y	DL	1.2	16	1.5	W...	-.5	W...	.866				
122	1.2D + 1.5Lm(6) + 1.0W...Yes Y	DL	1.2	17	1.5	W...	.001	W...	.1				
123	1.2D + 1.5Lm(6) + 1.0W...Yes Y	DL	1.2	17	1.5	W...	.5	W...	.866				
124	1.2D + 1.5Lm(6) + 1.0W...Yes Y	DL	1.2	17	1.5	W...	.866	W...	.5				
125	1.2D + 1.5Lm(6) + 1.0W...Yes Y	DL	1.2	17	1.5	W...	.1	W...	.001				
126	1.2D + 1.5Lm(6) + 1.0W...Yes Y	DL	1.2	17	1.5	W...	.866	W...	-.5				
127	1.2D + 1.5Lm(6) + 1.0W...Yes Y	DL	1.2	17	1.5	W...	.5	W...	-.866				
128	1.2D + 1.5Lm(6) + 1.0W...Yes Y	DL	1.2	17	1.5	W...	.001	W...	-.5				
129	1.2D + 1.5Lm(6) + 1.0W...Yes Y	DL	1.2	17	1.5	W...	-.5	W...	-.866				
130	1.2D + 1.5Lm(6) + 1.0W...Yes Y	DL	1.2	17	1.5	W...	-.866	W...	-.5				
131	1.2D + 1.5Lm(6) + 1.0W...Yes Y	DL	1.2	17	1.5	W...	-.1	W...	.001				
132	1.2D + 1.5Lm(6) + 1.0W...Yes Y	DL	1.2	17	1.5	W...	-.866	W...	.5				
133	1.2D + 1.5Lm(6) + 1.0W...Yes Y	DL	1.2	17	1.5	W...	-.5	W...	.866				
134	1.2D + 1.5Lm(7) + 1.0W...Yes Y	DL	1.2	18	1.5	W...	.001	W...	.1				
135	1.2D + 1.5Lm(7) + 1.0W...Yes Y	DL	1.2	18	1.5	W...	.5	W...	.866				
136	1.2D + 1.5Lm(7) + 1.0W...Yes Y	DL	1.2	18	1.5	W...	.866	W...	.5				
137	1.2D + 1.5Lm(7) + 1.0W...Yes Y	DL	1.2	18	1.5	W...	.1	W...	.001				
138	1.2D + 1.5Lm(7) + 1.0W...Yes Y	DL	1.2	18	1.5	W...	.866	W...	-.5				
139	1.2D + 1.5Lm(7) + 1.0W...Yes Y	DL	1.2	18	1.5	W...	.5	W...	-.866				
140	1.2D + 1.5Lm(7) + 1.0W...Yes Y	DL	1.2	18	1.5	W...	.001	W...	-.5				
141	1.2D + 1.5Lm(7) + 1.0W...Yes Y	DL	1.2	18	1.5	W...	-.5	W...	-.866				
142	1.2D + 1.5Lm(7) + 1.0W...Yes Y	DL	1.2	18	1.5	W...	-.866	W...	-.5				
143	1.2D + 1.5Lm(7) + 1.0W...Yes Y	DL	1.2	18	1.5	W...	-.1	W...	.001				
144	1.2D + 1.5Lm(7) + 1.0W...Yes Y	DL	1.2	18	1.5	W...	-.866	W...	.5				
145	1.2D + 1.5Lm(7) + 1.0W...Yes Y	DL	1.2	18	1.5	W...	-.5	W...	.866				
146	1.2D + 1.5Lm(8) + 1.0W...Yes Y	DL	1.2	19	1.5	W...	.001	W...	.1				
147	1.2D + 1.5Lm(8) + 1.0W...Yes Y	DL	1.2	19	1.5	W...	.5	W...	.866				



Company : American Tower Corp.
 Designer : Mitchell.Chen
 Job Number : 13014253_C8_03
 Model Name : 302467, Bilkays Express

Jan 24, 2020
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 Checked By: -

Load Combinations (Continued)

Description	So..	P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
148	1.2D + 1.5Lm(8) + 1.0W...	Yes	Y	DL	1.2	19	1.5	W...	.866	W...	.5		
149	1.2D + 1.5Lm(8) + 1.0W...	Yes	Y	DL	1.2	19	1.5	W...	1	W...	.001		
150	1.2D + 1.5Lm(8) + 1.0W...	Yes	Y	DL	1.2	19	1.5	W...	.866	W...	-.5		
151	1.2D + 1.5Lm(8) + 1.0W...	Yes	Y	DL	1.2	19	1.5	W...	.5	W...	-.866		
152	1.2D + 1.5Lm(8) + 1.0W...	Yes	Y	DL	1.2	19	1.5	W...	.001	W...	-.5		
153	1.2D + 1.5Lm(8) + 1.0W...	Yes	Y	DL	1.2	19	1.5	W...	-.5	W...	-.866		
154	1.2D + 1.5Lm(8) + 1.0W...	Yes	Y	DL	1.2	19	1.5	W...	-.866	W...	-.5		
155	1.2D + 1.5Lm(8) + 1.0W...	Yes	Y	DL	1.2	19	1.5	W...	-.1	W...	.001		
156	1.2D + 1.5Lm(8) + 1.0W...	Yes	Y	DL	1.2	19	1.5	W...	-.866	W...	.5		
157	1.2D + 1.5Lm(8) + 1.0W...	Yes	Y	DL	1.2	19	1.5	W...	-.5	W...	.866		
158	1.2D + 1.5Lm(9) + 1.0W...	Yes	Y	DL	1.2	20	1.5	W...	.001	W...	1		
159	1.2D + 1.5Lm(9) + 1.0W...	Yes	Y	DL	1.2	20	1.5	W...	.5	W...	.866		
160	1.2D + 1.5Lm(9) + 1.0W...	Yes	Y	DL	1.2	20	1.5	W...	.866	W...	.5		
161	1.2D + 1.5Lm(9) + 1.0W...	Yes	Y	DL	1.2	20	1.5	W...	1	W...	.001		
162	1.2D + 1.5Lm(9) + 1.0W...	Yes	Y	DL	1.2	20	1.5	W...	.866	W...	-.5		
163	1.2D + 1.5Lm(9) + 1.0W...	Yes	Y	DL	1.2	20	1.5	W...	.5	W...	-.866		
164	1.2D + 1.5Lm(9) + 1.0W...	Yes	Y	DL	1.2	20	1.5	W...	.001	W...	-.5		
165	1.2D + 1.5Lm(9) + 1.0W...	Yes	Y	DL	1.2	20	1.5	W...	-.5	W...	-.866		
166	1.2D + 1.5Lm(9) + 1.0W...	Yes	Y	DL	1.2	20	1.5	W...	-.866	W...	-.5		
167	1.2D + 1.5Lm(9) + 1.0W...	Yes	Y	DL	1.2	20	1.5	W...	-.1	W...	.001		
168	1.2D + 1.5Lm(9) + 1.0W...	Yes	Y	DL	1.2	20	1.5	W...	-.866	W...	.5		
169	1.2D + 1.5Lm(9) + 1.0W...	Yes	Y	DL	1.2	20	1.5	W...	-.5	W...	.866		
170	1.2D + 1.5Lm(10) + 1.0...	Yes	Y	DL	1.2	21	1.5	W...	.001	W...	1		
171	1.2D + 1.5Lm(10) + 1.0...	Yes	Y	DL	1.2	21	1.5	W...	.5	W...	.866		
172	1.2D + 1.5Lm(10) + 1.0...	Yes	Y	DL	1.2	21	1.5	W...	.866	W...	.5		
173	1.2D + 1.5Lm(10) + 1.0...	Yes	Y	DL	1.2	21	1.5	W...	1	W...	.001		
174	1.2D + 1.5Lm(10) + 1.0...	Yes	Y	DL	1.2	21	1.5	W...	.866	W...	-.5		
175	1.2D + 1.5Lm(10) + 1.0...	Yes	Y	DL	1.2	21	1.5	W...	.5	W...	-.866		
176	1.2D + 1.5Lm(10) + 1.0...	Yes	Y	DL	1.2	21	1.5	W...	.001	W...	-.5		
177	1.2D + 1.5Lm(10) + 1.0...	Yes	Y	DL	1.2	21	1.5	W...	-.5	W...	-.866		
178	1.2D + 1.5Lm(10) + 1.0...	Yes	Y	DL	1.2	21	1.5	W...	-.866	W...	-.5		
179	1.2D + 1.5Lm(10) + 1.0...	Yes	Y	DL	1.2	21	1.5	W...	-.1	W...	.001		
180	1.2D + 1.5Lm(10) + 1.0...	Yes	Y	DL	1.2	21	1.5	W...	-.866	W...	.5		
181	1.2D + 1.5Lm(10) + 1.0...	Yes	Y	DL	1.2	21	1.5	W...	-.5	W...	.866		
182	1.2D + 1.5Lm(11) + 1.0...	Yes	Y	DL	1.2	22	1.5	W...	.001	W...	1		
183	1.2D + 1.5Lm(11) + 1.0...	Yes	Y	DL	1.2	22	1.5	W...	.5	W...	.866		
184	1.2D + 1.5Lm(11) + 1.0...	Yes	Y	DL	1.2	22	1.5	W...	.866	W...	.5		
185	1.2D + 1.5Lm(11) + 1.0...	Yes	Y	DL	1.2	22	1.5	W...	1	W...	.001		
186	1.2D + 1.5Lm(11) + 1.0...	Yes	Y	DL	1.2	22	1.5	W...	.866	W...	-.5		
187	1.2D + 1.5Lm(11) + 1.0...	Yes	Y	DL	1.2	22	1.5	W...	.5	W...	-.866		
188	1.2D + 1.5Lm(11) + 1.0...	Yes	Y	DL	1.2	22	1.5	W...	.001	W...	-.5		
189	1.2D + 1.5Lm(11) + 1.0...	Yes	Y	DL	1.2	22	1.5	W...	-.5	W...	-.866		
190	1.2D + 1.5Lm(11) + 1.0...	Yes	Y	DL	1.2	22	1.5	W...	-.866	W...	-.5		
191	1.2D + 1.5Lm(11) + 1.0...	Yes	Y	DL	1.2	22	1.5	W...	-.1	W...	.001		
192	1.2D + 1.5Lm(11) + 1.0...	Yes	Y	DL	1.2	22	1.5	W...	-.866	W...	.5		
193	1.2D + 1.5Lm(11) + 1.0...	Yes	Y	DL	1.2	22	1.5	W...	-.5	W...	.866		
194	1.2D + 1.5Lm(12) + 1.0...	Yes	Y	DL	1.2	23	1.5	W...	.001	W...	1		
195	1.2D + 1.5Lm(12) + 1.0...	Yes	Y	DL	1.2	23	1.5	W...	.5	W...	.866		
196	1.2D + 1.5Lm(12) + 1.0...	Yes	Y	DL	1.2	23	1.5	W...	.866	W...	.5		
197	1.2D + 1.5Lm(12) + 1.0...	Yes	Y	DL	1.2	23	1.5	W...	1	W...	.001		
198	1.2D + 1.5Lm(12) + 1.0...	Yes	Y	DL	1.2	23	1.5	W...	.866	W...	-.5		
199	1.2D + 1.5Lm(12) + 1.0...	Yes	Y	DL	1.2	23	1.5	W...	.5	W...	-.866		
200	1.2D + 1.5Lm(12) + 1.0...	Yes	Y	DL	1.2	23	1.5	W...	.001	W...	-.5		
201	1.2D + 1.5Lm(12) + 1.0...	Yes	Y	DL	1.2	23	1.5	W...	-.5	W...	-.866		
202	1.2D + 1.5Lm(12) + 1.0...	Yes	Y	DL	1.2	23	1.5	W...	-.866	W...	-.5		
203	1.2D + 1.5Lm(12) + 1.0...	Yes	Y	DL	1.2	23	1.5	W...	-.1	W...	.001		
204	1.2D + 1.5Lm(12) + 1.0...	Yes	Y	DL	1.2	23	1.5	W...	-.866	W...	.5		



Company : American Tower Corp.
 Designer : Mitchell.Chen
 Job Number : 13014253_C8_03
 Model Name : 302467, Bilkays Express

Jan 24, 2020
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Load Combinations (Continued)

Description	So..P...	S...	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..	BLCFac..
205	1.2D + 1.5Lm(12) + 1.0...	Yes	Y		DL 1.2	23 1.5	W...	-5	W...	.866		

Envelope Joint Reactions

Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
1	N008	max	3412.059	6	824.204	24	1752.978	25	789.339	4	847.271	25	846.948	7
2		min	-2068.922	24	-1129.634	6	-2527.897	7	-772.107	22	-857.7	7	-652.856	25
3	N009	max	2288.471	16	845.163	16	1466.962	16	987.449	12	646.323	21	588.523	15
4		min	-3615.654	10	-1151.773	10	-2242.617	10	-837.909	18	-661.339	3	-708.052	9
5	N010	max	1442.991	17	734.09	20	4010.038	2	482.397	20	1722.602	23	1200.963	23
6		min	-1446.912	11	-1042.603	2	-2473.069	20	-662.089	2	-1732.636	5	-1292.626	5
7	N012	max	508.905	24	3670.103	30	1573.438	30	0	205	0	205	0	205
8		min	-2723.35	30	-697.355	24	-293.8	24	0	1	0	1	0	1
9	N013	max	2701.539	34	3640.78	34	1560.37	34	0	205	0	205	0	205
10		min	-528.873	16	-723.945	16	-305.285	16	0	1	0	1	0	1
11	N014	max	21.004	17	3593.762	26	476.49	20	0	205	0	205	0	205
12		min	-21.136	23	-574.69	20	-3078.22	26	0	1	0	1	0	1
13	Totals:	max	4626.254	17	7722.317	30	4247.525	2						
14		min	-4626.254	11	2041.86	24	-4247.525	20						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

Member	Shape	Code Ch...	Loc[in]	LC	Shear Check	Loc.....	phi*Pn...	phi*Pn...	phi*M...	phi*M...	Eqn		
1	H001	Pipe 3.0x0.120"	.321	0	11	.288	0	11	26988...	40138...	3600....	3600....	H3-6
2	H002	PL6x0.625	.146	4.966	5	.440	4.9...	y 29	15366...	168750	2197....	21093....	H1-1b
3	H003	PL6x0.625	.149	4.966	11	.429	4.9...	y 33	15366...	168750	2197....	21093....	H1-1b
4	H004	PL6x0.625	.140	4.966	3	.437	4.9...	y 36	15366...	168750	2197....	21093....	H1-1b
5	H005	Pipe 3.0x0.120"	.312	162	27	.337	111...	11	26988...	40138...	3600....	3600....	H1-1b
6	H006	Pipe 3.0x0.120"	.318	162	30	.272	111...	2	26988...	40138...	3600....	3600....	H1-1b
7	TB007	LL2.5x2.5x3x0	.113	0	30	.002	59....	y 6	42602...	58320	3300.48	2535.63	H1-1b*
8	TB008	LL2.5x2.5x3x0	.113	0	34	.002	0	y 10	42602...	58320	3300.48	2535.63	H1-1b*
9	TB009	LL2.5x2.5x3x0	.111	0	26	.002	0	y 2	42602...	58320	3300.48	2535.63	H1-1b*
10	H010	PIPE 2.0	.341	116.437	12	.238	141...	11	5397.31	32130	1871....	1871....	H1-1b
11	H011	PIPE 2.0	.287	116.438	4	.182	141...	4	5397.31	32130	1871....	1871....	H1-1b
12	H012	PIPE 2.0	.285	141.75	6	.181	141...	7	5397.31	32130	1871....	1871....	H1-1b
13	H013	L2.5x2.5x4	.281	15.933	5	.149	0	y 11	37630...	38556	1113....	2537....	H2-1
14	H014	L2.5x2.5x4	.273	15.933	8	.118	0	y 3	37630...	38556	1113....	2537....	H2-1
15	H015	L2.5x2.5x4	.354	15.933	12	.121	15....	y 7	37630...	38556	1113....	2537....	H2-1
16	H016	LL2x2x4x0	.383	18	26	.023	0	y 26	56534...	61236	2894.4	1982....	H1-1b
17	H017	LL2x2x4x0	.469	18	26	.024	0	y 26	56534...	61236	2894.4	1982....	H1-1b
18	H018	L 1.5x1.5x4	.020	0	21	.067	0	z 26	19754...	22469.4	217.337	893.658	H2-1*
19	H019	L 1.5x1.5x4	.026	0	24	.068	0	z 29	19754...	22469.4	217.337	893.658	H2-1*
20	H020	L 1.5x1.5x4	.012	0	16	.068	0	z 33	19754...	22469.4	217.337	893.658	H2-1*
21	H021	LL2x2x4x0	.420	18	5	.024	0	y 29	56534...	61236	2894.4	1982....	H1-1b
22	H022	LL2x2x4x0	.383	18	34	.024	0	y 33	56534...	61236	2894.4	1982....	H1-1b
23	H023	L 1.5x1.5x4	.031	0	19	.070	0	y 26	19754...	22469.4	217.337	893.658	H2-1*
24	H024	L 1.5x1.5x4	.026	0	24	.068	0	y 30	19754...	22469.4	217.337	893.658	H2-1*
25	H025	L 1.5x1.5x4	.039	0	16	.073	0	y 34	19754...	22469.4	217.337	893.658	H2-1*
26	H026	LL2x2x4x0	.469	18	30	.025	0	y 30	56534...	61236	2894.4	1982....	H1-1b
27	H027	LL2x2x4x0	.499	18	34	.025	0	y 34	56534...	61236	2894.4	1982....	H1-1b
28	H052	HSS3x3x6	.317	28.949	26	.125	28....	y 5	12734...	140346	11212.5	11212.5	H1-1b
29	H053	HSS3x3x6	.327	28.949	30	.101	28....	y 8	12734...	140346	11212.5	11212.5	H1-1b
30	H054	HSS3x3x6	.319	28.949	34	.109	28....	y 12	12734...	140346	11212.5	11212.5	H1-1b
31	H055	HSS3x3x6	.183	0	4	.170	0	z 5	13417...	140346	11212.5	11212.5	H1-1b
32	H056	HSS3x3x6	.151	0	6	.112	0	z 9	13417...	140346	11212.5	11212.5	H1-1b
33	H057	HSS3x3x6	.153	17.938	11	.112	0	z 13	13417...	140346	11212.5	11212.5	H1-1b



Company : American Tower Corp.
 Designer : Mitchell.Chen
 Job Number : 13014253_C8_03
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Jan 24, 2020
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Envelope AISC 15th(360-16): LRFD Steel Code Checks (Continued)

Member	Shape	Code Ch...	Loc[in]	LC	Shear Check	Loc.....	phi*Pn...	phi*Pn...	phi*M...	phi*M...	Eqn	
34	MP1	PIPE_2.0	.276	47.25	10	.097	47....	7 4552....	32130	1871....	1871....	H1-1b
35	MP2	PIPE_2.0	.295	47.25	13	.111	47....	11 4552....	32130	1871....	1871....	H1-1b
36	MP3	PIPE_2.0	.330	47.25	6	.119	47....	4 4552....	32130	1871....	1871....	H1-1b
37	MP4	PIPE_2.0	.310	49.875	2	.091	49....	9 4552....	32130	1871....	1871....	H1-1b
38	MP5	PIPE_2.0	.408	49.875	5	.092	49....	12 4552....	32130	1871....	1871....	H1-1b
39	MP6	PIPE_2.0	.339	49.875	11	.122	49....	5 4552....	32130	1871....	1871....	H1-1b
40	MP7	PIPE_2.0	.302	46.375	6	.134	46....	8 4552....	32130	1871....	1871....	H1-1b
41	MP8	PIPE_2.0	.354	46.375	10	.180	46....	11 4552....	32130	1871....	1871....	H1-1b
42	MP9	PIPE_2.0	.312	47.25	3	.149	47....	4 4552....	32130	1871....	1871....	H1-1b
43	MP10	PIPE_2.0	.480	49.875	2	.114	49....	7 4552....	32130	1871....	1871....	H1-1b
44	MP11	PIPE_2.0	.540	50.75	5	.162	50....	11 4552....	32130	1871....	1871....	H1-1b
45	MP12	PIPE_2.0	.560	49.875	10	.119	49....	10 4552....	32130	1871....	1871....	H1-1b



Site Number: 302467
Project Number: 13014253_C8_03
Carrier: Verizon Wireless
Mount Elevation: 137 ft
Date: 1/24/2020

Mount Analysis Force Calculations

Wind & Ice Load Calculations

Shielding Factor	K_z	1.08	
Topographic Factor	K_{zt}	1.00	
Rooftop Wind Speed-up Factor	K_s	1.00	
Shielding Factor	K_a	0.90	
Ground Elevation Factor	K_e	1.00	
Wind Direction Probability Factor	K_d	0.95	
Basic Wind Speed	V	97	mph
Velocity Pressure	q_z	24.7	psf
Height Escalation Factor	K_{iz}	1.15	
Thickness of Radial Glaze Ice	T_{iz}	1.73	in

Seismic Load Calculations

Short Period DSRAP	S_{DS}	0.256	
1 Second DSRAP	S_{D1}	0.099	
Importance Factor	I	1.0	
Response Modification Coefficient	R	2.0	
Seismic Response Coefficient	C_s	0.128	
Amplification Factor	A	1.0	
Total Weight	W	2104.4	lbs
Total Shear Force	V_s	269.4	lbs
Horizontal Seismic Load	E_h	269.4	lbs
Vertical Seismic Load	E_v	107.7	lbs

Antenna Calculations

Equipment	Height	Width	Depth	Weight	EPA_N	EPA_T	EPA_{Ni}	EPA_{Ti}
Model #	in	in	in	lbs	sqft	sqft	sqft	sqft
Amphenol Antel BXA-80063-6BF-EDIN-X	68.6	11.2	5.3	19.2	7.26	2.15	9.98	3.74
Commscope JAHH-65B-R3B	72.0	13.8	8.2	60.6	9.11	2.61	11.95	3.89
Samsung Outdoor CBRS 20W RRH –Clip-on Antenna	12.3	8.7	1.4	4.4	0.89	0.10	1.60	0.45
Commscope CBC78T-DS-43-2X	9.6	6.9	6.4	20.7	N/A	N/A		
RFS DB-T1-6Z-8AB-OZ	24.0	24.0	10.0	44.0	N/A	N/A		
Samsung B2/B66A RRH-BR049	15.0	15.0	10.0	84.4	1.88	1.25	2.84	2.07
Samsung Outdoor CBRS 20W RRH	12.1	8.5	4.1	18.6	0.86	0.42	1.55	1.00
Samsung B5/B13 RRH-BR04C	15.0	15.0	8.1	70.3	1.88	1.01	2.84	1.78

Mount-to-Tower Connection Analysis

Applied Loads from RISA 3D

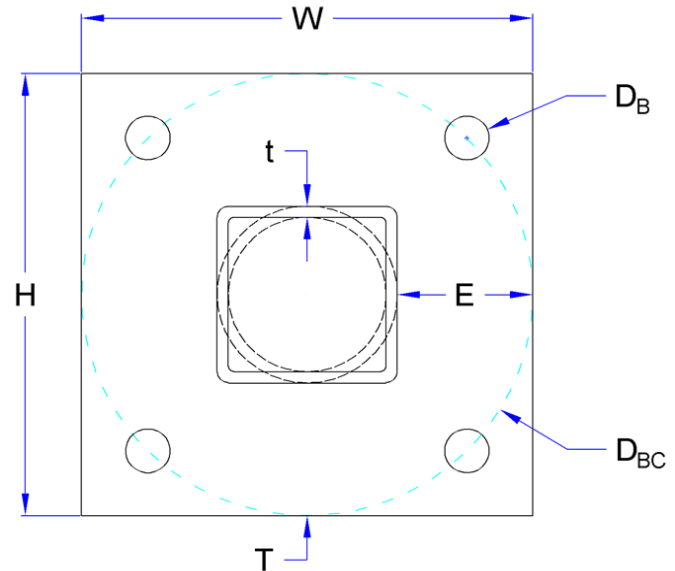
Controlling Load Combination		4	
Node Label		N010	
Force in X	F _x	1302.2	lbs
Force in Y	F _y	-650.8	lbs
Force in Z	F _z	2608.3	lbs
Moment about X	M _x	-409.2	lb-ft
Moment about Y	M _y	-1538.7	lb-ft
Moment about Z	M _z	-1157.7	lb-ft

Bolt Shear and Tensile Capacity

Bolt Quantity	n	4	
Bolt Diameter	D _B	5/8	in
Bolt Circle	D _{BC}	6	in
Bolt Grade		A325	
Bolt F _y	F _{yB}	92	ksi
Bolt F _u	F _{uB}	120	ksi
Applied Shear	V _u	0.07	k
Applied Tension	T _u	3.41	k
Tensile Strength	φT _n	20.3	k
Interaction Capacity	(T _u +V _u)/φT _n	17%	Pass

Plate Flexural Capacity

Plate Height	H	6	in
Plate Width	W	6	in
Plate Thickness	T	3/4	in
Plate Grade		A36	
Plate F _y	F _{yP}	36	ksi
Plate F _u	F _{uP}	58	ksi
Applied Moment	M _u	1.7	k-in
Flexural Strength	φM _n	27.3	k-in
Flexural Capacity	M _u /φM _n	6%	Pass



Weld and Base Metal Capacity

Standoff Type		Tube	
Standoff Member		HSS3x3x6	
Member Edge Distance	E	1.5	in
Member Width	w	3	in
Member Thickness	t	0.375	in
Member Grade		A53 Gr. B	
Member F _y	F _{yM}	35	ksi
Member F _u	F _{uM}	60	ksi
Weld Size	a	1/4	in
Weld Length	l	12.0	in
Applied Load	P _u	6.8	k
Weld Strength	φR _n	33.4	k
Weld Capacity	P _u /φR _n	20%	Pass
Minimum Base Metal Thickness		0.206	in
Controlling Base Metal Thickness		0.375	in
Base Metal Result		Acceptable	

Site Name: Wallingford 3 CT
Cumulative Power Density

Operator	Operating Frequency	Number of Trans.	ERP Per Trans.	Total ERP	Distance to Target	Calculated Power Density	Maximum Permissible Exposure*	Fraction of MPE
	(MHz)		(watts)	(watts)	(feet)	(mW/cm ²)	(mW/cm ²)	(%)
VZW 700	746	4	634	2,534	138	0.0479	0.4973333333	9.62%
VZW Cellular	869	2	369	738	138	0.0139	0.5793333333	2.41%
VZW Cellular	880	4	364	1,454	138	0.0275	0.5866666667	4.68%
VZW PCS	1970	4	1,525	6,100	138	0.1152	1.0	11.52%
VZW AWS	2145	4	1,493	5,973	138	0.1128	1.0	11.28%
VZW CBRS	3550	4	42	168	138	0.0032	1.0	0.32%

Total Percentage of Maximum Permissible Exposure 39.83%

*Guidelines adopted by the FCC on August 1, 1996, 47 CFR Section 1.13101 based on NCRP Report 86, 1986 and generally on ANSI/IEEE C95.1-1991

MHz = Megahertz

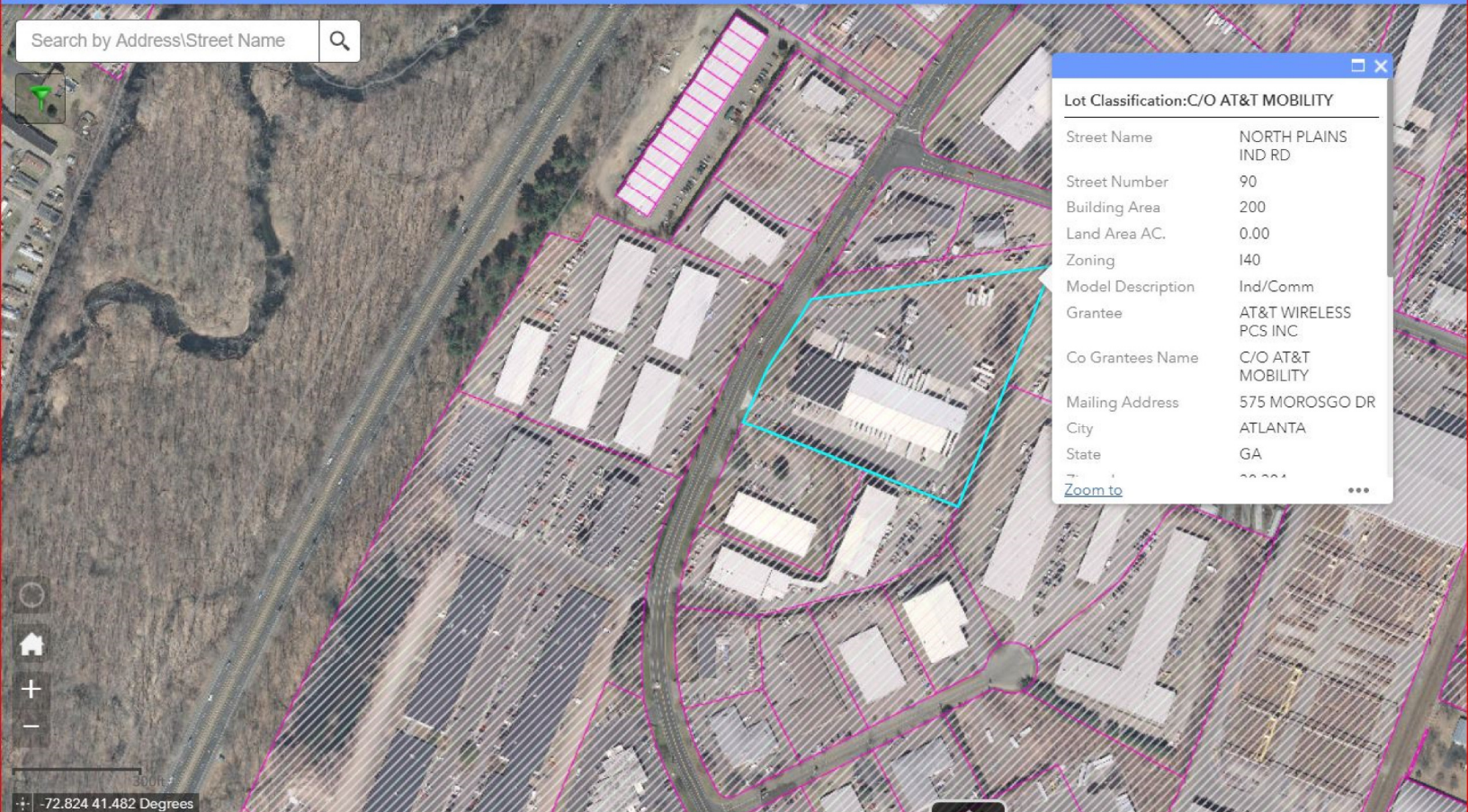
mW/cm² = milliwatts per square centimeter

ERP = Effective Radiated Power

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

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

Search by Address\Street Name



Lot Classification:C/O AT&T MOBILITY	
Street Name	NORTH PLAINS IND RD
Street Number	90
Building Area	200
Land Area AC.	0.00
Zoning	I40
Model Description	Ind/Comm
Grantee	AT&T WIRELESS PCS INC
Co Grantees Name	C/O AT&T MOBILITY
Mailing Address	575 MOROSGO DR
City	ATLANTA
State	GA
Zip	30324
Zoom to ...	

300ft
-72.824 41.482 Degrees

Property Location: 90 NORTH PLAINS IND RD
 Vision ID: 15720

Account # B0423200

MAP ID: 63 / 15 / 1

Bldg #: 1 of 1

Bldg Name:

Sec #: 1 of 1 Card 1 of 1

State Use: 3140

Print Date: 02/16/2018 14:20

CURRENT OWNER		TOPO.	UTILITIES	STRT./ROAD	LOCATION	CURRENT ASSESSMENT			
R L R INVESTMENTS LLC		1 Level	2 Public Water	1 Paved	5 Industrial	Description	Code	Appraised Value	Assessed Value
600 GILLAM RD						COM LAND	2-1	306,900	214,800
VILMINGTON, OH 45177						COM BLDG	2-2	1,165,800	816,100
Additional Owners:						COM OUTBL	2-5	231,800	162,300
						UTL LAND	4-1	200,000	140,000
SUPPLEMENTAL DATA									
Other ID: 059001023A		P/Z MAP # 01-20							
Census: 1754		ENG MAP # 0-1231							
Old MBLU		Easement							
TC MAP #		Town Line?							
TC MAP #		IND PARKS IN							
Record Lot		ASSOC PID#							
GIS ID: 63/15					Total 1,904,500 1,333,200				

6148
WALLINGFORD, CT

VISION

RECORD OF OWNERSHIP		BK-VOL/PAGE	SALE DATE	q/u	wt	SALE PRICE	V.C.	PREVIOUS ASSESSMENTS (HISTORY)									
R L R INVESTMENTS LLC		967/1109	09/12/2009		1	950,000		Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	
BILKAYS EXPRESS CO		501/1027	09/11/1980			0		2017	2-1	214,800	2016	2-1	214,800	2015	2-1	214,800	
								2017	2-2	816,100	2016	2-2	816,100	2015	2-2	816,100	
								2017	2-5	162,300	2016	2-5	162,300	2015	2-5	162,300	
								2017	4-1	140,000	2016	4-1	140,000	2015	4-1	140,000	
Total:										1,333,200	Total:		1,333,200		Total:		1,333,200

EXEMPTIONS				OTHER ASSESSMENTS				This signature acknowledges a visit by a Data Collector or Assessor	
Year	Type	Description	Amount	Code	Description	Number	Amount	Comm. Int.	
Total:									

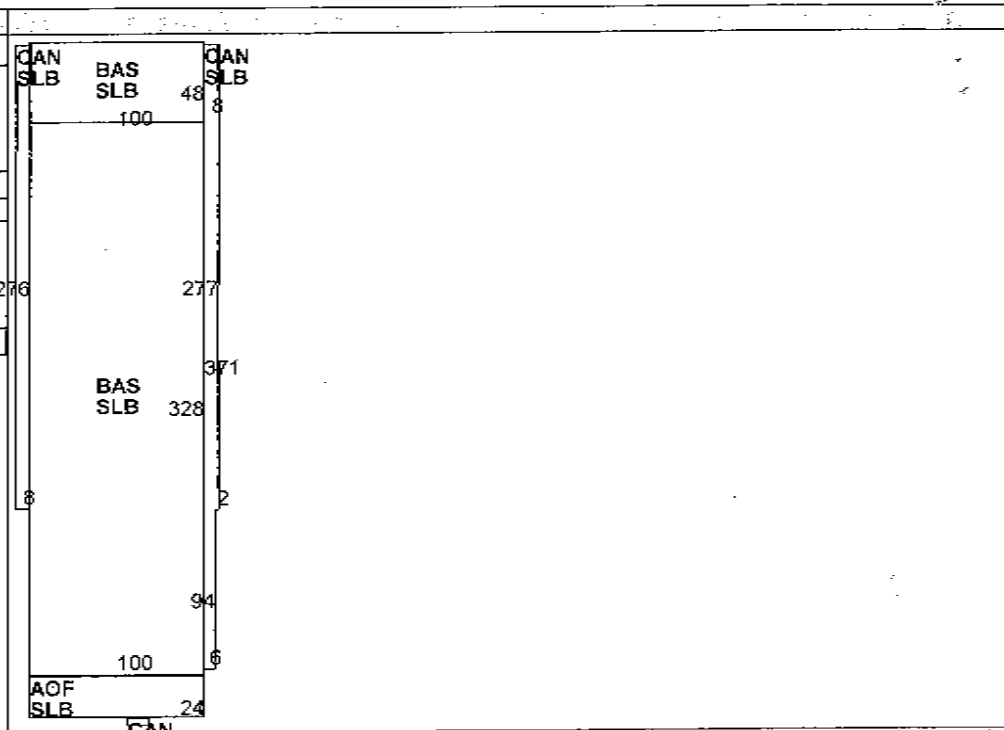
ASSESSING NEIGHBORHOOD					APPRAISED VALUE SUMMARY	
NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch	Appraised Bldg. Value (Card)	1,089,000
I2/A					Appraised XF (B) Value (Bldg)	76,800
					Appraised OB (L) Value (Bldg)	231,800
					Appraised Land Value (Bldg)	506,900
					Special Land Value	0
					Total Appraised Parcel Value	1,904,500
					Valuation Method:	C
					Adjustment:	0
					Net Total Appraised Parcel Value	1,904,500

BUILDING PERMIT RECORD										VISIT/ CHANGE HISTORY				
Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments	Date	Type	IS	ID	Cd	Purpose/Result
27653	05/10/2013	CM	Commercial	15,000	07/10/2013	100		EQUIPMENT PADS	07/10/2013	02		TH	63	Permit Check - No Measu
24344 CA	01/22/2010	CA	C - Approval	0	07/23/2010	100	10/29/2010		07/23/2010	02	8	DH	63	Permit Check - No Measu
24344	01/22/2010	CM	Commercial	15,000	07/23/2010	100	10/29/2010	INSTALL 3 ANTENNAS	05/11/2010	03		KPC	29	Field Review
23761 CA	05/19/2009	CA	C - Approval	0	07/20/2009	100	01/13/2010	C/A FOR BP #23761	07/27/2009	03		TH	00	Measur+Listed
23761	05/19/2009	CM	Commercial	26,000	07/20/2009	100	07/20/2009	CHANGE EXISTING ANTENNAS	07/20/2009	02	8	DH	63	Permit Check - No Measu
20960	08/31/2006	CM	Commercial	10,000	09/27/2006	100		Install new antennas						
14259 CO	07/12/2002	CC	C of C	1,155,000	09/05/2002	100	03/04/2002	C/C Addition to Termin						

LAND LINE VALUATION SECTION																		
Use Code	Use Description	Zone	D	Front	Depth	Units	Unit Price	I. Factor	S.A.	Acre Disc	C. Factor	ST. Lbx	Adj.	Notes- Adj	Special Pricing	S Adj Fact	Adj. Unit Price	Land Value
3140	TRK TERM M96	140				43,560 SF	2.76	1.0000	C	1.0000	1.00	C60	0.85	5X L/B		1.00	2.35	102,200
3140	TRK TERM M96	140				1.75 AC	120,200.00	1.0000	0	1.0000	1.00	C60	0.85			1.00	102,170.00	178,800
4310	TEL REL TW M96					1.00 BL	200,000.00	1.0000	0	1.0000	1.00		0.00	CELL SITE-2,500 SF		1.00	200,000.00	200,000
4310	TEL REL TW M96					2,500 SF	0.00	1.0000	0	1.0000	1.00		0.00	CELL SITE AREA			0.00	0
3140	TRK TERM M96					2.59 AC	10,000.00	1.0000	0	1.0000	1.00		0.00			1.00	10,000.00	25,900
Total Card Land Units:						5.40 AC	Parcel Total Land Area:						5.4 AC	Total Land Value:			506,900	

No. 5295
 P.
 WLFED ASSESSORS OFFICE
 5:00PM
 Feb. 23, 2018

CONSTRUCTION DETAIL			CONSTRUCTION DETAIL (CONTINUED)				
Element	Cd	Ch	Description	Element	Cd	Ch	Description
Style	414		Warehouse				
Style	96		Ind/Comm				
Style	C+						
Occupancy	1						
Exterior Wall 1	20		Brick/Masonry				
Exterior Wall 2	27		Pre-finish Metl				
Roof Structure	03		Gable				
Roof Cover	01		Metal/Fin				
Interior Wall 1	01		Minim/Masonry				
Interior Wall 2							
Interior Floor 1	04		Concr Abv Grad				
Interior Floor 2							
Heating Fuel	03		Gas				
Heating Type	08		Radiant				
AC Type	06		Partial				
Bldg Use	3140		TRK TERM M96				
Total Rooms							
Total Bedrms	00						
Total Baths	0						
Heat/AC	00		Heat/Min				
Heat Type	05		Steel				
Plumbing	02		Average				
Wall	04		Ceil & Min WL				
Partns	02		Average				
Height	14						
Roof Wall	0						



OB-OUTBUILDING & YARD ITEMS(L) / XF-BUILDING EXTRA FEATURES(B)												
Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Appr Value
	Lights-In w/PL			L	4	860.00	2001	C		A	50	1,700
	w/Double Light			L	1	1,400.00	2001	C		A	50	700
	Paving-Conc			L	40,10	3.50	2002	C		G	70	98,200
	Paving-Asphalt			L	67,00	3.00	2001	C		A	50	100,500
	Fence-6' Chain			L	1,900	11.00	2001	C		G	70	14,600
	Canopy-Comm			L	1,150	20.00	2001	C		G	70	16,100
	Air Condition			B	2,400	3.50	1987			I	100	6,000
	w/Man Lift Ou			B	53	1,100.00	1987			I	100	42,000
	Sprinklers Wet			B	40,00	1.00	1987			I	100	28,800

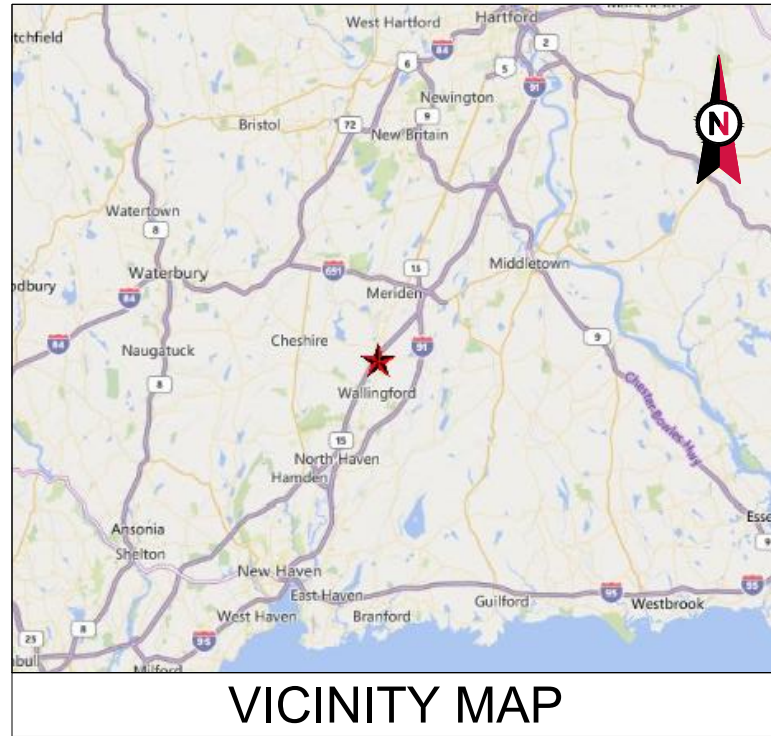
BUILDING SUB-AREA SUMMARY SECTION						
Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value
	Office	2,400	2,400	3,120	47.12	113,088
	First Floor	37,600	37,600	37,600	36.25	1,362,850
	Canopy	0	5,036	1,007	7.25	36,500
	Slab	0	44,988	0	0.00	0
Ttl Gross Liv/Lease Area:		40,000	90,024	41,727		1,512,437



Feb. 23, 2018

5:00PM

ASSESSORS OFFICE



VICINITY MAP



AMERICAN TOWER®

ATC SITE NAME: BILKAYS EXPRESS
 ATC SITE NUMBER: 302467
 VERIZON SITE NAME: WALLINGFORD III
 VERIZON SITE NUMBER: 469297
 SITE ADDRESS: 90 NORTH PLAINS INDUSTRIAL RD
 WALLINGFORD, CT 06492
**VERIZON WIRELESS
 ANTENNA AMENDMENT DRAWINGS**



LOCATION MAP

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

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

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MG	03/20/20

ATC SITE NUMBER:
302467
 ATC SITE NAME:
BILKAYS EXPRESS
 SITE ADDRESS:
 90 NORTH PLAINS INDUSTRIAL RD
 WALLINGFORD, CT 06492

SEAL:

DRAWN BY:	MG
APPROVED BY:	PPB
DATE DRAWN:	03/20/20
ATC JOB NO:	13014253
CUSTOMER ID:	WALLINGFORD III
CUSTOMER #:	469297

COVER SHEET

SHEET NUMBER: G-001	REVISION: 0
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COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES. 1. INTERNATIONAL BUILDING CODE (IBC) 2. NATIONAL ELECTRIC CODE (NEC) 3. LOCAL BUILDING CODE 4. CITY/COUNTY ORDINANCES	<u>SITE ADDRESS:</u> 90 NORTH PLAINS INDUSTRIAL RD WALLINGFORD, CT 06492 COUNTY: NEW HAVEN <u>GEOGRAPHIC COORDINATES:</u> LATITUDE: 41.48076111 LONGITUDE: -72.8177 GROUND ELEVATION: 57' AMSL	THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW: REMOVE (3) PANELS, (12) RRU's, AND (2) 1-5/8" NON LOW-INDUCTANCE HYBRID CABLES INSTALL (3) NEW PANELS, (9) RRU's, (3) COMBINERS, AND (2) 1-5/8" LOW INDUCTANCE HYBRID CABLES EXISTING (9) PANELS, (12) 1-5/8" COAX CABLES, AND (2) OVPs TO REMAIN	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<u>PROJECT TEAM</u> <u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801 <u>ENGINEER:</u> ATC TOWER SERVICES, LLC 3500 REGENCY PKWY STE 100 CARY, NC 27518 <u>PROPERTY OWNER:</u> R L R INVESTMENTS LLC 600 GILLAM RD WILMINGTON, OH 45177 <u>APPLICANT:</u> VERIZON WIRELESS 20 ALEXANDER DRIVE, 2ND FLOOR WALLINGFORD, CT 06492	PROJECT NOTES 1. THE FACILITY IS UNMANNED. 2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE. 3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE. 4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED. 5. HANDICAP ACCESS IS NOT REQUIRED.	G-001 COVER SHEET G-002 GENERAL NOTES C-101 DETAILED SITE PLAN C-102 TOWER ELEVATION C-501 RF SCHEDULE AND ANTENNA INSTALLATION C-502 CONSTRUCTION DETAILS				
<u>UTILITY COMPANIES</u> POWER COMPANY: WALLINGFORD ELECTRIC PHONE: (203) 265-5055 TELEPHONE COMPANY: FRONTIER COMMUNICATIONS PHONE: (800) 921-8102	<u>PROJECT LOCATION DIRECTIONS</u> FROM HARTFORD TAKE I-91 SOUTH TO EXIT 15. TURN RIGHT ONTO RT 68. FOLLOW OVER RT 5 AND TURN LEFT ON NORTH INDUSTRIAL PLAINS ROAD. TOWER IS DOWN ON LEFT IN TRUCKING COMPANY COMPOUND.						



GENERAL CONSTRUCTION NOTES:

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

27. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
28. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE VERIZON WIRELESS REP. ANY WORK FOUND BY THE VERIZON WIRELESS REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
29. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.

STRUCTURAL STEEL NOTES:

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



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

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MG	03/20/20

ATC SITE NUMBER:

302467

ATC SITE NAME:

BILKAYS EXPRESS

SITE ADDRESS:

90 NORTH PLAINS INDUSTRIAL RD
 WALLINGFORD, CT 06492

SEAL:



DRAWN BY:	MG
APPROVED BY:	PPB
DATE DRAWN:	03/20/20
ATC JOB NO:	13014253
CUSTOMER ID:	WALLINGFORD III
CUSTOMER #:	469297

GENERAL NOTES

SHEET NUMBER:

G-002

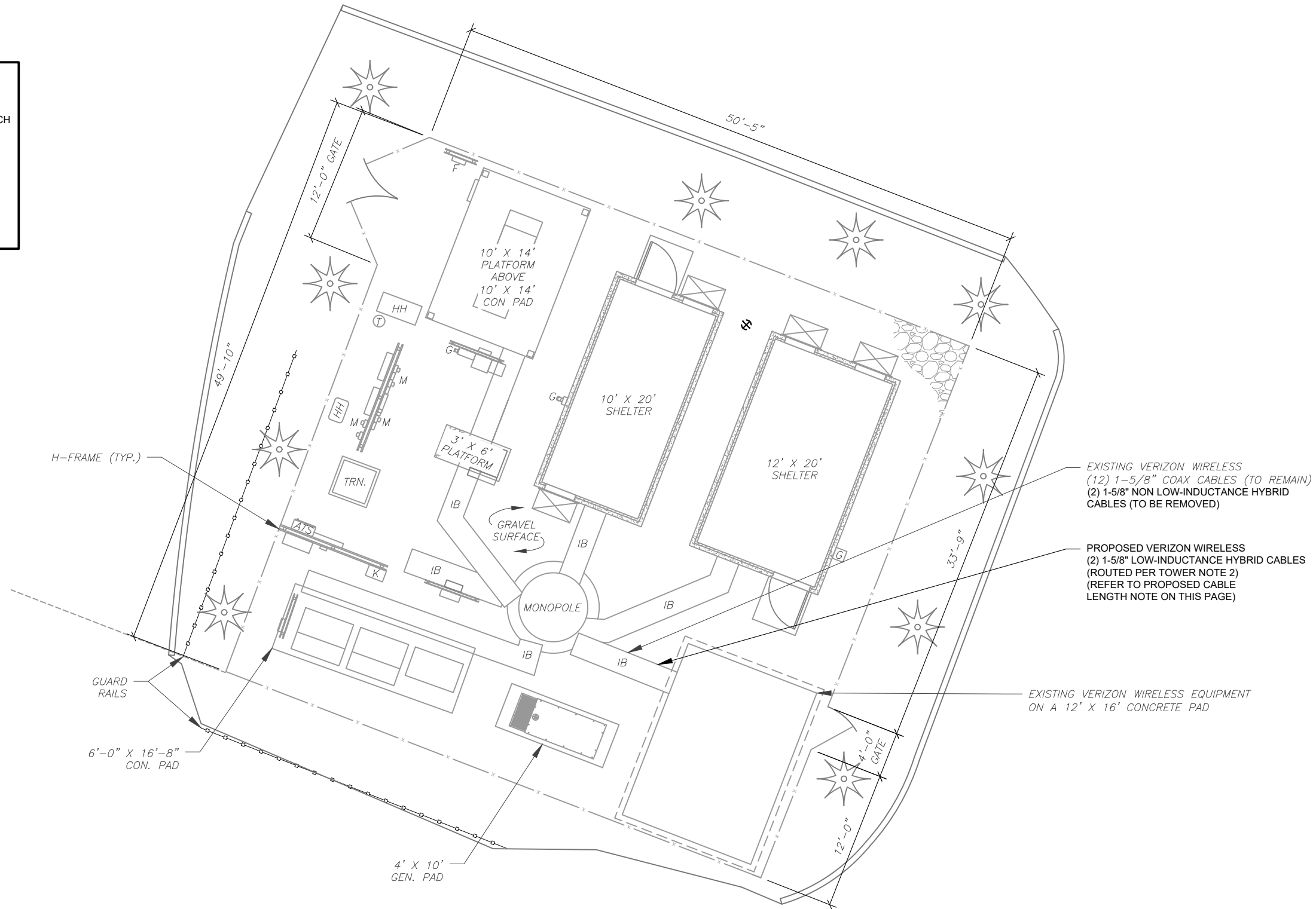
REVISION:

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SITE PLAN NOTES:

1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3. THIS PROJECT INCLUDES NO INSTALL OR MODIFICATION AT GRADE.

LEGEND	
⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
G	GENERATOR RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
M	METER
T	TELCO
TRN	TRANSFORMER
—x—	CHAINLINK FENCE



PROPOSED CABLE LENGTH:
 ESTIMATED LENGTH OF PROPOSED CABLE IS **180'**.
 ESTIMATED LENGTH OF CABLE IS CALCULATED BY
 ADDING THE RAD CENTER AND THE DISTANCE FROM
 THE SHELTER ENTRY PLATE TO THE TOWER (ALONG
 THE ICE BRIDGE) AND A SAFETY FACTOR
 MEASUREMENT OF 15% (OF THE TWO PREVIOUS
 VALUES).



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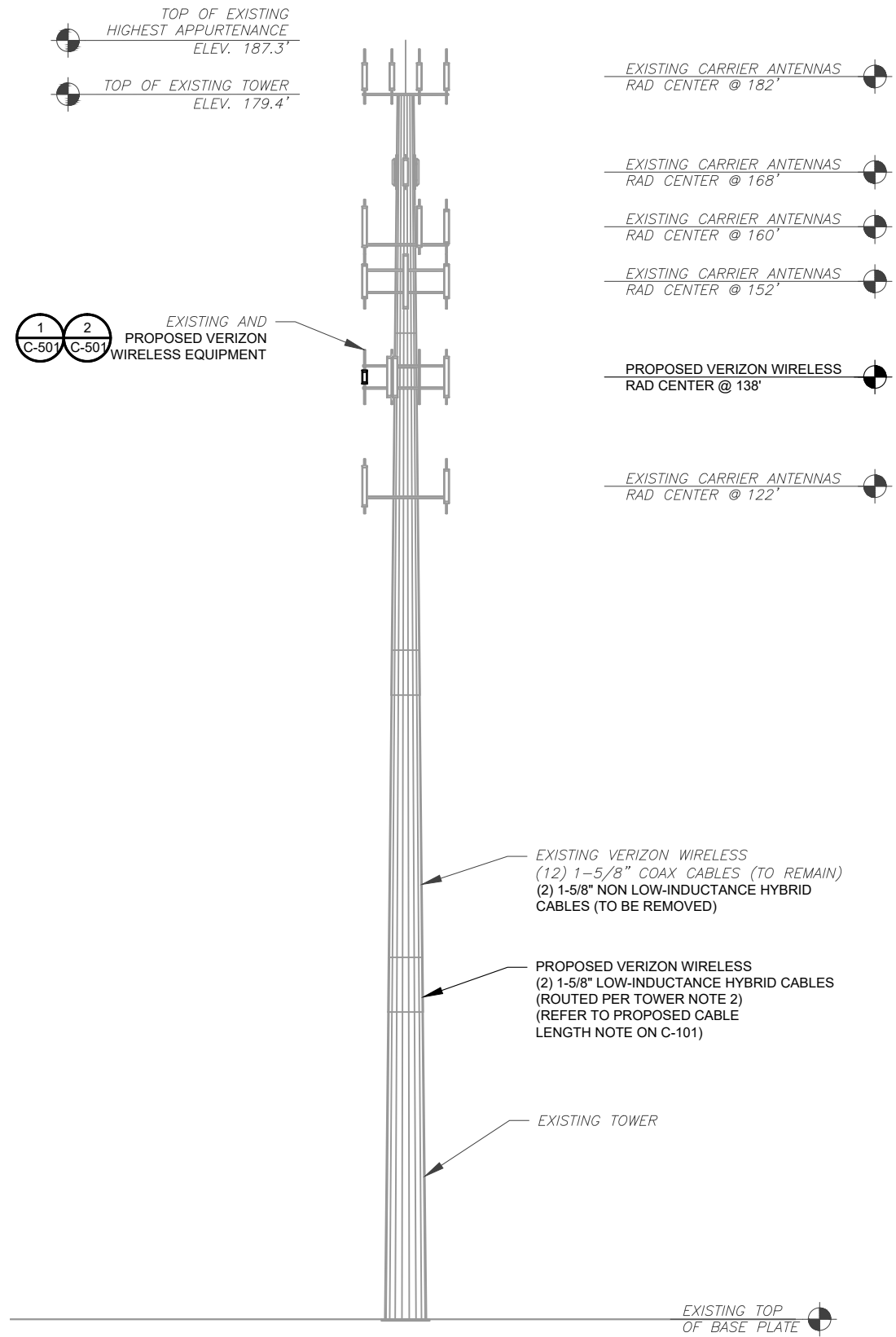
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DRAWN BY:	MG
APPROVED BY:	PPB
DATE DRAWN:	03/20/20
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CUSTOMER #:	469297

DETAILED SITE PLAN

SHEET NUMBER:	REVISION:
C-101	0

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2 TOWER ELEVATION
SCALE: NOT TO SCALE

TOWER NOTE:

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
- ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
- ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATIONS.
- TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

ANTENNA NOTES:

- ALL ANTENNAS TO BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR TO COORDINATE REQUIRED MECHANICAL DOWNTILT FOR EACH ANTENNA WITH VERIZON RF ENGINEER.
- ANTENNA CENTERLINE HEIGHT IS ABOVE GROUND LEVEL (AGL).
- CONTRACTOR SHALL VERIFY ANTENNA TYPE, AZIMUTH, DOWNTILT, AND ANTENNA NUMBER PER SECTOR WITH CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.
- ALL PERSONNEL WORKING ON THE TOWER MUST COMPLY WITH VERIZON'S RF EMISSIONS GUIDELINE POLICY.
- CHECK WITH RF ENGINEER FOR LATEST ANTENNA TYPE AND AZIMUTH.
- CONTRACTOR SHALL NOT INSTALL SHRINK WRAP UNTIL AFTER CABLES HAVE BEEN SWEEPED.
- THE USE OF ALTERNATE GROUNDING MEANS (SUCH AS LYNCOLE XIT) SHALL COMPLY WITH O.C.E.I. CONSTRUCTION SPECIFICATIONS AND BUILDING PRACTICES.



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ATC SITE NAME:
BILKAYS EXPRESS

SITE ADDRESS:
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DRAWN BY:	MG
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DATE DRAWN:	03/20/20
ATC JOB NO:	13014253
CUSTOMER ID:	WALLINGFORD III
CUSTOMER #:	469297

TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-102	0

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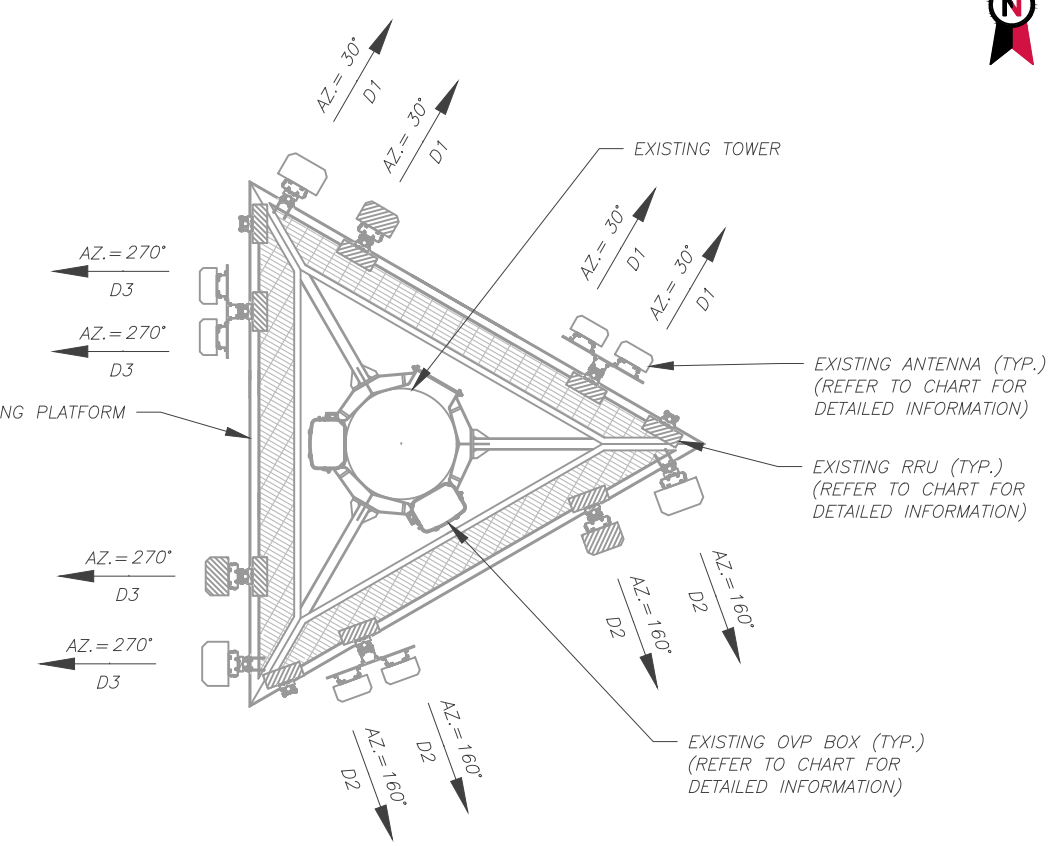


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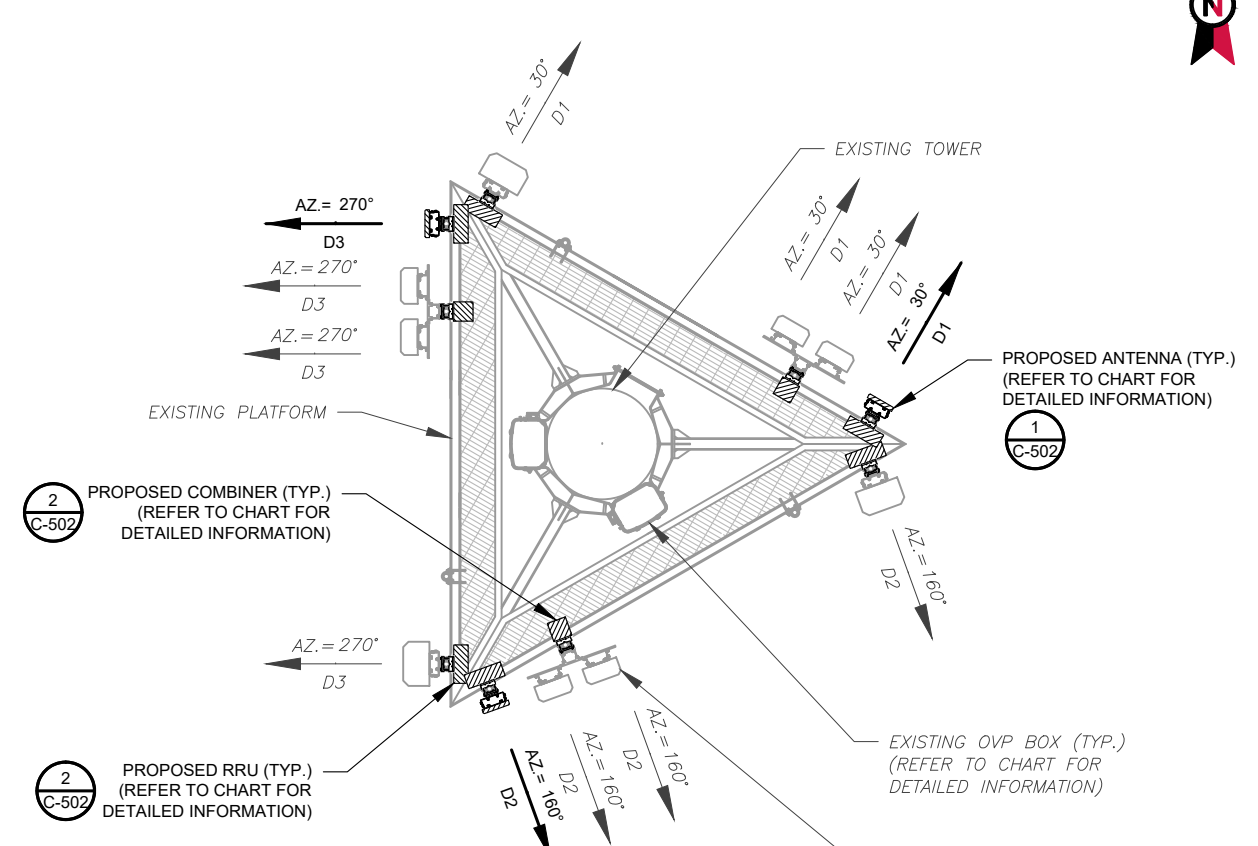
RF SCHEDULE AND ANTENNA INSTALLATION

SHEET NUMBER:
C-501

REVISION:
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1 CURRENT ANTENNA PLAN



2 FINAL ANTENNA PLAN

EXISTING ANTENNA SCHEDULE								
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
D1	138'	30°	A1	BXA-80063-6BF	850 CDMA	RMN	-	-
			A2	SBNHH-1D65B	-	RMV	B66A RRH4x45-4R	RMV
			A3	(2) JAHH-65B-R3B	700/850/1900/2100 LTE	RMN	B5 RRH4x40-850 RRH 2X60-1900	RMV
			A4	-	-	-	RRH2x60 700	RMV
D2	138'	160°	B1	BXA-80063-6BF	850 CDMA	RMN	-	-
			B2	SBNHH-1D65B	-	RMV	B66A RRH4x45-4R	RMV
			B3	(2) JAHH-65B-R3B	700/850/1900/2100 LTE	RMN	B5 RRH4x40-850 RRH 2X60-1900	RMV
			B4	-	-	-	RRH2x60 700	RMV
D3	138'	270°	C1	BXA-80063-6BF	850 CDMA	RMN	-	-
			C2	SBNHH-1D65B	-	RMV	B66A RRH4x45-4R	RMV
			C3	(2) JAHH-65B-R3B	700/850/1900/2100 LTE	RMN	B5 RRH4x40-850 RRH 2X60-1900	RMV
			C4	-	-	-	RRH2x60 700	RMV

- NOTES**
1. BASED ON APPROVED ATC APPLICATION 13014253, DATED 12/12/19. CONFIRM WITH VERIZON WIRELESS REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
 2. ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIG OR MOUNT CONFIG. CONTRACTOR TO VERIFY MOUNT CONFIG HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (EQUIP) (I.E. CLEARANCES, MOUNT PIPE, SUFFICIENT LENGTH, ETC.) ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.
 3. ALL PROPOSED EQUIP INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH ATC'S CM.
 4. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
 5. POSITIONS START WITH FIRST PIPE ON THE LEFT SIDE (AS VIEWED FROM BEHIND THE MOUNT).

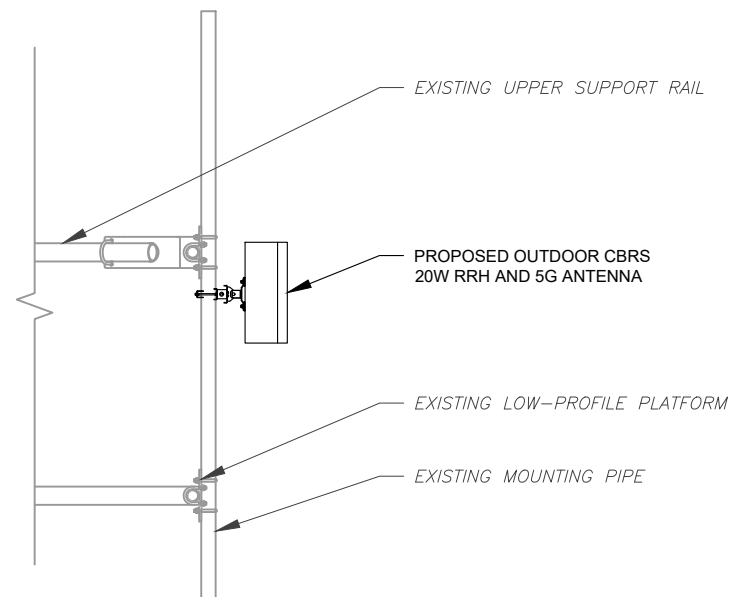
FINAL ANTENNA SCHEDULE								
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
D1	138'	30°	A1	BXA-80063-6BF	850 CDMA	RMN	B2/B66A RRH-BR049	ADD
			A2	-	-	-	-	-
			A3	(2) JAHH-65B-R3B	700/850/1900/2100 LTE	RMN	CBC78T-DS-43-2X	ADD
			A4	OUTDOOR CBRS 20W RRH W/ ANTENNA	-	ADD	B5/B13 RRH-BR04C	ADD
D2	138'	160°	B1	BXA-80063-6BF	850 CDMA	RMN	B2/B66A RRH-BR049	ADD
			B2	-	-	-	-	
			B3	(2) JAHH-65B-R3B	700/850/1900/2100 LTE	RMN	CBC78T-DS-43-2X	ADD
			B4	OUTDOOR CBRS 20W RRH W/ ANTENNA	-	ADD	B5/B13 RRH-BR04C	ADD
D3	138'	270°	C1	BXA-80063-6BF	850 CDMA	RMN	B2/B66A RRH-BR049	ADD
			C2	-	-	-	-	
			C3	(2) JAHH-65B-R3B	700/850/1900/2100 LTE	RMN	CBC78T-DS-43-2X	ADD
			C4	OUTDOOR CBRS 20W RRH W/ ANTENNA	-	ADD	B5/B13 RRH-BR04C	ADD

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY			STATUS ABBREVIATIONS		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS	RMV: TO BE REMOVED	REL: TO BE RELOCATED	ADD: TO BE ADDED
(2) DB-T1-6Z-8AB-0Z	RMN	(12) 1-5/8"	-	RMN			
-	-	-	(2) 1-5/8"	RMV			

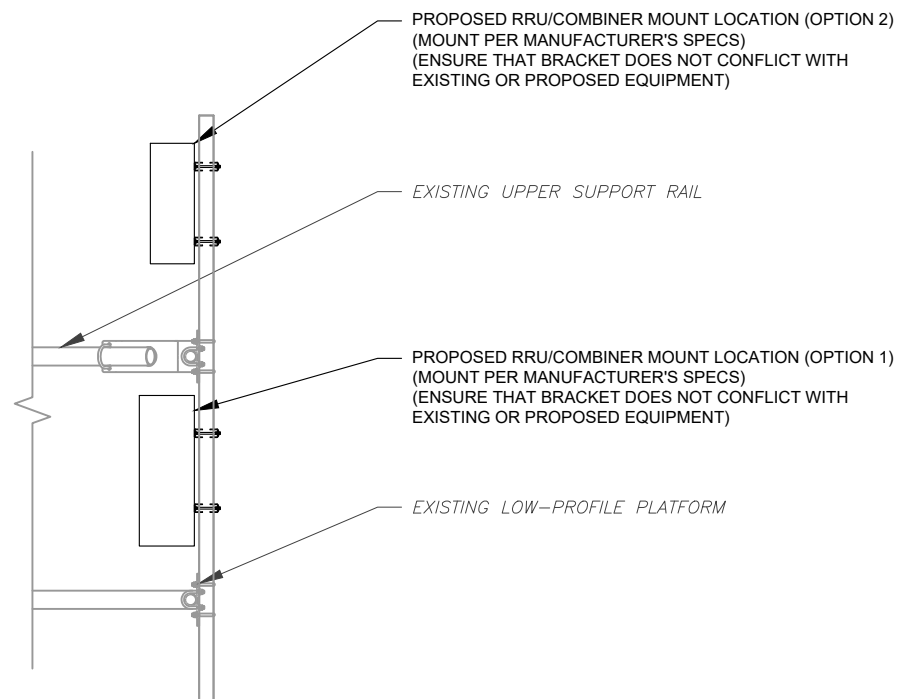
3 EQUIPMENT SCHEDULES

FINAL FIBER DISTRIBUTION/OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
(2) DB-T1-6Z-8AB-0Z	RMN	(12) 1-5/8"	-	RMN
-	-	-	(2) 1-5/8"	ADD

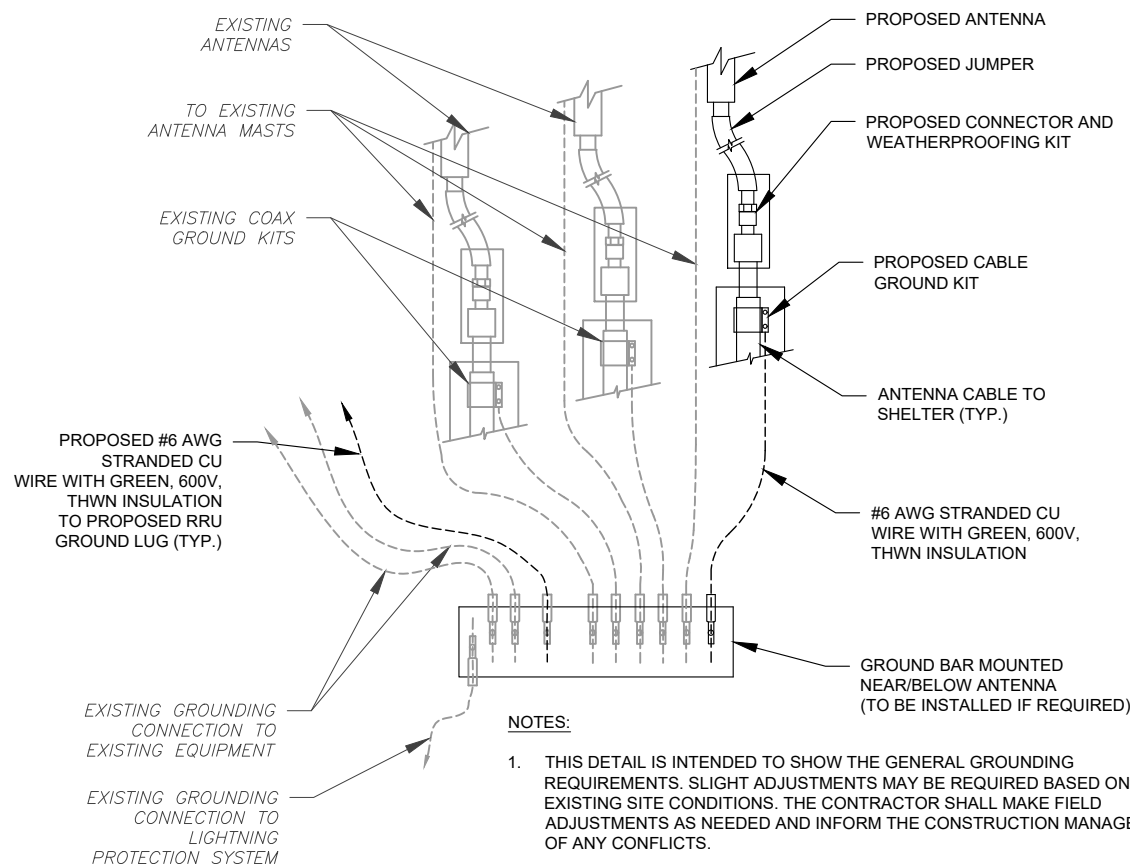
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1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL
SCALE: NOT TO SCALE



2 PROPOSED RRU MOUNTING DETAIL - TYPICAL
SCALE: NOT TO SCALE



NOTES:

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

3 TYPICAL ANTENNA GROUNDING DIAGRAM
SCALE: NOT TO SCALE



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**CONSTRUCTION
 DETAILS**

SHEET NUMBER:	REVISION:
C-502	0

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