



10 INDUSTRIAL AVE,  
SUITE 3  
MAHWAH NJ 07430

PHONE: 201.684.0055  
FAX: 201.684.0066

September 20, 2018

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

Notice of Exempt Modification  
90 North Plains Industrial Road, Wallingford, CT 06492  
Latitude- 41.48076111  
Longitude- -72.8177

Dear Ms. Bachman,

T-Mobile currently maintains (9) existing antennas 148' level of the existing 178.5' monopole at 90 North Plains Industrial Road in Wallingford, Connecticut. The tower is owned by American Tower. The property is owned by RLR Investments LLC. T-Mobile now intends to remove (6) of the existing antennas and add (6) new 600/700/1900/2100 MHz antennas. These antennas would be installed at the same 148' level of the tower. T-Mobile also intends to swap (3) remote radio heads and add (2) hybrid cables.

This tower facility was approved by the Siting Council for tower-sharing for T-Mobile on October 31, 2000. The proposed modification complies with the original approval.

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 of the Town of Wallingford, Kacie Hand, Town Planner for the Town of Wallingford, as well as the tower owner and property owner.

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

1. The proposed modification 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 replacement 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 modification 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.

For the foregoing reasons, T-Mobile 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,

*Kyle Richers*

Kyle Richers  
Transcend Wireless  
10 Industrial Ave., Suite 3  
Mahwah, New Jersey 07430  
908-447-4716  
[krichers@transcendwireless.com](mailto:krichers@transcendwireless.com)

cc: William W. Dickinson, Jr.- as elected official  
Kacie Hand- as zoning official  
American Tower- as tower owner  
RLR Investments LLC- as property owner

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
WILMINGTON, 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
<b>SUPPLEMENTAL DATA</b>									
Other ID: 059001023A		P/Z MAP # 01-20			<b>VISION</b>				
Census: 1754		ENG MAP # 0-1231							
Old MBLU		Easement							
TC MAP #		Town Line?							
Record Lot		IND PARKS IN							
GIS ID: 63/15		ASSOC PID#			Total		1,904,500		1,333,200

6148 WALLINGFORD, CT

**VISION**

RECORD OF OWNERSHIP		BK-VOL/PAGE	SALE DATE	q/u	w/	SALE PRICE	V.C.	PREVIOUS ASSESSMENTS (HISTORY)										
R L R INVESTMENTS LLC		967/1109	09/12/2006		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		
Total:									

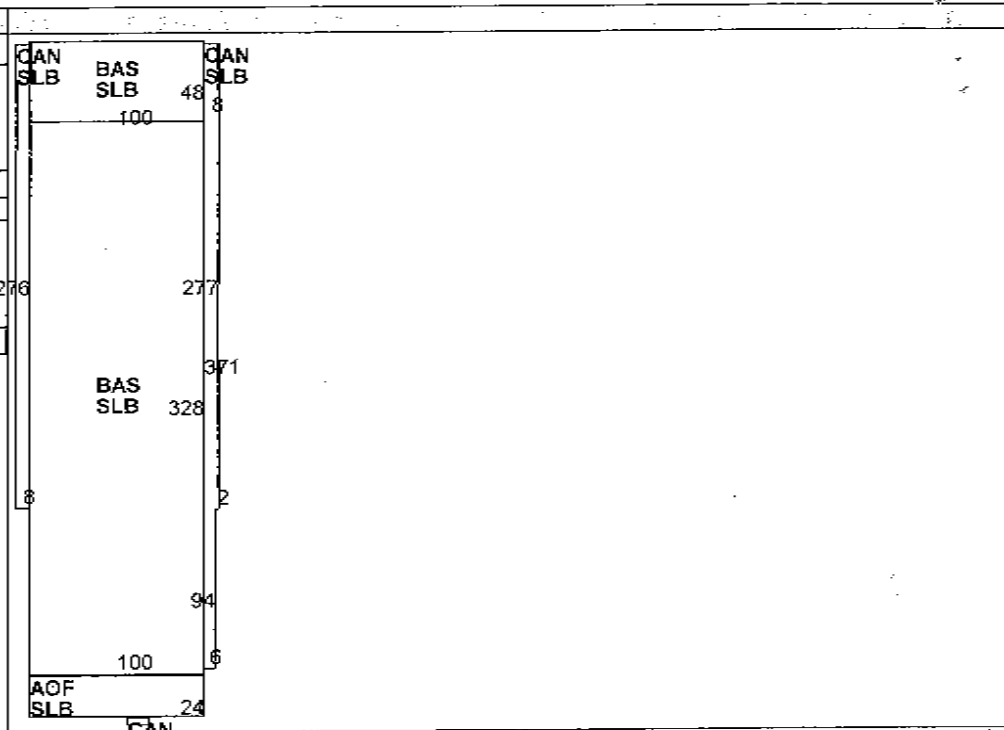
ASSESSING NEIGHBORHOOD					APPAISED VALUE SUMMARY	
NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch		
12/A					Appraised Bldg. Value (Card)	1,089,000
					Appraised XF (B) Value (Bldg)	76,800
					Appraised OB (L) Value (Bldg)	231,800
					Appraised Land Value (Bldg)	506,900
					Special Land Value	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 A	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	08/31/2006						
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	3X 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

N.C. 5295 P. 15720 WLF D 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						
<b>MIXED USE</b>							
			<b>Code</b>	<b>Description</b>	<b>Percentage</b>		
			3140	TRK TERM M96	100		
Exterior Wall 1	20		Brick/Masonry				
Exterior Wall 2	27		Pre-finish Metl				
Roof Structure	03		Gable				
Roof Cover	01		Metal/Fin				276
Interior Wall 1	01		Minim/Masonry				277
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)												
de	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Ri	Cnd	%Cnd	Apr 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
<b>Ttl. Gross Liv/Lease Area:</b>		<b>40,000</b>	<b>90,024</b>	<b>41,727</b>		<b>1,512,437</b>



Feb. 23, 2018

5:00PM

65  
N Plains Industrial



## RADIO FREQUENCY EMISSIONS ANALYSIS REPORT EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11654A

Wallingford/Rt5/Rt15  
90 N. Plains Industrial Road  
Wallingford, CT 06492

**August 22, 2018**

**EBI Project Number: 6218005759**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>10.97 %</b>



August 22, 2018

T-Mobile USA  
Attn: Jason Overbey, RF Manager  
35 Griffin Road South  
Bloomfield, CT 06002

## Emissions Analysis for Site: **CT11654A – Wallingford/Rt5/Rt15**

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **90 N. Plains Industrial Road, Wallingford, CT**, for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately  $400 \mu\text{W}/\text{cm}^2$  and  $467 \mu\text{W}/\text{cm}^2$  respectively. The general population exposure limit for the 1900 MHz (PCS) and 2100 MHz (AWS) frequency bands is  $1000 \mu\text{W}/\text{cm}^2$ . Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

## CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at **90 N. Plains Industrial Road, Wallingford, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 1 GSM channels (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 15 Watts per Channel.
- 2) 1 UMTS channel (PCS Band - 1900 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 3) 1 UMTS channel (AWS Band – 2100 MHz) was considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 4) 2 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
- 5) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 6) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.





- 7) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 20 Watts per Channel.
- 8) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 9) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 10) The antennas used in this modeling are the **Ericsson AIR32 B66Aa/B2A & Ericsson AIR21 B2A/B4P** for 1900 MHz (PCS) and 2100 MHz (AWS) channels and the **RFS APXVAARR24\_43-U-NA20** for 600 MHz and 700 MHz channels. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB for directional panel antennas, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 11) The antenna mounting height centerline of the proposed antennas is **148 feet** above ground level (AGL).
- 12) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
- 13) All calculations were done with respect to uncontrolled / general population threshold limits.



## T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	<b>1</b>	Antenna #:	<b>1</b>	Antenna #:	<b>1</b>
Make / Model:	Ericsson AIR32 B66Aa/B2A	Make / Model:	Ericsson AIR32 B66Aa/B2A	Make / Model:	Ericsson AIR32 B66Aa/B2A
Gain:	15.9dBd	Gain:	15.9dBd	Gain:	15.9dBd
Height (AGL):	148 feet	Height (AGL):	148 feet	Height (AGL):	148 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	200	Total TX Power(W):	200	Total TX Power(W):	200
ERP (W):	7,780.90	ERP (W):	7,780.90	ERP (W):	7,780.90
Antenna A1 MPE%	<b>1.39</b>	Antenna B1 MPE%	<b>1.39</b>	Antenna C1 MPE%	<b>1.39</b>
Antenna #:	<b>2</b>	Antenna #:	<b>2</b>	Antenna #:	<b>2</b>
Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P	Make / Model:	Ericsson AIR21 B2A/B4P
Gain:	15.9dBd	Gain:	15.9dBd	Gain:	15.9dBd
Height (AGL):	148 feet	Height (AGL):	148 feet	Height (AGL):	148 feet
Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)	Frequency Bands	1900 MHz (PCS) / 2100 MHz (AWS)
Channel Count	3	Channel Count	3	Channel Count	3
Total TX Power(W):	95	Total TX Power(W):	95	Total TX Power(W):	95
ERP (W):	3,695.93	ERP (W):	3,695.93	ERP (W):	3,695.93
Antenna A2 MPE%	<b>0.66</b>	Antenna B2 MPE%	<b>0.66</b>	Antenna C2 MPE%	<b>0.66</b>
Antenna #:	<b>3</b>	Antenna #:	<b>3</b>	Antenna #:	<b>3</b>
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd	Gain:	12.95 / 13.35 dBd
Height (AGL):	148 feet	Height (AGL):	148 feet	Height (AGL):	148 feet
Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz	Frequency Bands	600 MHz / 700 MHz
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120	Total TX Power(W):	120	Total TX Power(W):	120
ERP (W):	2,443.03	ERP (W):	2,443.03	ERP (W):	2,443.03
Antenna A3 MPE%	<b>1.03</b>	Antenna B3 MPE%	<b>1.03</b>	Antenna C3 MPE%	<b>1.03</b>

Site Composite MPE%	
Carrier	MPE%
T-Mobile (Per Sector Max)	<b>3.08 %</b>
Sprint	<b>1.64 %</b>
Clearwire	<b>0.07 %</b>
MetroPCS	<b>0.82 %</b>
XM Sat Radio	<b>0.12 %</b>
AT&T	<b>3.35 %</b>
Verizon Wireless	<b>1.89 %</b>
<b>Site Total MPE %:</b>	<b>10.97 %</b>

T-Mobile Sector A Total:	3.08 %
T-Mobile Sector B Total:	3.08 %
T-Mobile Sector C Total:	3.08 %
<b>Site Total:</b>	<b>10.97 %</b>



## T-Mobile Maximum MPE Power Values (Per Sector)

T-Mobile Frequency Band / Technology (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
T-Mobile PCS - 1900 MHz LTE	2	1,556.18	148	5.55	PCS - 1900 MHz	1000.00	0.56%
T-Mobile AWS - 2100 MHz LTE	2	2,334.27	148	8.32	AWS - 2100 MHz	1000.00	0.83%
T-Mobile PCS - 1900 MHz UMTS	1	1,556.18	148	2.77	PCS - 1900 MHz	1000.00	0.28%
T-Mobile PCS - 1900 MHz GSM	1	583.57	148	1.04	PCS - 1900 MHz	1000.00	0.10%
T-Mobile AWS - 2100 MHz UMTS	1	1,556.18	148	2.77	AWS - 2100 MHz	1000.00	0.28%
T-Mobile 600 MHz LTE	2	788.97	148	2.81	600 MHz	400.00	0.70%
T-Mobile 700 MHz LTE	2	432.54	148	1.54	700 MHz	467.00	0.33%
						<b>Total:</b>	<b>3.08%</b>

## Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	3.08 %
Sector B:	3.08 %
Sector C:	3.08 %
T-Mobile Maximum MPE % (Per Sector):	3.08 %
Site Total:	10.97 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **10.97%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.



**AMERICAN TOWER®**  
CORPORATION

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## Structural Analysis Report

**Structure** : 178.5 ft Monopole  
**ATC Site Name** : Bilkays Express, CT  
**ATC Site Number** : 302467  
**Engineering Number** : OAA735639\_C3\_01  
**Proposed Carrier** : T-Mobile  
**Carrier Site Name** : Wallingford/Rt5/Rt15  
**Carrier Site Number** : CT11654A  
**Site Location** : 90 North Plains Industrial Rd.  
Wallingford, CT 06492-2334  
41.480800,-72.817700  
**County** : New Haven  
**Date** : July 5, 2018  
**Max Usage** : 56%  
**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 T-Mobile.

## Supporting Documents

<b>Tower Drawings</b>	FWT Job #18357, dated March 19, 1999
<b>Foundation Drawing</b>	FWT Job #18357, dated March 19, 1999
<b>Geotechnical Report</b>	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.

<b>Basic Wind Speed:</b>	97 mph (3-Second Gust, Vasd) / 125 mph (3-Second Gust, Vult)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	B
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Spectral Response:</b>	$S_s = 0.18, S_1 = 0.06$
<b>Site Class:</b>	D - Stiff Soil

## Conclusion

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

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



**Existing and Reserved Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
178.5	182.0	12	Decibel DB844H90E-XY	Low Profile Platform	(12) 1 5/8" Coax	Sprint Nextel
167.0	168.0	2	DragonWave Horizon Compact	Side Arms	(6) 5/16" Coax (2) 1/2" Coax	Clearwire
		3	NextNet BTS-2500			
		1	DragonWave A-ANT-11G-2-C			
		1	DragonWave A-ANT-18G-2-C			
	167.0	3	Argus LLPX310R			
163.0	163.0	1	18" x 12" Junction Box	Flush	(1) 2" Conduit	
160.0	160.0	6	Powerwave 7020	Low Profile Platform	(3) 3" conduit (12) 1 5/8" Coax (6) 0.78" 8 AWG 6 (2) 2" Conduit (2) 0.39" Fiber Trunk (1) 3/8" RET Control Cable	AT&T Mobility
		6	Kaelus DBC0061F1V51-2			
		6	Powerwave LGP21401			
		2	Raycap DC6-48-60-18-8F (23.5" Height)			
		3	Ericsson RRUS-11 800MHz			
		3	Ericsson RRUS 32 B2			
		3	Ericsson RRUS 11 (Band 7)			
		3	Ericsson RRUS-12 B2			
		3	Ericsson RRUS-32 (77 lbs)			
		3	Powerwave 7770.00			
		3	Quintel QS66512-2			
		3	CCI OPA-65R-LCUU-H6			
148.0	148.0	3	Ericsson KRY 112 144/1	T-Arms w/ Platform	(12) 1 5/8" Coax (1) 1 1/4" Hybriflex Cable	T-Mobile
		3	Ericsson AIR 21, 1.3 M, B2A B4P			
138.0	138.0	3	Nokia B5 RRH4x40-850	Low Profile Platform	(18) 1 5/8" Coax (2) 1 5/8" Hybriflex	Verizon
		3	Alcatel-Lucent RRH 2X60-1900			
		3	Alcatel-Lucent RRH2X60-AWS			
		3	Alcatel-Lucent RRH2x60 700			
		3	Alcatel-Lucent B66A RRH4x45-4R w/o Solar Shield			
		2	RFS DB-T1-6Z-8AB-0Z			
		3	Antel BXA-80063-6BF-EDIN-X			
		3	Commscope SBNHH-1D65B			
6	Commscope JAHH-65B-R3B					
129.0	129.0	1	Nortel NTGB01MA	Flush	(6) 1 5/8" Coax (1) 7/8" Coax	Metro PCS
		3	RFS APXV18-206517S-C			
120.0	122.0	3	Alcatel-Lucent 800MHz RRH	Low Profile Platform	(4) 1 1/4" Hybriflex	Sprint Nextel
		3	Alcatel-Lucent 1900MHz 4X45 RRH			
		3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
		3	RFS RFS APXV9TM14-ALU-I20			
		3	RFS APXVSPP18-C-A20			
20.0	20.0	1	PCTEL GPS-TMG-HR-26N	Standoff	(1) 1/2" Coax	





**Equipment to be Removed**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
148.0	148.0	3	Andrew LNX-6515DS-VTM	-	-	T-Mobile
		3	Ericsson AIR 21, 1.3M, B4A B2P			
		3	Ericsson RRUS 11 B12			

**Proposed Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
148.0	148.0	3	Ericsson Radio 4449 B12,B71	T-Arms w/ Platform	(2) 1 1/4" Fiber	T-Mobile
		3	Ericsson AIR32 B66Aa/B2a			
		3	RFS APXVAARR24_43-U-NA20			

<sup>1</sup>Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax outside the pole shaft. Stacking coax is not allowed.

**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	54%	Pass
Shaft	50%	Pass
Base Plate	20%	Pass

**Foundations**

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	4,493.8	56%
Axial (Kips)	81.9	26%
Shear (Kips)	36.6	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) (°)
167.0	DragonWave A-ANT-11G-2-C	Clearwire	1.207	0.756
	DragonWave A-ANT-18G-2-C			
150.0	Ericsson Radio 4449 B12,B71	T-Mobile	0.986	0.730
	Ericsson AIR32 B66Aa/B2a			
	RFS APXVAARR24_43-U-NA20			

\*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

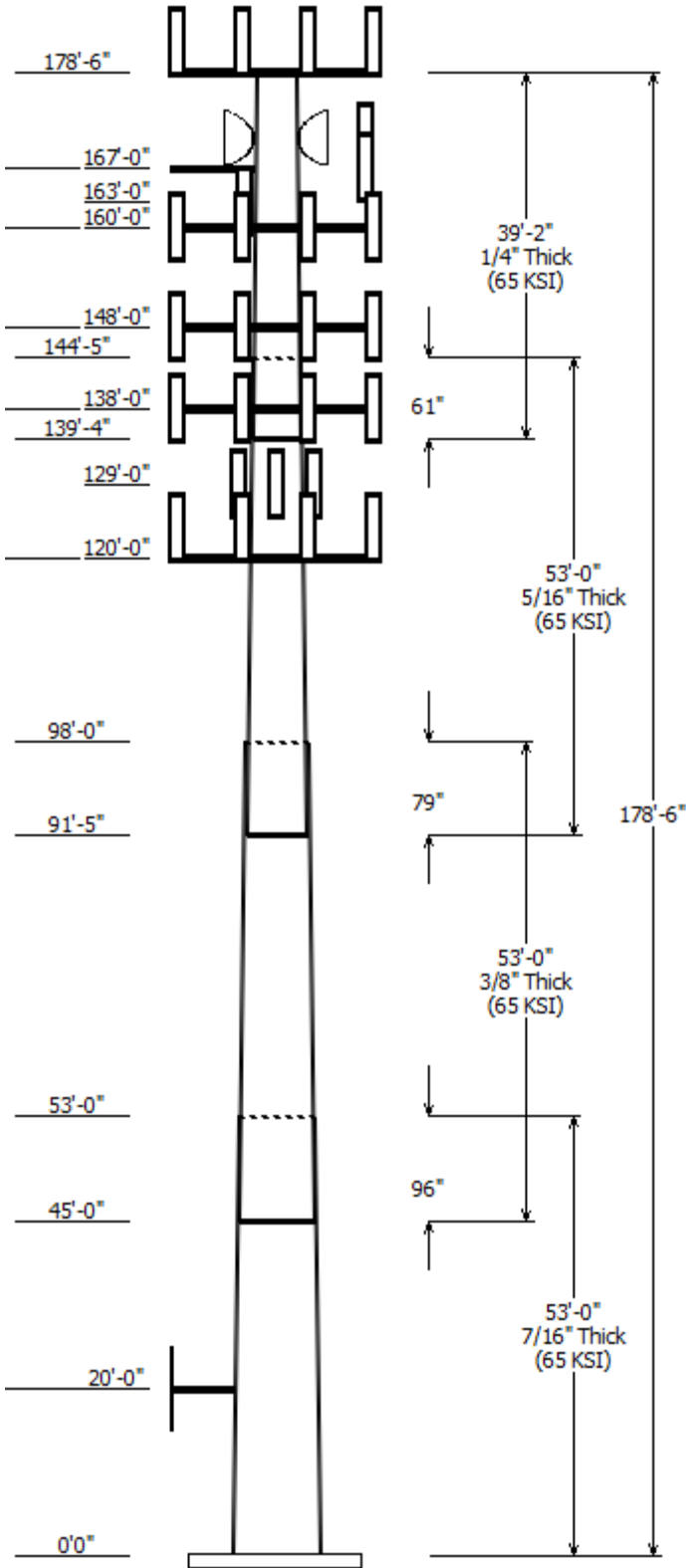
It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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	
Pole : 302467	Code: ANSI/TIA-222-G
Location : Bilkays Express, CT	
Description : 178.5' FWT Monopole	
Client : T-MOBILE	Struct Class : II
Shape : 18 Sides	Exposure : B
Height : 178.50 (ft)	Topo : 1
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
167.000	168.000	3	NextNet BTS-2500
167.000	167.000	1	Side Arms
167.000	168.000	1	DragonWave A-ANT-18G-2-C
167.000	168.000	1	DragonWave A-ANT-11G-2-C
167.000	167.000	3	Argus LLPX310R
167.000	168.000	2	DragonWave Horizon Compact
163.000	163.000	1	18" x 12" Junction Box
160.000	160.000	3	Ericsson RRUS-12 B2
160.000	160.000	6	Kaelus DBC0061F1V51-2
160.000	160.000	3	Quintel QS66512-2
160.000	160.000	3	Ericsson RRUS 32 B2
160.000	160.000	3	Ericsson RRUS-11 800 MHz
160.000	160.000	3	CCI OPA-65R-LCUU-H6
160.000	160.000	6	Powerwave Allgon LGP21401
160.000	160.000	1	Flat Low Profile Platform
160.000	160.000	3	Powerwave Allgon 7770.00
160.000	160.000	3	Ericsson RRUS-32 (77 lbs)
160.000	160.000	3	Ericsson RRUS 11 (Band 7)
160.000	160.000	2	Raycap DC6-48-60-18-8F (23.5"
160.000	160.000	6	Powerwave Allgon 7020
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	148.000	3	Ericsson AIR 21, 1.3 M, B2A B4
148.000	148.000	3	Ericsson Radio 4449 B12,B71
148.000	148.000	3	Ericsson KRY 112 144/1
138.000	138.000	3	Alcatel-Lucent RRH2X60-AWS
138.000	138.000	1	Round Low Profile Platform
138.000	138.000	6	Commscope JAHH-65B-R3B
138.000	138.000	3	Commscope SBNHH-1D65B
138.000	138.000	3	Antel BXA-80063-6BF-EDIN-X
138.000	138.000	2	RFS DB-T1-6Z-8AB-0Z
138.000	138.000	3	Alcatel-Lucent B66A RRH4x45-
138.000	138.000	3	Alcatel-Lucent RRH2x60 700
138.000	138.000	3	Alcatel-Lucent RRH 2X60-1900
138.000	138.000	3	Nokia B5 RRH4x40-850
129.000	129.000	3	RFS APXV18-206517S-C
129.000	129.000	1	Nortel NTGB01MA
120.000	120.000	1	Round Low Profile Platform
120.000	122.000	3	RFS APXVSP18-C-A20
120.000	122.000	3	RFS RFS APXV9TM14-ALU-I20
120.000	122.000	3	Alcatel-Lucent TD-RRH8x20-25

120.000	122.000	3	Alcatel-Lucent 1900 MHz 4X45
120.000	122.000	3	Alcatel-Lucent 800 MHz RRH
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	120.0	1 1/4" Hybriflex	Yes
0.000	129.0	1 5/8" Coax	Yes
0.000	129.0	7/8" Coax	No
0.000	138.0	1 5/8" Coax	No
0.000	138.0	1 5/8" Coax	Yes
0.000	138.0	1 5/8" Hybriflex	No
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" Fiber Trunk	No
0.000	160.0	0.78" 8 AWG 6	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" RET Control	No
0.000	163.0	2" Conduit	Yes
0.000	167.0	1/2" Coax	Yes
0.000	167.0	5/16" Coax	No
0.000	178.5	1 5/8" Coax	No

### Load Cases

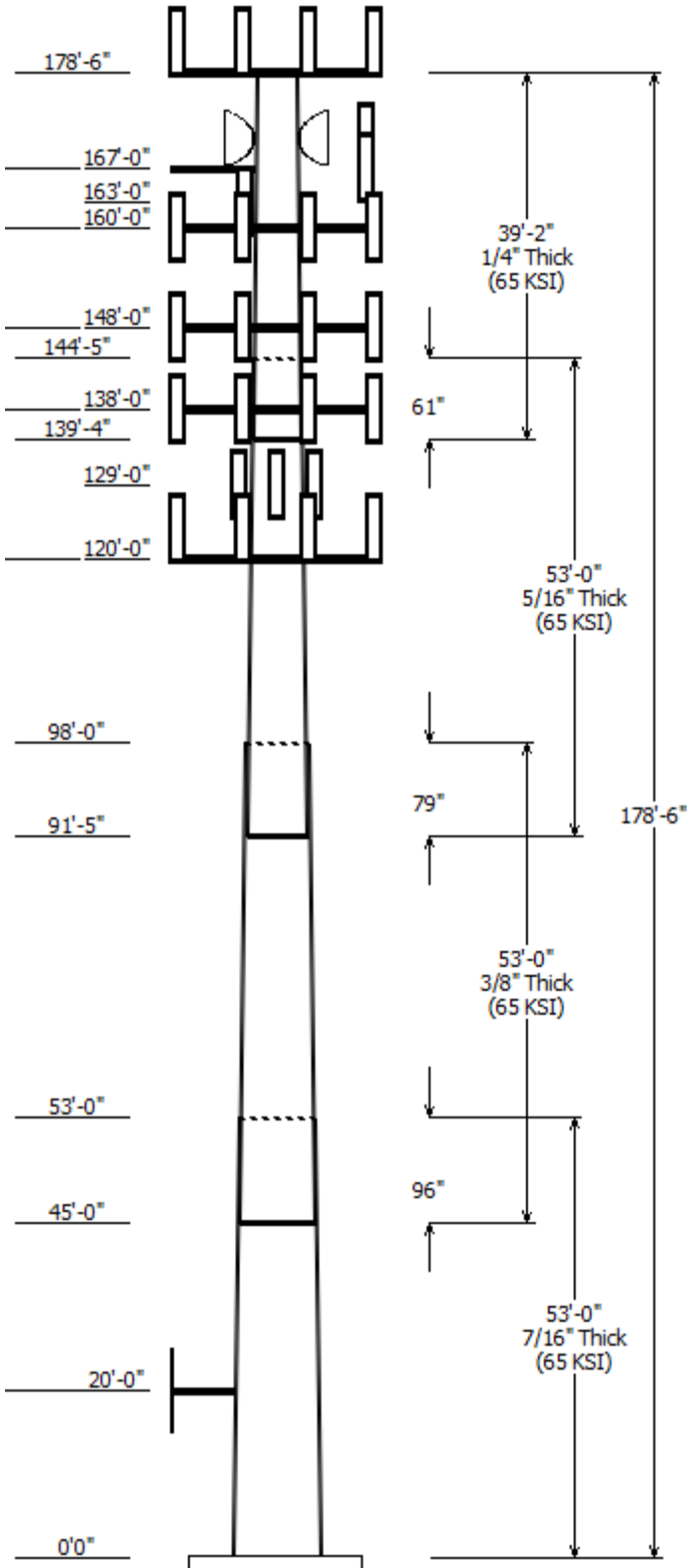
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL)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

### Reactions

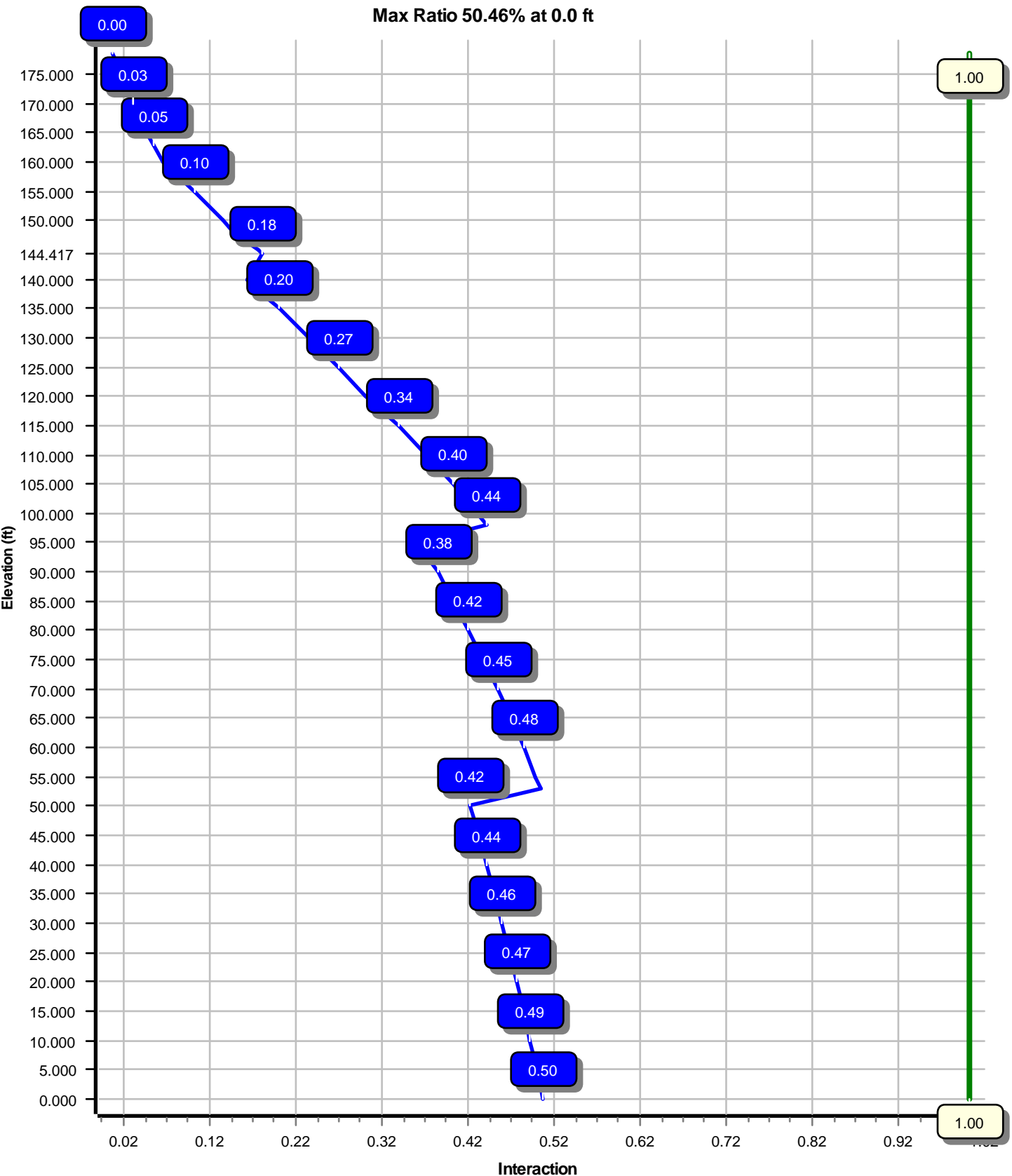
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	4493.75	36.62	81.86
0.9D + 1.6W	4389.03	36.05	61.39
1.2D + 1.0Di + 1.0Wi	1215.18	10.03	132.03
(1.2 + 0.2Sds) * DL + E ELFM	281.38	2.07	81.88
(1.2 + 0.2Sds) * DL + E EMAM	265.99	2.19	81.88
(0.9 - 0.2Sds) * DL + E ELFM	278.24	2.07	56.89
(0.9 - 0.2Sds) * DL + E EMAM	262.84	2.19	56.89
1.0D + 1.0W	1053.16	8.62	68.24

### Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	167.00	14.431	0.752
1.0D + 1.0W	167.00	14.431	0.752



Load Case : 1.2D + 1.6W  
Max Ratio 50.46% at 0.0 ft



Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: OAA735639\_C3\_01

7/6/2018 12:46:30 PM

Customer: T-MOBILE

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):	2.22		
T <sub>L</sub> (sec):	6	p:	1
S <sub>s</sub> :	0.183	S <sub>1</sub> :	0.063
F <sub>a</sub> :	1.600	F <sub>v</sub> :	2.400
S <sub>ds</sub> :	0.195	S <sub>d1</sub> :	0.101
		C <sub>s</sub> :	0.030
		C <sub>s</sub> Max:	0.030
		C <sub>s</sub> Min:	0.030

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 + 0.2S <sub>ds</sub> ) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2S <sub>ds</sub> ) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2S <sub>ds</sub> ) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2S <sub>ds</sub> ) * 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: OAA735639\_C3\_01

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Customer: T-MOBILE

**Shaft Section Properties**

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper (in/ft)
1-18	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	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
178.50	Decibel DB844H90E-XY	12	0.000	3.500	14.00	3.610	0.74
178.50	Flat Low Profile Platform	1	0.000	0.000	1500.00	26.100	1.00
167.00	Argus LLPX310R	3	0.000	0.000	28.60	4.290	0.63
167.00	DragonWave A-ANT-11G-2-C	1	0.000	1.000	27.00	4.690	0.86
167.00	DragonWave A-ANT-18G-2-C	1	0.000	1.000	27.10	4.690	0.87
167.00	DragonWave Horizon Compact	2	0.000	1.000	10.60	0.430	0.50
167.00	NextNet BTS-2500	3	0.000	1.000	35.00	1.820	0.50
167.00	Side Arms	1	0.000	0.000	560.00	8.500	1.00
163.00	18" x 12" Junction Box	1	0.000	0.000	15.00	1.800	1.00
160.00	CCI OPA-65R-LCUU-H6	3	0.000	0.000	73.00	9.660	0.66
160.00	Ericsson RRUS 11 (Band 7)	3	0.000	0.000	50.70	2.790	0.67
160.00	Ericsson RRUS 32 B2	3	0.000	0.000	53.00	2.740	0.67
160.00	Ericsson RRUS-11 800 MHz	3	0.000	0.000	54.00	2.520	0.67
160.00	Ericsson RRUS-12 B2	3	0.000	0.000	58.00	3.150	0.67
160.00	Ericsson RRUS-32 (77 lbs)	3	0.000	0.000	77.00	3.310	0.67
160.00	Flat Low Profile Platform	1	0.000	0.000	1500.00	26.100	1.00
160.00	Kaelus DBC0061F1V51-2	6	0.000	0.000	25.50	0.510	0.50
160.00	Powerwave Allgon 7020	6	0.000	0.000	2.20	0.400	0.50
160.00	Powerwave Allgon 7770.00	3	0.000	0.000	35.00	5.510	0.65
160.00	Powerwave Allgon LGP21401	6	0.000	0.000	14.10	1.100	0.50
160.00	Quintel QS66512-2	3	0.000	0.000	111.00	8.130	0.74
160.00	Raycap DC6-48-60-18-8F (23.5"	2	0.000	0.000	20.00	1.110	1.00
148.00	Ericsson AIR 21, 1.3 M, B2A B4	3	0.000	0.000	83.00	6.050	0.71
148.00	Ericsson AIR32 B66Aa/B2a	3	0.000	0.000	132.20	6.510	0.71
148.00	Ericsson KRY 112 144/1	3	0.000	0.000	11.00	0.410	0.50
148.00	Ericsson Radio 4449 B12,B71	3	0.000	0.000	74.00	1.640	0.50
148.00	RFS APXVAARR24_43-U-NA20	3	0.000	0.000	127.90	20.240	0.63
148.00	T-Arm with Platform	1	0.000	0.000	1500.00	21.700	1.00
138.00	Alcatel-Lucent B66A RRH4x45-4R	3	0.000	0.000	56.80	2.390	0.67
138.00	Alcatel-Lucent RRH 2X60-1900	3	0.000	0.000	39.60	1.880	0.50
138.00	Alcatel-Lucent RRH2x60 700	3	0.000	0.000	56.70	2.150	0.67
138.00	Alcatel-Lucent RRH2X60-AWS	3	0.000	0.000	44.00	1.880	0.50
138.00	Antel BXA-80063-6BF-EDIN-X	3	0.000	0.000	19.20	7.260	0.66
138.00	Commscope JAHH-65B-R3B	6	0.000	0.000	60.60	9.110	0.69
138.00	Commscope SBNHH-1D65B	3	0.000	0.000	50.70	8.170	0.69
138.00	Nokia B5 RRH4x40-850	3	0.000	0.000	48.50	1.320	0.50
138.00	RFS DB-T1-6Z-8AB-OZ	2	0.000	0.000	44.00	4.800	0.67
138.00	Round Low Profile Platform	1	0.000	0.000	1500.00	21.700	1.00
129.00	Nortel NTGB01MA	1	0.000	0.000	1.00	0.090	1.00
129.00	RFS APXV18-206517S-C	3	0.000	0.000	26.40	5.170	0.68
120.00	Alcatel-Lucent 1900 MHz 4X45 R	3	0.000	2.000	60.00	2.320	0.67
120.00	Alcatel-Lucent 800 MHz RRH	3	0.000	2.000	53.00	2.130	0.67
120.00	Alcatel-Lucent TD-RRH8x20-25 w	3	0.000	2.000	70.00	4.050	0.67
120.00	RFS APXVSP18-C-A20	3	0.000	2.000	57.00	8.020	0.69
120.00	RFS RFS APXV9TM14-ALU-I20	3	0.000	2.000	55.10	6.340	0.66
120.00	Round Low Profile Platform	1	0.000	0.000	1500.00	21.700	1.00
20.00	PCTEL GPS-TMG-HR-26N	1	0.000	0.000	0.60	0.090	1.00



Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: OAA735639\_C3\_01

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Customer: T-MOBILE

20.00	Standoff	1	0.000	0.000	75.00	2.500	1.00
Totals	Num Loadings:48	138			14058.50		

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Flat	Projected Width (in)	Exposed To Wind	Carrier
0.00	178.50	12	1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel
0.00	167.00	2	1/2" Coax	0.63	0.15	N	0.00	Y	Clearwire
0.00	167.00	6	5/16" Coax	0.31	0.05	N	0.00	N	Clearwire
0.00	163.00	1	2" Conduit	2.38	3.65	N	0.00	Y	Clearwire
0.00	160.00	2	0.39" Fiber Trunk	0.39	0.07	N	0.00	N	AT&T Mobility
0.00	160.00	6	0.78" 8 AWG 6	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	160.00	12	1 5/8" Coax	1.98	0.82	N	0.00	N	AT&T Mobility
0.00	160.00	2	2" Conduit	2.38	3.65	N	0.00	N	AT&T Mobility
0.00	160.00	3	3" conduit	3.50	7.58	N	0.00	N	AT&T Mobility
0.00	160.00	1	3/8" RET Control Cable	0.38	0.23	N	0.00	N	AT&T Mobility
0.00	148.00	2	1 1/4" (1.25" - 31.8mm)	1.25	1.05	N	0.00	Y	T-Mobile
0.00	148.00	1	1 1/4" Hybriflex Cab	1.54	1.00	N	0.00	Y	T-Mobile
0.00	148.00	12	1 5/8" Coax	1.98	0.82	N	3.96	Y	T-Mobile
0.00	138.00	15	1 5/8" Coax	1.98	0.82	N	0.00	N	Verizon Wireless
0.00	138.00	3	1 5/8" Coax	1.98	0.82	N	1.98	Y	Verizon Wireless
0.00	138.00	2	1 5/8" Hybriflex	1.98	1.30	N	0.00	N	Verizon Wireless
0.00	129.00	6	1 5/8" Coax	1.98	0.82	N	0.00	Y	Metro PCS
0.00	129.00	1	7/8" Coax	1.09	0.33	N	0.00	N	Metro PCS
0.00	120.00	4	1 1/4" Hybriflex	1.54	1.00	N	0.00	Y	Sprint Nextel
0.00	20.00	1	1/2" Coax	0.63	0.15	N	0.00	Y	Sprint Nextel

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)
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
120.0		0.3125	43.207	42.544	9,890.0	22.62	138.26	74.8	450.8	0.0	734.5
125.0		0.3125	41.950	41.298	9,045.8	21.91	134.24	75.6	424.7	0.0	713.2
129.0		0.3125	40.944	40.300	8,406.1	21.34	131.02	76.3	404.4	0.0	555.3
130.0		0.3125	40.693	40.051	8,251.0	21.20	130.22	76.5	399.4	0.0	136.7
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
155.0		0.2500	34.908	27.500	4,173.4	22.86	139.63	74.5	235.5	0.0	476.4
160.0		0.2500	33.651	26.503	3,735.6	21.97	134.60	75.6	218.6	0.0	459.4
163.0		0.2500	32.897	25.904	3,488.2	21.44	131.59	76.2	208.8	0.0	267.5
165.0		0.2500	32.394	25.505	3,329.5	21.08	129.58	76.6	202.4	0.0	174.9
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
175.0		0.2500	29.880	23.510	2,607.8	19.31	119.52	78.7	171.9	0.0	408.5
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

<b>Load Case: 1.2D + 1.6W</b>	<b>97 mph with No Ice</b>	<b>23 Iterations</b>
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	585.5	548.5	2,596.5	0.0	0.0
10.00		538.7	1,975.3					0.0	585.5	538.7	2,560.8	0.0	0.0
15.00		529.0	1,939.7					0.0	585.5	529.0	2,525.2	0.0	0.0
20.00	Appurtenance(s)	519.2	1,904.1	73.0	0.0	0.0	90.7	0.0	585.5	592.2	2,580.3	0.0	0.0
25.00		509.5	1,868.4					0.0	584.6	509.5	2,453.0	0.0	0.0
30.00		505.7	1,832.8					0.0	584.6	505.7	2,417.4	0.0	0.0
35.00		512.1	1,797.2					0.0	584.6	512.1	2,381.7	0.0	0.0
40.00		521.5	1,761.5					0.0	584.6	521.5	2,346.1	0.0	0.0
45.00	Bot - Section 2	531.8	1,725.9					0.0	584.6	531.8	2,310.5	0.0	0.0
50.00		431.5	3,158.8					0.0	584.6	431.5	3,743.4	0.0	0.0
53.00	Top - Section 1	271.1	1,863.5					0.0	350.7	271.1	2,214.3	0.0	0.0
55.00		381.3	571.5					0.0	233.8	381.3	805.4	0.0	0.0
60.00		547.7	1,407.4					0.0	584.6	547.7	1,992.0	0.0	0.0
65.00		551.8	1,376.9					0.0	584.6	551.8	1,961.5	0.0	0.0
70.00		555.0	1,346.4					0.0	584.6	555.0	1,930.9	0.0	0.0
75.00		557.2	1,315.8					0.0	584.6	557.2	1,900.4	0.0	0.0
80.00		558.5	1,285.3					0.0	584.6	558.5	1,869.8	0.0	0.0
85.00		559.1	1,254.7					0.0	584.6	559.1	1,839.3	0.0	0.0
90.00		358.8	1,224.2					0.0	584.6	358.8	1,808.8	0.0	0.0
91.42	Bot - Section 3	281.9	341.3					0.0	165.6	281.9	506.9	0.0	0.0
95.00		372.2	1,572.6					0.0	418.9	372.2	1,991.5	0.0	0.0
98.00	Top - Section 2	281.9	1,294.5					0.0	350.7	281.9	1,645.2	0.0	0.0
100.00		392.8	390.2					0.0	233.8	392.8	624.0	0.0	0.0
105.00		559.7	957.7					0.0	584.6	559.7	1,542.3	0.0	0.0
110.00		557.3	932.3					0.0	584.6	557.3	1,516.8	0.0	0.0
115.00		554.4	906.8					0.0	584.6	554.4	1,491.4	0.0	0.0
120.00	Appurtenance(s)	551.0	881.3	2,468.1	0.0	3,116.6	2,862.4	0.0	584.6	3,019.2	4,328.3	0.0	0.0
125.00		492.9	855.9					0.0	560.6	492.9	1,416.5	0.0	0.0
129.00	Appurtenance(s)	272.6	666.4	364.2	0.0	0.0	96.2	0.0	448.5	636.8	1,211.1	0.0	0.0
130.00		324.8	164.1					0.0	105.8	324.8	269.9	0.0	0.0
135.00		431.5	805.0					0.0	529.1	431.5	1,334.1	0.0	0.0
138.00	Appurtenance(s)	223.0	470.8	4,165.7	0.0	0.0	3,477.7	0.0	317.4	4,388.7	4,265.9	0.0	0.0
139.33	Bot - Section 4	93.2	206.3					0.0	113.3	93.2	319.6	0.0	0.0
140.00		237.3	185.7					0.0	56.7	237.3	242.3	0.0	0.0
144.42	Top - Section 3	233.0	1,209.4					0.0	375.3	233.0	1,584.7	0.0	0.0
145.00		164.7	70.4					0.0	49.6	164.7	120.0	0.0	0.0
148.00	Appurtenance(s)	227.1	357.6	3,390.6	0.0	0.0	3,341.2	0.0	255.0	3,617.8	3,953.8	0.0	0.0
150.00		308.7	234.4					0.0	138.9	308.7	373.3	0.0	0.0
155.00		433.0	571.6					0.0	347.3	433.0	918.9	0.0	0.0
160.00	Appurtenance(s)	338.9	551.3	4,295.6	0.0	0.0	3,991.1	0.0	347.3	4,634.5	4,889.6	0.0	0.0
163.00	Appurtenance(s)	207.6	321.0	82.4	0.0	0.0	18.0	0.0	50.7	290.0	389.7	0.0	0.0
165.00		163.6	209.9					0.0	25.1	163.6	235.0	0.0	0.0
167.00	Appurtenance(s)	201.4	206.7	1,181.8	0.0	491.2	991.3	0.0	25.1	1,383.2	1,223.0	0.0	0.0
170.00		315.2	303.9					0.0	35.4	315.2	339.3	0.0	0.0
175.00		327.8	490.2					0.0	59.0	327.8	549.2	0.0	0.0
178.50	Appurtenance(s)	132.7	331.0	2,361.2	0.0	3,974.1	2,001.6	0.0	41.3	2,493.9	2,373.9	0.0	0.0

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: OAA735639\_C3\_01

7/6/2018 12:46:37 PM

Customer: T-MOBILE

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

Totals: 36,827.7 81,893.5 0.00 0.00

<b>Load Case: 1.2D + 1.6W</b>	<b>97 mph with No Ice</b>	<b>23 Iterations</b>
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	-81.86	-36.62	0.00	-4,493.75	0.00	4,493.75	6,201.63	3,100.82	18,267.6	9,147.40	0.00	0.00	0.505
5.00	-79.20	-36.21	0.00	-4,310.64	0.00	4,310.64	6,145.05	3,072.53	17,781.1	8,903.77	0.05	-0.10	0.497
10.00	-76.58	-35.79	0.00	-4,129.61	0.00	4,129.61	6,086.60	3,043.30	17,295.1	8,660.43	0.21	-0.20	0.490
15.00	-74.00	-35.38	0.00	-3,950.64	0.00	3,950.64	6,026.28	3,013.14	16,810.0	8,417.51	0.47	-0.30	0.482
20.00	-71.36	-34.90	0.00	-3,773.73	0.00	3,773.73	5,964.08	2,982.04	16,326.1	8,175.18	0.83	-0.40	0.474
25.00	-68.85	-34.50	0.00	-3,599.23	0.00	3,599.23	5,900.01	2,950.01	15,843.6	7,933.57	1.30	-0.50	0.465
30.00	-66.38	-34.09	0.00	-3,426.75	0.00	3,426.75	5,834.07	2,917.04	15,362.8	7,692.84	1.88	-0.60	0.457
35.00	-63.94	-33.66	0.00	-3,256.33	0.00	3,256.33	5,766.26	2,883.13	14,884.1	7,453.12	2.56	-0.70	0.448
40.00	-61.54	-33.22	0.00	-3,088.02	0.00	3,088.02	5,696.58	2,848.29	14,407.7	7,214.56	3.35	-0.81	0.439
45.00	-59.18	-32.76	0.00	-2,921.91	0.00	2,921.91	5,625.02	2,812.51	13,933.9	6,977.32	4.26	-0.91	0.429
50.00	-55.39	-32.35	0.00	-2,758.10	0.00	2,758.10	5,551.60	2,775.80	13,463.0	6,741.53	5.27	-1.02	0.419
53.00	-53.16	-32.09	0.00	-2,661.05	0.00	2,661.05	4,466.37	2,233.18	10,853.4	5,434.80	5.93	-1.08	0.502
55.00	-52.31	-31.77	0.00	-2,596.87	0.00	2,596.87	4,445.78	2,222.89	10,710.8	5,363.40	6.39	-1.12	0.496
60.00	-50.27	-31.28	0.00	-2,438.04	0.00	2,438.04	4,392.99	2,196.49	10,355.0	5,185.21	7.63	-1.24	0.482
65.00	-48.26	-30.79	0.00	-2,281.63	0.00	2,281.63	4,338.33	2,169.16	10,000.3	5,007.61	9.00	-1.36	0.467
70.00	-46.28	-30.28	0.00	-2,127.70	0.00	2,127.70	4,281.80	2,140.90	9,647.15	4,830.75	10.49	-1.48	0.451
75.00	-44.33	-29.76	0.00	-1,976.31	0.00	1,976.31	4,223.39	2,111.70	9,295.72	4,654.77	12.10	-1.60	0.435
80.00	-42.42	-29.24	0.00	-1,827.50	0.00	1,827.50	4,163.12	2,081.56	8,946.35	4,479.82	13.84	-1.72	0.418
85.00	-40.54	-28.70	0.00	-1,681.32	0.00	1,681.32	4,100.97	2,050.48	8,599.32	4,306.05	15.70	-1.83	0.401
90.00	-38.71	-28.33	0.00	-1,537.81	0.00	1,537.81	4,036.95	2,018.47	8,254.94	4,133.61	17.68	-1.95	0.382
91.42	-38.18	-28.07	0.00	-1,497.67	0.00	1,497.67	4,018.47	2,009.23	8,157.89	4,085.01	18.27	-1.98	0.376
95.00	-36.17	-27.68	0.00	-1,397.08	0.00	1,397.08	3,971.06	1,985.53	7,913.50	3,962.63	19.78	-2.06	0.362
98.00	-34.51	-27.37	0.00	-1,314.05	0.00	1,314.05	3,074.73	1,537.36	6,126.65	3,067.88	21.10	-2.13	0.440
100.00	-33.86	-27.00	0.00	-1,259.31	0.00	1,259.31	3,057.08	1,528.54	6,027.83	3,018.39	22.00	-2.17	0.429
105.00	-32.28	-26.45	0.00	-1,124.29	0.00	1,124.29	3,011.64	1,505.82	5,781.46	2,895.03	24.35	-2.30	0.399
110.00	-30.74	-25.90	0.00	-992.03	0.00	992.03	2,964.33	1,482.16	5,536.34	2,772.28	26.82	-2.41	0.369
115.00	-29.23	-25.33	0.00	-862.56	0.00	862.56	2,915.15	1,457.57	5,292.74	2,650.30	29.41	-2.53	0.336
120.00	-25.00	-22.17	0.00	-732.78	0.00	732.78	2,864.09	1,432.05	5,050.96	2,529.23	32.11	-2.63	0.299
125.00	-23.58	-21.64	0.00	-621.96	0.00	621.96	2,811.17	1,405.58	4,811.29	2,409.22	34.92	-2.73	0.267
129.00	-22.38	-20.96	0.00	-535.39	0.00	535.39	2,767.48	1,383.74	4,621.27	2,314.07	37.24	-2.80	0.240
130.00	-22.11	-20.65	0.00	-514.43	0.00	514.43	2,756.37	1,378.18	4,574.03	2,290.41	37.83	-2.82	0.233
135.00	-20.78	-20.17	0.00	-411.20	0.00	411.20	2,699.70	1,349.85	4,339.46	2,172.95	40.83	-2.90	0.197
138.00	-16.73	-15.58	0.00	-350.69	0.00	350.69	2,664.80	1,332.40	4,200.13	2,103.19	42.66	-2.94	0.173
139.33	-16.41	-15.47	0.00	-329.92	0.00	329.92	2,649.07	1,324.54	4,138.57	2,072.36	43.49	-2.96	0.166
140.00	-16.18	-15.23	0.00	-319.60	0.00	319.60	2,641.16	1,320.58	4,107.88	2,056.99	43.90	-2.97	0.162
144.42	-14.60	-14.92	0.00	-252.33	0.00	252.33	1,927.04	963.52	2,958.38	1,481.39	46.68	-3.02	0.178
145.00	-14.48	-14.76	0.00	-243.62	0.00	243.62	1,922.70	961.35	2,940.04	1,472.21	47.05	-3.03	0.173
148.00	-10.72	-10.94	0.00	-199.35	0.00	199.35	1,899.96	949.98	2,845.93	1,425.08	48.96	-3.07	0.146
150.00	-10.36	-10.62	0.00	-177.46	0.00	177.46	1,884.42	942.21	2,783.42	1,393.78	50.25	-3.09	0.133
155.00	-9.46	-10.14	0.00	-124.37	0.00	124.37	1,844.28	922.14	2,628.12	1,316.02	53.51	-3.14	0.100
160.00	-4.83	-5.25	0.00	-73.65	0.00	73.65	1,802.26	901.13	2,474.43	1,239.06	56.82	-3.17	0.062
163.00	-4.45	-4.94	0.00	-57.90	0.00	57.90	1,776.15	888.08	2,383.11	1,193.33	58.81	-3.18	0.051
165.00	-4.23	-4.76	0.00	-48.02	0.00	48.02	1,758.37	879.19	2,322.64	1,163.05	60.15	-3.19	0.044
167.00	-3.08	-3.31	0.00	-38.00	0.00	38.00	1,740.29	870.15	2,262.53	1,132.94	61.48	-3.20	0.035
170.00	-2.76	-2.98	0.00	-28.06	0.00	28.06	1,712.61	856.30	2,173.05	1,088.14	63.50	-3.21	0.027
175.00	-2.23	-2.62	0.00	-13.16	0.00	13.16	1,664.97	832.49	2,025.94	1,014.48	66.86	-3.22	0.014
178.50	0.00	-2.49	0.00	-3.97	0.00	3.97	1,630.52	815.26	1,924.60	963.73	69.22	-3.22	0.004

<b>Load Case:</b> 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	439.1	548.5	1,947.3	0.0	0.0
10.00		538.7	1,481.5					0.0	439.1	538.7	1,920.6	0.0	0.0
15.00		529.0	1,454.8					0.0	439.1	529.0	1,893.9	0.0	0.0
20.00	Appurtenance(s)	519.2	1,428.1	73.0	0.0	0.0	68.0	0.0	439.1	592.2	1,935.2	0.0	0.0
25.00		509.5	1,401.3					0.0	438.4	509.5	1,839.8	0.0	0.0
30.00		505.7	1,374.6					0.0	438.4	505.7	1,813.0	0.0	0.0
35.00		512.1	1,347.9					0.0	438.4	512.1	1,786.3	0.0	0.0
40.00		521.5	1,321.1					0.0	438.4	521.5	1,759.6	0.0	0.0
45.00	Bot - Section 2	531.8	1,294.4					0.0	438.4	531.8	1,732.9	0.0	0.0
50.00		431.5	2,369.1					0.0	438.4	431.5	2,807.5	0.0	0.0
53.00	Top - Section 1	271.1	1,397.6					0.0	263.1	271.1	1,660.7	0.0	0.0
55.00		381.0	428.6					0.0	175.4	381.0	604.0	0.0	0.0
60.00		545.3	1,055.6					0.0	438.4	545.3	1,494.0	0.0	0.0
65.00		545.8	1,032.7					0.0	438.4	545.8	1,471.1	0.0	0.0
70.00		545.0	1,009.8					0.0	438.4	545.0	1,448.2	0.0	0.0
75.00		543.2	986.9					0.0	438.4	543.2	1,425.3	0.0	0.0
80.00		540.4	963.9					0.0	438.4	540.4	1,402.4	0.0	0.0
85.00		536.8	941.0					0.0	438.4	536.8	1,379.5	0.0	0.0
90.00		342.7	918.1					0.0	438.4	342.7	1,356.6	0.0	0.0
91.42	Bot - Section 3	267.3	256.0					0.0	124.2	267.3	380.2	0.0	0.0
95.00		351.6	1,179.4					0.0	314.2	351.6	1,493.7	0.0	0.0
98.00	Top - Section 2	265.5	970.8					0.0	263.1	265.5	1,233.9	0.0	0.0
100.00		368.2	292.7					0.0	175.4	368.2	468.0	0.0	0.0
105.00		521.3	718.3					0.0	438.4	521.3	1,156.7	0.0	0.0
110.00		514.2	699.2					0.0	438.4	514.2	1,137.6	0.0	0.0
115.00		506.4	680.1					0.0	438.4	506.4	1,118.5	0.0	0.0
120.00	Appurtenance(s)	498.1	661.0	2,468.1	0.0	3,116.6	2,146.8	0.0	438.4	2,966.3	3,246.2	0.0	0.0
125.00		441.2	641.9					0.0	420.4	441.2	1,062.4	0.0	0.0
129.00	Appurtenance(s)	242.4	499.8	364.2	0.0	0.0	72.2	0.0	336.3	606.6	908.3	0.0	0.0
130.00		285.7	123.0					0.0	79.4	285.7	202.4	0.0	0.0
135.00		377.8	603.7					0.0	396.8	377.8	1,000.5	0.0	0.0
138.00	Appurtenance(s)	201.9	353.1	4,165.7	0.0	0.0	2,608.3	0.0	238.1	4,367.5	3,199.5	0.0	0.0
139.33	Bot - Section 4	92.8	154.7					0.0	85.0	92.8	239.7	0.0	0.0
140.00		234.9	139.2					0.0	42.5	234.9	181.7	0.0	0.0
144.42	Top - Section 3	230.4	907.0					0.0	281.5	230.4	1,188.5	0.0	0.0
145.00		162.3	52.8					0.0	37.2	162.3	90.0	0.0	0.0
148.00	Appurtenance(s)	225.0	268.2	3,390.6	0.0	0.0	2,505.9	0.0	191.2	3,615.6	2,965.3	0.0	0.0
150.00		308.7	175.8					0.0	104.2	308.7	280.0	0.0	0.0
155.00		433.0	428.7					0.0	260.5	433.0	689.2	0.0	0.0
160.00	Appurtenance(s)	338.9	413.5	4,295.6	0.0	0.0	2,993.3	0.0	260.5	4,634.5	3,667.2	0.0	0.0
163.00	Appurtenance(s)	207.6	240.7	82.4	0.0	0.0	13.5	0.0	38.0	290.0	292.3	0.0	0.0
165.00		163.6	157.4					0.0	18.8	163.6	176.2	0.0	0.0
167.00	Appurtenance(s)	201.4	155.0	1,181.8	0.0	491.2	743.5	0.0	18.8	1,383.2	917.3	0.0	0.0
170.00		315.2	227.9					0.0	26.6	315.2	254.5	0.0	0.0
175.00		327.8	367.6					0.0	44.3	327.8	411.9	0.0	0.0
178.50	Appurtenance(s)	132.7	248.3	2,361.2	0.0	3,974.1	1,501.2	0.0	31.0	2,493.9	1,780.5	0.0	0.0

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: OAA735639\_C3\_01

7/6/2018 12:46:45 PM

Customer: T-MOBILE

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

Totals: 36,274.2 61,420.1 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	-61.39	-36.05	0.00	-4,389.03	0.00	4,389.03	6,201.63	3,100.82	18,267.6	9,147.40	0.00	0.00	0.490
5.00	-59.38	-35.60	0.00	-4,208.79	0.00	4,208.79	6,145.05	3,072.53	17,781.1	8,903.77	0.05	-0.10	0.482
10.00	-57.40	-35.15	0.00	-4,030.80	0.00	4,030.80	6,086.60	3,043.30	17,295.1	8,660.43	0.20	-0.19	0.475
15.00	-55.45	-34.71	0.00	-3,855.04	0.00	3,855.04	6,026.28	3,013.14	16,810.0	8,417.51	0.46	-0.29	0.467
20.00	-53.46	-34.20	0.00	-3,681.50	0.00	3,681.50	5,964.08	2,982.04	16,326.1	8,175.18	0.81	-0.39	0.459
25.00	-51.57	-33.76	0.00	-3,510.51	0.00	3,510.51	5,900.01	2,950.01	15,843.6	7,933.57	1.27	-0.49	0.451
30.00	-49.70	-33.33	0.00	-3,341.69	0.00	3,341.69	5,834.07	2,917.04	15,362.8	7,692.84	1.83	-0.59	0.443
35.00	-47.86	-32.88	0.00	-3,175.06	0.00	3,175.06	5,766.26	2,883.13	14,884.1	7,453.12	2.50	-0.69	0.434
40.00	-46.05	-32.42	0.00	-3,010.65	0.00	3,010.65	5,696.58	2,848.29	14,407.7	7,214.56	3.27	-0.79	0.426
45.00	-44.27	-31.94	0.00	-2,848.56	0.00	2,848.56	5,625.02	2,812.51	13,933.9	6,977.32	4.15	-0.89	0.416
50.00	-41.43	-31.52	0.00	-2,688.86	0.00	2,688.86	5,551.60	2,775.80	13,463.0	6,741.53	5.14	-0.99	0.406
53.00	-39.74	-31.26	0.00	-2,594.30	0.00	2,594.30	4,466.37	2,233.18	10,853.4	5,434.80	5.79	-1.05	0.486
55.00	-39.10	-30.92	0.00	-2,531.78	0.00	2,531.78	4,445.78	2,222.89	10,710.8	5,363.40	6.24	-1.10	0.481
60.00	-37.56	-30.42	0.00	-2,377.18	0.00	2,377.18	4,392.99	2,196.49	10,355.0	5,185.21	7.45	-1.21	0.467
65.00	-36.04	-29.92	0.00	-2,225.08	0.00	2,225.08	4,338.33	2,169.16	10,000.3	5,007.61	8.78	-1.33	0.453
70.00	-34.55	-29.41	0.00	-2,075.51	0.00	2,075.51	4,281.80	2,140.90	9,647.15	4,830.75	10.23	-1.44	0.438
75.00	-33.08	-28.89	0.00	-1,928.48	0.00	1,928.48	4,223.39	2,111.70	9,295.72	4,654.77	11.81	-1.56	0.422
80.00	-31.63	-28.37	0.00	-1,784.03	0.00	1,784.03	4,163.12	2,081.56	8,946.35	4,479.82	13.50	-1.67	0.406
85.00	-30.22	-27.86	0.00	-1,642.16	0.00	1,642.16	4,100.97	2,050.48	8,599.32	4,306.05	15.32	-1.79	0.389
90.00	-28.84	-27.51	0.00	-1,502.89	0.00	1,502.89	4,036.95	2,018.47	8,254.94	4,133.61	17.25	-1.90	0.371
91.42	-28.44	-27.25	0.00	-1,463.92	0.00	1,463.92	4,018.47	2,009.23	8,157.89	4,085.01	17.82	-1.93	0.366
95.00	-26.93	-26.88	0.00	-1,366.26	0.00	1,366.26	3,971.06	1,985.53	7,913.50	3,962.63	19.30	-2.01	0.352
98.00	-25.68	-26.60	0.00	-1,285.61	0.00	1,285.61	3,074.73	1,537.36	6,126.65	3,067.88	20.59	-2.08	0.428
100.00	-25.18	-26.25	0.00	-1,232.41	0.00	1,232.41	3,057.08	1,528.54	6,027.83	3,018.39	21.47	-2.12	0.417
105.00	-24.00	-25.74	0.00	-1,101.16	0.00	1,101.16	3,011.64	1,505.82	5,781.46	2,895.03	23.75	-2.24	0.389
110.00	-22.83	-25.22	0.00	-972.48	0.00	972.48	2,964.33	1,482.16	5,536.34	2,772.28	26.16	-2.36	0.359
115.00	-21.69	-24.71	0.00	-846.37	0.00	846.37	2,915.15	1,457.57	5,292.74	2,650.30	28.69	-2.47	0.327
120.00	-18.54	-21.64	0.00	-719.71	0.00	719.71	2,864.09	1,432.05	5,050.96	2,529.23	31.33	-2.57	0.291
125.00	-17.47	-21.17	0.00	-611.53	0.00	611.53	2,811.17	1,405.58	4,811.29	2,409.22	34.08	-2.67	0.260
129.00	-16.57	-20.54	0.00	-526.85	0.00	526.85	2,767.48	1,383.74	4,621.27	2,314.07	36.34	-2.74	0.234
130.00	-16.36	-20.25	0.00	-506.32	0.00	506.32	2,756.37	1,378.18	4,574.03	2,290.41	36.92	-2.76	0.227
135.00	-15.36	-19.84	0.00	-405.05	0.00	405.05	2,699.70	1,349.85	4,339.46	2,172.95	39.85	-2.83	0.192
138.00	-12.38	-15.33	0.00	-345.52	0.00	345.52	2,664.80	1,332.40	4,200.13	2,103.19	41.64	-2.88	0.169
139.33	-12.14	-15.23	0.00	-325.08	0.00	325.08	2,649.07	1,324.54	4,138.57	2,072.36	42.45	-2.89	0.162
140.00	-11.96	-14.99	0.00	-314.93	0.00	314.93	2,641.16	1,320.58	4,107.88	2,056.99	42.86	-2.90	0.158
144.42	-10.78	-14.70	0.00	-248.72	0.00	248.72	1,927.04	963.52	2,958.38	1,481.39	45.57	-2.96	0.174
145.00	-10.69	-14.54	0.00	-240.15	0.00	240.15	1,922.70	961.35	2,940.04	1,472.21	45.93	-2.96	0.169
148.00	-7.91	-10.78	0.00	-196.52	0.00	196.52	1,899.96	949.98	2,845.93	1,425.08	47.80	-3.00	0.142
150.00	-7.64	-10.46	0.00	-174.96	0.00	174.96	1,884.42	942.21	2,783.42	1,393.78	49.06	-3.02	0.130
155.00	-6.97	-10.00	0.00	-122.65	0.00	122.65	1,844.28	922.14	2,628.12	1,316.02	52.25	-3.07	0.097
160.00	-3.56	-5.17	0.00	-72.66	0.00	72.66	1,802.26	901.13	2,474.43	1,239.06	55.48	-3.10	0.061
163.00	-3.28	-4.87	0.00	-57.14	0.00	57.14	1,776.15	888.08	2,383.11	1,193.33	57.43	-3.11	0.050
165.00	-3.11	-4.70	0.00	-47.40	0.00	47.40	1,758.37	879.19	2,322.64	1,163.05	58.74	-3.12	0.043
167.00	-2.27	-3.27	0.00	-37.52	0.00	37.52	1,740.29	870.15	2,262.53	1,132.94	60.05	-3.13	0.034
170.00	-2.03	-2.94	0.00	-27.72	0.00	27.72	1,712.61	856.30	2,173.05	1,088.14	62.02	-3.14	0.027
175.00	-1.64	-2.59	0.00	-13.03	0.00	13.03	1,664.97	832.49	2,025.94	1,014.48	65.31	-3.15	0.014
178.50	0.00	-2.49	0.00	-3.97	0.00	3.97	1,630.52	815.26	1,924.60	963.73	67.62	-3.15	0.004



<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice	23 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					0.0	955.4	173.9	3,488.4	0.0	0.0
10.00		171.4	2,548.9					0.0	1,002.9	171.4	3,551.7	0.0	0.0
15.00		168.7	2,533.2					0.0	1,027.5	168.7	3,560.7	0.0	0.0
20.00	Appurtenance(s)	165.9	2,507.2	19.4	0.0	0.0	191.2	0.0	1,044.8	185.2	3,743.1	0.0	0.0
25.00		163.0	2,475.8					0.0	1,040.9	163.0	3,516.7	0.0	0.0
30.00		162.1	2,441.1					0.0	1,051.3	162.1	3,492.5	0.0	0.0
35.00		164.4	2,404.2					0.0	1,060.3	164.4	3,464.5	0.0	0.0
40.00		167.7	2,365.5					0.0	1,068.1	167.7	3,433.7	0.0	0.0
45.00	Bot - Section 2	171.2	2,325.6					0.0	1,075.1	171.2	3,400.7	0.0	0.0
50.00		139.0	3,760.4					0.0	1,081.4	139.0	4,841.8	0.0	0.0
53.00	Top - Section 1	87.4	2,223.0					0.0	651.6	87.4	2,874.7	0.0	0.0
55.00		123.0	810.4					0.0	435.5	123.0	1,245.9	0.0	0.0
60.00		176.3	1,996.0					0.0	1,092.5	176.3	3,088.5	0.0	0.0
65.00		176.7	1,957.9					0.0	1,097.4	176.7	3,055.3	0.0	0.0
70.00		176.7	1,919.3					0.0	1,102.0	176.7	3,021.3	0.0	0.0
75.00		176.5	1,880.2					0.0	1,106.3	176.5	2,986.5	0.0	0.0
80.00		175.9	1,840.6					0.0	1,110.4	175.9	2,951.0	0.0	0.0
85.00		175.0	1,800.7					0.0	1,114.3	175.0	2,915.0	0.0	0.0
90.00		111.8	1,760.5					0.0	1,117.9	111.8	2,878.4	0.0	0.0
91.42	Bot - Section 3	87.3	492.8					0.0	317.4	87.3	810.1	0.0	0.0
95.00		114.9	1,954.7					0.0	804.0	114.9	2,758.7	0.0	0.0
98.00	Top - Section 2	86.9	1,610.8					0.0	674.4	86.9	2,285.2	0.0	0.0
100.00		120.7	599.6					0.0	450.3	120.7	1,049.8	0.0	0.0
105.00		171.1	1,469.7					0.0	1,127.9	171.1	2,597.6	0.0	0.0
110.00		169.1	1,433.5					0.0	1,130.9	169.1	2,564.4	0.0	0.0
115.00		167.0	1,397.0					0.0	1,133.9	167.0	2,530.9	0.0	0.0
120.00	Appurtenance(s)	164.6	1,360.4	590.3	0.0	617.1	5,198.9	0.0	1,136.7	754.9	7,696.0	0.0	0.0
125.00		146.1	1,323.5					0.0	1,052.6	146.1	2,376.1	0.0	0.0
129.00	Appurtenance(s)	80.4	1,033.2	75.9	0.0	0.0	452.9	0.0	843.8	156.3	2,329.9	0.0	0.0
130.00		95.0	255.4					0.0	183.4	95.0	438.8	0.0	0.0
135.00		125.7	1,249.3					0.0	918.1	125.7	2,167.4	0.0	0.0
138.00	Appurtenance(s)	67.3	733.3	927.7	0.0	0.0	7,706.8	0.0	551.7	995.1	8,991.7	0.0	0.0
139.33	Bot - Section 4	31.0	322.2					0.0	200.8	31.0	522.9	0.0	0.0
140.00		78.5	244.1					0.0	100.4	78.5	344.5	0.0	0.0
144.42	Top - Section 3	77.0	1,586.8					0.0	665.9	77.0	2,252.7	0.0	0.0
145.00		54.3	120.1					0.0	88.0	54.3	208.2	0.0	0.0
148.00	Appurtenance(s)	75.4	608.9	760.7	0.0	0.0	6,383.0	0.0	453.0	836.2	7,444.9	0.0	0.0
150.00		103.8	400.0					0.0	164.7	103.8	564.7	0.0	0.0
155.00		145.9	972.9					0.0	412.1	145.9	1,385.0	0.0	0.0
160.00	Appurtenance(s)	114.5	940.1	1,002.5	0.0	0.0	8,400.0	0.0	412.4	1,117.0	9,752.5	0.0	0.0
163.00	Appurtenance(s)	70.3	549.9	18.0	0.0	0.0	86.6	0.0	89.9	88.4	726.4	0.0	0.0
165.00		55.5	360.6					0.0	36.2	55.5	396.8	0.0	0.0
167.00	Appurtenance(s)	68.5	355.3	285.4	0.0	105.2	2,049.0	0.0	36.2	353.9	2,440.6	0.0	0.0
170.00		107.5	522.1					0.0	35.4	107.5	557.6	0.0	0.0
175.00		112.2	840.9					0.0	59.0	112.2	899.9	0.0	0.0
178.50	Appurtenance(s)	45.5	570.3	560.9	0.0	719.9	3,817.1	0.0	41.3	606.4	4,428.7	0.0	0.0

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: OAA735639\_C3\_01

7/6/2018 12:46:53 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 0.75 in Radial Ice

23 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

Totals: 10,090.9 132,032. 0.00 0.00

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

50 mph with 0.75 in Radial Ice

23 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	-132.03	-10.03	0.00	-1,215.18	0.00	1,215.18	6,201.63	3,100.82	18,267.6	9,147.40	0.00	0.00	0.154
5.00	-128.54	-9.92	0.00	-1,165.01	0.00	1,165.01	6,145.05	3,072.53	17,781.1	8,903.77	0.01	-0.03	0.152
10.00	-124.98	-9.80	0.00	-1,115.42	0.00	1,115.42	6,086.60	3,043.30	17,295.1	8,660.43	0.06	-0.05	0.149
15.00	-121.42	-9.69	0.00	-1,066.40	0.00	1,066.40	6,026.28	3,013.14	16,810.0	8,417.51	0.13	-0.08	0.147
20.00	-117.67	-9.55	0.00	-1,017.96	0.00	1,017.96	5,964.08	2,982.04	16,326.1	8,175.18	0.22	-0.11	0.144
25.00	-114.15	-9.44	0.00	-970.20	0.00	970.20	5,900.01	2,950.01	15,843.6	7,933.57	0.35	-0.13	0.142
30.00	-110.65	-9.32	0.00	-923.02	0.00	923.02	5,834.07	2,917.04	15,362.8	7,692.84	0.51	-0.16	0.139
35.00	-107.18	-9.20	0.00	-876.42	0.00	876.42	5,766.26	2,883.13	14,884.1	7,453.12	0.69	-0.19	0.136
40.00	-103.75	-9.07	0.00	-830.44	0.00	830.44	5,696.58	2,848.29	14,407.7	7,214.56	0.91	-0.22	0.133
45.00	-100.34	-8.93	0.00	-785.10	0.00	785.10	5,625.02	2,812.51	13,933.9	6,977.32	1.15	-0.25	0.130
50.00	-95.50	-8.81	0.00	-740.44	0.00	740.44	5,551.60	2,775.80	13,463.0	6,741.53	1.42	-0.27	0.127
53.00	-92.62	-8.73	0.00	-714.02	0.00	714.02	4,466.37	2,233.18	10,853.4	5,434.80	1.60	-0.29	0.152
55.00	-91.37	-8.64	0.00	-696.56	0.00	696.56	4,445.78	2,222.89	10,710.8	5,363.40	1.72	-0.30	0.150
60.00	-88.28	-8.49	0.00	-653.38	0.00	653.38	4,392.99	2,196.49	10,355.0	5,185.21	2.06	-0.33	0.146
65.00	-85.22	-8.34	0.00	-610.93	0.00	610.93	4,338.33	2,169.16	10,000.3	5,007.61	2.43	-0.37	0.142
70.00	-82.20	-8.19	0.00	-569.21	0.00	569.21	4,281.80	2,140.90	9,647.15	4,830.75	2.83	-0.40	0.137
75.00	-79.21	-8.04	0.00	-528.26	0.00	528.26	4,223.39	2,111.70	9,295.72	4,654.77	3.26	-0.43	0.132
80.00	-76.25	-7.88	0.00	-488.07	0.00	488.07	4,163.12	2,081.56	8,946.35	4,479.82	3.73	-0.46	0.127
85.00	-73.33	-7.72	0.00	-448.67	0.00	448.67	4,100.97	2,050.48	8,599.32	4,306.05	4.23	-0.49	0.122
90.00	-70.45	-7.61	0.00	-410.08	0.00	410.08	4,036.95	2,018.47	8,254.94	4,133.61	4.76	-0.52	0.117
91.42	-69.64	-7.53	0.00	-399.30	0.00	399.30	4,018.47	2,009.23	8,157.89	4,085.01	4.92	-0.53	0.115
95.00	-66.88	-7.41	0.00	-372.32	0.00	372.32	3,971.06	1,985.53	7,913.50	3,962.63	5.33	-0.55	0.111
98.00	-64.60	-7.32	0.00	-350.08	0.00	350.08	3,074.73	1,537.36	6,126.65	3,067.88	5.68	-0.57	0.135
100.00	-63.55	-7.21	0.00	-335.44	0.00	335.44	3,057.08	1,528.54	6,027.83	3,018.39	5.92	-0.58	0.132
105.00	-60.95	-7.05	0.00	-299.37	0.00	299.37	3,011.64	1,505.82	5,781.46	2,895.03	6.55	-0.62	0.124
110.00	-58.38	-6.88	0.00	-264.12	0.00	264.12	2,964.33	1,482.16	5,536.34	2,772.28	7.21	-0.65	0.115
115.00	-55.85	-6.72	0.00	-229.71	0.00	229.71	2,915.15	1,457.57	5,292.74	2,650.30	7.91	-0.68	0.106
120.00	-48.16	-5.89	0.00	-195.51	0.00	195.51	2,864.09	1,432.05	5,050.96	2,529.23	8.63	-0.71	0.094
125.00	-45.78	-5.73	0.00	-166.06	0.00	166.06	2,811.17	1,405.58	4,811.29	2,409.22	9.39	-0.73	0.085
129.00	-43.45	-5.56	0.00	-143.13	0.00	143.13	2,767.48	1,383.74	4,621.27	2,314.07	10.01	-0.75	0.078
130.00	-43.02	-5.46	0.00	-137.57	0.00	137.57	2,756.37	1,378.18	4,574.03	2,290.41	10.17	-0.76	0.076
135.00	-40.85	-5.32	0.00	-110.25	0.00	110.25	2,699.70	1,349.85	4,339.46	2,172.95	10.97	-0.78	0.066
138.00	-31.87	-4.21	0.00	-94.29	0.00	94.29	2,664.80	1,332.40	4,200.13	2,103.19	11.46	-0.79	0.057
139.33	-31.35	-4.17	0.00	-88.68	0.00	88.68	2,649.07	1,324.54	4,138.57	2,072.36	11.68	-0.79	0.055
140.00	-31.00	-4.09	0.00	-85.90	0.00	85.90	2,641.16	1,320.58	4,107.88	2,056.99	11.79	-0.80	0.054
144.42	-28.75	-3.99	0.00	-67.82	0.00	67.82	1,927.04	963.52	2,958.38	1,481.39	12.54	-0.81	0.061
145.00	-28.54	-3.93	0.00	-65.49	0.00	65.49	1,922.70	961.35	2,940.04	1,472.21	12.64	-0.81	0.059
148.00	-21.11	-2.99	0.00	-53.69	0.00	53.69	1,899.96	949.98	2,845.93	1,425.08	13.15	-0.82	0.049
150.00	-20.55	-2.89	0.00	-47.70	0.00	47.70	1,884.42	942.21	2,783.42	1,393.78	13.50	-0.83	0.045
155.00	-19.16	-2.72	0.00	-33.27	0.00	33.27	1,844.28	922.14	2,628.12	1,316.02	14.37	-0.84	0.036
160.00	-9.43	-1.46	0.00	-19.65	0.00	19.65	1,802.26	901.13	2,474.43	1,239.06	15.25	-0.85	0.021
163.00	-8.70	-1.37	0.00	-15.26	0.00	15.26	1,776.15	888.08	2,383.11	1,193.33	15.79	-0.85	0.018
165.00	-8.31	-1.30	0.00	-12.53	0.00	12.53	1,758.37	879.19	2,322.64	1,163.05	16.15	-0.86	0.015
167.00	-5.87	-0.91	0.00	-9.81	0.00	9.81	1,740.29	870.15	2,262.53	1,132.94	16.51	-0.86	0.012
170.00	-5.32	-0.80	0.00	-7.07	0.00	7.07	1,712.61	856.30	2,173.05	1,088.14	17.05	-0.86	0.010
175.00	-4.42	-0.67	0.00	-3.08	0.00	3.08	1,664.97	832.49	2,025.94	1,014.48	17.95	-0.86	0.006
178.50	0.00	-0.61	0.00	-0.72	0.00	0.72	1,630.52	815.26	1,924.60	963.73	18.58	-0.86	0.001

<b>Load Case:</b> 1.0D + 1.0W	<b>Serviceability 60 mph</b>	<b>22 Iterations</b>
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		66.2	0.0					0.0	0.0	66.2	0.0	0.0	0.0
5.00		131.2	1,675.8					0.0	487.9	131.2	2,163.7	0.0	0.0
10.00		128.8	1,646.1					0.0	487.9	128.8	2,134.0	0.0	0.0
15.00		126.5	1,616.4					0.0	487.9	126.5	2,104.3	0.0	0.0
20.00	Appurtenance(s)	124.2	1,586.7	17.5	0.0	0.0	75.6	0.0	487.9	141.6	2,150.2	0.0	0.0
25.00		121.8	1,557.0					0.0	487.1	121.8	2,044.2	0.0	0.0
30.00		120.9	1,527.3					0.0	487.1	120.9	2,014.5	0.0	0.0
35.00		122.5	1,497.6					0.0	487.1	122.5	1,984.8	0.0	0.0
40.00		124.7	1,467.9					0.0	487.1	124.7	1,955.1	0.0	0.0
45.00	Bot - Section 2	127.2	1,438.2					0.0	487.1	127.2	1,925.4	0.0	0.0
50.00		103.2	2,632.3					0.0	487.1	103.2	3,119.5	0.0	0.0
53.00	Top - Section 1	64.8	1,552.9					0.0	292.3	64.8	1,845.2	0.0	0.0
55.00		91.1	476.3					0.0	194.9	91.1	671.1	0.0	0.0
60.00		130.4	1,172.9					0.0	487.1	130.4	1,660.0	0.0	0.0
65.00		130.5	1,147.4					0.0	487.1	130.5	1,634.6	0.0	0.0
70.00		130.3	1,122.0					0.0	487.1	130.3	1,609.1	0.0	0.0
75.00		129.9	1,096.5					0.0	487.1	129.9	1,583.7	0.0	0.0
80.00		129.2	1,071.1					0.0	487.1	129.2	1,558.2	0.0	0.0
85.00		128.4	1,045.6					0.0	487.1	128.4	1,532.8	0.0	0.0
90.00		81.9	1,020.1					0.0	487.1	81.9	1,507.3	0.0	0.0
91.42	Bot - Section 3	63.9	284.4					0.0	138.0	63.9	422.4	0.0	0.0
95.00		84.1	1,310.5					0.0	349.1	84.1	1,659.6	0.0	0.0
98.00	Top - Section 2	63.5	1,078.7					0.0	292.3	63.5	1,371.0	0.0	0.0
100.00		88.1	325.2					0.0	194.9	88.1	520.0	0.0	0.0
105.00		124.7	798.1					0.0	487.1	124.7	1,285.2	0.0	0.0
110.00		123.0	776.9					0.0	487.1	123.0	1,264.0	0.0	0.0
115.00		121.1	755.7					0.0	487.1	121.1	1,242.8	0.0	0.0
120.00	Appurtenance(s)	119.1	734.5	590.2	0.0	745.3	2,385.3	0.0	487.1	709.3	3,606.9	0.0	0.0
125.00		105.5	713.2					0.0	467.1	105.5	1,180.4	0.0	0.0
129.00	Appurtenance(s)	58.0	555.3	87.1	0.0	0.0	80.2	0.0	373.7	145.1	1,009.2	0.0	0.0
130.00		68.3	136.7					0.0	88.2	68.3	224.9	0.0	0.0
135.00		90.3	670.8					0.0	440.9	90.3	1,111.7	0.0	0.0
138.00	Appurtenance(s)	48.3	392.3	996.1	0.0	0.0	2,898.1	0.0	264.5	1,044.4	3,554.9	0.0	0.0
139.33	Bot - Section 4	22.2	171.9					0.0	94.4	22.2	266.3	0.0	0.0
140.00		56.2	154.7					0.0	47.2	56.2	201.9	0.0	0.0
144.42	Top - Section 3	55.1	1,007.8					0.0	312.8	55.1	1,320.6	0.0	0.0
145.00		38.8	58.7					0.0	41.3	38.8	100.0	0.0	0.0
148.00	Appurtenance(s)	53.8	298.0	810.8	0.0	0.0	2,784.3	0.0	212.5	864.6	3,294.8	0.0	0.0
150.00		73.8	195.3					0.0	115.8	73.8	311.1	0.0	0.0
155.00		103.5	476.4					0.0	289.4	103.5	765.8	0.0	0.0
160.00	Appurtenance(s)	81.0	459.4	1,027.2	0.0	0.0	3,325.9	0.0	289.4	1,108.3	4,074.7	0.0	0.0
163.00	Appurtenance(s)	49.6	267.5	19.7	0.0	0.0	15.0	0.0	42.3	69.3	324.8	0.0	0.0
165.00		39.1	174.9					0.0	20.9	39.1	195.8	0.0	0.0
167.00	Appurtenance(s)	48.2	172.2	282.6	0.0	117.5	826.1	0.0	20.9	330.8	1,019.2	0.0	0.0
170.00		75.4	253.2					0.0	29.5	75.4	282.8	0.0	0.0
175.00		78.4	408.5					0.0	49.2	78.4	457.7	0.0	0.0
178.50	Appurtenance(s)	31.7	275.8	564.6	0.0	950.3	1,668.0	0.0	34.4	596.4	1,978.3	0.0	0.0

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: OAA735639\_C3\_01

7/6/2018 12:47:01 PM

Customer: T-MOBILE

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

Totals: 8,674.37 68,244.6 0.00 0.00

<b>Load Case: 1.0D + 1.0W</b>	<b>Serviceability 60 mph</b>	<b>22 Iterations</b>
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	-68.24	-8.62	0.00	-1,053.16	0.00	1,053.16	6,201.63	3,100.82	18,267.6	9,147.40	0.00	0.00	0.126
5.00	-66.08	-8.52	0.00	-1,010.06	0.00	1,010.06	6,145.05	3,072.53	17,781.1	8,903.77	0.01	-0.02	0.124
10.00	-63.94	-8.41	0.00	-967.48	0.00	967.48	6,086.60	3,043.30	17,295.1	8,660.43	0.05	-0.05	0.122
15.00	-61.83	-8.31	0.00	-925.42	0.00	925.42	6,026.28	3,013.14	16,810.0	8,417.51	0.11	-0.07	0.120
20.00	-59.68	-8.19	0.00	-883.87	0.00	883.87	5,964.08	2,982.04	16,326.1	8,175.18	0.19	-0.09	0.118
25.00	-57.63	-8.09	0.00	-842.93	0.00	842.93	5,900.01	2,950.01	15,843.6	7,933.57	0.30	-0.12	0.116
30.00	-55.61	-7.99	0.00	-802.49	0.00	802.49	5,834.07	2,917.04	15,362.8	7,692.84	0.44	-0.14	0.114
35.00	-53.62	-7.88	0.00	-762.57	0.00	762.57	5,766.26	2,883.13	14,884.1	7,453.12	0.60	-0.16	0.112
40.00	-51.67	-7.77	0.00	-723.17	0.00	723.17	5,696.58	2,848.29	14,407.7	7,214.56	0.79	-0.19	0.109
45.00	-49.74	-7.66	0.00	-684.31	0.00	684.31	5,625.02	2,812.51	13,933.9	6,977.32	1.00	-0.21	0.107
50.00	-46.62	-7.56	0.00	-646.02	0.00	646.02	5,551.60	2,775.80	13,463.0	6,741.53	1.23	-0.24	0.104
53.00	-44.77	-7.50	0.00	-623.34	0.00	623.34	4,466.37	2,233.18	10,853.4	5,434.80	1.39	-0.25	0.125
55.00	-44.10	-7.42	0.00	-608.35	0.00	608.35	4,445.78	2,222.89	10,710.8	5,363.40	1.50	-0.26	0.123
60.00	-42.43	-7.30	0.00	-571.26	0.00	571.26	4,392.99	2,196.49	10,355.0	5,185.21	1.79	-0.29	0.120
65.00	-40.80	-7.18	0.00	-534.77	0.00	534.77	4,338.33	2,169.16	10,000.3	5,007.61	2.11	-0.32	0.116
70.00	-39.19	-7.06	0.00	-498.87	0.00	498.87	4,281.80	2,140.90	9,647.15	4,830.75	2.46	-0.35	0.112
75.00	-37.60	-6.94	0.00	-463.57	0.00	463.57	4,223.39	2,111.70	9,295.72	4,654.77	2.84	-0.37	0.109
80.00	-36.04	-6.81	0.00	-428.88	0.00	428.88	4,163.12	2,081.56	8,946.35	4,479.82	3.24	-0.40	0.104
85.00	-34.50	-6.69	0.00	-394.81	0.00	394.81	4,100.97	2,050.48	8,599.32	4,306.05	3.68	-0.43	0.100
90.00	-32.99	-6.61	0.00	-361.35	0.00	361.35	4,036.95	2,018.47	8,254.94	4,133.61	4.14	-0.46	0.096
91.42	-32.57	-6.55	0.00	-351.99	0.00	351.99	4,018.47	2,009.23	8,157.89	4,085.01	4.28	-0.46	0.094
95.00	-30.91	-6.46	0.00	-328.53	0.00	328.53	3,971.06	1,985.53	7,913.50	3,962.63	4.64	-0.48	0.091
98.00	-29.54	-6.39	0.00	-309.15	0.00	309.15	3,074.73	1,537.36	6,126.65	3,067.88	4.94	-0.50	0.110
100.00	-29.02	-6.31	0.00	-296.36	0.00	296.36	3,057.08	1,528.54	6,027.83	3,018.39	5.16	-0.51	0.108
105.00	-27.73	-6.19	0.00	-264.82	0.00	264.82	3,011.64	1,505.82	5,781.46	2,895.03	5.71	-0.54	0.101
110.00	-26.46	-6.06	0.00	-233.89	0.00	233.89	2,964.33	1,482.16	5,536.34	2,772.28	6.29	-0.57	0.093
115.00	-25.22	-5.94	0.00	-203.57	0.00	203.57	2,915.15	1,457.57	5,292.74	2,650.30	6.89	-0.59	0.085
120.00	-21.62	-5.20	0.00	-173.12	0.00	173.12	2,864.09	1,432.05	5,050.96	2,529.23	7.53	-0.62	0.076
125.00	-20.44	-5.09	0.00	-147.10	0.00	147.10	2,811.17	1,405.58	4,811.29	2,409.22	8.19	-0.64	0.068
129.00	-19.43	-4.94	0.00	-126.73	0.00	126.73	2,767.48	1,383.74	4,621.27	2,314.07	8.73	-0.66	0.062
130.00	-19.20	-4.87	0.00	-121.79	0.00	121.79	2,756.37	1,378.18	4,574.03	2,290.41	8.87	-0.66	0.060
135.00	-18.09	-4.77	0.00	-97.44	0.00	97.44	2,699.70	1,349.85	4,339.46	2,172.95	9.57	-0.68	0.052
138.00	-14.55	-3.69	0.00	-83.12	0.00	83.12	2,664.80	1,332.40	4,200.13	2,103.19	10.01	-0.69	0.045
139.33	-14.28	-3.66	0.00	-78.20	0.00	78.20	2,649.07	1,324.54	4,138.57	2,072.36	10.20	-0.70	0.043
140.00	-14.08	-3.61	0.00	-75.76	0.00	75.76	2,641.16	1,320.58	4,107.88	2,056.99	10.30	-0.70	0.042
144.42	-12.76	-3.54	0.00	-59.83	0.00	59.83	1,927.04	963.52	2,958.38	1,481.39	10.95	-0.71	0.047
145.00	-12.66	-3.50	0.00	-57.76	0.00	57.76	1,922.70	961.35	2,940.04	1,472.21	11.04	-0.71	0.046
148.00	-9.38	-2.59	0.00	-47.27	0.00	47.27	1,899.96	949.98	2,845.93	1,425.08	11.49	-0.72	0.038
150.00	-9.07	-2.52	0.00	-42.08	0.00	42.08	1,884.42	942.21	2,783.42	1,393.78	11.79	-0.73	0.035
155.00	-8.30	-2.41	0.00	-29.50	0.00	29.50	1,844.28	922.14	2,628.12	1,316.02	12.56	-0.74	0.027
160.00	-4.24	-1.24	0.00	-17.47	0.00	17.47	1,802.26	901.13	2,474.43	1,239.06	13.33	-0.74	0.016
163.00	-3.92	-1.17	0.00	-13.74	0.00	13.74	1,776.15	888.08	2,383.11	1,193.33	13.80	-0.75	0.014
165.00	-3.72	-1.13	0.00	-11.40	0.00	11.40	1,758.37	879.19	2,322.64	1,163.05	14.12	-0.75	0.012
167.00	-2.71	-0.79	0.00	-9.02	0.00	9.02	1,740.29	870.15	2,262.53	1,132.94	14.43	-0.75	0.010
170.00	-2.43	-0.71	0.00	-6.66	0.00	6.66	1,712.61	856.30	2,173.05	1,088.14	14.90	-0.75	0.008
175.00	-1.97	-0.62	0.00	-3.13	0.00	3.13	1,664.97	832.49	2,025.94	1,014.48	15.70	-0.76	0.004
178.50	0.00	-0.60	0.00	-0.95	0.00	0.95	1,630.52	815.26	1,924.60	963.73	16.25	-0.76	0.001

### Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.18
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	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 ( $S_{ds}$ ):	0.20
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):	2.22
Redundancy Factor ( $\rho$ ):	1.00
Seismic Force Distribution Exponent (k):	1.86
Total Unfactored Dead Load:	68.24 k
Seismic Base Shear (E):	2.07 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)
46	176.75	310	4,647	0.013	27	384
45	172.50	458	6,551	0.018	38	567
44	168.50	283	3,875	0.011	23	350
43	166.00	193	2,574	0.007	15	239
42	164.00	196	2,552	0.007	15	243
41	161.50	310	3,923	0.011	23	384
40	157.50	749	9,052	0.026	53	928
39	152.50	766	8,718	0.025	51	949
38	149.00	311	3,392	0.010	20	385
37	146.50	510	5,394	0.015	32	633
36	144.71	100	1,033	0.003	6	124
35	142.21	1,321	13,205	0.037	77	1,636
34	139.67	202	1,952	0.006	11	250
33	138.67	266	2,541	0.007	15	330
32	136.50	657	6,086	0.017	36	814
31	132.50	1,112	9,747	0.028	57	1,377
30	129.50	225	1,890	0.005	11	279
29	127.00	929	7,529	0.021	44	1,151
28	122.50	1,180	8,946	0.025	52	1,463
27	117.50	1,222	8,568	0.024	50	1,514
26	112.50	1,243	8,040	0.023	47	1,540
25	107.50	1,264	7,515	0.021	44	1,566
24	102.50	1,285	6,994	0.020	41	1,592

Site Number: 302467

Code: ANSI/TIA-222-G

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23	99.00	520	2,653	0.007	15	644
22	96.50	1,371	6,670	0.019	39	1,699
21	93.21	1,660	7,570	0.021	44	2,056
20	90.71	422	1,832	0.005	11	523
19	87.50	1,507	6,113	0.017	36	1,868
18	82.50	1,533	5,573	0.016	33	1,899
17	77.50	1,558	5,044	0.014	29	1,931
16	72.50	1,584	4,529	0.013	26	1,962
15	67.50	1,609	4,030	0.011	24	1,994
14	62.50	1,635	3,548	0.010	21	2,025
13	57.50	1,660	3,086	0.009	18	2,057
12	54.00	671	1,110	0.003	6	832
11	51.50	1,845	2,795	0.008	16	2,286
10	47.50	3,119	4,067	0.011	24	3,865
9	42.50	1,925	2,041	0.006	12	2,386
8	37.50	1,955	1,643	0.005	10	2,422
7	32.50	1,985	1,278	0.004	7	2,459
6	27.50	2,014	951	0.003	6	2,496
5	22.50	2,044	665	0.002	4	2,533
4	17.50	2,075	423	0.001	2	2,571
3	12.50	2,104	230	0.001	1	2,607
2	7.50	2,134	90	0.000	1	2,644
1	2.50	2,164	12	0.000	0	2,681
Decibel DB844H90E-XY	178.50	168	2,562	0.007	15	208
Flat Low Profile Pla	178.50	1,500	22,879	0.065	134	1,859
DragonWave Horizon C	167.00	21	286	0.001	2	26
NextNet BTS-2500	167.00	105	1,415	0.004	8	130
Argus LLPX310R	167.00	86	1,156	0.003	7	106
DragonWave A-ANT-11G	167.00	27	364	0.001	2	33
DragonWave A-ANT-18G	167.00	27	365	0.001	2	34
Side Arms	167.00	560	7,548	0.021	44	694
18" x 12" Junction B	163.00	15	193	0.001	1	19
Powerwave Allgon 702	160.00	13	164	0.000	1	16
Kaelus DBC0061F1V51-	160.00	153	1,904	0.005	11	190
Powerwave Allgon LGP	160.00	85	1,053	0.003	6	105
Raycap DC6-48-60-18-	160.00	40	498	0.001	3	50
Ericsson RRUS-11 800	160.00	162	2,016	0.006	12	201
Ericsson RRUS 32 B2	160.00	159	1,979	0.006	12	197
Ericsson RRUS 11 (Ba	160.00	152	1,893	0.005	11	188
Ericsson RRUS-12 B2	160.00	174	2,166	0.006	13	216
Ericsson RRUS-32 (77	160.00	231	2,875	0.008	17	286
Powerwave Allgon 777	160.00	105	1,307	0.004	8	130
Quintel QS66512-2	160.00	333	4,145	0.012	24	413
CCI OPA-65R-LCUU-H6	160.00	219	2,726	0.008	16	271
Flat Low Profile Pla	160.00	1,500	18,671	0.053	109	1,859
Ericsson KRY 112 144	148.00	33	355	0.001	2	41
Ericsson Radio 4449	148.00	222	2,391	0.007	14	275
Ericsson AIR 21, 1.3	148.00	249	2,681	0.008	16	309
Ericsson AIR32 B66Aa	148.00	397	4,271	0.012	25	491
RFS APXVAARR24_43-U-	148.00	384	4,132	0.012	24	475
T-Arm with Platform	148.00	1,500	16,153	0.046	94	1,859
Nokia B5 RRH4x40-850	138.00	146	1,376	0.004	8	180
Alcatel-Lucent RRH 2	138.00	119	1,123	0.003	7	147
Alcatel-Lucent RRH2X	138.00	132	1,248	0.004	7	164
Alcatel-Lucent RRH2x	138.00	170	1,608	0.005	9	211
Alcatel-Lucent B66A	138.00	170	1,611	0.005	9	211
RFS DB-T1-6Z-8AB-OZ	138.00	88	832	0.002	5	109
Antel BXA-80063-6BF-	138.00	58	545	0.002	3	71
Commscope SBNHH-1D65	138.00	152	1,438	0.004	8	188
Commscope JAHH-65B-R	138.00	364	3,438	0.010	20	451
Round Low Profile PI	138.00	1,500	14,184	0.040	83	1,859
Nortel NTGB01MA	129.00	1	8	0.000	0	1
RFS APXV18-206517S-C	129.00	79	661	0.002	4	98
Alcatel-Lucent 800 M	120.00	159	1,160	0.003	7	197



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Alcatel-Lucent 1900	120.00	180	1,313	0.004	8	223
Alcatel-Lucent TD-RR	120.00	210	1,532	0.004	9	260
RFS RFS APXV9TM14-AL	120.00	165	1,206	0.003	7	205
RFS APXVSPP18-C-A20	120.00	171	1,247	0.004	7	212
Round Low Profile PI	120.00	1,500	10,940	0.031	64	1,859
PCTEL GPS-TMG-HR-26N	20.00	1	0	0.000	0	1
Standoff	20.00	75	20	0.000	0	93
		68,245	354,320	1.000	2,070	84,558

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

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
46	176.75	310	4,647	0.013	27	267
45	172.50	458	6,551	0.018	38	394
44	168.50	283	3,875	0.011	23	243
43	166.00	193	2,574	0.007	15	166
42	164.00	196	2,552	0.007	15	169
41	161.50	310	3,923	0.011	23	267
40	157.50	749	9,052	0.026	53	645
39	152.50	766	8,718	0.025	51	659
38	149.00	311	3,392	0.010	20	268
37	146.50	510	5,394	0.015	32	440
36	144.71	100	1,033	0.003	6	86
35	142.21	1,321	13,205	0.037	77	1,137
34	139.67	202	1,952	0.006	11	174
33	138.67	266	2,541	0.007	15	229
32	136.50	657	6,086	0.017	36	566
31	132.50	1,112	9,747	0.028	57	957
30	129.50	225	1,890	0.005	11	194
29	127.00	929	7,529	0.021	44	800
28	122.50	1,180	8,946	0.025	52	1,016
27	117.50	1,222	8,568	0.024	50	1,052
26	112.50	1,243	8,040	0.023	47	1,070
25	107.50	1,264	7,515	0.021	44	1,088
24	102.50	1,285	6,994	0.020	41	1,107
23	99.00	520	2,653	0.007	15	448
22	96.50	1,371	6,670	0.019	39	1,180
21	93.21	1,660	7,570	0.021	44	1,429
20	90.71	422	1,832	0.005	11	364
19	87.50	1,507	6,113	0.017	36	1,298
18	82.50	1,533	5,573	0.016	33	1,320
17	77.50	1,558	5,044	0.014	29	1,342
16	72.50	1,584	4,529	0.013	26	1,363
15	67.50	1,609	4,030	0.011	24	1,385
14	62.50	1,635	3,548	0.010	21	1,407
13	57.50	1,660	3,086	0.009	18	1,429
12	54.00	671	1,110	0.003	6	578
11	51.50	1,845	2,795	0.008	16	1,589
10	47.50	3,119	4,067	0.011	24	2,686
9	42.50	1,925	2,041	0.006	12	1,658
8	37.50	1,955	1,643	0.005	10	1,683
7	32.50	1,985	1,278	0.004	7	1,709
6	27.50	2,014	951	0.003	6	1,734
5	22.50	2,044	665	0.002	4	1,760
4	17.50	2,075	423	0.001	2	1,786
3	12.50	2,104	230	0.001	1	1,812
2	7.50	2,134	90	0.000	1	1,837
1	2.50	2,164	12	0.000	0	1,863
Decibel DB844H90E-XY	178.50	168	2,562	0.007	15	145

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Flat Low Profile Pla	178.50	1,500	22,879	0.065	134	1,291
DragonWave Horizon C	167.00	21	286	0.001	2	18
NextNet BTS-2500	167.00	105	1,415	0.004	8	90
Argus LLPX310R	167.00	86	1,156	0.003	7	74
DragonWave A-ANT-11G	167.00	27	364	0.001	2	23
DragonWave A-ANT-18G	167.00	27	365	0.001	2	23
Side Arms	167.00	560	7,548	0.021	44	482
18" x 12" Junction B	163.00	15	193	0.001	1	13
Powerwave Allgon 702	160.00	13	164	0.000	1	11
Kaelus DBC0061F1V51-	160.00	153	1,904	0.005	11	132
Powerwave Allgon LGP	160.00	85	1,053	0.003	6	73
Raycap DC6-48-60-18-	160.00	40	498	0.001	3	34
Ericsson RRUS-11 800	160.00	162	2,016	0.006	12	139
Ericsson RRUS 32 B2	160.00	159	1,979	0.006	12	137
Ericsson RRUS 11 (Ba	160.00	152	1,893	0.005	11	131
Ericsson RRUS-12 B2	160.00	174	2,166	0.006	13	150
Ericsson RRUS-32 (77	160.00	231	2,875	0.008	17	199
Powerwave Allgon 777	160.00	105	1,307	0.004	8	90
Quintel QS66512-2	160.00	333	4,145	0.012	24	287
CCI OPA-65R-LCUU-H6	160.00	219	2,726	0.008	16	189
Flat Low Profile Pla	160.00	1,500	18,671	0.053	109	1,291
Ericsson KRY 112 144	148.00	33	355	0.001	2	28
Ericsson Radio 4449	148.00	222	2,391	0.007	14	191
Ericsson AIR 21, 1.3	148.00	249	2,681	0.008	16	214
Ericsson AIR32 B66Aa	148.00	397	4,271	0.012	25	341
RFS APXVAARR24_43-U-	148.00	384	4,132	0.012	24	330
T-Arm with Platform	148.00	1,500	16,153	0.046	94	1,291
Nokia B5 RRH4x40-850	138.00	146	1,376	0.004	8	125
Alcatel-Lucent RRH 2	138.00	119	1,123	0.003	7	102
Alcatel-Lucent RRH2X	138.00	132	1,248	0.004	7	114
Alcatel-Lucent RRH2x	138.00	170	1,608	0.005	9	146
Alcatel-Lucent B66A	138.00	170	1,611	0.005	9	147
RFS DB-T1-6Z-8AB-0Z	138.00	88	832	0.002	5	76
Antel BXA-80063-6BF-	138.00	58	545	0.002	3	50
Commscope SBNHH-1D65	138.00	152	1,438	0.004	8	131
Commscope JAHH-65B-R	138.00	364	3,438	0.010	20	313
Round Low Profile PI	138.00	1,500	14,184	0.040	83	1,291
Nortel NTGB01MA	129.00	1	8	0.000	0	1
RFS APXV18-206517S-C	129.00	79	661	0.002	4	68
Alcatel-Lucent 800 M	120.00	159	1,160	0.003	7	137
Alcatel-Lucent 1900	120.00	180	1,313	0.004	8	155
Alcatel-Lucent TD-RR	120.00	210	1,532	0.004	9	181
RFS RFS APXV9TM14-AL	120.00	165	1,206	0.003	7	142
RFS APXVSP18-C-A20	120.00	171	1,247	0.004	7	147
Round Low Profile PI	120.00	1,500	10,940	0.031	64	1,291
PCTEL GPS-TMG-HR-26N	20.00	1	0	0.000	0	1
Standoff	20.00	75	20	0.000	0	65
		68,245	354,320	1.000	2,070	58,756

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	-81.88	-2.07	0.00	-281.38	0.00	281.38	6,201.63	3,100.82	18,267.6	9,147.40	0.00	0.00	0.044
5.00	-79.23	-2.08	0.00	-271.02	0.00	271.02	6,145.05	3,072.53	17,781.1	8,903.77	0.00	-0.01	0.043
10.00	-76.62	-2.09	0.00	-260.61	0.00	260.61	6,086.60	3,043.30	17,295.1	8,660.43	0.01	-0.01	0.043
15.00	-74.05	-2.09	0.00	-250.17	0.00	250.17	6,026.28	3,013.14	16,810.0	8,417.51	0.03	-0.02	0.042
20.00	-71.43	-2.10	0.00	-239.71	0.00	239.71	5,964.08	2,982.04	16,326.1	8,175.18	0.05	-0.02	0.041
25.00	-68.93	-2.10	0.00	-229.23	0.00	229.23	5,900.01	2,950.01	15,843.6	7,933.57	0.08	-0.03	0.041
30.00	-66.47	-2.10	0.00	-218.74	0.00	218.74	5,834.07	2,917.04	15,362.8	7,692.84	0.12	-0.04	0.040
35.00	-64.05	-2.09	0.00	-208.26	0.00	208.26	5,766.26	2,883.13	14,884.1	7,453.12	0.16	-0.04	0.039
40.00	-61.66	-2.08	0.00	-197.81	0.00	197.81	5,696.58	2,848.29	14,407.7	7,214.56	0.21	-0.05	0.038
45.00	-57.80	-2.06	0.00	-187.38	0.00	187.38	5,625.02	2,812.51	13,933.9	6,977.32	0.27	-0.06	0.037
50.00	-55.51	-2.05	0.00	-177.06	0.00	177.06	5,551.60	2,775.80	13,463.0	6,741.53	0.33	-0.06	0.036
53.00	-54.68	-2.05	0.00	-170.91	0.00	170.91	4,466.37	2,233.18	10,853.4	5,434.80	0.38	-0.07	0.044
55.00	-52.62	-2.03	0.00	-166.81	0.00	166.81	4,445.78	2,222.89	10,710.8	5,363.40	0.41	-0.07	0.043
60.00	-50.60	-2.01	0.00	-156.66	0.00	156.66	4,392.99	2,196.49	10,355.0	5,185.21	0.48	-0.08	0.042
65.00	-48.60	-1.99	0.00	-146.59	0.00	146.59	4,338.33	2,169.16	10,000.3	5,007.61	0.57	-0.09	0.040
70.00	-46.64	-1.97	0.00	-136.62	0.00	136.62	4,281.80	2,140.90	9,647.15	4,830.75	0.67	-0.09	0.039
75.00	-44.71	-1.94	0.00	-126.76	0.00	126.76	4,223.39	2,111.70	9,295.72	4,654.77	0.77	-0.10	0.038
80.00	-42.81	-1.91	0.00	-117.04	0.00	117.04	4,163.12	2,081.56	8,946.35	4,479.82	0.88	-0.11	0.036
85.00	-40.94	-1.88	0.00	-107.48	0.00	107.48	4,100.97	2,050.48	8,599.32	4,306.05	1.00	-0.12	0.035
90.00	-40.42	-1.87	0.00	-98.08	0.00	98.08	4,036.95	2,018.47	8,254.94	4,133.61	1.13	-0.12	0.034
91.42	-38.36	-1.82	0.00	-95.43	0.00	95.43	4,018.47	2,009.23	8,157.89	4,085.01	1.16	-0.13	0.033
95.00	-36.66	-1.78	0.00	-88.89	0.00	88.89	3,971.06	1,985.53	7,913.50	3,962.63	1.26	-0.13	0.032
98.00	-36.02	-1.77	0.00	-83.54	0.00	83.54	3,074.73	1,537.36	6,126.65	3,067.88	1.34	-0.14	0.039
100.00	-34.43	-1.73	0.00	-80.00	0.00	80.00	3,057.08	1,528.54	6,027.83	3,018.39	1.40	-0.14	0.038
105.00	-32.86	-1.69	0.00	-71.35	0.00	71.35	3,011.64	1,505.82	5,781.46	2,895.03	1.55	-0.15	0.036
110.00	-31.32	-1.64	0.00	-62.93	0.00	62.93	2,964.33	1,482.16	5,536.34	2,772.28	1.71	-0.15	0.033
115.00	-29.81	-1.59	0.00	-54.73	0.00	54.73	2,915.15	1,457.57	5,292.74	2,650.30	1.87	-0.16	0.031
120.00	-25.39	-1.42	0.00	-46.80	0.00	46.80	2,864.09	1,432.05	5,050.96	2,529.23	2.05	-0.17	0.027
125.00	-24.24	-1.38	0.00	-39.68	0.00	39.68	2,811.17	1,405.58	4,811.29	2,409.22	2.23	-0.17	0.025
129.00	-23.86	-1.36	0.00	-34.16	0.00	34.16	2,767.48	1,383.74	4,621.27	2,314.07	2.37	-0.18	0.023
130.00	-22.48	-1.30	0.00	-32.80	0.00	32.80	2,756.37	1,378.18	4,574.03	2,290.41	2.41	-0.18	0.022
135.00	-21.67	-1.27	0.00	-26.28	0.00	26.28	2,699.70	1,349.85	4,339.46	2,172.95	2.60	-0.18	0.020
138.00	-17.75	-1.08	0.00	-22.47	0.00	22.47	2,664.80	1,332.40	4,200.13	2,103.19	2.72	-0.19	0.017
139.33	-17.50	-1.07	0.00	-21.03	0.00	21.03	2,649.07	1,324.54	4,138.57	2,072.36	2.77	-0.19	0.017
140.00	-15.86	-0.99	0.00	-20.32	0.00	20.32	2,641.16	1,320.58	4,107.88	2,056.99	2.80	-0.19	0.016
144.42	-15.74	-0.98	0.00	-15.97	0.00	15.97	1,927.04	963.52	2,958.38	1,481.39	2.98	-0.19	0.019
145.00	-15.11	-0.95	0.00	-15.39	0.00	15.39	1,922.70	961.35	2,940.04	1,472.21	3.00	-0.19	0.018
148.00	-11.27	-0.74	0.00	-12.55	0.00	12.55	1,899.96	949.98	2,845.93	1,425.08	3.12	-0.20	0.015
150.00	-10.32	-0.69	0.00	-11.07	0.00	11.07	1,884.42	942.21	2,783.42	1,393.78	3.20	-0.20	0.013
155.00	-9.40	-0.63	0.00	-7.64	0.00	7.64	1,844.28	922.14	2,628.12	1,316.02	3.41	-0.20	0.011
160.00	-4.89	-0.35	0.00	-4.49	0.00	4.49	1,802.26	901.13	2,474.43	1,239.06	3.62	-0.20	0.006
163.00	-4.63	-0.33	0.00	-3.44	0.00	3.44	1,776.15	888.08	2,383.11	1,193.33	3.75	-0.20	0.005
165.00	-4.39	-0.32	0.00	-2.78	0.00	2.78	1,758.37	879.19	2,322.64	1,163.05	3.83	-0.20	0.005
167.00	-3.02	-0.22	0.00	-2.14	0.00	2.14	1,740.29	870.15	2,262.53	1,132.94	3.92	-0.20	0.004
170.00	-2.45	-0.18	0.00	-1.47	0.00	1.47	1,712.61	856.30	2,173.05	1,088.14	4.05	-0.20	0.003
175.00	-2.07	-0.16	0.00	-0.55	0.00	0.55	1,664.97	832.49	2,025.94	1,014.48	4.26	-0.20	0.002
178.50	0.00	-0.15	0.00	0.00	0.00	0.00	1,630.52	815.26	1,924.60	963.73	4.41	-0.20	0.000

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

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	-56.89	-2.07	0.00	-278.24	0.00	278.24	6,201.63	3,100.82	18,267.6	9,147.40	0.00	0.00	0.040
5.00	-55.06	-2.08	0.00	-267.88	0.00	267.88	6,145.05	3,072.53	17,781.1	8,903.77	0.00	-0.01	0.039
10.00	-53.24	-2.08	0.00	-257.49	0.00	257.49	6,086.60	3,043.30	17,295.1	8,660.43	0.01	-0.01	0.038
15.00	-51.46	-2.08	0.00	-247.09	0.00	247.09	6,026.28	3,013.14	16,810.0	8,417.51	0.03	-0.02	0.038
20.00	-49.63	-2.08	0.00	-236.66	0.00	236.66	5,964.08	2,982.04	16,326.1	8,175.18	0.05	-0.02	0.037
25.00	-47.90	-2.08	0.00	-226.24	0.00	226.24	5,900.01	2,950.01	15,843.6	7,933.57	0.08	-0.03	0.037
30.00	-46.19	-2.08	0.00	-215.82	0.00	215.82	5,834.07	2,917.04	15,362.8	7,692.84	0.12	-0.04	0.036
35.00	-44.50	-2.07	0.00	-205.42	0.00	205.42	5,766.26	2,883.13	14,884.1	7,453.12	0.16	-0.04	0.035
40.00	-42.85	-2.07	0.00	-195.04	0.00	195.04	5,696.58	2,848.29	14,407.7	7,214.56	0.21	-0.05	0.035
45.00	-40.16	-2.04	0.00	-184.71	0.00	184.71	5,625.02	2,812.51	13,933.9	6,977.32	0.27	-0.06	0.034
50.00	-38.57	-2.03	0.00	-174.49	0.00	174.49	5,551.60	2,775.80	13,463.0	6,741.53	0.33	-0.06	0.033
53.00	-37.99	-2.03	0.00	-168.40	0.00	168.40	4,466.37	2,233.18	10,853.4	5,434.80	0.37	-0.07	0.039
55.00	-36.56	-2.01	0.00	-164.34	0.00	164.34	4,445.78	2,222.89	10,710.8	5,363.40	0.40	-0.07	0.039
60.00	-35.16	-1.99	0.00	-154.30	0.00	154.30	4,392.99	2,196.49	10,355.0	5,185.21	0.48	-0.08	0.038
65.00	-33.77	-1.97	0.00	-144.34	0.00	144.34	4,338.33	2,169.16	10,000.3	5,007.61	0.56	-0.09	0.037
70.00	-32.41	-1.95	0.00	-134.49	0.00	134.49	4,281.80	2,140.90	9,647.15	4,830.75	0.66	-0.09	0.035
75.00	-31.07	-1.92	0.00	-124.76	0.00	124.76	4,223.39	2,111.70	9,295.72	4,654.77	0.76	-0.10	0.034
80.00	-29.75	-1.89	0.00	-115.17	0.00	115.17	4,163.12	2,081.56	8,946.35	4,479.82	0.87	-0.11	0.033
85.00	-28.45	-1.85	0.00	-105.74	0.00	105.74	4,100.97	2,050.48	8,599.32	4,306.05	0.99	-0.12	0.031
90.00	-28.08	-1.84	0.00	-96.48	0.00	96.48	4,036.95	2,018.47	8,254.94	4,133.61	1.11	-0.12	0.030
91.42	-26.66	-1.80	0.00	-93.87	0.00	93.87	4,018.47	2,009.23	8,157.89	4,085.01	1.15	-0.12	0.030
95.00	-25.48	-1.76	0.00	-87.43	0.00	87.43	3,971.06	1,985.53	7,913.50	3,962.63	1.24	-0.13	0.028
98.00	-25.03	-1.74	0.00	-82.15	0.00	82.15	3,074.73	1,537.36	6,126.65	3,067.88	1.33	-0.13	0.035
100.00	-23.92	-1.70	0.00	-78.67	0.00	78.67	3,057.08	1,528.54	6,027.83	3,018.39	1.38	-0.14	0.034
105.00	-22.83	-1.66	0.00	-70.16	0.00	70.16	3,011.64	1,505.82	5,781.46	2,895.03	1.53	-0.14	0.032
110.00	-21.76	-1.61	0.00	-61.87	0.00	61.87	2,964.33	1,482.16	5,536.34	2,772.28	1.69	-0.15	0.030
115.00	-20.71	-1.56	0.00	-53.81	0.00	53.81	2,915.15	1,457.57	5,292.74	2,650.30	1.85	-0.16	0.027
120.00	-17.64	-1.40	0.00	-46.01	0.00	46.01	2,864.09	1,432.05	5,050.96	2,529.23	2.02	-0.17	0.024
125.00	-16.84	-1.36	0.00	-39.01	0.00	39.01	2,811.17	1,405.58	4,811.29	2,409.22	2.19	-0.17	0.022
129.00	-16.58	-1.34	0.00	-33.59	0.00	33.59	2,767.48	1,383.74	4,621.27	2,314.07	2.34	-0.18	0.021
130.00	-15.62	-1.28	0.00	-32.25	0.00	32.25	2,756.37	1,378.18	4,574.03	2,290.41	2.38	-0.18	0.020
135.00	-15.06	-1.25	0.00	-25.84	0.00	25.84	2,699.70	1,349.85	4,339.46	2,172.95	2.57	-0.18	0.017
138.00	-12.33	-1.06	0.00	-22.10	0.00	22.10	2,664.80	1,332.40	4,200.13	2,103.19	2.68	-0.18	0.015
139.33	-12.16	-1.05	0.00	-20.69	0.00	20.69	2,649.07	1,324.54	4,138.57	2,072.36	2.73	-0.19	0.015
140.00	-11.02	-0.97	0.00	-19.99	0.00	19.99	2,641.16	1,320.58	4,107.88	2,056.99	2.76	-0.19	0.014
144.42	-10.94	-0.96	0.00	-15.71	0.00	15.71	1,927.04	963.52	2,958.38	1,481.39	2.93	-0.19	0.016
145.00	-10.50	-0.93	0.00	-15.14	0.00	15.14	1,922.70	961.35	2,940.04	1,472.21	2.96	-0.19	0.016
148.00	-7.83	-0.73	0.00	-12.35	0.00	12.35	1,899.96	949.98	2,845.93	1,425.08	3.08	-0.19	0.013
150.00	-7.17	-0.67	0.00	-10.90	0.00	10.90	1,884.42	942.21	2,783.42	1,393.78	3.16	-0.19	0.012
155.00	-6.53	-0.62	0.00	-7.52	0.00	7.52	1,844.28	922.14	2,628.12	1,316.02	3.36	-0.20	0.009
160.00	-3.40	-0.34	0.00	-4.42	0.00	4.42	1,802.26	901.13	2,474.43	1,239.06	3.57	-0.20	0.005
163.00	-3.22	-0.33	0.00	-3.39	0.00	3.39	1,776.15	888.08	2,383.11	1,193.33	3.70	-0.20	0.005
165.00	-3.05	-0.31	0.00	-2.73	0.00	2.73	1,758.37	879.19	2,322.64	1,163.05	3.78	-0.20	0.004
167.00	-2.10	-0.22	0.00	-2.11	0.00	2.11	1,740.29	870.15	2,262.53	1,132.94	3.86	-0.20	0.003
170.00	-1.70	-0.18	0.00	-1.45	0.00	1.45	1,712.61	856.30	2,173.05	1,088.14	3.99	-0.20	0.002
175.00	-1.44	-0.15	0.00	-0.54	0.00	0.54	1,664.97	832.49	2,025.94	1,014.48	4.20	-0.20	0.001
178.50	0.00	-0.15	0.00	0.00	0.00	0.00	1,630.52	815.26	1,924.60	963.73	4.35	-0.20	0.000

### Equivalent Modal Forces Analysis

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

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.18
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.20
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Period Based on Rayleigh Method (sec):	2.22
Redundancy Factor ( $\rho$ ):	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)
46	176.75	310	1.853	1.791	1.071	0.348	72	384
45	172.50	458	1.765	1.384	0.918	0.293	89	567
44	168.50	283	1.684	1.063	0.790	0.245	46	350
43	166.00	193	1.635	0.889	0.718	0.217	28	239
42	164.00	196	1.595	0.764	0.664	0.196	26	243
41	161.50	310	1.547	0.624	0.601	0.171	35	384
40	157.50	749	1.471	0.433	0.509	0.133	67	928
39	152.50	766	1.380	0.246	0.411	0.092	47	949
38	149.00	311	1.317	0.145	0.351	0.066	14	385
37	146.50	510	1.273	0.085	0.313	0.050	17	633
36	144.71	100	1.242	0.048	0.287	0.039	3	124
35	142.21	1,321	1.200	0.004	0.254	0.024	21	1,636
34	139.67	202	1.157	-0.032	0.224	0.011	2	250
33	138.67	266	1.141	-0.044	0.213	0.007	1	330
32	136.50	657	1.105	-0.067	0.190	-0.003	-1	814
31	132.50	1,112	1.041	-0.097	0.153	-0.017	-13	1,377
30	129.50	225	0.995	-0.111	0.129	-0.026	-4	279
29	127.00	929	0.957	-0.118	0.111	-0.032	-20	1,151
28	122.50	1,180	0.890	-0.122	0.084	-0.039	-30	1,463
27	117.50	1,222	0.819	-0.115	0.059	-0.041	-33	1,514
26	112.50	1,243	0.751	-0.101	0.041	-0.038	-32	1,540
25	107.50	1,264	0.685	-0.082	0.027	-0.031	-26	1,566
24	102.50	1,285	0.623	-0.061	0.017	-0.020	-17	1,592
23	99.00	520	0.581	-0.046	0.013	-0.011	-4	644
22	96.50	1,371	0.552	-0.035	0.010	-0.004	-4	1,699
21	93.21	1,660	0.515	-0.022	0.008	0.005	5	2,056
20	90.71	422	0.488	-0.012	0.007	0.012	3	523
19	87.50	1,507	0.454	0.000	0.006	0.020	20	1,868
18	82.50	1,533	0.404	0.017	0.006	0.031	31	1,899
17	77.50	1,558	0.356	0.031	0.008	0.039	41	1,931
16	72.50	1,584	0.312	0.043	0.011	0.045	48	1,962
15	67.50	1,609	0.270	0.052	0.015	0.049	53	1,994
14	62.50	1,635	0.232	0.058	0.019	0.051	56	2,025
13	57.50	1,660	0.196	0.063	0.024	0.052	57	2,057

12	54.00	671	0.173	0.066	0.027	0.052	23	832
11	51.50	1,845	0.157	0.067	0.029	0.051	63	2,286
10	47.50	3,119	0.134	0.069	0.032	0.051	105	3,865
9	42.50	1,925	0.107	0.071	0.036	0.050	64	2,386
8	37.50	1,955	0.083	0.072	0.039	0.049	63	2,422
7	32.50	1,985	0.063	0.072	0.041	0.047	63	2,459
6	27.50	2,014	0.045	0.071	0.042	0.046	62	2,496
5	22.50	2,044	0.030	0.068	0.041	0.044	60	2,533
4	17.50	2,075	0.018	0.063	0.037	0.041	57	2,571
3	12.50	2,104	0.009	0.054	0.031	0.036	51	2,607
2	7.50	2,134	0.003	0.039	0.022	0.028	39	2,644
1	2.50	2,164	0.000	0.016	0.008	0.012	18	2,681
Decibel DB844H90E-XY	178.50	168	1.890	1.980	1.140	0.372	42	208
Flat Low Profile Pla	178.50	1,500	1.890	1.980	1.140	0.372	372	1,859
DragonWave Horizon C	167.00	21	1.654	0.957	0.746	0.228	3	26
NextNet BTS-2500	167.00	105	1.654	0.957	0.746	0.228	16	130
Argus LLPX310R	167.00	86	1.654	0.957	0.746	0.228	13	106
DragonWave A-ANT-11G	167.00	27	1.654	0.957	0.746	0.228	4	33
DragonWave A-ANT-18G	167.00	27	1.654	0.957	0.746	0.228	4	34
Side Arms	167.00	560	1.654	0.957	0.746	0.228	85	694
18" x 12" Junction B	163.00	15	1.576	0.706	0.638	0.186	2	19
Powerwave Allgon 702	160.00	13	1.519	0.548	0.565	0.156	1	16
Kaelus DBC0061F1V51-	160.00	153	1.519	0.548	0.565	0.156	16	190
Powerwave Allgon LGP	160.00	85	1.519	0.548	0.565	0.156	9	105
Raycap DC6-48-60-18-	160.00	40	1.519	0.548	0.565	0.156	4	50
Ericsson RRUS-11 800	160.00	162	1.519	0.548	0.565	0.156	17	201
Ericsson RRUS 32 B2	160.00	159	1.519	0.548	0.565	0.156	17	197
Ericsson RRUS 11 (Ba	160.00	152	1.519	0.548	0.565	0.156	16	188
Ericsson RRUS-12 B2	160.00	174	1.519	0.548	0.565	0.156	18	216
Ericsson RRUS-32 (77	160.00	231	1.519	0.548	0.565	0.156	24	286
Powerwave Allgon 777	160.00	105	1.519	0.548	0.565	0.156	11	130
Quintel QS66512-2	160.00	333	1.519	0.548	0.565	0.156	35	413
CCI OPA-65R-LCUU-H6	160.00	219	1.519	0.548	0.565	0.156	23	271
Flat Low Profile Pla	160.00	1,500	1.519	0.548	0.565	0.156	156	1,859
Ericsson KRY 112 144	148.00	33	1.299	0.120	0.335	0.059	1	41
Ericsson Radio 4449	148.00	222	1.299	0.120	0.335	0.059	9	275
Ericsson AIR 21, 1.3	148.00	249	1.299	0.120	0.335	0.059	10	309
Ericsson AIR32 B66Aa	148.00	397	1.299	0.120	0.335	0.059	16	491
RFS APXVAARR24_43-U-	148.00	384	1.299	0.120	0.335	0.059	15	475
T-Arm with Platform	148.00	1,500	1.299	0.120	0.335	0.059	59	1,859
Nokia B5 RRH4x40-850	138.00	146	1.130	-0.052	0.206	0.004	0	180
Alcatel-Lucent RRH 2	138.00	119	1.130	-0.052	0.206	0.004	0	147
Alcatel-Lucent RRH2X	138.00	132	1.130	-0.052	0.206	0.004	0	164
Alcatel-Lucent RRH2x	138.00	170	1.130	-0.052	0.206	0.004	0	211
Alcatel-Lucent B66A	138.00	170	1.130	-0.052	0.206	0.004	0	211
RFS DB-T1-6Z-8AB-0Z	138.00	88	1.130	-0.052	0.206	0.004	0	109
Antel BXA-80063-6BF-	138.00	58	1.130	-0.052	0.206	0.004	0	71
Commscope SBNHH-	138.00	152	1.130	-0.052	0.206	0.004	0	188
Commscope JAHH-65B-	138.00	364	1.130	-0.052	0.206	0.004	1	451
Round Low Profile PI	138.00	1,500	1.130	-0.052	0.206	0.004	4	1,859
Nortel NTGB01MA	129.00	1	0.987	-0.113	0.125	-0.027	0	1
RFS APXV18-206517S-C	129.00	79	0.987	-0.113	0.125	-0.027	-1	98
Alcatel-Lucent 800 M	120.00	159	0.854	-0.120	0.071	-0.040	-4	197
Alcatel-Lucent 1900	120.00	180	0.854	-0.120	0.071	-0.040	-5	223
Alcatel-Lucent TD-RR	120.00	210	0.854	-0.120	0.071	-0.040	-6	260
RFS RFS APXV9TM14-	120.00	165	0.854	-0.120	0.071	-0.040	-4	205
RFS APXVSP18-C-A20	120.00	171	0.854	-0.120	0.071	-0.040	-5	212
Round Low Profile PI	120.00	1,500	0.854	-0.120	0.071	-0.040	-40	1,859
PCTEL GPS-TMG-HR-	20.00	1	0.024	0.066	0.039	0.043	0	1
Standoff	20.00	75	0.024	0.066	0.039	0.043	2	93
		68,245	94.573	24.317	28.214	6.955	2,208	84,558

**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)
46	176.75	310	1.853	1.791	1.071	0.348	72	267
45	172.50	458	1.765	1.384	0.918	0.293	89	394
44	168.50	283	1.684	1.063	0.790	0.245	46	243
43	166.00	193	1.635	0.889	0.718	0.217	28	166
42	164.00	196	1.595	0.764	0.664	0.196	26	169
41	161.50	310	1.547	0.624	0.601	0.171	35	267
40	157.50	749	1.471	0.433	0.509	0.133	67	645
39	152.50	766	1.380	0.246	0.411	0.092	47	659
38	149.00	311	1.317	0.145	0.351	0.066	14	268
37	146.50	510	1.273	0.085	0.313	0.050	17	440
36	144.71	100	1.242	0.048	0.287	0.039	3	86
35	142.21	1,321	1.200	0.004	0.254	0.024	21	1,137
34	139.67	202	1.157	-0.032	0.224	0.011	2	174
33	138.67	266	1.141	-0.044	0.213	0.007	1	229
32	136.50	657	1.105	-0.067	0.190	-0.003	-1	566
31	132.50	1,112	1.041	-0.097	0.153	-0.017	-13	957
30	129.50	225	0.995	-0.111	0.129	-0.026	-4	194
29	127.00	929	0.957	-0.118	0.111	-0.032	-20	800
28	122.50	1,180	0.890	-0.122	0.084	-0.039	-30	1,016
27	117.50	1,222	0.819	-0.115	0.059	-0.041	-33	1,052
26	112.50	1,243	0.751	-0.101	0.041	-0.038	-32	1,070
25	107.50	1,264	0.685	-0.082	0.027	-0.031	-26	1,088
24	102.50	1,285	0.623	-0.061	0.017	-0.020	-17	1,107
23	99.00	520	0.581	-0.046	0.013	-0.011	-4	448
22	96.50	1,371	0.552	-0.035	0.010	-0.004	-4	1,180
21	93.21	1,660	0.515	-0.022	0.008	0.005	5	1,429
20	90.71	422	0.488	-0.012	0.007	0.012	3	364
19	87.50	1,507	0.454	0.000	0.006	0.020	20	1,298
18	82.50	1,533	0.404	0.017	0.006	0.031	31	1,320
17	77.50	1,558	0.356	0.031	0.008	0.039	41	1,342
16	72.50	1,584	0.312	0.043	0.011	0.045	48	1,363
15	67.50	1,609	0.270	0.052	0.015	0.049	53	1,385
14	62.50	1,635	0.232	0.058	0.019	0.051	56	1,407
13	57.50	1,660	0.196	0.063	0.024	0.052	57	1,429
12	54.00	671	0.173	0.066	0.027	0.052	23	578
11	51.50	1,845	0.157	0.067	0.029	0.051	63	1,589
10	47.50	3,119	0.134	0.069	0.032	0.051	105	2,686
9	42.50	1,925	0.107	0.071	0.036	0.050	64	1,658
8	37.50	1,955	0.083	0.072	0.039	0.049	63	1,683
7	32.50	1,985	0.063	0.072	0.041	0.047	63	1,709
6	27.50	2,014	0.045	0.071	0.042	0.046	62	1,734
5	22.50	2,044	0.030	0.068	0.041	0.044	60	1,760
4	17.50	2,075	0.018	0.063	0.037	0.041	57	1,786
3	12.50	2,104	0.009	0.054	0.031	0.036	51	1,812
2	7.50	2,134	0.003	0.039	0.022	0.028	39	1,837
1	2.50	2,164	0.000	0.016	0.008	0.012	18	1,863
Decibel DB844H90E-XY	178.50	168	1.890	1.980	1.140	0.372	42	145
Flat Low Profile Pla	178.50	1,500	1.890	1.980	1.140	0.372	372	1,291
DragonWave Horizon C	167.00	21	1.654	0.957	0.746	0.228	3	18
NextNet BTS-2500	167.00	105	1.654	0.957	0.746	0.228	16	90
Argus LLPX310R	167.00	86	1.654	0.957	0.746	0.228	13	74
DragonWave A-ANT-11G	167.00	27	1.654	0.957	0.746	0.228	4	23
DragonWave A-ANT-18G	167.00	27	1.654	0.957	0.746	0.228	4	23
Side Arms	167.00	560	1.654	0.957	0.746	0.228	85	482
18" x 12" Junction B	163.00	15	1.576	0.706	0.638	0.186	2	13
Powerwave Allgon 702	160.00	13	1.519	0.548	0.565	0.156	1	11

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number:OAA735639\_C3\_01

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Customer: T-MOBILE

Kaelus DBC0061F1V51-	160.00	153	1.519	0.548	0.565	0.156	16	132
Powerwave Allgon LGP	160.00	85	1.519	0.548	0.565	0.156	9	73
Raycap DC6-48-60-18-	160.00	40	1.519	0.548	0.565	0.156	4	34
Ericsson RRUS-11 800	160.00	162	1.519	0.548	0.565	0.156	17	139
Ericsson RRUS 32 B2	160.00	159	1.519	0.548	0.565	0.156	17	137
Ericsson RRUS 11 (Ba	160.00	152	1.519	0.548	0.565	0.156	16	131
Ericsson RRUS-12 B2	160.00	174	1.519	0.548	0.565	0.156	18	150
Ericsson RRUS-32 (77	160.00	231	1.519	0.548	0.565	0.156	24	199
Powerwave Allgon 777	160.00	105	1.519	0.548	0.565	0.156	11	90
Quintel QS66512-2	160.00	333	1.519	0.548	0.565	0.156	35	287
CCI OPA-65R-LCUU-H6	160.00	219	1.519	0.548	0.565	0.156	23	189
Flat Low Profile Pla	160.00	1,500	1.519	0.548	0.565	0.156	156	1,291
Ericsson KRY 112 144	148.00	33	1.299	0.120	0.335	0.059	1	28
Ericsson Radio 4449	148.00	222	1.299	0.120	0.335	0.059	9	191
Ericsson AIR 21, 1.3	148.00	249	1.299	0.120	0.335	0.059	10	214
Ericsson AIR32 B66Aa	148.00	397	1.299	0.120	0.335	0.059	16	341
RFS APXVAARR24_43-U-	148.00	384	1.299	0.120	0.335	0.059	15	330
T-Arm with Platform	148.00	1,500	1.299	0.120	0.335	0.059	59	1,291
Nokia B5 RRH4x40-850	138.00	146	1.130	-0.052	0.206	0.004	0	125
Alcatel-Lucent RRH 2	138.00	119	1.130	-0.052	0.206	0.004	0	102
Alcatel-Lucent RRH2X	138.00	132	1.130	-0.052	0.206	0.004	0	114
Alcatel-Lucent RRH2x	138.00	170	1.130	-0.052	0.206	0.004	0	146
Alcatel-Lucent B66A	138.00	170	1.130	-0.052	0.206	0.004	0	147
RFS DB-T1-6Z-8AB-0Z	138.00	88	1.130	-0.052	0.206	0.004	0	76
Antel BXA-80063-6BF-	138.00	58	1.130	-0.052	0.206	0.004	0	50
Commscope SBNHH-	138.00	152	1.130	-0.052	0.206	0.004	0	131
Commscope JAHH-65B-	138.00	364	1.130	-0.052	0.206	0.004	1	313
Round Low Profile PI	138.00	1,500	1.130	-0.052	0.206	0.004	4	1,291
Nortel NTGB01MA	129.00	1	0.987	-0.113	0.125	-0.027	0	1
RFS APXV18-206517S-C	129.00	79	0.987	-0.113	0.125	-0.027	-1	68
Alcatel-Lucent 800 M	120.00	159	0.854	-0.120	0.071	-0.040	-4	137
Alcatel-Lucent 1900	120.00	180	0.854	-0.120	0.071	-0.040	-5	155
Alcatel-Lucent TD-RR	120.00	210	0.854	-0.120	0.071	-0.040	-6	181
RFS RFS APXV9TM14-	120.00	165	0.854	-0.120	0.071	-0.040	-4	142
RFS APXVSPP18-C-A20	120.00	171	0.854	-0.120	0.071	-0.040	-5	147
Round Low Profile PI	120.00	1,500	0.854	-0.120	0.071	-0.040	-40	1,291
PCTEL GPS-TMG-HR-	20.00	1	0.024	0.066	0.039	0.043	0	1
Standoff	20.00	75	0.024	0.066	0.039	0.043	2	65
		68,245	94.573	24.317	28.214	6.955	2,208	58,756



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	-81.88	-2.19	0.00	-265.99	0.00	265.99	6,201.63	3,100.82	18,267.6	9,147.40	0.00	0.00	0.042
5.00	-79.23	-2.16	0.00	-255.02	0.00	255.02	6,145.05	3,072.53	17,781.1	8,903.77	0.00	-0.01	0.042
10.00	-76.62	-2.12	0.00	-244.21	0.00	244.21	6,086.60	3,043.30	17,295.1	8,660.43	0.01	-0.01	0.041
15.00	-74.05	-2.07	0.00	-233.62	0.00	233.62	6,026.28	3,013.14	16,810.0	8,417.51	0.03	-0.02	0.040
20.00	-71.43	-2.01	0.00	-223.28	0.00	223.28	5,964.08	2,982.04	16,326.1	8,175.18	0.05	-0.02	0.039
25.00	-68.93	-1.96	0.00	-213.21	0.00	213.21	5,900.01	2,950.01	15,843.6	7,933.57	0.08	-0.03	0.039
30.00	-66.47	-1.90	0.00	-203.43	0.00	203.43	5,834.07	2,917.04	15,362.8	7,692.84	0.11	-0.04	0.038
35.00	-64.05	-1.84	0.00	-193.93	0.00	193.93	5,766.26	2,883.13	14,884.1	7,453.12	0.15	-0.04	0.037
40.00	-61.66	-1.78	0.00	-184.72	0.00	184.72	5,696.58	2,848.29	14,407.7	7,214.56	0.20	-0.05	0.036
45.00	-57.80	-1.68	0.00	-175.80	0.00	175.80	5,625.02	2,812.51	13,933.9	6,977.32	0.25	-0.05	0.035
50.00	-55.51	-1.62	0.00	-167.40	0.00	167.40	5,551.60	2,775.80	13,463.0	6,741.53	0.31	-0.06	0.035
53.00	-54.68	-1.60	0.00	-162.54	0.00	162.54	4,466.37	2,233.18	10,853.4	5,434.80	0.35	-0.06	0.042
55.00	-52.62	-1.54	0.00	-159.34	0.00	159.34	4,445.78	2,222.89	10,710.8	5,363.40	0.38	-0.07	0.042
60.00	-50.60	-1.49	0.00	-151.62	0.00	151.62	4,392.99	2,196.49	10,355.0	5,185.21	0.45	-0.07	0.041
65.00	-48.60	-1.44	0.00	-144.15	0.00	144.15	4,338.33	2,169.16	10,000.3	5,007.61	0.54	-0.08	0.040
70.00	-46.64	-1.40	0.00	-136.93	0.00	136.93	4,281.80	2,140.90	9,647.15	4,830.75	0.62	-0.09	0.039
75.00	-44.71	-1.36	0.00	-129.93	0.00	129.93	4,223.39	2,111.70	9,295.72	4,654.77	0.72	-0.10	0.039
80.00	-42.81	-1.33	0.00	-123.12	0.00	123.12	4,163.12	2,081.56	8,946.35	4,479.82	0.83	-0.10	0.038
85.00	-40.94	-1.31	0.00	-116.46	0.00	116.46	4,100.97	2,050.48	8,599.32	4,306.05	0.94	-0.11	0.037
90.00	-40.42	-1.31	0.00	-109.89	0.00	109.89	4,036.95	2,018.47	8,254.94	4,133.61	1.06	-0.12	0.037
91.42	-38.36	-1.31	0.00	-108.03	0.00	108.03	4,018.47	2,009.23	8,157.89	4,085.01	1.10	-0.12	0.036
95.00	-36.67	-1.31	0.00	-103.34	0.00	103.34	3,971.06	1,985.53	7,913.50	3,962.63	1.20	-0.13	0.035
98.00	-36.02	-1.32	0.00	-99.41	0.00	99.41	3,074.73	1,537.36	6,126.65	3,067.88	1.28	-0.13	0.044
100.00	-34.43	-1.33	0.00	-96.78	0.00	96.78	3,057.08	1,528.54	6,027.83	3,018.39	1.34	-0.14	0.043
105.00	-32.86	-1.36	0.00	-90.11	0.00	90.11	3,011.64	1,505.82	5,781.46	2,895.03	1.49	-0.15	0.042
110.00	-31.32	-1.39	0.00	-83.31	0.00	83.31	2,964.33	1,482.16	5,536.34	2,772.28	1.64	-0.16	0.041
115.00	-29.81	-1.43	0.00	-76.34	0.00	76.34	2,915.15	1,457.57	5,292.74	2,650.30	1.81	-0.17	0.039
120.00	-25.39	-1.51	0.00	-69.20	0.00	69.20	2,864.09	1,432.05	5,050.96	2,529.23	1.99	-0.18	0.036
125.00	-24.24	-1.53	0.00	-61.63	0.00	61.63	2,811.17	1,405.58	4,811.29	2,409.22	2.18	-0.19	0.034
129.00	-23.86	-1.54	0.00	-55.50	0.00	55.50	2,767.48	1,383.74	4,621.27	2,314.07	2.34	-0.19	0.033
130.00	-22.48	-1.55	0.00	-53.96	0.00	53.96	2,756.37	1,378.18	4,574.03	2,290.41	2.38	-0.19	0.032
135.00	-21.67	-1.55	0.00	-46.22	0.00	46.22	2,699.70	1,349.85	4,339.46	2,172.95	2.59	-0.20	0.029
138.00	-17.75	-1.53	0.00	-41.57	0.00	41.57	2,664.80	1,332.40	4,200.13	2,103.19	2.72	-0.21	0.026
139.33	-17.50	-1.53	0.00	-39.53	0.00	39.53	2,649.07	1,324.54	4,138.57	2,072.36	2.78	-0.21	0.026
140.00	-15.86	-1.50	0.00	-38.51	0.00	38.51	2,641.16	1,320.58	4,107.88	2,056.99	2.81	-0.21	0.025
144.42	-15.74	-1.50	0.00	-31.88	0.00	31.88	1,927.04	963.52	2,958.38	1,481.39	3.01	-0.22	0.030
145.00	-15.10	-1.48	0.00	-31.01	0.00	31.01	1,922.70	961.35	2,940.04	1,472.21	3.04	-0.22	0.029
148.00	-11.27	-1.34	0.00	-26.57	0.00	26.57	1,899.96	949.98	2,845.93	1,425.08	3.17	-0.22	0.025
150.00	-10.32	-1.29	0.00	-23.88	0.00	23.88	1,884.42	942.21	2,783.42	1,393.78	3.27	-0.23	0.023
155.00	-9.39	-1.22	0.00	-17.42	0.00	17.42	1,844.28	922.14	2,628.12	1,316.02	3.51	-0.23	0.018
160.00	-4.89	-0.82	0.00	-11.31	0.00	11.31	1,802.26	901.13	2,474.43	1,239.06	3.76	-0.24	0.012
163.00	-4.63	-0.79	0.00	-8.84	0.00	8.84	1,776.15	888.08	2,383.11	1,193.33	3.91	-0.24	0.010
165.00	-4.39	-0.77	0.00	-7.25	0.00	7.25	1,758.37	879.19	2,322.64	1,163.05	4.01	-0.24	0.009
167.00	-3.02	-0.59	0.00	-5.72	0.00	5.72	1,740.29	870.15	2,262.53	1,132.94	4.11	-0.24	0.007
170.00	-2.45	-0.50	0.00	-3.96	0.00	3.96	1,712.61	856.30	2,173.05	1,088.14	4.26	-0.24	0.005
175.00	-2.06	-0.42	0.00	-1.48	0.00	1.48	1,664.97	832.49	2,025.94	1,014.48	4.52	-0.25	0.003
178.50	0.00	-0.41	0.00	0.00	0.00	0.00	1,630.52	815.26	1,924.60	963.73	4.70	-0.25	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	-56.89	-2.19	0.00	-262.84	0.00	262.84	6,201.63	3,100.82	18,267.6	9,147.40	0.00	0.00	0.038
5.00	-55.06	-2.16	0.00	-251.88	0.00	251.88	6,145.05	3,072.53	17,781.1	8,903.77	0.00	-0.01	0.037
10.00	-53.24	-2.11	0.00	-241.08	0.00	241.08	6,086.60	3,043.30	17,295.1	8,660.43	0.01	-0.01	0.037
15.00	-51.46	-2.06	0.00	-230.52	0.00	230.52	6,026.28	3,013.14	16,810.0	8,417.51	0.03	-0.02	0.036
20.00	-49.63	-2.00	0.00	-220.22	0.00	220.22	5,964.08	2,982.04	16,326.1	8,175.18	0.05	-0.02	0.035
25.00	-47.90	-1.94	0.00	-210.21	0.00	210.21	5,900.01	2,950.01	15,843.6	7,933.57	0.08	-0.03	0.035
30.00	-46.19	-1.89	0.00	-200.48	0.00	200.48	5,834.07	2,917.04	15,362.8	7,692.84	0.11	-0.04	0.034
35.00	-44.50	-1.83	0.00	-191.05	0.00	191.05	5,766.26	2,883.13	14,884.1	7,453.12	0.15	-0.04	0.033
40.00	-42.85	-1.77	0.00	-181.92	0.00	181.92	5,696.58	2,848.29	14,407.7	7,214.56	0.20	-0.05	0.033
45.00	-40.16	-1.66	0.00	-173.09	0.00	173.09	5,625.02	2,812.51	13,933.9	6,977.32	0.25	-0.05	0.032
50.00	-38.57	-1.60	0.00	-164.78	0.00	164.78	5,551.60	2,775.80	13,463.0	6,741.53	0.31	-0.06	0.031
53.00	-37.99	-1.58	0.00	-159.98	0.00	159.98	4,466.37	2,233.18	10,853.4	5,434.80	0.35	-0.06	0.038
55.00	-36.57	-1.52	0.00	-156.82	0.00	156.82	4,445.78	2,222.89	10,710.8	5,363.40	0.37	-0.07	0.037
60.00	-35.16	-1.47	0.00	-149.19	0.00	149.19	4,392.99	2,196.49	10,355.0	5,185.21	0.45	-0.07	0.037
65.00	-33.77	-1.42	0.00	-141.84	0.00	141.84	4,338.33	2,169.16	10,000.3	5,007.61	0.53	-0.08	0.036
70.00	-32.41	-1.38	0.00	-134.73	0.00	134.73	4,281.80	2,140.90	9,647.15	4,830.75	0.62	-0.09	0.035
75.00	-31.07	-1.34	0.00	-127.85	0.00	127.85	4,223.39	2,111.70	9,295.72	4,654.77	0.71	-0.10	0.035
80.00	-29.75	-1.31	0.00	-121.17	0.00	121.17	4,163.12	2,081.56	8,946.35	4,479.82	0.82	-0.10	0.034
85.00	-28.45	-1.29	0.00	-114.64	0.00	114.64	4,100.97	2,050.48	8,599.32	4,306.05	0.93	-0.11	0.034
90.00	-28.09	-1.29	0.00	-108.19	0.00	108.19	4,036.95	2,018.47	8,254.94	4,133.61	1.05	-0.12	0.033
91.42	-26.66	-1.28	0.00	-106.37	0.00	106.37	4,018.47	2,009.23	8,157.89	4,085.01	1.09	-0.12	0.033
95.00	-25.48	-1.28	0.00	-101.78	0.00	101.78	3,971.06	1,985.53	7,913.50	3,962.63	1.18	-0.13	0.032
98.00	-25.03	-1.29	0.00	-97.93	0.00	97.93	3,074.73	1,537.36	6,126.65	3,067.88	1.26	-0.13	0.040
100.00	-23.92	-1.31	0.00	-95.35	0.00	95.35	3,057.08	1,528.54	6,027.83	3,018.39	1.32	-0.14	0.039
105.00	-22.83	-1.33	0.00	-88.82	0.00	88.82	3,011.64	1,505.82	5,781.46	2,895.03	1.46	-0.15	0.038
110.00	-21.76	-1.37	0.00	-82.15	0.00	82.15	2,964.33	1,482.16	5,536.34	2,772.28	1.62	-0.15	0.037
115.00	-20.71	-1.40	0.00	-75.32	0.00	75.32	2,915.15	1,457.57	5,292.74	2,650.30	1.79	-0.16	0.036
120.00	-17.64	-1.49	0.00	-68.33	0.00	68.33	2,864.09	1,432.05	5,050.96	2,529.23	1.96	-0.17	0.033
125.00	-16.84	-1.51	0.00	-60.88	0.00	60.88	2,811.17	1,405.58	4,811.29	2,409.22	2.15	-0.18	0.031
129.00	-16.58	-1.51	0.00	-54.85	0.00	54.85	2,767.48	1,383.74	4,621.27	2,314.07	2.31	-0.19	0.030
130.00	-15.62	-1.52	0.00	-53.34	0.00	53.34	2,756.37	1,378.18	4,574.03	2,290.41	2.35	-0.19	0.029
135.00	-15.05	-1.53	0.00	-45.72	0.00	45.72	2,699.70	1,349.85	4,339.46	2,172.95	2.55	-0.20	0.027
138.00	-12.33	-1.51	0.00	-41.14	0.00	41.14	2,664.80	1,332.40	4,200.13	2,103.19	2.68	-0.21	0.024
139.33	-12.16	-1.51	0.00	-39.13	0.00	39.13	2,649.07	1,324.54	4,138.57	2,072.36	2.74	-0.21	0.023
140.00	-11.02	-1.48	0.00	-38.12	0.00	38.12	2,641.16	1,320.58	4,107.88	2,056.99	2.77	-0.21	0.023
144.42	-10.93	-1.48	0.00	-31.58	0.00	31.58	1,927.04	963.52	2,958.38	1,481.39	2.97	-0.22	0.027
145.00	-10.49	-1.46	0.00	-30.72	0.00	30.72	1,922.70	961.35	2,940.04	1,472.21	2.99	-0.22	0.026
148.00	-7.83	-1.33	0.00	-26.33	0.00	26.33	1,899.96	949.98	2,845.93	1,425.08	3.13	-0.22	0.023
150.00	-7.17	-1.28	0.00	-23.68	0.00	23.68	1,884.42	942.21	2,783.42	1,393.78	3.22	-0.22	0.021
155.00	-6.52	-1.21	0.00	-17.28	0.00	17.28	1,844.28	922.14	2,628.12	1,316.02	3.46	-0.23	0.017
160.00	-3.40	-0.82	0.00	-11.23	0.00	11.23	1,802.26	901.13	2,474.43	1,239.06	3.70	-0.23	0.011
163.00	-3.21	-0.79	0.00	-8.78	0.00	8.78	1,776.15	888.08	2,383.11	1,193.33	3.85	-0.24	0.009
165.00	-3.05	-0.76	0.00	-7.20	0.00	7.20	1,758.37	879.19	2,322.64	1,163.05	3.95	-0.24	0.008
167.00	-2.09	-0.58	0.00	-5.68	0.00	5.68	1,740.29	870.15	2,262.53	1,132.94	4.05	-0.24	0.006
170.00	-1.70	-0.49	0.00	-3.93	0.00	3.93	1,712.61	856.30	2,173.05	1,088.14	4.20	-0.24	0.005
175.00	-1.43	-0.42	0.00	-1.47	0.00	1.47	1,664.97	832.49	2,025.94	1,014.48	4.46	-0.24	0.002
178.50	0.00	-0.41	0.00	0.00	0.00	0.00	1,630.52	815.26	1,924.60	963.73	4.63	-0.24	0.000

Site Number: 302467

Code: ANSI/TIA-222-G

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Site Name: Bilkays Express, CT

Engineering Number: OAA735639\_C3\_01

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Customer: T-MOBILE

### Analysis Summary

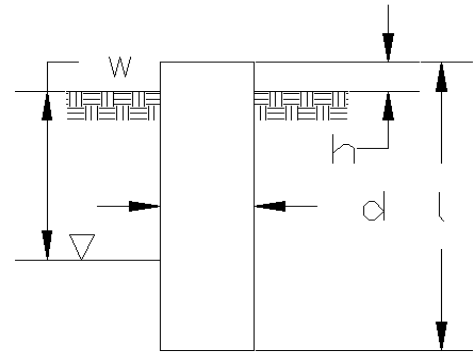
Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	36.62	0.00	81.86	0.00	0.00	4493.75	0.00	0.50
0.9D + 1.6W	36.05	0.00	61.39	0.00	0.00	4389.03	0.00	0.49
1.2D + 1.0Di + 1.0Wi	10.03	0.00	132.03	0.00	0.00	1215.18	0.00	0.15
(1.2 + 0.2Sds) * DL + E ELFM	2.07	0.00	81.88	0.00	0.00	281.38	0.00	0.04
(1.2 + 0.2Sds) * DL + E EMAM	2.19	0.00	81.88	0.00	0.00	265.99	98.00	0.04
(0.9 - 0.2Sds) * DL + E ELFM	2.07	0.00	56.89	0.00	0.00	278.24	0.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	2.19	0.00	56.89	0.00	0.00	262.84	98.00	0.04
1.0D + 1.0W	8.62	0.00	68.24	0.00	0.00	1053.16	0.00	0.13

Site Name: Bilkays Express, CT  
 Site Number: 302467  
 Engineer: Peter.Giordano  
 Engineering Number: OAA735639  
 Date: 07/06/18

Program Last Updated: 5/13/2014  
 American Tower Corporation

**Design Base Loads (Factored) - Analysis per TIA-222-G Standards**

Analyze or Design a Foundation? Analyze  
 Foundation Mapped: N  
 Moment (M): 4493.8 k-ft  
 Shear/Leg (V): 36.6 k  
 Axial Load (P): 81.9 k  
 Uplift/Leg (U): 0.0 k  
 Tower Type (GT / SST / MP): MP



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): 6.0 ft  
 Unit Weight of Concrete: 150.0 pcf  
 Unit Weight of Water: 62.4 pcf  
 Tension Skin Friction/Compression Skin Friction: 0.75  
 Pullout Angle: 30.0 degrees

**Engineer Notes**

**Soil Mechanical Properties**

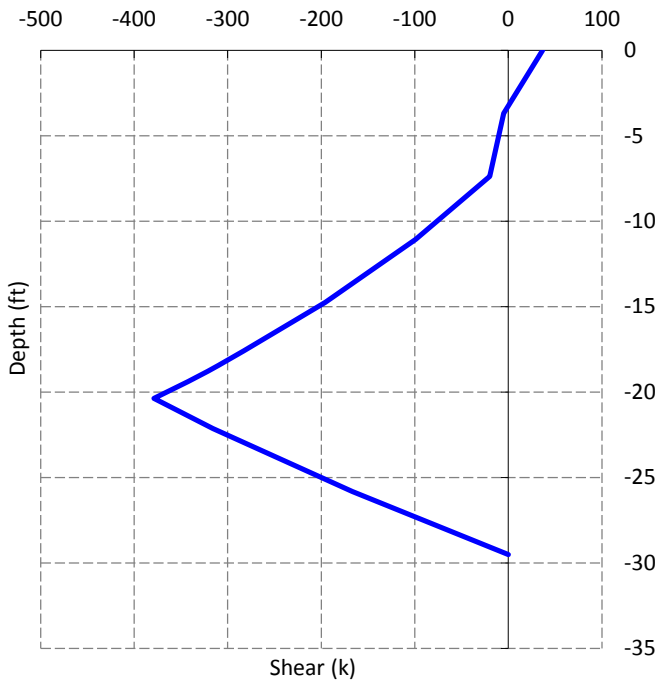
Depth (ft)		$\gamma_{\text{Soil}}$	Cohesion	$\phi$	Ultimate Skin	Ultimate Bearing
Top	Bottom	(pcf)	(psf)	(degree)	Friction (psf)	Pressure (psf)
0.0	5.0	120	0	0	0	0
5.0	15.0	122	0	34	480	0
15.0	20.0	122	0	34	690	0
20.0	30.5	122	0	34	820	5000

Required Embedment: 21.8 ft - OK, Caisson Embedment Satisfactory  
 Volume of Concrete: 1702.4 ft<sup>3</sup> = 63.1 yd<sup>3</sup>  
 Weight of Concrete (Buoyancy Effect Considered): 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 ( $\phi_s T_n$ ): 370.0 k  
 Nominal Compressive Capacity per Leg ( $\phi_s P_n$ ): 534.0 k  
 $P_u$ : 138.8 k  
 $T_u / \phi_s T_n$ : 0.00 Result: OK  
 $P_u / \phi_s P_n$ : 0.26 Result: OK  
 Total Lateral Resistance: 2700.8 k  
 Inflection Point (Below Ground Surface): 20.4 ft  
 Design Overturning Moment At Inflection Point ( $M_D$ ): 5257.4 k-ft  
 Nominal Moment Capacity ( $\phi_s M_n$ ): 11292.1 k-ft  
 $M_D / \phi_s M_n$ : 0.47 Result: OK  
 $\phi_s$ : 0.75

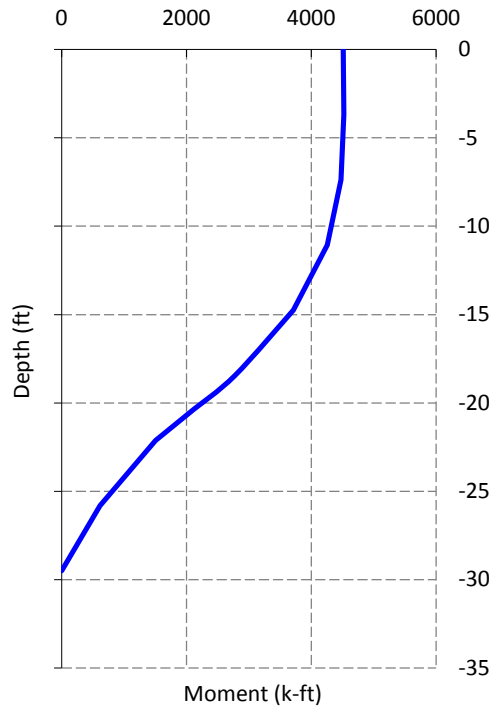
## Caisson Strength Capacity

Concrete Compressive Strength ( $f'_c$ ):	3000 psi
Vertical Steel Rebar Size #:	11
Vertical Steel Rebar Area:	1.56 in <sup>2</sup>
# 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 <sup>2</sup>
Design Horizontal Tie / Stirrup Spacing:	18.0 in
Horizontal Tie / Stirrup Steel Yield Strength ( $F_y$ ):	60 ksi
Rebar Cage Diameter:	94.0 in
Strength Bending/Tension Reduction Factor ( $\phi_B$ ):	0.90 ACI318-05 - 9.3.2.1
Strength Shear Reduction Factor ( $\phi_V$ ):	0.85 ACI318-05 - 9.3.2.3
Strength Compression Reduction Factor ( $\phi_P$ ):	0.65 ACI318-05 - 9.3.2.2
Steel Elastic Modulus:	29000 ksi
Design Moment ( $M_u$ ):	4521.8 k-ft
Nominal Moment Capacity ( $\phi_B M_n$ ):	8066.2 k-ft - ACI318-005 - 10.2
$M_u / \phi_B M_n$ :	0.56 Result: OK
Design Shear ( $V_u$ ):	378.8 k
Nominal Shear Capacity ( $\phi_V V_n$ ):	764.7 k - ACI318-05 - 11.3.1.1 or 11.5.7.2
$V_u / \phi_V V_n$ :	0.50 Result: OK
Design Tension ( $T_u$ ):	0.0 k
Nominal Tension Capacity ( $\phi_T T_n$ ):	2274.5 k - ACI318-05 - 10.2
$T_u / \phi_T T_n$ :	0.00 Result: OK
Design Compression ( $P_u$ ):	138.8 k
Nominal Compression Capacity ( $\phi_P P_n$ ):	10779.3 k - ACI318-05 - 10.3.6.2
$P_u / \phi_P P_n$ :	0.01 Result: OK
Bending Reinforcement Ratio:	0.005 ACI318-05 - 10.8.4 & 10.9.1
$M_u / \phi_B M_n + T_u / \phi_T T_n$ :	0.56 Result: OK

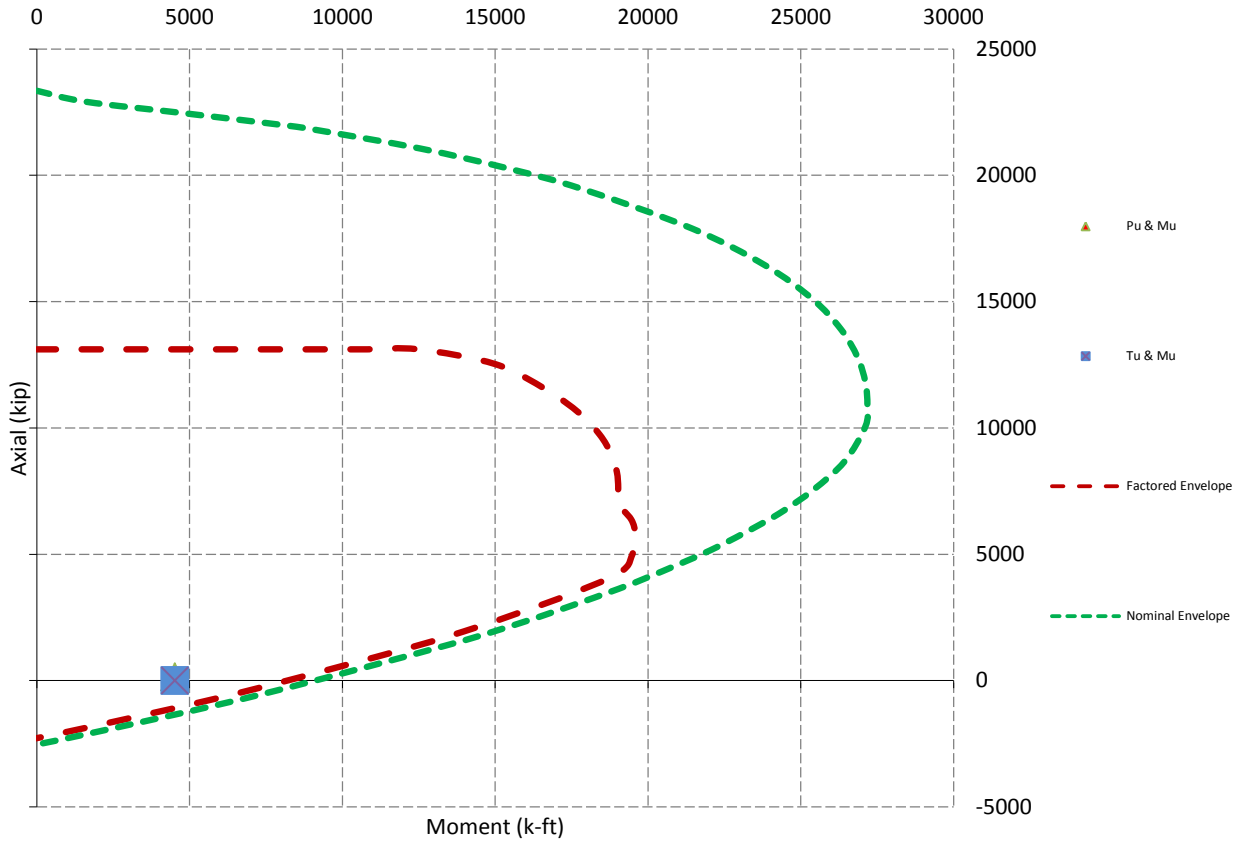
Design Factored Shear / Depth



Design Factored Moment / Depth



Nominal and Factored Moment Capacity and Factored Design Loads





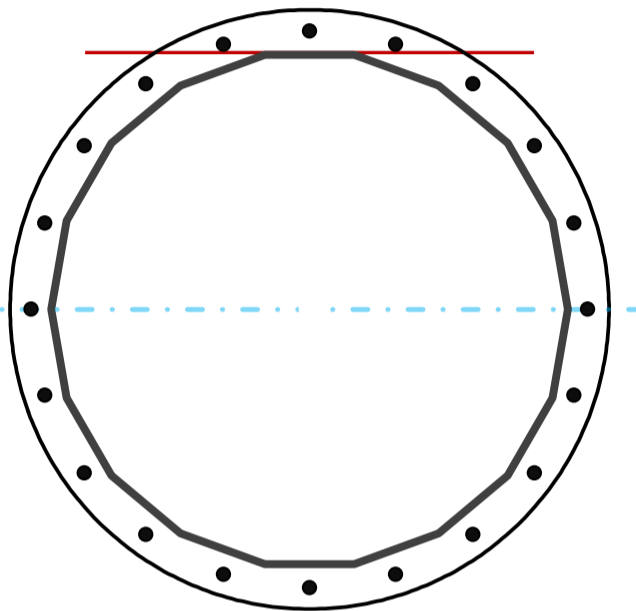
## Base Plate & Anchor Rod Analysis

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

Base Reactions		
Moment, Mu	4493.8	k-ft
Axial, Pu	81.9	k
Shear, Vu	36.6	k
Neutral Axis	0	°

Report Capacities		
Component	Capacity	Result
Base Plate	20%	Pass
Anchor Rods	54%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, $\phi$	85	in
Thickness	2 3/4	in
Grade	Other	-
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	860.5	k
Bending Stress, $\phi Mn$	4411.7	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	20	-
Diameter, $\phi$	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	140.6	k
Anchor Rods, $\phi Pn$	259.8	k

# Calculations for Monopole Base Plate & Anchor Rod Analysis

## Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	36.6	4493.8	1.00
Anchor Rod Forces	36.6	4493.8	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 <sup>2</sup>	in <sup>2</sup>	in <sup>4</sup>	#	in <sup>4</sup>
Pole	97.8602	5.4367	0.3479		62651.39
Bolt	3.9761	3.2477	0.8393	4.5	50688.86
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	140.6	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	259.8	k
Tensile Capacity, φRnt	0.541	OK
Interaction Capacity	0.541	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	0.0	k
Applied Horizontal Force, Vu	0.00	k

External Base Plate		
Chord Length AA	37.712	in
Additional AA	5.500	in
Section Modulus, Z	81.698	in <sup>3</sup>
Applied Moment, Mu	860.5	k-ft
Bending Capacity, φMn	4411.7	k-ft
Capacity, Mu/φMn	0.195	OK
Chord Length AB	35.495	in
Additional AB	5.500	in
Section Modulus, Z	77.506	in <sup>3</sup>
Applied Moment, Mu	632.9	k-ft
Bending Capacity, φMn	4185.3	k-ft
Capacity, Mu/φMn	0.151	OK

Additional Bolt Group 1		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	0.0	k
Compressive Capacity, φPn		
Interaction Capacity		

Vertical Weld		
Vert.-to-Stiffener a=e <sub>x</sub> /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Compressive Capacity, φPn	#DIV/0!	k
Vert.-to-Plate a=e <sub>x</sub> /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, φVn	#DIV/0!	k
P <sub>u</sub> /φ <sub>p</sub> P <sub>n</sub> + V <sub>u</sub> /φ <sub>v</sub> V <sub>n</sub>	-	

Bend Line Length	43.694	in
Additional Bend Line	0.000	in
Section Modulus, Z	82.609	in <sup>3</sup>
Applied Moment, Mu	860.5	k-ft
Bending Capacity, φMn	4460.9	k-ft
Capacity, Mu/φMn	0.193	OK

Additional Bolt Group 2		
Bolt Quantity, N	0	-
Bolt Diameter, d	0	in
Bolt Circle, BC	0	in
Yield Strength, Fy	0	ksi
Tensile Strength, Fu	0	ksi
Applied Axial, Pu	0.0	k
Applied Shear, Vu	0.0	k
Compressive Capacity, φPn	0.0	k
Compressive Capacity, φPn		
Interaction Capacity		

Horizontal Weld		
Horz.-to-Stiffener a=e <sub>x</sub> /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Effective Fillet	0.000	in
Compressive Capacity, φPn	#DIV/0!	k
Horz.-to-Pole a=e <sub>x</sub> /l	#DIV/0!	-
Spacing Ratio, k	#DIV/0!	-
Weld Coefficient, C	#DIV/0!	-
Shear Capacity, φVn	#DIV/0!	k
P <sub>u</sub> /φ <sub>p</sub> P <sub>n</sub> + V <sub>u</sub> /φ <sub>v</sub> V <sub>n</sub>	-	

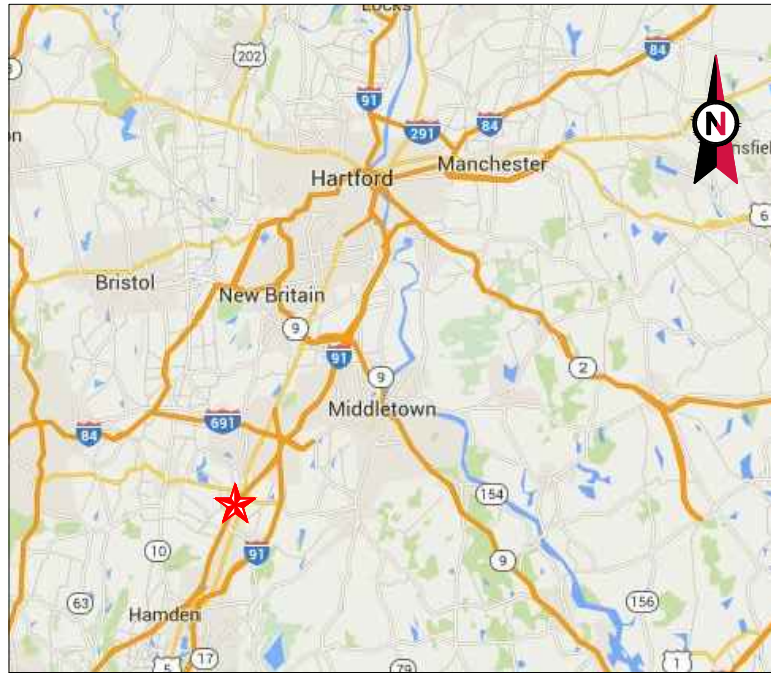
Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in <sup>3</sup>
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, φMn	0.0	k-ft
Capacity, Mu/φMn		

Dywidag Reinforcement		
Dywidag Quantity, N	0	-
Dywidag Diameter, d	2.5	in
Bolt Circle, BC	78.88	in
Yield Strength, Fy	80	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	0.0	k
Compressive Capacity, φPn	0.0	k
Capacity, Pu/φPn		

Plate Tension		
Gross Cross Section	0.000	in <sup>2</sup>
Net Cross Section	0.000	in <sup>2</sup>
Tensile Capacity, φTn	0.0	k
Capacity, Tu/φTn	-	

Plate Compression		
Radius of Gyration	#DIV/0!	in <sup>3</sup>
kl/r	#DIV/0!	-
4.71 √(E/Fy)	0.00	-
Buckling Stress(F <sub>e</sub> )	0.0	-
Crit. Buckling Stress(F <sub>cr</sub> )	0.0	ksi
Compressive Capacity, φPn	0.0	k
Capacity, Pu/φPn	-	





VICINITY MAP



**AMERICAN TOWER®**

ATC SITE NAME: BILKAYS EXPRESS  
 ATC SITE NUMBER: 302467  
 T-MOBILE SITE ID: CT11654A  
 SITE ADDRESS: 90 N PLAINS INDUSTRIAL RD.  
 WALLINGFORD, CT 06492



LOCATION MAP

**T-MOBILE ANTENNA AMENDMENT  
 67D92DB CONFIGURATION**

**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	AMM	08/29/18
1	REV ANT POSITION	AMM	09/11/18

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

SEAL:



DRAWN BY:	AMM
APPROVED BY:	KRF
DATE DRAWN:	08/29/18
ATC JOB NO:	12607179

**TITLE SHEET**

SHEET NUMBER:	REVISION:
<b>G-001</b>	<b>1</b>

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 N 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 (6) PANELS, (3) RRU's  INSTALL (6) NEW PANELS, (3) RRU's, (2) 1-1/4" HYBRID CABLES  EXISTING (3) PANELS, (3) TTAs, (12) 1-5/8" COAX, (1) 1-1/4" HYBRID CABLE TO REMAIN	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
		<u>PROJECT NOTES</u> 1. THE FACILITY IS UNMANNED. 2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE. 3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE. 4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED. 5. HANDICAP ACCESS IS NOT REQUIRED.	G-001	TITLE SHEET	1	09/11/18	AMM
	<u>UTILITY COMPANIES</u> POWER COMPANY: WALLINGFORD ELECTRIC PHONE: (203) 265-5055  TELEPHONE COMPANY: FRONTIER COMMUNICATIONS PHONE: (800) 921-8102	<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>PROJECT LOCATION DIRECTIONS</u>  FROM HARTFORD, CT:  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.					



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**GENERAL CONSTRUCTION NOTES:**

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC MASTER SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE WIRELESS REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE WIRELESS REP PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE 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 T-MOBILE 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 T-MOBILE 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 T-MOBILE 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 T-MOBILE 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 T-MOBILE WIRELESS REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE WIRELESS MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
21. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE WIRELESS SPECIFICATIONS AND REQUIREMENTS.
22. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE WIRELESS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
23. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE 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 T-MOBILE 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 T-MOBILE WIRELESS REP. ANY WORK FOUND BY THE T-MOBILE 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	AMM	08/29/18

ATC SITE NUMBER:

**302467**

ATC SITE NAME:

**BILKAYS EXPRESS**

SITE ADDRESS:

90 N PLAINS INDUSTRIAL RD.  
 WALLINGFORD, CT 06492

SEAL:



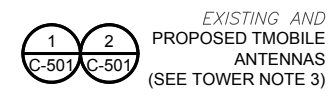
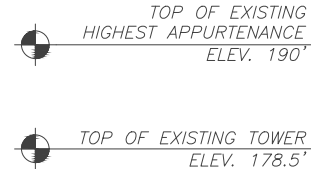
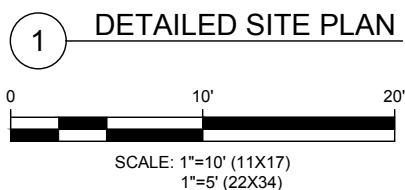
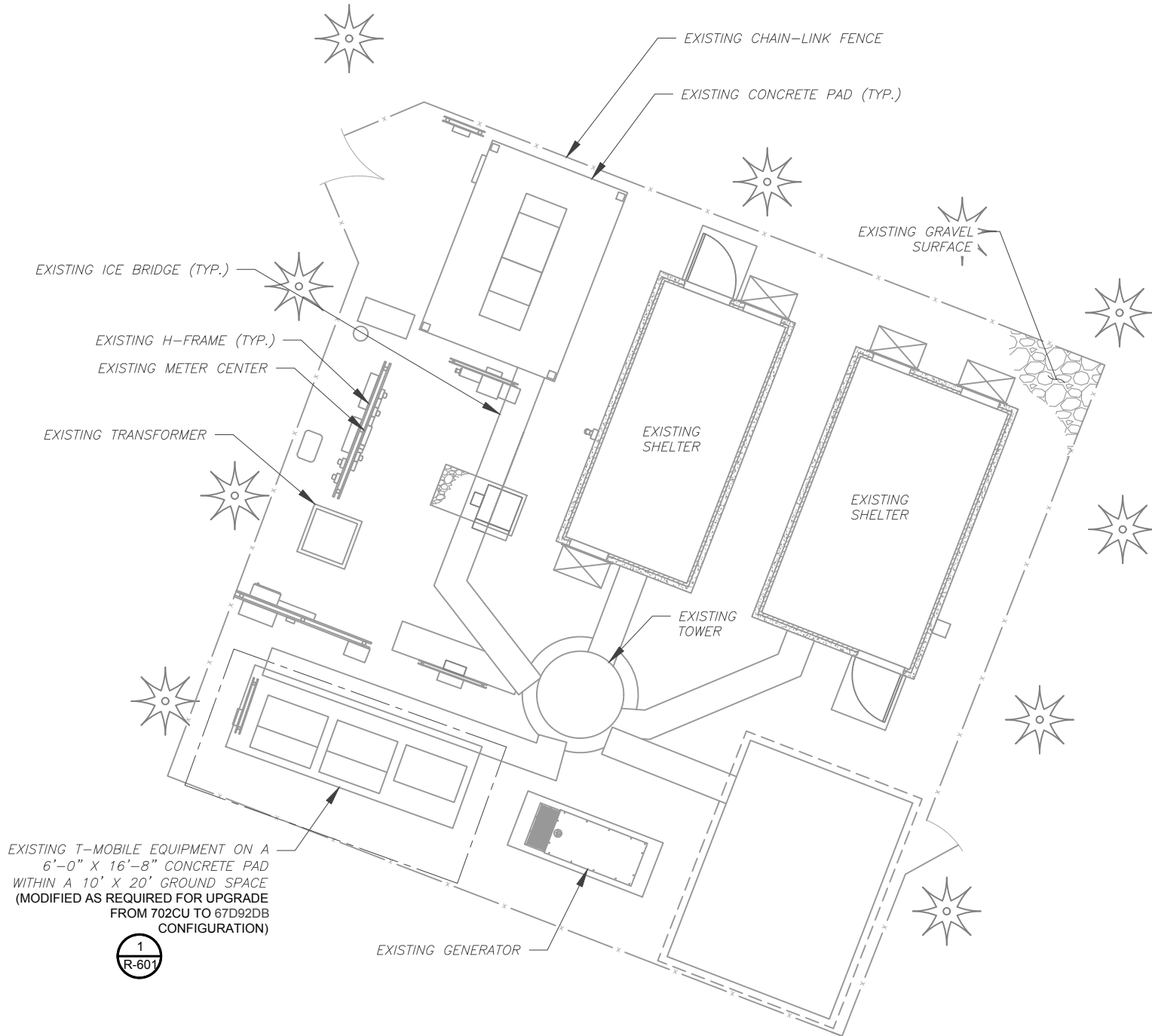
DRAWN BY:	AMM
APPROVED BY:	KRF
DATE DRAWN:	08/29/18
ATC JOB NO:	12607179

**GENERAL NOTES**

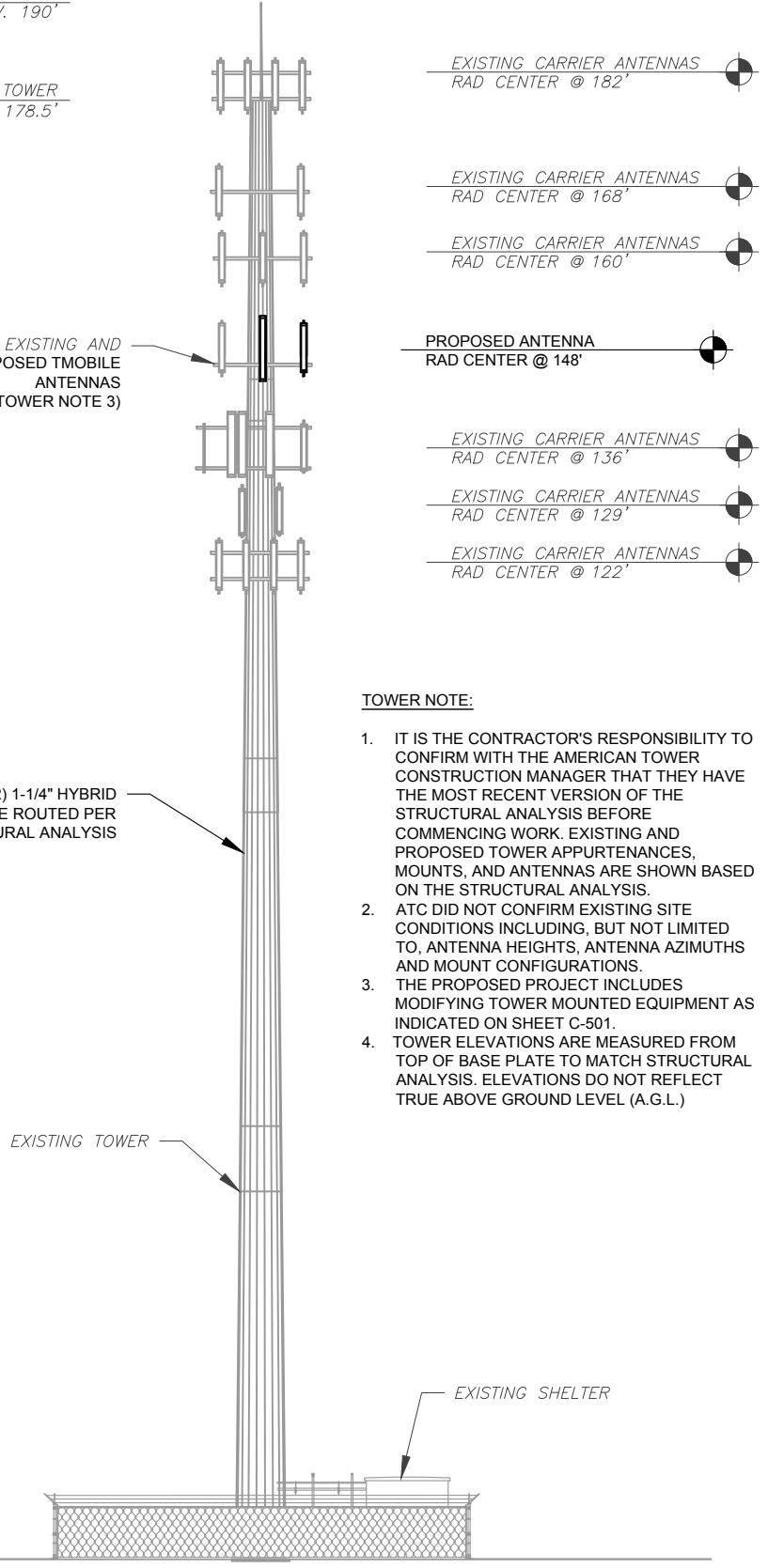
SHEET NUMBER:	REVISION:
<b>G-002</b>	<b>0</b>

**SITE PLAN NOTES:**

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



PROPOSED (2) 1-1/4" HYBRID CABLES TO BE ROUTED PER STRUCTURAL ANALYSIS



**TOWER NOTE:**

1. 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.
2. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATIONS.
3. THE PROPOSED PROJECT INCLUDES MODIFYING TOWER MOUNTED EQUIPMENT AS INDICATED ON SHEET C-501.
4. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

2 TOWER ELEVATION  
 SCALE: NOT TO SCALE

**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	AMM	08/29/18
1	REV ANT POSITION	AMM	09/11/18

ATC SITE NUMBER:  
**302467**

ATC SITE NAME:  
**BILKAYS EXPRESS**

SITE ADDRESS:  
 90 N PLAINS INDUSTRIAL RD.  
 WALLINGFORD, CT 06492

SEAL:

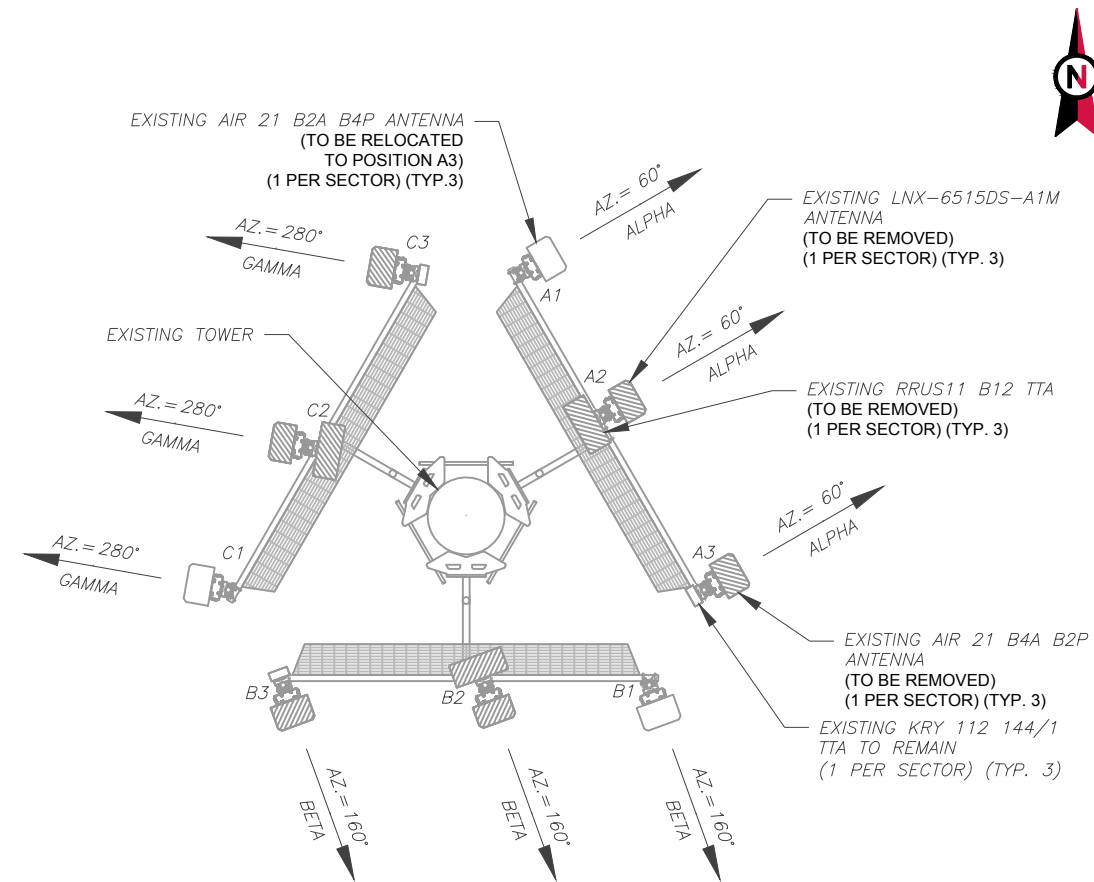


DRAWN BY:	AMM
APPROVED BY:	KRF
DATE DRAWN:	08/29/18
ATC JOB NO:	12607179

**DETAILED SITE PLAN & TOWER ELEVATION**

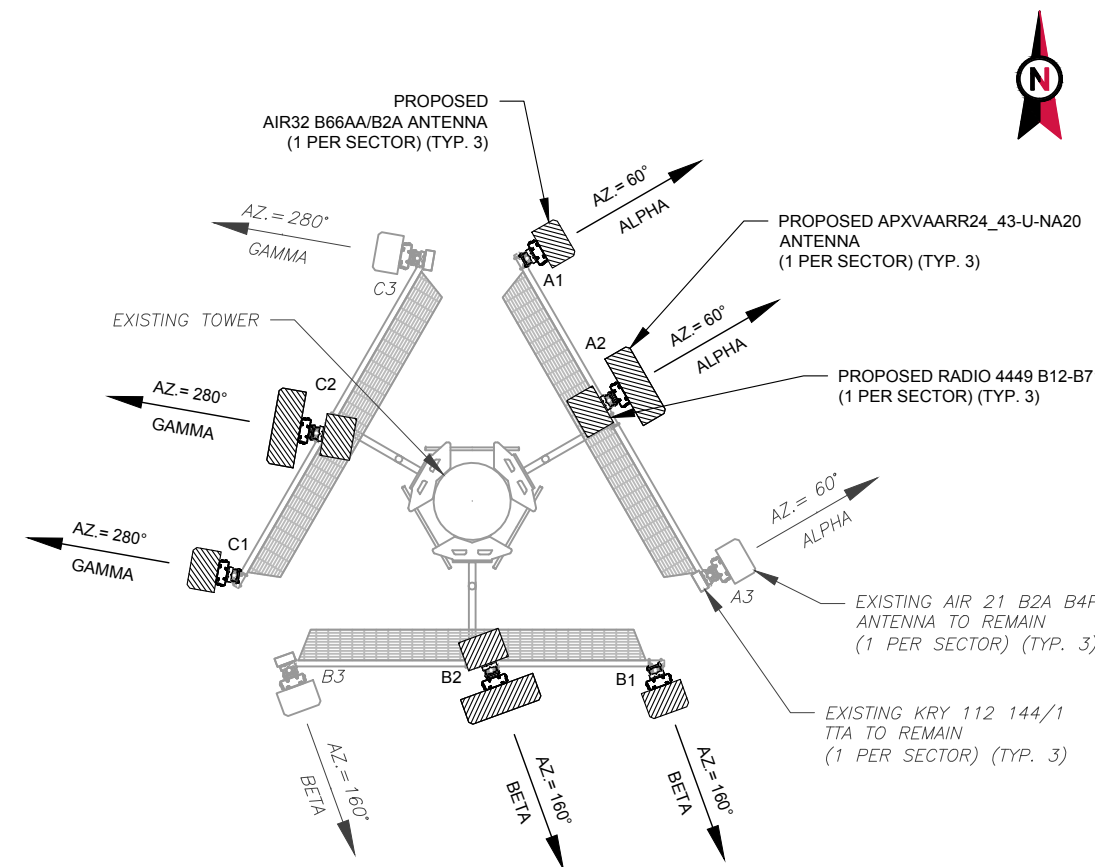
SHEET NUMBER:	REVISION:
<b>C-101</b>	<b>1</b>

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**1** EXISTING ANTENNA PLAN

- NOTES:
- ATC HAS NOT YET VERIFIED ANY EXISTING ANTENNA CONFIGURATION OR MOUNT CONFIGURATION. CONTRACTOR TO VERIFY MOUNT CONFIGURATION HAS SUFFICIENT SPACE FOR PROPOSED LESSEE EQUIPMENT (I.E. CLEARANCES, MOUNT PIPE OR SUFFICIENT LENGTH, ETC.) ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.



**2** FINAL ANTENNA PLAN

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

EXISTING ANTENNA/ COAX SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT	ANTENNA COAX DESCRIPTION
ALPHA	A1	AIR 21 B2A B4P	148'-0"	60°	0°	2"	-	(2) 1-5/8"
ALPHA	A2	LNx-6515DS-A1M	148'-0"	60°	0°	2"	RRUS11 B12	1-5/8"
ALPHA	A3	AIR 21 B4A B2P	148'-0"	60°	0°	4"	KRY 112 144/1	1-5/8"
BETA	B1	AIR 21 B2A B4P	148'-0"	160°	0°	2"	-	(2) 1-5/8"
BETA	B2	LNx-6515DS-A1M	148'-0"	160°	0°	2"	RRUS11 B12	1-5/8"
BETA	B3	AIR 21 B4A B2P	148'-0"	160°	0°	4"	KRY 112 144/1	1-5/8"
GAMMA	C1	AIR 21 B2A B4P	148'-0"	280°	0°	2"	-	(2) 1-5/8"
GAMMA	C2	LNx-6515DS-A1M	148'-0"	280°	0°	2"	RRUS11 B12	1-5/8"
GAMMA	C3	AIR 21 B4A B2P	148'-0"	280°	0°	2"	KRY 112 144/1	1-5/8"

1. (1) EXISTING 1-1/4" HYBRID CABLE TO REMAIN

FINAL ANTENNA/ COAX SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT	ANTENNA COAX DESCRIPTION
ALPHA	A1	AIR32 B66AA/B2A	148'-0"	60°	0°	-	-	(2) 1-5/8"
ALPHA	A2	APXVAARR24_43-U-NA20	148'-0"	60°	0°	-	RADIO 4449 B12-B71	1-5/8"
ALPHA	A3	AIR 21 B2A B4P	148'-0"	60°	0°	-	KRY 112 144/1	1-5/8"
BETA	B1	AIR32 B66AA/B2A	148'-0"	160°	0°	-	-	(2) 1-5/8"
BETA	B2	APXVAARR24_43-U-NA20	148'-0"	160°	0°	-	RADIO 4449 B12-B71	1-5/8"
BETA	B3	AIR 21 B2A B4P	148'-0"	160°	0°	-	KRY 112 144/1	1-5/8"
GAMMA	C1	AIR32 B66AA/B2A	148'-0"	280°	0°	-	-	(2) 1-5/8"
GAMMA	C2	APXVAARR24_43-U-NA20	148'-0"	280°	0°	-	RADIO 4449 B12-B71	1-5/8"
GAMMA	C3	AIR 21 B2A B4P	148'-0"	280°	0°	-	KRY 112 144/1	1-5/8"

- BASED ON APPROVED ATC APPLICATION OAA12605180, DATED 08-15-2018. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS.
- (2) PROPOSED 1-1/4" HYBRID CABLE (187±)
- (1) EXISTING 1-1/4" HYBRID CABLE TO REMAIN

**3** ANTENNA SCHEDULE

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 CARY, NC 27518  
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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AMM	08/29/18
1	REV ANT POSITION	AMM	09/11/18

ATC SITE NUMBER:

**302467**

ATC SITE NAME:

**BILKAYS EXPRESS**

SITE ADDRESS:

90 N PLAINS INDUSTRIAL RD.  
 WALLINGFORD, CT 06492

SEAL:

**T-Mobile®**

DRAWN BY:	AMM
APPROVED BY:	KRF
DATE DRAWN:	08/29/18
ATC JOB NO:	12607179

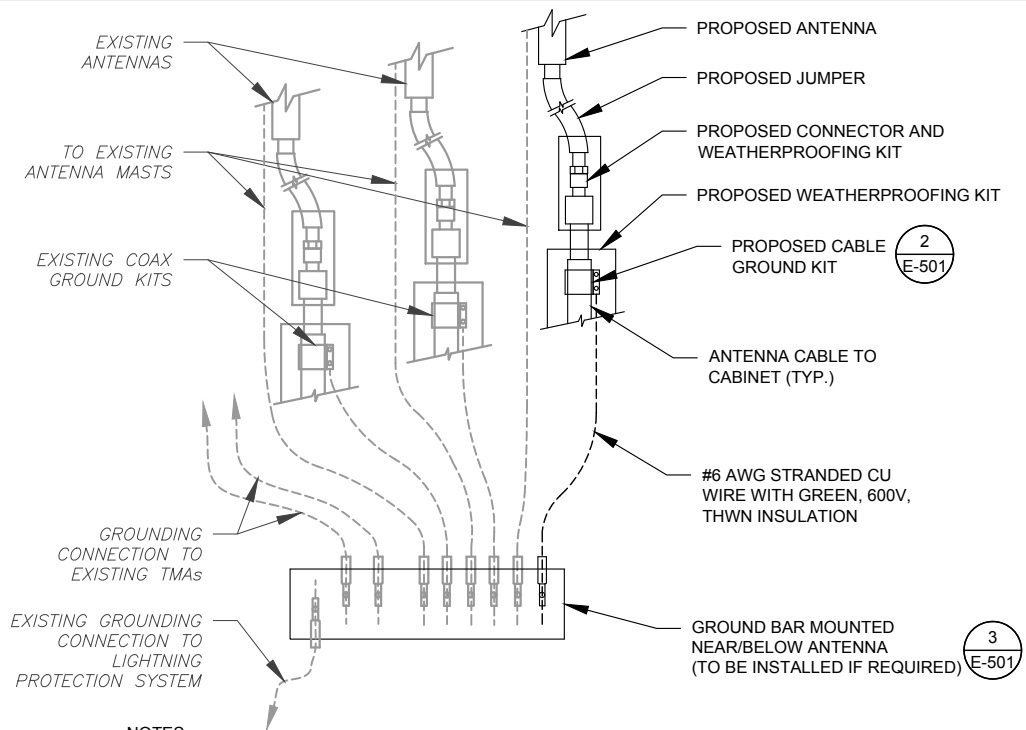
**ANTENNA INFORMATION & SCHEDULE**

SHEET NUMBER:

**C-501**

REVISION:

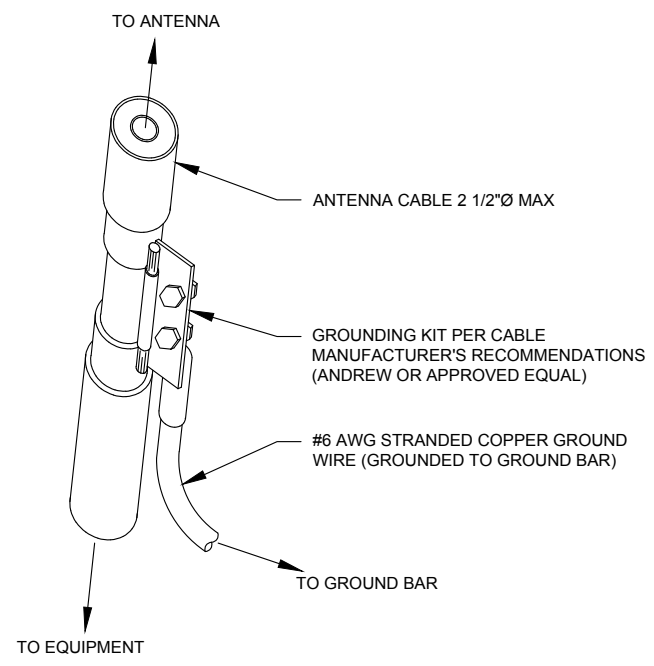
**1**



**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 T-MOBILE GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH T-MOBILE GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

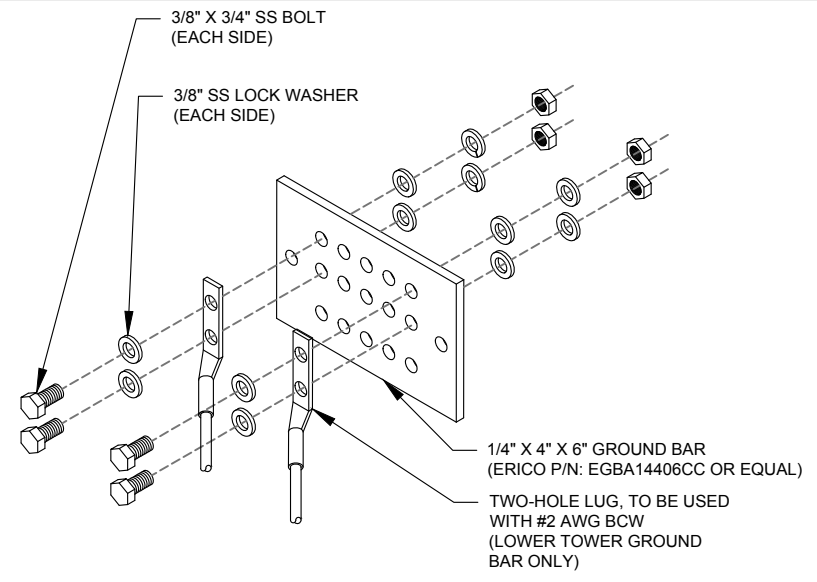
**1** TYPICAL ANTENNA GROUNDING DIAGRAM  
SCALE: NOT TO SCALE



**GROUND KIT NOTES:**

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

**2** CABLE GROUND KIT CONNECTION DETAIL  
SCALE: NOT TO SCALE



**GROUND BAR NOTES:**

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

**3** TOWER GROUND BAR DETAIL  
SCALE: NOT TO SCALE

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ATC SITE NUMBER:  
**302467**

ATC SITE NAME:  
**BILKAYS EXPRESS**

SITE ADDRESS:  
90 N PLAINS INDUSTRIAL RD.  
WALLINGFORD, CT 06492

SEAL:



DRAWN BY:	AMM
APPROVED BY:	KRF
DATE DRAWN:	08/29/18
ATC JOB NO:	12607179

**GROUNDING DETAILS**

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

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5/8/2018

CT11654A\_L600\_6.1\_draft\_2018-05-08

<b>RAN Template:</b> 67D92DB Outdoor	<b>A&amp;L Template:</b> 67D92DB_2xAIR+1OP	<b>Power System Template:</b> Custom
-----------------------------------------	-----------------------------------------------	-----------------------------------------

CT11654A\_L600\_6.1\_draft

**Section 5 - RAN Equipment**

Existing RAN Equipment			
Template: 702Cu Outdoor			
Enclosure	1	2	3
Enclosure Type	RBS 6131	S8000 Outdoor	S8000 Outdoor
Baseband	DU541 (L2100 L700)	DUW30 (U2100 U1900)	DUG20 (G1900)
Hybrid Cable System		Ericsson 9x18 HCS *Select Length*	
Multiplexer	XMU		
Radio	RU22 (x6) U2100		

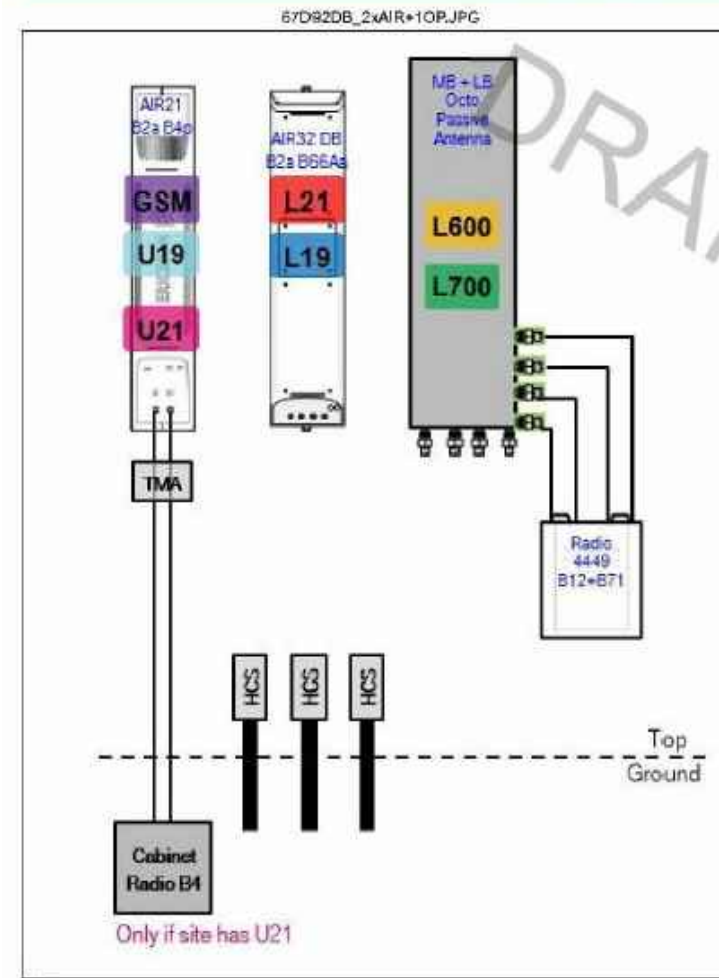
Proposed RAN Equipment	
Template: 67D92DB Outdoor	
Enclosure	1
Enclosure Type	RBS 6131
Baseband	DUW30 (U1900) DUW30 (U2100) DUG20 (G1900) BB 521R (L2100) (L1900) (L700) (L600)
Hybrid Cable System	Ericsson 9x18 HCS *Select Length* Ericsson 6x12 HCS *Select Length & AVG* Ericsson 6x12 HCS 6AVG 60m
Multiplexer	XMU
Radio	RU22 (x6) U2100

RAN Scope of Work:

5/8/2018

CT11654A\_L600\_6.1\_draft\_2018-05-08

**Section 3 - Proposed Template Images**



Notes:

1 CABINET CONFIGURATION  
SCALE: NOT TO SCALE

2 CABINET CONFIGURATION  
SCALE: NOT TO SCALE

SUPPLEMENTAL

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

NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

## Kyle Richers

---

**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Monday, September 24, 2018 9:07 AM  
**To:** krichers@transcendwireless.com  
**Subject:** UPS Delivery Notification, Reference Number 1: CT11654A elected official



### Your package has been delivered.

**Delivery Date:** Monday, 09/24/2018  
**Delivery Time:** 09:02 AM

At the request of TRANSCEND WIRELESS this notice alerts you that the status of the shipment listed below has changed.

## Shipment Detail

---

**Tracking Number:** [1ZV257424297932660](#)

**Ship To:** William W. Dickinson, Jr.  
Town of Wallingford  
45 S MAIN ST  
ROOM 3103  
WALLINGFORD, CT 06492  
US

**UPS Service:** UPS GROUND

**Number of Packages:** 1

**Weight:** 1.0 LBS

**Delivery Location:** FRONT DESK  
MEILE

**Signature Required:** A signature is required for package delivery

**Reference Number 1:** CT11654A elected official



[Download the UPS mobile app](#)

## Kyle Richers

---

**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Monday, September 24, 2018 11:37 AM  
**To:** krichers@transcendwireless.com  
**Subject:** UPS Delivery Notification, Reference Number 1: CT11654A property owner



### Your package has been delivered.

**Delivery Date:** Monday, 09/24/2018  
**Delivery Time:** 11:34 AM

At the request of TRANSCEND WIRELESS this notice alerts you that the status of the shipment listed below has changed.

## Shipment Detail

---

<b>Tracking Number:</b>	<a href="#">1ZV257424297602650</a>
<b>Ship To:</b>	RLR Investments LLC 600 GILLIAM RD WILMINGTON, OH 45177 US
<b>UPS Service:</b>	UPS GROUND
<b>Number of Packages:</b>	1
<b>Weight:</b>	1.0 LBS
<b>Delivery Location:</b>	FRONT DESK CAPTAIN
<b>Signature Required:</b>	A signature is required for package delivery
<b>Reference Number 1:</b>	CT11654A property owner



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## Kyle Richers

---

**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Tuesday, September 25, 2018 1:38 PM  
**To:** krichers@transcendwireless.com  
**Subject:** UPS Delivery Notification, Reference Number 1: CT11654A Zoning



### Your package has been delivered.

**Delivery Date:** Tuesday, 09/25/2018  
**Delivery Time:** 01:33 PM

At the request of TRANSCEND WIRELESS this notice alerts you that the status of the shipment listed below has changed.

## Shipment Detail

---

**Tracking Number:** [1ZV257424298282674](#)

**Ship To:** Kacie Hand  
Town of Wallingford  
45 S MAIN ST  
ROOM G40  
WALLINGFORD, CT 06492  
US

**UPS Service:** UPS GROUND

**Number of Packages:** 1

**Weight:** 1.0 LBS

**Delivery Location:** FRONT DESK  
SMART

**Signature Required:** A signature is required for package delivery

**Reference Number 1:** CT11654A Zoning



[Download the UPS mobile app](#)

## Kyle Richers

---

**From:** UPS Quantum View <pkginfo@ups.com>  
**Sent:** Wednesday, September 26, 2018 11:08 AM  
**To:** krichers@transcendwireless.com  
**Subject:** UPS Delivery Notification, Reference Number 1: CT11654A ATC



### Your package has been delivered.

**Delivery Date:** Wednesday, 09/26/2018  
**Delivery Time:** 11:01 AM

At the request of TRANSCEND WIRELESS this notice alerts you that the status of the shipment listed below has changed.

## Shipment Detail

---

<b>Tracking Number:</b>	<a href="#">1ZV257424297292647</a>
<b>Ship To:</b>	American Tower Corporation 10 PRESIDENTIAL WAY WOBURN, MA 01801 US
<b>UPS Service:</b>	UPS GROUND
<b>Number of Packages:</b>	1
<b>Weight:</b>	1.0 LBS
<b>Delivery Location:</b>	RECEIVER ANCRI
<b>Signature Required:</b>	A signature is required for package delivery
<b>Reference Number 1:</b>	CT11654A ATC



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