ROBINSON & COLE LLP

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts

February 21, 2014

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

Re: **Notice of Exempt Modification – Antenna Swap**
335 South Washington Street, Plainville, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 112-foot level of the existing 121-foot tower at 335 Washington Street in Plainville, Connecticut (the "Property"). The tower is owned by AT&T. The Council approved Cellco's use of the existing tower in 2004. Cellco now intends to modify its facility by replacing one (1) existing antenna with one (1) model 800 10735V01, 700 MHZ antenna and adding three (3) model BXA-171063-12CF, 2100 MHz antennas, for a total of fifteen (15) antennas, all at the same 112-foot level. Cellco also intends to install three (3) remote radio heads ("RRHs") behind its 2100 MHz antennas and one (1) HYBRIFLEX™ antenna cable attached to the outside of the tower. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cable.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Robert E. Lee, Town Manager of the Town of Plainville. A copy of this letter is also being sent to Display Properties, LLC, the owner of the Property.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. The replacement antennas and RRHs will be located on Cellco's existing platform at the 112-foot level on the tower.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for Cellco's modified facility is included in Attachment 2.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The tower and its foundation can support Cellco's proposed modifications. (*See* Structural Analysis included in Attachment 3).

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

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Robert E. Lee, Plainville Town Manager
Display Properties, LLC
Sandy M. Carter

ATTACHMENT 1

KATHREIN
SCALA DIVISION

800 10735V01

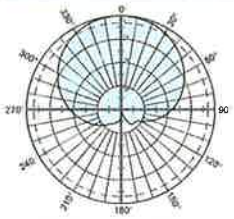
65° Single Band Panel Antenna, 6'

	Antenna
Single Band (MHz)	**698–894**
Dual Polarization	**X**
HPBW	**65°**
Adj. Electrical Downtilt Manual or optional remote control	**0°–10°**

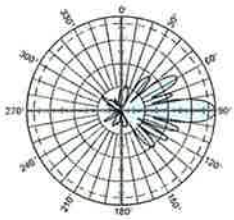
General specifications:

Frequency range	698–894 MHz
VSWR	<1.5:1
Impedance	50 ohms
Intermodulation (2x20w)	IM3: <-150 dBc
Polarization	+45° and -45°
Maximum input power	500 watts per input (at 50°C)
Connector	2 x 7-16 DIN female (long neck) (bottom mounted)
Isolation	>30 dB
Electrical downtilt	0–10 degrees (continuously adjustable)
See reverse for order information.	

698–894 MHz



Horizontal pattern
±45°- polarization



Vertical pattern
±45°- polarization
0°–10° electrical downtilt

Specifications:

	698–806 MHz	824–894 MHz
Gain	15.5 dBi	16 dBi
Front-to-back ratio	>30 dB (co-polar) 35 dB (average)	>30 dB (co-polar) 35 dB (average)
+45° and -45° polarization horizontal beamwidth	67° (half-power)	65° (half-power)
+45° and -45° polarization vertical beamwidth	11.3° (half-power)	10° (half-power)
Min. sidelobe suppression for first sidelobe above main beam	0° 5° 10° T	0° 5° 10° T
average	16 17 17 dB	18 17 16 dB
	16 19 20 dB	20 20 20 dB
Cross polar ratio Main direction 0° Sector ±60°	25 dB (typical) >11 dB, Average: 15 dB	25 dB (typical) >11 dB, Average: 15 dB

IRT specifications:

Logical interface ex factory[1]	3GPP/AISG 2.0
Protocols	AISG 1.1 and 3GPP/AISG 2.0 compliant
Hardware interface[2]	2 x 8 pin connector acc. IEC 60130-9; according to AISG: – IRT in (male): Control / Daisy chain in – IRT in (female): Daisy chain out
Power supply	10–30 V
Power consumption	<1 watt (standby) <8.5 watts (motor activated)
Adjustment time (full range)	40 sec.
Adjustment cycles	>50,000
Certification	FCC 15.107 Class B Computing Devices

[1] The protocol of the logical interface can be switched from 3GPP/AISG 2.0 to AISG 1.1 and vice versa with a vendor specific command. Start-up operation of the RCU 86010149 is possible in an RET system supporting AISG 1.1 or supporting 3GPP/AISG 2.0 after performing a layer 2 reset before address assignment. The protocol can also be changed as follows: AISG 1.1 to 3GPP: Enter "3GPP" into the additional data filed "Installer's ID" and perform a layer 7 reset or a power reset. 3GPP to AISG 1.1: Enter "AISG 1" into the additional datafield "Installer's ID" and perform a layer 2 reset or a power reset. After switching the protocol any other information can be entered into the "Installer's ID" field.

[2] The tightning torque for fixing the connector must be 0.5 – 1.0 Nm ('hand-tightened'). The connector should be tightened by hand only!

TÜV 11387-D
936.4273/a

RoHS Lead-Free Oct 19, 2012

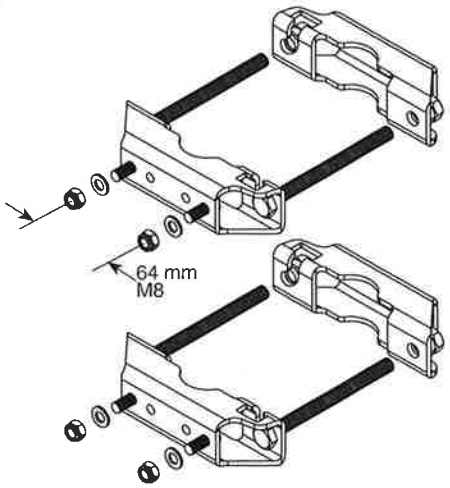
AISG Antenna Interface Standards Group

Kathrein Inc., Scala Division Post Office Box 4580 Medford, OR 97501 (USA) Phone: (541) 779-6500 Fax: (541) 779-3991
Email: communications@kathrein.com Internet: www.kathrein-scala.com

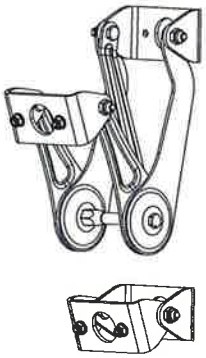
KATHREIN
SCALA DIVISION

800 10735V01

65° Single Band Panel Antenna, 6'



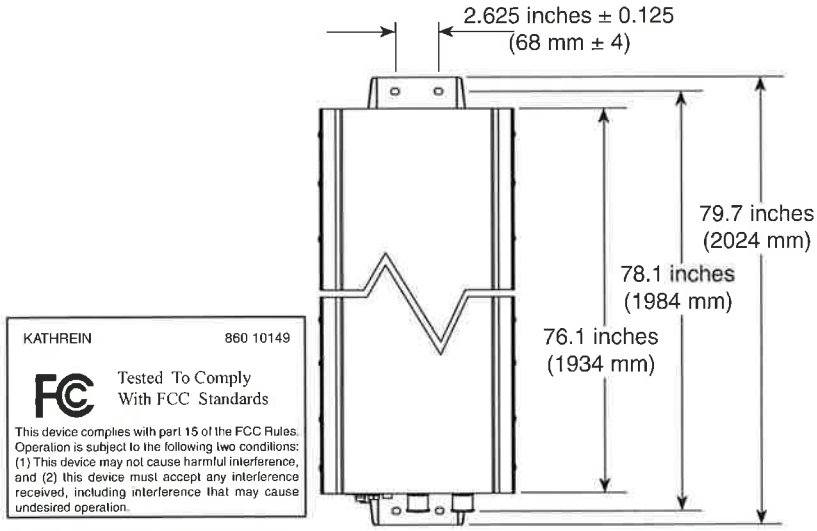
Mounting Brackets
for use with 2-point mount antennas
Mast dia. 2–4.5 inches (50–115 mm)
Weight: 4.4 lb (2 kg)



Mechanical Tilt Brackets
for use with 2-point mount antennas
Weight: 9.5 lb (4.3 kg)
(Model 850 10008)

Mechanical specifications:

Weight	30.9 lb (14 kg)	35.3 lb (16 kg) clamps included
Dimensions H x W x D	76.1 x 11.9 x 3.9 inches (1934 x 303 x 99 mm)	
Wind load Front/Side/Rear Mounting category	at 93 mph (150kph) 203 lbf / 70 lbf / 232 lbf (900 N / 310 N / 1030 N) H (Heavy)	
Wind survival rating*	150 mph (240 kph)	
Shipping dimensions	81.1 x 12.4 x 4.5 inches (2060 x 315 x 115 mm)	
Shipping weight	39.7 lb (18 kg)	
Mounting bracket	2-point hot-dip galvanized with stainless steel hardware for 2 to 4.5 inch (50 to 115 mm) OD masts.	

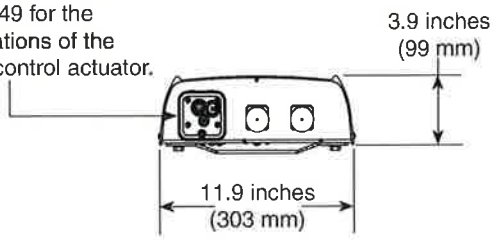


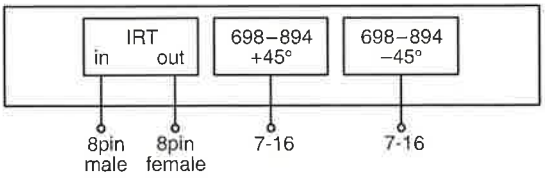
KATHREIN 860 10149

FC Tested To Comply With FCC Standards

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: Refer to part number 860 10149 for the specifications of the remote control actuator.





Order Information:

Model	Description
800 10735V01	Antenna with mounting bracket 0°–10° electrical downtilt
800 10735V01K	Antenna with mounting bracket and mechanical tilt bracket 0°–10° electrical downtilt

*Mechanical design is based on environmental conditions as stipulated in TIA-222-G-2 (December 2009) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.

All specifications are subject to change without notice. The latest specifications are available at www.kathrein-scala.com.

Kathrein Inc., Scala Division Post Office Box 4580 Medford, OR 97501 (USA) Phone: (541) 779-6500 Fax: (541) 779-3991
Email: communications@kathrein.com Internet: www.kathrein-scala.com

Amphenol ANTENNA SOLUTIONS

BXA-171063-12CF-EDIN-X

X-Pol | FET Panel | 63° | 19.0 dBi

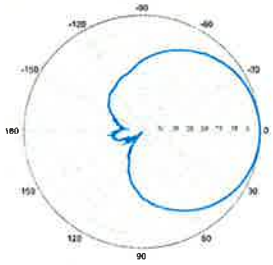
Replace "X" with desired electrical downtilt

Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.

Electrical Characteristics	1710-2170 MHz		
Frequency bands	1710-1880 MHz	1850-1990 MHz	1920-2170 MHz
Polarization	±45°	±45°	±45°
Horizontal beamwidth	68°	65°	60°
Vertical beamwidth	4.5°	4.5°	4.5°
Gain	16.1 dBd / 18.2 dBi	16.5 dBd / 18.6 dBi	16.9 dBd / 19.0 dBi
Electrical downtilt (X)	0, 2, 5		
Impedance	50Ω		
VSWR	≤1.5:1		
First upper sidelobe	< -17 dB		
Front-to-back ratio	> 30 dB		
In-band isolation	< -25 dB		
IM3 (20W carrier)	< -150 dBc		
Input power	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)		
Operating temperature	-40° to +60° C / -40° to +140° F		
Mechanical Characteristics			
Dimensions Length x Width x Depth	1842 x 154 x 105 mm		72.5 x 6.1 x 4.1 in
Depth with z-brackets	133 mm		5.2 in
Weight without mounting brackets	5.8 kg		12.8 lbs
Survival wind speed	> 201 km/hr		> 125 mph
Wind area	Front: 0.28 m² Side: 0.19 m²		Front: 3.1 ft² Side: 2.1 ft²
Wind load @ 161 km/hr (100 mph)	Front: 460 N Side: 304 N		Front: 103 lbf Side: 68 lbf

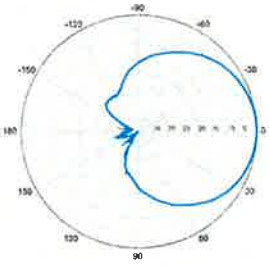
Mounting Options	Part Number	Fits Pipe Diameter	Weight
2-Point Mounting Bracket Kit	26799997	50-102 mm 2.0-4.0 in	2.3 kg 5 lbs
2-Point Mounting & Downtilt Bracket Kit	26799999	50-102 mm 2.0-4.0 in	3.6 kg 8 lbs
Concealment Configurations	For concealment configurations, order BXA-171063-12CF-EDIN-X-FP		

BXA-171063-12CF-EDIN-X



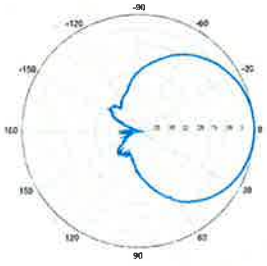
Horizontal | 1710-1880 MHz

BXA-171063-12CF-EDIN-X



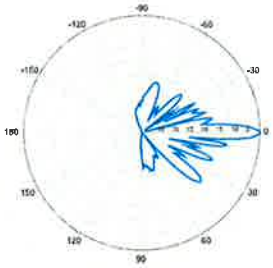
Horizontal | 1850-1990 MHz

BXA-171063-12CF-EDIN-X



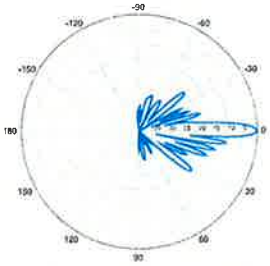
Horizontal | 1920-2170 MHz

BXA-171063-12CF-EDIN-0



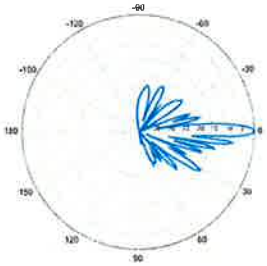
0° | Vertical | 1710-1880 MHz

BXA-171063-12CF-EDIN-0



0° | Vertical | 1850-1990 MHz

BXA-171063-12CF-EDIN-0



0° | Vertical | 1920-2170 MHz

Alcatel-Lucent RRH2x40-AWS

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-AWS is a high-power, small form-factor Remote Radio Head (RRH) operating in the AWS frequency band (1700/2100MHz - 3GPP Band 4). The Alcatel-Lucent RRH2x40-AWS is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.

A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-AWS is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent RRH2x40-AWS has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to four-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 20 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-AWS is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-AWS is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-AWS is compact and weighs less than 20 kg (44 lb), eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day — a fraction of the time required for a traditional BTS.

Excellent RF performance

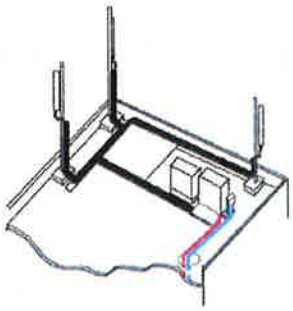
Because of its small size and weight, the Alcatel-Lucent RRH2x40-AWS can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-AWS where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced.
The Alcatel-Lucent RRH2x40-AWS provides more RF power while at the same time consuming less electricity.

Features

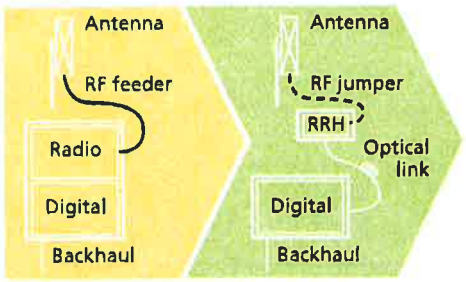
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless)
- Noise-free
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

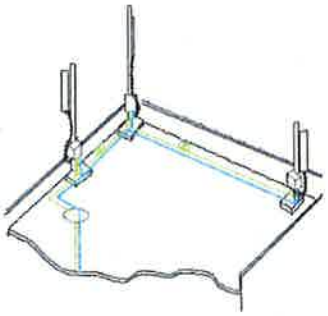
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



Macro



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 620 mm (24.4 in.)
- Width: 270 mm (10.63 in.)
- Depth: 170m (6.7 in.)
- Weight (without mounting kit): less than 20 kg (44 lb)

Power

- Power supply: -48VDC

Operating environment

- Outdoor temperature range:
  - ¬ With solar load: -40°C to +50°C (-40°F to +122°F)
  - ¬ Without solar load: -40°C to +55°C (-40°F to +131°F)
- Passive convection cooling (no fans)
- Enclosure protection
  - ¬ IP65 (International Protection rating)

RF characteristics

- Frequency band: 1700/2100 MHz (AWS); 3GPP Band 4
- Bandwidth: up to 20 MHz
- RF output power at antenna port: 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way with optional Rx Diversity module
- Noise figure: below 2.0 dB typical
- Antenna Line Device features
  - ¬ TMA and Remote electrical tilt (RET) support via AISG v2.0

Optical characteristics

Type/number of fibers

- Single-mode variant
  - ¬ One Single Mode Single Fiber per RRH2x, carrying UL and DL using CWDM
  - ¬ Single mode dual fiber (SM/DF)
- Multi-mode variant
  - ¬ Two Multi-mode fibers per RRH2x: one carrying UL, the other carrying DL

Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

Digital Ports and Alarms

- Two optical ports to support daisy-chaining
- Six external alarms

Alcatel·Lucent

Product Data Sheet HB158-1-08U8-S8J18

HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber

Product Description

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

Figure 1: HYBRIFLEX Series

Features/Benefits

- Aluminum corrugated armor with outstanding bending characteristics – minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding – Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design – Decreases tower loading
- Robust cabling – Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH – Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable – Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket – Ensures long-lasting cable protection

Technical Specifications

Outer Conductor Armor	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
Jacket	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	.068 (0.205)
DC-Resistance Power Cable, 8.4mm²(8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[µm]	50/125
Primary Coating (Acrylate)		[µm]	245
Buffer Diameter, Nominal		[µm]	900
Secondary Protection, Jacket, Nominal		[mm (in)]	2.0 (0.08)
Minimum Bending Radius		[mm (in)]	104 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL94-V0, UL1666 RoHS Compliant
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-93-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

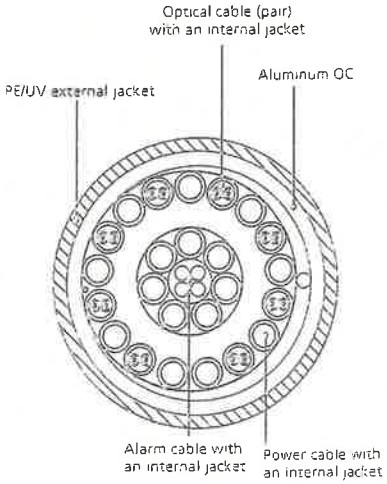


Figure 2: Construction Detail

- This data is provisional and subject to change

ATTACHMENT 2

	General	Power	Density					
Site Name: Southington N (Plainville)								
Tower Height: Verizon @ 112ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*AT&T UMTS	2	565	122	0.0273	880	0.5867	4.65%	
*AT&T UMTS	2	875	122	0.0423	1900	1.0000	4.23%	
*AT&T GSM	1	283	122	0.0068	880	0.5867	1.17%	
*AT&T GSM	4	525	122	0.0507	1900	1.0000	5.07%	
*AT&T LTE	1	1313	121	0.0322	734	0.4893	6.59%	
*T-Mobile LTE	2	24	98.5	0.0018	2100	1.0000	0.18%	
*T-Mobile GSM/UMTS	2	12	98.5	0.0009	1950	1.0000	0.09%	
*T-Mobile UMTS	2	12	98.5	0.0009	2100	1.0000	0.09%	
*Clearwire	2	153	88	0.0142	2496	1.0000	1.42%	
*Clearwire	1	211	88	0.0098	11 GHz	1.0000	0.98%	
*MetroPCS CDMA	3	727	76	0.1358	2135	1.0000	13.58%	
*MetroPCS LTE	1	1200	76	0.0747	2130	1.0000	7.47%	
Verizon	**11**	**309**	**112**	**0.0974**	**1970**	**1.0000**	**9.74%**	
Verizon	**9**	**289**	**112**	**0.0746**	**869**	**0.5793**	**12.87%**	
Verizon	**1**	**1750**	**112**	**0.0502**	**2145**	**1.0000**	**5.02%**	
Verizon	**1**	**843**	**112**	**0.0242**	**698**	**0.4653**	**5.19%**	
								78.34%
* Source: Siting Council								

ATTACHMENT 3

AT&T Towers
2300 Northlake Center Drive Suite 405
Tucker, GA 30084
770-708-6100

Ping Jiang
Black & Veatch Corp.
10950 Grandview Drive
Overland Park, KS 66210
(913) 458-7245
JiangP@bv.com

Thursday, December 12, 2013

STRUCTURAL ANALYSIS
121' Monopole

AT&T DESIGNATION:	Site ID:	83948
	Site FA:	10105805
	Site Name:	PLAINVILLE SOUTH WASHINGTON STREET
	AT&T Project:	4_Verizon- Modification 10-16-13
	BV Project:	176850 (83948VERCT-S)
ANALYSIS CRITERIA:	Codes:	TIA/EIA-222-F IBC 2003 2005 CT Building Code

SITE DATA: 335 South Washington Street, Plainville, CT 06062, Hartford County
Latitude 41.653111, Longitude -72.876921
Market: MA/RI/VT/NH/ME/CT
121' Monopole

Mrs. Charlotte Malone

Black & Veatch Corp. is pleased to submit this Structural Analysis Report to determine the structural integrity of the aforementioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

Analysis Results

Tower Stress Level with Proposed Equipment:	83.00%	Pass
Connection Stress Level with Proposed Equipment:	85.40%	Pass
Foundation Ratio with Proposed Equipment:	56.47%	Pass

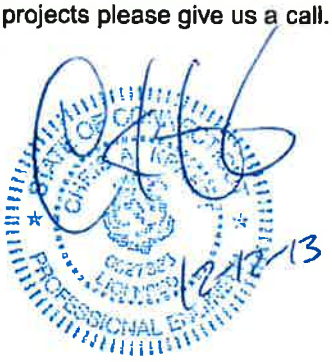
We at Black & Veatch Corp. appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully Submitted by: Black & Veatch Corp.

Analysis Prepared by: Aniruddha Kulkarni

Analysis Reviewed by: Chris A. Krafft, P.E.

This analysis was prepared by me or under my direct supervision and to the best of my knowledge and ability complies with the applicable provisions of the governing codes and ordinances.



Black & Veatch Corp.
10950 Grandview Drive
Overland Park, KS 66210
B&V: 176850 (83948VERCT-S)

Documents

Document	Description	Source
Site Photos from 2013	Site Condition Data	AT&T Siterra
Carrier Co-Location Documents (Applications, Leases, Initial Co-Location Analyses, Modification Request for Information Form, etc.)	Tower Loading Data	AT&T Siterra
Structural Analysis completed by B+T Group, dated 06/04/2013	Previous Structural Analysis w/Tower Geometry & Loading Data	AT&T Siterra
Geotechnical Report completed by Tectonic Engineering & Surveying Consultants, P.C., dated 07/15/2005	Geotechnical Data	AT&T Siterra
Tower Mapping Report completed by BTE Management Group, LLC, dated 05/23/2012	Tower Geometry & Tower Loading Data	AT&T Siterra
Foundation Mapping Report completed by WEI Geotechnical Engineers, dated 06/01/2009	Foundation Data	AT&T Siterra
Tower Mapping Report completed by GPD and Patriot Towers, dated 06/18/2009	Tower Geometry Data	AT&T Siterra

Black & Veatch Corp.
10950 Grandview Drive
Overland Park, KS 66210
B&V: 176850 (83948VERCT-S)

Assumptions, Disclaimers, and Notes

1. This analysis was performed under the assumption that all information provided to Black & Veatch is current and correct. This is to include site data, existing/proposed appurtenance loading, tower/foundation details, and geotechnical data. If this information is not current and correct, this report should be considered obsolete and further analysis will be required.
2. This analysis assumes that the tower structural components and mounts, including all steel sections and attachment hardware, are in good working order and in their original state, free of rust or other forms of corrosion. Furthermore, it is assumed that the tower and the tower foundation have been properly maintained and monitored since the time of construction. This report should be considered obsolete and further analysis will be required if the tower and/or foundation does not meet all of the above specifications.
3. This analysis assumes that all existing and/or proposed equipment mounts on the tower will have adequate capacity to support the existing and proposed equipment loading.
4. Capacity of the structural members is based on theoretical values as shown in the attached TAS form.
5. When applicable, this structural analysis is only valid if the proposed coax cables are stacked as shown in the attached feedline sketch.
6. Reported tilt and twist information is for the tower only. Possible deflection of foundation and mounting equipment is not considered.
7. The existing tower foundation was analyzed assuming 3000 psi concrete and a minimum flexural steel area (As) of 0.5% of the gross section of concrete.
8. This analysis assumes that all existing and proposed port cuts are properly installed such that the overall structural capacity of the monopole is not reduced.

Tower Analysis Summary Form

General Info

Site Name	PLAINVILLE SOUTH WASHINGTON STREET
Site Number	83948VERCT-S
FA Number	10105805
Date of Analysis	12/12/2013
Company Performing Analysis	Black & Veatch Corp.

The information contained in this summary report is not to be used independently from the PE stamped tower analysis.

Tower Info	Description	Date
Tower Type (G, SST, MP)	MP	N/A
Tower Height (Top of Steel)	121 ft	N/A
Tower Manufacturer	N/A	N/A
Tower Model	N/A	N/A
Tower Design	N/A	N/A
Foundation Design	N/A	N/A
Geotech Report	Tectonic Engineering & Surveying Consultants, P.C.	7/16/2005
Tower Mapping	BTE Management Group, LLC	5/23/2012
Previous Structural Analysis	B+T Group	6/4/2013
Foundation Mapping	WEI Geotechnical Engineers	6/1/2009

Design Parameters

Design Code Used	TIA/EIA-222-F
	IBC 2003
Location of Tower (County, State)	Hartford County, CT
Basic Wind Speed (mph)	80
Ice Thickness (in)	1
Structure Classification (I, II, III)	
Exposure Category (B, C, D)	
Topographic Category (1 to 5)	

Analysis Results (% Maximum Usage)

Existing/Reserved + Future + Proposed Condition	
Tower (%)	83.00%
Connection (%)	85.40%
Foundation (%)	56.47%
Foundation Adequate?	Yes

Steel Yield Strength (ksi)

Pole	50
Base Plate	50
Anchor Bolts	75

Existing / Reserved Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Inside/Outside
AT&T	121	122	6	Panel	Powerwave	RA21.7770.00	80, 200, 340	1	Unknown	LP Platform	12	Unknown	1 5/8"	Inside
AT&T	121	122	3	Panel	KMW	AM-X-CD-16-65-00T	80, 200, 340				1	Flex conduit	3"	Inside
AT&T	121	122	6	TMA	Powerwave	LGP21401					2	DC cable	7/8"	Inside conduit
AT&T	121	122	6	TMA	Powerwave	LGP13519					1	Fiber cable	1/2"	Inside conduit
AT&T	121	122	3	RRU	Ericsson	RRUS-11 B12								
AT&T	121	122	3	RRU	Ericsson	RRUS-11								
AT&T	121	122	1	SA Box	Raycap	DC6-48-60-18-8F								
Verizon	110	112	3	Panel	Antel	BXA-171063-8BF	30, 140, 270	1	Unknown	LP Platform	12	Unknown	1 5/8"	Inside
Verizon	110	112	6	Panel	Antel	LPA-80063-4CF	30, 140, 270				6	Unknown	1 5/8"	Outside
Verizon	110	112	1*	Panel	Antel	BXA-70063-6CF_2	30							
Verizon	110	112	2	Panel	Antel	BXA-70063-6CF_2	140, 270							
T-Mobile	98.5	100	6	Panel	Ericsson	AIR 21	60, 180, 300	1	Unknown	LP Platform	12	Unknown	1 5/8"	Inside
T-Mobile	98.5	100	3	TMA	Andrew	OneBase Twin Dual Duplex					1	Hybrid line	1 5/8"	Inside
Clear Wireless	86.5	88	3	MW dish	Dragonwave	A-ANT-18G-2-C	30, 150, 270	3	Unknown	Stand-Off Mount	2	Flex conduit	2 1/4"	Inside
Clear Wireless	86.5	88	3	ODU	Dragonwave	Horizon ODU					3	Unknown	1/2"	Inside
Clear Wireless	86.5	88	3	Panel	Argus	LLPX310R-V1	30, 150, 270				6	Unknown	5/16"	Inside conduit
Clear Wireless	86.5	88	3	BTS	Samsung	U-RAS								
Clear Wireless	86.5	88	3	Box	Unknown	Junction Box								

* To Be Removed

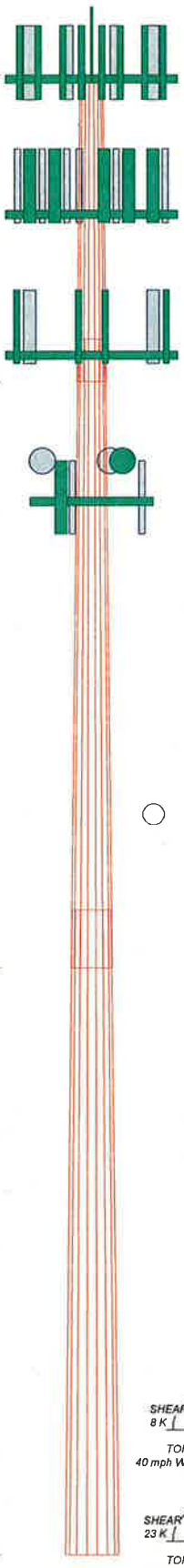
Proposed Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face
Verizon	110	112	1	Panel	Kathrein	800 10735 V01	30				1	Hybriflex	1 5/8"	Outside
Verizon	110	112	3	Panel	Amphenol	BXA-171063-12CF-EDIN-5	30, 140, 270							
Verizon	110	112	3	RRU	ALU	RH_2X40-AWS								
Verizon	110	112	1	SA Box	RFS	DB-T1-6Z-8AB-0Z								

Future Loading

Antenna								Mount			Transmission Line			
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Type	Manufacturer	Model	Azimuth	Quantity	Manufacturer	Type	Quantity	Model	Size	Attachment Leg/Face
AT&T	121	122	3	Panel	KMW	AM-X-CD-16-65-00T	80, 200, 340				6	Unknown	1 5/8"	Outside

Section	1	2	3
Length (ft)	25.00	51.50	52.75
Number of Sides	18	18	18
Thickness (in)	0.1875	0.2500	0.3125
Socket Length (ft)	3.50	4.75	
Top Dia (in)	21.2800	26.4244	37.8692
Bot Dia (in)	27.7031	39.6931	51.9600
Grade	A572-65		
Weight (K)	1.2	4.6	7.9
			13.7



AXIAL
49 K
SHEAR
8 K
MOMENT
730 kip-ft
TORQUE 1 kip-ft
40 mph WIND - 1.0000 in ICE

AXIAL
26 K
SHEAR
23 K
MOMENT
2093 kip-ft
TORQUE 3 kip-ft
REACTIONS - 80 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
5'x2' Mount Pipe (Existing)	123.5	BXA-171063/12CF-EDIN-5 w/ Mount Pipe (Verizon-Proposed)	110
PIROD 13' Low Profile Platform (AT&T-Existing)	121	RH_2x40-AWS : RRH (Verizon-Proposed)	110
(2) RA21.7770.00 w/ Mount Pipe (AT&T-Existing)	121	RH_2x40-AWS : RRH (Verizon-Proposed)	110
(2) RA21.7770.00 w/ Mount Pipe (AT&T-Existing)	121	RH_2x40-AWS : RRH (Verizon-Proposed)	110
(2) RA21.7770.00 w/ Mount Pipe (AT&T-Existing)	121	DB-T1-6Z-8AB-0Z : Distribution Box (Verizon-Proposed)	110
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Existing)	121	PIROD 13' Low Profile Platform (T-Mobile-Existing)	98.5
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Existing)	121	(2) ARI 21 w/ Mount Pipe (T-Mobile-Existing)	98.5
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Existing)	121	(2) ARI 21 w/ Mount Pipe (T-Mobile-Existing)	98.5
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Future)	121	(2) ARI 21 w/ Mount Pipe (T-Mobile-Existing)	98.5
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Future)	121	OneBase Twin Dual TMA (T-Mobile-Existing)	98.5
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Future)	121	OneBase Twin Dual TMA (T-Mobile-Existing)	98.5
(2) LGP21401 (AT&T-Existing)	121	OneBase Twin Dual TMA (T-Mobile-Existing)	98.5
(2) LGP21401 (AT&T-Existing)	121	(2) 6'x2" Mount Pipe (T-Mobile-Existing)	98.5
(2) LGP21401 (AT&T-Existing)	121	(2) 6'x2" Mount Pipe (T-Mobile-Existing)	98.5
(2) LGP13519 (AT&T-Existing)	121	(2) 6'x2" Mount Pipe (T-Mobile-Existing)	98.5
(2) LGP13519 (AT&T-Existing)	121	2' Standoff T-Arm (5' face width) (Clear Wireless-Existing)	86.5
(2) LGP13519 (AT&T-Existing)	121	2' Standoff T-Arm (5' face width) (Clear Wireless-Existing)	86.5
RRUS-11 (Band 12) : RRU (AT&T-Existing)	121	2' Standoff T-Arm (5' face width) (Clear Wireless-Existing)	86.5
RRUS-11 (Band 12) : RRU (AT&T-Existing)	121	Horizon Duo : ODU (Clear Wireless-Existing)	86.5
RRUS-11 (Band 12) : RRU (AT&T-Existing)	121	Horizon Duo : ODU (Clear Wireless-Existing)	86.5
RRUS-11 :RRU (AT&T-Existing)	121	Horizon Duo : ODU (Clear Wireless-Existing)	86.5
RRUS-11 :RRU (AT&T-Existing)	121	LLPX310R-V1 w/ Mount Pipe (Clear Wireless-Existing)	86.5
RRUS-11 :RRU (AT&T-Existing)	121	LLPX310R-V1 w/ Mount Pipe (Clear Wireless-Existing)	86.5
DC6-48-60-18-8F : SA Squid (AT&T-Existing)	121	LLPX310R-V1 w/ Mount Pipe (Clear Wireless-Existing)	86.5
PIROD 13' Low Profile Platform (Verizon-Existing)	110	U-RAS : RRH (Clear Wireless-Existing)	86.5
BXA-171063-8BF w/ Mount Pipe (Verizon-Existing)	110	U-RAS : RRH (Clear Wireless-Existing)	86.5
BXA-171063-8BF w/ Mount Pipe (Verizon-Existing)	110	U-RAS : RRH (Clear Wireless-Existing)	86.5
BXA-171063-8BF w/ Mount Pipe (Verizon-Existing)	110	10'x8'x4" Junction Box (Clear Wireless-Existing)	86.5
(2) LPA-80063/4CFx5 w/Mount Pipe (Verizon-Existing)	110	4'x2" Mount Pipe (Clear Wireless-Existing)	86.5
(2) LPA-80063/4CFx5 w/Mount Pipe (Verizon-Existing)	110	4'x2" Mount Pipe (Clear Wireless-Existing)	86.5
(2) LPA-80063/4CFx5 w/Mount Pipe (Verizon-Existing)	110	4'x2" Mount Pipe (Clear Wireless-Existing)	86.5
BXA-70063-6CF-EDIN-0 w/ Mount Pipe (Verizon-Existing)	110	Dragonwave A-ANT-18G-2-C (Clear Wireless-Existing)	86.5
BXA-70063-6CF-EDIN-0 w/ Mount Pipe (Verizon-Existing)	110	Dragonwave A-ANT-18G-2-C (Clear Wireless-Existing)	86.5
800 10735V01 w/ Mount Pipe (Verizon-Proposed)	110	Dragonwave A-ANT-18G-2-C (Clear Wireless-Existing)	86.5
BXA-171063/12CF-EDIN-5 w/ Mount Pipe (Verizon-Proposed)	110		
BXA-171063/12CF-EDIN-5 w/ Mount Pipe (Verizon-Proposed)	110		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 40 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 83%

BLACK & VEATCH
Building a world of difference.
Black & Veatch Corp.
10950 Grandview Drive
Overland Park, KS 66210
Phone: (913) 458-4745
FAX:

Job: 83948	Plainville South Washington Street		
Project: 176850	(83948VERCT-S)		
Client: AT&T Towers - USA	Drawn by: Charles E. Carrillo	Appd:	
Code: TIA/EIA-222-F	Date: 12/12/13	Scale: NTS	
Path:		Dwg No. E-1	

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Hartford County, Connecticut.
Basic wind speed of 80 mph.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 40 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
Safety Line 3/8 (Existing)	C	No	CaAa (Out Of Face)	121.00 - 12.00	1	No Ice	0.04	0.22
						1/2" Ice	0.14	0.75
						1" Ice	0.24	1.28
						2" Ice	0.44	2.34
						4" Ice	0.84	4.46
LDF7-50A (1-5/8 FOAM) (AT&T-Existing)	B	No	Inside Pole	121.00 - 8.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
3" Flexible Conduit (AT&T-Existing)	B	No	Inside Pole	121.00 - 8.00	1	No Ice	0.00	0.30
						1/2" Ice	0.00	0.30
						1" Ice	0.00	0.30
						2" Ice	0.00	0.30
						4" Ice	0.00	0.30
7/8" DC cable (AT&T-Existing)	B	No	Inside Pole	121.00 - 8.00	2	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
						2" Ice	0.00	0.33
						4" Ice	0.00	0.33
1/2" Fiber cable (AT&T-Existing)	B	No	Inside Pole	121.00 - 8.00	1	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
						2" Ice	0.00	0.15
						4" Ice	0.00	0.15
LDF7-50A (1-5/8 FOAM) (AT&T-Future)	B	No	CaAa (Out Of Face)	121.00 - 8.00	1	No Ice	0.20	0.82
						1/2" Ice	0.30	2.33
						1" Ice	0.40	4.46
						2" Ice	0.60	10.54
						4" Ice	1.00	30.04
LDF7-50A (1-5/8	B	No	CaAa (Out Of	121.00 - 8.00	5	No Ice	0.00	0.82

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
FOAM)			Face)			1/2" Ice	0.00	2.33
(AT&T-Future)						1" Ice	0.00	4.46
						2" Ice	0.00	10.54
						4" Ice	0.00	30.04
LDF7-50A (1-5/8	C	No	Inside Pole	112.00 - 8.00	12	No Ice	0.00	0.82
FOAM)						1/2" Ice	0.00	0.82
(Verizon-Existing)						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
LDF7-50A (1-5/8	C	No	CaAa (Out Of	112.00 - 8.00	1	No Ice	0.20	0.82
FOAM)			Face)			1/2" Ice	0.30	2.33
(Verizon-Existing)						1" Ice	0.40	4.46
						2" Ice	0.60	10.54
						4" Ice	1.00	30.04
LDF7-50A (1-5/8	C	No	CaAa (Out Of	112.00 - 8.00	5	No Ice	0.00	0.82
FOAM)			Face)			1/2" Ice	0.00	2.33
(Verizon-Existing)						1" Ice	0.00	4.46
						2" Ice	0.00	10.54
						4" Ice	0.00	30.04
1 5/8" Hybriflex	C	No	CaAa (Out Of	112.00 - 8.00	1	No Ice	0.00	0.82
(Verizon-Proposed)			Face)			1/2" Ice	0.00	2.33
						1" Ice	0.00	4.46
						2" Ice	0.00	10.54
						4" Ice	0.00	30.04
LDF7-50A (1-5/8	A	No	Inside Pole	100.00 - 8.00	12	No Ice	0.00	0.82
FOAM)						1/2" Ice	0.00	0.82
(T-Mobile-Existing)						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
1-5/8" Hybrid Line	A	No	Inside Pole	100.00 - 8.00	1	No Ice	0.00	0.82
(T-Mobile-Existing)						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
						2" Ice	0.00	0.82
						4" Ice	0.00	0.82
2.25" Flex conduit	C	No	Inside Pole	88.00 - 8.00	2	No Ice	0.00	0.20
(Clear Wireless-Existing)						1/2" Ice	0.00	0.20
						1" Ice	0.00	0.20
						2" Ice	0.00	0.20
						4" Ice	0.00	0.20
LDF4-50A (1/2 FOAM)	C	No	Inside Pole	88.00 - 8.00	3	No Ice	0.00	0.15
(Clear Wireless-Existing)						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15
						2" Ice	0.00	0.15
						4" Ice	0.00	0.15
RG-11 (5/16 FOAM	C	No	Inside Pole	88.00 - 8.00	6	No Ice	0.00	0.09
POLYE.)						1/2" Ice	0.00	0.09
(Clear Wireless-Existing)						1" Ice	0.00	0.09
						2" Ice	0.00	0.09
						4" Ice	0.00	0.09

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
5'x2" Mount Pipe (Existing)	C	None		0.0000	123.50	No Ice	1.19	1.19	0.02
						1/2" Ice	1.50	1.50	0.03
						1" Ice	1.81	1.81	0.04
						2" Ice	2.46	2.46	0.08
						4" Ice	3.92	3.92	0.20
PiROD 13' Low Profile Platform (AT&T-Existing)	C	None		0.0000	121.00	No Ice	15.70	15.70	1.30
						1/2" Ice	20.10	20.10	1.76
						1" Ice	24.50	24.50	2.23
						2" Ice	33.30	33.30	3.16
						4" Ice	50.90	50.90	5.02
(2) RA21.7770.00 w/ Mount Pipe (AT&T-Existing)	A	From Leg	3.00 0.00 1.00	20.0000	121.00	No Ice	6.97	4.96	0.06
						1/2" Ice	7.55	5.90	0.12
						1" Ice	8.10	6.68	0.18
						2" Ice	9.24	8.29	0.32
						4" Ice	11.64	11.78	0.74
(2) RA21.7770.00 w/ Mount Pipe (AT&T-Existing)	B	From Leg	3.00 0.00 1.00	20.0000	121.00	No Ice	6.97	4.96	0.06
						1/2" Ice	7.55	5.90	0.12
						1" Ice	8.10	6.68	0.18
						2" Ice	9.24	8.29	0.32
						4" Ice	11.64	11.78	0.74
(2) RA21.7770.00 w/ Mount Pipe (AT&T-Existing)	C	From Leg	3.00 0.00 1.00	40.0000	121.00	No Ice	6.97	4.96	0.06
						1/2" Ice	7.55	5.90	0.12
						1" Ice	8.10	6.68	0.18
						2" Ice	9.24	8.29	0.32
						4" Ice	11.64	11.78	0.74
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Existing)	A	From Leg	3.00 2.00 1.00	20.0000	121.00	No Ice	8.50	6.30	0.07
						1/2" Ice	9.15	7.48	0.14
						1" Ice	9.77	8.37	0.21
						2" Ice	11.03	10.18	0.38
						4" Ice	13.68	14.02	0.87
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Existing)	B	From Leg	3.00 2.00 1.00	20.0000	121.00	No Ice	8.50	6.30	0.07
						1/2" Ice	9.15	7.48	0.14
						1" Ice	9.77	8.37	0.21
						2" Ice	11.03	10.18	0.38
						4" Ice	13.68	14.02	0.87
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Existing)	C	From Leg	3.00 2.00 1.00	40.0000	121.00	No Ice	8.50	6.30	0.07
						1/2" Ice	9.15	7.48	0.14
						1" Ice	9.77	8.37	0.21
						2" Ice	11.03	10.18	0.38
						4" Ice	13.68	14.02	0.87
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Future)	A	From Leg	3.00 -2.00 1.00	20.0000	121.00	No Ice	8.50	6.30	0.07
						1/2" Ice	9.15	7.48	0.14
						1" Ice	9.77	8.37	0.21
						2" Ice	11.03	10.18	0.38
						4" Ice	13.68	14.02	0.87
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Future)	B	From Leg	3.00 -2.00 1.00	20.0000	121.00	No Ice	8.50	6.30	0.07
						1/2" Ice	9.15	7.48	0.14
						1" Ice	9.77	8.37	0.21
						2" Ice	11.03	10.18	0.38
						4" Ice	13.68	14.02	0.87
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-Future)	C	From Leg	3.00 -2.00 1.00	40.0000	121.00	No Ice	8.50	6.30	0.07
						1/2" Ice	9.15	7.48	0.14
						1" Ice	9.77	8.37	0.21
						2" Ice	11.03	10.18	0.38

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice	13.68	14.02	0.87
(2) LGP21401 (AT&T-Existing)	A	From Leg	3.00 0.00 1.00	20.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.23 1.38 1.54 1.89 2.69	0.26 0.34 0.44 0.64 1.16	0.01 0.02 0.03 0.05 0.14
(2) LGP21401 (AT&T-Existing)	B	From Leg	3.00 0.00 1.00	20.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.23 1.38 1.54 1.89 2.69	0.26 0.34 0.44 0.64 1.16	0.01 0.02 0.03 0.05 0.14
(2) LGP21401 (AT&T-Existing)	C	From Leg	3.00 0.00 1.00	40.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.23 1.38 1.54 1.89 2.69	0.26 0.34 0.44 0.64 1.16	0.01 0.02 0.03 0.05 0.14
(2) LGP13519 (AT&T-Existing)	A	From Leg	3.00 0.00 1.00	20.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.43 0.53 0.63 0.85 1.41	0.17 0.23 0.31 0.48 0.93	0.01 0.01 0.02 0.03 0.08
(2) LGP13519 (AT&T-Existing)	B	From Leg	3.00 0.00 1.00	20.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.43 0.53 0.63 0.85 1.41	0.17 0.23 0.31 0.48 0.93	0.01 0.01 0.02 0.03 0.08
(2) LGP13519 (AT&T-Existing)	C	From Leg	3.00 0.00 1.00	40.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.43 0.53 0.63 0.85 1.41	0.17 0.23 0.31 0.48 0.93	0.01 0.01 0.02 0.03 0.08
RRUS-11 (Band 12) : RRU (AT&T-Existing)	A	From Leg	3.00 0.00 1.00	20.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.94 3.17 3.41 3.91 5.02	1.25 1.41 1.59 1.96 2.82	0.06 0.07 0.10 0.15 0.30
RRUS-11 (Band 12) : RRU (AT&T-Existing)	B	From Leg	3.00 0.00 1.00	20.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.94 3.17 3.41 3.91 5.02	1.25 1.41 1.59 1.96 2.82	0.06 0.07 0.10 0.15 0.30
RRUS-11 (Band 12) : RRU (AT&T-Existing)	C	From Leg	3.00 0.00 1.00	40.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.94 3.17 3.41 3.91 5.02	1.25 1.41 1.59 1.96 2.82	0.06 0.07 0.10 0.15 0.30
RRUS-11: RRU (AT&T-Existing)	C	From Leg	3.00 0.00 1.00	40.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.94 3.17 3.41 3.91 5.02	1.25 1.41 1.59 1.96 2.82	0.04 0.06 0.09 0.14 0.29
RRUS-11: RRU (AT&T-Existing)	C	From Leg	3.00 0.00 1.00	40.0000	121.00	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.94 3.17 3.41 3.91 5.02	1.25 1.41 1.59 1.96 2.82	0.04 0.06 0.09 0.14 0.29
RRUS-11: RRU	C	From Leg	3.00	40.0000	121.00	No Ice	2.94	1.25	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(AT&T-Existing)			0.00			1/2" Ice	3.17	1.41	0.06
			1.00			1" Ice	3.41	1.59	0.09
						2" Ice	3.91	1.96	0.14
						4" Ice	5.02	2.82	0.29
DC6-48-60-18-8F : SA Squid	C	From Leg	3.00	0.0000	121.00	No Ice	1.47	1.47	0.03
(AT&T-Existing)			0.00			1/2" Ice	1.67	1.67	0.05
			1.00			1" Ice	1.88	1.88	0.07
						2" Ice	2.33	2.33	0.12
						4" Ice	3.38	3.38	0.25
PiROD 13' Low Profile	C	None		0.0000	110.00	No Ice	15.70	15.70	1.30
Platform						1/2" Ice	20.10	20.10	1.76
(Verizon-Existing)						1" Ice	24.50	24.50	2.23
						2" Ice	33.30	33.30	3.16
						4" Ice	50.90	50.90	5.02
BXA-171063-8BF w/ Mount	A	From Face	3.00	30.0000	110.00	No Ice	3.16	3.33	0.04
Pipe			3.00			1/2" Ice	3.53	3.94	0.07
(Verizon-Existing)			2.00			1" Ice	3.94	4.56	0.10
						2" Ice	4.83	5.86	0.20
						4" Ice	6.73	8.84	0.49
BXA-171063-8BF w/ Mount	B	From Face	3.00	20.0000	110.00	No Ice	3.16	3.33	0.04
Pipe			3.00			1/2" Ice	3.53	3.94	0.07
(Verizon-Existing)			2.00			1" Ice	3.94	4.56	0.10
						2" Ice	4.83	5.86	0.20
						4" Ice	6.73	8.84	0.49
BXA-171063-8BF w/ Mount	C	From Face	3.00	30.0000	110.00	No Ice	3.16	3.33	0.04
Pipe			3.00			1/2" Ice	3.53	3.94	0.07
(Verizon-Existing)			2.00			1" Ice	3.94	4.56	0.10
						2" Ice	4.83	5.86	0.20
						4" Ice	6.73	8.84	0.49
(2) LPA-80063/4CFx5	A	From Face	3.00	30.0000	110.00	No Ice	7.73	7.75	0.05
w/Mount Pipe			0.00			1/2" Ice	8.46	8.87	0.12
(Verizon-Existing)			2.00			1" Ice	9.07	9.71	0.19
						2" Ice	10.32	11.43	0.38
						4" Ice	12.96	15.08	0.87
(2) LPA-80063/4CFx5	B	From Face	3.00	20.0000	110.00	No Ice	7.73	7.75	0.05
w/Mount Pipe			0.00			1/2" Ice	8.46	8.87	0.12
(Verizon-Existing)			2.00			1" Ice	9.07	9.71	0.19
						2" Ice	10.32	11.43	0.38
						4" Ice	12.96	15.08	0.87
(2) LPA-80063/4CFx5	C	From Face	3.00	30.0000	110.00	No Ice	7.73	7.75	0.05
w/Mount Pipe			0.00			1/2" Ice	8.46	8.87	0.12
(Verizon-Existing)			2.00			1" Ice	9.07	9.71	0.19
						2" Ice	10.32	11.43	0.38
						4" Ice	12.96	15.08	0.87
BXA-70063-6CF-EDIN-0 w/	B	From Face	3.00	20.0000	110.00	No Ice	10.89	8.09	0.07
Mount Pipe			-1.00			1/2" Ice	11.60	9.58	0.15
(Verizon-Existing)			2.00			1" Ice	12.32	11.08	0.24
						2" Ice	13.69	13.35	0.45
						4" Ice	16.89	18.11	1.04
BXA-70063-6CF-EDIN-0 w/	C	From Face	3.00	30.0000	110.00	No Ice	10.89	8.09	0.07
Mount Pipe			-1.00			1/2" Ice	11.60	9.58	0.15
(Verizon-Existing)			2.00			1" Ice	12.32	11.08	0.24
						2" Ice	13.69	13.35	0.45
						4" Ice	16.89	18.11	1.04
800 10735V01 w/ Mount	A	From Face	3.00	30.0000	110.00	No Ice	8.96	5.41	0.06
Pipe			-1.00			1/2" Ice	9.60	6.60	0.12
(Verizon-Proposed)			2.00			1" Ice	10.23	7.50	0.19

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	11.50	9.33	0.36
						4" Ice	14.17	13.20	0.84
BXA-171063/12CF-EDIN-5 w/ Mount Pipe (Verizon-Proposed)	A	From Face	3.00 -3.00 2.00	30.0000	110.00	No Ice	5.03	5.29	0.04
						1/2" Ice	5.58	6.46	0.09
						1" Ice	6.10	7.35	0.14
						2" Ice	7.17	9.15	0.27
						4" Ice	9.44	12.95	0.68
BXA-171063/12CF-EDIN-5 w/ Mount Pipe (Verizon-Proposed)	B	From Face	3.00 -3.00 2.00	20.0000	110.00	No Ice	5.03	5.29	0.04
						1/2" Ice	5.58	6.46	0.09
						1" Ice	6.10	7.35	0.14
						2" Ice	7.17	9.15	0.27
						4" Ice	9.44	12.95	0.68
BXA-171063/12CF-EDIN-5 w/ Mount Pipe (Verizon-Proposed)	C	From Face	3.00 -3.00 2.00	30.0000	110.00	No Ice	5.03	5.29	0.04
						1/2" Ice	5.58	6.46	0.09
						1" Ice	6.10	7.35	0.14
						2" Ice	7.17	9.15	0.27
						4" Ice	9.44	12.95	0.68
RH_2x40-AWS : RRH (Verizon-Proposed)	A	From Face	3.00 0.00 2.00	30.0000	110.00	No Ice	2.52	1.59	0.04
						1/2" Ice	2.75	1.80	0.06
						1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
RH_2x40-AWS : RRH (Verizon-Proposed)	B	From Face	3.00 0.00 2.00	20.0000	110.00	No Ice	2.52	1.59	0.04
						1/2" Ice	2.75	1.80	0.06
						1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
RH_2x40-AWS : RRH (Verizon-Proposed)	C	From Face	3.00 0.00 2.00	30.0000	110.00	No Ice	2.52	1.59	0.04
						1/2" Ice	2.75	1.80	0.06
						1" Ice	2.99	2.01	0.08
						2" Ice	3.50	2.46	0.13
						4" Ice	4.61	3.48	0.28
DB-T1-6Z-8AB-0Z : Distribution Box (Verizon-Proposed)	C	From Face	3.00 0.00 2.00	0.0000	110.00	No Ice	5.60	2.33	0.04
						1/2" Ice	5.92	2.56	0.08
						1" Ice	6.24	2.79	0.12
						2" Ice	6.91	3.28	0.21
						4" Ice	8.37	4.37	0.45
PiROD 13' Low Profile Platform (T-Mobile-Existing)	C	None		0.0000	98.50	No Ice	15.70	15.70	1.30
						1/2" Ice	20.10	20.10	1.76
						1" Ice	24.50	24.50	2.23
						2" Ice	33.30	33.30	3.16
						4" Ice	50.90	50.90	5.02
(2) AIR 21 w/ Mount Pipe (T-Mobile-Existing)	A	From Leg	3.00 0.00 2.00	0.0000	98.50	No Ice	6.86	5.66	0.12
						1/2" Ice	7.39	6.50	0.18
						1" Ice	7.90	7.28	0.24
						2" Ice	8.97	8.89	0.39
						4" Ice	11.22	12.33	0.82
(2) AIR 21 w/ Mount Pipe (T-Mobile-Existing)	B	From Leg	3.00 0.00 2.00	0.0000	98.50	No Ice	6.86	5.66	0.12
						1/2" Ice	7.39	6.50	0.18
						1" Ice	7.90	7.28	0.24
						2" Ice	8.97	8.89	0.39
						4" Ice	11.22	12.33	0.82
(2) AIR 21 w/ Mount Pipe (T-Mobile-Existing)	C	From Leg	3.00 0.00 2.00	0.0000	98.50	No Ice	6.86	5.66	0.12
						1/2" Ice	7.39	6.50	0.18
						1" Ice	7.90	7.28	0.24
						2" Ice	8.97	8.89	0.39
						4" Ice	11.22	12.33	0.82

tnxTower	Job: 83948 Plainville South Washington Street	Page: 7 of 9
Black & Veatch Corp. 10950 Grandview Drive Overland Park, KS 66210 Phone: (913) 458-4745 FAX:	Project: 176850 (83948VERCT-S)	Date: 13:52:24 12/12/13
	Client: AT&T Towers - USA	Designed by: Charles E. Carrillo

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
OneBase Twin Dual : TMA (T-Mobile-Existing)	A	From Leg	3.00 0.00 2.00	0.0000	98.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.10 1.24 1.39 1.72 2.48	0.71 0.83 0.96 1.24 1.91	0.02 0.03 0.04 0.07 0.16
OneBase Twin Dual : TMA (T-Mobile-Existing)	B	From Leg	3.00 0.00 2.00	0.0000	98.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.10 1.24 1.39 1.72 2.48	0.71 0.83 0.96 1.24 1.91	0.02 0.03 0.04 0.07 0.16
OneBase Twin Dual : TMA (T-Mobile-Existing)	C	From Leg	3.00 0.00 2.00	0.0000	98.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.10 1.24 1.39 1.72 2.48	0.71 0.83 0.96 1.24 1.91	0.02 0.03 0.04 0.07 0.16
(2) 6'x2" Mount Pipe (T-Mobile-Existing)	A	From Leg	3.00 0.00 0.00	0.0000	98.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.43 1.92 2.29 3.06 4.70	1.43 1.92 2.29 3.06 4.70	0.02 0.03 0.05 0.09 0.23
(2) 6'x2" Mount Pipe (T-Mobile-Existing)	B	From Leg	3.00 0.00 0.00	0.0000	98.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.43 1.92 2.29 3.06 4.70	1.43 1.92 2.29 3.06 4.70	0.02 0.03 0.05 0.09 0.23
(2) 6'x2" Mount Pipe (T-Mobile-Existing)	C	From Leg	3.00 0.00 0.00	0.0000	98.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.43 1.92 2.29 3.06 4.70	1.43 1.92 2.29 3.06 4.70	0.02 0.03 0.05 0.09 0.23
2' Standoff T-Arm (5' face width) (Clear Wireless-Existing)	A	From Face	0.00 0.00 0.00	30.0000	86.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.50 4.20 4.90 6.30 9.10	3.50 4.20 4.90 6.30 9.10	0.09 0.12 0.15 0.21 0.32
2' Standoff T-Arm (5' face width) (Clear Wireless-Existing)	B	From Face	0.00 0.00 0.00	30.0000	86.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.50 4.20 4.90 6.30 9.10	3.50 4.20 4.90 6.30 9.10	0.09 0.12 0.15 0.21 0.32
2' Standoff T-Arm (5' face width) (Clear Wireless-Existing)	C	From Face	0.00 0.00 0.00	30.0000	86.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.50 4.20 4.90 6.30 9.10	3.50 4.20 4.90 6.30 9.10	0.09 0.12 0.15 0.21 0.32
Horizon Duo : ODU (Clear Wireless-Existing)	A	From Face	2.00 -2.50 3.00	30.0000	86.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.20 0.27 0.35 0.56 1.09	0.20 0.27 0.35 0.56 1.09	0.01 0.01 0.02 0.03 0.08
Horizon Duo : ODU (Clear Wireless-Existing)	B	From Face	2.00 -2.50 3.00	30.0000	86.50	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.20 0.27 0.35 0.56 1.09	0.20 0.27 0.35 0.56 1.09	0.01 0.01 0.02 0.03 0.08
Horizon Duo : ODU (Clear Wireless-Existing)	C	From Face	2.00 -2.50	30.0000	86.50	No Ice 1/2" Ice	0.20 0.27	0.20 0.27	0.01 0.01

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			3.00			1" Ice	0.35	0.35	0.02
						2" Ice	0.56	0.56	0.03
						4" Ice	1.09	1.09	0.08
LLPX310R-V1 w/ Mount Pipe	A	From Face	2.00	30.0000	86.50	No Ice	5.09	3.00	0.04
			2.50			1/2" Ice	5.50	3.54	0.08
(Clear Wireless-Existing)			0.00			1" Ice	5.93	4.10	0.13
						2" Ice	6.81	5.33	0.23
						4" Ice	8.72	8.15	0.54
LLPX310R-V1 w/ Mount Pipe	B	From Face	2.00	30.0000	86.50	No Ice	5.09	3.00	0.04
			2.50			1/2" Ice	5.50	3.54	0.08
(Clear Wireless-Existing)			0.00			1" Ice	5.93	4.10	0.13
						2" Ice	6.81	5.33	0.23
						4" Ice	8.72	8.15	0.54
LLPX310R-V1 w/ Mount Pipe	C	From Face	2.00	30.0000	86.50	No Ice	5.09	3.00	0.04
			2.50			1/2" Ice	5.50	3.54	0.08
(Clear Wireless-Existing)			0.00			1" Ice	5.93	4.10	0.13
						2" Ice	6.81	5.33	0.23
						4" Ice	8.72	8.15	0.54
U-RAS : RRH	A	From Face	2.00	30.0000	86.50	No Ice	1.82	0.83	0.03
(Clear Wireless-Existing)			2.50			1/2" Ice	2.00	0.97	0.04
			0.00			1" Ice	2.19	1.12	0.06
						2" Ice	2.60	1.45	0.10
						4" Ice	3.53	2.22	0.20
U-RAS : RRH	B	From Face	2.00	30.0000	86.50	No Ice	1.82	0.83	0.03
(Clear Wireless-Existing)			2.50			1/2" Ice	2.00	0.97	0.04
			0.00			1" Ice	2.19	1.12	0.06
						2" Ice	2.60	1.45	0.10
						4" Ice	3.53	2.22	0.20
U-RAS : RRH	C	From Face	2.00	30.0000	86.50	No Ice	1.82	0.83	0.03
(Clear Wireless-Existing)			2.50			1/2" Ice	2.00	0.97	0.04
			0.00			1" Ice	2.19	1.12	0.06
						2" Ice	2.60	1.45	0.10
						4" Ice	3.53	2.22	0.20
10"x8"x4" Junction Box	C	From Face	0.50	0.0000	86.50	No Ice	0.78	0.39	0.01
(Clear Wireless-Existing)			0.00			1/2" Ice	0.90	0.48	0.02
			0.00			1" Ice	1.03	0.59	0.02
						2" Ice	1.31	0.82	0.04
						4" Ice	1.99	1.39	0.11
4'x2" Mount Pipe	A	From Face	2.00	30.0000	86.50	No Ice	0.87	0.87	0.01
(Clear Wireless-Existing)			-2.50			1/2" Ice	1.11	1.11	0.02
			0.00			1" Ice	1.36	1.36	0.03
						2" Ice	1.90	1.90	0.06
						4" Ice	3.23	3.23	0.16
4'x2" Mount Pipe	B	From Face	2.00	30.0000	86.50	No Ice	0.87	0.87	0.01
(Clear Wireless-Existing)			-2.50			1/2" Ice	1.11	1.11	0.02
			0.00			1" Ice	1.36	1.36	0.03
						2" Ice	1.90	1.90	0.06
						4" Ice	3.23	3.23	0.16
4'x2" Mount Pipe	C	From Face	2.00	30.0000	86.50	No Ice	0.87	0.87	0.01
(Clear Wireless-Existing)			-2.50			1/2" Ice	1.11	1.11	0.02
			0.00			1" Ice	1.36	1.36	0.03
						2" Ice	1.90	1.90	0.06
						4" Ice	3.23	3.23	0.16

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft²	Weight K
Dragonwave A-ANT-18G-2-C (Clear Wireless-Existing)	A	Paraboloid w/Shroud (HP)	From Face	2.00 -2.50 3.00	0.0000		86.50	2.17	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.70 3.99 4.28 4.86 6.01	0.03 0.05 0.07 0.11 0.19
Dragonwave A-ANT-18G-2-C (Clear Wireless-Existing)	B	Paraboloid w/Shroud (HP)	From Face	2.00 -2.50 3.00	0.0000		86.50	2.17	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.70 3.99 4.28 4.86 6.01	0.03 0.05 0.07 0.11 0.19
Dragonwave A-ANT-18G-2-C (Clear Wireless-Existing)	C	Paraboloid w/Shroud (HP)	From Face	2.00 -2.50 3.00	0.0000		86.50	2.17	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.70 3.99 4.28 4.86 6.01	0.03 0.05 0.07 0.11 0.19

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
123.50	5'x2" Mount Pipe	31	23.721	1.7456	0.0126	18086
121.00	PiROD 13' Low Profile Platform	31	23.721	1.7456	0.0126	18086
110.00	PiROD 13' Low Profile Platform	31	19.756	1.6714	0.0091	8220
98.50	PiROD 13' Low Profile Platform	31	15.801	1.5631	0.0061	4215
89.50	Dragonwave A-ANT-18G-2-C	31	12.954	1.4402	0.0046	3743
86.50	2' Standoff T-Arm (5' face width)	31	12.062	1.3928	0.0042	3624

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P_{allow} K	% Capacity	Pass Fail
L1	121 - 96	Pole	TP27.7011x21.26x0.1875	1	-5.57	133.46	46.5	Pass
L2	96 - 48	Pole	TP39.6931x26.4244x0.25	2	-14.77	527.11	83.0	Pass
L3	48 - 0	Pole	TP51.56x37.9692x0.3125	3	-25.79	1472.98	79.9	Pass
							Summary	
						Pole (L2)	83.0	Pass
						RATING =	**83.0**	**Pass**

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

TIA Rev F

Site Data

BU#: *83948*
Site Name: *Plainville South Washingtor*
App #: *Unknown*

Pole Manufacturer:	*Other*

Reactions		
Moment:	2093	ft-kips
Axial:	26	kips
Shear:	23	kips

If No stiffeners, Criteria:	AISC ASD	<-Only Applcable to Unstiffened Cases

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	60.6	in

Plate Data		
Diam:	66	in
Thick:	2	in
Grade:	50	ksi
Single-Rod B-eff:	10.23	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	51.56	in
Thick:	0.3125	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

Anchor Rod Results

Maximum Rod Tension:	102.0 Kips	Rigid
Allowable Tension:	195.0 Kips	Service, ASD
Anchor Rod Stress Ratio:	52.3% **Pass**	Fty*ASIF

Base Plate Results

Base Plate Results	Flexural Check	Rigid
Base Plate Stress:	42.7 ksi	Service ASD
Allowable Plate Stress:	50.0 ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	85.4% **Pass**	Y.L. Length: 31.84

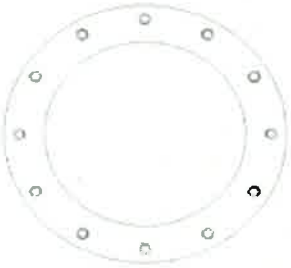
n/a

Stiffener Results

Horizontal Weld :	n/a
Vertical Weld:	n/a
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	n/a
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	n/a
Plate Comp. (AISC Bracket):	n/a

Pole Results

Pole Punching Shear Check:	n/a



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

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

LPile Plus for Windows, Version 6 (6.0.23)

Analysis of Individual Piles and Drilled Shafts
Subjected to Lateral Loading Using the p-y Method

This program is licensed to:

x
x

Files Used for Analysis

Path to file locations: C:\Users\car66684\Documentum\Checkout\
Name of input data file: 83948VERCT-S Foundation Analysis.lp6d
Name of output report file: 83948VERCT-S Foundation Analysis.lp6o
Name of plot output file: 83948VERCT-S Foundation Analysis.lp6p
Name of runtime messeage file: 83948VERCT-S Foundation Analysis.lp6r

Date and Time of Analysis

Date: December 12, 2013 Time: 14:01:51

Problem Title

Project Name: AT&T Tower Analysis

Project Number: 176850

Client: AT&T Towers - USA

Engineer: Aniruddha Kulkarni

Description: 83948VERCT-S Foundation Analysis

Program Options

Engineering units are US Customary Units: pounds, inches, feet

Basic Program Options:

This analysis computes nonlinear bending stiffness and nominal moment
capacity with pile response computed using nonlinear EI

Computation Options:
- Only internally-generated p-y curves used in analysis
- Analysis does not use p-y multipliers (individual pile or shaft action only)
- Analysis uses tip shear resistance for short pile or shaft
- Analysis for fixed-length pile or shaft only
- No computation of foundation stiffness matrix elements
- Output summary table of values for pile-head deflection, maximum
  bending moment, and shear force only
- Analysis assumes no soil movements acting on pile
- No p-y curves to be computed and output for user-specified depths

Solution Control Parameters:

- Number of pile increments	=	100	
- Maximum number of iterations allowed	=	500	
- Deflection tolerance for convergence	=	1.0000E-05	in
- Maximum allowable deflection	=	100.0000	in

Pile Response Output Options:
- Only summary tables of pile-head deflection, maximum bending moment,
  and maximum shear force are to be written to output report file.

Pile Structural Properties and Geometry

Total Number of Sections	=	1
Total Pile Length	=	32.50 ft
Depth of ground surface below top of pile	=	0.50 ft
Slope angle of ground surface	=	0.00 deg.

Pile dimensions used for p-y curve computations defined using 2 points.
p-y curves are computed using values of pile diameter interpolated over
the length of the pile.

Point	Depth X ft	Pile Diameter in
1	0.00000	84.0000000
2	32.500000	84.0000000

Input Structural Properties:

Pile Section No. 1:

Section Type	=	Drilled Shaft (Bored Pile)
Section Length	=	32.500 ft
Section Diameter	=	84.000 in

Ground Slope and Pile Batter Angles

Ground Slope Angle	=	0.000 degrees
	=	0.000 radians
Pile Batter Angle	=	0.000 degrees
	=	0.000 radians

Soil and Rock Layering Information

The soil profile is modelled using 5 layers

Layer 1 is soft clay, p-y criteria by Matlock, 1970

Distance from top of pile to top of layer	=	0.500 ft
Distance from top of pile to bottom of layer	=	4.000 ft

Layer 2 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	4.000 ft
Distance from top of pile to bottom of layer	=	13.500 ft
p-y subgrade modulus k for top of soil layer	=	60.000 lbs/in**3
p-y subgrade modulus k for bottom of layer	=	60.000 lbs/in**3

Layer 3 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	13.500 ft
Distance from top of pile to bottom of layer	=	19.500 ft
p-y subgrade modulus k for top of soil layer	=	20.000 lbs/in**3
p-y subgrade modulus k for bottom of layer	=	20.000 lbs/in**3

Layer 4 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	19.500 ft
Distance from top of pile to bottom of layer	=	23.500 ft
p-y subgrade modulus k for top of soil layer	=	60.000 lbs/in**3
p-y subgrade modulus k for bottom of layer	=	60.000 lbs/in**3

Layer 5 is sand, p-y criteria by Reese et al., 1974

Distance from top of pile to top of layer	=	23.500 ft
Distance from top of pile to bottom of layer	=	52.500 ft
p-y subgrade modulus k for top of soil layer	=	20.000 lbs/in**3
p-y subgrade modulus k for bottom of layer	=	20.000 lbs/in**3

(Depth of lowest layer extends 20.00 ft below pile tip)

Effective Unit Weight of Soil vs. Depth

Effective unit weight of soil with depth defined using 10 points

Point No.	Depth X ft	Eff. Unit Weight pcf
1	0.50	117.40000
2	4.00	117.40000
3	4.00	55.00000
4	13.50	55.00000
5	13.50	45.00000
6	19.50	45.00000
7	19.50	55.00000

8	23.50	55.00000
9	23.50	40.00000
10	52.50	40.00000

Summary of Soil Properties

Layer Num.	Soil Type	Depth ft	Eff. Unit Wt., pcf	Cohesion psf	Friction Ang., deg.	qu psi
	RQD percent / Epsilon 50 / kpy (p-y Curve Criteria) pci / Rock Emass psi / krm / Test Type / Test Prop. / Elas. Subgr. pci					
1	Soft Clay	0.500	117.400	1.000	--	--
--	0.02000 -- --	4.000	117.400	1.000	--	--
--	0.02000 -- --	4.000	55.000	--	33.000	--
2	Sand (Reese, et al.)	13.500	55.000	--	33.000	--
--	-- 60.000 --	13.500	45.000	--	28.000	--
--	-- 60.000 --	19.500	45.000	--	28.000	--
3	Sand (Reese, et al.)	19.500	55.000	--	33.000	--
--	-- 20.000 --	23.500	55.000	--	33.000	--
--	-- 20.000 --	23.500	40.000	--	28.000	--
4	Sand (Reese, et al.)	52.500	40.000	--	28.000	--
--	-- 60.000 --					
--	-- 60.000 --					
5	Sand (Reese, et al.)					
--	-- 20.000 --					
--	-- 20.000 --					

Loading Type

Static loading criteria were used when computing p-y curves for all analyses.

Pile-head Loading and Pile-head Fixity Conditions

Number of loads specified = 3

Load No.	Load Type	Condition 1	Condition 2	Axial Thrust Force, lbs
1	1	V = 23000. lbs	M = 25116000. in-lbs	26000.
2	1	V = 36800. lbs	M = 40185600. in-lbs	31200.
3	1	V = 36800. lbs	M = 40185600. in-lbs	23400.

V = perpendicular shear force applied to pile head
M = bending moment applied to pile head
y = lateral deflection relative to pile axis
S = pile slope relative to original pile batter angle
R = rotational stiffness applie to pile head
Axial thrust is assumed to be acting axially for all pile batter angles.

Shear Resistance Curve at Pile Tip

Point No.	Displacement in	Tip Shear Force lbs
1	0.000	0.000
2	0.120	24091.360
3	10.000	24091.360

Computations of Nominal Moment Capacity and Nonlinear Bending Stiffness

Axial thrust force values were determined from pile-head loading conditions

Number of Pile Sections Analyzed = 1

Pile Section No. 1:

Dimensions and Properties of Drilled Shaft:

Length of Section	=	32.50000000 ft
Shaft Diameter	=	84.00000000 in
Concrete Cover Thickness	=	3.00000000 in
Number of Reinforcing Bars	=	27 bars

Yield Stress of Reinforcing Bars	=	60.00000000 ksi
Modulus of Elasticity of Reinforcing Bars	=	29000. ksi
Gross Area of Shaft	=	5541.76944093 sq. in.
Total Area of Reinforcing Steel	=	42.12000000 sq. in.
Area Ratio of Steel Reinforcement	=	0.76 percent
Edge-to-Edge Bar Spacing	=	7.48155629 in

Axial Structural Capacities:

Nom. Axial Structural Capacity = 0.85 Fc Ac + Fy As	=	16551.306 kips
Tensile Load for Cracking of Concrete	=	-2132.635 kips
Nominal Axial Tensile Capacity	=	-2527.200 kips

Reinforcing Bar Dimensions and Positions Used in Computations:

Bar Number	Bar Diam. inches	Bar Area sq. in.	X inches	Y inches
1	1.41000	1.56000	38.29500	0.00000
2	1.41000	1.56000	37.26275	8.83143
3	1.41000	1.56000	34.22166	17.18676
4	1.41000	1.56000	29.33567	24.61555
5	1.41000	1.56000	22.86819	30.71731
6	1.41000	1.56000	15.16787	35.16309
7	1.41000	1.56000	6.64986	37.71321
8	1.41000	1.56000	-2.22666	38.23021
9	1.41000	1.56000	-10.98313	36.68621
10	1.41000	1.56000	-19.14750	33.16444
11	1.41000	1.56000	-26.27962	27.85477
12	1.41000	1.56000	-31.99501	21.04345
13	1.41000	1.56000	-35.98553	13.09766
14	1.41000	1.56000	-38.03606	4.44578
15	1.41000	1.56000	-38.03606	-4.44578
16	1.41000	1.56000	-35.98553	-13.09766
17	1.41000	1.56000	-31.99501	-21.04345
18	1.41000	1.56000	-26.27962	-27.85477
19	1.41000	1.56000	-19.14750	-33.16444
20	1.41000	1.56000	-10.98313	-36.68621
21	1.41000	1.56000	-2.22666	-38.23021
22	1.41000	1.56000	6.64986	-37.71321
23	1.41000	1.56000	15.16787	-35.16309
24	1.41000	1.56000	22.86819	-30.71731
25	1.41000	1.56000	29.33567	-24.61555
26	1.41000	1.56000	34.22166	-17.18676
27	1.41000	1.56000	37.26275	-8.83143

Concrete Properties:

Compressive Strength of Concrete	=	3.0000000 ksi
Modulus of Elasticity of Concrete	=	3122.0185778 ksi
Modulus of Rupture of Concrete	=	-0.4107919 ksi
Compression Strain at Peak Stress	=	0.0016336
Tensile Strain at Fracture of Concrete	=	-0.0001160
Maximum Coarse Aggregate Size	=	0.7500000 in

Number of Axial Thrust Force Values Determined from Pile-head Loadings = 3

Number	Axial Thrust Force kips
1	23.400
2	26.000
3	31.200

Definitions of Run Messages and Notes:

C = concrete in section has cracked in tension
Y = stress in reinforcing steel has reached yield stress
T = tensile strain in reinforcement exceeds 0.005 when compressive strain in concrete is less than 0.003.
Z = depth of tensile zone in concrete section is less than 10 percent of section depth
Bending Stiffness (EI) = Bending Moment / Curvature
Position of neutral axis is computed from compression side of pile
Compressive stresses are positive in sign. Tensile stresses are negative in sign.

Axial Thrust Force = 23.400 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Concrete Stress ksi	Max Steel Stress ksi	Run Msg
0.000000313	3042.3616015	9735557125.	45.5068230	0.0000142	-0.0000120	0.0515275	0.4085993	
0.000000625	6069.7661129	9711625781.	43.7590520	0.0000273	-0.0000252	0.0986644	0.7855203	

0.000000938	9082.0833262	9687555548.	43.1764904	0.0000405	-0.0000383	0.1454215
1.1624421						
0.000001250	12079.	9663450499.	42.8852289	0.0000536	-0.0000514	0.1917988
1.5393645						
0.000001563	15061.	9639331510.	42.7104870	0.0000667	-0.0000645	0.2377965
1.9162877						
0.000001875	18029.	9615205551.	42.5940051	0.0000799	-0.0000776	0.2834144
2.2932115						
0.000002188	20980.	9591075610.	42.5108148	0.0000930	-0.0000908	0.3286525
2.6701361						
0.000002500	23917.	9566943180.	42.4484317	0.0001061	-0.0001039	0.3735109
3.0470613						
0.000002813	23917.	8503949493.	21.1167463	0.0000594	-0.0001769	0.2099924
-5.0946591 C						
0.000003125	23917.	7653554544.	20.9610402	0.0000655	-0.0001970	0.2311379
-5.6748432 C						
0.000003438	23917.	6957776858.	20.8347402	0.0000716	-0.0002171	0.2522163
-6.2549181 C						
0.000003750	23917.	6377962120.	20.7304981	0.0000777	-0.0002373	0.2732273
-6.8348833 C						
0.000004063	23917.	5887349649.	20.6432265	0.0000839	-0.0002574	0.2941709
-7.4147386 C						
0.000004375	23917.	5466824674.	20.5688059	0.0000900	-0.0002775	0.3150396
-7.9945452 C						
0.000004688	23917.	5102369696.	20.5026693	0.0000961	-0.0002976	0.3358009
-8.5745746 C						
0.000005000	23917.	4783471590.	20.4455936	0.0001022	-0.0003178	0.3564953
-9.1544889 C						
0.000005313	23917.	4502090908.	20.3959822	0.0001084	-0.0003379	0.3771227
-9.7342877 C						
0.000005625	23917.	4251974747.	20.3525936	0.0001145	-0.0003580	0.3976830
-10.3139707 C						
0.000005938	23917.	4028186602.	20.3144474	0.0001206	-0.0003781	0.4181761
-10.8935373 C						
0.000006250	23917.	3826777272.	20.2807595	0.0001268	-0.0003982	0.4386017
-11.4729873 C						
0.000006563	23917.	3644549783.	20.2508951	0.0001329	-0.0004184	0.4589600
-12.0523203 C						
0.000006875	23917.	3478888429.	20.2243348	0.0001390	-0.0004385	0.4792506
-12.6315357 C						
0.000007188	23917.	3327632410.	20.2006496	0.0001452	-0.0004586	0.4994735
-13.2106335 C						
0.000007500	23917.	3188981060.	20.1794819	0.0001513	-0.0004787	0.5196286
-13.7896128 C						
0.000007813	23917.	3061421817.	20.1605315	0.0001575	-0.0004987	0.5397157
-14.3684735 C						
0.000008125	23917.	2943674825.	20.1435442	0.0001637	-0.0005188	0.5597348
-14.9472150 C						
0.000008438	23917.	2834649831.	20.1283036	0.0001698	-0.0005389	0.5796857
-15.5258371 C						
0.000008750	23917.	2733412337.	20.1146242	0.0001760	-0.0005590	0.5995683
-16.1043392 C						
0.000009063	23917.	2639156739.	20.1023462	0.0001822	-0.0005791	0.6193825
-16.6827210 C						
0.000009375	23917.	2551184848.	20.0913308	0.0001884	-0.0005991	0.6391281
-17.2609820 C						
0.000009688	23917.	2468888562.	20.0814575	0.0001945	-0.0006192	0.6588050
-17.8391218 C						
0.0000100	23917.	2391735795.	20.0726206	0.0002007	-0.0006393	0.6784132
-18.4171401 C						
0.0000103	23917.	2319258953.	20.0647273	0.0002069	-0.0006593	0.6979524
-18.9950363 C						
0.0000106	23917.	2251045454.	20.0576959	0.0002131	-0.0006794	0.7174226
-19.5728100 C						
0.0000109	23917.	2186729870.	20.0514537	0.0002193	-0.0006994	0.7368236
-20.1504608 C						
0.0000113	23917.	2125987373.	20.0459364	0.0002255	-0.0007195	0.7561554
-20.7279883 C						
0.0000116	23917.	2068528255.	20.0410865	0.0002317	-0.0007395	0.7754177
-21.3053919 C						
0.0000119	23917.	2014093301.	20.0368525	0.0002379	-0.0007596	0.7946104
-21.8826714 C						
0.0000122	23917.	1962449883.	20.0331885	0.0002442	-0.0007796	0.8137335
-22.4598262 C						
0.0000128	23917.	1866720620.	20.0274081	0.0002566	-0.0008196	0.8517702
-23.6137599 C						
0.0000134	24889.	1852194046.	20.0234592	0.0002691	-0.0008597	0.8895266
-24.7671895 C						
0.0000141	26010.	1849599654.	20.0211064	0.0002815	-0.0008997	0.9270018
-25.9201113 C						
0.0000147	27130.	1847150710.	20.0201549	0.0002940	-0.0009397	0.9641946
-27.0725215 C						
0.0000153	28249.	1844828943.	20.0204415	0.0003066	-0.0009797	1.0011040
-28.2244164 C						
0.0000159	29367.	1842618947.	20.0218289	0.0003191	-0.0010197	1.0377290
-29.3757922 C						
0.0000166	30483.	1840507633.	20.0242005	0.0003317	-0.0010596	1.0740683
-30.5266449 C						
0.0000172	31599.	1838483812.	20.0274569	0.0003442	-0.0010995	1.1101210
-31.6769707 C						
0.0000178	32713.	1836537861.	20.0315126	0.0003568	-0.0011394	1.1458860
-32.8267655 C						
0.0000184	33827.	1834661453.	20.0362939	0.0003694	-0.0011793	1.1813620
-33.9760254 C						
0.0000191	34939.	1832847354.	20.0417368	0.0003820	-0.0012192	1.2165480
-35.1247461 C						
0.0000197	36050.	1831089237.	20.0477857	0.0003947	-0.0012591	1.2514428
-36.2729237 C						

0.0000203	37159.	1829381555.	20.0543917	0.0004074	-0.0012989	1.2860453
-37.4205537 C						
0.0000209	38268.	1827719414.	20.0615119	0.0004200	-0.0013387	1.3203542
-38.5676321 C						
0.0000216	39375.	1826098485.	20.0691086	0.0004327	-0.0013785	1.3543685
-39.7141544 C						
0.0000222	40481.	1824514921.	20.0771484	0.0004455	-0.0014183	1.3880868
-40.8601163 C						
0.0000228	41586.	1822965293.	20.0856015	0.0004582	-0.0014580	1.4215080
-42.0055132 C						
0.0000234	42690.	1821446531.	20.0944416	0.0004710	-0.0014978	1.4546309
-43.1503407 C						
0.0000241	43793.	1819955882.	20.1036450	0.0004837	-0.0015375	1.4874541
-44.2945943 C						
0.0000247	44894.	1818490866.	20.1131907	0.0004965	-0.0015772	1.5199765
-45.4382691 C						
0.0000253	45994.	1817049242.	20.1230597	0.0005094	-0.0016169	1.5521968
-46.5813606 C						
0.0000259	47093.	1815628982.	20.1332351	0.0005222	-0.0016565	1.5841137
-47.7238639 C						
0.0000266	48190.	1814228246.	20.1437015	0.0005351	-0.0016962	1.6157258
-48.8657742 C						
0.0000272	49287.	1812845354.	20.1544451	0.0005479	-0.0017358	1.6470319
-50.0070865 C						
0.0000278	50382.	1811478777.	20.1654535	0.0005609	-0.0017754	1.6780307
-51.1477958 C						
0.0000284	51475.	1810127113.	20.1767152	0.0005738	-0.0018150	1.7087207
-52.2878971 C						
0.0000291	52568.	1808789078.	20.1882202	0.0005867	-0.0018545	1.7391007
-53.4273851 C						
0.0000297	53659.	1807463590.	20.1999592	0.0005997	-0.0018941	1.7691692
-54.5662538 C						
0.0000303	54749.	1806149368.	20.2119236	0.0006127	-0.0019336	1.7989249
-55.7044995 C						
0.0000309	55837.	1804845501.	20.2241060	0.0006257	-0.0019731	1.8283662
-56.8421161 C						
0.0000316	56925.	1803551059.	20.2364992	0.0006387	-0.0020125	1.8574918
-57.9790980 C						
0.0000322	58010.	1802265180.	20.2490971	0.0006518	-0.0020520	1.8863002
-59.1154396 C						
0.0000328	59095.	1800987063.	20.2618938	0.0006648	-0.0020914	1.9147900
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0.0000334	60178.	1799715963.	20.2748842	0.0006779	-0.0021308	1.9429596
-60.0000000 CY						
0.0000341	61259.	1798438121.	20.2880127	0.0006911	-0.0021702	1.9708039
-60.0000000 CY						
0.0000347	62295.	1795889457.	20.2963013	0.0007040	-0.0022097	1.9979549
-60.0000000 CY						
0.0000353	63199.	1789697882.	20.2901837	0.0007165	-0.0022498	2.0236992
-60.0000000 CY						
0.0000359	64004.	1780985407.	20.2738310	0.0007286	-0.0022902	2.0483318
-60.0000000 CY						
0.0000366	64748.	1770887949.	20.2516619	0.0007405	-0.0023308	2.0721736
-60.0000000 CY						
0.0000372	65426.	1759365317.	20.2233231	0.0007521	-0.0023717	2.0951943
-60.0000000 CY						
0.0000397	67789.	1708065716.	20.0846049	0.0007971	-0.0025366	2.1817771
-60.0000000 CY						
0.0000422	69703.	1652208385.	19.9194403	0.0008404	-0.0027034	2.2607111
-60.0000000 CY						
0.0000447	71319.	1595945198.	19.7451381	0.0008824	-0.0028714	2.3335072
-60.0000000 CY						
0.0000472	72699.	1540631226.	19.5576568	0.0009229	-0.0030409	2.4000809
-60.0000000 CY						
0.0000497	73857.	1486425620.	19.3662190	0.0009623	-0.0032115	2.4613890
-60.0000000 CY						
0.0000522	74927.	1435729951.	19.1863329	0.0010013	-0.0033825	2.5188723
-60.0000000 CY						
0.0000547	75828.	1386560826.	19.0057266	0.0010394	-0.0035544	2.5718109
-60.0000000 CY						
0.0000572	76694.	1341092296.	18.8362937	0.0010772	-0.0037265	2.6213204
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0.0000597	77393.	1296631626.	18.6559577	0.0011135	-0.0039002	2.6659558
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0.0000622	78080.	1255551797.	18.4914812	0.0011499	-0.0040738	2.7078900
-60.0000000 CY						
0.0000647	78702.	1216653706.	18.3336928	0.0011860	-0.0042478	2.7465968
-60.0000000 CY						
0.0000672	79236.	1179319584.	18.1781792	0.0012213	-0.0044224	2.7819243
-60.0000000 CY						
0.0000697	79759.	1144519655.	18.0333212	0.0012567	-0.0045971	2.8145689
-60.0000000 CY						
0.0000722	80263.	1111866286.	17.8907860	0.0012915	-0.0047723	2.8441026
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0.0000747	80674.	1080158747.	17.7462257	0.0013254	-0.0049483	2.8704173
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0.0000772	81060.	1050167667.	17.6093389	0.0013592	-0.0051245	2.8942113
-60.0000000 CY						
0.0000797	81442.	1022020059.	17.4827557	0.0013932	-0.0053006	2.9156779
-60.0000000 CY						
0.0000822	81822.	995546964.	17.3655635	0.0014272	-0.0054765	2.9347880
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0.0000847	82157.	970119896.	17.2505778	0.0014609	-0.0056528	2.9512592
-60.0000000 CY						
0.0000872	82437.	945516392.	17.1292437	0.0014935	-0.0058303	2.9648901
-60.0000000 CY						
0.0000897	82707.	922169087.	17.0127199	0.0015258	-0.0060079	2.9762330
-60.0000000 CY						

0.0000922	82974.	900060704.	16.9039614	0.0015583	-0.0061854	2.9854041
-60.0000000 CY						
0.0000947	83239.	879092576.	16.8023773	0.0015910	-0.0063628	2.9923757
-60.0000000 CY						
0.0000972	83494.	859103978.	16.7061876	0.0016236	-0.0065401	2.9971051
-60.0000000 CY						
0.0000997	83733.	839950916.	16.6137573	0.0016562	-0.0067176	2.9995837
-60.0000000 CY						
0.0001022	83923.	821264869.	16.5192519	0.0016881	-0.0068957	2.9975939
-60.0000000 CY						
0.0001047	84109.	803432818.	16.4303763	0.0017201	-0.0070737	2.9976818
-60.0000000 CY						
0.0001072	84290.	786377750.	16.3432498	0.0017518	-0.0072520	2.9996818
-60.0000000 CY						
0.0001097	84464.	770040146.	16.2565266	0.0017831	-0.0074306	2.9976377
-60.0000000 CY						
0.0001122	84635.	754409664.	16.1749731	0.0018146	-0.0076091	2.9966580
-60.0000000 CY						
0.0001147	84805.	739446205.	16.0979835	0.0018462	-0.0077875	2.9991082
-60.0000000 CY						
0.0001172	84968.	725062173.	16.0242096	0.0018778	-0.0079659	2.9999963
-60.0000000 CY						
0.0001197	85127.	711241539.	15.9545705	0.0019096	-0.0081442	2.9948777
-60.0000000 CY						
0.0001222	85254.	697735034.	15.8825542	0.0019406	-0.0083231	2.9969437
-60.0000000 CY						
0.0001247	85376.	684721566.	15.8132159	0.0019717	-0.0085020	2.9990914
-60.0000000 CY						
0.0001272	85491.	672165390.	15.7461723	0.0020027	-0.0086810	2.9999744
-60.0000000 CY						
0.0001297	85603.	660068761.	15.6826174	0.0020338	-0.0088599	2.9960535
-60.0000000 CY						
0.0001322	85713.	648421033.	15.6222032	0.0020651	-0.0090387	2.9947760
-60.0000000 CY						
0.0001347	85823.	637198934.	15.5646585	0.0020964	-0.0092174	2.9975887
-60.0000000 CY						
0.0001372	85929.	626358771.	15.5060984	0.0021272	-0.0093965	2.9993038
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0.0001522	86503.	568398983.	15.1852070	0.0023110	-0.0104728	2.9992594
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0.0001672	86906.	519813836.	14.9045214	0.0024918	-0.0115519	2.9966543
60.0000000 CY						
0.0001822	87273.	479027061.	14.6779549	0.0026741	-0.0126296	2.9904789
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0.0001972	87575.	444121054.	14.4755323	0.0028544	-0.0137094	2.9994829
60.0000000 CY						
0.0002122	87761.	413602487.	14.3059020	0.0030355	-0.0147882	2.9864583
60.0000000 CY						
0.0002272	87883.	386830679.	14.1747865	0.0032203	-0.0158634	2.9985957
60.0000000 CY						
0.0002422	87987.	363302923.	14.0711044	0.0034078	-0.0169359	2.9906387
60.0000000 CY						
0.0002572	88065.	342416820.	13.9964318	0.0035997	-0.0180040	2.9916451
60.0000000 CY						
0.0002722	88137.	323810347.	13.9356228	0.0037931	-0.0190706	2.9998240
60.0000000 CY						
0.0002872	88137.	306897511.	13.9829204	0.0040157	-0.0201080	2.9812216
60.0000000 CY						

Axial Thrust Force = 26.000 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Concrete Stress ksi	Max Steel Stress ksi	Run Msg
0.000000313	3042.3308038	9735458572.	45.8964821	0.0000143	-0.0000119	0.0519709	0.4121306	
0.000000625	6069.7350270	9711576043.	43.9545067	0.0000275	-0.0000250	0.0991056	0.7890629	
0.000000938	9082.0520190	9687522154.	43.3072146	0.0000406	-0.0000381	0.1458606	1.1659961	
0.000001250	12079.	9663425288.	42.9835903	0.0000537	-0.0000513	0.1922358	1.5429302	
0.000001563	15061.	9639311208.	42.7894325	0.0000669	-0.0000644	0.2382312	1.9198649	
0.000001875	18028.	9615188521.	42.6600080	0.0000800	-0.0000775	0.2838469	2.2968004	
0.000002188	20980.	9591060916.	42.5675741	0.0000931	-0.0000906	0.3290828	2.6737367	
0.000002500	23917.	9566930237.	42.4982595	0.0001062	-0.0001038	0.3739389	3.0506738	
0.000002813	23917.	8503937989.	21.2982788	0.0000599	-0.0001763	0.2118006	-5.0798529	C
0.000003125	23917.	7653544190.	21.1245919	0.0000660	-0.0001965	0.2329411	-5.6600213	C
0.000003438	23917.	6957767445.	20.9835810	0.0000721	-0.0002166	0.2540145	-6.2400805	C
0.000003750	23917.	6377953491.	20.8670803	0.0000783	-0.0002367	0.2750205	-6.8200300	C
0.000004063	23917.	5887341684.	20.7694366	0.0000844	-0.0002569	0.2959591	-7.3998695	C
0.000004375	23917.	5466817278.	20.6866118	0.0000905	-0.0002770	0.3168302	-7.9795986	C

0.000004688	23917.	5102362793.	20.6156448	0.0000966	-0.0002971	0.3376336
-8.5592170 C						
0.000005000	23917.	4783465119.	20.5531466	0.0001028	-0.0003172	0.3583491
-9.1388937 C						
0.000005313	23917.	4502084817.	20.4973227	0.0001089	-0.0003374	0.3789714
-9.7186750 C						
0.000005625	23917.	4251968994.	20.4484122	0.0001150	-0.0003575	0.3995265
-10.2983402 C						
0.000005938	23917.	4028181152.	20.4053258	0.0001212	-0.0003776	0.4200143
-10.8778892 C						
0.000006250	23917.	3826772095.	20.3671922	0.0001273	-0.0003977	0.4404348
-11.4573214 C						
0.000006563	23917.	3644544852.	20.3333057	0.0001334	-0.0004178	0.4607878
-12.0366365 C						
0.000006875	23917.	3478883723.	20.3030894	0.0001396	-0.0004379	0.4810732
-12.6158340 C						
0.000007188	23917.	3327627909.	20.2760664	0.0001457	-0.0004580	0.5012908
-13.1949136 C						
0.000007500	23917.	3188976746.	20.2518394	0.0001519	-0.0004781	0.5214407
-13.7738749 C						
0.000007813	23917.	3061417676.	20.2300748	0.0001580	-0.0004982	0.5415225
-14.3527176 C						
0.000008125	23917.	2943670842.	20.2104900	0.0001642	-0.0005183	0.5615363
-14.9314409 C						
0.000008438	23917.	2834645996.	20.1928447	0.0001704	-0.0005384	0.5814819
-15.5100447 C						
0.000008750	23917.	2733408639.	20.1769327	0.0001765	-0.0005585	0.6013592
-16.0885284 C						
0.000009063	23917.	2639153169.	20.1625762	0.0001827	-0.0005785	0.6211680
-16.6668918 C						
0.000009375	23917.	2551181397.	20.1496212	0.0001889	-0.0005986	0.6409083
-17.2451343 C						
0.000009688	23917.	2468885222.	20.1379337	0.0001951	-0.0006187	0.6605799
-17.8232556 C						
0.0000100	23917.	2391732559.	20.1273963	0.0002013	-0.0006387	0.6801827
-18.4012551 C						
0.0000103	23917.	2319255815.	20.1179058	0.0002075	-0.0006588	0.6997165
-18.9791326 C						
0.0000106	23917.	2251042409.	20.1093713	0.0002137	-0.0006788	0.7191813
-19.5568875 C						
0.0000109	23917.	2186726911.	20.1017123	0.0002199	-0.0006989	0.7385769
-20.1345194 C						
0.0000113	23917.	2125984497.	20.0948570	0.0002261	-0.0007189	0.7579032
-20.7120279 C						
0.0000116	23917.	2068525457.	20.0887418	0.0002323	-0.0007390	0.7771601
-21.2894125 C						
0.0000119	23917.	2014090576.	20.0833093	0.0002385	-0.0007590	0.7963474
-21.8666729 C						
0.0000122	23917.	1962447228.	20.0785084	0.0002447	-0.0007790	0.8154650
-22.4438084 C						
0.0000128	23917.	1866718095.	20.0706213	0.0002572	-0.0008191	0.8534907
-23.5977036 C						
0.0000134	24946.	1856458995.	20.0647624	0.0002696	-0.0008591	0.8912361
-24.7510942 C						
0.0000141	26067.	1853669852.	20.0606703	0.0002821	-0.0008991	0.9287001
-25.9039766 C						
0.0000147	27187.	1851042693.	20.0581283	0.0002946	-0.0009391	0.9658818
-27.0563472 C						
0.0000153	28306.	1848557225.	20.0569550	0.0003071	-0.0009791	1.0027800
-28.2082021 C						
0.0000159	29424.	1846196331.	20.0569977	0.0003197	-0.0010191	1.0393936
-29.3595376 C						
0.0000166	30540.	1843945474.	20.0581268	0.0003322	-0.0010590	1.0757216
-30.5103497 C						
0.0000172	31656.	1841792226.	20.0602317	0.0003448	-0.0010990	1.1117629
-31.6606345 C						
0.0000178	32770.	1839725897.	20.0632175	0.0003574	-0.0011389	1.1475163
-32.8103879 C						
0.0000184	33883.	1837737242.	20.0670020	0.0003700	-0.0011788	1.1829808
-33.9596061 C						
0.0000191	34995.	1835818223.	20.0715143	0.0003826	-0.0012186	1.2181552
-35.1082848 C						
0.0000197	36106.	1833961819.	20.0766922	0.0003953	-0.0012585	1.2530383
-36.2564198 C						
0.0000203	37216.	1832161868.	20.0824814	0.0004079	-0.0012983	1.2876290
-37.4040071 C						
0.0000209	38324.	1830412937.	20.0888343	0.0004206	-0.0013381	1.3219261
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0.0000216	39432.	1828710220.	20.0957088	0.0004333	-0.0013779	1.3559284
-39.6975210 C						
0.0000222	40538.	1827049447.	20.1030676	0.0004460	-0.0014177	1.3896347
-40.8434388 C						
0.0000228	41643.	1825426812.	20.1108777	0.0004588	-0.0014575	1.4230439
-41.9887914 C						
0.0000234	42746.	1823838910.	20.1191096	0.0004715	-0.0014972	1.4561546
-43.1335742 C						
0.0000241	43849.	1822282685.	20.1277370	0.0004843	-0.0015369	1.4889657
-44.2777825 C						
0.0000247	44950.	1820755385.	20.1367365	0.0004971	-0.0015766	1.5214758
-45.4214117 C						
0.0000253	46050.	1819254526.	20.1460869	0.0005099	-0.0016163	1.5536837
-46.5644572 C						
0.0000259	47149.	1817777860.	20.1557691	0.0005228	-0.0016560	1.5855881
-47.7069140 C						
0.0000266	48246.	1816323345.	20.1657662	0.0005357	-0.0016956	1.6171877
-48.8487774 C						
0.0000272	49342.	1814889121.	20.1760626	0.0005485	-0.0017352	1.6484813
-49.9900424 C						

0.0000278	50437.	1813473492.	20.1866444	0.0005614	-0.0017748	1.6794673
-51.1307039 C						
0.0000284	51531.	1812074907.	20.1974989	0.0005744	-0.0018144	1.7101446
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0.0000291	52623.	1810691944.	20.2086147	0.0005873	-0.0018539	1.7405117
-53.4101963 C						
0.0000297	53714.	1809323294.	20.2199814	0.0006003	-0.0018935	1.7705672
-54.5490168 C						
0.0000303	54804.	1807967852.	20.2315895	0.0006133	-0.0019330	1.8003099
-55.6872120 C						
0.0000309	55892.	1806624317.	20.2434304	0.0006263	-0.0019725	1.8297381
-56.8247784 C						
0.0000316	56980.	1805291753.	20.2554963	0.0006393	-0.0020119	1.8588505
-57.9617097 C						
0.0000322	58065.	1803969207.	20.2677801	0.0006524	-0.0020514	1.8876456
-59.0980002 C						
0.0000328	59150.	1802655795.	20.2802752	0.0006654	-0.0020908	1.9161220
-60.0000000 CY						
0.0000334	60233.	1801350695.	20.2929757	0.0006785	-0.0021302	1.9442781
-60.0000000 CY						
0.0000341	61314.	1800047425.	20.3058541	0.0006917	-0.0021696	1.9721109
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0.0000347	62352.	1797521097.	20.3140863	0.0007046	-0.0022091	1.9992641
-60.0000000 CY						
0.0000353	63257.	1791344427.	20.3078870	0.0007171	-0.0022491	2.0250086
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0.0000359	64063.	1782633516.	20.2914028	0.0007292	-0.0022895	2.0496377
-60.0000000 CY						
0.0000366	64809.	1772554206.	20.2691782	0.0007411	-0.0023302	2.0734813
-60.0000000 CY						
0.0000372	65487.	1761007776.	20.2406108	0.0007527	-0.0023711	2.0964906
-60.0000000 CY						
0.0000397	67853.	1709671897.	20.1012747	0.0007978	-0.0025360	2.1830457
-60.0000000 CY						
0.0000422	69768.	1653756153.	19.9354500	0.0008410	-0.0027027	2.2619421
-60.0000000 CY						
0.0000447	71385.	1597426990.	19.7604933	0.0008830	-0.0028707	2.3346947
-60.0000000 CY						
0.0000472	72766.	1542068984.	19.5733678	0.0009236	-0.0030401	2.4012979
-60.0000000 CY						
0.0000497	73925.	1487802111.	19.3813286	0.0009630	-0.0032107	2.4625567
-60.0000000 CY						
0.0000522	74997.	1437061110.	19.2009717	0.0010021	-0.0033817	2.5199954
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0.0000547	75897.	1387832743.	19.0198117	0.0010401	-0.0035536	2.5728791
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0.0000572	76764.	1342328945.	18.8508728	0.0010780	-0.0037257	2.6224076
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0.0000597	77464.	1297827975.	18.6701210	0.0011144	-0.0038994	2.6669911
-60.0000000 CY						
0.0000622	78151.	1256697546.	18.5051557	0.0011508	-0.0040730	2.7088639
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0.0000647	78775.	1217771777.	18.3470859	0.0011868	-0.0042469	2.7475208
-60.0000000 CY						
0.0000672	79308.	1180396711.	18.1911702	0.0012222	-0.0044215	2.7827877
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0.0000697	79832.	1145567013.	18.0468823	0.0012576	-0.0045961	2.8154309
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0.0000722	80337.	1112889429.	17.9041131	0.0012925	-0.0047713	2.8449070
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0.0000747	80748.	1081151095.	17.7592387	0.0013264	-0.0049474	2.8711582
-60.0000000 CY						
0.0000772	81134.	1051126047.	17.6219983	0.0013602	-0.0051236	2.8948842
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0.0000797	81516.	1022946574.	17.4950856	0.0013941	-0.0052996	2.9162818
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0.0000822	81895.	996443522.	17.3775859	0.0014282	-0.0054755	2.9353220
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0.0000847	82231.	970995954.	17.2624105	0.0014619	-0.0056518	2.9517272
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0.0000872	82513.	946383467.	17.1419137	0.0014946	-0.0058292	2.9653276
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0.0000897	82783.	923010459.	17.0251052	0.0015269	-0.0060068	2.9765948
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0.0000922	83050.	900877742.	16.9160795	0.0015595	-0.0061843	2.9856889
-60.0000000 CY						
0.0000947	83314.	879886540.	16.8142442	0.0015921	-0.0063617	2.9925823
-60.0000000 CY						
0.0000972	83570.	859879781.	16.7178820	0.0016248	-0.0065390	2.9972333
-60.0000000 CY						
0.0000997	83809.	840714536.	16.6253829	0.0016573	-0.0067164	2.9996323
-60.0000000 CY						
0.0001022	83999.	822008214.	16.5306635	0.0016892	-0.0068945	2.9973517
-60.0000000 CY						
0.0001047	84185.	804157595.	16.4415824	0.0017212	-0.0070725	2.9978000
-60.0000000 CY						
0.0001072	84367.	787093168.	16.3553818	0.0017531	-0.0072507	2.9997291
-60.0000000 CY						
0.0001097	84540.	770737619.	16.2684709	0.0017844	-0.0074293	2.9973655
-60.0000000 CY						
0.0001122	84712.	755090530.	16.1867159	0.0018159	-0.0076078	2.9968176
-60.0000000 CY						
0.0001147	84881.	740111171.	16.1095354	0.0018476	-0.0077862	2.9991901
-60.0000000 CY						
0.0001172	85045.	725713400.	16.0356153	0.0018792	-0.0079646	2.9999997
-60.0000000 CY						
0.0001197	85203.	711877729.	15.9658226	0.0019109	-0.0081428	2.9945980
-60.0000000 CY						

0.0001222	85331.	698364757.	15.8938164	0.0019420	-0.0083217	2.9971029
-60.0000000 CY						
0.0001247	85453.	685337845.	15.8243050	0.0019731	-0.0085007	2.9991776
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0.0001272	85568.	672770253.	15.7571357	0.0020041	-0.0086796	2.9999872
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0.0001297	85679.	660660731.	15.6934465	0.0020352	-0.0088585	2.9957618
-60.0000000 CY						
0.0001322	85790.	649001146.	15.6328727	0.0020665	-0.0090373	2.9949899
-60.0000000 CY						
0.0001347	85899.	637767623.	15.5751754	0.0020978	-0.0092160	2.9977340
-60.0000000 CY						
0.0001372	86006.	626923452.	15.5177519	0.0021288	-0.0093949	2.9993904
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0.0001522	86581.	568911134.	15.1962792	0.0023127	-0.0104711	2.9993535
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0.0001672	86984.	520278971.	14.9149100	0.0024936	-0.0115502	2.9968640
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0.0001822	87351.	479456453.	14.6892729	0.0026762	-0.0126275	2.9900506
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0.0001972	87652.	444512885.	14.4867384	0.0028566	-0.0137071	2.9995840
60.0000000 CY						
0.0002122	87839.	413969381.	14.3168807	0.0030379	-0.0147859	2.9862197
60.0000000 CY						
0.0002272	87960.	387169429.	14.1857485	0.0032228	-0.0158609	2.9987866
60.0000000 CY						
0.0002422	88063.	363616933.	14.0820174	0.0034105	-0.0169333	2.9900897
60.0000000 CY						
0.0002572	88141.	342711647.	14.0069405	0.0036024	-0.0180013	2.9921608
60.0000000 CY						
0.0002722	88212.	324086652.	13.9460195	0.0037959	-0.0190678	2.9998946
60.0000000 CY						
0.0002872	88212.	307159384.	13.9935436	0.0040188	-0.0201050	2.9805879
60.0000000 CY						

Axial Thrust Force = 31.200 kips

Bending Curvature rad/in.	Bending Moment in-kip	Bending Stiffness kip-in2	Depth to N Axis in	Max Comp Strain in/in	Max Tens Strain in/in	Max Concrete Stress ksi	Max Steel Stress ksi	Run Msg
0.000000313	3042.2595683	9735230618.	46.6758106	0.0000146	-0.0000117	0.0528576	0.4191933	
0.000000625	6069.6630451	9711460872.	44.3454186	0.0000277	-0.0000248	0.0999880	0.7961482	
0.000000938	9081.9795207	9687444822.	43.5686642	0.0000408	-0.0000379	0.1467386	1.1731043	
0.000001250	12079.	9663366896.	43.1803136	0.0000540	-0.0000510	0.1931095	1.5500614	
0.000001563	15061.	9639264187.	42.9473237	0.0000671	-0.0000641	0.2391005	1.9270193	
0.000001875	18028.	9615149078.	42.7920140	0.0000802	-0.0000773	0.2847118	2.3039783	
0.000002188	20980.	9591026884.	42.6810931	0.0000934	-0.0000904	0.3299433	2.6809381	
0.000002500	23917.	9566900261.	42.5979153	0.0001065	-0.0001035	0.3747950	3.0578989	
0.000002813	23917.	8503911343.	21.6513289	0.0000609	-0.0001754	0.2153155	-5.0510573	C
0.000003125	23917.	7653520209.	21.4504757	0.0000670	-0.0001955	0.2365323	-5.6304881	C
0.000003438	23917.	6957745644.	21.2813709	0.0000732	-0.0002156	0.2576104	-6.2103946	C
0.000003750	23917.	6377933507.	21.1403443	0.0000793	-0.0002357	0.2786065	-6.7903125	C
0.000004063	23917.	5887323238.	21.0219489	0.0000854	-0.0002558	0.2995351	-7.3701204	C
0.000004375	23917.	5466800149.	20.9213380	0.0000915	-0.0002760	0.3203961	-7.9498177	C
0.000004688	23917.	5102346806.	20.8349572	0.0000977	-0.0002961	0.3411895	-8.5294042	C
0.000005000	23917.	4783450130.	20.7601409	0.0001038	-0.0003162	0.3619151	-9.1088796	C
0.000005313	23917.	4502070711.	20.6948505	0.0001099	-0.0003363	0.3825727	-9.6882433	C
0.000005625	23917.	4251955672.	20.6375008	0.0001161	-0.0003564	0.4031624	-10.2674952	C
0.000005938	23917.	4028168531.	20.5868399	0.0001222	-0.0003765	0.4236840	-10.8466347	C
0.000006250	23917.	3826760104.	20.5401236	0.0001284	-0.0003966	0.4441003	-11.4259776	C
0.000006563	23917.	3644533433.	20.4981902	0.0001345	-0.0004167	0.4644429	-12.0052569	C
0.000006875	23917.	3478872822.	20.4606592	0.0001407	-0.0004368	0.4847178	-12.5844186	C
0.000007188	23917.	3327617482.	20.4269582	0.0001468	-0.0004569	0.5049250	-13.1634621	C
0.000007500	23917.	3188966754.	20.3966104	0.0001530	-0.0004770	0.5250643	-13.7423872	C
0.000007813	23917.	3061408084.	20.3692152	0.0001591	-0.0004971	0.5451356	-14.3211934	C
0.000008125	23917.	2943661619.	20.3444337	0.0001653	-0.0005172	0.5651388	-14.8998803	C

0.000008438	23917.	2834637114.	20.3219772	0.0001715	-0.0005373	0.5850738
-15.4784474 C						
0.000008750	23917.	2733400075.	20.3015982	0.0001776	-0.0005574	0.6049404
-16.0568947 C						
0.000009063	23917.	2639144900.	20.2830833	0.0001838	-0.0005774	0.6247386
-16.6352211 C						
0.000009375	23917.	2551173403.	20.2662478	0.0001900	-0.0005975	0.6444682
-17.2134265 C						
0.000009688	23917.	2468877487.	20.2509306	0.0001962	-0.0006176	0.6641290
-17.7915106 C						
0.0000100	23917.	2391725065.	20.2369909	0.0002024	-0.0006376	0.6837211
-18.3694728 C						
0.0000103	23917.	2319248548.	20.2243048	0.0002086	-0.0006577	0.7032441
-18.9473127 C						
0.0000106	23917.	2251035356.	20.2127632	0.0002148	-0.0006777	0.7226981
-19.5250299 C						
0.0000109	23917.	2186720060.	20.2022693	0.0002210	-0.0006978	0.7420829
-20.1026240 C						
0.0000113	23917.	2125977836.	20.1927373	0.0002272	-0.0007178	0.7613983
-20.6800945 C						
0.0000116	23917.	2068518975.	20.1840903	0.0002334	-0.0007379	0.7806443
-21.2574410 C						
0.0000119	23917.	2014084265.	20.1762598	0.0002396	-0.0007579	0.7998207
-21.8346630 C						
0.0000122	23917.	1962441079.	20.1691844	0.0002458	-0.0007779	0.8189274
-22.4117602 C						
0.0000128	23939.	1868390377.	20.1570823	0.0002583	-0.0008180	0.8569311
-23.5655780 C						
0.0000134	25061.	1864987633.	20.1474023	0.0002707	-0.0008580	0.8946543
-24.7188905 C						
0.0000141	26182.	1861809033.	20.1398302	0.0002832	-0.0008980	0.9320961
-25.8716943 C						
0.0000147	27301.	1858825488.	20.1341060	0.0002957	-0.0009380	0.9692554
-27.0239855 C						
0.0000153	28420.	1856012654.	20.1300117	0.0003082	-0.0009780	1.0061311
-28.1757604 C						
0.0000159	29538.	1853350001.	20.1273641	0.0003208	-0.0010180	1.0427221
-29.3270151 C						
0.0000166	30654.	1850820091.	20.1260073	0.0003333	-0.0010579	1.0790274
-30.4777458 C						
0.0000172	31770.	1848408018.	20.1258086	0.0003459	-0.0010978	1.1150458
-31.6279485 C						
0.0000178	32884.	1846100961.	20.1266537	0.0003585	-0.0011377	1.1507762
-32.7776191 C						
0.0000184	33997.	1843887836.	20.1284441	0.0003711	-0.0011776	1.1862176
-33.9267537 C						
0.0000191	35109.	1841759005.	20.1310943	0.0003837	-0.0012175	1.2213686
-35.0753481 C						
0.0000197	36219.	1839706048.	20.1345296	0.0003964	-0.0012574	1.2562283
-36.2233982 C						
0.0000203	37329.	1837721579.	20.1386848	0.0004091	-0.0012972	1.2907955
-37.3708997 C						
0.0000209	38437.	1835799087.	20.1435025	0.0004218	-0.0013370	1.3250689
-38.5178483 C						
0.0000216	39544.	1833932813.	20.1489320	0.0004345	-0.0013768	1.3590474
-39.6642397 C						
0.0000222	40650.	1832117640.	20.1549284	0.0004472	-0.0014166	1.3927297
-40.8100695 C						
0.0000228	41755.	1830349009.	20.1614520	0.0004599	-0.0014563	1.4261147
-41.9553332 C						
0.0000234	42858.	1828622840.	20.1684672	0.0004727	-0.0014961	1.4592012
-43.1000263 C						
0.0000241	43961.	1826935476.	20.1759424	0.0004855	-0.0015358	1.4919878
-44.2441441 C						
0.0000247	45062.	1825283623.	20.1838490	0.0004983	-0.0015755	1.5244733
-45.3876820 C						
0.0000253	46162.	1823664308.	20.1921617	0.0005111	-0.0016151	1.5566565
-46.5306353 C						
0.0000259	47260.	1822074840.	20.2008574	0.0005240	-0.0016548	1.5885360
-47.6729991 C						
0.0000266	48357.	1820512778.	20.2099155	0.0005368	-0.0016944	1.6201106
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0.0000272	49453.	1818975900.	20.2193172	0.0005497	-0.0017340	1.6513788
-49.9559388 C						
0.0000278	50548.	1817462178.	20.2290456	0.0005626	-0.0017736	1.6823395
-51.0965046 C						
0.0000284	51642.	1815969761.	20.2390854	0.0005755	-0.0018132	1.7129912
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0.0000291	52734.	1814496949.	20.2494225	0.0005885	-0.0018528	1.7433326
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0.0000297	53825.	1813042182.	20.2600445	0.0006015	-0.0018923	1.7733622
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0.0000303	54914.	1811604026.	20.2709396	0.0006145	-0.0019318	1.8030787
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0.0000309	56002.	1810181249.	20.2820975	0.0006275	-0.0019713	1.8324807
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0.0000316	57089.	1808772447.	20.2935084	0.0006405	-0.0020107	1.8615667
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0.0000322	58175.	1807376574.	20.3051637	0.0006536	-0.0020502	1.8903352
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0.0000328	59259.	1805992579.	20.3170554	0.0006667	-0.0020896	1.9187847
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0.0000334	60342.	1804619483.	20.3291762	0.0006798	-0.0021290	1.9469139
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0.0000341	61423.	1803256378.	20.3415193	0.0006929	-0.0021684	1.9747211
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0.0000347	62465.	1800783754.	20.3496741	0.0007059	-0.0022079	2.0018811
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0.0000366	64929.	1775836547.	20.3040196	0.0007424	-0.0023289	2.0760797
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0.0000372	65610.	1764292197.	20.2752048	0.0007540	-0.0023698	2.0990819
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0.0000397	67980.	1712883842.	20.1346334	0.0007991	-0.0025347	2.1855813
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0.0000422	69898.	1656851323.	19.9674885	0.0008424	-0.0027014	2.2644024
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0.0000472	72900.	1544909078.	19.6046007	0.0009251	-0.0030387	2.4037137
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0.0000497	74062.	1490554783.	19.4115688	0.0009645	-0.0032092	2.4648901
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0.0000522	75136.	1439723153.	19.2302704	0.0010036	-0.0033802	2.5222392
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0.0000547	76036.	1390376312.	19.0480027	0.0010417	-0.0035521	2.5750131
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0.0000572	76905.	1344788963.	18.8799508	0.0010797	-0.0037241	2.6245714
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0.0000597	77607.	1300220414.	18.6984710	0.0011161	-0.0038977	2.6690586
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0.0000647	78919.	1220007692.	18.3738954	0.0011886	-0.0042452	2.7493653
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0.0000672	79453.	1182550746.	18.2171750	0.0012240	-0.0044198	2.7845111
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0.0000722	80484.	1114935489.	17.9307942	0.0012944	-0.0047694	2.8465114
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0.0000772	81282.	1053042592.	17.6473432	0.0013622	-0.0051216	2.8962249
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0.0000797	81664.	1024799388.	17.5197712	0.0013961	-0.0052976	2.9174845
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0.0000872	82664.	948117368.	17.1672850	0.0014968	-0.0058270	2.9661956
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0.0000897	82933.	924692986.	17.0499068	0.0015292	-0.0060046	2.9773108
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0.0000997	83959.	842224210.	16.6483508	0.0016596	-0.0067141	2.9997195
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0.0001047	84337.	805606964.	16.4640255	0.0017236	-0.0070702	2.9980275
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0.0001072	84520.	788523765.	16.3796839	0.0017557	-0.0072481	2.9998124
-60.0000000 CY						
0.0001097	84693.	772132360.	16.2923968	0.0017871	-0.0074267	2.9968204
-60.0000000 CY						
0.0001122	84864.	756452057.	16.2102386	0.0018186	-0.0076052	2.9971254
-60.0000000 CY						
0.0001147	85034.	741440896.	16.1326760	0.0018502	-0.0077835	2.9993424
-60.0000000 CY						
0.0001172	85197.	727014753.	16.0585075	0.0018819	-0.0079619	2.9995422
-60.0000000 CY						
0.0001197	85355.	713149926.	15.9883624	0.0019136	-0.0081401	2.9941991
-60.0000000 CY						
0.0001222	85485.	699624038.	15.9163782	0.0019448	-0.0083190	2.9974090
-60.0000000 CY						
0.0001247	85607.	686570234.	15.8465203	0.0019759	-0.0084979	2.9993374
-60.0000000 CY						
0.0001272	85722.	673979815.	15.7790998	0.0020069	-0.0086768	2.9999996
-60.0000000 CY						
0.0001297	85833.	661844528.	15.7151407	0.0020381	-0.0088557	2.9951774
-60.0000000 CY						
0.0001322	85943.	650161231.	15.6542475	0.0020693	-0.0090345	2.9954050
-60.0000000 CY						
0.0001347	86052.	638904858.	15.5962448	0.0021006	-0.0092131	2.9980114
-60.0000000 CY						
0.0001372	86161.	628051953.	15.5409827	0.0021320	-0.0093917	2.9995459
60.0000000 CY						
0.0001522	86737.	569935335.	15.2184700	0.0023161	-0.0104677	2.9995227
60.0000000 CY						
0.0001672	87140.	521209135.	14.9357308	0.0024971	-0.0115467	2.9972637
60.0000000 CY						
0.0001822	87506.	480309513.	14.7103594	0.0026800	-0.0126237	2.9892526
60.0000000 CY						
0.0001972	87807.	445296400.	14.5092146	0.0028610	-0.0137027	2.9997536
60.0000000 CY						
0.0002122	87995.	414703071.	14.3389020	0.0030425	-0.0147812	2.9873584
60.0000000 CY						

0.0002272	88114.	387846786.	14.2077456	0.0032278	-0.0158559	2.9991277
60.0000000 CY						
0.0002422	88216.	364244831.	14.1039177	0.0034158	-0.0169280	2.9889880
60.0000000 CY						
0.0002572	88293.	343301173.	14.0280328	0.0036078	-0.0179959	2.9931462
60.0000000 CY						
0.0002722	88363.	324639113.	13.9668940	0.0038016	-0.0190621	2.9999820
60.0000000 CY						

Summary of Results for Nominal (Unfactored) Moment Capacity for Section 1

Moment values interpolated at maximum compressive strain = 0.003
or maximum developed moment if pile fails at smaller strains.

Load No.	Axial Thrust kips	Nominal Mom. Cap. in-kip	Max. Comp. Strain
1	23.400	87724.760	0.00300000
2	26.000	87800.119	0.00300000
3	31.200	87950.767	0.00300000

Note note that the values of moment capacity in the table above are not factored by a strength reduction factor (phi-factor).

In ACI 318-08, the value of the strength reduction factor depends on whether the transverse reinforcing steel bars are spirals or tied hoops.

The above values should be multiplied by the appropriate strength reduction factor to compute ultimate moment capacity according to ACI 318-08, Section 9.3.2.2 or the value required by the design standard being followed.

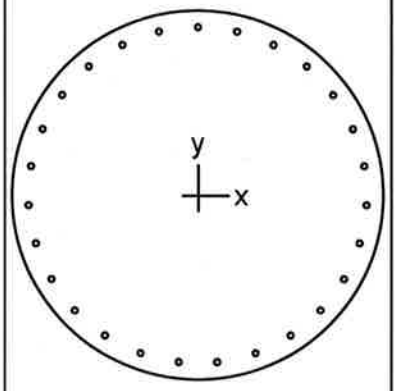
Summary of Pile Response(s)

Definitions of Pile-head Loading Conditions:

Load Type 1: Load 1 = Shear, lbs, and Load 2 = Moment, in-lbs
Load Type 2: Load 1 = Shear, lbs, and Load 2 = Slope, radians
Load Type 3: Load 1 = Shear, lbs, and Load 2 = Rotational Stiffness, in-lbs/radian
Load Type 4: Load 1 = Top Deflection, inches, and Load 2 = Moment, in-lbs
Load Type 5: Load 1 = Top Deflection, inches, and Load 2 = Slope, radians

Load Case No.	Load Type No.	Pile-head Condition 1 V(lbs) or y(inches)	Pile-head Condition 2 in-lb, rad., or in-lb/rad.	Axial Loading lbs	Pile-head Deflection inches	Maximum Moment in-lbs	Maximum Shear lbs	Pile-head Rotation radians
1	1	V = 23000.	M = 25116000.	26000.	0.68907628	26811405.	-131109.	-0.00422429
2	1	V = 36800.	M = 40185600.	31200.	1.59831281	43043226.	-226844.	-0.00899352
3	1	V = 36800.	M = 40185600.	23400.	1.59966995	43037398.	-226722.	-0.00901100

The analysis ended normally.



84 in diam.

Code: ACI 318-05

Units: English

Run axis: About X-axis

Run option: Investigation

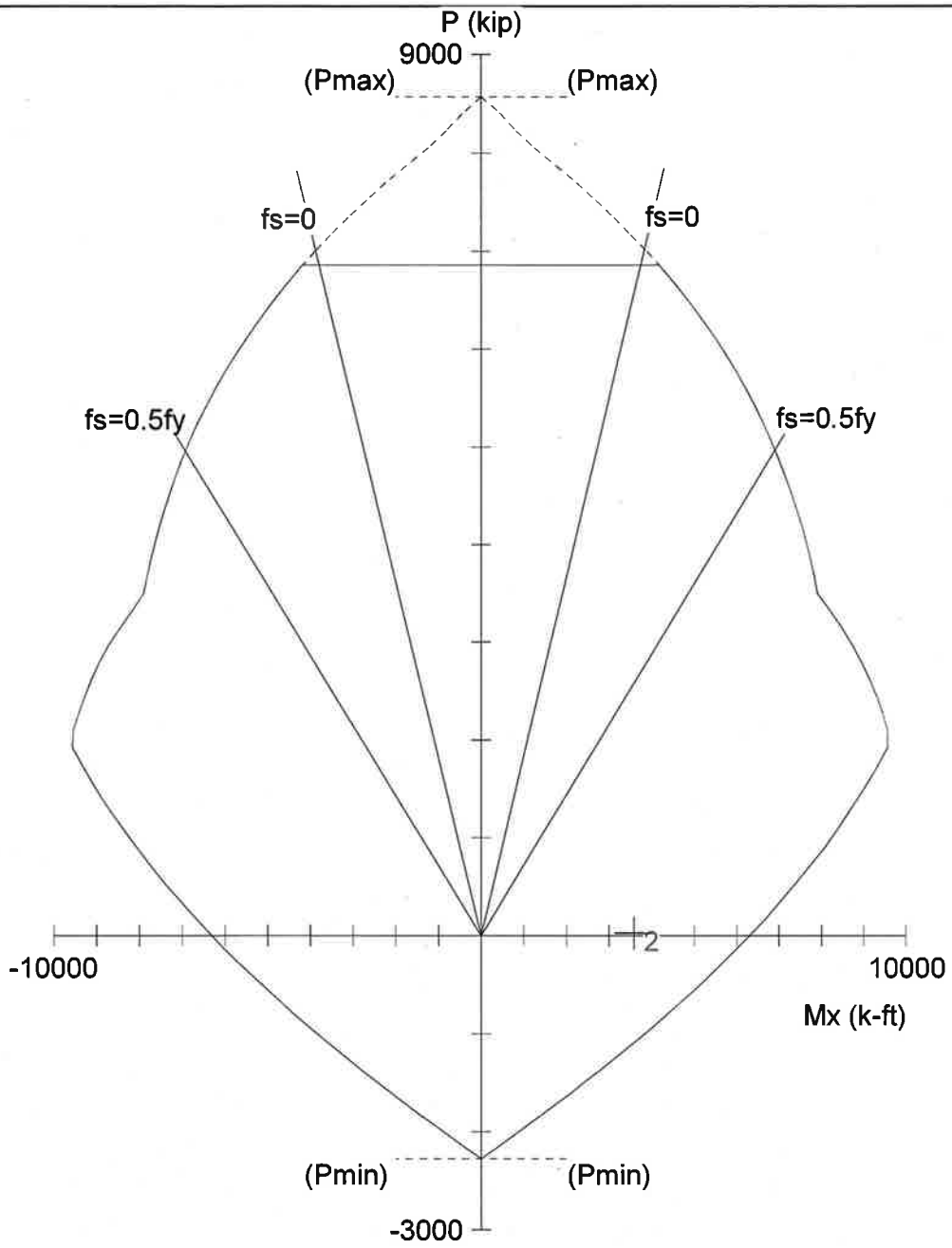
Slenderness: Not considered

Column type: Architectural

Bars: ASTM A615

Date: 12/12/13

Time: 14:04:53



File: c:\users\car66684\desktop\sites\83948verct-s\83948verct foundation analysis spcolumn.col

Project: 176850 (83948VERCT-S)

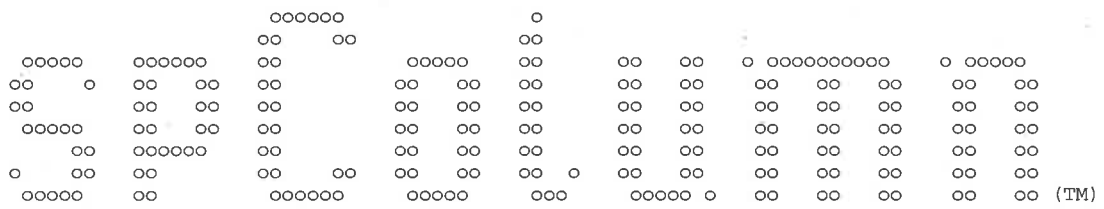
Column:

Engineer: AMK

f'c = 3 ksi	fy = 60 ksi	Ag = 5541.77 in^2	27 #11 bars
Ec = 3122 ksi	Es = 29000 ksi	As = 42.12 in^2	rho = 0.76%
fc = 2.55 ksi		Xo = 0.00 in	Ix = 2.44392e+006 in^4
e_u = 0.003 in/in		Yo = 0.00 in	Iy = 2.44392e+006 in^4
Beta1 = 0.85		Min clear spacing = 7.48 in	Clear cover = 3.00 in

Confinement: Tied

phi(a) = 0.8, phi(b) = 0.9, phi(c) = 0.65



spColumn v4.80 (TM)
Computer program for the Strength Design of Reinforced Concrete Sections

General Information:

File Name: c:\users\car66684\desktop\sites\83948verct-s\83948verct foundation analysis spcolumn.col
Project: 176850 (83948VERCT-S)
Column: Engineer: AMK
Code: ACI 318-05 Units: English

Run Option: Investigation Slenderness: Not considered
Run Axis: X-axis Column Type: Architectural

Material Properties:

f'c = 3 ksi fy = 60 ksi
Ec = 3122.02 ksi Es = 29000 ksi
Ultimate strain = 0.003 in/in
Beta1 = 0.85

Section:

Circular: Diameter = 84 in

Gross section area, Ag = 5541.77 in^2
Ix = 2.44392e+006 in^4 Iy = 2.44392e+006 in^4
rx = 21 in ry = 21 in
Xo = 0 in Yo = 0 in

Reinforcement:

Bar Set: ASTM A615

Size	Diam (in)	Area (in^2)	Size	Diam (in)	Area (in^2)	Size	Diam (in)	Area (in^2)
# 3	0.38	0.11	# 4	0.50	0.20	# 5	0.63	0.31
# 6	0.75	0.44	# 7	0.88	0.60	# 8	1.00	0.79
# 9	1.13	1.00	# 10	1.27	1.27	# 11	1.41	1.56
# 14	1.69	2.25	# 18	2.26	4.00			

Confinement: Tied; #3 ties with #10 bars, #4 with larger bars.
phi(a) = 0.8, phi(b) = 0.9, phi(c) = 0.65

Layout: Circular
Pattern: All Sides Equal (Cover to longitudinal reinforcement)
Total steel area: As = 42.12 in^2 at rho = 0.76% (Note: rho < 1.0%)
Minimum clear spacing = 7.48 in

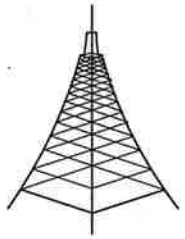
27 #11 Cover = 3 in

Factored Loads and Moments with Corresponding Capacities:

No.	Pu kip	Mux k-ft	PhiMnx k-ft	PhiMn/Mu	NA depth in	Dt depth in	eps_t	Phi
1	31.20	3586.94	6369.58	1.776	17.07	80.04	0.01111	0.900
2	23.40	3586.45	6352.12	1.771	17.02	80.04	0.01116	0.900

*** End of output *** Foundation Stress Ratio = 1/1.771 = 56.47%

at&t



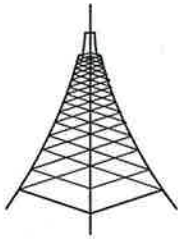
Letter of Explanation (LOE)

MUST be attached to any Structural Analysis

Site Name	***PLAINVILLE SOUTH WASHINGTON STREET***
Site Number	***83948VERCT-S***
PE of Record	***Chris A. Krafft, P.E. (Registration No. 27383)***

ALL STRUCTURES	Statement in COL A is Correct	VARIANCE from Col A	N/A	Alternate Value / Concept Used	Explanation	Yes	No	N/A	Comments / Reference
Structure Analyzed to F Code	X								
Note: ALL G analyses MUST be justified. A simple notation of jurisdiction requirement will suffice. F BUILT TOWERS in G Code jurisdictions MUST Have the new "5% Grace" Test Applied. G to be applied ONLY where this is exceeded. This 5% test applies to "like for like" only									
Guy Tensions Adjusted Within Code to Find Optimum tension / Minimum Reinforcement (Applies to Guyed Tower Failures Only). Note : AT&T requires a pulse chart for altered Tensions			X						
Antenna Azimuths Inputted Per AT&T Information Note Default Azimuths in PL	X								
All Yield Stresses > = 50 ksi (legs)			X						
All Yield Stresses > = 36 ksi (Diagonals and Horizontals))			X						
Structures Designated Class II (G Only)			X						
Exposure B Rating Used (Topography)			X						
K value for Slenderness ratio < 1.0			X						
Shielding of All Appurtenances Used when Appropriate PER 2.6.9.4 (G Code Only)			X						
0.75 Reduction "Shape" Factor (Figure 2.6) for platform mounts, 0.8 for T-Boom Mounts Used (G Only)			X						
Pipes and round Members have 1.0 Drag Factors. Note if Pipe is attached to flat antenna, these must be considered separately if differing Drag factors are Used	X								
Are Tower Diagonals Designed as "Tension Only"			X						

at&t



Letter of Explanation (LOE)

MUST be attached to any Structural Analysis

Site Name	***PLAINVILLE SOUTH WASHINGTON STREET***
Site Number	***83948VERCT-S***
PE of Record	***Chris A. Krafft, P.E. (Registration No. 27383)***

MODIFICATION SECTION	Statement in COL A is Correct	Deviation from Col A	N/A	Alternate Value / Concept Used	Explanation	Yes	No	N/A	Comments / Reference
Guyed									
Guyed Only: Reinforcement Recommendation accompanies Optimum Guy Tensioning Scenario.			X						
Compression Failing Legs / Diagonals / Horizontals: Effective Length Reduced by U-Bolted Member			X						
NOTE: Welded Solution Must be Explained and will only be considered in cases where other reinforcing methods will not work.									
Self Supporting									
Compression Failing Legs / Diagonals / Horizontals: Effective Length Reduced by U-Bolted Member			X						
NOTE: Welded Solution Must be Explained and will only be considered in cases where other reinforcing methods will not work.									
Monopole									
Compression Collars			X						
NOTE: Welded Solution Must be Explained and will only be considered in cases where other reinforcing methods will not work.									
Foundation									
Guyed Anchor Failure: Berm Solution			X						
SS Foundation Pad and Pier Failure Berm			X						
SS Foundation Caisson / Concrete Cap			X						
Monopole: Cap			X						