Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

September 12, 2022

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

RE: **Notice of Exempt Modification for ATT**
Crown #876329; ATT Site ID CTL01193
28 Brewer Drive, Bloomfield, CT 06002
Latitude: 41° 50′ 6.57″ / Longitude: -72° 44′ 28.20″

Dear Ms. Bachman:

AT&T currently maintains six (6) antennas at the 100-foot level of the existing 120-foot monopole tower at 28 Brewer Drive, Bloomfield, CT. The tower is owned by Crown Castle USA Inc. and the property is owned by the Town of Bloomfield. AT&T now intends to replace six (6) antennas with the installation of twelve (12) new antennas and ancillary equipment at the 100-foot level. This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

Panned Modification:

Tower:

Installed New:

(1) Perfect Vision-LPPGS-14M-HR2-H5H10 Platform Mount
(3) CCI-TPA65R-BU6DA-K Antennas
(6) Ericsson-AIR6449 B77D + AIR6419 B77G Stacked Antennas
(3) CCI-OPA65R-BU6DA Antennas
(3) Ericsson-4478 B14 RRUs
(3) Ericsson-4449 B5/B12 RRUs
(1) Raycap-DC6-48-60-18-8F Squid
(2) 6AWG DC Cables (7/8")
(1) 18-Pair Fiber Cable (3/8")
(3) Y-Cables for Dual Band Radios
(6) Dual Radio Mounts

Remove:

(6) QUINTEL-QS66512-2 Antennas
(3) ERICSSON-RRUS-11 B12 RRUs
Platform Mount

Ground:

Install New:

(4) Vertiv Rectifiers in DC power plant
(1) RMDC-12
(1) 6648 w/XCEDE

Remove:

(1) UMTS Cabinet

The facility was approved by the Town of Bloomfield's Zoning Board of Appeals on August 5, 1996.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mayor Daniella Wong and Jose Giner, Planning & Zoning Director. The Town of Bloomfield is the property owner and Crown Castle is the tower owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, ATT respectfully submits that the proposed modifications to the above-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Domenica Tatasciore.

Sincerely,

Domenica Tatasciore
Site Acquisition Specialist
1800 W. Park Drive
Westborough, MA 01581
(508) 621-9161/ Domenica.Tatasciore@crowncastle.com

Attachments

cc:

Mayor Daniella Wong
Bloomfield Town Council Office
800 Bloomfield Avenue
Bloomfield, CT 06002
860-769-3500

Jose Giner, Director
Bloomfield Planning & Zoning Office
800 Bloomfield Avenue
Bloomfield, CT 06002
860-769-3514

Town of Bloomfield, Property Owner

Crown Castle, Tower Owner

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 777907142660: Your package has been delivered
Date: Tuesday, September 13, 2022 10:00:19 AM

Hi. Your package was delivered Tue, 09/13/2022 at 9:50am.

Delivered to 800 BLOOMFIELD AVE, BLOOMFIELD, CT 06002
Received by N.STRAIGHTER

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 777907142660

FROM Domenica Tatasciore
1800 West Park Drive

	Suite 200 WESTBOROUGH, MA, US, 01581
TO	Bloomfield Town Council Office Mayor Daniella Wong 800 Bloomfield Avenue BLOOMFIELD, CT, US, 06002
REFERENCE	799001 7680
SHIPPER REFERENCE	799001 7680
SHIP DATE	Mon 9/12/2022 05:14 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	BLOOMFIELD, CT, US, 06002
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	1.00 LB
SERVICE TYPE	FedEx Priority Overnight

From: TrackingUpdates@fedex.com
To: Tatasciore, Domenica
Subject: FedEx Shipment 777907159368: Your package has been delivered
Date: Tuesday, September 13, 2022 9:59:39 AM

Hi. Your package was delivered Tue, 09/13/2022 at 9:50am.

Delivered to 800 BLOOMFIELD AVE, BLOOMFIELD, CT 06002
Received by N.STRAIGHTER

OBTAIN PROOF OF DELIVERY

TRACKING NUMBER 777907159368

FROM Domenica Tatasciore
1800 West Park Drive

	Suite 200 WESTBOROUGH, MA, US, 01581
TO	Bloomfield Planning & Zoning Office Jose Giner, Director 800 Bloomfield Avenue BLOOMFIELD, CT, US, 06002
REFERENCE	799001.7680
SHIPPER REFERENCE	799001.7680
SHIP DATE	Mon 9/12/2022 05:14 PM
DELIVERED TO	Receptionist/Front Desk
PACKAGING TYPE	FedEx Envelope
ORIGIN	WESTBOROUGH, MA, US, 01581
DESTINATION	BLOOMFIELD, CT, US, 06002
SPECIAL HANDLING	Deliver Weekday
NUMBER OF PIECES	1
TOTAL SHIPMENT WEIGHT	0.50 LB
SERVICE TYPE	FedEx Priority Overnight

076

ZONING BOARD OF APPEALS

August 5, 1996

The Zoning Board of Appeals held a meeting on August 5, 1996, at 7:30 PM with the following members present.

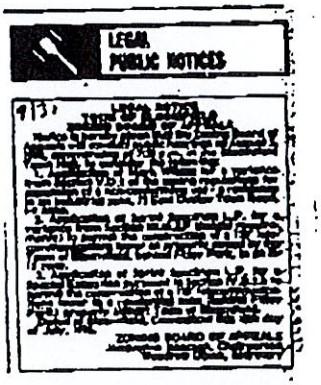
Jacqueline Isaacson/Chairperson
Woodrow Dixon
Joeannah Stinson
Charles Strouse

Michael Kosilla/ZEO
Nancy Awalt/Recording Clerk

Absent: William Goldstein, Robert Horn, Valeria Caldwell-Gaines, Joel Neuwirth

The meeting was called to order at 7:36 PM. Ms. Isaacson explained that with only four (4) members present, the applicants would need 4 affirmative votes for the applications to carry. She also explained that due to the fact that items 2 and 3 needed a sign language interpreter, they would be taken out of order and heard first.

Mr. Dixon read the call for the first application.


LEGAL PUBLIC NOTICES

APPLICATION OF SPRINT SPECTRUM L.P.

Darryl Hendrickson was present regarding the application of Sprint Spectrum L.P for a variance from Section III.M.4.P (height requirements) to permit the construction of a 120' telecommunication tower on property owned by the Town of Bloomfield, behind Filley Park, in an R-15 Zone. An additional application for a Special Exception pursuant to Section IV.B.2.b was also presented at this time. Steve Crotty was also present for this application.

Mr. Hendrickson thanked Staff for helping them get to this point in the application especially Mr. Hooper, Mr. Chapman and Chief Mulhall. The proposal is for a 120' telecommunication facility for the Filley Park location. Sprint Spectrum is currently implementing PCS which stands for Personal Communication Service. It is the next cellular system that has been approved for an FCC license by the government. It will bring the existing cellular service up to a digital standard. These phones will enable the general consumer to enjoy E-mail, paging, PBX, voice data, etc.

There was a brief discussion regarding the exact location and then Mr. Hendrickson showed enlarged photo's of the site, taken from various views. The first photo was taken from the cul-de-sac in the Mountain View Cemetery looking north. He explained that they would be taking down a large, dead tree and erecting the tower approximately where the tree had been located. The second photo was taken from Brewer Road looking up the hill. He noted that they would be using this overgrown road off of Brewer for access for the construction trucks. There is also a pending easement agreement with Mountain View Cemetery that would allow Sprint to go through the Cemetery for their monthly inspections and maintenance of the tower so the use of the road off of Brewer would be for construction purposes only. Once completed the road would be allowed to go back to it's natural state. The third photo was taken from the entrance of Mountain View Cemetery off of Route 178. The purpose of the photo's was to show how the tower would look from different angles in Town. Sprint has worked with the Town very closely in choosing the location of this tower that would be beneficial to all the involved parties. Because of the elevation of this area, the tower will only be 120' high which is a relative low height for these towers. Sprint will also be installing an antenna for the Bloomfield Police Department to enhance their radio capabilities.

Mr. Hendrickson explained further the access road that would be used for trucks during construction. Because of the height of the weeds there might be a need to construct a temporary road but it would be allowed to grow back to its natural state when construction was complete. There is a requirement by Sprint to have a once a month maintenance visit to each tower and this would be done through the Cemetery as mentioned before.

The construction should take about 30-60 days to complete. The nearest house is no more than 600'-700' away. It was asked how the 120' height was arrived at and if the tower should fall would it hit any buildings. Steve Crotty showed graphic photos of the proposed Bloomfield site as well as other proposed and existing sites in surrounding towns. The maps showed the coverage of the town and the only non-coverage area was at the top of Avon Mountain. Mr. Crotty explained that locations are chosen so the services overlap so all areas are served. There had been a drive test done with a crane and the 120' height was what was needed to serve the Town of Bloomfield. He noted that the towers range from 100'-250' high. Because of the high elevation of this site, only 120' was all that was needed for this tower. He noted that Chief Mulhull had been extremely interested in having this installed stating that it would be a 40%-60% improvement in their radio transmissions. The tower would be delivered in sections and constructed on site. If the tower would fall it would collapse at the joint and fall into itself. At the worst case scenario, if the tower would fall straight, to the east or west it would fall on Town property, to the south it would fall on the Cemetery property and to the north it would fall on Alexandria Manor. There would be no buildings hit if the tower would fall.

Mr. Kosilla stated that there had been a meeting with the applicant, the Town Manager, The Town Planner and Chief Mulhall regarding this application and that he Town is very interested in this tower.

George Szala of 17 Downing Drive asked if the access road would be blocked off at the end of each working day. His concern was that because of the tracks made, it might encourage others to use this as a road. After a brief discussion Mr. Hendrickson stated that if the Town so wished, signs or road blocks of some sort could be used to deterred others from using the road. As mentioned before, they would let the road grow back to it's

original state or if needed additional plantings would be done. Mr. Szala also asked the time schedule of this project and was told that assuming that all approvals are given, they should be going for the building permit by the end of September.

Attorney John Pinney, on behalf of the Mountain View Cemetery, stated that their first involvement with this project had been through the Town contacting them. In exchange for the access through the Cemetery, Sprint will be installing underground electric and phone wires to the existing building on the Cemetery property which had been unattainable before because of the costs. The existing building on the Cemetery property would then be used to house some of the records and the daily operations of the Cemetery. Mr. Pinney stated that the Cemetery Association supported both of the applications being presented by Sprint Spectrum L.P.

Mr. Hendrickson said that they would be leasing a 100' x 100' fenced area. The concrete slab for the tower would be 15'x 20'. There will also be a slab constructed at this time for the Town of Bloomfield's Police Department's equipment. There would also be room for future projects if needed. There would be three (3) five foot high, weatherproofed, electronic cabinets with the tower, on the slab. There was a brief discussion regarding hours of operation for the construction. Mr. Hendrickson stated that he didn't know the exact hours that Sprint used but it would probably be 7:30 AM - 5:30 PM. Mr. Hendrickson left handouts with the Board of an article from USA Today, July 17, 1996, talking about President Clintons plans to introduce cellular phones as the newest weapon in his community policing initiative.

The public hearing was closed and a brief discussion followed. Mr. Strouse then motioned to approve the application of Sprint Spectrum L. P. for a variance from Section III.M.4.P (height requirements) to permit the construction of a 120' telecommunication tower on property owned by the Town of Bloomfield, behind Filley Park, in an R-15 zone. Conditions of this approval are that the hours will be from 7:30 AM to 5:00 PM, Monday through Friday and that the access road be blocked off at the end of each working day. Ms. Stinson seconded the motion and it carried unanimously.

Ms. Stinson motioned to approve the application of Sprint Spectrum L.P. for a Special Exception pursuant to Section IV.B.2.b to permit the construction of a 120' telecommunications tower in a residential zone (behind Filley Park) property owner: Town of Bloomfield. Mr. Dixon seconded the motion and it carried unanimously.

The call for the second hearing was read.

Town of Bloomfield, CT

Property Listing Report

Map Block Lot	25-537	Building #	1	PID	7622	Account	

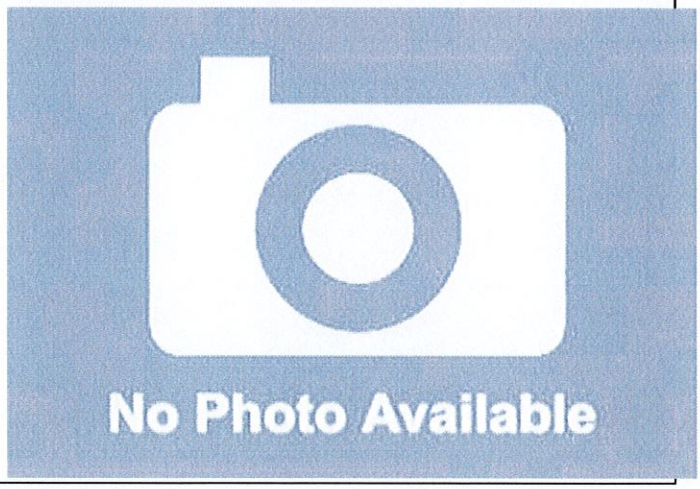
Property Information

Property Location	28 BREWER DR
Owner	BLOOMFIELD TOWN OF
Co-Owner	TOWN HALL
Mailing Address	800 BLOOMFIELD AVE BLOOMFIELD CT 06002
Land Use	921 Mun Lnd Res
Land Class	E
Zoning Code	R-15
Census Tract	

Site Index	5
Acreage	3.37
Utilities	
Lot Setting/Desc	
Fire District	C
Book / Page	0113/0751

Photo

Sketch



Primary Construction Details

Year Built	0
Building Desc.	Mun Lnd Res
Building Style	UNKNOWN
Building Grade	
Stories	
Occupancy	
Exterior Walls	
Exterior Walls 2	NA
Roof Style	
Roof Cover	
Interior Walls	
Interior Walls 2	NA
Interior Floors 1	
Interior Floors 2	

Heating Fuel	
Heating Type	
AC Type	
Bedrooms	0
Full Bathrooms	0
Half Bathrooms	0
Extra Fixtures	0
Total Rooms	0
Bath Style	NA
Kitchen Style	NA
Bsmt Fin Area	0
Rec Rm Area	0
Bsmt Gar	0
Fireplaces	0

(*Industrial / Commercial Details)

Building Use	Vacant
Building Condition	
Sprinkler %	NA
Heat / AC	NA
Frame Type	NA
Baths / Plumbing	NA
Ceiling / Wall	NA
Rooms / Prtns	NA
Wall Height	NA
First Floor Use	NA
Foundation	NA

Report Created On 9/6/2022

Town of Bloomfield, CT

Property Listing Report | Map Block Lot 25-537 | Building # 1 | PID 7622 | Account

Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	0	0
Extras	0	0
Improvements		
Outbuildings	0	0
Land	320800	224560
Total	320800	224560

Outbuilding and Extra Features

Type	Description

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area	0	0

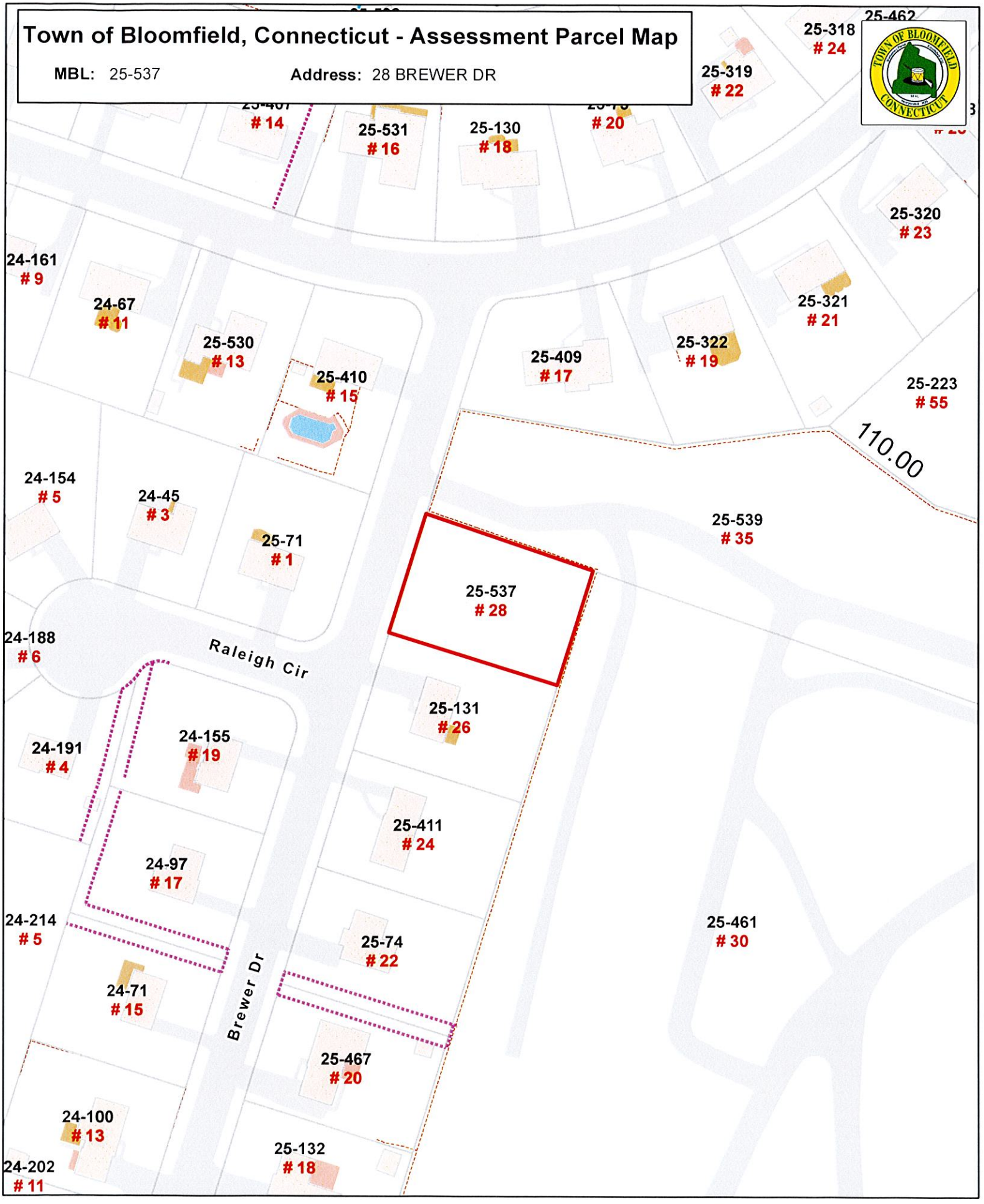
Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
BLOOMFIELD TOWN OF	0113/0751	1900-01-01	0

Report Created On 9/6/2022

Town of Bloomfield, Connecticut - Assessment Parcel Map

MBL: 25-537 **Address:** 28 BREWER DR



Approximate Scale:

1 inch = 100 feet

Disclaimer:
This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Bloomfield and its mapping contractors
assume no legal responsibility for the information contained herein.

Map Produced December 2021

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

Site Name:	BLOOMFIELD CEMETARY
Crown Castle Site#	876329
Site ID:	CTL01193
Project Name:	5G NR 1SR C-BAND
Address:	28 BREWER DRIVE, BLOOMFIELD, CT 06002
County:	HARTFORD
Latitude:	41.8351589
Longitude:	-72.7411661
Structure Type:	MONOPOLE
Property Owner:	TOWN OF BLOOMFIELD
Property Contact:	VERONICA CHAPMAN

AT&T Existing Facility

Report Information

Report Writer: Sushil Dogra **Report Generated Date:** 09-08-2022

Site Compliance Statement

Compliance Status	Compliant
Cumulative General Population % MPE (Ground Level)	56.11%

September 08, 2022

Emissions Analysis for Site: **CTL01193– BLOOMFIELD CEMETARY**

MobileComm Professionals, Inc was directed to analyze the proposed AT&T facility located at **28 BREWER DRIVE, BLOOMFIELD, CT 06002**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the 700 and 850 MHz Bands are approximately 0.467 mW/cm^2 and 0.567 mW/cm^2 respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS), 2300 MHz (WCS), 3450 MHz (DoD Band) and 3840 MHz (C Band) bands is 1 mW/cm^2. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

1. Theoretical Calculations

Calculations were done for the proposed AT&T Wireless antenna facility located at **28 BREWER DRIVE, BLOOMFIELD, CT 06002** using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

1) 4 LTE channels (700 MHz Band 14) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
2) 4 LTE/5G channels (1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
3) 4 LTE/5G channels (2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
4) 1 NR channel (DoD Band - 3450 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 108.44 Watts per Channel.
5) 1 NR channel (C Band - 3840 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 108.44 Watts per Channel.
6) 4 LTE channels (700 MHz Band 12) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
7) 4 5G channels (850 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 40 Watts per Channel.
8) 4 LTE channels (WCS Band – 2300 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 25 Watts per Channel.
9) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

10) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
11) The antennas used in this modeling are the CCI TPA65R-BU6D for the 700 MHz(Band 14) / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR6419 for the DoD Band (3450 MHz) channel(s), the Ericsson AIR6449 for the C Band (3840 MHz) channel(s), the CCI OPA65R-BU6D for the 700 MHz(B12) / 850 MHz / WCS Band (2300 MHz) channel(s) in Sector A, CCI TPA65R-BU6D for the 700 MHz(Band 14) / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR6419 for the DoD Band (3450 MHz) channel(s), the Ericsson AIR6449 for the C Band (3840 MHz) channel(s), the CCI OPA65R-BU6D for the 700 MHz(B12) / 850 MHz / WCS Band (2300 MHz) channel(s) in Sector B, CCI TPA65R-BU6D for the 700 MHz(Band 14) / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR6419 for the DoD Band (3450 MHz) channel(s), the Ericsson AIR6449 for the C Band (3840 MHz) channel(s), the CCI OPA65R-BU6D for the 700 MHz(B12) / 850 MHz / WCS Band (2300 MHz) channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
12) The antenna mounting height centerline of the proposed antennas is 100 feet above ground level (AGL).
13) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.
14) All calculations were done with respect to uncontrolled / general population threshold limits.

2. Antenna Inventory & Power Data

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	Antenna Type	FREQ. (MHz)	TECH.	AZ. (^{0})	H B W (^{0})	Antenna Gain (dBd)	Antenna Aperture (ft)	#of Channels	Transmitter Power (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Total Ant Transmitter Power (Watts)	Total Ant ERP(Watts)	Ant MPE%
A	1	AT&T	CCI	TPA65R-BU6DA	Panel	700	LTE(FN)	10	73	12.35	6	4	160.00	2749.64	4509.41	480	15798.28	6.81%
A	1	AT&T	CCI	TPA65R-BU6DA	Panel	1900	LTE/5G	10	66	15.95	6	4	160.00	6299.07	10330.47			
A	1	AT&T	CCI	TPA65R-BU6DA	Panel	2100	LTE/5G	10	66	16.25	6	4	160.00	6749.57	11069.30			
A	2-1	AT&T	Ericsson	AIR 6419 B77G	Panel	3450	5G	10	11	23.5	2.55	1	108.44	24277.05	39828.68	108.44	24277.05	8.40%
A	2-2	AT&T	Ericsson	AIR 6449 B77D	Panel	3840	5G	10	11	23.5	2.55	1	108.44	24277.05	39828.68	108.44	24277.05	9.10%
A	3	AT&T	CCI	OPA65R-BU6DA	Panel	700	LTE(B12)	10	73	12.15	6	4	160.00	2625.89	4306.46	420	9885.05	5.52%
A	3	AT&T	CCI	OPA65R-BU6DA	Panel	850	5G	10	64	13.05	6	4	160.00	3230.55	5298.10			
A	3	AT&T	CCI	OPA65R-BU6DA	Panel	2300	LTE	10	55	16.05	6	4	100.00	4028.62	6606.93			
B	4	AT&T	CCI	TPA65R-BU6DA	Panel	700	LTE(FN)	120	73	12.35	6	4	160.00	2749.64	4509.41	480	15798.28	6.81%
B	4	AT&T	CCI	TPA65R-BU6DA	Panel	1900	LTE/5G	120	66	15.95	6	4	160.00	6299.07	10330.47			
B	4	AT&T	CCI	TPA65R-BU6DA	Panel	2100	LTE/5G	120	66	16.25	6	4	160.00	6749.57	11069.30			
B	5-1	AT&T	Ericsson	AIR 6419 B77G	Panel	3450	5G	120	11	23.5	2.55	1	108.44	24277.05	39828.68	108.44	24277.05	8.40%
B	5-2	AT&T	Ericsson	AIR 6449 B77D	Panel	3840	5G	120	11	23.5	2.55	1	108.44	24277.05	39828.68	108.44	24277.05	9.10%
B	6	AT&T	CCI	OPA65R-BU6DA	Panel	700	LTE(B12)	120	73	12.15	6	4	160.00	2625.89	4306.46	420	9885.05	5.52%
B	6	AT&T	CCI	OPA65R-BU6DA	Panel	850	5G	120	64	13.05	6	4	160.00	3230.55	5298.10			
B	6	AT&T	CCI	OPA65R-BU6DA	Panel	2300	LTE	120	55	16.05	6	4	100.00	4028.62	6606.93			
C	7	AT&T	CCI	TPA65R-BU6DA	Panel	700	LTE(FN)	250	73	12.35	6	4	160.00	2749.64	4509.41	480	15798.28	6.81%
C	7	AT&T	CCI	TPA65R-BU6DA	Panel	1900	LTE/5G	250	66	15.95	6	4	160.00	6299.07	10330.47			
C	7	AT&T	CCI	TPA65R-BU6DA	Panel	2100	LTE/5G	250	66	16.25	6	4	160.00	6749.57	11069.30			
C	8-1	AT&T	Ericsson	AIR 6419 B77G	Panel	3450	5G	250	11	23.5	2.55	1	108.44	24277.05	39828.68	108.44	24277.05	8.40%
C	8-2	AT&T	Ericsson	AIR 6449 B77D	Panel	3840	5G	250	11	23.5	2.55	1	108.44	24277.05	39828.68	108.44	24277.05	9.10%
C	9	AT&T	CCI	OPA65R-BU6DA	Panel	700	LTE(B12)	250	73	12.15	6	4	160.00	2625.89	4306.46	420	9885.05	5.52%
C	9	AT&T	CCI	OPA65R-BU6DA	Panel	850	5G	250	64	13.05	6	4	160.00	3230.55	5298.10			
C	9	AT&T	CCI	OPA65R-BU6DA	Panel	2300	LTE	250	55	16.05	6	4	100.00	4028.62	6606.93			

Table 2.1: Antenna Inventory & Power Data

**NOTE: 75% Duty Cycle and adjusted power reduction factor of 0.32 was applied to the AIR6449 & AIR6419 antennas per guidance from AT&T. Specifications were not available for the Ericsson AIR 6419 antenna. Per AT&T, specifications for the AIR 6449 antenna were used to model the 6419 due to its similarity.*

Cumulative Site MPE%	
Carrier	**MPE%**
AT&T (Max MPE% at Sector A)	29.83%
T-Mobile	20.03%
Sprint	0.07%
Clearwire	0.15%
Verizon	3.31%
Dish	2.30%
Town of Bloomfield	0.42%
Site Total MPE%	**56.11%**

Table 2.2: Cumulative Site MPE%

AT&T Max MPE% Per Sector	
AT&T Sector A Total	29.83%
AT&T Sector B Total	29.83%
AT&T Sector C Total	29.83%
Site Total MPE%	**56.11%**

Table 2.3: AT&T MPE% Per Sector

Sector	Ant ID	Operator	Antenna Mfg	Antenna Model	FREQ. (MHz)	TECH.	#of Channels	Transmitter Power (Watts)	Total ERP (Watts)	Total EIRP (Watts)	Height (ft)	Total Power Density (mW/cm^2)	Allowable MPE (mW/cm^2)	Calculated MPE%
A	1	AT&T	CCI	TPA65R-BU6DA	700	LTE(FN)	4	160.00	2749.64	4509.41	100.00	0.009892	0.467	2.12%
A	1	AT&T	CCI	TPA65R-BU6DA	1900	LTE/5G	4	160.00	6299.07	10330.47	100.00	0.022661	1.000	2.27%
A	1	AT&T	CCI	TPA65R-BU6DA	2100	LTE/5G	4	160.00	6749.57	11069.30	100.00	0.024282	1.000	2.43%
A	2-1	AT&T	Ericsson	AIR 6419 B77G	3450	5G	1	108.44	24277.05	39828.68	102.00	0.083976	1.000	8.40%
A	2-2	AT&T	Ericsson	AIR 6449 B77D	3840	5G	1	108.44	24277.05	39828.68	98.00	0.090971	1.000	9.10%
A	3	AT&T	CCI	OPA65R-BU6DA	700	LTE(B12)	4	160.00	2625.89	4306.46	100.00	0.009447	0.467	2.02%
A	3	AT&T	CCI	OPA65R-BU6DA	850	5G	4	160.00	3230.55	5298.10	100.00	0.011622	0.567	2.05%
A	3	AT&T	CCI	OPA65R-BU6DA	2300	LTE	4	100.00	4028.62	6606.93	100.00	0.014493	1.000	1.45%
													Total	**29.83%**

Table 2.4: Detailed MPE% at AT&T Sector A

3. Compliance Summary

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

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

AT&T Sector	Power Density Value (%)
Sector A	29.83%
Sector B	29.83%
Sector C	29.83%
AT&T Maximum Total (per sector)	29.83%
Site Total MPE%	**56.11%**
Site Compliance Status	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is 56.11% of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

Date: July 13, 2022

MTS Engineering, P.L.L.C.
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
towersupport@btgrp.com

Subject:	**Mount Replacement Analysis Report**	
Carrier Designation:	**AT&T Mobility Equipment Change-Out**	
	Carrier Site Number:	CTL01193
	Carrier Site Name:	Bloomfield Cemetary
	Carrier FA Number:	10035118
Crown Castle Designation:	**BU Number:**	876329
	Site Name:	MTN. View CEM. (Filley Park)
	JDE Job Number:	701606
	Order Number:	600871, Rev. 0
Engineering Firm Designation:	**Report Designation:**	80145.005.01
Site Data:	**28 Brewer Dr., Bloomfield, CT, Hartford County, 06002** **Latitude 41° 50' 6.57" Longitude - 72° 44' 28.20"**	
Structure Information:	**Tower Height & Type:**	**120 ft. Monopole**
	Mount Elevation:	**99 ft.**
	Mount Type:	**14.5 ft. Platform Mount**

We are pleased to submit this **"Mount Replacement Analysis Report"** to determine the structural integrity of AT&T Mobility's antenna mounting system with the proposed appurtenance and equipment addition on the above-mentioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

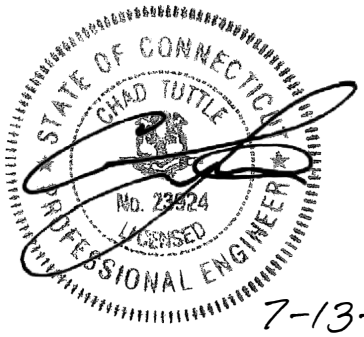
The purpose of the analysis is to determine acceptability of the mount's stress level. Based on our analysis we have determined the stress level to be:

Platform Mount **Sufficient**
***Sufficient upon completion of the changes listed in the 'Recommendations' section of the report.**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 116 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount structural analysis prepared by: Austin Steward

Respectfully submitted by: MTS Engineering, P.L.L.C.
COA: BER: 2386985 Expires: 02/01/2023



7-13-22

Chad E. Tuttle, P.E.

TABLE OF CONTENTS

1) INTRODUCTION

This is a proposed 3 - sector 14.5 ft. Platform Mount, designed by Perfect Vision (Part# PV-LPPGS-14M-HR2-H5H10).

2) ANALYSIS CRITERIA

Building Code:	2018 IBC
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Ultimate Wind Speed:	116 mph
Exposure Category:	C
Topographic Factor at Base:	1
Topographic Factor at Mount:	1
Ice Thickness:	1.5 in
Wind Speed with Ice:	50 mph
Seismic S_s:	0.181
Seismic S_1:	0.055
Live Loading Wind Speed:	30 mph
Man Live Load at Mid/End-Points:	250 lb.
Man Live Load at Mount Pipes:	500 lb.

Table 1 - Proposed Equipment Configuration

Mount Centerline (ft.)	Antenna Centerline (ft.)	Number of Antennas	Manufacturer	Model / Type	Mount / Modification Details
99	102	3	Ericsson	AIR 6419 B77G_CCIV3	14.5 ft. Platform Mount
	100	3	CCI Antennas	OPA65R-BU6D	
		3	CCI Antennas	TPA65R-BU6DA-K	
		3	Ericsson	RRUS 4449 B5/B12	
		3	Ericsson	RRUS 4478 B14_CCIV2	
		3	Ericsson	RRUS 8843 B2/B66A	
		3	Raycap	DC6-48-60-18-8F	
	98	3	Ericsson	AIR 6449 B77D_CCVI2	
	97	3	Ericsson	RRUS 32 B30	

Table 2 - Documents Provided

Document	Remarks	Reference	Source
CCI Order	Existing Loading Proposed Loading	Date: 05/05/2022	Crown Castle
RFDS		Date: 04/05/2022	
Previous MA	MTS Engineering, P.L.L.C.	Date: 06/21/2022	On File
Mount Manufacturer Drawing	Perfect Vision (Part# PV-LPPGS-14M-HR2-H5H10)	Date: 08/10/2021	Perfect Vision

3) ANALYSIS PROCEDURE

3.1) Analysis Method

RISA-3D (Version 20.0.2), a commercially available analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various loading cases.

A tool internally developed by MTS Engineering, P.L.L.C., was used to calculate wind loading on all appurtenances, dishes and mount members for various loading cases. Selected output from the analysis is included in Appendix B.

This analysis was performed in accordance with Crown Castle's ENG-SOW-10208 *Mount Analysis* (Revision E). In addition, this analysis is in accordance with *AT&T's Mount Technical Directive – R22.0*

Manufacturer's drawing were used to create the model.

3.2) Assumptions

1. The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design, TIA Standards, and/or manufacturer's specifications.
2. The configuration of antennas, mounts, and other appurtenances are as specified in Table-1.
3. All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected members unless otherwise specified in this report.
4. Mount areas and weights are determined from field measurements, standard material properties, and/or manufacturer product data.
   The following assumptions have been included in the analysis of the mount

Component	Section	Length	Note
Proposed RRU Pipes	2" Std. Pipe	6'-0"	Installed on Support Arms, All Sectors

5. Serviceability with respect to antenna twist, tilt, roll or lateral translation is not checked and is left to the carrier or tower owner to ensure conformance.
6. Prior structural modifications to the tower mounting system are assumed to be installed as shown per available data.
7. The analysis will be required to be revised if the existing conditions in the field differ from those shown in the above-referenced documents or assumed in this analysis. No allowance was made for any damaged, missing, or rusted members.
8. The following material grades were assumed (Unless Noted Otherwise):
   (a) Connection Bolts : ASTM A325
   (b) Steel Pipe : ASTM A53 (GR. 35)
   (c) HSS (Round) : ASTM 500 (GR. B-42)
   (d) HSS (Rectangular) : ASTM 500 (GR. B-46)
   (e) Channel : ASTM A36 (GR. 36)
   (f) Steel Solid Rod : ASTM A36 (GR. 36)
   (g) Steel Plate : ASTM A36 (GR. 36)
   (h) Steel Angle : ASTM A36 (GR. 36)
   (i) UNISTRUT : ASTM A570 (GR. 33)

This analysis may be affected if any assumptions are not valid or have been made in error. MTS Engineering, P.L.L.C. should be notified to determine the effect on the structural integrity of the antenna mounting system.

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform Mount)

Notes	Component	Centerline (ft.)	Critical Member	% Capacity	Pass / Fail
1	Support Tubes	99	1	34.5	Pass
	Support Pipes		2	28.0	Pass
	Support Angles		4	17.2	Pass
	Main Horizontals		6	18.5	Pass
	Support Rails		93	40.9	Pass
	Connection Pipes		86	40.2	Pass
	Mount Pipes		117	54.8	Pass
	Connection I Beams		87	14.3	Pass
	RRU Pipes		64	13.5	Pass
2	Mount to Tower Connection		-	77.5	Pass

Structure Rating (max from all components) =	77.5%

Notes:
1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
2) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity reported.

4.1) Recommendations

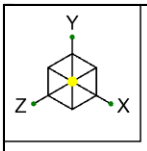
The proposed mount has sufficient capacity to support the proposed loading configuration. In order for the results of this analysis to be considered valid, the mount listed below shall be installed.

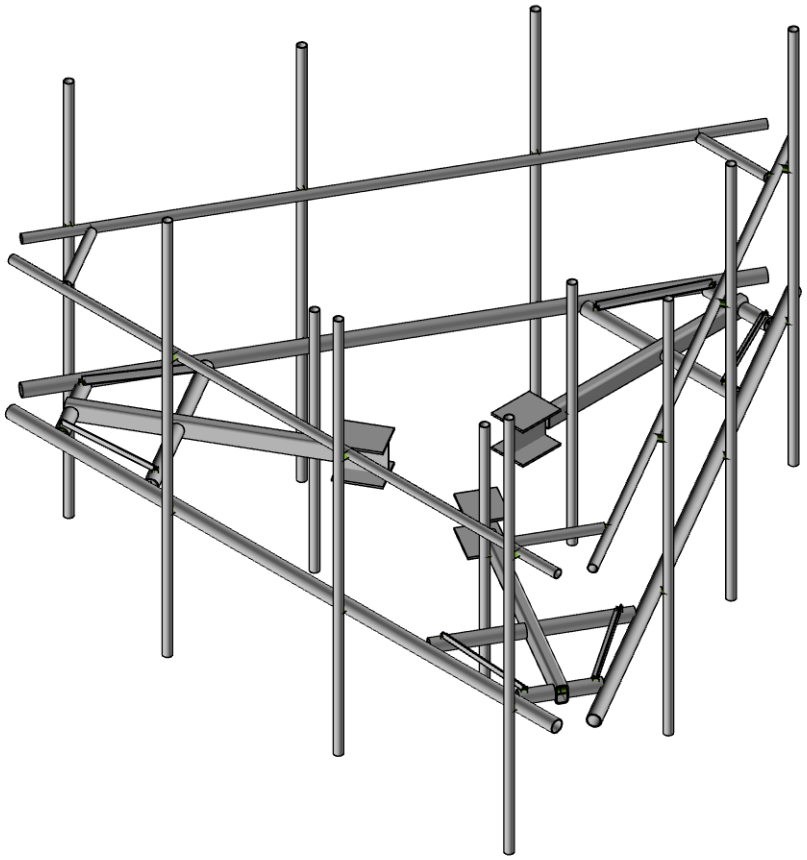
1. Mount replacement, Perfect Vision (Part# PV-LPPGS-14M-HR2-H5H10) (P/N: CEQ.53355)
2. Install (3) 2” Std. x 6’-0’’ long pipes (P/N: “or equivalent approved Conmat item”) on support arms to install RRUS on all sectors.

Beyond the mount replacement, no structural modifications are required at this time, provided that the above-listed changes are implemented.

APPENDIX A

WIRE FRAME AND RENDERED MODELS





Envelope Only Solution

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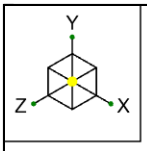

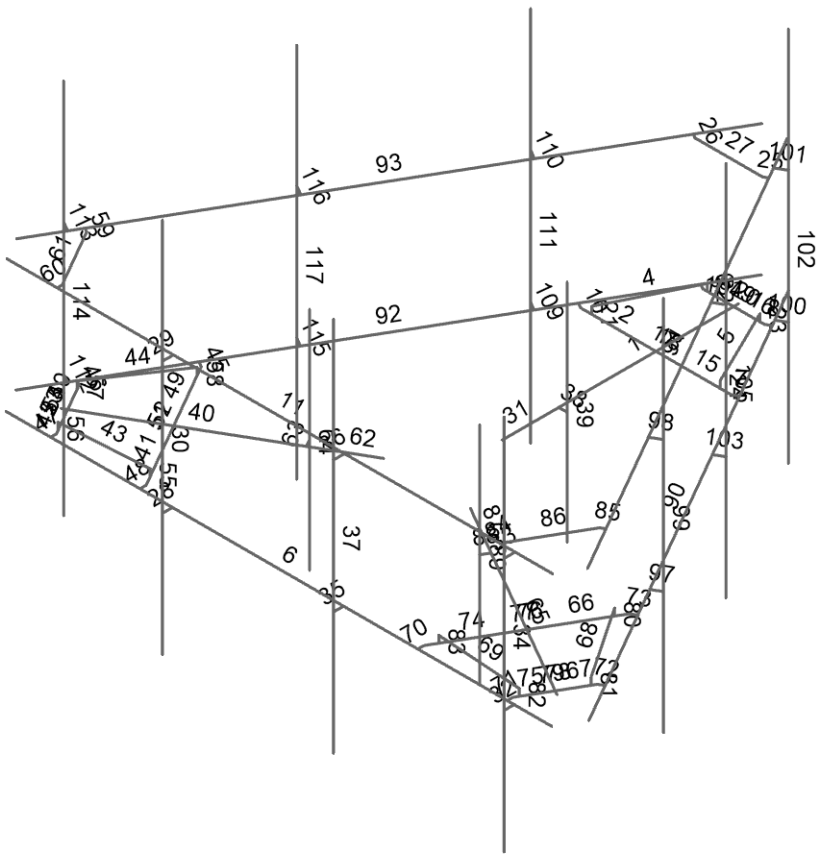

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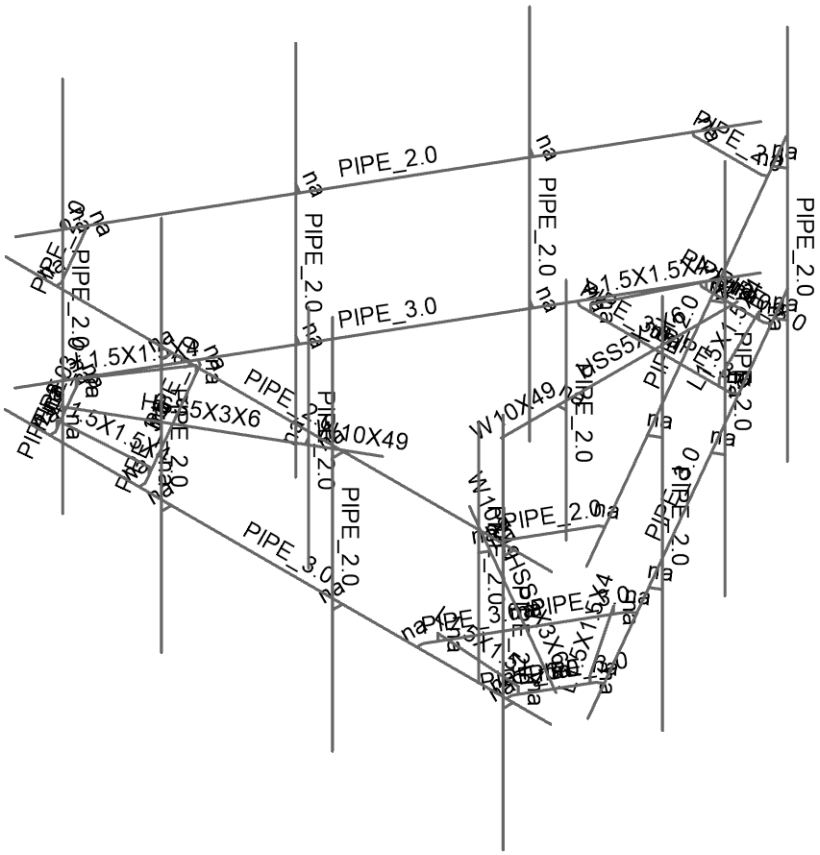

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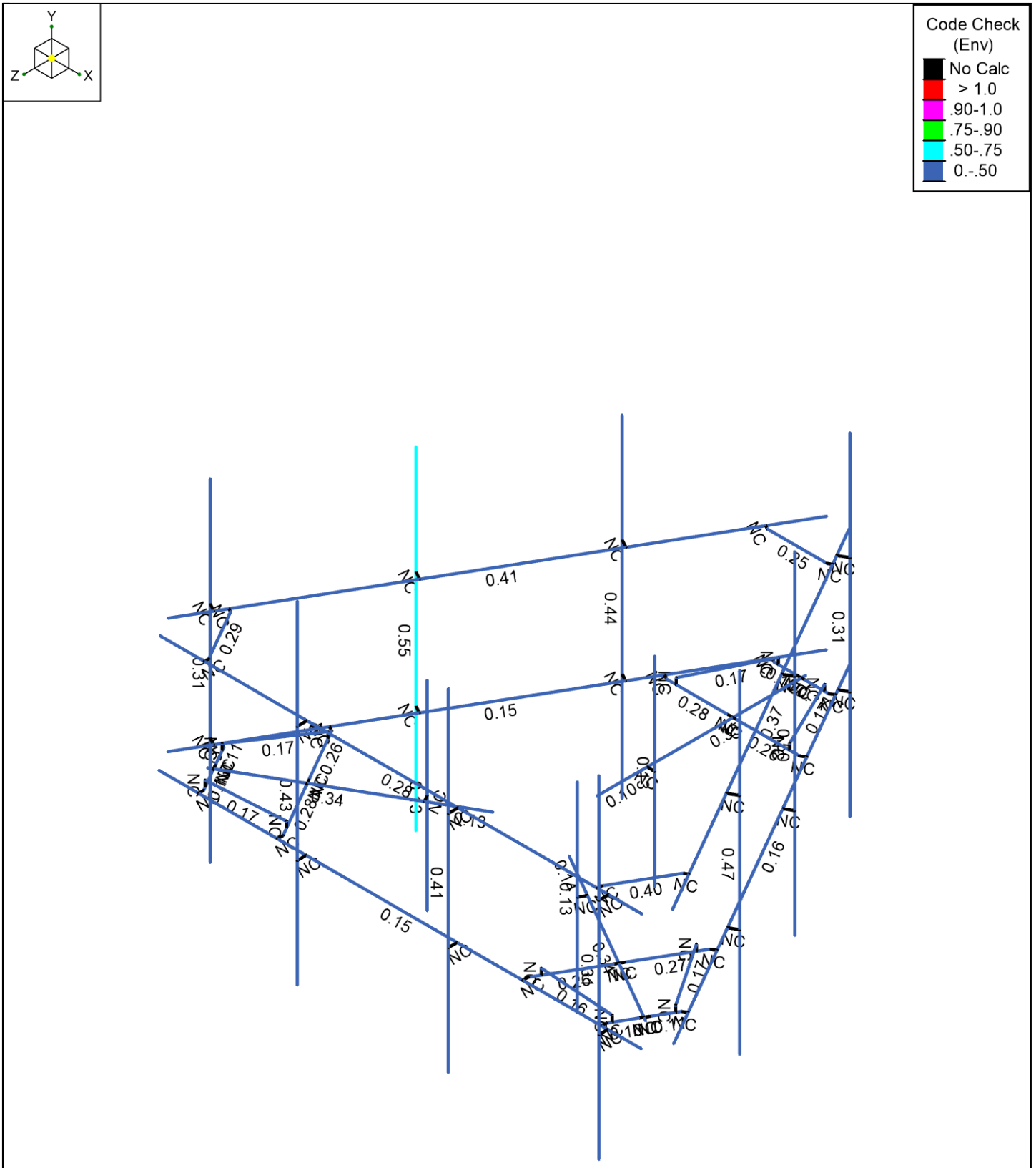

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Envelope Only Solution

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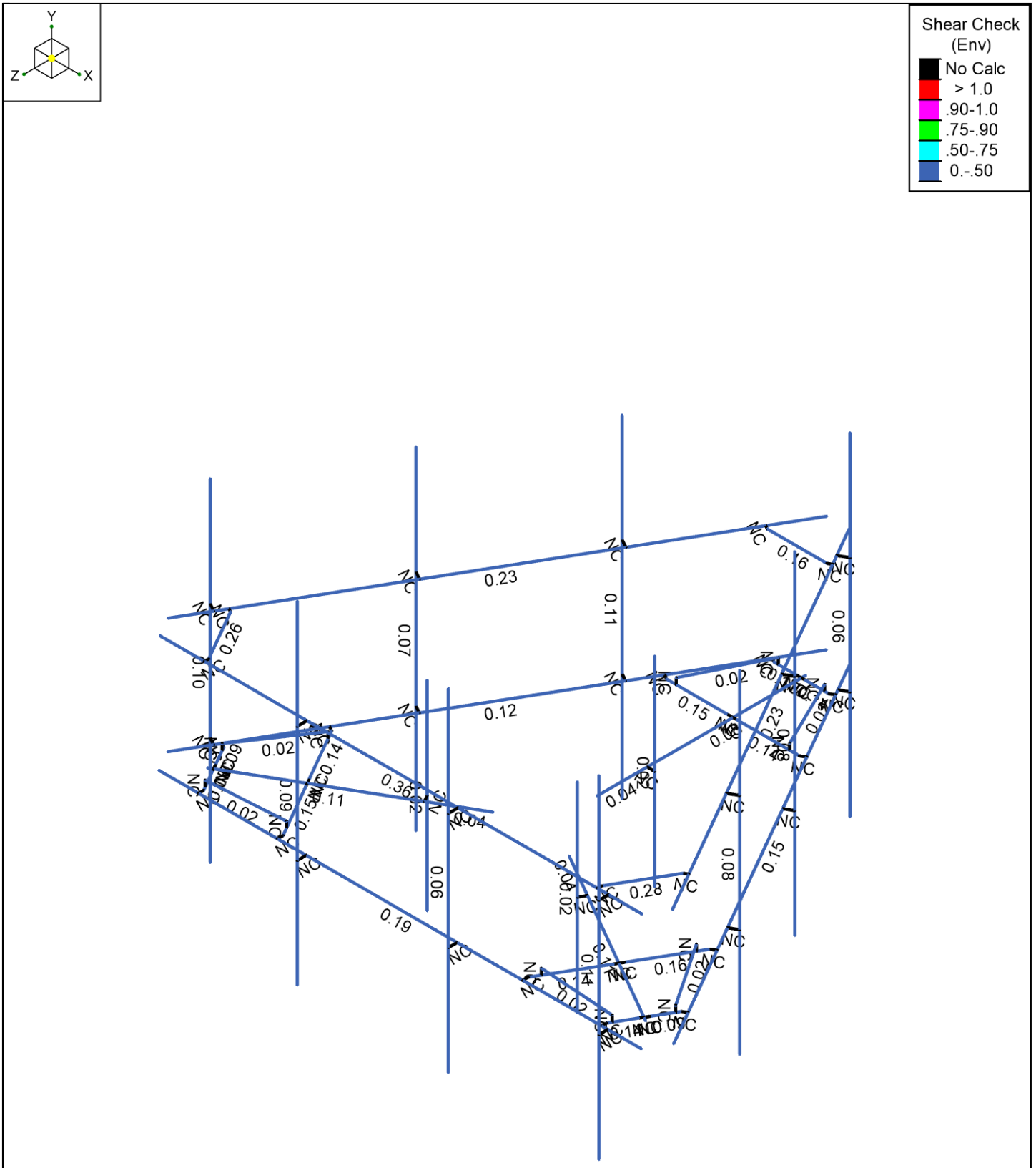

Member Shear Checks Displayed (Enveloped)
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APPENDIX B

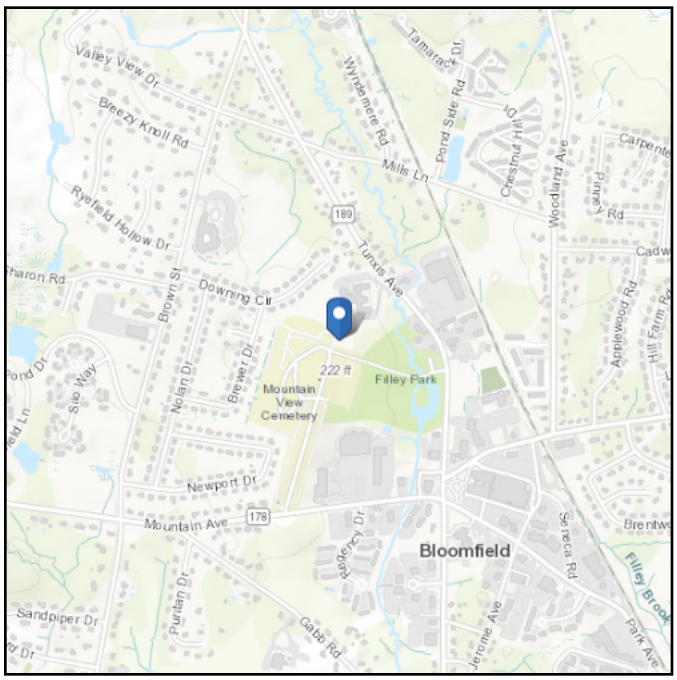
SOFTWARE INPUT CALCULATIONS

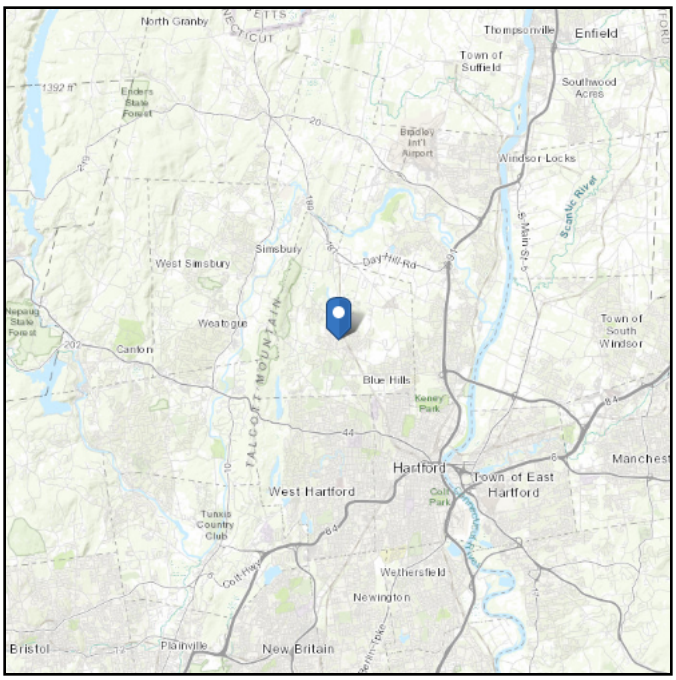
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 192.79 ft (NAVD 88)
Latitude: 41.835158
Longitude: -72.74116





Wind

Results:

Wind Speed	116 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	96 Vmph

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Wed Jul 13 2022

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

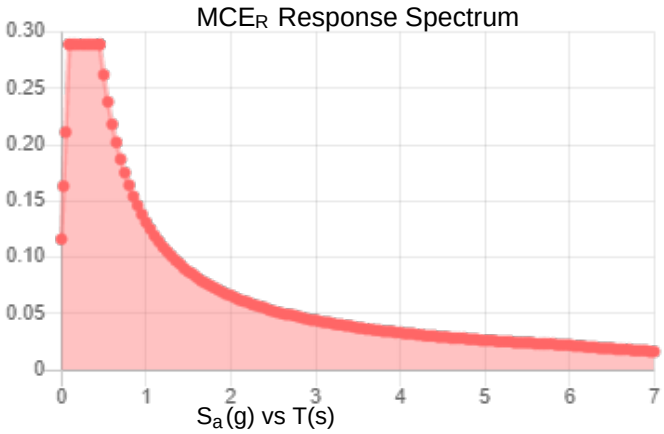
Seismic

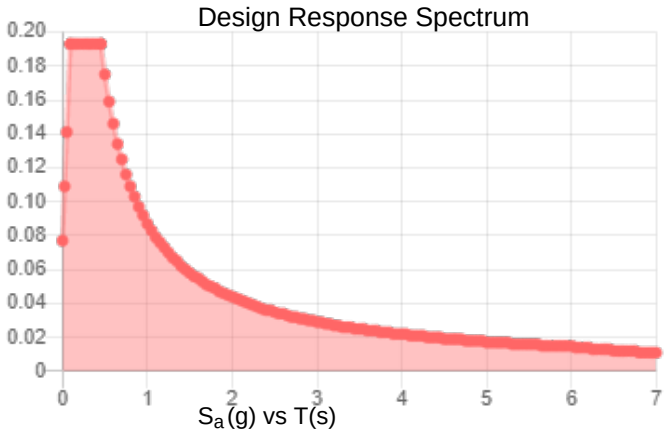
Site Soil Class: D - Default (see Section 11.4.3)

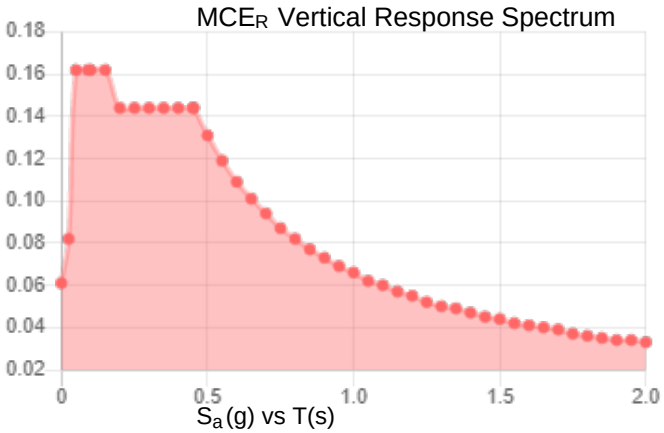
Results:

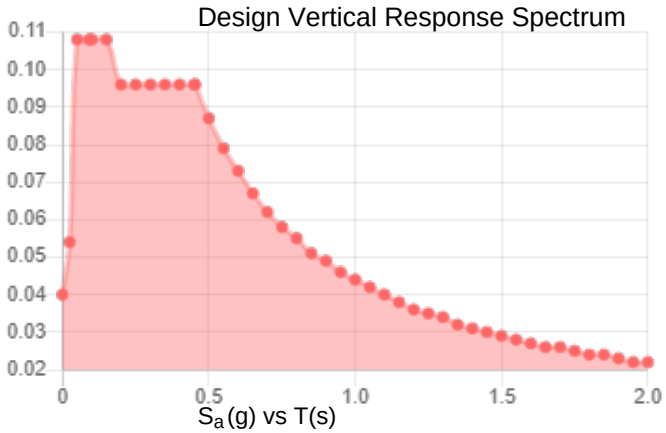
S_S :	0.181	S_{D1} :	0.087
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.096
F_v :	2.4	PGA_M :	0.154
S_{MS} :	0.289	F_{PGA} :	1.6
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.193	C_v :	0.7

Seismic Design Category B









Data Accessed: **Wed Jul 13 2022**

Date Source:

USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Wed Jul 13 2022

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

PROJECT	**80145.005.01 - MTN. View CEM. (Fille**	**KSC**
SUBJECT	**Platform Mount Analysis**	
DATE	**07/13/22**	

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Tower Type		:	Monopole		
Ground Elevation	z_s	:	193	ft	[ASCE7 Hazard Tool]
Tower Height		:	120.00	ft	
Mount Elevation		:	99.00	ft	
Antenna Elevation		:	102.00	ft	
Crest Height		:	0	ft	
Risk Category		:	II		[Table 2-1]
Exposure Category		:	C		[Sec. 2.6.5.1.2]
Topography Category		:	1.00		[Sec. 2.6.6.2]
Wind Velocity	V	:	116	mph	[ASCE7 Hazard Tool]
Ice wind Velocity	V_i	:	50	mph	[ASCE7 Hazard Tool]
Service Velocity	V_s	:	30	mph	[ASCE7 Hazard Tool]
Base Ice thickness	t_i	:	1.50	in	[ASCE7 Hazard Tool]
Seismic Design Cat.		:	B		[ASCE7 Hazard Tool]
	S_S	:	0.18		
	S_1	:	0.06		
	S_{DS}	:	0.19		
	S_{D1}	:	0.09		
Gust Factor	G_h	:	1.00		[Sec. 16.6]
Pressure Coefficient	K_z	:	1.27		[Sec. 2.6.5.2]
Topography Facto	K_{zt}	:	1.00		[Sec. 2.6.6]
Elevation Factor	K_e	:	0.99		[Sec. 2.6.8]
Directionality Factor	K_d	:	0.95		[Sec. 16.6]
Shielding Factor	K_a	:	0.90		[Sec. 16.6]
Design Ice Thickness	t_{iz}	:	1.68	in	[Sec. 2.6.10]
Importance Factor	I_e	:	1		[Table 2-3]
Response Coefficient	C_s	:	0.097		[Sec. 2.7.7.1]
Amplification	A_s	:	2.3		[Sec. 16.7]
	q_z	:	41.04	psf	

PROJECT	**80145.005.01 - MTN. View CEM. (Fille KSC**
SUBJECT	**Platform Mount Analysis**
DATE	**07/13/22**

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

Manufacturer	Model	Qty	Height (in^2)	Width (in^2)	Depth (in^2)	Weight (lbs)	C_aA_a (N) (ft^2)	C_aA_a (T) (ft^2)	C_aA_a (N) Ice (ft^2)	C_aA_a (T) Ice (ft^2)	$F_{A\,(N)}$ (k)	$F_{A\,(T)}$ (k)	$F_{A\,(N)}$ Ice (k)	$F_{A\,(T)}$ Ice (k)
CCI ANTENNAS	TPA65R-BU6DA-K	0.5	71.2	20.7	7.7	68.3	6.35	2.81	7.73	4.22	0.24	0.09	0.04	0.02
CCI ANTENNAS	TPA65R-BU6DA-K	0.5					6.35	2.81	7.73	4.22	0.24	0.09	0.04	0.02
ERICSSON	AIR 6419 B77G_CCIV3	0.5	31.1	16.1	7.3	44.0	2.09	1.01	2.79	1.63	0.08	0.04	0.01	0.01
ERICSSON	AIR 6419 B77G_CCIV3	0.5					2.09	1.01	2.79	1.63	0.08	0.04	0.01	0.01
ERICSSON	AIR 6449 B77D_CCVI2	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.38	1.33	0.08	0.04	0.02	0.01
ERICSSON	AIR 6449 B77D_CCVI2	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.38	1.33	0.08	0.04	0.02	0.01
CCI ANTENNAS	OPA65R-BU6D	0.5	71.2	21.0	7.8	63.5	6.11	2.27	7.28	3.28	0.25	0.09	0.06	0.03
CCI ANTENNAS	OPA65R-BU6D	0.5					6.11	2.27	7.28	3.28	0.25	0.09	0.06	0.03
RAYCAP	DC6-48-60-18-8F	1	22.3	11.0	11.0	18.9	0.85	0.85	1.28	1.28	0.03	0.03	0.01	0.01
CCI ANTENNAS	TPA65R-BU6DA-K	0.5	71.2	20.7	7.7	68.3	6.35	2.81	7.73	4.22	0.24	0.09	0.04	0.02
CCI ANTENNAS	TPA65R-BU6DA-K	0.5					6.35	2.81	7.73	4.22	0.24	0.09	0.04	0.02
ERICSSON	AIR 6419 B77G_CCIV3	0.5	31.1	16.1	7.3	44.0	2.09	1.01	2.79	1.63	0.08	0.04	0.01	0.01
ERICSSON	AIR 6419 B77G_CCIV3	0.5					2.09	1.01	2.79	1.63	0.08	0.04	0.01	0.01
ERICSSON	AIR 6449 B77D_CCVI2	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.38	1.33	0.08	0.04	0.02	0.01
ERICSSON	AIR 6449 B77D_CCVI2	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.38	1.33	0.08	0.04	0.02	0.01
CCI ANTENNAS	OPA65R-BU6D	0.5	71.2	21.0	7.8	63.5	6.11	2.27	7.28	3.28	0.25	0.09	0.06	0.03
CCI ANTENNAS	OPA65R-BU6D	0.5					6.11	2.27	7.28	3.28	0.25	0.09	0.06	0.03
RAYCAP	DC6-48-60-18-8F	1	22.3	11.0	11.0	18.9	0.85	0.85	1.28	1.28	0.03	0.03	0.01	0.01

PROJECT	**80145.005.01 - MTN. View CEM. (Fille KSC**
SUBJECT	**Platform Mount Analysis**
DATE	**07/13/22**

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
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Manufacturer	Model	Qty	Height (in^2)	Width (in^2)	Depth (in^2)	Weight (lbs)	C_aA_a (N) (ft^2)	C_aA_a (T) (ft^2)	C_aA_a (N) Ice (ft^2)	C_aA_a (T) Ice (ft^2)	$F_{A\,(N)}$ (k)	$F_{A\,(T)}$ (k)	$F_{A\,(N)}$ Ice (k)	$F_{A\,(T)}$ Ice (k)
CCI ANTENNAS	TPA65R-BU6DA-K	0.5	71.2	20.7	7.7	68.3	6.35	2.81	7.73	4.22	0.24	0.09	0.04	0.02
CCI ANTENNAS	TPA65R-BU6DA-K	0.5					6.35	2.81	7.73	4.22	0.24	0.09	0.04	0.02
ERICSSON	AIR 6419 B77G_CCIV3	0.5	31.1	16.1	7.3	44.0	2.09	1.01	2.79	1.63	0.08	0.04	0.01	0.01
ERICSSON	AIR 6419 B77G_CCIV3	0.5					2.09	1.01	2.79	1.63	0.08	0.04	0.01	0.01
ERICSSON	AIR 6449 B77D_CCVI2	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.38	1.33	0.08	0.04	0.02	0.01
ERICSSON	AIR 6449 B77D_CCVI2	0.5	30.4	15.9	8.1	81.6	1.82	0.86	2.38	1.33	0.08	0.04	0.02	0.01
CCI ANTENNAS	OPA65R-BU6D	0.5	71.2	21.0	7.8	63.5	6.11	2.27	7.28	3.28	0.25	0.09	0.06	0.03
CCI ANTENNAS	OPA65R-BU6D	0.5					6.11	2.27	7.28	3.28	0.25	0.09	0.06	0.03
RAYCAP	DC6-48-60-18-8F	1	22.3	11.0	11.0	18.9	0.85	0.85	1.28	1.28	0.03	0.03	0.01	0.01
ERICSSON	RRUS 8843 B2/ B66A	1	14.9	10.9	13.2	72.0	1.35	1.64	2.17	2.52	0.05	0.06	0.01	0.01
ERICSSON	RRUS 4478 B14_CCIV2	1	18.1	8.3	13.4	59.4	1.25	2.02	2.07	2.99	0.05	0.08	0.01	0.01
ERICSSON	RRUS 32 B30	1	27.2	7.0	12.1	52.9	1.67	2.73	2.77	3.92	0.06	0.11	0.01	0.02
ERICSSON	RRUS 4449 B5/B12	1	17.9	9.4	13.2	71.0	1.41	1.97	2.26	2.93	0.05	0.07	0.01	0.01
ERICSSON	RRUS 8843 B2/ B66A	1	14.9	10.9	13.2	72.0	1.35	1.64	2.17	2.52	0.05	0.06	0.01	0.01
ERICSSON	RRUS 4478 B14_CCIV2	1	18.1	8.3	13.4	59.4	1.25	2.02	2.07	2.99	0.05	0.08	0.01	0.01
ERICSSON	RRUS 32 B30	1		7.0	12.1	52.9	1.67	2.73	2.77	3.92	0.06	0.11	0.01	0.02
ERICSSON	RRUS 4449 B5/B12	1		9.4	13.2	71.0	1.41	1.97	2.26	2.93	0.05	0.07	0.01	0.01
ERICSSON	RRUS 8843 B2/ B66A	1	14.9	10.9	13.2	72.0	1.35	1.64	2.17	2.52	0.05	0.06	0.01	0.01
ERICSSON	RRUS 4478 B14_CCIV2	1	18.1	8.3	13.4	59.4	1.25	2.02	2.07	2.99	0.05	0.08	0.01	0.01
ERICSSON	RRUS 32 B30	1	27.2	7.0	12.1	52.9	1.67	2.73	2.77	3.92	0.06	0.11	0.01	0.02
ERICSSON	RRUS 4449 B5/B12	1	17.9	9.4	13.2	71.0	1.41	1.97	2.26	2.93	0.05	0.07	0.01	0.01

APPENDIX C

SOFTWARE ANALYSIS OUTPUT

Node Coordinates

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
1	1	0	0	0	
2	2	-0.	0	-2.333331	
3	3	-0.	0	-7.604164	
4	4	-0.	0	-5.416664	
5	5	-2	0	-5.416664	
6	6	2	0	-5.416664	
7	7	-0.	0	-7.479164	
8	8	0.822917	0	-7.479164	
9	9	-0.822917	0	-7.479164	
10	10	-0.697917	0.182	-7.479164	
11	11	-1.708333	0.182	-5.416664	
12	12	0.697917	0.182	-7.479164	
13	13	1.708333	0.182	-5.416664	
14	14	-7.250006	0	4.602245	
15	15	7.250006	0	4.602245	
16	16	0.952817	0	-7.554162	
17	17	-0.952817	0	-7.554162	
18	18	-7.250006	3.5	4.577245	
19	19	7.250006	3.5	4.577245	
20	26	0.125	0	-5.416664	
21	27	-0.125	0	-5.416664	
22	28	-0.125	0	-7.479164	
23	29	0.125	0	-7.479164	
24	30	-1.708333	0.	-5.416664	
25	31	-0.697917	0.	-7.479164	
26	32	0.697917	0.	-7.479164	
27	33	1.708333	0.	-5.416664	
28	34	1.006439	3.5	-7.411286	
29	35	0.898189	3.5	-7.348788	
30	36	-1.006439	3.5	-7.411286	
31	37	-0.898189	3.5	-7.348788	
32	38	-2.829157	0	4.602245	
33	39	-2.829157	0	4.868911	
34	40	-2.829157	-3.25	4.868911	
35	41	-2.829157	6.75	4.868911	
36	42	-2.829157	3.5	4.577245	
37	43	-2.829157	3.5	4.868911	
38	44	-0.	0	-1.333331	
39	45	2.140177	0	-5.497595	
40	46	-2.140177	0	-5.497595	
41	47	6.250006	0	4.602245	
42	48	6.250006	0	4.868911	
43	49	6.250006	-3.25	4.868911	
44	50	6.250006	6.75	4.868911	
45	51	6.250006	3.5	4.577245	
46	52	6.250006	3.5	4.868911	
47	53	1.716677	0	4.602245	
48	54	1.716677	0	4.868911	
49	55	1.716677	-3.25	4.868911	
50	56	1.716677	6.75	4.868911	
51	57	1.716677	3.5	4.577245	
52	58	1.716677	3.5	4.868911	
53	59	-0.	0	-2.833331	
54	60	0.224	0	-2.833331	
55	61	0.224	3	-2.833331	
56	62	0.224	-3	-2.833331	
57	63	-2.020724	0	1.166665	
58	64	-6.585399	0	3.802082	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
59	65	-4.690969	0	2.708332	
60	66	-3.690969	0	4.440383	
61	67	-5.690969	0	0.976281	
62	68	-6.477146	0	3.739582	
63	69	-6.888604	0	3.026915	
64	70	-6.065688	0	4.452249	
65	71	-6.128188	0.182	4.343996	
66	72	-3.836802	0.182	4.187792	
67	73	-6.826104	0.182	3.135169	
68	74	-5.545135	0.182	1.228872	
69	75	-7.018505	0	2.951917	
70	76	-6.065688	0	4.602245	
71	77	-4.753469	0	2.600079	
72	78	-4.628469	0	2.816585	
73	79	-6.414646	0	3.847835	
74	80	-6.539646	0	3.631329	
75	81	-3.836802	0.	4.187792	
76	82	-6.128188	0.	4.343996	
77	83	-6.826104	0.	3.135169	
78	84	-5.545135	0.	1.228872	
79	85	-6.921582	3.5	2.834042	
80	86	-6.813332	3.5	2.89654	
81	87	-5.915143	3.5	4.577245	
82	88	-5.915143	3.5	4.452249	
83	89	-1.154698	0	0.666665	
84	90	-5.831145	0	0.89535	
85	91	-3.690969	0	4.602245	
86	92	-2.453736	0	1.416665	
87	93	-2.565736	0	1.222676	
88	94	-2.565736	3	1.222676	
89	95	-2.565736	-3	1.222676	
90	96	2.020724	0	1.166665	
91	97	6.585399	0	3.802082	
92	98	4.690969	0	2.708332	
93	99	5.690969	0	0.976281	
94	100	3.690969	0	4.440383	
95	101	6.477146	0	3.739582	
96	102	6.065688	0	4.452249	
97	103	6.888604	0	3.026915	
98	104	6.826104	0.182	3.135169	
99	105	5.545135	0.182	1.228872	
100	106	6.128188	0.182	4.343996	
101	107	3.836802	0.182	4.187792	
102	108	6.065688	0	4.602245	
103	109	7.018505	0	2.951917	
104	110	4.628469	0	2.816585	
105	111	4.753469	0	2.600079	
106	112	6.539646	0	3.631329	
107	113	6.414646	0	3.847835	
108	114	5.545135	0.	1.228872	
109	115	6.826104	0.	3.135169	
110	116	6.128188	0.	4.343996	
111	117	3.836802	0.	4.187792	
112	118	5.915143	3.5	4.577245	
113	119	5.915143	3.5	4.452249	
114	120	6.921582	3.5	2.834042	
115	121	6.813332	3.5	2.89654	
116	122	1.154698	0	0.666665	

Node Coordinates (Continued)

	Label	X [ft]	Y [ft]	Z [ft]	Detach From Diaphragm
117	123	3.690969	0	4.602245	
118	124	5.831145	0	0.89535	
119	125	2.453736	0	1.416665	
120	126	2.341736	0	1.610655	
121	127	2.341736	3	1.610655	
122	128	2.341736	-3	1.610655	
123	129	7.610664	0	3.977567	
124	130	0.360658	0	-8.579812	
125	131	7.589013	3.5	3.990067	
126	132	0.339007	3.5	-8.567312	
127	133	-0.360658	0	-8.579812	
128	134	-7.610664	0	3.977567	
129	135	-0.339007	3.5	-8.567312	
130	136	-7.589013	3.5	3.990067	
131	143	5.400239	0	0.148999	
132	144	5.631179	0	0.015666	
133	145	5.631179	-3.25	0.015666	
134	146	5.631179	6.75	0.015666	
135	147	5.378589	3.5	0.161499	
136	148	5.631179	3.5	0.015666	
137	149	0.860658	0	-7.713787	
138	150	1.091598	0	-7.84712	
139	151	1.091598	-3.25	-7.84712	
140	152	1.091598	6.75	-7.84712	
141	153	0.839007	3.5	-7.701287	
142	154	1.091598	3.5	-7.84712	
143	155	3.127323	0	-3.787808	
144	156	3.358263	0	-3.921141	
145	157	3.358263	-3.25	-3.921141	
146	158	3.358263	6.75	-3.921141	
147	159	3.105672	3.5	-3.775308	
148	160	3.358263	3.5	-3.921141	
149	164	-7.591604	6.75	3.411221	
150	166	-7.591604	3.5	3.411221	
151	167	-2.571082	0	-4.751244	
152	168	-2.802023	0	-4.884577	
153	169	-2.802023	-3.25	-4.884577	
154	170	-2.802023	6.75	-4.884577	
155	171	-2.549432	3.5	-4.738744	
156	172	-2.802023	3.5	-4.884577	
157	173	-7.110664	0	3.111542	
158	174	-7.341604	0	2.978209	
159	175	-7.341604	-3.25	2.978209	
160	176	-7.341604	6.75	2.978209	
161	177	-7.089013	3.5	3.124042	
162	178	-7.341604	3.5	2.978209	
163	179	-4.843999	0	-0.814437	
164	180	-5.074939	0	-0.94777	
165	181	-5.074939	-3.25	-0.94777	
166	182	-5.074939	6.75	-0.94777	
167	183	-4.822349	3.5	-0.801937	
168	184	-5.074939	3.5	-0.94777	

Node Boundary Conditions

	Y [k/in]	X Rot [k-ft/rad]	X [k/in]	Z Rot [k-ft/rad]	Z [k/in]	Node Label	Y Rot [k-ft/rad]
1						2	
2						3	
3						4	

Node Boundary Conditions (Continued)

	Y [k/in]	X Rot [k-ft/rad]	X [k/in]	Z Rot [k-ft/rad]	Z [k/in]	Node Label	Y Rot [k-ft/rad]
4						5	
5						6	
6						7	
7						8	
8						9	
9						10	
10						11	
11						12	
12						13	
13						14	
14						15	
15						16	
16						17	
17						18	
18						19	
19						26	
20						27	
21						28	
22						29	
23						30	
24						31	
25						32	
26						33	
27						34	
28						35	
29						36	
30						37	
31						38	
32						39	
33						40	
34						41	
35						42	
36						43	
37	Reaction	Reaction	Reaction	Reaction	Reaction	44	Reaction
38						45	
39						46	
40						47	
41						48	
42						49	
43						50	
44						51	
45						52	
46						53	
47						54	
48						55	
49						56	
50						57	
51						58	
52						59	
53						60	
54						61	
55						62	
56						63	
57						64	
58						65	
59						66	
60						67	
61						68	

Node Boundary Conditions (Continued)

	Y [k/in]	X Rot [k-ft/rad]	X [k/in]	Z Rot [k-ft/rad]	Z [k/in]	Node Label	Y Rot [k-ft/rad]
62						69	
63						70	
64						71	
65						72	
66						73	
67						74	
68						75	
69						76	
70						77	
71						78	
72						79	
73						80	
74						81	
75						82	
76						83	
77						84	
78						85	
79						86	
80						87	
81						88	
82	Reaction	Reaction	Reaction	Reaction	Reaction	89	Reaction
83						90	
84						91	
85						92	
86						93	
87						94	
88						95	
89						96	
90						97	
91						98	
92						99	
93						100	
94						101	
95						102	
96						103	
97						104	
98						105	
99						106	
100						107	
101						108	
102						109	
103						110	
104						111	
105						112	
106						113	
107						114	
108						115	
109						116	
110						117	
111						118	
112						119	
113						120	
114						121	
115	Reaction	Reaction	Reaction	Reaction	Reaction	122	Reaction
116						123	
117						124	
118						125	
119						126	

Node Boundary Conditions (Continued)

	Y [k/in]	X Rot [k-ft/rad]	X [k/in]	Z Rot [k-ft/rad]	Z [k/in]	Node Label	Y Rot [k-ft/rad]
120						127	
121						128	
122						129	
123						130	
124						131	
125						132	
126						133	
127						134	
128						135	
129						136	
130						143	
131						144	
132						145	
133						146	
134						147	
135						148	
136						149	
137						150	
138						151	
139						152	
140						153	
141						154	
142						155	
143						156	
144						157	
145						158	
146						159	
147						160	
148						164	
149						166	
150						167	
151						168	
152						169	
153						170	
154						171	
155						172	
156						173	
157						174	
158						175	
159						176	
160						177	
161						178	
162						179	
163						180	
164						181	
165						182	
166						183	
167						184	

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3

Cold Formed Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e⁵°F⁻¹]	Density [k/ft³]	Yield [ksi]	Fu [ksi]
1	A653 SS Gr33	29500	11346	0.3	0.65	0.49	33	45
2	A653 SS Gr50/1	29500	11346	0.3	0.65	0.49	50	65

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	MF-S1	HSS5X3X6	Beam	Tube	A500 Gr.B Rect	Typical	4.78	6.25	14.1	14.9
2	MF-S2	PIPE_3.0	Beam	Pipe	A500 Gr.B RND	Typical	2.07	2.85	2.85	5.69
3	MF-S3	L1.5X1.5X4	Beam	Single Angle	A36 Gr.36	Typical	0.688	0.139	0.139	0.013
4	MF-H1	PIPE_3.0	Beam	Pipe	A500 Gr.B RND	Typical	2.07	2.85	2.85	5.69
5	SR	PIPE_2.0	Beam	Pipe	A500 Gr.B RND	Typical	1.02	0.627	0.627	1.25
6	HR-S1	PIPE_2.0	Beam	Pipe	A500 Gr.B RND	Typical	1.02	0.627	0.627	1.25
7	MP1	PIPE_2.0	Column	Pipe	A500 Gr.B RND	Typical	1.02	0.627	0.627	1.25
8	Extension Beam	W10X49	Beam	Wide Flange	A992	Typical	14.4	93.4	272	1.39
9	RRU Pipe	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25

Cold Formed Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	CF1	8CU1.25X057	Beam	None	A653 SS Gr33	Typical	0.581	0.057	4.41	0.00063

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	1	2	3		MF-S1	Beam	Tube	A500 Gr.B Rect	Typical
2	2	5	27		MF-S2	Beam	Pipe	A500 Gr.B RND	Typical
3	3	9	28		MF-S2	Beam	Pipe	A500 Gr.B RND	Typical
4	4	10	11	270	MF-S3	Beam	Single Angle	A36 Gr.36	Typical
5	5	12	13		MF-S3	Beam	Single Angle	A36 Gr.36	Typical
6	6	14	15		MF-H1	Beam	Pipe	A500 Gr.B RND	Typical
7	7	6	45		RIGID	None	None	RIGID	Typical
8	8	8	16		RIGID	None	None	RIGID	Typical
9	9	9	17		RIGID	None	None	RIGID	Typical
10	10	5	46		RIGID	None	None	RIGID	Typical
11	11	18	19		SR	Beam	Pipe	A500 Gr.B RND	Typical
12	15	26	6		MF-S2	Beam	Pipe	A500 Gr.B RND	Typical
13	16	29	8		MF-S2	Beam	Pipe	A500 Gr.B RND	Typical
14	17	27	4		RIGID	None	None	RIGID	Typical
15	18	4	26		RIGID	None	None	RIGID	Typical
16	19	28	7		RIGID	None	None	RIGID	Typical
17	20	7	29		RIGID	None	None	RIGID	Typical
18	21	11	30		RIGID	None	None	RIGID	Typical
19	22	10	31		RIGID	None	None	RIGID	Typical
20	23	12	32		RIGID	None	None	RIGID	Typical
21	24	13	33		RIGID	None	None	RIGID	Typical
22	25	35	34		RIGID	None	None	RIGID	Typical
23	26	37	36		RIGID	None	None	RIGID	Typical
24	27	37	35		HR-S1	Beam	Pipe	A500 Gr.B RND	Typical
25	28	39	38		RIGID	None	None	RIGID	Typical
26	29	43	42		RIGID	None	None	RIGID	Typical
27	30	41	40		MP1	Column	Pipe	A500 Gr.B RND	Typical
28	31	44	2		Extension Beam	Beam	Wide Flange	A992	Typical
29	32	48	47		RIGID	None	None	RIGID	Typical
30	33	52	51		RIGID	None	None	RIGID	Typical
31	34	50	49		MP1	Column	Pipe	A500 Gr.B RND	Typical
32	35	54	53		RIGID	None	None	RIGID	Typical
33	36	58	57		RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
34	37	56	55		MP1	Column	Pipe	A500 Gr.B RND	Typical
35	38	60	59		RIGID	None	None	RIGID	Typical
36	39	61	62		RRU Pipe	Column	Pipe	A53 Gr.B	Typical
37	40	63	64		MF-S1	Beam	Tube	A500 Gr.B Rect	Typical
38	41	66	78		MF-S2	Beam	Pipe	A500 Gr.B RND	Typical
39	42	70	79		MF-S2	Beam	Pipe	A500 Gr.B RND	Typical
40	43	71	72	270	MF-S3	Beam	Single Angle	A36 Gr.36	Typical
41	44	73	74		MF-S3	Beam	Single Angle	A36 Gr.36	Typical
42	45	67	90		RIGID	None	None	RIGID	Typical
43	46	69	75		RIGID	None	None	RIGID	Typical
44	47	70	76		RIGID	None	None	RIGID	Typical
45	48	66	91		RIGID	None	None	RIGID	Typical
46	49	77	67		MF-S2	Beam	Pipe	A500 Gr.B RND	Typical
47	50	80	69		MF-S2	Beam	Pipe	A500 Gr.B RND	Typical
48	51	78	65		RIGID	None	None	RIGID	Typical
49	52	65	77		RIGID	None	None	RIGID	Typical
50	53	79	68		RIGID	None	None	RIGID	Typical
51	54	68	80		RIGID	None	None	RIGID	Typical
52	55	72	81		RIGID	None	None	RIGID	Typical
53	56	71	82		RIGID	None	None	RIGID	Typical
54	57	73	83		RIGID	None	None	RIGID	Typical
55	58	74	84		RIGID	None	None	RIGID	Typical
56	59	86	85		RIGID	None	None	RIGID	Typical
57	60	88	87		RIGID	None	None	RIGID	Typical
58	61	88	86		HR-S1	Beam	Pipe	A500 Gr.B RND	Typical
59	62	89	63		Extension Beam	Beam	Wide Flange	A992	Typical
60	63	93	92		RIGID	None	None	RIGID	Typical
61	64	94	95		RRU Pipe	Column	Pipe	A53 Gr.B	Typical
62	65	96	97		MF-S1	Beam	Tube	A500 Gr.B Rect	Typical
63	66	99	111		MF-S2	Beam	Pipe	A500 Gr.B RND	Typical
64	67	103	112		MF-S2	Beam	Pipe	A500 Gr.B RND	Typical
65	68	104	105	270	MF-S3	Beam	Single Angle	A36 Gr.36	Typical
66	69	106	107		MF-S3	Beam	Single Angle	A36 Gr.36	Typical
67	70	100	123		RIGID	None	None	RIGID	Typical
68	71	102	108		RIGID	None	None	RIGID	Typical
69	72	103	109		RIGID	None	None	RIGID	Typical
70	73	99	124		RIGID	None	None	RIGID	Typical
71	74	110	100		MF-S2	Beam	Pipe	A500 Gr.B RND	Typical
72	75	113	102		MF-S2	Beam	Pipe	A500 Gr.B RND	Typical
73	76	111	98		RIGID	None	None	RIGID	Typical
74	77	98	110		RIGID	None	None	RIGID	Typical
75	78	112	101		RIGID	None	None	RIGID	Typical
76	79	101	113		RIGID	None	None	RIGID	Typical
77	80	105	114		RIGID	None	None	RIGID	Typical
78	81	104	115		RIGID	None	None	RIGID	Typical
79	82	106	116		RIGID	None	None	RIGID	Typical
80	83	107	117		RIGID	None	None	RIGID	Typical
81	84	119	118		RIGID	None	None	RIGID	Typical
82	85	121	120		RIGID	None	None	RIGID	Typical
83	86	121	119		HR-S1	Beam	Pipe	A500 Gr.B RND	Typical
84	87	122	96		Extension Beam	Beam	Wide Flange	A992	Typical
85	88	126	125		RIGID	None	None	RIGID	Typical
86	89	127	128		RRU Pipe	Column	Pipe	A53 Gr.B	Typical
87	90	129	130		MF-H1	Beam	Pipe	A500 Gr.B RND	Typical
88	91	131	132		SR	Beam	Pipe	A500 Gr.B RND	Typical
89	92	133	134		MF-H1	Beam	Pipe	A500 Gr.B RND	Typical
90	93	135	136		SR	Beam	Pipe	A500 Gr.B RND	Typical
91	97	144	143		RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
92	98	148	147		RIGID	None	None	RIGID	Typical
93	99	146	145		MP1	Column	Pipe	A500 Gr.B RND	Typical
94	100	150	149		RIGID	None	None	RIGID	Typical
95	101	154	153		RIGID	None	None	RIGID	Typical
96	102	152	151		MP1	Column	Pipe	A500 Gr.B RND	Typical
97	103	156	155		RIGID	None	None	RIGID	Typical
98	104	160	159		RIGID	None	None	RIGID	Typical
99	105	158	157		MP1	Column	Pipe	A500 Gr.B RND	Typical
100	109	168	167		RIGID	None	None	RIGID	Typical
101	110	172	171		RIGID	None	None	RIGID	Typical
102	111	170	169		MP1	Column	Pipe	A500 Gr.B RND	Typical
103	112	174	173		RIGID	None	None	RIGID	Typical
104	113	178	177		RIGID	None	None	RIGID	Typical
105	114	176	175		MP1	Column	Pipe	A500 Gr.B RND	Typical
106	115	180	179		RIGID	None	None	RIGID	Typical
107	116	184	183		RIGID	None	None	RIGID	Typical
108	117	182	181		MP1	Column	Pipe	A500 Gr.B RND	Typical

Member Advanced Data

	Label	Physical	Deflection Ratio Options	Seismic DR
1	1	Yes		None
2	2	Yes	Default	None
3	3	Yes	Default	None
4	4	Yes		None
5	5	Yes	Default	None
6	6	Yes	Default	None
7	7	Yes	** NA **	None
8	8	Yes	** NA **	None
9	9	Yes	** NA **	None
10	10	Yes	** NA **	None
11	11	Yes		None
12	15	Yes	Default	None
13	16	Yes	Default	None
14	17	Yes	** NA **	None
15	18	Yes	** NA **	None
16	19	Yes	** NA **	None
17	20	Yes	** NA **	None
18	21	Yes	** NA **	None
19	22	Yes	** NA **	None
20	23	Yes	** NA **	None
21	24	Yes	** NA **	None
22	25	Yes	** NA **	None
23	26	Yes	** NA **	None
24	27	Yes		None
25	28	Yes	** NA **	None
26	29	Yes	** NA **	None
27	30	Yes	** NA **	None
28	31	Yes		None
29	32	Yes	** NA **	None
30	33	Yes	** NA **	None
31	34	Yes	** NA **	None
32	35	Yes	** NA **	None
33	36	Yes	** NA **	None
34	37	Yes	** NA **	None
35	38	Yes	** NA **	None
36	39	Yes	** NA **	None
37	40	Yes		None
38	41	Yes	Default	None

Member Advanced Data (Continued)

	Label	Physical	Deflection Ratio Options	Seismic DR
39	42	Yes	Default	None
40	43	Yes		None
41	44	Yes	Default	None
42	45	Yes	** NA **	None
43	46	Yes	** NA **	None
44	47	Yes	** NA **	None
45	48	Yes	** NA **	None
46	49	Yes	Default	None
47	50	Yes	Default	None
48	51	Yes	** NA **	None
49	52	Yes	** NA **	None
50	53	Yes	** NA **	None
51	54	Yes	** NA **	None
52	55	Yes	** NA **	None
53	56	Yes	** NA **	None
54	57	Yes	** NA **	None
55	58	Yes	** NA **	None
56	59	Yes	** NA **	None
57	60	Yes	** NA **	None
58	61	Yes		None
59	62	Yes		None
60	63	Yes	** NA **	None
61	64	Yes	** NA **	None
62	65	Yes		None
63	66	Yes	Default	None
64	67	Yes	Default	None
65	68	Yes		None
66	69	Yes	Default	None
67	70	Yes	** NA **	None
68	71	Yes	** NA **	None
69	72	Yes	** NA **	None
70	73	Yes	** NA **	None
71	74	Yes	Default	None
72	75	Yes	Default	None
73	76	Yes	** NA **	None
74	77	Yes	** NA **	None
75	78	Yes	** NA **	None
76	79	Yes	** NA **	None
77	80	Yes	** NA **	None
78	81	Yes	** NA **	None
79	82	Yes	** NA **	None
80	83	Yes	** NA **	None
81	84	Yes	** NA **	None
82	85	Yes	** NA **	None
83	86	Yes		None
84	87	Yes		None
85	88	Yes	** NA **	None
86	89	Yes	** NA **	None
87	90	Yes	Default	None
88	91	Yes		None
89	92	Yes	Default	None
90	93	Yes		None
91	97	Yes	** NA **	None
92	98	Yes	** NA **	None
93	99	Yes	** NA **	None
94	100	Yes	** NA **	None
95	101	Yes	** NA **	None
96	102	Yes	** NA **	None

Member Advanced Data (Continued)

	Label	Physical	Deflection Ratio Options	Seismic DR
97	103	Yes	** NA **	None
98	104	Yes	** NA **	None
99	105	Yes	** NA **	None
100	109	Yes	** NA **	None
101	110	Yes	** NA **	None
102	111	Yes	** NA **	None
103	112	Yes	** NA **	None
104	113	Yes	** NA **	None
105	114	Yes	** NA **	None
106	115	Yes	** NA **	None
107	116	Yes	** NA **	None
108	117	Yes	** NA **	None

Hot Rolled Steel Design Parameters

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
1	1	MF-S1	5.271	Lbyy	Lateral
2	2	MF-S2	1.875	Lbyy	Lateral
3	3	MF-S2	0.698	Lbyy	Lateral
4	4	MF-S3	2.297	Lbyy	Lateral
5	5	MF-S3	2.297	Lbyy	Lateral
6	6	MF-H1	14.5	Lbyy	Lateral
7	11	SR	14.5	Lbyy	Lateral
8	15	MF-S2	1.875	Lbyy	Lateral
9	16	MF-S2	0.698	Lbyy	Lateral
10	27	HR-S1	1.796	Lbyy	Lateral
11	30	MP1	10	Lbyy	Lateral
12	31	Extension Beam	1	Lbyy	Lateral
13	34	MP1	10	Lbyy	Lateral
14	37	MP1	10	Lbyy	Lateral
15	39	RRU Pipe	6	Lbyy	Lateral
16	40	MF-S1	5.271	Lbyy	Lateral
17	41	MF-S2	1.875	Lbyy	Lateral
18	42	MF-S2	0.698	Lbyy	Lateral
19	43	MF-S3	2.297	Lbyy	Lateral
20	44	MF-S3	2.297	Lbyy	Lateral
21	49	MF-S2	1.875	Lbyy	Lateral
22	50	MF-S2	0.698	Lbyy	Lateral
23	61	HR-S1	1.796	Lbyy	Lateral
24	62	Extension Beam	1	Lbyy	Lateral
25	64	RRU Pipe	6	Lbyy	Lateral
26	65	MF-S1	5.271	Lbyy	Lateral
27	66	MF-S2	1.875	Lbyy	Lateral
28	67	MF-S2	0.698	Lbyy	Lateral
29	68	MF-S3	2.297	Lbyy	Lateral
30	69	MF-S3	2.297	Lbyy	Lateral
31	74	MF-S2	1.875	Lbyy	Lateral
32	75	MF-S2	0.698	Lbyy	Lateral
33	86	HR-S1	1.796	Lbyy	Lateral
34	87	Extension Beam	1	Lbyy	Lateral
35	89	RRU Pipe	6	Lbyy	Lateral
36	90	MF-H1	14.5	Lbyy	Lateral
37	91	SR	14.5	Lbyy	Lateral
38	92	MF-H1	14.5	Lbyy	Lateral
39	93	SR	14.5	Lbyy	Lateral
40	99	MP1	10	Lbyy	Lateral
41	102	MP1	10	Lbyy	Lateral
42	105	MP1	10	Lbyy	Lateral
43	111	MP1	10	Lbyy	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [ft]	Lcomp top [ft]	Function
44	114	MP1	10	Lbyy	Lateral
45	117	MP1	10	Lbyy	Lateral

Cold Formed Steel Design Parameters

No Data to Print...

Member Point Loads (BLC 1 : Dead)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	34	Y	-0.034	%5
2	34	Y	-0.034	%65
3	34	Y	0	0
4	34	Y	0	0
5	34	Y	0	0
6	37	Y	-0.022	%5
7	37	Y	-0.022	%30
8	37	Y	-0.041	%70
9	37	Y	-0.041	%95
10	37	Y	0	0
11	30	Y	-0.032	%5
12	30	Y	-0.032	%65
13	30	Y	0	0
14	30	Y	0	0
15	30	Y	0	0
16	40	Y	-0.019	%25
17	40	Y	0	0
18	40	Y	0	0
19	40	Y	0	0
20	40	Y	0	0
21	114	Y	-0.034	%5
22	114	Y	-0.034	%65
23	114	Y	0	0
24	114	Y	0	0
25	114	Y	0	0
26	117	Y	-0.022	%5
27	117	Y	-0.022	%30
28	117	Y	-0.041	%70
29	117	Y	-0.041	%95
30	117	Y	0	0
31	111	Y	-0.032	%5
32	111	Y	-0.032	%65
33	111	Y	0	0
34	111	Y	0	0
35	111	Y	0	0
36	1	Y	-0.019	%25
37	1	Y	0	0
38	1	Y	0	0
39	1	Y	0	0
40	1	Y	0	0
41	102	Y	-0.034	%5
42	102	Y	-0.034	%65
43	102	Y	0	0
44	102	Y	0	0
45	102	Y	0	0
46	105	Y	-0.022	%5
47	105	Y	-0.022	%30
48	105	Y	-0.041	%70
49	105	Y	-0.041	%95

Member Point Loads (BLC 1 : Dead) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
50	105	Y	0	0
51	99	Y	-0.032	%5
52	99	Y	-0.032	%65
53	99	Y	0	0
54	99	Y	0	0
55	99	Y	0	0
56	65	Y	-0.019	%25
57	65	Y	0	0
58	65	Y	0	0
59	65	Y	0	0
60	65	Y	0	0
61	89	Y	-0.072	%25
62	89	Y	-0.059	%25
63	89	Y	-0.053	%60
64	89	Y	-0.071	%60
65	89	Y	0	0
66	64	Y	-0.072	%25
67	64	Y	-0.059	%25
68	64	Y	-0.053	%60
69	64	Y	-0.071	%60
70	64	Y	0	0
71	39	Y	-0.072	%25
72	39	Y	-0.059	%25
73	39	Y	-0.053	%60
74	39	Y	-0.071	%60
75	39	Y	0	0

Member Point Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	34	Z	-0.236	%5
2	34	Z	-0.236	%65
3	34	Z	0	0
4	34	Z	0	0
5	34	Z	0	0
6	37	Z	-0.078	%5
7	37	Z	-0.078	%30
8	37	Z	-0.075	%70
9	37	Z	-0.075	%95
10	37	Z	0	0
11	30	Z	-0.252	%5
12	30	Z	-0.252	%65
13	30	Z	0	0
14	30	Z	0	0
15	30	Z	0	0
16	40	Z	-0.032	%25
17	40	Z	0	0
18	40	Z	0	0
19	40	Z	0	0
20	40	Z	0	0
21	114	Z	-0.236	%5
22	114	Z	-0.236	%65
23	114	Z	0	0
24	114	Z	0	0
25	114	Z	0	0
26	117	Z	-0.078	%5
27	117	Z	-0.078	%30
28	117	Z	-0.075	%70
29	117	Z	-0.075	%95

Member Point Loads (BLC 2 : 0 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
30	117	Z	0	0
31	111	Z	-0.252	%5
32	111	Z	-0.252	%65
33	111	Z	0	0
34	111	Z	0	0
35	111	Z	0	0
36	1	Z	-0.032	%25
37	1	Z	0	0
38	1	Z	0	0
39	1	Z	0	0
40	1	Z	0	0
41	102	Z	-0.236	%5
42	102	Z	-0.236	%65
43	102	Z	0	0
44	102	Z	0	0
45	102	Z	0	0
46	105	Z	-0.078	%5
47	105	Z	-0.078	%30
48	105	Z	-0.075	%70
49	105	Z	-0.075	%95
50	105	Z	0	0
51	99	Z	-0.252	%5
52	99	Z	-0.252	%65
53	99	Z	0	0
54	99	Z	0	0
55	99	Z	0	0
56	65	Z	-0.032	%25
57	65	Z	0	0
58	65	Z	0	0
59	65	Z	0	0
60	65	Z	0	0
61	89	Z	-0.05	%25
62	89	Z	-0.046	%25
63	89	Z	-0.062	%60
64	89	Z	-0.052	%60
65	89	Z	0	0
66	64	Z	-0.05	%25
67	64	Z	-0.046	%25
68	64	Z	-0.062	%60
69	64	Z	-0.052	%60
70	64	Z	0	0
71	39	Z	-0.05	%25
72	39	Z	-0.046	%25
73	39	Z	-0.062	%60
74	39	Z	-0.052	%60
75	39	Z	0	0

Member Point Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	34	X	-0.088	%5
2	34	X	-0.088	%65
3	34	X	0	0
4	34	X	0	0
5	34	X	0	0
6	37	X	-0.035	%5
7	37	X	-0.035	%30
8	37	X	-0.036	%70
9	37	X	-0.036	%95

Member Point Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
10	37	X	0	0
11	30	X	-0.094	%5
12	30	X	-0.094	%65
13	30	X	0	0
14	30	X	0	0
15	30	X	0	0
16	40	X	-0.032	%25
17	40	X	0	0
18	40	X	0	0
19	40	X	0	0
20	40	X	0	0
21	114	X	-0.088	%5
22	114	X	-0.088	%65
23	114	X	0	0
24	114	X	0	0
25	114	X	0	0
26	117	X	-0.035	%5
27	117	X	-0.035	%30
28	117	X	-0.036	%70
29	117	X	-0.036	%95
30	117	X	0	0
31	111	X	-0.094	%5
32	111	X	-0.094	%65
33	111	X	0	0
34	111	X	0	0
35	111	X	0	0
36	1	X	-0.032	%25
37	1	X	0	0
38	1	X	0	0
39	1	X	0	0
40	1	X	0	0
41	102	X	-0.088	%5
42	102	X	-0.088	%65
43	102	X	0	0
44	102	X	0	0
45	102	X	0	0
46	105	X	-0.035	%5
47	105	X	-0.035	%30
48	105	X	-0.036	%70
49	105	X	-0.036	%95
50	105	X	0	0
51	99	X	-0.094	%5
52	99	X	-0.094	%65
53	99	X	0	0
54	99	X	0	0
55	99	X	0	0
56	65	X	-0.032	%25
57	65	X	0	0
58	65	X	0	0
59	65	X	0	0
60	65	X	0	0
61	89	X	-0.061	%25
62	89	X	-0.075	%25
63	89	X	-0.107	%60
64	89	X	-0.073	%60
65	89	X	0	0
66	64	X	-0.061	%25
67	64	X	-0.075	%25

Member Point Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
68	64	X	-0.107	%60
69	64	X	-0.073	%60
70	64	X	0	0
71	39	X	-0.061	%25
72	39	X	-0.075	%25
73	39	X	-0.107	%60
74	39	X	-0.073	%60
75	39	X	0	0

Member Point Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	34	Z	-0.044	%5
2	34	Z	-0.044	%65
3	34	Z	0	0
4	34	Z	0	0
5	34	Z	0	0
6	37	Z	-0.014	%5
7	37	Z	-0.014	%30
8	37	Z	-0.018	%70
9	37	Z	-0.018	%95
10	37	Z	0	0
11	30	Z	-0.056	%5
12	30	Z	-0.056	%65
13	30	Z	0	0
14	30	Z	0	0
15	30	Z	0	0
16	40	Z	-0.006	%25
17	40	Z	0	0
18	40	Z	0	0
19	40	Z	0	0
20	40	Z	0	0
21	114	Z	-0.044	%5
22	114	Z	-0.044	%65
23	114	Z	0	0
24	114	Z	0	0
25	114	Z	0	0
26	117	Z	-0.014	%5
27	117	Z	-0.014	%30
28	117	Z	-0.018	%70
29	117	Z	-0.018	%95
30	117	Z	0	0
31	111	Z	-0.056	%5
32	111	Z	-0.056	%65
33	111	Z	0	0
34	111	Z	0	0
35	111	Z	0	0
36	1	Z	-0.006	%25
37	1	Z	0	0
38	1	Z	0	0
39	1	Z	0	0
40	1	Z	0	0
41	102	Z	-0.044	%5
42	102	Z	-0.044	%65
43	102	Z	0	0
44	102	Z	0	0
45	102	Z	0	0
46	105	Z	-0.014	%5
47	105	Z	-0.014	%30

Member Point Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
48	105	Z	-0.018	%70
49	105	Z	-0.018	%95
50	105	Z	0	0
51	99	Z	-0.056	%5
52	99	Z	-0.056	%65
53	99	Z	0	0
54	99	Z	0	0
55	99	Z	0	0
56	65	Z	-0.006	%25
57	65	Z	0	0
58	65	Z	0	0
59	65	Z	0	0
60	65	Z	0	0
61	89	Z	-0.009	%25
62	89	Z	-0.009	%25
63	89	Z	-0.012	%60
64	89	Z	-0.01	%60
65	89	Z	0	0
66	64	Z	-0.009	%25
67	64	Z	-0.009	%25
68	64	Z	-0.012	%60
69	64	Z	-0.01	%60
70	64	Z	0	0
71	39	Z	-0.009	%25
72	39	Z	-0.009	%25
73	39	Z	-0.012	%60
74	39	Z	-0.01	%60
75	39	Z	0	0

Member Point Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	34	X	-0.016	%5
2	34	X	-0.016	%65
3	34	X	0	0
4	34	X	0	0
5	34	X	0	0
6	37	X	-0.007	%5
7	37	X	-0.007	%30
8	37	X	-0.01	%70
9	37	X	-0.01	%95
10	37	X	0	0
11	30	X	-0.025	%5
12	30	X	-0.025	%65
13	30	X	0	0
14	30	X	0	0
15	30	X	0	0
16	40	X	-0.006	%25
17	40	X	0	0
18	40	X	0	0
19	40	X	0	0
20	40	X	0	0
21	114	X	-0.016	%5
22	114	X	-0.016	%65
23	114	X	0	0
24	114	X	0	0
25	114	X	0	0
26	117	X	-0.007	%5
27	117	X	-0.007	%30

Member Point Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
28	117	X	-0.01	%70
29	117	X	-0.01	%95
30	117	X	0	0
31	111	X	-0.025	%5
32	111	X	-0.025	%65
33	111	X	0	0
34	111	X	0	0
35	111	X	0	0
36	1	X	-0.006	%25
37	1	X	0	0
38	1	X	0	0
39	1	X	0	0
40	1	X	0	0
41	102	X	-0.016	%5
42	102	X	-0.016	%65
43	102	X	0	0
44	102	X	0	0
45	102	X	0	0
46	105	X	-0.007	%5
47	105	X	-0.007	%30
48	105	X	-0.01	%70
49	105	X	-0.01	%95
50	105	X	0	0
51	99	X	-0.025	%5
52	99	X	-0.025	%65
53	99	X	0	0
54	99	X	0	0
55	99	X	0	0
56	65	X	-0.006	%25
57	65	X	0	0
58	65	X	0	0
59	65	X	0	0
60	65	X	0	0
61	89	X	-0.011	%25
62	89	X	-0.014	%25
63	89	X	-0.02	%60
64	89	X	-0.014	%60
65	89	X	0	0
66	64	X	-0.011	%25
67	64	X	-0.014	%25
68	64	X	-0.02	%60
69	64	X	-0.014	%60
70	64	X	0	0
71	39	X	-0.011	%25
72	39	X	-0.014	%25
73	39	X	-0.02	%60
74	39	X	-0.014	%60
75	39	X	0	0

Member Point Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	34	Z	-0.016	%5
2	34	Z	-0.016	%65
3	34	Z	0	0
4	34	Z	0	0
5	34	Z	0	0
6	37	Z	-0.005	%5
7	37	Z	-0.005	%30

Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
8	37	Z	-0.005	%70
9	37	Z	-0.005	%95
10	37	Z	0	0
11	30	Z	-0.017	%5
12	30	Z	-0.017	%65
13	30	Z	0	0
14	30	Z	0	0
15	30	Z	0	0
16	40	Z	-0.002	%25
17	40	Z	0	0
18	40	Z	0	0
19	40	Z	0	0
20	40	Z	0	0
21	114	Z	-0.016	%5
22	114	Z	-0.016	%65
23	114	Z	0	0
24	114	Z	0	0
25	114	Z	0	0
26	117	Z	-0.005	%5
27	117	Z	-0.005	%30
28	117	Z	-0.005	%70
29	117	Z	-0.005	%95
30	117	Z	0	0
31	111	Z	-0.017	%5
32	111	Z	-0.017	%65
33	111	Z	0	0
34	111	Z	0	0
35	111	Z	0	0
36	1	Z	-0.002	%25
37	1	Z	0	0
38	1	Z	0	0
39	1	Z	0	0
40	1	Z	0	0
41	102	Z	-0.016	%5
42	102	Z	-0.016	%65
43	102	Z	0	0
44	102	Z	0	0
45	102	Z	0	0
46	105	Z	-0.005	%5
47	105	Z	-0.005	%30
48	105	Z	-0.005	%70
49	105	Z	-0.005	%95
50	105	Z	0	0
51	99	Z	-0.017	%5
52	99	Z	-0.017	%65
53	99	Z	0	0
54	99	Z	0	0
55	99	Z	0	0
56	65	Z	-0.002	%25
57	65	Z	0	0
58	65	Z	0	0
59	65	Z	0	0
60	65	Z	0	0
61	89	Z	-0.003	%25
62	89	Z	-0.003	%25
63	89	Z	-0.004	%60
64	89	Z	-0.004	%60
65	89	Z	0	0

Member Point Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
66	64	Z	-0.003	%25
67	64	Z	-0.003	%25
68	64	Z	-0.004	%60
69	64	Z	-0.004	%60
70	64	Z	0	0
71	39	Z	-0.003	%25
72	39	Z	-0.003	%25
73	39	Z	-0.004	%60
74	39	Z	-0.004	%60
75	39	Z	0	0

Member Point Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	34	X	-0.006	%5
2	34	X	-0.006	%65
3	34	X	0	0
4	34	X	0	0
5	34	X	0	0
6	37	X	-0.002	%5
7	37	X	-0.002	%30
8	37	X	-0.002	%70
9	37	X	-0.002	%95
10	37	X	0	0
11	30	X	-0.006	%5
12	30	X	-0.006	%65
13	30	X	0	0
14	30	X	0	0
15	30	X	0	0
16	40	X	-0.002	%25
17	40	X	0	0
18	40	X	0	0
19	40	X	0	0
20	40	X	0	0
21	114	X	-0.006	%5
22	114	X	-0.006	%65
23	114	X	0	0
24	114	X	0	0
25	114	X	0	0
26	117	X	-0.002	%5
27	117	X	-0.002	%30
28	117	X	-0.002	%70
29	117	X	-0.002	%95
30	117	X	0	0
31	111	X	-0.006	%5
32	111	X	-0.006	%65
33	111	X	0	0
34	111	X	0	0
35	111	X	0	0
36	1	X	-0.002	%25
37	1	X	0	0
38	1	X	0	0
39	1	X	0	0
40	1	X	0	0
41	102	X	-0.006	%5
42	102	X	-0.006	%65
43	102	X	0	0
44	102	X	0	0
45	102	X	0	0

Member Point Loads (BLC 7 : 90 Wind - Service) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
46	105	X	-0.002	%5
47	105	X	-0.002	%30
48	105	X	-0.002	%70
49	105	X	-0.002	%95
50	105	X	0	0
51	99	X	-0.006	%5
52	99	X	-0.006	%65
53	99	X	0	0
54	99	X	0	0
55	99	X	0	0
56	65	X	-0.002	%25
57	65	X	0	0
58	65	X	0	0
59	65	X	0	0
60	65	X	0	0
61	89	X	-0.004	%25
62	89	X	-0.005	%25
63	89	X	-0.007	%60
64	89	X	-0.005	%60
65	89	X	0	0
66	64	X	-0.004	%25
67	64	X	-0.005	%25
68	64	X	-0.007	%60
69	64	X	-0.005	%60
70	64	X	0	0
71	39	X	-0.004	%25
72	39	X	-0.005	%25
73	39	X	-0.007	%60
74	39	X	-0.005	%60
75	39	X	0	0

Member Point Loads (BLC 8 : Ice)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	34	Y	-0.145	%5
2	34	Y	-0.145	%65
3	34	Y	0	0
4	34	Y	0	0
5	34	Y	0	0
6	37	Y	-0.051	%5
7	37	Y	-0.051	%30
8	37	Y	-0.092	%70
9	37	Y	-0.092	%95
10	37	Y	0	0
11	30	Y	-0.156	%5
12	30	Y	-0.156	%65
13	30	Y	0	0
14	30	Y	0	0
15	30	Y	0	0
16	40	Y	-0.048	%25
17	40	Y	0	0
18	40	Y	0	0
19	40	Y	0	0
20	40	Y	0	0
21	114	Y	-0.145	%5
22	114	Y	-0.145	%65
23	114	Y	0	0
24	114	Y	0	0
25	114	Y	0	0

Member Point Loads (BLC 8 : Ice) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
26	117	Y	-0.051	%5
27	117	Y	-0.051	%30
28	117	Y	-0.092	%70
29	117	Y	-0.092	%95
30	117	Y	0	0
31	111	Y	-0.156	%5
32	111	Y	-0.156	%65
33	111	Y	0	0
34	111	Y	0	0
35	111	Y	0	0
36	1	Y	-0.048	%25
37	1	Y	0	0
38	1	Y	0	0
39	1	Y	0	0
40	1	Y	0	0
41	102	Y	-0.145	%5
42	102	Y	-0.145	%65
43	102	Y	0	0
44	102	Y	0	0
45	102	Y	0	0
46	105	Y	-0.051	%5
47	105	Y	-0.051	%30
48	105	Y	-0.092	%70
49	105	Y	-0.092	%95
50	105	Y	0	0
51	99	Y	-0.156	%5
52	99	Y	-0.156	%65
53	99	Y	0	0
54	99	Y	0	0
55	99	Y	0	0
56	65	Y	-0.048	%25
57	65	Y	0	0
58	65	Y	0	0
59	65	Y	0	0
60	65	Y	0	0
61	89	Y	-0.048	%25
62	89	Y	-0.054	%25
63	89	Y	-0.073	%60
64	89	Y	-0.055	%60
65	89	Y	0	0
66	64	Y	-0.048	%25
67	64	Y	-0.054	%25
68	64	Y	-0.073	%60
69	64	Y	-0.055	%60
70	64	Y	0	0
71	39	Y	-0.048	%25
72	39	Y	-0.054	%25
73	39	Y	-0.073	%60
74	39	Y	-0.055	%60
75	39	Y	0	0

Member Point Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	34	Z	-0.015	%5
2	34	Z	-0.015	%65
3	34	Z	0	0
4	34	Z	0	0
5	34	Z	0	0

Member Point Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
6	37	Z	-0.01	%5
7	37	Z	-0.01	%30
8	37	Z	-0.018	%70
9	37	Z	-0.018	%95
10	37	Z	0	0
11	30	Z	-0.014	%5
12	30	Z	-0.014	%65
13	30	Z	0	0
14	30	Z	0	0
15	30	Z	0	0
16	40	Z	-0.004	%25
17	40	Z	0	0
18	40	Z	0	0
19	40	Z	0	0
20	40	Z	0	0
21	114	Z	-0.015	%5
22	114	Z	-0.015	%65
23	114	Z	0	0
24	114	Z	0	0
25	114	Z	0	0
26	117	Z	-0.01	%5
27	117	Z	-0.01	%30
28	117	Z	-0.018	%70
29	117	Z	-0.018	%95
30	117	Z	0	0
31	111	Z	-0.014	%5
32	111	Z	-0.014	%65
33	111	Z	0	0
34	111	Z	0	0
35	111	Z	0	0
36	1	Z	-0.004	%25
37	1	Z	0	0
38	1	Z	0	0
39	1	Z	0	0
40	1	Z	0	0
41	102	Z	-0.015	%5
42	102	Z	-0.015	%65
43	102	Z	0	0
44	102	Z	0	0
45	102	Z	0	0
46	105	Z	-0.01	%5
47	105	Z	-0.01	%30
48	105	Z	-0.018	%70
49	105	Z	-0.018	%95
50	105	Z	0	0
51	99	Z	-0.014	%5
52	99	Z	-0.014	%65
53	99	Z	0	0
54	99	Z	0	0
55	99	Z	0	0
56	65	Z	-0.004	%25
57	65	Z	0	0
58	65	Z	0	0
59	65	Z	0	0
60	65	Z	0	0
61	89	Z	-0.016	%25
62	89	Z	-0.013	%25
63	89	Z	-0.012	%60

Member Point Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
64	89	Z	-0.016	%60
65	89	Z	0	0
66	64	Z	-0.016	%25
67	64	Z	-0.013	%25
68	64	Z	-0.012	%60
69	64	Z	-0.016	%60
70	64	Z	0	0
71	39	Z	-0.016	%25
72	39	Z	-0.013	%25
73	39	Z	-0.012	%60
74	39	Z	-0.016	%60
75	39	Z	0	0

Member Point Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	34	X	-0.015	%5
2	34	X	-0.015	%65
3	34	X	0	0
4	34	X	0	0
5	34	X	0	0
6	37	X	-0.01	%5
7	37	X	-0.01	%30
8	37	X	-0.018	%70
9	37	X	-0.018	%95
10	37	X	0	0
11	30	X	-0.014	%5
12	30	X	-0.014	%65
13	30	X	0	0
14	30	X	0	0
15	30	X	0	0
16	40	X	-0.004	%25
17	40	X	0	0
18	40	X	0	0
19	40	X	0	0
20	40	X	0	0
21	114	X	-0.015	%5
22	114	X	-0.015	%65
23	114	X	0	0
24	114	X	0	0
25	114	X	0	0
26	117	X	-0.01	%5
27	117	X	-0.01	%30
28	117	X	-0.018	%70
29	117	X	-0.018	%95
30	117	X	0	0
31	111	X	-0.014	%5
32	111	X	-0.014	%65
33	111	X	0	0
34	111	X	0	0
35	111	X	0	0
36	1	X	-0.004	%25
37	1	X	0	0
38	1	X	0	0
39	1	X	0	0
40	1	X	0	0
41	102	X	-0.015	%5
42	102	X	-0.015	%65
43	102	X	0	0

Member Point Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
44	102	X	0	0
45	102	X	0	0
46	105	X	-0.01	%5
47	105	X	-0.01	%30
48	105	X	-0.018	%70
49	105	X	-0.018	%95
50	105	X	0	0
51	99	X	-0.014	%5
52	99	X	-0.014	%65
53	99	X	0	0
54	99	X	0	0
55	99	X	0	0
56	65	X	-0.004	%25
57	65	X	0	0
58	65	X	0	0
59	65	X	0	0
60	65	X	0	0
61	89	X	-0.016	%25
62	89	X	-0.013	%25
63	89	X	-0.012	%60
64	89	X	-0.016	%60
65	89	X	0	0
66	64	X	-0.016	%25
67	64	X	-0.013	%25
68	64	X	-0.012	%60
69	64	X	-0.016	%60
70	64	X	0	0
71	39	X	-0.016	%25
72	39	X	-0.013	%25
73	39	X	-0.012	%60
74	39	X	-0.016	%60
75	39	X	0	0

Member Point Loads (BLC 15 : Maint LL 1)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.25	%5

Member Point Loads (BLC 16 : Maint LL 2)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	11	Y	-0.25	%5

Member Point Loads (BLC 17 : Maint LL 3)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	93	Y	-0.25	%5

Member Point Loads (BLC 18 : Maint LL 4)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	92	Y	-0.25	%5

Member Point Loads (BLC 19 : Maint LL 5)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	91	Y	-0.25	%5

Member Point Loads (BLC 20 : Maint LL 6)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	90	Y	-0.25	%5

Member Point Loads (BLC 21 : Maint LL 7)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	6	Y	-0.25	%95

Member Point Loads (BLC 22 : Maint LL 8)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	11	Y	-0.25	%95

Member Point Loads (BLC 23 : Maint LL 9)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	93	Y	-0.25	%95

Member Point Loads (BLC 24 : Maint LL 10)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	92	Y	-0.25	%95

Member Point Loads (BLC 25 : Maint LL 11)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	91	Y	-0.25	%95

Member Point Loads (BLC 26 : Maint LL 12)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	90	Y	-0.25	%95

Member Point Loads (BLC 27 : Maint LL 13)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	40	Y	-0.25	%95

Member Point Loads (BLC 28 : Maint LL 14)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	1	Y	-0.25	%95

Member Point Loads (BLC 29 : Maint LL 15)

	Member Label	Direction	Magnitude [k, k-ft]	Location [(ft, %)]
1	65	Y	-0.25	%95

Member Distributed Loads (BLC 2 : 0 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.024	-0.024	0	%100
2	2	Z	-0.01	-0.01	0	%100
3	3	Z	-0.008	-0.008	0	%100
4	4	Z	-0.008	-0.008	0	%100
5	5	Z	-0.008	-0.008	0	%100
6	6	Z	-0.013	-0.013	0	%100
7	11	Z	-0.009	-0.009	0	%100
8	15	Z	-0.01	-0.01	0	%100
9	16	Z	-0.008	-0.008	0	%100
10	27	Z	-0.006	-0.006	0	%100
11	30	Z	-0.009	-0.009	0	%100
12	31	Z	-0.037	-0.037	0	%100
13	34	Z	-0.009	-0.009	0	%100
14	37	Z	-0.009	-0.009	0	%100
15	39	Z	-0.009	-0.009	0	%100
16	40	Z	-0.024	-0.024	0	%100
17	41	Z	-0.01	-0.01	0	%100
18	42	Z	-0.008	-0.008	0	%100
19	43	Z	-0.008	-0.008	0	%100
20	44	Z	-0.008	-0.008	0	%100
21	49	Z	-0.01	-0.01	0	%100
22	50	Z	-0.008	-0.008	0	%100
23	61	Z	-0.006	-0.006	0	%100
24	62	Z	-0.037	-0.037	0	%100
25	64	Z	-0.009	-0.009	0	%100
26	65	Z	-0.024	-0.024	0	%100
27	66	Z	-0.01	-0.01	0	%100
28	67	Z	-0.008	-0.008	0	%100
29	68	Z	-0.008	-0.008	0	%100
30	69	Z	-0.008	-0.008	0	%100
31	74	Z	-0.01	-0.01	0	%100
32	75	Z	-0.008	-0.008	0	%100
33	86	Z	-0.006	-0.006	0	%100
34	87	Z	-0.037	-0.037	0	%100
35	89	Z	-0.009	-0.009	0	%100
36	90	Z	-0.013	-0.013	0	%100
37	91	Z	-0.009	-0.009	0	%100
38	92	Z	-0.013	-0.013	0	%100
39	93	Z	-0.009	-0.009	0	%100
40	99	Z	-0.009	-0.009	0	%100
41	102	Z	-0.009	-0.009	0	%100
42	105	Z	-0.009	-0.009	0	%100
43	111	Z	-0.009	-0.009	0	%100
44	114	Z	-0.009	-0.009	0	%100
45	117	Z	-0.009	-0.009	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.024	-0.024	0	%100
2	2	X	-0.01	-0.01	0	%100
3	3	X	-0.008	-0.008	0	%100
4	4	X	-0.008	-0.008	0	%100
5	5	X	-0.008	-0.008	0	%100
6	6	X	-0.013	-0.013	0	%100
7	11	X	-0.009	-0.009	0	%100
8	15	X	-0.01	-0.01	0	%100
9	16	X	-0.008	-0.008	0	%100

Member Distributed Loads (BLC 3 : 90 Wind - No Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
10	27	X	-0.006	-0.006	0	%100
11	30	X	-0.009	-0.009	0	%100
12	31	X	-0.037	-0.037	0	%100
13	34	X	-0.009	-0.009	0	%100
14	37	X	-0.009	-0.009	0	%100
15	39	X	-0.009	-0.009	0	%100
16	40	X	-0.024	-0.024	0	%100
17	41	X	-0.01	-0.01	0	%100
18	42	X	-0.008	-0.008	0	%100
19	43	X	-0.008	-0.008	0	%100
20	44	X	-0.008	-0.008	0	%100
21	49	X	-0.01	-0.01	0	%100
22	50	X	-0.008	-0.008	0	%100
23	61	X	-0.006	-0.006	0	%100
24	62	X	-0.037	-0.037	0	%100
25	64	X	-0.009	-0.009	0	%100
26	65	X	-0.024	-0.024	0	%100
27	66	X	-0.01	-0.01	0	%100
28	67	X	-0.008	-0.008	0	%100
29	68	X	-0.008	-0.008	0	%100
30	69	X	-0.008	-0.008	0	%100
31	74	X	-0.01	-0.01	0	%100
32	75	X	-0.008	-0.008	0	%100
33	86	X	-0.006	-0.006	0	%100
34	87	X	-0.037	-0.037	0	%100
35	89	X	-0.009	-0.009	0	%100
36	90	X	-0.013	-0.013	0	%100
37	91	X	-0.009	-0.009	0	%100
38	92	X	-0.013	-0.013	0	%100
39	93	X	-0.009	-0.009	0	%100
40	99	X	-0.009	-0.009	0	%100
41	102	X	-0.009	-0.009	0	%100
42	105	X	-0.009	-0.009	0	%100
43	111	X	-0.009	-0.009	0	%100
44	114	X	-0.009	-0.009	0	%100
45	117	X	-0.009	-0.009	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.008	-0.008	0	%100
2	2	Z	-0.003	-0.003	0	%100
3	3	Z	-0.003	-0.003	0	%100
4	4	Z	-0.006	-0.006	0	%100
5	5	Z	-0.006	-0.006	0	%100
6	6	Z	-0.002	-0.002	0	%100
7	11	Z	-0.002	-0.002	0	%100
8	15	Z	-0.003	-0.003	0	%100
9	16	Z	-0.003	-0.003	0	%100
10	27	Z	-0.002	-0.002	0	%100
11	30	Z	-0.002	-0.002	0	%100
12	31	Z	-0.012	-0.012	0	%100
13	34	Z	-0.002	-0.002	0	%100
14	37	Z	-0.002	-0.002	0	%100
15	39	Z	-0.002	-0.002	0	%100
16	40	Z	-0.008	-0.008	0	%100
17	41	Z	-0.003	-0.003	0	%100
18	42	Z	-0.003	-0.003	0	%100
19	43	Z	-0.006	-0.006	0	%100

Member Distributed Loads (BLC 4 : 0 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
20	44	Z	-0.006	-0.006	0	%100
21	49	Z	-0.003	-0.003	0	%100
22	50	Z	-0.003	-0.003	0	%100
23	61	Z	-0.002	-0.002	0	%100
24	62	Z	-0.012	-0.012	0	%100
25	64	Z	-0.002	-0.002	0	%100
26	65	Z	-0.008	-0.008	0	%100
27	66	Z	-0.003	-0.003	0	%100
28	67	Z	-0.003	-0.003	0	%100
29	68	Z	-0.006	-0.006	0	%100
30	69	Z	-0.006	-0.006	0	%100
31	74	Z	-0.003	-0.003	0	%100
32	75	Z	-0.003	-0.003	0	%100
33	86	Z	-0.002	-0.002	0	%100
34	87	Z	-0.012	-0.012	0	%100
35	89	Z	-0.002	-0.002	0	%100
36	90	Z	-0.002	-0.002	0	%100
37	91	Z	-0.002	-0.002	0	%100
38	92	Z	-0.002	-0.002	0	%100
39	93	Z	-0.002	-0.002	0	%100
40	99	Z	-0.002	-0.002	0	%100
41	102	Z	-0.002	-0.002	0	%100
42	105	Z	-0.002	-0.002	0	%100
43	111	Z	-0.002	-0.002	0	%100
44	114	Z	-0.002	-0.002	0	%100
45	117	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.008	-0.008	0	%100
2	2	X	-0.003	-0.003	0	%100
3	3	X	-0.003	-0.003	0	%100
4	4	X	-0.006	-0.006	0	%100
5	5	X	-0.006	-0.006	0	%100
6	6	X	-0.002	-0.002	0	%100
7	11	X	-0.002	-0.002	0	%100
8	15	X	-0.003	-0.003	0	%100
9	16	X	-0.003	-0.003	0	%100
10	27	X	-0.002	-0.002	0	%100
11	30	X	-0.002	-0.002	0	%100
12	31	X	-0.012	-0.012	0	%100
13	34	X	-0.002	-0.002	0	%100
14	37	X	-0.002	-0.002	0	%100
15	39	X	-0.002	-0.002	0	%100
16	40	X	-0.008	-0.008	0	%100
17	41	X	-0.003	-0.003	0	%100
18	42	X	-0.003	-0.003	0	%100
19	43	X	-0.006	-0.006	0	%100
20	44	X	-0.006	-0.006	0	%100
21	49	X	-0.003	-0.003	0	%100
22	50	X	-0.003	-0.003	0	%100
23	61	X	-0.002	-0.002	0	%100
24	62	X	-0.012	-0.012	0	%100
25	64	X	-0.002	-0.002	0	%100
26	65	X	-0.008	-0.008	0	%100
27	66	X	-0.003	-0.003	0	%100
28	67	X	-0.003	-0.003	0	%100
29	68	X	-0.006	-0.006	0	%100

Member Distributed Loads (BLC 5 : 90 Wind - Ice) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
30	69	X	-0.006	-0.006	0	%100
31	74	X	-0.003	-0.003	0	%100
32	75	X	-0.003	-0.003	0	%100
33	86	X	-0.002	-0.002	0	%100
34	87	X	-0.012	-0.012	0	%100
35	89	X	-0.002	-0.002	0	%100
36	90	X	-0.002	-0.002	0	%100
37	91	X	-0.002	-0.002	0	%100
38	92	X	-0.002	-0.002	0	%100
39	93	X	-0.002	-0.002	0	%100
40	99	X	-0.002	-0.002	0	%100
41	102	X	-0.002	-0.002	0	%100
42	105	X	-0.002	-0.002	0	%100
43	111	X	-0.002	-0.002	0	%100
44	114	X	-0.002	-0.002	0	%100
45	117	X	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.002	-0.002	0	%100
2	2	Z	-0.0004	-0.0004	0	%100
3	3	Z	-0.0004	-0.0004	0	%100
4	4	Z	-0.0005	-0.0005	0	%100
5	5	Z	-0.0005	-0.0005	0	%100
6	6	Z	-0.0004	-0.0004	0	%100
7	11	Z	-0.0003	-0.0003	0	%100
8	15	Z	-0.0004	-0.0004	0	%100
9	16	Z	-0.0004	-0.0004	0	%100
10	27	Z	-0.0003	-0.0003	0	%100
11	30	Z	-0.0003	-0.0003	0	%100
12	31	Z	-0.003	-0.003	0	%100
13	34	Z	-0.0003	-0.0003	0	%100
14	37	Z	-0.0003	-0.0003	0	%100
15	39	Z	-0.0003	-0.0003	0	%100
16	40	Z	-0.002	-0.002	0	%100
17	41	Z	-0.0004	-0.0004	0	%100
18	42	Z	-0.0004	-0.0004	0	%100
19	43	Z	-0.0005	-0.0005	0	%100
20	44	Z	-0.0005	-0.0005	0	%100
21	49	Z	-0.0004	-0.0004	0	%100
22	50	Z	-0.0004	-0.0004	0	%100
23	61	Z	-0.0003	-0.0003	0	%100
24	62	Z	-0.003	-0.003	0	%100
25	64	Z	-0.0003	-0.0003	0	%100
26	65	Z	-0.002	-0.002	0	%100
27	66	Z	-0.0004	-0.0004	0	%100
28	67	Z	-0.0004	-0.0004	0	%100
29	68	Z	-0.0005	-0.0005	0	%100
30	69	Z	-0.0005	-0.0005	0	%100
31	74	Z	-0.0004	-0.0004	0	%100
32	75	Z	-0.0004	-0.0004	0	%100
33	86	Z	-0.0003	-0.0003	0	%100
34	87	Z	-0.003	-0.003	0	%100
35	89	Z	-0.0003	-0.0003	0	%100
36	90	Z	-0.0004	-0.0004	0	%100
37	91	Z	-0.0003	-0.0003	0	%100
38	92	Z	-0.0004	-0.0004	0	%100
39	93	Z	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 6 : 0 Wind - Service) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
40	99	Z	-0.0003	-0.0003	0	%100
41	102	Z	-0.0003	-0.0003	0	%100
42	105	Z	-0.0003	-0.0003	0	%100
43	111	Z	-0.0003	-0.0003	0	%100
44	114	Z	-0.0003	-0.0003	0	%100
45	117	Z	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 7 : 90 Wind - Service)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.002	-0.002	0	%100
2	2	X	-0.0004	-0.0004	0	%100
3	3	X	-0.0004	-0.0004	0	%100
4	4	X	-0.0005	-0.0005	0	%100
5	5	X	-0.0005	-0.0005	0	%100
6	6	X	-0.0004	-0.0004	0	%100
7	11	X	-0.0003	-0.0003	0	%100
8	15	X	-0.0004	-0.0004	0	%100
9	16	X	-0.0004	-0.0004	0	%100
10	27	X	-0.0003	-0.0003	0	%100
11	30	X	-0.0003	-0.0003	0	%100
12	31	X	-0.003	-0.003	0	%100
13	34	X	-0.0003	-0.0003	0	%100
14	37	X	-0.0003	-0.0003	0	%100
15	39	X	-0.0003	-0.0003	0	%100
16	40	X	-0.002	-0.002	0	%100
17	41	X	-0.0004	-0.0004	0	%100
18	42	X	-0.0004	-0.0004	0	%100
19	43	X	-0.0005	-0.0005	0	%100
20	44	X	-0.0005	-0.0005	0	%100
21	49	X	-0.0004	-0.0004	0	%100
22	50	X	-0.0004	-0.0004	0	%100
23	61	X	-0.0003	-0.0003	0	%100
24	62	X	-0.003	-0.003	0	%100
25	64	X	-0.0003	-0.0003	0	%100
26	65	X	-0.002	-0.002	0	%100
27	66	X	-0.0004	-0.0004	0	%100
28	67	X	-0.0004	-0.0004	0	%100
29	68	X	-0.0005	-0.0005	0	%100
30	69	X	-0.0005	-0.0005	0	%100
31	74	X	-0.0004	-0.0004	0	%100
32	75	X	-0.0004	-0.0004	0	%100
33	86	X	-0.0003	-0.0003	0	%100
34	87	X	-0.003	-0.003	0	%100
35	89	X	-0.0003	-0.0003	0	%100
36	90	X	-0.0004	-0.0004	0	%100
37	91	X	-0.0003	-0.0003	0	%100
38	92	X	-0.0004	-0.0004	0	%100
39	93	X	-0.0003	-0.0003	0	%100
40	99	X	-0.0003	-0.0003	0	%100
41	102	X	-0.0003	-0.0003	0	%100
42	105	X	-0.0003	-0.0003	0	%100
43	111	X	-0.0003	-0.0003	0	%100
44	114	X	-0.0003	-0.0003	0	%100
45	117	X	-0.0003	-0.0003	0	%100

Member Distributed Loads (BLC 8 : Ice)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Y	-0.015	-0.015	0	%100
2	2	Y	-0.011	-0.011	0	%100
3	3	Y	-0.011	-0.011	0	%100
4	4	Y	-0.008	-0.008	0	%100
5	5	Y	-0.008	-0.008	0	%100
6	6	Y	-0.011	-0.011	0	%100
7	11	Y	-0.008	-0.008	0	%100
8	15	Y	-0.011	-0.011	0	%100
9	16	Y	-0.011	-0.011	0	%100
10	27	Y	-0.008	-0.008	0	%100
11	30	Y	-0.008	-0.008	0	%100
12	31	Y	-0.032	-0.032	0	%100
13	34	Y	-0.008	-0.008	0	%100
14	37	Y	-0.008	-0.008	0	%100
15	39	Y	-0.008	-0.008	0	%100
16	40	Y	-0.015	-0.015	0	%100
17	41	Y	-0.011	-0.011	0	%100
18	42	Y	-0.011	-0.011	0	%100
19	43	Y	-0.008	-0.008	0	%100
20	44	Y	-0.008	-0.008	0	%100
21	49	Y	-0.011	-0.011	0	%100
22	50	Y	-0.011	-0.011	0	%100
23	61	Y	-0.008	-0.008	0	%100
24	62	Y	-0.032	-0.032	0	%100
25	64	Y	-0.008	-0.008	0	%100
26	65	Y	-0.015	-0.015	0	%100
27	66	Y	-0.011	-0.011	0	%100
28	67	Y	-0.011	-0.011	0	%100
29	68	Y	-0.008	-0.008	0	%100
30	69	Y	-0.008	-0.008	0	%100
31	74	Y	-0.011	-0.011	0	%100
32	75	Y	-0.011	-0.011	0	%100
33	86	Y	-0.008	-0.008	0	%100
34	87	Y	-0.032	-0.032	0	%100
35	89	Y	-0.008	-0.008	0	%100
36	90	Y	-0.011	-0.011	0	%100
37	91	Y	-0.008	-0.008	0	%100
38	92	Y	-0.011	-0.011	0	%100
39	93	Y	-0.008	-0.008	0	%100
40	99	Y	-0.008	-0.008	0	%100
41	102	Y	-0.008	-0.008	0	%100
42	105	Y	-0.008	-0.008	0	%100
43	111	Y	-0.008	-0.008	0	%100
44	114	Y	-0.008	-0.008	0	%100
45	117	Y	-0.008	-0.008	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	Z	-0.004	-0.004	0	%100
2	2	Z	-0.002	-0.002	0	%100
3	3	Z	-0.002	-0.002	0	%100
4	4	Z	-0.0005	-0.0005	0	%100
5	5	Z	-0.0005	-0.0005	0	%100
6	6	Z	-0.002	-0.002	0	%100
7	11	Z	-0.0008	-0.0008	0	%100
8	15	Z	-0.002	-0.002	0	%100
9	16	Z	-0.002	-0.002	0	%100

Member Distributed Loads (BLC 9 : 0 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
10	27	Z	-0.0008	-0.0008	0	%100
11	30	Z	-0.0008	-0.0008	0	%100
12	31	Z	-0.011	-0.011	0	%100
13	34	Z	-0.0008	-0.0008	0	%100
14	37	Z	-0.0008	-0.0008	0	%100
15	39	Z	-0.0008	-0.0008	0	%100
16	40	Z	-0.004	-0.004	0	%100
17	41	Z	-0.002	-0.002	0	%100
18	42	Z	-0.002	-0.002	0	%100
19	43	Z	-0.0005	-0.0005	0	%100
20	44	Z	-0.0005	-0.0005	0	%100
21	49	Z	-0.002	-0.002	0	%100
22	50	Z	-0.002	-0.002	0	%100
23	61	Z	-0.0008	-0.0008	0	%100
24	62	Z	-0.011	-0.011	0	%100
25	64	Z	-0.0008	-0.0008	0	%100
26	65	Z	-0.004	-0.004	0	%100
27	66	Z	-0.002	-0.002	0	%100
28	67	Z	-0.002	-0.002	0	%100
29	68	Z	-0.0005	-0.0005	0	%100
30	69	Z	-0.0005	-0.0005	0	%100
31	74	Z	-0.002	-0.002	0	%100
32	75	Z	-0.002	-0.002	0	%100
33	86	Z	-0.0008	-0.0008	0	%100
34	87	Z	-0.011	-0.011	0	%100
35	89	Z	-0.0008	-0.0008	0	%100
36	90	Z	-0.002	-0.002	0	%100
37	91	Z	-0.0008	-0.0008	0	%100
38	92	Z	-0.002	-0.002	0	%100
39	93	Z	-0.0008	-0.0008	0	%100
40	99	Z	-0.0008	-0.0008	0	%100
41	102	Z	-0.0008	-0.0008	0	%100
42	105	Z	-0.0008	-0.0008	0	%100
43	111	Z	-0.0008	-0.0008	0	%100
44	114	Z	-0.0008	-0.0008	0	%100
45	117	Z	-0.0008	-0.0008	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	1	X	-0.004	-0.004	0	%100
2	2	X	-0.002	-0.002	0	%100
3	3	X	-0.002	-0.002	0	%100
4	4	X	-0.0005	-0.0005	0	%100
5	5	X	-0.0005	-0.0005	0	%100
6	6	X	-0.002	-0.002	0	%100
7	11	X	-0.0008	-0.0008	0	%100
8	15	X	-0.002	-0.002	0	%100
9	16	X	-0.002	-0.002	0	%100
10	27	X	-0.0008	-0.0008	0	%100
11	30	X	-0.0008	-0.0008	0	%100
12	31	X	-0.011	-0.011	0	%100
13	34	X	-0.0008	-0.0008	0	%100
14	37	X	-0.0008	-0.0008	0	%100
15	39	X	-0.0008	-0.0008	0	%100
16	40	X	-0.004	-0.004	0	%100
17	41	X	-0.002	-0.002	0	%100
18	42	X	-0.002	-0.002	0	%100
19	43	X	-0.0005	-0.0005	0	%100

Member Distributed Loads (BLC 10 : 90 Seismic) (Continued)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
20	44	X	-0.0005	-0.0005	0	%100
21	49	X	-0.002	-0.002	0	%100
22	50	X	-0.002	-0.002	0	%100
23	61	X	-0.0008	-0.0008	0	%100
24	62	X	-0.011	-0.011	0	%100
25	64	X	-0.0008	-0.0008	0	%100
26	65	X	-0.004	-0.004	0	%100
27	66	X	-0.002	-0.002	0	%100
28	67	X	-0.002	-0.002	0	%100
29	68	X	-0.0005	-0.0005	0	%100
30	69	X	-0.0005	-0.0005	0	%100
31	74	X	-0.002	-0.002	0	%100
32	75	X	-0.002	-0.002	0	%100
33	86	X	-0.0008	-0.0008	0	%100
34	87	X	-0.011	-0.011	0	%100
35	89	X	-0.0008	-0.0008	0	%100
36	90	X	-0.002	-0.002	0	%100
37	91	X	-0.0008	-0.0008	0	%100
38	92	X	-0.002	-0.002	0	%100
39	93	X	-0.0008	-0.0008	0	%100
40	99	X	-0.0008	-0.0008	0	%100
41	102	X	-0.0008	-0.0008	0	%100
42	105	X	-0.0008	-0.0008	0	%100
43	111	X	-0.0008	-0.0008	0	%100
44	114	X	-0.0008	-0.0008	0	%100
45	117	X	-0.0008	-0.0008	0	%100

Member Distributed Loads (BLC 30 : BLC 1 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	4	Y	-0.015	-0.014	0	1.034
2	4	Y	-0.014	-0.012	1.034	2.067
3	5	Y	-0.007	-0.014	0	2.067
4	43	Y	-0.015	-0.014	0	1.034
5	43	Y	-0.014	-0.012	1.034	2.067
6	44	Y	-0.007	-0.014	0	2.067
7	68	Y	-0.015	-0.014	0	1.034
8	68	Y	-0.014	-0.012	1.034	2.067
9	69	Y	-0.007	-0.014	0	2.067

Member Distributed Loads (BLC 31 : BLC 8 Transient Area Loads)

	Member Label	Direction	Start Magnitude [k/ft, F, ksf, k-ft/ft]	End Magnitude [k/ft, F, ksf, k-ft/ft]	Start Location [(ft, %)]	End Location [(ft, %)]
1	4	Y	-0.012	-0.011	0	1.034
2	4	Y	-0.011	-0.01	1.034	2.067
3	5	Y	-0.006	-0.011	0	2.067
4	43	Y	-0.012	-0.011	0	1.034
5	43	Y	-0.011	-0.01	1.034	2.067
6	44	Y	-0.006	-0.011	0	2.067
7	68	Y	-0.012	-0.011	0	1.034
8	68	Y	-0.011	-0.01	1.034	2.067
9	69	Y	-0.006	-0.011	0	2.067

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
1	Dead	DL	-1		75		3
2	0 Wind - No Ice	WLZ			75	45	

Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Area(Member)
3	90 Wind - No Ice	WLX			75	45	
4	0 Wind - Ice	WLZ			75	45	
5	90 Wind - Ice	WLX			75	45	
6	0 Wind - Service	WLZ			75	45	
7	90 Wind - Service	WLX			75	45	
8	Ice	OL1			75	45	3
9	0 Seismic	ELZ			75	45	
10	90 Seismic	ELX			75	45	
11	Live Load a	LL		3			
12	Live Load b	LL		3			
13	Live Load c	LL		3			
14	Live Load d	LL					
15	Maint LL 1	LL			1		
16	Maint LL 2	LL			1		
17	Maint LL 3	LL			1		
18	Maint LL 4	LL			1		
19	Maint LL 5	LL			1		
20	Maint LL 6	LL			1		
21	Maint LL 7	LL			1		
22	Maint LL 8	LL			1		
23	Maint LL 9	LL			1		
24	Maint LL 10	LL			1		
25	Maint LL 11	LL			1		
26	Maint LL 12	LL			1		
27	Maint LL 13	LL			1		
28	Maint LL 14	LL			1		
29	Maint LL 15	LL			1		
30	BLC 1 Transient Area Loads	None				9	
31	BLC 8 Transient Area Loads	None				9	

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4 Dead	Yes	Y	1	1.4						
2	1.2 D + 1.0 - 0 W	Yes	Y	1	1.2	2	1				
3	1.2 D + 1.0 - 30 W	Yes	Y	1	1.2	2	0.866	3	0.5		
4	1.2 D + 1.0 - 60 W	Yes	Y	1	1.2	3	0.866	2	0.5		
5	1.2 D + 1.0 - 90 W	Yes	Y	1	1.2	3	1				
6	1.2 D + 1.0 - 120 W	Yes	Y	1	1.2	3	0.866	2	-0.5		
7	1.2 D + 1.0 - 150 W	Yes	Y	1	1.2	2	-0.866	3	0.5		
8	1.2 D + 1.0 - 180 W	Yes	Y	1	1.2	2	-1				
9	1.2 D + 1.0 - 210 W	Yes	Y	1	1.2	2	-0.866	3	-0.5		
10	1.2 D + 1.0 - 240 W	Yes	Y	1	1.2	3	-0.866	2	-0.5		
11	1.2 D + 1.0 - 270 W	Yes	Y	1	1.2	3	-1				
12	1.2 D + 1.0 - 300 W	Yes	Y	1	1.2	3	-0.866	2	0.5		
13	1.2 D + 1.0 - 330 W	Yes	Y	1	1.2	2	0.866	3	-0.5		
14	1.2 D + 1.0 - 0 W/Ice	Yes	Y	1	1.2	4	1			8	1
15	1.2 D + 1.0 - 30 W/Ice	Yes	Y	1	1.2	4	0.866	5	0.5	8	1
16	1.2 D + 1.0 - 60 W/Ice	Yes	Y	1	1.2	5	0.866	4	0.5	8	1
17	1.2 D + 1.0 - 90 W/Ice	Yes	Y	1	1.2	5	1			8	1
18	1.2 D + 1.0 - 120 W/Ice	Yes	Y	1	1.2	5	0.866	4	-0.5	8	1
19	1.2 D + 1.0 - 150 W/Ice	Yes	Y	1	1.2	4	-0.866	5	0.5	8	1
20	1.2 D + 1.0 - 180 W/Ice	Yes	Y	1	1.2	4	-1			8	1
21	1.2 D + 1.0 - 210 W/Ice	Yes	Y	1	1.2	4	-0.866	5	-0.5	8	1
22	1.2 D + 1.0 - 240 W/Ice	Yes	Y	1	1.2	5	-0.866	4	-0.5	8	1
23	1.2 D + 1.0 - 270 W/Ice	Yes	Y	1	1.2	5	-1			8	1
24	1.2 D + 1.0 - 300 W/Ice	Yes	Y	1	1.2	5	-0.866	4	0.5	8	1
25	1.2 D + 1.0 - 330 W/Ice	Yes	Y	1	1.2	4	0.866	5	-0.5	8	1
26	1.2 D + 1.0 E - 0	Yes	Y	1	1.2	9	1				

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
27	1.2 D + 1.0 E - 30	Yes	Y	1	1.2	9	0.866	10	0.5		
28	1.2 D + 1.0 E - 60	Yes	Y	1	1.2	10	0.866	9	0.5		
29	1.2 D + 1.0 E - 90	Yes	Y	1	1.2	10	1				
30	1.2 D + 1.0 E - 120	Yes	Y	1	1.2	10	0.866	9	-0.5		
31	1.2 D + 1.0 E - 150	Yes	Y	1	1.2	9	-0.866	10	0.5		
32	1.2 D + 1.0 E - 180	Yes	Y	1	1.2	9	-1				
33	1.2 D + 1.0 E - 210	Yes	Y	1	1.2	9	-0.866	10	-0.5		
34	1.2 D + 1.0 E - 240	Yes	Y	1	1.2	10	-0.866	9	-0.5		
35	1.2 D + 1.0 E - 270	Yes	Y	1	1.2	10	-1				
36	1.2 D + 1.0 E - 300	Yes	Y	1	1.2	10	-0.866	9	0.5		
37	1.2 D + 1.0 E - 330	Yes	Y	1	1.2	9	0.866	10	-0.5		
38	1.2 D + 1.5 LL a + Service - 0 W	Yes	Y	1	1.2	6	1			11	1.5
39	1.2 D + 1.5 LL a + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	11	1.5
40	1.2 D + 1.5 LL a + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	11	1.5
41	1.2 D + 1.5 LL a + Service - 90 W	Yes	Y	1	1.2	7	1			11	1.5
42	1.2 D + 1.5 LL a + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	11	1.5
43	1.2 D + 1.5 LL a + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	11	1.5
44	1.2 D + 1.5 LL a + Service - 180 W	Yes	Y	1	1.2	6	-1			11	1.5
45	1.2 D + 1.5 LL a + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	11	1.5
46	1.2 D + 1.5 LL a + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	11	1.5
47	1.2 D + 1.5 LL a + Service - 270 W	Yes	Y	1	1.2	7	-1			11	1.5
48	1.2 D + 1.5 LL a + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	11	1.5
49	1.2 D + 1.5 LL a + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	11	1.5
50	1.2 D + 1.5 LL b + Service - 0 W	Yes	Y	1	1.2	6	1			12	1.5
51	1.2 D + 1.5 LL b + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	12	1.5
52	1.2 D + 1.5 LL b + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	12	1.5
53	1.2 D + 1.5 LL b + Service - 90 W	Yes	Y	1	1.2	7	1			12	1.5
54	1.2 D + 1.5 LL b + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	12	1.5
55	1.2 D + 1.5 LL b + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	12	1.5
56	1.2 D + 1.5 LL b + Service - 180 W	Yes	Y	1	1.2	6	-1			12	1.5
57	1.2 D + 1.5 LL b + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	12	1.5
58	1.2 D + 1.5 LL b + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	12	1.5
59	1.2 D + 1.5 LL b + Service - 270 W	Yes	Y	1	1.2	7	-1			12	1.5
60	1.2 D + 1.5 LL b + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	12	1.5
61	1.2 D + 1.5 LL b + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	12	1.5
62	1.2 D + 1.5 LL c + Service - 0 W	Yes	Y	1	1.2	6	1			13	1.5
63	1.2 D + 1.5 LL c + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	13	1.5
64	1.2 D + 1.5 LL c + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	13	1.5
65	1.2 D + 1.5 LL c + Service - 90 W	Yes	Y	1	1.2	7	1			13	1.5
66	1.2 D + 1.5 LL c + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	13	1.5
67	1.2 D + 1.5 LL c + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	13	1.5
68	1.2 D + 1.5 LL c + Service - 180 W	Yes	Y	1	1.2	6	-1			13	1.5
69	1.2 D + 1.5 LL c + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	13	1.5
70	1.2 D + 1.5 LL c + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	13	1.5
71	1.2 D + 1.5 LL c + Service - 270 W	Yes	Y	1	1.2	7	-1			13	1.5
72	1.2 D + 1.5 LL c + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	13	1.5
73	1.2 D + 1.5 LL c + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	13	1.5
74	1.2 D + 1.5 LL d + Service - 0 W	Yes	Y	1	1.2	6	1			14	1.5
75	1.2 D + 1.5 LL d + Service - 30 W	Yes	Y	1	1.2	6	0.866	7	0.5	14	1.5
76	1.2 D + 1.5 LL d + Service - 60 W	Yes	Y	1	1.2	7	0.866	6	0.5	14	1.5
77	1.2 D + 1.5 LL d + Service - 90 W	Yes	Y	1	1.2	7	1			14	1.5
78	1.2 D + 1.5 LL d + Service - 120 W	Yes	Y	1	1.2	7	0.866	6	-0.5	14	1.5
79	1.2 D + 1.5 LL d + Service - 150 W	Yes	Y	1	1.2	6	-0.866	7	0.5	14	1.5
80	1.2 D + 1.5 LL d + Service - 180 W	Yes	Y	1	1.2	6	-1			14	1.5
81	1.2 D + 1.5 LL d + Service - 210 W	Yes	Y	1	1.2	6	-0.866	7	-0.5	14	1.5
82	1.2 D + 1.5 LL d + Service - 240 W	Yes	Y	1	1.2	7	-0.866	6	-0.5	14	1.5
83	1.2 D + 1.5 LL d + Service - 270 W	Yes	Y	1	1.2	7	-1			14	1.5
84	1.2 D + 1.5 LL d + Service - 300 W	Yes	Y	1	1.2	7	-0.866	6	0.5	14	1.5

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
85	1.2 D + 1.5 LL d + Service - 330 W	Yes	Y	1	1.2	6	0.866	7	-0.5	14	1.5
86	1.2 D + 1.5 LL Maint (1)	Yes	Y	1	1.2					15	1.5
87	1.2 D + 1.5 LL Maint (2)	Yes	Y	1	1.2					16	1.5
88	1.2 D + 1.5 LL Maint (3)	Yes	Y	1	1.2					17	1.5
89	1.2 D + 1.5 LL Maint (4)	Yes	Y	1	1.2					18	1.5
90	1.2 D + 1.5 LL Maint (5)	Yes	Y	1	1.2					19	1.5
91	1.2 D + 1.5 LL Maint (6)	Yes	Y	1	1.2					20	1.5
92	1.2 D + 1.5 LL Maint (7)	Yes	Y	1	1.2					21	1.5
93	1.2 D + 1.5 LL Maint (8)	Yes	Y	1	1.2					22	1.5
94	1.2 D + 1.5 LL Maint (9)	Yes	Y	1	1.2					23	1.5
95	1.2 D + 1.5 LL Maint (10)	Yes	Y	1	1.2					24	1.5
96	1.2 D + 1.5 LL Maint (11)	Yes	Y	1	1.2					25	1.5
97	1.2 D + 1.5 LL Maint (12)	Yes	Y	1	1.2					26	1.5
98	1.2 D + 1.5 LL Maint (13)	Yes	Y	1	1.2					27	1.5
99	1.2 D + 1.5 LL Maint (14)	Yes	Y	1	1.2					28	1.5
100	1.2 D + 1.5 LL Maint (15)	Yes	Y	1	1.2					29	1.5

Envelope Node Reactions

	Node Label		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	44	max	1.167	5	3.551	14	3.214	2	12.159	14	2.391	11	0.8	11
2		min	-1.166	11	-0.024	8	-3.511	8	-2.571	8	-2.388	5	-0.635	5
3	89	max	2.052	6	3.466	19	1.996	2	0.914	13	3.043	3	0.014	12
4		min	-2.312	12	0.409	13	-1.848	8	-5.872	19	-3.039	9	-10.194	18
5	122	max	2.288	4	3.458	22	2.044	2	0.823	3	3.065	7	10.048	22
6		min	-2.032	10	0.454	3	-1.894	8	-6.14	21	-3.063	13	-0.113	4
7	Totals:	max	5.236	5	9.835	15	7.254	2						
8		min	-5.236	11	3.873	9	-7.254	8						

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

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
1	117	PIPE_2.0	0.548	6.667	8	0.067	6.667		2	9.837	38.556	2.246	2.246	2.853	H1-1b
2	105	PIPE_2.0	0.5	6.667	8	0.079	6.667		2	9.837	38.556	2.246	2.246	3	H1-1b
3	99	PIPE_2.0	0.473	6.667	8	0.081	6.667		9	9.837	38.556	2.246	2.246	2.326	H1-1b
4	111	PIPE_2.0	0.441	6.667	8	0.109	6.667		2	9.837	38.556	2.246	2.246	3	H1-1b
5	30	PIPE_2.0	0.426	6.667	2	0.09	6.667		8	9.837	38.556	2.246	2.246	2.211	H1-1b
6	93	PIPE_2.0	0.409	13.141	2	0.234	13.292		9	4.679	38.556	2.246	2.246	3	H1-1b
7	37	PIPE_2.0	0.406	6.667	2	0.061	6.667		8	9.837	38.556	2.246	2.246	3	H1-1b
8	86	PIPE_2.0	0.402	1.796	2	0.281	0		2	36.807	38.556	2.246	2.246	1.598	H3-6
9	91	PIPE_2.0	0.374	13.141	9	0.234	13.292		7	4.679	38.556	2.246	2.246	2.705	H1-1b
10	1	HSS5X3X6	0.345	0	25	0.078	0	z	11	161.081	197.892	17.595	25.323	2.732	H1-1b
11	65	HSS5X3X6	0.342	0	21	0.11	0	z	7	161.081	197.892	17.595	25.323	2.742	H1-1b
12	40	HSS5X3X6	0.341	0	19	0.11	0	z	3	161.081	197.892	17.595	25.323	2.75	H1-1b
13	34	PIPE_2.0	0.311	3.229	2	0.108	6.667		8	9.837	38.556	2.246	2.246	3	H1-1b
14	114	PIPE_2.0	0.311	3.229	8	0.104	6.667		2	9.837	38.556	2.246	2.246	2.954	H1-1b
15	102	PIPE_2.0	0.311	3.229	8	0.064	6.667		12	9.837	38.556	2.246	2.246	2.253	H1-1b
16	61	PIPE_2.0	0.289	1.796	9	0.264	0		9	36.807	38.556	2.246	2.246	1.924	H3-6
17	2	PIPE_3.0	0.28	1.875	14	0.153	0.273		24	76.499	78.246	6.899	6.899	1.706	H1-1b
18	11	PIPE_2.0	0.279	4.38	9	0.357	13.292		2	4.679	38.556	2.246	2.246	2.531	H1-1b
19	41	PIPE_3.0	0.278	1.875	19	0.154	0.273		15	76.499	78.246	6.899	6.899	1.668	H1-1b
20	66	PIPE_3.0	0.268	1.875	23	0.159	0.273		20	76.499	78.246	6.899	6.899	1.7	H1-1b
21	15	PIPE_3.0	0.265	0	14	0.136	1.602		15	76.499	78.246	6.899	6.899	1.705	H1-1b
22	74	PIPE_3.0	0.26	0	21	0.135	1.602		24	76.499	78.246	6.899	6.899	1.678	H1-1b
23	49	PIPE_3.0	0.255	0	18	0.142	1.602		20	76.499	78.246	6.899	6.899	1.728	H1-1b
24	27	PIPE_2.0	0.253	1.796	7	0.163	1.796		88	36.807	38.556	2.246	2.246	1.403	H1-1b
25	16	PIPE_3.0	0.173	0	2	0.143	0.574		8	78.002	78.246	6.899	6.899	1.226	H1-1b
26	68	L1.5X1.5X4	0.172	2.297	21	0.017	2.297	z	22	13.937	22.275	0.36	0.834	1.5	H2-1

Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[ft]	LC	Shear Check	Loc[ft]	Dir	LC	phi*Pnc [k]	phi*Pnt [k]	phi*Mn y-y [k-ft]	phi*Mn z-z [k-ft]	Cb	Eqn
27	4	L1.5X1.5X4	0.171	2.297	14	0.018	2.297	z	14	13.937	22.275	0.36	0.834	1.5	H2-1
28	5	L1.5X1.5X4	0.168	2.297	14	0.016	2.297	y	16	13.937	22.275	0.36	0.834	1.5	H2-1
29	43	L1.5X1.5X4	0.168	2.297	17	0.017	2.297	z	19	13.937	22.275	0.36	0.834	1.5	H2-1
30	44	L1.5X1.5X4	0.168	2.297	19	0.017	2.297	y	20	13.937	22.275	0.36	0.834	1.5	H2-1
31	90	PIPE_3.0	0.164	4.531	8	0.146	3.625		7	21.266	78.246	6.899	6.899	2.24	H1-1b
32	69	L1.5X1.5X4	0.163	2.297	22	0.016	2.297	y	25	13.937	22.275	0.36	0.834	1.5	H2-1
33	75	PIPE_3.0	0.157	0	9	0.136	0.574		3	78.002	78.246	6.899	6.899	1.163	H1-1b
34	3	PIPE_3.0	0.156	0.698	2	0.11	0.124		2	78.002	78.246	6.899	6.899	1.053	H1-1b
35	92	PIPE_3.0	0.153	10.875	19	0.117	3.625		4	21.266	78.246	6.899	6.899	1.517	H1-1b
36	6	PIPE_3.0	0.149	10.875	22	0.185	3.625		8	21.266	78.246	6.899	6.899	1.47	H1-1b
37	87	W10X49	0.143	0	8	0.038	1	z	7	646.949	648	106.125	226.5	1.118	H1-1b
38	64	PIPE_2.0	0.135	3	5	0.021	3		5	20.867	32.13	1.872	1.872	1.852	H1-1b
39	89	PIPE_2.0	0.135	3	11	0.021	3		11	20.867	32.13	1.872	1.872	1.852	H1-1b
40	39	PIPE_2.0	0.135	3	11	0.021	3		11	20.867	32.13	1.872	1.872	1.852	H1-1b
41	62	W10X49	0.13	0	8	0.038	1	z	3	646.949	648	106.125	226.5	1.124	H1-1b
42	42	PIPE_3.0	0.128	0.698	7	0.078	0.698		14	78.002	78.246	6.899	6.899	1.07	H1-1b
43	50	PIPE_3.0	0.112	0	6	0.093	0		22	78.002	78.246	6.899	6.899	1.249	H1-1b
44	67	PIPE_3.0	0.106	0.698	10	0.09	0.124		9	78.002	78.246	6.899	6.899	1.04	H1-1b
45	31	W10X49	0.1	0	12	0.037	1	y	25	646.949	648	106.125	226.5	1.12	H1-1b

APPENDIX D

ADDITIONAL CALCULATIONS

PROJECT	**80145.005.01 - MTN. View CEM. (Filley Park**				**KSC**
SUBJECT	**Platform Mount Analysis**				
DATE	**07/13/22**	PAGE	1	OF	1

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630

[REF: AISC 360-05]

Reactions at Bolted Connection

Tension	:	3.695	k
Vertical Shear	:	3.674	k
Horizontal Shear	:	1.18	k
Torsion	:	0.886	k.ft
Moment from Horizontal Forces	:	2.425	k.ft
Moment from Vertical Forces	:	12.574	k.ft

Bolt Parameters

Bolt Grade	:	A325	
Bolt Diameter	:	0.625	in
Nominal Bolt Area	:	0.307	in^2
Bolt spacing, Horizontal	:	6	in
Bolt spacing, Vertical	:	6	in
Bolt edge distance, plate height	:	1.5	in
Bolt edge distance, plate width	:	1.5	in
Total Number of Bolts	:	4	bolts

Summary of Forces

Shear Resultant Force	:	3.86	k
Force from Horz. Moment	:	4.39	k
Force from Vert. Moment	:	22.78	k
Shear Load / Bolt	:	0.96	k
Tension Load / Bolt	:	0.92	k
Resultant from Moments / Bolt	:	11.60	k

Bolt Checks

Nominal Tensile Stress, F_{nt}	:	90.00	ksi	[AISC Table J3.2]
Available Tensile Stress, ΦR_{nt}	:	20.72	k/bolt	[Eq. J3-1]
Unity Check, Bolt Tension	:	**60.42%**		**OKAY**
Nominal Shear Stress, F_{nv}	:	48.00	ksi	[AISC Table J3.2]
Available Shear Stress, ΦR_{nv}	:	11.05	k/bolt	[Eq. J3-1]
Unity Check, Bolt Shear	:	**17.09%**		**OKAY**
Unity Check, Combined	:	**77.51%**		**OKAY**
Available Bearing Strength, ΦR_n	:	34.66	k/bolt	
Unity Check, Bolt Bearing	:	**2.78%**		**OKAY**

Date: **June 24, 2022**

Crown Castle
2000 Corporate Drive
Canonsburg, PA
(724) 416-2000

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Site Number:	CTL01193
	FA Number:	10035118
Crown Castle Designation:	**BU Number:**	876329
	Site Name:	MTN. VIEW CEM. (FILLEY PARK)
	JDE Job Number:	701606
	Work Order Number:	2113636
	Order Number:	600871 Rev. 0
Engineering Firm Designation:	**Crown Castle Project Number:**	2113636
Site Data:	**28 Brewer Dr., BLOOMFIELD, HARTFORD County, CT**	
	Latitude *41° 50' 6.57"*, Longitude *-72° 44' 28.2"*	
	120 Foot - Monopole Tower	

Crown Castle is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above-mentioned tower.

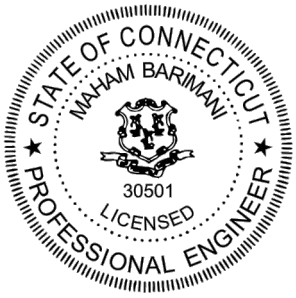
The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 121 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - "Analysis Criteria".

Structural analysis prepared by: Mishka Stueber

Respectfully submitted by:



Maham Barimani, P.E.
Senior Project Engineer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 120 ft Monopole tower designed by ROHN. The tower has been modified multiple times in the past to accommodate additional loading.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	121 mph
Exposure Category:	C
Topographic Factor:	1
Ice Thickness:	1 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
99.0	102.0	3	ericsson	AIR 6419 B77G_CCIV3 w/ Mount Pipe	3 4 14	3/8 3/4 7/8
	100.0	3	cci antennas	OPA65R-BU6D w/ Mount Pipe		
		3	cci antennas	TPA65R-BU6DA-K w/ Mount Pipe		
		3	ericsson	RRUS 4449 B5/B12		
		3	ericsson	RRUS 4478 B14_CCIV2		
		3	ericsson	RRUS 8843 B2/B66A		
		3	raycap	DC6-48-60-18-8F		
	99.0	3	ericsson	AIR 6449 B77D_CCVI2 w/ Mount Pipe		
		1	tower mounts	Platform Mount [LP 502-1]		
	97.0	3	ericsson	RRUS 32 B30		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
118.0	120.0	1	rfs celwave	APXV9ERR18-C-A20 w/ Mount Pipe	2 1 3	1/2 5/8 1-1/4
		2	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe		
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe		
	118.0	3	alcatel lucent	TD-RRH8X20-25		
		1	tower mounts	Platform Mount [LP 502-1]		
	116.0	2	dragonwave	HORIZON COMPACT		
114.0	116.0	3	alcatel lucent	PCS 1900MHz 4x45W-65MHz	-	-
	114.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
		1	tower mounts	Pipe Mount [PM 602-3]		
107.0	108.0	3	ericsson	AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	1 1	1-3/8 1-5/8
		3	ericsson	AIR 6419 B41_TMO w/ Mount Pipe		
		3	ericsson	RADIO 4449 B71 B85A_T-MOBILE		
		3	ericsson	RADIO 4460 B2/B25 B66_TMO		
		3	rfs celwave	APXVAARR24_43-U-NA20 w/ Mount Pipe		
	107.0	1	tower mounts	Platform Mount [LP 712-1_KCKR]		
89.0	89.0	3	fujitsu	TA08025-B604	1	1-3/8
		3	fujitsu	TA08025-B605		
		3	jma wireless	MX08FRO665-21 w/ Mount Pipe		
		1	raycap	RDIDC-9181-PF-48		
		1	tower mounts	Commscope MC-PK8-DSH		
59.0	59.0	1	tower mounts	Side Arm Mount [SO 701-1]	-	-
48.0	50.0	1	gps	GPS_A	1 1	1/2 1/2
		1	lucent	KS24019-L112A		
	48.0	1	tower mounts	Side Arm Mount [SO 701-1]		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
4-GEOTECHNICAL REPORTS	1529722	CCISITES
4-POST-MODIFICATION INSPECTION	9094446	CCISITES
4-POST-MODIFICATION INSPECTION	6898999	CCISITES
4-POST-MODIFICATION INSPECTION	6693484	CCISITES
4-POST-MODIFICATION INSPECTION	4092494	CCISITES
4-POST-MODIFICATION INSPECTION	2343686	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	1616549	CCISITES
4-TOWER MANUFACTURER DRAWINGS	2158527	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	7922717	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	7736461	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	6413631	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2917489	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2343687	CCISITES
4-TOWER REINFORCEMENT DESIGN/DRAWINGS/DATA	2205450	CCISITES

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A. When applicable, Crown Castle has calculated and provided the effective area for panel antennas using approved methods following the intent of the TIA-222 standard.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the reinforcing elements. These calculations are presented in Appendix C.

3.2) Assumptions

1) Tower and structures were maintained in accordance with the TIA-222 Standard.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

This analysis may be affected if any assumptions are not valid or have been made in error. Crown Castle should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
120 - 115	Pole	TP24x24x0.25	Pole	4.0%	Pass
115 - 110	Pole	TP24x24x0.25	Pole	9.7%	Pass
110 - 105	Pole	TP24x24x0.25	Pole	19.3%	Pass
105 - 100	Pole	TP24x24x0.25	Pole	31.4%	Pass
100 - 95	Pole	TP24x24x0.25	Pole	50.0%	Pass
95 - 90	Pole	TP24x24x0.25	Pole	68.5%	Pass
90 - 85	Pole	TP24x24x0.375	Pole	57.8%	Pass
85 - 80	Pole	TP24x24x0.375	Pole	72.5%	Pass
80 - 79.75	Pole + Reinf.	TP24x24x0.625	Reinf. 1 Tension Rupture	69.6%	Pass
79.75 - 78.5	Pole + Reinf.	TP24x24x0.625	Reinf. 1 Tension Rupture	73.3%	Pass
78.5 - 78.25	Pole + Reinf.	TP24x24x0.775	Reinf. 7 Tension Rupture	39.6%	Pass
78.25 - 73.25	Pole + Reinf.	TP24x24x0.775	Reinf. 7 Tension Rupture	47.5%	Pass
73.25 - 68.25	Pole + Reinf.	TP24x24x0.775	Reinf. 7 Tension Rupture	55.7%	Pass
68.25 - 68	Pole + Reinf.	TP24x24x0.775	Reinf. 7 Tension Rupture	56.2%	Pass
68 - 67.75	Pole + Reinf.	TP24x24x0.775	Reinf. 7 Tension Rupture	56.6%	Pass
67.75 - 62.75	Pole + Reinf.	TP24x24x0.775	Reinf. 7 Tension Rupture	65.1%	Pass
62.75 - 60	Pole + Reinf.	TP24x24x0.775	Reinf. 7 Tension Rupture	69.9%	Pass
60 - 57.5	Pole + Reinf.	TP30x30x0.675	Pole	54.7%	Pass
57.5 - 57.25	Pole + Reinf.	TP30x30x0.675	Pole	55.1%	Pass
57.25 - 52.25	Pole + Reinf.	TP30x30x0.675	Pole	62.1%	Pass
52.25 - 47.25	Pole + Reinf.	TP30x30x0.675	Pole	69.3%	Pass

47.25 - 45.33	Pole + Reinf.	TP30x30x0.675	Pole	72.1%	Pass
45.33 - 45.08	Pole + Reinf.	TP30x30x0.8375	Pole	59.8%	Pass
45.08 - 40.08	Pole + Reinf.	TP30x30x0.8375	Pole	66.0%	Pass
40.08 - 35.08	Pole + Reinf.	TP30x30x0.8375	Pole	72.3%	Pass
35.08 - 33.58	Pole + Reinf.	TP30x30x0.8375	Pole	74.3%	Pass
33.58 - 33.33	Pole + Reinf.	TP30x30x1	Pole	63.6%	Pass
33.33 - 32.42	Pole + Reinf.	TP30x30x1	Pole	64.6%	Pass
32.42 - 32.17	Pole + Reinf.	TP30x30x0.675	Pole	92.2%	Pass
32.17 - 30	Pole + Reinf.	TP30x30x0.675	Pole	95.6%	Pass
30 - 26.75	Pole + Reinf.	TP36x36x0.625	Pole	78.0%	Pass
26.75 - 26.5	Pole + Reinf.	TP36x36x0.7125	Pole	68.5%	Pass
26.5 - 21.5	Pole + Reinf.	TP36x36x0.7125	Pole	74.2%	Pass
21.5 - 21.25	Pole + Reinf.	TP36x36x0.975	Pole	55.7%	Pass
21.25 - 16.25	Pole + Reinf.	TP36x36x0.975	Pole	60.2%	Pass
16.25 - 11.25	Pole + Reinf.	TP36x36x0.975	Pole	64.7%	Pass
11.25 - 6.25	Pole + Reinf.	TP36x36x0.975	Pole	69.2%	Pass
6.25 - 1.25	Pole + Reinf.	TP36x36x0.975	Pole	73.9%	Pass
1.25 - 0	Pole + Reinf.	TP36x36x0.975	Pole	75.0%	Pass
				Summary	
			Pole	95.6%	Pass
			Reinforcement	92.7%	Pass
			Overall	95.6%	Pass

Table 5 - Tower Component Stresses vs. Capacity - LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Flange Bolts	90	38.7	Pass
1	Flange Plate	90	46.8	Pass
1	Flange Bolts	60	19.1	Pass
1	Flange Plate	60	37.3	Pass
1	Bridge Stiffeners	60	39.8	Pass
1	Flange Bolts	30	19.8	Pass
1	Flange Plate	30	43.3	Pass
1	Bridge Stiffeners	30	43.7	Pass
1	Anchor Rods	0	89.4	Pass
1	Base Plate	0	61.2	Pass
1	Base Foundation (Structure)	0	80.4	Pass
1	Base Foundation (Soil Interaction)	0	32.2	Pass

Structure Rating (max from all components) =	**95.6%**

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

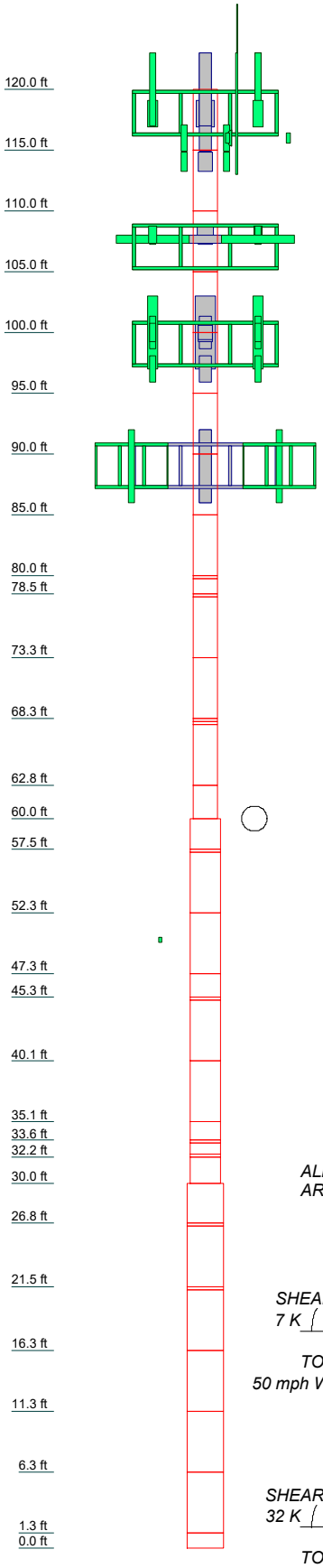
4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	Size	Length (ft)	Grade	Weight (K)
1	P24x0.25	5.00	A53-B-42	0.3
2	P24x0.25	5.00		0.3
3	P24x0.25	5.00		0.3
4	P24x0.25	5.00		0.3
5	P24x0.25	5.00		0.3
6	P24x0.25	5.00		0.3
7	P24x0.375	5.00		0.5
8	P30x0.375	5.00		0.5
9	P24x0.25	2.50		0.2
10	P24x0.25	2.50		0.2
11	P24x0.25	2.50		0.2
12	P24x0.25	5.00		0.9
13	P24x0.775	5.00		0.9
14	P24x0.25	2.50		0.2
15	P24x0.25	2.50		0.2
16	P24x0.25	5.00		0.9
17	P24x0.75	2.75		0.5
18	P30x0.25	2.50		0.5
19	P30x0.25	2.50		0.5
20	P30x0.25	5.00		1.0
21	P30x0.675	5.00		1.0
22	P30x0.25	2.50		0.4
23	P30x0.25	2.50		0.4
24	P30x0.25	5.00		1.2
25	P30x0.837	5.00		1.2
26	P30x0.25	2.50		0.4
27	P30x0.25	2.50		0.4
28	P30x0.25	2.50		0.4
29	P30x0.25	2.50		0.4
30	P30x0.25	2.50		0.4
31	P30x0.25	2.25		0.7
32	P36x0.25	0.25		0.1
33	P36x0.25	5.00		1.3
34	P36x0.25	0.25		0.1
35	P36x0.97	5.00		1.7
36	P36x0.97	5.00		1.7
37	P36x0.975	5.00		1.7
38	P36x0.975	5.00		1.7
39	P36x0.975	1.25		0.4
				22.2



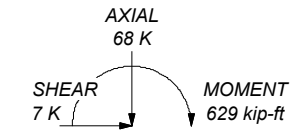
MATERIAL STRENGTH

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

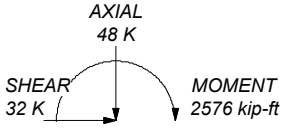
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 121 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 95.6%

ALL REACTIONS ARE FACTORED



TORQUE 1 kip-ft
50 mph WIND - 1.0000 in ICE



TORQUE 3 kip-ft
REACTIONS - 121 mph WIND

Crown Castle
2000 Corporate Drive
Canonsburg, PA
The Pathway to Possible
Phone: (724) 416-2000
FAX:

Job: **876329**			
Project:			
Client: Crown Castle	Drawn by: Mishka Stueber		App'd:
Code: TIA-222-H	Date: 06/24/22		Scale: NTS
Path: C:\Users\mstueber\SAPI Work Area\876329\WO 2113636 - SA\Prod\876329-R.eri			Dwg No. E-1

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

- Tower is located in Hartford County, Connecticut.
- Tower base elevation above sea level: 193.00 ft.
- Basic wind speed of 121 mph.
- Risk Category II.
- Exposure Category C.
- Simplified Topographic Factor Procedure for wind speed-up calculations is used.
- Topographic Category: 1.
- Crest Height: 0.00 ft.
- Nominal ice thickness of 1.0000 in.
- Ice thickness is considered to increase with height.
- Ice density of 56.00 pcf.
- A wind speed of 50 mph is used in combination with ice.
- Temperature drop of 50 °F.
- Deflections calculated using a wind speed of 60 mph.
- TOWER RATING: 95.6%.
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Tower analysis based on target reliabilities in accordance with Annex S.
- Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
- Maximum demand-capacity ratio is: 1.05.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Pole Section Geometry

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L1	120.00-115.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L2	115.00-110.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L3	110.00-105.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L4	105.00-100.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L5	100.00-95.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L6	95.00-90.00	5.00	P24x0.25	A53-B-42 (42 ksi)	
L7	90.00-85.00	5.00	P24x0.375	A53-B-42 (42 ksi)	
L8	85.00-80.00	5.00	P24x0.375	A53-B-42 (42 ksi)	
L9	80.00-79.75	0.25	P24x0.625	A53-B-42 (42 ksi)	
L10	79.75-78.50	1.25	P24x0.625	A53-B-42 (42 ksi)	
L11	78.50-78.25	0.25	P24x0.775	A53-B-42 (42 ksi)	
L12	78.25-73.25	5.00	P24x0.775	A53-B-42 (42 ksi)	
L13	73.25-68.25	5.00	P24x0.775	A53-B-42 (42 ksi)	
L14	68.25-68.00	0.25	P24x0.775	A53-B-42 (42 ksi)	
L15	68.00-67.75	0.25	P24x0.775	A53-B-42 (42 ksi)	
L16	67.75-62.75	5.00	P24x0.775	A53-B-42 (42 ksi)	
L17	62.75-60.00	2.75	P24x0.775	A53-B-42 (42 ksi)	
L18	60.00-57.50	2.50	P30x0.675	A53-B-42 (42 ksi)	
L19	57.50-57.25	0.25	P30x0.675	A53-B-42 (42 ksi)	
L20	57.25-52.25	5.00	P30x0.675	A53-B-42 (42 ksi)	
L21	52.25-47.25	5.00	P30x0.675	A53-B-42 (42 ksi)	
L22	47.25-45.33	1.92	P30x0.675	A53-B-42 (42 ksi)	
L23	45.33-45.08	0.25	P30x0.8375	A53-B-42 (42 ksi)	
L24	45.08-40.08	5.00	P30x0.8375	A53-B-42 (42 ksi)	
L25	40.08-35.08	5.00	P30x0.8375	A53-B-42 (42 ksi)	
L26	35.08-33.58	1.50	P30x0.8375	A53-B-42 (42 ksi)	
L27	33.58-33.33	0.25	P30x1	A53-B-42 (42 ksi)	
L28	33.33-32.42	0.91	P30x1	A53-B-42 (42 ksi)	
L29	32.42-32.17	0.25	P30x0.675	A53-B-42 (42 ksi)	
L30	32.17-30.00	2.17	P30x0.675	A53-B-42 (42 ksi)	
L31	30.00-26.75	3.25	P36x0.625	A53-B-42 (42 ksi)	
L32	26.75-26.50	0.25	P36x0.7125	A53-B-42 (42 ksi)	
L33	26.50-21.50	5.00	P36x0.7125	A53-B-42 (42 ksi)	
L34	21.50-21.25	0.25	P36x0.975	A53-B-42 (42 ksi)	
L35	21.25-16.25	5.00	P36x0.975	A53-B-42	

Section	Elevation ft	Section Length ft	Pole Size	Pole Grade	Socket Length ft
L36	16.25-11.25	5.00	P36x0.975	(42 ksi) A53-B-42 (42 ksi)	
L37	11.25-6.25	5.00	P36x0.975	A53-B-42 (42 ksi)	
L38	6.25-1.25	5.00	P36x0.975	A53-B-42 (42 ksi)	
L39	1.25-0.00	1.25	P36x0.975	A53-B-42 (42 ksi)	

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 120.00-115.00				1	1	1			
L2 115.00-110.00				1	1	1			
L3 110.00-105.00				1	1	1			
L4 105.00-100.00				1	1	1			
L5 100.00-95.00				1	1	1			
L6 95.00-90.00				1	1	1			
L7 90.00-85.00				1	1	1			
L8 85.00-80.00				1	1	1			
L9 80.00-79.75				1	1	0.933238			
L10 79.75-78.50				1	1	0.933238			
L11 78.50-78.25				1	1	0.916633			
L12 78.25-73.25				1	1	0.916633			
L13 73.25-68.25				1	1	0.916633			
L14 68.25-68.00				1	1	0.916633			
L15 68.00-67.75				1	1	0.916633			
L16 67.75-62.75				1	1	0.916633			
L17 62.75-60.00				1	1	0.916633			
L18 60.00-57.50				1	1	0.947179			
L19 57.50-57.25				1	1	0.947179			
L20 57.25-52.25				1	1	0.947179			
L21 52.25-47.25				1	1	0.947179			
L22 47.25-45.33				1	1	0.947179			
L23 45.33-45.08				1	1	0.919876			
L24 45.08-40.08				1	1	0.919876			
L25 40.08-35.08				1	1	0.919876			
L26 35.08-33.58				1	1	0.919876			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L27 33.58-33.33				1	1	0.894573			
L28 33.33-32.42				1	1	0.894573			
L29 32.42-32.17				1	1	0.947179			
L30 32.17-30.00				1	1	0.947179			
L31 30.00-26.75				1	1	0.94977			
L32 26.75-26.50				1	1	0.94281			
L33 26.50-21.50				1	1	0.94281			
L34 21.50-21.25				1	1	0.917846			
L35 21.25-16.25				1	1	0.917846			
L36 16.25-11.25				1	1	0.917846			
L37 11.25-6.25				1	1	0.917846			
L38 6.25-1.25				1	1	0.917846			
L39 1.25-0.00				1	1	0.917846			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
FSJ4-50B(1/2)	B	No	Surface Ar (CaAa)	48.00 - 0.00	2	2	0.250 0.300	0.5300		0.14
FSJ4-50B(1/2) **** ***	B	No	Surface Ar (CaAa)	118.00 - 0.00	2	2	0.380 0.420	0.5300		0.14
HCS 6X12 6AWG(1-3/8)	A	No	Surface Ar (CaAa)	107.00 - 0.00	1	1	-0.450 -0.450	1.3800		1.70
FLC 158-50J(1-5/8) ***	A	No	Surface Ar (CaAa)	107.00 - 0.00	7	7	-0.450 -0.300	2.0150		0.92
CU12PSM9P8XXX(1-3/8) ***	C	No	Surface Ar (CaAa)	89.00 - 0.00	1	1	0.000 0.000	1.4110		1.66
3" x 1-1/4" Reinf. Bar	A	No	Surface Af (CaAa)	81.00 - 67.00	1	1	0.000 0.000	1.2500	8.5000	14.00
3" x 1-1/4" Reinf. Bar	B	No	Surface Af (CaAa)	81.00 - 67.00	1	1	0.300 0.300	1.2500	8.5000	14.00
3" x 1-1/4" Reinf. Bar	C	No	Surface Af (CaAa)	81.00 - 67.00	1	1	0.000 0.000	1.2500	8.5000	14.00
3" x 1-1/4" Reinf. Bar	C	No	Surface Af (CaAa)	81.00 - 67.00	1	1	0.300 0.300	1.2500	8.5000	14.00
MP3-05	A	No	Surface Af (CaAa)	36.00 - 30.00	1	1	0.000 0.000	5.3300	14.8400	0.00
MP3-05	B	No	Surface Af (CaAa)	36.00 - 30.00	1	1	0.300 0.300	5.3300	14.8400	0.00
MP3-05	C	No	Surface Af (CaAa)	36.00 - 30.00	1	1	0.000 0.000	5.3300	14.8400	0.00
MP3-05	C	No	Surface Af (CaAa)	36.00 - 30.00	1	1	0.300 0.300	5.3300	14.8400	0.00
MP3-03	A	No	Surface Af (CaAa)	46.50 - 36.50	1	1	0.000 0.000	4.0600	11.2600	0.00

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
MP3-03	B	No	Surface Af (CaAa)	46.50 - 36.50	1	1	0.300 0.300	4.0600	11.2600	0.00
MP3-03	C	No	Surface Af (CaAa)	46.50 - 36.50	1	1	0.000 0.000	4.0600	11.2600	0.00
MP3-03	C	No	Surface Af (CaAa)	46.50 - 36.50	1	1	0.300 0.300	4.0600	11.2600	0.00
CCI-65FP-060100	A	No	Surface Af (CaAa)	23.50 - 0.50	1	1	0.000 0.000	6.0000	14.0000	0.00
CCI-65FP-060100	B	No	Surface Af (CaAa)	23.50 - 0.50	1	1	0.300 0.300	6.0000	14.0000	0.00
CCI-65FP-060100	C	No	Surface Af (CaAa)	23.50 - 0.50	1	1	0.000 0.000	6.0000	14.0000	0.00
CCI-65FP-060100	C	No	Surface Af (CaAa)	23.50 - 0.50	1	1	0.300 0.300	6.0000	14.0000	0.00
CCI-65FP-060100	A	No	Surface Af (CaAa)	59.50 - 30.50	1	1	0.000 0.000	6.0000	14.0000	0.00
CCI-65FP-060100	B	No	Surface Af (CaAa)	59.50 - 30.50	1	1	0.300 0.300	6.0000	14.0000	0.00
CCI-65FP-060100	C	No	Surface Af (CaAa)	59.50 - 30.50	1	1	0.000 0.000	6.0000	14.0000	0.00
CCI-65FP-060100	C	No	Surface Af (CaAa)	59.50 - 30.50	1	1	0.300 0.300	6.0000	14.0000	0.00
CCI-65FP-060100	A	No	Surface Af (CaAa)	80.50 - 60.50	1	1	0.000 0.000	6.0000	14.0000	0.00
CCI-65FP-060100	B	No	Surface Af (CaAa)	80.50 - 60.50	1	1	0.300 0.300	6.0000	14.0000	0.00
CCI-65FP-060100	C	No	Surface Af (CaAa)	80.50 - 60.50	1	1	0.000 0.000	6.0000	14.0000	0.00
CCI-65FP-060100	C	No	Surface Af (CaAa)	80.50 - 60.50	1	1	0.300 0.300	6.0000	14.0000	0.00
CCI-65FP-065125	A	No	Surface Af (CaAa)	29.50 - 0.00	1	1	0.000 0.000	6.5000	15.5000	0.00
CCI-65FP-065125	B	No	Surface Af (CaAa)	29.50 - 0.00	1	1	0.300 0.300	6.5000	15.5000	0.00
CCI-65FP-065125	C	No	Surface Af (CaAa)	29.50 - 0.00	1	1	0.000 0.000	6.5000	15.5000	0.00
CCI-65FP-065125	C	No	Surface Af (CaAa)	29.50 - 0.00	1	1	0.300 0.300	6.5000	15.5000	0.00
****** ***										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
****									
HB058-M12-XXXF(5/8)	C	No	No	Inside Pole	118.00 - 0.00	1	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.24 0.24 0.24
HB114-1-08U4-M5J(1-1/4)	C	No	No	Inside Pole	118.00 - 0.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	1.08 1.08 1.08
*** 99 ***									
LDF5-50A(7/8)	C	No	No	Inside Pole	99.00 - 0.00	14	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.33 0.33 0.33
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	99.00 - 0.00	3	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.06 0.06 0.06
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	99.00 - 0.00	4	No Ice 1/2" Ice 1" Ice	0.00 0.00 0.00	0.58 0.58 0.58
******									

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	C_AA_A ft^2/ft	Weight plf
***								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	120.00-115.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.318	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.01
L2	115.00-110.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.530	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L3	110.00-105.00	A	0.000	0.000	3.097	0.000	0.02
		B	0.000	0.000	0.530	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L4	105.00-100.00	A	0.000	0.000	7.743	0.000	0.04
		B	0.000	0.000	0.530	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.02
L5	100.00-95.00	A	0.000	0.000	7.743	0.000	0.04
		B	0.000	0.000	0.530	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.05
L6	95.00-90.00	A	0.000	0.000	7.743	0.000	0.04
		B	0.000	0.000	0.530	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.05
L7	90.00-85.00	A	0.000	0.000	7.743	0.000	0.04
		B	0.000	0.000	0.530	0.000	0.00
		C	0.000	0.000	0.564	0.000	0.06
L8	85.00-80.00	A	0.000	0.000	8.451	0.000	0.05
		B	0.000	0.000	1.238	0.000	0.02
		C	0.000	0.000	2.122	0.000	0.09
L9	80.00-79.75	A	0.000	0.000	0.689	0.000	0.01
		B	0.000	0.000	0.329	0.000	0.00
		C	0.000	0.000	0.639	0.000	0.01
L10	79.75-78.50	A	0.000	0.000	3.446	0.000	0.03
		B	0.000	0.000	1.643	0.000	0.02
		C	0.000	0.000	3.197	0.000	0.05
L11	78.50-78.25	A	0.000	0.000	0.689	0.000	0.01
		B	0.000	0.000	0.329	0.000	0.00
		C	0.000	0.000	0.639	0.000	0.01
L12	78.25-73.25	A	0.000	0.000	13.784	0.000	0.11
		B	0.000	0.000	6.572	0.000	0.07
		C	0.000	0.000	12.789	0.000	0.20
L13	73.25-68.25	A	0.000	0.000	13.784	0.000	0.11
		B	0.000	0.000	6.572	0.000	0.07
		C	0.000	0.000	12.789	0.000	0.20
L14	68.25-68.00	A	0.000	0.000	0.689	0.000	0.01
		B	0.000	0.000	0.329	0.000	0.00
		C	0.000	0.000	0.639	0.000	0.01
L15	68.00-67.75	A	0.000	0.000	0.689	0.000	0.01
		B	0.000	0.000	0.329	0.000	0.00
		C	0.000	0.000	0.639	0.000	0.01
L16	67.75-62.75	A	0.000	0.000	12.899	0.000	0.05
		B	0.000	0.000	5.686	0.000	0.01
		C	0.000	0.000	11.018	0.000	0.08
L17	62.75-60.00	A	0.000	0.000	6.508	0.000	0.02
		B	0.000	0.000	2.542	0.000	0.00
		C	0.000	0.000	4.888	0.000	0.03
L18	60.00-57.50	A	0.000	0.000	5.871	0.000	0.02
		B	0.000	0.000	2.265	0.000	0.00
		C	0.000	0.000	4.353	0.000	0.03
L19	57.50-57.25	A	0.000	0.000	0.637	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	0.277	0.000	0.00
		C	0.000	0.000	0.535	0.000	0.00
L20	57.25-52.25	A	0.000	0.000	12.743	0.000	0.04
		B	0.000	0.000	5.530	0.000	0.00
		C	0.000	0.000	10.706	0.000	0.06
L21	52.25-47.25	A	0.000	0.000	12.743	0.000	0.04
		B	0.000	0.000	5.609	0.000	0.00
		C	0.000	0.000	10.706	0.000	0.06
L22	47.25-45.33	A	0.000	0.000	5.685	0.000	0.02
		B	0.000	0.000	3.119	0.000	0.00
		C	0.000	0.000	5.694	0.000	0.02
L23	45.33-45.08	A	0.000	0.000	0.806	0.000	0.00
		B	0.000	0.000	0.472	0.000	0.00
		C	0.000	0.000	0.874	0.000	0.00
L24	45.08-40.08	A	0.000	0.000	16.126	0.000	0.04
		B	0.000	0.000	9.443	0.000	0.00
		C	0.000	0.000	17.472	0.000	0.06
L25	40.08-35.08	A	0.000	0.000	15.813	0.000	0.04
		B	0.000	0.000	9.131	0.000	0.00
		C	0.000	0.000	16.847	0.000	0.06
L26	35.08-33.58	A	0.000	0.000	4.870	0.000	0.01
		B	0.000	0.000	2.869	0.000	0.00
		C	0.000	0.000	5.314	0.000	0.02
L27	33.58-33.33	A	0.000	0.000	0.813	0.000	0.00
		B	0.000	0.000	0.479	0.000	0.00
		C	0.000	0.000	0.887	0.000	0.00
L28	33.33-32.42	A	0.000	0.000	2.970	0.000	0.01
		B	0.000	0.000	1.750	0.000	0.00
		C	0.000	0.000	3.241	0.000	0.01
L29	32.42-32.17	A	0.000	0.000	0.813	0.000	0.00
		B	0.000	0.000	0.479	0.000	0.00
		C	0.000	0.000	0.887	0.000	0.00
L30	32.17-30.00	A	0.000	0.000	6.559	0.000	0.02
		B	0.000	0.000	3.659	0.000	0.00
		C	0.000	0.000	6.703	0.000	0.03
L31	30.00-26.75	A	0.000	0.000	8.012	0.000	0.03
		B	0.000	0.000	3.668	0.000	0.00
		C	0.000	0.000	6.417	0.000	0.04
L32	26.75-26.50	A	0.000	0.000	0.658	0.000	0.00
		B	0.000	0.000	0.324	0.000	0.00
		C	0.000	0.000	0.577	0.000	0.00
L33	26.50-21.50	A	0.000	0.000	15.159	0.000	0.04
		B	0.000	0.000	8.477	0.000	0.00
		C	0.000	0.000	15.539	0.000	0.06
L34	21.50-21.25	A	0.000	0.000	0.908	0.000	0.00
		B	0.000	0.000	0.574	0.000	0.00
		C	0.000	0.000	1.077	0.000	0.00
L35	21.25-16.25	A	0.000	0.000	18.159	0.000	0.04
		B	0.000	0.000	11.477	0.000	0.00
		C	0.000	0.000	21.539	0.000	0.06
L36	16.25-11.25	A	0.000	0.000	18.159	0.000	0.04
		B	0.000	0.000	11.477	0.000	0.00
		C	0.000	0.000	21.539	0.000	0.06
L37	11.25-6.25	A	0.000	0.000	18.159	0.000	0.04
		B	0.000	0.000	11.477	0.000	0.00
		C	0.000	0.000	21.539	0.000	0.06
L38	6.25-1.25	A	0.000	0.000	18.159	0.000	0.04
		B	0.000	0.000	11.477	0.000	0.00
		C	0.000	0.000	21.539	0.000	0.06
L39	1.25-0.00	A	0.000	0.000	4.040	0.000	0.01
		B	0.000	0.000	2.369	0.000	0.00
		C	0.000	0.000	4.385	0.000	0.02

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	120.00-115.00	A	0.965	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.121	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.01
L2	115.00-110.00	A	0.961	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	1.864	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.02
L3	110.00-105.00	A	0.957	0.000	0.000	4.663	0.000	0.05
		B		0.000	0.000	1.858	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.02
L4	105.00-100.00	A	0.952	0.000	0.000	11.648	0.000	0.13
		B		0.000	0.000	1.853	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.02
L5	100.00-95.00	A	0.947	0.000	0.000	11.637	0.000	0.13
		B		0.000	0.000	1.847	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.05
L6	95.00-90.00	A	0.942	0.000	0.000	11.626	0.000	0.13
		B		0.000	0.000	1.840	0.000	0.01
		C		0.000	0.000	0.000	0.000	0.05
L7	90.00-85.00	A	0.937	0.000	0.000	11.614	0.000	0.13
		B		0.000	0.000	1.834	0.000	0.01
		C		0.000	0.000	1.314	0.000	0.07
L8	85.00-80.00	A	0.932	0.000	0.000	12.589	0.000	0.15
		B		0.000	0.000	2.815	0.000	0.03
		C		0.000	0.000	3.613	0.000	0.12
L9	80.00-79.75	A	0.929	0.000	0.000	0.975	0.000	0.01
		B		0.000	0.000	0.486	0.000	0.01
		C		0.000	0.000	0.872	0.000	0.02
L10	79.75-78.50	A	0.928	0.000	0.000	4.872	0.000	0.06
		B		0.000	0.000	2.430	0.000	0.03
		C		0.000	0.000	4.357	0.000	0.08
L11	78.50-78.25	A	0.927	0.000	0.000	0.974	0.000	0.01
		B		0.000	0.000	0.486	0.000	0.01
		C		0.000	0.000	0.871	0.000	0.02
L12	78.25-73.25	A	0.924	0.000	0.000	19.473	0.000	0.25
		B		0.000	0.000	9.706	0.000	0.13
		C		0.000	0.000	17.407	0.000	0.32
L13	73.25-68.25	A	0.917	0.000	0.000	19.446	0.000	0.25
		B		0.000	0.000	9.686	0.000	0.13
		C		0.000	0.000	17.376	0.000	0.32
L14	68.25-68.00	A	0.914	0.000	0.000	0.972	0.000	0.01
		B		0.000	0.000	0.484	0.000	0.01
		C		0.000	0.000	0.868	0.000	0.02
L15	68.00-67.75	A	0.914	0.000	0.000	0.971	0.000	0.01
		B		0.000	0.000	0.484	0.000	0.01
		C		0.000	0.000	0.868	0.000	0.02
L16	67.75-62.75	A	0.910	0.000	0.000	17.756	0.000	0.17
		B		0.000	0.000	8.003	0.000	0.06
		C		0.000	0.000	14.021	0.000	0.16
L17	62.75-60.00	A	0.904	0.000	0.000	9.004	0.000	0.08
		B		0.000	0.000	3.643	0.000	0.02
		C		0.000	0.000	6.199	0.000	0.07
L18	60.00-57.50	A	0.900	0.000	0.000	8.126	0.000	0.07
		B		0.000	0.000	3.254	0.000	0.02
		C		0.000	0.000	5.523	0.000	0.06
L19	57.50-57.25	A	0.898	0.000	0.000	0.871	0.000	0.01
		B		0.000	0.000	0.384	0.000	0.00
		C		0.000	0.000	0.670	0.000	0.01
L20	57.25-52.25	A	0.894	0.000	0.000	17.412	0.000	0.15
		B		0.000	0.000	7.674	0.000	0.04
		C		0.000	0.000	13.388	0.000	0.13
L21	52.25-47.25	A	0.886	0.000	0.000	17.384	0.000	0.15
		B		0.000	0.000	7.921	0.000	0.04
		C		0.000	0.000	13.362	0.000	0.13
L22	47.25-45.33	A	0.879	0.000	0.000	7.605	0.000	0.06
		B		0.000	0.000	4.548	0.000	0.03
		C		0.000	0.000	6.999	0.000	0.06
L23	45.33-45.08	A	0.877	0.000	0.000	1.068	0.000	0.01
		B		0.000	0.000	0.670	0.000	0.00
		C		0.000	0.000	1.067	0.000	0.01

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L24	45.08-40.08	A	0.872	0.000	0.000	21.342	0.000	0.17
		B		0.000	0.000	13.380	0.000	0.08
		C		0.000	0.000	21.327	0.000	0.18
L25	40.08-35.08	A	0.861	0.000	0.000	20.902	0.000	0.17
		B		0.000	0.000	12.937	0.000	0.07
		C		0.000	0.000	20.485	0.000	0.18
L26	35.08-33.58	A	0.853	0.000	0.000	6.369	0.000	0.05
		B		0.000	0.000	3.984	0.000	0.02
		C		0.000	0.000	6.364	0.000	0.06
L27	33.58-33.33	A	0.851	0.000	0.000	1.063	0.000	0.01
		B		0.000	0.000	0.665	0.000	0.00
		C		0.000	0.000	1.062	0.000	0.01
L28	33.33-32.42	A	0.850	0.000	0.000	3.882	0.000	0.03
		B		0.000	0.000	2.427	0.000	0.01
		C		0.000	0.000	3.878	0.000	0.03
L29	32.42-32.17	A	0.848	0.000	0.000	1.063	0.000	0.01
		B		0.000	0.000	0.664	0.000	0.00
		C		0.000	0.000	1.062	0.000	0.01
L30	32.17-30.00	A	0.845	0.000	0.000	8.635	0.000	0.07
		B		0.000	0.000	5.176	0.000	0.03
		C		0.000	0.000	8.041	0.000	0.08
L31	30.00-26.75	A	0.837	0.000	0.000	10.843	0.000	0.09
		B		0.000	0.000	5.661	0.000	0.03
		C		0.000	0.000	7.882	0.000	0.08
L32	26.75-26.50	A	0.832	0.000	0.000	0.881	0.000	0.01
		B		0.000	0.000	0.483	0.000	0.00
		C		0.000	0.000	0.702	0.000	0.01
L33	26.50-21.50	A	0.823	0.000	0.000	19.928	0.000	0.16
		B		0.000	0.000	11.953	0.000	0.06
		C		0.000	0.000	18.668	0.000	0.15
L34	21.50-21.25	A	0.814	0.000	0.000	1.169	0.000	0.01
		B		0.000	0.000	0.770	0.000	0.00
		C		0.000	0.000	1.280	0.000	0.01
L35	21.25-16.25	A	0.803	0.000	0.000	23.336	0.000	0.17
		B		0.000	0.000	15.356	0.000	0.08
		C		0.000	0.000	25.555	0.000	0.18
L36	16.25-11.25	A	0.779	0.000	0.000	23.232	0.000	0.16
		B		0.000	0.000	15.246	0.000	0.07
		C		0.000	0.000	25.433	0.000	0.18
L37	11.25-6.25	A	0.744	0.000	0.000	23.086	0.000	0.16
		B		0.000	0.000	15.091	0.000	0.07
		C		0.000	0.000	25.261	0.000	0.17
L38	6.25-1.25	A	0.684	0.000	0.000	22.829	0.000	0.15
		B		0.000	0.000	14.819	0.000	0.06
		C		0.000	0.000	24.958	0.000	0.16
L39	1.25-0.00	A	0.572	0.000	0.000	5.031	0.000	0.03
		B		0.000	0.000	3.021	0.000	0.01
		C		0.000	0.000	4.985	0.000	0.03

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	120.00-115.00	0.5871	0.1908	0.8715	0.2832
L2	115.00-110.00	0.9468	0.3076	1.3290	0.4318
L3	110.00-105.00	-3.3981	1.3548	-1.6772	1.1003
L4	105.00-100.00	-6.2488	2.0309	-4.0969	1.6385
L5	100.00-95.00	-6.2488	2.0309	-4.0993	1.6381
L6	95.00-90.00	-6.2488	2.0309	-4.1018	1.6376
L7	90.00-85.00	-6.0158	2.4289	-3.9339	2.0968
L8	85.00-80.00	-5.3221	2.8477	-3.8115	2.5442
L9	80.00-79.75	-3.4901	3.4589	-3.3675	3.5677
L10	79.75-78.50	-3.4901	3.4589	-3.3677	3.5675
L11	78.50-78.25	-3.4901	3.4589	-3.3679	3.5673

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L12	78.25-73.25	-3.4901	3.4589	-3.3687	3.5668
L13	73.25-68.25	-3.4901	3.4589	-3.3702	3.5656
L14	68.25-68.00	-3.4901	3.4589	-3.3710	3.5650
L15	68.00-67.75	-3.4901	3.4589	-3.3711	3.5649
L16	67.75-62.75	-3.5913	3.3669	-3.4514	3.4055
L17	62.75-60.00	-3.6969	3.2100	-3.5280	3.2515
L18	60.00-57.50	-4.2592	3.6821	-4.1339	3.8010
L19	57.50-57.25	-4.1830	3.8893	-4.0807	3.9787
L20	57.25-52.25	-4.1830	3.8893	-4.0820	3.9780
L21	52.25-47.25	-4.1488	3.8839	-3.9839	3.9479
L22	47.25-45.33	-3.8734	4.1818	-3.4543	4.1010
L23	45.33-45.08	-3.8330	4.3399	-3.4590	4.2540
L24	45.08-40.08	-3.8330	4.3399	-3.4615	4.2538
L25	40.08-35.08	-3.8379	4.3034	-3.4626	4.2150
L26	35.08-33.58	-3.8086	4.3445	-3.4529	4.2433
L27	33.58-33.33	-3.8086	4.3445	-3.4539	4.2432
L28	33.33-32.42	-3.8086	4.3445	-3.4546	4.2431
L29	32.42-32.17	-3.8086	4.3445	-3.4553	4.2431
L30	32.17-30.00	-3.8380	4.2141	-3.4525	4.1153
L31	30.00-26.75	-4.4495	4.2408	-3.9393	4.2332
L32	26.75-26.50	-4.4292	4.4395	-3.9598	4.4092
L33	26.50-21.50	-4.3899	4.8107	-3.9973	4.7525
L34	21.50-21.25	-4.3489	5.1979	-4.0363	5.1250
L35	21.25-16.25	-4.3489	5.1979	-4.0412	5.1242
L36	16.25-11.25	-4.3489	5.1979	-4.0526	5.1224
L37	11.25-6.25	-4.3489	5.1979	-4.0688	5.1199
L38	6.25-1.25	-4.3489	5.1979	-4.0978	5.1153
L39	1.25-0.00	-4.3743	4.9577	-4.1486	4.8701

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	5	FSJ4-50B(1/2)	115.00 - 118.00	1.0000	1.0000
L2	5	FSJ4-50B(1/2)	110.00 - 115.00	1.0000	1.0000
L3	5	FSJ4-50B(1/2)	105.00 - 110.00	1.0000	1.0000
L3	16	HCS 6X12 6AWG(1-3/8)	105.00 - 107.00	1.0000	1.0000
L3	17	FLC 158-50J(1-5/8)	105.00 - 107.00	1.0000	1.0000
L4	5	FSJ4-50B(1/2)	100.00 - 105.00	1.0000	1.0000
L4	16	HCS 6X12 6AWG(1-3/8)	100.00 - 105.00	1.0000	1.0000
L4	17	FLC 158-50J(1-5/8)	100.00 - 105.00	1.0000	1.0000
L5	5	FSJ4-50B(1/2)	95.00 - 100.00	1.0000	1.0000
L5	16	HCS 6X12 6AWG(1-3/8)	95.00 - 100.00	1.0000	1.0000
L5	17	FLC 158-50J(1-5/8)	95.00 - 100.00	1.0000	1.0000
L6	5	FSJ4-50B(1/2)	90.00 - 95.00	1.0000	1.0000
L6	16	HCS 6X12 6AWG(1-3/8)	90.00 - 95.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L6	17	FLC 158-50J(1-5/8)	90.00 - 95.00	1.0000	1.0000
L7	5	FSJ4-50B(1/2)	85.00 - 90.00	1.0000	1.0000
L7	16	HCS 6X12 6AWG(1-3/8)	85.00 - 90.00	1.0000	1.0000
L7	17	FLC 158-50J(1-5/8)	85.00 - 90.00	1.0000	1.0000
L7	19	CU12PSM9P8XXX(1-3/8)	85.00 - 89.00	1.0000	1.0000
L8	5	FSJ4-50B(1/2)	80.00 - 85.00	1.0000	1.0000
L8	16	HCS 6X12 6AWG(1-3/8)	80.00 - 85.00	1.0000	1.0000
L8	17	FLC 158-50J(1-5/8)	80.00 - 85.00	1.0000	1.0000
L8	19	CU12PSM9P8XXX(1-3/8)	80.00 - 85.00	1.0000	1.0000
L8	21	3" x 1-1/4" Reinf. Bar	80.00 - 81.00	1.0000	1.0000
L8	22	3" x 1-1/4" Reinf. Bar	80.00 - 81.00	1.0000	1.0000
L8	23	3" x 1-1/4" Reinf. Bar	80.00 - 81.00	1.0000	1.0000
L8	24	3" x 1-1/4" Reinf. Bar	80.00 - 81.00	1.0000	1.0000
L8	41	CCI-65FP-060100	80.00 - 80.50	1.0000	1.0000
L8	42	CCI-65FP-060100	80.00 - 80.50	1.0000	1.0000
L8	43	CCI-65FP-060100	80.00 - 80.50	1.0000	1.0000
L8	44	CCI-65FP-060100	80.00 - 80.50	1.0000	1.0000
L9	5	FSJ4-50B(1/2)	79.75 - 80.00	1.0000	1.0000
L9	16	HCS 6X12 6AWG(1-3/8)	79.75 - 80.00	1.0000	1.0000
L9	17	FLC 158-50J(1-5/8)	79.75 - 80.00	1.0000	1.0000
L9	19	CU12PSM9P8XXX(1-3/8)	79.75 - 80.00	1.0000	1.0000
L9	21	3" x 1-1/4" Reinf. Bar	79.75 - 80.00	1.0000	1.0000
L9	22	3" x 1-1/4" Reinf. Bar	79.75 - 80.00	1.0000	1.0000
L9	23	3" x 1-1/4" Reinf. Bar	79.75 - 80.00	1.0000	1.0000
L9	24	3" x 1-1/4" Reinf. Bar	79.75 - 80.00	1.0000	1.0000
L9	41	CCI-65FP-060100	79.75 - 80.00	1.0000	1.0000
L9	42	CCI-65FP-060100	79.75 - 80.00	1.0000	1.0000
L9	43	CCI-65FP-060100	79.75 - 80.00	1.0000	1.0000
L9	44	CCI-65FP-060100	79.75 - 80.00	1.0000	1.0000
L10	5	FSJ4-50B(1/2)	78.50 - 79.75	1.0000	1.0000
L10	16	HCS 6X12 6AWG(1-3/8)	78.50 - 79.75	1.0000	1.0000
L10	17	FLC 158-50J(1-5/8)	78.50 - 79.75	1.0000	1.0000
L10	19	CU12PSM9P8XXX(1-3/8)	78.50 - 79.75	1.0000	1.0000
L10	21	3" x 1-1/4" Reinf. Bar	78.50 - 79.75	1.0000	1.0000
L10	22	3" x 1-1/4" Reinf. Bar	78.50 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L10	23	3" x 1-1/4" Reinf. Bar	79.75 78.50 - 79.75	1.0000	1.0000
L10	24	3" x 1-1/4" Reinf. Bar	78.50 - 79.75	1.0000	1.0000
L10	41	CCI-65FP-060100	78.50 - 79.75	1.0000	1.0000
L10	42	CCI-65FP-060100	78.50 - 79.75	1.0000	1.0000
L10	43	CCI-65FP-060100	78.50 - 79.75	1.0000	1.0000
L10	44	CCI-65FP-060100	78.50 - 79.75	1.0000	1.0000
L11	5	FSJ4-50B(1/2)	78.25 - 78.50	1.0000	1.0000
L11	16	HCS 6X12 6AWG(1-3/8)	78.25 - 78.50	1.0000	1.0000
L11	17	FLC 158-50J(1-5/8)	78.25 - 78.50	1.0000	1.0000
L11	19	CU12PSM9P8XXX(1-3/8)	78.25 - 78.50	1.0000	1.0000
L11	21	3" x 1-1/4" Reinf. Bar	78.25 - 78.50	1.0000	1.0000
L11	22	3" x 1-1/4" Reinf. Bar	78.25 - 78.50	1.0000	1.0000
L11	23	3" x 1-1/4" Reinf. Bar	78.25 - 78.50	1.0000	1.0000
L11	24	3" x 1-1/4" Reinf. Bar	78.25 - 78.50	1.0000	1.0000
L11	41	CCI-65FP-060100	78.25 - 78.50	1.0000	1.0000
L11	42	CCI-65FP-060100	78.25 - 78.50	1.0000	1.0000
L11	43	CCI-65FP-060100	78.25 - 78.50	1.0000	1.0000
L11	44	CCI-65FP-060100	78.25 - 78.50	1.0000	1.0000
L12	5	FSJ4-50B(1/2)	73.25 - 78.25	1.0000	1.0000
L12	16	HCS 6X12 6AWG(1-3/8)	73.25 - 78.25	1.0000	1.0000
L12	17	FLC 158-50J(1-5/8)	73.25 - 78.25	1.0000	1.0000
L12	19	CU12PSM9P8XXX(1-3/8)	73.25 - 78.25	1.0000	1.0000
L12	21	3" x 1-1/4" Reinf. Bar	73.25 - 78.25	1.0000	1.0000
L12	22	3" x 1-1/4" Reinf. Bar	73.25 - 78.25	1.0000	1.0000
L12	23	3" x 1-1/4" Reinf. Bar	73.25 - 78.25	1.0000	1.0000
L12	24	3" x 1-1/4" Reinf. Bar	73.25 - 78.25	1.0000	1.0000
L12	41	CCI-65FP-060100	73.25 - 78.25	1.0000	1.0000
L12	42	CCI-65FP-060100	73.25 - 78.25	1.0000	1.0000
L12	43	CCI-65FP-060100	73.25 - 78.25	1.0000	1.0000
L12	44	CCI-65FP-060100	73.25 - 78.25	1.0000	1.0000
L13	5	FSJ4-50B(1/2)	68.25 - 73.25	1.0000	1.0000
L13	16	HCS 6X12 6AWG(1-3/8)	68.25 - 73.25	1.0000	1.0000
L13	17	FLC 158-50J(1-5/8)	68.25 - 73.25	1.0000	1.0000
L13	19	CU12PSM9P8XXX(1-3/8)	68.25 - 73.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L13	21	3" x 1-1/4" Reinf. Bar	68.25 - 73.25	1.0000	1.0000
L13	22	3" x 1-1/4" Reinf. Bar	68.25 - 73.25	1.0000	1.0000
L13	23	3" x 1-1/4" Reinf. Bar	68.25 - 73.25	1.0000	1.0000
L13	24	3" x 1-1/4" Reinf. Bar	68.25 - 73.25	1.0000	1.0000
L13	41	CCI-65FP-060100	68.25 - 73.25	1.0000	1.0000
L13	42	CCI-65FP-060100	68.25 - 73.25	1.0000	1.0000
L13	43	CCI-65FP-060100	68.25 - 73.25	1.0000	1.0000
L13	44	CCI-65FP-060100	68.25 - 73.25	1.0000	1.0000
L14	5	FSJ4-50B(1/2)	68.00 - 68.25	1.0000	1.0000
L14	16	HCS 6X12 6AWG(1-3/8)	68.00 - 68.25	1.0000	1.0000
L14	17	FLC 158-50J(1-5/8)	68.00 - 68.25	1.0000	1.0000
L14	19	CU12PSM9P8XXX(1-3/8)	68.00 - 68.25	1.0000	1.0000
L14	21	3" x 1-1/4" Reinf. Bar	68.00 - 68.25	1.0000	1.0000
L14	22	3" x 1-1/4" Reinf. Bar	68.00 - 68.25	1.0000	1.0000
L14	23	3" x 1-1/4" Reinf. Bar	68.00 - 68.25	1.0000	1.0000
L14	24	3" x 1-1/4" Reinf. Bar	68.00 - 68.25	1.0000	1.0000
L14	41	CCI-65FP-060100	68.00 - 68.25	1.0000	1.0000
L14	42	CCI-65FP-060100	68.00 - 68.25	1.0000	1.0000
L14	43	CCI-65FP-060100	68.00 - 68.25	1.0000	1.0000
L14	44	CCI-65FP-060100	68.00 - 68.25	1.0000	1.0000
L15	5	FSJ4-50B(1/2)	67.75 - 68.00	1.0000	1.0000
L15	16	HCS 6X12 6AWG(1-3/8)	67.75 - 68.00	1.0000	1.0000
L15	17	FLC 158-50J(1-5/8)	67.75 - 68.00	1.0000	1.0000
L15	19	CU12PSM9P8XXX(1-3/8)	67.75 - 68.00	1.0000	1.0000
L15	21	3" x 1-1/4" Reinf. Bar	67.75 - 68.00	1.0000	1.0000
L15	22	3" x 1-1/4" Reinf. Bar	67.75 - 68.00	1.0000	1.0000
L15	23	3" x 1-1/4" Reinf. Bar	67.75 - 68.00	1.0000	1.0000
L15	24	3" x 1-1/4" Reinf. Bar	67.75 - 68.00	1.0000	1.0000
L15	41	CCI-65FP-060100	67.75 - 68.00	1.0000	1.0000
L15	42	CCI-65FP-060100	67.75 - 68.00	1.0000	1.0000
L15	43	CCI-65FP-060100	67.75 - 68.00	1.0000	1.0000
L15	44	CCI-65FP-060100	67.75 - 68.00	1.0000	1.0000
L16	5	FSJ4-50B(1/2)	62.75 - 67.75	1.0000	1.0000
L16	16	HCS 6X12 6AWG(1-3/8)	62.75 - 67.75	1.0000	1.0000
L16	17	FLC 158-50J(1-5/8)	62.75 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L16	19	CU12PSM9P8XXX(1-3/8)	67.75 62.75 - 67.75	1.0000	1.0000
L16	21	3" x 1-1/4" Reinf. Bar	67.00 - 67.75	1.0000	1.0000
L16	22	3" x 1-1/4" Reinf. Bar	67.00 - 67.75	1.0000	1.0000
L16	23	3" x 1-1/4" Reinf. Bar	67.00 - 67.75	1.0000	1.0000
L16	24	3" x 1-1/4" Reinf. Bar	67.00 - 67.75	1.0000	1.0000
L16	41	CCI-65FP-060100	62.75 - 67.75	1.0000	1.0000
L16	42	CCI-65FP-060100	62.75 - 67.75	1.0000	1.0000
L16	43	CCI-65FP-060100	62.75 - 67.75	1.0000	1.0000
L16	44	CCI-65FP-060100	62.75 - 67.75	1.0000	1.0000
L17	5	FSJ4-50B(1/2)	60.00 - 62.75	1.0000	1.0000
L17	16	HCS 6X12 6AWG(1-3/8)	60.00 - 62.75	1.0000	1.0000
L17	17	FLC 158-50J(1-5/8)	60.00 - 62.75	1.0000	1.0000
L17	19	CU12PSM9P8XXX(1-3/8)	60.00 - 62.75	1.0000	1.0000
L17	41	CCI-65FP-060100	60.50 - 62.75	1.0000	1.0000
L17	42	CCI-65FP-060100	60.50 - 62.75	1.0000	1.0000
L17	43	CCI-65FP-060100	60.50 - 62.75	1.0000	1.0000
L17	44	CCI-65FP-060100	60.50 - 62.75	1.0000	1.0000
L18	5	FSJ4-50B(1/2)	57.50 - 60.00	1.0000	1.0000
L18	16	HCS 6X12 6AWG(1-3/8)	57.50 - 60.00	1.0000	1.0000
L18	17	FLC 158-50J(1-5/8)	57.50 - 60.00	1.0000	1.0000
L18	19	CU12PSM9P8XXX(1-3/8)	57.50 - 60.00	1.0000	1.0000
L18	37	CCI-65FP-060100	57.50 - 59.50	1.0000	1.0000
L18	38	CCI-65FP-060100	57.50 - 59.50	1.0000	1.0000
L18	39	CCI-65FP-060100	57.50 - 59.50	1.0000	1.0000
L18	40	CCI-65FP-060100	57.50 - 59.50	1.0000	1.0000
L19	5	FSJ4-50B(1/2)	57.25 - 57.50	1.0000	1.0000
L19	16	HCS 6X12 6AWG(1-3/8)	57.25 - 57.50	1.0000	1.0000
L19	17	FLC 158-50J(1-5/8)	57.25 - 57.50	1.0000	1.0000
L19	19	CU12PSM9P8XXX(1-3/8)	57.25 - 57.50	1.0000	1.0000
L19	37	CCI-65FP-060100	57.25 - 57.50	1.0000	1.0000
L19	38	CCI-65FP-060100	57.25 - 57.50	1.0000	1.0000
L19	39	CCI-65FP-060100	57.25 - 57.50	1.0000	1.0000
L19	40	CCI-65FP-060100	57.25 - 57.50	1.0000	1.0000
L20	5	FSJ4-50B(1/2)	52.25 - 57.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L20	16	HCS 6X12 6AWG(1-3/8)	52.25 - 57.25	1.0000	1.0000
L20	17	FLC 158-50J(1-5/8)	52.25 - 57.25	1.0000	1.0000
L20	19	CU12PSM9P8XXX(1-3/8)	52.25 - 57.25	1.0000	1.0000
L20	37	CCI-65FP-060100	52.25 - 57.25	1.0000	1.0000
L20	38	CCI-65FP-060100	52.25 - 57.25	1.0000	1.0000
L20	39	CCI-65FP-060100	52.25 - 57.25	1.0000	1.0000
L20	40	CCI-65FP-060100	52.25 - 57.25	1.0000	1.0000
L21	4	FSJ4-50B(1/2)	47.25 - 48.00	1.0000	1.0000
L21	5	FSJ4-50B(1/2)	47.25 - 52.25	1.0000	1.0000
L21	16	HCS 6X12 6AWG(1-3/8)	47.25 - 52.25	1.0000	1.0000
L21	17	FLC 158-50J(1-5/8)	47.25 - 52.25	1.0000	1.0000
L21	19	CU12PSM9P8XXX(1-3/8)	47.25 - 52.25	1.0000	1.0000
L21	37	CCI-65FP-060100	47.25 - 52.25	1.0000	1.0000
L21	38	CCI-65FP-060100	47.25 - 52.25	1.0000	1.0000
L21	39	CCI-65FP-060100	47.25 - 52.25	1.0000	1.0000
L21	40	CCI-65FP-060100	47.25 - 52.25	1.0000	1.0000
L22	4	FSJ4-50B(1/2)	45.33 - 47.25	1.0000	1.0000
L22	5	FSJ4-50B(1/2)	45.33 - 47.25	1.0000	1.0000
L22	16	HCS 6X12 6AWG(1-3/8)	45.33 - 47.25	1.0000	1.0000
L22	17	FLC 158-50J(1-5/8)	45.33 - 47.25	1.0000	1.0000
L22	19	CU12PSM9P8XXX(1-3/8)	45.33 - 47.25	1.0000	1.0000
L22	29	MP3-03	45.33 - 46.50	1.0000	1.0000
L22	30	MP3-03	45.33 - 46.50	1.0000	1.0000
L22	31	MP3-03	45.33 - 46.50	1.0000	1.0000
L22	32	MP3-03	45.33 - 46.50	1.0000	1.0000
L22	37	CCI-65FP-060100	45.33 - 47.25	1.0000	1.0000
L22	38	CCI-65FP-060100	45.33 - 47.25	1.0000	1.0000
L22	39	CCI-65FP-060100	45.33 - 47.25	1.0000	1.0000
L22	40	CCI-65FP-060100	45.33 - 47.25	1.0000	1.0000
L23	4	FSJ4-50B(1/2)	45.08 - 45.33	1.0000	1.0000
L23	5	FSJ4-50B(1/2)	45.08 - 45.33	1.0000	1.0000
L23	16	HCS 6X12 6AWG(1-3/8)	45.08 - 45.33	1.0000	1.0000
L23	17	FLC 158-50J(1-5/8)	45.08 - 45.33	1.0000	1.0000
L23	19	CU12PSM9P8XXX(1-3/8)	45.08 - 45.33	1.0000	1.0000
L23	29	MP3-03	45.08 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L23	30	MP3-03	45.33 45.08 - 45.33	1.0000	1.0000
L23	31	MP3-03	45.33 45.08 - 45.33	1.0000	1.0000
L23	32	MP3-03	45.33 45.08 - 45.33	1.0000	1.0000
L23	37	CCI-65FP-060100	45.33 45.08 - 45.33	1.0000	1.0000
L23	38	CCI-65FP-060100	45.33 45.08 - 45.33	1.0000	1.0000
L23	39	CCI-65FP-060100	45.33 45.08 - 45.33	1.0000	1.0000
L23	40	CCI-65FP-060100	45.33 45.08 - 45.33	1.0000	1.0000
L24	4	FSJ4-50B(1/2)	40.08 - 45.08	1.0000	1.0000
L24	5	FSJ4-50B(1/2)	40.08 - 45.08	1.0000	1.0000
L24	16	HCS 6X12 6AWG(1-3/8)	40.08 - 45.08	1.0000	1.0000
L24	17	FLC 158-50J(1-5/8)	40.08 - 45.08	1.0000	1.0000
L24	19	CU12PSM9P8XXX(1-3/8)	40.08 - 45.08	1.0000	1.0000
L24	29	MP3-03	40.08 - 45.08	1.0000	1.0000
L24	30	MP3-03	40.08 - 45.08	1.0000	1.0000
L24	31	MP3-03	40.08 - 45.08	1.0000	1.0000
L24	32	MP3-03	40.08 - 45.08	1.0000	1.0000
L24	37	CCI-65FP-060100	40.08 - 45.08	1.0000	1.0000
L24	38	CCI-65FP-060100	40.08 - 45.08	1.0000	1.0000
L24	39	CCI-65FP-060100	40.08 - 45.08	1.0000	1.0000
L24	40	CCI-65FP-060100	40.08 - 45.08	1.0000	1.0000
L25	4	FSJ4-50B(1/2)	35.08 - 40.08	1.0000	1.0000
L25	5	FSJ4-50B(1/2)	35.08 - 40.08	1.0000	1.0000
L25	16	HCS 6X12 6AWG(1-3/8)	35.08 - 40.08	1.0000	1.0000
L25	17	FLC 158-50J(1-5/8)	35.08 - 40.08	1.0000	1.0000
L25	19	CU12PSM9P8XXX(1-3/8)	35.08 - 40.08	1.0000	1.0000
L25	25	MP3-05	35.08 - 36.00	1.0000	1.0000
L25	26	MP3-05	35.08 - 36.00	1.0000	1.0000
L25	27	MP3-05	35.08 - 36.00	1.0000	1.0000
L25	28	MP3-05	35.08 - 36.00	1.0000	1.0000
L25	29	MP3-03	36.50 - 40.08	1.0000	1.0000
L25	30	MP3-03	36.50 - 40.08	1.0000	1.0000
L25	31	MP3-03	36.50 - 40.08	1.0000	1.0000
L25	32	MP3-03	36.50 - 40.08	1.0000	1.0000
L25	37	CCI-65FP-060100	35.08 - 40.08	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L25	38	CCI-65FP-060100	35.08 - 40.08	1.0000	1.0000
L25	39	CCI-65FP-060100	35.08 - 40.08	1.0000	1.0000
L25	40	CCI-65FP-060100	35.08 - 40.08	1.0000	1.0000
L26	4	FSJ4-50B(1/2)	33.58 - 35.08	1.0000	1.0000
L26	5	FSJ4-50B(1/2)	33.58 - 35.08	1.0000	1.0000
L26	16	HCS 6X12 6AWG(1-3/8)	33.58 - 35.08	1.0000	1.0000
L26	17	FLC 158-50J(1-5/8)	33.58 - 35.08	1.0000	1.0000
L26	19	CU12PSM9P8XXX(1-3/8)	33.58 - 35.08	1.0000	1.0000
L26	25	MP3-05	33.58 - 35.08	1.0000	1.0000
L26	26	MP3-05	33.58 - 35.08	1.0000	1.0000
L26	27	MP3-05	33.58 - 35.08	1.0000	1.0000
L26	28	MP3-05	33.58 - 35.08	1.0000	1.0000
L26	37	CCI-65FP-060100	33.58 - 35.08	1.0000	1.0000
L26	38	CCI-65FP-060100	33.58 - 35.08	1.0000	1.0000
L26	39	CCI-65FP-060100	33.58 - 35.08	1.0000	1.0000
L26	40	CCI-65FP-060100	33.58 - 35.08	1.0000	1.0000
L27	4	FSJ4-50B(1/2)	33.33 - 33.58	1.0000	1.0000
L27	5	FSJ4-50B(1/2)	33.33 - 33.58	1.0000	1.0000
L27	16	HCS 6X12 6AWG(1-3/8)	33.33 - 33.58	1.0000	1.0000
L27	17	FLC 158-50J(1-5/8)	33.33 - 33.58	1.0000	1.0000
L27	19	CU12PSM9P8XXX(1-3/8)	33.33 - 33.58	1.0000	1.0000
L27	25	MP3-05	33.33 - 33.58	1.0000	1.0000
L27	26	MP3-05	33.33 - 33.58	1.0000	1.0000
L27	27	MP3-05	33.33 - 33.58	1.0000	1.0000
L27	28	MP3-05	33.33 - 33.58	1.0000	1.0000
L27	37	CCI-65FP-060100	33.33 - 33.58	1.0000	1.0000
L27	38	CCI-65FP-060100	33.33 - 33.58	1.0000	1.0000
L27	39	CCI-65FP-060100	33.33 - 33.58	1.0000	1.0000
L27	40	CCI-65FP-060100	33.33 - 33.58	1.0000	1.0000
L28	4	FSJ4-50B(1/2)	32.42 - 33.33	1.0000	1.0000
L28	5	FSJ4-50B(1/2)	32.42 - 33.33	1.0000	1.0000
L28	16	HCS 6X12 6AWG(1-3/8)	32.42 - 33.33	1.0000	1.0000
L28	17	FLC 158-50J(1-5/8)	32.42 - 33.33	1.0000	1.0000
L28	19	CU12PSM9P8XXX(1-3/8)	32.42 - 33.33	1.0000	1.0000
L28	25	MP3-05	32.42 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L28	26	MP3-05	32.42 - 33.33	1.0000	1.0000
L28	27	MP3-05	32.42 - 33.33	1.0000	1.0000
L28	28	MP3-05	32.42 - 33.33	1.0000	1.0000
L28	37	CCI-65FP-060100	32.42 - 33.33	1.0000	1.0000
L28	38	CCI-65FP-060100	32.42 - 33.33	1.0000	1.0000
L28	39	CCI-65FP-060100	32.42 - 33.33	1.0000	1.0000
L28	40	CCI-65FP-060100	32.42 - 33.33	1.0000	1.0000
L29	4	FSJ4-50B(1/2)	32.17 - 32.42	1.0000	1.0000
L29	5	FSJ4-50B(1/2)	32.17 - 32.42	1.0000	1.0000
L29	16	HCS 6X12 6AWG(1-3/8)	32.17 - 32.42	1.0000	1.0000
L29	17	FLC 158-50J(1-5/8)	32.17 - 32.42	1.0000	1.0000
L29	19	CU12PSM9P8XXX(1-3/8)	32.17 - 32.42	1.0000	1.0000
L29	25	MP3-05	32.17 - 32.42	1.0000	1.0000
L29	26	MP3-05	32.17 - 32.42	1.0000	1.0000
L29	27	MP3-05	32.17 - 32.42	1.0000	1.0000
L29	28	MP3-05	32.17 - 32.42	1.0000	1.0000
L29	37	CCI-65FP-060100	32.17 - 32.42	1.0000	1.0000
L29	38	CCI-65FP-060100	32.17 - 32.42	1.0000	1.0000
L29	39	CCI-65FP-060100	32.17 - 32.42	1.0000	1.0000
L29	40	CCI-65FP-060100	32.17 - 32.42	1.0000	1.0000
L30	4	FSJ4-50B(1/2)	30.00 - 32.17	1.0000	1.0000
L30	5	FSJ4-50B(1/2)	30.00 - 32.17	1.0000	1.0000
L30	16	HCS 6X12 6AWG(1-3/8)	30.00 - 32.17	1.0000	1.0000
L30	17	FLC 158-50J(1-5/8)	30.00 - 32.17	1.0000	1.0000
L30	19	CU12PSM9P8XXX(1-3/8)	30.00 - 32.17	1.0000	1.0000
L30	25	MP3-05	30.00 - 32.17	1.0000	1.0000
L30	26	MP3-05	30.00 - 32.17	1.0000	1.0000
L30	27	MP3-05	30.00 - 32.17	1.0000	1.0000
L30	28	MP3-05	30.00 - 32.17	1.0000	1.0000
L30	37	CCI-65FP-060100	30.50 - 32.17	1.0000	1.0000
L30	38	CCI-65FP-060100	30.50 - 32.17	1.0000	1.0000
L30	39	CCI-65FP-060100	30.50 - 32.17	1.0000	1.0000
L30	40	CCI-65FP-060100	30.50 - 32.17	1.0000	1.0000
L31	4	FSJ4-50B(1/2)	26.75 - 30.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L31	5	FSJ4-50B(1/2)	26.75 - 30.00	1.0000	1.0000
L31	16	HCS 6X12 6AWG(1-3/8)	26.75 - 30.00	1.0000	1.0000
L31	17	FLC 158-50J(1-5/8)	26.75 - 30.00	1.0000	1.0000
L31	19	CU12PSM9P8XXX(1-3/8)	26.75 - 30.00	1.0000	1.0000
L31	45	CCI-65FP-065125	26.75 - 29.50	1.0000	1.0000
L31	46	CCI-65FP-065125	26.75 - 29.50	1.0000	1.0000
L31	47	CCI-65FP-065125	26.75 - 29.50	1.0000	1.0000
L31	48	CCI-65FP-065125	26.75 - 29.50	1.0000	1.0000
L32	4	FSJ4-50B(1/2)	26.50 - 26.75	1.0000	1.0000
L32	5	FSJ4-50B(1/2)	26.50 - 26.75	1.0000	1.0000
L32	16	HCS 6X12 6AWG(1-3/8)	26.50 - 26.75	1.0000	1.0000
L32	17	FLC 158-50J(1-5/8)	26.50 - 26.75	1.0000	1.0000
L32	19	CU12PSM9P8XXX(1-3/8)	26.50 - 26.75	1.0000	1.0000
L32	45	CCI-65FP-065125	26.50 - 26.75	1.0000	1.0000
L32	46	CCI-65FP-065125	26.50 - 26.75	1.0000	1.0000
L32	47	CCI-65FP-065125	26.50 - 26.75	1.0000	1.0000
L32	48	CCI-65FP-065125	26.50 - 26.75	1.0000	1.0000
L33	4	FSJ4-50B(1/2)	21.50 - 26.50	1.0000	1.0000
L33	5	FSJ4-50B(1/2)	21.50 - 26.50	1.0000	1.0000
L33	16	HCS 6X12 6AWG(1-3/8)	21.50 - 26.50	1.0000	1.0000
L33	17	FLC 158-50J(1-5/8)	21.50 - 26.50	1.0000	1.0000
L33	19	CU12PSM9P8XXX(1-3/8)	21.50 - 26.50	1.0000	1.0000
L33	33	CCI-65FP-060100	21.50 - 23.50	1.0000	1.0000
L33	34	CCI-65FP-060100	21.50 - 23.50	1.0000	1.0000
L33	35	CCI-65FP-060100	21.50 - 23.50	1.0000	1.0000
L33	36	CCI-65FP-060100	21.50 - 23.50	1.0000	1.0000
L33	45	CCI-65FP-065125	21.50 - 26.50	1.0000	1.0000
L33	46	CCI-65FP-065125	21.50 - 26.50	1.0000	1.0000
L33	47	CCI-65FP-065125	21.50 - 26.50	1.0000	1.0000
L33	48	CCI-65FP-065125	21.50 - 26.50	1.0000	1.0000
L34	4	FSJ4-50B(1/2)	21.25 - 21.50	1.0000	1.0000
L34	5	FSJ4-50B(1/2)	21.25 - 21.50	1.0000	1.0000
L34	16	HCS 6X12 6AWG(1-3/8)	21.25 - 21.50	1.0000	1.0000
L34	17	FLC 158-50J(1-5/8)	21.25 - 21.50	1.0000	1.0000
L34	19	CU12PSM9P8XXX(1-3/8)	21.25 -	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L34	33	CCI-65FP-060100	21.25 - 21.50	1.0000	1.0000
L34	34	CCI-65FP-060100	21.25 - 21.50	1.0000	1.0000
L34	35	CCI-65FP-060100	21.25 - 21.50	1.0000	1.0000
L34	36	CCI-65FP-060100	21.25 - 21.50	1.0000	1.0000
L34	45	CCI-65FP-065125	21.25 - 21.50	1.0000	1.0000
L34	46	CCI-65FP-065125	21.25 - 21.50	1.0000	1.0000
L34	47	CCI-65FP-065125	21.25 - 21.50	1.0000	1.0000
L34	48	CCI-65FP-065125	21.25 - 21.50	1.0000	1.0000
L35	4	FSJ4-50B(1/2)	16.25 - 21.25	1.0000	1.0000
L35	5	FSJ4-50B(1/2)	16.25 - 21.25	1.0000	1.0000
L35	16	HCS 6X12 6AWG(1-3/8)	16.25 - 21.25	1.0000	1.0000
L35	17	FLC 158-50J(1-5/8)	16.25 - 21.25	1.0000	1.0000
L35	19	CU12PSM9P8XXX(1-3/8)	16.25 - 21.25	1.0000	1.0000
L35	33	CCI-65FP-060100	16.25 - 21.25	1.0000	1.0000
L35	34	CCI-65FP-060100	16.25 - 21.25	1.0000	1.0000
L35	35	CCI-65FP-060100	16.25 - 21.25	1.0000	1.0000
L35	36	CCI-65FP-060100	16.25 - 21.25	1.0000	1.0000
L35	45	CCI-65FP-065125	16.25 - 21.25	1.0000	1.0000
L35	46	CCI-65FP-065125	16.25 - 21.25	1.0000	1.0000
L35	47	CCI-65FP-065125	16.25 - 21.25	1.0000	1.0000
L35	48	CCI-65FP-065125	16.25 - 21.25	1.0000	1.0000
L36	4	FSJ4-50B(1/2)	11.25 - 16.25	1.0000	1.0000
L36	5	FSJ4-50B(1/2)	11.25 - 16.25	1.0000	1.0000
L36	16	HCS 6X12 6AWG(1-3/8)	11.25 - 16.25	1.0000	1.0000
L36	17	FLC 158-50J(1-5/8)	11.25 - 16.25	1.0000	1.0000
L36	19	CU12PSM9P8XXX(1-3/8)	11.25 - 16.25	1.0000	1.0000
L36	33	CCI-65FP-060100	11.25 - 16.25	1.0000	1.0000
L36	34	CCI-65FP-060100	11.25 - 16.25	1.0000	1.0000
L36	35	CCI-65FP-060100	11.25 - 16.25	1.0000	1.0000
L36	36	CCI-65FP-060100	11.25 - 16.25	1.0000	1.0000
L36	45	CCI-65FP-065125	11.25 - 16.25	1.0000	1.0000
L36	46	CCI-65FP-065125	11.25 - 16.25	1.0000	1.0000
L36	47	CCI-65FP-065125	11.25 - 16.25	1.0000	1.0000
L36	48	CCI-65FP-065125	11.25 - 16.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L37	4	FSJ4-50B(1/2)	6.25 - 11.25	1.0000	1.0000
L37	5	FSJ4-50B(1/2)	6.25 - 11.25	1.0000	1.0000
L37	16	HCS 6X12 6AWG(1-3/8)	6.25 - 11.25	1.0000	1.0000
L37	17	FLC 158-50J(1-5/8)	6.25 - 11.25	1.0000	1.0000
L37	19	CU12PSM9P8XXX(1-3/8)	6.25 - 11.25	1.0000	1.0000
L37	33	CCI-65FP-060100	6.25 - 11.25	1.0000	1.0000
L37	34	CCI-65FP-060100	6.25 - 11.25	1.0000	1.0000
L37	35	CCI-65FP-060100	6.25 - 11.25	1.0000	1.0000
L37	36	CCI-65FP-060100	6.25 - 11.25	1.0000	1.0000
L37	45	CCI-65FP-065125	6.25 - 11.25	1.0000	1.0000
L37	46	CCI-65FP-065125	6.25 - 11.25	1.0000	1.0000
L37	47	CCI-65FP-065125	6.25 - 11.25	1.0000	1.0000
L37	48	CCI-65FP-065125	6.25 - 11.25	1.0000	1.0000
L38	4	FSJ4-50B(1/2)	1.25 - 6.25	1.0000	1.0000
L38	5	FSJ4-50B(1/2)	1.25 - 6.25	1.0000	1.0000
L38	16	HCS 6X12 6AWG(1-3/8)	1.25 - 6.25	1.0000	1.0000
L38	17	FLC 158-50J(1-5/8)	1.25 - 6.25	1.0000	1.0000
L38	19	CU12PSM9P8XXX(1-3/8)	1.25 - 6.25	1.0000	1.0000
L38	33	CCI-65FP-060100	1.25 - 6.25	1.0000	1.0000
L38	34	CCI-65FP-060100	1.25 - 6.25	1.0000	1.0000
L38	35	CCI-65FP-060100	1.25 - 6.25	1.0000	1.0000
L38	36	CCI-65FP-060100	1.25 - 6.25	1.0000	1.0000
L38	45	CCI-65FP-065125	1.25 - 6.25	1.0000	1.0000
L38	46	CCI-65FP-065125	1.25 - 6.25	1.0000	1.0000
L38	47	CCI-65FP-065125	1.25 - 6.25	1.0000	1.0000
L38	48	CCI-65FP-065125	1.25 - 6.25	1.0000	1.0000
L39	4	FSJ4-50B(1/2)	0.00 - 1.25	1.0000	1.0000
L39	5	FSJ4-50B(1/2)	0.00 - 1.25	1.0000	1.0000
L39	16	HCS 6X12 6AWG(1-3/8)	0.00 - 1.25	1.0000	1.0000
L39	17	FLC 158-50J(1-5/8)	0.00 - 1.25	1.0000	1.0000
L39	19	CU12PSM9P8XXX(1-3/8)	0.00 - 1.25	1.0000	1.0000
L39	33	CCI-65FP-060100	0.50 - 1.25	1.0000	1.0000
L39	34	CCI-65FP-060100	0.50 - 1.25	1.0000	1.0000
L39	35	CCI-65FP-060100	0.50 - 1.25	1.0000	1.0000
L39	36	CCI-65FP-060100	0.50 - 1.25	1.0000	1.0000
L39	45	CCI-65FP-065125	0.00 - 1.25	1.0000	1.0000
L39	46	CCI-65FP-065125	0.00 - 1.25	1.0000	1.0000
L39	47	CCI-65FP-065125	0.00 - 1.25	1.0000	1.0000
L39	48	CCI-65FP-065125	0.00 - 1.25	1.0000	1.0000

Effective Width of Flat Linear Attachments / Feed Lines

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L8	21	3" x 1-1/4" Reinf. Bar	80.00 - 81.00	Auto	1.0000
L8	22	3" x 1-1/4" Reinf. Bar	80.00 - 81.00	Auto	1.0000
L8	23	3" x 1-1/4" Reinf. Bar	80.00 - 81.00	Auto	1.0000
L8	24	3" x 1-1/4" Reinf. Bar	80.00 - 81.00	Auto	1.0000
L8	41	CCI-65FP-060100	80.00 - 80.50	Auto	1.0000
L8	42	CCI-65FP-060100	80.00 - 80.50	Auto	1.0000
L8	43	CCI-65FP-060100	80.00 - 80.50	Auto	1.0000
L8	44	CCI-65FP-060100	80.00 -	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L9	21	3" x 1-1/4" Reinf. Bar	80.50 79.75 - 80.00	Auto	1.0000
L9	22	3" x 1-1/4" Reinf. Bar	79.75 - 80.00	Auto	1.0000
L9	23	3" x 1-1/4" Reinf. Bar	79.75 - 80.00	Auto	1.0000
L9	24	3" x 1-1/4" Reinf. Bar	79.75 - 80.00	Auto	1.0000
L9	41	CCI-65FP-060100	79.75 - 80.00	Auto	1.0000
L9	42	CCI-65FP-060100	79.75 - 80.00	Auto	1.0000
L9	43	CCI-65FP-060100	79.75 - 80.00	Auto	1.0000
L9	44	CCI-65FP-060100	79.75 - 80.00	Auto	1.0000
L10	21	3" x 1-1/4" Reinf. Bar	78.50 - 79.75	Auto	1.0000
L10	22	3" x 1-1/4" Reinf. Bar	78.50 - 79.75	Auto	1.0000
L10	23	3" x 1-1/4" Reinf. Bar	78.50 - 79.75	Auto	1.0000
L10	24	3" x 1-1/4" Reinf. Bar	78.50 - 79.75	Auto	1.0000
L10	41	CCI-65FP-060100	78.50 - 79.75	Auto	1.0000
L10	42	CCI-65FP-060100	78.50 - 79.75	Auto	1.0000
L10	43	CCI-65FP-060100	78.50 - 79.75	Auto	1.0000
L10	44	CCI-65FP-060100	78.50 - 79.75	Auto	1.0000
L11	21	3" x 1-1/4" Reinf. Bar	78.25 - 78.50	Auto	1.0000
L11	22	3" x 1-1/4" Reinf. Bar	78.25 - 78.50	Auto	1.0000
L11	23	3" x 1-1/4" Reinf. Bar	78.25 - 78.50	Auto	1.0000
L11	24	3" x 1-1/4" Reinf. Bar	78.25 - 78.50	Auto	1.0000
L11	41	CCI-65FP-060100	78.25 - 78.50	Auto	1.0000
L11	42	CCI-65FP-060100	78.25 - 78.50	Auto	1.0000
L11	43	CCI-65FP-060100	78.25 - 78.50	Auto	1.0000
L11	44	CCI-65FP-060100	78.25 - 78.50	Auto	1.0000
L12	21	3" x 1-1/4" Reinf. Bar	73.25 - 78.25	Auto	1.0000
L12	22	3" x 1-1/4" Reinf. Bar	73.25 - 78.25	Auto	1.0000
L12	23	3" x 1-1/4" Reinf. Bar	73.25 - 78.25	Auto	1.0000
L12	24	3" x 1-1/4" Reinf. Bar	73.25 - 78.25	Auto	1.0000
L12	41	CCI-65FP-060100	73.25 - 78.25	Auto	1.0000
L12	42	CCI-65FP-060100	73.25 - 78.25	Auto	1.0000
L12	43	CCI-65FP-060100	73.25 - 78.25	Auto	1.0000
L12	44	CCI-65FP-060100	73.25 - 78.25	Auto	1.0000
L13	21	3" x 1-1/4" Reinf. Bar	68.25 - 73.25	Auto	1.0000
L13	22	3" x 1-1/4" Reinf. Bar	68.25 -	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L13	23	3" x 1-1/4" Reinf. Bar	73.25 68.25 - 73.25	Auto	1.0000
L13	24	3" x 1-1/4" Reinf. Bar	68.25 - 73.25	Auto	1.0000
L13	41	CCI-65FP-060100	68.25 - 73.25	Auto	1.0000
L13	42	CCI-65FP-060100	68.25 - 73.25	Auto	1.0000
L13	43	CCI-65FP-060100	68.25 - 73.25	Auto	1.0000
L13	44	CCI-65FP-060100	68.25 - 73.25	Auto	1.0000
L14	21	3" x 1-1/4" Reinf. Bar	68.00 - 68.25	Auto	1.0000
L14	22	3" x 1-1/4" Reinf. Bar	68.00 - 68.25	Auto	1.0000
L14	23	3" x 1-1/4" Reinf. Bar	68.00 - 68.25	Auto	1.0000
L14	24	3" x 1-1/4" Reinf. Bar	68.00 - 68.25	Auto	1.0000
L14	41	CCI-65FP-060100	68.00 - 68.25	Auto	1.0000
L14	42	CCI-65FP-060100	68.00 - 68.25	Auto	1.0000
L14	43	CCI-65FP-060100	68.00 - 68.25	Auto	1.0000
L14	44	CCI-65FP-060100	68.00 - 68.25	Auto	1.0000
L15	21	3" x 1-1/4" Reinf. Bar	67.75 - 68.00	Auto	1.0000
L15	22	3" x 1-1/4" Reinf. Bar	67.75 - 68.00	Auto	1.0000
L15	23	3" x 1-1/4" Reinf. Bar	67.75 - 68.00	Auto	1.0000
L15	24	3" x 1-1/4" Reinf. Bar	67.75 - 68.00	Auto	1.0000
L15	41	CCI-65FP-060100	67.75 - 68.00	Auto	1.0000
L15	42	CCI-65FP-060100	67.75 - 68.00	Auto	1.0000
L15	43	CCI-65FP-060100	67.75 - 68.00	Auto	1.0000
L15	44	CCI-65FP-060100	67.75 - 68.00	Auto	1.0000
L16	21	3" x 1-1/4" Reinf. Bar	67.00 - 67.75	Auto	1.0000
L16	22	3" x 1-1/4" Reinf. Bar	67.00 - 67.75	Auto	1.0000
L16	23	3" x 1-1/4" Reinf. Bar	67.00 - 67.75	Auto	1.0000
L16	24	3" x 1-1/4" Reinf. Bar	67.00 - 67.75	Auto	1.0000
L16	41	CCI-65FP-060100	62.75 - 67.75	Auto	1.0000
L16	42	CCI-65FP-060100	62.75 - 67.75	Auto	1.0000
L16	43	CCI-65FP-060100	62.75 - 67.75	Auto	1.0000
L16	44	CCI-65FP-060100	62.75 - 67.75	Auto	1.0000
L17	41	CCI-65FP-060100	60.50 - 62.75	Auto	1.0000
L17	42	CCI-65FP-060100	60.50 - 62.75	Auto	1.0000
L17	43	CCI-65FP-060100	60.50 - 62.75	Auto	1.0000
L17	44	CCI-65FP-060100	60.50 -	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L18	37	CCI-65FP-060100	62.75 57.50 - 59.50	Auto	1.0000
L18	38	CCI-65FP-060100	57.50 - 59.50	Auto	1.0000
L18	39	CCI-65FP-060100	57.50 - 59.50	Auto	1.0000
L18	40	CCI-65FP-060100	57.50 - 59.50	Auto	1.0000
L19	37	CCI-65FP-060100	57.25 - 57.50	Auto	1.0000
L19	38	CCI-65FP-060100	57.25 - 57.50	Auto	1.0000
L19	39	CCI-65FP-060100	57.25 - 57.50	Auto	1.0000
L19	40	CCI-65FP-060100	57.25 - 57.50	Auto	1.0000
L20	37	CCI-65FP-060100	52.25 - 57.25	Auto	1.0000
L20	38	CCI-65FP-060100	52.25 - 57.25	Auto	1.0000
L20	39	CCI-65FP-060100	52.25 - 57.25	Auto	1.0000
L20	40	CCI-65FP-060100	52.25 - 57.25	Auto	1.0000
L21	37	CCI-65FP-060100	47.25 - 52.25	Auto	1.0000
L21	38	CCI-65FP-060100	47.25 - 52.25	Auto	1.0000
L21	39	CCI-65FP-060100	47.25 - 52.25	Auto	1.0000
L21	40	CCI-65FP-060100	47.25 - 52.25	Auto	1.0000
L22	29	MP3-03	45.33 - 46.50	Auto	1.0000
L22	30	MP3-03	45.33 - 46.50	Auto	1.0000
L22	31	MP3-03	45.33 - 46.50	Auto	1.0000
L22	32	MP3-03	45.33 - 46.50	Auto	1.0000
L22	37	CCI-65FP-060100	45.33 - 47.25	Auto	1.0000
L22	38	CCI-65FP-060100	45.33 - 47.25	Auto	1.0000
L22	39	CCI-65FP-060100	45.33 - 47.25	Auto	1.0000
L22	40	CCI-65FP-060100	45.33 - 47.25	Auto	1.0000
L23	29	MP3-03	45.08 - 45.33	Auto	1.0000
L23	30	MP3-03	45.08 - 45.33	Auto	1.0000
L23	31	MP3-03	45.08 - 45.33	Auto	1.0000
L23	32	MP3-03	45.08 - 45.33	Auto	1.0000
L23	37	CCI-65FP-060100	45.08 - 45.33	Auto	1.0000
L23	38	CCI-65FP-060100	45.08 - 45.33	Auto	1.0000
L23	39	CCI-65FP-060100	45.08 - 45.33	Auto	1.0000
L23	40	CCI-65FP-060100	45.08 - 45.33	Auto	1.0000
L24	29	MP3-03	40.08 - 45.08	Auto	1.0000
L24	30	MP3-03	40.08 -	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L24	31	MP3-03	45.08 - 40.08	Auto	1.0000
L24	32	MP3-03	45.08 - 40.08	Auto	1.0000
L24	37	CCI-65FP-060100	45.08 - 40.08	Auto	1.0000
L24	38	CCI-65FP-060100	45.08 - 40.08	Auto	1.0000
L24	39	CCI-65FP-060100	45.08 - 40.08	Auto	1.0000
L24	40	CCI-65FP-060100	45.08 - 40.08	Auto	1.0000
L25	25	MP3-05	45.08 - 35.08	Auto	1.0000
L25	26	MP3-05	36.00 - 35.08	Auto	1.0000
L25	27	MP3-05	36.00 - 35.08	Auto	1.0000
L25	28	MP3-05	36.00 - 35.08	Auto	1.0000
L25	29	MP3-03	36.00 - 36.50	Auto	1.0000
L25	30	MP3-03	40.08 - 36.50	Auto	1.0000
L25	31	MP3-03	40.08 - 36.50	Auto	1.0000
L25	32	MP3-03	40.08 - 36.50	Auto	1.0000
L25	37	CCI-65FP-060100	40.08 - 35.08	Auto	1.0000
L25	38	CCI-65FP-060100	40.08 - 35.08	Auto	1.0000
L25	39	CCI-65FP-060100	40.08 - 35.08	Auto	1.0000
L25	40	CCI-65FP-060100	40.08 - 35.08	Auto	1.0000
L26	25	MP3-05	35.08 - 33.58	Auto	1.0000
L26	26	MP3-05	35.08 - 33.58	Auto	1.0000
L26	27	MP3-05	35.08 - 33.58	Auto	1.0000
L26	28	MP3-05	35.08 - 33.58	Auto	1.0000
L26	37	CCI-65FP-060100	35.08 - 33.58	Auto	1.0000
L26	38	CCI-65FP-060100	35.08 - 33.58	Auto	1.0000
L26	39	CCI-65FP-060100	35.08 - 33.58	Auto	1.0000
L26	40	CCI-65FP-060100	35.08 - 33.58	Auto	1.0000
L27	25	MP3-05	33.58 - 33.33	Auto	1.0000
L27	26	MP3-05	33.58 - 33.33	Auto	1.0000
L27	27	MP3-05	33.58 - 33.33	Auto	1.0000
L27	28	MP3-05	33.58 - 33.33	Auto	1.0000
L27	37	CCI-65FP-060100	33.58 - 33.33	Auto	1.0000
L27	38	CCI-65FP-060100	33.58 - 33.33	Auto	1.0000
L27	39	CCI-65FP-060100	33.58 - 33.33	Auto	1.0000
L27	40	CCI-65FP-060100	33.58 - 33.33	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L28	25	MP3-05	33.58 32.42 - 33.33	Auto	1.0000
L28	26	MP3-05	32.42 - 33.33	Auto	1.0000
L28	27	MP3-05	32.42 - 33.33	Auto	1.0000
L28	28	MP3-05	32.42 - 33.33	Auto	1.0000
L28	37	CCI-65FP-060100	32.42 - 33.33	Auto	1.0000
L28	38	CCI-65FP-060100	32.42 - 33.33	Auto	1.0000
L28	39	CCI-65FP-060100	32.42 - 33.33	Auto	1.0000
L28	40	CCI-65FP-060100	32.42 - 33.33	Auto	1.0000
L29	25	MP3-05	32.17 - 32.42	Auto	1.0000
L29	26	MP3-05	32.17 - 32.42	Auto	1.0000
L29	27	MP3-05	32.17 - 32.42	Auto	1.0000
L29	28	MP3-05	32.17 - 32.42	Auto	1.0000
L29	37	CCI-65FP-060100	32.17 - 32.42	Auto	1.0000
L29	38	CCI-65FP-060100	32.17 - 32.42	Auto	1.0000
L29	39	CCI-65FP-060100	32.17 - 32.42	Auto	1.0000
L29	40	CCI-65FP-060100	32.17 - 32.42	Auto	1.0000
L30	25	MP3-05	30.00 - 32.17	Auto	1.0000
L30	26	MP3-05	30.00 - 32.17	Auto	1.0000
L30	27	MP3-05	30.00 - 32.17	Auto	1.0000
L30	28	MP3-05	30.00 - 32.17	Auto	1.0000
L30	37	CCI-65FP-060100	30.50 - 32.17	Auto	1.0000
L30	38	CCI-65FP-060100	30.50 - 32.17	Auto	1.0000
L30	39	CCI-65FP-060100	30.50 - 32.17	Auto	1.0000
L30	40	CCI-65FP-060100	30.50 - 32.17	Auto	1.0000
L31	45	CCI-65FP-065125	26.75 - 29.50	Auto	1.0000
L31	46	CCI-65FP-065125	26.75 - 29.50	Auto	1.0000
L31	47	CCI-65FP-065125	26.75 - 29.50	Auto	1.0000
L31	48	CCI-65FP-065125	26.75 - 29.50	Auto	1.0000
L32	45	CCI-65FP-065125	26.50 - 26.75	Auto	1.0000
L32	46	CCI-65FP-065125	26.50 - 26.75	Auto	1.0000
L32	47	CCI-65FP-065125	26.50 - 26.75	Auto	1.0000
L32	48	CCI-65FP-065125	26.50 - 26.75	Auto	1.0000
L33	33	CCI-65FP-060100	21.50 - 23.50	Auto	1.0000
L33	34	CCI-65FP-060100	21.50 -	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L33	35	CCI-65FP-060100	23.50 - 21.50	Auto	1.0000
L33	36	CCI-65FP-060100	23.50 - 21.50	Auto	1.0000
L33	45	CCI-65FP-065125	23.50 - 21.50	Auto	1.0000
L33	46	CCI-65FP-065125	26.50 - 21.50	Auto	1.0000
L33	47	CCI-65FP-065125	26.50 - 21.50	Auto	1.0000
L33	48	CCI-65FP-065125	26.50 - 21.50	Auto	1.0000
L34	33	CCI-65FP-060100	26.50 - 21.25	Auto	1.0000
L34	34	CCI-65FP-060100	21.50 - 21.25	Auto	1.0000
L34	35	CCI-65FP-060100	21.50 - 21.25	Auto	1.0000
L34	36	CCI-65FP-060100	21.50 - 21.25	Auto	1.0000
L34	45	CCI-65FP-065125	21.50 - 21.25	Auto	1.0000
L34	46	CCI-65FP-065125	21.50 - 21.25	Auto	1.0000
L34	47	CCI-65FP-065125	21.50 - 21.25	Auto	1.0000
L34	48	CCI-65FP-065125	21.50 - 21.25	Auto	1.0000
L35	33	CCI-65FP-060100	21.50 - 16.25	Auto	1.0000
L35	34	CCI-65FP-060100	21.25 - 16.25	Auto	1.0000
L35	35	CCI-65FP-060100	21.25 - 16.25	Auto	1.0000
L35	36	CCI-65FP-060100	21.25 - 16.25	Auto	1.0000
L35	45	CCI-65FP-065125	21.25 - 16.25	Auto	1.0000
L35	46	CCI-65FP-065125	21.25 - 16.25	Auto	1.0000
L35	47	CCI-65FP-065125	21.25 - 16.25	Auto	1.0000
L35	48	CCI-65FP-065125	21.25 - 16.25	Auto	1.0000
L36	33	CCI-65FP-060100	16.25 - 11.25	Auto	1.0000
L36	34	CCI-65FP-060100	16.25 - 11.25	Auto	1.0000
L36	35	CCI-65FP-060100	16.25 - 11.25	Auto	1.0000
L36	36	CCI-65FP-060100	16.25 - 11.25	Auto	1.0000
L36	45	CCI-65FP-065125	16.25 - 11.25	Auto	1.0000
L36	46	CCI-65FP-065125	16.25 - 11.25	Auto	1.0000
L36	47	CCI-65FP-065125	16.25 - 11.25	Auto	1.0000
L36	48	CCI-65FP-065125	16.25 - 11.25	Auto	1.0000
L37	33	CCI-65FP-060100	6.25 - 11.25	Auto	1.0000
L37	34	CCI-65FP-060100	6.25 - 11.25	Auto	1.0000
L37	35	CCI-65FP-060100	6.25 - 11.25	Auto	1.0000
L37	36	CCI-65FP-060100	6.25 - 11.25	Auto	1.0000
L37	45	CCI-65FP-065125	6.25 - 11.25	Auto	1.0000
L37	46	CCI-65FP-065125	6.25 - 11.25	Auto	1.0000
L37	47	CCI-65FP-065125	6.25 - 11.25	Auto	1.0000

Tower Section	Attachment Record No.	Description	Attachment Segment Elev.	Ratio Calculation Method	Effective Width Ratio
L37	48	CCI-65FP-065125	6.25 - 11.25	Auto	1.0000
L38	33	CCI-65FP-060100	1.25 - 6.25	Auto	1.0000
L38	34	CCI-65FP-060100	1.25 - 6.25	Auto	1.0000
L38	35	CCI-65FP-060100	1.25 - 6.25	Auto	1.0000
L38	36	CCI-65FP-060100	1.25 - 6.25	Auto	1.0000
L38	45	CCI-65FP-065125	1.25 - 6.25	Auto	1.0000
L38	46	CCI-65FP-065125	1.25 - 6.25	Auto	1.0000
L38	47	CCI-65FP-065125	1.25 - 6.25	Auto	1.0000
L38	48	CCI-65FP-065125	1.25 - 6.25	Auto	1.0000
L39	33	CCI-65FP-060100	0.50 - 1.25	Auto	1.0000
L39	34	CCI-65FP-060100	0.50 - 1.25	Auto	1.0000
L39	35	CCI-65FP-060100	0.50 - 1.25	Auto	1.0000
L39	36	CCI-65FP-060100	0.50 - 1.25	Auto	1.0000
L39	45	CCI-65FP-065125	0.00 - 1.25	Auto	1.0000
L39	46	CCI-65FP-065125	0.00 - 1.25	Auto	1.0000
L39	47	CCI-65FP-065125	0.00 - 1.25	Auto	1.0000
L39	48	CCI-65FP-065125	0.00 - 1.25	Auto	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
Lightning Rod 5/8"x4'	B	From Leg	2.00 0.00 7.00	0.0000	118.00
10'x4" Mount Pipe	B	From Leg	2.00 0.00 0.00	0.0000	118.00
*** 118 ***					
APXV9ERR18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	118.00
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	118.00
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	118.00
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	118.00
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	118.00
APXVSPP18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	118.00
TD-RRH8X20-25	A	From Leg	4.00 0.00 0.00	0.0000	118.00
TD-RRH8X20-25	B	From Leg	4.00 0.00 0.00	0.0000	118.00
TD-RRH8X20-25	C	From Leg	4.00 0.00 0.00	0.0000	118.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
(2) HORIZON COMPACT	B	From Leg	4.00 0.00 -2.00	0.0000	118.00
10'x2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	118.00
(2) 7'x2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	118.00
(2) 7'x2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	118.00
10'x2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	118.00
Platform Mount [LP 502-1]	C	None		0.0000	118.00
*** 114 ***					
PCS 1900MHz 4x45W-65MHz	A	From Leg	1.00 0.00 2.00	0.0000	114.00
PCS 1900MHz 4x45W-65MHz	B	From Leg	1.00 0.00 2.00	0.0000	114.00
PCS 1900MHz 4x45W-65MHz	C	From Leg	1.00 0.00 2.00	0.0000	114.00
800MHz 2X50W RRH W/FILTER	A	From Leg	1.00 0.00 0.00	0.0000	114.00
800MHz 2X50W RRH W/FILTER	B	From Leg	1.00 0.00 0.00	0.0000	114.00
800MHz 2X50W RRH W/FILTER	C	From Leg	1.00 0.00 0.00	0.0000	114.00
Pipe Mount [PM 602-3]	C	None		0.0000	114.00
*** 107 ***					
AIR 6419 B41_TMO w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	107.00
AIR 6419 B41_TMO w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	107.00
AIR 6419 B41_TMO w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	107.00
APXVAARR24_43-U-NA20 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	107.00
APXVAARR24_43-U-NA20 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	107.00
APXVAARR24_43-U-NA20 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	107.00
AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	107.00
AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	107.00
AIR 32 B2A B66AA_T-MOBILE w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	107.00
RADIO 4449 B71 B85A_T-MOBILE	A	From Leg	4.00	0.0000	107.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.00 1.00		
RADIO 4449 B71 B85A_T-MOBILE	B	From Leg	4.00 0.00 1.00	0.0000	107.00
RADIO 4449 B71 B85A_T-MOBILE	C	From Leg	4.00 0.00 1.00	0.0000	107.00
RADIO 4460 B2/B25 B66_TMO	A	From Leg	4.00 0.00 1.00	0.0000	107.00
RADIO 4460 B2/B25 B66_TMO	B	From Leg	4.00 0.00 1.00	0.0000	107.00
RADIO 4460 B2/B25 B66_TMO	C	From Leg	4.00 0.00 1.00	0.0000	107.00
Platform Mount [LP 712-1_KCKR]	C	None		0.0000	107.00
*** 99 ***					
TPA65R-BU6DA-K w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	99.00
TPA65R-BU6DA-K w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	99.00
TPA65R-BU6DA-K w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	99.00
AIR 6449 B77D_CCVI2 w/ Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	99.00
AIR 6449 B77D_CCVI2 w/ Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	99.00
AIR 6449 B77D_CCVI2 w/ Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	99.00
AIR 6419 B77G_CCIV3 w/ Mount Pipe	A	From Leg	4.00 0.00 3.00	0.0000	99.00
AIR 6419 B77G_CCIV3 w/ Mount Pipe	B	From Leg	4.00 0.00 3.00	0.0000	99.00
AIR 6419 B77G_CCIV3 w/ Mount Pipe	C	From Leg	4.00 0.00 3.00	0.0000	99.00
OPA65R-BU6D w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	99.00
OPA65R-BU6D w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	99.00
OPA65R-BU6D w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	99.00
RRUS 8843 B2/B66A	A	From Leg	4.00 0.00 1.00	0.0000	99.00
RRUS 8843 B2/B66A	B	From Leg	4.00 0.00 1.00	0.0000	99.00
RRUS 8843 B2/B66A	C	From Leg	4.00 0.00 1.00	0.0000	99.00
RRUS 4478 B14_CCIV2	A	From Leg	4.00	0.0000	99.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
			0.00 1.00		
RRUS 4478 B14_CCIV2	B	From Leg	4.00 0.00	0.0000	99.00
			1.00		
RRUS 4478 B14_CCIV2	C	From Leg	4.00 0.00	0.0000	99.00
			1.00		
DC6-48-60-18-8F	A	From Leg	4.00 0.00	0.0000	99.00
			1.00		
DC6-48-60-18-8F	B	From Leg	4.00 0.00	0.0000	99.00
			1.00		
DC6-48-60-18-8F	C	From Leg	4.00 0.00	0.0000	99.00
			1.00		
RRUS 32 B30	A	From Leg	4.00 0.00	0.0000	99.00
			-2.00		
RRUS 32 B30	B	From Leg	4.00 0.00	0.0000	99.00
			-2.00		
RRUS 32 B30	C	From Leg	4.00 0.00	0.0000	99.00
			-2.00		
RRUS 4449 B5/B12	A	From Leg	4.00 0.00	0.0000	99.00
			1.00		
RRUS 4449 B5/B12	B	From Leg	4.00 0.00	0.0000	99.00
			1.00		
RRUS 4449 B5/B12	C	From Leg	4.00 0.00	0.0000	99.00
			1.00		
Platform Mount [LP 502-1]	C	None		0.0000	99.00
*** 59 ***					
Side Arm Mount [SO 701-1]	A	None		0.0000	59.00
*** 48 ***					
GPS_A	C	From Leg	3.00 0.00	0.0000	48.00
			2.00		
KS24019-L112A	C	From Leg	3.00 0.00	0.0000	48.00
			2.00		
Side Arm Mount [SO 701-1]	C	None		0.0000	48.00
**					
(2) Bridge Stiffener (137" x 15.5" x 1.25")	C	None		0.0000	30.00
(2) Bridge Stiffener (109" x 15.75" x 1.25")	C	None		0.0000	60.00
***					
MX08FRO665-21 w/ Mount Pipe	A	From Leg	4.00 0.00	0.0000	89.00
			0.00		
MX08FRO665-21 w/ Mount Pipe	B	From Leg	4.00 0.00	0.0000	89.00
			0.00		
MX08FRO665-21 w/ Mount Pipe	C	From Leg	4.00 0.00	0.0000	89.00
			0.00		
TA08025-B604	A	From Leg	4.00 0.00	0.0000	89.00
			0.00		
TA08025-B604	B	From Leg	4.00 0.00	0.0000	89.00
			0.00		

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft
TA08025-B604	C	From Leg	4.00 0.00 0.00	0.0000	89.00
TA08025-B605	A	From Leg	4.00 0.00 0.00	0.0000	89.00
TA08025-B605	B	From Leg	4.00 0.00 0.00	0.0000	89.00
TA08025-B605	C	From Leg	4.00 0.00 0.00	0.0000	89.00
RDIDC-9181-PF-48	A	From Leg	4.00 0.00 0.00	0.0000	89.00
(2) 8' x 2" Mount Pipe	A	From Leg	4.00 0.00 0.00	0.0000	89.00
(2) 8' x 2" Mount Pipe	B	From Leg	4.00 0.00 0.00	0.0000	89.00
(2) 8' x 2" Mount Pipe	C	From Leg	4.00 0.00 0.00	0.0000	89.00
Commscope MC-PK8-DSH ****** ***	C	None		0.0000	89.00

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
VHLP1-18	B	Paraboloid w/o Radome	From Leg	1.00 0.00 -2.00	-6.0000		118.00	1.27
VHLP1-23-DW1	B	Paraboloid w/o Radome	From Leg	1.00 0.00 -2.00	-6.0000		118.00	1.27

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice

Comb. No.	Description
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	120 - 115	Pole	Max Tension	42	0.00	-0.00	0.00
			Max. Compression	26	-5.44	-3.63	-1.10
			Max. Mx	8	-2.69	-14.45	-0.90
			Max. My	14	-2.70	-2.12	-13.06
			Max. Vy	20	-3.65	10.40	-0.32
			Max. Vx	2	-3.59	-1.44	11.67
			Max. Torque	16			2.84
L2	115 - 110	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-7.20	-3.66	-1.10
			Max. Mx	8	-3.77	-37.24	-1.22
			Max. My	14	-3.78	-2.59	-35.56
			Max. Vy	20	-4.85	33.49	0.40
			Max. Vx	2	-4.78	-0.40	34.42
			Max. Torque	16			2.84
L3	110 - 105	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-15.34	-3.64	-1.07
			Max. Mx	8	-8.15	-73.87	-1.54
			Max. My	14	-8.17	-3.06	-71.92
			Max. Vy	20	-9.82	70.45	1.13
			Max. Vx	2	-9.75	0.66	71.06
			Max. Torque	16			2.84

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L4	105 - 100	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.03	-3.55	-1.00
			Max. Mx	8	-8.60	-123.38	-1.86
			Max. My	14	-8.61	-3.51	-121.17
			Max. Vy	20	-10.12	120.33	1.89
			Max. Vx	2	-10.07	1.76	120.65
			Max. Torque	16			2.84
L5	100 - 95	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-23.31	-3.47	-0.93
			Max. Mx	8	-12.07	-197.09	-2.17
			Max. My	14	-12.09	-3.97	-194.68
			Max. Vy	20	-15.25	194.42	2.66
			Max. Vx	2	-15.22	2.87	194.53
			Max. Torque	16			2.84
L6	95 - 90	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.04	-3.39	-0.86
			Max. Mx	8	-12.61	-273.63	-2.49
			Max. My	2	-12.60	3.99	271.30
			Max. Vy	20	-15.51	271.33	3.43
			Max. Vx	2	-15.49	3.99	271.30
			Max. Torque	16			2.84
L7	90 - 85	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-29.82	-3.30	-0.48
			Max. Mx	8	-16.36	-364.46	-2.71
			Max. My	2	-16.35	5.12	362.71
			Max. Vy	20	-19.01	362.53	4.30
			Max. Vx	2	-19.05	5.12	362.71
			Max. Torque	16			2.83
L8	85 - 80	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.86	-3.20	-0.48
			Max. Mx	8	-17.20	-459.75	-3.07
			Max. My	2	-17.18	6.25	458.62
			Max. Vy	20	-19.25	458.20	5.04
			Max. Vx	2	-19.33	6.25	458.62
			Max. Torque	14			2.75
L9	80 - 79.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.95	-3.19	-0.49
			Max. Mx	8	-17.28	-464.55	-3.09
			Max. My	2	-17.26	6.31	463.45
			Max. Vy	20	-19.28	463.01	5.07
			Max. Vx	2	-19.36	6.31	463.45
			Max. Torque	14			2.75
L10	79.75 - 78.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.40	-3.16	-0.53
			Max. Mx	8	-17.61	-488.68	-3.21
			Max. My	2	-17.59	6.60	487.76
			Max. Vy	20	-19.46	487.24	5.22
			Max. Vx	2	-19.59	6.60	487.76
			Max. Torque	14			2.74
L11	78.5 - 78.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-31.49	-3.15	-0.54
			Max. Mx	8	-17.69	-493.54	-3.23
			Max. My	2	-17.67	6.65	492.65
			Max. Vy	20	-19.49	492.11	5.26
			Max. Vx	2	-19.63	6.65	492.65
			Max. Torque	14			2.72
L12	78.25 - 73.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-33.47	-3.02	-0.72
			Max. Mx	8	-19.23	-592.71	-3.69
			Max. My	2	-19.20	7.81	592.84
			Max. Vy	8	20.25	-592.71	-3.69
			Max. Vx	2	-20.50	7.81	592.84
			Max. Torque	14			2.72
L13	73.25 - 68.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.45	-2.87	-0.89
			Max. Mx	8	-20.79	-695.71	-4.15
			Max. My	2	-20.76	8.96	697.30

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	8	20.99	-695.71	-4.15
			Max. Vx	2	-21.34	8.96	697.30
			Max. Torque	16			2.67
L14	68.25 - 68	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.54	-2.87	-0.90
			Max. Mx	8	-20.87	-700.96	-4.18
			Max. My	2	-20.84	9.02	702.63
			Max. Vy	8	21.02	-700.96	-4.18
			Max. Vx	2	-21.37	9.02	702.63
			Max. Torque	16			2.65
L15	68 - 67.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-35.64	-2.86	-0.91
			Max. Mx	8	-20.95	-706.22	-4.20
			Max. My	2	-20.92	9.07	707.97
			Max. Vy	8	21.06	-706.22	-4.20
			Max. Vx	2	-21.41	9.07	707.97
			Max. Torque	16			2.65
L16	67.75 - 62.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.26	-2.73	-0.93
			Max. Mx	8	-22.25	-812.74	-4.54
			Max. My	2	-22.22	10.21	816.37
			Max. Vy	8	21.58	-812.74	-4.54
			Max. Vx	2	-21.95	10.21	816.37
			Max. Torque	16			2.65
L17	62.75 - 60	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38.09	-2.66	-0.92
			Max. Mx	8	-22.95	-872.38	-4.72
			Max. My	2	-22.92	10.83	877.08
			Max. Vy	8	21.84	-872.38	-4.72
			Max. Vx	2	-22.22	10.83	877.08
			Max. Torque	16			2.64
L18	60 - 57.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.76	-2.59	-0.91
			Max. Mx	8	-25.11	-931.06	-4.88
			Max. My	2	-25.09	11.40	936.77
			Max. Vy	8	23.68	-931.06	-4.88
			Max. Vx	2	-24.07	11.40	936.77
			Max. Torque	16			2.64
L19	57.5 - 57.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-40.84	-2.58	-0.91
			Max. Mx	8	-25.19	-936.97	-4.89
			Max. My	2	-25.16	11.46	942.79
			Max. Vy	8	23.70	-936.97	-4.89
			Max. Vx	2	-24.09	11.46	942.79
			Max. Torque	16			2.64
L20	57.25 - 52.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.56	-2.43	-0.91
			Max. Mx	8	-26.57	-1056.92	-5.21
			Max. My	2	-26.54	12.60	1064.83
			Max. Vy	8	24.31	-1056.92	-5.21
			Max. Vx	2	-24.72	12.60	1064.83
			Max. Torque	16			2.64
L21	52.25 - 47.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-44.40	-2.22	-0.94
			Max. Mx	8	-28.06	-1179.86	-5.54
			Max. My	2	-28.03	13.77	1189.98
			Max. Vy	8	24.96	-1179.86	-5.54
			Max. Vx	2	-25.40	13.77	1189.98
			Max. Torque	16			2.64
L22	47.25 - 45.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.08	-2.17	-0.94
			Max. Mx	8	-28.59	-1227.95	-5.66
			Max. My	2	-28.56	14.20	1238.95
			Max. Vy	8	25.20	-1227.95	-5.66
			Max. Vx	2	-25.64	14.20	1238.95

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	16			2.61
L23	45.33 - 45.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-45.19	-2.16	-0.94
			Max. Mx	8	-28.69	-1234.25	-5.68
			Max. My	2	-28.66	14.26	1245.35
			Max. Vy	8	25.20	-1234.25	-5.68
			Max. Vx	2	-25.65	14.26	1245.35
			Max. Torque	16			2.61
L24	45.08 - 40.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-47.24	-2.02	-0.98
			Max. Mx	8	-30.33	-1361.69	-5.99
			Max. My	2	-30.30	15.39	1375.18
			Max. Vy	8	25.81	-1361.69	-5.99
			Max. Vx	2	-26.28	15.39	1375.18
			Max. Torque	16			2.61
L25	40.08 - 35.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.29	-1.88	-1.01
			Max. Mx	8	-31.99	-1491.99	-6.30
			Max. My	2	-31.97	16.52	1508.02
			Max. Vy	8	26.36	-1491.99	-6.30
			Max. Vx	2	-26.86	16.52	1508.02
			Max. Torque	16			2.61
L26	35.08 - 33.583	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-49.91	-1.83	-1.02
			Max. Mx	8	-32.48	-1531.53	-6.39
			Max. My	2	-32.46	16.86	1548.38
			Max. Vy	8	26.53	-1531.53	-6.39
			Max. Vx	2	-27.09	16.86	1548.38
			Max. Torque	16			2.61
L27	33.583 - 33.333	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.02	-1.82	-1.03
			Max. Mx	8	-32.59	-1538.16	-6.40
			Max. My	2	-32.57	16.92	1555.15
			Max. Vy	8	26.53	-1538.16	-6.40
			Max. Vx	2	-27.10	16.92	1555.15
			Max. Torque	16			2.61
L28	33.333 - 32.42	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.44	-1.80	-1.03
			Max. Mx	8	-32.93	-1562.42	-6.46
			Max. My	2	-32.91	17.12	1579.96
			Max. Vy	8	26.64	-1562.42	-6.46
			Max. Vx	2	-27.25	17.12	1579.96
			Max. Torque	16			2.61
L29	32.42 - 32.17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-50.53	-1.79	-1.04
			Max. Mx	8	-33.01	-1569.07	-6.47
			Max. My	2	-32.98	17.18	1586.77
			Max. Vy	8	26.66	-1569.07	-6.47
			Max. Vx	2	-27.27	17.18	1586.77
			Max. Torque	16			2.61
L30	32.17 - 30	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.31	-1.73	-1.05
			Max. Mx	8	-33.63	-1627.10	-6.61
			Max. My	2	-33.61	17.66	1646.24
			Max. Vy	8	26.87	-1627.10	-6.61
			Max. Vx	2	-27.56	17.66	1646.24
			Max. Torque	16			2.61
L31	30 - 26.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.61	-1.63	-1.04
			Max. Mx	8	-36.43	-1720.11	-6.80
			Max. My	2	-36.41	18.40	1741.55
			Max. Vy	8	28.82	-1720.11	-6.80

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	2	-29.52	18.40	1741.55
			Max. Torque	16			2.61
L32	26.75 - 26.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.71	-1.62	-1.04
			Max. Mx	8	-36.52	-1727.31	-6.82
			Max. My	2	-36.50	18.46	1748.93
			Max. Vy	8	28.84	-1727.31	-6.82
			Max. Vx	2	-29.53	18.46	1748.93
			Max. Torque	16			2.61
L33	26.5 - 21.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.81	-1.46	-1.05
			Max. Mx	8	-38.26	-1872.83	-7.11
			Max. My	2	-38.24	19.58	1898.07
			Max. Vy	8	29.41	-1872.83	-7.11
			Max. Vx	2	-30.12	19.58	1898.07
			Max. Torque	16			2.61
L34	21.5 - 21.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-56.94	-1.45	-1.05
			Max. Mx	8	-38.37	-1880.18	-7.13
			Max. My	2	-38.36	19.64	1905.60
			Max. Vy	8	29.43	-1880.18	-7.13
			Max. Vx	2	-30.15	19.64	1905.60
			Max. Torque	16			2.61
L35	21.25 - 16.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-59.58	-1.29	-1.10
			Max. Mx	8	-40.58	-2028.67	-7.43
			Max. My	2	-40.57	20.76	2057.86
			Max. Vy	8	30.01	-2028.67	-7.43
			Max. Vx	2	-30.76	20.76	2057.86
			Max. Torque	16			2.61
L36	16.25 - 11.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-62.20	-1.12	-1.15
			Max. Mx	8	-42.81	-2179.90	-7.72
			Max. My	2	-42.80	21.88	2213.01
			Max. Vy	8	30.53	-2179.90	-7.72
			Max. Vx	2	-31.31	21.88	2213.01
			Max. Torque	16			2.61
L37	11.25 - 6.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-64.80	-0.96	-1.19
			Max. Mx	8	-45.04	-2333.68	-8.01
			Max. My	2	-45.04	22.99	2370.86
			Max. Vy	8	31.03	-2333.68	-8.01
			Max. Vx	2	-31.84	22.99	2370.86
			Max. Torque	16			2.61
L38	6.25 - 1.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.36	-0.81	-1.23
			Max. Mx	8	-47.29	-2489.88	-8.30
			Max. My	2	-47.29	24.09	2531.27
			Max. Vy	8	31.50	-2489.88	-8.30
			Max. Vx	2	-32.34	24.09	2531.27
			Max. Torque	16			2.61
L39	1.25 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-67.97	-0.78	-1.23
			Max. Mx	8	-47.85	-2529.29	-8.37
			Max. My	2	-47.85	24.37	2571.76
			Max. Vy	8	31.62	-2529.29	-8.37
			Max. Vx	2	-32.46	24.37	2571.76
			Max. Torque	16			2.61

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	27	67.97	0.04	7.33
	Max. H_x	20	47.87	30.66	0.14
	Max. H_z	2	47.87	0.21	32.44
	Max. M_x	2	2571.76	0.21	32.44
	Max. M_z	8	2529.29	-31.60	-0.06
	Max. Torsion	16	2.61	13.82	-23.92
	Min. Vert	17	35.90	13.82	-23.92
	Min. H_x	8	47.87	-31.60	-0.06
	Min. H_z	15	35.90	-0.09	-29.47
	Min. M_x	14	-2442.19	-0.09	-29.47
	Min. M_z	20	-2493.47	30.66	0.14
	Min. Torsion	4	-2.60	-15.85	27.47

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	39.89	0.00	0.00	0.45	-0.74	0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	47.87	-0.21	-32.44	-2571.76	24.37	2.34
0.9 Dead+1.0 Wind 0 deg - No Ice	35.90	-0.21	-32.44	-2546.97	24.32	2.30
1.2 Dead+1.0 Wind 30 deg - No Ice	47.87	15.85	-27.47	-2185.97	-1261.81	2.60
0.9 Dead+1.0 Wind 30 deg - No Ice	35.90	15.85	-27.47	-2164.87	-1249.30	2.56
1.2 Dead+1.0 Wind 60 deg - No Ice	47.87	27.47	-15.82	-1252.04	-2179.34	1.99
0.9 Dead+1.0 Wind 60 deg - No Ice	35.90	27.47	-15.82	-1240.02	-2157.89	1.96
1.2 Dead+1.0 Wind 90 deg - No Ice	47.87	31.60	0.06	8.37	-2529.29	0.92
0.9 Dead+1.0 Wind 90 deg - No Ice	35.90	31.60	0.06	8.12	-2504.38	0.90
1.2 Dead+1.0 Wind 120 deg - No Ice	47.87	26.88	15.56	1260.69	-2175.21	-0.54
0.9 Dead+1.0 Wind 120 deg - No Ice	35.90	26.88	15.56	1248.18	-2153.65	-0.53
1.2 Dead+1.0 Wind 150 deg - No Ice	47.87	15.04	26.01	2135.00	-1237.29	-1.82
0.9 Dead+1.0 Wind 150 deg - No Ice	35.90	15.04	26.01	2113.74	-1224.79	-1.79
1.2 Dead+1.0 Wind 180 deg - No Ice	47.87	0.09	29.47	2442.19	-11.89	-2.41
0.9 Dead+1.0 Wind 180 deg - No Ice	35.90	0.09	29.47	2417.83	-11.50	-2.37
1.2 Dead+1.0 Wind 210 deg - No Ice	47.87	-13.82	23.92	2064.86	1192.91	-2.61
0.9 Dead+1.0 Wind 210 deg - No Ice	35.90	-13.82	23.92	2044.08	1181.24	-2.57
1.2 Dead+1.0 Wind 240 deg - No Ice	47.87	-25.55	14.55	1188.28	2099.57	-1.92
0.9 Dead+1.0 Wind 240 deg - No Ice	35.90	-25.55	14.55	1176.39	2078.98	-1.88
1.2 Dead+1.0 Wind 270 deg - No Ice	47.87	-30.66	-0.14	-16.77	2493.47	-0.82
0.9 Dead+1.0 Wind 270 deg - No Ice	35.90	-30.66	-0.14	-16.71	2469.22	-0.81
1.2 Dead+1.0 Wind 300 deg - No Ice	47.87	-27.40	-15.84	-1270.50	2197.47	0.50
0.9 Dead+1.0 Wind 300 deg - No Ice	35.90	-27.40	-15.84	-1258.24	2176.26	0.49
1.2 Dead+1.0 Wind 330 deg - No Ice	47.87	-16.30	-27.97	-2222.67	1302.14	1.67

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
0.9 Dead+1.0 Wind 330 deg - No Ice	35.90	-16.30	-27.97	-2201.22	1289.69	1.63
1.2 Dead+1.0 Ice+1.0 Temp	67.97	0.00	0.00	1.23	-0.78	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	67.97	-0.04	-7.33	-629.05	4.50	0.63
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	67.97	3.59	-6.22	-536.87	-311.41	0.71
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	67.97	6.18	-3.56	-305.90	-534.69	0.55
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	67.97	7.16	0.01	2.75	-622.61	0.27
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	67.97	6.13	3.55	311.64	-536.91	-0.12
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	67.97	3.54	6.11	537.08	-310.99	-0.46
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	67.97	0.02	7.10	621.62	-3.03	-0.64
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	67.97	-3.50	6.06	533.08	306.83	-0.71
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	67.97	-6.02	3.43	301.42	528.44	-0.53
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	67.97	-7.06	-0.03	-2.31	617.84	-0.25
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	67.97	-6.20	-3.58	-310.62	539.00	0.11
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	67.97	-3.67	-6.30	-541.97	317.01	0.42
Dead+Wind 0 deg - Service	39.89	-0.05	-7.52	-592.29	5.04	0.54
Dead+Wind 30 deg - Service	39.89	3.67	-6.37	-503.37	-291.32	0.60
Dead+Wind 60 deg - Service	39.89	6.36	-3.67	-288.17	-502.75	0.46
Dead+Wind 90 deg - Service	39.89	7.32	0.01	2.26	-583.38	0.21
Dead+Wind 120 deg - Service	39.89	6.23	3.61	290.83	-501.78	-0.13
Dead+Wind 150 deg - Service	39.89	3.49	6.03	492.27	-285.65	-0.42
Dead+Wind 180 deg - Service	39.89	0.02	6.83	563.04	-3.30	-0.56
Dead+Wind 210 deg - Service	39.89	-3.20	5.54	476.08	274.28	-0.60
Dead+Wind 240 deg - Service	39.89	-5.92	3.37	274.14	483.19	-0.44
Dead+Wind 270 deg - Service	39.89	-7.10	-0.03	-3.52	573.98	-0.19
Dead+Wind 300 deg - Service	39.89	-6.35	-3.67	-292.42	505.80	0.11
Dead+Wind 330 deg - Service	39.89	-3.78	-6.48	-511.85	299.49	0.38

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-39.89	0.00	0.00	39.89	0.00	0.000%
2	-0.21	-47.87	-32.44	0.21	47.87	32.44	0.000%
3	-0.21	-35.90	-32.44	0.21	35.90	32.44	0.000%
4	15.85	-47.87	-27.47	-15.85	47.87	27.47	0.000%
5	15.85	-35.90	-27.47	-15.85	35.90	27.47	0.000%
6	27.47	-47.87	-15.82	-27.47	47.87	15.82	0.000%
7	27.47	-35.90	-15.82	-27.47	35.90	15.82	0.000%
8	31.60	-47.87	0.06	-31.60	47.87	-0.06	0.000%
9	31.60	-35.90	0.06	-31.60	35.90	-0.06	0.000%
10	26.88	-47.87	15.56	-26.88	47.87	-15.56	0.000%
11	26.88	-35.90	15.56	-26.88	35.90	-15.56	0.000%
12	15.04	-47.87	26.01	-15.04	47.87	-26.01	0.000%
13	15.04	-35.90	26.01	-15.04	35.90	-26.01	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
14	0.09	-47.87	29.47	-0.09	47.87	-29.47	0.000%
15	0.09	-35.90	29.47	-0.09	35.90	-29.47	0.000%
16	-13.82	-47.87	23.92	13.82	47.87	-23.92	0.000%
17	-13.82	-35.90	23.92	13.82	35.90	-23.92	0.000%
18	-25.55	-47.87	14.55	25.55	47.87	-14.55	0.000%
19	-25.55	-35.90	14.55	25.55	35.90	-14.55	0.000%
20	-30.66	-47.87	-0.14	30.66	47.87	0.14	0.000%
21	-30.66	-35.90	-0.14	30.66	35.90	0.14	0.000%
22	-27.40	-47.87	-15.84	27.40	47.87	15.84	0.000%
23	-27.40	-35.90	-15.84	27.40	35.90	15.84	0.000%
24	-16.30	-47.87	-27.97	16.30	47.87	27.97	0.000%
25	-16.30	-35.90	-27.97	16.30	35.90	27.97	0.000%
26	0.00	-67.97	0.00	-0.00	67.97	-0.00	0.000%
27	-0.04	-67.97	-7.33	0.04	67.97	7.33	0.000%
28	3.59	-67.97	-6.22	-3.59	67.97	6.22	0.000%
29	6.18	-67.97	-3.56	-6.18	67.97	3.56	0.000%
30	7.16	-67.97	0.01	-7.16	67.97	-0.01	0.000%
31	6.13	-67.97	3.55	-6.13	67.97	-3.55	0.000%
32	3.54	-67.97	6.11	-3.54	67.97	-6.11	0.000%
33	0.02	-67.97	7.10	-0.02	67.97	-7.10	0.000%
34	-3.50	-67.97	6.06	3.50	67.97	-6.06	0.000%
35	-6.02	-67.97	3.43	6.02	67.97	-3.43	0.000%
36	-7.06	-67.97	-0.03	7.06	67.97	0.03	0.000%
37	-6.20	-67.97	-3.58	6.20	67.97	3.58	0.000%
38	-3.67	-67.97	-6.30	3.67	67.97	6.30	0.000%
39	-0.05	-39.89	-7.52	0.05	39.89	7.52	0.000%
40	3.67	-39.89	-6.37	-3.67	39.89	6.37	0.000%
41	6.36	-39.89	-3.67	-6.36	39.89	3.67	0.000%
42	7.32	-39.89	0.01	-7.32	39.89	-0.01	0.000%
43	6.23	-39.89	3.61	-6.23	39.89	-3.61	0.000%
44	3.49	-39.89	6.03	-3.49	39.89	-6.03	0.000%
45	0.02	-39.89	6.83	-0.02	39.89	-6.83	0.000%
46	-3.20	-39.89	5.54	3.20	39.89	-5.54	0.000%
47	-5.92	-39.89	3.37	5.92	39.89	-3.37	0.000%
48	-7.10	-39.89	-0.03	7.10	39.89	0.03	0.000%
49	-6.35	-39.89	-3.67	6.35	39.89	3.67	0.000%
50	-3.78	-39.89	-6.48	3.78	39.89	6.48	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	5	0.00000001	0.00069201
3	Yes	5	0.00000001	0.00032263
4	Yes	6	0.00000001	0.00040481
5	Yes	6	0.00000001	0.00013555
6	Yes	6	0.00000001	0.00035522
7	Yes	6	0.00000001	0.00011794
8	Yes	5	0.00000001	0.00041305
9	Yes	5	0.00000001	0.00019114
10	Yes	6	0.00000001	0.00037768
11	Yes	6	0.00000001	0.00012537
12	Yes	6	0.00000001	0.00039866
13	Yes	6	0.00000001	0.00013356
14	Yes	6	0.00000001	0.00005141
15	Yes	5	0.00000001	0.00048377
16	Yes	6	0.00000001	0.00033905
17	Yes	6	0.00000001	0.00011381
18	Yes	6	0.00000001	0.00037918
19	Yes	6	0.00000001	0.00012822
20	Yes	5	0.00000001	0.00018210
21	Yes	5	0.00000001	0.00007999
22	Yes	6	0.00000001	0.00039000
23	Yes	6	0.00000001	0.00012969

24	Yes	6	0.00000001	0.00037921
25	Yes	6	0.00000001	0.00012500
26	Yes	4	0.00000001	0.00032851
27	Yes	6	0.00000001	0.00023984
28	Yes	6	0.00000001	0.00027710
29	Yes	6	0.00000001	0.00027149
30	Yes	6	0.00000001	0.00024086
31	Yes	6	0.00000001	0.00027734
32	Yes	6	0.00000001	0.00027900
33	Yes	6	0.00000001	0.00023973
34	Yes	6	0.00000001	0.00026896
35	Yes	6	0.00000001	0.00026867
36	Yes	6	0.00000001	0.00023554
37	Yes	6	0.00000001	0.00027267
38	Yes	6	0.00000001	0.00027390
39	Yes	5	0.00000001	0.00004928
40	Yes	5	0.00000001	0.00014115
41	Yes	5	0.00000001	0.00010013
42	Yes	4	0.00000001	0.00061388
43	Yes	5	0.00000001	0.00011090
44	Yes	5	0.00000001	0.00013235
45	Yes	5	0.00000001	0.00005299
46	Yes	5	0.00000001	0.00009397
47	Yes	5	0.00000001	0.00012386
48	Yes	4	0.00000001	0.00054275
49	Yes	5	0.00000001	0.00011864
50	Yes	5	0.00000001	0.00010795

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 115	15.36	50	1.1109	0.0086
L2	115 - 110	14.21	50	1.1087	0.0081
L3	110 - 105	13.07	50	1.1009	0.0072
L4	105 - 100	11.93	50	1.0863	0.0064
L5	100 - 95	10.81	50	1.0602	0.0055
L6	95 - 90	9.72	50	1.0190	0.0046
L7	90 - 85	8.69	50	0.9607	0.0037
L8	85 - 80	7.71	50	0.9078	0.0031
L9	80 - 79.75	6.79	50	0.8388	0.0025
L10	79.75 - 78.5	6.75	50	0.8364	0.0025
L11	78.5 - 78.25	6.53	50	0.8240	0.0024
L12	78.25 - 73.25	6.49	50	0.8219	0.0024
L13	73.25 - 68.25	5.65	50	0.7754	0.0021
L14	68.25 - 68	4.87	50	0.7201	0.0018
L15	68 - 67.75	4.83	50	0.7171	0.0018
L16	67.75 - 62.75	4.79	50	0.7141	0.0018
L17	62.75 - 60	4.08	50	0.6488	0.0015
L18	60 - 57.5	3.71	50	0.6088	0.0014
L19	57.5 - 57.25	3.40	50	0.5866	0.0013
L20	57.25 - 52.25	3.37	50	0.5843	0.0013
L21	52.25 - 47.25	2.78	50	0.5352	0.0011
L22	47.25 - 45.33	2.25	50	0.4800	0.0009
L23	45.33 - 45.08	2.06	50	0.4572	0.0009
L24	45.08 - 40.08	2.04	50	0.4547	0.0009
L25	40.08 - 35.08	1.59	50	0.4021	0.0007
L26	35.08 - 33.583	1.20	50	0.3442	0.0006
L27	33.583 - 33.333	1.09	50	0.3259	0.0006
L28	33.333 - 32.42	1.08	50	0.3232	0.0006
L29	32.42 - 32.17	1.02	50	0.3134	0.0005
L30	32.17 - 30	1.00	50	0.3096	0.0005
L31	30 - 26.75	0.87	50	0.2752	0.0004
L32	26.75 - 26.5	0.69	50	0.2420	0.0004
L33	26.5 - 21.5	0.68	50	0.2396	0.0004
L34	21.5 - 21.25	0.45	50	0.1910	0.0003
L35	21.25 - 16.25	0.44	50	0.1891	0.0003

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L36	16.25 - 11.25	0.26	50	0.1497	0.0002
L37	11.25 - 6.25	0.13	50	0.1072	0.0002
L38	6.25 - 1.25	0.04	50	0.0615	0.0001
L39	1.25 - 0	0.00	50	0.0127	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
118.00	Lightning Rod 5/8"x4'	50	14.90	1.1104	0.0085	57119
116.00	VHLP1-18	50	14.44	1.1095	0.0083	57119
114.00	PCS 1900MHz 4x45W-65MHz	50	13.98	1.1077	0.0080	47348
107.00	AIR 6419 B41_TMO w/ Mount Pipe	50	12.38	1.0933	0.0067	17856
99.00	TPA65R-BU6DA-K w/ Mount Pipe	50	10.59	1.0536	0.0053	7819
89.00	MX08FRO665-21 w/ Mount Pipe	50	8.49	0.9505	0.0036	4923
60.00	(2) Bridge Stiffener (109" x 15.75" x 1.25")	50	3.71	0.6088	0.0014	4894
59.00	Side Arm Mount [SO 701-1]	50	3.59	0.5991	0.0013	5257
48.00	GPS_A	50	2.33	0.4891	0.0010	5101
30.00	(2) Bridge Stiffener (137" x 15.5" x 1.25")	50	0.87	0.2752	0.0004	4642

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	120 - 115	66.99	24	4.8061	0.0373
L2	115 - 110	61.97	24	4.8022	0.0351
L3	110 - 105	56.96	24	4.7781	0.0313
L4	105 - 100	51.99	24	4.7245	0.0275
L5	100 - 95	47.10	24	4.6203	0.0237
L6	95 - 90	42.35	24	4.4498	0.0198
L7	90 - 85	37.83	24	4.1960	0.0160
L8	85 - 80	33.56	24	3.9629	0.0135
L9	80 - 79.75	29.56	24	3.6597	0.0110
L10	79.75 - 78.5	29.37	24	3.6492	0.0109
L11	78.5 - 78.25	28.43	24	3.5948	0.0105
L12	78.25 - 73.25	28.24	24	3.5856	0.0105
L13	73.25 - 68.25	24.59	24	3.3818	0.0092
L14	68.25 - 68	21.18	24	3.1397	0.0079
L15	68 - 67.75	21.01	24	3.1265	0.0079
L16	67.75 - 62.75	20.85	24	3.1133	0.0078
L17	62.75 - 60	17.74	24	2.8274	0.0066
L18	60 - 57.5	16.16	24	2.6527	0.0059
L19	57.5 - 57.25	14.80	24	2.5557	0.0055
L20	57.25 - 52.25	14.66	24	2.5457	0.0055
L21	52.25 - 47.25	12.11	24	2.3310	0.0048
L22	47.25 - 45.33	9.79	24	2.0901	0.0041
L23	45.33 - 45.08	8.97	24	1.9904	0.0038
L24	45.08 - 40.08	8.87	24	1.9795	0.0037
L25	40.08 - 35.08	6.91	24	1.7502	0.0032
L26	35.08 - 33.583	5.21	24	1.4979	0.0026
L27	33.583 - 33.333	4.75	24	1.4179	0.0024
L28	33.333 - 32.42	4.68	24	1.4063	0.0024
L29	32.42 - 32.17	4.42	24	1.3637	0.0023
L30	32.17 - 30	4.34	24	1.3468	0.0023
L31	30 - 26.75	3.77	24	1.1969	0.0019

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L32	26.75 - 26.5	3.00	24	1.0523	0.0017
L33	26.5 - 21.5	2.95	24	1.0422	0.0016
L34	21.5 - 21.25	1.96	24	0.8306	0.0013
L35	21.25 - 16.25	1.92	24	0.8224	0.0012
L36	16.25 - 11.25	1.15	24	0.6507	0.0009
L37	11.25 - 6.25	0.56	24	0.4658	0.0007
L38	6.25 - 1.25	0.18	24	0.2674	0.0004
L39	1.25 - 0	0.01	24	0.0552	0.0001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
118.00	Lightning Rod 5/8"x4'	24	64.98	4.8059	0.0368	17657
116.00	VHLP1-18	24	62.97	4.8042	0.0359	17657
114.00	PCS 1900MHz 4x45W-65MHz	24	60.96	4.7993	0.0346	14179
107.00	AIR 6419 B41_TMO w/ Mount Pipe	24	53.97	4.7509	0.0292	4557
99.00	TPA65R-BU6DA-K w/ Mount Pipe	24	46.14	4.5932	0.0231	1890
89.00	MX08FRO665-21 w/ Mount Pipe	24	36.95	4.1508	0.0156	1164
60.00	(2) Bridge Stiffener (109" x 15.75" x 1.25")	24	16.16	2.6527	0.0059	1129
59.00	Side Arm Mount [SO 701-1]	24	15.61	2.6101	0.0057	1212
48.00	GPS_A	24	10.12	2.1297	0.0042	1172
30.00	(2) Bridge Stiffener (137" x 15.5" x 1.25")	24	3.77	1.1969	0.0020	1067

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	120 - 115 (1)	P24x0.25	5.00	0.00	0.0	18.6532	-2.69	662.26	0.004
L2	115 - 110 (2)	P24x0.25	5.00	0.00	0.0	18.6532	-3.76	662.26	0.006
L3	110 - 105 (3)	P24x0.25	5.00	0.00	0.0	18.6532	-8.15	662.26	0.012
L4	105 - 100 (4)	P24x0.25	5.00	0.00	0.0	18.6532	-8.59	662.26	0.013
L5	100 - 95 (5)	P24x0.25	5.00	0.00	0.0	18.6532	-12.07	662.26	0.018
L6	95 - 90 (6)	P24x0.25	5.00	0.00	0.0	18.6532	-12.61	662.26	0.019
L7	90 - 85 (7)	P24x0.375	5.00	0.00	0.0	27.8325	-16.36	1052.07	0.016
L8	85 - 80 (8)	P24x0.375	5.00	0.00	0.0	27.8325	-17.19	1052.07	0.016
L9	80 - 79.75 (9)	P24x0.625	0.25	0.00	0.0	45.8967	-17.27	1734.90	0.010
L10	79.75 - 78.5 (10)	P24x0.625	1.25	0.00	0.0	45.8967	-17.58	1734.90	0.010
L11	78.5 - 78.25 (11)	P24x0.775	0.25	0.00	0.0	56.5467	-17.66	2137.47	0.008

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L12	78.25 - 73.25 (12)	P24x0.775	5.00	0.00	0.0	56.5467	-19.19	2137.47	0.009
L13	73.25 - 68.25 (13)	P24x0.775	5.00	0.00	0.0	56.5467	-20.75	2137.47	0.010
L14	68.25 - 68 (14)	P24x0.775	0.25	0.00	0.0	56.5467	-20.84	2137.47	0.010
L15	68 - 67.75 (15)	P24x0.775	0.25	0.00	0.0	56.5467	-20.92	2137.47	0.010
L16	67.75 - 62.75 (16)	P24x0.775	5.00	0.00	0.0	56.5467	-22.22	2137.47	0.010
L17	62.75 - 60 (17)	P24x0.775	2.75	0.00	0.0	56.5467	-22.91	2137.47	0.011
L18	60 - 57.5 (18)	P30x0.675	2.50	0.00	0.0	62.1859	-25.08	2350.63	0.011
L19	57.5 - 57.25 (19)	P30x0.675	0.25	0.00	0.0	62.1859	-25.16	2350.63	0.011
L20	57.25 - 52.25 (20)	P30x0.675	5.00	0.00	0.0	62.1859	-26.54	2350.63	0.011
L21	52.25 - 47.25 (21)	P30x0.675	5.00	0.00	0.0	62.1859	-28.03	2350.63	0.012
L22	47.25 - 45.33 (22)	P30x0.675	1.92	0.00	0.0	62.1859	-28.56	2350.63	0.012
L23	45.33 - 45.08 (23)	P30x0.8375	0.25	0.00	0.0	76.7290	-28.66	2900.36	0.010
L24	45.08 - 40.08 (24)	P30x0.8375	5.00	0.00	0.0	76.7290	-30.30	2900.36	0.010
L25	40.08 - 35.08 (25)	P30x0.8375	5.00	0.00	0.0	76.7290	-31.96	2900.36	0.011
L26	35.08 - 33.583 (26)	P30x0.8375	1.50	0.00	0.0	76.7290	-32.46	2900.36	0.011
L27	33.583 - 33.333 (27)	P30x1	0.25	0.00	0.0	91.1062	-32.57	3443.81	0.009
L28	33.333 - 32.42 (28)	P30x1	0.91	0.00	0.0	91.1062	-32.90	3443.81	0.010
L29	32.42 - 32.17 (29)	P30x0.675	0.25	0.00	0.0	62.1859	-32.98	2350.63	0.014
L30	32.17 - 30 (30)	P30x0.675	2.17	0.00	0.0	62.1859	-33.61	2350.63	0.014
L31	30 - 26.75 (31)	P36x0.625	3.25	0.00	0.0	69.4586	-36.41	2625.54	0.014
L32	26.75 - 26.5 (32)	P36x0.7125	0.25	0.00	0.0	78.9870	-36.50	2985.71	0.012
L33	26.5 - 21.5 (33)	P36x0.7125	5.00	0.00	0.0	78.9870	-38.24	2985.71	0.013
L34	21.5 - 21.25 (34)	P36x0.975	0.25	0.00	0.0	107.2830	-38.36	4055.31	0.009
L35	21.25 - 16.25 (35)	P36x0.975	5.00	0.00	0.0	107.2830	-40.57	4055.31	0.010
L36	16.25 - 11.25 (36)	P36x0.975	5.00	0.00	0.0	107.2830	-42.80	4055.31	0.011
L37	11.25 - 6.25 (37)	P36x0.975	5.00	0.00	0.0	107.2830	-45.04	4055.31	0.011
L38	6.25 - 1.25 (38)	P36x0.975	5.00	0.00	0.0	107.2830	-47.29	4055.31	0.012
L39	1.25 - 0 (39)	P36x0.975	1.25	0.00	0.0	107.2830	-47.85	4055.31	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	120 - 115 (1)	P24x0.25	14.76	396.68	0.037	0.00	396.68	0.000
L2	115 - 110 (2)	P24x0.25	37.84	396.68	0.095	0.00	396.68	0.000
L3	110 - 105 (3)	P24x0.25	74.78	396.68	0.189	0.00	396.68	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L4	105 - 100 (4)	P24x0.25	124.57	396.68	0.314	0.00	396.68	0.000
L5	100 - 95 (5)	P24x0.25	198.58	396.68	0.501	0.00	396.68	0.000
L6	95 - 90 (6)	P24x0.25	275.41	396.68	0.694	0.00	396.68	0.000
L7	90 - 85 (7)	P24x0.375	366.52	623.72	0.588	0.00	623.72	0.000
L8	85 - 80 (8)	P24x0.375	462.49	623.72	0.742	0.00	623.72	0.000
L9	80 - 79.75 (9)	P24x0.625	467.35	1075.97	0.434	0.00	1075.97	0.000
L10	79.75 - 78.5 (10)	P24x0.625	491.85	1075.97	0.457	0.00	1075.97	0.000
L11	78.5 - 78.25 (11)	P24x0.775	496.78	1317.30	0.377	0.00	1317.30	0.000
L12	78.25 - 73.25 (12)	P24x0.775	597.59	1317.30	0.454	0.00	1317.30	0.000
L13	73.25 - 68.25 (13)	P24x0.775	702.39	1317.30	0.533	0.00	1317.30	0.000
L14	68.25 - 68 (14)	P24x0.775	707.73	1317.30	0.537	0.00	1317.30	0.000
L15	68 - 67.75 (15)	P24x0.775	713.08	1317.30	0.541	0.00	1317.30	0.000
L16	67.75 - 62.75 (16)	P24x0.775	821.65	1317.30	0.624	0.00	1317.30	0.000
L17	62.75 - 60 (17)	P24x0.775	882.46	1317.30	0.670	0.00	1317.30	0.000
L18	60 - 57.5 (18)	P30x0.675	942.24	1828.80	0.515	0.00	1828.80	0.000
L19	57.5 - 57.25 (19)	P30x0.675	948.27	1828.80	0.519	0.00	1828.80	0.000
L20	57.25 - 52.25 (20)	P30x0.675	1070.51	1828.80	0.585	0.00	1828.80	0.000
L21	52.25 - 47.25 (21)	P30x0.675	1195.87	1828.80	0.654	0.00	1828.80	0.000
L22	47.25 - 45.33 (22)	P30x0.675	1244.92	1828.80	0.681	0.00	1828.80	0.000
L23	45.33 - 45.08 (23)	P30x0.8375	1251.33	2244.22	0.558	0.00	2244.22	0.000
L24	45.08 - 40.08 (24)	P30x0.8375	1381.39	2244.22	0.616	0.00	2244.22	0.000
L25	40.08 - 35.08 (25)	P30x0.8375	1514.49	2244.22	0.675	0.00	2244.22	0.000
L26	35.08 - 33.583 (26)	P30x0.8375	1554.91	2244.22	0.693	0.00	2244.22	0.000
L27	33.583 - 33.333 (27)	P30x1	1561.68	2650.20	0.589	0.00	2650.20	0.000
L28	33.333 - 32.42 (28)	P30x1	1586.48	2650.20	0.599	0.00	2650.20	0.000
L29	32.42 - 32.17 (29)	P30x0.675	1593.29	1828.80	0.871	0.00	1828.80	0.000
L30	32.17 - 30 (30)	P30x0.675	1652.64	1828.80	0.904	0.00	1828.80	0.000
L31	30 - 26.75 (31)	P36x0.625	1747.69	2373.92	0.736	0.00	2373.92	0.000
L32	26.75 - 26.5 (32)	P36x0.7125	1755.05	2761.27	0.636	0.00	2761.27	0.000
L33	26.5 - 21.5 (33)	P36x0.7125	1903.80	2761.27	0.689	0.00	2761.27	0.000
L34	21.5 - 21.25 (34)	P36x0.975	1911.31	3768.63	0.507	0.00	3768.63	0.000
L35	21.25 - 16.25 (35)	P36x0.975	2063.20	3768.63	0.547	0.00	3768.63	0.000
L36	16.25 - 11.25 (36)	P36x0.975	2217.99	3768.63	0.589	0.00	3768.63	0.000
L37	11.25 - 6.25 (37)	P36x0.975	2375.51	3768.63	0.630	0.00	3768.63	0.000
L38	6.25 - 1.25 (38)	P36x0.975	2535.60	3768.63	0.673	0.00	3768.63	0.000
L39	1.25 - 0 (39)	P36x0.975	2576.01	3768.63	0.684	0.00	3768.63	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	120 - 115 (1)	P24x0.25	3.65	201.86	0.018	0.57	324.23	0.002
L2	115 - 110 (2)	P24x0.25	4.85	201.86	0.024	0.57	324.23	0.002
L3	110 - 105 (3)	P24x0.25	9.82	201.86	0.049	0.57	324.23	0.002
L4	105 - 100 (4)	P24x0.25	10.12	201.86	0.050	0.57	324.23	0.002
L5	100 - 95 (5)	P24x0.25	15.25	201.86	0.076	0.57	324.23	0.002
L6	95 - 90 (6)	P24x0.25	15.51	201.86	0.077	0.57	324.23	0.002
L7	90 - 85 (7)	P24x0.375	19.03	315.62	0.060	0.78	655.57	0.001
L8	85 - 80 (8)	P24x0.375	19.41	315.62	0.061	2.08	655.57	0.003
L9	80 - 79.75 (9)	P24x0.625	19.44	520.47	0.037	2.08	1069.61	0.002
L10	79.75 - 78.5 (10)	P24x0.625	19.73	520.47	0.038	1.92	1069.61	0.002
L11	78.5 - 78.25 (11)	P24x0.775	19.77	641.24	0.031	1.90	1309.35	0.001
L12	78.25 - 73.25 (12)	P24x0.775	20.59	641.24	0.032	1.84	1309.35	0.001
L13	73.25 - 68.25 (13)	P24x0.775	21.37	641.24	0.033	1.76	1309.35	0.001
L14	68.25 - 68 (14)	P24x0.775	21.41	641.24	0.033	1.74	1309.35	0.001
L15	68 - 67.75 (15)	P24x0.775	21.44	641.24	0.033	1.74	1309.35	0.001
L16	67.75 - 62.75 (16)	P24x0.775	21.99	641.24	0.034	1.73	1309.35	0.001
L17	62.75 - 60 (17)	P24x0.775	22.25	641.24	0.035	1.73	1309.35	0.001
L18	60 - 57.5 (18)	P30x0.675	24.10	705.19	0.034	1.73	1818.12	0.001
L19	57.5 - 57.25 (19)	P30x0.675	24.13	705.19	0.034	1.73	1818.12	0.001
L20	57.25 - 52.25 (20)	P30x0.675	24.76	705.19	0.035	1.73	1818.12	0.001
L21	52.25 - 47.25 (21)	P30x0.675	25.43	705.19	0.036	1.73	1818.12	0.001
L22	47.25 - 45.33 (22)	P30x0.675	25.68	705.19	0.036	1.67	1818.12	0.001
L23	45.33 - 45.08 (23)	P30x0.8375	25.69	870.11	0.030	1.67	2230.88	0.001
L24	45.08 - 40.08 (24)	P30x0.8375	26.33	870.11	0.030	1.67	2230.88	0.001
L25	40.08 - 35.08 (25)	P30x0.8375	26.92	870.11	0.031	1.67	2230.88	0.001
L26	35.08 - 33.583 (26)	P30x0.8375	27.10	870.11	0.031	1.67	2230.88	0.001
L27	33.583 - 33.333 (27)	P30x1	27.11	1033.14	0.026	1.67	2634.14	0.001
L28	33.333 - 32.42 (28)	P30x1	27.22	1033.14	0.026	1.67	2634.14	0.001
L29	32.42 - 32.17 (29)	P30x0.675	27.24	705.19	0.039	1.67	1818.12	0.001
L30	32.17 - 30 (30)	P30x0.675	27.47	705.19	0.039	1.67	1818.12	0.001
L31	30 - 26.75 (31)	P36x0.625	29.43	787.66	0.037	1.67	2449.72	0.001
L32	26.75 - 26.5 (32)	P36x0.7125	29.45	895.71	0.033	1.67	2778.88	0.001
L33	26.5 - 21.5 (33)	P36x0.7125	30.04	895.71	0.034	1.67	2778.88	0.001
L34	21.5 - 21.25 (34)	P36x0.975	30.06	1216.59	0.025	1.67	3746.31	0.000
L35	21.25 - 16.25 (35)	P36x0.975	30.68	1216.59	0.025	1.67	3746.31	0.000
L36	16.25 - 11.25 (36)	P36x0.975	31.24	1216.59	0.026	1.67	3746.31	0.000
L37	11.25 - 6.25 (37)	P36x0.975	31.77	1216.59	0.026	1.67	3746.31	0.000
L38	6.25 - 1.25 (38)	P36x0.975	32.28	1216.59	0.027	1.67	3746.31	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L39	1.25 - 0 (39)	P36x0.975	32.40	1216.59	0.027	1.67	3746.31	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	120 - 115 (1)	0.004	0.037	0.000	0.018	0.002	0.042	1.050	4.8.2
L2	115 - 110 (2)	0.006	0.095	0.000	0.024	0.002	0.102	1.050	4.8.2
L3	110 - 105 (3)	0.012	0.189	0.000	0.049	0.002	0.203	1.050	4.8.2
L4	105 - 100 (4)	0.013	0.314	0.000	0.050	0.002	0.330	1.050	4.8.2
L5	100 - 95 (5)	0.018	0.501	0.000	0.076	0.002	0.525	1.050	4.8.2
L6	95 - 90 (6)	0.019	0.694	0.000	0.077	0.002	0.720	1.050	4.8.2
L7	90 - 85 (7)	0.016	0.588	0.000	0.060	0.001	0.607	1.050	4.8.2
L8	85 - 80 (8)	0.016	0.742	0.000	0.061	0.003	0.762	1.050	4.8.2
L9	80 - 79.75 (9)	0.010	0.434	0.000	0.037	0.002	0.446	1.050	4.8.2
L10	79.75 - 78.5 (10)	0.010	0.457	0.000	0.038	0.002	0.469	1.050	4.8.2
L11	78.5 - 78.25 (11)	0.008	0.377	0.000	0.031	0.001	0.386	1.050	4.8.2
L12	78.25 - 73.25 (12)	0.009	0.454	0.000	0.032	0.001	0.464	1.050	4.8.2
L13	73.25 - 68.25 (13)	0.010	0.533	0.000	0.033	0.001	0.544	1.050	4.8.2
L14	68.25 - 68 (14)	0.010	0.537	0.000	0.033	0.001	0.548	1.050	4.8.2
L15	68 - 67.75 (15)	0.010	0.541	0.000	0.033	0.001	0.552	1.050	4.8.2
L16	67.75 - 62.75 (16)	0.010	0.624	0.000	0.034	0.001	0.635	1.050	4.8.2
L17	62.75 - 60 (17)	0.011	0.670	0.000	0.035	0.001	0.682	1.050	4.8.2
L18	60 - 57.5 (18)	0.011	0.515	0.000	0.034	0.001	0.527	1.050	4.8.2
L19	57.5 - 57.25 (19)	0.011	0.519	0.000	0.034	0.001	0.530	1.050	4.8.2
L20	57.25 - 52.25 (20)	0.011	0.585	0.000	0.035	0.001	0.598	1.050	4.8.2
L21	52.25 - 47.25 (21)	0.012	0.654	0.000	0.036	0.001	0.667	1.050	4.8.2
L22	47.25 - 45.33 (22)	0.012	0.681	0.000	0.036	0.001	0.694	1.050	4.8.2
L23	45.33 - 45.08 (23)	0.010	0.558	0.000	0.030	0.001	0.568	1.050	4.8.2
L24	45.08 - 40.08 (24)	0.010	0.616	0.000	0.030	0.001	0.627	1.050	4.8.2
L25	40.08 - 35.08 (25)	0.011	0.675	0.000	0.031	0.001	0.687	1.050	4.8.2
L26	35.08 - 33.583 (26)	0.011	0.693	0.000	0.031	0.001	0.705	1.050	4.8.2
L27	33.583 - 33.333 (27)	0.009	0.589	0.000	0.026	0.001	0.599	1.050	4.8.2
L28	33.333 - 32.42 (28)	0.010	0.599	0.000	0.026	0.001	0.609	1.050	4.8.2
L29	32.42 - 32.17 (29)	0.014	0.871	0.000	0.039	0.001	0.887	1.050	4.8.2
L30	32.17 - 30 (30)	0.014	0.904	0.000	0.039	0.001	0.920	1.050	4.8.2
L31	30 - 26.75 (31)	0.014	0.736	0.000	0.037	0.001	0.752	1.050	4.8.2
L32	26.75 - 26.5 (32)	0.012	0.636	0.000	0.033	0.001	0.649	1.050	4.8.2
L33	26.5 - 21.5 (33)	0.013	0.689	0.000	0.034	0.001	0.703	1.050	4.8.2

Section No.	Elevation ft	Ratio P_u / ϕP_n	Ratio M_{ux} / ϕM_{nx}	Ratio M_{uy} / ϕM_{ny}	Ratio V_u / ϕV_n	Ratio T_u / ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L34	21.5 - 21.25 (34)	0.009	0.507	0.000	0.025	0.000	0.517	1.050	4.8.2
L35	21.25 - 16.25 (35)	0.010	0.547	0.000	0.025	0.000	0.558	1.050	4.8.2
L36	16.25 - 11.25 (36)	0.011	0.589	0.000	0.026	0.000	0.600	1.050	4.8.2
L37	11.25 - 6.25 (37)	0.011	0.630	0.000	0.026	0.000	0.642	1.050	4.8.2
L38	6.25 - 1.25 (38)	0.012	0.673	0.000	0.027	0.000	0.685	1.050	4.8.2
L39	1.25 - 0 (39)	0.012	0.684	0.000	0.027	0.000	0.696	1.050	4.8.2

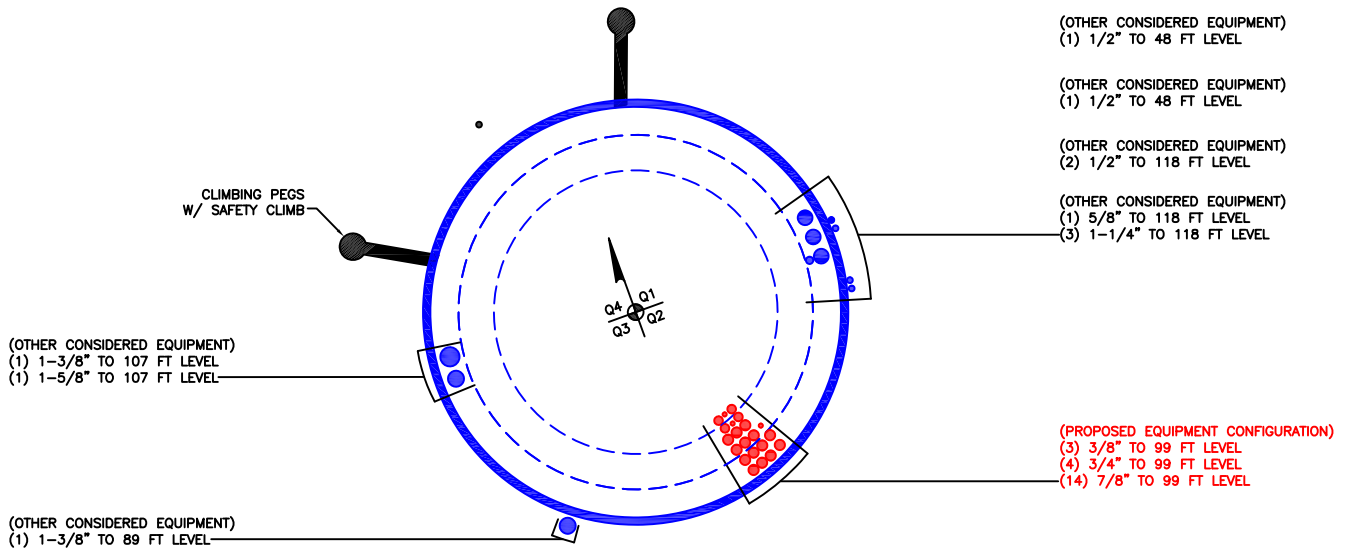
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	120 - 115	Pole	P24x0.25	1	-2.69	695.38	4.0	Pass
L2	115 - 110	Pole	P24x0.25	2	-3.76	695.38	9.7	Pass
L3	110 - 105	Pole	P24x0.25	3	-8.15	695.38	19.4	Pass
L4	105 - 100	Pole	P24x0.25	4	-8.59	695.38	31.4	Pass
L5	100 - 95	Pole	P24x0.25	5	-12.07	695.38	50.0	Pass
L6	95 - 90	Pole	P24x0.25	6	-12.61	695.38	68.5	Pass
L7	90 - 85	Pole	P24x0.375	7	-16.36	1104.67	57.8	Pass
L8	85 - 80	Pole	P24x0.375	8	-17.19	1104.67	72.6	Pass
L9	80 - 79.75	Pole	P24x0.625	9	-17.27	1821.64	42.5	Pass
L10	79.75 - 78.5	Pole	P24x0.625	10	-17.58	1821.64	44.7	Pass
L11	78.5 - 78.25	Pole	P24x0.775	11	-17.66	2244.34	36.8	Pass
L12	78.25 - 73.25	Pole	P24x0.775	12	-19.19	2244.34	44.2	Pass
L13	73.25 - 68.25	Pole	P24x0.775	13	-20.75	2244.34	51.8	Pass
L14	68.25 - 68	Pole	P24x0.775	14	-20.84	2244.34	52.2	Pass
L15	68 - 67.75	Pole	P24x0.775	15	-20.92	2244.34	52.6	Pass
L16	67.75 - 62.75	Pole	P24x0.775	16	-22.22	2244.34	60.5	Pass
L17	62.75 - 60	Pole	P24x0.775	17	-22.91	2244.34	64.9	Pass
L18	60 - 57.5	Pole	P30x0.675	18	-25.08	2468.16	50.2	Pass
L19	57.5 - 57.25	Pole	P30x0.675	19	-25.16	2468.16	50.5	Pass
L20	57.25 - 52.25	Pole	P30x0.675	20	-26.54	2468.16	56.9	Pass
L21	52.25 - 47.25	Pole	P30x0.675	21	-28.03	2468.16	63.5	Pass
L22	47.25 - 45.33	Pole	P30x0.675	22	-28.56	2468.16	66.1	Pass
L23	45.33 - 45.08	Pole	P30x0.8375	23	-28.66	3045.38	54.1	Pass
L24	45.08 - 40.08	Pole	P30x0.8375	24	-30.30	3045.38	59.7	Pass
L25	40.08 - 35.08	Pole	P30x0.8375	25	-31.96	3045.38	65.4	Pass
L26	35.08 - 33.583	Pole	P30x0.8375	26	-32.46	3045.38	67.1	Pass
L27	33.583 - 33.333	Pole	P30x1	27	-32.57	3616.00	57.1	Pass
L28	33.333 - 32.42	Pole	P30x1	28	-32.90	3616.00	58.0	Pass
L29	32.42 - 32.17	Pole	P30x0.675	29	-32.98	2468.16	84.5	Pass
L30	32.17 - 30	Pole	P30x0.675	30	-33.61	2468.16	87.6	Pass
L31	30 - 26.75	Pole	P36x0.625	31	-36.41	2756.82	71.6	Pass
L32	26.75 - 26.5	Pole	P36x0.7125	32	-36.50	3135.00	61.8	Pass
L33	26.5 - 21.5	Pole	P36x0.7125	33	-38.24	3135.00	67.0	Pass
L34	21.5 - 21.25	Pole	P36x0.975	34	-38.36	4258.08	49.3	Pass
L35	21.25 - 16.25	Pole	P36x0.975	35	-40.57	4258.08	53.2	Pass
L36	16.25 - 11.25	Pole	P36x0.975	36	-42.80	4258.08	57.1	Pass
L37	11.25 - 6.25	Pole	P36x0.975	37	-45.04	4258.08	61.2	Pass
L38	6.25 - 1.25	Pole	P36x0.975	38	-47.29	4258.08	65.3	Pass
L39	1.25 - 0	Pole	P36x0.975	39	-47.85	4258.08	66.3	Pass
							Summary	
						Pole (L30)	87.6	Pass
						RATING =	**87.6**	**Pass**

***NOTE: Above stress ratios for reinforced sections are approximate. More exact calculations are presented in Appendix C.**

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 48 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1/2" TO 48 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(2) 1/2" TO 118 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 5/8" TO 118 FT LEVEL
(3) 1-1/4" TO 118 FT LEVEL
CLIMBING PEGS
W/ SAFETY CLIMB
Q4
Q1
Q3
Q2
(OTHER CONSIDERED EQUIPMENT)
(1) 1-3/8" TO 107 FT LEVEL
(1) 1-5/8" TO 107 FT LEVEL
(PROPOSED EQUIPMENT CONFIGURATION)
(3) 3/8" TO 99 FT LEVEL
(4) 3/4" TO 99 FT LEVEL
(14) 7/8" TO 99 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(1) 1-3/8" TO 89 FT LEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

CCIpole

per TIA-222- H

Site BU: 876329

Work Order: 2113636

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	120	30		0	24	24	0.25		A53-B-42
2	90	30		0	24.00	24	0.375		A53-B-42
3	60	30		0	30.00	30	0.375		A53-B-42
4	30	30		0	36.00	36	0.375		A53-B-42

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	68	80	plate	PL 3" x 1.25"	4	80	170	260	350														
2	32.42	33.583	channel	MP3-05 (1.1875in)	4	5	95	185	275														
3	33.583	45.33	channel	MP3-03 (1.1875in)	4	5	95	185	275														
4	0	21.5	plate	CFP-06010023	4	60	150	240	330														
5	0	26.75	plate	CFP-06512592	4	30	120	210	300														
6	26.75	57.5	plate	CFP-06010029	4	30	120	210	300														
7	57.5	78.5	plate	CCI-SFP-060100	4	30	120	210	300														
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Type	Bottom Termination Length (in)	Top Termination Type	Top Termination Length (in)	Lu (in)	Net Area (in2)	Bolt Hole Size (in)	Reinforcement Material
1	3	1.25	3.75	0.625	PC 8.8 - M20 (100)	12	PC 8.8 - M20 (100)	12.000	24.000	1.953	1.3750	A572-65
2	5.33	2.09	5.65	0.79	PC 8.8 - M20 (100)	29	PC 8.8 - M20 (100)	29.000	18.000	5.025	1.1875	A572-65
3	4.06	1.57	2.92	0.59	PC 8.8 - M20 (100)	14	PC 8.8 - M20 (100)	14.000	18.000	2.545	1.1875	A572-65
4	6	1	6	0.5	Welded	n/a	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
5	6.5	1.25	8.125	0.625	Welded	n/a	PC 8.8 - M20 (100)	33.000	19.000	6.563	1.1875	A572-65
6	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65
7	6	1	6	0.5	PC 8.8 - M20 (100)	24	PC 8.8 - M20 (100)	24.000	16.000	4.750	1.1875	A572-65

Connection Details for Custom Reinforcements

Reinforcement	End	# Bolts	N or X	Bolt Spacing (in)	Edge Dist (in)	Weld Grade (ksi)	Transverse (Horiz.) Weld Type	Horiz. Weld Length (in)	Horiz. Groove Depth (in)	Horiz. Groove Angle (deg)	Horiz. Fillet Size (in)	Vertical Weld Length (in)	Vertical Fillet Size (in)	Rev H Connection Capacity (kip)
PL 3" x 1.25"	Top	4	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	4	N	3	3	-	-	-	-	-	-	-	-	-
CFP-06010023	Top	8	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	-	N	-	-	80	None	-	-	-	-	30	0.375	-
CFP-06010029	Top	8	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	8	N	3	3	-	-	-	-	-	-	-	-	-
CFP-06512592	Top	11	N	3	3	-	-	-	-	-	-	-	-	-
	Bottom	-	-	-	-	80	None	-	-	-	-	66	0.375	-

TNX Geometry Input

Increment (ft): 5 Export to TNX

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	120 - 115	5		0	24.000	24.000	0.25	A53-B-42	1.000
2	115 - 110	5		0	24.000	24.000	0.25	A53-B-42	1.000
3	110 - 105	5		0	24.000	24.000	0.25	A53-B-42	1.000
4	105 - 100	5		0	24.000	24.000	0.25	A53-B-42	1.000
5	100 - 95	5		0	24.000	24.000	0.25	A53-B-42	1.000
6	95 - 90	5	0	0	24.000	24.000	0.25	A53-B-42	1.000
7	90 - 85	5		0	24.000	24.000	0.375	A53-B-42	1.000
8	85 - 80	5		0	24.000	24.000	0.375	A53-B-42	1.000
9	80 - 79.75	0.25		0	24.000	24.000	0.625	A53-B-42	0.933
10	79.75 - 78.5	1.25		0	24.000	24.000	0.625	A53-B-42	0.933
11	78.5 - 78.25	0.25		0	24.000	24.000	0.775	A53-B-42	0.917
12	78.25 - 73.25	5		0	24.000	24.000	0.775	A53-B-42	0.917
13	73.25 - 68.25	5		0	24.000	24.000	0.775	A53-B-42	0.917
14	68.25 - 68	0.25		0	24.000	24.000	0.775	A53-B-42	0.917
15	68 - 67.75	0.25		0	24.000	24.000	0.775	A53-B-42	0.917
16	67.75 - 62.75	5		0	24.000	24.000	0.775	A53-B-42	0.917
17	62.75 - 60	2.75	0	0	24.000	24.000	0.775	A53-B-42	0.917
18	60 - 57.5	2.5		0	30.000	30.000	0.675	A53-B-42	0.947
19	57.5 - 57.25	0.25		0	30.000	30.000	0.675	A53-B-42	0.947
20	57.25 - 52.25	5		0	30.000	30.000	0.675	A53-B-42	0.947
21	52.25 - 47.25	5		0	30.000	30.000	0.675	A53-B-42	0.947
22	47.25 - 45.33	1.92		0	30.000	30.000	0.675	A53-B-42	0.947
23	45.33 - 45.08	0.25		0	30.000	30.000	0.8375	A53-B-42	0.920
24	45.08 - 40.08	5		0	30.000	30.000	0.8375	A53-B-42	0.920
25	40.08 - 35.08	5		0	30.000	30.000	0.8375	A53-B-42	0.920
26	35.08 - 33.583	1.497		0	30.000	30.000	0.8375	A53-B-42	0.920
27	33.583 - 33.333	0.25		0	30.000	30.000	1	A53-B-42	0.895
28	33.333 - 32.42	0.913		0	30.000	30.000	1	A53-B-42	0.895
29	32.42 - 32.17	0.25		0	30.000	30.000	0.675	A53-B-42	0.947
30	32.17 - 30	2.17	0	0	30.000	30.000	0.675	A53-B-42	0.947
31	30 - 26.75	3.25		0	36.000	36.000	0.625	A53-B-42	0.950
32	26.75 - 26.5	0.25		0	36.000	36.000	0.7125	A53-B-42	0.943
33	26.5 - 21.5	5		0	36.000	36.000	0.7125	A53-B-42	0.943
34	21.5 - 21.25	0.25		0	36.000	36.000	0.975	A53-B-42	0.918
35	21.25 - 16.25	5		0	36.000	36.000	0.975	A53-B-42	0.918
36	16.25 - 11.25	5		0	36.000	36.000	0.975	A53-B-42	0.918
37	11.25 - 6.25	5		0	36.000	36.000	0.975	A53-B-42	0.918
38	6.25 - 1.25	5		0	36.000	36.000	0.975	A53-B-42	0.918
39	1.25 - 0	1.25		0	36.000	36.000	0.975	A53-B-42	0.918

TNX Section Forces

Increment (ft):	5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	120 - 115	2.69	14.76	3.65
2	115 - 110	3.76	37.84	4.85
3	110 - 105	8.15	74.78	9.82
4	105 - 100	8.59	124.57	10.12
5	100 - 95	12.07	198.58	15.25
6	95 - 90	12.61	275.41	15.51
7	90 - 85	16.36	366.52	19.03
8	85 - 80	17.19	462.49	19.41
9	80 - 79.75	17.27	467.35	19.44
10	79.75 - 78.5	17.58	491.85	19.73
11	78.5 - 78.25	17.66	496.78	19.77
12	78.25 - 73.25	19.19	597.59	20.59
13	73.25 - 68.25	20.75	702.39	21.37
14	68.25 - 68	20.84	707.73	21.41
15	68 - 67.75	20.92	713.08	21.44
16	67.75 - 62.75	22.22	821.65	21.99
17	62.75 - 60	22.91	882.46	22.25
18	60 - 57.5	25.08	942.25	24.10
19	57.5 - 57.25	25.16	948.27	24.13
20	57.25 - 52.25	26.54	1070.51	24.76
21	52.25 - 47.25	28.03	1195.87	25.43
22	47.25 - 45.33	28.56	1244.92	25.68
23	45.33 - 45.08	28.66	1251.33	25.69
24	45.08 - 40.08	30.30	1381.39	26.33
25	40.08 - 35.08	31.96	1514.49	26.92
26	35.08 - 33.583	32.46	1554.90	27.10
27	33.583 - 33.333	32.57	1561.68	27.11
28	33.333 - 32.42	32.90	1586.48	27.22
29	32.42 - 32.17	32.98	1593.29	27.24
30	32.17 - 30	33.61	1652.64	27.47
31	30 - 26.75	36.41	1747.69	29.43
32	26.75 - 26.5	36.50	1755.05	29.45
33	26.5 - 21.5	38.24	1903.80	30.04
34	21.5 - 21.25	38.36	1911.31	30.06
35	21.25 - 16.25	40.57	2063.20	30.68
36	16.25 - 11.25	42.80	2217.99	31.24
37	11.25 - 6.25	45.04	2375.50	31.77
38	6.25 - 1.25	47.29	2535.60	32.28
39	1.25 - 0	47.85	2576.01	32.40

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
120 - 115	Pole	TP24x24x0.25	Pole	4.0%	Pass
115 - 110	Pole	TP24x24x0.25	Pole	9.7%	Pass
110 - 105	Pole	TP24x24x0.25	Pole	19.3%	Pass
105 - 100	Pole	TP24x24x0.25	Pole	31.4%	Pass
100 - 95	Pole	TP24x24x0.25	Pole	50.0%	Pass
95 - 90	Pole	TP24x24x0.25	Pole	68.5%	Pass
90 - 85	Pole	TP24x24x0.375	Pole	57.8%	Pass
85 - 80	Pole	TP24x24x0.375	Pole	72.5%	Pass
80 - 79.75	Pole + Reinf.	TP24x24x0.625	Reinf. 1 Tension Rupture	69.6%	Pass
79.75 - 78.5	Pole + Reinf.	TP24x24x0.625	Reinf. 1 Tension Rupture	73.3%	Pass
78.5 - 78.25	Pole + Reinf.	TP24x24x0.775	Reinf. 7 Tension Rupture	39.6%	Pass
78.25 - 73.25	Pole + Reinf.	TP24x24x0.775	Reinf. 7 Tension Rupture	47.5%	Pass
73.25 - 68.25	Pole + Reinf.	TP24x24x0.775	Reinf. 7 Tension Rupture	55.7%	Pass
68.25 - 68	Pole + Reinf.	TP24x24x0.775	Reinf. 7 Tension Rupture	56.2%	Pass
68 - 67.75	Pole + Reinf.	TP24x24x0.775	Reinf. 7 Tension Rupture	56.6%	Pass
67.75 - 62.75	Pole + Reinf.	TP24x24x0.775	Reinf. 7 Tension Rupture	65.1%	Pass
62.75 - 60	Pole + Reinf.	TP24x24x0.775	Reinf. 7 Tension Rupture	69.9%	Pass
60 - 57.5	Pole + Reinf.	TP30x30x0.675	Pole	54.7%	Pass
57.5 - 57.25	Pole + Reinf.	TP30x30x0.675	Pole	55.1%	Pass
57.25 - 52.25	Pole + Reinf.	TP30x30x0.675	Pole	62.1%	Pass
52.25 - 47.25	Pole + Reinf.	TP30x30x0.675	Pole	69.3%	Pass
47.25 - 45.33	Pole + Reinf.	TP30x30x0.675	Pole	72.1%	Pass
45.33 - 45.08	Pole + Reinf.	TP30x30x0.8375	Pole	59.8%	Pass
45.08 - 40.08	Pole + Reinf.	TP30x30x0.8375	Pole	66.0%	Pass
40.08 - 35.08	Pole + Reinf.	TP30x30x0.8375	Pole	72.3%	Pass
35.08 - 33.58	Pole + Reinf.	TP30x30x0.8375	Pole	74.3%	Pass
33.58 - 33.33	Pole + Reinf.	TP30x30x1	Pole	63.6%	Pass
33.33 - 32.42	Pole + Reinf.	TP30x30x1	Pole	64.6%	Pass
32.42 - 32.17	Pole + Reinf.	TP30x30x0.675	Pole	92.2%	Pass
32.17 - 30	Pole + Reinf.	TP30x30x0.675	Pole	95.6%	Pass
30 - 26.75	Pole + Reinf.	TP36x36x0.625	Pole	78.0%	Pass
26.75 - 26.5	Pole + Reinf.	TP36x36x0.7125	Pole	68.5%	Pass
26.5 - 21.5	Pole + Reinf.	TP36x36x0.7125	Pole	74.2%	Pass
21.5 - 21.25	Pole + Reinf.	TP36x36x0.975	Pole	55.7%	Pass
21.25 - 16.25	Pole + Reinf.	TP36x36x0.975	Pole	60.2%	Pass
16.25 - 11.25	Pole + Reinf.	TP36x36x0.975	Pole	64.7%	Pass
11.25 - 6.25	Pole + Reinf.	TP36x36x0.975	Pole	69.2%	Pass
6.25 - 1.25	Pole + Reinf.	TP36x36x0.975	Pole	73.9%	Pass
1.25 - 0	Pole + Reinf.	TP36x36x0.975	Pole	75.0%	Pass
				Summary	
			Pole	95.6%	Pass
			Reinforcement	92.7%	Pass
			Overall	95.6%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity* (100% Max. Allowable)							
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7
120 - 115	1315	n/a	1315	18.65	n/a	18.65	4.0%							
115 - 110	1315	n/a	1315	18.65	n/a	18.65	9.7%							
110 - 105	1315	n/a	1315	18.65	n/a	18.65	19.3%							
105 - 100	1315	n/a	1315	18.65	n/a	18.65	31.4%							
100 - 95	1315	n/a	1315	18.65	n/a	18.65	50.0%							
95 - 90	1315	n/a	1315	18.65	n/a	18.65	68.5%							
90 - 85	1942	n/a	1942	27.83	n/a	27.83	57.8%							
85 - 80	1942	n/a	1942	27.83	n/a	27.83	72.5%							
80 - 79.75	1942	1202	3144	27.83	15.00	42.83	45.1%	69.6%						
79.75 - 78.5	1942	1202	3144	27.83	15.00	42.83	47.4%	73.3%						
78.5 - 78.25	1942	1912	3854	27.83	24.00	51.83	39.0%							39.6%
78.25 - 73.25	1942	1912	3854	27.83	24.00	51.83	46.8%							47.5%
73.25 - 68.25	1942	1912	3854	27.83	24.00	51.83	55.0%							55.7%
68.25 - 68	1942	1912	3854	27.83	24.00	51.83	55.4%							56.2%
68 - 67.75	1942	1912	3854	27.83	24.00	51.83	55.8%							56.6%
67.75 - 62.75	1942	1912	3854	27.83	24.00	51.83	64.2%							65.1%
62.75 - 60	1942	1912	3854	27.83	24.00	51.83	68.9%							69.9%
60 - 57.5	3829	2920	6749	34.90	24.00	58.90	54.7%							53.1%
57.5 - 57.25	3829	2920	6749	34.90	24.00	58.90	55.1%						53.4%	
57.25 - 52.25	3829	2920	6749	34.90	24.00	58.90	62.1%						60.2%	
52.25 - 47.25	3829	2920	6749	34.90	24.00	58.90	69.3%						67.2%	
47.25 - 45.33	3829	2920	6749	34.90	24.00	58.90	72.1%						69.9%	
45.33 - 45.08	3829	4343	8173	34.90	35.68	70.58	59.8%			55.8%			58.0%	
45.08 - 40.08	3829	4343	8173	34.90	35.68	70.58	66.0%			61.5%			64.0%	
40.08 - 35.08	3829	4343	8173	34.90	35.68	70.58	72.3%			67.4%			70.1%	
35.08 - 33.58	3829	4343	8173	34.90	35.68	70.58	74.3%			69.2%			72.0%	
33.58 - 33.33	3829	5752	9581	34.90	46.60	81.50	63.6%		57.6%				61.6%	
33.33 - 32.42	3829	5752	9581	34.90	46.60	81.50	64.6%		58.6%				62.6%	
32.42 - 32.17	3829	2920	6749	34.90	24.00	58.90	92.2%						89.4%	
32.17 - 30	3829	2920	6749	34.90	24.00	58.90	95.6%						92.7%	
30 - 26.75	6659	4144	10803	41.97	24.00	65.97	78.0%						73.4%	
26.75 - 26.5	6659	5696	12355	41.97	32.50	74.47	68.5%					63.6%		
26.5 - 21.5	6659	5696	12355	41.97	32.50	74.47	74.2%					68.9%		
21.5 - 21.25	6659	9840	16499	41.97	56.50	98.47	55.7%				52.4%	51.8%		
21.25 - 16.25	6659	9840	16499	41.97	56.50	98.47	60.2%				56.6%	55.9%		
16.25 - 11.25	6659	9840	16499	41.97	56.50	98.47	64.7%				60.8%	60.0%		
11.25 - 6.25	6659	9840	16499	41.97	56.50	98.47	69.2%				65.1%	64.3%		
6.25 - 1.25	6659	9840	16499	41.97	56.50	98.47	73.9%				69.5%	68.6%		
1.25 - 0	6659	9840	16499	41.97	56.50	98.47	75.0%				70.6%	69.7%		

Note: Section capacity checked using 5 degree increments.

**Rating per TIA-222-H Section 15.5.*

Monopole Flange Plate Connection

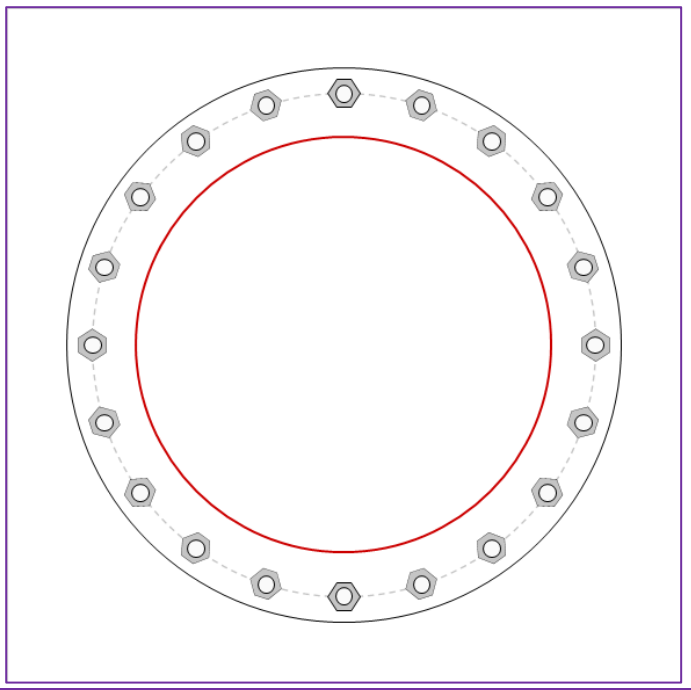
Elevation = 90 ft.

BU #	876329
Site Name	I. VIEW CEM. (FILLEY P
Order #	60071 Rev. 0
TIA-222 Revision	H

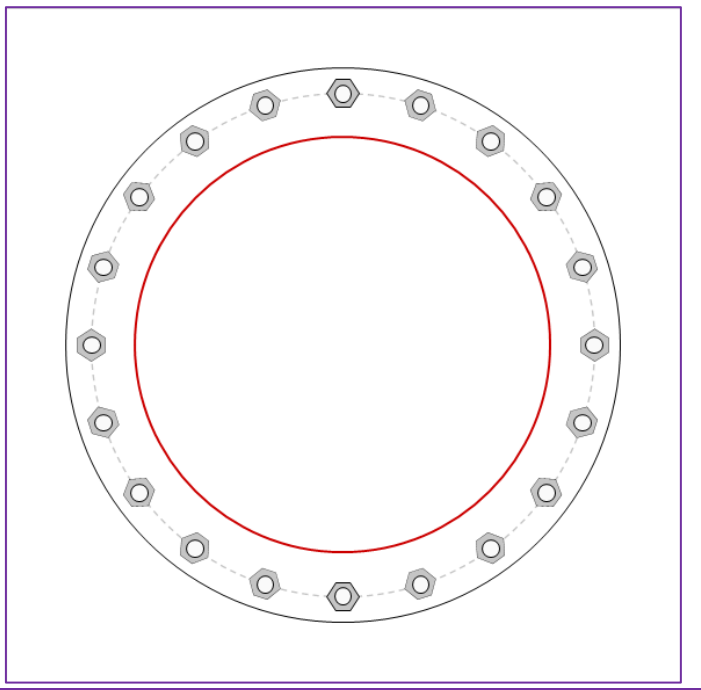
Applied Loads	
Moment (kip-ft)	275.41
Axial Force (kips)	12.61
Shear Force (kips)	15.51

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(20) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 29" BC

Top Plate Data

32" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

32" OD x 1.5" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Bottom Stiffener Data

N/A

Top Pole Data

24" x 0.25" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bottom Pole Data

24" x 0.375" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	22.15	
Allowable (kips)	54.53	
Stress Rating:	**38.7%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	15.93	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**46.8%**	**Pass**
Tension Side Stress Rating:	**22.2%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	15.93	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**46.8%**	**Pass**
Tension Side Stress Rating:	**22.2%**	**Pass**

Monopole Flange Plate Connection

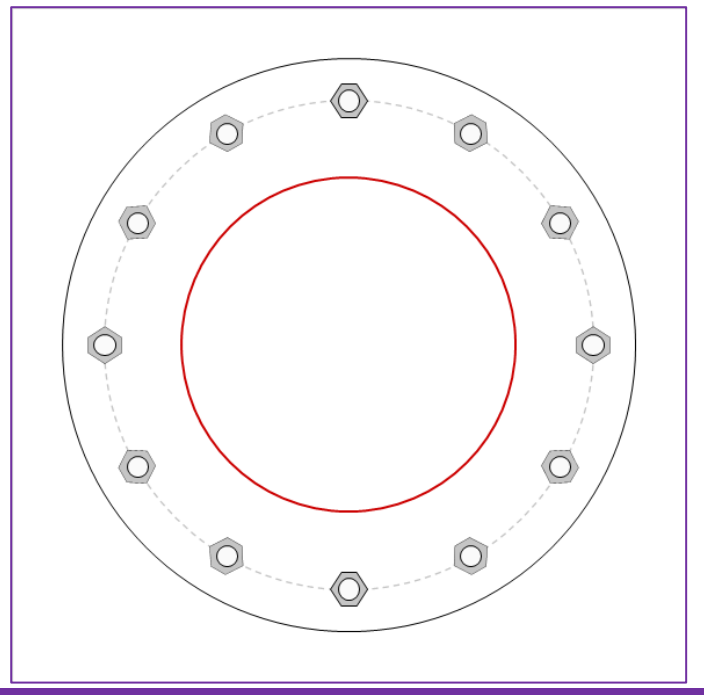
Elevation = 60 ft.

BU #	876329
Site Name	I. VIEW CEM. (FILLEY P
Order #	60071 Rev. 0
TIA-222 Revision	H

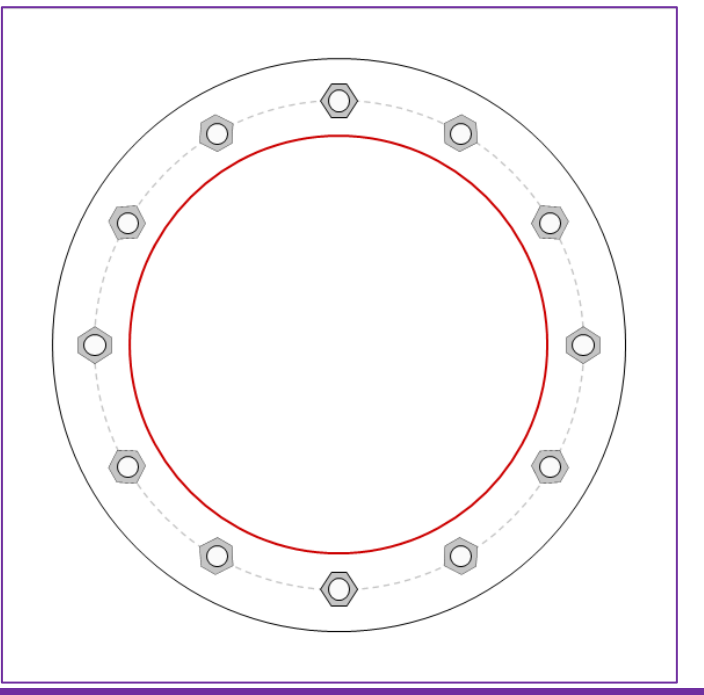
Applied Loads to Flange Connections		Applied Loads to Bridge Stiffeners	
Moment (kip-ft)	240.05	Moment (kip-ft)	642.42
Axial Force (kips)	22.91	Axial Force (kips)	0.00
Shear Force (kips)	22.25	Shear Force (kips)	0.00

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(12) 1-1/2" ø bolts (A325 N; Fy=81 ksi, Fu=120 ksi) on 35" BC

Top Plate Data

41" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

24" x 0.775" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bridge Stiffener Group 1 Data

(4) Welded, 6''x1.25'', A572-65, Lu=5.63", Upper Plate Width=15.5'', Lower Plate Width=9.5'', Neglect Flange in MOI: No

Bottom Plate Data

41" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

30" x 0.675" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	25.50	
Allowable (kips)	126.87	
Stress Rating:	**19.1%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	12.68	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**37.3%**	**Pass**
Tension Side Stress Rating:	**20.1%**	**Pass**

Bridge Stiffener Group 1 Analysis Capacity

Max Compression (kip):	179.28	
Max Tension (kip):	179.28	
Comp. Capacity (kip):	428.71	
Tens. Capacity (kip):	438.75	(Yield)
Comp. Stress Rating:	**39.8%**	**Pass**
Tens. Stress Rating:	**38.9%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	6.00	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**17.6%**	**Pass**
Tension Side Stress Rating:	**5.8%**	**Pass**

Welded Bridge Stiffener Design

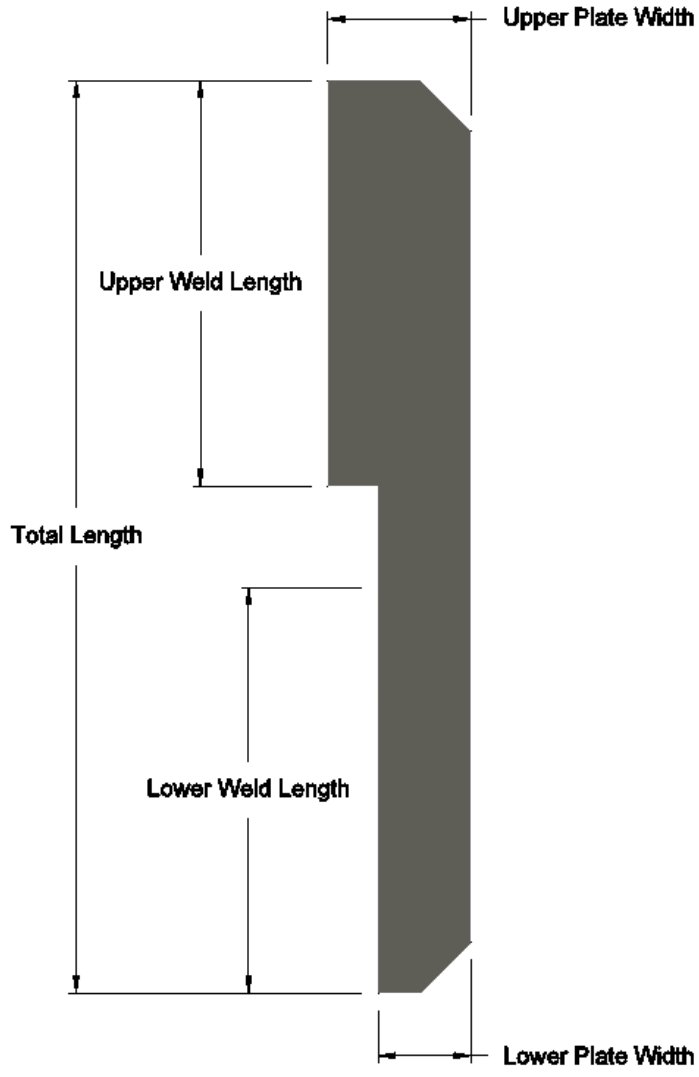
Elevation = 60 ft.

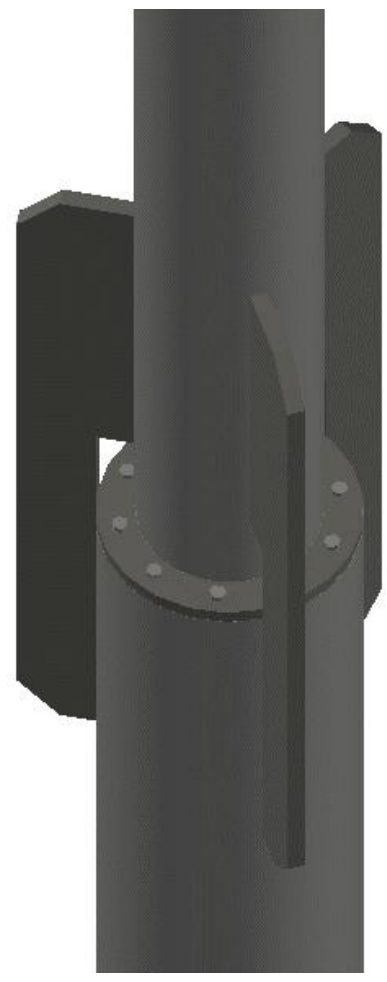
BU #	876329
Site Name	N. VIEW CEM. (FILLEY PA
Order #	60071 Rev. 0

TIA-222 Revision	H

Applied Loads to Design Groups	
Moment (kip-ft)	642.42
Axial Force (kips)	0.00
Shear Force (kips)	0.00

**TIA-222-H Section 15.5 Applied*





Design Properties

Bridge Stiffener Group 1 Data

(4) Welded, 6''x1.25'', A572-65, Lu=5.63", Upper Plate Width=15.5'', Lower Plate Width=9.5'', Neglect Flange in MOI: No

Total Length:	108	in
Weld Type:	Fillet (both sides)	
Weld Size:	0.375	in
Exx:	80	ksi
Upper Weld Length:	51.19	in
Upper Plate Width:	15.5	in
Lower Weld Length:	51.19	in
Lower Plate Width:	9.5	in
Stiffener Front EPA (No Ice):	12.95	ft²
Stiffener Side EPA (No Ice):	1.88	ft²
Stiffener Front EPA (1/2'' Ice):	13.59	ft²
Stiffener Side EPA (1/2'' Ice):	3.41	ft²
Stiffener Weight (No Ice):	0.473	kip
Stiffener Weight (1/2'' Ice):	0.521	kip

Upper Weld Size:	***Good***
Upper Weld Rating:	**20.24%**
Lower Weld Size:	***Good***
Lower Weld Rating:	**19.49%**
Top Plate Lateral-Torsional Buckling Rating:	**4.20%**
Top Plate Tension Yield Rating:	**6.84%**
Top Plate Tension Rupture Rating:	**7.41%**
Top Plate Interaction Rating:	**4.78%**
Bottom Plate Lateral-Torsional Buckling Rating:	**2.62%**
Bottom Plate Tension Yield Rating:	**6.84%**
Bottom Plate Tension Rupture Rating:	**7.41%**
Bottom Plate Interaction Rating:	**3.19%**
Top Pole Punching Shear Rating:	**6.34%**
Bottom Pole Punching Shear Rating:	**4.98%**

Monopole Flange Plate Connection

Elevation = 30 ft.

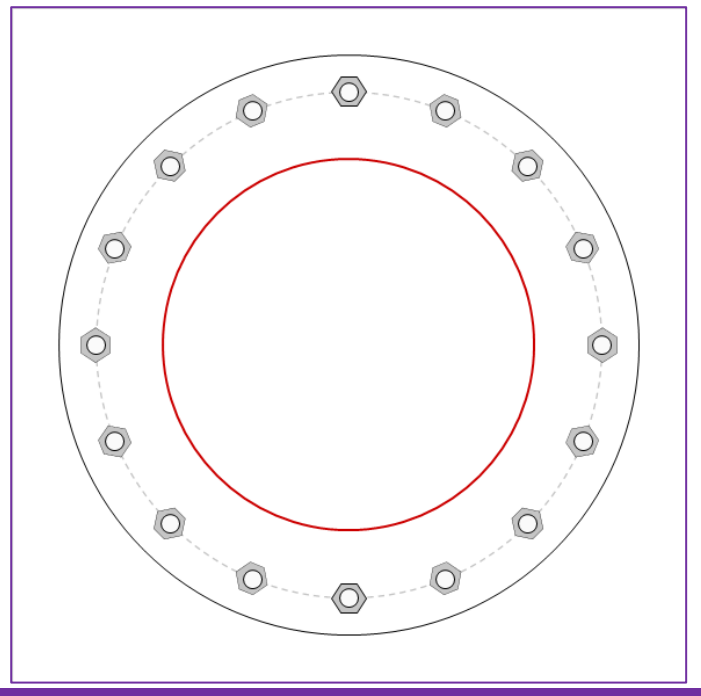
BU #	876329
Site Name	I. VIEW CEM. (FILLEY P
Order #	60071 Rev. 0

TIA-222 Revision	H

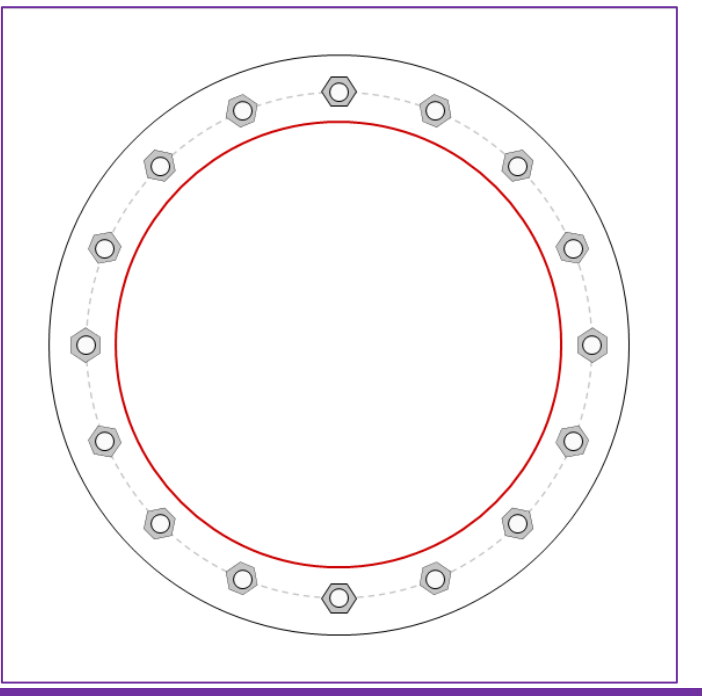
Applied Loads to Flange Connections		Applied Loads to Bridge Stiffeners	
Moment (kip-ft)	389.34	Moment (kip-ft)	1263.30
Axial Force (kips)	33.61	Axial Force (kips)	0.00
Shear Force (kips)	27.47	Shear Force (kips)	0.00

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(16) 1-1/2" ø bolts (A325 N; Fy=81 ksi, Fu=120 ksi) on 41" BC

Top Plate Data

47" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

30" x 0.675" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bridge Stiffener Group 1 Data

(4) Welded, 4.25''x1.25'', A572-65, Lu=12", Upper Plate Width=12.75'', Lower Plate Width=8.625'', Neglect Flange in MOI: No

Bottom Plate Data

47" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

36" x 0.625" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Bridge Stiffener Group 2 Data

(4) Welded, 6''x1.25'', A572-65, Lu=5.63", Upper Plate Width=15.5'', Lower Plate Width=9.5'', Neglect Flange in MOI: No

Analysis Results

Bolt Capacity

Max Load (kips)	26.37	
Allowable (kips)	126.87	
Stress Rating:	**19.8%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	14.74	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**43.3%**	**Pass**
Tension Side Stress Rating:	**22.3%**	**Pass**

Bridge Stiffener Group 1 Analysis Capacity

Max Compression (kip):	128.28	
Max Tension (kip):	128.28	
Comp. Capacity (kip):	279.77	
Tens. Capacity (kip):	310.78	(Yield)
Comp. Stress Rating:	**43.7%**	**Pass**
Tens. Stress Rating:	**39.3%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	6.62	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**19.4%**	**Pass**
Tension Side Stress Rating:	**6.7%**	**Pass**

Bridge Stiffener Group 2 Analysis Capacity

Max Compression (kip):	181.10	
Max Tension (kip):	181.10	
Comp. Capacity (kip):	428.71	
Tens. Capacity (kip):	438.75	(Yield)
Comp. Stress Rating:	**40.2%**	**Pass**
Tens. Stress Rating:	**39.3%**	**Pass**

Welded Bridge Stiffener Design

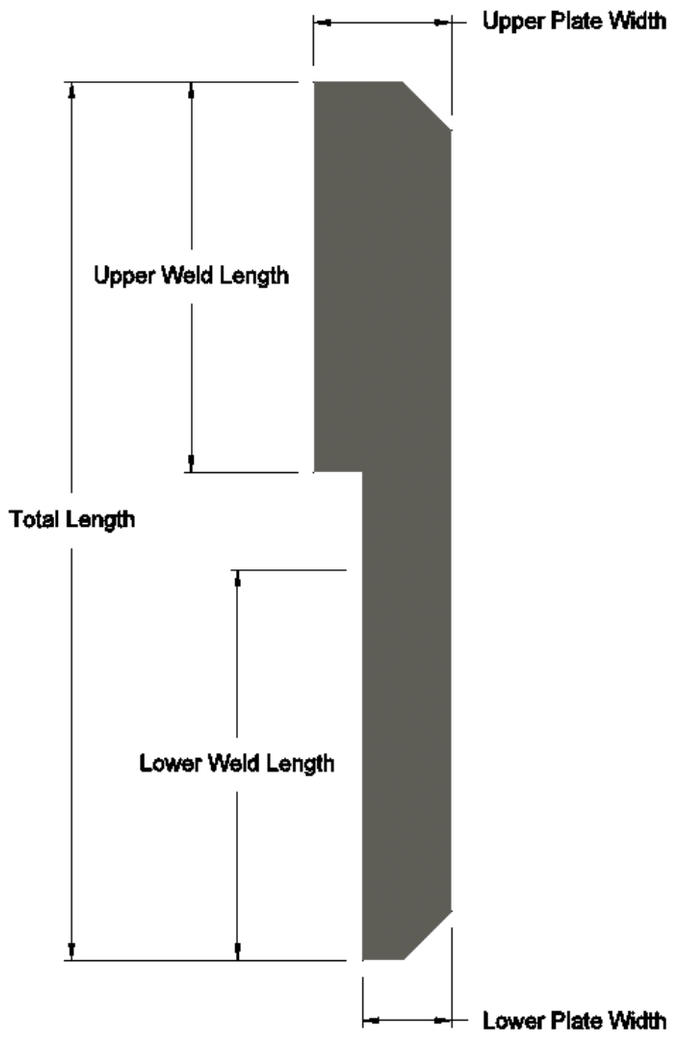
Elevation = 30 ft.

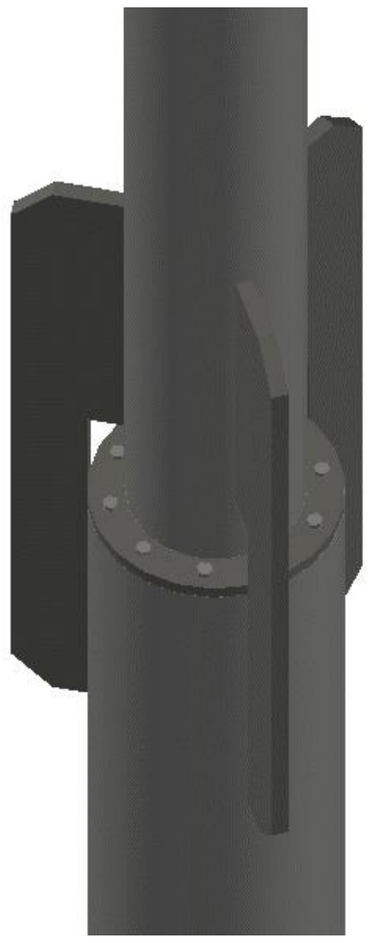
BU #	876329
Site Name	I. VIEW CEM. (FILLEY P
Order #	60071 Rev. 0

TIA-222 Revision	H

Applied Loads to Design Groups	
Moment (kip-ft)	1263.30
Axial Force (kips)	0.00
Shear Force (kips)	0.00

**TIA-222-H Section 15.5 Applied*





Design Properties

Bridge Stiffener Group 1 Data

(4) Welded, 4.25''x1.25'', A572-65, Lu=12", Upper Plate Width=12.75'', Lower Plate Width=8.625'', Neglect Flange in MOI: No

Total Length:	61.125	in
Weld Type:	Fillet (both sides)	
Weld Size:	0.375	in
Exx:	80	ksi
Upper Weld Length:	27	in
Upper Plate Width:	12.75	in
Lower Weld Length:	21.25	in
Lower Plate Width:	8.625	in
Stiffener Front EPA (No Ice):	5.77	ft²
Stiffener Side EPA (No Ice):	1.06	ft²
Stiffener Front EPA (1/2'' Ice):	6.20	ft²
Stiffener Side EPA (1/2'' Ice):	1.94	ft²
Stiffener Weight (No Ice):	0.226	kip
Stiffener Weight (1/2'' Ice):	0.251	kip

Upper Weld Size:	***Good***
Upper Weld Rating:	**34.05%**
Lower Weld Size:	***Good***
Lower Weld Rating:	**40.47%**
Top Plate Lateral-Torsional Buckling Rating:	**9.43%**
Top Plate Tension Yield Rating:	**9.28%**
Top Plate Tension Rupture Rating:	**10.06%**
Top Plate Interaction Rating:	**10.50%**
Bottom Plate Lateral-Torsional Buckling Rating:	**9.97%**
Bottom Plate Tension Yield Rating:	**11.79%**
Bottom Plate Tension Rupture Rating:	**12.78%**
Bottom Plate Interaction Rating:	**11.68%**
Top Pole Punching Shear Rating:	**18.72%**
Bottom Pole Punching Shear Rating:	**22.33%**

Bridge Stiffener Group 2 Data

(4) Welded, 6''x1.25'', A572-65, Lu=5.63", Upper Plate Width=15.5'', Lower Plate Width=9.5'', Neglect Flange in MOI: No

Total Length:	132	in
Weld Type:	Fillet (both sides)	
Weld Size:	0.375	in
Exx:	80	ksi
Upper Weld Length:	60	in
Upper Plate Width:	15.5	in
Lower Weld Length:	67	in
Lower Plate Width:	9.5	in
Stiffener Front EPA (No Ice):	16.26	ft²
Stiffener Side EPA (No Ice):	2.29	ft²
Stiffener Front EPA (1/2'' Ice):	17.03	ft²
Stiffener Side EPA (1/2'' Ice):	4.16	ft²
Stiffener Weight (No Ice):	0.572	kip
Stiffener Weight (1/2'' Ice):	0.631	kip

Upper Weld Size:	***Good***
Upper Weld Rating:	**17.02%**
Lower Weld Size:	***Good***
Lower Weld Rating:	**14.93%**
Top Plate Lateral-Torsional Buckling Rating:	**3.23%**
Top Plate Tension Yield Rating:	**5.90%**
Top Plate Tension Rupture Rating:	**6.39%**
Top Plate Interaction Rating:	**3.66%**
Bottom Plate Lateral-Torsional Buckling Rating:	**1.61%**
Bottom Plate Tension Yield Rating:	**5.28%**
Bottom Plate Tension Rupture Rating:	**5.72%**
Bottom Plate Interaction Rating:	**1.96%**
Top Pole Punching Shear Rating:	**5.35%**
Bottom Pole Punching Shear Rating:	**3.17%**

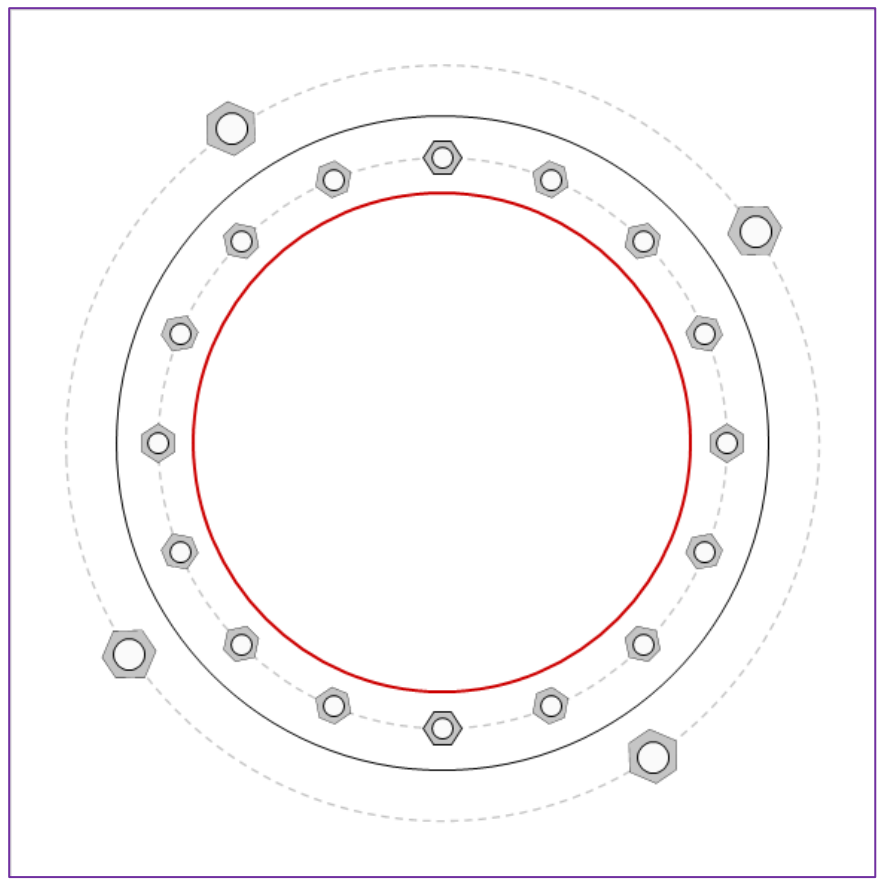
Monopole Base Plate Connection

Site Info	
BU #	876329
Site Name	I. VIEW CEM. (FILLEY P
Order #	60071 Rev. 0

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	See Custom Sheet
l_{ar} (in)	See Custom Sheet

Applied Loads	
Moment (kip-ft)	2576.01
Axial Force (kips)	47.85
Shear Force (kips)	32.40

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (16) 1-1/2" ø bolts (A354-BC N; Fy=109 ksi, Fu=125 ksi) on 41" BC

GROUP 2: (4) 2-1/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 54.5" BC

Base Plate Data

47" OD x 2" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Stiffener Data

N/A

Pole Data

36" x 0.975" round pole (A53-B-42; Fy=42 ksi, Fu=63 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

GROUP 1:		
Pu_t = 90.35	ϕPn_t = 132.19	**Stress Rating**
Vu = 2.02	ϕVn = 82.83	**65.1%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_t = 285.93	ϕPn_t = 304.69	**Stress Rating**
Vu = 0	ϕVn = 186.38	**89.4%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	20.82	(Flexural)
Allowable Stress (ksi):	32.4	
Stress Rating:	**61.2%**	**Pass**

CCIplate

Elevation (ft)	0	*(Base)*

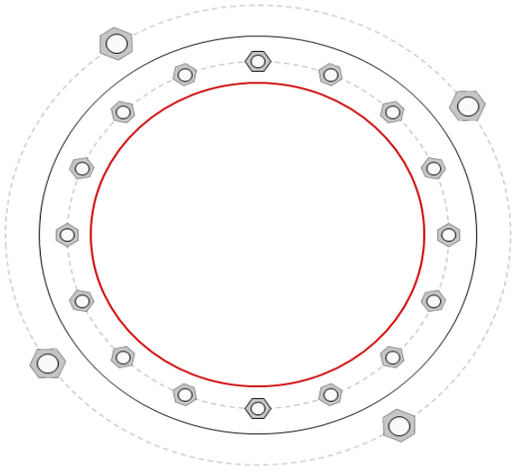
note: Bending interaction not considered when Grout Considered = "Yes"

Bolt Group	Resist Axial	Resist Shear	Induce Plate Bending	Grout Considered	Apply at BARB Elevation	BARB CL Elevation (ft)
1	Yes	Yes	Yes	No	No	
2	No	No	No	No	No	

Custom Bolt Connection

Bolt	Bolt Group ID	Location (deg.)	Diameter (in)	Material	Bolt Circle (in)	Eta Factor, η:	l_{ar} (in):	Thread Type	Area Override, in^2	Tension Only
1	1	0	1.5	A354-BC	41	0.5	0	N-Included		No
2	1	22.5	1.5	A354-BC	41	0.5	0	N-Included		No
3	1	45	1.5	A354-BC	41	0.5	0	N-Included		No
4	1	67.5	1.5	A354-BC	41	0.5	0	N-Included		No
5	1	90	1.5	A354-BC	41	0.5	0	N-Included		No
6	1	112.5	1.5	A354-BC	41	0.5	0	N-Included		No
7	1	135	1.5	A354-BC	41	0.5	0	N-Included		No
8	1	157.5	1.5	A354-BC	41	0.5	0	N-Included		No
9	1	180	1.5	A354-BC	41	0.5	0	N-Included		No
10	1	202.5	1.5	A354-BC	41	0.5	0	N-Included		No
11	1	225	1.5	A354-BC	41	0.5	0	N-Included		No
12	1	247.5	1.5	A354-BC	41	0.5	0	N-Included		No
13	1	270	1.5	A354-BC	41	0.5	0	N-Included		No
14	1	292.5	1.5	A354-BC	41	0.5	0	N-Included		No
15	1	315	1.5	A354-BC	41	0.5	0	N-Included		No
16	1	337.5	1.5	A354-BC	41	0.5	0	N-Included		No
17	2	34	2.25	A193 Gr. B7	54.5	0.5	0	N-Included		No
18	2	124	2.25	A193 Gr. B7	54.5	0.5	0	N-Included		No
19	2	214	2.25	A193 Gr. B7	54.5	0.5	0	N-Included		No
20	2	304	2.25	A193 Gr. B7	54.5	0.5	0	N-Included		No

Plot Graphic



Drilled Pier Foundation

BU # :	876329
Site Name:	MTN. VIEW CEM. (FILLEY
Order Number:	600871 Rev. 0
TIA-222 Revison:	H
Tower Type:	Monopole

Applied Loads	Comp.	Uplift
Moment (kip-ft)	2576.01	
Axial Force (kips)	47.87	
Shear Force (kips)	32.37	

Material Properties		
Concrete Strength, f'c:	3	ksi
Rebar Strength, Fy:	60	ksi
Tie Yield Strength, Fyt:	40	ksi

Pier Design Data		
Depth	25	ft
Ext. Above Grade	0.5	ft
Pier Section 1		
From 0.5' above grade to 25' below grade		
Pier Diameter	6	ft
Rebar Quantity	24	
Rebar Size	9	
Clear Cover to Ties	3	in
Tie Size	5	
Tie Spacing		in

Rebar & Pier Options
Embedded Pole Inputs
Belled Pier Inputs

Analysis Results		
Soil Lateral Check	*Compression*	*Uplift*
$D_{v=0}$ (ft from TOC)	6.69	-
Soil Safety Factor	3.94	-
Max Moment (kip-ft)	2791.74	-
Rating*	*32.2%*	-
Soil Vertical Check	*Compression*	*Uplift*
Skin Friction (kips)	526.86	-
End Bearing (kips)	339.29	-
Weight of Concrete (kips)	108.59	-
Total Capacity (kips)	866.15	-
Axial (kips)	156.46	-
Rating*	*17.2%*	-
Reinforced Concrete Flexure	*Compression*	*Uplift*
Critical Depth (ft from TOC)	6.64	-
Critical Moment (kip-ft)	2791.72	-
Critical Moment Capacity	3305.36	-
Rating*	*80.4%*	-
Reinforced Concrete Shear	*Compression*	*Uplift*
Critical Depth (ft from TOC)	18.18	-
Critical Shear (kip)	322.25	-
Critical Shear Capacity	396.17	-
Rating*	*77.5%*	-

Structural Foundation Rating*	**80.4%**
Soil Interaction Rating*	**32.2%**

*Rating per TIA-222-H Section 15.5

Check Limitation	
Apply TIA-222-H Section 15.5:	☑
N/A	☐
Additional Longitudinal Rebar	
Input Effective Depths (else Actual):	☐
Shear Design Options	
Check Shear along Depth of Pier:	☑
Utilize Shear-Friction Methodology:	☐
Override Critical Depth:	☐

Go to Soil Calculations

Soil Profile

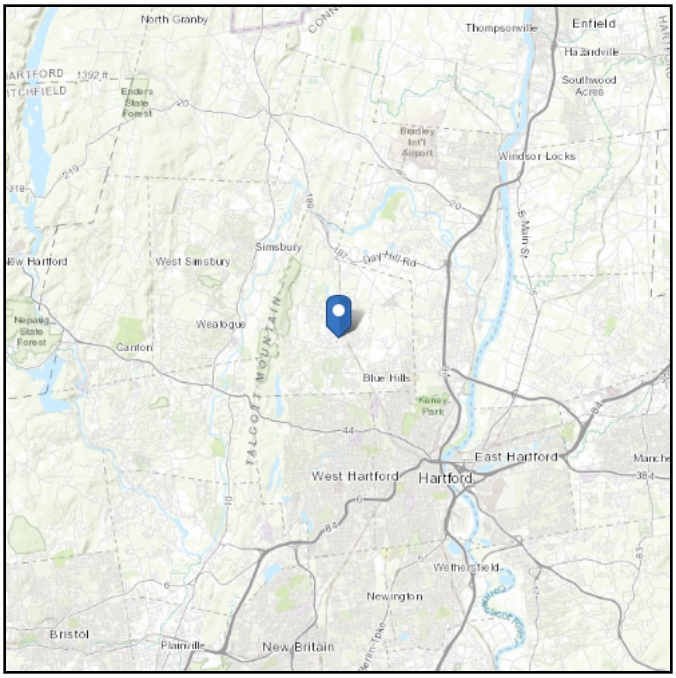
Groundwater Depth	15	# of Layers	3

Layer	Top (ft)	Bottom (ft)	Thickness (ft)	γ_{soil} (pcf)	$\gamma_{concrete}$ (pcf)	Cohesion (ksf)	Angle of Friction (degrees)	Calculated Ultimate Skin Friction Comp (ksf)	Calculated Ultimate Skin Friction Uplift (ksf)	Ultimate Skin Friction Comp Override (ksf)	Ultimate Skin Friction Uplift Override (ksf)	Ult. Gross Bearing Capacity (ksf)	SPT Blow Count	Soil Type
1	0	3.33	3.33	135	150	0	0	0.000	0.000	0.00	0.00			Cohesionless
2	3.33	15	11.67	135	150		36	1.350	1.350				50	Cohesionless
3	15	25	10	75	87.6		36	2.151	2.151			16	42	Cohesionless

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-10	**Elevation:**	192.79 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.835158
Soil Class:	D - Stiff Soil	**Longitude:**	-72.741167



Wind

Results:

Wind Speed:	121 Vmph
10-year MRI	76 Vmph
25-year MRI	86 Vmph
50-year MRI	92 Vmph
100-year MRI	99 Vmph

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, and Section 26.5.2, incorporating errata of March 12, 2014

Date Accessed: Mon May 24 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

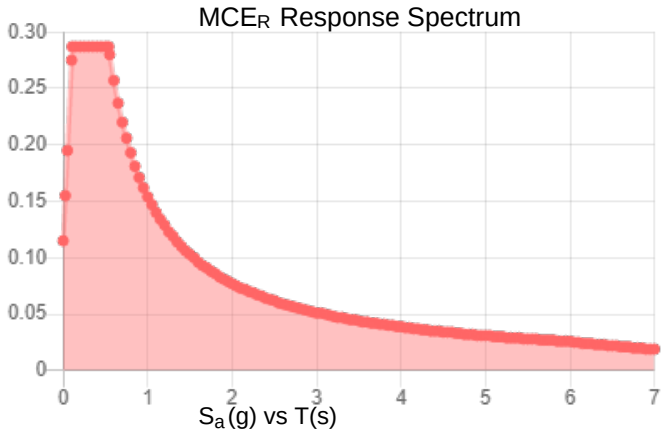
Seismic

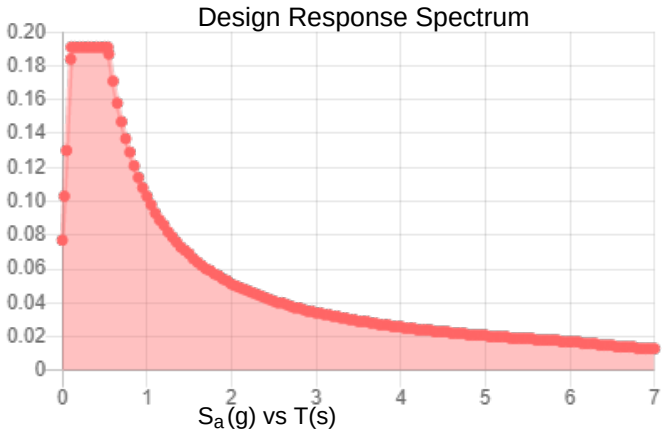
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.18	S_{DS} :	0.191
S_1 :	0.064	S_{D1} :	0.103
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.09
S_{MS} :	0.287	PGA_M :	0.144
S_{M1} :	0.154	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Mon May 24 2021

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	5 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Mon May 24 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

AT&T SITE NUMBER:	**CTL01193**	**BUSINESS UNIT #:**	**876329**
AT&T SITE NAME:	**BLOOMFIELD CEMETARY**	**SITE ADDRESS:**	**28 BREWER DR.**
AT&T FA CODE:	**10035118**		**BLOOMFIELD, CT 06002**
AT&T PACE NUMBER:	**MRCTB056905, MRCTB056916, MRCTB056973, MRCTB056970, MRCTB056975, MRCTB057060, MRCTB057035, MRCTB056893**	**COUNTY:**	**HARTFORD**
		SITE TYPE:	**MONOPOLE**
AT&T PROJECT:	**5G NR ACTIVATION, 4TX4RX SOFTWARE RETROFIT, BBU ADD, 5G NR 1SR CBAND, 5G NR 1DR-1, LTE 5C**	**TOWER HEIGHT:**	**120'-0"**

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	MTN. VIEW CEM. (FILLEY PARK)
SITE ADDRESS:	28 BREWER DR. BLOOMFIELD, CT 06002
COUNTY:	HARTFORD
MAP/PARCEL #:	25-539
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	41.835158
LONGITUDE:	-72.741167
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	206'
CURRENT ZONING:	BCD
JURISDICTION:	CONNECTICUT SITING COUNCIL
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	TOWN OF BLOOMFIELD 800 BLOOMFIELD AVE BLOOMFIELD, CT 06002
TOWER OWNER:	CROWN CASTLE USA INC 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	AT&T TOWER ASSET GROUP 575 MOROSGO DRIVE ATLANTA, GA 30324-3300
ELECTRIC PROVIDER:	NORTHEAST UTILITIES 800-286-2000
TELCO PROVIDER:	AT&T 866-620-6900

PROJECT TEAM

A&E FIRM:	B+T GROUP 1717 S. BOULDER AVE. TULSA, OK 74119 MARVIN PHILLIPS marvin.phillips@btgrp.com
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3 CORPORATE PARK DRIVE, SUITE 101 CLIFTON PARK, NY 12065 VERONICA CHAPMAN - PROJECT MANAGER VERONICA.CHAPMAN@CROWNCASTLE.COM JASON D'AMICO - CONSTRUCTION MANAGER JASON.DAMICO@CROWNCASTLE.COM HEATHER MILLER - AES HEATHER.MILLER@CROWNCASTLE.COM

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

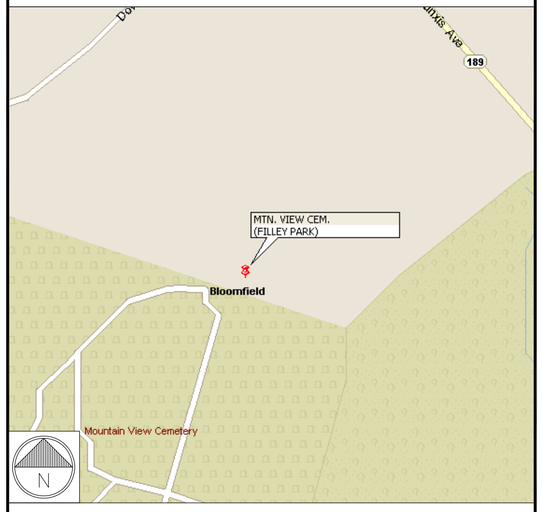
DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EQUIPMENT PLANS
C-2	TOWER ELEVATION & ANTENNA PLANS
C-3	ANTENNA SCHEDULE
C-4	EQUIPMENT DETAILS
C-5	EQUIPMENT SPECS.
G-1	GROUNDING DETAILS
G-2	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM
ATTACHED	PLATFORM MOUNT SPECIFICATIONS
ATTACHED	CROSSOVER HARDWARE SPECIFICATIONS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL SIZE. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL CONNECTICUT ONE CALL
(800) 922-4455 CBYD.COM
CALL 2 WORKING DAYS
BEFORE YOU DIG!

LOCATION MAP



NO SCALE

SITE PHOTO

PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:
- REMOVE (6) QUINTEL - QS66512-2 ANTENNAS
- REMOVE (3) ERICSSON - RRUS-11 B12 RRUs
- REMOVE PLATFORM MOUNT
- RELOCATE REMAINING EQUIPMENT TO NEW PLATFORM MOUNT
- INSTALL (1) PERFECT VISION - LPPGS-14M-HR2-H5H10 PLATFORM MOUNT
- INSTALL (3) CCI - TPA65R-BU6DA-K ANTENNAS
- INSTALL (6) ERICSSON - AIR6449 B77D (BELOW) + AIR6419 B77G (ABOVE) STACKED ANTENNAS
- INSTALL (3) CCI - OPA65R-BU6DA ANTENNAS
- INSTALL (3) ERICSSON - 4478 B14 RRUs
- INSTALL (3) ERICSSON - 4449 B5/B12 RRUs
- INSTALL (1) RAYCAP - DC6-48-60-18-8F SQUID
- INSTALL (2) 6AWG DC CABLES (7/8")
- INSTALL (1) 18-PAIR FIBER CABLE (3/8")
- INSTALL (3) Y-CABLES FOR DUAL BAND RADIOS
- INSTALL (6) DUAL RADIO MOUNTS

GROUND SCOPE OF WORK:
- REMOVE (1) UMTS CABINET
- INSTALL (4) VERTIV RECTIFIERS IN DC POWER PLANT
- INSTALL (1) RMDC-12
- INSTALL (1) 6648 W/ XCEDE

APPLICABLE CODES & REFERENCE DOCUMENTS

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2018 CONNECTICUT SBC/IBC 2015
MECHANICAL	2018 CONNECTICUT SBC/IMC 2015
ELECTRICAL	2018 CONNECTICUT SBC/NEC 2017

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	CROWN CASTLE
DATED:	6/24/22
MOUNT ANALYSIS:	B+T GROUP
DATED:	7/13/22
RFDS REVISION:	PRELIMINARY
DATED:	4/5/22
ORDER ID:	600871
REVISION:	0

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T
SITE NUMBER: **CTL01193**

BU #: **876329**
MTN. VIEW CEM. (FILLEY PARK)

28 BREWER DR.
BLOOMFIELD, CT 06002

EXISTING
120'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/7/22	TDG	PRELIMINARY REVIEW	MTJ
B	7/18/22	TDG	PRELIMINARY REVIEW	MTJ
0	8/11/22	TDG	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
8/11/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: T-1

REVISION: 0

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED– NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800–788–7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" – CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
   THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED–STD–10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA–322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS–STD–10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED–STD–10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA–1019–A–2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: AT&T
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST–IN–PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE–THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER–TO–CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER..40 ksi
   #5 BARS AND LARGER..60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH..................3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
      #6 BARS AND LARGER..2"
      #5 BARS AND SMALLER...1–1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
      SLAB AND WALLS..3/4"
      BEAMS AND COLUMNS...1–1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON–METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON–METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD–WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR–CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI–CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI–CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN–2, XHHW, XHHW–2, THW, THW–2, RHW, OR RHW–2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP–STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL–CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
18. LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID–TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION–TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON–PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER–ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY–COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY–COATED OR NON–CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "AT&T".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE

SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (–)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

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AT&T
SITE NUMBER: **CTL01193**

BU #: **876329**
MTN. VIEW CEM. (FILLEY PARK)

28 BREWER DR.
BLOOMFIELD, CT 06002

EXISTING
120'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/7/22	TDG	PRELIMINARY REVIEW	MTJ
B	7/18/22	TDG	PRELIMINARY REVIEW	MTJ
0	8/11/22	TDG	CONSTRUCTION	MTJ

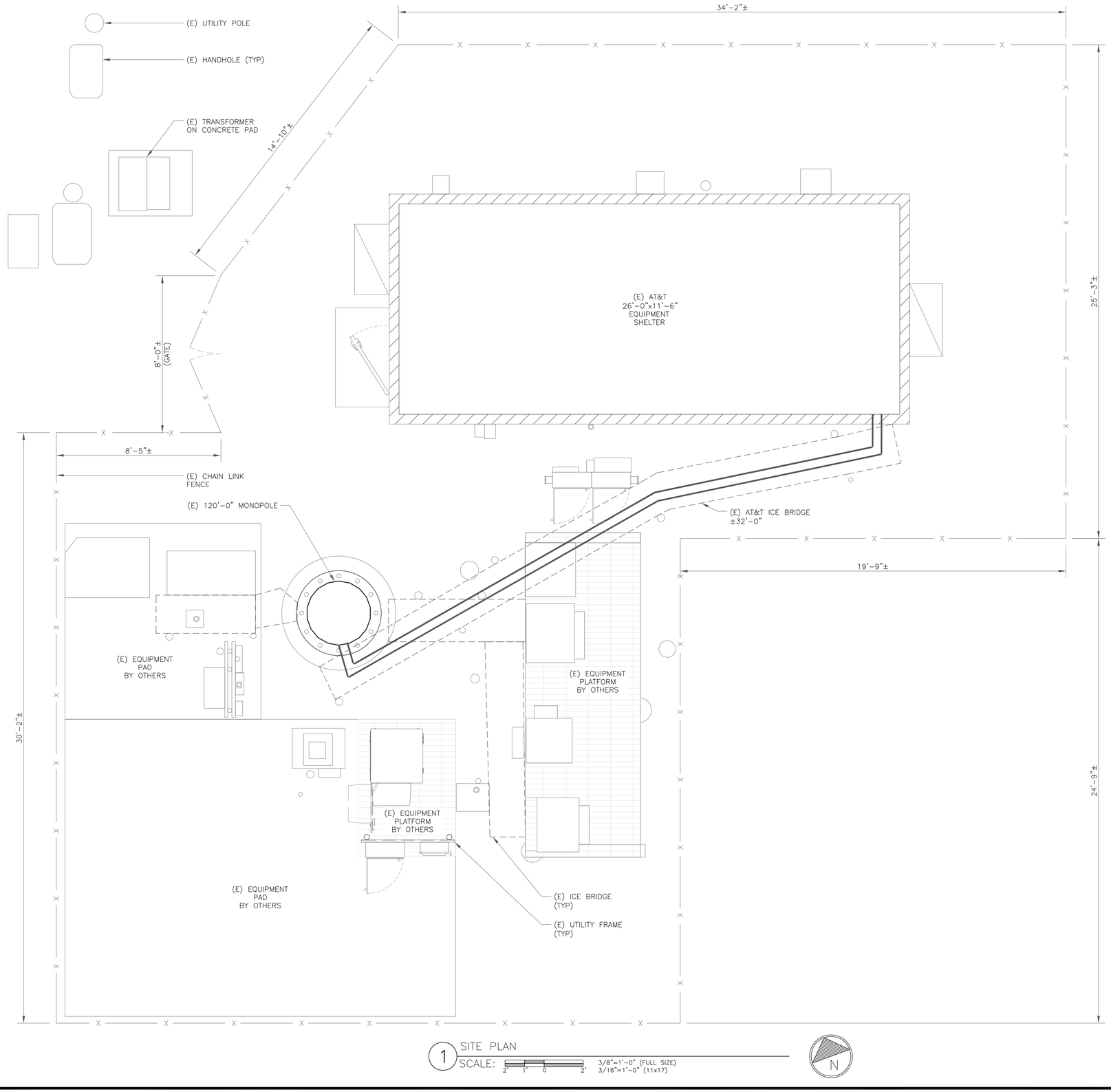
No. 23924
8/11/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

IT IS A VIOLATION OF LAW FOR ANY PERSON,
UNLESS THEY ARE ACTING UNDER THE DIRECTION
OF A LICENSED PROFESSIONAL ENGINEER,
TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-2
REVISION: 0

80145.003.01_MTN. VIEW CEM.(FILLEY PARK).dwg — Sheet:T-2 — User: mjones — Aug 11, 2022 — 1:52pm



1 SITE PLAN

SCALE: 2' 1' 0 2' 3/8"=1'-0" (FULL SIZE) 3/16"=1'-0" (11x17)

N

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MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-1.1

REVISION: 0

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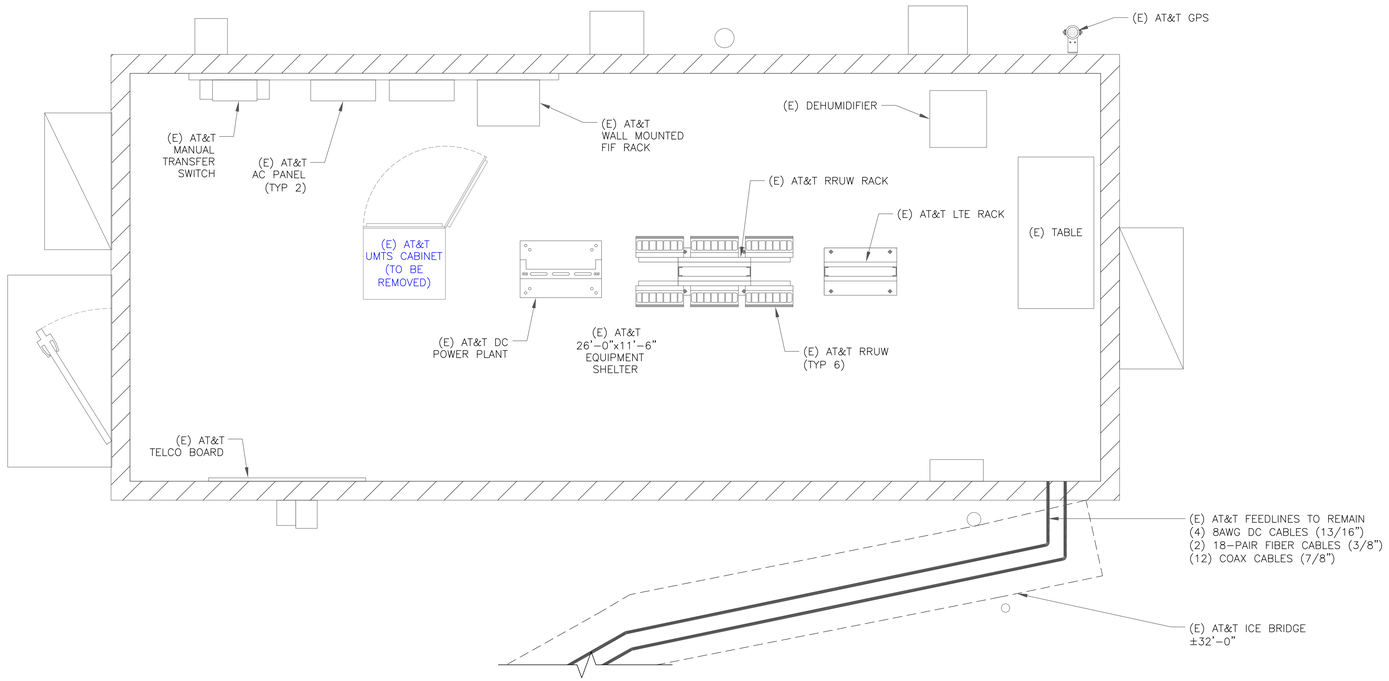

1 EXISTING EQUIPMENT PLAN

SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

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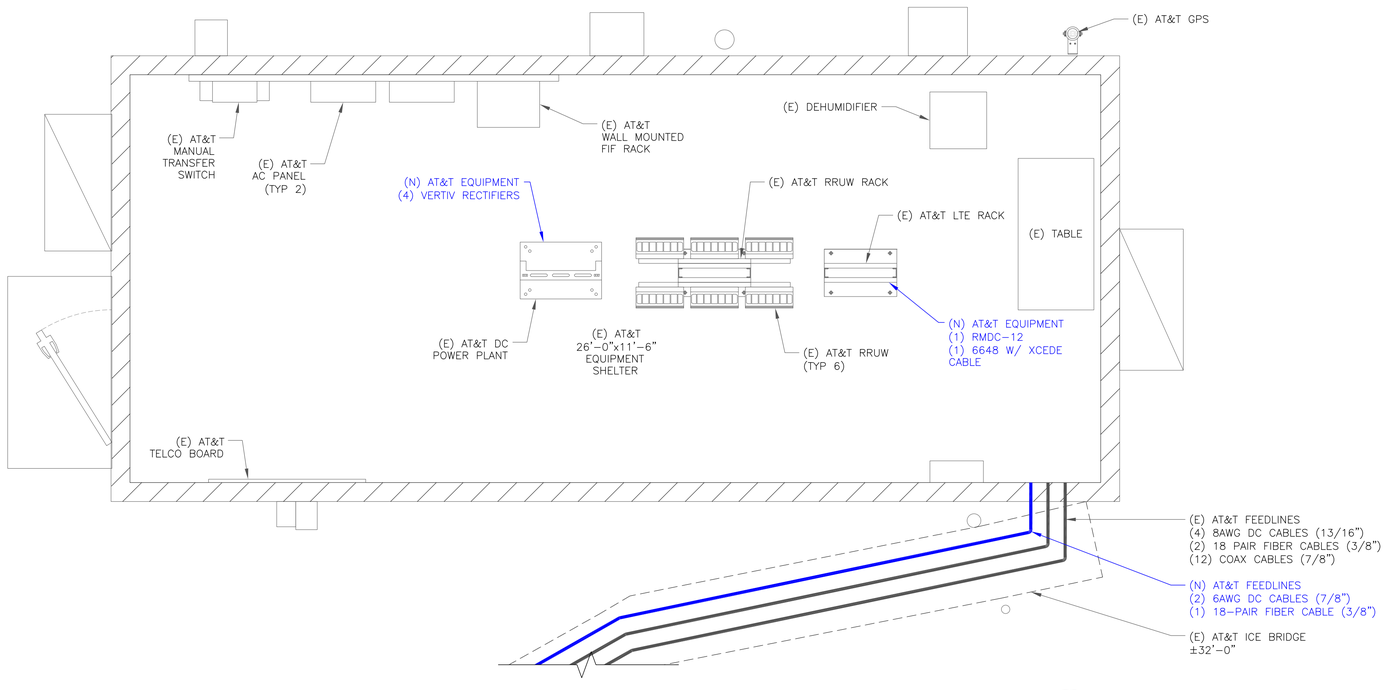

2 FINAL EQUIPMENT PLAN

SCALE: 2' 1' 0 2' 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

N

GROUND SCOPE OF WORK:

- REMOVE (1) UMTS CABINET
- INSTALL (4) VERTIV RECTIFIERS IN DC POWER PLANT
- INSTALL (1) RMDC-12
- INSTALL (1) 6648 W/ XCEDE CABLE

NOTE:

THE POWER DESIGN FOR ANY AC ELECTRICAL POWER CHANGES IS TO BE PERFORMED BY OTHERS AND IS SHOWN HERE FOR REFERENCE PURPOSES ONLY. AT&T IS SOLELY RESPONSIBLE FOR THE ELECTRICAL POWER DESIGN.

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ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
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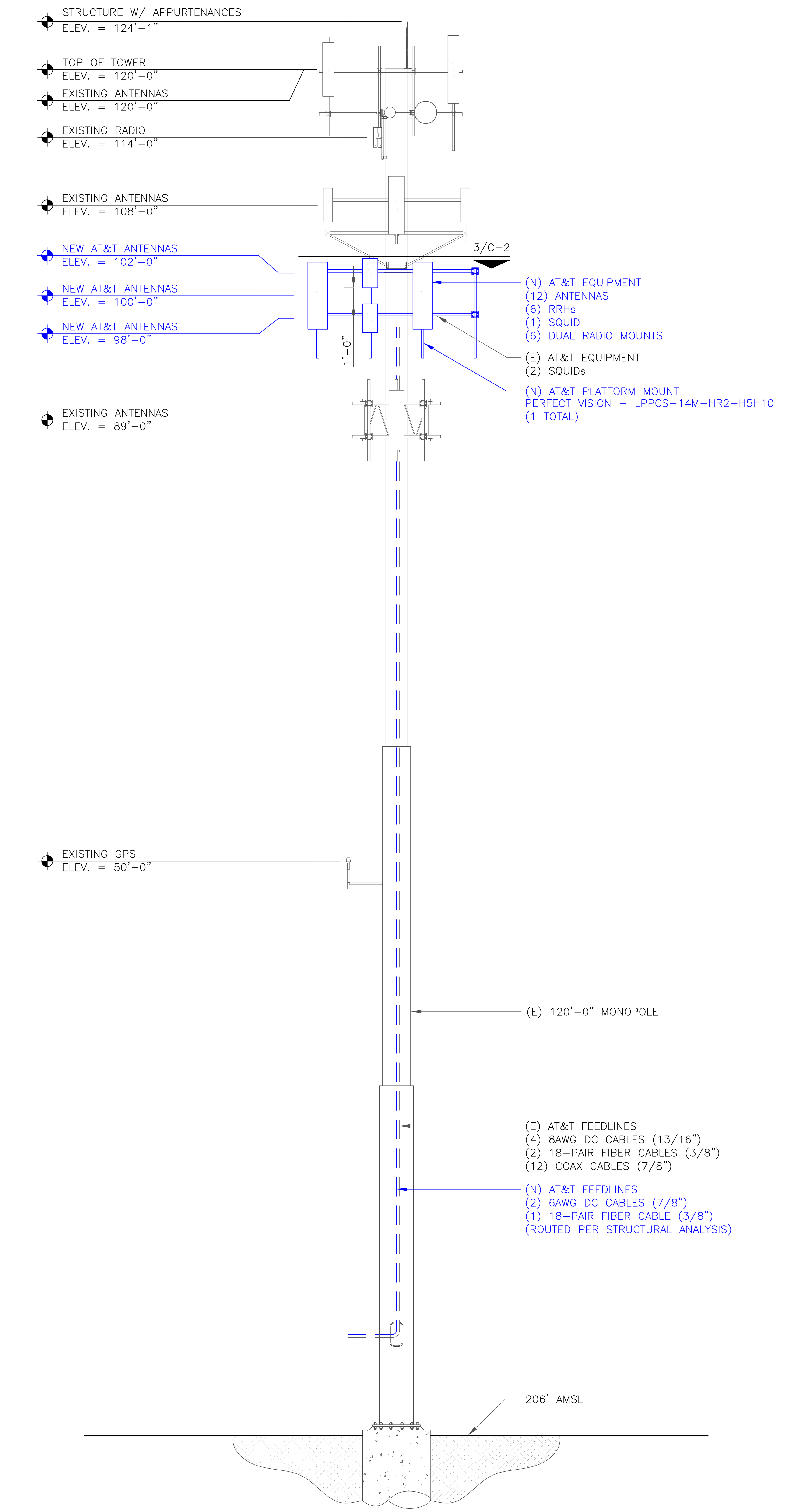
B	7/18/22	TDG	PRELIMINARY REVIEW	MTJ
0	8/11/22	TDG	CONSTRUCTION	MTJ

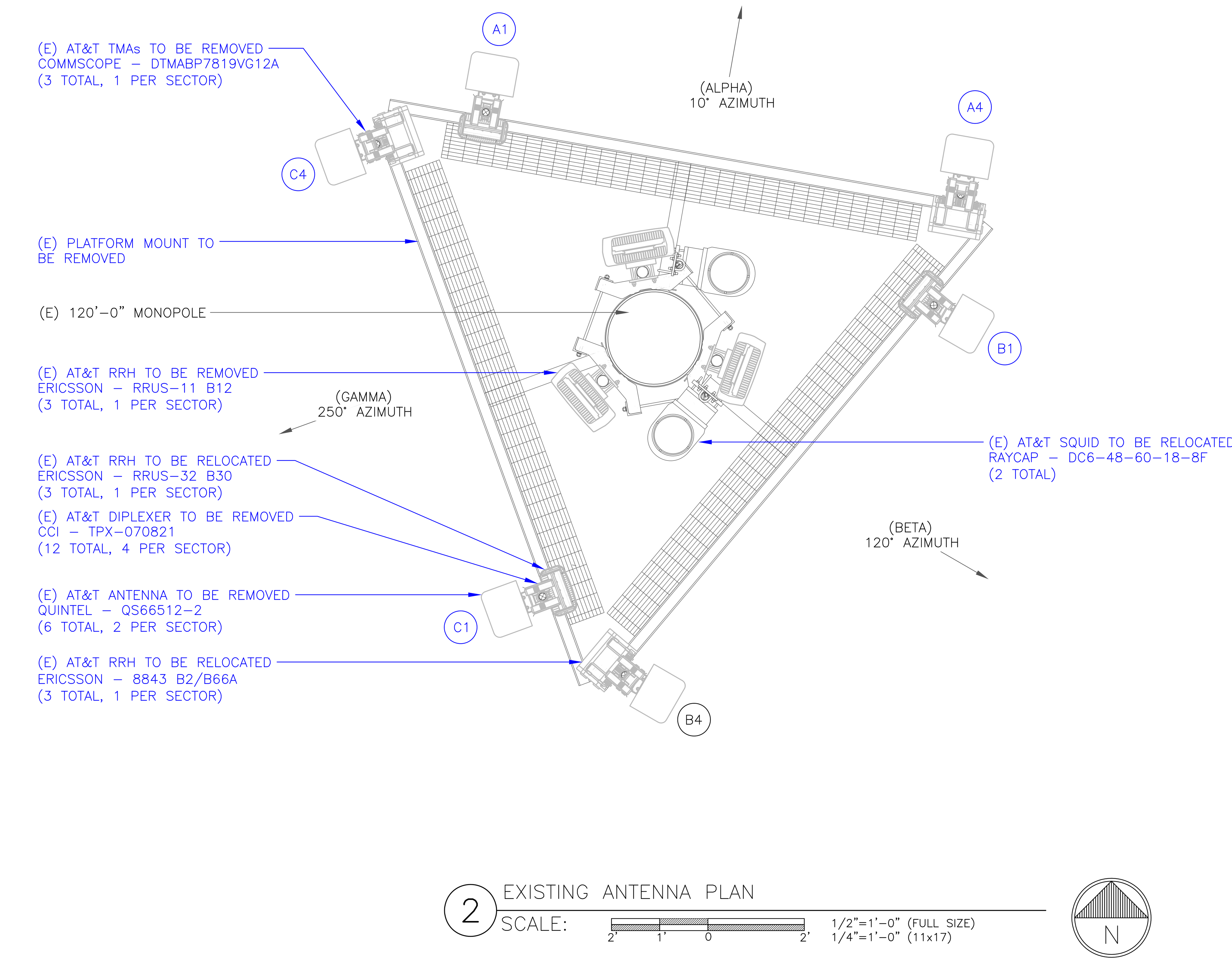
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-1.2

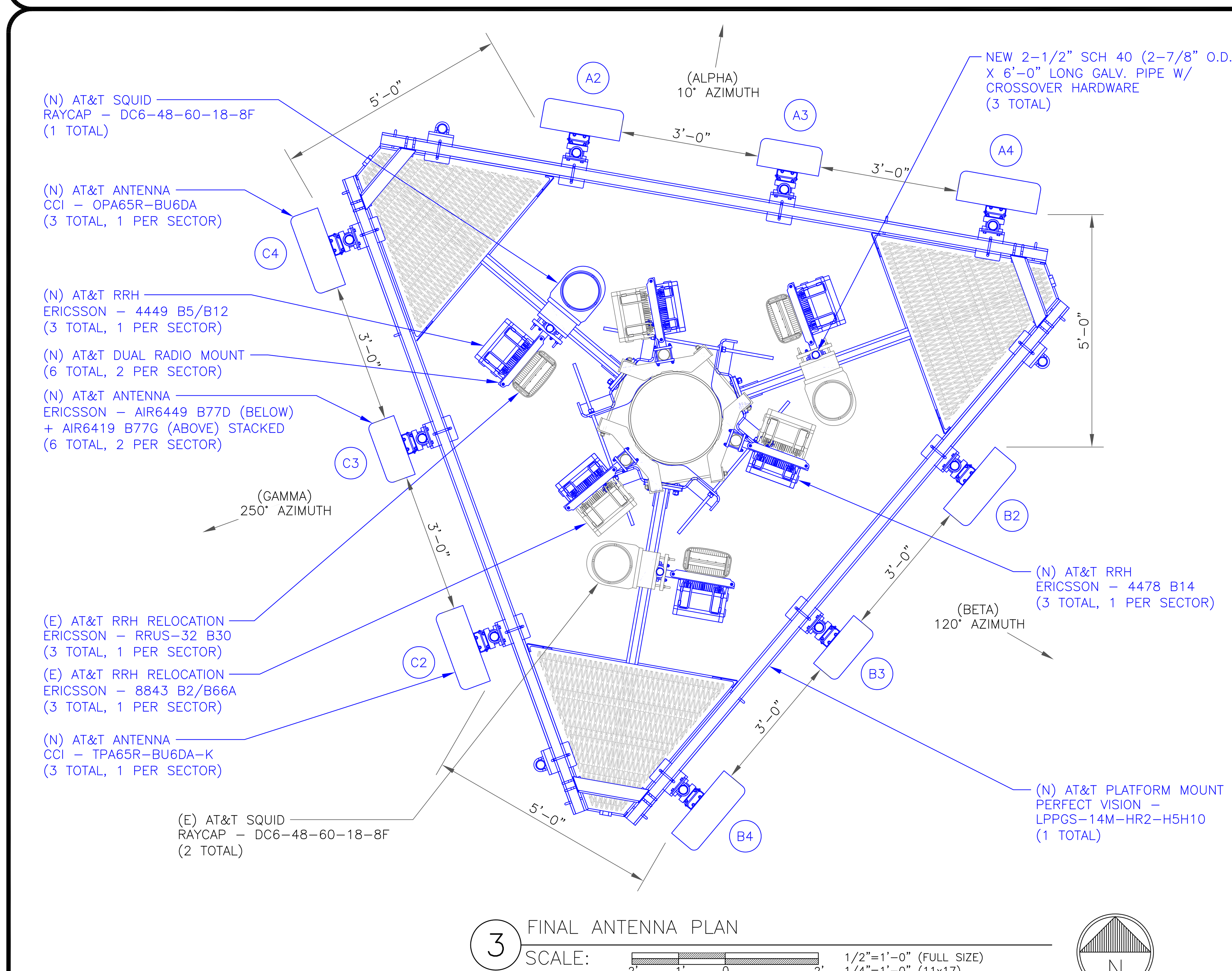
REVISION: 0



1 FINAL ELEVATION
SCALE: NOT TO SCALE



2 EXISTING ANTENNA PLAN
SCALE: 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)



3 FINAL ANTENNA PLAN
SCALE: 1/2"=1'-0" (FULL SIZE) 1/4"=1'-0" (11x17)

"LOOK UP" – CROWN CASTLE USA INC.
SAFETY CLIMB REQUIREMENT:

THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.

INSTALLER NOTES:

1. REFERENCE C-3 FOR FINAL EQUIPMENT SCHEDULE.
2. REFERENCE C-4 FOR NEW EQUIPMENT SPECIFICATIONS.
3. CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.
4. 3'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE ANTENNAS ON SAME SECTOR.
5. 6'-0" MINIMUM DISTANCE REQUIRED BETWEEN 700BC & 700DE ANTENNAS ON SAME SECTOR.
6. 4'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE 700 ANTENNAS ON OPPOSING SECTORS.
7. ALL ANTENNA MEASUREMENT DISTANCES MUST BE EDGE TO EDGE (RELOCATE ANTENNAS AS NEEDED).
8. 8" MINIMUM DISTANCE REQUIRED BETWEEN ANTENNA & RADIO. SEE GENERIC EXAMPLE DETAIL ON SHEET C-4.

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TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T
SITE NUMBER: **CTL01193**

BU #: **876329**
MTN. VIEW CEM. (FILLEY PARK)

28 BREWER DR.
BLOOMFIELD, CT 06002

EXISTING
120'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/7/22	TDG	PRELIMINARY REVIEW	MTJ
B	7/18/22	TDG	PRELIMINARY REVIEW	MTJ
0	8/11/22	TDG	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
8/11/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-2
REVISION: 0

FINAL EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)

POSITION	ANTENNA				RADIO			DIPLEXER			TMA			SURGE PROTECTION		CABLES			
	TECH.	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS/MANUFACTURER MODEL	QTY.	STATUS/MODEL	QTY.	STATUS/TYPE	SIZE	LENGTH
ALPHA																			
A2	LTE/5G	(N) CCI – TPA65R–BU6DA–K	10°	100'–0"	1	(N) ERICSSON – 4478 B14	TOWER	–	–	–	–	–	–	–	–	–	–	–
					1	(E) ERICSSON – 8843 B2/B66A	TOWER												
A3	5G CBAND/ DOD	(N) ERICSSON – AIR6449 B77D (BELOW)+AIR6419 (ABOVE) B77G STACKED	10°	100'–0"	–	INTEGRATED WITHIN	–	–	–	–	–	–	1	(E) RAYCAP – DC6–48–60–18–8F	2	(E) DC	13/16"	149'–0"
															1	(E) FIBER	3/8"	149'–0"
A4	LTE/5G	(N) CCI – OPA65R–BU6DA	10°	100'–0"	1	(N) ERICSSON – 4449 B5/B12	TOWER	–	–	–	–	–	–	–	1	Y–CABLE	–	–
					1	(E) ERICSSON – RRUS–32 B30	TOWER								–	–	–	–
BETA																			
B2	LTE/5G	(N) CCI – TPA65R–BU6DA–K	120°	100'–0"	1	(N) ERICSSON – 4478 B14	TOWER	–	–	–	–	–	–	–	–	–	–	–
					1	(E) ERICSSON – 8843 B2/B66A	TOWER												
B3	5G CBAND/ DOD	(N) ERICSSON – AIR6449 B77D (BELOW)+AIR6419 (ABOVE) B77G STACKED	120°	100'–0"	–	INTEGRATED WITHIN	–	–	–	–	–	–	1	(E) RAYCAP – DC6–48–60–18–8F	2	(E) DC	13/16"	149'–0"
															1	(E) FIBER	3/8"	149'–0"
B4	LTE/5G	(N) CCI – OPA65R–BU6DA	120°	100'–0"	1	(N) ERICSSON – 4449 B5/B12	TOWER	–	–	–	–	–	–	–	1	Y–CABLE	–	–
					1	(E) ERICSSON – RRUS–32 B30	TOWER								–	–	–	–
GAMMA																			
C2	LTE/5G	(N) CCI – TPA65R–BU6DA–K	250°	100'–0"	1	(N) ERICSSON – 4478 B14	TOWER	–	–	–	–	–	–	–	–	–	–	–
					1	(E) ERICSSON – 8843 B2/B66A	TOWER												
C3	5G CBAND/ DOD	(N) ERICSSON – AIR6449 B77D (BELOW)+AIR6419 (ABOVE) B77G STACKED	250°	100'–0"	–	INTEGRATED WITHIN	–	–	–	–	–	–	1	(N) RAYCAP – DC6–48–60–18–8F	2	(N) DC	7/8"	149'–0"
															1	(N) FIBER	3/8"	149'–0"
C4	LTE/5G	(N) CCI – OPA65R–BU6DA	250°	100'–0"	1	(N) ERICSSON – 4449 B5/B12	TOWER	–	–	–	–	–	–	–	1	Y–CABLE	–	–
					1	(E) ERICSSON – RRUS–32 B30	TOWER								–	–	–	–
														UNUSED FEEDLINES:	12	COAX	7/8"	149'–0"
															–	–	–	–

NOTE:
(E) – EXISTING
(N) – NEW

1 FINAL ANTENNA AND FEEDLINE SCHEDULE
SCALE: NOT TO SCALE

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
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BU #: **876329**
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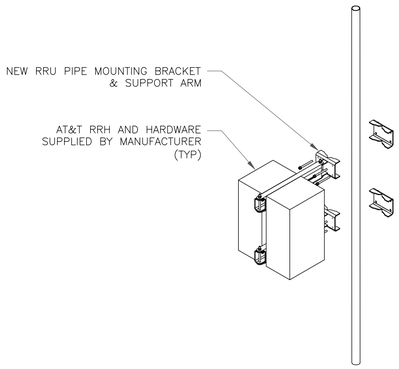
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-3

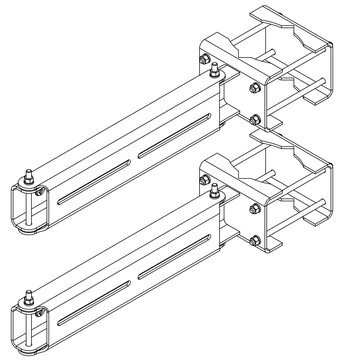
REVISION: 0

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



1 DUAL RRH MOUNTING DETAIL
SCALE: NOT TO SCALE



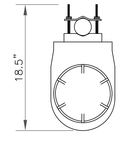
2 DUAL RADIO MOUNT
SCALE: NOT TO SCALE

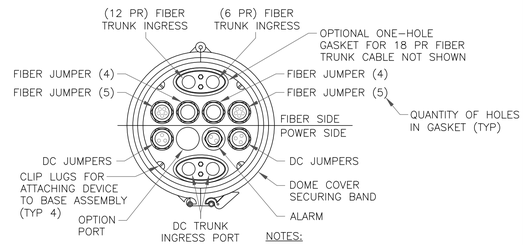
3 NOT USED
SCALE: NOT TO SCALE

RAYCAP
DC6-48-60-18-8F

RAYCAP - DC6-48-60-18-8F
SIZE: 11x31.25 IN.
WEIGHT: 32.8 LBS
NOMINAL OPERATING VOLTAGE: 48 VDC
VOLTAGE PROTECTION RATING: 400 V
WIND LOADING: 150 MPH SUSTAINED (105.7 LBS)
WIND LOADING: 195 MPH GUST (213.6 LBS)

CONTRACTOR TO USE "THREAD LUBRICANT" ON MOUNTING BOLTS DURING INSTALLATION





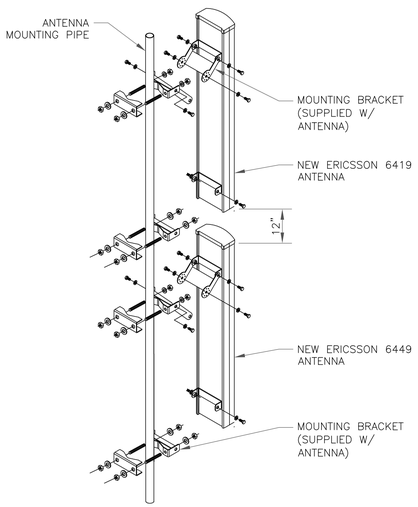
NOTES:

1. REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP.

6 SQUID MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTE:

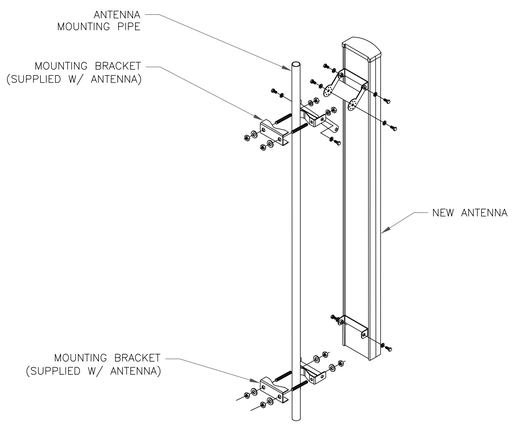
ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



4 STACKED ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTES:

1. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.
2. EQUIPMENT SHALL NOT BE INSTALLED CLOSER THAN 8" TO ANTENNAS.



5 ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

AT&T
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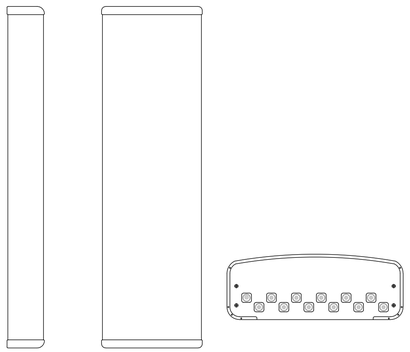
Expires 3/31/23

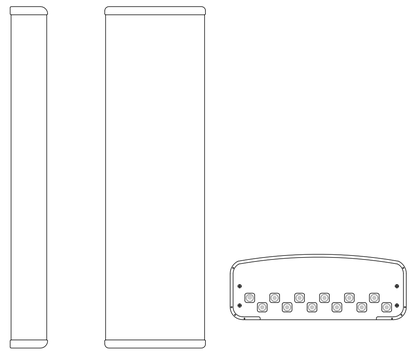
SHEET NUMBER: C-4

REVISION: 0



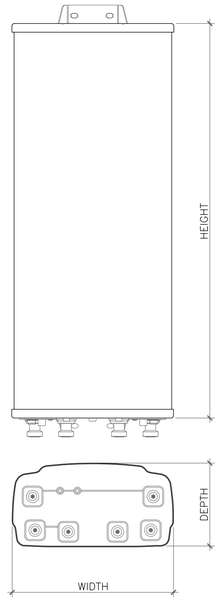
CCI ANTENNAS – CCI – TPA65R–BU6DA–K
WEIGHT (WITHOUT MOUNTING HARDWARE): 68.30 LBS
SIZE (HXWXD): 71.2X20.70X7.7 IN.
MOUNTING HARDWARE P/N: BSA–M03
RATED WIND VELOCITY: 150.0 MPH

1 CCI ANTENNAS – TPA–65R–BU6DA–K
SCALE: NOT TO SCALE



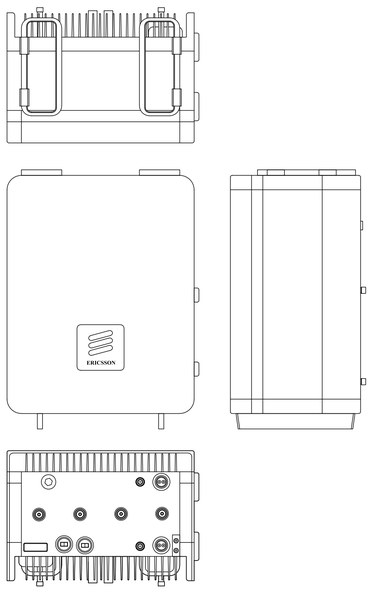
CCI ANTENNAS – OPA65R–BU6DA
WEIGHT (WITHOUT MOUNTING HARDWARE): 63.50 LBS
SIZE (HxWxD): 71.20x21.0x7.80 IN.
MOUNTING HARDWARE P/N: MBK–01
RATED WIND VELOCITY: 150.0 MPH

2 CCI ANTENNAS – OPA65R–BU6DA
SCALE: NOT TO SCALE



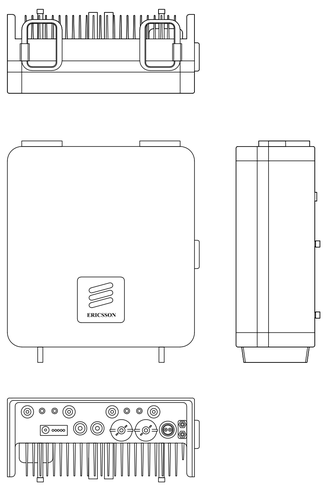
ANTENNA DIMENSIONS (INCHES)				
MODEL	HEIGHT	WIDTH	DEPTH	WEIGHT
AIR 6419 B77G	31.10"	16.10"	7.30"	55.40 lbs
AIR 6449 B77D	30.39"	15.87"	8.07"	81.60 lbs

3 ANTENNA DETAIL
SCALE: NOT TO SCALE



ERICSSON – RADIO 4449 B5/B12
WEIGHT: 70.0 LBS
SIZE (HxWxD): 18.0x13.2x9.4 IN.

4 ERICSSON – RADIO 4449 B5/B12
SCALE: NOT TO SCALE



ERICSSON – RADIO 4478 B14
WEIGHT: 59.40 LBS
SIZE (HxWxD): 18.10x13.40x8.26 IN.

5 ERICSSON – RADIO 4478 B14
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

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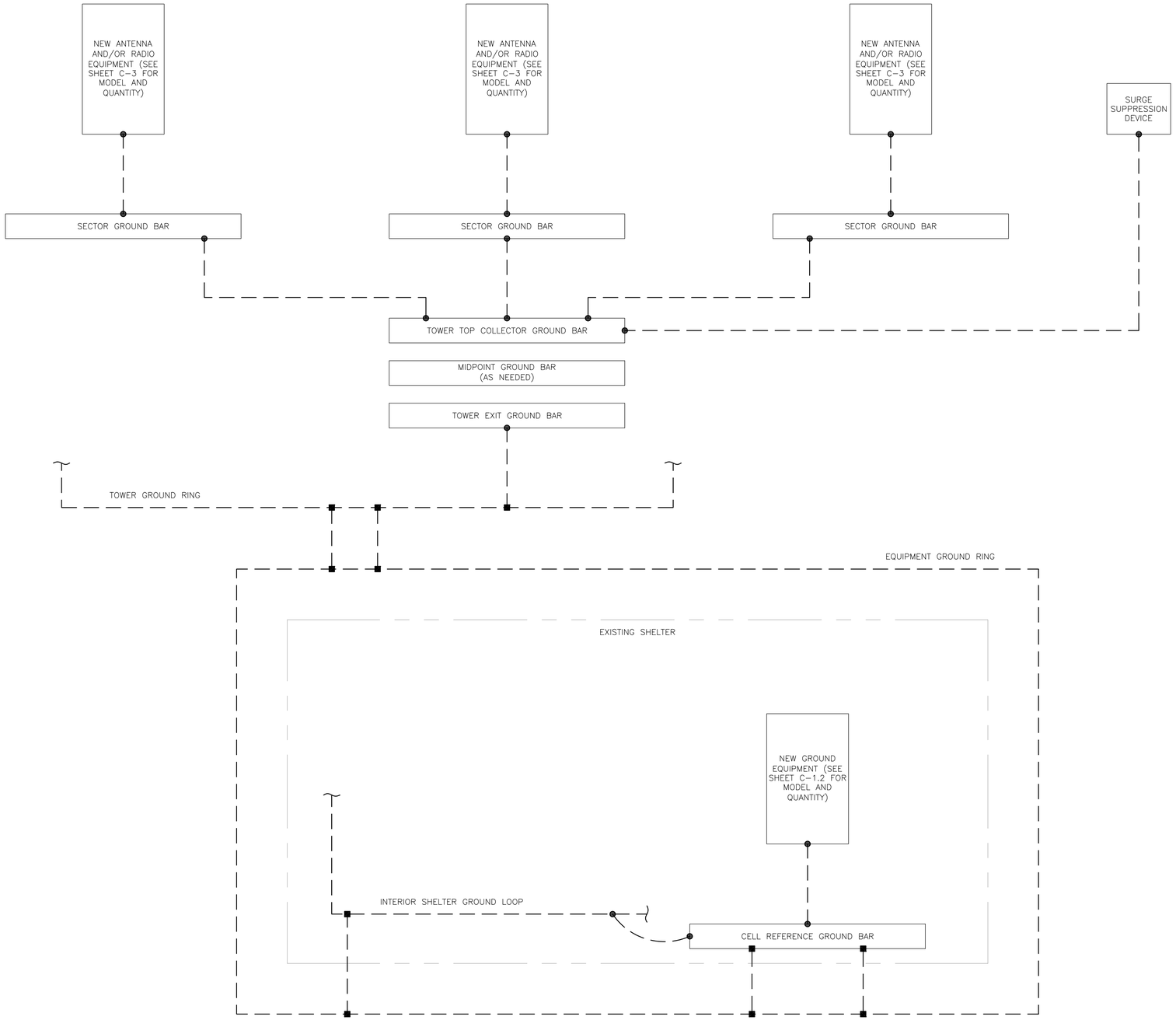
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

SHEET NUMBER: C-5
REVISION: 0



1 GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

- GROUND WIRE
- EXOTHERMIC WELD
- MECHANICAL CONNECTION
- COPPER GROUND ROD
- GROUND ROD W/ TEST WELL

CELL REFERENCE GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUITS (ATT-TP-76416 7.6.7).

HATCH PLATE GROUND BAR: BOND TO THE INTERIOR GROUND RING WITH (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS. WHEN A HATCH-PLATE AND A CELL REFERENCE GROUND BAR ARE BOTH PRESENT, THE CELL SITE REFERENCE GROUND BAR MUST BE CONNECTED TO THE HATCH-PLATE AND TO THE INTERIOR GROUND RING USING (2) #2 STRANDED GREEN INSULATED COPPER CONDUCTORS.

EXTERIOR CABLE ENTRY PORT GROUND BARS: LOCATED AT THE ENTRANCE TO THE CELL SITE BUILDING. BOND TO GROUND RING WITH A #2 SOLID TINNED COPPER CONDUCTORS WITH AN EXOTHERMIC WELD AND INSPECTION SLEEVE (ATT-TP-76416 7.6.7.2).

DURING ALL DC POWER SYSTEM CHANGES INCLUDING DC SYSTEM CHANGE OUTS, RECTIFIER REPLACEMENTS OR ADDITIONS, BREAKER DISTRIBUTION CHANGES, BATTERY ADDITIONS, BATTERY REPLACEMENTS AND INSTALLATIONS OR CHANGES TO DC CONVERTER SYSTEMS IT SHALL BE REQUIRED THAT SERVICES CONTRACTORS VERIFY ALL DC POWER SYSTEMS ARE EQUIPPED WITH MASTER DC SYSTEM RETURN GROUND CONDUCTOR FROM THE DC POWER SYSTEM COMMON RETURN BUS DIRECTLY CONNECTED TO THE CELL SITE REFERENCE GROUND BAR PER TP76300 SECTION H 6 AND TP76416 FIGURE 7-11 REQUIREMENTS.

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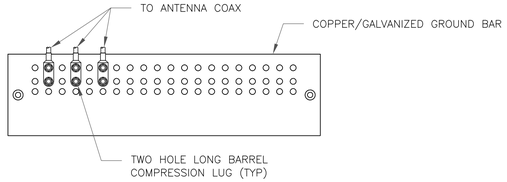
STATE OF CONNECTICUT
MICHAEL T. JOHNSON
No. 23924
LICENSED PROFESSIONAL ENGINEER
8/11/22

MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

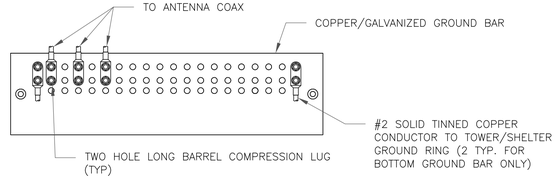
SHEET NUMBER: G-1
REVISION: 0



NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE

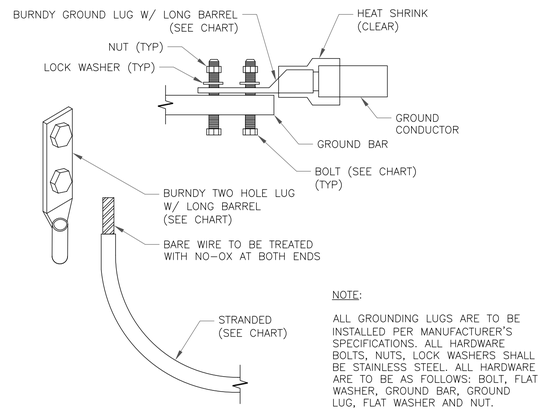


NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL
SCALE: NOT TO SCALE

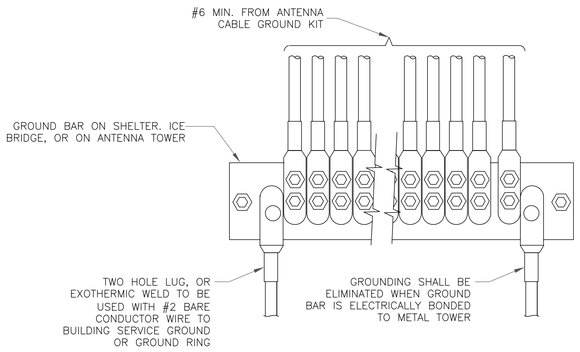
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



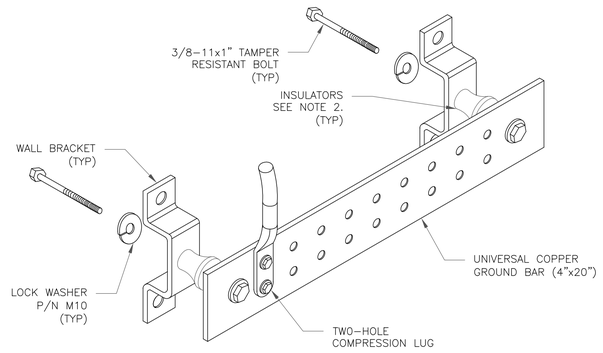
NOTE:

ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

3 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



4 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE

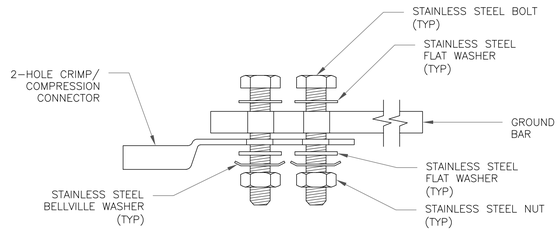


NOTES:

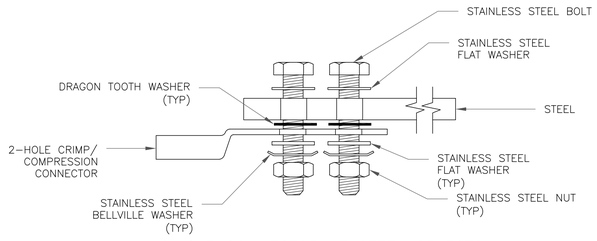
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

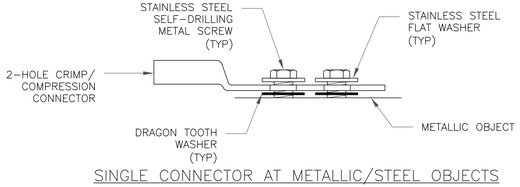
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

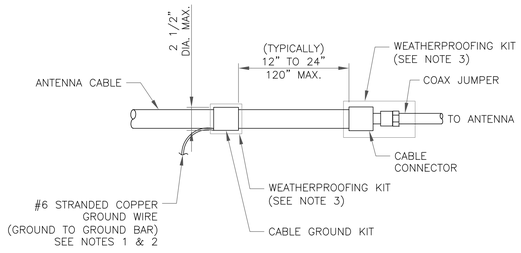


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

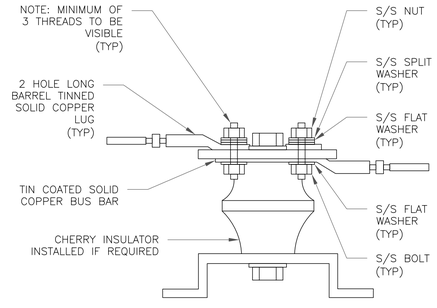
8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

6 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE

AT&T
575 MOROSGO DRIVE
ATLANTA, GA 30324-3300

CROWN CASTLE
3 CORPORATE PARK DRIVE, SUITE 101
CLIFTON PARK, NY 12065

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

AT&T
SITE NUMBER: **CTL01193**

BU #: **876329**
MTN. VIEW CEM. (FILLEY PARK)

28 BREWER DR.
BLOOMFIELD, CT 06002

EXISTING
120'-0" MONOPOLE

ISSUED FOR:

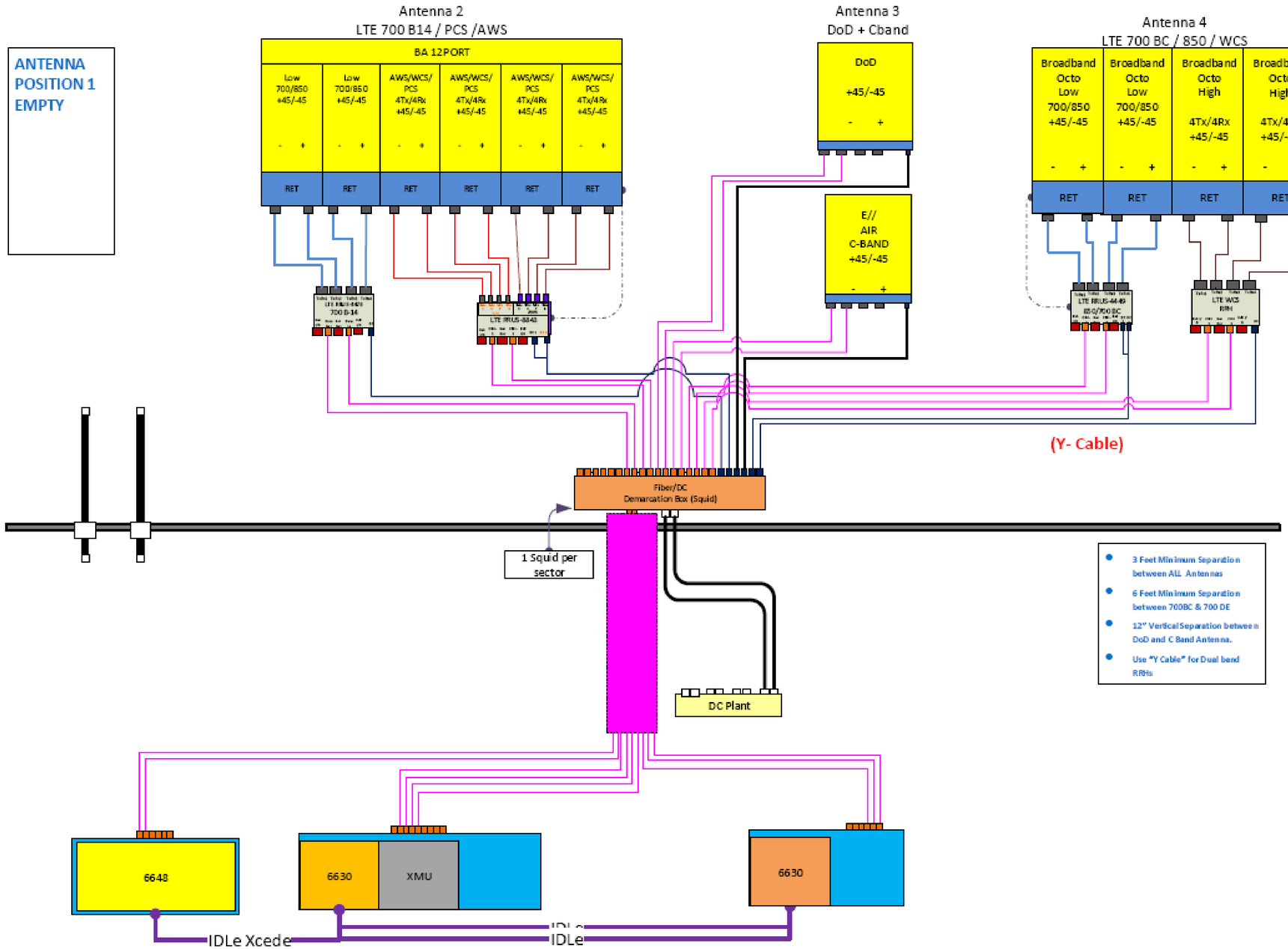
REV	DATE	DRWN	DESCRIPTION	DES./QA
A	7/7/22	TDG	PRELIMINARY REVIEW	MTJ
B	7/18/22	TDG	PRELIMINARY REVIEW	MTJ
0	8/11/22	TDG	CONSTRUCTION	MTJ

STATE OF CONNECTICUT
No. 23924
LICENSED
PROFESSIONAL ENGINEER
8/11/22

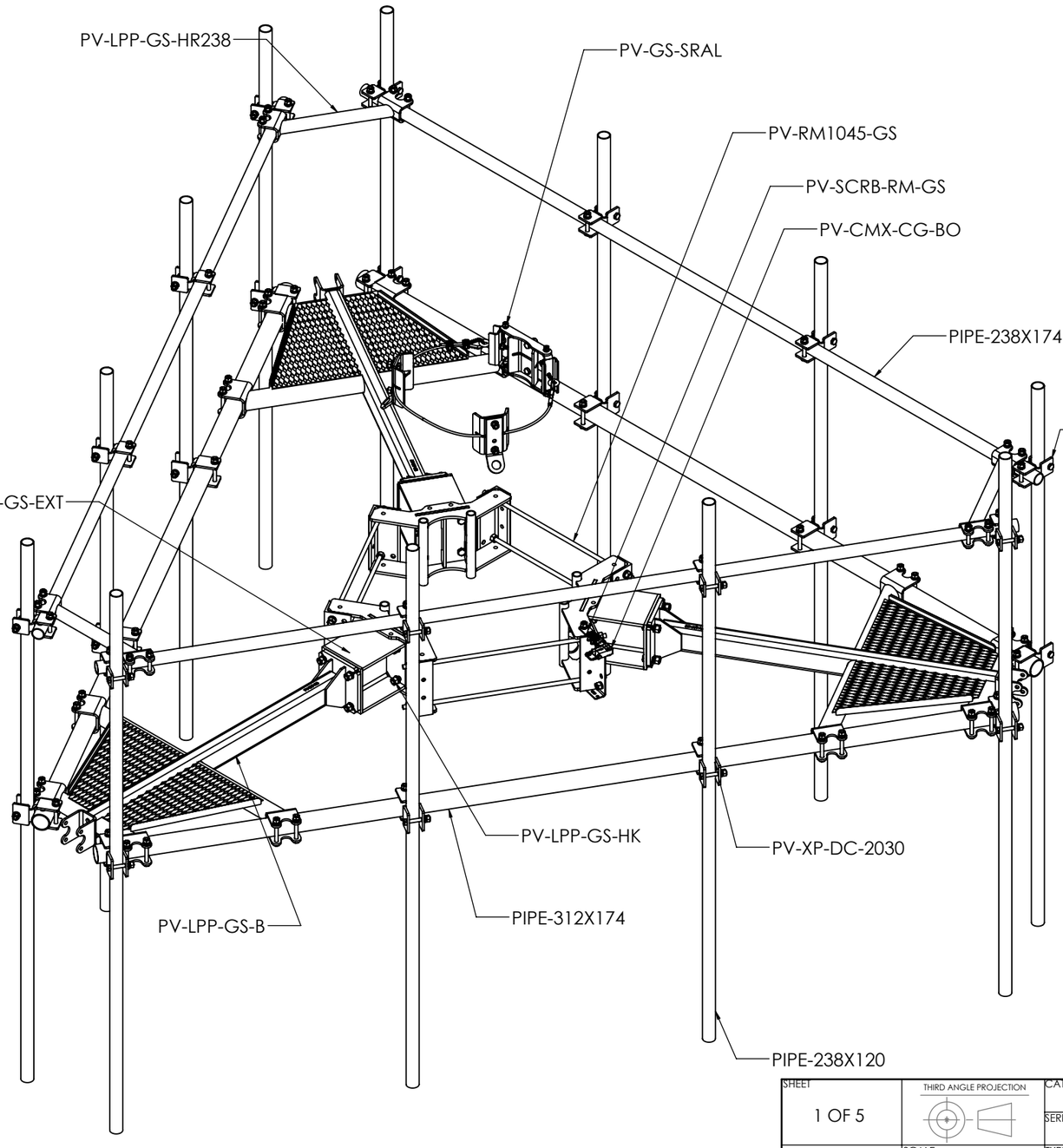
MTS ENGINEERING P.L.L.C.
BER:2386985
Expires 3/31/23

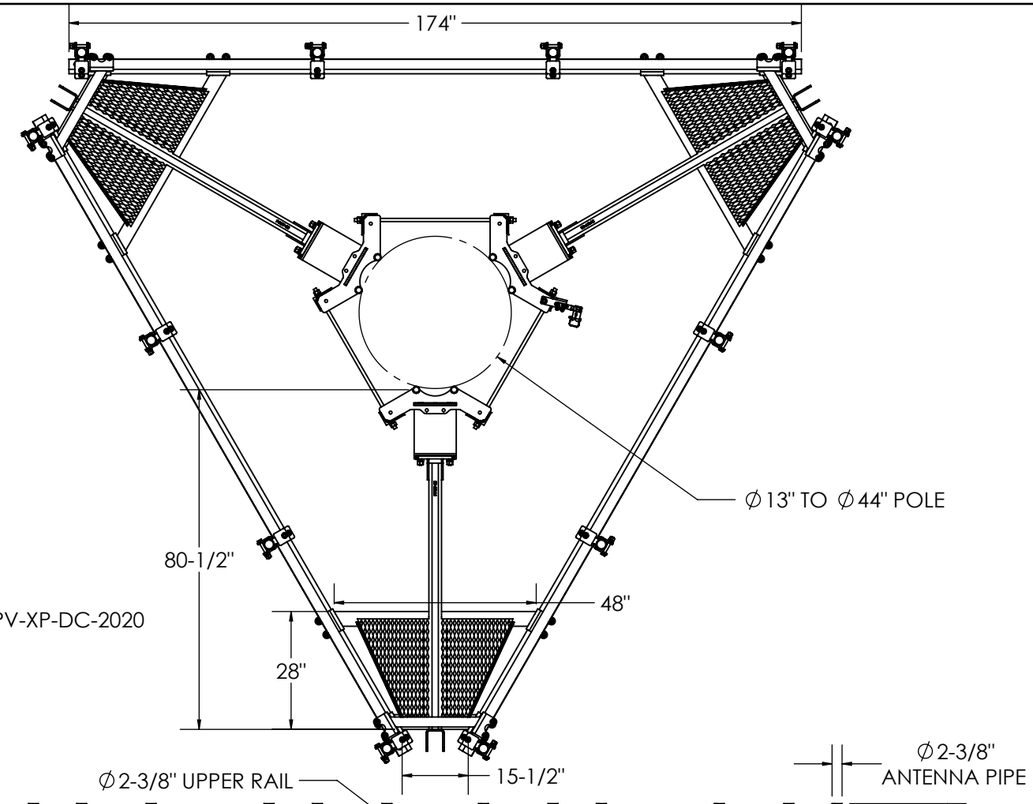
SHEET NUMBER: G-2
REVISION: 0

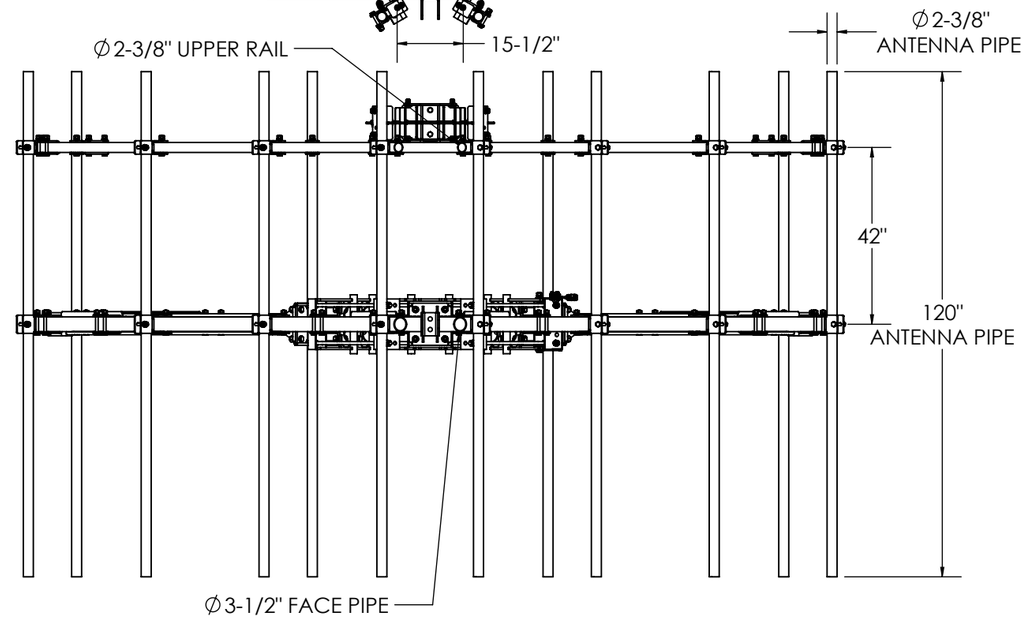
Diagram - Sector	A	Diagram File Name - NewCband_3Ant_2Coax_BA12_DoD_CB_DMP__8843_1DCFib_1x6630_XMU_6630_6648.vsd							
Atoll Site Name -	CTL01193	Location Name -	BLOOMFIELD CEMETARY	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND		
Comments: Important Note: For detailed radio to antenna wiring refer to the latest 4T4R Antenna/ Radio Port connections Field Notice (RF-HW-2016-265)									



PV-LPPGS-14M-HR2-H5H10 - CEQ.53355
MONOPOLE GUARDIAN MOUNT







SHEET: 1 OF 5	THIRD ANGLE PROJECTION	CATEGORY: 02_Monopole	4		
		SERIES: 01_Triangular	3		
8/10/2021	SCALE: 1:36	TYPE: PV-LPPGS_GUARDIAN	2	PART NUMBER CHANGE - SWAP TO H5H10	11/18/20
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY: DJN	1	PART NUMBER CHANGE - UPDATED AP#	9/25/20
		CHECKED: SJS	0	INITIAL RELEASE	9/11/20
		STATUS: APPROVED	REV	DESCRIPTION	DATE

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MONOPOLE GUARDIAN MOUNT - ATT

DOCUMENT NUMBER: LPPGS-ENG-08-R2

REV: 2

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INCLUDED PARTS, WEIGHTS, EPA, & MOUNT CLASSIFICATION

Table 1: Included Parts, EPA, Weight

Part Number	Description	Weight (lbs)	(EPA)A (ft2)*	(EPA)A 1/2" Radial Ice (ft2)	Included Parts												
					PV-RM1045-GS	PV-LPP-GS-B	PV-LPP-GS-HK	PV-LPP-GS-EXT	PV-LPP-GS-HR238	PV-XP-DC-2020	PV-XP-DC-2030	PIPE-238X120	PIPE-238X174	PIPE-312X174	PV-GS-SRAL	PV-SCRB-RM-GS	PV-CMX-CG-BO
PV-LPPGS-14M-HR2-H5H10	14'6" Face, 13"-44" OD Pole, 2-3/8" OD Upper Rail, (12) 2-3/8" x 120" Pipe	2400	22.0	29.2	1	1	1	1	1	12	12	12	3	3	1	1	1

* (EPA)A INCLUDES ALL STRUCTURAL MEMBERS INCLUDING CROSSOVER CONNECTIONS. IF DESIRED, ADD ANTENNA PIPE PER TABLE 2

Table 2: Antenna Pipe Additional EPA (Each)

Size	(EPA)A (ft2)	(EPA)A 1/2" Radial Ice (ft2)
2-3/8" x 120"	1.9	2.8

MOUNT CLASSIFICATION INFORMATION:

- STANDARDS: TIA-222-G, TIA-222-H, TIA-5053
- MAX STRUCTURE HEIGHT: 400ft
- STRUCTURE CLASS: I OR II
- TOPOGRAPHIC CATEGORY: 1
- DESIGN WIND PRESSURE: 135psf
- DESIGN WIND PRESSURE (ICED): 15psf
- DESIGN ICE THICKNESS (RADIAL) 2.75"

APPROVED MOUNT CLASSIFICATIONS:

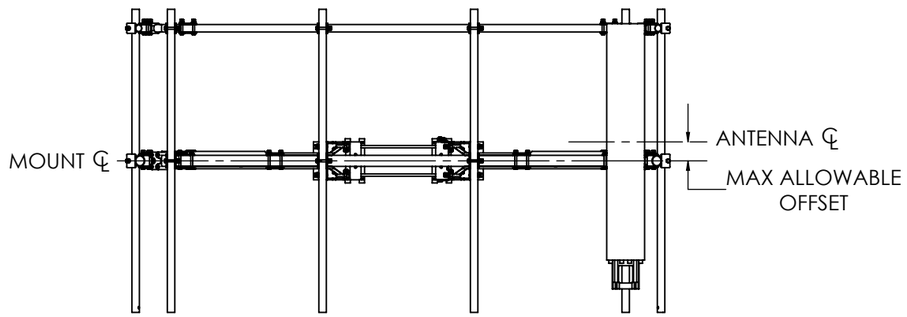
Table 2: Approve Mount Classifications

Part Number	Maximum Antenna Centerline Offset			
	0in	6in	12in	24in
PV-LPPGS-14M-HR2-H5H10	M1300R(1250)-4[0]	M1300R(1200)-4[6]	M1100R(1150)-4[12]	M700R(1000)-4[24]

MOUNT EXCEEDS THE FOLLOWING REQUIREMENTS:

- HEAVY 5
- HEAVY 10

NOTE: ON POLES WITH THICKNESS 3/16" OR LESS, A KICKER AND SECONDARY COLLAR OR FURTHER POLE ANALYSIS SHALL BE REQUIRED.



ALLOWABLE OFFSET - SINGLE COLLAR

SHEET: 2 OF 5	THIRD ANGLE PROJECTION	CATEGORY: 02_Monopole	4		
		SERIES: 01_Triangular	3		
8/10/2021	SCALE: 1:36	TYPE: PV-LPPGS_GUARDIAN	2	PART NUMBER CHANGE - SWAP TO H5H10	11/18/20
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY: DJN	1	PART NUMBER CHANGE - UPDATED AP#	9/25/20
		CHECKED: SJS	0	INITIAL RELEASE	9/11/20
		STATUS: APPROVED	REV	DESCRIPTION	DATE

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MONOPOLE GUARDIAN MOUNT - ATT

DOCUMENT NUMBER: LPPGS-ENG-08-R2 | REV: 2

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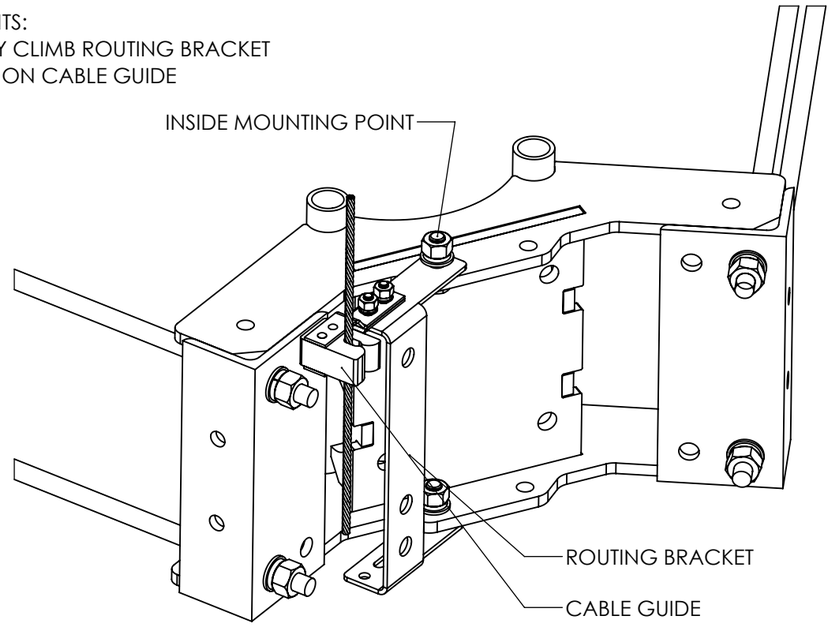
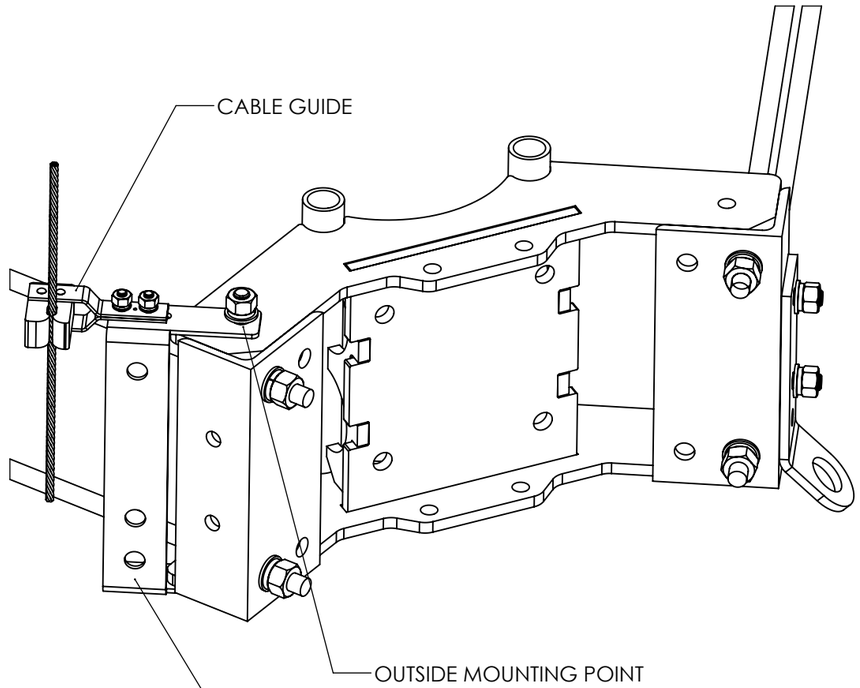
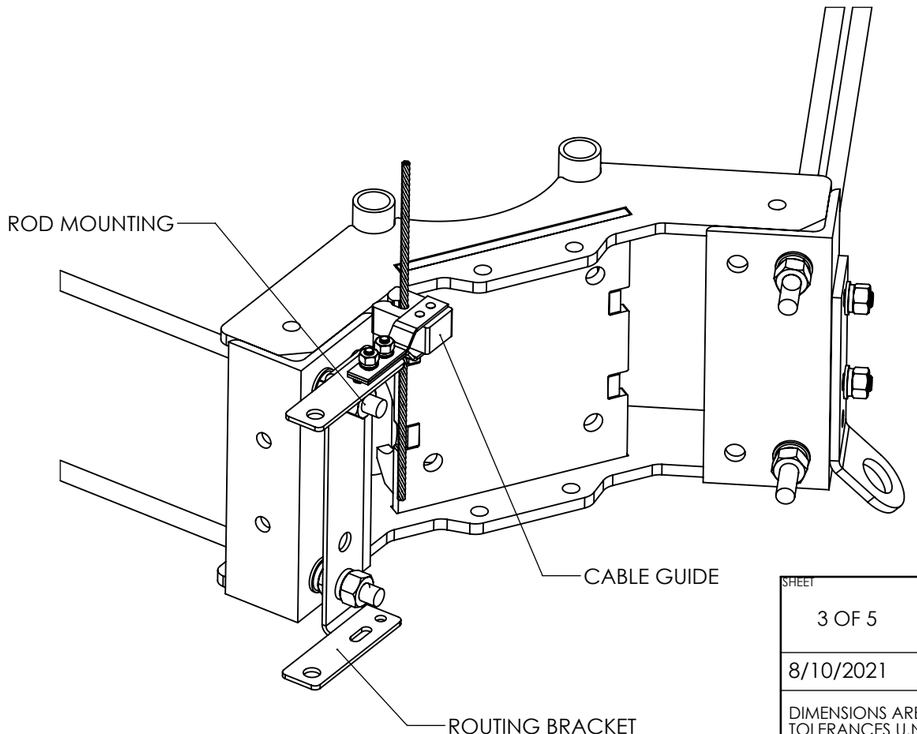
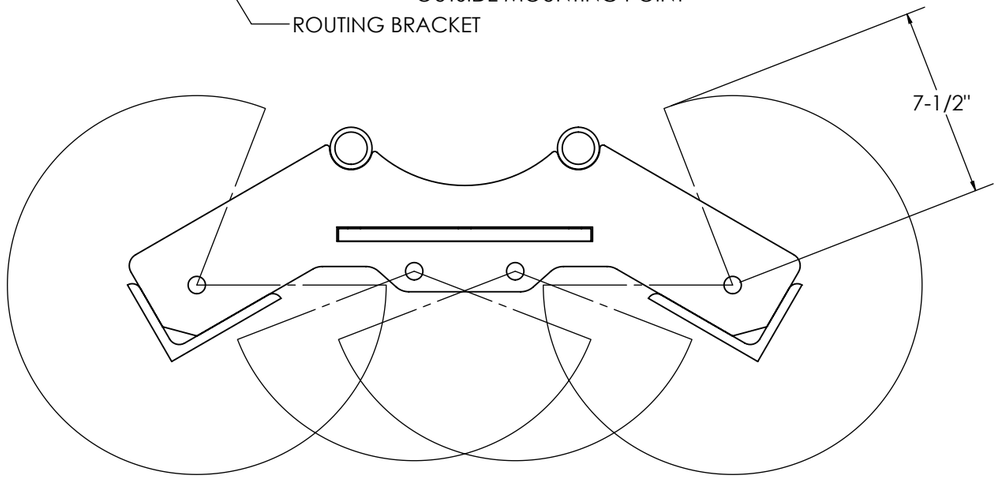
SAFETY CLIMB ROUTING

INCLUDED COMPONENTS:
PV-SCRB-RMGS - SAFETY CLIMB ROUTING BRACKET
PV-CMX-CG-BO - BOLT ON CABLE GUIDE









CABLE GUIDE RANGE

SHEET 3 OF 5	THIRD ANGLE PROJECTION	CATEGORY 02_Monopole	4			PERFECTVISION
		SERIES 01_Triangular	3			
8/10/2021	SCALE 1:6	TYPE PV-LPPGS_GUARDIAN	2	PART NUMBER CHANGE - SWAP TO H5H10	11/18/20	
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY DJN	1	PART NUMBER CHANGE - UPDATED AP#	9/25/20	MONOPOLE GUARDIAN MOUNT - ATT
		CHECKED SJS	0	INITIAL RELEASE	9/11/20	DOCUMENT NUMBER LPPGS-ENG-08-R2 REV 2
		STATUS APPROVED	REV	DESCRIPTION	DATE	

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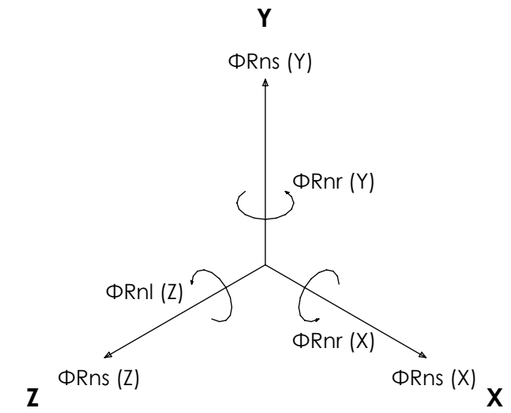
PV-XP-DC

DUALCROSS 90° CROSSOVER BRACKET

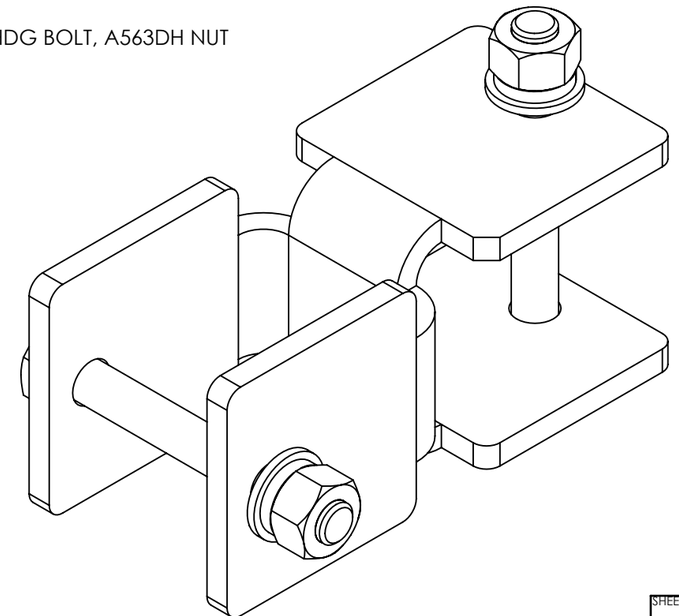
Table 7: Crossover Configurations and Capacities

Part Number	Weight	Pipe 1 Size (Vertical)	Pipe 2 Size (Horizontal)	Pipe 1 Bolt Size	Pipe 2 Bolt Size	Available Sliding Strength (Φ=0.7)			Available Torsional Strength (Φ=0.7)		Available Lateral Twist Strength (Φ=0.9)
						ΦRns (X)	ΦRns (Y)	ΦRns (Z)	ΦRnr (X)	ΦRnr (Y)	ΦRnl (Z)
	lbs	*in*	*in*	*in*	*in*	*kip*	*kip*	*kip*	*kip-in*	*kip-in*	*kip-in*
PV-XP-DC-2020	6.1	∅2.375	∅2.375	∅5/8 x 4-1/2	∅5/8 x 4-1/2	3.85	3.85	Fixed	6.0	6.0	14.0
PV-XP-DC-2025	7.0	∅2.375	∅2.875	∅5/8 x 4-1/2	∅5/8 x 5	3.85	3.85	Fixed	6.0	6.0	14.0
PV-XP-DC-2030	8.1	∅2.375	∅3.5	∅5/8 x 4-1/2	∅5/8 x 5-1/2	3.85	3.85	Fixed	6.8	6.0	14.0
PV-XP-DC-2525	8.0	∅2.875	∅2.875	∅5/8 x 5	∅5/8 x 5	3.85	3.85	Fixed	6.0	6.0	20.0
PV-XP-DC-2530	9.3	∅2.875	∅3.5	∅5/8 x 5	∅5/8 x 5-1/2	3.85	3.85	Fixed	6.8	6.0	20.0
PV-XP-DC-3030	10.7	∅3.5	∅3.5	∅5/8 x 5-1/2	∅5/8 x 5-1/2	3.85	3.85	Fixed	6.8	6.8	27.0
PV-XP-DC-3040	13.1	∅3.5	∅4.5	∅5/8 x 5-1/2	∅5/8 x 6-1/2	3.85	3.85	Fixed	6.8	6.8	27.0

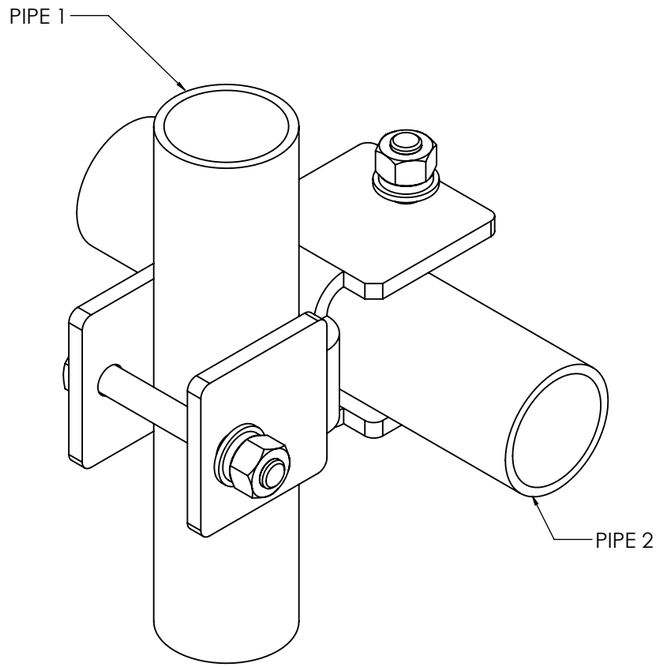


NOTES:

- CAPACITY VALUES EXPERIMENTALLY DETERMINED
- INSTALLATION REQUIREMENTS:
  - MINIMUM BOLT TORQUE: 100 FT-LBS
  - CLEAN, DRY ASSEMBLY
  - GALVANIZED BRACKET AND HARDWARE
  - COLORED WAX COATING ON NUTS
- MATERIALS
  - BRACKET: A36 HDG
  - HARDWARE: A325 HDG BOLT, A563DH NUT



PV-XP-DC
DUALCROSS 90° CROSSOVER



SHEET 4 OF 5	THIRD ANGLE PROJECTION	CATEGORY 02_Monopole	4			PERFECTVISION®
		SERIES 01_Triangular	3			
8/10/2021	SCALE 1:2	TYPE PV-LPPGS_GUARDIAN	2	PART NUMBER CHANGE - SWAP TO H5H10	11/18/20	
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY DJN	1	PART NUMBER CHANGE - UPDATED AP#	9/25/20	MONOPOLE GUARDIAN MOUNT - ATT
		CHECKED SJS	0	INITIAL RELEASE	9/11/20	DOCUMENT NUMBER LPPGS-ENG-08-R2 REV 2
		STATUS APPROVED	REV	DESCRIPTION	DATE	

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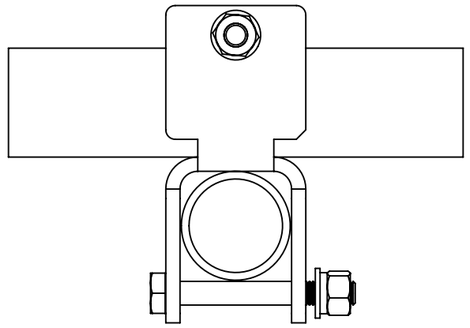
PV-XP-DC

DUALCROSS 90° CROSSOVER BRACKET

PRE-INSTALL ASSEMBLY:



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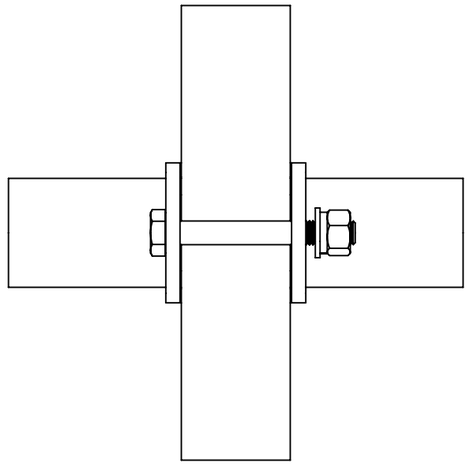
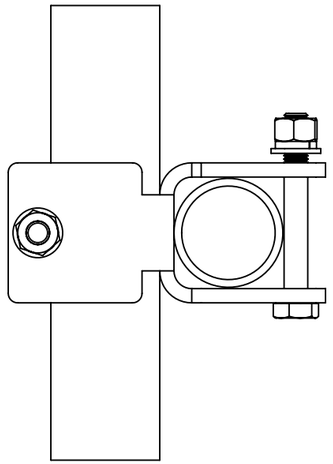
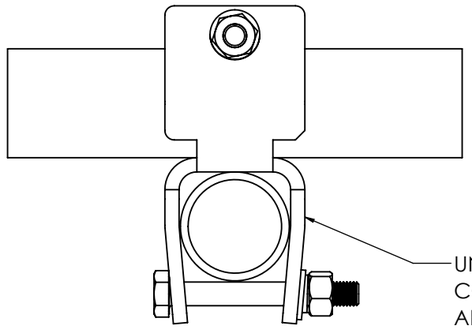


FRONT



SIDE

POST-INSTALL ASSEMBLY:



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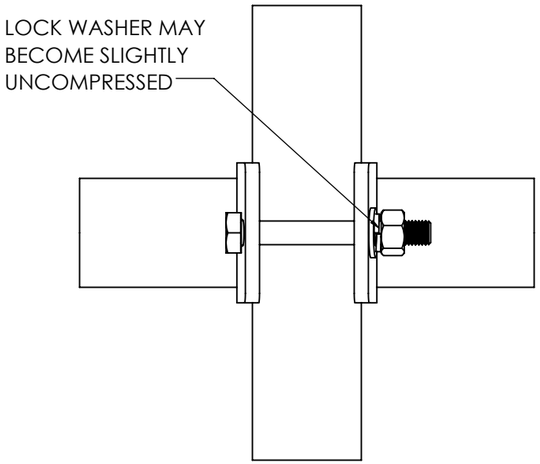

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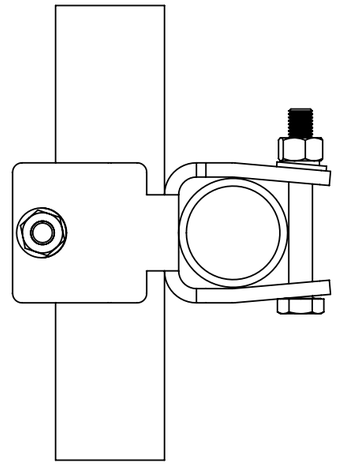

SIDE

SHEET 5 OF 5	THIRD ANGLE PROJECTION	CATEGORY 02_Monopole	4		
		SERIES 01_Triangular	3		
8/10/2021	SCALE 1:4	TYPE PV-LPPGS_GUARDIAN	2	PART NUMBER CHANGE - SWAP TO H5H10	11/18/20
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		BY DJN	1	PART NUMBER CHANGE - UPDATED AP#	9/25/20
		CHECKED SJS	0	INITIAL RELEASE	9/11/20
		STATUS APPROVED	REV	DESCRIPTION	DATE

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MONOPOLE GUARDIAN MOUNT - ATT

DOCUMENT NUMBER LPPGS-ENG-08-R2 | REV 2

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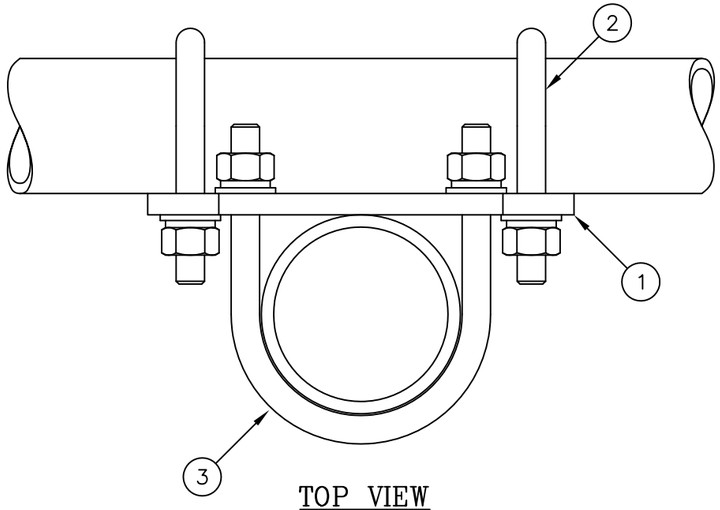
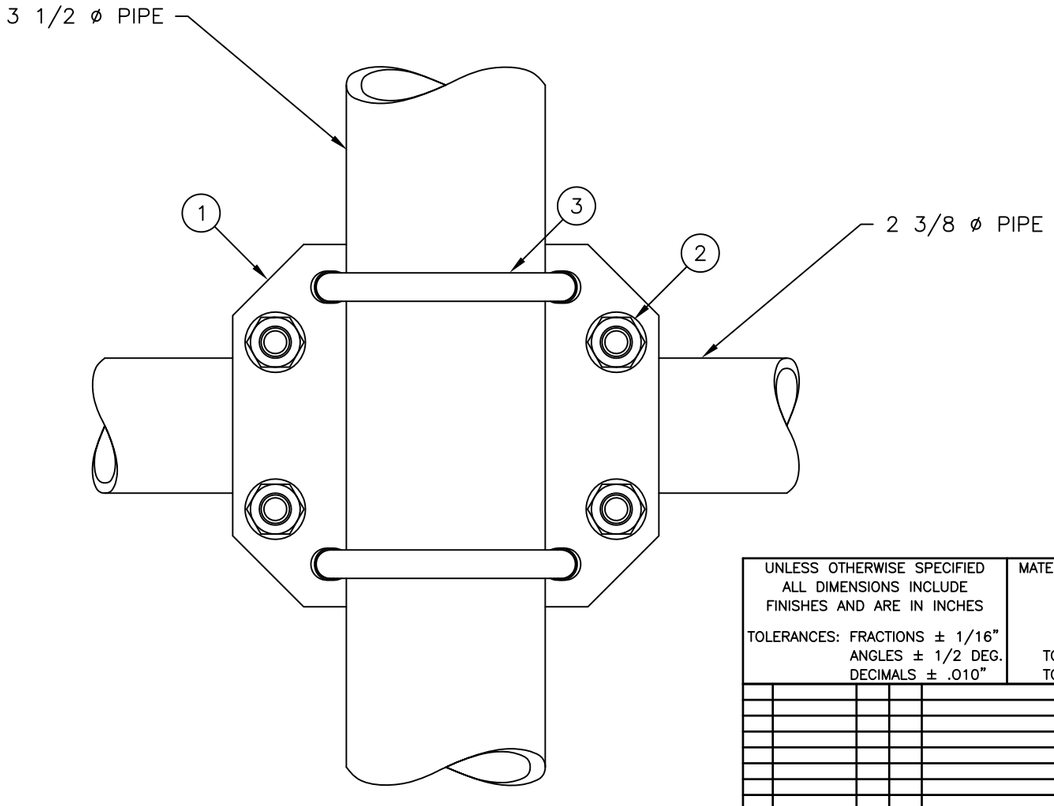
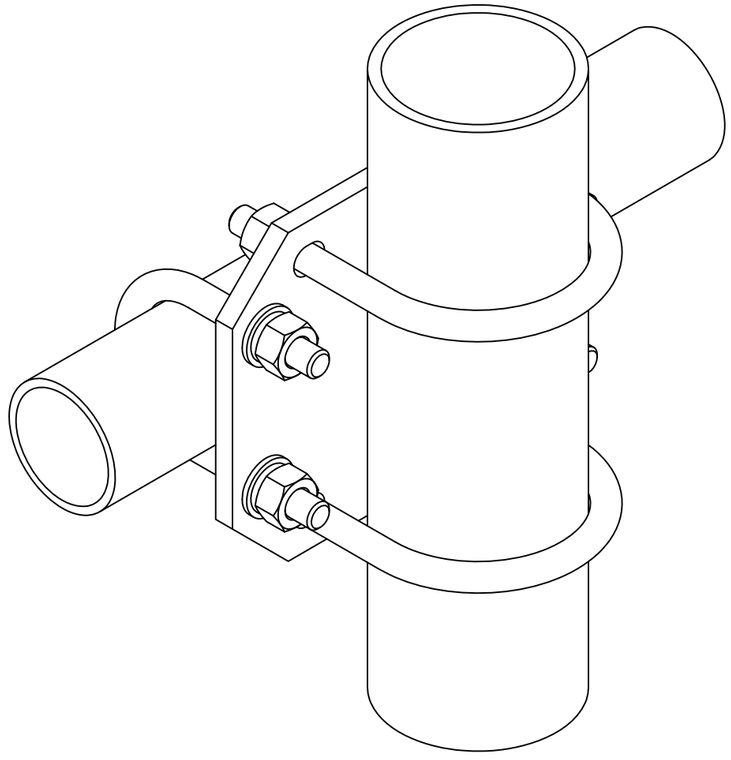
C10902013 CROSSOVER PLATE KIT				
ITEM	QTY.	PART NO.	DESCRIPTION	WEIGHT
1.	1	CS03123	CROSSOVER PLATE	5
2.	2	C40034139	U-BOLT ASSEMBLY, 1/2 ø X 2 15/16 C-C	2
3.	2	C40034143	U-BOLT ASSEMBLY, 1/2 ø X 4 1/16 C-C	2
			TOTAL WEIGHT	9



TOP VIEW



FRONT VIEW



ISOMETRIC VIEW

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS INCLUDE FINISHES AND ARE IN INCHES

TOLERANCES: FRACTIONS ± 1/16" ANGLES ± 1/2 DEG. DECIMALS ± .010"

MATERIAL:

TOLERANCES DO NOT APPLY TO RAW MATERIAL

REV	DATE	DRW	CHK	DESCRIPTION

Sabre Industries™ Towers and Poles

CROSSOVER PLATE KIT 2 3/8"ø TO 3 1/2"ø PIPES (1/2"ø U-BOLTS)

		SIZE	DRAWING NO.	REV
DATE	07/23/14	B	C10902013	0
DRAWN BY	WRF			
CHECKED BY	KLE	SCALE None	PAGE 1 OF 1	