Yankton County Planning Commission
Yankton County Board of Adjustment

Applicant **Crown Castle – Conditional Use Permit** 7/20/2022

District type: ☒ AG ☐ R1-Low ☒ R2-Moderate ☐ R3-High ☐ C-Comm.

☐ LC – Lakeside Commercial ☐ RT-Rural Transitional

CUP needed:
☐ Section 507 ☐ Section 607 ☐ Section 707 ☐ Section 807

☐ Section 1805 ☐ Section 1905 ☒ Section 2503

NOTE:

Conditional Use Permit

Applicant is requesting a Conditional Use Permit to add additional antennas to an existing tower per Article 25 section 2503. Said property is legally described as the Northwest Quarter (NW1/4) of Section Thirty-two (32), Township Ninety-four (94) North, Range Fifty-seven (57) West of the 5th P.M., Yankton County, South Dakota.

PC: Article 18 Section 1805
BOA: Article 19 Section 1905

Planning Commission date: 8/9/2022 Time: 7:10 PM

Board of Adjustment date: 9/6/202 Time:

Permit Number: CUP-2022-82

Yankton County

_____ **Variance** __X__ **Conditional Use** _____ **Rezoning**

Owner: Christina Wilburn on behalf of Crown Castle (Tower Owner) agent for T-

Owners Address: 3025 Highland Pkwy, Suite 400 - Downers Grove, IL 60515

Owners Phone: 773-628-4388

Applicants Name, if different from Owner: Christina Wilburn on behalf of Crown Castle (Tower Owner) agent for T-

Applicants Address: 3025 Highland Pkwy, Suite 400 - Downers Grove, IL 60515

Job Address: 42943 308TH STREET

Legal: NW4

Section, Township, Range: 32-94-57

Zoning Classification: AG

Affected Zoning Ordinance: 25032503

Reason for Request: Adding Additional Antenna's to Existing Cell Tower

List Specific Hardships:

SCHEDULED FOR PLANNING COMMISSION ACTION (DATE): 08/09/2022 7:10 PM CDT

SCHEDULED FOR BOARD OF ADJUSTMENT ACTION (DATE): _____

Application Fee: $300.00 Check #: 194812994 Receipt #: _____

Signature: Christina Wilburn on behalf of

Date: 07/20/2022

Site Map

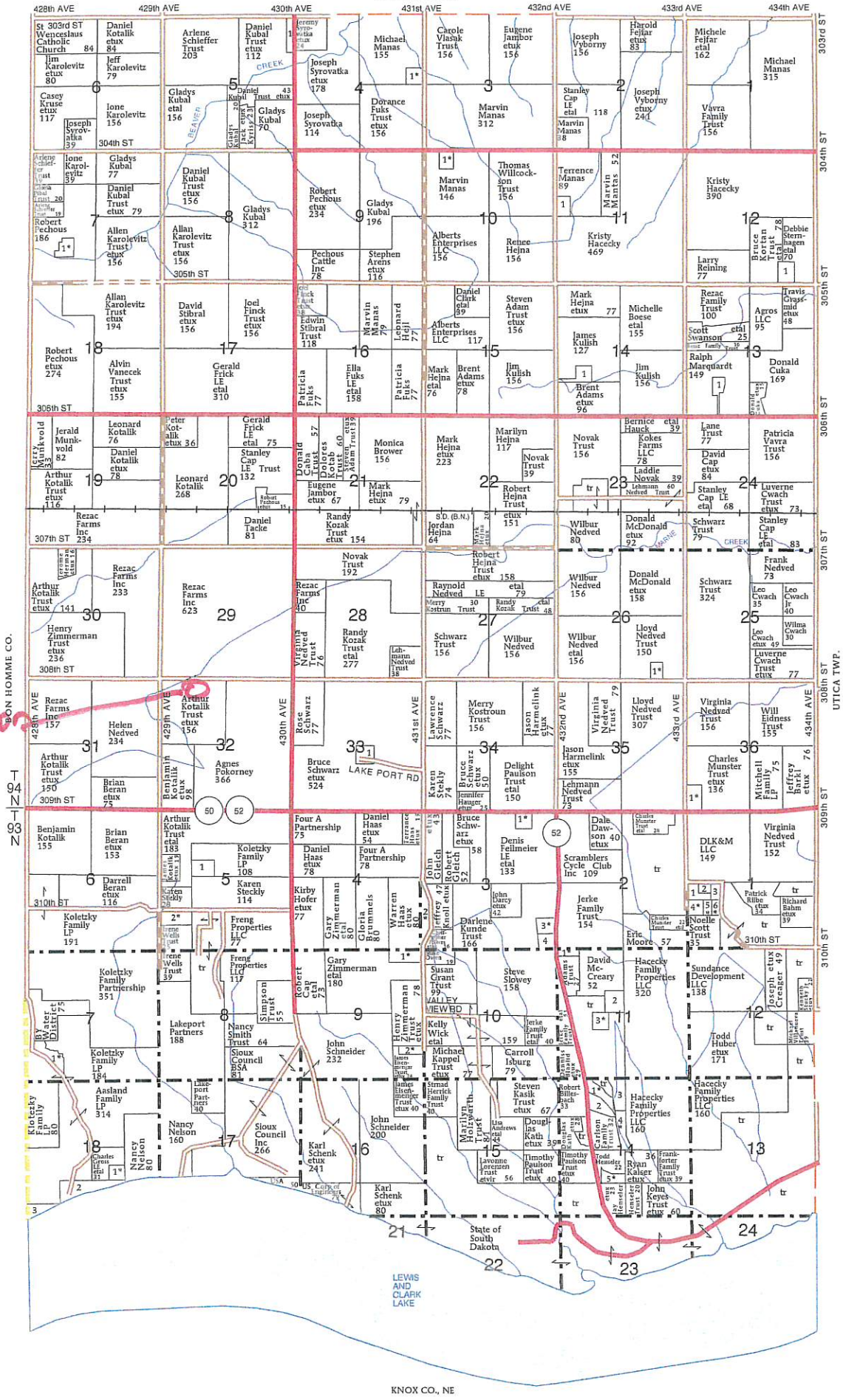
Parcel Number: 14.032.400.100

Site Description:

T-93-94-N ZISKOV PLAT R-57-W

(Landowners)

LESTERVILLE TWP.



ZISKOV TOWNSHIP

SECTION 1S
1. Barth, Chad 9
2. Fischer, Katrina 5
3. Gause, Janell 5
4. Taylor, Lynn etux 9
5. Scott, Bjaye etux 5
6. Kramer, Francis etal 5

SECTION 3S
1. Ausdemore, Robert etal 9
2. Haas, Warren etux 10
3. Mueller, James etux 8
4. Kunde, Darlene 8

SECTION 4N
1. Hoffman, RC etux 10

SECTION 5N
1. Polish Catholic Congregation 9

SECTION 5S
1. Willsie, Carol 11
2. Sedlacek, Kenneth etux 12

SECTION 7N
1. Pechous, Robert etux 10

SECTION 7S
1. Koletzky, Ione etal 17

SECTION 9S
1. Jungemann, Jerry etux 15
2. Wostrel, Eldon etux 15

SECTION 10N
1. Manas, Terence etux 10

SECTION 11N
1. Cap, Daniel 11

SECTION 11S
1. Haberman, Adam etux 10
2. Konopasek Family Trust 10
3. Lyons, Sean etal 10

SECTION 12N
1. Hejna, Marilyn 9

SECTION 13N
1. Manas, Dylan 6

SECTION 14N
1. Sudbeck, Charlene 12

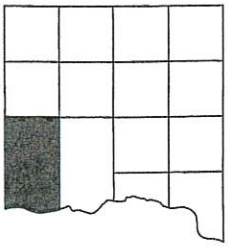
SECTION 14S
1. Peterson, Corey etal 9
2. Feimer Family Protection Trust 9
3. Colby, David 13
4. VanDeKop, Dale etux 10
5. Henseler, Kevin etux 9

SECTION 18S
1. Lynch, Daniel etux 9
2. State of South Dakota Game Fish & Parks 66
3. Yonke Trust, Mark 5

SECTION 26
1. Martin, Nathan etux 6

SECTION 33
1. St Wenceslaus Roman Catholic Church 10

SECTION 36
1. Koletzky, David etux 8



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FINDINGS OF FACT – CONDITIONAL USE PERMIT

Crown Castle – CUP-2022-82

Are the requirements of Section 1723 met? (signed by owner unless there is a binding purchase agreement then signed by applicant, Variance accompanied by building permit (if applicable), site plan included with building permit,	Yes
Are the requirements of Section 1729 met? (all fees paid at time of application)	Yes
Section 1805:	
1. Did you specifically cite, in the application, the section of the Ordinance under which the conditional use is sought and state the grounds on which it is requested	Applicant is requesting a Conditional Use Permit to add additional antennas to an existing tower per Article 25 section 2503.
2. Was notice of public hearing given per Section 1803 (3-5)?	Mailed – Published –
3. Attend the public hearing	
4. Planning Commission: Make a recommendation to include: a. Granting of conditional use; b. Granting with conditions; or c. Denial of conditional use	
5. Planning Commission must make written findings certifying compliance with specific rules including: a. Ingress and Egress to proposed structures thereon with particular reference to automotive and pedestrian safety and convenience, traffic flow and control, and access in case of fire or catastrophe:	
b. Off right-of-way parking and loading areas where required; with particular attention to the items in (A) above and the economic, noise, glare or odor effects of the conditional use on adjoining properties and properties generally in the district;	
c. Refuse and service areas, with particular reference to the items in (A) and (B) above;	
d. Utilities, with reference to locations, availability, and compatibility;	
e. Screening and buffering with reference to type, dimensions, and character;	
f. Signs, if any, and proposed exterior lighting with reference to glare, traffic safety, economic effect;	
g. Required yards and other open spaces; and	
h. General compatibility with adjacent properties and other property in the district and that the granting of the conditional use will not adversely affect the public interest.	

Variance, Conditional Use and Rezoning Application	Fees Paid
CUP-2022-82	$300.00
Applicant	Created
Christina Wilburn	July 20, 2022

Number	
CUP-2022-82	14.032.400.100 | Christina Wilburn on behalf of Crown Castle (Tower Owner) agent for T-Mobile | 42943 308TH STREET, Tabor, SD, 57063 Submitted by Crowncastlepermitting on 7/20/2022

Applicant

Christina Wilburn

7736284388

christina.wilburn@crowncastle.com

Parcel search Completed On 7/20/2022 1:09 PM EST by Crowncastlepermitting

Maxar Powered by Esri

ParcelID	Address	City	OwnerName	Acres
14.032.400.100			KOTALIK, ARTHUR J REV TRUST (D) || KOTALIK, GERALDINE A REV TRUST (D)	156.000

Request Information Completed On 7/20/2022 1:13 PM EST by Crowncastlepermitting

Type of Request

Conditional Use

Fee

$300.00

Reason for Request

Adding Additional Antenna's to Existing Cell Tower

List Specific Hardships

Applicant Information

Are you the owner of the property?

Yes

Applicant Name

Christina Wilburn on behalf of Crown Castle (Tower Owner) agent for T-Mobile

Applicant Address

3025 Highland Pkwy, Suite 400 - Downers Grove, IL 60515

Applicant Phone

773-628-4388

Owner Information

Owner Name

Christina Wilburn on behalf of Crown Castle (Tower Owner) agent for T-Mobile

Owner Address

3025 Highland Pkwy, Suite 400 - Downers Grove, IL 60515

Owner Phone Number

773-628-4388

Property Information

Parcel ID Number

14.032.400.100

Legal Description

NW4

Site Address

42943 308TH STREET

City

Tabor

Zip

57063

Section-Township-Range

32-94-57

Zoning District

AG

Zoning Description

AG

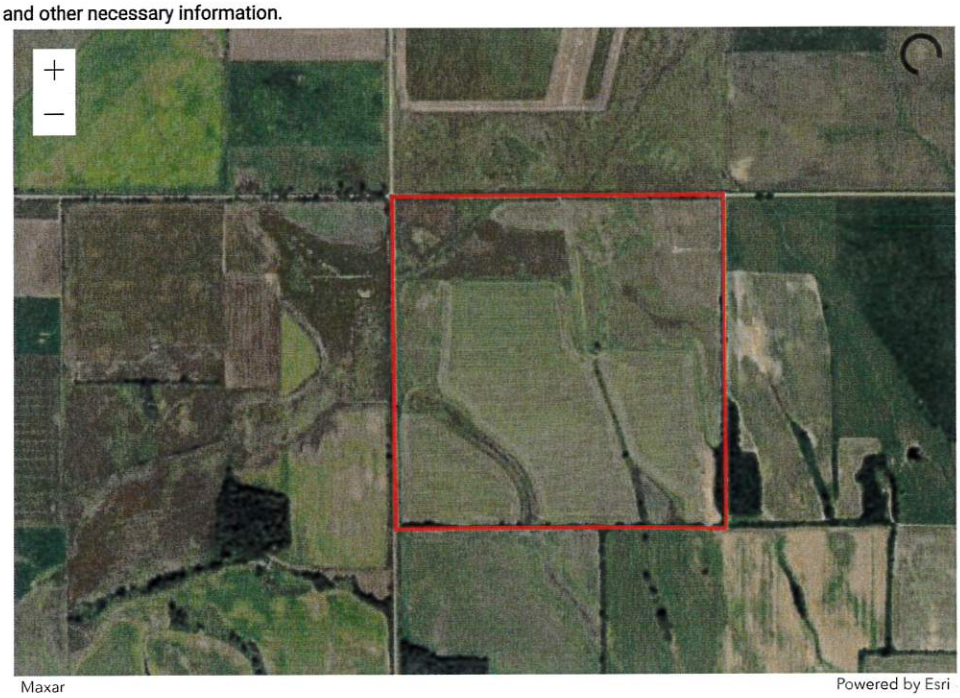
Existing Use of Property

Telecommunication Tower

Site Plan Completed On 7/20/2022 1:13 PM EST by Crowncastlepermitting

Map - Mark the location of structures and other necessary information.

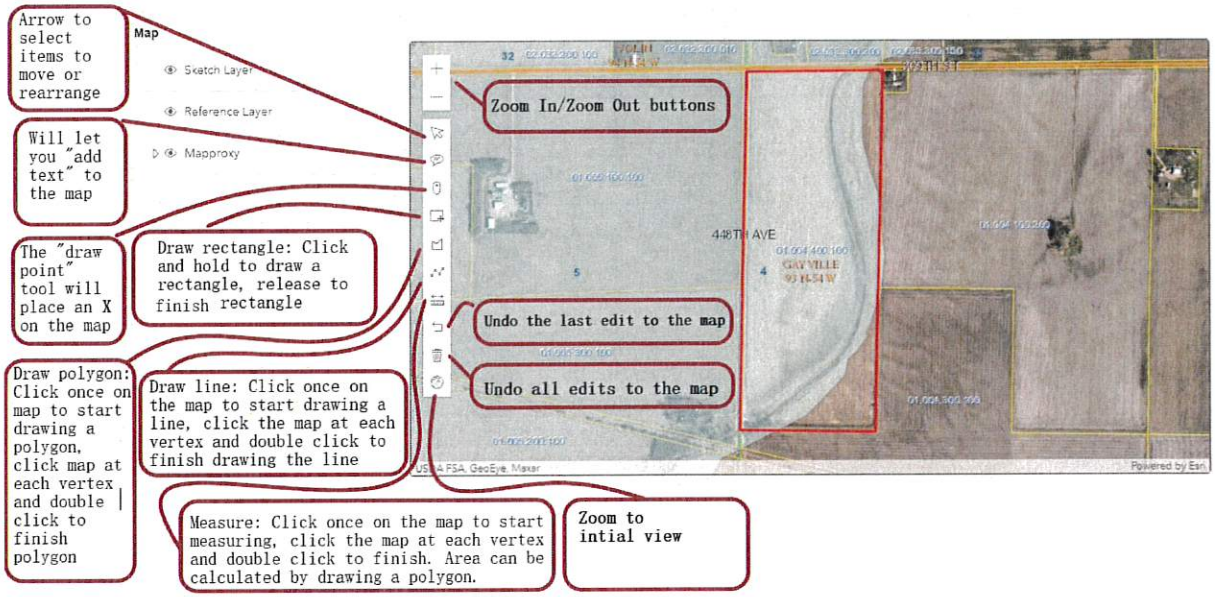
- Sketch Layer
- Reference Layer
- Mapproxy



Describe the location and use of adjacent structures

Upload Site Plan and/or additional plans and documents

857981_603055_Construction Drawing.pdf



Draft Building Permit Completed On 7/20/2022 1:14 PM EST by Crowncastlepermitting

Upload Draft Building Permit

Draft Building Permit Form Completed On 7/20/2022 1:16 PM EST by Crowncastlepermitting

Job Address

42943 308TH STREET, Tabor, SD 57063

Legal Description of Construction Site

NW4

Owner Name

KOTALIK, ARTHUR J REV TRUST (D) || KOTALIK, GERALDINE A REV TRUST (D)

Owner Address

Owner Phone

Contractor

Contractor Mailing Address

Contractor Phone

Architect or Designer

Architect or Designer Mailing Address

Architect or Designer Phone

Type and Use of Building

Class of Work

Describe Work

Valuation of Work

$

Generate Draft Building Permit Completed On 7/20/2022 1:16 PM EST by Crowncastlepermitting

Generate Draft Building Permit

Submit Completed On 7/20/2022 1:16 PM EST by Crowncastlepermitting

A notification sign shall be posted on the property upon which action is pending at least seven (7) days prior to the hearing date. Such signs shall be placed along all the property's road frontage so as to be visible from the road. If a property does not have a road frontage, then such signs shall be placed upon the closest available right-of-way and upon the property. Said signs shall not be less than one hundred and eighty seven (187) square inches in size. It shall be unlawful for any person to remove, mutilate, destroy or change such posted notice prior to such hearings.

Please pick the sign up from the zoning office on or before eight (8) days prior to the meeting.

Applicant Agreement

Please check the box to confirm you have read and agree to the notices above.

Signature

Date

7/20/2022

Application Submitted Successfully Completed On 7/20/2022 1:17 PM EST by Crowncastlepermitting

Your application has been submitted for review. Thank you.

Please click next at the bottom to continue. Thank you

Planning Review Completed On 7/20/2022 1:31 PM EST by bconkling

Continue with application

Continue

Describe what the applicant is requesting

Planning Commission Code Reference

Other Planning Commission Code Reference

2503

Board of Adjustment Code Reference

Other Board of Adjustment Code Reference

2503

Please confirm the zoning provided by the applicant. If zoning is incorrect, please enter the correct zoning. It is this field that is printed on the final form to avoid applicant/system error. The correct zoning must be entered.

Zoning Classification

AG

Wave Fee

Notes

Director Review Completed On 7/20/2022 1:43 PM EST by gvetter

Zoning Director Review

Approve

PC Prep Completed On 7/20/2022 2:32 PM EST by bconkling

Planning Commission Meeting

Planning Commission Meeting Date and Time

August 9th 2022, 7:10 pm CDT

Letters to be mailed 10 days prior to the public meeting:

07/30/2022 7:10 PM

Additional instructions for PC email

Return the affidavit 8 days prior to the public meeting:

08/01/2022 7:10 PM

Place your zoning action sign 7 days prior to the public meeting:

08/02/2022 7:10 PM

Date to send email to applicant

07/25/2022

Upload PC Mailing Labels

YanktonCountySD-20220720-b6addb202e8545689c360c4268e69deb.pdf

Upload PC Affidavit of Mailing

2 Mailing Affidavit 2640.pdf

Upload PC Notification Letter

CUP NOT Letter.pdf

Upload PC Newspaper Publication

Legals 8-9-2022.pdf

Permit Number

CUP-2022-82

Receipt Number

PC App Form Completed On 7/20/2022 2:32 PM EST by bconkling

PC App Form

Payment Completed On 7/20/2022 2:32 PM EST by bconkling

Fees Paid

VIEW RECEIPT

Fee Name	Recipient	Amount
Fee	Planning and Zoning	$300.00

Confirmation Data

Payment Method	Online

Confirmation Number	194812994
Amount Paid	$300.00

External Notes

Documents

Internal Notes

Documents

CROWN CASTLE

3025 Highland Pkwy, ySte 400
Downers Grove, IL 60515

Phone: (773) 628-4388
www.crowncastle.com

June 9, 2022

SD - YANKTON COUNTY
Planning & Zoning
Bill Conkling, Deputy Zoning Administrator
321 WEST 3RD STREET, SUITE 100
YANKTON, SD 57078

Via Electronic

**********NOTICE OF ELIGIBLE FACILITIES REQUEST**********

RE: Request for Minor Modification to Existing Wireless Facility – Section 6409
Site Address: 42943 308TH STREET, TABOR, SD 57063
Crown Site Number: 857981 / Crown Site Name: ZOD_ALLTEL_SD09_TABOR
Customer Site Number: DM03842A / Application Number: 603055

Dear Bill Conkling, Deputy Zoning Administrator:

On behalf of T-Mobile Central LLC ("T-Mobile" or "Applicant"), Crown Castle USA Inc. ("Crown Castle") is pleased to submit this request to modify the existing wireless facility noted above through the collocation, replacement and/or removal of the Applicant's equipment as an eligible facilities request for a minor modification under Section 6409[1] and the rules of the Federal Communications Commission ("FCC").[2]

Section 6409 mandates that state and local governments must approve any eligible facilities request for the modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station. Under Section 6409, to toll the review period, if the reviewing authority determines that the application is incomplete, it must provide written notice to the applicant within 30 days, which clearly and specifically delineates all missing documents or information reasonably related to whether the request meets the federal requirements.[3] Additionally, if a state or local government, fails to issue any approvals required for this request within 60 days, these approvals are deemed granted. The FCC has clarified that the 30-day and 60-day deadlines begins when an applicant: (1) takes the first step required under state or local law; and (2) submits information sufficient to inform the jurisdiction that this modification qualifies under the federal law[4]. Please note that with the submission of this letter and enclosed items, the thirty and sixty-day review periods have started. Based on this filing, the deadline for written notice of incomplete application is July 9, 2022, and the deadline for issuance of approval is August 8, 2022.

The proposed scope of work for this project includes:

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[1] Middle Class Tax Relief and Job Creation Act of 2012, Pub. L. No. 112-96, § 6409 (2012) (codified at 47 U.S.C. § 1455).
[2] *Acceleration of Broadband Deployment by Improving Wireless Facility Siting Policies*, 29 FCC Rcd. 12865 (2014) (codified at 47 CFR § 1.6100); and *Implementation of State & Local Governments' Obligation to Approve Certain Wireless Facility Modification Requests Under Section 6409(a) of the Spectrum Act of 2012*, WT Docket No. 19-250 (June 10, 2020).
[3] *See* 47 CFR § 1.6100 (c)(3). [4] *See* 2020 Upgrade Order at paragraph 16.

CROWN CASTLE

3025 Highland Pkwy, ySte 400
Downers Grove, IL 60515

Phone: (773) 628-4388
www.crowncastle.com

Add or replace antennas and ancillary equipment as per plans for an existing carrier on an existing wireless communication facility.

At the end of this letter is a checklist of the applicable substantial change criteria under Section 6409. Additionally, please find enclosed the following information in support of this request:

(1) Concurrent Zoning and Building Permit Application;
(2) Construction Drawings;
(3) Structural Analysis; and
(4) Section 6409 Substantial Change Checklist.

As these documents indicate, (i) the modification involves the collocation, removal or replacement of transmission equipment; and (ii) such modification will not substantially change the physical dimensions of such tower or base station. As such, it is an "eligible facilities request" as defined in the FCC's rules to which the 60-day deadline for approval applies. Accordingly, Applicant requests all authorization necessary for this proposed minor modification under Section 6409.

Our goal is to work with you to obtain approvals earlier than the deadline. We will respond promptly to any request for related information you may have in connection with this request. Please let us know how we can work with you to expedite the approval process. We look forward to working with you on this important project, which will improve wireless telecommunication services in your community using collocation on existing infrastructure. If you have any questions, please do not hesitate to contact me.

Regards,

Christina Wilburn

Christina Wilburn
Site Acquisition Specialist
Crown Castle
Agent for Applicant
(773) 628-4388
Christina.Wilburn@crowncastle.com

CROWN CASTLE

3025 Highland Pkwy, ySte 400
Downers Grove, IL 60515

Phone: (773) 628-4388
www.crowncastle.com

Section 6409 Substantial Change Checklist
Towers Outside of the Public Right of Way

The Federal Communications Commission has determined that a modification substantially changes the physical dimension of a wireless tower or base station under 47 U.S.C. § 1455(a) if it meets one of six enumerated criteria under 47 C.F.R. § 1.6100.

Criteria for Towers Outside the Public Rights of Way

YES/NO **NO**	Does the modification increase the height of the tower by more than the greater of: (a) 10% (b) or, the height of an additional antenna array plus separation of up to 20 feet from the top of the nearest existing antenna?
YES/NO **NO**	Does the modification add an appurtenance to the body of the tower that would protrude from the edge of the tower more than 20 feet or more than the width of the tower structure at the level of the appurtenance, whichever is greater?
YES/NO **NO**	Does the modification involve the installation of more than the standard number of new equipment cabinets for the technology involved or add more than four new equipment cabinets?
YES/NO **NO**	Does the modification entail any excavation or deployment outside the current site by more than 30 feet in any direction, not including any access or utility easements?
YES/NO **NO**	Does the modification defeat the concealment elements of the eligible support structure?
YES/NO **NO**	Does the modification violate conditions associated with the siting approval with the prior approval the tower or base station other than as specified in 47 C.F.R. § 1.6100(c)(7)(i) – (iv)?

If all questions in the above section are answered "NO," then the modification does not constitute a substantial change to the existing tower under 47 C.F.R. § 1.6100.

CROWN CASTLE

3025 Highland Pkwy, ySte 400
Downers Grove, IL 60515

Phone: (773) 628-4388
www.crowncastle.com

June 9, 2022

T-Mobile
12920 SE 38th Street
Bellevue, WA 98006

Attn: MacKenzie Keys
Email: cr.crown@t-mobile.com

Zoning & Permitting Confirmation Request – Existing Cell Tower

On behalf of T-Mobile we are requesting confirmation of the zoning and permitting requirements for an upcoming project.

There will be no substantial change to the tower's height, or to the size of the lease compound. We kindly ask for the SD - YANKTON COUNTY's confirmation of zoning and building permit requirements in the boxes provided below.

CUSTOMER SITE NUMBER:	DM03842A
CROWN SITE NAME/NUMBER:	ZOD_ALLTEL_SD09_TABOR / 857981
CROWN APPLICATION NUMBER:	603055
SITE ADDRESS:	42943 308TH STREET TABOR, SD 57063
PROPOSED SCOPE OF WORK:	Add or replace antennas and ancillary equipment as per plans for an existing carrier on an existing wireless communication facility.
ZONING JURISDICTION:	SD - YANKTON COUNTY
CONTACT NAME / AGENCY / PHONE:	Bill Conkling, Deputy Zoning Administrator / Planning & Zoning / 605-260-4447
PERMITTING JURISDICTION:	SD - YANKTON COUNTY
CONTACT NAME / AGENCY / PHONE:	Bill Conkling, Deputy Zoning Administrator / Planning & Zoning / 605.260.4447
SIGNATURE:	
DATE:	

Does proposed scope of work require a **Zoning Review/Approval**?	YES	NO
Does proposed scope of work require a **Building Permit?**	YES	NO
Does proposed scope of work require an **Electrical Permit?**	YES	NO
Does proposed scope of work require a **Generator or Fuel Tank Permit?**	YES	NO

COMMENTS: _____

CROWN CASTLE

3025 Highland Pkwy, ySte 400
Downers Grove, IL 60515

Phone: (773) 628-4388
www.crowncastle.com

Upon completion of your review, please email this signed letter to me, or if you prefer to fax it, my fax number is . Please feel free to contact me at (773) 628-4388 or Christina.Wilburn@crowncastle.com with any questions or concerns.

Sincerely,
Christina Wilburn
Christina Wilburn, Site Acquisition Specialist

T-Mobile

T-MOBILE SITE NUMBER: DM03842A
T-MOBILE SITE NAME: CROWN BU-857981
T-MOBILE PROJECT: DM03842A

BUSINESS UNIT #: 857981
SITE ADDRESS: 42943 308TH STREET TABOR, SD 57063
COUNTY: YANKTON
SITE TYPE: GUYED
TOWER HEIGHT: 380'-0"

SITE INFORMATION

CROWN CASTLE USA INC. SITE NAME:	ZOD_ALLTEL_SD09_TABOR
SITE ADDRESS:	42943 308TH STREET TABOR, SD 57063
COUNTY:	YANKTON
MAP/PARCEL #:	14.032.400.100
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	42.921889
LONGITUDE:	-97.607
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	1495'
CURRENT ZONING:	----
JURISDICTION:	YANKTON COUNTY
OCCUPANCY CLASSIFICATION:	U
TYPE OF CONSTRUCTION:	IIB
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	KOTALIK, ARTHUR J REV TRUST 906 WEST 15 ST YANKTON, SD 57078
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 8000 W 78TH ST MINNEAPOLIS, MN 55439
ELECTRIC PROVIDER:	BON HOMME YANKTON ELECTRIC ASSOC. ----
TELCO PROVIDER:	EXISTING ----

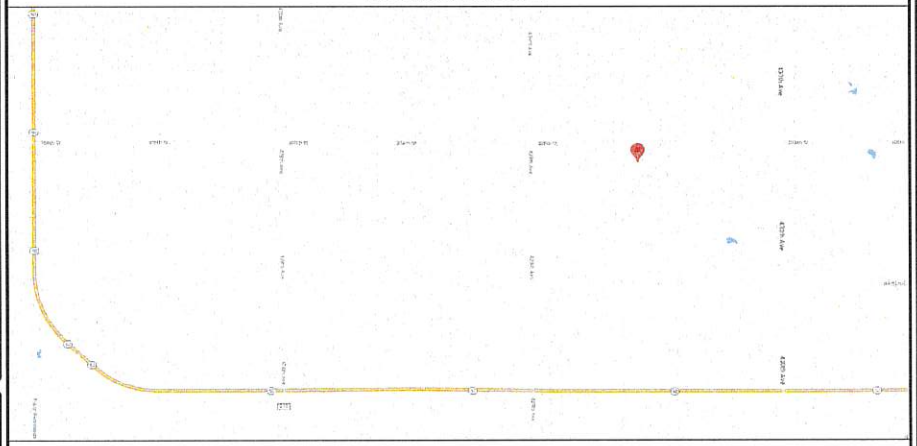
DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EXISTING & FINAL EQUIPMENT PLANS
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	EQUIPMENT DETAILS & COAX COLOR CODING
C-4	EQUIPMENT SPECS
E-1	PANEL SCHEDULE AND ONE LINE DIAGRAM
G-1	TYPICAL FINAL GROUNDING SCHEMATIC
G-2	GROUNDING DETAILS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 22X34. 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 SOUTH DAKOTA ONE CALL
(800) 781-7474
CALL 3 WORKING DAYS BEFORE YOU DIG!

LOCATION MAP



NO SCALE

PROJECT TEAM

A&E FIRM:	RAMAKER & ASSOCIATES, INC. 855 COMMUNITY DRIVE SAUK CITY, WI 53583 (608) 643-4100 CONTACT: JASON FRAZIER, PROJECT MANAGER EMAIL: JFRAZIER@RAMAKER.COM
CROWN CASTLE USA INC. DISTRICT CONTACTS:	1600 UTICA AVENUE SOUTH ST. LOUIS PARK, MN 55416
	TED DEHN - PROJECT MANAGER TED.DEHN@CROWNCASTLE.COM
	CORY DAMGAARD - CONSTRUCTION MANAGER CORY.DAMGAARD@CROWNCASTLE.COM

PROJECT DESCRIPTION

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

TOWER SCOPE OF WORK:
- INSTALL (3) ANTENNAS
- INSTALL (1) BREAKOUT PENDANT
- INSTALL (1) HYBRID CABLE (1-1/2")

GROUND SCOPE OF WORK:
- REMOVE (2) ABIAs
- REMOVE (1) ABIL
- REMOVE (1) AMIA
- REMOVE (1) ASIB
- REMOVE (1) ASIK
- REMOVE (1) FSMF
- INSTALL (2) ASILs
- INSTALL (4) ABIOs
- INSTALL (1) JUNCTION BOX

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	2021 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2020 NEC

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	BY OTHERS
DATED:	
MOUNT ANALYSIS:	BY OTHERS
DATED:	
RFDS REVISION:	2
DATED:	4/4/2022
ORDER ID:	603055
REVISION:	0

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

T-Mobile
8000 W 78TH ST
MINNEAPOLIS, MN 55439

CROWN CASTLE
1600 UTICA AVENUE SOUTH
ST. LOUIS PARK, MN 55416

RAMAKER
(608) 643-4100 www.ramaker.com
RAMAKER PROJECT #: 55228

T-MOBILE SITE NUMBER:
DM03842A

BU #: **857981**
ZOD_ALLTEL_SD09_TABOR

42943 308TH STREET
TABOR, SD 57063

EXISTING 380'-0" GUYED

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	5/31/2022	MDP	FINAL	JF

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of South Dakota.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 14756
DARYL R. MATZKE
SOUTH DAKOTA

5/31/2022
Date Signed

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:	REVISION:
T-1	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: T–MOBILE
   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 (f_y) 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.

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. VERIFY 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 TO 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 "T–MOBILE".
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:

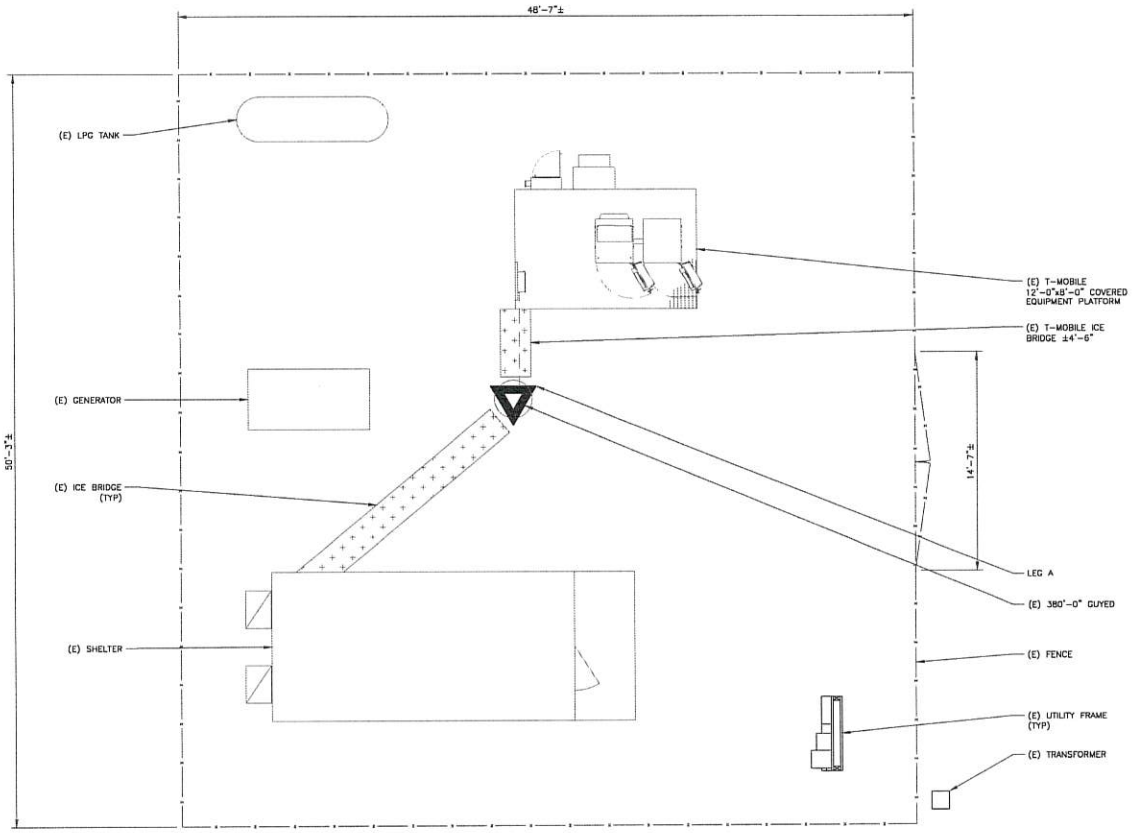
WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER,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

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 PROTECTED 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 CONDU



1 SITE PLAN
SCALE: 4' 3' 2' 1' 0 4' 1/4"=1'-0" (FULL SIZE) 1/8"=1'-0" (11x17)

N

T-Mobile
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CROWN CASTLE
1660 UTICA AVENUE SOUTH
ST. LOUIS PARK, MN 55416

RAMAKER
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RAMAKER PROJECT #: 55228

T-MOBILE SITE NUMBER:
DM03842A

BU #: **857981**
ZOD_ALLTEL_SD09_TABOR

42943 308TH STREET
TABOR, SD 57063

EXISTING 380'-0" GUYED

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./APP.
0	5/31/2022	MDP	FINAL	JP

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 14756
DARYL R. MATZKE
SOUTH DAKOTA
5/31/2022

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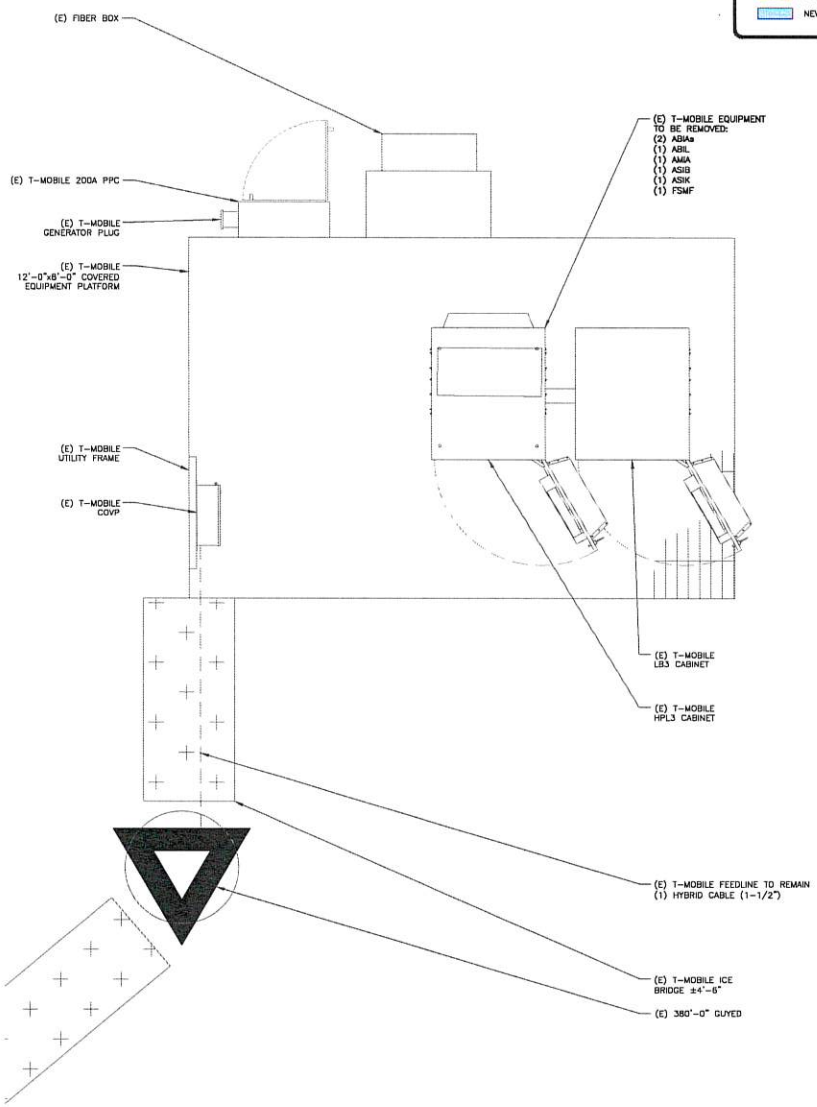
SHEET NUMBER: C-1.1
REVISION: 0

EQUIPMENT LEGEND:

- EXISTING
- TO BE RELOCATED/REMOVED
- NEW

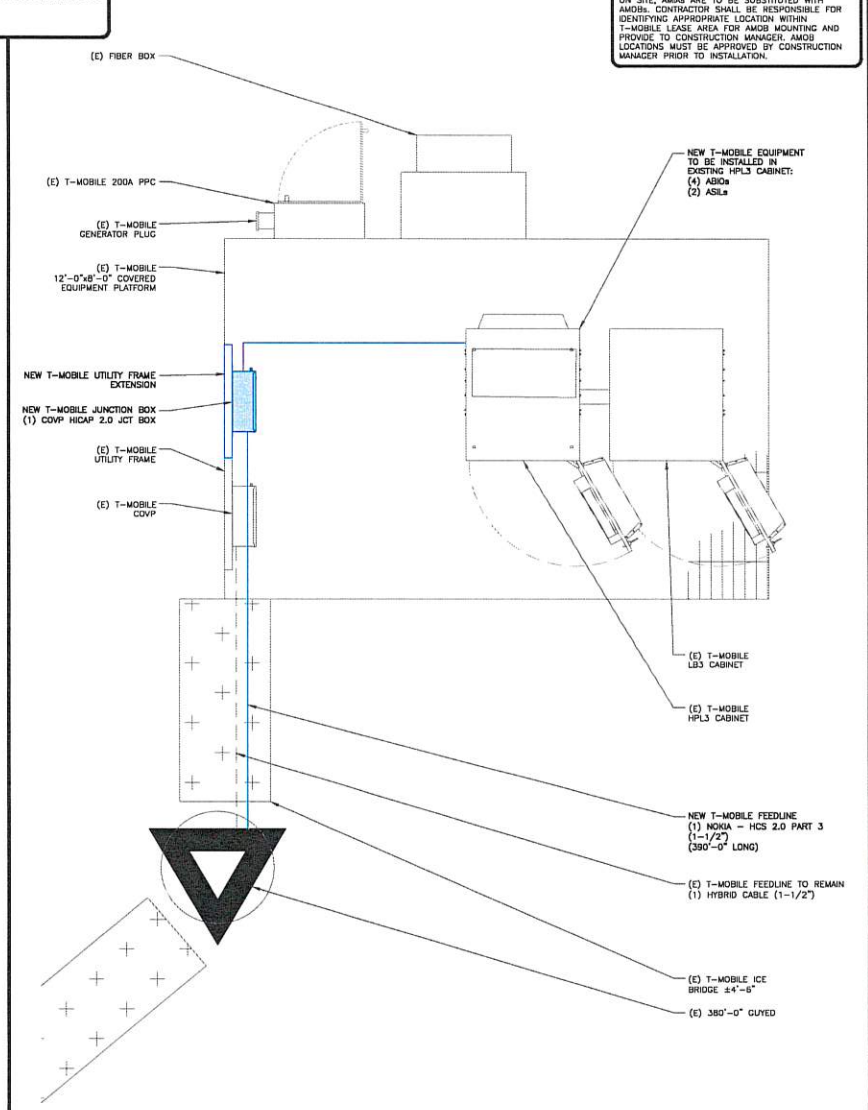


1 EXISTING EQUIPMENT PLAN
SCALE: 3/4"=1'-0" (FULL SIZE) 3/8"=1'-0" (11x17)

N

INSTALLER NOTE:

AMIAs ARE TO BE INSTALLED INTERNALLY IN THE 600A SSC CABINET. IF NO 600A SSC CABINET IS ON SITE, AMIAs ARE TO BE SUBSTITUTED WITH AMOIIs. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING APPROPRIATE LOCATION WITHIN T-MOBILE LEASE AREA FOR AMOB MOUNTING AND PROVIDE TO CONSTRUCTION MANAGER. AMOB LOCATIONS MUST BE APPROVED BY CONSTRUCTION MANAGER PRIOR TO INSTALLATION.



2 FINAL EQUIPMENT PLAN
SCALE: 3/4"=1'-0" (FULL SIZE) 3/8"=1'-0" (11x17)

N

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I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of South Dakota.

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REG. NO. 14756
DARYL R. MATZKE
SOUTH DAKOTA

Signature 5/31/2022 Date

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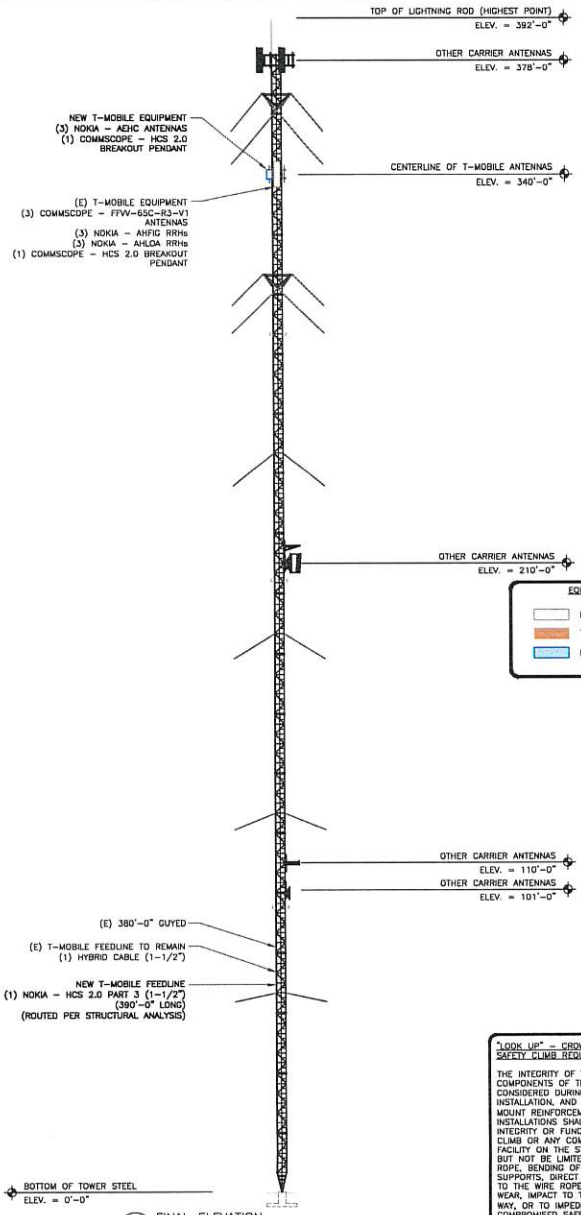
SHEET NUMBER: C-1.2

REVISION: 0



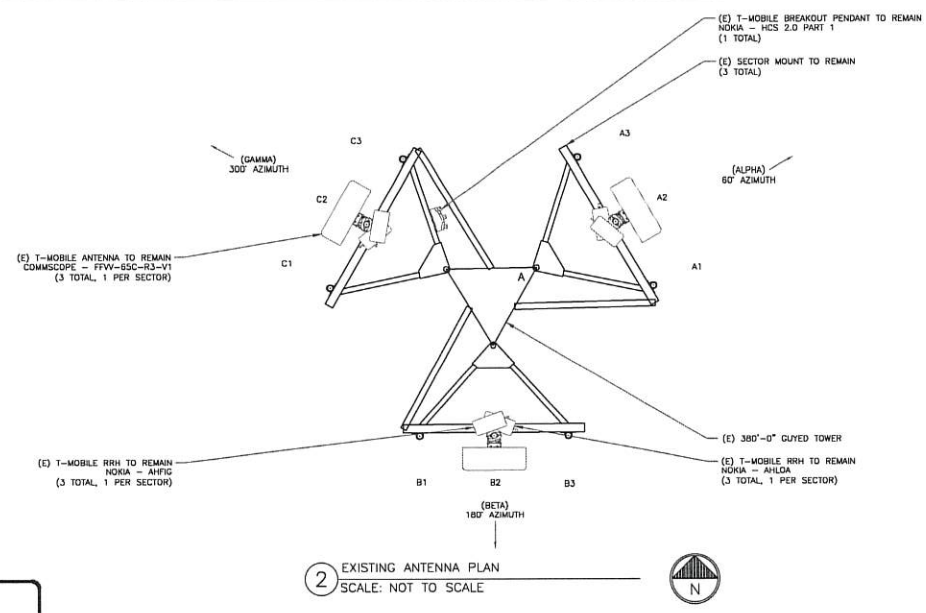
1 FINAL ELEVATION
SCALE: NOT TO SCALE

EQUIPMENT LEGEND:

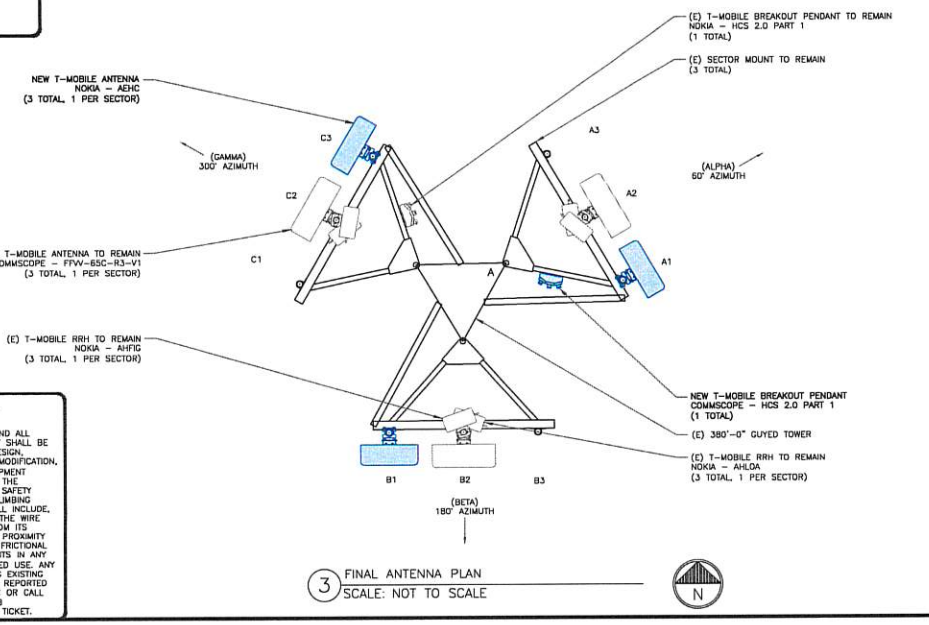
- EXISTING
- TO BE RELOCATED/REMOVED
- NEW

"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.



2 EXISTING ANTENNA PLAN
SCALE: NOT TO SCALE



3 FINAL ANTENNA PLAN
SCALE: NOT TO SCALE

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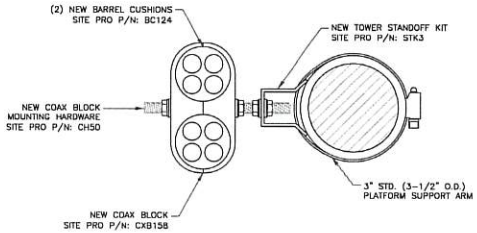
SHEET NUMBER: C-2

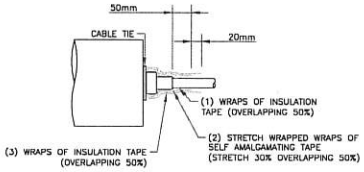
REVISION: 0



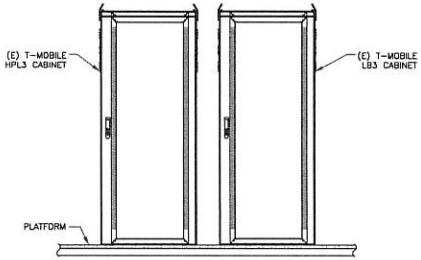
1 RF JUMPER DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTE:

JUMPERS TO BE TORQUED TO 221.27 IN/LBS



2 RF JUMPER CONNECTION
SCALE: NOT TO SCALE

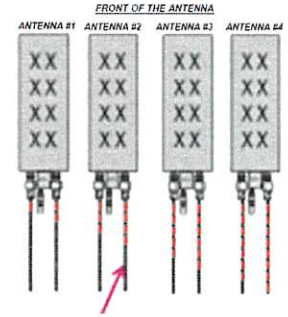


3 GROUND EQUIPMENT ELEVATION
SCALE: NOT TO SCALE

Coax Color Coding

- Note: Shown is an example of antennas on a tower with 4 sectors. Figure 1 shows a tower with 3 sectors.
- Coax lines will be identified by sector color and by number of bands around the circumference.

SECTOR A	RED
SECTOR B	GREEN
SECTOR C	BLUE
SECTOR D	YELLOW
SECTOR E	WHITE
SECTOR F	PURPLE
LMU	BROWN + SECTOR COLOR BANDS (1 & 2)
FIBER ID	GRAY
UNUSED COAX	PINK
MICROWAVE	ORANGE
DWE T-1'S + GPS DOWNLINK CABLE	ID W/LABEL MAKER



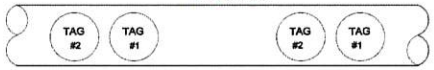
EXAMPLE: COAX WITH FOUR BANDS OF RED TAPE WILL REPRESENT ALPHA SECTOR AND THE 4TH PORT OF ANTENNA

COLOR CODING NOTES:

color	GSM
color	UMTS 1900
color	UMTS AWS
color	LTE
color	FIBER CABLE

METALLIC TAG NOTES:

1. TWO METALLIC TAGS SHALL BE ATTACHED AT EACH END OF EVERY CABLE LONGER THAN (3) THREE FEET
2. CABLE LESS THAN (3) THREE FEET WILL HAVE TWO METALLIC TAGS ATTACHED AT THE CENTER OF THE CABLE.
3. TAGS WILL BE FASTENED WITH STAINLESS STEEL ZIP TIES APPROPRIATE FOR CABLE DIAMETER.
4. STANDARDIZED METALLIC TAG KIT WILL BE ASSEMBLED WITH TAGS ALREADY ENGRAVED TO ACCOMMODATE ALL CONFIGURATIONS



ANTENNA AND COAXIAL CABLE SCHEDULE

1. ALL ANTENNAS SHALL BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR SHALL COORDINATE REQUIRED MECHANICAL DOWNTILT FOR EACH ANTENNA WITH RF ENGINEER. ANTENNA DOWNTILT SHALL BE SET AND VERIFIED BY A SMART LEVEL.
2. CONTRACTOR SHALL INSTALL COLOR CODE RINGS ON EACH OF THE HYBRID CABLES AND JUMPER CABLES WITH UV REGISTANT TAPE. ALL CABLE SHALL BE MARKED AT TOP AND BOTTOM WITH 2" COLOR TAPE OR STENCIL TAG. COLOR TAPE MAY BE OBTAINED FROM GRAYBAR ELECTRONICS.

4 COAX COLOR CODING
SCALE: NOT TO SCALE

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EXISTING 380'-0" GUYED

ISSUED FOR:

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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of South Dakota.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 14756
DARYL R. MATZKE
SOUTH DAKOTA

5/31/2022

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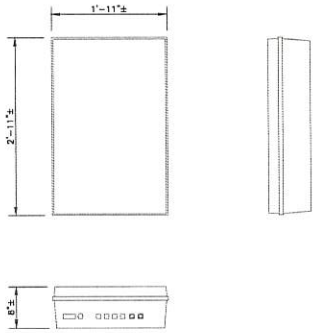
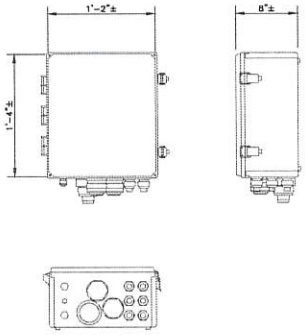
SHEET NUMBER: C-3

REVISION: 0



NOKIA PANEL ANTENNA
MODEL NUMBER: AEHC
DIMENSIONS: 35.43" (HEIGHT) X 22.83" (WIDTH) X 8.26" (DEPTH)
WEIGHT: 99.20 LBS.

1 NOKIA ANTENNA DETAIL
SCALE: NOT TO SCALE

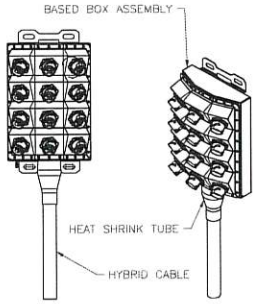


RAYCAP JUNCTION BOX
MODEL NUMBER: RTMDC-5634-PF-48
DIMENSIONS: 16" (HEIGHT) X 14" (WIDTH) X 8" (DEPTH)
WEIGHT: 21.85 LBS.

2 RAYCAP JUNCTION BOX DETAIL
SCALE: NOT TO SCALE

3 NOT USED
SCALE: NOT TO SCALE

4 NOT USED
SCALE: NOT TO SCALE

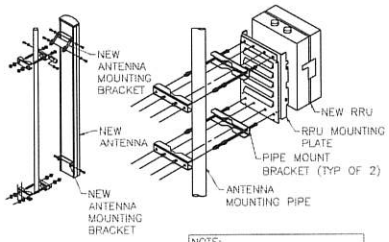


COMMSCOPE JUNCTION BOX
MODEL NUMBER: HCS 2.0 PART 1
DIMENSIONS: 14.00" (HEIGHT) X 16.00" (WIDTH) X 8.00" (DEPTH)
WEIGHT: 23.5 LBS.

5 COMMSCOPE – HCS 2.0 PART 1
SCALE: NOT TO SCALE

INSTALLER NOTES:

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



NOTE:
ALL PIPES BRACKETS AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE

6 ANTENNA & RRH MOUNTING DETAIL
SCALE: NOT TO SCALE

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EXISTING 380'-0" GUYED

ISSUED FOR:

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DARYL R. MATZKE
SOUTH DAKOTA
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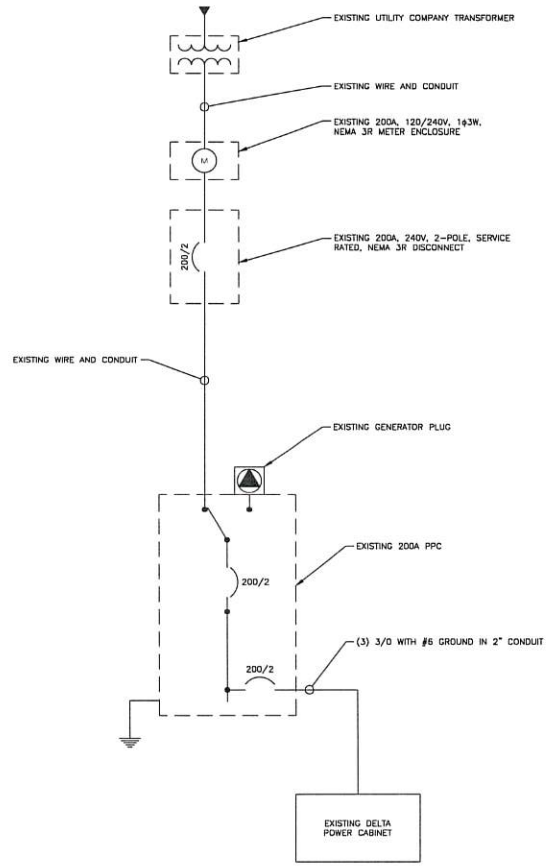
SHEET NUMBER: C-4
REVISION: 0

AC Distribution Panel - Layout Diagram									
Breaker Position	Breaker Type	On/Off	Size	Circuit Label	Breaker Position	Breaker Type	On/Off	Size	Circuit Label
1	2P	ON	30	SURGE PROTECTOR	2	1P	ON	15	PPC GFCI
3					4	2P	ON	200	HPL3
5	1P	ON	20	LIGHTS	6				
7	1P	ON	20	GFCI	8				
9					10				
11					12				
13					14				
15					16				
17					18				
19					20				
21					22				
23					24				
25					26				
27					28				
29					30				

1 EXISTING PANEL SCHEDULE
SCALE: NOT TO SCALE

NOTES:

1. ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, OR XHHW-2 UNLESS NOTED OTHERWISE.
2. CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3. ALL GROUNDING AND BONDING PER THE NEC.



2 ONE LINE DIAGRAM
SCALE: NOT TO SCALE

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SOUTH DAKOTA

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Date

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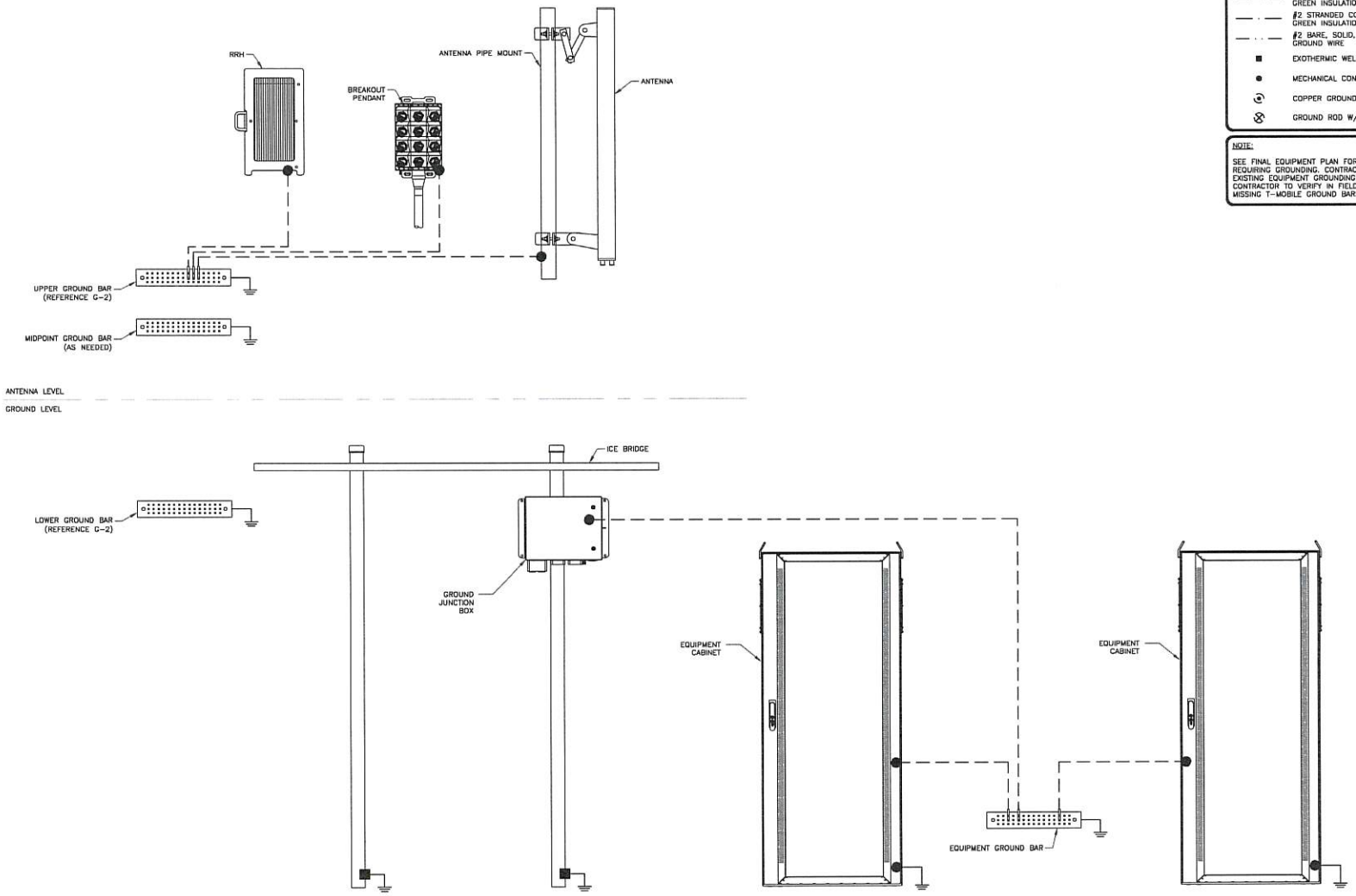
SHEET NUMBER: E-1

REVISION: 0



1 TYPICAL FINAL GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

- #6 STRANDED COPPER WITH GREEN INSULATION GROUND WIRE
- #2 STRANDED COPPER WITH GREEN INSULATION GROUND WIRE
- #2 BARE, SOLID, TINNED COPPER GROUND WIRE
- EXOTHERMIC WELD
- MECHANICAL CONNECTION
- COPPER GROUND ROD
- GROUND ROD W/ TEST WELL

NOTE:

SEE FINAL EQUIPMENT PLAN FOR NEW EQUIPMENT REQUIRING GROUNDING. CONTRACTOR TO VERIFY EXISTING EQUIPMENT GROUNDING IN FIELD. CONTRACTOR TO VERIFY IN FIELD AND INSTALL ANY MISSING T-MOBILE GROUND BARS ON SITE.

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REG. NO. 14756
DARYL R. MATZKE
SOUTH DAKOTA, U.S.A.

Dr. E. Matzke 5/31/2022
Date

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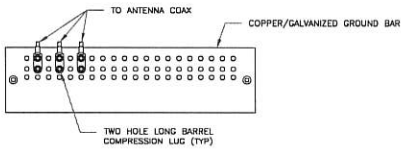
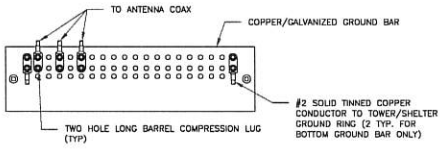
SHEET NUMBER:	REVISION:
G-1	0



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 TOWER STEEL.

1 ANTENNA GROUND BAR DETAIL
SCALE: NOT TO SCALE

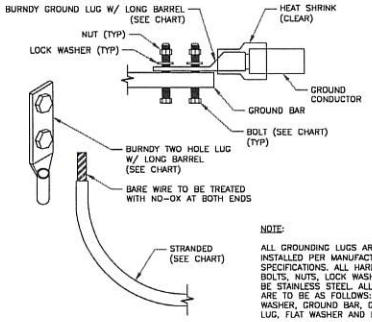


NOTES:

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

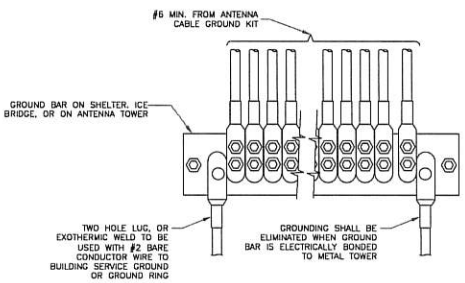
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



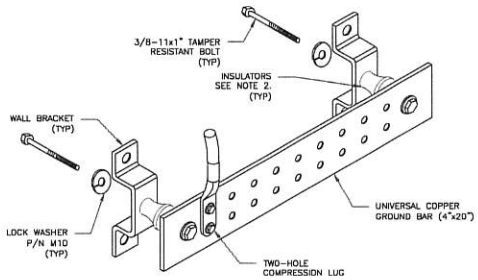
NOTE:

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

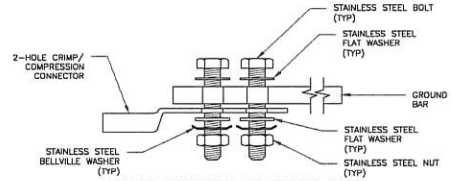


NOTES:

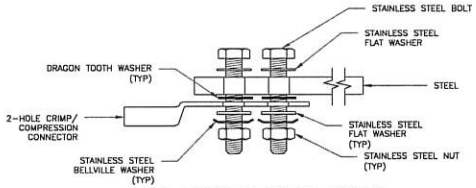
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER. PER THE GROUNDING DOWN CONDUCTOR POLICY DAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.

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

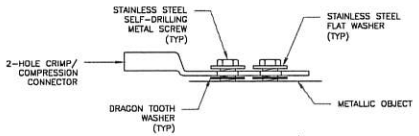
5 GROUND BAR DETAIL
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

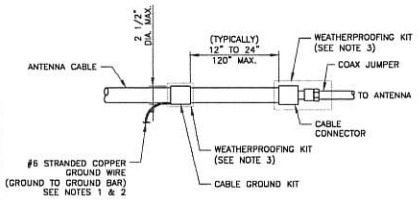


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

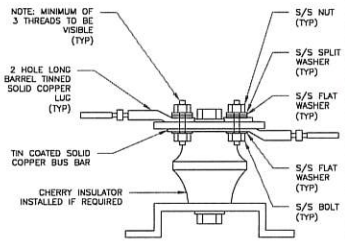
9 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



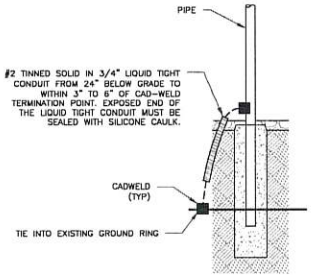
NOTES:

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



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE

T-Mobile
8000 W 78TH ST
MINNEAPOLIS, MN 55439

CROWN CASTLE
1600 UTICA AVENUE SOUTH
ST. LOUIS PARK, MN 55416

RAMAKER
(608) 643-4100 www.ramaker.com
RAMAKER PROJECT #: 55228

T-MOBILE SITE NUMBER:
DM03842A

BU #: **857981**
ZOD_ALLTEL_SD09_TABOR

42943 308TH STREET
TABOR, SD 57063

EXISTING 380'-0" GUYED

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	5/31/2022	MDP	FINAL	JF

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:	REVISION:
G-2	0

Date: **May 19, 2022**

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351

Subject: **Structural Analysis Report**

Carrier Designation:	***T-Mobile* Co-Locate**	
	Site Number:	DM03842A
	Site Name:	N/A
Crown Castle Designation:	**BU Number:**	857981
	Site Name:	ZOD_Alltel_SD09_Tabor
	JDE Job Number:	704115
	Work Order Number:	2111213
	Order Number:	603055 Rev. 0
Engineering Firm Designation:	**TEP Project Number:**	56544.700659
Site Data:	**42943 308th Street, Tabor, Yankton County, SD 57063** **Latitude *42° 55' 18.80"*, Longitude *-97° 36' 25.20"*** **380 Foot - Guyed Tower**	

Tower Engineering Professionals 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:

LC5: Proposed Equipment Configuration **Sufficient Capacity**

This analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 113 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Gautam Sopal, E.I. / CLT

Respectfully submitted by:

Aaron T. Rucker, P.E.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 13608
AARON THOMAS RUCKER
SOUTH DAKOTA

Electronic Copy 05/20/2022

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1) INTRODUCTION

This tower is a 380-ft guyed tower designed by Sabre Communications Corporation. The tower has been modified per reinforcement drawings prepared by B+T Group in March of 2014.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	113 mph
Exposure Category:	C
Topographic Factor:	1.0
Ice Thickness:	1.0 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)
340.0	340.0	3	Commscope	FFVV-65C-R3-V1_TMO w/ Mount Pipe	2	1-1/2
		3	Nokia	AEHC w/ Mount Pipe		
		3	Nokia	AHLOA		
		3	Nokia	AHFIG_TMO		
		2	Commscope	HCS 2.0 Part 1		
		3	Site Pro 1	VFA12-HD Sector Mount		

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)
378.0	378.0	6	KMW Comm.	EPBQ-654L8H8-L2 w/ Mount Pipe	9 4 1	1-5/8 3/4 3/8
		3	Nokia	AHLBA		
		1	Raycap	DC6-48-60-0-8C		
		3	Alcatel Lucent	B25 RRH4X30		
		3	Alcatel Lucent	B66A RRH4X45		
		3	Alcatel Lucent	RRH2X40-07L-DE		
		3	Andrew	E15Z01P13		
		1	Raycap	DC6-48-60-18-8F		
		1	Tower Mounts	Sector Mount [SM 602-3]		
215.0	215.0	1	Valmont	ISMD8-R5LL	-	-
210.0	210.0	1	Commscope	UHX6-59-P3A/L	1	EWP63-65
		2	Alcatel Lucent	9500 MPR		
		1	Tower Mounts	Pipe Mount [PM 601-1]		

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
110.0	110.0	1	Commscope	MD-S4	-	-
101.0	101.0	1	Tower Mounts	Side Arm Mount [SO 203-1]	1	EW63
	100.0	1	Andrew	P4-57W-PXA		

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Reference	Source
Geotechnical Report	5662420	CCISites
Tower Foundation Drawings	5165662	CCISites
Tower Manufacturer Drawings	4860167	CCISites
Tower Reinforcement Drawings	4992762	CCISites
Post-Modification Inspection	5406758	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.

3.2) Assumptions

1) The 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. Tower Engineering Professionals should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	ΦP_{allow} (k)	% Capacity	Pass / Fail
T1	380 - 360	Leg	1 3/4	3	-28.79	62.31	46.2	Pass
T2	360 - 340	Leg	1 3/4	44	-24.63	62.31	39.5	Pass
T3	340 - 320	Leg	2	87	-47.57	93.69	50.8	Pass
T4	320 - 300	Leg	2 1/4	129	-76.53	130.60	58.6	Pass
T5	300 - 280	Leg	2 1/4	171	-69.42	130.60	53.2	Pass
T6	280 - 260	Leg	2 1/4	212	-58.81	130.60	45.0	Pass
T7	260 - 240	Leg	2 1/4	254	-61.30	130.60	46.9	Pass
T8	240 - 220	Leg	2 1/4	296	-51.71	130.60	39.6	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	ϕP_{allow} (k)	% Capacity	Pass / Fail
T9	220 - 200	Leg	2 1/4	339	-52.55	130.60	40.2	Pass
T10	200 - 180	Leg	2 1/4	381	-55.51	130.60	42.5	Pass
T11	180 - 160	Leg	2 1/4	423	-61.16	130.60	46.8	Pass
T12	160 - 140	Leg	2 1/4	465	-61.88	130.60	47.4	Pass
T13	140 - 120	Leg	2 1/4	506	-61.24	130.60	46.9	Pass
T14	120 - 100	Leg	2 1/4	547	-64.55	130.60	49.4	Pass
T15	100 - 80	Leg	2 1/4	589	-64.65	130.60	49.5	Pass
T16	80 - 60	Leg	2 1/4	631	-64.37	130.60	49.3	Pass
T17	60 - 40	Leg	2 1/4	673	-66.11	130.60	50.6	Pass
T18	40 - 20	Leg	2 1/4	715	-67.46	130.60	51.7	Pass
T19	20 - 6.5625	Leg	2 1/4	758	-67.34	130.25	51.7	Pass
T20	6.5625 - 0	Leg	2 1/4	787	-69.50	157.76	44.1	Pass
T1	380 - 360	Diagonal	1 1/4	36	-6.57	21.02	31.3	Pass
T2	360 - 340	Diagonal	1 1/4	83	-2.24	21.02	10.6	Pass
T3	340 - 320	Diagonal	1	96	-4.61	9.28	49.7	Pass
T4	320 - 300	Diagonal	1 1/4	156	-5.46	21.45	25.5	Pass
T5	300 - 280	Diagonal	1	208	-3.13	9.42	33.2	Pass
T6	280 - 260	Diagonal	1	250	-2.10	9.42	22.3	Pass
T7	260 - 240	Diagonal	1	263	-4.10	9.42	43.5	Pass
T8	240 - 220	Diagonal	1	336	-3.77	9.42	40.0	Pass
T9	220 - 200	Diagonal	1	348	-2.40	9.42	25.5	Pass
T10	200 - 180	Diagonal	1	394	-3.42	9.42	36.3	Pass
T11	180 - 160	Diagonal	1	460	-3.06	9.42	32.5	Pass
T12	160 - 140	Diagonal	1	473	-2.02	9.42	21.5	Pass
T13	140 - 120	Diagonal	1	527	-2.96	9.42	31.4	Pass
T14	120 - 100	Diagonal	1	586	-2.11	9.42	22.4	Pass
T15	100 - 80	Diagonal	1	598	-2.66	9.42	28.2	Pass
T16	80 - 60	Diagonal	1	642	-3.51	9.42	37.2	Pass
T17	60 - 40	Diagonal	1	714	-3.30	9.42	35.0	Pass
T18	40 - 20	Diagonal	1	756	-2.12	9.42	22.5	Pass
T19	20 - 6.5625	Diagonal	1 1/4	766	-2.62	21.39	12.3	Pass
T1	380 - 360	Horizontal	7/8	19	-6.94	10.87	63.9	Pass
T2	360 - 340	Horizontal	7/8	69	-0.59	10.87	5.4	Pass
T3	340 - 320	Horizontal	7/8	98	-1.07	10.97	9.7	Pass
T4	320 - 300	Horizontal	7/8	145	-6.23	11.07	56.2	Pass
T5	300 - 280	Horizontal	7/8	188	-1.38	11.07	12.4	Pass
T6	280 - 260	Horizontal	7/8	229	-1.14	11.07	10.3	Pass
T7	260 - 240	Horizontal	7/8	265	-1.19	11.07	10.7	Pass
T8	240 - 220	Horizontal	7/8	309	-1.04	11.07	9.4	Pass
T9	220 - 200	Horizontal	7/8	356	-1.02	11.07	9.2	Pass
T10	200 - 180	Horizontal	7/8	392	-1.10	11.07	9.9	Pass
T11	180 - 160	Horizontal	7/8	434	-1.20	11.07	10.8	Pass
T12	160 - 140	Horizontal	7/8	476	-1.20	11.07	10.8	Pass
T13	140 - 120	Horizontal	7/8	518	-1.20	11.07	10.9	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	ϕP_{allow} (k)	% Capacity	Pass / Fail
T14	120 - 100	Horizontal	7/8	561	-1.26	11.07	11.4	Pass
T15	100 - 80	Horizontal	7/8	609	-1.26	11.07	11.4	Pass
T16	80 - 60	Horizontal	7/8	645	-1.25	11.07	11.2	Pass
T17	60 - 40	Horizontal	7/8	699	-1.29	11.07	11.6	Pass
T18	40 - 20	Horizontal	7/8	729	-1.31	11.07	11.8	Pass
T19	20 - 6.5625	Horizontal	7/8	777	-1.31	11.07	11.9	Pass
T20	6.5625 - 0	Horizontal	9x3/8	798	-1.23	20.11	6.1	Pass
T1	380 - 360	Top Girt	7/8	6	-0.79	10.87	7.2	Pass
T2	360 - 340	Top Girt	7/8	46	-0.96	10.87	8.8	Pass
T3	340 - 320	Top Girt	7/8	89	-1.07	10.97	9.7	Pass
T4	320 - 300	Top Girt	7/8	131	-1.48	11.07	13.4	Pass
T5	300 - 280	Top Girt	7/8	173	-1.38	11.07	12.4	Pass
T6	280 - 260	Top Girt	7/8	214	-1.14	11.07	10.3	Pass
T7	260 - 240	Top Girt	7/8	256	-1.19	11.07	10.7	Pass
T8	240 - 220	Top Girt	7/8	300	-1.04	11.07	9.4	Pass
T9	220 - 200	Top Girt	7/8	341	-1.02	11.07	9.2	Pass
T10	200 - 180	Top Girt	7/8	383	-1.10	11.07	9.9	Pass
T11	180 - 160	Top Girt	7/8	425	-1.20	11.07	10.8	Pass
T12	160 - 140	Top Girt	7/8	467	-1.20	11.07	10.8	Pass
T13	140 - 120	Top Girt	7/8	509	-1.20	11.07	10.9	Pass
T14	120 - 100	Top Girt	7/8	552	-1.26	11.07	11.4	Pass
T15	100 - 80	Top Girt	7/8	594	-1.26	11.07	11.4	Pass
T16	80 - 60	Top Girt	7/8	636	-1.25	11.07	11.2	Pass
T17	60 - 40	Top Girt	7/8	678	-1.29	11.07	11.6	Pass
T18	40 - 20	Top Girt	7/8	720	-1.31	11.07	11.8	Pass
T19	20 - 6.5625	Top Girt	7/8	762	-1.31	11.07	11.9	Pass
T20	6.5625 - 0	Top Girt	12x3/8	792	-1.23	11.29	10.9	Pass
T1	380 - 360	Bottom Girt	7/8	8	-0.67	10.87	6.2	Pass
T2	360 - 340	Bottom Girt	7/8	51	-0.59	10.87	5.4	Pass
T3	340 - 320	Bottom Girt	7/8	92	-1.07	10.97	9.7	Pass
T4	320 - 300	Bottom Girt	7/8	134	-1.48	11.07	13.4	Pass
T5	300 - 280	Bottom Girt	7/8	176	-1.38	11.07	12.4	Pass
T6	280 - 260	Bottom Girt	7/8	217	-1.14	11.07	10.3	Pass
T7	260 - 240	Bottom Girt	7/8	259	-1.19	11.07	10.7	Pass
T8	240 - 220	Bottom Girt	7/8	303	-1.04	11.07	9.4	Pass
T9	220 - 200	Bottom Girt	7/8	344	-1.02	11.07	9.2	Pass
T10	200 - 180	Bottom Girt	7/8	386	-1.10	11.07	9.9	Pass
T11	180 - 160	Bottom Girt	7/8	428	-1.20	11.07	10.8	Pass
T12	160 - 140	Bottom Girt	7/8	470	-1.20	11.07	10.8	Pass
T13	140 - 120	Bottom Girt	7/8	512	-1.20	11.07	10.9	Pass
T14	120 - 100	Bottom Girt	7/8	555	-1.26	11.07	11.4	Pass
T15	100 - 80	Bottom Girt	7/8	597	-1.26	11.07	11.4	Pass
T16	80 - 60	Bottom Girt	7/8	639	-1.25	11.07	11.2	Pass
T17	60 - 40	Bottom Girt	7/8	681	-1.29	11.07	11.6	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	ϕP_{allow} (k)	% Capacity	Pass / Fail
T18	40 - 20	Bottom Girt	7/8	723	-1.31	11.07	11.8	Pass
T19	20 - 6.5625	Bottom Girt	7/8	765	-1.31	11.07	11.9	Pass
T1	380 - 360	Guy A@366.694	5/8	807	14.30	26.71	53.5	Pass
T4	320 - 300	Guy A@306.694	5/8	819	11.97	26.71	44.8	Pass
T7	260 - 240	Guy A@246.694	5/8	828	12.27	26.71	45.9	Pass
T10	200 - 180	Guy A@186.694	1/2	834	9.42	16.95	55.6	Pass
T13	140 - 120	Guy A@126.694	7/16	840	7.30	13.10	55.7	Pass
T16	80 - 60	Guy A@66.6944	9/16	846	8.90	22.05	40.4	Pass
T1	380 - 360	Guy B@366.694	5/8	803	13.99	26.71	52.4	Pass
T4	320 - 300	Guy B@306.694	5/8	815	11.35	26.71	42.5	Pass
T7	260 - 240	Guy B@246.694	5/8	827	10.89	26.71	40.8	Pass
T10	200 - 180	Guy B@186.694	1/2	833	8.14	16.95	48.0	Pass
T13	140 - 120	Guy B@126.694	7/16	839	6.48	13.10	49.4	Pass
T16	80 - 60	Guy B@66.6944	9/16	845	8.22	22.05	37.3	Pass
T1	380 - 360	Guy C@366.694	5/8	800	14.06	26.71	52.6	Pass
T4	320 - 300	Guy C@306.694	5/8	812	11.46	26.71	42.9	Pass
T7	260 - 240	Guy C@246.694	5/8	823	10.97	26.71	41.1	Pass
T10	200 - 180	Guy C@186.694	1/2	829	8.18	16.95	48.3	Pass
T13	140 - 120	Guy C@126.694	7/16	835	6.57	13.10	50.1	Pass
T16	80 - 60	Guy C@66.6944	9/16	841	8.37	22.05	38.0	Pass
T7	260 - 240	Top Guy Pull-Off@246.694	3x3/8	825	3.63	38.27	9.5	Pass
T10	200 - 180	Top Guy Pull-Off@186.694	3x3/8	831	3.15	38.27	8.2	Pass
T13	140 - 120	Top Guy Pull-Off@126.694	3x3/8	837	2.68	38.27	7.0	Pass
T16	80 - 60	Top Guy Pull-Off@66.6944	3x3/8	843	3.42	38.27	8.9	Pass
T1	380 - 360	Torque Arm Top@366.694	C12x20.7	802	-2.59	180.80	54.5	Pass
T4	320 - 300	Torque Arm Top@306.694	C12x20.7	814	-1.92	181.10	41.7	Pass
							Summary	
						Leg (T4)	58.6	Pass
						Diagonal (T3)	49.7	Pass
						Horizontal (T1)	63.9	Pass
						Top Girt (T4)	13.4	Pass
						Bottom Girt (T4)	13.4	Pass
						Guy A (T13)	55.7	Pass
						Guy B (T1)	52.4	Pass
						Guy C (T1)	52.6	Pass
						Top Guy Pull-Off (T7)	9.5	Pass

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (k)	ϕP_{allow} (k)	% Capacity	Pass / Fail
						Torque Arm Top (T1)	54.5	Pass
						Bolt Checks	25.0	Pass
						RATING =	**63.9**	**Pass**

Table 5 - Tower Component Stresses vs. Capacity - LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Mast Foundation Structural	-	21.9	Pass
1,2	Mast Foundation Soil Interaction	-	53.0	Pass
1,2	Guy Anchor Shaft	-	52.1	Pass
1,2	Guy Anchor Structural	-	25.4	Pass
1,2	Guy Anchor Soil Interaction	-	66.1	Pass

Structure Rating (max from all components) =	**66.1%**

Notes:
1) See additional documentation in "Appendix C - Additional Calculations" for calculations supporting the % capacity listed.
2) Rating per TIA-222-H Section 15.5

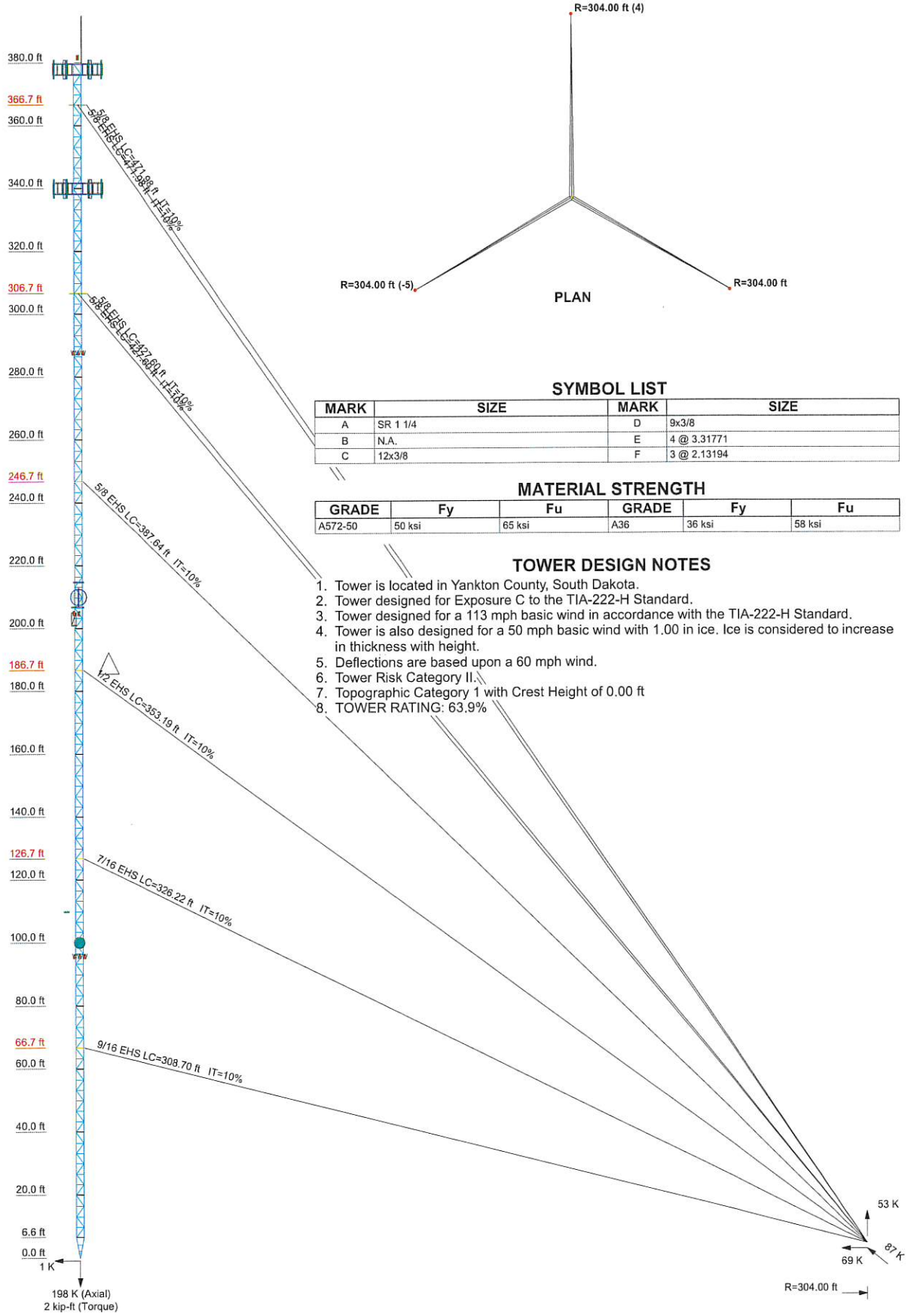
4.1) Recommendations

1) The tower and its base and anchor foundations have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12	T13	T14	T15	T16	T17	T18	T19	T20
Legs		SR 1 3/4	SR 2								SR 2 1/4									
Leg Grade										A572-50										
Diagonals		SR 1 1/4	SR 1	SR 1 1/4							SR 1								A	B
Diagonal Grade																				B
Top Girts										A36										C
Bottom Girts										SR 7/8										B
Horizontals										SR 7/8										D
Top Guy Pull-Offs				N.A.			3x3/8	N.A.		3x3/8	N.A.		3x3/8	N.A.		3x3/8	N.A.			
Face Width (ft)																				
# Panels @ (ft)										108 @ 3.30556									E	F
Weight (K)	1.4	1.0	1.0	1.7	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	0.9	0.5



SYMBOL LIST

MARK	SIZE	MARK	SIZE
A	SR 1 1/4	D	9x3/8
B	N.A.	E	4 @ 3.31771
C	12x3/8	F	3 @ 2.13194

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in Yankton County, South Dakota.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 113 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: 63.9%

ALL REACTIONS ARE FACTORED

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: Zod_Alltel_SD09_Tabor (BU 857981)		
Project: TEP No. 56544.700659		
Client: Crown Castle	Drawn by: myoung	App'd:
Code: TIA-222-H	Date: 05/19/22	Scale: NTS
Path: C:\Users\myoung.TOWER\Desktop\tnx\857981-ZOD_Alltel_SD09_Tabor\857981_2111213_LC5.en		Dwg No. E-1

Tower Input Data

The main tower is a 3x guyed tower with an overall height of 380.00 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.00 ft at the top and tapered at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

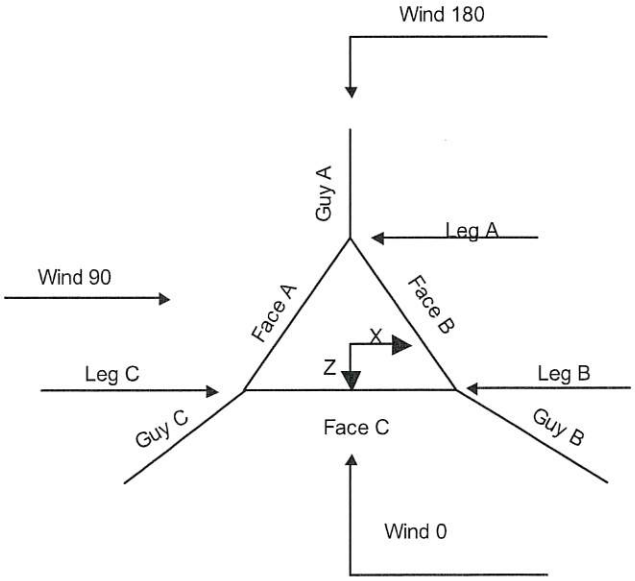
Tower is located in Yankton County, South Dakota.
Tower base elevation above sea level: 1495.00 ft.
Basic wind speed of 113 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 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.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Safety factor used in guy 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

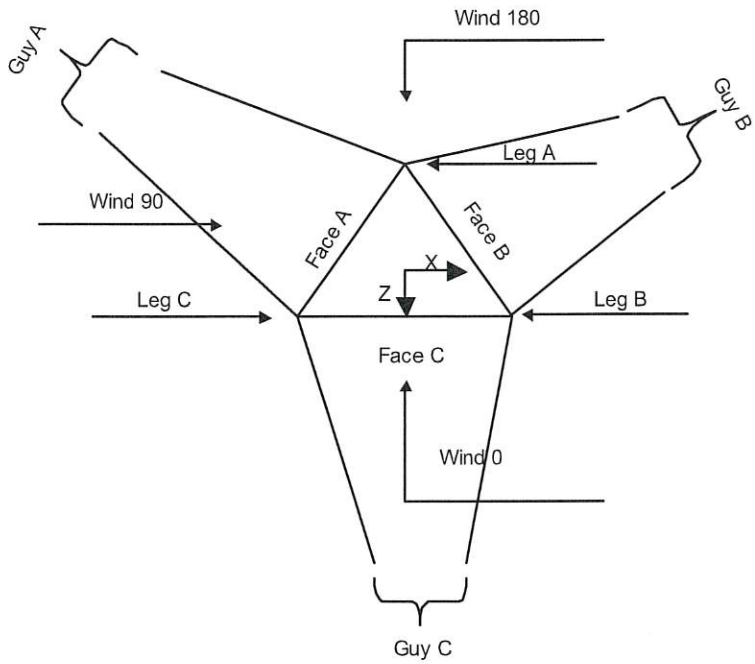
Consider Moments - Legs
Consider Moments - Horizontals
Consider Moments - Diagonals
Use Moment Magnification
√ Use Code Stress Ratios
√ Use Code Safety Factors - Guys
Escalate Ice
Always Use Max Kz
Use Special Wind Profile
Include Bolts In Member Capacity
Leg Bolts Are At Top Of Section
√ Secondary Horizontal Braces Leg
Use Diamond Inner Bracing (4 Sided)
√ SR Members Have Cut Ends
SR Members Are Concentric

Distribute Leg Loads As Uniform
Assume Legs Pinned
√ Assume Rigid Index Plate
√ Use Clear Spans For Wind Area
√ Use Clear Spans For KL/r
√ Retension Guys To Initial Tension
√ Bypass Mast Stability Checks
√ Use Azimuth Dish Coefficients
√ Project Wind Area of Appurt.
√ Autocalc Torque Arm Areas
Add IBC .6D+W Combination
√ Sort Capacity Reports By Component
Triangulate Diamond Inner Bracing
Treat Feed Line Bundles As Cylinder
Ignore KL/ry For 60 Deg. Angle Legs

Use ASCE 10 X-Brace Ly Rules
√ Calculate Redundant Bracing Forces
Ignore Redundant Members in FEA
√ SR Leg Bolts Resist Compression
All Leg Panels Have Same Allowable
Offset Girt At Foundation
√ Consider Feed Line Torque
√ Include Angle Block Shear Check
Use TIA-222-H Bracing Resist. Exemption
Use TIA-222-H Tension Splice Exemption
Poles
Include Shear-Torsion Interaction
Always Use Sub-Critical Flow
Use Top Mounted Sockets
Pole Without Linear Attachments
Pole With Shroud Or No Appurtenances
Outside and Inside Corner Radii Are Known



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T1	380.00-360.00			3.00	1	20.00
T2	360.00-340.00			3.00	1	20.00
T3	340.00-320.00			3.00	1	20.00
T4	320.00-300.00			3.00	1	20.00
T5	300.00-280.00			3.00	1	20.00
T6	280.00-260.00			3.00	1	20.00
T7	260.00-240.00			3.00	1	20.00
T8	240.00-220.00			3.00	1	20.00
T9	220.00-200.00			3.00	1	20.00
T10	200.00-180.00			3.00	1	20.00
T11	180.00-160.00			3.00	1	20.00
T12	160.00-140.00			3.00	1	20.00
T13	140.00-120.00			3.00	1	20.00
T14	120.00-100.00			3.00	1	20.00
T15	100.00-80.00			3.00	1	20.00
T16	80.00-60.00			3.00	1	20.00

Tower Section	Tower Elevation ft	Assembly Database	Description	Section Width ft	Number of Sections	Section Length ft
T17	60.00-40.00			3.00	1	20.00
T18	40.00-20.00			3.00	1	20.00
T19	20.00-6.56			3.00	1	13.44
T20	6.56-0.00			3.00	1	6.56

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	380.00-360.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T2	360.00-340.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T3	340.00-320.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T4	320.00-300.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T5	300.00-280.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T6	280.00-260.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T7	260.00-240.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T8	240.00-220.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T9	220.00-200.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T10	200.00-180.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T11	180.00-160.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T12	160.00-140.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T13	140.00-120.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T14	120.00-100.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T15	100.00-80.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T16	80.00-60.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T17	60.00-40.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T18	40.00-20.00	3.31	K Brace Left	No	Yes	1.0000	1.0000
T19	20.00-6.56	3.32	K Brace Left	No	Yes	1.0000	1.0000
T20	6.56-0.00	2.13	X Brace	No	Yes	1.0000	1.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 380.00-360.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T2 360.00-340.00	Solid Round	1 3/4	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T3 340.00-320.00	Solid Round	2	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T4 320.00-300.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1 1/4	A36 (36 ksi)
T5 300.00-280.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T6 280.00-260.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T7 260.00-240.00	Solid Round	2 1/4	A572-50 (50 ksi)	Solid Round	1	A36 (36 ksi)
T8 240.00-220.00	Solid Round	2 1/4	A572-50	Solid Round	1	A36

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T9 220.00-200.00	Solid Round	2 1/4	(50 ksi) A572-50	Solid Round	1	(36 ksi) A36
T10 200.00-180.00	Solid Round	2 1/4	(50 ksi) A572-50	Solid Round	1	(36 ksi) A36
T11 180.00-160.00	Solid Round	2 1/4	(50 ksi) A572-50	Solid Round	1	(36 ksi) A36
T12 160.00-140.00	Solid Round	2 1/4	(50 ksi) A572-50	Solid Round	1	(36 ksi) A36
T13 140.00-120.00	Solid Round	2 1/4	(50 ksi) A572-50	Solid Round	1	(36 ksi) A36
T14 120.00-100.00	Solid Round	2 1/4	(50 ksi) A572-50	Solid Round	1	(36 ksi) A36
T15 100.00-80.00	Solid Round	2 1/4	(50 ksi) A572-50	Solid Round	1	(36 ksi) A36
T16 80.00-60.00	Solid Round	2 1/4	(50 ksi) A572-50	Solid Round	1	(36 ksi) A36
T17 60.00-40.00	Solid Round	2 1/4	(50 ksi) A572-50	Solid Round	1	(36 ksi) A36
T18 40.00-20.00	Solid Round	2 1/4	(50 ksi) A572-50	Solid Round	1	(36 ksi) A36
T19 20.00-6.56	Solid Round	2 1/4	(50 ksi) A572-50	Solid Round	1 1/4	(36 ksi) A36
T20 6.56-0.00	Solid Round	2 1/4	(50 ksi) A572-50	Solid Round		(36 ksi) A36
			(50 ksi)			(36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 380.00-360.00	Solid Round	7/8	A36	Solid Round	7/8	A36
T2 360.00-340.00	Solid Round	7/8	(36 ksi) A36	Solid Round	7/8	(36 ksi) A36
T3 340.00-320.00	Solid Round	7/8	(36 ksi) A36	Solid Round	7/8	(36 ksi) A36
T4 320.00-300.00	Solid Round	7/8	(36 ksi) A36	Solid Round	7/8	(36 ksi) A36
T5 300.00-280.00	Solid Round	7/8	(36 ksi) A36	Solid Round	7/8	(36 ksi) A36
T6 280.00-260.00	Solid Round	7/8	(36 ksi) A36	Solid Round	7/8	(36 ksi) A36
T7 260.00-240.00	Solid Round	7/8	(36 ksi) A36	Solid Round	7/8	(36 ksi) A36
T8 240.00-220.00	Solid Round	7/8	(36 ksi) A36	Solid Round	7/8	(36 ksi) A36
T9 220.00-200.00	Solid Round	7/8	(36 ksi) A36	Solid Round	7/8	(36 ksi) A36
T10 200.00-180.00	Solid Round	7/8	(36 ksi) A36	Solid Round	7/8	(36 ksi) A36
T11 180.00-160.00	Solid Round	7/8	(36 ksi) A36	Solid Round	7/8	(36 ksi) A36
T12 160.00-140.00	Solid Round	7/8	(36 ksi) A36	Solid Round	7/8	(36 ksi) A36
T13	Solid Round	7/8	(36 ksi) A36	Solid Round	7/8	(36 ksi) A36

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
140.00-120.00			(36 ksi)			(36 ksi)
T14 120.00-100.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T15 100.00-80.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T16 80.00-60.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T17 60.00-40.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T18 40.00-20.00	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T19 20.00-6.56	Solid Round	7/8	A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T20 6.56-0.00	Flat Bar	12x3/8	A36 (36 ksi)	Flat Bar	12x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T1 380.00-360.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T2 360.00-340.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T3 340.00-320.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T4 320.00-300.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T5 300.00-280.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T6 280.00-260.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T7 260.00-240.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T8 240.00-220.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T9 220.00-200.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T10 200.00-180.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T11 180.00-160.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T12 160.00-140.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T13 140.00-120.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T14 120.00-100.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T15 100.00-80.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T16 80.00-60.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T17 60.00-40.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T18 40.00-20.00	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T19 20.00-6.56	None	Flat Bar		A36 (36 ksi)	Solid Round	7/8	A36 (36 ksi)
T20 6.56-0.00	None	Flat Bar		A36 (36 ksi)	Flat Bar	9x3/8	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

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
T1 380.00-360.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T2 360.00-340.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T3 340.00-320.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T4 320.00-300.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T5 300.00-280.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T6 280.00-260.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T7 260.00-240.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T8 240.00-220.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T9 220.00-200.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T10 200.00-180.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T11 180.00-160.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T12 160.00-140.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T13 140.00-120.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T14 120.00-100.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T15 100.00-80.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T16 80.00-60.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T17 60.00-40.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T18 40.00-20.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T19 20.00-6.56	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt
T20 6.56-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	Mid-Pt	Mid-Pt	Mid-Pt

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	No	Yes	1	1	1	1	1	1	1	1
380.00-360.00				1	1	1	1	1	1	1
T2	No	Yes	1	1	1	1	1	1	1	1
360.00-340.00				1	1	1	1	1	1	1
T3	No	Yes	1	1	1	1	1	1	1	1
340.00-320.00				1	1	1	1	1	1	1
T4	No	Yes	1	1	1	1	1	1	1	1
320.00-300.00				1	1	1	1	1	1	1
T5	No	Yes	1	1	1	1	1	1	1	1
300.00-280.00				1	1	1	1	1	1	1
T6	No	Yes	1	1	1	1	1	1	1	1
280.00-260.00				1	1	1	1	1	1	1
T7	No	Yes	1	1	1	1	1	1	1	1
260.00-240.00				1	1	1	1	1	1	1
T8	No	Yes	1	1	1	1	1	1	1	1
240.00-220.00				1	1	1	1	1	1	1
T9	No	Yes	1	1	1	1	1	1	1	1
220.00-200.00				1	1	1	1	1	1	1
T10	No	Yes	1	1	1	1	1	1	1	1
200.00-180.00				1	1	1	1	1	1	1
T11	No	Yes	1	1	1	1	1	1	1	1
180.00-160.00				1	1	1	1	1	1	1
T12	No	Yes	1	1	1	1	1	1	1	1
160.00-140.00				1	1	1	1	1	1	1
T13	No	Yes	1	1	1	1	1	1	1	1
140.00-120.00				1	1	1	1	1	1	1
T14	No	Yes	1	1	1	1	1	1	1	1
120.00-100.00				1	1	1	1	1	1	1
T15	No	Yes	1	1	1	1	1	1	1	1
100.00-80.00				1	1	1	1	1	1	1
T16	No	Yes	1	1	1	1	1	1	1	1
80.00-60.00				1	1	1	1	1	1	1
T17	No	Yes	1	1	1	1	1	1	1	1
60.00-40.00				1	1	1	1	1	1	1
T18	No	Yes	1	1	1	1	1	1	1	1
40.00-20.00				1	1	1	1	1	1	1
T19	No	Yes	1	1	1	1	1	1	1	1
20.00-6.56				1	1	1	1	1	1	1
T20 6.56-0.00	No	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 380.00-360.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T2 360.00-340.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T3 340.00-320.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T4 320.00-300.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T5 300.00-280.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T6 280.00-260.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T7 260.00-240.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T8 240.00-220.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T9 220.00-200.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T10 200.00-180.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T11 180.00-160.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T12 160.00-140.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T13 140.00-120.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T14 120.00-100.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T15 100.00-80.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T16 80.00-60.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T17 60.00-40.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T18 40.00-20.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T19 20.00-6.56	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1
T20 6.56-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	0.75	0.0000	1	0.0000	1

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 380.00-360.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 360.00-340.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 340.00-320.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 320.00-300.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T5 300.00-280.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 280.00-260.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 260.00-240.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 240.00-220.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 220.00-200.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 200.00-180.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 180.00-160.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T12 160.00-140.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T13 140.00-120.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T14 120.00-100.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T15 100.00-80.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T16 80.00-60.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T17 60.00-40.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T18 40.00-20.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T19 20.00-6.56	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T20 6.56-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 380.00-360.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T2 360.00-340.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 340.00-320.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 320.00-300.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 300.00-280.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 280.00-260.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 260.00-240.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T8 240.00-220.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 220.00-200.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 200.00-180.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 180.00-160.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T12 160.00-140.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T13 140.00-120.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T14 120.00-100.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T15 100.00-80.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T16 80.00-60.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T17 60.00-40.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T18 40.00-20.00	Flange	0.7500 A325N	3	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T19 20.00-6.56	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T20 6.56-0.00	Flange	0.7500 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
366.694	EHS	A	5/8	4.24	10%	23000	0.813	471.66	304.00	0.0000	4.00	100%
		B	5/8	4.24	10%	23000	0.813	474.74	304.00	0.0000	0.00	100%
		C	5/8	4.24	10%	23000	0.813	478.61	304.00	0.0000	-5.00	100%
306.694	EHS	A	5/8	4.24	10%	23000	0.813	427.32	304.00	0.0000	4.00	100%
		B	5/8	4.24	10%	23000	0.813	430.15	304.00	0.0000	0.00	100%
		C	5/8	4.24	10%	23000	0.813	433.73	304.00	0.0000	-5.00	100%
246.694	EHS	A	5/8	4.24	10%	23000	0.813	387.38	304.00	0.0000	4.00	100%
		B	5/8	4.24	10%	23000	0.813	389.90	304.00	0.0000	0.00	100%
		C	5/8	4.24	10%	23000	0.813	393.08	304.00	0.0000	-5.00	100%
186.694	EHS	A	1/2	2.69	10%	23000	0.517	352.96	304.00	0.0000	4.00	100%
		B	1/2	2.69	10%	23000	0.517	355.04	304.00	0.0000	0.00	100%
		C	1/2	2.69	10%	23000	0.517	357.69	304.00	0.0000	-5.00	100%
126.694	EHS	A	7/16	2.08	10%	23000	0.399	326.01	304.00	0.0000	4.00	100%
		B	7/16	2.08	10%	23000	0.399	327.53	304.00	0.0000	0.00	100%
		C	7/16	2.08	10%	23000	0.399	329.50	304.00	0.0000	-5.00	100%
66.6944	EHS	A	9/16	3.50	10%	23000	0.671	308.50	304.00	0.0000	4.00	100%
		B	9/16	3.50	10%	23000	0.671	309.34	304.00	0.0000	0.00	100%
		C	9/16	3.50	10%	23000	0.671	310.45	304.00	0.0000	-5.00	100%

Guy Data(cont'd)

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
366.694	Torque Arm	6.90	0.0000	Channel	A36 (36 ksi)	Channel	C12x20.7
306.694	Torque Arm	6.90	0.0000	Channel	A36 (36 ksi)	Channel	C12x20.7
246.694	Corner						
186.694	Corner						
126.694	Corner						
66.6944	Corner						

Guy Data (cont'd)

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
366.69	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Solid Round	
306.69	A36 (36 ksi)	Solid Round				A36 (36 ksi)	Solid Round	
246.69	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	3x3/8
186.69	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	3x3/8
126.69	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	3x3/8
66.69	A572-50 (50 ksi)	Solid Round			Yes	A36 (36 ksi)	Flat Bar	3x3/8

Guy Data (cont'd)

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
366.694	0.38	0.39	0.39		20.63 7.8 sec/pulse	20.90 7.9 sec/pulse	21.23 8.0 sec/pulse	
306.694	0.35	0.35	0.35		17.03 7.1 sec/pulse	17.25 7.2 sec/pulse	17.53 7.2 sec/pulse	
246.694	0.31	0.32	0.32		14.08 6.5 sec/pulse	14.25 6.5 sec/pulse	14.48 6.6 sec/pulse	
186.694	0.18	0.18	0.18		11.78 5.9 sec/pulse	11.91 6.0 sec/pulse	12.09 6.0 sec/pulse	
126.694	0.13	0.13	0.13		10.09 5.5 sec/pulse	10.18 5.5 sec/pulse	10.29 5.5 sec/pulse	
66.6944	0.21	0.21	0.21		9.08 5.2 sec/pulse	9.12 5.2 sec/pulse	9.19 5.2 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
366.694	No	No	1	1	0.7	0.7	1	1
306.694	No	No	1	1	0.7	0.7	1	1
246.694	No	No			0.7	0.7	1	1
186.694	No	No			0.7	0.7	1	1
126.694	No	No			0.7	0.7	1	1
66.6944	No	No			0.7	0.7	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
366.694	0.6250 A325N	8	0.0000	0.75	0.6250 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75
306.694	0.6250 A325N	8	0.0000	0.75	0.6250 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75
246.694	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75
186.694	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75
126.694	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75
66.6944	0.6250 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	1	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
366.694	A	185.35	0	0	1.0101
	B	183.35	0	0	1.0090
	C	180.85	0	0	1.0076
306.694	A	155.35	0	0	0.9924
	B	153.35	0	0	0.9911
	C	150.85	0	0	0.9895
246.694	A	125.35	0	0	0.9714
	B	123.35	0	0	0.9698
	C	120.85	0	0	0.9678
186.694	A	95.35	0	0	0.9451
	B	93.35	0	0	0.9431
	C	90.85	0	0	0.9406
126.694	A	65.35	0	0	0.9101
	B	63.35	0	0	0.9073
	C	60.85	0	0	0.9036

Guy Elevation ft	Guy Location	z ft	q_z ksf	q_z Ice ksf	Ice Thickness in
66.6944	A	35.35	0	0	0.8559
	B	33.35	0	0	0.8509
	C	30.85	0	0	0.8443

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
miscl													
Safety Line 3/8	A	No	No	Ar (CaAa)	380.00 - 0.00	0.0000	-0.25	1	1	0.3750	0.3750		0.22
Sabre 3600 (3/4"Diam, 18"w, 6 per section)	A	No	No	Ar (CaAa)	380.00 - 0.00	0.0000	-0.25	1	1	0.7500	0.7500		0.68
1/2" Cable (Lights)	A	No	No	Ar (CaAa)	95.00 - 0.00	0.0000	0.48	4	4	0.5000	0.5000		0.40
1/2" Cable (Lights)	A	No	No	Ar (CaAa)	204.00 - 95.00	0.0000	0.48	3	3	0.5000	0.5000		0.40
1/2" Cable (Lights)	A	No	No	Ar (CaAa)	287.00 - 204.00	0.0000	0.48	2	2	0.5000	0.5000		0.40
1/2" Cable (Lights)	A	No	No	Ar (CaAa)	380.00 - 287.00	0.0000	0.48	1	1	0.5000	0.5000		0.40
Sabre 3600 Waveguide	A	No	No	Af (CaAa)	380.00 - 0.00	0.0000	0	1	1	1.9380	1.9380		0.82
Sabre 3600 Waveguide	B	No	No	Af (CaAa)	380.00 - 0.00	0.0000	0	1	1	1.9380	1.9380		0.82
Sabre 3600 Waveguide	C	No	No	Af (CaAa)	380.00 - 0.00	0.0000	0	1	1	1.9380	1.9380		0.82
Face B													
HCS 2.0 Part 3(1-1/2)	B	No	No	Ar (CaAa)	340.00 - 0.00	0.0000	0.3	2	2	0.5000	1.5500		1.71
Face C													
LDF7-50A(1-5/8)	C	No	No	Ar (CaAa)	378.00 - 0.00	0.0000	-0.05	9	6	0.5000	1.9800		0.82
WR-VG86T(3/4)	C	No	No	Ar (CaAa)	378.00 - 0.00	0.0000	0.28	4	3	0.5000	0.7560		0.53
FB-L98B-034-XXXXXX(3/8)	C	No	No	Ar (CaAa)	378.00 - 0.00	1.0000	0.3	1	1	0.3937	0.3937		0.05
EWP63-65(ELLIPTICAL)	C	No	No	Ar (CaAa)	210.00 - 101.00	0.0000	0.15	1	1	0.5000	2.0100		0.51
EW63(ELLIPTICAL) **	C	No	No	Ar (CaAa)	101.00 - 0.00	0.0000	0.15	2	2	0.5000	2.0100		0.51

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

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
T1	380.00-360.00	A	0.000	0.000	9.710	0.000	0.04
		B	0.000	0.000	6.460	0.000	0.02
		C	0.000	0.000	44.688	0.000	0.19
T2	360.00-340.00	A	0.000	0.000	9.710	0.000	0.04
		B	0.000	0.000	6.460	0.000	0.02
		C	0.000	0.000	48.935	0.000	0.21
T3	340.00-320.00	A	0.000	0.000	9.710	0.000	0.04
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	48.935	0.000	0.21
T4	320.00-300.00	A	0.000	0.000	9.710	0.000	0.04
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	48.935	0.000	0.21
T5	300.00-280.00	A	0.000	0.000	10.060	0.000	0.05
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	48.935	0.000	0.21
T6	280.00-260.00	A	0.000	0.000	10.710	0.000	0.05
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	48.935	0.000	0.21
T7	260.00-240.00	A	0.000	0.000	10.710	0.000	0.05
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	48.935	0.000	0.21
T8	240.00-220.00	A	0.000	0.000	10.710	0.000	0.05
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	48.935	0.000	0.21
T9	220.00-200.00	A	0.000	0.000	10.910	0.000	0.05
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	50.945	0.000	0.21
T10	200.00-180.00	A	0.000	0.000	11.710	0.000	0.06
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	52.955	0.000	0.22
T11	180.00-160.00	A	0.000	0.000	11.710	0.000	0.06
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	52.955	0.000	0.22
T12	160.00-140.00	A	0.000	0.000	11.710	0.000	0.06
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	52.955	0.000	0.22
T13	140.00-120.00	A	0.000	0.000	11.710	0.000	0.06
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	52.955	0.000	0.22
T14	120.00-100.00	A	0.000	0.000	11.710	0.000	0.06
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	53.156	0.000	0.22
T15	100.00-80.00	A	0.000	0.000	12.460	0.000	0.06
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	56.975	0.000	0.23
T16	80.00-60.00	A	0.000	0.000	12.710	0.000	0.07
		B	0.000	0.000	12.660	0.000	0.08

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
		C	0.000	0.000	56.975	0.000	0.23
T17	60.00-40.00	A	0.000	0.000	12.710	0.000	0.07
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	56.975	0.000	0.23
T18	40.00-20.00	A	0.000	0.000	12.710	0.000	0.07
		B	0.000	0.000	12.660	0.000	0.08
		C	0.000	0.000	56.975	0.000	0.23
T19	20.00-6.56	A	0.000	0.000	8.540	0.000	0.04
		B	0.000	0.000	8.506	0.000	0.06
		C	0.000	0.000	38.280	0.000	0.15
T20	6.56-0.00	A	0.000	0.000	4.170	0.000	0.02
		B	0.000	0.000	4.154	0.000	0.03
		C	0.000	0.000	18.695	0.000	0.07

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
T1	380.00-360.00	A	1.082	0.000	0.000	27.028	0.000	0.25
		B		0.000	0.000	10.790	0.000	0.10
		C		0.000	0.000	70.913	0.000	0.82
T2	360.00-340.00	A	1.076	0.000	0.000	26.932	0.000	0.25
		B		0.000	0.000	10.766	0.000	0.09
		C		0.000	0.000	77.464	0.000	0.90
T3	340.00-320.00	A	1.070	0.000	0.000	26.831	0.000	0.25
		B		0.000	0.000	27.800	0.000	0.27
		C		0.000	0.000	77.328	0.000	0.90
T4	320.00-300.00	A	1.063	0.000	0.000	26.725	0.000	0.24
		B		0.000	0.000	27.728	0.000	0.27
		C		0.000	0.000	77.185	0.000	0.89
T5	300.00-280.00	A	1.056	0.000	0.000	28.684	0.000	0.25
		B		0.000	0.000	27.650	0.000	0.27
		C		0.000	0.000	77.033	0.000	0.89
T6	280.00-260.00	A	1.049	0.000	0.000	32.390	0.000	0.27
		B		0.000	0.000	27.568	0.000	0.27
		C		0.000	0.000	76.871	0.000	0.88
T7	260.00-240.00	A	1.041	0.000	0.000	32.237	0.000	0.26
		B		0.000	0.000	27.481	0.000	0.27
		C		0.000	0.000	76.698	0.000	0.88
T8	240.00-220.00	A	1.032	0.000	0.000	32.073	0.000	0.26
		B		0.000	0.000	27.386	0.000	0.27
		C		0.000	0.000	76.512	0.000	0.87
T9	220.00-200.00	A	1.023	0.000	0.000	32.318	0.000	0.26
		B		0.000	0.000	27.285	0.000	0.26
		C		0.000	0.000	80.367	0.000	0.91
T10	200.00-180.00	A	1.013	0.000	0.000	33.817	0.000	0.28
		B		0.000	0.000	27.174	0.000	0.26
		C		0.000	0.000	84.163	0.000	0.95
T11	180.00-160.00	A	1.001	0.000	0.000	33.606	0.000	0.28
		B		0.000	0.000	27.051	0.000	0.26
		C		0.000	0.000	83.877	0.000	0.94
T12	160.00-140.00	A	0.989	0.000	0.000	33.372	0.000	0.27
		B		0.000	0.000	26.916	0.000	0.26
		C		0.000	0.000	83.560	0.000	0.93
T13	140.00-120.00	A	0.975	0.000	0.000	33.108	0.000	0.27
		B		0.000	0.000	26.763	0.000	0.25
		C		0.000	0.000	83.202	0.000	0.92

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
T14	120.00-100.00	A	0.959	0.000	0.000	32.804	0.000	0.26
		B		0.000	0.000	26.587	0.000	0.25
		C		0.000	0.000	83.340	0.000	0.91
T15	100.00-80.00	A	0.940	0.000	0.000	34.131	0.000	0.28
		B		0.000	0.000	26.379	0.000	0.25
		C		0.000	0.000	93.248	0.000	0.96
T16	80.00-60.00	A	0.916	0.000	0.000	34.258	0.000	0.28
		B		0.000	0.000	26.125	0.000	0.24
		C		0.000	0.000	92.587	0.000	0.94
T17	60.00-40.00	A	0.886	0.000	0.000	33.695	0.000	0.27
		B		0.000	0.000	25.795	0.000	0.24
		C		0.000	0.000	91.728	0.000	0.92
T18	40.00-20.00	A	0.842	0.000	0.000	32.876	0.000	0.25
		B		0.000	0.000	25.315	0.000	0.23
		C		0.000	0.000	90.478	0.000	0.89
T19	20.00-6.56	A	0.776	0.000	0.000	21.268	0.000	0.16
		B		0.000	0.000	16.527	0.000	0.14
		C		0.000	0.000	59.537	0.000	0.57
T20	6.56-0.00	A	0.675	0.000	0.000	9.773	0.000	0.07
		B		0.000	0.000	7.711	0.000	0.06
		C		0.000	0.000	28.138	0.000	0.25

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
T1	380.00-360.00	-0.4711	2.7032	-1.7017	1.9054
T2	360.00-340.00	-0.4530	2.9918	-1.7085	2.1578
T3	340.00-320.00	0.4684	3.0391	-0.6535	2.3001
T4	320.00-300.00	0.4538	2.9087	-0.6411	2.2627
T5	300.00-280.00	0.4557	2.8320	-0.6416	2.1068
T6	280.00-260.00	0.4492	2.6024	-0.6378	1.7925
T7	260.00-240.00	0.4357	2.5135	-0.6224	1.7594
T8	240.00-220.00	0.4492	2.6024	-0.6304	1.7960
T9	220.00-200.00	0.3199	2.7960	-0.7385	2.0043
T10	200.00-180.00	0.1879	2.6909	-0.8256	1.9989
T11	180.00-160.00	0.1934	2.7793	-0.8354	2.0359
T12	160.00-140.00	0.1934	2.7793	-0.8298	2.0367
T13	140.00-120.00	0.1879	2.6909	-0.8089	2.0011
T14	120.00-100.00	0.1815	2.7854	-0.8269	2.0449
T15	100.00-80.00	-0.0376	2.6597	-1.0171	1.9526
T16	80.00-60.00	-0.0374	2.5007	-0.9906	1.8487
T17	60.00-40.00	-0.0384	2.5805	-0.9957	1.8795
T18	40.00-20.00	-0.0384	2.5805	-0.9775	1.8757
T19	20.00-6.56	-0.0379	2.5372	-0.9412	1.8512
T20	6.56-0.00	-0.0102	1.2866	-0.2732	0.7856

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	2	Safety Line 3/8	360.00 - 380.00	0.6000	0.6000
T1	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	360.00 - 380.00	0.6000	0.6000
T1	7	1/2" Cable (Lights)	360.00 - 380.00	0.6000	0.6000
T1	8	Sabre 3600 Waveguide	360.00 - 380.00	0.6000	0.6000
T1	9	Sabre 3600 Waveguide	360.00 - 380.00	0.6000	0.6000
T1	10	Sabre 3600 Waveguide	360.00 - 380.00	0.6000	0.6000
T1	14	LDF7-50A(1-5/8)	360.00 - 378.00	0.6000	0.6000
T1	15	WR-VG86T(3/4)	360.00 - 378.00	0.6000	0.6000
T1	16	FB-L98B-034-XXXXXX(3/8)	360.00 - 378.00	0.6000	0.6000
T2	2	Safety Line 3/8	340.00 - 360.00	0.6000	0.6000
T2	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	340.00 - 360.00	0.6000	0.6000
T2	7	1/2" Cable (Lights)	340.00 - 360.00	0.6000	0.6000
T2	8	Sabre 3600 Waveguide	340.00 - 360.00	0.6000	0.6000
T2	9	Sabre 3600 Waveguide	340.00 - 360.00	0.6000	0.6000
T2	10	Sabre 3600 Waveguide	340.00 - 360.00	0.6000	0.6000
T2	14	LDF7-50A(1-5/8)	340.00 - 360.00	0.6000	0.6000
T2	15	WR-VG86T(3/4)	340.00 - 360.00	0.6000	0.6000
T2	16	FB-L98B-034-XXXXXX(3/8)	340.00 - 360.00	0.6000	0.6000
T3	2	Safety Line 3/8	320.00 - 340.00	0.6000	0.6000
T3	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	320.00 - 340.00	0.6000	0.6000
T3	7	1/2" Cable (Lights)	320.00 - 340.00	0.6000	0.6000
T3	8	Sabre 3600 Waveguide	320.00 - 340.00	0.6000	0.6000
T3	9	Sabre 3600 Waveguide	320.00 - 340.00	0.6000	0.6000
T3	10	Sabre 3600 Waveguide	320.00 - 340.00	0.6000	0.6000
T3	12	HCS 2.0 Part 3(1-1/2)	320.00 - 340.00	0.6000	0.6000
T3	14	LDF7-50A(1-5/8)	320.00 - 340.00	0.6000	0.6000
T3	15	WR-VG86T(3/4)	320.00 - 340.00	0.6000	0.6000
T3	16	FB-L98B-034-XXXXXX(3/8)	320.00 - 340.00	0.6000	0.6000
T4	2	Safety Line 3/8	300.00 - 320.00	0.6000	0.6000
T4	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	300.00 - 320.00	0.6000	0.6000
T4	7	1/2" Cable (Lights)	300.00 - 320.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T4	8	Sabre 3600 Waveguide	300.00 - 320.00	0.6000	0.6000
T4	9	Sabre 3600 Waveguide	300.00 - 320.00	0.6000	0.6000
T4	10	Sabre 3600 Waveguide	300.00 - 320.00	0.6000	0.6000
T4	12	HCS 2.0 Part 3(1-1/2)	300.00 - 320.00	0.6000	0.6000
T4	14	LDF7-50A(1-5/8)	300.00 - 320.00	0.6000	0.6000
T4	15	WR-VG86T(3/4)	300.00 - 320.00	0.6000	0.6000
T4	16	FB-L98B-034-XXXXXX(3/8)	300.00 - 320.00	0.6000	0.6000
T5	2	Safety Line 3/8	280.00 - 300.00	0.6000	0.6000
T5	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	280.00 - 300.00	0.6000	0.6000
T5	6	1/2" Cable (Lights)	280.00 - 287.00	0.6000	0.6000
T5	7	1/2" Cable (Lights)	287.00 - 300.00	0.6000	0.6000
T5	8	Sabre 3600 Waveguide	280.00 - 300.00	0.6000	0.6000
T5	9	Sabre 3600 Waveguide	280.00 - 300.00	0.6000	0.6000
T5	10	Sabre 3600 Waveguide	280.00 - 300.00	0.6000	0.6000
T5	12	HCS 2.0 Part 3(1-1/2)	280.00 - 300.00	0.6000	0.6000
T5	14	LDF7-50A(1-5/8)	280.00 - 300.00	0.6000	0.6000
T5	15	WR-VG86T(3/4)	280.00 - 300.00	0.6000	0.6000
T5	16	FB-L98B-034-XXXXXX(3/8)	280.00 - 300.00	0.6000	0.6000
T6	2	Safety Line 3/8	260.00 - 280.00	0.6000	0.6000
T6	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	260.00 - 280.00	0.6000	0.6000
T6	6	1/2" Cable (Lights)	260.00 - 280.00	0.6000	0.6000
T6	8	Sabre 3600 Waveguide	260.00 - 280.00	0.6000	0.6000
T6	9	Sabre 3600 Waveguide	260.00 - 280.00	0.6000	0.6000
T6	10	Sabre 3600 Waveguide	260.00 - 280.00	0.6000	0.6000
T6	12	HCS 2.0 Part 3(1-1/2)	260.00 - 280.00	0.6000	0.6000
T6	14	LDF7-50A(1-5/8)	260.00 - 280.00	0.6000	0.6000
T6	15	WR-VG86T(3/4)	260.00 - 280.00	0.6000	0.6000
T6	16	FB-L98B-034-XXXXXX(3/8)	260.00 - 280.00	0.6000	0.6000
T7	2	Safety Line 3/8	240.00 - 260.00	0.6000	0.5994
T7	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	240.00 - 260.00	0.6000	0.5994
T7	6	1/2" Cable (Lights)	240.00 - 260.00	0.6000	0.5994

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	8	Sabre 3600 Waveguide	240.00 - 260.00	0.6000	0.5994
T7	9	Sabre 3600 Waveguide	240.00 - 260.00	0.6000	0.5994
T7	10	Sabre 3600 Waveguide	240.00 - 260.00	0.6000	0.5994
T7	12	HCS 2.0 Part 3(1-1/2)	240.00 - 260.00	0.6000	0.5994
T7	14	LDF7-50A(1-5/8)	240.00 - 260.00	0.6000	0.5994
T7	15	WR-VG86T(3/4)	240.00 - 260.00	0.6000	0.5994
T7	16	FB-L98B-034-XXXXXX(3/8)	240.00 - 260.00	0.6000	0.5994
T8	2	Safety Line 3/8	220.00 - 240.00	0.6000	0.6000
T8	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	220.00 - 240.00	0.6000	0.6000
T8	6	1/2" Cable (Lights)	220.00 - 240.00	0.6000	0.6000
T8	8	Sabre 3600 Waveguide	220.00 - 240.00	0.6000	0.6000
T8	9	Sabre 3600 Waveguide	220.00 - 240.00	0.6000	0.6000
T8	10	Sabre 3600 Waveguide	220.00 - 240.00	0.6000	0.6000
T8	12	HCS 2.0 Part 3(1-1/2)	220.00 - 240.00	0.6000	0.6000
T8	14	LDF7-50A(1-5/8)	220.00 - 240.00	0.6000	0.6000
T8	15	WR-VG86T(3/4)	220.00 - 240.00	0.6000	0.6000
T8	16	FB-L98B-034-XXXXXX(3/8)	220.00 - 240.00	0.6000	0.6000
T9	2	Safety Line 3/8	200.00 - 220.00	0.6000	0.6000
T9	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	200.00 - 220.00	0.6000	0.6000
T9	5	1/2" Cable (Lights)	200.00 - 204.00	0.6000	0.6000
T9	6	1/2" Cable (Lights)	204.00 - 220.00	0.6000	0.6000
T9	8	Sabre 3600 Waveguide	200.00 - 220.00	0.6000	0.6000
T9	9	Sabre 3600 Waveguide	200.00 - 220.00	0.6000	0.6000
T9	10	Sabre 3600 Waveguide	200.00 - 220.00	0.6000	0.6000
T9	12	HCS 2.0 Part 3(1-1/2)	200.00 - 220.00	0.6000	0.6000
T9	14	LDF7-50A(1-5/8)	200.00 - 220.00	0.6000	0.6000
T9	15	WR-VG86T(3/4)	200.00 - 220.00	0.6000	0.6000
T9	16	FB-L98B-034-XXXXXX(3/8)	200.00 - 220.00	0.6000	0.6000
T9	17	EWP63-65(ELLIPTICAL)	200.00 - 210.00	0.6000	0.6000
T10	2	Safety Line 3/8	180.00 - 200.00	0.6000	0.6000
T10	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	180.00 - 200.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T10	5	1/2" Cable (Lights)	180.00 - 200.00	0.6000	0.6000
T10	8	Sabre 3600 Waveguide	180.00 - 200.00	0.6000	0.6000
T10	9	Sabre 3600 Waveguide	180.00 - 200.00	0.6000	0.6000
T10	10	Sabre 3600 Waveguide	180.00 - 200.00	0.6000	0.6000
T10	12	HCS 2.0 Part 3(1-1/2)	180.00 - 200.00	0.6000	0.6000
T10	14	LDF7-50A(1-5/8)	180.00 - 200.00	0.6000	0.6000
T10	15	WR-VG86T(3/4)	180.00 - 200.00	0.6000	0.6000
T10	16	FB-L98B-034-XXXXXX(3/8)	180.00 - 200.00	0.6000	0.6000
T10	17	EWP63-65(ELLIPTICAL)	180.00 - 200.00	0.6000	0.6000
T11	2	Safety Line 3/8	160.00 - 180.00	0.6000	0.6000
T11	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	160.00 - 180.00	0.6000	0.6000
T11	5	1/2" Cable (Lights)	160.00 - 180.00	0.6000	0.6000
T11	8	Sabre 3600 Waveguide	160.00 - 180.00	0.6000	0.6000
T11	9	Sabre 3600 Waveguide	160.00 - 180.00	0.6000	0.6000
T11	10	Sabre 3600 Waveguide	160.00 - 180.00	0.6000	0.6000
T11	12	HCS 2.0 Part 3(1-1/2)	160.00 - 180.00	0.6000	0.6000
T11	14	LDF7-50A(1-5/8)	160.00 - 180.00	0.6000	0.6000
T11	15	WR-VG86T(3/4)	160.00 - 180.00	0.6000	0.6000
T11	16	FB-L98B-034-XXXXXX(3/8)	160.00 - 180.00	0.6000	0.6000
T11	17	EWP63-65(ELLIPTICAL)	160.00 - 180.00	0.6000	0.6000
T12	2	Safety Line 3/8	140.00 - 160.00	0.6000	0.6000
T12	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	140.00 - 160.00	0.6000	0.6000
T12	5	1/2" Cable (Lights)	140.00 - 160.00	0.6000	0.6000
T12	8	Sabre 3600 Waveguide	140.00 - 160.00	0.6000	0.6000
T12	9	Sabre 3600 Waveguide	140.00 - 160.00	0.6000	0.6000
T12	10	Sabre 3600 Waveguide	140.00 - 160.00	0.6000	0.6000
T12	12	HCS 2.0 Part 3(1-1/2)	140.00 - 160.00	0.6000	0.6000
T12	14	LDF7-50A(1-5/8)	140.00 - 160.00	0.6000	0.6000
T12	15	WR-VG86T(3/4)	140.00 - 160.00	0.6000	0.6000
T12	16	FB-L98B-034-XXXXXX(3/8)	140.00 - 160.00	0.6000	0.6000
T12	17	EWP63-65(ELLIPTICAL)	140.00 - 160.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T13	2	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T13	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	120.00 - 140.00	0.6000	0.6000
T13	5	1/2" Cable (Lights)	120.00 - 140.00	0.6000	0.6000
T13	8	Sabre 3600 Waveguide	120.00 - 140.00	0.6000	0.6000
T13	9	Sabre 3600 Waveguide	120.00 - 140.00	0.6000	0.6000
T13	10	Sabre 3600 Waveguide	120.00 - 140.00	0.6000	0.6000
T13	12	HCS 2.0 Part 3(1-1/2)	120.00 - 140.00	0.6000	0.6000
T13	14	LDF7-50A(1-5/8)	120.00 - 140.00	0.6000	0.6000
T13	15	WR-VG86T(3/4)	120.00 - 140.00	0.6000	0.6000
T13	16	FB-L98B-034-XXXXXX(3/8)	120.00 - 140.00	0.6000	0.6000
T13	17	EWP63-65(ELLIPTICAL)	120.00 - 140.00	0.6000	0.6000
T14	2	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T14	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	100.00 - 120.00	0.6000	0.6000
T14	5	1/2" Cable (Lights)	100.00 - 120.00	0.6000	0.6000
T14	8	Sabre 3600 Waveguide	100.00 - 120.00	0.6000	0.6000
T14	9	Sabre 3600 Waveguide	100.00 - 120.00	0.6000	0.6000
T14	10	Sabre 3600 Waveguide	100.00 - 120.00	0.6000	0.6000
T14	12	HCS 2.0 Part 3(1-1/2)	100.00 - 120.00	0.6000	0.6000
T14	14	LDF7-50A(1-5/8)	100.00 - 120.00	0.6000	0.6000
T14	15	WR-VG86T(3/4)	100.00 - 120.00	0.6000	0.6000
T14	16	FB-L98B-034-XXXXXX(3/8)	100.00 - 120.00	0.6000	0.6000
T14	17	EWP63-65(ELLIPTICAL)	101.00 - 120.00	0.6000	0.6000
T14	18	EW63(ELLIPTICAL)	100.00 - 101.00	0.6000	0.6000
T15	2	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T15	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	80.00 - 100.00	0.6000	0.6000
T15	4	1/2" Cable (Lights)	80.00 - 95.00	0.6000	0.6000
T15	5	1/2" Cable (Lights)	95.00 - 100.00	0.6000	0.6000
T15	8	Sabre 3600 Waveguide	80.00 - 100.00	0.6000	0.6000
T15	9	Sabre 3600 Waveguide	80.00 - 100.00	0.6000	0.6000
T15	10	Sabre 3600 Waveguide	80.00 - 100.00	0.6000	0.6000
T15	12	HCS 2.0 Part 3(1-1/2)	80.00 - 100.00	0.6000	0.6000
T15	14	LDF7-50A(1-5/8)	80.00 - 100.00	0.6000	0.6000
T15	15	WR-VG86T(3/4)	80.00 - 100.00	0.6000	0.6000
T15	16	FB-L98B-034-XXXXXX(3/8)	80.00 - 100.00	0.6000	0.6000
T15	18	EW63(ELLIPTICAL)	80.00 - 100.00	0.6000	0.6000
T16	2	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T16	3	Sabre 3600 (3/4"Diam, 18"w,	60.00 - 80.00	0.6000	0.6000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
		6 per section)			
T16	4	1/2" Cable (Lights)	60.00 - 80.00	0.6000	0.6000
T16	8	Sabre 3600 Waveguide	60.00 - 80.00	0.6000	0.6000
T16	9	Sabre 3600 Waveguide	60.00 - 80.00	0.6000	0.6000
T16	10	Sabre 3600 Waveguide	60.00 - 80.00	0.6000	0.6000
T16	12	HCS 2.0 Part 3(1-1/2)	60.00 - 80.00	0.6000	0.6000
T16	14	LDF7-50A(1-5/8)	60.00 - 80.00	0.6000	0.6000
T16	15	WR-VG86T(3/4)	60.00 - 80.00	0.6000	0.6000
T16	16	FB-L98B-034-XXXXXX(3/8)	60.00 - 80.00	0.6000	0.6000
T16	18	EW63(ELLIPTICAL)	60.00 - 80.00	0.6000	0.6000
T17	2	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T17	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	40.00 - 60.00	0.6000	0.6000
T17	4	1/2" Cable (Lights)	40.00 - 60.00	0.6000	0.6000
T17	8	Sabre 3600 Waveguide	40.00 - 60.00	0.6000	0.6000
T17	9	Sabre 3600 Waveguide	40.00 - 60.00	0.6000	0.6000
T17	10	Sabre 3600 Waveguide	40.00 - 60.00	0.6000	0.6000
T17	12	HCS 2.0 Part 3(1-1/2)	40.00 - 60.00	0.6000	0.6000
T17	14	LDF7-50A(1-5/8)	40.00 - 60.00	0.6000	0.6000
T17	15	WR-VG86T(3/4)	40.00 - 60.00	0.6000	0.6000
T17	16	FB-L98B-034-XXXXXX(3/8)	40.00 - 60.00	0.6000	0.6000
T17	18	EW63(ELLIPTICAL)	40.00 - 60.00	0.6000	0.6000
T18	2	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T18	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	20.00 - 40.00	0.6000	0.6000
T18	4	1/2" Cable (Lights)	20.00 - 40.00	0.6000	0.6000
T18	8	Sabre 3600 Waveguide	20.00 - 40.00	0.6000	0.6000
T18	9	Sabre 3600 Waveguide	20.00 - 40.00	0.6000	0.6000
T18	10	Sabre 3600 Waveguide	20.00 - 40.00	0.6000	0.6000
T18	12	HCS 2.0 Part 3(1-1/2)	20.00 - 40.00	0.6000	0.6000
T18	14	LDF7-50A(1-5/8)	20.00 - 40.00	0.6000	0.6000
T18	15	WR-VG86T(3/4)	20.00 - 40.00	0.6000	0.6000
T18	16	FB-L98B-034-XXXXXX(3/8)	20.00 - 40.00	0.6000	0.6000
T18	18	EW63(ELLIPTICAL)	20.00 - 40.00	0.6000	0.6000
T19	2	Safety Line 3/8	6.56 - 20.00	0.6000	0.6000
T19	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	6.56 - 20.00	0.6000	0.6000
T19	4	1/2" Cable (Lights)	6.56 - 20.00	0.6000	0.6000
T19	8	Sabre 3600 Waveguide	6.56 - 20.00	0.6000	0.6000
T19	9	Sabre 3600 Waveguide	6.56 - 20.00	0.6000	0.6000
T19	10	Sabre 3600 Waveguide	6.56 - 20.00	0.6000	0.6000
T19	12	HCS 2.0 Part 3(1-1/2)	6.56 - 20.00	0.6000	0.6000
T19	14	LDF7-50A(1-5/8)	6.56 - 20.00	0.6000	0.6000
T19	15	WR-VG86T(3/4)	6.56 - 20.00	0.6000	0.6000
T19	16	FB-L98B-034-XXXXXX(3/8)	6.56 - 20.00	0.6000	0.6000
T19	18	EW63(ELLIPTICAL)	6.56 - 20.00	0.6000	0.6000
T20	2	Safety Line 3/8	0.00 - 6.56	0.3437	0.2057
T20	3	Sabre 3600 (3/4"Diam, 18"w, 6 per section)	0.00 - 6.56	0.3437	0.2057
T20	4	1/2" Cable (Lights)	0.00 - 6.56	0.3437	0.2057
T20	8	Sabre 3600 Waveguide	0.00 - 6.56	0.3437	0.2057
T20	9	Sabre 3600 Waveguide	0.00 - 6.56	0.3437	0.2057
T20	10	Sabre 3600 Waveguide	0.00 - 6.56	0.3437	0.2057
T20	12	HCS 2.0 Part 3(1-1/2)	0.00 - 6.56	0.3437	0.2057
T20	14	LDF7-50A(1-5/8)	0.00 - 6.56	0.3437	0.2057
T20	15	WR-VG86T(3/4)	0.00 - 6.56	0.3437	0.2057
T20	16	FB-L98B-034-XXXXXX(3/8)	0.00 - 6.56	0.3437	0.2057

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T20	18	EW63(ELLIPTICAL)	0.00 - 6.56	0.3437	0.2057

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
miscl									
5/8"x8-ft LRod	B	From Leg	0.00	0.0000	380.00	No Ice	0.50	0.50	0.01
			0.00			1/2" Ice	1.31	1.31	0.01
			10.00			1" Ice	2.14	2.14	0.02
2.4" Dia x 6-ft Pipe	B	From Leg	0.00	0.0000	380.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.93	1.93	0.03
			3.00			1" Ice	2.30	2.30	0.05
12" x 24" Beacon	A	From Leg	0.00	0.0000	380.00	No Ice	1.00	1.00	0.03
			0.00			1/2" Ice	1.58	1.58	0.05
			1.00			1" Ice	1.77	1.77	0.07
Beacon Mount	A	From Leg	0.00	0.0000	380.00	No Ice	1.75	0.01	0.02
			0.00			1/2" Ice	2.23	0.03	0.03
			0.00			1" Ice	2.73	0.05	0.05
3" x 6" SideLight	A	From Leg	0.50	0.0000	287.00	No Ice	0.09	0.09	0.00
			0.00			1/2" Ice	0.14	0.14	0.00
			0.00			1" Ice	0.19	0.19	0.00
3" x 6" SideLight	B	From Leg	0.50	0.0000	287.00	No Ice	0.09	0.09	0.00
			0.00			1/2" Ice	0.14	0.14	0.00
			0.00			1" Ice	0.19	0.19	0.00
3" x 6" SideLight	C	From Leg	0.50	0.0000	287.00	No Ice	0.09	0.09	0.00
			0.00			1/2" Ice	0.14	0.14	0.00
			0.00			1" Ice	0.19	0.19	0.00
Junction Box 12" x 10" x 6"	A	From Leg	0.50	0.0000	286.00	No Ice	1.00	0.60	0.01
			0.00			1/2" Ice	1.13	0.70	0.02
			0.00			1" Ice	1.26	0.81	0.03
2' Ice Shield	A	From Leg	0.50	0.0000	207.00	No Ice	0.40	0.40	0.02
			0.00			1/2" Ice	0.55	0.55	0.04
			0.00			1" Ice	0.70	0.70	0.07
12" x 24" Beacon	A	From Leg	0.50	0.0000	204.00	No Ice	1.00	1.00	0.03
			0.00			1/2" Ice	1.58	1.58	0.05
			0.00			1" Ice	1.77	1.77	0.07
Beacon Mount	A	From Leg	0.50	0.0000	203.00	No Ice	1.75	0.01	0.02
			0.00			1/2" Ice	2.23	0.03	0.03
			0.00			1" Ice	2.73	0.05	0.05
2' Ice Shield	C	From Leg	0.50	0.0000	207.00	No Ice	0.40	0.40	0.02
			0.00			1/2" Ice	0.55	0.55	0.04
			0.00			1" Ice	0.70	0.70	0.07
12" x 24" Beacon	C	From Leg	0.50	0.0000	204.00	No Ice	1.00	1.00	0.03
			0.00			1/2" Ice	1.58	1.58	0.05
			0.00			1" Ice	1.77	1.77	0.07
Beacon Mount	C	From Leg	0.50	0.0000	203.00	No Ice	1.75	0.01	0.02
			0.00			1/2" Ice	2.23	0.03	0.03
			0.00			1" Ice	2.73	0.05	0.05
3" x 6" SideLight	A	From Leg	0.50	0.0000	95.00	No Ice	0.09	0.09	0.00

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1/2" Ice	0.14	0.14	0.00
			0.00			1" Ice	0.19	0.19	0.00
3" x 6" SideLight	B	From Leg	0.50	0.0000	95.00	No Ice	0.09	0.09	0.00
			0.00			1/2" Ice	0.14	0.14	0.00
			0.00			1" Ice	0.19	0.19	0.00
3" x 6" SideLight	C	From Leg	0.50	0.0000	95.00	No Ice	0.09	0.09	0.00
			0.00			1/2" Ice	0.14	0.14	0.00
			0.00			1" Ice	0.19	0.19	0.00
Junction Box 12" x 10" x 6"	A	From Leg	0.50	0.0000	94.00	No Ice	1.00	0.60	0.01
			0.00			1/2" Ice	1.13	0.70	0.02
			0.00			1" Ice	1.26	0.81	0.03
378									
(2) EPBQ-654L8H8-L2 w/ Mount Pipe	A	From Leg	4.00	0.0000	378.00	No Ice	14.86	6.25	0.12
			0.00			1/2" Ice	15.72	7.02	0.23
			0.00			1" Ice	16.59	7.80	0.35
(2) EPBQ-654L8H8-L2 w/ Mount Pipe	B	From Leg	4.00	0.0000	378.00	No Ice	14.86	6.25	0.12
			0.00			1/2" Ice	15.72	7.02	0.23
			0.00			1" Ice	16.59	7.80	0.35
(2) EPBQ-654L8H8-L2 w/ Mount Pipe	C	From Leg	4.00	0.0000	378.00	No Ice	14.86	6.25	0.12
			0.00			1/2" Ice	15.72	7.02	0.23
			0.00			1" Ice	16.59	7.80	0.35
AHLBA	A	From Leg	4.00	0.0000	378.00	No Ice	3.67	2.31	0.10
			0.00			1/2" Ice	3.92	2.51	0.13
			0.00			1" Ice	4.18	2.73	0.16
AHLBA	B	From Leg	4.00	0.0000	378.00	No Ice	3.67	2.31	0.10
			0.00			1/2" Ice	3.92	2.51	0.13
			0.00			1" Ice	4.18	2.73	0.16
AHLBA	C	From Leg	4.00	0.0000	378.00	No Ice	3.67	2.31	0.10
			0.00			1/2" Ice	3.92	2.51	0.13
			0.00			1" Ice	4.18	2.73	0.16
DC6-48-60-0-8C	A	From Leg	4.00	0.0000	378.00	No Ice	1.14	1.14	0.03
			0.00			1/2" Ice	1.79	1.79	0.05
			0.00			1" Ice	2.00	2.00	0.07
B25 RRH4X30	A	From Leg	4.00	0.0000	378.00	No Ice	2.12	1.29	0.05
			0.00			1/2" Ice	2.31	1.45	0.07
			0.00			1" Ice	2.50	1.61	0.09
B25 RRH4X30	B	From Leg	4.00	0.0000	378.00	No Ice	2.12	1.29	0.05
			0.00			1/2" Ice	2.31	1.45	0.07
			0.00			1" Ice	2.50	1.61	0.09
B25 RRH4X30	C	From Leg	4.00	0.0000	378.00	No Ice	2.12	1.29	0.05
			0.00			1/2" Ice	2.31	1.45	0.07
			0.00			1" Ice	2.50	1.61	0.09
B66A RRH4X45	A	From Leg	4.00	0.0000	378.00	No Ice	2.54	1.61	0.06
			0.00			1/2" Ice	2.75	1.79	0.08
			0.00			1" Ice	2.97	1.98	0.10
B66A RRH4X45	B	From Leg	4.00	0.0000	378.00	No Ice	2.54	1.61	0.06
			0.00			1/2" Ice	2.75	1.79	0.08
			0.00			1" Ice	2.97	1.98	0.10
B66A RRH4X45	C	From Leg	4.00	0.0000	378.00	No Ice	2.54	1.61	0.06
			0.00			1/2" Ice	2.75	1.79	0.08
			0.00			1" Ice	2.97	1.98	0.10
RRH2X40-07L-DE	A	From Leg	4.00	0.0000	378.00	No Ice	3.43	2.25	0.07
			0.00			1/2" Ice	3.68	2.46	0.10
			0.00			1" Ice	3.93	2.67	0.13
RRH2X40-07L-DE	B	From Leg	4.00	0.0000	378.00	No Ice	3.43	2.25	0.07
			0.00			1/2" Ice	3.68	2.46	0.10
			0.00			1" Ice	3.93	2.67	0.13

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRH2X40-07L-DE	C	From Leg	4.00	0.0000	378.00	No Ice	3.43	2.25	0.07
			0.00			1/2" Ice	3.68	2.46	0.10
			0.00			1" Ice	3.93	2.67	0.13
E15Z01P13	A	From Leg	4.00	0.0000	378.00	No Ice	0.78	0.60	0.02
			0.00			1/2" Ice	0.90	0.70	0.03
			0.00			1" Ice	1.02	0.82	0.04
E15Z01P13	B	From Leg	4.00	0.0000	378.00	No Ice	0.78	0.60	0.02
			0.00			1/2" Ice	0.90	0.70	0.03
			0.00			1" Ice	1.02	0.82	0.04
E15Z01P13	C	From Leg	4.00	0.0000	378.00	No Ice	0.78	0.60	0.02
			0.00			1/2" Ice	0.90	0.70	0.03
			0.00			1" Ice	1.02	0.82	0.04
DC6-48-60-18-8F	C	From Leg	4.00	0.0000	378.00	No Ice	1.21	1.21	0.03
			0.00			1/2" Ice	1.89	1.89	0.05
			0.00			1" Ice	2.11	2.11	0.08
(3) 2.4" Dia x 8-ft Mount Pipe	A	From Leg	4.00	0.0000	378.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
(3) 2.4" Dia x 8-ft Mount Pipe	B	From Leg	4.00	0.0000	378.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
(3) 2.4" Dia x 8-ft Mount Pipe	C	From Leg	4.00	0.0000	378.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
2.4" Dia x 12.5' Pipe	A	From Leg	4.00	0.0000	378.00	No Ice	2.97	2.97	0.05
			0.00			1/2" Ice	4.25	4.25	0.07
			0.00			1" Ice	5.54	5.54	0.10
2.4" Dia x 12.5' Pipe	B	From Leg	4.00	0.0000	378.00	No Ice	2.97	2.97	0.05
			0.00			1/2" Ice	4.25	4.25	0.07
			0.00			1" Ice	5.54	5.54	0.10
2.4" Dia x 12.5' Pipe	C	From Leg	4.00	0.0000	378.00	No Ice	2.97	2.97	0.05
			0.00			1/2" Ice	4.25	4.25	0.07
			0.00			1" Ice	5.54	5.54	0.10
(2) L2 1/2x2 1/2x1/4 x 7-ft	A	From Leg	2.00	0.0000	378.00	No Ice	2.92	2.92	0.03
			0.00			1/2" Ice	3.72	3.72	0.05
			0.00			1" Ice	4.34	4.34	0.07
(2) L2 1/2x2 1/2x1/4 x 7-ft	B	From Leg	2.00	0.0000	378.00	No Ice	2.92	2.92	0.03
			0.00			1/2" Ice	3.72	3.72	0.05
			0.00			1" Ice	4.34	4.34	0.07
(2) L2 1/2x2 1/2x1/4 x 7-ft	C	From Leg	2.00	0.0000	378.00	No Ice	2.92	2.92	0.03
			0.00			1/2" Ice	3.72	3.72	0.05
			0.00			1" Ice	4.34	4.34	0.07
Sector Mount [SM 602-3]	C	None		0.0000	378.00	No Ice	32.10	32.10	1.54
						1/2" Ice	39.56	39.56	2.12
						1" Ice	47.21	47.21	2.84
340									
FFVV-65C-R3-V1_TMO w/ Mount Pipe	A	From Leg	4.00	0.0000	340.00	No Ice	12.97	6.20	0.16
			0.00			1/2" Ice	13.62	6.77	0.29
			0.00			1" Ice	14.27	7.36	0.44
FFVV-65C-R3-V1_TMO w/ Mount Pipe	B	From Leg	4.00	0.0000	340.00	No Ice	12.97	6.20	0.16
			0.00			1/2" Ice	13.62	6.77	0.29
			0.00			1" Ice	14.27	7.36	0.44
FFVV-65C-R3-V1_TMO w/ Mount Pipe	C	From Leg	4.00	0.0000	340.00	No Ice	12.97	6.20	0.16
			0.00			1/2" Ice	13.62	6.77	0.29
			0.00			1" Ice	14.27	7.36	0.44
AEHC w/ Mount Pipe	A	From Leg	4.00	0.0000	340.00	No Ice	6.91	2.77	0.11
			0.00			1/2" Ice	7.40	3.15	0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.00			1" Ice	7.91	3.55	0.22
AEHC w/ Mount Pipe	B	From Leg	4.00	0.0000	340.00	No Ice	6.91	2.77	0.11
			0.00			1/2" Ice	7.40	3.15	0.16
			0.00			1" Ice	7.91	3.55	0.22
AEHC w/ Mount Pipe	C	From Leg	4.00	0.0000	340.00	No Ice	6.91	2.77	0.11
			0.00			1/2" Ice	7.40	3.15	0.16
			0.00			1" Ice	7.91	3.55	0.22
AHLOA	A	From Leg	4.00	0.0000	340.00	No Ice	2.23	1.39	0.08
			0.00			1/2" Ice	2.42	1.55	0.10
			0.00			1" Ice	2.62	1.72	0.12
AHLOA	B	From Leg	4.00	0.0000	340.00	No Ice	2.23	1.39	0.08
			0.00			1/2" Ice	2.42	1.55	0.10
			0.00			1" Ice	2.62	1.72	0.12
AHLOA	C	From Leg	4.00	0.0000	340.00	No Ice	2.23	1.39	0.08
			0.00			1/2" Ice	2.42	1.55	0.10
			0.00			1" Ice	2.62	1.72	0.12
AHFIG_TMO	A	From Leg	4.00	0.0000	340.00	No Ice	3.08	1.47	0.07
			0.00			1/2" Ice	3.32	1.66	0.09
			0.00			1" Ice	3.56	1.85	0.12
AHFIG_TMO	B	From Leg	4.00	0.0000	340.00	No Ice	3.08	1.47	0.07
			0.00			1/2" Ice	3.32	1.66	0.09
			0.00			1" Ice	3.56	1.85	0.12
AHFIG_TMO	C	From Leg	4.00	0.0000	340.00	No Ice	3.08	1.47	0.07
			0.00			1/2" Ice	3.32	1.66	0.09
			0.00			1" Ice	3.56	1.85	0.12
HCS 2.0 Part 1	A	From Leg	4.00	0.0000	340.00	No Ice	1.87	0.93	0.02
			0.00			1/2" Ice	2.04	1.06	0.04
			0.00			1" Ice	2.21	1.19	0.06
HCS 2.0 Part 1	B	From Leg	4.00	0.0000	340.00	No Ice	1.87	0.93	0.02
			0.00			1/2" Ice	2.04	1.06	0.04
			0.00			1" Ice	2.21	1.19	0.06
2.4" Dia x 6-ft Pipe	A	From Leg	2.00	0.0000	340.00	No Ice	1.43	1.43	0.02
			0.00			1/2" Ice	1.93	1.93	0.03
			0.00			1" Ice	2.30	2.30	0.05
2.4" Dia x 8-ft Mount Pipe	A	From Leg	4.00	0.0000	340.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
2.4" Dia x 8-ft Mount Pipe	B	From Leg	4.00	0.0000	340.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
2.4" Dia x 8-ft Mount Pipe	C	From Leg	4.00	0.0000	340.00	No Ice	1.90	1.90	0.03
			0.00			1/2" Ice	2.73	2.73	0.04
			0.00			1" Ice	3.40	3.40	0.06
Sitepro VFA12-HD Sector Mount (3)	C	None		0.0000	340.00	No Ice	29.70	20.70	1.97
						1/2" Ice	43.88	32.85	2.41
						1" Ice	58.05	43.88	3.04
215									
ISMD8-R5LL	A	From Leg	1.00	0.0000	215.00	No Ice	2.40	1.56	0.35
			0.00			1/2" Ice	2.95	1.93	0.57
			0.00			1" Ice	3.51	2.31	0.79
210									
(2) 9500 MPR	A	From Leg	1.00	0.0000	210.00	No Ice	1.06	0.44	0.01
			0.00			1/2" Ice	1.19	0.53	0.02
			0.00			1" Ice	1.33	0.63	0.03
Pipe Mount [PM 601-1]	A	From Leg	0.50	0.0000	210.00	No Ice	1.32	1.32	0.07
			0.00			1/2" Ice	1.58	1.58	0.08
			0.00			1" Ice	1.84	1.84	0.09

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
110									
MD-S4	C	From Leg	4.00	0.0000	110.00	No Ice	1.25	0.23	0.29
			0.00			1/2" Ice	1.68	0.33	0.33
			0.00			1" Ice	2.12	0.43	0.38
101									
Side Arm Mount [SO 203-1]	C	From Face	0.50	0.0000	101.00	No Ice	1.78	3.79	0.13
			0.00			1/2" Ice	2.24	4.47	0.15
			0.00			1" Ice	2.75	5.21	0.19
**									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
210											
UHX6-59-P3A/L	A	Paraboloid w/Shroud (HP)	From Leg	1.00	-13.0000		210.00	6.46	No Ice	32.76	0.25
				0.00					1/2" Ice	33.61	0.43
				0.00					1" Ice	34.46	0.60
101											
P4-57W-PXA	C	Paraboloid w/Radome	From Face	1.00	90.0000		101.00	4.37	No Ice	14.98	0.17
				0.00					1/2" Ice	15.56	0.25
				-1.00					1" Ice	16.14	0.33
**											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy
10	1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy
11	1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy
12	1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy
13	1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy
14	1.2 Dead+1.0 Ice+1.0 Temp+Guy
15	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy
16	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy
17	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy

Comb. No.	Description
18	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy
19	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy
20	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy
21	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy
22	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy
23	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy
24	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy
25	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy
26	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy
27	Dead+Wind 0 deg - Service+Guy
28	Dead+Wind 30 deg - Service+Guy
29	Dead+Wind 60 deg - Service+Guy
30	Dead+Wind 90 deg - Service+Guy
31	Dead+Wind 120 deg - Service+Guy
32	Dead+Wind 150 deg - Service+Guy
33	Dead+Wind 180 deg - Service+Guy
34	Dead+Wind 210 deg - Service+Guy
35	Dead+Wind 240 deg - Service+Guy
36	Dead+Wind 270 deg - Service+Guy
37	Dead+Wind 300 deg - Service+Guy
38	Dead+Wind 330 deg - Service+Guy

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	380 - 360	3.775	33	0.1573	0.1167
T2	360 - 340	3.213	33	0.1243	0.1251
T3	340 - 320	2.770	33	0.1165	0.1428
T4	320 - 300	2.315	33	0.0996	0.1589
T5	300 - 280	2.030	33	0.0498	0.1766
T6	280 - 260	1.965	33	0.0293	0.2380
T7	260 - 240	2.001	33	0.0464	0.2896
T8	240 - 220	2.144	33	0.0675	0.3314
T9	220 - 200	2.359	33	0.0578	0.3657
T10	200 - 180	2.486	33	0.0359	0.3902
T11	180 - 160	2.527	33	0.0282	0.4057
T12	160 - 140	2.517	33	0.0176	0.4137
T13	140 - 120	2.395	27	0.0445	0.4118
T14	120 - 100	2.228	27	0.0551	0.4013
T15	100 - 80	2.004	27	0.0734	0.3936
T16	80 - 60	1.670	27	0.0874	0.3692
T17	60 - 40	1.300	27	0.0843	0.3382
T18	40 - 20	0.941	27	0.0943	0.3023
T19	20 - 6.5625	0.506	27	0.1131	0.2592
T20	6.5625 - 0	0.171	27	0.1217	0.2382

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
380.00	5/8"x8-ft LRod	33	3.775	0.1573	0.1167	90415
378.00	(2) EPBQ-654L8H8-L2 w/ Mount	33	3.715	0.1534	0.1173	90415

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
	Pipe					
366.69	Guy	33	3.388	0.1330	0.1214	33977
340.00	FFVV-65C-R3-V1_TMO w/ Mount Pipe	33	2.770	0.1165	0.1428	43206
306.69	Guy	33	2.098	0.0669	0.1667	19454
287.00	3" x 6" SideLight	33	1.971	0.0263	0.2146	37691
286.00	Junction Box 12" x 10" x 6"	33	1.970	0.0249	0.2180	40637
246.69	Guy	33	2.084	0.0618	0.3180	42077
215.00	ISMD8-R5LL	33	2.402	0.0510	0.3728	35329
210.00	UHX6-59-P3A/L	33	2.437	0.0442	0.3792	41345
207.00	2' Ice Shield	33	2.455	0.0413	0.3828	44625
204.00	12" x 24" Beacon	33	2.470	0.0387	0.3861	47583
203.00	Beacon Mount	33	2.474	0.0379	0.3872	48696
186.69	Guy	33	2.519	0.0318	0.4013	123280
126.69	Guy	27	2.290	0.0521	0.4057	93558
110.00	MD-S4	27	2.127	0.0631	0.3989	53775
101.00	Side Arm Mount [SO 203-1]	27	2.018	0.0724	0.3943	33814
100.00	P4-57W-PXA	27	2.004	0.0734	0.3936	33520
95.00	3" x 6" SideLight	27	1.930	0.0785	0.3892	39332
94.00	Junction Box 12" x 10" x 6"	27	1.914	0.0794	0.3882	41498
66.69	Guy	27	1.422	0.0855	0.3472	111877

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	380 - 360	21.212	2	0.9910	0.4414
T2	360 - 340	17.613	2	0.8783	0.4677
T3	340 - 320	14.487	2	0.8080	0.5313
T4	320 - 300	11.722	3	0.6787	0.5898
T5	300 - 280	10.034	8	0.4273	0.6472
T6	280 - 260	9.407	8	0.2226	0.8308
T7	260 - 240	9.201	8	0.1233	0.9799
T8	240 - 220	9.435	8	0.2088	1.1003
T9	220 - 200	10.242	2	0.2399	1.2014
T10	200 - 180	11.145	2	0.1893	1.2681
T11	180 - 160	11.799	2	0.1715	1.3086
T12	160 - 140	12.176	2	0.0993	1.3304
T13	140 - 120	11.946	2	0.1945	1.3187
T14	120 - 100	11.211	2	0.2337	1.2807
T15	100 - 80	10.076	2	0.3353	1.2520
T16	80 - 60	8.409	2	0.4333	1.1713
T17	60 - 40	6.531	2	0.4406	1.0700
T18	40 - 20	4.642	2	0.4854	0.9573
T19	20 - 6.5625	2.454	2	0.5575	0.8196
T20	6.5625 - 0	0.823	2	0.5895	0.7488

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
380.00	5/8"x8-ft LRod	2	21.212	0.9910	0.4414	25251
378.00	(2) EPBQ-654L8H8-L2 w/ Mount Pipe	2	20.840	0.9784	0.4430	25251
366.69	Guy	2	18.771	0.9111	0.4553	9489
340.00	FFVV-65C-R3-V1_TMO w/ Mount Pipe	2	14.487	0.8080	0.5313	16857
306.69	Guy	3	10.449	0.5128	0.6165	3937
287.00	3" x 6" SideLight	8	9.561	0.2920	0.7614	5693
286.00	Junction Box 12" x 10" x 6"	8	9.536	0.2823	0.7715	5880
246.69	Guy	8	9.306	0.1518	1.0616	6570
215.00	ISMD8-R5LL	2	10.495	0.2259	1.2214	11810
210.00	UHX6-59-P3A/L	2	10.729	0.2090	1.2390	13106
207.00	2' Ice Shield	2	10.861	0.1989	1.2485	14030
204.00	12" x 24" Beacon	2	10.987	0.1942	1.2574	15096
203.00	Beacon Mount	2	11.027	0.1928	1.2602	15496
186.69	Guy	2	11.602	0.1811	1.2970	24693
126.69	Guy	2	11.500	0.2218	1.2956	13027
110.00	MD-S4	2	10.705	0.2716	1.2683	9768
101.00	Side Arm Mount [SO 203-1]	2	10.146	0.3288	1.2543	7480
100.00	P4-57W-PXA	2	10.076	0.3353	1.2520	7468
95.00	3" x 6" SideLight	2	9.703	0.3669	1.2375	8661
94.00	Junction Box 12" x 10" x 6"	2	9.624	0.3730	1.2341	9070
66.69	Guy	2	7.160	0.4368	1.0991	27945

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	380	Leg	A325N	0.7500	3	2.80	30.10	0.093	1.05	Bolt Tension
		Torque Arm Top@366.694	A325N	0.6250	8	1.10	13.81	0.080	1.05	Bolt Shear
T2	360	Leg	A325N	0.7500	3	2.29	30.10	0.076	1.05	Bolt Tension
T3	340	Leg	A325N	0.7500	3	5.64	30.10	0.187	1.05	Bolt Tension
T4	320	Leg	A325N	0.7500	3	7.91	30.10	0.263	1.05	Bolt Tension
		Torque Arm Top@306.694	A325N	0.6250	8	0.99	13.81	0.071	1.05	Bolt Shear
T5	300	Leg	A325N	0.7500	3	6.55	30.10	0.218	1.05	Bolt Tension
T6	280	Leg	A325N	0.7500	3	6.45	30.10	0.214	1.05	Bolt Tension
T7	260	Leg	A325N	0.7500	3	6.00	30.10	0.199	1.05	Bolt Tension
T8	240	Leg	A325N	0.7500	3	5.44	30.10	0.181	1.05	Bolt Tension
T9	220	Leg	A325N	0.7500	3	5.83	30.10	0.194	1.05	Bolt Tension
T10	200	Leg	A325N	0.7500	3	6.30	30.10	0.209	1.05	Bolt Tension
T11	180	Leg	A325N	0.7500	3	6.87	30.10	0.228	1.05	Bolt Tension
T12	160	Leg	A325N	0.7500	3	6.80	30.10	0.226	1.05	Bolt Tension
T13	140	Leg	A325N	0.7500	3	6.90	30.10	0.229	1.05	Bolt Tension
T14	120	Leg	A325N	0.7500	3	7.22	30.10	0.240	1.05	Bolt Tension
T15	100	Leg	A325N	0.7500	3	6.87	30.10	0.228	1.05	Bolt Tension
T16	80	Leg	A325N	0.7500	3	7.08	30.10	0.235	1.05	Bolt Tension
T17	60	Leg	A325N	0.7500	3	7.40	30.10	0.246	1.05	Bolt Tension
T18	40	Leg	A325N	0.7500	3	7.53	30.10	0.250	1.05	Bolt Tension

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	366.69 (A) (807)	5/8 EHS	4.24	42.40	14.30	26.71	0.952	1.779
	366.69 (A) (808)	5/8 EHS	4.24	42.40	14.26	26.71	0.952	1.783
	366.69 (B) (803)	5/8 EHS	4.24	42.40	13.99	26.71	0.952	1.818
	366.69 (B) (804)	5/8 EHS	4.24	42.40	13.78	26.71	0.952	1.846
	366.69 (C) (799)	5/8 EHS	4.24	42.40	13.85	26.71	0.952	1.836
	366.69 (C) (800)	5/8 EHS	4.24	42.40	14.06	26.71	0.952	1.810
T4	306.69 (A) (819)	5/8 EHS	4.24	42.40	11.97	26.71	0.952	2.126
	306.69 (A) (820)	5/8 EHS	4.24	42.40	11.89	26.71	0.952	2.139
	306.69 (B) (815)	5/8 EHS	4.24	42.40	11.35	26.71	0.952	2.241
	306.69 (B) (816)	5/8 EHS	4.24	42.40	11.07	26.71	0.952	2.299
	306.69 (C) (811)	5/8 EHS	4.24	42.40	11.16	26.71	0.952	2.280
	306.69 (C) (812)	5/8 EHS	4.24	42.40	11.46	26.71	0.952	2.219
T7	246.69 (A) (828)	5/8 EHS	4.24	42.40	12.27	26.71	0.952	2.073
	246.69 (B) (827)	5/8 EHS	4.24	42.40	10.89	26.71	0.952	2.335
	246.69 (C) (823)	5/8 EHS	4.24	42.40	10.97	26.71	0.952	2.320
T10	186.69 (A) (834)	1/2 EHS	2.69	26.90	9.42	16.95	0.952	1.713
	186.69 (B) (833)	1/2 EHS	2.69	26.90	8.14	16.95	0.952	1.983
	186.69 (C) (829)	1/2 EHS	2.69	26.90	8.18	16.95	0.952	1.972
T13	126.69 (A) (840)	7/16 EHS	2.08	20.80	7.30	13.10	0.952	1.710
	126.69 (B) (839)	7/16 EHS	2.08	20.80	6.48	13.10	0.952	1.927
	126.69 (C) (835)	7/16 EHS	2.08	20.80	6.57	13.10	0.952	1.900
T16	66.69 (A) (846)	9/16 EHS	3.50	35.00	8.90	22.05	0.952	2.359
	66.69 (B) (845)	9/16 EHS	3.50	35.00	8.22	22.05	0.952	2.556
	66.69 (C) (841)	9/16 EHS	3.50	35.00	8.37	22.05	0.952	2.508

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	380 - 360	1 3/4	20.00	3.31	90.7 K=1.00	2.4053	-28.79	59.34	0.485 [1]
T2	360 - 340	1 3/4	20.00	3.31	90.7 K=1.00	2.4053	-24.63	59.34	0.415 [1]
T3	340 - 320	2	20.00	3.31	79.3 K=1.00	3.1416	-47.57	89.23	0.533 [1]
T4	320 - 300	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-76.53	124.38	0.615 [1]
T5	300 - 280	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-69.42	124.38	0.558 [1]
T6	280 - 260	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-58.81	124.38	0.473 [1]
T7	260 - 240	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-61.30	124.38	0.493 [1]
T8	240 - 220	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-51.71	124.38	0.416 [1]
T9	220 - 200	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-52.55	124.38	0.422 [1]
T10	200 - 180	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-55.51	124.38	0.446 [1]
T11	180 - 160	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-61.16	124.38	0.492 [1]
T12	160 - 140	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-61.88	124.38	0.497 [1]
T13	140 - 120	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-61.24	124.38	0.492 [1]
T14	120 - 100	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-64.55	124.38	0.519 [1]
T15	100 - 80	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-64.65	124.38	0.520 [1]
T16	80 - 60	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-64.37	124.38	0.518 [1]
T17	60 - 40	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-66.11	124.38	0.532 [1]
T18	40 - 20	2 1/4	20.00	3.31	70.5 K=1.00	3.9761	-67.46	124.38	0.542 [1]
T19	20 - 6.5625	2 1/4	13.44	3.32	70.8 K=1.00	3.9761	-67.34	124.05	0.543 [1]
T20	6.5625 - 0	2 1/4	6.79	2.29	48.9 K=1.00	3.9761	-69.50	150.25	0.463 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	380 - 360	1 1/4	4.46	4.25	114.2 K=0.70	1.2272	-6.57	20.02	0.328 [1]
T2	360 - 340	1 1/4	4.46	4.25	114.2 K=0.70	1.2272	-2.24	20.02	0.112 [1]
T3	340 - 320	1	4.46	4.22	141.7	0.7854	-4.61	8.84	0.522 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	320 - 300	1 1/4	4.46	4.18	K=0.70 112.5 K=0.70	1.2272	-5.46	20.42	0.267 [1]
T5	300 - 280	1	4.46	4.18	140.6 K=0.70	0.7854	-3.13	8.97	0.349 [1]
T6	280 - 260	1	4.46	4.18	140.6 K=0.70	0.7854	-2.10	8.97	0.234 [1]
T7	260 - 240	1	4.46	4.18	140.6 K=0.70	0.7854	-4.10	8.97	0.457 [1]
T8	240 - 220	1	4.46	4.18	140.6 K=0.70	0.7854	-3.77	8.97	0.420 [1]
T9	220 - 200	1	4.46	4.18	140.6 K=0.70	0.7854	-2.40	8.97	0.268 [1]
T10	200 - 180	1	4.46	4.18	140.6 K=0.70	0.7854	-3.42	8.97	0.381 [1]
T11	180 - 160	1	4.46	4.18	140.6 K=0.70	0.7854	-3.06	8.97	0.341 [1]
T12	160 - 140	1	4.46	4.18	140.6 K=0.70	0.7854	-2.02	8.97	0.225 [1]
T13	140 - 120	1	4.46	4.18	140.6 K=0.70	0.7854	-2.96	8.97	0.329 [1]
T14	120 - 100	1	4.46	4.18	140.6 K=0.70	0.7854	-2.11	8.97	0.235 [1]
T15	100 - 80	1	4.46	4.18	140.6 K=0.70	0.7854	-2.66	8.97	0.297 [1]
T16	80 - 60	1	4.46	4.18	140.6 K=0.70	0.7854	-3.51	8.97	0.391 [1]
T17	60 - 40	1	4.46	4.18	140.6 K=0.70	0.7854	-3.30	8.97	0.367 [1]
T18	40 - 20	1	4.46	4.18	140.6 K=0.70	0.7854	-2.12	8.97	0.236 [1]
T19	20 - 6.5625	1 1/4	4.47	4.19	112.7 K=0.70	1.2272	-2.62	20.37	0.129 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	380 - 360	7/8	3.00	2.85	109.6 K=0.70	0.6013	-6.94	10.35	0.670 [1]
T2	360 - 340	7/8	3.00	2.85	109.6 K=0.70	0.6013	-0.59	10.35	0.057 [1]
T3	340 - 320	7/8	3.00	2.83	108.8 K=0.70	0.6013	-1.07	10.45	0.102 [1]
T4	320 - 300	7/8	3.00	2.81	108.0 K=0.70	0.6013	-6.23	10.54	0.591 [1]
T5	300 - 280	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.38	10.54	0.131 [1]
T6	280 - 260	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.14	10.54	0.108 [1]
T7	260 - 240	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.19	10.54	0.112 [1]
T8	240 - 220	7/8	3.00	2.81	108.0	0.6013	-1.04	10.54	0.099 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T9	220 - 200	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.02	10.54	0.096 [1]
T10	200 - 180	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.10	10.54	0.104 [1]
T11	180 - 160	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.20	10.54	0.113 [1]
T12	160 - 140	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.20	10.54	0.114 [1]
T13	140 - 120	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.20	10.54	0.114 [1]
T14	120 - 100	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.26	10.54	0.119 [1]
T15	100 - 80	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.26	10.54	0.120 [1]
T16	80 - 60	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.25	10.54	0.118 [1]
T17	60 - 40	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.29	10.54	0.122 [1]
T18	40 - 20	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.31	10.54	0.124 [1]
T19	20 - 6.5625	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.31	10.54	0.125 [1]
T20	6.5625 - 0	9x3/8	1.99	1.80	K=0.70 199.5 K=1.00	3.3750	-1.23	19.16	0.064 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	380 - 360	7/8	3.00	2.85	109.6	0.6013	-0.79	10.35	0.076 [1]
T2	360 - 340	7/8	3.00	2.85	K=0.70 109.6	0.6013	-0.96	10.35	0.092 [1]
T3	340 - 320	7/8	3.00	2.83	K=0.70 108.8	0.6013	-1.07	10.45	0.102 [1]
T4	320 - 300	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.48	10.54	0.140 [1]
T5	300 - 280	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.38	10.54	0.131 [1]
T6	280 - 260	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.14	10.54	0.108 [1]
T7	260 - 240	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.19	10.54	0.112 [1]
T8	240 - 220	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.04	10.54	0.099 [1]
T9	220 - 200	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.02	10.54	0.096 [1]
T10	200 - 180	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.10	10.54	0.104 [1]
T11	180 - 160	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.20	10.54	0.113 [1]
T12	160 - 140	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.20	10.54	0.114 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T13	140 - 120	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.20	10.54	0.114 [1]
T14	120 - 100	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.26	10.54	0.119 [1]
T15	100 - 80	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.26	10.54	0.120 [1]
T16	80 - 60	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.25	10.54	0.118 [1]
T17	60 - 40	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.29	10.54	0.122 [1]
T18	40 - 20	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.31	10.54	0.124 [1]
T19	20 - 6.5625	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.31	10.54	0.125 [1]
T20	6.5625 - 0	12x3/8	2.96	2.77	K=0.70 307.5	4.5000	-1.23	10.75	0.115 [1]
		KL/R > 200 (C) - 792			K=1.00				

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	380 - 360	7/8	3.00	2.85	109.6	0.6013	-0.67	10.35	0.065 [1]
T2	360 - 340	7/8	3.00	2.85	K=0.70 109.6	0.6013	-0.59	10.35	0.057 [1]
T3	340 - 320	7/8	3.00	2.83	K=0.70 108.8	0.6013	-1.07	10.45	0.102 [1]
T4	320 - 300	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.48	10.54	0.140 [1]
T5	300 - 280	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.38	10.54	0.131 [1]
T6	280 - 260	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.14	10.54	0.108 [1]
T7	260 - 240	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.19	10.54	0.112 [1]
T8	240 - 220	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.04	10.54	0.099 [1]
T9	220 - 200	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.02	10.54	0.096 [1]
T10	200 - 180	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.10	10.54	0.104 [1]
T11	180 - 160	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.20	10.54	0.113 [1]
T12	160 - 140	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.20	10.54	0.114 [1]
T13	140 - 120	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.20	10.54	0.114 [1]
T14	120 - 100	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.26	10.54	0.119 [1]
T15	100 - 80	7/8	3.00	2.81	K=0.70 108.0	0.6013	-1.26	10.54	0.120 [1]
					K=0.70				

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T16	80 - 60	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.25	10.54	0.118 [1]
T17	60 - 40	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.29	10.54	0.122 [1]
T18	40 - 20	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.31	10.54	0.124 [1]
T19	20 - 6.5625	7/8	3.00	2.81	108.0 K=0.70	0.6013	-1.31	10.54	0.125 [1]

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	380 - 360 (801)	C12x20.7	3.46	3.39	50.9 K=1.00	6.0900	-2.21	172.19	0.013
T1	380 - 360 (802)	C12x20.7	3.46	3.39	50.9 K=1.00	6.0900	-2.59	172.19	0.015
T1	380 - 360 (805)	C12x20.7	3.46	3.39	50.9 K=1.00	6.0900	-2.46	172.19	0.014
T1	380 - 360 (806)	C12x20.7	3.46	3.39	50.9 K=1.00	6.0900	-2.46	172.19	0.014
T1	380 - 360 (809)	C12x20.7	3.46	3.39	50.9 K=1.00	6.0900	-2.20	172.19	0.013
T1	380 - 360 (810)	C12x20.7	3.46	3.39	50.9 K=1.00	6.0900	-2.61	172.19	0.015
T4	320 - 300 (813)	C12x20.7	3.46	3.37	50.6 K=1.00	6.0900	-1.31	172.48	0.008
T4	320 - 300 (814)	C12x20.7	3.46	3.37	50.6 K=1.00	6.0900	-1.92	172.48	0.011
T4	320 - 300 (817)	C12x20.7	3.46	3.37	50.6 K=1.00	6.0900	-1.63	172.48	0.009
T4	320 - 300 (818)	C12x20.7	3.46	3.37	50.6 K=1.00	6.0900	-1.57	172.48	0.009
T4	320 - 300 (821)	C12x20.7	3.46	3.37	50.6 K=1.00	6.0900	-1.30	172.48	0.008
T4	320 - 300 (822)	C12x20.7	3.46	3.37	50.6 K=1.00	6.0900	-2.02	172.48	0.012

Torque-Arm Top 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 $\frac{M_{uy}}{\phi M_{ny}}$
T1	380 - 360 (801)	C12x20.7	-38.15	68.40	0.558	0.00	7.01	0.000
T1	380 - 360 (802)	C12x20.7	-38.66	68.40	0.565	-0.00	7.01	0.000
T1	380 - 360 (805)	C12x20.7	-38.23	68.40	0.559	0.00	7.01	0.000
T1	380 - 360 (806)	C12x20.7	-37.77	68.40	0.552	-0.00	7.01	0.000
T1	380 - 360 (809)	C12x20.7	-37.87	68.40	0.554	-0.00	7.01	0.000
T1	380 - 360 (810)	C12x20.7	-38.57	68.40	0.564	0.00	7.01	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 $\frac{M_{uy}}{\phi M_{ny}}$
T4	320 - 300 (813)	C12x20.7	-28.48	68.47	0.416	0.00	7.01	0.000
T4	320 - 300 (814)	C12x20.7	-29.59	68.47	0.432	-0.00	7.01	0.000
T4	320 - 300 (817)	C12x20.7	-28.61	68.47	0.418	0.00	7.01	0.000
T4	320 - 300 (818)	C12x20.7	-28.03	68.47	0.409	-0.00	7.01	0.000
T4	320 - 300 (821)	C12x20.7	-28.15	68.47	0.411	-0.00	7.01	0.000
T4	320 - 300 (822)	C12x20.7	-29.48	68.47	0.431	-0.00	7.01	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	380 - 360 (801)	C12x20.7	0.013	0.558	0.000	0.564	1.050	4.8.1
T1	380 - 360 (802)	C12x20.7	0.015	0.565	0.000	0.573	1.050	4.8.1
T1	380 - 360 (805)	C12x20.7	0.014	0.559	0.000	0.566	1.050	4.8.1
T1	380 - 360 (806)	C12x20.7	0.014	0.552	0.000	0.559	1.050	4.8.1
T1	380 - 360 (809)	C12x20.7	0.013	0.554	0.000	0.560	1.050	4.8.1
T1	380 - 360 (810)	C12x20.7	0.015	0.564	0.000	0.571	1.050	4.8.1
T4	320 - 300 (813)	C12x20.7	0.008	0.416	0.000	0.420	1.050	4.8.1
T4	320 - 300 (814)	C12x20.7	0.011	0.432	0.000	0.438	1.050	4.8.1
T4	320 - 300 (817)	C12x20.7	0.009	0.418	0.000	0.423	1.050	4.8.1
T4	320 - 300 (818)	C12x20.7	0.009	0.409	0.000	0.414	1.050	4.8.1
T4	320 - 300 (821)	C12x20.7	0.008	0.411	0.000	0.415	1.050	4.8.1
T4	320 - 300 (822)	C12x20.7	0.012	0.431	0.000	0.436	1.050	4.8.1

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	380 - 360	1 3/4	20.00	3.31	90.7	2.4053	20.96	108.24	0.194 [1]
T3	340 - 320	2	20.00	0.08	2.0	3.1416	6.09	141.37	0.043 [1]
T4	320 - 300	2 1/4	20.00	3.31	70.5	3.9761	26.22	178.92	0.147 [1]
T5	300 - 280	2 1/4	20.00	0.08	1.8	3.9761	3.60	178.92	0.020 [1]

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	380 - 360	1 1/4	4.46	4.25	163.1	1.2272	6.55	39.76	0.165 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	360 - 340	1 1/4	4.46	4.25	163.1	1.2272	2.08	39.76	0.052 [1]
T3	340 - 320	1	4.46	4.22	202.4	0.7854	4.28	25.45	0.168 [1]
T4	320 - 300	1 1/4	4.46	4.18	160.7	1.2272	5.02	39.76	0.126 [1]
T5	300 - 280	1	4.46	4.18	200.9	0.7854	2.29	25.45	0.090 [1]
T6	280 - 260	1	4.46	4.18	200.9	0.7854	1.29	25.45	0.051 [1]
T7	260 - 240	1	4.46	4.18	200.9	0.7854	3.35	25.45	0.132 [1]
T8	240 - 220	1	4.46	4.18	200.9	0.7854	3.09	25.45	0.122 [1]
T9	220 - 200	1	4.46	4.18	200.9	0.7854	1.63	25.45	0.064 [1]
T10	200 - 180	1	4.46	4.18	200.9	0.7854	2.57	25.45	0.101 [1]
T11	180 - 160	1	4.46	4.18	200.9	0.7854	2.21	25.45	0.087 [1]
T12	160 - 140	1	4.46	4.18	200.9	0.7854	1.13	25.45	0.044 [1]
T13	140 - 120	1	4.46	4.18	200.9	0.7854	1.97	25.45	0.077 [1]
T14	120 - 100	1	4.46	4.18	200.9	0.7854	1.25	25.45	0.049 [1]
T15	100 - 80	1	4.46	4.18	200.9	0.7854	1.93	25.45	0.076 [1]
T16	80 - 60	1	4.46	4.18	200.9	0.7854	2.65	25.45	0.104 [1]
T17	60 - 40	1	4.46	4.18	200.9	0.7854	2.37	25.45	0.093 [1]
T18	40 - 20	1	4.46	4.18	200.9	0.7854	1.18	25.45	0.046 [1]
T19	20 - 6.5625	1 1/4	4.47	4.19	161.0	1.2272	1.84	39.76	0.046 [1]

[1] P_u / ϕP_n controls

Horizontal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	380 - 360	7/8	3.00	2.85	156.6	0.6013	7.56	19.48	0.388 [1]
T2	360 - 340	7/8	3.00	2.85	156.6	0.6013	0.59	19.48	0.030 [1]
T3	340 - 320	7/8	3.00	2.83	155.4	0.6013	1.07	19.48	0.055 [1]
T4	320 - 300	7/8	3.00	2.81	154.3	0.6013	7.03	19.48	0.361 [1]
T5	300 - 280	7/8	3.00	2.81	154.3	0.6013	1.38	19.48	0.071 [1]
T6	280 - 260	7/8	3.00	2.81	154.3	0.6013	1.14	19.48	0.059 [1]
T7	260 - 240	7/8	3.00	2.81	154.3	0.6013	1.94	19.48	0.100 [1]
T8	240 - 220	7/8	3.00	2.81	154.3	0.6013	1.04	19.48	0.054 [1]
T9	220 - 200	7/8	3.00	2.81	154.3	0.6013	1.05	19.48	0.054 [1]
T10	200 - 180	7/8	3.00	2.81	154.3	0.6013	1.68	19.48	0.086 [1]
T11	180 - 160	7/8	3.00	2.81	154.3	0.6013	1.20	19.48	0.061 [1]
T12	160 - 140	7/8	3.00	2.81	154.3	0.6013	1.20	19.48	0.061 [1]
T13	140 - 120	7/8	3.00	2.81	154.3	0.6013	1.43	19.48	0.074 [1]
T14	120 - 100	7/8	3.00	2.81	154.3	0.6013	1.26	19.48	0.065 [1]
T15	100 - 80	7/8	3.00	2.81	154.3	0.6013	1.26	19.48	0.065 [1]
T16	80 - 60	7/8	3.00	2.81	154.3	0.6013	1.83	19.48	0.094 [1]
T17	60 - 40	7/8	3.00	2.81	154.3	0.6013	1.29	19.48	0.066 [1]
T18	40 - 20	7/8	3.00	2.81	154.3	0.6013	1.31	19.48	0.067 [1]
T19	20 - 6.5625	7/8	3.00	2.81	154.3	0.6013	1.31	19.48	0.067 [1]
T20	6.5625 - 0	9x3/8	1.01	0.83	91.5	3.3750	1.23	109.35	0.011 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	380 - 360	7/8	3.00	2.85	156.6	0.6013	0.78	19.48	0.040 [1]
T2	360 - 340	7/8	3.00	2.85	156.6	0.6013	0.59	19.48	0.030 [1]
T3	340 - 320	7/8	3.00	2.83	155.4	0.6013	1.07	19.48	0.055 [1]
T4	320 - 300	7/8	3.00	2.81	154.3	0.6013	1.48	19.48	0.076 [1]
T5	300 - 280	7/8	3.00	2.81	154.3	0.6013	1.38	19.48	0.071 [1]
T6	280 - 260	7/8	3.00	2.81	154.3	0.6013	1.14	19.48	0.059 [1]
T7	260 - 240	7/8	3.00	2.81	154.3	0.6013	1.19	19.48	0.061 [1]
T8	240 - 220	7/8	3.00	2.81	154.3	0.6013	1.04	19.48	0.054 [1]
T9	220 - 200	7/8	3.00	2.81	154.3	0.6013	1.02	19.48	0.052 [1]
T10	200 - 180	7/8	3.00	2.81	154.3	0.6013	1.10	19.48	0.056 [1]
T11	180 - 160	7/8	3.00	2.81	154.3	0.6013	1.20	19.48	0.061 [1]
T12	160 - 140	7/8	3.00	2.81	154.3	0.6013	1.20	19.48	0.061 [1]
T13	140 - 120	7/8	3.00	2.81	154.3	0.6013	1.20	19.48	0.062 [1]
T14	120 - 100	7/8	3.00	2.81	154.3	0.6013	1.26	19.48	0.065 [1]
T15	100 - 80	7/8	3.00	2.81	154.3	0.6013	1.26	19.48	0.065 [1]
T16	80 - 60	7/8	3.00	2.81	154.3	0.6013	1.25	19.48	0.064 [1]
T17	60 - 40	7/8	3.00	2.81	154.3	0.6013	1.29	19.48	0.066 [1]
T18	40 - 20	7/8	3.00	2.81	154.3	0.6013	1.31	19.48	0.067 [1]
T19	20 - 6.5625	7/8	3.00	2.81	154.3	0.6013	1.31	19.48	0.067 [1]
T20	6.5625 - 0	12x3/8	2.96	2.77	307.5	4.5000	9.03	145.80	0.062 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	380 - 360	7/8	3.00	2.85	156.6	0.6013	1.22	19.48	0.063 [1]
T2	360 - 340	7/8	3.00	2.85	156.6	0.6013	0.59	19.48	0.030 [1]
T3	340 - 320	7/8	3.00	2.83	155.4	0.6013	1.07	19.48	0.055 [1]
T4	320 - 300	7/8	3.00	2.81	154.3	0.6013	1.48	19.48	0.076 [1]
T5	300 - 280	7/8	3.00	2.81	154.3	0.6013	1.38	19.48	0.071 [1]
T6	280 - 260	7/8	3.00	2.81	154.3	0.6013	1.14	19.48	0.059 [1]
T7	260 - 240	7/8	3.00	2.81	154.3	0.6013	1.19	19.48	0.061 [1]
T8	240 - 220	7/8	3.00	2.81	154.3	0.6013	1.04	19.48	0.054 [1]
T9	220 - 200	7/8	3.00	2.81	154.3	0.6013	1.02	19.48	0.052 [1]
T10	200 - 180	7/8	3.00	2.81	154.3	0.6013	1.10	19.48	0.056 [1]
T11	180 - 160	7/8	3.00	2.81	154.3	0.6013	1.20	19.48	0.061 [1]
T12	160 - 140	7/8	3.00	2.81	154.3	0.6013	1.20	19.48	0.061 [1]
T13	140 - 120	7/8	3.00	2.81	154.3	0.6013	1.20	19.48	0.062 [1]
T14	120 - 100	7/8	3.00	2.81	154.3	0.6013	1.26	19.48	0.065 [1]
T15	100 - 80	7/8	3.00	2.81	154.3	0.6013	1.26	19.48	0.065 [1]
T16	80 - 60	7/8	3.00	2.81	154.3	0.6013	1.25	19.48	0.064 [1]
T17	60 - 40	7/8	3.00	2.81	154.3	0.6013	1.29	19.48	0.066 [1]
T18	40 - 20	7/8	3.00	2.81	154.3	0.6013	1.31	19.48	0.067 [1]
T19	20 - 6.5625	7/8	3.00	2.81	154.3	0.6013	1.44	19.48	0.074 [1]

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T7	260 - 240	3x3/8	3.00	2.81	311.8	1.1250	3.63	36.45	0.100 [1]
T10	200 - 180	3x3/8	3.00	2.81	311.8	1.1250	3.15	36.45	0.086 [1]
T13	140 - 120	3x3/8	3.00	2.81	311.8	1.1250	2.68	36.45	0.074 [1]
T16	80 - 60	3x3/8	3.00	2.81	311.8	1.1250	3.42	36.45	0.094 [1]

[1] P_u / ϕP_n controls

Top Guy Pull-Off 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 $\frac{M_{uy}}{\phi M_{ny}}$
T7	260 - 240	3x3/8	0.00	2.28	0.000	0.00	0.28	0.000
T10	200 - 180	3x3/8	0.00	2.28	0.000	0.00	0.28	0.000
T13	140 - 120	3x3/8	0.00	2.28	0.000	0.00	0.28	0.000
T16	80 - 60	3x3/8	0.00	2.28	0.000	0.00	0.28	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T7	260 - 240	3x3/8	0.100	0.000	0.000	0.100 [1]	1.050	4.8.1
T10	200 - 180	3x3/8	0.086	0.000	0.000	0.086 [1]	1.050	4.8.1
T13	140 - 120	3x3/8	0.074	0.000	0.000	0.074 [1]	1.050	4.8.1
T16	80 - 60	3x3/8	0.094	0.000	0.000	0.094 [1]	1.050	4.8.1

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	380 - 360 (801)	C12x20.7	3.46	3.39	50.9	4.4089	0.12	191.79	0.001
T1	380 - 360 (802)	C12x20.7	3.46	3.39	50.9	4.4089	0.71	191.79	0.004
T1	380 - 360 (805)	C12x20.7	3.46	3.39	50.9	4.4089	3.29	191.79	0.017
T1	380 - 360 (806)	C12x20.7	3.46	3.39	50.9	4.4089	3.30	191.79	0.017
T1	380 - 360 (809)	C12x20.7	3.46	3.39	50.9	4.4089	0.14	191.79	0.001
T1	380 - 360 (810)	C12x20.7	3.46	3.39	50.9	4.4089	3.04	191.79	0.016
T4	320 - 300 (813)	C12x20.7	3.46	3.37	50.6	4.4089	0.66	191.79	0.003
T4	320 - 300 (814)	C12x20.7	3.46	3.37	50.6	4.4089	0.13	191.79	0.001
T4	320 - 300 (817)	C12x20.7	3.46	3.37	50.6	4.4089	0.11	191.79	0.001
T4	320 - 300 (818)	C12x20.7	3.46	3.37	50.6	4.4089	0.17	191.79	0.001
T4	320 - 300 (821)	C12x20.7	3.46	3.37	50.6	4.4089	0.61	191.79	0.003
T4	320 - 300 (822)	C12x20.7	3.46	3.37	50.6	4.4089	0.03	191.79	0.000

Torque-Arm Top 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 $\frac{M_{uy}}{\phi M_{ny}}$
T1	380 - 360 (801)	C12x20.7	-35.69	68.40	0.522	-0.00	7.01	0.000
T1	380 - 360 (802)	C12x20.7	-29.45	68.40	0.431	0.00	7.01	0.000
T1	380 - 360 (805)	C12x20.7	-30.65	68.40	0.448	-0.00	7.01	0.000
T1	380 - 360 (806)	C12x20.7	-30.18	68.40	0.441	-0.00	7.01	0.000
T1	380 - 360 (809)	C12x20.7	-35.48	68.40	0.519	0.00	7.01	0.000
T1	380 - 360 (810)	C12x20.7	-29.04	68.40	0.425	0.00	7.01	0.000
T4	320 - 300 (813)	C12x20.7	-26.22	68.47	0.383	-0.00	7.01	0.000
T4	320 - 300 (814)	C12x20.7	-27.16	68.47	0.397	-0.00	7.01	0.000
T4	320 - 300 (817)	C12x20.7	-27.96	68.47	0.408	-0.00	7.01	0.000
T4	320 - 300 (818)	C12x20.7	-27.29	68.47	0.399	0.00	7.01	0.000
T4	320 - 300 (821)	C12x20.7	-26.03	68.47	0.380	0.00	7.01	0.000
T4	320 - 300 (822)	C12x20.7	-27.17	68.47	0.397	0.00	7.01	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	380 - 360 (801)	C12x20.7	0.001	0.522	0.000	0.522	1.050	4.8.1
T1	380 - 360 (802)	C12x20.7	0.004	0.431	0.000	0.432	1.050	4.8.1
T1	380 - 360 (805)	C12x20.7	0.017	0.448	0.000	0.457	1.050	4.8.1
T1	380 - 360 (806)	C12x20.7	0.017	0.441	0.000	0.450	1.050	4.8.1
T1	380 - 360 (809)	C12x20.7	0.001	0.519	0.000	0.519	1.050	4.8.1
T1	380 - 360 (810)	C12x20.7	0.016	0.425	0.000	0.432	1.050	4.8.1
T4	320 - 300 (813)	C12x20.7	0.003	0.383	0.000	0.385	1.050	4.8.1
T4	320 - 300 (814)	C12x20.7	0.001	0.397	0.000	0.397	1.050	4.8.1
T4	320 - 300 (817)	C12x20.7	0.001	0.408	0.000	0.409	1.050	4.8.1
T4	320 - 300 (818)	C12x20.7	0.001	0.399	0.000	0.399	1.050	4.8.1
T4	320 - 300 (821)	C12x20.7	0.003	0.380	0.000	0.382	1.050	4.8.1
T4	320 - 300 (822)	C12x20.7	0.000	0.397	0.000	0.397	1.050	4.8.1

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	380 - 360	Leg	1 3/4	3	-28.79	62.31	46.2	Pass
T2	360 - 340	Leg	1 3/4	44	-24.63	62.31	39.5	Pass
T3	340 - 320	Leg	2	87	-47.57	93.69	50.8	Pass
T4	320 - 300	Leg	2 1/4	129	-76.53	130.60	58.6	Pass
T5	300 - 280	Leg	2 1/4	171	-69.42	130.60	53.2	Pass
T6	280 - 260	Leg	2 1/4	212	-58.81	130.60	45.0	Pass
T7	260 - 240	Leg	2 1/4	254	-61.30	130.60	46.9	Pass
T8	240 - 220	Leg	2 1/4	296	-51.71	130.60	39.6	Pass
T9	220 - 200	Leg	2 1/4	339	-52.55	130.60	40.2	Pass
T10	200 - 180	Leg	2 1/4	381	-55.51	130.60	42.5	Pass
T11	180 - 160	Leg	2 1/4	423	-61.16	130.60	46.8	Pass
T12	160 - 140	Leg	2 1/4	465	-61.88	130.60	47.4	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
T13	140 - 120	Leg	2 1/4	506	-61.24	130.60	46.9	Pass
T14	120 - 100	Leg	2 1/4	547	-64.55	130.60	49.4	Pass
T15	100 - 80	Leg	2 1/4	589	-64.65	130.60	49.5	Pass
T16	80 - 60	Leg	2 1/4	631	-64.37	130.60	49.3	Pass
T17	60 - 40	Leg	2 1/4	673	-66.11	130.60	50.6	Pass
T18	40 - 20	Leg	2 1/4	715	-67.46	130.60	51.7	Pass
T19	20 - 6.5625	Leg	2 1/4	758	-67.34	130.25	51.7	Pass
T20	6.5625 - 0	Leg	2 1/4	787	-69.50	157.76	44.1	Pass
T1	380 - 360	Diagonal	1 1/4	36	-6.57	21.02	31.3	Pass
T2	360 - 340	Diagonal	1 1/4	83	-2.24	21.02	10.6	Pass
T3	340 - 320	Diagonal	1	96	-4.61	9.28	49.7	Pass
T4	320 - 300	Diagonal	1 1/4	156	-5.46	21.45	25.5	Pass
T5	300 - 280	Diagonal	1	208	-3.13	9.42	33.2	Pass
T6	280 - 260	Diagonal	1	250	-2.10	9.42	22.3	Pass
T7	260 - 240	Diagonal	1	263	-4.10	9.42	43.5	Pass
T8	240 - 220	Diagonal	1	336	-3.77	9.42	40.0	Pass
T9	220 - 200	Diagonal	1	348	-2.40	9.42	25.5	Pass
T10	200 - 180	Diagonal	1	394	-3.42	9.42	36.3	Pass
T11	180 - 160	Diagonal	1	460	-3.06	9.42	32.5	Pass
T12	160 - 140	Diagonal	1	473	-2.02	9.42	21.5	Pass
T13	140 - 120	Diagonal	1	527	-2.96	9.42	31.4	Pass
T14	120 - 100	Diagonal	1	586	-2.11	9.42	22.4	Pass
T15	100 - 80	Diagonal	1	598	-2.66	9.42	28.2	Pass
T16	80 - 60	Diagonal	1	642	-3.51	9.42	37.2	Pass
T17	60 - 40	Diagonal	1	714	-3.30	9.42	35.0	Pass
T18	40 - 20	Diagonal	1	756	-2.12	9.42	22.5	Pass
T19	20 - 6.5625	Diagonal	1 1/4	766	-2.62	21.39	12.3	Pass
T1	380 - 360	Horizontal	7/8	19	-6.94	10.87	63.9	Pass
T2	360 - 340	Horizontal	7/8	69	-0.59	10.87	5.4	Pass
T3	340 - 320	Horizontal	7/8	98	-1.07	10.97	9.7	Pass
T4	320 - 300	Horizontal	7/8	145	-6.23	11.07	56.2	Pass
T5	300 - 280	Horizontal	7/8	188	-1.38	11.07	12.4	Pass
T6	280 - 260	Horizontal	7/8	229	-1.14	11.07	10.3	Pass
T7	260 - 240	Horizontal	7/8	265	-1.19	11.07	10.7	Pass
T8	240 - 220	Horizontal	7/8	309	-1.04	11.07	9.4	Pass
T9	220 - 200	Horizontal	7/8	356	-1.02	11.07	9.2	Pass
T10	200 - 180	Horizontal	7/8	392	-1.10	11.07	9.9	Pass
T11	180 - 160	Horizontal	7/8	434	-1.20	11.07	10.8	Pass
T12	160 - 140	Horizontal	7/8	476	-1.20	11.07	10.8	Pass
T13	140 - 120	Horizontal	7/8	518	-1.20	11.07	10.9	Pass
T14	120 - 100	Horizontal	7/8	561	-1.26	11.07	11.4	Pass
T15	100 - 80	Horizontal	7/8	609	-1.26	11.07	11.4	Pass
T16	80 - 60	Horizontal	7/8	645	-1.25	11.07	11.2	Pass
T17	60 - 40	Horizontal	7/8	699	-1.29	11.07	11.6	Pass
T18	40 - 20	Horizontal	7/8	729	-1.31	11.07	11.8	Pass
T19	20 - 6.5625	Horizontal	7/8	777	-1.31	11.07	11.9	Pass
T20	6.5625 - 0	Horizontal	9x3/8	798	-1.23	20.11	6.1	Pass
T1	380 - 360	Top Girt	7/8	6	-0.79	10.87	7.2	Pass
T2	360 - 340	Top Girt	7/8	46	-0.96	10.87	8.8	Pass
T3	340 - 320	Top Girt	7/8	89	-1.07	10.97	9.7	Pass
T4	320 - 300	Top Girt	7/8	131	-1.48	11.07	13.4	Pass
T5	300 - 280	Top Girt	7/8	173	-1.38	11.07	12.4	Pass
T6	280 - 260	Top Girt	7/8	214	-1.14	11.07	10.3	Pass
T7	260 - 240	Top Girt	7/8	256	-1.19	11.07	10.7	Pass
T8	240 - 220	Top Girt	7/8	300	-1.04	11.07	9.4	Pass
T9	220 - 200	Top Girt	7/8	341	-1.02	11.07	9.2	Pass
T10	200 - 180	Top Girt	7/8	383	-1.10	11.07	9.9	Pass
T11	180 - 160	Top Girt	7/8	425	-1.20	11.07	10.8	Pass
T12	160 - 140	Top Girt	7/8	467	-1.20	11.07	10.8	Pass
T13	140 - 120	Top Girt	7/8	509	-1.20	11.07	10.9	Pass
T14	120 - 100	Top Girt	7/8	552	-1.26	11.07	11.4	Pass

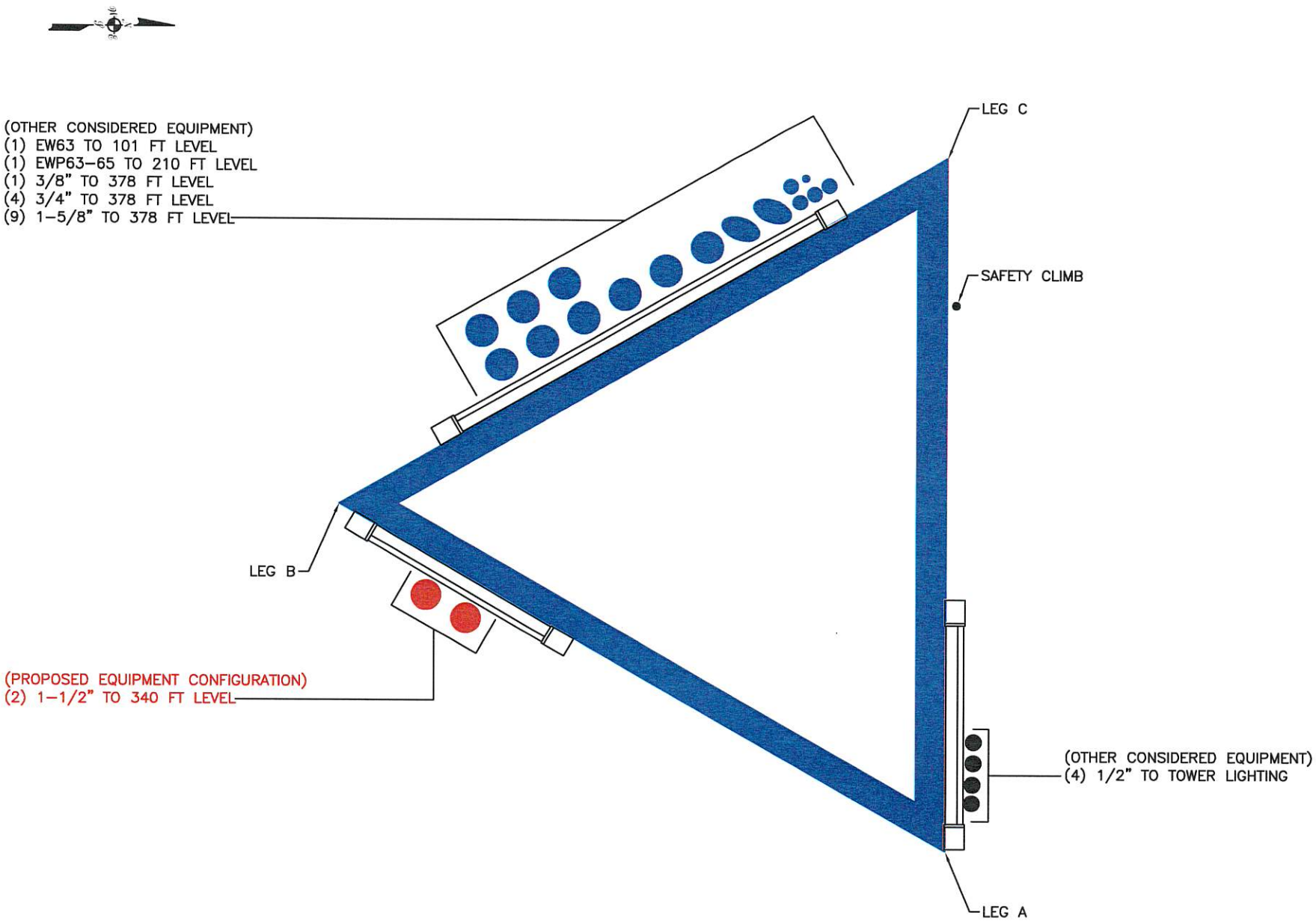
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
T15	100 - 80	Top Girt	7/8	594	-1.26	11.07	11.4	Pass
T16	80 - 60	Top Girt	7/8	636	-1.25	11.07	11.2	Pass
T17	60 - 40	Top Girt	7/8	678	-1.29	11.07	11.6	Pass
T18	40 - 20	Top Girt	7/8	720	-1.31	11.07	11.8	Pass
T19	20 - 6.5625	Top Girt	7/8	762	-1.31	11.07	11.9	Pass
T20	6.5625 - 0	Top Girt	12x3/8	792	-1.23	11.29	10.9	Pass
T1	380 - 360	Bottom Girt	7/8	8	-0.67	10.87	6.2	Pass
T2	360 - 340	Bottom Girt	7/8	51	-0.59	10.87	5.4	Pass
T3	340 - 320	Bottom Girt	7/8	92	-1.07	10.97	9.7	Pass
T4	320 - 300	Bottom Girt	7/8	134	-1.48	11.07	13.4	Pass
T5	300 - 280	Bottom Girt	7/8	176	-1.38	11.07	12.4	Pass
T6	280 - 260	Bottom Girt	7/8	217	-1.14	11.07	10.3	Pass
T7	260 - 240	Bottom Girt	7/8	259	-1.19	11.07	10.7	Pass
T8	240 - 220	Bottom Girt	7/8	303	-1.04	11.07	9.4	Pass
T9	220 - 200	Bottom Girt	7/8	344	-1.02	11.07	9.2	Pass
T10	200 - 180	Bottom Girt	7/8	386	-1.10	11.07	9.9	Pass
T11	180 - 160	Bottom Girt	7/8	428	-1.20	11.07	10.8	Pass
T12	160 - 140	Bottom Girt	7/8	470	-1.20	11.07	10.8	Pass
T13	140 - 120	Bottom Girt	7/8	512	-1.20	11.07	10.9	Pass
T14	120 - 100	Bottom Girt	7/8	555	-1.26	11.07	11.4	Pass
T15	100 - 80	Bottom Girt	7/8	597	-1.26	11.07	11.4	Pass
T16	80 - 60	Bottom Girt	7/8	639	-1.25	11.07	11.2	Pass
T17	60 - 40	Bottom Girt	7/8	681	-1.29	11.07	11.6	Pass
T18	40 - 20	Bottom Girt	7/8	723	-1.31	11.07	11.8	Pass
T19	20 - 6.5625	Bottom Girt	7/8	765	-1.31	11.07	11.9	Pass
T1	380 - 360	Guy A@366.694	5/8	807	14.30	26.71	53.5	Pass
T4	320 - 300	Guy A@306.694	5/8	819	11.97	26.71	44.8	Pass
T7	260 - 240	Guy A@246.694	5/8	828	12.27	26.71	45.9	Pass
T10	200 - 180	Guy A@186.694	1/2	834	9.42	16.95	55.6	Pass
T13	140 - 120	Guy A@126.694	7/16	840	7.30	13.10	55.7	Pass
T16	80 - 60	Guy A@66.6944	9/16	846	8.90	22.05	40.4	Pass
T1	380 - 360	Guy B@366.694	5/8	803	13.99	26.71	52.4	Pass
T4	320 - 300	Guy B@306.694	5/8	815	11.35	26.71	42.5	Pass
T7	260 - 240	Guy B@246.694	5/8	827	10.89	26.71	40.8	Pass
T10	200 - 180	Guy B@186.694	1/2	833	8.14	16.95	48.0	Pass
T13	140 - 120	Guy B@126.694	7/16	839	6.48	13.10	49.4	Pass
T16	80 - 60	Guy B@66.6944	9/16	845	8.22	22.05	37.3	Pass
T1	380 - 360	Guy C@366.694	5/8	800	14.06	26.71	52.6	Pass
T4	320 - 300	Guy C@306.694	5/8	812	11.46	26.71	42.9	Pass
T7	260 - 240	Guy C@246.694	5/8	823	10.97	26.71	41.1	Pass
T10	200 - 180	Guy C@186.694	1/2	829	8.18	16.95	48.3	Pass
T13	140 - 120	Guy C@126.694	7/16	835	6.57	13.10	50.1	Pass
T16	80 - 60	Guy C@66.6944	9/16	841	8.37	22.05	38.0	Pass
T7	260 - 240	Top Guy Pull-Off@246.694	3x3/8	825	3.63	38.27	9.5	Pass
T10	200 - 180	Top Guy Pull-Off@186.694	3x3/8	831	3.15	38.27	8.2	Pass
T13	140 - 120	Top Guy Pull-Off@126.694	3x3/8	837	2.68	38.27	7.0	Pass
T16	80 - 60	Top Guy Pull-Off@66.6944	3x3/8	843	3.42	38.27	8.9	Pass
T1	380 - 360	Torque Arm Top@366.694	C12x20.7	802	-2.59	180.80	54.5	Pass
T4	320 - 300	Torque Arm Top@306.694	C12x20.7	814	-1.92	181.10	41.7	Pass

	Summary	
Leg (T4)	58.6	Pass
Diagonal (T3)	49.7	Pass
Horizontal (T1)	63.9	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$øP_{allow}$ K	% Capacity	Pass Fail
						Top Girt (T4)	13.4	Pass
						Bottom Girt (T4)	13.4	Pass
						Guy A (T13)	55.7	Pass
						Guy B (T1)	52.4	Pass
						Guy C (T1)	52.6	Pass
						Top Guy Pull-Off (T7)	9.5	Pass
						Torque Arm Top (T1)	54.5	Pass
						Bolt Checks	25.0	Pass
						RATING =	**63.9**	**Pass**

APPENDIX B

BASE LEVEL DRAWING


(OTHER CONSIDERED EQUIPMENT)
(1) EW63 TO 101 FT LEVEL
(1) EWP63-65 TO 210 FT LEVEL
(1) 3/8" TO 378 FT LEVEL
(4) 3/4" TO 378 FT LEVEL
(9) 1-5/8" TO 378 FT LEVEL
LEG C
SAFETY CLIMB
LEG B
(PROPOSED EQUIPMENT CONFIGURATION)
(2) 1-1/2" TO 340 FT LEVEL
(OTHER CONSIDERED EQUIPMENT)
(4) 1/2" TO TOWER LIGHTING
LEG A

APPENDIX C

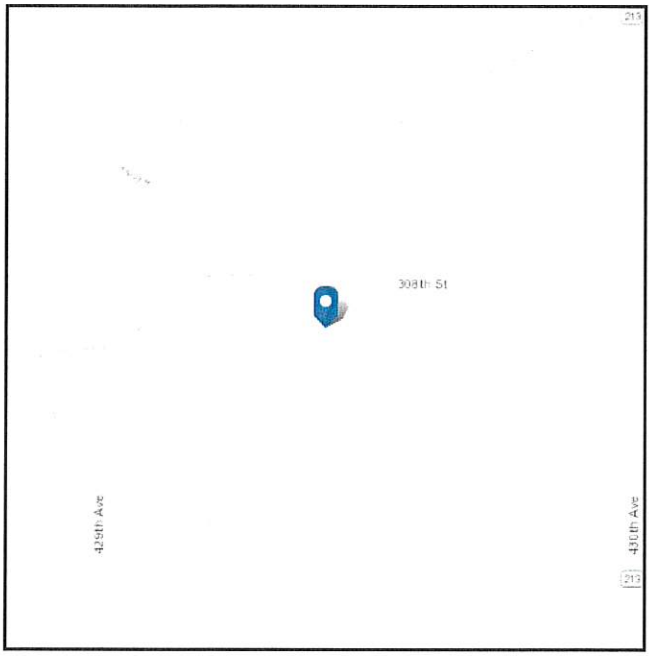
ADDITIONAL CALCULATIONS

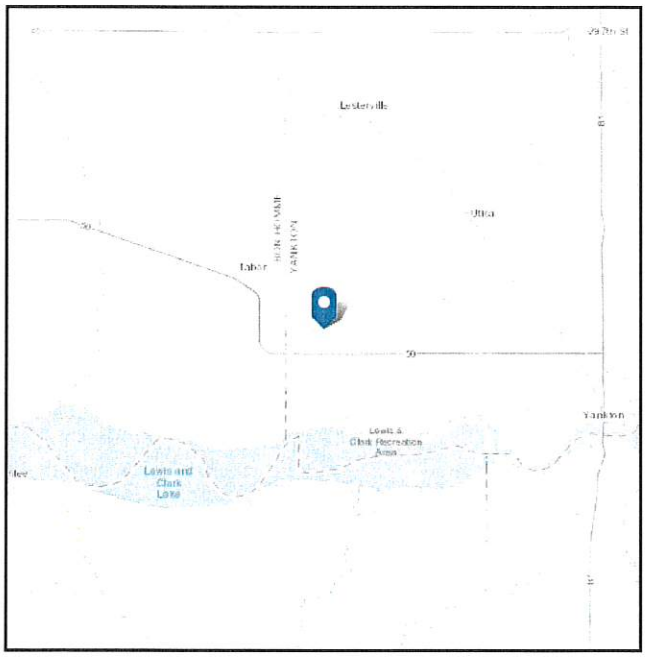
ASCE 7 Hazards Report

Address:
No Address at This Location

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

Elevation: 1494.81 ft (NAVD 88)
Latitude: 42.921889
Longitude: -97.607





Wind

Results:

Wind Speed	113 Vmph
10-year MRI	78 Vmph
25-year MRI	86 Vmph
50-year MRI	91 Vmph
100-year MRI	97 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:	Thu May 12 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 not in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2.

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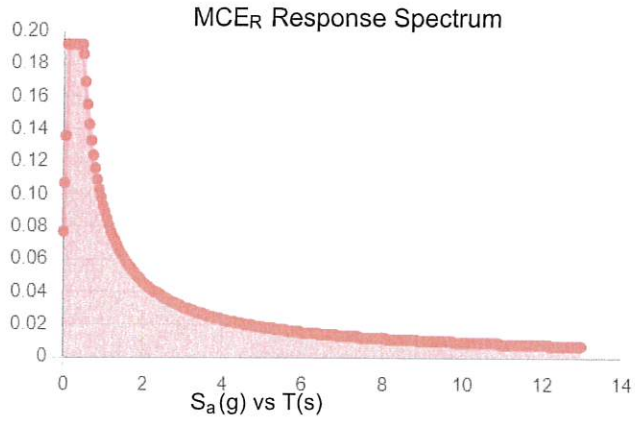
Seismic

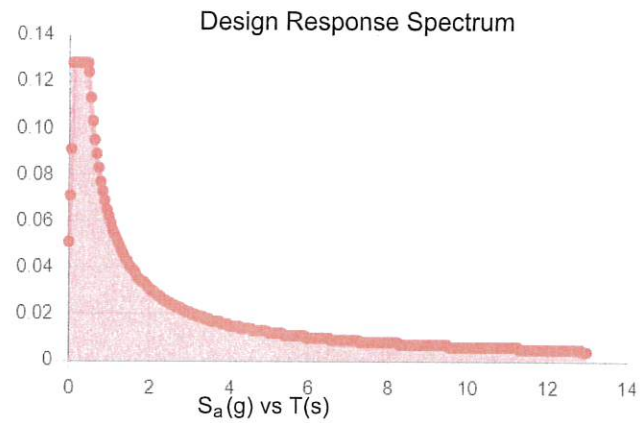
Site Soil Class: D - Default (see Section 11.4.3)

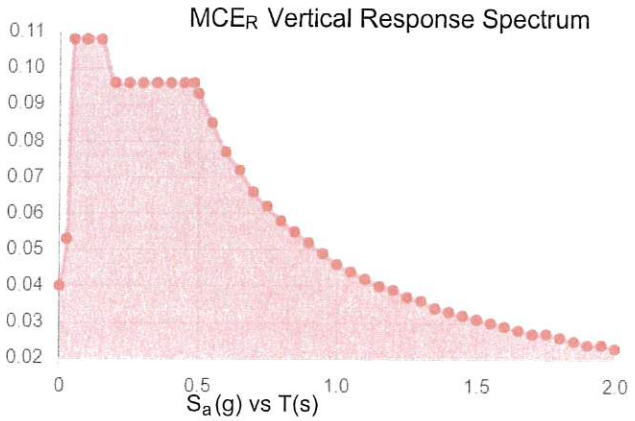
Results:

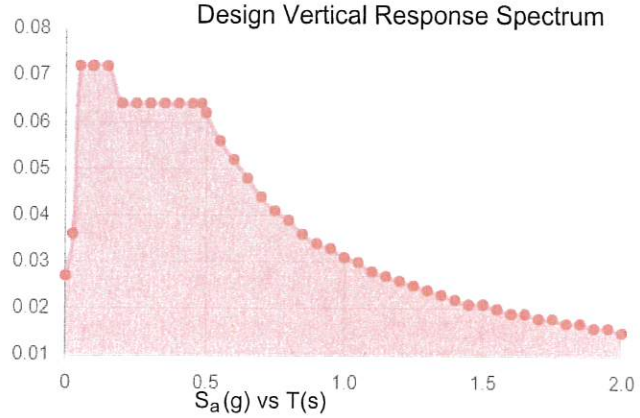
S_S :	0.12	S_{D1} :	0.062
S_1 :	0.039	T_L :	12
F_a :	1.6	PGA :	0.062
F_v :	2.4	PGA_M :	0.099
S_{MS} :	0.192	F_{PGA} :	1.6
S_{M1} :	0.093	I_e :	1
S_{DS} :	0.128	C_v :	0.7

Seismic Design Category A









Data Accessed: **Thu May 12 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.

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Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	-5 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu May 12 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.

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Pier and Pad Foundation

BU # :	857981
Site Name:	Zod_Alltel_SD09_T
App. Number:	603055 Rev. 0

TIA-222 Revision:	H
Tower Type:	Guyed

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	198	kips
Base Shear, Vu_comp:	1	kips
Moment, M_u:		ft-kips
Tower Height, **H**:	380	ft
BP Dist. Above Fdn, bp_{dist}:	1.5	in
Bolt Circle / Bearing Plate Width, **BC**:		in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	2.5	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	7	
Pier Rebar Quantity, **mc**:	6	
Pier Tie/Spiral Size, **St**:	3	
Pier Tie/Spiral Quantity, **mt**:	5	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	5	ft
Pad Width, W_1:	13	ft
Pad Thickness, **T**:	3	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	7	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	11	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	3	ksi
Dry Concrete Density, δc:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	115	pcf
Ultimate Gross Bearing, Qult:	6,000	ksf
Cohesion, **Cu**:		ksf
Friction Angle, φ:		degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.35	
Neglected Depth, **N**:	5.00	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	6	ft

<--Toggle between Gross and Net

Foundation Analysis Checks				
	Capacity	**Demand**	**Rating***	**Check**
Lateral (Sliding) (kips)	53.04	1.00	**1.8%**	**Pass**
Bearing Pressure (ksf)	3.60	2.00	**53.0%**	**Pass**
*Overturning (kip*ft)*	825.81	5.63	**0.7%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	322.19	2.50	**0.7%**	**Pass**
Pier Compression (kip)	2343.24	200.21	**8.1%**	**Pass**
*Pad Flexure (kip*ft)*	926.34	212.82	**21.9%**	**Pass**
Pad Shear - 1-way (kips)	406.13	40.33	**9.5%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.164	0.018	**10.7%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	1559.82	1.50	**0.1%**	**Pass**

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

Structural Rating*:	**21.9%**
Soil Rating*:	**53.0%**

Guyed Anchor Block Foundation

Checks capacity of anchor blocks for a guyed tower.

CROWN CASTLE

BU#:	857981
Site Name:	Zod_Alltel_SD09_Tabor
Order Number:	603055 Rev. 0
Location:	

TIA-222 Revision: H

Design Reactions		
Shear, **S**:	69.00	kips
Uplift, **Ua**:	53.00	kips
Resultant Force, **Rf**:	87.01	kips
Tower Height, **H**:	380.00	ft
Guy Anchor Radius, **R**:	304.00	ft
Resultant Angle to Horizontal, **θ**:	37.5	deg

Guy Anchor Properties		
Depth to Bottom of Deadman, **Da**:	12	ft
Anchor Width, **Wa**:	3	ft
Anchor Thickness, **Ta**:	3	ft
Anchor Length, **La**:	13	ft
Concrete Volume, **Vc**:	4.3	yd^3
Toe Width, **toe**:	0	ft
Guyed Anchor Top Rebar Size, **Sat**:	7	
No. of Bars in Top of Block:	5	
Guyed Anchor Front Rebar Size, **Saf**:	7	
No. of Bars in Front of Block:	5	
Stirrup Size:	4	
Anchor Shaft Diameter, **ds**:	2.25	in
Anchor Shaft Quantity, **n**:	1	
Anchor Shaft Area Override:		in^2
Shear Lag Factor, **u**:	1	

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Strength, **F'c**:	3	ksi
Wt. Avg.Concrete Density, **δx**:	0.088	kcf
Clear Cover, **cc**:	3	in
Anchor Shaft Grade, **Fy'**:	50	ksi
Anchor Shaft Ultimate Strength, **Fu'**:	65	ksi

Design Checks	Capacity	Demand	Rating*	Check
Lateral Capacity (kips):	99.47	69.00	**66.1%**	**Pass**
Uplift Capacity (kips):	92.55	53.00	**54.5%**	**Pass**
*Lateral Flexural Capacity (ft*kips):*	419.61	112.13	**25.4%**	**Pass**
*Uplift Flexural Capacity (ft*kips):*	419.61	86.13	**19.5%**	**Pass**
Anchor Shaft (kips):	159.04	87.01	**52.1%**	**Pass**

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

Anchor Shaft Rating:	**52.1%**
Structural Rating:	**25.4%**
Soil Rating:	**66.1%**

Neglect Depth, **Neg**:	6	ft
Groundwater Level, **gw**:	6	ft

Soil Properties: No. of Soil Layers: 2

Layer	φ, deg	cu, ksf	δ, pcf		Ultimate fs (ksf)	N (blows/ft)
1	0	0.000	110	6.00	0.000	
2	0	0.750	48	12.00	0.750	

*key: φ = *Internal Angle of Friction*
cu = Cohesion / Undrained Shear Strength
δ = *Buoyant Soil Unit Weight*
d = Depth to Bottom of Layer
Ultimate fs = Geotechnical Report-provided skin friction / adhesion
N = SPT Blow Count

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Return Receipt Fee (Endorsement Required)	
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PS Form 3800, August 2006 See Rev

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16260 LOUIS AVE
SOUTH HOLLAND, IL 60473-9998
(800)275-8777

07/28/2022 03:50 PM

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First-Class Mail® Letter Tabor, SD 57063 Weight: 0 lb 0.40 oz Estimated Delivery Date Mon 08/01/2022	1		$0.60
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First-Class Mail® Letter Yankton, SD 57078 Weight: 0 lb 0.40 oz Estimated Delivery Date Mon 08/01/2022	1		$0.60
Certified Mail®			$4.00
Tracking #: 70123460000345229039			
Total			$4.60
First-Class Mail® Letter Tabor, SD 57063 Weight: 0 lb 0.10 oz Estimated Delivery Date Mon 08/01/2022	1		$0.60
Certified Mail®			$4.00
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First-Class Mail® Letter Yankton, SD 57078 Weight: 0 lb 0.50 oz Estimated Delivery Date Mon 08/01/2022	1		$0.60
Certified Mail®			$4.00
Tracking #: 70123460000345228995			
Total			$4.60

AFFIDAVIT OF MAILING

I, Christina Wilburn on Behalf of Crown Caste (Tower Owner), hereby certify that on the 28th day of July, 2022, I mailed by first class mail, postage prepaid, a true and correct copy of the Notice of Public Hearing to all owners of real property lying within a 2640 feet radius of the proposed project to the most recent address of the recipient known to your Affiant.

A true and correct copy of the Notice of Public Hearing notification letters are attached as Exhibit #1 or #2.

A true and correct copy of the mailing list for owners of real property is attached as Exhibit #1A or #2A.

Dated the 28th day of July, 2022.

Christina Wilburn
(Name)
Affiant

Subscribed and sworn to before me this 28th day of July, 2022.

Notary Public - ~~South Dakota~~ Florida
My commission expires: _____

(SEAL)

ALEX LEE VAN VLAENDEREN
Notary Public - State of Florida
Commission # GG 245273
My Comm. Expires Aug 2, 2022
Bonded through National Notary Assn.

Scanned with CamScanner

NOTIFICATION

July 25, 2022

Christina Wilburn/Crown Castle
3025 Highland Pkwy, Suite 400
Downers Grove, IL 60515

Dear Yankton County Property Owner:

The Yankton County Zoning Ordinance requires written notification describing a specific action be sent to the owners of real property lying within 2,640 feet of the property on which the below described action is proposed. The notice shall be given to each owner of record by depositing such notice in the United States Post Office not less than 10 days prior to the hearing date. Therefore, you are hereby notified. Please take a moment to review the notice of public hearing described below.

NOTICE OF PUBLIC HEARING

Notice is hereby given that a public hearing will be held before the Yankton County Planning Commission, Yankton County, South Dakota, at 7:10 P.M. on the 9th day of August, 2022 at the Yankton County Government Center, Commissioners Chambers, 321 West Third St., Yankton, South Dakota.

Said hearing is to consider the following:
Applicant is requesting a Conditional Use Permit to add additional antennas to an existing tower per Article 25 section 2503. Said property is legally described as the Northwest Quarter (NW1/4) of Section Thirty-two (32), Township Ninety-four (94) North, Range Fifty-seven (57) West of the 5th P.M., Yankton County, South Dakota.

The application may be reviewed at the Zoning Administrators office, Yankton County Government Center, 321 West Third St., Yankton, S.D. or online at the Yankton County Website.

Sincerely,
Christina Wilburn
Petitioner

BERAN, BRIAN (D)
42855 SD HWY 50
TABOR SD 57063

KOTALIK, ARTHUR J REV TRUST (D)
906 WEST 15 ST
YANKTON SD 57078

KOTALIK, BENJAMIN J (D)
30878 429 AVE
TABOR SD 57063

NEDVED, HELEN K (D)
604 REGAL DR
YANKTON SD 57078

POKORNEY, AGNES A (D)
30847 430 AVE
TABOR SD 57063

REZAC FARMS INC (D)
42927 307 ST
TABOR SD 57063

SD DEPT OF TRANSPORTATION (D)
700 EAST BROADWAY AVE
PIERRE SD 57501

ZIMMERMAN, HENRY H REV TRUST (D)
43501 308 ST
YANKTON SD 57078

2010 Legal and Public Notices

7-29
2nd NOTICE OF ADOPTION

ORDINANCE NO. 22-ZN-08 ESTABLISHING PERMANENT ZONING REGULATIONS FOR YANKTON COUNTY, SOUTH DAKOTA, PROVIDING FOR THE ADMINISTRATION, ENFORCEMENT, AND AMENDMENTS THEREOF; AND REPEALING ALL ORDINANCES OR PARTS OF ORDINANCES IN CONFLICT THEREWITH.

Notice is hereby given that Ordinance No. 22-ZN-08 establishing permanent zoning regulations for Yankton County, South Dakota. Applicant is requesting to rezone a property from Article 12 Rural Transitional District (RT) to Article 10 Commercial (C): Said property is described as:
The South One Hundred Sixteen Feet (S116) of Lot One (1) in the Southeast Quarter of the Northeast Quarter (SE1/4 NE1/4), Lot Two (2) in the Southeast Quarter of the Northeast Quarter (SE1/4 NE1/4); and Lot Three (3) in the Northeast Quarter of the Southeast Quarter (NE1/4 SE1/4), all located in Section Twenty-Four (24), Township Ninety-Four (94) North of Range Fifty-six (56), west of the 5th P.M., according to the duly recorded plat thereof in the office of the Yankton County Register of Deeds filed, for record April 25, 1979 and recorded in Book 38, on page 144, subject to easements, restrictions, covenants and reservations of record AND Lot One (1), except the South One Hundred Sixteen Feet (S116) thereof, located in the Southeast Quarter of the Northeast Quarter (SE1/4NE1/4), Section Twenty-four (24), Township Ninety-four (94) North of Range Fifty-six (56), West of the 5th P.M., Yankton County, South Dakota. E911 address is 30637 US HWY 81, Yankton, South Dakota

Yankton County is adopting this ordinance and map in order to protect the public health, safety, and general welfare. This ordinance was duly adopted by the County Commission on the 19th day of July, 2022, and will become effective on the 18th day of August, 2022.

First Reading: July 5, 2022

Second Reading: July 19, 2022

Publication Date: July 29, 2022 (Second Notice of Adoption)

Effective Date: August 18, 2022 (20 days after 2nd Notice of Adoption)

Dated this 19th day of July, 2022.

Joe Healy, Yankton County Commission Chair

ATTEST:

Patty Hojem, Yankton County Auditor

Published once at the total approximate cost of $29.12 and can be viewed free of charge at www.sd-publicnotices.com.

7-29 8-5
NOTICE OF PUBLIC HEARING

Notice is hereby given that a public hearing will be held before the Yankton County Planning Commission, Yankton County, South Dakota, at 7:05 P.M. on the 9th day of August, 2022 at the Yankton County Government Center, Commissioners Chambers, 321 West Third St., Yankton, South Dakota. Applicant is requesting to Rezone two parcels from Rural Transitional (RT) and Low Density Residential (LD) to Moderate Density Residential (MD) per Article 18 Section 1809 and Article 20 Section 2003. Said property is legally described as Lots 1 and 2 of Lewis and Clark Substation Addition in the Southwest Quarter of the Southwest Quarter of Section 15 and in the Northwest Quarter of the Northwest Quarter of Section 22, Township 93 North, Range 56 West of the 5th Principal Meridian, Yankton County, South Dakota. Containing 3.00 Acres more or less

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Notice is hereby given that a public hearing will be held before the Yankton County Planning Commission, Yankton County, South Dakota, at 7:10 P.M. on the 9th day of August, 2022 at the Yankton County Government Center, Commissioners Chambers, 321 West Third St.

2010 Legal and Public Notices

Hunhoff, Owner), 233 Broadway Avenue, Yankton, S.D.

NOTICE IS FURTHER GIVEN that a Public Hearing upon the application will be held on Monday, August 8, 2022 at 7:00 p.m. in the City of Yankton Community Meeting Room at the Career Manufacturing Technical Education Academy, 1200 West 21st Street, Yankton, South Dakota, where any person or persons interested in the approval or rejection of the above application may appear and be heard.

Dated at Yankton, South Dakota, This 25th day of July, 2022.

Al Viereck
FINANCE

Published once at the total approximate cost of $14.88 and can be viewed free of charge at www.sd-publicnotices.com.

YOUR NEWS!
The Press and Dakotan

Walk

From Page 1

man who said that he is very thankful that we do this walk and that we always include men in our walk. He said, 'Thank you for remembering the men, because sometimes, the men and boys are abused as well.'"

RCDVC helps a lot of men each year, she said.

"The statistics may not show that we are helping as many men as women," Starzl Hansen said, "but it's important to reach out and let them know that we are here."

Everyone participating in the walk is doing so for a reason and a purpose, she said.

"They each have their own story that they're carrying with them when they walk across that bridge, and when you see them all walk together, it just pulls at your heartstrings to know that they're all coming together for a common cause and purpose," Starzl Hansen said.

Occurring in tandem with the Walk a Mile event will be Family Fun Day, also on the lawn, which runs from 11 a.m.-1 p.m. This family-oriented event features free activities, including inflatables, games, local heroes and a Game, Fish and Parks exhibit.

New this year is the dunk tank where participants will have the opportunity to donate to a good cause and try to dunk local celebrities, including Yankton School Resource Officer Skylar Russenberger (11 a.m.), Restore Church's Pastor Jeff Mueller (11:20 a.m.), Yankton High School Teacher Dave Dannenbring (11:40 a.m.), Brennen Novak of the Yankton Fire Department (noon), Dr. David Withrow of Yankton Medical Clinic (12:20 p.m.) and Yankton Middle School Principal Heather Olson (12:40 p.m.).

The Family Fun Day raises money for River City Family Connections, a sister agency to RCDVC that provides court-ordered supervised visitation and supervised exchanges of children between guardians or parents.

"A lot of children who have grown up in domestic violence are living with someone that has been court ordered," Starzl Hansen said. "If there's some conflict in the home, it's just better if their parents don't come in contact with each other."

However, these visits can be expensive, she said.

"A lot of times, the parents can't afford the full hour or the two-hour visit that they get a week. Sometimes that's all they get a week with their

Chislic

From Page 1

the Legislature voted to name chislic the official state 'nosh,' or snack."

While a popular local favorite, chislic still remains an unknown by many, including South Dakotans and even sheep producers who provide the traditional meat.

Chislic resembles a shish-kebab and can be enjoyed as a snack or meal in itself. Usually, about a half-dozen cubes are served on a toothpick or small skewer with saltine crackers, garlic salt and beer or other beverage on the side.

Different people use different methods of preparing their chislic, giving it a unique flavor, Baer said. Some people even work with other types of meat, such as beef, venison, chicken and even fish.

Saturday's chislic competition reflects the diverse approach to the meat, Baer said. A panel of celebrity judges will choose the winner, and the entrants take the challenge seriously.

"We have both the traditional and New Age competition," she said. "The traditional would be your standard lamb or mutton cubes on a stick. The New Age has been things like chislic pizza, something that's not prepared the traditional way or is unique to chislic."

A FUN TIME

Saturday's festivalgoers will be treated to a county fair-like atmosphere on the wide green space of the arboretum, walking trails and amphitheater seating with a small pond in front of the stage. A large tent will provide shade and a place to eat and relax. Visitors can play frisbee golf on the grounds.

A Kids Zone will offer a family-friendly place with fun items for the younger set. The Kids Zone will also feature representatives from the Miss South Dakota organization, including title holders, and special story time with Darrel Fickbohm at 11:30 a.m., 2 p.m. and 4 p.m.

The festival unofficially kicks off with a Freeman Lions BBQ from 5-8 p.m. tonight (Friday) at the Community Center located at 224 S. Wipf Street. The meal offers pork loin sandwiches and sides for a freewill donation with takeout available.

Saturday's schedule starts with the Salem Mennonite Home again hosting a "mutton run" featuring 10K and 5K races and a one-mile walk/run. Registration starts at 7:30 a.m. with the races beginning at 8 a.m. The start and finish lines are both located at the Salem Home.

The following is the day's schedule at the Prairie Arboretum:

- 10 a.m. Opening Ceremony;
- 10 a.m. until dusk, Helicopter rides;
- 10 a.m.-9 p.m. The festival runs all day with chislic and a wide variety of other food items, a beer tent by the Menno Fire Department and other beverages available for sale;
- 10 a.m.-7 p.m. BINGO by the Parker FFA;
- 10 a.m.-8 p.m. The Kid Zone, featuring child-friendly activities and appearances by Miss South Dakota representatives;
- 10:30 a.m. Live Music by Uncle Roy and the Boys;
- 11 a.m. and 1, 3 and 5 p.m. A presentation on "From Russia With Love: The History Of Chislic." South Dakota Chislic Festival board member and chislic expert Ian Tuttle will be joined by Marnette Hofer, executive director of

> "Last year, we estimated around 10,000 people came to the festival. Freeman is 1,300-1,500 residents, so our population becomes seven times bigger for one day."
>
> **Spokeswoman Andrea Baer**

les, returns to his hometown for the noon performance. The afternoon sets feature Devon Santa from Rapid City and the Wildcard Band from Vermillion.

The final act represents a return performance, Baer said.

"We are excited to welcome back Maggie in the Meantime to this years festival!" she said. "Founded in September of 2009 in Sioux Falls and inspired by Celtic and folk forms both old and new, Maggie in the Meantime is a blend of ballad, folk and storytelling that gives the group a broad appeal with many types of audiences, in any age group or setting."

The Heritage Hall Museum and Archives of Freeman helped make possible the band's return for a second year, Baer said.

OTHER ACTIVITIES

There will also be a number of auxiliary events in conjunction with the festival.

- Two bean bag tournaments organized by the Menno Pink Ladies Dart League, which raises funds for cancer patients. All proceeds will go toward that cause. The first tournament begins at 11 a.m. (10:30 a.m. registration) and the second starts at 3 p.m. (2:30 p.m. registration). Cost is $30 per team and there will be a 50% payout to the top two teams.
- Heritage Hall Museum & Archives will be open from 9 a.m. to 7 p.m.
- Hootz Bar, located one block east of Freeman's Main Street, will host an alley dance from 9 p.m. to 1 a.m. Saturday night.
- Festivalgoers are also encouraged to explore Freeman, but to also be aware of the major construction project downtown that is seeing the main business district roadway completely rebuilt.
- While not part of the Chislic Festival, Freeman will also host the District 6B (South Central League) championship game at 7 p.m. Saturday. The hometown Black Sox face the Wynot Expos, with both team headed for the state tournament.

The South Dakota Chislic Festival has come a long way in a short time, Baer said.

Planning an event that would attract mostly local residents, organizers weren't prepared for the outpouring of visitors the first year. Whereas the committee was hopeful for 1,000 visitors, an estimated 10,000 people overflowed the original festival site along U.S. Highway 81.

The response that first year overwhelmed organizers and prompted them to move the festival from the Freeman softball field complex to the much larger Prairie Arboretum in 2019.

After a year off in 2020 because of COVID-19, it returned in 2021 to an enthusiastic response that drew an estimated 8,000 to 10,000 guests.

"People get charged up about it," Baer said. "We welcome everyone and want them to know we're ready to offer them a great time."

The 2022 South Dakota Chislic Festival is being presented by Premiere Sponsor Merchants State Bank and Gold Sponsors CorTrust Bank, Hootz Bar and the South Dakota Retailers Association.

For more about the festival, visit sdchislicfestival.com.

Follow @RDockendorf on Twitter.

CROSSWORD

By THOMAS JOSEPH

ACROSS
1 Simple fellow
6 Circus worker
11 Silly
12 In the know
13 Shrinks back
14 Hands over
15 Wee bit
16 Cut in three
18 Peyton's brother
19 Use pews
20 "— a girl!"
21 Monthly bill
23 Secluded spots
25 Fly catcher
27 Supporter's vote
28 Jazz blowers
30 Give off
33 Letter after upsilon
34 Game caller
36 Pitcher's stat
37 Daily grind
39 Nonsense
40 Blockhead
41 Portland setting
43 Tightly packed
44 Stomach woe
45 Borders
46 Goes through

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1 Lisa, to Bart
2 Get some air
3 Attendant to a queen
4 Binary digit
5 High homes
6 Without being said
7 Really impresses
8 Whoopi Goldberg/Ted Danson movie
9 Puts up
10 Takes a breather
17 Outfit
22 Cowboy nickname
24 Shoebox letters
26 Chides
28 Out of the sun
29 Brief time
31 Pressed
32 Home runs, slangily
33 Lion group
35 Leg bone
38 Token of love
42 Saloon supply

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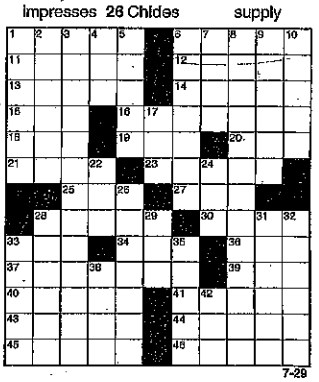
Yesterday's answer



7-29

CRYPTOQUOTE

A X Y D L B A A X R
is L O N G F E L L O W

One letter stands for another. In this sample, A is used for the three L's, X for the two O's, etc. Single letters, apostrophes, the length and formation of the words are all hints. Each day the code letters are different.

7-29 **CRYPTOQUOTE**

V W D Q P W D A D K A D Q U C A D K P P F C D A M F Q P W D N D D X G U Z Q P K F Q M, D T D Q K G U Q R D O B K Q S D B U G D R F Q C.

— B W F Q D M D X A U T D A S

Yesterday's Cryptoquote: WALKING WITH A FRIEND IN THE DARK IS BETTER THAN WALKING ALONE IN THE LIGHT. — HELEN KELLER

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Northeast Quarter (SE1/4 NE1/4); and Lot Three (3) in the Northeast Quarter of the Southeast Quarter (NE1/4 SE1/4), all located in Section Twenty-Four (24), Township Ninety-Four (94) North of Range Fifty-six (56), west of the 5th P.M., according to the duly recorded plat thereof in the office of the Yankton County Register of Deeds filed for record April 25, 1979 and recorded in Book 38, on page 144, subject to easements, restrictions, covenants and reservations of record AND Lot One (1), except the South One Hundred Sixteen Feet (S116) thereof, located in the Southeast Quarter of the Northeast Quarter (SE1/4NE1/4), Section Twenty-four (24), Township Ninety-four (94) North of Range Fifty-six (56), West of the 5th P.M., Yankton County, South Dakota. E911 address is 30637 US HWY 81, Yankton, South Dakota

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Joe Healy, Yankton County Commission Chair

ATTEST:

Patty Hojem, Yankton County Auditor

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7-29 &1-5
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Published twice at the total approximate cost of $33.12 and can be viewed free of charge at www.sd-publicnotices.com.

7-29
NOTICE OF HEARING UPON APPLICATION FOR SALE OF ALCOHOLIC BEVERAGES

NOTICE IS HEREBY GIVEN that an application has been received by the Board of City Commissioners of the City of Yankton, South Dakota, for a New Retail (on-off sale) Wine & Cider License for January 1, 2022, to December 31, 2022, from South Dakota Publishing, LLC d/b/a Muddy Mos Coffee House (Katie

YOUR NEWS!
The Press and Dakotan

Walk

From Page 1

man who said that he is very thankful that we do this walk and that we always include men in our walk. He said, 'Thank you for remembering the men, because sometimes, the men and boys are abused as well.'"

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New this year is the dunk tank where participants will have the opportunity to donate to a good cause and try to dunk local celebrities, including Yankton School Resource Officer Skylar Russenberger (11 a.m.), Restore Church's Pastor Jeff Mueller (11:20 a.m.), Yankton High School Teacher Dave Dannenbring (11:40 a.m.), Brennen Novak of the Yankton Fire Department (noon), Dr. David Withrow of Yankton Medical Clinic (12:20 p.m.) and Yankton Middle School Principal Heathier Olson (12:40 p.m.).

The Family Fun Day raises money for River City Family Connections, a sister agency to RCDVC that provides court-ordered supervised visitation and supervised exchanges of children between guardians or parents.

"A lot of children who have grown up in domestic violence are living with someone that has been court ordered," Starzl Hansen said. "If there's some conflict in the home, it's just better if their parents don't come in contact with each other."

However, these visits can be expensive, she said.

"A lot of times, the parents can't afford the full hour of the two-hour visit that they get a week. Sometimes that's all they get a week with their child," Starzl Hansen said. "We do not ever want to turn away a parent from seeing their child because they can't afford it. This fundraiser raises money so that those parents can get a scholarship so that they can still see their child."

It's important for the child to be able to bond and reconnect with that parent, fix and mend a broken heart and move forward with their family, she said.

Family Fun Day was conceived with the goal of healthy families in mind.

"It's just a fun day for families to be together, do stuff for free and not have to worry about having to go out and pay for something," Starzl Hansen said. "They can go out, hang out for the day and reconnect."

For more information, call 605-665-4811.

Saturday's chislic competition reflects the diverse approach to the meat, Baer said. A panel of celebrity judges will choose the winner, and the entrants take the challenge seriously.

"We have both the traditional and New Age competition," she said. "The traditional would be your standard lamb or mutton cubes on a stick. The New Age has been things like chislic pizza, something that's not prepared the traditional way or is unique to chislic."

A FUN TIME

Saturday's festivalgoers will be treated to a country fair-like atmosphere on the wide green space of the arboretum, walking trails and amphitheater seating with a small pond in front of the stage. A large tent will provide shade and a place to eat and relax. Visitors can play frisbee golf on the grounds.

A Kids Zone will offer a family-friendly place with fun items for the younger set. The Kids Zone will also feature representatives from the Miss South Dakota organization, including title holders, and a special story time with Darrel Fickbohm at 11:30 a.m., 2 p.m. and 4 p.m.

The festival unofficially kicks off with a Freeman Lions BBQ from 5-8 p.m. tonight (Friday) at the Community Center located at 224 S. Wipf Street. The meal offers pork loin sandwiches and sides for a freewill donation with takeout available.

Saturday's schedule starts with the Salem Mennonite Home again hosting a "mutton run" featuring 10K and 5K races and a one-mile walk/run. Registration starts at 7:30 a.m. with the races beginning at 8 a.m. The start and finish lines are both located at the Salem Home.

The following is the day's schedule at the Prairie Arboretum:

• 10 a.m. Opening Ceremony;

• 10 a.m. until dusk, Helicopter rides;

• 10 a.m.-9 p.m. The festival runs all day with chislic and a wide variety of other food items, a beer tent by the Menno Fire Department and other beverages available for sale;

• 10 a.m.-7 p.m. BINGO by the Parker FFA;

• 10 a.m.-8 p.m. The Kid Zone, featuring child-friendly activities and appearances by Miss South Dakota representatives;

• 10:30 a.m. Live Music by Uncle Roy and the Boys;

• 11 a.m. and 1, 3 and 5 p.m. A presentation on "From Russia With Love: The History Of Chislic." South Dakota Chislic Festival board member and chislic expert Ian Tuttle will be joined by Marnette Hofer, executive director of the Heritage Hall and Museum and Archives, in presenting the program;

• 11:30 a.m. and 2 and 4:30 p.m. Story Time in the Kid Zone tent with Darrel Fickbohm.

• Noon: Live music by Elliot Graber and The Family Vine;

• 2 p.m. Live Music with Devon Santi;

• 4 p.m. Chislic judge introduction and contest winners;

• 4:30 p.m. Live Music with The Wildcard Band;

• 6:30 p.m. Live Music with Maggie In The Meantime.

Baer expressed excitement about the line-up of bands at the Prairie Rose amphitheater, offering either entertainment for spectators or a pleasant backdrop for festivalgoers.

Uncle Roy and the Boys, the opening band, comes from the Corsica-Armour area and has played in various venues.

Elliot Graber, a Freeman native now living in the Twin Cities, has been a fixture in the many types of audiences, in any age group or setting.

The Heritage Hall Museum and Archives of Freeman helped make possible the band's return for a second year, Baer said.

OTHER ACTIVITIES

There will also be a number of auxiliary events in conjunction with the festival.

• Two bean bag tournaments organized by the Menno Pink Ladies Dart League, which raises funds for cancer patients. All proceeds will go toward that cause. The first tournament begins at 11 a.m. (10:30 a.m. registration) and the second starts at 3 p.m. (2:30 p.m. registration). Cost is $30 per team and there will be a 50% payout to the top two teams.

• Heritage Hall Museum & Archives will be open from 9 a.m. to 7 p.m.

• Hootz Bar, located one block east of Freeman's Main Street, will host an alley dance from 9 p.m. to 1 a.m. Saturday night.

• Festivalgoers are also encouraged to explore Freeman, but to also be aware of the major construction project downtown that is seeing the main business district roadway completely rebuilt.

• While not part of the Chislic Festival, Freeman will also host the District 6B (South Central League) championship game at 7 p.m. Saturday. The hometown Black Sox face the Wynot Expos, with both team headed for the state tournament.

The South Dakota Chislic Festival has come a long way in a short time, Baer said.

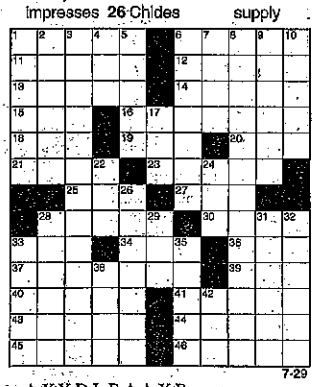
Planning an event that would attract mostly local residents, organizers weren't prepared for the outpouring of visitors the first year. Whereas the committee was hopeful for 1,000 visitors, an estimated 10,000 people overflowed the original festival site along U.S. Highway 81.

The response that first year overwhelmed organizers and prompted them to move the festival from the Freeman softball field complex to the much

know
13 Shrinks back
14 Hands over
15 Wee bit
16 Cut in three
18 Peyton's brother
19 Use pews
20 "— a girl"
21 Monthly bill
23 Secluded spots
25 Fly catcher
27 Supporter's vote
28 Jazz blowers
30 Give off
33 Letter after upsilon
34 Game caller
36 Pitcher's stat
37 Daily grind
39 Nonsense
40 Blockhead
41 Portland setting

DOWN
1 Lisa, to Bart
2 Get some air
3 Attendant to a queen
4 Binary digit
5 High homes
6 Without being said
7 Really impresses
8 Whoopi Goldberg/Ted Danson movie
9 Puts up
10 Takes a breather
17 Outfit
22 Cowboy nickname
24 Shoebox letters
26 Chides
28 Out of the sun
29 Brief time
31 Pressed
32 Home runs, slangily
33 Lion group
35 Leg bone
38 Token of love
42 Saloon supply

CHANTS LAWN
TOPES ELSE
Yesterday's answer



7-29

AXYDLBAAXR
is LONGFELLOW

One letter stands for another. In this sample, A is used for the three L's, X for the two O's, etc. Single letters, apostrophes, the length and formation of the words are all hints. Each day the code letters are different.

7-29 CRYPTOQUOTE

V W D Q P W D A D K A D Q U C A D K P P F C D A M F Q P W D N D D X G U Z Q P K F Q M, D T D Q K G U Q R D O B K Q S D B U G D R F Q C. — B W F Q D M D X A U T D A S

Yesterday's Cryptoquote: WALKING WITH A FRIEND IN THE DARK IS BETTER THAN WALKING ALONE IN THE LIGHT. — HELEN KELLER

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Yankton Citywide Rummage

Weekend Of August 11, 12 & 13

All Ads Will Run August 11, 12, & 13
In the P&D for just $30

30 words and $.20 per word after 30. ONLY ONE ADDRESS ALLOWED IN EACH AD.

Stop By The Press & Dakotan To Place Your Ad
OR email ads@yankton.net

INCLUDES:
- Your ad (30 words, 1 address per ad) placed in the Citywide Rummage Sale section published August 11, 12, 13
- Your ad will also appear on-line at www.yankton.net
- 2 Yard Signs

Sponsored by the: YANKTON DAILY PRESS&DAKOTAN

DEADLINE: 5PM, FRIDAY, AUGUST 5

Yankton County, South Dakota

Receipt

Payment number	194812994
Date paid	July 20, 2022 01:52 PM
Payment method	Online

Paid by
Christina Wilburn
christina.wilburn@crowncastle.com

$300.00 paid on July 20, 2022

Variance, Conditional Use and Rezoning Application

Application ID: CUP-2022-82

Description	Amount
Fee	$300.00