

DELTA COUNTY PLANNING COMMISSION

**Maloney House (Delta County Fairgrounds)
575 S River Ln, Hotchkiss, CO 81419
Wednesday, February 9, 2022 @ 5:30 p.m.**

**Tom Kay, Chair
Tate Locke, Vice-Chair
Carl Holm, Director**

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Instructions for Public Participation via Zoom:

The public can join the meeting remotely by registering in advance of the meeting at:
<https://us02web.zoom.us/join/register/tZUzd-qprDloG9R-tqe6-Mwj0Dd64-Xbmm4>
After registering, you will receive a confirmation email containing information about joining the meeting.

REGULAR AGENDA

5:30 P.M. – CALL TO ORDER

ROLL CALL

DISTRICT 1

Cindy Watson

Steve Schrock

Steve Shea

Michelle Roberts, Associate

DISTRICT 2

Layne Brones

Tate Locke, Vice Chair

Hardy Hutto

Vacant, Associate

DISTRICT 3

Jacob Gray

Tom Kay, Chair

Kate Darlington

David Marek, Associate

INTRODUCTIONS

The Board of County Commissioners appointed and re-appointed Planning Commissioners on February 1, 2022.

A. ANNUAL MEETING

1. Election of Officers

a. Chair

b. Vice-Chair

2. Consideration of Special Projects

3. 2022 Meeting Schedule

B. PUBLIC COMMENTS

This is time set aside for the public to comment on matters not on the agenda. The Chair may set a time limit for speakers.

CERTIFICATION OF POSTING

On 2/2/22 at 1:30pm PM, Kim Henderson did post the above AGENDA as public notice of the 2/9/22 meeting. The official notice is placed on the front entrance of the Delta County Courthouse located at 501 Palmer, Delta, Colorado and a courtesy copy is sent to the Delta County website at www.deltacounty.com.

C. AGENDA ADDITIONS, DELETIONS, AND CORRECTIONS

The Planning Commission Secretary will announce if there are any changes to the agenda that arose after posting of the agenda.

D. SCHEDULED ITEMS

1. Meeting Minutes

- a. January 12, 2022
- b. January 26, 2022

RECOMMENDATION: Approve the action minutes as presented

2. PLN21-039/TDS Telecommunications

Continued from 12/8/2021. Consider Conditional Use Permits to install and operate two wireless communication facilities: A) 60-foot tall pole in the County Right of Way adjacent to 38590 Stucker Mesa Road approximately 2.1 miles west of Paonia (Parcel: 324302300055); and B) 50-foot tall pole within a TDS easement at 39025 Cottonwood Creek Road approximately 3.6 miles north of Crawford (Parcel: 344914103001).

RECOMMENDATION: Adopt a resolution recommend that the Board of County Commissioners:

- a. Find that PLN21-039 meets standards of 2021 Delta County Land Use Code.
- b. Approve PLN21-039A, a Conditional Use Permit to install a 60-foot-tall wireless facility in the County Right-of-Way adjacent to 38590 Stucker Mesa Road (Parcel: 3443-023-00-055).
- c. Approve PLN21-039B, a Conditional Use Permit to install a 50-foot-tall wireless facility within a TDS easement located at 39025 Cottonwood Creek Road (Parcel: 3449-141-03-001).
- d. Attach recommended conditions of approval.

E. COMMISSIONER COMMENTS, REQUESTS AND REFERRALS

This is time set aside for the Commission to comment, request, or refer a matter that is not on the agenda for future consideration.

F. DEPARTMENT REPORT

This is time set aside for the Director to report on matters affecting the Department.

ADJOURNMENT

Next Meeting: Wednesday, February 23, 2022 at 5:30 pm, Delta County Administration Building, Delta, CO

CERTIFICATION OF POSTING

On 2/2/22 at 1:30pm PM, Kim Henderson did post the above AGENDA as public notice of the 2/9/22 meeting. The official notice is placed on the front entrance of the Delta County Courthouse located at 501 Palmer, Delta, Colorado and a courtesy copy is sent to the Delta County website at www.deltacounty.com.



DELTA COUNTY PLANNING COMMISSION MEETING MINUTES
DELTA COUNTY ROUBIDEAU ROOM
320 W. 5th ST, DELTA, CO 81416
January 12, 2022

Vice-Chairman Tate Locke called the meeting to order at 5:30 p.m. in the Delta County Roubideau Meeting Room.

ROLL CALL

Planning Commission Members in Attendance:

Dick Gilmore	Hardy Hutto
Steve Schrock	Jacob Gray
Steve Shea	Tate Locke
Layne Brones	Kate Darlington (Associate)
Eli Wolcott (via zoom)	

Absent Members:

Tom Kay
Cindy Watson (Associate)

With member(s) absent from District 3, Kate Darlington is a voting member.

With all members present from District 1, Cindy Watson can participate in the discussion but cannot vote.

Staff in Attendance:

Delta County Community Development & Natural Resource Director, Carl Holm
Delta County Planner I, Kate Kelly
Delta County Planning & Community Development Administrative Assistant, Kim Henderson
Delta County Administrator, Robbie LeValley
Delta County Attorney, John Baier

PUBLIC COMMENT

None

5:34pm Commissioner Cindy Watson arrived

AGENDA ADDITIONS, DELETION, AND CORRECTIONS

Vice-Chair Locke stated he would take Item #3 first on the agenda since the recommendation is to continue the item.

Item #3 PLN21-049/S. Rasmussen
Consider rezoning the western 10 acres of Parcel 319335100032 from A-35 to A-5 to eventually become part of a subdivision generally located east of Stardust Lane and South of Cedar Mesa Road, Cedaredge.
RECOMMENDATION: Staff recommends that the Planning Commission continue this item to the January 26, 2022 Regular Planning Commission Meeting.

Motion/Second: Steve Schrock moved to continue PLN21-049/S. Rasmussen to the January 26, 2022 meeting.

Action: Motion carried unanimously

Item #1 PLN21-030/Garnet Mesa Solar LLC
Consider a motion to rescind the Planning Commission's approval on November 17, 2021 of PLN21-030 Garnet Mesa Solar Renewable Energy with Staff recommendations and conditions.
RECOMMENDATION: Planning Commission direction.

Commissioner Gray recused himself from matters related to PLN21-030, and then left the meeting room.

Motion/Second: Steve Schrock moved to rescind the action taken by the Planning Commission on November 17, 2021 related to PLN21-030/Garnet Mesa Solar. Kate Darlington seconded the motion.



DELTA COUNTY

PLANNING & COMMUNITY DEVELOPMENT

295 W 6th Street
Delta, Colorado 81416
planning@deltacounty.com
970.874.2110

Action: Motion carried unanimously

Item #2 PLN21-030/ Garnet Mesa Solar LLC
Consider a Limited Use Permit to install and operate an 80MW ground mounted solar photovoltaic energy generating facility. The project involves two sites consisting of three (3) parcels totaling 472+ acres generally located west of 2200 Road and at the southwest corner of G Road and 2100 Road, approximately 2.2 miles east of Delta (Parcels: 3455-231-00-001, 3455-232-00-009, 3455-133-00-020)
RECOMMENDATION: Staff recommends that the Planning Commission recommend that the Board of County Commissioners:
a. Find that PLN21-030 complies with the Land Use Code; and
b. Approve PLN21-030, a Limited Use Permit for an 80MW ground mounted solar photovoltaic energy generating facility developed over three (3) parcels totaling 472.85 acres generally located between 2200 Road on the east and 2050 Road on the west, north and south of G Road, Delta (Parcel" 3455-231-00-001, 3455-232-00-009, 3455-133-00-020), subject to conditions.

Motion/Second: Dick Gilmore moved to approve Garnet Mesa Solar installation PLN21-030 subject to staff recommendations. Hardy Hutto seconded the motion.

Steve Schrock requested adding the following conditions:

- Consult the City of Delta regarding the truck traffic routing and apply a speed limit on trucks
- Increase the \$50,000 Road Bond to \$100,000
- DMEA communicate with easement holders on construction schedule.

Dick Gilmore and Hardy Hutto accepted the following conditions as a friendly amendment to the motion/second:

- Consult the City of Delta regarding the truck traffic routing and apply a speed limit on trucks
- Increase the \$50,000 Road Bond to \$100,000

Action: Motion carried 6-2
Ayes: Eli Wolcott, Kate Darlington, Steve Schrock, Hardy Hutto, Layne Brones, Dick Gilmore.
Nays: Steve Shea and Tate Locke
Absent: Tom Kay

The Commission requested that staff work with the applicant as far as defining more what the sales tax involves in order to make that part of the presentation to the Board of County Commissioners.

ADJOURNMENT

The next meeting will be held on January 26, 2022 at 5:30pm in the Delta County Administration Building, Delta, CO.

Meeting adjourned at 8:51 p.m.

Respectfully submitted by:
Administrative Assistant, Kim Henderson



**DELTA COUNTY PLANNING COMMISSION MEETING MINUTES
DELTA COUNTY BOARD OF COUNTY COMMISSIONER'S ROOM
560 DODGE ST., DELTA, CO 81416
January 26, 2022**

Chairman Tom Kay called the meeting to order at 5:30 p.m. in the Delta County Board of County Commissioner's Meeting Room.

ROLL CALL

Planning Commission Members in Attendance:

Tom Kay	Cindy Watson (Associate)
Steve Schrock	Hardy Hutto
Steve Shea	Tate Locke
Layne Brones	Kate Darlington (Associate)
Eli Wolcott	

Absent Members:

Jacob Gray
Dick Gilmore

With member(s) absent from District 3, Kate Darlington is a voting member.
With member(s) absent from District 1, Cindy Watson is a voting member.

Staff in Attendance:

Delta County Community Development & Natural Resource Director, Carl Holm
Delta County Planner I, Kate Kelly
Delta County Planner I, Angie Kemp
Delta County Planning & Community Development Administrative Assistant, Kim Henderson

Director Holm introduced Angie Kemp who started as Planner I for Delta County this week.

PUBLIC COMMENT

None

AGENDA ADDITIONS, DELETION, AND CORRECTIONS

None

Item #1 Meeting Minutes
a. November 17, 2021
b. December 8, 2021
c. December 15, 2021
RECOMMENDATION: Approve the action minutes as presented

Motion/Second: Eli Wolcott moved to approve the action minutes as presented. Tate Locke seconded the motion.

Action: Motion carried unanimously

Item #2: PLN21-049/S. Rasmussen (Rezone)
Consider: Rezoning the western 10-acres of Parcel 319335100032 from Agricultural/35-acre (A-35) to Agricultural/5-acre (A-5). The project is located at 26380 Cedar Mesa Rd, Cedaredge.
RECOMMENDATION: Staff recommends that the Planning Commission recommend that the Board of County Commissioners:
a. Consider rezoning the western 10-acres of a 251.26-acre parcel (Parcel 319335100032/Account R024237) from Agricultural "35" (A-35) to Agricultural "5" (A-5), subject to a condition that rezoning 10 acres of a 251+-acre parcel shall not take effect until/unless a Preliminary Plat is approved by the Board of County Commissioners that includes this 10-acre portion.



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PLANNING & COMMUNITY DEVELOPMENT

295 W 6th Street
Delta, Colorado 81416
planning@deltacounty.com
970.874.2110

Motion/Second: Eli Wolcott moved to adopt the Resolution for PLN21-049/S. Rasmussen approving the rezone as presented by staff with the date correction noted in the resolution. Kate Darlington seconded the motion.

Action: Motion carried unanimously

COMMISSIONER COMMENTS, REQUESTS AND REFERRALS

Commissioner Wolcott inquired about the yearly meeting calendar which Director Holm informed him was in the Department Report.

DEPARTMENT REPORT

Director Holm reported on the following items:

- a. The Board of County Commissioners will be making Planning Commission appointments on February 1st, 2022
- b. Any new and continuing Commissioners will formally be seated on February 9, 2022
- c. The Planning Commission's Annual Meeting will be on February 9, 2022
 - a. Electing positions
 - b. Meeting calendar
 - c. Meeting venue – Hotchkiss meeting location
 - d. Meeting frequency – one meeting a month vs. two meetings a month.
- d. Presented the new Public Hearing Notice signs, and noted that staff will be doing the posting.
- e. The Board of County Commissioners accepted the Planning Commission's recommendation regarding the Pre-Land Use Code items.
- f. The Board of County Commissioners accepted the PLN21-010/Corona – 6 Lot Preliminary Plat as recommended by the Planning Commission.
- g. The Board of County Commissioners approved an appeal of the Board of Adjustments decision regarding PLN21-020/Becker/Beeson where the Board of County Commissioners removed a condition requiring a building envelope on the large remaining lot.
- h. Land Use Code Review Work Session with the Board of County Commissioners. Staff will start bringing updates to the Commission in phases with the first phase February/March.
- i. Road Standards – Right-of-Way Dedication Work Session with the Board of County Commissioners. Staff will address the Board's direction with the Land Use Code updates.

ADJOURNMENT

The next meeting will be held on February 9, 2022 at 5:30pm in the Maloney House (Delta County Fairgrounds) 575 S. River Ln, Hotchkiss, CO.

Meeting adjourned at 6:19 p.m.

Respectfully submitted by:
Administrative Assistant, Kim Henderson



STAFF REPORT

Delta County Planning Commission

**Maloney House (Delta County Fairgrounds)
575 S. River Lane, Hotchkiss, CO 81419**

Wednesday, February 9, 2022 @ 5:30 p.m.

PLN21-039/TDS Telecommunications

Consider Conditional Use Permit(s) to install and operate two wireless communication facilities: A) 60-foot-tall pole in the County Right-of-Way adjacent to 38590 Stucker Mesa Road approximately 2.1 miles west of Paonia (Parcel: 324302300055); and B) 50-foot-tall pole within a TDS easement at 39025 Cottonwood Creek Road approximately 3.6 miles north of Crawford (Parcel: 344914103001).

PROJECT INFORMATION:

Property Owner(s): A) Delta County; B) Samuel F. Johnson Jr
Applicant: Delta County Tele-Comm, dba TDS Telecom
Representative: Jared Pahl
Site Address(es): A) 38590 Stucker Mesa Rd, Paonia; B) 39025 Cottonwood Creek Road, Crawford
Parcel ID(s): A) 3443-023-00-055; B) 3449-141-03-001
Zoning: A-35

RECOMMENDATION:

Staff recommends that the Planning Commission consider a resolution recommending that the Board of County Commissioners:

- a. PLN21-039A (Stucker Mesa)
 1. Find that PLN21-039A complies with the applicable land use regulations; and



2. Approve PLN21-039A, a Conditional Use Permit to install a 60-foot-tall wireless facility in the County Right-of-Way adjacent to 38590 Stucker Mesa Road (Parcel: 3443-023-00-055);
- b. PLN21-039B (Cottonwood Creek)
 1. Find that PLN21-039B complies with the applicable land use regulations; and
 2. Approve PLN21-039B, a Conditional Use Permit to install a 50-foot-tall wireless facility within a TDS easement located at 39025 Cottonwood Creek Road (Parcel: 3449-141-03-001).

Staff recommends approval subject to conditions. The draft resolution for consideration includes four (4) conditions.

SUMMARY:

This application involves two (2) sites:

- A. Stucker Mesa (Site #1, DSA 37310); 60-foot-tall composite (natural color and texture) microwave antenna located within County right-of-way. This antenna will connect to existing equipment (DSA) cabinet located about 1900 feet east along the southern edge of Stucker Mesa Road. This site also requires County approval for developing/installing infrastructure within County Right-of-Way.
- B. Cottonwood Creek (Site #2, DSA 37014); 50-foot-tall composite (natural color and texture) microwave antenna within an existing TDS Easement located on a 12.71-acre parcel (Parcel ID: 344914103001/Johnson). This site includes a TDS equipment cabinet approximately 4' by 2.5' by 5', located about 10 feet southeast of the pole with a ground equipment ice canopy around/over the unit (about 6-foot tall).

No additional screening or landscaping is proposed at either site. No lighting will be placed on poles for maintenance or FAA requirement.

Projects are subject to the rules in place at the time the application is submitted. Beginning November 2000, a wireless communication facility was subject to a Specific Development permit (Development Agreement), which the County applied to towers 40' and taller based on an exemption for Ham Radio antenna. A Utility Permit was submitted in 2018 for the Stucker Mesa site to allow work within the County Right-of-Way (ROW), but later withdrawn.

Resolution 2021-R-001 adopting the 2021 Land Use Code (LUC) repealed the Specific Development regulations. A Wireless Communication Facility Resolution was drafted as an appendix to the LUC; however, the LUC was adopted without this resolution. This application, including the Stucker Mesa site and Cottonwood Creek site, was initiated in June 2021 so is subject to the LUC.

The Director is referring this application to the Planning Commission (PC) to make a recommendation to the Board of County Commissioners (BoCC). The PC shall determine if the application complies with the Land Use Code, and recommend approval, approval with conditions, or denial.



A number of documents were submitted with the application that provides information about this project (**Attached**). Staff has reviewed all documents submitted by the applicant and finds that they are sufficient. All required fees have been paid for this application. A draft resolution is provided for PC consideration finding the projects comply with the Land Use Code and recommending approval of PLN21-039A (Stucker Mesa) and PLN21-039B (Cottonwood Creek). There are two projects included in the application that could be considered independently, subject to the required findings.

DISCUSSION:

BACKGROUND

In 2014, the CO State Assembly declared broadband facilities to be a matter of statewide concern, because of the importance of those facilities to ensure that all citizens have access (and choice) to advanced technology and information. To reflect that importance, it enacted statute (CRS 29-27-403) that limits the time governments can spend processing and responding to certain applications related to the construction and operation of broadband. Generally, as a small cell network, the County has 90 days to process this permit from the date the application was deemed complete, unless TDS mutually agrees to an extension of time.

In 2018, TDS applied for a Utility Permit to install a 38-foot pole on the north side of Stucker Mesa Road, including boring under the road for their lines to connect to an existing DSA cabinet in the Right-of-Way on the south side of the road. The District #3 Road & Bridge Foreman signed the permit. However, the County identified a discrepancy of the Right-of-Way (ROW). It was later determined that some of the equipment was not located within the County ROW and the application was withdrawn.

Prior to January 5, 2021, properties were mostly unzoned, and the County did not have building codes in most of the unincorporated areas (except the Highway 92 Overlay). That said, certain development was subject to Specific Development regulations beginning in November 1, 2000. These regulations applied to any one or combination of 13 items listed in Article II; Applicability. Resolution 2000-R-35, adopted 10/2/2000, established Specific Development regulations for development within unincorporated Delta County, which became effective 11/1/2000. Article II, Section 2.A includes a list of uses that require a Development Agreement and Subsection 7 states (in part): *“microwave towers, cell phone/PCS towers and wireless antennas (excluding ham radio towers under 40 feet tall)”*.

Resolution 2021-R-001 repealed regulations regarding land use and subdivision and adopted a new Land Use Code (LUC). Under the LUC, the land use table refers to a Wireless Communication Facility Resolution. A resolution was drafted



(not adopted) as to the type off permit; however, projects are subject to the standards of the LUC.

On March 10, 2021, the Planning Commission agenda included an item: Planning Commission's consideration of Delta County Wireless Communications Facilities Resolution as a proposed amendment to the Delta County Land Use Code to be referred to the Board of County Commissioners. There was also an executive session to discuss the matter with the County Attorney. The PC voted to table this matter.

On April 20, 2021, TDS submitted a Specific Development application form. Since that process was no longer applicable, staff established this request under the 2021 LUC and scheduled a pre-application conference. A pre-application conference was held on June 7, 2021 that included staff representatives from County Planning, Engineering, Road & Bridge, Office of Emergency Management, GIS and County Attorney. The applicant described their proposal and answered a number of questions.

ASSESSMENT

The pre-application package identified a new 60-foot-tall composite microwave antenna located in the County right-of-way for Stucker Mesa Road, at the corner of 38595 Stucker Mesa Road. Prior to the pre-application conference, TDS identified a second location to install a new 50-foot-tall composite microwave antenna on a site they control off Cottonwood Creek Road.

The following standards apply under the 2021 Land Use Code (LUC):

- Utilities shall be installed in appropriate locations to allow for efficient access and maintenance. All utilities shall follow road and driveway corridors where possible. See discussion below.
- Minimize impact to agricultural, natural and cultural resources. There would be no impact to these resources.
- Minimize impact on the views from designated scenic byways (¼ mile), the LUC does not protect private views. There is no maximum height limit, except may be limited to mitigate impacts to a scenic byway. The scenic byway, as designated by CDOT, nearest to each site is West Elk Loop.
- Design in regard to not exacerbate hazards (fire, geologic, operational). See discussion below.
- Shielded or hooded outdoor lighting so as to not cast light or glare onto adjacent property, or upwards where it dilutes the night sky. No lighting will be placed on poles for maintenance or as FAA requirement. If night repairs are required, lighting would be brought from off-site for safety. Condition #4 has been included to reflect this.
- All buildings and structures shall be setback 25 feet from roadways. Development on private property is required to be set back 25 feet from the road Right-of-Way (ROW). This project would be located within the ROW, but there is a corner where the pole can be located at least 25 feet



from the edge of road. Locating a pole further away from the corner reduces potential of a traffic hazard.

Staff questioned the site-selection, and requested a justification study to include both locations. TDS explained that this type of system involves a site (path) analysis versus network (e.g., cellular). In other words, this system requires line of sight (or physical connection such as cable) with other towers/substation within the system.

Following the pre-application conference, staff sent TDS an application package, including a Telecommunication Checklist. This Checklist identifies information to provide that justifies the proposed location and height of the tower; line of sight (site-to-site), relative distance to cabinet, close to commercial power, etc. It also requests plans relative to security and screening. Materials submitted responding to staff's requested information is **Attached**.

The Stucker Mesa pole is proposed to be located within County right-of-way (ROW) on the south side of Stucker Mesa just outside the property boundary of 38590 Stucker Mesa Rd, Paonia (Parcel 3443-023-00-055/Larcker). This site requires trenching about 1900 feet east to an existing DSA cabinet, located within a utility easement south of the road ROW. TDS provided documentation relative to prescriptive easement and other methods of determining this is a viable location.

Being development in the County right-of-way, the County will seek a lease or license agreement for this site (BoCC consideration). A key issue for the County will be public safety with a pole located along a roadway, and holding the County harmless for any damages caused as a result of placing this pole in our right-of-way (hazard, liability). In addition, a Utility Permit will be required for work in the right-of-way. TDS considered an existing easement where the Grantor conveys an easement for communication facilities. Due to contention from the property owner, where the easement is located, TDS opted to locate the Stucker Mesa tower within the County ROW and underground cable under 2,000 feet to the existing DSA cabinet.

The Cottonwood Creek pole would be within an existing easement about 10 feet southwest of the existing DSA cabinet. The site is located along an existing driveway for 39025 Cottonwood Creek Road, Crawford (Parcel #: 3449-141-03-001/ Johnson).

In the meeting, staff questioned the wind rating - considering pole damage experienced during a recent wind storm. TDS responded that aesthetic elements of the pole were not considered during design. The poles would be of composite material with natural color and texture, coated to reduce UV impact. This type of pole was chosen as it meets the physical limitations required. The height was specific to accommodate line-of-sight.



Staff asked about co-location using existing poles. Since this is a point-to-point connection between existing TDS infrastructure, collocated wireless towers were not considered feasible for this project. Aside from power poles, there are no poles in the vicinity of the chosen sites that can accommodate TDS's infrastructure without significant alteration.

Public comments regarding Stucker Mesa refer to DMEA poles located in the area. Staff has been informed that a Joint Use Agreement (JUA) between TDS and DMEA restricts wireless attachments or attachment of any kind above the communications space, which is located 40-inches below the lowest power attachment. As a result, there is generally an average of about 3 feet of communication space on a 40-foot pole and TDS needs more space for their equipment. Also, by TDS setting their own equipment they can respond to issues immediately without working through a third party.

OTHER AGENCIES INVOLVED:

Planning Staff sent the application package to about 20 Review Agencies for comment on November 5, 2021. Adjoining Property Owners (within a 1,000-foot radius from all applicable parcels) were also sent a Public Notice for this application, including the applicant.

Responses were received from CO Dept of Transportation (CDOT), CO Dept of Parks and Wildlife (CPW), and the Town of Crawford. None of these agencies had any comments on the project(s). Planning has received communications from various members of the public, including adjacent neighbors (**Attached**).

Staff strongly recommended that the applicant hold a neighborhood meeting. TDS noted that they held a neighborhood meeting in 2018, but staff suggested a more current meeting given that the Land Use Code was adopted since that time. Staff offered to attend a meeting if it were set up by TDS. TDS noted that they planned to offer a neighborhood meeting on Thursday 2/3.

Road & Bridge, District #3 (attached): No issue with the Cottonwood Creek site. Recommend a stand-alone pad that is not connected to the shoulder slope where there is good drainage and space for maintenance (e.g. snow plow). (**Condition #2**).

Public Comments: No comments have been received relative to the Cottonwood Creek site. Generally, comments are in opposition to the Stucker Mesa site, including:

- Local service needs
- Co-Location (KVNF Tower, DMEA)
- Potential Hazards (traffic, health)
- Scenic Viewshed



Public comments received prior to completion of the staff report are **Attached**. Comments received prior to the meeting will be sent out to the PC ahead of the meeting. Comments received the day of the meeting will be handed out at the meeting.

Report prepared by:

Carl P. Holm, AICP, Planning & Community Development

970.874.2110

cholm@deltacounty.com

January 31, 2022

Attachment(s), in the following order:

1. Draft Resolution
 - Conditions
2. Justification Report
3. Stucker Mesa Plans
4. Cottonwood Creek Plans
5. Public Comments

**RESOLUTION
OF THE
PLANNING COMMISSION
OF THE COUNTY OF DELTA,
STATE OF COLORADO**

PLN21-039/TDS TELECOMMUNICATION

RECOMMEND THAT THE BOARD OF COUNTY COMMISSIONERS APPROVE CONDITIONAL USE PERMIT(S) TO INSTALL AND OPERATE TWO WIRELESS COMMUNICATION FACILITIES: SITE #1; 60-FOOT-TALL POLE IN THE COUNTY RIGHT-OF-WAY ADJACENT TO 38590 STUCKER MESA ROAD; APPROXIMATELY 2.1 MILES WEST OF PAONIA (PARCEL: 324302300055); AND SITE #2; 50-FOOT-TALL POLE WITHIN A TDS EASEMENT AT 39025 COTTONWOOD CREEK ROAD APPROXIMATELY 3.6 MILES NORTH OF CRAWFORD (PARCEL: 344914103001).

RECITALS

WHEREAS, Delta County has public right-of-way for Stucker Mesa Road, and TDS Telecommunications has applied to locate a pole within the right-of-way near 38590 Stucker Mesa Road (Site #1, Parcel 3243-023-00-055, Account: R017196); and

WHEREAS, Mr. Samuel F Johnson Jr is the property owner of record of the real property, including an easement in favor of TDS Telecommunication, located at 39025 Cottonwood Creek Road (Site #2, Parcel 3449-141-03-001, Account: R020141); and

WHEREAS, in 2018, TDS Telecommunications applied to Delta County for a Utility Permit to install a 38-foot pole on the north side of Stucker Mesa Road, including boring under the road for their lines to connect to an existing DSA cabinet in the Right-of-Way on the south side of the road; and

WHEREAS, Delta County determined that the proposed facilities were not within County right-of-way and might require a Specific Development Permit; and

WHEREAS, TDS withdrew their application for the Stucker Mesa site; and

WHEREAS, on January 5, 2021, Delta County Board of County Commissioners adopted the Delta County Land Use Code (LUC). Resolution No 2021-R-001 repealed regulations regarding land use and subdivision and adopted a new land use code (including zoning maps); and

WHEREAS, on April 20, 2021, TDS submitted a Specific Development application form to install two (2) new composite microwave antenna; and

WHEREAS, County staff determined this request is subject to the 2021 LUC and scheduled a pre-application conference since the Specific Development process was no longer applicable; and

WHEREAS, Site #1 is a 60-foot-tall pole located in the County right-of-way for Stucker Mesa Road at the corner of 38595 Stucker Mesa Road Zoned Agricultural/35-Acres ("A-35"), which requires a minimum of 35.0 acres per parcel; and

WHEREAS, Site #2 is a 50-foot-tall pole on a site where TDS has an easement off Cottonwood Creek Road Zoned Agricultural/35-Acres ("A-35"), which requires a minimum of 35.0 acres per parcel; and

WHEREAS, County staff established this request under the 2021 LUC and scheduled a pre-application conference since the Specific Development process was no longer applicable; and

WHEREAS, a Wireless Communication Facility Resolution was drafted as an appendix to the Land Use Code but has not been adopted; however, projects are subject to the standards of the LUC; and

WHEREAS, absent a resolution for the type of permit, County Planning Director referred this matter to a public hearing at the Planning Commission to make a recommendation to the Board of County Commissioners; and

WHEREAS, on June 7, 2021, a pre-application conference was held between the applicants and staff from Delta County to review preliminary materials to help identify potential issues and applicable review procedures, including the history with the Stucker Mesa site; and

WHEREAS, on June 11, 2021, a letter was sent to the applicant representative summarizing the pre-application conference and process, identifying applicable fees, and providing a checklist of materials required for an application; and

WHEREAS, on October 25, 2021, TDS Telecommunications submitted an application package; and

WHEREAS, on November 5, 2022, a Public Notice was sent to Adjoining Property Owners (200-foot radius) and notice was posted on the property informing

the public that on December 8, 2021 the Delta County Planning Commission would consider this matter; and

WHEREAS, on December 8, 2021, the Planning Commission continued the matter to be heard February 9, 2022 in order to address staff's request for additional information; and

WHEREAS, on January 14, 2022, TDS Telecommunications submitted additional information requested by County staff to complete the application; and

WHEREAS, on January 20, 2022, the application package was determined to be complete by the Planning Department; and

WHEREAS, on January 26, 2022, a Public Notice was sent to Adjoining Property Owners (200-foot radius) and notice was posted on the property informing the public that on February 9, 2022 the Delta County Planning Commission would consider this matter; and

WHEREAS, on February 9, 2022, the Planning Commission held a duly noticed public hearing to consider wireless communication facilities at two locations; Stucker Mesa Road (Site #1), and Cottonwood Creek Road (Site #2) [PLN21-039/TDS Telecommunications].

DECISION

NOW, THEREFORE, BE IT RESOLVED, having considered all the written and documentary evidence, the administrative record, and other evidence presented, the Delta County Planning Commission does hereby:

- A. Find that PLN21-039 meets standards of 2021 Delta County Land Use Code (Chapters 3, 4 and 5) as follows:
 1. *Utilities shall be installed in appropriate locations to allow for efficient access and maintenance. All utilities shall follow road and driveway corridors where possible. See discussion below.*
 2. *Minimize impact to agricultural, natural and cultural resources. There would be no impact to these resources.*
 3. *Minimize impact on the views from designated scenic byways (¼ mile). There is no maximum height limit, except as might be limited to mitigate impacts to a scenic byway. The scenic byway, as designated by CDOT, nearest to each site is West Elk Loop.*
 4. *Design in regard to not exacerbate hazards (fire, geologic, operational). See discussion below.*
 5. *Shielded or hooded outdoor lighting so as to not cast light or glare onto adjacent property, or upwards where it dilutes the night sky. No lighting*

will be placed on poles for maintenance or as FAA requirement. If night repairs are required, lighting would be brought from off-site for safety.

6. *All buildings and structures shall be setback 25 feet from roadways.* Development on private property is required to be set back 25 feet from the road Right-of-Way (ROW). This project would be located within the ROW, but there is a corner where the pole can be located at least 25 feet from the edge of road.

- B. Approve PLN21-039A (Site #1), a Conditional Use Permit to install a 60-foot-tall wireless facility in the County Right-of-Way adjacent to 38590 Stucker Mesa Road (Parcel: 3443-023-00-055).
- C. Approve PLN21-039B (Site #2), a Conditional Use Permit to install a 50-foot-tall wireless facility within a TDS easement located at 39025 Cottonwood Creek Road (Parcel: 3449-141-03-001).
- D. The Planning Commission recommends approval subject to conditions attached hereto and incorporated herein by reference as Exhibit A.

ADOPTED AS SET FORTH ABOVE on this 9th day of February, 2022 upon motion of Commissioner _____, seconded by Commissioner _____, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

COUNTY OF DELTA
STATE OF COLORADO

Carl P. Holm, AICP
Planning Commission Secretary

Dated: _____

EXHIBIT A
Conditions of Approval
TDS Telecommunications (PLN21-039)
PC, February 9, 2022

1. Development of the TDS Telecommunication project (Stucker Mesa and Cottonwood Creek sites) shall be in accordance with approved plans and supplemental documentation to the satisfaction of the Director of Community Development and Natural Resources, including but not limited to:
 - a. Cottonwood Creek Development Plans, dated 8-12-21
 - b. Cottonwood Creek Revised Site Plan, dated 11-8-21
 - c. Stucker Mesa Development Plans- dated 4-8-21
 - d. Stucker Mesa Site Plan

Any significant modification shall require an amendment to be considered by the Planning Commission and Board of County Commissioners.

2. Stucker Mesa pole shall be placed on a stand-alone pad that is not connected to the shoulder slope where there is good drainage and space for maintenance (e.g., snow plow) to the satisfaction of the County Engineer and Road & Bridge Foreman - District 3. [County Engineering, R&B-D3]
3. Prior to installing a pole at the Stucker Mesa site, the applicant shall obtain approval (lease or license agreement) by the Delta County Board of County Commissioners to develop a structure within the County Right-of-Way.
4. There shall be no lighting on either tower/pole. Emergency service at night will require bringing necessary lighting for the crews.

Delta County

Planning and Community Development

295 W 6th St.

Delta, CO 81416

TDS Telecom Conditional Use Permit

Stucker Mesa (DSA 37310) and Cottonwood Creek (DSA 37014) Microwave Sites

Overview:

Seeking Conditional Use Permit for approval to erect 2 poles for backhaul of existing copper infrastructure fringe of network to existing fiber infrastructure in core of network. Operations will take place within existing easements held by TDS and Delta County right of way.

Objectives of this proposal are to bring increased speed and reliability to all parts of the network, dramatically increase the speed and reliability for customers in the fringe of the network, and to allow for future expansion of the network's existing physical infrastructure.

The two sites that are being proposed are as follows:

DSA 37310 – Stucker Mesa Rd. Paonia, CO - 38.864480, -107.643066 (60' pole in County ROW)

DSA 37014 – Cottonwood Creek Rd. Crawford, CO - 38.754874, -107.631991 (50' pole in TDS Easement)

Justification Plan

A. When choosing locations for MW Sites, 3 factors are considered: Proximity to existing DSA Cabinet that serves area requiring upgrade, line of sight to fiber fed MW location for backhaul to Central Office, and buildable space in County ROW or TDS easement. Locations are not chosen based on wireless coverage as this infrastructure does not provide mesh wireless network – no wireless coverage gaps are considered as part of this project.

DSA 37310: Proposed MW site located approximately 1925' West along Stucker Mesa Rd from existing TDS DSA 37310 (DSA within private easement held by TDS – Recorded with Delta County under Rec # 561338) – Easement is attached to this application as **Exhibit A**. Location is within allowable distance to provide connection back to DSA via fiber-optic cable. Extension beyond vicinity of chosen location would require commercial power – adding cost and additional infrastructure to site. Location provides line of sight for 3.5-mile point-to-point connection to existing fiber fed remote radio location. Location is within Delta County right of way, which TDS has authority to construct, maintain, and operate infrastructure within as a public utility. While other locations may be available, TDS has found this location most suitable to factors listed above.

DSA 37014: Proposed MW site located within TDS held easement (recorded with Delta County under Rec# 511384) – Easement is attached to this application as **Exhibit B**. Location within said easement is adjacent to DSA for simple connection. Location provides line of site for 4.37 mile point-to-point connection to pre-existing remote radio connection. Easement allows for construction, maintenance and operation of any infrastructure required to operate utility. New composite pole will replace existing wooden pole at same location.

B. Neither site is located within a ¼ mile of a scenic byway as recognized by Delta County or Colorado Department of Transportation. The scenic byway nearest to each site is West Elk Loop (CO-133 and CO-92). Site 37310 is ~2400' from CO-133 using direct line measurement. Site 37014 is 1.85 miles from CO-92 using direct line measurements.

C. Aesthetic elements of pole were not considered during design – pole was chosen as it meets the physical limitations required to remain static in place to maintain wireless connection to other existing TDS microwave sites in market. Pole is of composite material with natural color and texture. Surface is coated to reduce UV impact. Photos of chosen sites are included in application for reference. Existing power poles shown for scale are 40' in height and are standard wood utility poles – TDS proposed poles will be 10' & 20' higher to accommodate line of sight. A spec sheet of the chosen poles is attached to this application as **Exhibit C** for reference

D. Aside from power poles, there are no poles in the vicinity of the chosen sites that can accommodate TDS's infrastructure. While we have a joint use agreement with Delta Montrose Electric Association (DMEA), DMEA's electric infrastructure in the vicinity of the project cannot support the wireless communication infrastructure sought in this proposal without significant alteration. Since this is not a wireless mesh network but rather a point-to-point connection between existing TDS infrastructure, collocated wireless towers were not considered feasible for project.

E. TDS has reviewed and approved of the structural integrity of the poles. Poles were chosen specifically for microwave connectivity due to their strength and rigidity – both of which are needed to maintain consistent point to point wireless connection. Spec sheets complete with wind/load ratings for the chosen poles are attached in this application as **Exhibit C** for reference.

F. Attached surveys show existing roads that will provide access to proposed sites. Stucker Mesa Rd is a County maintained road where TDS is authorized to park for general maintenance and allowed to build, maintain, and operate telecommunications infrastructure through right of way permits. Right of Way permits will be obtained for construction of site and construction of fiber optic cable from site to existing DSA. The Cottonwood Creek site is proposed within an easement held by TDS where an access turnout has been well established. By granting said easement, TDS was granted the right of ingress/egress across Grantor property for the purpose of exercising the rights of the easement. Access language can be found in easement attached as **Exhibit B**.

G. The infrastructure proposed is approved by the FCC for use in the application TDS is proposing. Spec sheets for proposed radios provide specifications and other information that can be used to verify FCC approval can be found on attached **Exhibit D**. FAA requirements for both sites have been attached on **Exhibit E**

H. Cottonwood Creek, Crawford Mesa pipeline, and an unnamed drainage ditch are within 300 feet of the proposed site at DSA 37014. The Fire Mountain Canal is not within 300 feet of the proposed site at DSA 37310, but it is worth noting that it is within 600 feet. The equipment proposed neither uses nor produces any harmful substances that would have an adverse effect on said environmentally sensitive habitat. Referring to a report titled “Natural Heritage Biological Survey of Delta County, Colorado” prepared for Delta County Commissioners by the Natural Heritage Program of Colorado, neither proposed site is within nor directly adjacent to a biologically sensitive area. Said report attached to application as **Exhibit F**.

Landscape/Lighting Plan

A-C. No additional screening, vegetation or landscaping is proposed at either proposed site. Once the pole is set, crews will seed with native/County approved seed mix and return to original condition and follow Delta County specification for restoration.

D. No lighting will be placed on poles for maintenance or as FAA requirement (see above regarding FAA). Should night maintenance be required, lights will be brought in from off-site and will follow Delta County night work/lighting requirements.

E. Poles do not have steps and, like traditional utility poles, would require specialized equipment to climb. Technicians will access pole via bucket trucks for initial set up and future maintenance. There are no proposed anti-climbing measures.

F. As defined in Ch 5 Section 1, this proposal constitutes a level 1 traffic study – in accordance with “Table 5. A – Traffic Impact Study Scope”, a sight distance study is not required.

INDIVIDUAL
CONVEYANCE OF
EASEMENT

DOCUMENT NO.

FOR VALUABLE CONSIDERATION OF ONE THOUSAND (\$1,000.00) DOLLARS,
STEPHEN J. SWARTZENDRUBER AND CYNTHIA L. SWARTZENDRUBER, JOINT
TENANTS RESIDING AT 3860 035 LANE, PAONIA, CO 81419, FOR THEMSELVES,
THEIR HEIRS, SUCCESSORS AND ASSIGNS,

("Grantor") hereby conveys and quit claims to DELTA COUNTY TELE-COM, INC.,
D/B/A TDS TELECOM, a Corporation, its successors and assigns. ("Grantee"), for a
valuable consideration an easement to construct, use, maintain operate, alter, add to,
repair, replace, and/or remove its facilities consisting of underground cables and wires,
and for appurtenances for communication and/or other purposes upon, in, under,
across, and along that certain real property in the _____ County, _____
City, Village, or _____ DELTA

State of COLORADO, described as follows:

An easement 15 feet wide by 15 feet long to place telephone electronic equipment
cabinets described as commencing at the Northwest corner of the property hereinafter
described at the South right of way line of 035 lane. Thence running Easterly along said
Southerly right of way line a distance of 150 feet to the true point of beginning at a
power pole. Thence, continuing Easterly along said right of way line a distance of 15
feet; thence, turning and running Southerly along a driveway 15 feet to a point; thence,
turning and running Westerly a distance of 15 feet to a point; thence, turning and
running Northerly a distance of 15 feet back to the true point of beginning. All of said
easement being on the property described in Book 503, Page 914, Reception No.
398570 as part of the Northwest Quarter of the Southeast Quarter (NW ¼, SE ¼) of
Section 2, Township 14 South, Range 92 West of the 6th prime meridian, Delta County,
Colorado and more fully described in said deed.

RETURN TO: Everett H. Perry
TDS Telecom
P. O. Box 5158
Madison WI 53705-0158

Parcel Identification Number

SECTION 2 TOWNSHIP 14 S. RANGE 92 W.

The grantee, for itself, its successors and assigns, agrees that it will pay the reasonable value of
any crops destroyed and other actual physical damage done to the property of the grantors _____, their
successors and assigns, arising at any time out of the exercise by it of the rights herein granted.

The Grantee, it successors and assigns, shall have the right of ingress to and egress from the land of the Grantor for the purpose of
exercising the rights herein granted, and the right to cut down and control the future growth of all trees and brush which may, in
Grantee's judgement, interfere with the use of said easement.

Grantor covenants not to erect any structure upon the aforesaid real property that would interfere with Grantee's use of said
easement and this covenant shall be binding upon Grantor's successors and assigns.

DATED: 12/3/01

Stephen J. Swartzendruber (SEAL)
Stephen J. Swartzendruber
Name typed or printed

Easement No. EPAO-01-DSA010

Cynthia L. Swartzendruber (SEAL)
Cynthia L. Swartzendruber
Name typed or printed

Exchange PAONIA

Name typed or printed

Work Order No. TKE1600

Name typed or printed

STATE OF COLORADO)
County of DELTA) SS.

On 12/3/01, before me, the undersigned, a Notary Public in and for said State, personally appeared
Stephen J. Swartzendruber and Cynthia L. Swartzendruber
know to me to be the persons whose names _____ is/are subscribed to the within instrument, and
acknowledged to me that _____ they _____ executed the same.

Witness my hand and official seal

Carol S. Edwards
CAROL S. EDWARDS
Name typed or printed

Notary Public DELTA County,

My Commission (Expires) 12/17/2004

The instrument was drafted

By Everett H. Perry, TDS Telecom

ECRW-98-002



511384 02/11/1998 04:07P B795 P530 LMcCracken
1 of 2 R 11.00 D 0.00 Delta Cty, CO Clerk & Rec

INDIVIDUAL
CONVEYANCE OF
EASEMENT

DOCUMENT NO.

FOR VALUABLE CONSIDERATION
JERRY LEE LEHL TRUST, JERRY LEE LEHL, TRUSTEE, FOR ITSELF, IT'S
SUCCESSORS AND ASSIGNS
("Grantor") hereby conveys and quit claims to DELTA COUNTY TELE-COMM, INC.,
a Corporation, its successors and assigns. ("Grantee"), for a valuable consideration
an easement to construct, use, maintain operate, alter, add to, repair, replace,
and/or remove its facilities consisting of underground cables and wires, and for
appurtenances for communication and/or other purposes upon, in, under, across,
and along that certain real property in the _____: DELTA
County, _____
City, Village, or

State of COLORADO _____, described as follows:
AN EASEMENT AS SHOWN ON EXHIBIT "A" ON THE PROPERTY DESCRIBED
IN BOOK 673, PAGE 482 AS THE NW1/4 OF THE NW1/4, SECTION 13,
TOWNSHIP 15 SOUTH, RANGE 92 WEST OF THE 6TH P.M., DELTA COUNTY,
COLORADO.

1. GRANTEE WILL MAINTAIN AT IT'S EXPENSE THE PERIMETER FENCE
AROUND THE 20' X 20' SITE.
2. GRANTEE WILL AT IT'S EXPENSE OBTAIN THE NECESSARY PERMITS
FROM DELTA COUNTY AND PLACE A 25' FOOT CULVERT AND GRAVEL
REQUIRED FOR A DRIVEWAY AT THE GATE JUST EAST OF THE EASEMENT.

RETURN TO: Delta County Tele-Comm, Inc.
132 Grand Ave.
P.O. Box 730
Paonia CO 81428-0730

Parcel Identification Number

SECTION 13 TOWNSHIP 15 SOUTH RANGE 92 WEST

The grantee, for itself, its successors and assigns, agrees that it will pay the reasonable value of
any crops destroyed and other actual physical damage done to the property of the grantor _____, IT'S _____ heirs,
successors and assigns, arising at any time out of the exercise by it of the rights herein granted.

The Grantee, it successors and assigns, shall have the right of ingress to and egress from the land of the Grantor for the purpose of
exercising the rights herein granted, and the right to cut down and control the future growth of all trees and brush which may, in
Grantee's judgment, interfere with the use of said easement.

Grantor covenants not to erect any structure upon the aforesaid real property that would interfere with Grantee's use of said
easement and this covenant shall be binding upon Grantor's successors and assigns.

DATED: Jan 30, 1998

Jerry Lee Lehl (SEAL)
JERRY LEE LEHL, TRUSTEE
Name typed or printed

Easement No. _____

Name typed or printed

Exchange CRAWFORD

Name typed or printed

Work Order NO. TKB801

Name typed or printed

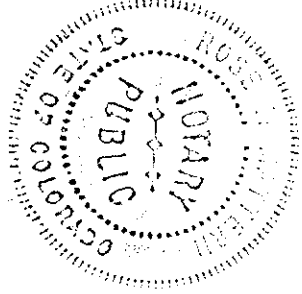
STATE OF COLORADO)
County of DELTA) SS.

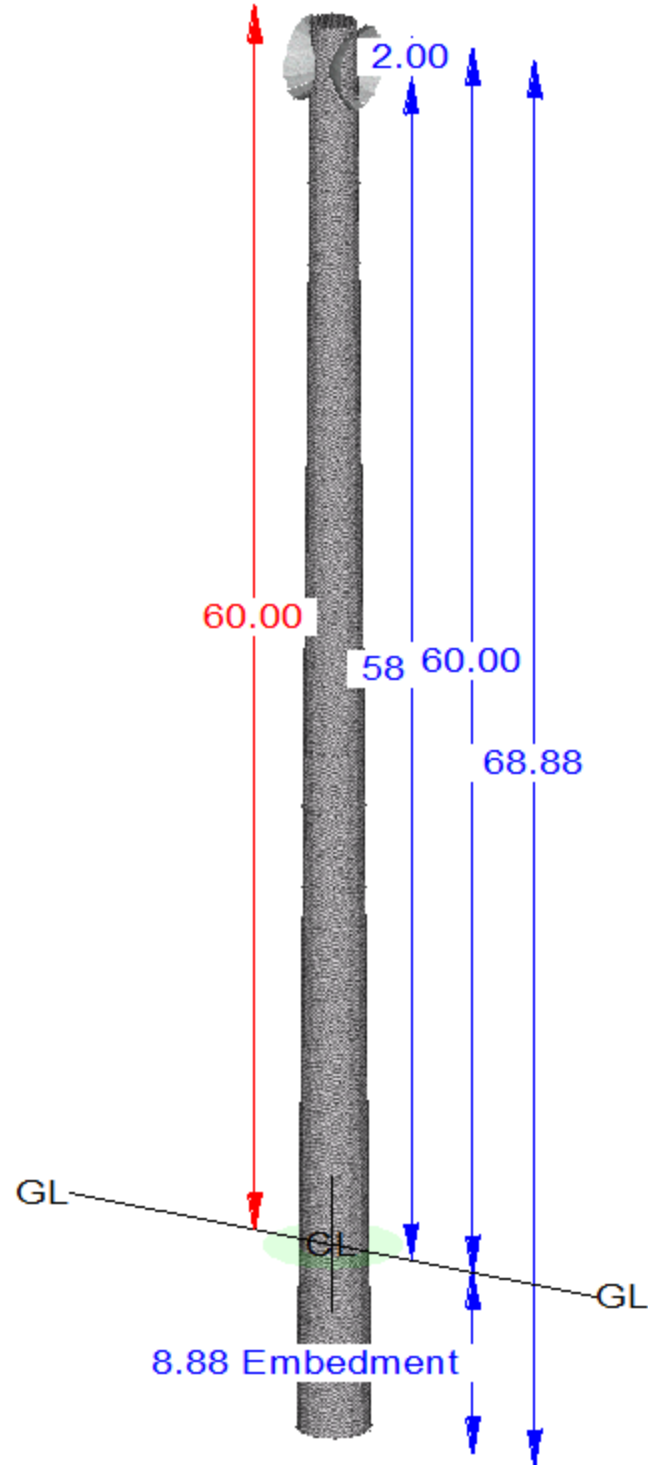
On Jan 30, 1998, before me, the undersigned, a Notary Public in and for said State, personally appeared
JERRY LEE LEHL known to me to be the person whose name is subscribed to the within instrument, and acknowledged
to me that he executed the same.

Witness my hand and official seal

Rose Mattem
Rose Mattem
Name typed or printed

Notary Public DELTA County,
My Commission (Expires) (is) 06/01/99





Project Name : 20-VW-0011
Project Notes: TDS Light and Heavy 60' AGH Pole Analysis
Project File : S:\Engineering\Engineering Services\2020\20-VW-0011 TDS Light and Heavy 60ft AGH Pole Analysis\Analysis\Rev-B\60ft AGH-LD pole.pol
Date run : 2:15:54 PM February-10-20
by : PLS-POLE Version 16.01
Licensed to : RS Technologies Inc

Successfully performed nonlinear analysis

The model has 0 warnings.

Loads from file: S:\Engineering\Engineering Services\2020\20-VW-0011 TDS Light and Heavy 60ft AGH Pole Analysis\Analysis\Rev-B\loads CO.eia

*** Analysis Results:

Maximum element usage is 47.80% for FRP Pole "FRP" in load case "Wind regular 90deg"

Foundation Design Forces For All Load Cases:

Note: loads are factored.

Load Case	Foundation Description	Axial Force (kips)	Shear Force (kips)	Bending Moment (ft-k)	Foundation Usage %
Combined wind and ice 0	FRP:g	5.79	1.38	44.11	0.00
Combined wind and ice 180	FRP:g	5.79	1.38	44.11	0.00
Combined wind and ice -90	FRP:g	5.79	1.58	55.46	0.00
Combined wind and ice 90	FRP:g	5.79	1.58	55.46	0.00
Combined wind and ice -60	FRP:g	5.79	1.54	53.27	0.00
Combined wind and ice 60	FRP:g	5.79	1.54	53.27	0.00
Combined wind and ice -45	FRP:g	5.79	1.51	51.62	0.00
Combined wind and ice 45	FRP:g	5.79	1.51	51.62	0.00
Wind service 0	FRP:g	2.73	0.88	28.71	0.00
Wind service 180	FRP:g	2.73	0.88	28.71	0.00
Wind service -90	FRP:g	2.73	1.11	41.98	0.00
Wind service 90	FRP:g	2.73	1.11	41.98	0.00
Wind service -60	FRP:g	2.73	1.06	39.59	0.00
Wind service 60	FRP:g	2.73	1.06	39.59	0.00
Wind service -45	FRP:g	2.73	1.03	37.82	0.00
Wind service 45	FRP:g	2.73	1.03	37.82	0.00
Wind Regular 0deg	FRP:g	3.28	3.54	115.72	0.00
Wind regular 45deg	FRP:g	3.28	4.14	152.39	0.00
Wind regular 60deg	FRP:g	3.28	4.28	159.54	0.00
Wind regular 90deg	FRP:g	3.28	4.45	169.17	0.00
Wind regular 180deg	FRP:g	3.28	3.54	115.72	0.00
Wind regular -45deg	FRP:g	3.28	4.14	152.39	0.00
Wind regular -60deg	FRP:g	3.28	4.28	159.54	0.00
Wind regular -90deg	FRP:g	3.28	4.45	169.17	0.00

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Bending Moment (ft-k)	Vert. Moment (ft-k)	Found. Usage %
Combined wind and ice 0	FRP:g	-1.38	0.00	-5.79	1.38	-0.00	-44.11	44.11	0.00	0.00
Combined wind and ice 180	FRP:g	1.38	-0.00	-5.79	1.38	0.00	44.11	44.11	-0.00	0.00
Combined wind and ice -90	FRP:g	-0.00	1.58	-5.79	1.58	-55.46	-0.00	55.46	0.00	0.00
Combined wind and ice 90	FRP:g	-0.00	-1.58	-5.79	1.58	55.46	-0.00	55.46	-0.00	0.00
Combined wind and ice -60	FRP:g	-0.69	1.37	-5.79	1.54	-48.45	-22.15	53.27	-0.06	0.00
Combined wind and ice 60	FRP:g	-0.69	-1.37	-5.79	1.54	48.45	-22.15	53.27	-0.03	0.00
Combined wind and ice -45	FRP:g	-0.98	1.15	-5.79	1.51	-41.04	-31.31	51.62	-0.08	0.00
Combined wind and ice 45	FRP:g	-0.98	-1.15	-5.79	1.51	41.04	-31.31	51.62	0.08	0.00
Wind service 0	FRP:g	-0.88	0.00	-2.73	0.88	-0.00	-28.71	28.71	0.00	0.00
Wind service 180	FRP:g	0.88	-0.00	-2.73	0.88	0.00	28.71	28.71	-0.00	0.00

Wind service -90 FRP:g	-0.00	1.11	-2.73	1.11	-41.98	0.00	41.98	-0.00	0.00
Wind service 90 FRP:g	-0.00	-1.11	-2.73	1.11	41.98	-0.00	41.98	-0.00	0.00
Wind service -60 FRP:g	-0.44	0.97	-2.73	1.06	-36.85	-14.46	39.59	-0.07	0.00
Wind service 60 FRP:g	-0.44	-0.97	-2.73	1.06	36.85	-14.46	39.59	-0.03	0.00
Wind service -45 FRP:g	-0.62	0.82	-2.73	1.03	-31.81	-20.44	37.82	-0.09	0.00
Wind service 45 FRP:g	-0.62	-0.82	-2.73	1.03	31.81	-20.44	37.82	-0.09	0.00
Wind Regular 0deg FRP:g	-3.54	0.00	-3.28	3.54	-0.00	-115.72	115.72	0.00	0.00
Wind regular 45deg FRP:g	-2.51	-3.29	-3.28	4.14	128.22	-82.37	152.39	0.37	0.00
Wind regular 60deg FRP:g	-1.78	-3.89	-3.28	4.28	148.51	-58.28	159.54	-0.12	0.00
Wind regular 90deg FRP:g	-0.00	-4.45	-3.28	4.45	169.17	-0.00	169.17	-0.00	0.00
Wind regular 180deg FRP:g	3.54	-0.00	-3.28	3.54	0.00	115.72	115.72	-0.00	0.00
Wind regular -45deg FRP:g	-2.51	3.29	-3.28	4.14	-128.22	-82.37	152.39	-0.37	0.00
Wind regular -60deg FRP:g	-1.78	3.89	-3.28	4.28	-148.51	-58.29	159.54	-0.28	0.00
Wind regular -90deg FRP:g	-0.00	4.45	-3.28	4.45	-169.17	0.00	169.17	0.00	0.00

Summary of Tip Deflections For All Load Cases:

Note: positive tip load results in positive deflection

Load Case	Joint Label	Long. Defl. (in)	Tran. Defl. (in)	Vert. Defl. (in)	Resultant Defl. (in)	Long. Rot. (deg)	Tran. Rot. (deg)	Twist (deg)
Combined wind and ice 0	FRP:t	3.58	-0.00	-0.48	3.61	0.40	0.00	-0.00
Combined wind and ice 180	FRP:t	-3.58	0.00	-0.48	3.61	-0.40	-0.00	-0.00
Combined wind and ice -90	FRP:t	-0.00	-4.78	-0.48	4.81	-0.00	0.55	-0.00
Combined wind and ice 90	FRP:t	0.00	4.78	-0.48	4.81	0.00	-0.55	-0.00
Combined wind and ice -60	FRP:t	1.80	-4.19	-0.48	4.58	0.20	0.48	0.00
Combined wind and ice 60	FRP:t	1.80	4.19	-0.48	4.58	0.20	-0.48	0.00
Combined wind and ice -45	FRP:t	2.55	-3.58	-0.48	4.42	0.28	0.41	0.00
Combined wind and ice 45	FRP:t	2.55	3.58	-0.48	4.42	0.28	-0.41	-0.00
Wind service 0	FRP:t	2.49	-0.00	-0.01	2.49	0.28	0.00	-0.00
Wind service 180	FRP:t	-2.49	0.00	-0.01	2.49	-0.28	-0.00	0.00
Wind service -90	FRP:t	-0.00	-3.95	-0.02	3.95	-0.00	0.46	-0.00
Wind service 90	FRP:t	0.00	3.95	-0.02	3.95	0.00	-0.46	-0.00
Wind service -60	FRP:t	1.25	-3.48	-0.02	3.70	0.14	0.41	0.00
Wind service 60	FRP:t	1.25	3.48	-0.02	3.70	0.14	-0.41	0.00
Wind service -45	FRP:t	1.77	-3.03	-0.02	3.51	0.20	0.35	0.00
Wind service 45	FRP:t	1.77	3.03	-0.02	3.51	0.20	-0.35	-0.00
Wind Regular 0deg	FRP:t	10.02	-0.00	-0.09	10.02	1.13	0.00	-0.00
Wind regular 45deg	FRP:t	7.15	12.21	-0.18	14.15	0.80	-1.43	-0.01
Wind regular 60deg	FRP:t	5.06	14.02	-0.19	14.90	0.57	-1.64	0.01
Wind regular 90deg	FRP:t	0.00	15.93	-0.22	15.93	0.00	-1.86	-0.00
Wind regular 180deg	FRP:t	-10.02	0.00	-0.09	10.02	-1.13	-0.00	-0.00
Wind regular -45deg	FRP:t	7.15	-12.21	-0.18	14.15	0.80	1.43	0.01
Wind regular -60deg	FRP:t	5.06	-14.01	-0.19	14.90	0.57	1.64	0.01
Wind regular -90deg	FRP:t	-0.00	-15.93	-0.22	15.93	-0.00	1.86	-0.00

Summary of FRP Pole Usages:

FRP Pole Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
FRP	47.80	Wind regular 90deg	1.4	19	2929.9

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
Combined wind and ice 0	12.40	FRP FRP Pole	
Combined wind and ice 180	12.40	FRP FRP Pole	
Combined wind and ice -90	15.45	FRP FRP Pole	
Combined wind and ice 90	15.45	FRP FRP Pole	
Combined wind and ice -60	14.86	FRP FRP Pole	
Combined wind and ice 60	14.86	FRP FRP Pole	
Combined wind and ice -45	14.41	FRP FRP Pole	
Combined wind and ice 45	14.41	FRP FRP Pole	
Wind service 0	8.33	FRP FRP Pole	
Wind service 180	8.33	FRP FRP Pole	
Wind service -90	12.05	FRP FRP Pole	
Wind service 90	12.05	FRP FRP Pole	
Wind service -60	11.38	FRP FRP Pole	
Wind service 60	11.38	FRP FRP Pole	
Wind service -45	10.89	FRP FRP Pole	
Wind service 45	10.89	FRP FRP Pole	
Wind Regular 0deg	32.80	FRP FRP Pole	
Wind regular 45deg	43.09	FRP FRP Pole	
Wind regular 60deg	45.09	FRP FRP Pole	
Wind regular 90deg	47.80	FRP FRP Pole	
Wind regular 180deg	32.80	FRP FRP Pole	
Wind regular -45deg	43.09	FRP FRP Pole	
Wind regular -60deg	45.09	FRP FRP Pole	
Wind regular -90deg	47.80	FRP FRP Pole	

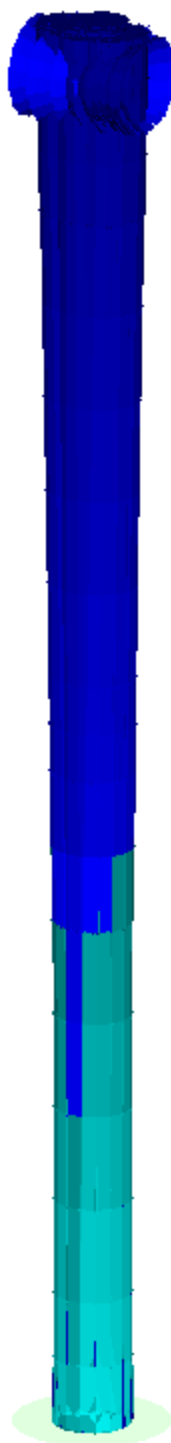
Summary of FRP Pole Usages by Load Case:

Load Case	Maximum Usage %	FRP Pole Label	Height AGL (ft)	Segment Number
Combined wind and ice 0	12.40	FRP	1.4	19
Combined wind and ice 180	12.40	FRP	1.4	19
Combined wind and ice -90	15.45	FRP	1.4	19
Combined wind and ice 90	15.45	FRP	1.4	19
Combined wind and ice -60	14.86	FRP	1.4	19
Combined wind and ice 60	14.86	FRP	1.4	19
Combined wind and ice -45	14.41	FRP	1.4	19
Combined wind and ice 45	14.41	FRP	1.4	19
Wind service 0	8.33	FRP	1.4	19
Wind service 180	8.33	FRP	1.4	19
Wind service -90	12.05	FRP	1.4	19
Wind service 90	12.05	FRP	1.4	19
Wind service -60	11.38	FRP	1.4	19
Wind service 60	11.38	FRP	1.4	19
Wind service -45	10.89	FRP	1.4	19
Wind service 45	10.89	FRP	1.4	19
Wind Regular 0deg	32.80	FRP	1.4	19
Wind regular 45deg	43.09	FRP	1.4	19
Wind regular 60deg	45.09	FRP	1.4	19
Wind regular 90deg	47.80	FRP	1.4	19
Wind regular 180deg	32.80	FRP	1.4	19
Wind regular -45deg	43.09	FRP	1.4	19
Wind regular -60deg	45.09	FRP	1.4	19
Wind regular -90deg	47.80	FRP	1.4	19

*** Weight of structure (lbs):
Weight of FRP Poles: 2929.9

Weight of Equipment: 198.0
Total: 3127.9

*** End of Report



* PLS-POLE *
* POLE AND FRAME ANALYSIS AND DESIGN *
* Copyright Power Line Systems 1999-2019 *
* *****

Project Name : 20-VW-0011
Project Notes: TDS Light and Heavy 60' AGH Pole Analysis
Project File : S:\Engineering\Engineering Services\2020\20-VW-0011 TDS Light and Heavy 60ft AGH Pole Analysis\Analysis\Rev-B\60ft AGH-LD pole.pol
Date run : 2:15:51 PM February-10-20
by : PLS-POLE Version 16.01
Licensed to : RS Technologies Inc

Successfully performed nonlinear analysis

The model has 0 warnings.



Modeling options:
Offset Arms from Pole/Mast: Yes
Offset Braces from Pole/Mast: Yes
Offset Guys from Pole/Mast: Yes
Offset Posts from Pole/Mast: Yes
Offset Strains from Pole/Mast: Yes
Use Alternate Convergence Process: No

FRP Pole Properties:

FRP Pole Property Label	Stock Number	Length Embedded Length (ft)	Default Shape	Default Drag Coef.	Tubes	Top Tube Cut (ft)
PP-0688-F-0711-C	PP-0688-F-0711-C	68.88	8.88	0	0	3 tubes
26.98 Module 6/7, Module 8/9, Module 10/11						

FRP Pole Connectivity:

Pole Label	Tip Joint	Base Joint	X of Y Base (ft)	Y of Z Base (ft)	Inclin. About X (deg)	Inclin. About Y (deg)	Property Set	Attach. Labels	Base Connect	Embed Override	% Embed	C. Override (ft)
FRP	0	0	0	0	0	0	PP-0688-F-0711-C	1 labels		0.00		0

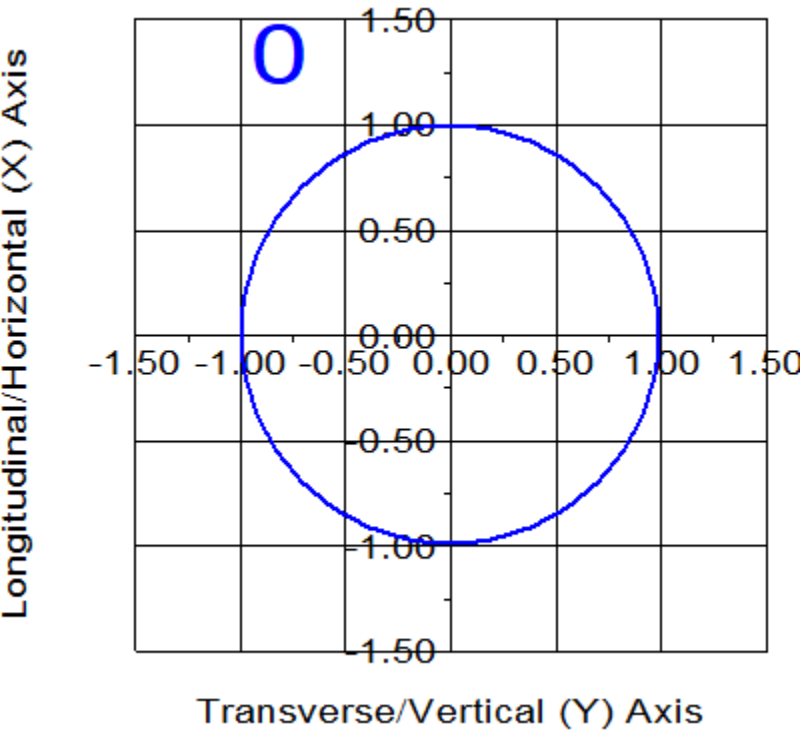
FRP Module Properties:

RS Technologies Inc

Tube Weight Label	Length (lbs)	Thickness (ft)	Lap Length (in)	Tip Diameter (ft)	Base Diameter (in)	Tube Taper (in/ft)	Weight Density (lbs/ft³)	Thermal Expansion Coef. (/deg F)	Modulus Of Elasticity Coef. A	Modulus Of Elasticity Coef. B	Modulus Of Elasticity Coef. C	Failure Stress Coef. A	Failure Stress Coef. B	Failure Stress Coef. C	
Module 1L	216	20.1673	0.464567	1.694	7.567	9.768	0.109	128.851	1.24444e-05	-1310352.000	-32698704.000	23971035432.000	-9372.000	-649048.000	299350575.000
Module 1	152	15.1411	0.464567	1.694	8.083	9.768	0.111	117.177	1.24444e-05	-1310352.000	-32698704.000	23971035432.000	-9372.000	-649048.000	299350575.000
Module 2	170	17.6673	0.379921	2.264	8.272	12.559	0.243	115.492	1.24444e-05	-1166695.000	-29113853.000	21343023423.000	-9372.000	-649048.000	299350575.000
Module 3	225	17.3885	0.379921	2.792	11.087	15.315	0.243	121.672	1.24444e-05	-1248545.000	-31156363.000	22840362817.000	-9074.000	-628409.000	289831775.000
Module 4	300	18.9436	0.379921	3.360	13.689	18.268	0.242	122.421	1.24444e-05	-1097768.000	-27393851.000	20082110193.000	-7305.000	-505906.000	233331331.000
Module 5	359	18.9928	0.405512	3.924	16.591	21.284	0.247	115.429	1.24444e-05	-979647.000	-24446236.000	17921248146.000	-6201.000	-429447.000	198067403.000
Module 5/6	772	34.8753	0.464567	0.000	16.587	24.835	0.236	107.813	1.24444e-05	-1147362.000	-28631407.000	20989347740.000	-4568.000	-316370.000	145914441.000
Module 6/7	900	34.8753	0.425197	5.197	19.331	27.917	0.246	119.862	1.24444e-05	-1235794.000	-30838152.000	22607086744.000	-5262.000	-364430.000	168080749.000
Module 8/9	1197	35.7448	0.458661	6.444	25.823	34.472	0.242	112.745	1.24444e-05	-1230375.000	-30702924.000	22507952378.000	-4685.000	-324494.000	149661566.000
Module 10/11	1500	36.8766	0.458661	0.000	31.965	40.760	0.239	113.22	1.24444e-05	-912503.000	-22770725.000	16692950290.000	-4405.000	-305091.000	140712687.000

Relative Attachment Labels for FRP Pole "FRP":

Joint Label	Distance From Origin/Top Joint (ft)	Global Z of Attach (ft)
FRP:ant	2.00	0.00



Pole FRP Properties:

Warning: Capacities and usages printed in splices are listed for the inner tube except at the splice top which uses the outer tube. ??

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Outer Diam. (in)	Area (in^2)	T-Moment Inertia (in^4)	L-Moment Inertia (in^4)	D/t	W/t Max.	Failure Stress at OC (ksi)
FRP	FRP:t	FRP:t Ori	0.00	25.97	34.13	2785.17	2785.17	61.09	0.0	24.38
FRP	FRP:ant	FRP:ant End	2.00	26.47	34.78	2949.31	2949.31	62.24	0.0	24.38
FRP	FRP:ant	FRP:ant Ori	2.00	26.47	34.78	2949.31	2949.31	62.24	0.0	24.38
FRP	#FRP:0	SpliceT End	2.70	26.64	35.01	3008.11	3008.11	62.65	0.0	24.38
FRP	#FRP:0	SpliceT Ori	2.70	26.64	35.01	3008.11	3008.11	62.65	0.0	24.38
FRP	#FRP:1	Splice End	5.30	26.44	37.44	3160.10	3160.10	57.65	0.0	21.71
FRP	#FRP:1	Splice Ori	5.30	26.44	37.44	3160.10	3160.10	57.65	0.0	21.71
FRP	#FRP:2	SpliceB End	7.90	27.08	38.36	3399.28	3399.28	59.04	0.0	21.71
FRP	#FRP:2	SpliceB Ori	7.90	27.08	38.36	3399.28	3399.28	59.04	0.0	21.71
FRP	#FRP:3	Tube 2 End	11.90	28.05	39.75	3783.63	3783.63	61.15	0.0	21.71
FRP	#FRP:3	Tube 2 Ori	11.90	28.05	39.75	3783.63	3783.63	61.15	0.0	21.71
FRP	#FRP:4	Tube 2 End	15.90	29.02	41.15	4195.91	4195.91	63.26	0.0	21.71
FRP	#FRP:4	Tube 2 Ori	15.90	29.02	41.15	4195.91	4195.91	63.26	0.0	21.71
FRP	#FRP:5	Tube 2 End	19.90	29.98	42.54	4637.10	4637.10	65.37	0.0	21.71
FRP	#FRP:5	Tube 2 Ori	19.90	29.98	42.54	4637.10	4637.10	65.37	0.0	21.71
FRP	#FRP:6	Tube 2 End	23.90	30.95	43.94	5108.19	5108.19	67.48	0.0	21.71
FRP	#FRP:6	Tube 2 Ori	23.90	30.95	43.94	5108.19	5108.19	67.48	0.0	21.71
FRP	#FRP:7	Tube 2 End	27.90	31.92	45.33	5610.16	5610.16	69.59	0.0	21.71
FRP	#FRP:7	Tube 2 Ori	27.90	31.92	45.33	5610.16	5610.16	69.59	0.0	21.71
FRP	#FRP:8	Tube 2 End	29.95	32.42	46.05	5879.99	5879.99	70.68	0.0	21.71
FRP	#FRP:8	Tube 2 Ori	29.95	32.42	46.05	5879.99	5879.99	70.68	0.0	21.71
FRP	#FRP:9	SpliceT End	32.00	32.91	46.76	6158.34	6158.34	71.76	0.0	21.71
FRP	#FRP:9	SpliceT Ori	32.00	32.91	46.76	6158.34	6158.34	71.76	0.0	21.71
FRP	#FRP:10	Splice End	35.22	32.72	46.49	6050.05	6050.05	71.34	0.0	20.41
FRP	#FRP:10	Splice Ori	35.22	32.72	46.49	6050.06	6050.06	71.34	0.0	20.41
FRP	#FRP:11	SpliceB End	38.44	33.50	47.61	6499.26	6499.26	73.04	0.0	20.41
FRP	#FRP:11	SpliceB Ori	38.44	33.50	47.61	6499.26	6499.26	73.04	0.0	20.41
FRP	#FRP:12	Tube 3 End	42.44	34.46	48.99	7078.54	7078.54	75.12	0.0	20.41
FRP	#FRP:12	Tube 3 Ori	42.44	34.46	48.99	7078.54	7078.54	75.12	0.0	20.41
FRP	#FRP:13	Tube 3 End	46.44	35.41	50.36	7691.25	7691.25	77.20	0.0	20.41
FRP	#FRP:13	Tube 3 Ori	46.44	35.41	50.36	7691.25	7691.25	77.20	0.0	20.41
FRP	#FRP:14	Tube 3 End	50.44	36.36	51.74	8338.35	8338.35	79.28	0.0	20.41
FRP	#FRP:14	Tube 3 Ori	50.44	36.36	51.74	8338.35	8338.35	79.28	0.0	20.41
FRP	#FRP:15	Tube 3 End	54.44	37.32	53.11	9020.75	9020.75	81.36	0.0	20.41
FRP	#FRP:15	Tube 3 Ori	54.44	37.32	53.11	9020.76	9020.76	81.36	0.0	20.41
FRP	#FRP:16	Tube 3 End	57.22	37.98	54.07	9515.69	9515.69	82.81	0.0	20.41
FRP	#FRP:16	Tube 3 Ori	57.22	37.98	54.07	9515.69	9515.69	82.81	0.0	20.41
FRP	FRP:g	FRP:g End	60.00	38.64	55.02	10028.41	10028.41	84.25	0.0	20.41

Equipment Library:

Equipment Property Label	Stock Weight Number	Wind Area (lbs)	Ice Area (ft^2)	EIA Antenna Type	Shape or Drag Coef.	Diameter (ft)	Height (ft)	Vertical Offset (ft)
Mimosa B5-C	20-VW-0011	99.0	12.15	19.44	EIA Microwave	0.00	3.93	0.00

Equipment Connectivity:

Equipment Label	Attach Label	Equipment Property	Azimuth Set	Offset (ft)	Measured Relative To	EIA Antenna Orientation Angle (deg)
Mimosa 1	FRP:ant	Mimosa B5-C	0	0	Center	90.00
Mimosa 2	FRP:ant	Mimosa B5-C	0	0	Center	270.00

Material List Options:

- Show Parts: YES
- Decompose Assemblies: NO
- Show Assemblies: YES

Material List

Stock Number	Item Description	Quantity	Unit of Measure
20-VW-0011	Equipment property: Mimosa B5	2.00	Each
PP-0688-F-0711-C FRP Pole	property: PP-0688-F-0711-C	1.00	Each

*** Loads Data

Loads from file: S:\Engineering\Engineering Services\2020\20-VW-0011 TDS Light and Heavy 60ft AGH Pole Analysis\Analysis\Rev-B\loads CO.eia

Structure Height Summary (used for calculating wind/ice adjust with height):

Structure height 60.00 (ft)
Structure height above ground 60.00 (ft)

Structure gust response factor, Gh: 1.1
Wind direction probability factor, Kd, for structures: 0.95, for appurtenances: 0.95, for service load cases: 0.85
Guy installation temperature: 60.00 (deg F)

ANSI/TIA 222-G Load Options:
Structure Class 2
Exposure Category C Open terrain
Topographic Category 1 (Kzt always 1.0)
Spectral Response SDS 0.000
Spectral Response SD1 0.000

EIA Rev. G Load Cases:

Load Case Description	Dead Load Factor	Wind Load Factor	Strength Factor	Load Case Type	Basic Wind Speed (mph)	Wind Dir. (Deg)	Mean Wind Elevation (ft)	Mean Wind Stop Elevation (ft)	Ice Thick. (in)	Ice Density (lbs/ft^3)	Temperature (deg F)	Point Loads	Joint Displ.
Combined wind and ice 0	1.2000	1.0000	1.0000	Regular	50.000	0	0.00	0.00	0.5000	56.0000	10.0		
Combined wind and ice 180	1.2000	1.0000	1.0000	Regular	50.000	180	0.00	0.00	0.5000	56.0000	10.0		
Combined wind and ice -90	1.2000	1.0000	1.0000	Regular	50.000	-90	0.00	0.00	0.5000	56.0000	10.0		
Combined wind and ice 90	1.2000	1.0000	1.0000	Regular	50.000	90	0.00	0.00	0.5000	56.0000	10.0		
Combined wind and ice -60	1.2000	1.0000	1.0000	Regular	50.000	-60	0.00	0.00	0.5000	56.0000	10.0		
Combined wind and ice 60	1.2000	1.0000	1.0000	Regular	50.000	60	0.00	0.00	0.5000	56.0000	10.0		
Combined wind and ice -45	1.2000	1.0000	1.0000	Regular	50.000	-45	0.00	0.00	0.5000	56.0000	10.0		
Combined wind and ice 45	1.2000	1.0000	1.0000	Regular	50.000	45	0.00	0.00	0.5000	56.0000	10.0		
Wind service 0	1.0000	1.0000	1.0000	Service	60.000	0	0.00	0.00	0.0000	56.0000	60.0		
Wind service 180	1.0000	1.0000	1.0000	Service	60.000	180	0.00	0.00	0.0000	56.0000	60.0		
Wind service -90	1.0000	1.0000	1.0000	Service	60.000	-90	0.00	0.00	0.0000	56.0000	60.0		
Wind service 90	1.0000	1.0000	1.0000	Service	60.000	90	0.00	0.00	0.0000	56.0000	60.0		
Wind service -60	1.0000	1.0000	1.0000	Service	60.000	-60	0.00	0.00	0.0000	56.0000	60.0		
Wind service 60	1.0000	1.0000	1.0000	Service	60.000	60	0.00	0.00	0.0000	56.0000	60.0		
Wind service -45	1.0000	1.0000	1.0000	Service	60.000	-45	0.00	0.00	0.0000	56.0000	60.0		
Wind service 45	1.0000	1.0000	1.0000	Service	60.000	45	0.00	0.00	0.0000	56.0000	60.0		
Wind Regular 0deg	1.2000	1.6000	1.0000	Regular	90.000	0	0.00	0.00	0.0000	56.0000	60.0		
Wind regular 45deg	1.2000	1.6000	1.0000	Regular	90.000	45	0.00	0.00	0.0000	56.0000	60.0		
Wind regular 60deg	1.2000	1.6000	1.0000	Regular	90.000	60	0.00	0.00	0.0000	56.0000	60.0		
Wind regular 90deg	1.2000	1.6000	1.0000	Regular	90.000	90	0.00	0.00	0.0000	56.0000	60.0		
Wind regular 180deg	1.2000	1.6000	1.0000	Regular	90.000	180	0.00	0.00	0.0000	56.0000	60.0		
Wind regular -45deg	1.2000	1.6000	1.0000	Regular	90.000	-45	0.00	0.00	0.0000	56.0000	60.0		
Wind regular -60deg	1.2000	1.6000	1.0000	Regular	90.000	-60	0.00	0.00	0.0000	56.0000	60.0		
Wind regular -90deg	1.2000	1.6000	1.0000	Regular	90.000	-90	0.00	0.00	0.0000	56.0000	60.0		

Equipment Load Case Information for "Combined wind and ice 0":

Equipment Label	Equipment Property	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	7.54	1.06	1.11	90.00	-0.01170	0.34380	0.13130	-1.17	34.39	51.62	34.39	-1.17	214.78
Mimosa 2	Mimosa B5-C	58.00	7.54	1.06	1.11	270.00	-0.01170	-0.34380	-0.13130	-1.17	-34.39	-51.62	34.39	1.17	214.78

EIA Load Case Information for "Combined wind and ice 0":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Velocity Coef. (mph*ft)	Pole Drag C Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Vert. Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)	
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	116.26	1.200	7.57	1.06	139.48	42.91	0.00	0.00	139.48	42.91	0.00	42.91
FRP	FRP:ant		58.00	57.30	57.65	1.13	117.45	1.200	7.53	1.06	49.26	15.08	0.00	0.00	49.26	15.08	0.00	15.08
FRP			57.30	54.70	56.00	1.12	117.04	1.200	7.49	1.05	274.62	55.74	0.00	0.00	274.62	55.74	0.00	55.74
FRP			54.70	52.10	53.40	1.11	117.42	1.200	7.41	1.05	279.37	55.59	0.00	0.00	279.37	55.59	0.00	55.59
FRP			52.10	48.10	50.10	1.09	120.14	1.200	7.31	1.04	292.58	86.74	0.00	0.00	292.58	86.74	0.00	86.74
FRP			48.10	44.10	46.10	1.08	123.28	1.200	7.19	1.03	301.43	87.97	0.00	0.00	301.43	87.97	0.00	87.97
FRP			44.10	40.10	42.10	1.05	126.25	1.200	7.05	1.02	310.12	88.98	0.00	0.00	310.12	88.98	0.00	88.98
FRP			40.10	36.10	38.10	1.03	129.02	1.200	6.90	1.01	318.59	89.75	0.00	0.00	318.59	89.75	0.00	89.75
FRP			36.10	32.10	34.10	1.01	131.58	1.200	6.75	1.00	326.80	90.23	0.00	0.00	326.80	90.23	0.00	90.23
FRP			32.10	30.05	31.07	0.99	133.33	1.200	6.61	0.99	170.75	46.36	0.00	0.00	170.75	46.36	0.00	46.36
FRP			30.05	28.00	29.02	0.98	134.42	1.200	6.52	0.99	172.77	46.35	0.00	0.00	172.77	46.35	0.00	46.35
FRP			28.00	24.77	26.39	0.96	133.70	1.200	6.39	0.98	412.94	71.59	0.00	0.00	412.94	71.59	0.00	71.59
FRP			24.77	21.55	23.16	0.93	133.06	1.200	6.22	0.97	419.15	70.20	0.00	0.00	419.15	70.20	0.00	70.20
FRP			21.55	17.55	19.55	0.90	134.13	1.200	6.00	0.95	344.31	86.10	0.00	0.00	344.31	86.10	0.00	86.10
FRP			17.55	13.55	15.55	0.86	134.62	1.200	5.72	0.93	350.02	84.13	0.00	0.00	350.02	84.13	0.00	84.13
FRP			13.55	9.55	11.55	0.85	137.86	1.200	5.68	0.90	354.52	85.65	0.00	0.00	354.52	85.65	0.00	85.65
FRP			9.55	5.55	7.55	0.85	141.52	1.200	5.68	0.86	356.84	87.65	0.00	0.00	356.84	87.65	0.00	87.65
FRP			5.55	2.78	4.16	0.85	144.63	1.200	5.68	0.81	246.46	61.96	0.00	0.00	246.46	61.96	0.00	61.96
FRP		FRP:g	2.78	0.00	1.39	0.85	147.17	1.200	5.68	0.73	239.35	62.73	0.00	0.00	239.35	62.73	0.00	62.73

Equipment Load Case Information for "Combined wind and ice 180":

Equipment Label	Equipment Property	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	7.54	1.06	1.11	270.00	-0.01170	-0.34380	-0.13130	-1.17	-34.39	-51.62	-34.39	-1.17	214.78
Mimosa 2	Mimosa B5-C	58.00	7.54	1.06	1.11	90.00	-0.01170	0.34380	0.13130	-1.17	34.39	51.62	-34.39	1.17	214.78

EIA Load Case Information for "Combined wind and ice 180":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top	Bottom	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Velocity Coef. (mph*ft)	Pole Drag C Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole	Pole	Appurt.	Appurt.	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)	
	Joint	Joint								Wind	Wind	Wind	Wind					
										Load (lbs)	Load (lbs)	Load (lbs)	Load (lbs)					
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	116.26	1.200	7.57	1.06	139.48	42.91	0.00	0.00	139.48	42.91	0.00	-42.91
	FRP:ant		58.00	57.30	57.65	1.13	117.45	1.200	7.53	1.06	49.26	15.08	0.00	0.00	49.26	15.08	0.00	-15.08
FRP			57.30	54.70	56.00	1.12	117.04	1.200	7.49	1.05	274.62	55.74	0.00	0.00	274.62	55.74	0.00	-55.74
FRP			54.70	52.10	53.40	1.11	117.42	1.200	7.41	1.05	279.37	55.59	0.00	0.00	279.37	55.59	0.00	-55.59
FRP			52.10	48.10	50.10	1.09	120.14	1.200	7.31	1.04	292.58	86.74	0.00	0.00	292.58	86.74	0.00	-86.74
FRP			48.10	44.10	46.10	1.08	123.28	1.200	7.19	1.03	301.43	87.97	0.00	0.00	301.43	87.97	0.00	-87.97

FRP		44.10	40.10	42.10	1.05	126.25	1.200	7.05	1.02	310.12	88.98	0.00	0.00	310.12	88.98	0.00	-88.98
FRP		40.10	36.10	38.10	1.03	129.02	1.200	6.90	1.01	318.59	89.75	0.00	0.00	318.59	89.75	0.00	-89.75
FRP		36.10	32.10	34.10	1.01	131.58	1.200	6.75	1.00	326.80	90.23	0.00	0.00	326.80	90.23	0.00	-90.23
FRP		32.10	30.05	31.07	0.99	133.33	1.200	6.61	0.99	170.75	46.36	0.00	0.00	170.75	46.36	0.00	-46.36
FRP		30.05	28.00	29.02	0.98	134.42	1.200	6.52	0.99	172.77	46.35	0.00	0.00	172.77	46.35	0.00	-46.35
FRP		28.00	24.77	26.39	0.96	133.70	1.200	6.39	0.98	412.94	71.59	0.00	0.00	412.94	71.59	0.00	-71.59
FRP		24.77	21.55	23.16	0.93	133.06	1.200	6.22	0.97	419.15	70.20	0.00	0.00	419.15	70.20	0.00	-70.20
FRP		21.55	17.55	19.55	0.90	134.13	1.200	6.00	0.95	344.31	86.10	0.00	0.00	344.31	86.10	0.00	-86.10
FRP		17.55	13.55	15.55	0.86	134.62	1.200	5.72	0.93	350.02	84.13	0.00	0.00	350.02	84.13	0.00	-84.13
FRP		13.55	9.55	11.55	0.85	137.86	1.200	5.68	0.90	354.52	85.65	0.00	0.00	354.52	85.65	0.00	-85.65
FRP		9.55	5.55	7.55	0.85	141.52	1.200	5.68	0.86	356.84	87.65	0.00	0.00	356.84	87.65	0.00	-87.65
FRP		5.55	2.78	4.16	0.85	144.63	1.200	5.68	0.81	246.46	61.96	0.00	0.00	246.46	61.96	0.00	-61.96
FRP	FRP:g	2.78	0.00	1.39	0.85	147.17	1.200	5.68	0.73	239.35	62.73	0.00	0.00	239.35	62.73	0.00	-62.73

Equipment Load Case Information for "Combined wind and ice -90":

Equipment Label	Equipment Property Set	Elevation Above Ground	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	7.54	1.06	1.11	180.00	-1.05470			-105.52			-0.00	-105.52	214.78
Mimosa 2	Mimosa B5-C	58.00	7.54	1.06	1.11	0.00	1.55080			155.15			-0.00	-155.15	214.78

EIA Load Case Information for "Combined wind and ice -90":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Velocity Coef. (mph*ft)	Pole Drag C Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Vert. Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)	
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	116.26	1.200	7.57	1.06	139.48	42.91	0.00	0.00	139.48	42.91	-42.91	0.00
	FRP:ant		58.00	57.30	57.65	1.13	117.45	1.200	7.53	1.06	49.26	15.08	0.00	0.00	49.26	15.08	-15.08	0.00
			57.30	54.70	56.00	1.12	117.04	1.200	7.49	1.05	274.62	55.74	0.00	0.00	274.62	55.74	-55.74	0.00
			54.70	52.10	53.40	1.11	117.42	1.200	7.41	1.05	279.37	55.59	0.00	0.00	279.37	55.59	-55.59	0.00
			52.10	48.10	50.10	1.09	120.14	1.200	7.31	1.04	292.58	86.74	0.00	0.00	292.58	86.74	-86.74	0.00
			48.10	44.10	46.10	1.08	123.28	1.200	7.19	1.03	301.43	87.97	0.00	0.00	301.43	87.97	-87.97	0.00
			44.10	40.10	42.10	1.05	126.25	1.200	7.05	1.02	310.12	88.98	0.00	0.00	310.12	88.98	-88.98	0.00
			40.10	36.10	38.10	1.03	129.02	1.200	6.90	1.01	318.59	89.75	0.00	0.00	318.59	89.75	-89.75	0.00
			36.10	32.10	34.10	1.01	131.58	1.200	6.75	1.00	326.80	90.23	0.00	0.00	326.80	90.23	-90.23	0.00
			32.10	30.05	31.07	0.99	133.33	1.200	6.61	0.99	170.75	46.36	0.00	0.00	170.75	46.36	-46.36	0.00
			30.05	28.00	29.02	0.98	134.42	1.200	6.52	0.99	172.77	46.35	0.00	0.00	172.77	46.35	-46.35	0.00
			28.00	24.77	26.39	0.96	133.70	1.200	6.39	0.98	412.94	71.59	0.00	0.00	412.94	71.59	-71.59	0.00
			24.77	21.55	23.16	0.93	133.06	1.200	6.22	0.97	419.15	70.20	0.00	0.00	419.15	70.20	-70.20	0.00
			21.55	17.55	19.55	0.90	134.13	1.200	6.00	0.95	344.31	86.10	0.00	0.00	344.31	86.10	-86.10	0.00
			17.55	13.55	15.55	0.86	134.62	1.200	5.72	0.93	350.02	84.13	0.00	0.00	350.02	84.13	-84.13	0.00
			13.55	9.55	11.55	0.85	137.86	1.200	5.68	0.90	354.52	85.65	0.00	0.00	354.52	85.65	-85.65	0.00
			9.55	5.55	7.55	0.85	141.52	1.200	5.68	0.86	356.84	87.65	0.00	0.00	356.84	87.65	-87.65	0.00
			5.55	2.78	4.16	0.85	144.63	1.200	5.68	0.81	246.46	61.96	0.00	0.00	246.46	61.96	-61.96	0.00
	FRP:g		2.78	0.00	1.39	0.85	147.17	1.200	5.68	0.73	239.35	62.73	0.00	0.00	239.35	62.73	-62.73	0.00

Equipment Load Case Information for "Combinded wind and ice 90":

Equipment Label	Equipment Property Set	Elevation Above Ground	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	7.54	1.06	1.11	0.00	1.55080			155.15			0.00	155.15	214.78
Mimosa 2	Mimosa B5-C	58.00	7.54	1.06	1.11	180.00	-1.05470			-105.52			0.00	105.52	214.78

EIA Load Case Information for "Combined wind and ice 90":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Velocity Coef. (mph*ft)	Pole Drag C Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Vert. Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)	
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	116.26	1.200	7.57	1.06	139.48	42.91	0.00	0.00	139.48	42.91	42.91	0.00
FRP	FRP:ant		58.00	57.30	57.65	1.13	117.45	1.200	7.53	1.06	49.26	15.08	0.00	0.00	49.26	15.08	15.08	0.00
FRP			57.30	54.70	56.00	1.12	117.04	1.200	7.49	1.05	274.62	55.74	0.00	0.00	274.62	55.74	55.74	0.00
FRP			54.70	52.10	53.40	1.11	117.42	1.200	7.41	1.05	279.37	55.59	0.00	0.00	279.37	55.59	55.59	0.00
FRP			52.10	48.10	50.10	1.09	120.14	1.200	7.31	1.04	292.58	86.74	0.00	0.00	292.58	86.74	86.74	0.00
FRP			48.10	44.10	46.10	1.08	123.28	1.200	7.19	1.03	301.43	87.97	0.00	0.00	301.43	87.97	87.97	0.00
FRP			44.10	40.10	42.10	1.05	126.25	1.200	7.05	1.02	310.12	88.98	0.00	0.00	310.12	88.98	88.98	0.00
FRP			40.10	36.10	38.10	1.03	129.02	1.200	6.90	1.01	318.59	89.75	0.00	0.00	318.59	89.75	89.75	0.00
FRP			36.10	32.10	34.10	1.01	131.58	1.200	6.75	1.00	326.80	90.23	0.00	0.00	326.80	90.23	90.23	0.00
FRP			32.10	30.05	31.07	0.99	133.33	1.200	6.61	0.99	170.75	46.36	0.00	0.00	170.75	46.36	46.36	0.00
FRP			30.05	28.00	29.02	0.98	134.42	1.200	6.52	0.99	172.77	46.35	0.00	0.00	172.77	46.35	46.35	0.00
FRP			28.00	24.77	26.39	0.96	133.70	1.200	6.39	0.98	412.94	71.59	0.00	0.00	412.94	71.59	71.59	0.00
FRP			24.77	21.55	23.16	0.93	133.06	1.200	6.22	0.97	419.15	70.20	0.00	0.00	419.15	70.20	70.20	0.00
FRP			21.55	17.55	19.55	0.90	134.13	1.200	6.00	0.95	344.31	86.10	0.00	0.00	344.31	86.10	86.10	0.00
FRP			17.55	13.55	15.55	0.86	134.62	1.200	5.72	0.93	350.02	84.13	0.00	0.00	350.02	84.13	84.13	0.00
FRP			13.55	9.55	11.55	0.85	137.86	1.200	5.68	0.90	354.52	85.65	0.00	0.00	354.52	85.65	85.65	0.00
FRP			9.55	5.55	7.55	0.85	141.52	1.200	5.68	0.86	356.84	87.65	0.00	0.00	356.84	87.65	87.65	0.00
FRP			5.55	2.78	4.16	0.85	144.63	1.200	5.68	0.81	246.46	61.96	0.00	0.00	246.46	61.96	61.96	0.00
FRP	FRP:g		2.78	0.00	1.39	0.85	147.17	1.200	5.68	0.73	239.35	62.73	0.00	0.00	239.35	62.73	62.73	0.00

Equipment Load Case Information for "Combined wind and ice -60":

Equipment Label	Equipment Property Set	Elevation Above Ground	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	7.54	1.06	1.11	150.00	-0.77340	0.39060	0.10860	-77.37	39.08	42.70	39.08	-77.37	214.78
Mimosa 2	Mimosa B5-C	58.00	7.54	1.06	1.11	330.00	1.55470	0.03130	0.04220	155.54	3.13	16.59	-3.13	-155.54	214.78

EIA Load Case Information for "Combined wind and ice -60":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Velocity Coef. (mph*ft)	Pole Drag C Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Vert. Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)	
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	116.26	1.200	7.57	1.06	139.48	42.91	0.00	0.00	139.48	42.91	-37.16	21.45
FRP	FRP:ant		58.00	57.30	57.65	1.13	117.45	1.200	7.53	1.06	49.26	15.08	0.00	0.00	49.26	15.08	-13.06	7.54
FRP			57.30	54.70	56.00	1.12	117.04	1.200	7.49	1.05	274.62	55.74	0.00	0.00	274.62	55.74	-48.27	27.87
FRP			54.70	52.10	53.40	1.11	117.42	1.200	7.41	1.05	279.37	55.59	0.00	0.00	279.37	55.59	-48.14	27.79
FRP			52.10	48.10	50.10	1.09	120.14	1.200	7.31	1.04	292.58	86.74	0.00	0.00	292.58	86.74	-75.12	43.37

FRP		48.10	44.10	46.10	1.08	123.28	1.200	7.19	1.03	301.43	87.97	0.00	0.00	301.43	87.97	-76.19	43.99
FRP		44.10	40.10	42.10	1.05	126.25	1.200	7.05	1.02	310.12	88.98	0.00	0.00	310.12	88.98	-77.06	44.49
FRP		40.10	36.10	38.10	1.03	129.02	1.200	6.90	1.01	318.59	89.75	0.00	0.00	318.59	89.75	-77.73	44.88
FRP		36.10	32.10	34.10	1.01	131.58	1.200	6.75	1.00	326.80	90.23	0.00	0.00	326.80	90.23	-78.14	45.12
FRP		32.10	30.05	31.07	0.99	133.33	1.200	6.61	0.99	170.75	46.36	0.00	0.00	170.75	46.36	-40.15	23.18
FRP		30.05	28.00	29.02	0.98	134.42	1.200	6.52	0.99	172.77	46.35	0.00	0.00	172.77	46.35	-40.14	23.17
FRP		28.00	24.77	26.39	0.96	133.70	1.200	6.39	0.98	412.94	71.59	0.00	0.00	412.94	71.59	-62.00	35.80
FRP		24.77	21.55	23.16	0.93	133.06	1.200	6.22	0.97	419.15	70.20	0.00	0.00	419.15	70.20	-60.79	35.10
FRP		21.55	17.55	19.55	0.90	134.13	1.200	6.00	0.95	344.31	86.10	0.00	0.00	344.31	86.10	-74.57	43.05
FRP		17.55	13.55	15.55	0.86	134.62	1.200	5.72	0.93	350.02	84.13	0.00	0.00	350.02	84.13	-72.86	42.07
FRP		13.55	9.55	11.55	0.85	137.86	1.200	5.68	0.90	354.52	85.65	0.00	0.00	354.52	85.65	-74.17	42.82
FRP		9.55	5.55	7.55	0.85	141.52	1.200	5.68	0.86	356.84	87.65	0.00	0.00	356.84	87.65	-75.90	43.82
FRP		5.55	2.78	4.16	0.85	144.63	1.200	5.68	0.81	246.46	61.96	0.00	0.00	246.46	61.96	-53.66	30.98
FRP	FRP:g	2.78	0.00	1.39	0.85	147.17	1.200	5.68	0.73	239.35	62.73	0.00	0.00	239.35	62.73	-54.33	31.37

Equipment Load Case Information for "Combined wind and ice 60":

Equipment Label	Equipment Property Set	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	7.54	1.06	1.11	30.00	1.55470	-0.03130	-0.04220	155.54	-3.13	-16.59	-3.13	155.54	214.78
Mimosa 2	Mimosa B5-C	58.00	7.54	1.06	1.11	210.00	-0.77340	-0.39060	0.10860	-77.37	-39.08	42.70	39.08	77.37	214.78

EIA Load Case Information for "Combined wind and ice 60":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz	Velocity	Pole Adjusted	Adjusted	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Vert. Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)	
							Coef. C											Drag Coef.
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	116.26	1.200	7.57	1.06	139.48	42.91	0.00	0.00	139.48	42.91	37.16	21.45
FRP	FRP:ant		58.00	57.30	57.65	1.13	117.45	1.200	7.53	1.06	49.26	15.08	0.00	0.00	49.26	15.08	13.06	7.54
FRP			57.30	54.70	56.00	1.12	117.04	1.200	7.49	1.05	274.62	55.74	0.00	0.00	274.62	55.74	48.27	27.87
FRP			54.70	52.10	53.40	1.11	117.42	1.200	7.41	1.05	279.37	55.59	0.00	0.00	279.37	55.59	48.14	27.79
FRP			52.10	48.10	50.10	1.09	120.14	1.200	7.31	1.04	292.58	86.74	0.00	0.00	292.58	86.74	75.12	43.37
FRP			48.10	44.10	46.10	1.08	123.28	1.200	7.19	1.03	301.43	87.97	0.00	0.00	301.43	87.97	76.19	43.99
FRP			44.10	40.10	42.10	1.05	126.25	1.200	7.05	1.02	310.12	88.98	0.00	0.00	310.12	88.98	77.06	44.49
FRP			40.10	36.10	38.10	1.03	129.02	1.200	6.90	1.01	318.59	89.75	0.00	0.00	318.59	89.75	77.73	44.88
FRP			36.10	32.10	34.10	1.01	131.58	1.200	6.75	1.00	326.80	90.23	0.00	0.00	326.80	90.23	78.14	45.12
FRP			32.10	30.05	31.07	0.99	133.33	1.200	6.61	0.99	170.75	46.36	0.00	0.00	170.75	46.36	40.15	23.18
FRP			30.05	28.00	29.02	0.98	134.42	1.200	6.52	0.99	172.77	46.35	0.00	0.00	172.77	46.35	40.14	23.17
FRP			28.00	24.77	26.39	0.96	133.70	1.200	6.39	0.98	412.94	71.59	0.00	0.00	412.94	71.59	62.00	35.80
FRP			24.77	21.55	23.16	0.93	133.06	1.200	6.22	0.97	419.15	70.20	0.00	0.00	419.15	70.20	60.79	35.40
FRP			21.55	17.55	19.55	0.90	134.13	1.200	6.00	0.95	344.31	86.10	0.00	0.00	344.31	86.10	74.57	43.05
FRP			17.55	13.55	15.55	0.86	134.62	1.200	5.72	0.93	350.02	84.13	0.00	0.00	350.02	84.13	72.86	42.07
FRP			13.55	9.55	11.55	0.85	137.86	1.200	5.68	0.90	354.52	85.65	0.00	0.00	354.52	85.65	74.17	42.82
FRP			9.55	5.55	7.55	0.85	141.52	1.200	5.68	0.86	356.84	87.65	0.00	0.00	356.84	87.65	75.90	43.82
FRP			5.55	2.78	4.16	0.85	144.63	1.200	5.68	0.81	246.46	61.96	0.00	0.00	246.46	61.96	53.66	30.98
FRP		FRP:g	2.78	0.00	1.39	0.85	147.17	1.200	5.68	0.73	239.35	62.73	0.00	0.00	239.35	62.73	54.33	31.37

Equipment Load Case Information for "Combined wind and ice -45":

Equipment Label	Equipment Property Set	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	7.54	1.06	1.11	135.00	-0.52150	0.45705	0.13905	-52.17	45.72	54.67	45.72	-52.17	214.78
Mimosa 2	Mimosa B5-C	58.00	7.54	1.06	1.11	315.00	1.62895	-0.04880	0.06130	162.96	-4.88	24.10	4.88	-162.96	214.78

EIA Load Case Information for "Combined wind and ice -45":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz (mph*ft)	Velocity	Pole Adjusted	Adjusted	Pole	Pole	Appurt.	Appurt.	Total	Total	Tran.	Long.	
							Coef.	Drag	Wind	Ice	Vert.	Wind	Load	Wind	Load	Load	Load	Load
							C Coef.	Pressure (psf)	Thickness (in)	Load (lbs)	Load (lbs)	Load (lbs)	Load (lbs)	Load (lbs)	Load (lbs)	Load (lbs)	Load (lbs)	
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	116.26	1.200	7.57	1.06	139.48	42.91	0.00	0.00	139.48	42.91	-30.34	30.34
	FRP:ant		58.00	57.30	57.65	1.13	117.45	1.200	7.53	1.06	49.26	15.08	0.00	0.00	49.26	15.08	-10.67	10.67
FRP			57.30	54.70	56.00	1.12	117.04	1.200	7.49	1.05	274.62	55.74	0.00	0.00	274.62	55.74	-39.41	39.41
FRP			54.70	52.10	53.40	1.11	117.42	1.200	7.41	1.05	279.37	55.59	0.00	0.00	279.37	55.59	-39.31	39.31
FRP			52.10	48.10	50.10	1.09	120.14	1.200	7.31	1.04	292.58	86.74	0.00	0.00	292.58	86.74	-61.34	61.34
FRP			48.10	44.10	46.10	1.08	123.28	1.200	7.19	1.03	301.43	87.97	0.00	0.00	301.43	87.97	-62.21	62.21
FRP			44.10	40.10	42.10	1.05	126.25	1.200	7.05	1.02	310.12	88.98	0.00	0.00	310.12	88.98	-62.92	62.92
FRP			40.10	36.10	38.10	1.03	129.02	1.200	6.90	1.01	318.59	89.75	0.00	0.00	318.59	89.75	-63.46	63.46
FRP			36.10	32.10	34.10	1.01	131.58	1.200	6.75	1.00	326.80	90.23	0.00	0.00	326.80	90.23	-63.80	63.80
FRP			32.10	30.05	31.07	0.99	133.33	1.200	6.61	0.99	170.75	46.36	0.00	0.00	170.75	46.36	-32.78	32.78
FRP			30.05	28.00	29.02	0.98	134.42	1.200	6.52	0.99	172.77	46.35	0.00	0.00	172.77	46.35	-32.77	32.77
FRP			28.00	24.77	26.39	0.96	133.70	1.200	6.39	0.98	412.94	71.59	0.00	0.00	412.94	71.59	-50.63	50.63
FRP			24.77	21.55	23.16	0.93	133.06	1.200	6.22	0.97	419.15	70.20	0.00	0.00	419.15	70.20	-49.64	49.64
FRP			21.55	17.55	19.55	0.90	134.13	1.200	6.00	0.95	344.31	86.10	0.00	0.00	344.31	86.10	-60.88	60.88
FRP			17.55	13.55	15.55	0.86	134.62	1.200	5.72	0.93	350.02	84.13	0.00	0.00	350.02	84.13	-59.49	59.49
FRP			13.55	9.55	11.55	0.85	137.86	1.200	5.68	0.90	354.52	85.65	0.00	0.00	354.52	85.65	-60.56	60.56
FRP			9.55	5.55	7.55	0.85	141.52	1.200	5.68	0.86	356.84	87.65	0.00	0.00	356.84	87.65	-61.98	61.98
FRP			5.55	2.78	4.16	0.85	144.63	1.200	5.68	0.81	246.46	61.96	0.00	0.00	246.46	61.96	-43.81	43.81
FRP		FRP:g	2.78	0.00	1.39	0.85	147.17	1.200	5.68	0.73	239.35	62.73	0.00	0.00	239.35	62.73	-44.36	44.36

Equipment Load Case Information for "Combined wind and ice 45":

Equipment Label	Equipment Property Set	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	7.54	1.06	1.11	45.00	1.62895	0.04880	-0.06130	162.96	4.88	-24.10	4.88	162.96	214.78
Mimosa 2	Mimosa B5-C	58.00	7.54	1.06	1.11	225.00	-0.52150	-0.45705	-0.13905	-52.17	-45.72	-54.67	45.72	52.17	214.78

EIA Load Case Information for "Combined wind and ice 45":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz	Velocity Coef. (mph*ft)	Pole Drag C Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Vert. Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	116.26	1.200	7.57	1.06	139.48	42.91	0.00	0.00	139.48	42.91	30.34	30.34
	FRP:ant		58.00	57.30	57.65	1.13	117.45	1.200	7.53	1.06	49.26	15.08	0.00	0.00	49.26	15.08	10.67	10.67
	FRP		57.30	54.70	56.00	1.12	117.04	1.200	7.49	1.05	274.62	55.74	0.00	0.00	274.62	55.74	39.41	39.41
	FRP		54.70	52.10	53.40	1.11	117.42	1.200	7.41	1.05	279.37	55.59	0.00	0.00	279.37	55.59	39.31	39.31

FRP		52.10	48.10	50.10	1.09	120.14	1.200	7.31	1.04	292.58	86.74	0.00	0.00	292.58	86.74	61.34	61.34
FRP		48.10	44.10	46.10	1.08	123.28	1.200	7.19	1.03	301.43	87.97	0.00	0.00	301.43	87.97	62.21	62.21
FRP		44.10	40.10	42.10	1.05	126.25	1.200	7.05	1.02	310.12	88.98	0.00	0.00	310.12	88.98	62.92	62.92
FRP		40.10	36.10	38.10	1.03	129.02	1.200	6.90	1.01	318.59	89.75	0.00	0.00	318.59	89.75	63.46	63.46
FRP		36.10	32.10	34.10	1.01	131.58	1.200	6.75	1.00	326.80	90.23	0.00	0.00	326.80	90.23	63.80	63.80
FRP		32.10	30.05	31.07	0.99	133.33	1.200	6.61	0.99	170.75	46.36	0.00	0.00	170.75	46.36	32.78	32.78
FRP		30.05	28.00	29.02	0.98	134.42	1.200	6.52	0.99	172.77	46.35	0.00	0.00	172.77	46.35	32.77	32.77
FRP		28.00	24.77	26.39	0.96	133.70	1.200	6.39	0.98	412.94	71.59	0.00	0.00	412.94	71.59	50.63	50.63
FRP		24.77	21.55	23.16	0.93	133.06	1.200	6.22	0.97	419.15	70.20	0.00	0.00	419.15	70.20	49.64	49.64
FRP		21.55	17.55	19.55	0.90	134.13	1.200	6.00	0.95	344.31	86.10	0.00	0.00	344.31	86.10	60.88	60.88
FRP		17.55	13.55	15.55	0.86	134.62	1.200	5.72	0.93	350.02	84.13	0.00	0.00	350.02	84.13	59.49	59.49
FRP		13.55	9.55	11.55	0.85	137.86	1.200	5.68	0.90	354.52	85.65	0.00	0.00	354.52	85.65	60.56	60.56
FRP		9.55	5.55	7.55	0.85	141.52	1.200	5.68	0.86	356.84	87.65	0.00	0.00	356.84	87.65	61.98	61.98
FRP		5.55	2.78	4.16	0.85	144.63	1.200	5.68	0.81	246.46	61.96	0.00	0.00	246.46	61.96	43.81	43.81
FRP	FRP:g	2.78	0.00	1.39	0.85	147.17	1.200	5.68	0.73	239.35	62.73	0.00	0.00	239.35	62.73	44.36	44.36

Equipment Load Case Information for "Wind service 0":

Equipment Label	Equipment Property Set	Elevation Above Ground	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	9.72	0.00	0.00	90.00	-0.01170	0.34380	0.13130	-1.38	40.60	60.93	40.60	-1.38	99.00
Mimosa 2	Mimosa B5-C	58.00	9.72	0.00	0.00	270.00	-0.01170	-0.34380	-0.13130	-1.38	-40.60	-60.93	40.60	1.38	99.00

EIA Load Case Information for "Wind service 0":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Velocity (mph*ft)	Pole Drag Coef. C	Adjusted Pole Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Vert. Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)	
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	139.52	0.600	9.75	0.00	57.36	25.57	0.00	0.00	57.36	25.57	0.00	25.57
FRP	FRP:ant		58.00	57.30	57.65	1.13	140.94	0.600	9.71	0.00	20.29	9.00	0.00	0.00	20.29	9.00	0.00	9.00
FRP			57.30	54.70	56.00	1.12	140.44	0.600	9.65	0.00	151.88	33.26	0.00	0.00	151.88	33.26	0.00	33.26
FRP			54.70	52.10	53.40	1.11	140.91	0.600	9.55	0.00	155.61	33.21	0.00	0.00	155.61	33.21	0.00	33.21
FRP			52.10	48.10	50.10	1.09	144.17	0.600	9.42	0.00	122.35	51.95	0.00	0.00	122.35	51.95	0.00	51.95
FRP			48.10	44.10	46.10	1.08	147.93	0.600	9.26	0.00	126.69	52.84	0.00	0.00	126.69	52.84	0.00	52.84
FRP			44.10	40.10	42.10	1.05	151.49	0.600	9.08	0.00	131.06	53.60	0.00	0.00	131.06	53.60	0.00	53.60
FRP			40.10	36.10	38.10	1.03	154.83	0.600	8.90	0.00	135.42	54.21	0.00	0.00	135.42	54.21	0.00	54.21
FRP			36.10	32.10	34.10	1.01	157.89	0.600	8.69	0.00	139.79	54.64	0.00	0.00	139.79	54.64	0.00	54.64
FRP			32.10	30.05	31.07	0.99	160.00	0.600	8.52	0.00	73.42	28.13	0.00	0.00	73.42	28.13	0.00	28.13
FRP			30.05	28.00	29.02	0.98	161.31	0.600	8.40	0.00	74.56	28.16	0.00	0.00	74.56	28.16	0.00	28.16
FRP			28.00	24.77	26.39	0.96	160.44	0.600	8.23	0.00	235.72	43.53	0.00	0.00	235.72	43.53	0.00	43.53
FRP			24.77	21.55	23.16	0.93	159.68	0.600	8.01	0.00	241.40	42.73	0.00	0.00	241.40	42.73	0.00	42.73
FRP			21.55	17.55	19.55	0.90	160.96	0.600	7.73	0.00	151.94	52.53	0.00	0.00	151.94	52.53	0.00	52.53
FRP			17.55	13.55	15.55	0.86	161.54	0.600	7.37	0.00	156.23	51.47	0.00	0.00	156.23	51.47	0.00	51.47
FRP			13.55	9.55	11.55	0.85	165.43	0.600	7.32	0.00	160.55	52.54	0.00	0.00	160.55	52.54	0.00	52.54
FRP			9.55	5.55	7.55	0.85	169.83	0.600	7.32	0.00	164.87	53.94	0.00	0.00	164.87	53.94	0.00	53.94
FRP			5.55	2.78	4.16	0.85	173.55	0.600	7.32	0.00	116.98	38.26	0.00	0.00	116.98	38.26	0.00	38.26
FRP		FRP:g	2.78	0.00	1.39	0.85	176.60	0.600	7.32	0.00	119.07	38.93	0.00	0.00	119.07	38.93	0.00	38.93

Equipment Load Case Information for "Wind service 180":

Equipment Label	Equipment Property Set	Elevation Above Ground	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	9.72	0.00	0.00	270.00	-0.01170	-0.34380	-0.13130	-1.38	-40.60	-60.93	-40.60	-1.38	99.00
Mimosa 2	Mimosa B5-C	58.00	9.72	0.00	0.00	90.00	-0.01170	0.34380	0.13130	-1.38	40.60	60.93	-40.60	1.38	99.00

EIA Load Case Information for "Wind service 180":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Velocity (mph*ft)	Pole	Pole Adjusted	Adjusted	Pole	Pole Appurt.	Appurt.	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)		
							Coef. C	Drag Pressure (psf)	Ice Thickness (in)	Wind Load (lbs)	Vert. Load (lbs)	Wind Load (lbs)						
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	139.52	0.600	9.75	0.00	57.36	25.57	0.00	0.00	57.36	25.57	0.00	-25.57
FRP	FRP:ant		58.00	57.30	57.65	1.13	140.94	0.600	9.71	0.00	20.29	9.00	0.00	0.00	20.29	9.00	0.00	-9.00
FRP			57.30	54.70	56.00	1.12	140.44	0.600	9.65	0.00	151.88	33.26	0.00	0.00	151.88	33.26	0.00	-33.26
FRP			54.70	52.10	53.40	1.11	140.91	0.600	9.55	0.00	155.61	33.21	0.00	0.00	155.61	33.21	0.00	-33.21
FRP			52.10	48.10	50.10	1.09	144.17	0.600	9.42	0.00	122.35	51.95	0.00	0.00	122.35	51.95	0.00	-51.95
FRP			48.10	44.10	46.10	1.08	147.93	0.600	9.26	0.00	126.69	52.84	0.00	0.00	126.69	52.84	0.00	-52.84
FRP			44.10	40.10	42.10	1.05	151.49	0.600	9.08	0.00	131.06	53.60	0.00	0.00	131.06	53.60	0.00	-53.60
FRP			40.10	36.10	38.10	1.03	154.83	0.600	8.90	0.00	135.42	54.21	0.00	0.00	135.42	54.21	0.00	-54.21
FRP			36.10	32.10	34.10	1.01	157.89	0.600	8.69	0.00	139.79	54.64	0.00	0.00	139.79	54.64	0.00	-54.64
FRP			32.10	30.05	31.07	0.99	160.00	0.600	8.52	0.00	73.42	28.13	0.00	0.00	73.42	28.13	0.00	-28.13
FRP			30.05	28.00	29.02	0.98	161.31	0.600	8.40	0.00	74.56	28.16	0.00	0.00	74.56	28.16	0.00	-28.16
FRP			28.00	24.77	26.39	0.96	160.44	0.600	8.23	0.00	235.72	43.53	0.00	0.00	235.72	43.53	0.00	-43.53
FRP			24.77	21.55	23.16	0.93	159.68	0.600	8.01	0.00	241.40	42.73	0.00	0.00	241.40	42.73	0.00	-42.73
FRP			21.55	17.55	19.55	0.90	160.96	0.600	7.73	0.00	151.94	52.53	0.00	0.00	151.94	52.53	0.00	-52.53
FRP			17.55	13.55	15.55	0.86	161.54	0.600	7.37	0.00	156.23	51.47	0.00	0.00	156.23	51.47	0.00	-51.47
FRP			13.55	9.55	11.55	0.85	165.43	0.600	7.32	0.00	160.55	52.54	0.00	0.00	160.55	52.54	0.00	-52.54
FRP			9.55	5.55	7.55	0.85	169.83	0.600	7.32	0.00	164.87	53.94	0.00	0.00	164.87	53.94	0.00	-53.94
FRP			5.55	2.78	4.16	0.85	173.55	0.600	7.32	0.00	116.98	38.26	0.00	0.00	116.98	38.26	0.00	-38.26
FRP	FRP:g		2.78	0.00	1.39	0.85	176.60	0.600	7.32	0.00	119.07	38.93	0.00	0.00	119.07	38.93	0.00	-38.93

Equipment Load Case Information for "Wind service -90":

Equipment Label	Equipment Property Set	Elevation Above Ground	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	9.72	0.00	0.00	180.00	-1.05470			-124.54			-0.00	-124.54	99.00
Mimosa 2	Mimosa B5-C	58.00	9.72	0.00	0.00	0.00	1.55080			183.12			-0.00	-183.12	99.00

EIA Load Case Information for "Wind service -90":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section	Section	Section	Kz Velocity	Pole Adjusted	Adjusted	Pole	Pole	Appurt.	Appurt.	Total	Total	Tran.	Long.		
			Top Elev. (ft)	Bottom Elev. (ft)	Average Elev. (ft)												Coef. C	Drag Pressure (psf)
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	139.52	0.600	9.75	0.00	57.36	25.57	0.00	0.00	57.36	25.57	-25.57	0.00
FRP	FRP:ant		58.00	57.30	57.65	1.13	140.94	0.600	9.71	0.00	20.29	9.00	0.00	0.00	20.29	9.00	-9.00	0.00
FRP			57.30	54.70	56.00	1.12	140.44	0.600	9.65	0.00	151.88	33.26	0.00	0.00	151.88	33.26	-33.26	0.00

FRP		54.70	52.10	53.40	1.11	140.91	0.600	9.55	0.00	155.61	33.21	0.00	0.00	155.61	33.21	-33.21	0.00
FRP		52.10	48.10	50.10	1.09	144.17	0.600	9.42	0.00	122.35	51.95	0.00	0.00	122.35	51.95	-51.95	0.00
FRP		48.10	44.10	46.10	1.08	147.93	0.600	9.26	0.00	126.69	52.84	0.00	0.00	126.69	52.84	-52.84	0.00
FRP		44.10	40.10	42.10	1.05	151.49	0.600	9.08	0.00	131.06	53.60	0.00	0.00	131.06	53.60	-53.60	0.00
FRP		40.10	36.10	38.10	1.03	154.83	0.600	8.90	0.00	135.42	54.21	0.00	0.00	135.42	54.21	-54.21	0.00
FRP		36.10	32.10	34.10	1.01	157.89	0.600	8.69	0.00	139.79	54.64	0.00	0.00	139.79	54.64	-54.64	0.00
FRP		32.10	30.05	31.07	0.99	160.00	0.600	8.52	0.00	73.42	28.13	0.00	0.00	73.42	28.13	-28.13	0.00
FRP		30.05	28.00	29.02	0.98	161.31	0.600	8.40	0.00	74.56	28.16	0.00	0.00	74.56	28.16	-28.16	0.00
FRP		28.00	24.77	26.39	0.96	160.44	0.600	8.23	0.00	235.72	43.53	0.00	0.00	235.72	43.53	-43.53	0.00
FRP		24.77	21.55	23.16	0.93	159.68	0.600	8.01	0.00	241.40	42.73	0.00	0.00	241.40	42.73	-42.73	0.00
FRP		21.55	17.55	19.55	0.90	160.96	0.600	7.73	0.00	151.94	52.53	0.00	0.00	151.94	52.53	-52.53	0.00
FRP		17.55	13.55	15.55	0.86	161.54	0.600	7.37	0.00	156.23	51.47	0.00	0.00	156.23	51.47	-51.47	0.00
FRP		13.55	9.55	11.55	0.85	165.43	0.600	7.32	0.00	160.55	52.54	0.00	0.00	160.55	52.54	-52.54	0.00
FRP		9.55	5.55	7.55	0.85	169.83	0.600	7.32	0.00	164.87	53.94	0.00	0.00	164.87	53.94	-53.94	0.00
FRP		5.55	2.78	4.16	0.85	173.55	0.600	7.32	0.00	116.98	38.26	0.00	0.00	116.98	38.26	-38.26	0.00
FRP	FRP:g	2.78	0.00	1.39	0.85	176.60	0.600	7.32	0.00	119.07	38.93	0.00	0.00	119.07	38.93	-38.93	0.00

Equipment Load Case Information for "Wind service 90":

Equipment Label	Equipment Property Set	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load (lbs)	Antenna Moment (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	9.72	0.00	0.00	0.00	1.55080			183.12			0.00	183.12	99.00
Mimosa 2	Mimosa B5-C	58.00	9.72	0.00	0.00	180.00	-1.05470			-124.54			0.00	124.54	99.00

EIA Load Case Information for "Wind service 90":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz	Velocity	Pole Adjusted	Adjusted	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Vert. Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)	
							Coef. C											Drag Coef.
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	139.52	0.600	9.75	0.00	57.36	25.57	0.00	0.00	57.36	25.57	25.57	0.00
FRP	FRP:ant		58.00	57.30	57.65	1.13	140.94	0.600	9.71	0.00	20.29	9.00	0.00	0.00	20.29	9.00	9.00	0.00
FRP			57.30	54.70	56.00	1.12	140.44	0.600	9.65	0.00	151.88	33.26	0.00	0.00	151.88	33.26	33.26	0.00
FRP			54.70	52.10	53.40	1.11	140.91	0.600	9.55	0.00	155.61	33.21	0.00	0.00	155.61	33.21	33.21	0.00
FRP			52.10	48.10	50.10	1.09	144.17	0.600	9.42	0.00	122.35	51.95	0.00	0.00	122.35	51.95	51.95	0.00
FRP			48.10	44.10	46.10	1.08	147.93	0.600	9.26	0.00	126.69	52.84	0.00	0.00	126.69	52.84	52.84	0.00
FRP			44.10	40.10	42.10	1.05	151.49	0.600	9.08	0.00	131.06	53.60	0.00	0.00	131.06	53.60	53.60	0.00
FRP			40.10	36.10	38.10	1.03	154.83	0.600	8.90	0.00	135.42	54.21	0.00	0.00	135.42	54.21	54.21	0.00
FRP			36.10	32.10	34.10	1.01	157.89	0.600	8.69	0.00	139.79	54.64	0.00	0.00	139.79	54.64	54.64	0.00
FRP			32.10	30.05	31.07	0.99	160.00	0.600	8.52	0.00	73.42	28.13	0.00	0.00	73.42	28.13	28.13	0.00
FRP			30.05	28.00	29.02	0.98	161.31	0.600	8.40	0.00	74.56	28.16	0.00	0.00	74.56	28.16	28.16	0.00
FRP			28.00	24.77	26.39	0.96	160.44	0.600	8.23	0.00	235.72	43.53	0.00	0.00	235.72	43.53	43.53	0.00
FRP			24.77	21.55	23.16	0.93	159.68	0.600	8.01	0.00	241.40	42.73	0.00	0.00	241.40	42.73	42.73	0.00
FRP			21.55	17.55	19.55	0.90	160.96	0.600	7.73	0.00	151.94	52.53	0.00	0.00	151.94	52.53	52.53	0.00
FRP			17.55	13.55	15.55	0.86	161.54	0.600	7.37	0.00	156.23	51.47	0.00	0.00	156.23	51.47	51.47	0.00
FRP			13.55	9.55	11.55	0.85	165.43	0.600	7.32	0.00	160.55	52.54	0.00	0.00	160.55	52.54	52.54	0.00
FRP			9.55	5.55	7.55	0.85	169.83	0.600	7.32	0.00	164.87	53.94	0.00	0.00	164.87	53.94	53.94	0.00
FRP			5.55	2.78	4.16	0.85	173.55	0.600	7.32	0.00	116.98	38.26	0.00	0.00	116.98	38.26	38.26	0.00
FRP		FRP:g	2.78	0.00	1.39	0.85	176.60	0.600	7.32	0.00	119.07	38.93	0.00	0.00	119.07	38.93	38.93	0.00

Equipment Load Case Information for "Wind service -60":

Equipment Label	Equipment Property Set	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load (lbs)	Antenna Moment (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	9.72	0.00	0.00	150.00	-0.77340	0.39060	0.10860	-91.32	46.12	50.40	46.12	-91.32	99.00
Mimosa 2	Mimosa B5-C	58.00	9.72	0.00	0.00	330.00	1.55470	0.03130	0.04220	183.58	3.70	19.58	-3.70	-183.58	99.00

EIA Load Case Information for "Wind service -60":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz	Velocity	Pole Adjusted Drag	Adjusted Wind Pressure	Adjusted Ice Thickness	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Vert. Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)
							Coef. C											
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	139.52	0.600	9.75	0.00	57.36	25.57	0.00	0.00	57.36	25.57	-22.15	12.79
FRP	FRP:ant		58.00	57.30	57.65	1.13	140.94	0.600	9.71	0.00	20.29	9.00	0.00	0.00	20.29	9.00	-7.79	4.50
FRP			57.30	54.70	56.00	1.12	140.44	0.600	9.65	0.00	151.88	33.26	0.00	0.00	151.88	33.26	-28.81	16.63
FRP			54.70	52.10	53.40	1.11	140.91	0.600	9.55	0.00	155.61	33.21	0.00	0.00	155.61	33.21	-28.76	16.60
FRP			52.10	48.10	50.10	1.09	144.17	0.600	9.42	0.00	122.35	51.95	0.00	0.00	122.35	51.95	-44.99	25.98
FRP			48.10	44.10	46.10	1.08	147.93	0.600	9.26	0.00	126.69	52.84	0.00	0.00	126.69	52.84	-45.76	26.42
FRP			44.10	40.10	42.10	1.05	151.49	0.600	9.08	0.00	131.06	53.60	0.00	0.00	131.06	53.60	-46.42	26.80
FRP			40.10	36.10	38.10	1.03	154.83	0.600	8.90	0.00	135.42	54.21	0.00	0.00	135.42	54.21	-46.95	27.10
FRP			36.10	32.10	34.10	1.01	157.89	0.600	8.69	0.00	139.79	54.64	0.00	0.00	139.79	54.64	-47.32	27.32
FRP			32.10	30.05	31.07	0.99	160.00	0.600	8.52	0.00	73.42	28.13	0.00	0.00	73.42	28.13	-24.36	14.06
FRP			30.05	28.00	29.02	0.98	161.31	0.600	8.40	0.00	74.56	28.16	0.00	0.00	74.56	28.16	-24.38	14.08
FRP			28.00	24.77	26.39	0.96	160.44	0.600	8.23	0.00	235.72	43.53	0.00	0.00	235.72	43.53	-37.70	21.76
FRP			24.77	21.55	23.16	0.93	159.68	0.600	8.01	0.00	241.40	42.73	0.00	0.00	241.40	42.73	-37.01	21.37
FRP			21.55	17.55	19.55	0.90	160.96	0.600	7.73	0.00	151.94	52.53	0.00	0.00	151.94	52.53	-45.49	26.27
FRP			17.55	13.55	15.55	0.86	161.54	0.600	7.37	0.00	156.23	51.47	0.00	0.00	156.23	51.47	-44.57	25.73
FRP			13.55	9.55	11.55	0.85	165.43	0.600	7.32	0.00	160.55	52.54	0.00	0.00	160.55	52.54	-45.50	26.27
FRP			9.55	5.55	7.55	0.85	169.83	0.600	7.32	0.00	164.87	53.94	0.00	0.00	164.87	53.94	-46.71	26.97
FRP			5.55	2.78	4.16	0.85	173.55	0.600	7.32	0.00	116.98	38.26	0.00	0.00	116.98	38.26	-33.13	19.13
FRP		FRP:g	2.78	0.00	1.39	0.85	176.60	0.600	7.32	0.00	119.07	38.93	0.00	0.00	119.07	38.93	-33.72	19.47

Equipment Load Case Information for "Wind service 60":

Equipment Label	Equipment Property Set	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load (lbs)	Antenna Moment (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	9.72	0.00	0.00	30.00	1.55470	-0.03130	-0.04220	183.58	-3.70	-19.58	-3.70	183.58	99.00
Mimosa 2	Mimosa B5-C	58.00	9.72	0.00	0.00	210.00	-0.77340	-0.39060	0.10860	-91.32	-46.12	50.40	46.12	91.32	99.00

EIA Load Case Information for "Wind service 60":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Coef. (mph*ft)	Velocity Drag C Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Vert. Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)	
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	139.52	0.600	9.75	0.00	57.36	25.57	0.00	0.00	57.36	25.57	22.15	12.79
FRP	FRP:ant		58.00	57.30	57.65	1.13	140.94	0.600	9.71	0.00	20.29	9.00	0.00	0.00	20.29	9.00	7.79	4.50

FRP		57.30	54.70	56.00	1.12	140.44	0.600	9.65	0.00	151.88	33.26	0.00	0.00	151.88	33.26	28.81	16.63
FRP		54.70	52.10	53.40	1.11	140.91	0.600	9.55	0.00	155.61	33.21	0.00	0.00	155.61	33.21	28.76	16.60
FRP		52.10	48.10	50.10	1.09	144.17	0.600	9.42	0.00	122.35	51.95	0.00	0.00	122.35	51.95	44.99	25.98
FRP		48.10	44.10	46.10	1.08	147.93	0.600	9.26	0.00	126.69	52.84	0.00	0.00	126.69	52.84	45.76	26.42
FRP		44.10	40.10	42.10	1.05	151.49	0.600	9.08	0.00	131.06	53.60	0.00	0.00	131.06	53.60	46.42	26.80
FRP		40.10	36.10	38.10	1.03	154.83	0.600	8.90	0.00	135.42	54.21	0.00	0.00	135.42	54.21	46.95	27.10
FRP		36.10	32.10	34.10	1.01	157.89	0.600	8.69	0.00	139.79	54.64	0.00	0.00	139.79	54.64	47.32	27.32
FRP		32.10	30.05	31.07	0.99	160.00	0.600	8.52	0.00	73.42	28.13	0.00	0.00	73.42	28.13	24.36	14.06
FRP		30.05	28.00	29.02	0.98	161.31	0.600	8.40	0.00	74.56	28.16	0.00	0.00	74.56	28.16	24.38	14.08
FRP		28.00	24.77	26.39	0.96	160.44	0.600	8.23	0.00	235.72	43.53	0.00	0.00	235.72	43.53	37.70	21.76
FRP		24.77	21.55	23.16	0.93	159.68	0.600	8.01	0.00	241.40	42.73	0.00	0.00	241.40	42.73	37.01	21.37
FRP		21.55	17.55	19.55	0.90	160.96	0.600	7.73	0.00	151.94	52.53	0.00	0.00	151.94	52.53	45.49	26.27
FRP		17.55	13.55	15.55	0.86	161.54	0.600	7.37	0.00	156.23	51.47	0.00	0.00	156.23	51.47	44.57	25.73
FRP		13.55	9.55	11.55	0.85	165.43	0.600	7.32	0.00	160.55	52.54	0.00	0.00	160.55	52.54	45.50	26.27
FRP		9.55	5.55	7.55	0.85	169.83	0.600	7.32	0.00	164.87	53.94	0.00	0.00	164.87	53.94	46.71	26.97
FRP		5.55	2.78	4.16	0.85	173.55	0.600	7.32	0.00	116.98	38.26	0.00	0.00	116.98	38.26	33.13	19.13
FRP	FRP:g	2.78	0.00	1.39	0.85	176.60	0.600	7.32	0.00	119.07	38.93	0.00	0.00	119.07	38.93	33.72	19.47

Equipment Load Case Information for "Wind service -45":

Equipment Label	Equipment Property Set	Elevation Above Ground	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load (lbs)	Antenna Moment (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	9.72	0.00	0.00	135.00	-0.52150	0.45705	0.13905	-61.58	53.97	64.53	53.97	-61.58	99.00
Mimosa 2	Mimosa B5-C	58.00	9.72	0.00	0.00	315.00	1.62895	-0.04880	0.06130	192.35	-5.76	28.45	5.76	-192.35	99.00

EIA Load Case Information for "Wind service -45":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Velocity Coef. (mph*ft)	Pole Drag Coef. (psf)	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Vert. Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)	
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	139.52	0.600	9.75	0.00	57.36	25.57	0.00	0.00	57.36	25.57	-18.08	18.08
FRP	FRP:ant		58.00	57.30	57.65	1.13	140.94	0.600	9.71	0.00	20.29	9.00	0.00	0.00	20.29	9.00	-6.36	6.36
FRP			57.30	54.70	56.00	1.12	140.44	0.600	9.65	0.00	151.88	33.26	0.00	0.00	151.88	33.26	-23.52	23.52
FRP			54.70	52.10	53.40	1.11	140.91	0.600	9.55	0.00	155.61	33.21	0.00	0.00	155.61	33.21	-23.48	23.48
FRP			52.10	48.10	50.10	1.09	144.17	0.600	9.42	0.00	122.35	51.95	0.00	0.00	122.35	51.95	-36.74	36.74
FRP			48.10	44.10	46.10	1.08	147.93	0.600	9.26	0.00	126.69	52.84	0.00	0.00	126.69	52.84	-37.37	37.37
FRP			44.10	40.10	42.10	1.05	151.49	0.600	9.08	0.00	131.06	53.60	0.00	0.00	131.06	53.60	-37.90	37.90
FRP			40.10	36.10	38.10	1.03	154.83	0.600	8.90	0.00	135.42	54.21	0.00	0.00	135.42	54.21	-38.33	38.33
FRP			36.10	32.10	34.10	1.01	157.89	0.600	8.69	0.00	139.79	54.64	0.00	0.00	139.79	54.64	-38.64	38.64
FRP			32.10	30.05	31.07	0.99	160.00	0.600	8.52	0.00	73.42	28.13	0.00	0.00	73.42	28.13	-19.89	19.89
FRP			30.05	28.00	29.02	0.98	161.31	0.600	8.40	0.00	74.56	28.16	0.00	0.00	74.56	28.16	-19.91	19.91
FRP			28.00	24.77	26.39	0.96	160.44	0.600	8.23	0.00	235.72	43.53	0.00	0.00	235.72	43.53	-30.78	30.78
FRP			24.77	21.55	23.16	0.93	159.68	0.600	8.01	0.00	241.40	42.73	0.00	0.00	241.40	42.73	-30.21	30.21
FRP			21.55	17.55	19.55	0.90	160.96	0.600	7.73	0.00	151.94	52.53	0.00	0.00	151.94	52.53	-37.15	37.15
FRP			17.55	13.55	15.55	0.86	161.54	0.600	7.37	0.00	156.23	51.47	0.00	0.00	156.23	51.47	-36.39	36.39
FRP			13.55	9.55	11.55	0.85	165.43	0.600	7.32	0.00	160.55	52.54	0.00	0.00	160.55	52.54	-37.15	37.15
FRP			9.55	5.55	7.55	0.85	169.83	0.600	7.32	0.00	164.87	53.94	0.00	0.00	164.87	53.94	-38.14	38.14
FRP			5.55	2.78	4.16	0.85	173.55	0.600	7.32	0.00	116.98	38.26	0.00	0.00	116.98	38.26	-27.05	27.05
FRP	FRP:g		2.78	0.00	1.39	0.85	176.60	0.600	7.32	0.00	119.07	38.93	0.00	0.00	119.07	38.93	-27.53	27.53

Equipment Load Case Information for "Wind service 45":

Equipment Label	Equipment Property Set	Elevation Above Ground	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load (lbs)	Antenna Moment (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	9.72	0.00	0.00	45.00	1.62895	0.04880	-0.06130	192.35	5.76	-28.45	5.76	192.35	99.00
Mimosa 2	Mimosa B5-C	58.00	9.72	0.00	0.00	225.00	-0.52150	-0.45705	-0.13905	-61.58	-53.97	-64.53	53.97	61.58	99.00

EIA Load Case Information for "Wind service 45":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Velocity Coef. (mph*ft)	Pole Drag Coef. (psf)	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Vert. Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)	
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	139.52	0.600	9.75	0.00	57.36	25.57	0.00	0.00	57.36	25.57	18.08	18.08
FRP	FRP:ant		58.00	57.30	57.65	1.13	140.94	0.600	9.71	0.00	20.29	9.00	0.00	0.00	20.29	9.00	6.36	6.36
FRP			57.30	54.70	56.00	1.12	140.44	0.600	9.65	0.00	151.88	33.26	0.00	0.00	151.88	33.26	23.52	23.52
FRP			54.70	52.10	53.40	1.11	140.91	0.600	9.55	0.00	155.61	33.20	0.00	0.00	155.61	33.20	23.48	23.48
FRP			52.10	48.10	50.10	1.09	144.17	0.600	9.42	0.00	122.35	51.95	0.00	0.00	122.35	51.95	36.74	36.74
FRP			48.10	44.10	46.10	1.08	147.93	0.600	9.26	0.00	126.69	52.84	0.00	0.00	126.69	52.84	37.37	37.37
FRP			44.10	40.10	42.10	1.05	151.49	0.600	9.08	0.00	131.06	53.60	0.00	0.00	131.06	53.60	37.90	37.90
FRP			40.10	36.10	38.10	1.03	154.83	0.600	8.90	0.00	135.42	54.21	0.00	0.00	135.42	54.21	38.33	38.33
FRP			36.10	32.10	34.10	1.01	157.89	0.600	8.69	0.00	139.79	54.64	0.00	0.00	139.79	54.64	38.64	38.64
FRP			32.10	30.05	31.07	0.99	160.00	0.600	8.52	0.00	73.42	28.13	0.00	0.00	73.42	28.13	19.89	19.89
FRP			30.05	28.00	29.02	0.98	161.31	0.600	8.40	0.00	74.56	28.16	0.00	0.00	74.56	28.16	19.91	19.91
FRP			28.00	24.77	26.39	0.96	160.44	0.600	8.23	0.00	235.72	43.53	0.00	0.00	235.72	43.53	30.78	30.78
FRP			24.77	21.55	23.16	0.93	159.68	0.600	8.01	0.00	241.40	42.73	0.00	0.00	241.40	42.73	30.21	30.21
FRP			21.55	17.55	19.55	0.90	160.96	0.600	7.73	0.00	151.94	52.53	0.00	0.00	151.94	52.53	37.15	37.15
FRP			17.55	13.55	15.55	0.86	161.54	0.600	7.37	0.00	156.23	51.47	0.00	0.00	156.23	51.47	36.39	36.39
FRP			13.55	9.55	11.55	0.85	165.43	0.600	7.32	0.00	160.55	52.54	0.00	0.00	160.55	52.54	37.15	37.15
FRP			9.55	5.55	7.55	0.85	169.83	0.600	7.32	0.00	164.87	53.94	0.00	0.00	164.87	53.94	38.14	38.14
FRP			5.55	2.78	4.16	0.85	173.55	0.600	7.32	0.00	116.98	38.26	0.00	0.00	116.98	38.26	27.05	27.05
FRP	FRP:g		2.78	0.00	1.39	0.85	176.60	0.600	7.32	0.00	119.07	38.93	0.00	0.00	119.07	38.93	27.53	27.53

Equipment Load Case Information for "Wind Regular 0deg":

Equipment Label	Equipment Property Set	Elevation Above Ground	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load (lbs)	Antenna Moment (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	39.10	0.00	0.00	90.00	-0.01170	0.34380	0.13130	-5.56	163.34	245.16	163.34	-5.56	118.80
Mimosa 2	Mimosa B5-C	58.00	39.10	0.00	0.00	270.00	-0.01170	-0.34380	-0.13130	-5.56	-163.34	-245.16	163.34	5.56	118.80

EIA Load Case Information for "Wind Regular 0deg":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section
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FRP	FRP:ant	58.00	57.30	57.65	1.13	211.41	0.600	39.05	0.00	24.35	36.21	0.00	0.00	24.35	36.21	0.00	36.21
FRP		57.30	54.70	56.00	1.12	210.67	0.600	38.82	0.00	182.26	133.84	0.00	0.00	182.26	133.84	0.00	133.84
FRP		54.70	52.10	53.40	1.11	211.36	0.600	38.43	0.00	186.73	133.61	0.00	0.00	186.73	133.61	0.00	133.61
FRP		52.10	48.10	50.10	1.09	216.25	0.600	37.92	0.00	146.82	209.03	0.00	0.00	146.82	209.03	0.00	209.03
FRP		48.10	44.10	46.10	1.08	221.90	0.600	37.26	0.00	152.03	212.61	0.00	0.00	152.03	212.61	0.00	212.61
FRP		44.10	40.10	42.10	1.05	227.24	0.600	36.55	0.00	157.27	215.66	0.00	0.00	157.27	215.66	0.00	215.66
FRP		40.10	36.10	38.10	1.03	232.24	0.600	35.79	0.00	162.51	218.11	0.00	0.00	162.51	218.11	0.00	218.11
FRP		36.10	32.10	34.10	1.01	236.84	0.600	34.97	0.00	167.75	219.84	0.00	0.00	167.75	219.84	0.00	219.84
FRP		32.10	30.05	31.07	0.99	240.00	0.600	34.29	0.00	88.10	113.18	0.00	0.00	88.10	113.18	0.00	113.18
FRP		30.05	28.00	29.02	0.98	241.96	0.600	33.80	0.00	89.48	113.29	0.00	0.00	89.48	113.29	0.00	113.29
FRP		28.00	24.77	26.39	0.96	240.66	0.600	33.13	0.00	282.86	175.14	0.00	0.00	282.86	175.14	0.00	175.14
FRP		24.77	21.55	23.16	0.93	239.51	0.600	32.23	0.00	289.68	171.93	0.00	0.00	289.68	171.93	0.00	171.93
FRP		21.55	17.55	19.55	0.90	241.44	0.600	31.10	0.00	182.33	211.37	0.00	0.00	182.33	211.37	0.00	211.37
FRP		17.55	13.55	15.55	0.86	242.31	0.600	29.64	0.00	187.47	207.08	0.00	0.00	187.47	207.08	0.00	207.08
FRP		13.55	9.55	11.55	0.85	248.14	0.600	29.45	0.00	192.66	211.40	0.00	0.00	192.66	211.40	0.00	211.40
FRP		9.55	5.55	7.55	0.85	254.74	0.600	29.45	0.00	197.85	217.02	0.00	0.00	197.85	217.02	0.00	217.02
FRP		5.55	2.78	4.16	0.85	260.33	0.600	29.45	0.00	140.38	153.94	0.00	0.00	140.38	153.94	0.00	153.94
FRP	FRP:g	2.78	0.00	1.39	0.85	264.91	0.600	29.45	0.00	142.88	156.65	0.00	0.00	142.88	156.65	0.00	156.65

Equipment Load Case Information for "Wind regular 45deg":

Equipment Label	Equipment Property Set	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load FAM (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	39.10	0.00	0.00	45.00	1.62895	0.04880	-0.06130	773.92	23.18	-114.46	23.18	773.92	118.80
Mimosa 2	Mimosa B5-C	58.00	39.10	0.00	0.00	225.00	-0.52150	-0.45705	-0.13905	-247.77	-217.15	-259.63	217.15	247.77	118.80

EIA Load Case Information for "Wind regular 45deg":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Velocity Coef. C (mph*ft)	Pole Drag Coef. (psf)	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Wind Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)	
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	209.27	0.600	39.24	0.00	68.83	102.90	0.00	0.00	68.83	102.90	72.76	72.76
FRP	FRP:ant		58.00	57.30	57.65	1.13	211.41	0.600	39.05	0.00	24.35	36.21	0.00	0.00	24.35	36.21	25.61	25.61
FRP			57.30	54.70	56.00	1.12	210.67	0.600	38.82	0.00	182.26	133.84	0.00	0.00	182.26	133.84	94.64	94.64
FRP			54.70	52.10	53.40	1.11	211.36	0.600	38.43	0.00	186.73	133.61	0.00	0.00	186.73	133.61	94.48	94.48
FRP			52.10	48.10	50.10	1.09	216.25	0.600	37.92	0.00	146.82	209.03	0.00	0.00	146.82	209.03	147.81	147.81
FRP			48.10	44.10	46.10	1.08	221.90	0.600	37.26	0.00	152.03	212.61	0.00	0.00	152.03	212.61	150.34	150.34
FRP			44.10	40.10	42.10	1.05	227.24	0.600	36.55	0.00	157.27	215.66	0.00	0.00	157.27	215.66	152.50	152.50
FRP			40.10	36.10	38.10	1.03	232.24	0.600	35.79	0.00	162.51	218.11	0.00	0.00	162.51	218.11	154.23	154.23
FRP			36.10	32.10	34.10	1.01	236.84	0.600	34.97	0.00	167.75	219.84	0.00	0.00	167.75	219.84	155.45	155.45
FRP			32.10	30.05	31.07	0.99	240.00	0.600	34.29	0.00	88.10	113.18	0.00	0.00	88.10	113.18	80.03	80.03
FRP			30.05	28.00	29.02	0.98	241.96	0.600	33.80	0.00	89.48	113.29	0.00	0.00	89.48	113.29	80.11	80.11
FRP			28.00	24.77	26.39	0.96	240.66	0.600	33.13	0.00	282.86	175.14	0.00	0.00	282.86	175.14	123.84	123.84
FRP			24.77	21.55	23.16	0.93	239.51	0.600	32.23	0.00	289.68	171.93	0.00	0.00	289.68	171.93	121.57	121.57
FRP			21.55	17.55	19.55	0.90	241.44	0.600	31.10	0.00	182.33	211.37	0.00	0.00	182.33	211.37	149.46	149.46
FRP			17.55	13.55	15.55	0.86	242.31	0.600	29.64	0.00	187.47	207.08	0.00	0.00	187.47	207.08	146.43	146.43
FRP			13.55	9.55	11.55	0.85	248.14	0.600	29.45	0.00	192.66	211.40	0.00	0.00	192.66	211.40	149.48	149.48
FRP			9.55	5.55	7.55	0.85	254.74	0.600	29.45	0.00	197.85	217.02	0.00	0.00	197.85	217.02	153.45	153.45
FRP			5.55	2.78	4.16	0.85	260.33	0.600	29.45	0.00	140.38	153.94	0.00	0.00	140.38	153.94	108.85	108.85
FRP	FRP:g		2.78	0.00	1.39	0.85	264.91	0.600	29.45	0.00	142.88	156.65	0.00	0.00	142.88	156.65	110.77	110.77

Equipment Load Case Information for "Wind regular 60deg":

Equipment Label	Equipment Property Set	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load FAM (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	39.10	0.00	0.00	30.00	1.55470	-0.03130	-0.04220	738.64	-14.87	-78.79	-14.87	738.64	118.80
Mimosa 2	Mimosa B5-C	58.00	39.10	0.00	0.00	210.00	-0.77340	-0.39060	0.10860	-367.44	-185.57	202.77	185.57	367.44	118.80

EIA Load Case Information for "Wind regular 60deg":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh), Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Velocity Coef. C (mph*ft)	Pole Drag Coef. (psf)	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Wind Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)	
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	209.27	0.600	39.24	0.00	68.83	102.90	0.00	0.00	68.83	102.90	89.11	51.45
FRP	FRP:ant		58.00	57.30	57.65	1.13	211.41	0.600	39.05	0.00	24.35	36.21	0.00	0.00	24.35	36.21	31.36	18.11
FRP			57.30	54.70	56.00	1.12	210.67	0.600	38.82	0.00	182.26	133.84	0.00	0.00	182.26	133.84	115.91	66.92
FRP			54.70	52.10	53.40	1.11	211.36	0.600	38.43	0.00	186.73	133.61	0.00	0.00	186.73	133.61	115.71	66.80
FRP			52.10	48.10	50.10	1.09	216.25	0.600	37.92	0.00	146.82	209.03	0.00	0.00	146.82	209.03	181.02	104.51
FRP			48.10	44.10	46.10	1.08	221.90	0.600	37.26	0.00	152.03	212.61	0.00	0.00	152.03	212.61	184.13	106.31
FRP			44.10	40.10	42.10	1.05	227.24	0.600	36.55	0.00	157.27	215.66	0.00	0.00	157.27	215.66	186.77	107.83
FRP			40.10	36.10	38.10	1.03	232.24	0.600	35.79	0.00	162.51	218.11	0.00	0.00	162.51	218.11	188.89	109.05
FRP			36.10	32.10	34.10	1.01	236.84	0.600	34.97	0.00	167.75	219.84	0.00	0.00	167.75	219.84	190.39	109.92
FRP			32.10	30.05	31.07	0.99	240.00	0.600	34.29	0.00	88.10	113.18	0.00	0.00	88.10	113.18	98.02	56.59
FRP			30.05	28.00	29.02	0.98	241.96	0.600	33.80	0.00	89.48	113.29	0.00	0.00	89.48	113.29	98.11	56.64
FRP			28.00	24.77	26.39	0.96	240.66	0.600	33.13	0.00	282.86	175.14	0.00	0.00	282.86	175.14	151.67	87.57
FRP			24.77	21.55	23.16	0.93	239.51	0.600	32.23	0.00	289.68	171.93	0.00	0.00	289.68	171.93	148.89	85.96
FRP			21.55	17.55	19.55	0.90	241.44	0.600	31.10	0.00	182.33	211.37	0.00	0.00	182.33	211.37	183.05	105.68
FRP			17.55	13.55	15.55	0.86	242.31	0.600	29.64	0.00	187.47	207.08	0.00	0.00	187.47	207.08	179.34	103.54
FRP			13.55	9.55	11.55	0.85	248.14	0.600	29.45	0.00	192.66	211.40	0.00	0.00	192.66	211.40	183.07	105.70
FRP			9.55	5.55	7.55	0.85	254.74	0.600	29.45	0.00	197.85	217.02	0.00	0.00	197.85	217.02	187.94	108.51
FRP			5.55	2.78	4.16	0.85	260.33	0.600	29.45	0.00	140.38	153.94	0.00	0.00	140.38	153.94	133.32	76.97
FRP	FRP:g		2.78	0.00	1.39	0.85	264.91	0.600	29.45	0.00	142.88	156.65	0.00	0.00	142.88	156.65	135.66	78.32

Equipment Load Case Information for "Wind regular 90deg":

Equipment Label	Equipment Property Set	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load FAM (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	39.10	0.00	0.00	0.00	1.55080			736.79			0.00	736.79	118.80
Mimosa 2	Mimosa B5-C	58.00	39.10	0.00	0.00	180.00	-1.05470			-501.09			0.00	501.09	118.80

FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	209.27	0.600	39.24	0.00	68.83	102.90	0.00	0.00	68.83	102.90	102.90	0.00
FRP	FRP:ant		58.00	57.30	57.65	1.13	211.41	0.600	39.05	0.00	24.35	36.21	0.00	0.00	24.35	36.21	36.21	0.00
FRP			57.30	54.70	56.00	1.12	210.67	0.600	38.82	0.00	182.26	133.84	0.00	0.00	182.26	133.84	133.84	0.00
FRP			54.70	52.10	53.40	1.11	211.36	0.600	38.43	0.00	186.73	133.61	0.00	0.00	186.73	133.61	133.61	0.00
FRP			52.10	48.10	50.10	1.09	216.25	0.600	37.92	0.00	146.82	209.03	0.00	0.00	146.82	209.03	209.03	0.00
FRP			48.10	44.10	46.10	1.08	221.90	0.600	37.26	0.00	152.03	212.61	0.00	0.00	152.03	212.61	212.61	0.00
FRP			44.10	40.10	42.10	1.05	227.24	0.600	36.55	0.00	157.27	215.66	0.00	0.00	157.27	215.66	215.66	0.00
FRP			40.10	36.10	38.10	1.03	232.24	0.600	35.79	0.00	162.51	218.11	0.00	0.00	162.51	218.11	218.11	0.00
FRP			36.10	32.10	34.10	1.01	236.84	0.600	34.97	0.00	167.75	219.84	0.00	0.00	167.75	219.84	219.84	0.00
FRP			32.10	30.05	31.07	0.99	240.00	0.600	34.29	0.00	88.10	113.18	0.00	0.00	88.10	113.18	113.18	0.00
FRP			30.05	28.00	29.02	0.98	241.96	0.600	33.80	0.00	89.48	113.29	0.00	0.00	89.48	113.29	113.29	0.00
FRP			28.00	24.77	26.39	0.96	240.66	0.600	33.13	0.00	282.86	175.14	0.00	0.00	282.86	175.14	175.14	0.00
FRP			24.77	21.55	23.16	0.93	239.51	0.600	32.23	0.00	289.68	171.93	0.00	0.00	289.68	171.93	171.93	0.00
FRP			21.55	17.55	19.55	0.90	241.44	0.600	31.10	0.00	182.33	211.37	0.00	0.00	182.33	211.37	211.37	0.00
FRP			17.55	13.55	15.55	0.86	242.31	0.600	29.64	0.00	187.47	207.08	0.00	0.00	187.47	207.08	207.08	0.00
FRP			13.55	9.55	11.55	0.85	248.14	0.600	29.45	0.00	192.66	211.40	0.00	0.00	192.66	211.40	211.40	0.00
FRP			9.55	5.55	7.55	0.85	254.74	0.600	29.45	0.00	197.85	217.02	0.00	0.00	197.85	217.02	217.02	0.00
FRP			5.55	2.78	4.16	0.85	260.33	0.600	29.45	0.00	140.38	153.94	0.00	0.00	140.38	153.94	153.94	0.00
FRP	FRP:g		2.78	0.00	1.39	0.85	264.91	0.600	29.45	0.00	142.88	156.65	0.00	0.00	142.88	156.65	156.65	0.00

Equipment Load Case Information for "Wind regular 180deg":

Equipment Label	Equipment Property Set	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load (lbs)	Antenna Moment (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	39.10	0.00	0.00	270.00	-0.01170	-0.34380	-0.13130	-5.56	-163.34	-245.16	-163.34	-5.56	118.80
Mimosa 2	Mimosa B5-C	58.00	39.10	0.00	0.00	90.00	-0.01170	0.34380	0.13130	-5.56	163.34	245.16	-163.34	5.56	118.80

EIA Load Case Information for "Wind regular 180deg":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh),
Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Veloc. Coef. (mph*ft)	Pole Drag Coef. (psf)	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Appurt. Wind Load (lbs)	Appurt. Wind Load (lbs)	Total Wind Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	209.27	0.600	39.24	0.00	68.83	102.90	0.00	0.00	68.83	102.90
FRP	FRP:ant		58.00	57.30	57.65	1.13	211.41	0.600	39.05	0.00	24.35	36.21	0.00	0.00	24.35	36.21
FRP			57.30	54.70	56.00	1.12	210.67	0.600	38.82	0.00	182.26	133.84	0.00	0.00	182.26	133.84
FRP			54.70	52.10	53.40	1.11	211.36	0.600	38.43	0.00	186.73	133.61	0.00	0.00	186.73	133.61
FRP			52.10	48.10	50.10	1.09	216.25	0.600	37.92	0.00	146.82	209.03	0.00	0.00	146.82	209.03
FRP			48.10	44.10	46.10	1.08	221.90	0.600	37.26	0.00	152.03	212.61	0.00	0.00	152.03	212.61
FRP			44.10	40.10	42.10	1.05	227.24	0.600	36.55	0.00	157.27	215.66	0.00	0.00	157.27	215.66
FRP			40.10	36.10	38.10	1.03	232.24	0.600	35.79	0.00	162.51	218.11	0.00	0.00	162.51	218.11
FRP			36.10	32.10	34.10	1.01	236.84	0.600	34.97	0.00	167.75	219.84	0.00	0.00	167.75	219.84
FRP			32.10	30.05	31.07	0.99	240.00	0.600	34.29	0.00	88.10	113.18	0.00	0.00	88.10	113.18
FRP			30.05	28.00	29.02	0.98	241.96	0.600	33.80	0.00	89.48	113.29	0.00	0.00	89.48	113.29
FRP			28.00	24.77	26.39	0.96	240.66	0.600	33.13	0.00	282.86	175.14	0.00	0.00	282.86	175.14
FRP			24.77	21.55	23.16	0.93	239.51	0.600	32.23	0.00	289.68	171.93	0.00	0.00	289.68	171.93
FRP			21.55	17.55	19.55	0.90	241.44	0.600	31.10	0.00	182.33	211.37	0.00	0.00	182.33	211.37
FRP			17.55	13.55	15.55	0.86	242.31	0.600	29.64	0.00	187.47	207.08	0.00	0.00	187.47	207.08
FRP			13.55	9.55	11.55	0.85	248.14	0.600	29.45	0.00	192.66	211.40	0.00	0.00	192.66	211.40
FRP			9.55	5.55	7.55	0.85	254.74	0.600	29.45	0.00	197.85	217.02	0.00	0.00	197.85	217.02
FRP			5.55	2.78	4.16	0.85	260.33	0.600	29.45	0.00	140.38	153.94	0.00	0.00	140.38	153.94
FRP	FRP:g		2.78	0.00	1.39	0.85	264.91	0.600	29.45	0.00	142.88	156.65	0.00	0.00	142.88	156.65

Equipment Load Case Information for "Wind regular -45deg":

Equipment Label	Equipment Property Set	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load (lbs)	Antenna Moment (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	39.10	0.00	0.00	135.00	-0.52150	0.45705	0.13905	-247.77	217.15	259.63	217.15	-247.77	118.80
Mimosa 2	Mimosa B5-C	58.00	39.10	0.00	0.00	315.00	1.62895	-0.04880	0.06130	773.92	-23.18	114.46	23.18	-773.92	118.80

EIA Load Case Information for "Wind regular -45deg":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh),
Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Veloc. Coef. (mph*ft)	Pole Drag Coef. (psf)	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Appurt. Wind Load (lbs)	Appurt. Wind Load (lbs)	Total Wind Load (lbs)	Total Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	209.27	0.600	39.24	0.00	68.83	102.90	0.00	0.00	68.83	102.90
FRP	FRP:ant		58.00	57.30	57.65	1.13	211.41	0.600	39.05	0.00	24.35	36.21	0.00	0.00	24.35	36.21
FRP			57.30	54.70	56.00	1.12	210.67	0.600	38.82	0.00	182.26	133.84	0.00	0.00	182.26	133.84
FRP			54.70	52.10	53.40	1.11	211.36	0.600	38.43	0.00	186.73	133.61	0.00	0.00	186.73	133.61
FRP			52.10	48.10	50.10	1.09	216.25	0.600	37.92	0.00	146.82	209.03	0.00	0.00	146.82	209.03
FRP			48.10	44.10	46.10	1.08	221.90	0.600	37.26	0.00	152.03	212.61	0.00	0.00	152.03	212.61
FRP			44.10	40.10	42.10	1.05	227.24	0.600	36.55	0.00	157.27	215.66	0.00	0.00	157.27	215.66
FRP			40.10	36.10	38.10	1.03	232.24	0.600	35.79	0.00	162.51	218.11	0.00	0.00	162.51	218.11
FRP			36.10	32.10	34.10	1.01	236.84	0.600	34.97	0.00	167.75	219.84	0.00	0.00	167.75	219.84
FRP			32.10	30.05	31.07	0.99	240.00	0.600	34.29	0.00	88.10	113.18	0.00	0.00	88.10	113.18
FRP			30.05	28.00	29.02	0.98	241.96	0.600	33.80	0.00	89.48	113.29	0.00	0.00	89.48	113.29
FRP			28.00	24.77	26.39	0.96	240.66	0.600	33.13	0.00	282.86	175.14	0.00	0.00	282.86	175.14
FRP			24.77	21.55	23.16	0.93	239.51	0.600	32.23	0.00	289.68	171.93	0.00	0.00	289.68	171.93
FRP			21.55	17.55	19.55	0.90	241.44	0.600	31.10	0.00	182.33	211.37	0.00	0.00	182.33	211.37
FRP			17.55	13.55	15.55	0.86	242.31	0.600	29.64	0.00	187.47	207.08	0.00	0.00	187.47	207.08
FRP			13.55	9.55	11.55	0.85	248.14	0.600	29.45	0.00	192.66	211.40	0.00	0.00	192.66	211.40
FRP			9.55	5.55	7.55	0.85	254.74	0.600	29.45	0.00	197.85	217.02	0.00	0.00	197.85	217.02
FRP			5.55	2.78	4.16	0.85	260.33	0.600	29.45	0.00	140.38	153.94	0.00	0.00	140.38	153.94
FRP	FRP:g		2.78	0.00	1.39	0.85	264.91	0.600	29.45	0.00	142.88	156.65	0.00	0.00	142.88	156.65

Equipment Load Case Information for "Wind regular -60deg":

Equipment Label	Equipment Property Set	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load (lbs)	Antenna Side Load (lbs)	Antenna Moment (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	39.10	0.00	0.00	150.00	-0.77340	0.39060	0.10860	-367.44	185.57	202.77	185.57	-367.44	118.80
Mimosa 2	Mimosa B5-C	58.00	39.10	0.00	0.00	330.00	1.55470	0.03130	0.04220	738.64	14.87	78.79	-14.87	-738.64	118.80

EIA Load Case Information for "Wind regular -60deg":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh),
Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz Veloc. Coef. (mph*ft)	Pole Drag Coef. (psf)	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Appurt. Wind Load (lbs)	Appurt. Wind Load (lbs)	Total Wind Load (lbs)	Total Wind Load (lbs)
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FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	209.27	0.600	39.24	0.00	68.83	102.90	0.00	0.00	68.83	102.90	-89.11	51.45
FRP	FRP:ant		58.00	57.30	57.65	1.13	211.41	0.600	39.05	0.00	24.35	36.21	0.00	0.00	24.35	36.21	-31.36	18.11
FRP			57.30	54.70	56.00	1.12	210.67	0.600	38.82	0.00	182.26	133.84	0.00	0.00	182.26	133.84	-115.91	66.92
FRP			54.70	52.10	53.40	1.11	211.36	0.600	38.43	0.00	186.73	133.61	0.00	0.00	186.73	133.61	-115.71	66.80
FRP			52.10	48.10	50.10	1.09	216.25	0.600	37.92	0.00	146.82	209.03	0.00	0.00	146.82	209.03	-181.02	104.51
FRP			48.10	44.10	46.10	1.08	221.90	0.600	37.26	0.00	152.03	212.61	0.00	0.00	152.03	212.61	-184.13	106.31
FRP			44.10	40.10	42.10	1.05	227.24	0.600	36.55	0.00	157.27	215.66	0.00	0.00	157.27	215.66	-186.77	107.83
FRP			40.10	36.10	38.10	1.03	232.24	0.600	35.79	0.00	162.51	218.11	0.00	0.00	162.51	218.11	-188.89	109.05
FRP			36.10	32.10	34.10	1.01	236.84	0.600	34.97	0.00	167.75	219.84	0.00	0.00	167.75	219.84	-190.39	109.92
FRP			32.10	30.05	31.07	0.99	240.00	0.600	34.29	0.00	88.10	113.18	0.00	0.00	88.10	113.18	-98.02	56.59
FRP			30.05	28.00	29.02	0.98	241.96	0.600	33.80	0.00	89.48	113.29	0.00	0.00	89.48	113.29	-98.11	56.64
FRP			28.00	24.77	26.39	0.96	240.66	0.600	33.13	0.00	282.86	175.14	0.00	0.00	282.86	175.14	-151.67	87.57
FRP			24.77	21.55	23.16	0.93	239.51	0.600	32.23	0.00	289.68	171.93	0.00	0.00	289.68	171.93	-148.89	85.96
FRP			21.55	17.55	19.55	0.90	241.44	0.600	31.10	0.00	182.33	211.37	0.00	0.00	182.33	211.37	-183.05	105.68
FRP			17.55	13.55	15.55	0.86	242.31	0.600	29.64	0.00	187.47	207.08	0.00	0.00	187.47	207.08	-179.34	103.54
FRP			13.55	9.55	11.55	0.85	248.14	0.600	29.45	0.00	192.66	211.40	0.00	0.00	192.66	211.40	-183.07	105.70
FRP			9.55	5.55	7.55	0.85	254.74	0.600	29.45	0.00	197.85	217.02	0.00	0.00	197.85	217.02	-187.94	108.51
FRP			5.55	2.78	4.16	0.85	260.33	0.600	29.45	0.00	140.38	153.94	0.00	0.00	140.38	153.94	-133.32	76.97
FRP		FRP:g	2.78	0.00	1.39	0.85	264.91	0.600	29.45	0.00	142.88	156.65	0.00	0.00	142.88	156.65	-135.66	78.32

Equipment Load Case Information for "Wind regular -90deg":

Equipment Label	Equipment Property	Elevation Above Ground (ft)	qzGh (psf)	Ice Thick. (in)	Total Wind Drag Area (ft^2)	Wind Incidence Angle (deg)	222-G CA	222-G CS	222-G CM	Antenna Axial Load FAM (lbs)	Antenna Side Load FSM (lbs)	Antenna Moment MM (ft-lbs)	Long. Load (lbs)	Trans. Load (lbs)	Vert. Load (lbs)
Mimosa 1	Mimosa B5-C	58.00	39.10	0.00	0.00	180.00	-1.05470			-501.09			-0.00	-501.09	118.80
Mimosa 2	Mimosa B5-C	58.00	39.10	0.00	0.00	0.00	1.55080			736.79			-0.00	-736.79	118.80

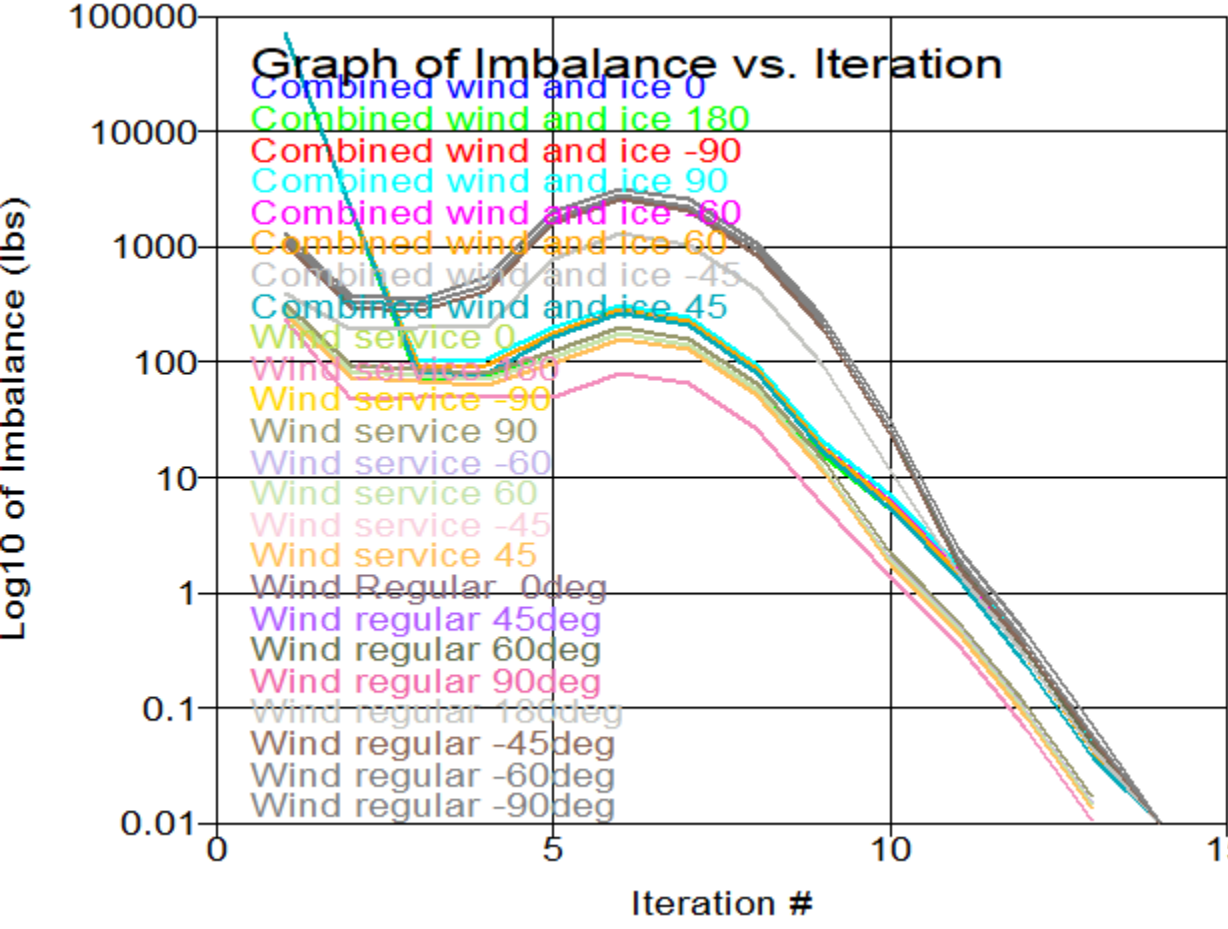
EIA Load Case Information for "Wind regular -90deg":

Note: Totals include load on pole and appurtenances, but not loads from equipment, user entered or seismic.
Adjusted Wind Pressure Includes: Velocity Pressure Coefficient (Kz), Topographic Factor (Kzt), Gust Effect Factor (Gh),
Wind Direction Probability Factor (Kd), Wind Importance Factor (Table 2-3), Wind Area Factor (from Loads/EIA Loads)

Pole Label	Top Joint	Bottom Joint	Section Top Elev. (ft)	Section Bottom Elev. (ft)	Section Average Elev. (ft)	Kz	Velocity Coef. C	Pole Drag Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Appurt. Vert. Load (lbs)	Appurt. Wind Load (lbs)	Total Vert. Load (lbs)	Total Wind Load (lbs)	Tran. Load (lbs)	Long. Wind Load (lbs)
FRP	FRP:t	FRP:ant	60.00	58.00	59.00	1.13	209.27	0.600	39.24	0.00	68.83	102.90	0.00	0.00	68.83	102.90	-102.90	0.00
FRP	FRP:ant		58.00	57.30	57.65	1.13	211.41	0.600	39.05	0.00	24.35	36.21	0.00	0.00	24.35	36.21	-36.21	0.00
FRP			57.30	54.70	56.00	1.12	210.67	0.600	38.82	0.00	182.26	133.84	0.00	0.00	182.26	133.84	-133.84	0.00
FRP			54.70	52.10	53.40	1.11	211.36	0.600	38.43	0.00	186.73	133.61	0.00	0.00	186.73	133.61	-133.61	0.00
FRP			52.10	48.10	50.10	1.09	216.25	0.600	37.92	0.00	146.82	209.03	0.00	0.00	146.82	209.03	-209.03	0.00
FRP			48.10	44.10	46.10	1.08	221.90	0.600	37.26	0.00	152.03	212.61	0.00	0.00	152.03	212.61	-212.61	0.00
FRP			44.10	40.10	42.10	1.05	227.24	0.600	36.55	0.00	157.27	215.66	0.00	0.00	157.27	215.66	-215.66	0.00
FRP			40.10	36.10	38.10	1.03	232.24	0.600	35.79	0.00	162.51	218.11	0.00	0.00	162.51	218.11	-218.11	0.00
FRP			36.10	32.10	34.10	1.01	236.84	0.600	34.97	0.00	167.75	219.84	0.00	0.00	167.75	219.84	-219.84	0.00
FRP			32.10	30.05	31.07	0.99	240.00	0.600	34.29	0.00	88.10	113.18	0.00	0.00	88.10	113.18	-113.18	0.00
FRP			30.05	28.00	29.02	0.98	241.96	0.600	33.80	0.00	89.48	113.29	0.00	0.00	89.48	113.29	-113.29	0.00
FRP			28.00	24.77	26.39	0.96	240.66	0.600	33.13	0.00	282.86	175.14	0.00	0.00	282.86	175.14	-175.14	0.00
FRP			24.77	21.55	23.16	0.93	239.51	0.600	32.23	0.00	289.68	171.93	0.00	0.00	289.68	171.93	-171.93	0.00
FRP			21.55	17.55	19.55	0.90	241.44	0.600	31.10	0.00	182.33	211.37	0.00	0.00	182.33	211.37	-211.37	0.00
FRP			17.55	13.55	15.55	0.86	242.31	0.600	29.64	0.00	187.47	207.08	0.00	0.00	187.47	207.08	-207.08	0.00
FRP			13.55	9.55	11.55	0.85	248.14	0.600	29.45	0.00	192.66	211.40	0.00	0.00	192.66	211.40	-211.40	0.00
FRP			9.55	5.55	7.55	0.85	254.74	0.600	29.45	0.00	197.85	217.02	0.00	0.00	197.85	217.02	-217.02	0.00
FRP			5.55	2.78	4.16	0.85	260.33	0.600	29.45	0.00	140.38	153.94	0.00	0.00	140.38	153.94	-153.94	0.00
FRP		FRP:g	2.78	0.00	1.39	0.85	264.91	0.600	29.45	0.00	142.88	156.65	0.00	0.00	142.88	156.65	-156.65	0.00

*** Analysis Results:

Maximum element usage is 47.80% for FRP Pole "FRP" in load case "Wind regular 90deg"



*** Analysis Results for Load Case No. 1 "Combined wind and ice 0" - Number of iterations in SAPS 14

Equilibrium Joint Positions and Rotations for Load Case "Combined wind and ice 0":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.2985	-4.478e-18	-0.03959	0.0000	0.3990	-0.0000	0.2985	-4.478e-18	59.96
FRP:ant	0.2846	-4.246e-18	-0.03829	0.0000	0.3990	-0.0000	0.2846	-4.246e-18	57.96

Joint Support Reactions for Load Case "Combined wind and ice 0":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear (kips)	H-Shear Usage %	Z Comp. (kips)	Z Comp. Usage %	Uplift (kips)	Uplift Usage %	Result. Force (kips)	Result. Force Usage %	X-M. (ft-k)	X-M. Usage %	Y-M. (ft-k)	Y-M. Usage %	H-Bend-M (ft-k)	H-Bend-M Usage %	Z-M. (ft-k)	Z-M. Usage %	Max. Usage %
FRP:g	-1.38	0.0	0.00	0.0	0.0	0.0	-5.79	0.0	0.0	0.0	5.95	0.0	-0.00	0.0	-44.1	0.0	0.0	0.00	0.0	0.0	0.0

Detailed FRP Pole Usages for Load Case "Combined wind and ice 0":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. (Local Mx) (ft-k)	Mom. (Local My) (ft-k)	Tors. Mom. (kips)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage %	At Usage Pt.
FRP	FRP:t	Origin	0.00	-0.00	3.58	-0.48	-0.00	0.00	-0.0	-0.07	0.00	-0.02	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	End	2.00	-0.00	3.42	-0.46	0.00	-0.04	-0.0	-0.07	0.00	-0.02	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	Origin	2.00	-0.00	3.42	-0.46	0.00	-0.04	-0.0	-0.59	-0.00	-0.12	-0.02	0.00	0.01	0.00	0.02	24.91	3306.78	0.1	1
FRP	SpliceT	End	2.70	-0.00	3.36	-0.45	0.00	-0.13	-0.0	-0.59	-0.00	-0.12	-0.02	0.01	0.01	0.00	0.03	24.91	3306.78	0.1	1
FRP	SpliceT	Origin	2.70	-0.00	3.36	-0.45	0.00	-0.13	0.0	-0.75	0.00	-0.16	-0.02	0.01	0.01	0.00	0.03	24.91	3306.78	0.1	1
FRP	Splice	End	5.30	-0.00	3.14	-0.43	0.00	-0.55	0.0	-0.75	0.00	-0.16	-0.02	0.03	0.01	0.00	0.05	24.91	3306.78	0.3	1
FRP	Splice	Origin	5.30	-0.00	3.14	-0.43	0.00	-0.55	0.0	-1.03	0.00	-0.22	-0.03	0.03	0.01	0.00	0.06	22.18	3292.28	0.3	1
FRP	SpliceB	End	7.90	-0.00	2.92	-0.41	0.00	-1.11	0.0	-1.03	0.00	-0.22	-0.03	0.05	0.01	0.00	0.08	22.18	3292.28	0.5	1
FRP	SpliceB	Origin	7.90	-0.00	2.92	-0.41	0.00	-1.11	-0.0	-1.32	0.00	-0.29	-0.03	0.05	0.02	0.00	0.09	22.18	3292.28	0.5	1
FRP	Tube 2	End	11.90	-0.00	2.59	-0.38	0.00	-2.27	-0.0	-1.32	0.00	-0.29	-0.03	0.10	0.01	0.00	0.14	22.18	3292.28	0.8	1
FRP	Tube 2	Origin	11.90	-0.00	2.59	-0.38	0.00	-2.27	-0.0	-1.61	0.00	-0.38	-0.04	0.10	0.02	0.00	0.15	22.18	3292.28	0.8	1
FRP	Tube 2	End	15.90	-0.00	2.27	-0.35	0.00	-3.79	-0.0	-1.61	0.00	-0.38	-0.04	0.16	0.02	0.00	0.20	22.18	3292.28	1.2	1
FRP	Tube 2	Origin	15.90	-0.00	2.27	-0.35	0.00	-3.79	-0.0	-1.92	0.00	-0.47	-0.05	0.16	0.02	0.00	0.21	22.18	3292.28	1.3	1
FRP	Tube 2	End	19.90	-0.00	1.95	-0.32	0.00	-5.67	-0.0	-1.92	0.00	-0.47	-0.05	0.22	0.02	0.00	0.27	22.18	3292.28	1.7	1
FRP	Tube 2	Origin	19.90	-0.00	1.95	-0.32	0.00	-5.67	-0.0	-2.23	0.00	-0.56	-0.05	0.22	0.03	0.00	0.28	22.18	3292.28	1.7	1
FRP	Tube 2	End	23.90	-0.00	1.64	-0.29	0.00	-7.91	-0.0	-2.23	0.00	-0.56	-0.05	0.29	0.03	0.00	0.34	22.18	3292.28	2.2	1
FRP	Tube 2	Origin	23.90	-0.00	1.64	-0.29	0.00	-7.91	-0.0	-2.55	0.00	-0.65	-0.06	0.29	0.03	0.00	0.35	22.18	3292.28	2.3	1
FRP	Tube 2	End	27.90	-0.00	1.35	-0.26	0.00	-10.52	-0.0	-2.55	0.00	-0.65	-0.06	0.36	0.03	0.00	0.42	22.18	3292.28	2.8	1
FRP	Tube 2	Origin	27.90	-0.00	1.35	-0.26	0.00	-10.52	0.0	-2.80	0.00	-0.72	-0.06	0.36	0.03	0.00	0.42	22.18	3292.28	2.9	1
FRP	Tube 2	End	29.95	-0.00	1.20	-0.24	0.00	-12.00	0.0	-2.80	0.00	-0.72	-0.06	0.40	0.03	0.00	0.46	22.18	3292.28	3.2	1
FRP	Tube 2	Origin	29.95	-0.00	1.20	-0.24	0.00	-12.00	0.0	-2.97	0.00	-0.77	-0.06	0.40	0.03	0.00	0.47	22.18	3292.28	3.2	1
FRP	SpliceT	End	32.00	-0.00	1.06	-0.22	0.00	-13.57	0.0	-2.97	0.00	-0.77	-0.06	0.44	0.03	0.00	0.50	22.18	3292.28	3.5	1
FRP	SpliceT	Origin	32.00	-0.00	1.06	-0.22	0.00	-13.57	0.0	-3.27	0.00	-0.83	-0.07	0.44	0.04	0.00	0.51	22.18	3292.28	3.5	1
FRP	Splice	End	35.22	-0.00	0.85	-0.20	0.00	-16.24	0.0	-3.27	0.00	-0.83	-0.07	0.53	0.04	0.00	0.60	22.18	3292.28	4.2	1
FRP	Splice	Origin	35.22	-0.00	0.85	-0.20	0.00	-16.24	0.0	-3.68	0.00	-0.90	-0.08	0.53	0.04	0.00	0.61	20.85	2441.71	5.6	1
FRP	SpliceB	End	38.44	-0.00	0.66	-0.17	0.00	-19.14	0.0	-3.68	0.00	-0.90	-0.08	0.59	0.04	0.00	0.67	20.85	2441.71	6.4	1
FRP	SpliceB	Origin	38.44	-0.00	0.66	-0.17	0.00	-19.14	-0.0	-4.07	0.00	-0.98	-0.09	0.59	0.04	0.00	0.68	20.85	2441.71	6.4	1
FRP	Tube 3	End	42.44	-0.00	0.45	-0.14	0.00	-23.04	-0.0	-4.07	0.00	-0.98	-0.08	0.67	0.04	0.00	0.76	20.85	2441.71	7.4	1
FRP	Tube 3	Origin	42.44	-0.00	0.45	-0.14	0.00	-23.04	0.0	-4.41	0.00	-1.06	-0.09	0.67	0.04	0.00	0.77	20.85	2441.71	7.5	1
FRP	Tube 3	End	46.44	-0.00	0.27	-0.11	0.00	-27.28	0.0	-4.41	0.00	-1.06	-0.09	0.75	0.04	0.00	0.84	20.85	2441.71	8.5	1
FRP	Tube 3	Origin	46.44	-0.00	0.27	-0.11	0.00	-27.28	0.0	-4.77	0.00	-1.14	-0.09	0.75	0.05	0.00	0.85	20.85	2441.71	8.5	1
FRP	Tube 3	End	50.44	-0.00	0.14	-0.08	0.00	-31.85	0.0	-4.77	0.00	-1.14	-0.09	0.83	0.04	0.00	0.93	20.85	2441.71	9.6	1
FRP	Tube 3	Origin	50.44	-0.00	0.14	-0.08	0.00	-31.85	0.0	-5.12	0.00	-1.23	-0.10	0.83	0.05	0.00	0.94	20.85	2441.71	9.6	1
FRP	Tube 3	End	54.44	-0.00	0.05	-0.04	0.00	-36.75	0.0	-5.12	0.00	-1.23	-0.10	0.91	0.05	0.00	1.01	20.85	2441.71	10.7	1
FRP	Tube 3	Origin	54.44	-0.00	0.05	-0.04	0.00	-36.75	0.0	-5.42	0.00	-1.30	-0.10	0.91	0.05	0.00	1.02	20.85	2441.71	10.8	1
FRP	Tube 3	End	57.22	-0.00	0.01	-0.02	0.00	-40.35	0.0	-5.42	0.00	-1.30	-0.10	0.97	0.05	0.00	1.07	20.85	2441.71	11.6	1
FRP	Tube 3	Origin	57.22	-0.00	0.01	-0.02	0.00	-40.35	0.0	-5.67	0.00	-1.36	-0.10	0.97	0.05	0.00	1.07	20.85	2441.71	11.6	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	0.00	-44.11	0.0	-5.67	0.00	-1.36	-0.10	1.02	0.05	0.00	1.13	20.85	2441.71	12.4	1

Equilibrium Joint Positions and Rotations for Load Case "Combined wind and ice 180":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	-0.2985	3.665e-17	-0.03959	-0.0000	-0.3990	-0.0000	-0.2985	3.665e-17	59.96
FRP:ant	-0.2846	3.494e-17	-0.03829	-0.0000	-0.3990	-0.0000	-0.2846	3.494e-17	57.96

Joint Support Reactions for Load Case "Combined wind and ice 180":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Comp. Force (kips)	Z Usage %	Uplift Usage %	Result. Moment (ft-k)	Result. Moment Usage %	X-M. Moment (ft-k)	X-M. Moment Usage %	Y-M. Moment (ft-k)	Y-M. Moment Usage %	H-Bend-M Usage %	Z-M. Moment (ft-k)	Z-M. Moment Usage %	Max. Usage %
FRP:g	1.38	0.0	-0.00	0.0	0.0	-5.79	0.0	0.0	5.95	0.0	0.00	0.0	44.1	0.0	0.0	-0.00	0.0	0.0

Detailed FRP Pole Usages for Load Case "Combined wind and ice 180":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (ft-k)	Long. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage	At Pt. %
FRP	FRP:t	Origin	0.00	0.00	-3.58	-0.48	-0.00	-0.00	-0.0	-0.07	0.00	0.02	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	End	2.00	0.00	-3.42	-0.46	0.00	0.04	-0.0	-0.07	0.00	0.02	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	Origin	2.00	0.00	-3.42	-0.46	0.00	0.04	-0.0	-0.59	0.00	0.12	-0.02	0.00	0.01	0.00	0.02	24.91	3306.78	0.1	1
FRP	SpliceT	End	2.70	0.00	-3.36	-0.45	0.00	0.13	-0.0	-0.59	0.00	0.12	-0.02	0.01	0.01	0.00	0.03	24.91	3306.78	0.1	1
FRP	SpliceT	Origin	2.70	0.00	-3.36	-0.45	0.00	0.13	0.0	-0.75	0.00	0.16	-0.02	0.01	0.01	0.00	0.03	24.91	3306.78	0.1	1
FRP	Splice	End	5.30	0.00	-3.14	-0.43	0.00	0.55	0.0	-0.75	0.00	0.16	-0.02	0.03	0.01	0.00	0.05	24.91	3306.78	0.3	1
FRP	Splice	Origin	5.30	0.00	-3.14	-0.43	0.00	0.55	0.0	-1.03	0.00	0.22	-0.03	0.03	0.01	0.00	0.06	22.18	3292.28	0.3	1
FRP	SpliceB	End	7.90	0.00	-2.92	-0.41	0.00	1.11	0.0	-1.03	0.00	0.22	-0.03	0.05	0.01	0.00	0.08	22.18	3292.28	0.5	1
FRP	SpliceB	Origin	7.90	0.00	-2.92	-0.41	0.00	1.11	-0.0	-1.32	0.00	0.29	-0.03	0.05	0.02	0.00	0.09	22.18	3292.28	0.5	1
FRP	Tube 2	End	11.90	0.00	-2.59	-0.38	0.00	2.27	-0.0	-1.32	0.00	0.29	-0.03	0.10	0.01	0.00	0.14	22.18	3292.28	0.8	1
FRP	Tube 2	Origin	11.90	0.00	-2.59	-0.38	0.00	2.27	-0.0	-1.61	0.00	0.38	-0.04	0.10	0.02	0.00	0.15	22.18	3292.28	0.8	1
FRP	Tube 2	End	15.90	0.00	-2.27	-0.35	0.00	3.79	-0.0	-1.61	0.00	0.38	-0.04	0.16	0.02	0.00	0.20	22.18	3292.28	1.2	1
FRP	Tube 2	Origin	15.90	0.00	-2.27	-0.35	0.00	3.79	-0.0	-1.92	0.00	0.47	-0.05	0.16	0.02	0.00	0.21	22.18	3292.28	1.3	1
FRP	Tube 2	End	19.90	0.00	-1.95	-0.32	0.00	5.67	-0.0	-1.92	0.00	0.47	-0.05	0.22	0.02	0.00	0.27	22.18	3292.28	1.7	1
FRP	Tube 2	Origin	19.90	0.00	-1.95	-0.32	0.00	5.67	-0.0	-2.23	0.00	0.56	-0.05	0.22	0.03	0.00	0.28	22.18	3292.28	1.7	1
FRP	Tube 2	End	23.90	0.00	-1.64	-0.29	0.00	7.91	-0.0	-2.23	0.00	0.56	-0.05	0.29	0.03	0.00	0.34	22.18	3292.28	2.2	1
FRP	Tube 2	Origin	23.90	0.00	-1.64	-0.29	0.00	7.91	0.0	-2.55	0.00	0.65	-0.06	0.29	0.03	0.00	0.35	22.18	3292.28	2.3	1
FRP	Tube 2	End	27.90	0.00	-1.35	-0.26	0.00	10.52	0.0	-2.55	0.00	0.65	-0.06	0.36	0.03	0.00	0.42	22.18	3292.28	2.8	1
FRP	Tube 2	Origin	27.90	0.00	-1.35	-0.26	0.00	10.52	0.0	-2.80	0.00	0.72	-0.06	0.36	0.03	0.00	0.42	22.18	3292.28	2.9	1
FRP	Tube 2	End	29.95	0.00	-1.20	-0.24	0.00	12.00	0.0	-2.80	0.00	0.72	-0.06	0.40	0.03	0.00	0.46	22.18	3292.28	3.2	1
FRP	Tube 2	Origin	29.95	0.00	-1.20	-0.24	0.00	12.00	0.0	-2.97	0.00	0.77	-0.06	0.40	0.03	0.00	0.47	22.18	3292.28	3.2	1
FRP	SpliceT	End	32.00	0.00	-1.06	-0.22	0.00	13.57	0.0	-2.97	0.00	0.77	-0.06	0.44	0.03	0.00	0.50	22.18	3292.28	3.5	1
FRP	SpliceT	Origin	32.00	0.00	-1.06	-0.22	0.00	13.57	0.0	-3.27	0.00	0.83	-0.07	0.44	0.04	0.00	0.51	22.18	3292.28	3.5	1
FRP	Splice	End	35.22	0.00	-0.85	-0.20	0.00	16.24	0.0	-3.27	0.00	0.83	-0.07	0.53	0.04	0.00	0.60	22.18	3292.28	4.2	1
FRP	Splice	Origin	35.22	0.00	-0.85	-0.20	0.00	16.24	0.0	-3.68	0.00	0.90	-0.08	0.53	0.04	0.00	0.61	20.85	2441.71	5.6	1
FRP	SpliceB	End	38.44	0.00	-0.66	-0.17	0.00	19.14	0.0	-3.68	0.00	0.90	-0.08	0.59	0.04	0.00	0.67	20.85	2441.71	6.4	1
FRP	SpliceB	Origin	38.44	0.00	-0.66	-0.17	0.00	19.14	0.0	-4.07	0.00	0.98	-0.09	0.59	0.04	0.00	0.68	20.85	2441.71	6.4	1
FRP	Tube 3	End	42.44	0.00	-0.45	-0.14	0.00	23.04	0.0	-4.07	0.00	0.98	-0.08	0.67	0.04	0.00	0.76	20.85	2441.71	7.4	1
FRP	Tube 3	Origin	42.44	0.00	-0.45	-0.14	0.00	23.04	0.0	-4.41	0.00	1.06	-0.09	0.67	0.04	0.00	0.77	20.85	2441.71	7.5	1
FRP	Tube 3	End	46.44	0.00	-0.27	-0.11	0.00	27.28	0.0	-4.41	0.00	1.06	-0.09	0.75	0.04	0.00	0.84	20.85	2441.71	8.5	1
FRP	Tube 3	Origin	46.44	0.00	-0.27	-0.11	0.00	27.28	0.0	-4.77	0.00	1.14	-0.09	0.75	0.05	0.00	0.85	20.85	2441.71	8.5	1
FRP	Tube 3	End	50.44	0.00	-0.14	-0.08	0.00	31.85	0.0	-4.77	0.00	1.14	-0.09	0.83	0.04	0.00	0.93	20.85	2441.71	9.6	1
FRP	Tube 3	Origin	50.44	0.00	-0.14	-0.08	0.00	31.85	0.0	-5.12	0.00	1.23	-0.10	0.83	0.05	0.00	0.94	20.85	2441.71	9.6	1
FRP	Tube 3	End	54.44	0.00	-0.05	-0.04	0.00	36.75	0.0	-5.12	0.00	1.23	-0.10	0.91	0.05	0.00	1.01	20.85	2441.71	10.7	1
FRP	Tube 3	Origin	54.44	0.00	-0.05	-0.04	0.00	36.75	0.0	-5.42	0.00	1.30	-0.10	0.91	0.05	0.00	1.02	20.85	2441.71	10.8	1
FRP	Tube 3	End	57.22	0.00	-0.01	-0.02	0.00	40.35	0.0	-5.42	0.00	1.30	-0.10	0.97	0.05	0.00	1.07	20.85	2441.71	11.6	1
FRP	Tube 3	Origin	57.22	0.00	-0.01	-0.02	0.00	40.35	0.0	-5.67	0.00	1.36	-0.10	0.97	0.05	0.00	1.07	20.85	2441.71	11.6	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	0.00	44.11	0.0	-5.67	0.00	1.36	-0.10	1.02	0.05	0.00	1.13	20.85	2441.71	12.4	1

Equilibrium Joint Positions and Rotations for Load Case "Combined wind and ice -90":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	-2.149e-18	-0.3986	-0.04028	0.5474	-0.0000	-0.0000	-2.149e-18	-0.3986	59.96
FRP:ant	-1.945e-18	-0.3795	-0.03895	0.5474	-0.0000	-0.0000	-1.945e-18	-0.3795	57.96

Joint Support Reactions for Load Case "Combined wind and ice -90":

Joint Label	X Force (kips)	X % (kips)	Y Force Usage	Y % (kips)	Y H-Shear Usage	Y H-Shear % (kips)	Z Comp. Force Usage	Z Comp. Force % (kips)	Uplift Result.	Result.	X X-M. Moment Usage	X X-M. Moment % (ft-k)	Y Y-M. Moment Usage	Y Y-M. Moment % (ft-k)	H-Bend-M Usage	H-Bend-M % (ft-k)	Z Z-M. Moment Usage	Z Z-M. Moment % (ft-k)	Max. Usage
FRP:g	-0.00	0.0	1.58	0.0	0.0	-5.79	0.0	0.0	6.00	0.0	-55.46	0.0	-0.0	0.0	0.0	0.00	0.0	0.0	0.0

Detailed FRP Pole Usages for Load Case "Combined wind and ice -90":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist.	Trans. Defl. (ft)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (ft-k)	Long. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage	At Pt. %
FRP	FRP:t	Origin	0.00	-4.78	-0.00	-0.48	0.00	0.00	-0.0	-0.07	-0.02	-0.00	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	End	2.00	-4.55	-0.00	-0.47	-0.04	-0.00	-0.0	-0.07	-0.02	-0.00	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	Origin	2.00	-4.55	-0.00	-0.47	-0.04	-0.00	-0.0	-0.59	-0.32	0.00	-0.02	0.00	0.02	0.00	0.04	24.91	3306.78	0.1	1
FRP	SpliceT	End	2.70	-4.47	-0.00	-0.46	-0.27	0.00	-0.0	-0.59	-0.32	0.00	-0.02	0.01	0.02	0.00	0.04	24.91	3306.78	0.2	1
FRP	SpliceT	Origin	2.70	-4.47	-0.00	-0.46	-0.27	0.00	0.0	-0.75	-0.35	0.00	-0.02	0.01	0.02	0.00	0.05	24.91	3306.78	0.2	1
FRP	Splice	End	5.30	-4.18	-0.00	-0.44	-1.18	0.00	0.0	-0.75	-0.35	0.00	-0.02	0.06	0.02	0.00	0.09	24.91	3306.78	0.4	1
FRP	Splice	Origin	5.30	-4.18	-0.00	-0.44	-1.18	0.00	0.0	-1.03	-0.41	0.00	-0.03	0.06	0.02	0.00	0.09	22.18	3292.28	0.5	1
FRP	SpliceB	End	7.90	-3.88	-0.00	-0.42	-2.25	0.00	0.0	-1.03	-0.41	0.00	-0.03	0.11	0.02	0.00	0.14	22.18	3292.28	0.8	1
FRP	SpliceB	Origin	7.90	-3.88	-0.00	-0.42	-2.25	0.00	-0.0	-1.31	-0.49	-0.00	-0.03	0.11	0.03	0.00	0.15	22.18	3292.28	0.8	1
FRP	Tube 2	End	11.90	-3.43	-0.00	-0.39	-4.20	-0.00	-0.0	-1.31	-0.49	-0.00	-0.03	0.19	0.02	0.00	0.22	22.18	3292.28	1.3	1
FRP	Tube 2	Origin	11.90	-3.43	-0.00	-0.39	-4.20	-0.00	-0.0	-1.61	-0.58	-0.00	-0.04	0.19	0.03	0.00	0.23	22.18	3292.28	1.4	1
FRP	Tube 2	End	15.90	-2.99	-0.00	-0.35	-6.50	-0.00	-0.0	-1.61	-0.58	-0.00	-0.04	0.27	0.03	0.00	0.31	22.18	3292.28	1.9	1
FRP	Tube 2	Origin	15.90	-2.99	-0.00	-0.35	-6.50	-0.00	-0.0	-1.92	-0.67	-0.00	-0.05	0.27	0.03	0.00	0.32	22.18	3292.28	2.0	1
FRP	Tube 2	End	19.90	-2.56	-0.00	-0.32	-9.16	-0.00	-0.0	-1.92	-0.67	-0.00	-0.05	0.36	0.03	0.00	0.40	22.18	3292.28	2.6	1
FRP	Tube 2	Origin	19.90	-2.56	-0.00	-0.32	-9.16	-0.00	-0.0	-2.23	-0.76	-0.00	-0.05	0.36	0.04	0.00	0.41	22.18	3292.28	2.6	1
FRP	Tube 2	End	23.90	-2.15	-0.00	-0.29	-12.19	-0.00	-0.0	-2.23	-0.76	-0.00	-0.05	0.44	0.03	0.00	0.50	22.18	3292.28	3.3	1
FRP	Tube 2	Origin	23.90	-2.15	-0.00	-0.29	-12.19	-0.00	-0.0	-2.55	-0.85	-0.00	-0.06	0.44	0.04	0.00	0.51	22.18	3292.28	3.3	1
FRP	Tube 2	End	27.90	-1.75	-0.00	-0.26	-15.58	-0.00	-0.0	-2.55	-0.85	-0.00	-0.06	0.53	0.04	0.00	0.59	22.18	3292.28	4.1	1
FRP	Tube 2	Origin	27.90	-1.75	-0.00	-0.26	-15.58	-0.00	0.0	-2.80	-0.92	-0.00	-0.06	0.53	0.04	0.00	0.60	22.18	3292.28	4.1	1
FRP	Tube 2	End	29.95	-1.56	0.00	-0.24	-17.47	-0.00	0.0	-2.80	-0.92	-0.00	-0.06	0.58	0.04	0.00	0.64	22.18	3292.28	4.5	1
FRP	Tube 2	Origin	29.95	-1.56	0.00	-0.24	-17.47	-0.00	0.0	-2.97	-0.97	-0.00	-0.06	0.58	0.04	0.00	0.65	22.18	3292.28	4.5	1
FRP	SpliceT	End	32.00	-1.38	0.00	-0.22	-19.45	-0.00	0.0	-2.97	-0.97	-0.00	-0.06	0.62	0.04	0.00	0.69	22.18	3292.28	4.9	1
FRP	SpliceT	Origin	32.00	-1.38	0.00	-0.22	-19.45	-0.00	0.0	-3.26	-1.03	-0.00	-0.07	0.62	0.04	0.00	0.70	22.18	3292.28	4.9	1
FRP	Splice	End	35.22	-1.10	0.00	-0.20	-22.75	-0.00	0.0	-3.26	-1.03	-0.00	-0.07	0.74	0.04	0.00	0.81	22.18	3292.28	5.8	1
FRP	Splice	Origin	35.22	-1.10	0.00	-0.20	-22.75	-0.00	0.0	-3.68	-1.10	-0.00	-0.08	0.74	0.05	0.00	0.82	20.85	2441.71	7.7	1
FRP	SpliceB	End	38.44	-0.85	0.00	-0.17	-26.28	-0.00	0.0	-3.68	-1.10	-0.00	-0.08	0.81	0.05	0.00	0.89	20.85	2441.71	8.6	1
FRP	SpliceB	Origin	38.44	-0.85	0.00	-0.17	-26.28	-0.00	-0.0	-4.06	-1.17	-0.00	-0.09	0.81	0.05	0.00	0.90	20.85	2441.71	8.6	1
FRP	Tube 3	End	42.44	-0.57	0.00	-0.14	-30.98	-0.00	-0.0	-4.06	-1.17	-0.00	-0.08	0.90	0.05	0.00	0.99	20.85	2441.71	9.8	1
FRP	Tube 3	Origin	42.44	-0.57	0.00	-0.14	-30.98	-0.00	0.0	-4.41	-1.26	-0.00	-0.09	0.90	0.05	0.00	1.00	20.85	2441.71	9.9	1
FRP	Tube 3	End	46.44	-0.35	0.00	-0.11	-36.00	-0.00	0.0	-4.41	-1.26	-0.00	-0.09	0.99	0.05	0.00	1.09	20.85	2441.71	11.1	1
FRP	Tube 3	Origin	46.44	-0.35	0.00	-0.11	-36.00	-0.00	0.0	-4.76	-1.34	-0.00	-0.09	0.99	0.05	0.00	1.09	20.85	2441.71	11.1	1
FRP	Tube 3	End	50.44	-0.18	0.00	-0.08	-41.35	-0.00	0.0	-4.76	-1.34	-0.00	-0.09	1.08	0.05	0.00	1.18	20.85	2441.71	12.3	1
FRP	Tube 3	Origin	50.44	-0.18	0.00	-0.08	-41.35	-0.00	0.0	-5.12	-1.42	-0.00	-0.10	1.08	0.05	0.00	1.18	20.85	2441.71	12.4	1
FRP	Tube 3	End	54.44	-0.06	0.00	-0.04	-47.03	-0.00	0.0	-5.12	-1.42	-0.00	-0.10	1.17	0.05	0.00	1.27	20.85	2441.71	13.6	1
FRP	Tube 3	Origin	54.44	-0.06	0.00	-0.04	-47.03	-0.00	0.0	-5.42	-1.49	-0.00	-0.10	1.17	0.06	0.00	1.27	20.85	2441.71	13.6	1
FRP	Tube 3	End	57.22	-0.02	0.00	-0.02	-51.16	-0.00	0.0	-5.42	-1.49	-0.00	-0.10	1.23	0.06	0.00	1.33	20.85	2441.71	14.5	1
FRP	Tube 3	Origin	57.22	-0.02	0.00	-0.02	-51.16	-0.00	0.0	-5.67	-1.55	-0.00	-0.10	1.23	0.06	0.00	1.33	20.85	2441.71	14.6	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	-55.46	-0.00	0.0	-5.67	-1.55	-0.00	-0.10	1.28	0.06	0.00	1.39	20.85	2441.71	15.4	1

Equilibrium Joint Positions and Rotations for Load Case "Combined wind and ice 90":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	3.115e-17	0.3986	-0.04028	-0.5474	0.0000	-0.0000	3.115e-17	0.3986	59.96
FRP:ant	2.963e-17	0.3795	-0.03895	-0.5474	0.0000	-0.0000	2.963e-17	0.3795	57.96

Joint Support Reactions for Load Case "Combined wind and ice 90":

Joint	X	X	Y	Y	H-Shear	Z	Comp.	Uplift	Result.	Result.	X	X-M.	Y	Y-M.	H-Bend-M	Z	Z-M.	Max.
Label	Force	Usage	Force	Usage	Force	Force	Usage	Usage	Force	Usage	Moment	Usage	Moment	Usage	Usage	Moment	Usage	Usage
	(kips)	%	(kips)	%	%	(kips)	%	%	(kips)	%	(ft-k)	%	(ft-k)	%	%	(ft-k)	%	%
FRP:g	-0.00	0.0	-1.58	0.0	0.0	-5.79	0.0	0.0	6.00	0.0	55.46	0.0	-0.0	0.0	0.0	-0.00	0.0	0.0

Detailed FRP Pole Usages for Load Case "Combined wind and ice 90":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (ft-k)	Long. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage	At Pt. %
FRP	FRP:t	Origin	0.00	4.78	0.00	-0.48	-0.00	0.00	-0.0	-0.07	0.02	-0.00	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	End	2.00	4.55	0.00	-0.47	0.04	-0.00	-0.0	-0.07	0.02	-0.00	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	Origin	2.00	4.55	0.00	-0.47	0.04	-0.00	-0.0	-0.59	0.32	-0.00	-0.02	0.00	0.02	0.00	0.04	24.91	3306.78	0.1	1
FRP	SpliceT	End	2.70	4.47	0.00	-0.46	0.27	-0.00	-0.0	-0.59	0.32	-0.00	-0.02	0.01	0.02	0.00	0.04	24.91	3306.78	0.2	1
FRP	SpliceT	Origin	2.70	4.47	0.00	-0.46	0.27	-0.00	0.0	-0.75	0.35	-0.00	-0.02	0.01	0.02	0.00	0.05	24.91	3306.78	0.2	1
FRP	Splice	End	5.30	4.18	0.00	-0.44	1.18	-0.00	0.0	-0.75	0.35	-0.00	-0.02	0.06	0.02	0.00	0.09	24.91	3306.78	0.4	1
FRP	Splice	Origin	5.30	4.18	0.00	-0.44	1.18	-0.00	0.0	-1.03	0.41	-0.00	-0.03	0.06	0.02	0.00	0.09	22.18	3292.28	0.5	1
FRP	SpliceB	End	7.90	3.88	0.00	-0.42	2.25	-0.00	0.0	-1.03	0.41	-0.00	-0.03	0.11	0.02	0.00	0.14	22.18	3292.28	0.8	1
FRP	SpliceB	Origin	7.90	3.88	0.00	-0.42	2.25	-0.00	-0.0	-1.31	0.49	-0.00	-0.03	0.11	0.03	0.00	0.15	22.18	3292.28	0.8	1
FRP	Tube 2	End	11.90	3.43	0.00	-0.39	4.20	-0.00	-0.0	-1.31	0.49	-0.00	-0.03	0.19	0.02	0.00	0.22	22.18	3292.28	1.3	1
FRP	Tube 2	Origin	11.90	3.43	0.00	-0.39	4.20	-0.00	-0.0	-1.61	0.58	-0.00	-0.04	0.19	0.03	0.00	0.23	22.18	3292.28	1.4	1
FRP	Tube 2	End	15.90	2.99	0.00	-0.35	6.50	-0.00	-0.0	-1.61	0.58	-0.00	-0.04	0.27	0.03	0.00	0.31	22.18	3292.28	1.9	1
FRP	Tube 2	Origin	15.90	2.99	0.00	-0.35	6.50	-0.00	-0.0	-1.92	0.67	-0.00	-0.05	0.27	0.03	0.00	0.32	22.18	3292.28	2.0	1
FRP	Tube 2	End	19.90	2.56	0.00	-0.32	9.16	-0.00	-0.0	-1.92	0.67	-0.00	-0.05	0.36	0.03	0.00	0.40	22.18	3292.28	2.6	1
FRP	Tube 2	Origin	19.90	2.56	0.00	-0.32	9.16	-0.00	-0.0	-2.23	0.76	-0.00	-0.05	0.36	0.04	0.00	0.41	22.18	3292.28	2.6	1
FRP	Tube 2	End	23.90	2.15	0.00	-0.29	12.19	-0.00	-0.0	-2.23	0.76	-0.00	-0.05	0.44	0.03	0.00	0.50	22.18	3292.28	3.3	1
FRP	Tube 2	Origin	23.90	2.15	0.00	-0.29	12.19	-0.00	-0.0	-2.55	0.85	-0.00	-0.06	0.44	0.04	0.00	0.51	22.18	3292.28	3.3	1
FRP	Tube 2	End	27.90	1.75	0.00	-0.26	15.58	-0.00	-0.0	-2.55	0.85	-0.00	-0.06	0.53	0.04	0.00	0.59	22.18	3292.28	4.1	1
FRP	Tube 2	Origin	27.90	1.75	0.00	-0.26	15.58	-0.00	0.0	-2.80	0.92	-0.00	-0.06	0.53	0.04	0.00	0.60	22.18	3292.28	4.1	1
FRP	Tube 2	End	29.95	1.56	0.00	-0.24	17.47	-0.00	0.0	-2.80	0.92	-0.00	-0.06	0.58	0.04	0.00	0.64	22.18	3292.28	4.5	1
FRP	Tube 2	Origin	29.95	1.56	0.00	-0.24	17.47	-0.00	0.0	-2.97	0.97	-0.00	-0.06	0.58	0.04	0.00	0.65	22.18	3292.28	4.5	1
FRP	SpliceT	End	32.00	1.38	0.00	-0.22	19.45	-0.00	0.0	-2.97	0.97	-0.00	-0.06	0.62	0.04	0.00	0.69	22.18	3292.28	4.9	1
FRP	SpliceT	Origin	32.00	1.38	0.00	-0.22	19.45	-0.00	0.0	-3.26	1.03	-0.00	-0.07	0.62	0.04	0.00	0.70	22.18	3292.28	4.9	1
FRP	Splice	End	35.22	1.10	0.00	-0.20	22.75	-0.00	0.0	-3.26	1.03	-0.00	-0.07	0.74	0.04	0.00	0.81	22.18	3292.28	5.8	1
FRP	Splice	Origin	35.22	1.10	0.00	-0.20	22.75	-0.00	0.0	-3.68	1.10	-0.00	-0.08	0.74	0.05	0.00	0.82	20.85	2441.71	7.7	1
FRP	SpliceB	End	38.44	0.85	0.00	-0.17	26.28	-0.00	0.0	-3.68	1.10	-0.00	-0.08	0.81	0.05	0.00	0.89	20.85	2441.71	8.6	1
FRP	SpliceB	Origin	38.44	0.85	0.00	-0.17	26.28	-0.00	-0.0	-4.06	1.17	-0.00	-0.09	0.81	0.05	0.00	0.90	20.85	2441.71	8.6	1
FRP	Tube 3	End	42.44	0.57	0.00	-0.14	30.98	-0.00	-0.0	-4.06	1.17	-0.00	-0.08	0.90	0.05	0.00	0.99	20.85	2441.71	9.8	1
FRP	Tube 3	Origin	42.44	0.57	0.00	-0.14	30.98	-0.00	0.0	-4.41	1.26	-0.00	-0.09	0.90	0.05	0.00	1.00	20.85	2441.71	9.9	1
FRP	Tube 3	End	46.44	0.35	0.00	-0.11	36.00	-0.00	0.0	-4.41	1.26	-0.00	-0.09	0.99	0.05	0.00	1.09	20.85	2441.71	11.1	1
FRP	Tube 3	Origin	46.44	0.35	0.00	-0.11	36.00	-0.00	0.0	-4.76	1.34	-0.00	-0.09	0.99	0.05	0.00	1.09	20.85	2441.71	11.1	1
FRP	Tube 3	End	50.44	0.18	0.00	-0.08	41.35	-0.00	0.0	-4.76	1.34	-0.00	-0.09	1.08	0.05	0.00	1.18	20.85	2441.71	12.3	1
FRP	Tube 3	Origin	50.44	0.18	0.00	-0.08	41.35	-0.00	0.0	-5.12	1.42	-0.00	-0.10	1.08	0.05	0.00	1.18	20.85	2441.71	12.4	1
FRP	Tube 3	End	54.44	0.06	0.00	-0.04	47.03	-0.00	0.0	-5.12	1.42	-0.00	-0.10	1.17	0.05	0.00	1.27	20.85	2441.71	13.6	1
FRP	Tube 3	Origin	54.44	0.06	0.00	-0.04	47.03	-0.00	0.0	-5.42	1.49	-0.00	-0.10	1.17	0.06	0.00	1.27	20.85	2441.71	13.6	1
FRP	Tube 3	End	57.22	0.02	0.00	-0.02	51.16	-0.00	0.0	-5.42	1.49	-0.00	-0.10	1.23	0.06	0.00	1.33	20.85	2441.71	14.5	1
FRP	Tube 3	Origin	57.22	0.02	0.00	-0.02	51.16	-0.00	0.0	-5.67	1.55	-0.00	-0.10	1.23	0.06	0.00	1.33	20.85	2441.71	14.6	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	55.46	-0.00	0.0	-5.67	1.55	-0.00	-0.10	1.28	0.06	0.00	1.39	20.85	2441.71	15.4	1

Equilibrium Joint Positions and Rotations for Load Case "Combined wind and ice -60":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.1501	-0.3489	-0.04014	0.4796	0.2007	0.0022	0.1501	-0.3489	59.96
FRP:ant	0.1431	-0.3322	-0.03881	0.4796	0.2007	0.0022	0.1431	-0.3322	57.96

Joint Support Reactions for Load Case "Combined wind and ice -60":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear (kips)	H-Shear %	Z Comp. Force (kips)	Z Comp. Usage %	Uplift Result. (ft-k)	Uplift Result. %	Result. Moment (ft-k)	Result. Moment %	Y-M. Usage (kips)	Y-M. Usage %	H-Bend-M Usage Moment (ft-k)	H-Bend-M Usage Moment %	Z Z-M. Usage (kips)	Z Z-M. Usage %	Max. Usage %
FRP:g	-0.69	0.0	1.37	0.0	0.0	0.0	-5.79	0.0	0.0	5.99	0.0	-48.45	0.0	-22.1	0.0	0.0	-0.06	0.0	0.0

Detailed FRP Pole Usages for Load Case "Combined wind and ice -60":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Defl. (Local Mx) (ft-k)	Mom. Defl. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage %	At Pt.
FRP	FRP:t	Origin	0.00	-4.19	1.80	-0.48	0.00	0.00	-0.0	-0.07	-0.02	-0.01	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	End	2.00	-3.99	1.72	-0.47	-0.04	-0.02	-0.0	-0.07	-0.02	-0.01	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	Origin	2.00	-3.99	1.72	-0.47	-0.04	-0.02	0.1	-0.59	-0.28	-0.06	-0.02	0.00	0.02	0.00	0.04	24.91	3306.78	0.1	1
FRP	SpliceT	End	2.70	-3.92	1.69	-0.46	-0.23	-0.07	0.1	-0.59	-0.28	-0.06	-0.02	0.01	0.02	0.00	0.04	24.91	3306.78	0.2	1
FRP	SpliceT	Origin	2.70	-3.92	1.69	-0.46	-0.23	-0.07	0.1	-0.75	-0.31	-0.08	-0.02	0.01	0.02	0.00	0.05	24.91	3306.78	0.2	1
FRP	Splice	End	5.30	-3.66	1.58	-0.44	-1.05	-0.28	0.1	-0.75	-0.31	-0.08	-0.02	0.05	0.02	0.00	0.08	24.91	3306.78	0.4	1
FRP	Splice	Origin	5.30	-3.66	1.58	-0.44	-1.05	-0.28	0.1	-1.03	-0.36	-0.11	-0.03	0.05	0.02	0.00	0.09	22.18	3292.28	0.5	1
FRP	SpliceB	End	7.90	-3.40	1.47	-0.42	-1.99	-0.56	0.1	-1.03	-0.36	-0.11	-0.03	0.10	0.02	0.00	0.13	22.18	3292.28	0.7	1
FRP	SpliceB	Origin	7.90	-3.40	1.47	-0.42	-1.99	-0.56	0.1	-1.31	-0.43	-0.15	-0.03	0.10	0.02	0.00	0.14	22.18	3292.28	0.8	1
FRP	Tube 2	End	11.90	-3.00	1.30	-0.39	-3.71	-1.15	0.1	-1.31	-0.43	-0.15	-0.03	0.17	0.02	0.00	0.21	22.18	3292.28	1.2	1
FRP	Tube 2	Origin	11.90	-3.00	1.30	-0.39	-3.70	-1.15	0.1	-1.61	-0.51	-0.19	-0.04	0.17	0.03	0.00	0.22	22.18	3292.28	1.3	1
FRP	Tube 2	End	15.90	-2.61	1.14	-0.35	-5.73	-1.92	0.1	-1.61	-0.51	-0.19	-0.04	0.25	0.03	0.00	0.29	22.18	3292.28	1.8	1
FRP	Tube 2	Origin	15.90	-2.61	1.14	-0.35	-5.73	-1.92	0.1	-1.92	-0.58	-0.24	-0.05	0.25	0.03	0.00	0.30	22.18	3292.28	1.9	1
FRP	Tube 2	End	19.90	-2.24	0.98	-0.32	-8.06	-2.86	0.1	-1.92	-0.58	-0.24	-0.05	0.33	0.03	0.00	0.38	22.18	3292.28	2.4	1
FRP	Tube 2	Origin	19.90	-2.24	0.98	-0.32	-8.06	-2.86	0.1	-2.23	-0.66	-0.28	-0.05	0.33	0.03	0.00	0.39	22.18	3292.28	2.5	1
FRP	Tube 2	End	23.90	-1.88	0.83	-0.29	-10.72	-3.99	0.1	-2.23	-0.66	-0.28	-0.05	0.42	0.03	0.00	0.47	22.18	3292.28	3.1	1
FRP	Tube 2	Origin	23.90	-1.88	0.83	-0.29	-10.72	-3.99	0.1	-2.55	-0.74	-0.33	-0.06	0.42	0.04	0.00	0.48	22.18	3292.28	3.2	1
FRP	Tube 2	End	27.90	-1.53	0.68	-0.26	-13.69	-5.30	0.1	-2.55	-0.74	-0.33	-0.06	0.50	0.04	0.00	0.56	22.18	3292.28	3.8	1
FRP	Tube 2	Origin	27.90	-1.53	0.68	-0.26	-13.69	-5.30	0.1	-2.80	-0.80	-0.36	-0.06	0.50	0.04	0.00	0.57	22.18	3292.28	3.9	1
FRP	Tube 2	End	29.95	-1.37	0.60	-0.24	-15.33	-6.04	0.1	-2.80	-0.80	-0.36	-0.06	0.55	0.04	0.00	0.61	22.18	3292.28	4.2	1
FRP	Tube 2	Origin	29.95	-1.37	0.60	-0.24	-15.33	-6.04	0.1	-2.97	-0.84	-0.39	-0.06	0.55	0.04	0.00	0.61	22.18	3292.28	4.3	1
FRP	SpliceT	End	32.00	-1.20	0.53	-0.22	-17.06	-6.83	0.1	-2.97	-0.84	-0.39	-0.06	0.59	0.04	0.00	0.66	22.18	3292.28	4.6	1
FRP	SpliceT	Origin	32.00	-1.20	0.53	-0.22	-17.06	-6.83	0.1	-3.27	-0.90	-0.42	-0.07	0.59	0.04	0.00	0.66	22.18	3292.28	4.7	1
FRP	Splice	End	35.22	-0.96	0.43	-0.20	-19.95	-8.17	0.1	-3.27	-0.90	-0.42	-0.07	0.70	0.04	0.00	0.77	22.18	3292.28	5.5	1
FRP	Splice	Origin	35.22	-0.96	0.43	-0.20	-19.95	-8.17	0.1	-3.68	-0.96	-0.45	-0.08	0.70	0.05	0.00	0.78	20.85	2441.71	7.3	1
FRP	SpliceB	End	38.44	-0.74	0.33	-0.17	-23.03	-9.63	0.1	-3.68	-0.96	-0.45	-0.08	0.77	0.04	0.00	0.85	20.85	2441.71	8.2	1
FRP	SpliceB	Origin	38.44	-0.74	0.33	-0.17	-23.03	-9.63	0.1	-4.06	-1.02	-0.49	-0.09	0.77	0.05	0.00	0.86	20.85	2441.71	8.2	1
FRP	Tube 3	End	42.44	-0.50	0.22	-0.14	-27.12	-11.59	0.1	-4.06	-1.02	-0.49	-0.08	0.86	0.05	0.00	0.95	20.85	2441.71	9.4	1
FRP	Tube 3	Origin	42.44	-0.50	0.22	-0.14	-27.12	-11.59	0.1	-4.41	-1.10	-0.53	-0.09	0.86	0.05	0.00	0.96	20.85	2441.71	9.4	1
FRP	Tube 3	End	46.44	-0.30	0.14	-0.11	-31.61	-13.71	0.1	-4.41	-1.10	-0.53	-0.09	0.95	0.05	0.00	1.04	20.85	2441.71	10.6	1
FRP	Tube 3	Origin	46.44	-0.30	0.14	-0.11	-31.61	-13.71	0.1	-4.76	-1.17	-0.57	-0.09	0.95	0.05	0.00	1.05	20.85	2441.71	10.6	1
FRP	Tube 3	End	50.44	-0.15	0.07	-0.08	-36.17	-16.00	0.1	-4.76	-1.17	-0.57	-0.09	1.03	0.05	0.00	1.13	20.85	2441.71	11.8	1
FRP	Tube 3	Origin	50.44	-0.15	0.07	-0.08	-36.17	-16.00	0.1	-5.12	-1.24	-0.61	-0.10	1.03	0.05	0.00	1.14	20.85	2441.71	11.8	1
FRP	Tube 3	End	54.44	-0.05	0.02	-0.04	-41.11	-18.46	0.1	-5.12	-1.24	-0.61	-0.10	1.12	0.05	0.00	1.22	20.85	2441.71	13.1	1
FRP	Tube 3	Origin	54.44	-0.05	0.02	-0.04	-41.11	-18.46	0.1	-5.42	-1.30	-0.65	-0.10	1.12	0.05	0.00	1.22	20.85	2441.71	13.1	1
FRP	Tube 3	End	57.22	-0.01	0.01	-0.02	-44.71	-20.26	0.1	-5.42	-1.30	-0.65	-0.10	1.18	0.05	0.00	1.28	20.85	2441.71	14.0	1
FRP	Tube 3	Origin	57.22	-0.01	0.01	-0.02	-44.71	-20.26	0.1	-5.67	-1.35	-0.68	-0.10	1.18	0.06	0.00	1.28	20.85	2441.71	14.0	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	-48.45	-22.15	0.1	-5.67	-1.35	-0.68	-0.10	1.23	0.05	0.00	1.34	20.85	2441.71	14.9	1

Equilibrium Joint Positions and Rotations for Load Case "Combined wind and ice 60":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.1501	0.3489	-0.04014	-0.4796	0.2007	0.0011	0.1501	0.3489	59.96
FRP:ant	0.1431	0.3322	-0.03881	-0.4796	0.2007	0.0011	0.1431	0.3322	57.96

Joint Support Reactions for Load Case "Combined wind and ice 60":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear %	Z Force (kips)	Z Usage %	Comp. Usage %	Uplift Result.	Result.	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
FRP:g	-0.69	0.0	-1.37	0.0	0.0	-5.79	0.0	0.0	5.99	0.0	48.45	0.0	-22.1	0.0	0.0	-0.03	0.0	0.0

Detailed FRP Pole Usages for Load Case "Combined wind and ice 60":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Defl. (Local Mx) (ft-k)	Mom. Defl. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage	At Pt. %
FRP	FRP:t	Origin	0.00	4.19	1.80	-0.48	-0.00	0.00	0.0	-0.07	0.02	-0.01	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	End	2.00	3.99	1.72	-0.47	0.04	-0.02	0.0	-0.07	0.02	-0.01	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	Origin	2.00	3.99	1.72	-0.47	0.04	-0.02	0.0	-0.59	0.28	-0.06	-0.02	0.00	0.02	0.00	0.04	24.91	3306.78	0.1	1
FRP	SpliceT	End	2.70	3.92	1.69	-0.46	0.23	-0.07	0.0	-0.59	0.28	-0.06	-0.02	0.01	0.02	0.00	0.04	24.91	3306.78	0.2	1
FRP	SpliceT	Origin	2.70	3.92	1.69	-0.46	0.23	-0.07	0.0	-0.75	0.31	-0.08	-0.02	0.01	0.02	0.00	0.05	24.91	3306.78	0.2	1
FRP	Splice	End	5.30	3.66	1.58	-0.44	1.05	-0.28	0.0	-0.75	0.31	-0.08	-0.02	0.05	0.02	0.00	0.08	24.91	3306.78	0.4	1
FRP	Splice	Origin	5.30	3.66	1.58	-0.44	1.05	-0.28	0.0	-1.03	0.36	-0.11	-0.03	0.05	0.02	0.00	0.09	22.18	3292.28	0.5	1
FRP	SpliceB	End	7.90	3.40	1.47	-0.42	1.99	-0.56	0.0	-1.03	0.36	-0.11	-0.03	0.10	0.02	0.00	0.13	22.18	3292.28	0.7	1
FRP	SpliceB	Origin	7.90	3.40	1.47	-0.42	1.99	-0.56	0.0	-1.31	0.43	-0.15	-0.03	0.10	0.02	0.00	0.14	22.18	3292.28	0.8	1
FRP	Tube 2	End	11.90	3.00	1.30	-0.39	3.71	-1.15	0.0	-1.31	0.43	-0.15	-0.03	0.17	0.02	0.00	0.21	22.18	3292.28	1.2	1
FRP	Tube 2	Origin	11.90	3.00	1.30	-0.39	3.71	-1.15	0.0	-1.61	0.51	-0.19	-0.04	0.17	0.03	0.00	0.22	22.18	3292.28	1.3	1
FRP	Tube 2	End	15.90	2.61	1.14	-0.35	5.73	-1.92	0.0	-1.61	0.51	-0.19	-0.04	0.25	0.03	0.00	0.29	22.18	3292.28	1.8	1
FRP	Tube 2	Origin	15.90	2.61	1.14	-0.35	5.73	-1.92	0.0	-1.92	0.58	-0.24	-0.05	0.25	0.03	0.00	0.30	22.18	3292.28	1.9	1
FRP	Tube 2	End	19.90	2.24	0.98	-0.32	8.06	-2.86	0.0	-1.92	0.58	-0.24	-0.05	0.33	0.03	0.00	0.38	22.18	3292.28	2.4	1
FRP	Tube 2	Origin	19.90	2.24	0.98	-0.32	8.06	-2.86	0.0	-2.23	0.66	-0.28	-0.05	0.33	0.03	0.00	0.39	22.18	3292.28	2.5	1
FRP	Tube 2	End	23.90	1.88	0.83	-0.29	10.72	-3.99	0.0	-2.23	0.66	-0.28	-0.05	0.42	0.03	0.00	0.47	22.18	3292.28	3.1	1
FRP	Tube 2	Origin	23.90	1.88	0.83	-0.29	10.72	-3.99	0.0	-2.55	0.74	-0.33	-0.06	0.42	0.04	0.00	0.48	22.18	3292.28	3.2	1
FRP	Tube 2	End	27.90	1.53	0.68	-0.26	13.69	-5.30	0.0	-2.55	0.74	-0.33	-0.06	0.50	0.04	0.00	0.56	22.18	3292.28	3.8	1
FRP	Tube 2	Origin	27.90	1.53	0.68	-0.26	13.69	-5.30	0.0	-2.80	0.80	-0.36	-0.06	0.50	0.04	0.00	0.57	22.18	3292.28	3.9	1
FRP	Tube 2	End	29.95	1.37	0.60	-0.24	15.33	-6.04	0.0	-2.80	0.80	-0.36	-0.06	0.55	0.04	0.00	0.61	22.18	3292.28	4.2	1
FRP	Tube 2	Origin	29.95	1.37	0.60	-0.24	15.33	-6.04	0.0	-2.97	0.84	-0.39	-0.06	0.55	0.04	0.00	0.61	22.18	3292.28	4.3	1
FRP	SpliceT	End	32.00	1.20	0.53	-0.22	17.06	-6.83	0.0	-2.97	0.84	-0.39	-0.06	0.59	0.04	0.00	0.66	22.18	3292.28	4.6	1
FRP	SpliceT	Origin	32.00	1.20	0.53	-0.22	17.06	-6.83	0.0	-3.27	0.90	-0.42	-0.07	0.59	0.04	0.00	0.66	22.18	3292.28	4.7	1
FRP	Splice	End	35.22	0.96	0.43	-0.20	19.95	-8.17	0.0	-3.27	0.90	-0.42	-0.07	0.70	0.04	0.00	0.77	22.18	3292.28	5.5	1
FRP	Splice	Origin	35.22	0.96	0.43	-0.20	19.95	-8.17	0.0	-3.68	0.96	-0.45	-0.08	0.70	0.05	0.00	0.78	20.85	2441.71	7.3	1
FRP	SpliceB	End	38.44	0.74	0.33	-0.17	23.03	-9.63	0.0	-3.68	0.96	-0.45	-0.08	0.77	0.04	0.00	0.85	20.85	2441.71	8.2	1
FRP	SpliceB	Origin	38.44	0.74	0.33	-0.17	23.03	-9.63	0.0	-4.06	1.02	-0.49	-0.09	0.77	0.05	0.00	0.86	20.85	2441.71	8.2	1
FRP	Tube 3	End	42.44	0.50	0.22	-0.14	27.12	-11.59	0.0	-4.06	1.02	-0.49	-0.08	0.86	0.05	0.00	0.95	20.85	2441.71	9.4	1
FRP	Tube 3	Origin	42.44	0.50	0.22	-0.14	27.12	-11.59	0.0	-4.41	1.10	-0.53	-0.09	0.86	0.05	0.00	0.96	20.85	2441.71	9.4	1
FRP	Tube 3	End	46.44	0.30	0.14	-0.11	31.51	-13.71	0.0	-4.41	1.10	-0.53	-0.09	0.95	0.05	0.00	1.04	20.85	2441.71	10.6	1
FRP	Tube 3	Origin	46.44	0.30	0.14	-0.11	31.51	-13.71	0.0	-4.76	1.17	-0.57	-0.09	0.95	0.05	0.00	1.05	20.85	2441.71	10.6	1
FRP	Tube 3	End	50.44	0.15	0.07	-0.08	36.17	-16.00	0.0	-4.76	1.17	-0.57	-0.09	1.03	0.05	0.00	1.13	20.85	2441.71	11.8	1
FRP	Tube 3	Origin	50.44	0.15	0.07	-0.08	36.17	-16.00	0.0	-5.12	1.24	-0.61	-0.10	1.03	0.05	0.00	1.14	20.85	2441.71	11.8	1
FRP	Tube 3	End	54.44	0.05	0.02	-0.04	41.11	-18.46	0.0	-5.12	1.24	-0.61	-0.10	1.12	0.05	0.00	1.22	20.85	2441.71	13.1	1
FRP	Tube 3	Origin	54.44	0.05	0.02	-0.04	41.11	-18.46	0.0	-5.42	1.30	-0.65	-0.10	1.12	0.05	0.00	1.22	20.85	2441.71	13.1	1
FRP	Tube 3	End	57.22	0.01	0.01	-0.02	44.71	-20.26	0.0	-5.42	1.30	-0.65	-0.10	1.18	0.05	0.00	1.28	20.85	2441.71	14.0	1
FRP	Tube 3	Origin	57.22	0.01	0.01	-0.02	44.71	-20.26	0.0	-5.67	1.35	-0.68	-0.10	1.18	0.06	0.00	1.28	20.85	2441.71	14.0	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	48.45	-22.15	0.0	-5.67	1.35	-0.68	-0.10	1.23	0.05	0.00	1.34	20.85	2441.71	14.9	1

Equilibrium Joint Positions and Rotations for Load Case "Combined wind and ice -45":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.2121	-0.2979	-0.04003	0.4109	0.2837	0.0030	0.2121	-0.2979	59.96
FRP:ant	0.2023	-0.2836	-0.03871	0.4109	0.2836	0.0030	0.2023	-0.2836	57.96

Joint Support Reactions for Load Case "Combined wind and ice -45":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear (kips)	H Usage %	Z Comp. Force (kips)	Z Usage %	Uplift Result. (ft-k)	Result. Moment %	X X-M. Moment (ft-k)	X Usage %	Y Y-M. Moment (ft-k)	Y Usage %	H-Bend-M Usage Moment %	Z Z-M. Moment (ft-k)	Z Usage %	Max. Usage %
FRP:g	-0.98	0.0	1.15	0.0	0.0	-5.79	0.0	0.0	5.98	0.0	-41.04	0.0	-31.3	0.0	0.0	-0.08	0.0	0.0

Detailed FRP Pole Usages for Load Case "Combined wind and ice -45":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Defl. (Local Mx) (ft-k)	Mom. Defl. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage (ksi)	At Pt. %
FRP	FRP:t	Origin	0.00	-3.58	2.55	-0.48	0.00	0.00	-0.0	-0.07	-0.02	-0.02	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	End	2.00	-3.40	2.43	-0.46	-0.03	-0.03	-0.0	-0.07	-0.02	-0.02	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	Origin	2.00	-3.40	2.43	-0.46	-0.03	-0.03	0.1	-0.59	-0.26	-0.09	-0.02	0.00	0.02	0.00	0.04	24.91	3306.78	0.1	1
FRP	SpliceT	End	2.70	-3.34	2.39	-0.46	-0.21	-0.09	0.1	-0.59	-0.26	-0.09	-0.02	0.01	0.02	0.00	0.04	24.91	3306.78	0.2	1
FRP	SpliceT	Origin	2.70	-3.34	2.39	-0.46	-0.21	-0.09	0.1	-0.75	-0.28	-0.12	-0.02	0.01	0.02	0.00	0.05	24.91	3306.78	0.2	1
FRP	Splice	End	5.30	-3.12	2.23	-0.44	-0.94	-0.39	0.1	-0.75	-0.28	-0.12	-0.02	0.05	0.02	0.00	0.08	24.91	3306.78	0.4	1
FRP	Splice	Origin	5.30	-3.12	2.23	-0.44	-0.94	-0.39	0.1	-1.03	-0.32	-0.16	-0.03	0.05	0.02	0.00	0.09	22.18	3292.28	0.4	1
FRP	SpliceB	End	7.90	-2.90	2.08	-0.42	-1.78	-0.80	0.1	-1.03	-0.32	-0.16	-0.03	0.09	0.02	0.00	0.13	22.18	3292.28	0.7	1
FRP	SpliceB	Origin	7.90	-2.90	2.08	-0.42	-1.78	-0.80	0.1	-1.31	-0.37	-0.21	-0.03	0.09	0.02	0.00	0.13	22.18	3292.28	0.7	1
FRP	Tube 2	End	11.90	-2.56	1.84	-0.39	-3.28	-1.63	0.1	-1.31	-0.37	-0.21	-0.03	0.16	0.02	0.00	0.20	22.18	3292.28	1.2	1
FRP	Tube 2	Origin	11.90	-2.56	1.84	-0.39	-3.28	-1.63	0.1	-1.61	-0.44	-0.27	-0.04	0.16	0.03	0.00	0.21	22.18	3292.28	1.2	1
FRP	Tube 2	End	15.90	-2.23	1.61	-0.35	-5.03	-2.71	0.1	-1.61	-0.44	-0.27	-0.04	0.24	0.03	0.00	0.28	22.18	3292.28	1.7	1
FRP	Tube 2	Origin	15.90	-2.23	1.61	-0.35	-5.03	-2.71	0.1	-1.92	-0.50	-0.33	-0.05	0.24	0.03	0.00	0.29	22.18	3292.28	1.8	1
FRP	Tube 2	End	19.90	-1.91	1.39	-0.32	-7.04	-4.04	0.1	-1.92	-0.50	-0.33	-0.05	0.31	0.03	0.00	0.36	22.18	3292.28	2.3	1
FRP	Tube 2	Origin	19.90	-1.91	1.39	-0.32	-7.04	-4.04	0.1	-2.23	-0.57	-0.40	-0.05	0.31	0.03	0.00	0.37	22.18	3292.28	2.4	1
FRP	Tube 2	End	23.90	-1.60	1.17	-0.29	-9.31	-5.64	0.1	-2.23	-0.57	-0.40	-0.05	0.40	0.03	0.00	0.45	22.18	3292.28	3.0	1
FRP	Tube 2	Origin	23.90	-1.60	1.17	-0.29	-9.31	-5.64	0.1	-2.55	-0.63	-0.46	-0.06	0.40	0.04	0.00	0.46	22.18	3292.28	3.0	1
FRP	Tube 2	End	27.90	-1.31	0.96	-0.26	-11.83	-7.49	0.1	-2.55	-0.63	-0.46	-0.06	0.48	0.03	0.00	0.54	22.18	3292.28	3.7	1
FRP	Tube 2	Origin	27.90	-1.31	0.96	-0.26	-11.83	-7.49	0.1	-2.80	-0.68	-0.51	-0.06	0.48	0.04	0.00	0.54	22.18	3292.28	3.7	1
FRP	Tube 2	End	29.95	-1.16	0.85	-0.24	-13.23	-8.54	0.1	-2.80	-0.68	-0.51	-0.06	0.52	0.04	0.00	0.59	22.18	3292.28	4.1	1
FRP	Tube 2	Origin	29.95	-1.16	0.85	-0.24	-13.23	-8.54	0.1	-2.97	-0.71	-0.55	-0.06	0.52	0.04	0.00	0.59	22.18	3292.28	4.1	1
FRP	SpliceT	End	32.00	-1.02	0.75	-0.22	-14.70	-9.66	0.1	-2.97	-0.71	-0.55	-0.06	0.56	0.04	0.00	0.63	22.18	3292.28	4.5	1
FRP	SpliceT	Origin	32.00	-1.02	0.75	-0.22	-14.70	-9.66	0.1	-3.27	-0.76	-0.59	-0.07	0.56	0.04	0.00	0.64	22.18	3292.28	4.5	1
FRP	Splice	End	35.22	-0.82	0.60	-0.20	-17.13	-11.55	0.1	-3.27	-0.76	-0.59	-0.07	0.67	0.04	0.00	0.74	22.18	3292.28	5.3	1
FRP	Splice	Origin	35.22	-0.82	0.60	-0.20	-17.13	-11.55	0.1	-3.68	-0.81	-0.64	-0.08	0.67	0.04	0.00	0.75	20.85	2441.71	7.0	1
FRP	SpliceB	End	38.44	-0.63	0.47	-0.17	-19.73	-13.61	0.1	-3.68	-0.81	-0.64	-0.08	0.74	0.04	0.00	0.82	20.85	2441.71	7.9	1
FRP	SpliceB	Origin	38.44	-0.63	0.47	-0.17	-19.73	-13.61	0.1	-4.06	-0.86	-0.69	-0.09	0.74	0.05	0.00	0.83	20.85	2441.71	7.9	1
FRP	Tube 3	End	42.44	-0.42	0.32	-0.14	-23.18	-16.38	0.1	-4.06	-0.86	-0.69	-0.08	0.83	0.05	0.00	0.92	20.85	2441.71	9.0	1
FRP	Tube 3	Origin	42.44	-0.42	0.32	-0.14	-23.18	-16.38	0.1	-4.41	-0.92	-0.75	-0.09	0.83	0.05	0.00	0.92	20.85	2441.71	9.1	1
FRP	Tube 3	End	46.44	-0.26	0.19	-0.11	-26.86	-19.38	0.1	-4.41	-0.92	-0.75	-0.09	0.91	0.05	0.00	1.01	20.85	2441.71	10.2	1
FRP	Tube 3	Origin	46.44	-0.26	0.19	-0.11	-26.86	-19.38	0.1	-4.76	-0.98	-0.81	-0.09	0.91	0.05	0.00	1.01	20.85	2441.71	10.2	1
FRP	Tube 3	End	50.44	-0.13	0.10	-0.08	-30.77	-22.62	0.1	-4.76	-0.98	-0.81	-0.09	1.00	0.05	0.00	1.09	20.85	2441.71	11.4	1
FRP	Tube 3	Origin	50.44	-0.13	0.10	-0.08	-30.77	-22.62	0.1	-5.12	-1.04	-0.87	-0.10	1.00	0.05	0.00	1.10	20.85	2441.71	11.5	1
FRP	Tube 3	End	54.44	-0.05	0.03	-0.04	-34.91	-26.09	0.1	-5.12	-1.04	-0.87	-0.10	1.08	0.05	0.00	1.18	20.85	2441.71	12.7	1
FRP	Tube 3	Origin	54.44	-0.05	0.03	-0.04	-34.91	-26.09	0.1	-5.42	-1.08	-0.92	-0.10	1.08	0.05	0.00	1.19	20.85	2441.71	12.7	1
FRP	Tube 3	End	57.22	-0.01	0.01	-0.02	-37.92	-28.64	0.1	-5.42	-1.08	-0.92	-0.10	1.14	0.05	0.00	1.24	20.85	2441.71	13.5	1
FRP	Tube 3	Origin	57.22	-0.01	0.01	-0.02	-37.92	-28.64	0.1	-5.67	-1.13	-0.96	-0.10	1.14	0.05	0.00	1.25	20.85	2441.71	13.6	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	-41.04	-31.31	0.1	-5.67	-1.13	-0.96	-0.10	1.19	0.05	0.00	1.30	20.85	2441.71	14.4	1

Equilibrium Joint Positions and Rotations for Load Case "Combined wind and ice 45":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.2121	0.2979	-0.04003	-0.4109	0.2837	-0.0030	0.2121	0.2979	59.96
FRP:ant	0.2023	0.2836	-0.03871	-0.4109	0.2836	-0.0030	0.2023	0.2836	57.96

Joint Support Reactions for Load Case "Combined wind and ice 45":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear %	Z Force (kips)	Z Usage %	Comp. Usage %	Uplift Result.	Result.	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
FRP:g	-0.98	0.0	-1.15	0.0	0.0	-5.79	0.0	0.0	5.98	0.0	41.04	0.0	-31.3	0.0	0.0	0.08	0.0	0.0

Detailed FRP Pole Usages for Load Case "Combined wind and ice 45":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist.	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Defl. (Local Mx) (ft-k)	Mom. Defl. (Local My) (ft-k)	Tors. Defl. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage	At Pt. %
FRP	FRP:t	Origin	0.00	3.58	2.55	-0.48	-0.00	0.00	0.0	-0.07	0.02	-0.02	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	End	2.00	3.40	2.43	-0.46	0.03	-0.03	0.0	-0.07	0.02	-0.02	-0.00	0.00	0.00	0.00	0.00	24.91	3306.78	0.0	1
FRP	FRP:ant	Origin	2.00	3.40	2.43	-0.46	0.03	-0.03	-0.1	-0.59	0.26	-0.09	-0.02	0.00	0.02	0.00	0.04	24.91	3306.78	0.1	1
FRP	SpliceT	End	2.70	3.34	2.39	-0.46	0.21	-0.09	-0.1	-0.59	0.26	-0.09	-0.02	0.01	0.02	0.00	0.04	24.91	3306.78	0.2	1
FRP	SpliceT	Origin	2.70	3.34	2.39	-0.46	0.21	-0.09	-0.1	-0.75	0.28	-0.12	-0.02	0.01	0.02	0.00	0.05	24.91	3306.78	0.2	1
FRP	Splice	End	5.30	3.12	2.23	-0.44	0.94	-0.39	-0.1	-0.75	0.28	-0.12	-0.02	0.05	0.02	0.00	0.08	24.91	3306.78	0.4	1
FRP	Splice	Origin	5.30	3.12	2.23	-0.44	0.94	-0.39	-0.1	-1.03	0.32	-0.16	-0.03	0.05	0.02	0.00	0.09	22.18	3292.28	0.4	1
FRP	SpliceB	End	7.90	2.90	2.08	-0.42	1.78	-0.80	-0.1	-1.03	0.32	-0.16	-0.03	0.09	0.02	0.00	0.13	22.18	3292.28	0.7	1
FRP	SpliceB	Origin	7.90	2.90	2.08	-0.42	1.78	-0.80	-0.1	-1.31	0.37	-0.21	-0.03	0.09	0.02	0.00	0.13	22.18	3292.28	0.7	1
FRP	Tube 2	End	11.90	2.56	1.84	-0.39	3.28	-1.63	-0.1	-1.31	0.37	-0.21	-0.03	0.16	0.02	0.00	0.20	22.18	3292.28	1.2	1
FRP	Tube 2	Origin	11.90	2.56	1.84	-0.39	3.28	-1.63	-0.1	-1.61	0.44	-0.27	-0.04	0.16	0.03	0.00	0.21	22.18	3292.28	1.2	1
FRP	Tube 2	End	15.90	2.23	1.61	-0.35	5.03	-2.71	-0.1	-1.61	0.44	-0.27	-0.04	0.24	0.03	0.00	0.28	22.18	3292.28	1.7	1
FRP	Tube 2	Origin	15.90	2.23	1.61	-0.35	5.03	-2.71	-0.1	-1.92	0.50	-0.33	-0.05	0.24	0.03	0.00	0.29	22.18	3292.28	1.8	1
FRP	Tube 2	End	19.90	1.91	1.39	-0.32	7.04	-4.04	-0.1	-1.92	0.50	-0.33	-0.05	0.31	0.03	0.00	0.36	22.18	3292.28	2.3	1
FRP	Tube 2	Origin	19.90	1.91	1.39	-0.32	7.04	-4.04	-0.1	-2.23	0.57	-0.40	-0.05	0.31	0.03	0.00	0.37	22.18	3292.28	2.4	1
FRP	Tube 2	End	23.90	1.60	1.17	-0.29	9.31	-5.64	-0.1	-2.23	0.57	-0.40	-0.05	0.40	0.03	0.00	0.45	22.18	3292.28	3.0	1
FRP	Tube 2	Origin	23.90	1.60	1.17	-0.29	9.31	-5.64	-0.1	-2.55	0.63	-0.46	-0.06	0.40	0.04	0.00	0.46	22.18	3292.28	3.0	1
FRP	Tube 2	End	27.90	1.31	0.96	-0.26	11.83	-7.49	-0.1	-2.55	0.63	-0.46	-0.06	0.48	0.03	0.00	0.54	22.18	3292.28	3.7	1
FRP	Tube 2	Origin	27.90	1.31	0.96	-0.26	11.83	-7.49	-0.1	-2.80	0.68	-0.51	-0.06	0.48	0.04	0.00	0.54	22.18	3292.28	3.7	1
FRP	Tube 2	End	29.95	1.16	0.85	-0.24	13.23	-8.54	-0.1	-2.80	0.68	-0.51	-0.06	0.52	0.04	0.00	0.59	22.18	3292.28	4.1	1
FRP	Tube 2	Origin	29.95	1.16	0.85	-0.24	13.23	-8.54	-0.1	-2.97	0.71	-0.55	-0.06	0.52	0.04	0.00	0.59	22.18	3292.28	4.1	1
FRP	SpliceT	End	32.00	1.02	0.75	-0.22	14.70	-9.66	-0.1	-2.97	0.71	-0.55	-0.06	0.56	0.04	0.00	0.63	22.18	3292.28	4.5	1
FRP	SpliceT	Origin	32.00	1.02	0.75	-0.22	14.70	-9.66	-0.1	-3.27	0.76	-0.59	-0.07	0.56	0.04	0.00	0.64	22.18	3292.28	4.5	1
FRP	Splice	End	35.22	0.82	0.60	-0.20	17.13	-11.55	-0.1	-3.27	0.76	-0.59	-0.07	0.67	0.04	0.00	0.74	22.18	3292.28	5.3	1
FRP	Splice	Origin	35.22	0.82	0.60	-0.20	17.13	-11.55	-0.1	-3.68	0.81	-0.64	-0.08	0.67	0.04	0.00	0.75	20.85	2441.71	7.0	1
FRP	SpliceB	End	38.44	0.63	0.47	-0.17	19.73	-13.61	-0.1	-3.68	0.81	-0.64	-0.08	0.74	0.04	0.00	0.82	20.85	2441.71	7.9	1
FRP	SpliceB	Origin	38.44	0.63	0.47	-0.17	19.73	-13.61	-0.1	-4.06	0.86	-0.69	-0.09	0.74	0.05	0.00	0.83	20.85	2441.71	7.9	1
FRP	Tube 3	End	42.44	0.42	0.32	-0.14	23.18	-16.38	-0.1	-4.06	0.86	-0.69	-0.08	0.83	0.05	0.00	0.92	20.85	2441.71	9.0	1
FRP	Tube 3	Origin	42.44	0.42	0.32	-0.14	23.18	-16.38	-0.1	-4.41	0.92	-0.75	-0.09	0.83	0.05	0.00	0.92	20.85	2441.71	9.1	1
FRP	Tube 3	End	46.44	0.26	0.19	-0.11	26.86	-19.38	-0.1	-4.41	0.92	-0.75	-0.09	0.91	0.05	0.00	1.01	20.85	2441.71	10.2	1
FRP	Tube 3	Origin	46.44	0.26	0.19	-0.11	26.86	-19.38	-0.1	-4.76	0.98	-0.81	-0.09	0.91	0.05	0.00	1.01	20.85	2441.71	10.2	1
FRP	Tube 3	End	50.44	0.13	0.10	-0.08	30.77	-22.62	-0.1	-4.76	0.98	-0.81	-0.09	1.00	0.05	0.00	1.09	20.85	2441.71	11.4	1
FRP	Tube 3	Origin	50.44	0.13	0.10	-0.08	30.77	-22.62	-0.1	-5.12	1.04	-0.87	-0.10	1.00	0.05	0.00	1.10	20.85	2441.71	11.5	1
FRP	Tube 3	End	54.44	0.05	0.03	-0.04	34.91	-26.09	-0.1	-5.12	1.04	-0.87	-0.10	1.08	0.05	0.00	1.18	20.85	2441.71	12.7	1
FRP	Tube 3	Origin	54.44	0.05	0.03	-0.04	34.91	-26.09	-0.1	-5.42	1.08	-0.92	-0.10	1.08	0.05	0.00	1.19	20.85	2441.71	12.7	1
FRP	Tube 3	End	57.22	0.01	0.01	-0.02	37.92	-28.64	-0.1	-5.42	1.08	-0.92	-0.10	1.14	0.05	0.00	1.24	20.85	2441.71	13.5	1
FRP	Tube 3	Origin	57.22	0.01	0.01	-0.02	37.92	-28.64	-0.1	-5.67	1.13	-0.96	-0.10	1.14	0.05	0.00	1.25	20.85	2441.71	13.6	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	41.04	-31.31	-0.1	-5.67	1.13	-0.96	-0.10	1.19	0.05	0.00	1.30	20.85	2441.71	14.4	1

Equilibrium Joint Positions and Rotations for Load Case "Wind service 0":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.2071	-5.277e-18	-0.001107	0.0000	0.2795	-0.0000	0.2071	-5.277e-18	60
FRP:ant	0.1974	-5.004e-18	-0.001083	0.0000	0.2795	-0.0000	0.1974	-5.004e-18	58

Joint Support Reactions for Load Case "Wind service 0":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	Y H-Shear %	Z Force (kips)	Z Usage %	Comp. Usage %	Uplift (kips)	Result. Force (kips)	Result. Moment % (ft-k)	X X-M. Usage % (ft-k)	Y Y-M. Usage %	H-Bend-M Usage %	Z Z-M. Usage %	Max. Usage %
FRP:g	-0.88	0.0	0.00	0.0	0.0	-2.73	0.0	0.0	2.87	0.0	-0.00	0.0	-28.7	0.0	0.00	0.0

Detailed FRP Pole Usages for Load Case "Wind service 0":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (ft-k)	Long. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage	At Pt. %
FRP	FRP:t	Origin	0.00	-0.00	2.49	-0.01	-0.00	0.00	-0.0	-0.03	0.00	-0.01	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	-0.00	2.37	-0.01	0.00	-0.03	-0.0	-0.03	0.00	-0.01	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	-0.00	2.37	-0.01	0.00	-0.03	-0.0	-0.26	-0.00	-0.11	-0.01	0.00	0.01	0.00	0.01	23.37	3165.94	0.0	1
FRP	SpliceT	End	2.70	-0.00	2.33	-0.01	-0.00	-0.10	-0.0	-0.26	-0.00	-0.11	-0.01	0.01	0.01	0.00	0.02	23.37	3165.94	0.1	1
FRP	SpliceT	Origin	2.70	-0.00	2.33	-0.01	-0.00	-0.10	0.0	-0.35	-0.00	-0.13	-0.01	0.01	0.01	0.00	0.02	23.37	3165.94	0.1	1
FRP	Splice	End	5.30	-0.00	2.18	-0.01	-0.00	-0.45	0.0	-0.35	-0.00	-0.13	-0.01	0.02	0.01	0.00	0.03	23.37	3165.94	0.2	1
FRP	Splice	Origin	5.30	-0.00	2.18	-0.01	-0.00	-0.45	0.0	-0.50	0.00	-0.17	-0.01	0.02	0.01	0.00	0.04	20.81	3152.06	0.2	1
FRP	SpliceB	End	7.90	-0.00	2.02	-0.01	-0.00	-0.89	0.0	-0.50	0.00	-0.17	-0.01	0.04	0.01	0.00	0.06	20.81	3152.06	0.3	1
FRP	SpliceB	Origin	7.90	-0.00	2.02	-0.01	-0.00	-0.89	-0.0	-0.64	0.00	-0.21	-0.02	0.04	0.01	0.00	0.06	20.81	3152.06	0.4	1
FRP	Tube 2	End	11.90	-0.00	1.79	-0.01	0.00	-1.73	-0.0	-0.77	0.00	-0.21	-0.02	0.08	0.01	0.00	0.10	20.81	3152.06	0.6	1
FRP	Tube 2	Origin	11.90	-0.00	1.79	-0.01	0.00	-1.73	-0.0	-0.77	0.00	-0.26	-0.02	0.08	0.01	0.00	0.10	20.81	3152.06	0.6	1
FRP	Tube 2	End	15.90	-0.00	1.57	-0.01	0.00	-2.79	-0.0	-0.77	0.00	-0.26	-0.02	0.12	0.01	0.00	0.14	20.81	3152.06	0.9	1
FRP	Tube 2	Origin	15.90	-0.00	1.57	-0.01	0.00	-2.79	-0.0	-0.90	0.00	-0.32	-0.02	0.12	0.02	0.00	0.14	20.81	3152.06	0.9	1
FRP	Tube 2	End	19.90	-0.00	1.34	-0.01	0.00	-4.06	-0.0	-0.90	0.00	-0.32	-0.02	0.16	0.01	0.00	0.18	20.81	3152.06	1.2	1
FRP	Tube 2	Origin	19.90	-0.00	1.34	-0.01	0.00	-4.06	-0.0	-1.03	0.00	-0.37	-0.02	0.16	0.02	0.00	0.18	20.81	3152.06	1.2	1
FRP	Tube 2	End	23.90	-0.00	1.13	-0.01	0.00	-5.55	-0.0	-1.03	0.00	-0.37	-0.02	0.20	0.02	0.00	0.23	20.81	3152.06	1.6	1
FRP	Tube 2	Origin	23.90	-0.00	1.13	-0.01	0.00	-5.55	-0.0	-1.17	0.00	-0.43	-0.03	0.20	0.02	0.00	0.23	20.81	3152.06	1.6	1
FRP	Tube 2	End	27.90	-0.00	0.93	-0.01	0.00	-7.26	-0.0	-1.17	0.00	-0.43	-0.03	0.25	0.02	0.00	0.28	20.81	3152.06	2.0	1
FRP	Tube 2	Origin	27.90	-0.00	0.93	-0.01	0.00	-7.26	0.0	-1.27	0.00	-0.47	-0.03	0.25	0.02	0.00	0.28	20.81	3152.06	2.0	1
FRP	Tube 2	End	29.95	-0.00	0.83	-0.01	0.00	-8.22	0.0	-1.27	0.00	-0.47	-0.03	0.27	0.02	0.00	0.30	20.81	3152.06	2.2	1
FRP	Tube 2	Origin	29.95	-0.00	0.83	-0.01	0.00	-8.22	0.0	-1.35	0.00	-0.50	-0.03	0.27	0.02	0.00	0.30	20.81	3152.06	2.2	1
FRP	SpliceT	End	32.00	-0.00	0.73	-0.01	0.00	-9.24	0.0	-1.35	0.00	-0.50	-0.03	0.30	0.02	0.00	0.33	20.81	3152.06	2.4	1
FRP	SpliceT	Origin	32.00	-0.00	0.73	-0.01	0.00	-9.24	0.0	-1.50	0.00	-0.53	-0.03	0.30	0.02	0.00	0.33	20.81	3152.06	2.4	1
FRP	Splice	End	35.22	-0.00	0.58	-0.01	0.00	-10.96	0.0	-1.50	0.00	-0.53	-0.03	0.36	0.02	0.00	0.39	20.81	3152.06	2.9	1
FRP	Splice	Origin	35.22	-0.00	0.58	-0.01	0.00	-10.96	0.0	-1.74	0.00	-0.58	-0.04	0.36	0.02	0.00	0.40	19.57	2337.71	3.9	1
FRP	SpliceB	End	38.44	-0.00	0.45	-0.01	0.00	-12.82	0.0	-1.74	0.00	-0.58	-0.04	0.40	0.02	0.00	0.44	19.57	2337.71	4.4	1
FRP	SpliceB	Origin	38.44	-0.00	0.45	-0.01	0.00	-12.82	-0.0	-1.94	0.00	-0.62	-0.04	0.40	0.03	0.00	0.44	19.57	2337.71	4.4	1
FRP	Tube 3	End	42.44	-0.00	0.31	-0.00	0.00	-15.32	-0.0	-1.94	0.00	-0.62	-0.04	0.45	0.03	0.00	0.49	19.57	2337.71	5.1	1
FRP	Tube 3	Origin	42.44	-0.00	0.31	-0.00	0.00	-15.32	0.0	-2.09	0.00	-0.68	-0.04	0.45	0.03	0.00	0.49	19.57	2337.71	5.1	1
FRP	Tube 3	End	46.44	-0.00	0.19	-0.00	0.00	-18.02	0.0	-2.09	0.00	-0.68	-0.04	0.50	0.03	0.00	0.54	19.57	2337.71	5.8	1
FRP	Tube 3	Origin	46.44	-0.00	0.19	-0.00	0.00	-18.02	0.0	-2.25	0.00	-0.73	-0.04	0.50	0.03	0.00	0.54	19.57	2337.71	5.8	1
FRP	Tube 3	End	50.44	-0.00	0.10	-0.00	0.00	-20.92	0.0	-2.25	0.00	-0.73	-0.04	0.55	0.03	0.00	0.59	19.57	2337.71	6.5	1
FRP	Tube 3	Origin	50.44	-0.00	0.10	-0.00	0.00	-20.92	0.0	-2.41	0.00	-0.78	-0.05	0.55	0.03	0.00	0.60	19.57	2337.71	6.5	1
FRP	Tube 3	End	54.44	-0.00	0.03	-0.00	0.00	-24.04	0.0	-2.41	0.00	-0.78	-0.05	0.60	0.03	0.00	0.64	19.57	2337.71	7.3	1
FRP	Tube 3	Origin	54.44	-0.00	0.03	-0.00	0.00	-24.04	0.0	-2.56	0.00	-0.82	-0.05	0.60	0.03	0.00	0.65	19.57	2337.71	7.3	1
FRP	Tube 3	End	57.22	-0.00	0.01	-0.00	0.00	-26.32	0.0	-2.56	0.00	-0.82	-0.05	0.63	0.03	0.00	0.68	19.57	2337.71	7.8	1
FRP	Tube 3	Origin	57.22	-0.00	0.01	-0.00	0.00	-26.32	0.0	-2.67	0.00	-0.86	-0.05	0.63	0.03	0.00	0.68	19.57	2337.71	7.8	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	0.00	-28.71	0.0	-2.67	0.00	-0.86	-0.05	0.66	0.03	0.00	0.71	19.57	2337.71	8.3	1

Service Loads Check:

Joint Label	Elevation (ft)	Actual Twist (deg)	Allowable Twist (deg)	Twist Usage %	Actual Sway (deg)	Allowable Sway (deg)	Sway Usage %	Actual Disp. (ft)	Allowable Disp. (ft)	Disp. Usage %	Max. Usage %
FRP:t	60.00	-0.00	4.00	0.0	0.28	4.00	7.0	0.21	1.80	11.5	11.5
FRP:ant	58.00	-0.00	4.00	0.0	0.28	4.00	7.0	0.20	1.80	11.0	11.0
#FRP:0	57.30	-0.00	4.00	0.0	0.28	4.00	7.0	0.19	1.80	10.8	10.8
#FRP:1	54.70	-0.00	4.00	0.0	0.28	4.00	7.0	0.18	1.80	10.1	10.1
#FRP:2	52.10	-0.00	4.00	0.0	0.28	4.00	6.9	0.17	1.80	9.4	9.4
#FRP:3	48.10	-0.00	4.00	0.0	0.27	4.00	6.8	0.15	1.80	8.3	8.3
#FRP:4	44.10	-0.00	4.00	0.0	0.27	4.00	6.7	0.13	1.80	7.3	7.3
#FRP:5	40.10	-0.00	4.00	0.0	0.26	4.00	6.5	0.11	1.80	6.2	6.5
#FRP:6	36.10	-0.00	4.00	0.0	0.25	4.00	6.2	0.09	1.80	5.2	6.2
#FRP:7	32.10	-0.00	4.00	0.0	0.24	4.00	5.9	0.08	1.80	4.3	5.9
#FRP:8	30.05	-0.00	4.00	0.0	0.23	4.00	5.7	0.07	1.80	3.8	5.7
#FRP:9	28.00	-0.00	4.00	0.0	0.22	4.00	5.5	0.06	1.80	3.4	5.5
#FRP:10	24.77	-0.00	4.00	0.0	0.21	4.00	5.2	0.05	1.80	2.7	5.2
#FRP:11	21.55	-0.00	4.00	0.0	0.19	4.00	4.7	0.04	1.80	2.1	4.7
#FRP:12	17.55	-0.00	4.00	0.0	0.16	4.00	3.9	0.03	1.80	1.4	3.9
#FRP:13	13.55	-0.00	4.00	0.0	0.13	4.00	3.1	0.02	1.80	0.9	3.1
#FRP:14	9.55	-0.00	4.00	0.0	0.09	4.00	2.3	0.01	1.80	0.4	2.3
#FRP:15	5.55	-0.00	4.00	0.0	0.05	4.00	1.4	0.00	1.80	0.2	1.4
#FRP:16	2.78	-0.00	4.00	0.0	0.03	4.00	0.7	0.00	1.80	0.0	0.7

Equilibrium Joint Positions and Rotations for Load Case "Wind service 180":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	-0.2071	2.528e-17	-0.001107	-0.0000	-0.2795	0.0000	-0.2071	2.528e-17	60
FRP:ant	-0.1974	2.409e-17	-0.001083	-0.0000	-0.2795	0.0000	-0.1974	2.409e-17	58

Joint Support Reactions for Load Case "Wind service 180":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	Y H-Shear %	Z Comp. Force (kips)	Z Uplift Usage %	Result. Moment (ft-k)	Result. Moment Usage %	X-M. Moment (ft-k)	X-M. Moment Usage %	Y-M. Shear (kips)	Y-M. Shear Usage %	H-Bend-Moment (ft-k)	H-Bend-Moment Usage %	Z-M. Shear (kips)	Z-M. Shear Usage %	Max. Usage %
FRP:g	0.88	0.0	-0.00	0.0	0.0	-2.73	0.0	0.0	2.87	0.0	0.00	0.0	28.7	0.0	0.0	-0.00	0.0	0.0

Detailed FRP Pole Usages for Load Case "Wind service 180":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (ft-k)	Long. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage	At Pt. %
FRP	FRP:t	Origin	0.00	0.00	-2.49	-0.01	-0.00	-0.00	0.0	-0.03	0.00	0.01	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	0.00	-2.37	-0.01	0.00	0.03	0.0	-0.03	0.00	0.01	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	0.00	-2.37	-0.01	0.00	0.03	0.0	-0.26	0.00	0.11	-0.01	0.00	0.01	0.00	0.01	23.37	3165.94	0.0	1
FRP	SpliceT	End	2.70	0.00	-2.33	-0.01	0.00	0.10	0.0	-0.26	0.00	0.11	-0.01	0.01	0.01	0.00	0.02	23.37	3165.94	0.1	1
FRP	SpliceT	Origin	2.70	0.00	-2.33	-0.01	0.00	0.10	-0.0	-0.35	0.00	0.13	-0.01	0.01	0.01	0.00	0.02	23.37	3165.94	0.1	1
FRP	Splice	End	5.30	0.00	-2.18	-0.01	0.00	0.45	-0.0	-0.35	0.00	0.13	-0.01	0.02	0.01	0.00	0.03	23.37	3165.94	0.2	1
FRP	Splice	Origin	5.30	0.00	-2.18	-0.01	0.00	0.45	-0.0	-0.50	0.00	0.17	-0.01	0.02	0.01	0.00	0.04	20.81	3152.06	0.2	1
FRP	SpliceB	End	7.90	0.00	-2.02	-0.01	0.00	0.89	-0.0	-0.50	0.00	0.17	-0.01	0.04	0.01	0.00	0.06	20.81	3152.06	0.3	1
FRP	SpliceB	Origin	7.90	0.00	-2.02	-0.01	0.00	0.89	0.0	-0.64	0.00	0.21	-0.02	0.04	0.01	0.00	0.06	20.81	3152.06	0.4	1
FRP	Tube 2	End	11.90	0.00	-1.79	-0.01	0.00	1.73	0.0	-0.64	0.00	0.21	-0.02	0.08	0.01	0.00	0.10	20.81	3152.06	0.6	1
FRP	Tube 2	Origin	11.90	0.00	-1.79	-0.01	0.00	1.73	0.0	-0.77	0.00	0.26	-0.02	0.08	0.01	0.00	0.10	20.81	3152.06	0.6	1
FRP	Tube 2	End	15.90	0.00	-1.57	-0.01	0.00	2.79	0.0	-0.77	0.00	0.26	-0.02	0.12	0.01	0.00	0.14	20.81	3152.06	0.9	1
FRP	Tube 2	Origin	15.90	0.00	-1.57	-0.01	0.00	2.79	0.0	-0.90	0.00	0.32	-0.02	0.12	0.02	0.00	0.14	20.81	3152.06	0.9	1
FRP	Tube 2	End	19.90	0.00	-1.34	-0.01	0.00	4.06	0.0	-0.90	0.00	0.32	-0.02	0.16	0.01	0.00	0.18	20.81	3152.06	1.2	1
FRP	Tube 2	Origin	19.90	0.00	-1.34	-0.01	0.00	4.06	0.0	-1.03	0.00	0.37	-0.02	0.16	0.02	0.00	0.18	20.81	3152.06	1.2	1
FRP	Tube 2	End	23.90	0.00	-1.13	-0.01	0.00	5.55	0.0	-1.03	0.00	0.37	-0.02	0.20	0.02	0.00	0.23	20.81	3152.06	1.6	1
FRP	Tube 2	Origin	23.90	0.00	-1.13	-0.01	0.00	5.55	0.0	-1.17	0.00	0.43	-0.03	0.20	0.02	0.00	0.23	20.81	3152.06	1.6	1
FRP	Tube 2	End	27.90	0.00	-0.93	-0.01	0.00	7.26	0.0	-1.17	0.00	0.43	-0.03	0.25	0.02	0.00	0.28	20.81	3152.06	2.0	1
FRP	Tube 2	Origin	27.90	0.00	-0.93	-0.01	0.00	7.26	-0.0	-1.27	0.00	0.47	-0.03	0.25	0.02	0.00	0.28	20.81	3152.06	2.0	1
FRP	Tube 2	End	29.95	0.00	-0.83	-0.01	0.00	8.22	-0.0	-1.27	0.00	0.47	-0.03	0.27	0.02	0.00	0.30	20.81	3152.06	2.2	1
FRP	Tube 2	Origin	29.95	0.00	-0.83	-0.01	0.00	8.22	-0.0	-1.35	0.00	0.50	-0.03	0.27	0.02	0.00	0.30	20.81	3152.06	2.2	1
FRP	SpliceT	End	32.00	0.00	-0.73	-0.01	0.00	9.24	-0.0	-1.35	0.00	0.50	-0.03	0.30	0.02	0.00	0.33	20.81	3152.06	2.4	1
FRP	SpliceT	Origin	32.00	0.00	-0.73	-0.01	0.00	9.24	-0.0	-1.50	0.00	0.53	-0.03	0.30	0.02	0.00	0.33	20.81	3152.06	2.4	1
FRP	Splice	End	35.22	0.00	-0.58	-0.01	0.00	10.96	-0.0	-1.50	0.00	0.53	-0.03	0.36	0.02	0.00	0.39	20.81	3152.06	2.9	1
FRP	Splice	Origin	35.22	0.00	-0.58	-0.01	0.00	10.96	-0.0	-1.74	0.00	0.58	-0.04	0.36	0.02	0.00	0.40	19.57	2337.71	3.9	1
FRP	SpliceB	End	38.44	0.00	-0.45	-0.01	0.00	12.82	-0.0	-1.74	0.00	0.58	-0.04	0.40	0.02	0.00	0.44	19.57	2337.71	4.4	1
FRP	SpliceB	Origin	38.44	0.00	-0.45	-0.01	0.00	12.82	0.0	-1.94	0.00	0.62	-0.04	0.40	0.03	0.00	0.44	19.57	2337.71	4.4	1
FRP	Tube 3	End	42.44	0.00	-0.31	-0.00	0.00	15.32	0.0	-1.94	0.00	0.62	-0.04	0.45	0.03	0.00	0.49	19.57	2337.71	5.1	1
FRP	Tube 3	Origin	42.44	0.00	-0.31	-0.00	0.00	15.32	0.0	-2.09	0.00	0.68	-0.04	0.45	0.03	0.00	0.49	19.57	2337.71	5.1	1
FRP	Tube 3	End	46.44	0.00	-0.19	-0.00	0.00	18.02	0.0	-2.09	0.00	0.68	-0.04	0.50	0.03	0.00	0.54	19.57	2337.71	5.8	1
FRP	Tube 3	Origin	46.44	0.00	-0.19	-0.00	0.00	18.02	0.0	-2.25	0.00	0.73	-0.04	0.50	0.03	0.00	0.54	19.57	2337.71	5.8	1
FRP	Tube 3	End	50.44	0.00	-0.10	-0.00	0.00	20.92	0.0	-2.25	0.00	0.73	-0.04	0.55	0.03	0.00	0.59	19.57	2337.71	6.5	1
FRP	Tube 3	Origin	50.44	0.00	-0.10	-0.00	0.00	20.92	0.0	-2.41	0.00	0.78	-0.05	0.55	0.03	0.00	0.60	19.57	2337.71	6.5	1
FRP	Tube 3	End	54.44	0.00	-0.03	-0.00	0.00	24.04	0.0	-2.41	0.00	0.78	-0.05	0.60	0.03	0.00	0.64	19.57	2337.71	7.3	1
FRP	Tube 3	Origin	54.44	0.00	-0.03	-0.00	0.00	24.04	-0.0	-2.56	0.00	0.82	-0.05	0.60	0.03	0.00	0.65	19.57	2337.71	7.3	1
FRP	Tube 3	End	57.22	0.00	-0.01	-0.00	0.00	26.32	-0.0	-2.56	0.00	0.82	-0.05	0.63	0.03	0.00	0.68	19.57	2337.71	7.8	1
FRP	Tube 3	Origin	57.22	0.00	-0.01	-0.00	0.00	26.32	-0.0	-2.67	0.00	0.86	-0.05	0.63	0.03	0.00	0.68	19.57	2337.71	7.8	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	0.00	28.71	-0.0	-2.67	0.00	0.86	-0.05	0.66	0.03	0.00	0.71	19.57	2337.71	8.3	1

Service Loads Check:

Joint Label	Elevation (ft)	Actual Twist (deg)	Allowable Twist (deg)	Twist Usage %	Actual Sway (deg)	Allowable Sway (deg)	Sway Usage %	Actual Disp. (ft)	Allowable Disp. (ft)	Disp. Usage %	Max. Usage %
FRP:t	60.00	0.00	4.00	0.0	0.28	4.00	7.0	0.21	1.80	11.5	11.5
FRP:ant	58.00	0.00	4.00	0.0	0.28	4.00	7.0	0.20	1.80	11.0	11.0
#FRP:0	57.30	0.00	4.00	0.0	0.28	4.00	7.0	0.19	1.80	10.8	10.8
#FRP:1	54.70	0.00	4.00	0.0	0.28	4.00	7.0	0.18	1.80	10.1	10.1
#FRP:2	52.10	0.00	4.00	0.0	0.28	4.00	6.9	0.17	1.80	9.4	9.4
#FRP:3	48.10	0.00	4.00	0.0	0.27	4.00	6.8	0.15	1.80	8.3	8.3
#FRP:4	44.10	0.00	4.00	0.0	0.27	4.00	6.7	0.13	1.80	7.3	7.3
#FRP:5	40.10	0.00	4.00	0.0	0.26	4.00	6.5	0.11	1.80	6.2	6.5
#FRP:6	36.10	0.00	4.00	0.0	0.25	4.00	6.2	0.09	1.80	5.2	6.2
#FRP:7	32.10	0.00	4.00	0.0	0.24	4.00	5.9	0.08	1.80	4.3	5.9
#FRP:8	30.05	0.00	4.00	0.0	0.23	4.00	5.7	0.07	1.80	3.8	5.7
#FRP:9	28.00	0.00	4.00	0.0	0.22	4.00	5.5	0.06	1.80	3.4	5.5
#FRP:10	24.77	0.00	4.00	0.0	0.21	4.00	5.2	0.05	1.80	2.7	5.2
#FRP:11	21.55	0.00	4.00	0.0	0.19	4.00	4.7	0.04	1.80	2.1	4.7
#FRP:12	17.55	0.00	4.00	0.0	0.16	4.00	3.9	0.03	1.80	1.4	3.9
#FRP:13	13.55	0.00	4.00	0.0	0.13	4.00	3.1	0.02	1.80	0.9	3.1
#FRP:14	9.55	0.00	4.00	0.0	0.09	4.00	2.3	0.01	1.80	0.4	2.3
#FRP:15	5.55	0.00	4.00	0.0	0.05	4.00	1.4	0.00	1.80	0.2	1.4
#FRP:16	2.78	0.00	4.00	0.0	0.03	4.00	0.7	0.00	1.80	0.0	0.7

Equilibrium Joint Positions and Rotations for Load Case "Wind service -90":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	-1.226e-17	-0.3293	-0.001764	0.4607	-0.0000	-0.0000	-1.226e-17	-0.3293	59.99
FRP:ant	-1.156e-17	-0.3132	-0.001699	0.4607	-0.0000	-0.0000	-1.156e-17	-0.3132	57.99

Joint Support Reactions for Load Case "Wind service -90":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	Y H-Shear %	Z Force (kips)	Z Usage %	Comp. Usage %	Uplift (ft-k)	Result. Moment %	Result. Usage (ft-k)	X-M. Moment (ft-k)	X-M. Usage %	Y-M. Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z-M. Moment (ft-k)	Z-M. Usage %	Max. Usage %
FRP:g	-0.00	0.0	1.11	0.0	0.0	-2.73	0.0	0.0	2.95	0.0	-41.98	0.0	0.0	0.0	0.0	0.0	-0.00	0.0	0.0

Detailed FRP Pole Usages for Load Case "Wind service -90":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (ft-k)	Long. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage %	At Pt.
FRP	FRP:t	Origin	0.00	-3.95	-0.00	-0.02	0.00	0.00	-0.0	-0.03	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	-3.76	-0.00	-0.02	-0.03	-0.00	-0.0	-0.03	-0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	-3.76	-0.00	-0.02	-0.03	-0.00	-0.0	-0.26	-0.34	0.00	-0.01	0.00	0.02	0.00	0.04	23.37	3165.94	0.0	1
FRP	SpliceT	End	2.70	-3.69	-0.00	-0.02	-0.26	0.00	-0.0	-0.26	-0.34	0.00	-0.01	0.01	0.02	0.00	0.04	23.37	3165.94	0.1	1
FRP	SpliceT	Origin	2.70	-3.69	-0.00	-0.02	-0.26	0.00	0.0	-0.35	-0.36	0.00	-0.01	0.01	0.02	0.00	0.04	23.37	3165.94	0.1	1
FRP	Splice	End	5.30	-3.44	-0.00	-0.02	-1.20	0.00	0.0	-0.35	-0.36	0.00	-0.01	0.06	0.02	0.00	0.08	23.37	3165.94	0.4	1
FRP	Splice	Origin	5.30	-3.44	-0.00	-0.02	-1.20	0.00	0.0	-0.50	-0.40	0.00	-0.01	0.06	0.02	0.00	0.08	20.81	3152.06	0.4	1
FRP	SpliceB	End	7.90	-3.19	-0.00	-0.02	-2.23	0.00	0.0	-0.50	-0.40	0.00	-0.01	0.11	0.02	0.00	0.13	20.81	3152.06	0.7	1
FRP	SpliceB	Origin	7.90	-3.19	-0.00	-0.02	-2.23	0.00	-0.0	-0.64	-0.44	0.00	-0.02	0.11	0.02	0.00	0.13	20.81	3152.06	0.8	1
FRP	Tube 2	End	11.90	-2.81	-0.00	-0.02	-3.99	0.00	-0.0	-0.64	-0.44	0.00	-0.02	0.18	0.02	0.00	0.20	20.81	3152.06	1.2	1
FRP	Tube 2	Origin	11.90	-2.81	-0.00	-0.02	-3.99	0.00	-0.0	-0.77	-0.49	0.00	-0.02	0.18	0.02	0.00	0.20	20.81	3152.06	1.3	1
FRP	Tube 2	End	15.90	-2.44	-0.00	-0.01	-5.96	0.00	-0.0	-0.77	-0.49	0.00	-0.02	0.25	0.02	0.00	0.27	20.81	3152.06	1.8	1
FRP	Tube 2	Origin	15.90	-2.44	-0.00	-0.01	-5.96	0.00	-0.0	-0.89	-0.55	-0.00	-0.02	0.25	0.03	0.00	0.27	20.81	3152.06	1.8	1
FRP	Tube 2	End	19.90	-2.09	-0.00	-0.01	-8.15	0.00	-0.0	-0.89	-0.55	-0.00	-0.02	0.32	0.03	0.00	0.34	20.81	3152.06	2.3	1
FRP	Tube 2	Origin	19.90	-2.09	-0.00	-0.01	-8.15	0.00	-0.0	-1.03	-0.60	-0.00	-0.02	0.32	0.03	0.00	0.34	20.81	3152.06	2.3	1
FRP	Tube 2	End	23.90	-1.75	-0.00	-0.01	-10.56	0.00	-0.0	-1.03	-0.60	-0.00	-0.02	0.38	0.03	0.00	0.41	20.81	3152.06	2.9	1
FRP	Tube 2	Origin	23.90	-1.75	-0.00	-0.01	-10.56	0.00	-0.0	-1.16	-0.66	-0.00	-0.03	0.38	0.03	0.00	0.41	20.81	3152.06	2.9	1
FRP	Tube 2	End	27.90	-1.42	-0.00	-0.01	-13.18	-0.00	-0.0	-1.16	-0.66	-0.00	-0.03	0.45	0.03	0.00	0.48	20.81	3152.06	3.5	1
FRP	Tube 2	Origin	27.90	-1.42	-0.00	-0.01	-13.18	-0.00	0.0	-1.27	-0.70	-0.00	-0.03	0.45	0.03	0.00	0.48	20.81	3152.06	3.5	1
FRP	Tube 2	End	29.95	-1.26	-0.00	-0.01	-14.62	-0.00	0.0	-1.27	-0.70	-0.00	-0.03	0.48	0.03	0.00	0.51	20.81	3152.06	3.8	1
FRP	Tube 2	Origin	29.95	-1.26	-0.00	-0.01	-14.62	-0.00	0.0	-1.34	-0.73	-0.00	-0.03	0.48	0.03	0.00	0.52	20.81	3152.06	3.8	1
FRP	SpliceT	End	32.00	-1.11	-0.00	-0.01	-16.11	-0.00	0.0	-1.34	-0.73	-0.00	-0.03	0.52	0.03	0.00	0.55	20.81	3152.06	4.1	1
FRP	SpliceT	Origin	32.00	-1.11	-0.00	-0.01	-16.11	-0.00	0.0	-1.50	-0.76	-0.00	-0.03	0.52	0.03	0.00	0.55	20.81	3152.06	4.1	1
FRP	Splice	End	35.22	-0.89	-0.00	-0.01	-18.56	-0.00	0.0	-1.50	-0.76	-0.00	-0.03	0.60	0.03	0.00	0.64	20.81	3152.06	4.8	1
FRP	Splice	Origin	35.22	-0.89	-0.00	-0.01	-18.56	-0.00	0.0	-1.74	-0.81	-0.00	-0.04	0.60	0.03	0.00	0.64	19.57	2337.71	6.4	1
FRP	SpliceB	End	38.44	-0.68	-0.00	-0.01	-21.16	-0.00	0.0	-1.74	-0.81	-0.00	-0.04	0.65	0.03	0.00	0.69	19.57	2337.71	7.1	1
FRP	SpliceB	Origin	38.44	-0.68	-0.00	-0.01	-21.16	-0.00	-0.0	-1.94	-0.85	-0.00	-0.04	0.65	0.04	0.00	0.70	19.57	2337.71	7.1	1
FRP	Tube 3	End	42.44	-0.46	-0.00	-0.00	-24.58	-0.00	-0.0	-1.94	-0.85	-0.00	-0.04	0.72	0.03	0.00	0.76	19.57	2337.71	8.0	1
FRP	Tube 3	Origin	42.44	-0.46	-0.00	-0.00	-24.58	-0.00	0.0	-2.09	-0.90	-0.00	-0.04	0.72	0.04	0.00	0.76	19.57	2337.71	8.0	1
FRP	Tube 3	End	46.44	-0.28	-0.00	-0.00	-28.19	-0.00	0.0	-2.09	-0.90	-0.00	-0.04	0.78	0.04	0.00	0.82	19.57	2337.71	8.9	1
FRP	Tube 3	Origin	46.44	-0.28	-0.00	-0.00	-28.19	-0.00	0.0	-2.25	-0.96	-0.00	-0.04	0.78	0.04	0.00	0.83	19.57	2337.71	8.9	1
FRP	Tube 3	End	50.44	-0.14	-0.00	-0.00	-32.02	-0.00	0.0	-2.25	-0.96	-0.00	-0.04	0.84	0.04	0.00	0.88	19.57	2337.71	9.8	1
FRP	Tube 3	Origin	50.44	-0.14	-0.00	-0.00	-32.02	-0.00	0.0	-2.41	-1.01	-0.00	-0.05	0.84	0.04	0.00	0.89	19.57	2337.71	9.8	1
FRP	Tube 3	End	54.44	-0.05	-0.00	-0.00	-36.04	-0.00	0.0	-2.41	-1.01	-0.00	-0.05	0.89	0.04	0.00	0.94	19.57	2337.71	10.7	1
FRP	Tube 3	Origin	54.44	-0.05	-0.00	-0.00	-36.04	-0.00	0.0	-2.55	-1.05	-0.00	-0.05	0.89	0.04	0.00	0.95	19.57	2337.71	10.8	1
FRP	Tube 3	End	57.22	-0.01	-0.00	-0.00	-38.96	-0.00	0.0	-2.55	-1.05	-0.00	-0.05	0.93	0.04	0.00	0.98	19.57	2337.71	11.4	1
FRP	Tube 3	Origin	57.22	-0.01	-0.00	-0.00	-38.96	-0.00	0.0	-2.67	-1.09	-0.00	-0.05	0.93	0.04	0.00	0.98	19.57	2337.71	11.4	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	-41.98	-0.00	0.0	-2.67	-1.09	-0.00	-0.05	0.97	0.04	0.00	1.02	19.57	2337.71	12.1	1

Service Loads Check:

Joint Label	Elevation (ft)	Actual Twist (deg)	Allowable Twist (deg)	Twist Usage %	Actual Sway (deg)	Allowable Sway (deg)	Sway Usage %	Actual Disp. (ft)	Allowable Disp. (ft)	Disp. Usage %	Max. Usage %
FRP:t	59.99	-0.00	4.00	0.0	0.46	4.00	11.5	0.33	1.80	18.3	18.3
FRP:ant	57.99	-0.00	4.00	0.0	0.46	4.00	11.5	0.31	1.80	17.4	17.4
#FRP:0	57.30	-0.00	4.00	0.0	0.46	4.00	11.5	0.31	1.80	17.1	17.1
#FRP:1	54.70	-0.00	4.00	0.0	0.46	4.00	11.5	0.29	1.80	15.9	15.9
#FRP:2	52.10	-0.00	4.00	0.0	0.46	4.00	11.4	0.27	1.80	14.8	14.8
#FRP:3	48.10	-0.00	4.00	0.0	0.45	4.00	11.2	0.23	1.80	13.0	13.0
#FRP:4	44.10	-0.00	4.00	0.0	0.43	4.00	10.8	0.20	1.80	11.3	11.3
#FRP:5	40.10	-0.00	4.00	0.0	0.42	4.00	10.4	0.17	1.80	9.7	10.4
#FRP:6	36.10	-0.00	4.00	0.0	0.40	4.00	9.9	0.15	1.80	8.1	9.9
#FRP:7	32.10	-0.00	4.00	0.0	0.37	4.00	9.3	0.12	1.80	6.6	9.3
#FRP:8	30.05	-0.00	4.00	0.0	0.36	4.00	9.0	0.11	1.80	5.9	9.0
#FRP:9	28.00	-0.00	4.00	0.0	0.35	4.00	8.7	0.09	1.80	5.2	8.7
#FRP:10	24.77	-0.00	4.00	0.0	0.32	4.00	8.1	0.07	1.80	4.1	8.1
#FRP:11	21.55	-0.00	4.00	0.0	0.29	4.00	7.2	0.06	1.80	3.1	7.2
#FRP:12	17.55	-0.00	4.00	0.0	0.24	4.00	6.0	0.04	1.80	2.1	6.0
#FRP:13	13.55	-0.00	4.00	0.0	0.19	4.00	4.7	0.02	1.80	1.3	4.7
#FRP:14	9.55	-0.00	4.00	0.0	0.14	4.00	3.4	0.01	1.80	0.7	3.4
#FRP:15	5.55	-0.00	4.00	0.0	0.08	4.00	2.0	0.00	1.80	0.2	2.0
#FRP:16	2.78	-0.00	4.00	0.0	0.04	4.00	1.0	0.00	1.80	0.1	1.0

Equilibrium Joint Positions and Rotations for Load Case "Wind service 90":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	2.839e-17	0.3293	-0.001764	-0.4607	0.0000	-0.0000	2.839e-17	0.3293	59.99
FRP:ant	2.698e-17	0.3132	-0.001699	-0.4607	0.0000	-0.0000	2.698e-17	0.3132	57.99

Joint Support Reactions for Load Case "Wind service 90":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	Y H-Shear %	Z Force (kips)	Z Usage %	Comp. Usage %	Uplift (kips)	Result. Usage %	Result. Moment (ft-k)	X-M. Usage %	X-M. Moment (ft-k)	Y Usage %	Y-M. Usage %	H-Bend-Moment (ft-k)	Z Usage %	Z-M. Usage %	Max. Usage %
FRP:g	-0.00	0.0	-1.11	0.0	0.0	-2.73	0.0	0.0	2.95	0.0	41.98	0.0	-0.0	0.0	0.0	-0.00	0.0	0.0	0.0

Detailed FRP Pole Usages for Load Case "Wind service 90":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (ft-k)	Long. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage	At Pt. %
FRP	FRP:t	Origin	0.00	3.95	0.00	-0.02	-0.00	0.00	-0.0	-0.03	0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	3.76	0.00	-0.02	0.03	-0.00	-0.0	-0.03	0.01	-0.00	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	3.76	0.00	-0.02	0.03	-0.00	-0.0	-0.26	0.34	-0.00	-0.01	0.00	0.02	0.00	0.04	23.37	3165.94	0.0	1
FRP	SpliceT	End	2.70	3.69	0.00	-0.02	0.26	-0.00	-0.0	-0.26	0.34	-0.00	-0.01	0.01	0.02	0.00	0.04	23.37	3165.94	0.1	1
FRP	SpliceT	Origin	2.70	3.69	0.00	-0.02	0.26	-0.00	0.0	-0.35	0.36	-0.00	-0.01	0.01	0.02	0.00	0.04	23.37	3165.94	0.1	1
FRP	Splice	End	5.30	3.44	0.00	-0.02	1.20	-0.00	0.0	-0.35	0.36	-0.00	-0.01	0.06	0.02	0.00	0.08	23.37	3165.94	0.4	1
FRP	Splice	Origin	5.30	3.44	0.00	-0.02	1.20	-0.00	0.0	-0.50	0.40	-0.00	-0.01	0.06	0.02	0.00	0.08	20.81	3152.06	0.4	1
FRP	SpliceB	End	7.90	3.19	0.00	-0.02	2.23	-0.00	0.0	-0.50	0.40	-0.00	-0.01	0.11	0.02	0.00	0.13	20.81	3152.06	0.7	1
FRP	SpliceB	Origin	7.90	3.19	0.00	-0.02	2.23	-0.00	-0.0	-0.64	0.44	-0.00	-0.02	0.11	0.02	0.00	0.13	20.81	3152.06	0.8	1
FRP	Tube 2	End	11.90	2.81	0.00	-0.02	3.99	-0.00	-0.0	-0.64	0.44	-0.00	-0.02	0.18	0.02	0.00	0.20	20.81	3152.06	1.2	1
FRP	Tube 2	Origin	11.90	2.81	0.00	-0.02	3.99	-0.00	-0.0	-0.77	0.49	-0.00	-0.02	0.18	0.02	0.00	0.20	20.81	3152.06	1.3	1
FRP	Tube 2	End	15.90	2.44	0.00	-0.01	5.96	-0.00	-0.0	-0.77	0.49	-0.00	-0.02	0.25	0.02	0.00	0.27	20.81	3152.06	1.8	1
FRP	Tube 2	Origin	15.90	2.44	0.00	-0.01	5.96	-0.00	-0.0	-0.89	0.55	-0.00	-0.02	0.25	0.03	0.00	0.27	20.81	3152.06	1.8	1
FRP	Tube 2	End	19.90	2.09	0.00	-0.01	8.15	-0.00	-0.0	-0.89	0.55	-0.00	-0.02	0.32	0.03	0.00	0.34	20.81	3152.06	2.3	1
FRP	Tube 2	Origin	19.90	2.09	0.00	-0.01	8.15	-0.00	-0.0	-1.03	0.60	-0.00	-0.02	0.32	0.03	0.00	0.34	20.81	3152.06	2.3	1
FRP	Tube 2	End	23.90	1.75	0.00	-0.01	10.56	-0.00	-0.0	-1.03	0.60	-0.00	-0.02	0.38	0.03	0.00	0.41	20.81	3152.06	2.9	1
FRP	Tube 2	Origin	23.90	1.75	0.00	-0.01	10.56	-0.00	-0.0	-1.16	0.66	-0.00	-0.03	0.38	0.03	0.00	0.41	20.81	3152.06	2.9	1
FRP	Tube 2	End	27.90	1.42	0.00	-0.01	13.18	-0.00	-0.0	-1.16	0.66	-0.00	-0.03	0.45	0.03	0.00	0.48	20.81	3152.06	3.5	1
FRP	Tube 2	Origin	27.90	1.42	0.00	-0.01	13.18	-0.00	0.0	-1.27	0.70	-0.00	-0.03	0.45	0.03	0.00	0.48	20.81	3152.06	3.5	1
FRP	Tube 2	End	29.95	1.26	0.00	-0.01	14.62	-0.00	0.0	-1.27	0.70	-0.00	-0.03	0.48	0.03	0.00	0.51	20.81	3152.06	3.8	1
FRP	Tube 2	Origin	29.95	1.26	0.00	-0.01	14.62	-0.00	0.0	-1.34	0.73	-0.00	-0.03	0.48	0.03	0.00	0.52	20.81	3152.06	3.8	1
FRP	SpliceT	End	32.00	1.11	0.00	-0.01	16.11	-0.00	0.0	-1.34	0.73	-0.00	-0.03	0.52	0.03	0.00	0.55	20.81	3152.06	4.1	1
FRP	SpliceT	Origin	32.00	1.11	0.00	-0.01	16.11	-0.00	0.0	-1.50	0.76	-0.00	-0.03	0.52	0.03	0.00	0.55	20.81	3152.06	4.1	1
FRP	Splice	End	35.22	0.89	0.00	-0.01	18.56	-0.00	0.0	-1.50	0.76	-0.00	-0.03	0.60	0.03	0.00	0.64	20.81	3152.06	4.8	1
FRP	Splice	Origin	35.22	0.89	0.00	-0.01	18.56	-0.00	0.0	-1.74	0.81	-0.00	-0.04	0.60	0.03	0.00	0.64	19.57	2337.71	6.4	1
FRP	SpliceB	End	38.44	0.68	0.00	-0.01	21.16	-0.00	0.0	-1.74	0.81	-0.00	-0.04	0.65	0.03	0.00	0.69	19.57	2337.71	7.1	1
FRP	SpliceB	Origin	38.44	0.68	0.00	-0.01	21.16	-0.00	-0.0	-1.94	0.85	-0.00	-0.04	0.65	0.04	0.00	0.70	19.57	2337.71	7.1	1
FRP	Tube 3	End	42.44	0.46	0.00	-0.00	24.58	-0.00	-0.0	-1.94	0.85	-0.00	-0.04	0.72	0.03	0.00	0.76	19.57	2337.71	8.0	1
FRP	Tube 3	Origin	42.44	0.46	0.00	-0.00	24.58	-0.00	0.0	-2.09	0.90	-0.00	-0.04	0.72	0.04	0.00	0.76	19.57	2337.71	8.0	1
FRP	Tube 3	End	46.44	0.28	0.00	-0.00	28.19	-0.00	0.0	-2.09	0.90	-0.00	-0.04	0.78	0.04	0.00	0.82	19.57	2337.71	8.9	1
FRP	Tube 3	Origin	46.44	0.28	0.00	-0.00	28.19	-0.00	0.0	-2.25	0.96	-0.00	-0.04	0.78	0.04	0.00	0.83	19.57	2337.71	8.9	1
FRP	Tube 3	End	50.44	0.14	0.00	-0.00	32.02	-0.00	0.0	-2.25	0.96	-0.00	-0.04	0.84	0.04	0.00	0.88	19.57	2337.71	9.8	1
FRP	Tube 3	Origin	50.44	0.14	0.00	-0.00	32.02	-0.00	0.0	-2.41	1.01	-0.00	-0.05	0.84	0.04	0.00	0.89	19.57	2337.71	9.8	1
FRP	Tube 3	End	54.44	0.05	0.00	-0.00	36.04	-0.00	0.0	-2.41	1.01	-0.00	-0.05	0.89	0.04	0.00	0.94	19.57	2337.71	10.7	1
FRP	Tube 3	Origin	54.44	0.05	0.00	-0.00	36.04	-0.00	0.0	-2.55	1.05	-0.00	-0.05	0.89	0.04	0.00	0.95	19.57	2337.71	10.8	1
FRP	Tube 3	End	57.22	0.01	0.00	-0.00	38.96	-0.00	0.0	-2.55	1.05	-0.00	-0.05	0.93	0.04	0.00	0.98	19.57	2337.71	11.4	1
FRP	Tube 3	Origin	57.22	0.01	0.00	-0.00	38.96	-0.00	0.0	-2.67	1.09	-0.00	-0.05	0.93	0.04	0.00	0.98	19.57	2337.71	11.4	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	41.98	-0.00	0.0	-2.67	1.09	-0.00	-0.05	0.97	0.04	0.00	1.02	19.57	2337.71	12.1	1

Service Loads Check:

Joint Label	Elevation (ft)	Actual Twist (deg)	Allowable Twist (deg)	Twist Usage %	Actual Sway (deg)	Allowable Sway (deg)	Sway Usage %	Actual Disp. (ft)	Allowable Disp. (ft)	Disp. Usage %	Max. Usage %
FRP:t	59.99	-0.00	4.00	0.0	0.46	4.00	11.5	0.33	1.80	18.3	18.3
FRP:ant	57.99	-0.00	4.00	0.0	0.46	4.00	11.5	0.31	1.80	17.4	17.4
#FRP:0	57.30	-0.00	4.00	0.0	0.46	4.00	11.5	0.31	1.80	17.1	17.1
#FRP:1	54.70	-0.00	4.00	0.0	0.46	4.00	11.5	0.29	1.80	15.9	15.9
#FRP:2	52.10	-0.00	4.00	0.0	0.46	4.00	11.4	0.27	1.80	14.8	14.8
#FRP:3	48.10	-0.00	4.00	0.0	0.45	4.00	11.2	0.23	1.80	13.0	13.0
#FRP:4	44.10	-0.00	4.00	0.0	0.43	4.00	10.8	0.20	1.80	11.3	11.3
#FRP:5	40.10	-0.00	4.00	0.0	0.42	4.00	10.4	0.17	1.80	9.7	10.4
#FRP:6	36.10	-0.00	4.00	0.0	0.40	4.00	9.9	0.15	1.80	8.1	9.9
#FRP:7	32.10	-0.00	4.00	0.0	0.37	4.00	9.3	0.12	1.80	6.6	9.3
#FRP:8	30.05	-0.00	4.00	0.0	0.36	4.00	9.0	0.11	1.80	5.9	9.0
#FRP:9	28.00	-0.00	4.00	0.0	0.35	4.00	8.7	0.09	1.80	5.2	8.7
#FRP:10	24.77	-0.00	4.00	0.0	0.32	4.00	8.1	0.07	1.80	4.1	8.1
#FRP:11	21.55	-0.00	4.00	0.0	0.29	4.00	7.2	0.06	1.80	3.1	7.2
#FRP:12	17.55	-0.00	4.00	0.0	0.24	4.00	6.0	0.04	1.80	2.1	6.0
#FRP:13	13.55	-0.00	4.00	0.0	0.19	4.00	4.7	0.02	1.80	1.3	4.7
#FRP:14	9.55	-0.00	4.00	0.0	0.14	4.00	3.4	0.01	1.80	0.7	3.4
#FRP:15	5.55	-0.00	4.00	0.0	0.08	4.00	2.0	0.00	1.80	0.2	2.0
#FRP:16	2.78	-0.00	4.00	0.0	0.04	4.00	1.0	0.00	1.80	0.1	1.0

Equilibrium Joint Positions and Rotations for Load Case "Wind service -60":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.1046	-0.2897	-0.001629	0.4057	0.1412	0.0028	0.1046	-0.2897	59.99
FRP:ant	0.09965	-0.2756	-0.001572	0.4057	0.1412	0.0028	0.09965	-0.2756	57.99

Joint Support Reactions for Load Case "Wind service -60":

Joint	X	X	Y	Y	H-Shear	Z	Comp.	Uplift	Result.	Result.	X	X-M.	Y	Y-M.	H-Bend-M	Z	Z-M.	Max.
Label	Force	Usage	Force	Usage	Force	Force	Usage	Usage	Force	Force	Usage	Moment	Moment	Usage	Usage	Moment	Usage	Usage
	(kips)	%	(kips)	%	%	(kips)	%	%	(kips)	%	(ft-k)	%	(ft-k)	%	%	(ft-k)	%	%
FRP:g	-0.44	0.0	0.97	0.0	0.0	-2.73	0.0	0.0	2.93	0.0	-36.85	0.0	-14.5	0.0	0.0	-0.07	0.0	0.0

Detailed FRP Pole Usages for Load Case "Wind service -60":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Trans. Dist. (ft)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (ft-k)	Long. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T.	MOE at T.	Max. Usage (ksi)	At Pt. %	
FRP	FRP:t	Origin	0.00	-3.48	1.25	-0.02	0.00	0.00	-0.0	-0.03	-0.01	-0.01	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	-3.31	1.20	-0.02	-0.02	-0.01	-0.0	-0.03	-0.01	-0.01	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	-3.31	1.20	-0.02	-0.02	-0.01	0.1	-0.26	-0.30	-0.06	-0.01	0.00	0.02	0.00	0.04	23.37	3165.94	0.0	1
FRP	SpliceT	End	2.70	-3.25	1.18	-0.02	-0.23	-0.05	0.1	-0.26	-0.30	-0.06	-0.01	0.01	0.02	0.00	0.04	23.37	3165.94	0.1	1
FRP	SpliceT	Origin	2.70	-3.25	1.18	-0.02	-0.23	-0.05	0.1	-0.35	-0.32	-0.07	-0.01	0.01	0.02	0.00	0.04	23.37	3165.94	0.1	1
FRP	Splice	End	5.30	-3.03	1.10	-0.02	-1.07	-0.23	0.1	-0.35	-0.32	-0.07	-0.01	0.05	0.02	0.00	0.07	23.37	3165.94	0.4	1
FRP	Splice	Origin	5.30	-3.03	1.10	-0.02	-1.07	-0.23	0.1	-0.50	-0.35	-0.09	-0.01	0.05	0.02	0.00	0.08	20.81	3152.06	0.4	1
FRP	SpliceB	End	7.90	-2.81	1.02	-0.02	-1.98	-0.46	0.1	-0.50	-0.35	-0.09	-0.01	0.10	0.02	0.00	0.12	20.81	3152.06	0.7	1
FRP	SpliceB	Origin	7.90	-2.81	1.02	-0.02	-1.98	-0.46	0.1	-0.64	-0.39	-0.11	-0.02	0.10	0.02	0.00	0.12	20.81	3152.06	0.7	1
FRP	Tube 2	End	11.90	-2.47	0.90	-0.02	-3.54	-0.89	0.1	-0.64	-0.39	-0.11	-0.02	0.16	0.02	0.00	0.18	20.81	3152.06	1.1	1
FRP	Tube 2	Origin	11.90	-2.47	0.90	-0.02	-3.54	-0.89	0.1	-0.77	-0.44	-0.13	-0.02	0.16	0.02	0.00	0.19	20.81	3152.06	1.2	1
FRP	Tube 2	End	15.90	-2.15	0.79	-0.01	-5.28	-1.42	0.1	-0.77	-0.44	-0.13	-0.02	0.23	0.02	0.00	0.25	20.81	3152.06	1.6	1
FRP	Tube 2	Origin	15.90	-2.15	0.79	-0.01	-5.28	-1.42	0.1	-0.89	-0.48	-0.16	-0.02	0.23	0.02	0.00	0.25	20.81	3152.06	1.7	1
FRP	Tube 2	End	19.90	-1.84	0.68	-0.01	-7.21	-2.07	0.1	-0.89	-0.48	-0.16	-0.02	0.29	0.02	0.00	0.32	20.81	3152.06	2.1	1
FRP	Tube 2	Origin	19.90	-1.84	0.68	-0.01	-7.21	-2.07	0.1	-1.03	-0.53	-0.19	-0.02	0.29	0.03	0.00	0.32	20.81	3152.06	2.2	1
FRP	Tube 2	End	23.90	-1.54	0.57	-0.01	-9.33	-2.82	0.1	-1.03	-0.53	-0.19	-0.02	0.35	0.03	0.00	0.38	20.81	3152.06	2.7	1
FRP	Tube 2	Origin	23.90	-1.54	0.57	-0.01	-9.33	-2.82	0.1	-1.16	-0.58	-0.22	-0.03	0.35	0.03	0.00	0.38	20.81	3152.06	2.7	1
FRP	Tube 2	End	27.90	-1.25	0.47	-0.01	-11.64	-3.68	0.1	-1.16	-0.58	-0.22	-0.03	0.42	0.03	0.00	0.45	20.81	3152.06	3.2	1
FRP	Tube 2	Origin	27.90	-1.25	0.47	-0.01	-11.64	-3.68	0.1	-1.27	-0.61	-0.24	-0.03	0.42	0.03	0.00	0.45	20.81	3152.06	3.2	1
FRP	Tube 2	End	29.95	-1.11	0.42	-0.01	-12.90	-4.16	0.1	-1.27	-0.61	-0.24	-0.03	0.45	0.03	0.00	0.48	20.81	3152.06	3.5	1
FRP	Tube 2	Origin	29.95	-1.11	0.42	-0.01	-12.90	-4.16	0.1	-1.35	-0.64	-0.25	-0.03	0.45	0.03	0.00	0.48	20.81	3152.06	3.5	1
FRP	SpliceT	End	32.00	-0.98	0.37	-0.01	-14.21	-4.68	0.1	-1.35	-0.64	-0.25	-0.03	0.48	0.03	0.00	0.51	20.81	3152.06	3.8	1
FRP	SpliceT	Origin	32.00	-0.98	0.37	-0.01	-14.20	-4.68	0.1	-1.50	-0.67	-0.27	-0.03	0.48	0.03	0.00	0.51	20.81	3152.06	3.8	1
FRP	Splice	End	35.22	-0.78	0.29	-0.01	-16.36	-5.54	0.1	-1.50	-0.67	-0.27	-0.03	0.56	0.03	0.00	0.60	20.81	3152.06	4.5	1
FRP	Splice	Origin	35.22	-0.78	0.29	-0.01	-16.36	-5.54	0.1	-1.74	-0.71	-0.29	-0.04	0.56	0.03	0.00	0.60	19.57	2337.71	6.0	1
FRP	SpliceB	End	38.44	-0.60	0.23	-0.01	-18.64	-6.48	0.1	-1.74	-0.71	-0.29	-0.04	0.61	0.03	0.00	0.65	19.57	2337.71	6.6	1
FRP	SpliceB	Origin	38.44	-0.60	0.23	-0.01	-18.64	-6.48	0.1	-1.94	-0.75	-0.31	-0.04	0.61	0.03	0.00	0.65	19.57	2337.71	6.7	1
FRP	Tube 3	End	42.44	-0.40	0.15	-0.00	-21.63	-7.73	0.1	-1.94	-0.75	-0.31	-0.04	0.67	0.03	0.00	0.71	19.57	2337.71	7.5	1
FRP	Tube 3	Origin	42.44	-0.40	0.15	-0.00	-21.63	-7.73	0.1	-2.09	-0.79	-0.34	-0.04	0.67	0.04	0.00	0.72	19.57	2337.71	7.5	1
FRP	Tube 3	End	46.44	-0.24	0.09	-0.00	-24.80	-9.09	0.1	-2.09	-0.79	-0.34	-0.04	0.73	0.03	0.00	0.77	19.57	2337.71	8.3	1
FRP	Tube 3	Origin	46.44	-0.24	0.09	-0.00	-24.80	-9.09	0.1	-2.25	-0.84	-0.37	-0.04	0.73	0.04	0.00	0.78	19.57	2337.71	8.3	1
FRP	Tube 3	End	50.44	-0.12	0.05	-0.00	-28.14	-10.55	0.1	-2.25	-0.84	-0.37	-0.04	0.79	0.04	0.00	0.83	19.57	2337.71	9.4	1
FRP	Tube 3	Origin	50.44	-0.12	0.05	-0.00	-28.14	-10.55	0.1	-2.41	-0.88	-0.39	-0.05	0.79	0.04	0.00	0.84	19.57	2337.71	9.2	1
FRP	Tube 3	End	54.44	-0.04	0.02	-0.00	-31.66	-12.12	0.1	-2.41	-0.88	-0.39	-0.05	0.84	0.04	0.00	0.89	19.57	2337.71	10.1	1
FRP	Tube 3	Origin	54.44	-0.04	0.02	-0.00	-31.66	-12.12	0.1	-2.55	-0.92	-0.41	-0.05	0.84	0.04	0.00	0.89	19.57	2337.71	10.1	1
FRP	Tube 3	End	57.22	-0.01	0.00	-0.00	-34.21	-13.26	0.1	-2.55	-0.92	-0.41	-0.05	0.88	0.04	0.00	0.93	19.57	2337.71	10.7	1
FRP	Tube 3	Origin	57.22	-0.01	0.00	-0.00	-34.21	-13.26	0.1	-2.67	-0.95	-0.43	-0.05	0.88	0.04	0.00	0.93	19.57	2337.71	10.8	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	-36.85	-14.46	0.1	-2.67	-0.95	-0.43	-0.05	0.92	0.04	0.00	0.97	19.57	2337.71	11.4	1

Service Loads Check:

Joint Label	Elevation (ft)	Actual Twist (deg)	Allowable Twist (deg)	Twist Usage %	Actual Sway (deg)	Allowable Sway (deg)	Sway Usage %	Actual Disp. (ft)	Allowable Disp. (ft)	Disp. Usage %	Max. Usage %
FRP:t	59.99	0.00	4.00	0.1	0.43	4.00	10.7	0.31	1.80	17.1	17.1
FRP:ant	57.99	0.00	4.00	0.1	0.43	4.00	10.7	0.29	1.80	16.3	16.3
#FRP:0	57.30	0.00	4.00	0.1	0.43	4.00	10.7	0.29	1.80	16.0	16.0
#FRP:1	54.70	0.00	4.00	0.1	0.43	4.00	10.7	0.27	1.80	14.9	14.9
#FRP:2	52.10	0.00	4.00	0.1	0.42	4.00	10.6	0.25	1.80	13.8	13.8
#FRP:3	48.10	0.00	4.00	0.1	0.42	4.00	10.4	0.22	1.80	12.2	12.2
#FRP:4	44.10	0.00	4.00	0.0	0.40	4.00	10.1	0.19	1.80	10.6	10.6
#FRP:5	40.10	0.00	4.00	0.0	0.39	4.00	9.7	0.16	1.80	9.1	9.7
#FRP:6	36.10	0.00	4.00	0.0	0.37	4.00	9.3	0.14	1.80	7.6	9.3
#FRP:7	32.10	0.00	4.00	0.0	0.35	4.00	8.7	0.11	1.80	6.2	8.7
#FRP:8	30.05	0.00	4.00	0.0	0.34	4.00	8.4	0.10	1.80	5.5	8.4
#FRP:9	28.00	0.00	4.00	0.0	0.32	4.00	8.1	0.09	1.80	4.8	8.1
#FRP:10	24.77	0.00	4.00	0.0	0.30	4.00	7.6	0.07	1.80	3.9	7.6
#FRP:11	21.55	0.00	4.00	0.0	0.27	4.00	6.7	0.05	1.80	3.0	6.7
#FRP:12	17.55	0.00	4.00	0.0	0.22	4.00	5.6	0.04	1.80	2.0	5.6
#FRP:13	13.55	0.00	4.00	0.0	0.18	4.00	4.4	0.02	1.80	1.2	4.4
#FRP:14	9.55	0.00	4.00	0.0	0.13	4.00	3.2	0.01	1.80	0.6	3.2
#FRP:15	5.55	0.00	4.00	0.0	0.08	4.00	1.9	0.00	1.80	0.2	1.9
#FRP:16	2.78	0.00	4.00	0.0	0.04	4.00	1.0	0.00	1.80	0.1	1.0

Equilibrium Joint Positions and Rotations for Load Case "Wind service 60":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.1045	0.2897	-0.001629	-0.4057	0.1412	0.0013	0.1045	0.2897	59.99
FRP:ant	0.09962	0.2756	-0.001572	-0.4057	0.1412	0.0013	0.09962	0.2756	57.99

Joint Support Reactions for Load Case "Wind service 60":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Force (kips)	H-Shear Usage %	Z Comp. Force (kips)	Z Comp. Usage %	Uplift Result. (ft-k)	Result. Moment (ft-k)	X-M. Usage %	Y-M. Usage %	H-Bend-Moment (ft-k)	Z-M. Usage %	Max. Usage %
FRP:g	-0.44	0.0	-0.97	0.0	0.0	-2.73	0.0	0.0	2.93	0.0	36.85	0.0	-14.5	0.0	0.0

Detailed FRP Pole Usages for Load Case "Wind service 60":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Defl. (Local Mx) (ft-k)	Mom. (Local My) (ft-k)	Tors. Mom. (kips)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage (ksi)	At Pt. %
FRP	FRP:t	Origin	0.00	3.48	1.25	-0.02	-0.00	0.00	0.0	-0.03	0.01	-0.01	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	3.31	1.20	-0.02	0.02	-0.01	0.0	-0.03	0.01	-0.01	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	3.31	1.20	-0.02	0.02	-0.01	0.0	-0.26	0.30	-0.06	-0.01	0.00	0.02	0.00	0.03	23.37	3165.94	0.0	1
FRP	SpliceT	End	2.70	3.25	1.17	-0.02	0.23	-0.05	0.0	-0.26	0.30	-0.06	-0.01	0.01	0.02	0.00	0.04	23.37	3165.94	0.1	1
FRP	SpliceT	Origin	2.70	3.25	1.17	-0.02	0.23	-0.05	0.0	-0.35	0.32	-0.07	-0.01	0.01	0.02	0.00	0.04	23.37	3165.94	0.1	1
FRP	Splice	End	5.30	3.03	1.10	-0.02	1.07	-0.23	0.0	-0.35	0.32	-0.07	-0.01	0.05	0.02	0.00	0.07	23.37	3165.94	0.4	1
FRP	Splice	Origin	5.30	3.03	1.10	-0.02	1.07	-0.23	0.0	-0.50	0.35	-0.09	-0.01	0.05	0.02	0.00	0.08	20.81	3152.06	0.4	1
FRP	SpliceB	End	7.90	2.81	1.02	-0.02	1.98	-0.46	0.0	-0.50	0.35	-0.09	-0.01	0.10	0.02	0.00	0.12	20.81	3152.06	0.7	1
FRP	SpliceB	Origin	7.90	2.81	1.02	-0.02	1.98	-0.46	0.0	-0.64	0.39	-0.11	-0.02	0.10	0.02	0.00	0.12	20.81	3152.06	0.7	1
FRP	Tube 2	End	11.90	2.47	0.90	-0.02	3.54	-0.89	0.0	-0.64	0.39	-0.11	-0.02	0.16	0.02	0.00	0.18	20.81	3152.06	1.1	1
FRP	Tube 2	Origin	11.90	2.47	0.90	-0.02	3.54	-0.89	0.0	-0.77	0.44	-0.13	-0.02	0.16	0.02	0.00	0.19	20.81	3152.06	1.2	1
FRP	Tube 2	End	15.90	2.15	0.79	-0.01	5.28	-1.42	0.0	-0.77	0.44	-0.13	-0.02	0.23	0.02	0.00	0.25	20.81	3152.06	1.6	1
FRP	Tube 2	Origin	15.90	2.15	0.79	-0.01	5.28	-1.42	0.0	-0.89	0.48	-0.16	-0.02	0.23	0.02	0.00	0.25	20.81	3152.06	1.7	1
FRP	Tube 2	End	19.90	1.84	0.68	-0.01	7.21	-2.06	0.0	-0.89	0.48	-0.16	-0.02	0.29	0.02	0.00	0.31	20.81	3152.06	2.1	1
FRP	Tube 2	Origin	19.90	1.84	0.68	-0.01	7.21	-2.06	0.0	-1.03	0.53	-0.19	-0.02	0.29	0.03	0.00	0.32	20.81	3152.06	2.2	1
FRP	Tube 2	End	23.90	1.54	0.57	-0.01	9.33	-2.82	0.0	-1.03	0.53	-0.19	-0.02	0.35	0.03	0.00	0.38	20.81	3152.06	2.7	1
FRP	Tube 2	Origin	23.90	1.54	0.57	-0.01	9.33	-2.82	0.0	-1.16	0.58	-0.22	-0.03	0.35	0.03	0.00	0.38	20.81	3152.06	2.7	1
FRP	Tube 2	End	27.90	1.25	0.47	-0.01	11.64	-3.68	0.0	-1.16	0.58	-0.22	-0.03	0.42	0.03	0.00	0.44	20.81	3152.06	3.2	1
FRP	Tube 2	Origin	27.90	1.25	0.47	-0.01	11.64	-3.68	0.0	-1.27	0.61	-0.24	-0.03	0.42	0.03	0.00	0.45	20.81	3152.06	3.2	1
FRP	Tube 2	End	29.95	1.11	0.42	-0.01	12.90	-4.16	0.0	-1.27	0.61	-0.24	-0.03	0.45	0.03	0.00	0.48	20.81	3152.06	3.5	1
FRP	Tube 2	Origin	29.95	1.11	0.42	-0.01	12.90	-4.16	0.0	-1.35	0.64	-0.25	-0.03	0.45	0.03	0.00	0.48	20.81	3152.06	3.5	1
FRP	SpliceT	End	32.00	0.98	0.37	-0.01	14.21	-4.68	0.0	-1.35	0.64	-0.25	-0.03	0.48	0.03	0.00	0.51	20.81	3152.06	3.8	1
FRP	SpliceT	Origin	32.00	0.98	0.37	-0.01	14.21	-4.68	0.0	-1.50	0.67	-0.27	-0.03	0.48	0.03	0.00	0.51	20.81	3152.06	3.8	1
FRP	Splice	End	35.22	0.78	0.29	-0.01	16.36	-5.54	0.0	-1.50	0.67	-0.27	-0.03	0.56	0.03	0.00	0.60	20.81	3152.06	4.5	1
FRP	Splice	Origin	35.22	0.78	0.29	-0.01	16.36	-5.54	0.0	-1.74	0.71	-0.29	-0.04	0.56	0.03	0.00	0.60	19.57	2337.71	6.0	1
FRP	SpliceB	End	38.44	0.60	0.23	-0.01	18.64	-6.48	0.0	-1.74	0.71	-0.29	-0.04	0.61	0.03	0.00	0.65	19.57	2337.71	6.6	1
FRP	SpliceB	Origin	38.44	0.60	0.23	-0.01	18.64	-6.48	0.0	-1.94	0.75	-0.31	-0.04	0.61	0.03	0.00	0.65	19.57	2337.71	6.7	1
FRP	Tube 3	End	42.44	0.40	0.15	-0.00	21.63	-7.73	0.0	-1.94	0.75	-0.31	-0.04	0.67	0.03	0.00	0.71	19.57	2337.71	7.5	1
FRP	Tube 3	Origin	42.44	0.40	0.15	-0.00	21.63	-7.73	0.0	-2.09	0.79	-0.34	-0.04	0.67	0.04	0.00	0.72	19.57	2337.71	7.5	1
FRP	Tube 3	End	46.44	0.24	0.09	-0.00	24.80	-9.09	0.0	-2.09	0.79	-0.34	-0.04	0.73	0.03	0.00	0.77	19.57	2337.71	8.3	1
FRP	Tube 3	Origin	46.44	0.24	0.09	-0.00	24.80	-9.09	0.0	-2.25	0.84	-0.37	-0.04	0.73	0.04	0.00	0.78	19.57	2337.71	8.4	1
FRP	Tube 3	End	50.44	0.12	0.05	-0.00	28.14	-10.55	0.0	-2.25	0.84	-0.37	-0.04	0.79	0.04	0.00	0.83	19.57	2337.71	9.2	1
FRP	Tube 3	Origin	50.44	0.12	0.05	-0.00	28.14	-10.55	0.0	-2.41	0.88	-0.39	-0.05	0.79	0.04	0.00	0.84	19.57	2337.71	9.2	1
FRP	Tube 3	End	54.44	0.04	0.02	-0.00	31.66	-12.12	0.0	-2.41	0.88	-0.39	-0.05	0.84	0.04	0.00	0.89	19.57	2337.71	10.1	1
FRP	Tube 3	Origin	54.44	0.04	0.02	-0.00	31.66	-12.12	0.0	-2.55	0.92	-0.41	-0.05	0.84	0.04	0.00	0.89	19.57	2337.71	10.1	1
FRP	Tube 3	End	57.22	0.01	0.00	-0.00	34.21	-13.26	0.0	-2.55	0.92	-0.41	-0.05	0.88	0.04	0.00	0.93	19.57	2337.71	10.7	1
FRP	Tube 3	Origin	57.22	0.01	0.00	-0.00	34.21	-13.26	0.0	-2.67	0.95	-0.43	-0.05	0.88	0.04	0.00	0.93	19.57	2337.71	10.8	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	36.85	-14.46	0.0	-2.67	0.95	-0.43	-0.05	0.92	0.04	0.00	0.97	19.57	2337.71	11.4	1

Service Loads Check:

Joint Label	Elevation (ft)	Actual Twist (deg)	Allowable Twist (deg)	Twist Usage %	Actual Sway (deg)	Allowable Sway (deg)	Sway Usage %	Actual Disp. (ft)	Allowable Disp. (ft)	Disp. Usage %	Max. Usage %
FRP:t	59.99	0.00	4.00	0.0	0.43	4.00	10.7	0.31	1.80	17.1	17.1
FRP:ant	57.99	0.00	4.00	0.0	0.43	4.00	10.7	0.29	1.80	16.3	16.3
#FRP:0	57.30	0.00	4.00	0.0	0.43	4.00	10.7	0.29	1.80	16.0	16.0
#FRP:1	54.70	0.00	4.00	0.0	0.43	4.00	10.7	0.27	1.80	14.9	14.9
#FRP:2	52.10	0.00	4.00	0.0	0.42	4.00	10.6	0.25	1.80	13.8	13.8
#FRP:3	48.10	0.00	4.00	0.0	0.42	4.00	10.4	0.22	1.80	12.2	12.2
#FRP:4	44.10	0.00	4.00	0.0	0.40	4.00	10.1	0.19	1.80	10.6	10.6
#FRP:5	40.10	0.00	4.00	0.0	0.39	4.00	9.7	0.16	1.80	9.1	9.7
#FRP:6	36.10	0.00	4.00	0.0	0.37	4.00	9.3	0.14	1.80	7.6	9.3
#FRP:7	32.10	0.00	4.00	0.0	0.35	4.00	8.7	0.11	1.80	6.2	8.7
#FRP:8	30.05	0.00	4.00	0.0	0.34	4.00	8.4	0.10	1.80	5.5	8.4
#FRP:9	28.00	0.00	4.00	0.0	0.32	4.00	8.1	0.09	1.80	4.8	8.1
#FRP:10	24.77	0.00	4.00	0.0	0.30	4.00	7.6	0.07	1.80	3.9	7.6
#FRP:11	21.55	0.00	4.00	0.0	0.27	4.00	6.7	0.05	1.80	3.0	6.7
#FRP:12	17.55	0.00	4.00	0.0	0.22	4.00	5.6	0.04	1.80	2.0	5.6
#FRP:13	13.55	0.00	4.00	0.0	0.18	4.00	4.4	0.02	1.80	1.2	4.4
#FRP:14	9.55	0.00	4.00	0.0	0.13	4.00	3.2	0.01	1.80	0.6	3.2
#FRP:15	5.55	0.00	4.00	0.0	0.08	4.00	1.9	0.00	1.80	0.2	1.9
#FRP:16	2.78	0.00	4.00	0.0	0.04	4.00	1.0	0.00	1.80	0.1	1.0

Equilibrium Joint Positions and Rotations for Load Case "Wind service -45":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.1477	-0.2525	-0.001535	0.3549	0.1995	0.0037	0.1477	-0.2525	59.99
FRP:ant	0.1408	-0.2401	-0.001484	0.3548	0.1995	0.0037	0.1408	-0.2401	57.99

Joint Support Reactions for Load Case "Wind service -45":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	Y H-Shear %	Z Force (kips)	Z Usage %	Comp. Usage %	Uplift (ft-k)	Result. Moment %	Result. Usage (ft-k)	X-M. Moment %	X-M. Usage (ft-k)	Y-M. Usage %	H-Bend-M %	Z-M. Moment %	Z-M. Usage (ft-k)	Max. Usage %
FRP:g	-0.62	0.0	0.82	0.0	0.0	-2.73	0.0	0.0	2.92	0.0	-31.81	0.0	-20.4	0.0	0.0	-0.09	0.0	0.0

Detailed FRP Pole Usages for Load Case "Wind service -45":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. (Local Mx) (ft-k)	Mom. (Local My) (ft-k)	Tors. (kips)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage (ksi)	At Pt. %
FRP	FRP:t	Origin	0.00	-3.03	1.77	-0.02	0.00	0.00	-0.0	-0.03	-0.01	-0.01	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	-2.88	1.69	-0.02	-0.02	-0.02	-0.0	-0.03	-0.01	-0.01	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	-2.88	1.69	-0.02	-0.02	-0.02	0.1	-0.26	-0.28	-0.08	-0.01	0.00	0.02	0.00	0.03	23.37	3165.94	0.0	1
FRP	SpliceT	End	2.70	-2.83	1.66	-0.02	-0.21	-0.08	0.1	-0.26	-0.28	-0.08	-0.01	0.01	0.02	0.00	0.04	23.37	3165.94	0.1	1
FRP	SpliceT	Origin	2.70	-2.83	1.66	-0.02	-0.21	-0.08	0.1	-0.35	-0.29	-0.10	-0.01	0.01	0.02	0.00	0.04	23.37	3165.94	0.1	1
FRP	Splice	End	5.30	-2.64	1.55	-0.02	-0.97	-0.33	0.1	-0.35	-0.29	-0.10	-0.01	0.05	0.02	0.00	0.07	23.37	3165.94	0.4	1
FRP	Splice	Origin	5.30	-2.64	1.55	-0.02	-0.97	-0.33	0.1	-0.50	-0.32	-0.12	-0.01	0.05	0.02	0.00	0.07	20.81	3152.06	0.4	1
FRP	SpliceB	End	7.90	-2.44	1.44	-0.02	-1.79	-0.64	0.1	-0.50	-0.32	-0.12	-0.01	0.09	0.02	0.00	0.11	20.81	3152.06	0.6	1
FRP	SpliceB	Origin	7.90	-2.44	1.44	-0.02	-1.79	-0.64	0.1	-0.64	-0.35	-0.15	-0.02	0.09	0.02	0.00	0.11	20.81	3152.06	0.7	1
FRP	Tube 2	End	11.90	-2.15	1.28	-0.01	-3.18	-1.25	0.1	-0.64	-0.35	-0.15	-0.02	0.15	0.02	0.00	0.17	20.81	3152.06	1.1	1
FRP	Tube 2	Origin	11.90	-2.15	1.28	-0.01	-3.18	-1.25	0.1	-0.77	-0.39	-0.19	-0.02	0.15	0.02	0.00	0.18	20.81	3152.06	1.1	1
FRP	Tube 2	End	15.90	-1.87	1.12	-0.01	-4.73	-2.01	0.1	-0.77	-0.39	-0.19	-0.02	0.21	0.02	0.00	0.23	20.81	3152.06	1.5	1
FRP	Tube 2	Origin	15.90	-1.87	1.12	-0.01	-4.73	-2.01	0.1	-0.89	-0.42	-0.23	-0.02	0.21	0.02	0.00	0.24	20.81	3152.06	1.6	1
FRP	Tube 2	End	19.90	-1.60	0.96	-0.01	-6.42	-2.92	0.1	-0.89	-0.42	-0.23	-0.02	0.27	0.02	0.00	0.30	20.81	3152.06	2.0	1
FRP	Tube 2	Origin	19.90	-1.60	0.96	-0.01	-6.42	-2.92	0.1	-1.03	-0.46	-0.27	-0.02	0.27	0.03	0.00	0.30	20.81	3152.06	2.0	1
FRP	Tube 2	End	23.90	-1.33	0.81	-0.01	-8.27	-3.98	0.1	-1.03	-0.46	-0.27	-0.02	0.33	0.02	0.00	0.36	20.81	3152.06	2.5	1
FRP	Tube 2	Origin	23.90	-1.33	0.81	-0.01	-8.27	-3.98	0.1	-1.17	-0.50	-0.30	-0.03	0.33	0.03	0.00	0.36	20.81	3152.06	2.5	1
FRP	Tube 2	End	27.90	-1.09	0.66	-0.01	-10.27	-5.20	0.1	-1.17	-0.50	-0.30	-0.03	0.39	0.03	0.00	0.42	20.81	3152.06	3.1	1
FRP	Tube 2	Origin	27.90	-1.09	0.66	-0.01	-10.27	-5.20	0.1	-1.27	-0.53	-0.33	-0.03	0.39	0.03	0.00	0.42	20.81	3152.06	3.1	1
FRP	Tube 2	End	29.95	-0.96	0.59	-0.01	-11.36	-5.88	0.1	-1.27	-0.53	-0.33	-0.03	0.42	0.03	0.00	0.45	20.81	3152.06	3.3	1
FRP	Tube 2	Origin	29.95	-0.96	0.59	-0.01	-11.36	-5.88	0.1	-1.35	-0.55	-0.35	-0.03	0.42	0.03	0.00	0.46	20.81	3152.06	3.4	1
FRP	SpliceT	End	32.00	-0.85	0.52	-0.01	-12.49	-6.61	0.1	-1.35	-0.55	-0.35	-0.03	0.45	0.03	0.00	0.48	20.81	3152.06	3.6	1
FRP	SpliceT	Origin	32.00	-0.85	0.52	-0.01	-12.49	-6.61	0.1	-1.50	-0.58	-0.38	-0.03	0.45	0.03	0.00	0.49	20.81	3152.06	3.6	1
FRP	Splice	End	35.22	-0.68	0.42	-0.01	-14.35	-7.83	0.1	-1.50	-0.58	-0.38	-0.03	0.53	0.03	0.00	0.57	20.81	3152.06	4.2	1
FRP	Splice	Origin	35.22	-0.68	0.42	-0.01	-14.35	-7.83	0.1	-1.74	-0.61	-0.41	-0.04	0.53	0.03	0.00	0.57	19.57	2337.71	5.7	1
FRP	SpliceB	End	38.44	-0.52	0.32	-0.01	-16.30	-9.15	0.1	-1.74	-0.61	-0.41	-0.04	0.58	0.03	0.00	0.62	19.57	2337.71	6.3	1
FRP	SpliceB	Origin	38.44	-0.52	0.32	-0.01	-16.30	-9.15	0.1	-1.94	-0.64	-0.44	-0.04	0.58	0.03	0.00	0.62	19.57	2337.71	6.3	1
FRP	Tube 3	End	42.44	-0.35	0.22	-0.00	-18.87	-10.92	0.1	-1.94	-0.64	-0.44	-0.04	0.64	0.03	0.00	0.68	19.57	2337.71	7.1	1
FRP	Tube 3	Origin	42.44	-0.35	0.22	-0.00	-18.87	-10.92	0.1	-2.09	-0.68	-0.48	-0.04	0.64	0.03	0.00	0.68	19.57	2337.71	7.1	1
FRP	Tube 3	End	46.44	-0.21	0.13	-0.00	-21.57	-12.84	0.1	-2.09	-0.68	-0.48	-0.04	0.69	0.03	0.00	0.74	19.57	2337.71	7.9	1
FRP	Tube 3	Origin	46.44	-0.21	0.13	-0.00	-21.57	-12.84	0.1	-2.25	-0.71	-0.52	-0.04	0.69	0.03	0.00	0.74	19.57	2337.71	8.0	1
FRP	Tube 3	End	50.44	-0.11	0.07	-0.00	-24.42	-14.91	0.1	-2.25	-0.71	-0.52	-0.04	0.75	0.03	0.00	0.79	19.57	2337.71	8.8	1
FRP	Tube 3	Origin	50.44	-0.11	0.07	-0.00	-24.42	-14.91	0.1	-2.41	-0.75	-0.55	-0.05	0.75	0.04	0.00	0.80	19.57	2337.71	8.8	1
FRP	Tube 3	End	54.44	-0.04	0.02	-0.00	-27.41	-17.12	0.1	-2.41	-0.75	-0.55	-0.05	0.80	0.04	0.00	0.85	19.57	2337.71	9.7	1
FRP	Tube 3	Origin	54.44	-0.04	0.02	-0.00	-27.41	-17.12	0.1	-2.55	-0.78	-0.58	-0.05	0.80	0.04	0.00	0.85	19.57	2337.71	9.7	1
FRP	Tube 3	End	57.22	-0.01	0.01	-0.00	-29.58	-18.74	0.1	-2.55	-0.78	-0.58	-0.05	0.84	0.04	0.00	0.89	19.57	2337.71	10.3	1
FRP	Tube 3	Origin	57.22	-0.01	0.01	-0.00	-29.58	-18.74	0.1	-2.67	-0.81	-0.61	-0.05	0.84	0.04	0.00	0.89	19.57	2337.71	10.3	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	-31.81	-20.44	0.1	-2.67	-0.81	-0.61	-0.05	0.87	0.04	0.00	0.93	19.57	2337.71	10.9	1

Service Loads Check:

Joint Label	Elevation (ft)	Actual Twist (deg)	Allowable Twist (deg)	Twist Usage %	Actual Sway (deg)	Allowable Sway (deg)	Sway Usage %	Actual Disp. (ft)	Allowable Disp. (ft)	Disp. Usage %	Max. Usage %
FRP:t	59.99	0.00	4.00	0.1	0.41	4.00	10.2	0.29	1.80	16.3	16.3
FRP:ant	57.99	0.00	4.00	0.1	0.41	4.00	10.2	0.28	1.80	15.5	15.5
#FRP:0	57.30	0.00	4.00	0.1	0.41	4.00	10.2	0.27	1.80	15.2	15.2
#FRP:1	54.70	0.00	4.00	0.1	0.41	4.00	10.1	0.25	1.80	14.2	14.2
#FRP:2	52.10	0.00	4.00	0.1	0.40	4.00	10.1	0.24	1.80	13.1	13.1
#FRP:3	48.10	0.00	4.00	0.1	0.39	4.00	9.9	0.21	1.80	11.6	11.6
#FRP:4	44.10	0.00	4.00	0.1	0.38	4.00	9.6	0.18	1.80	10.1	10.1
#FRP:5	40.10	0.00	4.00	0.1	0.37	4.00	9.2	0.16	1.80	8.6	9.2
#FRP:6	36.10	0.00	4.00	0.0	0.35	4.00	8.8	0.13	1.80	7.2	8.8
#FRP:7	32.10	0.00	4.00	0.0	0.33	4.00	8.3	0.11	1.80	5.9	8.3
#FRP:8	30.05	0.00	4.00	0.0	0.32	4.00	8.0	0.09	1.80	5.2	8.0
#FRP:9	28.00	0.00	4.00	0.0	0.31	4.00	7.7	0.08	1.80	4.6	7.7
#FRP:10	24.77	0.00	4.00	0.0	0.29	4.00	7.2	0.07	1.80	3.7	7.2
#FRP:11	21.55	0.00	4.00	0.0	0.26	4.00	6.4	0.05	1.80	2.8	6.4
#FRP:12	17.55	0.00	4.00	0.0	0.21	4.00	5.3	0.03	1.80	1.9	5.3
#FRP:13	13.55	0.00	4.00	0.0	0.17	4.00	4.2	0.02	1.80	1.2	4.2
#FRP:14	9.55	0.00	4.00	0.0	0.12	4.00	3.0	0.01	1.80	0.6	3.0
#FRP:15	5.55	0.00	4.00	0.0	0.07	4.00	1.8	0.00	1.80	0.2	1.8
#FRP:16	2.78	0.00	4.00	0.0	0.04	4.00	0.9	0.00	1.80	0.1	0.9

Equilibrium Joint Positions and Rotations for Load Case "Wind service 45":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.1477	0.2525	-0.001535	-0.3549	0.1995	-0.0037	0.1477	0.2525	59.99
FRP:ant	0.1408	0.2401	-0.001484	-0.3548	0.1995	-0.0037	0.1408	0.2401	57.99

Joint Support Reactions for Load Case "Wind service 45":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	Y H-Shear %	Z Force (kips)	Z Usage %	Comp. Usage %	Uplift (kips)	Result. Moment % (ft-k)	Result. Moment % (ft-k)	X-M. Moment Usage % (ft-k)	Y-M. Moment Usage % (ft-k)	H-Bend-M Usage %	Z-M. Moment Usage %	Max. Usage %
FRP:g	-0.62	0.0	-0.82	0.0	0.0	-2.73	0.0	0.0	2.92	0.0	31.81	0.0	-20.4	0.0	0.0	0.0

Detailed FRP Pole Usages for Load Case "Wind service 45":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Defl. (Local Mx) (ft-k)	Mom. (Local My) (ft-k)	Tors. Mom. (kips)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage	At Pt. %
FRP	FRP:t	Origin	0.00	3.03	1.77	-0.02	-0.00	0.00	0.0	-0.03	0.01	-0.01	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	2.88	1.69	-0.02	0.02	-0.02	0.0	-0.03	0.01	-0.01	-0.00	0.00	0.00	0.00	0.00	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	2.88	1.69	-0.02	0.02	-0.02	-0.1	-0.26	0.28	-0.08	-0.01	0.00	0.02	0.00	0.03	23.37	3165.94	0.0	1
FRP	SpliceT	End	2.70	2.83	1.66	-0.02	0.21	-0.08	-0.1	-0.26	0.28	-0.08	-0.01	0.01	0.02	0.00	0.04	23.37	3165.94	0.1	1
FRP	SpliceT	Origin	2.70	2.83	1.66	-0.02	0.21	-0.08	-0.1	-0.35	0.29	-0.10	-0.01	0.01	0.02	0.00	0.04	23.37	3165.94	0.1	1
FRP	Splice	End	5.30	2.64	1.55	-0.02	0.97	-0.33	-0.1	-0.35	0.29	-0.10	-0.01	0.05	0.02	0.00	0.07	23.37	3165.94	0.4	1
FRP	Splice	Origin	5.30	2.64	1.55	-0.02	0.97	-0.33	-0.1	-0.50	0.32	-0.12	-0.01	0.05	0.02	0.00	0.07	20.81	3152.06	0.4	1
FRP	SpliceB	End	7.90	2.44	1.44	-0.02	1.79	-0.64	-0.1	-0.50	0.32	-0.12	-0.01	0.09	0.02	0.00	0.11	20.81	3152.06	0.6	1
FRP	SpliceB	Origin	7.90	2.44	1.44	-0.02	1.79	-0.64	-0.1	-0.64	0.35	-0.15	-0.02	0.09	0.02	0.00	0.11	20.81	3152.06	0.7	1
FRP	Tube 2	End	11.90	2.15	1.28	-0.01	3.18	-1.25	-0.1	-0.64	0.35	-0.15	-0.02	0.15	0.02	0.00	0.17	20.81	3152.06	1.1	1
FRP	Tube 2	Origin	11.90	2.15	1.28	-0.01	3.18	-1.25	-0.1	-0.77	0.39	-0.19	-0.02	0.15	0.02	0.00	0.18	20.81	3152.06	1.1	1
FRP	Tube 2	End	15.90	1.87	1.12	-0.01	4.73	-2.01	-0.1	-0.77	0.39	-0.19	-0.02	0.21	0.02	0.00	0.23	20.81	3152.06	1.5	1
FRP	Tube 2	Origin	15.90	1.87	1.12	-0.01	4.73	-2.01	-0.1	-0.89	0.42	-0.23	-0.02	0.21	0.02	0.00	0.24	20.81	3152.06	1.6	1
FRP	Tube 2	End	19.90	1.60	0.96	-0.01	6.42	-2.92	-0.1	-0.89	0.42	-0.23	-0.02	0.27	0.02	0.00	0.30	20.81	3152.06	2.0	1
FRP	Tube 2	Origin	19.90	1.60	0.96	-0.01	6.42	-2.92	-0.1	-1.03	0.46	-0.27	-0.02	0.27	0.03	0.00	0.30	20.81	3152.06	2.0	1
FRP	Tube 2	End	23.90	1.33	0.81	-0.01	8.27	-3.98	-0.1	-1.03	0.46	-0.27	-0.02	0.33	0.02	0.00	0.36	20.81	3152.06	2.5	1
FRP	Tube 2	Origin	23.90	1.33	0.81	-0.01	8.27	-3.98	-0.1	-1.17	0.50	-0.30	-0.03	0.33	0.03	0.00	0.36	20.81	3152.06	2.5	1
FRP	Tube 2	End	27.90	1.09	0.66	-0.01	10.27	-5.20	-0.1	-1.17	0.50	-0.30	-0.03	0.39	0.03	0.00	0.42	20.81	3152.06	3.1	1
FRP	Tube 2	Origin	27.90	1.09	0.66	-0.01	10.27	-5.20	-0.1	-1.27	0.53	-0.33	-0.03	0.39	0.03	0.00	0.42	20.81	3152.06	3.1	1
FRP	Tube 2	End	29.95	0.96	0.59	-0.01	11.36	-5.88	-0.1	-1.27	0.53	-0.33	-0.03	0.42	0.03	0.00	0.45	20.81	3152.06	3.3	1
FRP	Tube 2	Origin	29.95	0.96	0.59	-0.01	11.36	-5.88	-0.1	-1.35	0.55	-0.35	-0.03	0.42	0.03	0.00	0.46	20.81	3152.06	3.4	1
FRP	SpliceT	End	32.00	0.85	0.52	-0.01	12.49	-6.61	-0.1	-1.35	0.55	-0.35	-0.03	0.45	0.03	0.00	0.48	20.81	3152.06	3.6	1
FRP	SpliceT	Origin	32.00	0.85	0.52	-0.01	12.49	-6.61	-0.1	-1.50	0.58	-0.38	-0.03	0.45	0.03	0.00	0.49	20.81	3152.06	3.6	1
FRP	Splice	End	35.22	0.68	0.42	-0.01	14.35	-7.83	-0.1	-1.50	0.58	-0.38	-0.03	0.53	0.03	0.00	0.57	20.81	3152.06	4.2	1
FRP	Splice	Origin	35.22	0.68	0.42	-0.01	14.35	-7.83	-0.1	-1.74	0.61	-0.41	-0.04	0.53	0.03	0.00	0.57	19.57	2337.71	5.7	1
FRP	SpliceB	End	38.44	0.52	0.32	-0.01	16.30	-9.15	-0.1	-1.74	0.61	-0.41	-0.04	0.58	0.03	0.00	0.62	19.57	2337.71	6.3	1
FRP	SpliceB	Origin	38.44	0.52	0.32	-0.01	16.30	-9.15	-0.1	-1.94	0.64	-0.44	-0.04	0.58	0.03	0.00	0.62	19.57	2337.71	6.3	1
FRP	Tube 3	End	42.44	0.35	0.22	-0.00	18.87	-10.92	-0.1	-1.94	0.64	-0.44	-0.04	0.64	0.03	0.00	0.68	19.57	2337.71	7.1	1
FRP	Tube 3	Origin	42.44	0.35	0.22	-0.00	18.87	-10.92	-0.1	-2.09	0.68	-0.48	-0.04	0.64	0.03	0.00	0.68	19.57	2337.71	7.1	1
FRP	Tube 3	End	46.44	0.21	0.13	-0.00	21.57	-12.84	-0.1	-2.09	0.68	-0.48	-0.04	0.69	0.03	0.00	0.74	19.57	2337.71	7.9	1
FRP	Tube 3	Origin	46.44	0.21	0.13	-0.00	21.57	-12.84	-0.1	-2.25	0.71	-0.52	-0.04	0.69	0.03	0.00	0.74	19.57	2337.71	8.0	1
FRP	Tube 3	End	50.44	0.11	0.07	-0.00	24.42	-14.91	-0.1	-2.25	0.71	-0.52	-0.04	0.75	0.03	0.00	0.79	19.57	2337.71	8.8	1
FRP	Tube 3	Origin	50.44	0.11	0.07	-0.00	24.42	-14.91	-0.1	-2.41	0.75	-0.55	-0.05	0.75	0.04	0.00	0.80	19.57	2337.71	8.8	1
FRP	Tube 3	End	54.44	0.04	0.02	-0.00	27.41	-17.12	-0.1	-2.41	0.75	-0.55	-0.05	0.80	0.04	0.00	0.85	19.57	2337.71	9.7	1
FRP	Tube 3	Origin	54.44	0.04	0.02	-0.00	27.41	-17.12	-0.1	-2.55	0.78	-0.58	-0.05	0.80	0.04	0.00	0.85	19.57	2337.71	9.7	1
FRP	Tube 3	End	57.22	0.01	0.01	-0.00	29.58	-18.74	-0.1	-2.55	0.78	-0.58	-0.05	0.84	0.04	0.00	0.89	19.57	2337.71	10.3	1
FRP	Tube 3	Origin	57.22	0.01	0.01	-0.00	29.58	-18.74	-0.1	-2.67	0.81	-0.61	-0.05	0.84	0.04	0.00	0.89	19.57	2337.71	10.3	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	31.81	-20.44	-0.1	-2.67	0.81	-0.61	-0.05	0.87	0.04	0.00	0.93	19.57	2337.71	10.9	1

Service Loads Check:

Joint Label	Elevation (ft)	Actual Twist (deg)	Allowable Twist (deg)	Twist Usage %	Actual Sway (deg)	Allowable Sway (deg)	Sway Usage %	Actual Disp. (ft)	Allowable Disp. (ft)	Disp. Usage %	Max. Usage %
FRP:t	59.99	-0.00	4.00	0.1	0.41	4.00	10.2	0.29	1.80	16.3	16.3
FRP:ant	57.99	-0.00	4.00	0.1	0.41	4.00	10.2	0.28	1.80	15.5	15.5
#FRP:0	57.30	-0.00	4.00	0.1	0.41	4.00	10.2	0.27	1.80	15.2	15.2
#FRP:1	54.70	-0.00	4.00	0.1	0.41	4.00	10.1	0.25	1.80	14.2	14.2
#FRP:2	52.10	-0.00	4.00	0.1	0.40	4.00	10.1	0.24	1.80	13.1	13.1
#FRP:3	48.10	-0.00	4.00	0.1	0.39	4.00	9.9	0.21	1.80	11.6	11.6
#FRP:4	44.10	-0.00	4.00	0.1	0.38	4.00	9.6	0.18	1.80	10.1	10.1
#FRP:5	40.10	-0.00	4.00	0.1	0.37	4.00	9.2	0.16	1.80	8.6	9.2
#FRP:6	36.10	-0.00	4.00	0.0	0.35	4.00	8.8	0.13	1.80	7.2	8.8
#FRP:7	32.10	-0.00	4.00	0.0	0.33	4.00	8.3	0.11	1.80	5.9	8.3
#FRP:8	30.05	-0.00	4.00	0.0	0.32	4.00	8.0	0.09	1.80	5.2	8.0
#FRP:9	28.00	-0.00	4.00	0.0	0.31	4.00	7.7	0.08	1.80	4.6	7.7
#FRP:10	24.77	-0.00	4.00	0.0	0.29	4.00	7.2	0.07	1.80	3.7	7.2
#FRP:11	21.55	-0.00	4.00	0.0	0.26	4.00	6.4	0.05	1.80	2.8	6.4
#FRP:12	17.55	-0.00	4.00	0.0	0.21	4.00	5.3	0.03	1.80	1.9	5.3
#FRP:13	13.55	-0.00	4.00	0.0	0.17	4.00	4.2	0.02	1.80	1.2	4.2
#FRP:14	9.55	-0.00	4.00	0.0	0.12	4.00	3.0	0.01	1.80	0.6	3.0
#FRP:15	5.55	-0.00	4.00	0.0	0.07	4.00	1.8	0.00	1.80	0.2	1.8
#FRP:16	2.78	-0.00	4.00	0.0	0.04	4.00	0.9	0.00	1.80	0.1	0.9

Equilibrium Joint Positions and Rotations for Load Case "Wind Regular 0deg":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.8351	-2.201e-17	-0.007644	0.0000	1.1271	-0.0000	0.8351	-2.201e-17	59.99
FRP:ant	0.7958	-2.087e-17	-0.007256	0.0000	1.1270	-0.0000	0.7958	-2.087e-17	57.99

Joint Support Reactions for Load Case "Wind Regular 0deg":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	Y H-Shear (kips)	Y H-Shear %	Z Force (kips)	Z Usage %	Comp. Usage %	Uplift (kips)	Result. Moment %	Result. Moment (ft-k)	X-M. Usage %	X-M. Moment (ft-k)	Y-M. Usage %	Y-M. Moment (ft-k)	H-Bend-M Usage %	H-Bend-M Moment (ft-k)	Z-M. Usage %	Z-M. Moment (ft-k)	Max. Usage %
FRP:g	-3.54	0.0	0.00	0.0	0.0	0.0	-3.28	0.0	0.0	4.83	0.0	-0.00	0.0	-115.7	0.0	0.0	0.0	0.0	0.0	0.0	

Detailed FRP Pole Usages for Load Case "Wind Regular 0deg":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Defl. (Local Mx) (ft-k)	Mom. Defl. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage	At Pt. %
FRP	FRP:t	Origin	0.00	-0.00	10.02	-0.09	-0.00	0.00	-0.0	-0.03	0.00	-0.05	-0.00	0.00	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	-0.00	9.55	-0.09	0.00	-0.10	-0.0	-0.03	0.00	-0.05	-0.00	0.01	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	-0.00	9.55	-0.09	0.00	-0.10	-0.0	-0.31	-0.00	-0.45	-0.01	0.01	0.03	0.00	0.05	23.37	3165.94	0.1	1
FRP	SpliceT	End	2.70	-0.00	9.38	-0.09	-0.00	-0.42	-0.0	-0.31	-0.00	-0.45	-0.01	0.02	0.03	0.00	0.05	23.37	3165.94	0.2	1
FRP	SpliceT	Origin	2.70	-0.00	9.38	-0.09	-0.00	-0.42	0.0	-0.41	-0.00	-0.54	-0.01	0.02	0.03	0.00	0.06	23.37	3165.94	0.2	1
FRP	Splice	End	5.30	-0.00	8.77	-0.08	-0.00	-1.83	0.0	-0.41	-0.00	-0.54	-0.01	0.09	0.03	0.00	0.11	23.37	3165.94	0.6	1
FRP	Splice	Origin	5.30	-0.00	8.77	-0.08	-0.00	-1.83	0.0	-0.59	0.00	-0.68	-0.02	0.09	0.04	0.00	0.12	20.81	3152.06	0.6	1
FRP	SpliceB	End	7.90	-0.00	8.16	-0.07	-0.00	-3.59	0.0	-0.59	0.00	-0.68	-0.02	0.17	0.04	0.00	0.20	20.81	3152.06	1.2	1
FRP	SpliceB	Origin	7.90	-0.00	8.16	-0.07	-0.00	-3.59	-0.0	-0.76	0.00	-0.85	-0.02	0.17	0.04	0.00	0.21	20.81	3152.06	1.2	1
FRP	Tube 2	End	11.90	-0.00	7.23	-0.06	0.00	-7.00	-0.0	-0.76	0.00	-0.85	-0.02	0.31	0.04	0.00	0.34	20.81	3152.06	2.1	1
FRP	Tube 2	Origin	11.90	-0.00	7.23	-0.06	0.00	-7.00	-0.0	-0.90	0.00	-1.07	-0.02	0.31	0.05	0.00	0.35	20.81	3152.06	2.2	1
FRP	Tube 2	End	15.90	-0.00	6.31	-0.05	0.00	-11.26	-0.0	-0.90	0.00	-1.07	-0.02	0.47	0.05	0.00	0.50	20.81	3152.06	3.3	1
FRP	Tube 2	Origin	15.90	-0.00	6.31	-0.05	0.00	-11.26	-0.0	-1.05	0.00	-1.28	-0.03	0.47	0.06	0.00	0.50	20.81	3152.06	3.3	1
FRP	Tube 2	End	19.90	-0.00	5.42	-0.05	0.00	-16.39	-0.0	-1.05	0.00	-1.28	-0.02	0.64	0.06	0.00	0.67	20.81	3152.06	4.6	1
FRP	Tube 2	Origin	19.90	-0.00	5.42	-0.05	0.00	-16.39	-0.0	-1.21	0.00	-1.50	-0.03	0.64	0.07	0.00	0.68	20.81	3152.06	4.6	1
FRP	Tube 2	End	23.90	-0.00	4.56	-0.04	0.00	-22.40	-0.0	-1.21	0.00	-1.50	-0.03	0.81	0.07	0.00	0.85	20.81	3152.06	6.0	1
FRP	Tube 2	Origin	23.90	-0.00	4.56	-0.04	0.00	-22.40	-0.0	-1.37	0.00	-1.72	-0.03	0.81	0.08	0.00	0.86	20.81	3152.06	6.0	1
FRP	Tube 2	End	27.90	-0.00	3.74	-0.03	0.00	-29.29	-0.0	-1.37	0.00	-1.72	-0.03	1.00	0.08	0.00	1.04	20.81	3152.06	7.6	1
FRP	Tube 2	Origin	27.90	-0.00	3.74	-0.03	0.00	-29.29	0.0	-1.50	0.00	-1.89	-0.03	1.00	0.08	0.00	1.04	20.81	3152.06	7.6	1
FRP	Tube 2	End	29.95	-0.00	3.33	-0.03	0.00	-33.17	0.0	-1.50	0.00	-1.89	-0.03	1.10	0.08	0.00	1.14	20.81	3152.06	8.5	1
FRP	Tube 2	Origin	29.95	-0.00	3.33	-0.03	0.00	-33.17	0.0	-1.59	0.00	-2.00	-0.03	1.10	0.09	0.00	1.14	20.81	3152.06	8.5	1
FRP	SpliceT	End	32.00	-0.00	2.94	-0.02	0.00	-37.28	0.0	-1.59	0.00	-2.00	-0.03	1.20	0.09	0.00	1.24	20.81	3152.06	9.3	1
FRP	SpliceT	Origin	32.00	-0.00	2.94	-0.02	0.00	-37.28	0.0	-1.77	0.00	-2.15	-0.04	1.20	0.09	0.00	1.24	20.81	3152.06	9.4	1
FRP	Splice	End	35.22	-0.00	2.35	-0.02	0.00	-44.20	0.0	-1.77	0.00	-2.15	-0.04	1.43	0.09	0.00	1.48	20.81	3152.06	11.2	1
FRP	Splice	Origin	35.22	-0.00	2.35	-0.02	0.00	-44.20	0.0	-2.06	0.00	-2.32	-0.04	1.43	0.10	0.00	1.49	19.57	2337.71	15.0	1
FRP	SpliceB	End	38.44	-0.00	1.82	-0.01	0.00	-51.70	0.0	-2.06	0.00	-2.32	-0.04	1.60	0.10	0.00	1.65	19.57	2337.71	17.1	1
FRP	SpliceB	Origin	38.44	-0.00	1.82	-0.01	0.00	-51.70	-0.0	-2.30	0.00	-2.52	-0.05	1.60	0.11	0.00	1.66	19.57	2337.71	17.1	1
FRP	Tube 3	End	42.44	-0.00	1.23	-0.01	0.00	-61.76	-0.0	-2.30	0.00	-2.52	-0.05	1.80	0.10	0.00	1.86	19.57	2337.71	19.8	1
FRP	Tube 3	Origin	42.44	-0.00	1.23	-0.01	0.00	-61.76	-0.0	-2.49	0.00	-2.72	-0.05	1.80	0.11	0.00	1.86	19.57	2337.71	19.8	1
FRP	Tube 3	End	46.44	-0.00	0.75	-0.01	0.00	-72.65	-0.0	-2.49	0.00	-2.72	-0.05	2.01	0.11	0.00	2.06	19.57	2337.71	22.6	1
FRP	Tube 3	Origin	46.44	-0.00	0.75	-0.01	0.00	-72.65	0.0	-2.68	0.00	-2.93	-0.05	2.01	0.12	0.00	2.07	19.57	2337.71	22.6	1
FRP	Tube 3	End	50.44	-0.00	0.38	-0.00	0.00	-84.35	0.0	-2.68	0.00	-2.93	-0.05	2.21	0.11	0.00	2.27	19.57	2337.71	25.5	1
FRP	Tube 3	Origin	50.44	-0.00	0.38	-0.00	0.00	-84.35	0.0	-2.88	0.00	-3.14	-0.06	2.21	0.12	0.00	2.27	19.57	2337.71	25.5	1
FRP	Tube 3	End	54.44	-0.00	0.13	-0.00	0.00	-96.89	0.0	-2.88	0.00	-3.14	-0.05	2.41	0.12	0.00	2.47	19.57	2337.71	28.5	1
FRP	Tube 3	Origin	54.44	-0.00	0.13	-0.00	0.00	-96.89	0.0	-3.06	0.00	-3.31	-0.06	2.41	0.12	0.00	2.47	19.57	2337.71	28.5	1
FRP	Tube 3	End	57.22	-0.00	0.04	-0.00	0.00	-106.10	0.0	-3.06	0.00	-3.31	-0.06	2.54	0.12	0.00	2.61	19.57	2337.71	30.6	1
FRP	Tube 3	Origin	57.22	-0.00	0.04	-0.00	0.00	-106.10	0.0	-3.20	0.00	-3.46	-0.06	2.54	0.13	0.00	2.61	19.57	2337.71	30.6	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	0.00	-115.72	0.0	-3.20	0.00	-3.46	-0.06	2.68	0.13	0.00	2.74	19.57	2337.71	32.8	1

Equilibrium Joint Positions and Rotations for Load Case "Wind regular 45deg":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.5958	1.017	-0.0146	-1.4304	0.8046	-0.0139	0.5958	1.017	59.98
FRP:ant	0.5677	0.9676	-0.01378	-1.4303	0.8045	-0.0139	0.5677	0.9676	57.98

Joint Support Reactions for Load Case "Wind regular 45deg":

Joint	X	X	Y	Y	H-Shear	Z	Comp.	Uplift	Result.	Result.	X	X-M.	Y	Y-M.	H-Bend-M	Z	Z-M.	Max.
Label	Force	Usage	Force	Usage	Force	Force	Usage	Usage	Force	Usage	Usage	Moment	Moment	Usage	Usage	Moment	Usage	Usage
	(kips)	%	(kips)	%	%	(kips)	%	%	(kips)	%	%	(ft-k)	(ft-k)	%	%	(ft-k)	%	%
FRP:g	-2.51	0.0	-3.29	0.0	0.0	-3.28	0.0	0.0	5.28	0.0	128.22	0.0	-82.4	0.0	0.0	0.37	0.0	0.0

Detailed FRP Pole Usages for Load Case "Wind regular 45deg":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Defl. (Local Mx) (ft-k)	Mom. Defl. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage %	At Pt.
FRP	FRP:t	Origin	0.00	12.21	7.15	-0.18	-0.00	-0.00	0.0	-0.03	0.04	-0.04	-0.00	0.00	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	11.61	6.81	-0.17	0.07	-0.07	0.0	-0.03	0.04	-0.04	-0.00	0.01	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	11.61	6.81	-0.17	0.07	-0.08	-0.4	-0.29	1.11	-0.33	-0.01	0.01	0.07	0.01	0.13	23.37	3165.94	0.1	1
FRP	SpliceT	End	2.70	11.40	6.70	-0.16	0.85	-0.31	-0.4	-0.29	1.11	-0.33	-0.01	0.05	0.07	0.01	0.14	23.37	3165.94	0.4	1
FRP	SpliceT	Origin	2.70	11.40	6.70	-0.16	0.85	-0.31	-0.4	-0.39	1.18	-0.39	-0.01	0.05	0.07	0.01	0.15	23.37	3165.94	0.4	1
FRP	Splice	End	5.30	10.62	6.26	-0.15	3.91	-1.33	-0.4	-0.39	1.18	-0.39	-0.01	0.21	0.07	0.01	0.25	23.37	3165.94	1.3	1
FRP	Splice	Origin	5.30	10.62	6.26	-0.15	3.91	-1.33	-0.4	-0.57	1.28	-0.49	-0.02	0.21	0.07	0.01	0.26	20.81	3152.06	1.4	1
FRP	SpliceB	End	7.90	9.85	5.82	-0.14	7.22	-2.60	-0.4	-0.57	1.28	-0.49	-0.01	0.37	0.07	0.01	0.41	20.81	3152.06	2.4	1
FRP	SpliceB	Origin	7.90	9.85	5.82	-0.14	7.22	-2.60	-0.4	-0.73	1.40	-0.61	-0.02	0.37	0.08	0.01	0.42	20.81	3152.06	2.4	1
FRP	Tube 2	End	11.90	8.68	5.16	-0.12	12.83	-5.05	-0.4	-0.73	1.40	-0.61	-0.02	0.61	0.08	0.01	0.65	20.81	3152.06	4.1	1
FRP	Tube 2	Origin	11.90	8.68	5.16	-0.12	12.83	-5.05	-0.4	-0.88	1.55	-0.76	-0.02	0.61	0.09	0.01	0.66	20.81	3152.06	4.1	1
FRP	Tube 2	End	15.90	7.53	4.50	-0.10	19.04	-8.10	-0.4	-0.88	1.55	-0.76	-0.02	0.86	0.08	0.01	0.89	20.81	3152.06	5.9	1
FRP	Tube 2	Origin	15.90	7.53	4.50	-0.10	19.04	-8.10	-0.4	-1.03	1.71	-0.92	-0.02	0.86	0.09	0.01	0.90	20.81	3152.06	5.9	1
FRP	Tube 2	End	19.90	6.43	3.86	-0.08	25.88	-11.77	-0.4	-1.03	1.71	-0.92	-0.02	1.10	0.09	0.01	1.14	20.81	3152.06	7.8	1
FRP	Tube 2	Origin	19.90	6.43	3.86	-0.08	25.88	-11.77	-0.4	-1.18	1.86	-1.07	-0.03	1.10	0.10	0.01	1.15	20.81	3152.06	7.9	1
FRP	Tube 2	End	23.90	5.37	3.25	-0.07	33.33	-16.05	-0.4	-1.18	1.86	-1.07	-0.03	1.34	0.10	0.01	1.38	20.81	3152.06	9.8	1
FRP	Tube 2	Origin	23.90	5.37	3.25	-0.07	33.33	-16.05	-0.4	-1.35	2.02	-1.23	-0.03	1.34	0.11	0.01	1.39	20.81	3152.06	9.9	1
FRP	Tube 2	End	27.90	4.38	2.66	-0.05	41.41	-20.96	-0.4	-1.35	2.02	-1.23	-0.03	1.58	0.10	0.01	1.63	20.81	3152.06	11.9	1
FRP	Tube 2	Origin	27.90	4.38	2.66	-0.05	41.41	-20.96	-0.4	-1.47	2.14	-1.35	-0.03	1.58	0.11	0.01	1.63	20.81	3152.06	12.0	1
FRP	Tube 2	End	29.95	3.89	2.37	-0.04	45.80	-23.72	-0.4	-1.47	2.14	-1.35	-0.03	1.71	0.11	0.01	1.75	20.81	3152.06	13.1	1
FRP	Tube 2	Origin	29.95	3.89	2.37	-0.04	45.80	-23.72	-0.4	-1.56	2.22	-1.43	-0.03	1.71	0.11	0.01	1.75	20.81	3152.06	13.1	1
FRP	SpliceT	End	32.00	3.42	2.10	-0.04	50.36	-26.65	-0.4	-1.56	2.22	-1.43	-0.03	1.83	0.11	0.01	1.87	20.81	3152.06	14.2	1
FRP	SpliceT	Origin	32.00	3.42	2.10	-0.04	50.36	-26.65	-0.4	-1.75	2.32	-1.53	-0.04	1.83	0.12	0.01	1.88	20.81	3152.06	14.2	1
FRP	Splice	End	35.22	2.72	1.68	-0.03	57.84	-31.57	-0.4	-1.75	2.32	-1.53	-0.04	2.14	0.12	0.01	2.19	20.81	3152.06	16.5	1
FRP	Splice	Origin	35.22	2.72	1.68	-0.03	57.84	-31.57	-0.4	-2.04	2.45	-1.65	-0.04	2.14	0.13	0.01	2.19	19.57	2337.71	22.2	1
FRP	SpliceB	End	38.44	2.09	1.29	-0.02	65.73	-36.90	-0.4	-2.04	2.45	-1.65	-0.04	2.33	0.12	0.01	2.38	19.57	2337.71	24.8	1
FRP	SpliceB	Origin	38.44	2.09	1.29	-0.02	65.73	-36.90	-0.4	-2.28	2.58	-1.79	-0.05	2.33	0.13	0.01	2.39	19.57	2337.71	24.8	1
FRP	Tube 3	End	42.44	1.40	0.88	-0.01	76.06	-44.05	-0.4	-2.28	2.58	-1.79	-0.05	2.57	0.13	0.01	2.62	19.57	2337.71	28.0	1
FRP	Tube 3	Origin	42.44	1.40	0.88	-0.01	76.06	-44.05	-0.4	-2.47	2.73	-1.93	-0.05	2.57	0.14	0.01	2.63	19.57	2337.71	28.1	1
FRP	Tube 3	End	46.44	0.85	0.54	-0.01	86.97	-51.79	-0.4	-2.47	2.73	-1.93	-0.05	2.80	0.13	0.01	2.85	19.57	2337.71	31.4	1
FRP	Tube 3	Origin	46.44	0.85	0.54	-0.01	86.97	-51.78	-0.4	-2.67	2.87	-2.08	-0.05	2.80	0.14	0.01	2.86	19.57	2337.71	31.4	1
FRP	Tube 3	End	50.44	0.43	0.27	-0.00	98.44	-60.10	-0.4	-2.67	2.87	-2.08	-0.05	3.02	0.14	0.00	3.08	19.57	2337.71	34.8	1
FRP	Tube 3	Origin	50.44	0.43	0.27	-0.00	98.45	-60.10	-0.4	-2.87	3.01	-2.23	-0.06	3.02	0.14	0.00	3.08	19.57	2337.71	34.8	1
FRP	Tube 3	End	54.44	0.15	0.10	-0.00	110.50	-69.01	-0.4	-2.87	3.01	-2.23	-0.05	3.23	0.14	0.00	3.30	19.57	2337.71	38.2	1
FRP	Tube 3	Origin	54.44	0.15	0.10	-0.00	110.50	-69.00	-0.4	-3.05	3.14	-2.35	-0.06	3.23	0.15	0.00	3.30	19.57	2337.71	38.2	1
FRP	Tube 3	End	57.22	0.04	0.03	-0.00	119.21	-75.54	-0.4	-3.05	3.14	-2.35	-0.06	3.38	0.15	0.00	3.45	19.57	2337.71	40.6	1
FRP	Tube 3	Origin	57.22	0.04	0.03	-0.00	119.22	-75.54	-0.4	-3.20	3.24	-2.46	-0.06	3.38	0.15	0.00	3.45	19.57	2337.71	40.7	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	128.22	-82.37	-0.4	-3.20	3.24	-2.46	-0.06	3.52	0.15	0.00	3.59	19.57	2337.71	43.1	1

Equilibrium Joint Positions and Rotations for Load Case "Wind regular 60deg":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.4213	1.168	-0.01611	-1.6356	0.5693	0.0060	0.4213	1.168	59.98
FRP:ant	0.4015	1.111	-0.0152	-1.6355	0.5692	0.0060	0.4015	1.111	57.98

Joint Support Reactions for Load Case "Wind regular 60deg":

Joint	X	X	Y	Y	H-Shear	Z	Comp.	Uplift	Result.	Result.	X	X-M.	Y	Y-M.	H-Bend-M	Z	Z-M.	Max.
Label	Force	Usage	Force	Usage	Force	Force	Usage	Usage	Force	Usage	Force	Usage	Force	Usage	Usage	Moment	Usage	Usage
(kips)		% (kips)		%	%	(kips)	%		(kips)	% (ft-k)		% (ft-k)		%	% (ft-k)		%	%
FRP:g	-1.78	0.0	-3.89	0.0	0.0	-3.28	0.0	0.0	5.39	0.0	148.51	0.0	-58.3	0.0	0.0	-0.12	0.0	0.0

Detailed FRP Pole Usages for Load Case "Wind regular 60deg":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Defl. (Local Mx) (ft-k)	Mom. Defl. (Local My) (ft-k)	Tors. Mom. (kips)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage (ksi)	At Pt. %
FRP	FRP:t	Origin	0.00	14.02	5.06	-0.19	-0.00	0.00	0.0	-0.03	0.05	-0.03	-0.00	0.00	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	13.33	4.82	-0.18	0.09	-0.05	0.0	-0.03	0.05	-0.03	-0.00	0.01	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	13.33	4.82	-0.18	0.09	-0.05	0.1	-0.28	1.22	-0.23	-0.01	0.01	0.07	0.00	0.13	23.37	3165.94	0.1	1
FRP	SpliceT	End	2.70	13.09	4.73	-0.18	0.94	-0.21	0.1	-0.28	1.22	-0.23	-0.01	0.05	0.07	0.00	0.14	23.37	3165.94	0.4	1
FRP	SpliceT	Origin	2.70	13.09	4.73	-0.18	0.94	-0.21	0.1	-0.38	1.30	-0.28	-0.01	0.05	0.08	0.00	0.15	23.37	3165.94	0.4	1
FRP	Splice	End	5.30	12.20	4.43	-0.16	4.31	-0.93	0.1	-0.38	1.30	-0.28	-0.01	0.22	0.07	0.00	0.26	23.37	3165.94	1.4	1
FRP	Splice	Origin	5.30	12.20	4.43	-0.16	4.31	-0.93	0.1	-0.56	1.42	-0.35	-0.02	0.22	0.08	0.00	0.28	20.81	3152.06	1.4	1
FRP	SpliceB	End	7.90	11.32	4.12	-0.15	7.99	-1.84	0.1	-0.56	1.42	-0.35	-0.01	0.39	0.08	0.00	0.43	20.81	3152.06	2.6	1
FRP	SpliceB	Origin	7.90	11.32	4.12	-0.15	7.99	-1.84	0.1	-0.73	1.57	-0.43	-0.02	0.39	0.08	0.00	0.44	20.81	3152.06	2.6	1
FRP	Tube 2	End	11.90	9.97	3.65	-0.13	14.27	-3.57	0.1	-0.73	1.57	-0.43	-0.02	0.65	0.08	0.00	0.69	20.81	3152.06	4.4	1
FRP	Tube 2	Origin	11.90	9.97	3.65	-0.13	14.27	-3.57	0.1	-0.87	1.76	-0.54	-0.02	0.65	0.09	0.00	0.70	20.81	3152.06	4.4	1
FRP	Tube 2	End	15.90	8.66	3.18	-0.11	21.29	-5.73	0.1	-0.87	1.76	-0.54	-0.02	0.91	0.09	0.00	0.95	20.81	3152.06	6.3	1
FRP	Tube 2	Origin	15.90	8.66	3.18	-0.11	21.29	-5.73	0.1	-1.02	1.94	-0.65	-0.02	0.91	0.10	0.00	0.96	20.81	3152.06	6.3	1
FRP	Tube 2	End	19.90	7.40	2.73	-0.09	29.07	-8.33	0.1	-1.02	1.94	-0.65	-0.02	1.17	0.10	0.00	1.21	20.81	3152.06	8.3	1
FRP	Tube 2	Origin	19.90	7.40	2.73	-0.09	29.07	-8.33	0.1	-1.18	2.13	-0.76	-0.03	1.17	0.11	0.00	1.22	20.81	3152.06	8.3	1
FRP	Tube 2	End	23.90	6.19	2.30	-0.07	37.61	-11.36	0.1	-1.18	2.13	-0.76	-0.03	1.43	0.10	0.00	1.47	20.81	3152.06	10.4	1
FRP	Tube 2	Origin	23.90	6.19	2.30	-0.07	37.61	-11.36	0.1	-1.34	2.33	-0.87	-0.03	1.43	0.11	0.00	1.47	20.81	3152.06	10.5	1
FRP	Tube 2	End	27.90	5.04	1.88	-0.06	46.92	-14.84	0.1	-1.34	2.33	-0.87	-0.03	1.68	0.11	0.00	1.72	20.81	3152.06	12.6	1
FRP	Tube 2	Origin	27.90	5.04	1.88	-0.06	46.92	-14.84	0.1	-1.47	2.47	-0.95	-0.03	1.68	0.12	0.00	1.72	20.81	3152.06	12.7	1
FRP	Tube 2	End	29.95	4.48	1.68	-0.05	51.99	-16.79	0.1	-1.47	2.47	-0.95	-0.03	1.81	0.12	0.00	1.85	20.81	3152.06	13.8	1
FRP	Tube 2	Origin	29.95	4.48	1.68	-0.05	51.99	-16.79	0.1	-1.55	2.57	-1.01	-0.03	1.81	0.12	0.00	1.85	20.81	3152.06	13.8	1
FRP	SpliceT	End	32.00	3.94	1.48	-0.04	57.27	-18.86	0.1	-1.55	2.57	-1.01	-0.03	1.93	0.12	0.00	1.98	20.81	3152.06	15.0	1
FRP	SpliceT	Origin	32.00	3.94	1.48	-0.04	57.27	-18.86	0.1	-1.74	2.70	-1.08	-0.04	1.93	0.12	0.00	1.98	20.81	3152.06	15.0	1
FRP	Splice	End	35.22	3.14	1.19	-0.03	65.96	-22.35	0.1	-1.74	2.70	-1.08	-0.04	2.26	0.13	0.00	2.31	20.81	3152.06	17.4	1
FRP	Splice	Origin	35.22	3.14	1.19	-0.03	65.96	-22.35	0.1	-2.03	2.85	-1.17	-0.04	2.26	0.13	0.00	2.32	19.57	2337.71	23.5	1
FRP	SpliceB	End	38.44	2.41	0.92	-0.02	75.14	-26.12	0.1	-2.03	2.85	-1.17	-0.04	2.46	0.13	0.00	2.51	19.57	2337.71	26.1	1
FRP	SpliceB	Origin	38.44	2.41	0.92	-0.02	75.14	-26.12	0.1	-2.27	3.02	-1.27	-0.05	2.46	0.14	0.00	2.52	19.57	2337.71	26.2	1
FRP	Tube 3	End	42.44	1.62	0.62	-0.01	87.20	-31.18	0.1	-2.27	3.02	-1.27	-0.05	2.70	0.13	0.00	2.76	19.57	2337.71	29.5	1
FRP	Tube 3	Origin	42.44	1.62	0.62	-0.01	87.20	-31.18	0.1	-2.46	3.19	-1.37	-0.05	2.70	0.14	0.00	2.77	19.57	2337.71	29.6	1
FRP	Tube 3	End	46.44	0.98	0.38	-0.01	99.97	-36.65	0.1	-2.46	3.19	-1.37	-0.05	2.94	0.14	0.00	3.00	19.57	2337.71	33.0	1
FRP	Tube 3	Origin	46.44	0.98	0.38	-0.01	99.97	-36.65	0.1	-2.66	3.37	-1.47	-0.05	2.94	0.15	0.00	3.01	19.57	2337.71	33.0	1
FRP	Tube 3	End	50.44	0.50	0.19	-0.00	113.44	-42.53	0.1	-2.66	3.37	-1.47	-0.05	3.17	0.14	0.00	3.23	19.57	2337.71	36.5	1
FRP	Tube 3	Origin	50.44	0.50	0.19	-0.00	113.44	-42.53	0.1	-2.87	3.54	-1.58	-0.06	3.17	0.15	0.00	3.24	19.57	2337.71	36.5	1
FRP	Tube 3	End	54.44	0.17	0.07	-0.00	127.62	-48.83	0.1	-2.87	3.54	-1.58	-0.05	3.39	0.15	0.00	3.46	19.57	2337.71	40.1	1
FRP	Tube 3	Origin	54.44	0.17	0.07	-0.00	127.62	-48.83	0.1	-3.05	3.70	-1.66	-0.06	3.39	0.15	0.00	3.46	19.57	2337.71	40.1	1
FRP	Tube 3	End	57.22	0.04	0.02	-0.00	137.89	-53.46	0.1	-3.05	3.70	-1.66	-0.06	3.54	0.15	0.00	3.61	19.57	2337.71	42.6	1
FRP	Tube 3	Origin	57.22	0.04	0.02	-0.00	137.89	-53.46	0.1	-3.20	3.82	-1.74	-0.06	3.54	0.16	0.00	3.61	19.57	2337.71	42.6	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	148.51	-58.28	0.1	-3.20	3.82	-1.74	-0.06	3.69	0.15	0.00	3.76	19.57	2337.71	45.1	1

Equilibrium Joint Positions and Rotations for Load Case "Wind regular 90deg":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	1.144e-16	1.327	-0.01831	-1.8570	0.0000	-0.0000	1.144e-16	1.327	59.98
FRP:ant	1.087e-16	1.262	-0.01726	-1.8569	0.0000	-0.0000	1.087e-16	1.262	57.98

Joint Support Reactions for Load Case "Wind regular 90deg":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	Y H-Shear %	Z Force (kips)	Z Usage %	Z Comp. Usage %	Uplift (kips)	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
FRP:g	-0.00	0.0	-4.45	0.0	0.0	-3.28	0.0	0.0	0.0	5.53	0.0	169.17	0.0	-0.0	0.0	0.0	-0.00	0.0	0.0

Detailed FRP Pole Usages for Load Case "Wind regular 90deg":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Defl. (Local Mx) (ft-k)	Mom. Defl. (Local My) (ft-k)	Tors. Mom. (kips)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage	At Pt. %
FRP	FRP:t	Origin	0.00	15.93	0.00	-0.22	-0.00	-0.00	-0.0	-0.03	0.05	-0.00	-0.00	0.00	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	15.15	0.00	-0.21	0.11	-0.00	-0.0	-0.03	0.05	-0.00	-0.00	0.01	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	15.15	0.00	-0.21	0.11	-0.00	-0.0	-0.27	1.37	-0.00	-0.01	0.01	0.08	0.00	0.14	23.37	3165.94	0.1	1
FRP	SpliceT	End	2.70	14.88	0.00	-0.20	1.06	-0.00	-0.0	-0.27	1.37	-0.00	-0.01	0.06	0.08	0.00	0.15	23.37	3165.94	0.4	1
FRP	SpliceT	Origin	2.70	14.88	0.00	-0.20	1.06	-0.00	0.0	-0.37	1.46	-0.00	-0.01	0.06	0.08	0.00	0.16	23.37	3165.94	0.4	1
FRP	Splice	End	5.30	13.87	0.00	-0.19	4.85	-0.00	0.0	-0.37	1.46	-0.00	-0.01	0.24	0.08	0.00	0.29	23.37	3165.94	1.5	1
FRP	Splice	Origin	5.30	13.87	0.00	-0.19	4.85	-0.00	0.0	-0.56	1.60	-0.00	-0.01	0.24	0.09	0.00	0.30	20.81	3152.06	1.6	1
FRP	SpliceB	End	7.90	12.86	0.00	-0.17	8.99	-0.00	0.0	-0.56	1.60	-0.00	-0.01	0.43	0.08	0.00	0.47	20.81	3152.06	2.8	1
FRP	SpliceB	Origin	7.90	12.86	0.00	-0.17	8.99	-0.00	-0.0	-0.72	1.77	-0.00	-0.02	0.43	0.09	0.00	0.48	20.81	3152.06	2.8	1
FRP	Tube 2	End	11.90	11.34	0.00	-0.15	16.08	-0.00	-0.0	-0.72	1.77	-0.00	-0.02	0.72	0.09	0.00	0.75	20.81	3152.06	4.8	1
FRP	Tube 2	Origin	11.90	11.34	0.00	-0.15	16.08	-0.00	-0.0	-0.86	1.99	-0.00	-0.02	0.72	0.10	0.00	0.76	20.81	3152.06	4.8	1
FRP	Tube 2	End	15.90	9.85	0.00	-0.12	24.03	-0.00	-0.0	-0.86	1.99	-0.00	-0.02	1.00	0.10	0.00	1.03	20.81	3152.06	6.9	1
FRP	Tube 2	Origin	15.90	9.85	0.00	-0.12	24.03	-0.00	-0.0	-1.01	2.21	-0.00	-0.02	1.00	0.11	0.00	1.04	20.81	3152.06	6.9	1
FRP	Tube 2	End	19.90	8.41	0.00	-0.10	32.86	-0.00	-0.0	-1.01	2.21	-0.00	-0.02	1.27	0.10	0.00	1.31	20.81	3152.06	9.0	1
FRP	Tube 2	Origin	19.90	8.41	0.00	-0.10	32.85	-0.00	-0.0	-1.17	2.43	-0.00	-0.03	1.27	0.11	0.00	1.32	20.81	3152.06	9.1	1
FRP	Tube 2	End	23.90	7.04	0.00	-0.08	42.56	-0.00	-0.0	-1.17	2.43	-0.00	-0.03	1.55	0.11	0.00	1.59	20.81	3152.06	11.3	1
FRP	Tube 2	Origin	23.90	7.04	0.00	-0.08	42.56	-0.00	-0.0	-1.33	2.65	-0.00	-0.03	1.55	0.12	0.00	1.59	20.81	3152.06	11.3	1
FRP	Tube 2	End	27.90	5.73	0.00	-0.06	53.14	-0.00	-0.0	-1.33	2.65	-0.00	-0.03	1.81	0.12	0.00	1.85	20.81	3152.06	13.6	1
FRP	Tube 2	Origin	27.90	5.73	0.00	-0.06	53.14	-0.00	0.0	-1.46	2.81	-0.00	-0.03	1.81	0.12	0.00	1.86	20.81	3152.06	13.7	1
FRP	Tube 2	End	29.95	5.10	0.00	-0.05	58.92	-0.00	0.0	-1.46	2.81	-0.00	-0.03	1.95	0.12	0.00	1.99	20.81	3152.06	14.9	1
FRP	Tube 2	Origin	29.95	5.10	0.00	-0.05	58.92	-0.00	0.0	-1.55	2.93	-0.00	-0.03	1.95	0.13	0.00	1.99	20.81	3152.06	14.9	1
FRP	SpliceT	End	32.00	4.48	0.00	-0.05	64.93	-0.00	0.0	-1.55	2.93	-0.00	-0.03	2.08	0.13	0.00	2.13	20.81	3152.06	16.1	1
FRP	SpliceT	Origin	32.00	4.48	0.00	-0.05	64.93	-0.00	0.0	-1.73	3.08	-0.00	-0.04	2.08	0.13	0.00	2.13	20.81	3152.06	16.2	1
FRP	Splice	End	35.22	3.57	0.00	-0.03	74.84	-0.00	0.0	-1.73	3.08	-0.00	-0.04	2.43	0.13	0.00	2.48	20.81	3152.06	18.7	1
FRP	Splice	Origin	35.22	3.57	0.00	-0.03	74.84	-0.00	0.0	-2.02	3.25	-0.00	-0.04	2.43	0.14	0.00	2.48	19.57	2337.71	25.2	1
FRP	SpliceB	End	38.44	2.74	0.00	-0.02	85.31	-0.00	0.0	-2.02	3.25	-0.00	-0.04	2.64	0.14	0.00	2.69	19.57	2337.71	28.0	1
FRP	SpliceB	Origin	38.44	2.74	0.00	-0.02	85.31	-0.00	0.0	-2.26	3.44	-0.00	-0.05	2.64	0.14	0.00	2.70	19.57	2337.71	28.0	1
FRP	Tube 3	End	42.44	1.85	0.00	-0.02	99.08	-0.00	0.0	-2.26	3.44	-0.00	-0.05	2.89	0.14	0.00	2.95	19.57	2337.71	31.6	1
FRP	Tube 3	Origin	42.44	1.85	0.00	-0.02	99.08	-0.00	0.0	-2.46	3.65	-0.00	-0.05	2.89	0.15	0.00	2.96	19.57	2337.71	31.6	1
FRP	Tube 3	End	46.44	1.12	0.00	-0.01	113.66	-0.00	0.0	-2.46	3.65	-0.00	-0.05	3.14	0.14	0.00	3.20	19.57	2337.71	35.2	1
FRP	Tube 3	Origin	46.44	1.12	0.00	-0.01	113.66	-0.00	0.0	-2.66	3.85	-0.00	-0.05	3.14	0.15	0.00	3.20	19.57	2337.71	35.2	1
FRP	Tube 3	End	50.44	0.57	0.00	-0.00	129.06	-0.00	0.0	-2.66	3.85	-0.00	-0.05	3.38	0.15	0.00	3.44	19.57	2337.71	38.9	1
FRP	Tube 3	Origin	50.44	0.57	0.00	-0.00	129.06	-0.00	0.0	-2.87	4.05	-0.00	-0.06	3.38	0.16	0.00	3.44	19.57	2337.71	38.9	1
FRP	Tube 3	End	54.44	0.20	0.00	-0.00	145.27	-0.00	0.0	-2.87	4.05	-0.00	-0.05	3.61	0.15	0.00	3.67	19.57	2337.71	42.6	1
FRP	Tube 3	Origin	54.44	0.20	0.00	-0.00	145.27	-0.00	0.0	-3.05	4.23	-0.00	-0.06	3.61	0.16	0.00	3.67	19.57	2337.71	42.6	1
FRP	Tube 3	End	57.22	0.05	0.00	-0.00	157.02	-0.00	0.0	-3.05	4.23	-0.00	-0.06	3.76	0.16	0.00	3.83	19.57	2337.71	45.2	1
FRP	Tube 3	Origin	57.22	0.05	0.00	-0.00	157.02	-0.00	0.0	-3.20	4.38	-0.00	-0.06	3.76	0.16	0.00	3.83	19.57	2337.71	45.2	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	169.17	-0.00	0.0	-3.20	4.38	-0.00	-0.06	3.91	0.16	0.00	3.98	19.57	2337.71	47.8	1

Equilibrium Joint Positions and Rotations for Load Case "Wind regular 180deg":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	-0.8351	1.027e-16	-0.007644	-0.0000	-1.1271	-0.0000	-0.8351	1.027e-16	59.99
FRP:ant	-0.7958	9.783e-17	-0.007256	-0.0000	-1.1270	-0.0000	-0.7958	9.783e-17	57.99

Joint Support Reactions for Load Case "Wind regular 180deg":

Joint	X	X	Y	Y	H-Shear	Z	Comp.	Uplift	Result.	Result.	X	X-M.	Y	Y-M.	H-Bend-M	Z	Z-M.	Max.
Label	Force	Usage	Force	Usage	Force	Force	Usage	Usage	Force	Usage	Moment	Usage	Moment	Usage	Moment	Usage	Usage	Usage
	(kips)	%	(kips)	%	%	(kips)	%	%	(kips)	%	(ft-k)	%	(ft-k)	%	%	(ft-k)	%	%
FRP:g	3.54	0.0	-0.00	0.0	0.0	-3.28	0.0	0.0	4.83	0.0	0.00	0.0	115.7	0.0	0.0	-0.00	0.0	0.0

Detailed FRP Pole Usages for Load Case "Wind regular 180deg":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Defl. (Local Mx) (ft-k)	Mom. Defl. (Local My) (ft-k)	Tors. Defl. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage %	At Pt.
FRP	FRP:t	Origin	0.00	0.00	-10.02	-0.09	-0.00	-0.00	-0.00	-0.03	0.00	0.05	-0.00	0.00	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	0.00	-9.55	-0.09	0.00	0.10	-0.0	-0.03	0.00	0.05	-0.00	0.01	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	0.00	-9.55	-0.09	0.00	0.10	-0.0	-0.31	0.00	0.45	-0.01	0.01	0.03	0.00	0.05	23.37	3165.94	0.1	1
FRP	SpliceT	End	2.70	0.00	-9.38	-0.09	0.00	0.42	-0.0	-0.31	0.00	0.45	-0.01	0.02	0.03	0.00	0.05	23.37	3165.94	0.2	1
FRP	SpliceT	Origin	2.70	0.00	-9.38	-0.09	0.00	0.42	0.0	-0.41	0.00	0.54	-0.01	0.02	0.03	0.00	0.06	23.37	3165.94	0.2	1
FRP	Splice	End	5.30	0.00	-8.77	-0.08	0.00	1.83	0.0	-0.41	0.00	0.54	-0.01	0.09	0.03	0.00	0.11	23.37	3165.94	0.6	1
FRP	Splice	Origin	5.30	0.00	-8.77	-0.08	0.00	1.83	0.0	-0.59	0.00	0.68	-0.02	0.09	0.04	0.00	0.12	20.81	3152.06	0.6	1
FRP	SpliceB	End	7.90	0.00	-8.16	-0.07	0.00	3.59	0.0	-0.59	0.00	0.68	-0.02	0.17	0.04	0.00	0.20	20.81	3152.06	1.2	1
FRP	SpliceB	Origin	7.90	0.00	-8.16	-0.07	0.00	3.59	-0.0	-0.76	0.00	0.85	-0.02	0.17	0.04	0.00	0.21	20.81	3152.06	1.2	1
FRP	Tube 2	End	11.90	0.00	-7.23	-0.06	0.00	7.00	-0.0	-0.76	0.00	0.85	-0.02	0.31	0.04	0.00	0.34	20.81	3152.06	2.1	1
FRP	Tube 2	Origin	11.90	0.00	-7.23	-0.06	0.00	7.00	0.0	-0.90	0.00	1.07	-0.02	0.31	0.05	0.00	0.35	20.81	3152.06	2.2	1
FRP	Tube 2	End	15.90	0.00	-6.31	-0.05	0.00	11.26	0.0	-0.90	0.00	1.07	-0.02	0.47	0.05	0.00	0.50	20.81	3152.06	3.3	1
FRP	Tube 2	Origin	15.90	0.00	-6.31	-0.05	0.00	11.26	0.0	-1.05	0.00	1.28	-0.03	0.47	0.06	0.00	0.50	20.81	3152.06	3.3	1
FRP	Tube 2	End	19.90	0.00	-5.42	-0.05	0.00	16.39	0.0	-1.05	0.00	1.28	-0.02	0.64	0.06	0.00	0.67	20.81	3152.06	4.6	1
FRP	Tube 2	Origin	19.90	0.00	-5.42	-0.05	0.00	16.39	0.0	-1.21	0.00	1.50	-0.03	0.64	0.07	0.00	0.68	20.81	3152.06	4.6	1
FRP	Tube 2	End	23.90	0.00	-4.56	-0.04	0.00	22.40	0.0	-1.21	0.00	1.50	-0.03	0.81	0.07	0.00	0.85	20.81	3152.06	6.0	1
FRP	Tube 2	Origin	23.90	0.00	-4.56	-0.04	0.00	22.40	0.0	-1.37	0.00	1.72	-0.03	0.81	0.08	0.00	0.86	20.81	3152.06	6.0	1
FRP	Tube 2	End	27.90	0.00	-3.74	-0.03	0.00	29.29	0.0	-1.37	0.00	1.72	-0.03	1.00	0.08	0.00	1.04	20.81	3152.06	7.6	1
FRP	Tube 2	Origin	27.90	0.00	-3.74	-0.03	0.00	29.29	0.0	-1.50	0.00	1.89	-0.03	1.00	0.08	0.00	1.04	20.81	3152.06	7.6	1
FRP	Tube 2	End	29.95	0.00	-3.33	-0.03	0.00	33.17	0.0	-1.50	0.00	1.89	-0.03	1.10	0.08	0.00	1.14	20.81	3152.06	8.5	1
FRP	Tube 2	Origin	29.95	0.00	-3.33	-0.03	0.00	33.17	0.0	-1.59	0.00	2.00	-0.03	1.10	0.09	0.00	1.14	20.81	3152.06	8.5	1
FRP	SpliceT	End	32.00	0.00	-2.94	-0.02	0.00	37.28	0.0	-1.59	0.00	2.00	-0.03	1.20	0.09	0.00	1.24	20.81	3152.06	9.3	1
FRP	SpliceT	Origin	32.00	0.00	-2.94	-0.02	0.00	37.28	0.0	-1.77	0.00	2.15	-0.04	1.20	0.09	0.00	1.24	20.81	3152.06	9.4	1
FRP	Splice	End	35.22	0.00	-2.35	-0.02	0.00	44.20	0.0	-1.77	0.00	2.15	-0.04	1.43	0.09	0.00	1.48	20.81	3152.06	11.2	1
FRP	Splice	Origin	35.22	0.00	-2.35	-0.02	0.00	44.20	0.0	-2.06	0.00	2.32	-0.04	1.43	0.10	0.00	1.49	19.57	2337.71	15.0	1
FRP	SpliceB	End	38.44	0.00	-1.82	-0.01	0.00	51.70	0.0	-2.06	0.00	2.32	-0.04	1.60	0.10	0.00	1.65	19.57	2337.71	17.1	1
FRP	SpliceB	Origin	38.44	0.00	-1.82	-0.01	0.00	51.70	0.0	-2.30	0.00	2.52	-0.05	1.60	0.11	0.00	1.66	19.57	2337.71	17.1	1
FRP	Tube 3	End	42.44	0.00	-1.23	-0.01	0.00	61.76	0.0	-2.30	0.00	2.52	-0.05	1.80	0.10	0.00	1.86	19.57	2337.71	19.8	1
FRP	Tube 3	Origin	42.44	0.00	-1.23	-0.01	0.00	61.76	0.0	-2.49	0.00	2.72	-0.05	1.80	0.11	0.00	1.86	19.57	2337.71	19.8	1
FRP	Tube 3	End	46.44	0.00	-0.75	-0.01	0.00	72.65	0.0	-2.49	0.00	2.72	-0.05	2.01	0.11	0.00	2.06	19.57	2337.71	22.6	1
FRP	Tube 3	Origin	46.44	0.00	-0.75	-0.01	0.00	72.65	0.0	-2.68	0.00	2.93	-0.05	2.01	0.12	0.00	2.07	19.57	2337.71	22.6	1
FRP	Tube 3	End	50.44	0.00	-0.38	-0.00	0.00	84.35	0.0	-2.68	0.00	2.93	-0.05	2.21	0.11	0.00	2.27	19.57	2337.71	25.5	1
FRP	Tube 3	Origin	50.44	0.00	-0.38	-0.00	0.00	84.35	0.0	-2.88	0.00	3.14	-0.06	2.21	0.12	0.00	2.27	19.57	2337.71	25.5	1
FRP	Tube 3	End	54.44	0.00	-0.13	-0.00	0.00	96.89	0.0	-2.88	0.00	3.14	-0.05	2.41	0.12	0.00	2.47	19.57	2337.71	28.5	1
FRP	Tube 3	Origin	54.44	0.00	-0.13	-0.00	0.00	96.89	0.0	-3.06	0.00	3.31	-0.06	2.41	0.12	0.00	2.47	19.57	2337.71	28.5	1
FRP	Tube 3	End	57.22	0.00	-0.04	-0.00	0.00	106.10	0.0	-3.06	0.00	3.31	-0.06	2.54	0.12	0.00	2.61	19.57	2337.71	30.6	1
FRP	Tube 3	Origin	57.22	0.00	-0.04	-0.00	0.00	106.10	0.0	-3.20	0.00	3.46	-0.06	2.54	0.13	0.00	2.61	19.57	2337.71	30.6	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	0.00	115.72	0.0	-3.20	0.00	3.46	-0.06	2.68	0.13	0.00	2.74	19.57	2337.71	32.8	1

Equilibrium Joint Positions and Rotations for Load Case "Wind regular -45deg":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.5958	-1.017	-0.0146	1.4304	0.8046	0.0139	0.5958	-1.017	59.98
FRP:ant	0.5677	-0.9676	-0.01378	1.4303	0.8045	0.0139	0.5677	-0.9676	57.98

Joint Support Reactions for Load Case "Wind regular -45deg":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear %	Z Comp. Force (kips)	Z Usage %	Uplift Force (kips)	Uplift Usage %	Result. Moment (ft-k)	Result. Moment Usage %	X-M. Moment (ft-k)	X-M. Moment Usage %	Y-M. Moment (ft-k)	Y-M. Moment Usage %	H-Bend-M Usage Moment (ft-k)	Z-M. Usage Moment (ft-k)	Max. Usage %
FRP:g	-2.51	0.0	3.29	0.0	0.0	-3.28	0.0	0.0	5.28	0.0	-128.22	0.0	-82.4	0.0	0.0	-0.37	0.0	0.0

Detailed FRP Pole Usages for Load Case "Wind regular -45deg":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Defl. (Local Mx) (ft-k)	Mom. Defl. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage	At Pt. %
FRP	FRP:t	Origin	0.00	-12.21	7.15	-0.18	0.00	-0.00	-0.00	-0.03	-0.04	-0.04	-0.00	0.00	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	-11.61	6.81	-0.17	-0.07	-0.07	-0.00	-0.03	-0.04	-0.04	-0.00	0.01	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	-11.61	6.81	-0.17	-0.07	-0.08	0.4	-0.29	-1.11	-0.33	-0.01	0.01	0.07	0.01	0.13	23.37	3165.94	0.1	1
FRP	SpliceT	End	2.70	-11.40	6.70	-0.16	-0.85	-0.31	0.4	-0.29	-1.11	-0.33	-0.01	0.05	0.07	0.01	0.14	23.37	3165.94	0.4	1
FRP	SpliceT	Origin	2.70	-11.40	6.70	-0.16	-0.85	-0.31	0.4	-0.39	-1.18	-0.39	-0.01	0.05	0.07	0.01	0.15	23.37	3165.94	0.4	1
FRP	Splice	End	5.30	-10.62	6.26	-0.15	-3.91	-1.33	0.4	-0.39	-1.18	-0.39	-0.01	0.21	0.07	0.01	0.25	23.37	3165.94	1.3	1
FRP	Splice	Origin	5.30	-10.62	6.26	-0.15	-3.91	-1.33	0.4	-0.57	-1.28	-0.49	-0.02	0.21	0.07	0.01	0.26	20.81	3152.06	1.4	1
FRP	SpliceB	End	7.90	-9.85	5.82	-0.14	-7.22	-2.60	0.4	-0.57	-1.28	-0.49	-0.01	0.37	0.07	0.01	0.41	20.81	3152.06	2.4	1
FRP	SpliceB	Origin	7.90	-9.85	5.82	-0.14	-7.22	-2.60	0.4	-0.73	-1.40	-0.61	-0.02	0.37	0.08	0.01	0.42	20.81	3152.06	2.4	1
FRP	Tube 2	End	11.90	-8.68	5.16	-0.12	-12.83	-5.05	0.4	-0.73	-1.40	-0.61	-0.02	0.61	0.08	0.01	0.65	20.81	3152.06	4.1	1
FRP	Tube 2	Origin	11.90	-8.68	5.16	-0.12	-12.83	-5.05	0.4	-0.88	-1.55	-0.76	-0.02	0.61	0.09	0.01	0.66	20.81	3152.06	4.1	1
FRP	Tube 2	End	15.90	-7.53	4.50	-0.10	-19.04	-8.10	0.4	-0.88	-1.55	-0.76	-0.02	0.86	0.08	0.01	0.89	20.81	3152.06	5.9	1
FRP	Tube 2	Origin	15.90	-7.53	4.50	-0.10	-19.04	-8.10	0.4	-1.03	-1.71	-0.92	-0.02	0.86	0.09	0.01	0.90	20.81	3152.06	5.9	1
FRP	Tube 2	End	19.90	-6.43	3.86	-0.08	-25.88	-11.77	0.4	-1.03	-1.71	-0.92	-0.02	1.10	0.09	0.01	1.14	20.81	3152.06	7.8	1
FRP	Tube 2	Origin	19.90	-6.43	3.86	-0.08	-25.88	-11.77	0.4	-1.18	-1.86	-1.07	-0.03	1.10	0.10	0.01	1.15	20.81	3152.06	7.9	1
FRP	Tube 2	End	23.90	-5.37	3.25	-0.07	-33.33	-16.05	0.4	-1.18	-1.86	-1.07	-0.03	1.34	0.10	0.01	1.38	20.81	3152.06	9.8	1
FRP	Tube 2	Origin	23.90	-5.37	3.25	-0.07	-33.33	-16.05	0.4	-1.35	-2.02	-1.23	-0.03	1.34	0.11	0.01	1.39	20.81	3152.06	9.9	1
FRP	Tube 2	End	27.90	-4.38	2.66	-0.05	-41.41	-20.96	0.4	-1.35	-2.02	-1.23	-0.03	1.58	0.10	0.01	1.63	20.81	3152.06	11.9	1
FRP	Tube 2	Origin	27.90	-4.38	2.66	-0.05	-41.41	-20.96	0.4	-1.47	-2.14	-1.35	-0.03	1.58	0.11	0.01	1.63	20.81	3152.06	12.0	1
FRP	Tube 2	End	29.95	-3.89	2.37	-0.04	-45.80	-23.72	0.4	-1.47	-2.14	-1.35	-0.03	1.71	0.11	0.01	1.75	20.81	3152.06	13.1	1
FRP	Tube 2	Origin	29.95	-3.89	2.37	-0.04	-45.80	-23.72	0.4	-1.56	-2.22	-1.43	-0.03	1.71	0.11	0.01	1.75	20.81	3152.06	13.1	1
FRP	SpliceT	End	32.00	-3.42	2.10	-0.04	-50.36	-26.65	0.4	-1.56	-2.22	-1.43	-0.03	1.83	0.11	0.01	1.87	20.81	3152.06	14.2	1
FRP	SpliceT	Origin	32.00	-3.42	2.10	-0.04	-50.36	-26.65	0.4	-1.75	-2.32	-1.53	-0.04	1.83	0.12	0.01	1.88	20.81	3152.06	14.2	1
FRP	Splice	End	35.22	-2.72	1.68	-0.03	-57.84	-31.57	0.4	-1.75	-2.32	-1.53	-0.04	2.14	0.12	0.01	2.19	20.81	3152.06	16.5	1
FRP	Splice	Origin	35.22	-2.72	1.68	-0.03	-57.84	-31.57	0.4	-2.04	-2.45	-1.65	-0.04	2.14	0.13	0.01	2.19	19.57	2337.71	22.2	1
FRP	SpliceB	End	38.44	-2.09	1.29	-0.02	-65.73	-36.90	0.4	-2.04	-2.45	-1.65	-0.04	2.33	0.12	0.01	2.38	19.57	2337.71	24.8	1
FRP	SpliceB	Origin	38.44	-2.09	1.29	-0.02	-65.73	-36.90	0.4	-2.28	-2.58	-1.79	-0.05	2.33	0.13	0.01	2.39	19.57	2337.71	24.8	1
FRP	Tube 3	End	42.44	-1.40	0.88	-0.01	-76.06	-44.05	0.4	-2.28	-2.58	-1.79	-0.05	2.57	0.13	0.01	2.62	19.57	2337.71	28.0	1
FRP	Tube 3	Origin	42.44	-1.40	0.88	-0.01	-76.06	-44.05	0.4	-2.47	-2.73	-1.93	-0.05	2.57	0.14	0.01	2.63	19.57	2337.71	28.1	1
FRP	Tube 3	End	46.44	-0.85	0.54	-0.01	-86.97	-51.79	0.4	-2.47	-2.73	-1.93	-0.05	2.80	0.13	0.01	2.85	19.57	2337.71	31.4	1
FRP	Tube 3	Origin	46.44	-0.85	0.54	-0.01	-86.97	-51.78	0.4	-2.67	-2.87	-2.08	-0.05	2.80	0.14	0.01	2.86	19.57	2337.71	31.4	1
FRP	Tube 3	End	50.44	-0.43	0.27	-0.00	-98.44	-60.10	0.4	-2.67	-2.87	-2.08	-0.05	3.02	0.14	0.00	3.08	19.57	2337.71	34.8	1
FRP	Tube 3	Origin	50.44	-0.43	0.27	-0.00	-98.44	-60.10	0.4	-2.87	-3.01	-2.23	-0.06	3.02	0.14	0.00	3.08	19.57	2337.71	34.8	1
FRP	Tube 3	End	54.44	-0.15	0.10	-0.00	-110.50	-69.01	0.4	-2.87	-3.01	-2.23	-0.05	3.23	0.14	0.00	3.30	19.57	2337.71	38.2	1
FRP	Tube 3	Origin	54.44	-0.15	0.10	-0.00	-110.50	-69.00	0.4	-3.05	-3.14	-2.35	-0.06	3.23	0.15	0.00	3.30	19.57	2337.71	38.2	1
FRP	Tube 3	End	57.22	-0.04	0.03	-0.00	-119.21	-75.54	0.4	-3.05	-3.14	-2.35	-0.06	3.38	0.15	0.00	3.45	19.57	2337.71	40.6	1
FRP	Tube 3	Origin	57.22	-0.04	0.03	-0.00	-119.22	-75.54	0.4	-3.20	-3.24	-2.46	-0.06	3.38	0.15	0.00	3.45	19.57	2337.71	40.7	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	-128.22	-82.37	0.4	-3.20	-3.24	-2.46	-0.06	3.52	0.15	0.00	3.59	19.57	2337.71	43.1	1

Equilibrium Joint Positions and Rotations for Load Case "Wind regular -60deg":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	0.4218	-1.168	-0.01611	1.6355	0.5696	0.0105	0.4218	-1.168	59.98
FRP:ant	0.4019	-1.111	-0.0152	1.6354	0.5695	0.0105	0.4019	-1.111	57.98

Joint Support Reactions for Load Case "Wind regular -60deg":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Comp. Force (kips)	Z Usage %	Uplift Force (kips)	Uplift Usage %	Result. Force (kips)	Result. Usage %	X-M. Moment (ft-k)	X-M. Usage %	Y-M. Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage (ft-k)	H-Bend-M Usage %	Z-M. Moment (ft-k)	Z-M. Usage %	Max. Usage %
FRP:g	-1.78	0.0	3.89	0.0	0.0	-3.28	0.0	0.0	5.39	0.0	-148.51	0.0	-58.3	0.0	0.0	-0.28	0.0	0.0	0.0	

Detailed FRP Pole Usages for Load Case "Wind regular -60deg":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Defl. (Local Mx) (ft-k)	Mom. Defl. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage	At Pt. %
FRP	FRP:t	Origin	0.00	-14.01	5.06	-0.19	0.00	-0.00	-0.0	-0.03	-0.05	-0.03	-0.00	0.00	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	-13.33	4.82	-0.18	-0.09	-0.05	-0.0	-0.03	-0.05	-0.03	-0.00	0.01	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	-13.33	4.82	-0.18	-0.09	-0.06	0.3	-0.28	-1.22	-0.23	-0.01	0.01	0.07	0.01	0.14	23.37	3165.94	0.1	1
FRP	SpliceT	End	2.70	-13.09	4.74	-0.18	-0.94	-0.22	0.3	-0.28	-1.22	-0.23	-0.01	0.05	0.07	0.01	0.15	23.37	3165.94	0.4	1
FRP	SpliceT	Origin	2.70	-13.09	4.74	-0.18	-0.94	-0.22	0.3	-0.38	-1.30	-0.28	-0.01	0.05	0.08	0.01	0.16	23.37	3165.94	0.4	1
FRP	Splice	End	5.30	-12.20	4.43	-0.16	-4.31	-0.95	0.3	-0.38	-1.30	-0.28	-0.01	0.22	0.07	0.01	0.27	23.37	3165.94	1.4	1
FRP	Splice	Origin	5.30	-12.20	4.43	-0.16	-4.31	-0.95	0.3	-0.56	-1.42	-0.35	-0.02	0.22	0.08	0.01	0.28	20.81	3152.06	1.4	1
FRP	SpliceB	End	7.90	-11.32	4.12	-0.15	-7.99	-1.85	0.3	-0.56	-1.42	-0.35	-0.01	0.39	0.08	0.01	0.43	20.81	3152.06	2.6	1
FRP	SpliceB	Origin	7.90	-11.32	4.12	-0.15	-7.99	-1.85	0.3	-0.73	-1.57	-0.43	-0.02	0.39	0.08	0.01	0.44	20.81	3152.06	2.6	1
FRP	Tube 2	End	11.90	-9.97	3.65	-0.13	-14.27	-3.58	0.3	-0.73	-1.57	-0.43	-0.02	0.65	0.08	0.01	0.69	20.81	3152.06	4.4	1
FRP	Tube 2	Origin	11.90	-9.97	3.65	-0.13	-14.27	-3.58	0.3	-0.87	-1.76	-0.54	-0.02	0.65	0.09	0.01	0.70	20.81	3152.06	4.4	1
FRP	Tube 2	End	15.90	-8.66	3.19	-0.11	-21.29	-5.74	0.3	-0.87	-1.76	-0.54	-0.02	0.91	0.09	0.01	0.95	20.81	3152.06	6.3	1
FRP	Tube 2	Origin	15.90	-8.66	3.19	-0.11	-21.29	-5.74	0.3	-1.02	-1.94	-0.65	-0.02	0.91	0.10	0.01	0.96	20.81	3152.06	6.3	1
FRP	Tube 2	End	19.90	-7.40	2.74	-0.09	-29.07	-8.34	0.3	-1.02	-1.94	-0.65	-0.02	1.17	0.10	0.01	1.21	20.81	3152.06	8.3	1
FRP	Tube 2	Origin	19.90	-7.40	2.74	-0.09	-29.07	-8.33	0.3	-1.18	-2.13	-0.76	-0.03	1.17	0.11	0.01	1.22	20.81	3152.06	8.3	1
FRP	Tube 2	End	23.90	-6.19	2.30	-0.07	-37.61	-11.37	0.3	-1.18	-2.13	-0.76	-0.03	1.43	0.10	0.01	1.47	20.81	3152.06	10.4	1
FRP	Tube 2	Origin	23.90	-6.19	2.30	-0.07	-37.61	-11.37	0.3	-1.34	-2.33	-0.87	-0.03	1.43	0.11	0.01	1.47	20.81	3152.06	10.5	1
FRP	Tube 2	End	27.90	-5.04	1.88	-0.06	-46.92	-14.84	0.3	-1.34	-2.33	-0.87	-0.03	1.68	0.11	0.00	1.72	20.81	3152.06	12.6	1
FRP	Tube 2	Origin	27.90	-5.04	1.88	-0.06	-46.92	-14.84	0.3	-1.47	-2.47	-0.95	-0.03	1.68	0.12	0.00	1.73	20.81	3152.06	12.7	1
FRP	Tube 2	End	29.95	-4.48	1.68	-0.05	-51.99	-16.80	0.3	-1.47	-2.47	-0.95	-0.03	1.81	0.12	0.00	1.85	20.81	3152.06	13.8	1
FRP	Tube 2	Origin	29.95	-4.48	1.68	-0.05	-51.99	-16.79	0.3	-1.55	-2.57	-1.01	-0.03	1.81	0.12	0.00	1.85	20.81	3152.06	13.8	1
FRP	SpliceT	End	32.00	-3.94	1.48	-0.04	-57.27	-18.87	0.3	-1.55	-2.57	-1.01	-0.03	1.93	0.12	0.00	1.98	20.81	3152.06	15.0	1
FRP	SpliceT	Origin	32.00	-3.94	1.48	-0.04	-57.27	-18.87	0.3	-1.74	-2.70	-1.08	-0.04	1.93	0.12	0.00	1.98	20.81	3152.06	15.0	1
FRP	Splice	End	35.22	-3.14	1.19	-0.03	-65.96	-22.35	0.3	-1.74	-2.70	-1.08	-0.04	2.26	0.13	0.00	2.31	20.81	3152.06	17.4	1
FRP	Splice	Origin	35.22	-3.14	1.19	-0.03	-65.96	-22.35	0.3	-2.03	-2.85	-1.17	-0.04	2.26	0.13	0.00	2.32	19.57	2337.71	23.5	1
FRP	SpliceB	End	38.44	-2.41	0.92	-0.02	-75.14	-26.12	0.3	-2.03	-2.85	-1.17	-0.04	2.46	0.13	0.00	2.51	19.57	2337.71	26.1	1
FRP	SpliceB	Origin	38.44	-2.41	0.92	-0.02	-75.14	-26.12	0.3	-2.27	-3.02	-1.27	-0.05	2.46	0.14	0.00	2.52	19.57	2337.71	26.2	1
FRP	Tube 3	End	42.44	-1.62	0.62	-0.01	-87.20	-31.18	0.3	-2.27	-3.02	-1.27	-0.05	2.70	0.13	0.00	2.76	19.57	2337.71	29.5	1
FRP	Tube 3	Origin	42.44	-1.62	0.62	-0.01	-87.20	-31.18	0.3	-2.46	-3.19	-1.37	-0.05	2.70	0.14	0.00	2.77	19.57	2337.71	29.6	1
FRP	Tube 3	End	46.44	-0.98	0.38	-0.01	-99.97	-36.65	0.3	-2.46	-3.19	-1.37	-0.05	2.94	0.14	0.00	3.00	19.57	2337.71	33.0	1
FRP	Tube 3	Origin	46.44	-0.98	0.38	-0.01	-99.97	-36.65	0.3	-2.66	-3.37	-1.47	-0.05	2.94	0.15	0.00	3.01	19.57	2337.71	33.0	1
FRP	Tube 3	End	50.44	-0.50	0.19	-0.00	-113.44	-42.54	0.3	-2.66	-3.37	-1.47	-0.05	3.17	0.14	0.00	3.23	19.57	2337.71	36.5	1
FRP	Tube 3	Origin	50.44	-0.50	0.19	-0.00	-113.44	-42.53	0.3	-2.87	-3.55	-1.58	-0.06	3.17	0.15	0.00	3.24	19.57	2337.71	36.5	1
FRP	Tube 3	End	54.44	-0.17	0.07	-0.00	-127.62	-48.83	0.3	-2.87	-3.55	-1.58	-0.05	3.39	0.15	0.00	3.46	19.57	2337.71	40.1	1
FRP	Tube 3	Origin	54.44	-0.17	0.07	-0.00	-127.62	-48.83	0.3	-3.05	-3.70	-1.66	-0.06	3.39	0.15	0.00	3.46	19.57	2337.71	40.1	1
FRP	Tube 3	End	57.22	-0.04	0.02	-0.00	-137.89	-53.46	0.3	-3.05	-3.70	-1.66	-0.06	3.54	0.15	0.00	3.61	19.57	2337.71	42.6	1
FRP	Tube 3	Origin	57.22	-0.04	0.02	-0.00	-137.89	-53.45	0.3	-3.20	-3.82	-1.74	-0.06	3.54	0.16	0.00	3.61	19.57	2337.71	42.6	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	-148.51	-58.29	0.3	-3.20	-3.82	-1.74	-0.06	3.69	0.15	0.00	3.76	19.57	2337.71	45.1	1

Equilibrium Joint Positions and Rotations for Load Case "Wind regular -90deg":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
FRP:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
FRP:t	-4.939e-17	-1.327	-0.01831	1.8570	-0.0000	-0.0000	-4.939e-17	-1.327	59.98
FRP:ant	-4.66e-17	-1.262	-0.01726	1.8569	-0.0000	-0.0000	-4.66e-17	-1.262	57.98

Joint Support Reactions for Load Case "Wind regular -90deg":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	Y H-Shear Usage %	Z Comp. Force (kips)	Z Usage %	Uplift Usage %	Result. Force (kips)	Result. Usage %	X X-M. Moment (ft-k)	X-M. Usage %	Y Y-M. Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Z-M. Moment (ft-k)	Z-M. Usage %	Max. Usage %
FRP:g	-0.00	0.0	4.45	0.0	0.0	-3.28	0.0	0.0	5.53	0.0	-169.17	0.0	0.0	0.0	0.0	0.00	0.0	0.0

Detailed FRP Pole Usages for Load Case "Wind regular -90deg":

Note: Printed stresses calculated as per ASCE 48-05 and usages as per ANSI/TIA 222-G 4.8.2

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Defl. (Local Mx) (ft-k)	Mom. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	F.S. at T. (ksi)	MOE at T. (ksi)	Max. Usage	At Pt. %
FRP	FRP:t	Origin	0.00	-15.93	-0.00	-0.22	0.00	0.00	-0.0	-0.03	-0.05	-0.00	-0.00	0.00	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	End	2.00	-15.15	-0.00	-0.21	-0.11	-0.00	-0.0	-0.03	-0.05	-0.00	-0.00	0.01	0.00	0.00	0.01	23.37	3165.94	0.0	1
FRP	FRP:ant	Origin	2.00	-15.15	-0.00	-0.21	-0.11	-0.00	-0.0	-0.27	-1.37	0.00	-0.01	0.01	0.08	0.00	0.14	23.37	3165.94	0.1	1
FRP	SpliceT	End	2.70	-14.88	-0.00	-0.20	-1.06	0.00	-0.0	-0.27	-1.37	0.00	-0.01	0.06	0.08	0.00	0.15	23.37	3165.94	0.4	1
FRP	SpliceT	Origin	2.70	-14.88	-0.00	-0.20	-1.06	0.00	0.0	-0.37	-1.46	0.00	-0.01	0.06	0.08	0.00	0.16	23.37	3165.94	0.4	1
FRP	Splice	End	5.30	-13.87	-0.00	-0.19	-4.85	0.00	0.0	-0.37	-1.46	0.00	-0.01	0.24	0.08	0.00	0.29	23.37	3165.94	1.5	1
FRP	Splice	Origin	5.30	-13.87	-0.00	-0.19	-4.85	0.00	0.0	-0.56	-1.60	0.00	-0.01	0.24	0.09	0.00	0.30	20.81	3152.06	1.6	1
FRP	SpliceB	End	7.90	-12.86	-0.00	-0.17	-8.99	0.00	0.0	-0.56	-1.60	0.00	-0.01	0.43	0.08	0.00	0.47	20.81	3152.06	2.8	1
FRP	SpliceB	Origin	7.90	-12.86	-0.00	-0.17	-8.99	0.00	-0.0	-0.72	-1.77	0.00	-0.02	0.43	0.09	0.00	0.48	20.81	3152.06	2.8	1
FRP	Tube 2	End	11.90	-11.34	-0.00	-0.15	-16.08	0.00	-0.0	-0.72	-1.77	0.00	-0.02	0.72	0.09	0.00	0.75	20.81	3152.06	4.8	1
FRP	Tube 2	Origin	11.90	-11.34	-0.00	-0.15	-16.08	0.00	-0.0	-0.86	-1.99	0.00	-0.02	0.72	0.10	0.00	0.76	20.81	3152.06	4.8	1
FRP	Tube 2	End	15.90	-9.85	-0.00	-0.12	-24.03	0.00	-0.0	-0.86	-1.99	0.00	-0.02	1.00	0.10	0.00	1.03	20.81	3152.06	6.9	1
FRP	Tube 2	Origin	15.90	-9.85	-0.00	-0.12	-24.03	0.00	-0.0	-1.01	-2.21	-0.00	-0.02	1.00	0.11	0.00	1.04	20.81	3152.06	6.9	1
FRP	Tube 2	End	19.90	-8.41	-0.00	-0.10	-32.86	0.00	-0.0	-1.01	-2.21	-0.00	-0.02	1.27	0.10	0.00	1.31	20.81	3152.06	9.0	1
FRP	Tube 2	Origin	19.90	-8.41	-0.00	-0.10	-32.86	0.00	-0.0	-1.17	-2.43	-0.00	-0.03	1.27	0.11	0.00	1.32	20.81	3152.06	9.1	1
FRP	Tube 2	End	23.90	-7.04	-0.00	-0.08	-42.56	0.00	-0.0	-1.17	-2.43	-0.00	-0.03	1.55	0.11	0.00	1.59	20.81	3152.06	11.3	1
FRP	Tube 2	Origin	23.90	-7.04	-0.00	-0.08	-42.56	0.00	-0.0	-1.33	-2.65	-0.00	-0.03	1.55	0.12	0.00	1.59	20.81	3152.06	11.3	1
FRP	Tube 2	End	27.90	-5.73	-0.00	-0.06	-53.14	-0.00	-0.0	-1.33	-2.65	-0.00	-0.03	1.81	0.12	0.00	1.85	20.81	3152.06	13.6	1
FRP	Tube 2	Origin	27.90	-5.73	-0.00	-0.06	-53.14	-0.00	0.0	-1.46	-2.81	-0.00	-0.03	1.81	0.12	0.00	1.86	20.81	3152.06	13.7	1
FRP	Tube 2	End	29.95	-5.10	-0.00	-0.05	-58.92	-0.00	0.0	-1.46	-2.81	-0.00	-0.03	1.95	0.12	0.00	1.99	20.81	3152.06	14.9	1
FRP	Tube 2	Origin	29.95	-5.10	-0.00	-0.05	-58.92	-0.00	0.0	-1.55	-2.93	-0.00	-0.03	1.95	0.13	0.00	1.99	20.81	3152.06	14.9	1
FRP	SpliceT	End	32.00	-4.48	-0.00	-0.05	-64.93	-0.00	0.0	-1.55	-2.93	-0.00	-0.03	2.08	0.13	0.00	2.13	20.81	3152.06	16.1	1
FRP	SpliceT	Origin	32.00	-4.48	-0.00	-0.05	-64.93	-0.00	0.0	-1.73	-3.08	-0.00	-0.04	2.08	0.13	0.00	2.13	20.81	3152.06	16.2	1
FRP	Splice	End	35.22	-3.57	-0.00	-0.03	-74.84	-0.00	0.0	-1.73	-3.08	-0.00	-0.04	2.43	0.13	0.00	2.48	20.81	3152.06	18.7	1
FRP	Splice	Origin	35.22	-3.57	-0.00	-0.03	-74.84	-0.00	0.0	-2.02	-3.25	-0.00	-0.04	2.43	0.14	0.00	2.48	19.57	2337.71	25.2	1
FRP	SpliceB	End	38.44	-2.74	-0.00	-0.02	-85.31	-0.00	0.0	-2.02	-3.25	-0.00	-0.04	2.64	0.14	0.00	2.69	19.57	2337.71	28.0	1
FRP	SpliceB	Origin	38.44	-2.74	-0.00	-0.02	-85.31	-0.00	-0.0	-2.26	-3.44	-0.00	-0.05	2.64	0.14	0.00	2.70	19.57	2337.71	28.0	1
FRP	Tube 3	End	42.44	-1.85	-0.00	-0.02	-99.08	-0.00	-0.0	-2.26	-3.44	-0.00	-0.05	2.89	0.14	0.00	2.95	19.57	2337.71	31.6	1
FRP	Tube 3	Origin	42.44	-1.85	-0.00	-0.02	-99.08	-0.00	0.0	-2.46	-3.65	-0.00	-0.05	2.89	0.15	0.00	2.96	19.57	2337.71	31.6	1
FRP	Tube 3	End	46.44	-1.12	-0.00	-0.01	-113.66	-0.00	0.0	-2.46	-3.65	-0.00	-0.05	3.14	0.14	0.00	3.20	19.57	2337.71	35.2	1
FRP	Tube 3	Origin	46.44	-1.12	-0.00	-0.01	-113.66	-0.00	0.0	-2.66	-3.85	-0.00	-0.05	3.14	0.15	0.00	3.20	19.57	2337.71	35.2	1
FRP	Tube 3	End	50.44	-0.57	-0.00	-0.00	-129.06	-0.00	0.0	-2.66	-3.85	-0.00	-0.05	3.38	0.15	0.00	3.44	19.57	2337.71	38.9	1
FRP	Tube 3	Origin	50.44	-0.57	-0.00	-0.00	-129.06	-0.00	0.0	-2.87	-4.05	-0.00	-0.06	3.38	0.16	0.00	3.44	19.57	2337.71	38.9	1
FRP	Tube 3	End	54.44	-0.20	-0.00	-0.00	-145.27	-0.00	0.0	-2.87	-4.05	-0.00	-0.05	3.61	0.15	0.00	3.67	19.57	2337.71	42.6	1
FRP	Tube 3	Origin	54.44	-0.20	-0.00	-0.00	-145.27	-0.00	0.0	-3.05	-4.23	-0.00	-0.06	3.61	0.16	0.00	3.67	19.57	2337.71	42.6	1
FRP	Tube 3	End	57.22	-0.05	-0.00	-0.00	-157.02	-0.00	0.0	-3.05	-4.23	-0.00	-0.06	3.76	0.16	0.00	3.83	19.57	2337.71	45.2	1
FRP	Tube 3	Origin	57.22	-0.05	-0.00	-0.00	-157.02	-0.00	0.0	-3.20	-4.38	-0.00	-0.06	3.76	0.16	0.00	3.83	19.57	2337.71	45.2	1
FRP	FRP:g	End	60.00	0.00	0.00	0.00	-169.17	-0.00	0.0	-3.20	-4.38	-0.00	-0.06	3.91	0.16	0.00	3.98	19.57	2337.71	47.8	1

Summary of FRP Pole Usages:

FRP Pole Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
FRP	47.80	Wind regular 90deg	1.4	19	2929.9

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

	Load Case	Maximum Usage %	Element Label	Element Type
	Combined wind and ice 0	12.40	FRP FRP Pole	
	Combined wind and ice 180	12.40	FRP FRP Pole	
	Combined wind and ice -90	15.45	FRP FRP Pole	
	Combined wind and ice 90	15.45	FRP FRP Pole	
	Combined wind and ice -60	14.86	FRP FRP Pole	
	Combined wind and ice 60	14.86	FRP FRP Pole	
	Combined wind and ice -45	14.41	FRP FRP Pole	
	Combined wind and ice 45	14.41	FRP FRP Pole	
	Wind service 0	8.33	FRP FRP Pole	
	Wind service 180	8.33	FRP FRP Pole	
	Wind service -90	12.05	FRP FRP Pole	
	Wind service 90	12.05	FRP FRP Pole	
	Wind service -60	11.38	FRP FRP Pole	
	Wind service 60	11.38	FRP FRP Pole	
	Wind service -45	10.89	FRP FRP Pole	
	Wind service 45	10.89	FRP FRP Pole	
	Wind Regular 0deg	32.80	FRP FRP Pole	
	Wind regular 45deg	43.09	FRP FRP Pole	
	Wind regular 60deg	45.09	FRP FRP Pole	
	Wind regular 90deg	47.80	FRP FRP Pole	
	Wind regular 180deg	32.80	FRP FRP Pole	
	Wind regular -45deg	43.09	FRP FRP Pole	
	Wind regular -60deg	45.09	FRP FRP Pole	
	Wind regular -90deg	47.80	FRP FRP Pole	

Summary of FRP Pole Usages by Load Case:

	Load Case	Maximum Usage %	FRP Pole Label	Height AGL (ft)	Segment Number
	Combined wind and ice 0	12.40	FRP	1.4	19
	Combined wind and ice 180	12.40	FRP	1.4	19
	Combined wind and ice -90	15.45	FRP	1.4	19
	Combined wind and ice 90	15.45	FRP	1.4	19
	Combined wind and ice -60	14.86	FRP	1.4	19
	Combined wind and ice 60	14.86	FRP	1.4	19
	Combined wind and ice -45	14.41	FRP	1.4	19
	Combined wind and ice 45	14.41	FRP	1.4	19
	Wind service 0	8.33	FRP	1.4	19
	Wind service 180	8.33	FRP	1.4	19
	Wind service -90	12.05	FRP	1.4	19
	Wind service 90	12.05	FRP	1.4	19
	Wind service -60	11.38	FRP	1.4	19
	Wind service 60	11.38	FRP	1.4	19
	Wind service -45	10.89	FRP	1.4	19
	Wind service 45	10.89	FRP	1.4	19
	Wind Regular 0deg	32.80	FRP	1.4	19
	Wind regular 45deg	43.09	FRP	1.4	19
	Wind regular 60deg	45.09	FRP	1.4	19
	Wind regular 90deg	47.80	FRP	1.4	19
	Wind regular 180deg	32.80	FRP	1.4	19
	Wind regular -45deg	43.09	FRP	1.4	19
	Wind regular -60deg	45.09	FRP	1.4	19
	Wind regular -90deg	47.80	FRP	1.4	19

*** Weight of structure (lbs):
Weight of FRP Poles: 2929.9
Weight of Equipment: 198.0
Total: 3127.9

*** End of Report

Redefining Licensed Backhaul

B11 Point-to-Point Backhaul Radio

10.0–11.7 GHz



The Mimosa B11 backhaul radio is designed for the modern Internet era, adapting instantly to variable upstream and downstream bandwidth requirements. The B11 is fiber-ready—simply add your preferred SFP module and you'll be lit up with gigabit fiber speeds. If you are not quite ready for fiber, the B11 also comes with a standard gigabit Power-over-Ethernet connection.

We've simplified the licensing process and offer instant visibility into the FCC ULS database to quickly assess surrounding links, providing an early indication of coordination viability. A single B11 can support an entire 10.0–11.7 GHz band, maximizing your ability to find a clear, licensable channel.

Superior Performance

Our speeds will blow you away. With up to 1.5 Gbps aggregate speed and under 1 ms latency, high performance has never been this affordable. The B11 has the lowest cost per Mbps in the industry with link distances over 100 km.

Ultra Rugged

Carrier grade IP67 design allows the B11 to withstand the harshest of environmental conditions.

Night and Day

The B11 dynamically adapts to bandwidth demand using auto-TDMA technology, maximizing spectrum utilization throughout the day.

Monitor with Ease

Assessing link health and identifying potential problems has never been easier. Links are continuously monitored by our Mimosa Cloud service with rich data collection and analysis.

Technical Specifications

Performance

- **Max Throughput:** Up to 1.5 Gbps IP aggregate UL/DL (1.7 Gbps PHY)
- **Low Latency:** <1 ms
- **Supported MAC:** TDMA, TDMA-FD

Radio

- **MIMO & Modulation:** 4x4:4 MIMO OFDM up to 256 QAM
- **Bandwidth:** Dual 20/40/80 MHz channels
- **Frequency Range:** 10000–11700 MHz restricted by country of operation
- **Max Output Power:** 27 dBm
- **Sensitivity (MCS 0):**
 - 87 dBm @ 80 MHz
 - 90 dBm @ 40 MHz
 - 93 dBm @ 20 MHz

Power

- **Max Power Consumption:** 30 W
- **System Power Method:** 48 V DC 802.3 at compliant power injectors
- **System Lightning & ESD Protection:** 6 kV
- **PoE Power Supply:** Passive POE compliant, 48-56 V Power over Ethernet supply with IEC61000-4-5 surge protection

Physical

- **Dimensions:**
 - Height: 260 mm (10.2")
 - Width: 158 mm (9.6")
 - Depth: 70 mm (2.8")
- **Weight:** 2.5 kg (4.5 lbs)
- **Enclosure Characteristics:** Outdoor UV stabilized plastic Aluminum mounting panel
- **Wind Survivability:** 200 km/h (125 mph)
- **Wind Loading:** 9.8 kg @ 160 km/h (21.8 lbs @ 100 mph)
- **Mounting:** Direct mount to compatible antenna
- **Antenna Connection:** Direct connect to circular dual polarized antenna
- **Network Interfaces:** Single connection ethernet or fiber

Environmental

- **Outdoor Ingress Protection Rating:** IP67
- **Operating Temperature:** -40°C to +55°C (-40°F to 131°F)
- **Operating Humidity:** 5 to 100% condensing
- **Operating Altitude:** 4420 m (14500') maximum
- **Shock & Vibration:** ETS 300-019-2-4 class 4M5

Features

- **Gigabit Ethernet:** 10/100/1000-BASE-T
- **Fiber Capable:** SFP Cage included
Radio accepts either copper Ethernet or SFP but does not support simultaneous operation
- **Dual Protocol Operation:** 2 dual-stream radios operating on non-contiguous frequencies allow for traditional FDD-like performance or TDMA; Automatic load balancing of traffic across 4 total MIMO streams with individual stream encoding up to 256 QAM
- **Management Services:** Mimosa cloud monitoring and management; SNMPv2 & Syslog legacy monitoring; HTTPS; HTML 5 based Web UI; (2.4 GHz WiFi management module no longer available as of February 2021)
- **Smart Spectrum Management:** Active scan monitors/logs ongoing RF interference across channels (no service impact); Dynamic auto-optimization of channel and bandwidth use
- **Security:** 128-bit AES PSK with hardware acceleration
- **QoS:** Supports 4 pre-configured QoS levels
- **GPS Location:** GNSS-1 (GPS + GLONASS)
- **Colocation Synchronization:** 1PPS GPS TX/RX synchronization for colocated co-channel radios; Adjustable up/downstream bandwidth radio

Regulatory + Compliance

- **Approvals:** FCC Part 101 and EN 302 217
- **RoHS Compliance:** Yes
- **Safety:** UL/EC/EN/ 60950-1 + CSA-22.2

Mimosa Networks, a division of Airspan, is the global technology leader in wireless broadband solutions, enabling service providers to connect dense urban and hard-to-reach rural homes at a fraction of the cost of fiber. Mimosa Networks was acquired in 2018 by Airspan, the leading vendor of 4G/5G LTE small cells and backhaul technologies.

FAA Registration and Path Studies

TOWAIR Determination Results

This structure requires FAA notification and FCC registration, based on a check of the coordinates, heights, and structure type you provided. As detailed below, one or more of the determination results produced a "fail slope" result, which means registration is required.

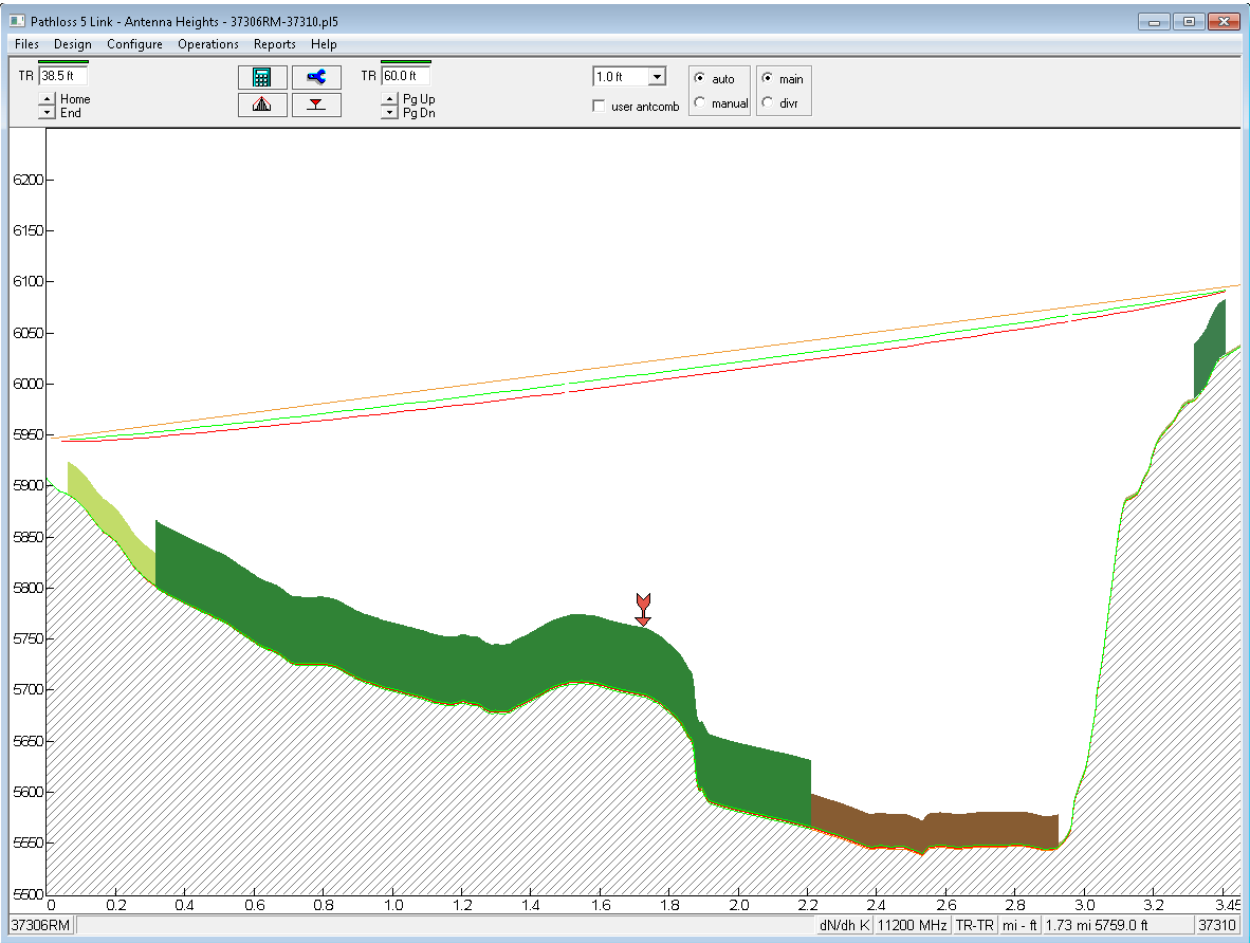
*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results							
FAIL SLOPE (100:1)FAA REQ - 3447.0 Meters(11308.9 Feet) away & exceeds by 60.0 Meters (196.849 Feet)							
Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	38-50-1.00N	107-38-19.00W	NORTH FORK VALLEY	DELTA PAONIA, CO	1762.7	1371.5999999999999
Your Specifications							
NAD83 Coordinates							
Latitude						38-51-52.1 north	
Longitude						107-38-35.0 west	
Measurements (Meters)							
Overall Structure Height (AGL)						18.3	
Support Structure Height (AGL)						18.3	
Site Elevation (AMSL)						1840.1	
Structure Type							
MTOWER - Monopole							

[Tower Construction Notifications](#)
Notify Tribes and Historic Preservation Officers of your plans to build a tower.

CLOSE WINDOW



TOWAIR Determination Results

A routine check of the coordinates, heights, and structure type you provided indicates that this structure does not require registration.

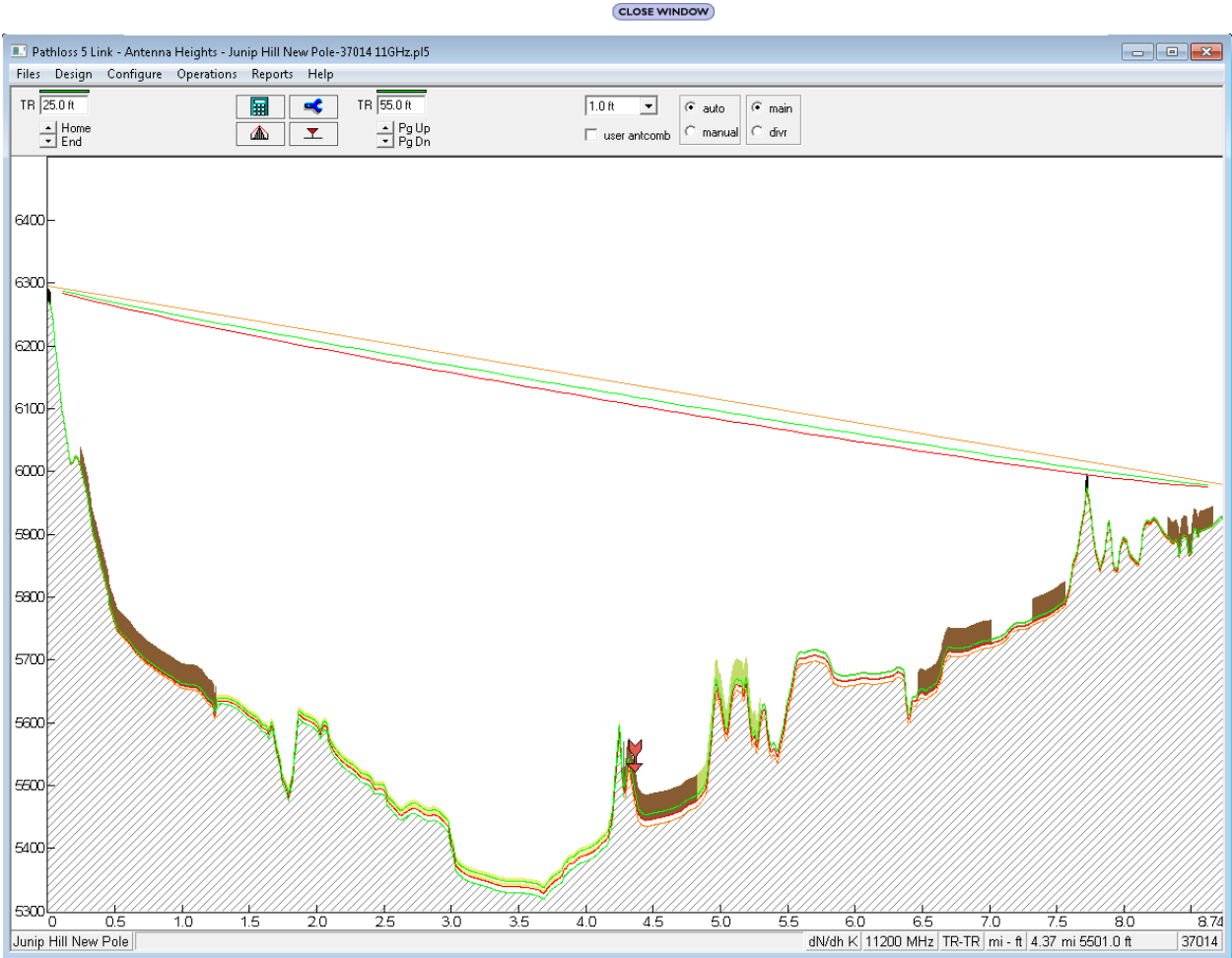
*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

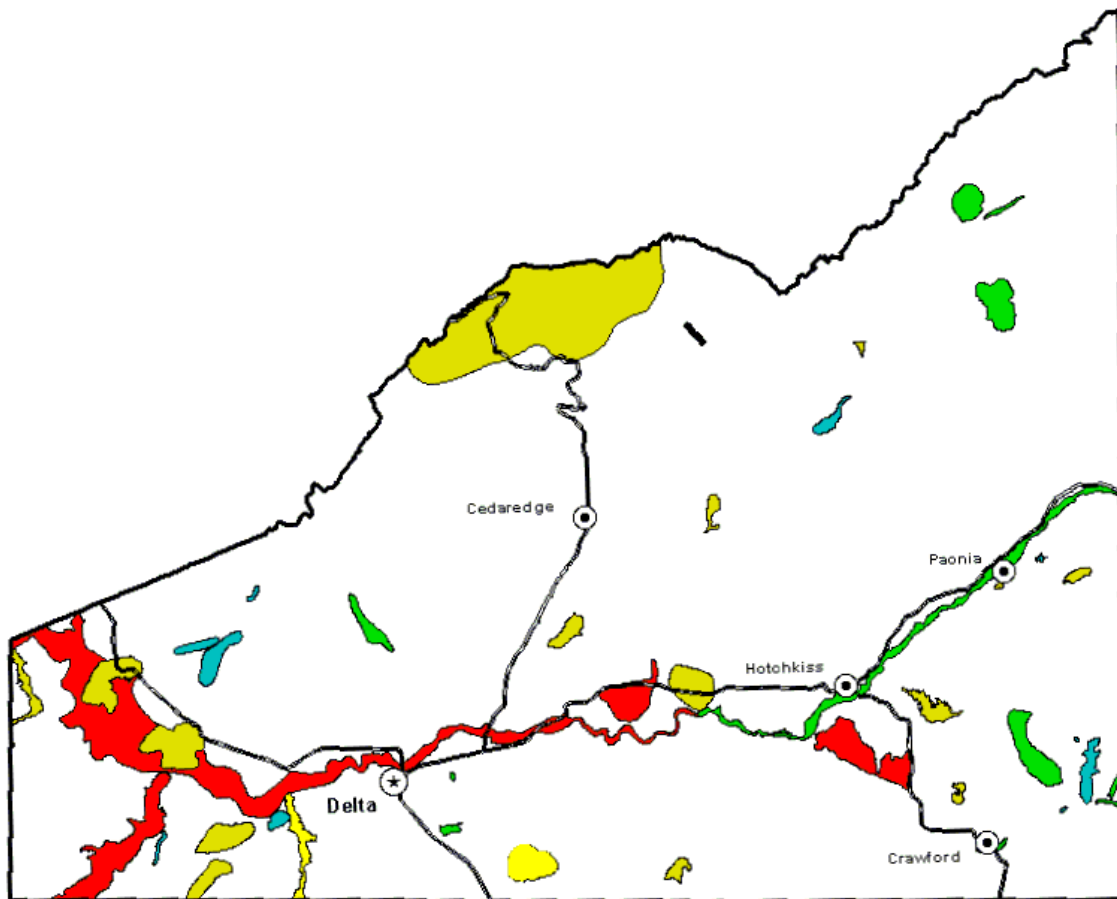
DETERMINATION Results							
PASS SLOPE(100:1)NO FAA REQ - 5633.0 Meters (18480.7 Feet)away & below slope by 205.0 Meters (672.559 Feet)							
Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	38-42-16.00N	107-38-20.00W	CRAWFORD	DELTA CRAWFORD, CO	1972.1	1493.5
Your Specifications							
NAD83 Coordinates							
Latitude						38-45-17.7 north	
Longitude						107-37-55.5 west	
Measurements (Meters)							
Overall Structure Height (AGL)						18.3	
Support Structure Height (AGL)						18.3	
Site Elevation (AMSL)						1805.3	
Structure Type							
MTOWER - Monopole							

Tower Construction Notifications

Notify Tribes and Historic Preservation Officers of your plans to build a tower.



Natural Heritage Biological Survey of Delta County, Colorado



Prepared for Delta County Commissioners
February, 1998

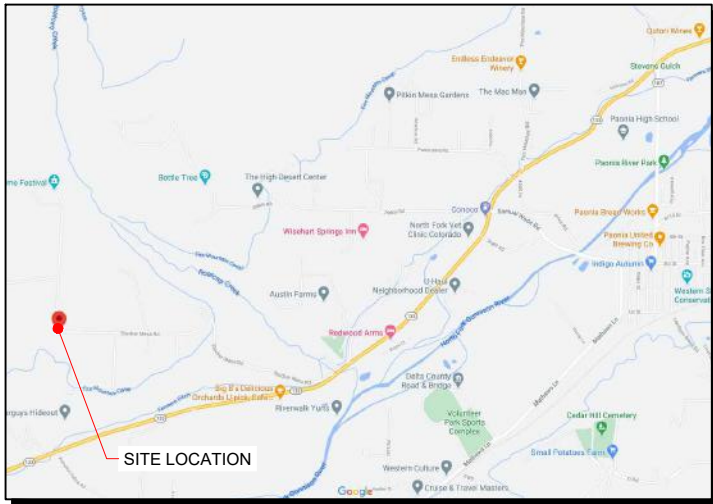
by Peggy Lyon and Earl Williams
Colorado Natural Heritage Program
254 General Services Building
Colorado State University
Fort Collins, Colorado 80523

Follow Link for Full Report:

[https://cnhp.colostate.edu/wp-content/uploads/download/documents/1998/
Natural_Heritage_Biological_Survey_of_Delta_County_Colorado.pdf](https://cnhp.colostate.edu/wp-content/uploads/download/documents/1998/Natural_Heritage_Biological_Survey_of_Delta_County_Colorado.pdf)



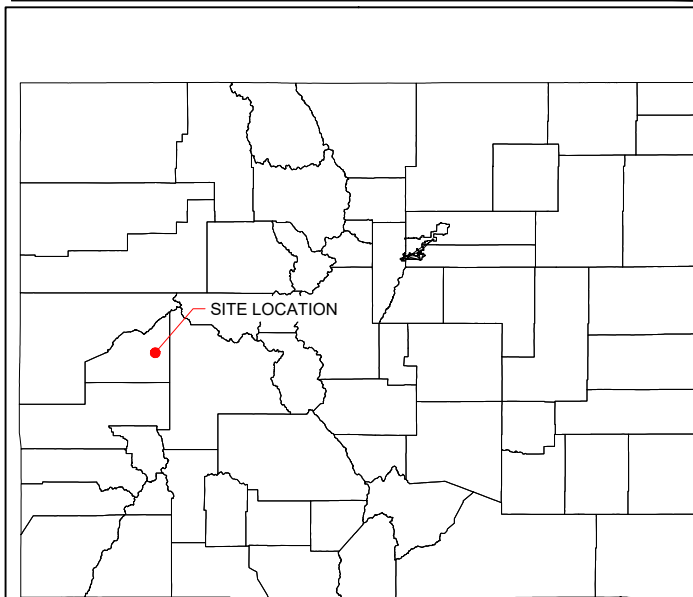
VICINITY MAP



AERIAL VIEW OF SITE



GENERAL LOCATION



PAONIA STANDARD MICROWAVE POLE INSTALLATION

DRIVING DIRECTIONS

FROM PAONIA CO:
HEAD NORTH ON ORCHARD AVE TOWARDS 3RD ST
60 FT
TURN LEFT AT THE 1ST CROSS STREET ONTO 3RD ST
0.5 MI
CONTINUE ONTO SAMUEL WADE ROAD
0.3 MI
TURN LEFT ONTO STAHL ROAD
0.3 MI
TURN LEFT AT THE 1ST CROSS STREET ONTO CO-133 S
0.8 MI
TURN RIGHT ONTO STUCKER MESA ROAD

SHEET INDEX

GENERAL:

T-1 TITLE SHEET

SITE:

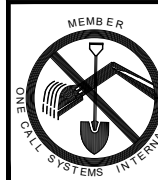
- A-1 ELEVATION
- A-2 OVERALL SITE PLAN WITH AERIAL
- A-3 SITE PLAN
- A-4 SKETCH PETITION
- A-5 SKETCH EXISTING
- A-6 SKETCH DEEDS
- A-7 ANTENNA LAYOUT
- A-8 EQUIPMENT FOUNDATION PLAN & DETAILS
- A-9 CABLE DETAILS

GROUNDING:

- G-1 GROUNDING PLAN
- G-2 GROUNDING DETAILS

UTILITY:

- E-1 UTILITY PLAN



TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND
FACILITIES BEFORE YOU DIG IN WISCONSIN

DIGGERS HOTLINE
811 OR 1-800-242-8511

WISCONSIN STATUTE 182.0175 (1974) REQUIRES
MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE.

APPROVALS

CONSTRUCTION MANAGER: _____

DESIGN ENGINEER: _____

OPERATIONS MANAGER: _____

IMPLEMENTATION MANAGER: _____

REAL ESTATE MANAGER: _____

PROJECT INFORMATION

SITE DATA:
SITE NAME: PAONIA

ADDRESS: STRUCKER MESA ROAD
HOTCHKISS, CO 81419
DELTA COUNTY

TOWER COORDINATES:
LATITUDE: N 38°-51'-52.10" NAD 83
LONGITUDE: W 107°-38'-35.00" NAD 83

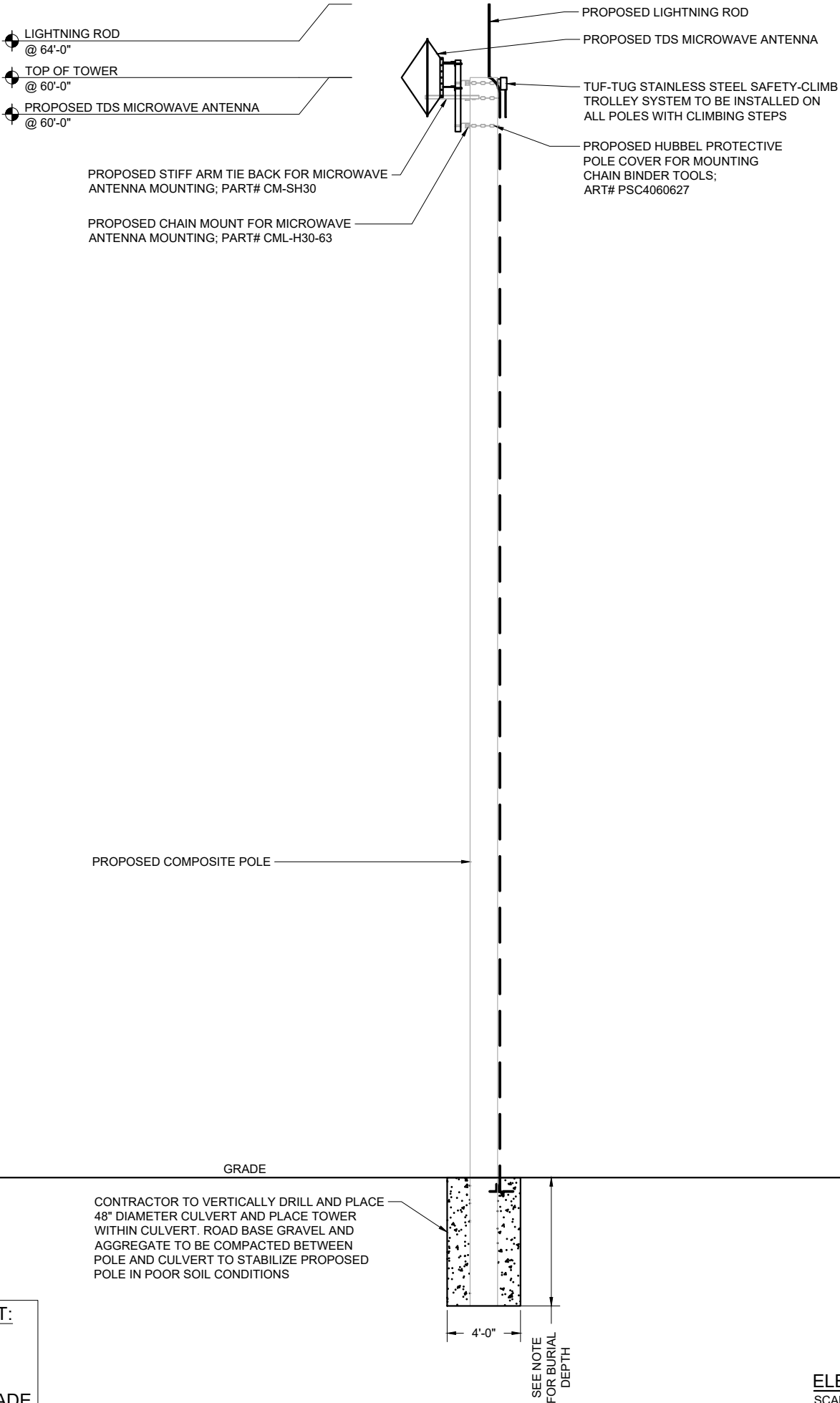
LESSEE:
TDS TELECOM
525 JUNCTION RD.
MADISON, WI 53716
PH.: (608) 664-4882
EMAIL: greg.fitch@tdstelecom.com

CONSULTING ENGINEER:
RAMAKER & ASSOCIATES, INC.
CONTACT: STEVE WIDEEN
PH.: (608) 643-4100
EMAIL: swideen@ramaker.com



Certification & Seal:

REV C	09/07/21	REMOVE CABINET
REV B	09/03/21	SKETCH PETITION, EXISTING & DEEDS SHEETS
MARK	DATE	DESCRIPTION
ISSUE	REV. A	DATE ISSUED 04/08/2021
PHASE		
PROJECT TITLE:		
PAONIA		
PROJECT INFORMATION: STRUCKER MESA ROAD HOTCHKISS, CO 81419 DELTA COUNTY		
SHEET TITLE:		
TITLE SHEET		
SCALE: NONE		
PROJECT NUMBER	51235	
SHEET NUMBER	T-1	



PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT OR MODIFICATION OF THE EXISTING STRUCTURE, A STRUCTURAL ANALYSIS SHALL BE PERFORMED BY THE OWNER'S AGENT TO CERTIFY THAT THE EXISTING/ PROPOSED COMMUNICATION STRUCTURE AND COMPONENTS ARE STRUCTURALLY ADEQUATE TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, COAXIAL CABLES, AND OTHER APPURTENANCES.


RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com



Certification & Seal:

REV C	09/07/21	REMOVE CABINET
REV B	09/03/21	SKETCH PETITION, EXISTING & DEEDS SHEETS
MARK	DATE	DESCRIPTION
ISSUE PHASE	REV. A	DATE ISSUED 04/08/2021

PROJECT TITLE:

PAONIA

PROJECT INFORMATION:

STRUCKER MESA ROAD
HOTCHKISS, CO 81419
DELTA COUNTY

SHEET TITLE:

ELEVATION

0 3.75' 7.5' 15'

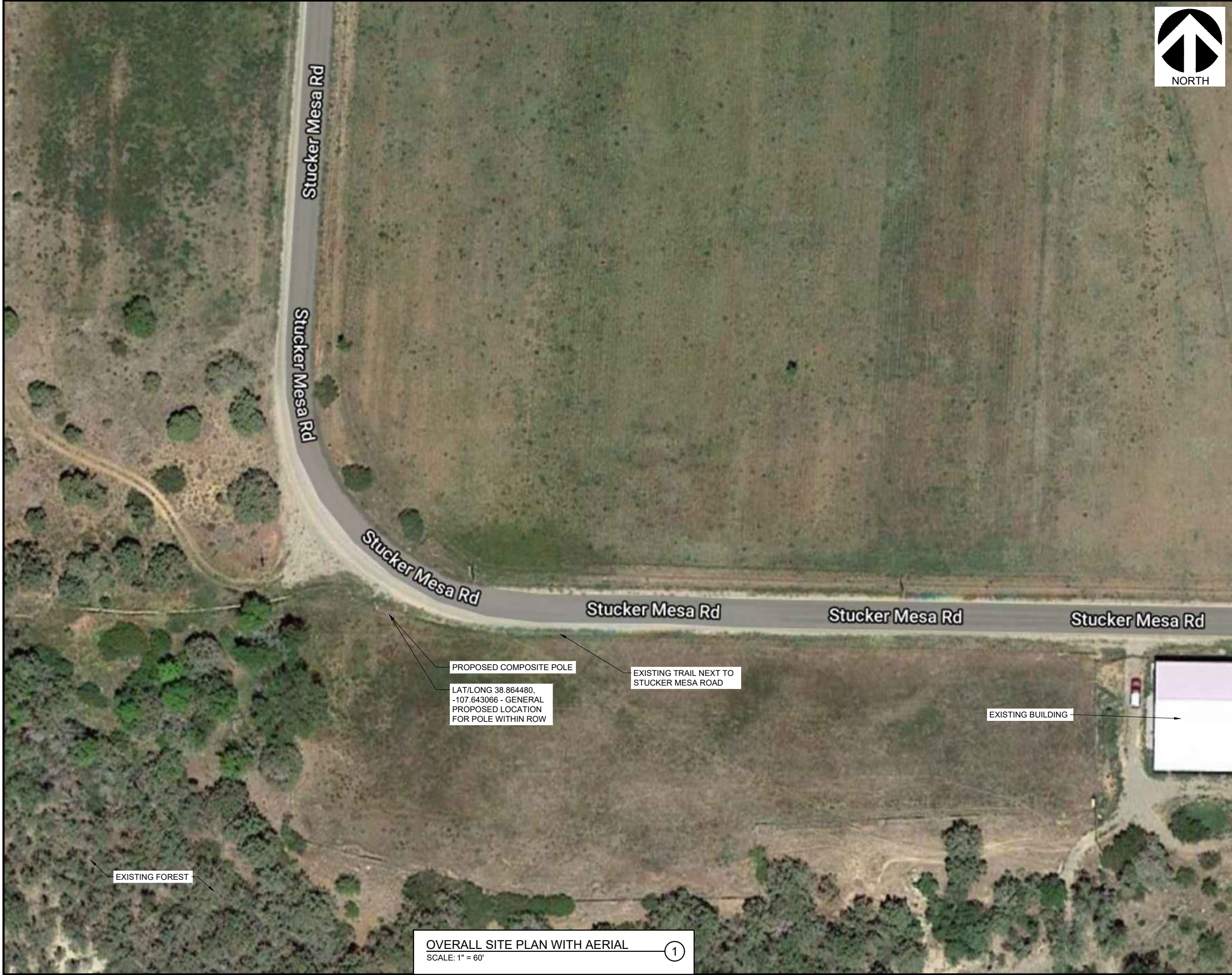
11" x 17" - 1" = 7.5'
22" x 34" - 1" = 3.75'

PROJECT NUMBER 51235
SHEET NUMBER A-1

FORMULA FOR BURIAL DEPTH OF POLE & CULVERT:
10% OF TOWER HEIGHT & ADD 2'

EXAMPLE 50' POLE: (50 x 10% = 5) → (5 + 2 = 7)
DEPTH OF BURIED CULVERT & POLE IS 7' BELOW GRADE

ELEVATION
SCALE: 1" = 7.5' ①





RAMAKER
employee-owned
(608) 643-4100 www.ramaker.com



Certification & Seal:

REV C	09/07/21	REMOVE CABINET
REV B	09/03/21	SKETCH PETITION, EXISTING & DEEDS SHEETS
MARK	DATE	DESCRIPTION
ISSUE PHASE	REV. A	DATE ISSUED 04/08/2021

PROJECT TITLE:

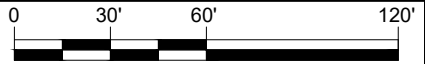
PAONIA

PROJECT INFORMATION:

**STRUCKER MESA ROAD
HOTCHKISS, CO 81419
DELTA COUNTY**

SHEET TITLE:

OVERALL SITE PLAN WITH AERIAL



PROJECT NUMBER	51235
SHEET NUMBER	A-2

OVERALL SITE PLAN WITH AERIAL

SCALE: 1" = 60'



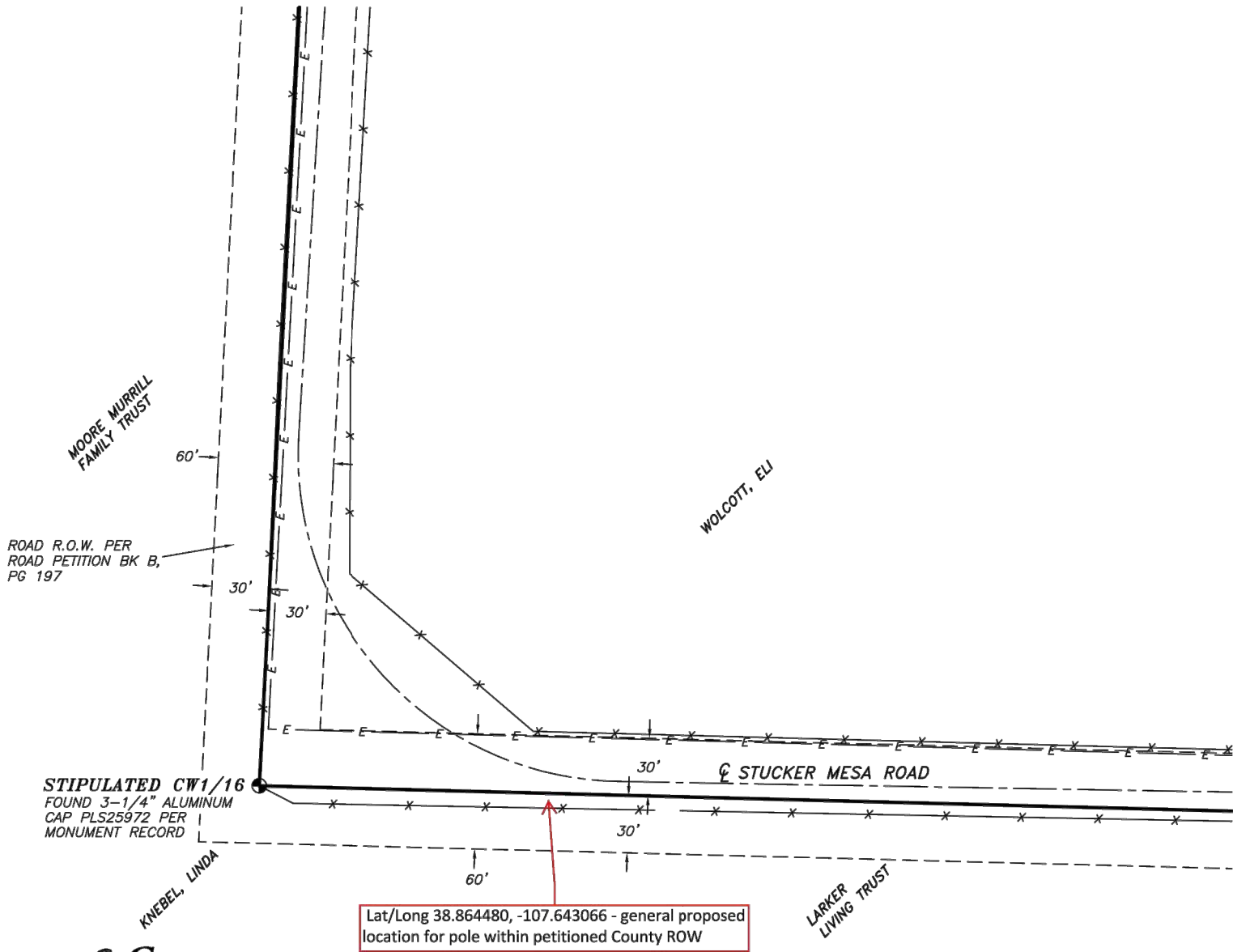
WILMORE & COMPANY
PROFESSIONAL LAND SURVEYING, INC.

406 Grand Avenue 970.527-4200 PHONE
P.O. Box 1652 970.527-4202 FAX
Paonia, Colorado 81428 www.wilmorelandsurveying.com

EMAIL: kris@wilmorelandsurveying.com

Defining Boundaries

**SKETCH PLAN OF
PETITION ROAD R.O.W. ALONG STUCKER MESA ROAD
PREPARED FOR TDS/MOUNTAIN LTD**



SKETCH PETITION
SCALE: NTS

1



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Certification & Seal:

REV C	09/07/21	REMOVE CABINET
REV B	09/03/21	SKETCH PETITION, EXISTING & DEEDS SHEETS
MARK	DATE	DESCRIPTION
ISSUE	REV. A	DATE ISSUED 04/08/2021
PHASE		

PROJECT TITLE:

PAONIA

PROJECT INFORMATION:
STRUCKER MESA ROAD
HOTCHKISS, CO 81419
DELTA COUNTY

SHEET TITLE:

SKETCH PETITION

SCALE: NONE

PROJECT NUMBER 51235
SHEET NUMBER A-3

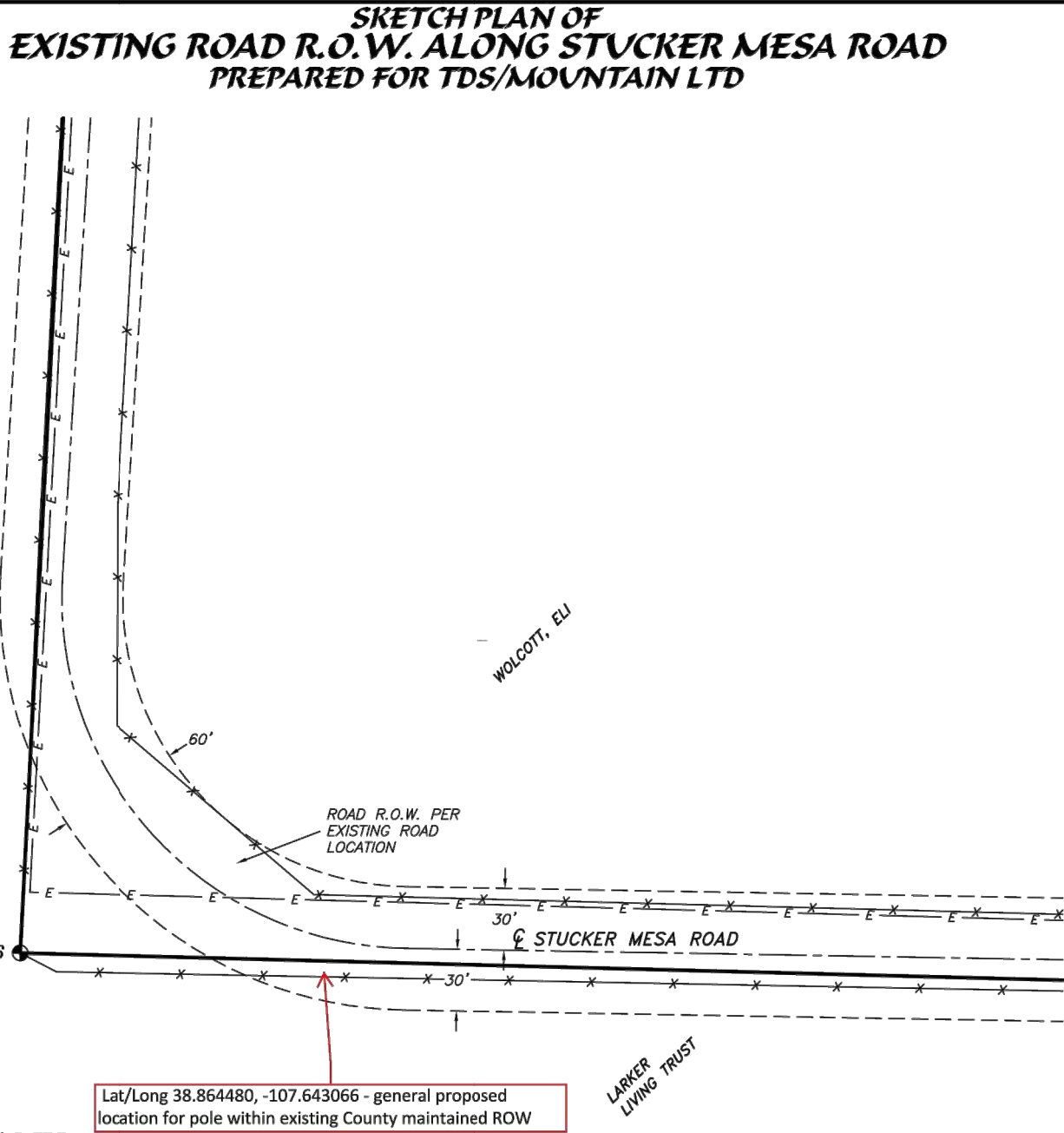


WILMORE & COMPANY
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Paonia, Colorado 81428 www.wilmorelandsurveying.com

EMAIL: kris@wilmorelandsurveying.com

Defining Boundaries



SKETCH EXISTING
SCALE: NTS

1



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REV B	09/03/21	SKETCH PETITION, EXISTING & DEEDS SHEETS
MARK	DATE	DESCRIPTION
ISSUE PHASE	REV. A	DATE ISSUED 04/08/2021

PROJECT TITLE:

PAONIA

PROJECT INFORMATION:
STRUCKER MESA ROAD
HOTCHKISS, CO 81419
DELTA COUNTY

SHEET TITLE:

SKETCH EXISTING

SCALE: NONE

PROJECT
NUMBER 51235
SHEET
NUMBER A-4



WILMORE & COMPANY
PROFESSIONAL LAND SURVEYING, INC.

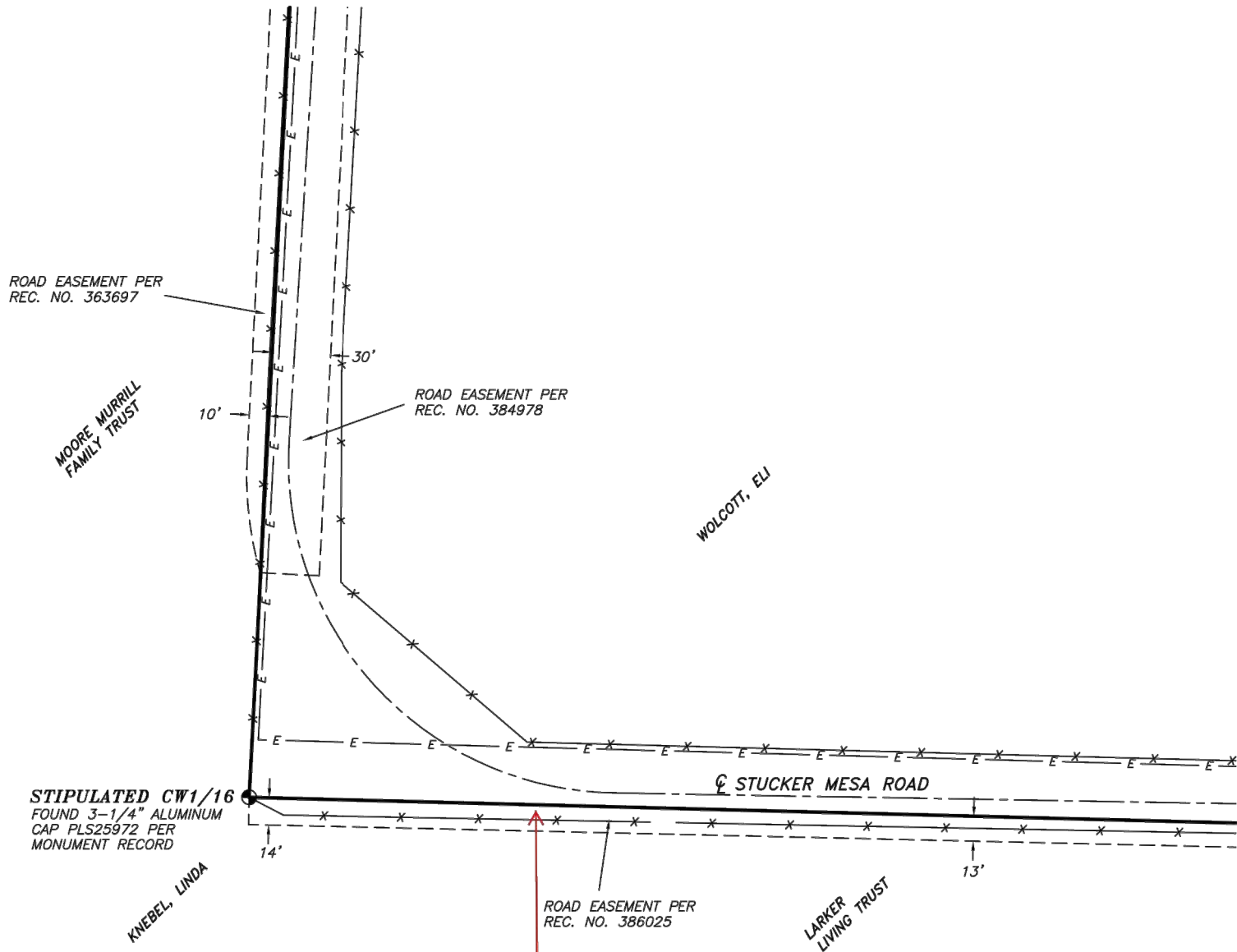
406 Grand Avenue 970.527-4200 PHONE
P.O. Box 1652 970.527-4202 FAX
Paonia, Colorado 81428 www.wilmorelandsurveying.com

EMAIL: kris@wilmorelandsurveying.com

Lat/Long 38.864480, -107.643066 - general
proposed location for pole within dedeed ROW

J20246SKETCHDEEDS 25 SEPT. 2020 DRAWN BY: KC

**SKETCH PLAN OF
DEEDED ROAD R.O.W. ALONG STUCKER MESA ROAD
PREPARED FOR TDS/MOUNTAIN LTD**



Certification & Seal:

REV C	09/07/21	REMOVE CABINET
REV B	09/03/21	SKETCH PETITION, EXISTING & DEEDS SHEETS
MARK	DATE	DESCRIPTION
ISSUE	REV. A	DATE ISSUED 04/08/2021
PHASE		

PROJECT TITLE:

PAONIA

PROJECT INFORMATION:
STRUCKER MESA ROAD
HOTCHKISS, CO 81419
DELTA COUNTY

SHEET TITLE:

SKETCH DEEDS

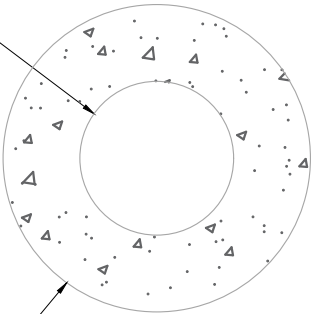
SCALE: NONE

PROJECT NUMBER 51235
SHEET NUMBER A-5

SKETCH DEEDS
SCALE: NTS

1

PROPOSED COMPOSITE POLE



CONTRACTOR TO VERTICALLY DRILL AND PLACE 48" DIAMETER CULVERT AND PLACE TOWER WITHIN CULVERT. ROAD BASE GRAVEL AND AGGREGATE TO BE COMPACTED BETWEEN POLE AND CULVERT TO STABILIZE PROPOSED POLE IN POOR SOIL CONDITIONS

SITE PLAN
SCALE: 1" = 2.5'





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(608) 643-4100 www.ramaker.com



Certification & Seal:

REV C	09/07/21	REMOVE CABINET
REV B	09/03/21	SKETCH PETITION, EXISTING & DEEDS SHEETS
MARK	DATE	DESCRIPTION
ISSUE PHASE	REV. A	DATE ISSUED 04/08/2021

PROJECT TITLE:

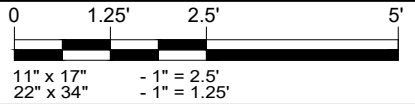
PAONIA

PROJECT INFORMATION:

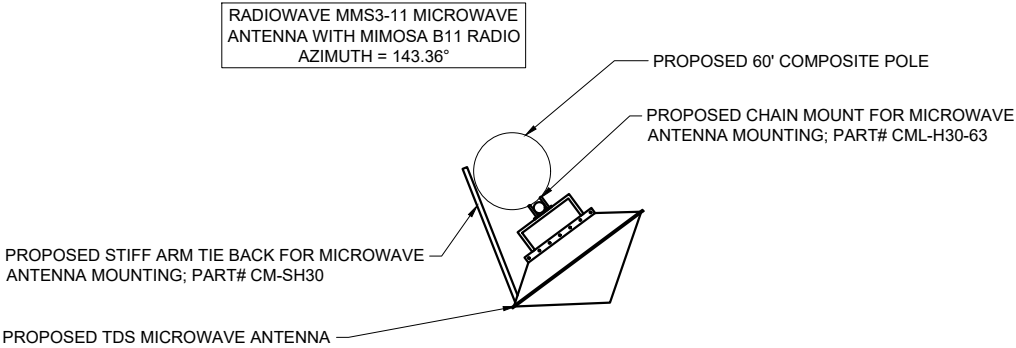
STRUCKER MESA ROAD
HOTCHKISS, CO 81419
DELTA COUNTY

SHEET TITLE:

SITE PLAN



PROJECT NUMBER	51235
SHEET NUMBER	A-6



ANTENNA LAYOUT
SCALE: NTS

1

EQUIPMENT SPECIFICATIONS				
EQUIPMENT	LENGTH (IN.)	WIDTH (IN.)	DEPTH (IN.)	WEIGHT (LB)
RADIOWAVES (MMS3-11) MICROWAVE ANTENNA	36"	36"	TBD	46.2
MIMOSA (B11) RADIO	10.2"	9.6"	2.8"	4.5

DIRECT MOUNT PARABOLICS FOR MIMOSA B11 RADIOS

High Performance MMSx-11

The MMSx-11 High Performance Series by RadioWaves offers a full line of high performance parabolic antennas that support direct mount of the Mimosa B11 radio. The antennas are engineered to provide FCC and ETSI compliant performance as well as excellent gain within robust and heavy duty mounting hardware. The mount system ensures “set and forget” installation with minimal post-installation maintenance. All MMSx-11 antennas come fully pre-assembled for fastest time to tower and come with a 7 year warranty.

HIGH PERFORMANCE PARABOLICS

- Excellent RF performance
- Fully pre-assembled for fastest time to tower
- Slip fit direct mount adapter for Mimosa B11 radios
- 7 year warranty
- Available in 2', 3', 4' and 6' diameters
- FCC rated for 11 GHz licensed band



MMS2-11

SPECIFICATIONS

Model	MMS3-11
Antenna Type	High Performance
Size, Nominal	3 ft
Polarization	Single
Electrical	
Operating Frequency Band	10.7 - 11.7 GHz
Half Power Beamwidth, Horizontal	2.1°
Half Power Beamwidth, Vertical	2.1°
Cross-Polarization Discrimination	30 db
Front to Back Ratio (F/B)	62 db
Gain, Low Frequency	38.1 db
Gain, Mid Frequency	38.5 db
Gain, High Frequency	39 db
VSWR	≤1.37
Return Loss	≤-16.1 db
Mechanical	
Fine Azimuth Adjustment	±10°
Fine Elevation Adjustment	±10°
Mounting Pipe Diameter, Min	2"
Mounting Pipe Diameter, Max	4.5"
Net Weight	46.2 lbs

RADIOWAVE MMS3-11 MICROWAVE ANTENNA
SCALE: NTS

2

 • Datasheet • B11

2

Technical Specifications

Performance

- Max Throughput:** Up to 1.5 Gbps IP aggregate UL/DL (1.7 Gbps PHY)
- Low Latency:** <1 ms
- Supported MAC:** TDMA, TDMA-FD

Radio

- MIMO & Modulation:** 4x4:4 MIMO OFDM up to 256 QAM
- Bandwidth:** Dual 20/40/80 MHz channels
- Frequency Range:** 10000–11700 MHz restricted by country of operation
- Max Output Power:** 27 dBm
- Sensitivity (MCS 0):**
 - 87 dBm @ 80 MHz
 - 90 dBm @ 40 MHz
 - 93 dBm @ 20 MHz

Power

- Max Power Consumption:** 30 W
- System Power Method:** 48 V DC 802.3 at compliant power injectors
- System Lightning & ESD Protection:** 6 kV
- PoE Power Supply:** Passive POE compliant, 48-56 V Power over Ethernet supply with IEC61000-4-5 surge protection

Physical

- Dimensions:**
 - Height: 260 mm (10.2")
 - Width: 158 mm (9.6")
 - Depth: 70 mm (2.8")
- Weight:** 2.5 kg (4.5 lbs)
- Enclosure Characteristics:** Outdoor UV stabilized plastic Aluminum mounting panel
- Wind Survivability:** 200 km/h (125 mph)
- Wind Loading:** 9.8 kg @ 160 km/h (21.8 lbs @ 100 mph)
- Mounting:** Direct mount to compatible antenna
- Antenna Connection:** Direct connect to circular dual polarized antenna
- Network Interfaces:** Single connection ethernet or fiber

Environmental

- Outdoor Ingress Protection Rating:** IP67
- Operating Temperature:** -40°C to +55°C (-40°F to 131°F)
- Operating Humidity:** 5 to 100% condensing
- Operating Altitude:** 4420 m (14500') maximum
- Shock & Vibration:** ETS 300-019-2-4 class 4M5

Features

- Gigabit Ethernet:** 10/100/1000-BASE-T
- Fiber Capable:** SFP Cage included
Radio accepts either copper Ethernet or SFP but does not support simultaneous operation
- Dual Protocol Operation:** 2 dual-stream radios operating on non-contiguous frequencies allow for traditional FDD-like performance or TDMA; Automatic load balancing of traffic across 4 total MIMO streams with individual stream encoding up to 256 QAM
- Management Services:** Mimosa cloud monitoring and management; SNMPv2 & Syslog legacy monitoring; HTTPS; HTML 5 based Web UI; (2.4 GHz WiFi management module no longer available as of February 2021)
- Smart Spectrum Management:** Active scan monitors/logs ongoing RF interference across channels (no service impact); Dynamic auto-optimization of channel and bandwidth use
- Security:** 128-bit AES PSK with hardware acceleration
- QoS:** Supports 4 pre-configured QoS levels
- GPS Location:** GNSS-1 (GPS + GLONASS)
- Colocation Synchronization:** 1PPS GPS TX/RX synchronization for colocated co-channel radios; Adjustable up/downstream bandwidth ratio

Regulatory + Compliance

- Approvals:** FCC Part 101 and EN 302 217
- RoHS Compliance:** Yes
- Safety:** UL/EC/EN/ 60950-1 + CSA-22.2



MIMOSA B11 RADIO
SCALE: NTS

3



Certification & Seal:

REV C 09/07/21 REMOVE CABINET

REV B 09/03/21 SKETCH PETITION, EXISTING & DEEDS SHEETS

MARK	DATE	DESCRIPTION
------	------	-------------

ISSUE	REV. A	DATE	04/08/2021
PHASE		ISSUED	

PROJECT TITLE:

PAONIA

PROJECT INFORMATION:
STRUCKER MESA ROAD
HOTCHKISS, CO 81419
DELTA COUNTY

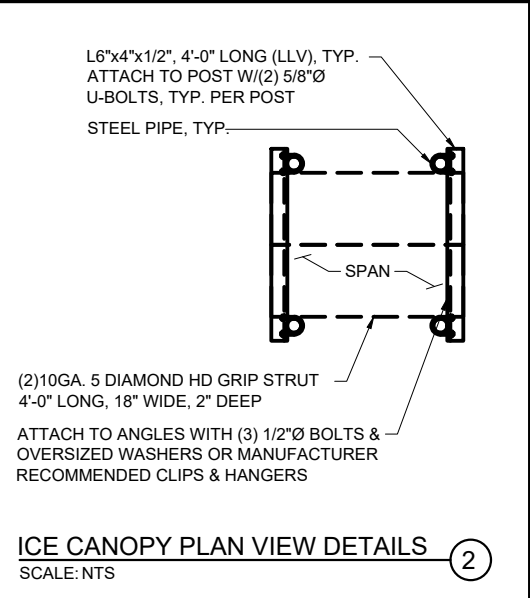
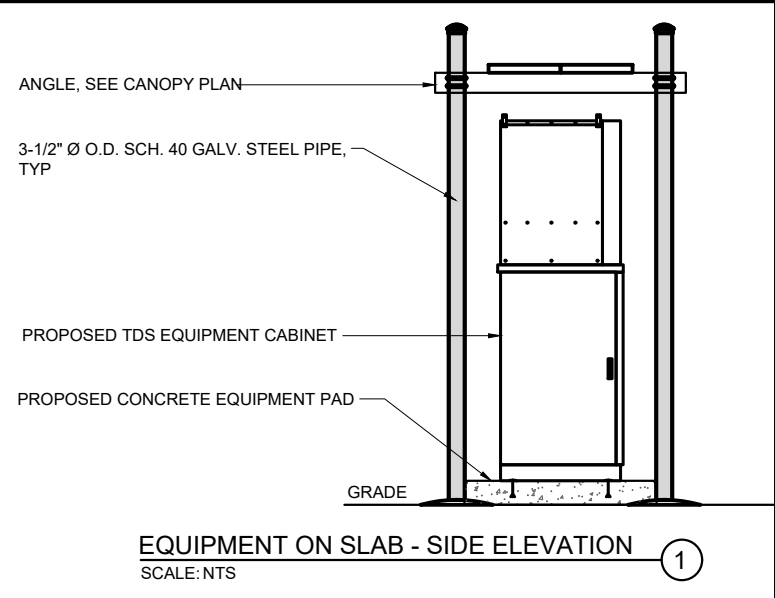
SHEET TITLE:

ANTENNA LAYOUT

SCALE: NONE

PROJECT NUMBER	51235
SHEET NUMBER	A-7

I:\51200\51235\CAD\51235_Paonia_CDs.dwg Printed by: Ikluender on Sep 07, 2021 - 2:45pm © Copyright 2021- Ramaker & Associates, Inc. - All Rights Reserved DRAWN BY: BUR CHECKED BY: SEW





NEW SURFACE GUARD

FOR CONCRETE, FIBERGLASS, STEEL POLES

PROTECTIVE COVER FOR MOUNTING CHAIN-BINDER TOOLS:

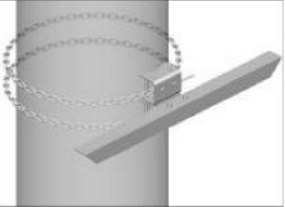
- Simple installation for quick attachment of bases for ladders, platforms, conductor supports, auxiliary arms, pole tongs, etc.
- Tough material protects pole without reducing tool's load rating
- Not for mounting capstan hoists or any application that loads chain binder in an upward direction
- Not insulating cover up equipment

SFO9025E

Catalog No.	Protector Size	Max. Pole Diameter
PSC4060624	7 in. x 4 ft.	up to 15"
PSC4060625	7 in. x 5 ft.	up to 19"
PSC4060626	7 in. x 6 ft.	up to 23"
PSC4060627	7 in. x 7 ft.	up to 27"

HUBBEL POLE PROTECTOR
SCALE: NTS

Product Specifications

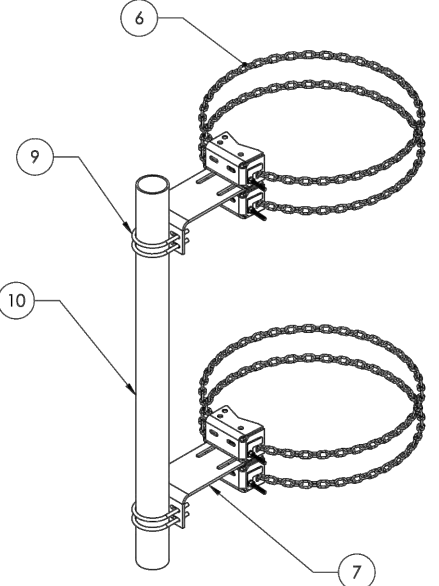
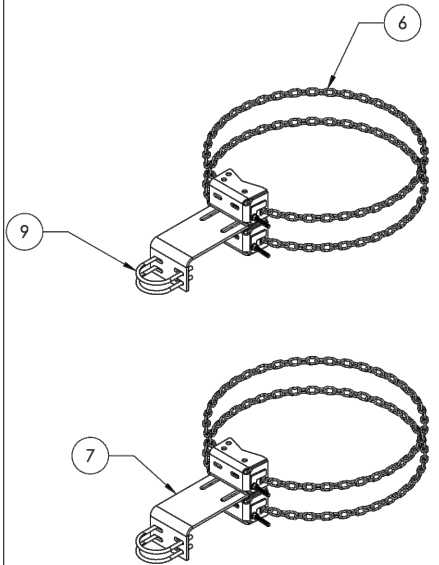


CM-SH30
Heavy Duty Stiff Arm Mount, two 8 ft chains

Dimensions	
Mounting Diameter, maximum	762.0 mm 30 in
Mounting Diameter, minimum	203.2 mm 8 in
Height	152.4 mm 6.0 in
Length	1168.4 mm 46.0 in
Mounting Circumference, maximum	2392.7 mm 94.2 in
Mounting Circumference, minimum	635.0 mm 25.0 in
Weight	22.7 kg 50.0 lb
Width	203.2 mm 8.0 in

General Specifications	
Product Type	Stiff arm mount
Chain Length	2.4 m 8.0 ft
Chains, quantity	2
Includes	Chains Stiff arm attachment
Material Type	Hot dip galvanized steel
Package Quantity	1
Stand-off Distance	1219.2 mm 48.0 in

ANTENNA TIE BACK ARM
SCALE: NTS

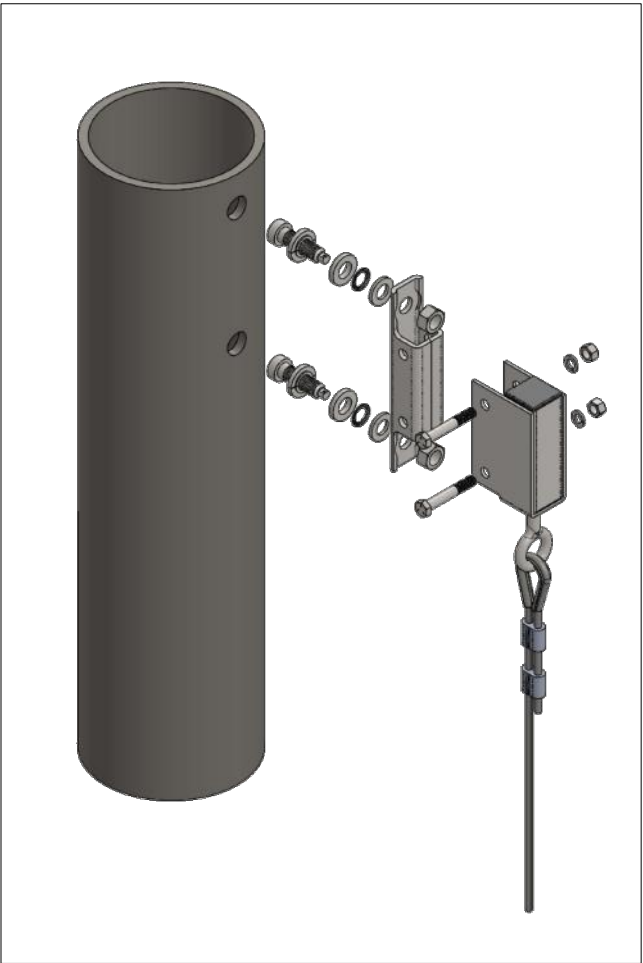


CML-H30-B

CML-H30-63

These drawings and specifications are the proprietary property of Andrew Corporation and may be used only for the specific purpose authorized in writing by Andrew Corporation.		DRAWN BY: DRR	SHEET: 1 of 1	PART NUMBER: CML-H30 SERIES	
ALL DIMENSIONS ARE IN INCHES U.S.S. TOLERANCES UNLESS OTHERWISE SPECIFIED:		DESIGNED BY: TP	SCALE: NTS	DESCRIPTION: HEAVY DUTY STANDOFF CHAIN MOUNT	
X, Y, Z = ± .12 ANGLES = ± 2° FRACTIONS = ± 1/32		DATE: 11/15/11	ISSUED: A36/A500	REVISION: ASSEMBLY DRAWING	
REMOVE BURRS AND BREAK EDGES .005		REVISION: A	MATERIAL: GALV. A123	DRAWN: WESTCHESTER, IL 60154 U.S.A.	
DO NOT SCALE THIS PRINT		NOTED: SEE TABLE			

ANTENNA CHAIN MOUNT
SCALE: NTS



TUF-TUG SAFETY-CLIMB TROLLEY SYSTEM
SCALE: NTS



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Certification & Seal:

REV	DATE	DESCRIPTION
REV C	09/07/21	REMOVE CABINET
REV B	09/03/21	SKETCH PETITION, EXISTING & DEEDS SHEETS
MARK	DATE	DESCRIPTION
ISSUE	REV. A	DATE ISSUED 04/08/2021
PROJECT TITLE:		
PAONIA		
PROJECT INFORMATION: STRUCKER MESA ROAD HOTCHKISS, CO 81419 DELTA COUNTY		
SHEET TITLE: EQUIPMENT FOUNDATION PLAN & DETAILS		
SCALE: NONE		
PROJECT NUMBER	51235	
SHEET NUMBER	A-8	

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19755-W2W-F12-Z-01-KIT

INCLUDES:



QTY 1 X EMPTY STREETSMART
WALL BOX
PN# FDP-W2W-EMPTY-02



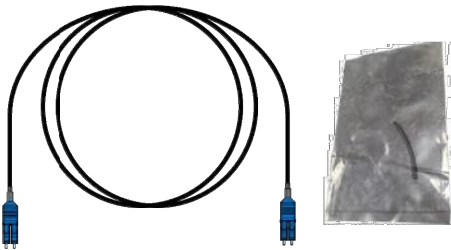
QTY 1 X LCUPC 12 PACK
PN# 021259



QTY 1 X GROMMET, 12 PORT,
TRANSITION BOX
PN# 021464



QTY 1 X WOOD POLE
MOUNTING BRACKET
WITH SCREWS
PN# W2W-PMW-02



QTY 1 x FIELDSHIELD FLEXDROP
PATCHCORD, SINGLEMODE, 2
FIBER, 3MM UV STABLE JACKET, DUPLEX
LC/UNIBOOT TO DUPLEX LC/UPC
UNIBOOT), 10 FEET. INCLUDES 1 X 3mm
BUNA PLUG
PN# FS-AP2-002-FUZD-FUZD-01 0010F



QTY 50 X 1/2 INCH METAL
CABLE CLAMPS
PART # 003054

QTY 50 X



QTY 15 X 3mm PLASTIC
CABLE CLAMPS
PN# 019094



QTY 65 X SCREWS
PN# 020543

CABLE CONNECTION KIT
SCALE: NTS

1

FIBER STRAND	PORT #	MW RADIO #1	MW RADIO #2	MW RADIO #3	>3 ADD BIDI OPTICS	MW RADIO #1	MW RADIO #2	MW RADIO #3	MW RADIO #4	MW RADIO #5	MW RADIO #6
BLUE	1	T			X	T/R					
ORANGE	2	R			X		T/R				
GREEN	3		T		X			T/R			
BROWN	4		R		X				T/R		
SLATE	5			T	X					T/R	
WHITE	6			R	X						T/R

CABLE COLOR CODING LEGEND
SCALE: NTS

2

Certification & Seal:

REV C	09/07/21	REMOVE CABINET
REV B	09/03/21	SKETCH PETITION, EXISTING & DEEDS SHEETS
MARK	DATE	DESCRIPTION
ISSUE PHASE	REV. A	DATE ISSUED 04/08/2021

PROJECT TITLE:

PAONIA

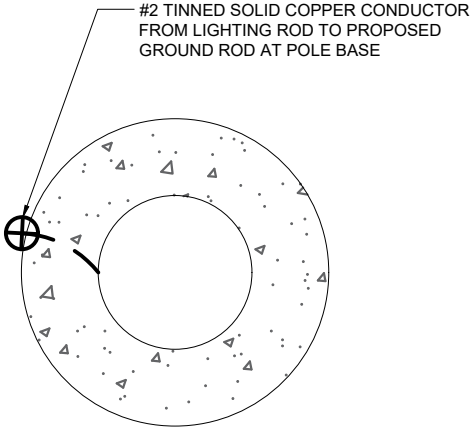
PROJECT INFORMATION:
STRUCKER MESA ROAD
HOTCHKISS, CO 81419
DELTA COUNTY

SHEET TITLE:

CABLE DETAILS

SCALE: NONE

GROUNDING SCHEDULE	
	#2 TINNED SOLID COPPER WIRE
	EXOTHERMIC CONNECTION
	GROUND ROD
	GROUND TEST WELL
MIGB	MASTER ISOLATED GROUND BAR
CIGBE	COAX ISOLATED GROUND BAR EXTERNAL



GROUNDING PLAN

SCALE: 1" = 2.5'

1





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Certification & Seal:

REV C	09/07/21	REMOVE CABINET
REV B	09/03/21	SKETCH PETITION, EXISTING & DEEDS SHEETS
MARK	DATE	DESCRIPTION
ISSUE	REV. A	DATE ISSUED 04/08/2021
PHASE		

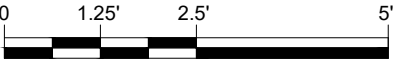
PROJECT TITLE:

PAONIA

PROJECT INFORMATION:
STRUCKER MESA ROAD
HOTCHKISS, CO 81419
DELTA COUNTY

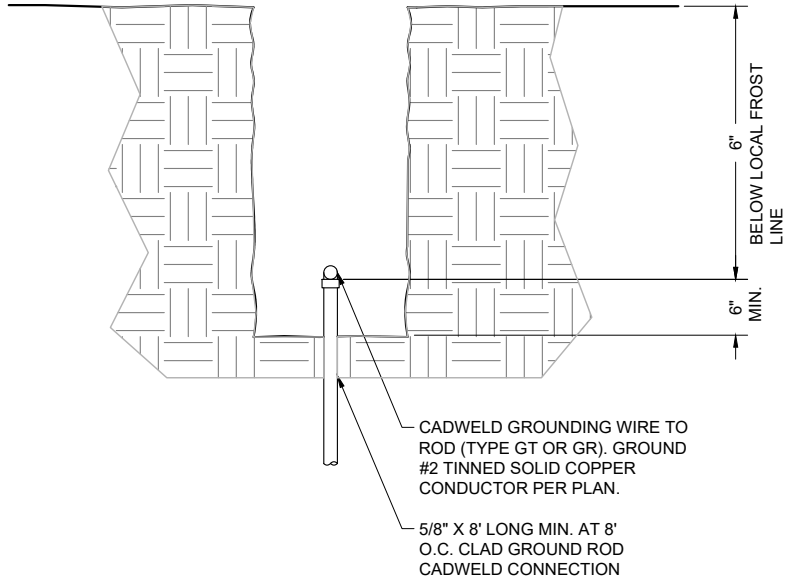
SHEET TITLE:

GROUNDING PLAN

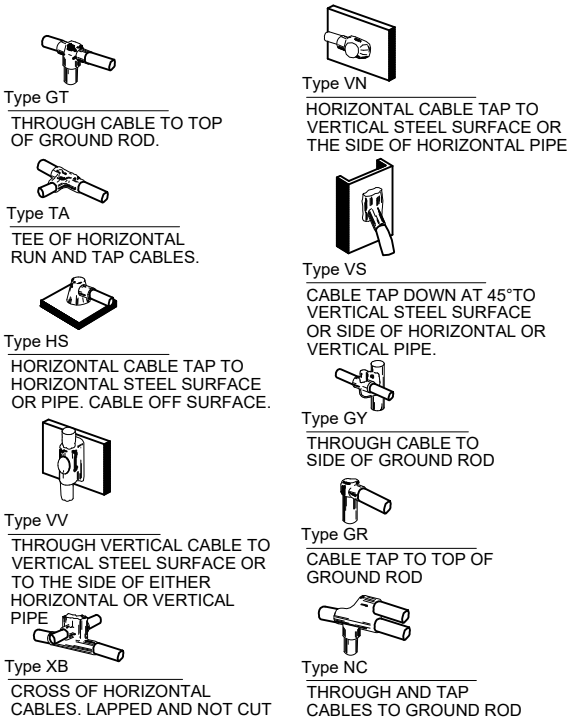


11" x 17" - 1" = 2.5'
22" x 34" - 1" = 1.25'

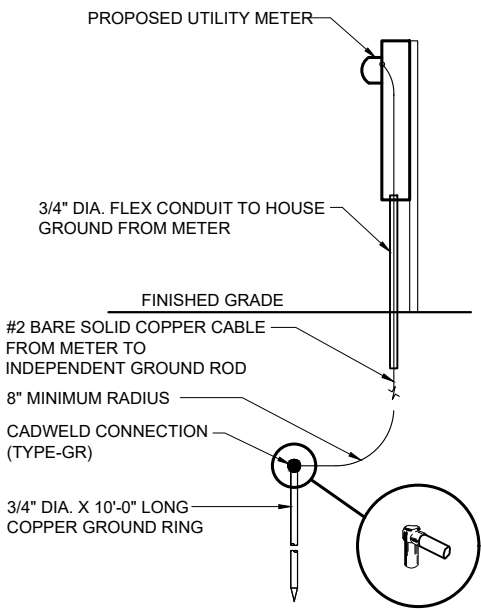
PROJECT NUMBER	51235
SHEET NUMBER	G-1



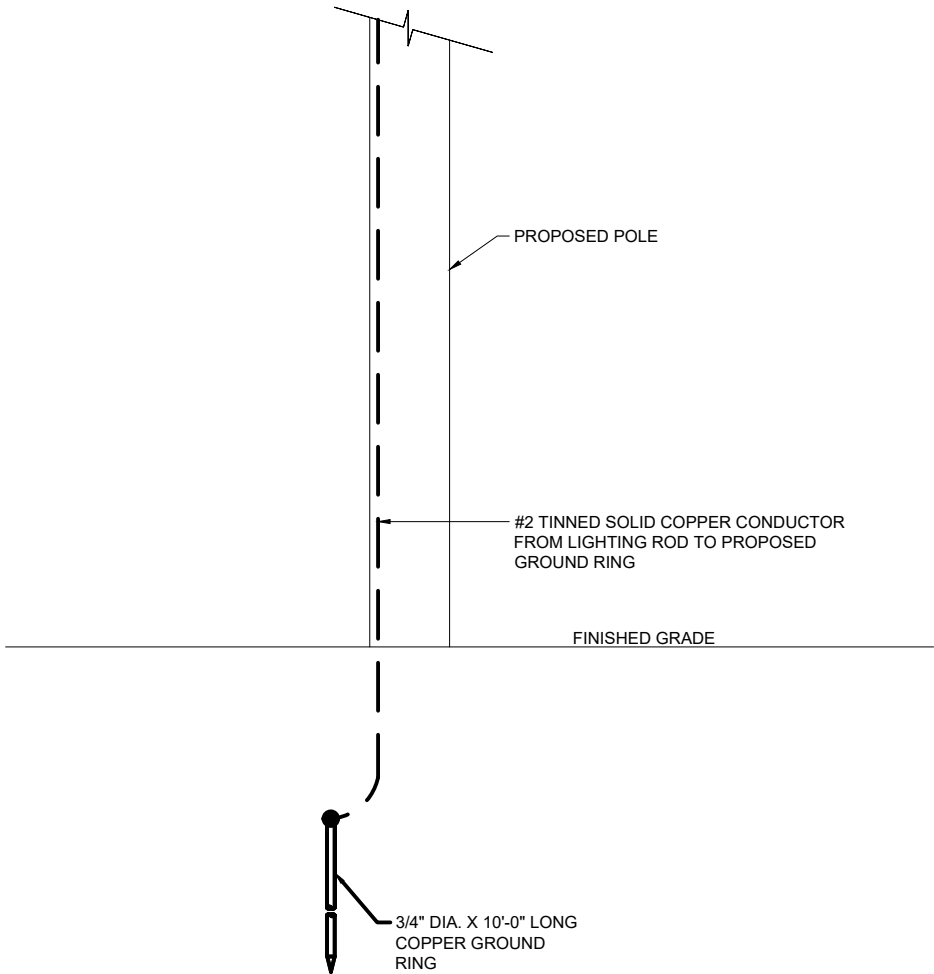
INSPECTION WELL & GROUND ROD ①
SCALE: NTS



EXOTHERMIC WELD DETAILS ②
SCALE: NTS



METER GROUNDING DETAIL ③
SCALE: NTS



EQUIPMENT TO TOWER GROUNDING RISER ④
SCALE: NTS



Certification & Seal:

REV C	09/07/21	REMOVE CABINET
REV B	09/03/21	SKETCH PETITION, EXISTING & DEEDS SHEETS
MARK	DATE	DESCRIPTION
ISSUE	REV. A	DATE ISSUED 04/08/2021
PHASE		

PROJECT TITLE:

PAONIA

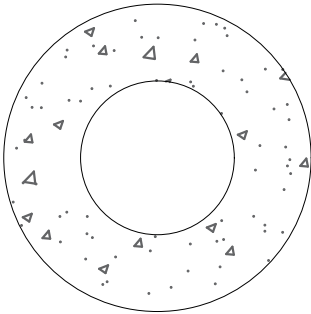
PROJECT INFORMATION:
STRUCKER MESA ROAD
HOTCHKISS, CO 81419
DELTA COUNTY

SHEET TITLE:

GROUNDING DETAILS

SCALE: NONE

PROJECT NUMBER 51235
SHEET NUMBER G-2





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Certification & Seal:

REV C	09/07/21	REMOVE CABINET
REV B	09/03/21	SKETCH PETITION, EXISTING & DEEDS SHEETS
MARK	DATE	DESCRIPTION
ISSUE PHASE	REV. A	DATE ISSUED 04/08/2021

PROJECT TITLE:

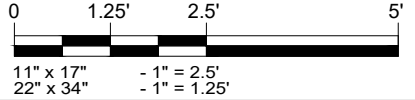
PAONIA

PROJECT INFORMATION:

STRUCKER MESA ROAD
HOTCHKISS, CO 81419
DELTA COUNTY

SHEET TITLE:

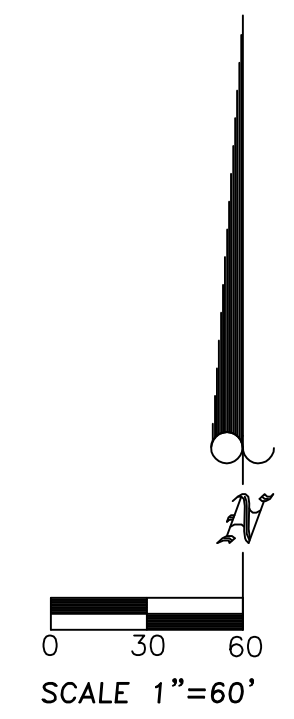
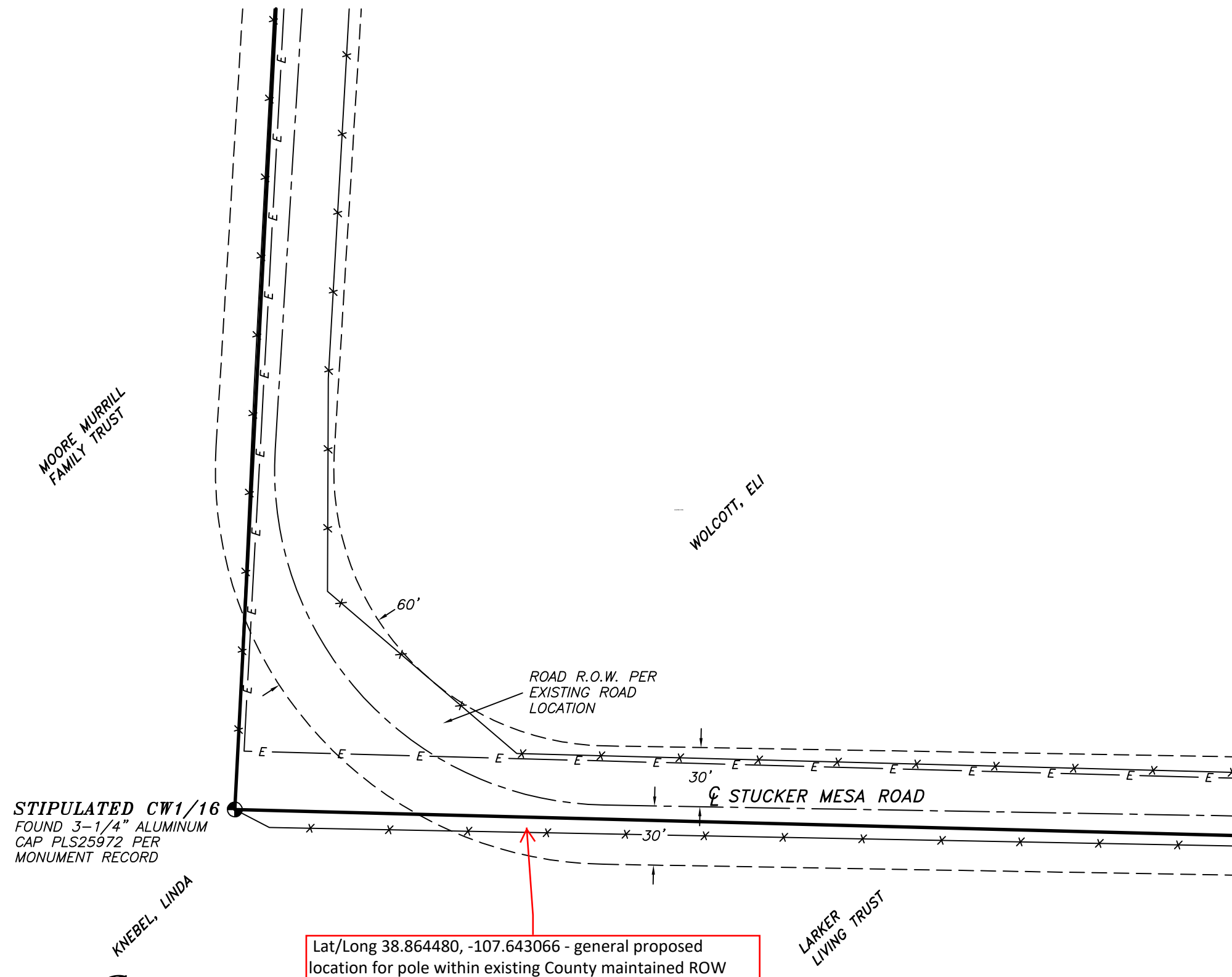
GROUNDING PLAN



PROJECT NUMBER	51235
SHEET NUMBER	E-1



SKETCH PLAN OF EXISTING ROAD R.O.W. ALONG STUCKER MESA ROAD PREPARED FOR TDS/MOUNTAIN LTD



WILMORE & COMPANY
PROFESSIONAL LAND SURVEYING, INC.

406 Grand Avenue
P.O. Box 1652
Paonia, Colorado 81428

970.527-4200 PHONE
970.527-4202 FAX
www.wilmorelandsurveying.com

EMAIL: kris@wilmorelandsurveying.com

J20246SKETCHEXISTING 25 SEPT. 2020 DRAWN BY: KC

HORVATH/HORVATH BOUNDARY ADJUSTMENT

WITHIN THE SE1/4 NW1/4, SW1/4 NE1/4 & GOVERNMENT LOT 2 (NW1/4 NE1/4)
OF SECTION 2, T.14S., R.92W., 6TH P.M.
DELTA COUNTY, COLORADO

AGREEMENT:

I/We, being the Owner(s) of the land as shown hereon do hereby agree to the boundary lines as shown hereon and that no new parcels were created by this boundary line agreement.

In witness whereof The Estate of Katherine Ann Horvath and Katherine Ann Kirby Family Trust has subscribed his/her/their name(s) this 31st day of May, A.D. 2016.

By: [Signature] The Estate of Katherine Ann Horvath
Seth Horvath, Representative
By: [Signature] Katherine Ann Kirby Family Trust
Seth Horvath, Trustee

NOTARIAL:
State of Colorado)
County of Delta) ss.

The foregoing instrument was acknowledged before me this 31st day of May, A.D. 2016, by Seth Horvath, Representative

My commission expires: 12/13/16

My address is: POB 1391

Paonia CO 81428

Carrie J Silvernail

Witness my hand and official seal.

CARRIE J. SILVERNAIL
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 2004404433
MY COMMISSION EXPIRES DECEMBER 13, 2016

NOTARIAL:
State of Colorado)
County of Delta) ss.

The foregoing instrument was acknowledged before me this 31st day of May, A.D. 2016, by Seth Horvath, Trustee

My commission expires: 12/13/16

My address is: POB 1391

Paonia CO 81428

Carrie J Silvernail

Witness my hand and official seal.

CARRIE J. SILVERNAIL
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 2004404433
MY COMMISSION EXPIRES DECEMBER 13, 2016

PARCEL A

A parcel of land located within the SW1/4 of the NE1/4 and Government Lot 2 (NW1/4 NE1/4) of Section 2, Township 14 South, Range 92 West of the 6th P.M., having a description based upon a bearing of N.88°30'43"W. from the C1/4 Corner of Section 2 (monumented by a 3-1/4" aluminum cap PLS25972) to the CW1/16 Corner of Section 2 (monumented by a 3-1/4" aluminum cap PLS25972), with all other bearings relative thereto and being more particularly described as follows: Beginning at the SE corner of said SW1/4 of the NE1/4, also being the CE1/16 Corner (monumented by a witness corner bearing N.02°37'20"E. 30.00 feet from true corner position and being a 3-1/4" aluminum cap PLS25972); thence along the south line of said SW1/4 of the NE1/4 N.89°13'29"W. 603.23 feet (monumented by a witness corner bearing N.13°20'14"W. 45.75 feet from true corner location and being a 2" aluminum cap PLS38255); thence leaving said south line and running N.13°20'14"W. 1252.46 feet (monumented by a 2" aluminum cap PLS38255); thence N.00°16'39"E. 212.07 feet (monumented by a 2" aluminum cap PLS38255); thence N.89°43'21"E. 396.96 feet (monumented by a 2" aluminum cap PLS25972); thence S.01°31'24"W. 61.63 feet to the north line of said SW1/4 of the NE1/4 (monumented by a 2" aluminum cap PLS25972); thence along said north line S.88°45'44"E. 560.54 feet to the NE corner of said SW1/4 of the NE1/4, also being the NE1/16 Corner (monumented by a witness corner bearing S.02°37'20"W. 100.00 feet from true corner position and being a 2" aluminum cap PLS25972); thence along the east line of said SW1/4 of the NE1/4 S.02°37'20"W. 1368.55 feet to the Point of Beginning, containing 25.568 acres, more or less.

County of Delta, State of Colorado

PARCEL B

A parcel of land located within the SE1/4 of the NW1/4, the SW1/4 of the NE1/4 and Government Lot 2 (NW1/4 NE1/4) of Section 2, Township 14 South, Range 92 West of the 6th P.M., having a description based upon a bearing of N.88°30'43"W. from the C1/4 Corner of Section 2 (monumented by a 3-1/4" aluminum cap PLS25972) to the CW1/16 Corner of Section 2 (monumented by a 3-1/4" aluminum cap PLS25972), with all other bearings relative thereto and being more particularly described as follows: Beginning at said C1/4 Corner and running thence along the south line of said SE1/4 of the NW1/4 N.88°30'43"W. 1319.13 feet to the SW corner of said SE1/4 of the NW1/4, also being said CW1/16 Corner; thence along the west line of said SE1/4 of the NW1/4 N.02°56'46"E. 1381.80 feet to the NW corner of said SE1/4 of the NW1/4, also being the NW1/16 Corner (monumented by a 3-1/4" aluminum cap PLS25972); thence along the north line of said SE1/4 of the NW1/4 S.88°24'17"E. 1317.51 feet to the NE corner of said SE1/4 of the NW1/4, also being the CE1/16 Corner (monumented by a 3-1/4" aluminum cap PLS38255); thence along the west line of said Government Lot 2 N.02°52'53"E. 42.03 feet (monumented by a 3-1/4" aluminum cap PLS25972); thence leaving said west line N.89°43'21"E. 344.61 feet (monumented by a 2" aluminum cap PLS38255); thence S.00°16'39"E. 212.07 feet (monumented by a 2" aluminum cap PLS38255); thence S.13°20'14"E. 1252.46 feet to the south line of said SW1/4 of the NE1/4 (monumented by a witness corner bearing N.13°20'14"W. 45.75 feet from true corner position and being a 2" aluminum cap PLS38255); thence along said south line N.89°13'29"W. 706.06 feet to the Point of Beginning, containing 58.257 acres, more or less.

County of Delta, State of Colorado

NOTE:

PARCEL "A" WILL BE GRANTED THE RIGHT TO USE THE ACCESS EASEMENT FOR THE PURPOSE OF MAINTAINING AND MONITORING THE IRRIGATION DITCHES ASSOCIATED WITH SAID PARCEL "A".

NOTE:

THE ACCESS EASEMENT LOCATED ON PARCEL "B" IS SUBJECT TO THE FOLLOWING RECORD DOCUMENTS FILED WITH DELTA COUNTY:

- BOOK 477, PAGE 478 ENERGY PRODUCTS SUPPLY CORP.
- BOOK 557, PAGE 343 ROBINSON
- BOOK 557, PAGE 348 PENNELL & LAMCO
- BOOK 557, PAGE 349 CAMPBELL & ROBERTS-STUCKER WATER USERS ASSOCIATION
- BOOK 733, PAGE 871 MORGAN

NOTE: According to Colorado law any legal action based upon a defect in this survey must be commenced within three years after such defect is discovered. In no event may any action based upon any defect in this survey be commenced more than ten years from the date shown on the certification hereon.

SURVEYOR'S CERTIFICATION

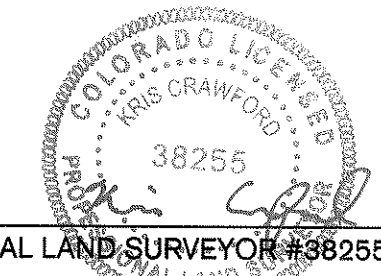
I, Kris Crawford, do hereby certify that the above described parcel has been surveyed by me and under my direct supervision and that such survey is accurately represented hereon, and is based upon my knowledge, information and belief, and is in accordance with applicable standards of practice and is not a guaranty or warranty, either expressed or implied. I further certify that the monuments shown hereon actually exist, and that their positions are as shown. I further certify that this Boundary Agreement plat is made according to the agreement of the adjoining land owners and that no new parcels were created.

COUNTY SURVEYOR'S CERTIFICATE:

Approved for content and form only and not as to the accuracy of survey, computations or drafting, pursuant to CRS 39-51-106.

[Signature] Date: 6/6/16
County Surveyor

Date: 6/6/16 Signed: [Signature]
COLORADO PROFESSIONAL LAND SURVEYOR #38255

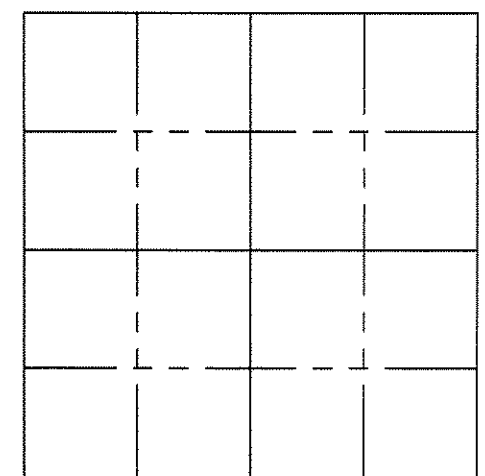


WILMORE & COMPANY
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406 Grand Avenue P.O. Box 1652
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970.527-4200 PHONE
970.527-4202 FAX
www.wilmorelandsurveying.com
EMAIL: wilmoreandcompany@tlds.net

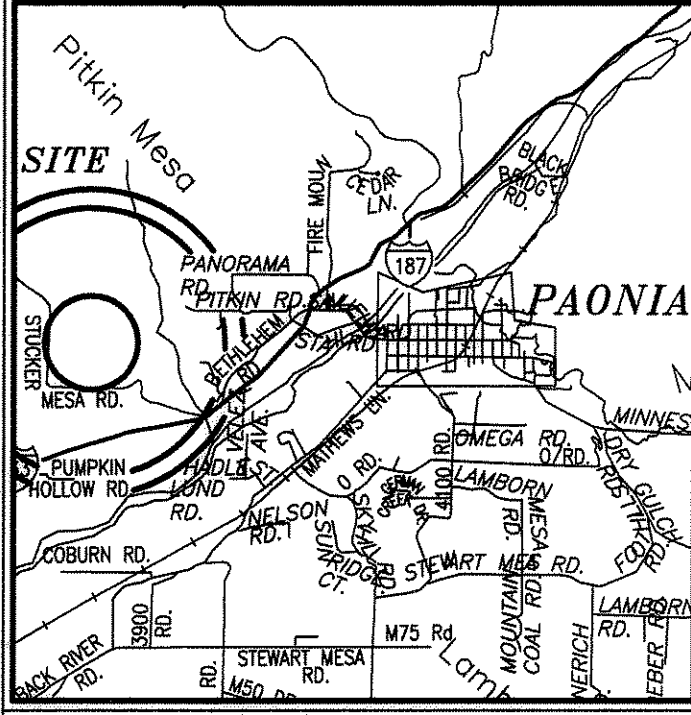
FIELD CREW:	KC
DRAFTER:	KC
CHECKED BY:	RAW

HORVATH/HORVATH BOUNDARY ADJUSTMENT
WITHIN THE SE1/4 NW1/4, SW1/4 NE1/4 & GOVERNMENT LOT 2 (NW1/4 NE1/4)
OF SECTION 2, T.14S., R.92W., 6TH P.M.
DELTA COUNTY, COLORADO
J16026 31 MAY 2016

SEE PLAT



CONTROL MAP



AREA LOCATOR

TYPICAL LEGEND

- Set Mag Nail in Asphalt
- Found 5/8" rebar 30" long with 2" aluminum cap PLS25972
- Found 5/8" rebar with 2" aluminum cap as Witness corner or linepin PLS25972
- Found 3/4" rebar 30" long with 3-1/4" aluminum cap PLS25972
- Set 5/8" rebar 30" long with 2" aluminum cap PLS38255 or as noted
- Found 5/8" rebar with 1 1/2" aluminum cap LS 4162 or as noted
- Found 2-1/2" USGLO Brass cap

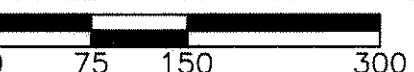
- Fencelines
- Electric (overhead)
- UE— Electric (underground)
- W— Water line
- Easement
- Previous Parcel Boundary
- County Road Right of Way
- Irrigation Ditch/Pipeline

BASIS OF BEARINGS:

N.88°30'43"W. FROM THE C1/4 CORNER TO THE STIPULATED CW1/16 CORNER OF SECTION 2

GEODETIC NORTH GPS OBSERVATION

SCALE 1"=150 U.S. SURVEY FEET






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Certification & Seal:

1	11/08/21	CABINET REMOVAL
MARK	DATE	DESCRIPTION
ISSUE	REV A	DATE ISSUED 08/12/2021
PHASE		

PROJECT TITLE:

37014

PROJECT INFORMATION:
COTTONWOOD CREEK ROAD
CRAWFORD, CO 81415
DELTA COUNTY

SHEET TITLE:

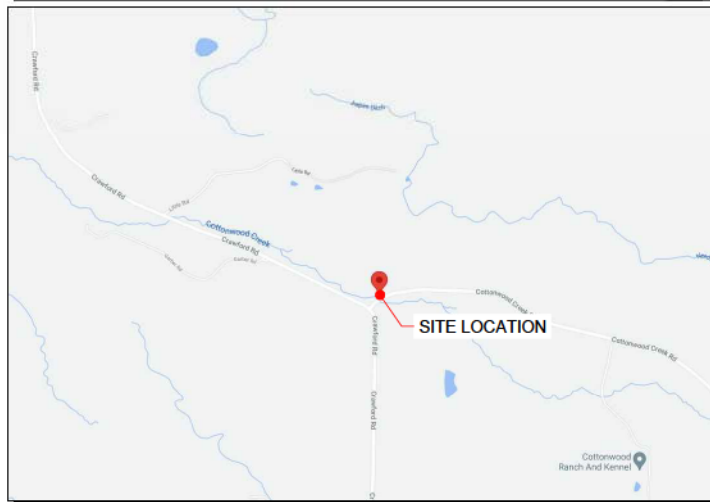
OVERALL SITE PLAN WITH AERIAL

0 10' 20' 40'

11" x 17" - 1" = 20'
22" x 34" - 1" = 10'

PROJECT NUMBER 52568
SHEET NUMBER A-2

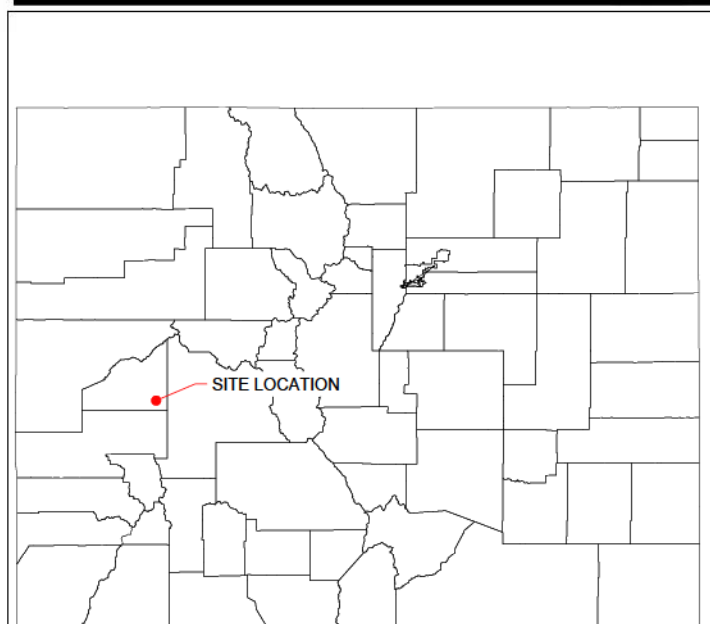
VICINITY MAP



AERIAL VIEW OF SITE



GENERAL LOCATION



37014 STANDARD MICROWAVE POLE INSTALLATION

DRIVING DIRECTIONS

FROM XXXXXXXXXXXXX:

SHEET INDEX

GENERAL:

T-1 TITLE SHEET

SITE:

- A-1 ELEVATION
- A-2 OVERALL SITE PLAN WITH AERIAL
- A-3 SITE PLAN
- A-4 ANTENNA LAYOUT
- A-5 EQUIPMENT FOUNDATION PLAN & DETAILS
- A-6 CABLE DETAILS

GROUNDING:

- G-1 GROUNDING PLAN
- G-2 GROUNDING DETAILS

UTILITY:

- E-1 UTILITY PLAN



TO OBTAIN LOCATION OF PARTICIPANTS' UNDERGROUND FACILITIES BEFORE YOU DIG IN WISCONSIN

DIGGERS HOTLINE
811 OR 1-800-242-8511

WISCONSIN STATUTE 182.0175 (1974) REQUIRES
MIN. OF 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE.

APPROVALS

CONSTRUCTION MANAGER: _____

DESIGN ENGINEER: _____

OPERATIONS MANAGER: _____

IMPLEMENTATION MANAGER: _____

REAL ESTATE MANAGER: _____

PROJECT INFORMATION

SITE DATA:
SITE NAME: 37014

ADDRESS: COTTONWOOD CREAK ROAD
CRAWFORD, CO 81415
DELTA COUNTY

TOWER COORDINATES:
LATITUDE: N 38° 45' 17.59" NAD 83
LONGITUDE: W 107° 37' 55.32" NAD 83

LESSEE:
TDS TELECOM
525 JUNCTION RD.
MADISON, WI 53716
PH.: (608) 664-4882
EMAIL: greg.fitch@tdstelecom.com

CONSULTING ENGINEER:
RAMAKER & ASSOCIATES, INC.
CONTACT: STEVE WIDEEN
PH.: (608) 643-4100
EMAIL: swideen@ramaker.com



Certification & Seal:

MARK	DATE	DESCRIPTION
ISSUE	REV A	DATE ISSUED 08/12/2021

PROJECT TITLE:

37014

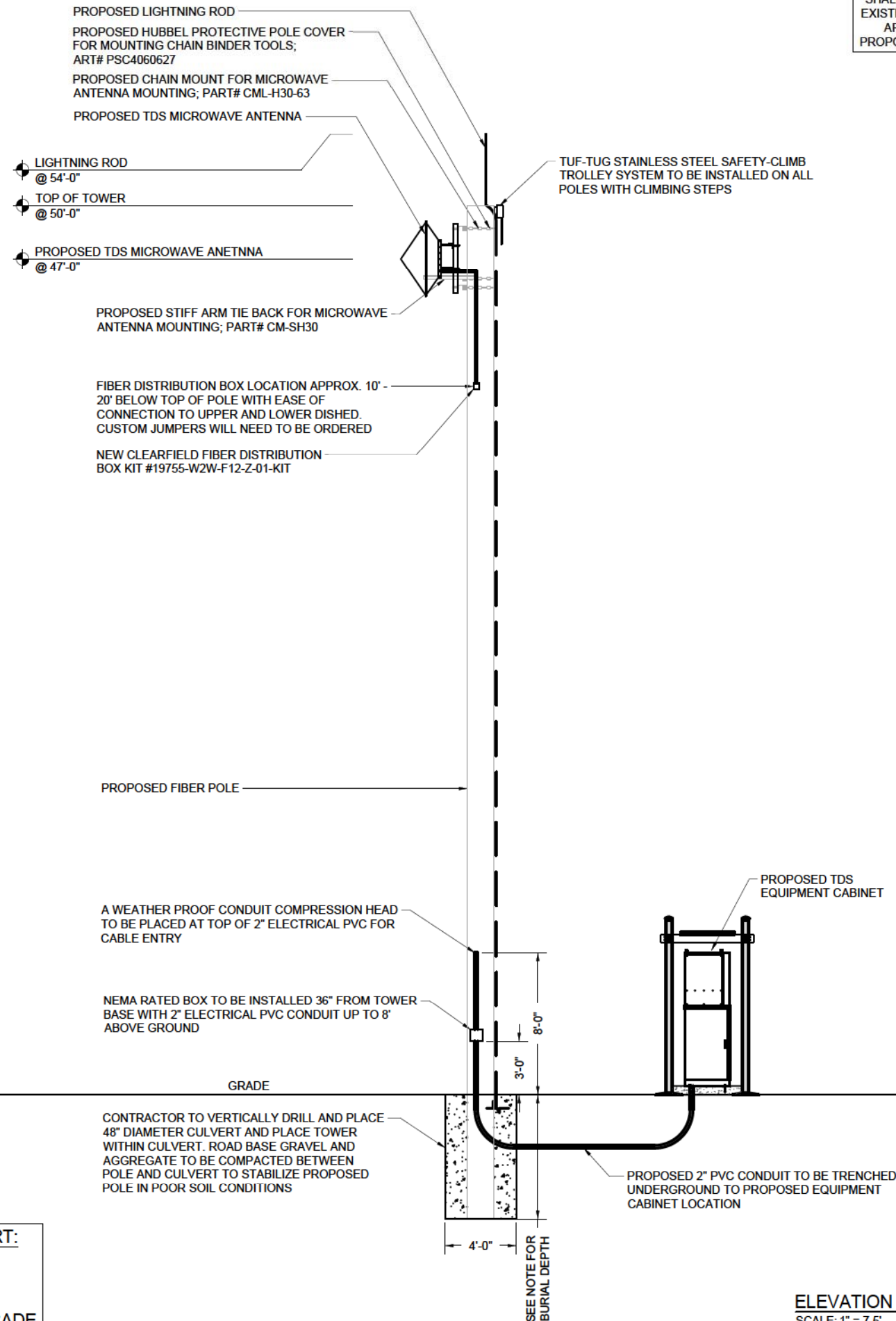
PROJECT INFORMATION:
COTTONWOOD CREAK ROAD
CRAWFORD, CO 81415
DELTA COUNTY

SHEET TITLE:

TITLE SHEET

SCALE: NONE

PROJECT NUMBER 52568
SHEET NUMBER T-1



PRIOR TO INSTALLATION OF THE PROPOSED EQUIPMENT OR MODIFICATION OF THE EXISTING STRUCTURE, A STRUCTURAL ANALYSIS SHALL BE PERFORMED BY THE OWNER'S AGENT TO CERTIFY THAT THE EXISTING/ PROPOSED COMMUNICATION STRUCTURE AND COMPONENTS ARE STRUCTURALLY ADEQUATE TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, COAXIAL CABLES, AND OTHER APPURTENANCES.


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Certification & Seal:

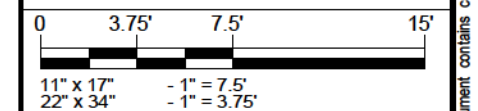
MARK	DATE	DESCRIPTION
ISSUE	REV A	DATE ISSUED 08/12/2021
PHASE		
PROJECT TITLE:		

37014

PROJECT INFORMATION:
COTTONWOOD CREAK ROAD
CRAWFORD, CO 81415
DELTA COUNTY

SHEET TITLE:

ELEVATION



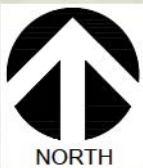
PROJECT NUMBER 52568
SHEET NUMBER A-1

ELEVATION
SCALE: 1" = 7.5'

1

FORMULA FOR BURIAL DEPTH OF POLE & CULVERT:
10% OF TOWER HEIGHT & ADD 2'

EXAMPLE 50' POLE: (50 x 10% = 5) -> (5 + 2 = 7)
DEPTH OF BURIED CULVERT & POLE IS 7' BELOW GRADE




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Certification & Seal:

MARK	DATE	DESCRIPTION
ISSUE	REV A	DATE ISSUED 08/12/2021
PHASE		

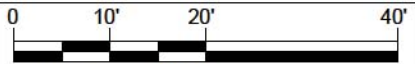
PROJECT TITLE:

37014

PROJECT INFORMATION:
COTTONWOOD CREEK ROAD
CRAWFORD, CO 81415
DELTA COUNTY

SHEET TITLE:

OVERALL SITE PLAN WITH AERIAL



11" x 17" - 1" = 20'
22" x 34" - 1" = 10'

PROJECT NUMBER 52568
SHEET NUMBER A-2

OVERALL SITE PLAN WITH AERIAL
SCALE: 1" = 20'

①





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Certification & Seal:

MARK	DATE	DESCRIPTION
ISSUE	REV A	DATE ISSUED 08/12/2021

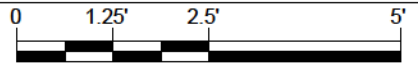
PROJECT TITLE:

37014

PROJECT INFORMATION:
COTTONWOOD CREAK ROAD
CRAWFORD, CO 81415
DELTA COUNTY

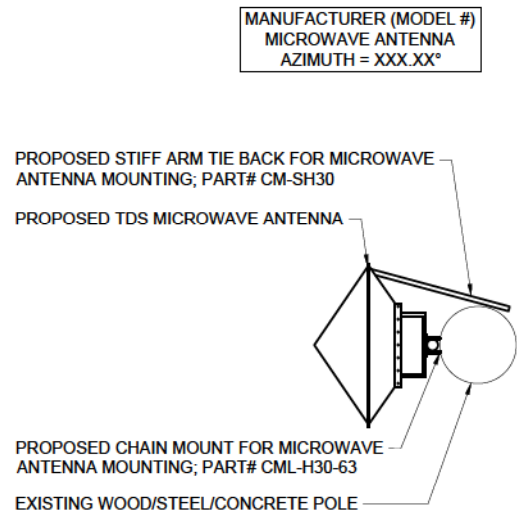
SHEET TITLE:

SITE PLAN



11" x 17"	- 1" = 2.5'
22" x 34"	- 1" = 1.25'
PROJECT NUMBER	52568
SHEET NUMBER	A-3

SITE PLAN
SCALE: #####



ANTENNA LAYOUT
SCALE: NTS

1

EQUIPMENT SPECIFICATIONS				
EQUIPMENT	LENGTH (IN.)	WIDTH (IN.)	DEPTH (IN.)	WEIGHT (LB)
MANUFACTURER (MODEL #) MICROWAVE ANTENNA	XX"	XX"	XX"	XX"
MANUFACTURER (MODEL #) MICROWAVE ANTENNA	XX"	XX"	XX"	XX"
MANUFACTURER (MODEL #) MICROWAVE ANTENNA	XX"	XX"	XX"	XX"
MANUFACTURER (MODEL #) MICROWAVE ANTENNA	XX"	XX"	XX"	XX"
MANUFACTURER (MODEL #) MICROWAVE ANTENNA	XX"	XX"	XX"	XX"



Certification & Seal:

MARK	DATE	DESCRIPTION
ISSUE	REV A	DATE ISSUED 08/12/2021
PHASE		

PROJECT TITLE:

37014

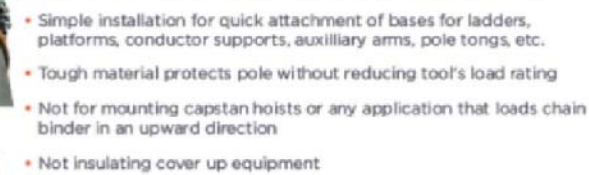
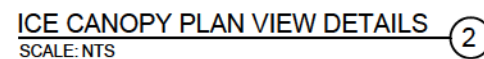
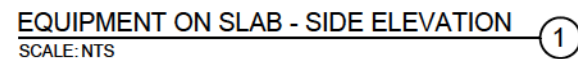
PROJECT INFORMATION:
COTTONWOOD CREAK ROAD
CRAWFORD, CO 81415
DELTA COUNTY

SHEET TITLE:

ANTENNA LAYOUT

SCALE: NONE

PROJECT NUMBER	52568
SHEET NUMBER	A-4



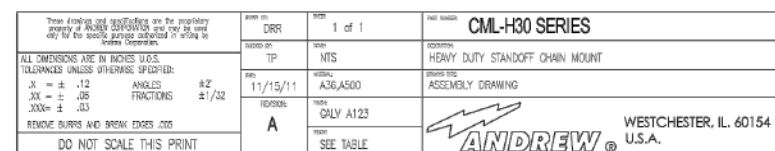
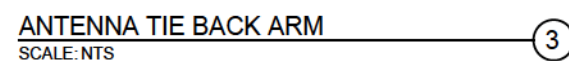
Catalog No.	Protector Size	Max. Pole Diameter
PSC4060624	7 in. x 4 ft.	up to 15"
PSC4060625	7 in. x 5 ft.	up to 19"
PSC4060626	7 in. x 6 ft.	up to 23"
PSC4060627	7 in. x 7 ft.	up to 27"

HUBBEL POLE PROTECTOR

SCALE: NTS

5

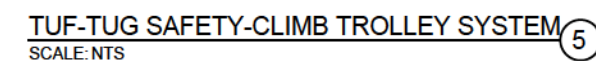
PART NUMBER	WEIGHT	PIPE	QTY	WEIGHT
CML-H30-B	78.7	NONE	-	85.37 LBS
CML-H30-63	135.0	MT-653-63	1	141.72 LBS



ANTENNA CHAIN MOUNT

SCALE: NTS

4



Certification & Seal

MARK	DATE	DESCRIPTION
ISSUE PHASE	REV A	DATE ISSUED 08/12/2021
PROJECT TITLE:		

37014

PROJECT INFORMATION:
COTTONWOOD CREAK ROAD
CRAWFORD, CO 81415
DELTA COUNTY

SHEET TITLE: EQUIPMENT FOUNDATION PLAN & DETAILS

SCALE: NONE

PROJECT NUMBER	52568
SHEET NUMBER	A-5

19755-W2W-F12-Z-01-KIT

INCLUDES:



QTY 1 X EMPTY STREETSMART
WALL BOX
PN# FDP-W2W-EMPTY-02



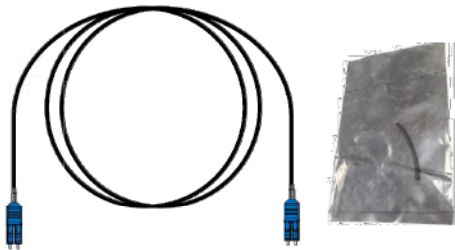
QTY 1 X LCUPC 12 PACK
PN# 021259



QTY 1 X GROMMET, 12 PORT,
TRANSITION BOX
PN# 021464



QTY 1 X WOOD POLE
MOUNTING BRACKET
WITH SCREWS
PN# W2W-PMW-02



QTY 1 x FIELDSHIELD FLEXDROP
PATCHCORD, SINGLEMODE, 2
FIBER, 3MM UV STABLE JACKET, DUPLEX
LC/UNIBOOT TO DUPLEX LC/UPC
UNIBOOT), 10 FEET. INCLUDES 1 X 3mm
BUNA PLUG
PN# FS-AP2-002-FUZD-FUZD-01 0010F



QTY 50 X 1/2 INCH METAL
CABLE CLAMPS
PART # 003054

QTY 50 X



QTY 15 X 3mm PLASTIC
CABLE CLAMPS
PN# 019094



QTY 65 X SCREWS
PN# 020543

CABLE CONNECTION KIT
SCALE: NTS

1

FIBER STRAND	PORT #	MW RADIO #1	MW RADIO #2	MW RADIO #3	>3 ADD BIDI OPTICS	MW RADIO #1	MW RADIO #2	MW RADIO #3	MW RADIO #4	MW RADIO #5	MW RADIO #6
BLUE	1	T			X	T/R					
ORANGE	2	R			X		T/R				
GREEN	3		T		X			T/R			
BROWN	4		R		X				T/R		
SLATE	5			T	X					T/R	
WHITE	6			R	X						T/R

CABLE COLOR CODING LEGEND
SCALE: NTS

2

Certification & Seal:

MARK	DATE	DESCRIPTION
ISSUE	REV A	DATE ISSUED 08/12/2021

PROJECT TITLE:

37014

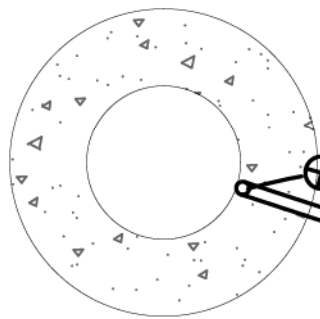
PROJECT INFORMATION:
COTTONWOOD CREAK ROAD
CRAWFORD, CO 81415
DELTA COUNTY

SHEET TITLE:

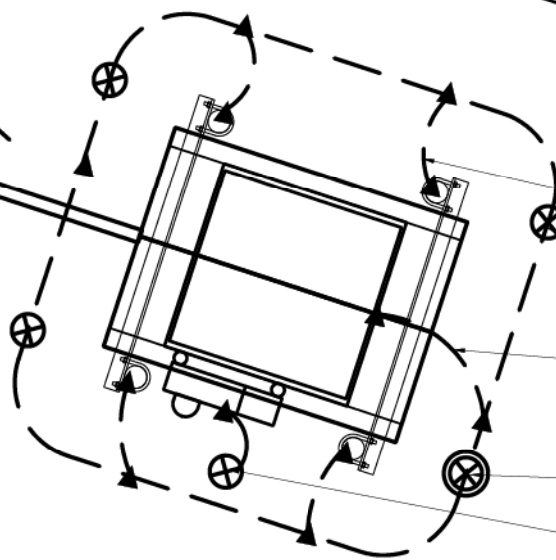
CABLE DETAILS

SCALE: NONE

GROUNDING SCHEDULE	
	#2 TINNED SOLID COPPER WIRE
	EXOTHERMIC CONNECTION
	GROUND ROD
	GROUND TEST WELL
MIGB	MASTER ISOLATED GROUND BAR
CIGBE	COAX ISOLATED GROUND BAR EXTERNAL



#2 TINNED SOLID COPPER CONDUCTOR
FROM LIGHTING ROD TO PROPOSED
GROUND ROD AT POLE BASE



GROUND EQUIPMENT ICE CANOPY
POSTS TO GROUND RING, TYP.

PROPOSED 5/8" DIAMETER X 10'-0" LONG
COPPER CLAD GROUND ROD, TYP.

GROUND CABINET TO EQUIPMENT
GROUND RING PER
MANUFACTURER'S
SPECIFICATIONS

PROPOSED TEST WELL

PROPOSED UTILITY METER TO BE GROUNDED
PER MANUFACTURERS SPECIFICATIONS




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Certification & Seal:

MARK	DATE	DESCRIPTION
ISSUE	REV A	DATE ISSUED 08/12/2021

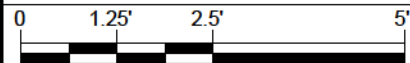
PROJECT TITLE:

37014

PROJECT INFORMATION:
COTTONWOOD CREAK ROAD
CRAWFORD, CO 81415
DELTA COUNTY

SHEET TITLE:

GROUNDING PLAN

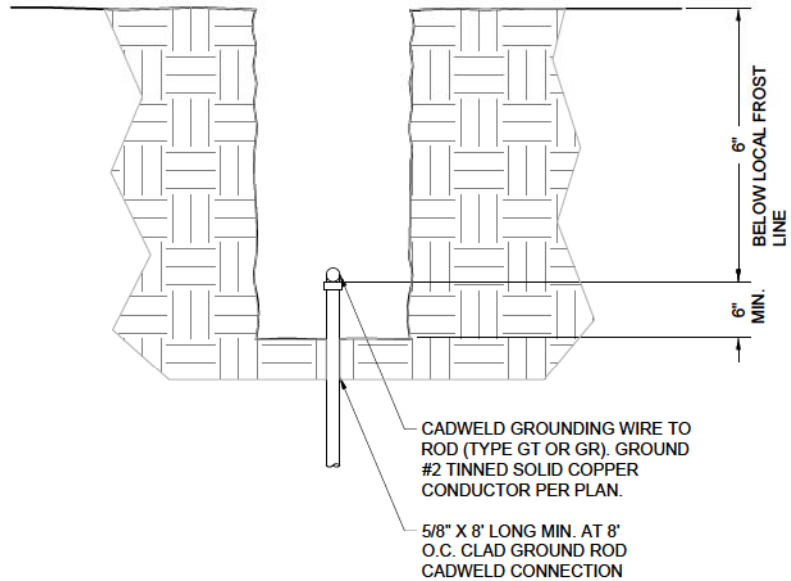


11" x 17" - 1" = 2.5'
22" x 34" - 1" = 1.25'

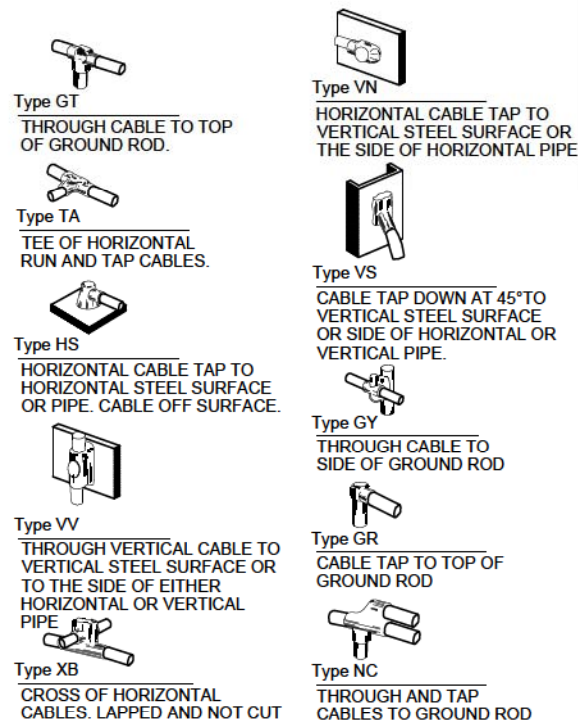
PROJECT NUMBER	52568
SHEET NUMBER	G-1

GROUNDING PLAN
SCALE: 1" = 2.5'

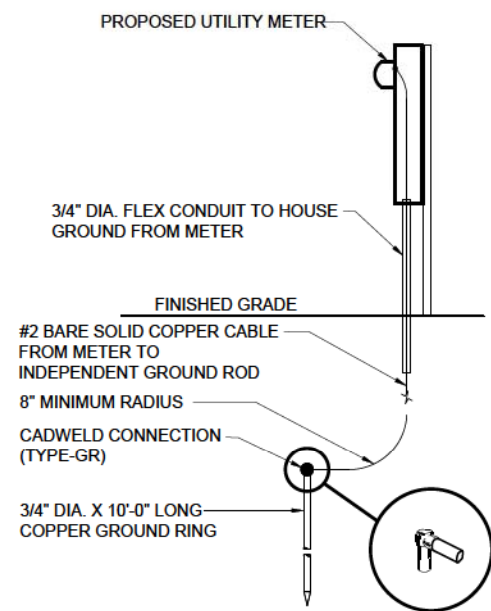
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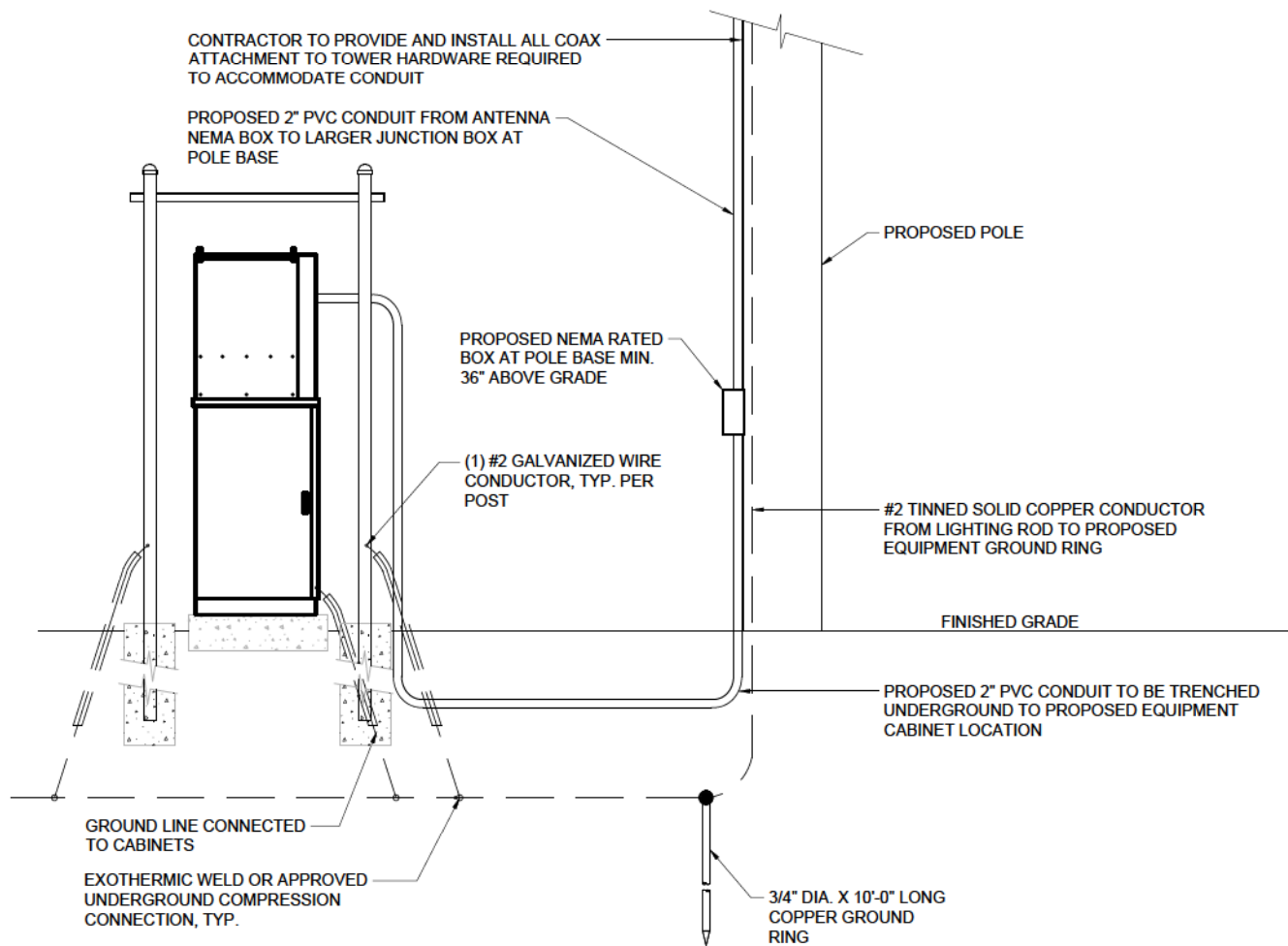
INSPECTION WELL & GROUND ROD ①
SCALE: NTS



EXOTHERMIC WELD DETAILS ②
SCALE: NTS



METER GROUNDING DETAIL ③
SCALE: NTS



EQUIPMENT TO TOWER GROUNDING RISER ④
SCALE: NTS



Certification & Seal:

MARK	DATE	DESCRIPTION
ISSUE	REV A	DATE ISSUED 08/12/2021

PROJECT TITLE:

37014

PROJECT INFORMATION:
COTTONWOOD CREAK ROAD
CRAWFORD, CO 81415
DELTA COUNTY

SHEET TITLE:

GROUNDING DETAILS

SCALE: NONE

PROJECT NUMBER	52568
SHEET NUMBER	G-2





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Certification & Seal:

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PROJECT TITLE:

37014

PROJECT INFORMATION:
COTTONWOOD CREAK ROAD
CRAWFORD, CO 81415
DELTA COUNTY

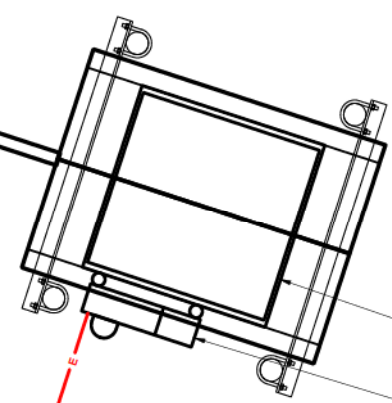
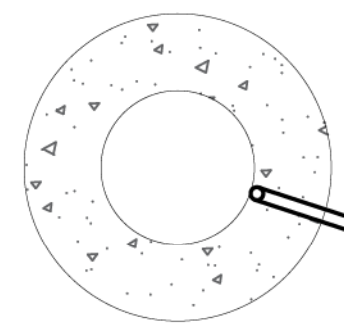
SHEET TITLE:

GROUNDING PLAN

01.25'2.5'5'

11" x 17" - 1" = 2.5'
22" x 34" - 1" = 1.25'

PROJECT NUMBER	52568
SHEET NUMBER	E-1



PROPOSED TDS EQUIPMENT CABINET

PROPOSED UTILITY METER WITH DISCONNECT AND 60 AMP BREAKER AT EQUIPMENT LOCATION

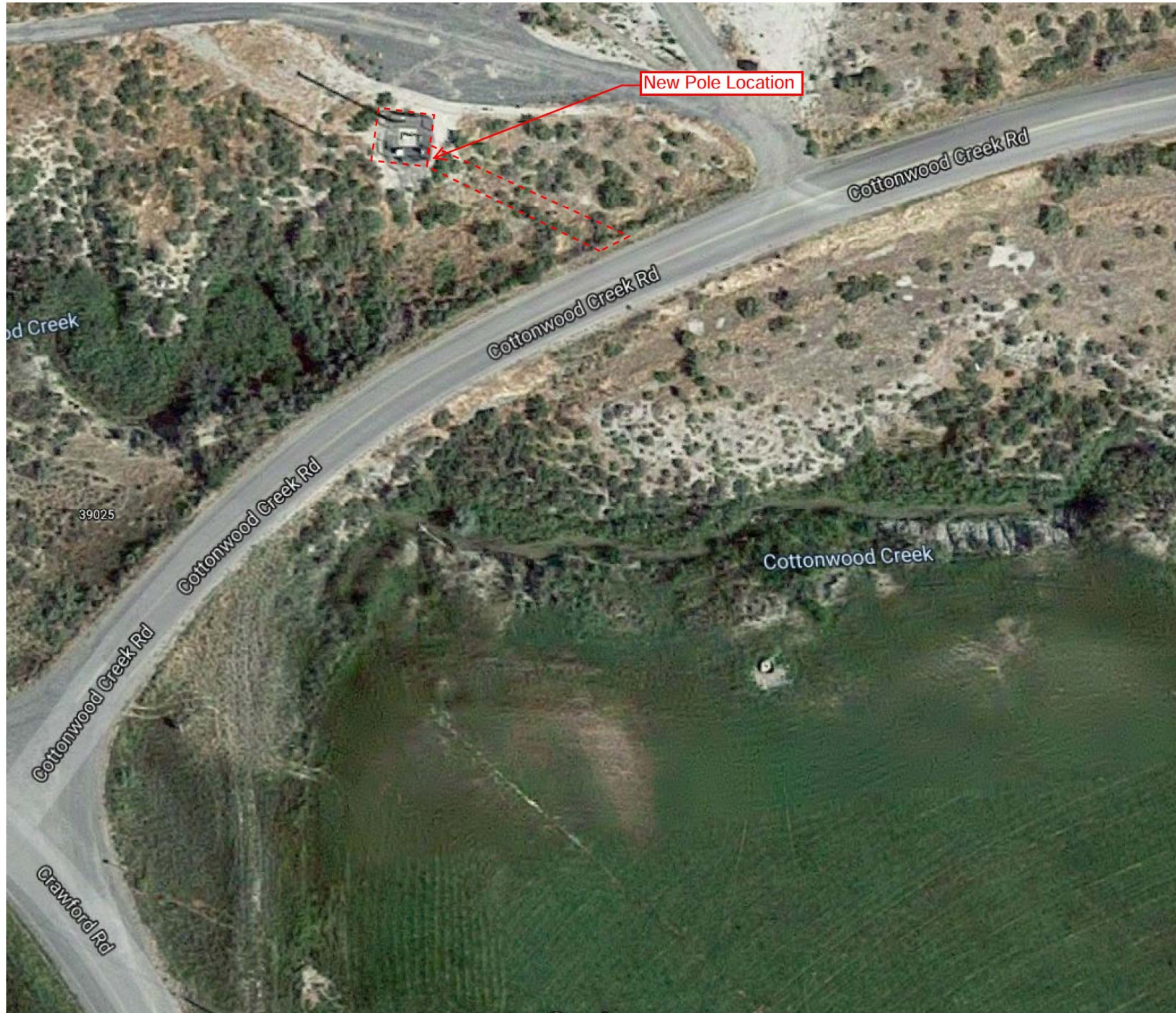
PROPOSED UTILITY METER TO BE CONNECTED TO 240V, 60AMP MINIMUM ELECTRICAL SERVICE



UTILITY PLAN
SCALE: 1" = 2.5'



Proposed Pole
Location



RESUBDIVISION OF LOT 2, MILLS MINOR SUBDIVISION #MS00-046 AND #MJ00-002

WITHIN THE NW1/4 NW1/4 OF SEC. 13 & THE NE1/4 NE1/4 OF SEC. 14, T.15S., R.92W., 6TH P.M.

DELTA COUNTY, COLORADO

We, Arlie B. Clark and Sharon Kay Clark, being the owners of the land described as follows:

LEGAL DESCRIPTION:
LOT 2 OF MILLS MINOR SUBDIVISION, said parcel contains 29.55 acres. In Delta County, Colorado, under the name of RESUBDIVISION OF LOT 2, MILLS MINOR SUBDIVISION, have laid out, platted and/or subdivided the same as shown on this plat and do hereby dedicate to the public at large the streets, alleys, roads and other public areas as shown hereon and hereby dedicate those portions of land labeled as easements for the installation and maintenance of public utilities as shown hereon.

In witness whereof Arlie B. Clark and Sharon Kay Clark, have subscribed their names this 2nd day of January, A.D. 2004.

By: Arlie B. Clark Arlie B. Clark
By: Sharon Kay Clark Sharon Kay Clark

NOTARIAL:
State of Colorado)
County of Delta) ss.
The foregoing instrument was acknowledged before me this 2nd day of January, A.D. 2004, by Arlie B. Clark and Sharon Kay Clark.
My Commission expires: 10-24-2005
My address is: 601 Grand Ave., Delta, CO 81401
Witness my hand and official seal.

In witness whereof Mortgagee, has subscribed its names this 2nd day of January, A.D. 2004.
By: Deborah K. Leger Mortgagee

NOTARIAL:
State of Colorado)
County of Delta) ss.
The foregoing instrument was acknowledged before me this 2nd day of January, A.D. 2004, by Mortgagee.
My Commission expires: June 19, 2005
My address is: Delta, CO 81401
Witness my hand and official seal.

BOARD OF COUNTY COMMISSIONERS APPROVAL
The within plat of RESUBDIVISION OF LOT 2, MILLS MINOR SUBDIVISION is approved this 2nd day of January, A.D. 2004, and the roads and other public areas are hereby accepted provided, however, that such acceptance shall not in any way be considered as an acceptance for maintenance purposes. Maintenance of, or snow removal from, the subject roads shall be only upon a separate resolution of the Board of County Commissioners passed in accordance with such policies, resolutions or regulations in effect at that time.

Attest
Ann B. Eddins
County Clerk

DELTA COUNTY PLANNING DEPARTMENT APPROVAL
This plat of the above subdivision has been checked by BARBARA L. RAY on this 7th day of January, 2004.

CERTIFICATE OF TAXES PAID
I, the undersigned, do hereby certify that the entire amount of taxes and assessments due and payable as of January 1, 2004, upon all parcels of real estate described on this plat are paid in full. Dated this 6th day of January, 2004.

Treasurer of Delta County, Colorado

SURVEYOR'S CERTIFICATION
I, Randy A. Wilmore, do hereby certify that the above described parcel has been surveyed by me and under my direct supervision and that such survey is accurately represented hereon.

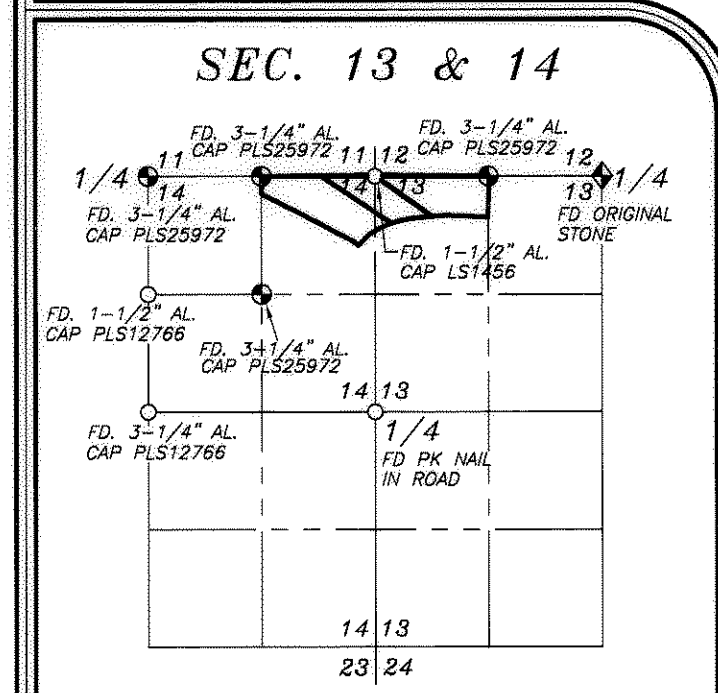
Date: 9/8/2003 Signed: Randy A. Wilmore
COLORADO PROFESSIONAL LAND SURVEYOR #25872

COUNTY SURVEYOR CERTIFICATE
Approved for content and form only, not the accuracy of survey, calculations, or drafting. This plat conforms to Section 38-51-106, Colorado Revised Statutes.
Dated: 9/8/2003 County Surveyor, Delta County, CO

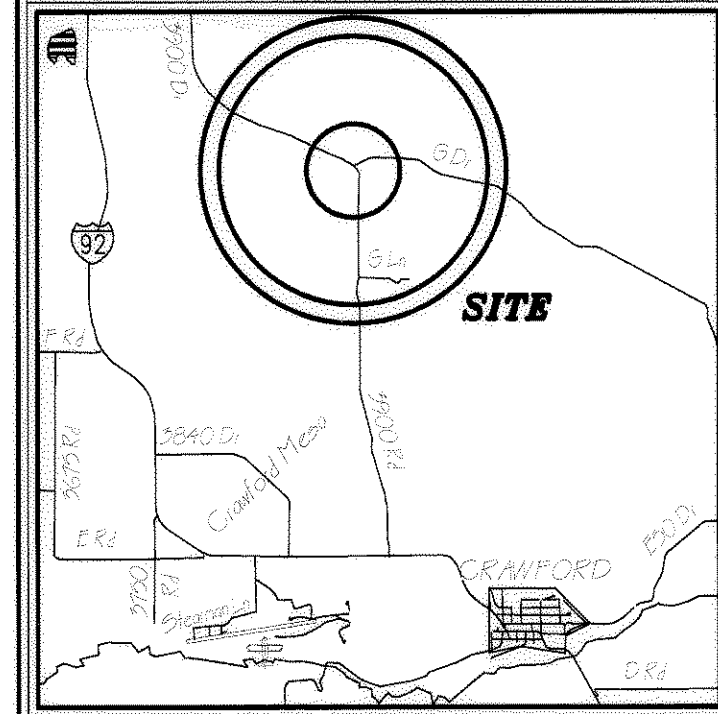
W C Wilmore and Company
Professional Land Surveying Inc.
4053 German Creek Drive Paonia, Colorado 81428
Phone: (970) 527-4200 Fax: (970) 527-4202

FIELD CREW:
RAW, JAM
DRAFTER:
RAW
CHECKED BY:
SGR, RAW

RESUBDIVISION OF LOT 2, MILLS MINOR SUBDIVISION #MS00-046 & #MJ00-002
WITHIN THE NW1/4 NW1/4 OF SEC. 13 & THE NE1/4 NE1/4 OF SEC. 14, T.15S., R.92W., 6TH P.M.
DELTA COUNTY, COLORADO
J03039 GPS FB01-2,P9 8 SEPT. 2003 M-69



CONTROL MAP

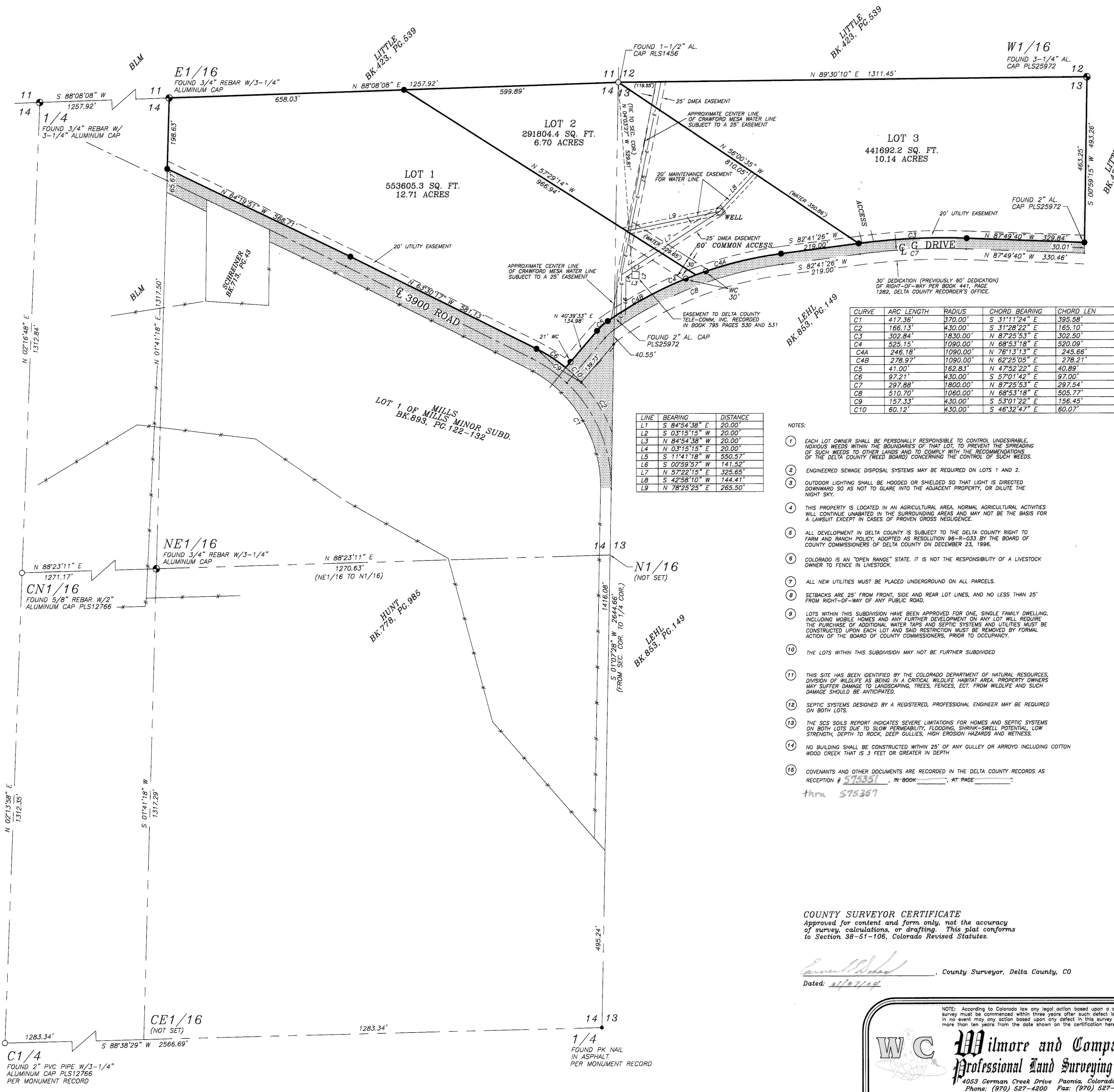


AREA LOCATOR

- TYPICAL LEGEND**
- Found PK nail in asphalt
 - Fd. or Set 5/8" rbr./2" al. cap PLS25972
 - Set 5/8" rbr./2" al. cap W.C. or linepin PLS25972
 - 3/4" rbr./3-1/4" al. cap PLS25972
 - Upgraded found monument to 2" pipe/3-1/4" al. cap PLS25972
 - GLO/BLM/BuRec/USFS
 - Fd. 5/8" rbr./1-1/2" al. cap cap LSI2766 or as noted

- Pencillines
- Electric (overhead)
- UE - Electric (under grd.)
- Water line
- Easement
- Previous Parcel Boundary
- Edge stream/river
- Irrigation ditch
- New Quit Claim to Delta County
- Previous R.O.W. to Delta County

BASIS OF BEARINGS:
N.01°07'28"E. FROM 1/4 COR. COMMON TO SECTIONS 13 & 14 TO SEC. COR. COMMON TO SECTIONS 11, 12, 13 & 14 ASTRONOMICAL NORTH GPS OBSERVATION
SCALE 1"=150'



LINE	BEARING	DISTANCE
L1	S 84°54'38" E	20.00'
L2	S 03°15'15" W	20.00'
L3	N 84°54'38" W	20.00'
L4	N 03°15'15" E	20.00'
L5	S 11°41'18" W	550.57'
L6	S 00°59'57" W	141.52'
L7	N 57°22'16" E	325.65'
L8	S 42°58'10" W	144.41'
L9	N 78°25'25" E	265.50'

- NOTES:**
- EACH LOT OWNER SHALL BE PERSONALLY RESPONSIBLE TO CONTROL UNDESIRABLE, NOXIOUS WEEDS WITHIN THE BOUNDARIES OF THAT LOT, TO PREVENT THE SPREADING OF SUCH WEEDS TO OTHER LANDS AND TO COMPLY WITH THE RECOMMENDATIONS OF THE DELTA COUNTY (WEED BOARD) CONCERNING THE CONTROL OF SUCH WEEDS.
 - ENGINEERED SEWAGE DISPOSAL SYSTEMS MAY BE REQUIRED ON LOTS 1 AND 2.
 - OUTDOOR LIGHTING SHALL BE HOODED OR SHIELDED SO THAT LIGHT IS DIRECTED DOWNWARD SO AS NOT TO GLARE INTO THE ADJACENT PROPERTY, OR DILUTE THE NIGHT SKY.
 - THIS PROPERTY IS LOCATED IN AN AGRICULTURAL AREA. NORMAL AGRICULTURAL ACTIVITIES WILL CONTINUE UNABATED IN THE SURROUNDING AREAS AND MAY NOT BE THE BASIS FOR A LAWSUIT EXCEPT IN CASES OF PROVEN GROSS NEGLIGENCE.
 - ALL DEVELOPMENT IN DELTA COUNTY IS SUBJECT TO THE DELTA COUNTY RIGHT TO FARM AND RANCH POLICY, ADOPTED AS RESOLUTION 96-R-033 BY THE BOARD OF COUNTY COMMISSIONERS OF DELTA COUNTY ON DECEMBER 23, 1996.
 - COLORADO IS AN "OPEN RANGE" STATE. IT IS NOT THE RESPONSIBILITY OF A LIVESTOCK OWNER TO FENCE IN LIVESTOCK.
 - ALL NEW UTILITIES MUST BE PLACED UNDERGROUND ON ALL PARCELS.
 - SETBACKS ARE 25' FROM FRONT, SIDE AND REAR LOT LINES, AND NO LESS THAN 25' FROM RIGHT-OF-WAY OF ANY PUBLIC ROAD.
 - LOTS WITHIN THIS SUBDIVISION HAVE BEEN APPROVED FOR ONE, SINGLE FAMILY DWELLING, INCLUDING MOBILE HOMES AND ANY FURTHER DEVELOPMENT ON ANY LOT WILL REQUIRE THE PURCHASE OF ADDITIONAL WATER TAPS AND SEPTIC SYSTEMS AND UTILITIES MUST BE CONSTRUCTED UPON EACH LOT AND SAID RESTRICTION MUST BE REMOVED BY FORMAL ACTION OF THE BOARD OF COUNTY COMMISSIONERS, PRIOR TO OCCUPANCY.
 - THE LOTS WITHIN THIS SUBDIVISION MAY NOT BE FURTHER SUBDIVIDED.
 - THIS SITE HAS BEEN IDENTIFIED BY THE COLORADO DEPARTMENT OF NATURAL RESOURCES, DIVISION OF WILDLIFE AS BEING IN A CRITICAL WILDLIFE HABITAT AREA. PROPERTY OWNERS MAY SUFFER DAMAGE TO LANDSCAPING, TREES, FENCES, ECT. FROM WILDLIFE AND SUCH DAMAGE SHOULD BE ANTICIPATED.
 - SEPTIC SYSTEMS DESIGNED BY A REGISTERED, PROFESSIONAL ENGINEER MAY BE REQUIRED ON BOTH LOTS.
 - THE SCS SOILS REPORT INDICATES SEVERE LIMITATIONS FOR HOMES AND SEPTIC SYSTEMS ON BOTH LOTS DUE TO SLOW PERMEABILITY, FLOODING, SHRINK-SWELL POTENTIAL, LOW STRENGTH, DEPTH TO ROCK, DEEP GULLIES, HIGH EROSION HAZARDS AND WETNESS.
 - NO BUILDING SHALL BE CONSTRUCTED WITHIN 25' OF ANY GULLEY OR ARROYO INCLUDING COTTON WOOD CREEK THAT IS 3 FEET OR GREATER IN DEPTH.
 - COVENANTS AND OTHER DOCUMENTS ARE RECORDED IN THE DELTA COUNTY RECORDS AS RECEPTION # 575351, IN BOOK _____, AT PAGE _____.

TDS tower on Stucker Mesa

3 messages

scswartz@tds.net <scswartz@tds.net>
To: planning <planning@deltacounty.com>

Mon, Nov 29, 2021 at 2:55 PM

To the Delta County Planning Commission:

I received a notice last week that TDS wants to erect a 60 foot tower on Stucker Mesa. I am concerned that we are still fighting this issue after six years! In 2018, TDS alerted my husband and I that they intended to erect a 70ft. tower at the end of our property on Stucker Mesa. (28700 Stucker Mesa Rd.). TDS purchased a 10'X10' easement from us many years ago, and the notice told us that they intended to erect their tower at the corner of that easement, at the end of our lane. However, we told them that the easement agreement was specific to the two structures that were already on the easement, and after several rounds of discussions where they urged us not to get attorneys involved, we stood firm letting them know that, Yes, we would get attorneys involved. We attended a Planning Commission meeting where we were told that the tower height was now set at 30' so TDS no longer needed our permission since 30' was within county regs. However, since we did not hear from them again, we had to assume that they decided not to build their tower on that easement. About a year later, we were alerted to the fact that now TDS was ready to erect that tower across the road on the county right-of-way. After much investigation, it was determined that the county does not have a right of way in the desired spot so the tower was not put up. Now, two years after-the-fact, here we go again.

During the the face-to-face meetings we had with representatives of TDS, I proposed an alternative site, the KVNF tower on Wakerfield Mesa. Jared Paul, the TDS representative, made it clear that they needed a relay tower to Garvin Mesa and on up the valley to complete their service where it is needed. At the time I was told that the KVNF tower would work, but it was not optimum. I suggest that the commission consider asking TDS to use the existing KVNF tower. Many of the issues voiced by our neighbors still exist even though the site is slightly farther west. It is an eyesore to a community that values our views, it is an unnecessary intrusion since no one on our mesa would use it, and finally a usable site exists and is not abhorrent to anyone.

Our small community has been fighting TDS on this tower issue for years. (see attached letters from 2018). As we were in 2018, we are still opposed to having it on our mesa especially when there is a suitable alternative site.

Respectfully, Cindy Swartzendruber

5 attachments

 **TDS_OppositionLette2r.docx**
18K

 **Health Effects of Microwave Radiation (Western View).pdf**
142K

 **Sarah's letter.rtf**
4K

 **Chuck's letter.rtf**
2K

 **Cell-tower-studies-re-cancer.pdf**
516K

Kate Kelly <kkelly@deltacounty.com>
To: Carl Holm <cholm@deltacounty.com>

Mon, Nov 29, 2021 at 4:03 PM

FYI, this came in for opposition to the TDS tower.

[Quoted text hidden]

--
Kate Kelly
Planner I

**295 W 6th Street
Delta, CO 81416
970-874-2110**

5 attachments



TDS_OppositionLette2r.docx
18K



Health Effects of Microwave Radiation (Western View).pdf
142K



Sarah's letter.rtf
4K



Chuck's letter.rtf
2K



Cell-tower-studies-re-cancer.pdf
516K

Kate Kelly <kkelly@deltacounty.com>
To: "scswartz@tds.net" <scswartz@tds.net>
Cc: planning <planning@deltacounty.com>

Mon, Nov 29, 2021 at 4:04 PM

Hi Cindy,

Your email and attachments have been received and will be added to the file for this application.

Regards,
Kate

[Quoted text hidden]

[Quoted text hidden]

[Home](#)

Holistic Self-Defense

[A Better Health Plan](#)

[Chi Kung](#)

[Depression and Anxiety](#)

[Food and Energy](#)

["Dangers of Soy" Myth](#)

["Drink Water" Myth](#)

["Enzyme Heat" Myth](#)

[Frequency Techniques](#)

[ABPA Review](#)

[F100 Series Review](#)

[F-SCAN Review](#)

[GB-4000 Review](#)

[Rife Handbook Review](#)

[Spooky2 Review](#)

[Hadoscan and EAV](#)

[Meditation](#)

[Helpful Sites](#)

Cancer

[A Holistic Approach](#)

[Beware the FDA!](#)

[The FDA's Panacea](#)

[Thirteen Years](#)

[The Forbidden Fruit](#)

[Aloe Irritates the FDA](#)

[Institutional Torture](#)

[The FDA's Cozy Little Relationship](#)

Macrobiotic

Dietary

Recommendations

Radiation

[Effects \(Eastern View\)](#)

[Effects \(Western View\)](#)

[The FCC Standard](#)

[Radiation Links](#)

Seven Herbalists Speak

[Elisa Adams](#)

[Diane Brigida](#)

[Bill Fage](#)

[Gene Fitzpatrick](#)

[Cheryl Kelly](#)

[Jeanne Polcari](#)

[Joan Reardon](#)

Health Effects of Microwave Radiation (Western View)

[T]he public is now understandably wary of safety assurances from "official" government scientific sources w.r.t. [with regard to] electromagnetic pollution. This skepticism is enhanced when views contrary to official perceived wisdom is [sic], at worst silenced or, at best, studiously ignored.

[March 2001 report by the European Parliament STOA](#)

We're all participating in a giant experiment in involuntary epidemiology — irradiated by cell phones and towers, cordless phones, satellites, broadcast antennas, military and aviation radar, TVs, computers, wireless internet, wireless LANs in schools and the workplace, and now these meters, waiting to see what it does to us.

Actually, we know what it does to us, so the results shouldn't come as any surprise.

The main problem isn't cancer, although the industry would like you to believe that, because then they can pull out statistics showing how infrequently it occurs as a result of low-level radiation. Cancer takes a long time to develop. Typically, other problems show up first: neurological, reproductive, and cardiac. Problems with severe headaches, sleep disturbances, memory loss, learning disabilities, attention deficit disorder, and infertility show up long before cancer. When cancer does appear, it's typically brain tumors, leukemia, and lymphoma.

Here are a few things to keep in mind about the health effects of microwave radiation:

1. Effects at low levels can be more noticeable than at higher levels.

The existence of a "window effect" is well documented, in which effects occur at certain frequencies and power densities but not at those immediately above or below them. However, it's not as simple as just mapping these frequencies and power levels, because the local geomagnetic field and individual susceptibility also influence the result.

Following are a few examples of the nonlinear nature of the effects, from Arthur Firstenberg's book *Microwaving Our Planet* (see bottom of page for information). In each case, emphasis has been added:

Firstenberg points out (p. 41) that “calcium ion efflux from brain tissue is extremely sensitive to irradiation with radiofrequency waves.” He cites four studies and a literature review. In particular, a 1986 study by Dutta et al. at 915 MHz and various exposure levels showed that “The effect at 0.0007 mW/g SAR [specific absorption rate] was quadruple the effect at 2.0 mW/g, **in other words 3000 times the intensity had 4 times less of an effect under these particular conditions.**” Looking at it the other way, **an intensity three thousand times lower had an effect four times greater.**

Firstenberg describes a number of studies on microwave radiation and blood cells. In one, “Chiang et al. (1989) in their epidemiological study found that **white blood cell phagocytosis was stimulated by chronic exposure to the lowest intensities of radio waves and inhibited, sometimes severely, by higher intensities.** ... Exposure levels ranged from 0–4 mW/cm² to 120 mW/cm².” (p. 22)

In another study on blood, “These results were further refined by a 30-day experiment with guinea pigs at 1, 5, 10, and 50 mW/cm² (Shandala and Vinogradov 1978). All these intensities increased complement in the blood and stimulated phagocytosis by neutrophils, but **1 mW/cm² had the biggest effect, and 50 mW/cm² the smallest effect.**” (p. 23)

The September 2000 newsletter of the Cellular Phone Taskforce, *No Place To Hide*, reported on some studies presented at the June 2000 European Parliament meeting on mobile phones and health. In one presentation, Dr. Lebrecht von Klitzing, of the Medical University of Lubeck, Germany, said, **“Some people become ill at power densities of less than 10 nanowatts/cm². ... Small children are very sensitive to these emitters, down to field densities of 1 nanowatt/cm².”**

Another article in the newsletter says that Dr. Leif Salford, of Lund University, Sweden, “had previously reported that short exposure to microwaves at 915 MHz damages the blood-brain barrier. ... ‘The most remarkable observation in our studies,’ said Salford [at the conference], ‘is the fact that SAR values lower than 1 mW/kg give rise to a more pronounced albumin leakage than higher SAR values. ... **The situation that the weakest fields, according to our findings, are the biologically most effective, poses a major problem.**’ ”

2. Another effect independent of power level is resonance, which occurs at certain frequency ranges where the wavelength is near the size of a body part. An example is the 900 Mhz range, which has a wavelength of approximately one foot — a size that can cause resonance in a child’s head (because some of the radiation is absorbed, and the wavelength decreases). This intensifies the biological effect. Also, children’s skulls are thinner, so microwaves penetrate more easily. (Another problem is that children’s cells are dividing rapidly, which creates more chance for DNA damage. Their immune systems are not fully developed and can’t defend them against this.)

3. Pulsed radiation, used for some microwave signals, is more harmful at the cellular level than continuous-wave.

4. Studies are typically done for short exposure periods at higher intensities, because running studies longer costs more money. This allows the industry to claim that few studies have been done that show effects for long-term, low-level exposure and that “nonthermal” effects do not exist. But public health scientists point out that duration is also important, and long-term, low-level exposure can have equivalent effects.

5. The effects of radiation are cumulative, in both senses.

The meters add to the cumulative radiation as sources proliferate, and microwave radiation is cumulative in sense of increasing the body’s sensitivity over time. Research shows that test subjects don’t always recover completely and that subsequent exposures can cause effects at lower levels.

6. There are no longer any control groups, because we are now exposed to so much radiation. Alasdair Phillips points out the problem in an email to the now defunct Roy Beavers list (from the Library page at www.wave-guide.org, now also defunct, [archived](http://archive.org) at archive.org):

Recently an American epidemiologist, Dr Sam Milham, re-analysed Doll’s own data presented in his 1956 (Doll & Hill) paper which showed that heavy smokers were 23.7 times more likely to die from lung cancer than non-smokers. However when you compare the figures for heavy smokers vs light and moderate ones the ORs [odds ratios] fall to 3.5 and 1.9. When you compare light smokers with moderate ones you get an OR of only 1.8.

Applying this concept to microwaves, there are no unexposed and few highly exposed subjects. So experimental results showing harm compared to a control group can be deceptively low — like comparing lung cancer in heavy smokers to light or moderate smokers rather than nonsmokers. This allows the industry to downplay the implications of health effects.

7. Even in full studies, sometimes the abstract and/or conclusion may not accurately reflect the study’s data, especially if the industry was involved or the researcher is concerned about funding.

For example, Kathleen Thurmond, M.D., in a 1999 talk, said,

A study presented by Dr. Ross Adey at the 1996 annual meeting of the Bioelectromagnetics Society in Victoria, B.C., Canada, showed a decrease in the incidence of brain tumors in rats chronically exposed to digital cellular telephone fields. However, there was no mention in his study of the increased incidence of spinal column tumors found in his research according to a reliable source. It would be standard scientific practice to at least note this finding regarding spinal column tumors. Dr. Ross Adey’s research funding by Motorola has now been terminated.

Dr. Henry Lai was quoted in the London *Times* as saying, “They are asking me to change my whole interpretation of the findings in a way that would make them more favorable to the mobile phone industry. This is what happened in the tobacco industry.

They had data in their hands but when it was not favorable they did not want to disclose it.”

The [European Parliament report](#) says, “[A] relatively recent reanalysis of the Lilienfeld report on the Moscow US Embassy irradiation during the ‘cold’ war, based on information that only became fully available following the Freedom of Information Act ... reveals that the original verdict of no serious health effects was, in fact, a sanitised version of Lilienfeld’s findings, in which his statements of concern had been deliberately removed by the State Department.”

Sources

Alternatives to reading every study include abstracts, books or reports that summarize the research, and capsule descriptions of studies in tabular format. Following are some sources for each of these:

Abstracts

Dr. Henry Lai, a well-known bioelectromagnetics researcher at the University of Washington, Seattle, has compiled a 97-page collection of abstracts from studies conducted between 1995 and 2000. The list, in pdf format, can be found on the Research page of the EMR Network’s web site. As the web site points out, “80% of these studies demonstrate some kind of biological effect.”

Reports

The Physiological and Environmental Effects of Non-Ionising Electromagnetic Radiation is a 34-page [report issued in March 2001 by the European Parliament](#) Directorate General for Research, Scientific and Technological Options Assessment (STOA). Written by Dr. Gerard Hyland, it pulls no punches in warning of the hazards of microwave radiation.

Potential and Actual Adverse Effects of Radiofrequency and Microwave Radiation at Levels Near and Below 2 $\mu\text{W}/\text{cm}^2$, is a 200-page report by Dr. Neil Cherry, of Lincoln University, New Zealand. The introduction says, “Strong claims by industry representatives and their consultants that there is no scientific evidence to justify the public’s fears is scientifically demonstrably wrong.”

An April 2001 [press release by the ECOLOG-Institut](#), in Hannover, Germany, says that the institute’s report on cellular microwave exposure presents “the results and recommendations of the comprehensive study carried out by order of the German T-Mobil, in which physicists, medical scientists, and biologists took part.” (The press release and study are available in German on the Institute’s web site.)

There are a number of scientific findings from investigations on sub-populations with an elevated exposition to high frequency electromagnetic fields and from animal experiments that have to be taken seriously. These findings point on a cancer-promoting effect of high frequency electromagnetic fields used by cellular telephone technology. Experiments on cell

cultures yielded clear evidence for geno-toxic effects of these fields, like DNA breaks and damage to chromosomes, so that even a cancer-initiating effect cannot be excluded any longer. The findings that high frequency electro-magnetic fields influence cell transformation, cell promotion and cell communication also point on a carcinogenic potential of the fields used for cellular telephony. Moreover disturbances of other cellular processes, like the synthesis of proteins and the control of cell functions by enzymes, have been demonstrated.

In numerous experiments on humans as on animals influences on the central nervous system were proven, which reach from neuro-chemical effects to modifications of the brain potentials and impairments of certain brain functions. The latter effects for instance have been demonstrated by animal experiments and e.g. showed up as deficits in the ability to learn simple tasks when exposed to the fields. From experiments with volunteers, who were exposed to the fields of mobile telephones, there is clear evidence for influences on certain cognitive functions. Possible risks for the brain also arise from an increased permeability of the blood-brain barrier to potentially harmful substances, observed in several experiments on animals exposed to mobile telephone fields.

The scientist at the ECOLOG-Institute also found some evidence for disturbances of the hormone and the immune system. High frequency electromagnetic fields cause stress reactions, showing up in an increased production of stress hormones in experimental animals and they lead to a reduction of the concentration of the hormone melatonin in the blood of exposed animals. The latter finding is important, because melatonin has a central control function for the hormone system and the diurnal biological rhythms and it is able to retard the development of certain tumours.

Dr. Peter Neitzke, coordinator of the institute's working group, says this:

80 per cent of the papers published in scientific journals do not contribute anything to the evaluation of possible health risks due to the electromagnetic fields emitted by cellular telephones and their base stations. The remainder however, on which our assessment relies, *is made so good and is in itself so consistent that we must take the findings referring to health risks seriously. In order to improve the protection of the public against the possibly harmful effects of the electromagnetic fields from cellular telephones and their base stations, we need much lower precautionary standards. ...* [Italics added.]

The report says, "The ECOLOG-institute recommends not to exceed a precautionary standard of $0,01 \text{ W/m}^2$ [= 1 microwatt per square centimeter] when siting cellular telephone base stations in the proximity of dwellings, schools, kindergartens,

hospitals, and similarly sensitive uses.”

In a commentary to this, Dr. Neil Cherry, a well-known EMF researcher in New Zealand, says, “The actual expose levels at which these genetic effects are shown are about 0.5 to 1.2 microWatt/sq cm. These are not safe levels, they are just experimental levels that show that at extremely low experimental levels genotoxic response occur — cell-by-cell. There is no safe threshold.”

In other words, the maximum level the ECOLOG-Institute recommends is already the level at which, as Dr. Cherry points out, genetic effects occur. This also happens to be about the same exposure level from a cell-phone tower with a single set of antennas, sometimes as much as 1000 feet away or more, depending on terrain, obstructions, signal strength, etc. When another telecom with the same signal strength colocates on the tower, the radiation increases.

Capsule Descriptions

A list of about two dozen studies on low-level microwaves, compiled by Cindy Sage, a consultant on EMF mitigation, can be found on the Library page at www.wave-guide.org (now defunct, [archived](http://archive.org) at archive.org). The list is grouped by exposure level (from .1 to 120 mW/cm²) and SAR (Specific Absorption Rate).

As part of his [Radio Wave Packet](#), Arthur Firstenberg, president of the Cellular Phone Taskforce, has created a list of about 40 studies grouped by exposure level, beginning as low as 10⁻¹³ mW/cm² and extending to 10 mW/cm². Therefore, it has little overlap with Cindy Sage’s list and is more applicable to the levels encountered with microwave meters and cell towers. It also includes Soviet and Russian research.

Books

Arthur Firstenberg has also written a book, *Microwaving Our Planet* (currently out of print), with brief descriptions of studies grouped by the affected system (nervous, reproductive, heart, respiratory, etc.) and, under each system, by whether the study was done on humans, animals, or cells.

r. Yeager

My husband and I live at 37664 Stucker Mesa Rd., Hotchkiss, CO.
Cindy

Swartzendruber, who, with her husband Steve, lives at 38700 Stucker Mesa Rd., has advised me that TDS intends to erect a 70 foot tower on a small piece of property it owns directly in front of the Swartzendruber residence. We strongly object to this proposed tower for several reasons.

First, it is my understanding that when TDS bought this small plot of land from the Swartzendrubers, it promised them it would never erect a tower on it. Further, it is my understanding that when TDS made this promise, neighbors who had objected to TDS buying this plot for fear it might eventually erect a tower, withdrew their objections. I FIND IT UNCONSCIONABLE THAT TDS WOULD GO BACK ON ITS WORD.

Second, where the tower would be located is much too close to several residences, probably within 300 meters. It is my understanding that such close proximity of the proposed tower presents a radiation hazard. While I live more than a mile away, I DO NOT WANT MY NEIGHBORS TO BE AT RISK OF RADIATION HAZARDS.

Third, it is my understanding that TDS wants to put the tower on this plot of land in order to offer improved Internet service in the area. One only needs to drive along Stucker Mesa Road to see that most of the homes are already connected with high speed Internet through Elevate.

No matter what TDS might do, it cannot compete with the Internet speed that fiber optic cable can provide. And I doubt it can provide improved Internet service at a lesser cost than Elevate. (I currently pay approximately the same monthly fee to Elevate for 100 megabites as I used to pay TDS for something less than 15 megabites.) IF THERE ARE POTENTIAL CUSTOMERS FOR IMPROVED INTERNET SERVICE FROM TDS, TDS SHOULD PUT THE TOWER WHERE IT WILL BENEFIT THEM.

Finally, even if the purpose of the tower is to serve a constituency other than my neighborhood, SURELY THERE IS A BETTER LOCATION FOR IT THAT IS NOT IN THE MIDDLE OF A RESIDENTIAL NEIGHBORHOOD.

Thank you for speaking to TDS on our behalf and for helping it
come to
the conclusion that building a tower at 38700 Stucker Mesa Road
is not
only a very bad idea, but will cause considerable anguish in
our small
neighborhood. I look forward to seeing the sign removed that
announces
the construction of the proposed TDS tower and thus this threat
removed.

Sincerely yours,

Bill and Sarah Bishop
527-6675
sgbishop@tds.net
Written 10/25/18

Hi Cindy,

Chuck and I have each sent letters of opposition to Ms. Yeager with Delta County regarding this proposed tower. I've also left messages for all 3 of the TDS reps listed in the development plan that we received from Delta County Planning Dept. We will continue to call until we reach someone that can provide more detail about the proposed tower.

What are your thoughts on a collective effort from Stucker Mesa residents, to contribute money in hiring an attorney to send a letter stating our opposition? As you do, we strongly oppose this proposed tower and want to make every reasonable effort to stop it. Please let us know of this or any idea that you believe may be effective.

Hope that all is well with you.

Thanks so much,
Cameron Raleigh
214-802-1653

Written 10/30/18

Philip & Jean Ceriani
38638 Stucker Mesa Road
Hotchkiss, CO, 81419

970.527.7064 (phone/fax)

970.260.2057 (cell)

pceriani@paonia.com

October 27, 2018

Delta County Planning and Development Department
501 Palmer St
Delta, CO, 81416

Attn: Kelley Yeager

Subject: **Opposition to request for variance by TDS to install a microwave tower directly adjacent to our property on Stucker Mesa.**

Mr. Yeager,

Our property is directly adjacent to the Swartzendruber property upon which the 15' x15' easement enjoyed by TDS Telecom resides. The proposal is vague as to the actual engineering plan other than stating that the tower will be 70 feet tall. I have made several calls to Bill Long and Chad Richards (listed in the petition) and both have not returned my phone calls. My interest is in defining just what a "tower constitutes", how they plan on constructing that tower on a 15 x 15 foot easement, and more specifically, why this structure needs to be located in this geographic space. Furthermore from an engineering standpoint, it is incomprehensible how TDS plans to plant this pole in this small space without violating neighbors property rights. This structure will create an indelible eyesore on the Stucker Mesa Landscape for all who reside on this Mesa which has, perhaps one of the best views of the mountains in the all of the North Fork and a premier why reason many of us purchased property here in the first place. We are strongly opposed to awarding this variance. There are other more compelling reasons why we believe this variance should not be granted that are listed below.

TDS is abusing its privilege as an ILEC provider.

Under section A of the "performance Standards" section of the proposal TDS states:

"Being an incumbent local exchange carrier (ILEC), it is our duty to provide communities with basic telephone access for emergency situations. By expanding our role and delivering services such as high quality data, voice and video services, our duty has expanded into offering comforts and connections to supplement life in rural communities. By investing in our future with initiatives like this development, we will be able to stay stride for stride with technological advances and deliver a quality product for years to come."

Many years ago, TDS and others did wire up the North Fork Valley with traditional twisted wire copper pairs for voice transmission and fulfilled their mission as an ILEC provider. As more technology became available to include cell phone service, wireless broadband internet service, TDS was slow to adapt to the changing technological environment. My wife and I came to this valley full time in 2001 and were customers of the traditional voice system and were moderately happy with the service. We attempted to use the TDS broadband service early on and found it very unreliable. Outages were common, customer service was beyond miserable. At one point TDS closed down the Paonia office and moved their customer service center to somewhere in Wisconsin. 30 minute hold times were not uncommon. It was not unusual to be without internet service for 24 hours. As newer technologies such as wireless broadband services offered by Paonia.com, Rise Broadband, Hughes.net and others came to the valley, many of the computer knowledgeable people I was aware of left TDS.net because of the bad customer service and slow unreliable bandwidth service. Calls to the local service technicians (who were very nice people) regarding service interruptions were usually explained by the fact that the company didn't have enough fiber "backhaul" capacity between Paonia and Delta to accommodate users. This was more than 10 years ago by my estimation.

Despite the more rapid penetration of the market by wireless competitors, TDS continued to sit on their hands choosing to collect revenue from the paid off copper network installed decades ago rather than upgrade its infrastructure in order to provide anything more than basic internet services. As a result, many customers departed TDS.net in favor of faster and more reliable service. It remains a mystery to me why a Fortune 1000 company such as TDS that has access to enormous amounts of capital either in the credit markets or out of profitable operations was unable to realize the trends going on in the digital space and begin an infrastructure upgrade program that would solidify their market share and maintain their pricing market in Telecom Services in Delta county. Nothing happened until Elevate Fiber showed up.

DMEA, seeing a market opportunity, conceived a rather brilliant business plan of wiring the county with 1GB fiber service that would allow them to install a "smart" grid management system for electrical distribution and service and at the same time allow for citizens of the county to have direct fiber to home '1GB service. This necessarily bypasses the entire copper infrastructure owned by TDS. The result has been a rather furious "build out" of broadband infrastructure taking place in both rural and community targets in Delta and Montrose County. In addition the Elevate division employed recently laid off local miners that have been retrained as linemen and installation experts, keeping jobs in the bi-county area. The whole process from early sign up to construction and homeowner installation has been exceptional. Service is local. Jobs have been kept in the Montrose Delta area and the speeds and local service are exceptional. **All of Stucker Mesa is now wired for DMEA 1GB fiber** direct from pole to home. My survey of neighbor's shows only two families still connected to TDS.net, and both those families are planning to upgrade to Elevate from TDS service within the next few months.

The claim that TDS somehow now needs to provide these services immediately as part of their ILEC mandate, is a ridiculous assertion and just plain not true. It seems to me that the ILEC mandate has been satisfied by providing “emergency” phone access to those that need it. These proposed services are redundant and already available.

TDS is playing “catch up” because of a failed, long term business plan

As an ILEC provider, TDS has enjoyed certain privileges over the years including leveraging the use of public utility easements and also has abilities to use DMEA assets and infrastructure. When these entities were formed years ago they provided valuable services to the citizens of Delta County and rural America. As I understand it a significant amount of government assistance was made available to TDS and others for the copper wire build out. According to my reading of the P & L public filings of the company this has been a very profitable enterprise for decades since the copper build out. Technology in the telecom space tends to change rather dramatically, and some times violently. It appears to me that TDS is attempting to use its ILEC regulatory privilege to play “catch up” for a failed long range business plan that did not foresee, or did not care about the evolving technologies in the digital space. The pricing power for TDS services is now severely limited as many people that I know are abandoning the copper wire space altogether.

My question to managers at TDS is: “Where were you 10 years ago” when we needed you as these emerging technologies (internet, voice over internet, video over internet) were starting to blossom?. Why did you not invest in “backhaul” infrastructure then and prepare yourselves for the technology advances that were well known to anyone that used a computer or could read a newspaper. Why now, after you have lost enormous market share in these markets, are you running around the county and now asking that the planning commission and the citizens of Delta county approve planting 70 foot poles or towers in citizens backyards for the purpose of offering services that are not needed? A further annoyance is that you are going after the CAF grant program funded by the FCC to assist in these costs. As a Federal taxpayer, this is a complete waste of Federal taxpayer money to fund infrastructure that is unnecessary.

I believe the county should reject this proposal as these services are not necessary. I believe TDS has abrogated its historic privilege as an ILEC provider to not keep up with technology and should not be rewarded with playing “catch up” on the backs of Federal taxpayers and the citizens of Delta. Plainly, we don’t need these new services. They are already here.

Thank You

Philip and Jean Ceriani.

For Reference – Some Studies Showing Cell Tower Health Impacts

Khurana, Hardell et al., Int. J Occup. Envir Health, Vol 16(3):263-267, 2010
“Epidemiological Evidence for a Health Risk from Mobile Phone Base Stations”
<http://www.ncbi.nlm.nih.gov/pubmed/20662418>

- Analysis of 4 studies were from Germany, and 1 each from Austria, Egypt, France, Israel, Poland, Spain
- 7 studies showed altered neurobehavioral effects near cell towers
- 3 studies showed increased cancer incidence
- Effects occurred < 500 meters from cell towers

H. Eger at al., “The Influence of Being Physically Near to a Cell Phone Transmission Mast on the Incidence of Cancer” (Umwelt-Medizin-Gesellschaft 17,4 2004).

blog.cat/gallery/17983/17983-97698.pdf

- the proportion of newly developing cancer cases is significantly higher among patients who live within 400 meters of a cell phone transmitter.
- relative risk of getting cancer increased by 200% after 5 years operation of the transmitter
- early age of cancer diagnosis

Wolf R, Wolf D, (April 2004) “Increased incidence of cancer near a cell-phone transmitter station”, International Journal of Cancer Prevention, 1(2) April 2004
http://www.powerwatch.org.uk/news/20050207_israel.pdf

Similarly found that within 350 meters of cell phone antennas there was:

- 300% increased incidence of cancer among men and women
- 900% cancer increase among women alone
- >4x risk of cancer after 3-7 yrs exposure <350 meters
- early age of cancer diagnosis

Abdel-Rassoul G et al, (March 2007) “Neurobehavioral effects among inhabitants around mobile phone base stations”, Neurotoxicology. 2007 Mar;28(2):434-40
<http://www.ncbi.nlm.nih.gov/pubmed/16962663>

Inhabitants living nearby mobile phone base stations were shown to be at risk for developing neuropsychiatric problems (headache, memory changes, dizziness, tremors, depressive symptoms, sleep disturbance), and some changes in the performance of neurobehavioral functions. Exposed inhabitants exhibited a significantly lower performance than controls in one of the tests of attention and short-term auditory memory [Paced Auditory Serial Addition Test (PASAT)]. Also, the inhabitants opposite the station exhibited a lower performance in the problem-solving test (block design) than those under the station.

Hutter HP et al, (May 2006) “Subjective symptoms, sleeping problems, and cognitive performance in subjects living near mobile phone base stations”, Occup Environ Med. 2006 May;63(5):307-13

<http://www.ncbi.nlm.nih.gov/pubmed/16621850>

- Found a significant relationship between some cognitive symptoms and measured power density; highest for headaches. Perceptual speed increased, while accuracy decreased insignificantly with increasing exposure levels. There was no significant effect on sleep quality.

Dode et al, “Mortality by neoplasia and cellular telephone base stations in the Belo Horizonte municipality, Minas Gerais state, Brazil”, Science of the Total Environment, Volume 409, Issue 19, 1 September 2011, Pages 3649–3665
<http://www.sciencedirect.com/science/article/pii/S0048969711005754>

Cancer deaths in center of city:

--within 100m 4.342/1000 **(35%increase if within 100 meters)**

-- >1000m 3.212/1000

Santini R et al, (September 2003) "Symptoms experienced by people in vicinity of base stations: II/ Incidences of age, duration of exposure, location of subjects in relation to the antennas and other electromagnetic factors", Pathol Biol (Paris). 2003

Sep;51(7):412-5

<http://www.ncbi.nlm.nih.gov/pubmed/12948762>

Santini R et al, (July 2002) "Investigation on the health of people living near mobile telephone relay stations: I/Incidence according to distance and sex", Pathol Biol (Paris) 2002 Jul;50(6):369-73

<http://www.ncbi.nlm.nih.gov/pubmed/12168254>

Santini et al found significant health effects on people living within 300 meters of mobile phone base stations. Fatigue, sleep disturbance, headaches, concentration problems, depression, memory problems, irritability, cardiovascular problems, hearing disruption, skin problems, dizziness, etc.

Eskander EF et al, (November 2011) "How does long term exposure to base stations and mobile phones affect human hormone profiles?", Clin Biochem. 2011 Nov 27. [Epub ahead of print] <http://www.ncbi.nlm.nih.gov/pubmed/22138021>

--Showed significant decrease in volunteers' ACTH, cortisol, thyroid hormones, prolactin for young females, and testosterone levels from RF exposures from both mobiles and cell towers.

Levitt & Lai, "Biological Effects from Exposure to Electromagnetic Radiation Emitted by Cell Tower Base Stations and Other Antenna Arrays", Environmental Reviews, 2010

--Over 100 citations, approximately 80% of which showed biological effects near towers

--Built case for 'setbacks' and need for new exposure guidelines reflecting *multiple and cumulative* exposures

Sage & Pall, January 2014, Presentation to Washington State - Symptoms and RF levels in Various Cell Tower Studies

Table 1: RFR Levels in Cell Tower Studies Reporting Adverse Health Impacts (RFR levels from cell towers are similar or lower than for WI-FI devices)		
Study	RFR Level	Reported Health Impacts
Navarro (2003)	0.01 – 0.11 uW/cm ²	Fatigue, headaches, sleeping problems
Thomas (2008)	0.005 – 0.04 uW/cm ²	Headaches, sleep and concentration difficulties
Heinrich (2010)	0.003 – 0.02 uW/cm ²	Headaches, irritation, concentration difficulties
Thomas (2010)	0.003 – 0.02 uW/cm ²	Behavioral problems in children, adolescents
Mohler (2010)	0.005 uW/cm ²	Sleep disturbances
Hutter (2006)	0.05 – 1.0 uW/cm ²	Headache, sleep, concentration problems, other neurological problems.
Kundi (2009)	0.05 – 1.0 uW/cm ²	Review of 14 studies on cell tower-level RFR at and above 0.05 – 1.0 uW/cm ² impairs health.
Buchner (2012)	0.006 – 0.01 uW/cm ²	Significant impact on stress hormones; children and chronically ill adults most at risk.
Oberfeld (2004)	0.01 uW/cm ²	Sleep and concentration disruption, fatigue and cardiovascular problems.
Zwamborn (2003)	0.13 uW/cm ²	Anxiety, hostility, impaired cognition
Avendano (2012)	0.5 – 1.0 uW/cm ²	Sperm damage (DNA fragmentation, low motility) from laptop in wireless mode (in lap)



Carpenter, D. O. "Human disease resulting from exposure to electromagnetic fields", Reviews on Environmental Health, Volume 28, Issue 4, Pages 159-172. Summarizes excessive RF radiation increases risk for cancer, male infertility and neurobehavioral abnormalities.

Netherlands Organization for Applied Scientific Research (TNO), Study for the Netherlands Ministries of Economic Affairs, Housing, Spatial Planning and the Environment and Health, Welfare and Sport, *"Effects of Global Communications System Radio-Frequency Fields On Well Being and Cognitive Function of Human Subjects With and Without Subjective Complaints"*, (September 2003)

-- Notes by Grahame Blackwell: Found significant effects on wellbeing, according to a number of internationally-recognised criteria (including headaches, muscle fatigue/pain, dizziness etc) from 3G mast emissions well below accepted 'safety' levels (less than 1/25,000th of ICNIRP guidelines). Those who had previously been noted as 'electrosensitive' under a scheme in that country were shown to have more pronounced ill-effects, though others were also shown to experience significant effects.

Oberfeld, Portoles, Navarro et al, *"The Microwave Syndrome—Further Aspects of a Spanish Study"*, Public Health Department Salzburg, Austria, University Hospital La Fe. Valencia, Spain, Department of Applied Physics, University Valencia, Spain, Foundation European Bioelectromagnetism (FEB) Madrid, Spain, Presented at an International Conference in Kos (Greece), 2004

Notes by Grahame Blackwell: This study found significant ill-health effects in those living in the vicinity of two GSM mobile phone base stations. They observed that: "The strongest five associations found are depressive tendency, fatigue, sleeping disorder, difficulty in concentration and cardiovascular problems." As their conclusion the research team wrote: "Based on the data of this study the advice would be to strive for levels not higher than 0.02 V/m for the sum total, which is equal to a power density of 0.0001 $\mu\text{W}/\text{cm}^2$ or 1 $\mu\text{W}/\text{m}^2$, which is the indoor exposure value for GSM base stations proposed on empirical evidence by the Public Health Office of the Government of Salzburg in 2002."



Usfie, Israel (as shown in Documentary "Full Signal"). Cancer cases only found in vicinity of new cell towers with very few exceptions. See the film to hear about the study which was conducted by a local doctor who noticed increasing cancers following installation of cell towers on a ridge line in the city. www.FullSignalMovie.com

Naila Study, Germany (November 2004), Report by researchers (five medical doctors) "Following the call by Wolfram König, President of the Bundesamt für Strahlenschutz (Federal Agency for radiation protection), to all doctors of medicine to collaborate actively in the assessment of the risk posed by cellular radiation, the aim of our study was to examine whether people living close to cellular transmitter antennas were exposed to a heightened risk of taking ill with malignant tumors. The basis of the data used for the survey were PC files of the case histories of patients between the years 1994 and 2004. While adhering to data protection, the personal data of almost 1,000 patients were evaluated for this study, which was completed without any external financial support.

It is intended to continue the project in the form of a register.

The result of the study shows that the proportion of newly developing cancer cases was significantly higher among those patients who had lived during the past ten years at a distance of up to 400 meters from the cellular transmitter site, which has been in operation since 1993, compared to those patients living further away, and that the patients fell ill on average 8 years earlier. In the years 1999-2004, i.e. after five years' operation of the transmitting installation, the relative risk of getting cancer had trebled for the residents of the area in the proximity of the installation compared to the inhabitants of Naila outside the area."

38464 Stucker Mesa Rd
PO Box 131
Paonia, CO 81428
clouise1916@gmail.com
970-527-3384
Nov. 30, 2021

Delta County Planning Commission
planning@deltacounty.com

Regarding: PLN21-039/TDS Telecommunication Towers, as described in PUBLIC NOTICE I received by mail from Delta Co. Planning Office

Project Location: Site #1/Stucker Mesa

As a resident land-owner, living adjacent to and within direct sight of the proposed location, I submit these comments.

I oppose the building of this tower on Stucker Mesa, because I understand its primary purpose is distribution of TDS service to other areas. It can be installed on the KVNf existing tower on Wakefield Mesa, or where the service is needed on other mesas. Stucker Mesa residents do not want or need this TDS service.

However, if the permit is issued the following conditions must be included:

The permit must include wording that-

1. After the currently proposed 60-ft. Microwave antenna is completed, no additional communication equipment, including dishes, boxes, or apparatus, can be installed on the tower in the future.
2. Definitely state: no lights or extensions allowed.
3. If the TDS telecommunications system, for which this tower is proposed, is not completed by 12/31/2023, or when the system is no longer in use, any TDS microwave antenna tower on Stucker Mesa must be completely removed.

I expect advances in technology will likely soon make the microwave antenna tower obsolete.

Thank you for your consideration,
Sincerely,
Claire Moore

Case # PLN21-039

1 message

Paul Murrill <paulmurrill@gmail.com>
To: planning@deltacounty.com

Tue, Nov 30, 2021 at 11:27 AM

Dear Sirs, I am very concerned that more poles located on that site will overcrowd. There are now three poles very close to the proposed TDS site.

A better option would be to put the pole on the north side of the road next to the juniper forest that would not impact the proposed site and is not in anyones' viewshed. It would also be one half the distance needed to hook up the existing cabinet on Stucker Mesa Road.

Sincerely, Paul Murrill

38464 Stucker Mesa Road
Hotchkiss, 81219

TDS application

1 message

Bob Lario <blario@tds.net>

Wed, Dec 1, 2021 at 2:18 PM

To: Planning@deltacounty.com, kkelly@deltacounty.com

To: Delta County Planning Commission

Re: Land Use Application from Delta County Tele-Comm dba TDS Telecom, more specifically, the 60 ft. pole proposed to be erected in County Road ROW on Stucker Mesa Road, Paonia.

Dear Commissioners, I respectfully request denial of the Stucker Mesa portion of the TDS application for the following reasons:

1) Most, if not all residents of Stucker Mesa have subscribed to Elevate for high speed internet service and are therefore not desirous of the "increased speed and reliability of the network". I understand that there are areas on Pitkin Mesa that do not have access to Elevate and would welcome the TDS pole being located there.

2) TDS states that there are no other poles in the vicinity of the proposed location that can accommodate their proposed infrastructure. However there exists a KVNF tower just a few miles further up Stucker Mesa Road which was not mentioned and which could accommodate said infrastructure. Also, TDS states that DMEA's electric infrastructure cannot support the infrastructure sought by this proposal "without significant alteration". This appears to be a relative concept which is self-serving and has no facts or substance to back it up. Could it be that it would be a more expensive alternative that TDS prefers not to use, even if it would be more compatible with the aesthetics of the Stucker Mesa neighborhood?

3) The specific proposed location is on a 90 degree curve at the bottom of a grade for southbound travel on the Stucker Mesa Road. This site has experienced numerous accidents whereby vehicles have failed to negotiate the curve in slippery conditions and consequently crashed through the property fence. A pole in this location would add to the danger of a dangerous curve, causing more serious injury than crashing through a fence.

4) A 60 ft. pole will interfere with the scenic viewsheds of several residents to the north, thereby causing a decrease in property values.

Thanking you for your consideration,

Bob Lario (Broker-Owner of RE/MAX Mountain West Real Estate, and resident at [38406](#)

[Stucker Mesa Road](#))

December 1, 2021

Members of the Delta County Planning Commission,

We have been notified of the upcoming hearing to consider the plans of TDS to put a 60' telecommunication tower on Stucker Mesa Road on or adjacent to our property at 38594 Stucker Mesa Road, Hotchkiss. It is designated as Site #1 in their application.

We strongly object to the erection of such a tower, and urge you to reject the application.

There are a number of reasons for our objection:

1. The application checklist includes a requirement that existing features of the proposed sites be surveyed and illustrated. Page 5 of the application does show a photo of the Site #2 (in Crawford) with the proposed pole location. It appears to be reasonably remote with no houses or outbuildings visible for some distance. However, there is no comparable photo of Site #1 on Stucker Mesa Road. The location cited in the application says the tower is meant to be located "147.87 feet from the Stipulated CW1/16 corner". Unless the angle of such a photo was selected to show only the nearby juniper growth, a comparable photo of Site #1 would instead show a DMEA power pole within 10 feet (see the photo in which the pink flagged stake is placed at the proposed TDS tower location), nearby houses, ponds, private fencing, and a road rounding a sharp corner. The application has left out some significant information that needs to be considered as you weigh your decision and is therefore not considered filed. Use Application state that are not considered filed."



2. An existing tower belonging to KVNF is about 1.5 miles away and at a higher vantage point than the proposed site. TDS has stated publicly that the existing tower is suitable, but they would prefer to not pay rent to KVNF . Any fees associated with usage of the existing tower would be passed directly

on to TDS customers, so the reluctance to contract with KVNf seems disingenuous. Requiring TDS to use the existing tower would give them their line of sight exposure, and would prevent the erection of a new tower in the view corridor of exceptional mountain views that drew the residents of Stucker Mesa to this place to begin with.

3. The proposed location of Site #1 is at or very near a sharp corner in the county maintained road, which has been the site of numerous vehicle slides in poor conditions due to mud and/or snow. Sliding into my fence and field is a bad experience, but running into a tower would be significantly worse. There are DMEA poles, overhead lines, and fences that further restrict the location of any new infrastructure.
4. There is no demand for TDS service on Stucker Mesa. DMEA/Elevate has provided fiber optic service to everyone on this mesa that wants it, and the service is very good. Putting a new tower in an area that contains no potential customers is a disservice to the public.
5. TDS has attempted to start construction on Stucker Mesa several times in the last few years. This has led to distrust that continues. Company representatives have claimed permits and county signatures, false permissions, and rights of construction on easements that are not valid. Now TDS proposes to put up an unwanted tower in an unwanted location, and then connect it to their cabinet several properties distant on an easement that specifically prohibits the erection of a tower. This circumvention of intent should not be condoned or allowed.
6. The federal grant that TDS received about a decade ago has been cited by company representatives as being inflexible about the design that called for a communication tower here. That federal agency RUS has responded to our inquiries with the assurance that the grant project has been completed and closed out in or about 2016. There is no agency holding TDS to account, and that excuse for pursuing a tower on Stucker Mesa is apparently wrong. As commissioners, we urge you to question TDS representatives carefully and comprehensively about exactly how they think the RUS is involved.
7. The newly adopted Land Use Code does not seem to cover the permitting process or requirements for telecommunication facilities. Until such resolutions or rules are implemented, we urge you to deny this application by TDS, and to communicate that denial to the Board of County Commissioners.

For the reasons listed above, it is our recommendation that you deny the application for a permit for a telecommunication tower on Stucker Mesa by TDS.

Thank you,

David F. Larcker and Sally J. Larcker, 38594 Stucker Mesa Rd, Hotchkiss, CO 81419

February, 1 , 2022

Delta County Planning Commission
planning@deltacounty.com

Regarding: PLN21-039/TDS Telecommunication Towers

Project Location: Site #1 Stucker Mesa

There are now three power poles close to the proposed site. These are directly in our vision, and a fourth pole in such close proximity is too many.

The proposed site is in the exact area where from our front window we observe crashes of out of control cars every winter as they fail to negotiate the 90 degree left hand turn. The pole would be a good obstacle to keep them out of Larcker's Field.

Technology is making ground-based communication obsolete as the world wide satellite system is currently being put in place.
Therefore, TDS would save money by abandoning this project now.

Your truly, Paul Murrill
38464 Stucker Mesa Road
Hotchkiss, Colorado 81419

February 2, 2022

To the Delta County Planning Commission,

My name is Cindy Swartzendruber, and I am a resident on Stucker Mesa. Recently, we received notice of the ongoing plan for TDS to erect a tower on our mesa. I walked up the road to see exactly where they planned to put the tower this time. When I identified the site, I realized that they will have to put their proposed cable through a lot of existing infrastructure. As a board member of the Stucker Mesa Domestic Water Company, I am concerned.

From the material that was sent to the residents on Stucker Mesa, it is difficult to ascertain the purpose of this tower. However, I do understand that TDS wants to erect the tower and then bury a cable in the utility easement for a half mile east to connect to their infrastructure located at the north end of our property. Approximately 200 yards east of the proposed tower site there is a meter pit and domestic water lines in that easement. A building stands right on the property line, and the meter pit takes up most, if not all, of the utility easement. It will be very difficult to bury a cable in this area. Domestic water lines are in the easement as we continue to the east. About a quarter mile farther east, irrigation and power lines cross the easement for several land owners. Once the utility easement reaches our property, in addition to disrupting our irrigation lines, TDS will have to dig through our domestic water meter box, our Elevate line and our power line to reach their infrastructure.

Although I realize this can probably be accomplished, but for what purpose? The proposal states: *Objectives of this proposal are to bring increased speed and reliability to all parts of the network, dramatically increase the speed and reliability for customers in the fringe of the network, and to allow for future expansion of the network's existing physical infrastructure.*

This "Objective" is very vague, but the understanding I have after reading this is that TDS wants to increase internet speed to us in our "fringe" area. As we discussed with TDS in both 2018 and 2019, no one on Stucker Mesa needs their internet. We all have Elevate. So, TDS will erect a very tall, unsightly tower, disrupt existing infrastructure in the county utility easement to tie into their existing boxes to increase internet speed that no one, NO ONE, will use. This makes no sense. Why would we allow them to do that?

Thank you for the opportunity to voice my concerns.
Cindy Swartzendruber, 38700 Stucker Mesa Road.