TOWN OF JACKSON
PLANNING & BUILDING DEPARTMENT

TRANSMITTAL MEMO

Town of Jackson
- ☒ Public Works/Engineering
- ☒ Building
- ☐ Title Company
- ☒ Town Attorney
- ☒ Police

Joint Town/County
- ☒ Parks and Recreation
- ☒ Pathways
- ☒ Joint Housing Dept

Teton County
- ☐ Planning Division
- ☐ Engineer
- ☐ Surveyor- *Nelson*
- ☐ Assessor
- ☐ Clerk and Recorder
- ☐ Road and Levee

State of Wyoming
- ☐ Teton Conservation
- ☐ WYDOT
- ☐ TC School District #1
- ☐ Game and Fish
- ☐ DEQ

Federal Agencies
- ☐ Army Corp of Engineers

Utility Providers
- ☐ Qwest
- ☐ Lower Valley Energy
- ☐ Bresnan Communications

Special Districts
- ☒ START
- ☒ Jackson Hole Fire/EMS
- ☐ Irrigation Company

Date: June 9, 2022

Item #: P22-147

Planner: Katelyn Page

Phone: 307-733-0440 ext. 1302

Email: kpage@jacksonwy.gov

Owner
Town of Jackson
PO Box 1687
Jackson, WY 83001

Applicant:
Smart Link
1997 Annapolis Pkwy Ste 200
Annapolis, MD 21401

REQUESTS:

The applicant is submitting a request for a Basic Use Permit to modify existing wireless communication facility located at 305 W Snow King Ave., legally known as PT. SE1/4NE1/4, SEC. 33, TWP. 41, RNG. 116 (RODEO GROUNDS INCLUDES MATEOSKY PARK), PIDN: 22-41-16-33-1-00-024

For questions, please call Katelyn Page at 307-733-0440, x1302 or email to the address shown below. Thank you.

Please respond by: June 23, 2022 (Sufficiency)
June 30, 2022 (with Comments)

RESPONSE: For Departments not using Trak-it, please send responses via email to: alangley@jacksonwy.gov

PLANNING PERMIT APPLICATION
Planning & Building Department

150 E Pearl Ave.
P.O. Box 1687
Jackson, WY 83001

ph: (307) 733-0440
www.townofjackson.com

For Office Use Only

Fees Paid_____ Date & Time Received _____

Application #s _____ _____ _____

Please note: *Applications received after 3 PM will be processed the next business day.*

PROJECT.

Name/Description: JACKSON FAIRGROUNDS

Physical Address: 305 West Snow King Ave.

Lot, Subdivision: PT. SE1/4NE1/4, SEC. 33, TWP. 41, RNG. 116 (RODEO GROUNDS INCLUDES MATEOSKY PARK) PIDN: 22-41-16-33-1-00-024

PROPERTY OWNER.

Name: Town of Jackson/ Diamond Towers IV, LLC Phone: 512-627-7483

Mailing Address: 210 Mountain Ave. Unit 5619 Springfield, NH ZIP: 07081

E-mail: jpeters@diamondcomm.com

APPLICANT/AGENT.

Name: Cathi Peterson/ Smartlink Phone: 480-235-4174

Mailing Address: 1997 Annapolis Pkwy Suite 200 Annapolis, MD ZIP: 21401

E-mail: cathi.peterson@smartlinkgroup.com

DESIGNATED PRIMARY CONTACT.

_____Property Owner X_____Applicant/Agent

TYPE OF APPLICATION. *Please check all that apply; review the type of application at www.townofjackson/200/Planning*

Use Permit

X Basic Use

_____Conditional Use

_____Special Use

Relief from the LDRs

_____Administrative Adjustment

_____Variance

_____Beneficial Use Determination

_____Appeal of an Admin. Decision

Physical Development

_____Sketch Plan

_____Development Plan

_____Design Review

Subdivision/Development Option

_____ Subdivision Plat

_____Boundary Adjustment (replat)

_____Boundary Adjustment (no plat)

_____Development Option Plan

Interpretations

_____Formal Interpretation

_____Zoning Compliance Verification

Amendments to the LDRs

_____LDR Text Amendment

_____Map Amendment

Miscellaneous

_____**Other:** _____

_____ Environmental Analysis

PRE-SUBMITTAL STEPS. *To see if pre-submittal steps apply to you, go to www.townofjackson.com/200/Planning and select the relevant application type for requirements. Please submit all required pre-submittal steps with application.*

Pre-application Conference #: _____ Environmental Analysis #: _____

Original Permit #: _____ Date of Neighborhood Meeting: _____

SUBMITTAL REQUIREMENTS. *Please ensure all submittal requirements are included. The Planning Department will not hold or process incomplete applications. Partial or incomplete applications will be returned to the applicant. Go to www.townofjackson.com/200/Planning and select the relevant application type for submittal requirements.*

Have you attached the following?

_____ **Application Fee.** Fees are cumulative. Go to www.townofjackson.com/200/Planning and select the relevant application type for the fees.

X **Notarized Letter of Authorization.** A notarized letter of consent from the landowner is required if the applicant is not the owner, or if an agent is applying on behalf of the landowner. Please see the Letter of Authorization template at http://www.townofjackson.com/DocumentCenter/View/845/LetterOfAuthorization-PDF.

_____ **Response to Submittal Requirements**. The submittal requirements can be found on the TOJ website for the specific application. If a pre-application conference is required, the submittal requirements will be provided to applicant at the conference. The submittal requirements are at www.townofjackson.com/200/Planning under the relevant application type.

Note: Information provided by the applicant or other review agencies during the planning process may identify other requirements that were not evident at the time of application submittal or a Pre-Application Conference, if held. Staff may request additional materials during review as needed to determine compliance with the LDRs.

Under penalty of perjury, I hereby certify that I have read this application and associated checklists and state that, to the best of my knowledge, all information submitted in this request is true and correct. I agree to comply with all county and state laws relating to the subject matter of this application, and hereby authorize representatives of Teton County to enter upon the above-mentioned property during normal business hours, after making a reasonable effort to contact the owner/applicant prior to entering.

Cathi Peterson — Signature of Property Owner or Authorized Applicant/Agent

5/31/2022 — Date

Cathi Peterson — Name Printed

Real Estate Project Manager — Title

Town of Jackson
150 E Pearl Avenue
PO Box 1687, Jackson, WY 83001
P: (307)733-3932 F: (307)739-0919
www.jacksonwy.gov

Date:

LETTER OF AUTHORIZATION

NAMING APPLICANT AS OWNER'S AGENT

PRINT full name of property owner as listed on the deed when it is an individual OR print full name and title of President or Principal Officer when the owner listed on the deed is a corporation or an entity other than an individual : Town of Jackson

Being duly sworn, deposes and says that Town of Jackson is the owner in fee of the premises located at:
Name of property owner as listed on deed

Address of Premises: 305 West Snow King Ave. Jackson, WY 83001

Legal Description: *Attached
Please attach additional sheet for additional addresses and legal descriptions

And, that the person named as follows: Name of Applicant/agent: Cathi Peterson/ SMARTLINK

Mailing address of Applicant/agent: 1997 Annapolis Exchange Pkwy Suite 200 Annapolis, MD 21401

Email address of Applicant/agent: cathi.peterson@smartlinkgroup.com

Phone Number of Applicant/agent: 480-235-4174

Is authorized to act as property owner's agent and be the applicant for the application(s) checked below for a permit to perform the work specified is this(these) application(s) at the premises listed above:

☐ Development/Subdivision Plat Permit Application ☐ Building Permit Application

☐ Public Right of Way Permit ☐ Grading and Erosion Control Permit ☐ Business License Application

☐ Demolition Permit ☒ Other (describe) Basic Use Permit

Under penalty of perjury, the undersigned swears that the foregoing is true and, if signing on behalf of a corporation, partnership, limited liability company or other entity, the undersigned swears that this authorization is given with the appropriate approval of such entity, if required.

Property Owner Signature

Larry Pardee - Town Manager
Title if signed by officer, partner or member of corporation, LLC (secretary or corporate owner) partnership or other non-individual Owner

STATE OF WYOMING)
) SS.
COUNTY OF TETON)

The foregoing instrument was acknowledged before me by Carl Pelletier this 9th day of June, 2022. WITNESS my hand and official seal.

Notary Public

My commission expires: 11/19/2027

CARL R. PELLETIER
NOTARY PUBLIC
STATE OF WYOMING
COMMISSION ID: 155876
MY COMMISSION EXPIRES: 11/19/2027

EXHIBIT 1

70/465

TETON COUNTY, WYOMING

WARRANTY DEED

Lester R. Dubbs, et ux

TO

The Town of Jackson

THE STATE OF WYOMING } ss.
County of Teton }

This instrument was filed for record at 10... o'clock A. M.
on the 13th day of March 1945,
and duly recorded in Book 4 on Page 115
of Deeds
Grace A. Smith
County Clerk and Ex-Officio Register of Deeds
By
Deputy Clerk

No. 21000 Fees $ 1.00

WARRANTY DEED WITH RELEASE OF HOMESTEAD

Lester R. Dubbs and Lisetta Dubbs, his wife,

grantors, of Salt Lake City, in Salt Lake County, and State of Utah, for and in consideration of Fifteenhundred Seventy and No/100 ($1570.00) DOLLARS in hand paid, receipt whereof is hereby acknowledged, CONVEY AND WARRANT TO The Town of Jackson, located in Teton County, Wyoming,

grantee, of Teton County and State of Wyoming, the following described real estate, situate in Teton County, State of Wyoming, hereby releasing and waiving all rights under and by virtue of the homestead exemption laws of the State, to wit:

A tract of land described by metes and bounds as follows:

Beginning at a point in the SE¼NE¼ Sec. 33 T.41 N. R. 116W. 6th P. M., said point being 430 feet westerly from the east line of the 2nd Karns Addition to the Town of Jackson, Teton County, Wyoming and 400 feet southerly from the South line of the 2nd Park Addition to the Town of Jackson, Teton County, Wyoming, official plats of theserveys of said additions being on file and of record in the office of the County Clerk and Ex-Officio Register of Deeds in and for the aforesaid county, thence Westerly and parallel to the South line of the aforesaid 2nd Park Addition, and said South line extended, for 1288 feet, thence southerly and parallel to the West line of the aforesaid 2nd Karns Addition for 854 feet, thence easterly and parallel to the South line of the aforesaid 2nd Park Addition for 1288 feet, thence northerly and parallel to the West line of the aforesaid 2nd Karns Addition for 854 feet to the point of beginning.

The tract thus enclosed containing twenty-six and eighty-five hundredths (26.85) acres, more or less, lying within the SE¼NE¼ and SW¼NE¼ of Section 33, T.41 N. R. 116W. 6th P. M.

Together with and including all improvements thereon and all water and water rights appertaining thereto.

Revenue Stamps $ 6.05 Cancelled 3/13/45

WITNESS... our... hand s... and... 24th day of... October... 1941.

Signed, Sealed and Delivered in Presence of
Joyce Isaacs

Lester R. Dubbs
Lisetta Dubbs

THE STATE OF WYOMING,
County of Teton } ss.

On this 24th day of October, 1941, before me personally appeared Lester R. Dubbs and Lisetta Dubbs, his wife

to me known to be the person s... described in and who executed the foregoing instrument, and acknowledged that they... executed the same as their... free act and deed including the release and waiver of the right of homestead; the said wife having been by me first fully apprised of her right and the effect of signing and acknowledging the said instrument.

Given under my hand and... Notarial... seal, the day and year in this certificate first above written.

Joyce Isaacs
Notary Public.

(SEAL)

My commission expires on the 6th day of October A. D. 19 43.

smartlink

Contracted to AT&T Mobility

May 31, 2022

Town of Jackson Planning Department
150 E. Pearl Avenue
PO Box 1687

RE: **Proposed modifications of AT&T Wireless Communication Facility located in the Town of Jackson**
Project Site Info: IDL04323/ Jackson Fairgrounds/ FA12781455/ 5G NR 1SR CBAND, DoD
Site Address: **305 West Snow King Ave. Jackson, WY 83001**

Dear Town of Jackson Planning Department:

I am writing to you on behalf of AT&T Wireless, which has an existing wireless communication facility located within your jurisdiction at the above address. Due to new technology, AT&T Wireless needs to modify the equipment at this existing site. The scope of work being proposed includes the following details:
Rooftop Work:

- Remove (3) Antennas
- Remove (6) RRHs
- Relocating (3) RRHs
- Install (6) Antennas
- Install (3) RRHs

Shelter Work:

- Remove (8) 155AH Batteries
- Remove existing PDF
- Remove Battery Rack
- Remove (20) unhealthy batteries
- Install (16) 190AH Batteries
- Install (1) Indoor DC Plant
- Install (1) Indoor Battery Rack
- Install (10) Vertiv Rectifiers
- Install (2) Vertiv Converters
- Install (1) AMIA, (3) ABIO and (1) ASIL

Please note:

- ***No additional noise.***
- ***No additional Shelters/equipment sheds or platforms.***
- ***No expansion of the existing Compound.***
- ***No new physical development required.***

AT&T is seeking the documented consent from the Planning Department to proceed with this change.
Sincerely,

Cathi Peterson

Cathi Peterson Real Estate Project Manager
480.235.4174 / cathi.peterson@smartlinkgroup.com

smartlink

Contracted to AT&T Mobility

May 31, 2022

Town of Jackson Planning & Community Development

RE: Request for Minor Modification to Existing Wireless Facility - Section 6409/47 CFR § 1.6100 ("6409")
Site Address: 305 West Snow King Ave
Prior Case No.:
AT&T Project No.: IDL04323/ Jackson Fairgrounds/ FA12781455/ 5G NR 1SR CBAND, DoD

Dear Town of Jackson Planner,

On behalf of New Cingular Wireless PCS, LLC ("**AT&T**") we are pleased to submit this request to modify AT&T's existing wireless communication site at the location referenced above, as an Eligible Facilities Request for a minor modification under Section 6409 and Federal Communications Commission ("FCC") rules.

Scope of Work
AT&T proposes the following minor modifications to this site. Please note: all work will be performed wholly within the existing premises utility easements and the project otherwise complies with the site's prior conditions of approval.

Component	Federal Section 6409 Limits	AT&T's Proposed Modification
Increase height of original structure	10 feet or less	No increase in height
Antennas extending horizontally from edge of structure	6 feet or less	Antennas do not extend horizontally from edge of structure by more than 6 feet
Additional equipment cabinets	4 or fewer (does not include separately mounted radios and other pieces of equipment); no new ground-mounted cabinets if there were none before; if there were ground-mounted cabinets, then no new ground-mounted cabinets more than 10% larger than the existing cabinets	No additional equipment cabinets are being added

Concealment Elements
The existing wireless facility is a monopole structure. The proposed minor modification will continue to effectively stealth the wireless facility by remaining in place and mimicking the existing installation.

FCC Shot Clock for Section 6409 Minor Modifications
AT&T requests approval of the following applications, as well as any other authorizations necessary, for its proposed minor modification under Section 6409:

- Basic Use Permit being submitted through the Town of Jackson Planning Department

The FCC requires that all authorizations related to 6409 applications be completed within 60 days after filing. Based on a filing date of 5/31/2022, the projected shot-clock deadline for a decision is August 1, 2022.

Our goal is to work with you to obtain approval of this minor modification earlier than the deadline. We will respond promptly to any requests for information you may have for our application. Please let us know how we can work with you to expedite the approval process. We look forward to working with you on this important project, which

will significantly improve wireless telecommunication services in your community without requiring an additional site. Should you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

Cathi Peterson

Cathi Peterson
Real Estate Project Manager
480.235.4174
cathi.peterson@smartlinkgroup.com

IDL04323
JACKSON FAIRGROUNDS
FA#: 12781455
PTN#: 3770A13AB4/3770A13AB5
PACE ID: MRUTH050864/MRUTH050859
80'-0" MONOPOLE
CBAND, CBAND_DOD

SITE INFORMATION

TOWER OWNER:	MONOPOLE-DIAMOND TOWER LLC
SITE NUMBER-NAME:	IDL04323-JACKSON FAIRGROUNDS
SITE ADDRESS:	305 WEST SNOW KING AVENUE JACKSON, WY 83001
COUNTY:	TETON
LATITUDE:	43.4731388 (43° 28' 23.3328" N)
LONGITUDE:	-110.768194 (110° 46' 5.5416" W)
GROUND ELEVATION:	6205.7' AMSL
OCCUPANCY TYPE:	UNMANNED
ZONING JURISDICTION:	TOWN OF JACKSON
ZONING CODE:	P/SP
PARCEL NUMBER:	22-41-16-33-1-00-024
POWER PROVIDER:	LOWER VALLEY ENERGY
TELCO PROVIDER:	SILVER STAR COMMUNICATIONS

CONTACT INFORMATION

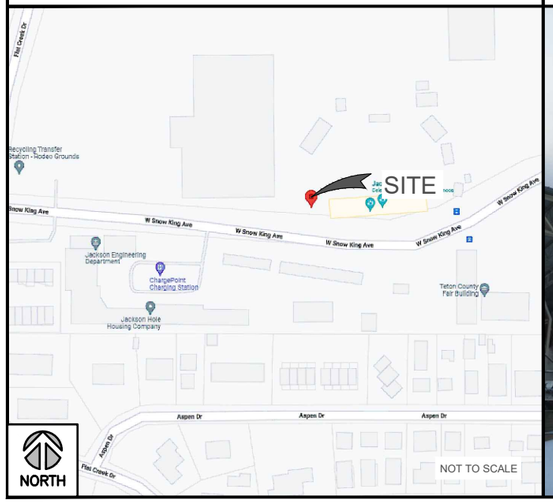
A&E SERVICES:
TRILEAF CORPORATION
1821 WALDEN OFFICE SQUARE
SUITE 500
SCHAUMBURG, IL 60173
CONTACT: HILDA ALLAWIRDI
PHONE: (630) 227-0202, EXT. 537
EMAIL: h.allawirdi@trileaf.com

SITE ACQUISITION SERVICES:
SMARTLINK GROUP, LLC
1997 ANNAPOLIS EXCH. PWKY
SUITE 200
ANNAPOLIS, MD 21401
CONTACT: TAMARA SHIVELEY
PHONE: (801) 230-4877

APPLICABLE CODES

BUILDING CODE 2021 IBC
ELECTRICAL CODE 2020 NEC
TIA-222-H

VICINITY MAP



SITE PHOTO

DRIVING DIRECTIONS

STARTING FROM AT&T OFFICE:

AT 105 BUFFALO WAY DRIVE SOUTH ON BROADWAY (US 189/US 191/ US 26/ US 89) APPROXIMATELY 4.5 MILES TO SOUTH PARK LOOP ROAD, TURN RIGHT (WEST) ON SOUTH PARK LOOP ROAD AND PROCEED APPROXIMATELY 1.5 MILES TO THE SITE ON THE NORTH SIDE OF ROAD.

DO NOT SCALE DRAWINGS

CONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

DRAWING INDEX

SCOPE OF WORK

RFDS VERSION : 2.00 **DATE UPDATED:** 5/9/2022

EQUIPMENT LEVEL

- REMOVE EXISTING PDF
- REMOVE EXISTING BATTERY RACK
- REMOVE (20) UNHEALTHY 155AH BATTERIES
- INSTALL (1) INDOOR -48v DC VERTIV DC PLANT
- INSTALL (1) INDOOR VERTIV BATTERY RACK
- INSTALL (10) PROPOSED VERTIV RECTIFIERS
- INSTALL (2) PROPOSED VERTIV CONVERTERS
- INSTALL (16) PROPOSED 190AH BATTERIES
- INSTALL 1XAMIA/3XABIO/1XASIL

ANTENNA LEVEL

- REMOVE (3) EXISTING UMTS ANTENNAS
- REMOVE (6) EXISTING RRH UNITS
- RELOCATE (3) EXISTING RRH4X25-WCS-4R TO TOP UGLM-DCP (ALL SECTORS)
- INSTALL (3) PROPOSED AEQU ANTENNAS TO POSITION 2 MAST PIPE (ALL SECTORS)
- INSTALL (3) PROPOSED AEQK ANTENNAS TO POSITION 2 MAST PIPE (ALL SECTORS)
- INSTALL (3) PROPOSED AHFIB RRH UNITS TO TOP UGLM-DCP (ALL SECTORS)

at&t

Smartlink LLC
1997 Annapolis Exch.Pkwy # 200
Annapolis, MD 21401
Tel: 410-263-LINK (5465)
Fax: 410-263-5470
www.smartlinkllc.com

TRILEAF
architecture | engineering
1515 DES PERES ROAD, STE 200
SAINT LOUIS, MISSOURI 63131
PHONE | 314-997-6111 FAX | 314-997-9066

694353

REVISIONS

REV	DATE	DESCRIPTION	INT
0	03/22/22	ISSUED FOR REVIEW 90%	JG
1	05/20/22	ISSUED FOR FINAL	JG

Professional Engineer
ROGER ALLAN ZIMMER
14729
5.20.22
Date
WYOMING

SITE INFORMATION

SITE #: IDL04323
SITE NAME: JACKSON FAIRGROUNDS
FA #: 12781455

305 WEST SNOW KING AVENUE
JACKSON, WY 83001

SHEET TITLE:

TITLE SHEET

SHEET NUMBER:

T-1

GENERAL CONSTRUCTION NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:

   GENERAL CONTRACTOR: TBD
   SUBCONTRACTOR: TBD

2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND AT&T PROJECT SPECIFICATIONS.

3. GENERAL CONTRACTOR AND SUBCONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR AND SUBCONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.

4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.

5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.

6. UNLESS OTHER WISE, THE WORK SHALL INCLUDE FURNISHING, MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

7. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO BE FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE SUBCONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ARCHITECT/ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ARCHITECT/ENGINEERPRIOR TO PROCEEDING WITH WORK.

8. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE SPACE FOR APPROVAL BY THE ARCHITECT/ENGINEER PRIOR TO PROCEEDING.

10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS AND LOCAL JURISDICTION.

11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLES.

12. ERECTION SHALL BE DONE IN A WORK MANLIKE MANNER BY COMPETENT EXPERIENCED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.

13. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. SUB CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.

14. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. SUB CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWING PRIOR TO THE BEGINNING CONSTRUCTION.

15. SUBCONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO THE COMMENCEMENT OF WORK.

16. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTORS EXPENSE TO THE SATISFACTION OF THE OWNER.

17. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.

18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND SUBCONTRACTORS TO THE SITE AND/OR BUILDING.

19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.

20. THE GENERAL CONTRACTOR SHALL MAINTAIN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISION, ADDENDA, AND CHANGES ORDERS ON THE PREMISES AT ALL TIMES.

21. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION, EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.

22. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH GRADE AND COMPACTED TO 95 PERCENT STANCE PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE, ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL, PRE-APPROVED BY THE LOCAL JURISDICTION.

23. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.

ELECTRICAL GROUNDING SPECIFICATIONS:

1. GROUNDING SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE CURRENTLY IN EFFECT FOR THE AUTHORITY HAVING JURISDICTION.

2. ALL GROUNDING DEVICE SHALL BE U.L. LISTED FOR THEIR INTENDED USE.

3. GROUND WIRES SHALL BE TINNED #2 AWG BARE SOLID COPPER UNLESS OTHERWISE NOTED.

4. CONNECTIONS OF ALL GROUND WIRES TO THE GROUND RING SHALL BE EXOTHERMIC (CAD-WELDED), UNLESS OTHERWISE NOTED AND SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AT&T WIRELESS BROADBAND STANDARDS.

5. GROUNDING CONDUCTORS SHALL BE ROUTED ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE WHEN REQUIRED. GROUND LEADS SHALL BE BENT TO A MINIMUM OF 8' RADIUS.

6. WHERE GROUND WIRES ARE ROUTED FROM ANY CONNECTION ABOVE GRADE TO THE GROUND RING, INSTALL WIRE IN 314' HEAVY WALL LIQUID TIGHT FLEXIBLE CONDUIT FROM CONNECTION POINT TO 5' BELOW GRADE AND SEAL THE TOP WITH SILICONE SEALANT.

7. ALL GROUND BARS SHALL BE TINNED COPPER, SECTOR BARS 2", COLLECTOR AND MGB BARS 4", OF SUFFICIENT LENGTH TO ACCOMMODATE ALL REQUIRED CONNECTIONS WITHOUT DOUBLING LIGS, AND EACH INSTALLED WITH ISOLATORS. WHEN CONNECTING GROUND BARS (WITHIN 10 FEET OF GRADE) DIRECTLY TO THE GROUND RING, 2 EA. #2 SOLID DOWNLEADS SHALL BE CAD-WELDED TO THE GROUNDING, 1 AT EACH OPPOSITE BOTTOM CORNER, AND EACH SHALL RUN IN 3/4" HEAVY WALL LIQUID TIGHT FLEXIBLE CONDUIT FROM GROUND BAR DOWN TO THE GROUND RING, WHEN CONNECTING SECTOR GROUND BARS, DAISY-CHAIN THE GROUND BARS AND RUN 1 EA. #2 AWG STRANDED COPPER WIRE WITH THWN INSULATION FROM THE MIDDLE GROUND BAR TO THE GROUND RING AND CAD-WELD TO THE RING.

8. WHEN ATTACHING STRANDED GROUND LEADS TO THE GROUND BARS, 2 HOLE COMPRESSION LUGS SHALL BE USED, PROTECT WITH WEATHERPROOF HEAT SHRINK, AND WITH A THIN COAT OF "KOP'R SHIELD' OR EQUIVALENT PROPERLY APPLIED AND ATTACHED ONLY WITH STAINLESS STEEL HARDWARE.

9. WHEN GROUNDING EQUIPMENT ENCLOSURES, PANELS, FRAMES, AND OTHER METAL APPARATUS, A #6 AV/G STRANDED COPPER WIRE WITH THWN INSULATION SHALL BE ATTACHED UTILIZING A 2 HOLE COMPRESSION TYPE LUG, PROTECTED WITH WEATHERPROOF HEAT A CLEAN AND CORROSION FREE METALLIC SURFACE UTILIZING STAINLESS STEEL SELF-TAPPING SCREWS AS NOTED IN NOTE 10 BELOW.

10. PREPARE ALL BONDING SURFACES FOR GROUND CONNECTIONS BY REMOVING ANY AND ALL PAINT AND CORROSION TO SHINY METAL. CAD-WELDED CONNECTIONS TO NON-GOPPER SURFACES, APPLY ONE COAT OF ANY ANTI-OXIDIZING PAINT, "COLD GALV" OR EQUIVALENT.

11. GROUND RODS SHALL BE COPPER-CLAD STEEL 5/8"x10', SPACED NO LESS THAN 10' ON CENTER.

12. ALL GROUND SYSTEM CONDUCTORS AND CONDUITS SHALL BE SECURED UTILIZING ONLY NONMETALLIC, NON-CONDUCTIVE, UV RATED CLAMPS, BRACKET, AND OR SUPPORTS.

13. WHEN REQUIRED, THE CONTRACTOR SHALL ENGAGE THE SERVICES OF AN INDEPENDENT TESTING FIRM TO VERIFY, UTILIZING A MEGGER TEST, THAT THE RESISTANCE TO EARTH OF THE NEW GROUND SYSTEM IS EQUAL TO OR LESS THAN 5 (OHMS). A COPY OF THE COMPLETE TESTING REPORT SHALL BE PROVIDED TO THE AT&T REPRESENTATIVE.

14. ALL MATERIALS AND HARDWARE SHALL BE INSTALLED IN A WORKMAN-LIKE MANNER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, AND DEFINED IN NFPA-70.

15. ALL RRH GROUND WIRES SHALL BE #2 GREEN STRANDED.

16. ALL GROUND LUGS SHALL BE 2-HOLE LONG BARRELL.

17. OUTDOOR GROUNDS SHALL BE BLACK HEAT SHRINK W/O INSPECTION HOLES.

18. INDOOR GROUNDS SHALL BE CLEAR HEAT SHRINK W/ INSPECTION HOLES.

ANTENNA PIPE MOUNTS:

1. PROPOSED OR REPLACEMENT ANTENNA PIPE MOUNTS SHALL BE 2-3/8" (O.D.)X10', SCH. 80 PIPE, UNLESS NOTED OTHERWISE.

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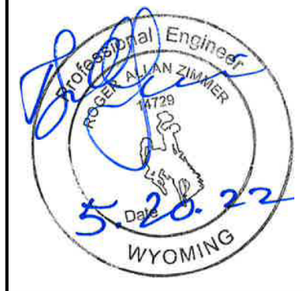
REVISIONS

REV	DATE	DESCRIPTION	INT
0	03/22/22	ISSUED FOR REVIEW 90%	JG
1	05/20/22	ISSUED FOR FINAL	JG



SITE INFORMATION

SITE #: IDL04323
SITE NAME: JACKSON FAIRGROUNDS
FA #: 12781455

305 WEST SNOW KING AVENUE
JACKSON, WY 83001

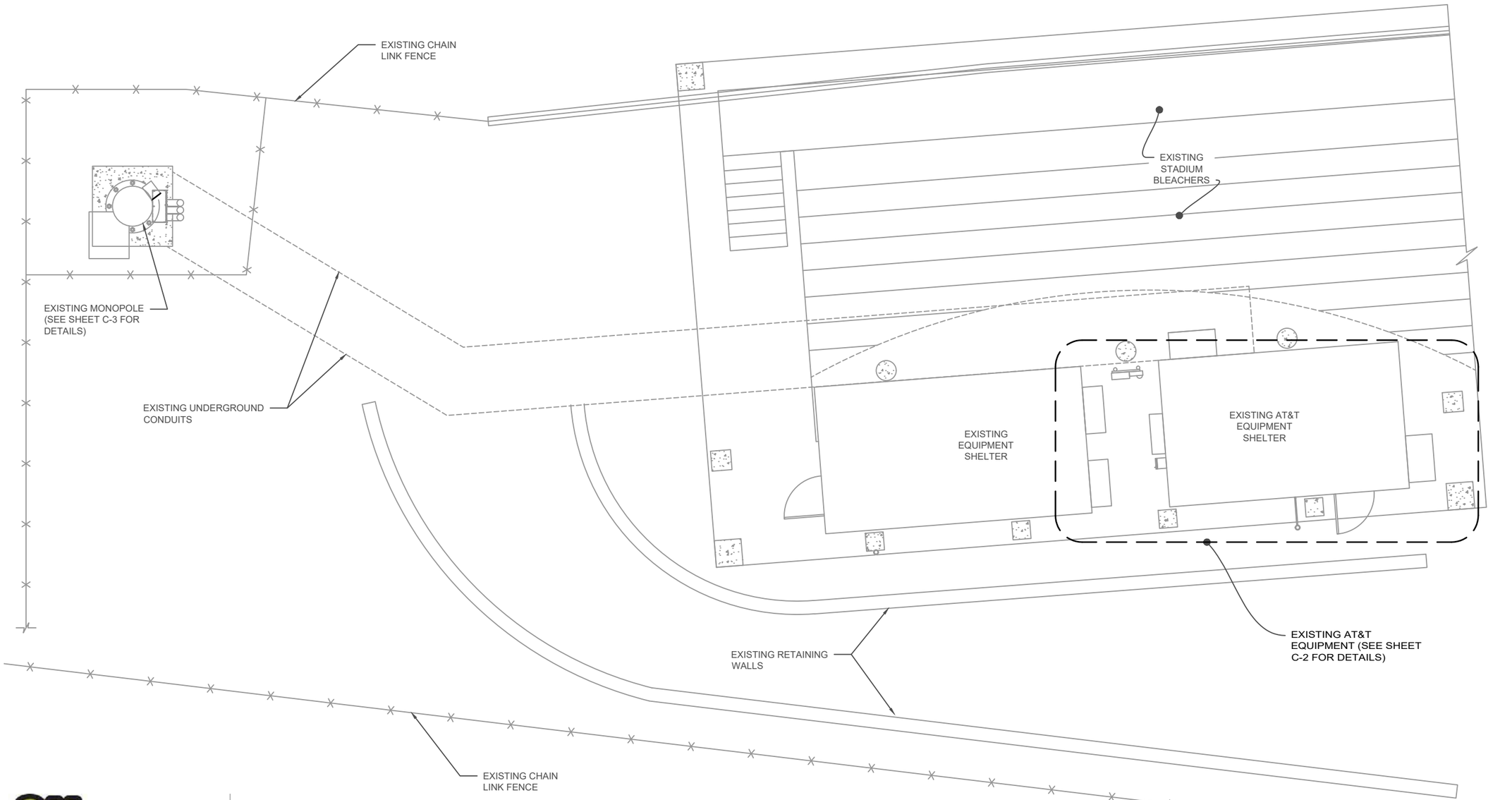
SHEET TITLE:

GENERAL NOTES

SHEET NUMBER:

GN-1

NOTE:
THESE DRAWINGS WERE PREPARED BASED ON EXISTING DRAWINGS AND INFORMATION PROVIDED BY OTHERS. ALL EXISTING CONDITIONS SHOULD BE FIELD VERIFIED PRIOR TO CONSTRUCTION.



811 Know what's below. Call before you dig.

THE UTILITIES AS SHOWN ON THIS SET OF DRAWINGS WERE DEVELOPED FROM THE INFORMATION AVAILABLE. THE INFORMATION PROVIDED IS NOT IMPLIED NOR INTENDED TO BE A COMPLETE INVENTORY OF THE UTILITIES IN THIS AREA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES (WHETHER SHOWN OR NOT) AND PROTECT SAID UTILITIES FROM ANY DAMAGE CAUSED BY CONTRACTOR'S ACTIVITIES.

NORTH

SITE PLAN

4' 0 2' 4'

SCALE: 1/4" = 1'-0" (24x36)
(OR) 1/8" = 1'-0" (11x17)

1

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Professional Engineer
ROGER ALLAN ZIMMER
14729
WYOMING
Date 5.20.22

SITE INFORMATION

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SITE NAME: JACKSON FAIRGROUNDS
FA #: 12781455

305 WEST SNOW KING AVENUE
JACKSON, WY 83001

SHEET TITLE:

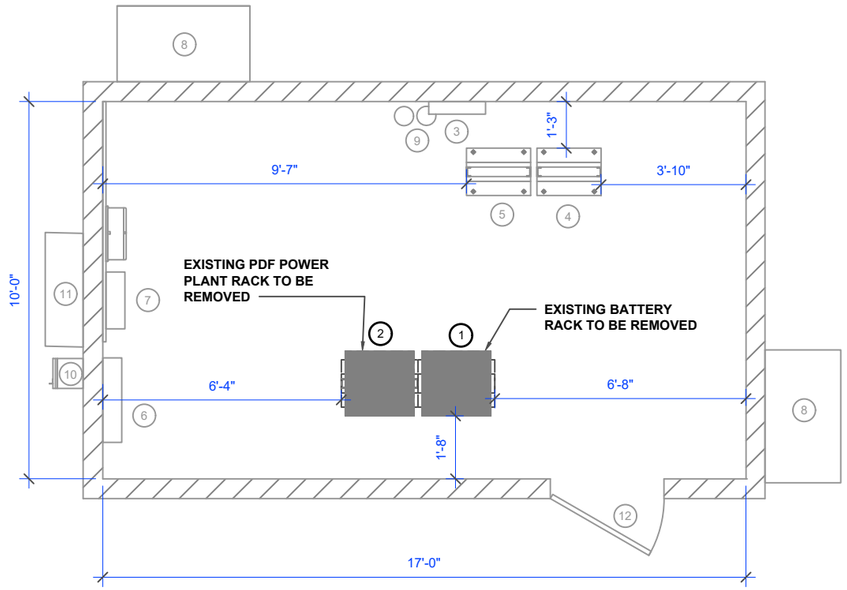
SITE PLAN

SHEET NUMBER:

C-1

KEY NOTES:

1. ***REMOVED EXISTING BATTERY RACK W/(20) UNHEALTHY 155AH BATTERIES***
2. ***REMOVED EXISTING DC POWER PLANT***
3. EXISTING FIBER STORAGE
4. EXISTING LTE RACK
5. EXISTING FIF RACK
6. EXISTING AC PANEL
7. EXISTING TELCO BOARD
8. EXISTING HVAC
9. EXISTING CABLE PORT
10. EXISTING GENERATOR PLUG
11. EXISTING TELCO BOX
12. EXISTING ACCESS DOOR

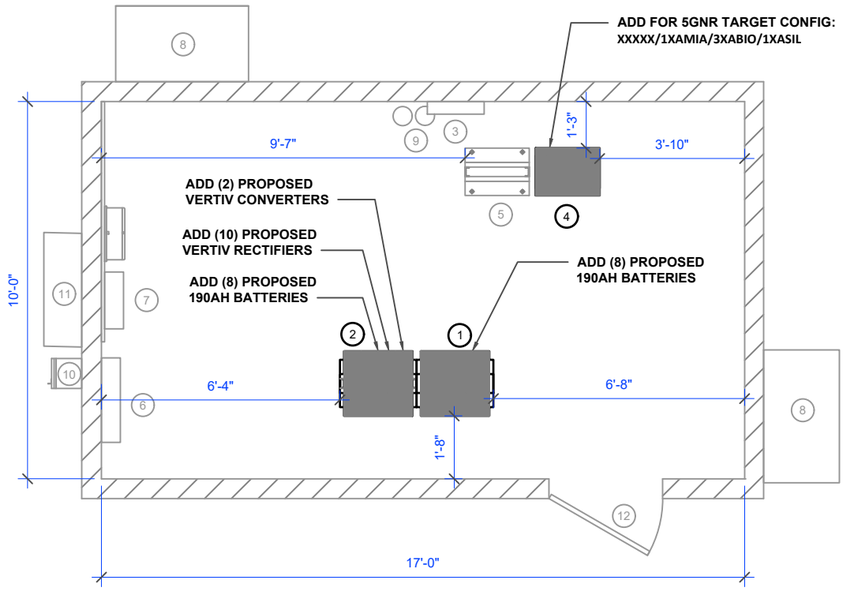


NORTH

EXISTING EQUIPMENT PLAN | 2' 0 1' 2' | SCALE: 1/2" = 1'-0" (24x36) (OR) 1/4" = 1'-0" (11x17) | 1

KEY NOTES:

1. ***NEW (1) INDOOR VERTIV BATTERY RACK W/ (8) 190AH BATTERIES***
2. ***NEW (1) INDOOR -48v DC VERTIV DC PLANT W/ (8) 190AH BATTERIES***
3. EXISTING FIBER STORAGE
4. EXISTING LTE RACK
   ADD 1XAMIA/3XABIO/1XASIL
5. EXISTING FIF RACK
6. EXISTING AC PANEL
7. EXISTING TELCO BOARD
8. EXISTING HVAC
9. EXISTING CABLE PORT
10. EXISTING GENERATOR PLUG
11. EXISTING TELCO BOX
12. EXISTING ACCESS DOOR



NORTH

NEW EQUIPMENT PLAN | 2' 0 1' 2' | SCALE: 1/2" = 1'-0" (24x36) (OR) 1/4" = 1'-0" (11x17) | 2

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Professional Engineer
ROGER ALLAN ZIMMER
14729
WYOMING
5.20.22
Date

SITE INFORMATION

SITE #: IDL04323
SITE NAME: JACKSON FAIRGROUNDS
FA #: 12781455

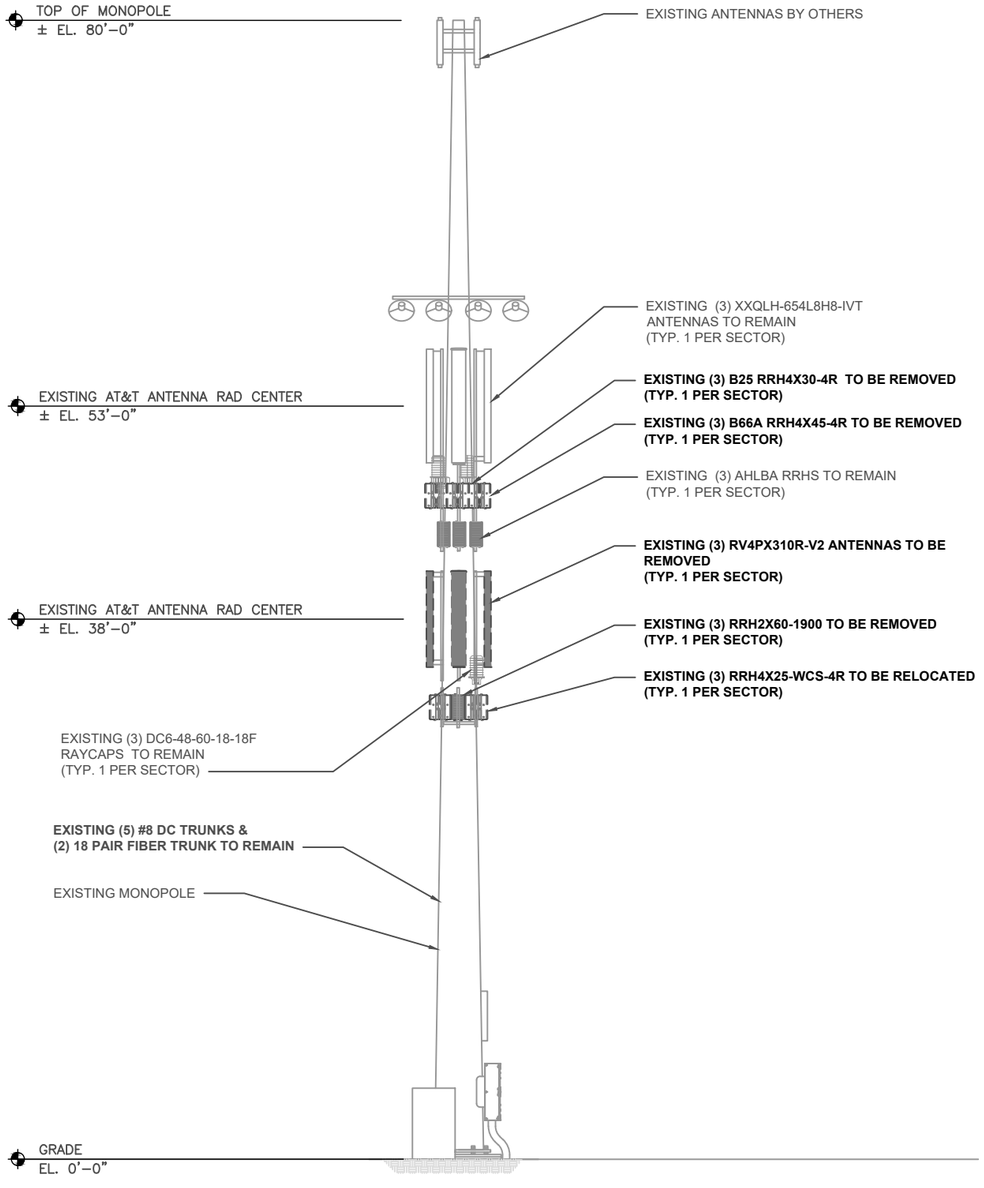
305 WEST SNOW KING AVENUE
JACKSON, WY 83001

SHEET TITLE:

EQUIPMENT PLAN

SHEET NUMBER:

C-2



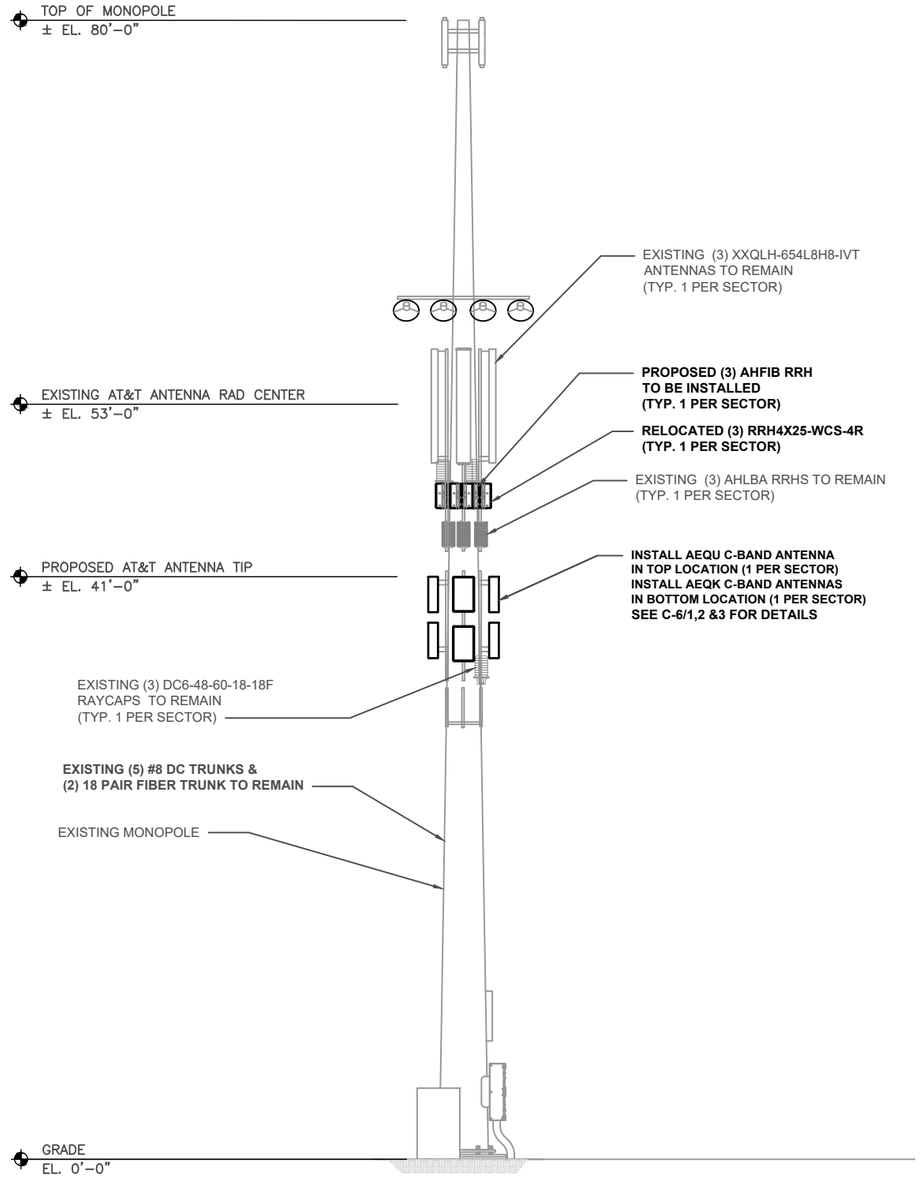
EXISTING ELEVATION

6' 0 3' 6'

SCALE: 3/16" = 1'-0" (24x36)
(OR) 3/32" = 1'-0" (11x17)

1

NOTE:
STRUCTURAL ANALYSIS MUST BE PERFORMED BEFORE THE INSTALLATION OF NEW ANTENNAS, RRH UNITS, ETC.



PROPOSED ELEVATION

6' 0 3' 6'

SCALE: 3/16" = 1'-0" (24x36)
(OR) 3/32" = 1'-0" (11x17)

2

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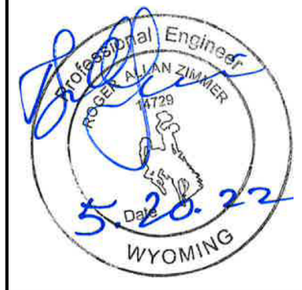


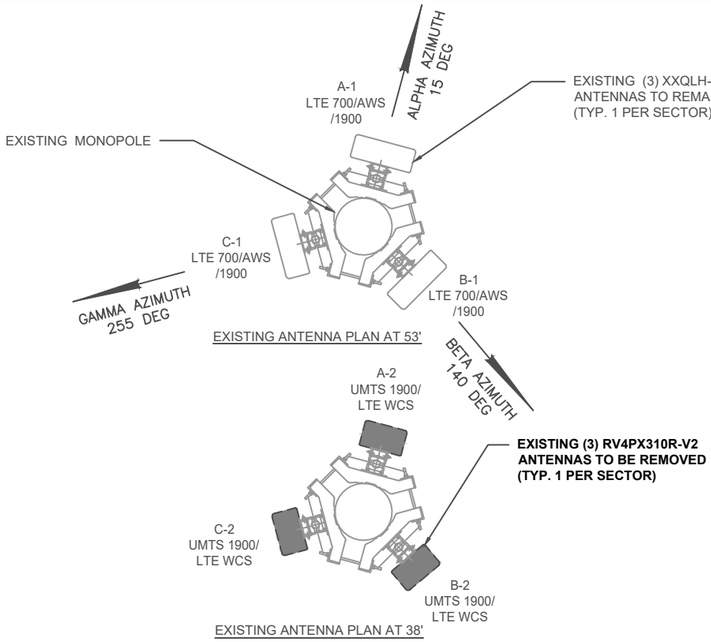
SITE INFORMATION

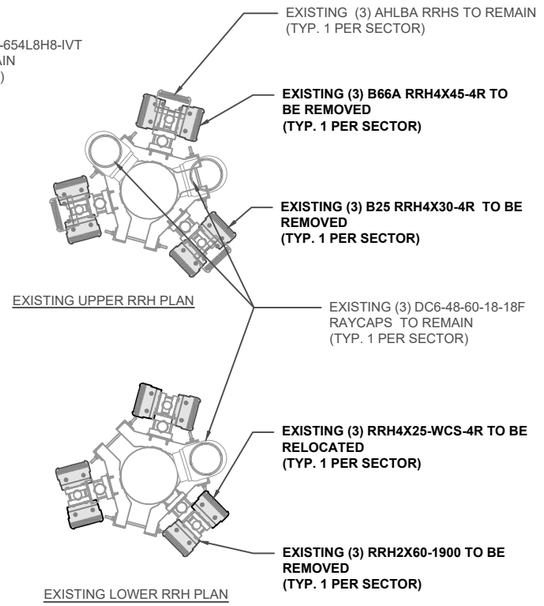
SITE #: IDL04323
SITE NAME: JACKSON FAIRGROUNDS
FA #: 12781455

305 WEST SNOW KING AVENUE
JACKSON, WY 83001

SHEET TITLE:
TOWER ELEVATIONS

SHEET NUMBER:
C-3





EXISTING ANTENNA AND TRANSMISSION CABLE REQUIREMENT

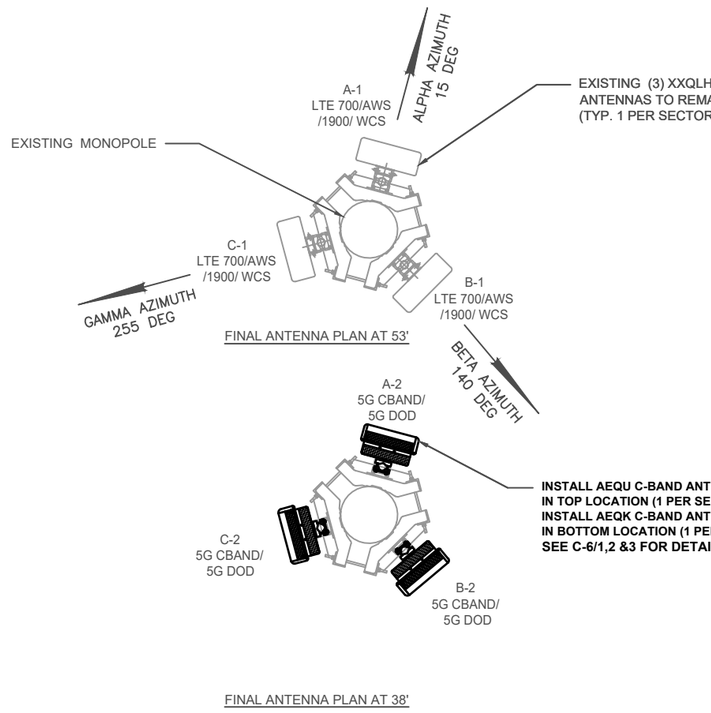
SECTOR RAD CTR		ANTENNA TYPE	TECHNOLOGY	ANTENNA AZIMUTH	TRANSMISSION CABLE QTY	LENGTH	TYPE
53'	A1	XXQLH-654L8H8-IVT	LTE 700/ AWS/ 1900	15°	-	200'	FIBER
38'	A2	RV4PX310R-V2	UMTS 1900/ LTE WCS	15°	-	200'	FIBER
ALPHA	A3	-	-	-	-	-	-
	A4	-	-	-	-	-	-
53'	B1	XXQLH-654L8H8-IVT	LTE 700/ AWS/ 1900	140°	-	200'	FIBER
38'	B2	RV4PX310R-V2	UMTS 1900/ LTE WCS	140°	-	200'	FIBER
BETA	B3	-	-	-	-	-	-
	B4	-	-	-	-	-	-
53'	C1	XXQLH-654L8H8-IVT	LTE 700/ AWS/ 1900	255°	-	200'	FIBER
38'	C2	RV4PX310R-V2	UMTS 1900/ LTE WCS	255°	-	200'	FIBER
GAMMA	C3	-	-	-	-	-	-
	C4	-	-	-	-	-	-

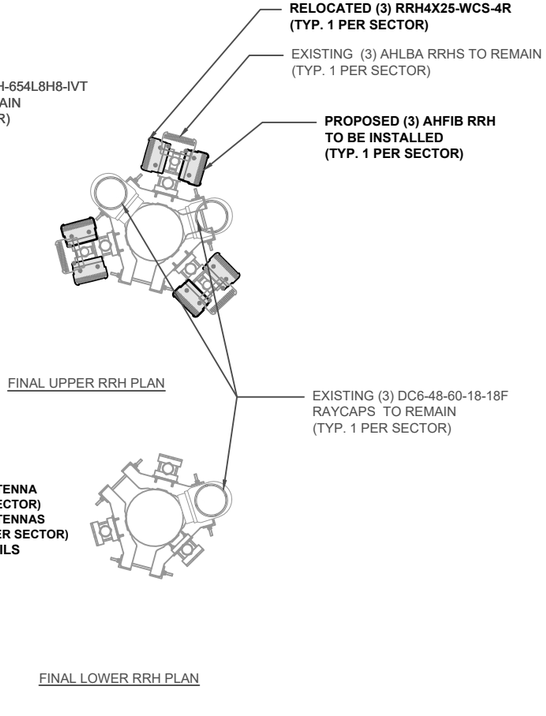
NORTH

EXISTING ANTENNA PLAN

SCALE: NTS

1





PROPOSED ANTENNA AND TRANSMISSION CABLE REQUIREMENT

SECTOR RAD CTR		ANTENNA TYPE	TECHNOLOGY	ANTENNA AZIMUTH	TRANSMISSION CABLE QTY	LENGTH	TYPE
53'	A1	XXQLH-654L8H8-IVT	LTE 700/ AWS/ 1900/ WCS	15°	-	200'	FIBER
38'	A2	AEQK+AEQU STACKED	5G CBAND/ 5G DOD	15°	-	200'	FIBER
ALPHA	A3	-	-	-	-	-	-
	A4	-	-	-	-	-	-
53'	B1	XXQLH-654L8H8-IVT	LTE 700/ AWS/ 1900/ WCS	140°	-	200'	FIBER
38'	B2	AEQK+AEQU STACKED	5G CBAND/ 5G DOD	140°	-	200'	FIBER
BETA	B3	-	-	-	-	-	-
	B4	-	-	-	-	-	-
53'	C1	XXQLH-654L8H8-IVT	LTE 700/ AWS/ 1900/ WCS	255°	-	200'	FIBER
38'	C2	AEQK+AEQU STACKED	5G CBAND/ 5G DOD	255°	-	200'	FIBER
GAMMA	C3	-	-	-	-	-	-
	C4	-	-	-	-	-	-

NOTE TO CONTRACTOR:
1. ANTENNA CLEARANCE AND MOUNTING TO BE FIELD VERIFIED PRIOR TO CONSTRUCTION WITH FINAL ANTENNA SPECIFICATIONS MOUNTING HARDWARE AND RF DESIGN. ANTENNA PIPE MOUNT MODIFICATION MAY BE REQUIRED.
2. CONTRACTOR TO VERIFY FINAL ANTENNA CONFIGURATION FROM FINAL RFDS.
3. CONTRACTOR SHALL VERIFY A MINIMUM OF 4 FEET SEPARATION BETWEEN ALL ANTENNAS.
4. STRUCTURAL ANALYSIS MUST BE PERFORMED ON ALL ROOFTOPS, FLAGPOLES, LIGHT POLES, AND TOWER SITES BEFORE INSTALLATION OF NEW ANTENNAS, RRH UNITS, ETC.

NORTH

PROPOSED ANTENNA PLAN

SCALE: NTS

2

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REVISIONS

REV	DATE	DESCRIPTION	INT
0	03/22/22	ISSUED FOR REVIEW 90%	JG
1	05/20/22	ISSUED FOR FINAL	JG

SITE INFORMATION

SITE #: IDL04323
SITE NAME: JACKSON FAIRGROUNDS
FA #: 12781455

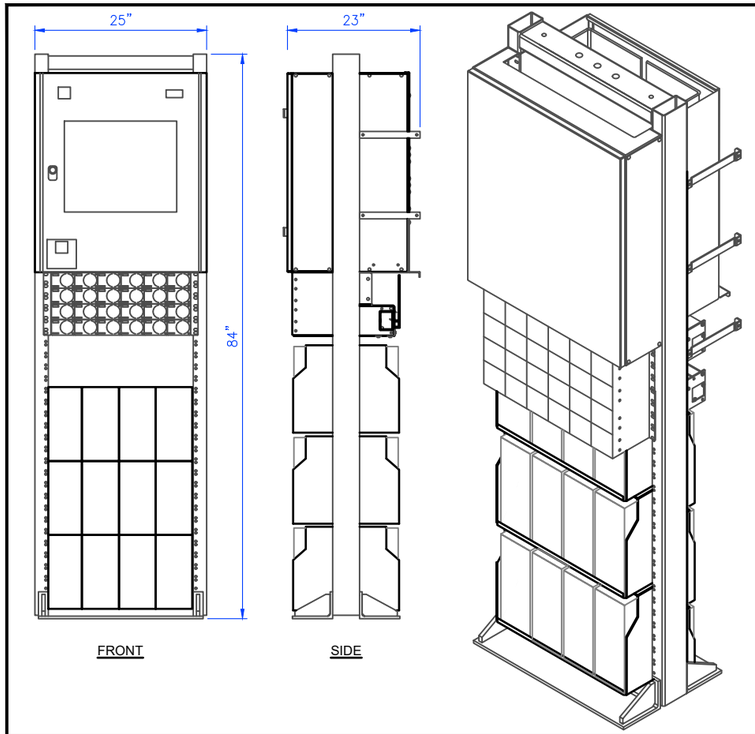
305 WEST SNOW KING AVENUE
JACKSON, WY 83001

SHEET TITLE:

ANTENNA PLANS

SHEET NUMBER:

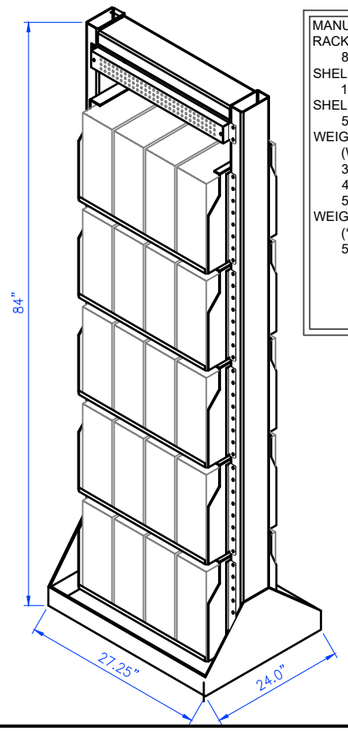
C-4



MANUFACTURER: VERTIV
MODEL: NETSURE 7100 POWER SYSTEM
HEIGHT: 84"
WIDTH: 25.5"
DEPTH: 22"

POWER PLANT DETAIL

SCALE: NTS | 4

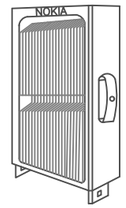


MANUFACTURER: VERTIV
RACK (H x W x D):
84" x 27.25" x 24"
SHELF (H x W x D):
13.27" x 21.57" x 21.16"
SHELF WEIGHT CAPACITY:
560 LBS/SHELF
WEIGHT:
(WITHOUT BATTERIES)
3 SHELF ~575 lbs
4 SHELF ~650 lbs
5 SHELF ~725 lbs
WEIGHT:
(*WITH BATTERIES)
5 SHELF (*20) ~3130 lbs

NOTE:
(4) STRINGS OF 190AH BATTERIES WITH BE SUFFICIENT UPGRADE - PERM GENSET ONSITE

BATTERY RACK DETAIL

SCALE: NTS | 5

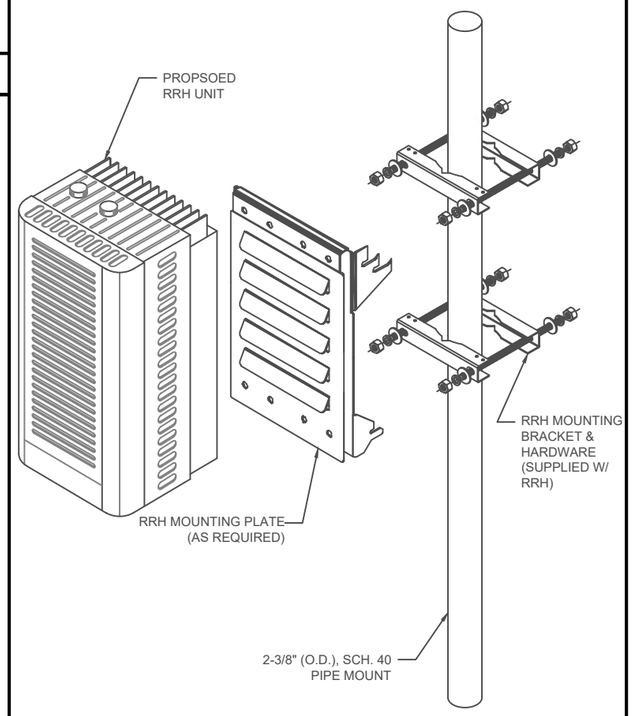


RRH	WIDTH	DEPTH	HEIGHT W/O CABLE MANAGEMENT COVER	WEIGHT W/O BRACKET
RRH 4T4R B25/66 320W AHFIB	12.87"	6.49"	26.57"	88.18 LBS

NOTE:
DIMENSIONS INCLUDE SOLAR SHIELD BUT NOT MOUNTING BRACKET.

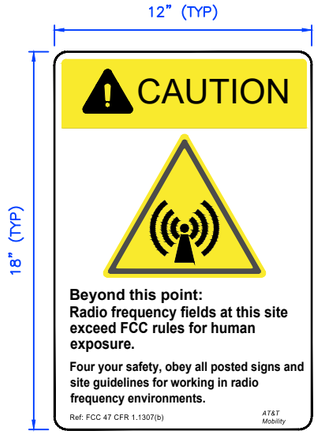
RRH SPECIFICATIONS

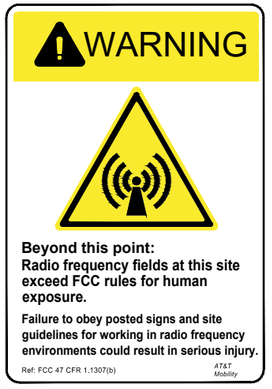
SCALE: NTS | 2

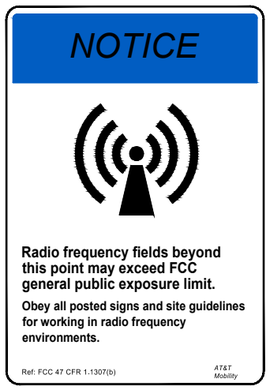


RRH MOUNTING DETAIL

SCALE: NTS | 3







RF WARNING SIGNAGE

SCALE: NTS | 1

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FA #: 12781455

305 WEST SNOW KING AVENUE
JACKSON, WY 83001

SHEET TITLE:
RF WARNING & EQUIPMENT DETAILS

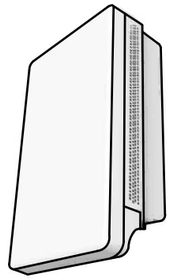
SHEET NUMBER:
C-5

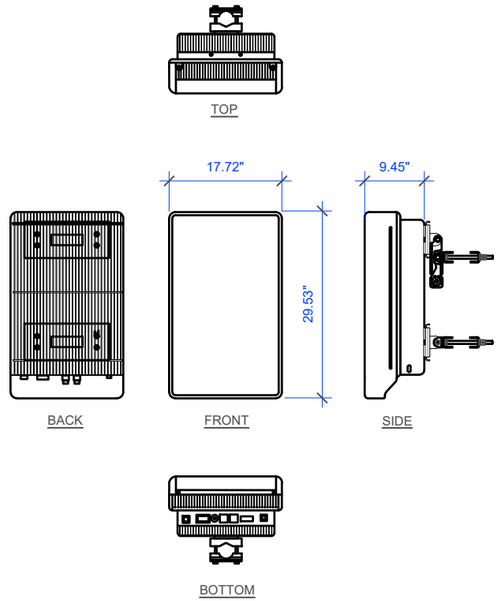
NOT USED

SCALE: NTS | 4

ANTENNA INFORMATION

SCALE: NTS | 1

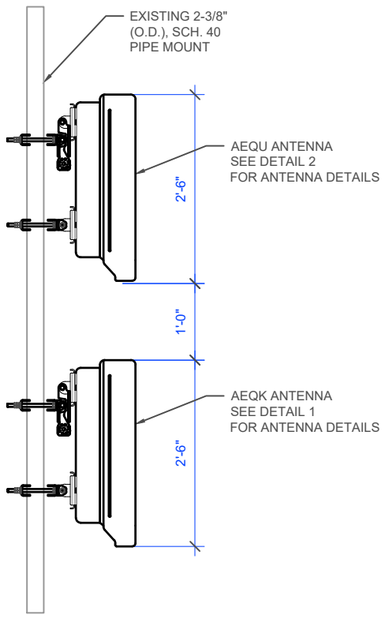




MANUFACTURER	NOKIA
MODEL #	AEQK
DIMENSIONS (HxWxD)	29.53" x 17.72" x 9.45"
NET WEIGHT	<99 lbs (WITHOUT MOUNTING BRACKETS)
OPTICAL PORTS	2 x SFP28, 10/25GE eCPRI
FREQUENCY	

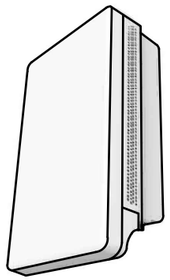
C-BAND ANTENNA STACKED DETAIL

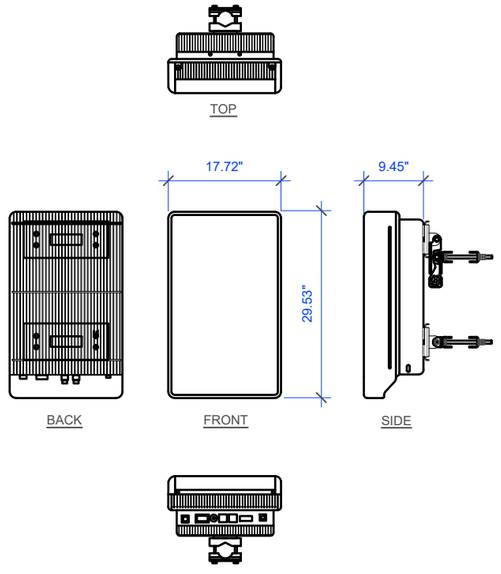
SCALE: NTS | 3



ANTENNA INFORMATION

SCALE: NTS | 2





MANUFACTURER	NOKIA
MODEL #	AEQU
DIMENSIONS (HxWxD)	29.53" x 17.72" x 9.45"
NET WEIGHT	<99 lbs (WITHOUT MOUNTING BRACKETS)
OPTICAL PORTS	2 x SFP28, 10/25GE eCPRI
FREQUENCY	

at&t

smartlink

Smartlink LLC
1997 Annapolis Exch.Pkwy # 200
Annapolis, MD 21401
Tel: 410-263-LINK (5465)
Fax: 410-263-5470
www.smartlinkllc.com

TRILEAF™
architecture | engineering
1815 DES PERES ROAD, STE 200
SAINT LOUIS, MISSOURI 63131
PHONE | 314-997-6111 FAX | 314-997-9066

694353

REVISIONS

REV	DATE	DESCRIPTION	INT
0	03/22/22	ISSUED FOR REVIEW 90%	JG
1	05/20/22	ISSUED FOR FINAL	JG

Professional Engineer
ROGER ALLAN ZIMMER
14729
5.20.22
Date
WYOMING

SITE INFORMATION

SITE #: IDL04323
SITE NAME: JACKSON FAIRGROUNDS
FA #: 12781455

305 WEST SNOW KING AVENUE
JACKSON, WY 83001

SHEET TITLE:

EQUIPMENT DETAILS

SHEET NUMBER:

C-6

VERTIV RECTIFIER

SCALE: NTS

4

PRODUCT DETAILS | SPECS SUMMARY

Chemistry:	Sealed Lead Acid
Nominal Voltage:	12v
Nominal Capacity:	190.0Ah
Terminals:	M6
Dimensions (L x W x H):	22.10 x 4.90 x 12.40
Weight (pounds):	132.3

190 AH BATTERY SPECIFICATION

SCALE: NTS

1

NOT USED

SCALE: NTS

3

DC INPUT
VOLTAGE RANGE -42 VDC TO -58 VDC
MAXIMUM CURRENT 24.35 A

DC OUTPUT
VOLTAGE -58 VDC
MAXIMUM POWER 1000 W
MAXIMUM CURRENT 17.2 A @ -58 VDC
PEAK EFFICIENCY 98.6%

CONTROL AND MONITORING
VISUAL INDICATIONS (ON FRONT) A SINGLE BI-COLOR LED INDICATES THE OPERATING STATUS OF THE UNIT:
- GREEN = PROPER OPERATION
- RED = ALARM

ALARM CONTACT (ON BACK) COMPATIBLE WITH VERTIV BULLET DISTRIBUTION PANEL
TEST POINTS (ON FRONT) ENABLES OUTPUT VOLTAGE MEASUREMENT OF THE UNIT

ENVIRONMENTAL
OPERATING -40°C TO +65°C / -40°F TO +149°F
STORAGE -40°C TO +70°C / -40°F TO +158°F
RELATIVE HUMIDITY 0 TO 93% NON-CONDENSING
ALTITUDE -200 TO 10,000 FEET

STANDARDS COMPLIANCE
SAFETY UL 62368 RECOGNIZED GR3108 CLASS 2, NEBS LEVEL III, UL (PENDING)
EMC FCC CFR 47 PART 15 (CLASS B CONDUCTED AND RADIATED);
TELCORDIA GR-1089-CORE ISSUE 6

MECHANICS
DIMENSIONS (H X W X D) 107.2 X 18.5 X 109.7 MM / 4.22 X 0.73 X 4.32 INCHES
WEIGHT 0.45 KG / 1.0 LBS

VERTIV CONVERTER SPECS

SCALE: NTS

2

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Professional Engineer
ROGER ALLAN ZIMMER
14729
WYOMING
Date 5.20.22

SITE INFORMATION

SITE #: IDL04323
SITE NAME: JACKSON FAIRGROUNDS
FA #: 12781455

305 WEST SNOW KING AVENUE
JACKSON, WY 83001

SHEET TITLE:

EQUIPMENT DETAILS

SHEET NUMBER:

C-7

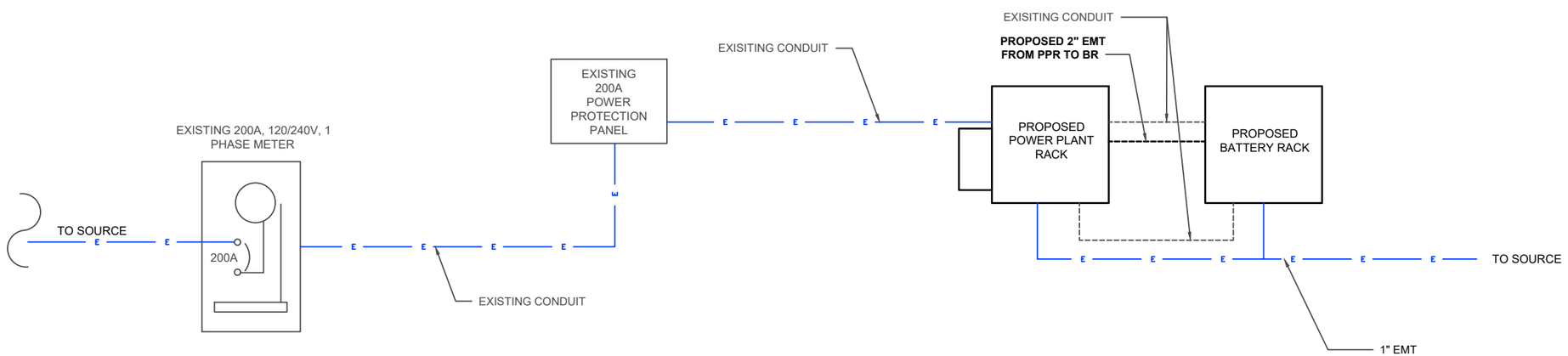
CKT. No.	DESCRIPTION	CB A/P		CB A/P	DESCRIPTION	CKT. No.
1	HVAC #1	60		60	HVAC #2	2
3		2		2		4
5	RECT #1	30		30	RECT #5	6
7		20		2		8
9	RECT #2	30		30	RECT #6	10
11		2		2		12
13	RECT #3	30		30	RECT #7 (OFF)	14
15		2		2		16
17	RECT #4	30				18
19		2				20
21						22
23						24
25	LIGHTS	20 1		20 1	PHNE BRD #1	26
27	SOUTH RECEPS	20 1		20 1	PHNE BRD #2	28
29	SPARE (OFF)	20 1		20 1	NO EAST RECEPS	30
31	OUT GFI	20 1		20 1	NO WEST RECEPS	32
33	EAST RECEPS	20 1		20 1	UNUSED CAPPED WIRES (OFF)	34
35	SMOKE ALM	20 1		20 1	UNUSED CAPPED WIRES (OFF)	36
37	SPARE				SPARE	38
39	SPARE				SPARE	40
41	SPARE				SPARE	42

EXISTING PANEL SCHEDULE — SCALE: NTS — 1

CKT. No.	DESCRIPTION	CB A/P		CB A/P	DESCRIPTION	CKT. No.
1	HVAC #1	60		60	HVAC #2	2
3		2		2		4
5	RECT #1	30		30	RECT #5	6
7		20		2		8
9	RECT #2	30		30	RECT #6	10
11		2		2		12
13	RECT #3	30		30	RECT #7	14
15		2		2		16
17	RECT #4	30		30	RECT #8	18
19		2		2		20
21	RECT #10	30		30	RECT #9	22
23		2		2		24
25	LIGHTS	20 1		20 1	PHNE BRD #1	26
27	SOUTH RECEPS	20 1		20 1	PHNE BRD #2	28
29	SPARE (OFF)	20 1		20 1	NO EAST RECEPS	30
31	OUT GFI	20 1		20 1	NO WEST RECEPS	32
33	EAST RECEPS	20 1		20 1	UNUSED CAPPED WIRES (OFF)	34
35	SMOKE ALM	20 1		20 1	UNUSED CAPPED WIRES (OFF)	36
37	SPARE				SPARE	38
39	SPARE				SPARE	40
41	SPARE				SPARE	42

PROPOSED PANEL SCHEDULE — SCALE: NTS — 2

CONDUCTOR NOTES:
1. ALL CONDUCTOR SHALL BE COPPER.
2. ALL WIRING SHALL BE COPPER WITH THHN/THWN DUAL RATED 600 VOLTS INSULATION.
3. CONDUCTORS SHALL BE 12 AWG MINIMUM UNLESS SPECIFICALLY NOTED OTHERWISE.
4. GROUNDING CONDUCTORS SHALL BE SOLID TINNED COPPER UNLESS OTHERWISE NOTED.



DC POWER & FIBER SINGLE LINE DIAGRAM — SCALE: NTS — 3

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694353

REVISIONS

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1	05/20/22	ISSUED FOR FINAL	JG

Professional Engineer
ROGER ALLAN ZIMMER
14729
Date 5.20.22
WYOMING

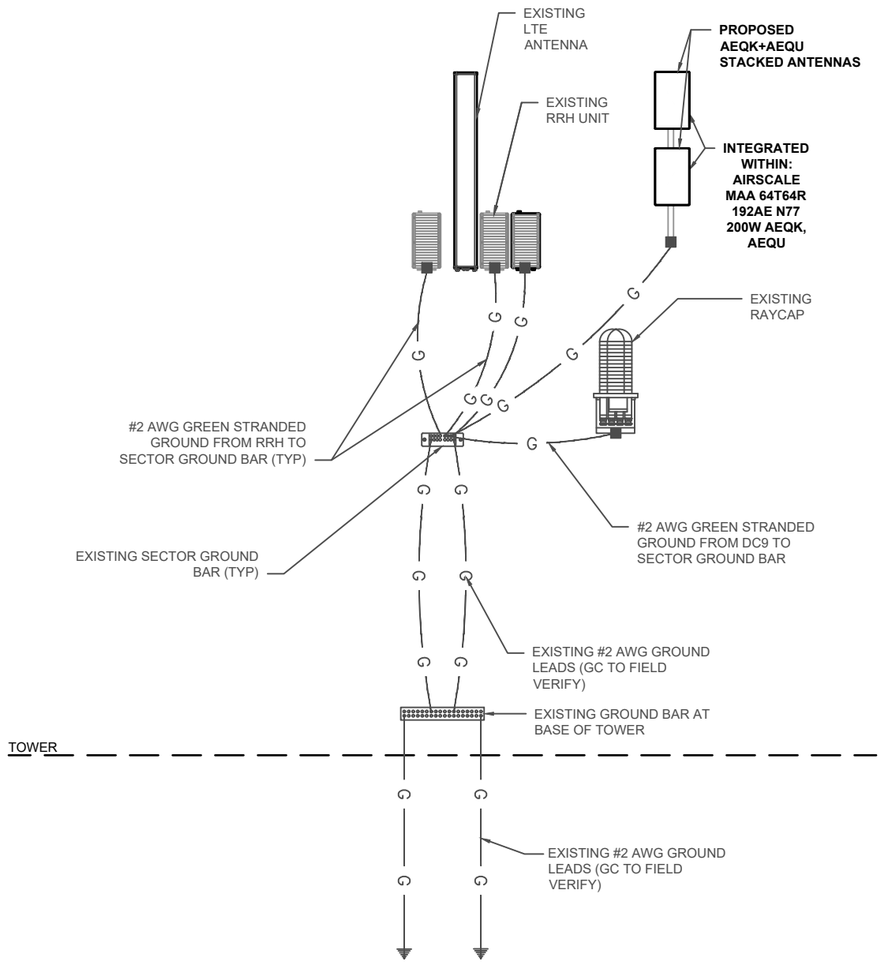
SITE INFORMATION

SITE #: IDL04323
SITE NAME: JACKSON FAIRGROUNDS
FA #: 12781455

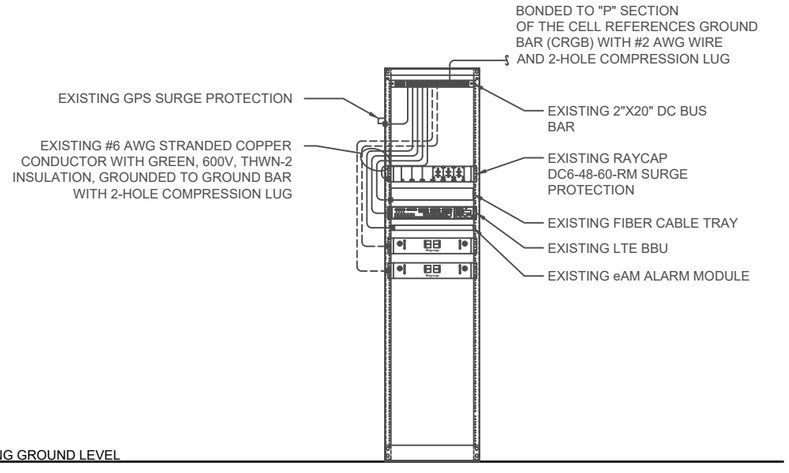
305 WEST SNOW KING AVENUE
JACKSON, WY 83001

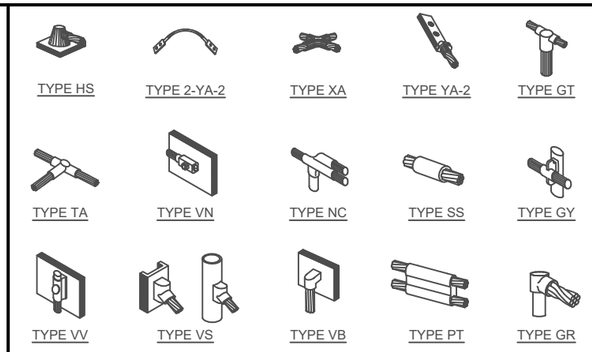
SHEET TITLE:
PANEL SCHEDULE & ELECTRICAL DIAGRAM

SHEET NUMBER:
E-1



TYPICAL GROUNDING SCHEMATIC | SCALE: NTS | 7



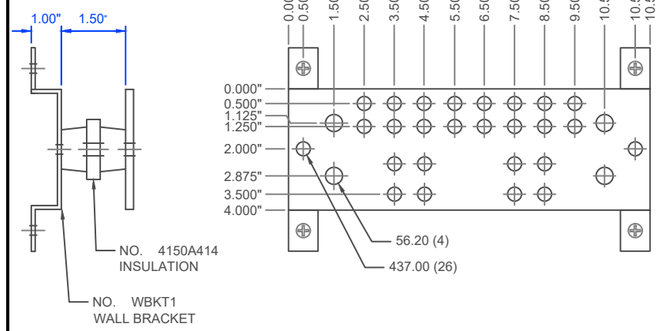


NOTE:
ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH PROJECT MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.

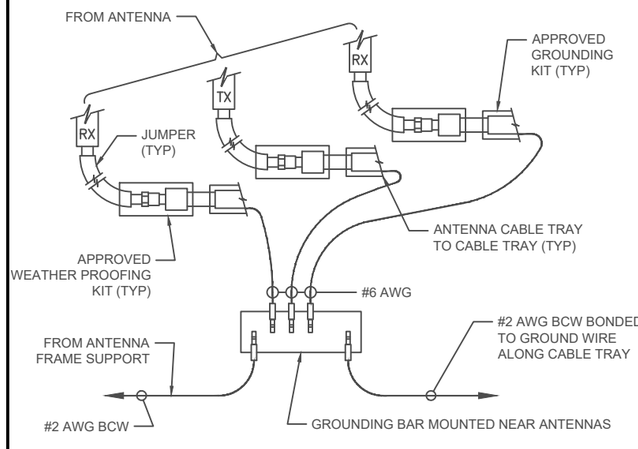
EXOTHERMIC WELDING | SCALE: NTS | 4

NOT USED | SCALE: NTS | 5

NOT USED | SCALE: NTS | 6



12" & 18" GROUND BARS | SCALE: NTS | 1

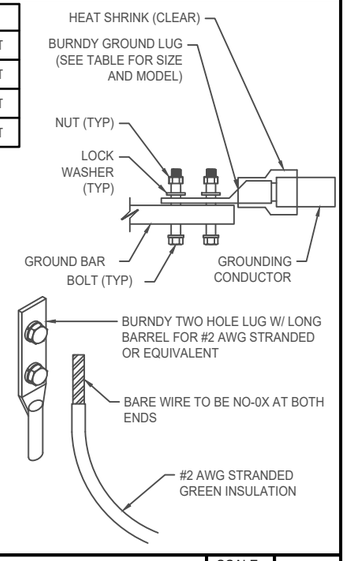


NOTE: DO NOT INSTALL CABLE GROUND KIT AT A BEND

COAX GROUNDING DETAIL | SCALE: NTS | 2

WIRE SIZE	BURNDY LUG	BOLT SIZE
#2 AWG SOLID TINNED	YA3C-2TC38	3/8"-16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8"-16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8"-16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	3/8"-16 NC S 2 BOLT

NOTES:
1. ALL HARDWARE BOLT, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.
2. COPPER SHIELD, ANTIOX, CR NO-OX OR EQUIVALENT SHALL BE PLACED WHERE ALL DISSIMILAR METALS CONNECT.
3. ALL LUGS TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
4. ALL RRH GROUND WIRES SHALL BE #2 GREEN STRANDED.
5. ALL GROUND LUGS SHALL BE 2-HOLE, LONG BARREL.
6. OUTDOOR GROUND LUGS SHALL BE BLACK HEAT SHRINK W/O INSPECTION HOLES.
7. INDOOR GROUND LUGS SHALL BE CLEAR HEAT SHRINK W/ INSPECTION HOLES.



MECHANICAL LUG CONNECTION | SCALE: NTS | 3

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SITE INFORMATION

SITE #: IDL04323
SITE NAME: JACKSON FAIRGROUNDS
FA #: 12781455

305 WEST SNOW KING AVENUE
JACKSON, WY 83001

SHEET TITLE:
GROUNDING DETAILS

SHEET NUMBER:
G-1

Date: **April 12, 2022**

TRILEAF
environmental architecture engineering

Smartlink
1997 Annapolis Exchange Parkway, Suite 200
Annapolis, MD 21401
(888) 828-5465

Trileaf Architecture & Engineering
1821 Walden Office Square, Suite 510
Schaumburg, IL 60173
(630) 227-0202

Subject:	**Mount Structural Analysis Report**	
Trileaf	**Job Number:**	694353
AT&T Mobility	**Site FA#:**	12781455
	Site ID#:	IDL04323
	Site Name:	Jackson Fair Grounds
	Pace No:	MRUTH050864, MRUTH050859
Site Data:	**305 West Snow King Avenue, Jackson, WY, Teton County** **Latitude: 43° 28' 23.24", Longitude: -110° 46' 05.05"** **80.0-Foot-Tall Monopole Tower**	

To whom it may concern:

Per your request, Trileaf has performed a structural analysis to determine the structural integrity of the above mentioned antenna mounts for the addition of wireless telecommunication appurtenances by AT&T Mobility. The analysis has been performed in accordance with the 2018 International Building Code based upon an ultimate 3-second gust wind speed of 105 mph. Exposure Category C with a Topographic Category 1, and Risk Category II were used in this analysis.

Upon reviewing the results of this analysis, it is our opinion that the existing antenna mounts and its connections meet the specified TIA code requirements. The antenna mounts and its connections are therefore deemed **adequate** to support the existing and proposed loading as listed in this report.

Mount Rating	**20.7%**
Connection Rating	**15.6%**

We at Trileaf appreciate the opportunity of providing our continuing professional services to AT&T Mobility and Smartlink. If you have any questions or need further assistance on this or any other projects, please give us a call.

Sincerely,

04-12-22
Dmitriy Albul, P.E.
Project Engineer

CONTENTS

1.0 INTRODUCTION

The mount system consists of six (6) antenna pipe mounts and six (6) RRU pipe mounts installed on the 80.0-ft Monopole Tower. The proposed antennas will be attached to the existing antenna mount pipes at 38-ft above ground level. The proposed RRUs will be attached to the existing antenna mount pipes approximately at 46-ft above ground level. This report is limited to the analysis of antenna mounts only.

2.0 ANALYSIS CRITERIA

Building Code:	2018 International Building Code
TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	105 mph
Exposure Category:	C
Topographic Category:	1
Ice Thickness:	0.25
Wind Speed with Ice:	50 mph
Service Wind Speed:	30 mph
Seismic Loads:	S_s = 1.036, S_1 = 0.341

3.0 PROPOSED AND EXISTING EQUIPMENT

Table 1 - Proposed and Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
53.0	53.0	3	Ace	XXQLH-654L8H8-IVT	5	#8 DC
45.0	46.0	3	Nokia	AIRSCALE Dual RRH 4T4R B12/14 320W AHLBA		
		3	Nokia	AirScale Dual RRH 4T4R B25/66 320W AHFIB		
		3	Alcatel-Lucent	RRH4x25-WCS-4R	2	18 Pair Fiber
		3	Raycap	DC6-48-60-18-8F		
38.0	38.0	3	Nokia	AEQU C-BAND		
		3	Nokia	AEQK C-BAND		

4.0 ANALYSIS PROCEDURE

Table 2 - Documents Provided

Resource	Remarks
Proposed Loading	Smartlink Scoping Notes, dated February 22, 2022
Existing Loads	Site Photos, dated January 15, 2022
	Mount Analysis Report by General Dynamics Information Technology, dated April 10, 2019
	Construction Drawings by General Dynamics Information Technology, dated May 2, 2019

Analysis Method

RISA-3D (Version 19.0), a commercially available structural analysis software package, was used to create a three-dimensional model of the antenna mounting system and calculate member stresses for various load cases. Selected output from the analysis is included in Appendix A.

Assumptions

1) The antenna mounting system was properly fabricated, installed and maintained in good condition in accordance with its original design and manufacturer's specifications.
2) The configuration of antennas, mounts, and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
3) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.

ANALYSIS RESULTS

Table 3 - Structure Usage

Component Type	% Capacity	Pass/Fail
Plates	13.4	Pass
Arms	3.8	Pass
Mount Pipes	20.7	Pass
U-Bolts	15.6	Pass
Bolts	2.7	Pass
Summary		
	20.7	Pass

Recommendations

The mount system has **sufficient** capacity to carry the proposed load configuration. No modifications are required at this time.

ASSUMPTIONS AND LIMITATIONS

Our structural calculations are completed assuming all information provided to Trileaf is accurate and applicable to this site. For the purposes of calculations, we assume an overall structure condition of "like new" and all members and connections to be free of corrosion and/or structural defects. Trileaf will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance. Contractor should inspect the condition of the existing structure, mounts and connections and notify. Trileaf for any discrepancies and deficiencies before proceeding with the construction.

The analysis results presented in this report are only applicable for the previously mentioned existing and proposed loading. Any deviation of the existing or proposed equipment and placement will require. Trileaf to generate an additional structural analysis.

APPENDIX A: PHOTOS AND RISA-3D OUTPUT

TRILEAF
environmental architecture engineering

Date:	4/12/2022
Site Name:	Jackson Fair Grounds
Project Engineer:	DVA
Project No:	694353
Carrier:	AT&T Mobility

Building Code:	2018
TIA Standard:	H
Mount Type:	T-Arm
Mount Existing?	Existing
Mount Centerline:	53 ft
Superstructure Height:	80 ft
Structure Type:	Tower

Site Information		
Exposure Category:	C	
Risk Category:	II	
Ground Elevation	6215.3	ft
Ultimate Wind Speed:	105	mph
Design Wind Speed:	105	mph
Ice Thickness:	0.25	in
Ice Wind Speed:	50.0	mph
Escalated Ice Thickness:	0.22	in
Topographic Method:	2	
Topographic Category:	1	

Factors	
Gh:	1.000
K_{zmin}:	0.850
K_z:	1.107
K_d:	0.950
K_{zt}:	1.000
Ke:	0.799
Ka:	0.900
KesWind	0.950
KesIce	0.850
I ice:	1.000

q_z:	23.71	psf

Run Seismic?	Yes
Site Soil:	D (Default)
Short-Period Accel. (Ss):	1.0360
1-Second Accel. (S1):	0.3410
Short-Period Design (SDS):	0.7500
1-Second Design (SD1):	0.0000
Short-Period Coeff. (Fa):	1.0860
1-Second Coeff. (Fv):	0.0000
Cs	0.3750
Cs min	0.0330
Amplification Factor (ap):	1.00
Response Mod. (Rp):	2.50
Overstrength (Ωo):	1.00

Service Wind:	30	mph
Lm (man live load) =	500	lb
Lv (man live load) =	250	lb

Table 1. Equipment Specifications and Wind Pressure

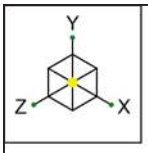
Manufacturer	Model	Elevation	Pipe Label	Weight (lb)	Height (in)	Width (in)	Depth (in)	EPA_N	EPA_T	$EPA_{N\ w/\ ice}$	$EPA_{T\ w/\ ice}$	q_z:	$q_{z\ ice}$:	$q_{z\ live}$:
Nokia	AEQK C-BAND	38	1	103.6	29.5	17.7	9.8	4.22	2.45	4.39	2.6	22.1	5.0	1.8
Ace	XXQLH-654L8H8-IVT	53	15	109.4	96.0	19.7	7.5	17.15	7.97	17.56	8.36	23.7	5.4	1.9
Nokia	AEQU C-BAND	38	1	103.6	29.5	17.7	9.8	4.22	2.45	4.39	2.6	22.1	5.0	1.8
ALCATEL-LUCENT	RRH4x25-WCS-4R	46	6	70.0	31.5	11.8	8.7	3.12	2.38	3.27	2.52	23.0	5.2	1.9
Nokia	AIRSCALE Dual RRH 4T4R B12/14 320W AHLBA	46	6	101.4	30.7	17.3	11.2	4.31	2.89	4.48	3.04	23.01	5.22	1.88
Nokia	AirScale Dual RRH 4T4R B25/66 320W AHFIB	46	6	66.1	22	12.1	5.9	2.16	1.13	2.28	1.23	23.01	5.22	1.88

Table 2. Equipment Wind and Seismic Loads

Manufacturer	Model	Wind Load (F_A), lb		Wind Load Ice Case (F_A), lb			Wind Load Service Case		Seismic Load, lb
		0 deg	90 deg	0 deg	90 deg	Ice Weight	0 deg	90 deg	
Nokia	AEQK C-BAND	79.7	46.4	18.8	11.1	14.0	6.8	4.0	38.9
Ace	XXQLH-654L8H8-IVT	347.5	161.5	80.7	38.4	47.4	29.9	13.9	41.0
Nokia	AEQU C-BAND	79.7	46.4	18.8	11.1	14.0	6.8	4.0	38.9
ALCATEL-LUCENT	RRH4x25-WCS-4R	61.3	46.8	14.6	11.3	10.9	5.3	4.0	26.3
Nokia	AIRSCALE Dual RRH 4T4R B12/14 320W AHLBA	85	57	20	14	15	7	5	38.0
Nokia	AirScale Dual RRH 4T4R B25/66 320W AHFIB	43	22	10	5	7	4	2	24.8

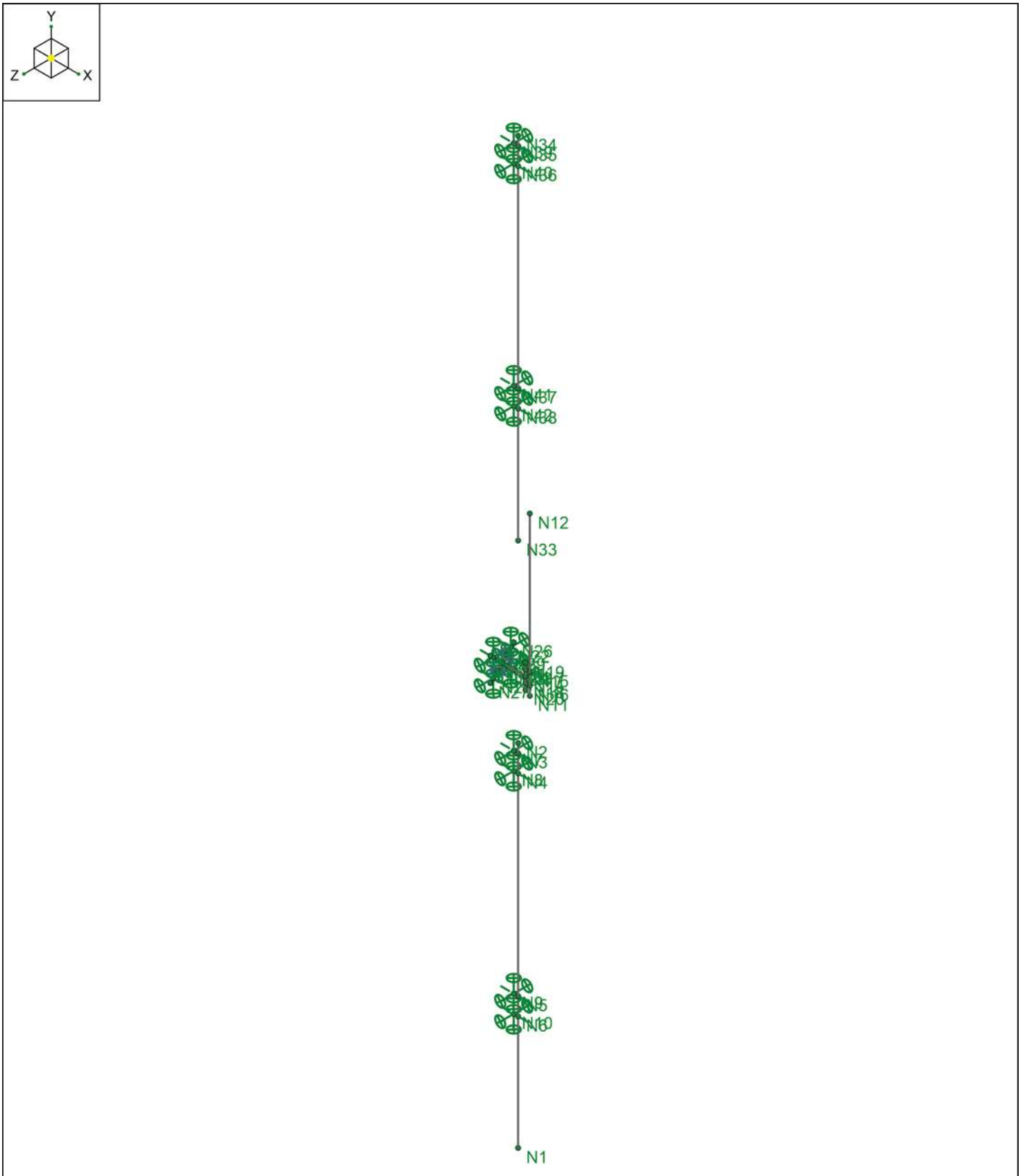
Table 3.1. Hot Rolled Member Capacities

Member Name	Member Shape	Wind load (plf)	Wind Load Ice (plf)	Weight Ice (plf)	Bending Check	Shear Check	Total Capacity	Controlling Capacity
Mount pipe	**PIPE_2.0**	**5.36**	**1.09**	**0.07**	**20.7%**	**7.3%**	**20.7%**	**20.7%**
arms	**HSS4x4x4**	**15.01**	**3.05**	**0.10**	**3.3%**	**3.8%**	**3.8%**	
Connection Plates	**6"x0.5"**	**22.52**	**4.57**	**0.15**	**13.4%**	**2.1%**	**13.4%**	



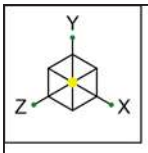
Envelope Only Solution

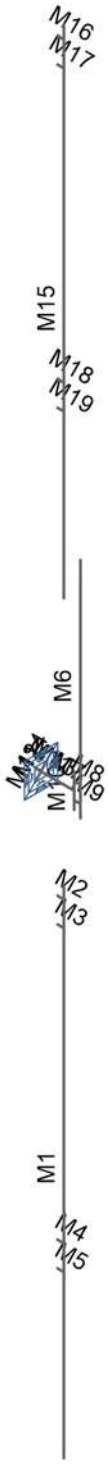
Trileaf	Jackson Fair Grounds	SK-1
DVA		Apr 12, 2022
694353	Pipe Mounts Model	694353 IDL04323.r3d



Envelope Only Solution

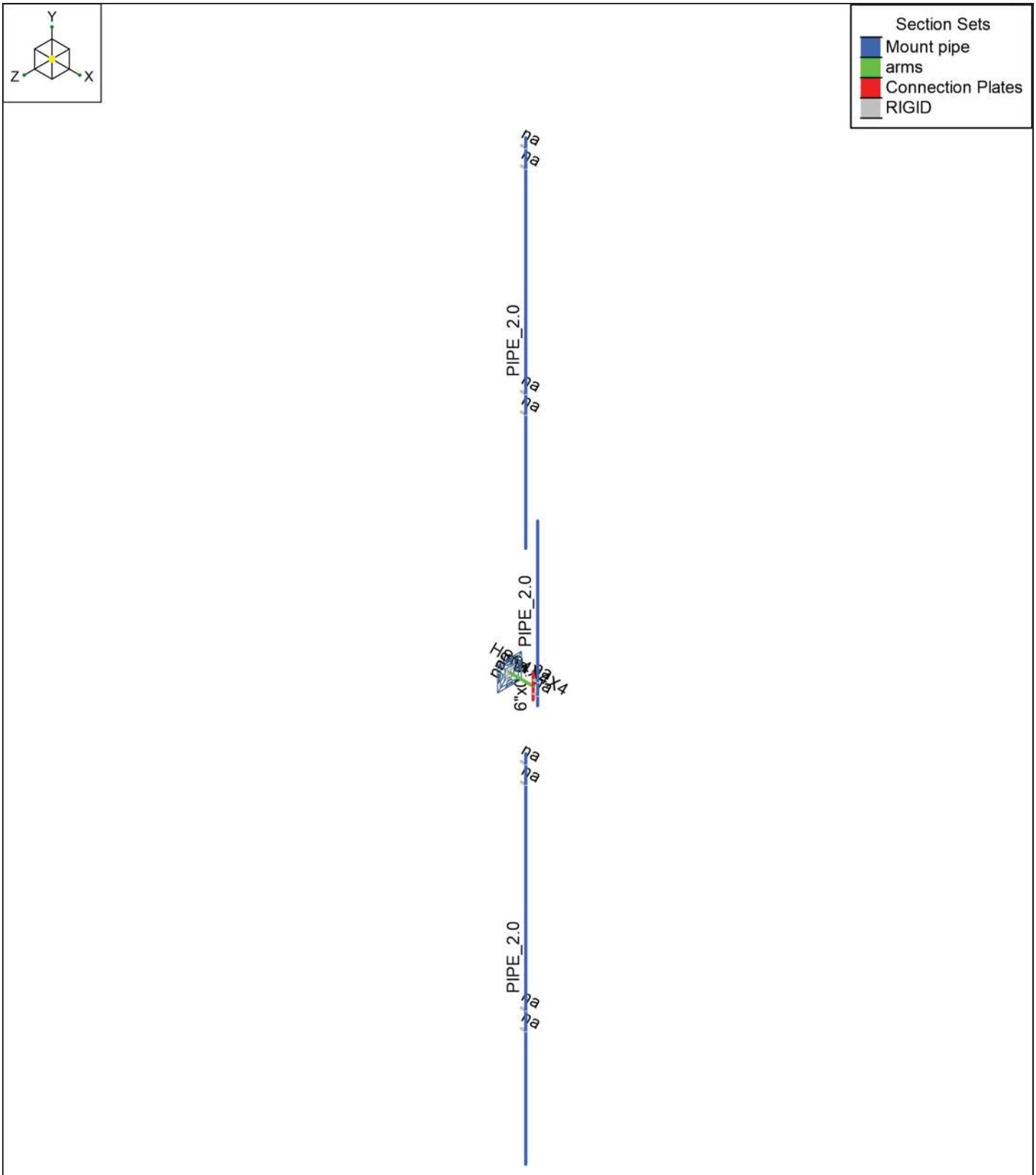
Trileaf	Jackson Fair Grounds	SK-2
DVA		Apr 12, 2022
694353	Joint Labels	694353 IDL04323.r3d





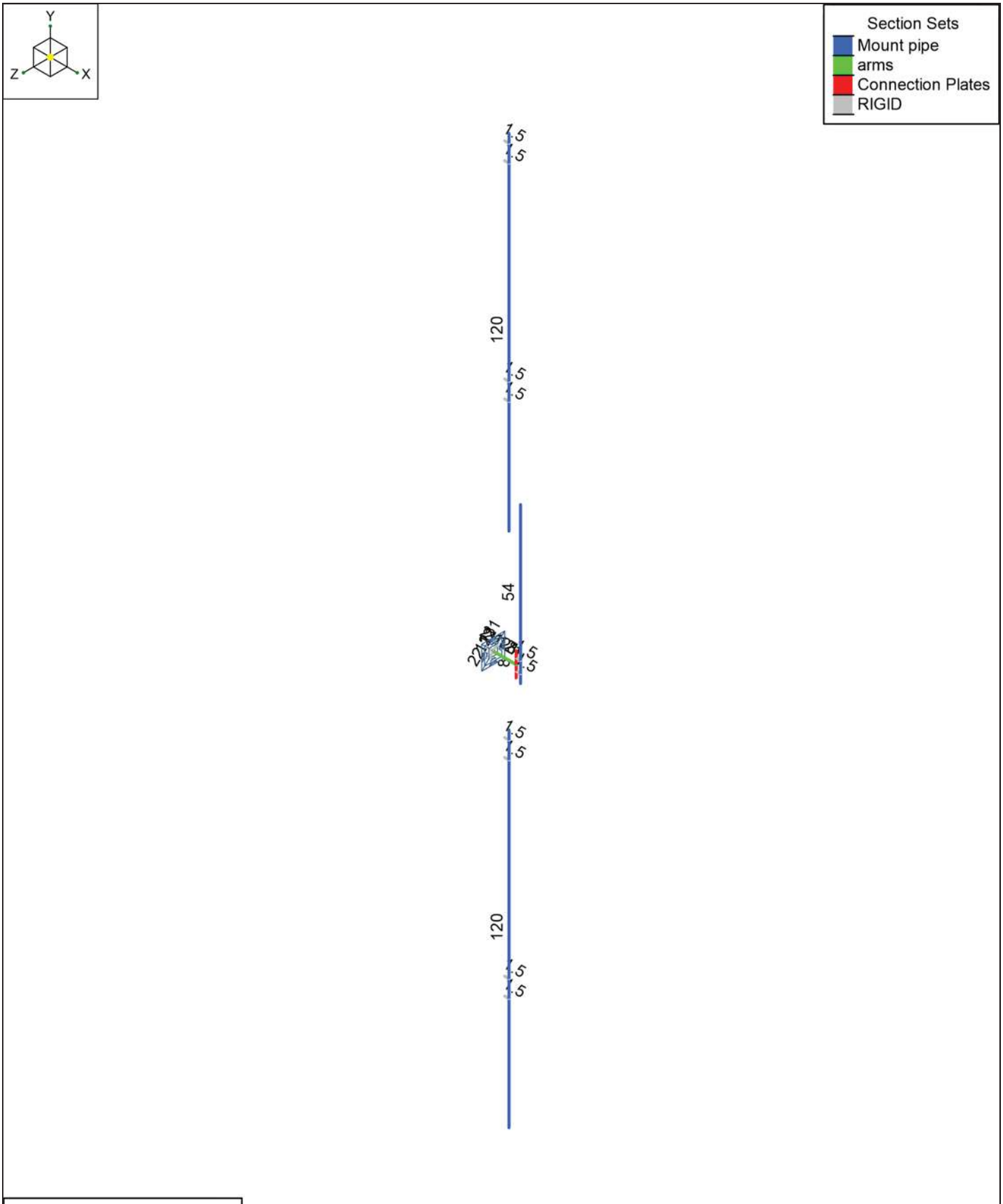
Envelope Only Solution

Trileaf	Jackson Fair Grounds	SK-3
DVA		Apr 12, 2022
694353	Member Labels	694353 IDL04323.r3d



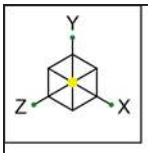
Envelope Only Solution

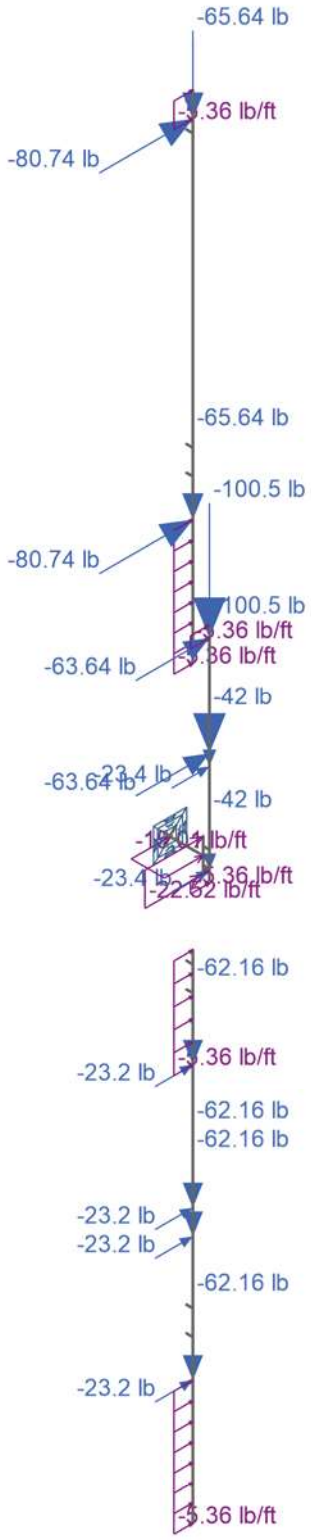
Trileaf	Jackson Fair Grounds	SK-4
DVA		Apr 12, 2022
694353	Member Shapes	694353 IDL04323.r3d



Member Length (in) Displayed
Envelope Only Solution

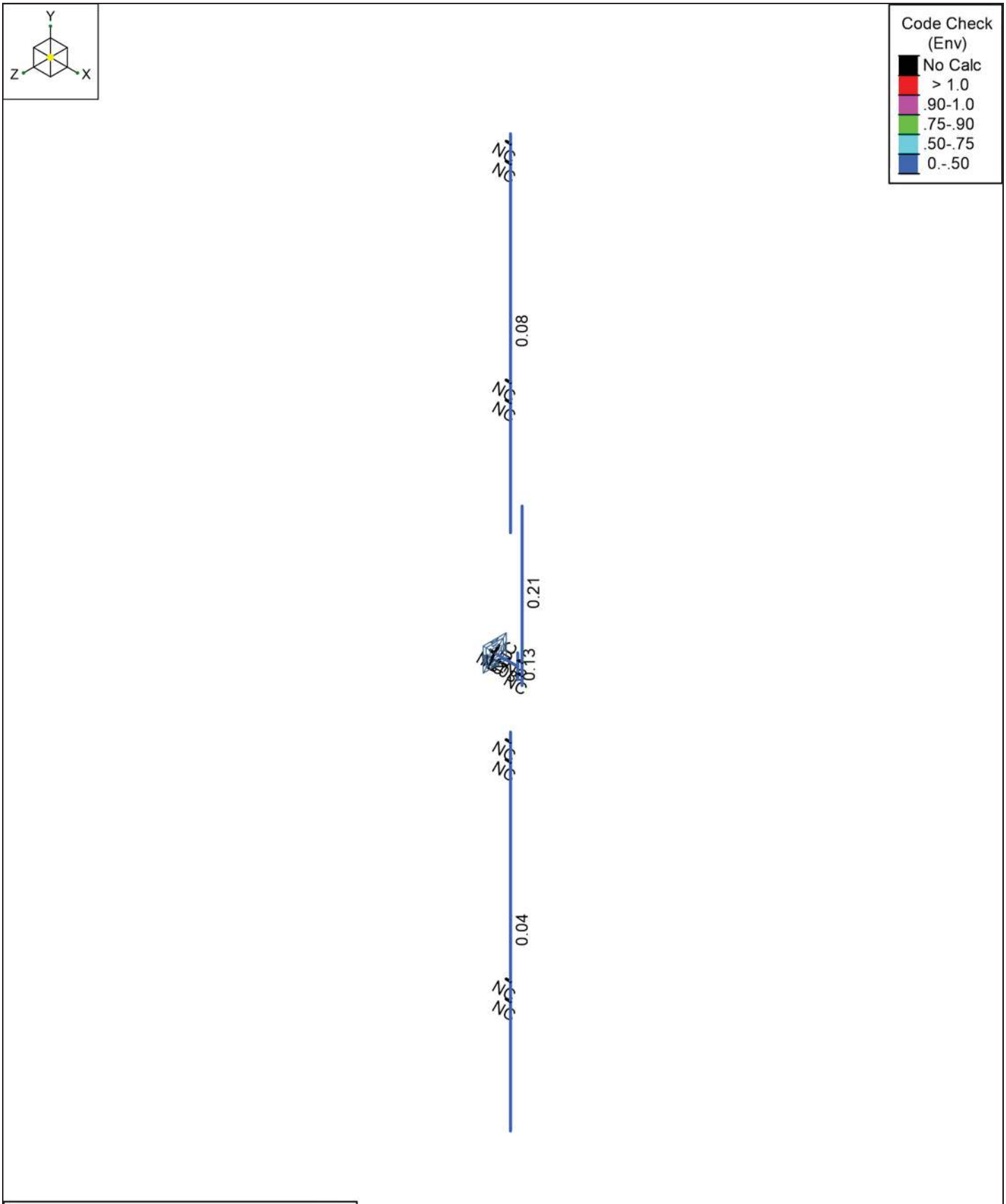
Trileaf	Jackson Fair Grounds	SK-5
DVA		Apr 12, 2022
694353	Member Length	694353 IDL04323.r3d





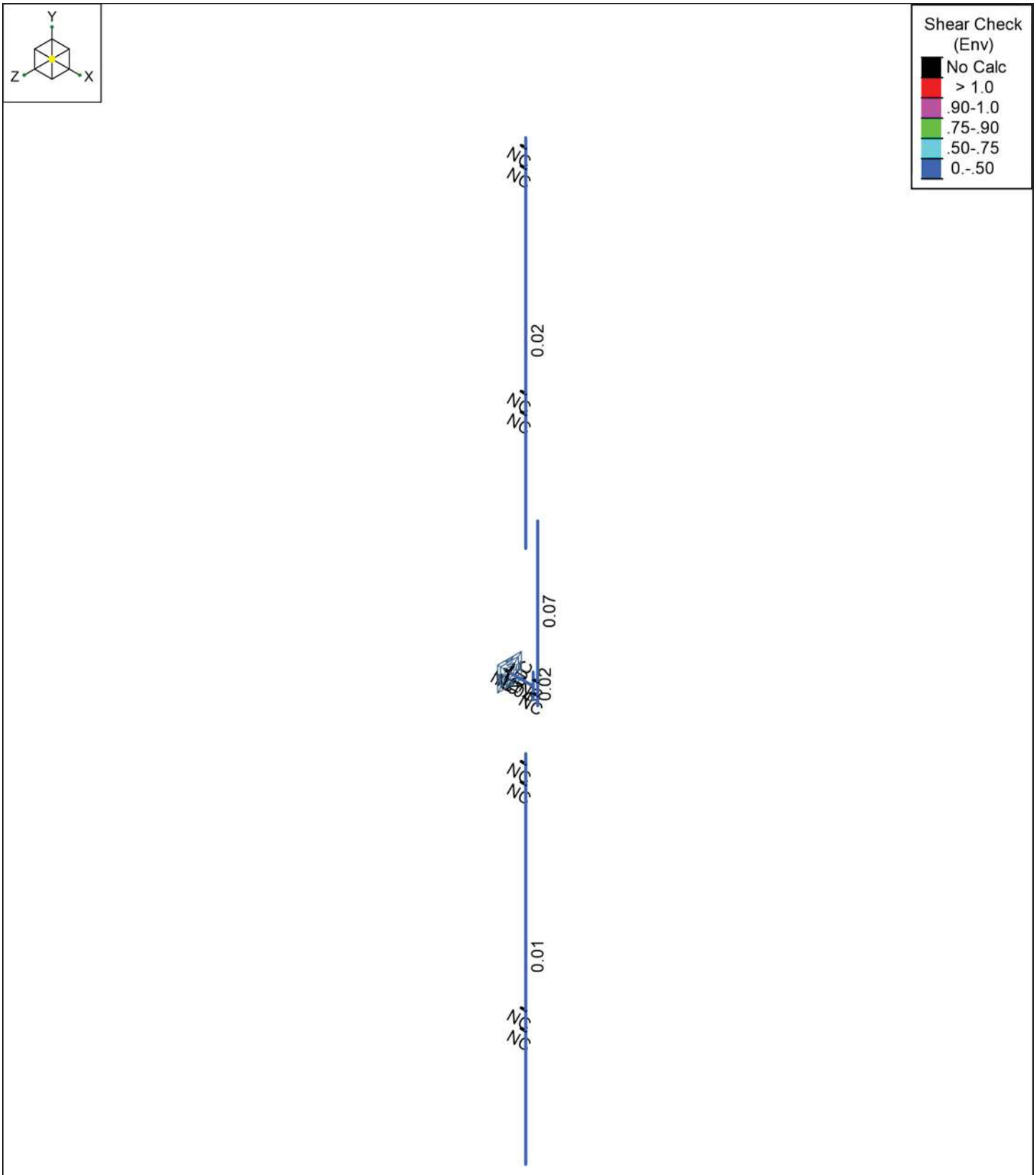
Loads: LC 5, 1.2DL + 1WL AZI 90
Envelope Only Solution

Trileaf	Jackson Fair Grounds	SK-6
DVA		Apr 12, 2022
694353	Controlling Load Case	694353 IDL04323.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Trileaf	Jackson Fair Grounds	SK-7
DVA		Apr 12, 2022
694353	Member Bending Check	694353 IDL04323.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Trileaf	Jackson Fair Grounds	SK-8
DVA		Apr 12, 2022
694353	Member Shear Check	694353 IDL04323.r3d

Model Settings

Solution

Members

Number of Reported Sections	5
Number of Internal Sections	100
Member Area Load Mesh Size (in^2)	144
Consider Shear Deformation	Yes
Consider Torsional Warping	Yes

Wall Panels

Approximate Mesh Size (in)	12
Transfer Forces Between Intersecting Wood Walls	Yes
Increase Wood Wall Nailing Capacity for Wind Loads	Yes
Include P-Delta for Walls	Yes
Optimize Masonry and Wood Walls	Yes
Maximum Number of Iterations	3

Processor Core Utilization

Single	No
Multiple (Optimum)	Yes
Maximum	No

Axis

Vertical Global Axis

Global Axis corresponding to vertical direction	Y
Convert Existing Data	Yes

Default Member Orientation

Default Global Plane for z-axis	XZ

Plate Axis

Plate Local Axis Orientation	Nodal

Codes

Hot Rolled Steel	AISC 15th (360-16): LRFD
Stiffness Adjustment	Yes (Iterative)
Notional Annex	None
Connections	AISC 15th (360-16): LRFD
Cold Formed Steel	AISI S100-16: LRFD
Stiffness Adjustment	Yes (Iterative)
Wood	AWC NDS-18: LRFD
Temperature	< 100F
Concrete	ACI 318-19
Masonry	TMS 402-16: Strength
Aluminum	AA ADM1-15: LRFD
Structure Type	Building
Stiffness Adjustment	Yes (Iterative)
Stainless	AISC 14th (360-10): LRFD
Stiffness Adjustment	Yes (Iterative)

Concrete

Compression Stress Block	Rectangular Stress Block
Analyze using Cracked Sections	Yes
Leave room for horizontal rebar splices (2*d bar spacing)	No

Model Settings (Continued)

List forces which were ignored for design in the Detail Report	Yes

Rebar

Column Min Steel	1
Column Max Steel	8
Rebar Material Spec	ASTM A615
Warn if beam-column framing arrangement is not understood	No

Shear Reinforcement

Number of Shear Regions	4
Region 2 & 3 Spacing Increase Increment (in)	4

Seismic

RISA-3D Seismic Load Options

Code	ASCE 7-16
Risk Category	I or II
Drift Cat	Other
Base Elevation (ft)	
Include the weight of the structure in base shear calcs	Yes

Site Parameters

S_1 (g)	1
SD_1 (g)	1
SD_S (g)	1
T_L (sec)	5

Structure Characteristics

T Z (sec)	
T X (sec)	
C_tX	0.02
C_tExp. Z	0.75
C_tExp. X	0.75
R Z	3
R X	3
Ω_0Z	1
Ω_0X	1
C_dZ	4
C_dX	4
ρ Z	1
ρ X	1

Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	M1	N1	N2		Mount pipe	Column	Pipe	A53 Gr.B	Typical
2	M2	N7	N3		RIGID	None	None	RIGID	Typical
3	M3	N8	N4		RIGID	None	None	RIGID	Typical
4	M4	N9	N5		RIGID	None	None	RIGID	Typical
5	M5	N10	N6		RIGID	None	None	RIGID	Typical
6	M6	N11	N12		Mount pipe	Column	Pipe	A53 Gr.B	Typical
7	M7	N13	N14		arms	Beam	Tube	A500 Gr.B Rect	Typical
8	M8	N17	N15		RIGID	None	None	RIGID	Typical
9	M9	N18	N16		RIGID	None	None	RIGID	Typical
10	M10	N20	N19	90	Connection Plates	Column	BAR	A36 Gr.36	Typical
11	M11	N13	N30		RIGID	None	None	RIGID	Typical
12	M12	N13	N32		RIGID	None	None	RIGID	Typical
13	M13	N13	N31		RIGID	None	None	RIGID	Typical
14	M14	N13	N29		RIGID	None	None	RIGID	Typical
15	M15	N33	N34		Mount pipe	Column	Pipe	A53 Gr.B	Typical
16	M16	N39	N35		RIGID	None	None	RIGID	Typical
17	M17	N40	N36		RIGID	None	None	RIGID	Typical
18	M18	N41	N37		RIGID	None	None	RIGID	Typical
19	M19	N42	N38		RIGID	None	None	RIGID	Typical

Material Take-Off

	Material	Size	Pieces	Length[in]	Weight[K]
1	General Members				
2	RIGID		14	23.5	0
3	Total General		14	23.5	0
4					
5	Hot Rolled Steel				
6	A36 Gr.36	6"x0.5"	1	8	0.007
7	A500 Gr.B Rect	HSS4X4X4	1	8	0.008
8	A53 Gr.B	PIPE_2.0	3	294	0.085
9	Total HR Steel		5	310	0.1
10					
11	Plate Elements	Thickness (in)		Volume (yds^3)	
12	gen_Steel	0.4	9	0	0.007
13	Total Plates		9	0	0.007

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in²]	Iyy [in⁴]	Izz [in⁴]	J [in⁴]
1	Mount pipe	PIPE_2.0	Column	Pipe	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
2	arms	HSS4X4X4	Beam	Tube	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
3	Connection Plates	6"x0.5"	Column	BAR	A36 Gr.36	Typical	3	0.063	9	0.237

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Point	Distributed
1	Self Weight	DL		-1		12	
2	Wind Load AZI 0	WLX				24	44
3	Wind Load AZI 30	None				24	44
4	Wind Load AZI 60	None				24	44
5	Wind Load AZI 90	WLZ				24	44
6	Wind Load AZI 120	None				24	44
7	Wind Load AZI 150	None				24	44

Basic Load Cases (Continued)

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Point	Distributed
8	Wind Load AZI 180	None				24	44
9	Wind Load AZI 210	None				24	44
10	Wind Load AZI 240	None				24	44
11	Wind Load AZI 270	None				24	44
12	Wind Load AZI 300	None				24	44
13	Wind Load AZI 330	None				24	44
14	Ice Weight	OL1				12	19
15	Ice Wind Load AZI 0	OL2				24	44
16	Ice Wind Load AZI 30	None				24	44
17	Ice Wind Load AZI 60	None				24	44
18	Ice Wind Load AZI 90	OL3				24	44
19	Ice Wind Load AZI 120	None				24	44
20	Ice Wind Load AZI 150	None				24	44
21	Ice Wind Load AZI 180	None				24	44
22	Ice Wind Load AZI 210	None				24	44
23	Ice Wind Load AZI 240	None				24	44
24	Ice Wind Load AZI 270	None				24	44
25	Ice Wind Load AZI 300	None				24	44
26	Ice Wind Load AZI 330	None				24	44
27	Seismic Load X	ELX			-0.375	12	
28	Seismic Load Z	ELZ	-0.375			12	
29	Service Live Loads	LL					

Load Combinations

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4DL	Yes	Y	1	1.4				
2	1.2DL + 1WL AZI 0	Yes	Y	1	1.2	2	1		
3	1.2DL + 1WL AZI 30	Yes	Y	1	1.2	3	1		
4	1.2DL + 1WL AZI 60	Yes	Y	1	1.2	4	1		
5	1.2DL + 1WL AZI 90	Yes	Y	1	1.2	5	1		
6	1.2DL + 1WL AZI 120	Yes	Y	1	1.2	6	1		
7	1.2DL + 1WL AZI 150	Yes	Y	1	1.2	7	1		
8	1.2DL + 1WL AZI 180	Yes	Y	1	1.2	8	1		
9	1.2DL + 1WL AZI 210	Yes	Y	1	1.2	9	1		
10	1.2DL + 1WL AZI 240	Yes	Y	1	1.2	10	1		
11	1.2DL + 1WL AZI 270	Yes	Y	1	1.2	11	1		
12	1.2DL + 1WL AZI 300	Yes	Y	1	1.2	12	1		
13	1.2DL + 1WL AZI 330	Yes	Y	1	1.2	13	1		
14	0.9DL + 1WL AZI 0	Yes	Y	1	0.9	2	1		
15	0.9DL + 1WL AZI 30	Yes	Y	1	0.9	3	1		
16	0.9DL + 1WL AZI 60	Yes	Y	1	0.9	4	1		
17	0.9DL + 1WL AZI 90	Yes	Y	1	0.9	5	1		
18	0.9DL + 1WL AZI 120	Yes	Y	1	0.9	6	1		
19	0.9DL + 1WL AZI 150	Yes	Y	1	0.9	7	1		
20	0.9DL + 1WL AZI 180	Yes	Y	1	0.9	8	1		
21	0.9DL + 1WL AZI 210	Yes	Y	1	0.9	9	1		
22	0.9DL + 1WL AZI 240	Yes	Y	1	0.9	10	1		
23	0.9DL + 1WL AZI 270	Yes	Y	1	0.9	11	1		
24	0.9DL + 1WL AZI 300	Yes	Y	1	0.9	12	1		
25	0.9DL + 1WL AZI 330	Yes	Y	1	0.9	13	1		
26	1.2D + 1.0Di	Yes	Y	1	1.2	14	1		
27	1.2D + 1.0Di +1.0Wi AZI 0	Yes	Y	1	1.2	14	1	15	1
28	1.2D + 1.0Di +1.0Wi AZI 30	Yes	Y	1	1.2	14	1	16	1
29	1.2D + 1.0Di +1.0Wi AZI 60	Yes	Y	1	1.2	14	1	17	1
30	1.2D + 1.0Di +1.0Wi AZI 90	Yes	Y	1	1.2	14	1	18	1

Load Combinations (Continued)

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor
31	1.2D + 1.0Di +1.0Wi AZI 120	Yes	Y	1	1.2	14	1	19	1
32	1.2D + 1.0Di +1.0Wi AZI 150	Yes	Y	1	1.2	14	1	20	1
33	1.2D + 1.0Di +1.0Wi AZI 180	Yes	Y	1	1.2	14	1	21	1
34	1.2D + 1.0Di +1.0Wi AZI 210	Yes	Y	1	1.2	14	1	22	1
35	1.2D + 1.0Di +1.0Wi AZI 240	Yes	Y	1	1.2	14	1	23	1
36	1.2D + 1.0Di +1.0Wi AZI 270	Yes	Y	1	1.2	14	1	24	1
37	1.2D + 1.0Di +1.0Wi AZI 300	Yes	Y	1	1.2	14	1	25	1
38	1.2D + 1.0Di +1.0Wi AZI 330	Yes	Y	1	1.2	14	1	26	1
39	(1.2 + 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	1.35	27	1	28	
40	(1.2 + 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	1.35	27	0.866	28	0.5
41	(1.2 + 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	1.35	27	0.5	28	0.866
42	(1.2 + 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	1.35	27		28	1
43	(1.2 + 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	1.35	27	-0.5	28	0.866
44	(1.2 + 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	1.35	27	-0.866	28	0.5
45	(1.2 + 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	1.35	27	-1	28	
46	(1.2 + 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	1.35	27	-0.866	28	-0.5
47	(1.2 + 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	1.35	27	-0.5	28	-0.866
48	(1.2 + 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	1.35	27		28	-1
49	(1.2 + 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	1.35	27	0.5	28	-0.866
50	(1.2 + 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	1.35	27	0.866	28	-0.5
51	(0.9 - 0.2Sds)DL + 1.0E AZI 0	Yes	Y	1	0.75	27	1	28	
52	(0.9 - 0.2Sds)DL + 1.0E AZI 30	Yes	Y	1	0.75	27	0.866	28	0.5
53	(0.9 - 0.2Sds)DL + 1.0E AZI 60	Yes	Y	1	0.75	27	0.5	28	0.866
54	(0.9 - 0.2Sds)DL + 1.0E AZI 90	Yes	Y	1	0.75	27		28	1
55	(0.9 - 0.2Sds)DL + 1.0E AZI 120	Yes	Y	1	0.75	27	-0.5	28	0.866
56	(0.9 - 0.2Sds)DL + 1.0E AZI 150	Yes	Y	1	0.75	27	-0.866	28	0.5
57	(0.9 - 0.2Sds)DL + 1.0E AZI 180	Yes	Y	1	0.75	27	-1	28	
58	(0.9 - 0.2Sds)DL + 1.0E AZI 210	Yes	Y	1	0.75	27	-0.866	28	-0.5
59	(0.9 - 0.2Sds)DL + 1.0E AZI 240	Yes	Y	1	0.75	27	-0.5	28	-0.866
60	(0.9 - 0.2Sds)DL + 1.0E AZI 270	Yes	Y	1	0.75	27		28	-1
61	(0.9 - 0.2Sds)DL + 1.0E AZI 300	Yes	Y	1	0.75	27	0.5	28	-0.866
62	(0.9 - 0.2Sds)DL + 1.0E AZI 330	Yes	Y	1	0.75	27	0.866	28	-0.5
63	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 0	Yes	Y	1	1	2	0.082	29	1.5
64	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 30	Yes	Y	1	1	3	0.082	29	1.5
65	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 60	Yes	Y	1	1	4	0.082	29	1.5
66	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 90	Yes	Y	1	1	5	0.082	29	1.5
67	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 120	Yes	Y	1	1	6	0.082	29	1.5
68	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 150	Yes	Y	1	1	7	0.082	29	1.5
69	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 180	Yes	Y	1	1	8	0.082	29	1.5
70	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 210	Yes	Y	1	1	9	0.082	29	1.5
71	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 240	Yes	Y	1	1	10	0.082	29	1.5
72	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 270	Yes	Y	1	1	11	0.082	29	1.5
73	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 300	Yes	Y	1	1	12	0.082	29	1.5
74	1.0DL + 1.5LL + 1.0SWL (30 mph) AZI 330	Yes	Y	1	1	13	0.082	29	1.5

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-in]	LC	MY [lb-in]	LC	MZ [lb-in]	LC
1	N7	max	2.68	14	2.626	27	63.754	24	0	74	95.631	16	4.076	33
2		min	-2.68	8	1.302	59	-63.754	16	0	1	-95.631	24	1.673	14
3	N8	max	57.119	2	110.172	1	102.725	16	0	74	154.088	24	820.076	2
4		min	-57.119	20	59.021	53	-102.725	24	0	1	-154.088	16	-572.189	20
5	N9	max	70.471	14	136.543	1	35.553	6	0	74	53.329	12	1032.8	8
6		min	-70.471	8	73.148	59	-35.553	10	0	1	-53.329	4	-725.579	14
7	N10	max	53.25	2	89.527	1	50.541	17	0	74	75.812	23	794.871	2
8		min	-53.25	20	47.961	53	-50.541	23	0	1	-75.812	17	-593.557	20

Envelope Node Reactions (Continued)

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-in]	LC	MY [lb-in]	LC	MZ [lb-in]	LC
9	N21	max	150.619	24	275.392	11	264.312	5	0	74	541.296	6	112.995	24
10		min	-727.865	6	-130.764	17	-241.385	23	0	1	-110.106	24	-535.058	6
11	N22	max	150.619	16	275.392	5	241.385	17	0	74	110.106	16	112.995	16
12		min	-727.865	10	-130.764	23	-264.312	11	0	1	-541.296	10	-535.058	10
13	N23	max	685.289	10	291.563	11	140.629	23	0	74	78.174	16	81.063	16
14		min	-108.042	16	-146.935	17	-163.556	5	0	1	-509.364	10	-503.126	10
15	N24	max	685.289	6	291.563	5	163.556	11	0	74	509.364	6	81.063	24
16		min	-108.042	24	-146.935	23	-140.629	17	0	1	-78.174	24	-503.126	6
17	N39	max	89.314	14	47.299	33	43.111	6	0	74	64.667	12	181.592	2
18		min	-89.314	8	21.814	61	-43.111	10	0	1	-64.667	4	-89.973	20
19	N40	max	87.136	2	60.43	27	50.233	18	0	74	75.35	24	198.719	8
20		min	-87.136	20	28.322	55	-50.233	22	0	1	-75.35	16	-79.767	14
21	N41	max	3.905	54	15.758	27	188.7	24	0	74	283.05	18	60.132	48
22		min	-3.905	48	7.809	58	-188.7	16	0	1	-283.05	22	-27.333	54
23	N42	max	187.17	2	107.729	33	289.396	16	0	74	434.094	24	2004.814	2
24		min	-187.17	20	50.136	52	-289.396	24	0	1	-434.094	16	-1794.503	20
25	Totals:	max	653.805	2	932.948	32	495.992	17						
26		min	-653.805	20	495.727	51	-495.992	23						

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	N1					
2	N2					
3	N3					
4	N4					
5	N5					
6	N6					
7	N7	Reaction	Reaction	Reaction	Reaction	Reaction
8	N8	Reaction	Reaction	Reaction	Reaction	Reaction
9	N9	Reaction	Reaction	Reaction	Reaction	Reaction
10	N10	Reaction	Reaction	Reaction	Reaction	Reaction
11	N11					
12	N12					
13	N13					
14	N14					
15	N15					
16	N16					
17	N17					
18	N18					
19	N19					
20	N20					
21	N21	Reaction	Reaction	Reaction	Reaction	Reaction
22	N22	Reaction	Reaction	Reaction	Reaction	Reaction
23	N23	Reaction	Reaction	Reaction	Reaction	Reaction
24	N24	Reaction	Reaction	Reaction	Reaction	Reaction
25	N25					
26	N26					
27	N27					
28	N28					
29	N29					
30	N30					
31	N31					
32	N32					
33	N33					
34	N34					

Node Boundary Conditions (Continued)

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
35	N35					
36	N36					
37	N37					
38	N38					
39	N39	Reaction	Reaction	Reaction	Reaction	Reaction
40	N40	Reaction	Reaction	Reaction	Reaction	Reaction
41	N41	Reaction	Reaction	Reaction	Reaction	Reaction
42	N42	Reaction	Reaction	Reaction	Reaction	Reaction

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-in]	phi*Mn z-z [lb-in]	Cb	Eqn
1	M6	PIPE_2.0	0.207	7.312	5	0.073	6.75		10	25203.832	32130	22459.5	22459.5	3	H1-1b
2	M10	6"x0.5"	0.134	4	10	0.021	4	z	10	82685.728	97200	12150	145800	1.333	H1-1b
3	M15	PIPE_2.0	0.083	38.75	8	0.019	45		24	9836.597	32130	22459.5	22459.5	3	H1-1b
4	M1	PIPE_2.0	0.044	45	2	0.007	58.75		2	9836.597	32130	22459.5	22459.5	2.665	H1-1b
5	M7	HSS4X4X4	0.033	0	10	0.038	0	y	11	139258.732	139518	194166	194166	1.257	H1-1b

APPENDIX B: ADDITIONAL CALCULATIONS

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BOLT CONNECTION CALCULATION

BOLT PROPERTIES

Date:	4/12/2022
Site:	*JACKSON FAIR GROUNDS*
Engineer:	*DVA*
Project No:	*694353*
Description:	*RRU Pipe to Connection Plate*

Bolt Capacity Equation	TIA-222-H	
Connection Type	Steel	
Bolt Size, **d**	5/8	in
Threads per Inch, **n**	11	
Steel Grade	A325	
Bolt Ultimate Tensile Stress, F_u	120	ksi
Threads Exclusion	N	
Shear Plane	1	

Net Bolt Cross-Sectional Area, **An**	0.226	in^2
Gross Bolt Cross-Sectional Area, **Ag**	0.307	in^2
Tensile Steel Strength (per bolt), φR_{nt}	20340	lbs
Shear Steel Strength (per bolt), φR_{nv}	13806	lbs

BOLT CONNECTION CALCULATION

BOLT GROUP CHECK

Date:	*4/12/2022*
Site:	*JACKSON FAIR GROUNDS*
Engineer:	*DVA*
Project No:	*694353*
Description:	*RRU Pipe to Connection Plate*

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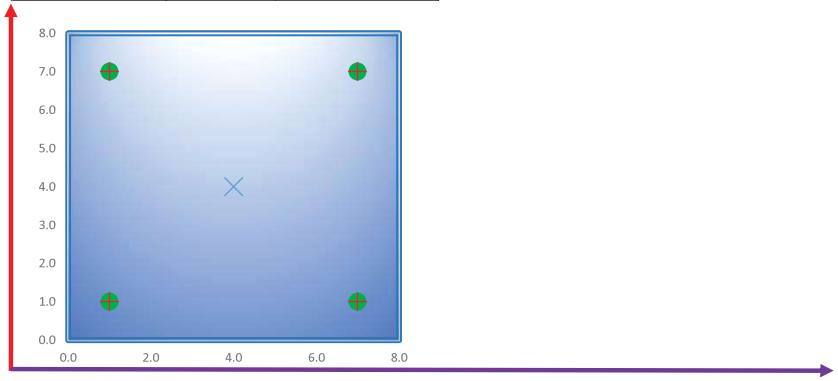
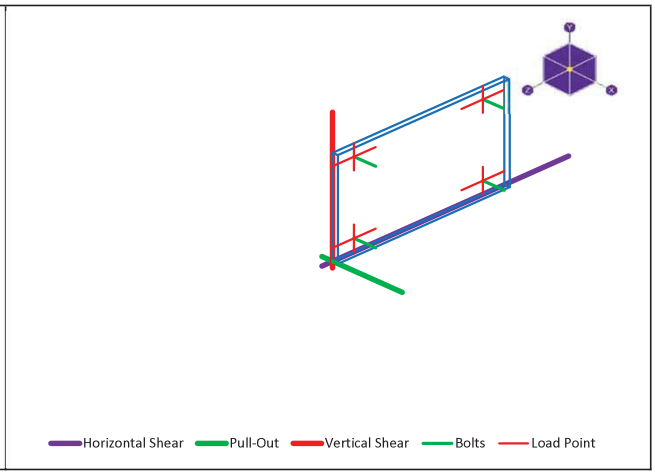
	X	Y
Start Coordinates:	0.00	0.00
Dimensions:	8.00	8.00





	Risa LC:	***5***							
	Coordinates, (in.)			***Loads (lbs, lb-in)***					
No.	***Load Point Label***	***X***	***Y***	***Z***	***Shear, Px***	***Shear, Py***	***Axial, Pz***	***Moment, Mx***	***Moment, My***	***Moment, Mz***
1	N23	1.00	1.00	0.00	-164.36	125.85	-128.26	-91.05	100.30	0.00
2	N21	1.00	7.00	0.00	265.22	109.30	532.33	-393.46	-394.11	0.00
3	N24	7.00	1.00	0.00	-138.74	-291.14	-531.99	-393.72	-392.25	0.00
4	N22	7.00	7.00	0.00	239.39	-273.95	127.92	-91.36	98.43	0.00

	Bolts Q-ty:	***4***							
	Bolt Coordinates (in.)		***Bolt Loads (lbs)***		***Bolt Usage (%)***				
No.	***Bolt Type***	***X***	***Y***	***Axial***	***Shear***	***Tensile Usage***	***Shear Usage***	***Combined Usage***	***Controlling Usage***	***Max. Usage***
1	Main Type	1.00	1.00	-96.26	378.87	0.0%	2.7%	2.7%	Steel Shear	2.74%
2	Main Type	1.00	7.00	402.39	321.00	2.0%	2.3%	2.3%	Steel Shear	2.33%
3	Main Type	7.00	1.00	-402.39	277.90	0.0%	2.0%	2.0%	Steel Shear	2.01%
4	Main Type	7.00	7.00	96.26	191.65	0.5%	1.4%	1.4%	Steel Shear	1.39%

Total Capacity of Bolt Group: 2.7%

U-Bolt Connection	No

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BOLT CONNECTION CALCULATION

BOLT PROPERTIES

Date:	4/12/2022
Site:	*JACKSON FAIR GROUNDS*
Engineer:	*DVA*
Project No:	*694353*
Description:	*U-bolts*

Bolt Capacity Equation	TIA-222-H	
Connection Type	Steel	
U-Bolt	Yes	
Bolt Size, **d**	1/2	in
Threads per Inch, **n**	13	
Steel Grade	SAE J429 Gr.2	
Bolt Ultimate Tensile Stress, F_u	74	ksi
Threads Exclusion	N	
Shear Plane	1	

Net Bolt Cross-Sectional Area, **An**	0.142	in^2
Gross Bolt Cross-Sectional Area, **Ag**	0.196	in^2
Tensile Steel Strength (per bolt), φR_{nt}	7875	lbs
Shear Steel Strength (per bolt), φR_{nv}	5449	lbs

BOLT CONNECTION CALCULATION

BOLT GROUP CHECK

Date:	*4/12/2022*
Site:	*JACKSON FAIR GROUNDS*
Engineer:	*DVA*
Project No:	*694353*
Description:	*U-bolts*

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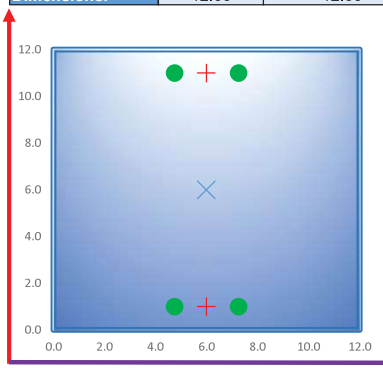
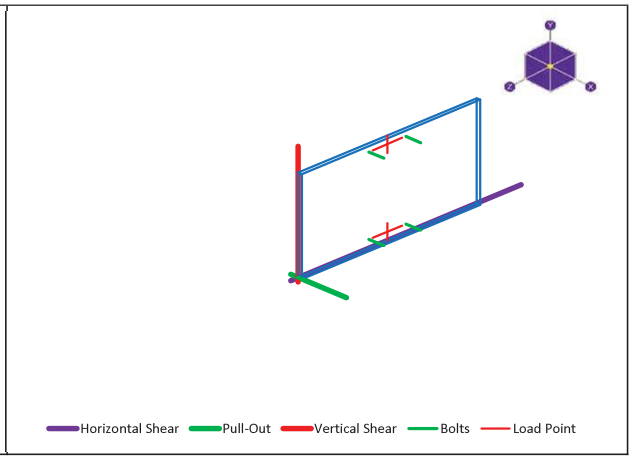
	X	Y
Start Coordinates:	0.00	0.00
Dimensions:	12.00	12.00





		Risa LC:	18							
		Coordinates, (in.)			Loads (lbs, lb-in)					
No.	***Load Point Label***	***X***	***Y***	***Z***	***Shear, Px***	***Shear, Py***	***Axial, Pz***	***Moment, Mx***	***Moment, My***	***Moment, Mz***
1	N42	6.00	1.00	0.00	289.40	-60.16	58.70	-538.27	434.09	0.00
2	N41	6.00	11.00		-188.70	-9.37	0.00	14.06	-283.05	0.00

		Bolts Q-ty:	4							
		Bolt Coordinates (in.)		Bolt Loads (lbs)		Bolt Usage (%)				
No.	***Bolt Type***	***X***	***Y***	***Axial***	***Shear***	***Tensile Usage***	***Shear Usage***	***Combined Usage***	***Controlling Usage***	***Max. Usage***
1	Main Type	7.25	1.00	25.35	98.47	0.3%	1.8%	1.8%	Steel Shear	1.81%
2	Main Type	7.25	11.00	-56.42	144.99	0.0%	2.7%	2.7%	Steel Shear	2.66%
3	Main Type	4.75	1.00	85.77	87.98	1.1%	1.6%	1.6%	Steel Shear	1.61%
4	Main Type	4.75	11.00	4.00	138.09	0.1%	2.5%	2.5%	Steel Shear	2.53%

Total Capacity of Bolt Group: 2.7%

U-Bolt Connection	Yes
Sliding Axis	Y
Connections Q-ty	2

No.	***Load Point Label***	***No. U-Bolts***	***Bolt Diameter***	***Steel Grade***	***Pipe Diameter***	***Sliding Force***	***Torsional Moment***	***Sliding Usage***	***Torsional Usage***	***Combined***
1	N41	1	0.5	SAE J429 Gr.2	2.375	9.37	-283.05	0.4%	10.1%	10.1%
2	N42	1	0.5	SAE J429 Gr.2	2.375	60.16	434.09	2.6%	15.6%	15.6%

Total Capacity of U-Bolt Connection: 15.6%