

Fremont County

APR 28 2025

Planning & Zoning

303.859.0344

chris@strykersiteservices.com

strykersiteservices.com

PO Box 1558 | Denver, CO. 80201



April 24, 2025

Fremont County
615 Macon Ave., Rm. 210
Canon City, CO. 81212

RE: Proposed T-Mobile Installation (DN04750A)

To Whom It may Concern,

T-Mobile is proposing to Co-Locate Telecommunication equipment on an existing Tower Facility located at 1415 North St., Penrose, CO. The installation will consist of installing up to twelve (12) panel antennas, two (2) mw dishes as well as the required radio/electrical equipment and backup generator near the base of the tower. If you have any questions or require additional information, please do not hesitate to call.

Thank you,

Chris C. Stryker

Chris C. Stryker
Manager, Stryker Site Services, LLC
Contractor for T-Mobile
(303) 859-0344 (voice)





FREMONT COUNTY
COLLOCATION OF ANTENNA ON AN EXISTING TOWER
APPLICATION

1. Name and Number of Existing SRU Permit 09-002
2. Tower Owner
 Name: AT&T Mobility Address: 16331 NE 72nd Way
 City: Redmond State: WA Zip Code: 98052
 Telephone #: 470.413.6770 Facsimile # _____
 Name of Contact: Alison Skipper Email Address: as317b@att.com
3. The Applicant Applying for Collocation is:
 Name: T-Mobile West LLC Address: 18400 E. 22nd Ave.
 City: Aurora State: CO Zip Code: 80011
 Telephone #: 303.332-1212 Facsimile # _____
 Name of Contact: Mike McCreedy Email Address: michael.mcCreedy1@t-mobile.com
4. Property Owner: Kenneth and Rochelle Miller Address: 1001 CR 106
 City: Wetmore State: CO Zip Code: 81253
 Telephone #: _____ Facsimile #: _____
 Name of Contact: _____ Email Address: _____
5. Consultant: Stryker Site Services Address: PO Box 1558
 City: Denver State: CO Zip Code: 80201
 Telephone #: 303.859.0344 Facsimile # _____
 Name of Contact: Chris Stryker Email Address: chris@strykersiteservices.com

Please read prior to completion of this application

An application for Special Review Use Permit, instead of a Collocation Application, will be required for the following:

1. An increase in the height of the existing tower;
2. The relocation of an existing tower;
3. The placement of an additional tower on the existing tower site;
4. An attachment of an antenna on an existing non-commercial tower, which is less than one-hundred (100) feet in height.

Any application which is not complete or does not include all minimum submittal requirements will not be accepted by the Fremont County Department of Planning and Zoning (Department).

The applicant shall provide one (1) original document of the application and all of its attachments (*copies of deeds, contracts, leases etcetera are acceptable*) at the time of application submittal. After submittal, the Department will review the application and all attachments and prepare a Department Submittal Deficiency and Comment Letter (D & C Letter), which will list the deficiencies, comments and questions

about the application, which must be addressed by the applicant. The applicant shall provide one (1) original document of all requirements of the D & C letter to the Department.

Attachments can be made to this application to provide expanded narrative for any application item including supportive documentation or evidence for provided application item answers. Please indicate at the application item that there is an attachment and label it as an exhibit with the application item number, a period and the number of the attachment for that item (*as an example, the first attached document providing evidence in support of the answer given at application item number 22 would be marked - Exhibit 22.1, the fifth attached document supporting the narrative provided for application item 22 would be marked - Exhibit 22.5*). **Please label all exhibits in the lower right-hand corner of the page.**

An additional review fee of two-hundred fifty dollars (\$250.00) will be charged to the applicant, if all deficiencies as per the initial D & C Letter are not adequately addressed or provided. Each subsequent D & C Letter, based on resubmitted items, will result in another two-hundred fifty dollar (\$250.00) review fee. All such fees shall be paid along with the deficiency submittal, prior to any further review of the application.

If the application is approved by the Department, with contingencies and the contingencies are not submitted or addressed within six (6) months after approval, an additional fee of one-hundred fifty dollars (\$150.00) will be charged to the applicant for a request for an extension of time to submit the contingencies. All such fees shall be paid along with a written request, explaining the need for extension.

The Department may require additional information at any time during the application process as may be deemed necessary in determining if the application is in compliance with all applicable regulations and to make an informed decision with regard to recommendations, approval or disapproval of the application.

6. The legal description and/or address of the existing site is: 1415 N. Street

7. The type of construction of the existing tower is: Collocation on Existing Monopole Tower
8. The total height of the existing tower (*with antenna*) is 100' feet.
9. What will be the total height of the tower (*with antenna(s)*) after collocation? 100' feet.
10. The existing tower currently has Six (6) Panel Antennas antennas.
11. After the proposed collocation the tower would house Twelve (12) Panel Antennas antennas.
12. Please provide documentation from a Licensed Professional Engineer demonstrating that the tower is capable of accommodating the proposed number of antennas. (*Mark as EXHIBIT 13.1*)
13. The existing site contains One (1) Shelter accessory structures.
14. Will the proposed collocation require additional accessory structures? Yes --- No If yes, please provide how many, the sizes, the heights, the location and the reason such additional structures are necessary (*a new site plan may be required*): T-Mobile is proposing to install a 10' x 12' elevated platform for one (1) SSC Cabinet and one (1) Battery Back-up Cabinet. The back-up generator will be located adjacent to the elevated platform on a 9' x 4' concrete slab

15. If a design plan addressing materials, colors, textures, screening and landscaping in the design of the tower or antenna was required with the issuance of the original permit, will it be adequate for the proposed collocation? Yes --- No If no, it may be required to comply with the original design plan.

16. The existing site contains 2-4 spaces off-street parking spaces.

17. Will the proposed collocation require additional off-street parking spaces? Yes --- No If yes, please provide how many additional spaces will be necessary: _____ off-street parking spaces.

18. Was surfacing, lighting and or landscaping of driveways and parking areas required with issuance of the original permit? Yes --- No If no, was it waived by the Board? Yes --- No

19. Will the surfacing, lighting and or landscaping of driveways and parking areas required with issuance of the original permit be adequate for the proposed collocation? Yes --- No Please explain: _____

20. Will the existing access to the site be adequate for the proposed collocation? Yes --- No
If No, what is the proposed access for the proposed collocation? _____

21. Was a stormwater drainage plan required and approved with the issuance of the original permit?
 Yes --- No If yes, will the stormwater drainage plan required and approved with the issuance of the original permit be adequate with the addition of the accessory structures (if any)?
 Yes --- No Please explain: _____

22. Please explain how the existing tower and additional uses meet the minimum requirements of the Federal Aviation Administration. The proposed T-Mobile installation will not increase the existing height.

23. If the existing permit holder is not the site property owner, does the agreement, lease, or the like between the site property owner and the existing permit holder allow the collocation?
 Yes --- No Please show (highlight) in the agreement, lease or the like that grants the permission to collocate.

24. Please attach a copy of a lease or agreement between the permit holder and the collocation applicant as to right to use of the tower by the collocation applicant, marked as Exhibit 25.1.

25. A submittal fee of \$250.00 must accompany this application (Check # _____ cash)

Collocation Applicant's Endorsement:

By signing this Application, the Applicant, or the agent/representative acting with due authorization on behalf of the Applicant, hereby certifies that all information contained in the application and any attachments to the Application, is true and correct to the best of Applicant's knowledge and belief.

Fremont County hereby advises Applicant that if any material information contained herein is determined to be misleading, inaccurate or false, the Board of Commissioners may take any and all reasonable and appropriate steps to declare actions of the Board regarding the Application to be null and void.

Further the applicant understands that if collocation is approved the applicant must comply with the conditions of the original permit, as issued or as may be amended, and applicable regulations of the Fremont County Zoning Resolution.

Signing this Application is a declaration by the Applicant to conform to all plans, drawings, and commitments submitted with or contained within this Application, provided that the same is in conformance with the Fremont County Zoning Resolution.

Chris C. Stryker

Applicant Printed Name

Contractor for T-Mobile

Applicant Title & Company Name

Chris C. Stryker

Applicant Signature

04/24/25

Date

Existing Permit Holder's Endorsement:

By signing this Application, the Permit Holder, or the agent/representative acting with due authorization on behalf of the Permit Holder, hereby certifies that all information contained in the application and any attachments to the Application, is true and correct to the best of Permit Holder's knowledge and belief.

Fremont County hereby advises Permit Holder that if any material information contained herein is determined to be misleading, inaccurate or false, the Board of Commissioners may take any and all reasonable and appropriate steps to declare actions of the Board regarding the Application to be null and void.

Further the existing permit holder understands that if collocation is approved the applicant and existing permit holder must comply with the conditions of the original permit, as issued or as may be amended, and applicable regulations of the Fremont County Zoning Resolution.

Signing this Application is a declaration by the Permit Holder to conform to all plans, drawings, and commitments submitted with or contained within this Application, provided that the same is in conformance with the Fremont County Zoning Resolution.

THIS SIGNATURE ALSO SERVES AS THE EXISTING PERMIT HOLDERS APPROVAL FOR COLLOCATION.

Doyle Delap

Permit Holder Printed Name

Sr. Client Services Project/Program Management

Permit Holder Title & Company Name

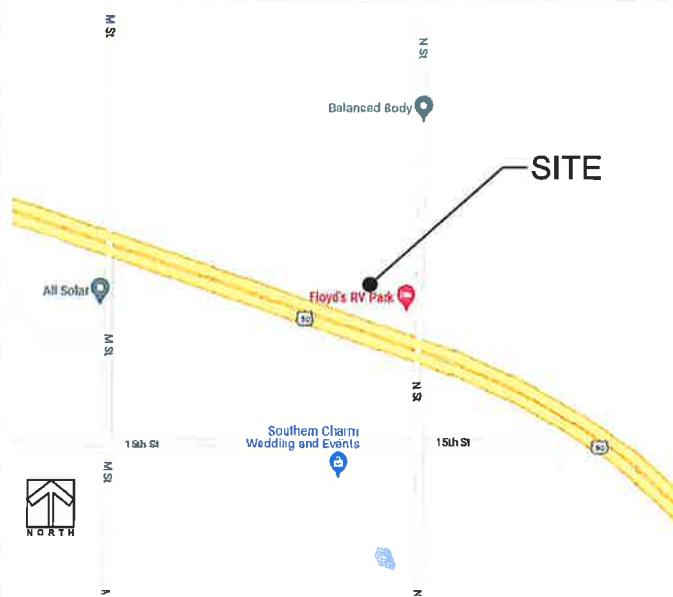
Doyle Delap

Permit Holder Signature

27 April 2023

Date

LOCATION MAP



DIRECTIONS FROM I25 AND I70 (DENVER):
 DEPART DENVER ON I-25 SOUTH. TAKE EXIT 140 & TURN RIGHT ON HWY 115. IN THE TOWN OF PENROSE, TURN LEFT ON BROADWAY. TURN RIGHT ON FREMONT AVENUE. TURN LEFT ONTO HWY 50. TURN LEFT ON NORTH STREET AND FOLLOW TO SITE ON THE LEFT.



COVERAGE STRATEGY_REGIONAL COVERAGE

AT&T PENROSE

DN04750A

1415 NORTH STREET
 PENROSE, CO 81240
 FREMONT COUNTY

SITE PHOTO





PROJECT INFORMATION:
 SITE NAME:
 AT&T PENROSE
 SITE ID:
 DN04750A
 1415 NORTH STREET
 PENROSE, CO 81240
 FREMONT COUNTY

Rev:	Date:	Description:	By:
A	07.29.24	PRELIM CONST	KS
0	08.08.24	FINAL STAMPED	KS
1	09.25.24	REV CD	KS

SITE INFORMATION

COORDINATES: 38° 24' 18.73", - 104° 59' 19.95"
 (FROM SURVEY)

PARCEL #: 98804307

A.D.A. COMPLIANCE: NOT REQUIRED PER IBC 1103.2.9.

RFDS DATE: 05.24.2024

FIBER PROVIDER: PENDING

POWER PROVIDER: BLACK HILLS ENERGY

PROJECT TEAM

APPLICANT:
 NAME: T-MOBILE
 ADDRESS: 18400 EAST 22ND AVENUE
 CITY, STATE ZIP: AURORA, CO 80011

A&E FIRM / ENGINEER OF RECORD:
 NAME: TELEMtn ENGINEERING
 ADDRESS: PO BOX 1453
 CITY, STATE ZIP: SALIDA, CO 81201
 CONTACT: CHRISTOPHER SCOTT, PE
 PHONE: 303.596.6804
 EMAIL: KSCOTT@TELEMtn.COM

TOWER OWNER:
 NAME: AT&T MOBILITY A/R
 ADDRESS: 16331 NE 72ND WAY
 CITY, STATE ZIP: REDMOND, WA 98052
 CONTACT: ALISON SKIPPER
 PHONE: 470.413.6770

SITE ACQUISITION:
 NAME: STRYKER SITE SERVICES, LLC
 ADDRESS: P.O. BOX 1558
 CITY, STATE ZIP: DENVER, CO 80201
 CONTACT: CHRIS STRYKER
 PHONE: 303.859.0344
 EMAIL: CHRIS@STRYKERSITESERVICES.COM

LANDLORD:
 NAME: KENNETH MILLER
 ADDRESS: 1001 COUNTY ROAD 106
 CITY, STATE ZIP: WETMORE, CO 81253

INDEX OF SHEETS

- T1 TITLE SHEET
- LS1 SURVEY
- A1.0 SITE PLAN
- A1.1 ENLARGED SITE PLAN
- A1.2 SAFETY PLAN
- A2 NEW EQUIPMENT AND ANTENNA LAYOUTS
- A3 NEW ELEVATION
- RF1-RF4 RF DETAILS
- D1-D3 EQUIPMENT DETAILS
- D3-D5 GENERATOR DETAILS
- S1-S2 STRUCTURAL DETAILS
- E1-E3 ELECTRICAL DETAILS
- G1-G3 GROUNDING DETAILS
- GN1 GENERAL NOTES

PROJECT DESCRIPTION

CONSTRUCTION OF A T-MOBILE "NON-INHABITABLE" TELECOMMUNICATIONS SITE CONSISTING OF INSTALLING A NEW PLATFORM WITH NEW EQUIPMENT CABINETS, NEW DIESEL GENERATOR WITH CONCRETE SLAB, NEW ANTENNAS AND EQUIPMENT ON THE TOWER AND A NEW POWER SERVICE AT EXISTING FENCED EQUIPMENT COMPOUND WITHIN AN EXISTING LEASE AREA.

EQUIPMENT LIST:

GROUND EQUIPMENT:
 (2) EQUIPMENT CABINETS
 (12) SYSTEM MODULES
 (1) STEEL EQUIPMENT PLATFORM
 (1) ELECTRICAL POWER SERVICE
 (1) GROUNDING SYSTEM

TOWER EQUIPMENT:
 (3) ANTENNA FRAMES
 (3) FFV-65C-R3 PANEL ANTENNAS
 (3) AHLOB RRUS
 (3) AHFII RRUS
 (2) HCS 6/24 HYBRID CABLES

CODE COMPLIANCE

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



Know what's below.
 Call before you dig.

REFERENCE DOCUMENTS

PROPRIETARY NOTES

- INFORMATION CONTAINED IN THIS SET OF DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO THIS PROJECT IS STRICTLY PROHIBITED.
- CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS AND CONDITIONS ON SITE AND SHALL IMMEDIATELY NOTIFY THE DESIGNER / ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
- DRAWING SCALES SHOWN ARE ACCURATE WHEN PLOTTED ON 11"X17" SHEET. FOR 24"X36" SHEETS USE APPROPRIATE SCALE FACTOR 2X THAT OF SCALE SHOWN. DIMENSIONS SHOWN TAKE PRECEDENCE.

PLANS PREPARED BY:



PO BOX 1453
 SALIDA, CO 81201

LICENSURE NO:

DRAWN BY: CHK BY: APV BY:

MC	CS	KS
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Sheet Title:

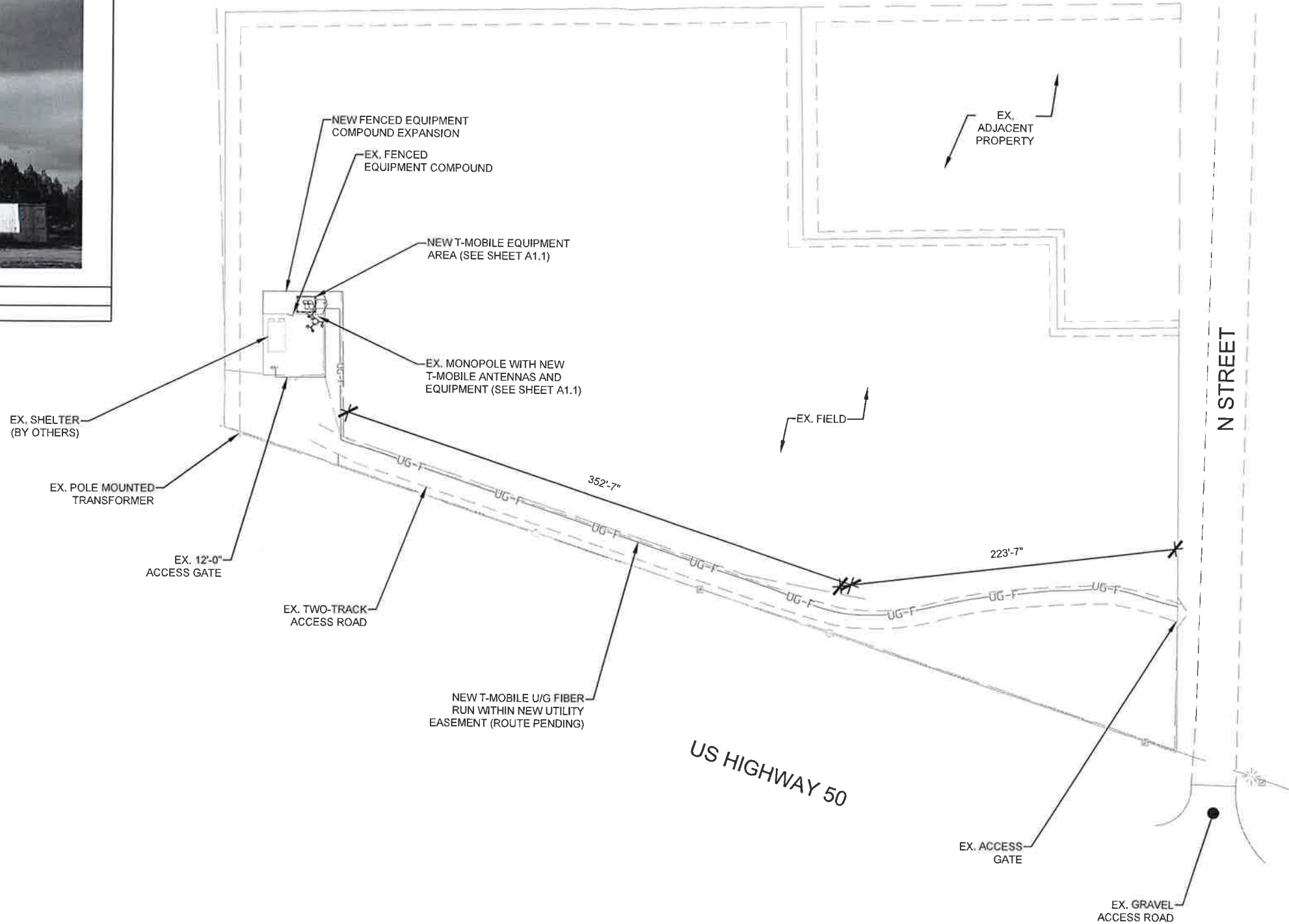
TITLE SHEET

Sheet Number:

T1



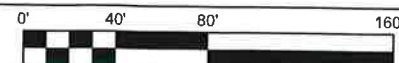
1 LEASE AREA PHOTO
SCALE: N.T.S.



2 SITE PLAN
SCALE: 1" = 80'-0"

SCALE: 1" = 80'-0" (11X17)

SCALE: 1" = 40'-0" (24X36)



T-Mobile



PROJECT INFORMATION:

SITE NAME:
AT&T PENROSE
SITE ID:
DN04750A

1415 NORTH STREET
PENROSE, CO 81240
FREMONT COUNTY

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PLANS PREPARED BY:



LICENSURE NO:

DRAWN BY:	CHK BY:	APV BY:
MC	CS	KS

Sheet Title:

SITE PLAN

Sheet Number:

A1

T-Mobile



PROJECT INFORMATION:

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PLANS PREPARED BY:



LICENSURE NO:

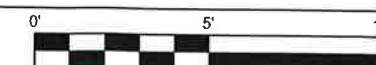
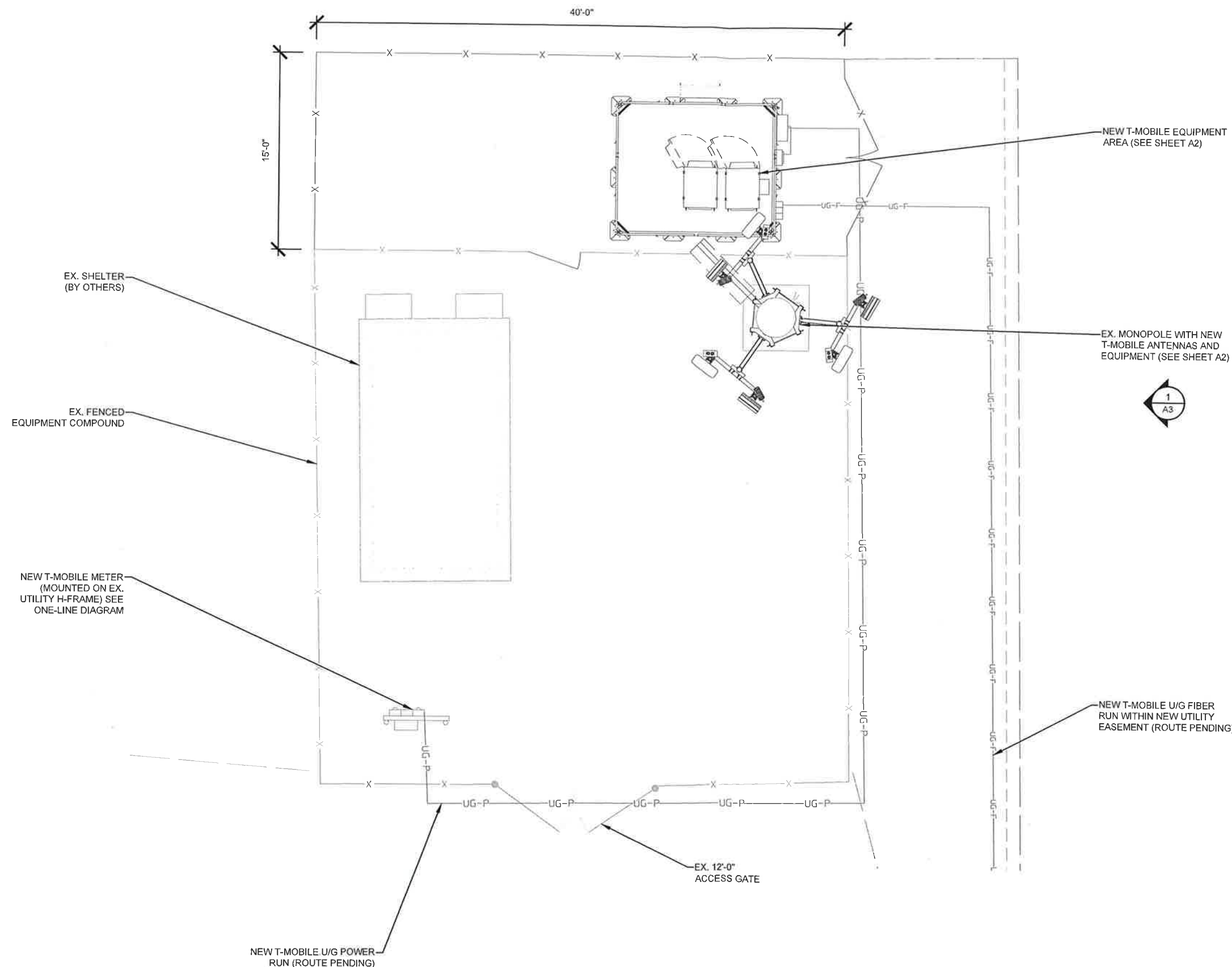
DRAWN BY:	CHK BY:	APV BY:
MC	CS	KS

Sheet Title:

**ENLARGED
SITE
PLAN**

Sheet Number:

A1.1





PROJECT INFORMATION:

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SITE ID:
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PLANS PREPARED BY:



PO BOX 1453
SALIDA, CO 81201

LICENSURE NO:

DRAWN BY:	CHK BY:	APV BY:
MC	CS	KS

Sheet Title:

SAFETY PLAN

Sheet Number:

A1.2

OSHA SAFETY NOTE

1. THIS SITE MEETS OSHA COMPLIANCE FOR FIELD OPERATIONS TO ACCESS GROUND EQUIPMENT.
2. THE TOWER WITH ANTENNAS AND RRUS IS ACCESSIBLE TO TOWER CREWS ONLY.

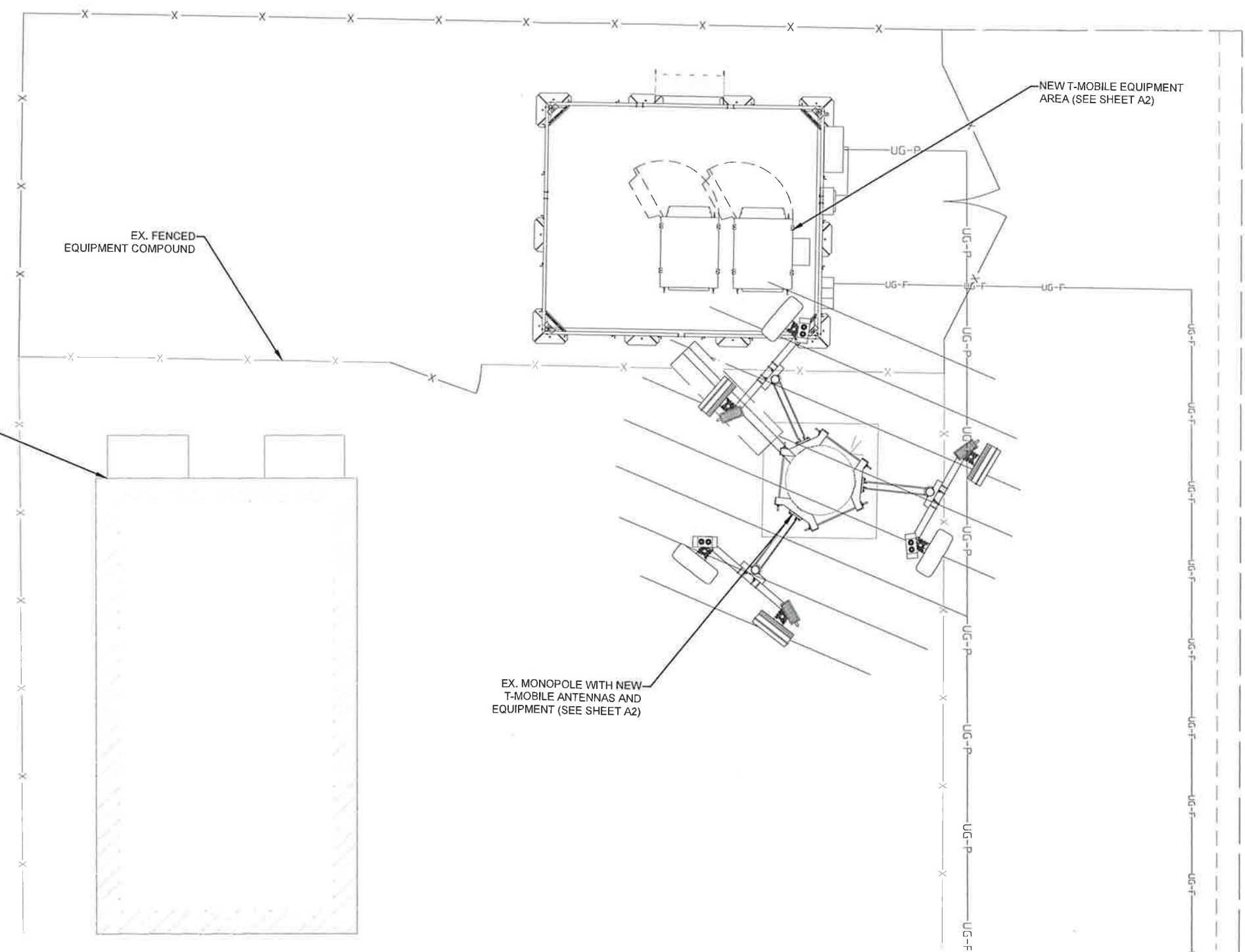
OSHA LEGEND

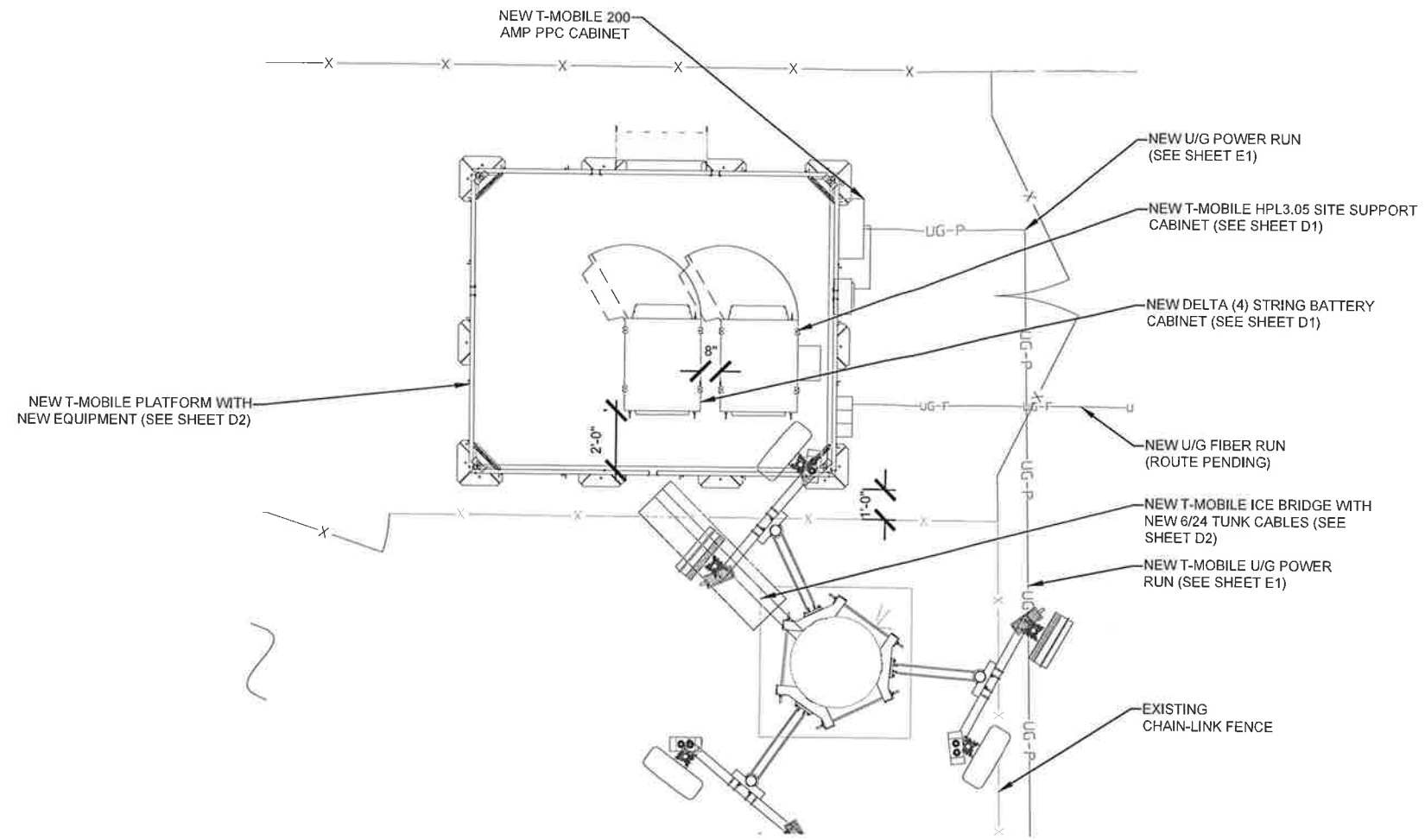
15' WORK AREA FALL ZONE

6' FALL ZONE & INACCESSIBLE AREAS

3' SAFETY PATH TO EQUIPMENT

PROPOSED OSHA SAFETY HANDRAIL





SEE SHEET RF2 FOR EQUIPMENT CONFIGURATION

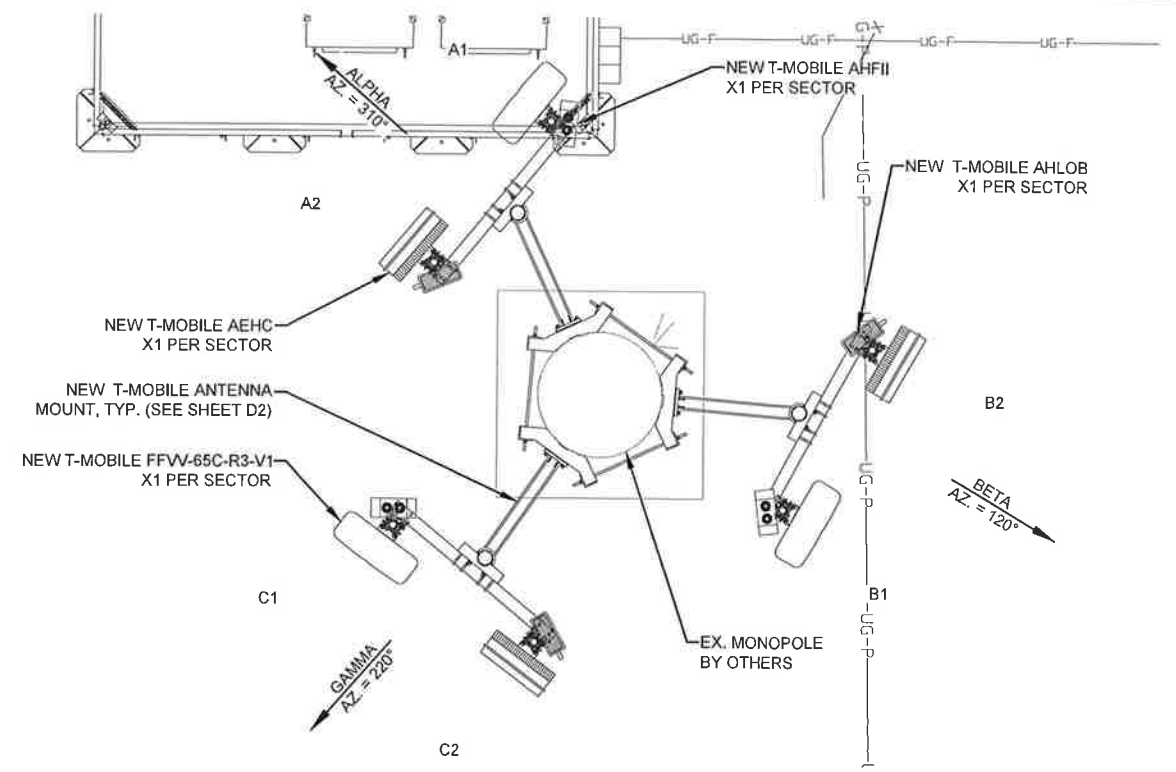
NORTH

1 NEW EQUIPMENT PLAN

SCALE: 1/8" = 1'-0" (11X17)

SCALE: 1/4" = 1'-0" (24X36)

0' 4' 8' 16'



SEE SHEET RF2 FOR ANTENNA CONFIGURATION

NORTH

2 NEW ANTENNA LAYOUT

SCALE: 1/4" = 1'-0" (11X17)

SCALE: 1/2" = 1'-0" (24X36)

0' 2' 4' 8'

NEW T-MOBILE ANTENNA MOUNTS PENDING MOUNT STRUCTURAL ANALYSIS REPORT

T-Mobile

STRYKER
SITE SERVICES, LLC

PROJECT INFORMATION:

SITE NAME:
AT&T PENROSE

SITE ID:
DN04750A

1415 NORTH STREET
PENROSE, CO 81240
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PLANS PREPARED BY:

TeleMtn
ENGINEERING

PO BOX 1453
SALIDA, CO 81201

LICENSURE NO:

DRAWN BY:	CHK BY:	APV BY:
MC	CS	KS

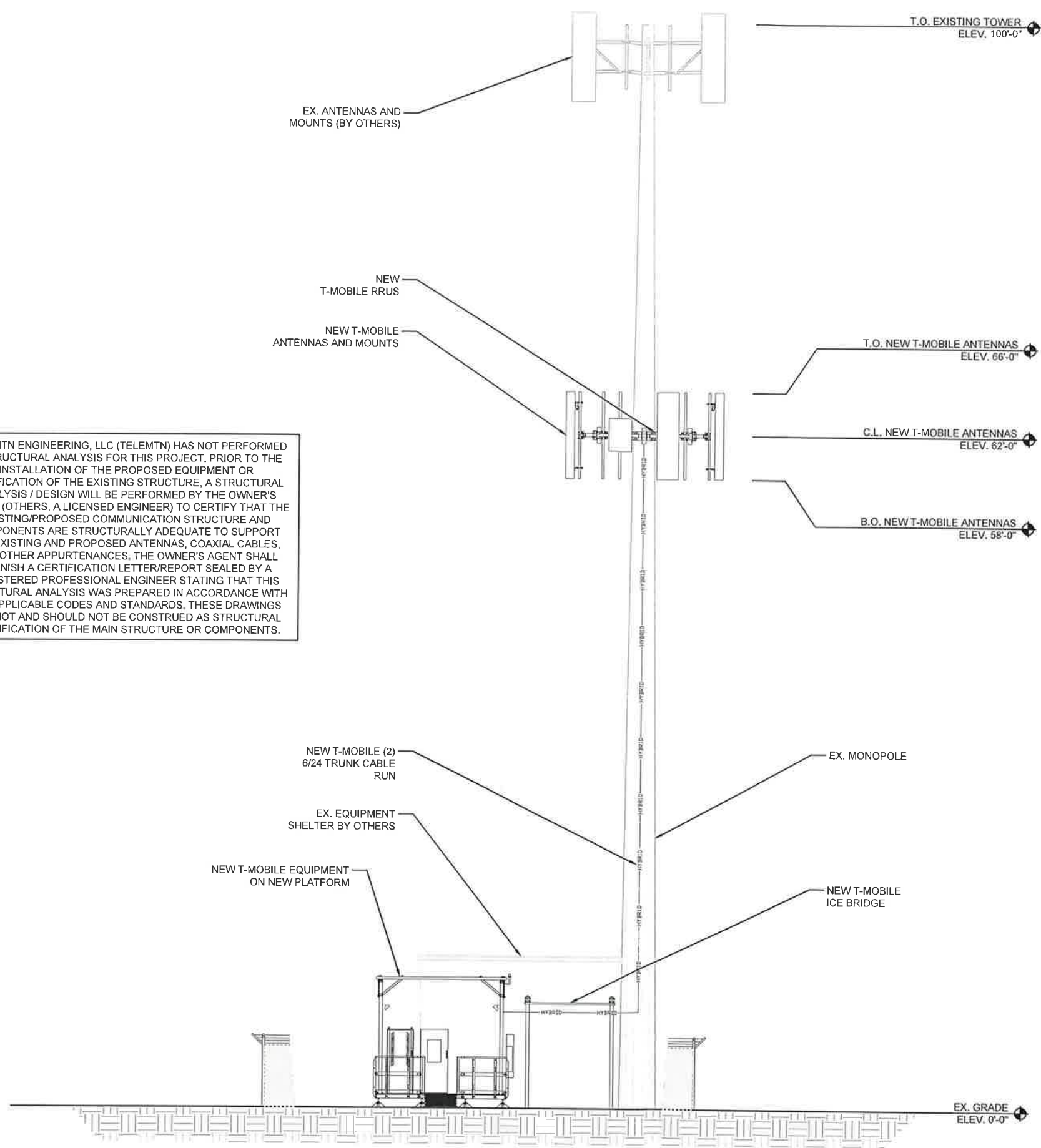
Sheet Title:

EQUIPMENT DETAILS

Sheet Number:

A2

TELEMTN ENGINEERING, LLC (TELEMTN) HAS NOT PERFORMED A STRUCTURAL ANALYSIS FOR THIS PROJECT. PRIOR TO THE INSTALLATION OF THE PROPOSED EQUIPMENT OR MODIFICATION OF THE EXISTING STRUCTURE, A STRUCTURAL ANALYSIS / DESIGN WILL BE PERFORMED BY THE OWNER'S AGENT (OTHERS, A LICENSED ENGINEER) 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. THE OWNER'S AGENT SHALL FURNISH A CERTIFICATION LETTER/REPORT SEALED BY A REGISTERED PROFESSIONAL ENGINEER STATING THAT THIS STRUCTURAL ANALYSIS WAS PREPARED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS. THESE DRAWINGS ARE NOT AND SHOULD NOT BE CONSTRUED AS STRUCTURAL QUALIFICATION OF THE MAIN STRUCTURE OR COMPONENTS.



T-Mobile

STRYKER
SITE SERVICES, LLC

PROJECT INFORMATION:
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 1415 NORTH STREET
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PLANS PREPARED BY:

TeleMtn
ENGINEERING
 PO BOX 1453
 SALIDA, CO 81201

LICENSURE NO:

DRAWN BY:	CHK BY:	APV BY:
MC	CS	KS

Sheet Title:
NEW ELEVATION

Sheet Number:
A3

ANTENNA NOTES:

- ANTENNA CONTRACTOR SHALL INSURE THAT ALL ANTENNA MOUNTING PIPES ARE PLUMB.
- FEEDLINE LENGTHS INDICATED ARE APPROXIMATE.
- ANTENNA COAXIAL FEEDERS & ANTENNA JUMPERS SHALL BE COLOR CODED PER T-MOBILE REQUIREMENTS.
- IN ADDITION TO THE COLOR CODE, THE FOLLOWING ANTENNA SECTOR COLOR STRIPE SHALL BE ADDED TO EACH ANTENNA SECTOR FEEDLINE & JUMPER.
- SEE SHEET A_ FOR DETAILS
 ALPHA - RED STRIPE
 BETA - BLUE STRIPE
 GAMMA - WHITE STRIPE
 DELTA - GREEN STRIPE
 EPSILON - GRAY STRIPE
 ZETA - BROWN STRIPE
 HYBRID - GRAY STRIPE
- MULTI PORT ANTENNAS: TERMINATE UNUSED ANTENNA PORTS WITH CONNECTOR CAP & WEATHERPROOF THOROUGHLY. JUMPERS FROM TMAs MUST TERMINATE TO OPPOSITE POLARIZATIONS IN EACH SECTOR.
- CONTRACTOR MUST FOLLOW ALL MANUFACTURERS' RECOMMENDATIONS REGARDING THE INSTALLATION OF FEEDLINES, CONNECTORS, AND ANTENNAS.
- MINIMUM BEND RADIUS:
 LDF4-50A (1/2" HARD LINE) = 5"
 FSJ4-50B (1/2" SUPER FLEX) = 1 1/4"
 AVA5-50A (7/8" HARD LINE) = 10"
 AVA7-50A (1-5/8" HARD LINE) = 15"
 LDF7-50A (1-5/8" HARD LINE) = 20"
- CONTRACTOR SHALL RECORD THE SERIAL #, SECTOR, AND POSITION OF EACH ACTUATOR INSTALLED AT THE ANTENNAS AND PROVIDE THE INFORMATION TO T-MOBILE.
- WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF AMALGAMATING TAPE.
- ANTENNA CONTRACTOR SHALL PERFORM A "TAPE DROP" MEASUREMENT TO CONFIRM/VALIDATE ANTENNA CENTERLINE (ACL) HEIGHT. CONTRACTOR SHALL SUBMIT A COMPLETED HEIGHT VERIFICATION FORM TO THE CONSTRUCTION MANAGER.
- ALL FIBER RUNS CONTAINED IN ONE COMMSCOPE HYBRID DC-FIBER CABLE (MODEL# HCS 2.0 TRUNK CABLE 12#6AWG24 SM FIBER PR) FROM LOWER JUNCTION BOX TO UPPER JUNCTION BOX, HYBRID CABLE SHALL BE COLOR CODED PER T-MOBILE REQUIREMENTS.

ANTENNA KEY										
STATUS	ANTENNA NUMBER	ANTENNA VENDOR	MODEL #	AZIMUTH	ELEC. DOWNTILT	MECH. DOWNTILT	ANTENNA CENTERLINE AGL	TECH.	HYBRID FEEDER	
									(QTY) SIZE	COLOR CODE
NEW	A1	COMMSCOPE	FFVV-65C-R3-V1	310°	6,6,3,3	0°	62'-0"	L700 L600 N600 L1900 L2100 LAWS3 N1900 N2100	(1) (N) 6/24 TRUNK LINE (75')	GRAY 1
NEW	A2	NOKIA	AEHC	310°	3	0°	62'-0"	N2500	(1) (N) 6/24 TRUNK LINE (75')	GRAY 1
NEW	B1	COMMSCOPE	FFVV-65C-R3-V1	120°	6,6,3,3	0°	62'-0"	L700 L600 N600 L1900 L2100 LAWS3 N1900 N2100	SHARED	GRAY 2
NEW	B2	NOKIA	AEHC	120°	3	0°	62'-0"	N2500	SHARED	GRAY 2
NEW	C1	COMMSCOPE	FFVV-65C-R3-V1	220°	6,6,3,3	0°	62'-0"	L700 L600 N600 L1900 L2100 LAWS3 N1900 N2100	SHARED	GRAY 3
NEW	C2	NOKIA	AEHC	220°	3	0°	62'-0"	N2500	SHARED	GRAY 3

EQUIPMENT PLATFORM / EQUIPMENT KEY						
LOCATION	VENDOR	EQUIPMENT	MODEL NUMBER	TECH.	QTY.	STATUS
H-FRAME	NOKIA	FIBER J-BOX	ASIA	L600, L700, L1900, L2100, LAWS3	1	(N)
CABINET	NOKIA	SYSTEM MODULE	ASIL	N600, N1900, N2100 (DARK)	1	(N)
CABINET	NOKIA	SYSTEM MODULE	ASIL	N2500	1	(N)
CABINET	NOKIA	SYSTEM MODULE	ABIA	L2100, L1900 LAWS3	2	(N)
CABINET	NOKIA	SYSTEM MODULE	ABIA	L600, L700	1	(N)
CABINET	NOKIA	SYSTEM MODULE	ABIL	N1900 N2100 (DARK)	2	(N)
CABINET	NOKIA	SYSTEM MODULE	ABIL	N600	1	(N)
CABINET	NOKIA	SYSTEM MODULE	ABIO	N2500	1	(N)
CABINET	NOKIA	SYSTEM MODULE	AMIA	-	2	(N)
CABINET	NOKIA	TRANSPORT SYSTEM	CSR IXRe	-	1	(N)
CABINET	NOKIA	VOLTAGE BOOSTER	VOLTAGE BOOSTER	-	2	(N)

TOWER EQUIPMENT KEY						
LOCATION	VENDOR	EQUIPMENT	MODEL NUMBER	TECH.	QTY.	STATUS
1 PER SECTOR	NOKIA	RRU	AHLOB	L700 L600 N600	3	(N)
1 PER SECTOR	NOKIA	RRU	AHFII	L2100 LAWS3 L1900 N2100(DARK) N1900	3	(N)

EQUIPMENT FEEDLINE KEY						
LOCATION	VENDOR	EQUIPMENT	MODEL NUMBER	TECH.	QTY.	STATUS
MULTI SECTOR	NOKIA	HYBRID TRUNK	±75' 6/24 HCS FIBER TRUNK	-	2	(N)



PROJECT INFORMATION:

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1415 NORTH STREET
 PENROSE, CO 81240
 FREMONT COUNTY

Rev: Date: Description: By:

A	07.29.24	PRELIM CONST	KS
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MC	CS	KS
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Sheet Title:

**ANTENNA &
 EQUIPMENT
 KEYS**

Sheet Number:

RF1

FFVV-65C-R3-V1

8-port sector antenna, 4x 617-894 and 4x 1695-2690 MHz, 65° HPBW, 3x RET



General Specifications

Antenna Type	Sector
Band	Multiband
Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Performance Note	Outdoor usage
Radome Material	Fiberglass, UV resistant
Radiator Material	Low loss circuit board
Reflector Material	Aluminum
RF Connector Interface	4.3-10 Female
RF Connector Location	Bottom
RF Connector Quantity, high band	4
RF Connector Quantity, low band	4
RF Connector Quantity, total	8

Remote Electrical Tilt (RET) Information

RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	1 female 1 male
Input Voltage	10-30 Vdc
Internal RET	High band (2) Low band (1)
Power Consumption, idle state, maximum	1 W
Power Consumption, normal conditions, maximum	10 W
Protocol	3GPP/AISG 2.0 (Single RET)

FFVV-65C-R3-V1

PIM, 3rd Order, 2 x 20 W, dBc	-150	-153	-153	-153	-153	-153	-153
Input Power per Port at 50°C, maximum, watts	250	250	200	200	200	200	200

Electrical Specifications, BASTA

Frequency Band, MHz	617-698	698-894	1695-1880	1850-1990	1920-2200	2300-2500	2500-2690
Gain by all Beam Tilts, average, dBi	15.5	15.8	17.3	17.7	18.2	18.2	18.2
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.6	±0.3	±0.4	±0.6	±0.4	±0.5
Gain by Beam Tilt, average, dBi	2° 15.4 7° 15.7 13° 15.6	2° 15.7 7° 16.0 13° 15.6	2° 17.2 7° 17.4 12° 17.3	2° 17.7 7° 17.8 12° 17.6	2° 18.0 7° 18.3 12° 18.2	2° 18.1 7° 18.5 12° 18.1	2° 18.1 7° 18.5 12° 18.0
Beamwidth, Horizontal Tolerance, degrees	±4.0	±5.9	±3.1	±3.9	±7	±7	±7.2
Beamwidth, Vertical Tolerance, degrees	±0.6	±1.1	±0.3	±0.4	±0.4	±0.3	±0.3
USLS, beampeak to 20° above beampeak, dB	16	12	14	16	17	15	14
Front-to-Back Total Power at 180° ± 30°, dB	22	22	28	30	27	26	27
CPR at Boresight, dB	15	15	20	22	19	16	23
CPR at Sector, dB	7	7	6	6	5	6	9

Mechanical Specifications

Effective Projective Area (EPA), frontal	0.99 m² 10.656 ft²
Effective Projective Area (EPA), lateral	0.33 m² 3.552 ft²
Wind Loading at Velocity, frontal	1,055.0 N @ 150 km/h 237.2 lbf @ 150 km/h
Wind Loading at Velocity, lateral	355.0 N @ 150 km/h 79.8 lbf @ 150 km/h
Wind Loading at Velocity, maximum	1,433.0 N @ 150 km/h 322.2 lbf @ 150 km/h
Wind Loading at Velocity, rear	1,086.0 N @ 150 km/h 244.1 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 149.75 mph

Packaging and Weights

Width, packed	752 mm 29.606 in
Depth, packed	380 mm 14.961 in
Length, packed	2590 mm 101.969 in
Weight, gross	83.2 kg 183.424 lb

T-Mobile



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ANTENNA
DETAILS

Sheet Number:

RF2

AEHC AirScale MAA 64T64R 192AE B41 320W

Preliminary technical data

Specification	Details
Standard	3GPP NR and LTE compliant, TDD, FCC compliant
Band / Frequency range	2496 - 2690 MHz 3GPP B41
Max. supported modulation	256 QAM
Number of TX/RX paths	64T / 64R
MIMO streams	16
Instantaneous bandwidth IBW	194 MHz
Occupied bandwidth OBW	190 MHz
Total average EIRP	79 dBm
Max. output power per TRX	5 W / TRX (320 W total)
Dimensions	970 mm (H) x 540 mm (W) x 205 mm (D)
Volume	94 l
Weight	47 kg (without mounting brackets)
Supply voltage / Connector type	DC -36 V ... -60 V / 2 pole connector
Power consumption	≤1280 W typical (75% DL duty cycle, 30% RF load) ≤1690 W max (75% DL duty cycle, 100% RF load)
Optical ports	4 x SFP28, 10/25GE eCPRI (Octis)
Other interfaces / Connector type	RF monitor port / SMA, Control AISG, External Alarms / MDR26, status LED
Operational temperature range	-40 °C ... +55 °C
Cooling	Natural convection cooling
Installation options	Pole / Wall, ± 15° vertical
Ingress / Surge protection	IP65, Class II 20 kA
Supported RAT	5G, TD-LTE

5 © Nokia 2019

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AirScale High Power Wide Band MAA benefits

- 5G Adaptive Antenna System for optimized capacity and coverage
- Beamforming capable 64T64R with total 320W output power
- Full band operation for B41



AEHC 475124A

NOKIA

T-Mobile

STRYKER
SITE SERVICES, LLC

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TeleMtn
ENGINEERING
PO BOX 1453
SALIDA, CO 81201

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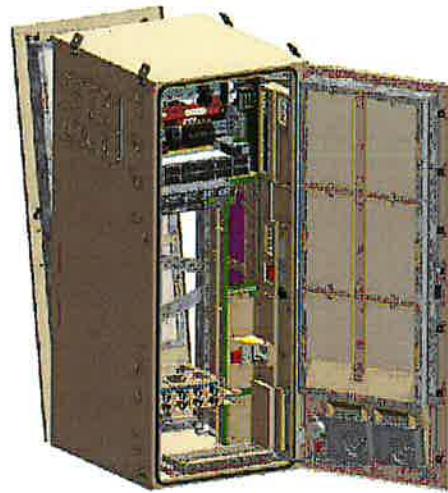
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**ANTENNA
DETAILS**

Sheet Number:

RF3

HP-Large 3.05 Power Cabinet



Model HPL3.05 (HP-Large 3.05 Power Cabinet)

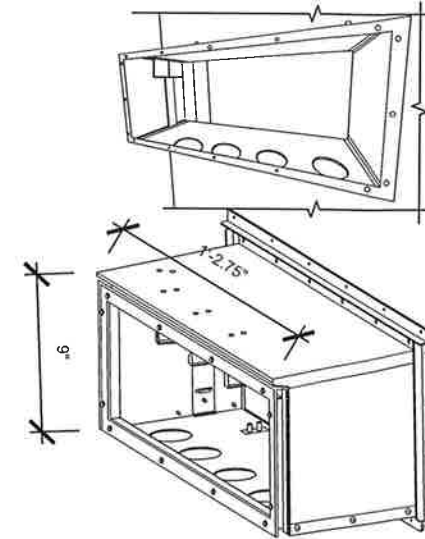
1. General	
Construction	Aluminum enclosure
Dimensions (W x H x D)	Base: 30 x 72 x 34.6 in. (762 x 1829 x 879 mm) Depth from Door to Hatch: 44.7 in. (1136 mm)
Weight	~770 lbs (~350kg) (without customer equipment)
Internal rack dimension	Total Equipment space 30RU: Horizontal: 19" x 27RU Vertical: 19" x 3RU Power System space: 23" x 12RU
Mounting options	Pad-mount or plinth option
Finish	Polyester Power Paint (Tan)
Safety	UL Listed, IEC / EN 60950



Specifications

Model LB3 (Large Battery 3 Cabinet)

1. General	
Construction	Aluminium enclosure
Dimensions (W x H x D)	30 x 72 x 35 in. (381 x 1829 x 889mm) Depth with Door: 41.2 in. (1047mm)
Weight	~540 lbs (~245kg) (without batteries)
Internal rack dimension	4 battery trays to support up to 4 strings 210Ah batteries
Mounting options	Pad-mount, plinth option
Finish	Polyester Power Paint (Tan)
Safety	UL Listed, IEC / EN 60950



1 LARGE DELTA SSC

SCALE: NOT TO SCALE

2 LARGE DELTA BATTERY CABINET

SCALE: NOT TO SCALE

3 CABLE ENTRY BOX

SCALE: NOT TO SCALE

AHFII AirScale RRH 4T4R B25/66 480W

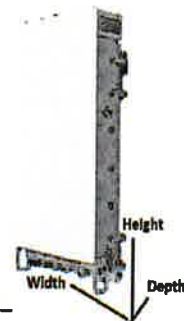
Specification	Details
Standard	3GPP compliant, FDD-LTE, NR, GSM, WCDMA
Band / Frequency range	Band 28: RX 1830 MHz - 1915 MHz, TX 1930 MHz - 1995 MHz Band 46: RX 1710 MHz - 1780 MHz, TX 2110 MHz - 2200 MHz
Max. supported modulation	256QAM UL / 1024 QAM DL
Number of TX/RX ports	4T4R
Instantaneous bandwidth (MHz)	Full Band
Occupied bandwidth (MHz)	OBW B25 65MHz (UL/DL), B66 70MHz (UL) 90MHz (DL)
Max. supported power per TRX	4x80W in any band while 4x40W in other band
Case Dimensions (mm) W x H x D	350 x 645 x 120
Envelope Dimensions (mm) W x H x D	370 x 670 x 160 (Not to exceed)
Volume	<25 l
Weight	<32.5 kg
Supply voltage / Connector type	DC -40.5 V ... -60 V / 2 pole connector
Power consumption	100W RF Loading; 100W W 24hr weighted: 1103 W
Antenna ports	4 x 4.3-10
Optical ports	3 x SFP28 Ports CPRI 9.8 Gbps (Rate 7)
Other interfaces / Connector type	RET RS485, AISG 3.0, EAC HDR26
Operational temperature range	-40 C ... +55 C
Cooling	Forced Convection (Fans)
Installation options	Pole, wall, rail
Ingress / Surge protection	IP65, DC Power Port: 20 kA 8/20 us

AirScale Multiband RRH Benefits

- Up to 480W in either AWS or PCS bands, only 400W in the other band
- 3.9M Front-panel interface
- Up to 30M QAM DL capabilities
- Up to 64SFP28 Ports
- Integrated PIM Cancellation
- W3-T4r carriers (up to 60MHz)
- Up to 12 max 4.3-10 per 2 antennas (UL / Bands)

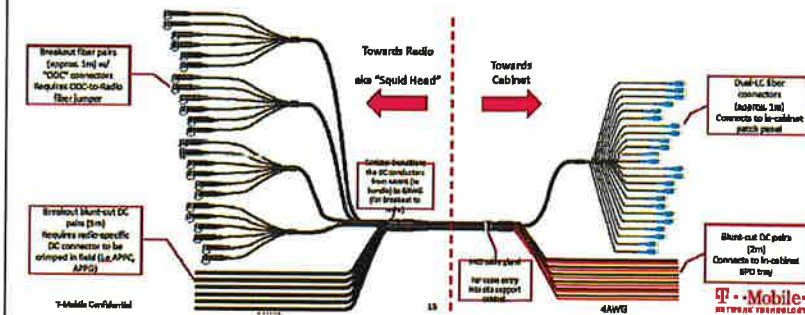
Product Description

Band	B71+B85
Output Power	4x80W shared between B71/B85 (Total Power Is 320W)
Bands/Freq range	B71: RX 663-698MHz/TX 617-652MHz B85: RX 698-716MHz/TX 728-746MHz
Instantaneous BW (IBW)	Full Band
Occupied BW (OBW)	Full Band
Supported Modulation schemes	256QAM (UL) and 1024QAM (DL)
Supported bandwidths	LTE/5G: 5, 10, 15, 20, 25, 30, 35 MHz
DC connector	APPG
Optical Fiber connector	2 x SFP28 ports CPRI 9.8Gbps (Rate7) Connector: AOPC SFP weatherproofing boot kit
No. of RF ports/ RF Connector	4T4R 4 x 4.3-10
AISG	AISG3.0 on all ports, DC on ANT1 and ANT3
Dimensions (H x W x D) in	26.61 x 14.52 x 6.62
Weight lbs	82.7
Power Consumption	100% RF loading: 1314W
PIM Cancellation	Yes (Integrated PIM cancellation)



HCS 6x24 Trunk and Jumpers

- The HCS 6x24 trunk has 6 DC conductor pairs and 24 fiber pairs
 - each DC conductor pair is a dedicated feed to an individual radio
- All 6x24 trunks have the same DC conductor gauge (4 AWG)
 - As opposed to HCS 2.0, where the 25 ft-225 ft lengths were 6 AWG, and 250 ft-450 ft were 4 AWG



4 AHFII RRU

SCALE: NOT TO SCALE

5 AHLOB RRU

SCALE: NOT TO SCALE

6 CABLE DETAIL

SCALE: NOT TO SCALE



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SALIDA, CO 81201

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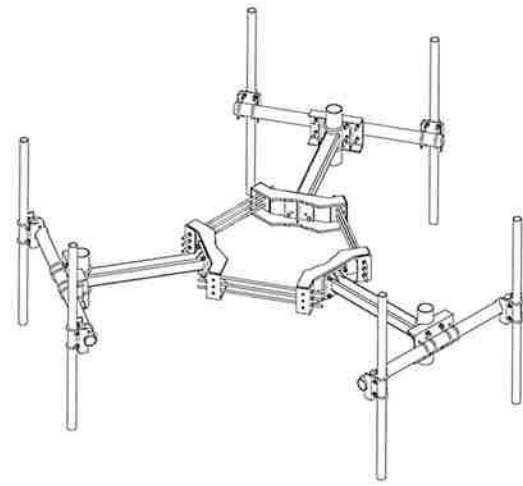
MC CS KS

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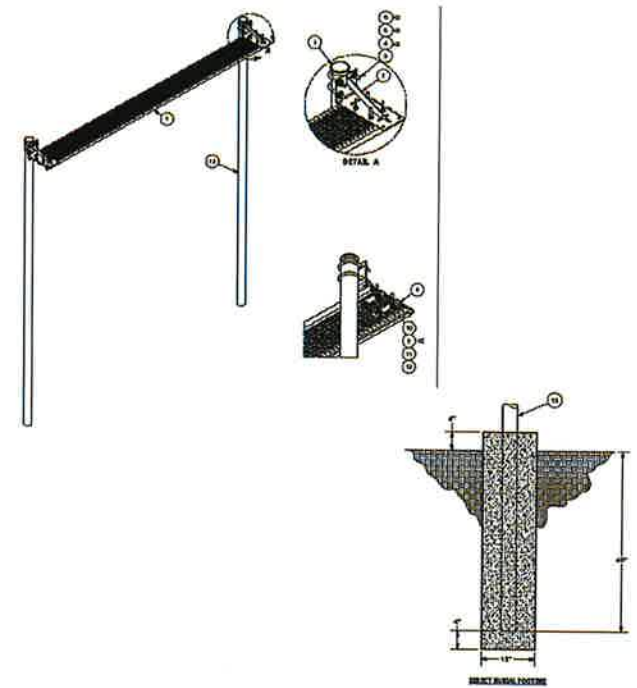
EQUIPMENT
DETAILS

Sheet Number:

D1



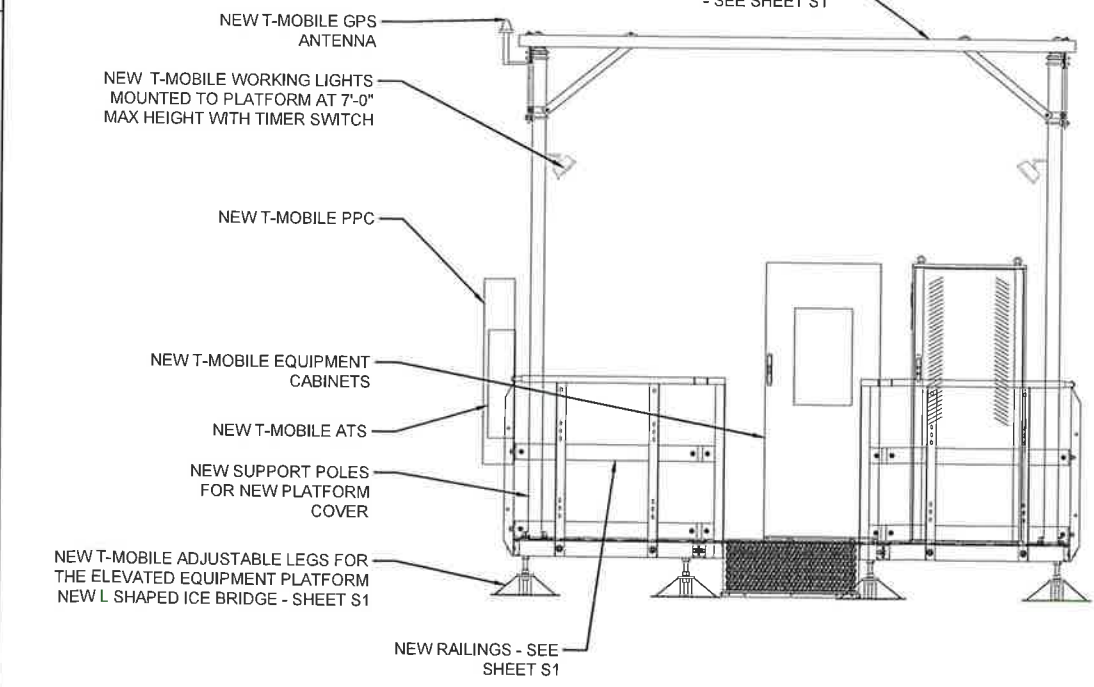
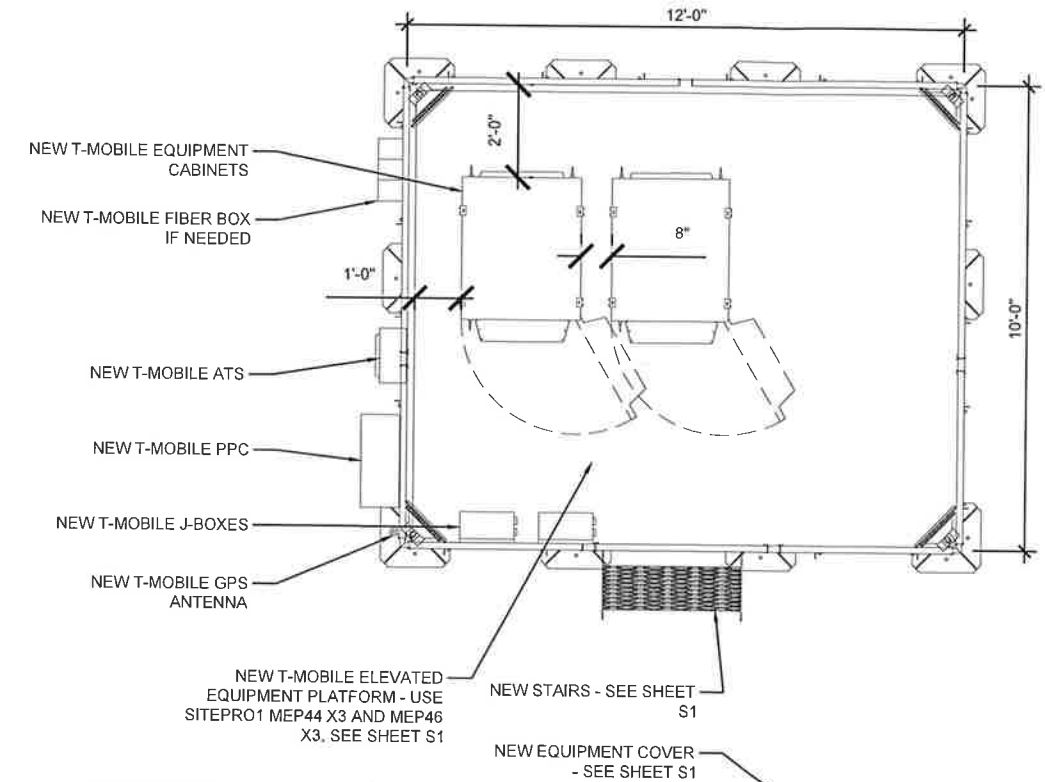
1 SITEPRO1 RMV5-SQNP MOUNT
SCALE: NOT TO SCALE



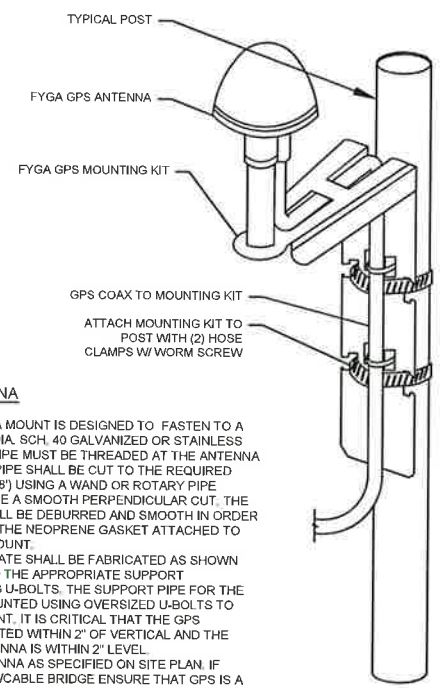
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WGT.	NET WT.
1	1	QRE12	12" WIDE GRIP STRUT	34.48	14.49	
2	2	HD12	12" CANTILEVER WELDMENT		8.01	16.02
3	4	XUB1166	1/2" x 3/8" x 6 1/2" x 3" G BOLT (PHD.)		0.66	2.63
4	8	Q12FW	12" HD USS FLATWASHER		0.28	2.27
5	8	Q12LW	12" HD LOCKWASHER		0.27	2.17
6	8	Q12HUT	12" HD HEAVY IN HEAD NUT		0.27	2.17
7	2	PC312	3/16" FENCE POST CLIP		0.69	1.37
8	4	SP12C	SPRUE FOR GRIP STRUT	7.50 in	0.23	2.19
9	16	Q38FW	3/8" HD USS FLATWASHER		0.01	0.13
10	8	Q38D	3/8" x 3" HD HEX BOLT GR5		0.12	0.97
11	8	Q38LW	3/8" HD LOCKWASHER		0.01	0.04
12	8	Q38HUT	3/8" HD HEAVY IN HEAD NUT		0.09	0.71
13	2	FY150	1" ECH. 40 PIPE (1.6" O.D. x 0.315" WALL THICK)	160 in	123.25	202.89
				TOTAL WGT #		200.85

2 SITEPRO1 IB12D IVE BRIDGE
SCALE: NOT TO SCALE

NOTE:
CONTRACTOR TO BACKFILL
EXCAVATED AREA WITH COMPACTION
RATING OF 85% OR GREATER.

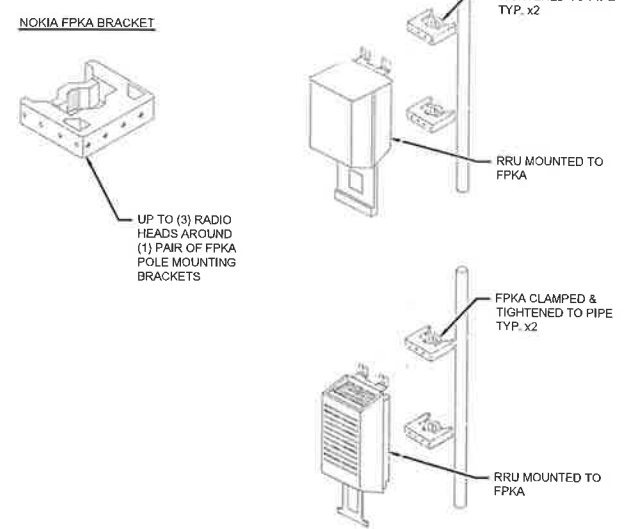


5 TYPICAL EQUIPMENT LAYOUT
SCALE: NOT TO SCALE



- FYGA GPS ANTENNA**
1. THE GPS ANTENNA MOUNT IS DESIGNED TO FASTEN TO A STANDARD 1-1/4" DIA. SCH. 40 GALVANIZED OR STAINLESS STEEL PIPE. THE PIPE MUST BE THREADED AT THE ANTENNA MOUNT END. THE PIPE SHALL BE CUT TO THE REQUIRED LENGTH (MIN. OF 16") USING A HAND OR ROTARY PIPE CUTTER TO ASSURE A SMOOTH PERPENDICULAR CUT. THE CUT PIPE END SHALL BE DEBURRED AND SMOOTH IN ORDER TO SEAL AGAINST THE NEOPRENE GASKET ATTACHED TO THE ANTENNA'S MOUNT.
 2. THE MOUNTING PLATE SHALL BE FABRICATED AS SHOWN AND ATTACHED TO THE APPROPRIATE SUPPORT STRUCTURE USING U-BOLTS. THE SUPPORT PIPE FOR THE GPS SHALL BE MOUNTED USING OVERSIZED U-BOLTS TO ALLOW ADJUSTMENT. IT IS CRITICAL THAT THE GPS ANTENNA IS MOUNTED WITHIN 2" OF VERTICAL AND THE BASE OF THE ANTENNA IS WITHIN 2" LEVEL.
 3. INSTALL GPS ANTENNA AS SPECIFIED ON SITE PLAN. IF INSTALLING ON ICE/CABLE BRIDGE ENSURE THAT GPS IS A MINIMUM OF 10' ABOVE GRADE, ON THE FURTHEST POST FROM THE TOWER TO ATTAIN MAXIMUM COVERAGE.
 4. GENERAL CONTRACTOR SHALL ENSURE THE GPS ANTENNA HAS THE REQUIRED FULL EXPOSURE TO THE SOUTHERN HEMISPHERE/HORIZON.

3 GPS ANTENNA AND MOUNT
SCALE: NOT TO SCALE



4 RRU MOUNT
SCALE: NOT TO SCALE

T-Mobile

STRYKER
SITE SERVICES, LLC

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**EQUIPMENT
DETAILS**

Sheet Number:
D2

CHAIN-LINK GATE/FENCE SPECIFICATIONS:

(INSTALL FENCING PER ASTM F567 / SWING GATES PER ASTM F900)

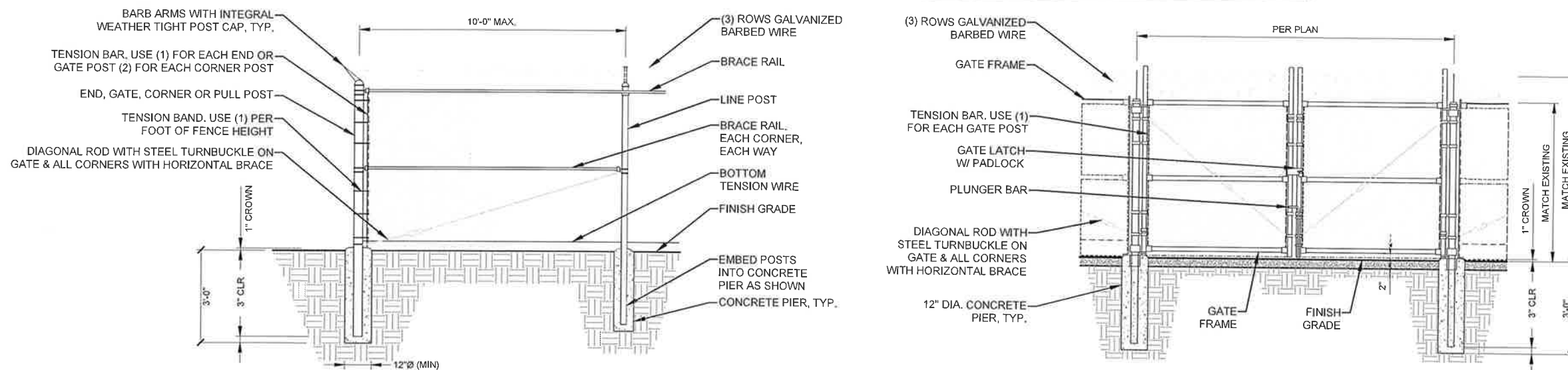
GATE POST	4.500" O.D. SCHEDULE 40 PIPE FOR GATE WIDTHS UP TO 6 FEET, PER ASTM F1083.
LINE POST	2.375" O.D. SCHEDULE 40 PIPE PER ASTM F1083, 10'-0" MAX. SPACING BETWEEN POSTS.
CORNER POST	3.500" O.D. SCHEDULE 40 PIPE PER ASTM F1083.
TOP RAIL/BRACE RAIL	1.875" O.D. SCHEDULE 40 PIPE, PER ASTM F1083.
GATE FRAME	1.875" O.D. SCHEDULED 40 PIPE, PER ASTM F1083.
GATE LATCH	1.375" O.D. PLUNGER ROD W/ LATCH & LOCK.
FABRIC	
TIE WIRE	MINIMUM 11 GA. GALVANIZED STEEL AT POSTS AND RAILS A SINGLE WRAP OF FABRIC TIE AND AT TENSION WIRE BY HOG RINGS SPACED MAX. 24" INTERVALS.
TENSION WIRE	7 GA. GALVANIZED STEEL.
BARBED WIRE	DOUBLE STRAND 12-1/2" O.D. TWISTED WIRE TO MATCH WITH FABRIC 14 GA, 4 PT. BARBS SPACED ON APPROXIMATELY 5" CENTERS.

NOTES

POST & FENCE PIPE SIZES ARE FENCE INDUSTRY STANDARD. ALL PIPE TO BE GALV. (HOT-DIP, ASTM A120 GRADE "A" STEEL). CROSS BRACE ALL POSTS EXCEPT INTERMEDIATES.

CONTRACTOR TO INSTALL (2) GATE HOLDBACKS TO HOLD GATE OPEN DURING USE.

LOCAL ORDINANCE OF BARBED WIRE PERMIT REQUIREMENTS SHALL BE COMPLIED WITH IF REQUIRED.



1 CHAIN LINK FENCE & GATE DETAIL

SCALE: NOT TO SCALE

2 NOT USED

SCALE: NOT TO SCALE



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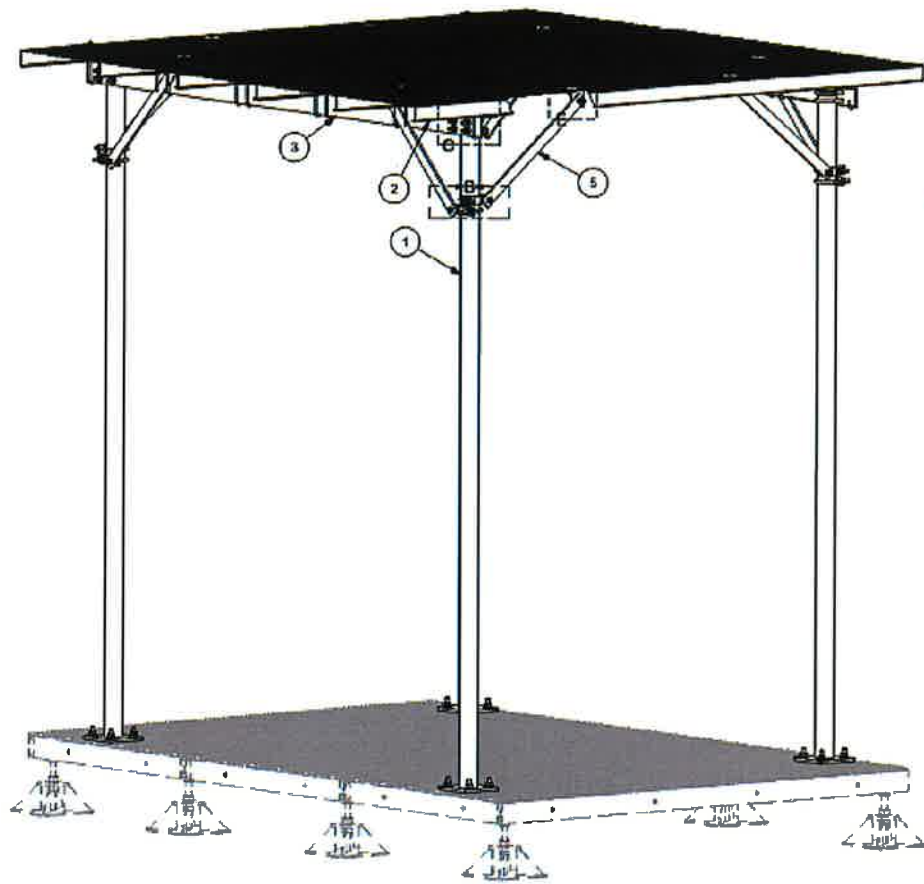
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FENCE
DETAILS

Sheet Number:

D3



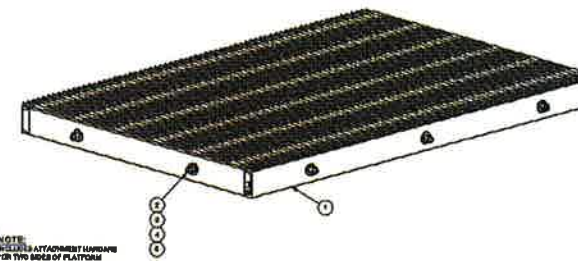
1 | SITEPRO1 ICE COVER - MPCOV1012
SCALE: NOT TO SCALE

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	TOTAL WT.
1	1	A-MEP44	4' X 4' MODULAR EQUIPMENT PLATFORM BASE	111.75	201.72	201.72
2	4	G-10124	3/8" X 1/2" X 1/2" ROD	1.50	0.27	1.08
3	4	G-10124	3/8" X 1/2" X 1/2" ROD	1.50	0.27	1.08
4	4	G-10124	3/8" X 1/2" X 1/2" ROD	1.50	0.27	1.08
5	4	G-10124	3/8" X 1/2" X 1/2" ROD	1.50	0.27	1.08
TOTAL WT.						222.25



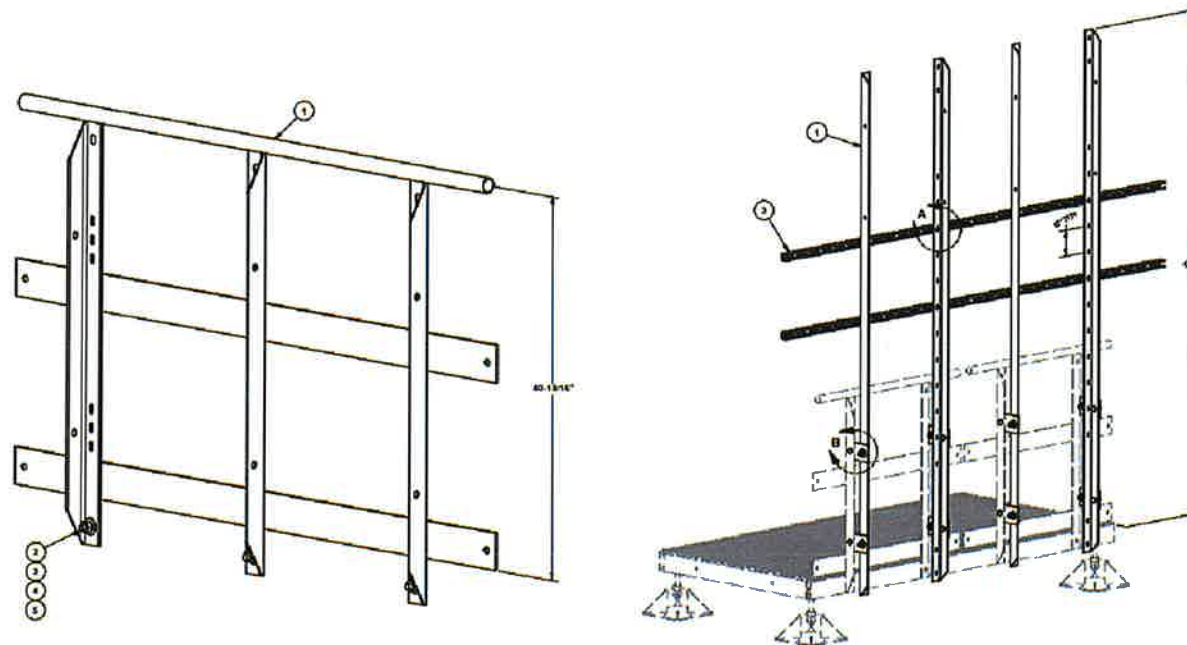
NOTE:
INCLUDE ATTACHMENT HARDWARE
FOR TWO SIDES OF PLATFORM

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	TOTAL WT.
1	1	A-MEP44	4' X 4' MODULAR EQUIPMENT PLATFORM BASE	111.75	201.72	201.72
2	4	G-10124	3/8" X 1/2" X 1/2" ROD	1.50	0.27	1.08
3	4	G-10124	3/8" X 1/2" X 1/2" ROD	1.50	0.27	1.08
4	4	G-10124	3/8" X 1/2" X 1/2" ROD	1.50	0.27	1.08
5	4	G-10124	3/8" X 1/2" X 1/2" ROD	1.50	0.27	1.08
TOTAL WT.						215.84



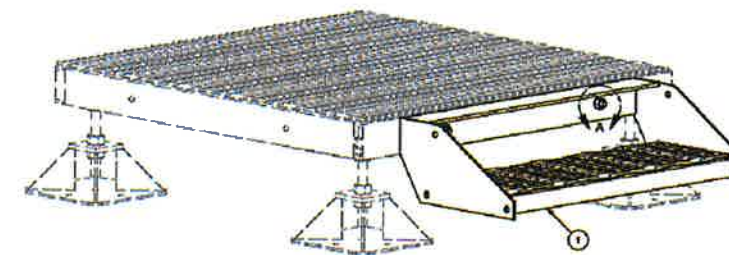
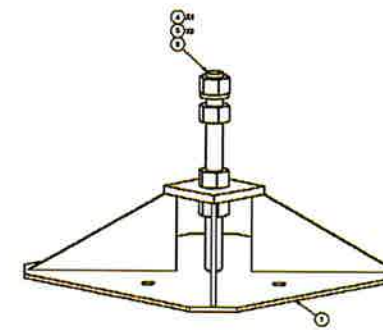
NOTE:
INCLUDE ATTACHMENT HARDWARE
FOR TWO SIDES OF PLATFORM

2 | SITEPRO1 MEP44 & MEP46
SCALE: NOT TO SCALE



3 | SITEPRO1 MRAIL-4 OR MRAIL-6 & MER8-H
SCALE: NOT TO SCALE

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	TOTAL WT.
1	1	A-MEP44	4' X 4' MODULAR EQUIPMENT PLATFORM BASE	111.75	201.72	201.72
2	1	G-10124	3/8" X 1/2" X 1/2" ROD	1.50	0.27	1.08
3	1	G-10124	3/8" X 1/2" X 1/2" ROD	1.50	0.27	1.08
4	1	G-10124	3/8" X 1/2" X 1/2" ROD	1.50	0.27	1.08
5	1	G-10124	3/8" X 1/2" X 1/2" ROD	1.50	0.27	1.08
TOTAL WT.						205.23



4 | SITEPRO1 MPAD-L & MSTEP-1LD
SCALE: NOT TO SCALE

T-Mobile

STRYKER
SITE SERVICES, LLC

PROJECT INFORMATION:
SITE NAME:
AT&T PENROSE
SITE ID:
DN04750A

1415 NORTH STREET
PENROSE, CO 81240
FREMONT COUNTY

Rev.	Date:	Description:	By:
A	07.29.24	PRELIM CONST	KS
0	08.08.24	FINAL STAMPED	KS
1	09.25.24	REV CD	KS

PLANS PREPARED BY:

TeleMtn
ENGINEERING
PO BOX 1453
SALIDA, CO 81201

LICENSURE NO:

DRAWN BY:	CHK BY:	APV BY:
MC	CS	KS

Sheet Title:

PLATFORM
DETAILS

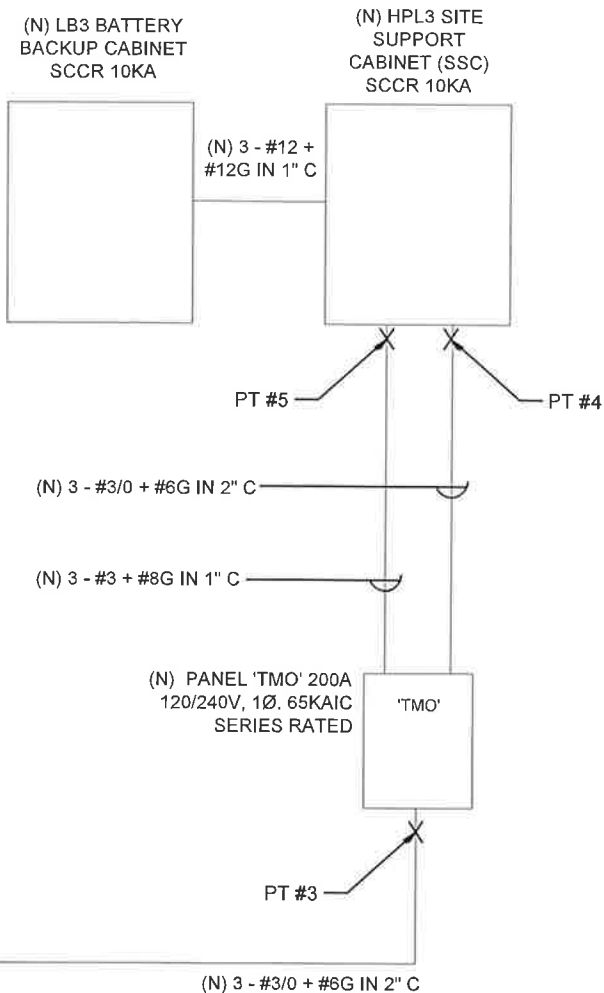
Sheet Number:

S1

NOTES:

- EXISTING CONDUIT, CONDUCTORS, AND OTHER ITEMS SHOWN ARE AS DESCRIBED TO THE BEST OF THE KNOWLEDGE OF THE ENGINEER, BASED UPON PHOTOGRAPHS AND / OR PREVIOUS DRAWINGS. IF FIELD CONDITIONS DEVIATE SUBSTANTIALLY FROM WHAT IS SHOWN HERE, DRAWINGS AND CALCULATIONS MAY NEED TO BE UPDATED.
- FINAL TRANSFORMER LOCATION AND SIZING PER UTILITY. IF A DIFFERENT TRANSFORMER IS INSTALLED, OR IT IS INSTALLED IN A DIFFERENT LOCATION, FAULT CALCULATIONS AND LABELING SHOULD BE REVISED BY ENGINEER.
- ACTUAL VALUES FOR FAULT CURRENT SHOWN IN DETAIL 2.
- CONDUIT SUBJECT TO FOOT TRAFFIC SHALL BE GRC.
- ALL CONDUCTORS ARE COPPER UNLESS OTHERWISE NOTED.

SEE EQUIPMENT PLAN FOR LAYOUT



Single Phase Xfmr Power source	Xfmr(kVA)	Pole/Pad	V _{L-L}	V _{L-N}	Phases	Available fault current				I _{sc} (A) L-L
Pt. 1: Point of delivery	75	Pole	240	120	1					22,200
Fault Current location	# of Runs	Conductor	V _{L-L}	V _{L-N}	Z=non-mat	L _n (ft)	C _a	F _{L(L)}	M _{L(L)}	I _{sc} (A) L-L
Pt. 2: 800A Main disconnect	2	#500MCM	240	120	2	90	26706	0.3117	0.7624	16,925
Pt. 3: T-Mobile 200A PPC	1	#3/0	240	120	2	60	13923	0.6078	0.622	10,527
Pt. 4: T-Mobile SSC 200A Feed	1	#3/0	240	120	1	16	12844	0.1093	0.9015	9,490
Pt. 5: T-Mobile SSC 100A Feed	1	#3	240	120	1	16	4774	0.265	0.7905	7,502

2 SHORT CIRCUIT CALCULATIONS

SCALE: NOT TO SCALE

1 ONE-LINE DIAGRAM

SCALE: NOT TO SCALE

3 NOT USED

SCALE: NOT TO SCALE



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MC	CS	KS
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Sheet Title:

**ONE-LINE DIAGRAM
SHORT CIRCUIT**

Sheet Number:

E1

AC POWER PANEL No. (N) T-Mobile											
120/240 VOLTS, 1-PHASE, 3-WIRE, 200A											
MAIN BREAKER RATING (A):				SYSTEM VOLTAGE (V):							
200				240							
DESCRIPTION	VA	of no	BKR	POSN	L1	L2	POSN	BKR	of no	VA	DESCRIPTION
TVSS		nc	30/2P	1	180		2	20/1P	nc	180	GFCI Inside PPC
		nc		3		180	4	20/1P	nc	180	GFCI Exterior
Site Support Cabinet Line 1 ²¹	702B	nc	200/2P	5	727B		6	20/1P	c	250	Lights
	693B	nc		7		693B	8				
	702B	nc		9	702B		10				
	693B	nc		11		693B	12				
Site Support Cabinet Line 2	3000	nc	100/2P	13	3000		14				BLANK
	3000	nc		15		3000	16				BLANK
BLANK				17	0		18				BLANK
BLANK				19	0		20				BLANK
BLANK				21	0		22				BLANK
BLANK				23	0		24				BLANK
PHASE TOTALS (VA):				17,485	17,055						
CURRENT PER PH				146	142	Amperes/phase cannot exceed main breaker rating					
PANEL TOTAL (VA):				34,540		Legend: c = continuous, nc = non-continuous					
PANEL CAPACITY (kVA):				48.0		CONNECTED LOAD (kVA):				34.6	
PANEL LOADING (100% non-cont. load) (kVA):				34.3		% LOAD CAPACITY				72%	
PANEL LOADING (125% continuous load) (kVA):				0.3		PHASE CURRENT (A)				144.2	
PANEL LOADING (TOTAL) (kVA):				34.6							
SPARE CAPACITY				13.4							

NOTES:
1. FURNISH PANEL DIRECTORY.
2. 200A CB FOR SSC LINE 1 SHALL BE FAULT IC RATED FOR 22KAIC

200A SSC LINE 1				
Load	Pos	CB	A	B
To LB3 Cab 1kW heater	1	20/2P	625	
	2			625
1KW HPL3 Heater #1	3	10A/2P	625	
	4			625
1 kW HPL3 Heater #2	5	10A/2P	625	
	6			625
GFIC	7	15A/1P	180	
Rectifiers #1 & #7	8	50A/2P		3000
	9		3000	
Rectifiers #2 & #8	10	50A/2P		3000
	11		3000	
Rectifiers #3 & #9	12	50A/2P		3000
	13		3000	
Rectifier #4 & 10	14	50A/2P		3000
	15		5000	
kVA			14055	13875
Panel load (KVA)			27930	
Load current (A)			116.4	

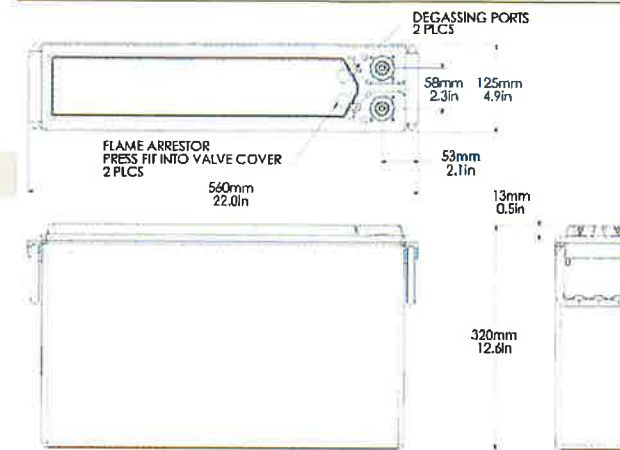
100A SSC "L2"				
Load	Pos	CB	A	B
Rectifiers #5 & #11	1	50A/2P	3000	
	2			3000
#6 & #12 (SPARE)	3	50A/2P		
	4			
	5			
	6			
	7			
	8			
	9			
	10			
	11			
	12			
	13			
kVA			3000	3000
Panel load (KVA)			6000	
Load current (A)			25	

Battery Information
Manufacturer/Model No. NORTHSTAR NBS 190FT RED

Cabinet/Rack	Strings	Batteries per String	Total Batteries	Electrolyte per Battery (gal/batt)	Electrolyte (gal)
Site Support Cabinet	4	4	16	2.1	33.6

NSB 190FT RED
Nominal Technical Specifications

Dimensions			
Height	12.6 in	Width	49 in
Length	22 in	Weight	123 lbs



NSB Part Number	NorthStar Battery HT RED Electrolyte Values							
	Electrolyte				Acid			
	Weight		Volumn		Weight		Volumn	
	/kg	/lbs	/litres	/gallons	/kg	/lbs	/litres	/gallons
NSB13 HT RED	0.8	1.7	0.6	0.1	0.4	0.9	0.2	0.1
NSB 90 HT RED	6.2	13.6	4.6	1.2	3.4	7.5	1.8	0.5
NSB125 HT RED	8.0	17.6	6.0	1.6	4.4	9.6	2.4	0.6
NSB40FT HT RED	2.6	5.8	2.0	0.5	1.4	3.2	0.8	0.2
NSB60FT HT RED	3.9	8.6	2.9	0.8	2.1	4.7	1.2	0.3
NSB92FT HT RED	5.7	12.5	4.3	1.1	3.1	6.9	1.7	0.5
NSB100FT HT RED	6.1	13.5	4.6	1.2	3.4	7.5	1.8	0.5
NSB110FT HT RED	7.1	15.6	5.3	1.4	4.0	8.7	2.2	0.6
NSB145FT HT RED	8.1	17.9	6.1	1.6	4.5	10.0	2.5	0.7
NSB155FT HT RED	9.6	21.1	7.1	1.9	5.4	11.8	2.9	0.8
NSB170FT HT RED	10.5	23.2	7.8	2.1	4.8	10.5	2.6	0.7
NSB190FT HT RED	10.5	23.2	7.8	2.1	4.8	10.5	2.6	0.7
NSB210FT HT RED	12.1	26.5	9.0	2.0	6.8	14.9	3.7	1.0

T-Mobile



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DRAWN BY: CHK BY: APV BY:

MC	CS	KS
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Sheet Title:

PANEL SCHEDULE
BATTERY INFO

Sheet Number:

E2

PROJECT INFORMATION:

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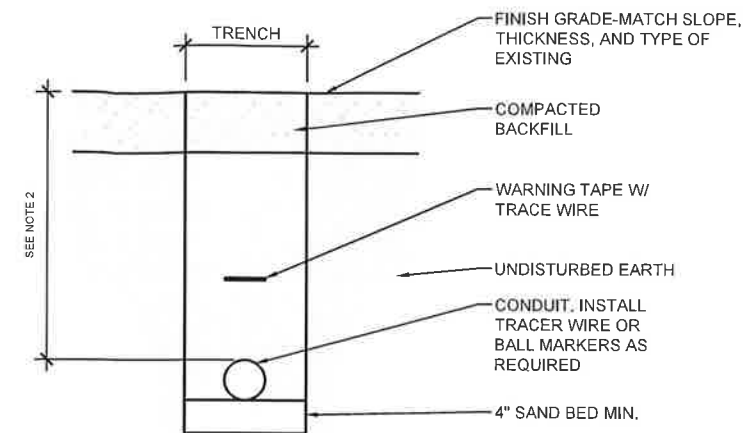
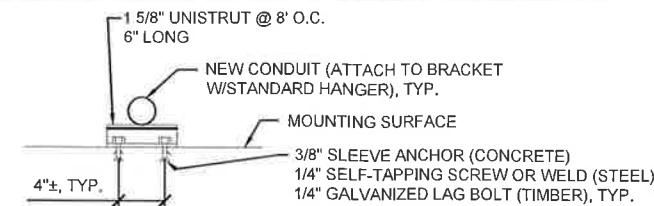
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MC	CS	KS

Sheet Title:

**ELECTRICAL
DETAILS**

Sheet Number:

E3



NOTES:

1. LOCATE ALL UNDERGROUND UTILITIES PRIOR TO TRENCHING AND EXCAVATION.
2. FOR LOCATIONS AHEAD OF METER, INSTALL ALL BURIED CONDUIT AT MIN. 24" DEPTH PER XCEL ENERGY; FOR LOCATIONS AFTER METER, INSTALL BURIED CONDUIT PER NEC ARTICLE 300.5.
3. COORDINATE SIZE AND TYPE OF CONDUIT WITH XCEL ENERGY REQUIREMENTS.
4. REFER TO ELECTRICAL PLAN & ONE-LINE DIAGRAM FOR SIZE AND LOCATION.
5. COMPACT BACKFILL TO 95% PROCTOR DENSITY AT ALL DRIVEWAY OR HARD SURFACED AREAS. COMPACT TO 90% PROCTOR DENSITY ALL OTHER AREAS UNLESS NOTED OTHERWISE, REFER TO GEOTECHNICAL REPORT.
6. BACKFILL AND SAND BED NOT REQUIRED WHEN BORING.
7. IF TRENCH IS SHARED WITH OTHER UTILITIES, MAINTAIN MINIMUM 12" HORIZONTAL SEPARATION. VERIFY WITH UTILITY PROVIDER BEFORE BACKFILLING.

2 | CONDUIT DETAILS

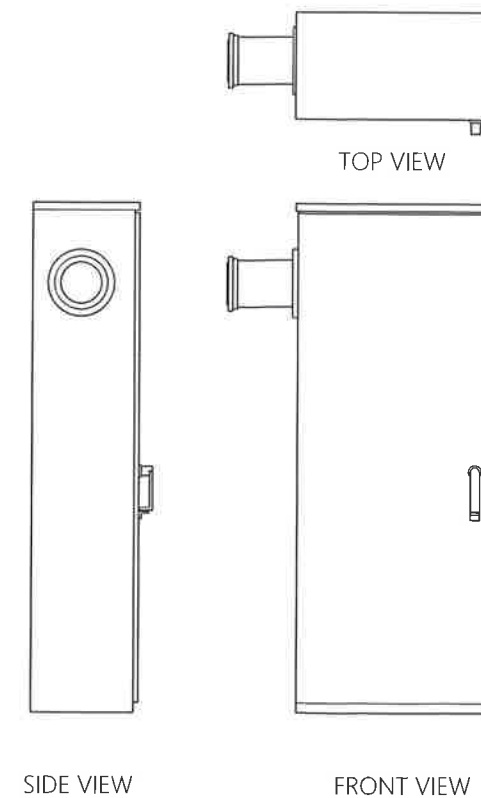
SCALE: NOT TO SCALE

Cabinet Configuration

- 120/240 VAC, 1 Phase, 3 Wire & Ground
- Cabinet Dimensions: 20" W x 10"D x 40"H
- Weight: approx. 80 lbs.
- NEMA 3R Type Enclosure
- Wall or Bracket Mount
- Suitable For Use As Service Equipment
- UL Listed 891, Dead Front Switch Boards

Component Configuration

- Service: 200 Amp Utility/Standby
- Slide Bar Mechanical Interlock (prevents both source from being energized simultaneously)
- 65kAIC Rated Utility Service Disconnect
- 30 Position Square-D Load Center
- 15Amp, 120Vac GFI duplex receptacle
- N-G Bonding Jumper Kit (customer installed if required)
- Standby Power Receptacle Appleton AR20044RS
- Transient Voltage Surge Suppression rated 100kA



1 | NOT USED

SCALE: NOT TO SCALE

3 | PPC CABINET

SCALE: NOT TO SCALE

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1415 NORTH STREET
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PLANS PREPARED BY:



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Sheet Title:

TYPICAL
GROUNDING PLANS

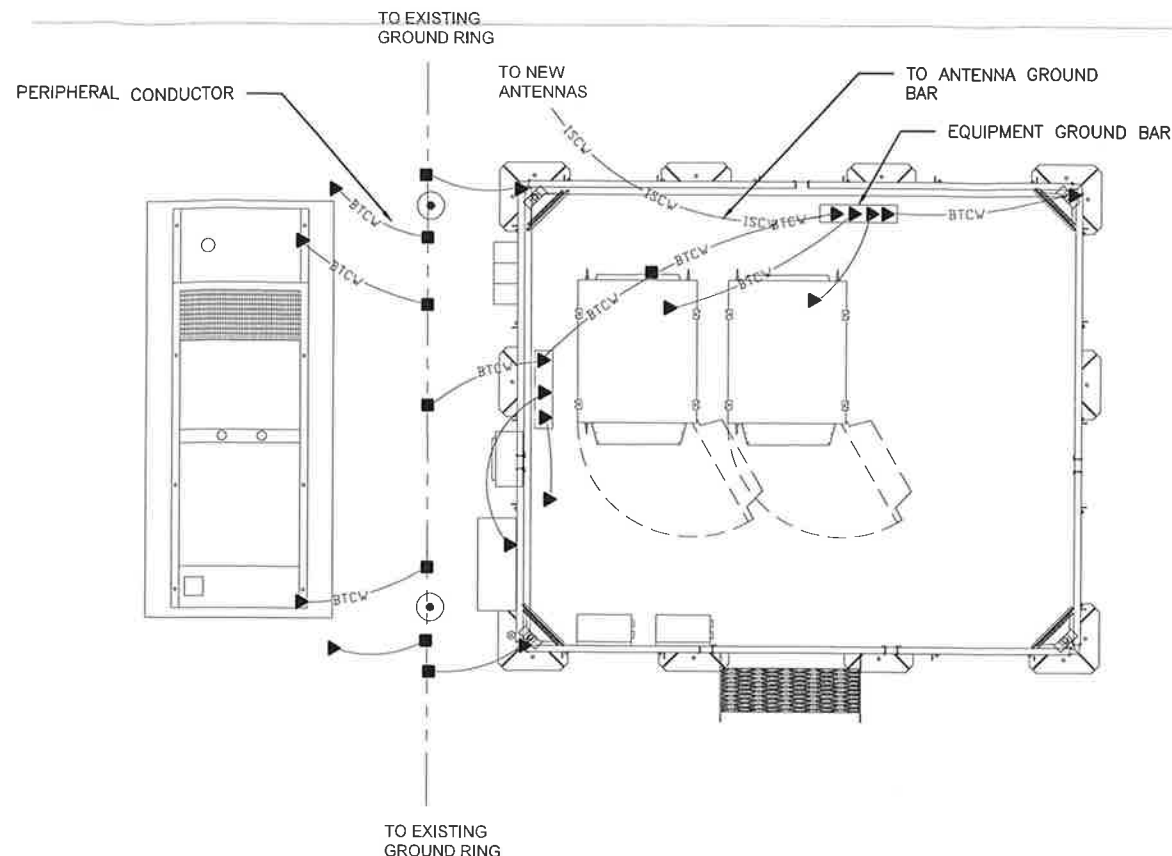
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G1

LEGEND

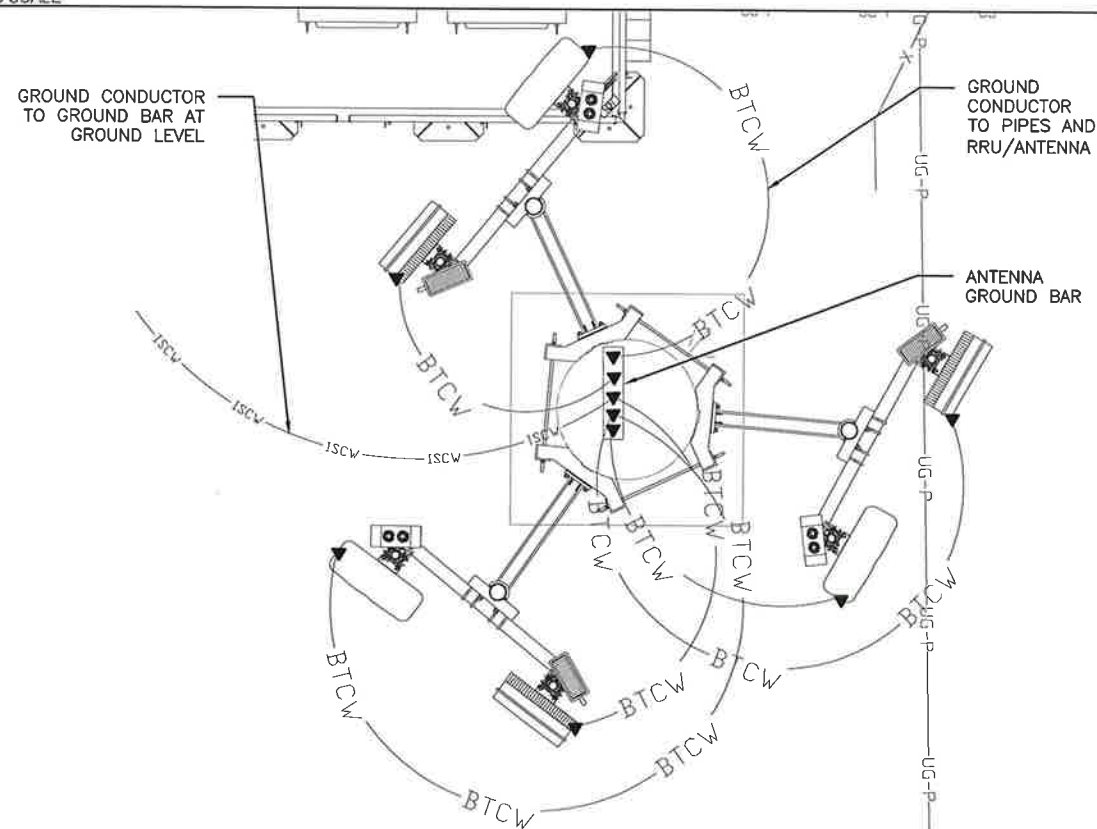
- TINNED COPPER GROUND BAR
- COPPER CLAD GROUND ROD (5/8"Ø x 8')
- ⊙ GROUND ROD W/ ACCESS (INSPECTION WELL)
- EXOTHERMIC TYPE CONNECTION (CADWELD)
- ▶ COMPRESSION TYPE CONNECTION
- ISCW—ISCW— INSULATED STRANDED COPPER WIRE
- BTCW—BTCW— BARE TINNED COPPER WIRE
- BSCW—BSCW— BARE STRANDED COPPER WIRE
- — — BURIED GROUND RING

- ALL DETAILS ARE SHOWN IN GENERAL TERMS, ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.
- DOOR AND GROUND BAR LOCATIONS VARY PER SITE DESIGN.
- INTERIOR GROUNDING AND HALO TO BE FURNISHED BY SHELTER MANUFACTURER.
- ALL EXTERIOR GROUNDING AND TOP OF GROUNDING RODS SHALL BE BURIED TO A MINIMUM DEPTH OF 2'-6" BELOW FINISH GRADE (ELECTRIC METER GROUND EXCEPTED).
- INSPECT AND REPAIR (E) GROUNDING SYSTEM PRIOR TO USE.
- GROUNDING SYSTEM MUST BE INDEPENDENTLY TESTED PRIOR TO USE AND SHALL HAVE A RESISTANCE OF 5 OHMS OR LESS. CONTRACTOR SHALL SUBMIT AN INDEPENDENT FALL OF POTENTIAL TESTING REPORT.
- ALL GROUNDING CONDUCTORS SHALL BE #2 SOLID BTCW.
- NOTIFY PROJECT MANAGER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.
- CHEMICAL GROUNDS SHALL BE XIT, CHEM-ROD OR APPROVED EQUAL, WHEN REQUIRED, USE MUST BE APPROVED BY PROJECT MANAGER.
- ALL UNDERGROUND GROUNDING CONNECTORS ARE TO BE CADWELDED, ABOVE GRADE GROUNDING SHALL BE EITHER CADWELD OR MECHANICAL AS SPECIFIED ON DRAWINGS.
- ALL GROUNDING INSTALLATION TO BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS AND SUPPLEMENTS PROVIDED BY THE PROJECT MANAGER.
- GROUND RINGS ARE TO BE INSTALLED A MINIMUM OF 2'-0" FROM SHELTER OR TOWER.
- ALL EXTERIOR METAL BOXES (INCLUDING GENERATOR HVAC, ETC.) SHALL BE GROUND WITH 2-HOLE LUG.
- BUILDINGS AND/OR (N) TOWERS GREATER THAN 75 FEET IN HEIGHT AND THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE (E) GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 AWG COPPER.



2 TYPICAL SITE GROUNDING

SCALE: NOT TO SCALE



3 TYPICAL ANTENNA SECTOR GROUNDING

SCALE: NOT TO SCALE

1 GROUNDING NOTES

SCALE: NOT TO SCALE

PROJECT INFORMATION:

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Sheet Title:

TYPICAL
GROUNDING
SCHEMATICS

Sheet Number:

G2

LEGEND

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- ⊕ GROUND ROD
- ⊕ TEST GROUND ROD WITH INSPECTION SLEEVE

NOTES

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250 AND SUIT GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

EXTERIOR GROUND RING: #2 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 24 INCHES FROM THE EXTERIOR WALL OR FOOTING.

TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM #2 AWG SOLID COPPER CONDUCTORS.

GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 5/8" DIAMETER BY EIGHT FEET LONG. ALL GROUND RODS MAY BE INSTALLED WITH INSPECTION SLEEVES. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

H-FRAME GROUND BAR: POINT OF GROUND REFERENCE FOR ALL COMMUNICATIONS EQUIPMENT FRAMES. ALL BONDS ARE MADE WITH #2 AWG STRANDED GREEN INSULATED COPPER CONDUCTORS. BOND TO GROUND RING WITH (2) #2 SOLID TINNED COPPER CONDUCTORS.

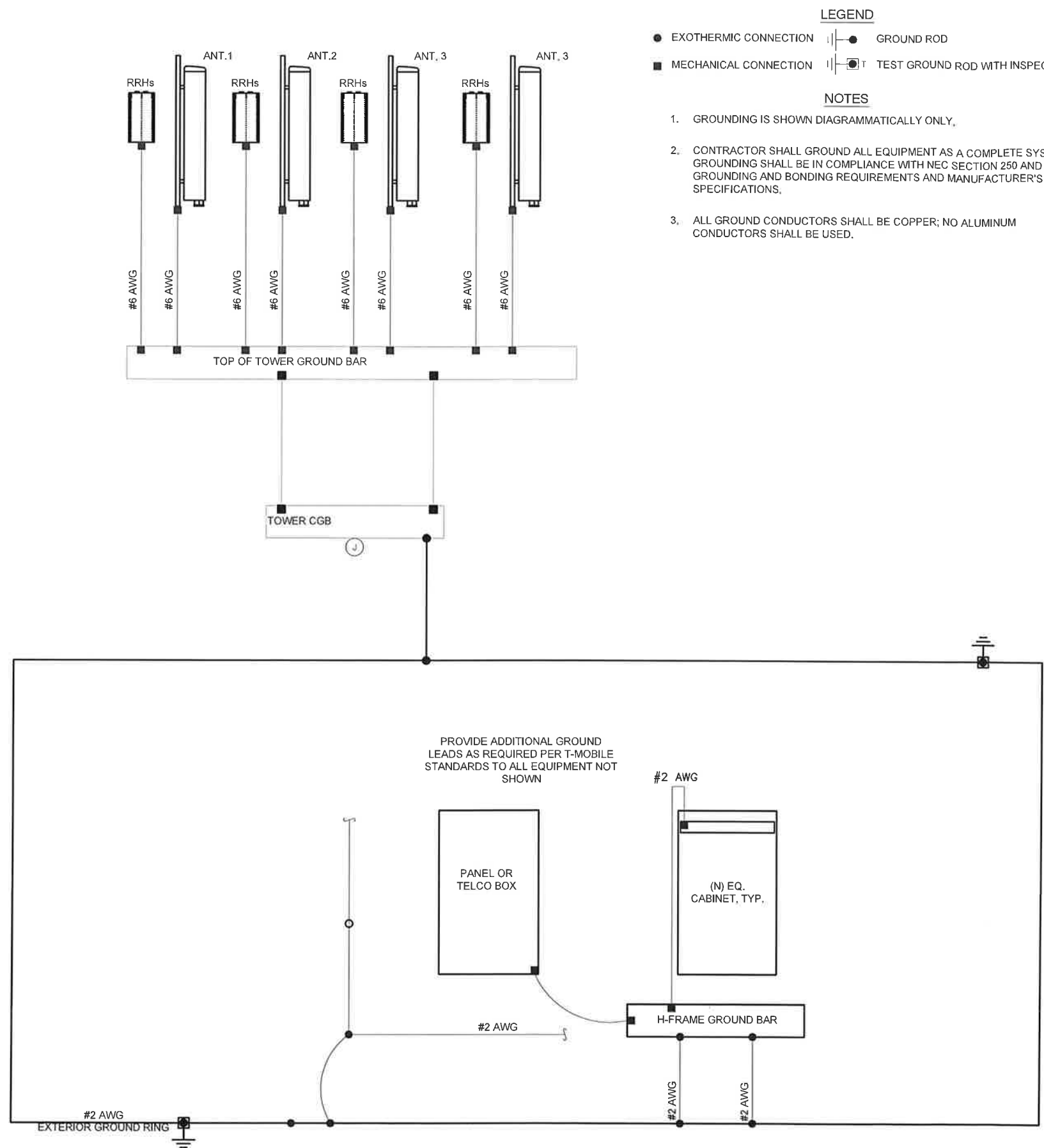
TOWER GROUND BAR: #2 AWG SOLID TINNED COPPER BOND TO THE TOWER GROUND RING.

FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENT'S METAL FRAMEWORK. BOND THE FRAME GROUND BUS OR SUPPLEMENTARY CONDUCTOR TO THE 'I' SECTION OF THE CELL REFERENCE GROUND BAR.

FENCE AND GATE GROUNDING: METAL FENCES WITHIN 7 FEET OF THE EXTERIOR GROUND RING OR OBJECTS BONDED TO THE EXTERIOR GROUND RING SHALL BE BONDED TO THE GROUND RING WITH A #2 AWG SOLID TINNED COPPER CONDUCTOR AT AN INTERVAL NOT EXCEEDING 25 FEET. BONDS SHALL BE MADE AT EACH GATE POST AND ACROSS GATE OPENINGS.

EXTERIOR UNIT BONDS: METALLIC OBJECTS, EXTERNAL TO THE H-FRAME SHALL BE BONDED TO THE EXTERIOR GROUND RING.

ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH #2 AWG BARE TINNED COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.



1 TYPICAL GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

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Sheet Title:

TYPICAL
GROUNDING
DETAILS

Sheet Number:

G3

EACH GROUNDING CONDUCTOR TERMINATING ON ANY GROUNDING BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION

SECTION "P" - SURGE PROTECTORS

- (EC) CELL REFERENCE GROUNDING BAR (IF CO-LOCATED)
- (EC) GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
- (EC) TELCO GROUNDING BAR (#2 AWG)
- (EC) COMMERCIAL POWER COMMON NEUTRAL/GROUNDING BOND (#3/0 AWG)
- (EC) FIBER GROUNDING BAR (#2 AWG)
- (EC) POWER ROOM REFERENCE GROUNDING BAR (#2 AWG)
- (AT&T) RECTIFIER FRAMES

SECTION "A" - SURGE ABSORBERS

- (EC) INTERIOR GROUNDING RING (#2 AWG)
- (EC) EXTERNAL EARTH GROUNDING FIELD (BURIED GRND RING) (#2 AWG)
- (EC) METALLIC COLD WATER PIPE (IF AVAILABLE) (#1/0 AWG)
- (EC) BUILDING STEEL (IF AVAILABLE) (#1/0 AWG)

SECTION "N" - NON-ISOLATED GROUNDING ZONE EQUIPMENT

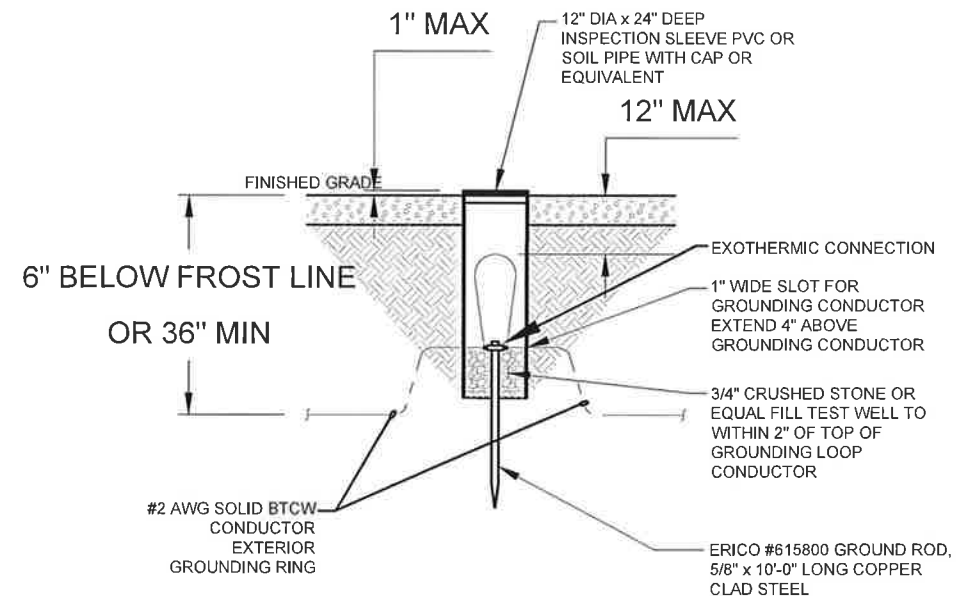
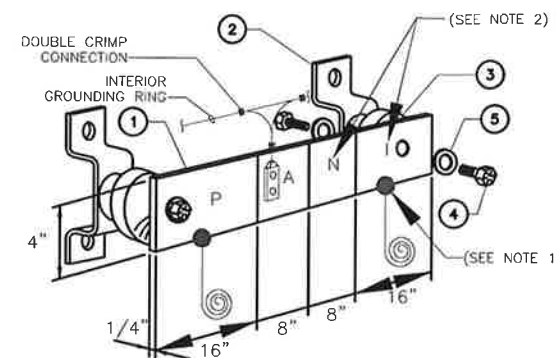
- (EC) MISC NON-ISOLATED GROUNDING ZONE EQUIPMENT (AT&T)-48V POWER SUPPLY RETURN BARE

SECTION "I" - ISOLATED GROUNDING ZONE

- (AT&T) ALL ISOLATED GROUNDING REFERENCE
- (AT&T) GROUNDING WINDOW BAR

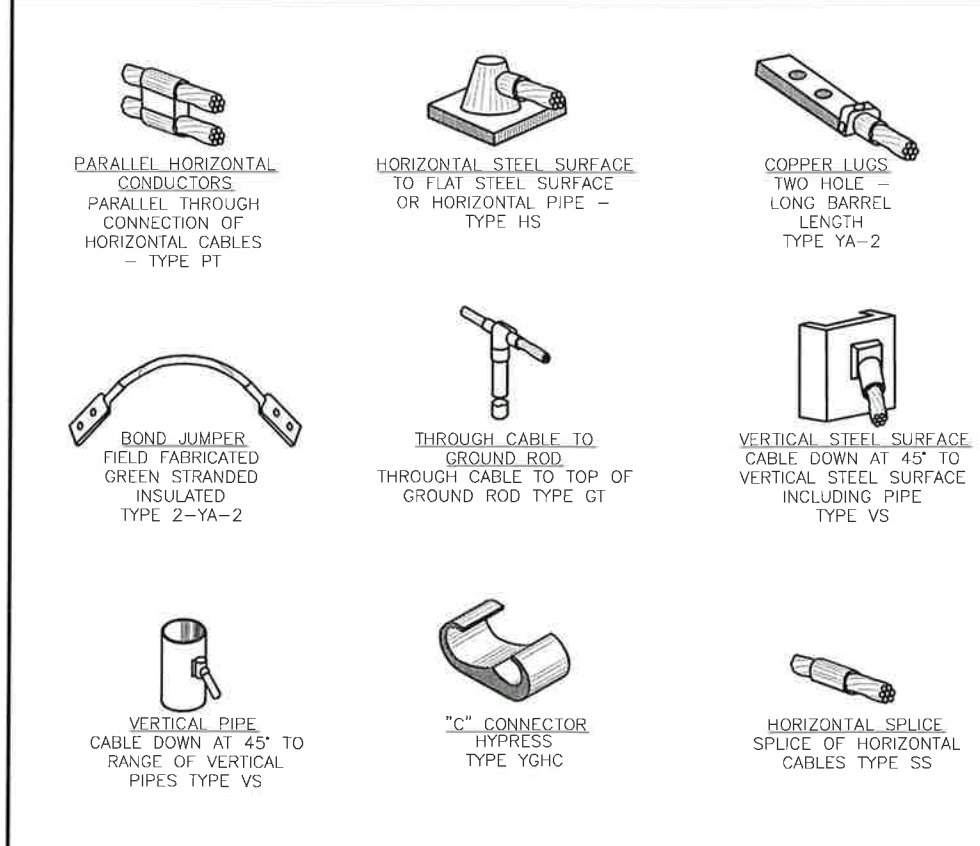
(N)TON INSTRUMENT COMPANY, INC.
BUTNER, N.C.

NO	REQUIRED	PART NUMBER	DESCRIPTION
①	1	1/4"x4"x48"	SOLID GROUNDING BAR
②	2	A-6056	WALL MOUNTING BRACKET
③	2	3061-4	INSULATORS
④	4	3012-1	5/8"-11x1" H.H.C.S.
⑤	4	3015-8	5/8" LOCKWASHER

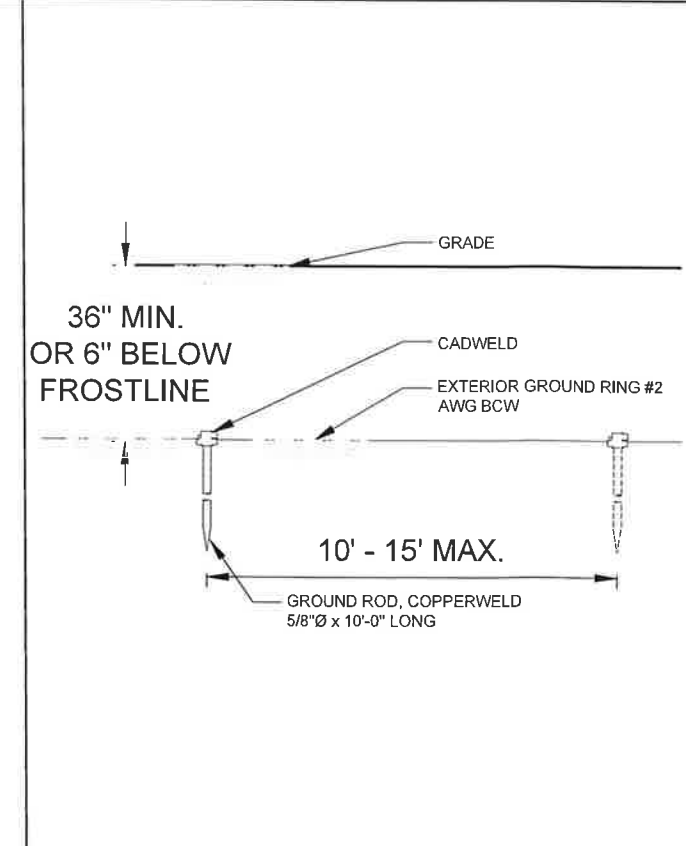


1 TEST GROUND ROD WITH INSPECTION SLEEVE
SCALE: N.T.S.

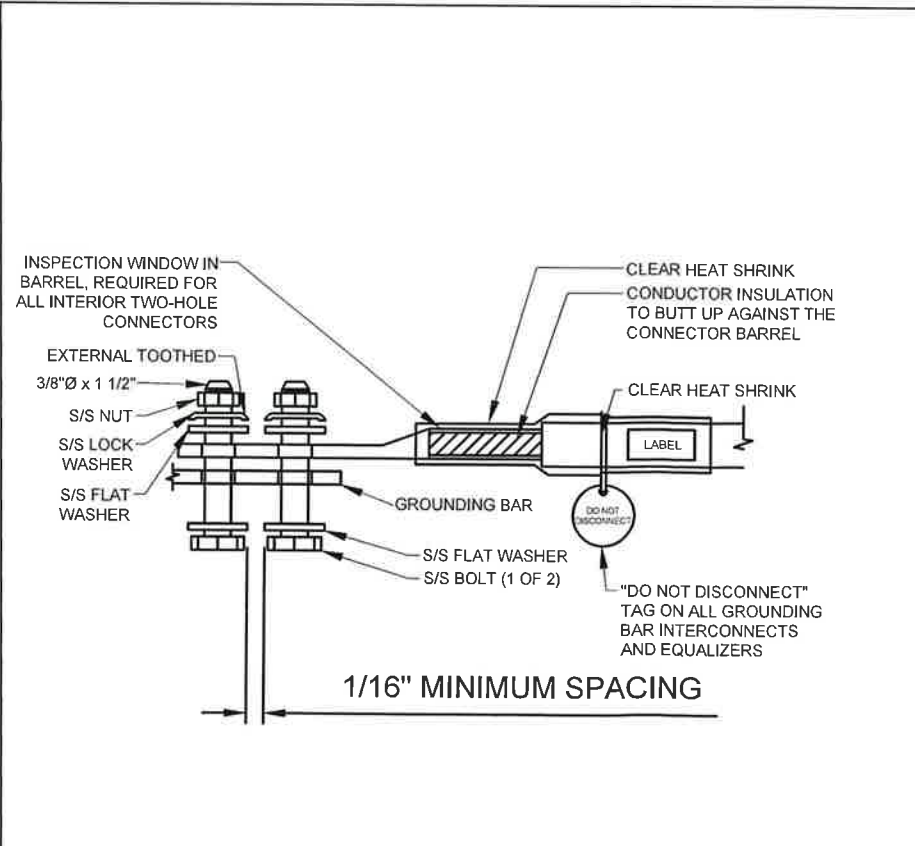
2 GROUND BAR DETAIL
SCALE: N.T.S.



3 TYPICAL CADWELD CONNECTIONS
SCALE: N.T.S.



4 TYPICAL BURIED GROUND RING
SCALE: N.T.S.



5 EXTERIOR 2-HOLE LUG
SCALE: N.T.S.

GENERAL CONSTRUCTION NOTES

- THE FACILITY IS AN UNOCCUPIED WIRELESS FACILITY.
- PLANS ARE NOT TO BE SCALED AND ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY, UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- PRIOR TO THE SUBMISSION OF BIDS, THE CONTRACTORS SHALL VISIT THE JOB SITE AND BE RESPONSIBLE FOR ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE IMPLEMENTATION ENGINEER AND ARCHITECT/ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
- THE CONTRACTOR SHALL RECEIVE, IN WRITING, AUTHORIZATION TO PROCEED BEFORE STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED OR IDENTIFIED BY THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL CONTACT LOCAL DIGGERS HOTLINE 48 HOURS PRIOR TO PROCEEDING WITH ANY EXCAVATION, SITE WORK OR CONSTRUCTION.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY INDICATED OTHERWISE OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
- ALL WORK PERFORMED AND MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. MECHANICAL AND ELECTRICAL SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- THE GENERAL CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK, USING THE BEST SKILLS AND ATTENTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT INCLUDING CONTACT AND COORDINATION WITH THE CONSTRUCTION FIELD ENGINEER AND WITH THE LANDLORD'S AUTHORIZED REPRESENTATIVE.
- DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.
- REPRESENTATIONS OF TRUE NORTH, OTHER THAN THOSE FOUND ON THE PLOT OF SURVEY DRAWING, SHALL NOT BE USED TO IDENTIFY OR ESTABLISH THE BEARING OF TRUE NORTH AT THE SITE. THE CONTRACTOR SHALL RELY SOLELY ON THE PLOT OF SURVEY DRAWING AND ANY SURVEYOR'S MARKINGS AT THE SITE FOR THE ESTABLISHMENT OF TRUE NORTH, AND SHALL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO PROCEEDING WITH THE WORK IF ANY DISCREPANCY IS FOUND BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND THE TRUE NORTH ORIENTATION AS DEPICTED ON THE PLAT OF SURVEY. THE CONTRACTOR SHALL ASSUME SOLE LIABILITY FOR ANY FAILURE TO NOTIFY THE ARCHITECT/ENGINEER.

STRUCTURAL NOTES

GENERAL CONDITIONS

- DESIGN AND CONSTRUCTION OF ALL WORK SHALL CONFORM TO THE APPROVED EDITION OF THE IBC EDITION AND ALL OTHER APPLICABLE STATE CODES, ORDINANCES, AND REGULATIONS. IN CASE OF CONFLICT BETWEEN THE CODES, STANDARDS, AND REGULATIONS. SPECIFICATIONS, GENERAL NOTES AND/OR MANUFACTURER'S REQUIREMENTS. USE THE MOST STRINGENT PROVISION.
- IT IS THE EXPRESS INTENT OF THE PARTIES INVOLVED IN THIS PROJECT THAT THE CONTRACTOR OR SUBCONTRACTOR OR INDEPENDENT CONTRACTOR OR THEIR RESPECTIVE EMPLOYEES SHALL EXCULPATE THE ARCHITECT, THE ENGINEER, THE CONSTRUCTION MANAGER, THE OWNER, AND THEIR AGENTS, FROM ANY LIABILITY WHATSOEVER AND HOLD THEM HARMLESS AGAINST LOSS, DAMAGES, LIABILITY OR ANY EXPENSE ARISING IN ANY MATTER FROM THE WRONGFUL OR NEGLIGENT ACT, OR FAILURE TO CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, OR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES OR FAILURE TO CONFORM TO THE STATE SCAFFOLDING ACT IN CONNECTION WITH THE WORK.
- DO NOT SCALE DRAWINGS.
- VERIFY ALL EQUIPMENT MOUNTING DIMENSIONS PER MANUFACTURER DRAWINGS.
- SUBMIT ONE SEPIA AND TWO PRINTS OF ALL STRUCTURAL SHOP DRAWINGS. MARKED UP SEPIA SHALL BE RETURNED.

STRUCTURAL STEEL NOTES:

- CHANNELS, ANGLES AND PLATES SHALL BE ASTM A36 MATERIAL, UNLESS NOTED OTHERWISE.
- SQUARE AND RECTANGULAR TUBE STEEL HSS SECTIONS SHALL BE ASTM A500, GRADE B (Fy = 46 ksi) MATERIAL.
- ROUND PIPE SECTIONS SHALL BE ASTM A53, GRADE B (Fy =35 ksi) MATERIAL.
- DESIGN, FABRICATION, AND ERECTION SHALL BE IN ACCORDANCE WITH THE "AISC SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", WITH COMMENTARY AND THE "CODE OF STANDARD PRACTICE".
- ALL STEEL SHALL HAVE ONE COAT OF SHOP PRIMER. DO NOT PAINT AREAS WITHIN 3" OF BOLTS, WELDS OR HEADED STUDS.
- BOLTS SHALL BE HIGH STRENGTH BOLTS, A325, CONFORMING TO ASTM SPECIFICATIONS. ALL CONNECTIONS SHALL HAVE A MINIMUM OF 2 BOLTS.
- WELDING SHALL BE CONDUCTED BY CERTIFIED WELDERS AND SHALL CONFORM TO THE AWS CODES FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION.
- WELDS SHALL BE MADE USING E70XX ELECTRODES AND SHALL BE 3/16" MINIMUM UNLESS OTHERWISE NOTED.
- WELDING SHALL BE PERFORMED IN ACCORDANCE WITH A WELDED PROCEDURE SPECIFICATION (WPS) AS PER AWS D1.1, D1.3 AND D1.4.
- ONLY PRE-QUALIFIED WELDING PROCEDURES SHALL BE USED.
- UNLESS SPECIFICALLY ADDRESSED IN THE SPECIFICATIONS OR THE DETAILS, ALL STEEL ITEMS PERMANENTLY EXPOSED TO EARTH OR WEATHER SHALL BE CORROSION-RESISTANT BY GALVANIZING OR BY THE USE OF STAINLESS STEEL.
- ALL FIELD WELDS ON GALVANIZED MATERIAL SHALL BE BRUSH-COATED WITH A ZINC-RICH PAINT.

FRP NOTES:

- ALL FRP MATERIAL SHALL BE EXTREN SERIES 500 OR EQUIVALENT, PRODUCED BY THE PULTRUSION METHOD.
- ALL ADHESIVE RESIN SHALL BE PLEXUS METHACRYLATE OR AN EQUIVALENT ADHESIVE RESIN THAT IS COMPATIBLE WITH THE RESIN MATRIX USED IN THE STRUCTURAL SHAPES.
- ALL FRP CONNECTIONS SHALL BE FULLY-BONDED AT EACH SIDE WITH A 1/4" PLATE AND A MINIMUM OF (2) 3/8" DIAMETER FLATHEAD FRP SCREWS PER MEMBER.

- ISOPLAST NUTS AND BOLTS SHALL BE TIGHTENED TO A SNUG-TIGHT FIT PLUS AN ADDITIONAL 1/2 TURN, PRIOR TO BEING LOCKED WITH EPOXY.
- ALL PANELS / SHEATHING SHALL BE FULLY BONDED WITH 3/8" FLATHEAD FRP SCREWS AT 12" O.C.
- ALL FIELD CUT AND DRILLED EDGES, HOLES AND ABRASIONS SHALL BE SEALED WITH A CATALYZED EPOXY RESIN COMPATIBLE WITH THE MANUFACTURER'S ORIGINAL RESIN.

STANDARDS FOR ALL CONCRETE WORK

- ALL CONCRETE WORK SHALL CONFORM WITH ACI 318 OR LATEST, DETAIL REINFORCING IN CONFORMANCE WITH ACI, SP66 LATEST.
- NO SPLICES OF REINFORCEMENT SHALL BE MADE EXCEPT AS DETAILED OR AUTHORIZED BY THE STRUCTURAL ENGINEER, LAP SPLICES WHERE PERMITTED SHALL BE A MINIMUM OF 30 BAR DIAMETERS.
- PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCING AT POSITIONS SHOW ON DRAWINGS.
- WIRE FABRIC REINFORCEMENT MUST LAP ONE FULL MESH AT SIDE AND END LAPS SHALL BE TIED TOGETHER.
- CURE AFTER FINISHING CONCRETE. KEEP MOIST FOR 7 DAYS AFTER POURING.
- COMPACT STRUCTURAL FILL 95% PROCTOR DENSITY PRIOR TO PLACING CONCRETE UNDER SLABS.
- 1/4" CHAMFER ON ALL CORNERS AND EDGES.
- ALL CONCRETE SHALL BE PORTLAND, TYPE 1 CEMENT WITH A MINIMUM OF 28 DAY STRENGTH OF 3000 PSI., 4" SLUMP AND A MINIMUM AIR ENTRAPMENT OF 4%.
- ALL REINFORCING STEEL SHALL BE GRADE 60. ALL REINFORCING MESH SHALL CONFORM TO ASTM A 185.



ELECTRICAL NOTES

- SUBMITTAL OF BID INDICATES CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT. CONTRACTOR IS RESPONSIBLE FOR ALL FIELD VERIFICATION.
- THESE PLANS ARE DIAGRAMMATIC ONLY, AND NOT TO BE SCALED.
- ELECTRICAL CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC. FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY UNDER-WRITER'S LABORATORY AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL MATERIALS SHALL MEET WITH APPROVAL OF THE DIVISION OF INDUSTRIAL SAFETY AND ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU.
- ALL CONDUIT INSTALLED SHALL BE SURFACE MOUNTED UNLESS OTHERWISE NOTED.
- ELECTRICAL CONTRACTOR SHALL CARRY OUT HIS WORK WITH ACCORDANCE WITH ALL GOVERNING STATE, COUNTY, LOCAL CODES AND O.S.H.A.
- ELECTRICAL CONTRACTOR SHALL SECURE ALL NECESSARY ELECTRICAL PERMITS, AND PAY ALL REQUIRED FEES.
- COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF NO LESS THAN ONE YEAR AFTER THE DATE OF JOB COMPLETION. ANY WORK, MATERIAL, OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR.
- ALL CONDUIT ONLY (C.O.) SHALL HAVE A PULL WIRE OR ROPE, AND TRUE TAPE.
- PROVIDE THE OWNER WITH ONE SET OF COMPLETE DIMENSIONS AND CIRCUITS, WITHIN 10 WORKING DAYS OF PROJECT COMPLETION. ELECTRICAL "AS BUILT" DRAWINGS, SHOWING ACTUAL LOCATION OF CONDUITS.
- ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO PROJECT MANAGER AT JOB COMPLETION.
- USE T-TAP CONNECTIONS ON ALL MULTI-CIRCUITS WITH COMMON NEUTRAL CONDUCTOR FOR LIGHTING FIXTURE. ALL CONDUCTORS SHALL BE COPPER.
- THE EXTERIOR GROUND RING SHALL BE TESTED PER CCI SPECIFICATIONS AND SHALL HAVE A RESISTANCE TO EARTH OF 5 OHMS OR LESS. IF NOT NOTIFY ENGINEER.
- ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THAN THE MAXIMUM SHORT-CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY ALL APPLICABLE CODES.
- PATCH, REPAIR, AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
- IN DRILLING HOLES INTO CONCRETE (WHETHER FOR FASTENING OR ANCHORING PURPOSES OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC.) IT MUST BE CLEARLY UNDERSTOOD THAT TENDONS AND RE-BARS WILL NOT BE DRILLED INTO, CUT, OR DAMAGED UNDER ANY CIRCUMSTANCES.
- LOCATION OF TENDONS AN RE-BARS ARE NOT DEFINITELY KNOWN AND THEREFORE MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT VIA X-RAY, OR OTHER DEVICES THAT CAN ACCURATELY LOCATE THE REINFORCING STEEL TENDONS.
- PENETRATIONS IN FIRE RATED WALLS SHALL BE FIRE STOPPED IN ACCORDANCE WITH APPLICABLE LOCAL BUILDING CODES. USING U.L. RATED MATERIALS.

- ELECTRICAL CONTRACTOR IS TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE, THE TEMPORARY POWER AND ALL HOOK-UP COSTS SHALL BE PAID BY THE CONTRACTOR.
- ELECTRICAL CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND/OR CATALOG CUT-SHEETS ON ALL NON-SPECIFIED ORIGINAL MATERIALS AND EQUIPMENT, TO PROJECT MANAGER PRIOR TO COMMENCEMENT OF THE WORK.
- UPON COMPLETION OF WORK, CONDUCT CONTINUITY AND SHORT CIRCUIT, AS WELL AS, GROUNDING TEST. GROUNDING TEST SHALL BE PERFORMED BY INDEPENDENT TESTING AGENCY, WITH WRITTEN REPORT SUBMITTED TO THE PROJECT MANAGER FOR REVIEW AND APPROVAL.
- CLEAN PREMISES DAILY OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK PREMISES IN A COMPLETE AND UNDATED CONDITION.
- ALL EXTERIOR WALL PENETRATIONS SHALL BE SEALED WITH POLYSEAM SEALANT.
- ALL #2 TINNED BARE COPPER DOWNLEADS TO BE PROTECTED BY 1/2" P.V.C. PIPE AND SECURED.
- COMPRESSION FITTINGS TO BE USED ON ALL CONDUITS (NO SET SCREWS).
- ALL #6 STRANDED COPPER WITH GREEN INSULATION TO BE ATTACHED WITH CRIMPED DOUBLE LUG ATTACHED WITH NUTS, BOLTS AND STAR WASHERS TYPICAL AND NO-OX GREASE BETWEEN LUG AND BUS BAR.
- ALL ABOVE GROUND CONDUIT SHALL BE RIGID GALVANIZED CONDUIT WITH WEATHERPROOF FITTINGS.

GROUNDING

- ALL METALLIC PARTS OF ELECTRICAL EQUIPMENT WHICH DO NOT CARRY CURRENT SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE BUILDING MANUFACTURER, T-MOBILE GROUNDING AND BONDING STANDARDS, AND THE NATIONAL ELECTRICAL CODE.
- PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEM INDICATED WITH ASSEMBLY OF MATERIALS, INCLUDING GROUNDING ELECTRODES, BONDING JUMPERS AND ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION.
- ALL GROUNDING CONDUCTORS SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND WITH GRADUAL BEND AS REQUIRED. GROUNDING CONDUCTORS SHALL NOT BE LOOPED OR SHARPLY BENT. ROUTE GROUNDING CONNECTIONS AND CONDUCTORS TO GROUND IN THE SHORTEST AND STRAIGHTEST PATHS POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISES. BUILDINGS AND/OR NEW TOWERS GREATER THAN 75 FEET IN HEIGHT AND WHERE THE MAIN
- GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUND RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN #2 AWG COPPER. ROOFTOP GROUND RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).
- TIGHTEN GROUNDING AND BONDING CONNECTORS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR CONNECTORS AND BOLTS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT AVAILABLE, TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL TO ASSURE PERMANENT AND EFFECTIVE GROUNDING. CONTRACTOR SHALL VERIFY THE LOCATIONS OF GROUNDING TIE-IN-POINTS TO THE EXISTING
- ALL UNDERGROUND GROUNDING CONNECTIONS SHALL BE MADE BY THE GROUNDING SYSTEM. EXOTHERMIC WELD PROCESS AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- ALL GROUNDING CONNECTIONS SHALL BE INSPECTED FOR TIGHTNESS. EXOTHERMIC WELDED CONNECTIONS SHALL BE APPROVED BY THE INSPECTOR HAVING JURISDICTION BEFORE BEING PERMANENTLY CONCEALED.
- APPLY CORROSION-RESISTANCE FINISH TO FIELD CONNECTIONS AND PLACES WHERE FACTORY APPLIED PROTECTIVE COATINGS HAVE BEEN DESTROYED.
- A SEPARATE, CONTINUOUS, INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL FEEDER AND BRANCH CIRCUITS.
- BOND ALL INSULATED GROUNDING BUSHINGS WITH A BARE 6 AWG GROUNDING CONDUCTOR TO A GROUND BUS.
- DIRECT BURIED GROUNDING CONDUCTORS SHALL BE INSTALLED AT A NOMINAL DEPTH OF 36" MINIMUM BELOW GRADE, OR 6" BELOW THE FROST LINE, USE THE GREATER OF THE TWO DISTANCES.
- ALL GROUNDING CONDUCTORS EMBEDDED IN OR PENETRATING CONCRETE SHALL BE INSTALLED IN SCHEDULE 40 PVC CONDUIT.
- THE INSTALLATION OF CHEMICAL ELECTROLYTIC GROUNDING SYSTEM IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. REMOVE SEALING TAPE FROM LEACHING AND BREATHER HOLES. INSTALL PROTECTIVE BOX FLUSH WITH GRADE.
- DRIVE GROUND RODS UNTIL TOPS ARE A MINIMUM DISTANCE OF 36" DEPTH OR 6" BELOW FROST LINE, USING THE GREATER OF THE TWO DISTANCES.
- IF COAX ON THE ICE BRIDGE IS MORE THAN 6 FT. FROM THE GROUND BAR AT THE BASE OF THE TOWER, A SECOND GROUND BAR WILL BE NEEDED AT THE END OF THE ICE BRIDGE, TO GROUND THE COAX CABLE GROUNDING KITS AND IN-LINE ARRESTORS
- CONTRACTOR SHALL REPAIR, AND/OR REPLACE, EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE CONTRACTORS EXPENSE.

PROJECT INFORMATION:

SITE NAME:
AT&T PENROSE

SITE ID:
DN04750A

1415 NORTH STREET
PENROSE, CO 81240
FREMONT COUNTY

Rev:	Date:	Description:	By:
A	07.29.24	PRELIM CONST	KS
0	08.08.24	FINAL STAMPED	KS
1	09.25.24	REV CD	KS

PLANS PREPARED BY:



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DRAWN BY:	CHK BY:	APV BY:
MC	CS	KS

Sheet Title:

GENERAL NOTES

Sheet Number:

GN1