



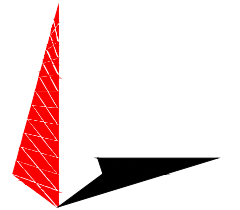
# AT&T MOBILITY ANTENNA AMENDMENT PLAN

**AMERICAN TOWER®**

ATC SITE NAME: HWY 40 AND HWY 131  
ATC SITE NUMBER: 205626  
AT&T MOBILITY PACE NUMBER: MRUTH051808 (LTE 5C),  
MRUTH051835 (4TX4RX SOFTWARE RETROFIT),  
MRUTH051809 (5G NR SOFTWARE UPGRADE),  
MRUTH051810 (LTE 3C), MRUTH051811 (LTE 4C)  
AT&T MOBILITY SITE ID: COL04213  
AT&T MOBILITY FA CODE: 14095953  
AT&T MOBILITY SITE NAME: HWY 40 & HWY 131  
SITE ADDRESS: 30700 CR 14B  
STEAMBOAT SPRINGS, CO 80487



## LOCATION MAP



**TOWER ENGINEERING PROFESSIONALS**  
326 TRYON ROAD  
RALEIGH, NC 27603-3530  
OFFICE: (919) 661-6351  
[www.tepgroup.net](http://www.tepgroup.net)

REV.	DESCRIPTION	BY	DATE
<u>A</u>	PRELIMINARY	<u>SDD</u>	<u>06/09/22</u>
<u>0</u>	100% CONSTRUCTION	<u>SRZ</u>	<u>07/19/22</u>
<u>1</u>	100% CONSTRUCTION	<u>RMJ</u>	<u>07/28/22</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>

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STEAMBOAT SPRINGS, CO 80487

SEAL:



07/28/22



DATE DRAWN:	07/28/22
ATC JOB NO:	14095953
CUSTOMER NAME:	HWY 40 & HWY 131
CUSTOMER ID:	COL04213

# TITLE SHEET

SHEET NUMBER:  
**G-001**

REVISION:  
1

[illegible]

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

GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, AT&T MOBILITY "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
- A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)

B. AC/TELCO INTERFACE BOX (PPC)

C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)

D. TOWERS, MONOPOLES

E. TOWER LIGHTING

F. GENERATORS & LIQUID PROPANE TANK

G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING

H. ANTENNAS (INSTALLED BY OTHERS)

I. TRANSMISSION LINE

J. TRANSMISSION LINE JUMPERS

K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS

L. TRANSMISSION LINE GROUND KITS

M. HANGERS

N. HOISTING GRIPS

O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF AT&T MOBILITY TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE AT&T MOBILITY REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE AT&T MOBILITY REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE AT&T MOBILITY REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE AT&T MOBILITY CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE AT&T MOBILITY REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH AT&T MOBILITY AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH AT&T MOBILITY REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS

PROVIDED.

22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH AT&T MOBILITY REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY AT&T MOBILITY MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH AT&T MOBILITY SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO AT&T MOBILITY FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO AT&T MOBILITY SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
27. CONTRACTOR SHALL NOTIFY AT&T MOBILITY REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
28. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
29. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
30. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE AT&T MOBILITY REP. ANY WORK FOUND BY THE AT&T MOBILITY REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
31. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.
32. AT&T MOBILITY FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE AT&T MOBILITY WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
33. AT&T MOBILITY OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO AT&T MOBILITY OR THEIR ARCHITECT/ENGINEER.

SPECIAL CONSTRUCTION

ANTENNA INSTALLATION NOTES:

1. WORK INCLUDED:
- A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY AT&T MOBILITY UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL.

B. INSTALL ANTENNAS AS INDICATED ON DRAWINGS AND AT&T MOBILITY SPECIFICATIONS.

C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.

D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE.

E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.

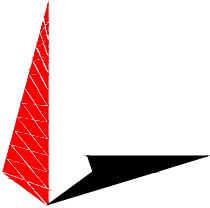
F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.

G. ANTENNA AND COAXIAL CABLE GROUNDING:

2. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.

3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS)

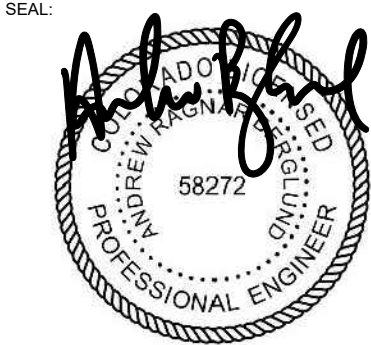
ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.



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REV.	DESCRIPTION	BY	DATE
A	PRELIMINARY	SDD	06/09/22
B	100% CONSTRUCTION	SRZ	07/19/22

ATC SITE NUMBER: 205626  
ATC SITE NAME: HWY 40 AND HWY 131  
AT&T MOBILITY SITE NUMBER:  
COL04213  
AT&T MOBILITY SITE NAME:  
HWY 40 & HWY 131  
SITE ADDRESS:  
30700 CR 14B  
STEAMBOAT SPRINGS, CO 80487



07/19/22



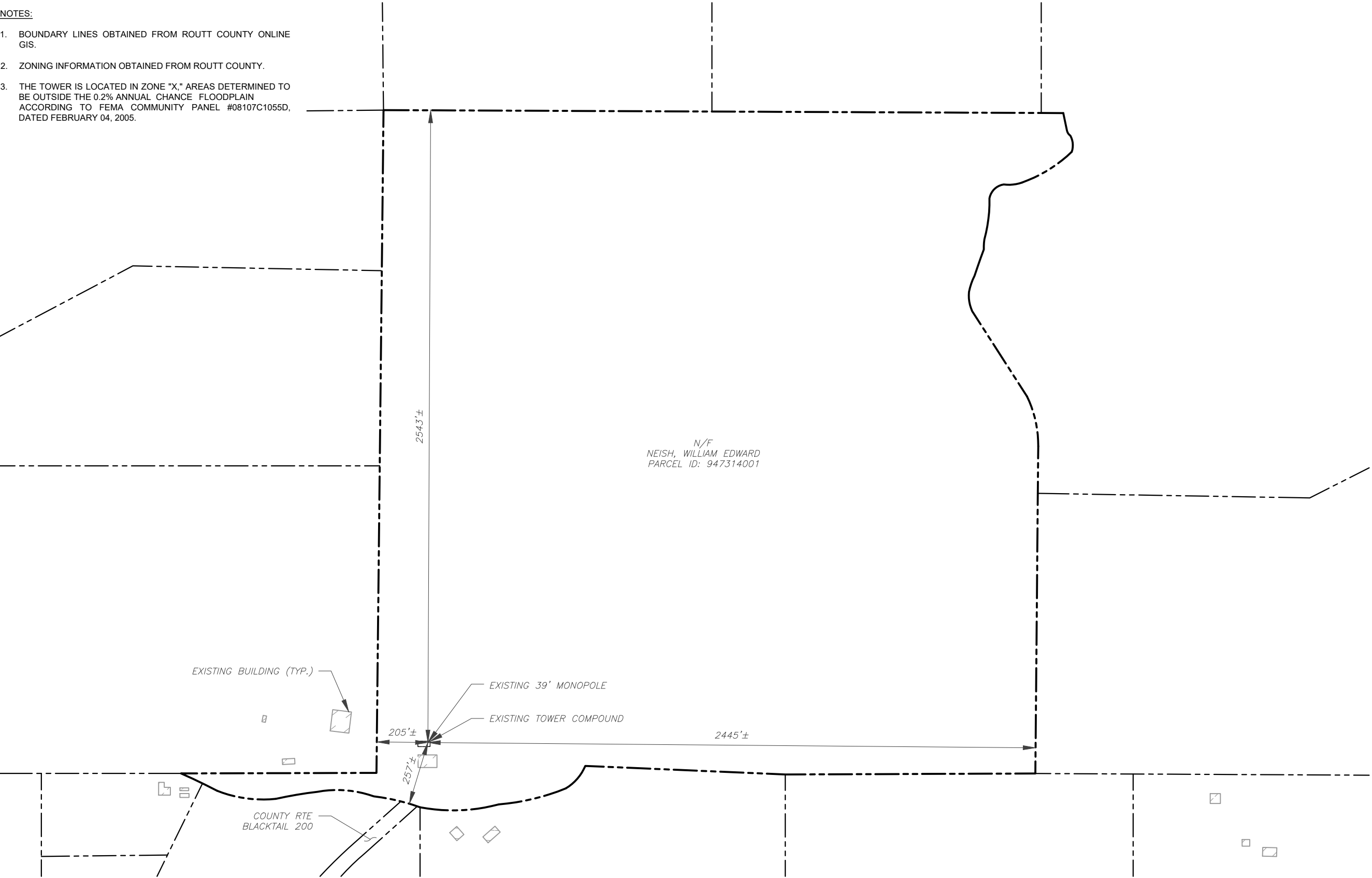
DATE DRAWN:	07/19/22
ATC JOB NO:	14095953
CUSTOMER NAME:	HWY 40 & HWY 131
CUSTOMER ID:	COL04213

GENERAL NOTES

SHEET NUMBER: G-002	REVISION: 0
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NOTES:

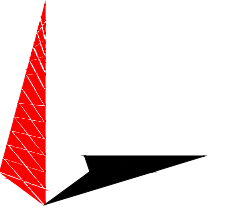
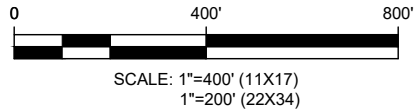
1. BOUNDARY LINES OBTAINED FROM ROUTT COUNTY ONLINE GIS.
2. ZONING INFORMATION OBTAINED FROM ROUTT COUNTY.
3. THE TOWER IS LOCATED IN ZONE "X," AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN ACCORDING TO FEMA COMMUNITY PANEL #08107C1055D, DATED FEBRUARY 04, 2005.



LEGEND

- EXISTING PROPERTY LINE
- EXISTING ADJACENT PROPERTY LINE
- EXISTING LEASE AREA

1 OVERALL SITE PLAN  
SCALE 1" = 400'



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SEAL:



07/19/22



DATE DRAWN:	07/19/22
ATC JOB NO:	14095953
CUSTOMER NAME:	HWY 40 & HWY 131
CUSTOMER ID:	COL04213

OVERALL SITE PLAN

SHEET NUMBER:

**C-001**

REVISION:

**0**



SITE PLAN NOTES:

1.

THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2.

ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.
3.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE AT&T MOBILITY REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.

LEGEND

⊗

ATS

B

CSC

D

E

F

GEN

G

HH, V

IB

K

LC

M

PB

PP

T

TRN

— x —

GROUNDING TEST WELL

AUTOMATIC TRANSFER SWITCH

BOLLARD

CELL SITE CABINET

DISCONNECT

ELECTRICAL

FIBER

GENERATOR

GENERATOR RECEPTACAL

HAND HOLE, VAULT

ICE BRIDGE

KENTROX BOX

LIGHTING CONTROL

METER

PULL BOX

POWER POLE

TELCO

TRANSFORMER

CHAINLINK FENCE

NOTES:

1.

REPLACE EXISTING INDOOR POWER PLANT WITH NEW VERTIV NETSURE -48VDC POWER SYSTEM; INSTALL (1) NEW VERTIV NETSURE 7100 -48VDC POWER PLANT OUTFITTED WITH (6) EA. HE 2KW -48VDC RECTIFIERS.
2.

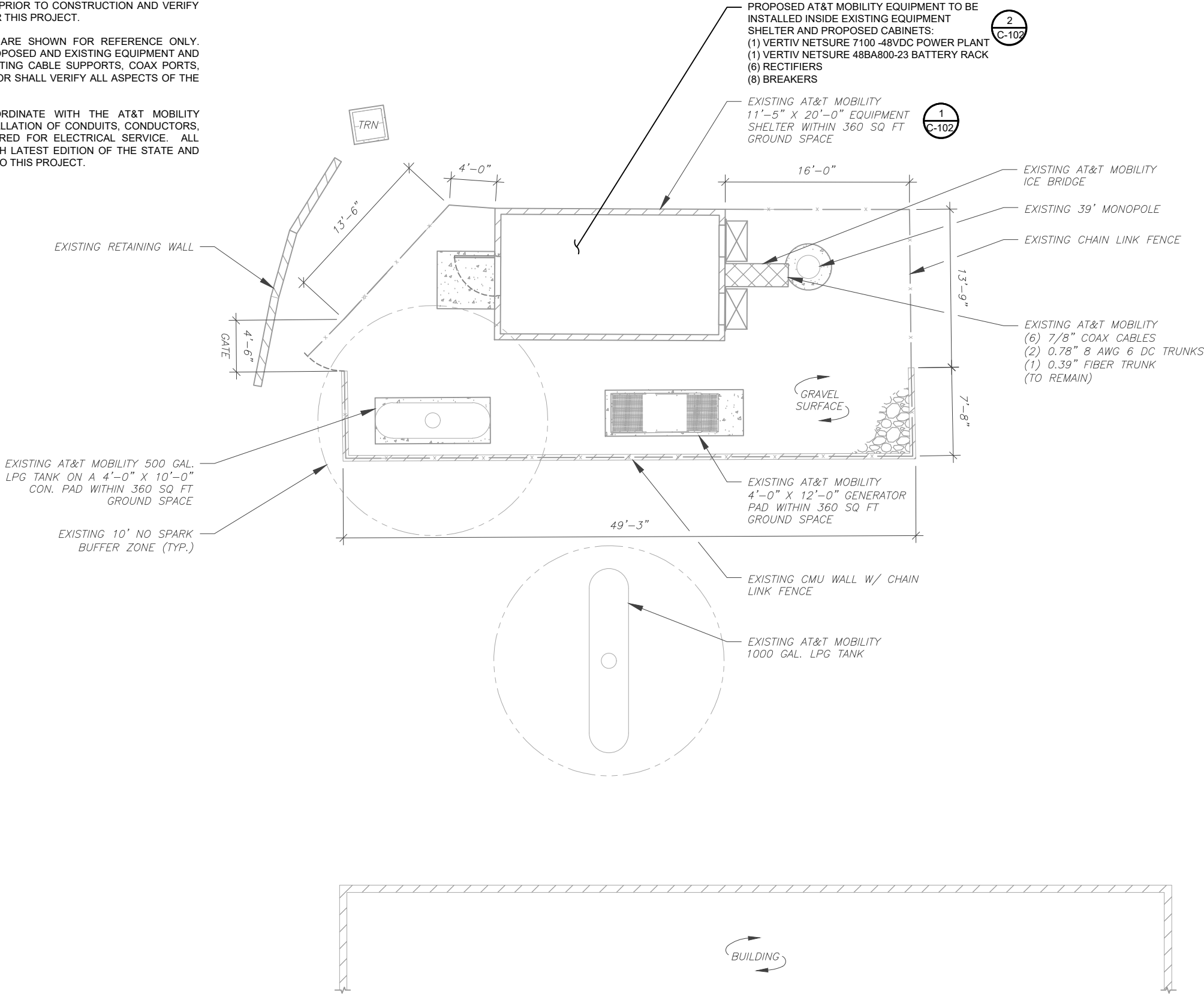
THERE IS (1) EXISTING GENERATOR; SITE REQUIRES A MINIMUM OF 32KW OF GENERATOR CAPACITY. EXISTING GENERATOR SIZE AND CAPACITY TO BE VERIFIED PRIOR TO DETERMINING SUFFICIENCY.
3.

(3) 50A BREAKER FOR AHFIB
4.

(3) 50A BREAKER FOR AHLBBA
5.

(2) 25A BREAKER FOR FSM4 5GNR
6.

EXISTING (8) EXISTING PORTALAC PYL12V160FT BATTERIES ARE IN GOOD HEALTH AND CAN BE RE-STRAPPED FOR -48VDC IN TWO STRINGS OF 4 IN A NEW BATTERY RACK.



1

DETAILED SITE PLAN

SCALE : 1" = 10'

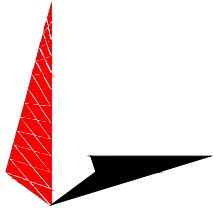
0

10'

20'

SCALE: 1"=10' (11X17)  
1"=5' (22X34)

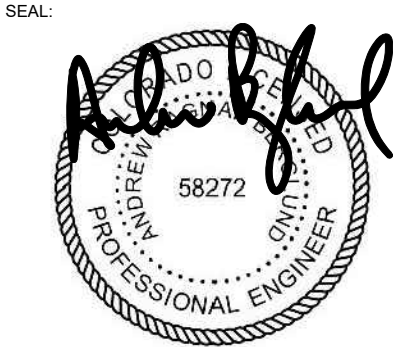
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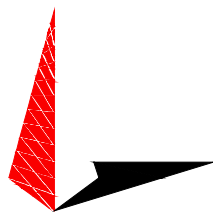
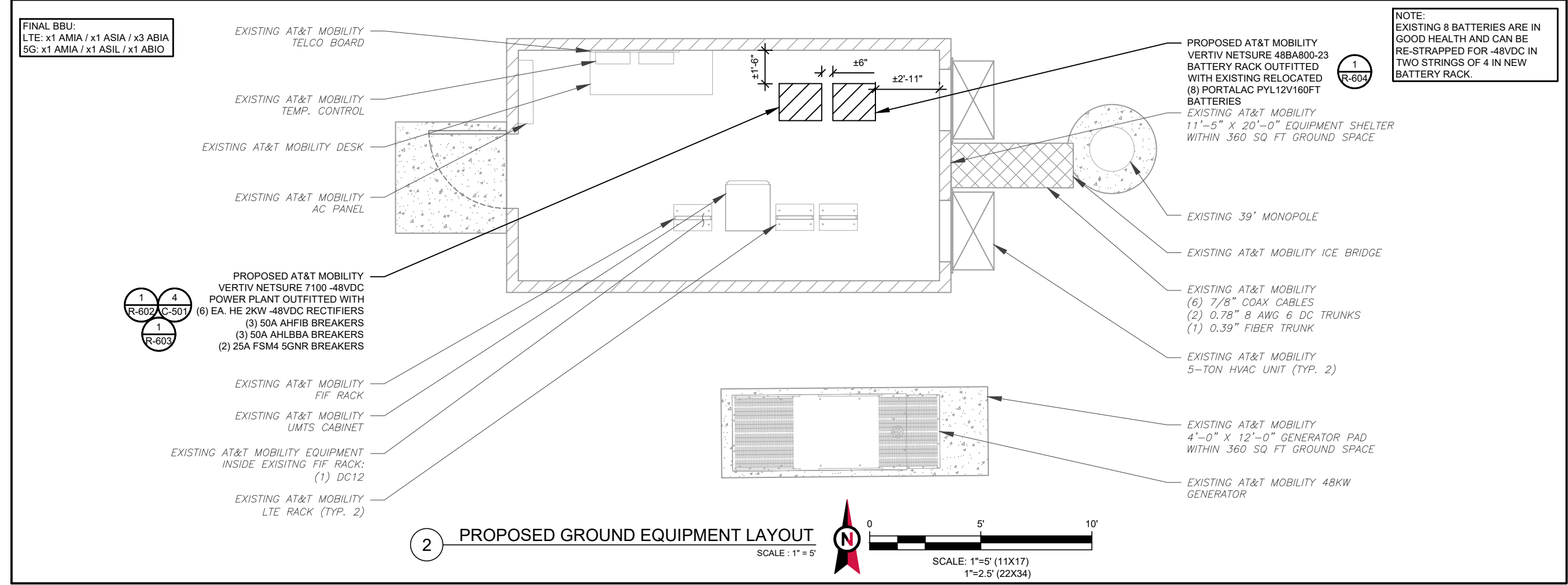
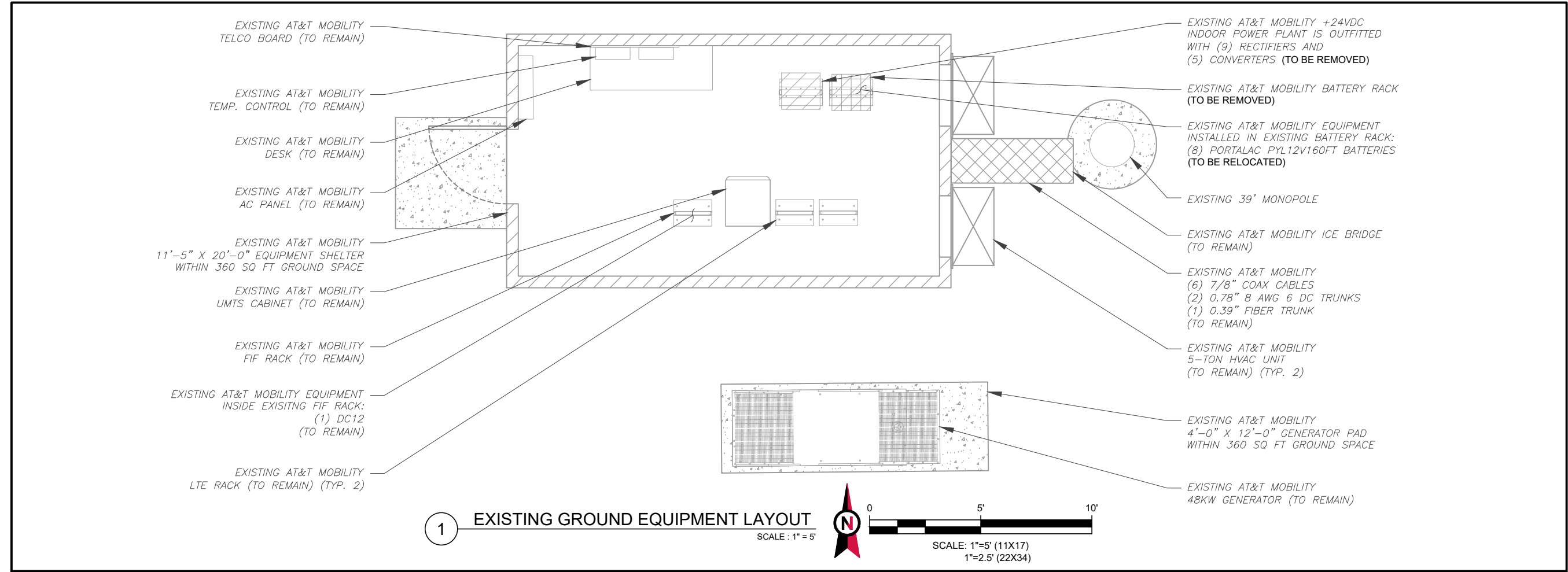


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CUSTOMER NAME:	HWY 40 & HWY 131
CUSTOMER ID:	COL04213

DETAILED SITE PLAN

SHEET NUMBER:	REVISION:
<b>C-101</b>	<b>1</b>





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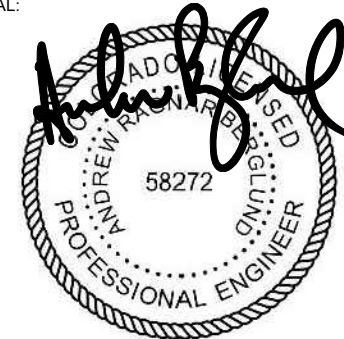
HWY 40 & HWY 131

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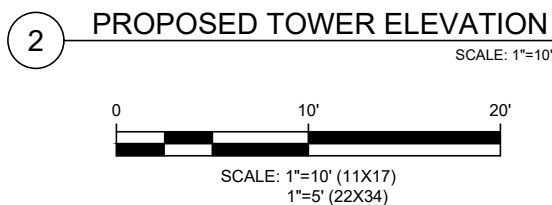
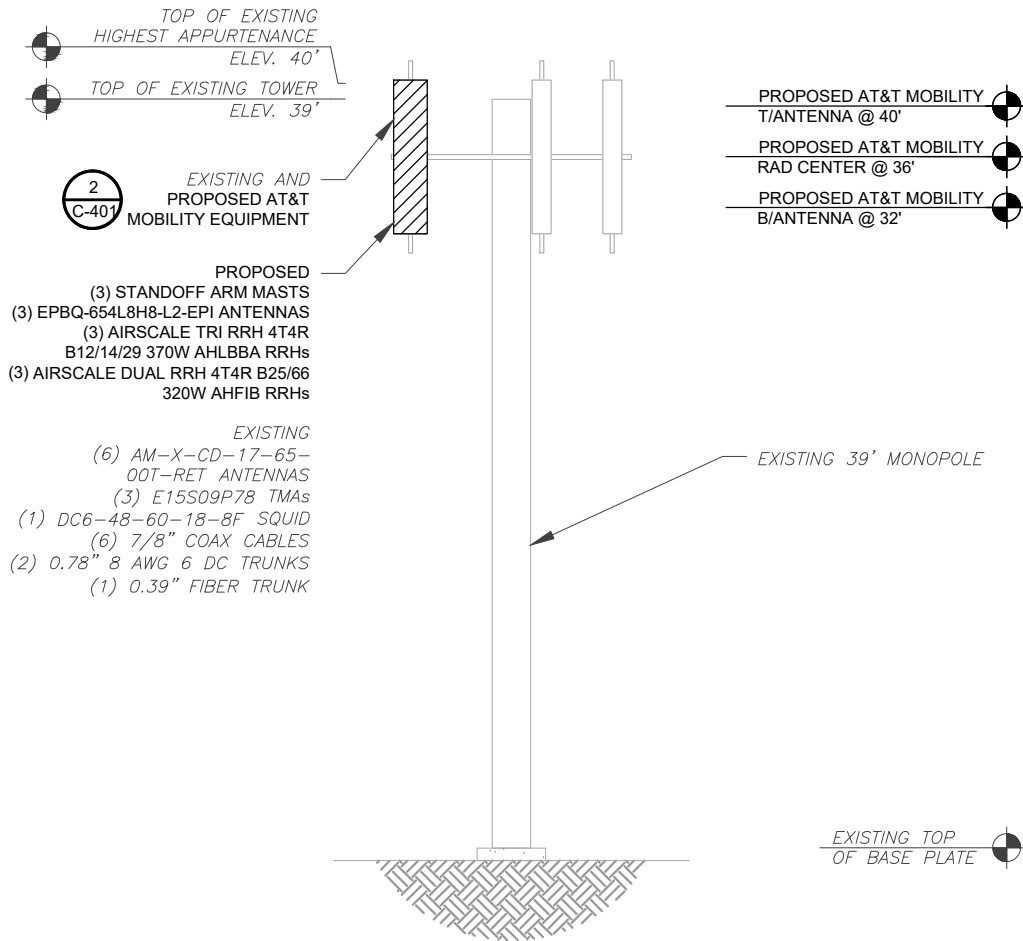
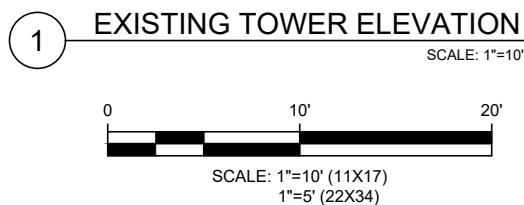
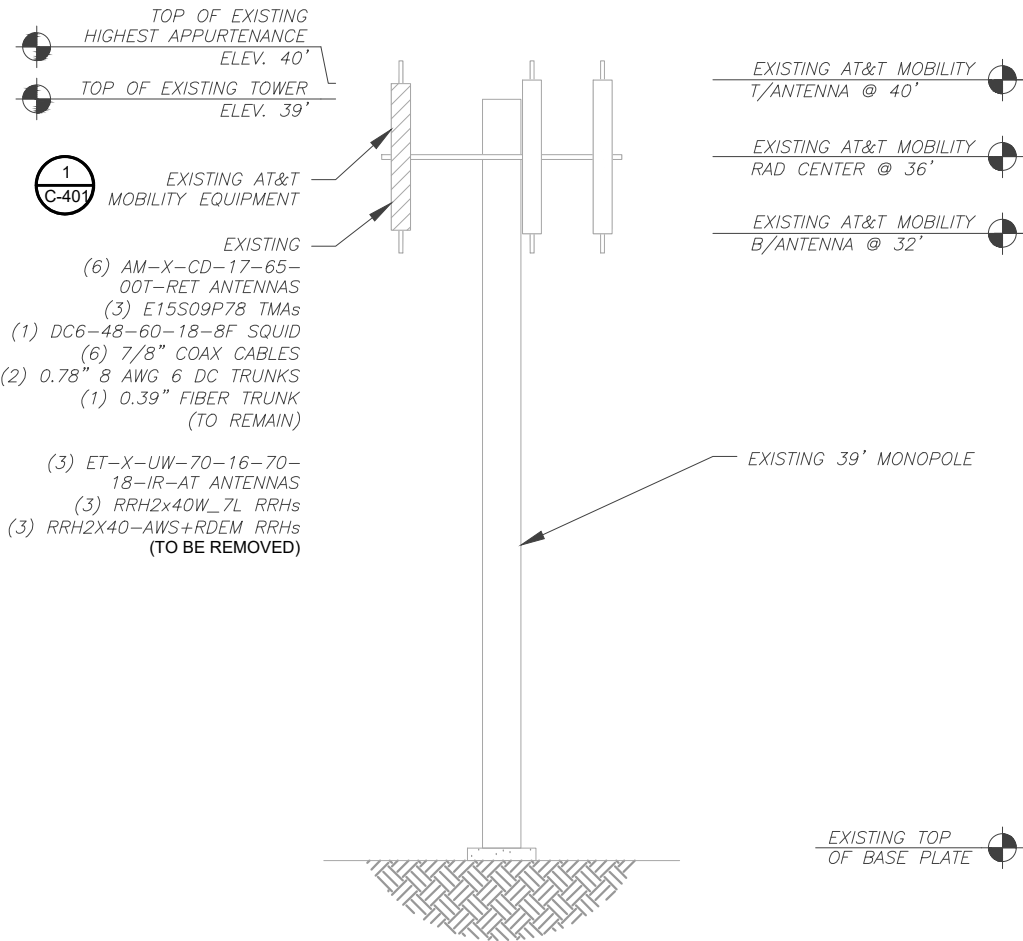
DETAILED EQUIPMENT LAYOUT

SHEET NUMBER:

C-102

REVISION:

1



PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORPORATION, DATED MAY 17, 2022, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.

DETAILED SOW:

\*\*\*TOPSIDE\*\*\*

REMOVE (3) ET-X-UW-70-16-70-18-IR-AT ANTENNAS

REMOVE (3) RRH2x40W\_7L RRHs

REMOVE (3) RRH2X40-AWS+RDEM RRHs

INSTALL (3) STANDOFF ARM MASTS

INSTALL (3) EPBQ-654L8H8-L2-EPI ANTENNAS

INSTALL (3) AIRSCALE TRI RRH 4T4R B12/14/29 370W AHLBBA RRHs

INSTALL (3) AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB RRHs

RETAIN (6) AM-X-CD-17-65-00T-RET ANTENNAS

RETAIN (3) E15S09P78 TMAs

RETAIN (1) DC6-48-60-18-8F SQUID

RETAIN (6) 7/8" COAX CABLES

RETAIN (2) 0.78" 8 AWG 6 DC TRUNKS

RETAIN (1) 0.39" FIBER TRUNK

TEST NEW LINES PER MARKET SPEC

LABEL NEW CABLES PER MARKET SPEC

GROUND NEW EQUIPMENT PER MARKET SPEC

\*\*\*BOTTOMSIDE\*\*\*

-REMOVE (1) +24VDC INDOOR POWER PLANT

-REMOVE (1) BATTERY RACK

-REMOVE (9) RECTIFIERS

-REMOVE (5) CONVERTERS

-RETAIN (8) PORTALAC PYL12V160FT BATTERIES

-INSTALL (1) VERTIV NETSURE 7100 -48VDC POWER PLANT

-INSTALL (1) VERTIV NETSURE 48BA800-23 BATTERY RACK

-INSTALL (6) EA. HE 2KW -48VDC RECTIFIERS

-INSTALL (2) 25A FSM4 5GMR BREAKERS

-INSTALL (3) 50A AHFIB BREAKERS

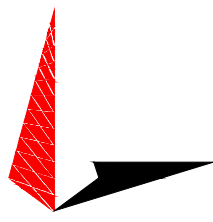
-INSTALL (3) 50A AHLBBA BREAKERS

TEST NEW LINES PER MARKET SPEC

LABEL NEW CABLES PER MARKET SPEC

GROUND NEW EQUIPMENT PER MARKET SPEC

- TOWER NOTE:
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
  - WHERE APPLICABLE, ALL NEW ANTENNAS, EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
  - TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)
  - TOWER ELEVATION DEPICTION MAY NOT REFLECT ALL EQUIPMENT INCLUDED IN STRUCTURAL ANALYSIS. REFER TO STRUCTURAL ANALYSIS FOR FULL TOWER LOADING.



TOWER ENGINEERING PROFESSIONALS  
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OFFICE: (919) 661-6351  
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REV.	DESCRIPTION	BY	DATE
A	PRELIMINARY	SDD	06/09/22
B	100% CONSTRUCTION	SRZ	07/19/22
C	100% CONSTRUCTION	RMJ	07/28/22

ATC SITE NUMBER: 205626

ATC SITE NAME: HWY 40 AND HWY 131

AT&T MOBILITY SITE NUMBER:

**COL04213**

AT&T MOBILITY SITE NAME:

**HWY 40 & HWY 131**

SITE ADDRESS:

30700 CR 14B  
STEAMBOAT SPRINGS, CO 80487



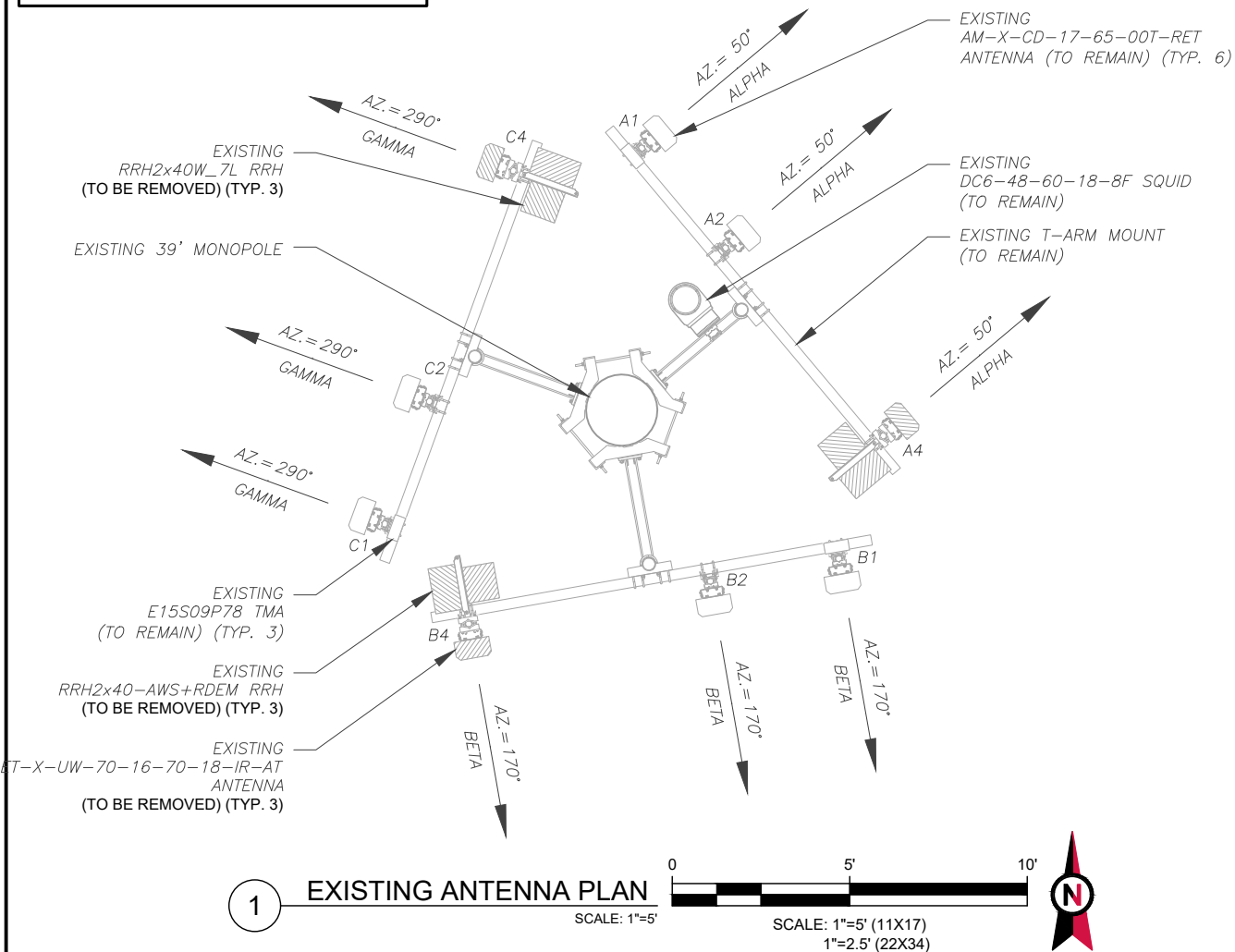
DATE DRAWN:	07/28/22
ATC JOB NO:	14095953
CUSTOMER NAME:	HWY 40 & HWY 131
CUSTOMER ID:	COL04213

TOWER ELEVATION

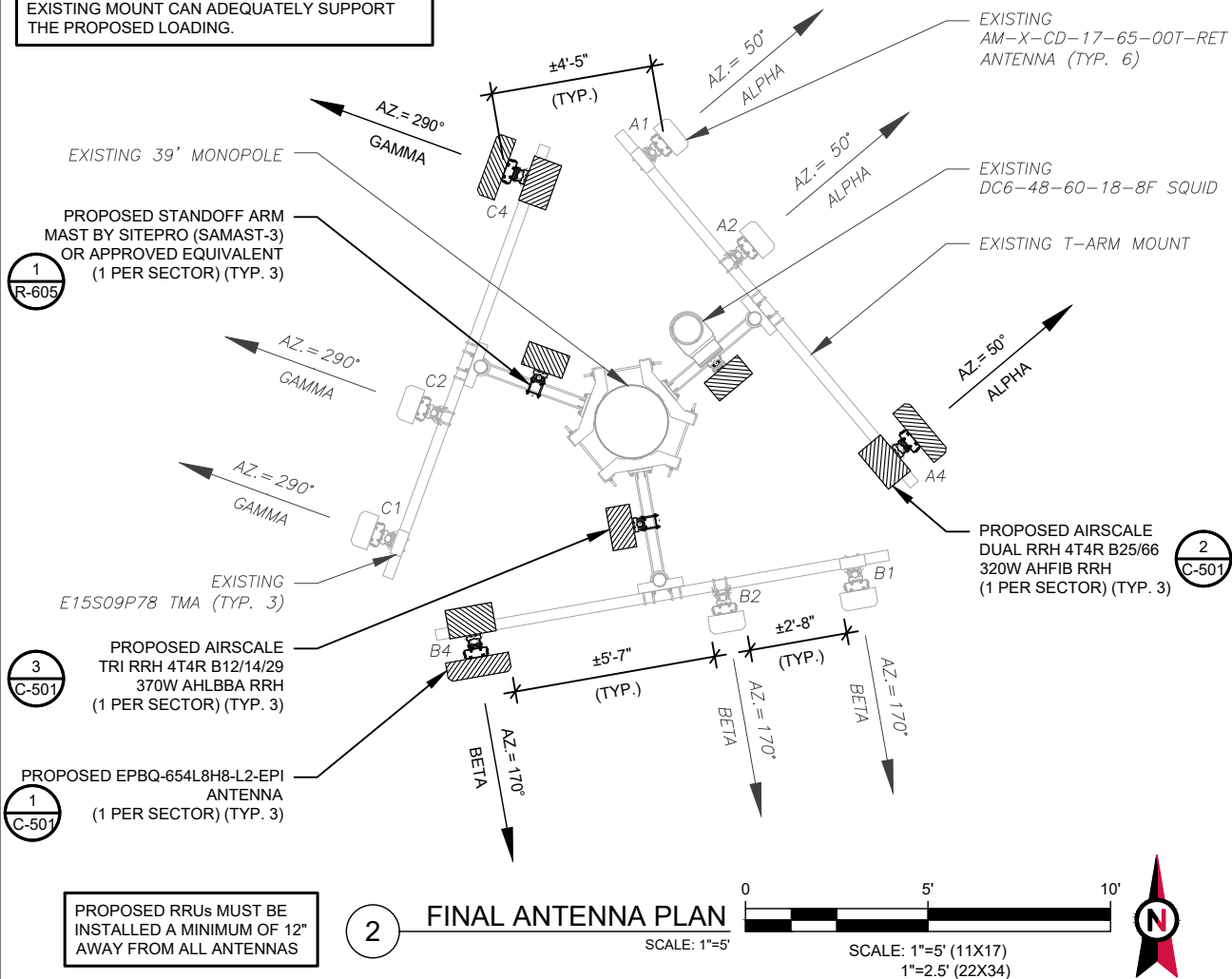
SHEET NUMBER:  
**C-201**

REVISION:  
**1**

EXISTING CONFIGURATIONS ARE BASED ON RFDS.  
CONTRACTOR TO VERIFY EXISTING CONDITIONS.



PER MOUNT ANALYSIS COMPLETED BY AMERICAN  
TOWER CORPORATION, DATED MAY 17, 2022, THE  
EXISTING MOUNT CAN ADEQUATELY SUPPORT  
THE PROPOSED LOADING.



EXISTING ANTENNA SCHEDULE								
LOCATION			ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	36'	50°	A1	AM-X-CD-17-65-00T-RET	UMTS 1900	RMN	(1) E15S09P78	RMN
			A2	AM-X-CD-17-65-00T-RET	LTE AWS	RMN	-	-
			A4	ET-X-UW-70-16-70-18-IR-AT	LTE 700/LTE AWS	RMV	(1) RRH2x40W_7L (1) RRH2x40-AWS+RDEM	RMV RMV
BETA	36'	170°	B1	AM-X-CD-17-65-00T-RET	UMTS 1900	RMN	(1) E15S09P78	RMN
			B2	AM-X-CD-17-65-00T-RET	LTE AWS	RMN	-	-
			B4	ET-X-UW-70-16-70-18-IR-AT	LTE 700/LTE AWS	RMV	(1) RRH2x40W_7L (1) RRH2x40-AWS+RDEM	RMV RMV
GAMMA	36'	290°	C1	AM-X-CD-17-65-00T-RET	UMTS 1900	RMN	(1) E15S09P78	RMN
			C2	AM-X-CD-17-65-00T-RET	LTE AWS	RMN	-	-
			C4	ET-X-UW-70-16-70-18-IR-AT	LTE 700/LTE AWS	RMV	(1) RRH2x40W_7L (1) RRH2x40-AWS+RDEM	RMV RMV

- NOTES
1. CONFIRM WITH AT&T MOBILITY REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
  2. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
  3. THE ANTENNA ORIENTATION PLAN IS A SCHEMATIC. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA AZIMUTHS, MOUNT CONFIGURATIONS AND TOWER ORIENTATION. SCALES SHOWN ARE FOR REFERENCE ONLY AND EXISTING DIMENSIONS ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO INSTALLATION AND NOTIFY ATC OF ANY DISCREPANCIES.
  4. CONTRACTOR TO ENSURE PROPER SEPARATION IN ACCORDANCE WITH AT&T'S FIRSTNET REQUIREMENTS (SEE SHEET R-606)

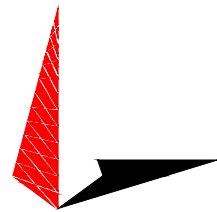
STATUS ABBREVIATIONS  
RMV: TO BE REMOVED  
RMN: TO REMAIN  
REL: TO BE RELOCATED  
ADD: TO BE ADDED

CABLE LENGTHS FOR JUMPERS  
JUNCTION BOX TO RRU: 15'  
RRU TO ANTENNA: 10'

### EQUIPMENT SCHEDULES

EXISTING FIBER DISTRIBUTION/SQUID			EXISTING CABLING SUMMARY			
MODEL NUMBER	STATUS	COAX	DC	FIBER	STATUS	
(1) DC6-48-60-18-8F	RMN	-	(2) 0.78" 8 AWG 6	(1) 0.39"	RMN	
-	-	(6) 7/8"	-	-	RMN	

FINAL FIBER DISTRIBUTION/SQUID			FINAL CABLING SUMMARY			
MODEL NUMBER	STATUS	COAX	DC	FIBER	STATUS	
(1) DC6-48-60-18-8F	RMN	-	(2) 0.78" 8 AWG 6	(1) 0.39"	RMN	
-	-	(6) 7/8"	-	-	RMN	
-	-	(3) 7/8"	-	-	ADD	



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C			
D			
E			

ATC SITE NUMBER: 205626  
ATC SITE NAME: HWY 40 AND HWY 131  
AT&T MOBILITY SITE NUMBER:  
**COL04213**  
AT&T MOBILITY SITE NAME:  
**HWY 40 & HWY 131**  
SITE ADDRESS:  
30700 CR 14B  
STEAMBOAT SPRINGS, CO 80487

SEAL:



07/19/22

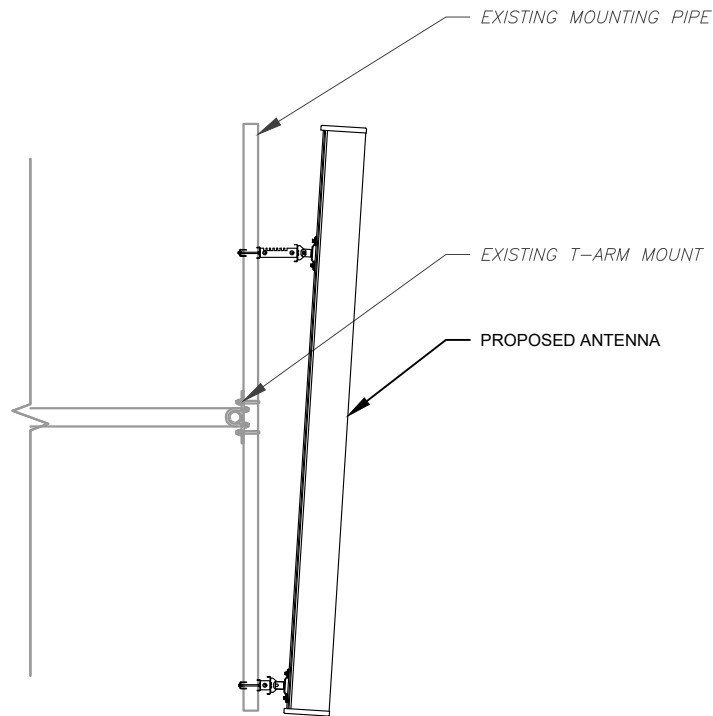


DATE DRAWN:	07/19/22
ATC JOB NO:	14095953
CUSTOMER NAME:	HWY 40 & HWY 131
CUSTOMER ID:	COL04213

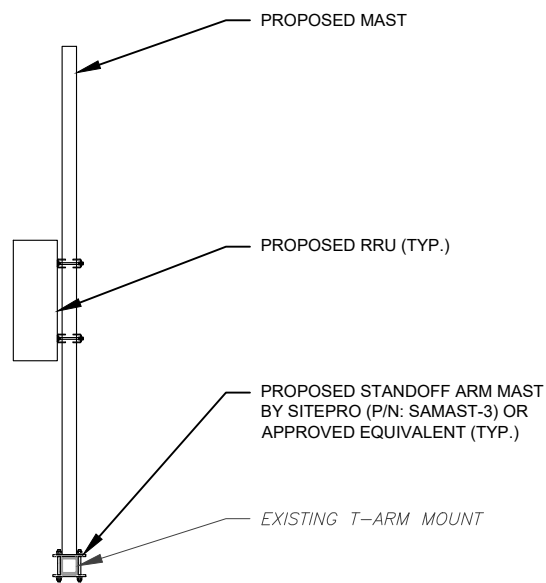
### RF SCHEDULE AND ANTENNA INSTALLATION

SHEET NUMBER:  
**C-401**  
REVISION:  
**0**

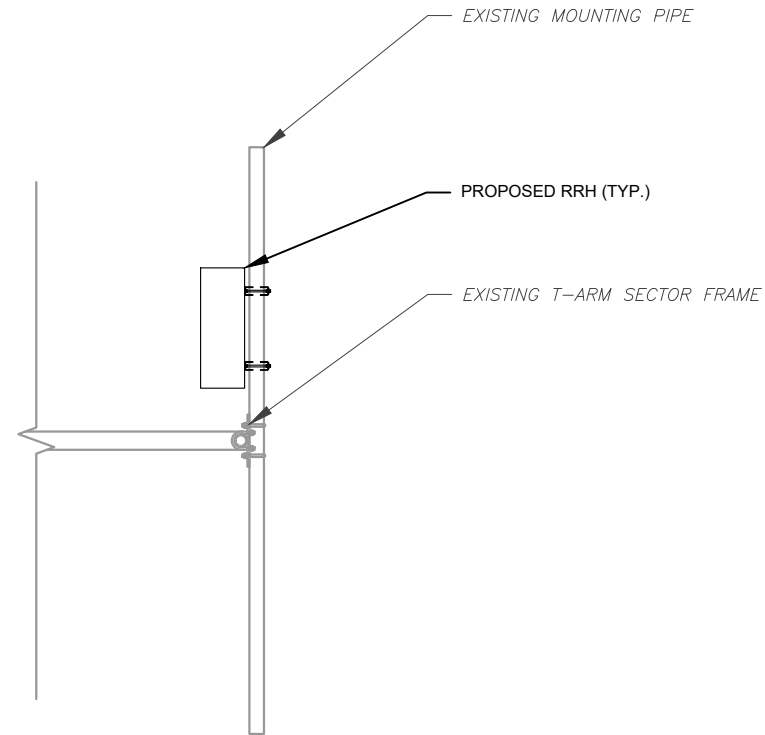




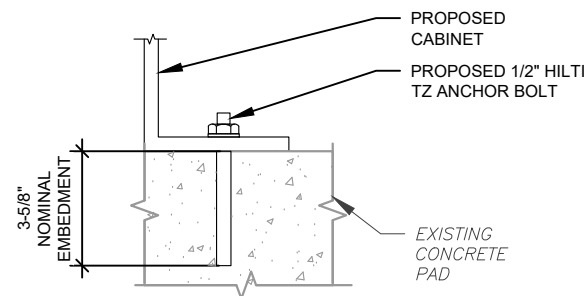
1 PROPOSED ANTENNA MOUNTING DETAIL  
SCALE: N.T.S.



3 PROPOSED RRU MOUNTING DETAIL - TYPICAL  
SCALE: N.T.S.

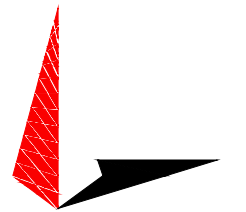


2 PROPOSED RRH MOUNTING DETAIL  
SCALE: N.T.S.



NOTE:  
1. INSTALL HILTI TZ ANCHORS STRICTLY PER  
INSTALLATION INSTRUCTIONS INCLUDED WITH  
PRODUCT OR FOUND ONLINE AT [WWW.US.HILTI.COM](http://WWW.US.HILTI.COM).  
PROPER INSTALLATION IS CRITICAL FOR FULL  
PERFORMANCE.

4 CABINET ATTACHMENT DETAIL  
SCALE: N.T.S.



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REV.	DESCRIPTION	BY	DATE
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**HWY 40 & HWY 131**  
SITE ADDRESS:  
30700 CR 14B  
STEAMBOAT SPRINGS, CO 80487

SEAL:

07/19/22

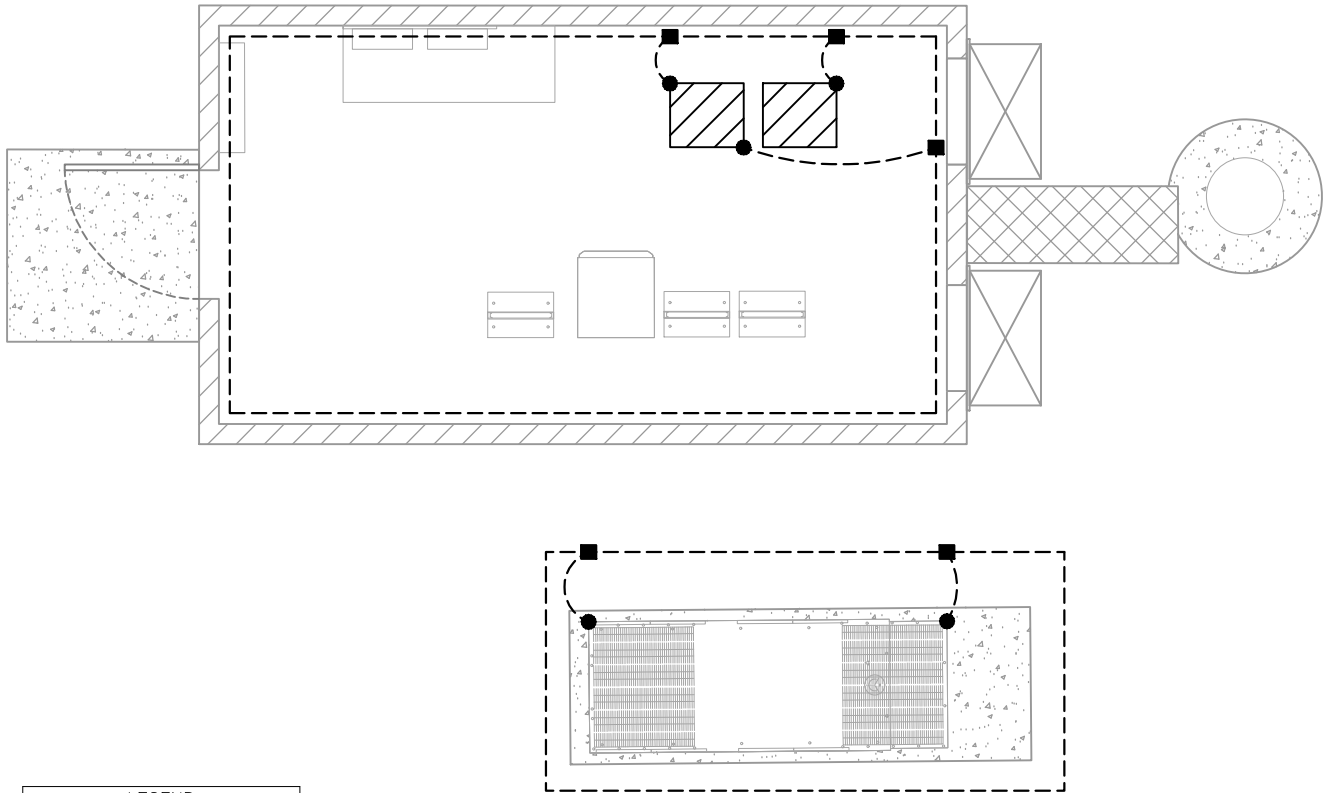


DATE DRAWN:	07/19/22
ATC JOB NO:	14095953
CUSTOMER NAME:	HWY 40 & HWY 131
CUSTOMER ID:	COL04213

CONSTRUCTION DETAILS	
SHEET NUMBER: <b>C-501</b>	REVISION: <b>0</b>

AC POWER PANEL A (EXISTING)											
120/240 VOLTS, 1-PHASE, 3-WIRE, 200A											
MAIN BREAKER RATING (A) :					200		SYSTEM VOLTAGE (V) :				240
DESCRIPTION	VA	c/nc	BKR	POSN	L1	L2	POSN	BKR	c/nc	VA	DESCRIPTION
RECTIFIER #1	365	c	30/2	1	3615		2	50/2	c	3250	HVAC #1
	365	c		3		3615	4		c	3250	
RECTIFIER #2	365	c	30/2	5	3615		6	50/2	c	3250	HVAC #2
	365	c		7		3615	8		c	3250	
RECTIFIER #3 / OFF	0	c	30/2	9	1000		10	20/1	nc	1000	GEN HEATER
	0	c		11		650	12	20/1	nc	650	GEN BATTERY
RECTIFIER #4	365	c	30/2	13	1085		14	20/1	nc	720	INTERIOR RECEPTACLE
	365	c		15		665	16	20/1	nc	300	INTERIOR LIGHTS
RECTIFIER #5	365	c	30/2	17	665		18	20/1	nc	300	EXTERIOR LIGHTS
	365	c		19		365	20	30/2	c	0	RECTIFER #11
RECTIFIER #6	365	c	30/2	21	365		22		c	0	
	365	c		23		365	24	c	0	RECTIFER #12	
RECTIFIER #7	365	c	30/2	25	365		26	30/2	c		0
	365	c		27		365	28				
RECTIFIER #8	365	c	30/2	29	365		30				BLANK
	365	c		31		365	32				BLANK
RECTIFIER #9	365	c	30/2	33	365		34				BLANK
	365	c		35		365	36				BLANK
RECTIFIER #10	365	c	30/2	37	365		38				BLANK
	365	c		39		365	40				BLANK
EXTERIOR RECEPTACLE	720	nc	20/1	41	720		42				BLANK
PHASE TOTALS (VA):					12525	10735					
PHASE TOTALS (A):					104	89					
CURRENT PER PHASE W/ 125% Continuous Loads(A):					125	110	Amperes/phase cannot exceed main breaker rating				
PANEL TOTAL (VA):					23260	Legend: c = continuous, nc = non-continuous					
PANEL TOTAL W/ 125% Continuous Loads (VA):					28153						

1 EXISTING AC PANEL  
SCALE: N.T.S.



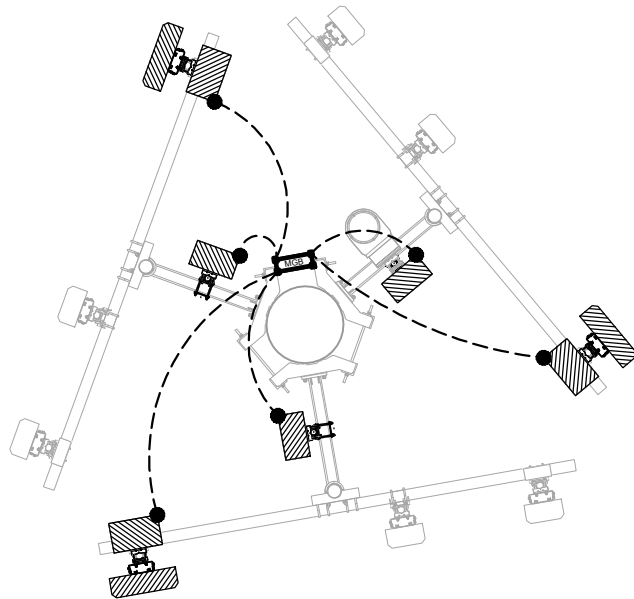
3 EQUIPMENT GROUNDING PLAN  
SCALE: N.T.S.

LEGEND	
■	EXOTHERMIC CONNECTION
●	MECHANICAL CONNECTION
▭	ANTENNA GROUND BAR
▭	MASTER GROUND BAR

\*NOTE:  
(6) PROPOSED RECTIFIER(S) TO BE CONNECTED TO EXISTING RECTIFIER BREAKERS FOR A TOTAL OF (6) RECTIFIER FEEDS. CONTRACTOR TO VERIFY EXISTING RECTIFIER BREAKER CONFIGURATION ALLOWS FOR MULTIPLE RECTIFIER CONNECTIONS AND TO NOTIFY TEP FOR CORRECTIVE ACTION IF THERE ARE ANY DISCREPANCIES.

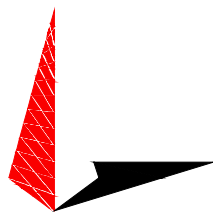
AC POWER PANEL A (PROPOSED)											
120/240 VOLTS, 1-PHASE, 3-WIRE, 200A											
MAIN BREAKER RATING (A) :				200		SYSTEM VOLTAGE (V) :				240	
DESCRIPTION	VA	c/nc	BKR	POSN	L1	L2	POSN	BKR	c/nc	VA	DESCRIPTION
* RECTIFIER #1	440	c	30/2	1	3690		2	50/2	c	3250	HVAC #1
	440	c		3		3690	4		c	3250	
* RECTIFIER #2	440	c	30/2	5	3690		6	50/2	c	3250	HVAC #2
	440	c		7		3690	8		c	3250	
* RECTIFIER #3	440	c	30/2	9	1440		10	20/1	c	1000	GEN HEATER
	440	c		11		1090	12		c	650	GEN BATTERY
* RECTIFIER #4	440	c	30/2	13	1160		14	20/1	c	720	INTERIOR RECEPTACLE
	440	c		15		740	16		c	300	INTERIOR LIGHTS
* RECTIFIER #5	440	c	30/2	17	740		18	20/1	c	300	EXTERIOR LIGHTS
	440	c		19		440	20		c	0	RECTIFER #11
* RECTIFIER #6	440	c	30/2	21	440		22	30/2	c	0	
	440	c		23		440	24		c	0	RECTIFER #12
RECTIFIER #7	0	c	30/2	25	0		26		c	0	
	0	c		27		0	28		c		BLANK
RECTIFIER #8	0	c	30/2	29	0		30		c		BLANK
	0	c		31		0	32		c		BLANK
RECTIFIER #9	0	c	30/2	33	0		34		c		BLANK
	0	c		35		0	36		c		BLANK
RECTIFIER #10	0	c	30/2	37	0		38		c		BLANK
	0	c		39		0	40		c		BLANK
EXTERIOR RECEPTACLE	720	c	20/1	41	720		42		c		BLANK
PHASE TOTALS (VA):					11880	10090					
PHASE TOTALS (A):					99	84					
CURRENT PER PHASE W/ 125% Continuous Loads(A):					124	105	Amperes/phase cannot exceed main breaker rating				
PANEL TOTAL (VA):					21970	Legend: c = continuous, nc = non-continuous					
PANEL TOTAL W/ 125% Continuous Loads (VA):					27463						

2 PROPOSED AC PANEL  
SCALE: N.T.S.



4 ANTENNA GROUNDING PLAN  
SCALE: N.T.S.

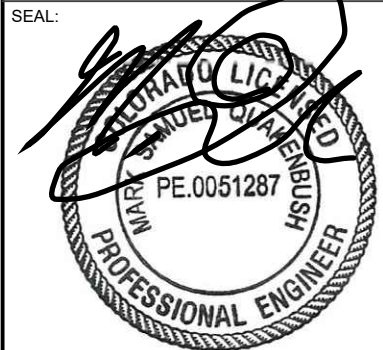
LEGEND	
■	EXOTHERMIC CONNECTION
●	MECHANICAL CONNECTION
▭	ANTENNA GROUND BAR
▭	MASTER GROUND BAR



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AT&T MOBILITY SITE NUMBER:  
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AT&T MOBILITY SITE NAME:  
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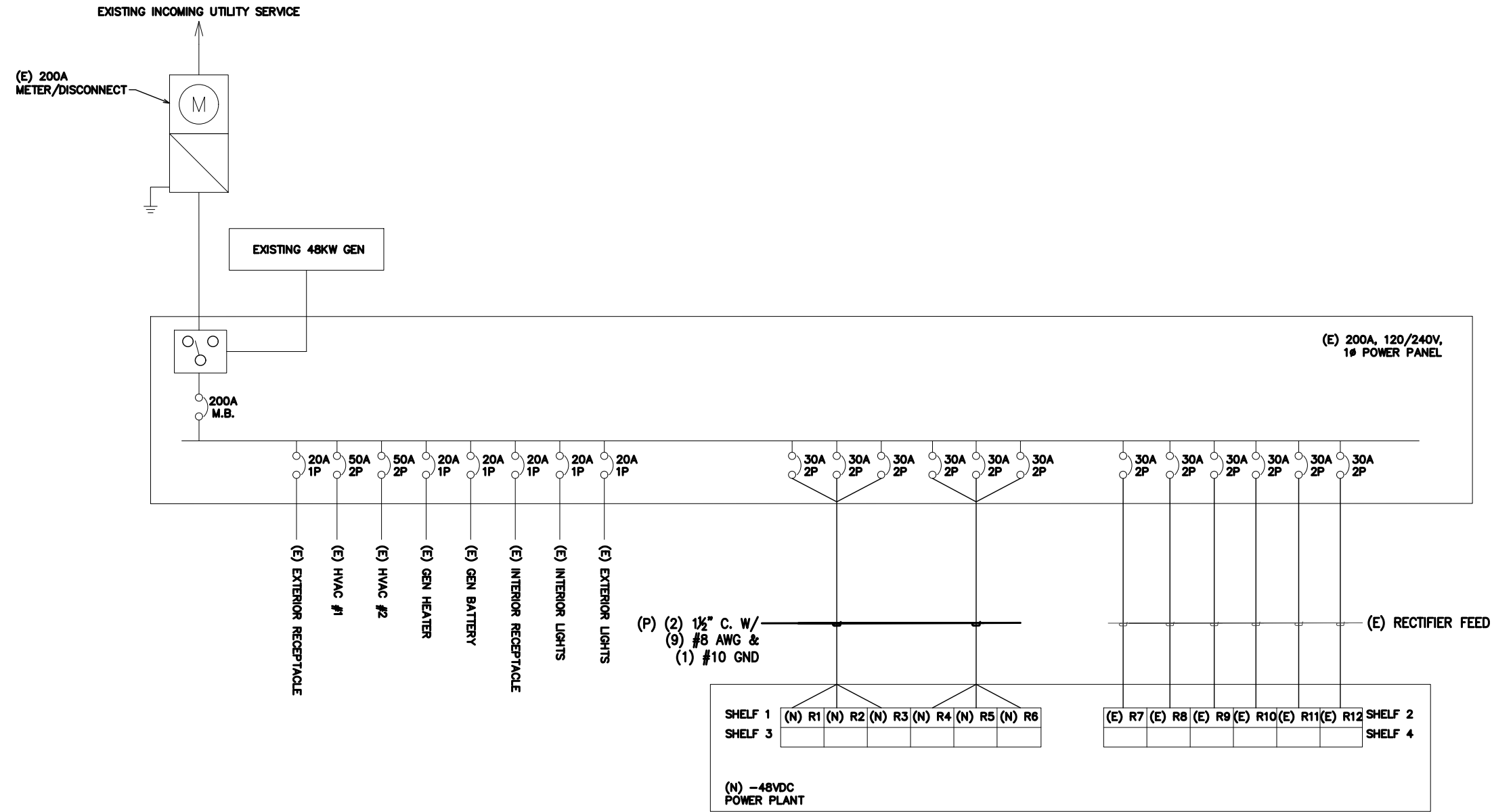


DATE DRAWN:	07/28/22
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CUSTOMER NAME:	HWY 40 & HWY 131
CUSTOMER ID:	COL04213

## ELECTRICAL DETAILS

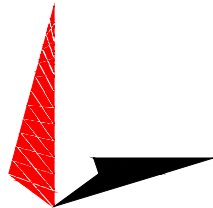
SHEET NUMBER:	REVISION:
<b>E-101</b>	<b>1</b>

NOTE:  
(6) PROPOSED RECTIFIER(S) TO BE CONNECTED TO EXISTING RECTIFIER BREAKERS FOR A TOTAL OF (6) RECTIFIER FEEDS. CONTRACTOR TO VERIFY EXISTING RECTIFIER BREAKER CONFIGURATION ALLOWS FOR MULTIPLE RECTIFIER CONNECTIONS AND TO NOTIFY TEP FOR CORRECTIVE ACTION IF THERE ARE ANY DISCREPANCIES.



LEGEND:  
(E) - EXISTING  
(N) - NEW

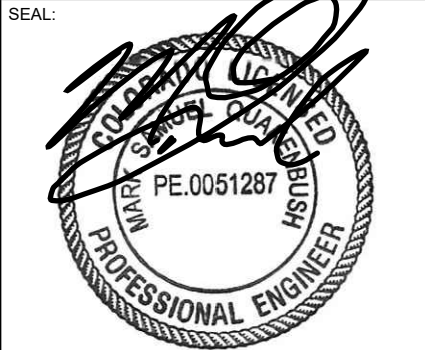
1 ONE-LINE DIAGRAM  
SCALE: N.T.S.



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07/19/22

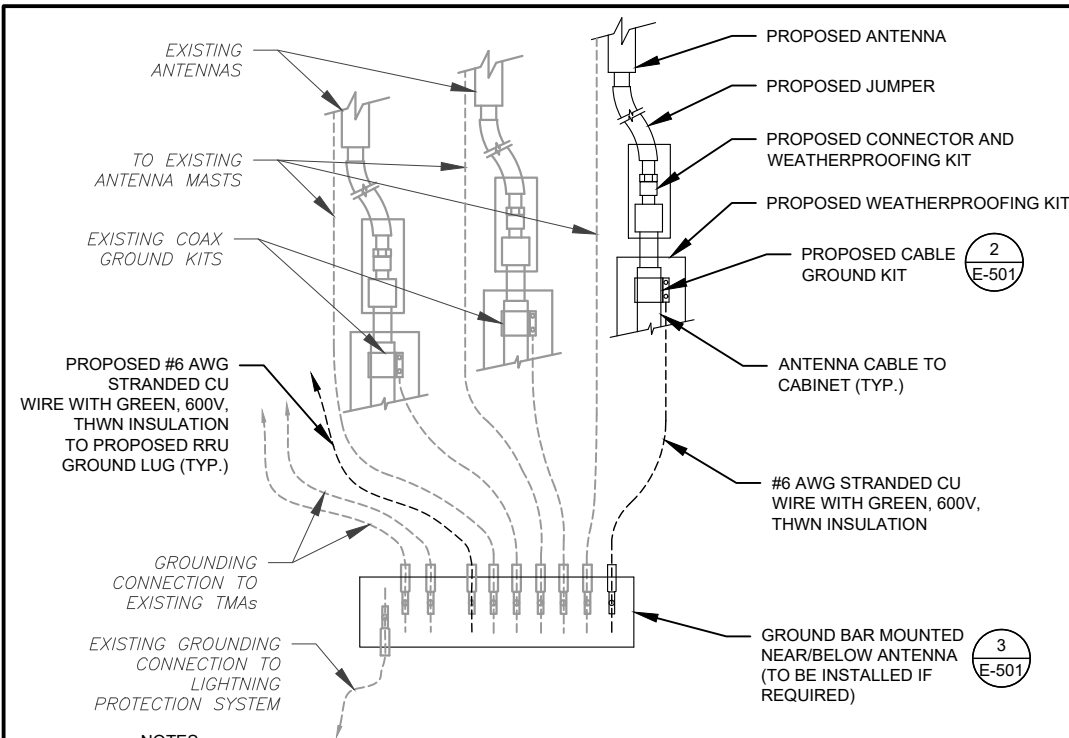


DATE DRAWN:	07/19/22
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CUSTOMER NAME:	HWY 40 & HWY 131
CUSTOMER ID:	COL04213

ONE LINE DIAGRAM

SHEET NUMBER:	REVISION:
E-102	0

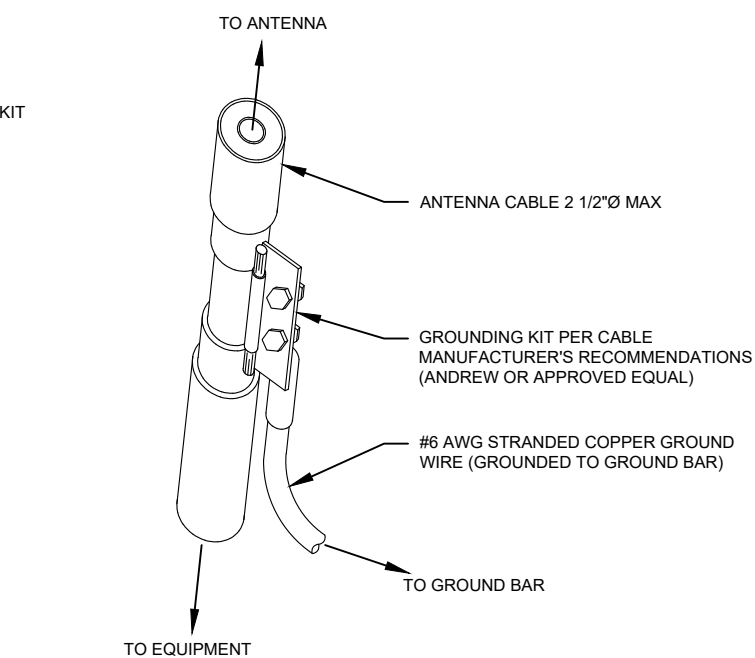




NOTES:

1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH AT&T MOBILITY GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH AT&T MOBILITY GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

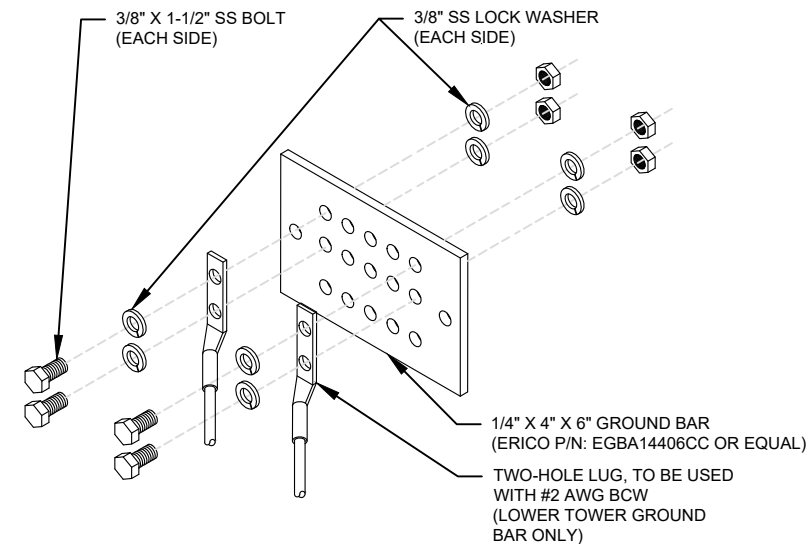
1 TYPICAL ANTENNA GROUNDING DIAGRAM  
SCALE: N.T.S.



GROUND KIT NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

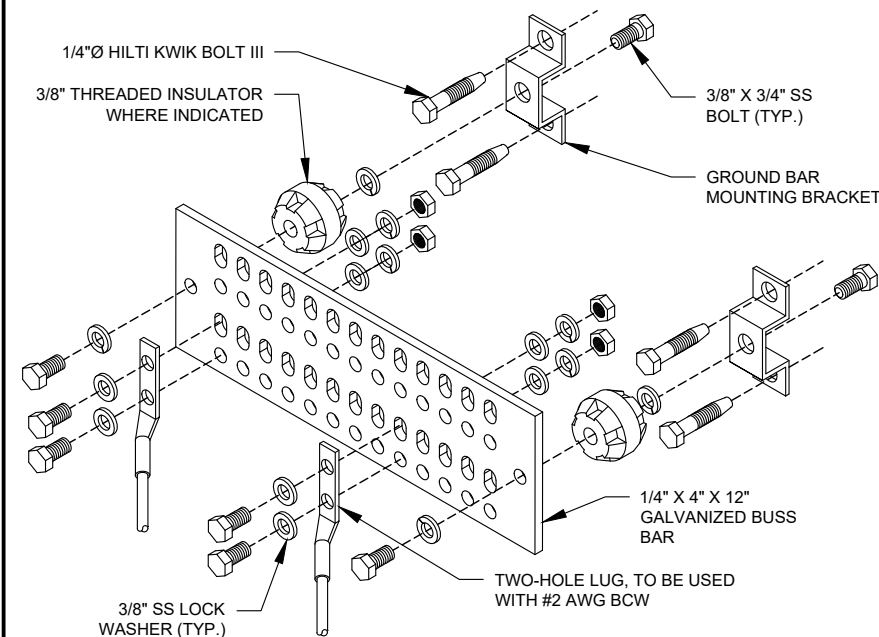
2 CABLE GROUND KIT CONNECTION DETAIL  
SCALE: N.T.S.



GROUND BAR NOTES:

1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

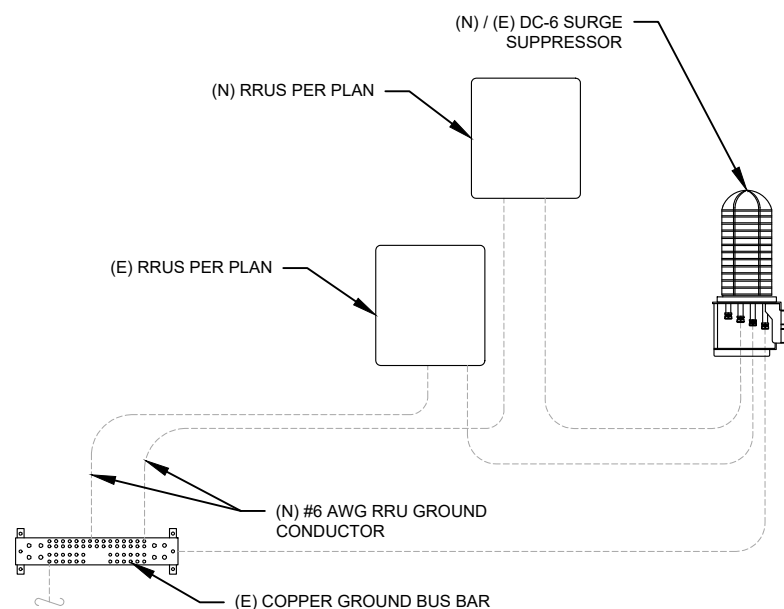
3 TOWER GROUND BAR DETAIL  
SCALE: N.T.S.



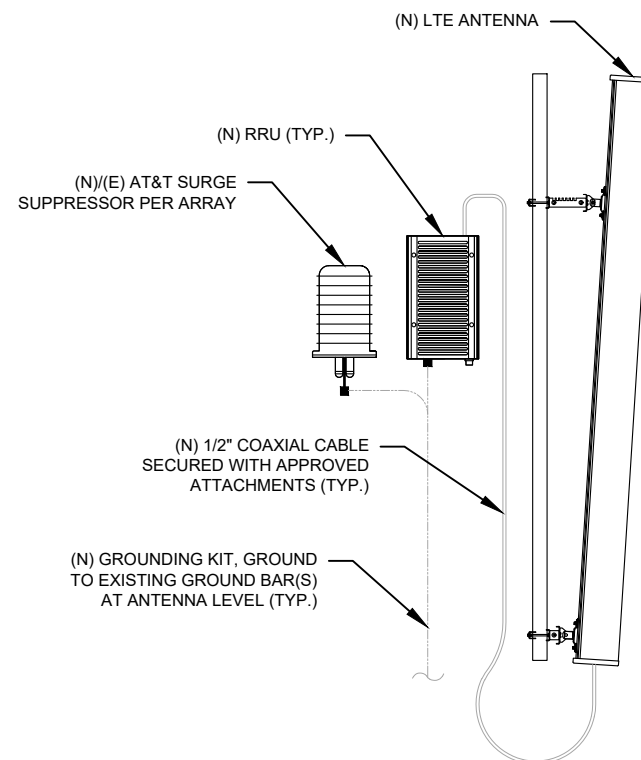
GROUND BAR NOTES

1. GROUND KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR SHALL BE BOLTED TO STRUCTURAL MEMBER OR ANCHORED TO CONCRETE SLAB W/ HILTI KWIK BOLT III.

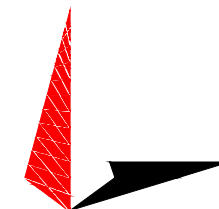
4 MAIN GROUND BAR DETAIL  
SCALE: N.T.S.



5 RRU GROUNDING  
SCALE: N.T.S.



6 ANTENNA/RRU GROUNDING  
SCALE: N.T.S.



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AT&T MOBILITY SITE NUMBER:

COL04213

AT&T MOBILITY SITE NAME:

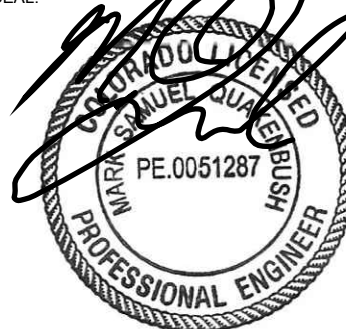
HWY 40 & HWY 131

SITE ADDRESS:

30700 CR 14B

STEAMBOAT SPRINGS, CO 80487

SEAL:



07/19/22



DATE DRAWN:	07/19/22
ATC JOB NO:	14095953
CUSTOMER NAME:	HWY 40 & HWY 131
CUSTOMER ID:	COL04213

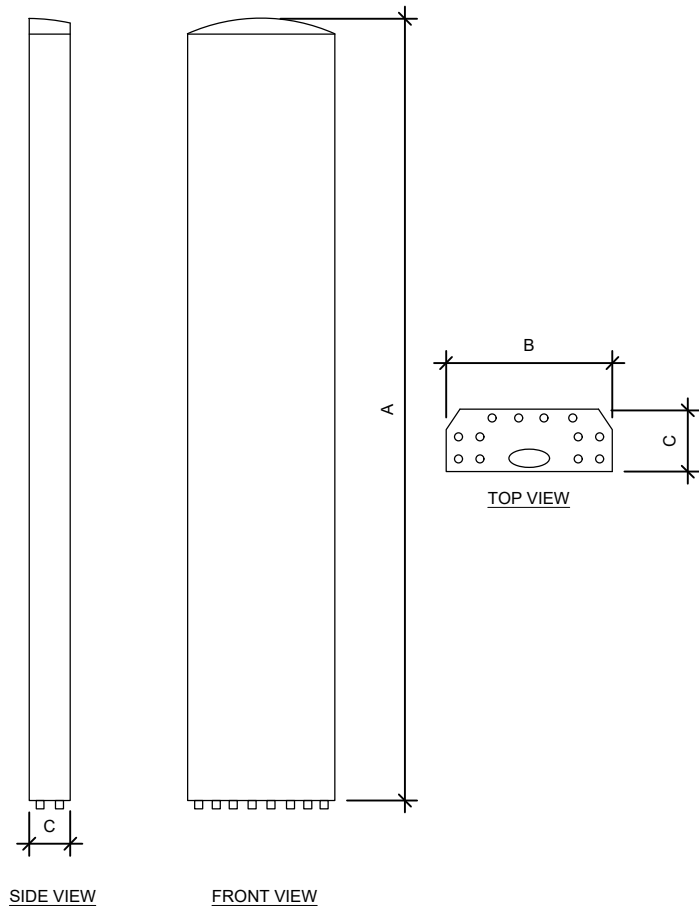
GROUNDING DETAILS

SHEET NUMBER:

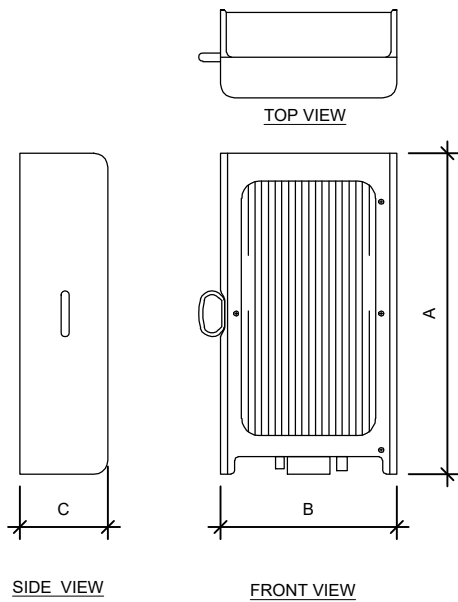
E-501

REVISION:

0



ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
EPBQ-654L8H8-L2-EPI	96.0"	21.0"	6.3"	83.8



RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
AIRSCALE TRI RRH 4T4R B12/14/29 370W AHLBBA	24.0"	14.1"	7.8"	94.8
AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB	28.7"	15.4"	9.4"	88.2

NETSURE™ 7100 SERIES  
DC Power System



NETSURE™ 7100 SERIES



KEY FEATURES

- Indoor seismic Zone 4 rated enclosure option, 84"H x 28"W x 28"D
- High Efficiency — 96.5% efficient eSure rectifiers ensure optimized total cost of ownership
- Modular Design — simple to install and operate; allows incremental cost-effective system growth
- Advanced Controller — offers battery management, site monitoring and configuration management
- Multiple AC Input Configurations – single or three phase input from 208 to 277/480 VAC
- Remote Access – Supports HTTPS with multiple browsers, network element management via Modbus or SNMP (v2 or v3)
- Dual Port Option – allows permanent Ethernet connection with DHCP and automatically converts the front access port to the default IP user access Ethernet port
- Front Accessible — allows for easy installation, additions and maintenance
- Safety Compliance — NEBS Level 3 certified; UL Listed to UL subject 1801
- New ultra-high density 3500 watt rectifiers provide 438 amps in 1RU of rack space, up to 2500 amps per bay.

Versatile DC power solution with high efficiency eSure™ rectifiers and converters, modular distribution, and advanced control and monitoring accepts single or three-phase input up to 277/480 VAC.

Description

The modular NetSure™ 7100 Series power system with 3500 watt or 2000 watt rectifiers and 1500 watt DC to DC converters provides up to 4000 amps of current for -48 volt systems with up to 520 amps at +24 volts. The basic components of the power system include the NetSure Control Unit (NCU), module mounting shelf assemblies which house the rectifiers and converters, and a modular distribution cabinet.

The NetSure 7100 power system contains a powerful, microprocessor-based control system capable of monitoring and controlling up to 60 rectifiers and converters. The NCU controller provides a full color LCD display, which can be activated at the touch of a keypad.

Each shelf can accommodate up to six plug'n'play rectifiers, which are controlled by the NCU. Additional shelves can be added as load requirements increase. The 2000 watt rectifiers and 1500 watt -48 VDC to +24 VDC converters are housed in shelves that occupy 1 RU. Each shelf accommodates rectifiers in all six positions and converters in three positions.

The NetSure 7100 can be expanded to up to three distribution bays for a total capacity of 4000 amps and up to twelve distribution panels. Each NetSure 7100 distribution cabinet is modular by row and position.



High-Efficiency eSure Rectifiers R48-3500e3 (left) R48-3500e (center) & R48-2000e3 (right)



NetSure 7100

Four distinct distribution cabinet sizes are available to accommodate from one to four distribution panels. This allows the system to be configured in relay racks of various heights for installation in low-profile sites or atop batteries or other equipment to make more effective use of floor space. Several distribution panels are available offering different combinations of distribution positions, low voltage disconnect and battery disconnect options.

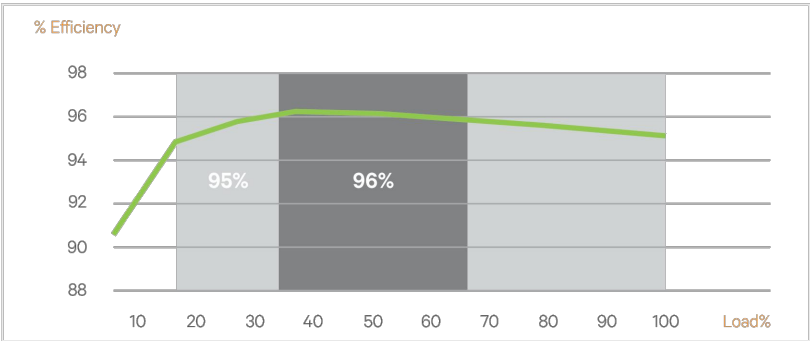
Distribution device options include 1 amp to 300 amp bullet-style circuit breakers, 3 amp to 125 amp TPS-style fuses in plug-in bullet-style holders, 100 amp to 800 amp GJ/218-style circuit breakers, 70 amp to 250 amp TPL-B-style fuses and 70 amp to 600 amp TPH-style fuses. These devices can be configured for both -48 V load and battery disconnect and +24 V load (bullet devices only). A GMT fuse module is also available.

Application

The NetSure 7100 system is ideal for wireless, and wireline applications, including cell sites, MTSOs, small COs, datacenters, co-locations, huts, vaults and enclosures.

Technical Specifications (System)

SYSTEM FEATURES	
System Voltage, Nominal	-48 VDC (-42.0 VDC to -58.0 VDC range)
Output Voltage, Secondary	+24 VDC (+24.0 VDC to +28.0 VDC range)
Input Voltage	Single Phase: 208/240/277 VAC (277 VAC for 3500 W rectifiers only) Three Phase: 208 VAC or 277/480 VAC (277/480 VAC for 3500 W rectifiers only)
Control	Microprocessor (NCU)
RATED OUTPUT CAPACITY	
Bay, Rectifier/ Converter	2500 amps (48VDC) and 520 amps (24VDC)
Bay, Distribution	2000 amps (48 VDC) and 520 amps (24 VDC)
Rectifier	3500 W (R48-3500e3 or R48-3500) or 2000 W (R48-2000e3)
Shelf	438 amps (3500W rectifiers) or 250 amps (2000W rectifiers)
Distribution Panel	600 amps
PHYSICAL CHARACTERISTICS	
Framework Type	Rail-mount (can be mounted in an enclosure or relay rack)
Mounting Width	23 inches
Mounting Depth	20 inches, 9 inch front projection
Access	Front access for installation, operation and maintenance
ENVIRONMENTAL	
Operating Temperature	-40 °F to 104 °F (-40 °C to 40 °C) continuous operation
Storage	-40 °F to 185 °F (-40 °C to 85 °C)
Humidity	0% to 95% relative humidity, non-condensing
Ventilation	Rectifiers and converters are fan-cooled front to rear
EMI/RFI Suppression	Conforms to FCC rules Part 15, Subpart B, Class B and EN55022 Class B, radiated and conducted
Safety Compliance	UL Listed 1801, cUL, NEBS Level 3
Ordering Information	
PART NUMBER	DESCRIPTION
582127000	NetSure™ 7100 DC power system
1M830DNA	NCU controller
1R483500E3	3500 W eSure rectifier, 1RU height
588705400	Power shelf for 1RU 3500W rectifiers
1R483500E	3500 W eSure™ rectifier, 3RU height
588705000	Power shelf for 3 RU 3500 W rectifiers
1R482000E3	2000 W eSure rectifier, 1RU height
1C48241500	1500 W -48 VDC to +24 VDC converter
588705300	Power shelf for 1 RU (2000 W) rectifiers and converters

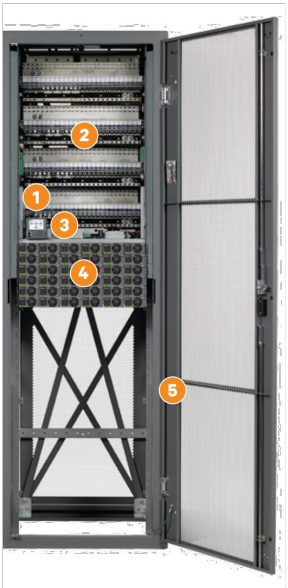


R48-2000e3 Efficiency Curve at 250 VAC Nominal

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SYSTEM ELEMENTS



-48 VDC NetSure 7100

- AC Connection Panel (both sides)
- DC Distribution Cabinet
- NetSure Control Unit
- Rectifiers/Converters
- Relay Rack or Enclosure



eSure™ Rectifier  
R48-2000e3



Benefits

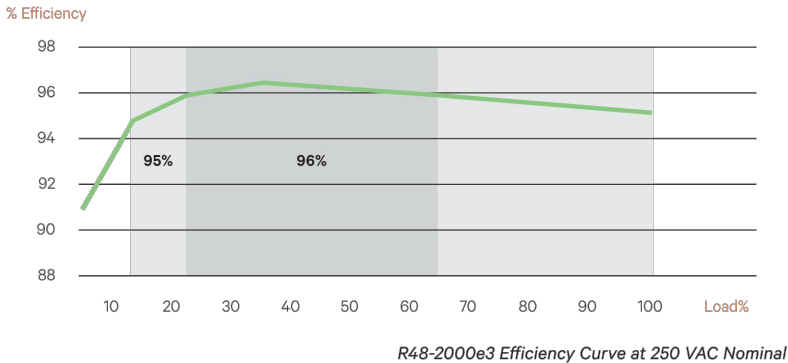
- Optimize the amount of energy delivered and reduce power consumption with over 96% efficiency.
- Increase space for revenue generating equipment with modules that pack more power in a small space with high power density.
- Facilitate easy maintenance, expansion and system changes with hot swappable capabilities.
- Enjoy increased reliability and active load sharing with Digital Signal Processing (DSP) which translates into fewer components and optimized operation.
- Appreciate the flexibility to utilize in a variety of applications with a wide input voltage range of 85 VAC to 300 VAC and full power output at temperatures from -40°C to +65°C.

In addition to reducing power consumption and lowering operating cost, eSure™ high-efficiency rectifiers offer superior performance and uncompromised reliability.

Description

The 2000 watt high-efficiency eSure rectifier (model R48-2000e3) converts standard AC supply voltages into stable nominal -48 VDC voltage that is adjustable to application needs. This constant power rectifier designed with the latest patented switch-mode technology, uses DSP (Digital Signal Processing) for efficient operation.

The R48-2000e3 can be connected in parallel with other rectifiers and converters to support a variety of telecom applications. Unified remote management and control of the power system is enabled when combined with a Vertiv™ controller.



Construction

- Robust positive plates are designed to prolong service life and enhance corrosion resistance
- Separators are low resistance microporous (AGM). The electrolyte is absorbed within the AGM, preventing acid spills in case of accidental damage
- Container and cover in flame retardant UL94-V0 material, highly resistant to shock and vibration
- Terminals are stainless steel front access with top access copper alloy insert. Top and front access terminations provide maximum conductivity
- Self-regulating one way pressure relief valves prevents ingress of atmospheric oxygen

Installation and Operation

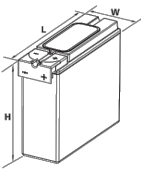
- Space efficient footprint
- VRLA design, reduces maintenance requirements
- Lifting handles for easy handling
- Greater than 10 year life expectancy in float service at 77°F (25°C)
- Increased active material surface area yields great cycling capability
- Operating temperature: -40°F (-40°C) to 122°F (50°C)  
Recommended temperature: 68°F (20°C) to 86°F (30°C)

Standards

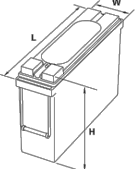
- Meets criteria for "non-spillable" batteries
- Complies with Telcordia® SR-4228, Network Equipment Building System (NEBS™) Criteria Levels
- The management systems governing the manufacture of this product are ISO 9001:2008 and ISO 14001:2004 certified

General Specifications

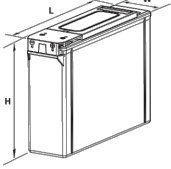
Cell Type	Nominal Capacity (Ah)		Nominal Dimensions						Weight - Volumes	
	10 hr rate to 1.80Vpc @20°C	8 hr rate to 1.75Vpc @77°F	in	Length mm	in	Width mm	in	Height mm	Unpacked lbs	kg
SBS B8F	31	31	11.9	303	3.8	97	6.3	159	22.7	10.3
SBS B10F	38	38	11.9	303	3.8	97	7.2	184	28.2	12.8
SBS B14F	62	62	11.9	303	3.8	97	10.4	264	42.0	19.1
SBS C11F	92	91	16.4	417	4.1	105	10.1	256	61.6	28.0
SBS 100F	100	100	15.6	395	4.3	108	11.3	287	71.9	32.6
SBS 112F	112	112	22.1	561	4.9	125	9.0	228	90.4	41.1
SBS 145F	145	145	17.9	455	6.8	173	9.4	238	105.0	47.7
SBS 165F	165	165	17.9	455	6.8	173	10.8	273	117.4	53.3
SBS 170F	170	170	22.1	561	4.9	125	11.1	283	115.7	52.5
SBS 190F	190	190	22.1	561	4.9	125	12.4	316	132.3	60.0



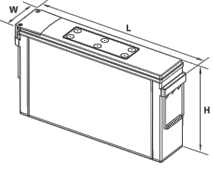
SBS B8F-B14F



SBS C11F



SBS 100F-112F



SBS 145F - 190F



connect@alpinepowersystems.com  
877-993-8855

Battery Services for Backup Power

- Battery Installation
- Capacity and Acceptance
- Preventative Maintenance

backup power | telecom | motive power  
www.alpinepowersystems.com

NETSURE™ 24 & 48V VRLA  
BATTERY RACK



KEY FEATURES

- Battery connection cables are supplied with factory installed lugs for easy installation
- Optional circuit breakers provide individual battery string disconnect with alarm
- Compatible with any DC power system for versatility
- Complies with industry standards: UL Listed and Seismic Zone 4 compliant

Compact, flexible design is Seismic Zone 4 rated and ideal for telecommunications facilities requiring modular battery plants.

Product Overview

The NetSure® 24 & 48V VRLA Battery Rack provides back-up capacity up to 1900 amp-hours per bay for +24V applications and 950 amp-hours per bay for -48V applications. Model 24BA1200 (+24VDC) and model 48BA1200 (-48VDC) battery racks mount up to six trays of VRLA batteries in 19" or 23" relay racks.

Integrate a NetSure power system for a complete DC power plant with battery backup. The NetSure system is equipped with an MCA controller that controls low voltage battery disconnect and monitors battery recharge and discharge current. Battery life is maximized through monitoring and controlling battery voltage and current during charge cycles.



+24V, Five-Tray (10 Strings) Battery Rack  
with NetSure® 700 DC Power System

NETSURE™ 24 & 48V VRLA BATTERY RACK



Technical Specifications

DC OUTPUT	
Output Capacity	1200 amps per bay
ENVIRONMENTAL	
Operating Ambient Temperature Range	-40°C to +40°C (-40°F to +104°F)
Storage Ambient Temperature Range	-40°C to +85°C (-40°F to +185°F)

Application

The NetSure® VRLA Battery Rack is designed for use in wireline and wireless communication systems installed in small offices, huts, CEVs and CUEs. It is also designed for use with NetSure® DC power systems, and is compatible with most DC power equipment.

Additional Information

Additional specification, engineering and installation information may be obtained by requesting SAG588810100/SAG588810200 for the +24 volt system and SAG588820100/SAG588820200 for the -48 volt system.



Single-Bay Battery Rack

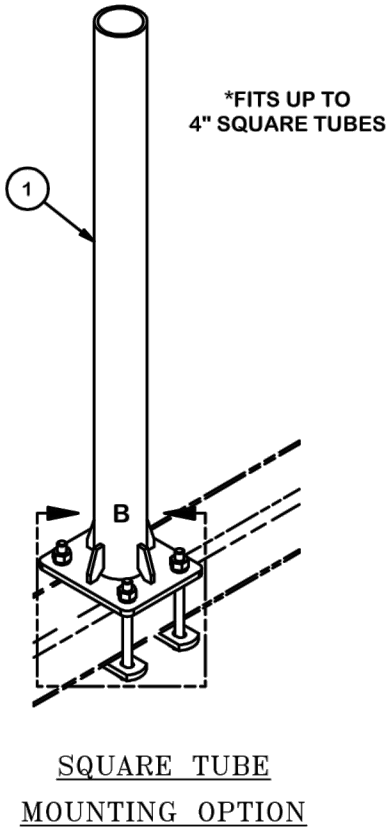
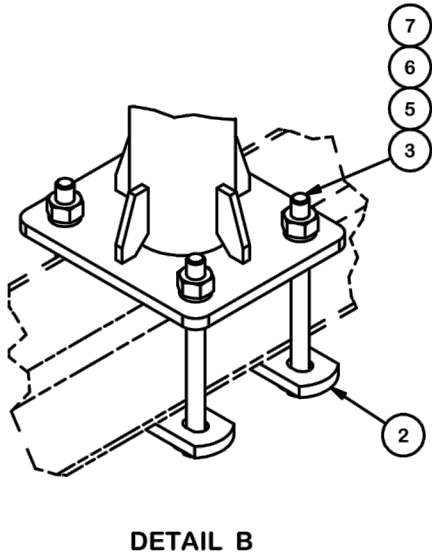
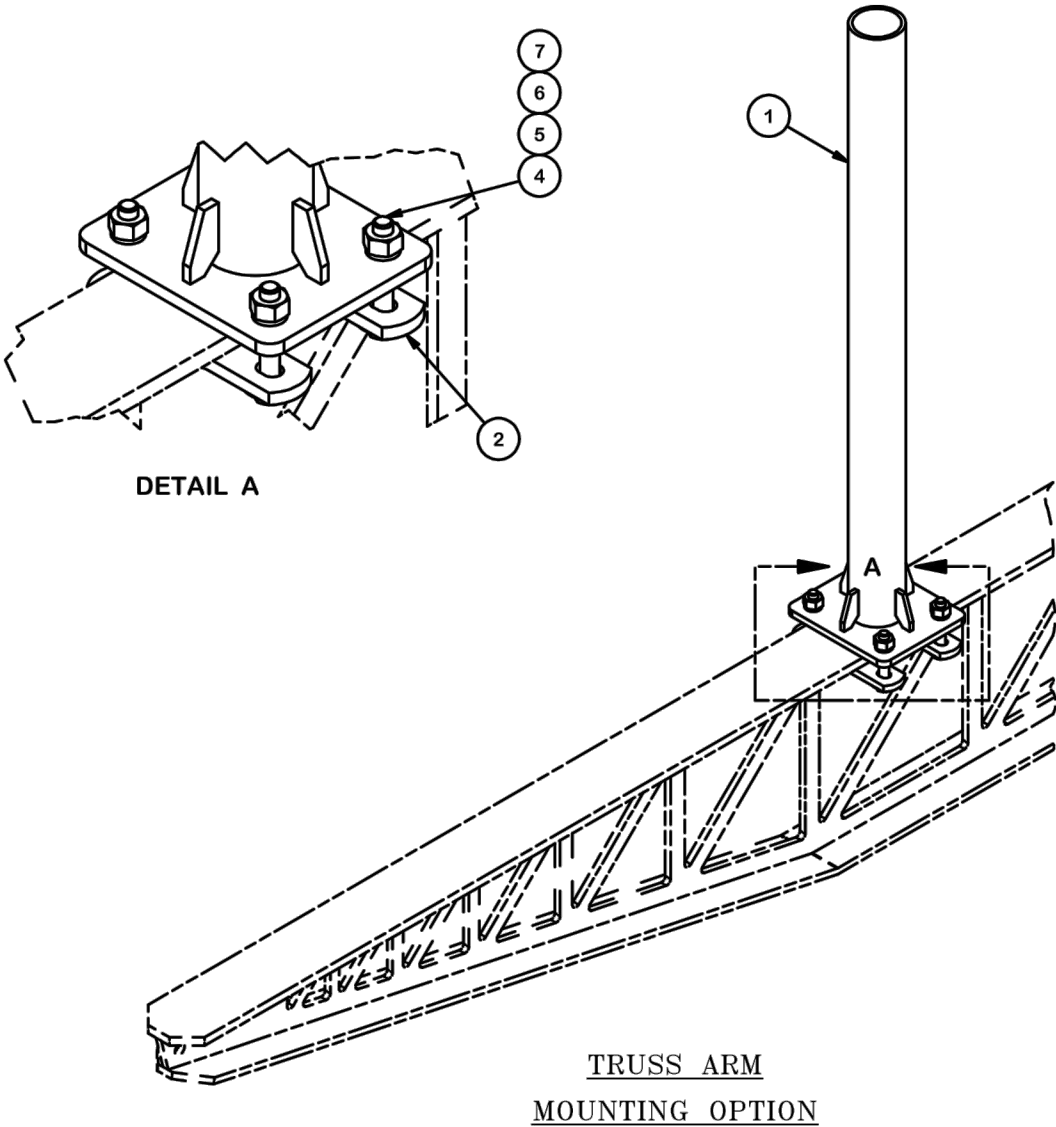
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DC-00126 (R12/16)

2

PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	X-SAMAST-3	3' STANDOFF ARM MAST WELDMENT		23.19	23.19
2	2	X-115765	5" V-CLAMP	7 1/16 in	1.03	2.05
3	4	G1206	1/2" x 6" HDG HEX BOLT GR5 FULL THREAD	2 in	0.38	1.53
4	4	G1203	1/2" x 3" HDG HEX BOLT GR5 FULL THREAD	3 in	0.22	0.87
5	4	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.14
6	4	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.06
7	4	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.29
					TOTAL WT. #	28.11



<div>TOLERANCE NOTES</div> <div>TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES (<math>\pm 0.030''</math>) DRILLED AND GAS CUT HOLES (<math>\pm 0.030''</math>) - NO CONING OF HOLES LASER CUT EDGES AND HOLES (<math>\pm 0.010''</math>) - NO CONING OF HOLES BENDS AND ANGLES ARE <math>\pm 1/2</math> DEGREE ALL OTHER MACHINING (<math>\pm 0.030''</math>) ALL OTHER ASSEMBLY (<math>\pm 0.060''</math>)</div> <div>PROPRIETARY NOTE: THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.</div>	<div>DESCRIPTION</div> <div>3' STANDOFF ARM MAST</div>			<div><div><div><div><div>SITE PRO</div><div>1</div></div><div>A valmont COMPANY</div></div><div><div>Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX Tampa, FL</div><div>Engineering Support Team: 1-888-753-7446</div></div></div></div>		
	<div>CPD NO.</div>		<div>DRAWN BY</div> <div>CEK 6/19/2019</div>		<div>ENG. APPROVAL</div>	
	<div>CLASS</div> <div>81</div>		<div>SUB</div> <div>02</div>	<div>DRAWING USAGE</div> <div>CUSTOMER</div>		<div>CHECKED BY</div> <div>BMC 6/19/2019</div>
<div>PART NO.</div> <div>SAMAST-3</div>			<div>DWG. NO.</div> <div>SAMAST-3</div>			
<div>1 OF 1</div> <div>PAGE</div>						

1 PROPOSED STANDOFF ARM MAST DETAIL  
SCALE : N.T.S.

NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

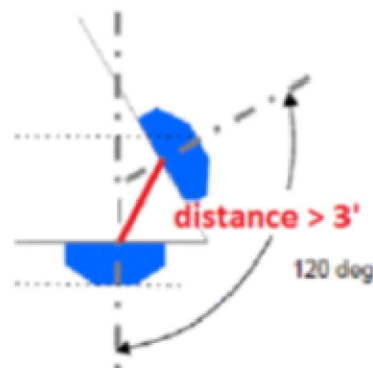
SUPPLEMENTAL

SHEET NUMBER:  
R-605  
REVISION:  
-



# RF REQUIREMENTS FOR 700 B14 FIRSTNET, 700 B12, 700D B29 ANTENNA SEPARATION

- ❑ Horizontal separation (side to side of antenna):  $\geq 3'$
- ❑ Vertical separation (between the tips of the antennas):  $> 3'$
- ❑ Inter-sector separation:  $> 3'$  between the center of the antenna backplanes.



- ❑ Please note additional horizontal separation may be required if B14 antennas azimuth are different from others or antennas are severely angled with respect to the mount.
- ❑ Typical 3' horizontal separation can tolerate skew angle up to  $6^\circ$ .



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SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-606	-



Eng. Number 14095953\_C8\_02  
May 17, 2022  
Page 1

## Mount Analysis Report

**ATC Site Name** : Hwy 40 and Hwy 131, CO  
**ATC Site Number** : 205626  
**Engineering Number** : 14095953\_C8\_02  
**Mount Elevation** : 36 ft  
**Carrier** : AT&T Mobility  
**Carrier Site Name** : HWY 40 AND HWY 131  
**Carrier Site Number** : COU4213  
**Site Location** : 30700 County Road 14B  
Steamboat Springs, CO 80487  
40.34122688 , -106.85385365  
**County** : Routt  
**Date** : May 17, 2022  
**Max Usage** : 82%  
**Result** : Pass

Prepared By:  
Zaynab Bayati  
Structural Engineer

Reviewed By:



Authorized by "EOR"  
20 May 2022 11:10:22 cosign

### Introduction

The purpose of this report is to summarize results of the mount analysis performed for AT&T Mobility at 36 ft.

### Supporting Documents

Specifications Sheet	Site Pro 1 RMV12, dated July 1, 2015
Radio Frequency Data Sheet	RFDS ID #COU4213, dated February 10, 2022
Reference Photos	Site photos from 2021

### Analysis

This mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

Basic Wind Speed:	105 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 0.25" radial ice concurrent
Codes:	ANSI/TIA-222-H / 2018 IBC / Larimer County Amendments
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	Ss = 0.605, S1 = 0.104
Site Class:	D - Stiff Soil - Default
Live Loads:	Lm = 250 lbs, Lv = 250 lbs

### Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.