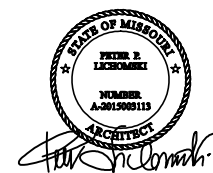


REV.	DESCRIPTION	BY	DATE
A	PRELIM	HEG	03/17/202
0	FINAL CD	HEG	08/12/202

ATC SITE NUMBER:  
306035  
ATC SITE NAME:  
UNITY VILLAGE MO 2  
T-MOBILE SITE NAME:  
ATC 306035 - I-470 & 50  
HWY  
SITE ADDRESS:  
2150 NORTHWEST LOWENSTEIN,  
LEE'S SUMMIT, MO 64081-1905.

SEAL:



T-Mobile

DATE DRAWN:	08/12/2021
ATC JOB NO:	13616192
CUSTOMER ID:	ATC 306035 - I-470 & 50 HWY
CUSTOMER #:	A5C0133A

# TITLE SHEET

SHEET NUMBER: <b>G-001</b>	REVISION: <b>0</b>
-------------------------------	-----------------------

Copyright © 2021 ATC PLLC. All Rights Reserved.

[illegible]

GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, T-MOBILE "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 T-MOBILE 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 ANSIEIA/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 T-MOBILE REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE 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 T-MOBILE 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 T-MOBILE 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 T-MOBILE 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 T-MOBILE 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 T-MOBILE REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE 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 T-MOBILE 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 T-MOBILE REP. ANY WORK FOUND BY THE T-MOBILE 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. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE 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. T-MOBILE 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 T-MOBILE OR THEIR ARCHITECT/ENGINEER.
- SPECIAL CONSTRUCTION
- ANTENNA INSTALLATION NOTES:
1. WORK INCLUDED:
- A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OD COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL AND

B. INSTALL ANTENNA AS INDICATE ON DRAWINGS AND T-MOBILE SPECIFICATIONS.

C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS

D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE AND PROVIDE PRINTOUT OF THAT TEST.

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 GREED 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.





49030 Pontiac Trail, Suite 400  
Wixom, Michigan 48393  
PHONE: (248) 705-9212

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HEG	03/17/2021
D	FINAL CD	HEG	08/12/2021

ATC SITE NUMBER:  
**306035**  
ATC SITE NAME:  
**UNITY VILLAGE MO 2**  
T-MOBILE SITE NAME:  
**ATC 306035 - I-470 & 50 HWY**  
SITE ADDRESS:  
2150 NORTHWEST LOWENSTEIN,  
LEE'S SUMMIT, MO 64081-1905.

SEAL:





DATE DRAWN:	08/12/2021
ATC JOB NO:	13616192
CUSTOMER ID:	ATC 306035 - I-470 & 50 HWY
CUSTOMER #:	A5C0133A

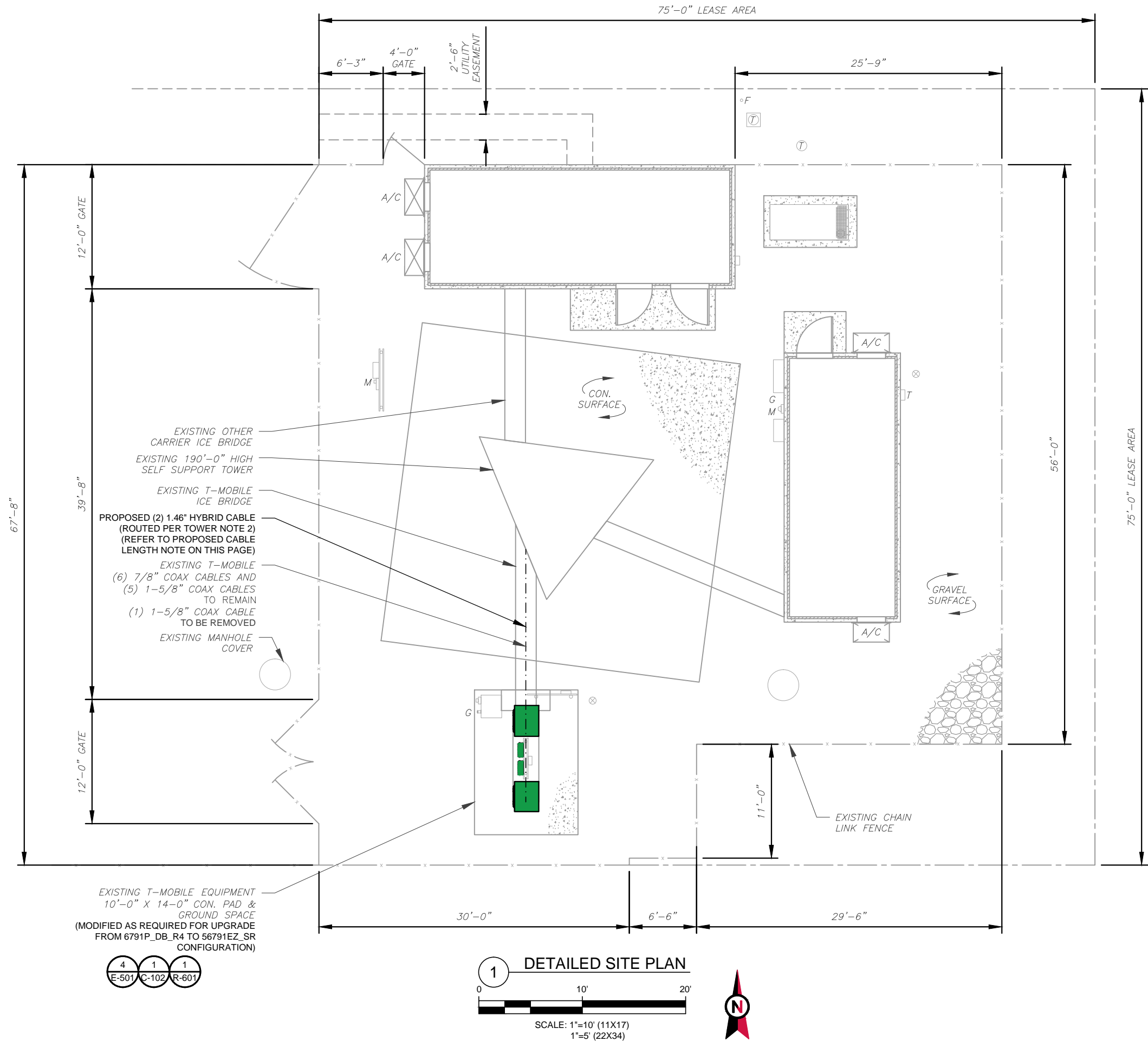
GENERAL NOTES

SHEET NUMBER: <b>G-002</b>	REVISION: <b>0</b>
-------------------------------	-----------------------

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.

⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACLE
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
⊗	CHAINLINK FENCE

1. ESTIMATED LENGTH OF PROPOSED CABLE IS 170'. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM EQUIPMENT LOCATION TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES). CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.



49030 Pontiac Trail, Suite 400  
Wixom, Michigan 48393  
PHONE: (248) 705-9212

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HEG	03/17/2021
0	FINAL CD	HEG	08/12/2021

ATC SITE NUMBER:  
306035  
ATC SITE NAME:  
UNITY VILLAGE MO 2  
T-MOBILE SITE NAME:  
ATC 306035 - I-470 & 50  
HWY  
SITE ADDRESS:  
2150 NORTHWEST LOWENSTEIN,  
LEE'S SUMMIT, MO 64081-1905.

SEAL:



**T-Mobile**

DATE DRAWN:	08/12/2021
ATC JOB NO:	13616192
CUSTOMER ID:	ATC 306035 - I-470 & 50 HWY
CUSTOMER #:	A5C0133A

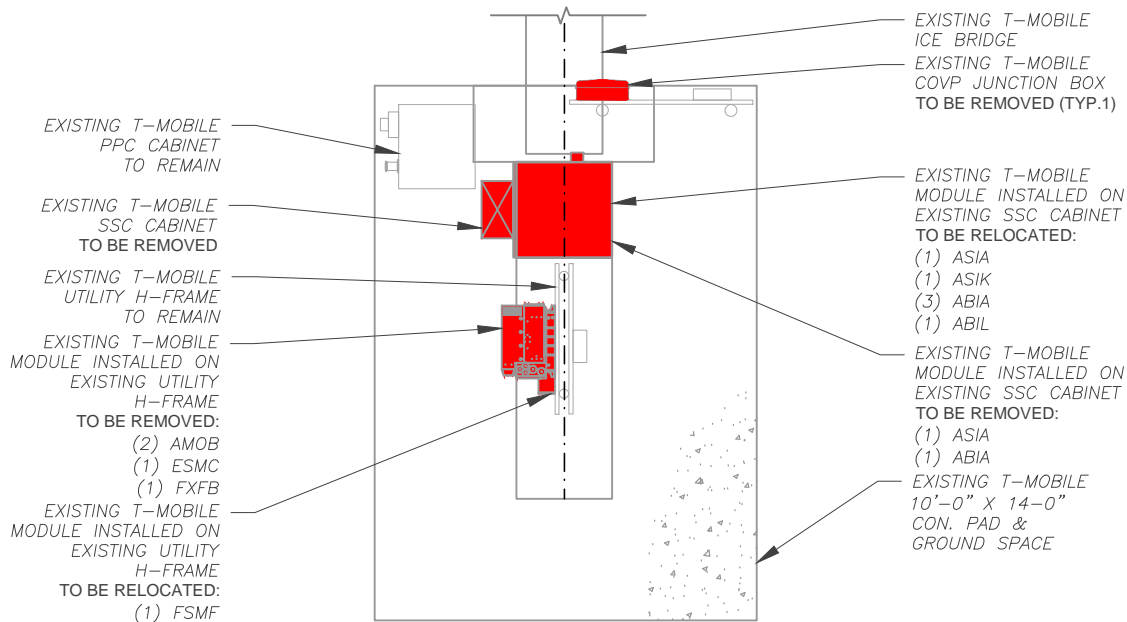
## DETAILED SITE PLAN

SHEET NUMBER: <b>C-101</b>	REVISION: <b>0</b>
-------------------------------	-----------------------

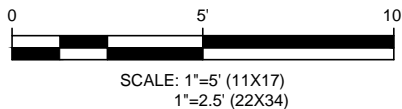


SITE PLAN NOTES:

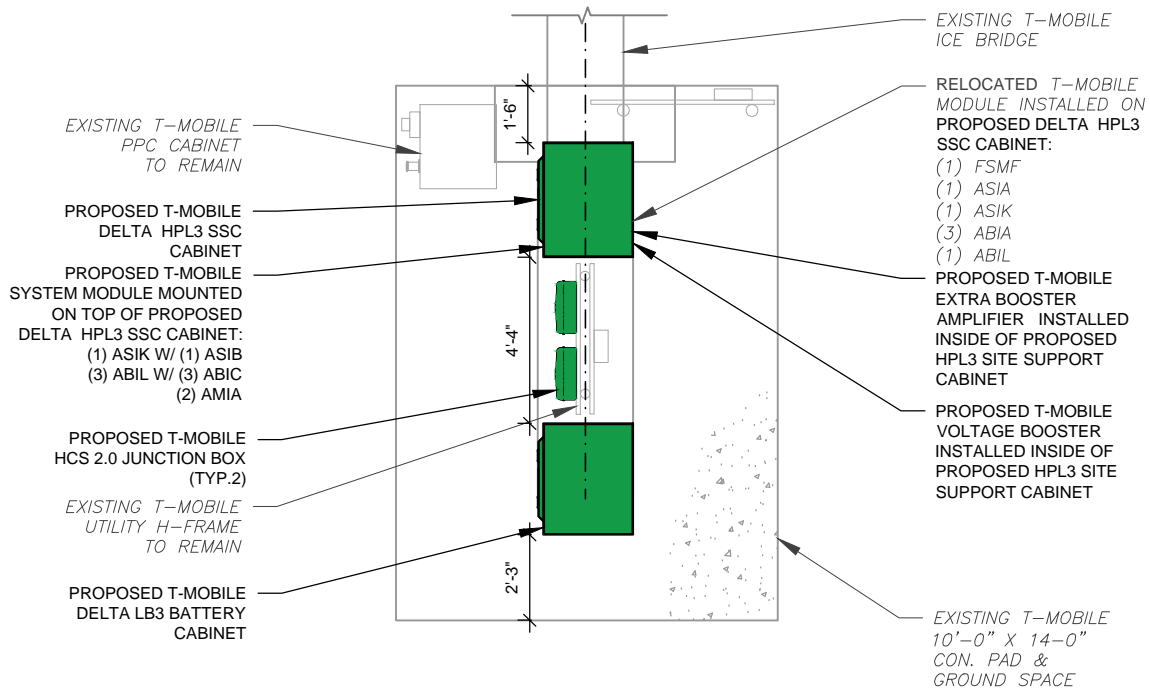
1. CONTRACTOR TO VERIFY THERE IS NO LIVE AAV FIBER RUNNING THROUGH EXISTING DEAD EQUIPMENT. IF SO, THIS WILL NEED TO BE RERUN THROUGH CONDUIT PRIOR TO REMOVING DEAD 2G (6201 CABS) EQUIPMENT.
2. REMOVE EXISTING 2G CABINETS, AND POWER / TELCO WHIPS ASSOCIATED WITH THE DEAD EQUIPMENT IF APPLICABLE.
3. ALL OPEN PORTS NEED TO BE SEALED / WEATHERPROOFED PROPERLY
4. ALL UNNEEDED / EXCESS EQUIPMENT AND GARBAGE TO BE REMOVED FROM EQUIPMENT AREA. DISPOSE OF MATERIALS PROPERLY OFF SITE.



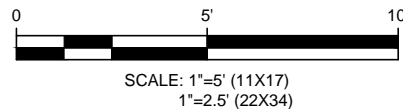
1 EXISTING GROUND EQUIPMENT LAYOUT



LEGEND	
	EXISTING EQUIPMENT TO BE REMOVED



2 PROPOSED GROUND EQUIPMENT LAYOUT



LEGEND	
	PROPOSED EQUIPMENT TO BE INSTALLED



49030 Pontiac Trail, Suite 400  
Wixom, Michigan 48393  
PHONE: (248) 705-9212

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HEG	03/17/2021
D	FINAL CD	HEG	08/12/2021

ATC SITE NUMBER:  
**306035**  
ATC SITE NAME:  
**UNITY VILLAGE MO 2**  
T-MOBILE SITE NAME:  
**ATC 306035 - I-470 & 50 HWY**  
SITE ADDRESS:  
2150 NORTHWEST LOWENSTEIN,  
LEE'S SUMMIT, MO 64081-1905.

SEAL:



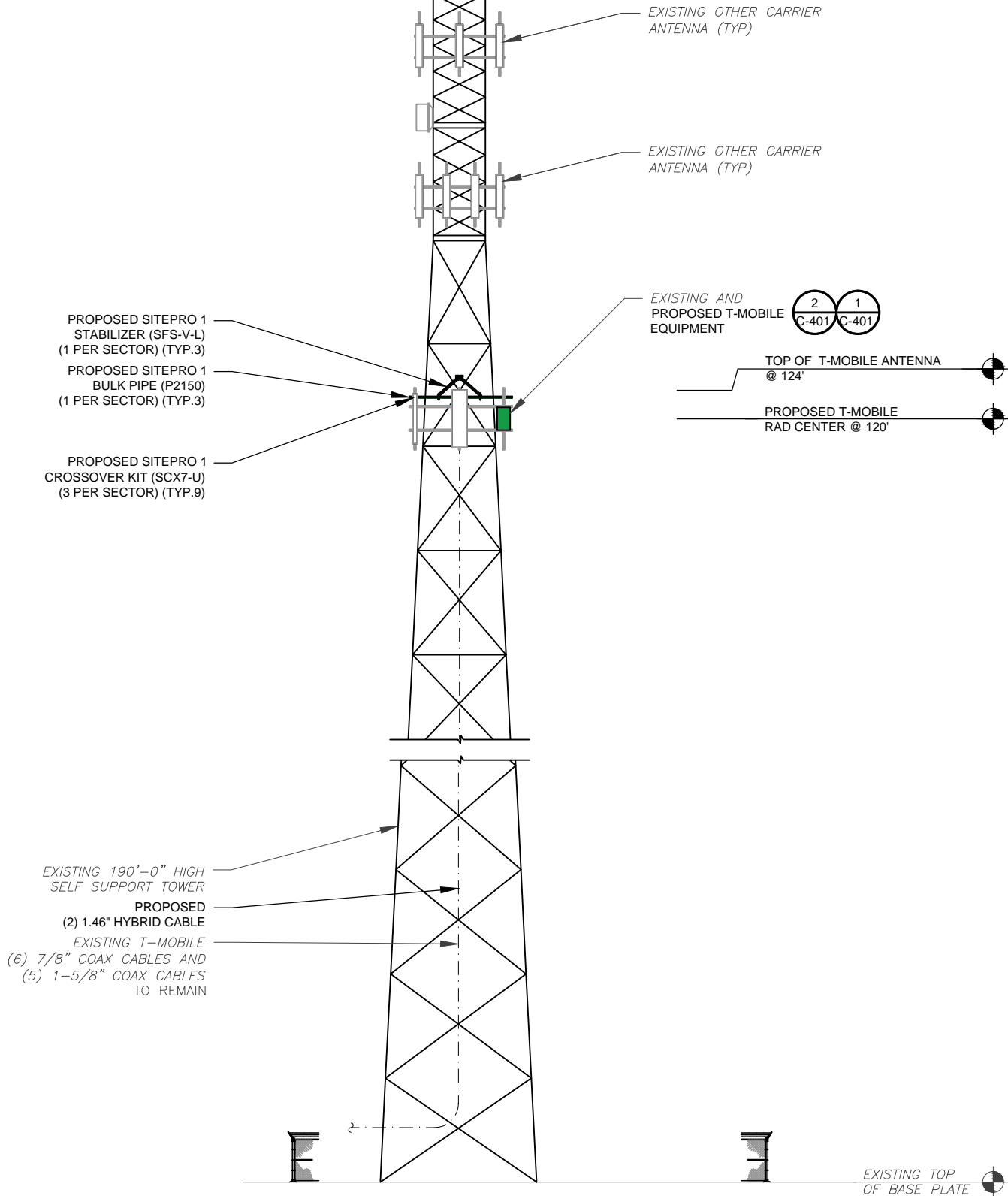
DATE DRAWN:	08/12/2021
ATC JOB NO:	13616192
CUSTOMER ID:	ATC 306035 - I-470 & 50 HWY
CUSTOMER #:	A5C0133A

DETAILED GROUND  
PLAN

SHEET NUMBER:	REVISION:
<b>C-102</b>	<b>0</b>



TOP OF EXISTING TOWER  
ELEV. 190'



PER MOUNT ANALYSIS COMPLETED BY SCOTT A. WIRGAU, DATED 08/02/2021, THE EXISTING MOUNT MUST BE MODIFIED TO ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT

NOTES:  
THIS DRAWING IS FOR EXHIBIT AND LAYOUT PURPOSES ONLY.

PLEASE REFER TO STRUCTURAL DOCUMENTS (PREPARED BY OTHERS) FOR PROJECT STRUCTURAL CALCULATION AND RESULTS.

NO WORK IS TO BE DONE WITHOUT AN APPROVED STRUCTURAL ANALYSIS PROVIDED BY OTHERS.

SPECIAL NOTES:

- GC TO VERIFY ALL HEIGHTS AND AZIMUTHS IN FIELD PRIOR TO CONSTRUCTION. GC SHALL NOTIFY P.M. AND ARCHITECT/ENGINEER OF ANY DISCREPANCIES IMMEDIATELY.
- STRUCTURAL/ DESIGN & ANALYSIS SHALL BE PERFORMED & APPROVED BY TOWER OWNER AND MANUFACTURER (STRUCTURAL ANALYSIS BY OTHERS)
- STRUCTURAL ANALYSIS PERFORMED BY OTHERS. CONTRACTOR TO THOROUGHLY REVIEW THE TOWER STRUCTURAL ANALYSIS FOR INFORMATION PERTAINING TO TOWER UPGRADES, MOUNTING TYPES, ANTENNA HEIGHTS, AND CABLE ROUTING, ANY OTHER DISCREPANCIES BETWEEN THE DRAWINGS, STRUCTURAL ANALYSIS, AND TOWER PLANS SHOULD BE BROUGHT TO THE ATTENTION OF THE PROJECT MANAGER PRIOR TO BIDDING AND INSTALLATION.

TOWER NOTE:

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION 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.
- ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
- TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)



49030 Pontiac Trail, Suite 400  
Wixom, Michigan 48393  
PHONE: (248) 705-9212

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HEG	03/17/2021
D	FINAL CD	HEG	08/12/2021

ATC SITE NUMBER:  
**306035**  
ATC SITE NAME:  
**UNITY VILLAGE MO 2**  
T-MOBILE SITE NAME:  
**ATC 306035 - I-470 & 50 HWY**  
SITE ADDRESS:  
2150 NORTHWEST LOWENSTEIN,  
LEE'S SUMMIT, MO 64081-1905.

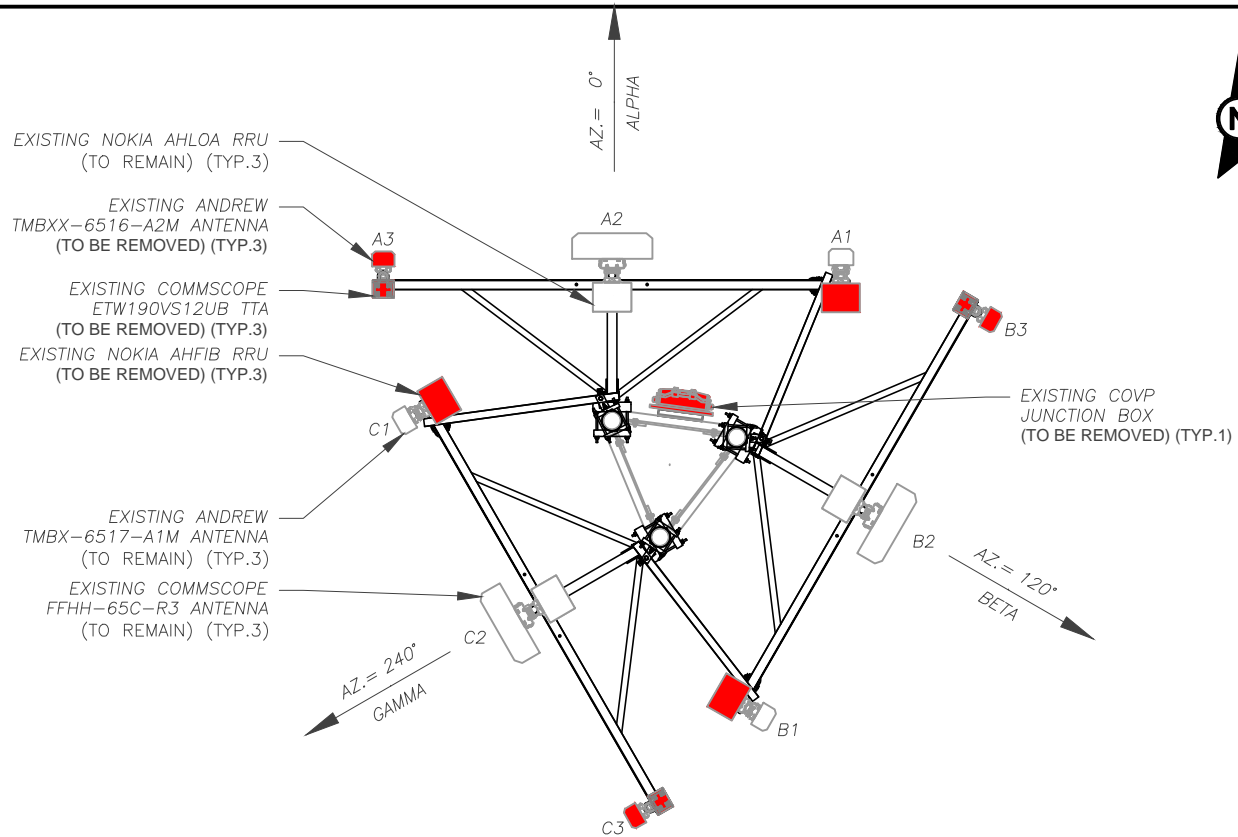
SEAL:



DATE DRAWN:	08/12/2021
ATC JOB NO:	13616192
CUSTOMER ID:	ATC 306035 - I-470 & 50 HWY
CUSTOMER #:	A5C0133A

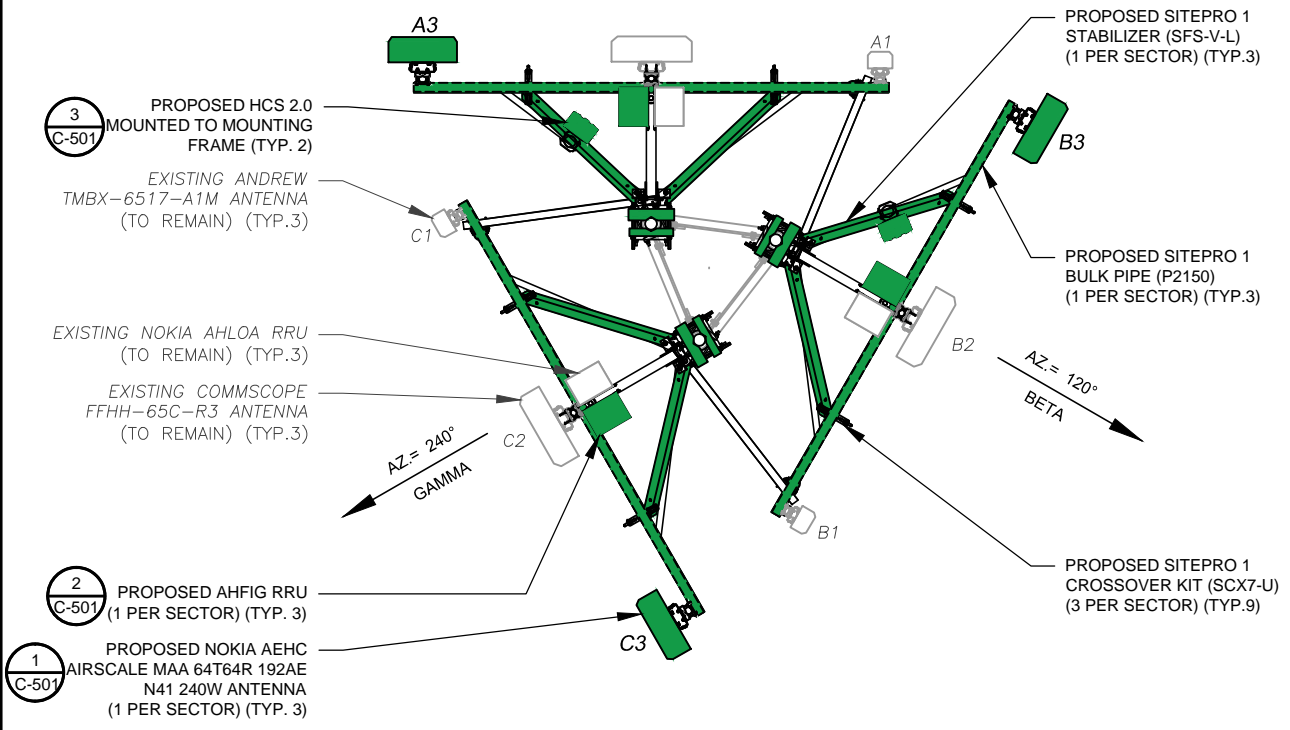
TOWER ELEVATION

SHEET NUMBER:	REVISION:
<b>C-201</b>	<b>0</b>



1 EXISTING ANTENNA PLAN

PER MOUNT ANALYSIS COMPLETED BY SCOTT A. WIRGAU, DATED 08/02/2021, THE EXISTING MOUNT MUST BE MODIFIED TO ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT



2 FINAL ANTENNA PLAN

LEGEND  
EXISTING EQUIPMENT TO BE REMOVED

LEGEND  
PROPOSED EQUIPMENT TO BE INSTALLED

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY	
LOCATION	MODEL NUMBER	COAX	HYBRID
TOWER	(2) HELIAX FIBERFEED 12 RRU PENDANT	(6) 7/8"	(2) 1.46"
GROUND	(2) HCS 2.0	(5) 1-5/8"	-

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

- NOTES
1. CONFIRM WITH T-MOBILE 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.

FINAL ANTENNA SCHEDULE									
LOCATION				ANTENNA SUMMARY				NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT	
ALPHA	120'	0°	A1	ANDREW TMBX-6517-A1M	-	0	-	-	
ALPHA	120'	0°	A2	COMMSCOPE FFHH-65C-R3	L600/L700/N600/L1900/LAWS3 U1900/G1900/L2100	0	6/6/4/4	NOKIA-AHLOA, NOKIA-AHFIG	
ALPHA	120'	0°	A3	NOKIA AEHC	L2500/N2500	0	4	-	
BETA	120'	120°	B1	ANDREW TMBX-6517-A1M	-	0	-	-	
BETA	120'	120°	B2	COMMSCOPE FFHH-65C-R3	L600/L700/N600/L1900/LAWS3 U1900/G1900/L2100	0	6/6/4/4	NOKIA-AHLOA, NOKIA-AHFIG	
BETA	120'	120°	B3	NOKIA AEHC	L2500/N2500	0	4	-	
GAMMA	120'	240°	C1	ANDREW TMBX-6517-A1M	-	0	-	-	
GAMMA	120'	240°	C2	COMMSCOPE FFHH-65C-R3	L600/L700/N600/L1900/LAWS3 U1900/G1900/L2100	0	6/6/4/4	NOKIA-AHLOA, NOKIA-AHFIG	
GAMMA	120'	240°	C3	NOKIA AEHC	L2500/N2500	0	4	-	

3 ANTENNA AND RF EQUIPMENT SCHEDULE



LAB  
49030 Pontiac Trail, Suite 400  
Wixom, Michigan 48393  
PHONE: (248) 705-9212

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HEG	03/17/2021
D	FINAL CD	HEG	08/12/2021

ATC SITE NUMBER:  
**306035**  
ATC SITE NAME:  
**UNITY VILLAGE MO 2**  
T-MOBILE SITE NAME:  
**ATC 306035 - I-470 & 50 HWY**  
SITE ADDRESS:  
2150 NORTHWEST LOWENSTEIN,  
LEE'S SUMMIT, MO 64081-1905.

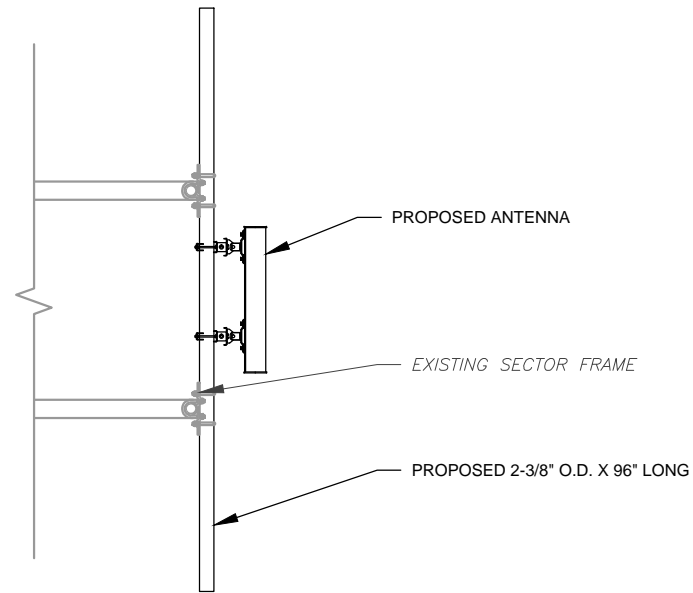
SEAL:



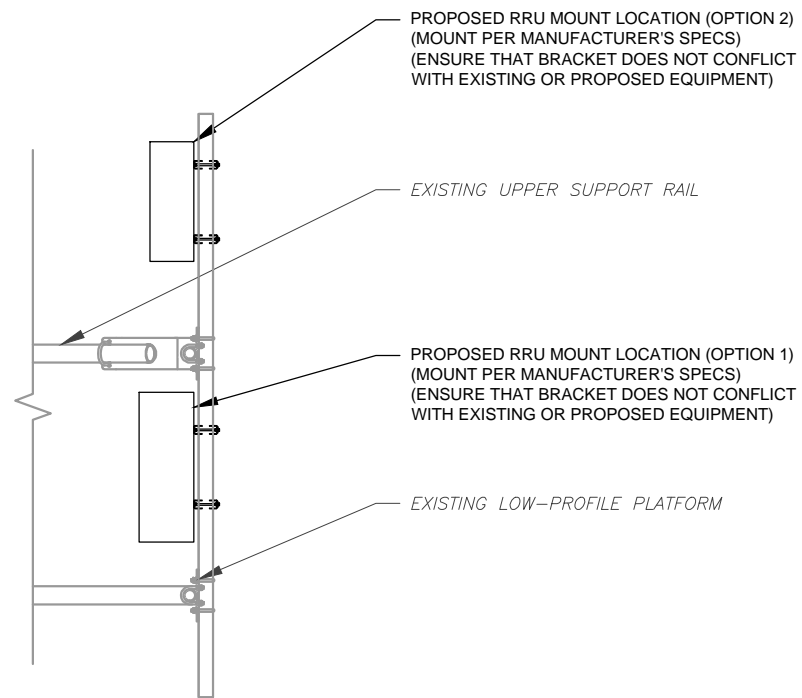
DATE DRAWN:	08/12/2021
ATC JOB NO:	13616192
CUSTOMER ID:	ATC 306035 - I-470 & 50 HWY
CUSTOMER #:	A5C0133A

RF SCHEDULE AND ANTENNA INSTALLATION

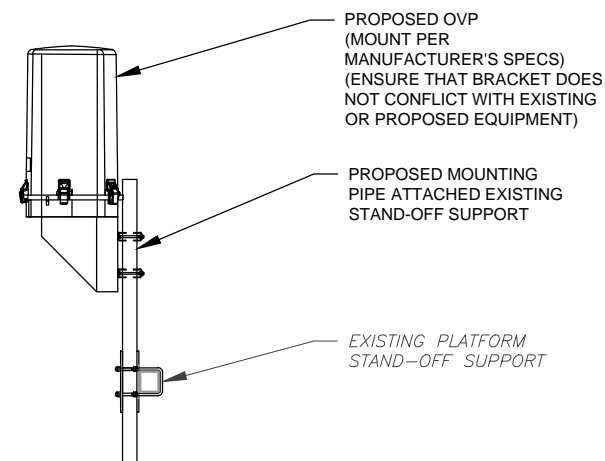
SHEET NUMBER:	REVISION:
<b>C-401</b>	<b>0</b>



1 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL  
SCALE: N.T.S.



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



3 PROPOSED OVP MOUNTING  
SCALE: N.T.S.



49030 Pontiac Trail, Suite 400  
Wixom, Michigan 48393  
PHONE: (248) 705-9212

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HEG	03/17/2021
D	FINAL CD	HEG	08/12/2021

ATC SITE NUMBER:  
**306035**  
ATC SITE NAME:  
**UNITY VILLAGE MO 2**  
T-MOBILE SITE NAME:  
**ATC 306035 - I-470 & 50 HWY**  
SITE ADDRESS:  
2150 NORTHWEST LOWENSTEIN,  
LEE'S SUMMIT, MO 64081-1905.

SEAL:

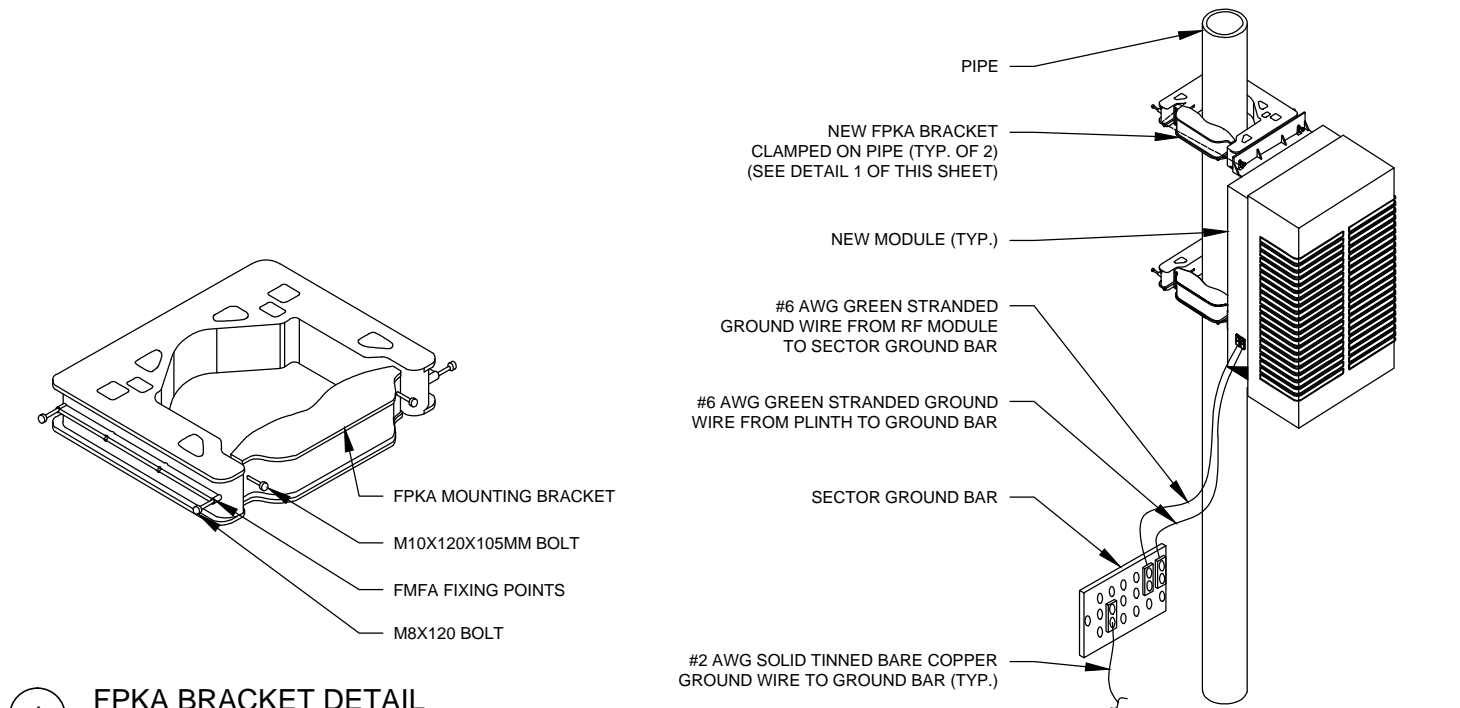


DATE DRAWN:	08/12/2021
ATC JOB NO:	13616192
CUSTOMER ID:	ATC 306035 - I-470 & 50 HWY
CUSTOMER #:	A5C0133A

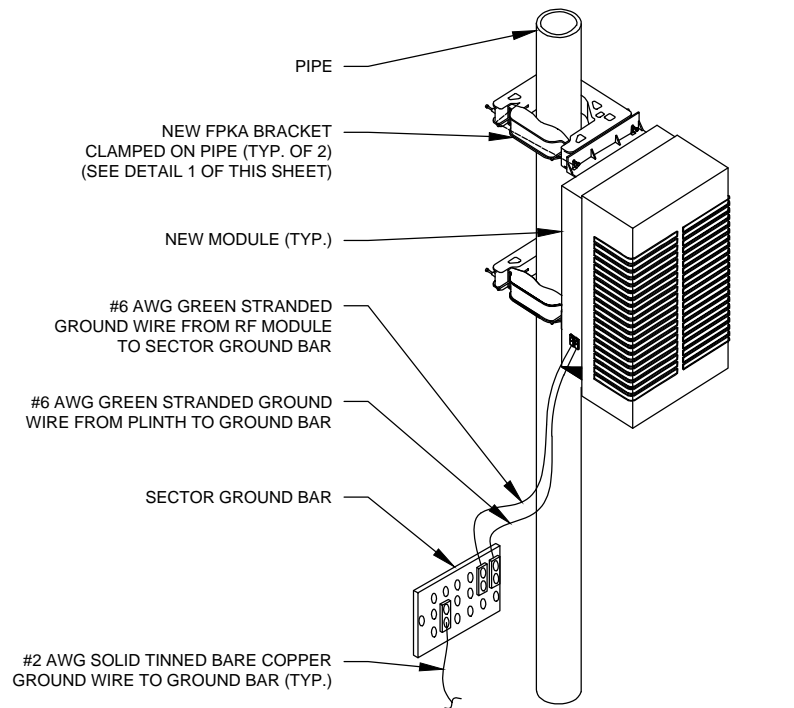
## CONSTRUCTION DETAILS

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

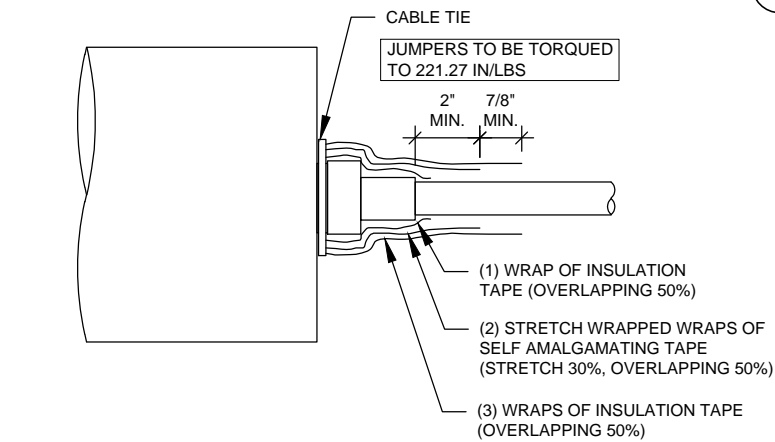




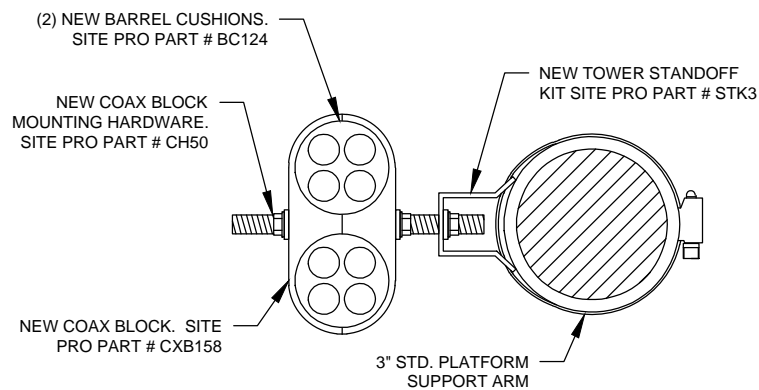
1 FPKA BRACKET DETAIL  
SCALE: N.T.S.



2 TYPICAL AHLOA UNIT MOUNTING DETAIL  
SCALE: N.T.S.



4 RF JUMPER CONNECTION DETAIL  
SCALE: N.T.S.



5 RF JUMPER MOUNTING DETAIL  
SCALE: N.T.S.

COAX COLOR CODING

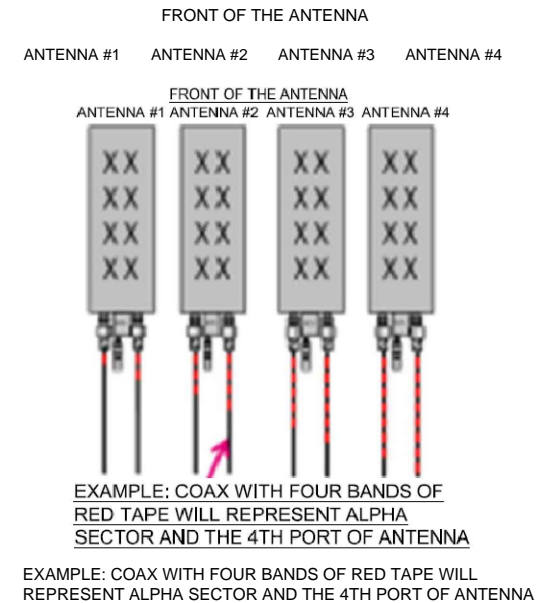
- ANTENNAS WILL BE LABELED (BACK OF ANTENNA VIEW) RIGHT TO LEFT 1-X PORTS
- COAX/JUMPER LINES WILL BE IDENTIFIED BY SECTOR COLOR AND BY NUMBER OF BANDS AROUND THE COAX/JUMPER

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

#### ANTENNA AND COAXIAL CABLE SCHEDULE

- ALL ANTENNAS SHALL BE FURNISHED WITH DOWNTILT BRACKETS. CONTRACTOR SHALL COORDINATE REQUIRED MECHANICAL DOWNTILT FOR EACH ANTENNA WITH RF ENGINEER. ANTENNA DOWNTILT SHALL BE SET AND VERIFIED BY A SMART LEVEL.
- CONTRACTOR SHALL INSTALL COLOR CODE RINGS ON EACH OF THE HYBRID CABLES AND JUMPER CABLES WITH UV RESISTANT TAPE. ALL CABLE SHALL BE MARKED AT TOP AND BOTTOM WITH 2\"/>

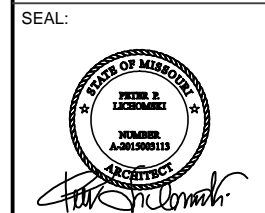
# VIEWNAME  
VPSCALE



**LAB**  
49030 Pontiac Trail, Suite 400  
Wixom, Michigan 48393  
PHONE: (248) 705-9212

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HEG	03/17/2021
D	FINAL CD	HEG	08/12/2021

ATC SITE NUMBER:  
**306035**  
ATC SITE NAME:  
**UNITY VILLAGE MO 2**  
T-MOBILE SITE NAME:  
**ATC 306035 - I-470 & 50 HWY**  
SITE ADDRESS:  
2150 NORTHWEST LOWENSTEIN,  
LEE'S SUMMIT, MO 64081-1905.



DATE DRAWN:	08/12/2021
ATC JOB NO:	13616192
CUSTOMER ID:	ATC 306035 - I-470 & 50 HWY
CUSTOMER #:	A5C0133A

#### CABLE AND MOUNTING DETAILS

SHEET NUMBER:	REVISION:
<b>C-502</b>	<b>0</b>



# Large Battery 3 Cabinet

## Product Features

- Compact design for battery strings:
- Direct air cooling solution
  - Supports four strings of -48V VRLA batteries up to 210Ah
  - 600A rated bus bar with 200A breaker per string
  - Bulk Input / Output with ability to daisy chain cabinets
  - Front to Front Air Flow
  - Corrosion resistant aluminum construction
  - Powder coated high gloss finish
  - Designed to meet GR-487

www.deltaww.com



## Specifications

Model		LB3 (Large Battery 3 Cabinet)		
1. General				
Construction	Aluminium enclosure			
Dimensions	30 x 72 x 35 in. (381 x 1829x 889mm),			
(W x H x D)	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			
2. Environment				
Operating temperature	-40°C to +50°C (-40°F to +122°F) with solar load			
Protection class	IP55 designed to GR-487			
Acoustics	65dBA			
Humidity (relative)	95%, non-condensing (Max.)			
3. Thermal Management				
Cooling Equipment:	Direct Air Cooling			
Heating Equipment:	Forced air heating (1) 1000W AC heaters			
4. Equipment				
Cable entry	Knock-out plate on each upper side wall Additional knockouts each side			
Door latch	3 point latching, 5/16 nut driver tool, pad-locking capability			
Primary ground	10 double-hole ¼"-20 threaded holes on 5/8" center ground bar			
Lifting Ears	4 Lifting Tabs			
Plinth	Optional 6" plinth available			
Standard equipment	AC Load Center:			
	30A heater breaker			
	Left or Right side AC entry options			
	AC Surge Protection (option)			
	DC Load Center:			
	600A bulk feed bus bar			
	(4) 200A bolt in battery breakers			
	(4) 2-hole lug landings,(2 output/2 input from second battery cabinet)			
	Temp Probes			
	Battery Trays:			
	(4) battery trays			
	(4) -48V battery strings (210Ah max each)			
	Connection kit:			
	(1) DC 10A Breaker supplied (install onto HPL3 Power Cabinet)			
	LED interior cabinet light			
	Front Door:	(2) DC powered Axial fans with (1) F5 Filters		
		Door intrusion alarm		
		(1) 1000W AC powered heaters		
5. Ordering Information				
Cabinet	ESOF015-ECV04	Large Battery 3 (LB3) Cabinet		
Plinth, 6"	37993318816900-S	Plinth for V1/V2, HPL2, HPL3, LB2 and LB3		

\*All specifications are subject to change without prior notice.

Delta Group Website:  
[www.deltaww.com](http://www.deltaww.com)

Product Website:  
[www.deltapowersolutions.com](http://www.deltapowersolutions.com)

United States of America & Canada:  
Delta Electronics (USA) Inc.  
2925 E. Plano Parkway  
Plano, TX (Texas) 75074

Sales and Orders:  
[DEUSTPS.Sales@deltaww.com](mailto:DEUSTPS.Sales@deltaww.com)  
[DEUSTPS.Orders@deltaww.com](mailto:DEUSTPS.Orders@deltaww.com)

Field Support:  
1-877-DELTA-08 option 3  
(877-335-8208 option 3)  
[DEUSTPS.Support@deltaww.com](mailto:DEUSTPS.Support@deltaww.com)

Installation Services:  
[DEUSTPS.Services@deltaww.com](mailto:DEUSTPS.Services@deltaww.com)

RMA:  
[DEUSTPS.RMA@deltaww.com](mailto:DEUSTPS.RMA@deltaww.com)







# HP-Large 3 Power Cabinet

## Product Features

- Compact design for equipment, power and battery:
- 30RU supports 3 radios and transport equipment
  - 600A @ -48V power system
  - Slimline high efficiency rectifier
  - ORION Touch screen Controller
  - Rear Access Hatch

Direct air cooling solution, 6000W capacity, 5°C delta T  
Easy slide-in filter replacement for Merv-13 or Gore  
filter connects with:

- SB3, 2-string battery cabinet
- LB3, 4-string battery cabinet
- V2, Expansion equipment and battery cabinet

Designed to GR-487 specifications

www.deltaww.com



## Specifications

Model	HP-Large 3 Power Cabinet	
1. General		
Construction	Aluminum enclosure	
Dimensions (W x H x D)	30 x 72 x 36 in. (762 x 1828 x 914mm), Depth with door: 43 in. (1092mm)	
Weight	~551 lbs (~270kg) (without customer equipment or batteries)	
Internal rack dimension	Total Equipment space, 30RU:	
	Horizontal rack: 19" x 27RU	
	Vertical rack: 19" x 3RU	
	Power System space: 23" x 12RU	
Mounting options	Pad-mount, plinth option	
Finish	Polyester Powder Paint (Tan)	
Safety	UL Listed , IEC / EN60950	
2. Environment		
Operating temperature	-40°C to +50°C (-40°F to +122°F) with solar load. IP55	
Protection class	designed to GR-487	
Acoustics	5°C delta T: 70 dBA @ 6000W, 85dBA @6000W heat load	
Humidity (relative)	95%,non-condensing (Max.)	
3. Thermal management		
Cooling Equipment:	Direct Air Cooling, 6000W capacity, 5°C delta T (6) centrifugal redundant fans, (3) Merv-13 or optional GORE filters front door (3) Merv-13 filters Rear hatch	
Heating Equipment:	Forced air heating (2) 1000W AC heaters	
4. Equipment		
Cable Entry	Knock-out plate on each upper side wall Additional knockouts each side (1) 3" conduit hole with hole plug	
Door latch	3 point latching, 5/16 nut driver tool, pad-locking capability	
Primary ground	10 double-hole ½"-20 threaded holes on 5/8" center ground bar	
Lifting Ears	4 Lifting Tabs	
Standard equipment	AC Load Center: 240V split phase, dual feed / (1) 200A + (1) 100A 208V 3-phase, single feed / (1) 200A  AC Surge Protection for each breaker feed GFCI Receptacle 120V (8 form-C) Alarm Termination block (1) Thermal Probe  605A/ 54V (338kW) redundant Power System with DIN rail distribution: 12 rectifier positions (3x 55A DPR3000 rectifiers included) 52 poles for load (2x10A, 3x50A, and 6x 100A load breakers included) 16 poles for battery (2) SB350 generator connector LVD over-ride switch (2) SB175 Battery connections (2) SB350 Battery connections  Front Door: (6) DC powered centrifugal fans with (3) MERV-13 filters, (GORE option) Clogged Filter alarm pressure switch Door intrusion alarm (2) 1000W AC powered heaters LED interior cabinet light  Rear Hatch: Exhaust vent with (3) MERV-13 filters	
5. Ordering information		
Cabinet	ESOA600-HCU01	HP-Large 3 600A Power / Equipment Cabinet
Rectifier	ESR-48/80A-A-T	48V / 56A 3000W, 96.4%, CAN communication
Controller (Spare)	TPS1020028AU17	Orion TOUCH Controller
Plinth, 6"	3799331816900-S	Plinth for V1/V2, HPL2, HPL3, LB2 and LB3 cabinet

Delta Group Website:  
www.deltaww.com

Product Website:  
www.deltapowersolutions.com

United States of America & Canada:  
Delta Electronics U.S. Inc.  
2925 E. Plano Parkway  
Plano, TX (Texas) 75074

Sales and Support:  
Sales: DEUSTPS.Sales@deltaww.com  
Orders: DEUSTPS.Orders@deltaww.com

Field Support:  
1-877-DELTA-08 option 3  
(877-335-8208 option 3)  
DEUSTPS.Support@deltaww.com

Installation Services:  
DEUSTPS.Services@deltaww.com

RMA:  
DEUSTPS.RMA@deltaww.com

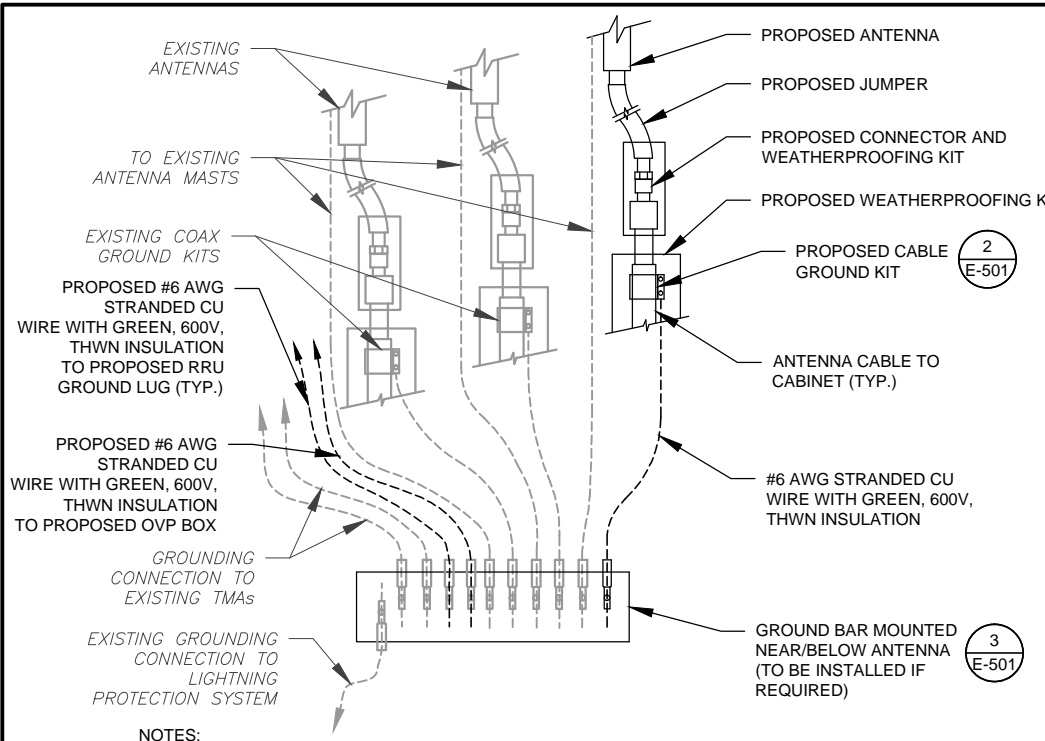
en v2.5A



Front Door and Rear Hatch Open

\*All specifications are subject to change without prior notice.





NOTES:

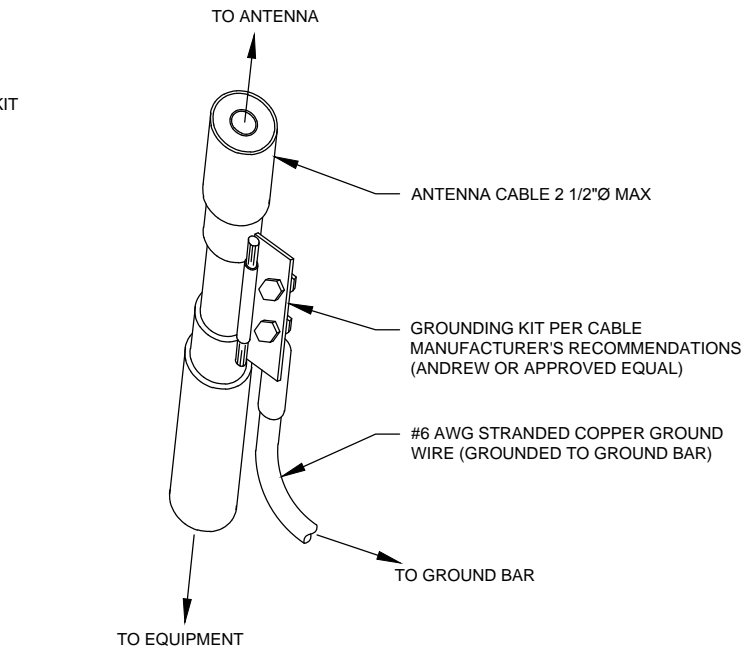
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH T-MOBILE 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.

ELECTRICAL NOTES:

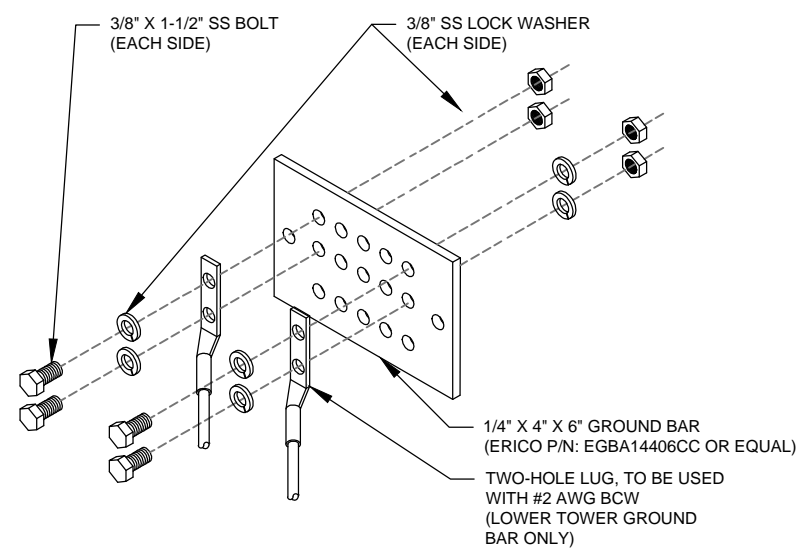
1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
2. ATC HAS NOT VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER. PROPOSED CABLE AND CONDUIT SHALL BE MINIMUM SIZE PER BELOW IN CHART.
3. FOR SPECIFIC CABINET / ANCILLARY EQUIPMENT WIRING REQUIREMENTS, THE T-MOBILE CONTRACTOR SHOULD REFERENCE DESIGN DOCUMENTS PROVIDED BY T-MOBILE FOR THIS CURRENT PROJECT CONFIGURATION, IN ACCORDANCE WITH LOCAL JURISDICTION REQUIREMENTS & NEC STANDARDS & PRACTICES.

OCPD SIZE	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
80A/2P	2#3 AWG	#8 AWG	1-1/4"
100/2P	2#2 AWG	#8 AWG	1-1/4"
125A/2P	2#1 AWG	#8 AWG	1-1/2"
150A/2P	2#1/0 AWG	#8 AWG	1-1/2"



- 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.

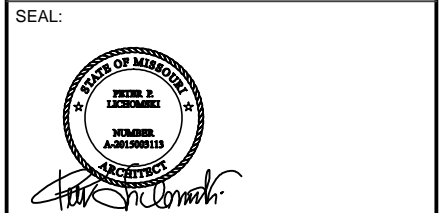
3 TOWER GROUND BAR DETAIL  
SCALE: N.T.S.



49030 Pontiac Trail, Suite 400  
Wixom, Michigan 48393  
PHONE: (248) 705-9212

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HEG	03/17/2021
D	FINAL CD	HEG	08/12/2021

ATC SITE NUMBER:  
**306035**  
ATC SITE NAME:  
**UNITY VILLAGE MO 2**  
T-MOBILE SITE NAME:  
**ATC 306035 - I-470 & 50 HWY**  
SITE ADDRESS:  
2150 NORTHWEST LOWENSTEIN,  
LEE'S SUMMIT, MO 64081-1905.



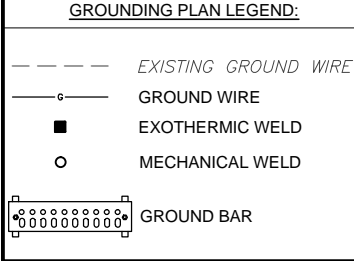
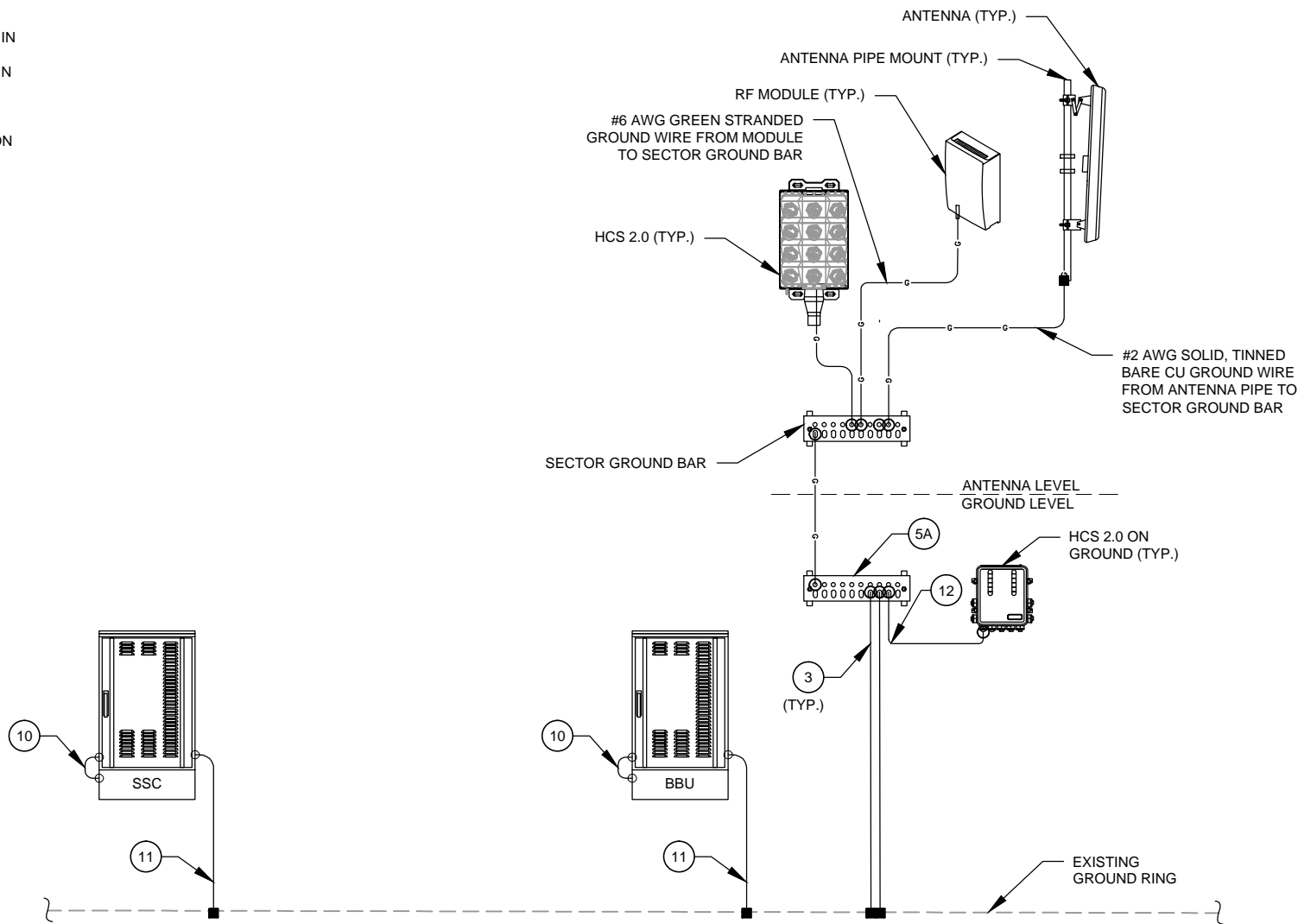
DATE DRAWN:	08/12/2021
ATC JOB NO:	13616192
CUSTOMER ID:	ATC 306035 - I-470 & 50 HWY
CUSTOMER #:	A5C0133A

GROUNDING DETAILS

SHEET NUMBER: <b>E-501</b>	REVISION: <b>0</b>
-------------------------------	-----------------------

NOTE:

- EXISTING GROUNDING NOT SHOWN IN THIS DIAGRAM. GC TO VERIFY EXISTING EQUIPMENT GROUNDING IN FIELD
- GC TO V.I.F. AND INSTALL ANY MISSING T-MOBILE GROUND BARS ON SITE



1 EQUIPMENT POWER, TELCO AND GROUNDING DIAGRAM  
SCALE: N.T.S.

KEY NOTES:

- |    |   |    |   |
|----|---|----|---|
| 1  | #2 SOLID, TINNED BARE COPPER GROUND WIRE FROM ICE BRIDGE TO ICE BRIDGE POST.                              | 10 | #6 AWG GREEN STRANDED GROUND CU WIRE FROM SSC TO SSC PLINTH                                 |
| 2  | #2 SOLID, TINNED BARE COPPER GROUND WIRE, BOND ICE BRIDGE POST W/ VS TYPE CADWELD. (1 PER POST REQUIRED). | 11 | #2 AWG SOLID TINNED BARE GROUND CU WIRE FROM SSC TO GROUND RING                             |
| 3  | #2 SOLID, TINNED BARE COPPER GROUND WIRE FROM GROUND BAR TO GROUND RING (2 REQUIRED).                     | 12 | #2 AWG GREEN STRANDED CU GROUND WIRE FROM NEW COVP TO GROUND BAR                            |
| 4  | #2 SOLID, TINNED BARE COPPER GROUND WIRE FROM NEW POST TO EXISTING GROUND RING                            | 13 | #2 AWG GREEN STRANDED CU GROUND WIRE FROM NEW ALARM BOX TO GROUND BAR                       |
| 5  | NEW GROUND BAR  | 14 | #6 AWG GREEN STRANDED CU GROUND WIRE FROM NEW HYBRID CABLE TO GROUND BAR                    |
| 5A | EXISTING GROUND BAR   | 15 | #2 AWG GREEN STRANDED GROUND WIRE FROM NEW RF MODULE TO GROUND BAR                          |
| 6  | #6 AWG GREEN STRANDED GROUND CU WIRE FROM NEW MODULES TO PLINTH   | 16 | #2 AWG SOLID, TINNED BARE CU GROUND WIRE FROM NEW GROUND BAR TO EXISTING GROUND RING/ROD    |
| 7  | #2 AWG SOLID TINNED BARE GROUND CU WIRE FROM STEEL CUBE W/ MODULES TO GROUND RING                         | 17 | #2 AWG SOLID, TINNED BARE CU GROUND WIRE FROM FCOA CABINET TO EXISTING GROUND RING/BAR      |
| 7A | #2 AWG SOLID TINNED BARE GROUND CU WIRE FROM MODULES PLINTH TO GROUND RING                                | 18 | #6 AWG SOLID, TINNED BARE CU GROUND WIRE FROM NEW DIPLEXER/TRIPLEXER TO EXISTING GROUND BAR |
| 8  | #6 AWG GREEN STRANDED GROUND CU WIRE FROM MODULES TO PLINTH   | 19 | #2 AWG SOLID TINNED BARE GROUND CU WIRE FROM BATTERY CABINET TO GROUND RING                 |
| 9  | #2 AWG SOLID TINNED BARE GROUND CU WIRE FROM MODULE'S PLINTH TO GROUND RING                               |    |   |



**LAB**  
49030 Pontiac Trail, Suite 400  
Wixom, Michigan 48393  
PHONE: (248) 705-9212

REV.	DESCRIPTION	BY	DATE
A	PRELIM	HEG	03/17/2021
D	FINAL CD	HEG	08/12/2021

ATC SITE NUMBER:  
**306035**  
ATC SITE NAME:  
**UNITY VILLAGE MO 2**  
T-MOBILE SITE NAME:  
**ATC 306035 - I-470 & 50 HWY**  
SITE ADDRESS:  
2150 NORTHWEST LOWENSTEIN,  
LEE'S SUMMIT, MO 64081-1905.

SEAL:



**T-Mobile**

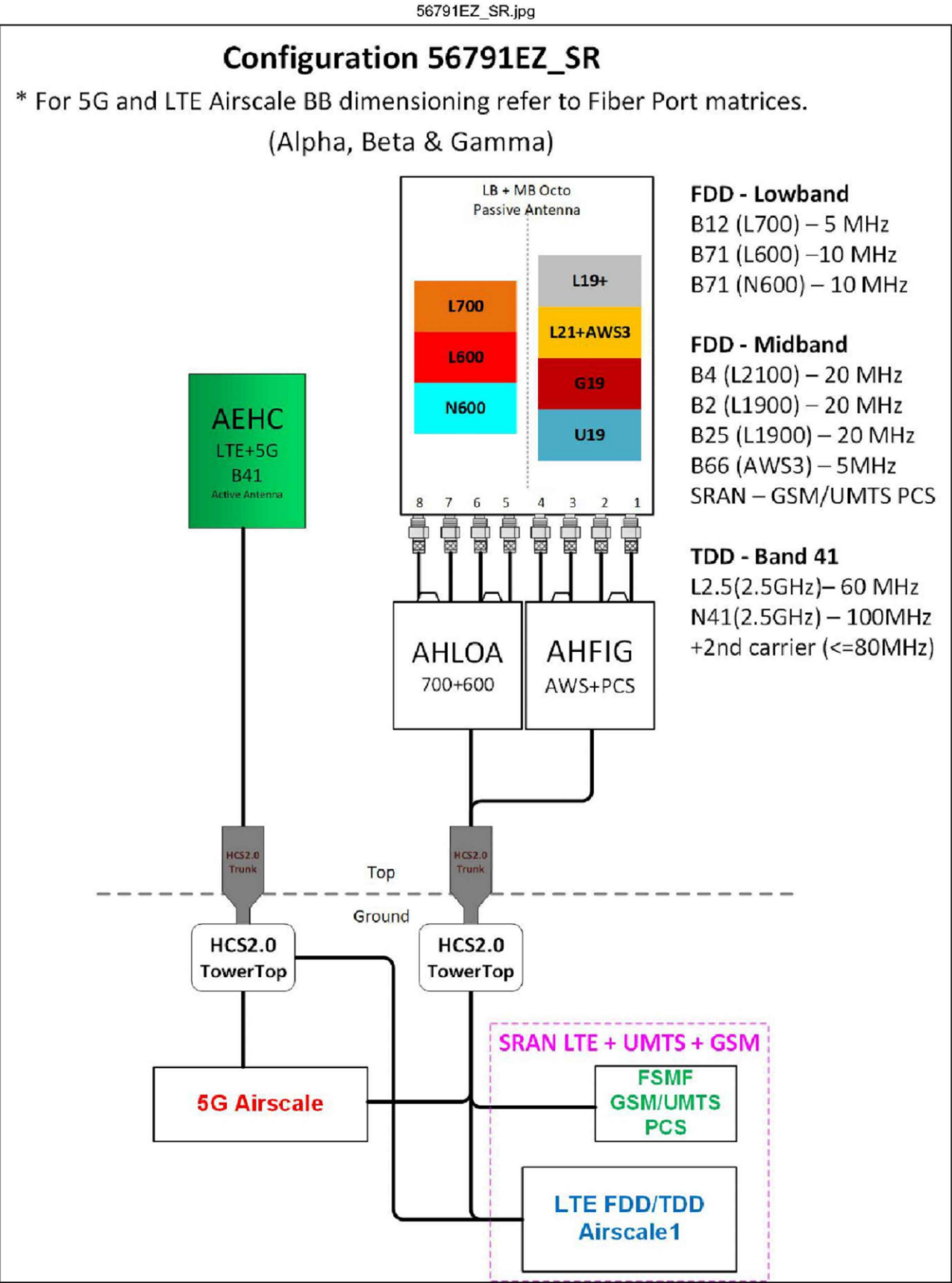
DATE DRAWN:	08/12/2021
ATC JOB NO:	13616192
CUSTOMER ID:	ATC 306035 - I-470 & 50 HWY
CUSTOMER #:	A5C0133A

ELECTRICAL ONE-LINE  
DIAGRAM

SHEET NUMBER:	REVISION:
<b>E-601</b>	<b>0</b>

Proposed RAN Equipment				
Template: 56791EZ_SR				
Enclosure	1	2	3	4
Enclosure Type	Generic 600A Site Support Cabinet	Tower Top Mount (Nokia)	Ancillary Equipment (Nokia)	Generic Battery Cabinet for 600A SSC
Baseband	ASIA L2100 L1900 L700 L600 LAWS3	ASIK N2500 N600 FSMF U1900 G1900		
Baseband Submodule	ABIA (x 2) L2100 L1900 LAWS3 ABIC (x 3) L2500	ABIA L700 L600 ABIL (x 3) N2500 ABIL N600		
Baseband Subrack	AMIA (x 2)			
Hybrid Cable System	Voltage Booster needed if hybrid under 250' Extra Booster Amplifier needed if hybrid under 250'		Nokia HCS 2.0 Trunk *Select Length* (x 2)	
Junction Box			Nokia HCS 2.0 Tower Junction Box (x 2)	
Power subsystem	Rectifier Shelf *Select size* Breakers *Select size*			Batteries *Select size*
Radio		AHLOA (x 3) L700 L600 N600	AHFIG (x 3) L2100 L1900 LAWS3 U1900 G1900	
Transport System	CSR IXRe V2 (Gen2)			
RAN Scope of Work:				
Anchor Upgrade: Current on air is L2100/LAWS3, L1900/U1900/GSM, and L700/L600/N600				
Install (2) HCS 2.0 Hybrid Trunk Cables with Breakout Feature Install (2) HCS 2.0 Junction Boxes at the BTS: Raycap RTMDC-5634-PF-48				

1 CABINET CONFIGURATION  
SCALE: NOT TO SCALE



2 ANTENNA CONFIGURATION  
SCALE: NOT TO SCALE

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

SUPPLEMENTAL

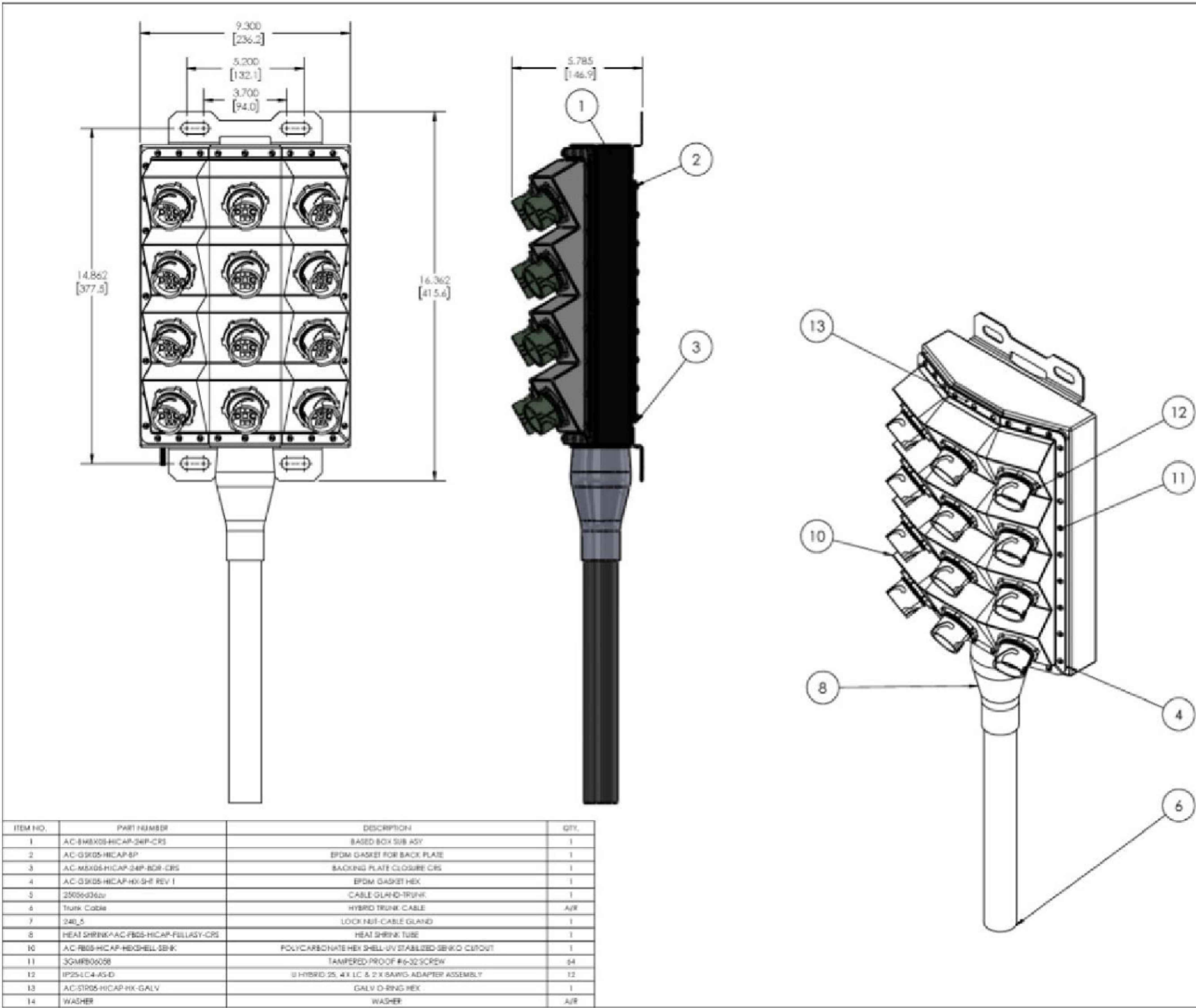
SHEET NUMBER:

R-601

REVISION:

0





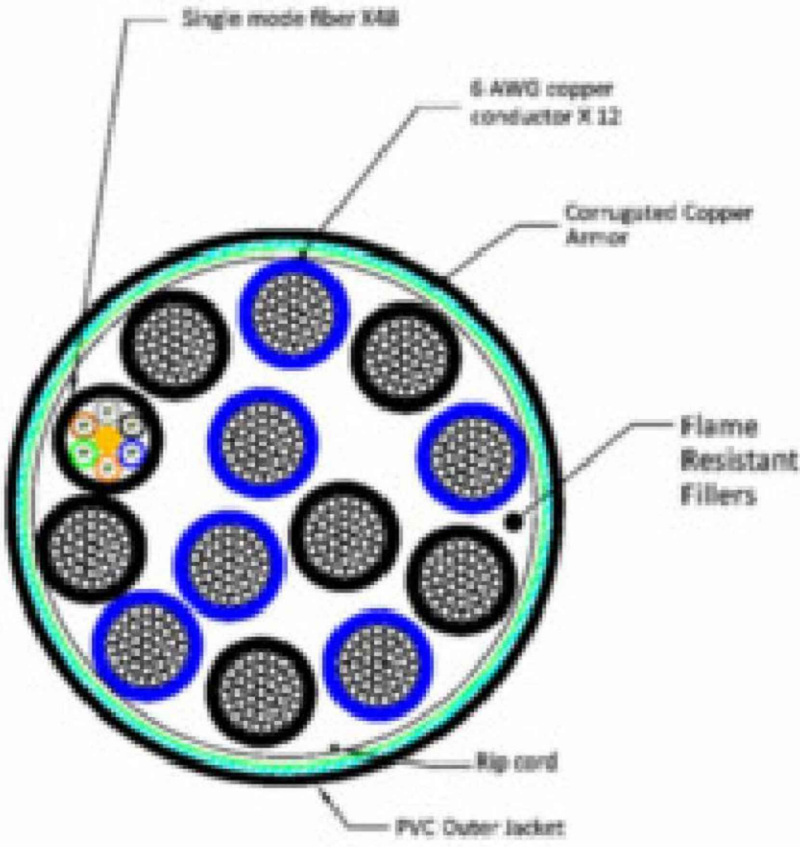
HICAP HYBRID BREAKOUT CRS BOX  
(FULL ASSEMBLY)

CUSTOMER APPROVAL		
NAME: _____		
SIGNATURE: _____		
DATE: _____		
1	RELEASED FOR PRODUCTION	20180530
REV.	DESCRIPTION	DATE
REVISIONS		
 THE POWER OF BEING CONNECTED.		
SIGNATURE CYCLE		DATE
DRAWN:	MLE	20180525
CHECKED:	DOB	20180529
APPROVED:	DOB	20180530
DIM: ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE SPECIFIED.		
DESCRIPTION: HICAP HYBRID BREAKOUT CRS BOX (FULL ASSEMBLY)		
MATERIAL: CR STEEL A1008 CS		
WEIGHT 8.76		
FINISH: POWDER COATED		
COLOUR: BLACK		
SHEET NO: 1 OF 1		
DWG NO: AC-FB05-HICAP-FULLASY-CRS		
SCALE:		
TOLERANCE: X.X ± 0.020" X.XX ± 0.010" X.XXX ± 0.005"		
<u>DISCLAIMER</u> EXCEPT AS MAY BE OTHERWISE PROVIDED BY CONTRACT, THESE DRAWINGS AND SPECIFICATIONS ARE PROPRIETARY AND SHALL REMAIN THE PROPERTY OF ALLIANCE CORPORATION. THIS INFORMATION IS BEING ISSUED IN STRICT CONFIDENCE AND SHALL NOT BE REPRODUCED, COPIED, OR USED FOR ANY PURPOSE WITHOUT WRITTEN PERMISSION OF ALLIANCE CORPORATION.		

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

SUPPLEMENTAL

MECHANICAL	JACKET COLOR	BLACK
	OUTER DIAMETER (IN)	1.46
	MIN BENDING RADIUS(IN), MULTIPLE BENDS, LOADED	29.2
	MIN BENDING RADIUS(IN), MULTIPLE BENDS, UNLOADED	14.6
	MIN BENDING RADIUS(IN), SINGLE BEND, UNLOADED	10.22
	MIN BENDING RADIUS(IN), FURCATION	1.2
	ARMOR	CORRUGATED COPPER
	WEIGHT(lb/100ft)	1610
	COMPRESSION(lb/in)	250
	TENSILE LOAD, LONG TERM(lbf)	180
ELECTRICAL	TENSILE LOAD, SHORT TERM(lbf)	600
	CONDUCTOR MATERIAL	COPPER
	CONDUCTOR CONSTRUCTION	STRAND
	CONDUCTOR COLOR	BLUE/BLACK
	RESISTIVITY(nΩ @20°C)	16.78 nΩ-m
	CONDUCTORS, QTY	12
	CONDUCTOR SIZE(AWG)	6
	EMI SHIELD	YES
	UL RATING	UL TC-OF-ER
	FIBER TYPE	SINGLE MODE (G.657.A2)
OPTICAL	FIBERS, QTY	48
	ATTENUATION(dB/km), MAX, 1550/1285-1330 nm	0.5
	DISPERSION, MAX, 1550/1285-1330 nm	18 ps/3.5 ps
	RETURN LOSS(dB)	>50
	INSERTION LOSS(dB), POST ENVIRONMENTAL	REDUCTION < 0.65
	RETURN LOSS(dB), POST ENVIRONMENTAL	REDUCTION < 5
	CUTOFF WAVELENGTH(nm)	1260
	PIGTAIL TERMINATION	LC PAIR, STRAIGHT
	OPERATING TEMP(°F)	-40 TO +167
	STORAGE TEMP(°F)	-40 TO +167
ENVIRON	UV	IEC 60068-2-5
	THERMAL CYCLE	IEC 60068-2-14
	VIBRATION	IEC 60068-2-64
	IMPACT(ft lb)	4.4 NM PER ICEA696



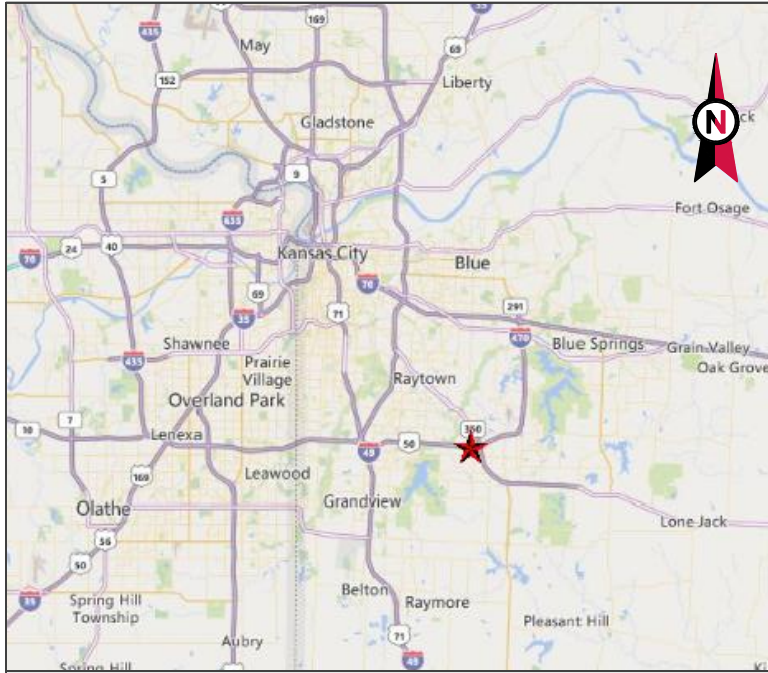
NOTE: CABLE CROSS-SECTION NOT DRAWN TO SCALE

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-603	0

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





VICINITY MAP



AMERICAN TOWER®

SITE NAME: UNITY VILLAGE MO 2  
SITE NUMBER: 306035  
ATC PROJECT NUMBER: 13616192\_C9\_05  
SITE ADDRESS: 2150 NW LOWENSTEIN  
LEES SUMMIT, MO 64081



LOCATION MAP

MOUNT REINFORCEMENT DRAWINGS  
PREPARED FOR T-MOBILE

PROJECT TEAM	PROJECT DESCRIPTION	SHEET	SHEET TITLE	REV.
<p><b>TOWER OWNER</b></p> <p>AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801</p> <p><b>ENGINEERED BY</b></p> <p>ATC TOWER SERVICES 3500 REGENCY PARKWAY, SUITE 100 CARY, NC 27518</p> <p><b>CARRIER INFORMATION</b></p> <p>CARRIER: T-MOBILE CARRIER SITE NAME: ATC 306035 - I-470 &amp; 50 HWY CARRIER SITE NUMBER: A5C0133A</p>	THE PROJECT DEPICTED IN THESE PLANS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED UNDER ENGINEERING PROJECT NUMBER 13616192_C8_01 DATED 06/28/21. SATISFACTORY COMPLETION OF THE WORK INDICATED IN THESE PLANS WILL RESULT IN THE STRUCTURE MEETING THE REQUIREMENTS OF THE SPECIFICATIONS UNDER WHICH THE STRUCTURAL WAS COMPLETED.	G-002	IBC GENERAL NOTES AND MOUNT MODIFICATION INSPECTION	0
		S-101	MODIFICATION PROFILE	0
		S-102	SAFETY CLIMB LAYOUT	0
		R-601	SUPPLEMENTAL	0
		R-602	SUPPLEMENTAL	0
	<b>PROJECT NOTE</b>	R-901	SUPPLEMENTAL	0
	THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.6100 (B)(7).	R-902	SUPPLEMENTAL	0
		R-903	SUPPLEMENTAL	0
	<b>COMPLIANCE CODE</b>			
<p><b>811</b> Know what's below. Call before you dig.</p>	ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.			
	1. ANSI/TIA/EIA: STRUCTURAL STANDARDS (222-H EDITION) 2. INTERNATIONAL BUILDING CODE (2009 IBC)			
	<b>PROJECT LOCATION</b>			
	<b>GEOGRAPHIC COORDINATES</b>			
	LATITUDE: 38.93361269 LONGITUDE: -94.41749129			

**AMERICAN TOWER®**  
**ATC TOWER SERVICES**  
3500 REGENCY PARKWAY  
SUITE 100  
CARY, NC 27518  
PHONE: (919) 468-0112  
COA: 2015011232

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RJS	07/30/21

ATC SITE NUMBER:  
306035

ATC SITE NAME:  
UNITY VILLAGE MO 2

MISSOURI

SITE ADDRESS:  
2150 NW LOWENSTEIN  
LEES SUMMIT, MO 64081



DRAWN BY:	RJS
APPROVED BY:	MFE
DATE DRAWN:	07/30/21
ATC JOB NO:	13616192_C9_05

COVER

SHEET NUMBER:	REVISION:
G-001	0

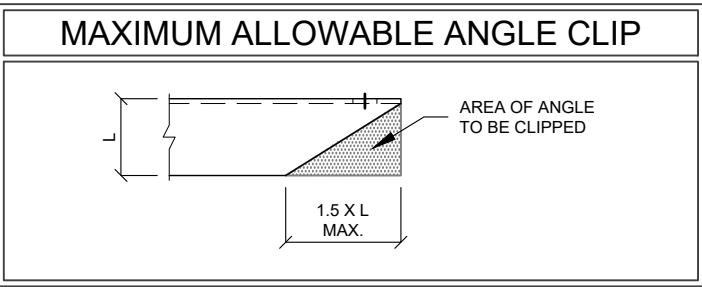


GENERAL

1. ALL WORK TO BE COMPLETED PER APPLICABLE LOCAL, STATE, FEDERAL CODES AND ORDINANCES AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS FOR WIRELESS TOWER SITES. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND ABIDING BY ALL REQUIRED PERMITS.
2. ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TOWER AND FOUNDATION CONSTRUCTION.
3. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY OF ANY INSTALLATION INTERFERENCES. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. DETAILS NOT SPECIFICALLY SHOWN ON THE DRAWINGS SHALL FOLLOW SIMILAR DETAILS FOR THIS JOB.
4. ANY SUBSTITUTIONS SHALL CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
5. ANY MANUFACTURED DESIGN ELEMENTS SHALL CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS AND SHOULD BE SIMILAR TO THOSE SHOWN. THESE DESIGN ELEMENTS MUST BE STAMPED BY AN ENGINEER PROFESSIONALLY REGISTERED IN THE STATE OF THE PROJECT, AND SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION.
6. ALL WORK SHALL BE DONE IN ACCORDANCE WITH LOCAL CODES AND OSHA SAFETY REGULATIONS.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY, PER ANSI/TIA-322 AND ANSI/ASSE A10.48, TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.
8. CONTRACTOR'S PROPOSED INSTALLATION SHALL NOT INTERFERE, NOR DENY ACCESS TO, ANY EXISTING OPERATIONAL AND SAFETY EQUIPMENT.

STRUCTURAL STEEL

1. ALL DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS, LATEST EDITION.
2. ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
3. ALL U-BOLTS SHALL BE ASTM A36 OR EQUIVALENT, WITH LOCKING DEVICE, UNLESS NOTED OTHERWISE.
4. FIELD CUT EDGES, EXCEPT DRILLED HOLES, SHALL BE GROUND SMOOTH.
5. ALL FIELD CUT SURFACES, FIELD DRILLED HOLES & GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.
6. ALL STRUCTURAL STEEL EMBEDDED IN THE CONCRETE SHALL BE APPLIED WITH (2) BRUSHED COATS OF POLYGUARD CA-14 MASTIC OR EQUIVALENT. REFER TO THE MANUFACTURER SPECIFICATIONS FOR SURFACE PREPARATION AND APPLICATION. APPLICATION OF POLYGUARD 400 WRAP IS NOT ESSENTIAL.
7. CONTRACTOR SHALL PERFORM WORK ON ONLY ONE (1) TOWER FACE AND REPLACE/REINFORCE ONE (1) BOLT/MEMBER AT A TIME.
8. ALL FIELD DRILLED HOLES TO BE USED FOR FIELD BOLTING INSTALLATION SHALL BE STANDARD HOLES, AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.



PAINT

1. AS REQUIRED, CLEAN AND PAINT PROPOSED STEEL ACCORDING TO FAA ADVISORY CIRCULAR AC 70/7460-1L.

WELDING

1. ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
2. ALL WELDS SHALL BE INSPECTED VISUALLY. IF DIRECTED BY ENGINEER OF RECORD, 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE (100% IF REJECTABLE DEFECTS ARE FOUND) TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
3. INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
4. ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER AND/OR BASE METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
5. IN CASES WHERE BASE METAL GRADE IS UNKNOWN, ALL WELDING ON LATTICE TOWERS SHALL BE DONE WITH E70XX ELECTRODES; ALL WELDING ON POLE STRUCTURES SHALL BE DONE WITH E80XX ELECTRODES, UNLESS NOTED OTHERWISE.
6. PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

BOLT TIGHTENING PROCEDURE

1. STRUCTURAL CONNECTIONS TO BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH RCSC SPECIFICATIONS.
2. FLANGE BOLTS SHALL BE INSTALLED AND TIGHTENED USING DIRECT TENSION INDICATING (DTI) SQUIRTER WASHERS. DTI SQUIRTER WASHERS ARE TO BE INSTALLED AND ORIENTED / TIGHTENED PER MANUFACTURER SPECIFICATIONS TO ACHIEVE DESIRED LEVEL OF BOLT PRE-TENSION.
3. IN LIEU OF USING DTI SQUIRTER WASHERS, FLANGE BOLTS MAY BE TIGHTENED USING AISC / RCSC "TURN-OF-THE-NUT" METHOD, PENDING APPROVAL BY THE ENGINEER OF RECORD (EOR). TIGHTEN FLANGE BOLTS USING THE CHART BELOW:

BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS

1/2"	BOLTS UP TO AND INCLUDING 2.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
5/8"	BOLTS UP TO AND INCLUDING 2.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
3/4"	BOLTS UP TO AND INCLUDING 3.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
7/8"	BOLTS UP TO AND INCLUDING 3.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1"	BOLTS UP TO AND INCLUDING 4.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/8"	BOLTS UP TO AND INCLUDING 4.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/4"	BOLTS UP TO AND INCLUDING 5.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-3/8"	BOLTS UP TO AND INCLUDING 5.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/2"	BOLTS UP TO AND INCLUDING 6.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT

BOLT LENGTHS OVER FOUR DIAMETERS BUT NOT EXCEEDING EIGHT DIAMETERS

1/2"	BOLTS 2.25 TO 4.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
5/8"	BOLTS 2.75 TO 5.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
3/4"	BOLTS 3.25 TO 6.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
7/8"	BOLTS 3.75 TO 7.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1"	BOLTS 4.25 TO 8.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/8"	BOLTS 4.75 TO 9.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/4"	BOLTS 5.25 TO 10.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-3/8"	BOLTS 5.75 TO 11.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/2"	BOLTS 6.25 TO 12.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT

BOLT TIGHTENING PROCEDURE (CONTINUED)

4. SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8.2.1 OF THE AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS", LOCATED IN THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS PARAPHRASED AS FOLLOWS:

FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8.2.1 THROUGH 8.2.4.

8.2.1 TURN-OF-NUT PRETENSIONING

BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1, UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.
5. ALL OTHER BOLTED CONNECTIONS SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1 OF THE SPECIFICATION.

ALL BOLT HOLES SHALL BE ALIGNED TO PERMIT INSERTION OF THE BOLTS WITHOUT UNDUE DAMAGE TO THE THREADS. BOLTS SHALL BE PLACED IN ALL HOLES WITH WASHERS POSITIONED AS REQUIRED AND NUTS THREADED TO COMPLETE THE ASSEMBLY. COMPACTING THE JOINT TO THE SNUG-TIGHT CONDITION SHALL PROGRESS SYSTEMATICALLY FROM THE MOST RIGID PART OF THE JOINT. THE SNUG-TIGHTENED CONDITION IS THE TIGHTNESS THAT IS ATTAINED WITH A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER USING AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.

GENERAL CONTRACTOR

THE GENERAL CONTRACTOR IS REQUIRED TO:

- REVIEW THE REQUIREMENTS OF THE MMI CHECKLIST.
- UNDERSTAND ALL INSPECTION REQUIREMENTS.

THE GENERAL CONTRACTOR SHALL PERFORM AND RECORD THE INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MMI CHECKLIST.

MODIFICATION INSPECTION NOTES

THE MOUNT MODIFICATION INSPECTION (MMI) PROCEDURE IS INTENDED TO CONFIRM THAT CONSTRUCTION AND INSTALLATION MEETS ENGINEERING DESIGN, ATC PROCEDURES AND ATC STANDARD SPECIFICATIONS FOR WIRELESS TOWER SITES.

TO ENSURE THAT THE REQUIREMENTS OF THE MMI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR SUBMIT ALL REQUIRED PHOTOGRAPHS AND DRAWINGS TO AMERICAN TOWER CORPORATION (ATC).

MOUNT MODIFICATION INSPECTION CHECKLIST			
INSPECTION DOCUMENT	DESCRIPTION	INSPECTION TESTING REQUIRED	RESPONSIBILITY
ON-SITE COLD GALVANIZING VERIFICATION	PHOTOGRAPHIC EVIDENCE OF COLD GALVANIZATION TYPE AND APPLICATION IN ALL APPLICABLE LOCATIONS TO BE INCLUDED WITHIN THE MMI REPORT	✓	GC
GC AS-BUILT DRAWINGS WITH CONSTRUCTION RED-LINES	"AS-BUILT" DRAWINGS INDICATING ANY APPROVED CHANGES TO ENGINEERED PLANS TO MMI FOR APPROVAL/REVIEW AND INCLUSION IN MMI REPORT	✓	GC
PHOTOGRAPHS	PHOTOGRAPHIC EVIDENCE OF MOUNT MODIFICATION INSPECTION, ON SITE REMEDIATION, AND ITEMS FAILING INSPECTION & REQUIRING FOLLOW UP TO BE INCLUDED WITHIN THE MMI REPORT. COMPLETE PHOTO LOG IS TO BE SUBMITTED WITHIN MMI REPORT.	✓	GC

TABLE KEY:  
MMI - MOUNT MODIFICATION INSPECTION  
GC - GENERAL CONTRACTOR  
ATC - AMERICAN TOWER CORPORATION



THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
△	FIRST ISSUE	RJS	07/30/21
△			
△			
△			
△			

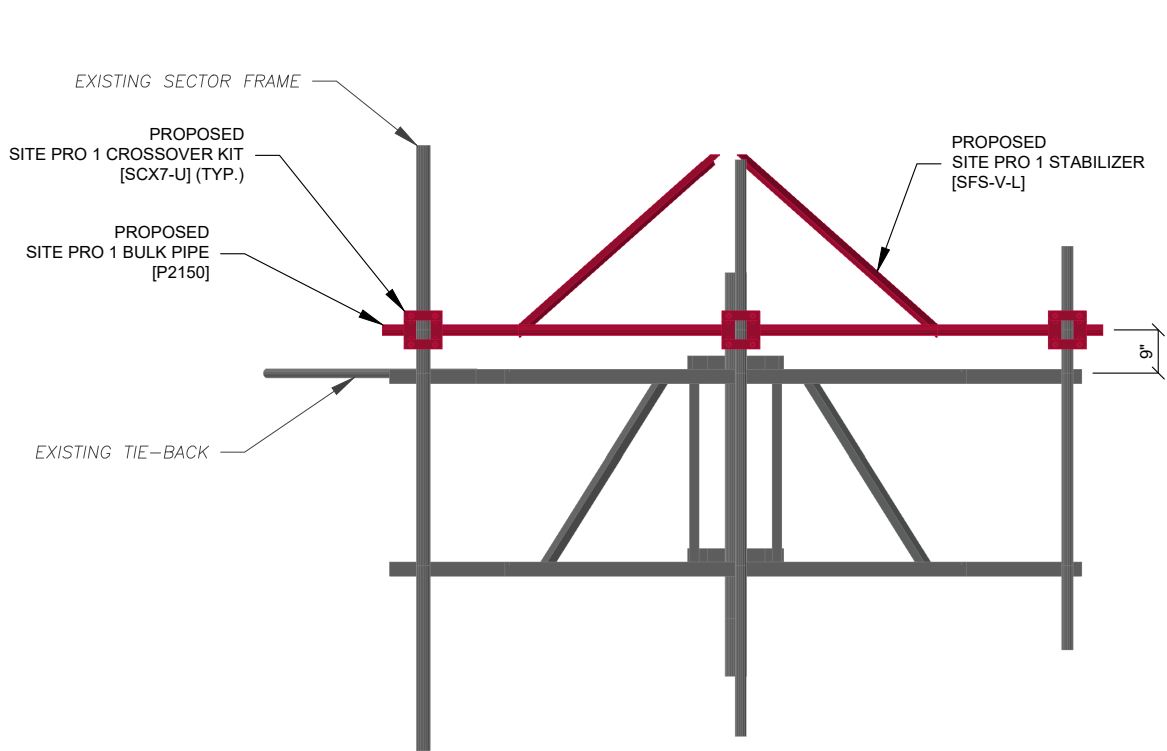
ATC SITE NUMBER:  
306035  
ATC SITE NAME:  
UNITY VILLAGE MO 2  
MISSOURI  
SITE ADDRESS:  
2150 NW LOWENSTEIN  
LEES SUMMIT, MO 64081



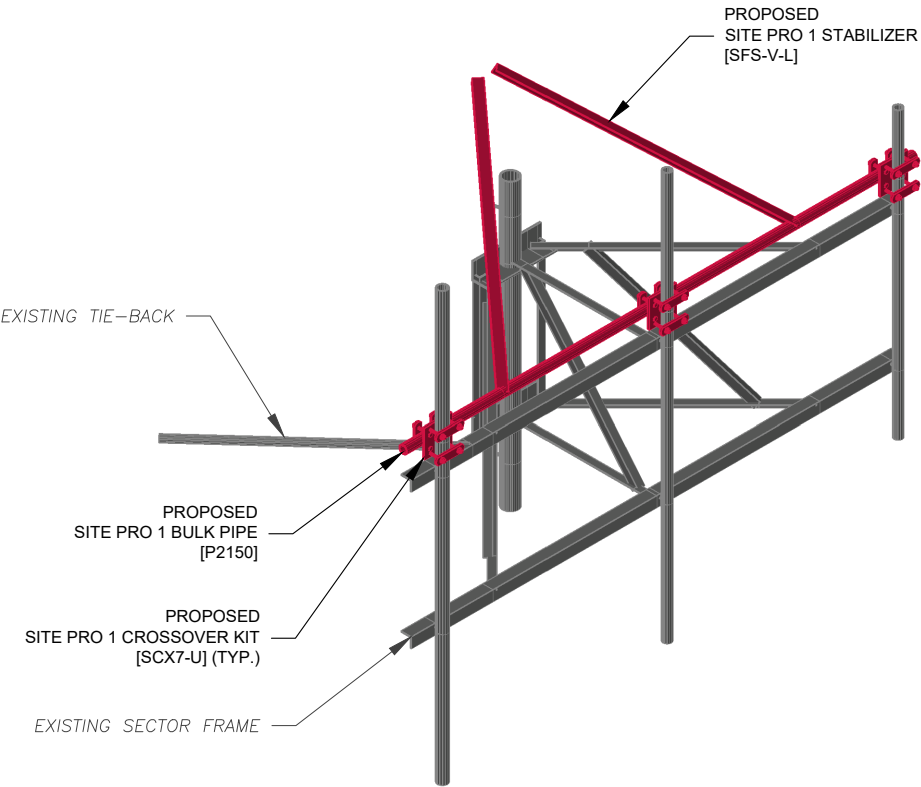
DRAWN BY:	RJS
APPROVED BY:	MFE
DATE DRAWN:	07/30/21
ATC JOB NO:	13616192_C9_05

IBC GENERAL NOTES AND MOUNT MODIFICATION INSPECTION

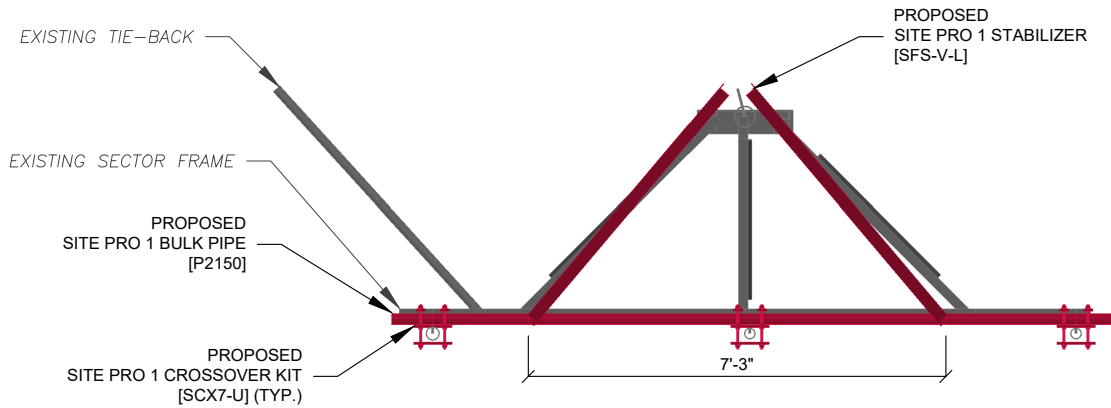
SHEET NUMBER: G-002	REVISION: 0
------------------------	----------------



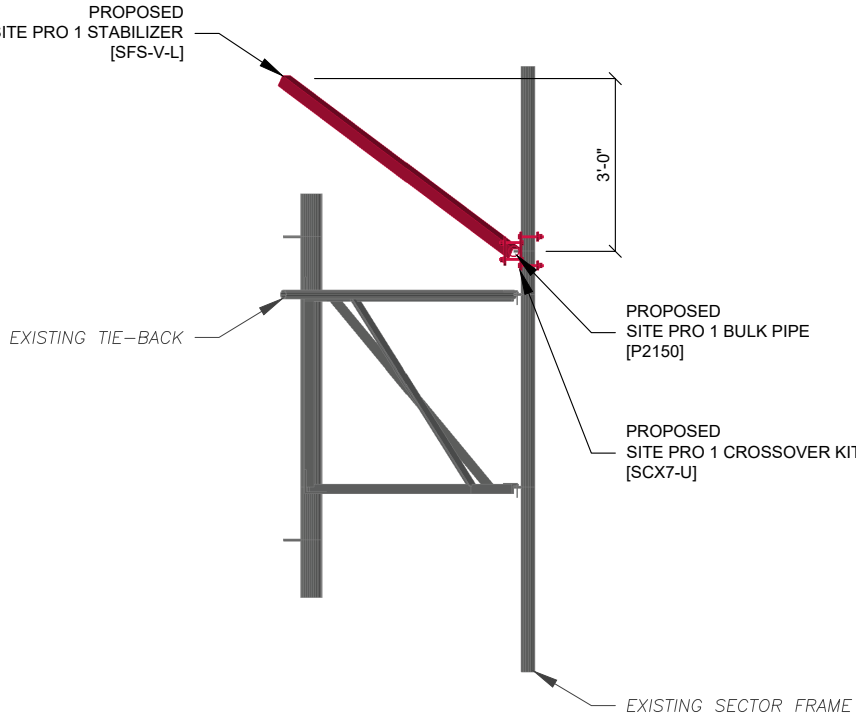
TYPICAL MOUNT MODIFICATION  
FRONT VIEW



TYPICAL MOUNT MODIFICATION  
ISOMETRIC VIEW



TYPICAL MOUNT MODIFICATION  
TOP VIEW



TYPICAL MOUNT MODIFICATION  
SIDE VIEW

**NOTE:**  
IN THE EVENT A PROPOSED MODIFICATION PART LISTED IN THE DRAWINGS IS NOT AVAILABLE, AN APPROVED EQUIVALENT CAN BE SUBSTITUTED. FOR APPROVAL OF EQUIVALENT PART OR QUESTIONS PLEASE CONTACT AMERICAN TOWER PMI INBOX AT PMI@AMERICANTOWER.COM.

**AMERICAN TOWER®**  
**ATC TOWER SERVICES**  
3500 REGENCY PARKWAY  
SUITE 100  
CARY, NC 27518  
PHONE: (919) 468-0112  
COA: 2015011232

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
△	FIRST ISSUE	RJS	07/30/21
△			
△			
△			
△			

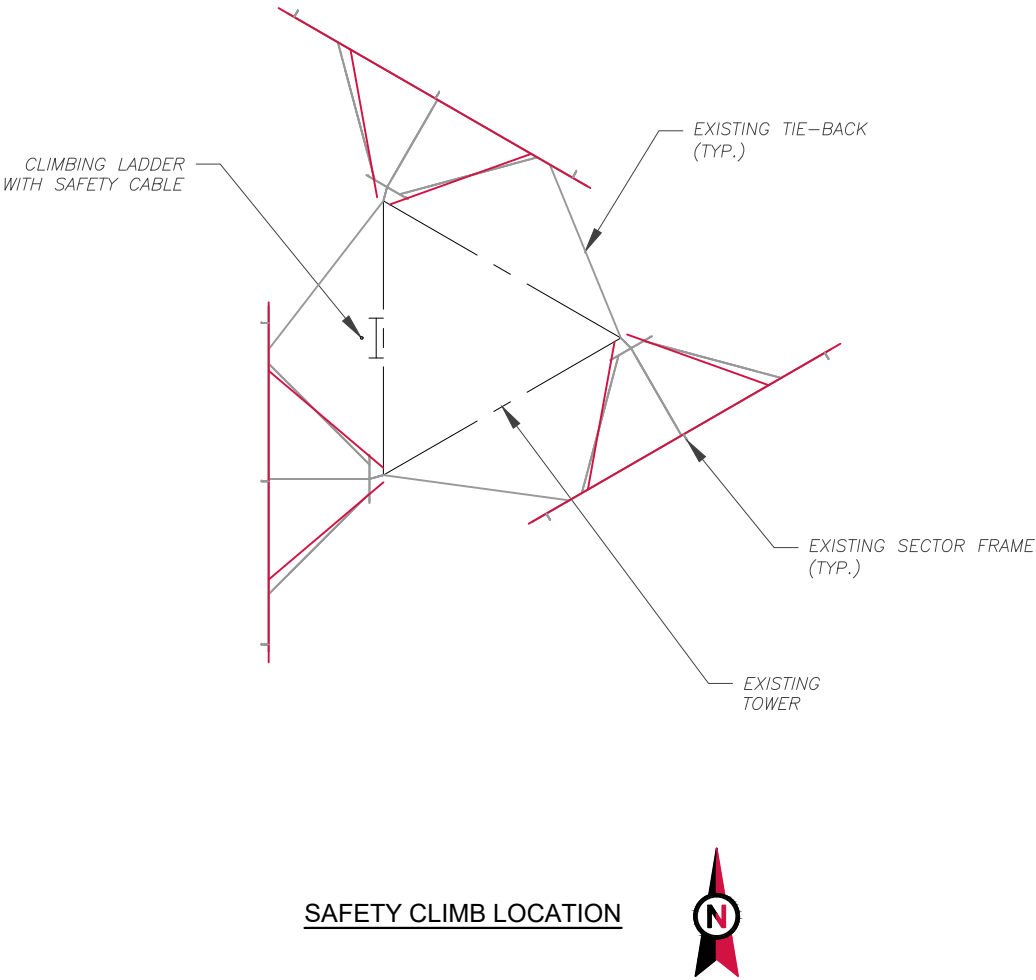
ATC SITE NUMBER:  
306035  
ATC SITE NAME:  
UNITY VILLAGE MO 2  
MISSOURI  
SITE ADDRESS:  
2150 NW LOWENSTEIN  
LEES SUMMIT, MO 64081



DRAWN BY:	RJS
APPROVED BY:	MFE
DATE DRAWN:	07/30/21
ATC JOB NO:	13616192_C9_05

MODIFICATION PROFILE

SHEET NUMBER:	REVISION:
S-101	0



NOTE:  
CONTRACTOR TO INSTALL MOUNT MODIFICATIONS PER THE MANUFACTURERS SPECIFICATION.  
MODIFICATIONS SHALL NOT OBSTRUCT, INTERFERE, OR BLOCK EXISTING SAFETY CLIMB SYSTEM. IF  
ANY OF THESE OCCURS DURING INSTALLATION CONTACT THE AMERICAN TOWER PMI INBOX  
PMI@AMERICANTOWER.COM



**AMERICAN TOWER®**  
**ATC TOWER SERVICES**  
3500 REGENCY PARKWAY  
SUITE 100  
CARY, NC 27518  
PHONE: (919) 468-0112  
COA: 2015011232

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RJS	07/30/21

ATC SITE NUMBER:  
306035

ATC SITE NAME:  
UNITY VILLAGE MO 2

MISSOURI

SITE ADDRESS:  
2150 NW LOWENSTEIN  
LEES SUMMIT, MO 64081

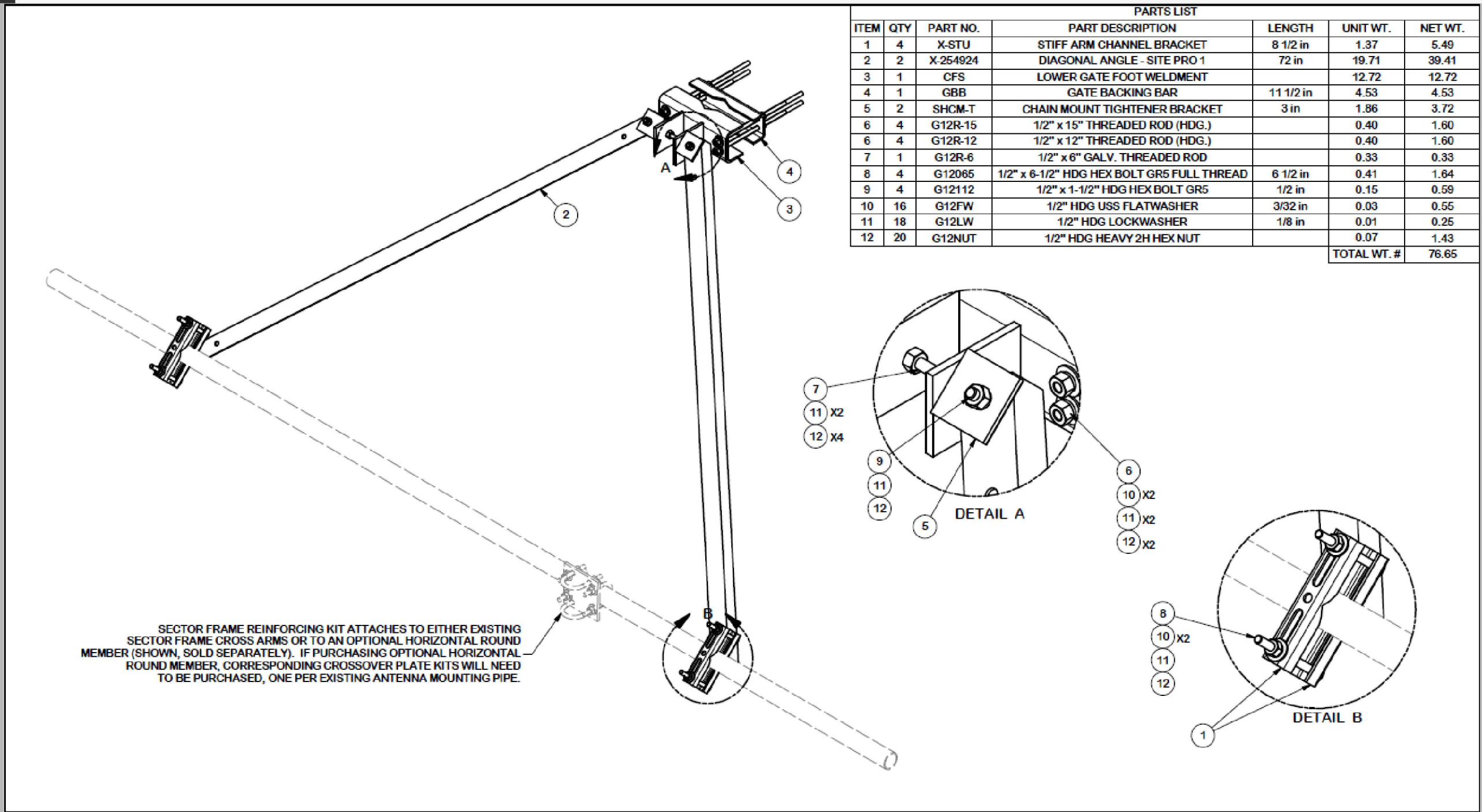


DRAWN BY:	RJS
APPROVED BY:	MFE
DATE DRAWN:	07/30/21
ATC JOB NO:	13616192_C9_05

SAFETY CLIMB LAYOUT

SHEET NUMBER:	REVISION:
S-102	0





PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	4	X-STU	STIFF ARM CHANNEL BRACKET	8 1/2 in	1.37	5.49
2	2	X-254924	DIAGONAL ANGLE - SITE PRO 1	72 in	19.71	39.41
3	1	CFS	LOWER GATE FOOT WELDMENT		12.72	12.72
4	1	GBB	GATE BACKING BAR	11 1/2 in	4.53	4.53
5	2	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.86	3.72
6	4	G12R-15	1/2" x 15" THREADED ROD (HDG.)		0.40	1.60
6	4	G12R-12	1/2" x 12" THREADED ROD (HDG.)		0.40	1.60
7	1	G12R-6	1/2" x 6" GALV. THREADED ROD		0.33	0.33
8	4	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	1.64
9	4	G12112	1/2" x 1-1/2" HDG HEX BOLT GR5	1/2 in	0.15	0.59
10	16	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.55
11	18	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.25
12	20	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	1.43
TOTAL WT. #						76.65

					<b>TOLERANCE NOTES</b>  TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE: SAWED, SHEARED AND GAS CUT EDGES (± 0.030") DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES BENDS ARE ± 1/2 DEGREE ALL OTHER MACHINING (± 0.030") ALL OTHER ASSEMBLY (± 0.060")					<div>DESCRIPTION</div> <div>SECTOR FRAME STABILIZER - VERTICAL LONG</div>			<div><div><div><div>SITE PRO</div><div>1</div></div><div>Engineering Support Team: 1-888-753-7446</div></div><div>Locations: New York, NY Atlanta, GA Los Angeles, CA Plymouth, IN Salem, OR Dallas, TX</div></div> <div>A valmont COMPANY</div>		
					CPD NO. 5563		DRAWN BY CEK 3/23/2017		ENG. APPROVAL		PART NO. SFS-V-L		PAGE 1 OF 3		
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.					CLASS 81	SUB 01	DRAWING USAGE CUSTOMER	CHECKED BY BMC 3/23/2017	DWG. NO. SFS-V-L						
A		CHANGED MAX. DIA. FOR HANDRAIL CONNECTION		5563	BC	10/25/2017									
REV		DESCRIPTION OF REVISIONS		CPD	BY	DATE									
REVISION HISTORY															

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONTRUCTION.

SUPPLEMENTAL

SHEET NUMBER:

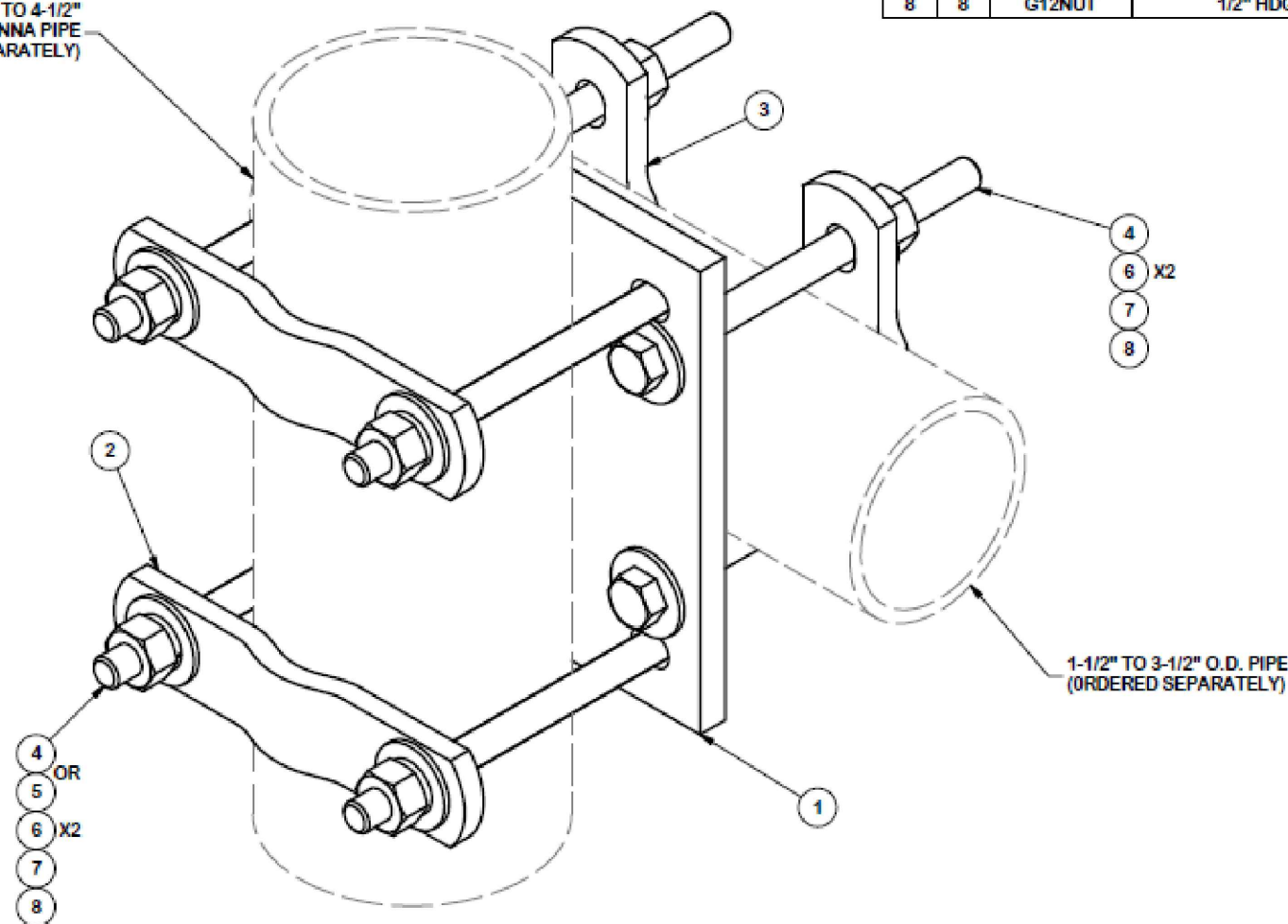
R-601

REVISION:

0



1-1/2" TO 4-1/2"  
ANTENNA PIPE  
(ORDERED SEPARATELY)



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	1	SCX7	CROSSOVER PLATE	8 in	7.55	7.55
2	2	X-115765	5" V-CLAMP		1.02	2.04
3	2	X-100064	CLAMP (S) (4" V-CLAMP) GALVANIZED		0.91	1.83
4	8	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	6 1/2 in	0.41	3.28
5	4	G12045	1/2" x 4.5" HDG HEX BOLT GR5 FULL THREAD	4 1/2 in	0.30	1.19
6	16	G12FW	1/2" HDG USS FLATWASHER		0.03	0.54
7	8	G12LW	1/2" HDG LOCKWASHER		0.01	0.11
8	8	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	0.57
TOTAL WT. #						16.98

#### TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:  
SAWED, SHEARED AND GAS CUT EDGES ( $\pm 0.030"$ )  
DRILLED AND GAS CUT HOLES ( $\pm 0.030"$ ) - NO CONING OF HOLES  
LASER CUT EDGES AND HOLES ( $\pm 0.010"$ ) - NO CONING OF HOLES  
BENDS ARE  $\pm 1/2$  DEGREE  
ALL OTHER MACHINING ( $\pm 0.030"$ )  
ALL OTHER ASSEMBLY ( $\pm 0.060"$ )

PROPRIETARY NOTE:  
THIS 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.

#### DESCRIPTION

CROSSOVER PLATE  
(V-CLAMP STYLE)

CPD NO.	DRAWN BY	ENG. APPROVAL
	CEK 10/7/2010	
CLASS	SUB	DRAWING USAGE
81	01	CUSTOMER
		CHECKED BY
		BMC 10/8/2010



Engineering  
Support Team:  
1-888-753-7446

Locations:  
New York, NY  
Atlanta, GA  
Los Angeles, CA  
Plymouth, IN  
Salem, OR  
Dallas, TX

PART NO.
SCX7-U
DWG. NO.
SCX7-U

PAGE  
1 OF 1

NOTE: THIS SHEET WAS CREATED BY OTHERS AND PROVIDED AT THE REQUEST OF THE CUSTOMER WITHOUT EDIT. PLEASE REFERENCE THE MOUNT ANALYSIS REPORT FOR COMPLETE MOUNT ANALYSIS CALCULATIONS AND DETAILS. SUPPLEMENTAL PAGES INCLUDED IN THE CONSTRUCTION DRAWINGS ARE FOR REFERENCE ONLY. GENERAL CONTRACTOR IS TO VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONTRUCTION.

SUPPLEMENTAL

SHEET NUMBER:

R-602

REVISION:

0

Option 1 - Modify: Estimate for T-Mobile @ 306035 (Unity Village MO 2) -- 13616192\_C9\_05

Site Data and Design Parameters				Dates and Designers				
Asset OTM #	306035			Mount Analysis Date / By	6/28/2021	/	KS	
Asset Name	Unity Village MO 2			Design Date / By	7/27/2021	/	MFE	
State	MO			Checked Date / By		/		
County	Jackson			Detailer (Prev/Current/Level)				
City	Lees Summit			Software				
Failing Analysis Eng. #	13616192_C8_01			Tower Type				
Mod. Drawing Eng. #	13616192_C9_05			Mount Type				
Building Codes		TIA/IBC:	ANSI/TIA-222-H		/			2009 IBC
		Local:						
Failing Analysis % / Code		175%		/		TIA-H		
Post Mod % / Controlling Member		98%		/		Horizontal		
Usage Limit % / Reason		105%		/		N/A		
Any modification design comments or assumptions?								
No (including notes to the Estimator)								

Modification Summary	
Item #	Scope Item
1	Install Site Pro 1 SFS-V-L V Style Stabilizer on All (3) sector(s)
2	Install Site Pro 1 P2150 Pipe w/ SCX7-U crossovers on All (3) sector(s)

Estimated Modification Cost	\$10,000
-----------------------------	----------

Option 2 - Replace: Estimate for T-Mobile @ 306035 (Unity Village MO 2) -- 13616192\_C9\_05

Tower Info		Additional Info	
Tower Number	306035	Can modifications be Installed?	Yes
Tower Name	Unity Village MO 2	What is the post-mod capacity?	98%
State	MO		
Jurisdictional Codes		Project Requirements	
Design TIA Code	Unknown	New Mount Face Width	150 in
Current TIA Code	ANSI/TIA-222-H	Number of Sectors	3
IBC	2009 IBC		
Other	-		
Project Information			
Carrier	T-Mobile		
Structure Type	Self-Support		
Recommended Mount Replacement	Site Pro 1 VFA10-SD-S*	Estimated Replacement Cost	\$ 36,000.00
*or approved equivalent			



Post Modification Mount Analysis Report

ATC Site Name : Unity Village MO 2, MO  
ATC Site Number : 306035  
Engineering Number : 13616192\_C9\_05  
Mount Elevation : 119 ft  
Carrier : T-Mobile  
Carrier Site Name : ATC 306035 - I-470 & 50 Hwy  
Carrier Site Number : ASC0133A  
Site Location : 2150 NW LOWENSTEIN  
Lees Summit, MO 64081-1905  
38.93361269, -94.41749129  
County : Jackson  
Date : July 27, 2021  
Max Usage : 98%  
Result : Contingent Pass

Prepared By: Michael Ellis  
Structural Engineer I

Reviewed By:

Michael Ellis

COA: 2006031326

ATC Tower Services - 3500 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5434 Fax - www.americantower.com



Eng. Number 13616192\_C9\_05  
July 27, 2021

Table of Contents

Introduction .....	1
Supporting Documents .....	1
Analysis .....	1
Conclusion .....	1
Application Loading .....	2
Structure Usages .....	2
Mount Layout .....	3
Equipment Layout .....	4
Standard Conditions .....	5
Calculations .....	Attached

ATC Tower Services - 3500 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5434 Fax - www.americantower.com



Eng. Number 13616192\_C9\_05  
July 27, 2021  
Page 1

Introduction

The purpose of this report is to summarize results of the mount analysis performed for T-Mobile at 119 ft.

Supporting Documents

Mount Mapping	B+T GRP Project #149605.001.01, dated April 30, 2021
Radio Frequency Data Sheet	RDFS ID #ASC0133A, dated January 12, 2021
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:	109 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	40 mph (3-Second Gust) w/ 1.1/2" radial ice concurrent
Codes:	ANSI/TIA-222-H
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 = 0.099, S1 = 0.068
Site Class:	D - Stiff Soil
Live Loads:	Lm = 500 lbs, Lv = 250 lbs

Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above provided the modifications listed below are completed:

- Install modification per ATC Drawing #13616192\_C9\_05

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.

ATC Tower Services - 3500 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5434 Fax - www.americantower.com



Eng. Number 13616192\_C9\_05  
July 27, 2021  
Page 2

Application Loading

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
119.0	120.0	3	Nokia AEHC
		3	Andrew TMBX-6517-A1M
		3	Commscope FFHH-65C-R3
		2	Commscope HELIAX FiberFeed 12 RRU Pendant Connect
		3	Nokia AHFIG 70.55 lbs
3	Nokia AirScale Dual RRH 4T4R B12/71 240W AHLOA		

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Horizontals	98%	Pass
Verticals	11%	Pass
Diagonals	44%	Pass
Tie-Backs	11%	Pass
Mount Pipes	73%	Pass
Mod-Kit	57%	Pass

ATC Tower Services - 3500 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5434 Fax - www.americantower.com



THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RJS	07/30/21
1			
2			
3			
4			
5			

ATC SITE NUMBER:  
306035  
ATC SITE NAME:  
UNITY VILLAGE MO 2  
MISSOURI  
SITE ADDRESS:  
2150 NW LOWENSTEIN  
LEES SUMMIT, MO 64081



DRAWN BY:	RJS
APPROVED BY:	MFE
DATE DRAWN:	07/30/21
ATC JOB NO:	13616192_C9_05

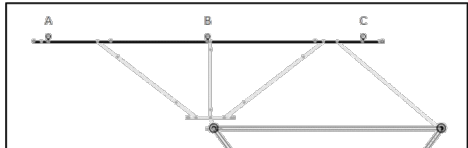
SUPPLEMENTAL

SHEET NUMBER:  
R-902  
REVISION:  
0



Eng. Number 13616192\_C9\_05  
July 27, 2021  
Page 3

Mount Layout

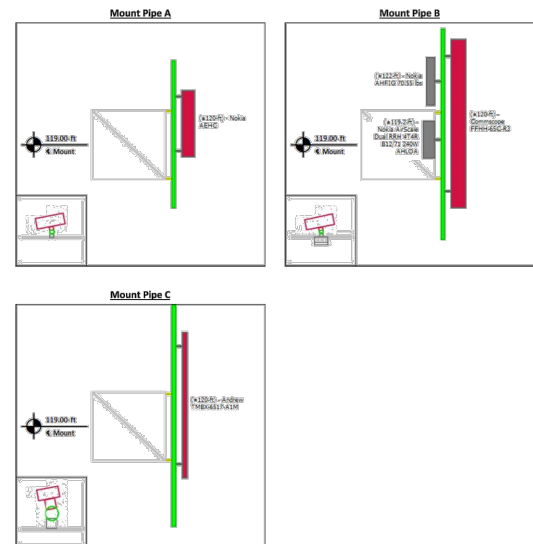


ATC Tower Services - 3500 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5434 Fax - www.americantower.com



Eng. Number 13616192\_C9\_05  
July 27, 2021  
Page 4

Equipment Layout



ATC Tower Services - 3500 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5434 Fax - www.americantower.com



Eng. Number 13616192\_C9\_05  
July 27, 2021  
Page 5

Standard Conditions

All engineering services performed by ATC Tower Services are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding equipment, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of ATC Tower Services

It is the responsibility of the client to ensure that the information provided to ATC Tower Services and used in the performance of our engineering services is correct and complete.

American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

Unless explicitly agreed by both the client and ATC Tower Services, all services will be performed in accordance with the current revision of ANSI/TIA-222.

Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. ATC Tower Services is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

ATC Tower Services - 3500 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5434 Fax - www.americantower.com



Site Number: 306035  
Project Number: 13616192\_C9\_05  
Carrier: T-Mobile  
Mount Elevation: 119 ft  
Date: 7/27/2021

Mount Analysis Force Calculations

Wind & Ice Load Calculations					Seismic Load Calculations				
Velocity Pressure Coefficient	K <sub>z</sub>	1.31			Short Period DSRAP	S <sub>DS</sub>	0.106		
Topographic Factor	K <sub>st</sub>	1.00			1 Second DSRAP	S <sub>1</sub>	0.109		
Rooftop Wind Speed-up Factor	K <sub>s</sub>	1.00			Importance Factor	I	1.0		
Shielding Factor	K <sub>sh</sub>	0.90			Response Modification Coefficient	R	2.0		
Ground Elevation Factor	K <sub>e</sub>	0.97			Seismic Response Coefficient	C <sub>s</sub>	0.053		
Wind Direction Probability Factor	K <sub>d</sub>	0.95			Amplification Factor	A	1.0		
Basic Wind Speed	V	109	mph		Total Weight	W	1006.4	lbs	
Velocity Pressure	q <sub>z</sub>	36.6	psf		Total Shear Force	V <sub>s</sub>	53.1	lbs	
Height Escalation Factor	K <sub>h</sub>	1.14			Horizontal Seismic Load	Th	53.1	lbs	
Thickness of Radial Glaze Ice	T <sub>g</sub>	1.71	in		Vertical Seismic Load	Ev	21.3	lbs	

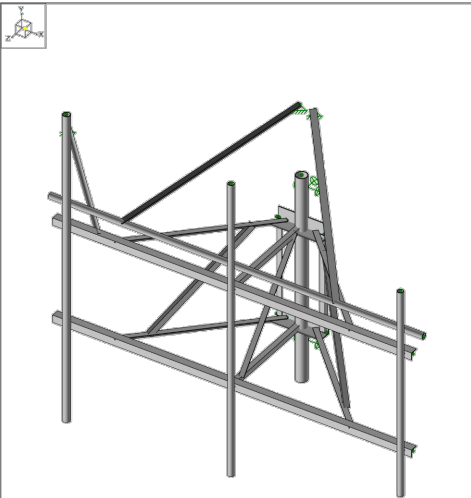
Antenna Calculations (Elevations per Application/RDFS)*									
Equipment	Height	Width	Depth	Weight	EPA <sub>1</sub>	EPA <sub>2</sub>	EPA <sub>3</sub>	EPA <sub>4</sub>	
Model #	ft	in	in	lbs	sqft	sqft	sqft	sqft	
Nokia AEHC	38.2	21.5	8.1	103.6	6.84	1.82	8.64	2.82	
Andrew TMBX-6517-A1M	83.5	6.5	3.3	19.8	6.01	2.30	9.54	4.86	
Commscope FFHH-65C-R3	96.0	25.2	9.3	125.7	21.14	3.72	24.85	5.26	
Commscope HELIAX FiberFeed 12 RRU Pendant Connect	16.9	6.7	4.7	20.0	N/A	N/A	N/A	N/A	
Nokia AHFIG 70.55 lbs	27.4	12.1	5.2	70.6	2.76	1.31	3.98	2.44	
Nokia AirScale Dual RRH 4T4R B12/71 240W AHLOA	22.0	12.1	7.4	83.8	2.22	1.38	3.28	2.33	

\* Equipment with EPA values N/A were not considered in the mount analysis



Company : American Tower Corp.  
Designer : Michael Ellis  
Job Number : 13616192\_C9\_05  
Model Name : 306035, Unity Village MO 2

7/27/2021  
9:59:09 AM  
Checked By :-

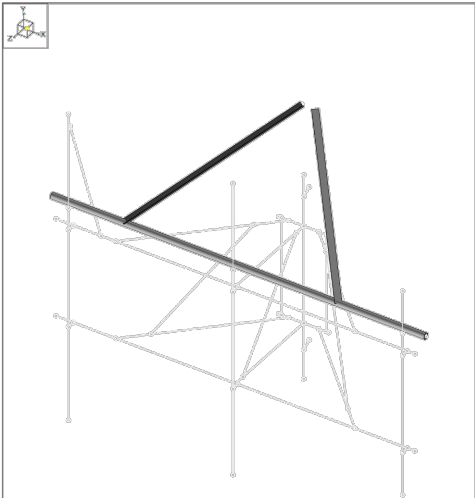


American Tower Corp.	306035, Unity Village MO 2	SK-1
Michael Ellis	Jul 27, 2021	
13616192_C9_05	3D Rendering (Final Configuration)	R3D, T-MOBILE @ 306035, Unity ...



Company : American Tower Corp.  
Designer : Michael Ellis  
Job Number : 13616192\_C9\_05  
Model Name : 306035, Unity Village MO 2

7/27/2021  
9:59:09 AM  
Checked By :-

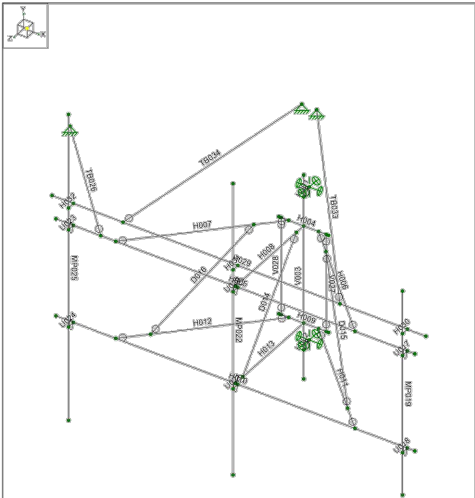


American Tower Corp.	306035, Unity Village MO 2	SK-2
Michael Ellis	Jul 27, 2021	
13616192_C9_05	3D Rendering (Proposed Configuration)	R3D, T-MOBILE @ 306035, Unity ...



Company : American Tower Corp.  
Designer : Michael Ellis  
Job Number : 13616192\_C9\_05  
Model Name : 306035, Unity Village MO 2

7/27/2021  
9:59:09 AM  
Checked By :-

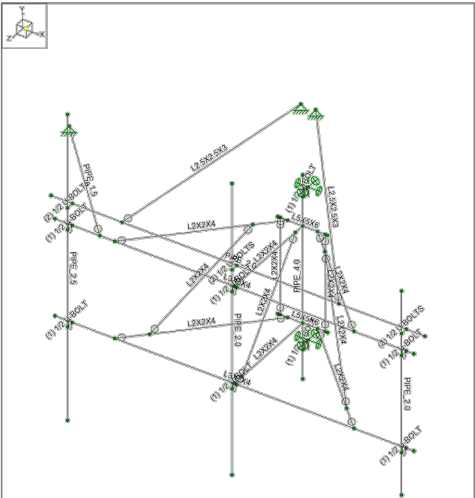


American Tower Corp.	306035, Unity Village MO 2	SK-3
Michael Ellis	Jul 27, 2021	
13616192_C9_05		R3D, T-MOBILE @ 306035, Unity ...



Company : American Tower Corp.  
Designer : Michael Ellis  
Job Number : 13616192\_C9\_05  
Model Name : 306035, Unity Village MO 2

7/27/2021  
9:59:09 AM  
Checked By :-

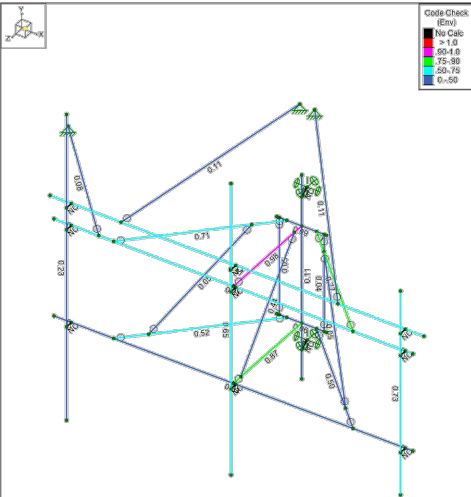


American Tower Corp.	306035, Unity Village MO 2	SK-4
Michael Ellis	Jul 27, 2021	
13616192_C9_05		R3D, T-MOBILE @ 306035, Unity ...



Company : American Tower Corp.  
Designer : Michael Ellis  
Job Number : 13616192\_C9\_05  
Model Name : 306035, Unity Village MO 2

7/27/2021  
9:59:09 AM  
Checked By :-

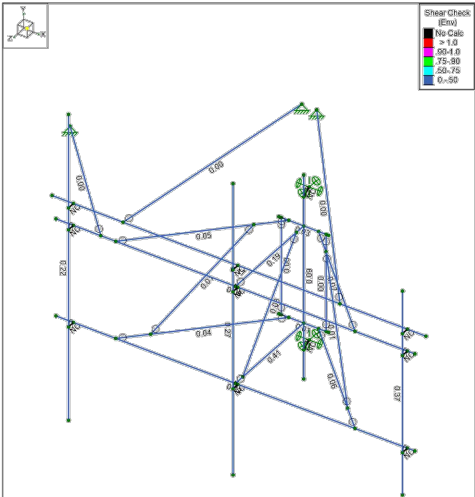


Member Code Checks Displayed (Envelopes)		
American Tower Corp.	306035, Unity Village MO 2	SK-5
Michael Ellis	Jul 27, 2021	
13616192_C9_05		R3D, T-MOBILE @ 306035, Unity ...



Company : American Tower Corp.  
Designer : Michael Ellis  
Job Number : 13616192\_C9\_05  
Model Name : 306035, Unity Village MO 2

7/27/2021  
9:59:09 AM  
Checked By :-



Member Shear Checks Displayed (Envelopes)		
American Tower Corp.	306035, Unity Village MO 2	SK-6
Michael Ellis	Jul 27, 2021	
13616192_C9_05		R3D, T-MOBILE @ 306035, Unity ...

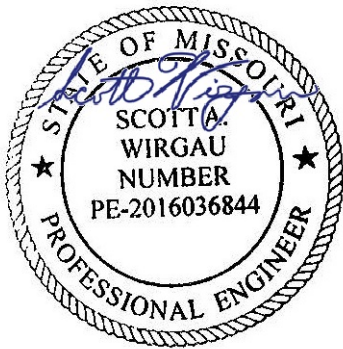


**AMERICAN TOWER®**  
**ATC TOWER SERVICES**  
3500 REGENCY PARKWAY  
SUITE 100  
CARY, NC 27518  
PHONE: (919) 468-0112  
COA: 2015011232

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	RJS	07/30/21

ATC SITE NUMBER:  
**306035**  
  
ATC SITE NAME:  
**UNITY VILLAGE MO 2**  
  
**MISSOURI**  
  
SITE ADDRESS:  
2150 NW LOWENSTEIN  
LEES SUMMIT, MO 64081



DRAWN BY:	RJS
APPROVED BY:	MFE
DATE DRAWN:	07/30/21
ATC JOB NO:	13616192_C9_05

SUPPLEMENTAL

SHEET NUMBER: <b>R-903</b>	REVISION: <b>0</b>
-------------------------------	-----------------------