

T-Mobile

Site Plan Review
Received: 01/19/2024
City of Kalamazoo

T-Mobile

8550 W. BRYN MAWR AVE, SUITE 100
CHICAGO, IL 60631

CROWN CASTLE

3025 HIGHLAND PKWY, SUITE 510,
DOWNERS GROVE, IL, 60515

POD
POWER OF DESIGN

11490 BLUEGRASS PKWY
LOUISVILLE, KY 40299
502-437-5252

T-MOBILE SITE NUMBER: KZ06357A
T-MOBILE SITE NAME: CROWN 876868
T-MOBILE PROJECT: ANCHOR

BUSINESS UNIT #: 876868
SITE ADDRESS: 3419 S. BURDICK
KALAMAZOO, MI 49001
COUNTY: KALAMAZOO
SITE TYPE: MONOPOLE
TOWER HEIGHT: 170'-0"

SITE INFORMATION	
CROWN CASTLE USA INC. SITE NAME: BU NUMBER:	SWEET 876868
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 8550 W. BRYN MAWR AVE, SUITE 100 CHICAGO, IL 60631
SITE ADDRESS:	3419 S. BURDICK KALAMAZOO, MI 49001
COUNTY: LATITUDE: LONGITUDE: LAT/LONG TYPE: GROUND ELEVATION:	KALAMAZOO 42° 15' 26.26" -85° 34' 37.56" NAD83 805.0 FT
AREA OF CONSTRUCTION: CURRENT ZONING: MAP/PARCEL #:	EXISTING M-1 06-34-211-001
OCCUPANCY CLASSIFICATION: TYPE OF CONSTRUCTION: A.D.A. COMPLIANCE:	U IIB FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	SWEAT REAL ESTATE COMPANY 3421 SOUTH BURDICK STREET KALAMAZOO, MI 49001
JURISDICTION:	CITY OF KALAMAZOO
ELECTRIC PROVIDER:	CONSUMERS ENERGY (254) 288-5548
TELCO PROVIDER:	AMERITECH (800) 898-0123

DRAWING INDEX	
SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
C-1.1	SITE PLAN
C-1.2	EXISTING & FINAL EQUIPMENT PLANS
C-2.1	EXISTING & FINAL TOWER ELEVATION
C-2.2	EXISTING & FINAL ANTENNA PLANS
C-3	EQUIPMENT DETAILS & COAX COLOR CODING
C-4	EQUIPMENT SPECIFICATIONS
C-5	EQUIPMENT SPECIFICATIONS
C-6	PURCELL HPL3 - LB3 CONDUIT ROUTING CONF.
C-7	PURCELL HPL3 SITE SUPPORT CABINET
C-8	SPILL PROTECTION NOTES & DETAILS
E-1	PANEL SCHEDULES & ONE-LINE DIAGRAM
E-2	ELECTRICAL DETAILS
G-1	TYPICAL FINAL GROUNDING SCHEMATIC
G-2	GROUNDING DETAILS
ATTACHED	MOUNT ANALYSIS RECOMMENDATIONS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 11X17. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

CALL MICHIGAN ONE CALL
(800) 482-7171
CALL 3 WORKING DAYS
BEFORE YOU DIG!

PROJECT DESCRIPTION

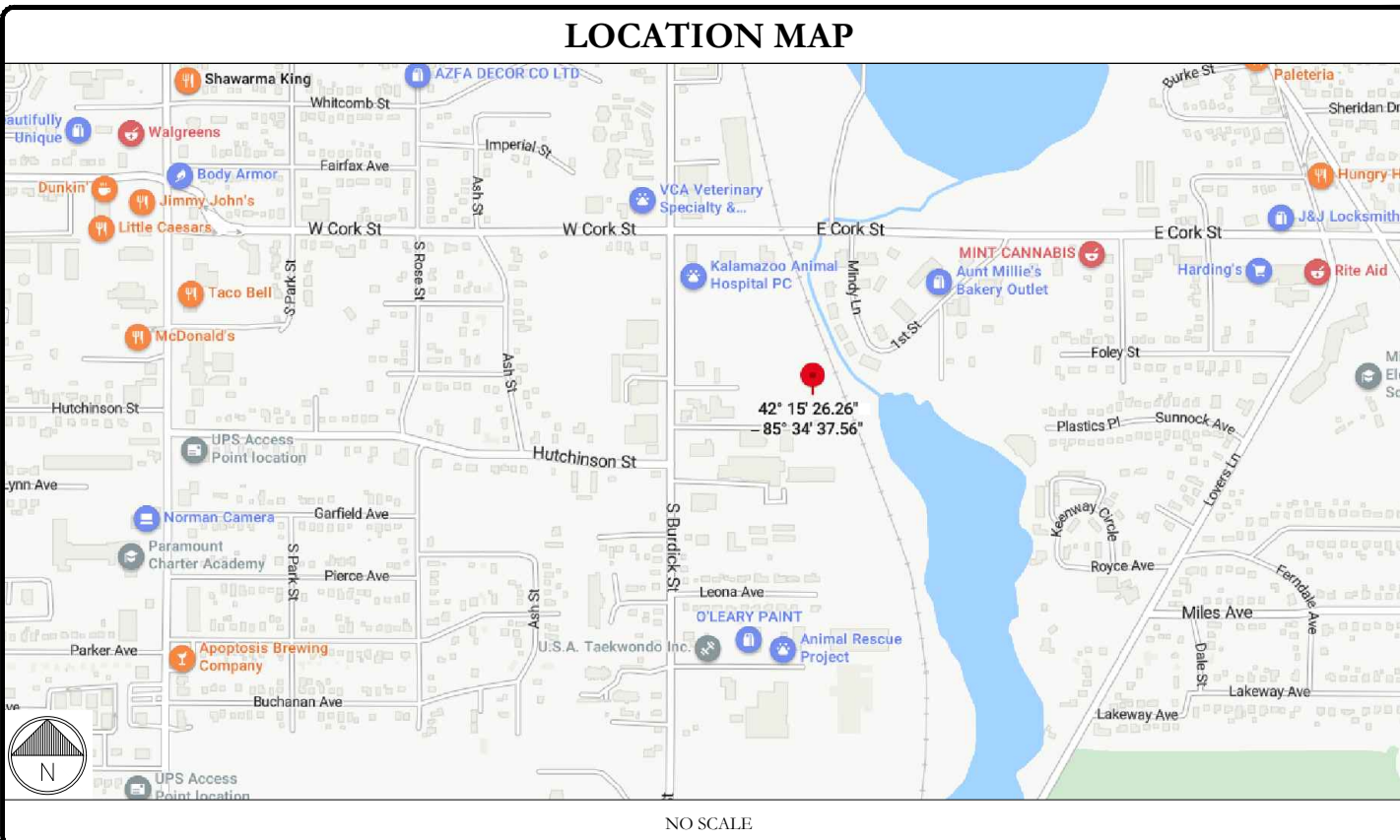
THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE EXISTING ELIGIBLE WIRELESS FACILITY.

TOWER SCOPE OF WORK:

- REMOVE (6) ANTENNAS @ 148'-0" MCL
- REMOVE (3) RRHs @ 148'-0" MCL
- REMOVE (6) TMAs @ 148'-0" MCL
- REMOVE (6) ANTENNAS @ 169'-0" MCL
- REMOVE (12) COAX CABLES @ 148'-0" MCL
- REMOVE (1) HYBRID CABLE @ 148'-0" MCL
- REMOVE (9) RRHs @ 169'-0" MCL
- REMOVE (3) POWER JUNCTION CYLINDER @ 169'-0" MCL
- REMOVE (3) OPTIC FIBER JUNCTION CYLINDER @ 169'-0" MCL
- INSTALL (6) ANTENNAS @ 169'-0" MCL
- INSTALL (6) RRHs @ 169'-0" MCL
- INSTALL (2) HCS 2.0 BREAKOUT PENDANT @ 169'-0" MCL
- INSTALL (2) HCS 2.0 HYBRID CABLE (1-1/2") @ 169'-0" MCL

GROUND SCOPE OF WORK:

- REMOVE (1) FXFB, (2) FRIE, (2) FRIA, (1) ESMB, (1) FSME
- REMOVE (1) FSMF
- REMOVE (1) SSC CABINET
- REMOVE (1) COVP
- INSTALL (1) PURCELL - HPL3 SITE SUPPORT CABINET
- INSTALL (1) PURCELL - LB3 BATTERY CABINET
- INSTALL (1) ASIA, (2) ASIL, (3) ABIA, (3) ABIL, (1) ABIO
- INSTALL (2) AMIA
- INSTALL (2) HCS 2.0 JUNCTION BOX
- INSTALL (1) VOLTAGE BOOSTER (PSU 4813)
- INSTALL (1) CSR IXRe V2 (GEN2) ROUTER
- INSTALL (1) 8'-0" ICE BRIDGE
- INSTALL (2) 2" CONDUITS FROM EXISTING PPC TO NEW SSC CABINET
- INSTALL SPILL KITS



APPLICABLE CODES/REFERENCE DOCUMENTS

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

CODE TYPE	CODE
BUILDING	2015 MI BUILDING CODE/2015 IBC W/ STATE AMENDMENTS
MECHANICAL	2015 MI MECHANICAL CODE/2015 IMC W/ STATE AMENDMENTS
ELECTRICAL	2017 NEC & MICHIGAN PART 8. ELECTRICAL RULES

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS: CROWN CASTLE
DATED: JUNE 15, 2023

MOUNT ANALYSIS: TOWER ENGINEERING PROFESSIONALS
DATED: NOVEMBER 28, 2023

RFDS REVISION: 3
DATED: 05/26/2023

ORDER ID: 652617
REVISION: 0

INSTALLER NOTE:
NO PROPOSED LOADING TO BE ADDED UNTIL MOUNT MODIFICATIONS ARE INSTALLED PER CONDITIONAL PASSING MOUNT ANALYSIS BY TOWER ENGINEERING PROFESSIONALS DATED NOVEMBER 28, 2023

NOTE:
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

PROJECT TEAM	
A&E FIRM:	POWER OF DESIGN 11490 BLUEGRASS PARKWAY LOUISVILLE, KY 40299 (502) 437-5252
CROWN CASTLE USA INC. DISTRICT CONTACTS:	3025 HIGHLAND PKWY, SUITE 510, DOWNERS GROVE, IL, 60515
	JULIE GARNELLO - PROJECT MANAGER JULIE.GARNELLO@CROWNCastle.COM
	AARON KANDLER - CONSTRUCTION MANAGER AARON.KANDLER@CROWNCastle.COM
	JOSEPH STANCZAK - A&E SPECIALIST JOSEPH.STANCZAK@CROWNCastle.COM (724) 416-9973

T-MOBILE SITE NUMBER:
KZ06357A

BU #: 876868
SWEET

3419 S. BURDICK
KALAMAZOO, MI 49001

EXISTING 170'-0" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	07/26/2023	AS	CONSTRUCTION	AH
1	07/31/2023	AS	CONSTRUCTION	AH
2	12/26/2023	AS	CONSTRUCTION	AH

STATE OF MICHIGAN
AARON HERKENHOFF
License No. 6201310729
LICENSED PROFESSIONAL ENGINEER

12/26/2023

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER:	REVISION:
T-1	2

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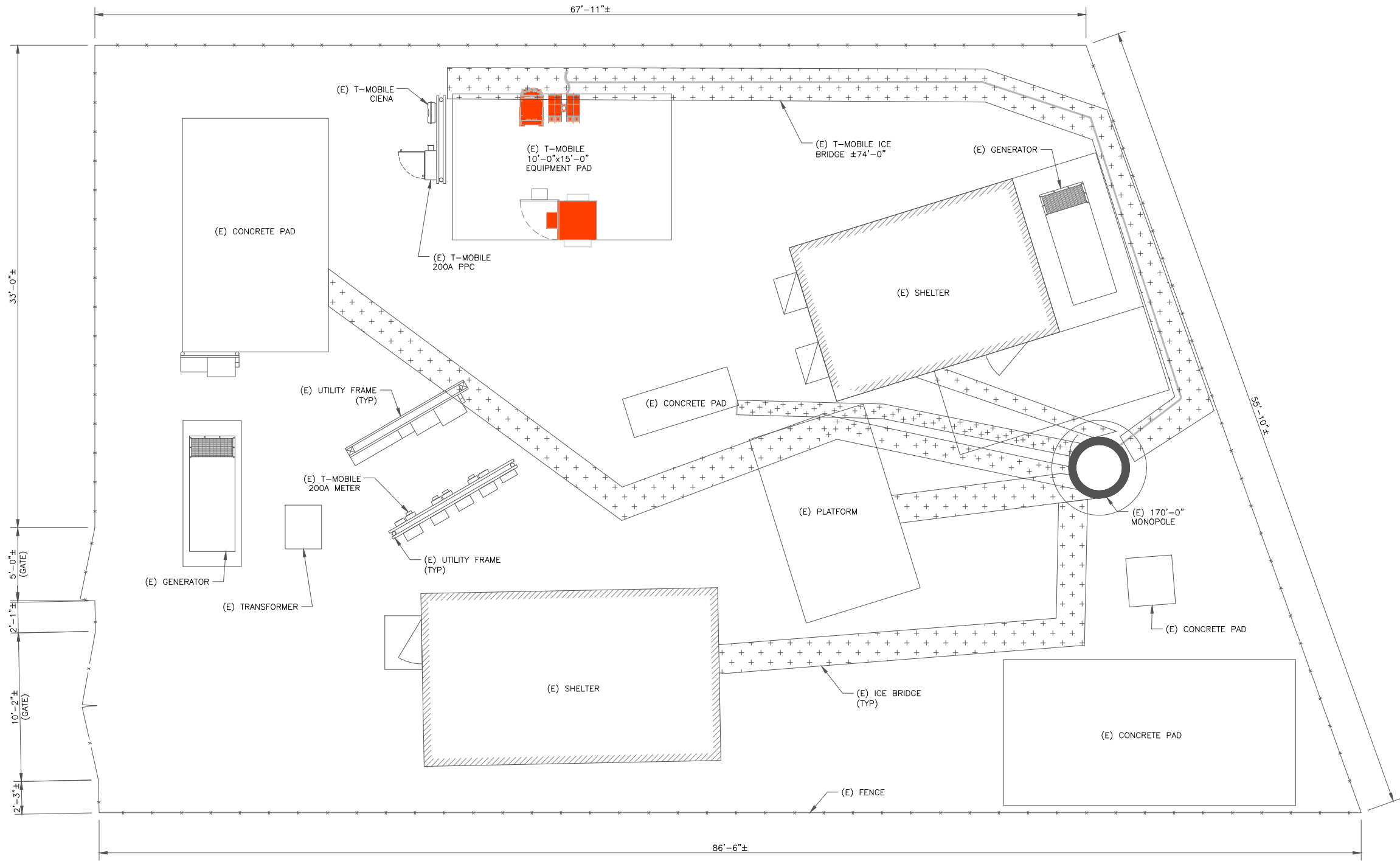
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Aaron Herkenhoff
 STATE OF MICHIGAN
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1 SITE PLAN
 SCALE: 1/4"=1'-0" (FULL SIZE)
 1/8"=1'-0" (11x17)

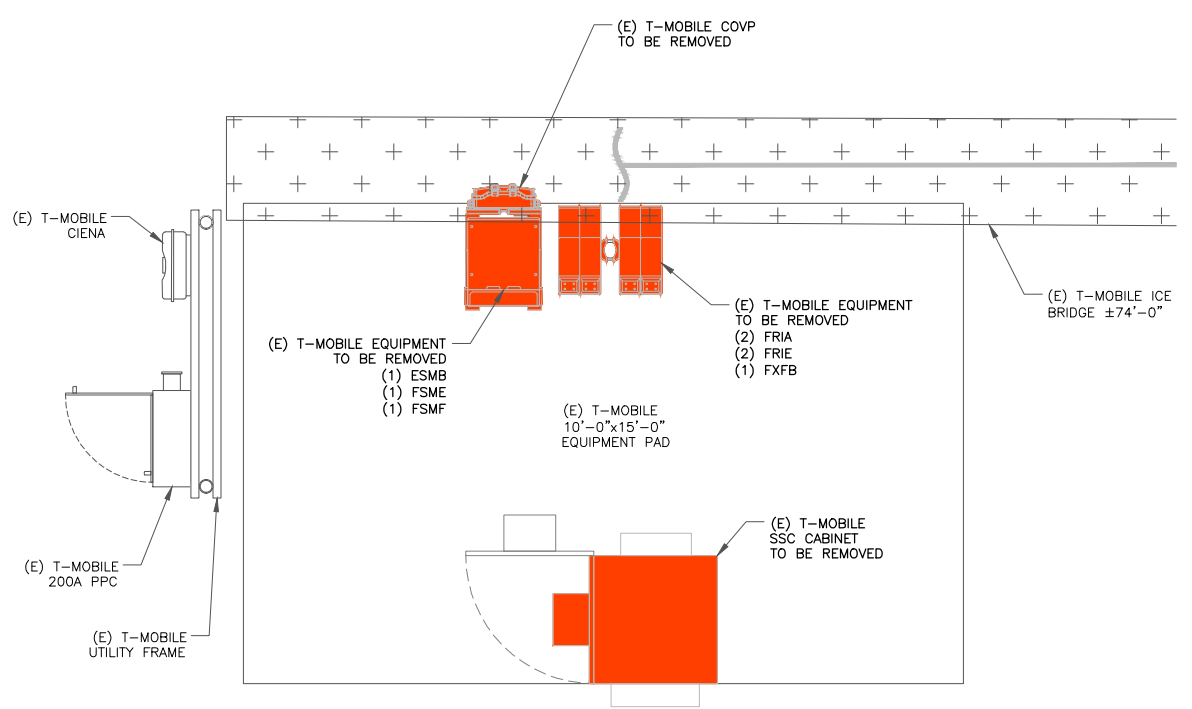


T-MOBILE-CENTRAL REGION-ANCHOR_06/16/2022_V2

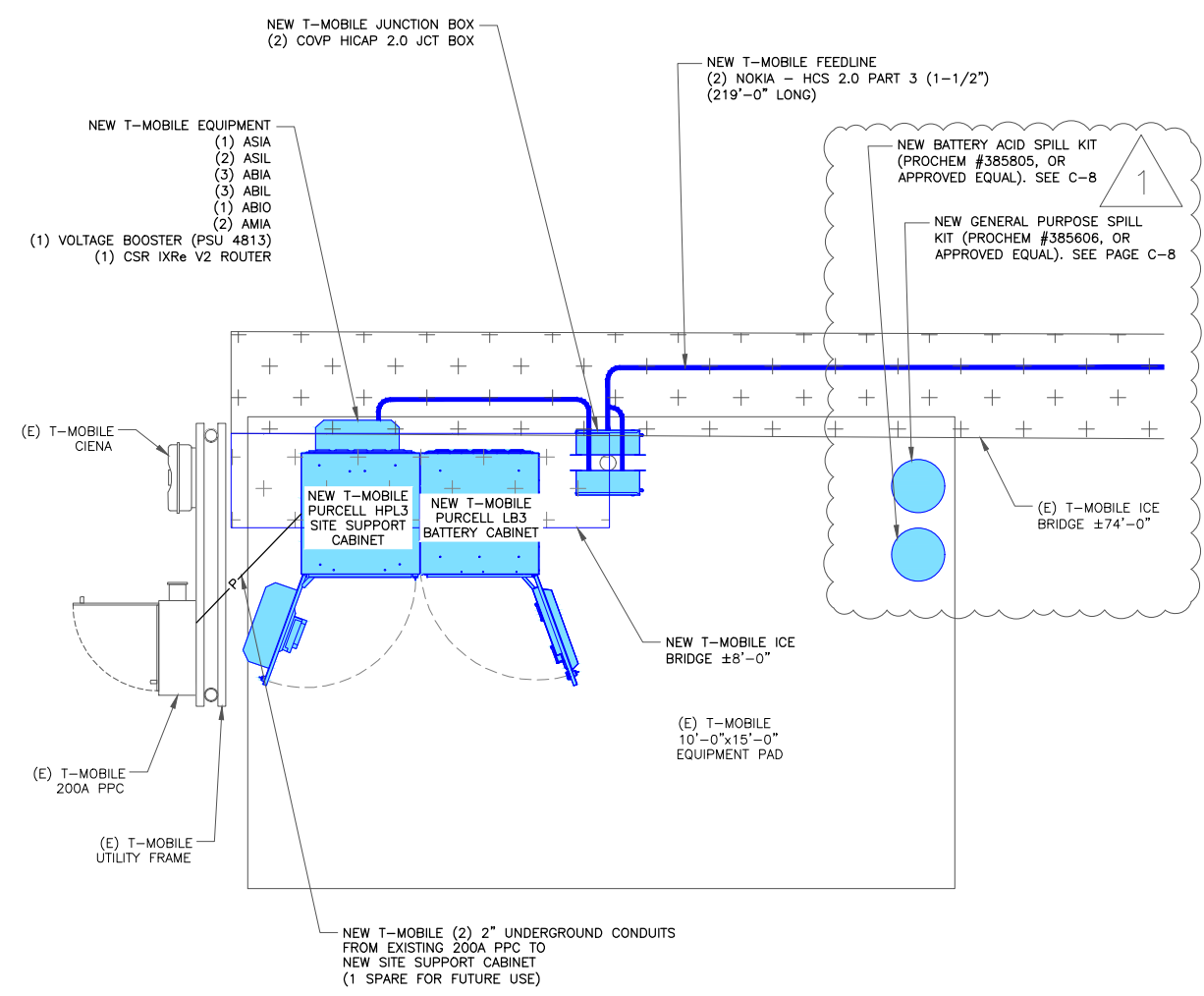
SHEET NUMBER: **C-1.1** REVISION: **2**

EQUIPMENT LEGEND:

- EXISTING
- TO BE RELOCATED/REMOVED
- NEW



1 EXISTING EQUIPMENT PLAN
SCALE: 1/2"=1'-0" (FULL SIZE)
1/4"=1'-0" (11x17)



2 FINAL EQUIPMENT PLAN
SCALE: 1/2"=1'-0" (FULL SIZE)
1/4"=1'-0" (11x17)

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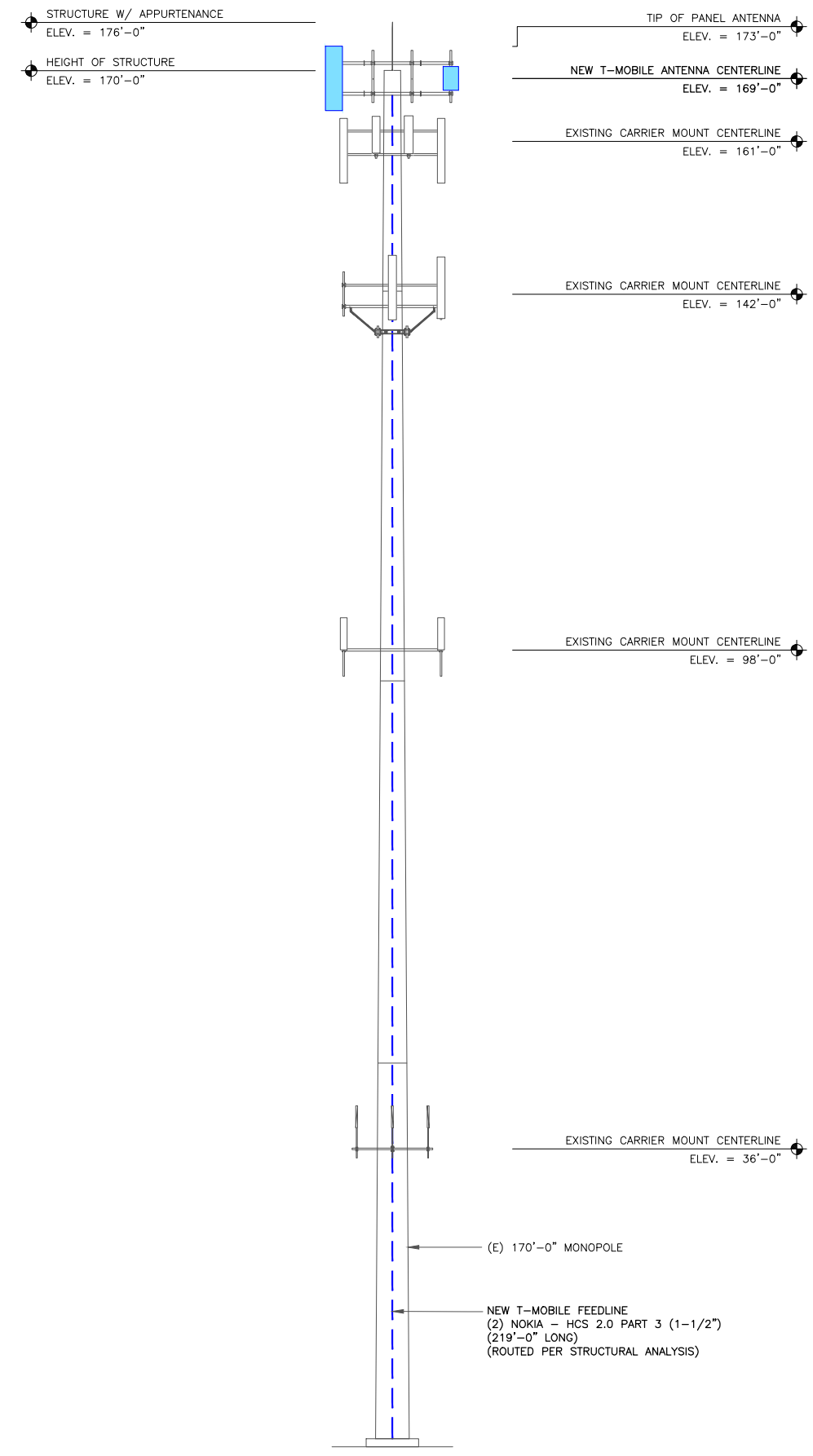
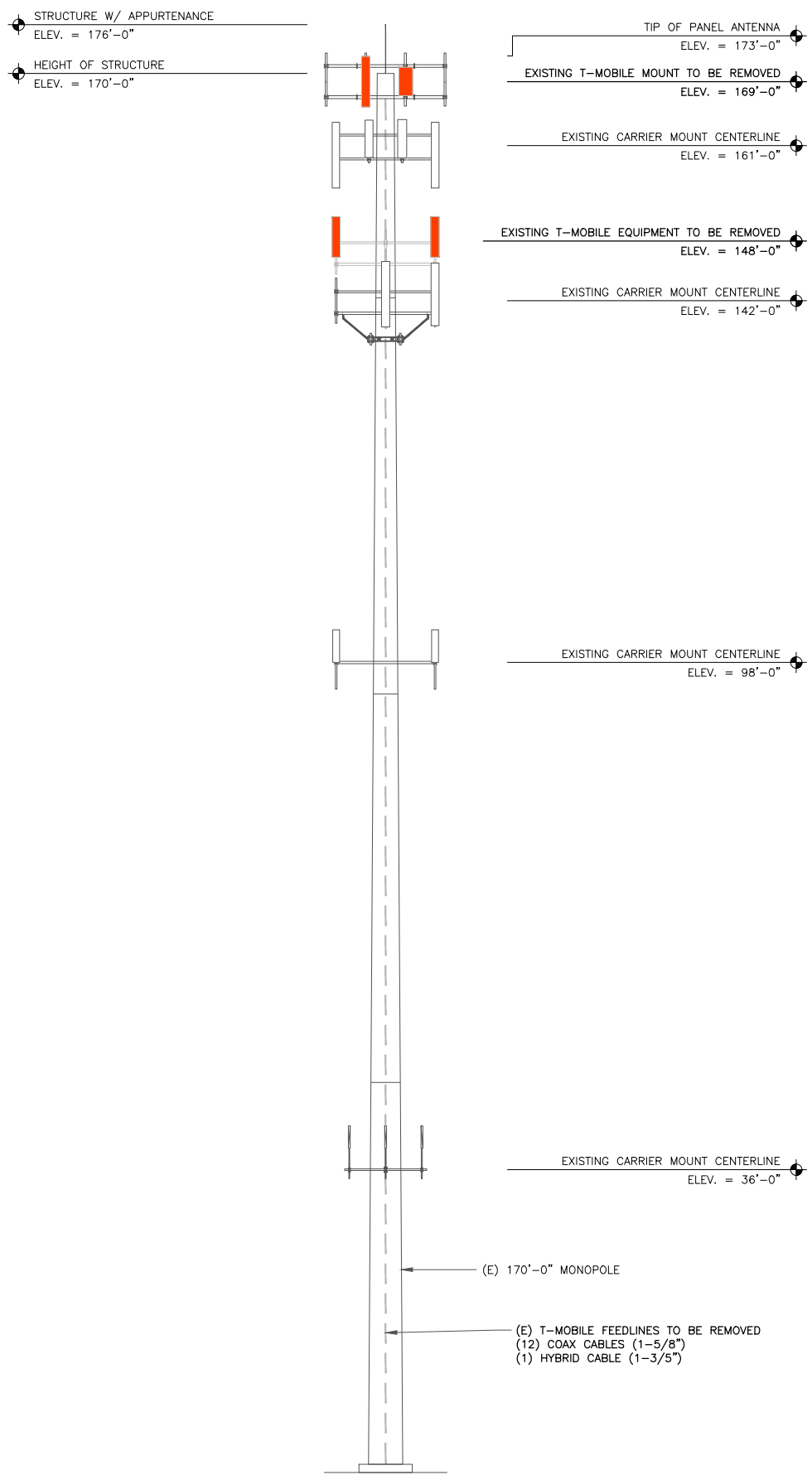
LICENSED PROFESSIONAL ENGINEER

12/26/2023

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SHEET NUMBER: **C-1.2** REVISION: **2**

T-MOBILE-CENTRAL REGION-ANCHOR_06/16/2022_V2



EQUIPMENT LEGEND:

- EXISTING
- TO BE RELOCATED/REMOVED
- NEW

MOUNT ANALYSIS NOTES:

1. THE DESIGN DEPICTED IN THESE DRAWINGS IS VALID WHEN ACCOMPANIED BY A CORRESPONDING PASSING MOUNT ANALYSIS.
2. CONSTRUCTION MANAGER / GENERAL CONTRACTOR SHALL REVIEW THE MOUNT ANALYSIS FOR ANY CONDITIONS PRIOR TO INSTALLATION.
3. ANY REQUIRED MOUNT MODIFICATION DESIGN OR MOUNT REPLACEMENT SHALL BE APPROVED BY EOR.

1 EXISTING ELEVATION
SCALE: NOT TO SCALE

1 FINAL ELEVATION
SCALE: NOT TO SCALE

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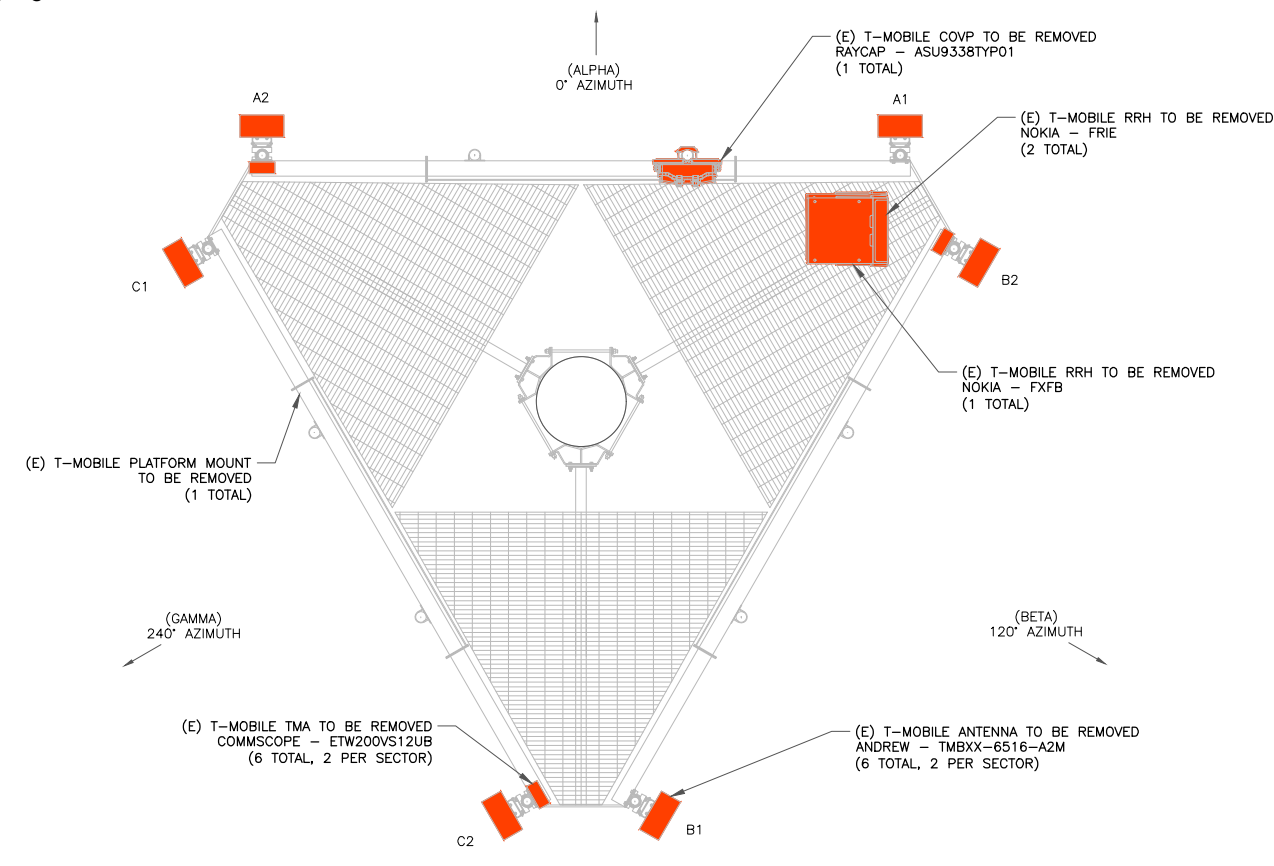
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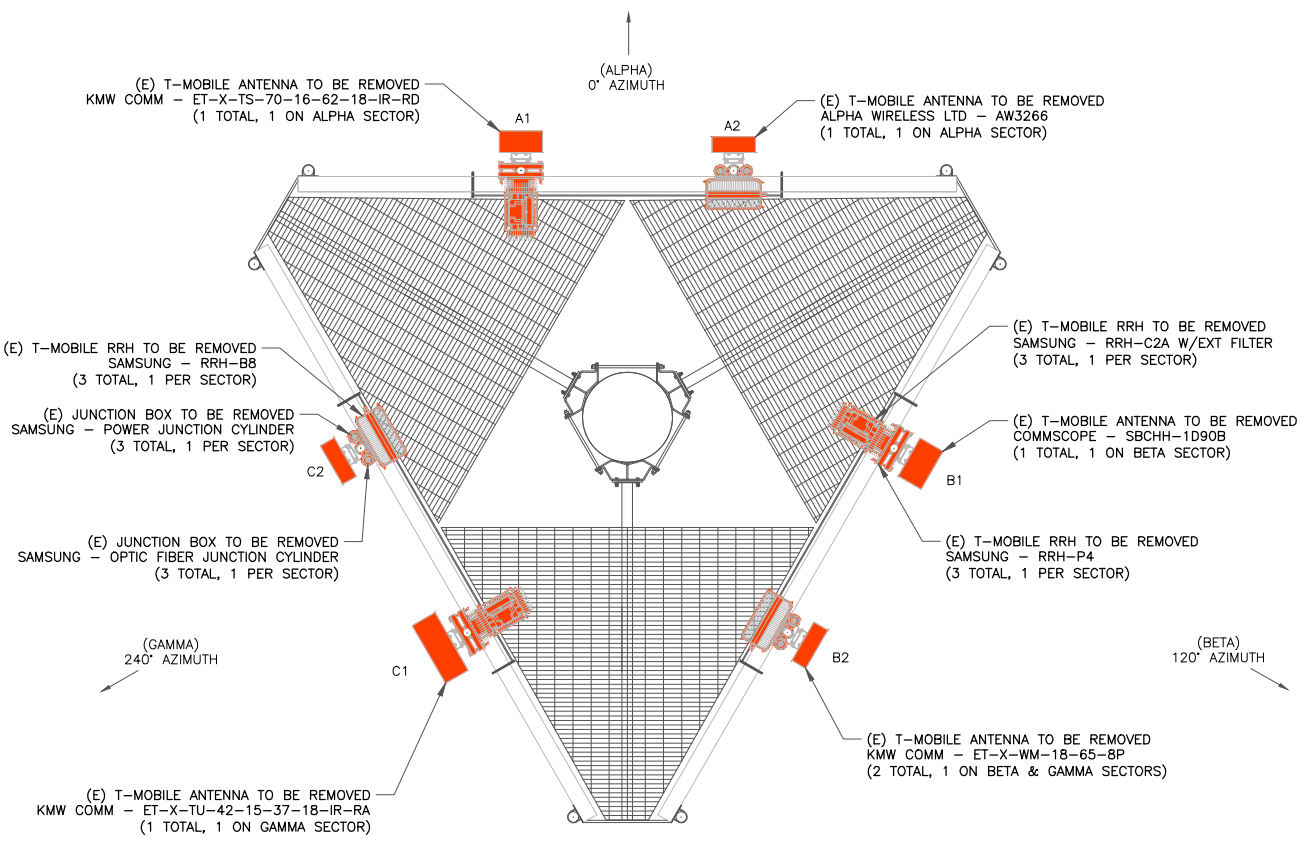
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1 EXISTING ANTENNA PLAN @ 148'-0" MCL
SCALE: NOT TO SCALE



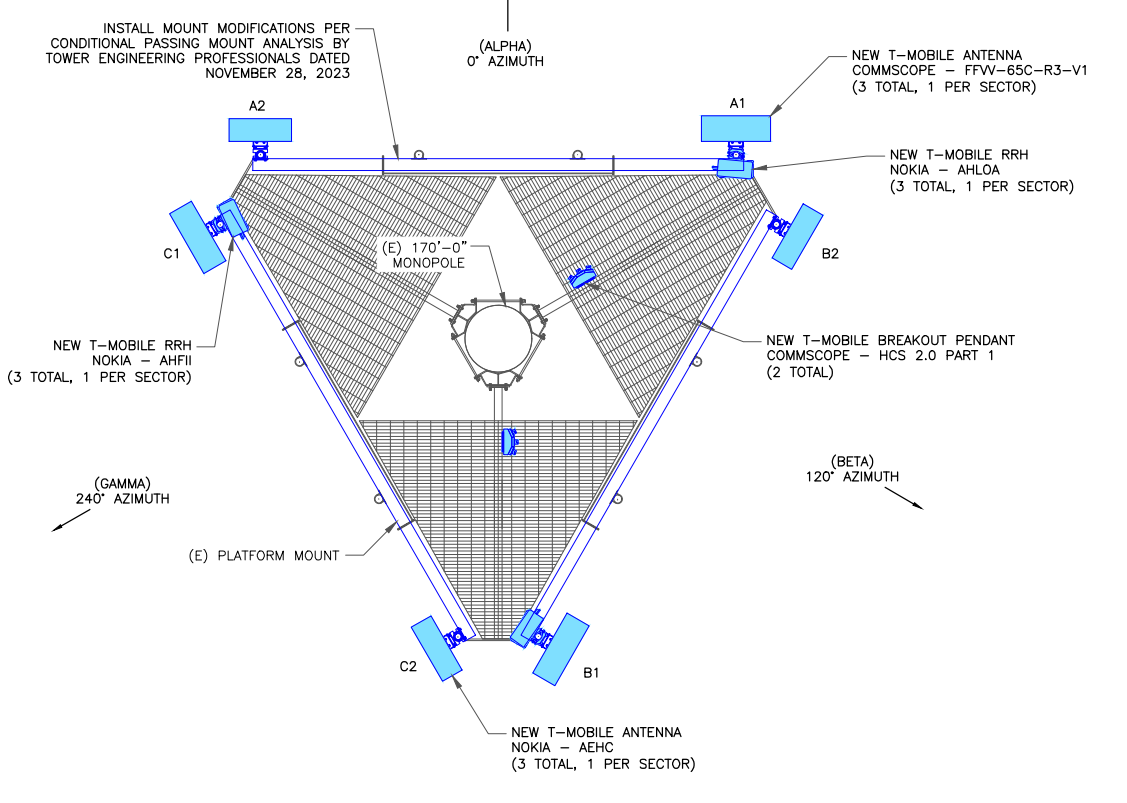
2 EXISTING ANTENNA PLAN @ 169'-0" MCL
SCALE: NOT TO SCALE



EQUIPMENT LEGEND:

	EXISTING
	TO BE RELOCATED/REMOVED
	NEW

- MOUNT ANALYSIS NOTES:**
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4 FINAL ANTENNA PLAN @ 169'-0" MCL
SCALE: NOT TO SCALE



3 NOT USED
SCALE: NOT TO SCALE



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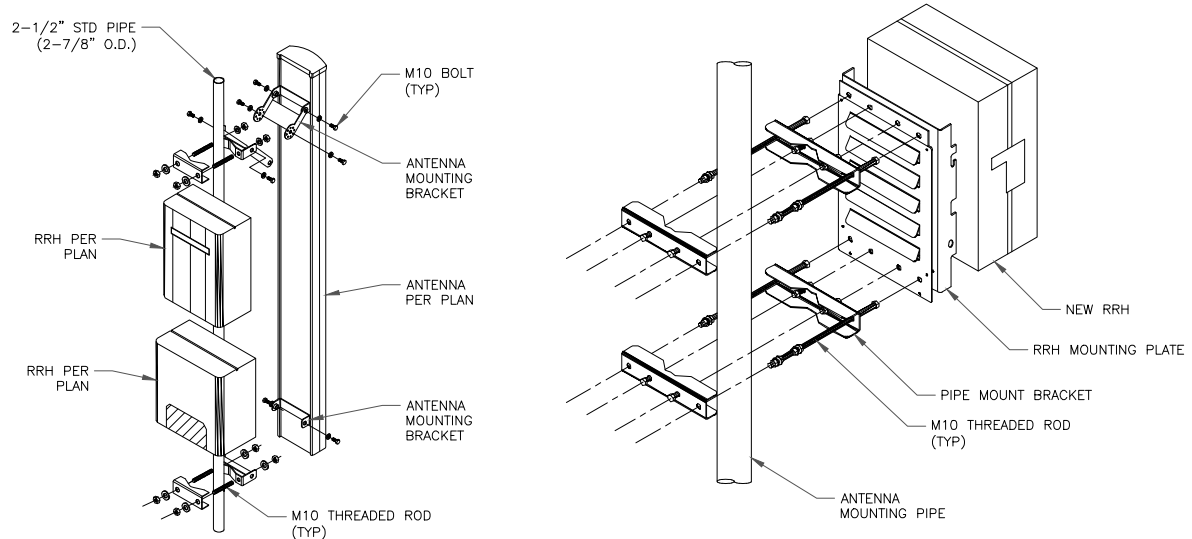
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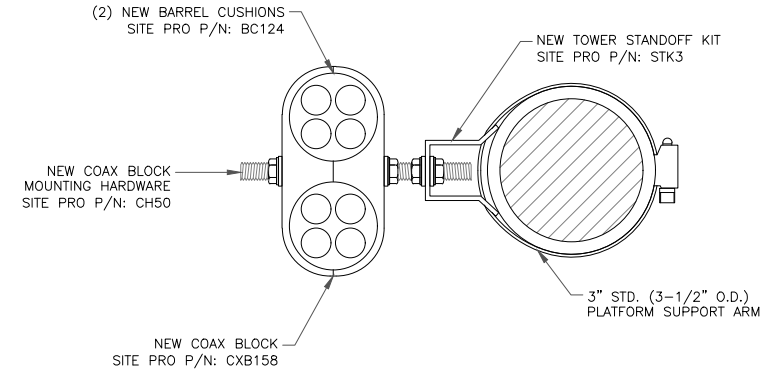
T-MOBILE-CENTRAL REGION-ANCHOR_06/16/2022_V2

INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRHs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRH PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS, AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



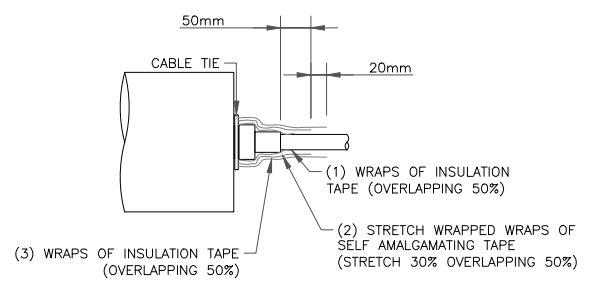
1 ANTENNA WITH RRHs MOUNTING DETAIL
SCALE: NOT TO SCALE



2 RF JUMPER DETAIL
SCALE: NOT TO SCALE

INSTALLER NOTE:

JUMPERS TO BE TORQUED TO 221.27 IN/LBS



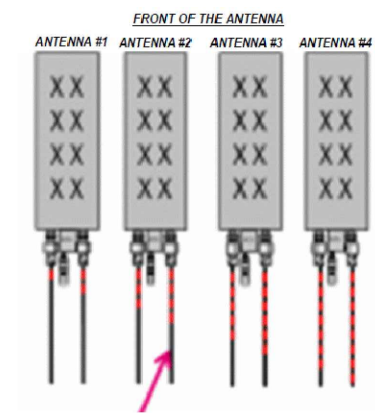
3 RF JUMPER CONNECTION
SCALE: NOT TO SCALE

4 NOT USED
SCALE: NOT TO SCALE

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



EXAMPLE: COAX WITH FOUR BANDS OF RED TAPE WILL REPRESENT ALPHA SECTOR AND THE 4TH PORT OF ANTENNA

COLOR CODING NOTES:

- color GSM
- color UMTS 1900
- color UMTS AWS
- color LTE
- color FIBER CABLE

METALLIC TAG NOTES:

- TWO METALLIC TAGS SHALL BE ATTACHED AT EACH END OF EVERY CABLE LONGER THAN (3) THREE FEET
- CABLE LESS THAN (3) THREE FEET WILL HAVE TWO METALLIC TAGS ATTACHED AT THE CENTER OF THE CABLE
- TAGS WILL BE FASTENED WITH STAINLESS STEEL ZIP-TIES APPROPRIATE FOR CABLE DIAMETER
- STANDARDIZED METALLIC TAG KIT WILL BE ASSEMBLED WITH TAGS ALREADY ENGRAVED TO ACCOMMODATE ALL CONFIGURATIONS.

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" COLOR TAPE OR STENCIL TAG. COLOR TAPE MAY BE OBTAINED FROM GRAYBAR ELECTRONICS.



5 COAX COLOR CODING
SCALE: NOT TO SCALE

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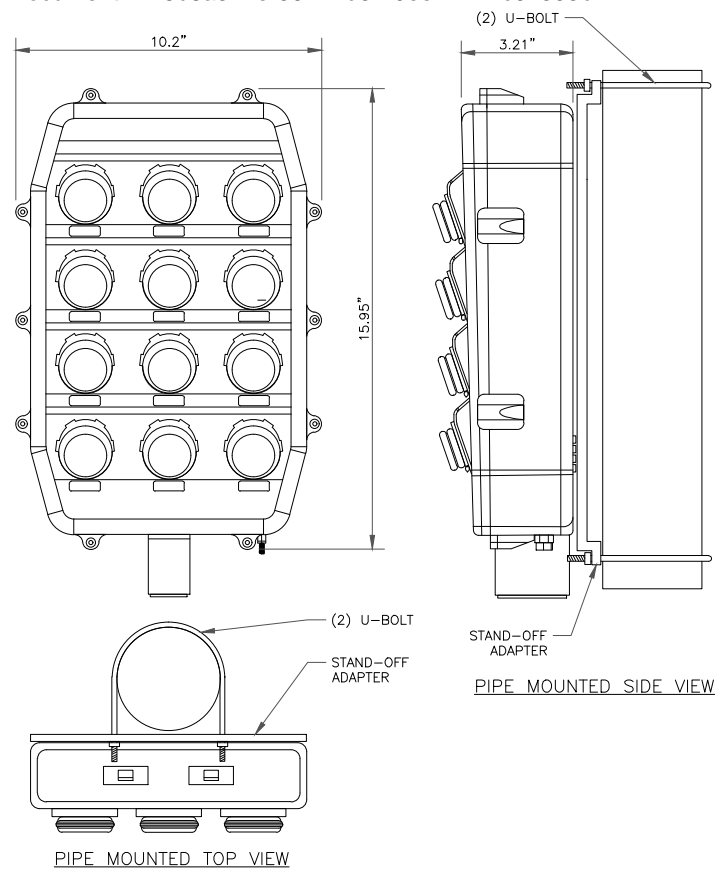
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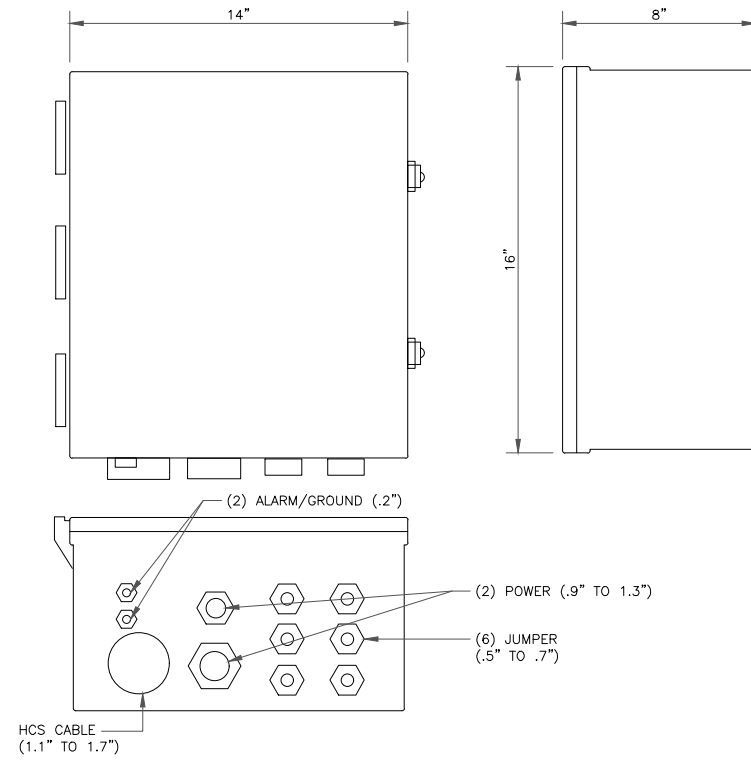
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SHEET NUMBER: **C-3** REVISION: **2**



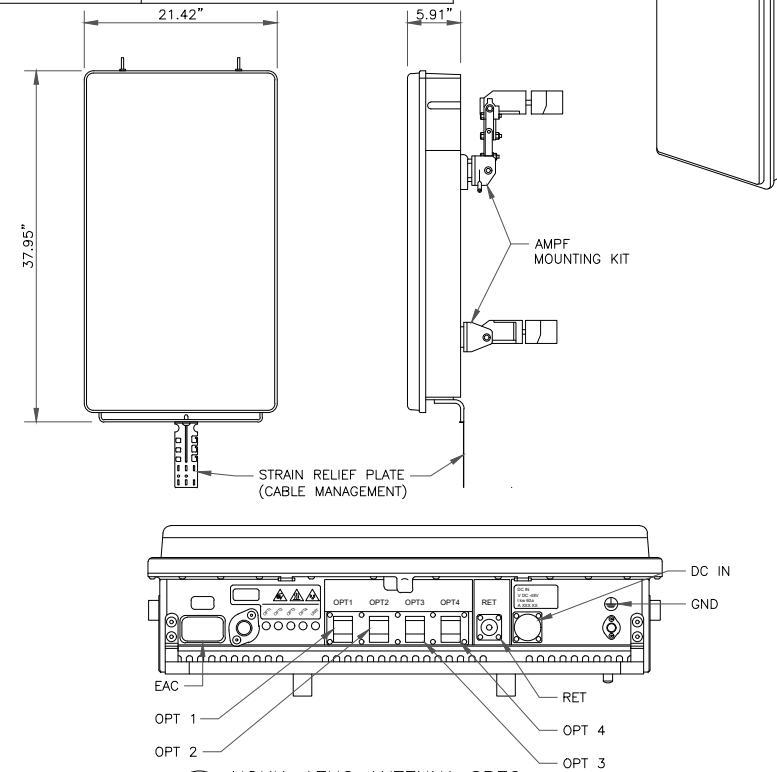
1 HCS 2.0 PENDANT DETAIL
SCALE: NOT TO SCALE

MANUFACTURER:	COMMSCOPE
MODEL:	FE-16148-OVP-B12
DIMENSIONS (HxWxD):	14"x16"x8"
WEIGHT:	15.2 LBS



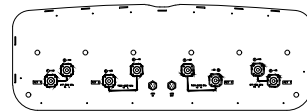
2 HI-CAP JUNCTION BOX DETAIL
SCALE: NOT TO SCALE

MANUFACTURER:	NOKIA
MODEL:	AEHC
DIMENSIONS (HxWxD):	37.95"x21.42"x5.91"
WEIGHT:	108 LBS
BAND:	B41/n41
MOUNTING KIT:	AMPF (475188A) (NOT INCLUDED)

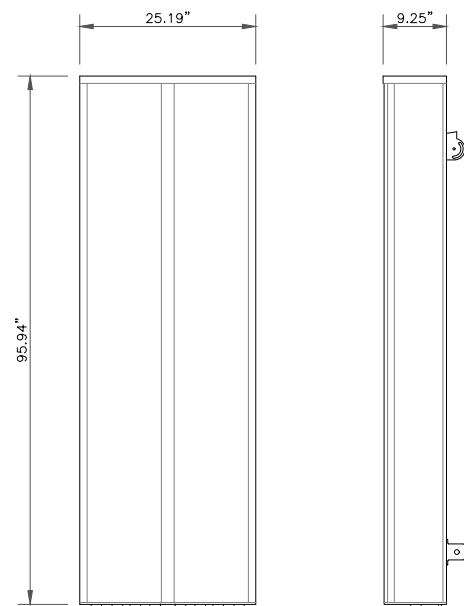


3 NOKIA AEHC ANTENNA SPEC
SCALE: NOT TO SCALE

MANUFACTURER:	COMMSCOPE
MODEL:	FFVW-65C-R3-V1 8-PORT ANTENNA
DIMENSIONS (HxWxD):	95.94"x25.19"x9.25"
WEIGHT:	124.60 LBS
BAND:	MULTIBAND
MOUNTING KIT:	BSAMNT-4 (INCLUDED)

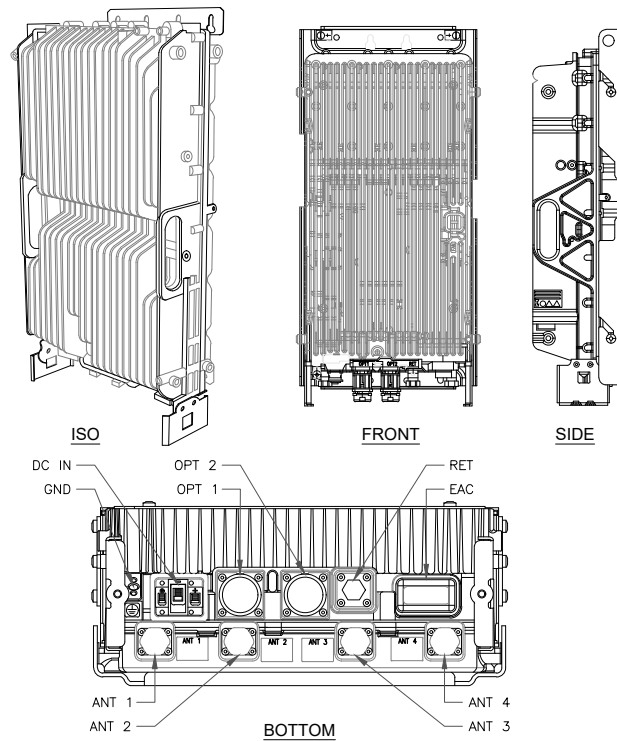


NOTE:
RF CONNECTORS (4.3-10 FEMALE)



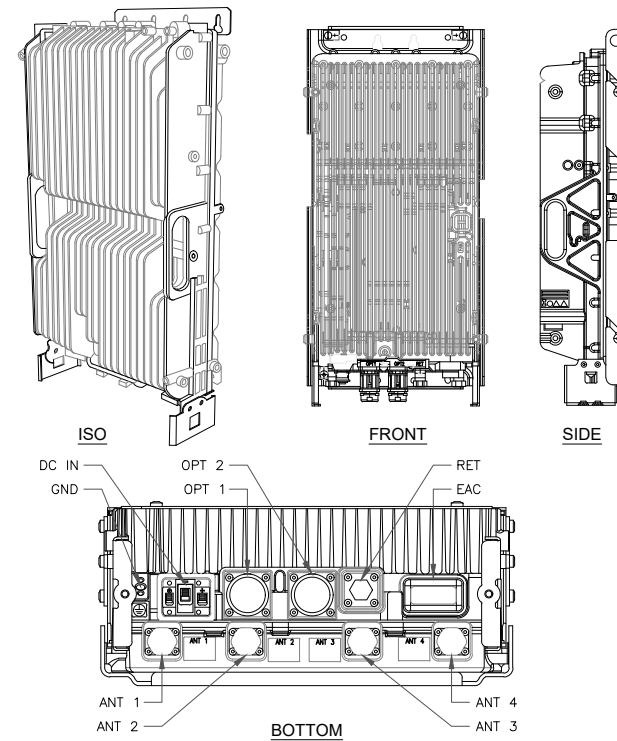
4 COMMSCOPE FFVW-65C-R3-V1 ANTENNA
SCALE: NOT TO SCALE

MANUFACTURER:	NOKIA
MODEL:	AHFII
DIMENSIONS (HxWxD):	26.61"x14.56"x5.91"
WEIGHT:	70.5 LBS



5 NOKIA AHFII RRH
SCALE: NOT TO SCALE

MANUFACTURER:	NOKIA
MODEL:	AHLOA
DIMENSIONS (HxWxD):	22.1"x12.1"x7.4"
WEIGHT:	83.5 LBS



6 NOKIA AHLOA RRH
SCALE: NOT TO SCALE

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EXISTING 170'-0" MONOPOLE

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REV	DATE	DRWN	DESCRIPTION	DES./QA
0	07/26/2023	AS	CONSTRUCTION	AH
1	07/31/2023	AS	CONSTRUCTION	AH
2	12/26/2023	AS	CONSTRUCTION	AH



12/26/2023

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SHEET NUMBER: **C-4** REVISION: **2**



NOKIA - CSR IXRE V2 ROUTER
WEIGHT: 11.2 LBS
SIZE (HxWxD): 1.25 x 17.25 x 10.0 IN.

1 NOKIA - CSR IXRE V2 ROUTER
SCALE: NOT TO SCALE

The general specifications for the PSU 48 13 are as follows:

Electrical Operating Limits	
Input Voltage	-38.0 -- -58.5 VDC
Input Voltage, nominal	-48 VDC
Input Current, max	166 A; 30 A total for all four -48V inputs
Output Voltage, fixed	-58 VDC
Output Power, max.	2000 watts each
Environmental Operating Limits	
Temperature, operation	-40 -- +80 °C
Temperature, storage	-40 -- +55 °C
Temperature, transport	-40 -- +70 °C
Humidity, operation and storage	5% -- 95%
Altitude, operation and storage	0 -- 4000 m
Cooling	Internal fans
Vibration	ETS300019-2
Shock	ETS300019-2
Drop	ETS300019-2
EMC	FCC Part 15
Safety	UL 62368-1
Noise	< 6.8 bel sound power
Lightning Protection	4 kA, 10/350 μs; 20 kA, 8/20 μs
Fuse Options	30 A, 40 A, 50 A
Mechanical Specification	
Weight	< 7.8 kg (17.2 lb)
Dimensions (H x W x D)	44 x 483 x 363 mm (1.7" x 19.0" x 14.3") (include brackets, cover)



2 VOLTAGE BOOSTER - PSU 4813
SCALE: NOT TO SCALE

3 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE



8550 W. BRYN MAWR AVE, SUITE 100
CHICAGO, IL 60631



3025 HIGHLAND PKWY, SUITE 510,
DOWNERS GROVE, IL, 60515



11490 BLUEGRASS PKWY
LOUISVILLE, KY 40299
502-437-5252

T-MOBILE SITE NUMBER:
KZ06357A

BU #: **876868**
SWEET

3419 S. BURDICK
KALAMAZOO, MI 49001

EXISTING 170'-0" MONOPOLE

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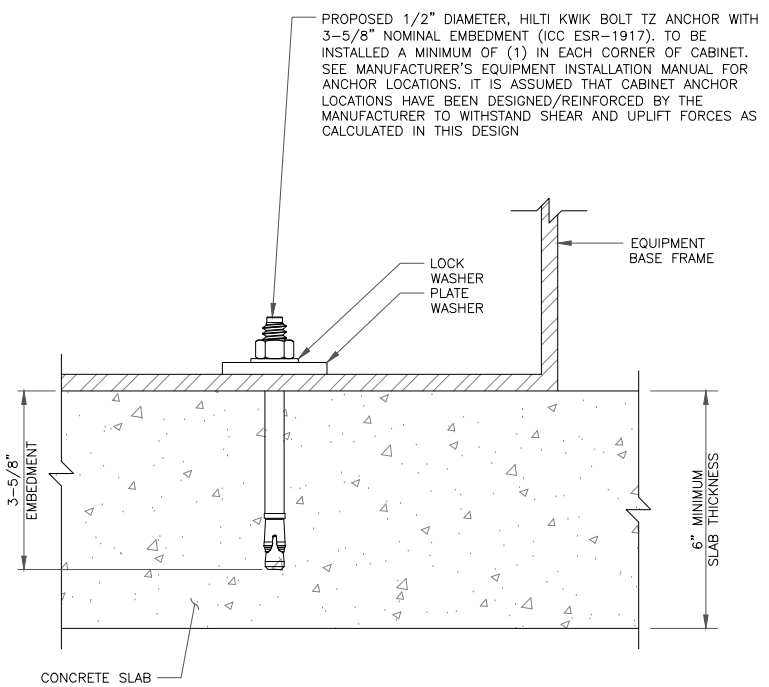
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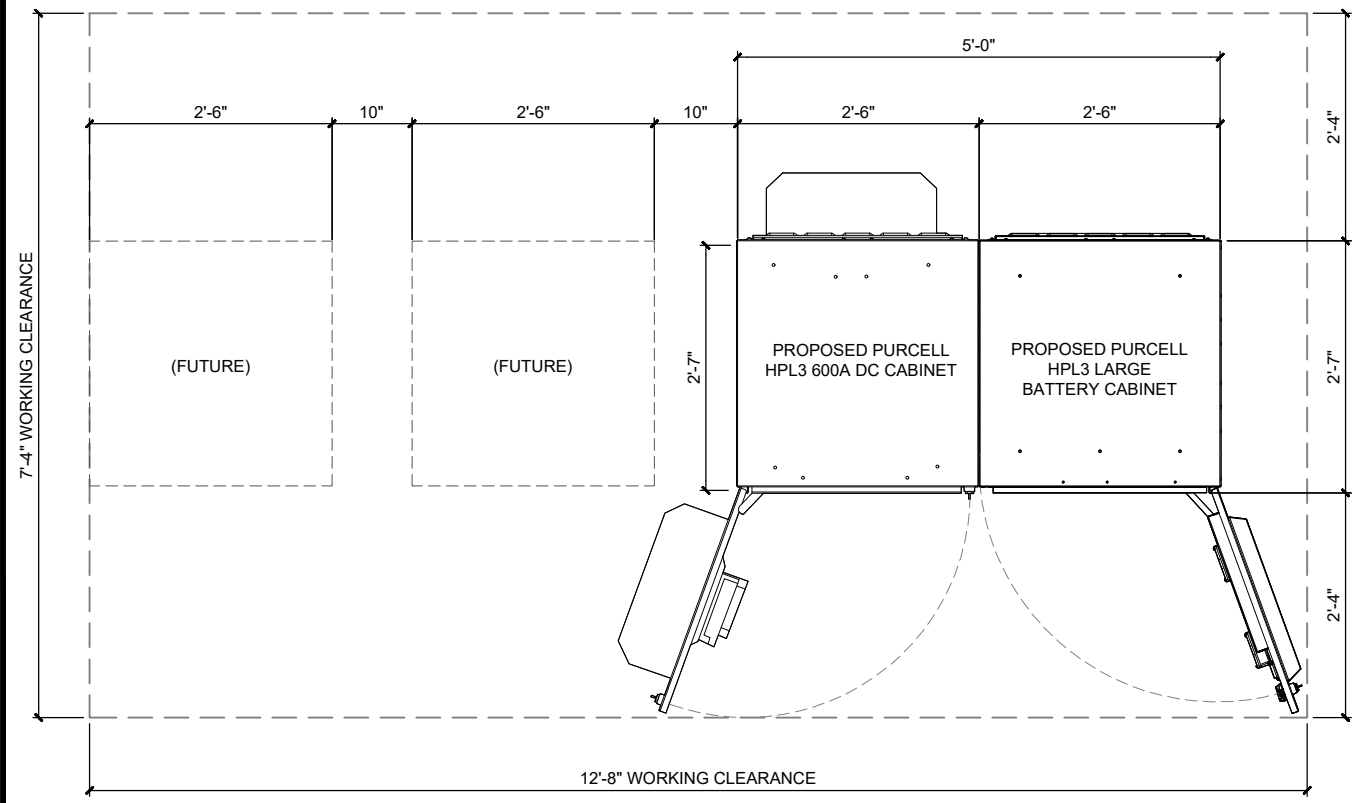
C-5

REVISION:

2

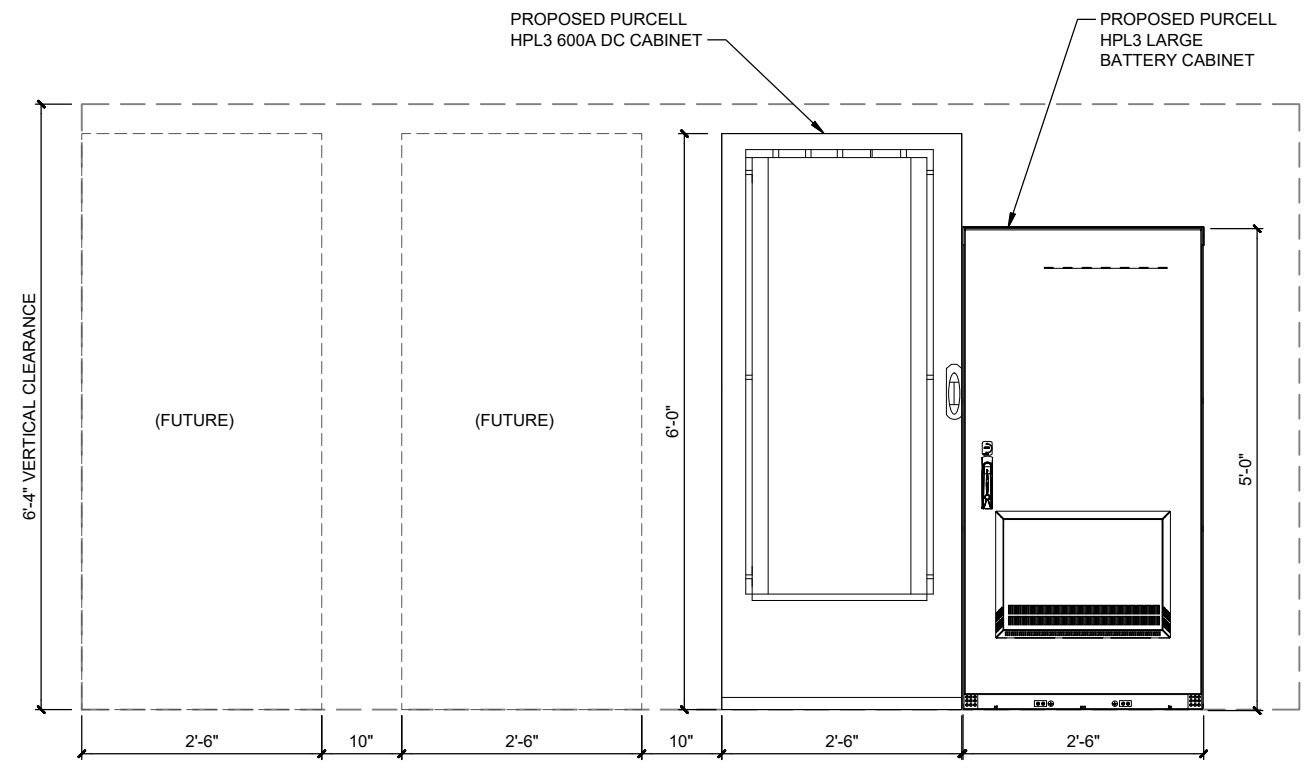


1 TYPICAL ANCHOR BOLT DETAIL
SCALE: NOT TO SCALE

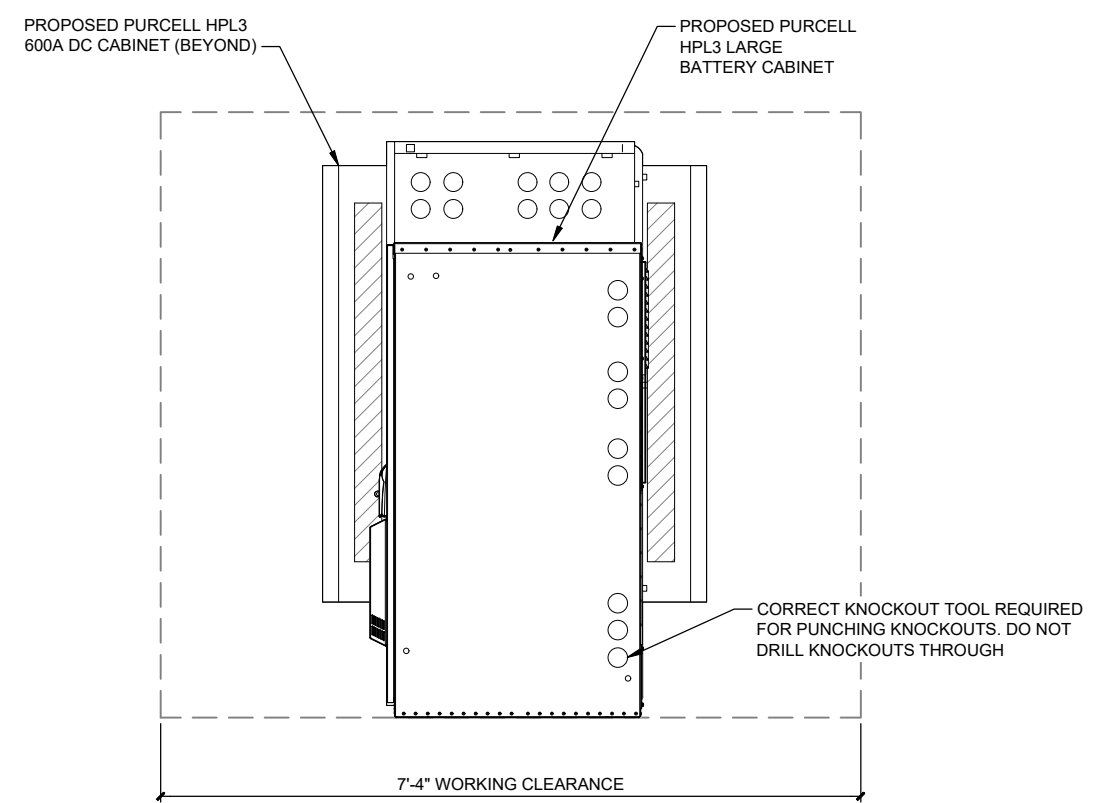


2 CABINET PLAN LAYOUT
SCALE: NOT TO SCALE

THESE SPECIFICATIONS WERE PROVIDED BY OTHERS, POD DID NOT PREPARE THESE DETAILS



FRONT VIEW



SIDE VIEW

3 CABINET ELEVATION LAYOUT
SCALE: NOT TO SCALE

THESE SPECIFICATIONS WERE PROVIDED BY OTHERS, POD DID NOT PREPARE THESE DETAILS

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STATE OF MICHIGAN
AARON HERKENHOFF
License No. 6201310729
LICENSED PROFESSIONAL ENGINEER

12/26/2023

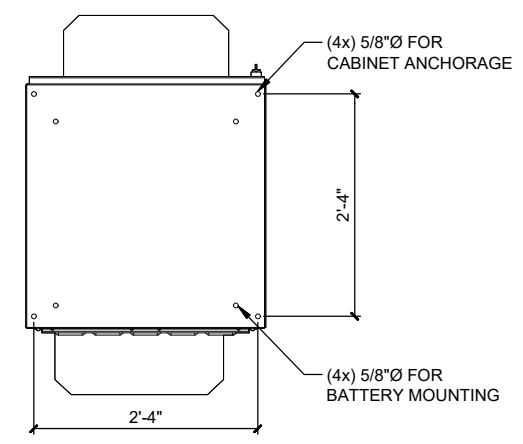
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SHEET NUMBER: **C-6** REVISION: **2**

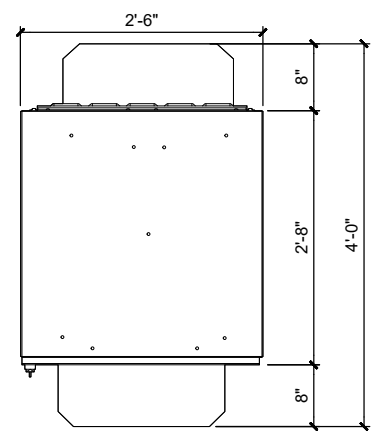
T-MOBILE-CENTRAL REGION-ANCHOR_06/16/2022_V2

VENDOR: PURCELL SYSTEMS INC
 MODEL: 200005433
 DIMENSIONS: 30.0"x32.0"x72.0"
 WEIGHT: 430 LBS (WITHOUT EQUIPMENT)

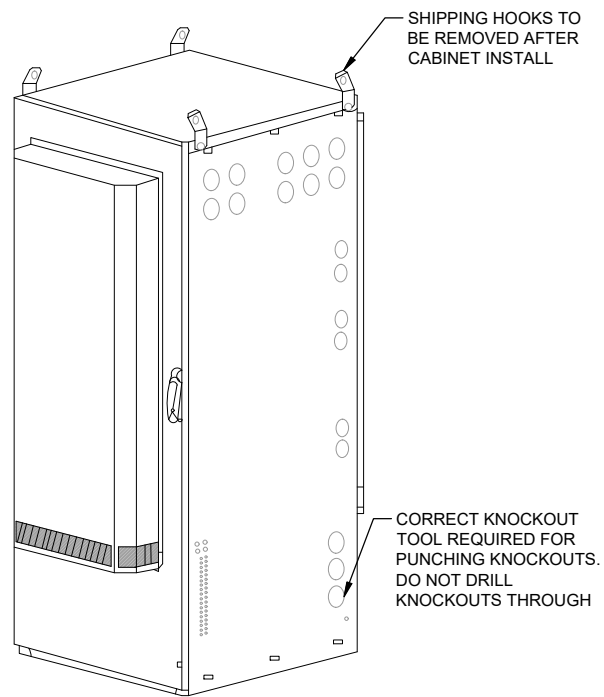
NOTE:
 ADDITIONAL KNOCKOUTS MAY BE
 REQUIRED AND CAN BE DRILLED ON SITE
 AS NECESSARY



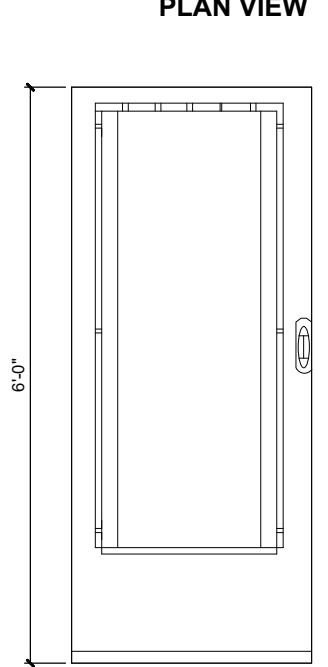
MOUNTING FOOTPRINT



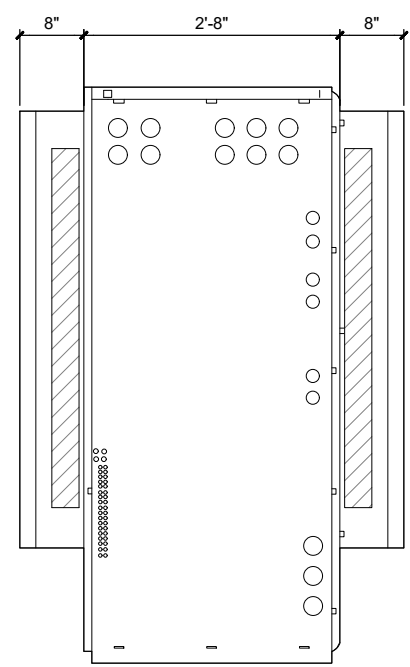
PLAN VIEW



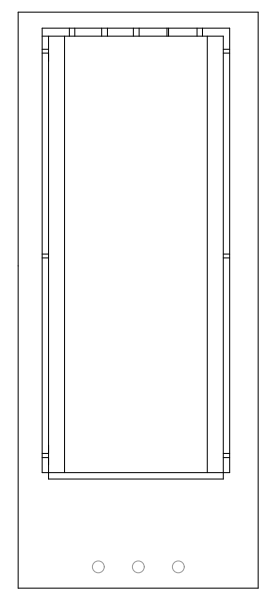
ISO VIEW



FRONT VIEW



SIDE VIEW

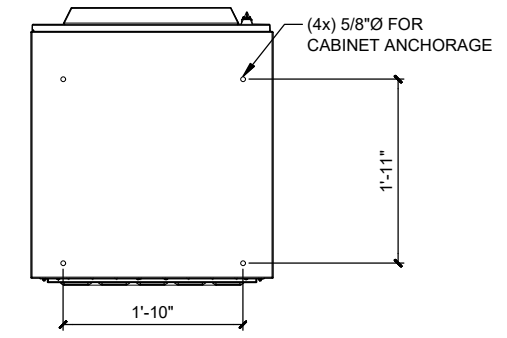


BACK VIEW

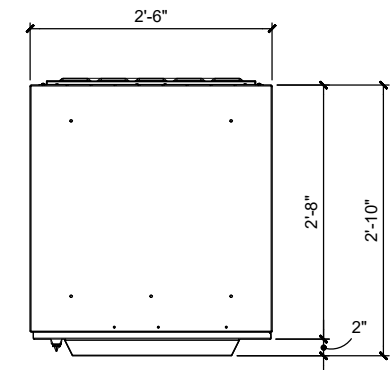
1 PURCELL HPL3 600A DC POWER CABINET
 SCALE: NOT TO SCALE

THESE SPECIFICATIONS WERE PROVIDED BY
 OTHERS, POD DID NOT PREPARE THESE DETAILS

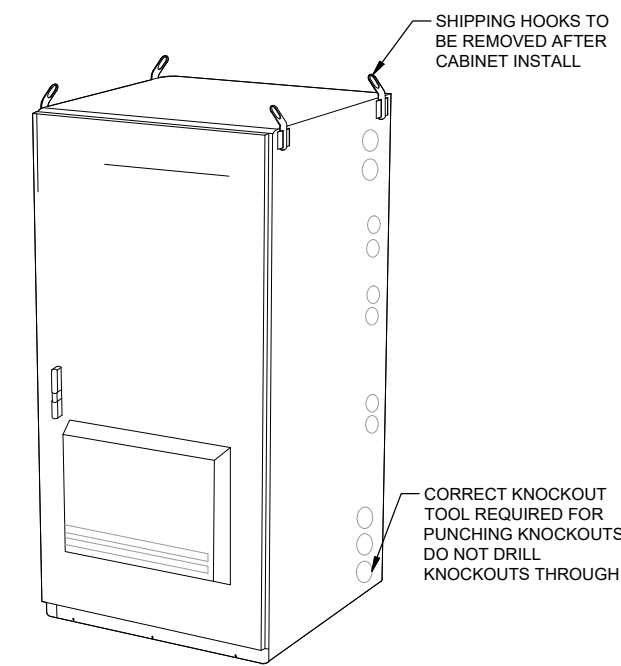
VENDOR: PURCELL SYSTEMS INC
 MODEL: 200005434
 DIMENSIONS: 30.0"x30.0"x63.0"
 WEIGHT: 350 LBS (WITHOUT EQUIPMENT)



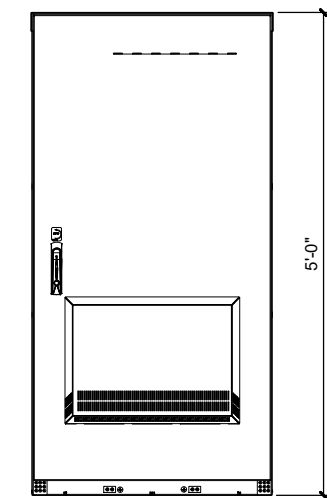
MOUNTING FOOTPRINT



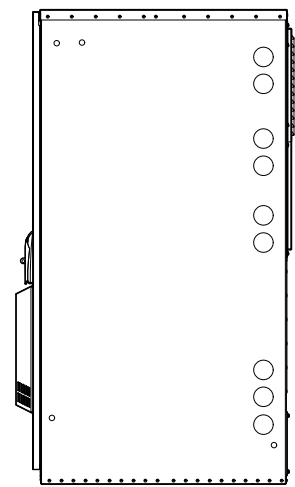
PLAN VIEW



ISO VIEW



FRONT VIEW



SIDE VIEW

2 PURCELL LB3 LARGE BATTERY CABINET
 SCALE: NOT TO SCALE

THESE SPECIFICATIONS WERE PROVIDED BY
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 3025 HIGHLAND PKWY, SUITE 510,
 DOWNERS GROVE, IL, 60515

POD
 POWER OF DESIGN
 11490 BLUEGRASS PKWY
 LOUISVILLE, KY 40299
 502-437-5252

T-MOBILE SITE NUMBER:
KZ06357A

BU #: **876868**
SWEET

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 KALAMAZOO, MI 49001

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STATE OF MICHIGAN
 AARON HERKENHOFF
 License No. 6201310729
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SHEET NUMBER: **C-7** REVISION: **2**



PROPOSED BATTERIES: 20
 EXISTING BATTERIES: 0

IFC SECTION 1206/NFPA 1 CHAPTER 52/NFPA 855 SECTION 1.3

STATIONARY STORAGE BATTERY SYSTEMS HAVING CAPACITIES EXCEEDING THE VALUES SHOWN IN IFC TABLE 1206.2 SHALL COMPLY WITH SECTION 1206.2.1 THROUGH 1206.2.12.6 AS APPLICABLE. STATIONARY STORAGE BATTERY SYSTEMS HAVING CAPACITIES EXCEEDING THE VALUES SHOWN IN NFPA 855 TABLE 1.3 SHALL COMPLY WITH NFPA 1 CHAPTER 52.

BATTERY STORAGE SYSTEM THRESHOLD QUANTITIES

BATTERY TECHNOLOGY		CAPACITY ALLOWED			
LEAD ACID, ALL TYPES		70kWh (252 MEGAJOULES)			
AH = VOLTAGE (AH)/1000					
VOLTS	AH	1kW 1000W	kWh	NO. OF BATTERIES	TOTAL kWh
12	210	1 1000	2.48	20	49.6

BATTERY MANUFACTURER AND MODEL NUMBER	TOTAL BATTERIES	QUANTITY PER BATTERY	TOTAL QUANTITY
NORTHSTAR – NBS 210FT RED	20	2.1 GAL.	42 GAL.
		23.1 LBS	462 LBS

CONCLUSIONS:

49.6	<	70 kWh	IFC SECTION 1206.2/NFPA 1 CHAPTER 52 DOES NOT APPLY
------	---	--------	---

PURCELL LB3 TOTAL BATTERY WEIGHT (20 BATTERIES): 1102 LBS

TOTAL GAL. – ELECTROLYTE (16 BATTERIES): 42 GAL.

NOTES:

- VALUES ABOVE ARE BASED ON MANUFACTURER PUBLISHED VALUES.
- BATTERY CLASSIFICATION: VRLA VALUE REGULATED LEAD ACID
 HEALTH RATING 3
 FIRE RATING 0
 REACTIVE RATING 2

Spill Control Kits



General Purpose Spill Kit 6.5 Gallon #385606:
 Same as the 55 gallon kit but contains (4) 4 ft. socks, (2) cartons safety sorbent, (5) pads & (2) disposal bags.
**Absorbs 4 gallons.*
**Not for use on hydrofluoric acid or HF compounds.*

Quantity	Description
1	6.5 gal white drum
7	19" x 15" universal pads
4	3" x 4' universal socks
1	2 qt safety sorbent carton
2	Self sealing disposable bags

Battery Acid Spill Kit #385805:

The BATTERY ACID SPILL KIT provides a safe and effective method for controlling small acid spills.* For use in vehicles, battery charging stations, telephone cell sites and other locations with acid spill exposure. The spill kit is an efficient method to neutralize and absorb acid spills. This kit provides visible color change to indicate complete acid neutralization. It also helps meet your Regulatory Requirements: OSHA 1926.441 & 1910.178.
Absorbs up to 1.2 gallons.
**Not for use on hydrofluoric acid or HF compounds.*

Quantity	Description
1	6 1/2 gal white pail
6	Acid safe cartons*
1	Pair nitrile gloves
1	Chemical goggles
1	Apron
1	Over boots
1	Faceshield
1	Dust pan & broom
2	Self sealing disposable bags
1	Instruction sheet



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SHEET NUMBER: **C-8** REVISION: **2**

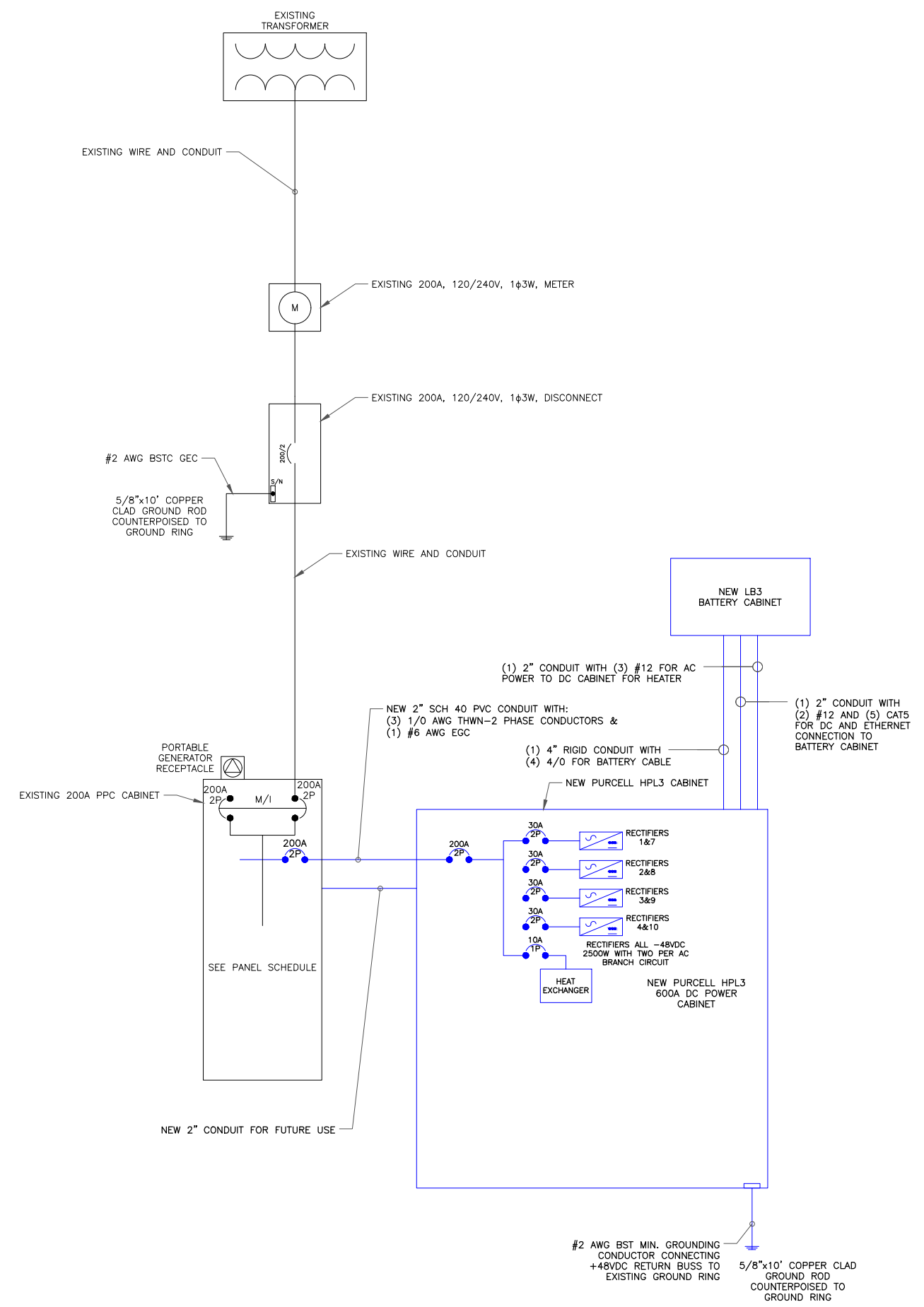
1 NOT USED
SCALE: NOT TO SCALE

NOTE: CM/GC TO FIELD VERIFY EXISTING AMPERAGE AND BREAKERS BEFORE INSTALLATION OF NEW BREAKER.

T-MOBILE PANEL SCHEDULE

MAIN: 200 AMP MAIN BREAKER		VOLTAGE/PHASE: 120/240V, 1-PHASE, 3-WIRE				SHORT CIRCUIT CURRENT RATING: N/A					
MOUNTING: INSIDE PPC ENCLOSURE		ENCLOSURE: NEMA 3R				SURGE PROTECTION DEVICE: YES					
DESCRIPTION	LOAD (VA)	C or NC	C/B	CIR No.	LOAD (VA)		CIR No.	C/B	C or NC	LOAD (VA)	DESCRIPTION
					A-PHASE	B-PHASE					
SURGE PROTECTION DEVICE	30	C	60	1	210		2	15	C	180	GFCI RECEPTACLE
	30	C		3		230	4	20	C	200	SITE LIGHT
PURCELL SSC MAIN FEEDER OCPD	11000	C	200	5	11000		6				
	11180	C		7		11180	8				
				9	0		10				
				11	0		12				
				13	0		14				
				15	0		16				
				17	0		18				
				19	0		20				
				21	0		22				
				23	0		24				
	BASE LOAD (VA) =					11210	11410	C = CONTINUOUS LOAD; NC = NON-CONTINUOUS LOAD			
25% OF CONTINUOUS LOAD (VA) =					2803	2803	** INDICATES NEW LOAD. ALL OTHER LOADS ARE EXISTING. NEW BREAKER TO BE SAME TYPE AND HAVE SAME AIC RATING AS EXISTING. CUSTOMER HAS NOT PROVIDED LOADS SHOWN ARE ESTIMATED VALUES				
TOTAL LOAD (VA) =					14013	14213					
TOTAL LOAD (A) =					117	119					

2 FINAL PANEL SCHEDULE
SCALE: NOT TO SCALE



3 ONE-LINE DIAGRAM
SCALE: NOT TO SCALE

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SHEET NUMBER: **E-1** REVISION: **2**



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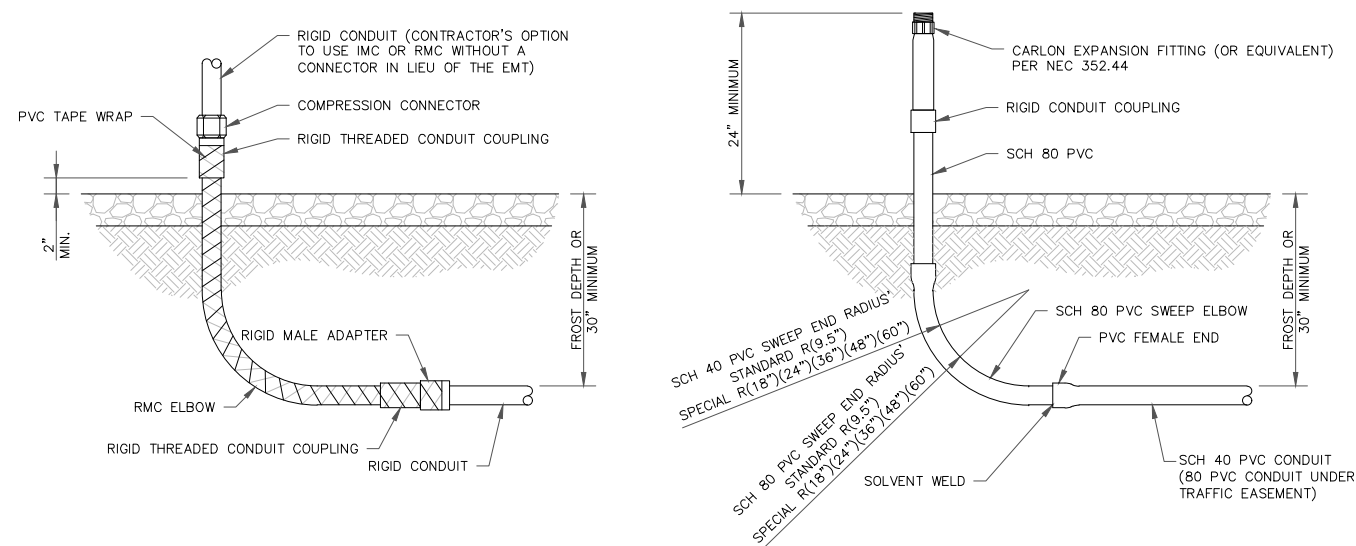
EXISTING 170'-0" MONOPOLE

INSTALLER NOTES:

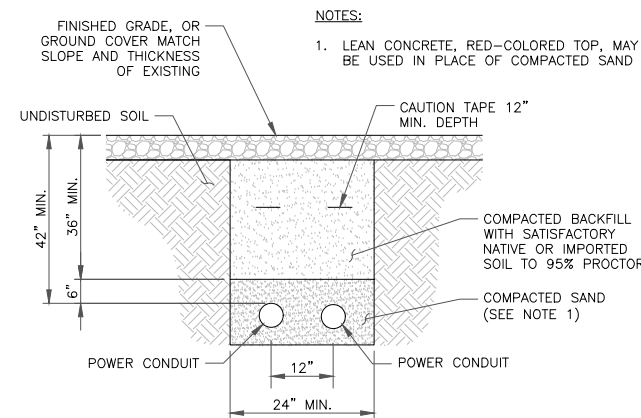
ALL METAL CONDUIT INSTALLED IN DIRECT CONTACT WITH THE EARTH SHALL BE CONSIDERED TO BE INSTALLED IN A SEVERELY CORROSIVE ENVIRONMENT AND IS REQUIRED TO HAVE SUPPLEMENTAL PROTECTION AGAINST CORROSION (NEC ARTICLE 342.10(B) & 344.10(B)(1)). THIS PROTECTION SHALL EITHER BE AN APPROVED MANUFACTURER INSTALLED PROTECTIVE COATING ON THE CONDUIT OR SHALL BE (2) LAYERS OF 10 MIL PVC PIPE WRAP TAPE INSTALLED USING OPPOSING SPIRAL WRAPS. ON VERTICAL PIPE THE OUTSIDE LAYER OF TAPE SHALL BE WRAPPED SO AS TO PROVIDE SHEDDING OF WATER (i.e. TAPE SHOULD WRAP IN AN UPWARD DIRECTION WITH LOWER WRAP BEING BENEATH THE WRAP ABOVE). SPIRAL WRAPS SHALL HAVE A MINIMUM OF 1/4" OVERLAP WITH THE PRECEDING TAPE WRAP. ANY OTHER METHODS OF CORROSION PROTECTION SHALL REQUIRE APPROVAL BY THE ENGINEER OF RECORD PRIOR TO BEING USED.

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1 CONDUIT STUB UP DETAILS
SCALE: NOT TO SCALE



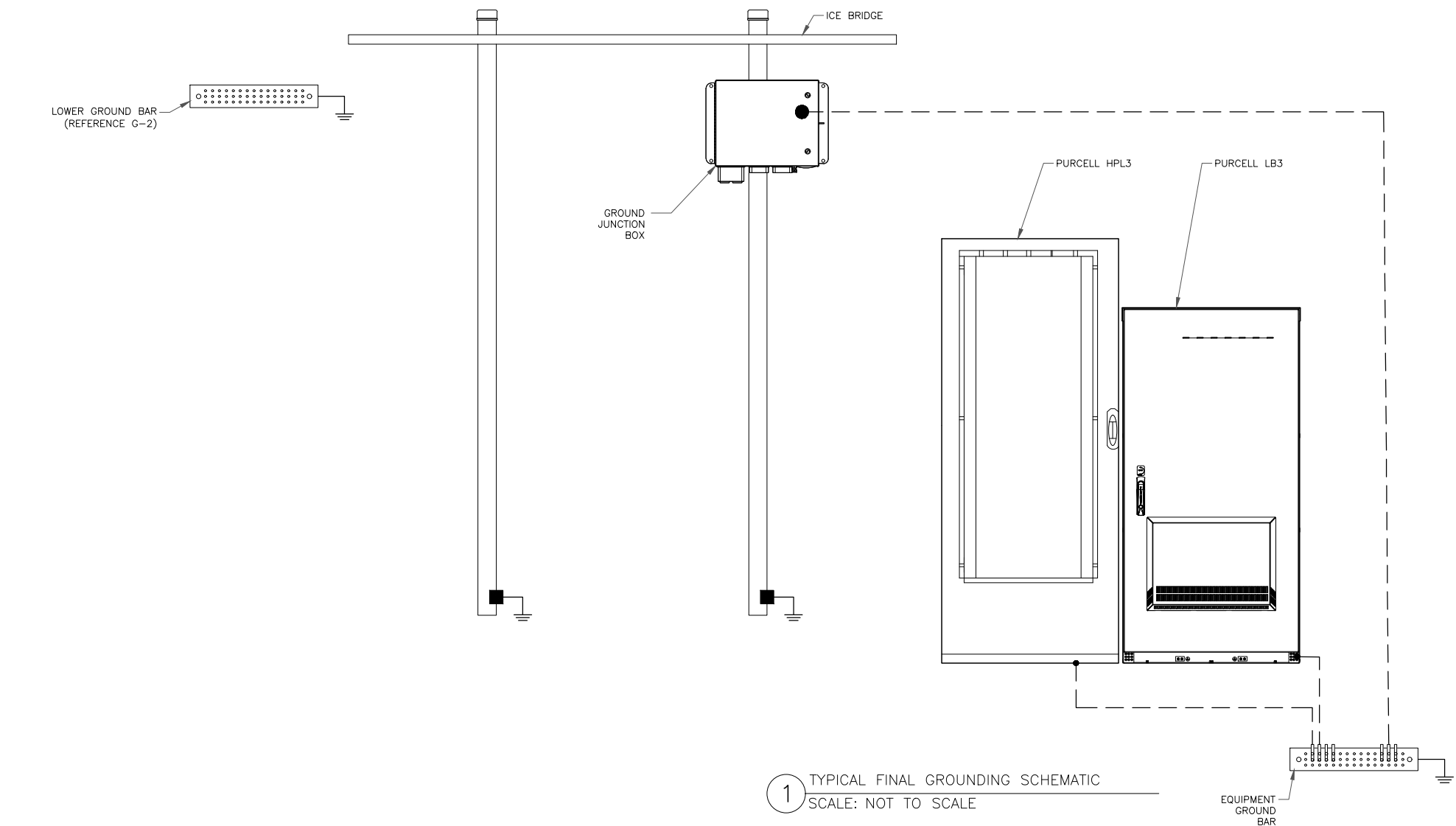
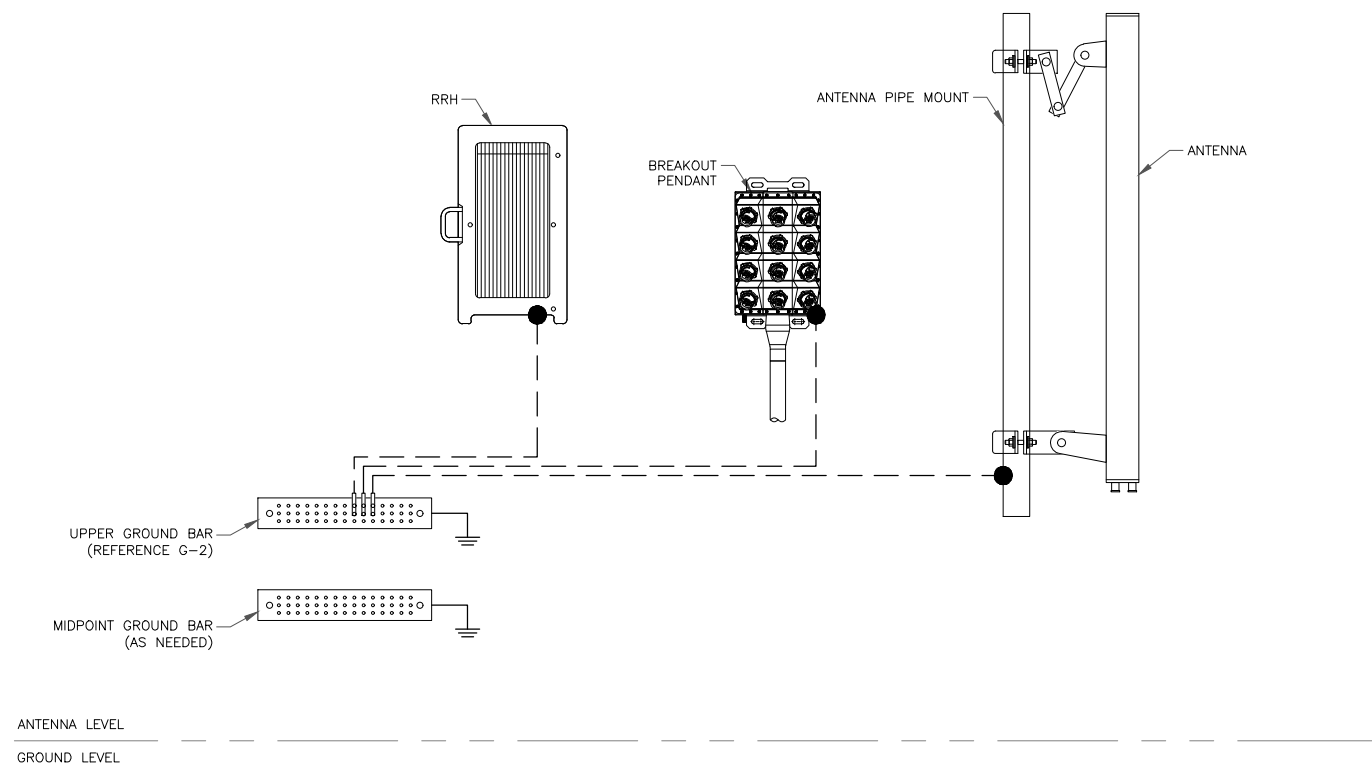
2 TRENCH DETAIL
SCALE: NOT TO SCALE



12/26/2023

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SHEET NUMBER: **E-2** REVISION: **2**



1 TYPICAL FINAL GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

GROUNDING PLAN LEGEND:

- #6 STRANDED COPPER WITH GREEN INSULATION GROUND WIRE
- #2 STRANDED COPPER WITH GREEN INSULATION GROUND WIRE
- #2 BARE, SOLID, TINNED COPPER GROUND WIRE
- EXOTHERMIC WELD
- MECHANICAL CONNECTION
- COPPER GROUND ROD
- ⊗ GROUND ROD W/ TEST WELL

NOTE:
SEE FINAL EQUIPMENT PLAN FOR NEW EQUIPMENT REQUIRING GROUNDING. CONTRACTOR TO VERIFY EXISTING EQUIPMENT GROUNDING IN FIELD. CONTRACTOR TO VERIFY IN FIELD AND INSTALL ANY MISSING T-MOBILE GROUND BARS ON SITE.

T-Mobile

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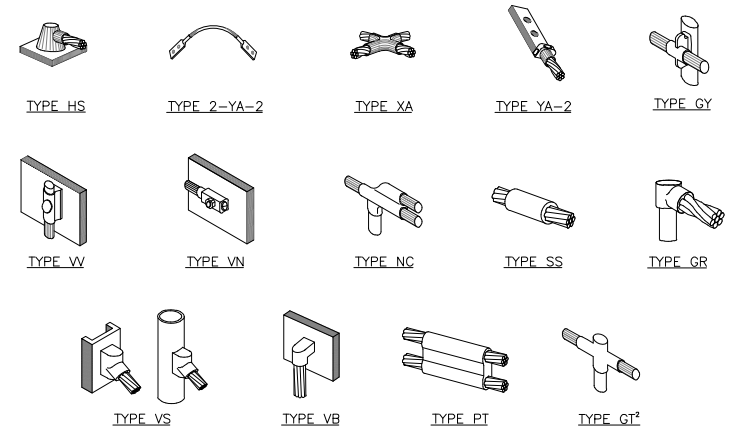
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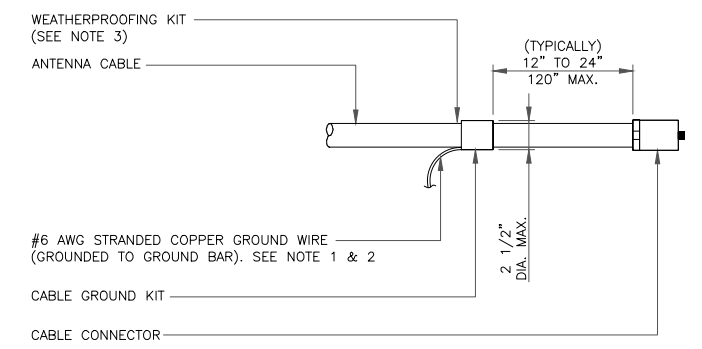
SHEET NUMBER: **G-1** REVISION: **2**

T-MOBILE-CENTRAL REGION-ANCHOR_06/16/2022_V2



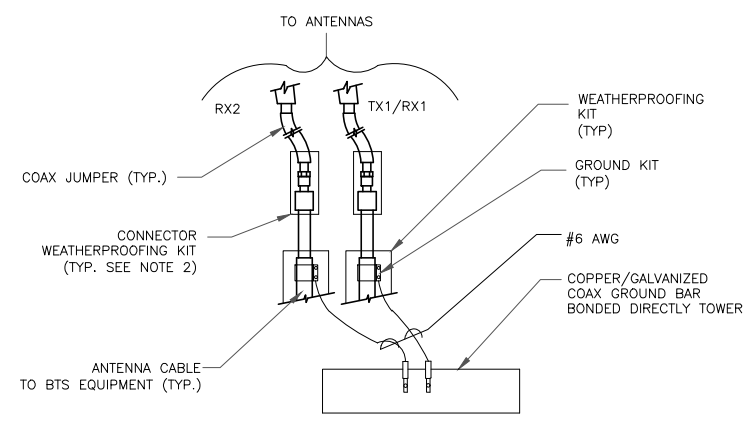
NOTE:
 1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
 2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS
 SCALE: NOT TO SCALE



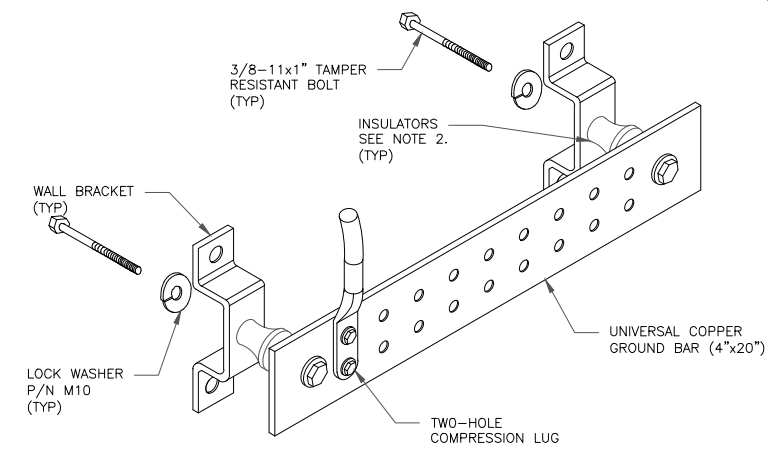
NOTES:
 1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
 3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

3 CABLE GROUND KIT CONNECTION
 SCALE: NOT TO SCALE



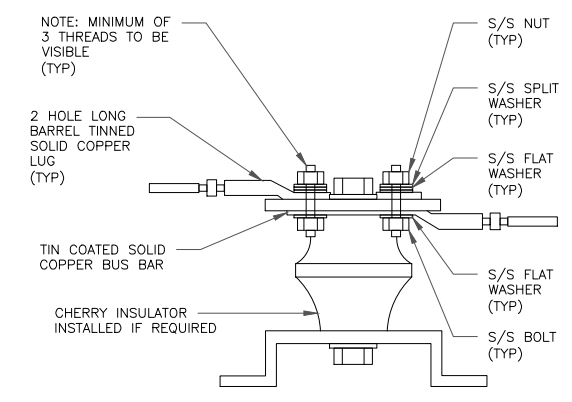
NOTES:
 1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
 2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
 SCALE: NOT TO SCALE



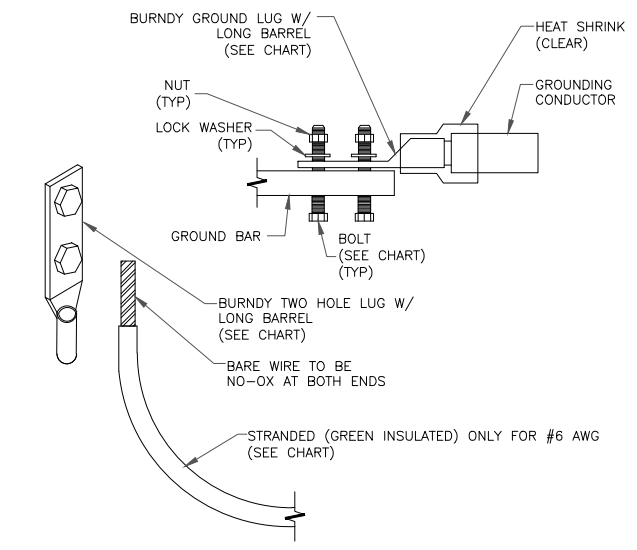
NOTES:
 1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION. CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
 2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL. USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

6 GROUND BAR DETAIL
 SCALE: NOT TO SCALE



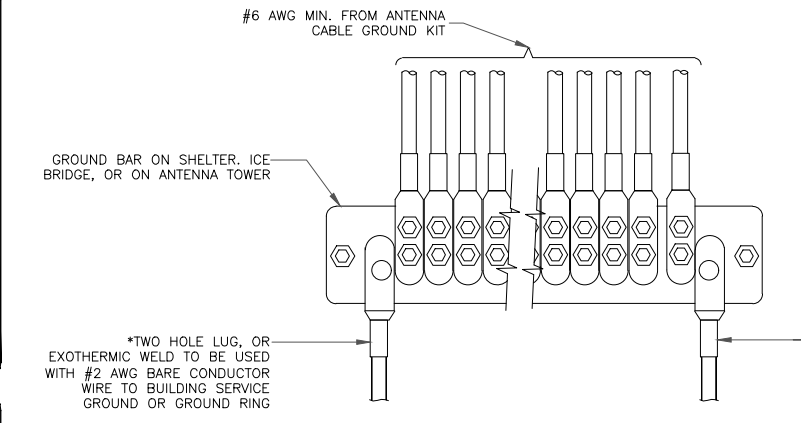
7 LUG DETAIL
 SCALE: NOT TO SCALE

WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT

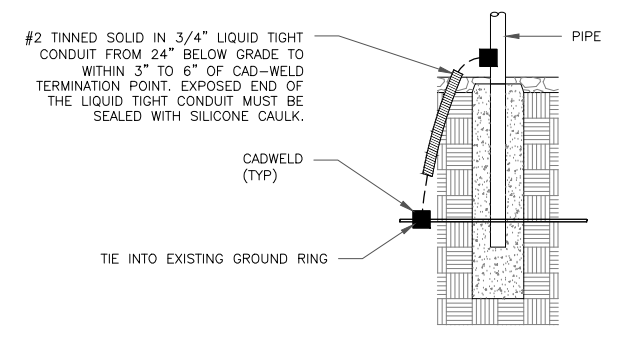


NOTES:
 1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

2 MECHANICAL LUG CONNECTION
 SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
 SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
 SCALE: NOT TO SCALE

T-Mobile
 8550 W. BRYN MAWR AVE, SUITE 100
 CHICAGO, IL 60631

CROWN CASTLE
 3025 HIGHLAND PKWY, SUITE 510,
 DOWNERS GROVE, IL, 60515

POD
 POWER OF DESIGN
 11490 BLUEGRASS PKWY
 LOUISVILLE, KY 40299
 502-437-5252

T-MOBILE SITE NUMBER:
KZ06357A

BU #: **876868**
SWEET

3419 S. BURDICK
 KALAMAZOO, MI 49001

EXISTING 170'-0" MONOPOLE

ISSUED FOR:

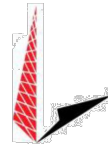
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	07/26/2023	AS	CONSTRUCTION	AH
1	07/31/2023	AS	CONSTRUCTION	AH
2	12/26/2023	AS	CONSTRUCTION	AH

STATE OF MICHIGAN
AARON HERKENHOFF
 License No. 6201310729
 LICENSED PROFESSIONAL ENGINEER
 12/26/2023

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: **G-2** REVISION: **2**

Date: **November 28, 2023**



Tower Engineering Professionals
 326 Tryon Road
 Raleigh, NC 27603
 (919) 661-6351
 CrownMA@tepgroup.net

Subject: **Mount Analysis - Conditional Passing Report**

Carrier Designation: **Sprint PCS Reconfiguration**
Carrier Site Number: KZ06357A
Carrier Site Name: KZ06357A

Crown Castle Designation: **Crown Castle BU Number:** 876868
Crown Castle Site Name: Sweet
Crown Castle JDE Job Number: 748967
Crown Castle Order Number: 652617 Rev. 0

Engineering Firm Designation: **TEP Project Number:** 49812.900874

Site Data: **3419 S. Burdick, Kalamazoo, Kalamazoo County, MI 49001**
Latitude 42° 15' 26.26", Longitude -85° 34' 37.56"

Structure Information: **Tower Height & Type:** 170.0±ft Monopole
Mount Elevation: 169.0 ft
Mount Width & Type: 12.8 ft Platform w/ Support Rail

Tower Engineering Professionals is pleased to submit this "Mount Analysis - Conditional Passing Report" to determine the structural integrity of Sprint PCS's antenna mounting system with the proposed appurtenance and equipment addition on the above-mentioned supporting tower structure. Analysis of the existing supporting tower structure is to be completed by others and therefore is not part of this analysis. Analysis of the antenna mounting system as a tie-off point for fall protection or rigging is not part of this document.

The purpose of the analysis is to determine acceptability of the mount stress level. Based on our analysis, we have determined the mount stress level to be:

Platform w/ Support Rail Mount **Sufficient Capacity***
 *Sufficient upon completion of the changes listed in the 'Recommendations' section of this report.

This analysis has been performed in accordance with the 2015 International Building Code based upon an ultimate 3-second gust wind speed of 115 mph. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Mount analysis prepared by: Gautam Sopal, E.I. / MMW

Respectfully submitted by:

Jordan W. Shelley, P.E.
 Structural Division Manager
 (919) 661-6351
 jshelley@tepgroup.net



11/28/2023

4) ANALYSIS RESULTS

Table 3 - Mount Component Stresses vs. Capacity (Platform w/ Support Rail Mount)

Notes	Component	Critical Member	Centerline (ft)	% Capacity	Pass / Fail
1	Face Horizontals	FF-H1	169.0	41.5	Pass
1	Support Horizontals	SH-2	169.0	61.6	Pass
1	Corner Plate	CP-3	169.0	18.4	Pass
1	Grating Support	GS-2	169.0	97.8	Pass
1	Support Rail	SR-2	169.0	54.2	Pass
1	Support Rail Brace	HRC-2	169.0	33.6	Pass
1	Mount Pipes	MP-5	169.0	55.8	Pass
2	Connection Bolts	-	169.0	39.6	Pass
2	Connection Plate	-	169.0	44.1	Pass

Structure Rating (max from all components) =	97.8%
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Notes:

- 1) See additional documentation in "Appendix C - Software Analysis Output" for calculations supporting the % capacity consumed.
- 2) See additional documentation in "Appendix D - Additional Calculations" for calculations supporting the % capacity listed.

4.1) Recommendations

- 1) If the load differs from that described in Table 1 of this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The mount and its connection have sufficient capacity to carry the proposed loading configuration. In order for the results of this analysis to be valid, the mount modifications listed below must be completed:
 - a) Replace existing support rail with SitePro HRK12 Support Rail kit, installed 4-ft above the face horizontal. See "Appendix A - Wire Frame and Rendered Models."