

# T-Mobile



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T-Mobile

1001 PINNACLE POINT DRIVE  
COLUMBIA, SC 29223



6325 AUDREY KELL ROAD, SUITE 600,  
CHARLOTTE, NC 28277



TOWER  
ENGINEERING  
PROFESSIONALS

326 TRYON RD  
RALEIGH, NC 27603  
(919) 661-6351

N.C. LICENSE #P-1403  
TEP JOB #: 148377.565490

T-MOBILE SITE NUMBER:  
**5RA0884A**

BU #: **879743**  
(P3)ERWIN/MCLAMB(F1)

926 S. 13TH STREET  
ERWIN, NC 28339

EXISTING 250'-0"  
SELF-SUPPORT TOWER

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES/QA
0	07/22/21	SBC	CONSTRUCTION	CLR

**T-MOBILE SITE NUMBER: 5RA0884A**

**T-MOBILE SITE NAME: L-SPRINT RA54XC037**

**SITE TYPE: SELF-SUPPORT TOWER**

**TOWER HEIGHT: 250'-0"**

**BUSINESS UNIT #: 879743**

**SITE ADDRESS: 926 S. 13TH STREET  
ERWIN, NC 28339**

**COUNTY: HARNETT**

**JURISDICTION: HARNETT COUNTY**

**T-MOBILE SPRINT-RETAIN SITE CONFIGURATION: 67D5997DB\_2xAIR+1OP (GSM ONLY)**

**SITE INFORMATION**

CROWN CASTLE USA INC. SITE NAME:	(P3) ERWIN/MCLAMB (F1)
SITE ADDRESS:	926 S. 13TH STREET ERWIN, NC 28339
COUNTY:	HARNETT
MAP/PARCEL #:	0597-30-3019.000
AREA OF CONSTRUCTION:	EXISTING
LATITUDE:	35° 19' 3.65" (35.317681)
LONGITUDE:	-78° 41' 13.67" (-78.687131)
LAT/LONG TYPE:	NAD83
GROUND ELEVATION:	151 FT
CURRENT ZONING:	M1
JURISDICTION:	HARNETT COUNTY
TYPE OF CONSTRUCTION:	I1B
A.D.A. COMPLIANCE:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	MCLAMB ENTERPRISES LLC 71 WISE ROAD DUNN, NC 28334
TOWER OWNER:	CROWN CASTLE USA, INC. 6325 AUDREY KELL ROAD, SUITE 600, CHARLOTTE, NC 28277
CARRIER/APPLICANT:	T-MOBILE 1001 PINNACLE POINT DRIVE COLUMBIA, SC 29223
ELECTRIC PROVIDER:	DUKE ENERGY PROGRESS (800) 452-2777
TELCO PROVIDER:	EMBARQ (SUDDENLINK) (252) 208-1488

**DRAWING INDEX**

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T-3	APPENDIX B
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C-1.2	EXISTING & FINAL EQUIPMENT PLAN
C-2	FINAL ELEVATION & ANTENNA PLANS
C-3	ANTENNA & CABLE SCHEDULE
C-4.1	EQUIPMENT SPECS
C-4.2	EQUIPMENT SPECS
C-5	CABINET SPECS
E-1	AC PANEL SCHEDULES & ONE LINE DIAGRAM
E-2	UTILITY ROUTING PLAN
G-1	ANTENNA GROUNDING DIAGRAM
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
ATTACHED	MOUNT SPECS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR 22x34. 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.

**LOCATION MAP**



**2018 APPENDIX B  
BUILDING CODE SUMMARY  
FOR ALL COMMERCIAL PROJECTS  
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)**  
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: (P3) ERWIN/MCLAMB(F1) (BU # 879743) SRVBSAN  
 Address: 926 S. 13TH STREET ERWIN, NC Zip Code: 28839  
 Owner/Authorized Agent: JEFFREY BALL Phone # (713) 892-1600 E-Mail: JEFFREY.BALL@CROWNCASTLE.COM  
 Owned By:  City/County  Private  State  
 Code Enforcement Jurisdiction:  City ERWIN  County  State

**CONTACT:**  
 DESIGNER FIRM NAME LICENSE # TELEPHONE # E-MAIL  
 Architectural TEP, PC SCOTT C. BRANTLEY, PE 048226 SBRANTLEY@TEPGROUP.NET  
 Civil TEP, PC MARK S. QUAKENBUSH, PE 042109 MQUAKEN@TEPGROUP.NET  
 Electrical \_\_\_\_\_  
 Fire Alarm \_\_\_\_\_  
 Plumbing \_\_\_\_\_  
 Mechanical \_\_\_\_\_  
 Sprinkler-Standpipe \_\_\_\_\_  
 Structural \_\_\_\_\_  
 Retaining Walls > 5' High \_\_\_\_\_  
 Other \_\_\_\_\_  
 ("Others" should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)

2018 NC CODE FOR:  New Construction  Addition  Renovation  
 1<sup>st</sup> Time Interior Completion  
 Shell/Core  
 Phased Construction - Shell/Core  
 Renovation

2018 NC EXISTING BUILDING CODE:  Prescriptive  Repair  Chapter 14  
 Alteration:  Level I  Level II  Level III  
 Historic Property  Change of Use

CONSTRUCTED: (date) \_\_\_\_\_ ORIGINAL OCCUPANCY(S) (Ch. 3): \_\_\_\_\_  
 RENOVATED: (date) \_\_\_\_\_ CURRENT OCCUPANCY(S) (Ch. 3): \_\_\_\_\_  
 RISK CATEGORY (table 1604.5) Current:  I  II  III  IV  
 Proposed:  I  II  III  IV

**BASIC BUILDING DATA**  
 Construction Type:  I-A  II-A  III-A  IV  V-A  
 I-B  II-B  III-B  V-B  
 Sprinklers:  No  Partial  Yes  NFPA 13  NFPA 13R  NFPA 13D  
 Standpipes:  No  Yes Class  I  II  III  Wet  Dry  
 Fire District:  No  Yes (Primary) Flood Hazard Area:  No  Yes  
 Special Inspections Required:  No  Yes

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FLOOR	Gross Building Area:			SUB-TOTAL
	EXISTING (SQ FT)	NEW (SQ FT)	REMOVE/ALTER (SQ FT)	
6 <sup>th</sup> Floor				
5 <sup>th</sup> Floor				
4 <sup>th</sup> Floor				
3 <sup>rd</sup> Floor				
2 <sup>nd</sup> Floor				
Mezzanine				
1 <sup>st</sup> Floor				
Basement				
TOTAL				

**ALLOWABLE AREA**  
 Primary Occupancy Classification: **SELECT ONE**  
 Assembly  A-1  A-2  A-3  A-4  A-5  
 Business   
 Educational   
 Factory  F-1 Moderate  F-2 Low  
 Hazardous  H-1 Detonate  H-2 Deflagrate  H-3 Combust  H-4 Health  H-5 HPM  
 Institutional  I-1 Condition  I-2  I-3 Condition  I-4  
 Mercantile   
 Residential  R-1  R-2  R-3  
 Storage  S-1 Moderate  S-2 Low  High-piled  
 Parking Garage  Open  Enclosed  Repair Garage  
 Utility and Miscellaneous

Accessory Occupancy Classification:  
 Incidental Uses (Table 509): \_\_\_\_\_  
 Special Uses (Chapter 4 - List Code Sections): \_\_\_\_\_  
 Special Provisions: (Chapter 5 - List Code Sections): \_\_\_\_\_  
 Mixed Occupancy:  No  Yes Separation: \_\_\_\_\_ Hr. Exception: \_\_\_\_\_

Non-Separated Use (508.3)  
 The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.  
 Separated Use (508.4) -  
 See below for area calculations for each story. The area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

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STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2 AREA	(C) AREA FOR FRONTOAGE INCREASE <sup>1/2</sup>	(D) ALLOWABLE AREA PER STORY OR UNLIMITED <sup>3</sup>

<sup>1</sup> Frontoage area increases from Section 506.3  
 a. Perimeter which fronts a public way for open spaces  $\geq 20$  feet minimum width = \_\_\_\_\_ (F)  
 b. Total Building Perimeter = \_\_\_\_\_ (P)  
 c. Ratio (F/P) = \_\_\_\_\_ (R)  
 d. W = Minimum width of public way = \_\_\_\_\_ (W)  
 e. Percent of frontage increase =  $(R \times 0.25) \times W/30 = \text{_____} (\%)$   
<sup>2</sup> Unlimited area applicable under conditions of Section 507.  
<sup>3</sup> Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2)  
<sup>4</sup> The maximum area of open parking garages must comply with Table 406.5.4  
<sup>5</sup> Frontoage increase is based on the unsprinklered area value in Table 506.2.

**ALLOWABLE HEIGHT**

Building Height in Feet (Table 504.3)	Building Height in Stories (Table 504.4)	Code Reference

<sup>1</sup> Provide code reference if the "Show on Plans" is not based on Table 504.3 or 504.4.  
<sup>2</sup> The maximum height of air traffic control towers must comply with Table 412.3.1  
<sup>3</sup> The maximum height of open parking garages must comply with Table 406.5.4

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**FIRE PROTECTION REQUIREMENTS**

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (F&T)	RATED	RATING PROVIDED (W/REDUCTION)	DETAIL # AND SHEET	EMERGENCY # FOR ASSEMBLY	RATED FOR PENETRATION	DESIGN # FOR RATED JOINTS	BREACH # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses								
Exterior Walls								
Interior Walls								
Nonbearing Walls and Partitions								
Floor Construction								
Floor Ceiling Assembly								
Roof Construction, including supporting beams and joists								
Roof Ceiling Assembly								
Shaft Enclosures - Exit								
Shaft Enclosures - Other								
Corridor Separation								
Occupancy/Fire Barrier Separation								
Paint/Fire Wall Separation								
Smoke Barrier Separation								
Smoke Partition								
Tenant/Dwelling Unit Sleeping Unit Separation								
Incidental Use Separation								

\* Indicate section number permitting reduction

**PERCENTAGE OF WALL OPENING CALCULATIONS**

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREES OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)

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**LIFE SAFETY SYSTEM REQUIREMENTS**

Emergency Lighting:  No  Yes  
 Exit Signs:  No  Yes  
 Fire Alarms:  No  Yes  
 Smoke Detection Systems:  No  Yes  
 Carbon Monoxide Detection:  No  Yes

**LIFE SAFETY PLAN REQUIREMENTS**

Life Safety Plan Sheet #:  
 Fire and/or smoke rated wall locations (Chapter 7)  
 Assumed and real property line locations (if not on the site plan)  
 Exterior wall opening area with respect to distance to assumed property lines (705.8)  
 Occupancy types for each area as it relates to occupant load calculation (Table 1004.1.2)  
 Occupant loads for each area  
 Exit access travel distances (1017)  
 Common path of travel distances (1006.2.1 & 2006.3.2(1))  
 Dead end lengths (1020.4)  
 Clear exit widths for each exit door  
 Maximum calculated occupant load capacity with exit door capacity based on egress width (1005.3)  
 Actual occupant load for each exit door  
 A separate schematic plan indicating where fire rated separating and/or roof structure is provided for purposes of occupancy separation and supporting egress loads (fire barrier/fire partition/smoke barrier).  
 Location of doors with panic hardware (1010.1.9.7)  
 Location of doors with delayed egress lock with the amount of delay (1010.1.9.7)  
 Location of doors with electromagnetic locks (1010.1.9.9)  
 Location of doors equipped with hold-open devices  
 Location of emergency escape windows (1030)  
 The square footage of each fire area (1002)  
 The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)  
 Note any code exceptions or table notes that may have been utilized regarding the items above

Section/Table/Note	Title

**ACCESSIBLE DWELLING UNITS SECTION 110**

TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TOTAL UNITS	TOTAL ACCESSIBLE UNITS PROVIDED

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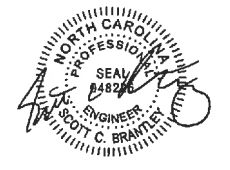
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07/22/21

  
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**SHEET NUMBER: T-2**      **REVISION: 0**

(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES		TOTAL # OF ACCESSIBLE SPACES PROVIDED		TOTAL # ACCESSIBLE PROVIDED
	REQUIRED	PROVIDED	SPACES WITH ACCESSIBLE	SPACES WITH ACCESSIBLE	
TOTAL					

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1)

SPACE	EXIST'G	WATERCLOSETS		URINALS		SHOWERS		DRINKING FOUNTAINS	
		MALE	FEMALE	UNISEX	MALE	UNISEX	TUBS	REGULAR	ACCESSIBLE
NEW									
REQ'D									

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, State Dept. of Health, ICC, etc., describe below)

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ENERGY SUMMARY

**ENERGY REQUIREMENTS:**  
The following data shall be considered minimum and any special attribute required to meet the North Carolina Energy Conservation Code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Existing building envelope complies with code:  No  Yes (The remainder of this section is not applicable)

Exempt Building:  No  Yes (Provide Code or Statutory reference): \_\_\_\_\_

Climate Zone:  3A  4A  5A

Method of Compliance: Energy Code  Performance  Prescriptive  
ASHRAE 90.1  Performance  Prescriptive  
(If "Other" specify source here)

THERMAL ENVELOPE (Prescriptive method only)

Rooftop/ceiling Assembly (each assembly):

Description of assembly: \_\_\_\_\_  
U-Value of total assembly: \_\_\_\_\_  
R-Value of insulation: \_\_\_\_\_  
Skylights in each assembly:  
U-Value of skylight: \_\_\_\_\_  
Total square footage of skylight: \_\_\_\_\_

Exterior Walls (each assembly):

Description of assembly: \_\_\_\_\_  
U-Value of total assembly: \_\_\_\_\_  
R-Value of insulation: \_\_\_\_\_  
Openings (windows or doors with glazing):  
U-Value of assembly: \_\_\_\_\_  
Solar heat gain coefficient: \_\_\_\_\_  
Projection factor: \_\_\_\_\_  
Door R-Values: \_\_\_\_\_

Walls below grade (each assembly):

Description of assembly: \_\_\_\_\_  
U-Value of total assembly: \_\_\_\_\_  
R-Value of insulation: \_\_\_\_\_

Floors over unconditioned space (each assembly):

Description of assembly: \_\_\_\_\_  
U-Value of total assembly: \_\_\_\_\_  
R-Value of insulation: \_\_\_\_\_

Floors slab on grade:

Description of assembly: \_\_\_\_\_  
U-Value of total assembly: \_\_\_\_\_  
R-Value of insulation: \_\_\_\_\_  
Horizontal/Vertical requirement: \_\_\_\_\_  
Slab Heated: \_\_\_\_\_

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2018 APPENDIX B  
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS  
STRUCTURAL DESIGN  
(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE)

DESIGN LOADS:

Importance Factors: Snow (Is) \_\_\_\_\_  
Seismic (Ie) \_\_\_\_\_

Live Loads: Roof \_\_\_\_\_  
Mezzanine \_\_\_\_\_  
Floor \_\_\_\_\_

Ground Snow Load: \_\_\_\_\_ psf

Wind Load: Ultimate Wind Speed \_\_\_\_\_ mph (ASCE-7)  
Exposure Category \_\_\_\_\_

SEISMIC DESIGN CATEGORY:

Provide the following Seismic Design Parameters:  
Occupancy Category (Table 1604.5)  I  II  III  IV  
Spectral Response Acceleration  $S_s$   A  B  C  D  E  F  
Site Classification (ASCE 7)  Field Test  Presumptive  Historical Data  
Data Source:  Bearing Wall  Dual w/Special Moment Frame  
Basic structural system  Building Frame  Dual w/Intermediate R/C or Special Steel  
 Moment Frame  Inverted Pendulum  
Analysis Procedure:  Simplified  Equivalent Lateral Force  Dynamic  
Architectural, Mechanical, Components anchored?  Yes  No

LATERAL DESIGN CONTROL: Earthquake  Wind

SOIL BEARING CAPACITIES:  
Field Test (provide copy of test report) \_\_\_\_\_ psf  
Presumptive Bearing capacity \_\_\_\_\_ psf  
Pile size, type, and capacity \_\_\_\_\_

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BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS  
MECHANICAL DESIGN  
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone

winter dry bulb: \_\_\_\_\_  
summer dry bulb: \_\_\_\_\_

Interior design conditions

winter dry bulb: \_\_\_\_\_  
summer dry bulb: \_\_\_\_\_  
relative humidity: \_\_\_\_\_

Building heating load:

Building cooling load:

Mechanical Spacing Conditions

Unitary

description of unit: \_\_\_\_\_

heating efficiency: \_\_\_\_\_

cooling efficiency: \_\_\_\_\_

size category of unit: \_\_\_\_\_

Boiler

Size category. If oversized, state reason: \_\_\_\_\_

Chiller

Size category. If oversized, state reason: \_\_\_\_\_

List equipment efficiencies: \_\_\_\_\_

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BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS  
ELECTRICAL DESIGN  
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Energy Code:  Prescriptive  Performance  
ASHRAE 90.1:  Prescriptive  Performance

Lighting schedule (each fixture type)

lamp type required in fixture  
number of lamps in fixture  
ballast type used in the fixture  
number of ballasts in fixture  
total wattage per fixture  
total interior wattage specified vs. whole building or space by space  
total exterior wattage specified vs. whole building or space by space

Additional Efficiency Package options  
(When using the 2018 NCECC, not required for ASHRAE 90.1)

- C406.2 More Efficient Mechanical Equipment
- C406.3 Reduced Lighting Power Density
- C406.4 Enhanced Digital Lighting Controls
- C406.5 On-Site Renewable Energy
- C406.6 Dedicated Outdoor Air System
- C406.7 Reduced Energy Use in Service Water Heating

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SHEET NUMBER:

T-3

REVISION:

0



**← CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:**

- NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
- "LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT: THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR IMPEDING/BLOCKING ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
- PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
- ALL CONSTRUCTION MEANS AND METHODS, INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED-STD-10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/7IA-322 (LATEST EDITION).
- ALL SITE WORK TO COMPLY WITH OAS-STD-1006B "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE" AND LATEST VERSION OF ANSI/7IA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
- IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
- ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
- CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
- THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
- CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

**GREENFIELD GROUNDING NOTES:**

- ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
- THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
- THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
- METAL CONDUIT AND TRAY SHALL BE GROUNDING AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
- METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
- EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
- CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
- ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
- EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
- COMPRESSION GROUND CONNECTIONS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
- ICE BRIDGE CONNECTIONS MAY BE REPLACED BY EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
- APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
- BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
- GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (I.E., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
- ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CALK (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
- BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

**GENERAL NOTES:**

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION  
CARRIER: T-MOBILE  
TOWER OWNER: CROWN CASTLE USA INC.
- THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
- THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
- NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
- SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
- CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
- CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

**CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:**

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
- UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
- ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90° AT TIME OF PLACEMENT.
- CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
- ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615 ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:  
#4 BARS AND SMALLER 40 ksi  
#5 BARS AND LARGER 60 ksi
- THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:  
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"  
CONCRETE EXPOSED TO EARTH OR WEATHER:  
#6 BARS AND LARGER 2"  
#5 BARS AND SMALLER 1-1/2"  
CONCRETE NOT EXPOSED TO EARTH OR WEATHER:  
SLAB AND WALLS 3/4"  
BEAMS AND COLUMNS 1-1/2"
- A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

**ELECTRICAL INSTALLATION NOTES:**

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.  
4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.  
4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PER THE GOVERNING JURISDICTION.
- EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
- ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- ALL THE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MCC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90S AND ALL APPROVED ABOVE GRADE PVC CONDUIT.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREFOLD SPECIMATE WIREWAY).
- SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (I.E. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
- EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
- METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T-MOBILE".
- ALL EMPTY/SAPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE		
SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
120/208V, 3Ø	GROUND	GREEN
	A PHASE	BLACK
	B PHASE	RED
277/480V, 3Ø	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
DC VOLTAGE	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
	POS (+)	RED**
	NEG (-)	BLACK**

**APWA UNIFORM COLOR CODE:**

- WHITE PROPOSED EXCAVATION
- PINK TEMPORARY SURVEY MARKINGS
- RED ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
- YELLOW GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
- ORANGE COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
- BLUE POTABLE WATER
- PURPLE RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
- GREEN SEWERS AND DRAIN LINES

\* SEE NEC 210.5(C)(1) AND (2)  
\*\* POLARITY MARKED AT TERMINATION

**ABBREVIATIONS:**

- ANT ANTENNA
- (E) EXISTING
- FIF FACILITY INTERFACE FRAME
- GEN GENERATOR
- GPS GLOBAL POSITIONING SYSTEM
- CSM GLOBAL SYSTEM FOR MOBILE
- LTE LONG TERM EVOLUTION
- MGB MASTER GROUND BAR
- MW MICROWAVE
- (N) NEW
- (NEC) NATIONAL ELECTRIC CODE
- (P) PROPOSED
- PP POWER PLANT
- QTY QUANTITY
- RECT RECTIFIER
- RBS RADIO BASE STATION
- RET REMOTE ELECTRIC TILT
- RFDS RADIO FREQUENCY DATA SHEET
- RRH REMOTE RADIO HEAD
- RRU REMOTE RADIO UNIT
- SIAD SMART INTEGRATED DEVICE
- TMA TOWER MOUNTED AMPLIFIER
- TYP TYPICAL
- UMTS UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
- W.P. WORK POINT

**T-Mobile**

1001 PINNACLE POINT DRIVE  
COLUMBIA, SC 29223

**CROWN CASTLE**

6325 AUDREY KELL ROAD, SUITE 600,  
CHARLOTTE, NC 28277



TOWER  
ENGINEERING  
PROFESSIONALS

326 TRYON RD  
RALEIGH, NC 27603  
(919) 661-6351

N.C. LICENSE #P-1403  
TEP JOB #: 148377.563490

**T-MOBILE SITE NUMBER:  
5RA0884A**

**BU #: 879743  
(P3)ERWIN/MCLAMB(F1)**

926 S. 13TH STREET  
ERWIN, NC 28339

**EXISTING 250'-0"  
SELF-SUPPORT TOWER**

**ISSUED FOR:**

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	07/22/21	SBC	CONSTRUCTION	CLR

SEAL:



07/22/21

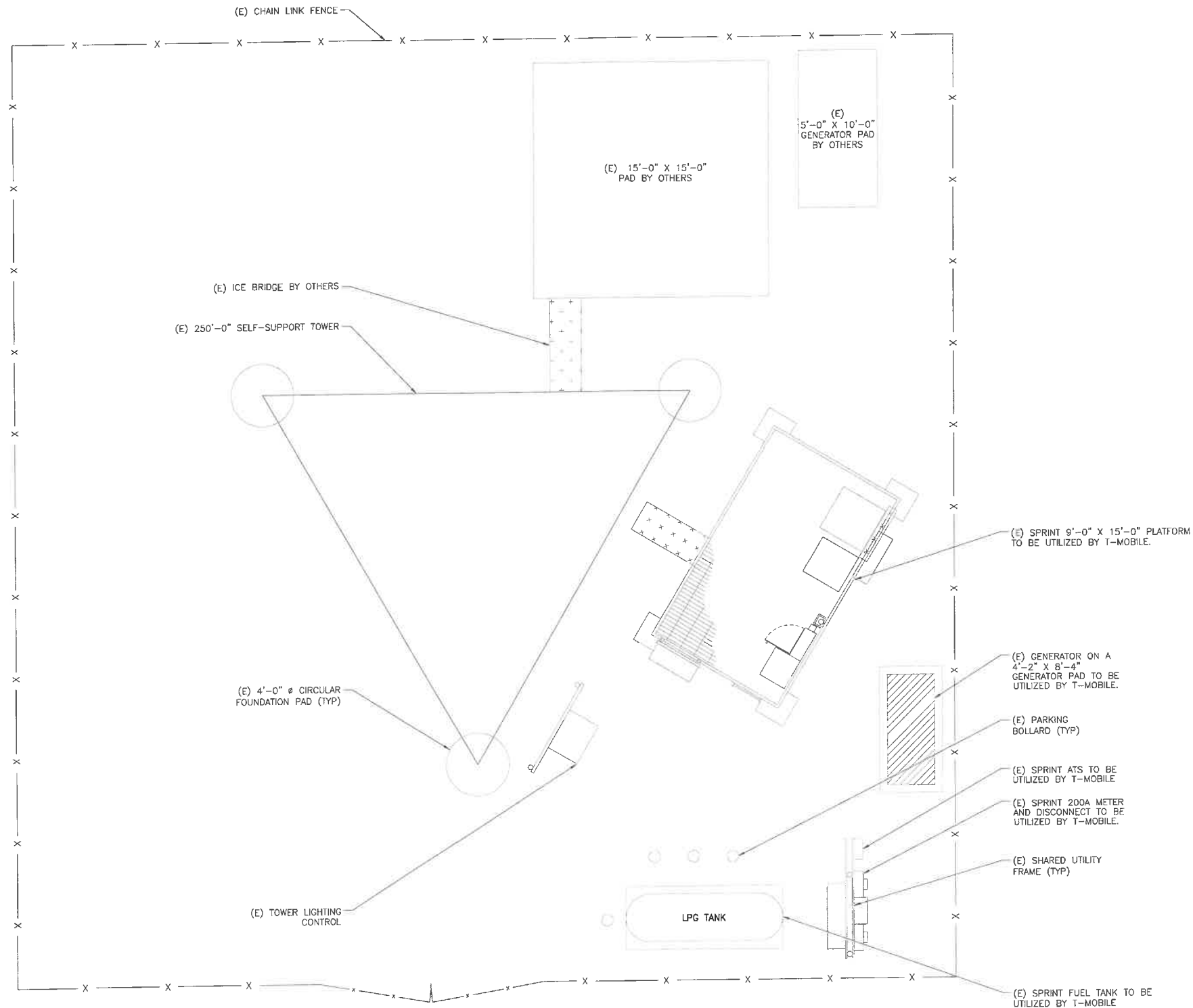
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

**SHEET NUMBER: REVISION:**

**T-4 0**

NOTE:  
 SITE PLAN SHOWN BELOW WAS REPRODUCED FROM INFORMATION PROVIDED BY CROWN CASTLE AND SITE WALK CONDUCTED BY TEP. CONTRACTOR TO VERIFY ALL EXISTING INFORMATION IS AS INDICATED ON SITE PLAN. CONTRACTOR IS TO ESTABLISH THE EXISTENCE AND LOCATION OF ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES. IMMEDIATELY NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES.

FLOODPLAIN NOTE:  
 THE TOWER IS LOCATED IN ZONE "X" AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN ACCORDING TO FEMA COMMUNITY PANEL #3720059600J, DATED 10/03/2006.



1 SITE PLAN  
 SCALE: 3/8"=1'-0" (FULL SIZE)  
 3/16"=1'-0" (11x17)



T-Mobile

1001 PINNACLE POINT DRIVE  
 COLUMBIA, SC 29223

CROWN CASTLE

6325 AUDREY KELL ROAD, SUITE 600,  
 CHARLOTTE, NC 28277



TOWER ENGINEERING PROFESSIONALS

326 TRYON RD  
 RALEIGH, NC 27603  
 (919) 661-6351

N.C. LICENSE #P-1403  
 TEP JOB #: 148377.565490

T-MOBILE SITE NUMBER:  
**5RA0884A**

BU #: **879743**  
 (P3)ERWIN/MCLAMB(F1)

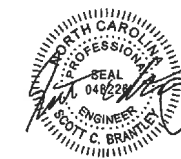
926 S. 13TH STREET  
 ERWIN, NC 28339

EXISTING 250'-0"  
 SELF-SUPPORT TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QA
0	07/22/21	SBC	CONSTRUCTION	CLR

SEAL:



07/22/21

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SHEET NUMBER: REVISION:

**C-1.1** **0**





T-MOBILE SITE NUMBER:  
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BU #: 879743  
(P3)ERWIN/MCLAMB(F1)

926 S. 13TH STREET  
ERWIN, NC 28339

EXISTING 250'-0"  
SELF-SUPPORT TOWER

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SEAL:

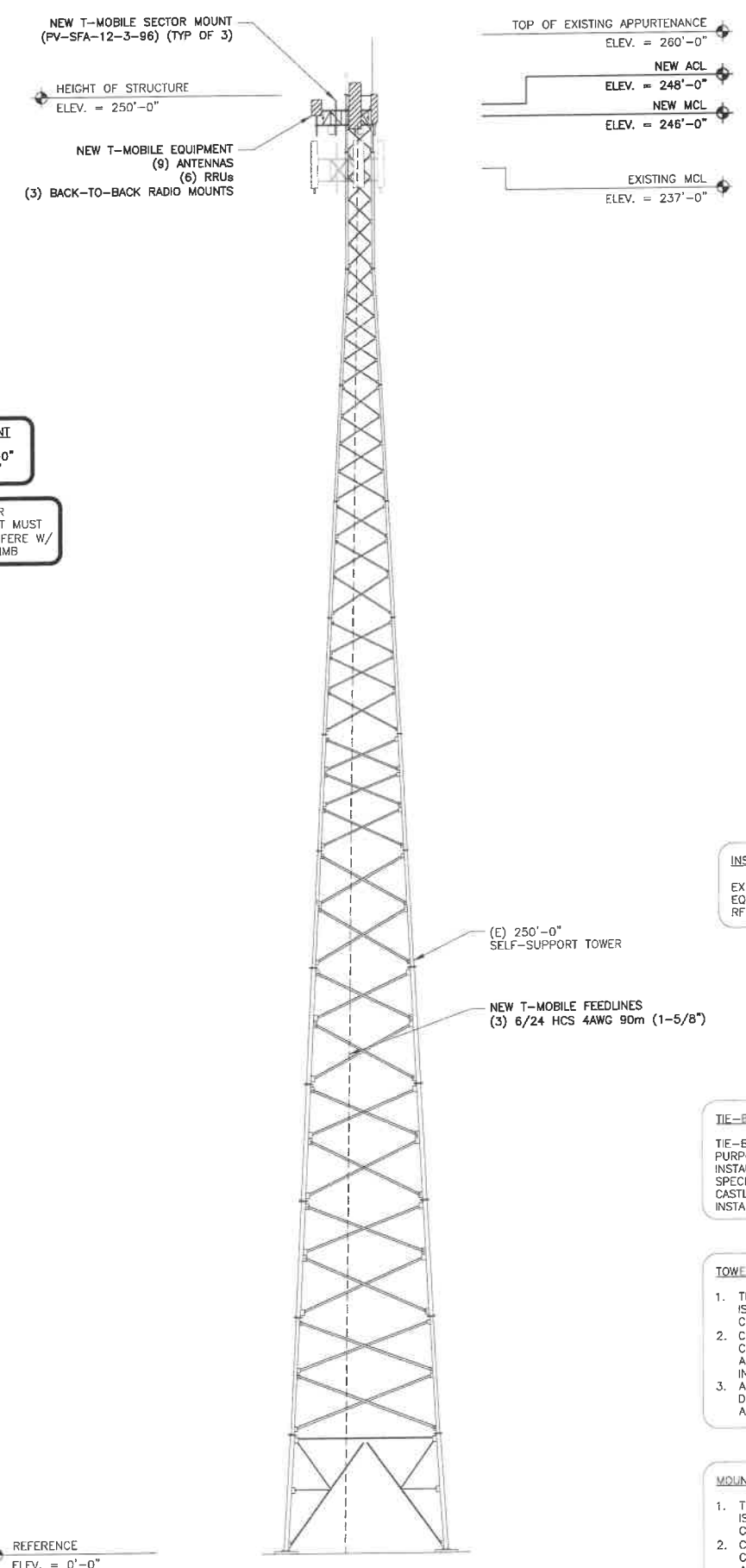


07/22/21

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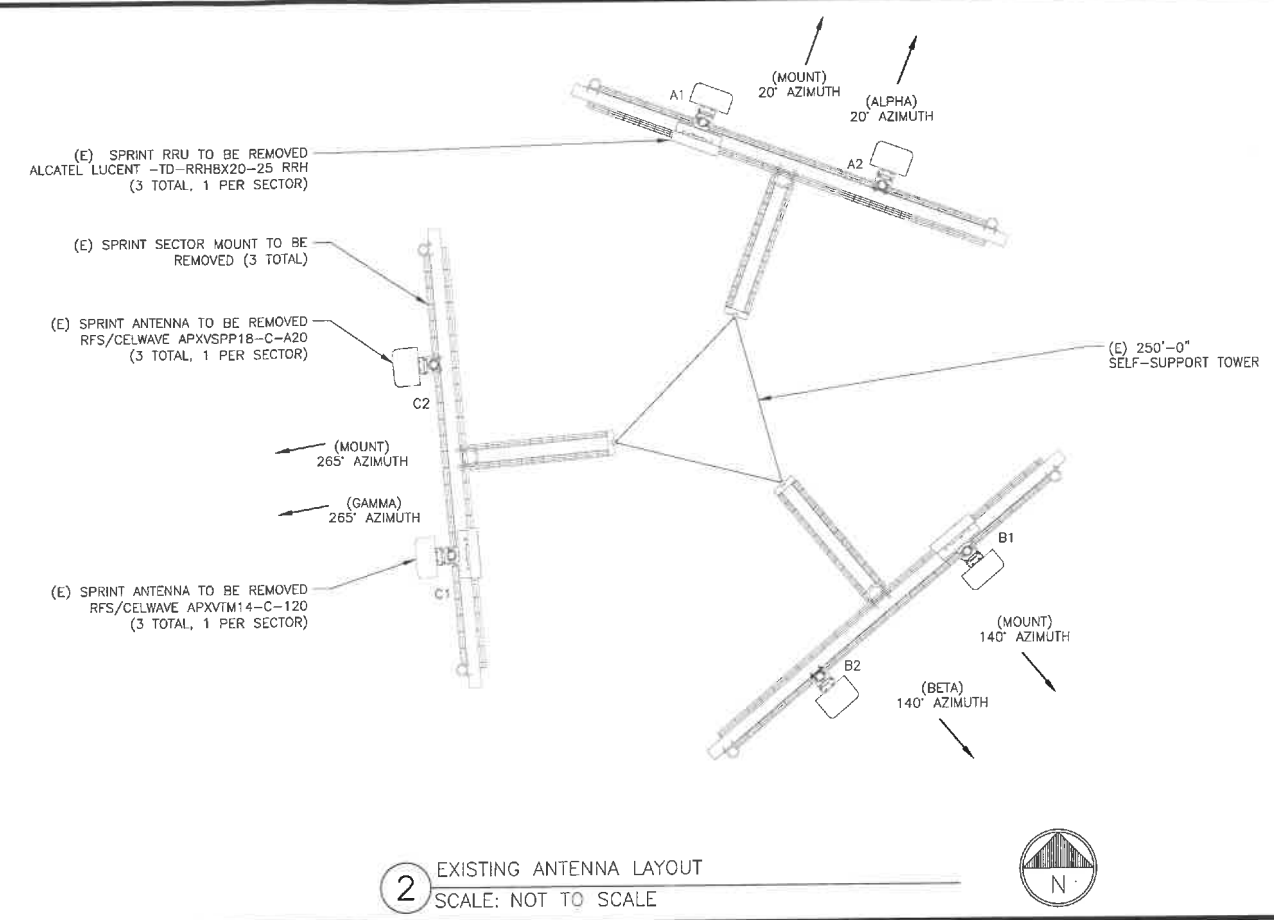
SHEET NUMBER: REVISION:

**C-2** **0**



**T-MOBILE EQUIPMENT**  
ANTENNA CL: 246'-0"  
MOUNT CL: 248'-0"

ANY AND ALL TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE W/ EXISTING SAFETY CLIMB



**INSTALLER NOTE:**  
EXISTING AND PROPOSED ANTENNA/EQUIPMENT POSITIONING SHOWN PER RFDS. FIELD CONDITIONS MAY VARY.

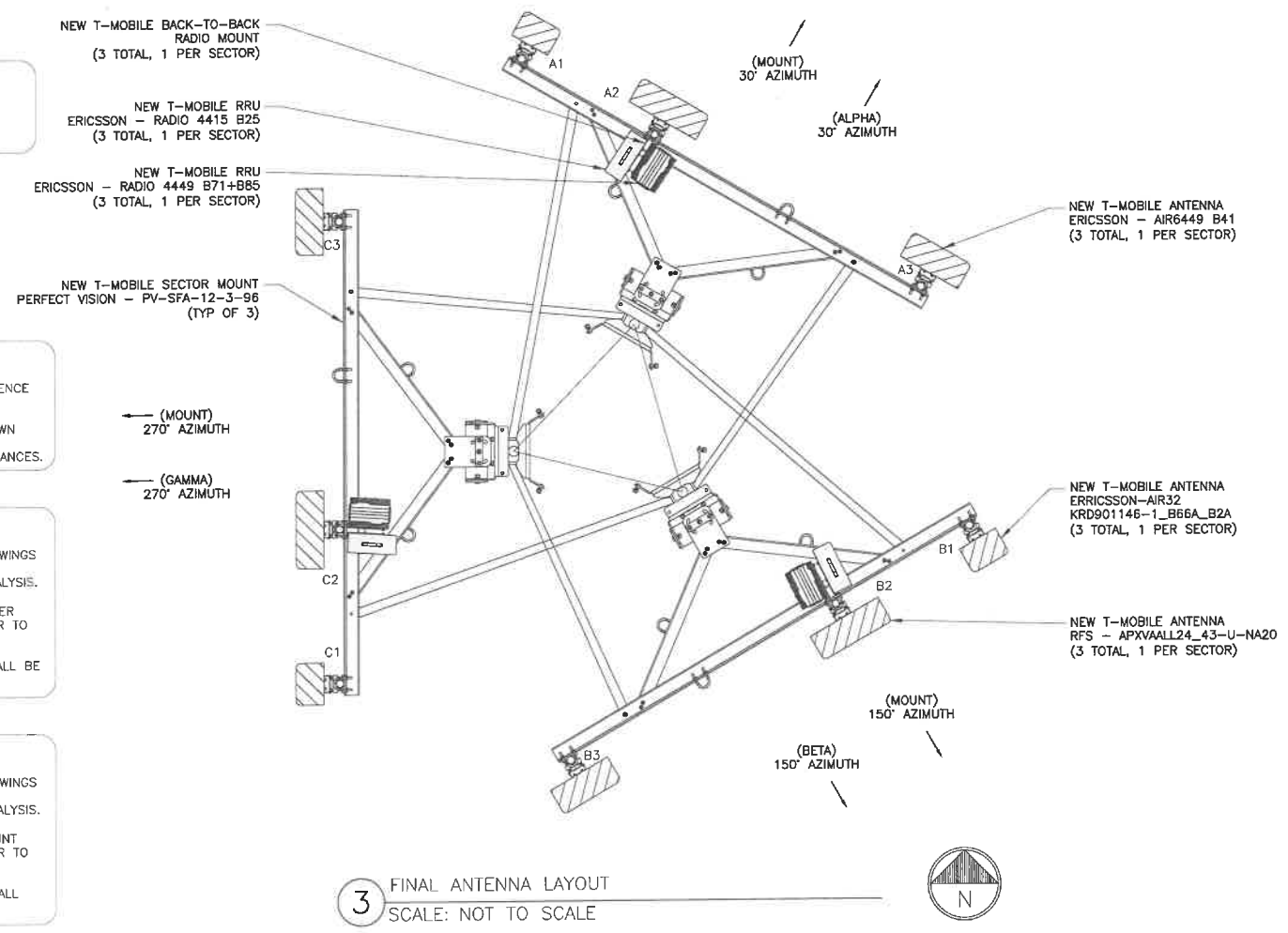
**TIE-BACK ARM NOTE:**  
TIE-BACK ARMS SHOWN ARE FOR REFERENCE PURPOSES ONLY. TIE-BACK ARMS TO BE INSTALLED PER MOUNT MANUFACTURERS SPECIFICATIONS, ALSO ADHERING TO CROWN CASTLE CED-STD-10294 STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES.

**TOWER ANALYSIS NOTES:**

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

**MOUNT ANALYSIS NOTES:**

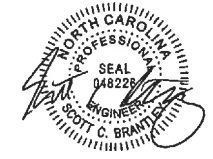
1. THE DESIGN DEPICTED IN THESE DRAWINGS IS VALID WHEN ACCOMPANIED BY A CORRESPONDING PASSING MOUNT ANALYSIS.
2. CONSTRUCTION MANAGER / GENERAL CONTRACTOR SHALL REVIEW THE MOUNT ANALYSIS FOR ANY CONDITIONS PRIOR TO INSTALLATION.
3. ANY REQUIRED MOUNT MODIFICATION DESIGN OR MOUNT REPLACEMENT SHALL BE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



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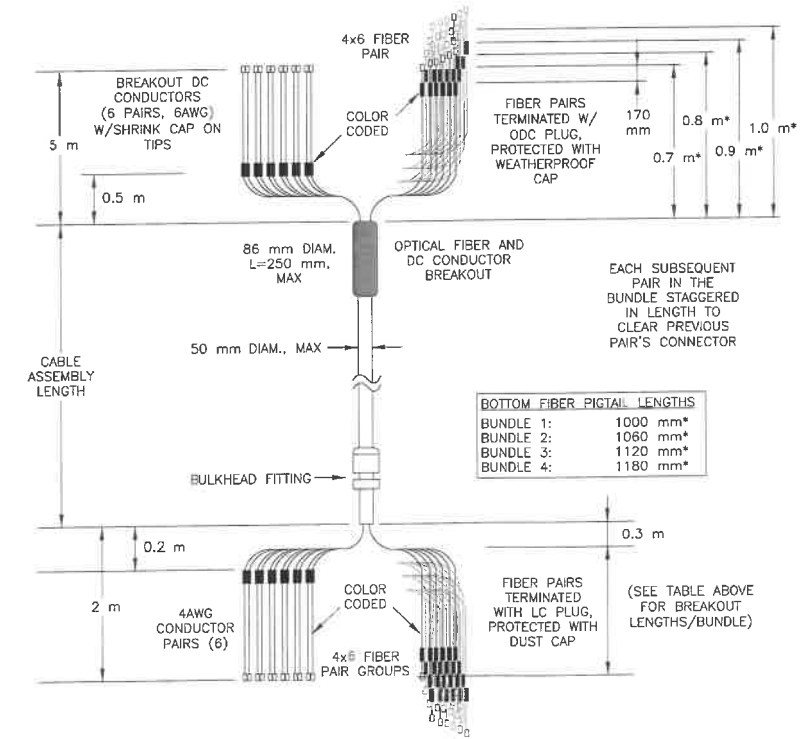
**FINAL ANTENNA SCHEDULE**

SECTOR	POS.	TECHNOLOGY	RAD CENTER	AZIMUTH	ANTENNA MANUFACTURER	ANTENNA MODEL	MECH. TILT	ELECT. TILT	TOWER MOUNTED EQUIPMENT	FEEDLINE TYPE
ALPHA	A1	L2100, G1900, L1900	248'-0"	30°	ERICSSON	AIR32 KRD901146-1_B66A_B2A (OCTO)	0°	-	-	HYBRID (SHARED)
ALPHA	A2	L600, N600, L1900	248'-0"	30°	RFS	APXVAALL24_43-U-NA20 (OCTO)	0°	-	(1) ERICSSON RRU - RADIO 4449 B71+BB5 (1) ERICSSON RRU - RADIO 4415 B25	(1) 6/24 HCS 4AWG 90m
ALPHA	A3	L2500, N2500	248'-0"	30°	ERICSSON	AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	0°	-	-	HYBRID (SHARED)
BETA	B1	L2100, G1900, L1900	248'-0"	150°	ERICSSON	AIR32 KRD901146-1_B66A_B2A (OCTO)	0°	-	-	HYBRID (SHARED)
BETA	B2	L600, N600, L1900	248'-0"	150°	RFS	APXVAALL24_43-U-NA20 (OCTO)	0°	-	(1) ERICSSON RRU - RADIO 4449 B71+BB5 (1) ERICSSON RRU - RADIO 4415 B25	(1) 6/24 HCS 4AWG 90m
BETA	B3	L2500, N2500	248'-0"	150°	ERICSSON	AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	0°	-	-	HYBRID (SHARED)
GAMMA	C1	L2100, G1900, L1900	248'-0"	270°	ERICSSON	AIR32 KRD901146-1_B66A_B2A (OCTO)	0°	-	-	HYBRID (SHARED)
GAMMA	C2	L600, N600, L1900	248'-0"	270°	RFS	APXVAALL24_43-U-NA20 (OCTO)	0°	-	(1) ERICSSON RRU - RADIO 4449 B71+BB5 (1) ERICSSON RRU - RADIO 4415 B25	(1) 6/24 HCS 4AWG 90m
GAMMA	C3	L2500, N2500	248'-0"	270°	ERICSSON	AIR6449 B41 (ACTIVE ANTENNA - MASSIVE MIMO)	0°	-	-	HYBRID (SHARED)

**FINAL CABLE SCHEDULE**

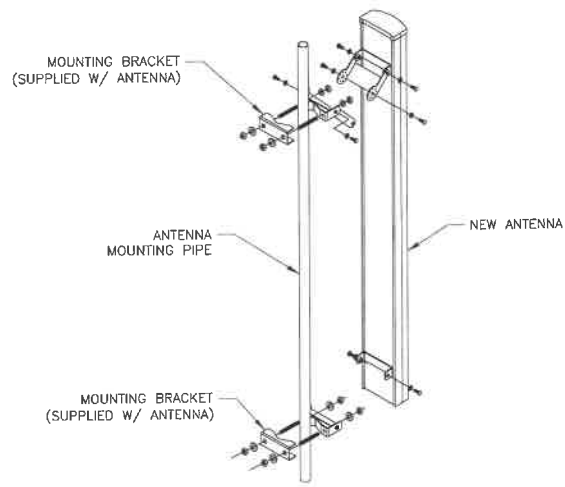
STATUS	CABLE TYPE	SIZE	QUANTITY
NEW	HCS	6/24 4AWG 90m	3
CABLE QUANTITY			3

**1** PROPOSED ANTENNA AND CABLE SCHEDULE  
SCALE: NOT TO SCALE



**2** HCS DETAIL  
SCALE: NOT TO SCALE

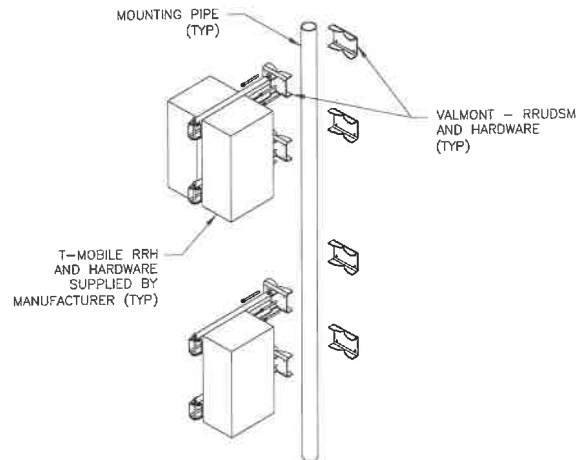




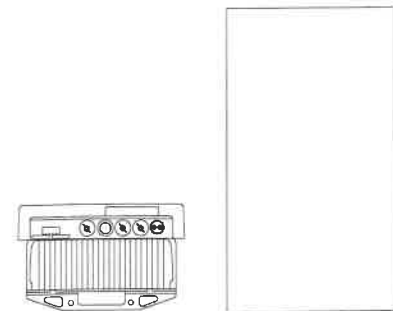
1 ANTENNA MOUNTING DETAIL  
SCALE: NOT TO SCALE

**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 MISCELLANEDUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.

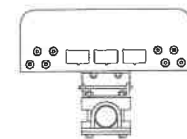


2 RRHs MOUNTING DETAIL  
SCALE: NOT TO SCALE



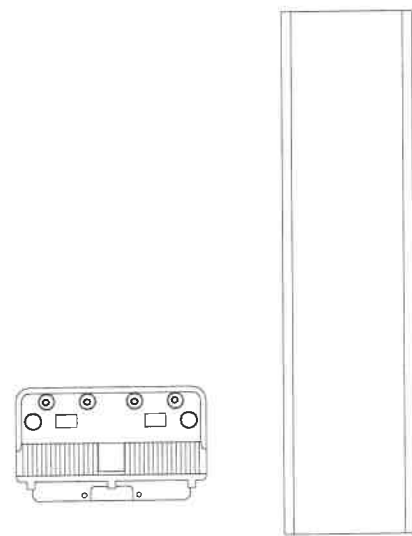
ERICSSON - AIR6449 B41  
WEIGHT: 114.63 LBS  
SIZE (HxWxD): 33.11x20.51x8.54 IN.

3 ERICSSON - AIR6449 B41  
SCALE: NOT TO SCALE



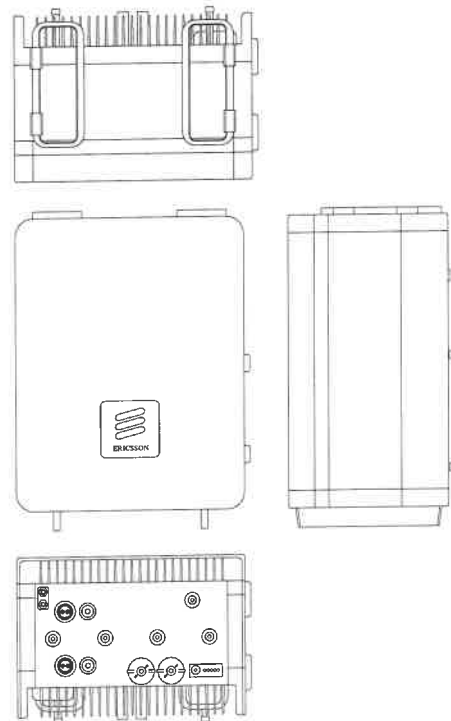
RFS/CELWAVE - APXVAALL24\_43-U-NA20  
WEIGHT (WITHOUT MOUNTING HARDWARE): 149.9 LBS  
SIZE (HxWxD): 95.9x24.0x8.5 IN.

4 RFS/CELWAVE - APXVAALL24\_43-U-NA20  
SCALE: NOT TO SCALE



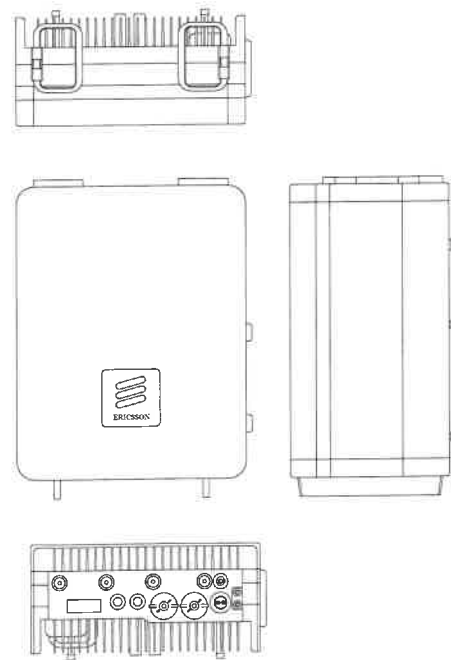
ERICSSON - AIR 32 B2A B66AA  
WEIGHT (WITHOUT MOUNTING HARDWARE): 171.96 LBS  
SIZE (HxWxD): 59.2x12.9x8.7 IN.

5 ERICSSON - AIR 32 B2A B66AA  
SCALE: NOT TO SCALE



ERICSSON - RADIO 4449 B71/B85  
WEIGHT: 73.21 LBS  
SIZE (HxWxD): 17.91x13.2x10.63 IN.

6 ERICSSON - RADIO 4449 B71/B85  
SCALE: NOT TO SCALE



ERICSSON - RADIO 4415 B25  
WEIGHT: 47.40 LBS  
SIZE (HxWxD): 16.5x13.5x6.30 IN.

7 ERICSSON - RADIO 4415 B25  
SCALE: NOT TO SCALE

8 NOT USED  
SCALE: NOT TO SCALE

**T-Mobile**

1001 PINNACLE POINT DRIVE  
COLUMBIA, SC 29223

**CROWN CASTLE**

6325 AUDREY KELL ROAD, SUITE 600,  
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TOWER  
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**C-4.1**

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**T-Mobile**

1001 PINNACLE POINT DRIVE  
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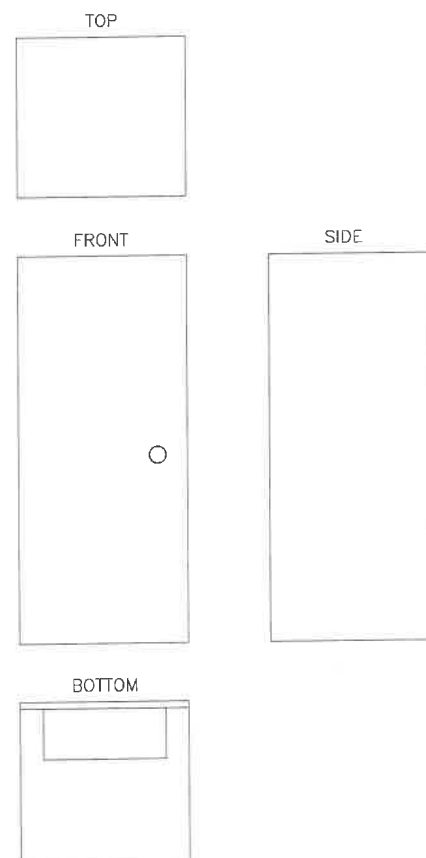
SEAL:



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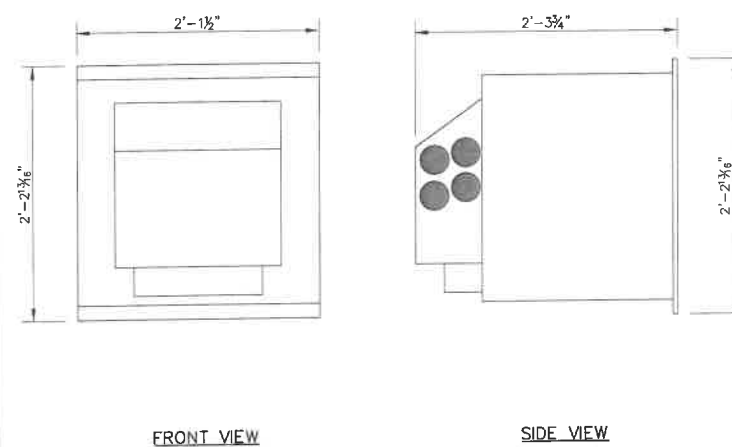
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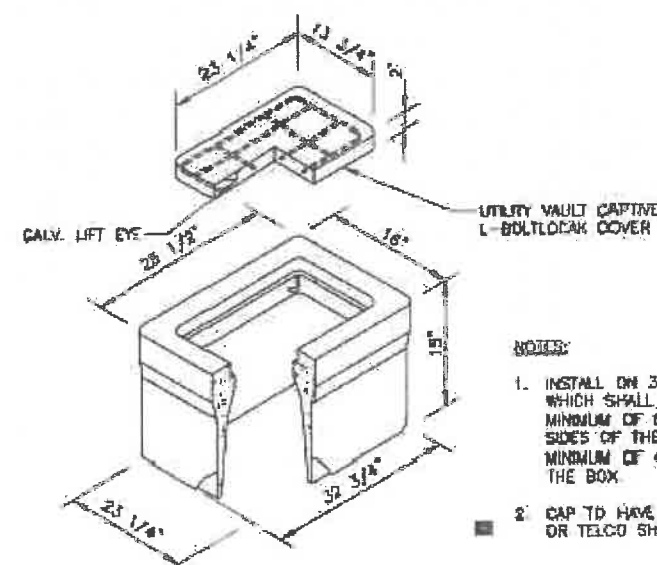


INTERSECT - CAM-LOK GENERATOR CONNECTOR  
WEIGHT: 13 LBS  
SIZE (HxWxD): 23x10x9.5 IN.

1 INTERSECT - CAM-LOK GENERATOR CONNECTOR  
SCALE: NOT TO SCALE



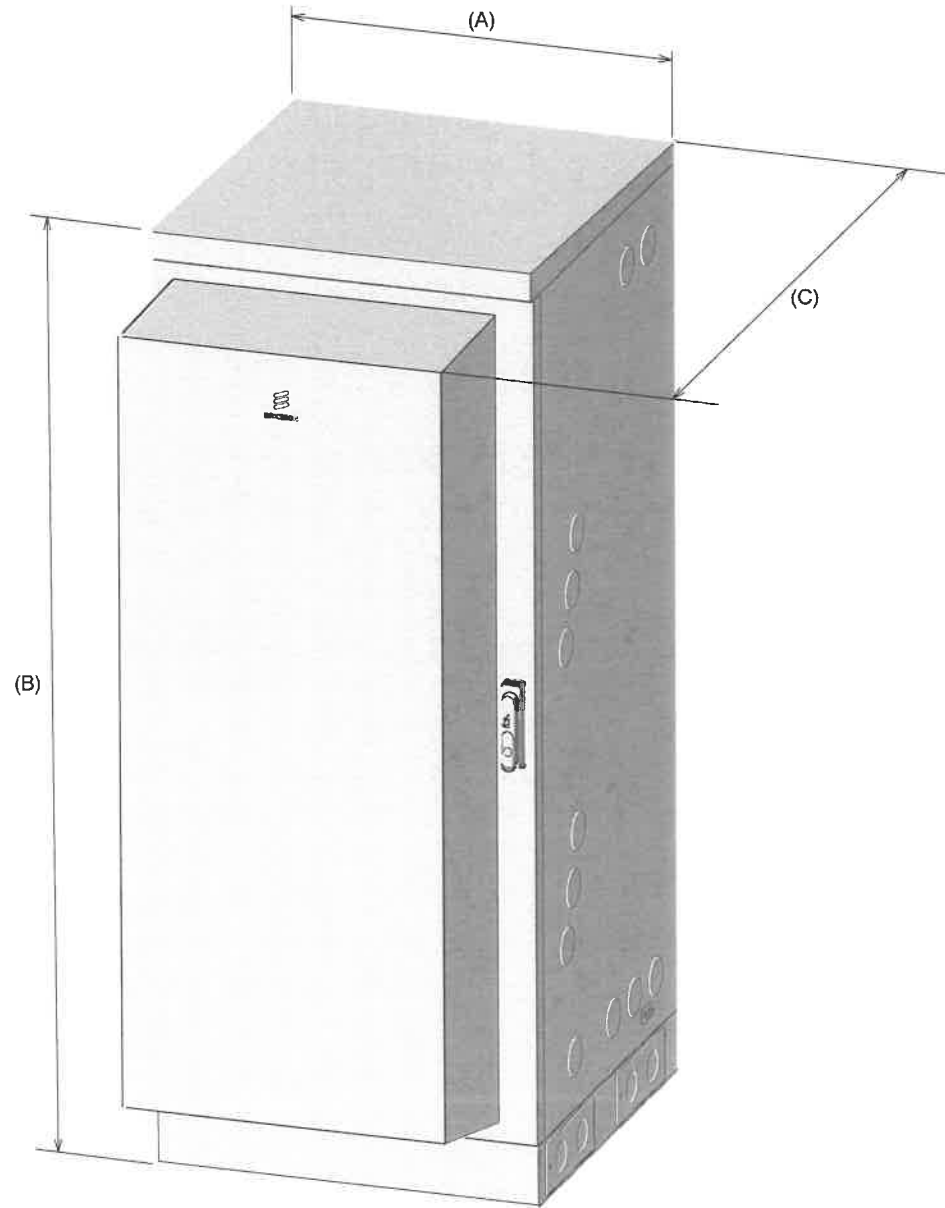
2 WESTELL BOXER DETAILS (INSTALL AS NEEDED)  
SCALE: NOT TO SCALE



3 PULL BOX DETAIL  
SCALE: NOT TO SCALE

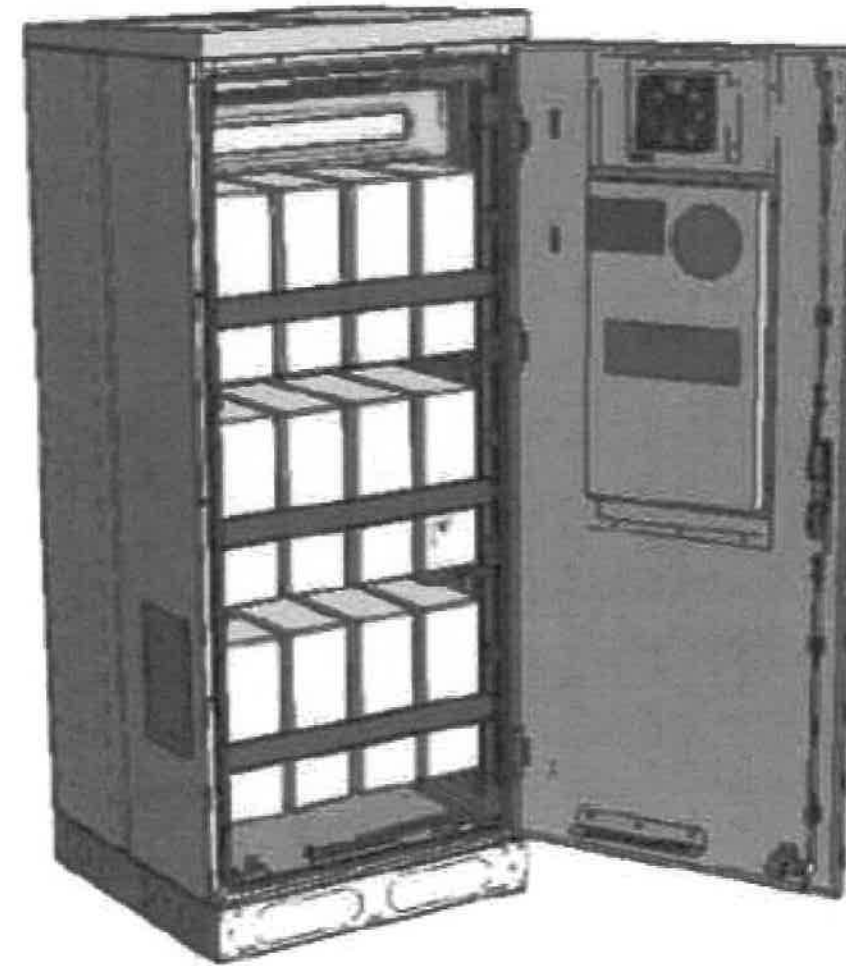
**INSTALLER NOTES:**

1. INFORMATION SHOWN PROVIDED BY T-MOBILE. CONTRACTOR TO REFERENCE CABINET MANUFACTURER'S SPECIFICATIONS FOR FURTHER DETAILS.
2. CONTRACTOR TO FOLLOW THE LATEST VERSION OF T-MOBILE REGIONAL CONSTRUCTION STANDARDS. CONTACT T-MOBILE FOR DETAILS.



Dimensions	
Width (A)	650 mm / 25.5906 in
Height (B)	1450 mm / 57.08661 in (without base frame) 1600 mm / 62.99213 in (with base frame)
Depth (C)	850 mm / 33.4646 in
Weight	
Empty enclosure	176 kg / 388.014 lb

1 ERICSSON 6160 CABINET DETAILS  
SCALE: NOT TO SCALE



2 ERICSSON B160 CABINET DETAILS  
SCALE: NOT TO SCALE

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**C-5**

**0**

NOTE:  
LOAD CALCULATIONS TAKEN FROM INFORMATION PROVIDED BY CROWN CASTLE & BASED ON THE RFDS DATED 05/05/2021. CONTRACTOR TO VERIFY LOADS WITH MANUFACTURER'S SPECIFICATIONS PRIOR TO CONSTRUCTION

EXISTING 200A M.C.B, 240/120 VAC, 1Ø, 3W PANEL SCHEDULE											
LOAD SERVED	VOLT AMPERES (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPERES (WATTS)		LOAD SERVED	
	L1	L2						L1	L2		
SURGE PROTECTOR	100		60A	1	A	2	10A	340		FAN	
		100		3	B	4	15A		180	PPC RECPT	
TOWER LIGHT	1000		20A	5	A	6	20A	180		TELCO RECPT	
		3500		7	B	8	20A		500	AREA LIGHT	
*CONTROL #1	3500		100A	9	A	10	20A	1000		GEN. RECPT	
		3500		11	B	12				SPARE	
*BTS CAB	3500		100A	13	A	14				SPARE	
SPARE				15	B	16				SPARE	
SPARE				17	A	18				SPARE	
SPARE				19	B	20				SPARE	
SPARE				21	A	22				SPARE	
SPARE				23	B	24				SPARE	
VOLT AMPS	8100	7100						1520	680	VOLT AMPS	
L1 VOLT AMPERES				9620	L2 VOLT AMPERES		7780				
				9620				MAX VOLT AMPERES			
				81.2				MAX AMPS			
				100				MAX AMPS x 125%			

\* - EXISTING BREAKER TO BE REMOVED. CONTRACTOR TO CONFIRM WITH T-MOBILE CM PRIOR TO CONSTRUCTION.

PROPOSED 200A M.C.B, 240/120 VAC, 1Ø, 3W PANEL SCHEDULE											
LOAD SERVED	VOLT AMPERES (WATTS)		TRIP	CKT #	PHASE	CKT #	TRIP	VOLT AMPERES (WATTS)		LOAD SERVED	
	L1	L2						L1	L2		
SURGE PROTECTOR	100		60A	1	A	2	10A	340		FAN	
		100		3	B	4	15A		180	PPC RECPT	
TOWER LIGHT	1000		20A	5	A	6	20A	180		TELCO RECPT	
		7245		7	B	8	20A		500	AREA LIGHT	
6160 ENCLOSURE	7245		125A	9	A	10	20A	1000		GEN. RECPT	
SPARE				11	B	12				SPARE	
SPARE				13	A	14				SPARE	
SPARE				15	B	16				SPARE	
SPARE				17	A	18				SPARE	
SPARE				19	B	20				SPARE	
SPARE				21	A	22				SPARE	
SPARE				23	B	24				SPARE	
VOLT AMPS	8245	7345						1520	680	VOLT AMPS	
L1 VOLT AMPERES				9765	L2 VOLT AMPERES		8025				
				9765				MAX VOLT AMPERES			
				81.4				MAX AMPS			
				101.7				MAX AMPS x 125%			

NOTE - PROPOSED BREAKERS & LOADING IN BOLD.

1 AC PANEL SCHEDULE  
SCALE: NOT TO SCALE

GENERAL NOTES:

- ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 UNLESS NOTED OTHERWISE.
- CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- ALL GROUNDING AND BONDING PER THE NEC.

ONE-LINE DIAGRAM NOTES:

- ELECTRICAL SERVICE IS 200A, 120/240V, 1Ø, 3W.
- FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT, REFER TO VENDOR PRINTS PROVIDED BY EQUIPMENT MANUFACTURER.

UTILITY NOTES:

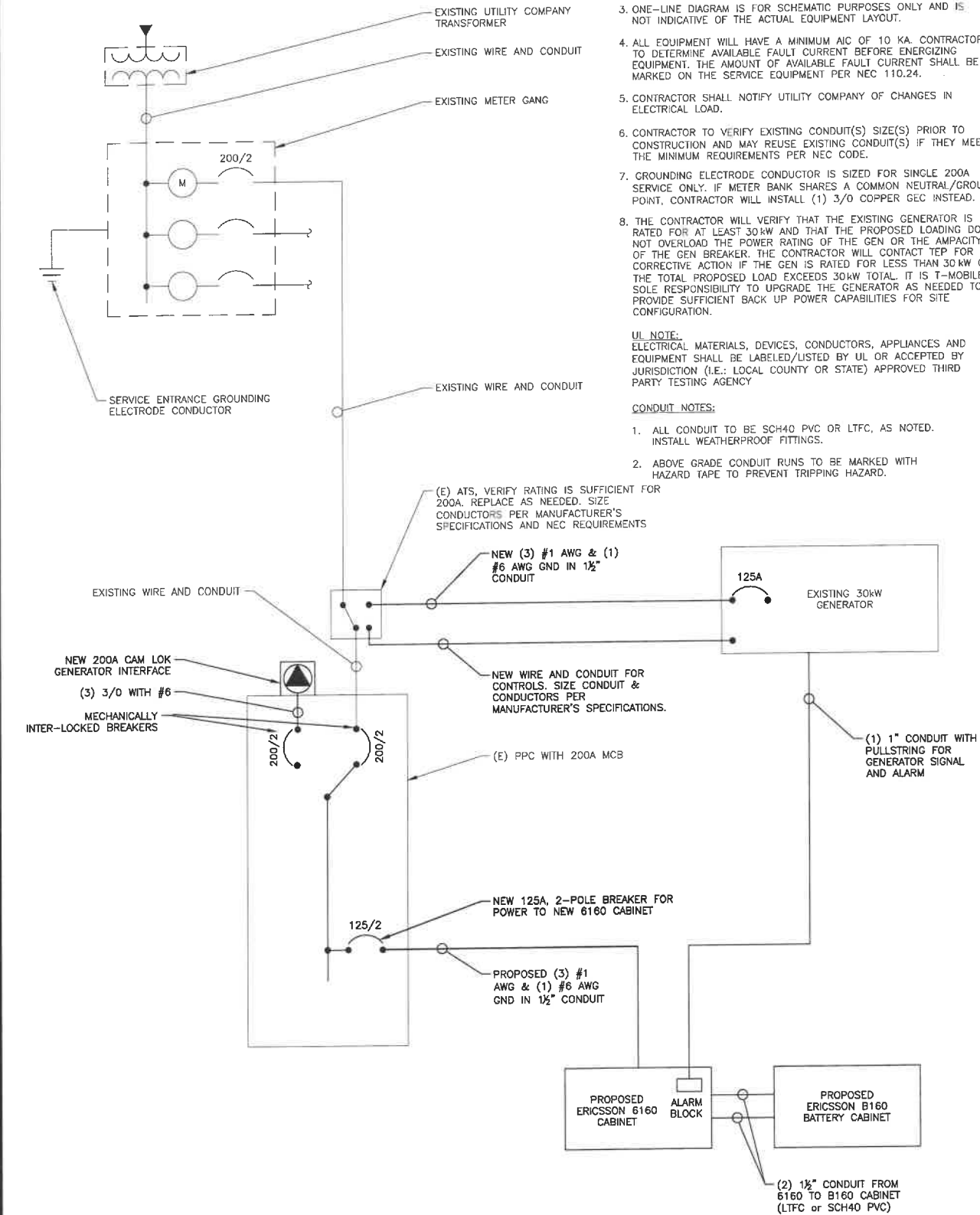
- CONTRACTOR SHALL VERIFY AVAILABLE FAULT CURRENT WITH POWER COMPANY AND ENSURE ALL ELECTRICAL EQUIPMENT IS SUITABLE FOR AVAILABLE FAULT CURRENT.
- CONTRACTOR SHALL COORDINATE UTILITY SERVICES WITH LOCAL UTILITY COMPANIES. VERIFY ALL REQUIREMENTS WITH UTILITY COMPANY STANDARDS.
- ONE-LINE DIAGRAM IS FOR SCHEMATIC PURPOSES ONLY AND IS NOT INDICATIVE OF THE ACTUAL EQUIPMENT LAYOUT.
- ALL EQUIPMENT WILL HAVE A MINIMUM AIC OF 10 KA. CONTRACTOR TO DETERMINE AVAILABLE FAULT CURRENT BEFORE ENERGIZING EQUIPMENT. THE AMOUNT OF AVAILABLE FAULT CURRENT SHALL BE MARKED ON THE SERVICE EQUIPMENT PER NEC 110.24.
- CONTRACTOR SHALL NOTIFY UTILITY COMPANY OF CHANGES IN ELECTRICAL LOAD.
- CONTRACTOR TO VERIFY EXISTING CONDUIT(S) SIZE(S) PRIOR TO CONSTRUCTION AND MAY REUSE EXISTING CONDUIT(S) IF THEY MEET THE MINIMUM REQUIREMENTS PER NEC CODE.
- GROUNDING ELECTRODE CONDUCTOR IS SIZED FOR SINGLE 200A SERVICE ONLY. IF METER BANK SHARES A COMMON NEUTRAL/GROUND POINT, CONTRACTOR WILL INSTALL (1) 3/0 COPPER GEC INSTEAD.
- THE CONTRACTOR WILL VERIFY THAT THE EXISTING GENERATOR IS RATED FOR AT LEAST 30kW AND THAT THE PROPOSED LOADING DOES NOT OVERLOAD THE POWER RATING OF THE GEN OR THE CAPACITY OF THE GEN BREAKER. THE CONTRACTOR WILL CONTACT TEP FOR CORRECTIVE ACTION IF THE GEN IS RATED FOR LESS THAN 30kW OR THE TOTAL PROPOSED LOAD EXCEEDS 30kW TOTAL. IT IS T-MOBILE'S SOLE RESPONSIBILITY TO UPGRADE THE GENERATOR AS NEEDED TO PROVIDE SUFFICIENT BACK UP POWER CAPABILITIES FOR SITE CONFIGURATION.

UL NOTE:

ELECTRICAL MATERIALS, DEVICES, CONDUCTORS, APPLIANCES AND EQUIPMENT SHALL BE LABELED/LISTED BY UL OR ACCEPTED BY JURISDICTION (I.E.: LOCAL COUNTY OR STATE) APPROVED THIRD PARTY TESTING AGENCY

CONDUIT NOTES:

- ALL CONDUIT TO BE SCH40 PVC OR LTFC, AS NOTED. INSTALL WEATHERPROOF FITTINGS.
- ABOVE GRADE CONDUIT RUNS TO BE MARKED WITH HAZARD TAPE TO PREVENT TRIPPING HAZARD.



2 ONE LINE DIAGRAM  
SCALE: NOT TO SCALE

T-Mobile

1001 PINNACLE POINT DRIVE  
COLUMBIA, SC 29223

CROWN CASTLE

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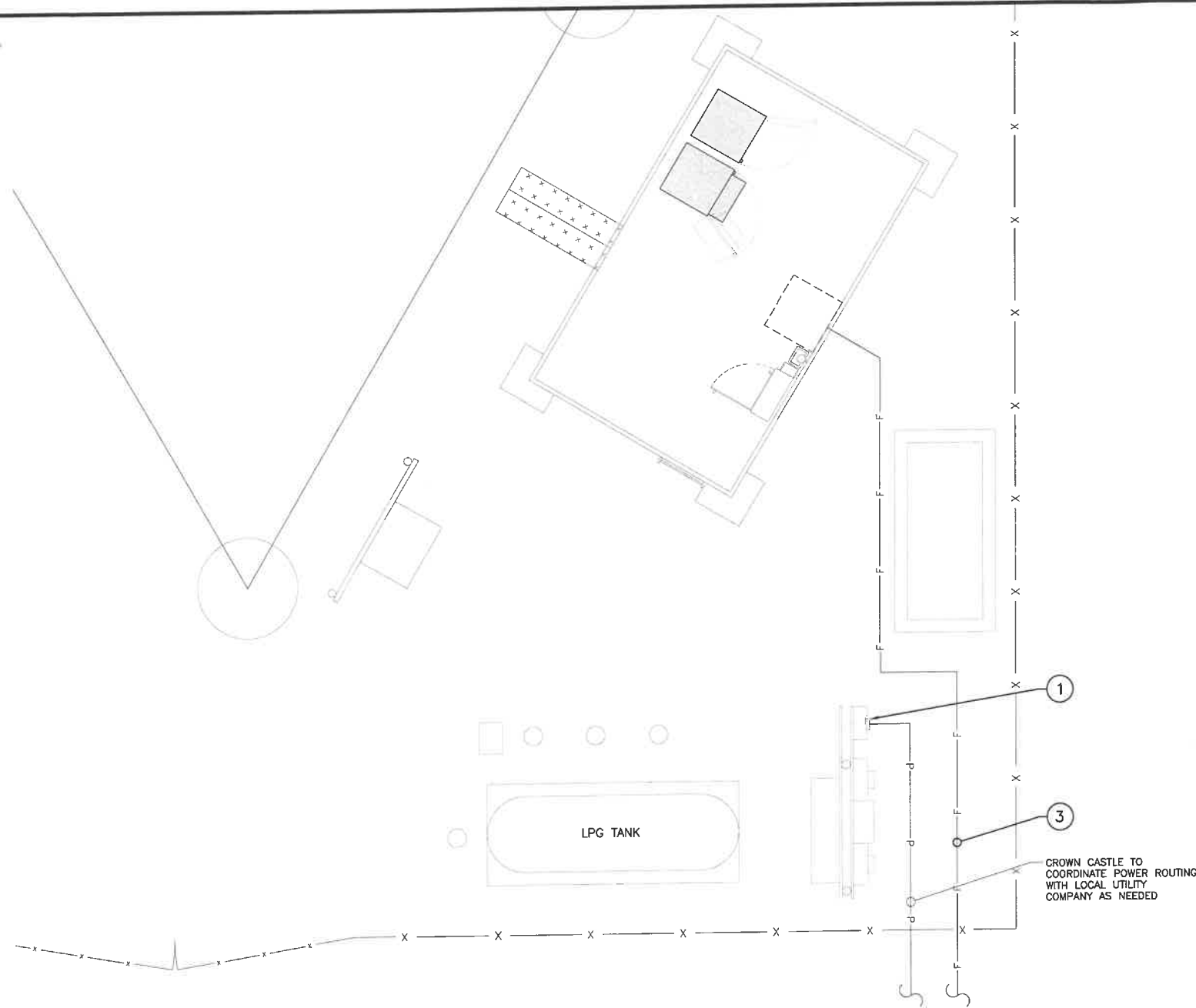
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SHEET NUMBER: REVISION:

E-1

0





**LABEL LIST:**

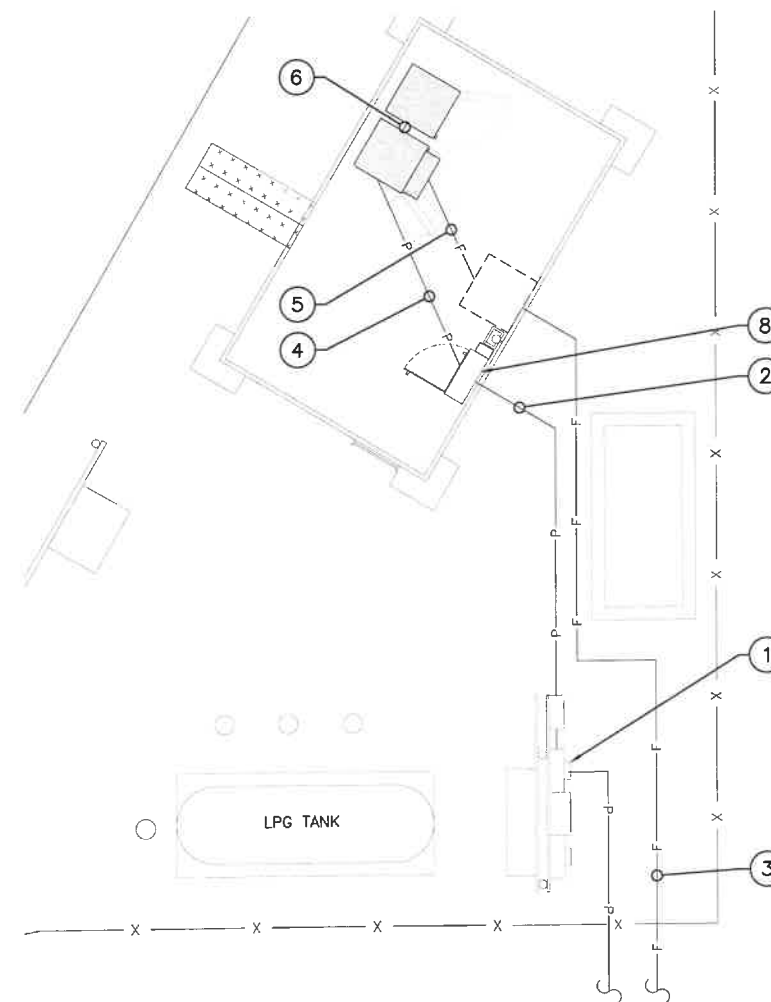
- ① T-MOBILE METER AND DISCONNECT
- ② (1) 2" PVC CONDUIT FROM ATS TO PPC FOR POWER (CONDUITS MINIMUM 36" BELOW GRADE). CONTRACTOR TO COORDINATE WITH LOCAL UTILITY COMPANY.
- ③ (2) 2" PVC TELCO CONDUIT, EACH WITH PULLSTRING. ALL CONDUITS SHALL UTILIZE LONG SWEEPS AT BENDS. (CONDUITS MINIMUM 36" BELOW GRADE). CONTRACTOR TO COORDINATE WITH LOCAL FIBER PROVIDER.
- ④ (3) 1-1/2" CONDUIT FOR POWER FROM PPC TO 6160 CABINET
- ⑤ (1) 2" TELCO CONDUIT FROM TELCO BOX TO 6160 CABINET.
- ⑥ (2) 2" CONDUIT FROM 6160 CABINET TO B160 BATTERY CABINET (LIFC OR SCH40 PVC)
- ⑦ 1" CONDUIT TO WORK LIGHT FROM PPC ON H-FRAME
- ⑧ T-MOBILE PPC
- ⑨ T-MOBILE FIBER BOX
- ⑩ T-MOBILE H-FRAME

① UTILITY PLAN  
SCALE: N.T.S.



**NOTES:**

1. AREA LIGHT LITHONIA HFR 250M SLWA DNA LP1 CONTROL VIA CONTRACTOR PROVIDED MANUAL TIMER SWITCH (WEATHERPROOF).
2. POWER AND TELCO CONDUITS RECEIVING CONDUCTORS BY OTHERS TO HAVE PULL ROPES.
3. ALL TELCO CONDUITS ARE TO BE STUBBED IN D-MARC LOCATION.
4. ALL POWER CONDUITS ARE TO BE TERMINATED AT THE METER CENTER.
5. THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES PRIOR TO TRENCHING. ANY DAMAGE CAUSED TO THE EXISTING UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
6. ALL CONDUITS SHALL BE INSTALLED PRIOR TO FINISH GRADING, GEOFABRIC, AND STONE INSTALLATION.
7. CONTRACTOR SHALL INSTALL SWEEPS AT ALL CONDUIT DIRECTION CHANGES UNLESS NOTED OTHERWISE.
8. WHERE APPLICABLE RUN CONDUITS FROM ILC TO GENERATOR UNDERGROUND AND STUB UP CONDUITS MINIMUM 6" HIGH INSIDE GENERATOR BASE AND TERMINATE WITH MALE ADAPTER AND THREADED BUSHING.
9. WHEN ALL RRU's ARE GROUND MOUNTED, OMIT OVP's AND RUN FIBER/POWER FROM PRIMARY CABINET DIRECTLY TO RRU's.
10. FIBER BRIDGE CONDUIT TO BE LEFT AS 5' LONG CAPPED STUB CONDUIT WHEN NO EXISTING HANDHOLE IS PRESENT.
11. CONTRACTOR TO VERIFY WITH CM WHICH EXISTING HANDHOLE (IF ANY) BELONGS TO FIBER PROVIDER.
12. CONTRACTOR TO INSTALL (2) PULL ROPES IN EACH FIBER CONDUIT.
13. CONTRACTOR TO UTILIZE EXPANSION COUPLINGS WITH ABOVE-GRADE TRANSITIONS.



② ENLARGED EQUIPMENT ROUTING PLAN  
SCALE: N.T.S.



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(P3)ERWIN/MCLAMB(F1)

926 S. 13TH STREET  
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EXISTING 250'-0"  
SELF-SUPPORT TOWER

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**E-2**

REVISION:

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**T-MOBILE GROUNDING NOTES:**

**ALL GROUNDS MUST ROUTE DOWNHILL FOR ENTIRE DURATION OF ROUTE**

1. PROVIDE LABOR, MATERIALS, INSPECTION, AND TESTING TO PROVIDE CODE COMPLIANCE FOR ELECTRIC, TELEPHONE, AND GROUNDING/LIGHTNING SYSTEMS.

**ICE BRIDGE/ EQUIPMENT POST:**

#2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED TO GROUND RING (BOTH ENDS). FINAL WELD COLD GALVANIZED, IN 1/2" NON-METALLIC SEAL TIGHT CONDUIT, SEALED WITH SILICONE. ANCHORED TO PAD/PLATFORM TO AVOID TRIP HAZARD USING HAMMER SET ANCHORS.

**PEDESTALS, PLINTHS, SSC CABINET, FCOA CABINETS:**

1. #2 SOLID COPPER TINNED, 2 HOLE LUG WITH FLAT AND LOCK WASHER AT EQUIPMENT; EXOTHERMICALLY WELDED TO GROUND RING, FINAL WELD COLD GALVANIZED, IN 1/2" NON-METALLIC SEAL TIGHT CONDUIT, SEALED WITH SILICONE, ANCHORED TO PAD TO AVOID TRIP HAZARD USING HAMMER SET ANCHORS. EACH PART REQUIRES A SEPARATE DOWNLEAD, NO DAISY CHAINS.

2. ALL COMPONENTS INSIDE FCOA CABINETS REQUIRE A DEDICATED GROUND.

**COVP's:**

#6 THHN STRANDED (GREEN JACKET), CONNECTED AT EQUIPMENT SIDE USING OVP TERMINAL BLOCK CONNECTION; MECHANICALLY CONNECTED TO GROUND REFERENCE AT MASTER BUSS BAR USING 2 HOLE LUG WITH FLAT AND LOCK WASHER, IN 1/2" NON-METALLIC SEAL TIGHT CONDUIT, SEALED WITH SILICONE, AND ANCHORED TO PAD/PLATFORM TO AVOID TRIP HAZARD.

**ANTENNA/ COVP/ RRU MAST PIPES:**

1. ALL VERTICAL MAST PIPES: #2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED TO TOP OF PIPE (PIPE, DOWN MOLD), FINAL WELD COLD GALVANIZED, BONDED TO TOP BUSS BAR WITH 2 HOLE COPPER COMPRESSION LUG, FLAT AND LOCK WASHER.

2. EXISTING/REUSED PIPES: #2 SOLID COPPER TINNED, BONDED WITH COLD WATER CLAMP TO TOP OF PIPE, BONDED TO TOP BUSS WITH 2 HOLE COPPER COMPRESSION LUG, FLAT AND LOCK WASHER.

**AIR TERMINALS:**

TO BE INSTALLED ONLY IF REQUIRED.

**TMA's, DIPLEXERS AND TRIPLEXERS:**

1. #6 THHN, WITH PROPER COPPER COMPRESSION LUG, FLATS AND LOCK WASHERS

2. ALL GROUND LUGS ON TMA MUST BE GROUNDED WITH SEPARATE DOWNLEAD TO BUSS BAR (NO DAISY CHAINS)

**ELEVATED STEEL PLATFORMS WITH LUNAR FEET:**

#2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED (FLAT PLATE MOLD) TO OUTSIDE PERIMETER BEAMS IN FOUR (4) PLACES, FINAL WELD COLD GALVANIZED, BONDED DIRECTLY TO SUBGRADE GROUND RING.

**STEEL CANOPY (STEEL PLATFORM OR CONCRETE PAD):**

1. #2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED (PIPE, DOWN MOLD) TO BOTTOM OF ALL VERTICAL SUPPORT POSTS, TYPICALLY FOUR (4) PIPES, FINAL WELD COLD GALVANIZED, BONDED DIRECTLY TO SUBGRADE GROUND RING.

2. #2 SOLID COPPER TINNED, EXOTHERMICALLY WELDED (PIPE, UP MOLD) TO TOP OF ALL VERTICAL SUPPORT POSTS, TYPICALLY FOUR (4) PIPES, FINAL WELD COLD GALVANIZED, BONDED UP TO CANOPY GRIP-STRUT USING 2 HOLE COPPER COMPRESSION LUG, FLAT AND LOCK WASHER.

**RRU:**

#6 THHN, WITH PROPER COPPER COMPRESSION LUG, ANTI-OXIDANT TO SECTOR BUSS BAR

**FSBE ALARM BOX:**

#6 THHN WITH ONE HOLE LUG BONDED TO PREVIOUSLY GROUNDED FCOA, PLINTH OR BUSS BAR.

**SURGE SUPPRESSORS:**

#6 THHN TO PREVIOUSLY GROUNDED BUSS BAR USING PROPER LUGS

**FYGA/FYGB BRACKET:**

1. #6 THHN TO PREVIOUSLY GROUNDED BUSS BAR USING PROPER LUGS

2. THROUGH BOLTS WITH FLAT, LOCK ON BRACKET

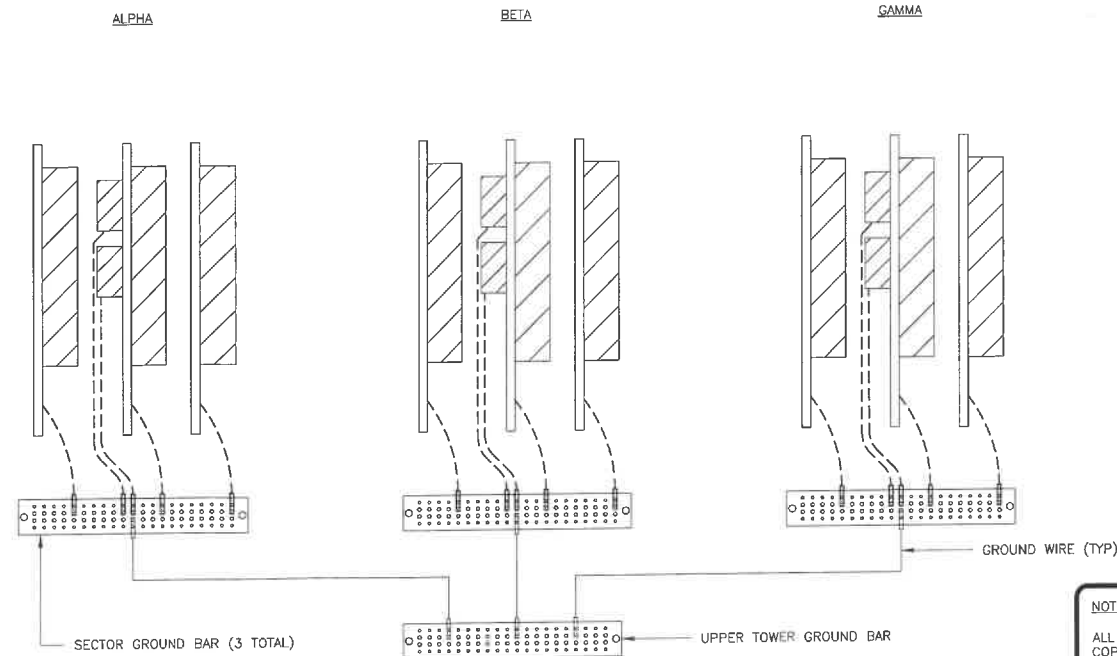
**BUSS BARS:**

1. PLATFORM / PAD BUSS BAR SHOULD BE MINIMUM 12" TINNED COPPER WITH INSULATORS, AND SHOULD HAVE TWO (2) EXOTHERMICALLY WELDED DOWN LEADS DIRECTLY TO GROUND RING USING #2 SOLID COPPER TINNED WIRE.

2. SECTOR BUSS BAR SHOULD BE PROPERLY SIZED TO ACCOMMODATE NECESSARY GROUNDING FOR EQUIPMENT ON EACH MOUNT, AND MAY BE SOLID COPPER (TINNED NOT REQUIRED). DO NOT USE INSULATORS ON SECTOR BUSS BARS ATTACH DIRECTLY TO TOWER MOUNT STEEL.

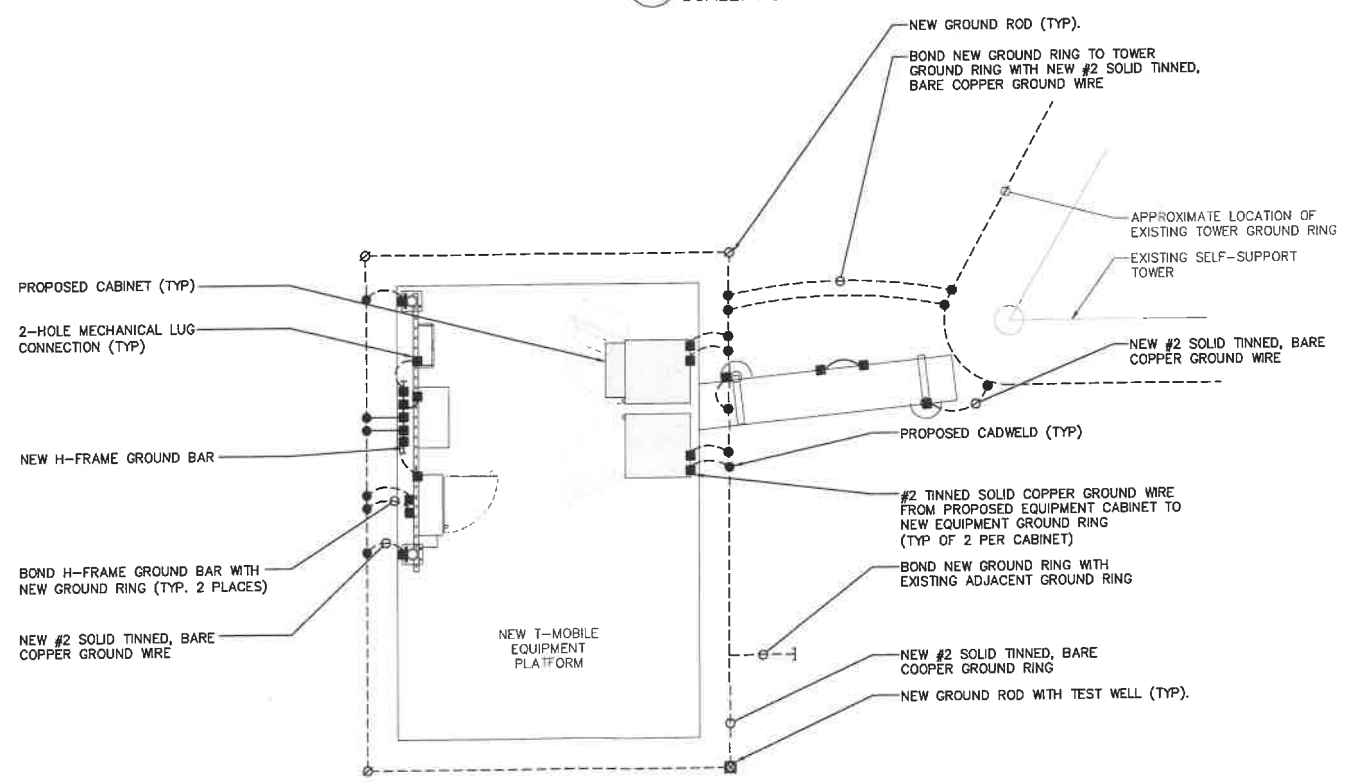
**GENERAL:**

- NO GROUND KITS ON HYBRID TRUNKS (TOP OR BOTTOM)
- NO GROUND KITS ON MICROWAVE IF CABLES (TOP OR BOTTOM)
- MICROWAVE SURGE SUPPRESSORS ARE NOT TO BE INSTALLED UPSTAIRS ON TOWER, DOWNSTAIRS ONLY (BULKHEAD PREFERRED)
- MICROWAVE ODU MUST BE GROUNDED TO TOWER TOP SECTOR OR COLLECTOR BUSS BAR
- ALL TMA'S AND DIPLEXERS MUST BE GROUNDED TO BUSS BAR. NO DAISY CHAIN ON TWIN/DUAL TMA
- ALL LUGS SHOULD BE PROPERLY SIZED FOR CONDUCTOR, BURNDY TINNED COPPER COMPRESSION STYLE
  1. INDOOR (OR INSIDE CABINET) SHOULD HAVE WINDOW
  2. OUTDOOR SHOULD NOT HAVE WINDOW
- CONTRACTOR TO VERIFY EXISTENCE AND LOCATION OF EXISTING SITE GROUND SYSTEM.
- CONTRACTOR SHALL VERIFY THAT GROUNDING ELECTRODES SHALL BE CONNECTED IN A RING USING #2 AWG BARE TINNED COPPER WIRE. THE TOP OF THE GROUND RODS AND THE RING CONDUCTOR SHALL BE 30" BELOW FINISHED GRADE, OR TO FROST DEPTH, WHICHEVER IS GREATER. GROUNDING ELECTRODES SHALL BE DRIVEN ON 10'-0" CENTERS (PROVIDE AND INSTALL AS REQUIRED. REQUIRED PER PLAN BELOW).
- GROUNDING CONDUCTORS SHALL BE OF EQUAL LENGTH, MATERIAL, AND BONDING TECHNIQUE.
- CONTRACTOR SHALL ENSURE GROUND RING IS WITHIN 12 TO 36 INCHES OF THE EQUIPMENT PAD. PROVIDE AND INSTALL GROUNDING CONNECTIONS SHOWN BELOW AS NEEDED PER EXISTING SITE GROUNDING SYSTEM. CONTRACTOR SHALL VERIFY ALL EXISTING SITE GROUNDING CONDITIONS BEFORE STARTING WORK OR PURCHASING EQUIPMENT.
- ALL DOWN CONDUCTORS MUST GO DOWN



**NOTE:**  
ALL NEW GROUNDS TO BE #6 STRANDED COPPER WITH GREEN INSULATION UNLESS NOTED OTHERWISE.  
GROUNDING SHOWN TYPICAL PER SECTOR.

1 TYPICAL ANTENNA GROUNDING DIAGRAM  
SCALE: NOT TO SCALE



**NOTE:**  
CONTRACTOR TO REFERENCE SHEET C-1.1 & 1.2 FOR EXACT LOCATION AND ORIENTATION OF EQUIPMENT PAD

2 TYPICAL CABINET GROUNDING DIAGRAM  
SCALE: NOT TO SCALE

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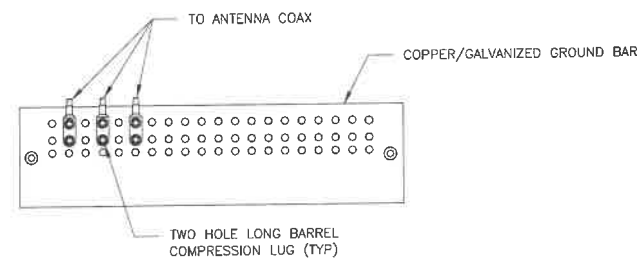
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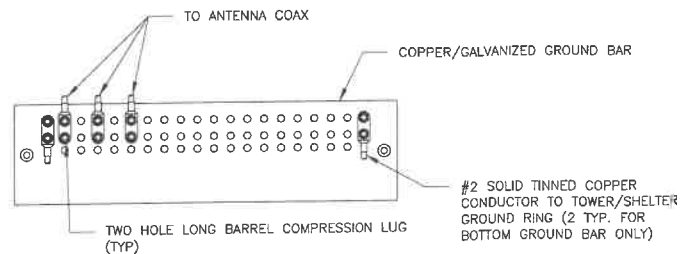
**SHEET NUMBER:** **G-1** **REVISION:** **0**



**NOTES:**

- DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
- EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
- GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

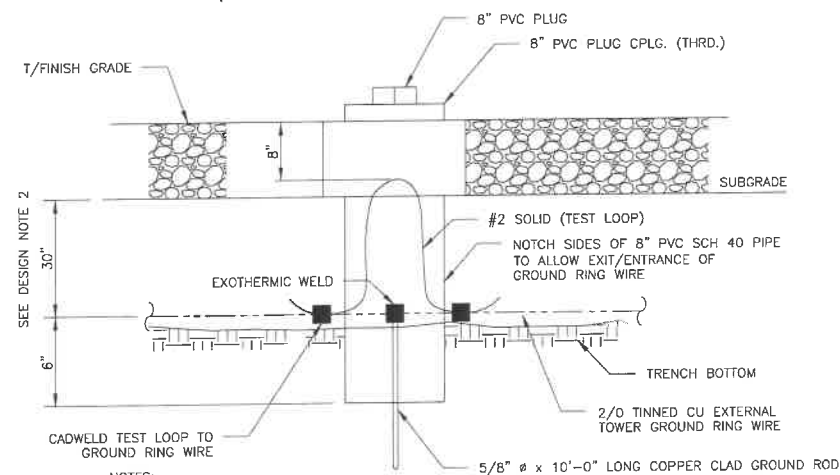
**1** ANTENNA SECTOR GROUND BAR DETAIL  
SCALE: NOT TO SCALE



**NOTES:**

- EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
- GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
- GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

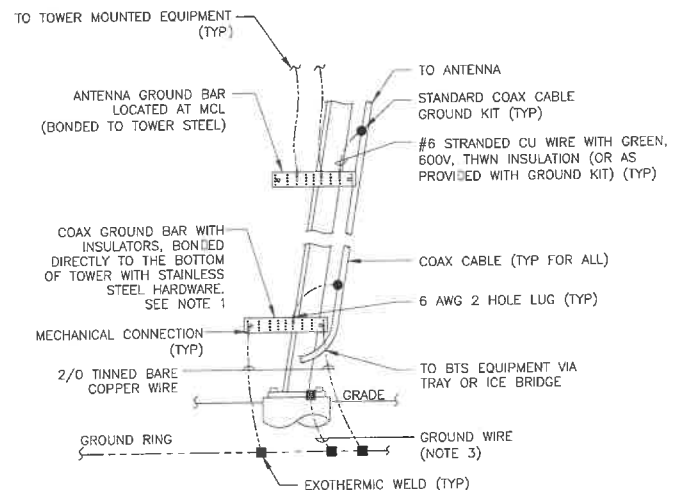
**2** TOWER/SHELTER GROUND BAR DETAIL  
SCALE: NOT TO SCALE



**NOTES:**

- GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
- GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D).

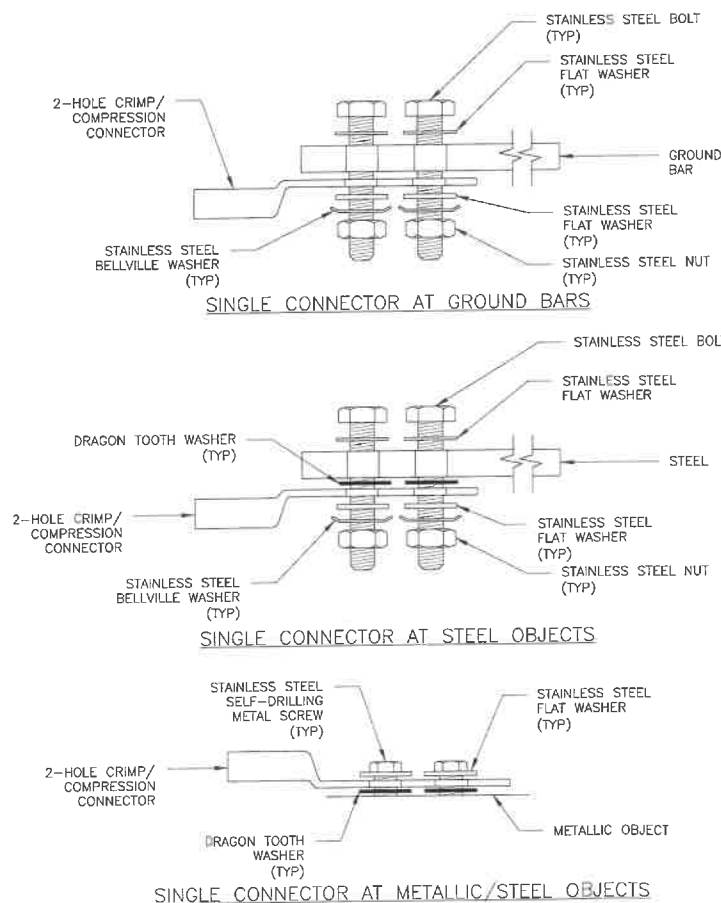
**3** INSPECTION WELL DETAIL  
SCALE: NOT TO SCALE



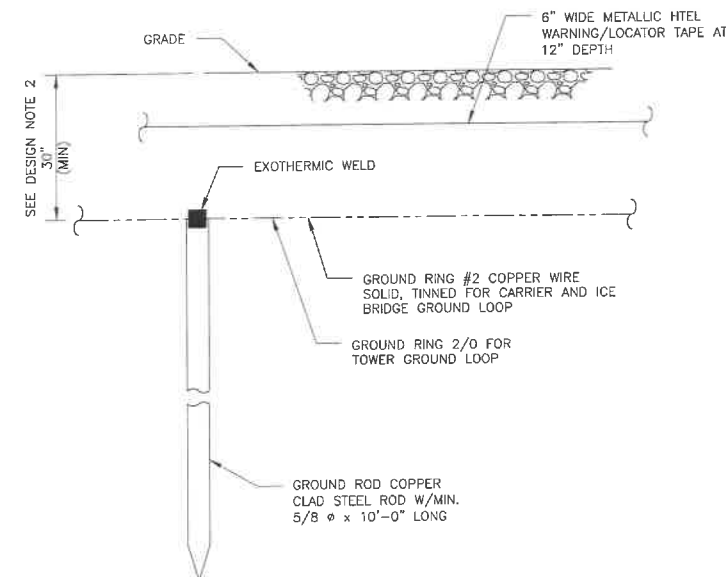
**NOTES:**

- NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
- ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
- ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

**4** TYPICAL ANTENNA CABLE GROUNDING  
SCALE: NOT TO SCALE



**5** HARDWARE DETAIL FOR EXTERIOR CONNECTIONS  
SCALE: NOT TO SCALE



**NOTES:**

- GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
- GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D).

**6** GROUND ROD DETAIL  
SCALE: NOT TO SCALE

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BU #: **879743**  
(P3)ERWIN/MCLAMB(F1)

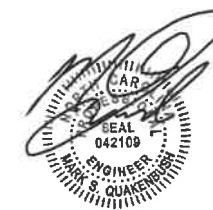
926 S. 13TH STREET  
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EXISTING 250'-0"  
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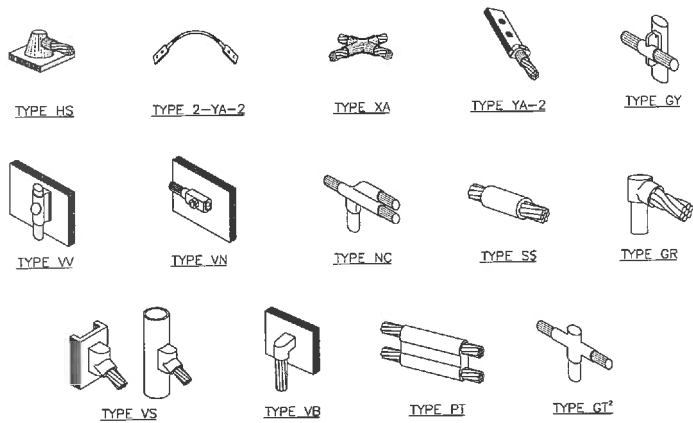
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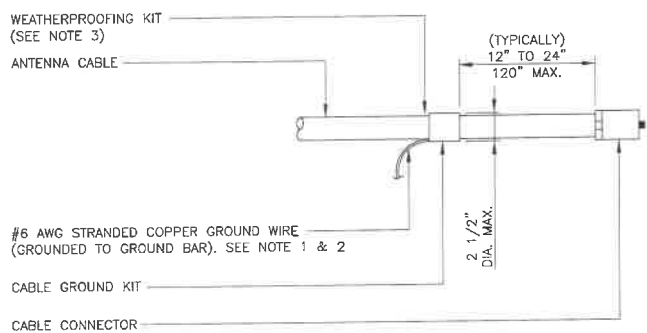
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**NOTE:**

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.

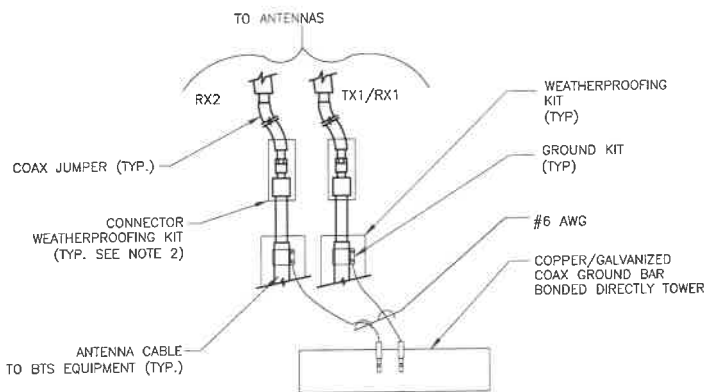
**1 CADWELD GROUNDING CONNECTIONS**  
SCALE: NOT TO SCALE



**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.

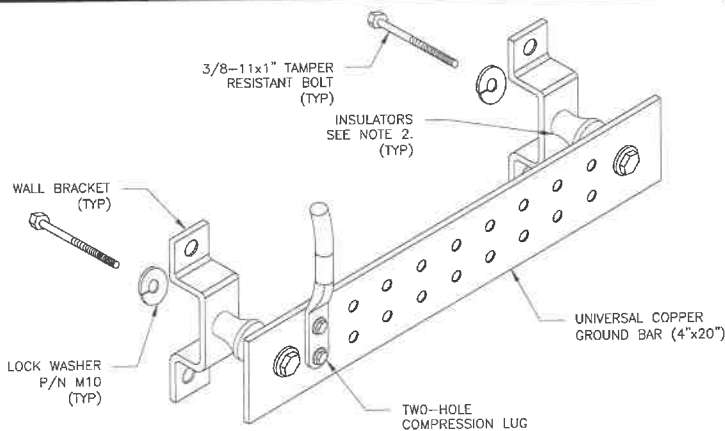
**3 CABLE GROUND KIT CONNECTION**  
SCALE: NOT TO SCALE



**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.

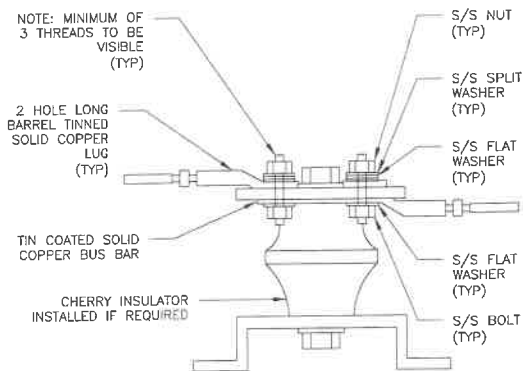
**4 GROUND CABLE CONNECTION**  
SCALE: NOT TO SCALE



**NOTES:**

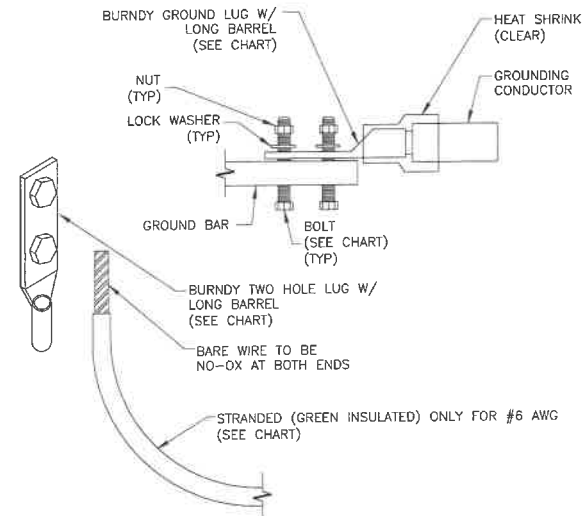
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY OAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR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

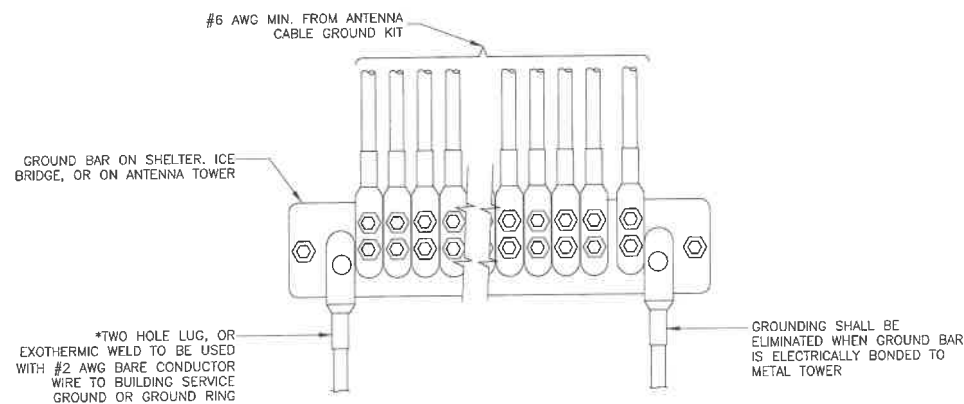
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC3B	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC3B	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC3B	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA26-2TC3B	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA28-2N	1/2" - 16 NC S 2 BOLT



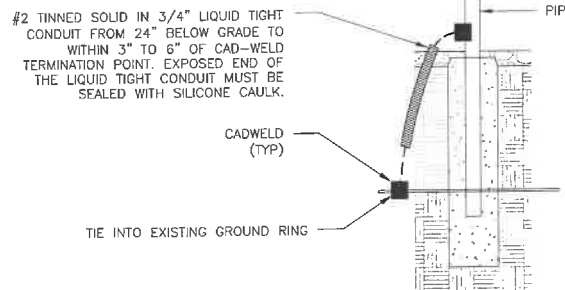
**NOTES:**

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

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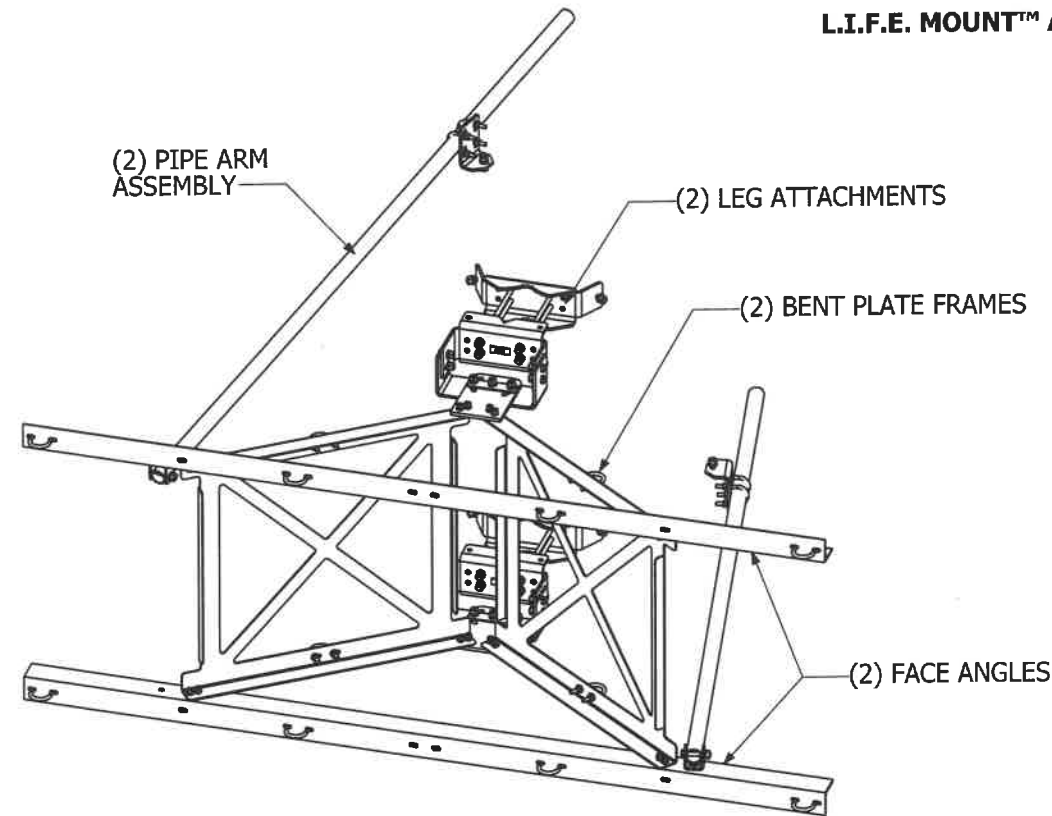
**G-3**

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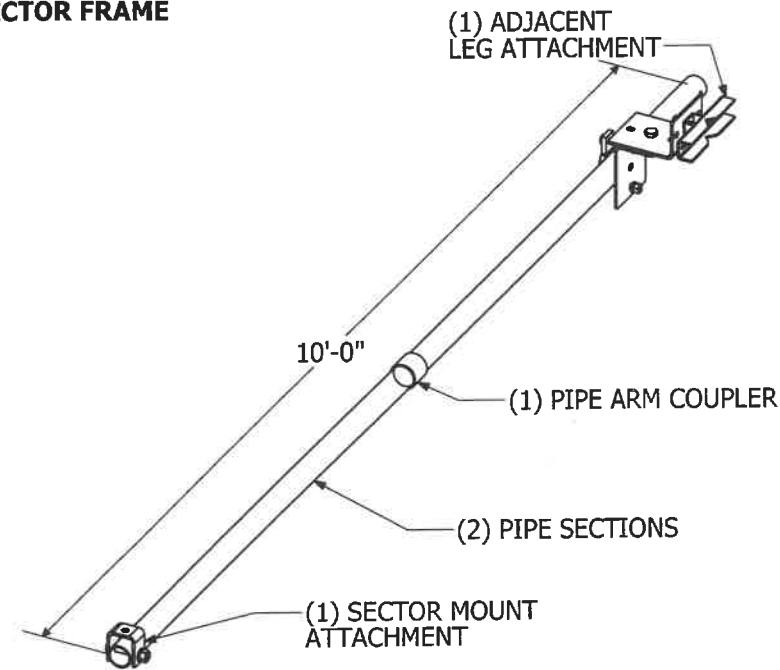
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**PV-SFA-B  
L.I.F.E. MOUNT™ ASSEMBLED SECTOR FRAME**



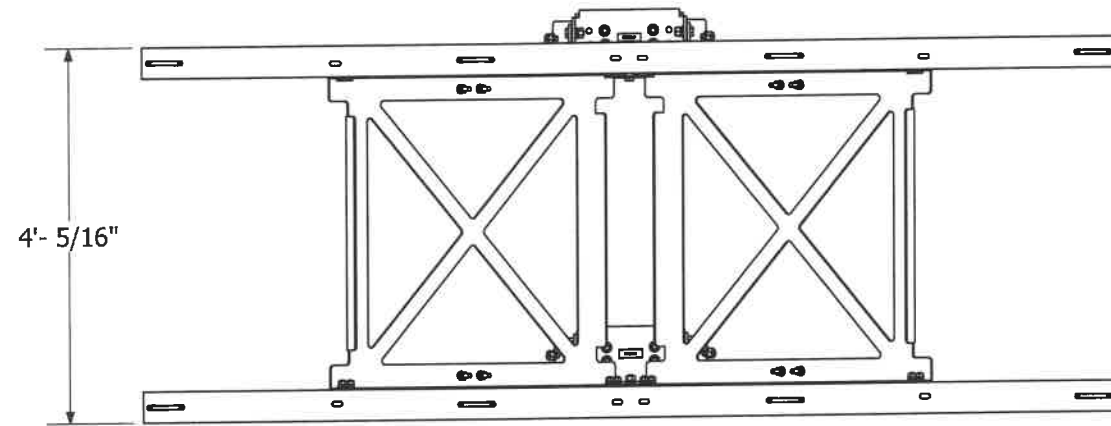
**ASSEMBLED SECTOR MOUNT W/ PIPE ARM**



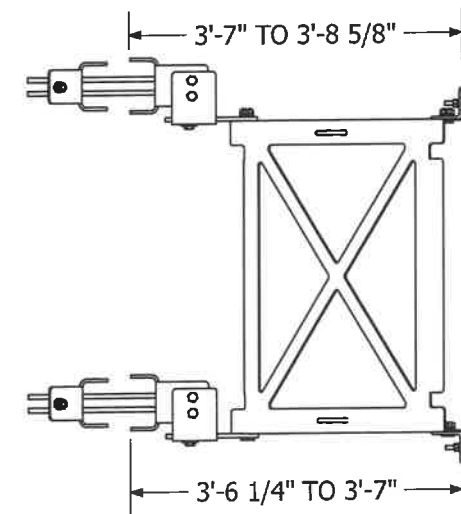
**PIPE ARM ASSEMBLY DETAILS**

**PIPE ARM ASSEMBLY NOTES**

- (2) PIPE ARM ASSEMBLY REQUIRED PER SECTOR MOUNT.
- PIPE ARM ASSEMBLY IS SUPPLIED AS TIE BACK FOR SECTOR MOUNT.
- PIPE ARM ASSEMBLY TO BE CONNECTED TO ADJACENT TOWER LEG



**FRONT VIEW**



**SIDE VIEW**

**Table 1: PV-SFA-B Configurations**

Part Number	Mount Width	Total Weight
PV-SFA7-B	7' 6"	510 lbs
PV-SFA10-B	10' 6"	560 lbs
PV-SFA12-B	12' 6"	592 lbs
PV-SFA14-B	14' 6"	624 lbs

**Table 2: Frame (EPA)**

Part Number	Front (ft <sup>2</sup> ) (EPA) <sub>MN</sub>		Side (ft <sup>2</sup> ) (EPA) <sub>MT</sub>	
	No Ice	0.5" Radial Ice	No Ice	0.5" Radial Ice
PV-SFA7-B	9.9	11.3	5.2	7.4
PV-SFA10-B	11.7	13.5	5.2	7.4
PV-SFA12-B	13.0	15.1	5.2	7.4
PV-SFA14-B	14.3	16.7	5.2	7.4

\*FRAME EPA DOES NOT INCLUDE ANTENNA PIPES

**PERFECTVISION**  
MANUFACTURING

16101 La Grande Dr.  
Little Rock, AR 72223  
1-800-205-8620

STAMP:

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**REVISIONS:**

NO.	DATE	DESCRIPTION	BY	CHK	APD
5	1/19/17	VZM MOUNT CLASSIFICATION	DJN	SS	SS
4	6/9/16	ADDED TIE BACK PIPE RANGE	DJN	AM	SS
3	2/24/16	L.I.F.E. MOUNT™ UPDATE	DJN	AM	SS
2	7/15/15	LARGE LEG ADAPTOR	DJN	BEW	SS
1	6/26/15	ADDED EPA	DJN	LL	SS
0	1/27/15	ENGINEERING DETAIL	LL	DJN	SS

DOCUMENT NUMBER:

**SFA-ENG-01-R5**

DESIGN TYPE:

**ASSEMBLED SECTOR MOUNT**

SHEET TITLE:

**ENGINEERING DETAIL**

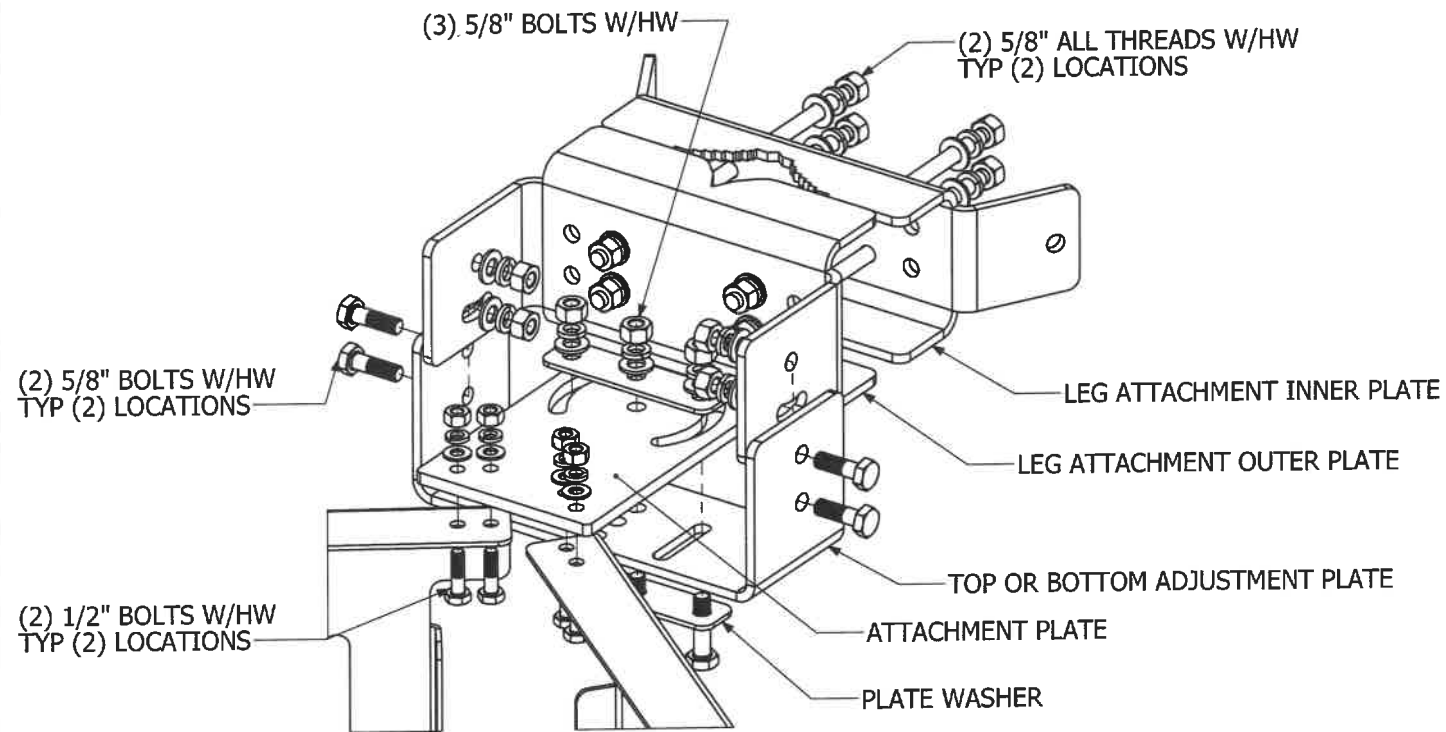
SHEET TITLE:

**E-1**

REVISION:

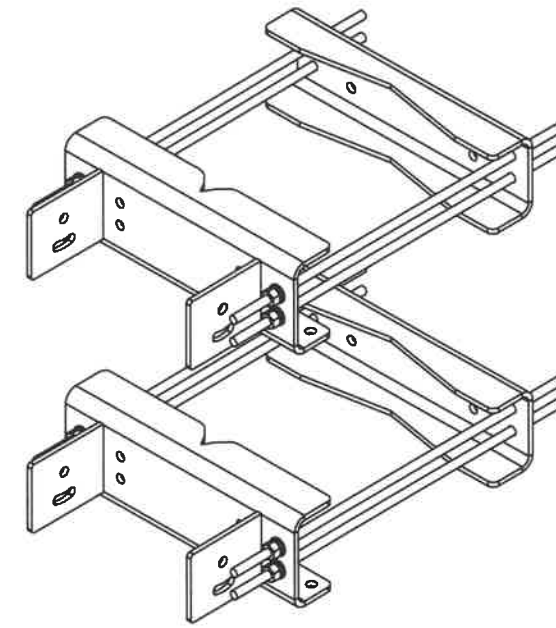
**5**

**PV-SFA-B  
L.I.F.E. MOUNT™ ASSEMBLED SECTOR FRAME**

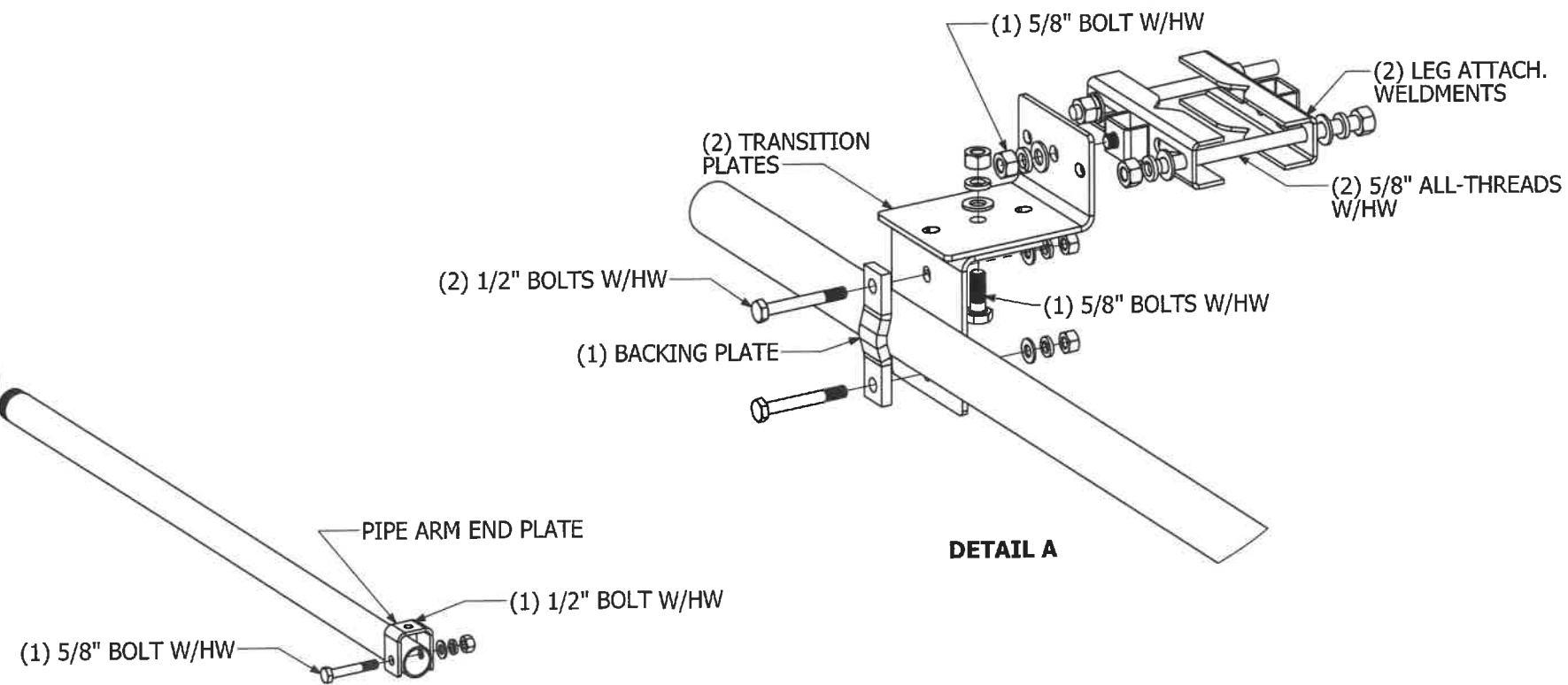
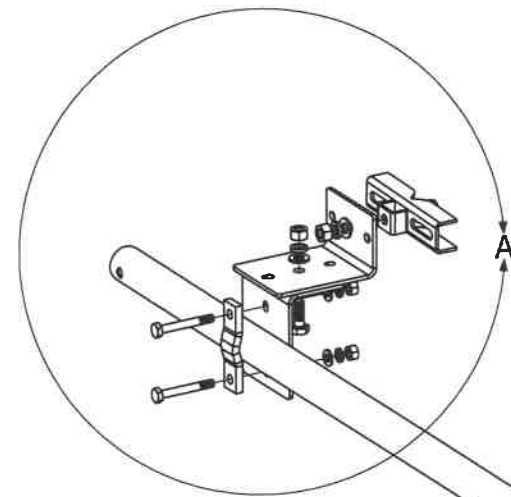


**TYPICAL LEG ATTACHMENT EXPLODED VIEW**

**NOTE:** SUPPLIED LEG ATTACHMENT IS COMPATIBLE UP TO 8" LEGS. FOR LARGE LEGS UP TO 16", ORDER LARGE LEG ADAPTOR KIT PV-SFA-8016



**PV-SFA-8016  
LARGE LEG ADAPTOR KIT**



**DETAIL A**

**PIPE ARM ASSEMBLY EXPLODED VIEW**

**PERFECT VISION  
MANUFACTURING**

16101 La Grande Dr.  
Little Rock, AR 72223  
1-800-205-8620

STAMP:

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REVISIONS:

NO.	DATE	DESCRIPTION	BY	CHK	APD
5	1/19/17	VZW MOUNT CLASSIFICATION	DJN	LL	SS
4	6/9/16	ADDED TIE BACK PIPE RANGE	DJN	AM	SS
3	2/24/16	L.I.F.E. MOUNT™ UPDATE	DJN	AM	SS
2	7/15/15	LARGE LEG ADAPTOR	DJN	BEW	SS
1	6/28/15	ADDED EPA	DJN	LL	SS
0	1/27/15	ENGINEERING DETAIL	LL	DJN	SS

DOCUMENT NUMBER:

**SFA-ENG-01-R5**

DESIGN TYPE:

**ASSEMBLED SECTOR MOUNT**

SHEET TITLE:

**ENGINEERING DETAIL**

SHEET NUMBER:

**E-2**

REVISION:

**5**

**PV-SFA-B  
L.I.F.E. MOUNT™ ASSEMBLED SECTOR FRAME**

**REFERENCE STRUCTURAL LETTER (SFA-STL-01-R0) FOR  
ADDITIONAL LOADING INFORMATION**

**VZW NSTD-445 MOUNT CLASSIFICATION INFORMATION:**

- MAX STRUCTURE HEIGHT: 400ft
- STRUCTURE CLASS: I OR II
- EXPOSURE CATAGORY: B OR C
- TOPOGRAPHIC CATAGORY: 1
- DESIGN WIND PRESSURE (NO ICE): 135psf
- DESIGN WIND PRESSURE (ICED): 15psf
- DESIGN ICE THICKNESS: 2.75in Radial

**APPROVED MOUNT CLASSIFICATIONS\*:**

- M700R-4[6]
- M800R-4[6]
- M900R-4[6]\*\*
- M950R-4[6]\*\*
- M1000R-4[6]\*\*
- M1400R-4[6]\*\*
- M1600R-4[6]\*\*
- M2300R-4[6]\*\* (PV-SFA7-B, PV-SFA10-B, PV-SFA12-B ONLY)

**APPROVED MOUNT CLASSIFICATIONS (ICED)\*:**

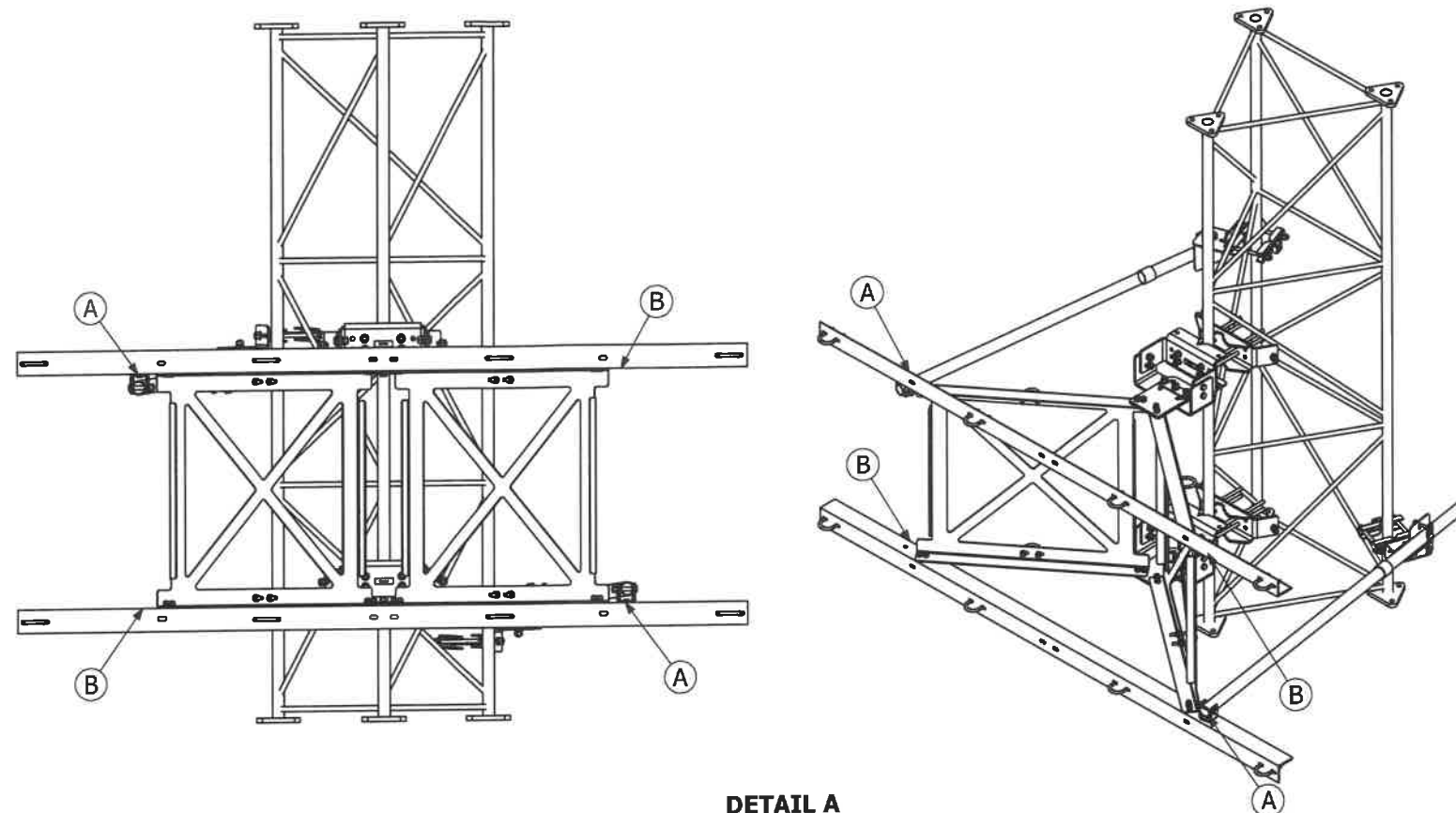
- M1000R(i)-4[6]\*\*
- M1150R(i)-4[6]\*\*
- M1600R(i)-4[6]\*\*
- M2300R(i)-4[6]\*\* (PV-SFA7-B, PV-SFA10-B, PV-SFA12-B ONLY)

**NOTES:**

\*UNLESS NOTED, APPLIES TO PV-SFA7-B, PV-SFA10-B, PV-SFA12-B,  
AND PV-SFA14-B MOUNTS.

\*\*REQUIRES SECONDARY TIE BACK PER SECTOR. SEE **E-3 DETAIL  
A** FOR PROPER INSTALLATION

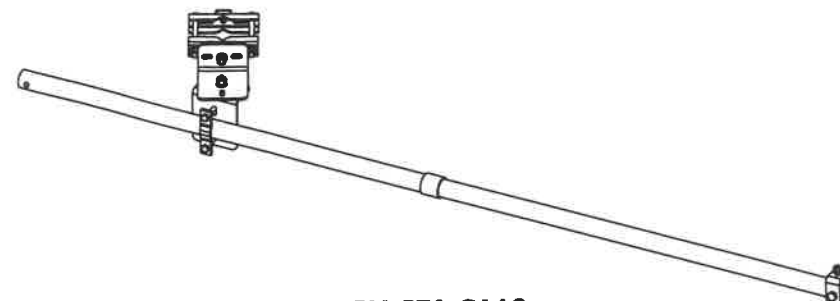
**PERFECT VISION MANUFACTURING HIGHLY RECOMMENDS  
SPECIFYING THE PV-HSK HORIZONTAL SUPPORT KIT TO  
INTERCONNECT SECTORS ON TOWERS WITH FACE WIDTHS  
LESS THAN 10FT AND LEG DIAMETERS LESS THAN 4IN OD.**



**DETAIL A  
SECONDARY STIFF ARM INSTALLATION**

**DOUBLE STIFF ARM INSTALLATION NOTES:**

- STIFF ARMS MUST BE INSTALLED ON  
OPPOSITE CORNERS OF FRAME  
(LOCATIONS A-A OR B-B)
- DO NOT INSTALL STIFF ARMS IN AN A-B  
CONFIGURATION



**PV-SFA-SA10  
SECONDARY STIFF ARM KIT**

**PERFECT VISION  
MANUFACTURING**

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Little Rock, AR 72223  
1-800-205-8620

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3	2/24/16	L.I.F.E. MOUNT™ UPDATE	DJN	AM	SS
2	7/15/15	LARGE LEG ADAPTOR	DJN	BEW	SS
1	6/26/15	ADDED EPA	DJN	LL	SS
0	1/27/15	ENGINEERING DETAIL	LL	DJN	SS

DOCUMENT NUMBER:

**SFA-ENG-01-R5**

DESIGN TYPE:

**ASSEMBLED  
SECTOR MOUNT**

SHEET TITLE:

**ENGINEERING DETAIL**

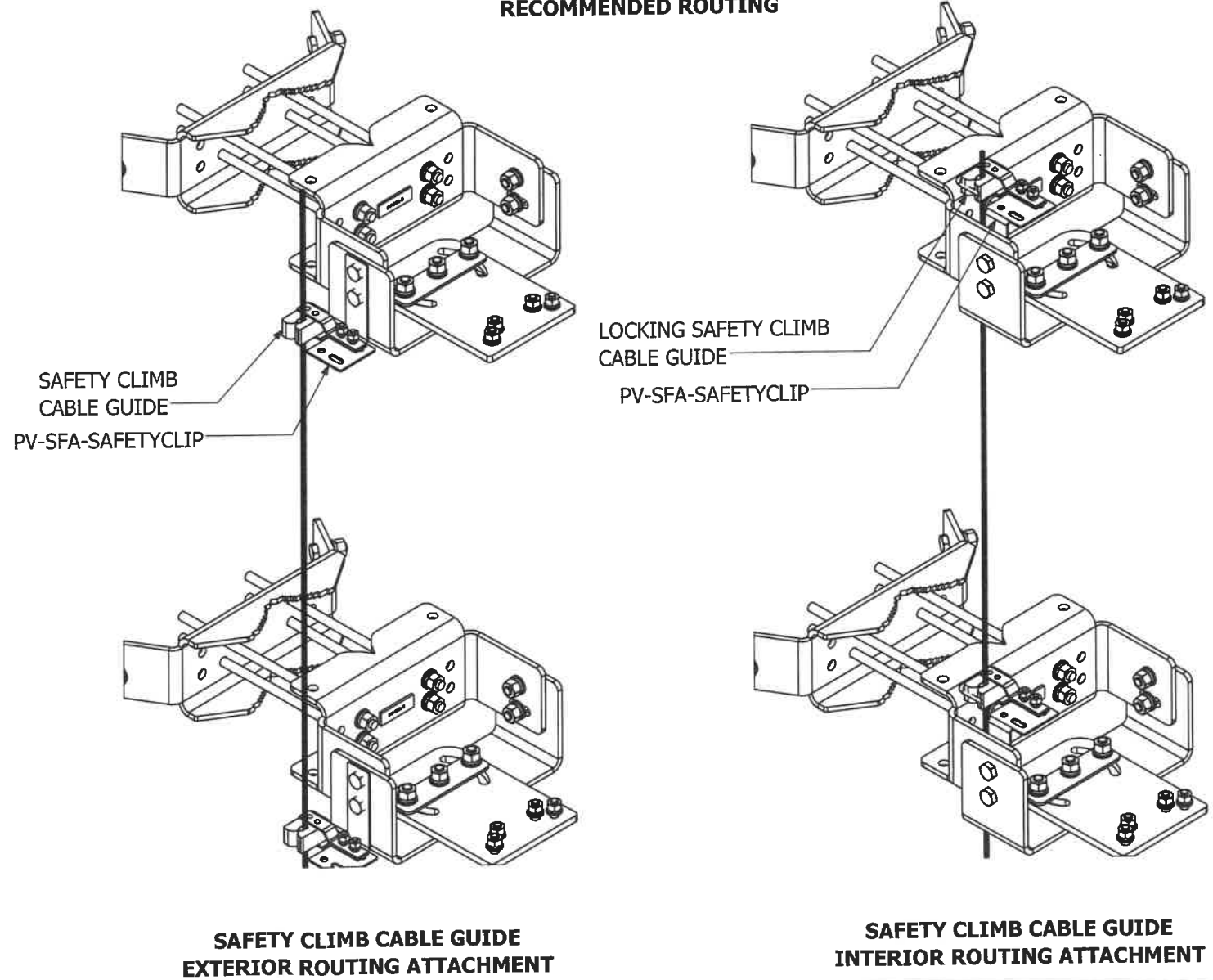
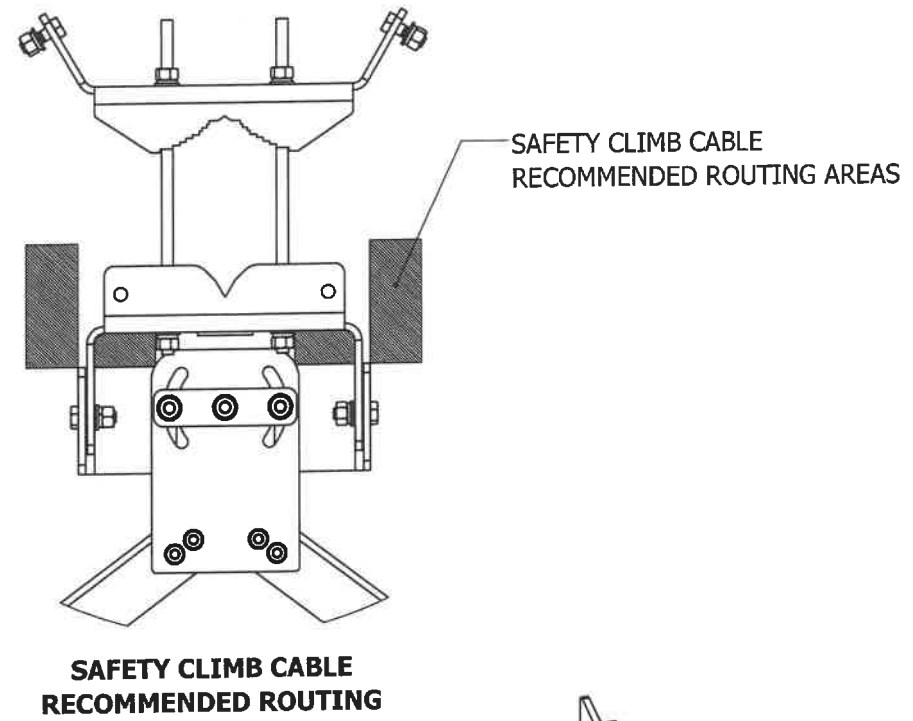
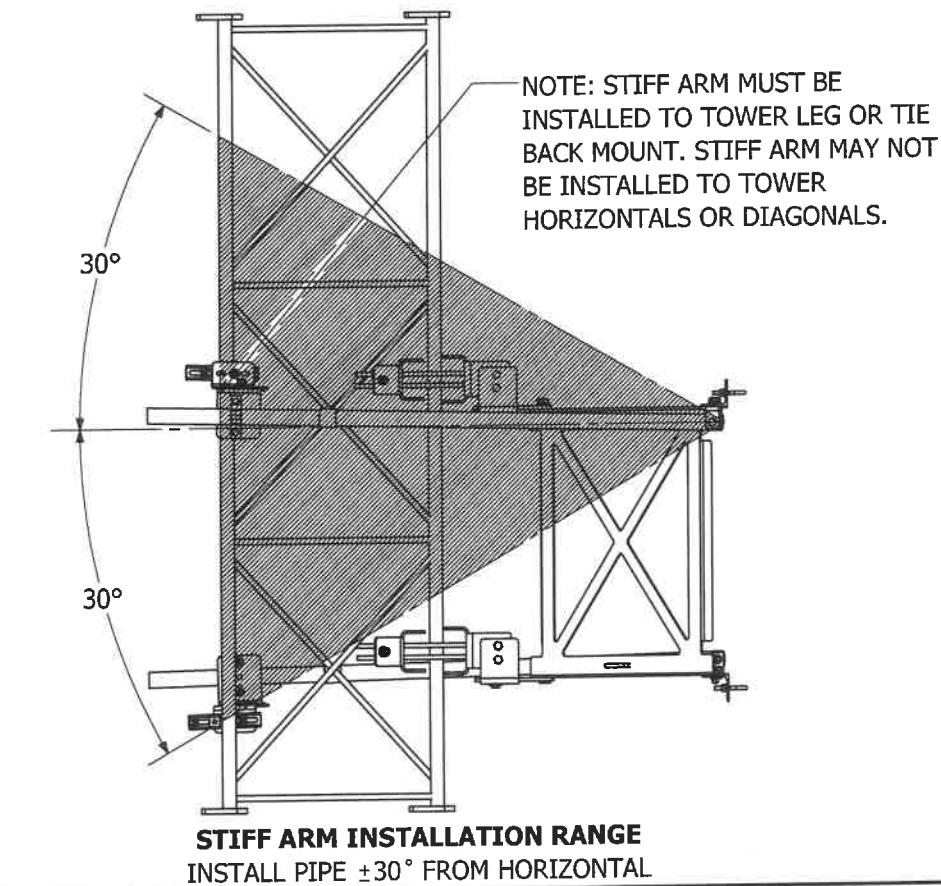
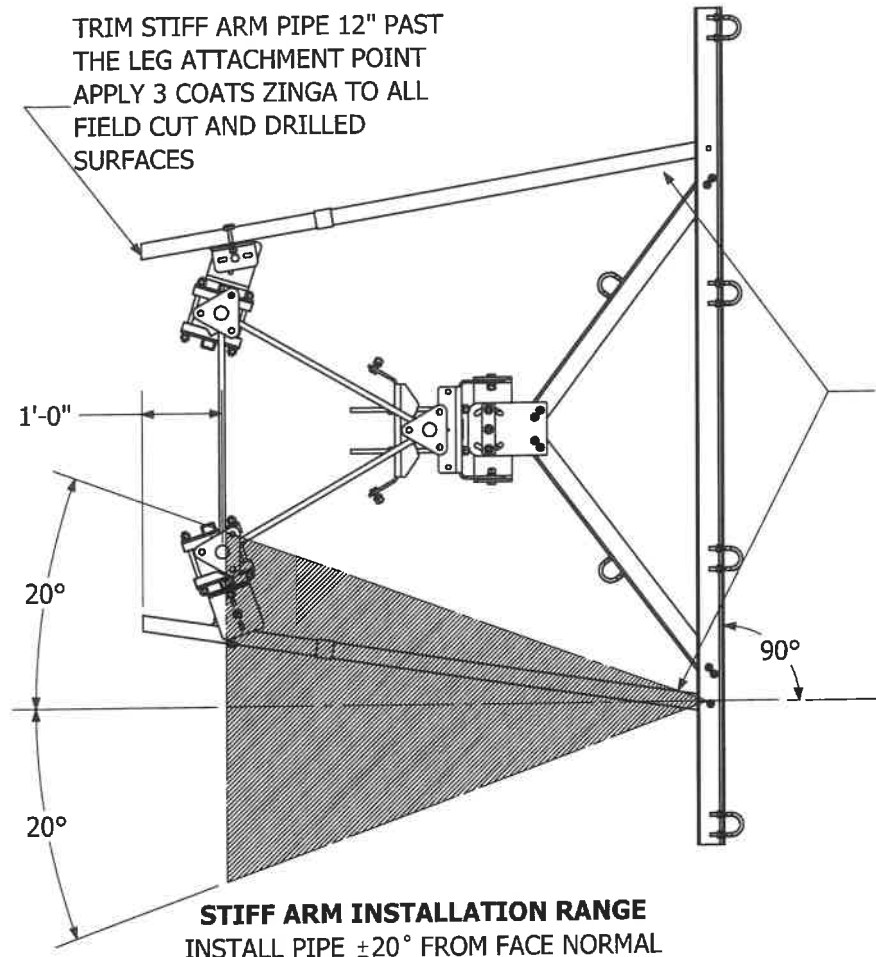
SHEET TITLE:

**E-3**

REVISION:

**5**

**PV-SFA-B  
L.I.F.E. MOUNT™ ASSEMBLED SECTOR FRAME**



**PERFECT VISION**  
MANUFACTURING

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5	1/19/17	VZW MOUNT CLASSIFICATION	DUN	SS	SS
4	6/8/16	ADDED TIE BACK PIPE RANGE	DUN	AM	SS
3	2/24/16	L.I.F.E. MOUNT™ UPDATE	DUN	AM	SS
2	7/15/15	LARGE LEG ADAPTOR	DUN	BEW	SS
1	6/26/15	ADDED EPA	DUN	LL	SS
0	1/27/15	ENGINEERING DETAIL	LL	DUN	SS

DOCUMENT NUMBER:

SFA-ENG-01-R5

DESIGN TYPE:

ASSEMBLED SECTOR MOUNT

SHEET TITLE:

ENGINEERING DETAIL

SHEET TITLE:

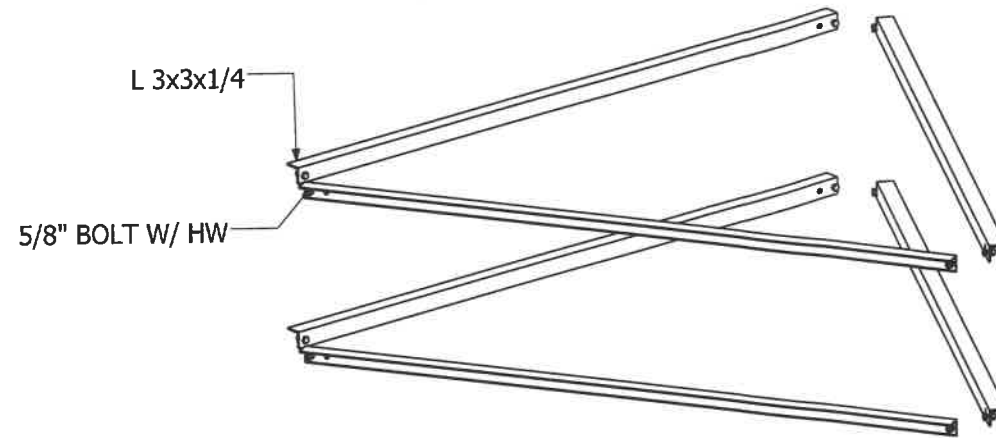
REVISION:

**E-4**

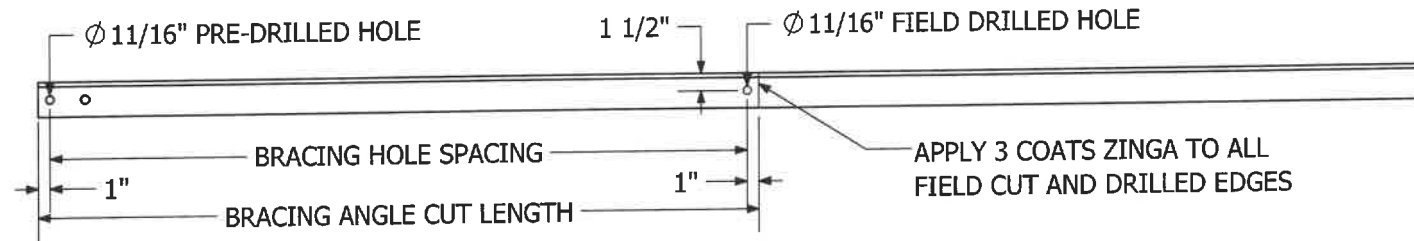
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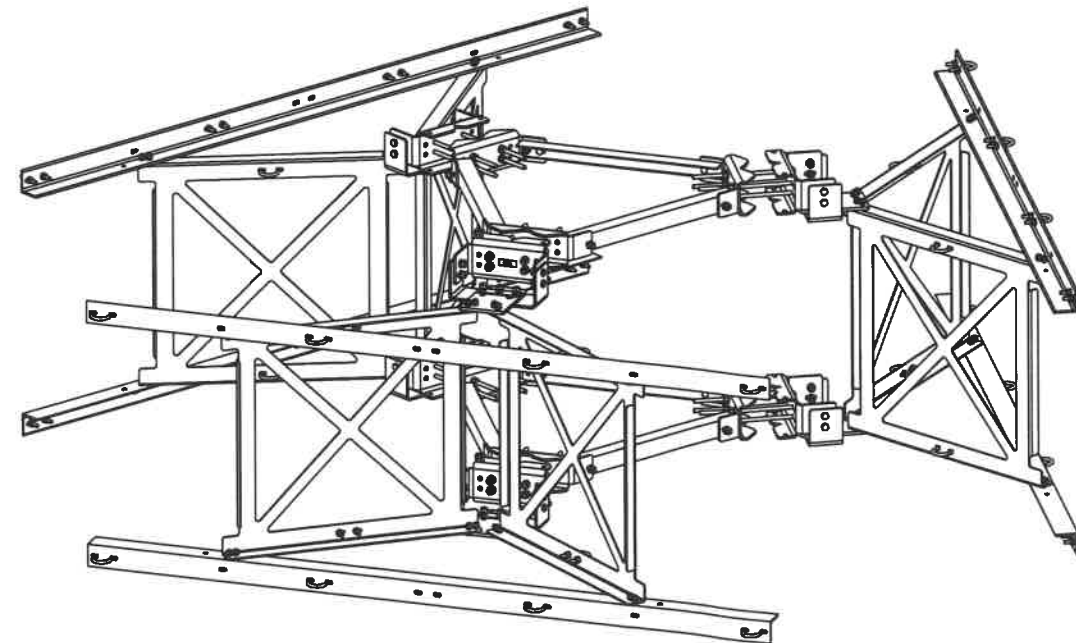
**PV-SFA-B  
L.I.F.E. MOUNT™ ASSEMBLED SECTOR FRAME**



**PV-HSK  
SECTOR FRAME BRACE KIT  
INCLUDES ALL ANGLES AND HARDWARE**



**BRACE ANGLE FIELD CUT DETAIL**



**BRACING INSTALLATION  
(STIFF ARM PIPES NOT SHOWN)**

**PERFECT VISION**  
MANUFACTURING

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1	6/26/15	ADDED EPA	DJN	LL	SS
0	1/27/15	ENGINEERING DETAIL	LL	DJN	SS

DOCUMENT NUMBER:

SFA-ENG-01-R5

DESIGN TYPE:

ASSEMBLED SECTOR MOUNT

SHEET TITLE:

ENGINEERING DETAIL

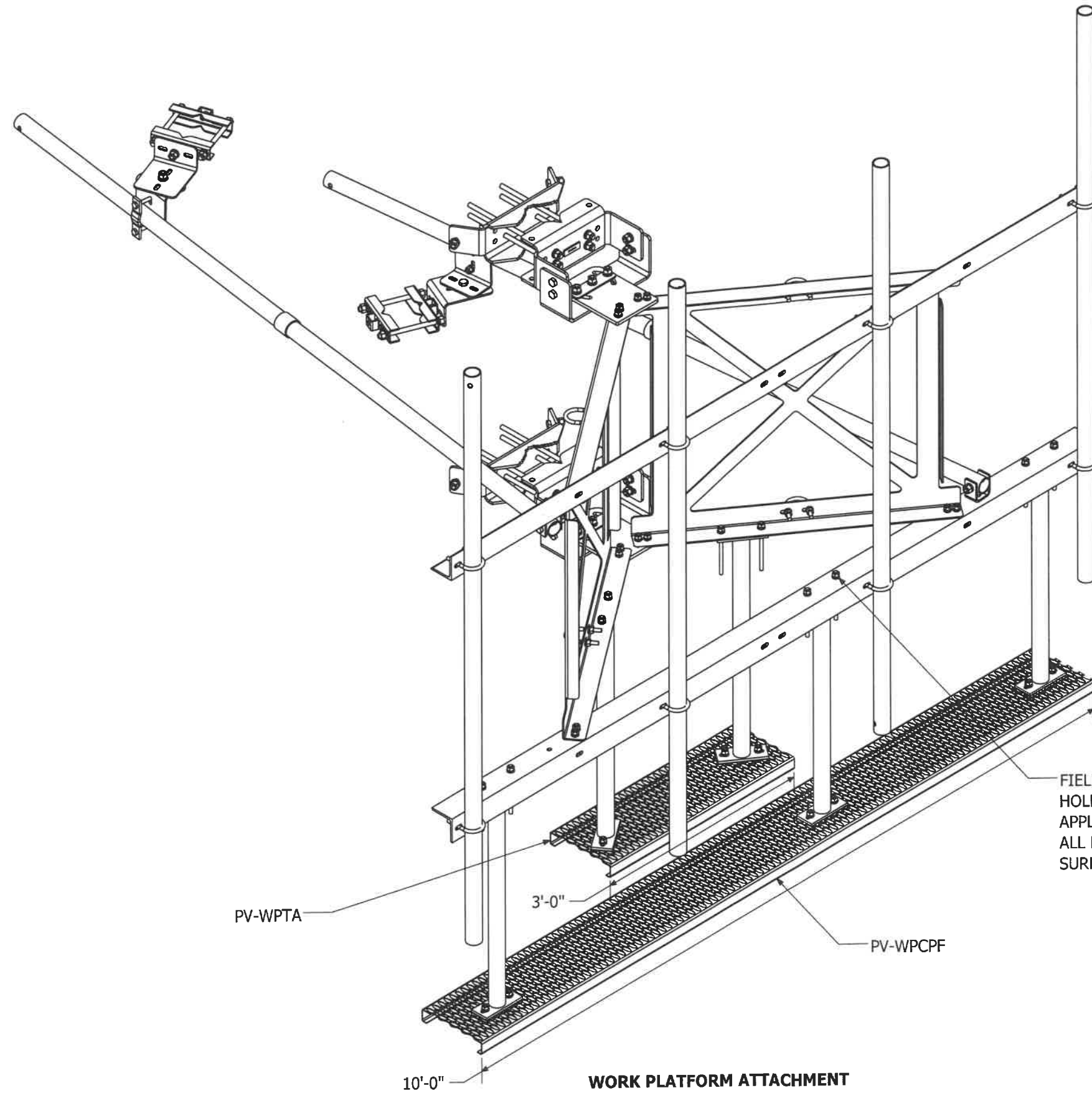
SHEET TITLE:

**E-5**

REVISION:

**5**

**PV-SFA-B  
L.I.F.E. MOUNT™ ASSEMBLED SECTOR FRAME**



FIELD DRILL ATTACHMENT HOLES IN FACE ANGLE APPLY 3 COATS ZINGA TO ALL FIELD CUT AND DRILLED SURFACES

PV-WPTA

3'-0"

PV-WPCPF

10'-0"

**WORK PLATFORM ATTACHMENT**

**PERFECT VISION**  
MANUFACTURING

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3	2/24/16	L.I.F.E. MOUNT™ UPDATE	DJN	AM	SS
2	7/15/15	LARGE LEG ADAPTOR	DJN	BEW	SS
1	6/26/15	ADDED EPA	DJN	LL	SS
0	1/27/15	ENGINEERING DETAIL	LL	DJN	SS

DOCUMENT NUMBER:

**SFA-ENG-01-R5**

DESIGN TYPE:

**ASSEMBLED SECTOR MOUNT**

SHEET TITLE:

**ENGINEERING DETAIL**

SHEET TITLE:

**E-6**

REVISION:

**5**