



P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024
OFFICE: 713-677-0964

VERIZON SITE NUMBER:
VERIZON SITE NAME:
SITE TYPE:
GUYED HEIGHT:

228815
LAKE CITY SOUTH
GUYED
350'-0"

BUSINESS UNIT #:
SITE ADDRESS:
COUNTY:
JURISDICTION:

870081
267 SW CRYSTAL GLN, LAKE CITY, FL 32025
COLUMBIA
COLUMBIA COUNTY

VERIZON: MOD;4G_850,5G_850,5G_L-Sub6-Prep,5G_Radio Swap

SITE INFORMATION

CROWN CASTLE USA INC.
SITE NAME: LAKE CITY (SR 47 & US 41)
SITE ADDRESS: 267 SW CRYSTAL GLN
LAKE CITY, FL 32025
COUNTY: COLUMBIA
MAP/PARCEL #: N/A
AREA OF CONSTRUCTION: EXISTING
LATITUDE: 30° 8' 43.70"
LONGITUDE: -82° 39' 10.90"
LAT/LONG TYPE: NAD83
GROUND ELEVATION: 153 FT
CURRENT ZONING: N/A
JURISDICTION: COLUMBIA COUNTY
OCCUPANCY CLASSIFICATION: U
TYPE OF CONSTRUCTION: IIB
A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER: N/A
TOWER OWNER: CROWN CASTLE USA, INC.
2000 CORPORATE DRIVE
CANONSBURG, PA 15317
CARRIER/APPLICANT: VERIZON WIRELESS
180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921
CANICE STEPHEN - REAL ESTATE SPECIALIST
CANICE.STEPHEN@VERIZONWIRELESS.COM
ELECTRIC PROVIDER: CLAY ELECTRIC CO-OP
N/A
TELCO PROVIDER: FIBER APP
N/A

PROJECT TEAM

AAE FIRM: P. MARSHALL & ASSOCIATES, LLC.
6801 PORTWEST DR. - SUITE 100
HOUSTON, TX 77024
SENIOR ENGINEER - PAT MARSHALL, P.E.
PROJECT ENGINEER - REESE MINOCUE
CROWN CASTLE
USA INC. DISTRICT
CONTACTS: 2 CHASE CORPORATE DRIVE, SUITE 105
BIRMINGHAM, AL 35244
DIEREK SMITH - PROJECT MANAGER
(717) 856-0045
N/A - CONSTRUCTION MANAGER
N/A

NOTES:
• CONTRACTOR TO CONFIRM LATEST RFDS VERSION WITH VERIZON
• PRIOR TO WORK COMMENCEMENT.
• PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE
CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
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C-1.1	EQUIPMENT PLAN
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G-3	GROUNDING DETAILS
G-4	GROUNDING DETAILS

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.

CONTRACTOR PMI REQUIREMENTS

PMI ACCESSED AT: <https://pmi.vzwsmart.com>
SMART TOOL VENDOR: 10083860
PROJECT NUMBER: 228815
VZW LOCATION CODE (PSLC)

*** PMI AND REQUIREMENTS ALSO EMBEDDED IN MOUNT
ANALYSIS REPORT

MOUNT MODIFICATION REQUIRED

Y

VZW APPROVED SMART KIT VENDORS

REFER TO MOUNT MODIFICATION DRAWINGS PAGE FOR
VZW SMART KIT APPROVED VENDORS

PROJECT DESCRIPTION

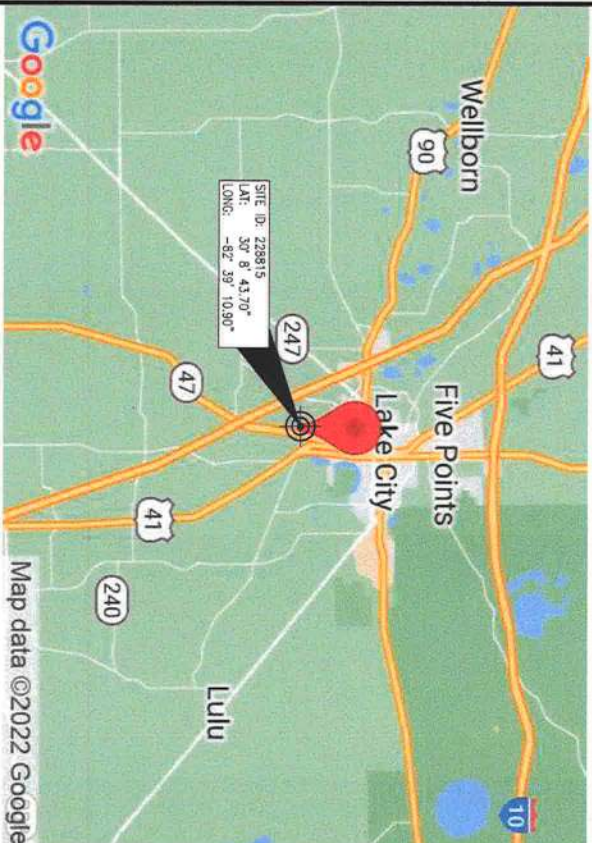
THE PURPOSE OF THIS PROJECT IS TO ENHANCE
BROADBAND CONNECTIVITY AND CAPACITY TO THE
EXISTING ELIGIBLE WIRELESS FACILITY.

- TOWER SCOPE OF WORK
- MOUNT MOD PER ANALYSIS
 - REMOVE (4) DBC-AP DIPLEXERS
 - REMOVE (4) BALST
 - REMOVE (1) 1.5/8" COAX CABLES
 - INSTALL (3) ERICSSON AIR449 ANTENNA/RRH
 - INSTALL (3) COMSCOPE TD-4508-LITE/8-43 COMBINER
 - INSTALL (3) ERICSSON 4449 RRH
 - INSTALL (1) RAYCAP OVP-12/6637
 - INSTALL (1) 12X24 1.5/8" HYBRID CABLE
- GROUND SCOPE OF WORK
- REMOVE (6) ERICSSON 2212 B13 RRH
 - REMOVE (6) DBC-7C DIPLEXERS
 - REMOVE (1) ERICSSON 6301 CABINET
 - INSTALL (1) 48V DC POWER PLANT RACK

ELECTRICAL NOTE:
NO NEW AC ELECTRICAL WORK IS CAPTURED WITHIN THIS
PROJECT SCOPE. ALL ELECTRICAL UPGRADES AND/OR
WORK WILL BE HANDLED BY THE GENERAL CONTRACTOR
AND PERFORMED IN ACCORDANCE WITH THE LOCAL
JURISDICTIONAL REQUIREMENTS.

EMERGENCY NOTE:
NO EQUIPMENT PROPOSED WITHIN THE PROJECT SCOPE
SHALL BE USED FOR EMERGENCY RESPONSE.

LOCATION MAP



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	2020 FLORIDA BUILDING CODE, 7TH EDITION - BUILDING
MECHANICAL	2018 IBC W/ AMENDMENTS
ELECTRICAL	2020 FLORIDA BUILDING CODE, 7TH EDITION - MECHANICAL
	2018 IBC W/ AMENDMENTS
	2020 FLORIDA BUILDING CODE, 7TH EDITION - ELECTRICAL
	2017 NEC (NFPA 70)

ANALYSIS CRITERIA:

APPLICABLE CODES: TIA-222-H / ASCE 7-16
WIND SPEED: V = 118 MPH (ULTIMATE 3 SECOND GUST)
EXPOSURE CATEGORY: C
RISK CATEGORY: II
TOPOGRAPHIC CATEGORY: I
CREST HEIGHT: 0
K_s = 1.0
SEISMIC RESPONSE: NA



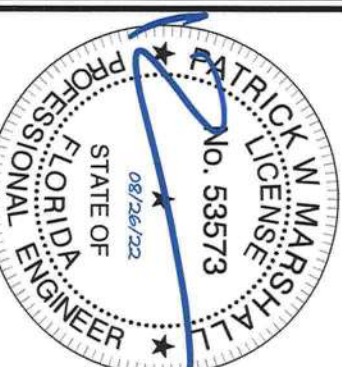
CALL FLORIDA ONE CALL
(800) 432-4770
CALL 3 WORKING DAYS
BEFORE YOU DIG!



ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DESIGN
A	08/03/2022	JAH	ISSUED FOR PERMITS	RAM
0	08/25/2022	JAH	ISSUED FOR PERMITS	RAM

VERIZON SITE NUMBER:
228815
BU #: 870081
LAKE CITY (SR 47 & US 41)
267 SW CRYSTAL GLN
LAKE CITY, FL 32025
EXISTING 350'-0" GUYED



PATRICK W. MARSHALL, PE
REGISTERED ENGINEER
STATE OF FLORIDA #053573
P MARSHALL & ASSOCIATES CA #27595

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: T-1
REVISION: 0

GENERAL NOTES:

- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
- OWNER: CROWN CASTLE USA, INC.
CONTRACTOR: CROWN CASTLE USA, INC.
DESIGN: CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
- THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPETENCE 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 MORTGAGEE WHO HAS 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. MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ELEVATION, AND PREVENT DURING CONSTRUCTION. SUCH REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
- DETAILS 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 STRINGENT REQUIREMENTS SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED, CONTACT THE ENGINEER OF RECORD.
- FABRICATION AND/OR ASSEMBLY SHALL BE DONE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE VERIFY THE DIMENSIONS, VERTICALITY, CONSTRUCTION ELEMENTS, AND IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD CLIPPING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR WITH THE CONSTRUCTION DRAWINGS. THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE OF ANY DISCREPANCIES AND/OR CONFLICTS. AND TO CORRECT THAT THE WORK CAN BE CONSIDERED 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 ORDINANCES OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK PERFORMED BY SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND CITY/COUNTY 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 CONTRACTOR IS TO PERFORM A SITE INSPECTION, AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDENSERS FOR POWER, AND TELCO AND FOR BRACING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
- THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PLUMBING, CABLES, 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 COILS, CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS IN CLEAN CONDITION, TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
- CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:**
- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A194, ASTM A195 AND THE DESIGN AND CONSTRUCTION SPECIFICATIONS. ALL REINFORCING STEEL SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS. UNLESS NOTED OTHERWISE, THE FOLLOWING REQUIREMENTS SHALL APPLY:
1. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f_c) OF 3000 PSI AT 28 DAYS UNLESS NOTED OTHERWISE. NO MORE THAN 90 UNITS SHALL EXCEED FROM BATCH TIME TO TIME OF PLACEMENT.
2. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°F AT TIME OF PLACEMENT.
3. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AN ENTRAINING ADJUVANT, 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.
4. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615, ALL WELDED WIRE FABRIC (WVF) SHALL CONFORM TO ASTM A195. ALL SPACES SHALL BE CLASS "B" TENSION SPACES, UNLESS NOTED OTHERWISE. ALL HOOPS SHALL BE STANDARD 90 DEGREE HOOPS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (F_y) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
5. #3 BARS AND LARGER: 60 ksi
6. #4 BARS AND LARGER: 60 ksi
7. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
8. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO WEATHER: 3"
9. #3 BARS AND LARGER: 2"
10. #4 BARS AND LARGER: 1.5"

1. ALL GROUND ELECTRODE SYSTEMS (INCLD. TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GEYS) SHALL BE BONDED TOGETHER AT OR BELOW GRADE. BY TWO MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM EARTH FALL-OF-POTENTIAL RESISTANCE (PER IEEE 1100 AND B1) 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.
3. 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.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. UNDERGROUND CONDUIT 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 BITS.
6. EACH CABLE TRAY SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES. #2 STRANDED COPPER OR LARGER FOR INDOOR BITS. #2 BARE SOLID TINNED COPPER FOR OUTDOOR BITS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE TOUGHED UP OR STITCHED BACK TO THE GROUND BUS OR TO THE MASTER GROUND BAR. CONNECTIONS TO THE GROUND BUS SHALL NOT BE MADE ON THE OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS, CABLE STEEL EQUIPMENT/GROUND BARS AND THE GROUND BUS SHALL BE PROTECTED AGAINST CORROSION BY AN ANODE PROTECTION SYSTEM. ANODES SHALL BE SIZED AND SPACED IN ACCORDANCE WITH THE NEC.
9. ALUMINUM CONDUCTOR OR COPPER C/JO STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS. ALL GROUNDING CONNECTIONS SHALL BE MADE WITH COPPER OR COPPER ALLOY.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. ALL COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONNECTIONS SHALL BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
15. APPROVED ANTI-OXIDANT COMPOUNDS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL GROUNDING CONNECTIONS SHALL BE MADE WITH A CORROSION RESISTANT MATERIAL.
17. ALL GROUNDING CONNECTIONS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER OR LARGER FOR INDOOR BITS. #2 BARE SOLID TINNED COPPER FOR OUTDOOR BITS.
19. GROUND CONDUCTIONS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE REUSED FOR ANY OTHER PURPOSES. NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED, WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT REQUIRED BY LOCAL CODE). THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDING THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE SHALL BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF C/O-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (AOD TRANSMISSION GROUND STANDARD DETAIL AS WELL.)
21. 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).

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL ELECTRICAL WORK SHALL BE SEQUESTERED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- 4.1. ALL CONDUIT EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENTS OF THE MANUAL 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 A MINIMUM, VENTRY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.2.4 NEC OR THE MOST CURRENT ADOPTED CODE FOR THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELEO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TYPE (3" BROAD, 1/2" PLASTIC, ELECTRICAL, TYPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION COLOR/CODED COMPONENTS SHALL BE CLEARLY LABELED WITH LAMPED TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING, AND BRANCH CIRCUIT TO NUMBERS (E.G. PANEL BOARD AND CIRCUIT NO.).
6. PANEL, BOARDS (NO NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
7. ALL THE WIRERS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL, TO REMOVE SHARP EDGES.
8. ALL POWER AND EQUIPMENT GROUND WIRING IN TURNING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHN, THW, THHN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
9. SUPPLEMENTAL, EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHN, THW, THHN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE SCOW COORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE SCOW COORD (#14 OR LARGER) WITH TYPE THHN, THHN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
12. LUGS AND WIRE NUTS SHALL BE USED TO CONNECT OR OVERLAP ELECTRICAL WIRE IN ACCORDANCE WITH NEC, UL, ANSI/IEEE AND NEC.
13. RACEWAY AND CABLE TRAY SHALL BE USED TO OVERLAP ELECTRICAL WIRE IN ACCORDANCE WITH NEC, UL, ANSI/IEEE AND NEC.
14. ELECTRICAL METALLIC TUBING (ENT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
15. ELECTRICAL METALLIC TUBING (ENT) OR METAL-CALO CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
16. SCHEDULE 40 PIPE UNDERGROUND ON STRAPINGS AND SCHEDULE 80 PIPE FOR ALL EMBODIES/90% AND ALL APPROVED ABOVE GRADE PIG CONDUIT.
17. LUGS AND WIRE NUTS SHALL BE USED TO CONNECT OR OVERLAP ELECTRICAL WIRE IN ACCORDANCE WITH NEC, UL, ANSI/IEEE AND NEC.
18. LUGS AND WIRE NUTS SHALL BE USED TO CONNECT OR OVERLAP ELECTRICAL WIRE IN ACCORDANCE WITH NEC, UL, ANSI/IEEE AND NEC.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE MANS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEC, UL, ANSI/IEEE AND THE NEC.
21. WHENWAS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECIMATE).
22. SWINGING DOOR SHALL BE PIG AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE PROTECTED AGAINST PHYSICAL DAMAGE BY PROVIDING NOT-REINFORCED STRIPS AND HANGERS, EXPLOSIVE DEVICES (I.E. POWDER), ACQUITTED FOR FLEXIBLE, SCHEDULE 40 PIPE UNDERGROUND ON STRAPINGS AND SCHEDULE 80 PIPE FOR ALL EMBODIES/90% AND ALL APPROVED ABOVE GRADE PIG CONDUIT.
24. CONDUITS SHALL BE PROTECTED AGAINST PHYSICAL DAMAGE BY PROVIDING NOT-REINFORCED STRIPS AND HANGERS, EXPLOSIVE DEVICES (I.E. POWDER), ACQUITTED FOR FLEXIBLE, SCHEDULE 40 PIPE UNDERGROUND ON STRAPINGS AND SCHEDULE 80 PIPE FOR ALL EMBODIES/90% AND ALL APPROVED ABOVE GRADE PIG CONDUIT.
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26. CONDUITS SHALL BE PROTECTED AGAINST PHYSICAL DAMAGE BY PROVIDING NOT-REINFORCED STRIPS AND HANGERS, EXPLOSIVE DEVICES (I.E. POWDER), ACQUITTED FOR FLEXIBLE, SCHEDULE 40 PIPE UNDERGROUND ON STRAPINGS AND SCHEDULE 80 PIPE FOR ALL EMBODIES/90% AND ALL APPROVED ABOVE GRADE PIG CONDUIT.
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51. CONDUITS SHALL BE PROTECTED AGAINST PHYSICAL DAMAGE BY PROVIDING NOT-REINFORCED STRIPS AND HANGERS, EXPLOSIVE DEVICES (I.E. POWDER), ACQUITTED FOR FLEXIBLE, SCHEDULE 40 PIPE UNDERGROUND ON STRAP

CONDUCTOR COLOR CODE

120/240V, 10	A PHASE B PHASE C PHASE NEUTRAL GROUND	BLACK RED WHITE GREEN
120/208V, 3Ø	A PHASE B PHASE C PHASE NEUTRAL GROUND	BLACK RED BLUE WHITE GREEN
277/480V, 3Ø	A PHASE B PHASE C PHASE NEUTRAL GROUND	BROWN ORANGE OR PURPLE YELLOW GREEN GREEN
DC VOLTAGE	POS (+) NEG (-)	RED** BLACK**

ABBREVIATIONS:

PF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GRS	GROUND RESEARCH SYSTEM
ITE	LONG TERM EXPLORATION
MSB	MASTER SOUNDBAR
MM	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RTDS	RADIO FREQUENCY DATA SHEET
RHH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RSU	RESEARCH SUPPORT DEVICE
RTM	RESEARCH TOWER
TRP	TRANSMITTER AMPLIFIER
UNIS	UNIVERSAL, URBAN TELECOMMUNICATIONS SYSTEM
WP	WORK POINT

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 CAUSTICS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POURABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

VERIZON SITE NUMBER:

BU #: 870081
LAKE CITY (SR 47 & US 41)

EXISTING 350'-0" GUYED

ISSUED FOR:				
REV	DATE	DRAWN	DESCRIPTION	DWG./QTY
A	08/03/2022	JAH	ISSUED FOR PRELIMS	RAM
0	08/25/2022	JAH	ISSUED FOR FINAL	RAM

P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024
OFFICE 713-677-0964

**CROWN
CASTLE**

verizon
180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921

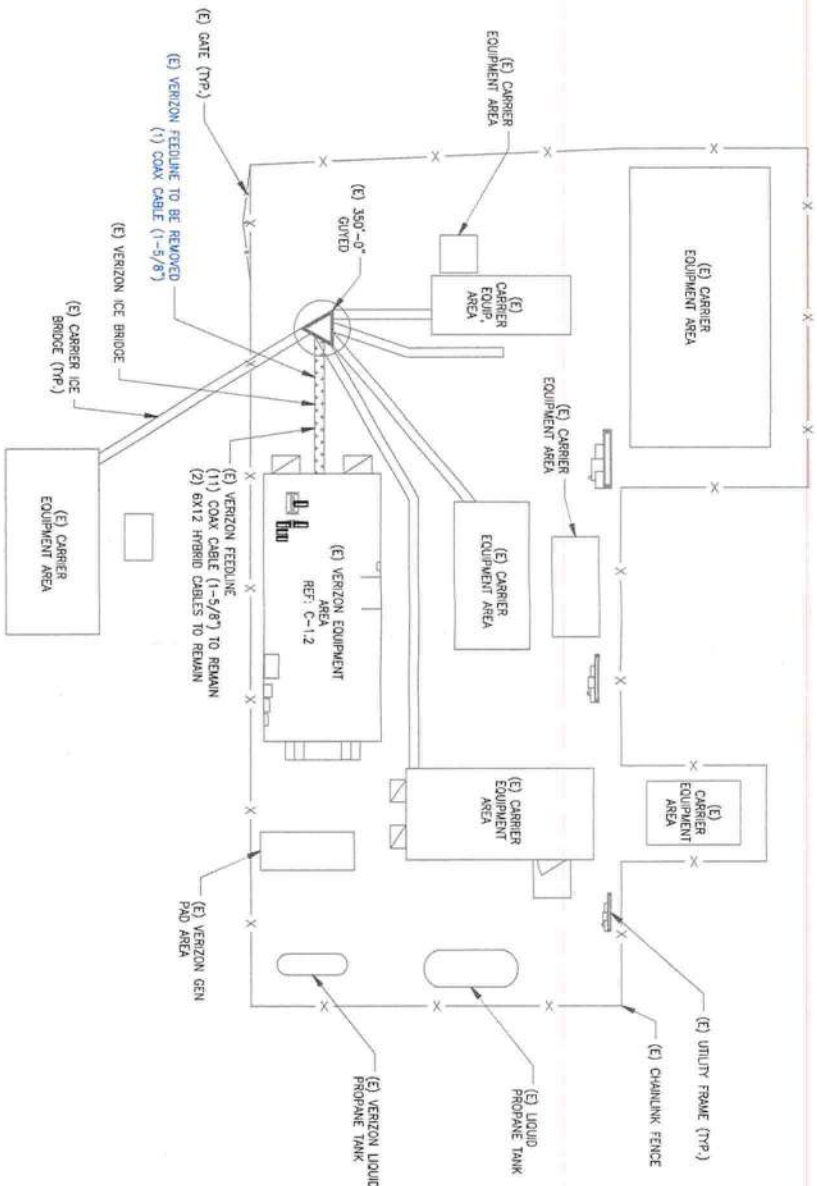


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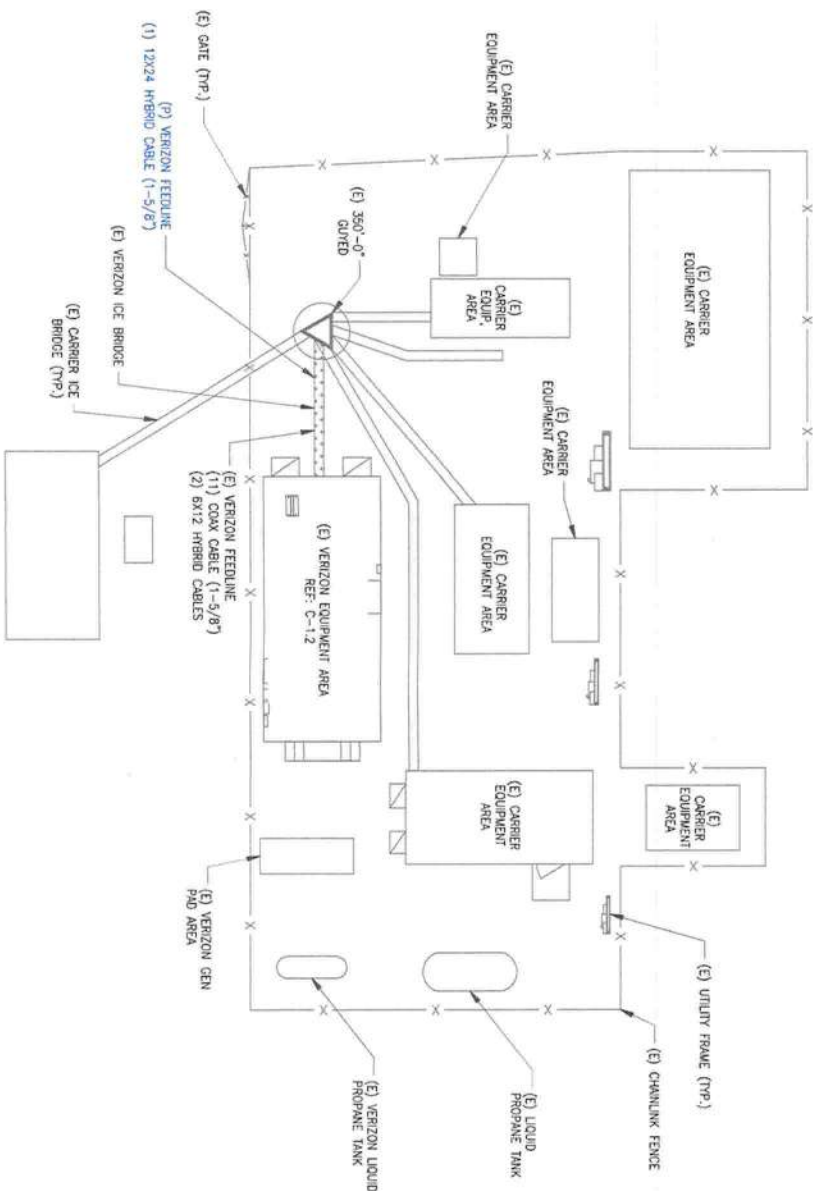
SHEET NUMBER: REVISION:

T-20

SITE PLAN DISCLAIMER:
PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAN SETS OF FROM ASSESSORS MAPS. PM&A HAS NOT CONDUCTED A SURVEY AND THEREFORE MAKES NO GUARANTEE AS TO THE ACCURACY OF THE PROPERTY LINES OR STRUCTURES SHOWN ON THIS SHEET. CONTRACTOR SHALL FIELD VERIFY SITE PLANS & EQUIPMENT SHOWN AGAINST PRESENT FIELD CONDITIONS. IF PLANS DO NOT MATCH UP WITH SITE CONDITION AT TIME OF CONSTRUCTION, CONTACT VERIZON AND THE CROWN CASTLE CM.



1 OVERALL SITE DEMO PLAN
SCALE: 1"=10'-0" (FULL SIZE)
1"=20'-0" (1:1117)



2 OVERALL SITE PROPOSED PLAN
SCALE: 1"=10'-0" (FULL SIZE)
1"=20'-0" (1:1117)



verizon
180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921

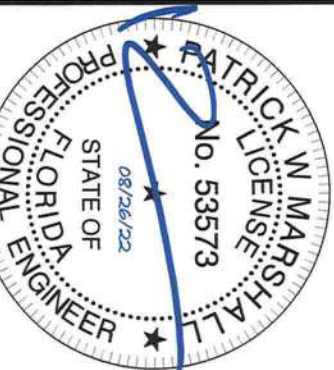
CROWN CASTLE
2 CHASE CORPORATE DRIVE, SUITE 105
BIRMINGHAM, AL 35244

PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE. 100,
HOUSTON, TX 77024
OFFICE 713-677-0964

VERIZON SITE NUMBER:
228815

BU #: 870081
LAKE CITY (SR 47 & US 41)
267 SW CRYSTAL GLN
LAKE CITY, FL 32025
EXISTING 350'-0" GUYED

ISSUED FOR:				
REV	DATE	DRAWN	DESCRIPTION	DES/QA
1	08/03/2022	JAH	ISSUED FOR PRELIMS	RJM
0	08/25/2022	JAH	ISSUED FOR FINAL	RJM

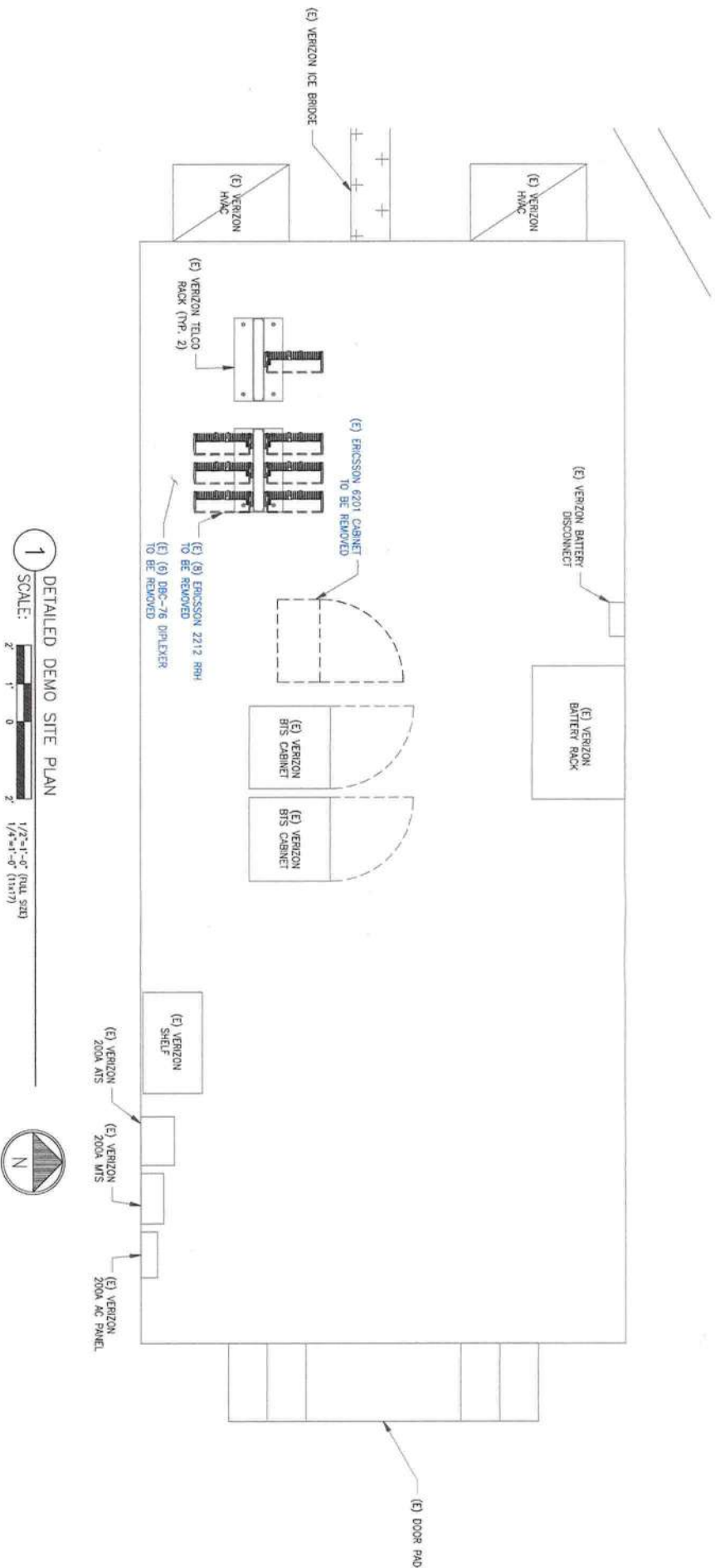


PATRICK W. MARSHALL, PE
REGISTERED ENGINEER
STATE OF FLORIDA #053573
P MARSHALL & ASSOCIATES CA #27595

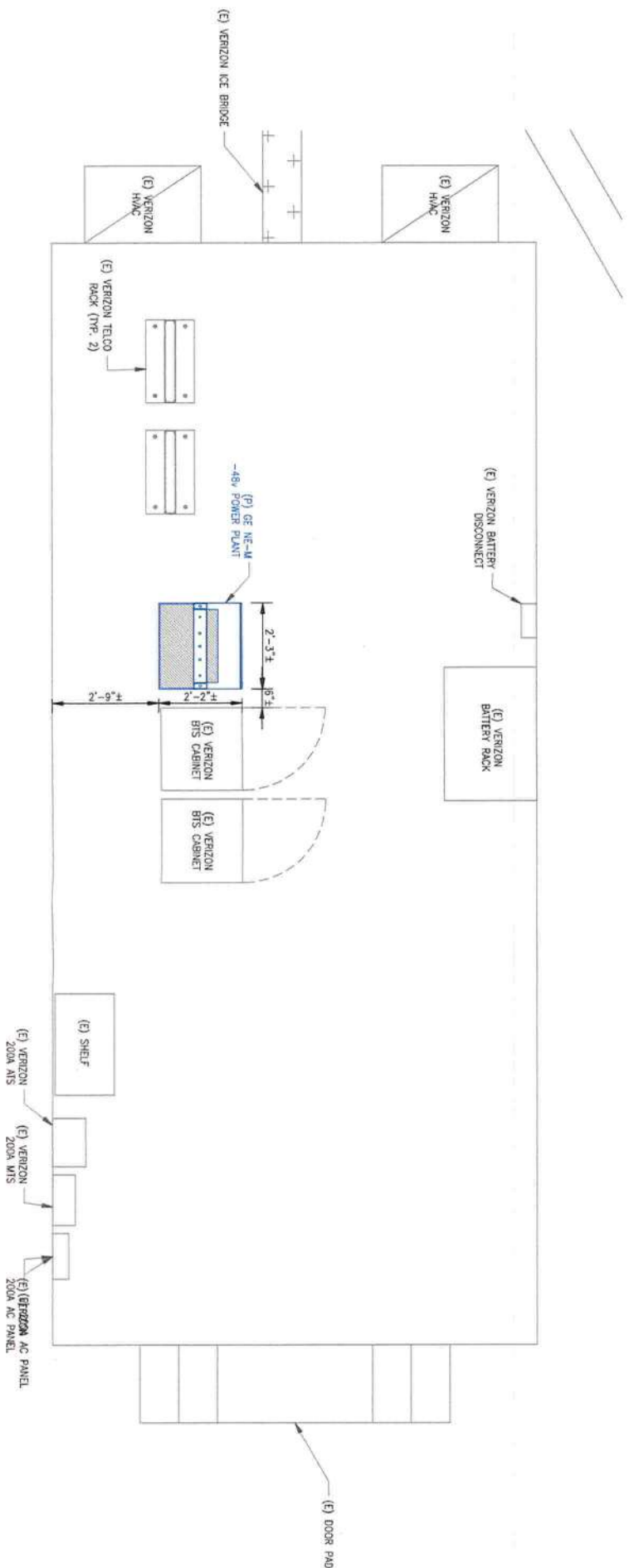
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SHEET NUMBER: C-1.1
REVISION: 0

SITE PLAN DISCLAIMER:
PROPERTY LINES AND STRUCTURES HAVE BEEN LOCATED FROM PREVIOUS PLAT SITS OR FROM ASSESSORS MAPS. PMAA HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET. CONTRACTOR SHALL FIELD VERIFY SITE PLAN & EQUIPMENT SHOWS AGAINST PRESENT FIELD CONDITIONS. IF PLANS DO NOT MATCH UP WITH SITE CONDITIONS AT TIME OF CONSTRUCTION, CONTACT VERIZON AND THE CROWN CASTLE CM.



1 DETAILED DEMO SITE PLAN



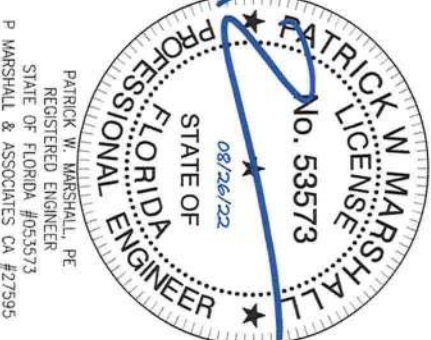
2 DETAILED PROPOSED SITE PLAN



VERIZON SITE NUMBER:
228815

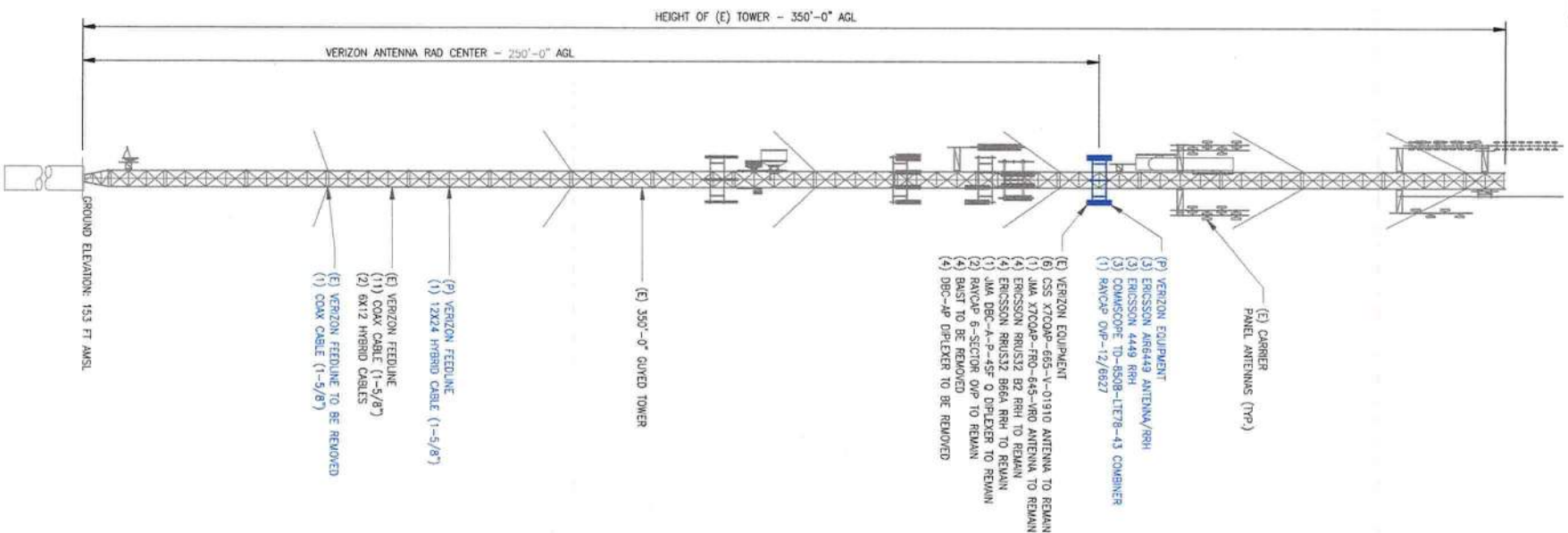
BU #: 870081
LAKE CITY (SR 47 & US 41)
267 SW CRYSTAL GLN
LAKE CITY, FL 32025
EXISTING 350'-0" GUYED

ISSUED FOR:				
REV	DATE	DRAWN	DESCRIPTION	DES./QA
A	08/03/2022	JAH	ISSUED FOR PRELIMS	RAM
0	08/25/2022	JAH	ISSUED FOR FINAL	RAM

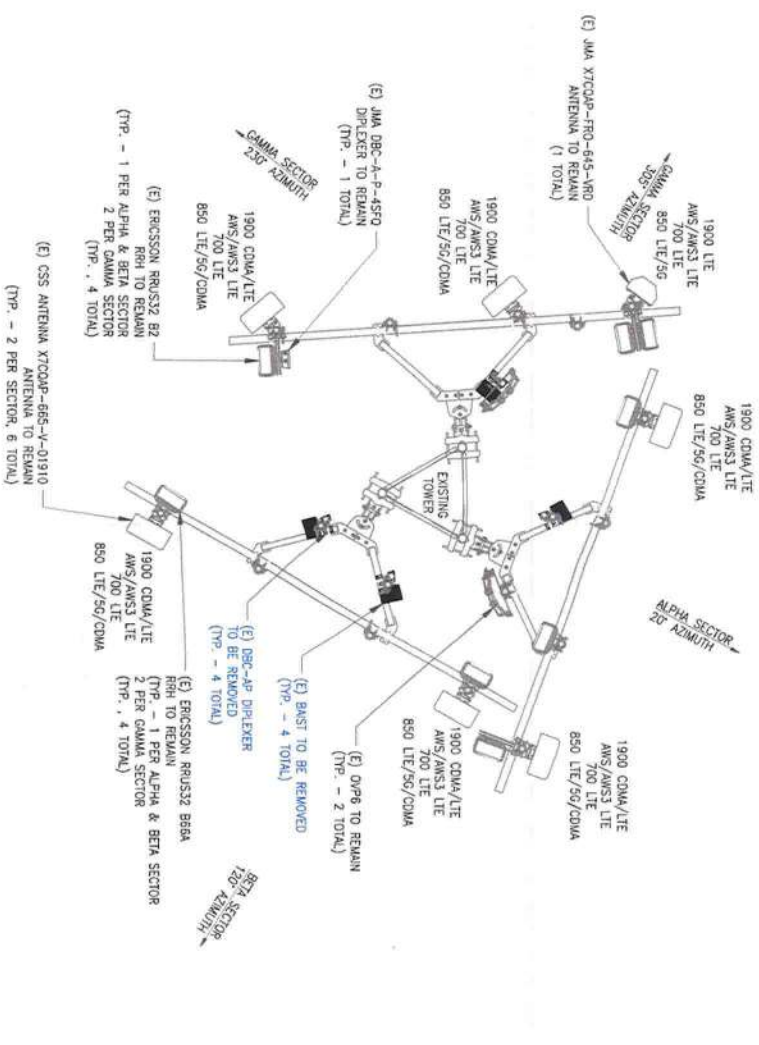


PATRICK W. MARSHALL, PE
REGISTERED ENGINEER
STATE OF FLORIDA #053573
P MARSHALL & ASSOCIATES CA #27595

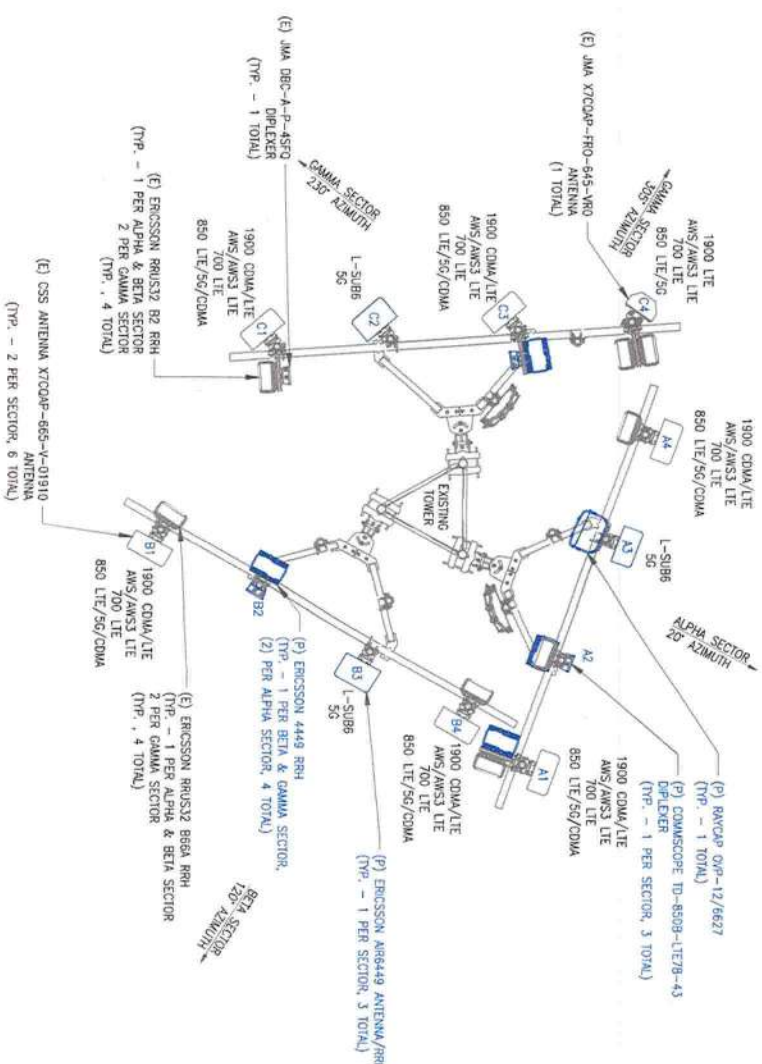
SHEET NUMBER: C-1.2
REVISION: 0



1 TOWER ELEVATION
SCALE: NOT TO SCALE



2 (E) ANTENNA ORIENTATION
SCALE: NOT TO SCALE



(P) ANTENNA ORIENTATION
SCALE: NOT TO SCALE

NOTE:
REFERENCE SHEET C-3 FOR FINAL
ANTENNA EQUIPMENT SCHEDULE.

NOTE:
ANTENNA ORIENTATION BASED OF
VERIZON RFDS PLUMBING DIAGRAM.
CONTRACTOR TO VERIFY MATCHING
STRUCTURAL ANALYSIS (BY OTHERS).

NOTE:
DIRECT TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE WITH CLIMBING PEDS/STEPS AND SAFETY CLIMB. DO NOT OBSTRUCT BEACON IF TOWER LT.

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DIRECT TOWER MOUNTED EQUIPMENT MUST NOT TRAP OR INTERFERE WITH CLIMBING PEDS/STEPS AND SAFETY CLIMB. DO NOT OBSTRUCT BEACON IF TOWER LT.

TOWER & ANTENNA STANDARD NOTES:

A. TOWER STRUCTURAL ANALYSIS BY N/A, DATED N/A, PROJECT # N/A, IN NEW ANTENNAS OR EQUIPMENT INSTALLED WITHOUT APPROVAL OF STRUCTURAL ENGINEER AND CROWN CASTLE.

B. MOUNT ANALYSIS BY MASER CONSULTING, DATED 06/09/2021, PROJECT # 2194443A. NO NEW MOUNTS OR MOUNT REINFORCEMENT INSTALLED WITHOUT APPROVAL OF STRUCTURAL ENGINEER AND CROWN CASTLE.

C. INSTALLED EQUIPMENT MUST HAVE A MATCHING CROWN APPLICATION AND STRUCTURAL ANALYSIS

E. 2' ANTENNA SEPARATION REQUIRED. CONTRACTOR TO MOVE (E) ANTENNAS TO ENDS OF MOUNT AS REQUIRED.

INSTALLATION OF MOUNTS WITHOUT THE APPROVAL OF A STRUCTURAL ENGINEER.

AND TOWER FOUNDATION MUST BE ANALYZED BY A LICENSED STRUCTURAL ENGINEER TO VERIFY TOWER IS CAPABLE OF SUPPORTING THE PROPOSED LOADS. REFER TO STRUCTURAL ANALYSIS BY OTHERS.

H. PROPOSED ANTENNA PLACEMENT LOCATION TO BE FIELD VERIFIED BY GENERAL CONTRACTOR PRIOR TO CONSTRUCTION TO AVOID ANY INTERFERENCE OR SHADOWING OF EXISTING ANTENNAS. IF INTERFERENCE OR SHADOWING IS OBSERVED, THE CONTRACTOR SHALL

DURING FIELD VERIFICATION, PLEASE CONTACT (ADD VENDOR) FOR DESIGN REVISION PRIOR TO ANY NEW ANTENNA INSTALLATION.

WORKING SURFACE TO THE TOP OF RADIOS.
APPLIES TO STEALTH/CONCEALMENT TOWERS ONLY.

SCHEDULED FOR SAME DAY AS PLANNED COMPLETE DATE.
PRE-CONSTRUCTION PHOTOS ARE REQUIRED FOR SHROUDS.
APPLIES TO FLAG BOATS ONLY.

LOAD PATH CONSIDERATION SHALL BE MADE AND CRITICAL COMPONENTS ANALYZED WHEN FLAG AND ROPE ARE DIRECTLY ATTACHED TO APPURTENANCES OR ANTENNAS.

REQUIRE NO UTILITIES.
FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAP ACCESS
IS NOT REQUIRED.

ISSUED FOR:				
REV	DATE	DRAWN	DESCRIPTION	DES/6
A	08/03/2022	JAH	ISSUED FOR PRELIMS	RAM
0	08/25/2022	JAH	ISSUED FOR FINAL	RAM

VERIZON SITE NUMBER:
228815

BU #: 870081

LAKE CITY (SR 47 & US 41)

267 SW CRYSTAL GLN
LAKE CITY, FL 32025

EXISTING 350'-0" GUYED

verizon
180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921

**CROWN
CASTLE**

2 CHASE CORPORATE DRIVE, SUITE 105
BIRMINGHAM, AL 35244



P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024
OFFICE 713-677-0964

A circular professional engineer seal for Patrick W. Marshall. The outer ring contains the text "PATRICK W MARSHALL" at the top and "PROFESSIONAL ENGINEER" at the bottom, separated by two stars. The inner circle contains the text "STATE OF FLORIDA" and "LICENSE No. 53573". A date stamp "08/26/22" is located in the center. A blue ink signature is written across the seal.

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SHEET NUMBER: REVISION

C-2 | 0



180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921



2 CHASE CORPORATE DRIVE, SUITE 105
BIRMINGHAM, AL 35244



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228815

BU #: 870081
LAKE CITY (SR 47 & US 41)

267 SW CRYSTAL GLN
LAKE CITY, FL 32025

EXISTING 350'-0" GUYED

NOTE:
REFER TO RFDS FOR ELECTRICAL &
MECHANICAL DOWNTILTS

FINAL CABLE SCHEDULE				
STATUS	CABLE TYPE	SIZE	LENGTH	QTY
EXISTING	COAX	1-5/8"	300'-0"±	11
EXISTING	HYBRID	1-1/2"	300'-0"±	2
NEW	HYBRID	2"	300'-0"±	1
TOTAL CABLE QTY:				14

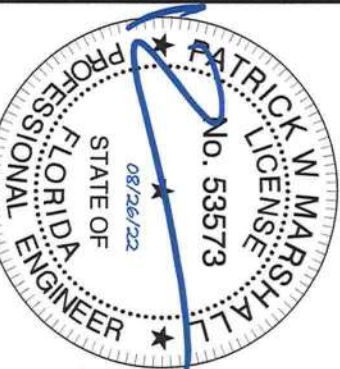
FINAL EQUIPMENT SCHEDULE

SECTOR	STATUS	ANTENNA MANUFACTURER	ANTENNA MODEL	ANTENNA CENTERLINE	AZIMUTH	TOWER EQUIPMENT MANUFACTURER	TOWER EQUIPMENT QTY/MODEL
A1	EXISTING	CSS	X7C04P-665-VR0	250'-0"	20°	(E) ERICSSON (P) ERICSSON	(1) RRJ32 B66A (1) RADIO 4449
A2	-	-	-	250'-0"	20°	(E) ERICSSON (P) COMMSCOPE	(1) RRJ32 B66A (1) RADIO 4449 (1) DPREXER TD-850B-LTE7B-43
A3	NEW	ERICSSON	AIR 6449	250'-0"	20°	(P) RANCAP	(1) DNP12/6627
A4	EXISTING	CSS	X7C04P-665-VR0	250'-0"	20°	(E) ERICSSON	(1) RRJ32 B2
B1	EXISTING	CSS	X7C04P-665-VR0	250'-0"	120°	(E) ERICSSON	(1) RRJ32 B66A
B2	-	-	-	250'-0"	120°	(P) ERICSSON (P) COMMSCOPE	(1) RADIO 4449 (1) DPREXER TD-850B-LTE7B-43
B3	NEW	ERICSSON	AIR 6449	250'-0"	120°	-	-
B4	EXISTING	CSS	X7C04P-665-VR0	250'-0"	120°	(E) ERICSSON	(1) RRJ32 B2
C1	EXISTING	CSS	X7C04P-665-VR0	250'-0"	230°	(E) ERICSSON (E) JMA	(1) RRJ32 B2 (1) DBC-A-P-457 0
C2	NEW	ERICSSON	AIR 6449	250'-0"	230°	-	-
C3	EXISTING	CSS	X7C04P-665-VR0	250'-0"	230°	(P) COMMSCOPE (P) ERICSSON	(1) DPREXER TD-850B-LTE7B-43 (1) RADIO 4449
C4	EXISTING	JMA	X7C04P-FR0-645-VR0	250'-0"	305°	(E) ERICSSON (E) ERICSSON	(1) RRJ32 B66A (1) RRJ32 B2

INSTALLER NOTE:

CONTRACTOR SHALL CONFIRM EQUIPMENT
CONFIGURATION WITH FINAL VERIZON RF DWS
BEFORE PROCEEDING WITH ANTENNA
MODIFICATIONS.

1 VERIZON EQUIPMENT SCHEDULE
SCALE: NOT TO SCALE



PATRICK W. MARSHALL, PE
REGISTERED ENGINEER
STATE OF FLORIDA #053573
P MARSHALL & ASSOCIATES CA #27595

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SHEET NUMBER:

C-3

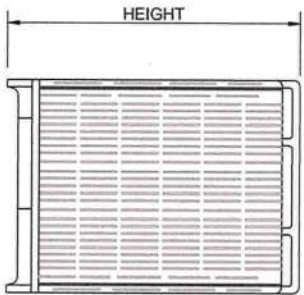
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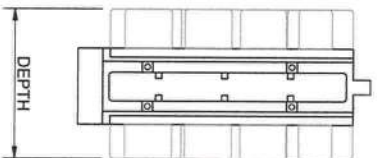
ERICSSON RADIO 4449

DIMENSIONS, HxWxD: 17.9" x 13.2" x 9.4"
WEIGHT: 70.3 lbs

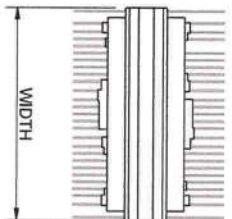
FRONT



SIDE



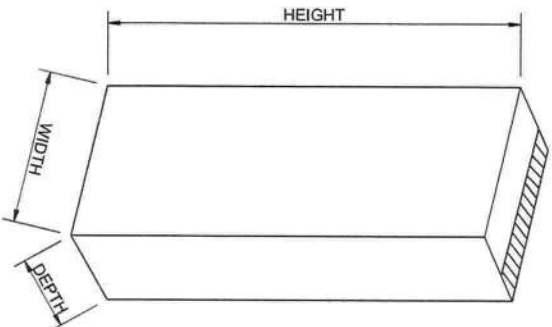
TOP



1 RRH SPECIFICATIONS
SCALE: NOT TO SCALE

VZW AIR6449 ANTENNA

DIMENSIONS, HxWxD: 33.1" x 20.6" x 8.6"
WEIGHT: 104.0 lbs



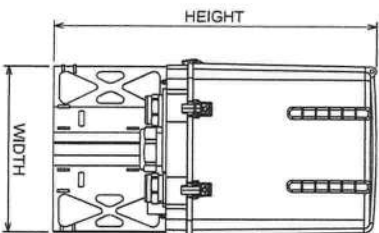
3 ANTENNA/RRH SPECIFICATIONS
SCALE: NOT TO SCALE

2 NOT USED
SCALE: NOT TO SCALE

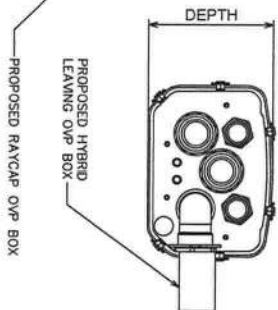
RAYCAP OVP BOX

MAKE: RAYCAP
MODEL: OVP-12/6627
DIMENSIONS, HxWxD: 29.5" x 16.5" x 12.6"
WEIGHT: 32.0 lbs

FRONT



TOP



4 OVP SPECIFICATIONS (MOUNT)
SCALE: NOT TO SCALE



VERIZON SITE NUMBER:
228815

BU #: 870081
LAKE CITY (SR 47 & US 41)

267 SW CRYSTAL GLN
LAKE CITY, FL 32025

EXISTING 350'-0" GUYED

ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES/CHK
A	08/03/2022	JAH	ISSUED FOR PRELIMS	RAM
0	08/25/2022	JAH	ISSUED FOR FINAL	RAM

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.

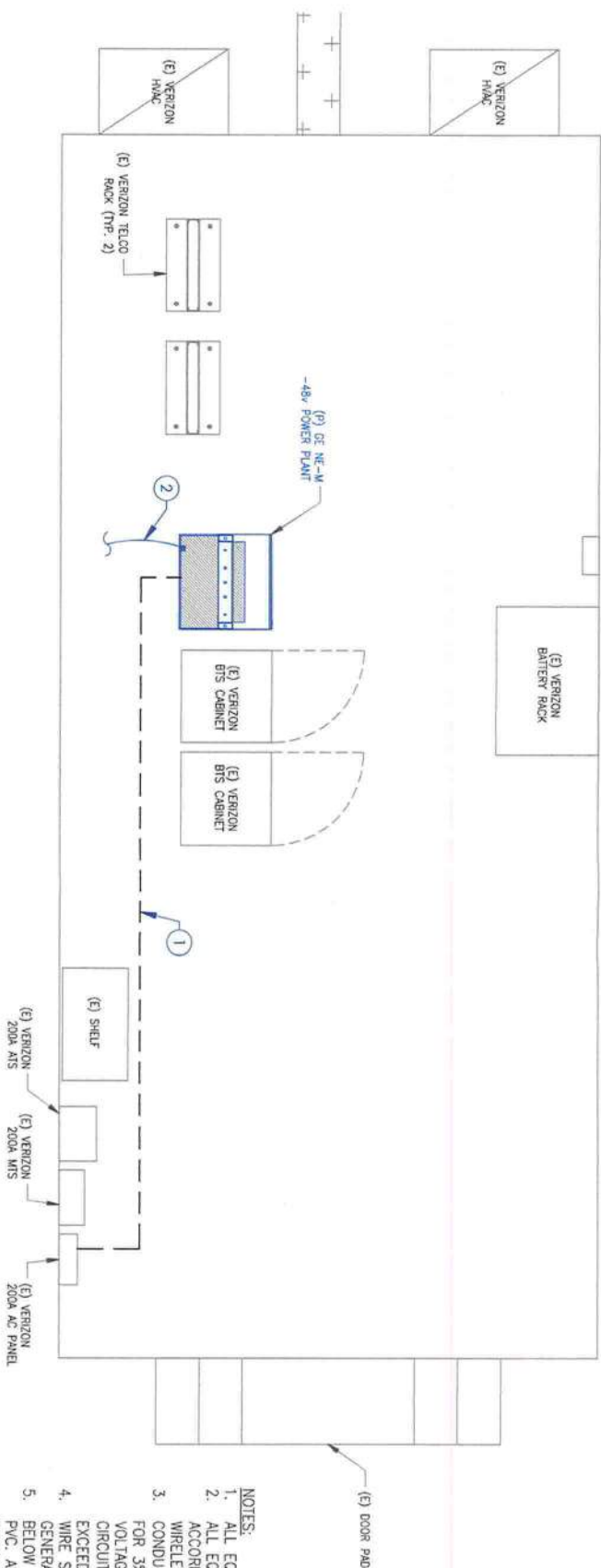
SHEET NUMBER: C-4
REVISION: 0

EQUIPMENT KEY NOTES:

1. PROPOSED (2) 2" SCH. 40 PVC CONDUIT FOR RECEIVER CIRCUITS FROM EXISTING 200A AC PANEL TO PROPOSED POWER PLANT (25+/- LF).
2. PROPOSED #2 AWG BARE TINNED SOLID COPPER WIRE, 2-HOLE LUG CONNECTION FROM EQUIPMENT TO GROUND RING, GROUND PER MANUFACTURER SPECIFICATIONS.

SITE PLAN DISCLAIMER:

PROPERTY LINES AND STRUCTURES HAVE BEEN LOCATED FROM PREVIOUS PLAT SETS OR FROM ASSESSORS MAPS. PM&A HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET. CONTRACTOR SHALL FIELD VERIFY SITE PLAN & EQUIPMENT SHOWN AGAINST PRESENT FIELD CONDITIONS. IF PLANS DO NOT MATCH UP WITH SITE CONDITIONS AT TIME OF CONSTRUCTION, CORRECT VERIZON AND THE CROWN CASTLE ON.

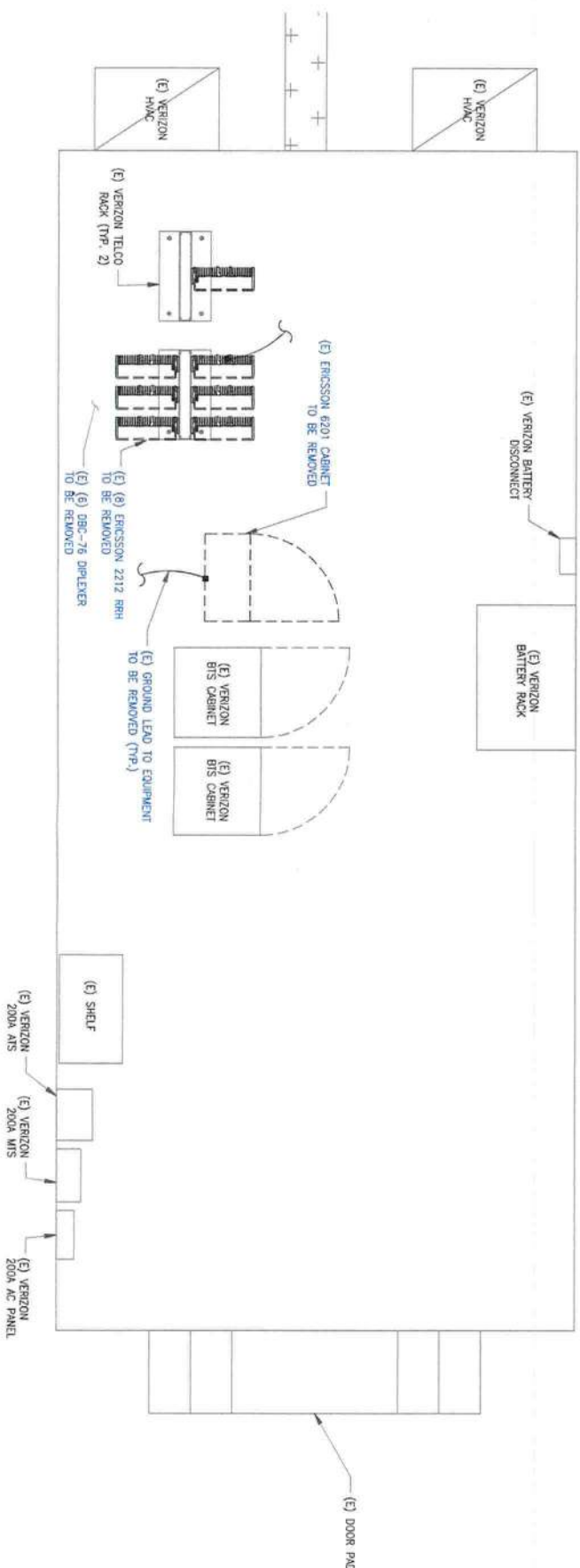


2 ELECTRICAL & GROUNDING SITE PROPOSED PLAN

SCALE: 1" = 1'-0" (FULL SIZE) 1/4" = 1'-0" (1"x1")



- NOTES:
1. ALL EQUIPMENT SHALL BE NEMA 3R RATED.
 2. ALL EQUIPMENT SHALL BE LIGHTNING PROTECTED IN ACCORDANCE WITH TIA-222-G AND VERIZON WIRELESS STANDARDS.
 3. CONDUCTOR SIZES AND DISTANCES HAVE BEEN SIZED FOR 3% MAX VOLTAGE DROP (TOTAL SYSTEM VOLTAGE DROP ON BOTH FEEDERS AND BRANCH CIRCUITS TO THE FARTHEST DEMAND SHALL NOT EXCEED 5%).
 4. WIRE SIZING AND MAXIMUM DISTANCE FROM GENERATOR TO ILC ASSUMES POWER FACTOR OF 0.9.
 5. BELOW GRADE CONDUIT SHALL BE SCHEDULE 40 PVC. ABOVE GRADE CONDUIT SHALL BE GALVANIZED RIGID CONDUIT. BELOW GRADE PVC CONDUIT SHALL TRANSITION TO GRC PRIOR TO RISING ABOVE GRADE. ALL BENDS SHALL HAVE A MINIMUM 24" RADIUS. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT. VERIFY CONDUIT TYPE WITH LOCAL CONSTRUCTION MANAGER AND ADJUST IF NECESSARY. ALL CONDUIT SHALL MEET NEC, STATE, AND LOCAL CODE REQUIREMENTS AS REQUIRED.



1 ELECTRICAL & GROUNDING SITE DEMO PLAN

SCALE: 1" = 1'-0" (FULL SIZE) 1/4" = 1'-0" (1"x1")



CLEARANCE NOTE: MINIMUM GENERATOR CLEARANCE MUST BE PROVIDED IN ACCORDANCE WITH THE MOST STRINGENT GOVERNING ADOPTED BUILDING CODE AND/OR THE MANUFACTURER'S SPECIFICATIONS AND DETAILS, WHICHEVER CRITERIA IS GREATER.

ACCESS NOTE: PROVIDE 3'-0" MINIMUM NEC AND OSHA ACCESS CLEARANCE FOR ALL GENERATOR ACCESS DOORS AND AC POWER PANELS (TYP).

CONDUIT NOTE: ALL BURIED CONDUIT SHALL BE PVC. SCHEDULE 40, ALL EXPOSED CONDUIT AND ALL CONDUIT ROUTED ACROSS THE TOP OF EXISTING FOUNDATIONS SHALL BE SCH. 80 PVC OR 1-5/8" UNSTRUT OR EQUIVALENT.

TRENCHING NOTE: THE CONTRACTOR SHALL HAND DIG ALL CONDUIT TRENCHES LOCATED WITHIN THE EXISTING FENCED COMPOUND. MECHANICAL EXCAVATION IS NOT ALLOWED BY CROWN CASTLE USA, INC.

verizon
180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921

CROWN
CASTLE
2 CHASE CORPORATE DRIVE, SUITE 105
BIRMINGHAM, AL 35244

PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR., STE 100,
HOUSTON, TX 77024
OFFICE 713.677.0964

VERIZON SITE NUMBER:
228815
BU #: 870081
LAKE CITY (SR 47 & US 41)
267 SW CRYSTAL GLN
LAKE CITY, FL 32025
EXISTING 350'-0" GUYED

ISSUED FOR:			
REV	DATE	DESCRIPTION	DESIGN
A	08/03/2022	ISSUED FOR PRELIMS	RAM
0	08/25/2022	ISSUED FOR FINAL	RAM

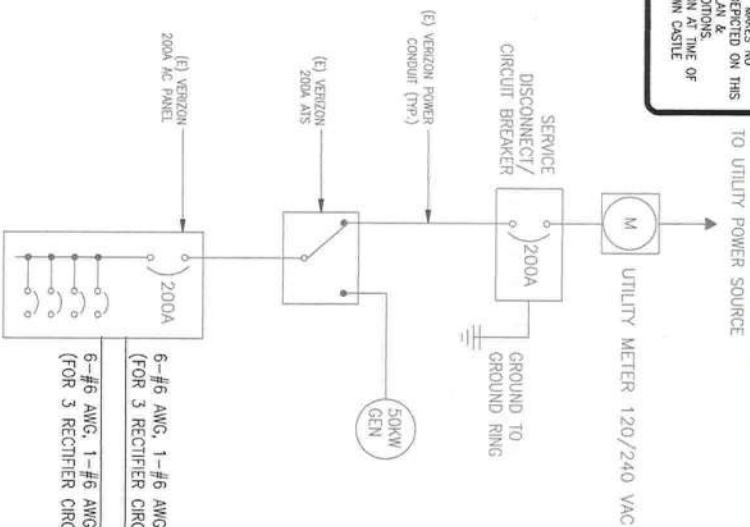
PATRICK W. MARSHALL
LICENSE NO. 53573
08/26/22
STATE OF FLORIDA
PROFESSIONAL ENGINEER

PATRICK W. MARSHALL, PE
REGISTERED ENGINEER
STATE OF FLORIDA #053573
P. MARSHALL & ASSOCIATES CA #27595

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-1
REVISION: 0

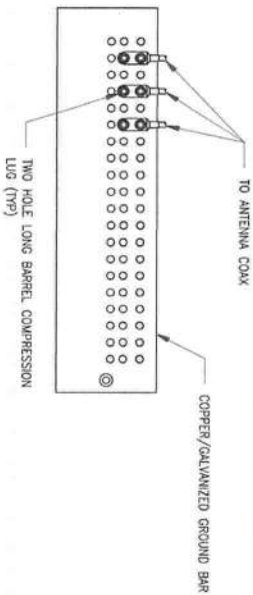
SITE PLAN DISCLAIMER:
PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM PREVIOUS PLAT SETS OR FROM ASSESSORS MAPS. PM&A HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DERIVED ON THIS BASIS. FOR INFORMATION, THE PROJECT SITE PLAN & ELECTRICAL SCHEDULES WERE PREPARED BY PM&A IN ACCORDANCE WITH THE 2017 NATIONAL ELECTRICAL CODE. IF PLANS DO NOT MATCH UP WITH SITE CONDITIONS AT TIME OF CONSTRUCTION, CONTACT VERIZON AND THE CROWN CASTLE.



2 ELECTRICAL ONE LINE & LOAD ANALYSIS PROPOSED PLAN
SCALE: NOT TO SCALE

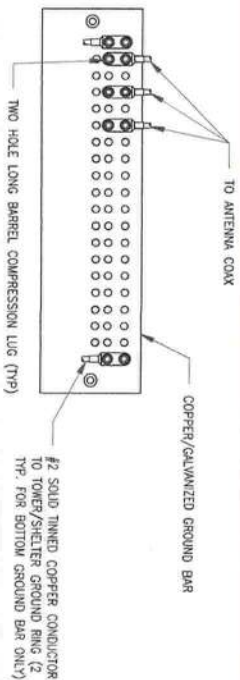
COMMON VZW DC PLANT RECTIFIER REQUIREMENTS									
RECTIFIER		INPUT FLA CURRENT AT 240 VAC (EACH RECTIFIER)		2 RECT / BRANCH CIRCUIT (PREFERRED APPROACH)		1 RECT / BRANCH CIRCUIT (ALT APPROACH)			
GE 75A (NEO75AC48xxxx or sim)		22 AMPS (MAX)		60A/2P #6 THHN		30A/2P #10 THHN			

PANEL NAME			LIFESPACE		LOCATION		VOLTAGE: 240/120 1Ø		MOUNTING / ENCLOSURE		SURFACE / NEMA 3R	
(E) AC PANEL			EXISTING		EQUIPMENT SHELTER		MAIN CB: 200 AMPS		AVAIL. FAULT CURRENT:			
8/3/2022							BUS RATING: 200 AMPS		SHORT CIRCUIT RATING:		EXISTING	
WIRE & CONDUIT			TYPE		DESCRIPTION		KVA		CKT		A	
AMPS/ POLES												
602			E		(E) HMC #1		3.00		1		5.07	
602			E		(E) HMC #2		3.00		3		5.07	
602			E		(E) HMC #2		3.00		5		5.07	
602			E		(E) EXT. INT. & EMERG LIGHTS		0.50		9		2.57	
602			E		(E) HMC #1		0.18		11		2.25	
602			E		(E) HMC #2		0.18		13		2.25	
602			E		(E) HMC #2		0.18		15		2.25	
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602			E		(E) HMC #2		0.18		19		2.25	
602			E		(E) HMC #2		0.18		21		2.25	
602			E		(E) HMC #2		0.18		23		2.25	
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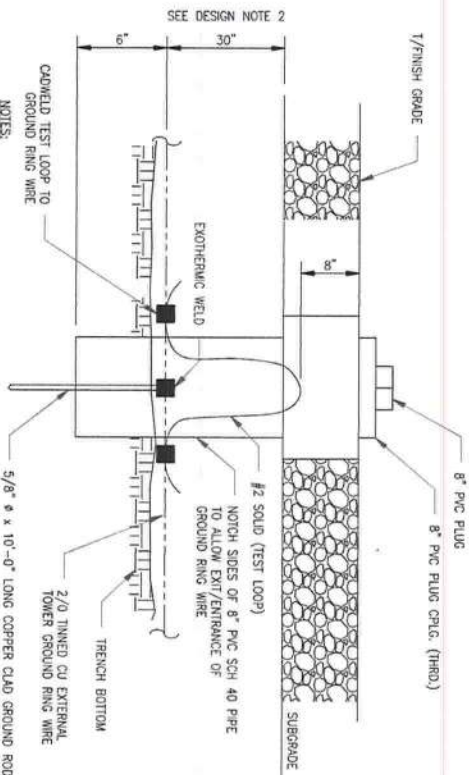
- NOTES:
1. DOUBLING UP "ON STACKING" OF CONNECTIONS IS NOT PERMITTED.
 2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
 3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER, MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



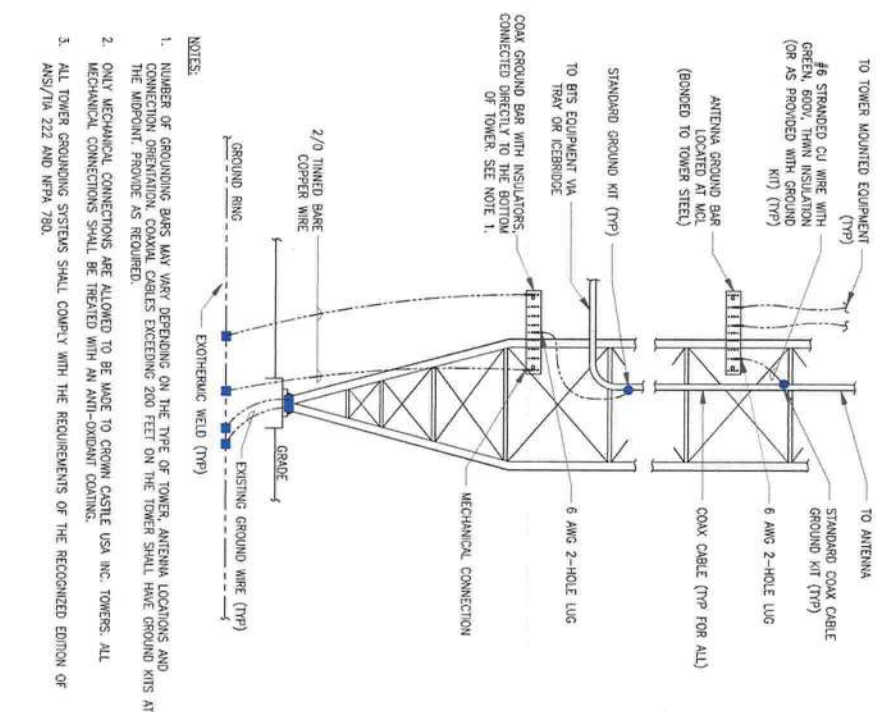
- NOTES:
1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
 2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER, MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
 3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

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



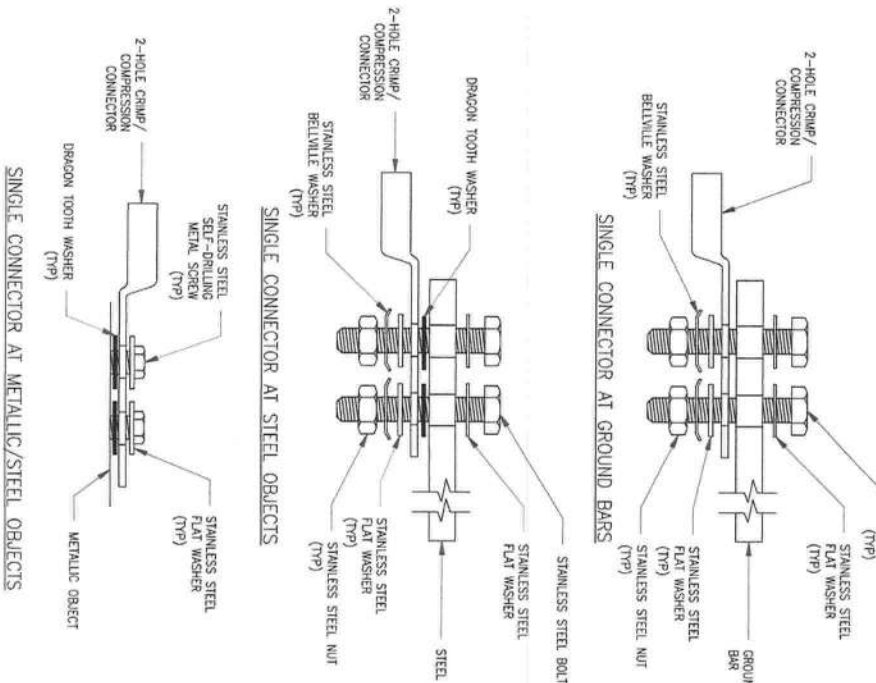
- NOTES:
1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
 2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(0).

3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE

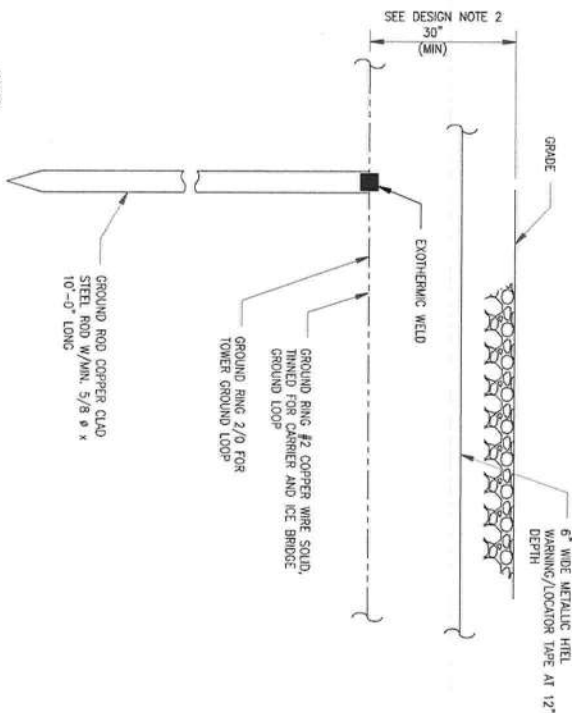


- NOTES:
1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
 2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE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

4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



- NOTES:
1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
 2. 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(0).

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

verizon
180 WASHINGTON VALLEY ROAD
BEDMINSTER, NJ 07921

CROWN CASTLE
2 CHASE CORPORATE DRIVE, SUITE 105
BIRMINGHAM, AL 35244

PM&A
P. MARSHALL & ASSOCIATES
6801 PORTWEST DR. STE 100,
HOUSTON, TX 77024
OFFICE 713-677-4964

VERIZON SITE NUMBER:
228815

BU #: 870081
LAKE CITY (SR 47 & US 41)

267 SW CRYSTAL GLN
LAKE CITY, FL 32025

EXISTING 350'-0" GUYED

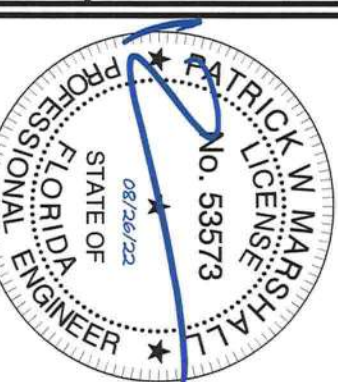
ISSUED FOR:			
REV	DATE	DESCRIPTION	DESIGN
A	08/03/2022	14H ISSUED FOR PRELIMS	RAM
D	08/25/2022	14H ISSUED FOR FINAL	RAM

PATRICK W. MARSHALL
No. 53573
08/26/22
STATE OF FLORIDA
REGISTERED PROFESSIONAL ENGINEER
P. MARSHALL & ASSOCIATES CA #27595

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-3**
REVISION: **0**

ISSUED FOR:			
REV	DATE	DRAWN	DESCRIPTION
A	08/03/2022	JAH	ISSUED FOR PRELIMS
0	08/25/2022	JAH	ISSUED FOR FINAL



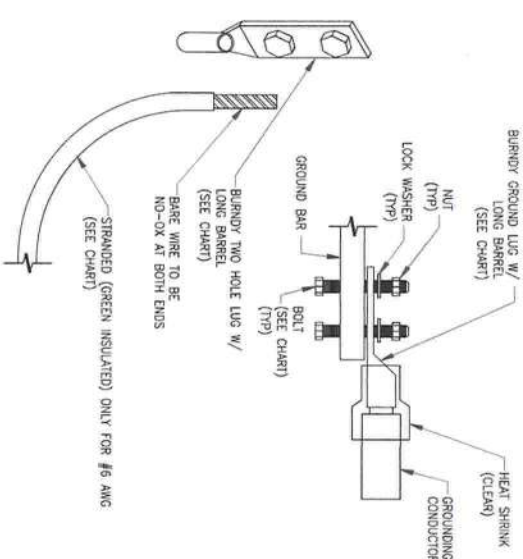
PATRICK W. MARSHALL, PE
REGISTERED ENGINEER
STATE OF FLORIDA #053573
P MARSHALL & ASSOCIATES CA #27995

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:

G-4 0

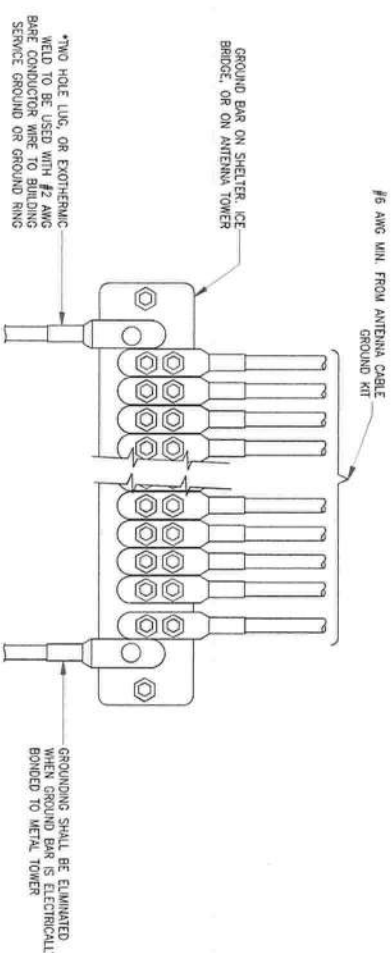
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
#2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
#2/0 AWG STRANDED	YA2B-2TC38	3/8" - 16 NC S 2 BOLT
#4/0 AWG STRANDED	YA2B-2N	1/2" - 16 NC S 2 BOLT



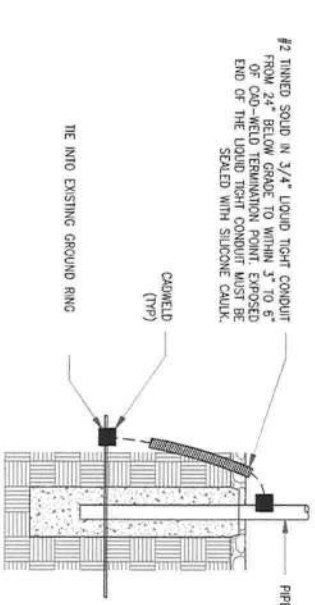
NOTES:

- 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.

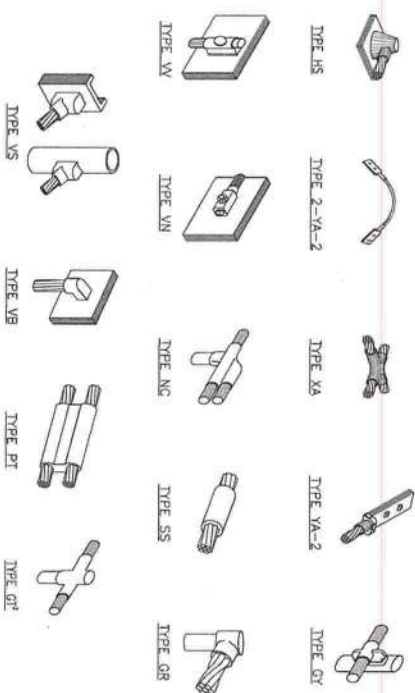
2 MECHANICAL LUG CONNECTION
SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



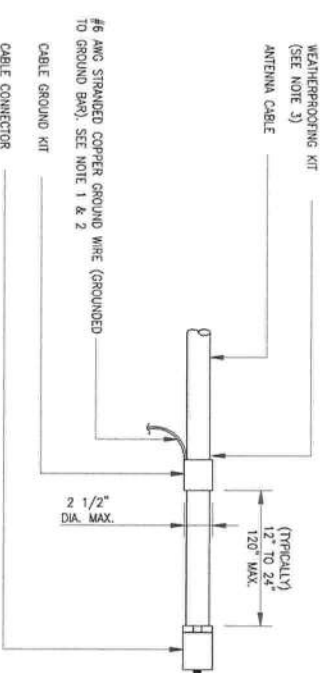
8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE



NOTE:

- EPOC EXOTHERMIC WELD TYPES SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
- MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

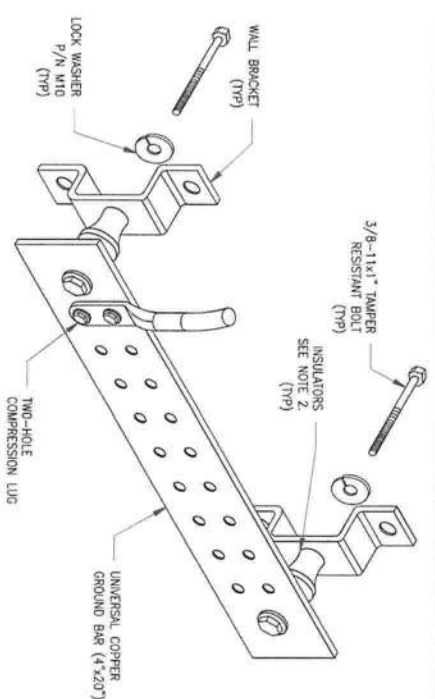
1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE



NOTES:

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

3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE

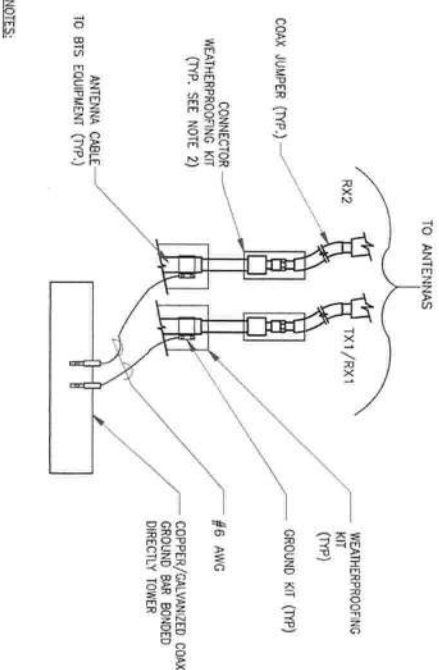


NOTES:

- DOWN LEAD (HANG RING) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER. PER THE GROUNDING DOWN CONDUCTOR POLICY DAS-SID-10391, NO MODIFICATION OR DRILLING TO EXISTING STRUCTURE IS ALLOWED IN ANY FORM OR FASHION. CO2-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
- DO NOT 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

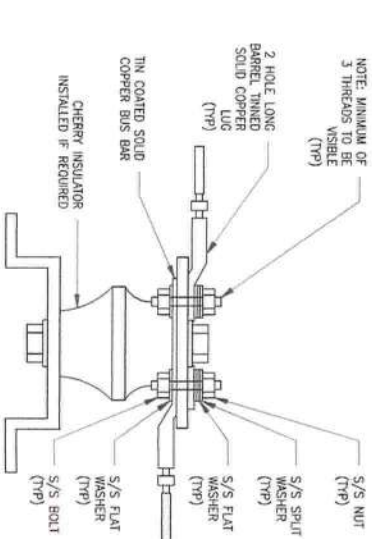
4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



NOTES:

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

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE