

at&t

WEST LAKE CITY
FA# 10096114
CROWN CASTLE BU# 824653

299 NORTHWEST BROWN ROAD
LAKE CITY, FL 32055

TENANT IMPROVEMENT - 5G NR RADIO/5G NR/4TX4RX/BBU
PACE JOB #:MRTFL026618/MRTFL026819/MRTFL026590/MRTFL026357/MRTFL026375/
MRTFL025745/MRTFL026347/MRTFL026376

LOCATION MAP



VICINITY MAP



APPROVALS

PROPERTY OWNER	DATE
RF ENGINEER	DATE
CONSTRUCTION	DATE
SITE ACQUISITION	DATE
ZONING	DATE
NETWORK	DATE
OPERATIONS	DATE
CONTRACTOR	DATE

DESIGN CRITERIA

- FLORIDA BUILDING CODE (7TH EDITION) 2020
ANSI/EIA/TIA-222-H (ALLOWED PER EXEMPTION #5 OF 1609.1.1)
ASCE 7-16
VULT = 119 MPH (ULTIMATE 3 SECOND GUST)
VASD = 92 MPH (NOMINAL 3 SECOND GUST)
RISK CATEGORY = II
EXPOSURE = C
IMPORTANCE FACTOR= 1.0
- NATIONAL ELECTRICAL CODE, 2017 EDITION (NFPA 70-2017)
- FLORIDA FIRE PREVENTION CODE (7TH EDITION)
- CONTRACTOR TO CONFIRM THAT THE SITE IS COMPLIANT WITH
RF WARNING SIGNAGE & EMERGENCY SIGNAGE AS REQUIRED BY
THE FEDERAL GUIDELINES CONTAINED WITH OET 65 BULLETIN &
AS PER AT&T GUIDELINES

CONSTRUCTION NOTES

1. 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.
2. CONTRACTOR SHALL NOTIFY OWNER FOR ACCESS TO SITE.
3. THIS PROJECT CONSISTS OF THE INSTALLATION OF:

(3) NEW AIR6449 B77D ANTENNAS
(3) NEW AIR6419 B77G ANTENNAS
(3) NEW NNHH-65B-R4 ANTENNAS
(3) NEW 4449 B5/B12 RADIOS
(3) NEW 4415 B25 RADIOS
(2) NEW DC9s
(2) NEW DC POWER CABLES
REMOVE (2) INACTIVE 1-5/8" COAX CABLES
AND ALL ASSOCIATED WORK.

CONTACTS

APPLICANT:
AT&T MOBILITY
12150 RESEARCH PARKWAY
ORLANDO, FL 32826

TOWER OWNER:
CROWN CASTLE
4511 N. HIMES AVENUE
SUITE 210
TAMPA, FL 33614

ENGINEER:
GEN3 ENGINEERING
27139 SEA BREEZE WAY
WESLEY CHAPEL, FL 33544
MARC MAIER, PE
(352) 634-1643

INDEX OF DRAWINGS

SHT. NO.	DESCRIPTION	REV. NO.
T-1	TITLE SHEET	
GN-1	GENERAL NOTES, ABBREVIATIONS	
ARCHITECTURAL / CIVIL PLANS		
C-1	SITE PLAN	
STRUCTURAL PLANS		
S-1	TOWER ELEVATION AND ANTENNA ORIENTATION	
S-2	MISCELLANEOUS DETAILS	
S-3	MISCELLANEOUS DETAILS	
ANTENNA SCHEDULE		
AN-1	ANTENNA SCHEDULE	

PROJECT SUMMARY

SITE NAME: WEST LAKE CITY
FA SITE NUMBER: 10096114
PROJECT INITIATIVE: 5G NR RADIO/5G NR/4TX4RX/BBU
FOLIO/PARCEL: 33-3S-16-02435-001
COUNTY: COLUMBIA
JURISDICTION: COLUMBIA COUNTY
SITE COORDINATES: N 30.1905278°
W 82.7156667°

STRUCTURE TYPE: MONOPOLE
TOWER HEIGHT: 197'-0" AGL
ANTENNA C.L. HEIGHT: 186'-0" AGL

DRIVING DIRECTIONS

FROM AT&T OFFICES IN ORLANDO:

1. TAKE TECHNOLOGY PKWY, SCIENCE DR, INGENUITY DR & CHALLENGER PKWY TO FL-408 W (2.1 MI)
2. FOLLOW FL-408 W, FLORIDA'S TURNPIKE & I-75 N TO US-90 W/W US HWY 90 IN LAKE CITY. TAKE EXIT 427 FROM I-75 N (165 MI)
3. USE THE LEFT 2 LANES TO TURN LEFT ONTO US-90 W (1.9 MI)
4. TURN RIGHT ONTO NW BROWN RD, TOWER SITE WILL BE ON THE RIGHT (0.2 MI)

ARRIVE AT 299 NW BROWN RD, LAKE CITY, FL 32055

PROJECT REFERENCES

1. THESE PLANS WERE COMPLETED PER 5G NR RADIO RFDS ID#:5042288 V2.00 DATED 09/28/22. CONTRACTOR SHALL REQUEST CURRENT RFDS & WORKBOOK FROM CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.
2. THESE PLANS WERE COMPLETED PER TOWER ENGINEERING PROFESSIONALS ANTENNA MOUNT ANALYSIS DATED 10/27/22.

PROJECT INFORMATION

1. THIS IS AN UNMANNED FACILITY AND WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNALS FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
2. AT&T CERTIFIES THAT THIS EQUIPMENT FACILITY WILL BE SERVICED ONLY BY AT&T EMPLOYEES AND SUBCONTRACTORS AND THE WORK ASSOCIATED WITH ANY EQUIPMENT CANNOT BE PERFORMED BY HANDICAPPED PERSONS. THIS FACILITY WILL BE FREQUENTED ONLY BY SERVICE PERSONNEL FOR REPAIR PURPOSES ONLY.
3. NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
4. NO WASTEWATER WILL BE GENERATED AT THIS LOCATION.
5. NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.

REV	DATE	DESCRIPTION
A	10/28/22	PRELIMINARY CDs REV "A"
0	11/30/22	FINAL CDs ISSUED
1		
2		
3		
4		
5		
6		
7		
8		
9		
GEN3 PROJECT NO.: 102210047		
DRAWN BY:		CHECKED BY:
ME		MM



12150 RESEARCH PARKWAY
ORLANDO, FL 32826



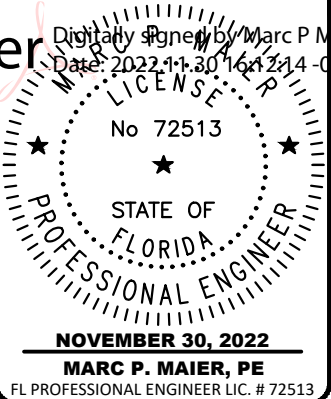
1997 ANNAPOLIS EXCHANGE PKWY.
SUITE 200
ANNAPOLIS, MD 21401

PREPARED BY:



27139 SEA BREEZE WAY
WESLEY CHAPEL, FLORIDA 33544
(813)917-2671
COA # 35409

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED
& SEALED BY MARC P. MAIER, P.E., FL
LICENSE #72513 USING A DIGITAL SIGNATURE.
PRINTED COPIES OF THIS DOCUMENT ARE
NOT CONSIDERED SIGNED & SEALED & THE
SIGNATURE MUST BE VERIFIED ON ANY
ELECTRONIC COPIES.



WEST LAKE CITY
FA #10096114

299 NW BROWN RD
LAKE CITY, FL 32055

SHEET DESCRIPTION

TITLE SHEET

SHEET NUMBER

T-1

GEN3 ENGINEERING - C:\Users\mpm17\Downloads\10096114_WEST LAKE CITY_5G NR RADIO-5G NR-4TX4RX-BBU_CD.dwg November 30, 2022 4:11:24 PM mpm17

GENERAL NOTES:

1. ALL REFERENCES TO OWNER HEREIN SHALL BE CONSTRUED TO MEAN **AT&T** OR IT'S DESIGNATED REPRESENTATIVE.
2. ALL WORK PRESENTED ON THESE DRAWINGS MUST BE COMPLETED BY THE CONTRACTOR UNLESS NOTED OTHERWISE. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HEREIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY, THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE AND/OR COUNTY IN WHICH IT IS TO BE PERFORMED.
3. UNLESS SHOWN OR NOTED OTHERWISE ON THE CONTRACT DRAWINGS, OR IN THE SPECIFICATIONS, THE FOLLOWING NOTES SHALL APPLY TO THE MATERIALS LISTED HEREIN, AND TO THE PROCEDURES TO BE USED ON THIS PROJECT.
4. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO INSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION AND/OR FIELD MODIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS OR TIE DOWNS THAT MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER THE COMPLETION OF THE PROJECT.
5. ALL DIMENSIONS, ELEVATIONS, AND EXISTING CONDITIONS SHOWN ON THE DRAWINGS SHALL BE FIELD VERIFIED BY THE CONTRACTOR AND THE TESTING AGENCY PRIOR TO BEGINNING ANY MATERIALS ORDERING, FABRICATION OR CONSTRUCTION WORK ON THIS PROJECT. ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER AND THE OWNER'S ENGINEER. THE DISCREPANCIES MUST BE RESOLVED BEFORE THE CONTRACTOR IS TO PROCEED WITH THE WORK. THE CONTRACT DOCUMENTS DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. OBSERVATION VISITS TO THE SITE BY THE OWNER AND/OR THE ENGINEER SHALL NOT INCLUDE INSPECTION OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES.
6. ALL MATERIALS AND EQUIPMENT FURNISHED SHALL BE NEW AND OF GOOD QUALITY, FREE FROM FAULTS AND DEFECTS AND IN CONFORMANCE WITH THE CONTRACT DOCUMENTS. ANY AND ALL SUBSTITUTIONS MUST BE PROPERLY APPROVED AND AUTHORIZED IN WRITING BY THE OWNER AND ENGINEER PRIOR TO INSTALLATION. THE CONTRACTOR SHALL FURNISH SATISFACTORY EVIDENCE AS TO THE KIND AND QUALITY OF THE MATERIALS AND EQUIPMENT BEING SUBSTITUTED.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK. THE CONTRACTOR IS RESPONSIBLE FOR INSURING THAT THIS PROJECT AND RELATED WORK COMPLIES WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY CODES AND REGULATIONS GOVERNING THIS WORK.
8. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE LATEST EDITION OF THE LOCAL BUILDING CODE.
9. ALL PROPOSED CELLULAR EQUIPMENT AND FIXTURES SHALL BE FURNISHED BY OWNER FOR INSTALLATION BY THE CONTRACTOR, UNLESS SPECIFICALLY NOTED OTHERWISE HEREIN.
10. ACCESS TO THE PROPOSED WORK SITE MAY BE RESTRICTED. THE CONTRACTOR SHALL COORDINATE INTENDED CONSTRUCTION ACTIVITY, INCLUDING WORK SCHEDULE AND MATERIALS ACCESS, WITH THE RESIDENT LEASING AGENT FOR APPROVAL.

STRUCTURAL STEEL NOTES:

1. STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE A.I.S.C. SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS- ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN INCLUDING THE COMMENTARY AND THE A.I.S.C. CODE OF STANDARD PRACTICE.
2. STRUCTURAL STEEL PLATES AND SHAPES SHALL CONFORM TO ASTM A36. ALL STRUCTURAL STEEL PIPES SHALL CONFORM TO ASTM A53 GRADE B. ALL STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A500 GRADE B. ALL STRUCTURAL STEEL COMPONENTS AND FABRICATED ASSEMBLIES SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
3. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS) D.1.1/D1.1M:2010. STRUCTURAL WELDING CODE-STEEL WELD ELECTRODES SHALL BE E70XX.

4. ALL COAXIAL CABLE CONNECTORS AND TRANSMITTER EQUIPMENT SHALL BE AS SPECIFIED BY THE OWNER AND IS NOT INCLUDED IN THESE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL FURNISH ALL CONNECTION HARDWARE REQUIRED TO SECURE THE CABLES. CONNECTION HARDWARE SHALL BE GRADE 304 STAINLESS STEEL.
5. ALL REINFORCING STEEL SHALL CONFORM TO ASTM 615 GRADE 60, DEFORMED BILLET STEEL BARS. WELDED WIRE FABRIC REINFORCING SHALL CONFORM TO ASTM A185.
6. THE FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE LATEST A.I.S.C. SPECIFICATIONS.
7. ALL CONNECTIONS NOT FULLY DETAILED ON THESE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH A.I.S.C. SPECIFICATIONS.
8. HOT-DIP GALVANIZE ITEMS SPECIFIED TO BE ZINC-COATED, AFTER FABRICATION WHERE PRACTICAL. GALVANIZING: ASTM A 123, ASTM, A 153/A 153M OR ASTM A 653/A 653M, G90, AS APPLICABLE.
9. REPAIR DAMAGED SURFACES WITH GALVANIZING REPAIR METHOD AND PAINT CONFORMING TO ASTM A 780 OR BY APPLICATION OF STICK OR THICK PASTE MATERIAL SPECIFICALLY DESIGNED FOR REPAIR OF GALVANIZING. CLEAN AREAS TO BE REPAIRED, AND REMOVE SLAG FROM WELDS. HEAT SURFACES TO WHICH STICK OR PASTE MATERIAL IS APPLIED WITH A TORCH TO A TEMPERATURE SUFFICIENT TO MELT THE METALLICS. IN STICK OR PASTE, SPREAD MOLTEN MATERIAL UNIFORMLY OVER SURFACES TO BE COATED AND WIPE OFF EXCESS MATERIAL.
10. CONTRACTOR SHALL FOLLOW THE MANUFACTURER'S INSTRUCTIONS/SPECIFICATIONS IF NO INFORMATION IS CONTAINED IN THESE PLANS OR IF THE MANUFACTURER'S SPECIFICATIONS ARE STRICTER.

PERMITS:

1. CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FOR THIS PROJECT FROM ALL APPLICABLE GOVERNMENTAL AGENCIES.
2. ANY PERMITS WHICH MUST BE OBTAINED SHALL BE THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ABIDING BY ALL CONDITIONS AND REQUIREMENTS OF THE PERMITS.
3. ALL WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND THE ACI 318-14, "BUILDING REQUIREMENTS FOR STRUCTURAL CONCRETE".
4. THE CONTRACTOR SHALL NOTIFY THE APPLICABLE JURISDICTIONAL (STATE, COUNTY OR CITY) ENGINEER 24 HOURS PRIOR TO THE BEGINNING OF CONSTRUCTION.

5. ALL DIMENSIONS SHALL BE VERIFIED WITH THE PLANS (LATEST REVISION) PRIOR TO COMMENCING CONSTRUCTION. NOTIFY THE OWNER IMMEDIATELY IF DISCREPANCIES ARE DISCOVERED. THE CONTRACTOR SHALL HAVE A SET OF APPROVED PLANS AVAILABLE AT THE SITE AT ALL TIMES WHEN WORK IS BEING PERFORMED. A DESIGNATED RESPONSIBLE EMPLOYEE SHALL BE AVAILABLE FOR CONTACT BY GOVERNING AGENCY INSPECTORS.

MISCELLANEOUS:


1. ALL THREADED STRUCTURAL FASTENERS FOR ANTENNA SUPPORT ASSEMBLES SHALL CONFORM TO ASTM A307 OR ASTM 36. ALL STRUCTURAL FASTENERS FOR STRUCTURAL STEEL FRAMING SHALL CONFORM TO ASTM A325. FASTENERS SHALL BE 5/8" MIN. DIA. BEARING TYPE CONNECTIONS WITH THREADS EXCLUDED FROM THE PLANE. ALL EXPOSED FASTENERS, NUTS, AND WASHERS SHALL BE GALVANIZED UNLESS OTHERWISE NOTED. ALL ANCHORS INTO CONCRETE SHALL BE STAINLESS STEEL.
2. THE CONTRACTOR SHALL FURNISH ALL CONNECTION HARDWARE REQUIRED TO SECURE THE CABLES. CONNECTION HARDWARE SHALL BE STAINLESS STEEL.
3. NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY NORTH AND NOTIFY CONSULTANT OF ANY DISCREPANCY BEFORE STARTING CONSTRUCTION.
4. PROVIDE LOCK WASHERS FOR ALL MECHANICAL CONNECTIONS FOR GROUND CONDUCTORS. USE GRADE 304 STAINLESS STEEL HARDWARE THROUGHOUT.
5. THOROUGHLY REMOVE ALL PAINT AND CLEAN ALL DIRT FROM SURFACES REQUIRING GROUND CONNECTIONS.

6. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. ALL BENDS TO BE A MIN. OF 8" RADIUS.
7. FOR GROUNDING TO BUILDING FRAME AND HATCH PLATE GROUND BARS, USE A TWO-BOLT HOLE NEPA DRILLED CONNECTOR SUCH AS T&B 32007 OR APPROVED EQUAL.
8. FOR ALL EXTERNAL GROUND CONNECTIONS, CLAMPS AND CADWELDS, APPLY A LIBERAL PROTECTIVE COATING OR AN ANTI-OXIDE COMPOUND SUCH AS 'NO-OXIDE A' BY DEARBORN CHEMICAL COMPANY.
9. REPAIR ALL METAL SURFACES THAT HAVE BEEN CUT OR DAMAGED BY REMOVING ANY EXISTING RUST AND APPLYING COLD GALVANIZATION.
10. ANTENNA CABLE LENGTHS HAVE BEEN DETERMINED BASED ON THESE PLANS. CABLE LENGTHS LISTED ARE APPROXIMATED AND ARE NOT INTENDED TO BE USED FOR FABRICATION. DUE TO FIELD CONDITIONS, ACTUAL CABLE LENGTHS VARY. CONTRACTOR MUST FIELD VERIFY ANTENNA CABLE LENGTHS PRIOR TO ORDER.

REV	DATE	DESCRIPTION
A	10/28/22	PRELIMINARY CDs REV "A"
0	11/30/22	FINAL CDs ISSUED
1		
2		
3		
4		
5		
6		
7		
8		
9		
GEN3 PROJECT NO.: 102210047		
DRAWN BY: ME		CHECKED BY: MM




12150 RESEARCH PARKWAY
ORLANDO, FL 32826



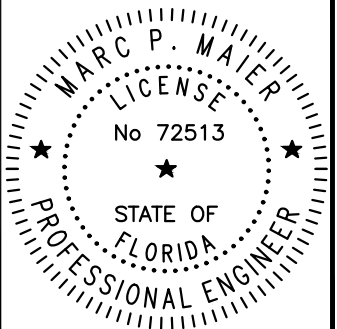
1997 ANNAPOLIS EXCHANGE PKWY.
SUITE 200
ANNAPOLIS, MD 21401

PREPARED BY:



27139 SEA BREEZE WAY
WESLEY CHAPEL, FLORIDA 33544
(813)917-2671
COA # 35409

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED & SEALED BY MARC P. MAIER, P.E., FL LICENSE #72513 USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED & SEALED & THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.



NOVEMBER 30, 2022
MARC P. MAIER, PE
FL PROFESSIONAL ENGINEER LIC. # 72513

WEST LAKE CITY
FA #10096114

299 NW BROWN RD
LAKE CITY, FL 32055

SHEET DESCRIPTION

**GENERAL NOTES,
ABBREVIATIONS**

SHEET NUMBER

GN-1

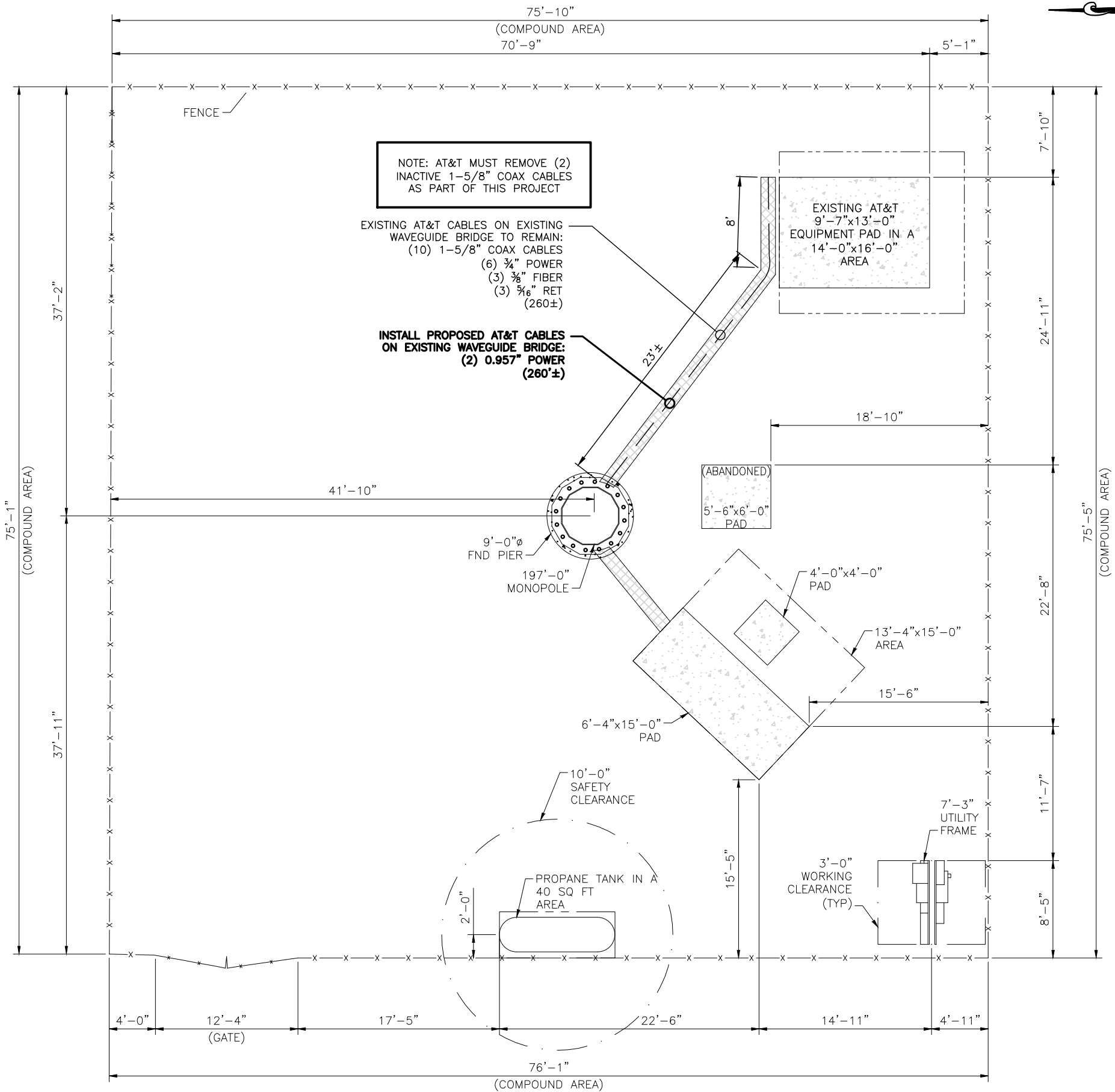
C:\Users\mpm17\Downloads\10096114_WEST LAKE CITY_5G NR RADIO-5G NR-4TX4RX-BBU_CD.dwg November 30, 2022 4:11:25 PM mpm17

NOTES:

1. CONTRACTOR TO FILL ANY EXISTING GRAVEL AREAS THAT ARE DISTURBED DURING THE COURSE OF CONSTRUCTION, GRAVEL TO MATCH EXISTING.
2. THE CONTRACTOR TO ENSURE THAT NO DAMAGE OR DEBRIS OCCURS ON THE ADJACENT PROPERTIES.
3. THE CONTRACTOR SHALL SEED ALL DISTURBED AREAS WITH LOW MAINTENANCE NATIVE GRASS AND COVER WITH APPROVED STRAW.
4. CONTRACTOR SHALL PROVIDE ALL REQUIRED EROSION CONTROL TECHNIQUES AND BEST MANAGEMENT PRACTICES PER LOCAL AND AND STATE REQUIREMENTS AS APPLICABLE.
5. NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY NORTH AND INFORM ARCHITECT/ENGINEER OF ANY DISCREPANCY BEFORE STARTING CONSTRUCTION.

CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE RAYCAP INSTALL ON THE TOWER TO ACCOMMODATE THE QUANTITY OF RRU'S.

THE CONTRACTOR MUST FIELD VERIFY ALL MEASUREMENTS AND FIELD CONDITIONS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.



1
C-1 **SITE PLAN**
SCALE: 1" = 10'
SCALE BASED ON 11"x17" ONLY

REV	DATE	DESCRIPTION
A	10/28/22	PRELIMINARY CDs REV "A"
0	11/30/22	FINAL CDs ISSUED
1		
2		
3		
4		
5		
6		
7		
8		
9		
GEN3 PROJECT NO.: 102210047		
DRAWN BY:		CHECKED BY:
ME		MM



12150 RESEARCH PARKWAY
ORLANDO, FL 32826



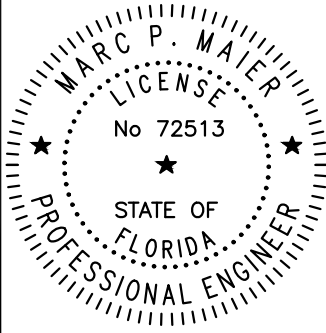
1997 ANNAPOLIS EXCHANGE PKWY.
SUITE 200
ANNAPOLIS, MD 21401

PREPARED BY:



27139 SEA BREEZE WAY
WESLEY CHAPEL, FLORIDA 33544
(813)917-2671
COA # 35409

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED & SEALED BY MARC P. MAIER, P.E., FL LICENSE #72513 USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED & SEALED & THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.



NOVEMBER 30, 2022

MARC P. MAIER, PE
FL PROFESSIONAL ENGINEER LIC. # 72513

WEST LAKE CITY
FA #10096114

299 NW BROWN RD
LAKE CITY, FL 32055

SHEET DESCRIPTION

SITE PLAN

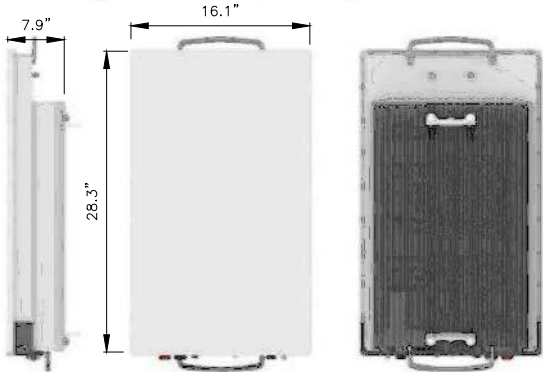
SHEET NUMBER

C-1

AIR 6419 B77G (320W) Candidate

Not to exceed figures

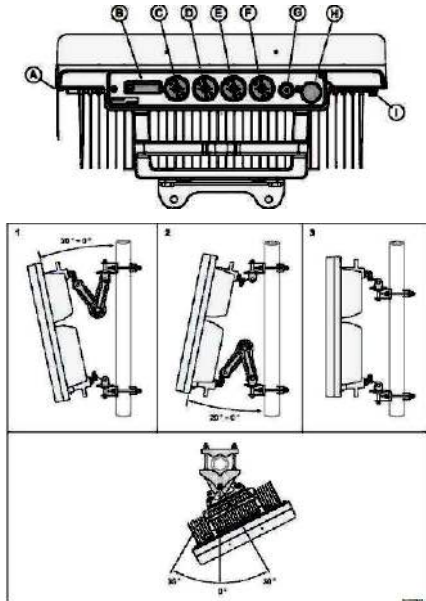
- Antenna Elements 192
- TRX Branches 64T64R
- Antenna configuration (3x1)x(4x8)
- Operation band: 3450~3550 MHz
- IBW 100 MHz
- TCBW 100MHz
- Output Power 320W
- Peak EIRP 79dBm
- PSD 4W/MHz (Target 8W/MHz for rural)
- Size(HxWxD) 720x410x200mm (28.3x16.1x7.9 in)
- Weight 30kg (66.1 lbs)
- Type of cooling Passive
- eCPRI link 2*25G
- Power Supply -48V VDC 3-wires
- Multi-layer MU MIMO: 16/8 DL/UL layer



1
S-2 ERICSSON AIR 6419 B77G
SCALE: N.T.S.

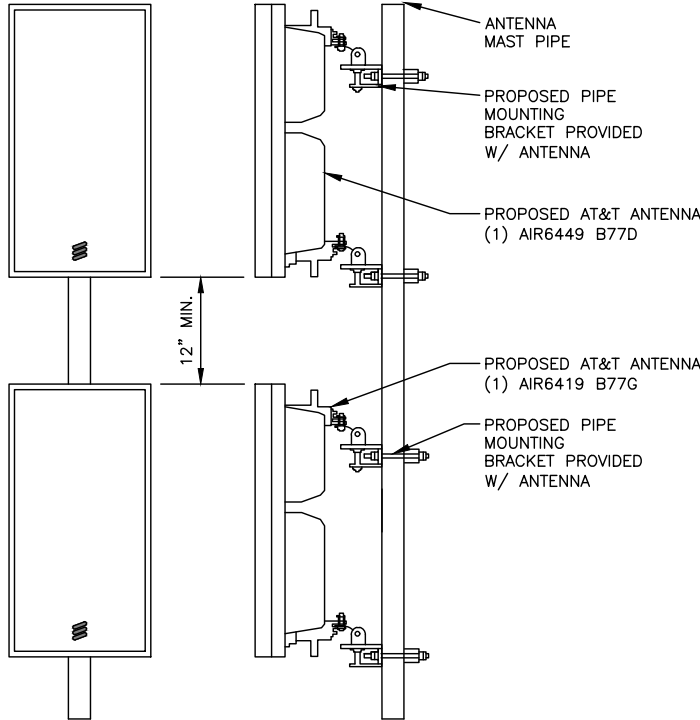
ERICSSON AIR 6449 B77D

- ERICSSON AIR 6449 has a total of 4 ECPRI connections @ 25 Gbps
- Operates over B77 band (3.3-4.2GHz)
- Breaker size - 50A DC, DC Power Consumption = 1250W (or dimensional)
- Dimensions
 - Height: 30.0" (761 mm)
 - Width: 15.9" (403 mm)
 - Depth: 10.6" (269 mm)
- Weight, incl. mounting hardware = 82.5 lbs (37.4 kg)
- Weight incl. Mounting hardware = 92.5 lbs (42.4 kg)
- Max. Frontal Wind Load @ 45mph = 400 N
- Horizontal Separation Required between AIR 6449 = 100mm
- Minimum Vertical Space Required below AIR 6449 = 300mm
- Minimum Height Above Users = 5m
- Outdoor Installation locations to avoid:
 - Wet or corrosive locations, to examples: steel, salt water or salt water near center of metal structure
 - Chlorine or other corrosive materials
 - In broadcast plant areas or antenna arrays
- Avoid radio interference by keeping the area directly in front of the antenna clear of metal surfaces such as walls, fences or other equipment generating electromagnetic fields. For example, electric motors in air conditioning or elevators generators in front of antenna
- Do not use metallic paint to cover the AIR 6449 if painting is required. Do not paint underside of AIR 6449.

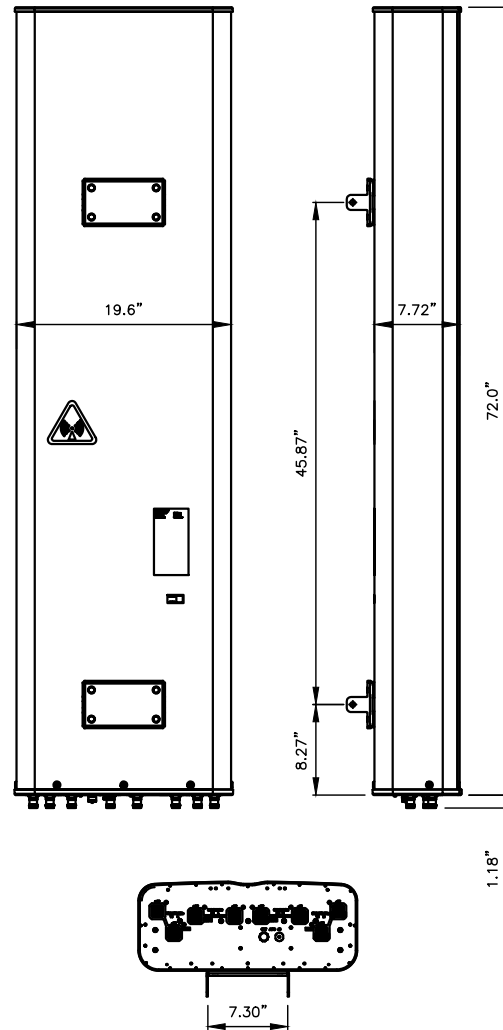


2
S-2 ERICSSON AIR 6449 B77D
SCALE: N.T.S.

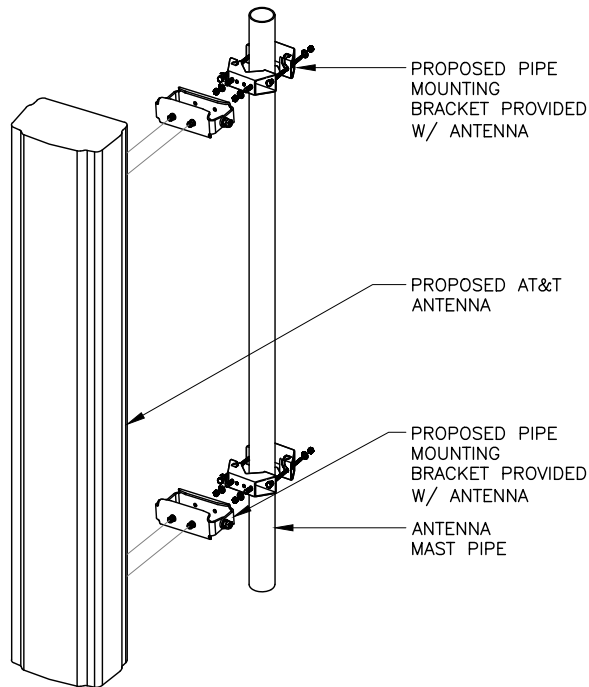
- NOTES:
1. CONTRACTOR TO MAKE SURE THAT VERTICAL SEPARATION FROM TIP OF LOWER C-BAND ANTENNA TO BOTTOM OF THE HIGHER C-BAND ANTENNA IS AT LEAST 1 FT. DO NOT OBSTRUCT NEARBY ANTENNAS FROM OTHER CARRIERS.
 2. IF ONLY (1) ANTENNA IS PROPOSED, INSTALL AT THE TOP OF THE MOUNT PIPE TO ALLOW A FUTURE ANTENNA TO BE INSTALLED BELOW.



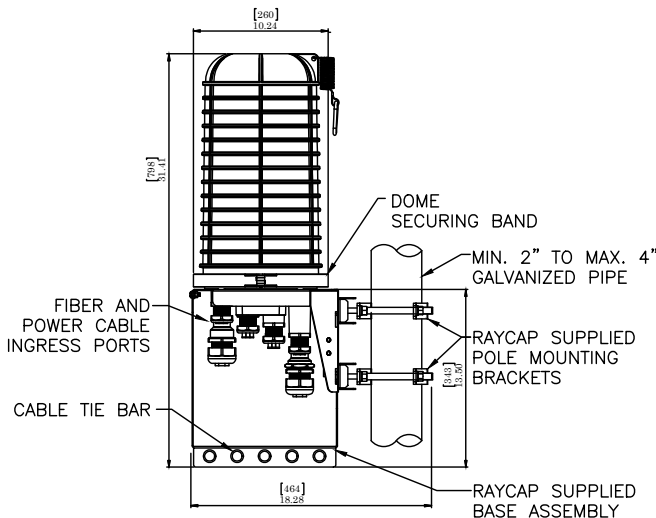
3
S-2 AIR ANTENNA MOUNTING DETAIL
SCALE: N.T.S.



4
S-2 NNHH-65B-R4
SCALE: N.T.S.

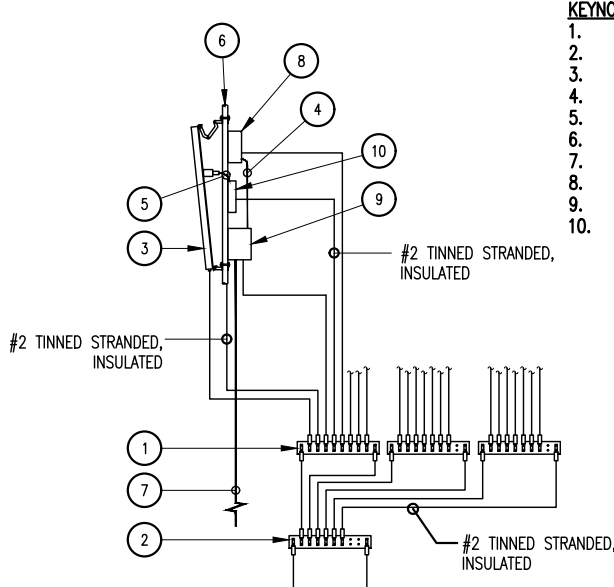


5
S-2 ANTENNA MOUNTING DETAIL
SCALE: N.T.S.



- NOTES:
1. UNIT SHALL BE MOUNTED AS PER MANUFACTURER'S RECOMMENDATIONS.
 2. CONTRACTOR SHALL TIGHTEN ALL BOLTS TO A "SNUG TIGHT" CONDITION AS DEFINED BY AISC.
 3. CONTRACTOR SHALL INSTALL RAYCAP DISTRIBUTION UNIT WITHIN 15 FEET FROM ALL RRH'S.

6
S-2 DC9-48-60-24-8C-EV MOUNT DETAIL
SCALE: N.T.S.



1. UTILIZE EXISTING AT&T GROUND BARS AND GROUNDING.
2. ADD GROUND BARS IF THERE ARE INSUFFICIENT LUG POSITIONS.
3. REFERENCE AT&T BONDING & GROUNDING PRACTICE TP76416.

7
S-2 ANTENNA GROUNDING SCHEMATIC
SCALE: N.T.S.

REV	DATE	DESCRIPTION
A	10/28/22	PRELIMINARY CDs REV "A"
0	11/30/22	FINAL CDs ISSUED
1		
2		
3		
4		
5		
6		
7		
8		
9		
GEN3 PROJECT NO.: 102210047		
DRAWN BY: ME		CHECKED BY: MM



12150 RESEARCH PARKWAY
ORLANDO, FL 32826



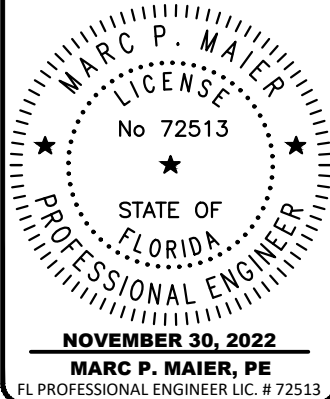
1997 ANNAPOLIS EXCHANGE PKWY.
SUITE 200
ANNAPOLIS, MD 21401

PREPARED BY:



27139 SEA BREEZE WAY
WESLEY CHAPEL, FLORIDA 33544
(813)917-2671
COA # 35409

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED & SEALED BY MARC P. MAIER, P.E., FL LICENSE #72513 USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED & SEALED & THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.



WEST LAKE CITY
FA #10096114

299 NW BROWN RD
LAKE CITY, FL 32055

SHEET DESCRIPTION

MISCELLANEOUS
DETAILS

SHEET NUMBER

S-2

GEN3 ENGINEERING - C:\Users\mpm17\Downloads\10096114_WEST LAKE CITY_5G NR RADIO-5G NR-4TX4RX-BBU_CD.dwg November 30, 2022 4:11:28 PM mpm17

ERICSSON RRUS-4449 B5/B12

-DIMENSIONS (H x W x D):

17.9" x 13.19" x 9.44" (INCLUDES SUNSHIELD)

-WEIGHT: 71 LBS

-B5 TX=869-894 MHZ, B12 TX=729-746 MHZ

-B5 RX=824-849 MHZ, B12 RX=699-716 MHZ

-BREAKER SIZE=2x25A, DC POWER CONSUMPTION = 1440 W

NOTE:

RRUS CAN ONLY BE PAINTED ON SOLAR SHIELD.

1

RRUS 4449 B5/B12 DETAIL

S-3

SCALE: N.T.S.

ERICSSON RRUS-4415 B25

-DIMENSIONS (H x W x D):

16.5" x 13.4" x 5.9" (INCLUDES SUNSHIELD)

-WEIGHT: 44 LBS

-TX = 1930 - 1995 MHz

-RX = 1850 - 1915 MHz

-CPRI 2 PORTS x 2.5/4.9/9.8/10.1 Gbps

NOTE:

RRUS CAN ONLY BE PAINTED ON SOLAR SHIELD.

2

RRUS-4415 B25 DETAIL

S-3

SCALE: N.T.S.

NOTE:

DETAIL IS DIAGRAMMATIC. CONTRACTOR TO INSTALL RRU'S ON RRU MOUNT BEST SUITED FOR ANTENNA CONFIGURATION.

BACK VIEW

3

RRU MOUNTING DETAIL

S-3

SCALE: N.T.S.

REV	DATE	DESCRIPTION
A	10/28/22	PRELIMINARY CDs REV "A"
0	11/30/22	FINAL CDs ISSUED
1		
2		
3		
4		
5		
6		
7		
8		
9		
GEN3 PROJECT NO.: 102210047		
DRAWN BY:		CHECKED BY:
ME		MM

12150 RESEARCH PARKWAY
ORLANDO, FL 32826

1997 ANNAPOLIS EXCHANGE PKWY.
SUITE 200
ANNAPOLIS, MD 21401

PREPARED BY:

27139 SEA BREEZE WAY
WESLEY CHAPEL, FLORIDA 33544
(813)917-2671
COA # 35409

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED & SEALED BY MARC P. MAIER, P.E., FL LICENSE #72513 USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED & SEALED & THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

MARC P. MAIER

LICENSE

No 72513

STATE OF FLORIDA

PROFESSIONAL ENGINEER

NOVEMBER 30, 2022

MARC P. MAIER, PE

FL PROFESSIONAL ENGINEER LIC. # 72513

WEST LAKE CITY

FA #10096114

299 NW BROWN RD
LAKE CITY, FL 32055

SHEET DESCRIPTION

MISCELLANEOUS DETAILS

SHEET NUMBER

S-3

DC / FIBER DEMARCATION BOX							
RAYCAP DC FIBER DEMARCATION BOX			CABLES				NOTES
MOUNTING HEIGHT	MODEL	QTY	MODEL	SIZE	QTY	LENGTH PER LINE	
186'-0"	DCG-48-60-18-8C	1	ROSENBERGER (18) PAIR FIBER TRUNK	3/8"	3	260'-0"	
186'-0"	DC9-48-60-24-8C-EV	2	(6)- #8 AWG TINNED COPPER CONDUCTORS	3/4"	6	260'-0"	
			(6)- #6 AWG TINNED COPPER CONDUCTORS	0.957"	2	260'-0"	

ANTENNA AND COAX SCHEDULE																							
SECTOR	AZ	ANTENNAS							CABLES						RRU			COMPONENT			TMA		
		RAD CENTER	ANTENNA		(QTY)	APPROXIMATE ANTENNA SPECS	DOWN TILT		MODEL	SIZE	(QTY)	LENGTH/ LINE	COLOR CODE	MODEL	TWR (QTY)	GRND (QTY)	MODEL	TWR (QTY)	GRND (QTY)	MODEL	(QTY)		
			MAKE	MODEL			ELEC	MECH															
ALPHA (A1)	0°	186°-0"	ERICSSON	AIR6449 B77D AIR6419 B77G	1 1	H=31.6" x W=15.9" x D=10.6" H=26.2" x W=16.1" x D=7.8"	-	-	- ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	- 3/8" 7/16"	- 4 2	- 15°-0" 15°-0"	- 1 RED 1 RED	- - -	- - -	- -	- -	- -	- -	- -	- -		
ALPHA (A2)	0°	186°-0"	ANDREW	NNHH-65B-R4	1	H=72" x W=19.6" x D=7.8"	-	-	- ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	- 3/8" 7/16" 1/2"	- 2 3 8	- 15°-0" 15°-0" 10°-0"	- 2 RED 2 RED 2 RED	- 4449 B5/B12 4415 B25 -	- 1 1 -	- -	- -	- -	- -	- -	- -		
ALPHA (A3)	0°	186°-0"	ANDREW	SBNHH-1D65B	1	H=72.7" x W=11.9" x D=7.1"	-	-	- ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	- 3/8" 7/16" 1/2"	- 1 1 4	- 15°-0" 15°-0" 10°-0"	- 3 RED 3 RED 3 RED	- RRUS-32 B30 - -	- 1 - -	- -	- -	- -	- -	- -	- -		
ALPHA (A4)	0°	186°-0"	ANDREW	NNHH-65B-R4	1	H=72" x W=19.6" x D=7.8"	3°/2"	-	- ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	- 3/8" 7/16" 1/2"	- 3 2 8	- 15°-0" 15°-0" 10°-0"	- 4 RED 4 RED 4 RED	- 4478 B14 4426 B66 -	- 1 1 -	- -	- -	- -	- -	- -	- -		
BETA (B1)	120°	186°-0"	ERICSSON	AIR6449 B77D AIR6419 B77G	1 1	H=31.6" x W=15.9" x D=10.6" H=26.2" x W=16.1" x D=7.8"	-	-	- ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	- 3/8" 7/16"	- 4 2	- 15°-0" 15°-0"	- 1 BLUE 1 BLUE	- - -	- -	- -	- -	- -	- -	- -	- -		
BETA (B2)	120°	186°-0"	ANDREW	NNHH-65B-R4	1	H=72" x W=19.6" x D=7.8"	-	-	- ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	- 3/8" 7/16" 1/2"	- 2 3 8	- 15°-0" 15°-0" 10°-0"	- 2 BLUE 2 BLUE 2 BLUE	- 4449 B5/B12 4415 B25 -	- 1 1 -	- -	- -	- -	- -	- -	- -		
BETA (B3)	120°	186°-0"	ANDREW	SBNHH-1D65B	1	H=72.7" x W=11.9" x D=7.1"	-	-	- ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	- 3/8" 7/16" 1/2"	- 1 1 4	- 15°-0" 15°-0" 10°-0"	- 3 BLUE 3 BLUE 3 BLUE	- RRUS-32 B30 - -	- 1 - -	- -	- -	- -	- -	- -	- -		
BETA (B4)	120°	186°-0"	ANDREW	NNHH-65B-R4	1	H=72" x W=19.6" x D=7.8"	3°/2"	-	- ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	- 3/8" 7/16" 1/2"	- 3 2 8	- 15°-0" 15°-0" 10°-0"	- 4 BLUE 4 BLUE 4 BLUE	- 4478 B14 4426 B66 -	- 1 1 -	- -	- -	- -	- -	- -	- -		
GAMMA (G1)	240°	186°-0"	ERICSSON	AIR6449 B77D AIR6419 B77G	1 1	H=31.6" x W=15.9" x D=10.6" H=26.2" x W=16.1" x D=7.8"	-	-	- ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	- 3/8" 7/16"	- 4 2	- 15°-0" 15°-0"	- 1 GREEN 1 GREEN	- - -	- -	- -	- -	- -	- -	- -	- -		
GAMMA (G2)	240°	186°-0"	ANDREW	NNHH-65B-R4	1	H=72" x W=19.6" x D=7.8"	-	-	- ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	- 3/8" 7/16" 1/2"	- 2 3 8	- 15°-0" 15°-0" 10°-0"	- 2 GREEN 2 GREEN 2 GREEN	- 4449 B5/B12 4415 B25 -	- 1 1 -	- -	- -	- -	- -	- -	- -		
GAMMA (G3)	240°	186°-0"	ANDREW	SBNHH-1D65B	1	H=72.7" x W=11.9" x D=7.1"	-	-	- ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	- 3/8" 7/16" 1/2"	- 1 1 4	- 15°-0" 15°-0" 10°-0"	- 3 GREEN 3 GREEN 3 GREEN	- RRUS-32 B30 - -	- 1 - -	- -	- -	- -	- -	- -	- -		
GAMMA (G4)	240°	186°-0"	ANDREW	NNHH-65B-R4	1	H=72" x W=19.6" x D=7.8"	3°/2"	-	- ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	- 3/8" 7/16" 1/2"	- 3 2 8	- 15°-0" 15°-0" 10°-0"	- 4 BLUE 4 BLUE 4 BLUE	- 4478 B14 4426 B66 -	- 1 1 -	- -	- -	- -	- -	- -	- -		
				TOTAL	15				TOTAL 1-5/8" COAX (INACTIVE TO REMAIN)				10	2600'-0"		TOTAL	15	-	TOTAL	-	-	TOTAL	0

- ANTENNA AND COAX INFORMATION PROVIDED FROM THE 5G NR RADIO RFS V2.00 DATED 09/28/22.
- CONTRACTOR TO VERIFY RF INFO WITH CLIENT PRIOR TO CONSTRUCTION.
 - COAX LENGTHS ARE APPROXIMATE AND MUST BE VERIFIED PRIOR TO CONSTRUCTION.
 - ALL COAX SHALL BE COLOR CODED AT TOP AND BOTTOM JUMPER AND AT TOP OF TOWER BOTTOM OF TOWER, AND INSIDE SHELTER ON MAIN COAX.
 - EACH MAIN COAX SHALL HAVE CORROSION PROOF "ID TAGS" INSTALLED INSIDE THE SHELTER AT THE PORT AND AT THE ANTENNA.
 - QUANTITIES GIVEN ARE TOTAL EXISTING AND PROPOSED.

TOTAL 1-5/8" COAX (INACTIVE TO REMAIN)	10	2600'-0"
TOTAL FIBER JUMPER	34	450'-0"
TOTAL DC JUMPER	20	360'-0"
TOTAL 1/2" COAX JUMPERS	60	600'-0"
TOTAL 5/16" RET CABLES	3	780'-0"
TOTAL 2-1/4" INNER DUCTS	2	---'-0"

NOTE: AT&T MUST REMOVE (2)
INACTIVE 1-5/8" COAX CABLES
AS PART OF THIS PROJECT

1 ANTENNA & COAX SCHEDULE

REV	DATE	DESCRIPTION
A	10/28/22	PRELIMINARY CDs REV "A"
0	11/30/22	FINAL CDs ISSUED
1		
2		
3		
4		
5		
6		
7		
8		
9		
GEN3 PROJECT NO.: 102210047		
DRAWN BY:		CHECKED BY:
ME		MM



12150 RESEARCH PARKWAY
ORLANDO, FL 32826



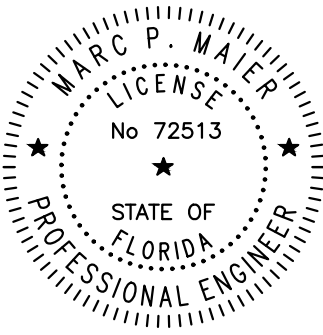
1997 ANNAPOLIS EXCHANGE PKWY.
SUITE 200
ANNAPOLIS, MD 21401

PREPARED BY:



27139 SEA BREEZE WAY
WESLEY CHAPEL, FLORIDA 33544
(813)917-2671
COA # 35409

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED
& SEALED BY MARC P. MAIER, P.E., FL
LICENSE #72513 USING A DIGITAL SIGNATURE.
PRINTED COPIES OF THIS DOCUMENT ARE
NOT CONSIDERED SIGNED & SEALED & THE
SIGNATURE MUST BE VERIFIED ON ANY
ELECTRONIC COPIES.



NOVEMBER 30, 2022
MARC P. MAIER, PE
FL PROFESSIONAL ENGINEER LIC. # 725

WEST LAKE CITY
FA #10096114

299 NW BROWN RD
LAKE CITY, FL 32055

SHEET DESCRIPTION

ANTENNA SCHEDULE

SHEET NUMBER

AN-1