LAKE CITY MALL
FA #15826568
CROWN CASTLE BU #809328

198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

NSB

'M #WSTFL0016342/WSTFL0009500/WSTFL0009494/WSTFL0009495/WSTFL0009502/
WSTFL0009497/WSTFL0009498

Columbia County Building Department
Plans Reviewed for Code Compliance
State of Florida

LOCATION MAP

VICINITY MAP

APPROVALS

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

PROJECT SUMMARY

SITE NAME:	LAKE CITY MALL
FA SITE NUMBER:	15826568
PARCEL:	36-3S-16-02590-001
COUNTY:	COLUMBIA
JURISDICTION:	COLUMBIA COUNTY
SITE COORDINATES:	30° 10' 56.44" N (30.182344°) 82° 39' 38.01" W (-82.660558°)
SITE TYPE:	COLOCATION
STRUCTURE TYPE:	SELF-SUPPORT TOWER
TOWER HEIGHT:	254'-0" AGL
ANTENNA C.L. HEIGHT:	220'-0" AGL

DESIGN CRITERIA

- FLORIDA BUILDING CODE (8TH EDITION) 2023
  ANSI/EIA/TIA-222-H (ALLOWED PER EXEMPTION #5 OF 1609.1.1)
  ASCE 7-22
  VULT = 119 MPH (ULTIMATE 3 SECOND GUST)
  VASD = 93 MPH (NOMINAL 3 SECOND GUST)
  RISK CATEGORY = II
  EXPOSURE = C
  IMPORTANCE FACTOR= 1.0
- NATIONAL ELECTRICAL CODE, 2020 EDITION (NFPA 70 2020)
- FLORIDA FIRE PREVENTION CODE, 8TH EDITION (2023)
- 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:
   -PROPOSED VERTIV 3-BAY WUC
   -PROPOSED GENERAC 20 KW DIESEL GENERATOR
   -PROPOSED 12'X25' AT&T EQUIPMENT LEASE AREA
   -(12) PROPOSED ANTENNAS @ 220' AGL
   -(12) PROPOSED RRUS
   -(3) PROPOSED RAYCAP DC9
   -(6) PROPOSED DC POWER CABLES
   -(3) PROPOSED FIBER CABLES
   -(3) PROPOSED ANTENNA MOUNTS

CONTACTS

APPLICANT:
NEW CINGULAR PCS, LLC
12150 RESEARCH PARKWAY
ORLANDO, FL 32826

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

ENGINEER:
GEN3 ENGINEERING, INC.
27139 SEA BREEZE WAY
WESLEY CHAPEL, FL 33544
CONTACT: MARC P. MAIER, P.E.
(352) 634-1643

ELECTRIC:
FPL

TELCO:
AT&T

INDEX OF DRAWINGS

DRIVING DIRECTIONS

FROM AT&T OFFICES IN ORLANDO:

1. TAKE TECHNOLOGY PKWY, SCIENCE DR, INGENUITY DR AND CHALLENGER PKWY TO FL-408 W 1.9 MI, HEAD SOUTHWEST TOWARD TECHNOLOGY PKWY 98 FT, TURN LEFT ONTO ANNHURST DR 384 FT, TURN RIGHT ONTO INGENUITY DR 0.3 MI.
2. TAKE FLORIDA'S TPKE AND I-75 N TO US-90 E/W US HWY 90 IN LAKE CITY. TAKE EXIT 427 FROM I-75 N 165 MI, KEEP LEFT TO STAY ON FL-408 W 12.9 MI, USE THE LEFT LANE TO MERGE WITH FLORIDA'S TPKE 1.2 MI.
3. KEEP LEFT TO STAY ON FLORIDA'S TPKE 41.1 MI, MERGE WITH I-75 N 100 MI, TAKE EXIT 427 TO MERGE WITH US-90 E/W US HWY 90 0.3 MI.
4. CONTINUE ON US-90 E/W US HWY 90. DRIVE TO NW HACKNEY TERRACE 1.9 MI, MERGE WITH US-90 E/W US HWY 90 1.7 MI, TURN LEFT ONTO NW HACKNEY TERRACE 0.2 MI.

ARRIVE AT 198 NW HACKNEY TERRACE LAKE CITY, FL 32055

PROJECT REFERENCES

1. THESE PLANS WERE COMPLETED PER NSB RFDS ID#: 5700418 V2.00 DATED 03/18/24. CONTRACTOR SHALL REQUEST CURRENT RFDS & WORKBOOK FROM CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.
2. THESE PLANS WERE COMPLETE PER TOWER ENGINEERING PROFSSIONALS MOUNT ANALYSIS REPORT DATED 04/16/24.

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	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
1		
2		
3		
4		
5		
6		
7		
8		

DRAWN BY:	CHECKED BY:
ME	MM

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12150 RESEARCH PARKWAY
ORLANDO, FL 32826

smartlink
10 CHURCH CIRCLE
ANNAPOLIS, MD 21401

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GEN3 ENGINEERING
27139 SEA BREEZE WAY
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(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
Digitally signed by Marc P Maier
Date: 2024.10.23 09:03:59 -04'00'

LICENSE FLORIDA No 72513 STATE OF FLORIDA PROFESSIONAL ENGINEER

OCTOBER 23, 2024
MARC P. MAIER, PE
FL PROFESSIONAL ENGINEER LIC. # 72513

LAKE CITY MALL
FA #15826568
CC BU #809328
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION
TITLE SHEET

SHEET NUMBER
T-1

GENERAL NOTES

1. THE CONTRACTOR SHALL GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY, MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS, AND LOCAL AND STATE JURISDICTIONAL CODES BEARING ON THE PERFORMANCE OF THE WORK. THE WORK PERFORMED ON THE PROJECT AND THE MATERIALS INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES.

2. THE ENGINEER HAS MADE EVERY EFFORT TO SET FORTH IN THE CONSTRUCTION AND CONTRACT DOCUMENTS THE COMPLETE SCOPE OF WORK. THE CONTRACTOR BIDDING THE JOB IS NEVERTHELESS CAUTIONED THAT MINOR OMISSIONS OR ERRORS IN THE DRAWINGS AND OR SPECIFICATIONS SHALL NOT EXCUSE SAID CONTRACTOR FROM COMPLETING THE PROJECT AND IMPROVEMENTS IN ACCORDANCE WITH THE INTENT OF THESE DOCUMENTS.

3. THE CONTRACTOR OR BIDDER SHALL BEAR THE RESPONSIBILITY OF NOTIFYING (IN WRITING) THE CONSTRUCTION MANAGER OF ANY CONFLICTS, ERRORS, OR OMISSIONS PRIOR TO THE SUBMISSION OF CONTRACTOR'S PROPOSAL OR PERFORMANCE OF WORK. IN THE EVENT OF DISCREPANCIES THE CONTRACTOR SHALL PRICE THE MORE COSTLY OR EXTENSIVE WORK, UNLESS DIRECTED IN WRITING OTHERWISE.

4. THE CONTRACTOR'S SCOPE OF WORK SHALL INCLUDE FURNISHING ALL MATERIALS, EQUIPMENT, AND LABOR REQUIRED TO COMPLETE THE WORK/PROJECT AS DESCRIBED HEREIN.

5. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO THE SUBMISSION OF BIDS OR PERFORMING WORK TO FAMILIARIZE HIMSELF WITH THE FIELD CONDITIONS AND TO VERIFY THE PROJECT REQUIREMENTS.

6. THE CONTRACTOR SHALL OBTAIN AUTHORIZATION TO PROCEED WITH CONSTRUCTION PRIOR TO STARTING WORK ON ANY ITEM NOT CLEARLY DEFINED BY THE CONSTRUCTION DRAWING/CONTRACT DOCUMENTS.

7. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS ACCORDING TO THE MANUFACTURER'S/VENDOR'S SPECIFICATION UNLESS NOTED OTHERWISE OR WHERE LOCAL CODES OR ORDINANCES TAKE PRECEDENCE. CONTRACTOR SHALL PROVIDE SERVICES FOR OFF LOADING AND PLACEMENT OF SWIC IN ACCORDANCE WITH MANUFACTURER'S LIFTING PROCEDURES.

8. THE CONTRACTOR SHALL MAINTAIN A FULL SET OF CONSTRUCTION DOCUMENTS AT THE SITE UPDATED WITH THE LATEST REVISIONS AND ADDENDA OR CLARIFICATIONS AVAILABLE FOR USE BY ALL PERSONNEL INVOLVED WITH THE PROJECT. REDLINED AS-BUILTS ARE TO BE DELIVERED TO THE CLIENT AT CLOSEOUT.

9. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK BY THE ENGINEER, THE STATE, COUNTY OR LOCAL GOVERNMENT AUTHORITY.

11. THE CONTRACTOR SHALL MAKE NECESSARY PROVISIONS TO PROTECT EXISTING IMPROVEMENTS, EASEMENTS, PAVING, CURBING, ETC. DURING CONSTRUCTION. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY HAVE OCCURRED DUE TO CONSTRUCTION ON OR ABOUT THE PROPERTY.

12. THE CONTRACTOR SHALL KEEP THE GENERAL WORK AREA CLEAN AND HAZARD FREE DURING CONSTRUCTION AND DISPOSE OF ALL DIRT, DEBRIS, RUBBISH AND REMOVE EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY. PREMISES SHALL BE LEFT IN CLEAN CONDITION AND FREE FROM PAINT SPOTS, DUST, OR SMUDGES OF ANY NATURE.

13. THE CONTRACTOR SHALL COMPLY WITH ALL OSHA REQUIREMENTS AS THEY APPLY TO THIS PROJECT.

14. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, PROPERTY LINES, ETC. ON THE JOB.

15. FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (HANDICAPPED ACCESS NOT REQUIRED).

16. FACILITY HAS NO PLUMBING.

17. PRIOR TO OR UPON ENTERING INTO THE SITE COMPOUND, THE PERSONNEL ENTERING THE SITE AND THE SWIC ARE TO CONTACT THE SWITCH AND THE CLIENT NOC (IF APPLICABLE) INFORMING THEM OF THE FOLLOWING INFORMATION: WHO IS ENTERING THE SWIC AND WHAT COMPANY THEY ARE WITH, WHY THEY ARE ENTERING THE SWIC AND HOW LONG THEY PLAN TO BE AT THE SWIC.

18. UPON LEAVING THE SWIC, THE "SITE" PERSONNEL ARE TO CONTACT THE SWITCH AND CLIENT NOC INFORMING THEM OF DEPARTURE.

19. SHOULD THE SWIC ACCESS OCCUR WHILE THE SWITCH IS UNMANNED, THEN AT MINIMUM THE CLIENT NOC WILL BE NOTIFIED OF THE ABOVE INFORMATION.

20. ALL INSTALLATION DEBRIS AND TRASH SHALL BE REMOVED FROM THE SITE ON A DAILY BASIS. ANY EXPENSE THAT IS INCURRED BY CLIENT FOR TRASH REMOVAL WILL BE BACK-CHARGED TO THE SUBCONTRACTOR.

21. THE CONTRACTOR SHALL NOTIFY ENGINEER, WHERE A CONFLICT OCCURS ON ANY OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS NOT TO ORDER MATERIAL OR CONSTRUCT ANY PORTION OF THE WORK THAT IS IN CONFLICT UNTIL CONFLICT IS RESOLVED BY THE CONSTRUCTION MANAGER.

22. ALL ANTENNA OUTAGES MUST BE PLANNED AT A MINIMUM OF 24 HOURS IN ADVANCE. CONTRACTOR MUST CONTACT THE SWITCH AND THE NOC TO COORDINATE. IF THIS POLICY IS NOT ADHERED TO, THE CONTRACTOR WILL BE REMOVED FROM THE BIDDER'S LIST AND ANY OPPORTUNITY FOR FUTURE WORK.

A/C	AIR CONDITIONING
ADJ.	ADJUSTABLE
AFF	ABOVE FINISH FLOOR
APPROX.	APPROXIMATELY
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWG	AMERICAN WIRE GAUGE
A	AMPERE
BTS	BASE TRANSMISSION STATION
BLDG.	BUILDING
BLK.	BLOCK
B/S	BUILDING STANDARD
CIGBE	GROUND BAR
CLG	CEILING
CLR.	CLEAR
CONC.	CONCRETE
CONST.	CONSTRUCTION
CONT.	CONTINUOUS
C.F.C.I.	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
DBL.	DOUBLE
DIA., ø	DIAMETER
DIAG.	DIAGONAL
DIM.	DIMENSION
DN	DOWN
DTL.	DETAIL
DWG.	DRAWING
E	EAST
EA.	EACH
EL., ELEV.	ELEVATION
ELECT.	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
EQ.	EQUAL
EQUIP.	EQUIPMENT
E.W.	EACH WAY
EXIST.	EXISTING
EXT.	EXTERIOR
FIN.	FINISH
FLR	FLOOR
FT.	FOOT
GRC.	GALVANIZED RIGID CONDUIT
G. OR GRD.	GROUND
GA.	GAUGE
GALV.	GALVANIZED
GC	GENERAL CONTRACTOR
GEN	GENERATOR
HORIZ.	HORIZONTAL
HR	HOUR
HT.	HEIGHT
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
I.D.	INSIDE DIA.
IN.	INCH
INFO	INFORMATION
INSUL.	INSULATION
INT.	INTERIOR
KVA	KILOVOLTS-AMPERE
KW	KILOWATT
LB(S)	POUND(S)
MGB	MASTER GROUND BAR
MAX.	MAXIMUM
MECH.	MECHANICAL
MFR.	MANUFACTURER
MGR.	MANAGER
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MTD.	MOUNTED
NEC	NATIONAL ELECTRICAL CODE
NEUT.	NEUTRAL
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOC	NETWORK OPERATIONS CENTER
NPS	NOMINAL PIPE SIZE
N.T.S.	NOT TO SCALE
O.F.C.I.	OWNER FURNISHED CONTRACTOR INSTALLED
OC, o/c	ON CENTER
OPP	OPPOSITE
OD	OUTSIDE DIAMETER
OHP	OVERHEAD POWER
OHT	OVERHEAD TELEPHONE
OHU	OVERHEAD UTILITY LINES
PLYWD.	PLYWOOD
PR	PAIR
PH	PHASE
PVC	POLYVINYL CHLORIDE
PROJ	PROJECT
PROP	PROPERTY
PT	PRESSURE TREATED
RECPT.	RECEPTACLE
REQ'D	REQUIRED
RGS	RIGID GALVANIZED STEEL
R.O.	ROUGH OPENING
R.O.W.	RIGHT-OF-WAY
S	SOUTH
S.O.	SERVICE GRADE OIL RESISTANT
SHT	SHEET
SIM.	SIMILAR
SPEC.	SPECIFICATION
XXX.XX'	SPOT ELEVATION
SQ.	SQUARE
SF	SQUARE FOOT
SS	STAINLESS STEEL
STL.	STEEL
STRUCT.	STRUCTURAL
THRU	THROUGH
T.O.C.	TOP OF CONCRETE
T.O.M.	TOP OF MASONRY
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
VERT.	VERTICAL
VIF	VERIFY IN FIELD
V	VOLT
W	WEST
W	WIRE
W/	WITH
W/O	WITHOUT
W.P.	WEATHERPROOF
XFMR	TRANSFORMER

	MATCH LINE
	WORK POINT
	MECHANICAL BONDING CONNECTION
	EXOTHERMICALLY WELDED BONDING CONNECTION
OR	POWER POLE
	DISCONNECT SWITCH
L E	DOUBLE-THROW MANUAL TRANSFER SWITCH
	CIRCUIT BREAKER
	EMERGENCY GENERATOR RECEPTACLE
T	TELCO PEDESTAL
	GROUND ROD
	GROUND ROD INSPECTION WELL
X X	REPRESENTS DETAIL NUMBER / REF. DRAWING NUMBER

	NORTH ARROW
X X	ELEVATION
X X	SECTIONS & DETAILS
	BRICK
	CONCRETE
	EARTH
	GRAVEL
	STEEL
M OR	METER
	GROUND
#	REVISION
1	KEYNOTE

LEGEND

	EXISTING CONTOUR LINE
	EXISTING CHAIN LINK FENCE
	EXISTING PROPERTY LINE
	EXISTING OVERHEAD UTILITIES
	EXISTING SANITARY SEWER LINE
	EXISTING STORM DRAIN LINE
	PROPOSED CONTOUR LINE
	PROPOSED CHAIN LINK FENCE
	PROPOSED LEASE AREA
	PROPOSED OVERHEAD UTILITIES
	PROPOSED UNDERGROUND TELCO
	PROPOSED UNDERGROUND ELECTRIC
	PROPOSED EASEMENT
	PROPOSED SILT FENCE
	PROPOSED GROUNDING
	FUTURE FEATURES

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DRAWN BY:	CHECKED BY:
ME	MM

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MARC P. MAIER LICENSE No 72513 STATE OF FLORIDA PROFESSIONAL ENGINEER

OCTOBER 23, 2024

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

LAKE CITY MALL
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LAKE CITY, FL 32055

SHEET DESCRIPTION

GENERAL NOTES, ABBREVIATIONS

SHEET NUMBER

GN-1

CIVIL SPECIFICATION NOTES

GENERAL NOTES:

1. ZONING REGULATIONS AND CONDITIONAL USE PERMITS:

   A. CLIENT WILL SUBMIT FOR AND OBTAIN ALL ZONING AND CONDITIONAL USE PERMITS. SOME USE PERMITS MAY HAVE SPECIFIC REQUIREMENTS FOR THE SITE RELATED TO CONSTRUCTION, SUCH AS NOISE REGULATIONS, HOURS OF WORK, ACCESS LIMITATIONS, ETC. THE CONSTRUCTION MANAGER WILL INFORM THE CONTRACTOR OF THESE REQUIREMENTS AT THE PRE-BID MEETING OR AS SHOWN IN CONSTRUCTION DOCUMENTS.

2. CONFLICTS:

   A. VERIFY ALL MEASUREMENTS AT THE SITE BEFORE ORDERING MATERIAL OR DOING ANY WORK. NO EXTRA CHARGE OR COMPENSATION WILL BE ALLOWED DUE TO DIFFERENCES BETWEEN ACTUAL DIMENSIONS OR DIMENSIONS SHOWN ON PLANS. SUBMIT NOTICE OF ANY DISCREPANCY IN DIMENSIONS OR OTHERWISE TO THE CONSTRUCTION MANAGER FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.

   B. NO PLEA OF IGNORANCE OF CONDITIONS THAT EXIST, OR OF DIFFICULTIES OF CONDITIONS THAT MAY BE ENCOUNTERED, OR OF ANY OTHER RELEVANT MATTER CONCERNING THE WORK TO BE PERFORMED IN THE EXECUTION OF THE WORK WILL BE ACCEPTED AS AN EXCUSE FOR ANY FAILURE OR OMISSION ON THE PART OF THE CONTRACTOR TO FULFILL EVERY DETAIL OF ALL THE REQUIREMENTS CONTRACT DOCUMENTS GOVERNING THE WORK.

3. PHOTOS:

   A. PROVIDE PHOTOGRAPHIC EVIDENCE OF ALL FOUNDATION INSTALLATION, GROUNDING AND TRENCHING AFTER PLACEMENT OF UTILITIES PRIOR TO BACKFILL.

SITE PREPARATION:

1. CONTRACTOR'S SCOPE OF WORK:

   A. PROTECTION OF EXISTING TREES, VEGETATION AND LANDSCAPING MATERIALS WHICH MIGHT BE DAMAGED BY CONSTRUCTION ACTIVITIES.

   B. TRIMMING OF EXISTING TREES AND VEGETATION AS REQUIRED FOR PROTECTION DURING CONSTRUCTION ACTIVITIES.

   C. CLEARING AND GRUBBING OF STUMPS, VEGETATION, DEBRIS, RUBBISH, DESIGNATED TREES, AND SITE IMPROVEMENTS.

   D. TOPSOIL STRIPPING AND STOCKPILING.

   E. TEMPORARY EROSION CONTROL, SILTATION CONTROL, AND DUST CONTROL CONFORMING TO LOCAL AND STATE REQUIREMENTS AS APPLICABLE.

   F. TEMPORARY PROTECTION OF ADJACENT PROPERTY, STRUCTURES, BENCHMARKS, AND MONUMENTS.

   G. PROTECTION AND TEMPORARY RELOCATION, STORAGE AND REINSTALLATION OF EXISTING FENCING AND OTHER SITE IMPROVEMENTS SCHEDULED FOR REUSE.

   H. REMOVAL AND LEGAL DISPOSAL OF CLEARED MATERIALS.

2. CONTRACTOR'S QUALITY ASSURANCE:

   A. CONTRACTOR SHALL BE COMPLETELY RESPONSIBLE FOR CONTAINMENT OF SEDIMENT AND CONTROL OF EROSION ON SITE. ANY DAMAGE TO ADJACENT OR DOWNSTREAM PROPERTIES WILL BE CORRECTED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.

   B. CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE AT ALL TIMES. DO NOT ALLOW WATER TO STAND OR POND. ANY DAMAGE TO STRUCTURES OR WORK ON THE SITE CAUSED BY INADEQUATE MAINTENANCE OF DRAINAGE WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND ANY COST ASSOCIATED WITH REPAIRS FOR SUCH DAMAGE WILL BE AT THE CONTRACTOR'S EXPENSE.

   C. CONTRACTOR SHALL PROPERLY DISPOSE ALL WASTE MATERIAL OFF-SITE OR AS DIRECTED BY THE CONSTRUCTION MANAGER AND IN ACCORDANCE WITH JURISDICTIONAL AUTHORITIES.

3. PRODUCTS AND MATERIALS (AS APPROVED BY CONSTRUCTION MANAGER OR AS WITHIN THE CONSTRUCTION DOCUMENTS):

   A. MATERIALS USED FOR TREE PROTECTION, EROSION CONTROL, SILTATION.

   B. MATERIALS USED FOR DUST CONTROL AS SUITABLE FOR SPECIFIC SITE CONDITIONS.

EARTHWORK:

1. CONTRACTOR'S SCOPE OF WORK:

   A. EXCAVATION, TRENCHING, FILLING, COMPACTION AND GRADING FOR STRUCTURES, SITE IMPROVEMENTS AND UTILITIES.

   B. MATERIALS FOR SUB-BASE, DRAINAGE FILL, FILL, BACKFILL AND GRAVEL FOR SLABS, PAVEMENTS AND IMPROVEMENTS.

   C. ROCK EXCAVATION WITHOUT BLASTING.

   D. SUPPLY OF ADDITIONAL MATERIALS FROM OFF-SITE AS REQUIRED.

   E. REMOVAL AND LEGAL DISPOSAL OF EXCAVATED MATERIALS AS REQUIRED.

   F. SITE GRADING.

   G. PLACEMENT AND COMPACTION OF FILL, SUBGRADE AND GRAVEL SURFACING.

   H. WHEN REQUIRED, CONSTRUCTION OF COMPOUND, ACCESS ROADS, FENCING AND ALL FOUNDATIONS.

2. CONTRACTOR'S QUALITY ASSURANCE:

   A. COMPACTION: UNDER STRUCTURES, FOUNDATIONS, BUILDING SLABS, PAVEMENTS AND WALKWAYS 95 PERCENT MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557 WITH PLUS OR MINUS 3 PERCENT OF OPTIMUM MOISTURE CONTENT.

   B. GRADING TOLERANCES OUTSIDE BUILDING LINES: LAWNS, UNPAVED AREAS AND WALKS, PLUS OR MINUS 1 INCH. UNDER PAVEMENTS, PLUS OR MINUS 1/2 INCH.

   C. GRADING TOLERANCE FOR FILL UNDER ALL CONCRETE APPLICATIONS: PLUS OR MINUS 1/2 INCH MEASURED WITH 10 FOOT STRAIGHTEDGE.

   D. CONTRACTOR MUST REFER TO THE GEOTECH REPORT FOR ALL COMPACTED FILL RECOMMENDATIONS. IF THE GEOTECH REPORT CONFLICTS WITH THE CONSTRUCTION DRAWINGS THEN STOP WORK AND CONTACT THE CLIENT AS SOON AS POSSIBLE.

3. PRODUCTS AND MATERIALS (AS APPROVED BY CONSTRUCTION MANAGER OR AS WITHIN CONSTRUCTION DOCUMENTS):

   A. SUB BASE MATERIAL: GRADED MIXTURE OF NATURAL OR CRUSHED GRAVEL, CRUSHED STONE OR SLAG AND NATURAL OR CRUSHED SAND.

   B. WASHED MATERIAL: UNIFORMLY GRADED MIXTURE OF CRUSHED STONE OR GRAVEL, WITH 100 PERCENT PASSING A 1-1/2 INCH SIEVE AND NOT MORE THAN 5 PERCENT PASSING A NO. 4 SIEVE.

   C. GRADING MATERIAL: SATISFACTORY NATIVE OR IMPORTED MATERIALS CONTAINING ROCK OR GRAVEL NOT LARGER THAN 2 INCHES IN ANY DIMENSION. GRADING MATERIAL SHALL NOT INCLUDE DEBRIS, WASTE, FROZEN MATERIALS, AND OTHER UNSUITABLE MATERIALS. IMPORTED MATERIAL SHALL HAVE A FINES CONTENT OF NO MORE THAN 5 PERCENT.

   D. BACKFILL MATERIALS: SATISFACTORY NON-COHESIVE NATIVE OR IMPORTED SOIL MATERIALS FREE OF CLAY, DEBRIS, WASTE, AND OTHER UNSUITABLE MATERIALS. ROCK OR GRAVEL SHALL NOT EXCEED 4 INCHES IN ANY DIMENSION. IMPORTED MATERIAL SHALL HAVE A FINES CONTENT OF NO MORE THAN 5 PERCENT.

   E. GRAVEL MATERIAL: EVENLY GRADED MIXTURE OF CRUSHED STONE OR GRAVEL, WITH 100 PERCENT PASSING A 1-1/2 INCH SIEVE AND NOT MORE THAN 5 PERCENT PASSING A NO. 4 SIEVE.

   F. GEOTEXTILE FABRIC: TYPAR 3401 OR EQUIVALENT

4. CLEARING AND GRUBBING:

   A. REMOVE ALL VEGETATION AND MATERIALS TO A MINIMUM DEPTH OF 6 INCHES. REMOVE STUMPS COMPLETELY UNDER FOUNDATIONS AND ROADWAY. DISPOSE OF CLEARING AND GRUBBING OFF-SITE, OR IN AN ON-SITE LOCATION APPROVED BY CONSTRUCTION MANAGER.

5. STRIPPING:

   A. STRIP NOT LESS THAN 3 INCHES OF VEGETATION AND TOPSOIL FROM AREAS THAT WILL UNDERLAY GRAVEL, PAVEMENT, NEW STRUCTURES, OR NEW EMBANKMENTS. STOCKPILE STRIPPED TOPSOIL ON-SITE FOR REUSE IN FINAL LANDSCAPING.

6. COMMON WEEDING:

   A. STERILIZE COMPOUND AREA WITH WEED KILLER/DEFOLIANT. THEN TREAT AREA WITH AN HERBICIDE SUCH AS PARQUET OR EQUIVALENT.

7. COMMON EXCAVATION:

   A. EXCAVATE TO DEPTH, LINES, AND GRADES SHOWN ON THE PLANS OR AS OTHERWISE SPECIFIED.

   B. TEMPORARILY STOCKPILE ON-SITE EXCAVATION AT AN APPROVED LOCATION WITHIN THE WORK AREA UNTIL SITE GRADING IS COMPLETE. STOCKPILE SHALL NOT EXCEED 15 FEET IN HEIGHT.

   C. DISPOSE OF EXCESS EXCAVATION OFF-SITE. MATERIALS REMOVED FROM SITE MUST BE DISPOSED OF IN A LEGAL MANNER.

8. EMBANKMENT:

   A. CONSTRUCT EMBANKMENT TO THE LINES AND GRADES SHOWN ON THE DRAWINGS.

   B. CONSTRUCT EMBANKMENT FROM ON-SITE EXCAVATION MATERIALS. USE IMPORTED BACKFILL ONLY AFTER AVAILABLE ON-SITE EXCAVATION MATERIALS HAVE BEEN USED.

   C. CONSTRUCT IN LIFTS OF NOT MORE THAN 9 INCHES IN LOOSE DEPTH. THE FULL WIDTH OF THE CROSS SECTION SHALL BE BROUGHT UP UNIFORMLY.

   D. MATERIAL SHALL BE PLACED IN LAYERS AND SHALL BE NEAR OPTIMUM MOISTURE CONTENT BEFORE ROLLING TO OBTAIN THE PRESCRIBED COMPACTION. WETTING OR DRYING OF THE MATERIAL AND MANIPULATION TO SECURE A UNIFORM MOISTURE CONTENT THROUGHOUT THE LAYER MAY BE REQUIRED. SUCH OPERATIONS SHALL BE INCLUDED IN THE APPROPRIATE BID ITEM. SHOULD THE MATERIAL BE TOO WET TO PERMIT PROPER COMPACTION, REMOVE AND REPLACE FILL WITH MATERIAL IN CONFORMANCE WITH THESE SPECIFICATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIAL WITH AN ACCEPTABLE MOISTURE CONTENT.

   E. WHEN APPLICABLE, DO NOT PLACE FROZEN MATERIAL IN THE EMBANKMENT, AND DO NOT PLACE EMBANKMENT MATERIAL UPON FROZEN MATERIAL.

   F. BE RESPONSIBLE FOR THE STABILITY OF EMBANKMENTS AND REPLACE ANY PORTION WHICH HAS BECOME DISPLACED DUE TO THE CONTRACTOR'S OPERATIONS.

   G. START LAYERS IN THE DEEPEST PORTION OF THE FILL, AND AS PLACEMENT PROGRESSES, CONSTRUCT LAYERS APPROXIMATELY PARALLEL TO THE FINISHED GRADE LINE.

   H. ROUTE EQUIPMENT, BOTH LOADED AND EMPTY, OVER THE FULL WIDTH OF EMBANKMENT TO ENSURE UNIFORMITY OF MATERIAL PLACEMENT.

   I. COMPACT EMBANKMENT UNDERLYING NEW GRAVEL PAVING, FLOOR SLABS, AND STRUCTURES TO 95 PERCENT MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557 WITH PLUS OR MINUS 3 PERCENT OF OPTIMUM MOISTURE CONTENT. COMPACT NON-STRUCTURAL AREA EMBANKMENTS TO A MINIMUM OF 90 PERCENT OF ASTM D-1557.

9. SITE GRADING:

   A. USING ON-SITE EXCAVATION MATERIALS, SHAPE, TRIM, FINISH, AND COMPACT SURFACE AREAS TO CONFORM TO THE LINES, GRADES, AND CROSS SECTIONS SHOWN ON THE DRAWINGS OR AS DESIGNATED BY THE CONSTRUCTION MANAGER.

   B. GRADE SURFACES TO DRAIN AND ELIMINATE ANY PONDING OR EROSION.

   C. ELIMINATE WHEEL RUTS BY REGRADING.

   D. CONSTRUCT FINISHED SURFACE OF SITE GRADING AREAS WITHIN ONE INCH FROM SPECIFIED GRADE.

10. SUBGRADE PREPARATION:

   A. SHAPE TOP OF SUBGRADE TO THE LINES AND GRADES SHOWN ON THE DRAWINGS.

   B. MAINTAIN TOP OF SUBGRADE IN A FREE-DRAINING CONDITION.

   C. DO NOT STOCKPILE MATERIALS ON TOP OF SUBGRADE UNLESS AUTHORIZED BY CONSTRUCTION MANAGER.

   D. COMPACT THE TOP 6 INCHES OF SUBGRADE TO A 95 PERCENT MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557.

   E. REMOVE AND REPLACE SOFT SOILS ON AREAS THAT "PUMP" OR DEFORM UNDER WEIGHT OF COMPACTION EQUIPMENT.

   F. CONSTRUCT TOP OF SUBGRADE WITHIN ONE INCH OF ESTABLISHED GRADE AND CROSS-SECTION.

11. GEOTEXTILE FABRIC:

   A. LAY GEOTEXTILE FABRIC OVER COMPACTED SUBGRADE AS PER CONSTRUCTION DOCUMENTS IN COMPOUND AND UNDER LENGTH OF ROAD (WHEN REQUIRED). LAP ALL JOINTS A MINIMUM OF 12 INCHES.

12. GRAVEL SURFACING:

   A. CONSTRUCT GRAVEL SURFACING AREAS USING CRUSHED AGGREGATE BASE AND FINISH COURSES AS SPECIFIED BY CONSTRUCTION MANAGER OR CONSTRUCTION DOCUMENTS.

   B. SPREAD GRAVEL AND RAKE TO A UNIFORM SURFACE.

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
1		
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PREPARED BY:
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27139 SEA BREEZE WAY
WESLEY CHAPEL, FLORIDA 33544
(813)917-2671
COA # 35409

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MARC P. MAIER
LICENSE
No 72513
STATE OF FLORIDA
PROFESSIONAL ENGINEER

OCTOBER 23, 2024

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

LAKE CITY MALL
FA #15826568
CC BU #809328
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION

SPECIFICATIONS

SHEET NUMBER

SP-1

TRENCHING:

CONTRACTOR MUST NOTIFY "ONE-CALL" UTILITY LOCATING SERVICE THREE DAYS PRIOR TO CONSTRUCTION TO FLAG ALL UNDERGROUND UTILITIES.

1. MATERIALS:

   A. FILL MATERIAL SHALL BE OBTAINED, TO THE MAXIMUM EXTENT POSSIBLE, FROM EXCAVATIONS ON-SITE. THE STRUCTURAL FILL SHOULD BE SAND AND SHALL BE APPROVED BY THE CONSTRUCTION MANAGER AND SHALL CONFORM TO LOCAL GOVERNING JURISDICTION AND UTILITY COMPANY REQUIREMENTS. THE FILL MATERIAL SHALL BE FREE FROM PERCEPTIBLE AMOUNTS OF WOOD, DEBRIS OR TOPSOIL AND SHALL NOT CONTAIN MARBLE OR OTHER ELEMENTS, WHICH TEND TO KEEP IT IN A PLASTIC STATE. MATERIALS DESIGNATED AS HAZARDOUS OR INDUSTRIAL BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA) ARE TO BE AVOIDED. THE FILL MATERIAL SHALL CONTAIN FINES SUFFICIENT TO FILL ALL VOIDS IN THE MATERIAL.

2. PIPE DETECTION AND IDENTIFICATION:

   A. UTILIZING WARNING TAPE: ALL ELECTRIC SERVICE TRENCHES SHALL BE MARKED WITH WARNING TAPE.

3. TRENCH EXCAVATION:

   A. DIG TRENCH TO LINES AND GRADES SHOWN ON THE PLANS OR AS DIRECTED BY CONSTRUCTION MANAGER.

   B. TRENCH WIDTH SHALL BE SUFFICIENT TO ALLOW FOR SATISFACTORY CONSTRUCTION AND INSPECTION OF THE PROJECT, WITHOUT ENDANGERING OTHER CONSTRUCTION WORK OR ADJACENT FACILITIES.

   C. DISPOSAL OF EXCESS AND UNSUITABLE EXCAVATION MATERIAL PROPERLY, AS DIRECTED BY CONSTRUCTION MANAGER.

   D. USE HAND METHODS FOR EXCAVATION THAT CANNOT BE ACCOMPLISHED WITHOUT ENDANGERING EXISTING OR NEW STRUCTURES OR OTHER FACILITIES.

4. TRENCH PROTECTION:

   A. PROVIDE MATERIALS, LABOR, AND EQUIPMENT NECESSARY TO PROTECT TRENCHES AT ALL TIMES.

   B. SHEETING AND BRACING: MEET OR EXCEED OSHA REQUIREMENTS.

5. BACKFILLING:

   A. A PRELIMINARY EARTH RESISTIVITY TEST SHALL BE PERFORMED PRIOR TO BACKFILLING.

   B. BACKFILL AND/OR BEDDING SHALL NOT BE PLACED IN A TRENCH UNTIL THE TRENCH WORK AND BACKFILL HAS BEEN INSPECTED AND APPROVED BY THE CLIENT. CONTRACTOR TO NOTIFY CLIENT'S CONSTRUCTION MANAGER AT LEAST 24 HOURS IN ADVANCE OF EXPECTED BACKFILL.

   C. IF BACKFILL MATERIAL IS NOT SUITABLE (CONTAINS DEBRIS OR ROCK), REPLACE WITH A LOW RESISTANCE GROUND ENHANCEMENT MATERIAL.

   D. WHENEVER CLIENT REQUIRES THE REMOVAL OF WET OR OTHERWISE UNSTABLE SUBGRADE FROM THE FILL MATERIAL PREVIOUSLY PLACED BY THE CONTRACTOR, THE CONTRACTOR SHALL BEAR THE COST OF ALL REMOVAL OF UNSTABLE SOIL AND WITH BACKFILLING OF THE TRENCH.

   E. BACKFILL SHALL BE PLACED AND PACKED DOWN TIGHTLY TO ACHIEVE 95 PERCENT MAXIMUM DRY DENSITY AS OBTAINED THROUGH THE STANDARD PROCTOR METHOD (ASTM D-698).

   F. FOLLOWING AN APPROVED INSPECTION, BACKFILL MATERIAL SHALL BE DEPOSITED IN THE TRENCH WITH HAND SHOVELS (NOT BY MEANS OF WHEELBARROWS, CARTS, TRUCKS, BULLDOZERS, OR SIMILAR EQUIPMENT) IN 4" LAYERS AND COMPACTED BY MECHANICAL TAMPERS UNTIL THE CONDUCTOR OR PIPE HAS A COVER OF NOT LESS THAN 12" THE REMAINDER OF THE BACKFILL MATERIAL SHALL THEN BE DEPOSITED IN THE TRENCH IN 8" LAYERS AND MECHANICALLY COMPACTED.

   G. PROTECT CONDUIT FROM LATERAL MOVEMENT, DAMAGE FROM IMPACT OR UNBALANCED LOADING TO AVOID DISPLACEMENT OF CONDUIT AND/OR STRUCTURES. ANY SUBSEQUENT SETTLEMENT SHALL BE CONSIDERED THE RESULT OF IMPROPER COMPACTION AND SHALL BE PROMPTLY CORRECTED.

   H. IF REQUIRED COMPACTION DENSITY HAS NOT BEEN OBTAINED, REMOVE THE BACKFILL FROM THE TRENCH OR STRUCTURE, REPLACE WITH APPROVED BACKFILL, AND RE-COMPACT AS SPECIFIED.

STRUCTURAL NOTES:

1. THE GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH CONSTRUCTION.
2. THE GENERAL CONTRACTOR AND HIS SUB CONSULTANTS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS WHICH MAY BE REQUIRED FOR THE WORK.
3. STRUCTURAL STEEL SHALL CONFORM TO SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS, AISC 360-05 INCLUDING THE COMMENTARY AND THE AISC CODE OF STANDARD PRACTICE.
4. STRUCTURAL STEEL PLATES, ANGLES, AND CHANNELS SHALL CONFORM TO ASTM A36. STRUCTURAL STEEL PIPES SHALL CONFORM TO ASTM A53 GRADE B. STRUCTURAL STEEL BEAMS SHALL CONFORM TO ASTM A992, GRADE 50. ALL STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A500 GRADE B. ALL STRUCTURAL STEEL COMPONENTS AND FABRICATED ASSEMBLIES SHALL BE HOT DIP GALVANIZED-ASTM A123 AFTER FABRICATION. FIELD TOUCH UP WITH 3 COATS OF ZINC RICH PAINT ALL RAW EDGES AND/OR AREAS WHERE THE GALVANIZED FINISH HAS BEEN DISTURBED (ALL EXISTING AND NEW AREAS).
5. WELDING SHALL BE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY (AWS 01.1). STRUCTURAL WELDING CODE-STEEL WELD ELECTRODES SHALL BE E70XX. FIELD TOUCH UP WITH ZINC RICH PAINT (ALL EXISTING AND NEW AREAS) AFTER WELDING IS COMPLETE.
6. ALL THREADED STRUCTURAL FASTENERS FOR ANTENNA SUPPORT ASSEMBLIES SHALL CONFORM TO ASTM A307 OR ASTM A36. ALL STRUCTURAL FASTENERS FOR STRUCTURAL STEEL FRAMING SHALL CONFORM TO ASTM A325. FASTENERS SHALL BE 5/8 INCH MIN. UNLESS NOTED OTHERWISE, DIAMETER BEARING TYPE CONNECTIONS WITH THREADS EXCLUDED IN THE SHEAR PLANE. ALL EXPOSED FASTENERS, NUTS AND WASHERS SHALL BE GALVANIZED UNLESS OTHERWISE NOTED. CONCRETE EXPANSION ANCHORS SHALL BE HILTI KWIK BOLTS UNLESS OTHERWISE NOTED. ALL ANCHORS INTO CONCRETE SHALL BE STAINLESS STEEL.
7. ALL REINFORCING STEEL SHALL CONFORM TO ASTM 615 GRADE 60, DEFORMED BILLET STEEL BARS. WELDED WIRE FABRIC REINFORCING SHALL CONFORM TO ASTM A185.
8. CONCRETE FOR THE FOUNDATION PAD SHALL BE 4000 PSI NORMAL WEIGHT CONCRETE. CONCRETE STRENGTH SHALL BE VERIFIED BY CONCRETE CYLINDER TESTS (A MINIMUM SET OF FOUR CYLINDERS). PROVIDE 4 TO 6% AIR ENTRAINMENT FOR ALL CONCRETE SUBJECT TO FREEZE - THAW CYCLE.
9. MINIMUM CONCRETE COVER REINFORCEMENT SHALL BE 2" UNLESS NOTED OTHERWISE. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH SHALL HAVE A MINIMUM CONCRETE COVER OF 3".
10. CONTRACTOR SHALL COORDINATE ALL PENETRATIONS, CONDUIT, CHAMFERS, AND EMBEDDED ITEMS PRIOR TO CONCRETE PLACEMENT AND/OR STEEL ERECTION. CONTRACTOR SHALL VERIFY ALL SIZES AND LOCATIONS.
11. DO NOT IMPOSE SERVICE LOAD (i.e. FLOOR DEAD AND LIVE LOADS, BACKFILL. ETC.) UNTIL THE CONCRETE HAS REACHED ITS SPECIFIED MINIMUM COMPRESSIVE STRENGTH.
12. BACKFILL SHALL BE CLEAN SAND FILL APPROVED FOR USE BY THE ENGINEER. NO UNAPPROVED MATERIAL WILL BE ALLOWED. CLEAN SAND FILL SHALL BE FREE OF ALL ROOTS, BOULDERS, OR OTHER DELETERIOUS MATERIAL.
13. SOIL SHALL BE COMPACTED TO 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY TO A MINIMUM OF 2 FEET BELOW THE BOTTOM OF THE FOOTINGS, AND SHALL OBTAIN A 2000 PSF MINIMUM ALLOWABLE BEARING CAPACITY.

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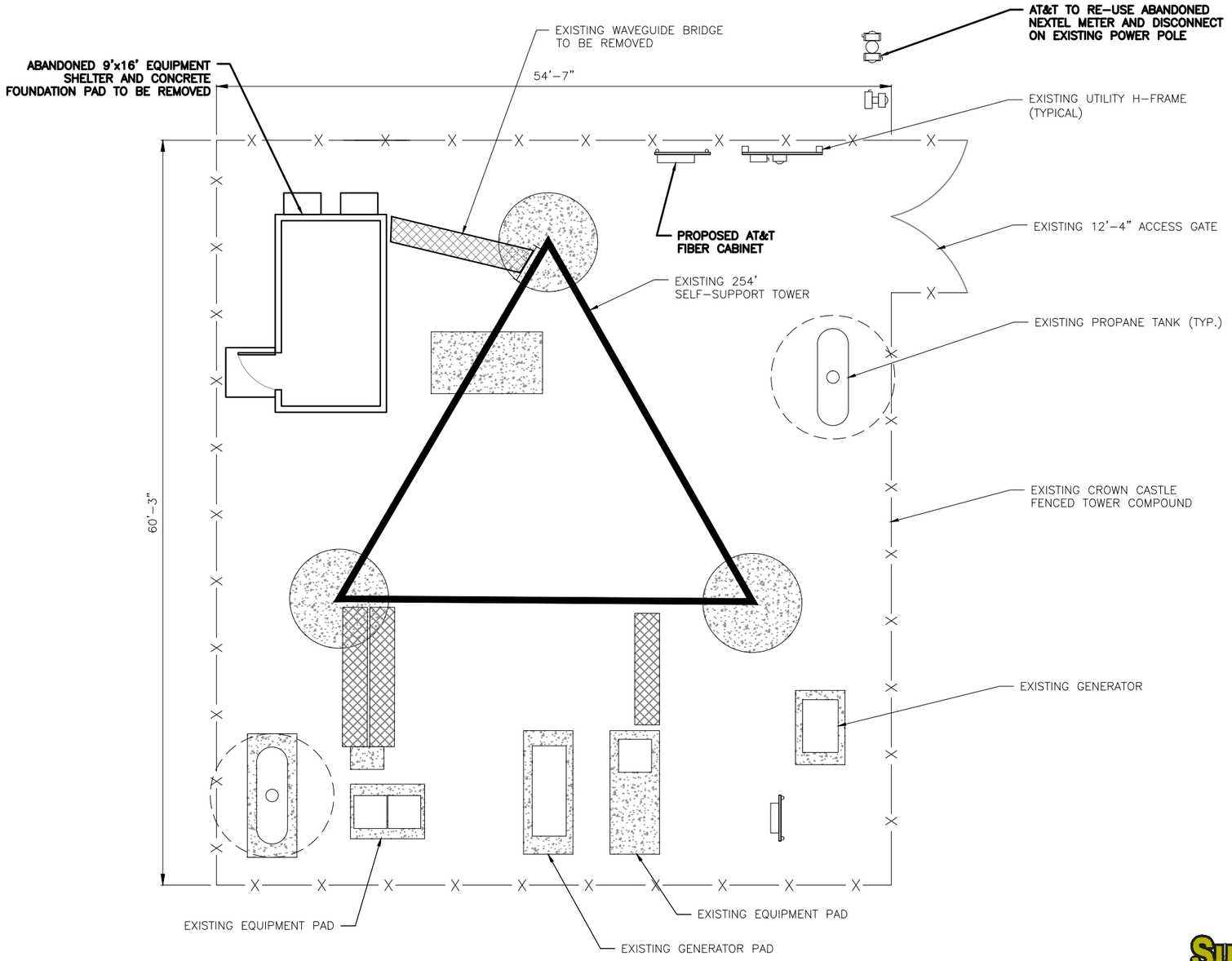
PROFESSIONAL ENGINEER

OCTOBER 23, 2024
MARC P. MAIER, PE
FL PROFESSIONAL ENGINEER LIC. # 72513

LAKE CITY MALL
FA #15826568
CC BU #809328
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION
SPECIFICATIONS

SHEET NUMBER
SP-2



1 C-2A **DEMOLITION PLAN**
SCALE: 1" = 10'
SCALE BASED ON 11"x17" ONLY

GRAPHIC SCALE
0 5 10 20
(IN FEET)

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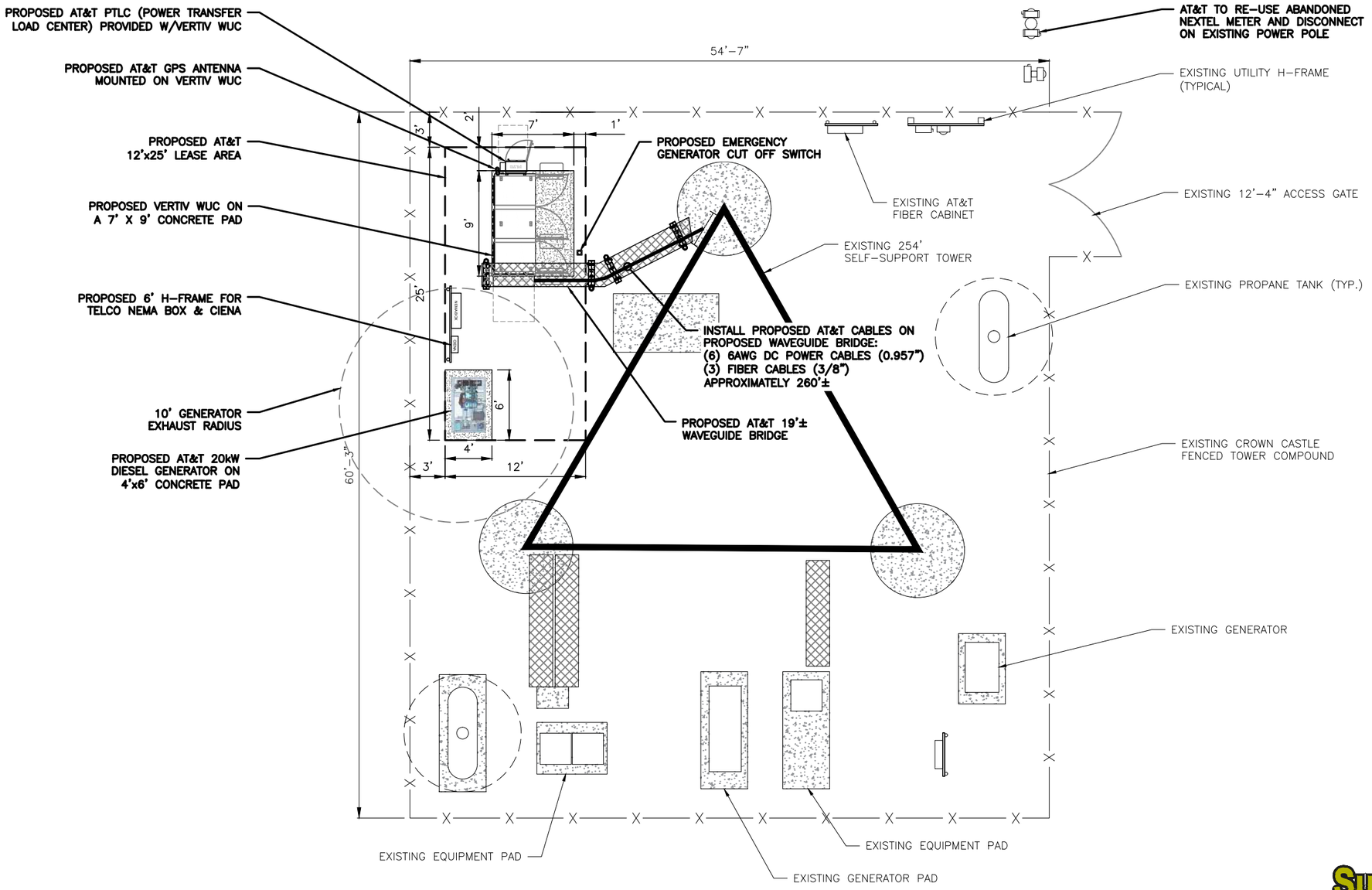
OCTOBER 23, 2024
MARC P. MAIER, PE
FL PROFESSIONAL ENGINEER LIC. # 72513

LAKE CITY MALL
FA #15826568
CC BU #809328
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION
DEMOLITION PLAN

SHEET NUMBER
C-2A



1 C-2 **COMPOUND PLAN**
SCALE: 1" = 10'-0"
SCALE BASED ON 11"x17" ONLY

GRAPHIC SCALE
0 5 10 20
(IN FEET)

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TRUE NORTH

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A	06/18/24	PRELIMINARY CDs REV "A"
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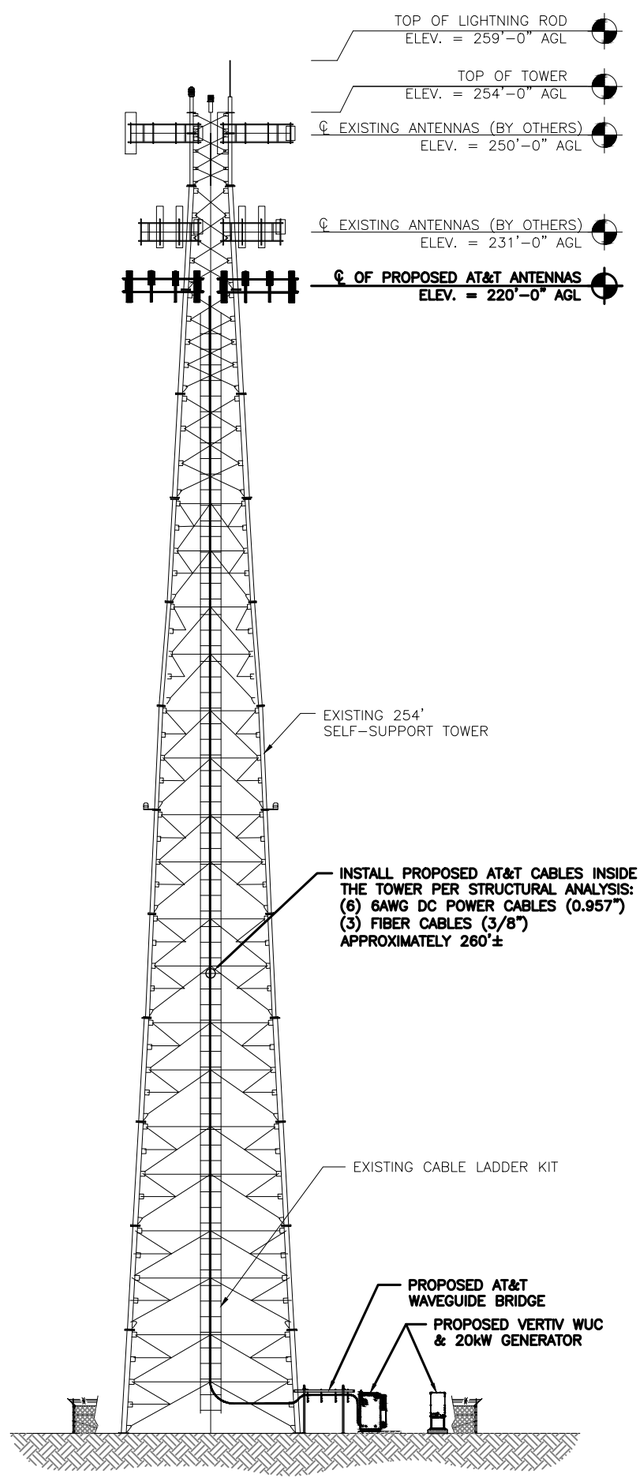
FL PROFESSIONAL ENGINEER LIC. # 72513

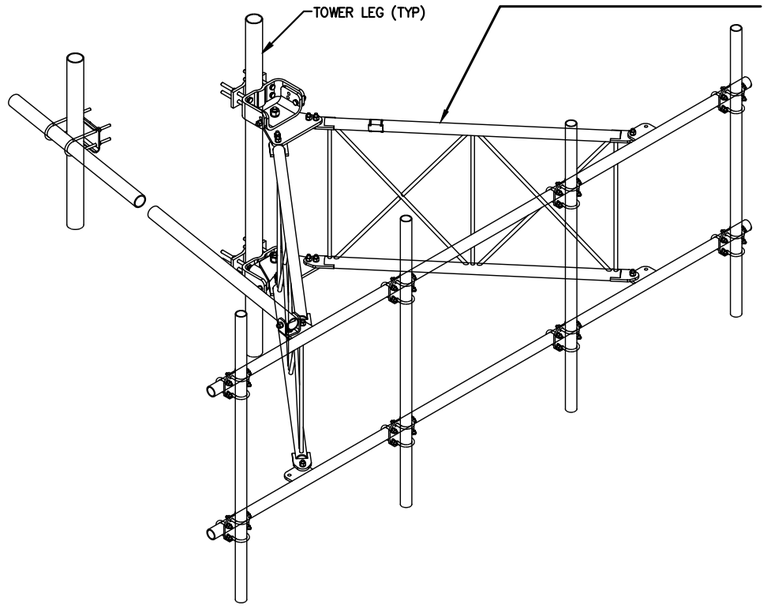
LAKE CITY MALL
FA #15826568
CC BU #809328
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION
COMPOUND PLAN

SHEET NUMBER
C-2

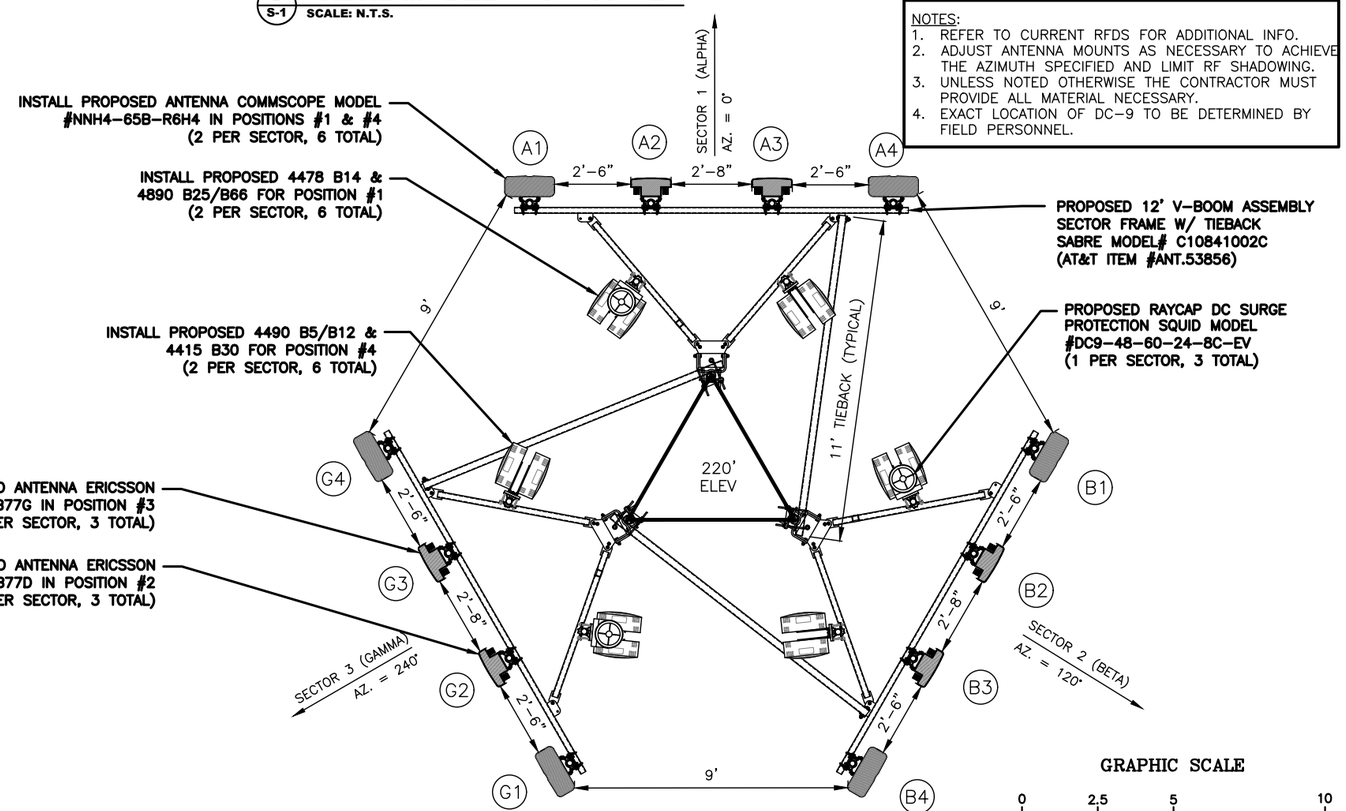


1 / S-1 TOWER ELEVATION
SCALE: N.T.S.



12' V-BOOM ASSEMBLY W/TIEBACK W/ 1 STIFF ARM & MOUNT PIPES
2 / S-1 SABRE MODEL #C10841002C
SCALE: N.T.S.

NOTES:
1. REFER TO CURRENT RFDS FOR ADDITIONAL INFO.
2. ADJUST ANTENNA MOUNTS AS NECESSARY TO ACHIEVE THE AZIMUTH SPECIFIED AND LIMIT RF SHADOWING.
3. UNLESS NOTED OTHERWISE THE CONTRACTOR MUST PROVIDE ALL MATERIAL NECESSARY.
4. EXACT LOCATION OF DC-9 TO BE DETERMINED BY FIELD PERSONNEL.



3 / S-1 PROPOSED ANTENNA CONFIGURATION DETAIL
SCALE: 1" = 5'-0"
SCALE BASED ON 11"x17" ONLY

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
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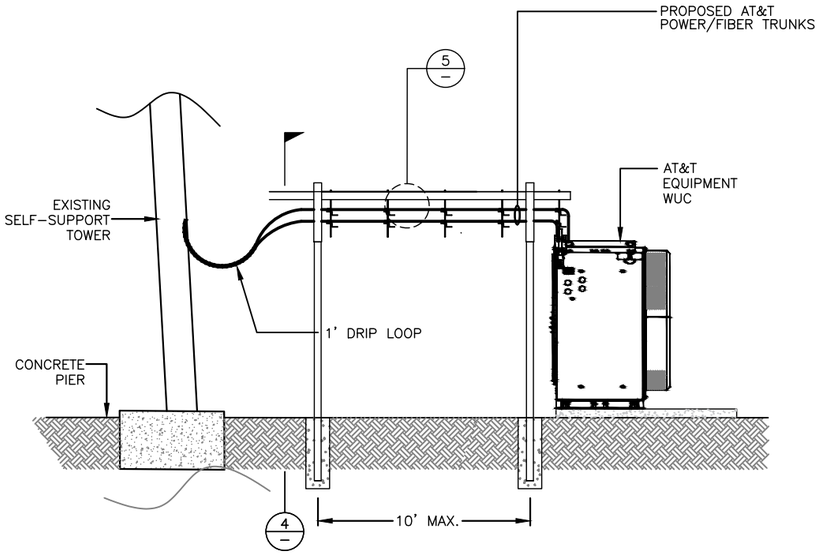
FL PROFESSIONAL ENGINEER LIC. # 72513

LAKE CITY MALL
FA #15826568
CC BU #809328

198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

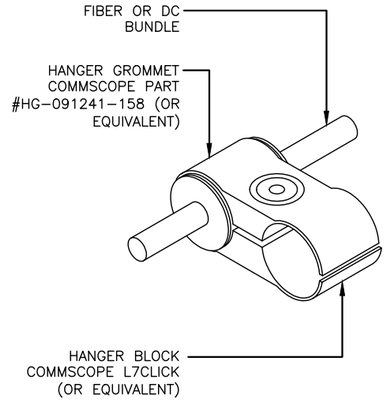
SHEET DESCRIPTION
TOWER ELEVATION AND ANTENNA ORIENTATION

SHEET NUMBER
S-1



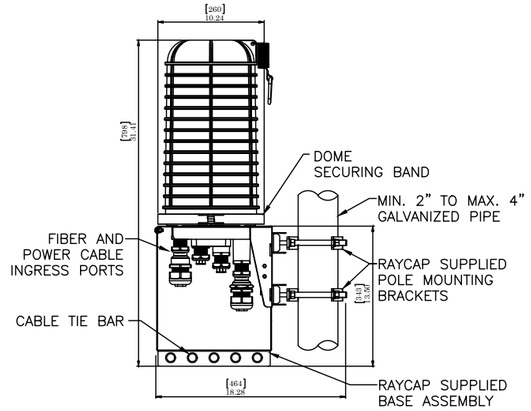
1 S-2 COAX BRIDGE ELEVATION (SIDE)

SCALE: N.T.S.



2 S-2 FIBER & DC CABLE MOUNTING DETAIL

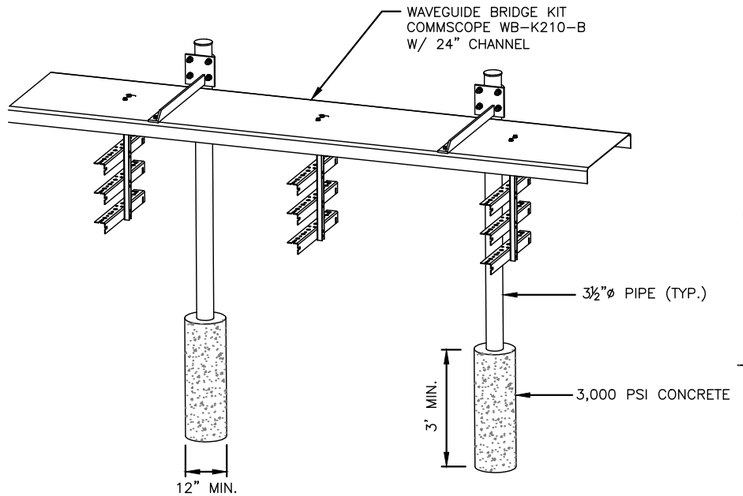
SCALE: N.T.S.



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.

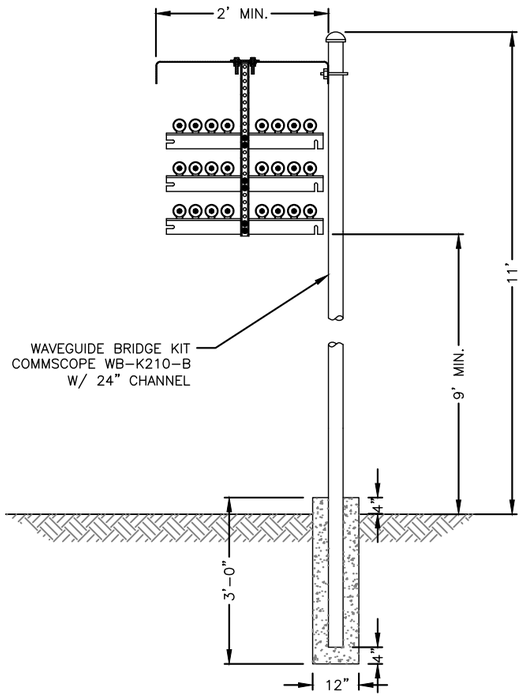
3 S-2 DC9-48-60-24-8C-EV MOUNT DETAIL

SCALE: N.T.S.



4 S-2 COAX BRIDGE AXONOMETRIC

SCALE: N.T.S.

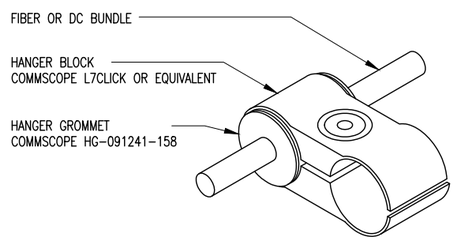


5 S-2 COAX BRIDGE CROSS-SECTION

SCALE: N.T.S.

MISCELLANEOUS MATERIALS SCHEDULE

DESCRIPTION	MODEL NUMBER	QUANTITY
HANGER BLOCK	L7CLICK	–
HANGER ADAPTER GROMMET	HG-091241-158	–
HOISTING GRIP	19256B	–
HOISTING GRIP	LUHG-38	–
GROUNDING KIT	–	–



DOUBLE CLAMP

NOTES:
1. REFER TO JSA DOCUMENTS FOR EXACT CABLE NUMBER AND MANUFACTURER SPECIFICATIONS FOR PROPER GROMMETS AND HANGER TO SUPPORT THE FIBER AND DC CABLE BUNDLES.
2. REFER TO STRUCTURAL ANALYSIS FOR EXACT CABLE ROUTING AND MOUNTING CONFIGURATION.

6 S-2 HANGER ADAPTER GROMMET DETAILS

SCALE: N.T.S.

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
1		
2		
3		
4		
5		
6		
7		
8		

DRAWN BY:	CHECKED BY:
ME	MM

at&t
12150 RESEARCH PARKWAY
ORLANDO, FL 32826

smartlink
10 CHURCH CIRCLE
ANNAPOLIS, MD 21401

PREPARED BY:
GEN3 ENGINEERING
27139 SEA BREEZE WAY
WESLEY CHAPEL, FLORIDA 33544
(813)917-2671
COA # 35409

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MARC P. MAIER
LICENSE
No 72513
STATE OF FLORIDA
PROFESSIONAL ENGINEER

OCTOBER 23, 2024

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

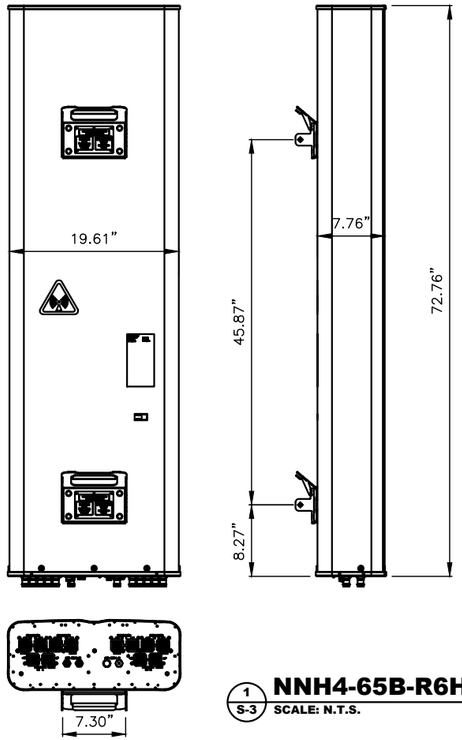
LAKE CITY MALL
FA #15826568
CC BU #809328
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION

MISCELLANEOUS DETAILS

SHEET NUMBER

S-2

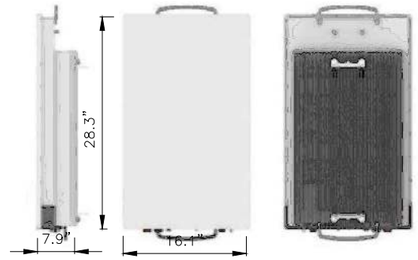


1 S-3 NNH4-65B-R6H4
SCALE: N.T.S.

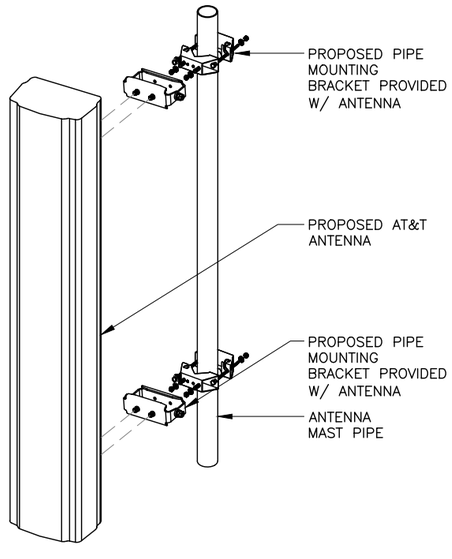
AIR 6419

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



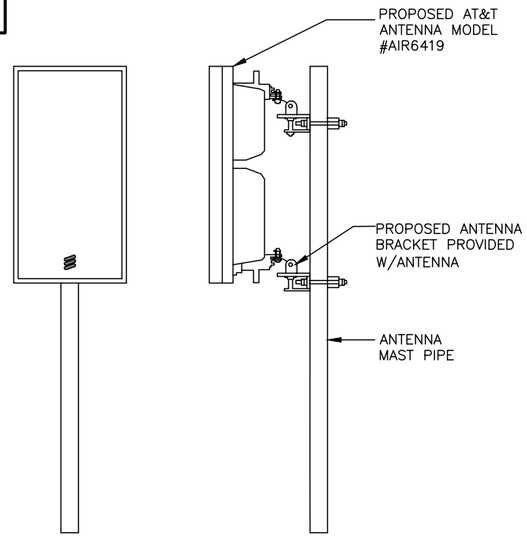
2 S-3 ANTENNA - ERICSSON AIR 6419
SCALE: N.T.S.



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

NOTES:

1. IF ONLY (1) AIR ANTENNA IS PROPOSED, INSTALL AT THE TOP OF THE MOUNT PIPE TO ALLOW A FUTURE ANTENNA TO BE INSTALLED BELOW.



4 S-3 ANTENNA MOUNTING DETAIL
SCALE: N.T.S.

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
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FL PROFESSIONAL ENGINEER LIC. # 72513

LAKE CITY MALL
FA #15826568
CC BU #809328

198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

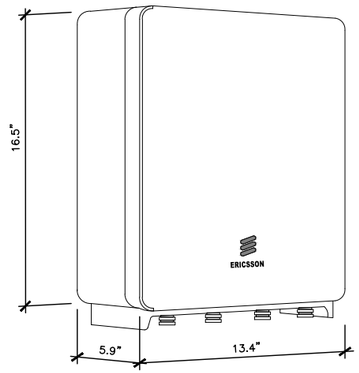
SHEET DESCRIPTION

MISCELLANEOUS DETAILS

SHEET NUMBER

S-3

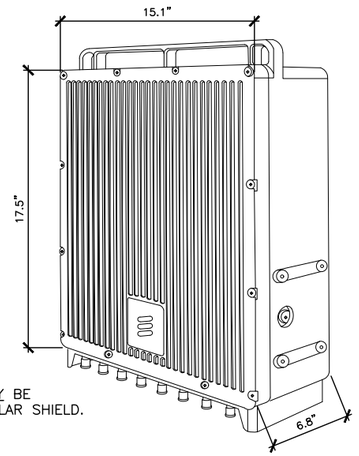
ERICSSON RRUS-4415 B30
-DIMENSIONS (H x W x D):
16.5" x 13.4" x 5.9"
-WEIGHT: 44 LBS
-TX = 1930 - 1995 MHz
-RX = 1850 - 1915 MHz
-CPRI 2 PORTS x 2.5/4.9/9.8/10.1 Gbps



NOTE:
RRUS CAN ONLY BE
PAINTED ON SOLAR SHIELD.

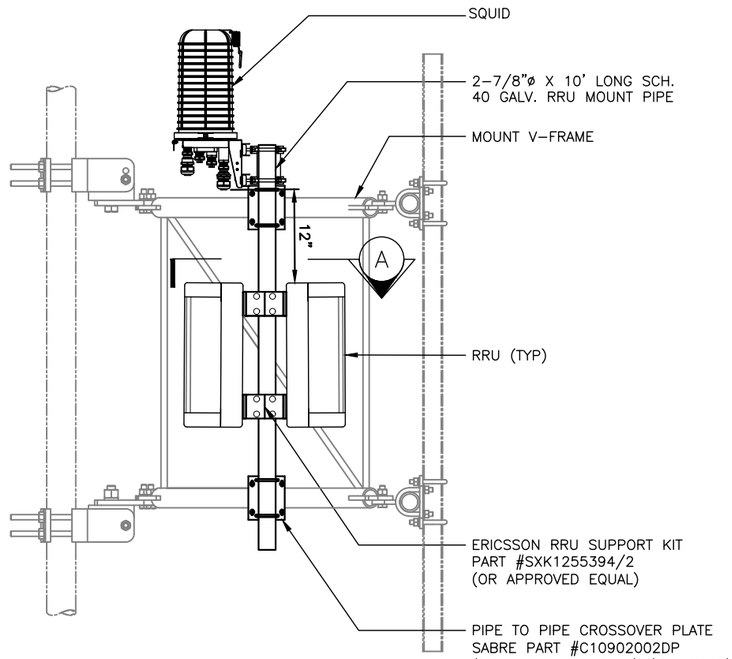
1 S-4 RRUS-4415 B30 DETAIL
SCALE: N.T.S.

ERICSSON RRUS-4490 B5/B12
-DIMENSIONS (H x W x D):
17.5" x 15.1" x 6.8" (INCLUDES SUNSHIELD)
-WEIGHT: 68 LBS



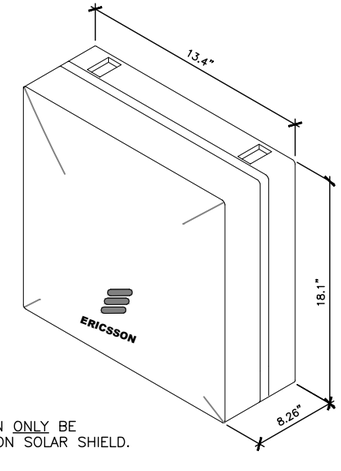
NOTE:
RRUS CAN ONLY BE
PAINTED ON SOLAR SHIELD.

2 S-4 4490 B5/B12 DETAIL
SCALE: N.T.S.



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

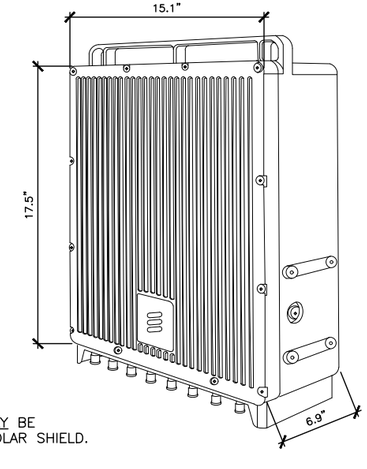
ERICSSON RRUS-4478 B14
-DIMENSIONS (H x W x D):
18.1" x 13.4" x 8.26" (INCLUDES SUNSHIELD)
-WEIGHT: 59.4 LBS
-BREAKER SIZE=25A, DC POWER CONSUMPTION = 650 W



NOTE:
RRUS CAN ONLY BE
PAINTED ON SOLAR SHIELD.

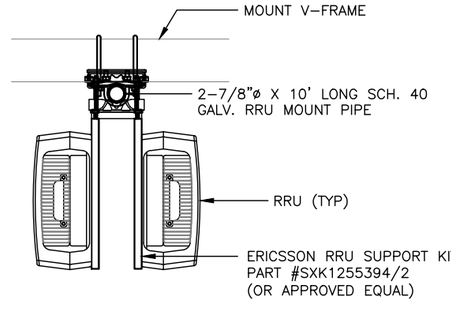
3 S-4 4478 B14 DETAIL
SCALE: N.T.S.

ERICSSON RRUS-4890 B25/B66
-DIMENSIONS (H x W x D):
17.5" x 15.1" x 6.9" (INCLUDES SUNSHIELD)
-WEIGHT: 68 LBS



NOTE:
RRUS CAN ONLY BE
PAINTED ON SOLAR SHIELD.

4 S-4 4890 B25/B66 DETAIL
SCALE: N.T.S.



SECTION A

5 S-4 RRU MOUNTING DETAIL
SCALE: N.T.S.

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
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DRAWN BY:	CHECKED BY:
ME	MM

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PREPARED BY:
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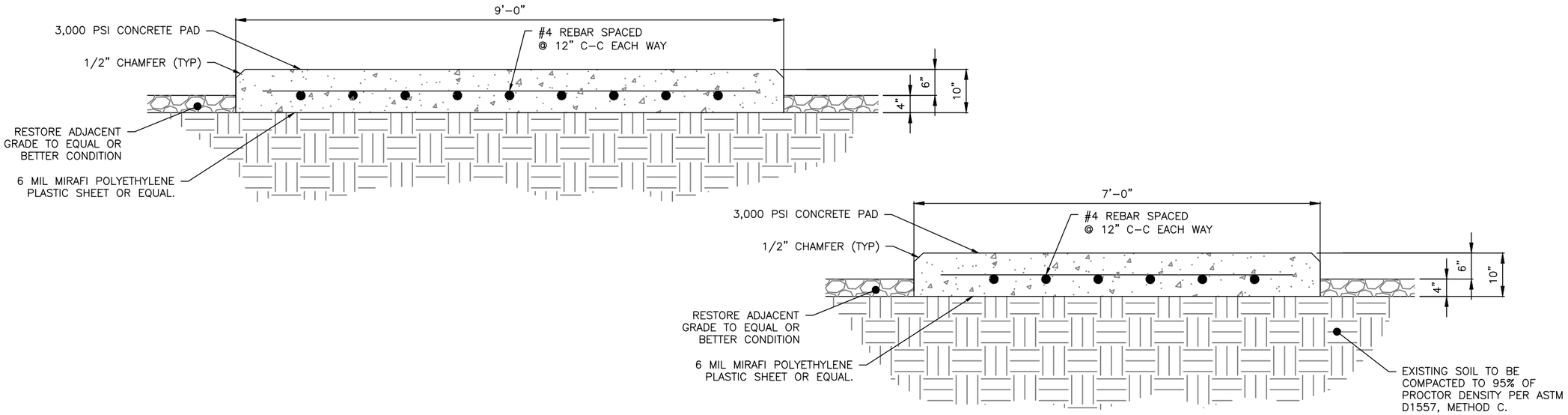
LAKE CITY MALL
FA #15826568
CC BU #809328
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

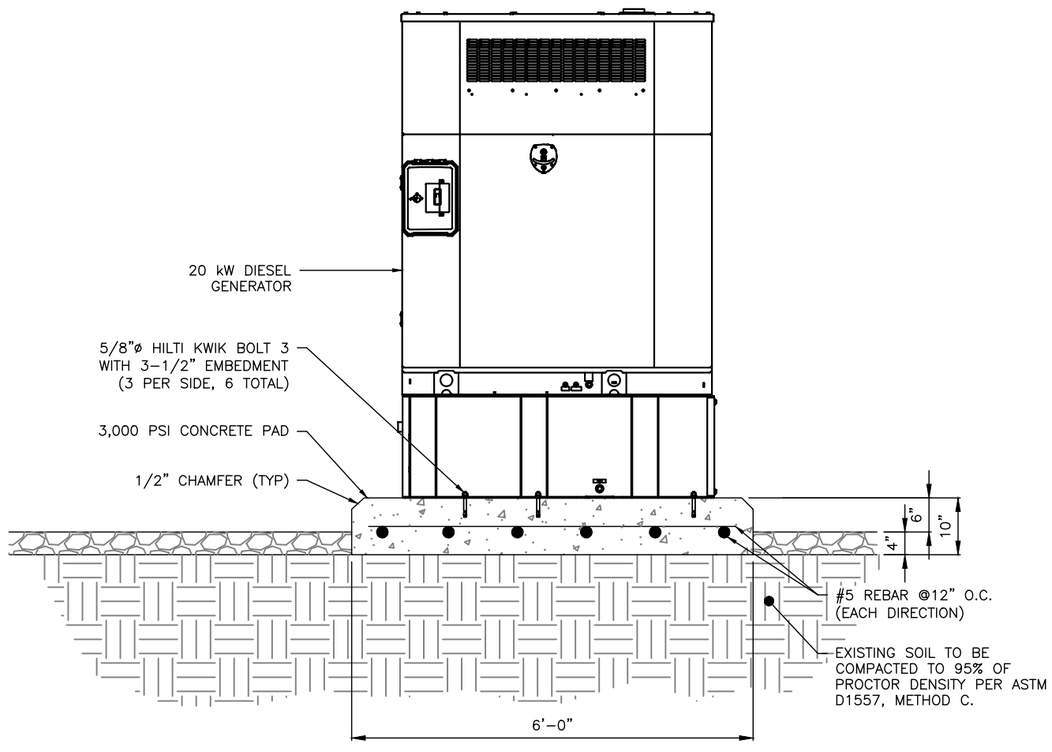
SHEET DESCRIPTION
MISCELLANEOUS DETAILS

SHEET NUMBER
S-4



1 S-5 WUC CONCRETE PAD DETAILS

SCALE: N.T.S.



2 S-5 GENERATOR CONCRETE PAD DETAILS

SCALE: N.T.S.

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
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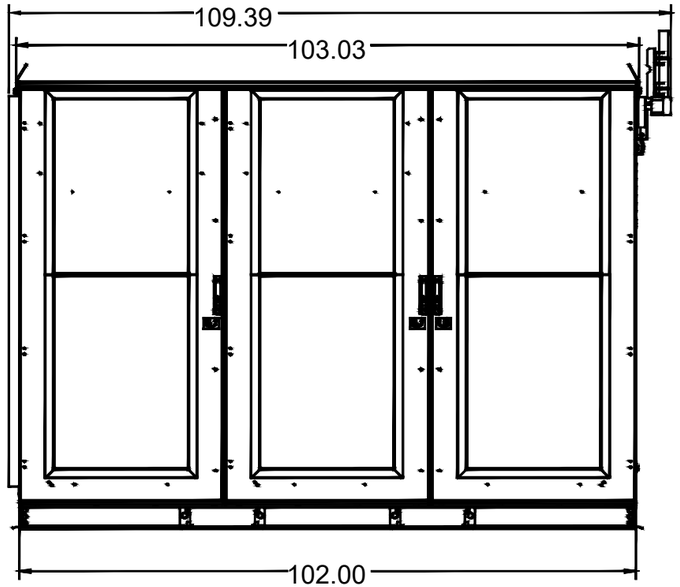
FL PROFESSIONAL ENGINEER LIC. # 72513

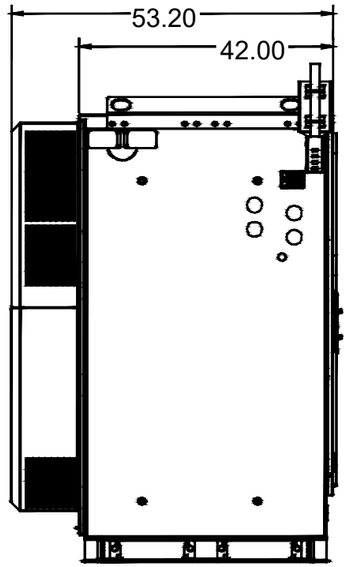
LAKE CITY MALL
FA #15826568
CC BU #809328
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION
SWIC FOUNDATION DETAILS

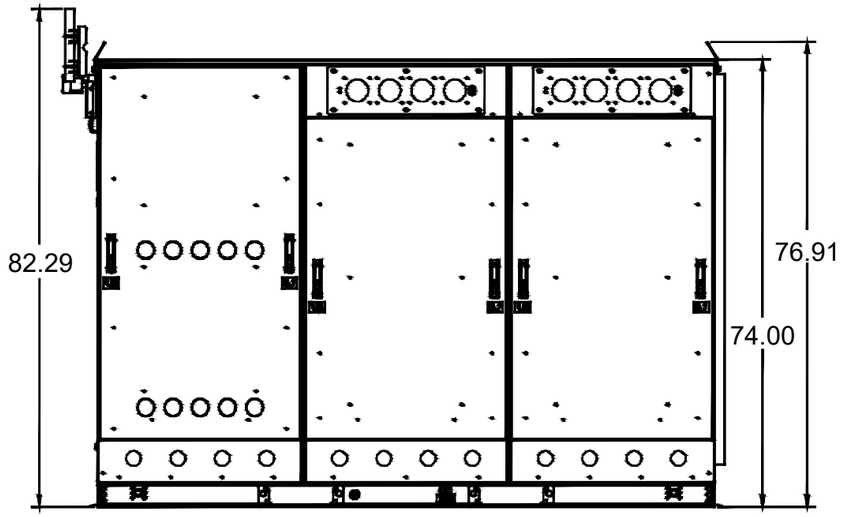
SHEET NUMBER
S-5



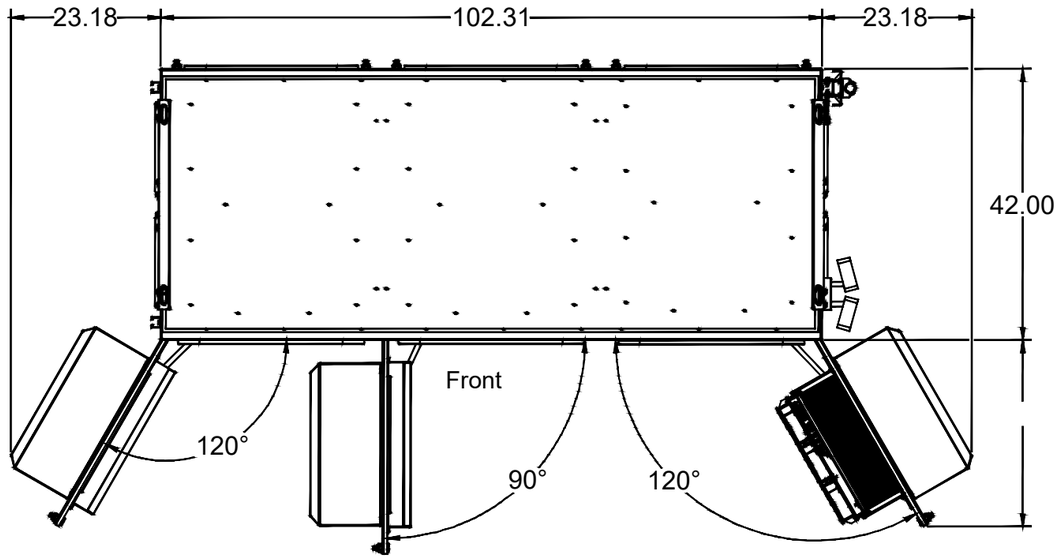
FRONT VIEW



SIDE VIEW



REAR VIEW



TOP VIEW

1 / S-6 VERTIV 3-BAY WUC CABINET (F2020030)
SCALE: N.T.S.

Note:
1. All dimensions are in inches.

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
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DRAWN BY:	CHECKED BY:
ME	MM

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LAKE CITY MALL
FA #15826568
CC BU #809328
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION
VERTIV 3–BAY WUC DETAILS

SHEET NUMBER
S-6

DC / FIBER DEMARCATION BOX

RAYCAP DC FIBER DEMARCATION BOX			CABLES				NOTES
MOUNTING HEIGHT	MODEL	QTY	MODEL	SIZE	QTY	LENGTH PER LINE	
220'-0"	DC9-48-60-24-8C-EV	3	ROSENBERGER (24) PAIR FIBER TRUNK	3/8"	3	260'-0"	
			(6)- #6 AWG TINNED COPPER CONDUCTORS	0.957"	6	260'-0"	

ANTENNA AND COAX SCHEDULE

		ANTENNAS							CABLES					RRU			DIPLEXER/TRIPLEXER			TMA	
SECTOR	AZ	RAD CENTER	ANTENNA MAKE	ANTENNA MODEL	(QTY)	APPROXIMATE ANTENNA SPECS	DOWN TILT ELEC	DOWN TILT MECH	MODEL	SIZE	(QTY)	LENGTH/ LINE	COLOR CODE	MODEL	TWR (QTY)	GRND (QTY)	MODEL	TWR (QTY)	GRND (QTY)	MODEL	(QTY)
ALPHA (A1)	0°	220'-0"	Commscope	NNH4-65B-R6H4	1	H=72.0" x W=19.6" x D=7.8"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
									ROSENBERGER FIBER JUMPER (DC9 TO RRU)	3/8"	3	15'-0"	1 RED	4478 B14	1	-	-	-	-	-	-
									ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	7/16"	2	15'-0"	1 RED	4890 B25/B66	1	-	-	-	-	-	-
									1/2" COAX JUMPER (RRU TO ANTENNA)	1/2"	12	12'-0"	1 RED	-	-	-	-	-	-	-	-
ALPHA (A2)	0°	220'-0"	Ericsson	AIR6419 B77D	1	H=30.6" x W=15.9" x D=7.8"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
									ROSENBERGER FIBER JUMPER (DC9 TO RRU)	3/8"	2	15'-0"	2 RED								
									ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	7/16"	1	15'-0"	2 RED								
ALPHA (A3)	0°	220'-0"	Ericsson	AIR6419 B77G	1	H=28.3" x W=16.1" x D=7.1"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
									ROSENBERGER FIBER JUMPER (DC9 TO RRU)	3/8"	2	15'-0"	3 RED								
									ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	7/16"	1	15'-0"	3 RED								
ALPHA (A4)	0°	220'-0"	Commscope	NNH4-65B-R6H4	1	H=72.0" x W=19.6" x D=7.8"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
									ROSENBERGER FIBER JUMPER (DC9 TO RRU)	3/8"	3	15'-0"	4 RED	4490 B5/B12	1	-	-	-	-	-	-
									ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	7/16"	2	15'-0"	4 RED	4415 B30	1	-	-	-	-	-	-
									1/2" COAX JUMPER (RRU TO ANTENNA)	1/2"	8	12'-0"	4 RED	-	-	-	-	-	-	-	-
BETA (B1)	120°	220'-0"	Commscope	NNH4-65B-R6H4	1	H=72.0" x W=19.6" x D=7.8"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
									ROSENBERGER FIBER JUMPER (DC9 TO RRU)	3/8"	3	15'-0"	1 BLUE	4478 B14	1	-	-	-	-	-	-
									ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	7/16"	2	15'-0"	1 BLUE	4890 B25/B66	1	-	-	-	-	-	-
									1/2" COAX JUMPER (RRU TO ANTENNA)	1/2"	12	12'-0"	1 BLUE	-	-	-	-	-	-	-	-
BETA (B2)	120°	220'-0"	Ericsson	AIR6419 B77D	1	H=30.6" x W=15.9" x D=7.8"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
									ROSENBERGER FIBER JUMPER (DC9 TO RRU)	3/8"	2	15'-0"	2 BLUE								
									ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	7/16"	1	15'-0"	2 BLUE								
BETA (B3)	120°	220'-0"	Ericsson	AIR6419 B77G	1	H=28.3" x W=16.1" x D=7.1"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
									ROSENBERGER FIBER JUMPER (DC9 TO RRU)	3/8"	2	15'-0"	3 BLUE								
									ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	7/16"	1	15'-0"	3 BLUE								
BETA (B4)	120°	220'-0"	Commscope	NNH4-65B-R6H4	1	H=72.0" x W=19.6" x D=7.8"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
									ROSENBERGER FIBER JUMPER (DC9 TO RRU)	3/8"	3	15'-0"	3 BLUE	4490 B5/B12	1	-	-	-	-	-	-
									ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	7/16"	2	15'-0"	3 BLUE	4415 B30	1	-	-	-	-	-	-
									1/2" COAX JUMPER (RRU TO ANTENNA)	1/2"	8	12'-0"	3 BLUE	-	-	-	-	-	-	-	-
GAMMA (C1)	240°	220'-0"	Commscope	NNH4-65B-R6H4	1	H=72.0" x W=19.6" x D=7.8"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
									ROSENBERGER FIBER JUMPER (DC9 TO RRU)	3/8"	3	15'-0"	1 GREEN	4478 B14	1	-	-	-	-	-	-
									ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	7/16"	2	15'-0"	1 GREEN	4890 B25/B66	1	-	-	-	-	-	-
									1/2" COAX JUMPER (RRU TO ANTENNA)	1/2"	12	12'-0"	1 GREEN	-	-	-	-	-	-	-	-
GAMMA (C2)	240°	220'-0"	Ericsson	AIR6419 B77D	1	H=30.6" x W=15.9" x D=7.8"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
									ROSENBERGER FIBER JUMPER (DC9 TO RRU)	3/8"	2	15'-0"	2 GREEN								
									ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	7/16"	1	15'-0"	2 GREEN								
GAMMA (C2)	240°	220'-0"	Ericsson	AIR6419 B77G	1	H=28.3" x W=16.1" x D=7.1"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
									ROSENBERGER FIBER JUMPER (DC9 TO RRU)	3/8"	2	15'-0"	3 GREEN								
									ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	7/16"	1	15'-0"	3 GREEN								
GAMMA (C4)	240°	220'-0"	Commscope	NNH4-65B-R6H4	1	H=72.0" x W=19.6" x D=7.8"	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
									ROSENBERGER FIBER JUMPER (DC9 TO RRU)	3/8"	3	15'-0"	4 GREEN	4490 B5/B12	1	-	-	-	-	-	-
									ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU)	7/16"	2	15'-0"	4 GREEN	4415 B30	1	-	-	-	-	-	-
									1/2" COAX JUMPER (RRU TO ANTENNA)	1/2"	8	12'-0"	4 GREEN	-	-	-	-	-	-	-	-
		TOTAL			12									TOTAL	12	0	TOTAL	0	0	TOTAL	0

TOTAL FIBER JUMPER	30	450'-00"
TOTAL DC JUMPER	18	270'-00"
TOTAL 1/2" JUMPERS (RRU)	60	720'-00"
TOTAL 5/16" RET JUMPERS	6	90'-0"

* ANTENNA AND COAX INFORMATION PROVIDED FROM THE LTE RFDS SHEET #5700418 V1.00 DATED 03/18/2024
* CONTRACTOR TO VERIFY RF INFO WITH CLIENT PRIOR TO CONSTRUCTION.
* CABLE LENGTHS ARE APPROXIMATE AND MUST BE VERIFIED PRIOR TO CONSTRUCTION.
* ALL CABLES SHALL BE COLOR CODED AT TOP AN BOTTOM JUMPER AND AT TOP OF TOWER BOTTOM OF TOWER, AND INSIDE SWIC ON MAIN COAX.
* EACH MAIN COAX SHALL HAVE CORROSION PROOF "ID TAGS" INSTALLED INSIDE THE SWIC AT THE PORT AND AT THE ANTENNA.
* QUANTITIES GIVEN ARE TOTAL EXISTING AND PROPOSED.

1 AN-1 **ANTENNA & COAX SCHEDULE**
SCALE: N.T.S.

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
1		
2		
3		
4		
5		
6		
7		
8		

DRAWN BY:	CHECKED BY:
ME	MM

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12150 RESEARCH PARKWAY
ORLANDO, FL 32826

smartlink
10 CHURCH CIRCLE
ANNAPOLIS, MD 21401

PREPARED BY:
GEN3 ENGINEERING
27139 SEA BREEZE WAY
WESLEY CHAPEL, FLORIDA 33544
(813)917-2671
COA # 35409

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MARC P. MAIER LICENSE No 72513 STATE OF FLORIDA PROFESSIONAL ENGINEER

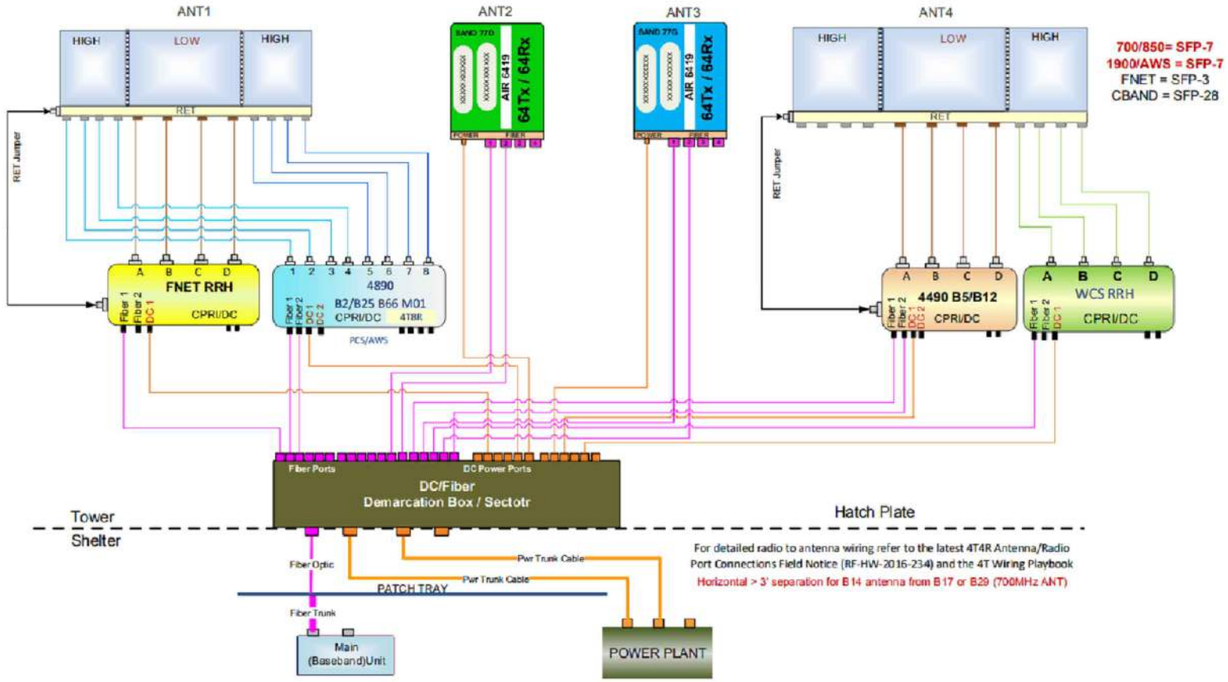
OCTOBER 23, 2024
MARC P. MAIER, PE
FL PROFESSIONAL ENGINEER LIC. # 72513

LAKE CITY MALL
FA #15826568
CC BU #809328

198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

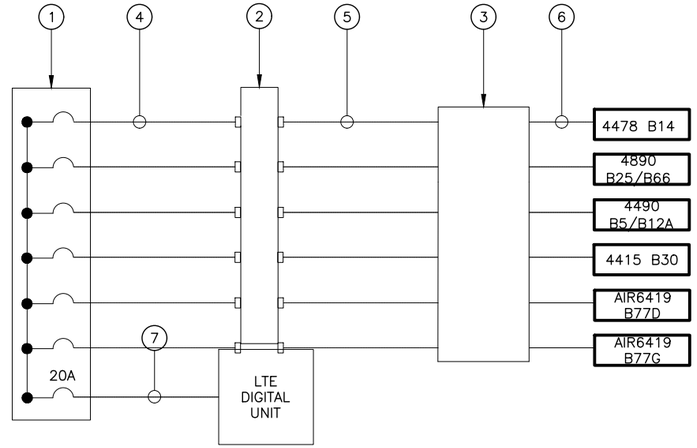
SHEET DESCRIPTION
ANTENNA SCHEDULE

SHEET NUMBER
AN-1



1 AN-2 **ONE-LINE DIAGRAMS**
SCALE: N.T.S.

ERICSSON RRU BREAKER REQUIREMENTS		
ERICSSON RADIO	SIZE BREAKER	TECHNOLOGY
RRUS 32 B66	30 AMP	AWS (2100)
RRUS 32 B30	20 AMP	WCS (2300)
RRUS 32 B2	30 AMP	PCS (1900)
RRUS 11	25 AMP	VARIOUS BANDS (700 [B12] , 850 [B5], 1900 [B2], 2100 [B4])
RRUS12 + A2	25 AMP	VARIOUS BANDS (850 [B5], 1900 [B2], 2100 [B4])
RRUS 4402 B66/B25	10 AMP	PCS (1900), AWS (2100)
RRU 4415 B25	25 AMP	1900
RRU 4415 B30	25 AMP	2300
RRU 4426 B66	30 AMP	2100
RRU 4455	15A AC	1900/2100
RRU 4478 B12	25 AMP	700
RRU 4478 B14	25 AMP	700
RRU 4478 B5	25 AMP	850
RRUS E2 B29	25 AMP	700 (B29 Tx ONLY)
RRUS 4449 B5/B12	2x25 AMP	700/850
RRUS 8843 B2/B66	2x30 AMP	1900/2100
RRUS 4460 B2/B66	2x40 AMP	1900/2100
AIR6488 B48	35 AMP	CBRS 3.55–3.7 GHz
AIR6449 B77	50 AMP	C BAND 3.3–4.2 GHz
AIR6419 B77	50 AMP	B77G DOD SUB BAND 3.4–3.6 GHz
RRU8863 B77	50 AMP	C BAND 3.8–4.2 GHz
DUAL AIR6464	2x50 AMP	C BAND 3.4 GHz
RADIO 4467	45 AMP	N77 DUAL C–BAND 3.45 GHz
RADIO 4490	50 AMP	B5/B12 DUAL BAND
RADIO 4408	10A AC 15A DC	3.45 GHz PICO RADIO
RADIO 4890	50 AMP	B2–B5/B66
6472 B77G/B77M	50 AMP	B77G/B77M



KEYNOTE LEGEND:

1. –48V DC POWER PLANT. CONTRACTOR TO VERIFY CORRECT BREAKER SIZE IS INSTALLED FOR EACH RRU PER CHART.
2. (1) RACK MOUNTED RAYCAP DC SURGE PROTECTOR.
3. RAYCAP FIBER AND DC DISTRIBUTION UNIT TOWER MOUNTED.
4. #8 AWG SHIELDED CONDUCTORS (WR–VG82ST–BRDA).
5. PROVIDE (2) 6–CONDUCTOR #6 AWG BUNDLES FOR DC POWER FROM RACK MOUNTED RAYCAP SURGE PROTECTION UNIT TO THE RAYCAP FIBER AND DISTRIBUTION UNIT ON TOWER.
6. DC CABLE ROUTED TO RRH UNITS.
7. #12 AWG SHIELDED CONDUCTORS (WR–VG122ST–BRDA).

2 AN-2 **TYPICAL DC RISER DIAGRAM**
SCALE: N.T.S.

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
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0	10/23/24	FINAL CDs ISSUED
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OCTOBER 23, 2024
MARC P. MAIER, PE
FL PROFESSIONAL ENGINEER LIC. # 72513

LAKE CITY MALL
FA #15826568
CC BU #809328
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION
ANTENNA ONE–LINE DIAGRAM

SHEET NUMBER
AN-2

ELECTRICAL SPECIFICATION NOTES

GENERAL NOTES:

1. OBTAIN PERMITS AND PAY FEES RELATED TO ELECTRICAL WORK PERFORMED ON THIS PROJECT. DELIVER COPIES OF ALL PERMITS TO CLIENT REPRESENTATIVE.
2. SCHEDULE AND ATTEND INSPECTIONS RELATED TO ELECTRICAL WORK REQUIRED BY JURISDICTION HAVING AUTHORITY. CORRECT AND PAY FOR ANY WORK REQUIRED TO PASS ANY FAILED INSPECTION.
3. ENGAGE AN INDEPENDENT ELECTRICAL TESTING FIRM APPROVED BY CLIENT TO TEST AND VERIFY THAT IMPEDANCE DOES NOT EXCEED 5 OHMS TO GROUND. THE COMPLETED SITE SHALL BE TESTED AND A REPORT SENT TO CLIENT REPRESENTATIVE.
4. REDLINED AS-BUILTS ARE TO BE DELIVERED TO CLIENT REPRESENTATIVE.
5. PROVIDE TWO COPIES OF OPERATION AND MAINTENANCE MANUALS IN THREE-RING BINDER.
6. FURNISH AND INSTALL THE COMPLETE ELECTRICAL SERVICE, CABLE TRAY, TELCO CONDUIT AND GROUNDING SYSTEMS.
7. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE BUILDING CODES AND LOCAL ORDINANCES, INSTALLED IN A NEAT MANNER, AND SHALL BE SUBJECT TO APPROVAL BY CLIENT REPRESENTATIVE.
8. CONDUCT A PRE-CONSTRUCTION SITE VISIT AND VERIFY EXISTING SITE CONDITIONS AFFECTING THIS WORK. REPORT ANY OMISSIONS OR DISCREPANCIES FOR CLARIFICATION PRIOR TO THE START OF CONSTRUCTION.
9. PROTECT ADJACENT STRUCTURES AND FINISHES FROM DAMAGE. REPAIR TO ORIGINAL CONDITION ANY DAMAGED AREA.
10. REMOVE DEBRIS ON A DAILY BASIS. DEBRIS NOT REMOVED IN A TIMELY FASHION WILL BE REMOVED BY OTHERS AND THE RESPONSIBLE SUBCONTRACTOR SHALL BE CHARGED ACCORDINGLY. REMOVAL OF DEBRIS SHALL BE COORDINATED WITH THE CLIENT'S REPRESENTATIVE. DEBRIS SHALL BE REMOVED FROM THE PROPERTY AND DISPOSED OF LEGALLY. USE OF THE PROPERTY'S DUMPSTER IS PROHIBITED.
11. ALL CONSTRUCTION SHALL BE INSPECTED AND APPROVED BY LOCAL AUTHORITIES.
12. SIGNAL WIRING SHALL BE INSULATED #18 AWG. NO BX OR ROMEX CABLE IS PERMITTED.
13. WIRING DEVICES AND EQUIPMENT SHALL BE UL LISTED AND SPECIFICATION GRADE.
14. FUSES ARE NOT ALLOWED; CIRCUIT BREAKERS ONLY.
15. MATERIALS SHALL BE NEW AND CONFORM TO THE APPLICABLE STANDARDS ESTABLISHED FOR EACH ITEM BY THE ORGANIZATIONS LISTED BELOW:
    - AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
    - UNDERWRITER'S LABORATORY (UL)
    - NATIONAL ELECTRICAL MANUFACTURING ASSOCIATION (NEMA)
    - AMERICAN STANDARDS ASSOCIATION (ASA)
    - NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
16. DESIGN AND INSTALLATION OF MATERIALS SHALL COMPLY WITH REGULATIONS OF:
    - THE NATIONAL ELECTRICAL CODE (NFPA 70)
    - THE NATIONAL ELECTRICAL SAFETY CODE (ANSI C-2)
    - THE LIFE SAFETY CODE (NFPA 101)
    - LIQUEFIED PETROLEUM GAS (NFPA 54 AND 58)
    - LOCAL CODES
17. ALL CONDUIT CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NFPA 70), LATEST EDITION.

GROUNDING NOTES:

1. PROVIDE GROUNDING AND BONDING IN ACCORDANCE WITH CLIENT GROUNDING & BONDING PRACTICE UNLESS DIRECTED OTHERWISE BY DRAWINGS, NATIONAL ELECTRICAL CODE, OR AUTHORITIES HAVING JURISDICTION. THE ABOVE REFERENCED SPECIFICATIONS IS AN INTEGRAL PART OF THE DESIGN DOCUMENTS AN MUST BE STRICTLY ADHERED TO. WHERE CONFLICTS BETWEEN THIS SPECIFICATION, CODES, AND AUTHORITIES HAVING JURISDICTION ARISE, THE MOST STRINGENT SHALL GOVERN.
2. BUSS CONNECTORS SHALL BE 2-HOLE LONG BARREL TYPE COMPRESSION LUGS.
3. LUGS SHALL BE ATTACHED TO BUSSES USING BOLTS, NUTS AND DRAGON TOOTH WASHERS. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED.
4. SURFACE CONNECTIONS SHALL BE MADE TO BARE METAL. PAINTED SURFACES SHALL BE FILED TO ENSURE PROPER CONTACT. APPLY NON-OXIDIZING AGENT TO CONNECTIONS.
5. COPPER BUSSES SHALL BE CLEANED, POLISHED, AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.
6. GROUND CONDUCTOR RUNS SHALL BE STRAIGHT AS POSSIBLE, WITH AN 8-INCH MINIMUM RADIUS FOR #6 CONDUCTORS AND 12" FOR #2 AND LARGER CONDUCTORS.
7. HARDWARE (I.E., NUTS BOLTS, WASHERS, ETC.) IS TO BE STAINLESS STEEL.
8. GROUND COAXIAL CABLES AT POINTS SHOWN ON GROUNDING RISER DIAGRAM WITH MANUFACTURER'S GROUNDING KITS.
9. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC TYPE (CADWELD) TO GROUND RING AND GROUND RODS. REMAINING GROUNDING CONNECTIONS SHALL BE MECHANICAL CONNECTIONS. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO-HOLE LUGS.
10. GROUND RING, COMPRISED OF #2 BARE TINNED SOLID RADIAL COPPER CONDUCTOR, SHALL HAVE A MINIMUM DISTANCE OF 24" FROM THE STRUCTURE AND BE BURIED A MINIMUM OF 30" BELOW GRADE.
11. CADWELD GROUND RODS TO GROUND RING. RODS TO BE 5/8" X 10'-0" COPPER CLAD STEEL WITH COPPER JACKET OF NOT LESS THAN 0.01 INCHES THICK. THE TOP OF GROUND ROD SHALL EXTEND NO MORE THAN 6 INCHES ABOVE THE BOTTOM OF THE TRENCH.
12. INTERCONNECT OUTDOOR EQUIPMENT GROUND RING AND TOWER GROUND RING WITH EXOTHERMIC WELD.
13. INSTALL GROUNDING KIT. BOND COAXIAL CABLE OUTER CONDUCTOR TO GROUNDING CONDUCTOR.
14. INSTALL GROUND RODS ON GROUND RING AT 16' INTERVALS. INSTALL GROUND RODS TO FENCE POSTS AT 16' INTERVALS.
15. ALL ELECTRICAL GROUNDING SHALL COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC) AND THE LATEST EDITION OF NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 780, APPROVED BY LOCAL AUTHORITY.
16. ALL GROUNDING CONNECTIONS SHALL BE COATED WITH AN ANTI-CORROSIVE AGENT SUCH AS "T & B KOPR SHIELD", "NO-OXY", "NOALOX" OR "PENETROX". VERIFY PRODUCT WITH PROJECT MANAGER.
17. GROUND WIRES SHALL BE #2 BARE TINNED SOLID COPPER FROM CONDUCTOR FOR BONDING CONNECTIONS UNLESS OTHERWISE NOTED ON PLANS.
18. DOCUMENT GROUND RING INSTALLATION AND CONNECTIONS WITH PHOTOGRAPHS PRIOR TO BACKFILLING SITE. PRESENT PHOTO ARCHIVE AT SITE "PUNCH LIST" WALK TO CLIENT REPRESENTATIVE.
19. THE ENTIRE SYSTEM SHALL BE GROUNDED USING LOCKNUTS AND BONDING NUTS ON CONDUITS AND PROPERLY BONDED GROUND CONDUCTORS. RECEPTACLES AND EQUIPMENT BRANCH CIRCUITS SHALL BE GROUNDED WITH A FULL-SIZED EQUIPMENT GROUNDING CONDUCTOR RUN IN THE CIRCUIT'S CONDUIT.
20. A RESISTANCE TO GROUND OF FIVE (5) OHMS OR LESS IS THE OBJECTIVE FOR THE EARTH GROUND SYSTEMS AT CELL SITES. CHEMICAL ENHANCERS, A WELL CASING OR A CUSTOM DESIGNED GROUND SYSTEM MAY BE USED TO MEET THIS OBJECTIVE. WHEN USING CHEMICAL ENHANCERS MANUFACTURER SPECIFICATIONS SHALL BE FOLLOWED.
21. ALL UNDERGROUND GROUND WIRE TO BE BURIED 30" DEEP.
22. ALL BURIED GROUND CONNECTIONS WILL BE MADE USING THE EXOTHERMIC WELD PROCESS.
23. ALL GROUND WIRES SHALL BE CONNECTED TO THE CIGBE USING TWO-HOLE CRIMP/COMPRESSION CONNECTORS.
24. AN APPROVED ANTI OXIDATION COMPOUND SHALL BE USED ON ALL EXTERNAL CONNECTIONS, EXCLUDING EXOTHERMIC WELDS, AND ON ALL EXTERNAL GROUND BARS. COAT ALL CONDUCTORS AND SURFACES PRIOR TO CONNECTION.
25. REFER TO SWIC MANUFACTURER AND CLIENT SPECS FOR INTERNAL GROUNDING DETAILS.
26. GROUND CONDUCTOR RUNS SHALL BE STRAIGHT AS POSSIBLE, WITH AN 8-INCH MINIMUM RADIUS FOR #6 CONDUCTORS AND 12" FOR #2 AND LARGER CONDUCTORS.
27. ALL POSTS TO BE BONDED UNDERGROUND VIA AN EXOTHERMIC WELD. PVC MIN. 6" INTO GROUND.
28. IF GROUNDED METALLIC OBJECTS ARE LESS THAN 6' FROM A FENCE POST, THEN THE POST SHOULD BE GROUNDED TO THE GROUND RING.
29. ALL GROUND WIRES THAT ARE ROUTED ABOVE GROUND SHOULD BE INSTALLED IN 12" OF 3/4"ø PVC ALL THE WAY TO THE WELD/BOND WITH 6" BELOW GRADE.
30. BOND THE SWIC FOUNDATION REBAR TO THE SWIC GROUND RING USING EITHER AN EXOTHERMIC WELD, A PREFABRICATED WELDED REBAR ASSEMBLY, UL APPROVED 2 BOLT PARALLEL CONNECTOR OR WIRE TIES. APPLY HEAT SHRINK OR ELECTRICAL INSULATING TAPE AROUND THE CONDUCTOR AS NECESSARY.
31. BOND ANY MISC. METAL OBJECTS TO GROUND RING VERIFY WITH CONSTRUCTION MANAGER
32. ALL ABOVE GROUND GROUND WIRES SHALL BE INSIDE FLEX CONDUIT AND SEALED WITH SILICONE.
33. IF TOWER IS GREATER THAN 200' THEN CONTRACTOR IS TO INSTALL A GROUND BAR AT THE CENTER OF THE TOWER.

ELECTRICAL NOTES:

1. FOR EQUIPMENT SWIC INTERNAL WIRING, REFER TO CONCRETE SWIC SHOP DRAWINGS.
2. ALL ELECTRICAL CONNECTIONS IN DISCONNECTS, METERS AND AC PANELS NEED "NO-OXY", "NOALOX" OR "PENETROX" APPLIED. VERIFY PRODUCT WITH PROJECT MANAGER.

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
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ORLANDO, FL 32826

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(813)917-2671
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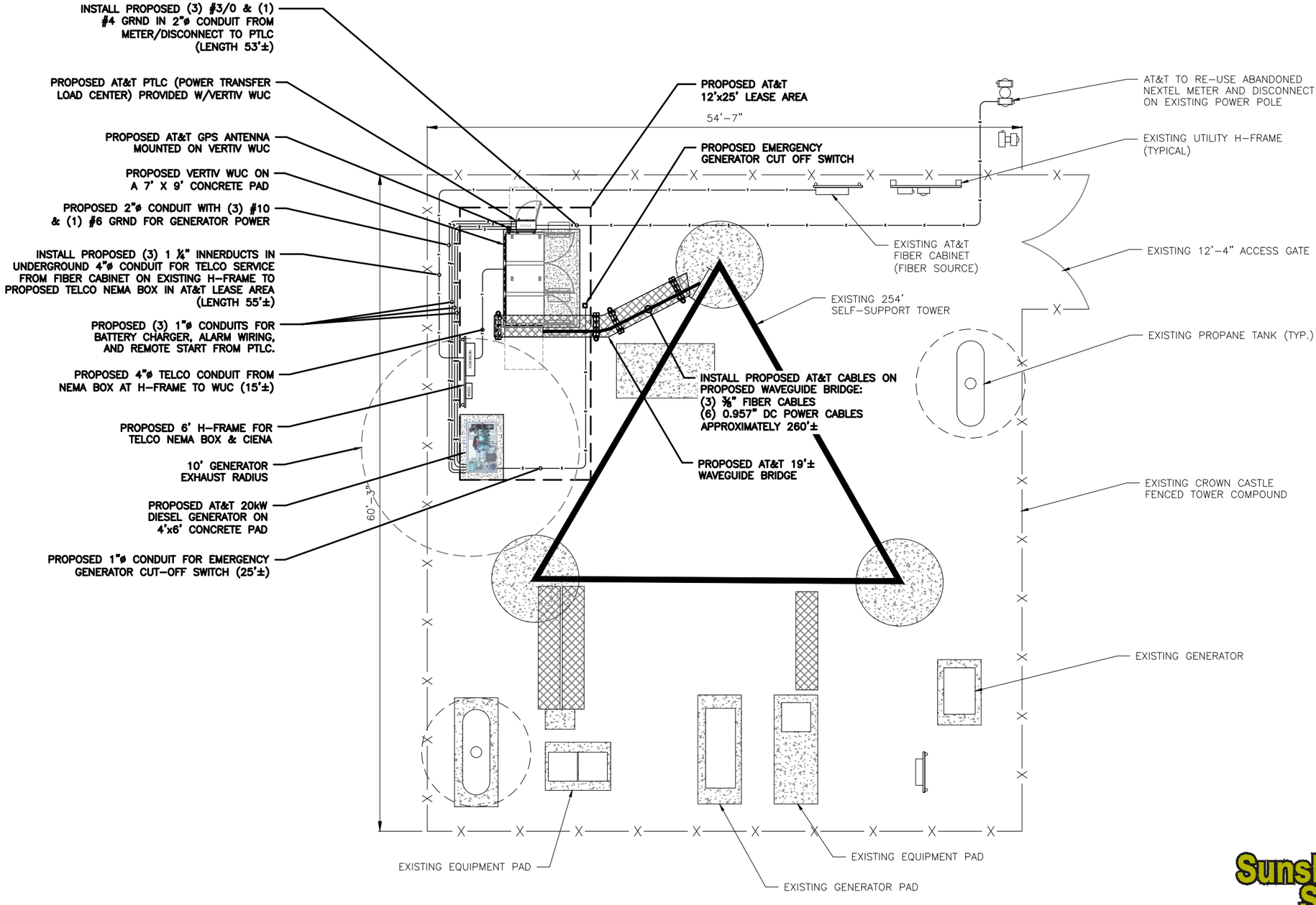
OCTOBER 23, 2024

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

LAKE CITY MALL
FA #15826568
CC BU #809328
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION
ELECTRICAL NOTES

SHEET NUMBER
E-1



TRUE NORTH

GRAPHIC SCALE

0 5 10 20

(IN FEET)

1 / E-2 **UTILITY PLAN**

SCALE: 1" = 10'

SCALE BASED ON 11"x17" ONLY

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REV	DATE	DESCRIPTION
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FA #15826568
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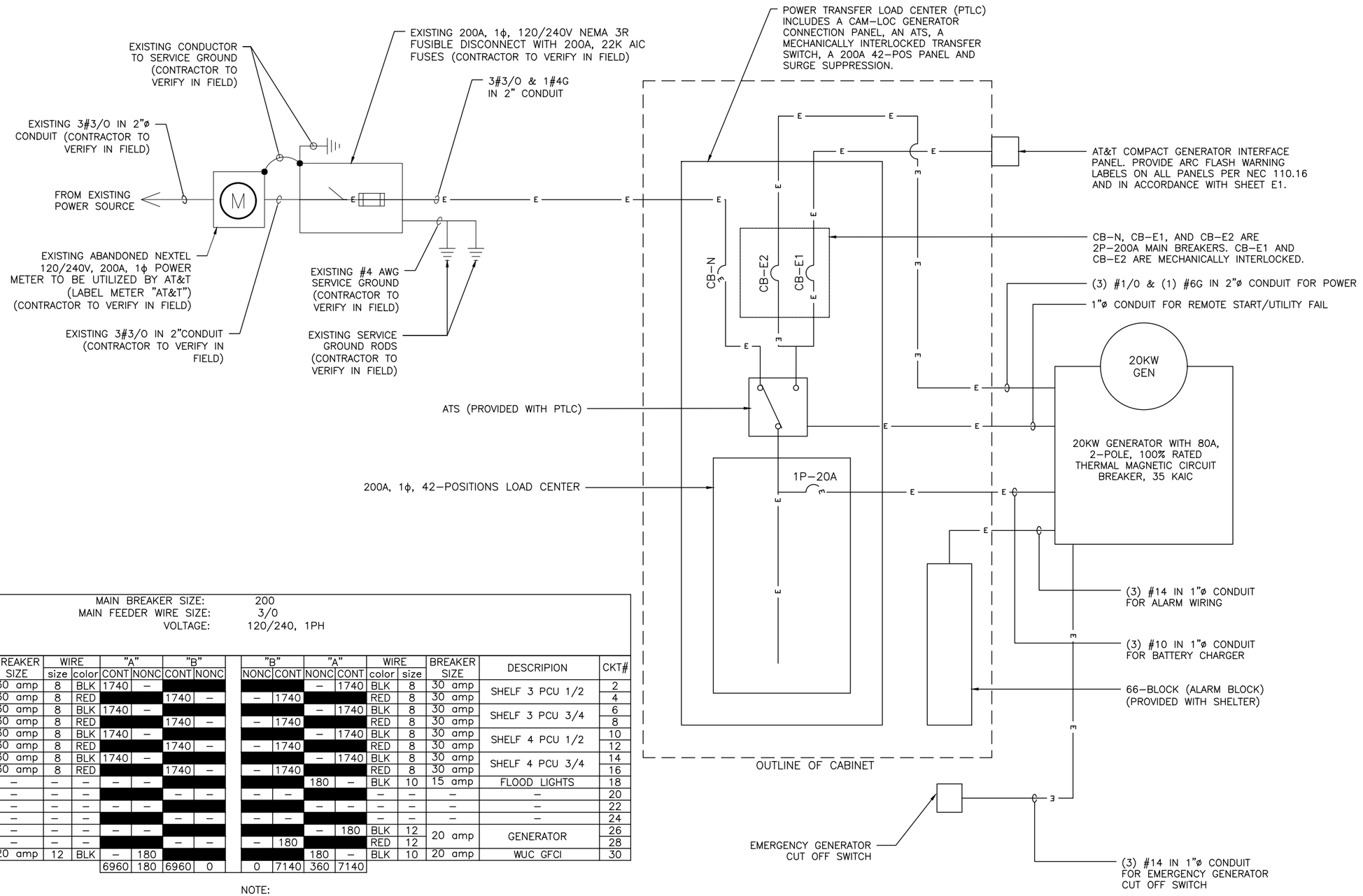
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION

UTILITY PLAN

SHEET NUMBER

E-2



MAIN BREAKER SIZE: 200
MAIN FEEDER WIRE SIZE: 3/0
VOLTAGE: 120/240, 1PH

CKT#	DESCRIPION	BREAKER SIZE	WIRE size	WIRE color	"A" CONT	"A" NONC	"B" CONT	"B" NONC	"B" NONC	"B" CONT	"A" NONC	"A" CONT	WIRE color	WIRE size	BREAKER SIZE	DESCRIPION	CKT#
1	SHELF 1 PCU 1/2	30 amp	8	BLK	1740	–					–	1740	BLK	8	30 amp	SHELF 3 PCU 1/2	2
3		30 amp	8	RED			1740	–	–	1740			RED	8	30 amp		4
5	SHELF 1 PCU 3/4	30 amp	8	BLK	1740	–					–	1740	BLK	8	30 amp	SHELF 3 PCU 3/4	6
7		30 amp	8	RED			1740	–	–	1740			RED	8	30 amp		8
9	SHELF 2 PCU 1/2	30 amp	8	BLK	1740	–					–	1740	BLK	8	30 amp	SHELF 4 PCU 1/2	10
11		30 amp	8	RED			1740	–	–	1740			RED	8	30 amp		12
13	SHELF 2 PCU 3/4	30 amp	8	BLK	1740	–					–	1740	BLK	8	30 amp	SHELF 4 PCU 3/4	14
15		30 amp	8	RED			1740	–	–	1740			RED	8	30 amp		16
17	–	–	–	–	–	–					180	–	BLK	10	15 amp	FLOOD LIGHTS	18
19		–	–	–			–	–	–	–	–	–	–	–	–	–	20
21	–	–	–	–	–	–					–	–	–	–	–	–	22
23		–	–	–			–	–	–	–	–	–	–	–	–	–	24
25	–	–	–	–	–	–					–	180	BLK	12	20 amp	GENERATOR	26
27		–	–	–	–	–	–	–	–	180			RED	12			28
29	PTLC RECEPTACLE	20 amp	12	BLK	–	180					180	–	BLK	10	20 amp	WUC GFCI	30
					6960	180	6960	0	0	7140	360	7140					

PANEL USAGE DATE:	VA		
	CONT	NONC	TOTAL (1.25%cont+nonc)
A	14100	360	17985
B	14100	180	17805

SUMMARY:	VA	AMPS
TOTAL ALLOWED:	48000	200.0
TOTAL USED:	35790	149.1
REMAINING AVAILABLE:	12210	50.9

NOTE:
1. THE PANEL SCHEDULE INDICATES THE MAXIMUM ANTICIPATED LOAD FROM THE INSTALLATION OF 16 RECTIFIER UNITS. COORDINATE WITH EQUIPMENT ENGINEER FOR ACTUAL QUANTITY OF RECTIFIERS REQUIRED AT THIS INSTALLATION.
2. THIS INSTALLATION COMPLIES WITH NFPA 70 702.4 BY UTILIZING AN ENERGY MANAGEMENT SYSTEM (EMS) THAT CUTS POWER CONSUMPTION OF THE RECTIFIERS BY 50% UPON RECEIPT OF A POWER FAILURE ALARM.
PROPOSED GENERATOR SIZE: 20 KW
MAX REQUIRED POWER AT 50% RECTIFIER POWER DEMAND LOAD = 35.79 KW*50% = 17.9 KW

1 E-3 ELECTRICAL ONE-LINE DIAGRAM
SCALE: N.T.S.

2 E-3 PROPOSED PANEL SCHEDULE
SCALE: N.T.S.

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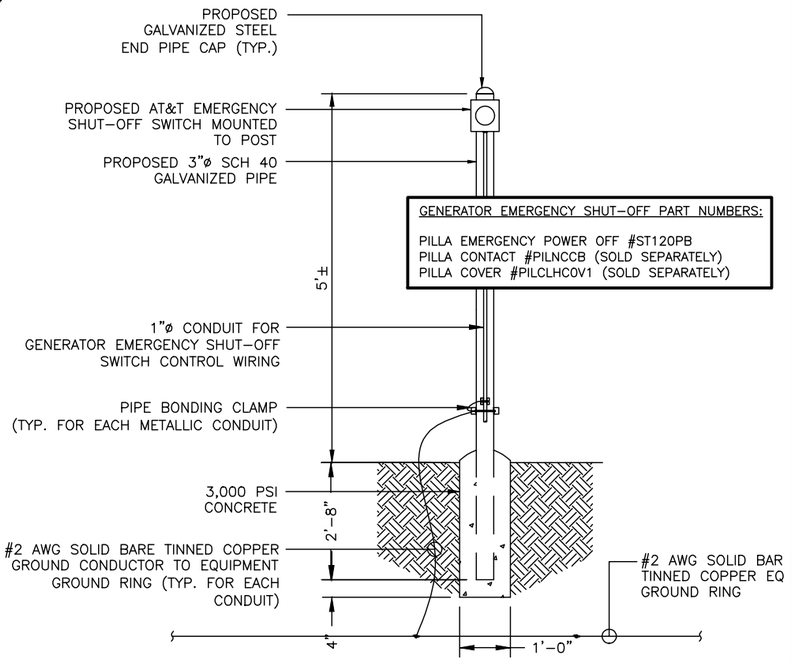
SHEET DESCRIPTION
ELECTRICAL DETAILS

SHEET NUMBER
E-3

GEN3 ENGINEERING - C:\Users\mpm17\Desktop\GEN3 Eng\000 Docs\Lake City Mall\15826568_Lake City Mall_NSB CD.dwg mpm17

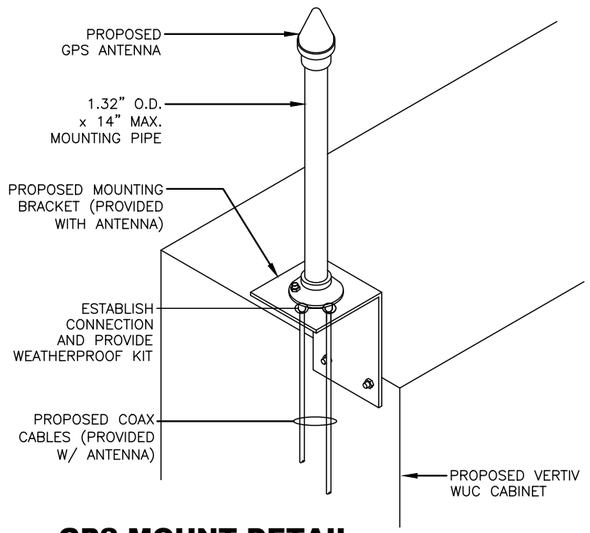


1 E-4 EMERGENCY SWITCH MOUNTING DETAIL

SCALE: N.T.S.

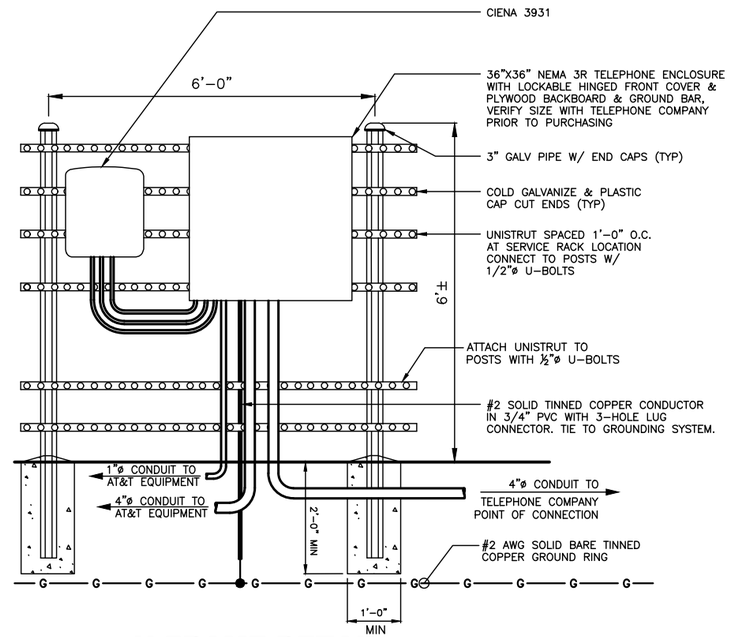
NOTES:

1. LOCATION OF ANTENNA MUST HAVE CLEAR VIEW OF SOUTHERN SKY AND CANNOT HAVE ANY BLOCKAGES EXCEEDING 25% OF THE SURFACE AREA OF A HEMISPHERE AROUND THE GPS ANTENNA.
2. ALL GPS ANTENNA LOCATIONS MUST BE ABLE TO RECEIVE CLEAR SIGNALS FROM A MINIMUM OF FOUR (4) SATELLITES. VERIFY WITH HANDHELD GPS BEFORE FINAL LOCATION OF GPS ANTENNA.



2 E-4 GPS MOUNT DETAIL

SCALE: N.T.S.

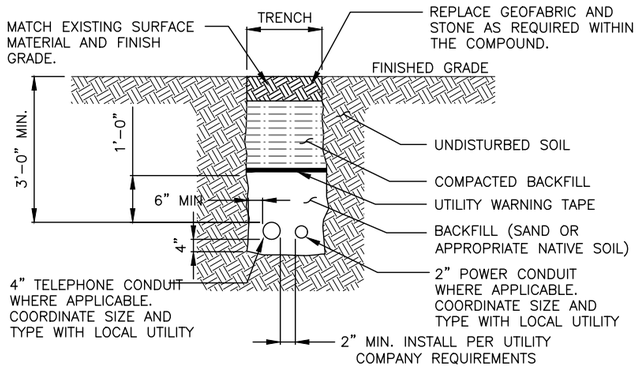


3 E-4 H-FRAME DETAIL

SCALE: N.T.S.

NOTES:

1. CONTRACTOR TO HAND DIG ALL NEW TRENCHES INSIDE COMPOUND.
2. SEPARATION DIMENSION TO BE VERIFIED WITH LOCAL UTILITY COMPANY REQUIREMENTS.

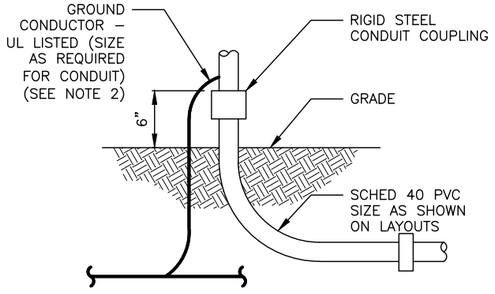


4 E-4 UTILITY TRENCH DETAIL

SCALE: N.T.S.

NOTES:

1. CONTRACTOR TO HAND DIG ALL NEW TRENCHES INSIDE COMPOUND.
2. SEPARATION DIMENSION TO BE VERIFIED WITH LOCAL UTILITY COMPANY REQUIREMENTS.



UNDERGROUND 5 E-4 CONDUIT STUB-UP

SCALE: N.T.S.

ENCLOSURE DIMENSIONS:
16.8"(W) X 17.0"(H) X 7.0"(D)
427MM (W) X 431MM (H) X 178MM (D)
PRODUCT WEIGHT: 13.0 KG; 28.6 LBS

6 E-4 CIENA 3931 SERVICE DELIVERY SWITCH

SCALE: N.T.S.

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
1		
2		
3		
4		
5		
6		
7		
8		

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10 CHURCH CIRCLE
ANNAPOLIS, MD 21401

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

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MARC P. MAIER LICENSE No 72513 STATE OF FLORIDA PROFESSIONAL ENGINEER

OCTOBER 23, 2024

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

LAKE CITY MALL
FA #15826568
CC BU #809328

198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION

ELECTRICAL DETAILS

SHEET NUMBER

E-4

Notes:
1. CONTROL PANEL, (2 AMP BATTERY CHARGER INSIDE).
2. 120V, 20A GFCI & 250V, 15A OUTLET (OPTIONAL).
3. CONNECTION POINTS FOR CONTROL WIRES PROVIDED IN THE LOW VOLTAGE CONNECTION BOX (USE LOW VOLTAGE STUB-UP AREA).
4. BATTERY (12 VOLT NEGATIVE GROUND SYSTEM).
5. MAIN LINE CIRCUIT BREAKER (MLCB), AC LOAD LEADS.
   MAIN LINE CIRCUIT BREAKER INFORMATION:
   -SEE SPECIFICATION SHEET OR OWNERS MANUAL
   -ACCESSIBLE THROUGH CUSTOMER ACCESS ASSEMBLY DOOR ON REAR OF GENERATOR
   (DIMENSIONS MAY VARY DUE TO UNIT CONFIGURATION)
6. CENTER OF GRAVITY AND WEIGHT MAY CHANGE DUE TO UNIT OPTIONS.
   FOR WEIGHT AND CENTER OF GRAVITY DATA SEE SHEET 3
7. ENGINE SERVICE CONNECTIONS.

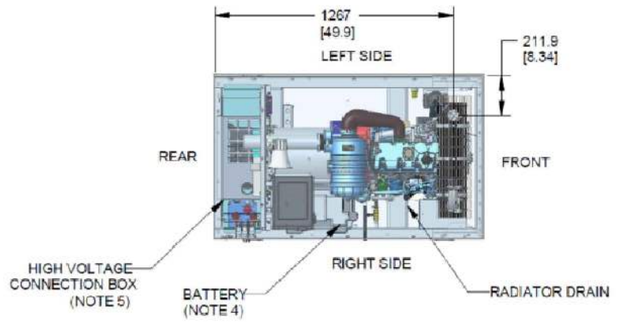
   INLET DIESEL = 1/4" NPT
   RETURN DIESEL = 1/4" NPT
   OIL DRAIN = 1/2" NPT
   RADIATOR DRAIN = 1/4" NPT
   FLEX PIPE OUTLET = 2" ID
   EXHAUST OUTLET = 2: ID

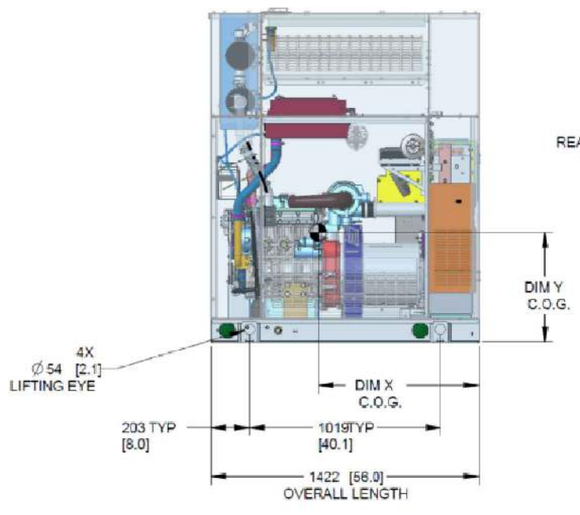
***** SEE GENERATOR SIZING GUIDE FOR FUEL PIPE SIZING TO SUIT APPLICATION *****

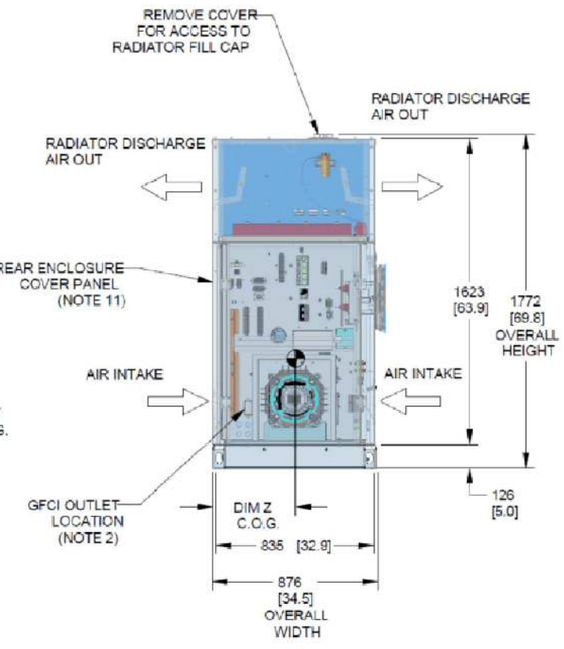
8. GENERATOR SET MUST BE INSTALLED SUCH THAT FRESH COOLING AIR IS AVAILABLE AND DISCHARGE AIR FROM THE RADIATOR IS NOT RECIRCULATED.
9. BOTTOM OF GENERATOR SET MUST BE ENCLOSED TO PREVENT PEST INTRUSION AND RECIRCULATION OF DISCHARGE AIR AND/OR IMPROPER COOLING AIR FLOW.
10. EXHAUST SYSTEM MAXIMUM BACK PRESSURE = 10" H20 (ADDITIONAL).

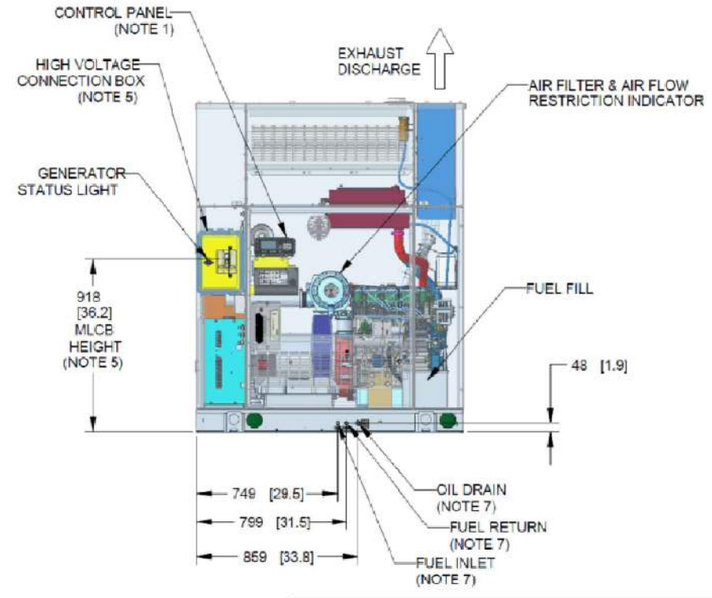
11. REMOVE THE REAR ENCLOSURE COVER PANEL TO ACCESS THE STUB-UP AREAS AS FOLLOWS:
    -HIGHT VOLTAGE CONNECTION INCLUDING AC LOAD LEAD CONDUIT CONNECTION
    NEUTRAL CONNECTION, BATTERY CHARGER 120V AC (0.5 AMP MAX) CONNECTION.
    LOW VOLTAGE CONNECTION INCUDING TRANSFER SWITCH CONTROL WIRES.
12. BOLTS OR STUDS USED TO MOUNT UNIT TO PAD SHALL BE 5/8 - 11 GRADE 5.
13. ONE SIDE MAY HAVE A SMALLER CLEARANCE THAN THE OTHERS. IF THE SIDE WITH REDUCED CLEARANCE IS EITHER FRONT OR BACK THAT MINIMUN CLEARANCE IS 16", THE THREE REMAINING SIDES MUST HAVE 60" CLEARANCE. IF THE SIDE WITH REDUCED CLEARANCE IS THE LEFT OR RIGHT THAT MINIMUM CLEARANCE IS 30", THE THREE REMAINING SIDES MUST HAVE 60" CLEARANCE.

SERVICE ITEM	
OIL FILL CAP	RIGHT SIDE
OIL DIP STICK	RIGHT SIDE
OIL FILTER	RIGHT SIDE
OIL DRAIN HOSE	RIGHT SIDE
RADIATOR DRAIN HOSE	RIGHT SIDE
COOLANT RECOVERY BOTTLE	RIGHT SIDE
RADIATOR FILL CAP ACCESS	ROOF
AIR CLEANER ELEMENT	RIGHT SIDE
FUEL FILTER	RIGHT SIDE
BATTERY	RIGHT SIDE









DRAWING CREATED FROM PRO/ENGINEER 3D FILE. ECO MODIFICATION TO BE APPLIED TO SOLID MODEL ONLY.

DIMENSIONS ARE IN MILLIMETERS [INCHES]

INSTALLATION DRAWING

ELECTRONICALLY APPROVED
INSIDE WINDCHILL

GENERAC

TITLE
INSTALL D2.2L G22 L2A ENCLOSURE
D2.2L: SDC020

ISSUE DATE:

SIZE	CAGE NO	DWG NO	REV
B	N/A	A0001367034	B
SCALE 0.035	WT-KG 195571575.433	SHEET 1 of 3	

1 / E-5 GENERAC 20kW GENERATOR DETAILS
SCALE: N.T.S.

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
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7		
8		

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ME	MM

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(813)917-2671
COA # 35409

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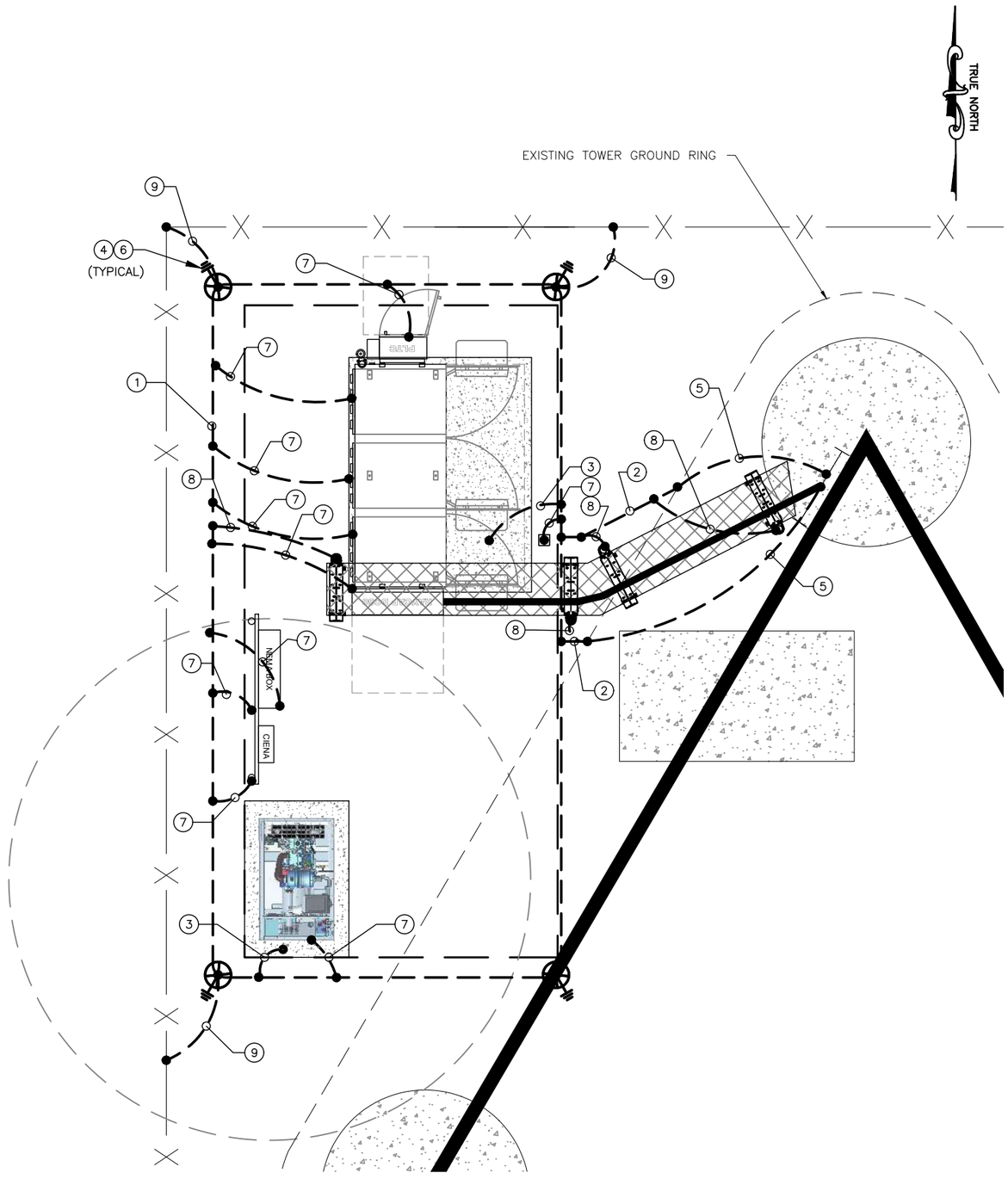
FL PROFESSIONAL ENGINEER LIC. # 72513

LAKE CITY MALL
FA #15826568
CC BU #809328
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION
GENERATOR SPECIFICATIONS

SHEET NUMBER
E-5



1 GR-1 **GROUNDING PLAN**
SCALE: 1" = 5'
SCALE BASED ON 11"x17" ONLY

GRAPHIC SCALE
0 2.5 5 10
(IN FEET)

KEY NOTES

1. PROVIDE A #2 AWG SOLID BARE TINNED COPPER GROUND RING AROUND THE EQUIPMENT PAD. ALL EXTERIOR GROUNDING CONDUCTORS SHALL BE BURIED A MINIMUM OF 18" BELOW GRADE. THE GROUND RING SHALL BE INSTALLED 2'–0" AWAY FROM FOUNDATIONS (MINIMUM UNLESS SHOWN OTHERWISE ON DRAWINGS). WHERE REQUIRED DUE TO SOLID CONDITIONS AND THE PRESENCE OF ROCK, THE ROUTING OF THE GROUND RING MAY BE ADJUSTED. ALL BONDS TO THE BURIED GROUND RING SHALL BE WITH EXOTHERMIC WELDS.
2. PROVIDE A #2 AWG SOLID BARE TINNED COPPER WIRE FROM EQUIPMENT PAD GROUND RING TO EXISTING TOWER GROUND RING.
3. BOND REBAR IN CONCRETE PAD TO THE BURIED GROUND RING. EXOTHERMICALLY WELD A #2 AWG SOLID BARE TINNED COPPER CONDUCTOR TO THE REBAR (AT THE END OF THE REBAR) AND CONNECT THE BURIED GROUND RING.
4. PROVIDE A 6" DIAMETER PVC INSPECTION SLEEVE WITH REMOVABLE COVER WHERE SHOWN FOR ALL PRIMARY CONNECTIONS TO BURIED GROUND RING. SEE GROUND ROD INSPECTION WELL DETAIL, FOR TYPICAL GROUND RING INSPECTION SLEEVE. NOTE: INSPECTION SLEEVE CAN BE USED AS A TEST WELL FOR GROUND WATER LEVEL INSPECTION AND GROUND RESISTANCE TESTING.
5. INSTALL GROUNDING CONDUCTOR(S) FROM THE BURIED GROUND RING FOR CONNECTION TO THE GROUND BAR AT THE BOTTOM OF THE TOWER. VERIFY EXACT LOCATION OF GROUNDING BAR AND PROPER CONDUCTOR LENGTH. EXOTHERMICALLY WELD (2) #2 AWG SOLID BARE TINNED COPPER GROUNDING CONDUCTOR (LENGTH AS REQUIRED) TO THE GROUND BAR. GROUNDING CONDUCTORS MUST BE HELD AWAY FROM TOWER BY USING STAND–OFFS OR ROUTING THE CONDUCTORS IN FLEXIBLE PVC CONDUIT. COORDINATE LOCATION WITH CONSTRUCTION MANAGER. SEE TOWER GROUNDING.
6. INSTALL 5/8" x 8'–0" LONG COPPERCLAD STEEL GROUND RODS. SPACING BETWEEN RODS FROM 10'–0" AND NOT TO EXCEED 16'–0" (NON–LINEAR). TYPICAL FOR ALL GROUND RODS SHOWN, UNLESS NOTED OTHERWISE. SEE GROUND ROD DETAIL. GROUND ROD MAY BE INSTALLED WITH A MAXIMUM VARIATION OF 30 DEGREES FROM VERTICAL IF ROCK IS ENCOUNTERED AND CONTRACTOR SHALL BE PREPARED TO CORE DRILL TO INSTALL GROUND RODS AND BACKFILL WITH GROUND ENHANCEMENT MATERIAL.
7. BOND EQUIPMENT TO BURIED GROUND RING.
8. BOND COAX BRIDGE POSTS TO BURIED GROUND RING (TYP.) EXOTHERMICALLY WELD A #2 AWG SOLID BARE TINNED COPPER CONDUCTOR TO THE WAVEGUIDE POST AT 12" ABOVE GRADE AND CONNECT TO THE BURIED GROUND RING. PROVIDE CONDUCTOR LENGTH AS REQUIRED TO MAKE CONNECTION.
9. BOND EXISTING FENCE POSTS TO BURIED GROUND RING.

NOTE:

SYSTEM GROUND RESISTANCE SHALL NOT EXCEED 5 OHMS. A THREE POINT SYSTEM RESISTANCE TEST SHALL BE PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH AT&T SPECIFICATION.

A. PERFORM THREE TESTS AT EACH SITE

B. CONTRACTOR SHALL PROVIDE A WRITTEN REPORT CONSISTING OF THE FOLLOWING: SITE NAME, ADDRESS AND IDENTIFICATION NUMBER, DESCRIPTION OF SITE SOIL AND MOISTURE CONDITION, DESCRIPTION OF WEATHER, MODEL NUMBER OF TESTING EQUIPMENT, DATE OF LAST CALIBRATION, SITE SKETCH SHOWING LOCATION OF TEST PROBES, AND ALL FIELD DATE COLLECTED (READINGS, RANGE, TEST, MILLIAMPS, ETC.).

C. CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER IF THERE ARE ANY DIFFICULTIES PERFORMING SYSTEM RESISTANCE TESTS OR IF MEASUREMENTS ARE ABOVE 5 OHMS. THE CONSTRUCTION MANAGER SHALL PROVIDE INSTRUCTIONS TO THE CONTRACTOR TO INSTALL ADDITIONAL GROUNDING MEASURES TO MEET THE 5 OHM REQUIREMENT.

Sunshine State 811 One Call
CALL FLORIDA 811
ONE CALL - DIAL 811
CALL 3 WORKING DAYS
BEFORE YOU DIG
1-800-638-4097

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
1		
2		
3		
4		
5		
6		
7		
8		

DRAWN BY:	CHECKED BY:
ME	MM

at&t
12150 RESEARCH PARKWAY
ORLANDO, FL 32826

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ANNAPOLIS, MD 21401

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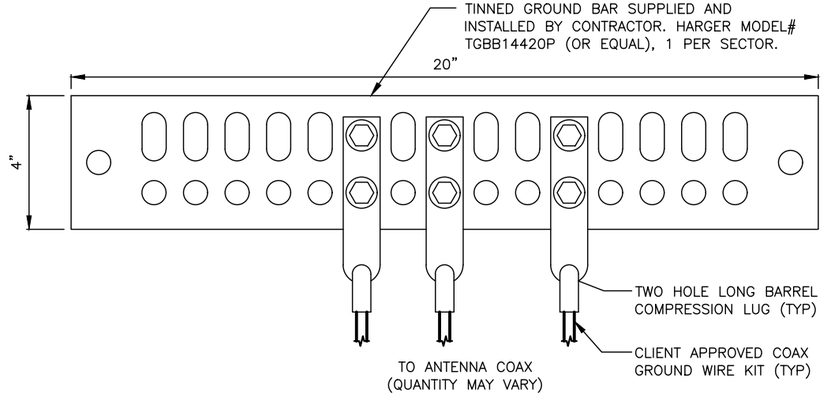
LAKE CITY MALL
FA #15826568
CC BU #809328
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION
GROUNDING PLAN

SHEET NUMBER
GR-1

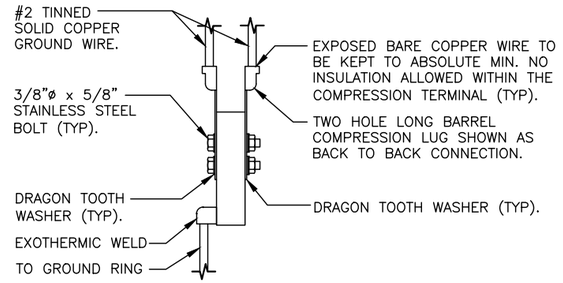


NOTES:

1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. CONTRACTOR TO INSTALL WITHIN 12" OF THE END OF COAX TO COAX JUMPER CONNECTION.
4. GROUND TMA USING A #6 SOLID TINNED CU WIRE W/TIN PLATED LONG BARREL COMPRESSION LUG.
5. GROUND BAR SHALL NOT BE ISOLATED FROM THE TOWER. MOUNT DIRECTLY TO TOWER STEEL.

1 GR-2 ANTENNA GROUND BAR DETAIL

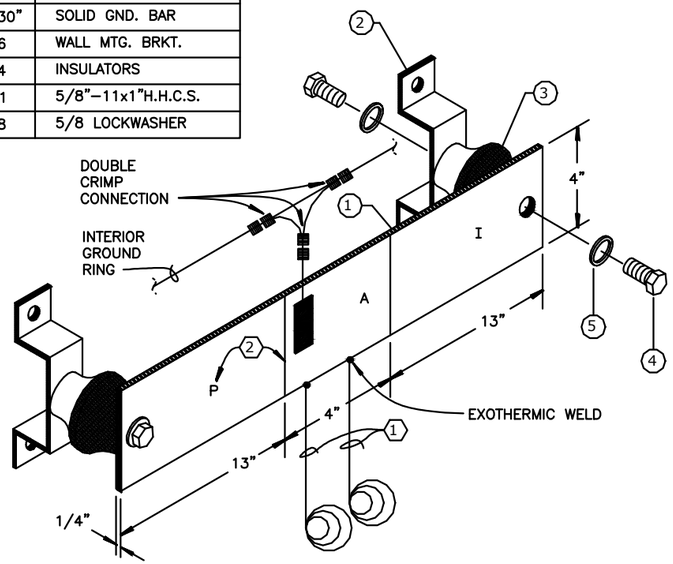
SCALE: N.T.S.



2 GR-2 TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S.

NEWTON INSTRUMENT COMPANY, INC. BUTNER, N.C.			
NO.	REQ.	PART NO.	DESCRIPTION
①	1	1/4"x4"x30"	SOLID GND. BAR
②	2	A-6056	WALL MTG. BRKT.
③	2	3061-4	INSULATORS
④	4	3012-1	5/8"-11x1"H.H.C.S.
⑤	4	3015-8	5/8 LOCKWASHER



3 GR-2 SHELTER GROUND BAR DETAIL

SCALE: N.T.S.

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCHPLATES) (#2)
TELCO GROUND BAR (#2)
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
CELL SITE +24V POWER SUPPLY RETURN BAR (#2)
CELL SITE -48V POWER SUPPLY RETURN BAR (#2)

GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
RECTIFIER FRAMES
ANTENNA SUPPRESSION

SECTION "A" – SURGE ABSORBERS

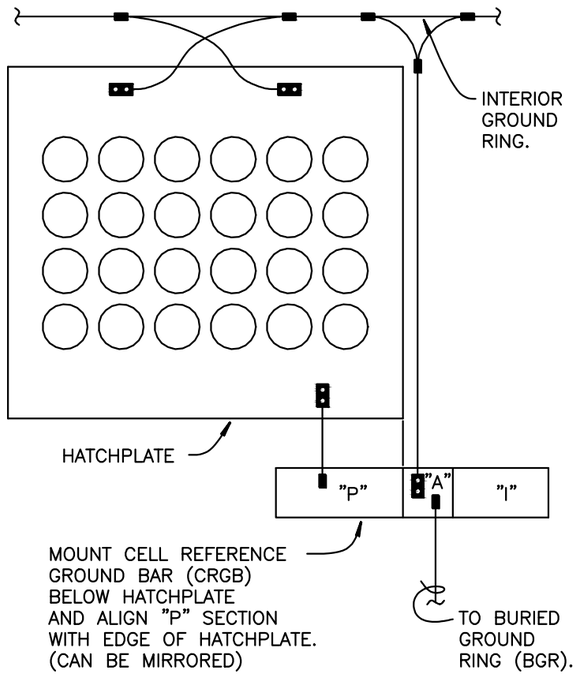
INTERIOR GROUND RING (#2)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
BUILDING STEEL (IF AVAILABLE) (#2)

SECTION "I" – ISOLATED GROUND ZONE

ALL CELL SITE COMMUNICATIONS EQUIPMENT FRAMES.

DETAIL NOTES:

1. EXOTHERMICALLY WELD #2 AWG BARE TINNED SOLID COPPER CONDUCTOR TO GROUND BAR. ROUTE CONDUCTOR TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. THE INSTALLER SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION ("P", "A", "I") WITH 1" HIGH LETTERS



4 GR-2 GROUND BAR INSTALLATION DETAIL

SCALE: N.T.S.

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
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LAKE CITY MALL
FA #15826568
CC BU #809328

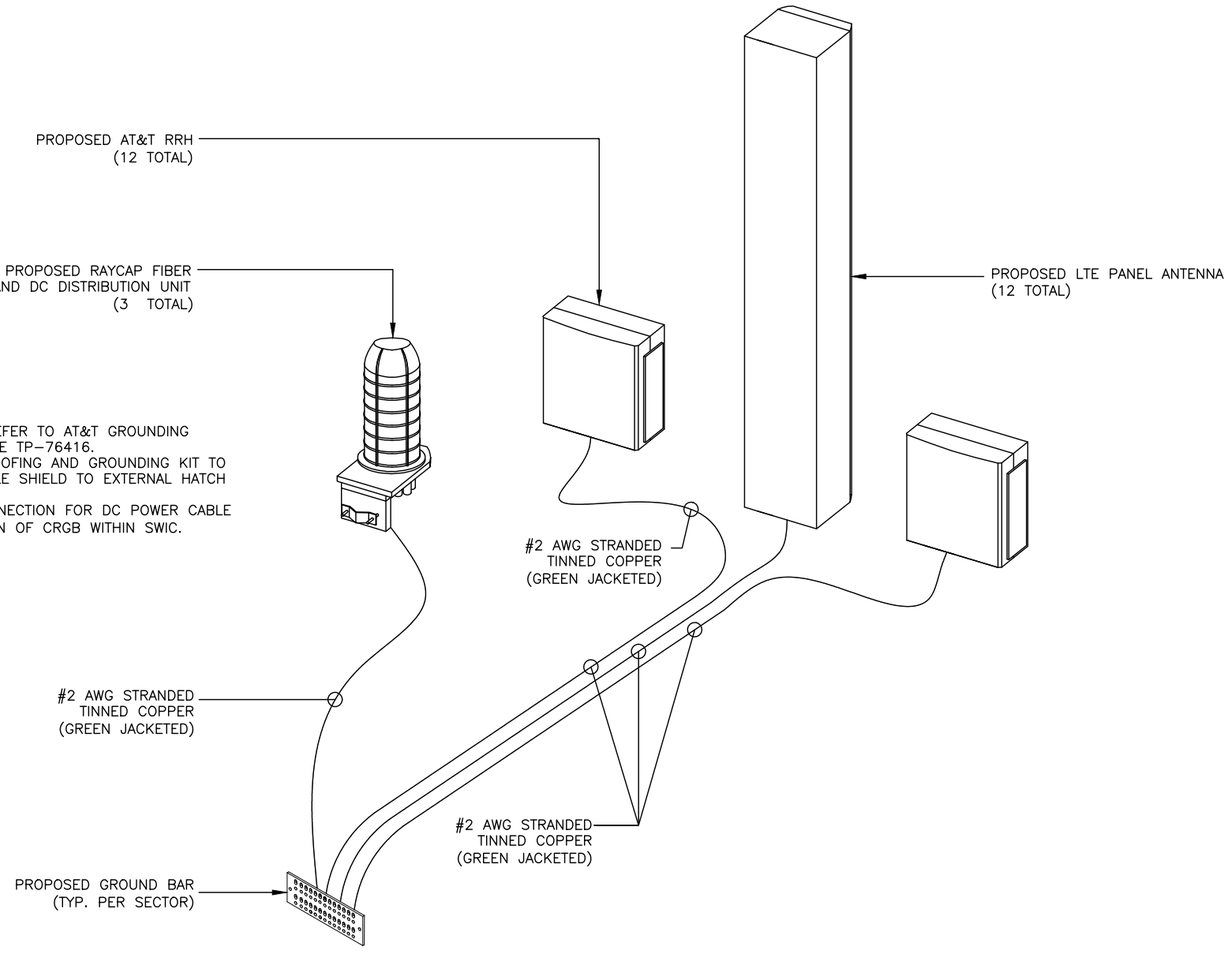
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION

GROUNDING DETAILS

SHEET NUMBER

GR-2



NOTES:

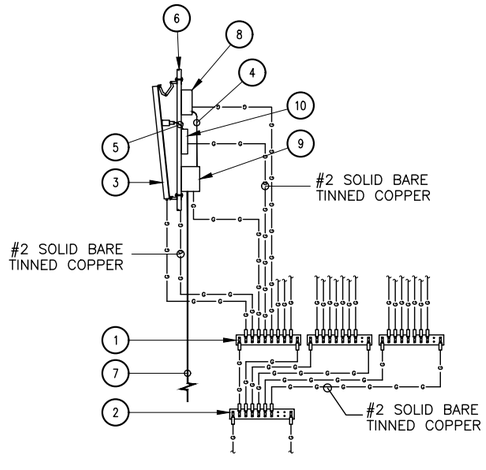
1. CONTRACTOR SHALL REFER TO AT&T GROUNDING AND BONDING PRACTICE TP-76416.
2. PROVIDE WEATHER PROOFING AND GROUNDING KIT TO BOND DC POWER CABLE SHIELD TO EXTERNAL HATCH PLATE GROUND BAR.
3. PROVIDE GROUND CONNECTION FOR DC POWER CABLE SHIELD TO "P" SECTION OF CRGB WITHIN SWIC.

1 GR-3 GROUNDING DETAIL

SCALE: N.T.S.

KEYNOTE LEGEND:

1. SECTOR GROUND BAR (TYP).
2. COLLECTOR GROUND BAR.
3. NEW ANTENNA.
4. SINGLE PAIR FIBER & DC POWER.
5. JUMPER CABLE, 1/2" (TYP).
6. PIPE MOUNT.
7. DC POWER & FIBER TO RAYCAP UNIT.
8. REMOTE RADIO HEAD (RRH) (IF APPLICABLE).
9. DC6 RAYCAP SURGE SUPPRESSOR (IF APPLICABLE).
10. FILTER (IF APPLICABLE)



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.
4. ALL #2 COPPER TINNED WIRE NEEDS TO BE A SOLID WIRE IF GOING TO A BURIED GROUND RING

2 GR-3 ANTENNA GROUNDING SCHEMATIC

SCALE: N.T.S.

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COA # 35409

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MARC P. MAIER LICENSE No 72513 STATE OF FLORIDA PROFESSIONAL ENGINEER

OCTOBER 23, 2024

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

LAKE CITY MALL
FA #15826568
CC BU #809328

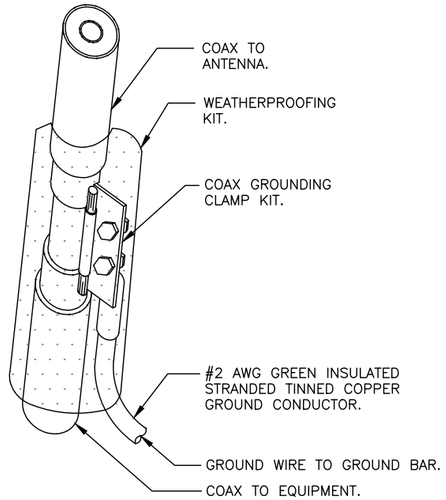
198 NW HACKNEY TERRACE
LAKE CITY, FL 32055

SHEET DESCRIPTION

GROUNDING DETAILS

SHEET NUMBER

GR-3

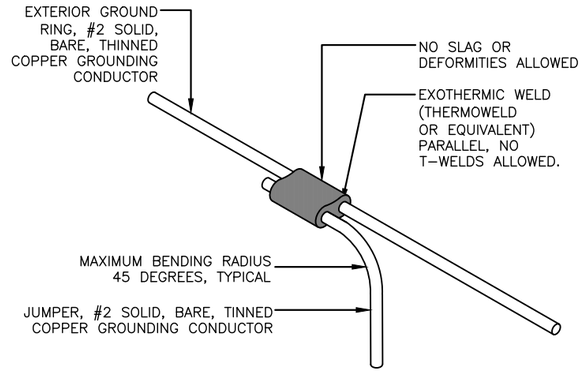


NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND IN CABLE.
2. ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
3. 2–1/2" MAX FOR TX/RX ANTENNA CABLES.
4. 1–1/4" MAX FOR GPS ANTENNA CABLES.
5. INSTALL IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.

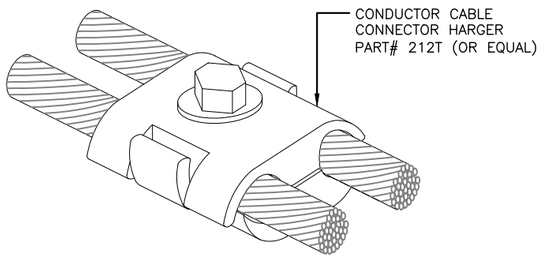
1 GR-4 COAX CABLE GROUND DETAIL

SCALE: N.T.S.



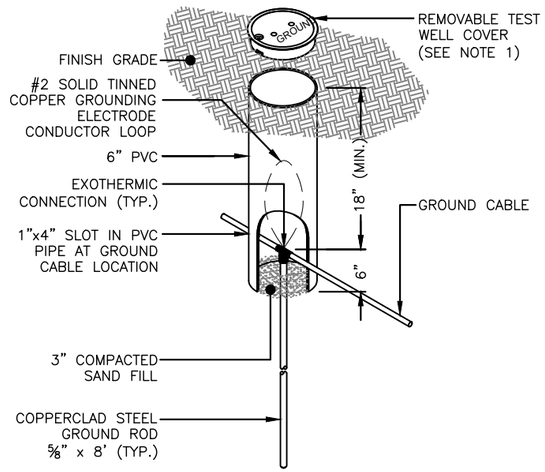
2 GR-4 WELD CONNECTION DETAIL

SCALE: N.T.S.



3 GR-4 CONDUCTOR CABLE CONNECTOR ISOMETRIC

SCALE: N.T.S.



NOTES:

1. CONTRACTOR SHALL PROVIDE PRE–CAST CONCRETE INSPECTION WELL WITH CAST IRON TRAFFIC RATED LID WHEN WELL WILL BE IN AN AREA WHERE THEY CAN BE DAMAGED
2. ALL WORK SHALL CONFORM TO THE LOCAL BUILDING CODES. DEPTH MAY VARY.

4 GR-4 GROUND ROD INSPECTION WELL DETAIL

SCALE: N.T.S.

REV	DATE	DESCRIPTION
A	06/18/24	PRELIMINARY CDs REV "A"
B	09/24/24	PRELIMINARY CDs REV "B"
0	10/23/24	FINAL CDs ISSUED
1		
2		
3		
4		
5		
6		
7		
8		

DRAWN BY:	CHECKED BY:
ME	MM

at&t
12150 RESEARCH PARKWAY
ORLANDO, FL 32826

smartlink
10 CHURCH CIRCLE
ANNAPOLIS, MD 21401

PREPARED BY:
GEN3 ENGINEERING
27139 SEA BREEZE WAY
WESLEY CHAPEL, FLORIDA 33544
(813)917–2671
COA # 35409

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GR-4