



GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION, THEREFORE HANDICAP ACCESS IS NOT REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE; NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

SCOPE OF WORK

REMOVE (10) ANTENNAS, (12) RRUS AND (1) COAX CABLE, INSTALL (9) ANTENNAS, (9) RRUS, (1) SURGE SUPPRESSOR, (1) HYBRID CABLE AND MOUNT MODIFICATIONS.

CODE COMPLIANCE

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

- 2012 TENNESSEE BUILDING CODE (2012 IBC W/ AMENDMENTS)
- 2012 TENNESSEE EXISTING BUILDING CODE (2012 IEBC W/ AMENDMENTS)
- 2012 TENNESSEE FIRE CODE (2012 IFC W/ AMENDMENTS)
- 2012 TENNESSEE FUEL GAS CODE (2012 IFGC W/ AMENDMENTS)
- 2012 TENNESSEE MECHANICAL CODE (2012 IMC W/ AMENDMENTS)
- 2012 TENNESSEE PLUMBING CODE (2012 IPC W/ AMENDMENTS)
- 2012 TENNESSEE INTERNATIONAL ENERGY CONSERVATION CODE (2012 IECC W/ AMENDMENTS)
- 2014 NATIONAL ELECTRICAL CODE (NEC)



SITE NAME:
LAKE HOLIDAY

SITE NUMBER:
677115

SITE ADDRESS:
995 LIVINGSTON ROAD
CROSSVILLE, TN 38555

LATITUDE & LONGITUDE:
N 35° 57' 49.2012", W 85° 02' 24.8784"

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CONTRACTOR PMI REQUIREMENTS

PMI ACCESSED AT: [HTTPS://PMI.VZWSMART.COM](https://pmi.vzwsmart.com)

SMART TOOL VENDOR PROJECT PROJECT NUMBER: 10143358

VERIZON LOCATION CODE (PSLC): 161976

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

MOUNT MODIFICATION REQUIRED

YES

VERIZON APPROVED VENDORS

* REFER TO MOUNT MODIFICATION DRAWINGS.



SITE SUMMARY	
SITE TYPE:	MODIFICATION
STRUCTURE TYPE:	SELF SUPPORT TOWER
STRUCTURE OWNER:	US CELLULAR
FUZE PROJECT NUMBER:	16549288
PSLC NUMBER	161976
STRUCTURE HEIGHT (AGL):	245'-0"±
OCCUPANCY TYPE:	UTILITY & MISCELLANEOUS (U)
STRUCTURE LATITUDE:	N 35° 57' 49.2012" (35.963667°)
STRUCTURE LONGITUDE:	W 85° 02' 24.8784" (-85.040244°)
JURISDICTION:	CUMBERLAND COUNTY
COUNTY:	CUMBERLAND
PARCEL ID:	100A A 005.06
GROUND ELEV. (NAVD 88):	1,800'-5"±
FIBER PROVIDER:	WOW

PREPARED BY:

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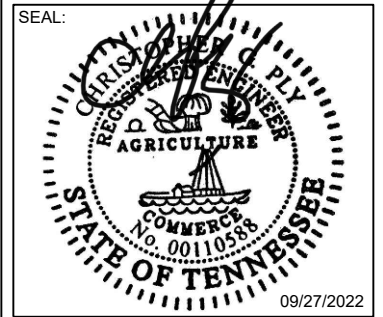
PREPARED FOR:

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SITE ADDRESS:
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CROSSVILLE, TN 38555

LATITUDE/LONGITUDE:
35.963667°, -85.040244°



REV	DATE	DETAILS
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SHEET # **T-1** CURRENT REV #: 0
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GENERAL NOTES	
1.	ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND CARRIER PROJECT SPECIFICATIONS.
2.	GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND SHALL CONFIRM THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
3.	ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
4.	ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
5.	UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED IN THESE DRAWINGS.
6.	PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISHED SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
7.	THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8.	IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN IN THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
9.	GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFORM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
10.	GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
11.	ERECTION SHALL BE DONE IN WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMEN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED IN THE DRAWINGS.
12.	SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
13.	THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
14.	CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO THE COMMENCEMENT OF WORK.
15.	THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
16.	THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
17.	GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
18.	THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
19.	THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
20.	THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NO LESS THAN 2-A OT 2-A:10-B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.

GENERAL NOTES (CONTINUED)	
21.	ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
22.	ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
23.	THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
24.	CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
25.	NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
26.	THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
27.	ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
28.	ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
29.	CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
30.	CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
31.	THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
32.	STRUCTURE IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY CARRIER TECHNICIANS.
33.	NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
34.	ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST CARRIER GROUNDING STANDARD. IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
35.	CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
36.	CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
37.	INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
38.	ALL CABLE INSTALLATIONS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
39.	NO WHITE STROBE LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.


ANTENNA MOUNTING NOTES	
1.	ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
2.	ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
3.	DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
4.	ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
5.	CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
6.	PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/- 0.5% AS DEFINED BY THE RFDS. REFER TO ND-00246.

TORQUE REQUIREMENTS	
1.	ALL RF CONNECTIONS SHALL BE TIGHTENED BY A TORQUE WRENCH.
2.	ALL RF CONNECTIONS, GROUNDING HARDWARE AND ANTENNA HARDWARE SHALL HAVE A TORQUE MARK INSTALLED IN A CONTINUOUS STRAIGHT LINE FROM BOTH SIDES OF THE CONNECTION.
3.	RF CONNECTION BOTH SIDES OF THE CONNECTOR.
4.	GROUNDING AND ANTENNA HARDWARE ON THE NUT SIDE STARTING FROM THE THREADS TO THE SOLID SURFACE. EXAMPLE OF SOLID SURFACE: GROUND BAR, ANTENNA BRACKET METAL.
5.	ALL 8M ANTENNA HARDWARE SHALL BE TIGHTENED TO 9 LB-FT (12 NM).
6.	ALL 12M ANTENNA HARDWARE SHALL BE TIGHTENED TO 43 LB-FT (58 NM).
7.	ALL GROUNDING HARDWARE SHALL BE TIGHTENED UNTIL THE LOCK WASHER COLLAPSES AND THE GROUNDING HARDWARE IS NO LONGER LOOSE.
8.	ALL DIN TYPE CONNECTIONS SHALL BE TIGHTENED TO 18-22 LB-FT (24.4-29.8 NM).
9.	ALL N TYPE CONNECTIONS SHALL BE TIGHTENED TO 15-20 LB-IN (1.7-2.3 NM).

COAXIAL CABLE NOTES	
1.	TYPES AND SIZES OF THE ANTENNA CABLE ARE BASED ON ESTIMATED LENGTHS. PRIOR TO ORDERING CABLE, CONTRACTOR SHALL VERIFY ACTUAL LENGTH BASED ON CONSTRUCTION LAYOUT AND NOTIFY THE PROJECT MANAGER IF ACTUAL LENGTHS EXCEED ESTIMATED LENGTHS.
2.	CONTRACTOR SHALL VERIFY THE DOWN-TILT OF EACH ANTENNA WITH A DIGITAL LEVEL.
3.	CONTRACTOR SHALL CONFIRM COAX COLOR CODING PRIOR TO CONSTRUCTION. REFER TO "ANTENNA SYSTEM LABELING STANDARD" ND-00027 LATEST VERSION.
4.	ALL JUMPERS TO THE ANTENNAS SHALL BE 1/2" DIA. LDF AND SHALL NOT EXCEED 6'-0".
5.	ALL COAXIAL CABLE SHALL BE SECURED TO THE DESIGNED SUPPORT STRUCTURE, IN AN APPROVED MANNER, AT DISTANCES NOT TO EXCEED 4'-0" OC.
6.	CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS REGARDING BOTH THE INSTALLATION AND GROUNDING OF ALL COAXIAL CABLES, CONNECTORS, ANTENNAS, AND ALL OTHER EQUIPMENT.
7.	CONTRACTOR SHALL WEATHERPROOF ALL ANTENNA CONNECTORS WITH SELF AMALGAMATING TAPE. WEATHERPROOFING SHALL BE COMPLETED IN STRICT ACCORDANCE WITH INDUSTRY STANDARDS.

GENERAL CABLE AND EQUIPMENT NOTES	
1.	CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TMAS, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
2.	ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
3.	CONTRACTOR SHALL REFERENCE THE STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.

PREPARED BY:



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PREPARED FOR:




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SEAL:



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GENERAL NOTES I

SHEET # **GN-1** CURRENT REV #: **0**
ETS #: 22110726

GENERAL CABLE AND EQUIPMENT NOTES	
1.	ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE-HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
2.	IF REQUIRED TO PAINT ANTENNAS AND/OR COAX: <ul style="list-style-type: none"> 2.1. TEMPERATURE SHALL BE ABOVE 50° F. 2.2. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD. 2.3. FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED. 2.4. DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS.
3.	ALL PROPOSED GROUND BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUND BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUND BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.
4.	ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATION & RECOMMENDATIONS. NO BOLT THREADS TO PROTRUDE MORE THAN 1-1/2" [0.38M].
5.	90 SHORT SWEEPS UNDER ANTENNA ARM. ALL CABLES MUST ONLY TRANSITION ON THE INSIDE OR BOTTOM OF ARMS (NO CABLE ON TOP OF ARMS).
6.	USE 90 CONNECTOR AT CABLE CONNECTION TO ANTENNAS.
7.	PLACE GPS ON ARM WITH SOUTHERN SKY EXPOSURE AT MINIMUM 6' [1.83] FROM TRANSMIT ANTENNA, WHICH IS 24" [61M] AWAY FROM CENTER OF POLE.
8.	USE 1/2" [0.13M] CABLE ON ANTENNAS UNLESS OTHERWISE SPECIFIED.
9.	FILL VOID AROUND CABLES AT CONDUIT OPENING WITH FOAM SEALANT TO PREVENT WATER INTRUSION.

FIBER & POWER CABLE MOUNTING	
1.	THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY. WHEN INSTALLING FIBER OPTIC TRUNK CABLES INTO A CABLE TRAY SYSTEM, THEY SHALL BE INSTALLED INTO AN INTER DUCT AND A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE INTER DUCT IN ORDER TO SEGREGATE CABLE TYPES. OPTIC FIBER TRUNK CABLES SHALL HAVE APPROVED CABLE RESTRAINTS EVERY (60) SIXTY FEET AND SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ARTICLE 770 RULES SHALL APPLY.
2.	THE TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) SIX FEET. AN EXCEPTION; WHERE TYPE TC-ER CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE, CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY WHICH ARE SERVING UTILIZATION EQUIPMENT OR DEVICES, A DISTANCE (6) SIX FEET SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 392 RULES SHALL APPLY.
3.	WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC-ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

STRUCTURAL STEEL NOTES	
1.	THE FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATION FOR MANUAL OF STEEL CONSTRUCTION, LOAD AND RESISTANCE FACTOR DESIGN, 15TH EDITION.
2.	UNLESS OTHERWISE NOTED, ALL STRUCTURAL ELEMENTS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS: STRUCTURAL STEEL: <ul style="list-style-type: none"> • ANGLE: ASTM A36 • PIPE/TUBE: ASTM A500-50 • PLATE: ASTM A36 A. ALL BOLTS, ASTM A325 TYPE I GALVANIZED HIGH STRENGTH BOLTS. B. ALL U-BOLTS, ASTM A193 GRADE B7 C. ALL NUTS, ASTM A563 CARBON AND ALLOY STEEL NUTS. D. ALL WASHERS, ASTM F436 HARDENED STEEL WASHERS.
3.	ALL CONNECTIONS NOT FULLY DETAILED ON THESE PLANS SHALL BE DETAILED BY THE STEEL FABRICATOR IN ACCORDANCE WITH AISC SPECIFICATION FOR MANUAL OF STEEL CONSTRUCTION, LOAD AND RESISTANCE FACTOR DESIGN, 15TH EDITION.
4.	HOLES SHALL NOT BE FLAME CUT THRU STEEL UNLESS APPROVED BY THE ENGINEER.
5.	HOT-DIP GALVANIZE ALL ITEMS UNLESS OTHERWISE NOTED, AFTER FABRICATION WHERE PRACTICABLE. GALVANIZING: ASTM A123, ASTM, A153/A153M OR ASTM A653/A653M, G90, AS APPLICABLE.
6.	REPAIR DAMAGED SURFACES WITH GALVANIZING REPAIR METHOD AND PAINT CONFORMING TO ASTM A780 OR BY APPLICATION OF STICK OR THICK PASTED 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 PASTED; SPREAD MOLTEN MATERIAL UNIFORMLY OVER SURFACES TO BE COATED AND WIPE OFF EXCESS MATERIAL.
7.	A NUT LOCKING DEVICE SHALL BE INSTALLED ON ALL PROPOSED AND/OR REPLACED BOLTS.
8.	ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH TO EXCLUDE THE THREADS FROM THE SHEAR PLANE.
9.	ALL PROPOSED AND/OR REPLACED BOLTS SHALL BE OF SUFFICIENT LENGTH SUCH THAT THE END OF THE BOLT BE AT LEAST FLUSH WITH THE FACE OF THE NUT. IT IS NOT PERMITTED FOR THE BOLT END TO BE BELOW THE FACE OF THE NUT AFTER TIGHTENING IS COMPLETED.
10.	GALVANIZED ASTM A325 BOLTS SHALL NOT BE REUSED.


BOLT TIGHTENING PROCEDURE																															
1.	CONNECTION BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8.2 OF THE AISC SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS, LOCATED IN THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS PARAPHRASED AS FOLLOWS:																														
2.	FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8.2.1 THROUGH 8.2.4. 8.2.1 TURN-OF-THE-NUT TIGHTENING. BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1, UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY FROM THE MOST RIGID PART OF THE JOINT IN A MANNER THAT WILL MINIMIZE RELAXATION OF PREVIOUSLY PRETENSIONED BOLTS.																														
3.	TIGHTEN CONNECTION BOLTS BY AISC - "TURN OF THE NUT" METHOD, USING THE CHART BELOW. BOLT LENGTHS UP TO AND INCLUDING FOUR DIA. <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;">1/2"</td> <td style="width: 45%;">BOLTS UP TO AND INCLUDING 2.0 INCH LENGTH</td> <td style="width: 40%;">+1/3 TURN BEYOND SNUG TIGHT</td> </tr> <tr> <td>5/8"</td> <td>BOLTS UP TO AND INCLUDING 2.5 INCH LENGTH</td> <td>+1/3 TURN BEYOND SNUG TIGHT</td> </tr> <tr> <td>3/4"</td> <td>BOLTS UP TO AND INCLUDING 3.0 INCH LENGTH</td> <td>+1/3 TURN BEYOND SNUG TIGHT</td> </tr> <tr> <td>7/8"</td> <td>BOLTS UP TO AND INCLUDING 3.5 INCH LENGTH</td> <td>+1/3 TURN BEYOND SNUG TIGHT</td> </tr> <tr> <td>1"</td> <td>BOLTS UP TO AND INCLUDING 4.0 INCH LENGTH</td> <td>+1/3 TURN BEYOND SNUG TIGHT</td> </tr> </table> BOLT LENGTHS OVER FOUR DIA. BUT NOT EXCEEDING EIGHT DIA. <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;">1/2"</td> <td style="width: 45%;">BOLTS 2.25 TO 4.0 INCH LENGTH</td> <td style="width: 40%;">+1/2 TURN BEYOND SNUG TIGHT</td> </tr> <tr> <td>5/8"</td> <td>BOLTS 2.75 TO 5.0 INCH LENGTH</td> <td>+1/2 TURN BEYOND SNUG TIGHT</td> </tr> <tr> <td>3/4"</td> <td>BOLTS 3.25 TO 6.0 INCH LENGTH</td> <td>+1/2 TURN BEYOND SNUG TIGHT</td> </tr> <tr> <td>7/8"</td> <td>BOLTS 3.75 TO 7.0 INCH LENGTH</td> <td>+1/2 TURN BEYOND SNUG TIGHT</td> </tr> <tr> <td>1"</td> <td>BOLTS 4.25 TO 8.0 INCH LENGTH</td> <td>+1/2 TURN BEYOND SNUG TIGHT</td> </tr> </table>	1/2"	BOLTS UP TO AND INCLUDING 2.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT	5/8"	BOLTS UP TO AND INCLUDING 2.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT	3/4"	BOLTS UP TO AND INCLUDING 3.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT	7/8"	BOLTS UP TO AND INCLUDING 3.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT	1"	BOLTS UP TO AND INCLUDING 4.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT	1/2"	BOLTS 2.25 TO 4.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT	5/8"	BOLTS 2.75 TO 5.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT	3/4"	BOLTS 3.25 TO 6.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT	7/8"	BOLTS 3.75 TO 7.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT	1"	BOLTS 4.25 TO 8.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
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1"	BOLTS 4.25 TO 8.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT																													
4.	ALL OTHER BOLTED CONNECTIONS SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1 OF THE SPECIFICATION.																														

FOUNDATION NOTES	
FOUNDATION GENERAL NOTES	
1.	FOUNDATION INSTALLATION SHALL BE SUPERVISED BY PERSONNEL KNOWLEDGEABLE AND EXPERIENCED WITH THE PROPOSED FOUNDATION TYPE. CONSTRUCTION SHALL BE IN ACCORDANCE WITH GENERALLY ACCEPTED PRACTICES AND IN A GOOD WORKMANLIKE MANNER.
2.	CONTRACTOR TO VERIFY DIMENSIONS WITH ORIGINAL TOWER DRAWINGS. ETS SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN FIELD MEASURED DIMENSIONS AND ORIGINAL TOWER DRAWINGS.
3.	FOUNDATION DESIGN MODIFICATIONS MAY BE REQUIRED IN THE EVENT THE DESIGN PARAMETERS ARE NOT APPLICABLE FOR THE SUBSURFACE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.
4.	FOR FOUNDATION TOLERANCES, SEE ORIGINAL TOWER DRAWINGS.
5.	THE FOUNDATION MODIFICATION DESIGN IS IN ACCORDANCE WITH GENERALLY ACCEPTED PROFESSIONAL ENGINEERING PRINCIPLES AND PRACTICES WITHIN THE LIMITS OF SUBSURFACE DATA PROVIDED.
6.	THE FOUNDATION DEPTH INDICATED IS BASED ON THE GRADE LINE DESCRIBED IN THE REFERENCE GEOTECHNICAL REPORT. FOUNDATION MODIFICATION MAY BE REQUIRED IN THE EVENT CUT OR FILL OPERATIONS HAVE TAKEN PLACE SUBSEQUENT TO THE GEOTECHNICAL INVESTIGATION.
7.	THE FOUNDATION DESIGN ASSUMES THAT INSTALLATION METHODS WILL INCORPORATE THE PROCEDURES RECOMMENDED IN THIS REPORT.
8.	THE FOUNDATION DESIGN ASSUMES FIELD INSPECTIONS WILL BE PERFORMED TO VERIFY THAT CONSTRUCTION MATERIALS, INSTALLATION METHODS, AND ASSUMED DESIGN PARAMETERS ARE ACCEPTABLE BASED ON THE CONDITIONS AT THE SITE.
9.	THE FOUNDATION DESIGN ASSUMES NO CONSTRUCTION JOINTS, HOWEVER, CONSTRUCTION JOINTS SHALL BE PERMITTED UPON APPROVAL BY THE OWNER/ENGINEER.
EXCAVATION	
1.	WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND SAFETY REGULATIONS. PROCEDURES FOR THE PROTECTION OF EXCAVATIONS, EXISTING CONSTRUCTION, AND UTILITIES SHALL BE ESTABLISHED PRIOR TO BEGINNING WORK.
2.	THE SIDES OF THE EXCAVATION SHALL BE ROUGH AND FREE OF CUTTINGS.
3.	LOOSE MATERIAL TO BE REMOVED FROM THE BOTTOM OF EXCAVATION PRIOR TO CONCRETE PLACEMENT.
REINFORCING STEEL	
1.	THE REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-615, GRADE 60. IT SHALL BE DEFORMED AND SPLICES SHALL NOT BE ALLOWED UNLESS OTHERWISE NOTED.
2.	WELDING IS PROHIBITED ON REINFORCING STEEL AND EMBEDMENTS.
3.	REINFORCING CAGES SHALL BE BRACED TO RETAIN PROPER DIMENSIONS DURING HANDLING AND THROUGHOUT PLACEMENT OF CONCRETE. WHEN TEMPORARY CASING IS UTILIZED, BRACING SHALL BE ADEQUATE TO RESIST FORCES OCCURRING FROM FLOWING CONCRETE DURING CASING EXCAVATION.
4.	SPACERS SHALL BE ATTACHED INTERMITTENTLY THROUGHOUT THE ENTIRE LENGTH OF TIEBACK REINFORCING TO INSURE CONCENTRIC PLACEMENT OF CASING IN EXCAVATIONS.
5.	MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE 3" UNLESS OTHERWISE NOTED. APPROVED SPACERS SHALL BE USED TO INSURE A 3" MINIMUM COVER FOR REINFORCEMENT.
6.	THE CONCRETE COVER FROM THE TOP OF THE FOUNDATION TO THE ENDS OF THE VERTICAL REINFORCEMENT SHALL NOT BE LESS THAN 3".

FOUNDATION NOTES (CONTINUED)	
CONCRETE	
1.	WORK SHALL BE IN ACCORDANCE WITH THE ACI 318-14, "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY".
2.	THE CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3000-PSI IN 28 DAYS.
3.	ANY CONCRETE EXPOSED TO WEATHER SHALL BE AIR-ENTRAINED AS REQUIRED BY ACI 318-14.
4.	PROPORTIONS OF CONCRETE MATERIALS SHALL BE SUITABLE FOR THE INSTALLATION METHOD UTILIZED AND SHALL RESULT IN DURABLE CONCRETE FOR RESISTANCE TO LOCAL ANTICIPATED AGGRESSIVE ACTIONS. THE DURABILITY REQUIREMENTS OF ACI 318-14 SHALL BE SATISFIED BASED ON THE CONDITIONS EXPECTED AT THE SITE.
5.	CONCRETE SHALL BE PLACED IN A MANNER THAT WILL PREVENT SEGREGATION OF CONCRETE MATERIALS, INFILTRATION OF WATER OR SOIL, AND OTHER OCCURRENCES THAT MAY DECREASE THE STRENGTH OR DURABILITY OF THE FOUNDATION.
6.	FREE FALL CONCRETE MAY BE USED PROVIDED FALL IS VERTICAL DOWN WITHOUT HITTING THE SIDES OF THE EXCAVATION, FORMWORK, REINFORCING BARS, FORM TIES, CAGE BRACING, OR OTHER OBSTRUCTIONS. UNDER NO CIRCUMSTANCES SHALL CONCRETE FALL THROUGH WATER.
7.	THE MAXIMUM SIZE OF THE AGGREGATE SHALL NOT EXCEED A SIZE SUITABLE FOR THE INSTALLATION METHODS UTILIZED OR 2/3-CLEAR DISTANCE BEHIND OR BETWEEN REINFORCING. THE MAXIMUM SIZE MAY BE INCREASED TO 2/3-CLEAR DISTANCE PROVIDED WORKABILITY AND METHODS OF CONSOLIDATION SUCH AS VIBRATING WILL PREVENT HONEYCOMBS AND VOIDS.
FINISHING	
1.	THE TOP OF THE FOUNDATION SHALL BE SLOPED TO DRAIN WITH A FLOATED FINISH.
2.	THE EXPOSED EDGES OF THE CONCRETE SHALL BE CHAMFERED 1" X 1".
EPOXY NOTES	
1.	EPOXY AGENTS SHOULD BE ALLOWED TO CURE ACCORDING TO MANUFACTURERS RECOMMENDATIONS.
2.	ALL HARDWARE ASSEMBLY AND MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED; ANY CONTRADICTION BETWEEN THE MANUFACTURER'S RECOMMENDATIONS AND THESE DRAWINGS ARE TO BE BROUGHT IMMEDIATELY TO THE ATTENTION OF THE ENGINEER AND OWNER.
3.	ANY CONTRACTOR INSTALLING ADHESIVE ANCHORING SYSTEMS SHALL BE TRAINED, IN PERSON BY A MANUFACTURER'S REPRESENTATIVE, ON THE PROPER INSTALLATION TECHNIQUES. THIS TRAINING SHALL INCLUDE PROPER DRILLING, HOLE CLEANING, AND INSTALLATION METHODS FOR THE ADHESIVE ANCHORING SYSTEM AND CONSTRUCTION CONDITIONS ON THIS PROJECT. ALL TRAINING TO BE CONDUCTED PRIOR TO CREWS STEPPING ON SITE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT MANUFACTURER REPRESENTATIVE TO SET UP TRAINING, ETS IS NOT RESPONSIBLE FOR ANY COST OCCURRED FOR OR DURING ADHESIVE ANCHORING SYSTEM TRAINING.
SOIL COMPACTION	
1.	SUBGRADE PREPARATION <ol style="list-style-type: none"> 1.1. SHAPE TOP OF SUBGRADE TO THE LINES AND GRADES SHOWN ON THE DRAWINGS. 1.2. MAINTAIN TOP OF SUBGRADE IN A FREE-DRAINING CONDITION. 1.3. DO NOT STOCKPILE MATERIALS ON TOP OF SUBGRADE UNLESS AUTHORIZED BY CONSTRUCTION MANAGER. 1.4. FOR SUBGRADES CONSISTING OF IN-PLACE NATIVE SOILS, SOILS SHALL BE FREE OF CUTTING AND OTHER LOOSE MATERIAL AND SHALL MEET THE MINIMUM BEARING CAPACITY REQUIREMENTS NOTES UNDER SOIL STRENGTH 1.5. FOR SUBGRADES CONSISTING OF PLACED STRUCTURAL FILL, STRUCTURAL FILL SHOULD BE PLACED IN 6 INCH LIFTS AND COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY AS OBTAINED BY THE STANDARD PROCTOR METHOD 1.6. CONSTRUCT TOP OF SUBGRADE WITHIN ONE INCH OF ESTABLISHED GRADE AND CROSS-SECTION.
SOIL STRENGTH	
1.	FOUNDATION DESIGN IS BASED ON A 2000 PSF SOIL BEARING CAPACITY. IF OTHER CONDITIONS EXIST, FOUNDATION SHALL BE REDESIGNED. CONTRACTOR SHALL HAVE SOIL BEARING CAPACITY VERIFIED BY A LICENSED PROFESSIONAL GEOTECHNICAL ENGINEER PRIOR TO INITIATION OF CONSTRUCTION ACTIVITIES.

WELDING NOTES	
1.	ALL WELDING SHALL BE IN ACCORDANCE WITH THE AWS D1.1/D1.1M: 2015 "STRUCTURAL WELDING CODE-STEEL".
2.	ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS.
3.	CONTRACTOR SHALL RETAIN AN AWS CERTIFIED WELD INSPECTOR TO PERFORM VISUAL INSPECTIONS ON FIELD WELDS. A LETTER AND REPORT SHALL BE ISSUED TO THE CONTRACTOR. CONTRACTOR SHALL SUBMIT LETTER AND REPORT TO TOWER OWNER.
4.	GRIND THE SURFACE ADJACENT TO THE WELD FOR A DISTANCE OF 2" MINIMUM ALL AROUND. GRIND THE SURFACE OF THE ROD TO BE INSTALLED FOR A DISTANCE OF 2" MINIMUM ALL AROUND THE AREA TO BE WELDED. ENSURE BOTH AREAS ARE 100% FREE OF ALL GALVANIZING. SURFACES TO BE WELDED SHALL BE FREE FROM SCALE, SLAG, RUST, MOISTURE, GREASE OR ANY OTHER FOREIGN MATERIAL THAT WOULD PREVENT PROPER WELDING.
5.	DO NOT WELD IF THE TEMPERATURE OF THE STEEL IN THE VICINITY OF THE WELD AREA IS BELOW 0°F. WHEN THE TEMPERATURE IS BETWEEN 0°F AND 32°F, PREHEAT AND MAINTAIN THE STEEL IN THE VICINITY OF THE WELD AREA AT 70°F DURING THE WELDING PROCESS.
6.	DO NOT WELD ON WET OR FROST-COVERED SURFACES & PROVIDE ADEQUATE PROTECTION FROM HIGH WINDS.
7.	FOR ALL WELDING, USE E70XX ELECTRODES.
8.	AFTER FINAL INSPECTION, THE AREA OF THE WELDS, THE INSTALLATION AND ALL SURFACES DAMAGED BY WELDING OR GRINDING SHALL RECEIVE A COLD-GALVANIZED COATING. THIS COATING SHALL BE APPLIED BY BRUSH. THE GALVANIZING COMPOUND SHALL CONTAIN A MINIMUM OF 95% ± PURE ZINC. THE FINISHED COATING SHALL BE A MINIMUM THICKNESS OF 3 MILS.

PREPARED BY:



3227 WELLINGTON COURT
RALEIGH, NC 27615
919-782-2710
www.ets-pllc.com

PREPARED FOR:

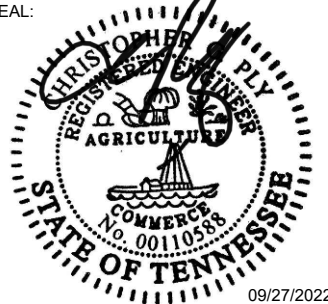


SITE NAME:
LAKE HOLIDAY

PSLC NUMBER:
161976

SITE ADDRESS:
995 LIVINGSTON ROAD
CROSSVILLE, TN 38555
LATITUDE/LONGITUDE:
35.963667°, -85.040244°

SEAL:



REV	DATE	DETAILS
0	09/27/2022	CONSTRUCTION
1		
2		
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4		
5		
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8		
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13		
14		

DRAWN BY: CP CHECKED BY: DG

SHEET TITLE:
GENERAL NOTES II

SHEET # **GN-2** CURRENT REV #: 0
ETS #: 22110726

ABBREVIATIONS

ABC	AGGREGATE BASE COURSE	FT.	FOOT, FEET	RT	RIGHT
ABS	AIR BREAK SWITCH	FTG.	FOOTING	R/W	RIGHT OF WAY
A.C.	ASBESTOS CEMENT	GA	GAGE	RWM	RIGHT OF WAY MONUMENT
A/C	AIR CONDITIONING	GAL.	GALLON	SAN	SANITARY SEWER
A.D.	AREA DRAIN	GALV.	GALVANIZED	SB	SOIL BORING
A.F.F.	ABOVE FINISHED FLOOR	GC	GENERAL CONTRACTOR	SCH	SCHEDULE
ALT.	ALTERNATE	G.F.E.	GOVERNMENT FURNISHED EQUIPMENT	SET	SETBACK
ALUM.	ALUMINUM	GIS	GEOGRAPHIC INFORMATION SYSTEM	SF	SQUARE FEET
AMP.	AMPERES	GL	GAS LINE	SHT	SHEET
A.O.	ACCESS OPENING	GM	GAS METER	SIA	SIAMESE CONNECTION
APPROX.	APPROXIMATELY	G.P.H.	GALLONS/HOUR	SIG	SIGNAL
ARCH.	ARCHITECTURAL	G.P.M.	GALLONS/MINUTE	SOTF	SECURITY OPERATIONS TRAINING FACILITY
ASPH.	ASPHALT	GND.	GROUND	SP	SIGNAL POLE
A.T.P.	ANTI-TERRORISM FORCE PROTECTION	GOV'T	GOVERNMENT	SPECS	SPECIFICATIONS
A.W.W.A.	AMERICAN WATER WORKS ASSOCIATION	GV	GATE VALVE	SQFT	SQUARE FEET
BLDG.	BUILDING	GW	GUY WIRE	SR	STATE ROAD
BM.	BENCH MARK	HC	HANDICAP	SS	SANITARY SEWER
BOC	BACK OF CURB	HCP	HANDICAP PARKING	ST.	STATION
BOL	BOLLARD	HCR	HANDICAP RAMP	STD.	STANDARD
BRG.	BEARING	HDW	HEADWALL	STM	STORM
BVC	BEGIN VERTICAL CURVE	HP	HIGH POINT	STL	STEEL
BVCE	BEGIN VERTICAL CURVE ELEVATION	HSS	HIGH STRENGTH STEEL	SW	SIDEWALK
BVCS	BEGIN VERTICAL CURVE STATION	HT	HEIGHT	SWM	STORMWATER MANAGEMENT
C&G	CURB AND GUTTER	HYD	HYDRANT	T	TANGENT
CATV	CABLE TELEVISION	ID.	INSIDE DIAMETER	TBM	TEMPORARY BENCHMARK
CAP.	CAPACITY	INTX.	INTERSECTION	TERR	TERRA COTTA PIPE
C.B.	CATCH BASIN	INV.	INVERT	TEL	TELEPHONE
CBL	CABLE	ISL	ISLAND	TOC	TOP OF CURB
CEM.	CEMENT	ITL.	INDEPENDENT TESTING LABORATORY	TOB	TOP OF BANK
CER.	CERAMIC	J.B.	JUNCTION BOX	TOS	TOP OF SLOPE
C.F.M.	CUBIC FEET/MINUTE	JCT.	JUNCTION	TOW	TOP OF WALL
C.F.S.	CUBIC FEET/SECOND	JSOC	JOINT SPECIAL OPERATIONS COMMAND	TP	TELEPHONE POLE
C.I.	CURB INLET	JT.	JOINT	TRANS	TRANSFORMER
C.I.P.	CAST IRON PIPE	K	K VALVE	TYP.	TYPICAL
CIRC.	CIRCULATING	KVA	KILOVOLT AMPERE	U/C	UNDER CONSTRUCTION
C.A.	CONSTRUCTION JOINT/CONTRACTION JOINT	KW	KILOWATT	U/G	UNDERGROUND
C.L.	CENTER LINE	L	LENGTH	UNO	UNLESS NOTED OTHERWISE
C.M.	CONCRETE MONUMENT	LF	LINEAR FEET	UP	UTILITY POLE
C.M.P.	CONCRETE METAL PIPE	LGT	LIGHT	VC	VERTICAL CURVE
C.M.U.	CONCRETE MASONRY UNIT	LP	LIGHT POLE	VCP	VITRIFIED CLAY PIPE
C.O.	CLEAN OUT	LT	LEFT	VIF	VERIFY IN FIELD
COL.	COLUMN	MAX	MAXIMUM	WL	WATER LINE
CONC.	CONCRETE	MED	MEDIAN	WM	WATER METER
COND.	CONDENSATE	MH	MANHOLE	WSEL	WATER SURFACE ELEVATION
CONN.	CONNECTION	MIN	MINIMUM	WV	WATER VALVE
CONST.	CONSTRUCTION	MJ	MECHANICAL JOINT	WTR	WATER
CONT.	CONTINUOUS	MON	MONUMENT	WWF	WIRE WELD FABRIC
COR	CONTRACTING OFFICERS REPRESENTATIVE	MTL	METAL		
C.TO.C.	CENTER TO CENTER	MW	MONITOR WELL / MICROWAVE		
C.Y.	CUBIC YARD	M.U.T.C.D	MANUAL ON UNIFORM TRAFFIC CONTROL		
DET.	DETAIL		DEVICES		
DI	DROP INLET	N/A	NOT APPLICABLE		
DIA.	DIAMETER	NAD 27	NORTH AMERICAN DATUM 1927		
DIFF.	DIFFUSER	NAD 83	NORTH AMERICAN DATUM 1983		
DIM.	DIMENSION	NBL	NORTH BOUND LINE		
D.I.P.	DUCTILE IRON PIPE	NC	NORMAL CROWN		
DISC.	DISCONNECT	NEMA	NATIONAL ELECTRICAL MANUFACTURES		
D.A.	DUMMY JOINT		ASSOCIATION		
DN.	DOWN	NIC	NOT IN CONTRACT		
DR.	DRAIN	NIP	NEW IRON PIPE		
D.S.	DOWN SPOUT	N.T.S.	NOT TO SCALE		
DW	DOMESTIC WATER	O.U.	ON CENTER		
DWG.(S)	DRAWING(S)	O.V.	OUTSIDE DIAMETER		
EA.	EACH	OH	OVERHEAD		
E.F.	EXHAUST FAN	OHE	OVERHEAD ELECTRIC		
EG.	EXISTING GRADE	ONUS.	OLD NORTH UTILITY SERVICE		
E.I.P.	EXISTING IRON PIPE	OVH	OVERHANG		
E.J.	EXPANSION JOINT	P/A	PARKING AREA		
ELEC.	ELECTRIC	PC	POINT OF CURVATURE		
EL.	ELEVATION	PCC	POINT OF COMPOUND CURVATURE		
E.M.	ELECTRIC METER	PED	PEDESTAL		
EOP	EDGE OF PAVEMENT	PER.	PERIMETER		
EQUIP.	EQUIPMENT	PGL	PROPOSED GRADE LINE		
EVC	END VERTICAL CURVE	PI	POINT OF INTERSECTION		
EVCE	END VERTICAL CURVE ELEVATION	PINC	POINT OF INTERSECTION ON CURVE		
EVCS	END VERTICAL CURVE STATION	PIV	POST INDICATOR VALVE		
EXH.	EXHAUST	PIV ELEV	POINT OF VERTICAL INTERSECTION ELEVATION		
EXP.JT.	EXPANSION JOINT	PLT	PLATE		
EXT.	EXTERIOR	PSF	POUNDS PER SQUARE FOOT		
EX./EXIST.	EXISTING	PSF	POUNDS/SQUARE FOOT		
FC	FACE OF CURB	PSI	POUNDS/SQUARE INCH		
F.D.	FLOOR DRAIN	PIV STA	POINT OF VERTICAL INTERSECTION STATION		
F.D.C.	FIRE DEPARTMENT CONNECTION	PT	POINT		
F.E.S.	FLARED END SECTION	PVMT	PAVEMENT		
F.F.E.	FINISHED FLOOR ELEVATION	RAD.	RADIUS		
FG	FINISHED GRADE	RCP	REINFORCED CONCRETE PIPE		
FH	FIRE HYDRANT	REINF.	REINFORCING		
FIN.	FINISH FLOOR	REQ.	REQUIRED		
FM	FORCE MAIN	REV	REVISED		
FOC	FACE OF CURB	R.P.Z.	REDUCED PRESSURE ZONE		

LINETYPES

---	PARENT PROPERTY BOUNDARY
----	ADJACENT PROPERTY BOUNDARY
- - - -	EASEMENT
.....	LEASE AREA
— R/W — R/W — R/W —	RIGHT OF WAY
— SF — SF — SF —	SILT FENCE
— X — X — X — X —	CHAIN-LINK FENCE
— UGW — UGW — UGW —	UNDERGROUND WATER
— UGP — UGP — UGP — UGP —	UNDERGROUND POWER
— OHP — OHP — OHP —	OVERHEAD POWER
— ACP — ACP — ACP —	ALTERNATING CURRENT POWER
— DCP — DCP — DCP —	DIRECT CURRENT POWER
— FO/DC — FO/DC — FO/DC —	FIBER/DC POWER COMPOSITE CABLE
— HYBRID — HYBRID —	HYBRID CABLE
— UGF — UGF — UGF — UGF —	UNDERGROUND FIBER
— OHF — OHF — OHF —	OVERHEAD FIBER
— MMF — MMF — MMF —	MULTI-MODE FIBER
— SMF — SMF — SMF —	SINGLE-MODE FIBER
— SM6 — SM6 — SM6 —	FIBER TRUNK - 6 STRAND
— SM12 — SM12 — SM12 —	FIBER TRUNK - 12 STRAND
— SM24 — SM24 — SM24 —	FIBER TRUNK - 24 STRAND
— SM48 — SM48 — SM48 —	FIBER TRUNK - 48 STRAND
— SM96 — SM96 — SM96 —	FIBER TRUNK - 96 STRAND
— SM144 — SM144 —	FIBER TRUNK - 144 STRAND
— SM288 — SM288 —	FIBER TRUNK - 288 STRAND
— GND — GND — GND —	GROUND WIRE
— GAS — GAS — GAS —	GAS LINE
— ETH — ETH — ETH —	ETHERNET CABLE
— CAT6 — CAT6 — CAT6 —	CAT6 CABLE
— CAT5 — CAT5 — CAT5 —	CAT5 CABLE
— ALM — ALM — ALM —	ALARM CABLE
— C — C — C —	CONDUIT
— COAX — COAX — COAX —	COAX FEEDLINE
— TFT-402 — TFT-402 —	COAX FEEDLINE / JUMPER - TFT-402
— PTS1-50 — PTS1-50 —	COAX FEEDLINE / JUMPER - PTS1-50
— LMR-240 — LMR-240 —	COAX FEEDLINE / JUMPER - LMR-240
— LDF4-50 — LDF4-50 —	COAX FEEDLINE / JUMPER - LDF4-50
— LDF1-50 — LDF1-50 —	COAX FEEDLINE / JUMPER - LDF1-50
— HL4RPV — HL4RPV —	COAX FEEDLINE / JUMPER - HL4RPV
— FSJ4-50 — FSJ4-50 —	COAX FEEDLINE / JUMPER - FSJ4-50
— FSJ1-50 — FSJ1-50 —	COAX FEEDLINE / JUMPER - FSJ1-50
— AL4RPV — AL4RPV —	COAX FEEDLINE / JUMPER - AL4RPV

PREPARED BY:



3227 WELLINGTON COURT
RALEIGH, NC 27615
919-782-2710
www.ets-pllc.com

PREPARED FOR:



SITE NAME:

LAKE HOLIDAY

PSLC NUMBER:

161976

SITE ADDRESS:

995 LIVINGSTON ROAD
CROSSVILLE, TN 38555

LATITUDE/LONGITUDE:
35.963667°, -85.040244°

SEAL:



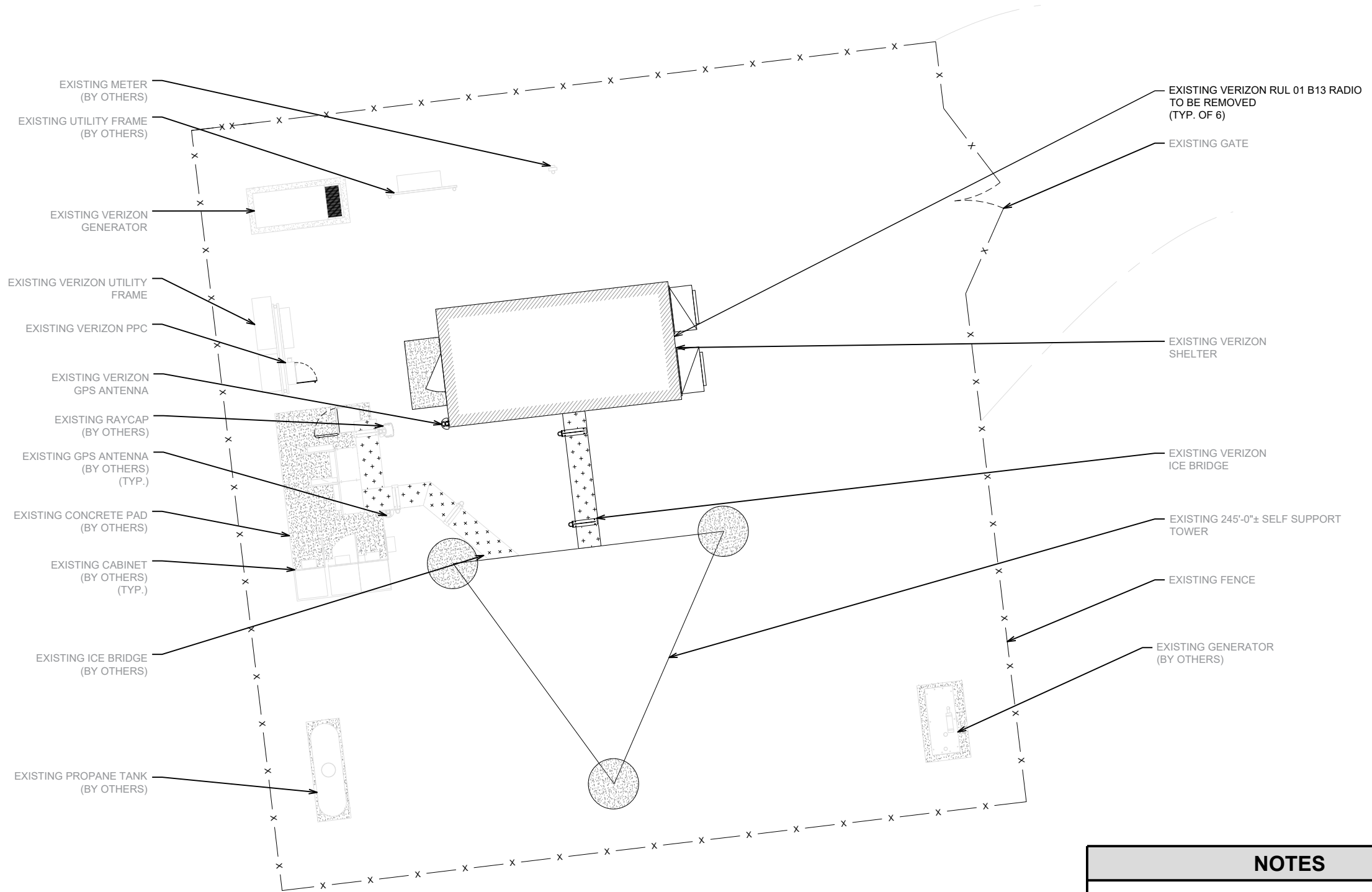
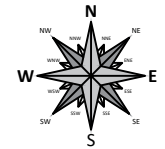
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SHEET TITLE:

GENERAL NOTES III

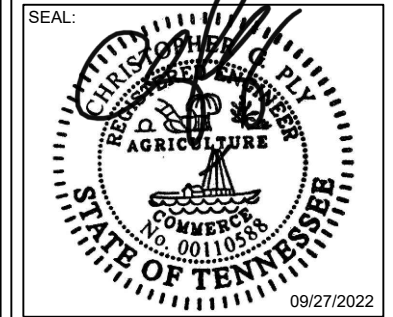
SHEET # **GN-3** CURRENT REV #: 0
ETS #: 22110726



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SITE NAME:
LAKE HOLIDAY
 PSLC NUMBER:
161976
 SITE ADDRESS:
 995 LIVINGSTON ROAD
 CROSSVILLE, TN 38555
 LATITUDE/LONGITUDE:
 35.963667°, -87.040244°



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NOTES

- SITE PLAN BASED ON AERIAL IMAGES.
- ALL INFORMATION SHOWN ON THIS PLAN IS FOR REFERENCE ONLY. CONTRACTOR TO VERIFY THAT ALL EXISTING INFORMATION IS AS INDICATED ON THE SITE PLAN, AND NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES. ALL PERTINENT ITEMS AND DIMENSIONS ARE RECOMMENDED TO BE VERIFIED IN THE FIELD. ENGINEERED TOWER SOLUTIONS, PLLC IS NOT LIABLE AND DOES NOT ASSUME RESPONSIBILITY FOR THIS CONTENT.

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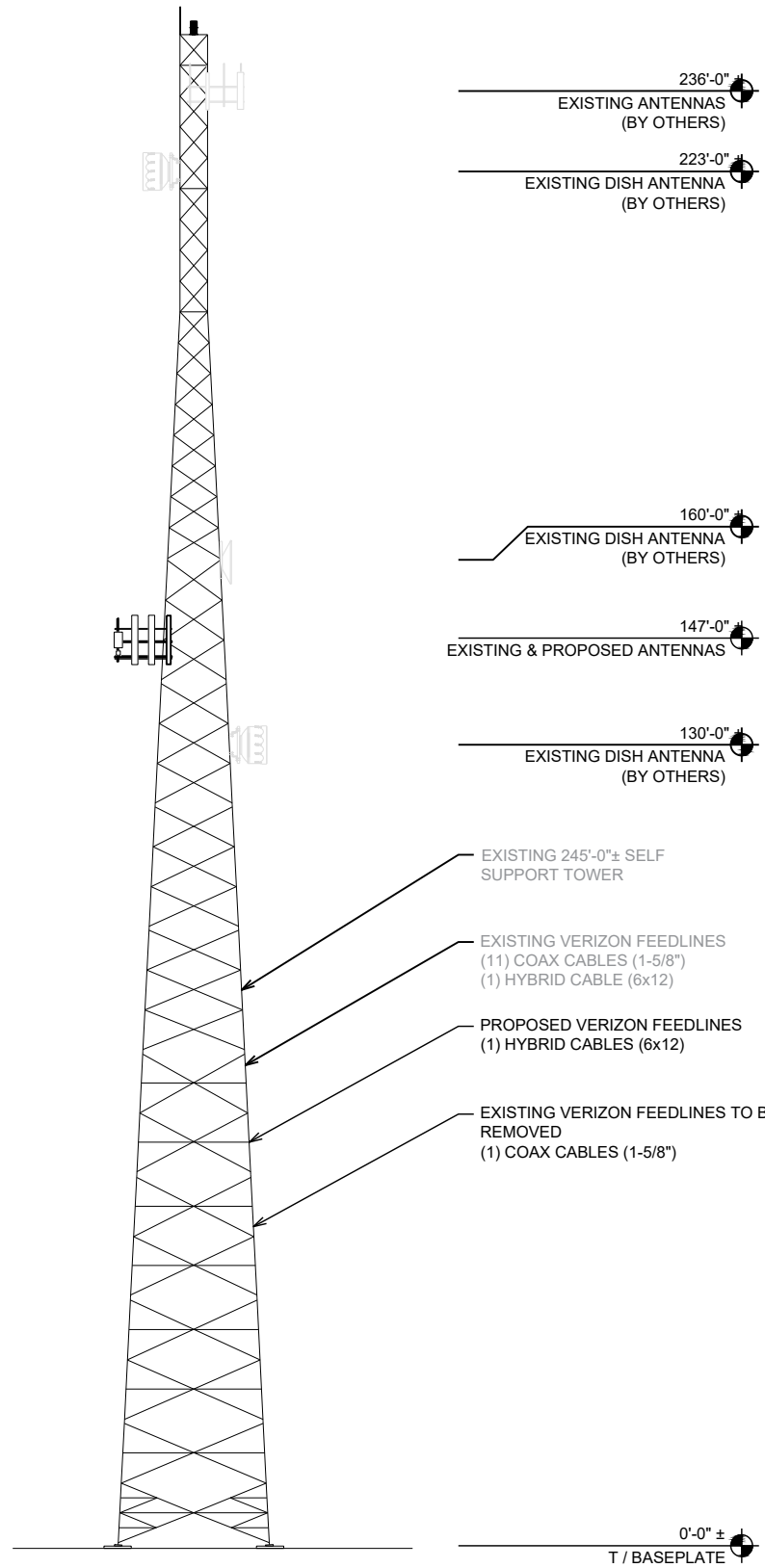
SHEET TITLE:
SITE PLAN

SHEET # **C-1** CURRENT REV #: 0
 ETS #: 22110726

SITE PLAN
 3/32" = 1'-0"


NOTE:
 POST-MODIFICATION INSPECTION (PMI) REQUIRED ON ALL SITES.
 REFER TO THE POST-MODIFICATION ANTENNA MOUNT ANALYSIS
 REPORT AND PMI REQUIREMENTS PREPARED BY MASER
 CONSULTING DATED 04/19/2022 FOR ADDITIONAL DETAILS.

NOTE:
 MOUNT ARE REQUIRED BEFORE ANY INSTALL CAN OCCUR, PLEASE
 REFER TO THE MOUNT MODIFICATION DRAWINGS PROVIDED BY
 MASER CONSULTING DATED 04/19/2022.



TOWER ELEVATION
 1" = 30'-0"

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PREPARED FOR:




SITE NAME:
LAKE HOLIDAY

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SITE ADDRESS:
 995 LIVINGSTON ROAD
 CROSSVILLE, TN 38555

LATITUDE/LONGITUDE:
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SHEET TITLE:
TOWER ELEVATION

SHEET # **C-2** CURRENT REV #: 0
 ETS #: 22110726

EXISTING ANTENNA SCHEDULE

SECTOR	POSITION	TECHNOLOGY	MANUFACTURER - ANTENNA MODEL NUMBER	ANTENNA AZIMUTH	ANTENNA HEIGHT	ANCILLARY EQUIPMENT	OVP & CABLE (QTY.) TYPE	CABLE LENGTH
ALPHA	A1	-	AMPHENOL - BXA-70063-8CF	0°	147'-0"±	--	--	--
	A2	LTE	ANTEL - BXA-185060/8CF 2	0°		ERICSSON - RRUS12 B2	(4) 1-5/8" COAX CABLES	169±
	A3	LTE	AMPHENOL - BXA-171063-12CF	0°		ERICSSON - RRUS12 B4	COMMSCOPE - RCMDC-3315-PF-48	--
	A4	LTE	CSS - X7C-FRO-860-V	0°		--	--	--
BETA	B1	-	AMPHENOL - BXA-70063-8CF	100°		--	--	--
	B2	LTE	CSS - AXP20-45-0	100°		--	(4) 1-5/8" COAX CABLES	169±
	B3	LTE	ANTEL - BXA-185060/8CF 2	100°		ERICSSON - RRUS12 B2	--	--
	B4	LTE	CSS - X7C-FRO-840-VR0	100°		ERICSSON - RRUS12 B4	--	--
GAMMA	C1	-	AMPHENOL - BXA-70063-8CF	240°		--	(1) 6x12 HYBRID CABLE	169±
	C2	LTE	AMPHENOL - BXA-171063-12CF	235°		ERICSSON - RRUS12 B2	(4) 1-5/8" COAX CABLES	169±
	C3	LTE	ANTEL - BXA-185060/8CF 2	240°		ERICSSON - RRUS12 B4	--	--
	C4	LTE	CSS - X7C-FRO-860-V	235°		--	--	--

NOTE:
 • INFORMATION PER RFDS DATED: 03/14/2022
 • CONTRACTOR TO REFER TO MOST RECENT RADIO FREQUENCY DATA SHEET (RFDS) BY VERIZON PRIOR TO COMMENCING WORK.

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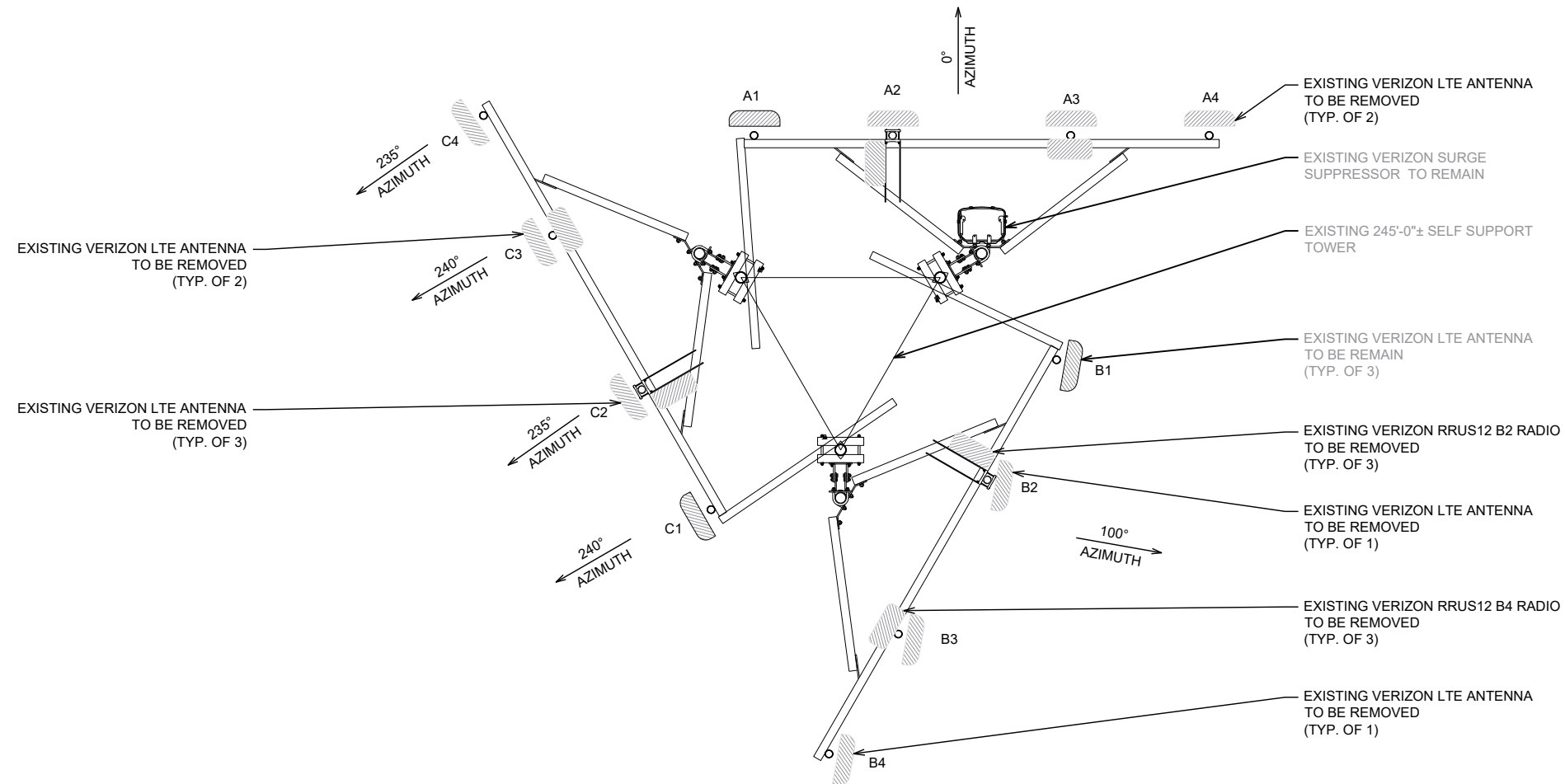
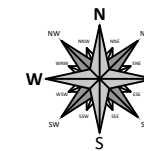


SITE NAME:

LAKE HOLIDAY

PSLC NUMBER:
161976

SITE ADDRESS:
 995 LIVINGSTON ROAD
 CROSSVILLE, TN 38555
 LATITUDE/LONGITUDE:
 35.963667°, -85.01244°



SEAL:



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SHEET TITLE:
EXISTING ANTENNA SCHEDULE & LAYOUT

SHEET # **C-3.1** | CURRENT REV # 0
 ETS #: 22110726

EXISTING ANTENNA LAYOUT

1/4" = 1'-0"

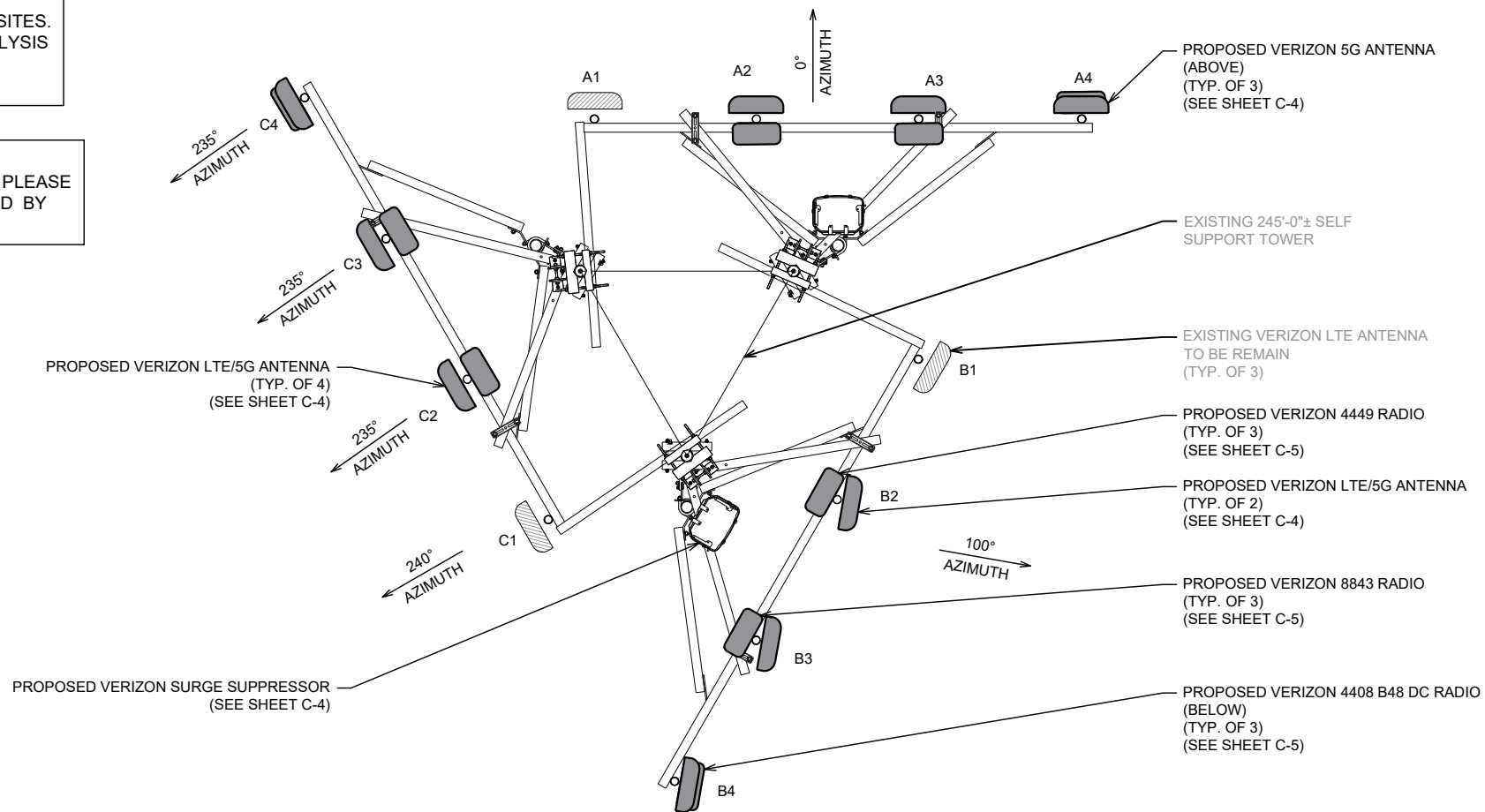
PROPOSED ANTENNA SCHEDULE

SECTOR	POSITION	TECHNOLOGY	MANUFACTURER - ANTENNA MODEL NUMBER	ANTENNA AZIMUTH	ANTENNA HEIGHT	ANCILLARY EQUIPMENT	OVP & CABLE (QTY.) TYPE	CABLE LENGTH
ALPHA	A1	-	AMPHENOL - BXA-70063-8CF	0°	147'-0"±	--	--	--
	A2	LTE /5G	COMMSCOPE - NHH-65C-R2B	0°		ERICSSON - RADIO 4449	(4) 1-5/8" COAX CABLES	169'±
	A3	LTE /5G	COMMSCOPE - NHH-65C-R2B	0°		ERICSSON - RADIO 8843	COMMSCOPE - RCMDC-3315-PF-48	169'±
	A4	5G	ERICSSON - AIR6449	0°		ERICSSON - 4408 B48 DC	--	--
BETA	B1	-	AMPHENOL - BXA-70063-8CF	100°		--	--	--
	B2	LTE /5G	COMMSCOPE - NHH-45C-R2B	100°		ERICSSON - RADIO 4449	(1) 6x12 HYBRID CABLE	169'±
	B3	LTE /5G	COMMSCOPE - NHH-45C-R2B	100°		ERICSSON - RADIO 8843	(4) 1-5/8" COAX CABLES	169'±
	B4	5G	ERICSSON - AIR6449	100°		ERICSSON - 4408 B48 DC	COMMSCOPE - RCMDC-6627-PF-48	--
GAMMA	C1	-	AMPHENOL - BXA-70063-8CF	240°		--	--	--
	C2	LTE /5G	COMMSCOPE - NHH-65C-R2B	235°		ERICSSON - RADIO 4449	(1) 6x12 HYBRID CABLE	169'±
	C3	LTE /5G	COMMSCOPE - NHH-65C-R2B	235°		ERICSSON - RADIO 8843	(3) 1-5/8" COAX CABLES	169'±
	C4	5G	ERICSSON - AIR6449	235°		ERICSSON - 4408 B48 DC	--	--

- NOTE:
- INFORMATION PER RFDS DATED: 03/14/2022
 - CONTRACTOR TO REFER TO MOST RECENT RADIO FREQUENCY DATA SHEET (RFDS) BY VERIZON PRIOR TO COMMENCING WORK.

NOTE:
POST-MODIFICATION INSPECTION (PMI) REQUIRED ON ALL SITES. REFER TO THE POST-MODIFICATION ANTENNA MOUNT ANALYSIS REPORT AND PMI REQUIREMENTS PREPARED BY MASER CONSULTING DATED 04/19/2022 FOR ADDITIONAL DETAILS.

NOTE:
MOUNT ARE REQUIRED BEFORE ANY INSTALL CAN OCCUR, PLEASE REFER TO THE MOUNT MODIFICATION DRAWINGS PROVIDED BY MASER CONSULTING DATED 04/19/2022.



PROPOSED ANTENNA LAYOUT

3/16" = 1'-0"

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PREPARED FOR:



SITE NAME:

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PSLC NUMBER:

161976

SITE ADDRESS:

995 LIVINGSTON ROAD
CROSSVILLE, TN 38555

LATITUDE/LONGITUDE:
35.963667°, -85.010244°

SEAL:



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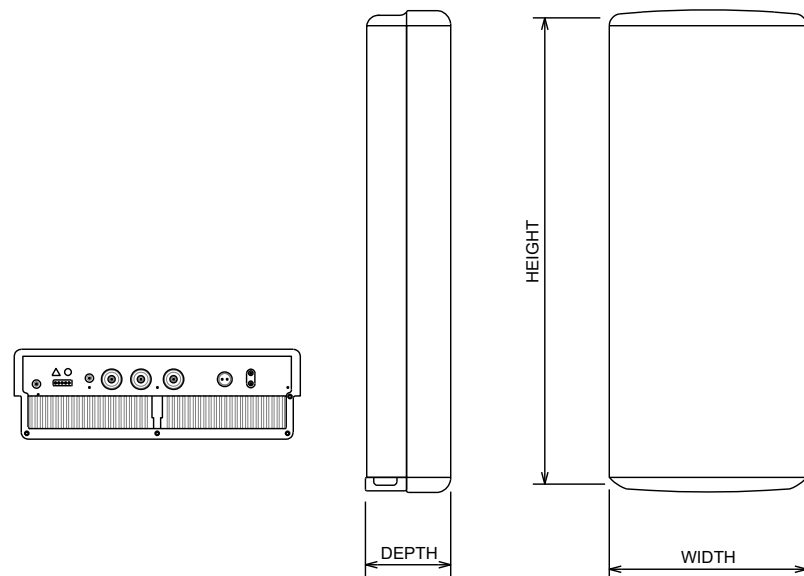
DRAWN BY: CP CHECKED BY: DG

SHEET TITLE:
PROPOSED ANTENNA SCHEDULE & LAYOUT

SHEET # **C-3.2** CURRENT REV #: 0
ETS #: 22110726

ERICSSON - AIR 6449

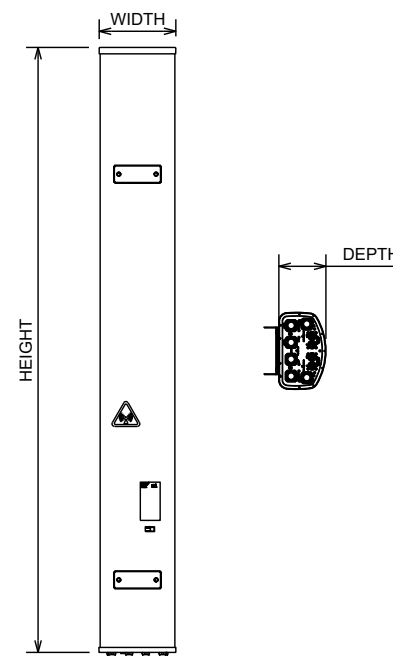
HEIGHT	WIDTH	DEPTH	WEIGHT
33.10"	20.60"	8.60"	104.00 LBS



ANTENNA DETAIL
N.T.S.

COMMSCOPE - NHH-65C-R2B

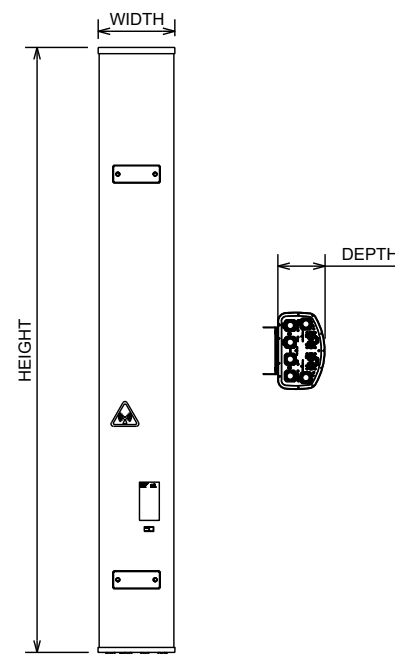
HEIGHT	WIDTH	DEPTH	WEIGHT
96.00"	11.90"	9.252"	129.632 LBS



ANTENNA DETAIL
N.T.S.

COMMSCOPE - NHH-45C-R2B

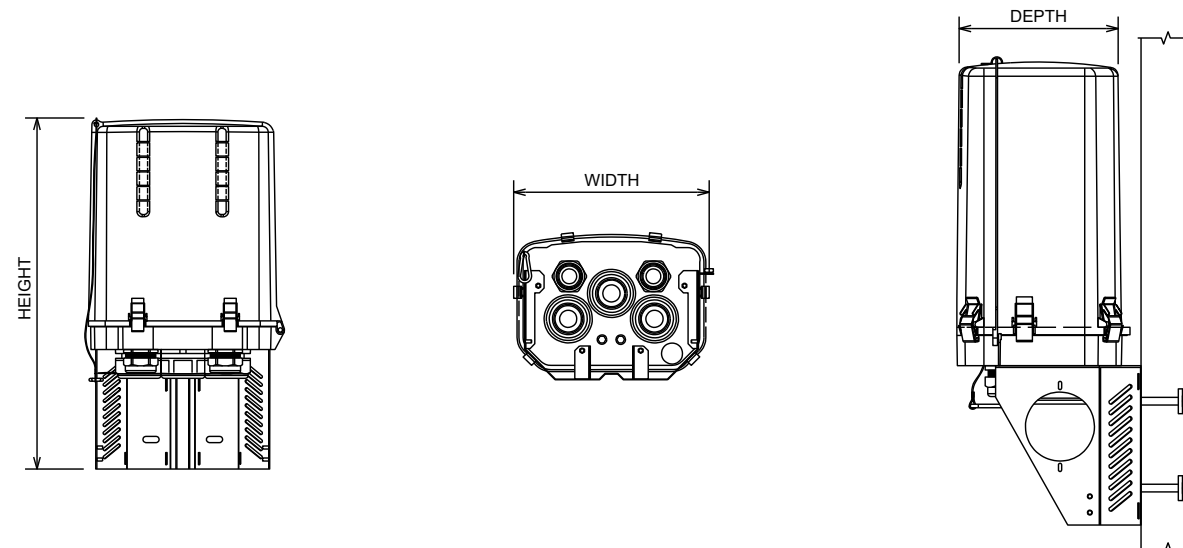
HEIGHT	WIDTH	DEPTH	WEIGHT
95.90"	18.00"	7.00"	87.10 LBS



ANTENNA DETAIL
N.T.S.

RAYCAP - RCMDC-6627-PF-48

HEIGHT	WIDTH	DEPTH	WEIGHT
29.50"	16.50"	12.60"	32.00 LBS



SURGE SUPPRESSOR DETAIL
N.T.S.

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PREPARED FOR:



SITE NAME:

LAKE HOLIDAY

PSLC NUMBER:

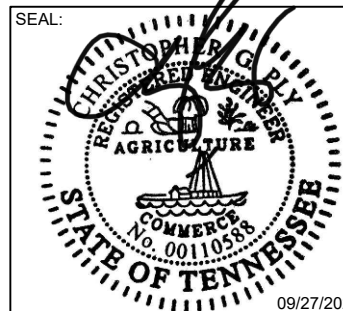
161976

SITE ADDRESS:

995 LIVINGSTON ROAD
CROSSVILLE, TN 38555

LATITUDE/LONGITUDE:
35.963667°, -85.017244°

SEAL:



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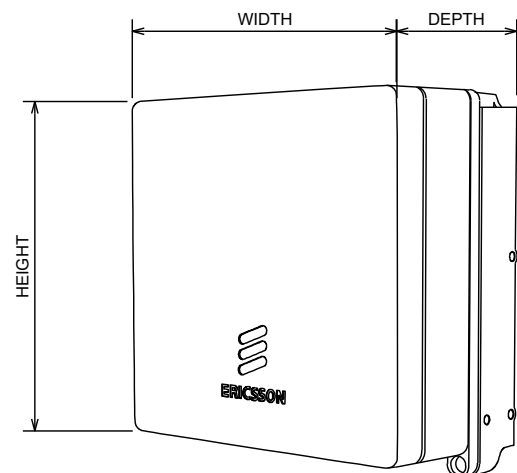
SHEET TITLE:

DETAILS I

SHEET # **C-4** CURRENT REV #: 0
ETS #: 22110726

ERICSSON - 4408

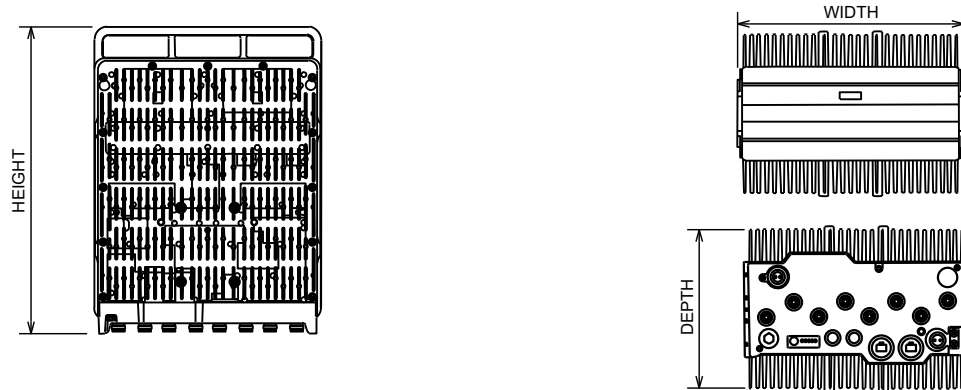
HEIGHT	WIDTH	DEPTH	WEIGHT
8.40"	7.90"	5.00"	11.10 LBS



RADIO DETAIL
N.T.S.

ERICSSON - 8843

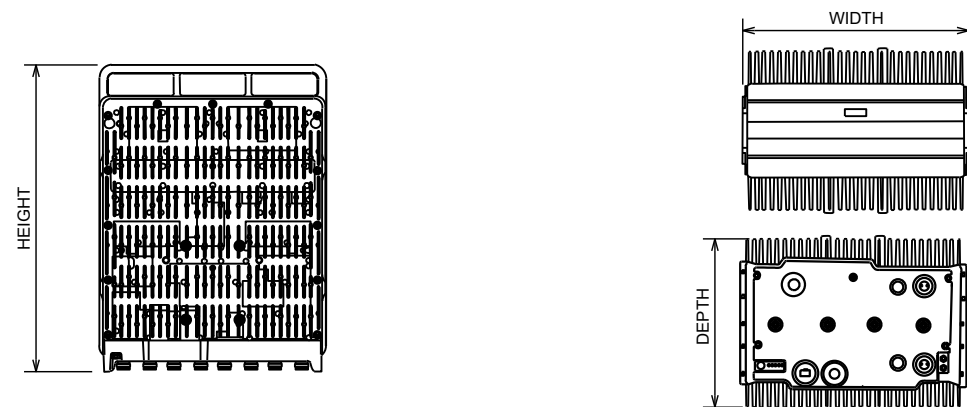
HEIGHT	WIDTH	DEPTH	WEIGHT
18.00"	13.20"	11.30"	75.75 LBS



RADIO DETAIL
N.T.S.

ERICSSON - 4449

HEIGHT	WIDTH	DEPTH	WEIGHT
44.18"	13.20"	09.40"	70.00 LBS



RADIO DETAIL
N.T.S.

ERICSSON - 8843

NOT USED
N.T.S.

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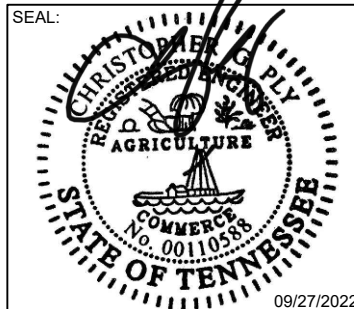
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SHEET TITLE:

DETAILS II

SHEET # **C-5** | CURRENT REV #: 0
ETS #: 22110726

GROUNDING NOTES

GROUNDING NOTES

GROUNDING NOTES

GROUNDING:

- WIRE AND CABLE CONDUCTORS SHALL BE COPPER, 600V, TYPE THHN OR THWN, WITH A MIN. SIZE OF #12 AWG COLOR CODED.
- METER SOCKET AMPERES, VOLTAGE, NUMBER OF PHASES SHALL BE NOTED ON THE DRAWINGS. MANUFACTURED BY MILBANK OR APPROVED EQUAL, AND SHALL BE UTILITY COMPANY APPROVED CONDUIT:
 - RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH GALVANIZED ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE ½ LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
 - FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE. ALL FLEXIBLE CONDUITS SHALL HAVE FULL LENGTH GROUND WIRE.
 - IT IS REQUIRED AND WILL THE BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO NOTIFY 811 OR OTHER SUCH UTILITY LOCATING AGENCY 3 DAYS BEFORE DIGGING.
- CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS ARE TO BE PAID BY THE CONTRACTOR.
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS WITH WHITE ON BLUE BACKGROUND LETTERING (MINIMUM LETTER HEIGHT SHALL BE ONE FOURTH INCH (¼"). NAMEPLATES SHALL BE FASTENED WITH STAINLESS STEEL SCREWS, NOT ADHESIVE.
- UPON COMPLETION OF WORK, CONTINUITY, SHORT CIRCUIT, AND FALL POTENTIAL GROUNDING TESTS BY AN INDEPENDENT TESTING SERVICE ENGAGED BY THE CONTRACTOR SHALL BE SUBMITTED FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
- GROUNDING ELECTRODE SYSTEM
 - PREPARATION
 - SURFACE PREPARATION: ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FIELD INSPECTED AND MODIFIED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON-OXIDIZING AGENT APPLIED PRIOR TO INSTALLATION.
 - IF CONDUCTORS MUST RUN THROUGH CONDUIT. BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICON CAULK.
 - EXTERNAL CONNECTIONS
 - ALL BURIED GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS. CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPLICES, TEE'S, CROSSES, ETC. ALL CABLE TO GROUND RODS, GROUND ROD SPLICES AND LIGHTING PROTECTION SYSTEMS ARE TO BE AS INDICATED. ALL MATERIALS USED (MOLDS, WELDING METAL, TOOLS, ETC) SHALL BE BY "ULTRAWELD" AND INSTALLED PER MANUFACTURERS RECOMMENDED PROCEDURES.
 - ALL ABOVE GRADE GROUNDING AND BONDING CONDUCTORS SHALL BE CONNECTED BY TWO HOLE CRIMP TYPE (COMPRESSION) CONNECTIONS (EXCEPT FOR THE ACEG AND GROUND ROD), MECHANICAL CONNECTIONS, FITTINGS OR CONNECTIONS THAT DEPEND SOLELY ON SOLDER SHALL NOT BE USED. ALL CABLE TO CABLE CONNECTIONS SHALL BE HIGH PRESSURE DOUBLE CRIMP TYPE CONNECTIONS. CONNECTIONS TO STRUCTURAL STEEL SHALL BE EXOTHERMIC WELDS.
- GROUND RODS: ALL GROUND RODS SHALL BE 5/8-INCH DIAMETER X 10'-0" LONG "COPPERWELD" OR APPROVED EQUAL, OF THE NUMBER AND LOCATIONS INDICATED. GROUND RODS SHALL BE DRIVEN FULL LENGTH VERTICAL IN UNDISTURBED EARTH.
- GROUND CONDUCTORS: ALL GROUND CONDUCTORS SHALL BE STANDARD TINNED SOLID BARE COPPER ANNEALED, AND OF SIZE INDICATED ON DRAWINGS UNLESS OTHERWISE NOTED.
- LUGS SHALL BE 2-HOLE LONG BARREL, STRAND COPPER UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. LUGS SHALL BE THOMAS AND BETTS SERIES #54 ___BE OR EQUIVALENT

-535 MCM DLO	54880BE
-262 MBM DLO	54872BE
-#1/0 DLO	54862BE
-#4/0 THWN AND BARE	54866BE
-#2/0 THWN	54862BE
-#2 THHN	54207BE
-#6 DLO	54205BE
- WHEN THE DIRECTOR OF THE CONDUCTOR MUST CHANGE, IT SHALL BE DONE GRADUALLY. THE CURVATURE OF THE TURN SHALL BE DONE IN ACCORDANCE WITH THE FOLLOWING CHART

GROUNDING CONDUCTOR SIZE	MIN. BENDING RADIUS TO INSIDE EDGE
NO.6 AWG TO NO.4 AWG	6 INCHES
NO. 2 AWG TO 1/0 AWG	8 INCHES
NO. 2/0 AWG TO 4/0 AWG	12 INCHES
250 MCM TO 750 MCM	24 INCHES

- GROUNDING RESISTANCE TEST REPORT: UPON COMPLETION OF THE

TESTING FOR EACH SITE, A TEST REPORT SHOWING RESISTANCE IN OHMS MUST BE SUBMITTED. TWO (2) SETS OF TEST DOCUMENTS FROM THE INDEPENDENT TESTING SERVICE ARE TO BE BOUND AND SUBMITTED WITHIN ONE (1) WEEK OF WORK COMPLETION

GROUNDING GENERAL:

- CONTRACTOR SHALL REVIEW THE CONTRACT DOCUMENTS PRIOR TO ORDERING THE ELECTRICAL EQUIPMENT AND STARTING THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT/ENGINEER LISTING ANY DISCREPANCIES OR CONFLICTING INFORMATION.
- ELECTRICAL PLANS, DETAILS, AND DIAGRAMS ARE DIAGRAMMATIC ONLY, VERIFY EXACT LOCATIONS AND MOUNTING HEIGHTS OR ELECTRICAL EQUIPMENT WITH OWNER PRIOR TO INSTALLATION
- EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANEL BOARD, PULLBOX, JUNCTION BOX, SWITCH BOX, ETC. THE TYPE OF TAGGING METHODS SHALL BE IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.)
- MALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN GOOD WORKING CONDITION WHEN INSTALLED AND SHALL BE IN THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED "U.L." WHERE APPLICABLE. MATERIALS SHALL BE MET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA, NBFU AND "U.L." LISTED.
- ALL CONDUIT SHALL HAVE A PULL CORD.
- PROVIDE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINES, AND CIRCUITS.
- ALL CIRCUIT BREAKERS, FUSES, AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C
- THE THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY IBC, NEC, AND ALL APPLICABLE CODES.
- PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
- PLASTIC PLATES FOR ALL SWITCHES, RECEPTACLES, TELEPHONE AND BLANKED OUTLETS SHALL HAVE ENGRAVED LETTERING WHERE INDICATED ON THE DRAWINGS. WEATHERPROOF RECEPTACLES SHALL HAVE SIERRA #WPD-8 LIFT COVERPLATES.

GROUNDING DIAGRAM NOTES:

- SUB-CONTRACTOR SHALL CONNECT CARRIER EQUIPMENT TO ONLY THE NEW GROUND DOWNLEAD INSTALLED BY GC. GROUND WIRE AND ROD FOR FIBER INSTALLATION BY FIBER PROVIDER.
- FOR OTHER POLES WITH EXISTING GROUND WIRE, THE CARRIER EQUIPMENT MAY BE CONNECTED TO EXISTING GROUND WIRE.
- FOR POLES WITHOUT EXISTING GROUND, THE GC WILL INSTALL NEW GROUND DOWNLEAD

UTILITY NOTES:

WORK INCLUDES:

THESE NOTES AND ACCOMPANYING DRAWINGS COMPLEMENT THE PROVISIONS AND INSTALLATIONS BY THE ELECTRICAL CONTRACTOR, OF ALL LABOR, MATERIALS AND EQUIPMENT REQUIRED TO INSTALL THE ELECTRICAL WORK COMPLETE IN CONNECTION WITH THIS CELLULAR SITE AND SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING.

- THE PROVISIONS, INSTALLATION AND CONNECTION OF A GROUNDING ELECTRODE SYSTEM COMPLETE WITH SECONDARY GROUNDING, AND CONNECTIONS TO THE INCOMING ELECTRICAL DISTRIBUTION EQUIPMENT.
- THE PROVISION AND INSTALLATION OF AN OVERHEAD ELECTRICAL SERVICE OR UNDERGROUND ELECTRICAL SERVICE AND ALL ASSOCIATED WIRE AND CONDUIT AS REQUIRED AND/OR INDICATED ON PLANS.
- THE PROVISION AND INSTALLATION OF CONDUIT AND CONNECTIONS FOR LOCAL FIBER SERVICE.
- THE FURNISHING AND INSTALLATION OF THE ELECTRICAL SERVICE ENTRANCE CONDUCTORS, CONDUITS, METER SOCKET, AND CONNECTIONS TO THE SERVICE EQUIPMENT.
 - ALL CONDUITS SHOULD BE LEFT WITH NYLON PULL CORD FOR FUTURE USE.
 - EXCAVATION, TRENCHING, AND BACKFILLING FOR CONDUIT(S) CABLE(S) AND POLE WITH PIPE STRAPS. EXTERNAL GROUNDING SYSTEM.

CODES, PERMITS AND FEES:

ALL REQUIRED PERMITS, LICENSES, INSPECTIONS AND APPROVALS SHALL BE SECURED AND ALL FEES FOR SAME PAID BY CONTRACTOR. THE INSTALLATION SHALL COMPLY WITH ALL APPLICABLE CODES: STATE, LOCAL, AND NATIONAL AND THE DESIGN, PERFORMANCE CHARACTERISTICS AND METHODS OF CONSTRUCTION OF ALL ITEMS AND EQUIPMENT SHALL BE IN ACCORDANCE WITH THE LATEST ISSUE OF THE VARIOUS APPLICABLE STANDARD SPECIFICATION OF THE FOLLOWING AUTHORITIES:

- N.E.C. NATIONAL ELECTRICAL CODE
- A.N.S.I. AMERICAN NATIONAL STANDARDS INSTITUTE
- I.E.E.E. INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
- A.S.T.M. AMERICAN SOCIETY FOR TESTING MATERIALS
- N.E.M.A. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
- U.L. UNDERWRITERS LABORATORIES, INC

N.F.P.A. NATIONAL FIRE PROTECTION ASSOCIATION

RACEWAYS AND WIRING:

- WIRING OF EVERY KIND MUST BE INSTALLED IN CONDUIT, UNLESS NOTED OTHERWISE, OR AS APPROVED BY THE ARCHITECT/ENGINEER UNLESS OTHERWISE SPECIFIED. ALL WIRING SHALL BE COPPER (CU) TYPE THWN, SIZED IN ACCORDANCE WITH THE NATURAL ELECTRICAL CODE AND LOCAL CODES.
- RACEWAYS SHALL BE GALVANIZED STEEL, SIZED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND LOCAL CODES UNLESS OTHERWISE NOTED. ALL RACEWAYS SHALL BE APPROVED FOR THE INSTALLATION.
 - PULL OR JUNCTION BOXES SHALL BE PROVIDED AS REQUIRED TO FACILITATE PROPOSED 4-CIRCUIT INSTALLATION OF RACEWAYS AND WIRING. PROVIDE JUNCTION AND PULLBOXES 60A LOAD CENTER FOR CONDUIT RUNS WITH MORE THAN (360) DEGREES OF BENDS.
 - PROVIDE A COMPLETE RACEWAY AND WIRING INSTALLATION, PERMANENTLY AND EFFECTIVELY GROUNDED IN ACCORDANCE WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE AND LOCAL CODES
 - ALL PVC CONDUIT SHALL BE BONDED AT BOTH ENDS WITH GROUNDING BUSHING.

GENERAL NOTES:

SEE DETAILS, SCHEDULES AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND INFORMATION. CHECK ARCHITECTURAL, STRUCTURAL AND OTHER MECHANICAL AND ELECTRICAL DRAWINGS FOR SCALE, SPACE LIMITATIONS, COORDINATION, AND ADDITIONAL INFORMATION, ETC. REPORT ANY DISCREPANCIES, CONFLICTS, ETC. TO ARCHITECT/ENGINEER BEFORE SUBMITTING BID. ALL EQUIPMENT FURNISHED BY OTHERS (FBO) SHALL BE PROVIDED WITH PROPER MOTOR STARTERS, DISCONNECTS, CONTROLS, ETC. BY THE ELECTRICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE. THE ELECTRICAL CONTRACTOR SHALL INSTALL AND COMPLETELY WIRE ALL ASSOCIATED EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S WIRE DIAGRAMS AND AS REQUIRED FOR A COMPLETE OPERATING INSTALLATION. ELECTRICAL CONTRACTOR SHALL VERIFY AND COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF (FBO) EQUIPMENT PRIOR TO ROUGH-IN OF CONDUIT AND WIRING TO AVOID CONFLICTS.

COORDINATION WITH UTILITY COMPANY:

THE ELECTRICAL CONTRACTOR SHALL COORDINATE COMPLETE ELECTRICAL SERVICE WITH LOCAL UTILITY COMPANY FOR A COMPLETE OPERATIONS SYSTEM. INCLUDING TRANSFORMER CONNECTIONS, CONCRETE TRANSFORMER PADS, IF REQUIRED, METER SOCKETS, PRIMARY CABLE RACEWAY REQUIREMENTS, SECONDARY SERVICE, ETC. PRIOR TO SUBMITTING BID TO INCLUDE ALL LABOR AND MATERIALS. THE ELECTRICAL CONTRACTOR SHALL INCLUDE IN THE BID ANY OPTIONAL OR EXCESS FACILITY CHARGES ASSOCIATED WITH PROVIDING ELECTRICAL SERVICE FROM LOCAL UTILITY COMPANY. VERIFY BEFORE BIDDING TO INCLUDE ALL COSTS. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE AVAILABLE FAULT CURRENT WITH THE LOCAL UTILITY COMPANY PRIOR TO SUBMITTING BID. ADJUST A.I.C. RATINGS OF ALL REQUIRED TO COORDINATE WITH AVAILABLE FAULT CURRENT FROM LOCAL UTILITY COMPANY.

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PSLC NUMBER:

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LATITUDE/LONGITUDE:
35.963667°, -85.040444°

SEAL:



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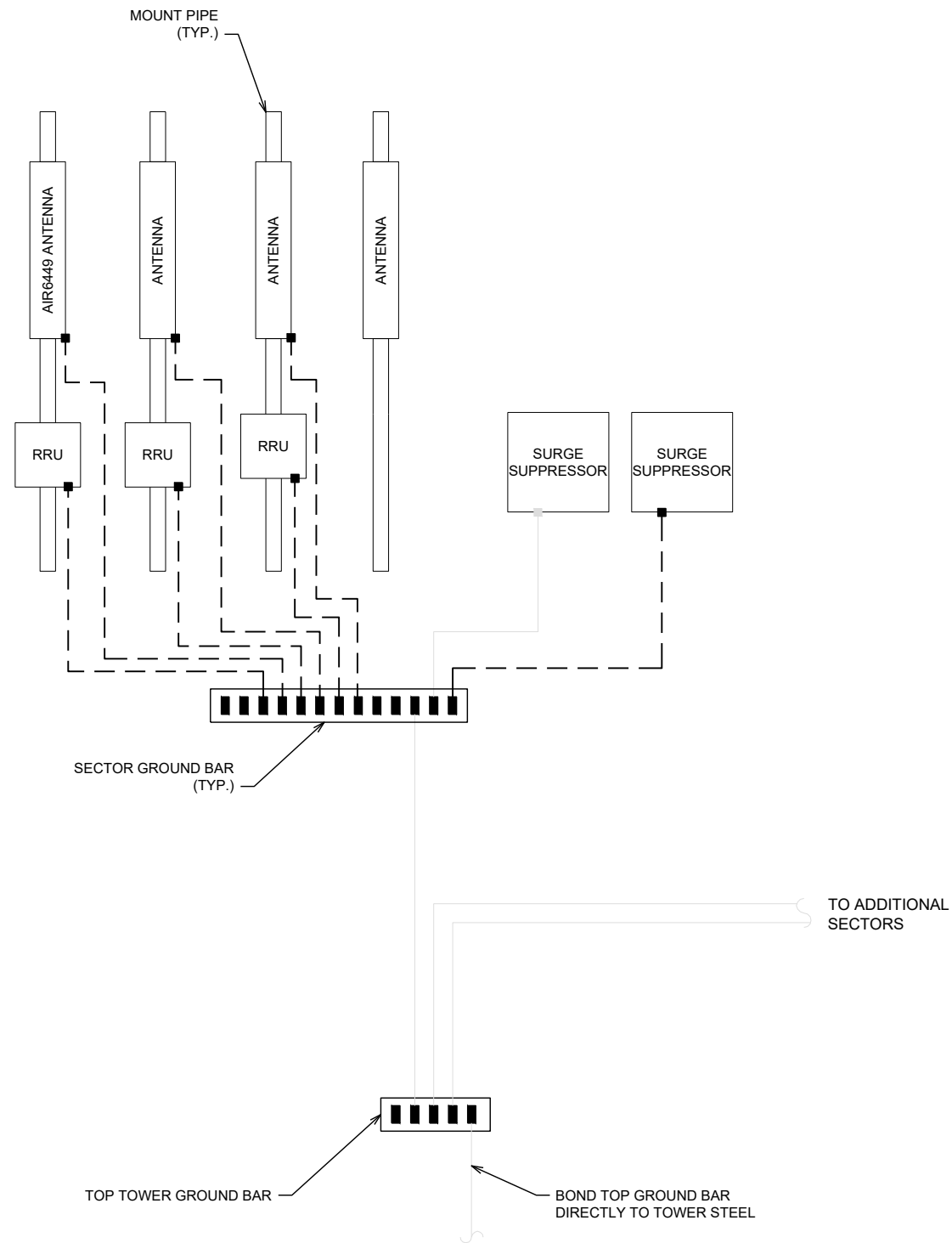
GROUNDING NOTES

SHEET # **G-1** CURRENT REV #: 0
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GROUNDING NOTES (CONTINUED)

GENERAL GROUNDING NOTES:

1. ALL LIGHTNING GROUNDING OF THE ELECTRIC EQUIPMENT SHALL BE CARRIED OUT IN ACCORDANCE WITH THE CURRENT NFPA STANDARDS.
2. ALL GROUNDING LUG COMPRESSION CONNECTIONS SHALL BE COATED WITH ANTI-OXIDANT AGENT, SUCH AS NO-OX NOALOX, PENETROX OR KOPRSHIELD.
3. ALL EXTERIOR GROUNDING CONDUCTORS INCLUDING EXTERIOR GROUND RING SHALL BE #2 AWG SOLID BARE TINNED COPPER. MAKE ALL GROUND CONNECTIONS AS SHORT AND DIRECT AS POSSIBLE. AVOID SHARP BENDS. THE RADIUS OF ANY BEND SHALL NOT BE LESS THAN 8" AND THE ANGLE OF ANY BEND SHALL NOT EXCEED 90°. GROUNDING CONDUCTORS SHALL BE ROUTED DOWNWARD TOWARD THE BURIED GROUND RING.
4. REPAIR ALL GALVANIZED SURFACE THAT HAVE BEEN DAMAGED BY THERMO-WELDING WITH ERICO T-319 GALVANIZING BAR.
5. ALL EXTERIOR GROUNDING CONNECTIONS SHALL BE EXOTHERMICALLY WELDED. ALL EXOTHERMIC WELDS TO EXTERIOR GROUND RING SHALL BE PARALLEL TYPE, EXCEPT FOR THE GROUND RODS WHICH ARE THE EXOTHERMIC WELDS. REPAIR ALL GALVANIZED SURFACES THAT HAVE BEEN DAMAGED BY EXOTHERMIC WELDING. USE SPRAY GALVANIZER SUCH AS HOLUB LECTROSOL #15-501.
6. SITE GROUNDING SHALL COMPLY WITH CARRIER STANDARDS, LATEST EDITION, AND COMPLY WITH CARRIER GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.
7. COAXIAL TRANSMISSION LINE GROUNDING:
 - 7.1. VERTICAL RUNS THAT ARE 75' OR LESS SHALL REQUIRE A GROUNDING KIT AT THE TOP AND BOTTOM OF TOWER.
 - 7.2. VERTICAL RUNS THAT ARE GREATER THAN 75' SHALL REQUIRE A GROUNDING KIT (IN ADDITION TO THE ABOVE) FROM THE TOP EVERY 75' TOWARDS THE GROUND UNTIL THE DISTANCE IS LESS THAN 75' FROM THE GROUND (NOT FOR CABLES INSIDE A MONOPOLE).
 - 7.3. SURGE ARRESTOR IS PROVIDED BY OTHERS AND INSTALLED BY CONTRACTOR. CONTRACTOR SHALL MAKE ALL CONNECTIONS REQUIRED FOR INSTALLATION.
 - 7.4. ALL GROUNDING KITS SHALL BE PROVIDED BY OTHERS AND INSTALLED BY CONTRACTOR.
8. INSTALLATION AND TESTING:
 - 8.1. CONTRACTOR SHALL NOTIFY CONSTRUCTION MANAGER IMMEDIATELY IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO FIELD CONDITIONS.
 - 8.2. CONTRACTOR SHALL NOT COVER UP GROUND RING AND CONNECTIONS UNTIL AN INSPECTION HAS BEEN PERFORMED. COORDINATE INSPECTION WITH CONSTRUCTION MANAGER.
 - 8.3. PROVIDE TESTING OF GROUNDING SYSTEM AS DIRECTED BY CONSTRUCTION MANAGER.
9. THE MAXIMUM ALLOWABLE RESISTANCE READING SHALL BE 5 OHMS TO GROUND. IF THE RESISTANCE OF THE ENTIRE GROUNDING SYSTEM AS MEASURED AT THE ARRESTOR BRACKET EXCEEDS 5.0 OHMS TO GROUND, THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHALL BE NOTIFIED SO THAT ADDITIONAL GROUND LOCATIONS CAN BE UTILIZED.



GROUNDING PLAN LEGEND:

— (E) GROUND WIRE
— NEW GROUND WIRE
● (E) EXOTHERMIC WELD
● NEW EXOTHERMIC WELD
■ (E) MECHANICAL CONNECTION
■ NEW MECHANICAL CONNECTION

NOTE:
REFER TO PROPOSED ANTENNA LAYOUT ON SHEET C-3.2 FOR EXACT # OF ANTENNAS, RRUs & SURGE SUPPRESSORS

ANTENNA & GROUNDING DETAIL

N.T.S.

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SHEET TITLE:

**GROUNDING
DETAILS**

SHEET # **G-2** CURRENT REV #: 0
ETS #: 22110726