PREPARED FOR

verizon

PROJECT INFORMATION	
VERIZON SITE ID:	SMC_CBRLD_MD_ CTR_CRSVILE_1-SITERRA
PROJECT DESCRIPTION:	PROPOSED DECORATIVE POLE
NEAREST ADDRESS: (E911 ADDRESS PENDING)	396 S MAIN ST CROSSVILLE, TN 38555
POLE OWNER	VERIZON
LATITUDE:	N 35° 56' 32.7" (N 35.94242)
LONGITUDE:	W 85° 01' 22.7" (W -85.02297)
GROUND ELEVATION:	(AMSL) = 1869'±
PRESENT OCCUPANCY TYPE:	PUBLIC ROW
JURISDICTION:	CITY OF CROSSVILLE
ROW JURISDICTION:	TDOT_DIV2
COUNTY:	CUMBERLAND
DISTURBED AREA:	25 SQ FT ±
CURRENT ZONING	N/A
PARCEL ID #:	N/A
APPLICANT:	VERIZON WIRELESS 8921 RESEARCH DRIVE CHARLOTTE, NC 28262 USHA GADE (704) 510-8718
PROJECT MANAGER:	VERIZON WIRELESS 8921 RESEARCH DRIVE CHARLOTTE, NC 28262 USHA GADE (704) 510-8718
ENGINEER:	TOWERSOURCE 1875 OLD ALABAMA ROAD, SUITE 1008 ROSWELL, GA 30076 678-990-2338

CALL PROJECT MANAGER BEFORE CONSTRUCTION STARTS

SHEET	SHEET TITLE	REV
A1	TITLE SHEET	0
EN	ELECTRICAL NOTES	0
B1	SITE PLAN	0
B2	DETAIL SITE PLAN	0
C1	POLE ELEVATION	0
C2.1	PHOTO SIMS (1)	0
C2.2	PHOTO SIMS (2)	0
C3	TRAFFIC CONTROL	0
C4	DETAILS	0
E1	ONE LINE DIAGRAM	0
E2	RFDS & PLUMBING DIAGRAM	0
E3	GROUNDING DETAILS	0
S1	RRUS SPECS	0
S2	EQUIPMENT SPECS	0
S3	EQUIPMENT SPECS	0

UTILITY INFORMATION

POWER COMPANY:	VOLUNTEER ENERGY COOPERATIVE
CONTACT:	CUSTOMER SERVICE
PHONE:	1 (931) 839-2217
METER # NEAR SITE:	UNKNOWN
TELEPHONE COMPANY:	AT&T
CONTACT:	CUSTOMER SERVICE
PHONE:	1 (800) 288-2020
PHONE # NEAR SITE:	UNKNOWN
PEDESTAL # NEAR SITE:	UNKNOWN

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 LATEST EDITIONS OF THE FOLLOWING:

1. 2012 TENNESSEE BUILDING CODE (IBC - 2012)
2. TIA-222
3. 2017 NEC - NFPA 70
4. 2012 NESC

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY: GENERAL CONTRACTOR: (CONSTRUCTION) OWNER - VERIZON
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND VERIZON PROJECT SPECIFICATIONS. THE CONTRACTOR MUST HAVE CONSIDERABLE EXPERIENCE IN PERFORMANCE OF WORK SIMILAR TO THAT DESCRIBED HERIN. BY ACCEPTANCE OF THIS ASSIGNMENT, THE CONTRACTOR IS ATTESTING THAT HE DOES HAVE SUFFICIENT EXPERIENCE AND ABILITY. THAT HE IS KNOWLEDGEABLE OF THE WORK TO BE PERFORMED AND THAT HE IS PROPERLY LICENSED AND PROPERLY REGISTERED TO DO THIS WORK IN THE STATE OF TENNESSEE.
3. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING 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.
4. 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. 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 ON THE 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 FINISH 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 ON 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 CONFIRM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
10. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
11. 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.
12. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES MIN 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
13. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
14. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
15. 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.
16. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT 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.
17. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AND FREE FROM OBSTRUCTION AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE GOVERNING UTILITY COMPANY ENGINEER.
18. 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.
19. 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.
20. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
21. 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.
22. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
23. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION VERIZON MOBILITY GROUNDING STANDARD "TECHNICAL SPECIFICATION FOR CONSTRUCTION OF GSM/GPRS WIRELESS SITES" AND "TECHNICAL SPECIFICATION FOR FACILITY GROUNDING". IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
24. 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.
25. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS. ALL WASTE MATERIALS TO BE REMOVED FROM SITE PRIOR TO SUBSTANTIAL COMPLETION AND PRIOR TO FINAL ACCEPTANCE.
26. THE CONTRACTOR SHALL GUARANTEE THE WORK PERFORMED ON THE PROJECT BY THE CONTRACTOR AND ANY OR ALL OF THE SUBCONTRACTORS WHO PERFORMED WORK FOR THE CONTRACTOR ON THIS PROJECT. THE GUARANTEE SHALL BE FOR ONE FULL YEAR FOLLOWING ISSUANCE OF THE FINAL PAYMENT OF RETAINAGE. ALL MATERIALS AND WORKMANSHIP SHALL BE WARRANTED FOR ONE YEAR FROM ACCEPTANCE DATE.
27. THE CONTRACTOR AND ITS SUBCONTRACTORS SHALL CARRY LIABILITY INSURANCE IN THE AMOUNTS AND FORM IN ACCORDANCE WITH LESSEE SPECIFICATIONS. CERTIFICATES DEMONSTRATING PROOF OF COVERAGE SHALL BE PROVIDED TO LESSEE PRIOR TO THE START OF THE WORK ON THE PROJECT.
28. THE CONTRACTOR SHALL REWORK (DRY, SCARIFY, ETC) ALL MATERIAL NOT SUITABLE FOR SUBGRADE IN ITS PRESENT STATE. AFTER REWORKING, IF THE MATERIAL REMAINS UNSUITABLE, THE CONTRACTOR SHALL UNDERCUT THIS MATERIAL AND REPLACE WITH APPROVED MATERIAL. ALL SUBGRADES SHALL BE PROOFROLLED WITH A FULLY LOADED TANDEM AXLE DUMP TRUCK PRIOR TO PAVING. ANY SOFT MATERIAL SHALL BE REWORKED AND REPLACED.
29. ANY BUILDING ON THIS SITE ARE INTENDED TO SHELTER EQUIPMENT WHICH WILL ONLY BE PERIODICALLY MAINTAINED AND ARE NOT INTENDED FOR HUMAN OCCUPANCY.
30. TEMPORARY FACILITIES FOR PROTECTION OF TOOLS AND EQUIPMENT SHALL CONFORM TO LOCAL REGULATIONS AND SHALL BE THE CONTRACTORS RESPONSIBILITY.

DRIVING DIRECTIONS:
FROM VERIZON WIRELESS HEADQUARTERS IN CHARLOTTE:

TURN RIGHT ONTO RESEARCH DR	0.4 MI	US-74 W TURNS SLIGHTLY RIGHT AND BECOMES 1-26 W/US-74 W	34.4 MI	CONTINUE ONTO TN-392 N/MILLER AVE	2.5 MI
TURN LEFT ONTO W.W.T. HARRIS BLVD	0.2 MI			TURN RIGHT ONTO S MAIN ST	0.8 MI
TURN RIGHT ONTO THE I-85 S RAMP	0.3 MI	KEEP LEFT AT THE FORK TO CONTINUE ON US-74 W	0.8 MI	SITE WILL BE ON THE LEFT	
MERGE ONTO I-85 S	33.9 MI	MERGE ONTO I-40 W	129 MI		
TAKE EXIT 10B TO MERGE ONTO US-74 W KINGS MOUNTAIN/SHELBY	0.6 MI	KEEP RIGHT AT THE FORK TO STAY ON I-40 W, FOLLOW SIGNS FOR NASHVILLE	45.8 MI		
MERGE ONTO US-74 W	22.3 MI	TAKE EXIT 322 FOR TN-101/PEAVINE RD TOWARD CROSSVILLE	0.2 MI		
CONTINUE ONTO US-74 W	33 MI				
		TURN LEFT ONTO TN-101 S/ PEAVINE RD	0.4 MI		

GENERAL LOCATION MAP

SITE LOCATION PHOTO

PREPARED FOR:

verizon

1000 WILLIAMS BLVD
KENNER, LA 70062

A&E FIRM:

towersource

1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

REGISTERED PROFESSIONAL ENGINEER SEAL:

REVISION

REV	DATE	DESCRIPTION
0	10/23/2019	ISSUED FOR CONSTRUCTION

DRAWN BY: BA | CHECKED BY: JKP

CAUTION

FOREIGN UTILITY LOCATIONS ARE APPROXIMATE.
CONTACT THE LOCAL ONE CALL AGENCY 48 HOURS PRIOR TO CONSTRUCTION FOR EXACT UTILITY LOCATION AT:

Tennessee 811

CONSTRUCTION SHALL NOTIFY THE JURISDICTION'S, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING, OFFICE OF THE CITY ENGINEER, 48 HOURS BEFORE STARTING WORK IN THIS PROJECT.

PROJECT INFORMATION:

VERIZON SITE ID
SMC_CBRLD_MD_
CTR_CRSVILE_1-SITERRA

NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

SHEET TITLE:

TITLE SHEET

SHEET NO. A1

REVISION: 0

SCOPE

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

CODES

1. THE INSTALLATION SHALL COMPLY WITH APPLICABLE LAWS AND CODES, THESE INCLUDE BUT ARE NOT LIMITED TO THE LATEST ADOPTED EDITION OF:
   A. 2012 TENNESSEE BUILDING CODE - (IBC - 2012)
   B. THE NATIONAL ELECTRIC SAFETY CODE - (2012 -NESC)
   C. THE NATIONAL ELECTRIC CODE - 2017 NEC - NFPA 70
   D. REGULATIONS OF THE SERVING UTILITY COMPANY
   E. LOCAL AND STATE AMENDMENTS
   F. THE INTERNATIONAL ELECTRIC CODE - IEC (WHERE APPLICABLE)
2. PERMITS REQUIRED SHALL BE OBTAINED BY THE CONTRACTOR
3. AFTER COMPLETION AND FINAL INSPECTION OF THE WORK, THE OWNER SHALL BE FURNISHED A CERTIFICATE OF COMPLETION AND APPROVAL.

TESTING

1. UPON COMPLETION OF THE INSTALLATION, OPERATE AND ADJUST THE EQUIPMENT AND SYSTEM TO MEET SPECIFIED PERFORMANCE REQUIREMENTS. THE TESTING SHALL BE DONE BY QUALIFIED PERSONNEL.

GUARANTEE

1. IN ADDITION TO THE GUARANTEE OF THE EQUIPMENT BY THE MANUFACTURER, EACH PIECE OF EQUIPMENT SPECIFIED HERIN SHALL ALSO BE GUARANTEED FOR DEFECTS OF MATERIAL OR WORKMANSHIP OCCURRING DURING A PERIOD OF ONE (1) YEAR FROM FINAL ACCEPTANCE OF THE WORK BY THE OWNER AND WITHOUT EXPENSE TO THE OWNER.
2. THE WARRANTEE CERTIFICATE & GUARANTEES FURNISHED BY THE MANUFACTURERS SHALL BE TURNED OVER TO THE OWNER.

UTILITY CO-ORDINATION

1. CONTRACTOR SHALL COORDINATE WORK WITH THE POWER AND TELEPHONE COMPANIES AND SHALL COMPLY WITH THE SERVICE REQUIREMENTS OF EACH UTILITY COMPANY.

EXAMINATION ON SITE

1. PRIOR TO BEGINNING WORK, THE CONTRACTOR SHALL VISIT THE SITE OF THE JOB AND SHALL FAMILIARIZE HIMSELF WITH THE CONDITIONS AFFECTING THE PROPOSED ELECTRICAL INSTALLATION AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. FAILURE TO COMPLY WITH THE INTENT OF THIS SECTION WILL IN NO WAY RELIEVE THE CONTRACTOR OF PERFORMING THE WORK NECESSARY FOR A COMPLETE AND WORKING SYSTEM OR SYSTEMS.

CUTTING & PATCHING

1. COORDINATION OF SLEEVES, CHASES, ETC., BETWEEN SUBCONTRACTORS WILL BE REQUIRED PRIOR TO THE CONSTRUCTION OF ANY PORTION OF THE WORK. PREPARE, SUBMIT AND RECEIVE APPROVAL OF SLEEVES AND OPENING DRAWINGS BEFORE LOCATING SLEEVES AND OPENINGS IN NEW CONSTRUCTION AND BEFORE DRILLING EXISTING STRUCTURE. SHOW EACH OPENING AND SLEEVE IN THE ENTIRE PROJECT.
2. SEAL WATER TIGHT AND PROTECT WITH FIRE PROOFING MATERIALS NEW SLEEVES AND OPENINGS THROUGH ROOFS, FLOORS AND IN VERTICAL CHASES AS REQUIRED BY CODE AND INDUSTRY STANDARDS. ALL FLOOR AND WALL PENETRATIONS SHALL BE SEALED WITH FIRE RETARDANT COMPOUND MEETING UL CAJ5045.
3. THE CONTRACTOR SHALL PROVIDE THE FIRE MARSHALL APPROVED MATERIALS TO FILL/SEAL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES.
4. WHERE CUTTING OF EXISTING SURFACES OR REMOVAL OF EXISTING FINISHES IS REQUIRED TO PERFORM THE WORK UNDER THIS CONTRACT AND A NEW FINISH IS NOT INDICATED, FILL RESULTING OPENINGS AND PATCH THE SURFACE AFTER DOING THE WORK AND FINISH TO MATCH ADJACENT EXISTING SURFACES.
5. EXCEPT IN SPACE WHERE NO WORK UNDER THIS CONTRACT IS REQUIRED, ENCLOSE EXISTING AND NEW CONDUITS, DUCTS, PIPES AND SIMILAR ITEMS IN FURRING WHERE SUCH ITEMS PASS THROUGH FINISHED SPACES WHETHER OR NOT FURRING IS INDICATED.
6. ALL CONCRETE AND MASONRY PENETRATIONS SHALL BE DONE USING ROTARY ACTION ONLY (NO HAMMERING ACTION). X-RAYS ARE TO BE TAKEN PRIOR TO DRILLING.
7. CORE LOCATIONS IF REQUIRED SHALL BE CHOSEN SO AS TO AVOID CUTTING ANY REINFORCING BARS. FIRESTOP FLOOR OR WALL PENETRATION WITH TWO HOUR RATED SEALANT TO MEET UL CAJ5045. PROVIDE WEATHERPROOFING OF ANY ROOF PENETRATIONS.
8. REPAIR, PATCH, FINISH AND/OR REFINISH AS APPLICABLE TO MATCH ADJACENT EXISTING FINISHES THOSE EXISTING SURFACES DAMAGED OR NEW PROPOSED SURFACES DURING PERFORMANCE OF THE WORK UNDER THIS CONTRACT.
9. WHERE CONDUITS, DUCTS, PIPES AND SIMILAR ITEMS ARE SHOW TO BE INSTALLED IN EXISTING WALLS OR PARTITIONS. NEATLY CHASE THE WALLS OR PARTITIONS. INSTALL THE TIMES AND PATCH THE WALLS OR PARTITIONS TO MAKE THE INSTALLATION NOT DISCERNIBLE IN THE FINISHED WORK.
10. WHERE A NEW CUTTING IS NOT SCHEDULED, INSTALL NEW CONDUITS AND PIPES IN EVERY CASE, AND NEW DUCT WHERE POSSIBLE ABOVE EXISTING CEILING. REMOVE EXISTING CEILING AS NECESSARY. AFTER INSTALLATION OF CONCEALED WORK, REINSTALL REMOVED CEILING AND PATCH AND REFINISH TO MATCH ADJACENT UNREMOVED CEILINGS.
11. REPAIR ALL METAL SURFACES THAT HAVE BEEN CUT OR DAMAGED BY REMOVING ANY EXISTING RUST AND APPLYING COLD GALVANIZATION.

EXCAVATION AND BACKFILL

1. ALL SUITABLE BORROW MATERIAL FOR BACK FILL OF THE SITE SHALL BE INCLUDED IN THE BID. EXCESS TOPSOIL AND UNSUITABLE MATERIAL SHALL BE DISPOSED OF OFF SITE AT LOCATION APPROVED BY GOVERNING AGENCIES PRIOR TO DISPOSAL.
2. ALL SITE FILL SHALL MEET SELECTED FILL STANDARDS AS DEFINED BY THE OWNER'S REPRESENTATIVE ON THE DRAWINGS OR GEOTECHNICAL REPORT RECOMMENDATIONS.
3. THIS PROJECT INCLUDES:
   -EXCAVATION, TRENCHING, FILLING, COMPACTING AND GRADING FOR STRUCTURES, SITE IMPROVEMENTS, ACCESS ROAD AND UTILITIES.
   -ALL MATERIALS FOR SUBBASE, DRAINAGE FILL, BACK FILL AND GRAVEL FOR SLABS, PAVEMENT AND IMPROVEMENTS.
   -ROCK EXCAVATION WITHOUT BLASTING.
   -REMOVAL AND LEGAL DISPOSAL OF EXCAVATED MATERIALS AS REQUIRED.
4. FILL LAYERS THAT REQUIRE COMPACTION SHALL HAVE A MAXIMUM THICKNESS OF 6 INCHES.
5. THE COMPACTING UNDER STRUCTURES, BUILDING SLABS, STEPS, PAVEMENT AND WALKWAYS SHALL BE 95% MAXIMUM DENSITY, ASTM D-1557, TESTED IN EACH OF THE COMPACTING LAYERS AT EACH COMPACTING SITE, OR AT LEAST IN EACH 100CU. PER YARDS OF MATERIAL VOLUME.
6. THE COMPACTING UNDER LAWNS OR UNPAVED AREAS SHALL BE 85% MAXIMUM DENSITY, ASTM D1557.
7. THE COMPACTED LAYERS SHALL NOT EXCEED 8 INCHES.
8. AREAS THAT DO NOT MEET ASTM D-1557 REQUIREMENTS MUST BE RECOMPACTED AT THE CONTRACTOR'S EXPENSES.
9. ALL TRENCH EXCAVATIONS AND ANY REQUIRED SHEETING AND SHORING SHALL BE DONE IN ACCORDANCE WITH OSHA REGULATIONS FOR CONSTRUCTION.
10. WHERE UNSTABLE SOIL CONDITIONS EXIST, LINE THE GRUBBED AREAS WITH GEOTEXTILE FABRIC (MIRAFI 500X OR APPROVED EQUIVALENT) PRIOR TO PLACING FILL OR BASE MATERIAL.
11. THE USE OF EXPLOSIVE IS PROHIBITED ON SITE.
12. ALL EXCAVATION ON WHICH CONCRETE IS TO BE PLACED SHALL BE SUBSTANTIAL HORIZONTAL, UNDISTURBED AND BE FREE FROM LOOSE MATERIAL AND EXCESS GROUND WATER. DEWATERING FOR EXCESS GROUND WATER SHALL BE PROVIDED IF REQUIRED.
13. ANY EXCAVATION OVER THE REQUIRED DEPTH SHALL BE FILLED WITH OTHER MECHANICALLY COMPACTED GRANULAR MATERIAL OR CONCRETE OF THE SAME QUALITY SPECIFIED FOR HE FOUNDATION. CRUSHED STONE MAY BE USED TO STABILIZE THE BOTTOM OF THE EXCAVATION. STONE,IF USED, SHALL NOT BE USED AS COMPILING CONCRETE THICKNESS.
14. BACK FILL SHALL USE APPROVED MATERIALS CONSISTING OF LOAM, SANDY CLAY, SAND, GRAVEL OR SOFT SHALE AND SHALL BE FREE FROM CLODS OR STONES OVER 2 1/2".
15. AFTER COMPLETION OF THE FOUNDATION AND OTHER CONSTRUCTION BELOW GRADE AND BEFORE BACK FILLING, ALL EXCAVATIONS SHALL BE CLEAN OF UNSUITABLE MATERIALS SUCH AS VEGETATION, DEBRIS, TRASH AND ANY FOREIGN MATERIAL.

RACEWAYS SYSTEMS / CONDUITS

1. UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC CONDUIT. UNDERGROUND PVC CONDUIT SHALL TRANSITION TO RIGID GALVANIZED STEEL CONDUIT OR SCHEDULE 80 PVC CONDUIT BEFORE RISING ABOVE GRADE OR CONCRETE SLAB. EXPOSED CONDUIT SHALL BE RIGID GALVANIZED STEEL (RGS) CONDUIT OR SCHEDULE 80 PVC CONDUIT.
2. GRS CONDUITS, WHEN SPECIFIED, SHALL MEET UL-6 FOR GALVANIZED STEEL. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT.
3. ELECTRICAL METALLIC TUBING (EMT) OR RIGID, NONMETALLIC CONDUIT (RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
4. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (RIGID PVC SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
5. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
6. PLUG AND CAP EACH END OF SPARE AND EMPTY CONDUITS AND PROVIDE TWO SEPARATE PULL STRINGS - 200 LB. TEST POLYETHYLENE CORD.
7. ALL CONDUIT BENDS SHALL BE MINIMUM OF 24 INCH RADIUS.
8. ALL METALLIC RACEWAYS SHALL BE GROUNDED PER NEC.
9. THE CONTRACTOR SHALL FIELD VERIFY THE BEST AND LEAST DISRUPTIVE ROUTING OF CONDUITS, CABLE TRAYS AND DUCTS. CONDUIT ROUTING IS SHOWN AS A GUIDE ONLY, ACTUAL CONDUIT PLACEMENT IS TO BE DONE IN A PROFESSIONAL MANNER.

EXTERIOR CONDUITS

1. EXPOSED CONDUIT SHALL BE NEATLY INSTALLED AND RUN PARALLEL OR PERPENDICULAR TO STRUCTURAL ELEMENTS. SUPPORTS AND MOUNTING HARDWARE SHALL BE HOT DIPPED GALVANIZED STEEL.
2. THE CONDUIT SHALL BE RIGID STEEL AT GRADE TRANSITIONS OR WHERE EXPOSED TO DAMAGE.
3. UNDERGROUND CONDUITS SHALL BE RIGID STEEL, SCH40 PVC, OR SCH80 PVC AS INDICATED ON THE DRAWINGS.
4. BURIAL DEPTH OF CONDUITS SHALL BE AS REQUIRED BY CODE FOR EACH SPECIFIC CONDUIT TYPE AND APPLICATION, BUT SHALL NOT BE LESS THAN THE FROST DEPTH AT THE SITE.
5. CONDUIT ROUTES ARE SCHEMATIC CONTRACT. CONTRACTORS SHALL FIELD VERIFY ROUTES BEFORE BID. COORDINATE ROUTE WITH WIRELESS CARRIER AND/OR BUILDING OWNER.

INTERIOR CONDUIT

1. CONCEALED CONDUIT IN WALLS OR INTERIOR SPACE ABOVE GRADE MAY BE EMT OR PVC.
2. CONDUIT RUNS SHALL USE APPROVED COUPLINGS AND CONNECTORS. PROVIDE INSULATED BUSHING FOR ALL CONDUIT TERMINATIONS. CONDUIT RUNS IN A WET LOCATION SHALL HAVE WATERPROOF FITTINGS.
3. PROVIDE SUPPORTS FOR CONDUITS IN ACCORDANCE WITH NEC REQUIREMENT. CONDUITS SHALL BE SIZED AS REQUIRED BY NEC.

EQUIPMENT

1. THE MAIN CIRCUIT BREAKER SHALL BE RATED FOR STANDARD A.I.C. RATING HIGHER THAN INCOMING EQUIPMENT A.I.C.
2. CONTRACTOR SHALL VERIFY MAXIMUM AVAILABLE FAULT CURRENT AND COORDINATE INSTALLATION WITH THE LOCAL UTILITY BEFORE STARTING WORK. CONTRACTOR WILL VERIFY THAT EXISTING CIRCUIT BREAKERS ARE RATED FOR MORE THAN AVAILABLE FAULT CURRENT AND REPLACE AS NECESSARY.
3. ALL EQUIPMENT SHALL BE BRACED FOR STANDARD A.I.C. RATING HIGHER THAN INCOMING FROM UTILITY CO.
4. THE CONTRACTOR SHALL PROVIDE AN ITEMIZED CERTIFICATION TO THE CARRIER OF ALL EQUIPMENT AND RELATED HARDWARE, SPECIFIED TO BE PURCHASED AND INSTALLED BY CONTRACTOR, WHERE ORDERED WITHIN 24 HRS OF THE NOTICE TO PROCEED.
5. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH ENGRAVED PLASTIC LABELS. ALL EQUIPMENT SHALL BE LABELED WITH ITS VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR CAPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E., PLANELOAD AND CIRCUIT ID'S).
6. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED URL 514A AND NEWMAN OS 1; AND BE RATED NEWMAN 1 (OR BETTER) INDOORS OR WEATHER-PROTECTED (TWP OR BETTER) OUTDOORS.
7. NONMETALLIC RECEPTACLE SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEWMAN OS 2, AND BE RATED NEWMAN 1 (OR BETTER) INDOORS OR WEATHER-PROTECTED (TWP OR BETTER) OUTDOORS.

ELECTRICAL NOTES

1. THE CONTRACTOR SHALL SECURE ALL NECESSARY ELECTRICAL PERMITS AND PAY ALL REQUIRED FEES.
1. RECORD DRAWINGS: MAINTAIN A RECORD OF ALL CHANGES, SUBSTITUTIONS BETWEEN WORK AS SPECIFIED AND INSTALLED. RECORD CHANGES ON A CLEAN SET OF CONTRACT DOCUMENTS WHICH SHALL BE TURNED OVER TO THE CONSTRUCTION MANAGER UPON COMPLETION OF THE PROJECT.
2. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC IN NATURE ARE ARE NOT TO BE SCALED.
3. USE 98% CONDUCTIVITY COPPER WITH TYPE XHHW-2 INSULATION, 600 VOLT, COLOR CODED. USE SOLID CONDUCTORS FOR WIRE UP TO AND INCLUDING NO. 8 AWG, STRANDED CONDUCTORS FOR WIRE LARGER THAN NO. 8 AWG. USE PRESSURE-TYPE INSULATED TWIST-ON CONNECTORS FOR NO. 10 AWG AND SMALLER, SOLDERLESS MECHANICAL TERMINAL LUGS FOR NO. 8 AWG AND LARGER. ALUMINUM CONDUCTORS SHALL NOT BE USED.
4. EACH END OF EVERY POWER, GROUNDING AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2 INCH PLASTIC ELECTRICAL TAP WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA AND MATCH EXISTING INSTALLATION REQUIREMENTS.
5. ALL CONDUIT SIZES SPECIFIED IN THIS DOCUMENT WERE DONE SO TAKING INTO ACCOUNT THE USE OF COPPER CONDUCTORS.
6. GENERAL: COMPLY WITH AND CO-ORDINATE ALL REQUIREMENTS OF THE UTILITY COMPANY.
7. SHORT CIRCUIT RATINGS: PROVIDE EQUIPMENT WITH HIGHER FAULT CURRENT RATINGS AS NEEDED TO MATCH UTILITY COMPANY AVAILABLE FAULT CURRENT.
8. CONTRACTOR TO VERIFY UTILITY CO. FAULT CURRENT AND ENSURE THAT ALL EQUIPMENT MEETS FAULT CURRENT (AT A MINIMUM ALL EQUIPMENT TO BE 10,000 AIC).
9. THE CONTRACTOR IS RESPONSIBLE FOR MAKING ARRANGEMENTS WITH THE ELECTRIC UTILITY RELATIVE TO A TIMELY INSTALLATION OF THE NEW SERVICE AND PAYING ALL ASSOCIATED FEES.
10. IDENTIFICATION: IDENTIFY SERVICE DISCONNECTION MEANS WITH PERMANENT NAMEPLATE.
11. THE LOCATION SHOWN FOR A UTILITY POLE OR CONNECTION TO NEW UTILITIES IS FOR CONCEPTUAL USE ONLY. THE CONTRACTOR SHALL COORDINATE THE ACTUAL LOCATION WITH THE ELECTRIC UTILITY.
12. LOCATION AND ARRANGEMENTS: DRAWINGS INDICATE DIAGRAMMATICALLY THE DESIRED LOCATION OF EQUIPMENT, FIXTURES, OUTLETS, ETC., AND ARE NOT TO BE SCALED. PROPER JUDGMENT MUST BE EXERCISED IN THE EXECUTION TO ENSURE THE BEST POSSIBLE INSTALLATION.
13. UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC CONDUIT. UNDERGROUND PVC CONDUIT SHALL TRANSITION TO RIGID GALVANIZED STEEL CONDUIT OR SCHEDULE 80 PVC CONDUIT BEFORE RISING ABOVE GRADE OR CONCRETE SLAB. EXPOSED CONDUIT SHALL BE RIGID GALVANIZED STEEL (RGS) CONDUIT OR SCHEDULE 80 PVC CONDUIT.
14. GRS CONDUITS, WHEN SPECIFIED, SHALL MEET UL-6 FOR GALVANIZED STEEL. ALL FITTINGS SHALL BE SUITABLE FOR USE WITH THREADED RIGID CONDUIT.
15. ELECTRICAL METALLIC TUBING (EMT) OR RIGID, NONMETALLIC CONDUIT (RIGID PVC SCHEDULE 40, OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (RIGID PVC SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
18. PLUG AND CAP EACH END OF SPARE AND EMPTY CONDUITS AND PROVIDE TWO SEPARATE PULL STRINGS - 200 LB. TEST POLYETHYLENE CORD.
19. ALL CONDUIT BENDS SHALL BE MINIMUM OF 24 INCH RADIUS.
20. ALL METALLIC RACEWAYS SHALL BE GROUNDED PER NEC.
21. THE CONTRACTOR SHALL FIELD VERIFY THE BEST AND LEAST DISRUPTIVE ROUTING OF CONDUITS, CABLE TRAYS AND DUCTS. CONDUIT ROUTING IS SHOWN AS A GUIDE ONLY, ACTUAL CONDUIT PLACEMENT IS TO BE DONE IN A PROFESSIONAL MANNER.
22. PRIOR TO EXCAVATION, A UTILITY MARK OUT SHALL BE DONE TO LOCATE EXISTING UNDERGROUND UTILITIES. ALL UNDERGROUND UTILITIES MUST BE LOCATED ND MARKED OUT PRIOR TO ANY EXCAVATION WORK BEING PERFORMED. PHOTOS SHALL BE TAKEN OF ALL UNDERGROUND WORK AND GIVEN TO THE CARRIER DURING THE SITE'S HANDOFF.
23. ALL BURIED CONDUIT SHALL BE IDENTIFIED WITH ELECTRICAL MARKER TAPE. TAPE SHALL BE PLACED 12" ABOVE CONDUIT FOR EASY IDENTIFICATION.
24. THE MAIN CIRCUIT BREAKER SHALL BE RATED FOR STANDARD A.I.C. RATING HIGHER THAN INCOMING EQUIPMENT A.I.C.
25. ALL EQUIPMENT SHALL BE BRACED FOR STANDARD A.I.C. RATING HIGHER THAN INCOMING FROM UTILITY CO.

GROUNDING

1. THE SUBCONTRACTOR SHALL VERIFY THAT THE SYSTEM IS EFFECTIVELY GROUNDED, MEETS NEC ARTICLE 250 REQUIREMENTS, IS ACCEPTABLE TO THE LOCAL UTILITY AND THE LOCAL AUTHORITY HAVING JURISDICTION, AND MEETS THE CARRIER'S ELECTRICAL AND GROUNDING SPECIFICATIONS. FOLLOWING COMPLETION OF WORK, CONDUCT GROUND TEST. OWNER'S REPRESENTATIVE WILL INSPECT CADWELDS AND REVIEW GROUND TEST PRIOR TO BURIAL. USE CLEAN SAND AND CLAY BACKFILL FOR BURIED GROUND CONDUCTORS.
2. ALL DETAILS SHOWN ARE DIAGRAMMATICAL. ACTUAL GROUNDING INSTALLATION AND CONSTRUCTION MAY VARY DUE TO SITE SPECIFIC CONDITIONS.
3. GROUND CONNECTIONS: WHERE GROUND CONNECTIONS ARE MADE, THE CONTACT POINTS SHALL BE THOROUGHLY CLEANED AND MADE FREE OF FOREIGN MATERIAL SUCH AS PAINT, GALVANIZATION, AND CORROSION, TO ENSURE ADEQUATE BOND. REFER TO EXOTHERMIC WELD, LUGS, AND ANTI-OXIDATION COMPOUND NOTES FOR FURTHER DETAILS.
4. GROUND WIRE: BARE, SOLID, ANNEALED, TINNED COPPER WIRE (BTCW) BUT SIZED IN ACCORDANCE WITH NEC TABLE 250.66. UNDER NO CIRCUMSTANCES IS STRANDED WIRE ACCEPTABLE. ALL BURIED WIRE SHALL BE INSTALLED TO MEET MINIMUM BEND RADIUS. SHARP BENDS AND KINKS ARE NEVER ACCEPTABLE. WHEN ANY GROUNDING OR BONDING WIRE RUNS THROUGH CONCRETE, IT SHALL BE SLEEVE IN PVC. GROUND WIRES SHALL NOT BE INSTALLED OR ROUTED THROUGH HOLES IN ANY METAL OBJECTS OR SUPPORTS.
5. EXOTHERMIC WELDING: EXOTHERMIC WELDS SHALL BE CADWELD, A REGISTERED TRADEMARK OF ERICO PRODUCTS, INC. OF CLEVELAND, OHIO, OR THERMOWELD, A DIVISION OF CONTINENTAL INDUSTRIES, INC. OF TULSA OKLAHOMA OR EQUIVALENT.
6. GROUND ROD: 5/8" X 8-FEET (MINIMUM LENGTH) STEEL WITH PURE COPPER JACKET NOT LESS THAN 0.0012 INCHES THICK. GROUND RODS SHALL BE SPACED NO GREATER THAN 15 FT O.C. AND NO LESS THAN 6 FT. O.C.
7. GROUND BARS: GROUND BARS SHALL BE MANUFACTURED EXACTLY AS SPECIFIED. NO DEVIATIONS ARE ALLOWED. DIMENSIONS SHALL BE ACCURATE WITHIN 1/32 INCH. HOLE DIAMETERS SHALL BE ACCURATE WITHIN 1/64 INCH. BARS SHALL BE 1/4 INCH THICK SOLID ELECTRICAL GRADE COPPER MANUFACTURED BY HARGER OR APPROVED EQUAL. GROUND BARS SHALL NOT BE FABRICATED OR MODIFIED IN THE FIELD. COAXIAL CABLE GROUND BARS SHOULD BE MECHANICALLY CONNECTED TO THE TOWER STRUCTURAL STEEL. HOWEVER, DO NOT DRILL HOLES OR USE EXOTHERMIC WELDS TO CONNECT GROUND LEADS TO A STEEL TOWER EXCEPT ON STEEL TABS OR FLANGES SPECIFICALLY DESIGNED FOR THAT PURPOSE. HOLES AND/OR EXOTHERMIC WELDING CAN NEGATIVELY IMPACT THE STRUCTURAL INTEGRITY OF THE TOWER AND INCREASE CHANCES OF CORROSION.
8. INSULATORS: POLYESTER FIBERGLASS, 15 KV MINIMUM DIELECTRIC STRENGTH, FLAME RESISTANT PER UL 94 VO CLASSIFICATION.
9. CLIPS: WHEN SECURING ANY GROUND WIRES, SOLID OR STRANDED, INSULATED OF UNINSULATED, NEVER USE ANY CLIPS OR OTHER DEVICES THAT ARE CONDUCTIVE ND FORM A CLOSED LOOP. METALLIC CLIPS ARE ACCEPTABLE IF THEY DO NOT FORM A CLOSED LOOP.
10. GROUND CLAMP: BURNDY GAR STYLE UL CLAMP WITH TWO-HOLE PROVISIONS FOR LONG BARREL MULTIPLE CRIMP TWO-HOLE LUGS.
11. ALL LUGS SHALL BE 2-HOLE, LONG BARREL, TINNED SOLID COPPER UNLESS OTHERWISE SPECIFIED, INSTALLED USING THE PROPER UL TOOL AND CIRCUMFERENTIAL HEXAGON DIE. LUGS SHALL BE THOMAS AND BETTS, BURNDY, ERICO OR EQUIVALENT. BOLT HOLE DIAMETER AND SPACING ON ALL GROUND LUGS SHALL MATCH HOLE DIAMETER AND SPACING OF THE GROUND BAR. TAG ALL GROUND LUGS THAT ARE ATTACHED TO ANY PUBLICLY ACCESSIBLE GROUND POINT (I.E. WATER PIPES, BUILDING STEEL, ETC.). THE TAGS SHALL READ, "DO NO DISCONNECT." OUTDOOR SITES THAT ARE LOCATED INSIDE A LOCKED TELECOMMUNICATIONS COMPOUND ARE NOT CONSIDERED PUBLICLY ACCESSIBLE. PROVIDE STAINLESS STEEL HARDWARE AND LOCK WASHERS ON ALL MECHANICAL CONNECTIONS.
12. ANTI-OXIDATION COMPOUND: ANTI-OXIDATION COMPOUND SHALL BE THOMAS AND BETTS KOPR-SHIELD (TM OF JET LUBE, INC.) OR BURNDY PENETROX - E. ANTI-OXIDATION COMPOUND SHALL BE APPLIED BETWEEN LUG AND GROUND BAR ONLY. DO NOT COVER THE LUG.
13. SERVICE DISCONNECT GROUNDING: THE NEUTRAL TO GROUND BOND SHALL BE MADE AT THE SERVICE DISCONNECT SWITCH LOCATED SEPARATELY AND NO NEUTRAL TO GROUND CONNECTION SHOULD BE AT THE EQUIPMENT. IT IS CRITICAL THAT ONLY ONE NEUTRAL TO GROUND BOND BE MADE AT THE SERVICE ENTRANCE EQUIPMENT AS DEFINED BY THE NATIONAL ELECTRIC CODE.

CONDUCTORS

1. FURNISH AND INSTALL CONDUCTORS SPECIFIED IN THE DRAWINGS. CONDUCTORS SHALL BE COPPER AND SHALL HAVE TYPE THWN (MIN) (75° C) INSULATION, RATED FOR 600 VOLTS.
2. THE USE OF ALUMINUM CONDUCTORS SHALL BE LIMITED TO THE SERVICE FEEDERS INSTALLATION BY THE UTILLITY.
3. CONDUCTORS SHALL BE PROVIDED AND INSTALLED AS FOLLOWS:
   A. MINIMUM WIRE SIZE SHALL BE #12 AWG.
   B. CONDUCTORS SIZE #8 AND LARGER SHALL BE STRANDED. CONDUCTORS SIZED #10 AND #12 MAY BE SOLID OR STRANDED.
   C. CONNECTION FOR #10 AWG #12 AWG SHALL BY TWISTING TIGHT AND INSTALLING INSULATED PRESSURE OR WIRE NUT CONNECTIONS.
   D. CONNECTION FOR #8 AWG AND LARGER SHALL BE BY USE OF STEEL CRIMP-ON SLEEVES WITH NYLON INSULATOR.

UL COMPLIANCE

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

PREPARED FOR:

verizon

1000 WILLIAMS BLVD
KENNER, LA 70062

A&E FIRM:

towersource

1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

REGISTERED PROFESSIONAL ENGINEER SEAL:

REVISION

REV	DATE	DESCRIPTION
0	10/23/2019	ISSUED FOR CONSTRUCTION

DRAWN BY: BA | CHECKED BY: JKP

CAUTION

FOREIGN UTILITY LOCATIONS ARE APPROXIMATE. CONTACT THE LOCAL ONE CALL AGENCY 48 HOURS PRIOR TO CONSTRUCTION FOR EXACT UTILITY LOCATION AT:

Tennessee811

CONSTRUCTION SHALL NOTIFY THE JURISDICTION'S, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING, OFFICE OF THE CITY ENGINEER, 48 HOURS BEFORE STARTING WORK IN THIS PROJECT.

PROJECT INFORMATION:

VERIZON SITE ID
SMC_CBRLD_MD_
CTR_CRSVILE_1-SITERRA

NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

SHEET TITLE:

ELECTRICAL NOTES

SHEET NO. EN

REVISION: 0

1 / B1 SITE PLAN
11x17 SCALE: 1" = 40'
24x36 SCALE: 1" =20'

NORTH

0' 10' 20' 24x36 SCALE

0' 20' 40' 11x17 SCALE

PROPERTY INFORMATION

NO.	PARCEL #	N/F PROPERTY OWNER	DEED BOOK	PAGE
1	113F E 002.00	CUMBERLAND COUNTY	423	209
2	113F E 001.02	THOMAS B RIDLEY PROPERTIES GP	1517	385
3				
4				

NOTES:
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2. CONTRACTOR SHALL MAINTAIN UNINTERRUPTED ACCESS TO ALL DRIVEWAYS, SIDE STREETS AND WALKWAYS AT ALL TIMES UNLESS OTHERWISE PERMITTED.
3. CONTRACTOR SHALL PREPARE A MAINTENANCE OF TRAFFIC (M.O.T.) PLAN FOR PEDESTRIAN TRAFFIC AND WORK WITHIN THE RIGHT-OF-WAY, INCLUDING VEHICLE PARKING AND EQUIPMENT STAGING.
4. CONTRACTOR SHALL RESTORE ANY DISTURBED AREAS TO ORIGINAL CONDITION OR BETTER.
5. POWER DELIVERY BY VOLUNTEER ENERGY COOPERATIVE AT THEIR RECOMMENDATION, PERMITTED SEPARATELY.
6. FIBER DELIVERY PROVIDED BY AT&T, PERMITTED SEPARATELY.

UTILITY NOTES:
1. CONTRACTOR TO CONTACT VOLUNTEER ENERGY COOPERATIVE TO INITIATE POWER ROUTE INSTALLATION.
   NAME: CUSTOMER SERVICE
   PHONE: 1 (931) 839-2217
2. EMAIL: UNKNOWN
3. POWER COMPANY WILL PROVIDE 100A ---- SERVICE FROM EXISTING ---- TO VZW PROPOSED DECORATIVE POLE.
4. VZW CONTRACTOR WILL INSTALL A TOTAL OF ±38' OF 3" SCH40 CONDUIT ON PROPOSED POLE AT NODE LOCATION.
5. VZW CONTRACTOR WILL PROVIDE THE METER BASE. POWER COMPANY WIL PROVIDE METER.

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	STLT	PARKING METER	PM
	STLT	MANHOLE	MH
POLE W/ LIGHT	UP W/ L	TELCO BOX	TCO
UTILITY POLE	UP	GAS VALVE	GV
LIGHT POLE	LP	TRANSFORMER	TR
FIRE HYDRANT	FH	WATER VALVE	WV
TRAFFIC POLE	TP	SEWER	S
HANDHOLE	HH	PEDESTAL	PED
WATER METER	WM	INLET	
UTILITY MARKER	UM	CABINET	
CULVERT		DRAIN CRATE	
TREE		CROSSWALK TRAFFIC SIGNAL	

OVERHEAD POWER	OHP
UNDERGROUND POWER	UGP
UNDERGROUND FIBER	UGF
UNDERGROUND GAS	UGG
WATER LINE	WTR
STORM SEWER	STS
SANITARY SEWER	SS
RIGHT OF WAY	ROW
EDGE OF PAVEMENT	EOP
FENCE	X
CENTER LINE	
PROPERTY LINE	
EXISTING BUILDING	
LANE LINES	
DRIVEWAY/SIDEWALK	
BACK OF CURB	BOC
OVERHEAD CATV	CATV

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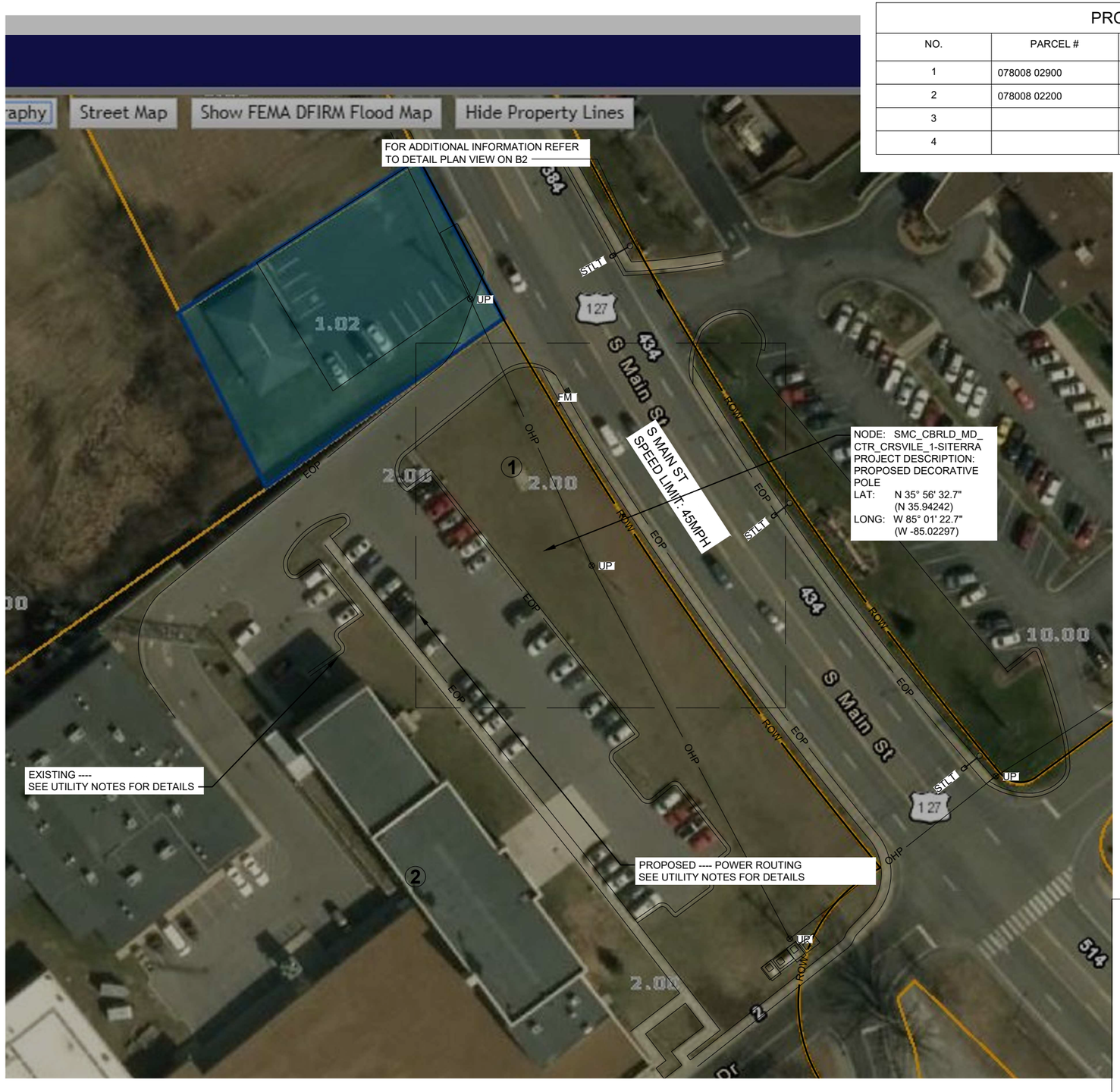
CTR_CRSVILE_1-SITERRA

NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

SHEET TITLE:
SITE PLAN

SHEET NO. B1 | REVISION: 0



NORTH

0' 15' 30' 0' 15' 30' 60'

24x36 SCALE 11x17 SCALE

1 / B1 SITE PLAN

11x17 SCALE: 1" = 60'
24x36 SCALE: 1" =30'

PROPERTY INFORMATION

NO.	PARCEL #	N/F PROPERTY OWNER	DEED BOOK	PAGE
1	078008 02900	MOUNTAIN COMMERCE BANK	N/A	N/A
2	078008 02200	BASS PRO STATION LLC	1945	782
3				
4				

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4. CONTRACTOR SHALL RESTORE ANY DISTURBED AREAS TO ORIGINAL CONDITION OR BETTER.
5. POWER DELIVERY BY SEVIER COUNTY ELECTRIC SYSTEM AT THEIR RECOMMENDATION, PERMITTED SEPARATELY.
6. FIBER DELIVERY PROVIDED BY AT&T, PERMITTED SEPARATELY.

UTILITY NOTES:
1. CONTRACTOR TO CONTACT SEVIER COUNTY ELECTRIC TO INITIATE POWER ROUTE INSTALLATION.
   NAME: CUSTOMER SERVICE
   PHONE: 1 (865) 543-2887
   EMAIL: TBD
2. POWER COMPANY WILL PROVIDE 100A ---- SERVICE FROM EXISTING ---- TO VZW PROPOSED DECORATIVE POLE.
3. VZW CONTRACTOR WILL INSTALL A TOTAL OF ±38' OF 3" SCH40 CONDUIT ON PROPOSED POLE AT NODE LOCATION.
4. VZW CONTRACTOR WILL PROVIDE THE METER BASE. POWER COMPANY WIL PROVIDE METER.

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TRAFFIC POLE	TP	SEWER	S
HANDHOLE	HH	PEDESTAL	PED
WATER METER	WM	INLET	
UTILITY MARKER	UM	CABINET	
CULVERT		DRAIN CRATE	
TREE		CROSSWALK TRAFFIC SIGNAL	

OVERHEAD POWER	OHP
UNDERGROUND POWER	UGP
UNDERGROUND FIBER	UGF
UNDERGROUND GAS	UGG
WATER LINE	WTR
STORM SEWER	STS
SANITARY SEWER	SS
RIGHT OF WAY	ROW
EDGE OF PAVEMENT	EOP
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CENTER LINE	
PROPERTY LINE	
EXISTING BUILDING	
LANE LINES	
DRIVEWAY/SIDEWALK	
BACK OF CURB	BOC
OVERHEAD CATV	CATV

PREPARED FOR:

verizon

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KENNER, LA 70062

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TEL: 678-990-2338 FAX: 678-990-2342

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CTR_CRSVILE_1-SITERRA

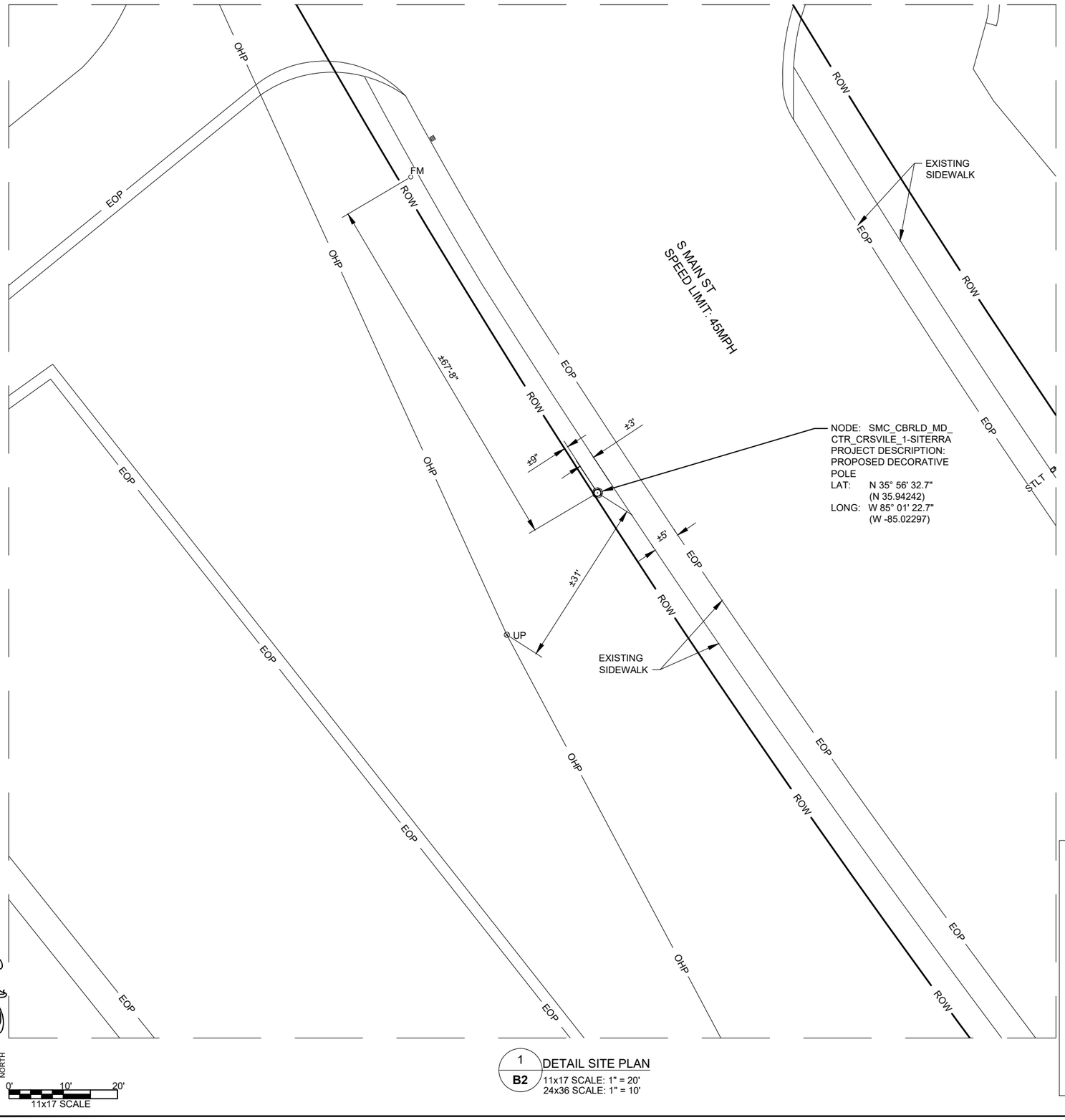
NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

SHEET TITLE:

SITE PLAN

SHEET NO. B1

REVISION: 0



1 / B2 DETAIL SITE PLAN

11x17 SCALE: 1" = 20'
24x36 SCALE: 1" = 10'

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   NAME: CUSTOMER SERVICE
   PHONE: 1 (931) 839-2217
   EMAIL: UNKNOWN
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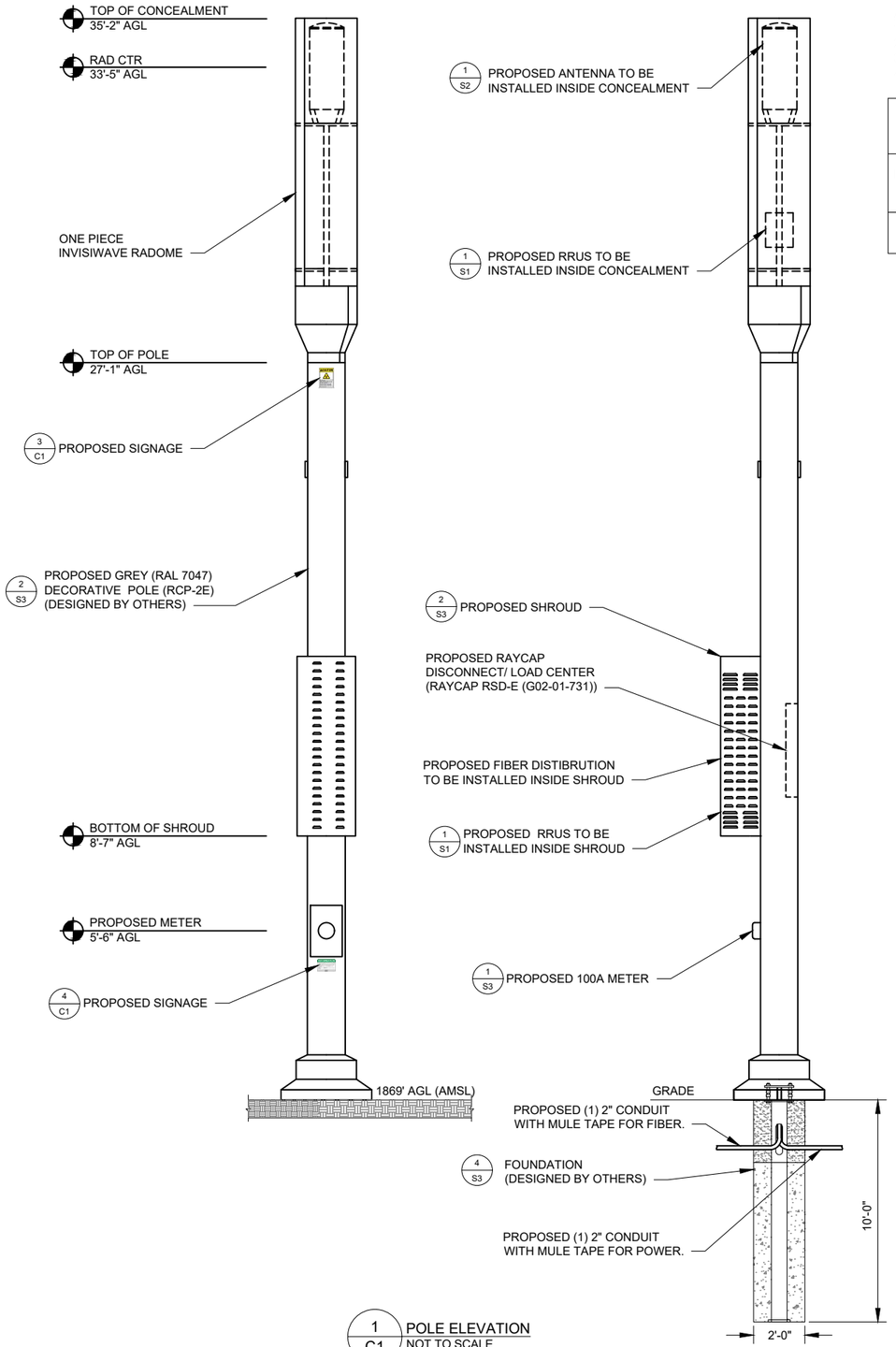
NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

SHEET TITLE:
DETAIL SITE PLAN

SHEET NO. B2 | REVISION: 0

DESIGN NOTES
1. TOWERSOURCE HAS NOT PERFORMED A STRUCTURAL ANALYSIS OF THIS POLE. POLE OWNER TO PROVIDE.
2. FIBER TRANSPORT DELIVERY CABLES WILL BE BURIED TO POLE.
3. POWER TRANSPORT DELIVERY CABLES WILL BE BURIED TO POLE.
4. CONTRACTOR WILL COORDINATE POWER AND FIBER SERVICE REQUIREMENTS AND INSTALLATIONS WITH UTILITY COMPANIES.
5. PRIOR TO CONSTRUCTION, CONTRACTOR TO COORDINATE POLE DESIGN WITH FINAL RF DESIGN COMPONENTS.
6. CONFIRM METER TYPE WITH POWER COMPANY.
7. FUTURE CARRIES TO BE ACCOMMODATED AND ABLE TO COLLOCATE ON THIS POLE.
8. PROPOSED LAA & CBRS RADIOS TO BE POLE-MOUNTED NEAR ANTENNA TOP. CONTRACTOR TO MOUNT PER MANUFACTURER'S SPECIFICATIONS.

INSTALLATION NOTES
9. ALL INSTALLATIONS SHALL COMPLY WITH THE CURRENT PUBLISHED ISSUES OF THE NATIONAL ELECTRIC SAFETY CODE (NESC), AND POLE ATTACHMENT STANDARDS FOR POLE OWNER.
10. ANYONE WORKING ABOVE THE LOWEST PLANE OF ANY ENERGIZED AND UNSHIELDED CONDUCTOR SHALL BE A QUALIFIED ELECTRIC SUPPLY LINE WORK. SEE NESC RULE 432 FOR DETAILS.



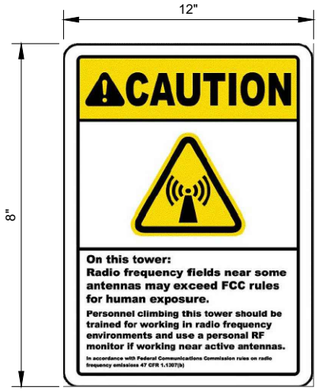
1 C1 POLE ELEVATION
NOT TO SCALE

ANTENNA SCHEDULE NOTES
1. CONTRACTOR TO MOUNT ANTENNAS PER MANUFACTURER'S SPECIFICATIONS
2. CONTRACTOR TO REFERENCE VZW ISSUED RFDS AND GIVE PRECEDENCE TO
3. INFORMATION PROVIDED IN RFDS OVER INFORMATION PROVIDED IN THIS TABLE
4. VERIFY LOADING WITH STRUCTURAL ANALYSIS PRIOR TO CONSTRUCTIONS

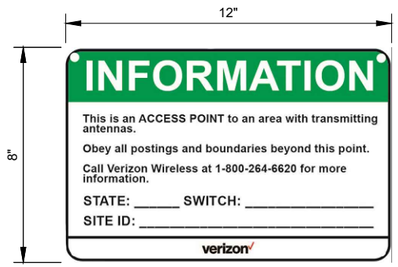
PROPOSED ANTENNA/FEEDLINES SCHEDULE

MANUFACTURER (MODEL)	MOUNTING HEIGHT (RAD CTR)	COAX CABLE	HYBRID CABLE	AZIMUTH (TN)	DIPLEXER	COMBINERS / SPLITTERS
JMA WIRELESS CX16OMI236	33'-5"	(12) 1/2" OAX	-	0°	1	-

2 C1 ANTENNA SCHEDULE



3 C1 INFORMATION SIGN



4 C1 INFORMATION SIGN

PREPARED FOR:
verizon
1000 WILLIAMS BLVD
KENNER, LA 70062

A&E FIRM:
towersource
1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

REGISTERED PROFESSIONAL ENGINEER SEAL:

REVISION

REV	DATE	DESCRIPTION
0	10/23/2019	ISSUED FOR CONSTRUCTION

DRAWN BY: BA | CHECKED BY: JKP

CAUTION
FOREIGN UTILITY LOCATIONS ARE APPROXIMATE.
CONTACT THE LOCAL ONE CALL AGENCY 48 HOURS PRIOR TO CONSTRUCTION FOR EXACT UTILITY LOCATION AT:
Tennessee811
CONSTRUCTION SHALL NOTIFY THE JURISDICTION'S, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING, OFFICE OF THE CITY ENGINEER, 48 HOURS BEFORE STARTING WORK IN THIS PROJECT.

PROJECT INFORMATION:
VERIZON SITE ID
SMC_CBRLD_MD_
CTR_CRSVILE_1-SITERRA

NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

SHEET TITLE:
POLE ELEVATION

SHEET NO. C1 | REVISION: 0

CURRENT VIEW
(FROM SW LOOKING NE)

PROPOSED VIEW
(FROM SW LOOKING NE)

PREPARED FOR:

verizon

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KENNER, LA 70062

A&E FIRM:

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TEL: 678-990-2338 FAX: 678-990-2342

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NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

SHEET TITLE:

PHOTO SIMS

SHEET NO. C2.1

REVISION: 0

CURRENT VIEW
(FROM SW LOOKING NE)

PROPOSED VIEW
(FROM SW LOOKING NE)

PREPARED FOR:

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A&E FIRM:

towersource

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ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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CTR_CRSVILE_1-SITERRA

NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

SHEET TITLE:

PHOTO SIMS

SHEET NO. C2.2

REVISION: 0

Notes for Figure 6H-33—Typical Application 33
Stationary Lane Closure on a Divided Highway

Standard:

1. **This information also shall be used when work is being performed in the lane adjacent to the median on a divided highway. In this case, the LEFT LANE CLOSED signs and the corresponding Lane Ends signs shall be substituted.**
2. **When a side road intersects the highway within the TTC zone, additional TTC devices shall be placed as needed.**

Guidance:

3. *When paved shoulders having a width of 8 feet or more are closed, channelizing devices should be used to close the shoulder in advance of the merging taper to direct vehicular traffic to remain within the traveled way.*

Option:

4. A truck-mounted attenuator may be used on the work vehicle and/or shadow vehicle.

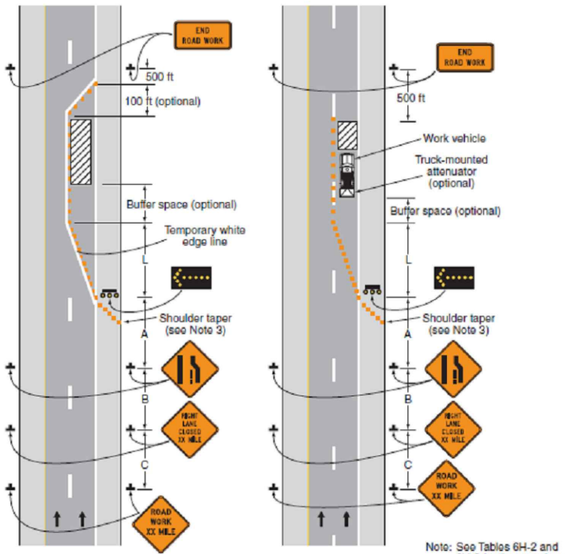
Support:

5. Where conditions permit, restricting all vehicles, equipment, workers, and their activities to one side of the roadway might be advantageous.

Standard:

6. **An arrow board shall be used when a freeway lane is closed. When more than one freeway lane is closed, a separate arrow board shall be used for each closed lane.**

Figure 6H-33. Stationary Lane Closure on a Divided Highway (TA-33)



Typical Application 33

1 C3 TRAFFIC CONTROL PLAN
NOT TO SCALE

Table 6H-2. Meaning of Symbols on Typical Application Diagrams

Arrow board	Shadow vehicle
Arrow board support or trailer (shown facing down)	Sign (shown facing left)
Changeable message sign or support trailer	Surveyor
Channelizing device	Temporary barrier
Crash cushion	Temporary barrier with warning light
Direction of temporary traffic detour	Traffic or pedestrian signal
Direction of traffic	Truck-mounted attenuator
Flagger	Type 3 barricade
High-level warning device (Flag tree)	Warning light
Longitudinal channelizing device	Work space
Luminaire	Work vehicle
Pavement markings that should be removed for a long-term project	

Table 6H-4. Merging Taper Lengths and Spacing of Channelizing Devices

Posted Speed	Formula	* Minimum Desirable Taper Lengths: 10' Offset	11' Offset	12' Offset	Suggested maximum Spacing of Channelizing Devices: On a taper	On a tangent
30	$L = \frac{WS^2}{60}$	150'	165'	180'	30'	60'
35		205'	225'	245'	35'	70'
40		265'	295'	320'	40'	80'
45	$L = WS$	450'	495'	540'	45'	90'
50		500'	550'	600'	50'	100'
55		550'	605'	660'	55'	110'
60		600'	660'	720'	60'	120'
65		650'	715'	780'	65'	130'
70		700'	770'	840'	70'	140'
75		750'	825'	900'	75'	150'
80		800'	880'	960'	80'	160'

* Taper lenghts have been rounded off.
L = Length of Taper (Feet) W = Width of Offset (Feet) S = Posted Speed (MPH)

Table 6H-3. Suggested Advance Warning Sign Spacing

Road Classification	Posted Speed (MPH)	Sign Spacing "X" (Feet)
Conventional Highway	25	100
	30	120
	35	160
	40	240
	45	320
	50	400
	55*	500
	60*	600
	65*	700
	70*	800
	75*	900
	80*	1000
Expressway or Freeway	All Speeds	See Typical Applications **

* Distance between signs should be increased to have 1500 feet advance warning. (See Section 6C.04.07)

** Distance between signs should be increased to have 1/2 mile or more advance warning (See Section 6C.04.05)

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TEL: 678-990-2338 FAX: 678-990-2342

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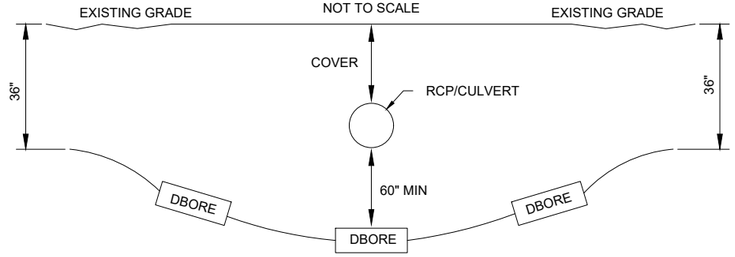
SMC_CBRLD_MD_
CTR_CRSVILE_1-SITERRA

NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

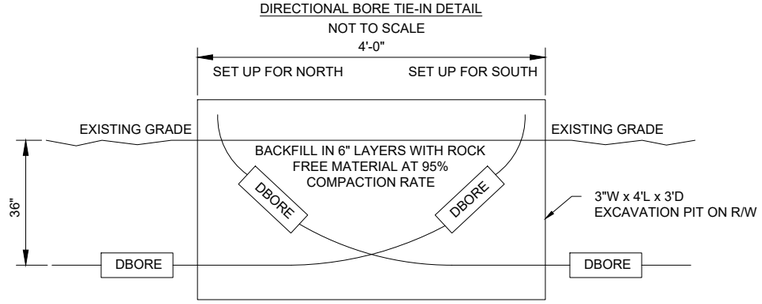
SHEET TITLE:
TRAFFIC CONTROL

SHEET NO. C3 REVISION: 0

CULVERT CROSSING DETAIL
NOT TO SCALE

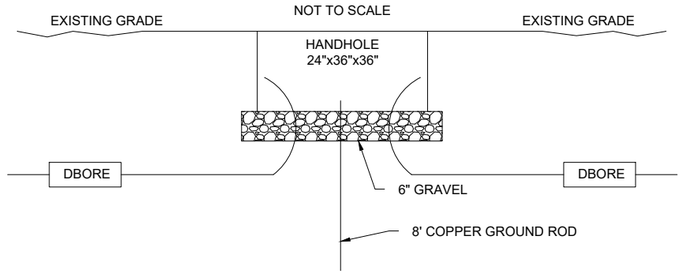


DIRECTIONAL BORE TIE-IN DETAIL
NOT TO SCALE



TIE-IN STATION
1. BORE FROM EACH DIRECTION IS RUN AT DESIGN DEPTH TO 2 FEET PAST THE INTENDED TIE-IN THEN TURNED UP TO DAYLIGHT.
2. THE TIE-IN POINT IS EXCAVATED. THE CONDUITS CUT OFF WHERE THEY CROSS EACH OTHER AT DESIGN DEPTH, AND COUPLER IS INSTALLED TO CONNECT THE TWO CONDUITS AT THE DESIGN DEPTH.
3. ALL EXCAVATIONS OR TRENCHES 4 FEET OR GREATER IN DEPTH SHALL BE APPROPRIATELY BENCHED, SHORED, OR SLOPED IN OSHA'S EXCAVATIONS STANDARD, 29 CFR 1926.650, .651, AND .652

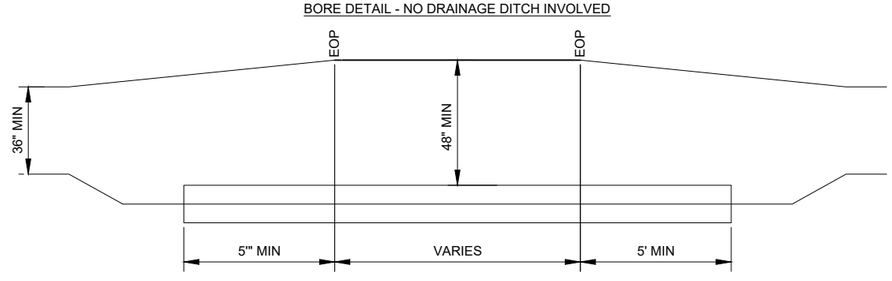
HANDHOLE CONSTRUCTION DETAILS, CONDUIT TO HANDHOLE PROFILE FOR R/W CONSTRUCTION
NOT TO SCALE



TIE-IN STATION
1. ALL EXCAVATIONS OR TRENCHES 4 FEET OR GREATER IN DEPTH SHALL BE APPROPRIATELY BENCHED, SHORED, OR SLOPED ACCORDING TO THE PROCEDURES AND REQUIREMENTS SET FORTH IN OSHA'S EXCAVATION STANDARDS, 29 CFR 1926.650, .51, AND .652.

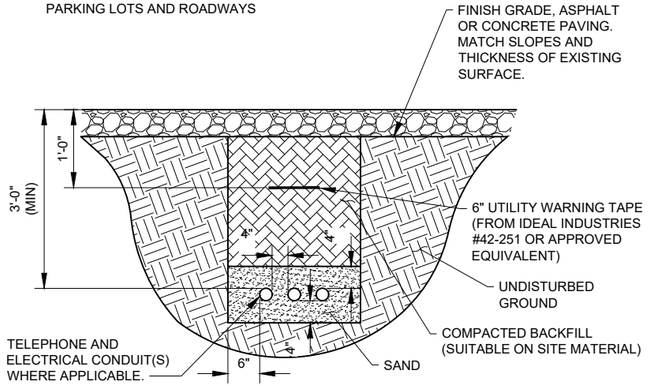
1 / C4 STANDARD BORE PIT DETAILS
NOT TO SCALE

BORE DETAIL - NO DRAINAGE DITCH INVOLVED



2 / C4 STANDARD BORE DETAILS
NOT TO SCALE

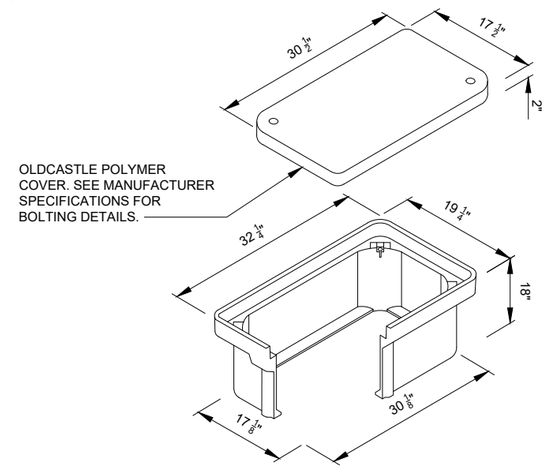
NOTES
1. ACTUAL SEPARATION OF CONDUITS TO BE DETERMINED BY SITE SPECIFIC REQUIREMENTS
2. PROVIDE PVC CONDUIT BELOW GRADE EXCEPT AS NOTED BELOW
3. PROVIDE RGS CONDUIT AND ELBOWS AT STUB UP L OCATION (I.E. SERVICE POLES, EQUIPMENT, ETC.)
4. PROVIDE RGS DONDUIT FOR INSTALLATION BELOW PARKING LOTS AND ROADWAYS



SEPARATION DIMENSIONS TO BE VERIFIED WITH LOCAL UTILILTY COMPANY REQUIREMENTS.

3 / C4 CONDUIT TRENCHING DETAILS
NOT TO SCALE

NOTES
1. INSTALL ON 3/4" AGGREGATE WHICH SHALL EXTEND A MINIMUM OF 6" BEYOND ALL SIDED OF THE BOX AND BE A MINIMUM OF 4" DEED, BELOW THE BOX
2. OLDCASTLE ENCLOSURE SOLUTIONS (P/N: OLDCASTLE POLYMER 1730-18 TIER 22) MODEL NUMBER: 17301031
3.
4. CAP TO HAVE POWER/ELEC OR TELCO SHOWN



4 / C4 HANDHOLE DETAILS
NOT TO SCALE

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1000 WILLIAMS BLVD
KENNER, LA 70062

A&E FIRM:
towersource
1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

REGISTERED PROFESSIONAL ENGINEER SEAL:

REVISION

REV	DATE	DESCRIPTION
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Tennessee 811

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VERIZON SITE ID
SMC_CBRLD_MD_
CTR_CRSVILE_1-SITERRA

NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

SHEET TITLE:
DETAILS

SHEET NO. C4 | REVISION: 0

PROPOSED PANEL SCHEDULE			
LOAD SERVED	VOLT AMPERERS (WATTS)		AMP / POLE
	L1	L2	
100A MAIN BREAKER	N/A	--	100A
	--	N/A	
PSU 1 & 2	2880	--	15 / 15
PSU 3 & 4	--	2880	15 / 15
PANEL ANTENNA 1 & 2	2880	--	15 / 15
L1 VOLT AMPERES	5760		
L2 VOLT AMPERES	2880		
AMPS	48	38	
MAX AMPS + 25%	60		
MAX AMP +			

1 / E1 POWER PANEL SCHEDULE
NOT TO SCALE

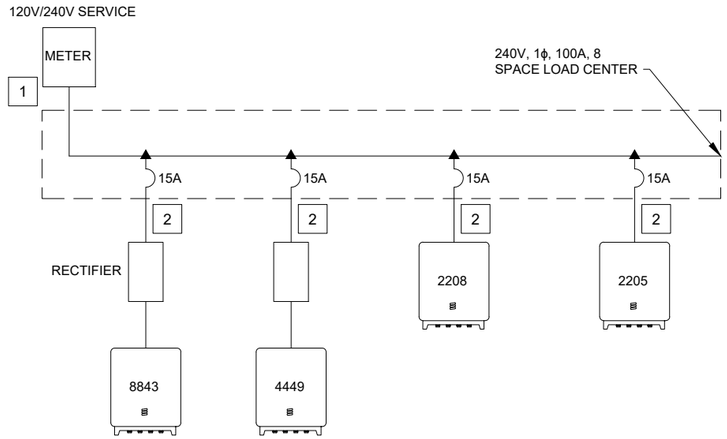
NOTES

ONE LINE DIAGRAM AND GENERAL WIRING DIAGRAM DO NOT SHOW CORRECT NUMBER OF PSUs. THERE SHOULD BE 4E// PSU08s SHOWN, 2 FOR EACH DUAL BAND RAIDO.

CABLE SCHEDULE

1 2 - #3 AWG THHN & #4 GROUND
REFER TO UTILITY POLE ELEVATION FOR CONDUIT SIZES

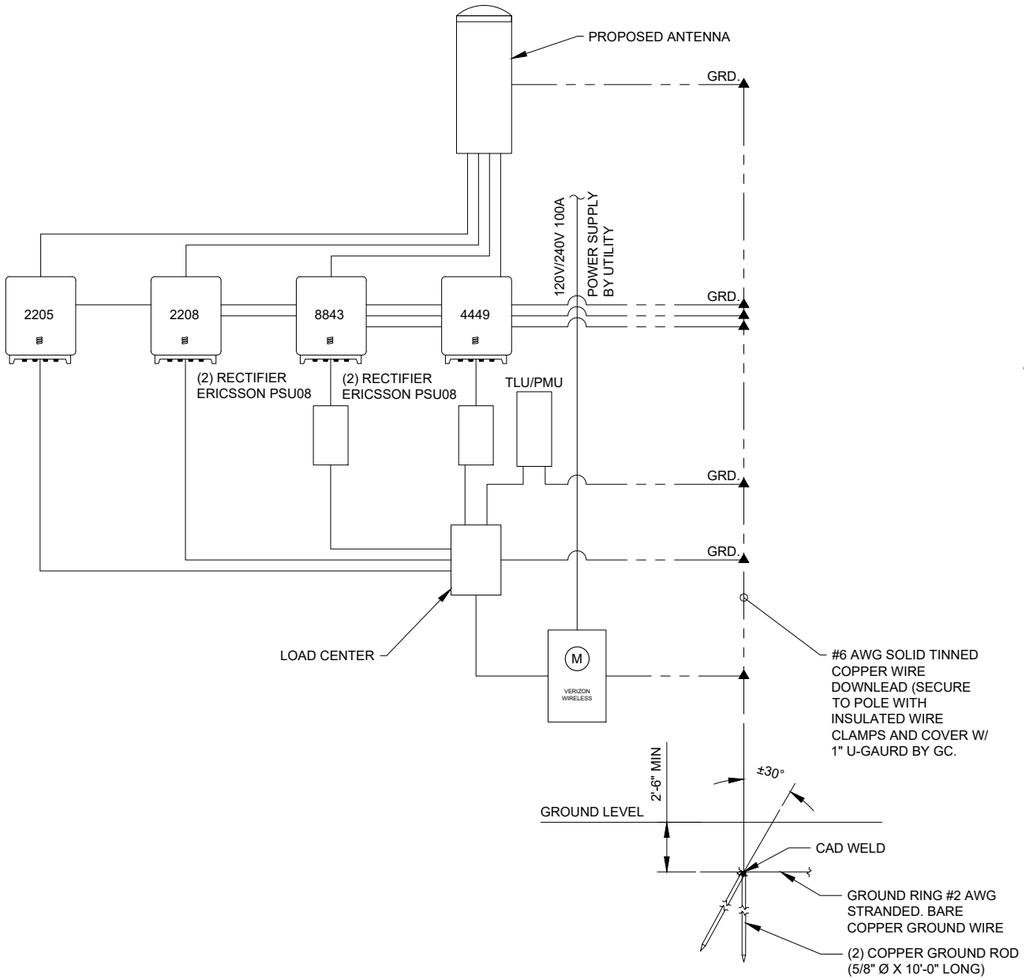
2 3 - #14 AWG & #6 GROUND
REFER TO UTILILTY POLE ELEVATION FOR CONDUIT SIZES



ONE LINE DIAGRAM NOTES

1. ELECTRICAL SERVICE SHALL BE 100A, 120/240V, 1Ø, 3W
2. PROVIDE SERVICE ENTRANCE RATED CIRCUIT BREKAER TYPE SERVICE DISCONNECT. (1Ø, 3W, 240V, 100A, WITH CIRCUIT BREAKER RATED AT 100A)
3. INSTALL A 100 AMP METER BASE AS DIRECTED BY THE UTILITY COMPANY
4. SOME BREAKERS NOT SHOWN IN ONE LINE DIAGRAM FOR CLARITY

2 / E1 ONE LINE DIAGRAM
NOT TO SCALE



3 / E1 GENERAL WIRING DIAGRAM
NOT TO SCALE

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1000 WILLIAMS BLVD
KENNER, LA 70062

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ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

SHEET TITLE:

ONE LINE DIAGRAM

SHEET NO. E1 | REVISION: 0

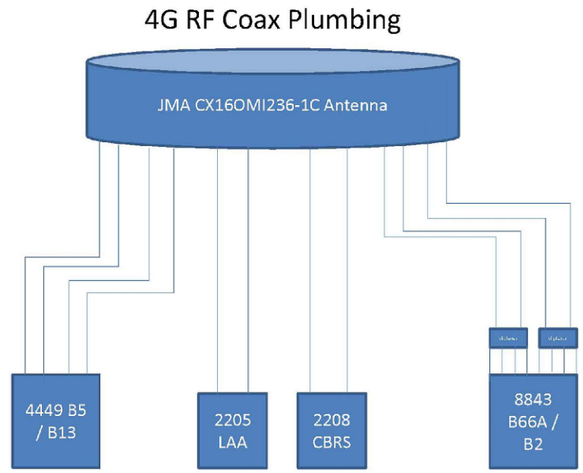
Antenna Summary

Added Antennas													
700 LTE	850 CDMA	850 LTE	1900 CDMA	1900 LTE	2100 LTE	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	QTY
YES		YES		YES	YES	JMA WIRELESS	CX16OMI236	40	41.4	0(D1)	true	true	PHYSICAL	1
Removed Antennas														
700 LTE	850 CDMA	850 LTE	1900 CDMA	1900 LTE	2100 LTE	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	QTY
Retained Antennas														
700 LTE	850 CDMA	850 LTE	1900 CDMA	1900 LTE	2100 LTE	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	QTY

Added: 1 | Removed: 0 | Retained: 0

Equipment Summary

Added Non Antennas												
Equipment Type	700 LTE	850 CDMA	850 LTE	1900 CDMA	1900 LTE	2100 LTE	Location	Make	Model	Cable Length	Cable Size	Inst. Type	Quantity
RRU							Tower	Ericsson	2205 - Near the Antenna			PHYSICAL	1
RRU							Tower	Ericsson	2208 - Near the Antenna			PHYSICAL	1
RRU	YES		YES				Tower	Ericsson	4449 - Mounted inside Equipment Shroud at the bottom of the pole			PHYSICAL	1
RRU					YES	YES	Tower	Ericsson	8843 - Mounted inside Equipment Shroud at the bottom of the pole			PHYSICAL	1
Diplexer					YES	YES	Tower	JMA Wireless	DBCC-AW-P-4WF (Compact Diplexer AWS-PCS Quad)			PHYSICAL	1
Coaxial Cables							Tower	CommScope	FSJ1-50A or equivalent		1/2"	PHYSICAL	12
Removed Non Antennas													
Equipment Type	700 LTE	850 CDMA	850 LTE	1900 CDMA	1900 LTE	2100 LTE	Location	Make	Model	Cable Length	Cable Size	Inst. Type	Quantity
Retained Non Antennas													
Equipment Type	700 LTE	850 CDMA	850 LTE	1900 CDMA	1900 LTE	2100 LTE	Location	Make	Model	Cable Length	Cable Size	Inst. Type	Quantity



1 / E2 RFDS & PLUMBING DIAGRAM
NOT TO SCALE

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KENNER, LA 70062

A&E FIRM:
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NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

SHEET TITLE:
RFDS & PLUMBING DIAGRAM

SHEET NO. E2 | REVISION: 0

GROUNDING NOTES

1. CONTRACTOR TO VERIFY THAT GROUNDING ELECTRODES SHALL BE INTERCONNECTED IN A GROUNDING SYSTEM USING #2 AWG BARE TINNED COPPER WIRE. THE TOP OF THE GROUND RODS AND GROUNDING CONDUCTORS TO BE 30 INCHES BELOW FINISHED GRADE. GROUNDING ELECTRODES SHALL BE DRIVEN ON 10'-0" CENTERS MINIMUM. (15'-0" MAXIMUM, PROVIDE AND INSTALL AS REQUIRED PER PLAN)

2. BONDING OF THE GROUNDED CONDUCTOR (NEUTRAL) AND THE GROUNDING CONDUCTOR SHALL BE AT THE SERVICE DISCONNECTING MEANS. BONDING JUMPER SHALL BE INSTALLED PER N.E.C. ARTICLE 250.30.

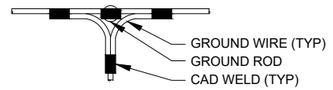
3. GROUNDING SYSTEM CONDUCTORS SHALL BE OF EQUAL LENGHT, MATERIAL, AND BONDING TECHNIQUE.

4. CONTRACTOR TO INSURE THAT THE GROUND ROD IS WITHIN 12 TO 36 INCHES OF THE POLE FOUNDATION. CONTRACTOR TO VERIFY ALL EXISTING SITE GROUNDING CONDITIONS BEFORE STARTING WORK OR PURCHASING EQUIPMENT.

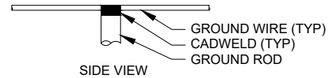
5. BONDING CONDUCTORS SHALL BE ROUTED THROUGH A 3/4" PVC CONDUIT SLEEVE RUN UNDER THE FOUNDATION. REFER TO THE GROUNDING PLAN.

NOTES

MINIMUM SPACING OF 12" BETWEEN ALL CADWELDS



TOP VIEW

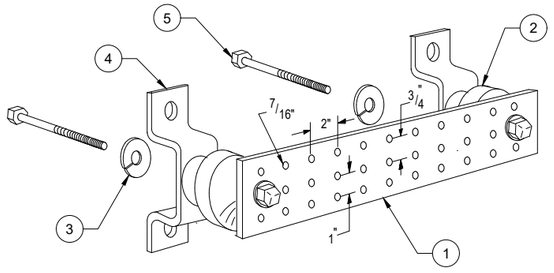


SIDE VIEW

2 / E3 CADWLED GROUNDING DETAIL
NOT TO SCALE

NOTES

GROUND BAR SHALL BE SIZED TO ACCOMODATE ALL GROUNDING CONNECTIONS REQUIRED PLUS PROVIDE 50% SPARE CAPACITY



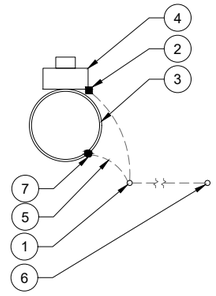
LEGEND

1. COPPER GROUND BAR, 1/4" x 4" x 20" MIN
   NEWTON INSTRUMENT CO. (CAT. # B-6142) HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION
2. INSULATORS NEWTON INSTRUMENT CO. (CAT. # 3061-4)
3. 5/8" LOCKWASHER
   NEWTON INSTRUMENT CO. (CAT. # 3015-8)
4. WALL MOUNTING BRACKET,
   NEWTON INSTRUMENT CO. (CAT. # A-6056)
5. 5/8"-11 x 1" H.H.C.S. BOLT,
   NEWTON INSTRUMENT CO. (CAT. # 3012-1)

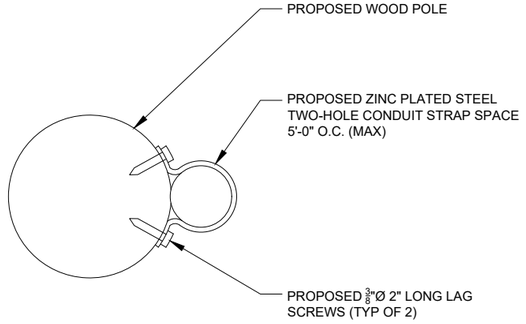
1 / E3 GROUND BAR DETAIL
NOT TO SCALE

LEGEND

1. PROPOSED GROUND ROD
2. 2-HOLE MECHANICAL CONNECTION (TYP)
3. PROPOSED WOOD POLE
4. PROPOSED METER
5. GROUND TO PROPOSED PANEL ANTENNAS
6. PROPOSED GROUND RCO, GROUND ROD TO BE NO CLOSER THAN 6" TO SECONDARY PROPOSED GROUND ROD
7. PROPOSED EXOTHERMIC CADWELD OR IRREVERSIBLE CONNECTION USED FOR DIRECT CONTACT



3 / E3 POLE GROUNDING PLAN
NOT TO SCALE



4 / E3 CONDUIT STRAP DETAIL
NOT TO SCALE

PREPARED FOR:

verizon

1000 WILLIAMS BLVD
KENNER, LA 70062

A&E FIRM:

towersource

1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

REGISTERED PROFESSIONAL ENGINEER SEAL:

REVISION

REV	DATE	DESCRIPTION
0	10/23/2019	ISSUED FOR CONSTRUCTION

DRAWN BY: BA | CHECKED BY: JKP

CAUTION

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Tennessee811

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PROJECT INFORMATION:

VERIZON SITE ID
SMC_CBRLD_MD_
CTR_CRSVILE_1-SITERRA

NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

SHEET TITLE:

GROUNDING DETAILS

SHEET NO. E3 | REVISION: 0

RADIO 4449 – B13 & B5
4TX 4RX PER BAND

- **4 antenna ports, 4TX/4RX for 2 bands with common RF ports**
- **Up to 320W RF Power shared between 2 bands**
  - Examples:
    - 4x40W on each band or
    - 2x60W each band on two high-power RF ports
- **Carrier Capacity:**
  - Up to 24 carrier and up to 10+25 MHZ OBW for LTE
- 2 x 10 Gbps CPRI
- **Size and Weight:**

Radio 4449 - B13& B5	Height	Width	Depth	Weight
wo protruding items	15 In (380 mm)	13.2 In (335 mm)	9.3 In (235 mm)	70 lbs (31.7 Kg)
w protruding items	18 In (455 mm)	13.2 In (335 mm)	9.4 In (240 mm)	

- -48 VDC
- 2x20A fuse (2 power connectors, 2 or 3 wire)
- AISG TMA & RET support (2 Bias-T, 1 ALD port)
- Type 4.3-10 RF connectors
- 2 external alarms
- IP 65, -40 to +55 C

Portrait Mount Only

Now confirmed max measurements/ will not exceed

RADIO 8843 – B2 & B66A
4TX 4RX PER BAND

- **8 antenna ports, 4TX/4RX for 2 bands with separate RF ports**
- **Up to 320W RF Power shared between 2 bands**
  - Examples:
    - 4x40W on each band or
    - 4x20W on B2 and 4x60W on Band 66A
    - 2x60W on Band 2 and 2x80W on Band 66A
- **Carrier Capacity:**
  - Up to 24 carrier and up to 60+70 MHZ OBW for LTE
- 2 x 10 Gbps CPRI
- **Size and Weight:**

Radio 8843 - B2 & B66A	Height	Width	Depth	Weight
wo protruding items	15 in (380 mm)	13.2 In (335 mm)	11.1 In (282 mm)	75 lbs (34.02 Kg)
w protruding items	18 in (455 mm)	13.2 In (335 mm)	11.3 In (287 mm)	

- -48 VDC
- 2x26A fuse (2 power connectors, 2 or 3 wire) (26A for 4x60W)
- AISG TMA & RET support (2 Bias-T, 1 ALD port)
- Type 4.3-10 RF connectors
- 2 external alarms
- IP 65, -40 to +55 C

Portrait Mount Only

Now confirmed max measurements/ will not exceed

RADIO 2205 LAA

- 2TX/2RX
- 2x 0.5 W
- 60 MHz IBW
- Up to 3 20 MHz LTE carriers
- 2x10Gbps CPRI
- 4 liter, less than 11.03 lbs (5Kg) incl bracket and cover
- AC or -48 VDC
- Size HxWxD:
  - 7.88x7.88x3.94 In (200x200x100 mm) with cover 4.69 In (119 mm) with high band antenna
  - Weight: 11.024 lbs (5Kg) including bracket and cover
- Integrated or external antenna
- 2 external alarm
- IP 65
- -40 to +55℃
- Operating Band
  - 5 GHz, LAA

Back to Agenda

RADIO 2208 B48 - CBRS

Capacity and Specifications	
— 3GPP: B48	— 3 LTE carriers
— 2TX/2RX	— Output Power 2x10 W
— 4TX/4RX by use of 2x2208	
— 60 MHz IBW	

Other Specifications	
— AC or -48 VDC	— 2 external alarm
— Integrated or external antenna	— IP 65, -40 to +55°C
— 3.5 GHz	— 2x 10Gbps CPRI

Size and Weight				
Radio 2208 (1 unit)	Height	Width	Depth	Weight
With Integrated Antenna	8.43 In	7.88 In	4.8 In	12.1 lbs

HW ready for 5G NR SW upgrade

1 x Radio 2208
2T2R, 60 MHz OBW

2 x Radio 2208
2T2R, 120 MHz OBW
4T4R, 60 MHz OBW

1 / S1 RRUS SPECS
NOT TO SCALE

PREPARED FOR:

verizon

1000 WILLIAMS BLVD
KENNER, LA 70062

A&E FIRM:

towersource

1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

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DRAWN BY: BA | CHECKED BY: JKP

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CTR_CRSVILE_1-SITERRA

NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

SHEET TITLE:

RRUS SPECS

SHEET NO. S1 | REVISION: 0

JMA WIRELESS

CX16OMI236-1C

NWAV™ X-Pol OMNI Cantenna

16-port 2 ft 360° cantenna with RET-controlled HB: 4 ports 698-960 MHz, 4 ports 1695-2700 MHz, 4 ports 3550-3700 MHz, and 4 ports 5150-5925 MHz

- X-Pol, Small Cell, hex-port antenna
- Suitable for pole or building mount
- 4x4 MIMO low-band, 4x4 MIMO for each AWS/PCS/CBRS/LAA
- Internal beam combining
- Dependent RET control for 1695-2700 MHz frequencies
- Suitable for LTE/UMTS/CDMA/GSM technologies
- Cost-effective solution for neutral host locations

Omni clover

Electrical specification (min/max)	Ports 1, 2, 3, 4		Ports 5, 6, 7, 8				
Frequency bands, MHz	698-798	824-960	1695-1880	1850-1990	1920-2180	2300-2500	2500-2700
Polarization	± 45°		± 45°				
Average gain over all tilts, dBi	3.5	3.5	9.0	9.2	9.9	10.1	9.9
Horizontal beamwidth (HBW), degrees	360°		360°				
Vertical beamwidth (VBW), degrees[1]	80°	65°	15.4°	14.4°	13.5°	12.0°	11.0°
Electrical downtilt (EDT) range, degrees	0° (FET)		2-8° (RET)				
Cross-polar isolation, port-to-port, dB[1]	25	25	25	25	25	25	25
Max VSWR / return loss, dB	1.5:1 / -14.0		1.5:1 / -14.0				
Max PIM, 2x20W carrier, dBc	-153		-153				
Maximum input power per port, watts	250		125				
Maximum composite power, watts	900						

Electrical specification (min/max)	Ports 9, 10, 11, 12	Ports 13, 14, 15, 16				
Frequency bands, MHz	3550-3700	5150-5250	5250-5350	5470-5725	5725-5850	5850-5925
Polarization	± 45°	± 45°				
Average gain over all tilts, dBi	5.0	5.5	5.7	5.5	5.5	5.6
Horizontal beamwidth (HBW), degrees	360°	360°				
Vertical beamwidth (VBW), degrees[1]	28°	24°	24°	20°	14°	18°
Electrical downtilt (EDT) range, degrees	0° (FET)	0° (FET)				
Cross-polar isolation, port-to-port, dB[1]	25	25	25	25	25	25
Max VSWR / return loss, dB	1.5:1 / -14.0	1.5:1 / -14.0				
Max PIM, 2x20W carrier, dBc	N/A	N/A				
Maximum total input power, watts	50	0.5	0.125	0.125	0.5	0.5

[1] Typical value over frequency and tilt. Note: Vertical beam upper side lobe at 5150-5925 MHz = -15 dB at > 30° above horizon

07/02/19

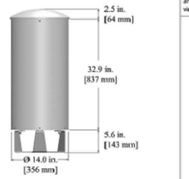
JMA WIRELESS

CX16OMI236-1C

NWAV™ X-Pol OMNI Cantenna

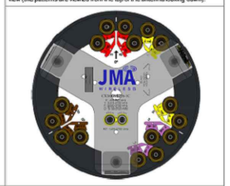
Mechanical specifications	
Dimensions height/diameter, inches (mm)	35.4/ 14 (748.8/ 355)
Antenna volume (cubic feet)	2.98
No. of RF input ports, connector type, and location	16 x 4.3- 10 female, bottom
RF connector torque	96 lbf-in (10.85 N -m or 8 lbf ft)
Net antenna weight, lb (kg)	35 (15.9)
Rated wind survival speed, mph (km/h)	150 (241)
Frontal wind loading @ 160 km/h, lbf (N)	58.7 (261.2)
Equivalent flat plate @ 100 mph and Cd=2, sq ft	1.17

Front view



End view

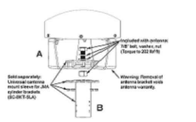
The 0 degree reference arrow corresponds to the 0 degree position in the antenna pattern file. Each antenna pattern file uses a top down orientation view (the patterns are viewed from the top of the antenna looking down).



Notes on cylinder brackets

- All CK* antennas come with the bottom mount bracket (marked as A) factory-installed (all factory testing is done with bracket attached)
- Hardware is included with each antenna to connect bottom bracket to different mounting systems.
- JMA cylinder brackets are compatible with bottom mount via universal cantenna mount sleeve (marked as B), sold separately.

Mounting details



Small Cell solutions and mounting systems (sold separately)			
Side Arm Mounting System	SC-BKT-SA-(color)	Wide Diameter Pole	SC-BKT-WTPE-(color)
Steel Pole Mounting System	SC-BKT-SLA (color)	Rooftop Ballasted Mounting System	DV-NLY-RTB-(color)

07/02/19

1 / S2 ANTENNA SPECS
NOT TO SCALE

Product Specifications

DBCC-AW-P-4BF

NWAV™ Dual-Band Compact Combiner

JMA WIRELESS

DBCC-AW-P-4BF

Dual-band compact combiner
1900/AWS-WCS
Quad design (4-unit) for 4TRx applications
4.3-10 connectors

- Combines PCS with AWS and/or WCS
- Compact size ideal for Small Cells and concealed applications
- Power handling can support macro radios up to 100W per port
- Low insertion loss and low PIM for optimized system performance
- Industry-leading connector technology for lasting performance
- Compatible with JMA WPS weatherproofing solution

Electrical specification			
Passband	1900 passband	AWS/WCS passband	
Frequency, MHz	1850–1995	uplink 1695–1760	downlink 2110–2380
Insertion loss, dB	0.2 dB Typ. 0.35 dB Max		
Return loss, dB min.	20 dB		
Isolation to other bands, dB	45 dB typ. 40 dB Min		
Average input power per port CW, W max.	100	n/a	100
Combined total power CW, All ports, W max.	360		
Input peak envelope power (PEP), W max.	1500	n/a	1500
PIM 2x +43 dBm, dBc min.	-156		

Environmental specifications	
Environmental rating	ETSI EN 300 019 class 4.1, RoHS
Ingress protection	IP67, unmated
Temperature range, °C	-40 to +65
Temperature range, °F	-40 to +149
Wind force @ 200 km/h (125 mph) front/side, lbf	13.42 / 6.97
Surge handling, all ports	RF port: ±10kA max. (8/20us), IEC 61000-4-5
Altitude	3,000 m max. | 10,000 ft. max.
Mean time between failures (MTBF)	>10^6

DBCC-AW-P-4BF_v1

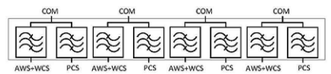
Product Specifications

DBCC-AW-P-4BF

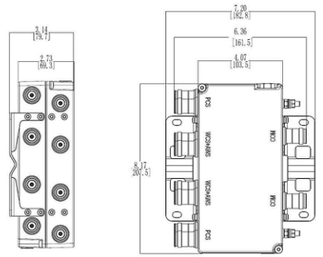
NWAV™ Dual-Band Compact Combiner

JMA WIRELESS

Block diagram. Quad unit.



Mechanical specifications	
Connectors RF	4.3-10 (F)
Ground stud	M6 x 1 (hex nut included)
Connectors quantity	12
Dimensions, L x W x H mm (in.)	103 x 207 x 69 (4.07 x 8.17 x 2.73)
Weight: kg (lb) including Brackets and HW	4.5 (9.9)
Mounting	Pole/wall bracket, two metal clamps for 45-178 mm diameter poles



Ordering Information	
DBCC-AW-P-4BF	2B cmpct comb AWS-WCS/PCS, Quad (4-unit)

DBCC-AW-P-4BF_v1

2 / S2 DIPLEXER SPECS
NOT TO SCALE

PREPARED FOR:

verizon

1000 WILLIAMS BLVD
KENNER, LA 70062

A&E FIRM:

towersource

1875 OLD ALABAMA ROAD, SUITE 1008
ROSWELL, GA 30076
TEL: 678-990-2338 FAX: 678-990-2342

FOR INFORMATION ONLY

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SMC_CBRLD_MD_
CTR_CRSVILE_1-SITERRA

NEAREST ADDRESS
396 S MAIN ST
CROSSVILLE, TN 38555
(CUMBERLAND COUNTY)

SHEET TITLE:

EQUIPMENT SPECS

SHEET NO. S2

REVISION: 0

EATON
Powering Business Worldwide

pe.eaton.com

Eaton meter socket

UTRS213BE

UPC:786685217758

Dimensions:
- **Height:** 15.11 IN
- **Length:** 4.48 IN
- **Width:** 11.22 IN

Weight:14 LB

Warranties:
- Eaton Selling Policy 25-000, one (1) year from the date of installation of the Product or eighteen (18) months from the date of shipment of the Product, whichever occurs first.

Specifications:
- **Type:** Single-position residential service
- **Amperage Rating:** 200A
- **Feed Type:** Top/bottom
- **Hub Type:** 3-5/16 in hub opening
- **Line:** #6-350 kcmil
- **Number Of Jaws:** Four-jaw
- **Phase:** Single-phase
- **Number Of Sockets:** 1
- **Number Of Wires:** Three-wire
- **Security:** Ringless
- **Voltage Rating:** 600V

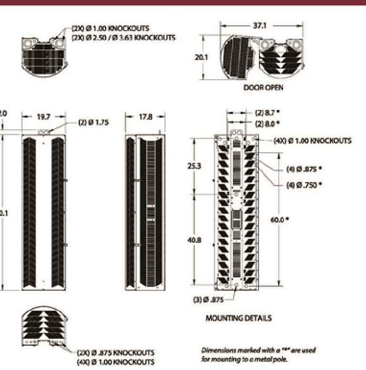
Supporting documents:
- Dimensional Drawing - METER SOCKET UTRS213(X)E, UGTRS213(X)E 200AMP, 1 ø OH/UG, RINGLESS STYLE
- Eatons Volume 1-Residential and Light Commercial
- Single Meter Sockets
- Eaton Specification Sheet - UTRS213BE

Certifications:

1 / S3 METER SPECS
NOT TO SCALE

SHRD60 Concealment Shrouds

Small Cell / Densification Shrouds for Wireless Networks

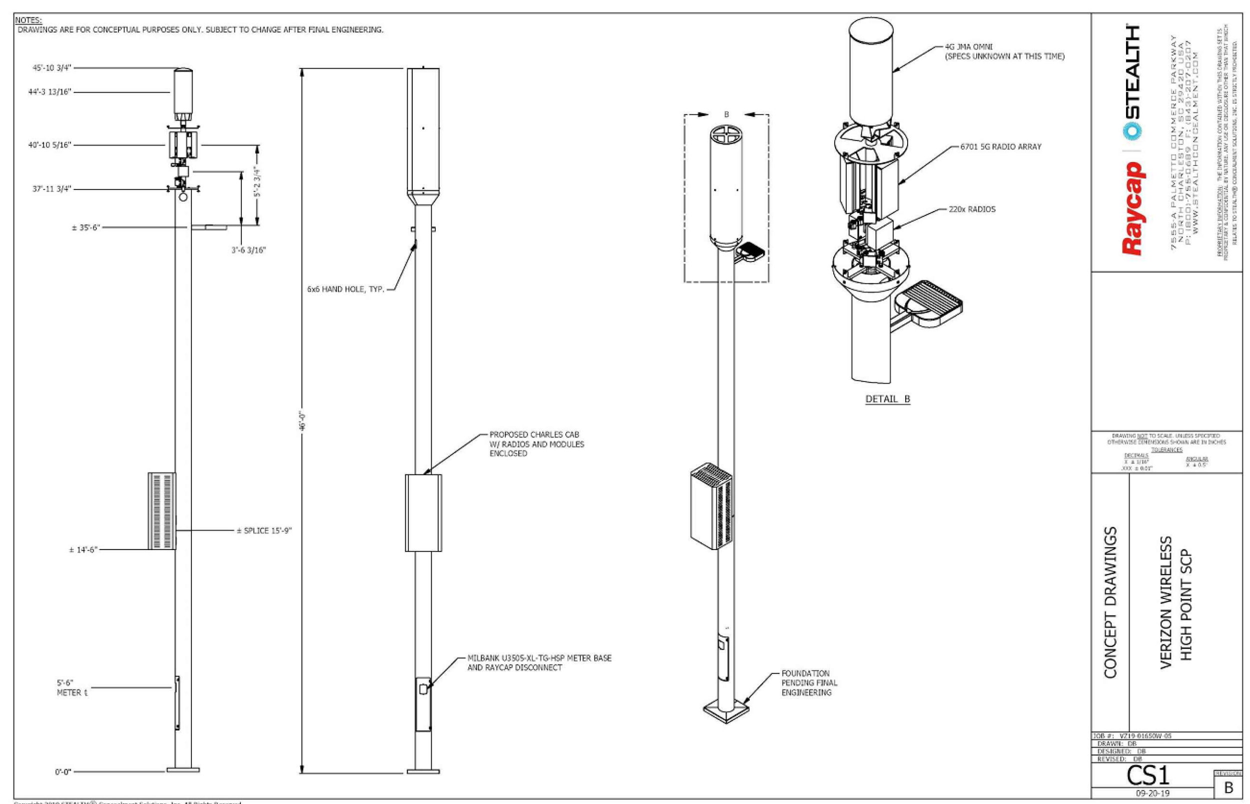


70" HIGH SH60-702018 DIMENSIONS (in.)

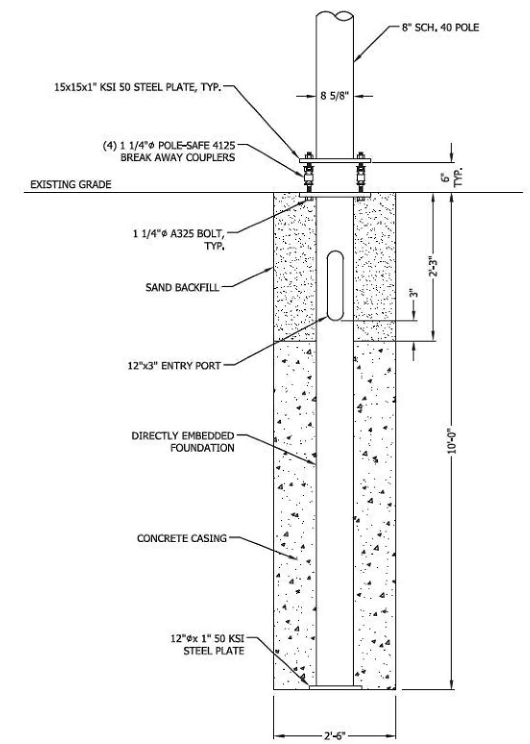
PAGE 13 OG-OSP056-F19

INNOVATIVE ENCLOSED SOLUTIONS™ Charles Industries, Ltd. Phone: (847) 806-6300 Fax: (847) 806-6231 Web: www.charlesindustries.com Charles

2 / S3 CONCEALMENT SHROUD
NOT TO SCALE



3 / S3 POLE SPECS
NOT TO SCALE



ELEVATION VIEW

4 / S3 FOUNDATION
NOT TO SCALE

PREPARED FOR:

verizon

1000 WILLIAMS BLVD
KENNER, LA 70062

A&E FIRM:

towersource

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