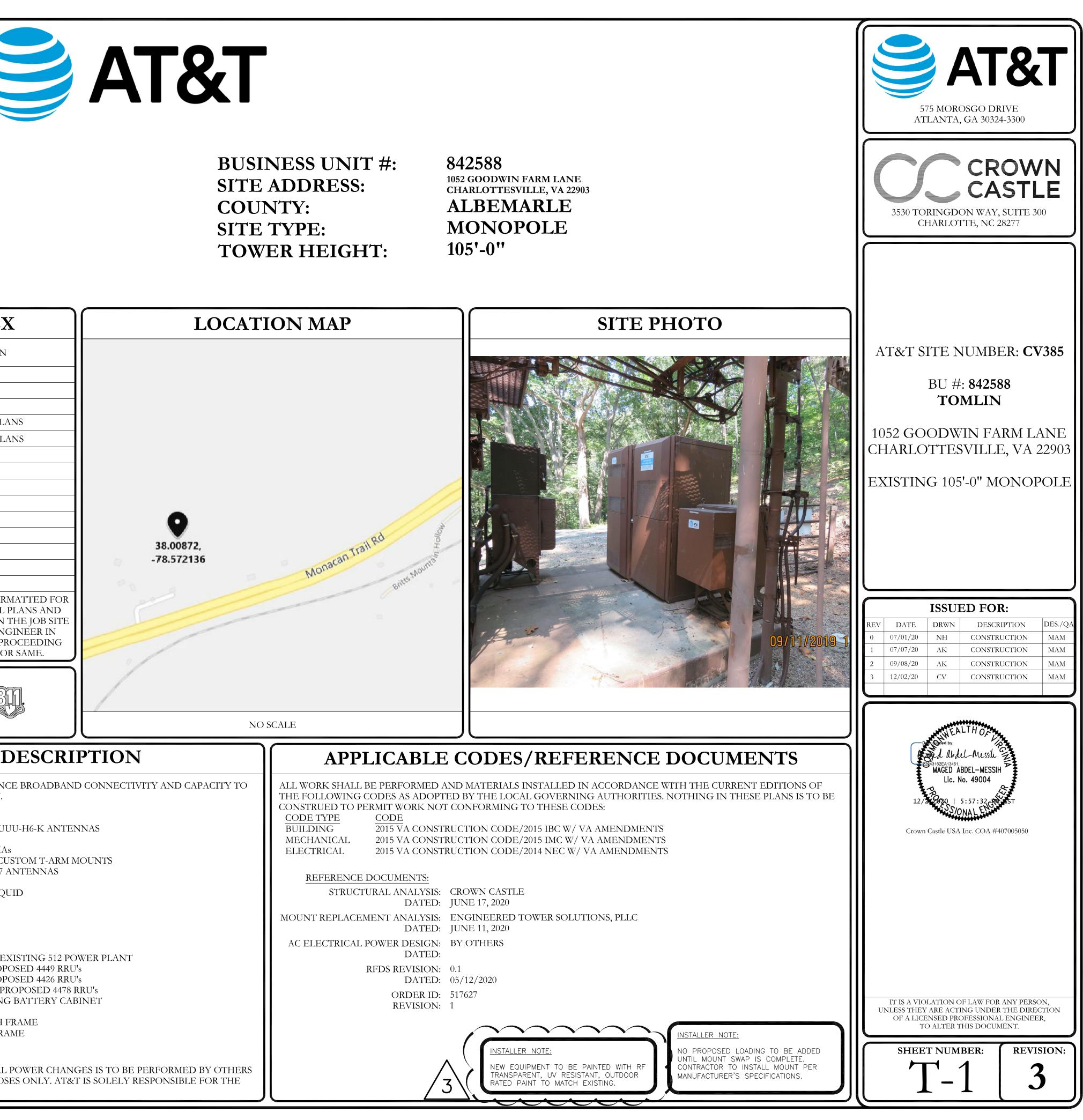


AT&T SITE NUMBER: AT&T SITE NAME: AT&T FA CODE: AT&T PACE NUMBER: AT&T PROJECT:

CV385 TOMLIN 10068605 **MRVWN003799** LTE 3C

S	ITE INFO	RMATION		DRAWING INDEX
CROWN CASTLE USA SITE NAME:	A INC. TOMLIN	[SHEET #	SHEET DESCRIPTION
SITE ADDRESS:	1052 GO	ODWIN FARM LANE	T-1	TITLE SHEET
STIL ADDILLSS.		OTTESVILLE, VA 22903	T-2	GENERAL NOTES
COUNTY:	ALBEMA	ARLE	C-1.1	SITE PLAN
MAP/PARCEL #:	07500-00-	.00-00900	C-1.2	EXISTING & FINAL EQUIPMENT PLAN
AREA OF CONSTRUC			C-2	FINAL ELEVATION & ANTENNA PLA
LATITUDE:	38° 00' 31		C-3	FINAL EQUIPMENT SCHEDULE
LONGITUDE: LAT/LONG TYPE:	-78° 34' 1' NAD83	9.70	C-4	EQUIPMENT SPECS
GROUND ELEVATION				POWER ANALYSIS
CURRENT ZONING:		AREAS	E-1	
JURISDICTION:	ALBEMA	ARLE COUNTY	G-1	GROUNDING SCHEMATIC
OCCUPANCY CLASS	IFICATION: U		G-2	GROUNDING DETAILS
TYPE OF CONSTRUC			ATTACHED	PLUMBING DIAGRAM
A.D.A. COMPLIANCE		Y IS UNMANNED AND NOT FOR HABITATION	ATTACHED	UP CONVERTER TAG SHEETS
PROPERTY OWNER:			ATTACHED	MOUNT SPECIFICATIONS
PROPERTY OWNER:		I, CHARLOTTE D Rowhead Valley RD		
	CHARLC	OTTESVILLE, VA 22903	ALL DRAW	⊥ ∕INGS CONTAINED HEREIN ARE FORM
TOWER OWNER:	CCATT I	LC	FULL SIZ	E. CONTRACTOR SHALL VERIFY ALL P
		RPORATE DRIVE		DIMENSIONS AND CONDITIONS ON T IALL IMMEDIATELY NOTIFY THE ENG
		SBURG, PA 15317		G OF ANY DISCREPANCIES BEFORE PRO
CARRIER/APPLICAN	575 MOR	OWER ASSET GROUP OSGO DRIVE A, GA 30324-3300	WITH	H THE WORK OR BE RESPONSIBLE FOR
ELECTRIC PROVIDE	ER: DOMINI (866) 366-	ON POWER 4357		CALL VIRGINIA ONE CALL (800) 552-7001 CALL 3 WORKING DAYS
TELCO PROVIDER:	(800) 200 CENTUR (800) 244-	Y LINK		CALL 3 WORKING DAYS BEFORE YOU DIG!
	PROJEC		\neg	PROJECT D
A&E FIRM:	CROWN CASTLE U 2000 CORPORATE	DRIVE		POSE OF THIS PROJECT IS TO ENHANCI TING ELIGIBLE WIRELESS FACILITY.
	CANONSBURG, PA CROWNAE.APPRO	A 15317 DVAL@CROWNCASTLE.COM		COPE OF WORK:
				/E (3) CCI ANTENNAS - TPA-65R-LCUUU /E (3) PIPE MOUNTS
CROWN CASTLE USA INC. DISTRICT	3530 TORINGDON	-	• RELOC	ATE (6) COMMSCOPE - E15Z01P39 TMAs
CONTACTS:	CHARLOTTE, NC	28277		L (3) KENWOOD - Z2058KT8-9114-M CUS
				L (6) COMMSCOPE - NNH4-65B-R6N17 A L (3) ERICSSON - 4478 B14 RRUs
	TARA BREWER - F (804) 523-8302	PROJECT MANAGER	• INSTAL	L (1) RAYCAP - DC9-48-60-24-EC-EV SQU
	(804) 525-8502			L (1) $\#$ 8AWG DC CABLE (3/4")
	DAVID GREGG - 0	CONSTRUCTION MANAGER	• INSTAL	L (1) 24 PAIR FIBER CABLE (3/8")
	(540) 798-6970			SCOPE OF WORK:
				X ANALYSIS FAILED L (3) EMERSON -48V RECTIFIERS IN EX
				L (3) 40 AMP DC BREAKERS FOR PROPC
			• INSTAL	L (3) 30 AMP DC BREAKERS FOR PROPC
				L (3) VERTIV UP CONVERTERS FOR PROL L (4) 170 AMP BATTERIES IN EXISTING
			• INSTAL	L (1) 6630 IN EXISTING FLEX 16
				/E (3) RRUS11 B12 FROM OUTDOOR H FI
				L (3) 4449 B5/B12 ON OUTDOOR H FRAN L (3) 4426 on outdoor h frame
			NOTE:	
NOTE:				ER DESIGN FOR ANY AC ELECTRICAL F
		TE YOU MUST CONTACT THE		OWN HERE FOR REFERENCE PURPOSE
$ (\mathbf{R}(\mathbf{M}) \mathbf{N} \mathbf{N} \mathbf{M} \mathbf{M} $)) 788-7011 & CROWN (CONSTRUCTION MANAGER.		AL POWER DESIGN.



CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

- 1. NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
- 2. "LOOK UP" CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
- PRIOR TO THE START OF CONSTRUCTION. ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS
- ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED-STD-10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION)
- 5. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE" AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS.
- IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS. THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
- ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES. ORDINANCES AND APPLICABLE REGULATIONS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION. 10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. 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 WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
- 11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
- 12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- 13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES
- 14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
- 15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS. 16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED
- RFACE APPLICATION. 17. THE AREAS OF THE OWNERS 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 AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS. 18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION, EROSION CONTROL
- MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL. 19. 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 OWNER.
- 20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
- 21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
- 22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GREENFIELD GROUNDING NOTES:

- ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
- THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
- THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
- 4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS. 5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED
- WITH THE POWER CIRCUITS TO BTS EQUIPMENT. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED
- COPPER FOR OUTDOOR BTS. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- 10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. 11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- 12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
- 13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
- 14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR. 15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- 16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL
- 17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC. 18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR. 19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS,
- METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT. 20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION
- POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL). 21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

- CONTRACTOR: CARRIER: AT&T TOWER OWNER: CROWN CASTLE USA INC.
- MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
- CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
- ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE

- WITH ANY SUCH CHANGE OF INSTALLATION.
- DESIGNATED LOCATION.
- A DAILY BASIS.

CONCRETE, FOUNDATIONS. AND REINFORCING STEEL:

- TO BE 1000 psf.
- PLACEMENT
- TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
- AS FOLLOWS:
- #5 BARS AND LARGER
- ON DRAWINGS:
- SLAB AND WALLS BEAMS AND COLUMNS

- #6 BARS AND LARGER #5 BARS AND SMALLER

- #4 BARS AND SMALLER CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH CONCRETE EXPOSED TO EARTH OR WEATHER:
- CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
- OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

- DRAWINGS

FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR

THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER

SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS.

IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE

EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES,

REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND

LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE

10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING

11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN

12. 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 CROWN CASTLE USA INC. 13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S

14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON

ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE. 2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED

3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°F AT TIME OF

CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE

ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE

40 ksi

60 ksi THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE

1-1/2"

3/4"

1 - 1/2" 7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED

ELECTRICAL INSTALLATION NOTES:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- 3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC. 4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO 4.1.
- REQUIREMENT OF THE NATIONAL ELECTRICAL CODE. 4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
- EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE
- CONFIGURATION. WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS 8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- 10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
- 11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- 12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED. 13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND
- BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE). 14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
- 15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS
- 16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS. 17. SCHEDULE 40 PVC UNDERGROUND ON STRAIGHTS AND SCHEDULE 80 PVC FOR ALL ELBOWS/90s AND ALL APPROVED ABOVE GRADE PVC CONDUIT
- 18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED. 19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET
- SCREW FITTINGS ARE NOT ACCEPTABLE. 20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND
- THE NEC. 21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
- 22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL). 23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE
- 24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
- METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
- 26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS. 27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC.
- BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
- 28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
- 29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "AT&T". 30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

COND	UCTOR COL	OR CODE
SYSTEM	CONDUCTOR	COLOR
	A PHASE	BLACK
120/240V, 1Ø	B PHASE	RED
120/2400, 10	NEUTRAL	WHITE
	GROUND	GREEN
	A PHASE	BLACK
	B PHASE	RED
120/208V, 3Ø	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
	A PHASE	BROWN
	B PHASE	ORANGE OR PURPL
277/480V, 3Ø	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
DU VULIAGE	NEG (-)	BLACK**

<u>apwa u</u>	NIFORM COLOR CODE:
WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

** POLARITY MARKED AT TERMINATION

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NFW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
Ρ́Ρ́	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
ТМА	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT



3530 TORINGDON WAY, SUITE 300 CHARLOTTE, NC 28277

AT&T SITE NUMBER: CV385

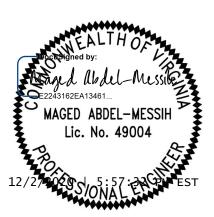
BU #: **842588** TOMLIN

1052 GOODWIN FARM LANE CHARLOTTESVILLE, VA 22903

EXISTING 105'-0" MONOPOL

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	07/01/20	NH	CONSTRUCTION	MAM
1	07/07/20	AK	CONSTRUCTION	MAM
2	09/08/20	AK	CONSTRUCTION	MAM
3	12/02/20	CV	CONSTRUCTION	MAM

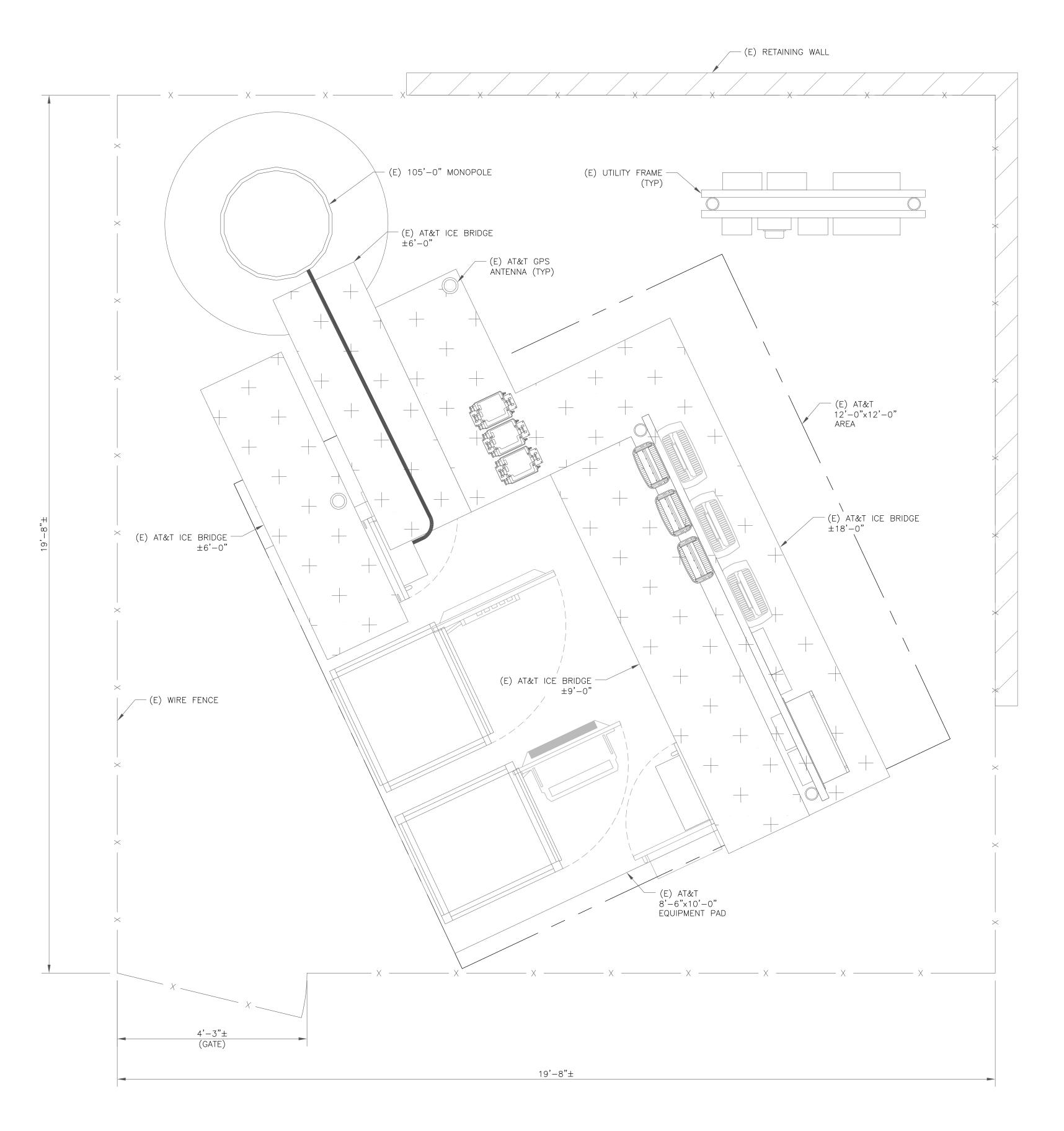


Crown Castle USA Inc. COA #407005050

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

REVISION:

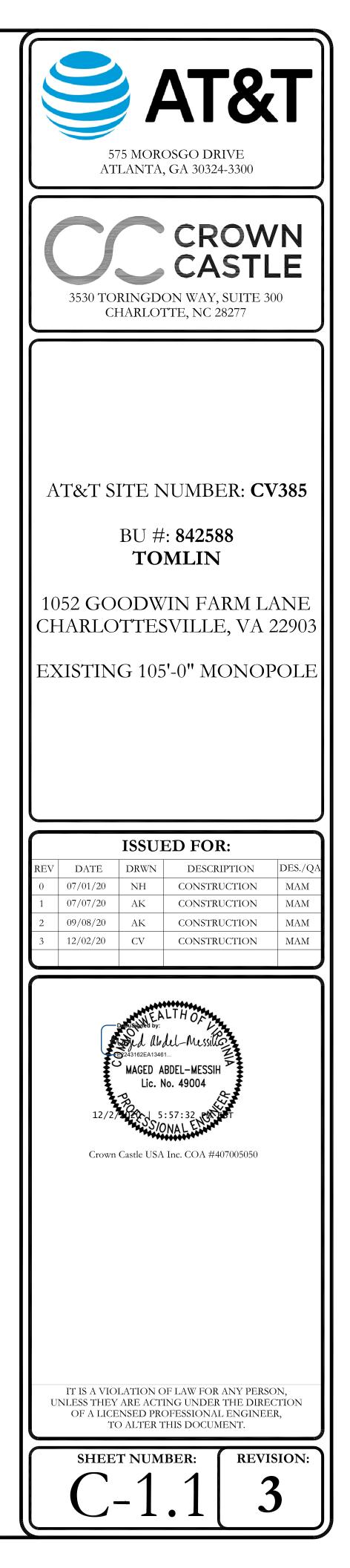
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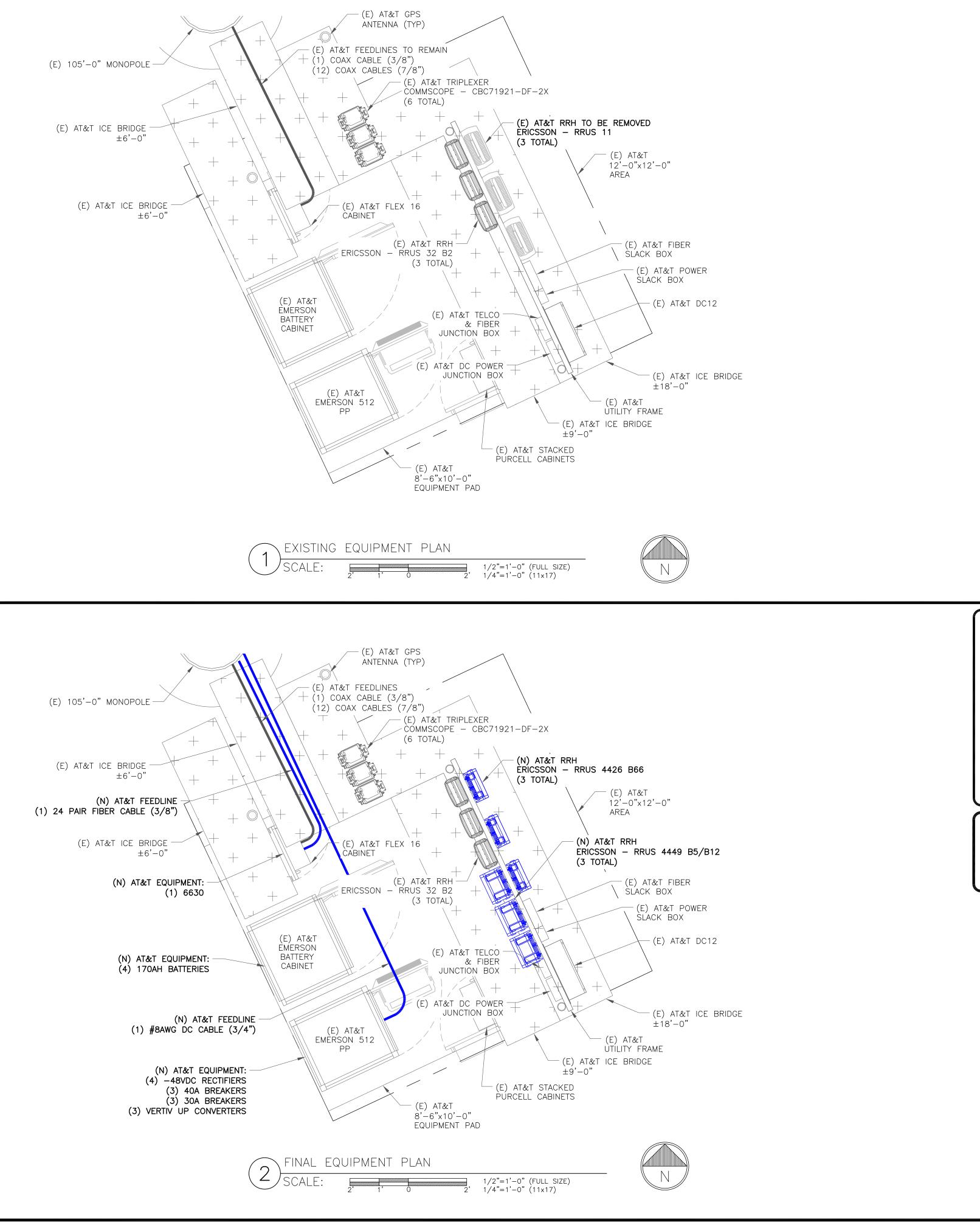


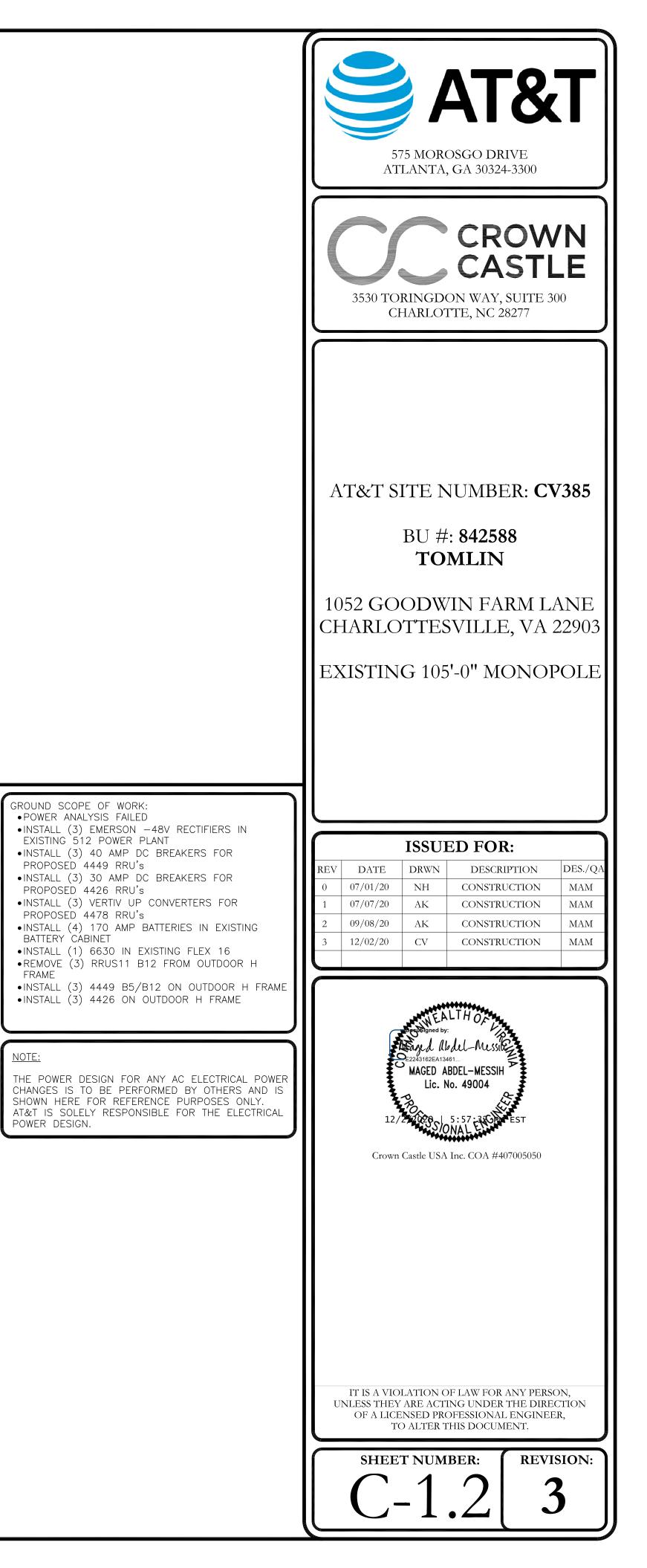


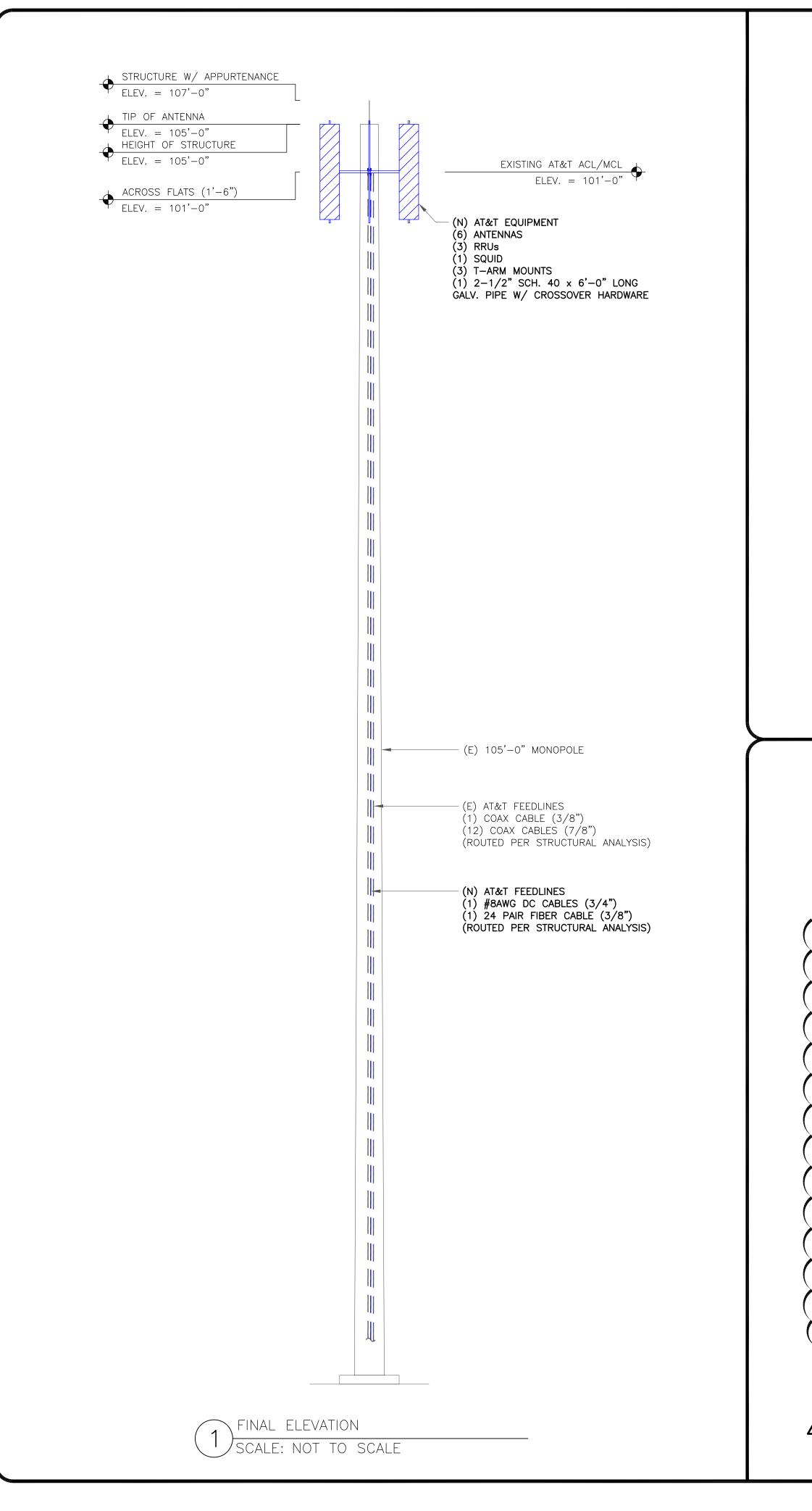
E: 3/4"=1'-0" (FULL SIZE) 1' 6" 0 1' 3/8"=1'-0" (11x17)

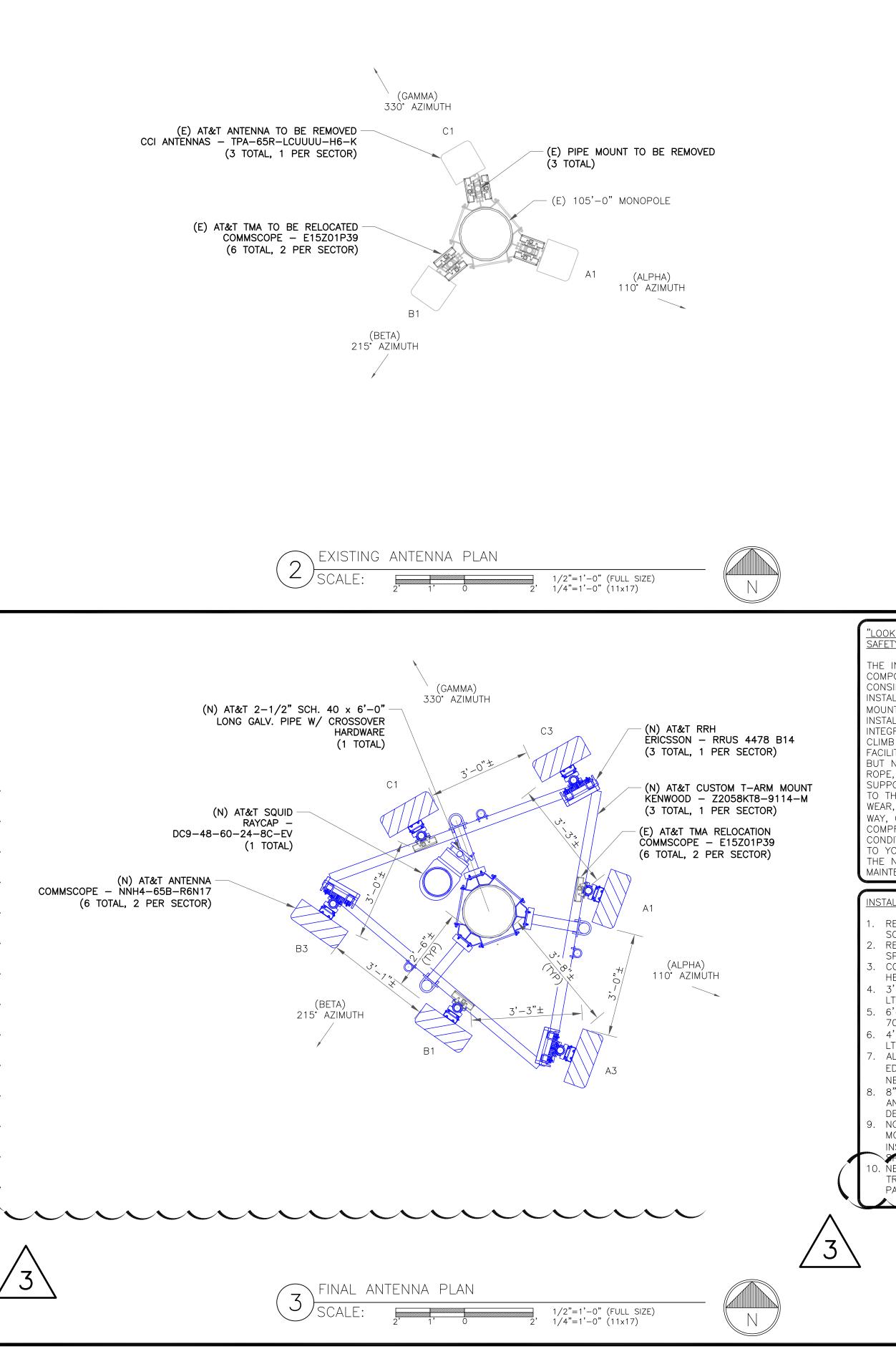


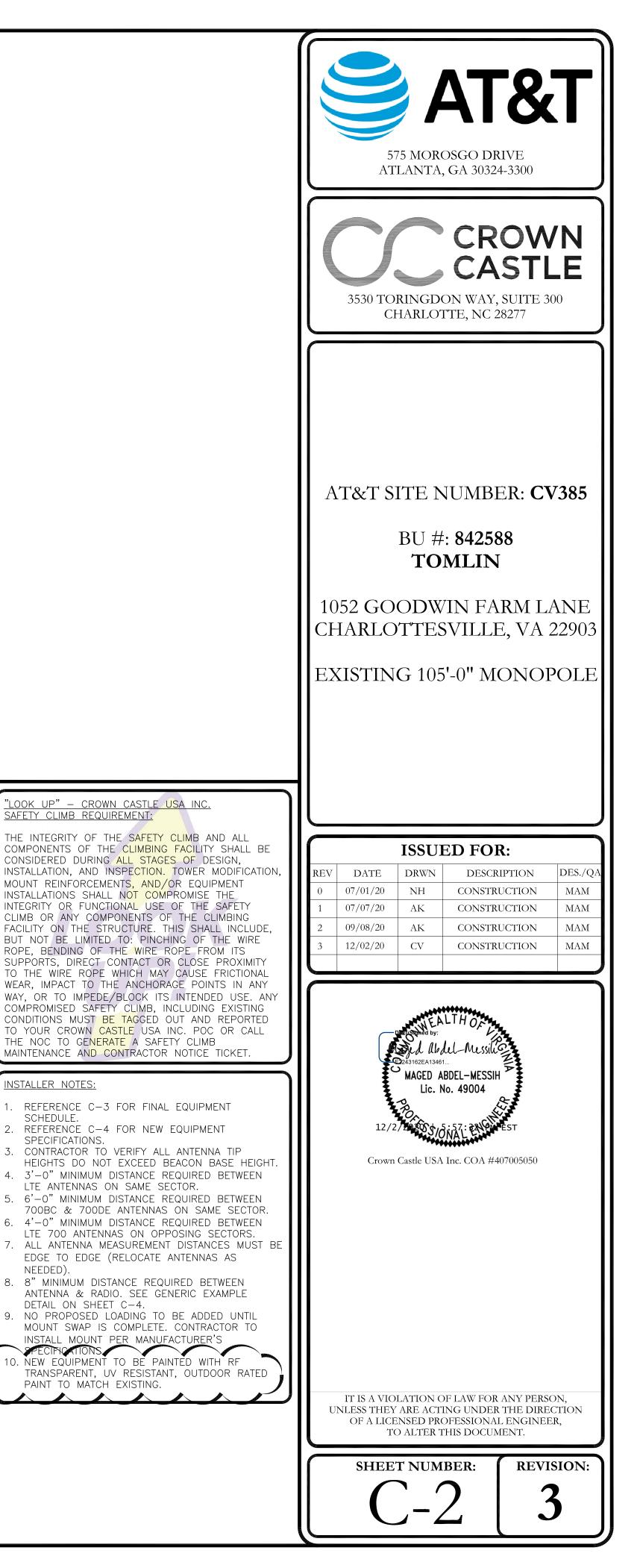












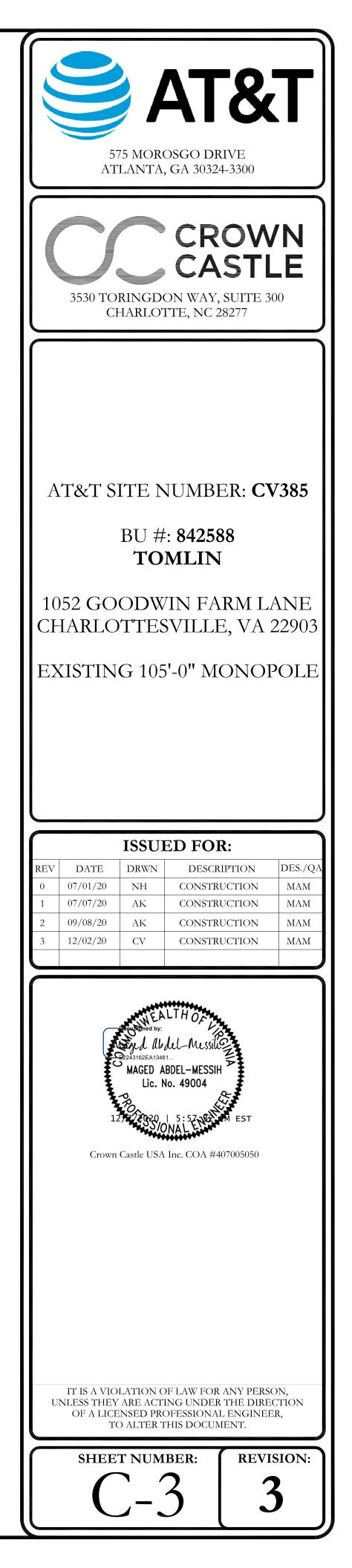
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ALPHA						(VERIFY WI	TH CI	JRF	rent r	FDS)								
		ANTENNA				RADIO			DIPLEXER			ТМА	SURGE PROTECT	ION		CABLE	S	
POSITION	TECH.	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS QT	Y. STATUS/MC	DEL	QTY.	STATUS/TYPE	SIZE	LENG
	LTE 700				1	(N) RRUS 4449 B5/B12	GROUND								4	(E) COAX	1-5/8"	151'-
A1	UMTS 1900 LTE AWS	(N) COMMSCOPE NNH4–65B–R6N17	110	101'–0"	1	(E) RRUS 32 B2	GROUND	2	(E)	GROUND	2	(E) E15Z01P39 -	_	-				
	5G AWS LTE 1900				1	(N) RRUS 4426 B66	GROUND								1	(E) COAX	3/8"	151'-
A2	_	-	_	_	_	_	_	_	_	_	_		_		Η	_	_	_
4.7	LTE 700	(N) COMMSCOPF	440										(N)		1	(N) #8AWG DC	3/4"	151'-
A3	LTE 700	(N) COMMSCOPE NNH4–65B–R6N17	110	101'–0"		(N) RRUS 4478 B14	TOWER	_	_	_	-	_	(N) DC9-48-60-24	-8C-EV	1	(N) 24 PAIR FIBER	3/8"	151'–
BETA			-				1						-1					1
	LTE 700 UMTS 1900				1	(N) RRUS 4449 B5/B12	GROUND											
B1	LTE AWS 5G AWS	(N) COMMSCOPE NNH4–65B–R6N17	215	101'–0"	1	(E) RRUS 32 B2	GROUND	2	(E)	GROUND	2	(E) E15Z01P39 -	-		4	(E) COAX	7/8"	151'-
	LTE 1900				1	(N) RRUS 4426 B66	GROUND											
B2	_	_	_	_	-	_	-	_	_	_	_		_		_	_	_	_
B3	LTE 700	(N) COMMSCOPE NNH4-65B-R6N17	215	101'—0"	1	(N) RRUS 4478 B14	TOWER	_	_	_	_		_		_	_	_	_
GAMMA										-								
	LTE 700 LTE 1900				1	(N) RRUS 4449 B5/B12	GROUND											
C1	LTE AWS 5G AWS	(N) COMMSCOPE NNH4–65B–R6N17	330	101'–0"	1	(E) RRUS 32 B2	GROUND	2	(E)	GROUND	2	(E) E15Z01P39 -	_		4	(E) COAX	7/8"	151'—
	JG AW3					(N) RRUS 4426 B66	GROUND											
C2	_	_	-	_	-	_	-	_	_	-	_		_		_	-	_	_
C3	LTE 700	(N) COMMSCOPE NNH4–65B–R6N17	330	101'–0"	1	(N) RRUS 4478 B14	TOWER	_	_	_	_		_		_	_	_	_
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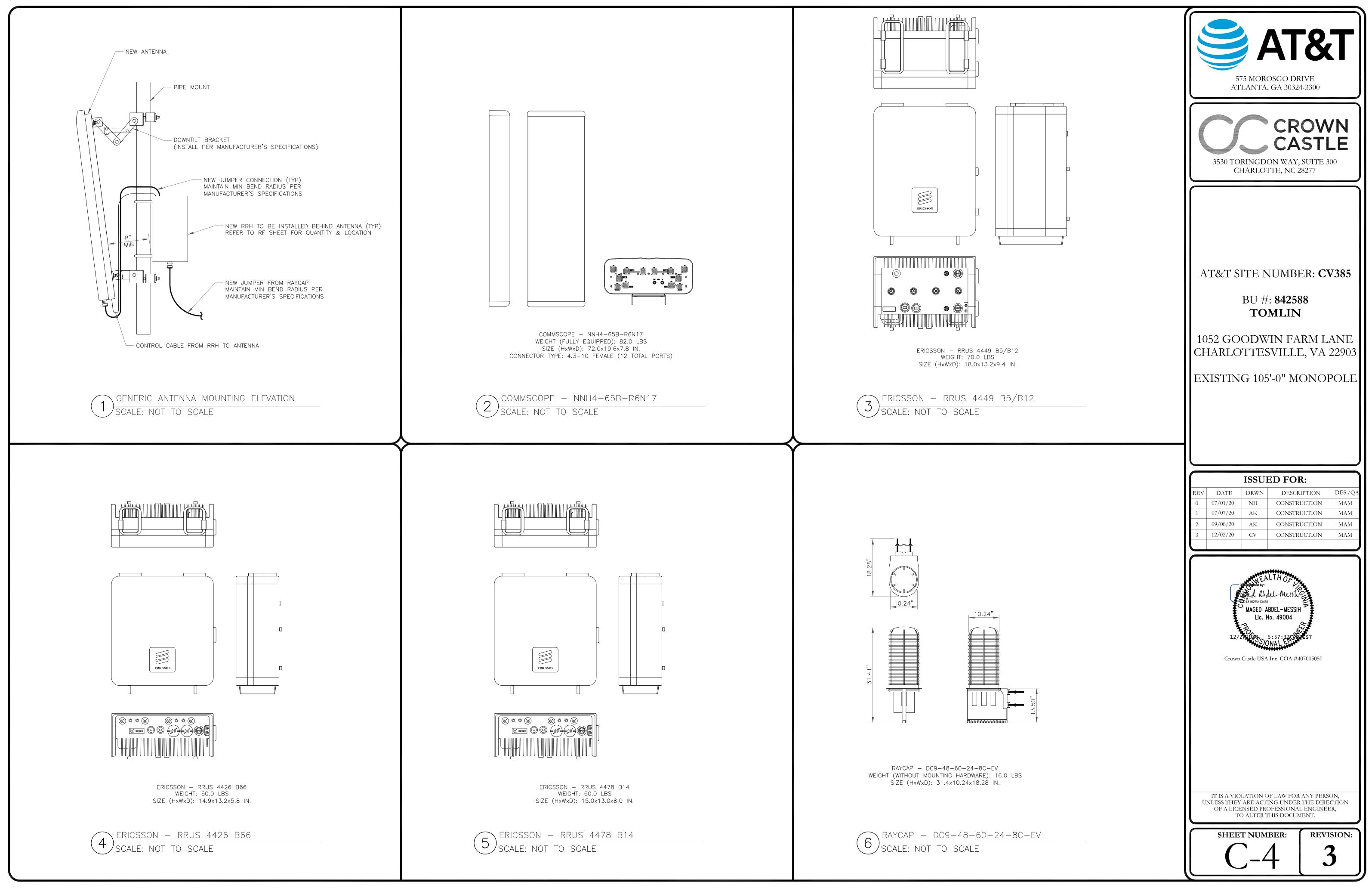
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		ANTENNA	. <u></u>			RADIO			DIPLEXER			TMA		SURGE PROTECTION		CABLE	S	
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	LTE 700 UMTS 1900				1	(N) RRUS 4449 B5/B12	GROUND								4	(E) COAX	1-5/8"	151'-0
A1	LTE AWS 5G AWS	(N) COMMSCOPE NNH4–65B–R6N17	110	101'-0"	1	(E) RRUS 32 B2	GROUND	2	(E)	GROUND	2	(E) E15Z01P39	_	_	1		3/8"	454' 0
	LTE 1900				1	(N) RRUS 4426 B66	GROUND									(E) COAX	3/0	151'-0
A2	_	_	_	_	_	_	-	_	-	-	_	_	_	_	_	_	_	_
															1	(N) #8AWG DC	3/4"	151'-0
A3	LTE 700	(N) COMMSCOPE NNH4-65B-R6N17	110°	101'-0"	1	(N) RRUS 4478 B14	TOWER	-	_	-	-	_	1	(N) DC9-48-60-24-8C-EV	1	(N) 24 PAIR FIBER	3/8"	151'-0
BETA	LTE 700		1		1	(N) RRUS 4449 B5/B12	GROUND			1								1
B1	UMTS 1900 LTE AWS	(N) COMMSCOPE NNH4–65B–R6N17	215 '	101'-0"	1	(E) RRUS 32 B2	GROUND	2	(E)	GROUND	2	(E) E15Z01P39	_	_	4	(E) COAX	7/8"	151'-0
	5G AWS LTE 1900	NNH4-65B-R6N17			1	(N) RRUS 4426 B66	GROUND										,	
B2	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
B3	LTE 700	(N) COMMSCOPE NNH4-65B-R6N17	215	101'-0"	1	(N) RRUS 4478 B14	TOWER	_	_	_	_	_	_	_	-	_		_
GAMMA							-											
	LTE 700 LTE 1900				1	(N) RRUS 4449 B5/B12	GROUND		<i>.</i> .								<i>.</i> .	
C1	LTE AWS 5G AWS	(N) COMMSCOPE NNH4-65B-R6N17	330"	101'-0"		(E) RRUS 32 B2 (N) RRUS 4426 B66	GROUND GROUND	2	(E)	GROUND	2	(E) E15Z01P39	_	_	4	(E) COAX	7/8"	151'-0
						(11) 1(103 4420 000	GROUND											
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C3	LTE 700	(N) COMMSCOPE NNH4–65B–R6N17	330	101'-0"	1	(N) RRUS 4478 B14	TOWER	_	-	-	_	_	_	_	_	_	_	_
<u>NOTE:</u> (E) — EX			1							-!					0	(E) UNUSED		_

ALPHA	TECH. LTE 700 UMTS 1900					(verify wi	IH CU	JRF	RENT RE	-DS)								
POSITION	LTE 700				1					•								
	LTE 700					RADIO			DIPLEXER			ТМА		SURGE PROTECTION		CABLE	S	
	LTE 700 UMTS 1900	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS	QTY.	STATUS/MODEL	QTY.	STATUS/TYPE	SIZE	LENGTH
	OW12 1900 1				1	(N) RRUS 4449 B5/B12	GROUND								4	(E) COAX	1-5/8"	151'-0"
	LTE AWS 5G AWS	(N) COMMSCOPE NNH4–65B–R6N17	110	101'-0"	1	(E) RRUS 32 B2	GROUND	2	(E)	GROUND	2	(E) E15Z01P39	-	_				
	LTE 1900				1	(N) RRUS 4426 B66	GROUND								1	(E) COAX	3/8"	151'-0"
A2	-	_	_	_	_	_	_	_	_	-	_	_	_	_	-	_	_	_
		(N) COMMSCOPE												(N)	1	(N) #8AWG DC	3/4"	151'–0'
A3	LTE 700	(N) COMMSCOPE NNH4-65B-R6N17	110	101'-0"	1	(N) RRUS 4478 B14	TOWER	-	-	_	_	_	1	(N) DC9-48-60-24-8C-EV	1	(N) 24 PAIR FIBER	3/8"	151'–0"
BETA	LTE 700			1									1	1				
	LTE 700 UMTS 1900	(N) COMMSCOPE	215	4.047 0"	1	(N) RRUS 4449 B5/B12	GROUND				0				4		7/8"	454' 0
B1	LTE AWS 5G AWS LTE 1900	(N) COMMSCOPE NNH4-65B-R6N17	215	101'-0"	1	(E) RRUS 32 B2 (N) RRUS 4426 B66	GROUND GROUND	2	(E)	GROUND	2	(E) E15Z01P39	-	_	4	(E) COAX	//0	151'-0'
B2	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_
B3	LTE 700	(N) COMMSCOPE NNH4-65B-R6N17	215	101'–0"	1	(N) RRUS 4478 B14	TOWER	_	_	_	_	_	_	_	_	_	_	_
GAMMA			_															
	LTE 700 LTE 1900				1	(N) RRUS 4449 B5/B12	GROUND											
C1	LTE AWS 5G AWS	(N) COMMSCOPE NNH4-65B-R6N17	330"	101'-0"	1	(E) RRUS 32 B2	GROUND	2	(E)	GROUND	2	(E) E15Z01P39	-	_	4	(E) COAX	7/8"	151'—0"
						(N) RRUS 4426 B66	GROUND											<u> </u>
C2	-	_	-	_	-	_	_	-	_	_	_	_	_	_	-	_	-	-
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<u>NOTE:</u> (E) – EXIST			•				•			· · · · ·				•	0	(E) UNUSED	_	_

(Ň) – NEW

 \uparrow FINAL EQUIPMENT SCHEDULE SCALE: NOT TO SCALE

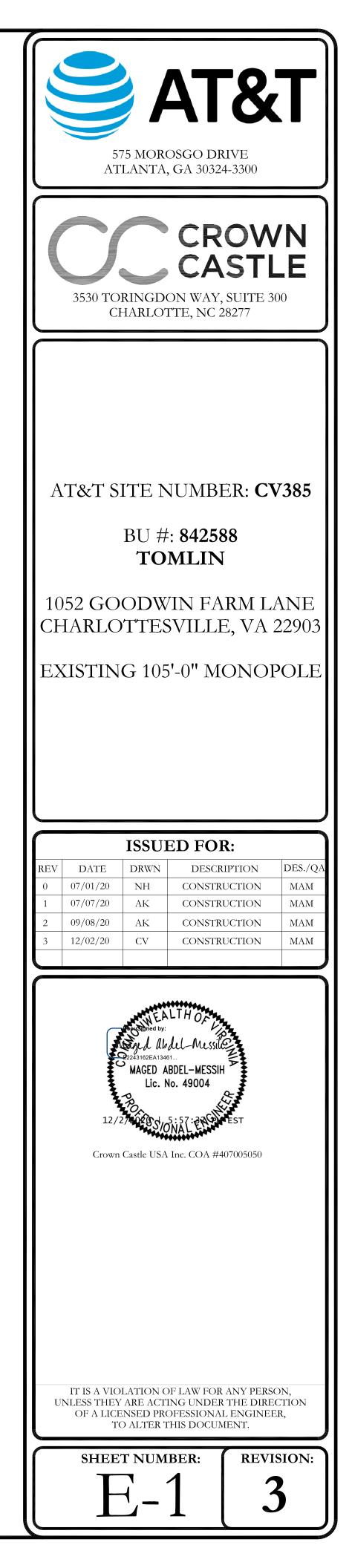


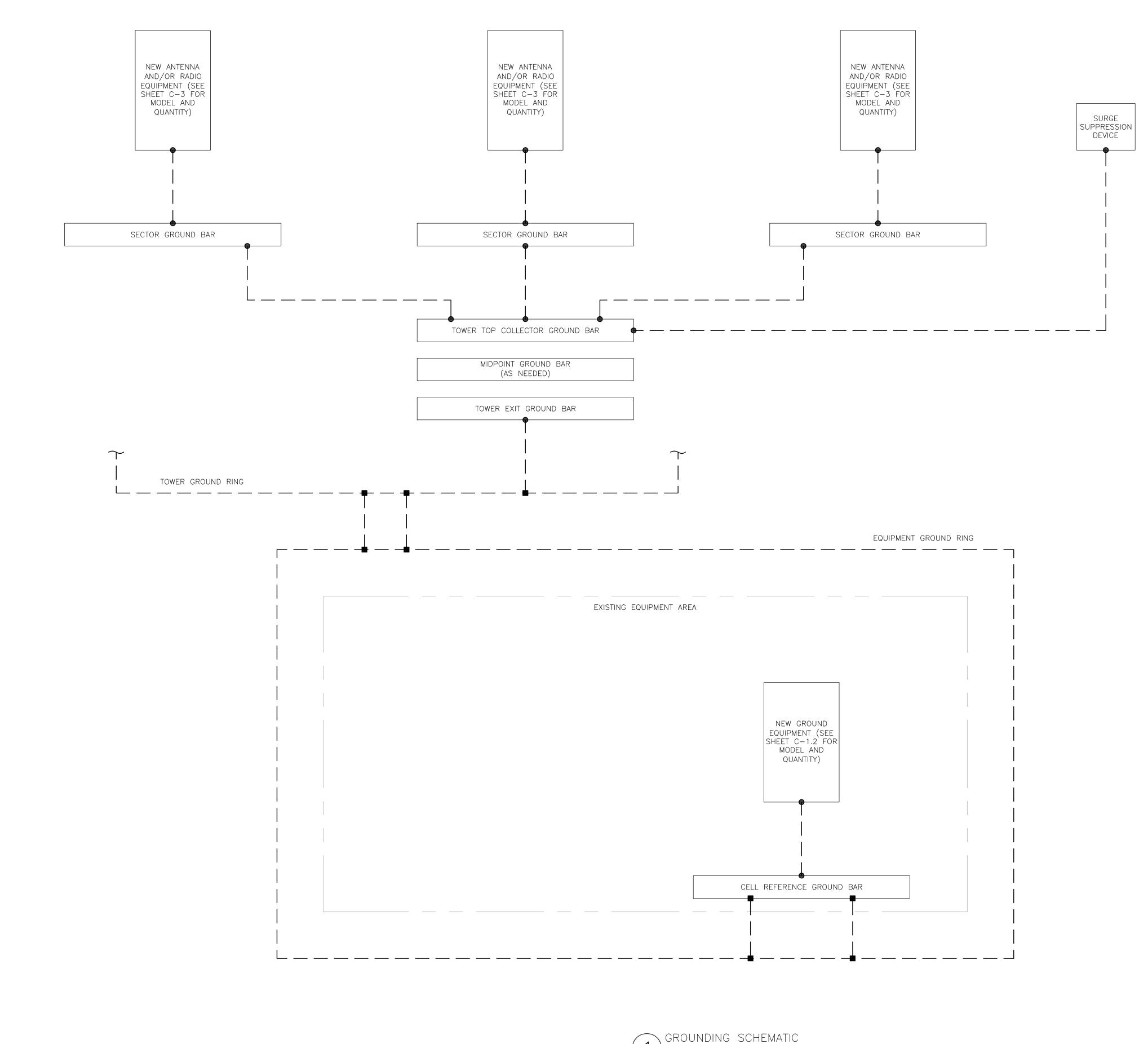


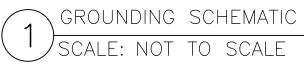
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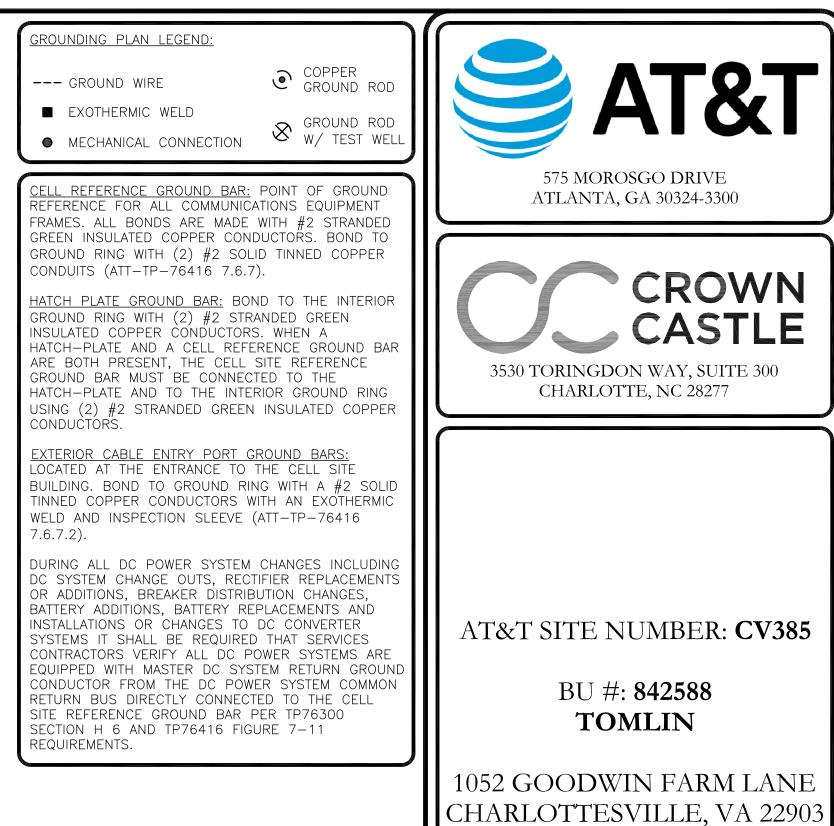
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STEP 24. IN US STEP ONLY SHOWN F TYCO OPS2/211C FLANT PLANT TYPE HAS BEEN SELECTED: STEP 2: DO YOU WANT TO CONFIGURE ASTAMBANDI STANDAUGHER DC CONVERTER SYSTEME # # NOTE IP YOU SELECT YM ANY INFORMATION CONVERTER OPTIONS WILL BE BY ASSOCI- MAC STEP 2: DO YOU WANT TO CONFIGURE ASTAMBANDI STANDAUGHER DC CONVERTER SYSTEME # # NOTE IP YOU SELECT YM ANY INFORMATION CONVERTER OPTIONS WILL BE BY ASSOCI- MAC STEP 4: ENTER STE HUR DOOLS THE HUR DIRCOME LETER DATA: SPECTY NOW OUL, NAKE UNIT SIZE (TONS) SPECTY OUL WITTY DE TOTAL SPECTRED STEP IN ACTIONS WILL BE BY ASSOCI DOTAL SPECTRED STE HUR CONFIGURATION (DIRCOME LETER DATA) STEP 5: ENTER STE FUNC SYSTEMMATA: SPECTRED NAKE ADDITIONAL HAKE (DIRCOME LETER DATA) DOTAL SPECTRED STE HUR CONFIGURATION (DIRCOME LETER DATA) DOTAL SPECTRED STE HUR CONFIGURATION (DIRCOME LETER DATA) DOTAL SPECTRED STEP HUR CONFIGURATION (DIRCOME LETER DATA) SPECTRED NAKE HOT SUBJECT ON (DIRCOME LETER DATA) SPECTRED NAKE HOT SUBJECT ON (DIRCOME LETER DATA) SPECTRED NAKE HOT SUBJECT ON (DIRCOME LETER DATA) DOTAL SPECTRED STEP HUR CONFIGURATION (DIRCOME LETER DATA) SPECTRED NAKE HOT SUBJECT ON (DIRCOME LETER DATA) SPECTRED NAKE HOT SUBJECT ON (DIRCOME) SPECTRED NAKE HOT SUBJECT ON (DIRCOME) SPECTRED NAKE HOT SUBJECT STENDAU SPECTRED NAKE HOT SUBJECT STEPART SPECTRED NAKE HOT SUBJECT STENDAU SPECTRED NAKE HOT SUBJECT STEPART SPECTRED NAKE HOT SUBJECT S	ANT CONFIGURATION CAN BE REVIEWED ON DC PLANT WORKSHEET)
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SELECT SINGLE STRING BATTERY CAPACITY (AH) 170 SPECIFY TOTAL QUANTITY OF BATTERY CAPACITY (AH) 50 TOTAL SITE BATTERY CAPACITY HAS BEEN SPECIFED NOTE: STANDARB BATTERY CAPACITY HAS BEEN SPECIFED NOTE: 12 VOLT MONOBLOCK BATTERIES: 4 tatteniesper 48V String ESTIMATED BATTERY (RES RV: MINE 14.28 HOURS 010 SITE GENSET) SITES WITH STATIONARY OENSETS SHALL BE ENGINEERED WITH A MAX OF 3 SHELVES OF 180 AH BATTERIES (3 strings at -48V or 6 strings at +24V) - ALL OTHER SITES AMINIMUM OF 4 HOURS SITE POWER CALCULATION TOOL - VERSION 4.3 - October 17, 2017 R. BADGERO ANY QUE STIONS PLEASE CONTACT RICK BADGERO (RB6620@ATT.COM)	
SPECIFY TOTAL QUANTITY OF BATTERY CAPACITY (AI) BO INCE: STANDARD BATTERY CAPACITY (AS BEEN SPECIFIED NOTE: 12 VOLT MONOBLOCK BATTERIES - 4 tatteries per -48 v String ESTIMATED BATTERY RESERVE TIME 4.38 HOURS OF SOTE GENSET) SITES WITH STATIONARY GENSETS SHALL BE ENGINEERED WITH A MAX OF 3 SHELVES OF 180 AH BATTERIES (3 strings at -48 v of 8 strings at +24 v) - ALL OTHER SITES AMINIMUM OF 4 HOURS SITE POWER CALCULATION TOOL - VERSION 4.3 - October 17, 2017 R. BADGERO ANY QUE STIONS PLEASE CONTACT RICK BAUGERO (RB6620@ATLCOM)	
TOTAL SITE BATTERY CAPACITY HAB BEEN SPECIFIE 850 NOTE: STANDARD BATTERY CAPACITY HAB BEEN SPECIFIE NOTE: STANDARD HATTERY CAPACITY HAB BEEN SPECIFIE DESTINATED BATTERY RESERVE TIME 338 HOURS (HO SITE GENSET) SITES WITH STATIONARY OENSETS SHALL BE ENGINEERED WITH AMAX OF 3 SHELVES of 180 AHBATTERIES 3 strings at +240 - ALL OTHER SITES AMINIMUM OF 4 HOURS SITE POWER CALCULATION TOOL - VERSION 4.3 - October 17, 2017 R. BADGERO ANY QUE STIONS PLEASE CONTACT RICK BAUGE RO (RB6620@ATT.COM)	
NOTE: 12 VOLT MONOBLOCK BATTERIES - 4 batteries per -48V String ESTIMATED BATTERY RESERVE TIME 438 HOURS 040 STE GENSET) SITES WITH STATIONARY GENSETS SHALL BE ENGINEERED WITH A MAX OF 3 SHELVES OF 80 AH BATTERIES (3 strings at -48v or 6 strings at +24v) - ALL OTHER SITES A MINIMUM OF 4 HOURS SITE POWER CALCULATION TOOL - VERSION 4.3 - October 17, 2017 R. BADGERO ANY QUE STIONS PLEASE CONTACT RICK BADGERO (R86620@ATT.COM)	
E WORKSHEET HAS	WIDARD BATTERY CAPACITY HAS BEEN SPECIFIED
E MORKSHEET HAS	
(3 strings at -48v or 6 strings at +24v) - ALL OTHER SITES AMINIMUM OF 4 HOURS	E STIMATED BATTERY RESERVE TIME: 4.38 HOURS (NO SITE GENSET)
(3 strings at -48v or 6 strings at +24v) - ALL OTHER SITES AMINIMUM OF 4 HOURS SITE POWER CALCULATION TOOL - VERSION 4.3 - October 17, 2017 R. BADGERO ANY QUE STIONS PLEASE CONTACT RICK BADGERO (RB620@ATL.COM)	IONARY GENSETS SHALL BE ENGINEERED WITH A MAY OF 3 SHELVES of 180 AH B ATTERIES
ANY QUE STIONS PLEASE CONTACT RICK BADGERO (RB6620@ATT.COM)	
ANY QUE STIONS PLEASE CONTACT RICK BADGERO (RB6620@ATT.COM)	
e worksheet has Dihers and is shown	CALCULATION TOOL - VERSION 4.3 - October 17, 2017 R. BADGERO
OTHERS AND IS SHOWN	PLEASE CONTACT RICK BADGERO (RB6620@ATT.COM)
OTHERS AND IS SHOWN	
CE PURPOSES ONLY. INC. DOES NOT SURACY OF THE	

IOTE: LO AD VALUES FOR ANY EQUIF RADIO HEADS - Outdoor	CONTRACTOR OF A DESCRIPTION OF A DESCRIP	USER SPE	ECIFIED	ON THE POWER CONSUMPTION MORKSHEET.	- USER CHA	ANGES TO	DFFA	ULT LOAD VALUES ARE HIGHLIGHTED IN BRI	GHT YELLO	WV.
	VOLTAGE		QTY	LTE 4G & Multi-Std EQUIPMENT	VOLTAGE		QTY	ANCILLARY CELL SITE EQUIPMENT	VOLTAGE	
Ericsson US 01 B2, B5 (80W)	49	0		A-LU 9926 LTE BBU (w/max. 3 eCEM-u) Nokia FSM-4	48 48	0	0	ALU 7705 SIAD (FUTURE)	48	0
US 01 B12 (60/V)	48	0	U	(FUTURE)	40	U	0	ALU MPR-9500 MW Service Switch - MSS	48	0
US 11 B12 (2x30W)	- 48	0		(FUTURE)			0	A-Lu MPR-9500 MW Outdoor Unit - ODU	48	0
US 11 B2, B4, B5, B12 (2x40W)	-48	0		(FUTURE)			0	A-Lu MPR-9500 MW MPT-HL (Indoor)	48	0
JS 12 B2, B4, B5 (2x60W)	-48	0		(FUTURE)				(FUTURE)		
US 32 B2 (4x40W) US 32 B30 (4x25W)	48	2049 0	_	Ericsson LTE IRBS 6601 BBU - 1 DUL Ericsson LTE RBS 6601 BBU - 2 DUL	48 48	0 0		Cisco MVVR-2941 SIAD Cisco SIAD ASR-901	48	40 0
US 32 B66A	48	0	1	Ericsson WCDMA RBS6601 - 1 DUW	40	232		Cisco 15310 EOS (SONET) MUX	48 48	0
US A2 B2, B4, B12	48	0	0	Ericsson LTE RBS6601 BBU - 1DUS	48	0	0	Cisco 15454 MSP (MVV Ring Config.)	48	0
USE2 B29	-48	0	0	Ericsson LTE RBS6601 BBU - 2DUS	48	0		(FUTURE)		
JVV B2, B5	48	816	1	Ericsson XMU	48	40		Tru-Position LMU (E911)	48	0
21 (60W)	48	0	1	Ericsson LTE RBS5216	48	192	0	DC Free Air (per HVAC unit)	48	0
JS 4478 B14 (FUTURE)	48	1560		(FUTURE) (FUTURE)			1	GENERIC Ethernet NID GENERIC Hydrogen Detector	48 48	60 0
A-LU				(FUTURE)				GENERIC RET Controller	48	0
5 B66A	48	0		(FUTURE)			0	GENERIC RXAIT	24	0
D RRH2x40-07L (UHLA) B17	48	0						GENERIC Smoke Detector	24	0
H2x40-07L-AT (UHLB) B17	48	0	QTY	UMTS 3G EQUIPMENT	VOLTAGE			GENERIC TMA System	48	0
5 R RH4x30 (UHFA) B25 5 R RH2x60 (UHFA) B25	48	0		A-LU MACRO NodeB (3S1 C - 40VV) A-LU MACRO NodeB (3S2C - 40VV)	24 24	0		GENERIC Tower Lighting (DC) NG480	48 48	0
0VV-850 B5	48	0	_	A-LU MACRO NodeB (353C - 40W)	24	0	_	Cisco 2911	48	0
0VV-1900 B2	-48	0	_	A-LU MACRO NodeB (3S4C - 4000)	24	0	_	(FUTURE)		
0VV-1900A B2	-48	0	_	A-LU MACRO NodeB (3S5C - 40W - 2 CAB)	24	0		(FUTURE)		
H2x40-07L-DE (UHLC) B29	-48	0	-	A-LU MCRO NodeB	24	0		(FUTURE)		
H 4T4R (FRBI) B14 H4X25 B30	48	0	•	A-LU 9396 d2U Distributed NodeB MU A-LU 9396 d4U Distributed NodeB MU	48 48	0		(FUTURE) (FUTURE)		
(FUTURE)	48	U	0	(FUTURE)	46	0		(FOTORE)		
(FUTURE)				(FUTURE)			QTY	TX RF AMP (MCPA or SCPA) EQPT.	VOLTAGE	WATTS
RADIO HEADS - Indoor	VOLTAGE	WATTS	_	Ericsson RBS3206 NodeB 3S1C - 1 CAB	24	0		Andrew (12 module m cpa FRAME)	24	0
Ericsson			0	Ericsson RBS3206 NodeB 3S2C - 1 CAB	24	0	0	Andrew 135 Watt Module	24	0
JS 01 B2, B5 (80W)	48	0		NON-OBIF Ericsson 3rd, 4th & 5th Ca		Â		(FUTURE)		
JS 01 B12 (60W) JS 11 B12 (2x30W)	48	0 0	-	Ericsson RBS3206 NodeB 3S3C - 2 CAB Ericsson RBS3206 NodeB 3S4C - 2 CAB	24 24	0		Powerwave 12 module mcpa FRAME) Powerwave 90 Watt Module	24 24	0
JS 11 B2, B4, B5, B12 (2×40W)	48	0	_	Ericsson RBS3206 NodeB 3S5C - 3 CAB	24	0	0	Powerwave 1 20 Watt Module	24	0
JS 12 B2, B4, B5 (2x60W)	48	0		OBIF Ericsson 3rd, 4th & 5th Carrie	-		0	Powerwave 180 Watt Module	24	0
JS 32 B2 (4×40W)	-48	0	0	Ericsson RBS3206 NodeB 3S3C - 1 CAB	24	0		(FUTURE)		
US 32 B30 (4x25W)	-48	0	Ŭ	(Select RRUS from left section)			_	CCI 125 Watt DAB SCPA Module	24	0
US 32 B66A US A2 B2, B4, B12	48	0	0	Ericsson RBS3206 NodeB 3S4C - 1 CAB (Select RRUS from left section)	24	0	0	CCI 125 Watt DAC SCPA Module	24	0
USE2 B29	48	0		Ericsson RBS3206 NodeB 3S4C - 1 CAB	24	0	(CUST	(FUTURE) TOM DC LOADS DEFINED ON POWER CONSUMPTIC	IN WORKSHE	ET)
UVV 82, 85	48	0	Û	(Select RRUS from left section)		, v	QTY		VOLTAGE	
21 (60W)	-48	0	0	Ericsson RBS3206 NodeB 3S5C - 2 CAB	24	0	0	RRU 4415B25	48	0
US 4478 B14	-48	0	Ů	(Select RRUS from left section)			0	RRU 4415B30	48	0
(FUTURE) A-LU				Ericsson 3303 MICRO NodeB Ericsson RBS3418 Distributed NodeB MU	24 48	0	3	RRU 4426 B66 RRU 4449 B5/B12	48	2427
5 B66A	-48	0	0	(FUTURE)	40	0	_	RRU 8843 B2/866	48 48	4320 0
D RRH2x40-07L (UHLA) B17	48	0		(FUTURE)			-	RRU 22 UMTS	48	Ů
H2×40-07L-AT (UHLB) B17	-48	0					1	6630 BBU	48	180
5 RRH4x30 (UHFA) B25	48	0		USTOM AC LOADS DEFINED ON POWER CONSUMPT			0		48	0
5 R RH2x60 (UHFA) B25 60/V-850 B5	48	0	QTY	USER SPECIFIED AC EQUIPMENT Gen Battery Charger	VOLTAGE			AmpLink GMA S9500 STAD single PSU	48	0
6077-680 BS 6077-1900 B2	48	0 0	0	Gen Heater	120 120	0 0		SBOUSTAD Single PS0 SDARS Remote	48 48	330 0
60W-1900A B2	48	0	0	GFCI	120	0	_	ION MU W/3 OTRX	48	0
H2x40-07L-DE (UHLC) B29	48	0	0	Mesa Cabinet	120	0	1	Flex 12	48	520
H 4T4R (FRBI) B14	-48	0	0	VerizonCSC Cabinet	120	0		Flex 16	48	2390
H4X25 B30	-48	0	0	Cord Reel UMTS 3106	120	0	0	Flex 21		0
(FUTURE) (FUTURE)	_		0	G SM 2106	240 240	0		TOTAL USER SPECIF TOTAL +24V (27V) AMPS		10167
(rotoke)			0	PBC-02	240	0		TOTAL -48V (54V) AMPS		
			0	TE45 battery mats	120	0				
				TOTAL USER SPEC	cified kva:	0				
				TOTAL 120 VAC AMPS: 0						
				TOTAL 240 VAC AMPS: 0						
	-48V PR	MAR Y VO	LTAGE I	DC PLANT SPE CIFIED		1 1		ESTIMATED SITE MAX_AC LOAD (AMPS)	: 102.08	AMPS
+24VD C E Q (JIPMENT LOAD:		WATTS	= 0 AMPS at+24V				ESTIMATE 200A SERVICE SUFFIC		
-	JIPMENT LOAD:			= 281 AMPS at -48V						
				VERTER SYSTEM NOT REQUIRED				SITE GENERATOR CAPACITY REQUIRED		KW
TOTAL PRIM	ARY 48V LOAD:	15156	WAITS	= 281 AMPS at -48V				ON SITE GENERATOR CAPACITY (NO ON-SITE GENERATOR)	(0	KW
(DC PLA	NT CONFIGURA		I BE REV	IEWED ON DC PLANT WORKSHEET)		יין		(NO ON-SITE GENERATOR)		
1				e 512 System 525A NE Q.15917		1 1		RECOMMENDED HVAC SYSTEM	TWO	3-TON
-48V RE	CTIFIERS RE QL							SPECIFIED SITE TOTAL HVAC CAPACITY		ONS
	-48V RECTIF	IER SLOT	S: 16					ESTIMATE EXISTING HVACNOT SUF	FICIENT	
CONV. TYPE: #N/A +24V	CON VERTERS	REQUIRE	D o	(NO DC CONVERTERS REQUIRED)						
		-	_	(NO DC CONVERTERS REQUIRED)						
				RESERVE TIME						
	5 170 AH 48V	STRINGS	= 4.38	HOURS (4 HOUR MINIMUM BATTERY RES	SERVE)]				
OWER ANALYSIS										



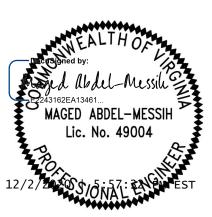






EXISTING 105'-0" MONOPOLE

	ISSUED FOR:												
REV	DATE	DRWN	DESCRIPTION	DES./QA									
0	07/01/20	NH	CONSTRUCTION	MAM									
1	07/07/20	AK	CONSTRUCTION	MAM									
2	09/08/20	AK	CONSTRUCTION	MAM									
3	12/02/20	CV	CONSTRUCTION	MAM									



Crown Castle USA Inc. COA #407005050

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REVISION: SHEET NUMBER:

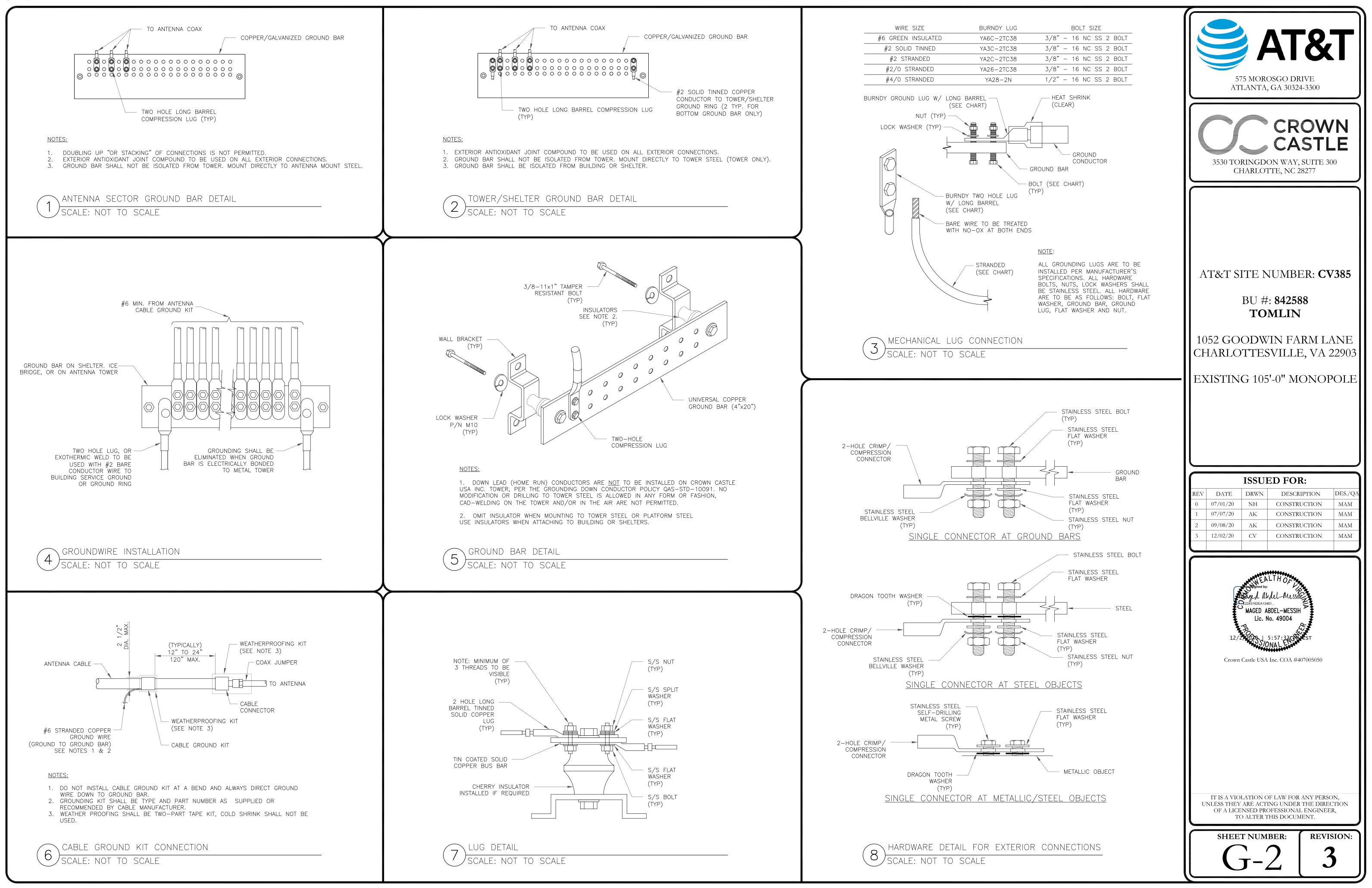
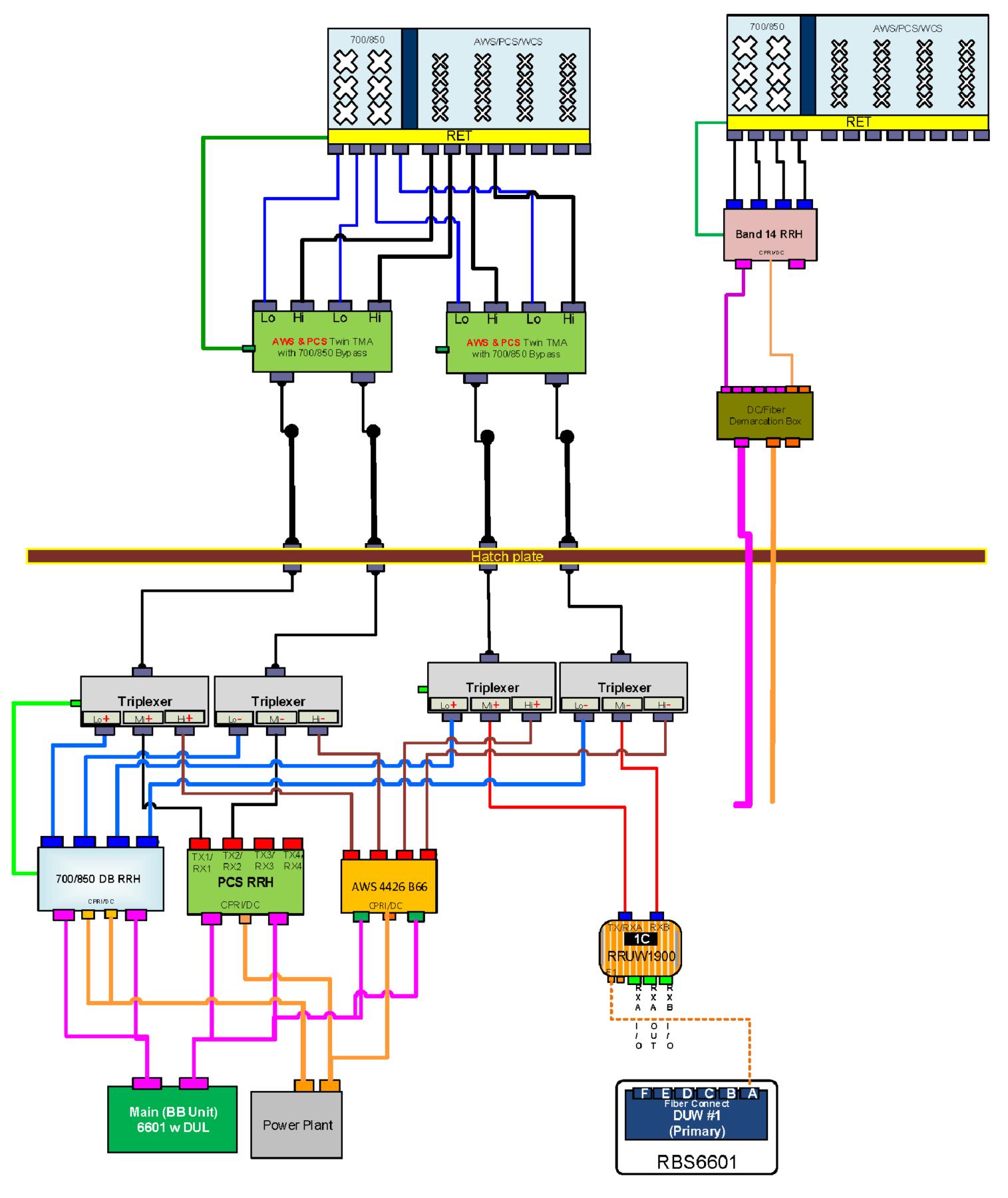


Diagram - Sector A Atoll Site Name - VAL02385 Comments: Add XMU



Location Name - TOMLIN Market - VIRGINIA Market Cluster - VAWVA	Diagram File Name	- CV385_LTE3C_v2.vsd			
	Location Name -	TOMLIN	Market -	VIRGINIA	Market Cluster - VA/WVA

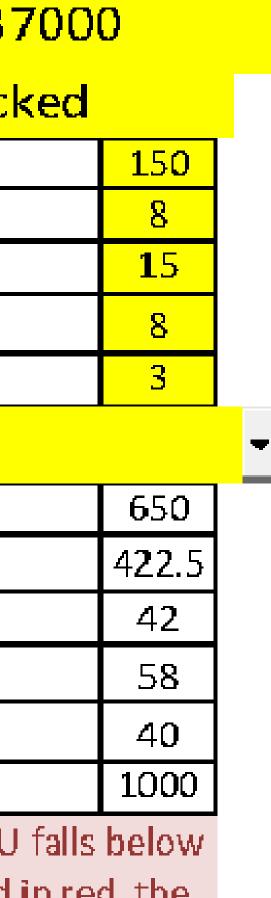
LTE-3C; Proposed- Alpha/Beta/Gamma Sectors

Power Plant Model			NetSure 512	- 582137
Select Distribution typ	e		Unstacked	Stack
Trunk Cable Length - c	ne-wa	γ (feet)		
Trunk Cable Size (AWC	5 - 4, 6,	8)		
Jumper Cable Length -	one-w	aγ (feet)		
Jumper Cable Size (AV	VG - 8,	10, or 12}		
Total Quantity of RRU	Feeds			
Radio Type			Ericsson RRU 447	8 B14
RRU Feed Peak DC Inp	ut Pow	rer (W)		
RRU Feed Busy Hour I	nput Po	ower (W)		
Minimum Source Volt	age (V)			
Converter Output Volt	tage (V)	}		
Minimum RRU Operat	ing Vol	tage (VDC)		
Peak Power Rating of	Boost (Converter (N	N }	
Cells that become high	_		icate that the voltage	

the Minimum RRU Operating Voltage. If a cell in a column is highlighted in red, the RRU will not operate with that arrangement due to the RRU voltage falling below its minimum operating voltage. A cell that is red and reads invalid indicates that the loss in the cable would exceed the power rating of the RRU and the calculation cannot be performed.

Power Extend Converter Layout

VERTIV. VERTIV. V	ERTIV-			
• •				
0	•			
Vout-	Point-			
Vout-	Menut-			



T

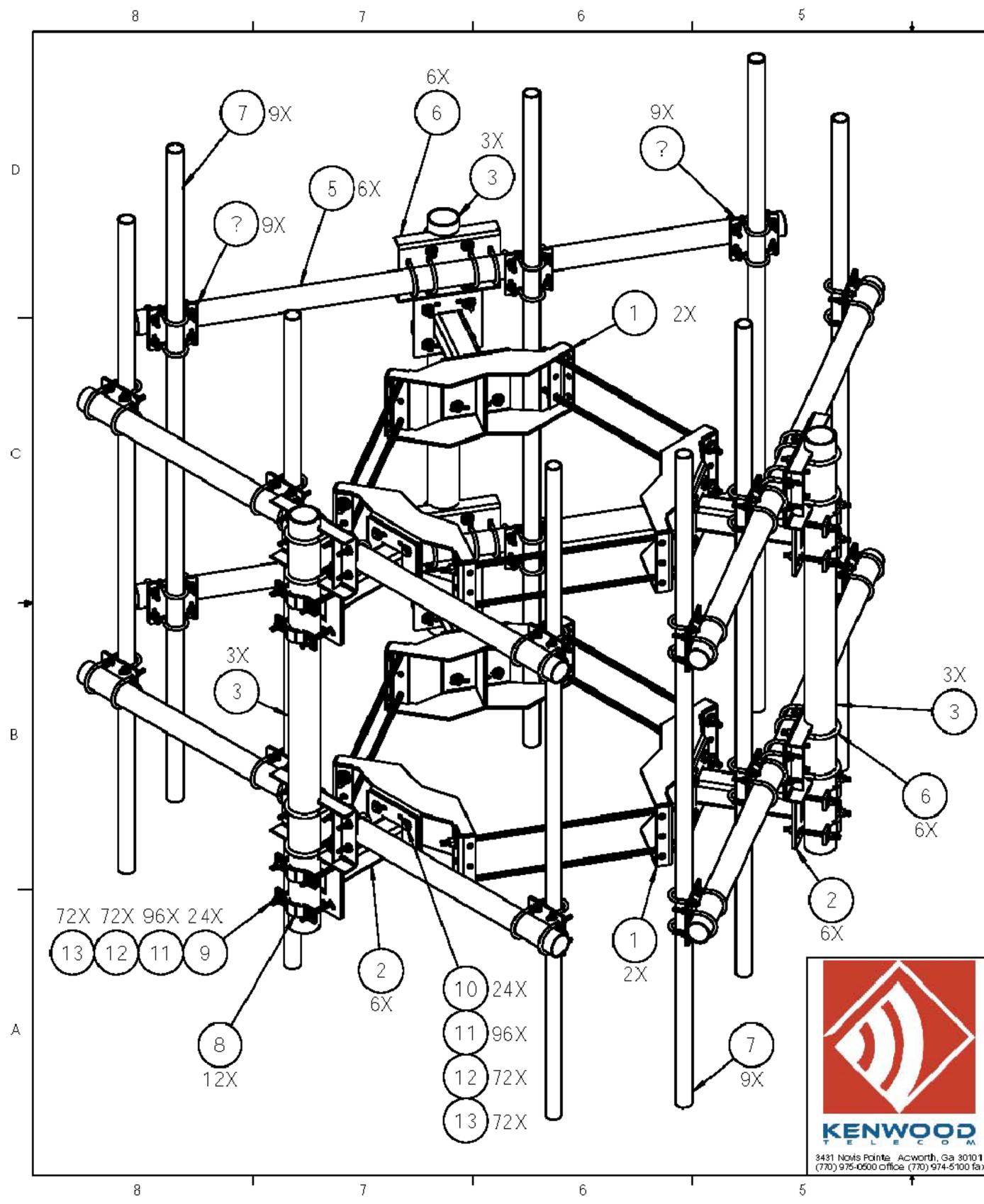
Total Cable loop length (ft.) Cable Resistance (Ohms) RRU Voltage (VDC) at Min Source Voltage and Peak Por RRU Voltage (VDC) at Min Source Voltage and Busy Ho RRU Current (A) at Min Source Voltage and Busy Hour Source Power (W) at Min Source Voltage and Busy Hou Total Source Power (W) at Min Source Voltage and Busy Peak Power System Current (A) Required for RRUs Qty of Bullet Converters Req'd per RRU Feed Qty of Bullet Converters Req'd per Site # of Total Bullet Positions Required

RRU Current (A) at Min Source Voltage and Peak Powe

Source Power (W) per RRU at Min Source Voltage and

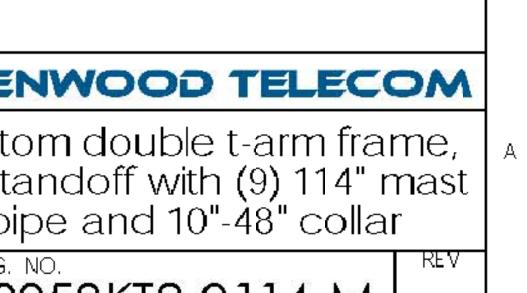
Total Source Power (W) at Min Source Voltage and Pea

without Converter	with Converter
33	30
0.2	211
38.24	55.41
39.64	56.34
10.66	7.50
447.6	434.9
1342.8	1304.8
51.0	49.6
N/A	1
N/A	3
N/A	3
17.00	11.73
713.9	680.4
2141.6	2041.3
	Converter 33 0.2 38.24 39.64 10.66 447.6 1342.8 51.0 N/A N/A N/A 17.00 713.9



1	3	2	1	
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.]
1	T1503KT48A	Universal ring mount 10"-48"	2	1
2	K1511KT16HD	Extension arm for platform, 16"	6	1
3	P1500KT6	4.50" OD Pipe, 72" Long	3	1
4	T1709KT2SA	Pipe mount crossover kit, 2-3/8"-3-1/2" (qty 2)	9	D
5	P1200KT8	Pipe, 3.5" OD x 8' long HDG	6	
6	T1719KTA	Pipe frame hardware kit for T-arm	6	1
7	P1000KT9.5	2-3/8" OD Pipe, 114" Long	9	1
8	K1000KT8-534	Half Clamp, Medium 5-3/4" Center	12	\mathbf{F}
9	K2220KT8i	Threaded rod 5/8" x 8", HDG	24	1
10	H1029KT2GA3	Bolt, 5/8"x2" (A325) HH, HDG	24	1
11	H3012KT58GSA3	Flat washer, 5/8", SAE (A325), HDG	96	1
12	H3002KT58G	Lock washer, 5/8", HDG	72	С
13	H2002KT58GA3	Nut, hex heavy 5/8" HDG A325	72	1

	UNLESS OTHERWISE SPECIFIED:		NAME	DATE		VE
	DIMENSIONS ARE IN INCHES TOLERANCES:	DRAWN	KA R	10/31/16	\sim	KEN
	FRACTIONAL: ± 1/32 ANGULAR: ± 2	CHECKED			TITLE	<u> </u>
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Pointe Acworth, Ga 30101 600 office (770) 974-6100 fax	DO NOTSCALE DRAWING				SCAL	E: 1:16 FI
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. NO. REV 2058KT8-9114-M FINISHED WEIGHT: 1698.08 SHEET 1 OF 1

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Certificate Of Completion

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Signer Events

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ID: b270d9d0-34d1-4e02-bf54-6255704709ae

Holder: Jacob Karabasz

Signature

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Jacob.Karabasz@crowncastle.com

Status: Completed

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Agent Delivery Events	Status	Timestamp		
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Witness Events	Signature	Timestamp		
Notary Events	Signature	Timestamp		
Envelope Summary Events	Status	Timestamps		
Envelope Sent Certified Delivered Signing Complete Completed	Hashed/Encrypted Security Checked Security Checked Security Checked	12/2/2020 4:31:36 PM 12/2/2020 5:57:03 PM 12/2/2020 5:57:32 PM 12/2/2020 5:57:32 PM		
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