

## Memorandum Planning & Development Services Division



**To:** Planning and Public Works Committee

**From:** John Boyer, Senior Planner

**Date:** October 8, 2015

**RE:** **T.S.P. 52-2015 Sprint (18614 Olive Street Rd):** A request to amend an existing Telecommunications Siting Permit to accommodate six (6) new antennas and additional related equipment for an existing telecommunication site within the "PI" Planned Industrial District located south of the intersection of Olive Street Road and Premium Way.

### Summary

Russell Been of Collective Solutions LLC, on behalf of Sprint Wireless, has submitted a request for an amended Telecommunications Siting Permit (TSP) for the above referenced property also known as the location of Chesterfield Fence and Deck. The proposed TSP is to accommodate six (6) new antennas and associated equipment on an existing 101 foot tall tower. The antennas are planned to be placed on a new antenna array at a height of 66 feet above ground level. All associated ground equipment will be placed within existing equipment shelters.

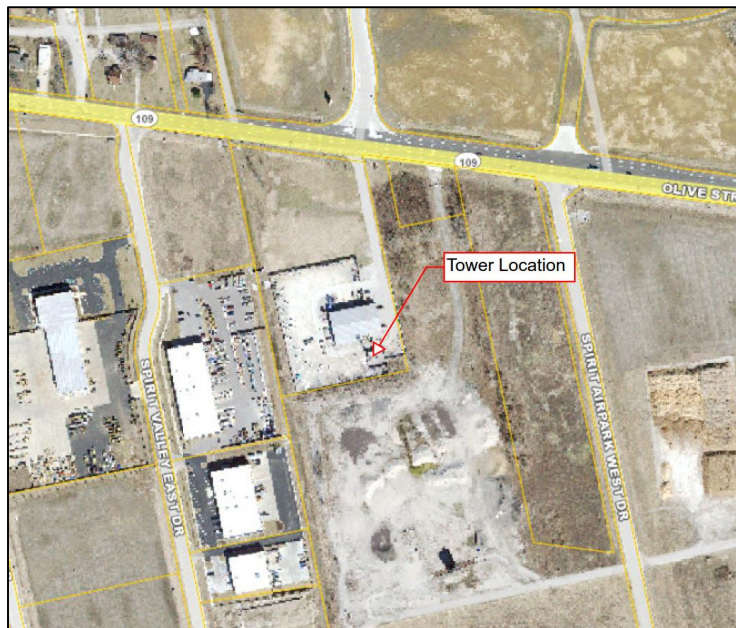


Figure 1: Aerial Photo



Figure 2: Photo of Tower

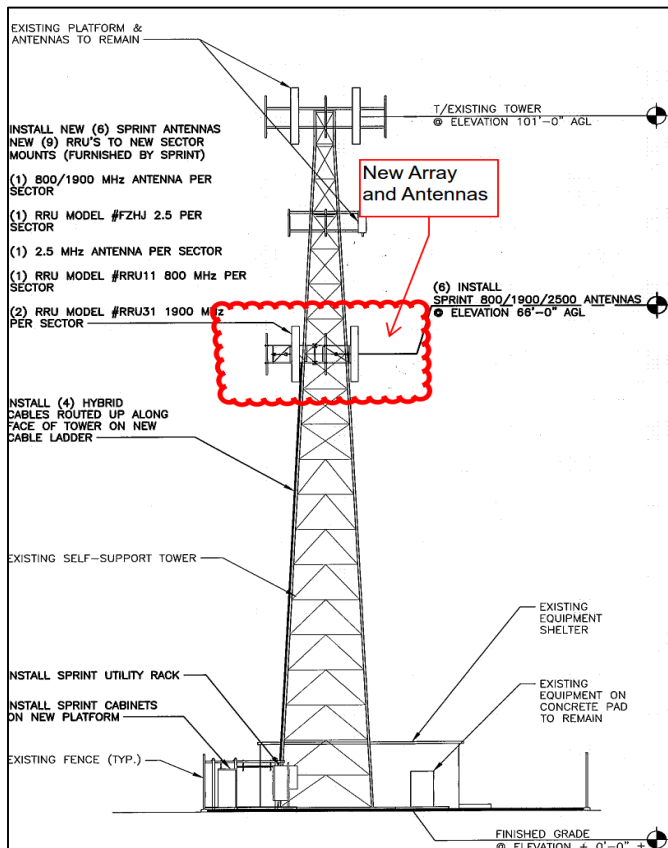
## History

The existing tower was originally approved administratively by the City of Chesterfield on March 25, 1992 via a Municipal Zoning Approval prior to the adoption of any telecommunication ordinance for the City of Chesterfield. Subsequent amendments to this tower occurred with the following applications (along with description of work);

- **TSP 15-2009**
  - Add new antennas to the existing tower.
- **TSP 32-2011**
  - Add additional antennas to the existing tower.

## Discussion

The Unified Development Code (UDC) states that any new equipment or updates to a telecommunication facility exceeding the current TSP approval requires an amendment to the TSP. The current proposal, specifically to add a new antenna array, would be considered a Material Modification which is defined by the UDC as an essential or significant change to an existing wireless telecommunication facility. Generally, Material Modifications require a public hearing for approval; however, Article 6 of the UDC which governs telecommunication devices, allows for Material Modifications to be reviewed and approved by the City without a public hearing if the modification does not add more than five (5) feet in height to the existing facility. The intent of this exception in the code is to provide incentives to collocate on existing facilities and not to develop additional tower sites.



In this application, the six (6) additional antennas and the new array would be located at 66 feet above ground level which would not add height to the existing 101 foot facility, see figure 3 to the left highlighting the proposed addition to the existing tower.

Figure 3: Proposed Tower Addition

**Recommendation**

This site is compliant with the previous approvals and the City has not received any complaints relative to this facility. Staff has reviewed the request by Sprint against the UDC and has determined that the proposal is compliant with all code requirements. Staff recommends approval of a TSP for Sprint as proposed. After receiving a recommendation from the Planning and Public Works Committee, this request may be forwarded to the City Council for review. Attached please find a copy of the construction plans.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'John Boyer', with a long horizontal line extending to the right.

John Boyer  
Senior Planner

cc. Aimee Nassif, Planning and Development Services Director



# Sprint



PROJECT: SPRINT OCEAN PROJECT  
 SITE NAME: ATC GUMBO  
 SPRINT CASCADE: ST51XC070  
 MLA NUMBER: ST51XC070  
 SITE ADDRESS: 18614 OLIVE STREET ROAD  
 CHESTERFIELD, MO 63005  
 SITE TYPE: 101'-SELF SUPPORT  
 AMERICAN TOWER CORPORATION #: 305973 - GUMBO

**RECEIVED**  
 City of Chesterfield  
 SEP 29 2015  
 Department of Public Services

PLANS PREPARED FOR:

6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:

**SHIVEHATTERY**  
 ARCHITECTURE+ENGINEERING  
 025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
 30.390.7444 | fax 630.437.5800 | shive-hattery.com  
 Iowa | Illinois | Missouri

S/H PROJ # 8155100-19

ENGINEERING LICENSE:

W. Thompson  
8/19/15

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REVISIONS:

DESCRIPTION	DATE	BY	REV
OCEAN DRAWINGS FOR REVIEW	08/07/15	SPB	0
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

SITE NAME:

ATC GUMBO

SITE CASCADE:

ST51XC070

SITE ADDRESS:

18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:

TITLE SHEET  
& PROJECT DATA

SHEET NUMBER:

T-1

**SITE INFORMATION**

**BUILDING OWNER:**  
 CHESTERFIELD FENCE & DOCK CO. INC.  
 18614 OLIVE ST.  
 CHESTERFIELD, MO 63006  
 PHONE: 636-532-4054

**LATITUDE (NAD83):**  
 38° 40' 13.97" N  
 38.67055'

**LONGITUDE (NAD83):**  
 90° 39' 46.87" W  
 -90.663019'

**COUNTY:**  
 ST. LOUIS COUNTY, MO

**ZONING JURISDICTION:**  
 CITY OF CHESTERFIELD

**ZONING DISTRICT:**  
 P1 - PLANNED INDUSTRIAL DISTRICT

**POWER COMPANY:**  
 AMEREN  
 PHONE: 800-552-7583

**AAV PROVIDER:**  
 AT&T  
 PHONE: 800-222-0400

**SPRINT CM:**  
 NAME: LONNIE HAGEDORN  
 PHONE: (417) 777-0918

**EQUIPMENT SUPPLIER:**  
 ERICSSON  
 6300 LEGACY DR.  
 PLANO, TX 75024  
 CONTACT: T.B.D.  
 PHONE: (972) 583-0000

**AREA MAP**



**LOCATION MAP**



**PROJECT EQUIPMENT**

- INSTALL (1) ERICSSON BBS CABINET ON NEW PLATFORM
- INSTALL (1) ERICSSON RBS CABINET ON NEW PLATFORM
- INSTALL (1) UTILITY RACK ON NEW PLATFORM
- INSTALL (3) 800/1900 MHz PANEL ANTENNAS (1) PER SECTOR
- INSTALL (3) 2500 MHz PANEL ANTENNAS (1) PER SECTOR
- INSTALL (6) 1900 MHz RRU'S (2) PER SECTOR
- INSTALL (3) 800 MHz RRU'S (1) PER SECTOR
- INSTALL (4) 1.37" # HYBRID CABLES
- INSTALL (24) COAX JUMPERS AT TOP (8) PER SECTOR

**APPLICABLE CODES**

WORK SHALL BE PERFORMED AND MATERIALS 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 THESE CODES.

1. INTERNATIONAL BUILDING CODE (2009)
2. NATIONAL ELECTRICAL CODE (2008)
3. INTERNATIONAL RESIDENTIAL CODE (2009)
4. INTERNATIONAL MECHANICAL CODE (2009)
5. INTERNATIONAL PLUMBING CODE (2009)
6. INTERNATIONAL PROPERTY MAINTENANCE CODE (2009)
7. ANSI/TIA-222 STRUCTURAL STANDARD REV G

**DRAWING INDEX**

SHEET NO:	SHEET TITLE	REV	ENGINEER
T-1	TITLE SHEET & PROJECT DATA	0	W. THOMPSON
SP-1	SPRINT SPECIFICATIONS	0	W. THOMPSON
SP-2	SPRINT SPECIFICATIONS	0	M. VALENTINE
SURVEY	EXISTING SURVEY OOCUMENTS	0	N / A
A-1	PARTIAL SITE PLAN	0	W. THOMPSON
A-2	EQUIPMENT PLAN	0	W. THOMPSON
A-3	TOWER ELEVATION & CABLE PLAN	0	W. THOMPSON
A-4	ANTENNA LAYOUT & MOUNTING DETAILS	0	W. THOMPSON
A-5A	RF DATA SHEET	0	M. VALENTINE
A-5B	RF DATA SHEET	0	M. VALENTINE
A-6	RF DATA SHEET	0	M. VALENTINE
A-7	RF DATA SHEET	0	M. VALENTINE
A-8A	EQUIPMENT DETAILS	0	W. THOMPSON
A-8B	EQUIPMENT DETAILS	0	W. THOMPSON
A-8C	EQUIPMENT DETAILS	0	W. THOMPSON
A-8D	EQUIPMENT DETAILS	0	W. THOMPSON
A-9	EQUIPMENT DETAILS	0	W. THOMPSON
S-1	STRUCTURAL DETAILS	0	W. THOMPSON
S-2	STRUCTURAL DETAILS	0	W. THOMPSON
E-1A	ELECTRICAL PLAN	0	M. VALENTINE
E-1B	ELECTRICAL PLAN DETAIL	0	M. VALENTINE
E-2	GROUNDING PLAN	0	M. VALENTINE
E-3	ELECTRICAL DETAILS TOWER GROUNDING	0	M. VALENTINE
E-4	ELECTRICAL DETAILS	0	M. VALENTINE
E-5	ELECTRICAL DETAILS	0	M. VALENTINE
E-6	A/C POWER DISTRIBUTION	0	M. VALENTINE
E-7	D/C POWER DISTRIBUTION	0	M. VALENTINE
E-8	D/C SUB PANEL DETAIL	0	M. VALENTINE





THESE OUTLINE SPECIFICATIONS IN CONJUNCTION WITH THE SPRINT STANDARD CONSTRUCTION SPECIFICATIONS, INCLUDING CONTRACT DOCUMENTS AND THE CONSTRUCTION DRAWINGS DESCRIBE THE WORK TO BE PERFORMED BY THE CONTRACTOR.

**SECTION 01 100 – SCOPE OF WORK**

**THE WORK:**  
SHALL COMPLY WITH APPLICABLE NATIONAL CODES AND STANDARDS, LATEST EDITION, AND PORTIONS THEREOF.

**PRECEDENCE:**  
SHOULD CONFLICTS OCCUR BETWEEN THE STANDARD CONSTRUCTION SPECIFICATIONS FOR WIRELESS SITES INCLUDING THE STANDARD CONSTRUCTION DETAILS FOR WIRELESS SITES AND THE CONSTRUCTION DRAWINGS, INFORMATION ON THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE.

**SITE FAMILIARITY:**  
CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS PRIOR TO PROCEEDING WITH CONSTRUCTION.

**ON-SITE SUPERVISION:**  
THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

**DRAWINGS, SPECIFICATIONS AND DETAILS REQUIRED AT JOBSITE:**  
THE CONSTRUCTION CONTRACTOR SHALL MAINTAIN A FULL SET OF THE CONSTRUCTION DRAWINGS AT THE JOBSITE FROM MOBILIZATION THROUGH CONSTRUCTION COMPLETION.

A. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. PROVIDE MATERIALS AND LABOR AS REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONING SYSTEM. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.

B. CONTRACTOR SHALL NOTIFY SPRINT CONSTRUCTION MANAGER OF VARIATIONS PRIOR TO PROCEEDING WITH THE WORK. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS NOTED OTHERWISE. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS, AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF THE WORK.

C. MARK THE FIELD SET OF DRAWINGS IN RED, DOCUMENTING CHANGES FROM THE CONSTRUCTION DOCUMENTS.

**METHODS OF PROCEDURE (MOPS) FOR CONSTRUCTION:**  
CONTRACTOR SHALL PERFORM WORK AS DESCRIBED IN

- A. COAX COLOR CODING SWEEPS AND FIBER TESTING TS-0200 AND EL-0568
- B. CABLE LABELING EN-2012-00
- C. APPLICABLE INSTALLATION MOPS IDENTIFIED ELSEWHERE IN THE CONTRACT DOCUMENTS

**SECTION 01 200 – COMPANY FURNISHED MATERIAL AND EQUIPMENT**

COMPANY FURNISHED MATERIAL AND EQUIPMENT IS IDENTIFIED ON THE RF DATA SHEET IN THE CONSTRUCTION DRAWINGS.

CONTRACTOR IS RESPONSIBLE FOR SPRINT PROVIDED MATERIAL AND EQUIPMENT TO ENSURE IT IS PROTECTED AND HANDLED PROPERLY THROUGHOUT THE CONSTRUCTION DURATION.

CONTRACTOR RESPONSIBLE FOR RECEIPT OF SPRINT FURNISHED EQUIPMENT AT CELL SITE OR CONTRACTORS LOCATION. CONTRACTOR TO COMPLETE SHIPPING AND RECEIPT DOCUMENTATION IN ACCORDANCE WITH COMPANY PRACTICE.

**SECTION 01 300 – CELL SITE CONSTRUCTION**

**NOTICE TO PROCEED:**  
NO WORK SHALL COMMENCE PRIOR TO COMPANY'S WRITTEN NOTICE TO PROCEED AND THE ISSUANCE OF WORK ORDER.

**SITE CLEANLINESS:**  
CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH. AT THE COMPLETION OF THE WORK, CONTRACTOR SHALL REMOVE FROM THE SITE REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

**SECTION 01 400 – SUBMITTALS & TESTS**

**ALTERNATES:**  
AT THE COMPANY'S REQUEST, ALTERNATIVES TO THE MATERIALS OR METHODS SPECIFIED SHALL BE SUBMITTED TO SPRINTS CONSTRUCTION MANAGER FOR APPROVAL. SPRINT WILL REVIEW AND APPROVE ONLY THOSE REQUESTS MADE IN WRITING. NO VERBAL APPROVALS WILL BE CONSIDERED.

**TESTS AND INSPECTIONS:**

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONSTRUCTION TESTS, INSPECTIONS AND PROJECT DOCUMENTATION.
- B. CONTRACTOR SHALL ACCOMPLISH TESTING INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
  - 1. COAX SWEEPS AND FIBER TESTS PER TS-0200 REV 4 ANTENNA LINE ACCEPTANCE STANDARDS.
  - 2. AZIMUTH AND DOWNTILT PROVIDE AN AUTOMATED REPORT UPLOADED TO SITERRA USING A COMMERCIAL MADE-FOR THE PURPOSE ELECTRONIC ANTENNA ALIGNMENT TOOL (AAT). INSTALLED AZIMUTH, CENTERLINE AND DOWNTILT MUST CONFORM WITH RF CONFIGURATION DATA

- 3. CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTIONS TO WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
- 4. TESTING REQUIRED BY APPLICABLE INSTALLATION MOPS.

C. REQUIRED CLOSEOUT DOCUMENTATION INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING:

- 1. AZIMUTH, DOWNTILT, AGL FROM SUNSIGHT INSTRUMENTS – ANTENNALIGN ALIGNMENT TOOL (AAT)
- 2. SWEEP AND FIBER TESTS
- 3. SCALABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
- 4. AVAILABLE JURISDICTIONAL PERMIT AND OCCUPANCY INFORMATION
- 5. PDF SCAN OF REDLINES PRODUCED IN FIELD
- 6. A PDF SCAN OF REDLINE MARK-UPS SUITABLE FOR USE IN ELECTRONIC AS-BUILT DRAWING PRODUCTION
- 7. LIEN WAIVERS
- 8. FINAL PAYMENT APPLICATION
- 9. REQUIRED FINAL CONSTRUCTION PHOTOS
- 10. CONSTRUCTION AND COMMISSIONING CHECKLIST COMPLETE WITH NO DEFICIENT ITEMS
- 11. APPLICABLE POST NTP TASKS INCLUDING DOCUMENT UPLOADS COMPLETED IN SITERRA (SPRINTS DOCUMENT REPOSITORY OF RECORD).
- 12. CLOSEOUT PHOTOGRAPHS AND CLOSEOUT CHECKLIST: SPRINT WILL PROVIDE SEPARATE GUIDANCE

**SECTION 11 700 – ANTENNA ASSEMBLY, REMOTE RADIO UNITS AND CABLE INSTALLATION**

**SUMMARY:**  
THIS SECTION SPECIFIES INSTALLATION OF ANTENNAS, RRU'S, AND CABLE EQUIPMENT, INSTALLATION, AND TESTING OF COAXIAL FIBER CABLE.

**ANTENNAS AND RRU'S:**  
THE NUMBER AND TYPE OF ANTENNAS AND RRU'S TO BE INSTALLED IS DETAILED ON THE CONSTRUCTION DRAWINGS.

**HYBRID CABLE:**  
HYBRID CABLE WILL BE DC/FIBER AND FURNISHED FOR INSTALLATION AT EACH SITE. CABLE SHALL BE INSTALLED PER THE CONSTRUCTION DRAWINGS AND THE APPLICABLE MANUFACTURER'S REQUIREMENTS.

**JUMPERS AND CONNECTORS:**  
FURNISH AND INSTALL 1/2" COAX JUMPER CABLES BETWEEN THE RRU'S AND ANTENNAS. JUMPERS SHALL BE TYPE LDF 4, FLC 12-50, CR 540, OR FXL 540. SUPER-FLEX CABLES ARE NOT ACCEPTABLE. JUMPERS BETWEEN THE RRU'S AND ANTENNAS OR TOWER TOP AMPLIFIERS SHALL CONSIST OF 1/2 INCH FOAM DIELECTRIC, OUTDOOR RATED COAXIAL CABLE, MIN LENGTH FOR JUMPER SHALL BE 10"-0".

**REMOTE ELECTRICAL TILT (RET) CABLES:**

**MISCELLANEOUS:**  
INSTALL SPLITTERS, COMBINERS, FILTERS PER RF DATA SHEET, FURNISHED BY SPRINT.

**ANTENNA INSTALLATION:**  
THE CONTRACTOR SHALL ASSEMBLE ANTENNAS ONSITE IN ACCORDANCE WITH THE INSTRUCTIONS SUPPLIED BY THE MANUFACTURER. ANTENNA HEIGHT, AZIMUTH, AND FEED ORIENTATION INFORMATION SHALL BE A DESIGNATED ON THE CONSTRUCTION DRAWINGS.

- A. THE CONTRACTOR SHALL POSITION THE ANTENNA ON TOWER PIPE MOUNTS SO THAT THE BOTTOM STRUT IS LEVEL. THE PIPE MOUNTS SHALL BE PLUMB TO WITHIN 1 DEGREE.
- B. ANTENNA MOUNTING REQUIREMENTS: PROVIDE ANTENNA MOUNTING HARDWARE AS INDICATED ON THE DRAWINGS.

**HYBRID CABLE INSTALLATION:**

- A. THE CONTRACTOR SHALL ROUTE, TEST, AND INSTALL CABLES AS INDICATED ON THE CONSTRUCTION DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- B. THE INSTALLED RADIUS OF THE CABLES SHALL NOT BE LESS THAN THE MANUFACTURER'S SPECIFICATIONS FOR BENDING RADII.
- C. EXTREME CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE CABLES DURING HANDLING AND INSTALLATION.
  - 1. FASTENING MAIN HYBRID CABLES: CABLES SHALL BE ATTACHED TO THE CABLE LADDER WITH SUPPORT HANGERS AS REQUIRED BY THE MANUFACTURER.
  - 2. FASTENING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA), WITHIN THE MMBS CABINET AND INTERMEDIATE DISTRIBUTION BOXES:
    - a. FIBER: SUPPORT FIBER BUNDLES USING 1/2" VELCRO STRAPS OF THE REQUIRED LENGTH @ 18" OC. STRAPS SHALL BE UV, OIL AND WATER RESISTANT AND SUITABLE FOR INDUSTRIAL INSTALLATIONS AS MANUFACTURED BY TEXTOL OR APPROVED EQUAL.
    - b. DC: SUPPORT DC BUNDLES WITH ZIP TIES OF THE ADEQUATE LENGTH. ZIP TIES TO BE UV STABILIZED, BLACK NYLON, WITH TENSILE STRENGTH AT 12,000 PSI AS MANUFACTURED BY NELCO PRODUCTS OR EQUAL.
  - 3. FASTENING JUMPERS: SECURE JUMPERS TO THE SIDE ARMS OR HEAD FRAMES USING STAINLESS STEEL TIE WRAPS OR STAINLESS STEEL BUTTERFLY CUPS.
  - 4. CABLE INSTALLATION:
    - a. INSPECT CABLE PRIOR TO USE FOR SHIPPING DAMAGE, NOTIFY THE CONSTRUCTION MANAGER.
    - b. CABLE ROUTING: CABLE INSTALLATION SHALL BE PLANNED TO ENSURE THAT THE LINES WILL BE PROPERLY ROUTED IN THE CABLE ENVELOP AS INDICATED ON THE DRAWINGS. AVOID TWISTING AND CROSSEOVERS.
    - c. HOIST CABLE USING PROPER HOISTING GRIPS. DO NOT EXCEED MANUFACTURERS RECOMMENDED MAXIMUM BEND RADIUS.

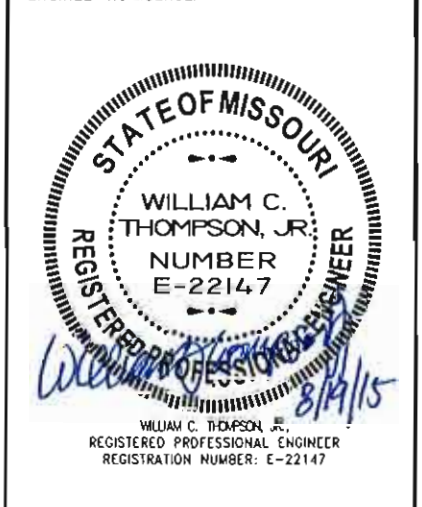
PLANS PREPARED FOR:



PLANS PREPARED BY:



ENGINEERING LICENSE:



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REVISIONS:	DESCRIPTION	DATE	BY	REV
OCEAN DRAWINGS FOR REVIEW		08/07/15	SPB	0
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

SITE NAME:  
**ATC GUMBO**

SITE CASCADE:  
**ST51XC070**

SITE ADDRESS:  
18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:  
**SPRINT SPECIFICATIONS**

SHEET NUMBER:  
**SP-1**



**CONTINUE FROM SP-1**

- 5. GROUNDING OF TRANSMISSION LINES: ALL TRANSMISSION LINES SHALL BE GROUNDED AS INDICATED ON DRAWINGS.
- 6. HYBRID CABLE COLOR CODING: COLOR CODING SHALL BE AS REQUIRED IN TS 020D REV 4.
- 7. HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA-NUMERICALLY ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-DD1, REV 1

**WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:**

- A. FIBER & COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED.
- B. WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. INSTALLATIONS MUST BE DONE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY BEST PRACTICES.
  - 1. COLD SHRINK: ENCOMPASS CONNECTOR IN COLD SHRINK TUBING AND PROVIDE A DOUBLE WRAP OF 2" ELECTRICAL TAPE EXTENDING 2" BEYOND TUBING. PROVIDE 3M COLD SHRINK CXS SERIES OR EQUAL.
  - 2. SELF-AMALGAMATING TAPE: CLEAN SURFACES. APPLY A DOUBLE WRAP OF SELF-AMALGAMATING TAPE 2" BEYOND CONNECTOR. APPLY A SECOND WRAP OF SELF-AMALGAMATING TAPE IN OPPOSITE DIRECTION. APPLY DOUBLE WRAP OF 2" WIDE ELECTRICAL TAPE EXTENDING 2" BEYOND THE SELF-AMALGAMATING TAPE.
  - 3. 3M SLJM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED.
  - 4. OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE

**SECTION 11 800 - INSTALLATION OF MULTIMODAL BASE STATIONS (MMBS) AND RELATED EQUIPMENT**

**SUMMARY:**

- A. THIS SECTION SPECIFIES MMBS CABINETS, POWER CABINETS, AND INTERNAL EQUIPMENT INCLUDING BY NOT LIMITED TO RECTIFIERS, POWER DISTRIBUTION UNITS, BASE BAND UNITS, SURGE ARRESTORS, BATTERIES, AND SIMILAR EQUIPMENT FURNISHED BY THE COMPANY FOR INSTALLATION BY THE CONTRACTOR (OFCL).
- B. CONTRACTOR SHALL PROVIDE AND INSTALL MISCELLANEOUS MATERIALS AND PROVIDE LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRE BY THE APPLICABLE INSTALLATION MOPS.
- C. COMPLY WITH MANUFACTURERS INSTALLATION AND START-UP REQUIREMENTS

**DC CIRCUIT BREAKER LABELING**

- A. NEW DC CIRCUIT IS REQUIRED IN MMBS CABINET SHALL BE CLEARLY IDENTIFIED AS TO RRU BEING SERVICED

**SECTION 26 100 - BASIC ELECTRICAL REQUIREMENTS**

**SUMMARY:**  
THIS SECTION SPECIFIES BASIC ELECTRICAL REQUIREMENTS FOR SYSTEMS AND COMPONENTS.

**QUALITY ASSURANCE:**

- A. EQUIPMENT FURNISHED UNDER DIVISION 26 SHALL CARRY UL LABELS AND LISTINGS WHERE SUCH LABELS AND LISTINGS ARE AVAILABLE IN THE INDUSTRY.
- B. MANUFACTURERS OF EQUIPMENT SHALL HAVE A MINIMUM OF THREE YEARS EXPERIENCE WITH THEIR EQUIPMENT INSTALLED AND OPERATING IN THE FIELD IN A USE SIMILAR TO THE PROPOSED USE FOR THIS PROJECT.
- C. MATERIALS AND EQUIPMENT: MATERIALS AND EQUIPMENT SPECIFIED IN DIVISION 26 OF THE SAME TYPE SHALL BE OF THE SAME MANUFACTURER AND SHALL BE NEW, OF THE BEST QUALITY AND DESIGN, AND FREE FROM DEFECTS

**SUPPORTING DEVICES:**

- A. EQUIPMENT FURNISHED UNDER DIVISION 26 SHALL CARRY UL LABELS AND LISTINGS WHERE SUCH LABELS AND LISTINGS ARE AVAILABLE IN THE INDUSTRY.
- B. MANUFACTURERS OF EQUIPMENT SHALL HAVE A MINIMUM OF THREE YEARS EXPERIENCE WITH THEIR EQUIPMENT INSTALLED AND OPERATING IN THE FIELD IN A USE SIMILAR TO THE PROPOSED USE FOR THIS PROJECT.
- C. MATERIALS AND EQUIPMENT: MATERIALS AND EQUIPMENT SPECIFIED IN DIVISION 26 OF THE SAME TYPE SHALL BE OF THE SAME MANUFACTURER AND SHALL BE NEW, OF THE BEST QUALITY AND DESIGN, AND FREE FROM DEFECTS

**SUPPORTING DEVICES:**

- A. MANUFACTURED STRUCTURAL SUPPORT MATERIALS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY THE FOLLOWING:
  - 1. ALLIED TUBE AND CONDUIT
  - 2. B-LINE SYSTEM
  - 3. SUNISTRUT DIVERSIFIED PRODUCTS
  - 4. THOMAS & BETTS
- B. FASTENERS: TYPES, MATERIALS, AND CONSTRUCTION FEATURES AS FOLLOWS:
  - 1. EXPANSION ANCHORS: CARBON STEEL WEDGE OR SLEEVE TYPE.
  - 2. POWER-DRIVEN THREADED STUDS: HEAT-TREATED STEEL, DESIGNED SPECIFICALLY FOR THE INTENDED SERVICE.
  - 3. FASTEN BY MEANS OF WOOD SCREWS ON WOOD.
  - 4. TOGGLE BOLTS ON HOLLOW MASONRY UNITS.
  - 5. CONCRETE INSERTS OR EXPANSION BOLTS ON CONCRETE OR SOLID MASONRY.
  - 6. MACHINE SCREWS, WELDED THREADED STUDS, OR SPRING-TENSION CLAMPS ON STEEL.
  - 7. EXPLOSIVE DEVICES FOR ATTACHING HANGERS TO STRUCTURE SHALL NOT BE PERMITTED.
  - 8. DO NOT WELD CONDUIT, PIPE STRAPS, OR ITEMS OTHER THAN THREADED STUDS TO STEEL STRUCTURES.
  - 9. IN PARTITIONS OF LIGHT STEEL CONSTRUCTION, USE SHEET METAL SCREWS.

**SUPPORTING DEVICES:**

- A. INSTALL SUPPORTING DEVICES TO FASTEN ELECTRICAL COMPONENTS SECURELY AND PERMANENTLY IN ACCORDANCE WITH NEC.
- B. COORDINATE WITH THE BUILDING STRUCTURAL SYSTEM AND WITH OTHER TRADES.
- C. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, FASTEN ELECTRICAL ITEMS AND THEIR SUPPORTING HARDWARE SECURELY TO THE STRUCTURE IN ACCORDANCE WITH THE FOLLOWING:
- D. ENSURE THAT THE LOAD APPLIED BY FASTENER DOES NOT EXCEED 25 PERCENT OF THE PROOF TEST LOAD.
- E. USE VIBRATION AND SHOCK-RESISTANT FASTENERS FOR ATTACHMENTS TO CONCRETE SLABS.

**ELECTRICAL IDENTIFICATION:**

- A. UPDATE AND PROVIDE TYPED CIRCUIT BREAKER SCHEDULES IN THE MOUNTING BRACKET, INSIDE DOORS OF AC PANEL BOARDS WITH ANY CHANGES MADE TO THE AC SYSTEM.
- B. BRANCH CIRCUITS FEEDING AVIATION OBSTRUCTION LIGHTING EQUIPMENT SHALL BE CLEARLY IDENTIFIED AS SUCH AT THE BRANCH CIRCUIT PANELBOARD.

**SECTION 26 200 - ELECTRICAL MATERIALS AND EQUIPMENT**

**EXISTING STRUCTURE:**

- A. EXISTING EXPOSED WIRING AND ALL EXPOSED OUTLETS, RECEPTACLES, SWITCHES, DEVICES, BOXES, AND OTHER EQUIPMENT THAT ARE NOT TO BE UTILIZED IN THE COMPLETED PROJECT SHALL BE REMOVED OR DE-ENERGIZED AND CAPPED IN THE WALL, CEILING, OR FLOOR SO THAT THEY ARE CONCEALED AND SAFE. WALL, CEILING, OR FLOOR SHALL BE PATCHED TO MATCH THE ADJACENT CONSTRUCTION.

**CONDUIT AND CONDUCTOR INSTALLATION:**

- A. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES 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 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.
- B. CONDUCTORS SHALL BE PULLED IN ACCORDANCE WITH ACCEPTED GOOD PRACTICE.

**CONDUIT:**

- A. RIGID GALVANIZED STEEL (RGS) CONDUIT SHALL BE USED FOR EXTERIOR LOCATIONS ABOVE GROUND AND IN UNFINISHED INTERIOR LOCATIONS AND FOR ENCASED RUNS IN CONCRETE. RIGID CONDUIT AND FITTINGS SHALL BE STEEL, COATED WITH ZINC EXTERIOR AND INTERIOR BY THE HOT DIP GALVANIZING PROCESS. CONDUIT SHALL BE PRODUCED TO ANSI SPECIFICATIONS C80.1, FEDERAL SPECIFICATION WW-C-581 AND SHALL BE LISTED WITH THE UNDERWRITERS' LABORATORIES. FITTINGS SHALL BE THREADED - SET SCREW OR COMPRESSION FITTINGS WILL NOT BE ACCEPTABLE. RGS CONDUITS SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND.
- B. UNDERGROUND CONDUIT IN CONCRETE SHALL BE POLYVINYLCHLORIDE (PVC) SUITABLE FOR DIRECT BURIAL AS APPLICABLE. JOINTS SHALL BE BELLED, AND FLUSH SOLVENT WELDED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE CARLON ELECTRICAL PRODUCTS OR APPROVED EQUAL.
- C. TRANSITIONS BETWEEN PVC AND RIGID (RGS) SHALL BE MADE WITH PVC COATED METALLIC LONG SWEEP RADIUS ELBOWS.
- D. EMT OR RIGID GALVANIZED STEEL CONDUIT MAY BE USED IN FINISHED SPACES CONCEALED IN WALLS AND CEILINGS. EMT SHALL BE MILD STEEL, ELECTRICALLY WELDED, ELECTRO-GALVANIZED OR HOT-DIPPED GALVANIZED AND PRODUCED TO ANSI SPECIFICATION C80.3, FEDERAL SPECIFICATION WW-C-563, AND SHALL BE UL LISTED. EMT SHALL BE MANUFACTURED BY ALLIED, REPUBLIC OR WHEATLAND, OR APPROVED EQUAL. FITTINGS SHALL BE METALLIC COMPRESSION. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE.
- E. LIQUID TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR FINAL CONNECTION TO EQUIPMENT. FITTINGS SHALL BE METALLIC GLAND TYPE COMPRESSION FITTINGS, MAINTAINING THE INTEGRITY OF CONDUIT SYSTEM. SET SCREW CONNECTIONS SHALL NOT BE ACCEPTABLE. MAXIMUM LENGTH OF FLEXIBLE CONDUIT SHALL NOT EXCEED 6- FEET. LFMC SHALL BE PROTECTED AND SUPPORTED AS REQUIRE BY NEC. MANUFACTURERS OF FLEXIBLE CONDUITS SHALL BE CAROL, ANACONDA METAL HOSE OR UNIVERSAL METAL HOSE, OR APPROVED EQUAL.
- F. MINIMUM SIZE CONDUIT SHALL BE 3/4 INCH (21MM).

**HUBS AND BOXES:**

- A. AT ENTRANCES TO CABINETS OR OTHER EQUIPMENT NOT HAVING INTEGRAL THREADED HUBS PROVIDE METALLIC THREADED HUBS OF THE SIZE AND CONFIGURATION REQUIRED. HUB SHALL INCLUDE LOCKNUT AND NEOPRENE O-RING SEAL. PROVIDE IMPACT RESISTANT 105 DEGREE C PLASTIC BUSHINGS TO PROTECT CABLE INSULATION.
- B. CABLE TERMINATION FITTINGS FOR CONDUIT
  - 1. CABLE TERMINATORS FOR RGS CONDUITS SHALL BE TYPE CRC BY O-Z/GEDNEY OR EQUAL BY ROX TEC.
  - 2. CABLE TERMINATORS FOR LFMC SHALL BE EITCO - CL2075; OR MADE FOR THE PURPOSE PRODUCTS BY ROXTEC.
- C. EXTERIOR PULL BOXES AND PULL BOXES IN INTERIOR INDUSTRIAL AREAS SHALL BE PLATED CAST ALLOY, HEAVY DUTY, WEATHERPROOF, DUST PROOF, WITH GASKET, PLATED IRON ALLOY COVER AND STAINLESS STEEL COVER SCREWS, CROUSE-HINDS WAB SERIES OR EQUAL.
- D. CONDUIT OUTLET BODIES SHALL BE PLATED CAST ALLOY WITH SIMILAR GASKETED COVERS. OUTLET BODIES SHALL BE OF THE CONFIGURATION AND SIZE SUITABLE FOR THE APPLICATION. PROVIDE CROUSE-HINDS FORM B OR EQUAL.
- E. MANUFACTURER FOR BOXES AND COVERS SHALL BE HOFFMAN, SQUARE "D", CROUSE-HINDS, COOPER, ADALET, APPLETON, O-Z GEDNEY, RACO, OR APPROVED EQUAL.

**SUPPLEMENTAL GROUNDING SYSTEM**

- A. FURNISH AND INSTALL A SUPPLEMENTAL GROUNDING SYSTEM TO THE EXTENT INDICATED ON THE DRAWINGS. SUPPORT SYSTEM WITH NON-MAGNETIC STAINLESS STEEL CLIPS WITH RUBBER GROMMETS. GROUNDING CONNECTORS SHALL BE TINNED COPPER WIRE, SIZES AS INDICATED ON THE DRAWINGS. PROVIDE STRANDED OR SOLID BARE OR INSULATED CONDUCTORS EXCEPTED AS OTHERWISE NOTED.
- B. SUPPLEMENTAL GROUNDING SYSTEM: CONNECTIONS TO BE MADE WITH CAD WELDS, EXCEPT AT EQUIPMENT USE LUGS OR OTHER AVAILABLE GROUNDING MEANS AS REQUIRED BY MANUFACTURER; AT GROUND BARS USE TWO HOLE SPADES WITH NO OX.
- C. STOLEN GROUND-BARS: IN THE EVENT OF STOLEN GROUND BARS, CONTACT SPRINT CM FOR REPLACEMENT INSTRUCTION USING THREADED ROD KITS.

PLANS PREPARED FOR:



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SITE NAME:  
**ATC GUMBO**

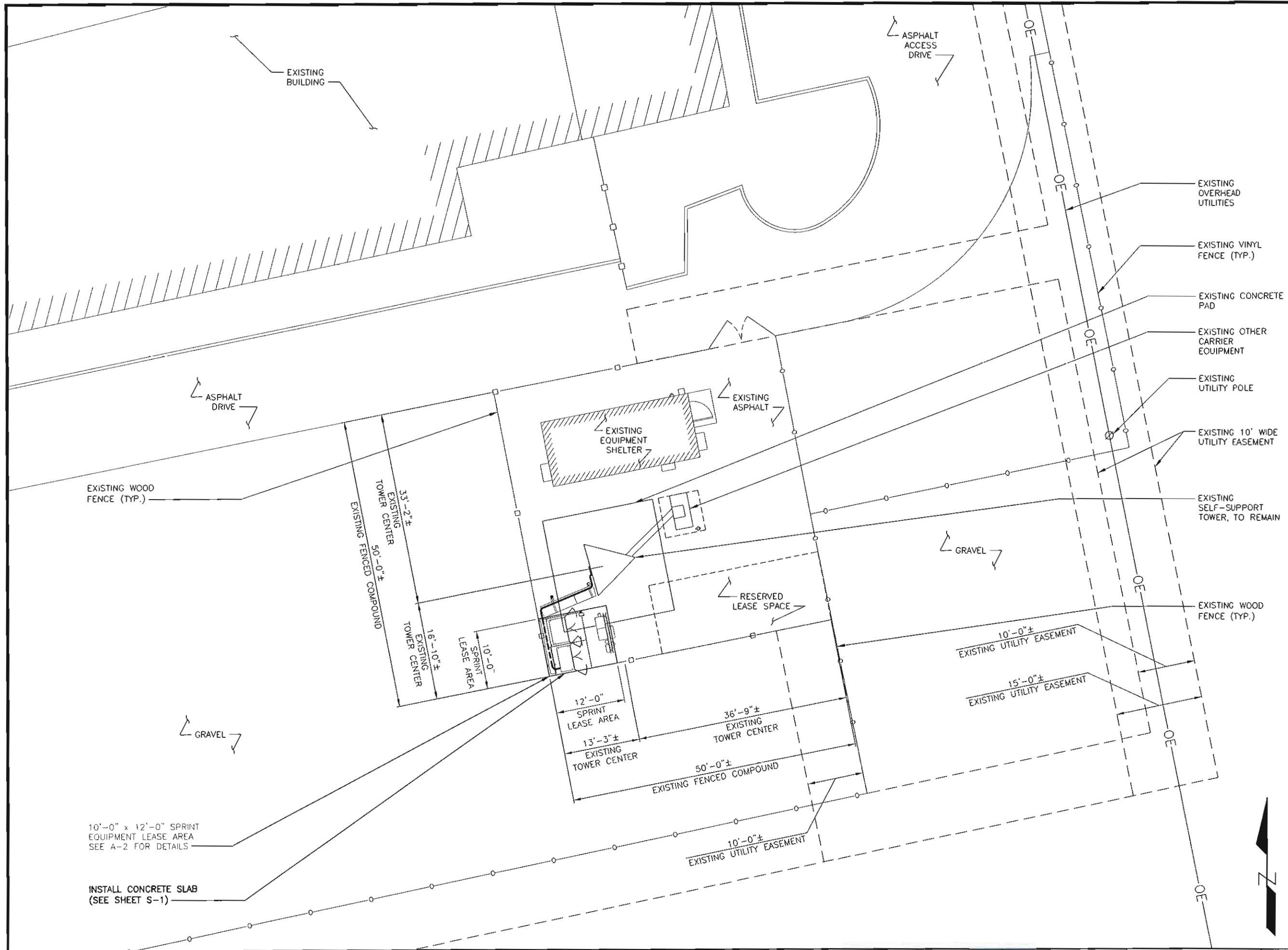
SITE CASCADE:  
**ST51XC070**

SITE ADDRESS:  
18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:  
**SPRINT SPECIFICATIONS**

SHEET NUMBER:  
**SP-2**





PLANS PREPARED FOR:

**Sprint**

6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:

**SHIVEHATTERY**  
ARCHITECTURE+ENGINEERING

3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
630.380.7444 | fax 630.437.5800 | shive-hattery.com  
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S/H PROJ # 8155100-19

ENGINEERING LICENSE:

WILLIAM C. THOMPSON, JR.  
REGISTERED PROFESSIONAL ENGINEER  
REGISTRATION NUMBER: E-22147

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SITE NAME:

**ATC GUMBO**

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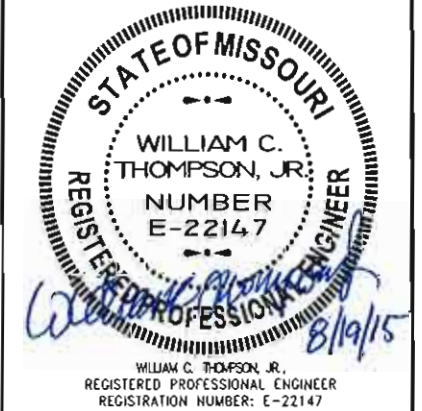
18614 OLIVE STREET ROAD  
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SHEET DESCRIPTION:

**PARTIAL SITE PLAN**

SHEET NUMBER:

**A-1**



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-	-	-	-	-
-	-	-	-	-

SITE NAME:  
**ATC GUMBO**

SITE CASCADE:  
**ST51XC070**

SITE ADDRESS:  
 18614 OLIVE STREET ROAD  
 CHESTERFIELD, MO 63005

SHEET DESCRIPTION:  
**EQUIPMENT PLAN**

SHEET NUMBER:  
**A-2**

EXISTING CONCRETE PAD

EXISTING WOOD FENCE (TYP.)

INSTALL POST BASE PLATE TO EXISTING CONCRETE PAD (SEE SHEET S-2 DETAIL O)

INSTALL (1) GPS MOUNTED TO ICE BRIDGE (SEE SHEET A-8D, DETAIL A)

INSTALL ICE BRIDGE (SEE SHEET S-2, DETAIL B AND D)

ROUTE (4) NEW 1-1/2" HYBRID CABLE ON CABLE TRAY & ICE BRIDGE

INSTALL CABLE TRAY (SEE SHEET A-8C DETAIL B)

EXISTING CABLE LADDER

EXISTING SELF-SUPPORT TOWER

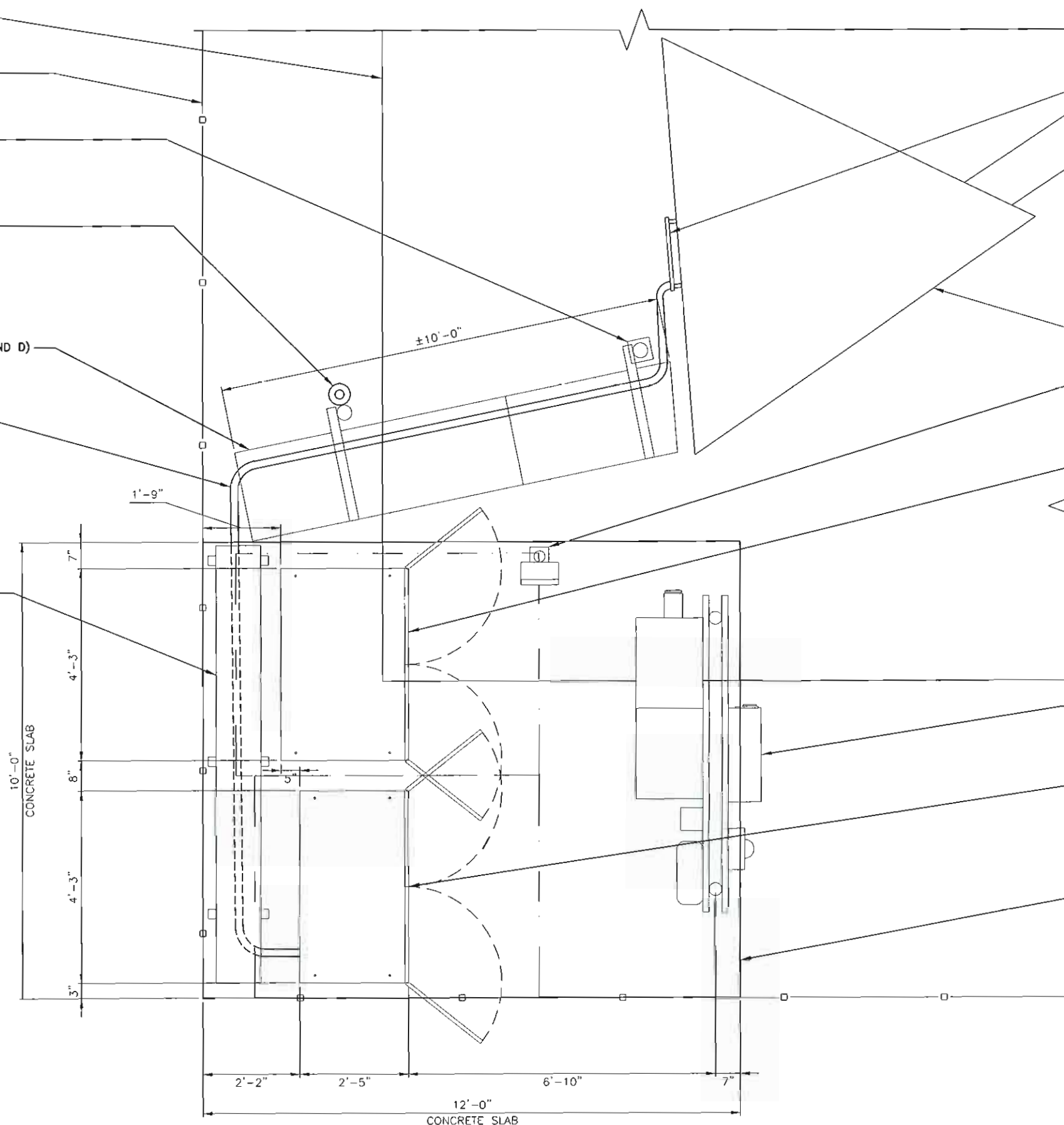
INSTALL SPRINT 500 WATT HALOGEN TECHNICIAN WORK LIGHT (SEE SHEET E-4, DETAIL D) MOUNT TO SLAB (SEE SHEET S-2, DETAIL D)

INSTALL SPRINT BATTERY CABINET (SEE SHEET A-9, DETAIL C) (SEE SHEET S-1, DETAIL A)

INSTALL UTILITY RACK WITH SPRINT PPC AND UTILITY METER, (SEE SHEET E-3, DETAIL D) AND (SHEET S-2, DETAIL D)

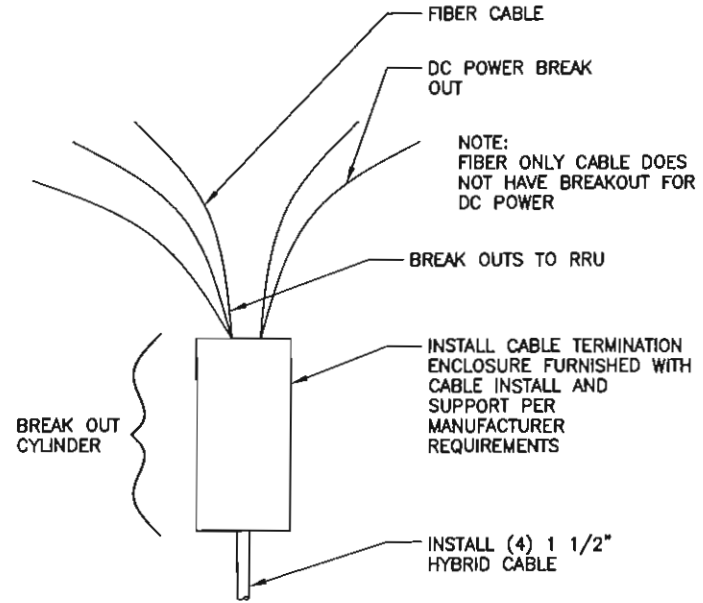
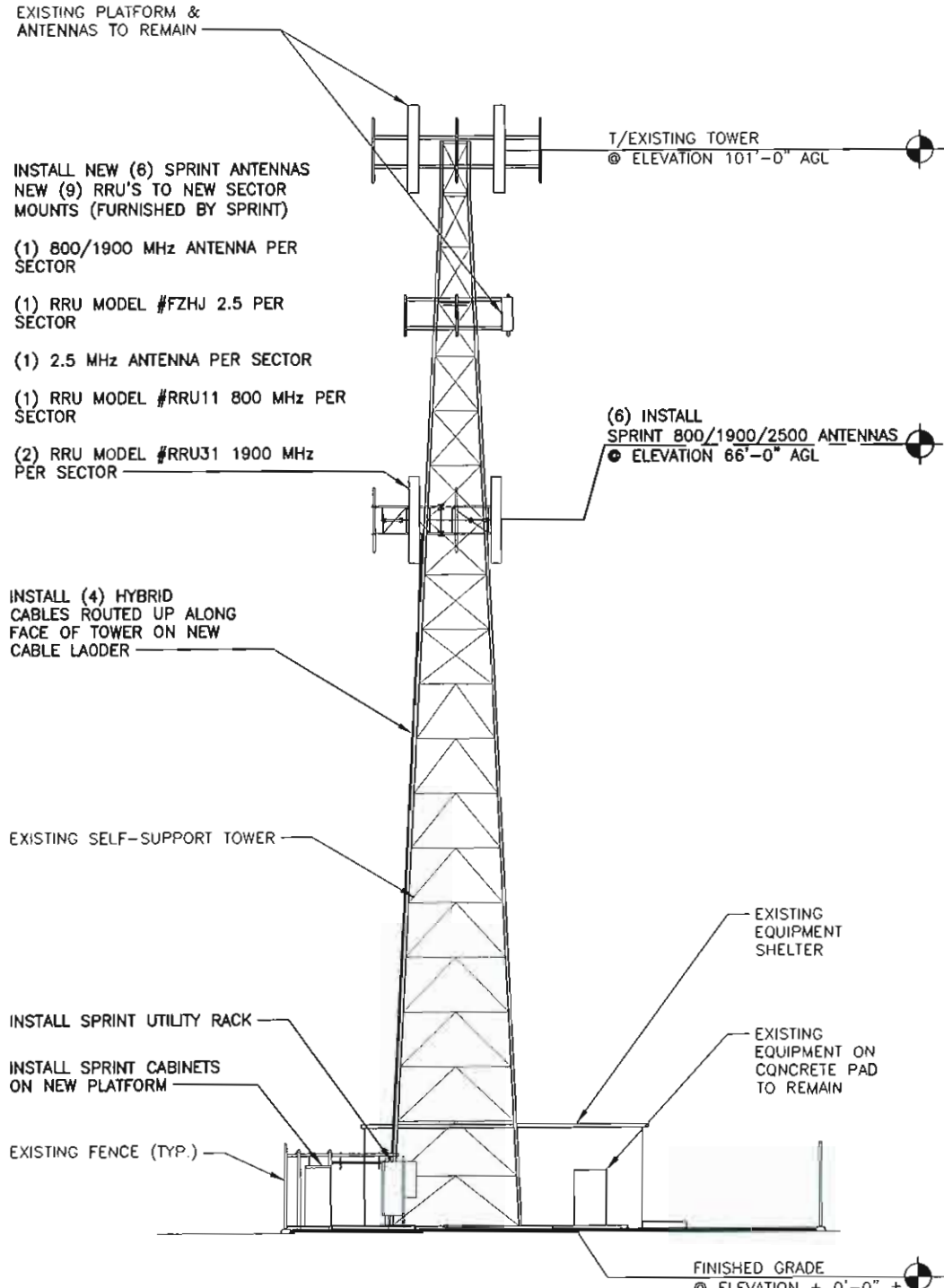
INSTALL NEW RBS-BBU CABINET INCLUDING BUT NOT LIMITED TO BASE BAND UNIT, CELL SITE ROUTER, SURGE ARRESTERS AND CONNECT POWER AND FIBER (SEE SHEET A-9, DETAIL A)

INSTALL CONCRETE SLAB (SEE SHEET S-1)

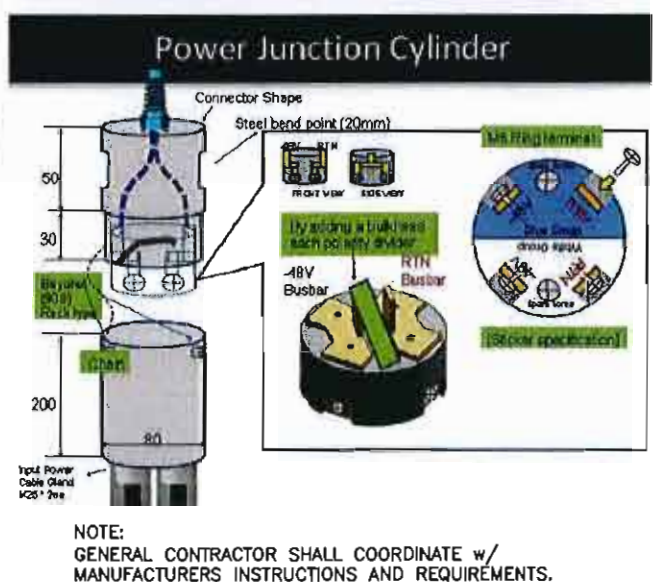
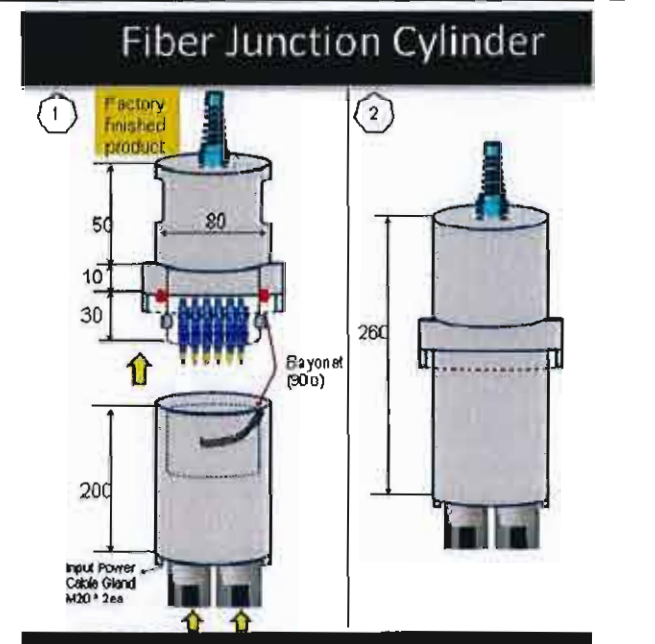




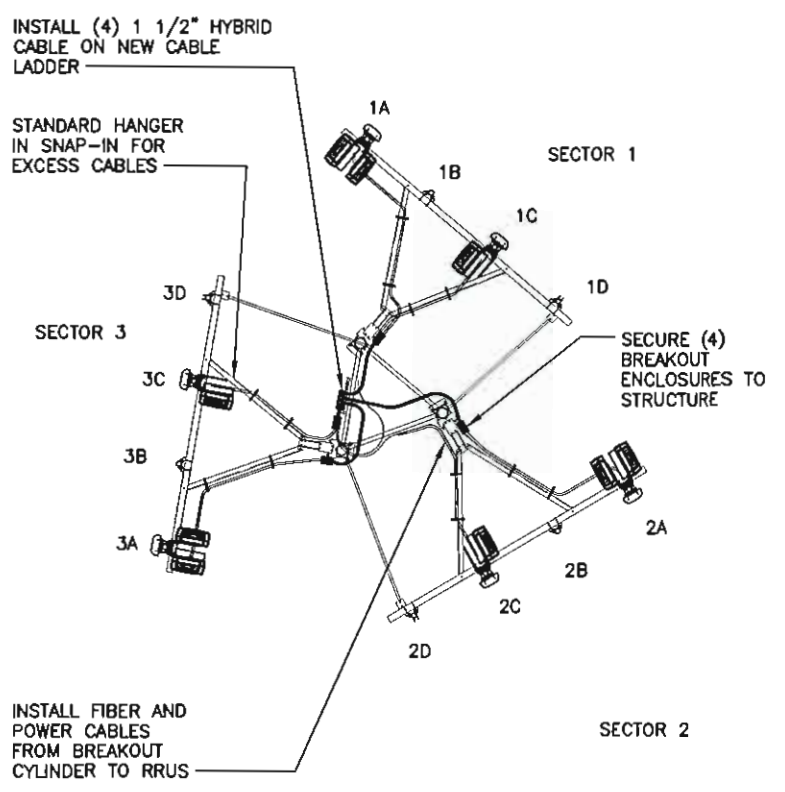
**STRUCTURAL NOTE:**  
 CONTRACTOR TO VERIFY PROPOSED AND EXISTING ANTENNAS AND CABLES WERE CONSIDERED AND PASSED A STRUCTURAL ANALYSIS PERFORMED BY A LICENSED ENGINEER PRIOR TO INSTALLATION.



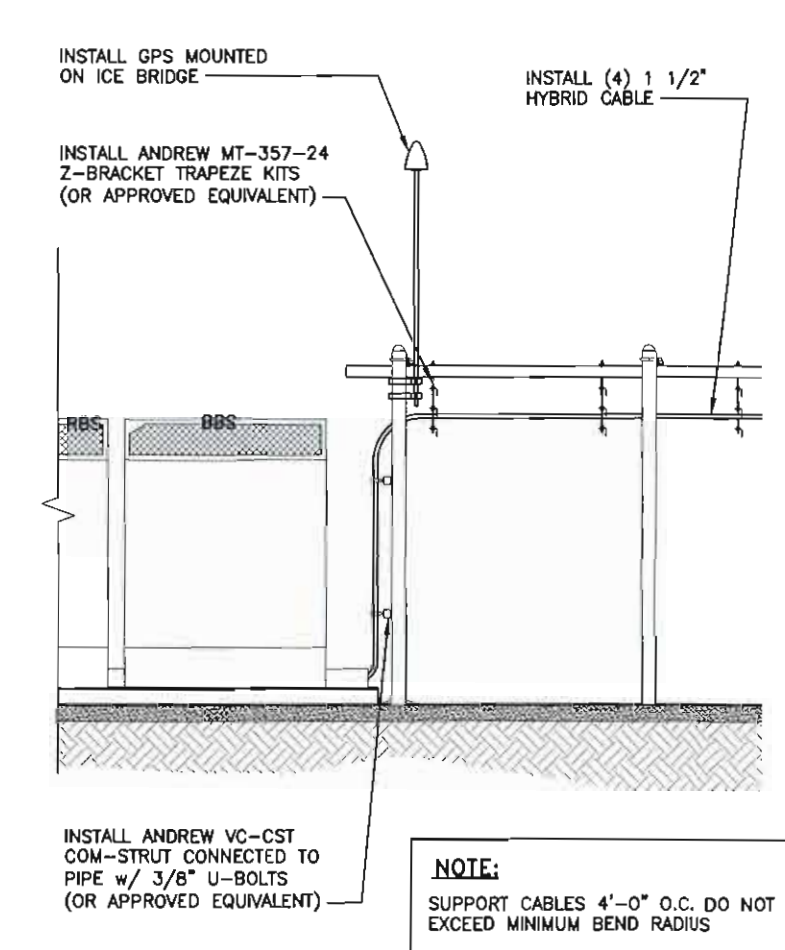
**HYBRID BREAK OUT DETAIL** NO SCALE C



**POWER & FIBER JUNCTION CYLINDER** NO SCALE D



**CABLE INSTALLATION AT PLATFORM** NO SCALE A



**CABLE ROUTE FROM CABINET** NO SCALE B

PLANS PREPARED FOR:  
**Sprint**  
 6580 Sprint Parkway  
 Overland Park, Kansas 66251

PLANS PREPARED BY:  
**SHIVEHATTERY**  
 ARCHITECTURE+ENGINEERING  
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ENGINEERING LICENSE:  
  
 WILLIAM C. THOMPSON, JR.  
 REGISTERED PROFESSIONAL ENGINEER  
 REGISTRATION NUMBER: E-22147

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**SITE NAME:**  
 ATC GUMBO

**SITE CASCADE:**  
 ST51XC070

**SITE ADDRESS:**  
 18614 OLIVE STREET ROAD  
 CHESTERFIELD, MO 63005

**SHEET DESCRIPTION:**  
 TOWER ELEVATION & CABLE PLAN

**SHEET NUMBER:**  
 A-3

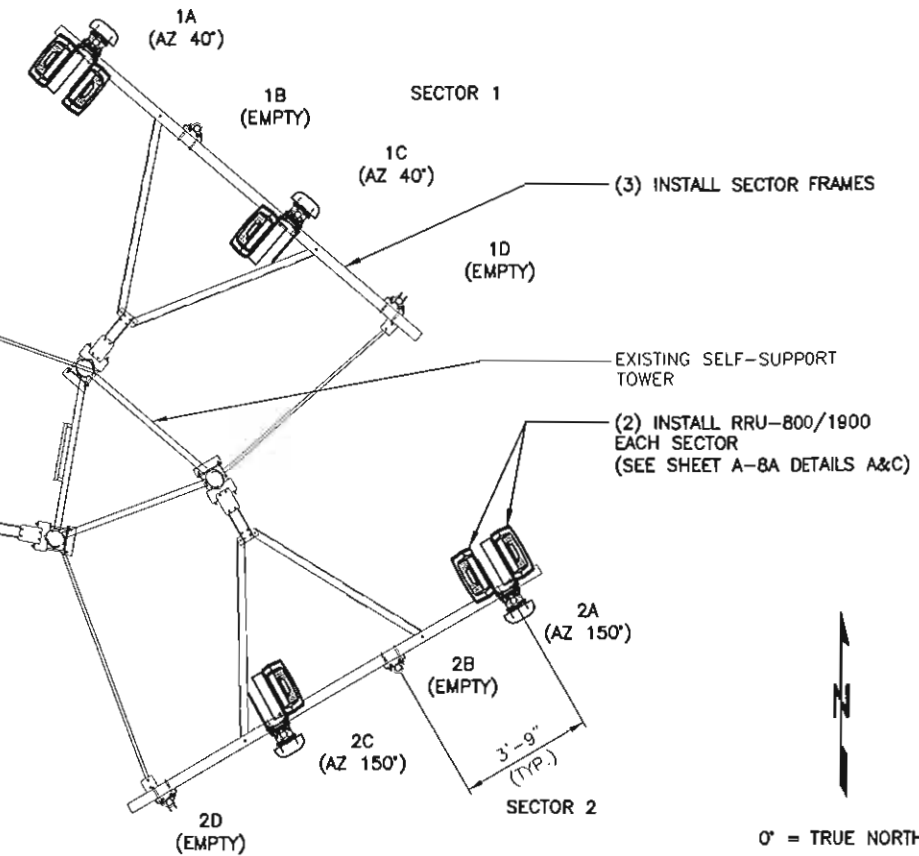
**STRUCTURAL NOTE:**  
 CONTRACTOR TO VERIFY PROPOSED AND EXISTING ANTENNAS AND CABLES WERE CONSIDERED AND PASSED A STRUCTURAL ANALYSIS PERFORMED BY A LICENSED ENGINEER PRIOR TO INSTALLATION.

(1) INSTALL RRU-2.5 EACH SECTOR (SEE SHEET A-8A DETAIL B)

(1) INSTALL SPRINT 2500 MHz ANTENNA EACH SECTOR (SEE SHEET A-8B, DETAIL A)

(1) INSTALL SPRINT 800/1900 MHz ANTENNA EACH SECTOR (SEE SHEET A-8B, DETAIL B)

INSTALLED MOUNTING LAYOUT (SEE DETAILS THIS SHEET)



(3) INSTALL SECTOR FRAMES

(2) INSTALL RRU-800/1900 EACH SECTOR (SEE SHEET A-8A DETAILS A&C)

0' = TRUE NORTH

DETAIL NOT USED

NO SCALE

C

ANTENNA LAYOUT • 102'-0"

NO SCALE

A

EXISTING SELF-SUPPORT TOWER

INSTALL SNAPSTAK SNAP-IN HANGERS

INSTALL (4) 1 1/2" HYBRID CABLE ON NEW CABLE LADDER

COIL EXCESS FIBER CABLES AND SECURE AT SIDE OF RRU DO NOT EXCEED FIBER BEND RADIUS CUT POWER CABLES TO LENGTH AND TERMINATE AT RRU

SECURE BREAKOUT ENCLOSURE TO TOWER STRUCTURE PER MANUFACTURER REQUIREMENTS WITH STANDARD SS HANGERS

INSTALL ANTENNA MOUNTING BRACKET (TYP)  
 NEW EXISTING ANTENNA MAST w/ NEW 3"x96" GALVANIZED STEEL ANTENNA MAST

INSTALL SPRINT 800/1900 MHz OR 2.5 ANTENNA  
 INSTALL RRU11, RRU31 • 800/1900 ANTENNA OR FZHJ • 2.5 ANTENNA

INSTALL RRU MOUNTED TO PIPE MOUNT WITH RRU MOUNTING KIT (TYP)

INSTALL RRU 800 BOTTOM

GENERAL CONTRACTOR TO FURNISH AND INSTALL RET CABLE BETWEEN RRU AND ANTENNA

GENERAL CONTRACTOR TO FURNISH AND INSTALL 1/2" COAX JUMPER FROM RRU

INSTALL FIBER AND POWER CABLES FROM BREAKOUT ENCLOSURE TO RRU

DETAIL NOT USED

NO SCALE

D

800/1900 MHz ANTENNA MOUNTING DETAIL

NO SCALE

B

PLANS PREPARED FOR:



6580 Sprint Parkway  
 Overland Park, Kansas 66251

PLANS PREPARED BY:

**SHIVEHATTERY**

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SITE NAME:

ATC GUMBO

SITE CASCADE:

ST51XC070

SITE ADDRESS:

18614 OLIVE STREET ROAD  
 CHESTERFIELD, MO 63005

SHEET DESCRIPTION:

ANTENNA LAYOUT  
 & MOUNTING DETAILS

SHEET NUMBER:

A-4



**Part A**

RF Design Sheet Basic Information	
Cascade Number	ST51XC070
Site Structure Type (Ground Mount, Self-Supporting, Roof Top, etc.)	self support
Site Name	
Site Number 1 or 2 (for more than 3 sector site)	
99 Market Name	Missouri
OEM	Ericsson
Cluster ID	
Issue Date	6/8/2015
Revision Date	
Solution ID	
PID	
RFDS Engineer (OEM RF Engineer)	
Sprint RF Engineer	Jeff Tomlin
Sprint RF Engineer (phone/e-mail)	
Sprint RF Manager	
Sprint RF Manager (phone/email)	
RF Need By Date	
Project Description	ATC Gumbo
Siterra Project Schedule Name	

Location Information	
Latitude (≥ 6 decimal places)	38.69250003 °
Longitude (≥ 6 decimal places)	-90.66583332 °
Site Elevation - Mean Sea Level (MSL) (ft)	582ft
Address	
City, State, Zip Code	Chesterfield Missouri 63005
County	St. Louis

**Part B**

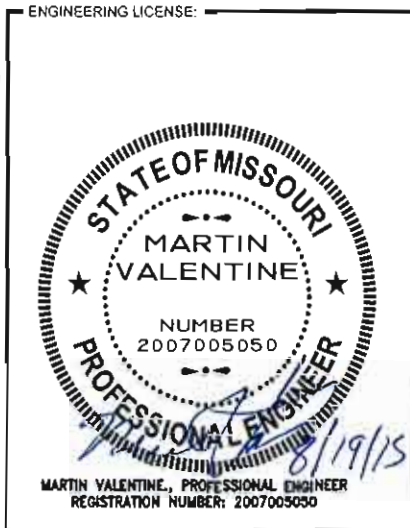
Antenna1 Configuration			
	Sector 1	Sector 2	Sector 3
Azimuth (True North, not magnetic)	40 °	150 °	280
Antenna Radiation Center - Above Ground Level (AGL - ft)	66ft	66ft	66ft
Antenna Manufacturer	Commscope	Commscope	Commscope
Antenna Model	TTT65AP-1XR	TTT65AP-1XR	TTT65AP-1XR
Antenna Qty	1	1	1
Antenna Mechanical Downtilt (+down -up)	0 °	0 °	0
Antenna Electrical Downtilt (800   1900   2500)	0 °	0 °	0 °
Antenna Actual Length			
Combined with <sup>2</sup>			

Antenna2 Configuration			
	Sector 1	Sector 2	Sector 3
Azimuth (True North, not magnetic)	40 °	150 °	280
Antenna Radiation Center - Above Ground Level (AGL - ft)	66ft	66ft	66ft
Antenna Manufacturer	RFS	RFS	RFS
Antenna Model	APXVSP18-C-A20	APXVSP18-C-A20	APXVSP18-C-A20
Antenna Qty	1	1	1
Antenna Mechanical Downtilt (+down -up)	0 °	0 °	0
Antenna Electrical Downtilt (800   1900   2500)	0 °	0 °	0 °
Antenna Actual Length			
Combined with <sup>2</sup>			



PLANS PREPARED BY:  
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	OCEAN DRAWINGS FOR REVIEW	08/07/15	SPB	0

SITE NAME:  
**ATC GUMBO**

SITE CASCADE:  
**ST51XC070**

SITE ADDRESS:  
 18614 OLIVE STREET ROAD  
 CHESTERFIELD, MO 63005

SHEET DESCRIPTION:  
**RF DATA SHEET**

SHEET NUMBER:  
**A-5A**



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RF DATA SHEET

A-5B

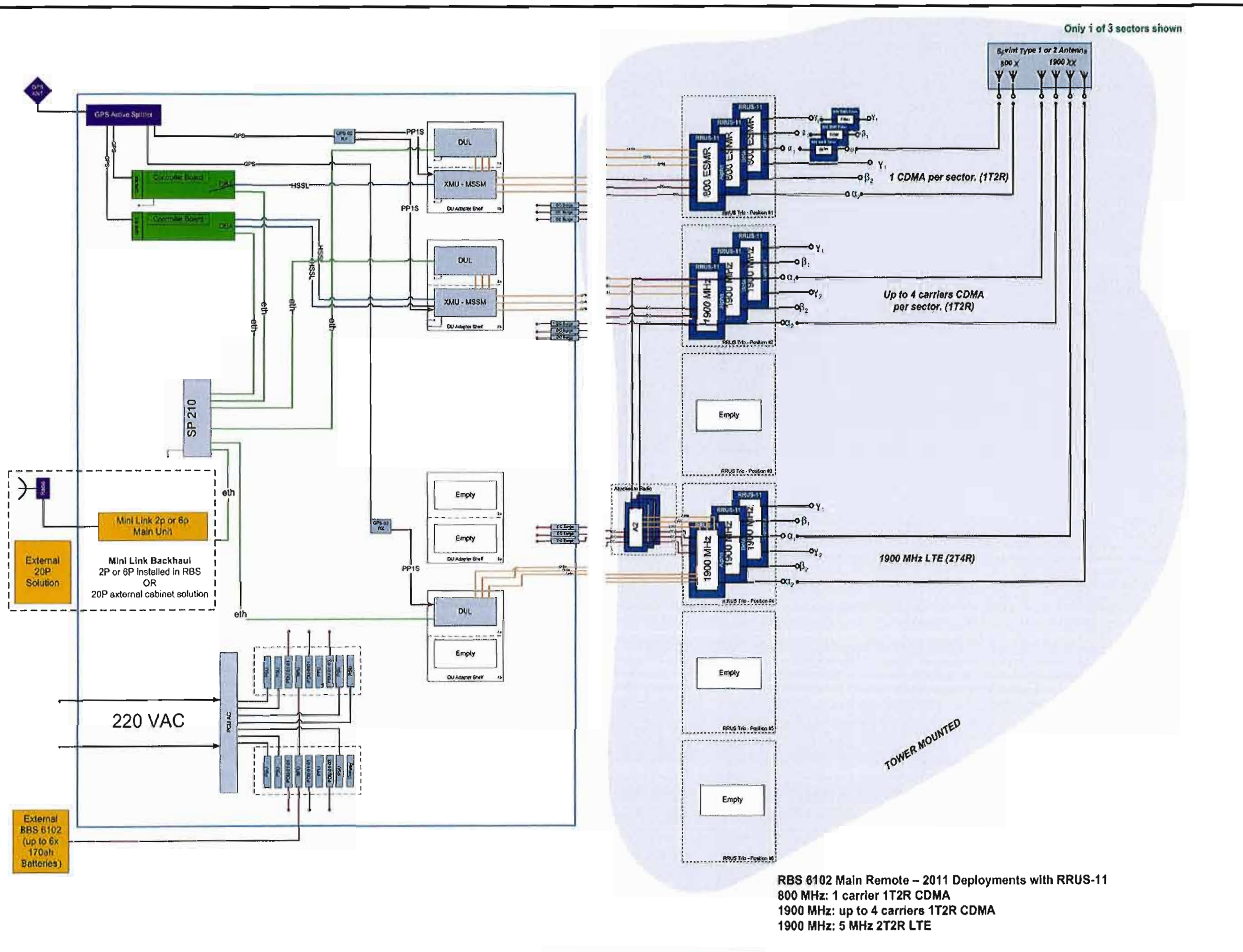
**Part D**

	Sector 1	Sector 2	Sector 3
Bottom Jumper Make/Model/Coaxial Kit - (Ground Mounted System)			
Bottom Jumper Coax Quantity - (Ground Mounted System)			
Bottom Coax Jumper length in feet - (Ground Mounted System)			
Main Coaxial Length - (Ground Mounted System)			
Main Coax Make/Model - (Ground Mounted System)			
Main Coax Quantity - (Ground Mounted System)			
Main Cable Size Outside Diameter (inches) - (Ground Mounted System)			
RRU Coaxial Jumper Length to Antenna (Tower or Ground Mounted RRUs)			
RRU Coaxial Jumper Make/Model - (Tower or Ground Mounted RRUs)			
RRU Coaxial Jumper Size Outside Diameter (inches) - (Tower or Ground Mounted RRUs)			
Unique Combiner, Splitter, Connector			
ATISG Make Model/Kit			
Upper Diplexer/Triplexor/Duplexor Model			
RF Filter Make/Model			
RF Filter Quantity			
Site Structure Type (Ground Mount, Standard Tower, Roof Top, etc.) <b>Use same Structure description located in NRM</b>	self support	self support	self support
Required Ethernet Size			
800 Radio Configuration 3G	2T2R	2T2R	2T2R
800 Radio Configuration LTE	2T2R	2T2R	2T2R
1900 Radio Configuration 3G	2T2R	2T4R	2T2R
1900 Radio Configuration LTE	2T2R	2T4R	2T4R
2.5 Radio Configuration LTE			
Split Mode (Yes, No)			
For ERC only # RRU 11's	1	1	1
For ERC only # RRU 31's	2	2	2
Enter 800 Part Number			
Enter 1900 Part Number			
Enter 2500 Part Number			
Plumbing Diagram Number (if available)			

**Part E**

Band Configuration	Sector 1 - Channel	Sector 2 - Channel	Sector 3 - Channel
LTE 2.5 GHz	40978	40978	40978
LTE 2.5 GHz			
LTE 2.5 GHz			
3G 800	476	476	476
LTE 800	8763	8763	8763
3G 1900 MHz A - F Voice	575	575	575
3G 1900 MHz A - F Voice	625	625	625
3G 1900 MHz A - F Voice			
3G 1900 MHz A - F Voice			
3G 1900 MHz A - F Voice			
3G 1900 MHz A - F Voice			
3G 1900 MHz A - F Voice			
3G 1900 MHz A - F Data	475	475	475
3G 1900 MHz A - F Data	600	600	600
3G 1900 MHz A - F Data			
3G 1900 MHz A - F Data			
3G 1900 MHz A - F Data			
3G 1900 MHz A - F Data			
LTE PCS G Block	8665	8665	8665
LTE PCS G Block			
LTE PCS G Block			
LTE PCS Block A-F			
LTE PCS Block A-F			
LTE PCS Block A-F			
1900 LTE 5x5 carriers (QTY)	1	1	1
1900 LTE 10x10 carriers (QTY)			
1900 LTE 15x15 carriers (QTY)			
1900 LTE 20x20 carriers (QTY)			





ENGINEERING LICENSE:

MARTIN VALENTINE, PROFESSIONAL ENGINEER  
 REGISTRATION NUMBER: 2007005050

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SITE NAME:  
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SITE CASCADE:  
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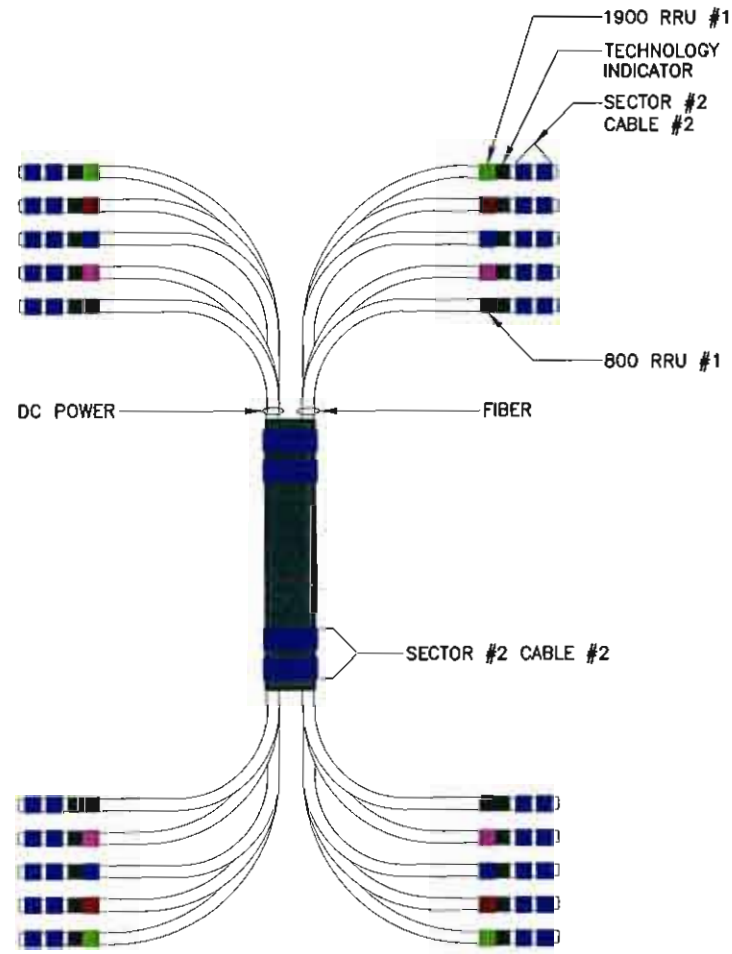
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 CHESTERFIELD, MO 63005

SHEET DESCRIPTION:  
**RF DATA SHEET**

SHEET NUMBER:  
**A-6**

RBS 6102 Main Remote - 2011 Deployments with RRUS-11  
 800 MHz: 1 carrier 1T2R CDMA  
 1900 MHz: up to 4 carriers 1T2R CDMA  
 1900 MHz: 5 MHz 2T2R LTE





HYBRID CABLE COLOR CODE EXAMPLE

NO SCALE

D

**TYPICAL COAX CABLE COLOR CODING SCHEME**

SECTOR	CABLE	FIRST RING	SECOND RING	THIRD RING
1 ALPHA	1	GREEN	NO TAPE	NO TAPE
1	2	BLUE	NO TAPE	NO TAPE
1	3	BROWN	NO TAPE	NO TAPE
1	4	WHITE	NO TAPE	NO TAPE
1	5	RED	NO TAPE	NO TAPE
1	6	SLATE	NO TAPE	NO TAPE
1	7	PURPLE	NO TAPE	NO TAPE
1	8	ORANGE	NO TAPE	NO TAPE
2 BETA	1	GREEN	GREEN	NO TAPE
2	2	BLUE	BLUE	NO TAPE
2	3	BROWN	BROWN	NO TAPE
2	4	WHITE	WHITE	NO TAPE
2	5	RED	RED	NO TAPE
2	6	SLATE	SLATE	NO TAPE
2	7	PURPLE	PURPLE	NO TAPE
2	8	ORANGE	ORANGE	NO TAPE
3 GAMMA	1	GREEN	GREEN	GREEN
3	2	BLUE	BLUE	BLUE
3	3	BROWN	BROWN	BROWN
3	4	WHITE	WHITE	WHITE
3	5	RED	RED	RED
3	6	SLATE	SLATE	SLATE
3	7	PURPLE	PURPLE	PURPLE
3	8	ORANGE	ORANGE	ORANGE

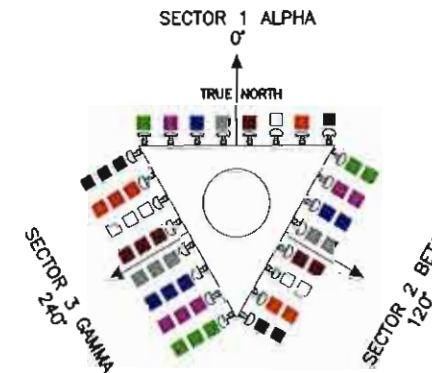
COAXIAL CABLE COLOR CODE

NO SCALE

B

**ANTENNA AND CABLE COLOR CODING**

(3 SECTORED / MULTIPLE RF CHANNELS)  
ASSUMING 8 LINES AND ANTENNAS



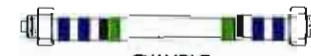
**SECTOR LEGEND**

- SECTOR 1 => 1 BAND
- SECTOR 2 => 2 BAND
- SECTOR 3 => 3 BAND
- SECTOR 4 => 4 BAND
- SECTOR 5 => 5 BAND
- SECTOR 6 => 6 BAND

**TECHNOLOGY COLOR CODE**

- iDEN
- CDMA
- WIMAX

**EXAMPLE**  
SECTOR 2 AND CABLE 2  
(800Mhz Radio #1)



**EXAMPLE**  
SECTOR 3, CABLE 1,  
(1900Mhz RADIO #1)



**EXAMPLE**  
SECTOR 2, CABLE 4,  
(800Mhz RADIO #1 AND 190Mhz RADIO #1)



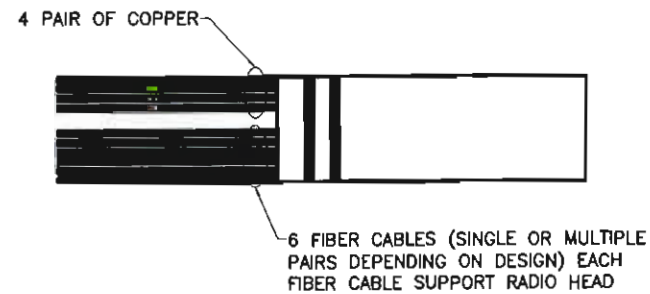
1. COLOR BAND TO BE 2" WIDE ON MAIN LINE.
2. SPACING TO BE 1" BETWEEN BANDS AND 2" BETWEEN LINE AND TECHNOLOGY BANDS. NO SPACE BETWEEN TECHNOLOGY COLOR BANDS.
3. COLOR BAND ON JUMPERS 1" WIDE W/ 1" SPACE.
4. START COLOR BANDS 2" BEYOND WEATHERPROOFING.
5. START SECTOR COLOR NEXT TO END CONNECTOR.

ANTENNA & CABLE COLOR CODE

NO SCALE

A

**NOTE:**  
HYBRID CABLE WILL BE MARKED IN A SIMILAR MANNER AS COAX CABLE DESCRIBED IN THE "ANTENNA & CABLE COLOR CODE" DETAIL LOCATED ON THE SHEET. THE MAIN "TRUNK" OF THE HYBRID CABLE WILL NOT BE MARKED WITH THE FREQUENCY CODE AS THE HYBRID CABLE IN MANY CASES WILL CONTAIN ALL TECHNOLOGIES. THE INDIVIDUAL POWER PAIRS AND FIBER CABLES WILL BE LABELED WITH BOTH THE FREQUENCY AND SECTOR CABLE MARKINGS.



HYBRID CABLE COLOR CODE

NO SCALE

E

TECHNOLOGY COLOR CODE	FIRST RING	SECOND RING
800		GREEN
1900 #1		RED
1900 #2		BLUE
RESERVED		BROWN
RESERVED		SLATE
RESERVED		ORANGE
RESERVED		WHITE
1600 #1		PURPLE

TECHNOLOGY COLOR CODE	FIRST RING	SECOND RING	THIRD RING	FOURTH RING	FIFTH RING	SIXTH RING
2500 #1 - CABLE 1				WHITE		
2500 #1 - CABLE 2					WHITE	
2500 #1 - CABLE 3						WHITE
2500 #2 - CABLE 1				PURPLE		
2500 #2 - CABLE 2					PURPLE	
2500 #2 - CABLE 3						PURPLE

TECHNOLOGY COLOR CODE

NO SCALE

C

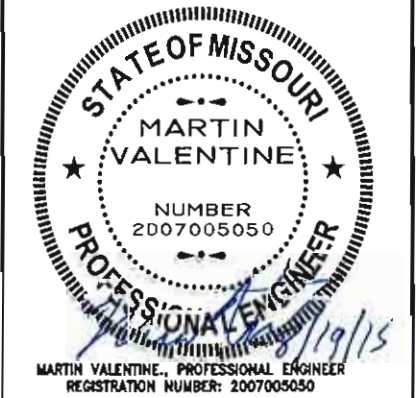
PLANS PREPARED FOR:



PLANS PREPARED BY:



ENGINEERING LICENSE:



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-				

SITE NAME:  
**ATC GUMBO**

SITE CASCADE:  
**ST51XC070**

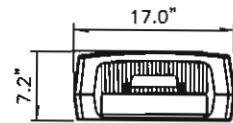
SITE ADDRESS:  
18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:  
**RF DATA SHEET**

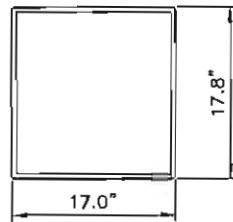
SHEET NUMBER:  
**A-7**



**NOTE:**  
GENERAL CONTRACTOR TO ENSURE THAT ALL RRUS RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRU PACKAGES IN THE RAIN



PLAN VIEW



FRONT VIEW



SIDE VIEW

DIMENSIONS (HxWxD) 17" x 17.8" x 7.2"  
WEIGHT 54 LBS

NEW MOUNTING BRACKET SUPPLIED W/ANTENNA (TYP.)

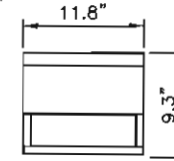
NEW 2-7/8" STD. ANTENNA MOUNTING PIPE (TYP.)

NEW ANTENNA, PER PLAN

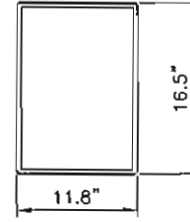
NEW MOUNTING BRACKET SUPPLIED W/ANTENNA (TYP.)



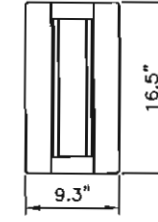
**NOTE:**  
GENERAL CONTRACTOR TO ENSURE THAT ALL RRUS RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRU PACKAGES IN THE RAIN



PLAN VIEW



FRONT VIEW



SIDE VIEW

DIMENSIONS (HxWxD) 11.8" x 17.8" x 9.3"  
WEIGHT 59.5 LBS



PLANS PREPARED FOR:



6580 Sprint Parkway  
Overland Park, Kansas 66251

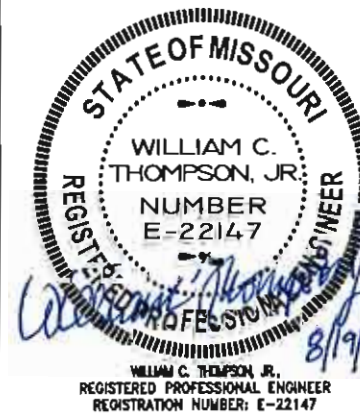
PLANS PREPARED BY:

**SHIVEHATTERY**

ARCHITECTURE+ENGINEERING  
3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
630.360.7444 | fax 630.437.5800 | shive-hattery.com  
Iowa | Illinois | Missouri

S/H PROJ # 8155100-19

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SITE NAME:

ATC GUMBO

SITE CASCADE:

ST51XC070

SITE ADDRESS:

18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:

EQUIPMENT DETAILS

SHEET NUMBER:

A-8A

RRU 11

NO SCALE

C

ANTENNA MOUNTING

NO SCALE

D

RRU 31

NO SCALE

A

NEW 2-7/8" STD. MOUNTING PIPE, 116" LENGTH

NEW ANTENNA

NEW ERICSSON SUPPORT ARM (2 PER RRU)

(1) 800 RRU 11 WITH FILTER & (1) 1900 RRU 31

NEW 2-7/8" STD. MOUNTING PIPE  
NEW ERICSSON SUPPORT ARM  
(1) 800 RRU 11  
(1) 800 FILTER  
SECTION A  
(1) 1900 FILTER

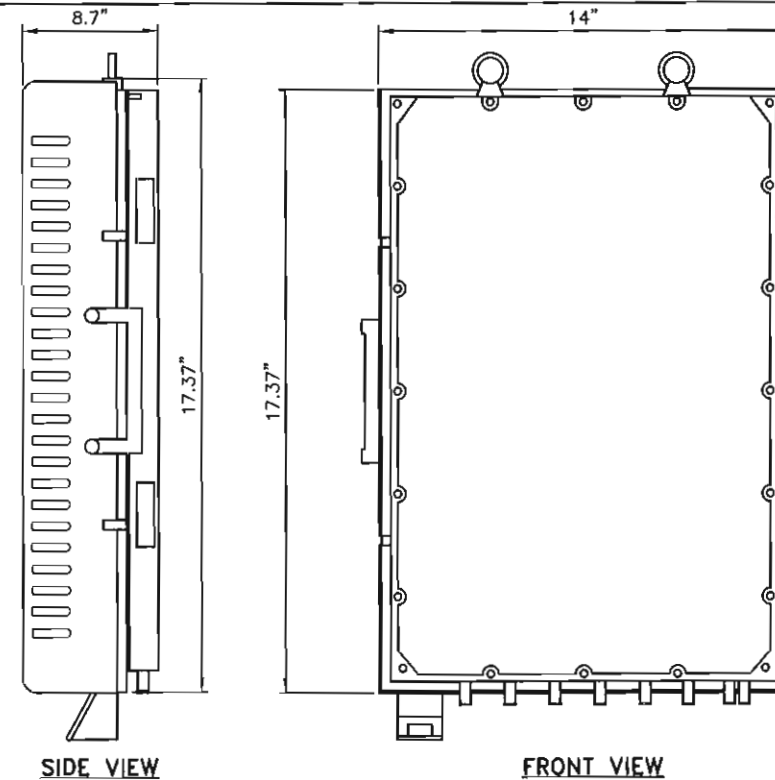
FRONT VIEW

BACK VIEW

RRU MOUNTING DETAIL

NO SCALE

E

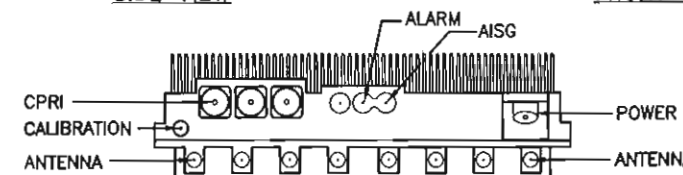


SIDE VIEW

FRONT VIEW

NOTES

COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRU'S RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING. DO NOT OPEN RRU PACKAGES IN THE RAIN



PLAN VIEW

DIMENSIONS - HxWxD: (17.4"x14.0"x8.7")

RRU WEIGHT: 55.2 LBS

MOUNTING KIT WEIGHT: 12.0 LBS

2.5 RRUS

NO SCALE

B

Sprint



6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:

**SHIVEHATTERY**

ARCHITECTURE+ENGINEERING

3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
630 390 7444 | fax 630 437 5600 | shive-hattery.com  
Iowa | Illinois | Missouri

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ATC GUMBO

SITE CASCADE:

ST51XC070

SITE ADDRESS:

18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:

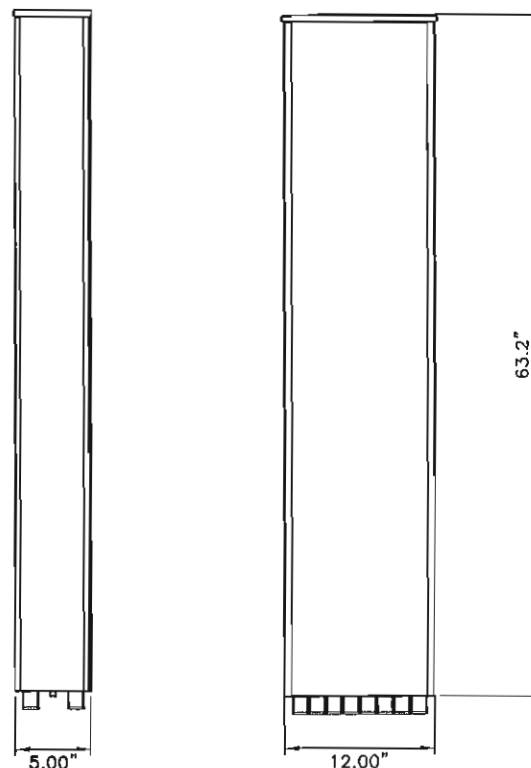
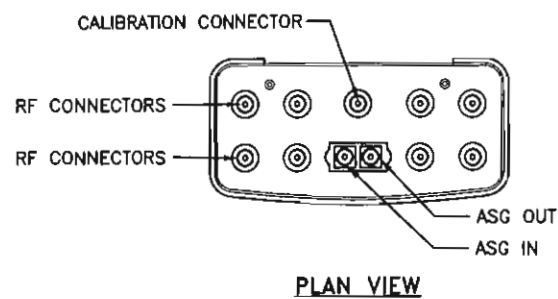
EQUIPMENT DETAILS

SHEET NUMBER:

A-8B

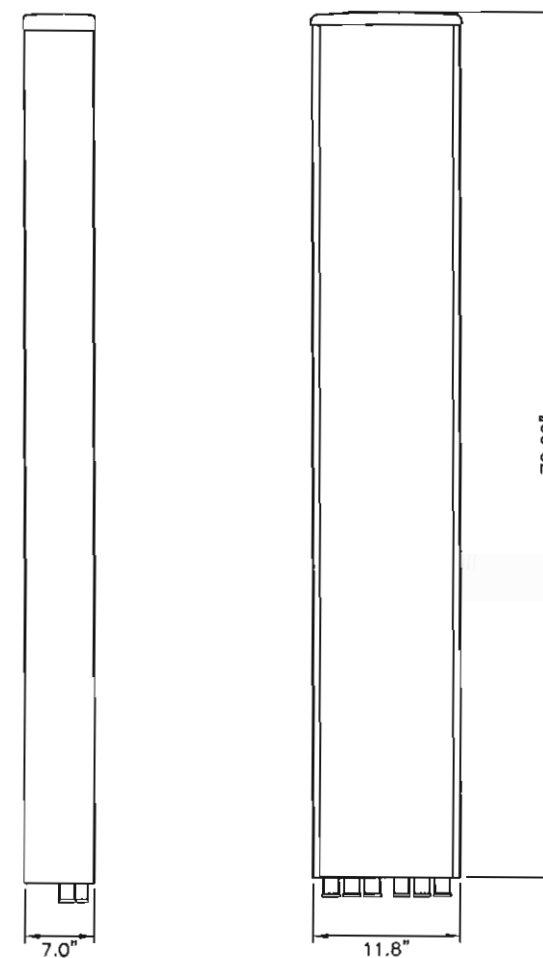
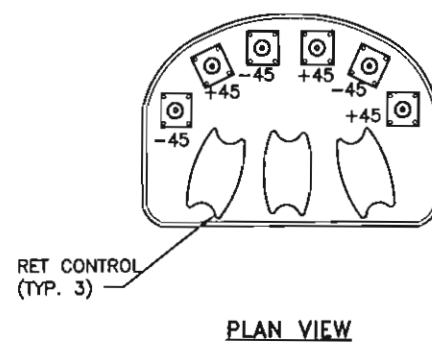
**COMMSCOPE - TTTT65AP1XR**

RADOME COLOR: LIGHT GRAY  
DIMENSIONS, HxWxD.in(mim): 63.2"x12.0"x5.0"  
WEIGHT: 39.2 lbs



**RFS / APXVSPP18-C-A20**

RADOME COLOR: LIGHT GRAY  
FREQUENCY RANGE: 806-869 MHz 1850-1995 MHz  
DIMENSIONS, HxWxD.in(mim): 72.0"x11.8"x7.0"  
WEIGHT w/o MOUNTING: 25.8 lbs  
MOUNT WEIGHT: 3.4 lbs  
TOTAL WEIGHT: 29.2 lbs





**NOTICE**



Radio frequency fields beyond this point may exceed the FCC general public exposure limit.

Obey all posted signs and site guidelines for working in radio frequency environments.

In accordance with Federal Communications Commission rules on radio frequency emissions 47 CFR 1.1307(b)

Upon Switch or Cell Area Entry,  
Technical Support, or Emergency  
Please Call Toll Free:  
**National Operations Control Center  
(NOCC)**  
**888-859-1400**  
24 Hours/Day, 7 Days/Week, 365 Days/Year

SITE ID# \_\_\_\_\_

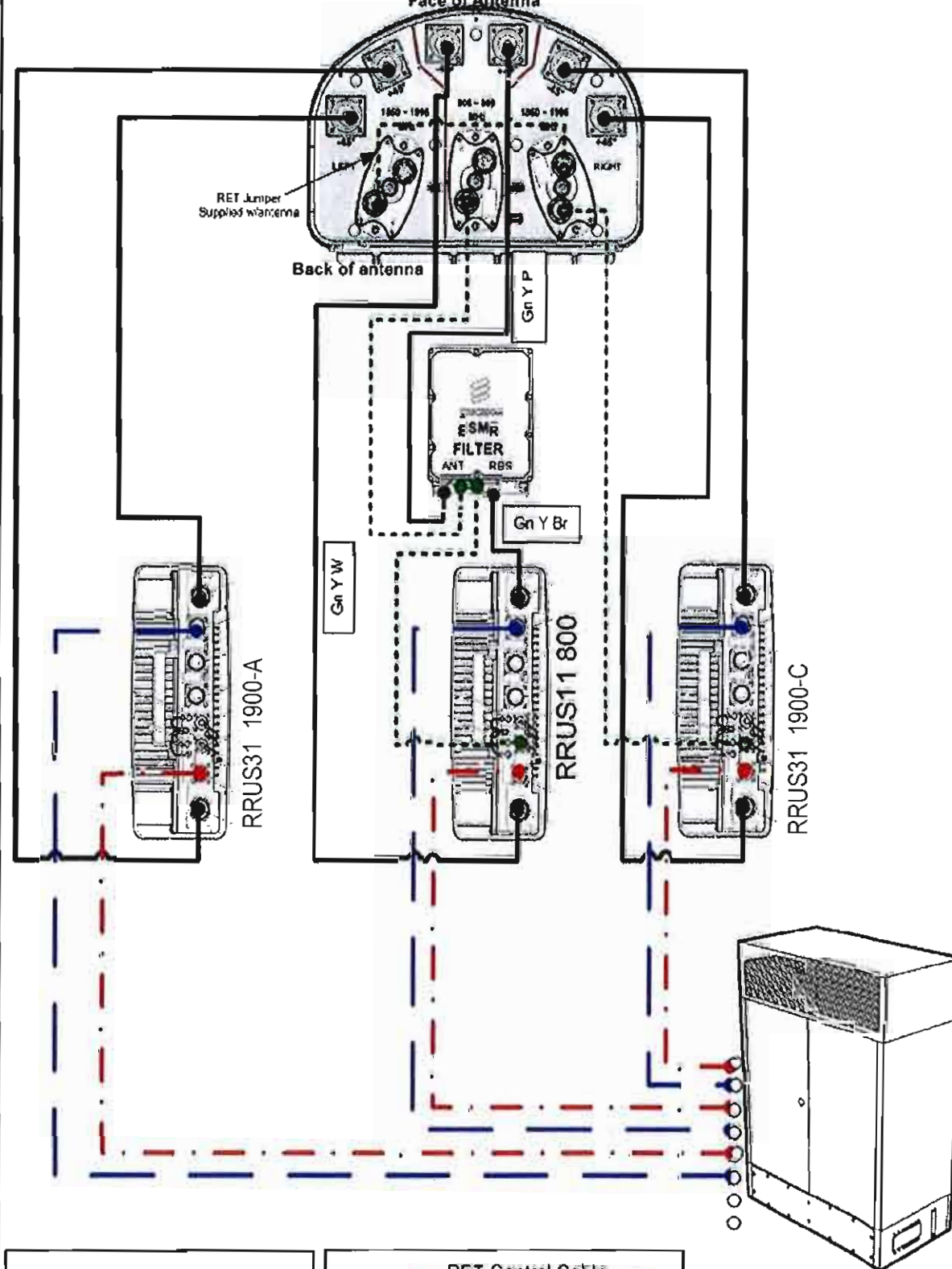
**NOTICE TO WORKERS**

RADIO FREQUENCY ANTENNAS AT THIS SITE  
PLEASE EXERCISE CAUTION AROUND ANTENNAS  
AND OBEY POSTED SIGNS AND/OR MARKINGS

FOR ACCESS TO RESTRICTED AREAS OR  
FOR FURTHER INFORMATION, PLEASE CALL  
**1-888-859-1400**

IN ACCORDANCE WITH FCC RULES 47 CFR 1.1307(b)

**RFS 800 / 1900 Antenna  
Bottom View  
Face of Antenna**



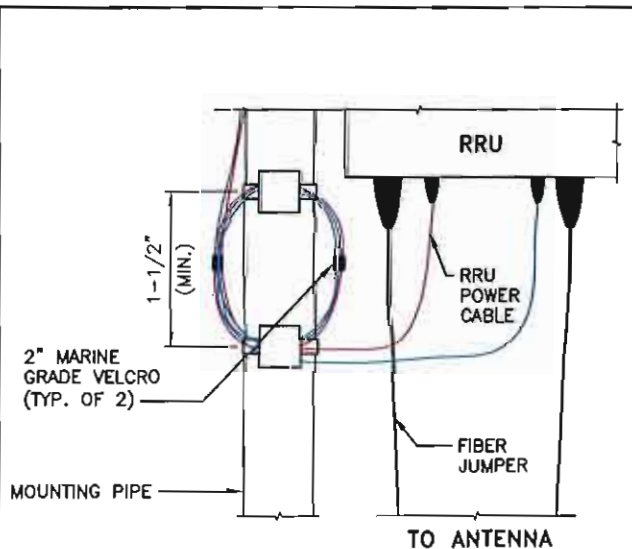
RRUS31 1900-A: CDMA 1  
RRUS31 1900-C: LTE  
RRUS11 800: CDMA

**Legend**

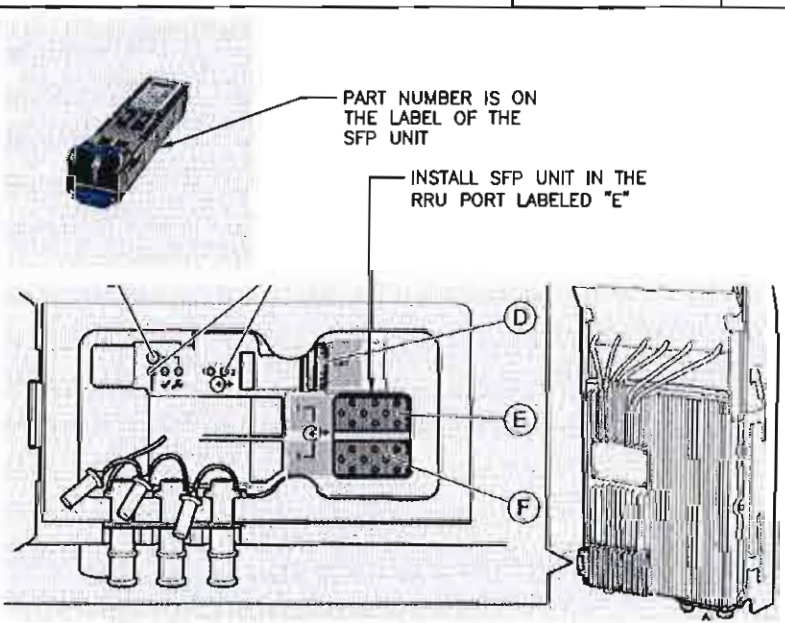
- RET Control Cable
- Fiber Optic Cable
- DC Power Cable
- RF Coax Jumper Cable

**SIGNAGE DETAIL**

NO SCALE B



- NOTES:**
- EXCESS FIBER OPTIC RRU JUMPER CABLES SHALL BE COILED AND SECURED TO THE ANTENNA/RRU SUPPORT STRUCTURE USING APPROVED CABLE SUPPORT BLOCKS. FIBER JUMPER STORAGE COILS SHALL BE PLACED AS CLOSE TO THE RRU AS POSSIBLE.
  - 2" OUTDOOR RATED VINYL TAPE OR OUTDOOR (UV) RATED VELCRO WRAPS WILL BE UTILIZED TO BUNDLE FIBER COILS. EXCESS HYBRID FIBER SHALL NOT BE COILED ON THE ANTENNA SUPPORT STRUCTURE.
  - FIBER OPTIC COILS AND BENDS SHALL NOT BE LESS THAN THE MANUFACTURER'S BEND RADIUS



- VERIFY THE PART NUMBER RDH 102 47/2 IS THE SFP USED FOR THE REMOTE RADIO AND DIGITAL UNIT FIBER CONNECTION.
- IF THE SFP UNITS ARE NOT AVAILABLE, DO NOT SUBSTITUTE WITH ANY OTHER SFP UNIT.
- NOTIFY YOUR LEAD OR IMPLEMENTATION MANAGER OF THE ISSUE AND GET THE CORRECT SFP UNITS BEFORE PROCEEDING.

**SFP DETAIL**

NO SCALE D

**RFS ANTENNA RET CABELING DIAGRAM**

NO SCALE A

PLANS PREPARED FOR:

**Sprint**

6580 Sprint Parkway  
Overland Park, Kansas 66251


PLANS PREPARED BY:

**SHIVEHATTERY**  
ARCHITECTURE+ENGINEERING

3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
630.390.7444 | fax 630.437.5800 | shive-hattery.com  
Iowa | Illinois | Missouri

S/H PROJ # 8155100-19

ENGINEERING LICENSE:



WILLIAM C. THOMPSON, JR.  
REGISTERED PROFESSIONAL ENGINEER  
REGISTRATION NUMBER: E-22147

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SITE NAME:  
**ATC GUMBO**

SITE CASCADE:  
**ST51XC070**

SITE ADDRESS:  
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CHESTERFIELD, MO 63005

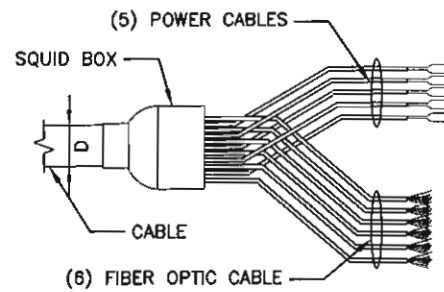
SHEET DESCRIPTION:  
**EQUIPMENT DETAILS**

SHEET NUMBER:  
**A-8C**

**COIL CABLE CONTROL**

NO SCALE C



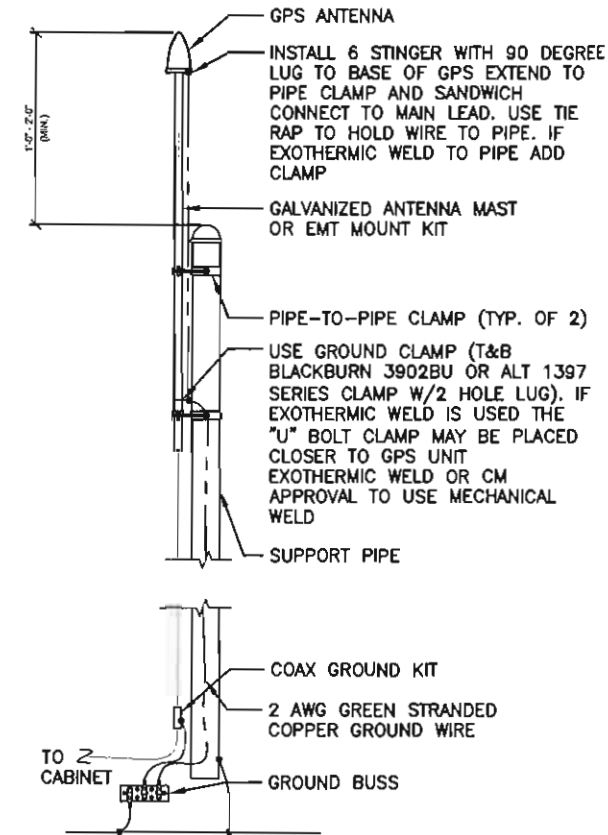


LENGTH IN METERS	H+S ARTICLE #	DIAMETER (IN)	MINIMUM BEND RADIUS (IN)	WEIGHT (LB/FT)
30	84132554	1	12	0.44
40	84132555	1	12	0.44
50	84132556	1	12	0.44
60	84132557	1	12	0.44
70	84132558	1-3/8	14.03	0.64
80	84132559	1-3/8	14.03	0.64
90	84132560	1-3/8	14.03	0.64
100	84132561	1-3/8	14.03	0.64

MLE HYBRID TOWER CABLE

NO SCALE

C



TYPICAL GPS ANTENNA DETAIL

NO SCALE

A

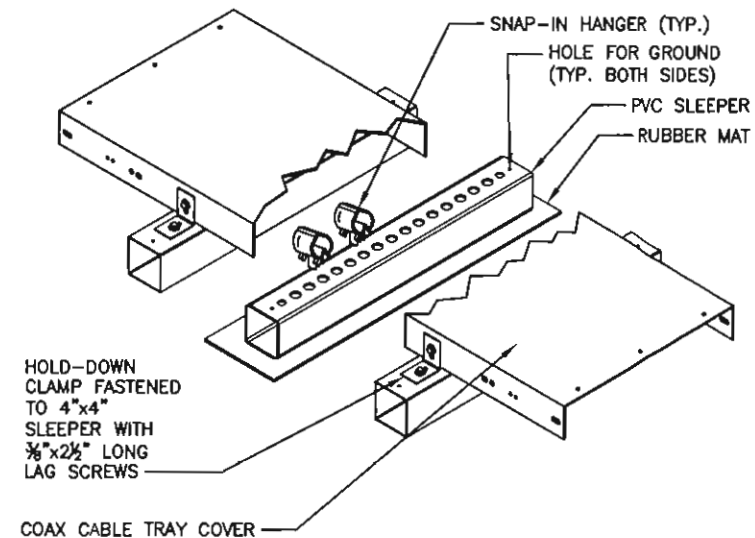
ERICSSON MM-BTS RBS 6102	ALARM CONTACT	SEVERITY	OWNER	COMMENTS	COLOR CODE
BTS SCAN POINT 1	{2200} BBS 6102 OPEN DOOR (CABLE SUPPLIED)	NC	SERVICE ASSURANCE	RBS/RIGHT OVP1/A1	BLACK/BROWN
BTS SCAN POINT 2	{2100} BBS 6102 CLIMATE UNIT FAILURE (CABLE SUPPLIED)	NC	FIELD SERVICES	RBS/RIGHT OVP1/A2	RED/ORANGE
BTS SCAN POINT 3	{2008} CDMA DBU1 FAN FAILURE (CABLE SUPPLIED INTERNAL)	NC	FIELD SERVICES	RBS/RIGHT OVP1/A3	WHITE/BROWN
BTS SCAN POINT 4	{1000} UTILITY POWER FAILURE	NC	SERVICE ASSURANCE	RBS/RIGHT OVP1/A4	WHITE/BLUE
BTS SCAN POINT 5	{1200} GENERATOR FAILURE	NC	FIELD SERVICES	RBS/RIGHT OVP1/A5	WHITE/ORANGE
BTS SCAN POINT 6	{1201} GENERATOR RUNNING	NC	MAJOR NO ACTION. DRMS ONLY	RBS/RIGHT OVP1/A6	WHITE/GREEN
BTS SCAN POINT 7	{1202} GENERATOR LOW FUEL THRESHOLD	NC	MAJDR FIELD SERVICES	RBS/RIGHT OVP1/A7	WHITE/BROWN
BTS SCAN POINT 8	CUSTOMER DEFINED			RBS/RIGHT OVP1/A8	WHITE/SLATE
BTS SCAN POINT 9	{2008} CDMA DBU2 FAN FAILURE (CABLE SUPPLIED INTERNAL)	NC	MAJOR FIELD SERVICES	RBS/RIGHT OVP2/A1	WHITE/BROWN
BTS SCAN POINT 10	{9000} TOWER TOP LIGHT FAILURE, NOT AM REQUIRED	NC	MAJOR SERVICE ASSURANCE	RBS/RIGHT OVP2/A2	RED/BLUE
BTS SCAN POINT 11	{9100} TOWER SIDE LIGHT FAILURE, NO NOT AM	NC	MINOR SERVICE ASSURANCE	RBS/RIGHT OVP2/A3	RED/ORANGE
BTS SCAN POINT 12	USER DEFINED FROM STANDARDS COLUMN A ONLY			RBS/RIGHT OVP2/A4	RED/GREEN
BTS SCAN POINT 13	USER DEFINED FROM STANDARDS COLUMN A ONLY			RBS/RIGHT OVP2/A5	RED/BROWN
BTS SCAN POINT 14	USER DEFINED FROM STANDARDS COLUMN A ONLY			RBS/RIGHT OVP2/A6	RED/SLATE
BTS SCAN POINT 15	USER DEFINED FROM STANDARDS COLUMN A ONLY			RBS/RIGHT OVP2/A7	BLACK/BLUE
BTS SCAN POINT 16	USER DEFINED FROM STANDARDS COLUMN A ONLY			RBS/RIGHT OVP2/A8	BLACK/ORANGE
BTS SCAN POINT 17	{2008} CDMA DBU3 FAN FAILURE (CABLE SUPPLIED INTERNAL)	NC	MAJOR FIELD SERVICES	RBS/LEFT OVP1/A1	WHITE/BROWN

\*NC = NORMALLY CLOSED (CLOSED CONTACTS WITH NO ALARM CONDITION)  
 GNOC → GLOBAL NETWORK OPERATIONS CENTER

MMBTS ALARM SCHEDULE

NO SCALE

B



NOTES:

- 6'-0" MAXIMUM SPACING BETWEEN SUPPORTS.
- PARTS TO BE FURNISHED & INSTALLED BY CONTRACTOR UNLESS OTHERWISE NOTED.

CABLE TRAY

NO SCALE

B

PLANS PREPARED FOR



PLANS PREPARED BY:



S/H PROJ # 8155100-19

ENGINEERING LICENSE:



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ATC GUMBO

SITE CASCADE:

ST51XC070

SITE ADDRESS:

18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

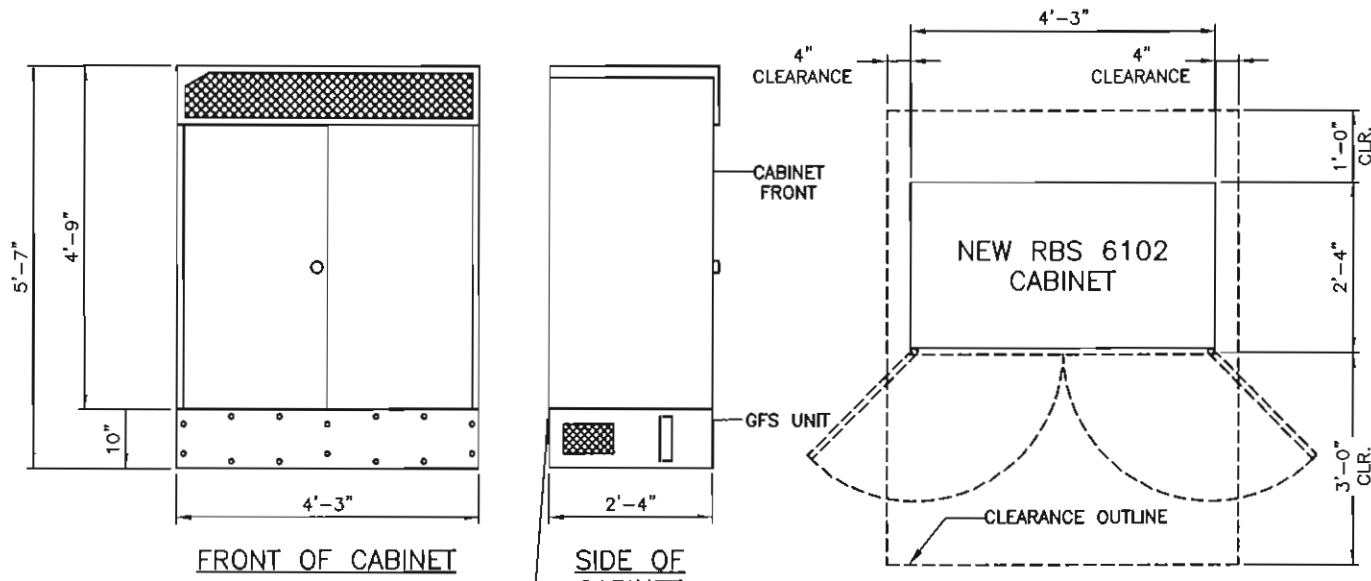
SHEET DESCRIPTION:

EQUIPMENT DETAILS

SHEET NUMBER:

A-8D

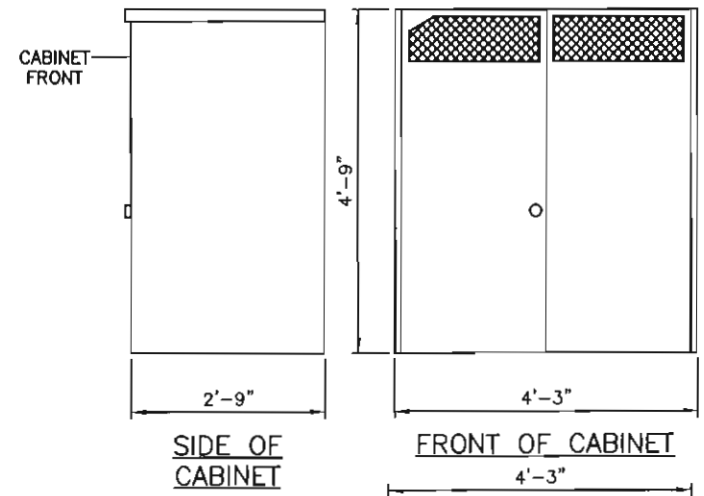
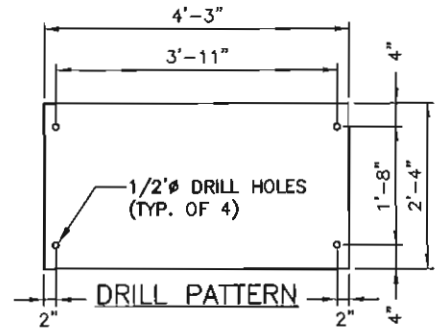




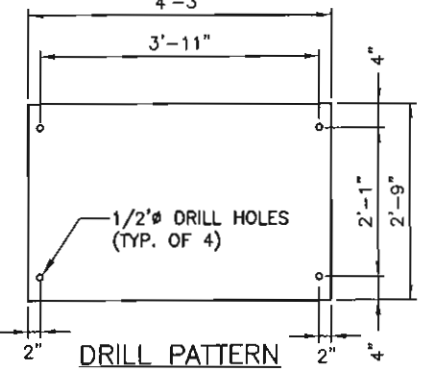
APPLY 1-1/2" x 1/4" CLOSED NEOPRENE SELF ADHESIVE WEATHER STRIPPING BETWEEN RBS CABINET AND PLINTH.

ERICSSON RBS 6102		
DIMENSIONS	51.18"W x 27.56"D x *66.93"H	
WEIGHT	**727 LBS.	
MINIMUM CLEARANCES		
FRONT	SIDES	REAR
3'-0"	4"	1'-0"

\*HEIGHT SHOWN ON THE TABLE INCLUDES GLOBAL BASE UNIT PROVIDE BY ERICSSON.  
 \*\*WEIGHT SHOWN ON THE TABLE INCLUDES GLOBAL BASE UNIT PROVIDE BY ERICSSON.

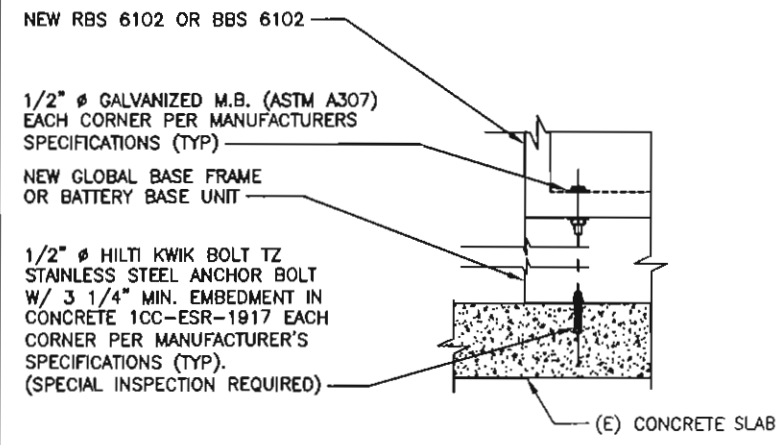


BATTERIES TO BE INSTALLED AS PER ERICSSON REQUIREMENTS. NO SUBSTITUTES WILL BE ALLOWED WITHOUT WRITTEN PERMISSION FROM ERICSSON PROJECT MANAGER.

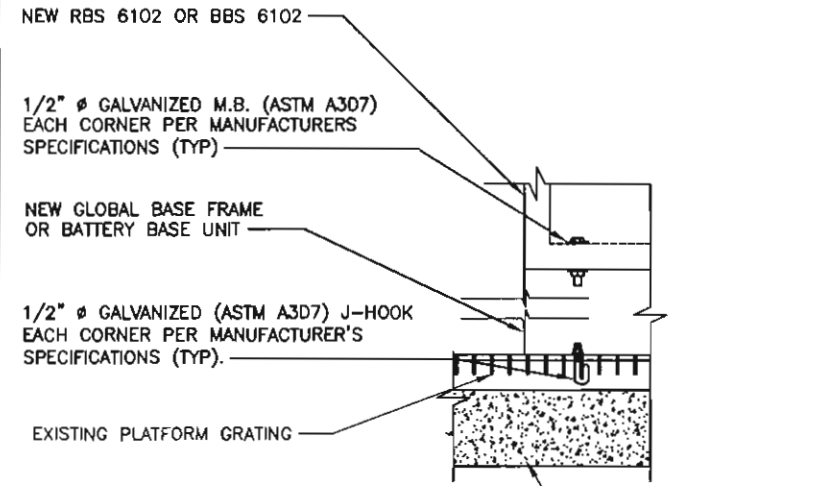


ERICSSON BBS 6102		
DIMENSIONS	51.18"W x 27.56"D x *66.93"H	
WEIGHT	***2821 - 3153 LBS.	
MINIMUM CLEARANCES		
FRONT	SIDES	REAR
3'-0"	4"	1'-0"

\*\*\*WEIGHT SHOWN ON THE TABLE INCLUDES OPzV BATTERIES



**MOUNTING TO CONCRETE**

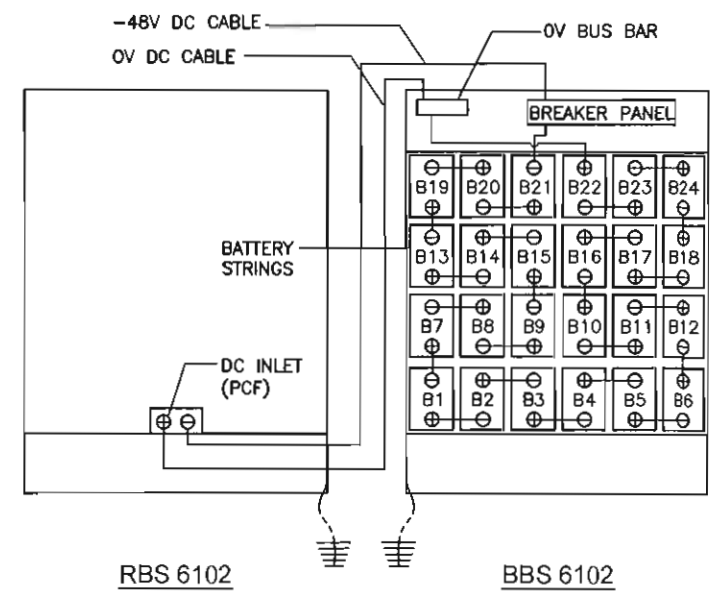


**MOUNTING TO GRATING**

**CABINET MOUNTING DETAIL**

NO SCALE A

**NOTE:**  
 ALL BATTERIES, CABLES AND CONNECTIONS SHALL BE INSTALLED BY CONTRACTOR PER ERICSSON SPECIFICATIONS



RBS 6102

BBS 6102

**ERICSSON 6102 CABINET DETAILS**

NO SCALE

C

**EXTERNAL BBS 6102 CONNECTION DIAGRAM**

NO SCALE

B

PLANS PREPARED FOR:

6580 Sprint Parkway  
 Overland Park, Kansas 66251

PLANS PREPARED BY:

3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
 630.390.7444 | fax 630.437.5900 | shive-hattery.com  
 Iowa | Illinois | Missouri

S/H PROJ # 8155100-19

ENGINEERING LICENSE:

WILLIAM C. THOMPSON, JR.  
 REGISTERED PROFESSIONAL ENGINEER  
 REGISTRATION NUMBER: E-22147

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REVISIONS:

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-	-	-	-

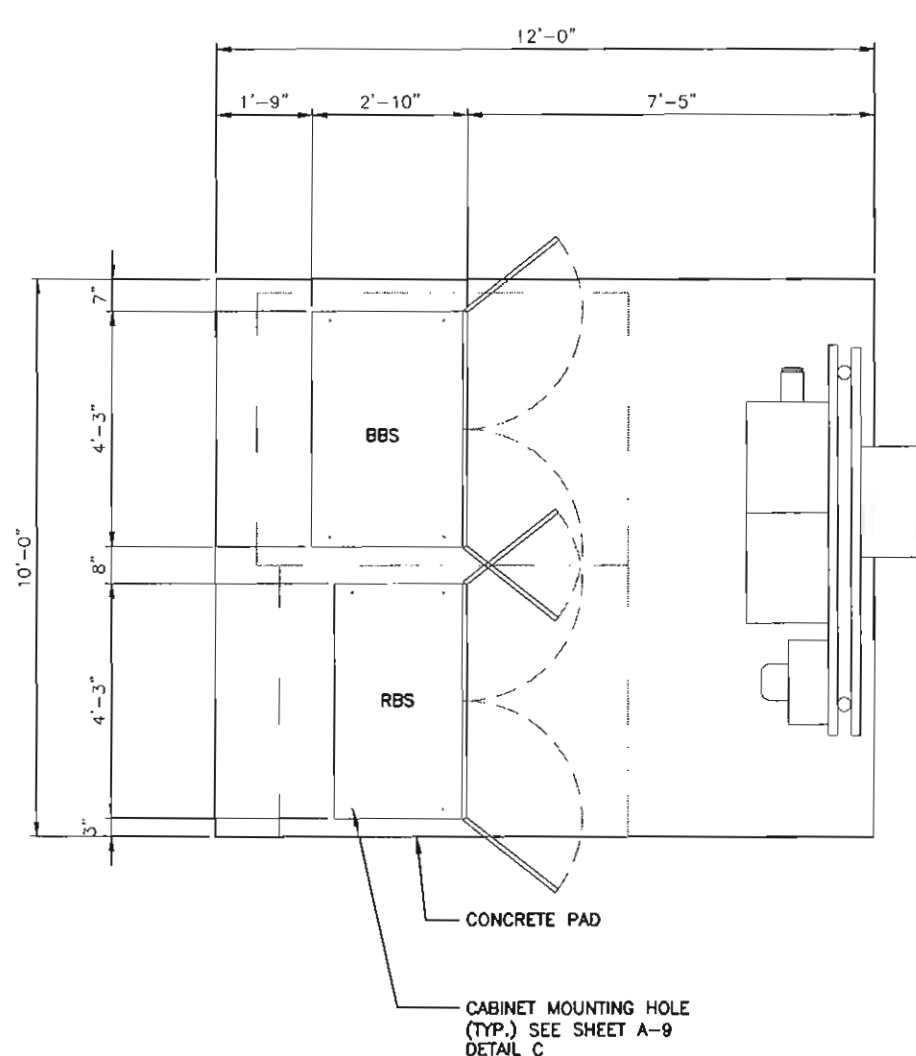
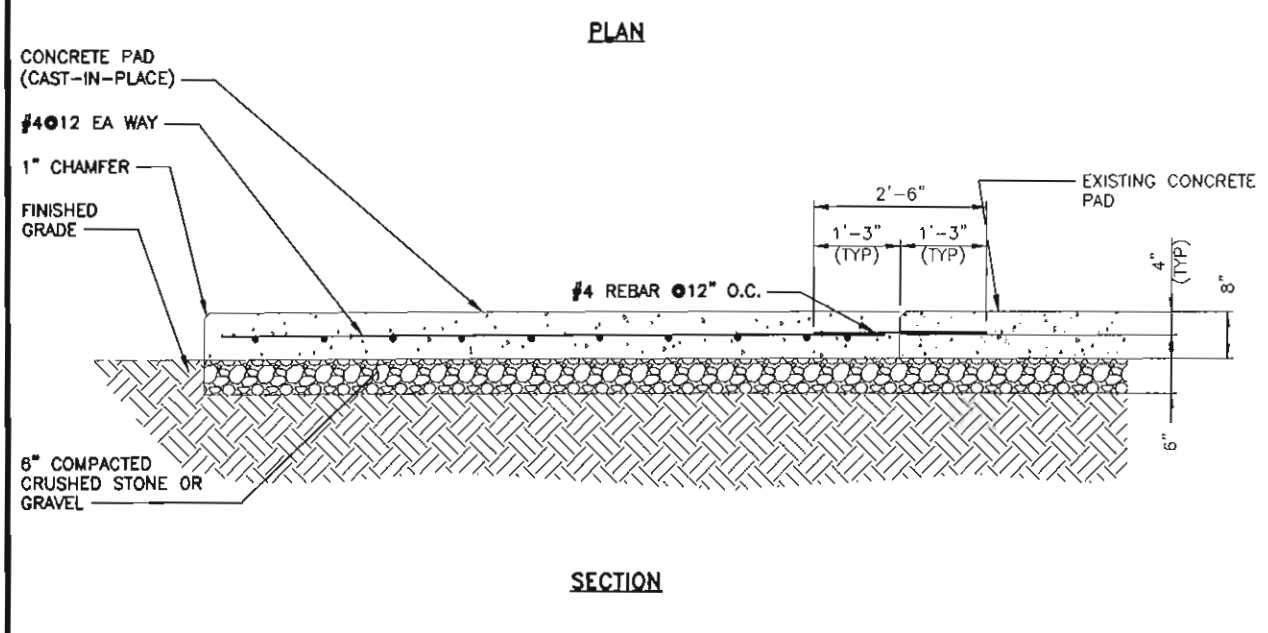
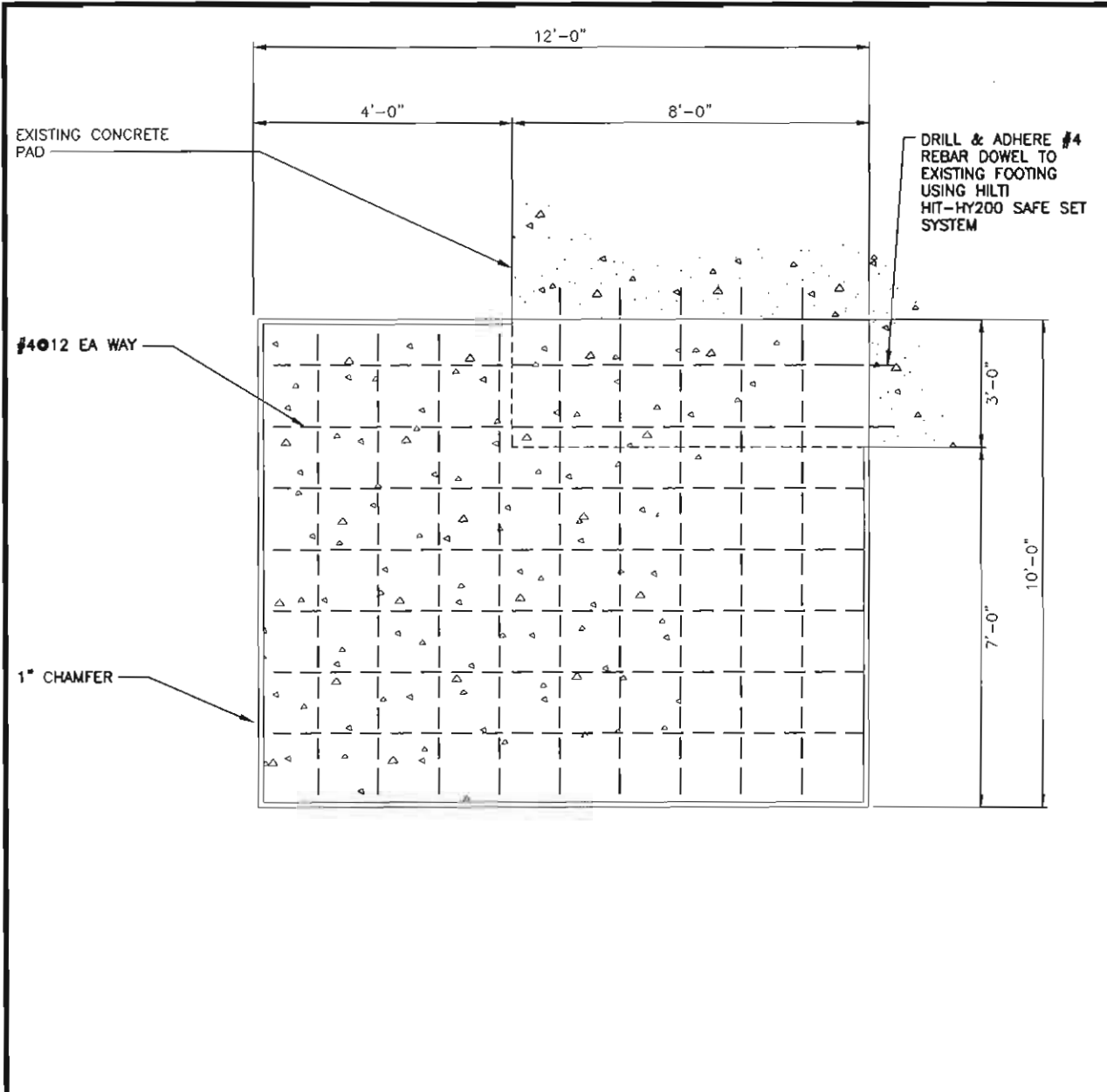
SITE NAME:  
**ATC GUMBO**

SITE CASCADE:  
**ST51XC070**

SITE ADDRESS:  
 18614 OLIVE STREET ROAD  
 CHESTERFIELD, MO 63005

SHEET DESCRIPTION:  
**EQUIPMENT DETAILS**

SHEET NUMBER:  
**A-9**



- NOTE:**
1. USE GALVANIZED HILTI EXPANSION ANCHORS OR, APPROVED MANUFACTURER EQUIVALENT, FOR EQUIPMENT ANCHORAGE.
  2. FOR SIZE AND LOCATION OF ANCHORS AND OTHER REQUIREMENT, SEE EQUIPMENT VENDOR DRAWINGS.
  3. CABINET ORIENTATION AND LAYOUT MAY VARY. REFERENCE EQUIPMENT PLAN FOR EXACT DETAILS.

PLANS PREPARED FOR:

6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:

**SHIVEHATTERY**  
ARCHITECTURE+ENGINEERING  
3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
630.390.7444 | fax 630.437.6800 | shive-hattery.com  
Iowa | Illinois | Missouri

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SITE NAME:

**ATC GUMBO**

SITE CASCADE:

**ST51XC070**

SITE ADDRESS:

18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:

**STRUCTURAL DETAILS**

SHEET NUMBER:

**S-1**



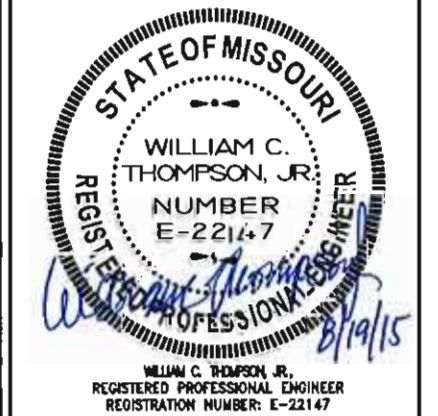
PLANS PREPARED FOR:



PLANS PREPARED BY:

**SHIVEHATTERY**  
 ARCHITECTURE+ENGINEERING  
 3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
 630.390.7444 | fax 630.437.5800 | shivehattery.com  
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SITE NAME:

ATC GUMBO

SITE CASCADE:

ST51XC070

SITE ADDRESS:

18614 OLIVE STREET ROAD  
 CHESTERFIELD, MO 63005

SHEET DESCRIPTION:

STRUCTURAL DETAILS

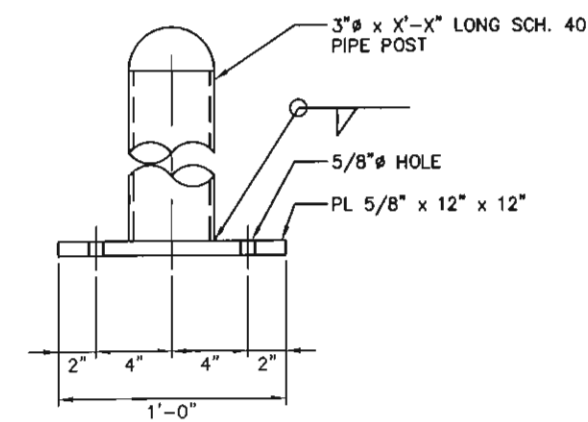
SHEET NUMBER:

S-2

DETAIL NOT USED

NO SCALE

C



- NOTE:
1. STEEL SHALL BE HOT DIPPED GALVANIZED.
  2. CONNECT TO SLAB w/ (4) 1/2" HILTI KB BOLT TZ w/ 3 1/4" MIN EMBEDMENT PER PLATE

PAD MOUNTED POST CONNECTION DETAIL

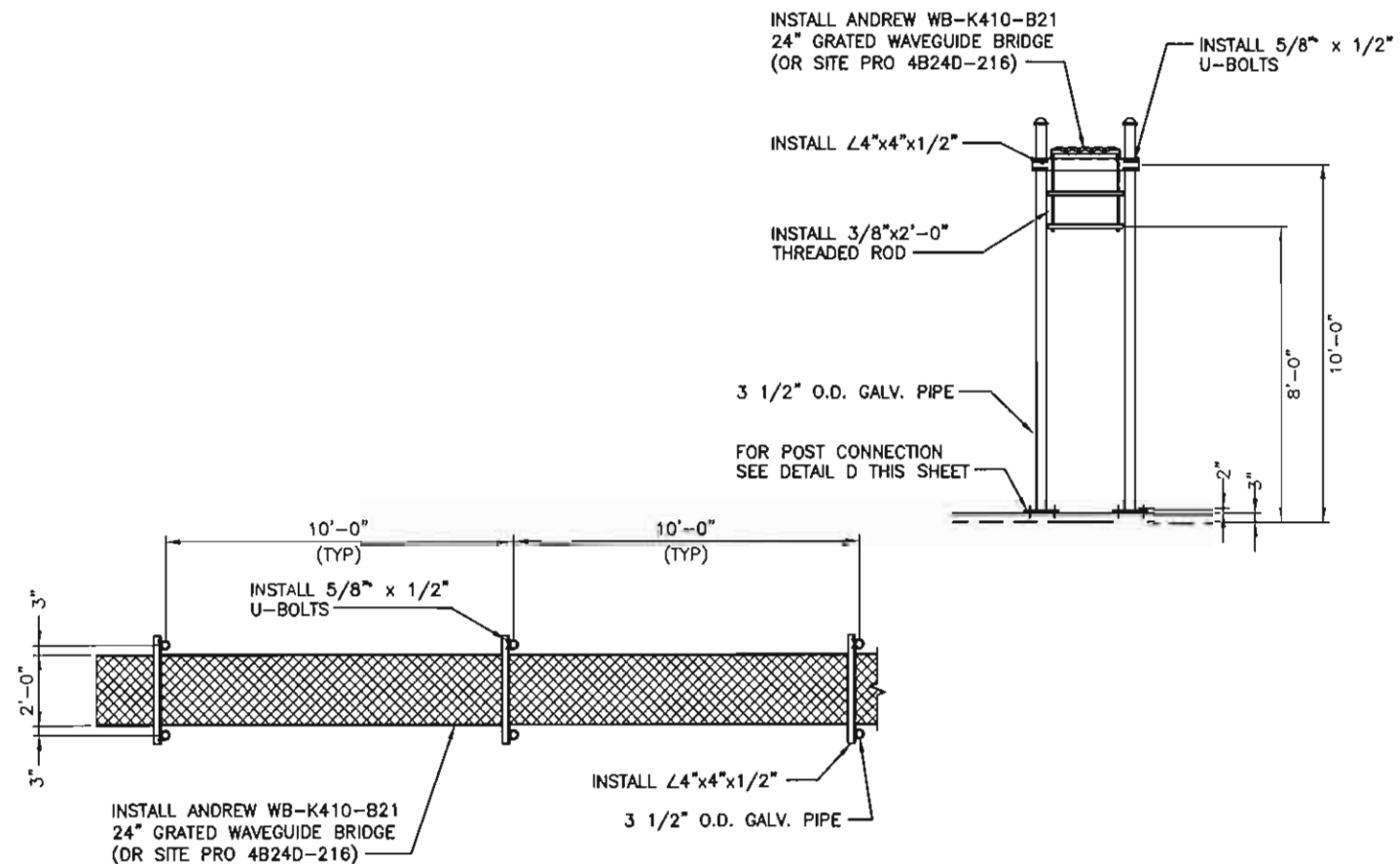
NO SCALE

D

DETAIL NOT USED

NO SCALE

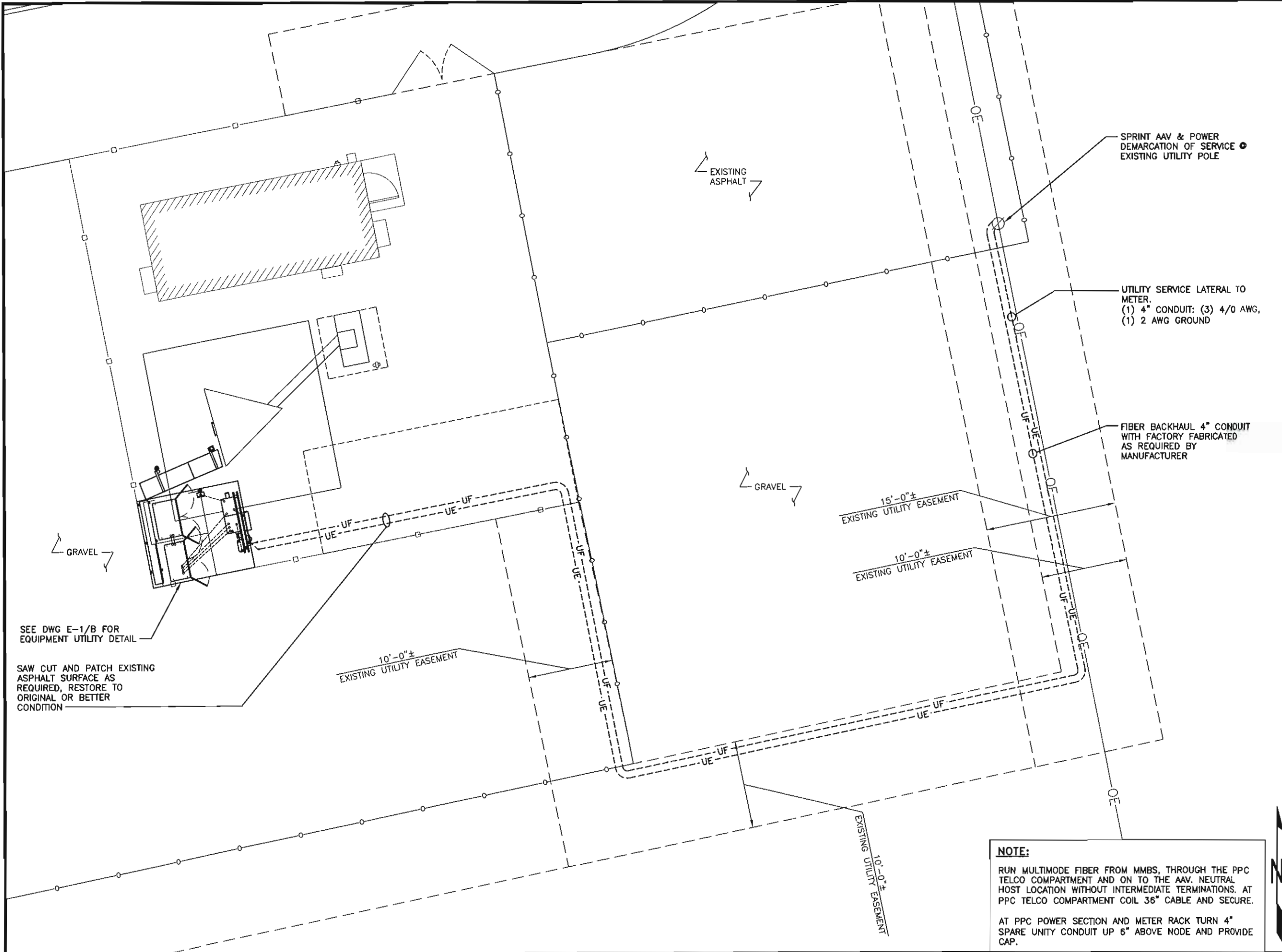
A



ICE BRIDGE DETAILS

NO SCALE

B



SEE DWG E-1/B FOR EQUIPMENT UTILITY DETAIL

SAW CUT AND PATCH EXISTING ASPHALT SURFACE AS REQUIRED, RESTORE TO ORIGINAL OR BETTER CONDITION

**NOTE:**  
 RUN MULTIMODE FIBER FROM MMBS, THROUGH THE PPC TELCO COMPARTMENT AND ON TO THE AAV. NEUTRAL HOST LOCATION WITHOUT INTERMEDIATE TERMINATIONS. AT PPC TELCO COMPARTMENT COIL 36" CABLE AND SECURE.  
 AT PPC POWER SECTION AND METER RACK TURN 4" SPARE UNITY CONDUIT UP 6" ABOVE NODE AND PROVIDE CAP.

PLANS PREPARED FOR:




6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:

**SHIVEHATTERY**  
 ARCHITECTURE+ENGINEERING  
 3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
 630.390.7444 | fax 630.437.5800 | shive-hattery.com  
 Iowa | Illinois | Missouri

S/H PROJ # 8155100-19

ENGINEERING LICENSE:



MARTIN VALENTINE, PROFESSIONAL ENGINEER  
 REGISTRATION NUMBER: 2007005050

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SITE NAME:

ATC GUMBO

SITE CASCADE:

ST51XC070

SITE ADDRESS:

18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:

ELECTRICAL PLAN

SHEET NUMBER:

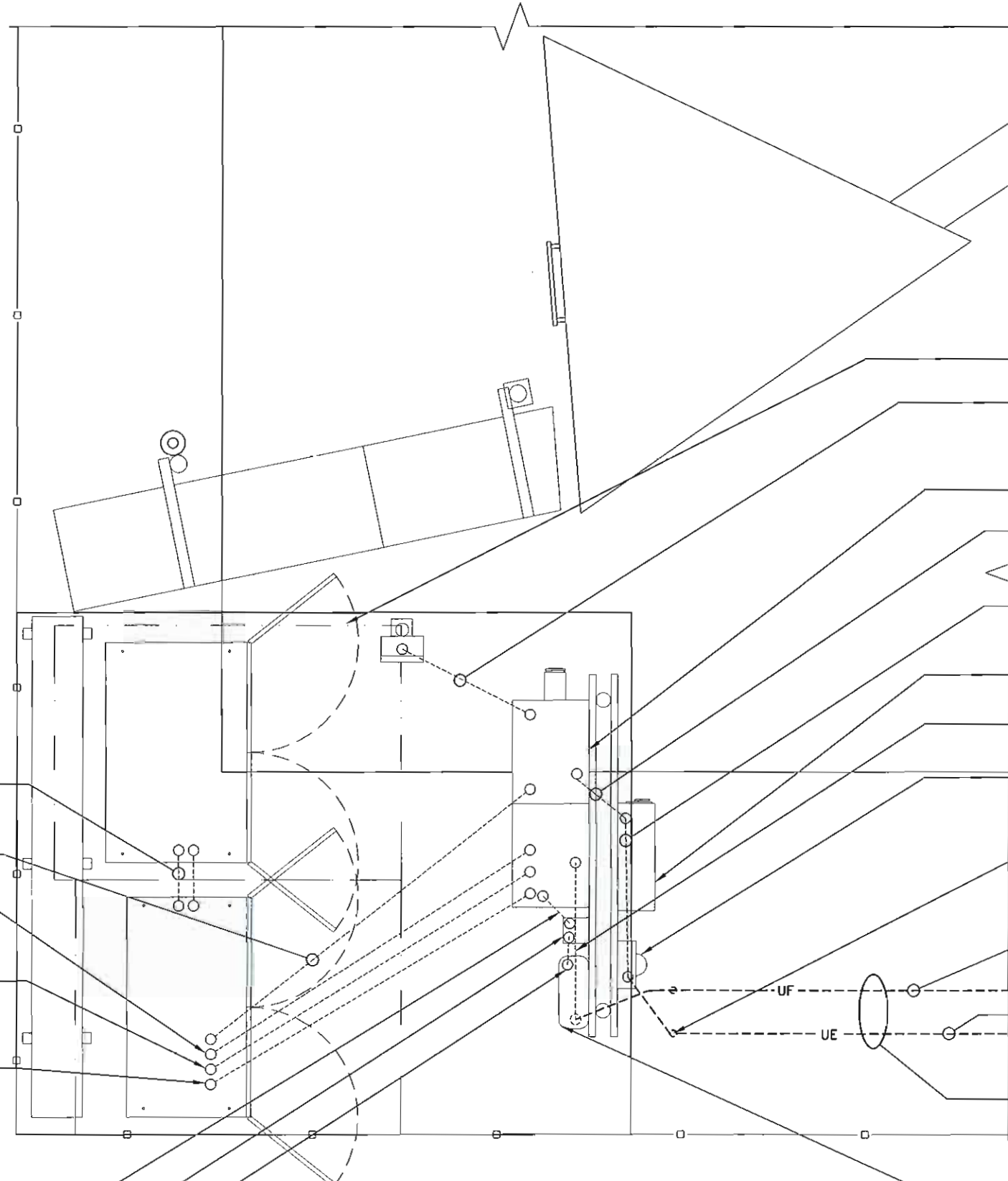
E-1A



**NOTE:**

RUN MULTIMODE FIBER FROM MMBS, THROUGH THE PPC TELCO COMPARTMENT AND ON TO THE AAV. NEUTRAL HOST LOCATION WITHOUT INTERMEDIATE TERMINATIONS. AT PPC TELCO COMPARTMENT COIL 36" CABLE AND SECURE.

AT PPC POWER SECTION AND METER RACK TURN 4" SPARE UNITY CONDUIT UP 6" ABOVE NODE AND PROVIDE CAP.



FACTORY WIRE HARNESS  
SIZE CONDUIT AS REQUIRED  
BY MANUFACTURER

AC POWER FOR RBS (3) 2  
AWG, (1) 2 AWG GROUND,  
1 1/2" FLEX-CONDUIT

ALARMS 1" FLEX-CONDUIT,  
25PR 24GA CAT5E

FIBER 1-1/2" FLEX-CONDUIT  
WITH FACTORY FABRICATED  
MULTIMODE FIBER AS REQUIRED  
BY MANUFACTURER

1" PVC WITH DC POWER FOR  
CIENNA

INSTALL 1" FLEX CONDUIT FOR  
DC POWER TO CIENNA

INSTALL 6x6x6 J-BOX FOR DC  
BREAKERS, SERVICE TO CIENNA

INSTALL 1" FLEX CONDUIT FOR  
DC POWER TO CIENNA

SITE LIGHT

(3) 12 AWG, 3/4"  
CONDUIT ROUTED  
ALONG SLAB TO  
PPC

INSTALL PPC POWER SECTION  
AND TELCO COMPARTMENT

UTILITY SERVICE DISCONNECT  
TO PPC.  
(1) 4" CONDUIT: (3) 4/0 AWG,  
(1) 2 AWG GROUND

UTILITY SERVICE LATERAL TO  
DISCONNECT.  
(1) 4" CONDUIT: (3) 4/0 AWG,  
(1) 2 AWG GROUND

INSTALL NEW NEMA 3R 200A  
FUSED DISCONNECT SWITCH

INSTALL NEW 1-1/2" FLEX  
CONDUIT FOR FIBER TO PPC

INSTALL NEW UTILITY COMPANY  
APPROVED NEMA 3R METER  
ENCLOSURE

STUB ACTIVE CONDUIT UP TO WITHIN  
12" OF METER BUCKET. COIL 36"  
SPARE CONDUCTOR. TAPE WRAP ENDS  
AND PROTECT CABLE FROM WEATHER  
UTILITY WILL MAKE ALL CABLE  
CONNECTIONS AND ENERGIZE SITE

AAV SERVICE (1) 2"  
CONDUIT TO AAV HOST STUB  
UP AT ENCLOSURE LEAVE  
36" SPARE INSIDE  
ENCLOSURE

UTILITY SERVICE LATERAL TO  
METER.  
(1) 4" CONDUIT: (3) 4/0 AWG,  
(1) 2 AWG GROUND

SAW CUT AND PATCH EXISTING  
ASPHALT SURFACE AS  
REQUIRED, RESTORE TO  
ORIGINAL OR BETTER  
CONDITION

INSTALL AT&T CIENNA  
CABINET TO UTILITY RACK

PLANS PREPARED FOR:



6580 Sprint Parkway  
Overland Park, Kansas 66251

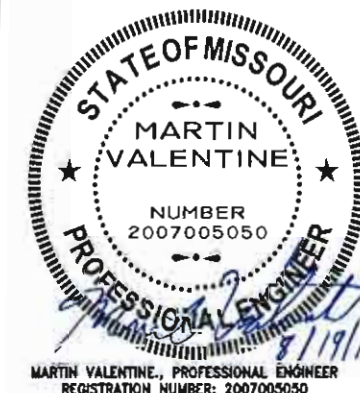
PLANS PREPARED BY:

**SHIVEHATTERY**

ARCHITECTURE+ENGINEERING  
3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
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OCEAN DRAWINGS FOR REVIEW	08/07/15	SPB	0
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SITE NAME:

ATC GUMBO

SITE CASCADE:

ST51XC070

SITE ADDRESS:

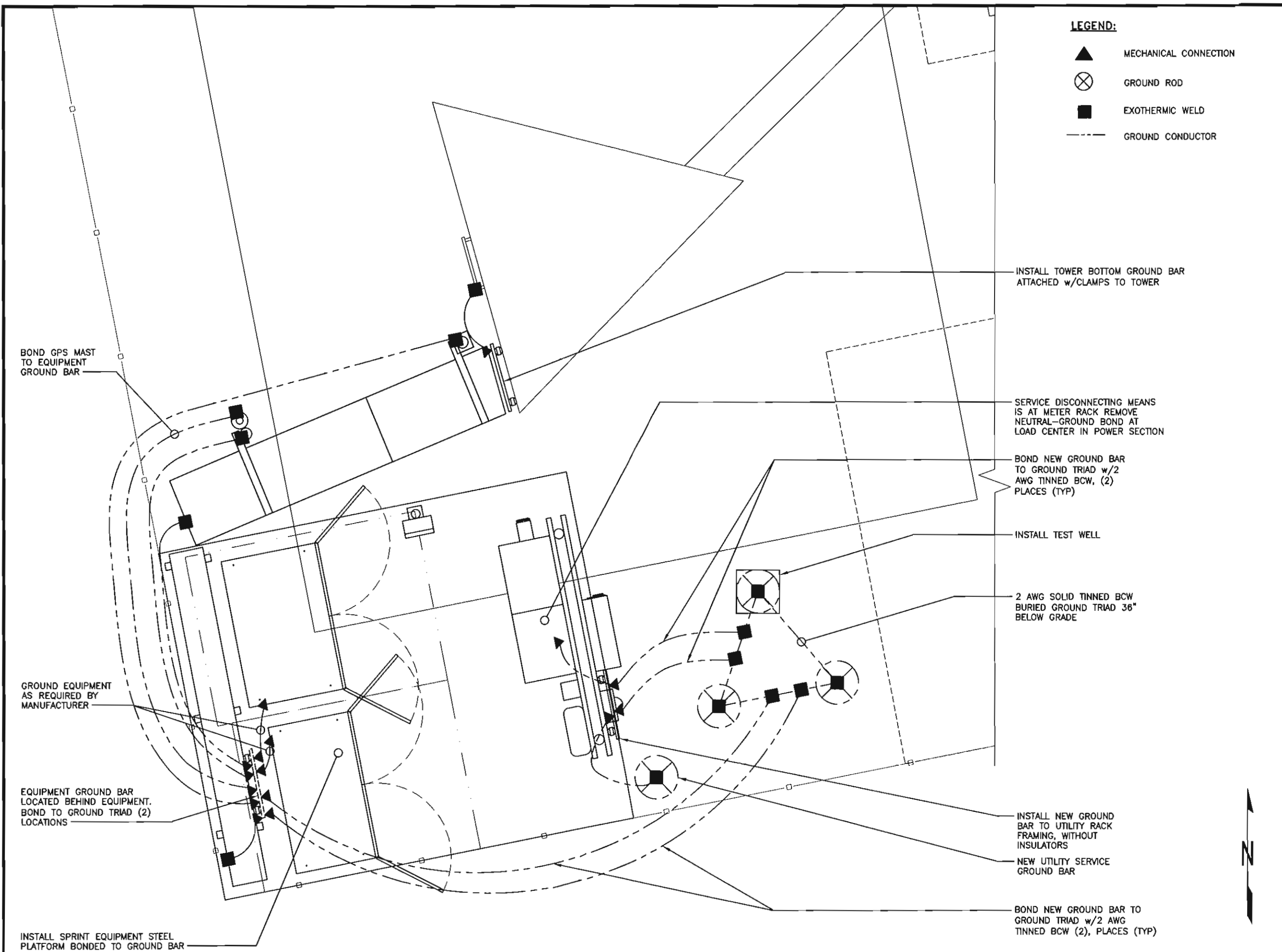
18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:

ELECTRICAL PLAN DETAIL

SHEET NUMBER:

E-1B



PLANS PREPARED FOR:  
**Sprint**  
 6580 Sprint Parkway  
 Overland Park, Kansas 66251

PLANS PREPARED BY:  
**SHIVEHATTERY**  
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ENGINEERING LICENSE  
  
 MARTIN VALENTINE, PROFESSIONAL ENGINEER  
 REGISTRATION NUMBER: 2007005050

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-	-	-	-

SITE NAME:  
**ATC GUMBO**

SITE CASCADE:  
**ST51XC070**

SITE ADDRESS:  
 18614 OLIVE STREET ROAD  
 CHESTERFIELD, MO 63005

SHEET DESCRIPTION:  
**GROUNDING PLAN**

SHEET NUMBER:  
**E-2**



**NOTE:**  
CONDUCTORS SHALL BE 2 AWG  
INSULATED STRANDED GREEN CU,  
GROUND WIRE, (TYP.) U.N.O

(3) INSTALL SPRINT  
800 MHZ RRU

(3) INSTALL SPRINT  
1900 MHZ RRU

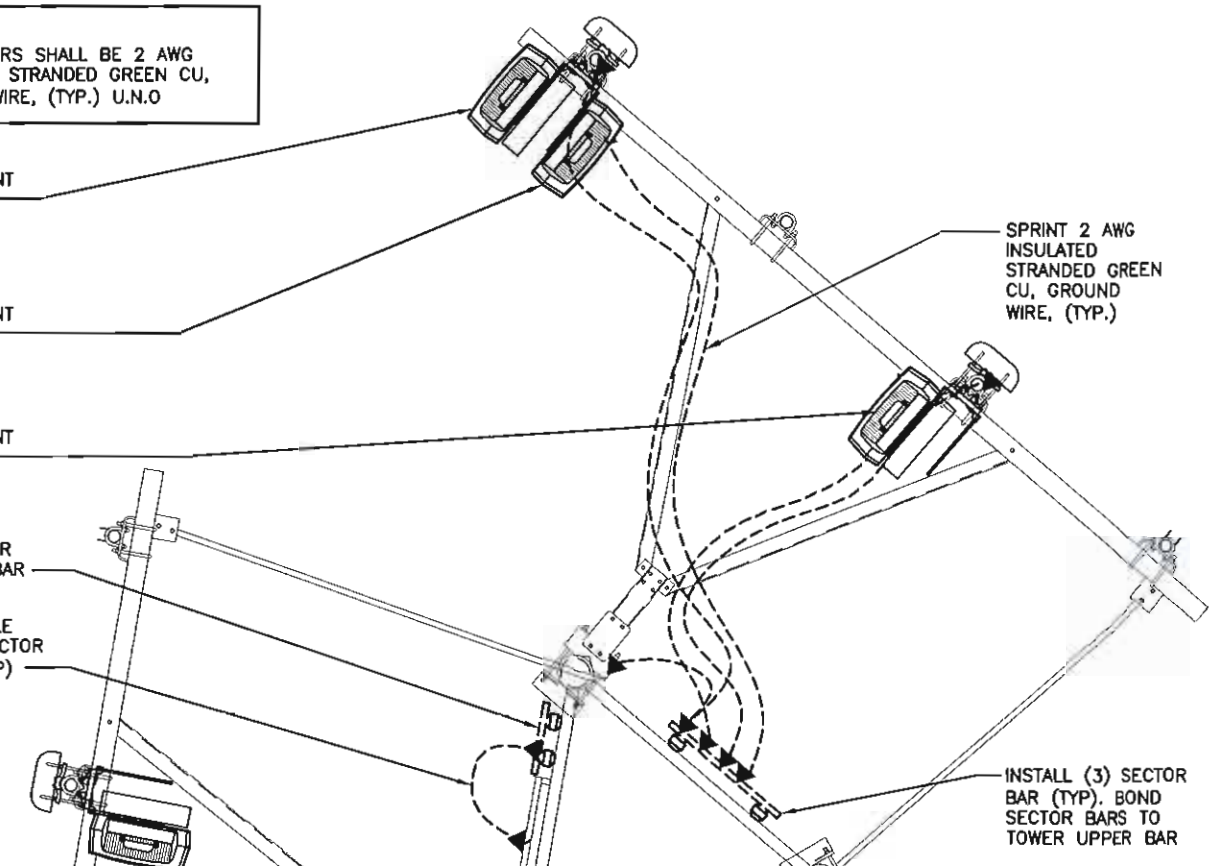
(3) INSTALL SPRINT  
2500 MHZ RRU

INSTALL (1) UPPER  
TOWER GROUND BAR

NEW HYBRID CABLE  
GROUNDED TO SECTOR  
GROUND BAR (TYP)

SPRINT 2 AWG  
INSULATED  
STRANDED GREEN  
CU, GROUND  
WIRE, (TYP.)

INSTALL (3) SECTOR  
BAR (TYP). BOND  
SECTOR BARS TO  
TOWER UPPER BAR



DETAIL NOT USED

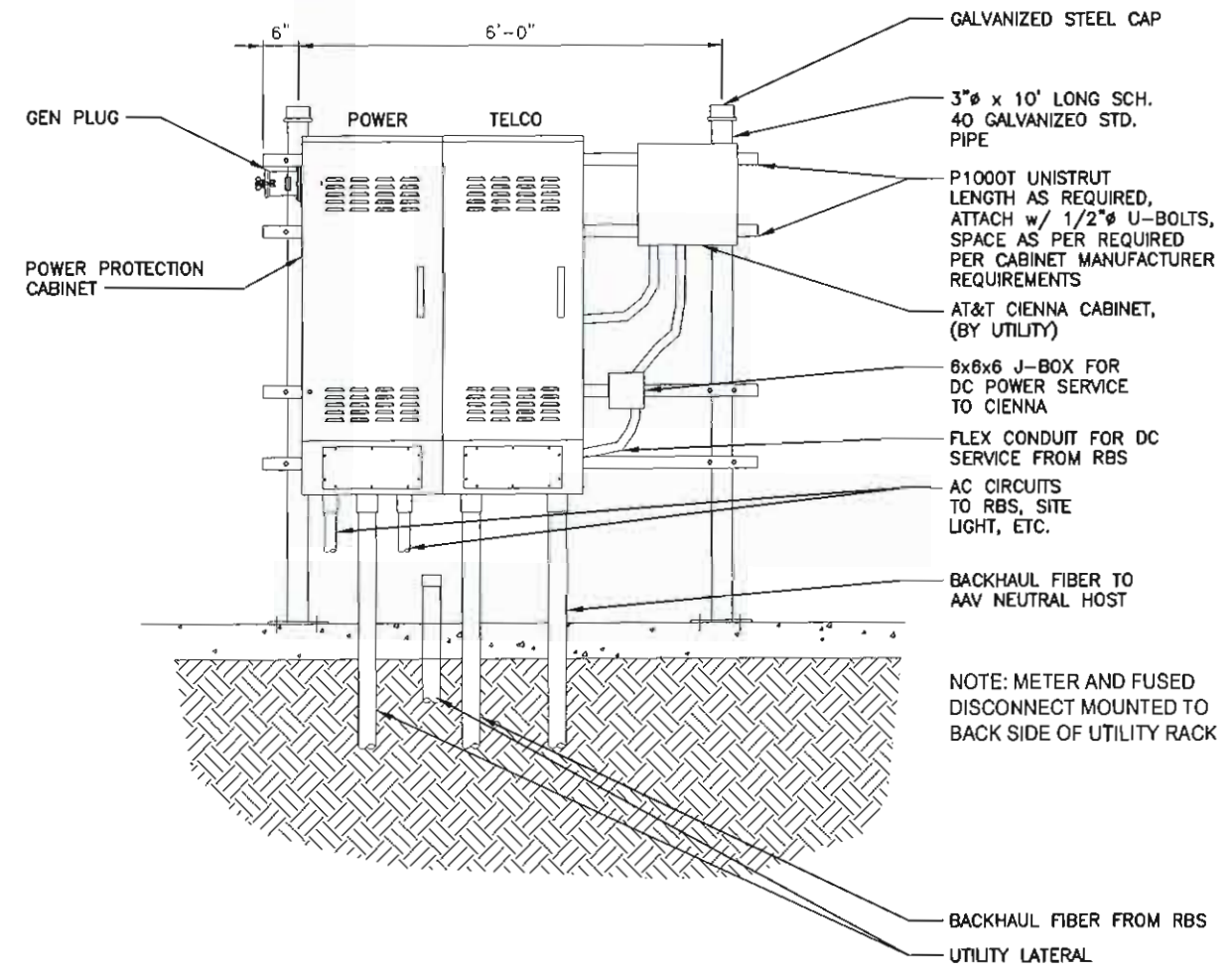
NO SCALE

C

ANTENNA GROUNDING PLAN (TYP)

NO SCALE

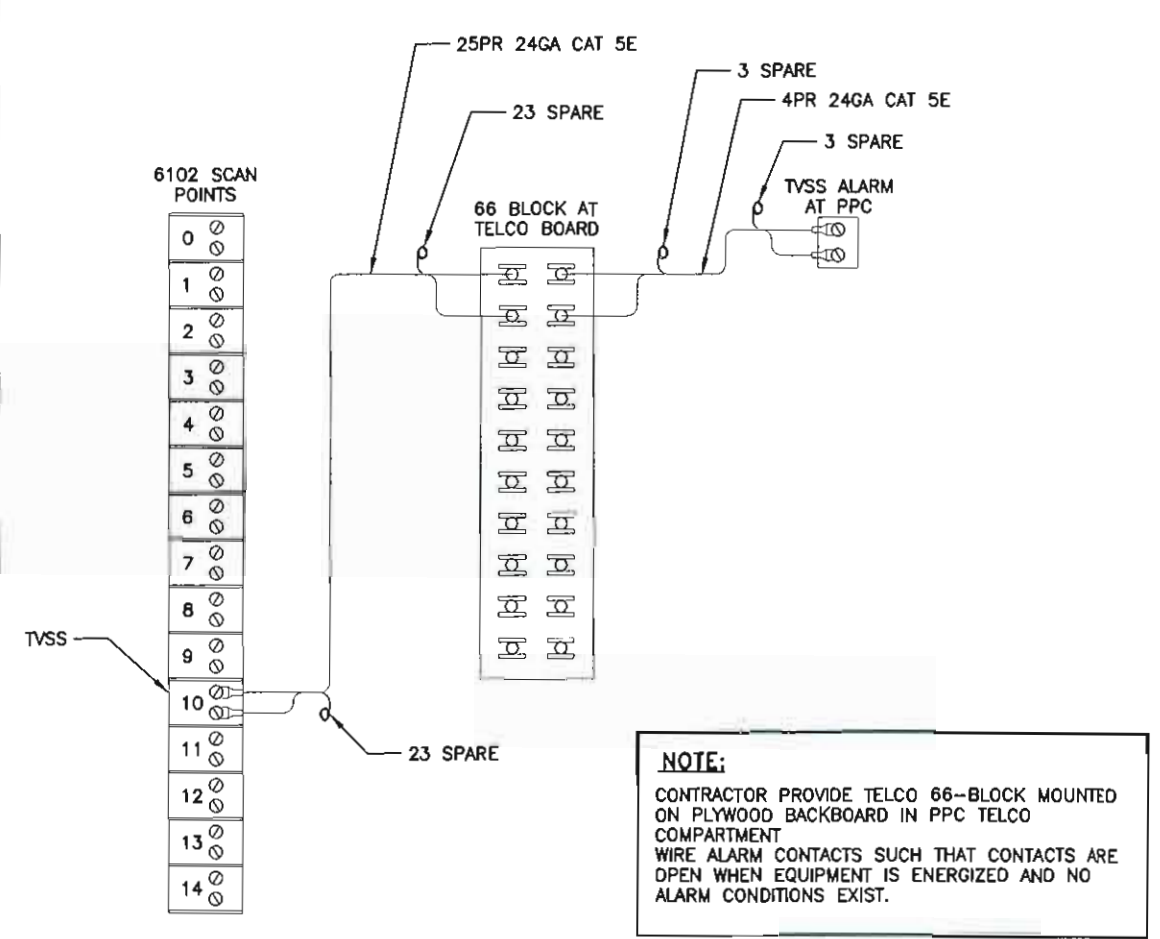
A



H-FRAME FOR POWER PROTECTION CABINET

NO SCALE

D



ALARM WIRING DIAGRAM

NO SCALE

B

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SITE NAME:

ATC GUMBO

SITE CASCADE:

ST51XC070

SITE ADDRESS:

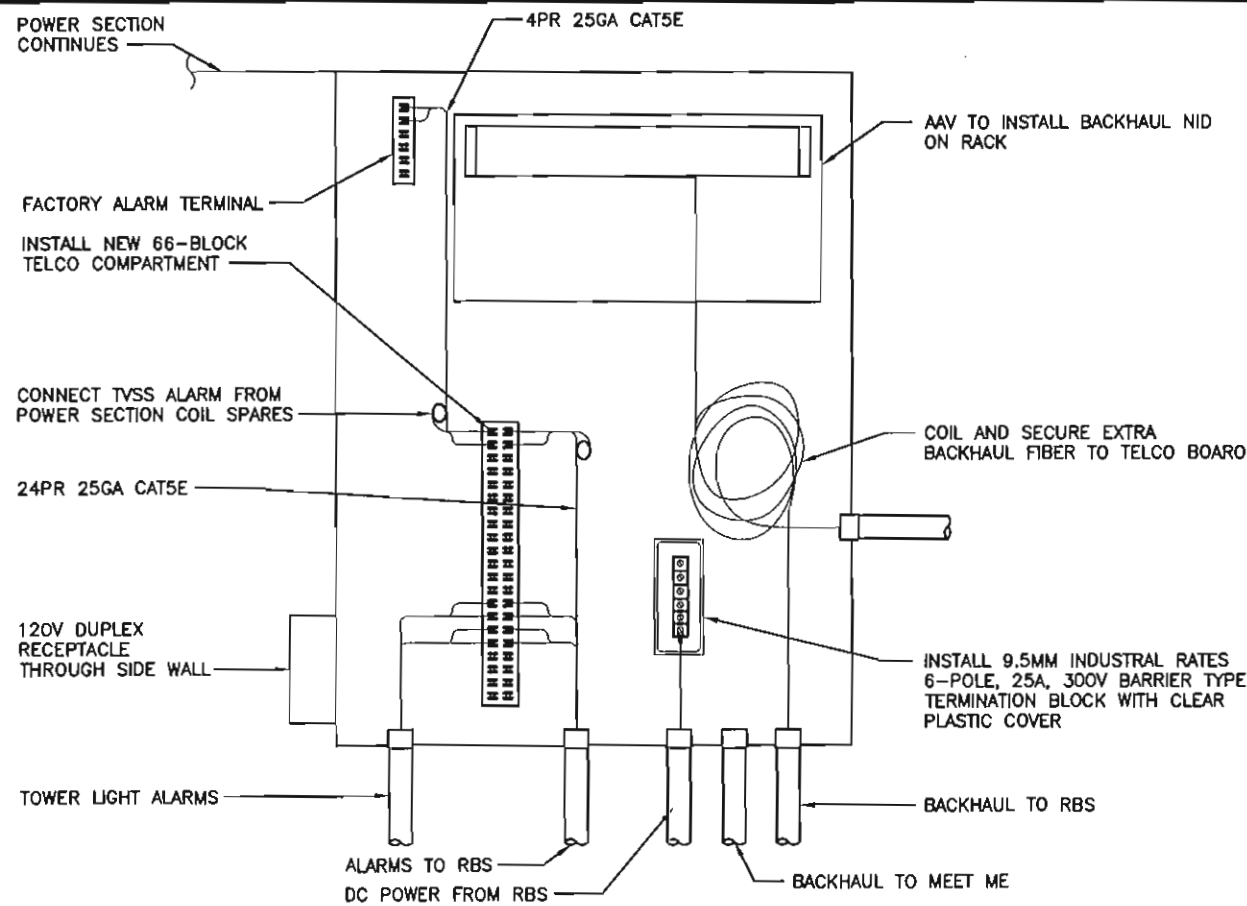
18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:

ELECTRICAL DETAILS  
TOWER GROUNDING

SHEET NUMBER:

E-3



PLYWOOD BACK BOARD AT PPC TELCO COMPARTMENT

NO SCALE

E

GROUND ROD

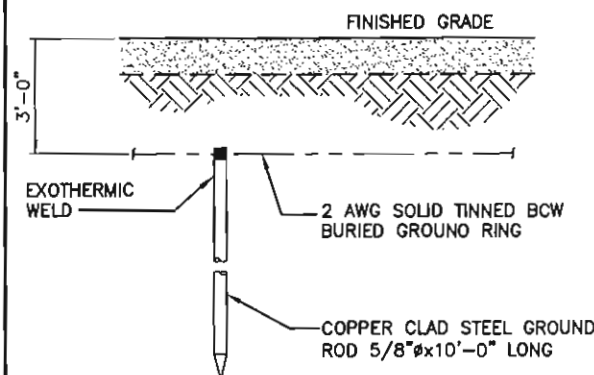
NO SCALE

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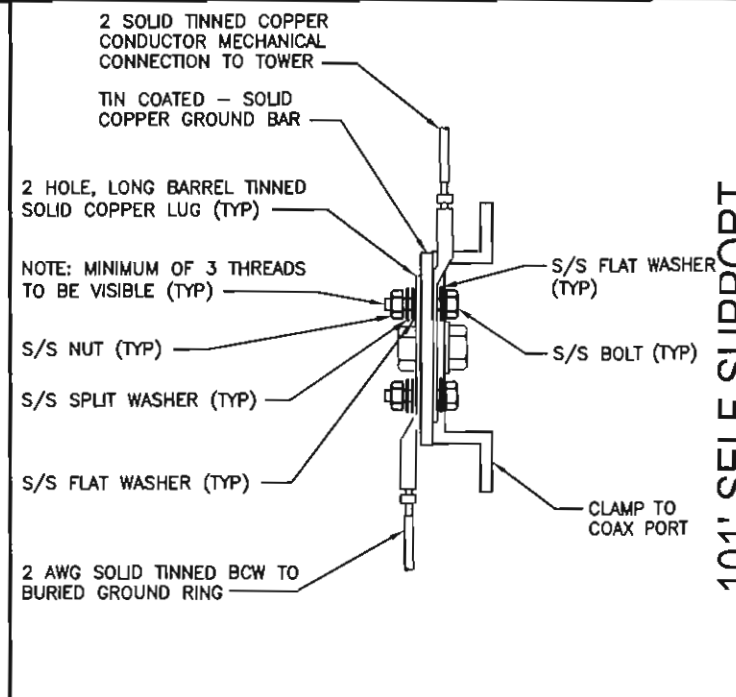
GROUND BARS AT TOWER

NO SCALE

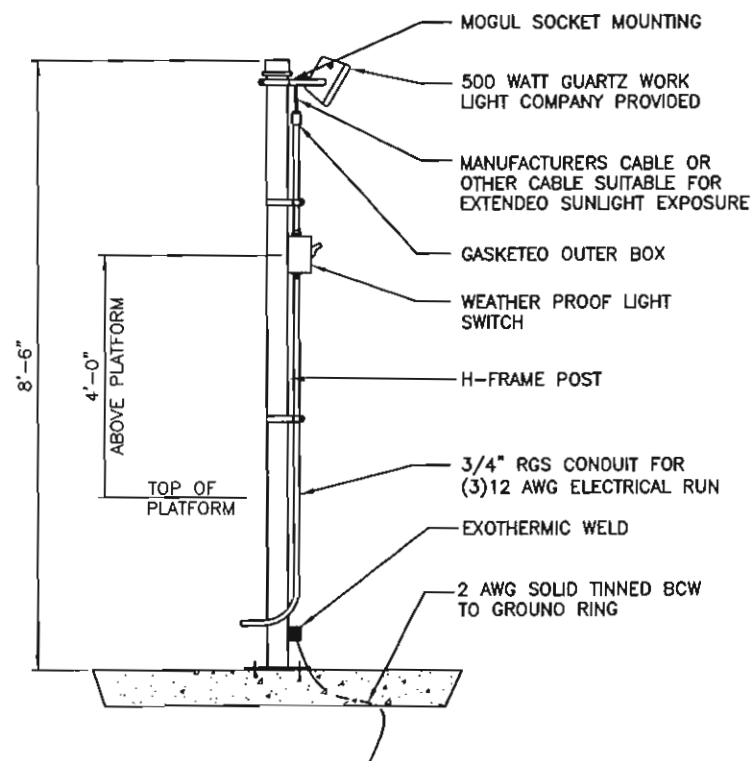
A



- NOTE:**
1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING SPLIT WASHERS.
  2. COAT WIRE END WITH ANTI-OXIDATION COMPOUND PRIOR TO INSERTION INTO LUG BARREL AND CRIMPING.
  3. APPLY ANTI-OXIDATION COMPOUND BETWEEN ALL LUGS AND BUSS BARS PRIOR TO MATING AND BOLTING. DO NOT COAT ENTIRE BAR



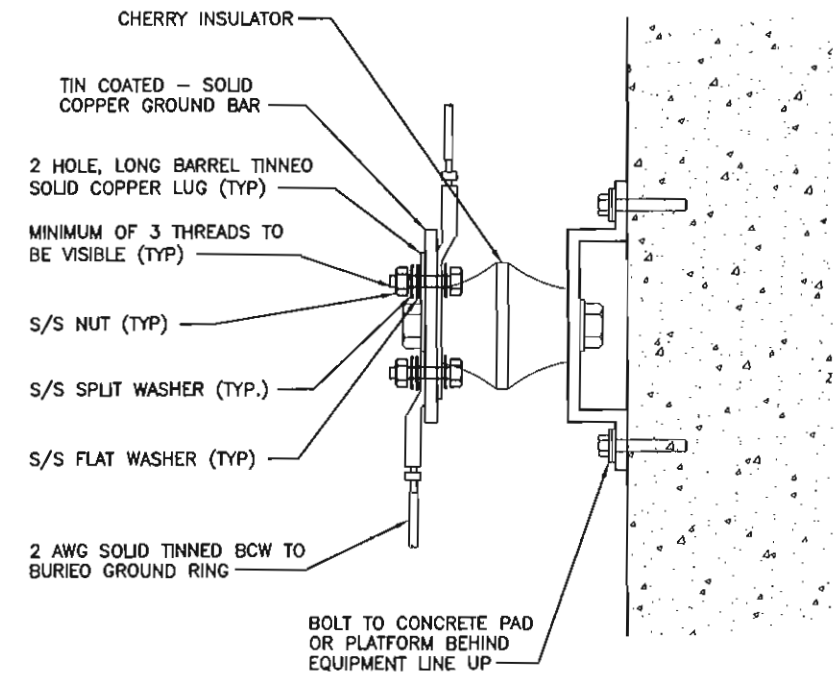
101'-SELF SUPPORT



WORK LIGHT DETAIL

NO SCALE

D



- NOTE:**
1. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING SPLIT WASHERS.
  2. COAT WIRE END WITH ANTI-OXIDATION COMPOUND PRIOR TO INSERTION INTO LUG BARREL AND CRIMPING.
  3. APPLY ANTI-OXIDATION COMPOUND BETWEEN ALL LUGS AND BUSS BARS PRIOR TO MATING AND BOLTING. DO NOT COAT ENTIRE BAR

GROUND BAR AT MMBS

NO SCALE

B

PLANS PREPARED FOR:

6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:

3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
630.390.7444 | fax 630.437.5800 | shive-hattery.com  
Iowa | Illinois | Missouri

S/H PROJ # 8155100-19

ENGINEERING LICENSE:

MARTIN VALENTINE, PROFESSIONAL ENGINEER  
REGISTRATION NUMBER: 2007005050

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SITE NAME:

ATC GUMBO

SITE CASCADE:

ST51XC070

SITE ADDRESS:

18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:

ELECTRICAL DETAILS

SHEET NUMBER:

E-4

DETAIL NOT USED

NO SCALE

F

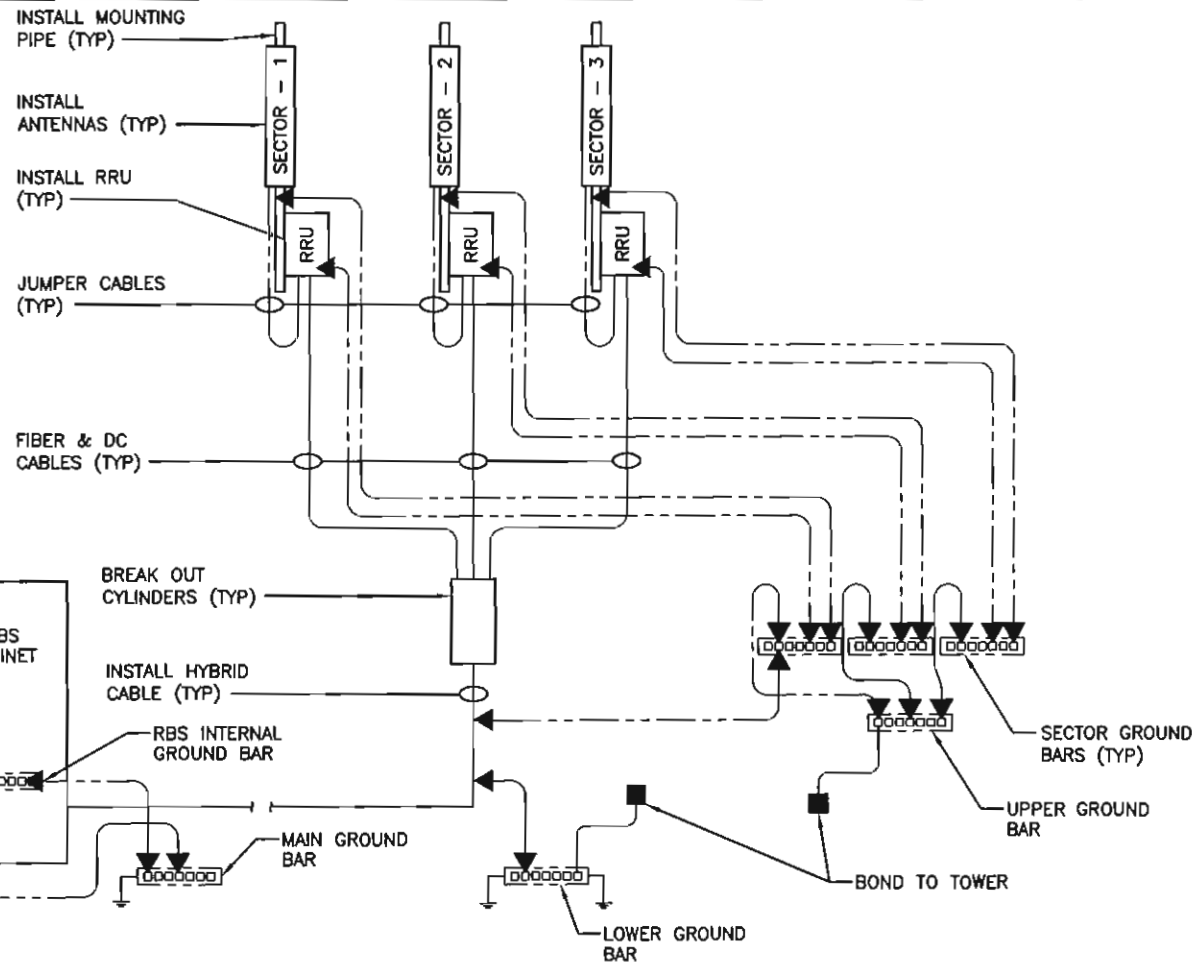


**SYMBOL LEGEND**

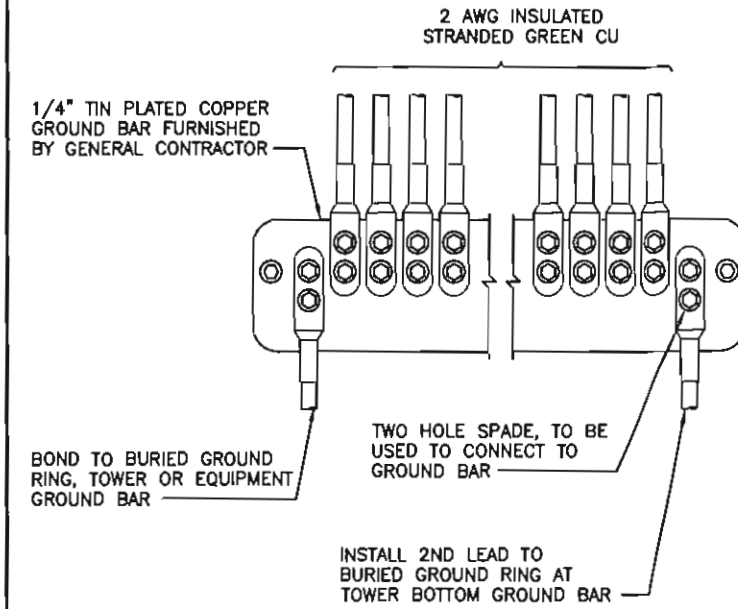
- EXOTHERMIC CONNECTION
- ▲ MECHANICAL CONNECTION

**NOTE:**

ALL BONDS ON TOWER TO BE MECHANICAL



ROUTE BASE CABINET GROUNDS IN 3/4" LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT FROM GROUND BAR. SEAL TOP END WATERTIGHT W/ DUCT PLUG



**NOTES**

1. APPLY NO-OX TO LUG AND BAR CONTACT SURFACE. DO NOT COAT INLINE LUG.
2. IF STOLEN GROUND BARS ARE ENCOUNTERED, CONTACT SPRINT CM FOR REPLACEMENT THREADED ROD KIT.

PLANS PREPARED FOR:

6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:

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ARCHITECTURE+ENGINEERING  
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Iowa | Illinois | Missouri

S/H PROJ # 8155100-19

ENGINEERING LICENSE:

MARTIN VALENTINE, PROFESSIONAL ENGINEER  
REGISTRATION NUMBER: 2007005050

GROUNDING RISER DIAGRAM

NO SCALE

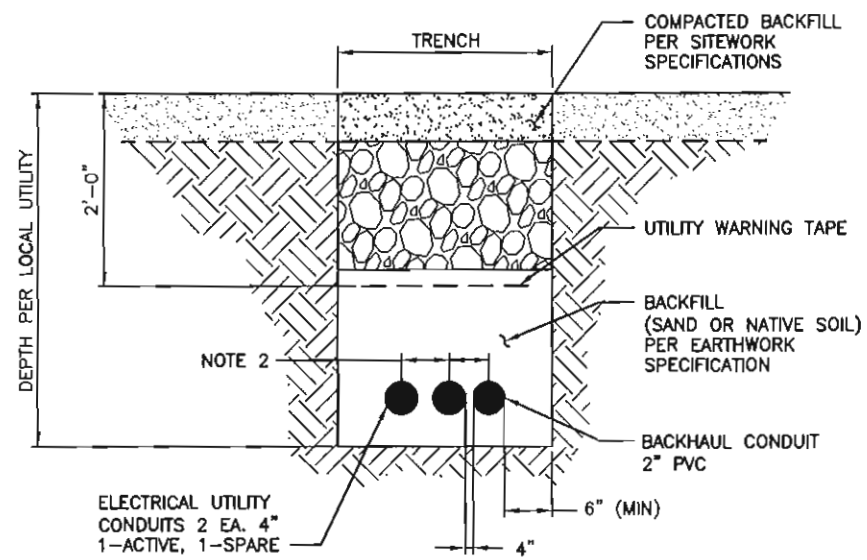
C

INSTALLATION OF GROUNDING CONDUCTOR TO GROUNDING BAR

NO SCALE

A

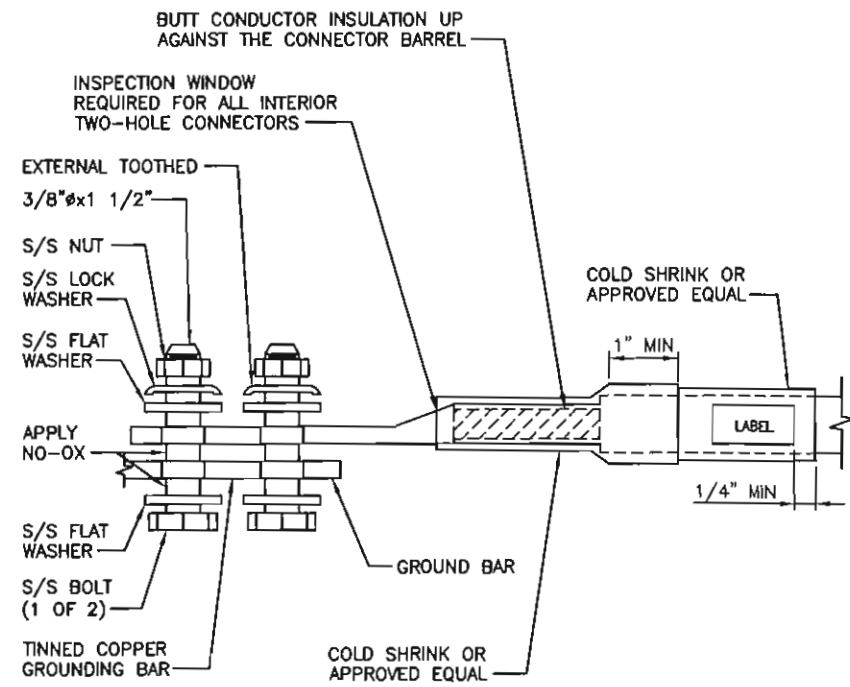
- NOTES:**
1. PULL BOXES INSTALLED PER NEC
  2. CONTRACTOR SHALL RESTORE SURFACES TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION
  3. HAND DIG ALL TRENCHES WITH EXISTING COMPOUNDS



CONDUIT TRENCH ELECT/BACKHAUL

NO SCALE

D



TWO HOLE LUG

NO SCALE

B

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SITE NAME:

ATC GUMBO

SITE CASCADE:

ST51XC070

SITE ADDRESS:

18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:

ELECTRICAL DETAILS

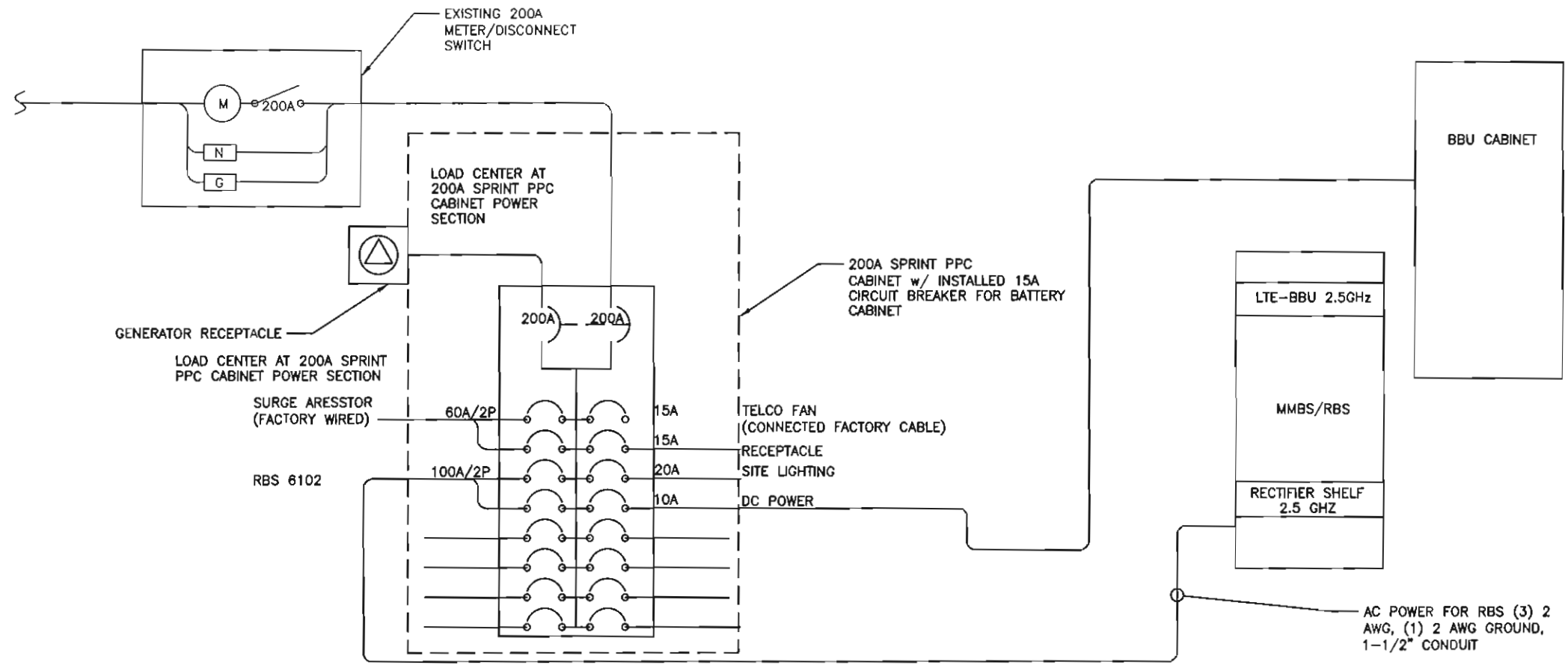
SHEET NUMBER:

E-5

DETAIL NOT USED

NO SCALE

E



PLANS PREPARED FOR:

**Sprint**

6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:

**SHIVEHATTERY**  
ARCHITECTURE + ENGINEERING

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REGISTRATION NUMBER: 2007005050

**ELECTRICAL ONE-LINE DIAGRAM**

NO SCALE    **A**

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REVISIONS:

DESCRIPTION	DATE	BY	REV
OCEAN DRAWINGS FOR REVIEW	08/07/15	SPB	0
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

SITE NAME:

**ATC GUMBO**

SITE CASCADE:

**ST51XC070**

SITE ADDRESS:

18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:

**A/C POWER DISTRIBUTION**

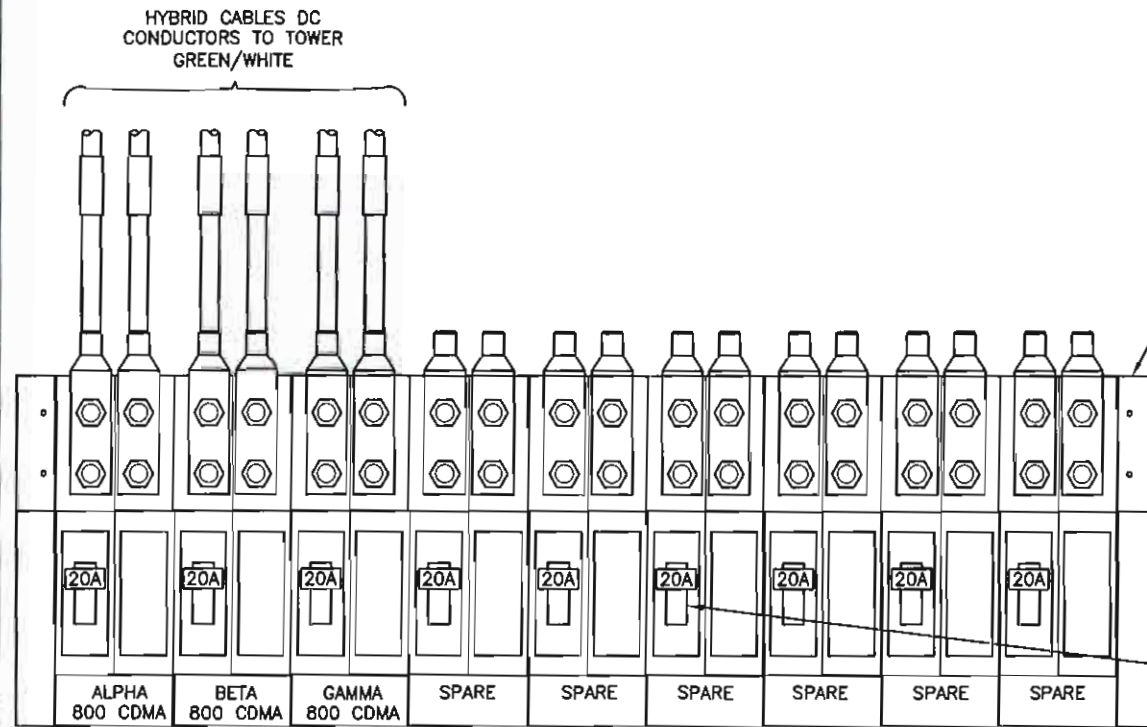
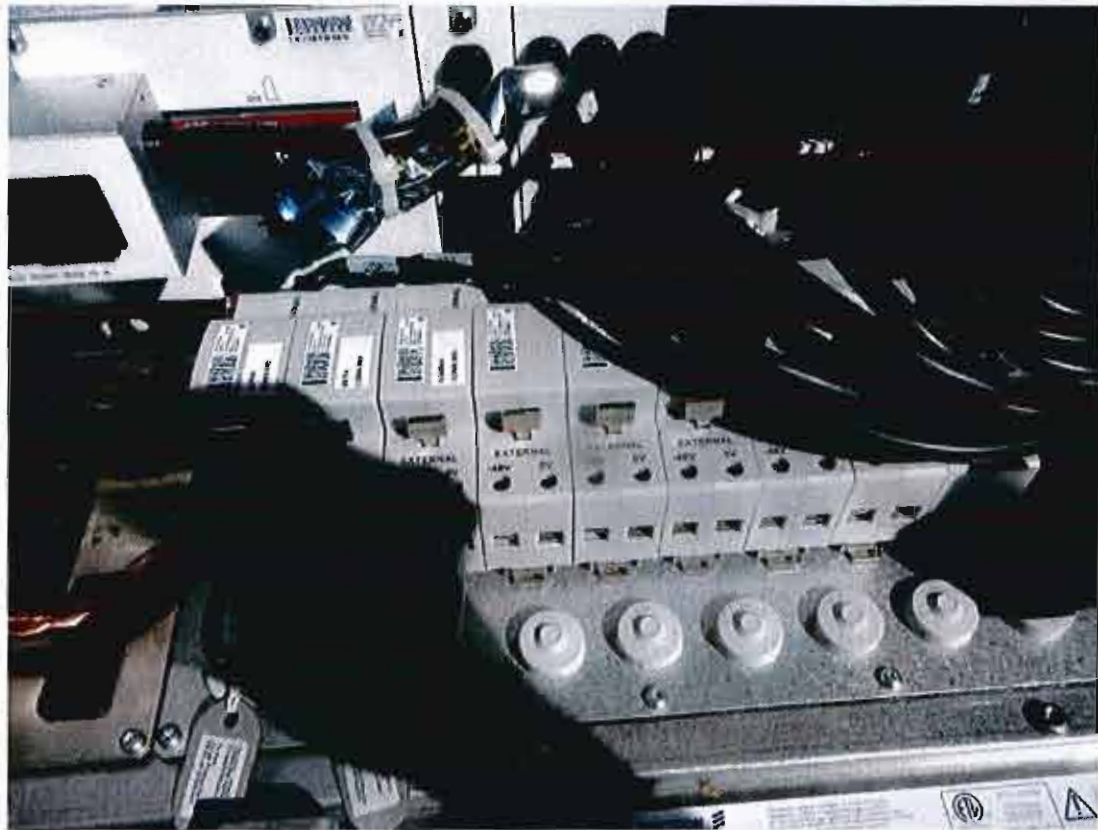
SHEET NUMBER:

**E-6**

NOT USED

NO SCALE    **B**

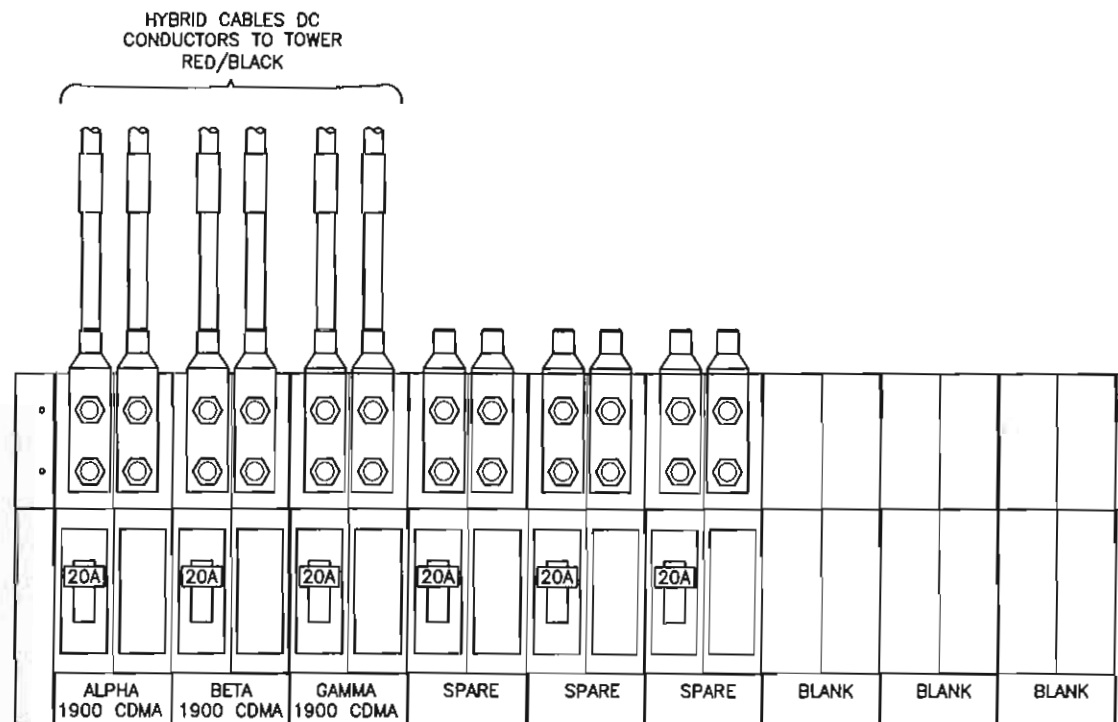




DC DISTRIBUTION BUS #1

NO SCALE

A



DC DISTRIBUTION BUS #2

NO SCALE

B

Sprint

6580 Sprint Parkway  
Overland Park, Kansas 66251

PLANS PREPARED BY:

SHIVEHATTERY

ARCHITECTURE+ENGINEERING  
3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
830.390.7444 | fax 630.437.5800 | shive-hattery.com  
Iowa | Illinois | Missouri

S/H PROJ # 8155100-19

ENGINEERING LICENSE:



MARTIN VALENTINE, PROFESSIONAL ENGINEER  
REGISTRATION NUMBER: 2007005050

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REVISIONS:

DESCRIPTION	DATE	BY	REV
OCEAN DRAWINGS FOR REVIEW	08/07/15	SPB	0
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

SITE NAME:

ATC GUMBO

SITE CASCADE:

ST51XC070

SITE ADDRESS:

18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:

D/C POWER DISTRIBUTION

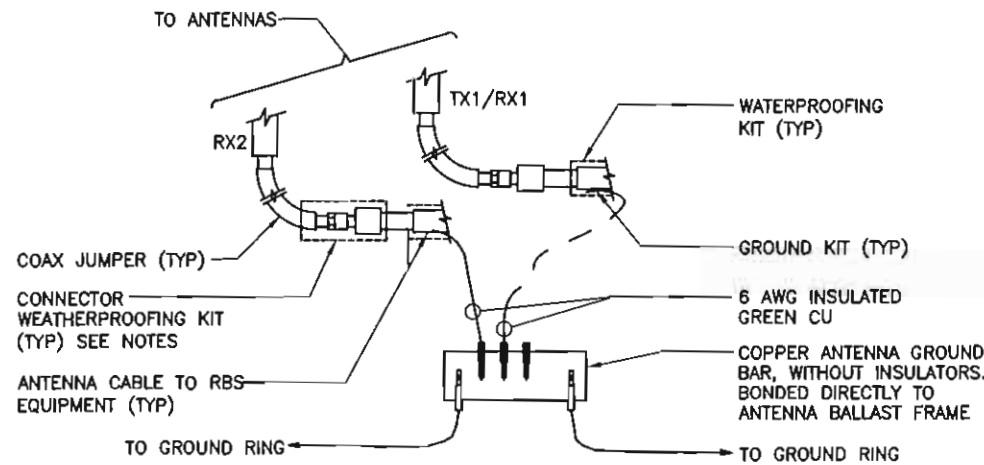
SHEET NUMBER:

E-7



**NOTES:**

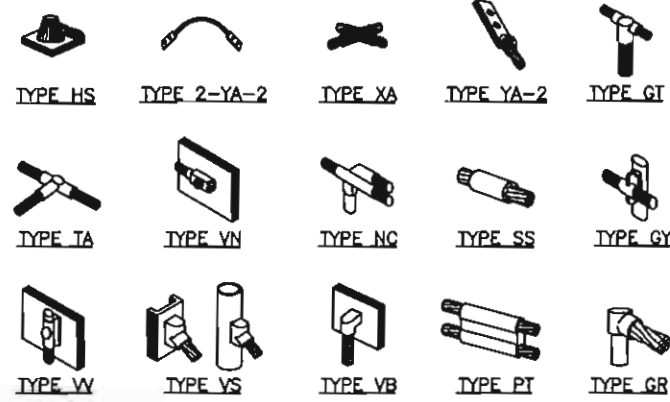
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
- WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.



TYPICAL ANTENNA GROUND KIT

NO SCALE

E



**NOTE:**

ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH PROJECT MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.

EXOTHERMIC WELDS

NO SCALE

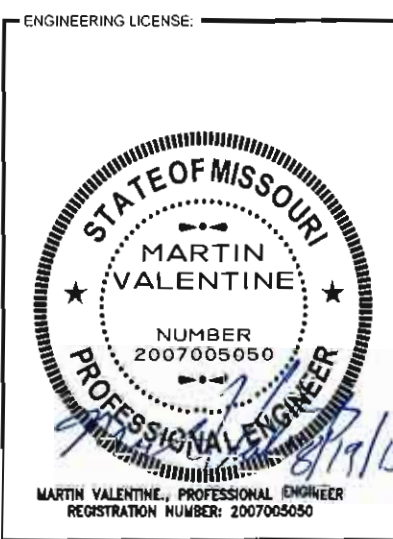
C



PLANS PREPARED BY:

**SHIVEHATTERY**  
ARCHITECTURE+ENGINEERING  
3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
630.390.7444 | fax 630.437.5800 | shive-hattery.com  
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REVISIONS:

DESCRIPTION	DATE	BY	REV
OCEAN DRAWINGS FOR REVIEW	08/07/15	SPB	0
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

SITE NAME:

ATC GUMBO

SITE CASCADE:

ST51XC070

SITE ADDRESS:

18614 OLIVE STREET ROAD  
CHESTERFIELD, MO 63005

SHEET DESCRIPTION:

D/C SUB  
PANEL DETAIL

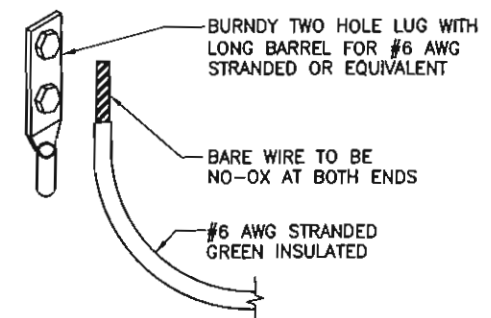
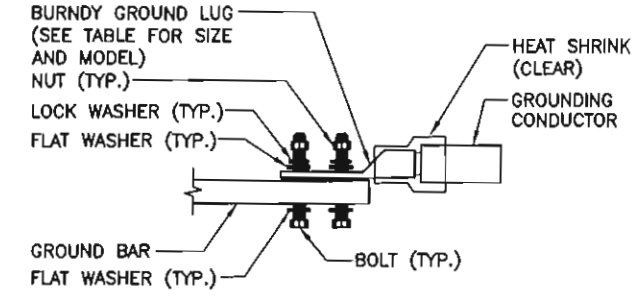
SHEET NUMBER:

E-8

WIRE SIZE	BURNDY LUG	BOLT SIZE
6 AWG GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC S 2 BOLT
2 AWG SOLID TINNED	YA3C-2TC38	3/8" - 16 NC S 2 BOLT
2 AWG STRANDED	YA2C-2TC38	3/8" - 16 NC S 2 BOLT
2/0 AWG STRANDED	YA2B-2TC38	3/8" - 16 NC S 2 BOLT
4/0 AWG STRANDED	YA2B-2N	1/2" - 16 NC S 2 BOLT

**NOTES:**

- HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. HARDWARE IS TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.
- COPPER SHIELD, ANTIOX, CR NO-OX OR EQUIVALENT SHALL BE PLACE WHERE DISSIMILAR METALS CONNECT.
- LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.
- FLAT WASHER SHALL NOT OVERLAP ADJACENT LUGS OR WASHERS



MECHANICAL LUG CONNECTION

NO SCALE

C