

Memorandum Planning & Development Services Division



To: Planning and Public Works Committee

From: John Boyer, Senior Planner

Date: April 23, 2015

RE: **T.S.P. 46-2014 Sprint (7 Chesterfield Mall):** A request to obtain approval for a Telecommunications Siting Permit to accommodate three (3) new panel antennas for an existing array within the "C8" Planned Commercial District of land located internally on the Chesterfield Mall property with an address of 7 Chesterfield Mall.

Summary

Russell Been of Collective Solutions, LLC on behalf of Sprint (applicant) has submitted a request for a Telecommunications Siting Permit (TSP) for the above referenced property. The proposed TSP is to accommodate three (3) additional panel antennas for an antenna array located on the roof of the Chesterfield Mall. This roof top antenna array was approved in 2002 administratively prior to the adoption of the City's current Telecommunication requirements. Since this tower is planning to add additional antennas beyond what was originally approved, the tower must receive a Telecommunications Siting Permit (TSP) as required by current code.



Figure 1: Aerial

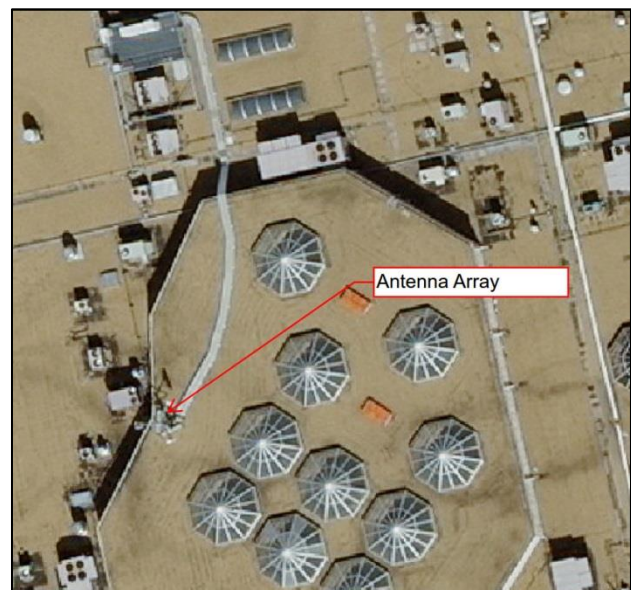


Figure 2: Close Up of Array

Discussion

The Unified Development Code (UDC) requires that any new equipment or updates to an existing telecommunication facility receive a TSP or amend the existing TSP. Since this tower was constructed prior to current ordinance, no TSP has ever been applied for nor issued for this site and is therefore considered a legal non-conforming use or also known as a grandfathered use. The site is currently compliant with the previous approval and the City has not received any complaints on the facility.

The UDC permits applications for equipment upgrades to be submitted for sites that do not currently hold a Telecommunications Siting Permit (TSP) without the need for a public hearing if the update does not reflect a Material Modification. A Material Modification is defined by the UDC as an important, essential or significant change to an existing wireless telecommunication facility. Material modifications do not include collocations which do not increase the height or increase the existing antenna array. In this application, three (3) antennas are requested which will collocate on the facility and will not increase the height nor increase the array size since they will be placed upon existing supports of the facility. The intent of the definition of Material Modification is to ensure a facility which exceeds the previous City approval by a substantial height increase or major visual change would require the re-review of the site. Staff has reviewed the request by Sprint against the UDC and has determined that the proposal is not a material modification and therefore may receive a TSP without a public hearing. 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,



John Boyer
Senior Planner

cc. Aimee Nassif, Planning and Development Services Director

Sprint



PROJECT: 2.5 EQUIPMENT DEPLOYMENT
 SITE NAME: F2 - R8 - CHESTERFIELD MALL
 SITE CASCADE: ST23XC254
 OWNER NUMBER: ATC #337422
 SITE ADDRESS: 7 CHESTERFIELD MALL,
 CHESTERFIELD, MO 63017
 SITE TYPE: EXISTING ROOFTOP

RECEIVED
 City of Chesterfield
MAR 3 1 2015
 Department of Public Services

2.5MHz 39'-0" ROOFTOP

PLANS PREPARED FOR:

 6580 Sprint Parkway
 Overland Park, Kansas 66251

PLANS PREPARED BY:

 Professional Surveying & Engineering
 PO Box 193, 1275 McGregor Way, Grawn, MI 49637
 ph: 231-943-0050 web: www.landtechps.com

SCALE NOTE:
 THE DRAWINGS ARE DESIGNED FOR 24"x36" SIZED PAPER. WHERE MUNICIPALITIES REQUIRE 11"x17" COPIES OF PRINTS, LANDTECH SHALL PLOT THE DRAWINGS AT A RATIO OF 1:2. ALL SUCH COPIES SHALL HAVE A SCALE 2x THE SHOWN SIZE.

MLA PARTNER:

 CORPORATION
ATC SITE #: 337422

ENGINEERING LICENSE:

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REVISIONS:	DESCRIPTION	DATE	BY	REV
	PRELIMINARY DRAWINGS	06/24/14	CEL	0
	PER ATC REVIEW	08/06/14	DAM	1
	SITE ADDRESS	03/25/15	RJH	2

SITE NAME:
F2 - R8 - CHESTERFIELD MALL

SITE CASCADE:
ST23XC254

SITE ADDRESS:
 7 CHESTERFIELD MALL,
 CHESTERFIELD, MO 63017
 ST. LOUIS COUNTY

SHEET DESCRIPTION:
TITLE SHEET

SHEET NUMBER:
T-1

SITE INFORMATION

PROPERTY OWNER:
 AMERICAN BUILDING CORPORATION
 116 HUNTINGTON AVE, SUITE 1100
 BOSTON, MA 02116
 (617) 375-7500

LATITUDE (NAD83 as provided):
 N 38.65172250'

LONGITUDE (NAD83 as provided):
 W 90.56488083'

COUNTY:
 ST. LOUIS

ZONING JURISDICTION:
 NOT PROVIDED

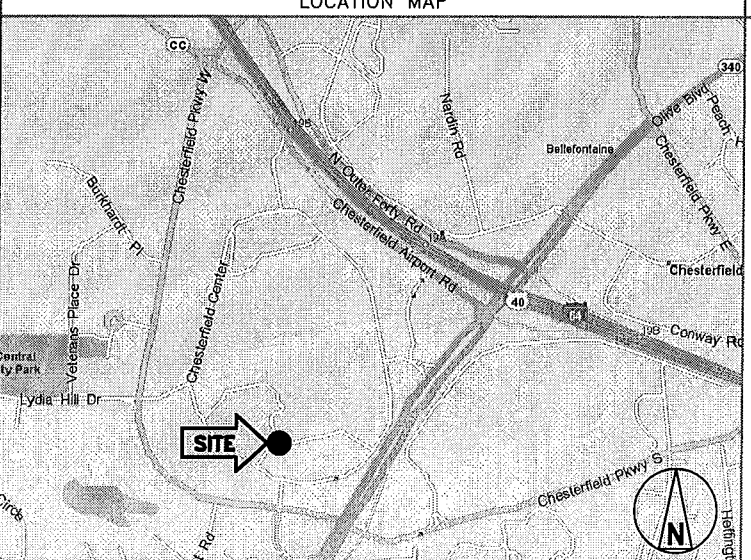
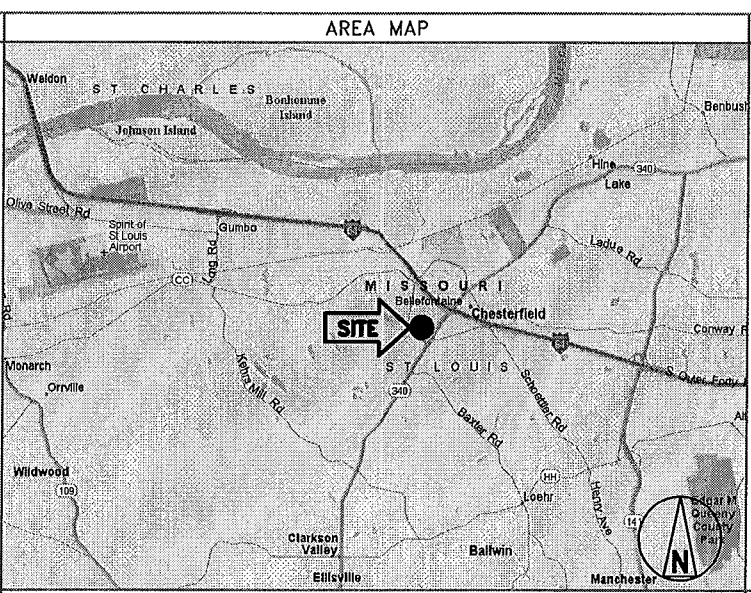
ZONING DISTRICT:
 NOT PROVIDED

POWER COMPANY:
 AMEREN UNION ELECTRIC

AAV PROVIDER:
 AT&T

SPRINT CM:
 TBD
 PHONE: TBD
 E-Mail: TBD

NOTE:
 ALL LEGACY CDMA EQUIPMENT AND LEGACY IDEN EQUIPMENT AT THE NV RAD MUST BE REMOVED PRIOR TO OR CONCURRENT WITH THE 2.5 EQUIPMENT DEPLOYMENT.



PROJECT DESCRIPTION

- INSTALL (3) PANEL ANTENNAS ON EXISTING BUILDING
- INSTALL (3) RRHs ON EXISTING BUILDING
- REMOVE (9) 1900 RRUs & REPLACE WITH (3) RRUs 31
- INSTALL (27) JUMPER CABLES AT ANTENNAS
- INSTALL (1) FIBER CABLE ON BUILDING
- INSTALL (1) NEW RECTIFIER IN EXISTING MMBS/RBS CABINET
- INSTALL (4) NEW BATTERIES IN EXISTING BATTERY CABINET
- INSTALL (1) RADAR FILTERS AT ANTENNAS (SECTOR 3)
- INSTALL (3) AISG CABLES PROVIDED BY GC

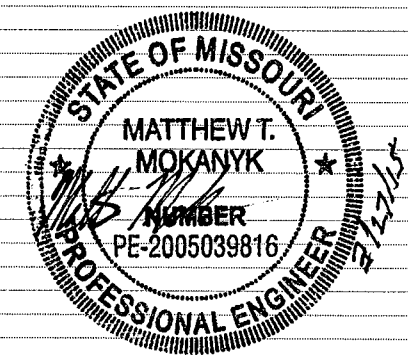
APPLICABLE CODES

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

- ANSI/EIA-222-F LIFE SAFETY CODE NFPA-101
- 2009 ICC PLUMBING CODE
- NATIONAL ELECTRIC CODE 2008
- LOCAL BUILDING CODE
- CITY/COUNTY ORDINANCES
- INTERNATIONAL FIRE CODE
- 2009 ICC BUILDING CODE
- 2009 UNIFORM CODE
- 2009 SAFETY CODE

DRAWING INDEX

SHEET NO:	SHEET TITLE
T-1	TITLE SHEET & PROJECT DATA
SP-1	OUTLINE SPECIFICATIONS
SP-2	OUTLINE SPECIFICATIONS
A-1	SITE PLAN
A-2	BUILDING ELEVATION & CABLE PLAN
A-3	ANTENNA LAYOUT & MOUNTING DETAILS
A-4	SHEET PURPOSELY OMITTED
A-5	SHEET PURPOSELY OMITTED
A-6	COLOR CODING
A-7	EQUIPMENT DETAILS
A-8	EQUIPMENT DETAILS
E-1	GROUNDING & ELECTRICAL PLAN
E-2	GROUNDING DETAILS
E-3	AC POWER & DISTRIBUTION
E-4	DC POWER & DISTRIBUTION
E-5	DC SUB PANEL DETAILS



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, PORTIONS THEREOF, SPRINT MOP AND SPRINT STANDARDS AT THE TIME OF CONSTRUCTION START.

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 ALONG WITH CM APPROVAL.

SITE FAMILIARITY:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL 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 ALL 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 ANY 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 ANY 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

CONTRACTOR IS RESPONSIBLE FOR PROCURING THE LATEST MOP.

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 MAY BE REQUIRED TO PICK UP MATERIAL AT A LOCATION PRESCRIBED BY SPRINT OTHER THAN THE 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 ALL REMAINING RUBBISH, IMPLEMENTS, TEMPORARY FACILITIES, AND SURPLUS MATERIALS.

SECTION 01 400 – SUBMITTALS & TESTS

ALTERNATES:

AT THE COMPANY'S REQUEST, ANY 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 ALL 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 5 ANTENNA LINE ACCEPTANCE STANDARDS.
 - 2. AGL, 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 ANY AND ALL CORRECTIONS TO ANY WORK IDENTIFIED AS UNACCEPTABLE IN SITE INSPECTION ACTIVITIES AND/OR AS A RESULT OF TESTING.
- 4. ALL 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 OR 3Z – ANTENNA ALIGNMENT TOOL (AAT)
 - 2. SWEEP AND FIBER TESTS
 - 3. SCALABLE BARCODE PHOTOGRAPHS OF TOWER TOP AND INACCESSIBLE SERIALIZED EQUIPMENT
 - 4. ALL 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 SO AS TO ALLOW FOR THE PROPER BEND RADIUS PER MANUFACTURER OR SPRINT SPECIFICATIONS.

REMOTE ELECTRICAL TILT (RET) CABLES:

MISCELLANEOUS:

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

ANTENNA INSTALLATION:

THE CONTRACTOR SHALL ASSEMBLE ALL 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 ALL 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: ALL CABLES SHALL BE INSTALLED INSIDE MONOPOLE WITH CABLE SUPPORT GRIPS AS REQUIRED BY THE MANUFACTURER. HOISTING GRIPS SHALL BE INSTALLED AT MID POINT IF CABLE RUN EXCEEDS 200 FEET AS WELL AS AT TOP SIDE. FOR WOOD POLES INSTALL CABLES ALONG POLE EXTERIOR WITH STEEL BANDS AT 36" O.C. OR AS SPECIFIED BY THE CM.
 - 2. FASTENING INDIVIDUAL FIBER AND DC CABLES ABOVE BREAKOUT ENCLOSURE (MEDUSA), WITHIN THE MMBS/RBS CABINET AND ANY INTERMEDIATE DISTRIBUTION BOXES:
 - a. FIBER: SUPPORT FIBER BUNDLES USING 1/2" VELCRO STRAPS OF THE REQUIRED LENGTH @ 18" O.C. 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: FASTENING OR SECURING JUMPERS SHOULD CONSIST OF STAINLESS STEEL CLIPS, 18" FROM REAR OF CONNECTOR AND 24" ON CENTER THEREAFTER. AT NO TIME SHALL THEY CONTACT THE TOWER OR STRUCTURAL STEEL.
 - 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 CROSSOVERS.
 - c. HOIST CABLE USING PROPER HOISTING GRIPS. DO NOT EXCEED MANUFACTURES RECOMMENDED MAXIMUM BEND RADIUS.

PLANS PREPARED FOR:



PLANS PREPARED BY:



SCALE NOTE:

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MLA PARTNER:



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PER ATC REVIEW	08/06/14	DAM	1
SITE ADDRESS	03/25/15	RJH	2

SITE NAME:

F2 - R8 - CHESTERFIELD MALL

SITE CASCADE:

ST23XC254

SITE ADDRESS:

7 CHESTERFIELD MALL, CHESTERFIELD, MO 63017 ST. LOUIS COUNTY

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: ALL COLOR CODING SHALL BE AS REQUIRED IN TS 0200 REV 5.
- 7. HYBRID CABLE LABELING: INDIVIDUAL HYBRID AND DC BUNDLES SHALL BE LABELED ALPHA-NUMERICALLY ACCORDING TO SPRINT CELL SITE ENGINEERING NOTICE - EN 2012-001, REV 1

WEATHERPROOFING EXTERIOR CONNECTORS AND HYBRID CABLE GROUND KITS:

- A. ALL FIBER & COAX CONNECTORS AND GROUND KITS SHALL BE WEATHERPROOFED.
- B. WEATHERPROOFED USING ONE OF THE FOLLOWING METHODS. ALL 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 SLIM LOCK CLOSURE 716: SUBSTITUTIONS WILL NOT BE ALLOWED.
 - 4. JMA-WPS SERIES ENCLOSURE.
 - 5. BUTYL AND TAPE, 1 COMPLETE WRAP OF 3/4" PRE-TAPE, BUTYL WRAPPED IN HALF INCH LAP LAYERS, ENDED WITH SHINGLED DOWNWARD 3 WRAPS OF 2" TAPE, 3 WRAPS OF 3/4" TAPE SHINGLED DOWNWARD, FREE OF WRINKLES, BUCKLES AND FLAPPING.
 - 6. OPEN FLAME ON JOB SITE IS NOT ACCEPTABLE

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

SUMMARY:

THIS SECTION SPECIFIES MMBS/RBS 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 (OFCI).

CONTRACTOR SHALL PROVIDE AND INSTALL ALL MISCELLANEOUS MATERIALS AND PROVIDE ALL LABOR REQUIRED FOR INSTALLATION EQUIPMENT IN EXISTING CABINET OR NEW CABINET AS SHOWN ON DRAWINGS AND AS REQUIRE BY THE APPLICABLE INSTALLATION MOPS.

COMPLY WITH MANUFACTURERS INSTALLATION AND START-UP REQUIREMENTS

DC CIRCUIT BREAKER LABELING

NEW DC CIRCUIT IS REQUIRED IN MMBS/RBS 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. ALL 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: ALL 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. ALL 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: ALL 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 ANY 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

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. LPMC 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 LPMC SHALL BE ETCO - 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 8 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: ALL 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.

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.

PLANS PREPARED FOR:



PLANS PREPARED BY:



SCALE NOTE:

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MLA PARTNER:



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SITE NAME:

F2 - R8 - CHESTERFIELD MALL

SITE CASCADE:

ST23XC254

SITE ADDRESS:

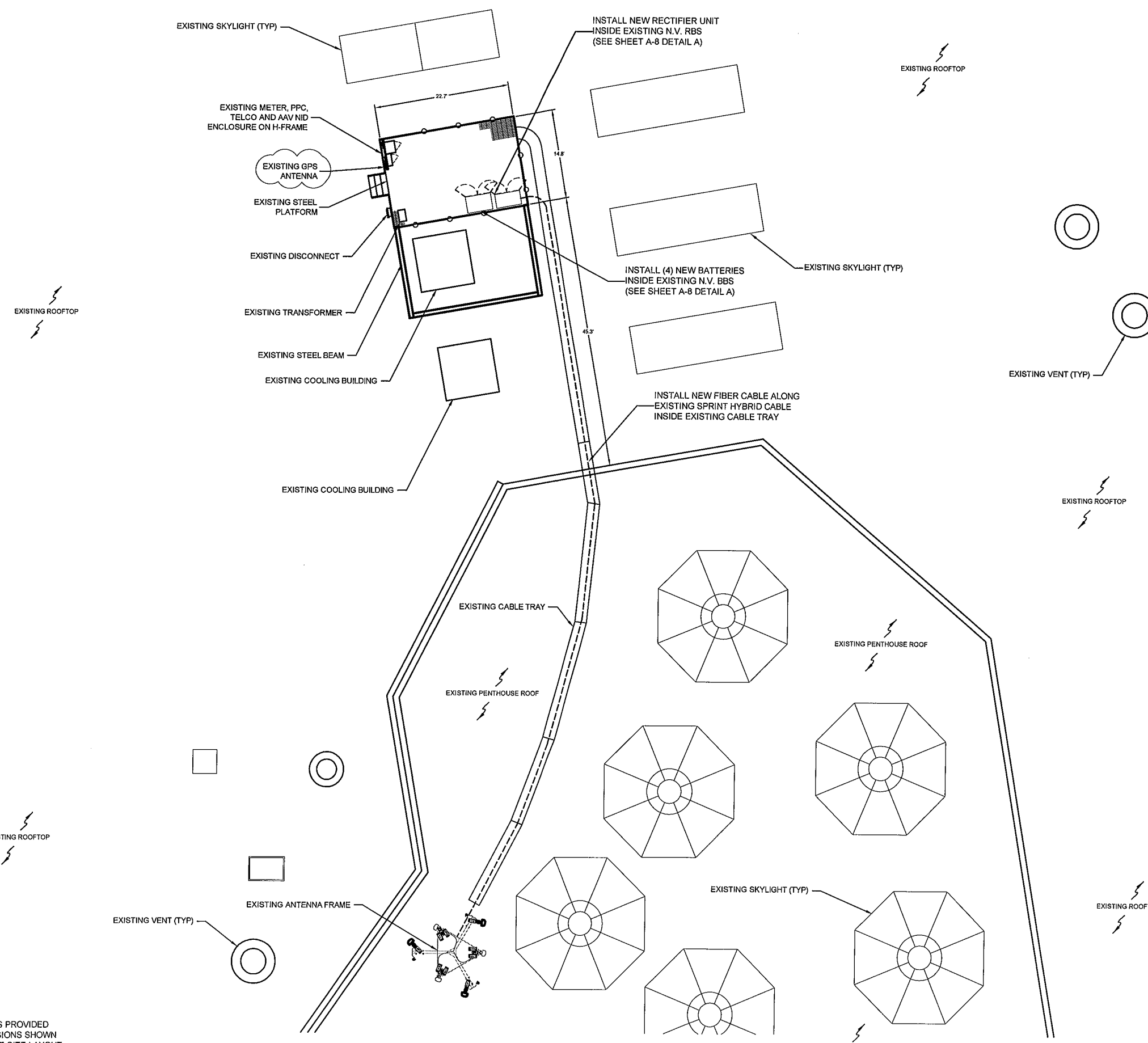
7 CHESTERFIELD MALL, CHESTERFIELD, MO 63017 ST. LOUIS COUNTY

SHEET DESCRIPTION:

SPRINT SPECIFICATIONS

SHEET NUMBER:

SP-2



NOTE:
EXISTING SITE LAYOUT WAS PROVIDED TO LANDTECH. ALL DIMENSIONS SHOWN HEREON ARE BASED ON THE SITE LAYOUT AS PROVIDED. CM TO FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

22"x34" SCALE: 1" = 8'-0"
11"x17" SCALE: 1" = 4'-0"

2.5MHZ 39'-0" ROOFTOP

PLANS PREPARED FOR:



6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:



Professional Surveying & Engineering
PO Box 193, 1275 McGregor Way, Grawn, MI 49637
ph: 231-943-0050 web: www.landtechps.com

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MLA PARTNER:



AMERICAN TOWER CORPORATION
ATC SITE #: 337422

ENGINEERING LICENSE:

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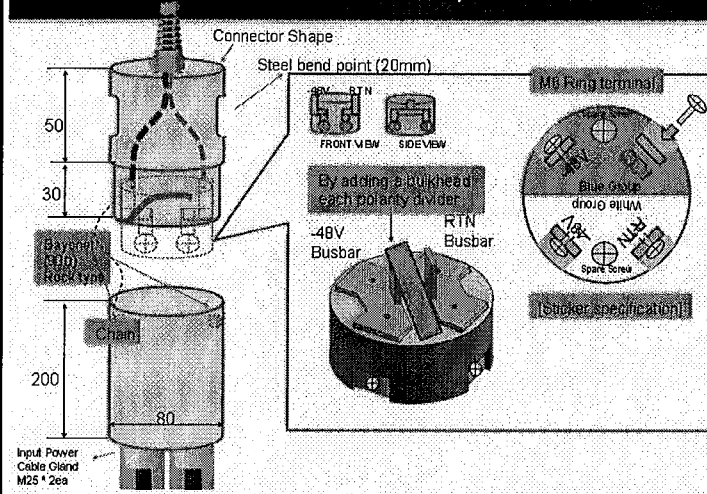
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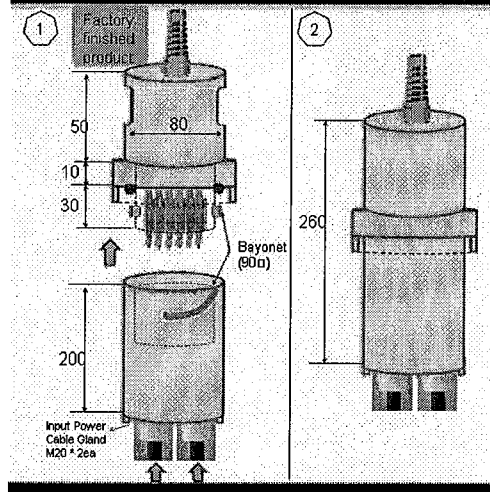
SHEET DESCRIPTION:
SITE PLAN

SHEET NUMBER:
A-1

Power Junction Cylinder



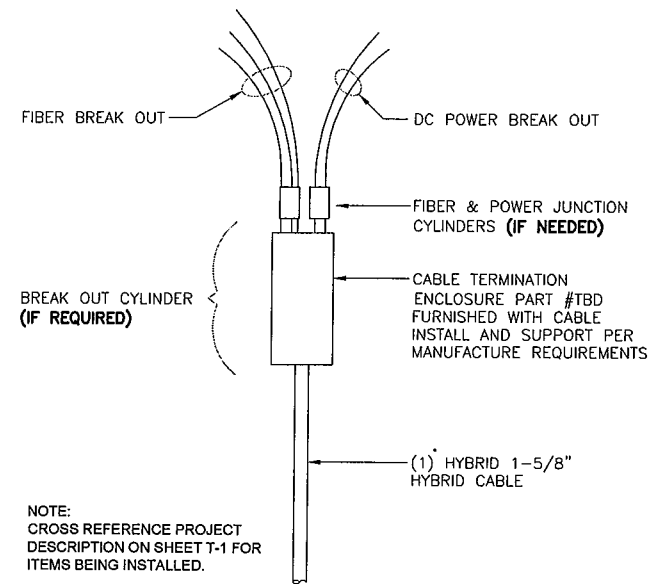
Fiber Junction Cylinder



ANTENNA MOUNTING NOTES:

- DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/EIA/TIA-222, APPENDIX B FOR WIND LOADINGS; "STRUCTURAL STANDARDS FOR STEEL ANTENNA BUILDINGS AND ANTENNA SUPPORTING STRUCTURES" OR APPLICABLE LOCAL CODES.
- ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIPPED GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
- DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
- ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH DOUBLE NUTS AND SHALL BE INSTALLED SNUG TIGHT.
- MINIMUM HORIZONTAL SPACING SHALL BE 2'-0" BETWEEN ALL ANTENNAS.

NOTE:
ALL LEGACY CDMA EQUIPMENT AND LEGACY IDEN EQUIPMENT AT THE NV RAD MUST BE REMOVED PRIOR TO OR CONCURRENT WITH THE 2.5 EQUIPMENT DEPLOYMENT.



HYBRID BREAK OUT DETAIL

NO SCALE

A

PLANS PREPARED FOR:



PLANS PREPARED BY:



SCALE NOTE:

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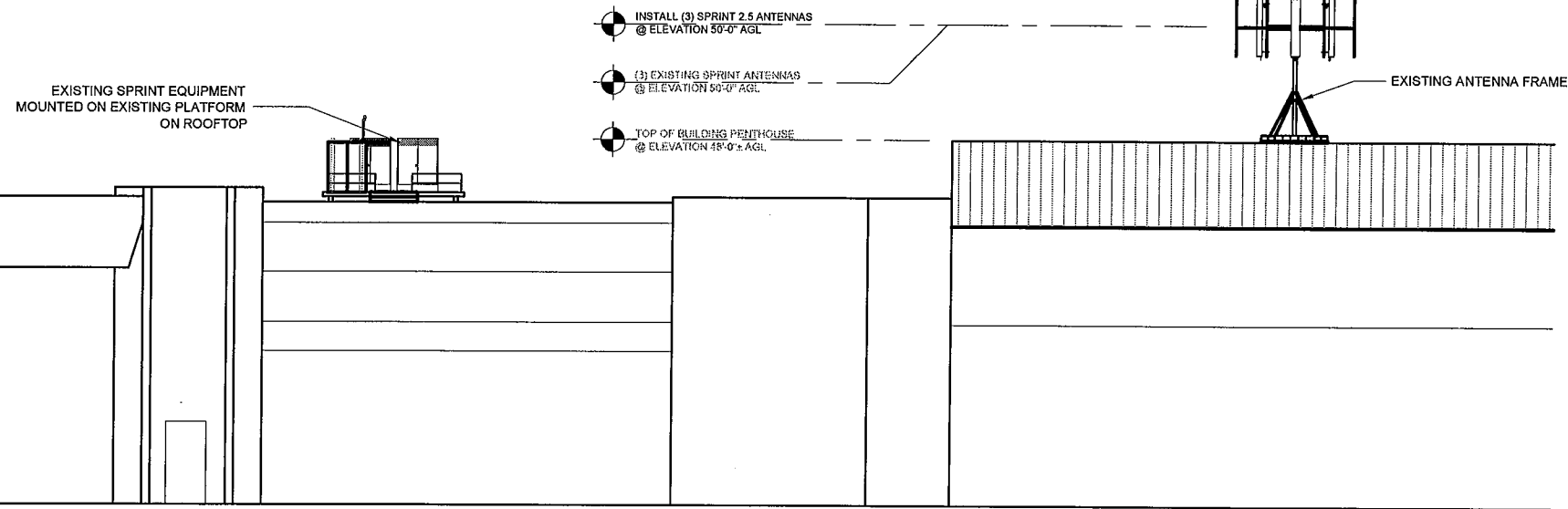
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BUILDING ELEVATION
& CABLE PLAN

SHEET NUMBER:

A-2

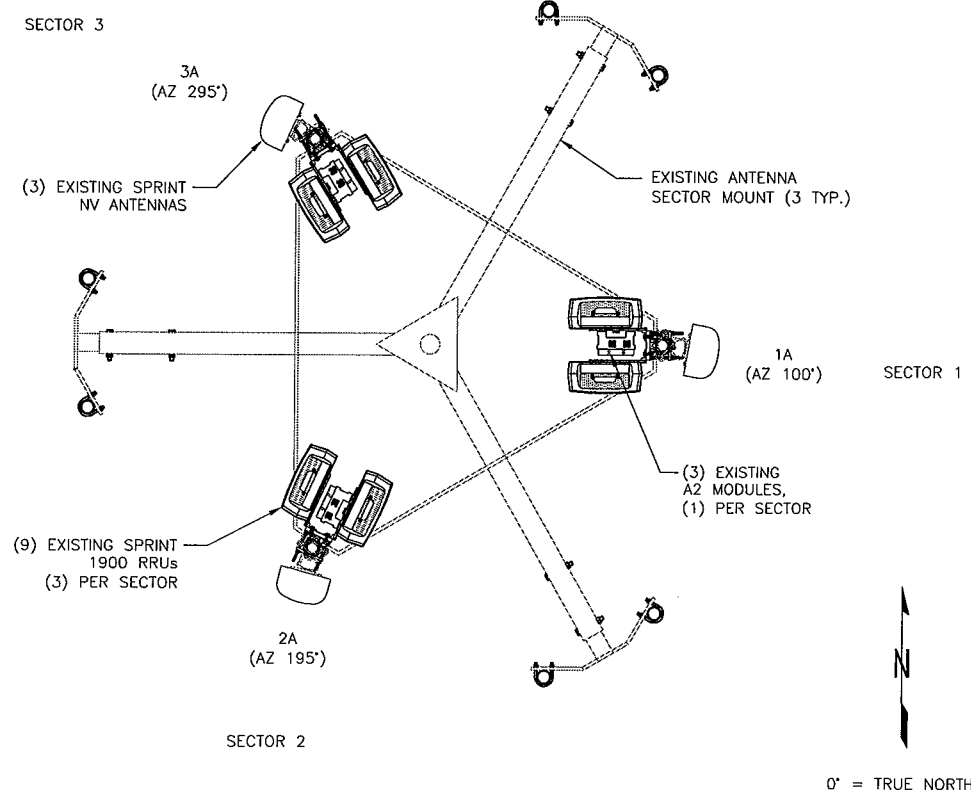
LANDTECH PROJECT #: 1439023



WEST ELEVATION VIEW

NO SCALE

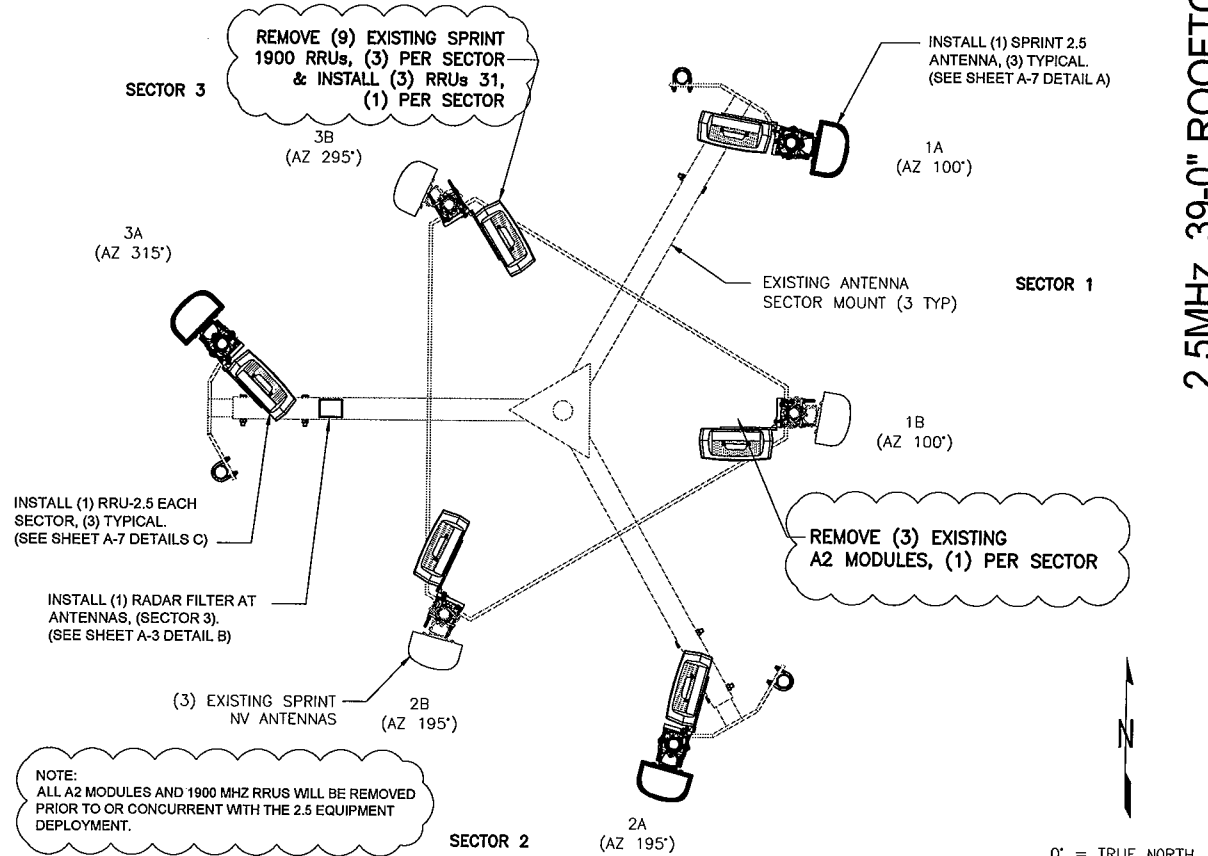
B



EXISTING ANTENNA & RRU LAYOUT

NO SCALE

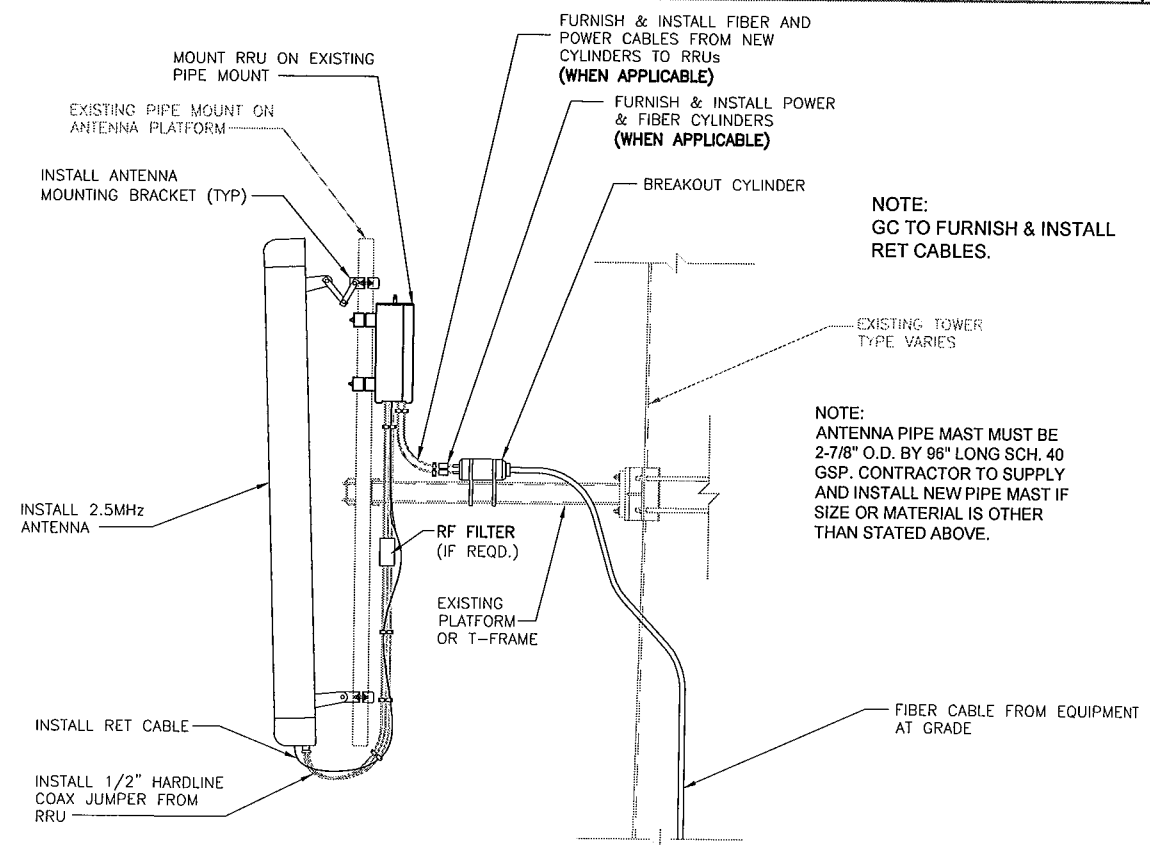
C



FINAL ANTENNA LAYOUT

NO SCALE

A



ANTENNA, RRU & BREAK-OUT TYPICAL MOUNTING DETAILS

NO SCALE

B

DETAIL NOT USED

NO SCALE

D

2.5MHZ 39-0" ROOFTOP

PLANS PREPARED FOR:

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Overland Park, Kansas 66251

PLANS PREPARED BY:

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SHEET DESCRIPTION:

ANTENNA LAYOUT & MOUNTING DETAILS

SHEET NUMBER:

A-3

LANDTECH PROJECT #: 1439073

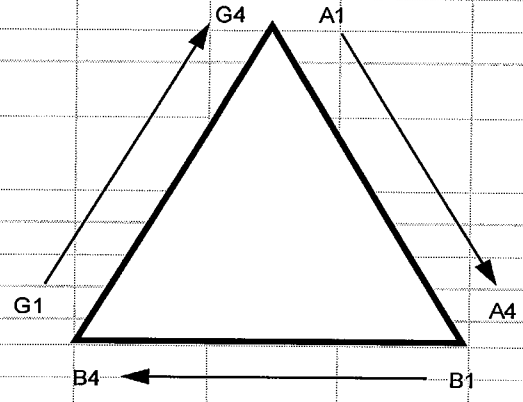
2.5MHz 39'-0" ROOFTOP

CABLE MARKING COLOR CONVENTION TABLE

2500MHz #1 Cal Cable - Sector	Cable	First Ring	Second Ring	Third Ring	Forth Ring	Fifth Ring	Sixth Ring
1 Alpha	1	Yellow		Yellow	White		
2 Beta	2	Yellow	Yellow		Yellow	White	
3 Gamma	3	Yellow	Yellow	Yellow		Yellow	White

2500MHz #2 Cal Cable - Sector	Cable	First Ring	Second Ring	Third Ring	Forth Ring	Fifth Ring	Sixth Ring
1 Alpha	1	Yellow		Yellow	Purple		
2 Beta	2	Yellow	Yellow		Yellow	Purple	
3 Gamma	3	Yellow	Yellow	Yellow		Yellow	Purple

Figure 1: Antenna Orientation



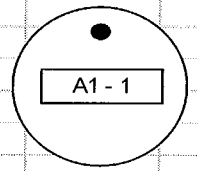
Issue 5, October 2013

- NOTE*: All color code tape shall be 3M-35 and shall be installed using a minimum of (3) wraps of tape.
- NOTE*: All color bands installed at the tower top shall be a minimum of 3" wide and shall have a minimum of 3/4" of spacing between each color.
- NOTE*: All color bands installed at or near the ground may be only 3/4" wide. Each top-jumper shall be color coded with (1) set of 3" wide bands.
- NOTE*: Each main coax shall be color coded with (1) set of 3" bands near the top-jumper connection and with 3/4" color bands just prior to entering the BTS or transmitter building.
- NOTE*: All bottom jumpers shall be color coded with (1) set of 3/4" bands on each end of the bottom jumper.
- NOTE*: All color codes shall be installed so as to align neatly with one another from side-to-side.
- NOTE*: Each color band shall have a minimum of (3) wraps and shall be neatly trimmed and smoothed out so as to avoid unraveling.
- NOTE*: X-Pole Antennas should use "xx-1" for the "+45" port, "xx-2" for the "-45" port.
- NOTE*: Colorband #4 refers to the Frequency Band: ORANGE=850, VIOLET=1900. Used on jumpers only.
- NOTE*: RF feedline shall be identified with a metal tag (stainless or brass) and stamped with the sector, antenna position, and cable number.
- NOTE*: Antennas must be identified, using the sector letter and antenna number, with a black marker prior to installation.

CABLE MARKING TAGS

TO PROVIDE ADDITIONAL IDENTIFICATION RF CABLES SHALL BE IDENTIFIED WITH A METAL TAG MADE OF STAINLESS STEEL OR BRASS AND STAMPED WITH THE SECTOR, ANTENNA POSITION, AND CABLE NUMBER. THE ID MARKING LOCATIONS SHOULD BE AS PER "CABLE MARKING LOCATIONS TABLE". THE TAG SHOULD BE ATTACHED WITH CORROSIVE PROOF WIRE OR WAX STRING AROUND THE CABLE. THE TAG SHOULD BE LABELED AS SHOWN BELOW IN FIGURE 2.

Figure 2: Tag Detail Example



CABLE MARKING LOCATIONS TABLE

TAPE	TAG	LOCATIONS
X		EACH TOP-JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
X		EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS NEAR THE TOP-JUMPER CONNECTION AND WITH (1) SET OF 3/4" WIDE COLOR BANDS JUST PRIOR TO ENTERING THE BTS OR TRANSMITTER BUILDING.
	X	MARKING TAGS SHALL BE ATTACHED AT CABLE ENTRY PORT ON THE INTERIOR OF THE SHELTER
X		ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF BOTTOM JUMPER.

PLANS PREPARED FOR:

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Overland Park, Kansas 66251

PLANS PREPARED BY:

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ATC SITE #: 337422

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SITE CASCADE:

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SITE ADDRESS:

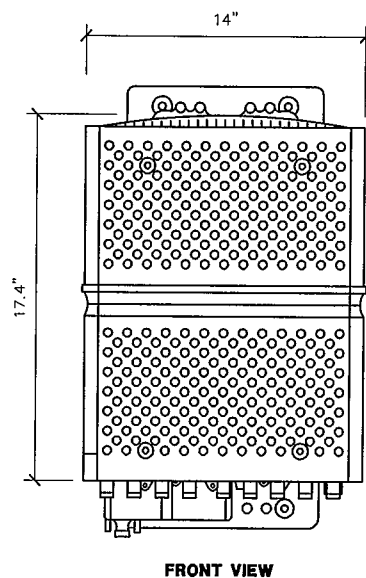
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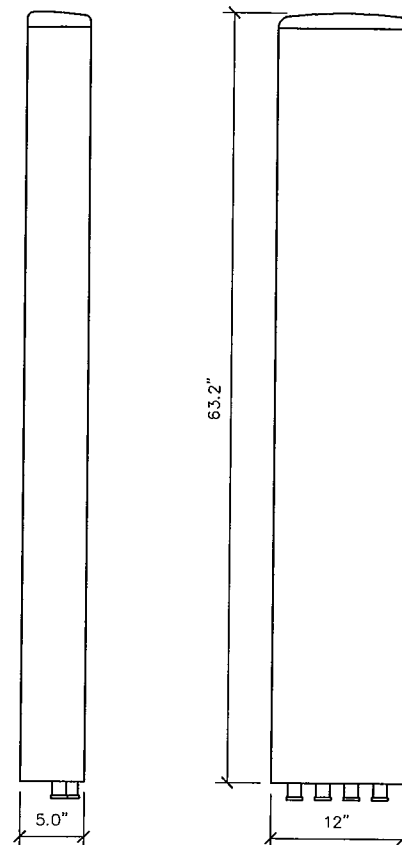
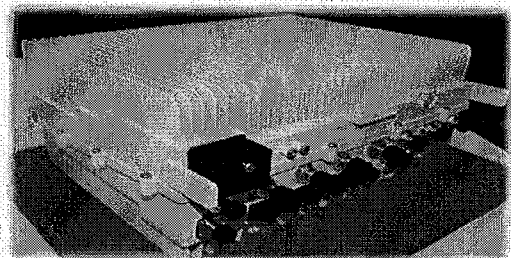
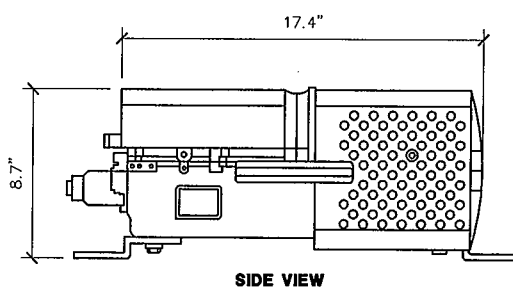
COLOR CODING

SHEET NUMBER:

A-6



DIMENSIONS, HxWxD: (17.4"x14.0"x 8.7")
 RRU WEIGHT: 55.2 lbs
 MOUNTING KIT WEIGHT: 12.0 lbs



COMMSCOPE TTTT65AP-1XR

DIMENSIONS, HxWxD: 63.8"x13"x5.9"
 WEIGHT, WITH PRE-MOUNTED BRACKETS: 33 lbs

2.5MHz 39-0" ROOFTOP

PLANS PREPARED FOR:



PLANS PREPARED BY:



SCALE NOTE:

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ST. LOUIS COUNTY

SHEET DESCRIPTION:

EQUIPMENT DETAILS

SHEET NUMBER:

A-7

LANDTECH PROJECT #: 1439023

2.5 RRUS

NO SCALE

C

2.5 ANTENNA

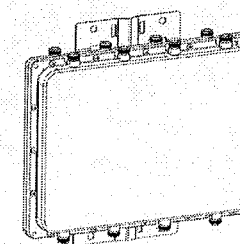
NO SCALE

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Sprint - NSN Radar Co-Location Filter Overview

Sprint Requirement:
 The solution will comply with the option of utilizing an external filter for OOB signal suppression of -90dBm/MHz between 2704 MHz and 2996 MHz summed across four ports. For 8TX configuration, each four-port OOB should be -93dBm/MHz. Summing shall have precedence.

Description	Radar Co-Location Filter
2496.0 - 2690.0 MHz IL	<1.0dB
Rejection (Filter / BTS+Filter)	60dB/79dB total
2704 - 2996 MHz	
Weight	~15.5lbs*
without mounting bracket	
Dimensions	~W11.8" x H9.5" x T3.0"*
without mounting bracket	
Return Loss	18dB min
Group Delay - Pass band (5MHz/194MHz)	30/60ns max
Pass band Ripple	0.9dB max
Antenna Connector Type	Mini-DIN, 4,1/9.5

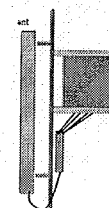


nsn

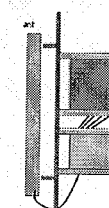
NOTE: CROSS REFERENCE PROJECT DESCRIPTION ON SHEET T-1 FOR ITEMS BEING INSTALLED.

Sprint - NSN Radar Co-Location Filter Mounting

- Key Sprint Considerations/Concerns
 - Minimize overall IL impact due to RF jumper connections
 - Minimize space use & wind loading impacts
 - RF connector placement approach should be made to accommodate the above
 - Assume antenna vendor which has worst case antenna width dimension for analysis (12 inches)



Filter mounted parallel to & behind antenna*



Filter mounted perpendicular to antenna

*Final analysis ongoing by filter vendor

nsn

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DETAIL NOT USED

NO SCALE

D

RF FILTER DETAILS

NO SCALE

B

2.5MHz 39'-0" ROOFTOP

PLANS PREPARED FOR:



6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:



Professional Surveying & Engineering
PO Box 193, 1275 McGregor Way, Grawn, MI 49637
ph: 231-943-0050 web: www.landtechps.com

SCALE NOTE:
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MLA PARTNER:



ATC SITE #: 337422

ENGINEERING LICENSE:

DRAWING NOTICE:
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REVISIONS:	DESCRIPTION	DATE	BY	REV
	PRELIMINARY DRAWINGS	06/24/14	CEL	0
	PER ATC REVIEW	08/06/14	DAM	1
	SITE ADDRESS	03/25/15	RJH	2

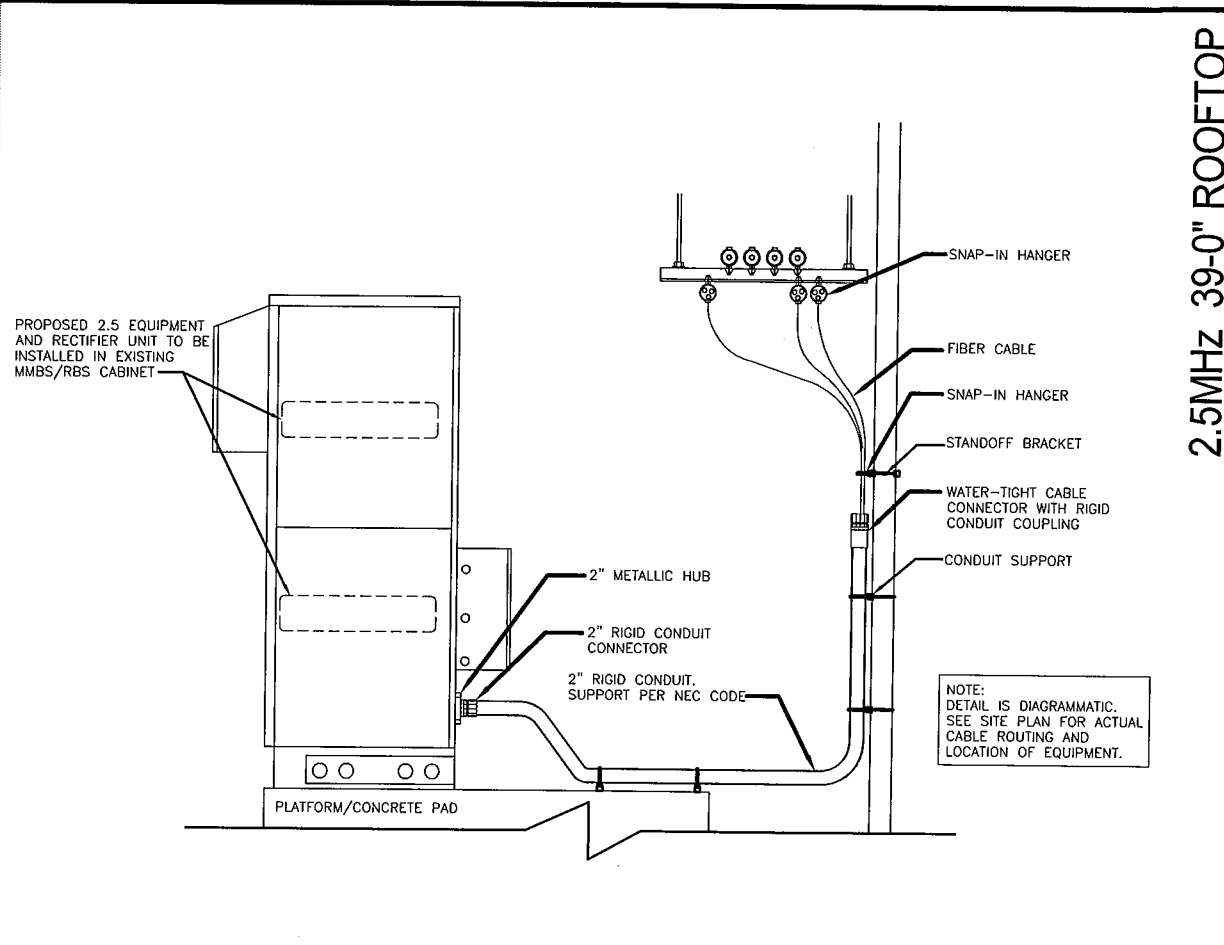
SITE NAME:
F2 - R8 - CHESTERFIELD MALL

SITE CASCADE:
ST23XC254

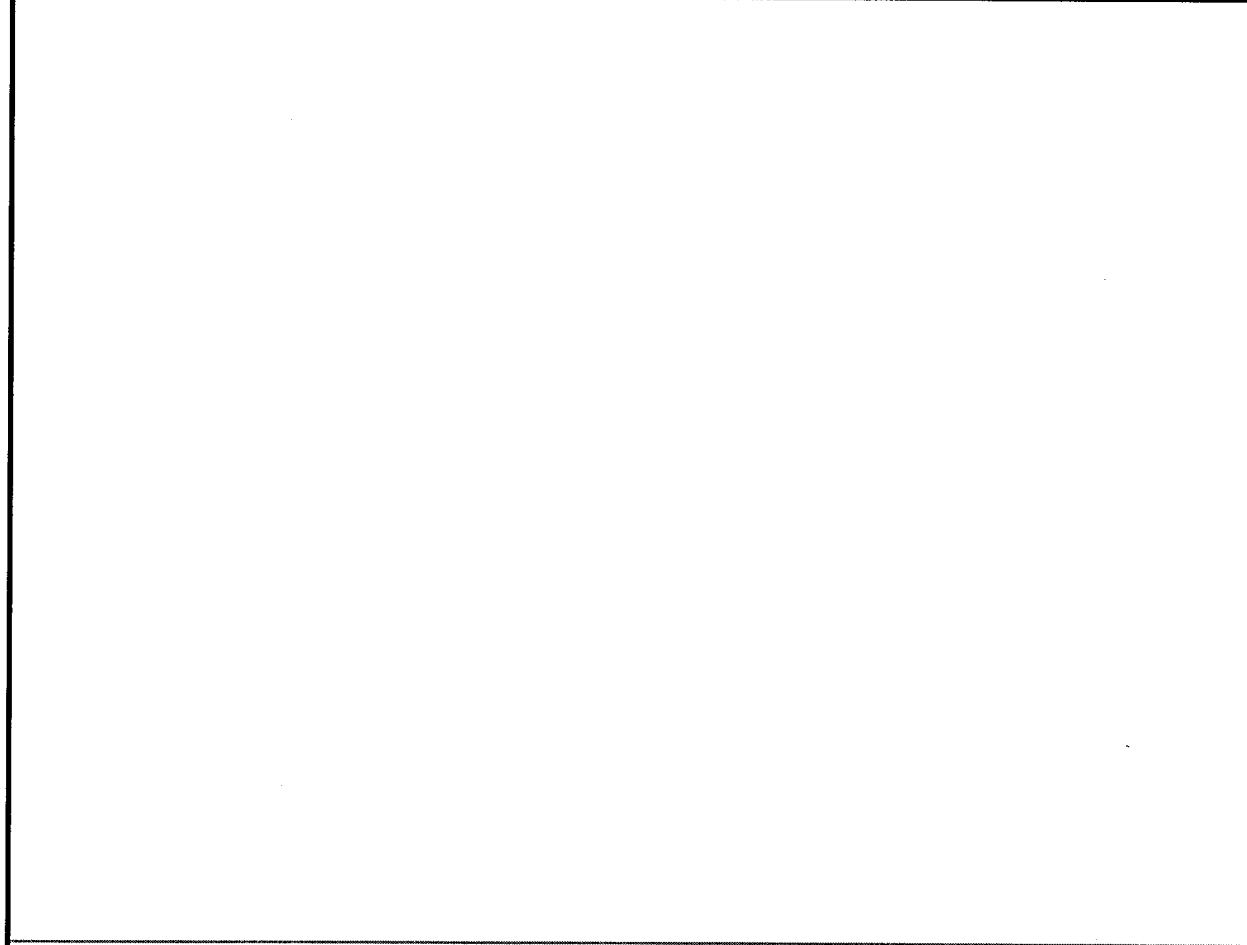
SITE ADDRESS:
**7 CHESTERFIELD MALL,
CHESTERFIELD, MO 63017
ST. LOUIS COUNTY**

SHEET DESCRIPTION:
EQUIPMENT DETAILS

SHEET NUMBER:
A-8



NOTE:
DETAIL IS DIAGRAMMATIC. SEE SITE PLAN FOR ACTUAL CABLE ROUTING AND LOCATION OF EQUIPMENT.



DETAIL NOT USED

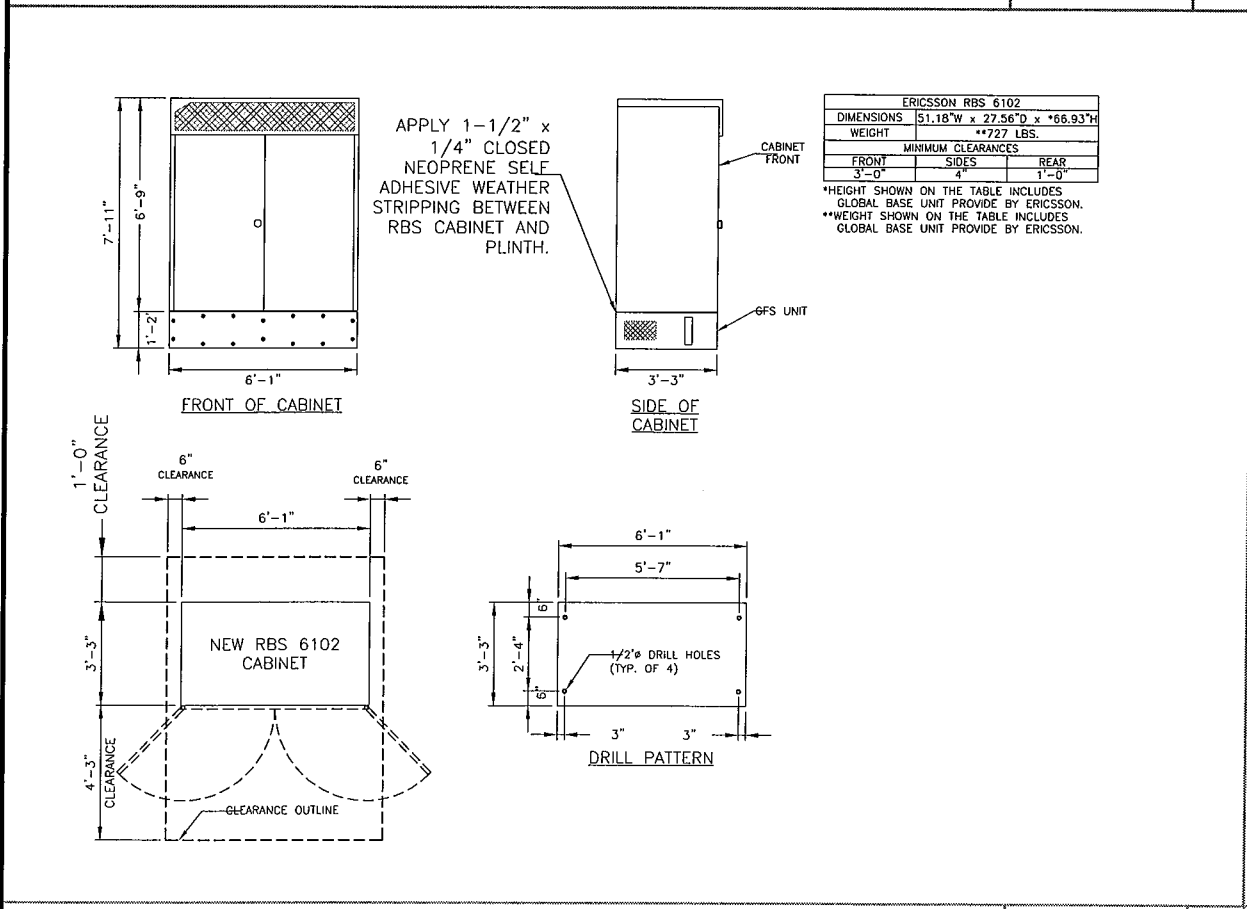
NO SCALE

D

EXISTING BBU WITH 2.5 EQUIPMENT

NO SCALE

A



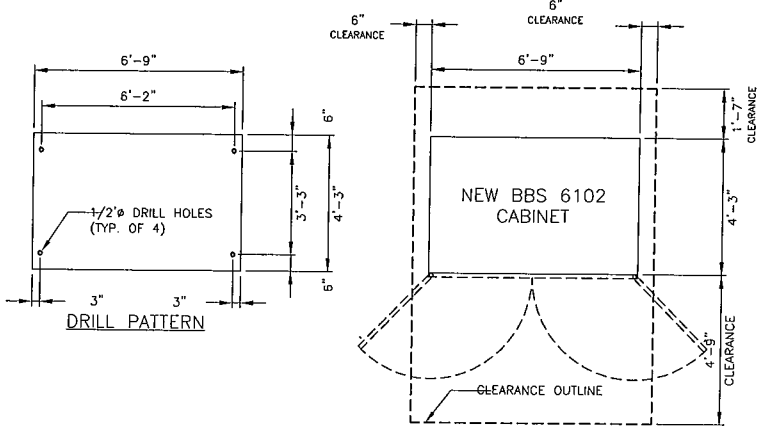
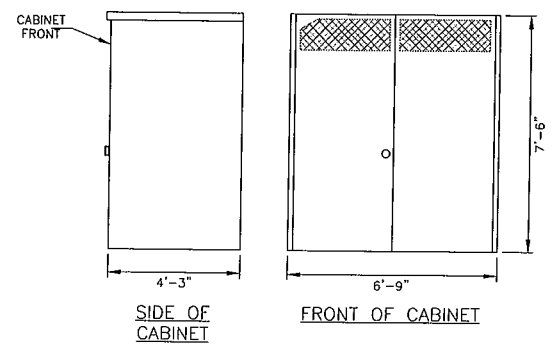
APPLY 1-1/2" x 1/4" CLOSED NEOPRENE SELF ADHESIVE WEATHER STRIPPING BETWEEN RBS CABINET AND PLINTH.

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

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

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

***WEIGHT SHOWN ON THE TABLE INCLUDES OP2V BATTERIES
BATTERIES TO BE INSTALLED AS PER ERICSSON REQUIREMENTS. NO SUBSTITUTES WILL BE ALLOWED WITHOUT WRITTEN PERMISSION FROM ERICSSON PROJECT MANAGER.



RBS 6102 CABINET

NO SCALE

C

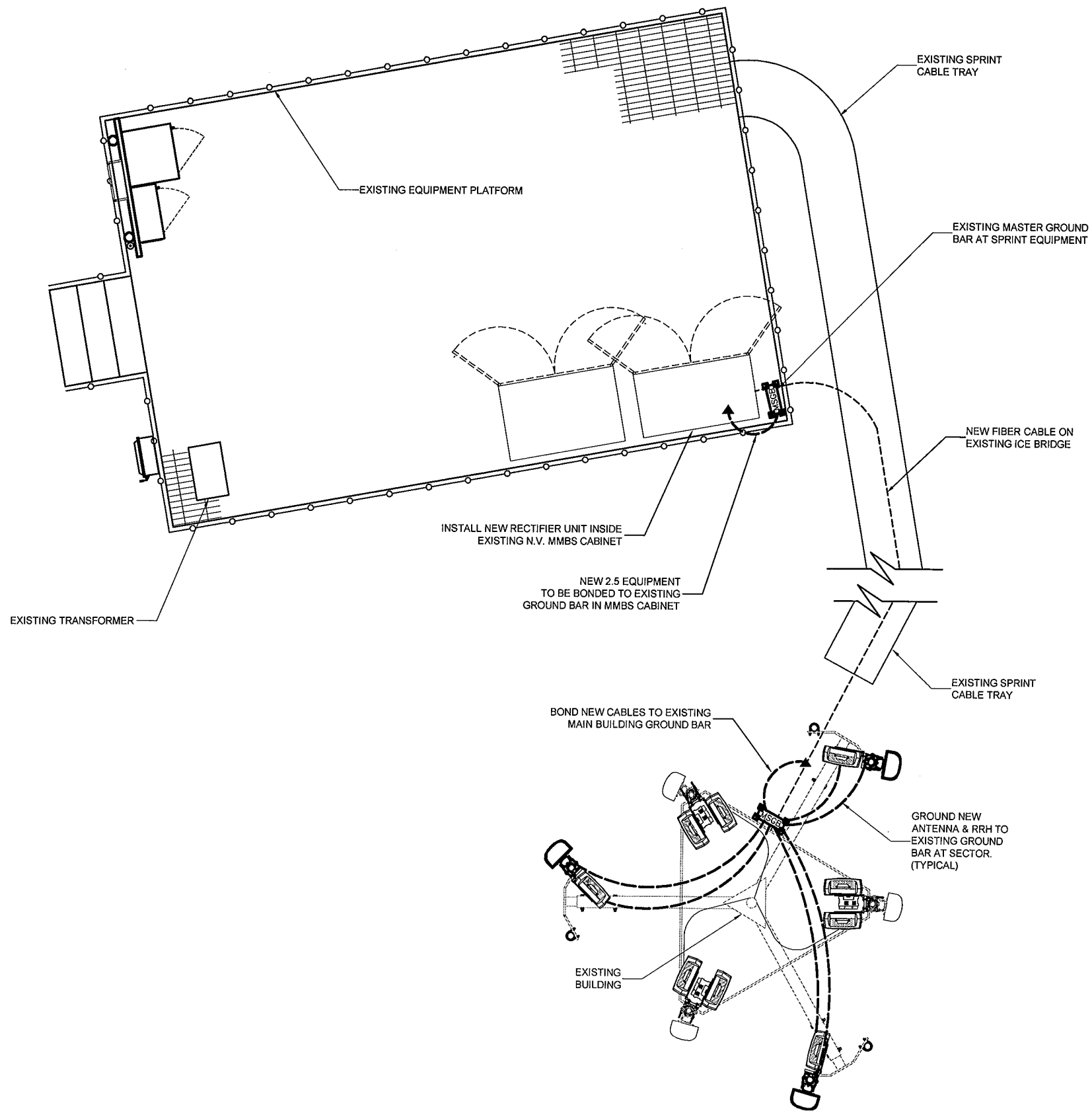
BBS 6102 CABINET

NO SCALE

B

LEGEND:

- NEW GROUND LEAD
- CADWELD CONNECTION (EXOTHERMIC WELD)
- ▲ MECHANICAL CONNECTION



PLANS PREPARED FOR:



PLANS PREPARED BY:



SCALE NOTE:

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MLA PARTNER:



ENGINEERING LICENSE:

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SITE ADDRESS	03/25/15	RJH	2

SITE NAME:

F2 - R8 - CHESTERFIELD MALL

SITE CASCADE:

ST23XC254

SITE ADDRESS:

7 CHESTERFIELD MALL,
CHESTERFIELD, MO 63017
ST. LOUIS COUNTY

SHEET DESCRIPTION:

GROUNDING & ELECTRICAL PLAN

SHEET NUMBER:

E-1

GROUNDING PLAN

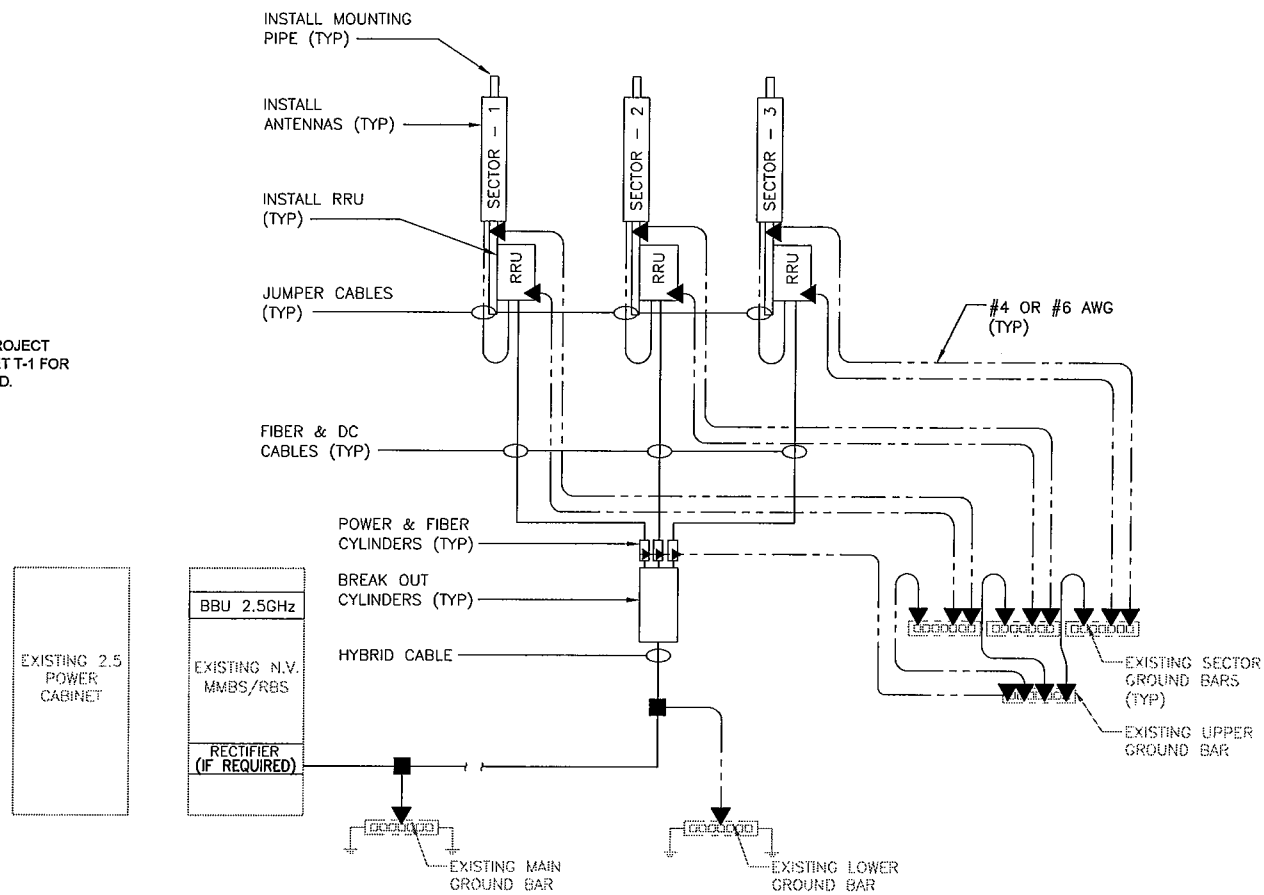
NO SCALE

A

SYMBOL LEGEND

■	EXOTHERMIC CONNECTION
▲	MECHANICAL CONNECTION

NOTE:
CROSS REFERENCE PROJECT
DESCRIPTION ON SHEET T-1 FOR
ITEMS BEING INSTALLED.



TYPICAL GROUNDING RISER DIAGRAM

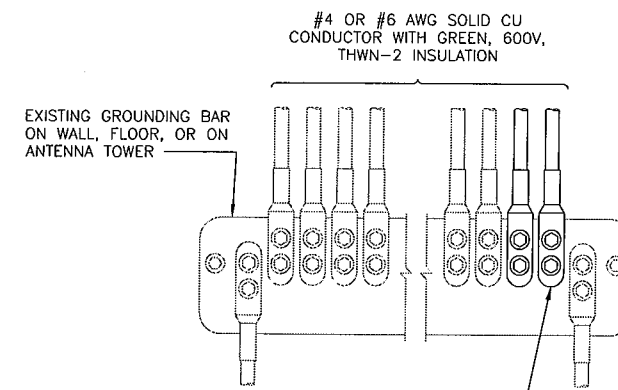
NO SCALE

C

INSTALLATION OF GROUNDING CONDUCTOR TO GROUND BAR

NO SCALE

A



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.

2.5MHz 39'-0" ROOFTOP

PLANS PREPARED FOR:

6580 Sprint Parkway
Overland Park, Kansas 66251

PLANS PREPARED BY:

Professional Surveying & Engineering
PO Box 193, 1275 McGregor Way, Grawn, MI 49637
ph: 231-943-0050 web: www.landtechps.com

SCALE NOTE:

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MLA PARTNER:

ATC SITE #: 337422

ENGINEERING LICENSE:

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SITE CASCADE:

ST23XC254

SITE ADDRESS:

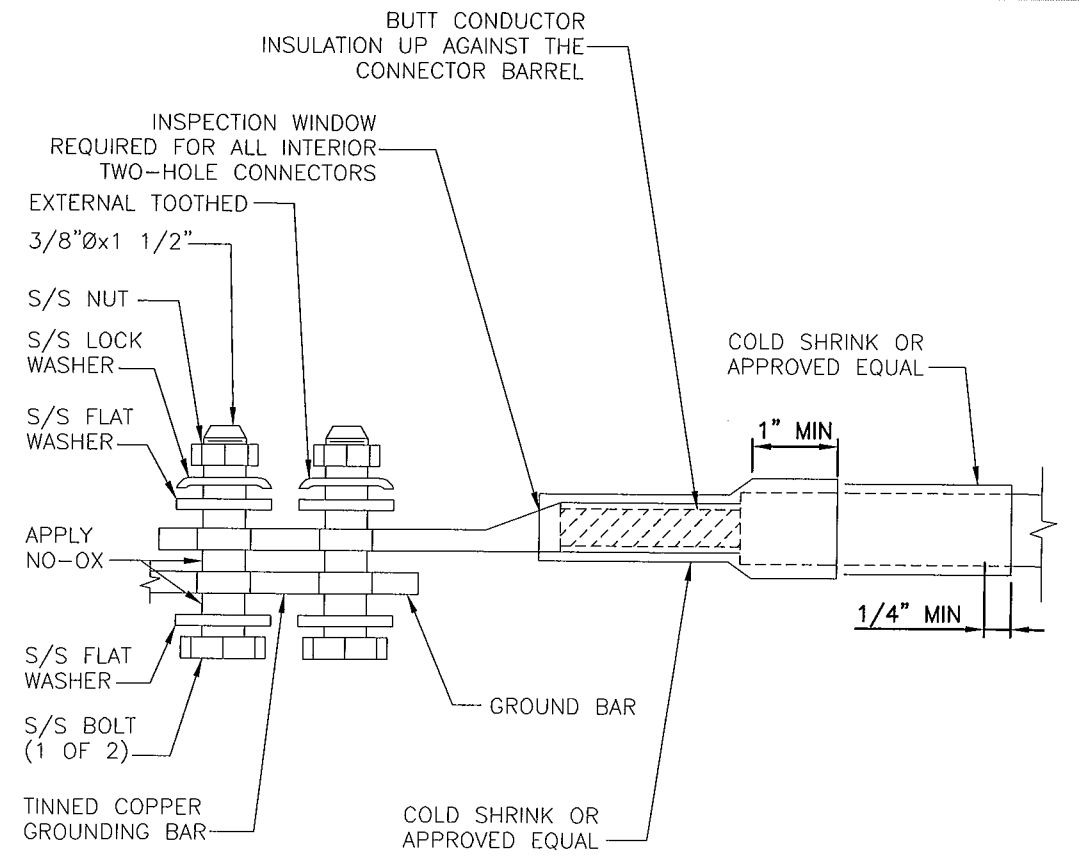
7 CHESTERFIELD MALL,
CHESTERFIELD, MO 63017
ST. LOUIS COUNTY

SHEET DESCRIPTION:

GROUNDING DETAILS

SHEET NUMBER:

E-2



DETAIL NOT USED

NO SCALE

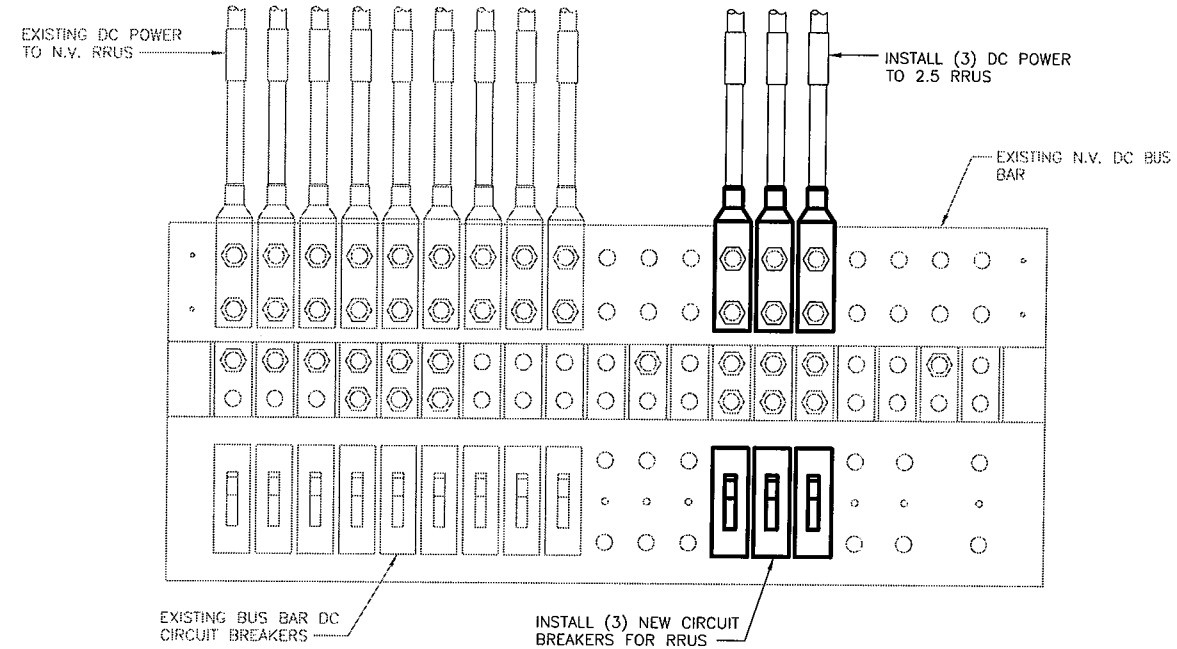
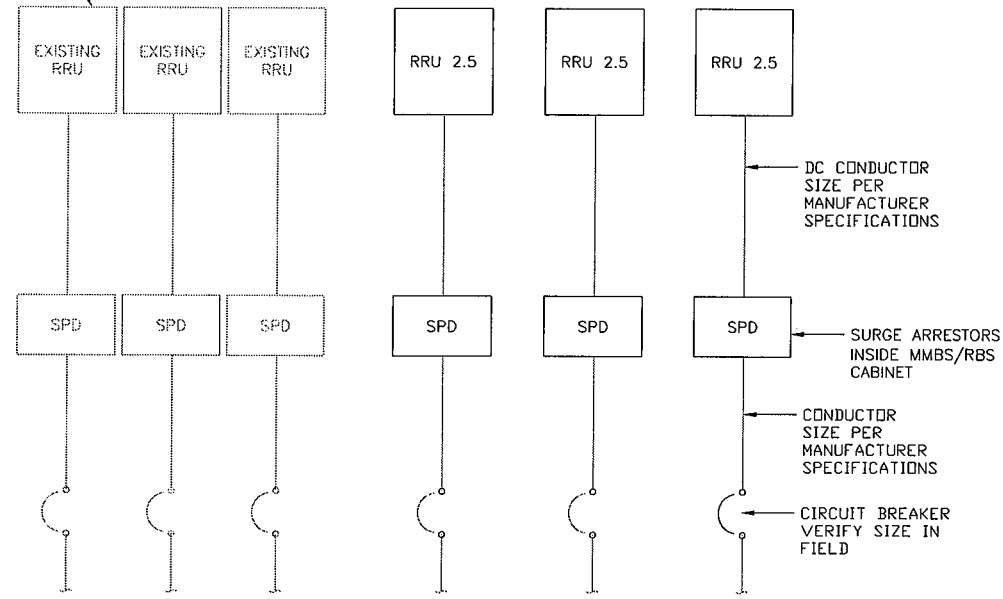
D

TWO HOLE LUG

NO SCALE

B

(9) TOTAL EXISTING
3 SHOWN FOR CLARITY



2.5MHz 39-0" ROOFTOP

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Overland Park, Kansas 66251

PLANS PREPARED BY:

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MLA PARTNER:

AMERICAN TOWER CORPORATION
ATC SITE #: 337422

ENGINEERING LICENSE:

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SITE CASCADE:

ST23XC254

SITE ADDRESS:

7 CHESTERFIELD MALL,
CHESTERFIELD, MO 63017
ST. LOUIS COUNTY

SHEET DESCRIPTION:

D/C POWER DISTRIBUTION

SHEET NUMBER:

E-3

DC ONE LINE DIAGRAM

NO SCALE

C

DC POWER DISTRIBUTION

NO SCALE

A

DETAIL NOT USED

NO SCALE

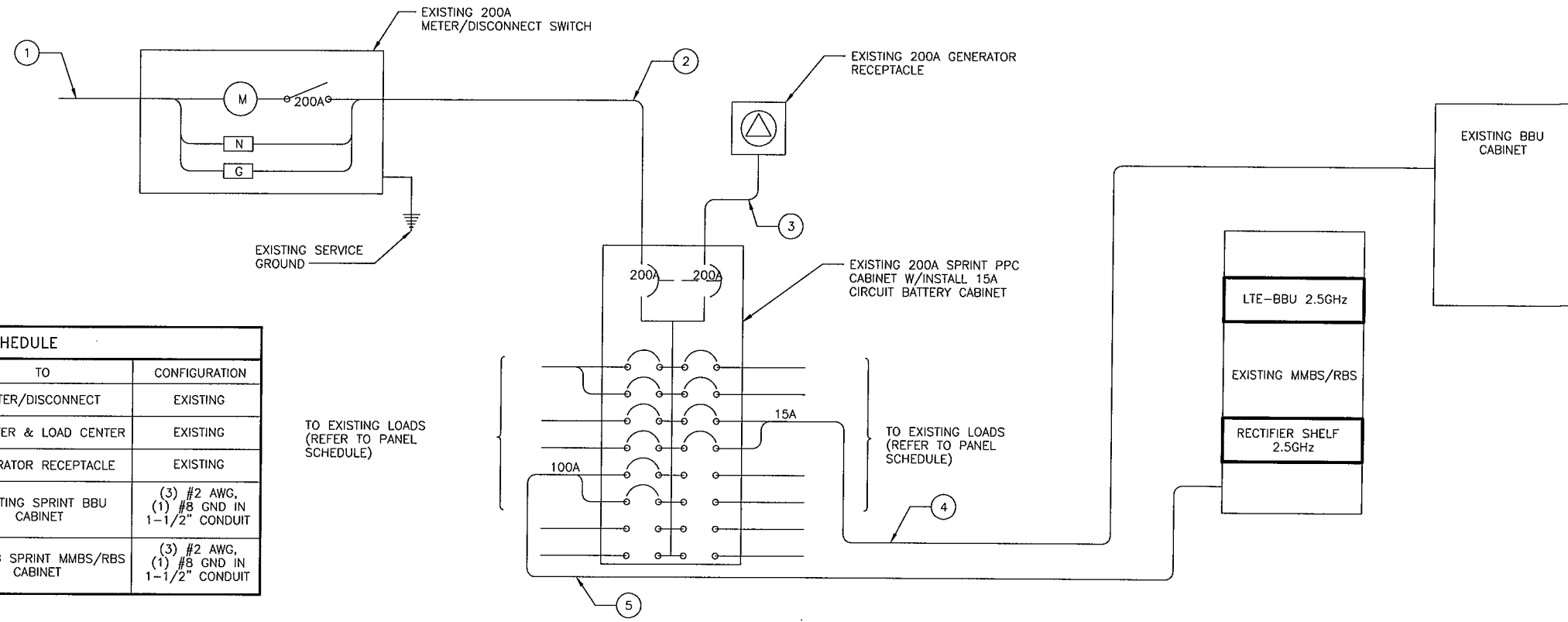
D

DETAIL NOT USED

NO SCALE

B

NOTES
 CG SHALL REFERENCE ALL SPECS FOR "CONNECTING THE POWER SUPPLY" OF THE NEW INSTALLATION DOCUMENTS, FOR ALL CONNECTION SPECIFICATIONS.



CIRCUIT SCHEDULE			
NO	FROM	TO	CONFIGURATION
①	UTILITY SOURCE	METER/DISCONNECT	EXISTING
②	METER/DISCONNECT	TRANSFER & LOAD CENTER	EXISTING
③	TRANSFER & LOAD CENTER	GENERATOR RECEPTACLE	EXISTING
④	TRANSFER & LOAD CENTER	EXISTING SPRINT BBU CABINET	(3) #2 AWG, (1) #8 GND IN 1-1/2" CONDUIT
⑤	TRANSFER & LOAD CENTER	EXISTING SPRINT MMBS/RBS CABINET	(3) #2 AWG, (1) #8 GND IN 1-1/2" CONDUIT

ELECTRICAL ONE-LINE DIAGRAM

NO SCALE A

Volts	Phase	Wire	Panel size	Main Disc	Location	Main Disc	Location
120/240	1φ	(3) 3/0	200	200	AC PANEL	200	AC PANEL
Summary of Loads				Interim Loading		Final Loading	
Type	Description	Tripp	Pole	Load A	Load B	Load A	Load B
Ex	METROCELL	100	2	5750	5750	5750	5750
Ex	SURGE ARRSTOR	60	2	0	0	0	0
EX	RECEPTACLE	15	1	200	0	200	0
EX	FAN	10	1	100	0	100	0
EX	LIGHTS	15	1	200	0	200	0
New	Ericsson RBS	100	2	0	0	5750	5750
Connected Phase Loads (VA)				6250	5750	12000	11500
Total Connected Load (VA)				12000	5750	23500	11500
Total Amps @ 240 (A)				50.0000	23.9583	97.9167	47.9167

DETAIL NOT USED

NO SCALE D

A/C LOAD CALCULATION

NO SCALE B

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SITE NAME:
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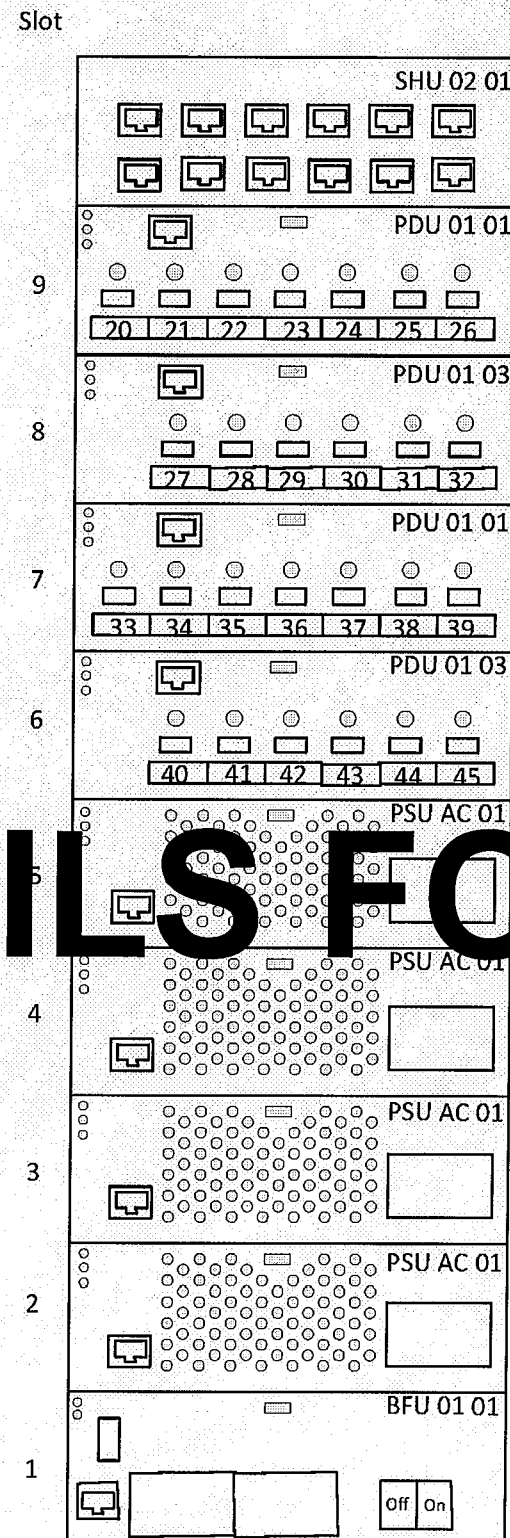
SITE CASCADE:
ST23XC254

SITE ADDRESS:
 7 CHESTERFIELD MALL,
 CHESTERFIELD, MO 63017
 ST. LOUIS COUNTY

SHEET DESCRIPTION:
A/C POWER DISTRIBUTION

SHEET NUMBER:
E-4

Vertical Subrack



- CB20 _____
- CB21 _____
- CB22 _____
- CB23 _____
- CB24 _____
- CB25 _____
- CB26 _____
- CB27 _____
- CB28 _____
- CB29 _____
- CB30 _____
- CB31 _____
- CB32 _____
- CB33 _____
- CB34 _____
- CB35 _____
- CB36 _____
- CB37 _____
- CB38 _____
- CB39 _____
- CB40 _____
- CB41 _____
- CB42 _____
- CB43 _____
- CB44 _____
- CB45 _____

DETAILS FORTHCOMING

2.5MHz 39-0" ROOFTOP

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Overland Park, Kansas 66251

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CORPORATION
ATC SITE #: 337422

ENGINEERING LICENSE:

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	PER ATC REVIEW	08/06/14	DAM	1
	SITE ADDRESS	03/25/15	RJH	2

SITE NAME:

**F2 - R8 -
CHESTERFIELD MALL**

SITE CASCADE:

ST23XC254

SITE ADDRESS:

**7 CHESTERFIELD MALL,
CHESTERFIELD, MO 63017
ST. LOUIS COUNTY**

SHEET DESCRIPTION:

D/C SUB PANEL DETAILS

SHEET NUMBER:

E-5