

# Memorandum

## Department of Planning & Development Services



**To:** Planning and Public Works Committee

**From:** Jessica Henry, Senior Planner *jh*

**Date:** June 21, 2018

**RE:** **FSP 54-2018 ExteNet Systems, Inc. (17359 Chesterfield Airport Road)**: A request for a new Facilities Siting Permit to install a new wireless telecommunications facility within the right-of-way located adjacent to 17359 Chesterfield Airport Road. (Ward 4)

### **Summary**

ExteNet Systems, Inc. has submitted a Facilities Siting Permit (FSP) application to install a new wireless telecommunications facility within the right-of-way located adjacent to the Culver's restaurant at 17359 Chesterfield Airport Road. This right-of-way area is under St. Louis County's control, and the County has issued a Special Use Permit to the applicant authorizing installation of the facility.

The proposed installation consists of a standard wood utility pole that was purchased from and installed by Ameren. Equipment and antennas will be mounted on the pole. The pole is 32'6" in height.

Article 6 of the Unified Development Code was amended in early 2018 to comply with a new State law that severely limited the ability of Missouri municipalities to regulate wireless communication facilities. The proposed installation is compliant with the requirements of Article 6 of the Unified Development Code and State Law.

Attached to this report, please find an FSP application packet with information regarding the proposed installation. In accordance with Article 6 of the Unified Development Code, final approval of the installation must be granted by the City Council.

Attachments: FSP Application Packet



- a. The name, address and phone number of the person preparing the report;

Joseph Markus  
Site Acquisition Manager  
Black & Veatch  
16305 Swingley Ridge Rd., Ste. 230  
Chesterfield, MO 63017  
636-536-5842  
[MarkusJ@bv.com](mailto:MarkusJ@bv.com)

- b. Each application shall include a copy of a lease, letter of authorization or other agreement from the property owner evidencing applicant's right to pursue the application;

St. Louis County Special Use Permit 19168

- c. The postal address and tax map parcel number of the property;

This is a ROW on a St. Louis County Rd., so there is no address or parcel no.  
Adjacent property is:  
17359 Chesterfield Airport Rd.  
A.P.N.: 17U330190

- d. Size of the property stated both in square feet and lot line dimensions, and a survey showing the location of all lot lines;

Right-of-Way on North side of Chesterfield Airport Rd. is continuous and owned by St. Louis County. Survey of property is attached.

- e. The location and distance of the nearest residential structure as measured from the base of the proposed tower.

See attached.

- f. An outboundary survey, prepared by a licensed professional Surveyor, licensed to perform surveying within the State of Missouri, with an original seal and signature affixed thereto;

Survey attached.

- g. The location, size and height of all existing and proposed structures on the subject property;

This is a St. Louis County ROW. The only structures in the ROW are utility poles and road signs.

- h. The type, locations and dimensions of all proposed and existing landscaping and fencing/screening requirements;

Installing a standard utility pole. No landscaping, fencing or screening is required.

- i. The size and centerline height location of all proposed and existing antenna on the wireless supporting structure including the number, type and model of the antenna(s) proposed with a copy of the specification sheet;

See attached drawings.

- j. The make, model, type and manufacturer of the wireless support structure tower and design plan stating the wireless support structure's tower's capacity to accommodate multiple users;

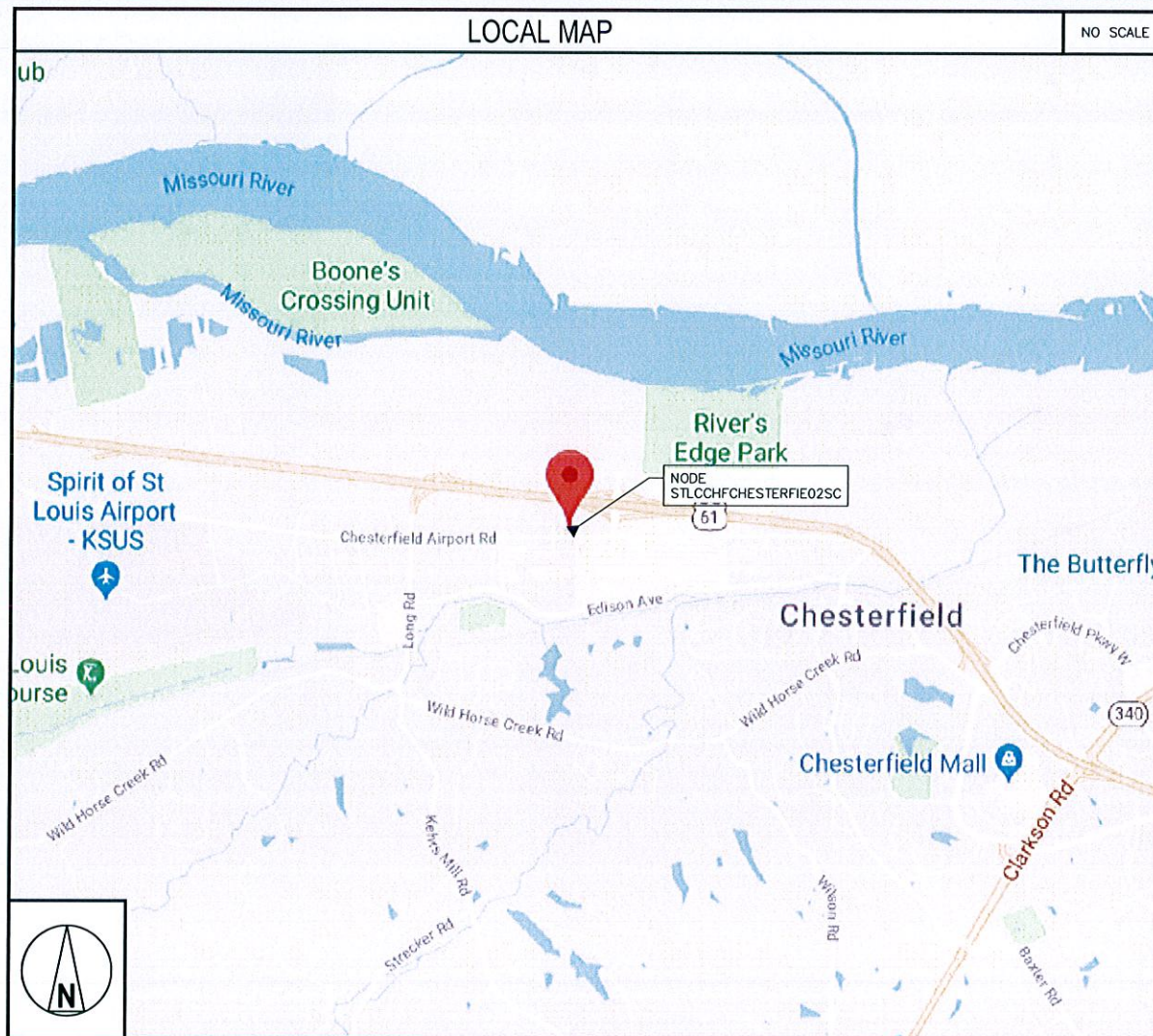
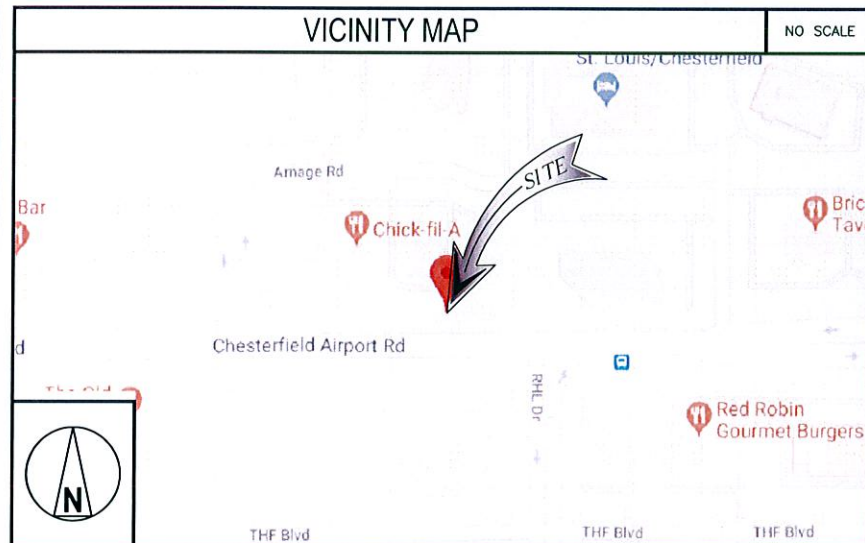
This is a standard wood utility pole purchased from and installed by Ameren. It is capable of multiple users.

- h. A site plan signed and sealed by a registered engineer describing the proposed wireless support structure and antenna(s) and all related fixtures, structures, appurtenances and apparatus, including height above pre-existing grade, materials, color and lighting compliant with this Article as applicable.

Site plan and drawings are attached.

# NC-MO-STLCHF DV-VZW STLCCHF CHESTERFIE02SC

(PROW)  
17359 CHESTERFIELD AIRPORT RD  
CHESTERFIELD, MO 63005



### CODE COMPLIANCE

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

- IBC-2012
- MISSOURI ADMINISTRATIVE REGULATIONS
- ANSI-EIA-222-G LIFE SAFETY CODE NFPA
- BUILDING OFFICIALS AND CODE ADMINISTRATORS (BOCA)
- MISSOURI ELECTRICAL CODE NEC-2014
- INTERNATIONAL MECHANICAL CODE (IMC) 2009
- INTERNATIONAL PLUMBING CODE (IPC) 2012
- CITY AND/OR COUNTY ORDINANCES
- 2012 INTERNATIONAL FIRE CODE

### PROJECT DESCRIPTION

THESE DRAWINGS DEPICT A PORTION OF A DISTRIBUTED ANTENNA SYSTEM (DAS) TELECOMMUNICATIONS NETWORK, TO BE CONSTRUCTED, OWNED AND OPERATED BY EXTENET SYSTEMS, IN THE PUBLIC RIGHT-OF-WAY/PUBLIC UTILITY EASEMENT PURSUANT TO AUTHORITY GRANTED BY THE MISSOURI PUBLIC UTILITIES COMMISSION.

THE MAIN COMPONENTS OF THIS INSTALLATION ARE:

- ONE (1) OMNI ANTENNA AND MOUNT
- TWO (2) RADIO UNITS AND MOUNT
- ONE (1) PWR CABINET
- ONE (1) RF DISCONNECT
- ONE (1) LOAD CENTER
- ONE (1) METER BASE
- ASSOCIATED ELECTRICAL COMPONENTS AND MOUNTING BRACKETS AS REQUIRED, LOCATED ON A WOOD POLE.

### GENERAL PROJECT NOTES

1. PRIOR TO SUBMITTING A BID, THE CONTRACTOR SHALL FAMILIARIZE HIMSELF/HERSELF WITH THE SCOPE OF WORK AND ALL CONDITIONS AFFECTING THE NEW PROJECT.
2. CONTRACTOR SHALL VERIFY ALL FIELD CONDITIONS AND DIMENSIONS OF THE JOB SITE AND CONFIRM THAT WORK AS INDICATED ON THESE CONSTRUCTION DOCUMENTS CAN BE ACCOMPLISHED AS SHOWN PRIOR TO COMMENCEMENT OF ANY WORK.
3. ALL FIELD MODIFICATIONS BEFORE, DURING OR AFTER CONSTRUCTION SHALL BE APPROVED IN WRITING BY A EXTENET WIRELESS REPRESENTATIVE.
4. INSTALL ALL EQUIPMENT AND MATERIALS PER THE MANUFACTURER'S RECOMMENDATIONS, UNLESS INDICATED OTHERWISE.
5. NOTIFY EXTENET WIRELESS, IN WRITING, OF ANY MAJOR DISCREPANCIES REGARDING THE CONTRACT DOCUMENTS, EXISTING CONDITIONS, AND DESIGN INTENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATIONS FROM A EXTENET WIRELESS REPRESENTATIVE, AND ADJUSTING THE BID ACCORDINGLY.
6. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF THE WORK UNDER THE CONTRACT.
7. CONTRACTOR SHALL PROTECT ALL EXISTING IMPROVEMENTS AND FINISHES THAT ARE TO REMAIN. CONTRACTOR SHALL REPAIR ANY DAMAGE THAT MAY OCCUR DURING THE CONSTRUCTION TO THE SATISFACTION OF A EXTENET WIRELESS REPRESENTATIVE.
8. CONTRACTOR PLANS TO ILLUSTRATE THE AS-BUILT CONDITION OF THE SITE. FOLLOWING THE FINAL INSPECTION BY EXTENET WIRELESS, THE CONTRACTOR SHALL PROVIDE EXTENET WIRELESS WITH ONE COPY OF ALL RED-LINED DRAWINGS.
9. VERIFY ALL FINAL EQUIPMENT WITH A EXTENET WIRELESS REPRESENTATIVE. ALL EQUIPMENT LAYOUT, SPECS, PERFORMANCE INSTALLATION AND THEIR FINAL LOCATION ARE TO BE APPROVED BY EXTENET WIRELESS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING HIS/HER WORK WITH THE WORK AND CLEARANCES REQUIRED BY OTHERS RELATED TO SAID INSTALLATIONS.

BLACK & VEATCH CORPORATION  
7760 FRANCE AVENUE SOUTH  
SUITE 1200  
BLOOMINGTON, MN 55435

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PROJECT NO.	DRAWN BY	CHECKED BY
196954.9107	MSC	LW

REV	DATE	DESCRIPTION
0	05/03/18	ISSUED FOR CONSTRUCTION

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

EXTENET SYSTEMS  
NC-MO-STLCHF DV-VZW  
SMALL CELL

SITE ADDRESS  
CHESTERFIELD-02  
17359 CHESTERFIELD AIRPORT RD  
CHESTERFIELD, MO 63005

SHEET TITLE  
TITLE SHEET

SHEET NUMBER  
**T-1**

### BENCHMARK LOCATION

SHEET NO:	SHEET TITLE
T-1	TITLE SHEET
GN-1	GENERAL NOTES
GN-2	GENERAL NOTES
GN-3	GENERAL NOTES
C-1	OVERALL SITE PLAN
C-2	POLE ELEVATIONS AND RISER DETAILS
C-3	EQUIPMENT DETAILS
C-4	EQUIPMENT DETAILS
C-5	GROUNDING DETAILS

### SHEET INDEX

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GN-3	GENERAL NOTES
C-1	OVERALL SITE PLAN
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C-3	EQUIPMENT DETAILS
C-4	EQUIPMENT DETAILS
C-5	GROUNDING DETAILS

IF USING 11"X17" PLOT, DRAWINGS WILL BE HALF SCALE

SUBCONTRACTOR SHALL VERIFY ALL PLANS & EXISTING DIMENSIONS & CONDITIONS ON THE JOB SITE & SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME

### PROJECT INFORMATION

PROPERTY OWNER	APPLICANT	CONSTRUCTION	TELCO / BACKHAUL
COMPANY: AMEREN ADDRESS: P.O. BOX 790352 ST. LOUIS, MO 63179 CONTACT: - PHONE: (800) 552-7583	COMPANY: EXTENET SYSTEMS, INC. ADDRESS: 3030 WARRENVILLE RD. SUITE 340 LISLE, IL 60532 PHONE: (630) 505-3800 FAX: (630) 577-1332	COMPANY: GIBSON TECHNICAL SERVICES, INC. CONTACT: ED HICKMAN, DIRECTOR PHONE: (770) 345-1670 CONTACT: MIKE McDANIELS, CONSTRUCTION MANAGER PHONE: (812) 236-6697	COMPANY: - CONTACT: - PHONE: -

### PROJECT MANAGER REGIONAL DIRECTOR PROJECT DATA

PROJECT MANAGER	REGIONAL DIRECTOR	PROJECT DATA
COMPANY: EXTENET SYSTEMS, INC. CONTACT: MARY ANGELERI-CARVER PHONE: (630) 245-4379 E-MAIL: -	COMPANY: EXTENET SYSTEMS, INC. CONTACT: VIVIAN GOMEZ-McKEON PHONE: (630) 245-2075 E-MAIL: -	LATITUDE: 38.66851' N LONGITUDE: -90.603768' W POLE #: NA ELEVATION: - ZONING JURISDICTION: CITY OF CHESTERFIELD ZONING DISTRICT: PUBLIC RIGHT-OF-WAY (ROW) A.P.N.: 17U330190 OCCUPANCY: U, UNMANNED CONSTRUCTION TYPE: ATTACHMENTS TO A WOOD POLE TITLE 24 REQUIREMENTS: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. THIS PROJECT IS EXEMPT.

DESIGNER	ENGINEER
COMPANY: BLACK & VEATCH CORP. CONTACT: - PHONE: - E-MAIL: -	COMPANY: BLACK & VEATCH CORP. CONTACT: LEE WRIGHT PHONE: (913) 458-9793 E-MAIL: WRIGHTL@BV.COM



**EROSION AND SEDIMENT CONTROL NOTES**

TEMPORARY EROSION/SEDIMENT CONTROL PRIOR TO COMPLETION OF FINAL IMPROVEMENTS, SHALL BE PERFORMED BY THE CONTRACTOR OR QUALIFIED PERSON AS INDICATED BELOW:

- ALL REQUIREMENTS OF THE CITY, COUNTY AND STATE "STORM WATER STANDARDS" MUST BE INCORPORATED INTO THE DESIGN AND CONSTRUCTION OF THE PROPOSED GRADING/IMPROVEMENTS CONSISTENT WITH THE APPROVED STORM WATER POLLUTION PREVENTION PLAN (SWPPP), WATER QUALITY TECHNICAL REPORT (WQTR), AND/OR WATER POLLUTION CONTROL PLAN (WPCP).
- FOR STORM DRAIN INLETS, PROVIDE A GRAVEL BAG SILT BASIN IMMEDIATELY UPSTREAM OF INLET AS INDICATED ON DETAILS.
- FOR INLETS LOCATED AT SUMPS ADJACENT TO TOP OF SLOPES, THE CONTRACTOR SHALL ENSURE THAT WATER DRAINING TO THE SUMP IS DIRECTED INTO THE INLET AND THAT A MINIMUM OF 1.00' FREEBOARD EXISTS AND IS MAINTAINED ABOVE THE TOP OF THE INLET. IF FREEBOARD IS NOT PROVIDED BY GRADING SHOWN ON THESE PLANS, THE CONTRACTOR SHALL PROVIDE IT VIA TEMPORARY MEASURE, I.E. GRAVEL BAGS OR DIKES.
- THE CONTRACTOR OR QUALIFIED PERSON SHALL BE RESPONSIBLE FOR CLEANUP OF SILT AND MUD ON ADJACENT STREET(S) AND STORM DRAIN SYSTEM DUE TO CONSTRUCTION ACTIVITY.
- THE CONTRACTOR OR QUALIFIED PERSON SHALL CHECK AND MAINTAIN ALL LINED AND UNLINED DITCHES AFTER EACH RAINFALL.
- THE CONTRACTOR SHALL REMOVE SILT AND DEBRIS AFTER EACH MAJOR RAINFALL.
- EQUIPMENT AND WORKERS FOR EMERGENCY WORK SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON. ALL NECESSARY MATERIALS SHALL BE STOCKPILED ON SITE AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES WHEN RAIN IS IMMINENT.
- THE CONTRACTOR SHALL RESTORE ALL EROSION/SEDIMENT CONTROL DEVICES TO WORKING ORDER TO THE SATISFACTION OF THE CITY ENGINEER OR RESIDENT ENGINEER AFTER EACH RUN-OFF PRODUCING RAINFALL.
- THE CONTRACTOR SHALL INSTALL ADDITIONAL EROSION/SEDIMENT CONTROL MEASURE AS MAY BE REQUIRED BY THE RESIDENT ENGINEER DUE TO UNCOMPLETED GRADING OPERATIONS OR UNFORESEEN CIRCUMSTANCES, WHICH MAY ARISE.
- THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT PUBLIC TRESPASS ONTO AREAS WHERE IMPOUNDED WATERS CREATE A HAZARDOUS CONDITION.
- ALL EROSION/SEDIMENT CONTROL MEASURES PROVIDED PER THE APPROVED GRADING PLAN SHALL BE INCORPORATED HEREON. ALL EROSION/SEDIMENT CONTROL FOR INTERIM CONDITIONS SHALL BE DONE TO THE SATISFACTION OF THE RESIDENT ENGINEER.
- GRADED AREAS AROUND THE PROJECT PERIMETER MUST DRAIN AWAY FROM THE FACE OF THE SLOPE AT THE CONCLUSION OF EACH WORKING DAY.
- ALL REMOVABLE PROTECTIVE DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN RAIN IS IMMINENT.
- THE CONTRACTOR SHALL ONLY GRADE, INCLUDING CLEARING AND GRUBBING FOR THE AREAS FOR WHICH THE CONTRACTOR OR QUALIFIED PERSON CAN PROVIDE EROSION/SEDIMENT CONTROL MEASURES.
- THE CONTRACTOR SHALL ARRANGE FOR WEEKLY MEETINGS DURING OCTOBER 1ST TO APRIL 30TH FOR PROJECT TEAM (GENERAL CONTRACTOR, QUALIFIED PERSON, EROSION CONTROL SUBCONTRACTOR IN ANY, ENGINEER OF WORK, OWNER/DEVELOPER THE RESIDENT ENGINEER) TO EVALUATE THE ADEQUACY OF THE EROSION/SEDIMENT CONTROL MEASURE AND OTHER RELATED CONSTRUCTION ACTIVITIES.

**SPECIAL NOTES**

**INDEMNIFICATION CLAUSE**

THE CONTRACTOR AGREES AND SHALL:

- ASSUME SOLE AND COMPLETE RESPONSIBILITY OF THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTIES. THAT THESE REQUIREMENTS SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS AND CONDITIONS. THE CONTRACTOR FURTHER AGREES TO DEFEND INDEMNIFY AND HOLD EXTENET, REPRESENTATIVES, AND ENGINEERS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT.
- PRIOR TO THE BEGINNING OF ANY CONSTRUCTION AND THROUGHOUT THE COURSE OF CONSTRUCTION WORK, THE CONTRACTOR SHALL FULLY COMPLY WITH "MISSOURI OCCUPATIONAL SAFETY AND HEALTH" ACT OF 1973 INCLUDING ALL REVISIONS AND AMENDMENTS THERETO.
- ALL WORK SHALL CONFORM TO THE LATEST STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION AS ADOPTED BY THE CITY, COUNTY OR STATE AS MODIFIED BY STANDARD PLANS AND ADDENDUMS.
- THE EXISTENCE AND LOCATION OF UTILITIES AND OTHER AGENCY'S FACILITIES AS SHOWN HEREON ARE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. OTHER FACILITIES MAY EXIST. THE CONTRACTOR SHALL VERIFY PRIOR TO THE START OF CONSTRUCTION AND SHALL USE EXTREME CARE AND PROTECTIVE MEASURES TO PREVENT DAMAGE TO THESE FACILITIES. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL UTILITY OR AGENCY FACILITIES WITHIN THE LIMITS OF WORK, WHETHER THEY ARE SHOWN ON THIS PLAN OR NOT.
- THE CONTRACTOR SHALL NOTIFY THE CITY, COUNTY OR STATE ENGINEER INSPECTION DEPARTMENT, AT LEAST TWO DAYS BEFORE START OF ANY WORK REQUIRING THEIR INVOLVEMENT.
- THE CITY, COUNTY OR STATE SHALL SPECIFY THE EXPIRATION PERIOD OF THE PERMIT FOR THIS CONSTRUCTION PROJECT.
- THE MINIMUM COVER FOR ALL CONDUITS PLACED UNDERGROUND SHALL BE 36 INCHES TO THE FINISHED GRADE AT ALL TIMES.
- THE CONTRACTOR SHALL TUNNEL ALL CURB AND GUTTER AND BORE ALL CONCRETE DRIVEWAY AND ALWAYS AT THE DIRECTION OF THE CITY, COUNTY OR STATE ENGINEER.
- ALL A.C. AND/OR CONCRETE PAVEMENT SHALL BE REPLACED AT THE DIRECTION OF THE CITY, COUNTY OR STATE ENGINEERS.
- ALL SHRUBS, PLANTS OR TREES THAT HAVE BEEN DAMAGED OR DISTURBED DURING THE COURSE OF THE WORK, SHALL BE REPLACED AND/OR REPLACED SO AS TO RESTORE THE WORK SITE TO ITS ORIGINAL CONDITION.
- THE CONTRACTOR WILL BE RESPONSIBLE FOR THE PROCESSING OF ALL APPLICANT PERMIT FORMS ALONG WITH THE REQUIRED LIABILITY INSURANCE FORMS. CLEARLY DEMONSTRATING THAT EXTENET, THE CITY, COUNTY OR STATE IS ALSO INSURED WITH THE REQUIRED LIABILITY INSURANCE FOR THIS CONSTRUCTION PROJECT.
- VAULTS, PEDESTALS, CONDUITS AND OTHER TYPES OF SUBSTRUCTURE ARE EITHER SPECIFIED ON THIS PLAN OR WILL BE SPECIFIED BY THE CONSTRUCTION ENGINEER, IN WRITING, BEFORE INSTALLATION THEREOF.
- THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES INCLUDING SEWER LATERALS AND WATER SERVICES TO INDIVIDUAL LOTS BOTH VERTICAL AND HORIZONTAL PRIOR TO COMMENCING IMPROVEMENT OPERATIONS.

- CONTRACTOR SHALL MAKE EXPLORATION EXCAVATION AND LOCATE EXISTING FACILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISION TO PLANS IF REVISION IS NECESSARY BECAUSE OF LOCATION OF EXISTING UTILITIES.
- THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THESE PLANS ARE FROM EXISTING RECORDS AND CORROBORATED, WHERE POSSIBLE, WITH FIELD TIES. THE CONTRACTOR IS RESPONSIBLE FOR CONFIRMING THE LOCATIONS SHOWN, BOTH HORIZONTALLY AND VERTICALLY. PRIOR TO CONSTRUCTION, IF EXISTING LOCATIONS VARY SUBSTANTIALLY FROM THE PLANS, THE ENGINEER SHOULD BE NOTIFIED TO MAKE ANY CONSTRUCTION CHANGES REQUIRED.

**GENERAL NOTES**

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SURVEY MONUMENTS AND/OR VERTICAL CONTROL BENCHMARKS WHICH ARE DISTURBED OR DESTROYED BY CONSTRUCTION. A LAND SURVEYOR MUST FIELD LOCATE, REFERENCE, AND/OR PRESERVE ALL HISTORICAL OR CONTROLLING MONUMENTS PRIOR TO ANY EARTHWORK. IF DESTROYED, SUCH MONUMENTS SHALL BE REPLACED WITH APPROPRIATE MONUMENTS BY A LAND SURVEYOR. A CORNER RECORD OR RECORD OF SURVEY, AS APPROPRIATE, SHALL BE FILED AS REQUIRED BY THE PROFESSIONAL LAND SURVEYORS ACT.
- IMPORTANT NOTICE: CALL MISSOURI ONE CALL SYSTEM 811/1-800-DIG-RITE, AT LEAST THREE DAY BEFORE YOU DIG.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE POT HOLE AND LOCATING FO ALL EXISTING UTILITIES THAT CROSS THE PROPOSED TRENCH LINE AND MUST MAINTAIN A 1' MINIMUM VERTICAL CLEARANCE.
- CONTRACTOR SHALL REPLACE OR REPAIR ALL TRAFFIC SIGNAL LOOPS, CONDUIT, AND LANE STRIPING DAMAGED DURING CONSTRUCTION.
- MANHOLES OR COVERS SHALL BE LABELED EXTENET.

**R.O.W. GROUND CONSTRUCTION NOTES**

- 120/240 POWER REQUIRED FOR 3-WIRE SERVICE.
- GC TO REMOVE/CLEAN ALL DEBRIS, NAILS, STAPLES, OR NON-USED VERTICALS OFF THE POLE.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH MUNICIPAL, COUNTY, STATE, AND FEDERAL STANDARDS AND REGULATIONS.
- CALL 811, 72 HOURS PRIOR TO EXCAVATING AT (800) 344-7483.
- ALL LANDSCAPING TO BE RESTORED TO ORIGINAL CONDITION OR BETTER.
- ALL EQUIPMENT TO BE BONDED.
- METERING CABINET REQUIRES 3' CLEARANCE AT DOOR OPENING.
- CAULK CABINET BASE AT PAD.

**STANDARD GROUNDING NOTES**

- GROUND TESTED AT 5 OHMS OR LESS.
- 5/8"X8' ROD. CAD WELD BELOW GRADE.
- #6 GROUND AND BOND WIRE.
- WOOD MOLDING, STAPLED EVERY 3' AND AT EACH END.
- GROUNDS 3' FROM POLE.
- PLACE 3 #10GA WIRES FROM BREAKER TO METER BOX.

**STANDARD CONDUIT NOTES**

- FOR UNDERGROUND USE SCHEDULE 40.
- FOR RISERS USE SCHEDULE 80.
- PLACE 2" GALVANIZED STEEL CONDUIT FOR ANY CONDUIT UNDER 3", STUB UP 10' THEN CONVERT TO SCHEDULE 80.
- CONVERT 4" CARRIER CONDUIT TO 3" AT BASE OF POLE.
- GC TO STUB UP POLE 10" W/3" POWER CONDUIT. POWER CO. TO CONVERT FROM 3" SCH. 80 TO 2" SCH. 80 FROM TOP OF STUB UP.
- ALL CONDUIT WILL BE MAN DRILLED AND EQUIPPED WITH 3/8" PULL ROPE.

**STANDARD TRENCHING NOTES**

- MAINTAIN 40" MINIMUM COVER FOR ELECTRICAL CONDUIT.
- MAINTAIN 30" MINIMUM COVER FOR COMMUNICATIONS CONDUIT.
- SAND SHADING MINIMUM 1" UNDER CONDUITS, AND 6" COVERING ON TOP REQUIRED.
- ALL ELECTRICAL SERVICE CONDUITS FROM POWER COMPANY, WHETHER FROM POLES, TRANSFORMERS, OR OTHER LOCATIONS, WILL BE SLURRY BACKFILLED.
- IN STREET SLURRY TO GRADE AND MILL DOWN 1-1/2" FOR AC CAP.
- IN DIRT SLURRY 18" FROM GRADE, AND FILL WITH 95% COMPACTION NATIVE SOIL FOR BALANCE.
- PLACE WARNING TAPE IN TRENCH 12" ABOVE ALL CONDUITS AND #18 WARNING TAPE ABOVE GROUND RING.

**GENERAL NOTES**



**BLACK & VEATCH**

BLACK & VEATCH CORPORATION  
7760 FRANCE AVENUE SOUTH  
SUITE 1200  
BLOOMINGTON, MN 55435

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EXTENET SYSTEMS  
NC-MO-STLCHFDV-VZW  
SMALL CELL

SITE ADDRESS  
CHESTERFIELD-02  
17359 CHESTERFIELD AIRPORT RD  
CHESTERFIELD, MO 63005

SHEET TITLE  
GENERAL NOTES  
AND SCHEDULES

SHEET NUMBER  
**GN-1**

**GENERAL CONSTRUCTION NOTES**

1. FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:
  - A. CONTRACTOR: (CONSTRUCTION)
  - B. OWNER - SPRINT
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND SPRINT PROJECT SPECIFICATIONS.
3. GENERAL CONTRACTOR SHALL VISIT THE SITE AND SHALL FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIMSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS, DIMENSIONS, AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
4. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
5. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
6. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
7. PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE ENGINEER PRIOR TO PROCEEDING.
10. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF WORK AREA, ADJACENT AREAS AND BUILDING OCCUPANTS THAT ARE LIKELY TO BE AFFECTED BY THE WORK UNDER THIS CONTRACT. WORK SHALL CONFIRM TO ALL OSHA REQUIREMENTS AND THE LOCAL JURISDICTION.
11. GENERAL CONTRACTOR SHALL COORDINATE WORK AND SCHEDULE WORK ACTIVITIES WITH OTHER DISCIPLINES.
12. ERECTION SHALL BE DONE IN A WORKMANLIKE MANNER BY COMPETENT EXPERIENCED WORKMAN IN ACCORDANCE WITH APPLICABLE CODES AND THE BEST ACCEPTED PRACTICE. ALL MEMBERS SHALL BE LAID PLUMB AND TRUE AS INDICATED ON THE DRAWINGS.
13. SEAL PENETRATIONS THROUGH FIRE RATED AREAS WITH UL LISTED MATERIALS APPROVED BY LOCAL JURISDICTION. CONTRACTOR SHALL KEEP AREA CLEAN, HAZARD FREE, AND DISPOSE OF ALL DEBRIS.
14. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
15. CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS PRIOR TO COMMENCEMENT OF WORK.
16. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
17. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
18. GENERAL CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS FOR ALL TRADES AND CONTRACTORS TO THE SITE AND/OR BUILDING.
19. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF THE SITE FOR THE DURATION OF CONSTRUCTION UNTIL JOB COMPLETION.
20. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
21. THE GENERAL CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A-10-B-C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
22. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
23. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
24. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
25. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.

26. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUNDING. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
27. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
28. ALL NECESSARY RUBBISH, STUMPS, DEBRIS, STICKS, STONES, AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.
29. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
30. CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
31. CONTRACTOR SHALL LEAVE PREMISES IN A CLEAN CONDITION.
32. THE PROPOSED FACILITY WILL BE UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SEWER SERVICE, AND IS NOT FOR HUMAN HABITAT (NO HANDICAP ACCESS REQUIRED).
33. OCCUPANCY IS LIMITED TO PERIODIC MAINTENANCE AND INSPECTION, APPROXIMATELY 2 TIMES PER MONTH, BY TECHNICIANS.
34. NO OUTDOOR STORAGE OR SOLID WASTE CONTAINERS ARE PROPOSED.
35. ALL MATERIAL SHALL BE FURNISHED AND WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST REVISION OF SPRINT SPECIFICATIONS. IN CASE OF A CONFLICT BETWEEN THE CONSTRUCTION SPECIFICATION AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.
36. CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION. IF CONTRACTOR CANNOT OBTAIN A PERMIT, THEY MUST NOTIFY THE GENERAL CONTRACTOR IMMEDIATELY.
37. CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
38. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
39. NO WHITE STROBE LIGHTS ARE PERMITTED. LIGHTING IF REQUIRED, WILL MEET FAA STANDARDS AND REQUIREMENTS.
40. ALL CABLE INSTALLATIONS TO FOLLOW MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

**ANTENNA MOUNTING**

1. DESIGN AND CONSTRUCTION OF ANTENNA SUPPORTS SHALL CONFORM TO CURRENT ANSI/TIA-222 OR APPLICABLE LOCAL CODES.
2. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS NOTED OTHERWISE.
3. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS NOTED OTHERWISE.
4. DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED BY COLD GALVANIZING IN ACCORDANCE WITH ASTM A780.
5. ALL ANTENNA MOUNTS SHALL BE INSTALLED WITH LOCK NUTS, DOUBLE NUTS AND SHALL BE TORQUED TO MANUFACTURER'S RECOMMENDATIONS.
6. CONTRACTOR SHALL INSTALL ANTENNA PER MANUFACTURER'S RECOMMENDATION FOR INSTALLATION AND GROUNDING.
7. PRIOR TO SETTING ANTENNA AZIMUTHS AND DOWNTILTS, ANTENNA CONTRACTOR SHALL CHECK THE ANTENNA MOUNT FOR TIGHTNESS AND ENSURE THAT THEY ARE PLUMB. ANTENNA AZIMUTHS SHALL BE SET FROM TRUE NORTH AND BE ORIENTED WITHIN +/- 5% AS DEFINED BY THE RFDS. ANTENNA DOWNTILTS SHALL BE WITHIN +/- 0.5% AS DEFINED BY THE RFDS.

**TORQUE REQUIREMENTS**

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

**FIBER & POWER CABLE MOUNTING**

1. THE FIBER OPTIC TRUNK CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY. WHEN INSTALLING FIBER OPTIC TRUNK CABLES INTO A CABLE TRAY SYSTEM, THEY SHALL BE INSTALLED

INTO AN INTER DUCT AND A PARTITION BARRIER SHALL BE INSTALLED BETWEEN THE 600 VOLT CABLES AND THE INTER DUCT IN ORDER TO SEGREGATE CABLE TYPES. OPTIC FIBER TRUNK CABLES SHALL HAVE APPROVED CABLE RESTRAINTS EVERY (60) SIXTY FEET AND SECURELY FASTENED TO THE CABLE TRAY SYSTEM. NFPA 70 (NEC) ARTICLE 770 RULES SHALL APPLY.

2. THE TYPE TC-ER CABLES SHALL BE INSTALLED INTO CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY AND SHALL BE SECURED AT INTERVALS NOT EXCEEDING (6) SIX FEET. AN EXCEPTION; WHERE TYPE TC-ER CABLES ARE NOT SUBJECT TO PHYSICAL DAMAGE, CABLES SHALL BE PERMITTED TO MAKE A TRANSITION BETWEEN CONDUITS, CHANNEL CABLE TRAYS, OR CABLE TRAY WHICH ARE SERVING UTILIZATION EQUIPMENT OR DEVICES, A DISTANCE (6) SIX FEET SHALL NOT BE EXCEEDED WITHOUT CONTINUOUS SUPPORTING. NFPA 70 (NEC) ARTICLES 336 AND 392 RULES SHALL APPLY.
3. WHEN INSTALLING OPTIC FIBER TRUNK CABLES OR TYPE TC-ER CABLES INTO CONDUITS, NFPA 70 (NEC) ARTICLE 300 RULES SHALL APPLY.

**COAXIAL CABLE NOTES**

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

**GENERAL CABLE AND EQUIPMENT NOTES**

1. CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ANTENNA, TMAS, DIPLEXERS, AND COAX CONFIGURATION, MAKE AND MODELS PRIOR TO INSTALLATION.
2. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
3. CONTRACTOR SHALL REFERENCE THE STRUCTURAL ANALYSIS/DESIGN DRAWINGS FOR DIRECTIONS ON CABLE DISTRIBUTION/ROUTING.
4. ALL OUTDOOR RF CONNECTORS/CONNECTIONS SHALL BE WEATHERPROOFED, EXCEPT THE RET CONNECTORS, USING BUTYL TAPE AFTER INSTALLATION AND FINAL CONNECTIONS ARE MADE. BUTYL TAPE SHALL HAVE A MINIMUM OF ONE-HALF TAPE WIDTH OVERLAP ON EACH TURN AND EACH LAYER SHALL BE WRAPPED THREE TIMES. WEATHERPROOFING SHALL BE SMOOTH WITHOUT BUCKLING. BUTYL BLEEDING IS NOT ALLOWED.
5. IF REQUIRED TO PAINT ANTENNAS AND/OR COAX:
  - A. TEMPERATURE SHALL BE ABOVE 50° F.
  - B. PAINT COLOR MUST BE APPROVED BY BUILDING OWNER/LANDLORD.
  - C. FOR REGULATED TOWERS, FAA/FCC APPROVED PAINT IS REQUIRED.
  - D. DO NOT PAINT OVER COLOR CODING OR ON EQUIPMENT MODEL NUMBERS.
6. ALL PROPOSED GROUND BAR DOWNLEADS ARE TO BE TERMINATED TO THE EXISTING ADJACENT GROUND BAR DOWNLEADS A MINIMUM DISTANCE OF 4'-0" BELOW GROUND BAR. TERMINATIONS MAY BE EXOTHERMIC OR COMPRESSION.
7. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING, ETC. SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATION & RECOMMENDATIONS.

**ROW UTILITY POLE CONSTRUCTION NOTES**

1. NO BOLT THREADS TO PROTRUDE MORE THAN 1-1/2" [.038M].
2. FILL ALL HOLES LEFT IN POLE FROM REARRANGEMENT OF CLIMBERS.
3. ALL CLIMB STEPS NEXT TO CONDUIT SHALL HAVE EXTENDED STEPS.
4. CABLE NOT TO IMPEDE 15" [.381M] CLEAR SPACE OFF POLE FACE (12:00).
5. 90 SHORT SWEEPS UNDER ANTENNA ARM. ALL CABLES MUST ONLY TRANSITION ON THE INSIDE OR BOTTOM OF ARMS (NO CABLE ON TOP OF ARMS).
6. USE 90 CONNECTOR AT CABLE CONNECTION TO ANTENNAS.
7. PLACE GPS ON ARM WITH SOUTHERN SKY EXPOSURE AT MINIMUM 6' [1.83] FROM TRANSMIT ANTENNA, WHICH IS 24" [.61M] AWAY FROM CENTER OF POLE.
8. USE 1/2" [.013M] CABLE ON ANTENNAS UNLESS OTHERWISE SPECIFIED.
9. FILL VOID AROUND CABLES AT CONDUIT OPENING WITH FOAM SEALANT TO PREVENT WATER INTRUSION.

**GENERAL NOTES**



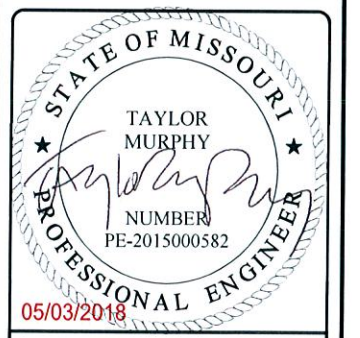
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PROJECT NO.	DRAWN BY	CHECKED BY
196954.9107	MSC	LW

REV	DATE	DESCRIPTION
0	05/03/18	ISSUED FOR CONSTRUCTION



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

**EXTENET SYSTEMS**  
NC-MO-STLCHFV-VZW  
**SMALL CELL**

SITE ADDRESS  
CHESTERFIELD-02  
17359 CHESTERFIELD AIRPORT RD  
CHESTERFIELD, MO 63005

SHEET TITLE  
**GENERAL NOTES**

SHEET NUMBER  
**GN-2**

**PART 1 – GENERAL**

**1.1 GENERAL CONDITIONS:**

- A. CONTRACTOR SHALL INSPECT THE EXISTING SITE CONDITIONS PRIOR TO SUBMITTING BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTORS FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRACT HAS BEEN AWARDED.
- B. THE CONTRACTOR SHALL OBTAIN PERMITS, LICENSES, MAKE ALL DEPOSITS, AND PAY ALL FEES REQUIRED FOR THE CONSTRUCTION PERFORMANCE FOR THE WORK UNDER THIS SECTION.
- C. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF ALL SYSTEMS AND COMPONENTS COVERED UNDER THIS SECTION. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS. DRAWING SHALL NOT BE SCALED TO DETERMINE DIMENSIONS.

**1.2 LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES:**

- A. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE LOCAL LAWS, REGULATIONS, ORDINANCES, STATUTES AND CODES. CONDUIT BENDS SHALL BE THE RADIUS BEND FOR THE TRADE SIZE OF CONDUIT IN COMPLIANCE WITH THE LATEST EDITIONS OF NEC.

**1.3 REFERENCES:**

- A. THE PUBLICATIONS LISTED BELOW ARE PART OF THIS SPECIFICATION. EACH PUBLICATION SHALL BE THE LATEST REVISION AND ADDENDUM IN EFFECT ON THE DATE. THIS SPECIFICATION IS ISSUED FOR CONSTRUCTION UNLESS OTHERWISE NOTED. EXCEPT AS MODIFIED BY THE REQUIREMENT SPECIFIED HEREIN OR THE DETAILS OF THE DRAWINGS, WORK INCLUDED IN THIS SPECIFICATION SHALL CONFORM TO THE APPLICABLE PROVISION OF THESE PUBLICATIONS.

1. ANSI/IEEE (AMERICAN NATIONAL STANDARDS INSTITUTE)
2. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
3. ICE (INSULATED CABLE ENGINEERS ASSOCIATION)
4. NEMA (NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION)
5. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
6. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
7. UL (UNDERWRITERS LABORATORIES, INC.)

**1.4 SCOPE OF WORK:**

- A. WORK UNDER THIS SECTION SHALL CONSIST OF FURNISHING ALL LABOR, MATERIAL, AND ASSOCIATED SERVICES REQUIRED TO COMPLETE REQUIRED CONSTRUCTION AND BE OPERATIONAL.
- B. ALL ELECTRICAL EQUIPMENT UNDER THIS CONTRACT SHALL BE PROPERLY TESTED, ADJUSTED, AND ALIGNED BY THE CONTRACTOR.
- C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATING, DRAINING, TRENCHES, BACKFILLING, AND REMOVAL OF EXCESS DIRT.
- D. THE CONTRACTOR SHALL FURNISH TO THE OWNER WITH CERTIFICATES OF A FINAL INSPECTION AND APPROVAL FROM THE INSPECTION AUTHORITIES HAVING JURISDICTION.
- E. THE CONTRACTOR SHALL PREPARE A COMPLETE SET OF AS-BUILT DRAWINGS, DOCUMENT ALL WIRING EQUIPMENT CONDITIONS, AND CHANGES WHILE COMPLETING THIS CONTRACT. THE AS-BUILT DRAWINGS SHALL BE SUBMITTED AT COMPLETION OF THE PROJECT.

**PART 2 – PRODUCTS**

**2.1 GENERAL:**

- A. ALL MATERIALS AND EQUIPMENT SHALL BE UL LISTED, NEW, AND FREE FROM DEFECTS.
- B. ALL ITEMS OF MATERIALS AND EQUIPMENT SHALL BE ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION AS SUITABLE FOR THE USE INTENDED.
- C. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- D. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 10,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PER THE GOVERNING JURISDICTION.

**2.2 MATERIALS AND EQUIPMENT:**

**A. CONDUIT:**

1. RIGID METAL CONDUIT (RMC) SHALL BE HOT-DIPPED GALVANIZED INSIDE AND OUTSIDE INCLUDING ENDS AND THREADS AND ENAMELED OR LACQUERED INSIDE IN ADDITION TO GALVANIZING.
2. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL BE UL LISTED.
3. CONDUIT CLAMPS, STRAPS AND SUPPORTS SHALL BE STEEL OR MALLEABLE IRON. ALL FITTINGS SHALL BE COMPRESSION AND CONCRETE TIGHT TYPE. GROUNDING BUSHINGS WITH INSULATED THROATS SHALL BE INSTALLED ON ALL CONDUIT TERMINATIONS.
4. NONMETALLIC CONDUIT AND FITTINGS SHALL BE SCHEDULE 40/80 PVC. INSTALL USING SOLVENT-CEMENT-TYPE JOINTS AS RECOMMENDED BY THE MANUFACTURER.

**B. CONDUCTORS AND CABLE:**

1. AC CONDUCTORS SHALL BE FLAME-RETARDANT, MOISTURE AND HEAT RESISTANT THERMOPLASTIC, SINGLE CONDUCTOR, COPPER, TYPE THHN/THWN-2, 600 VOLT, SIZE AS INDICATED, #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR USED.
2. #10 AWG AND SMALLER CONDUCTOR SHALL BE SOLID OR STRANDED AND #8 AWG AND LARGER CONDUCTORS SHALL BE STRANDED.
3. SOLDERLESS, COMPRESSION-TYPE CONNECTORS SHALL BE USED FOR TERMINATION OF ALL STRANDED CONDUCTORS.
4. STRAIN-RELIEF SUPPORTS GRIPS SHALL BE HUBBELL KELLEMS OR APPROVED EQUAL. CABLES SHALL BE SUPPORTED IN ACCORDANCE WITH THE NEC AND CABLE MANUFACTURER'S RECOMMENDATIONS.
5. ALL CONDUCTORS SHALL BE TAGGED AT BOTH ENDS OF THE CONDUCTOR, AT ALL PULL BOXES, J-BOXES, EQUIPMENT AND CABINETS AND SHALL BE IDENTIFIED WITH APPROVED PLASTIC TAGS (ACTION CRAFT, BRADY, OR APPROVED EQUAL).

**C. DISCONNECT SWITCHES:**

1. DISCONNECT SWITCHES SHALL BE HEAVY DUTY, DEAD-FRONT, QUICK-MAKE, QUICK-BREAK, EXTERNALLY OPERABLE, HANDLE LOCKABLE AND INTERLOCK WITH COVER IN CLOSED POSITION, RATING AS INDICATED, UL LABELED FURNISHED IN NEMA 3R ENCLOSURE, SQUARE-D OR

ENGINEERED APPROVED EQUAL.

**E. SYSTEM GROUNDING:**

1. ALL GROUNDING COMPONENTS SHALL BE TINNED AND GROUNDING CONDUCTOR SHALL BE #2 AWG BARE, SOLID, TINNED, COPPER. ABOVE GRADE GROUNDING CONDUCTORS SHALL BE INSULATED WHERE NOTED.
2. GROUNDING BUSES SHALL BE BARE, TINNED, ANNEALED COPPER BARS OF RECTANGULAR CROSS SECTION. STANDARD BUS BARS MGB, SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. THEY SHALL NOT BE FABRICATED OR MODIFIED IN THE FIELD. ALL GROUNDING BUSES SHALL BE IDENTIFIED WITH MINIMUM 3/4" LETTERS BY WAY OF STENCILING OR DESIGNATION PLATE.
3. CONNECTORS SHALL BE HIGH-CONDUCTIVITY, HEAVY DUTY, LISTED AND LABELED AS GROUNDING CONNECTORS FOR THE MATERIALS USED. USE TWO-HOLE COMPRESSION LUGS WITH HEAT SHRINK FOR MECHANICAL CONNECTIONS. INTERIOR CONNECTIONS USE TWO-HOLE COMPRESSION LUGS WITH INSPECTION WINDOW AND CLEAR HEAT SHRINK.
4. EXOTHERMIC WELDED CONNECTIONS SHALL BE PROVIDED IN KIT FORM AND SELECTED FOR THE SPECIFIC TYPES, SIZES, AND COMBINATIONS OF CONDUCTORS AND OTHER ITEMS TO BE CONNECTED.
5. GROUND RODS SHALL BE ERICO #615800, COPPER-CLAD STEEL WITH HIGH-STRENGTH STEEL CORE AND ELECTROLYTIC-GRADE COPPER OUTER SHEATH, MOLTEN WELDED TO CORE, 5/8"X10'-0".
6. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS IN COMPLIANCE WITH THE SPRINT SPECIFICATIONS AND NEC. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULLBOXES, DISCONNECT SWITCHES, STARTERS, AND EQUIPMENT CABINETS.

**F. OTHER MATERIALS:**

1. THE CONTRACTOR SHALL PROVIDE OTHER MATERIALS, THOUGH NOT SPECIFICALLY DESCRIBED, WHICH ARE REQUIRED FOR A COMPLETELY OPERATIONAL SYSTEM AND PROPER INSTALLATION OF THE WORK.
2. PROVIDE PULL BOXES AND JUNCTION BOXES WHERE SHOWN OR REQUIRED BY NEC.

**G. PANELS AND LOAD CENTERS:**

1. ALL PANEL DIRECTORIES SHALL BE TYPEWRITTEN.

**PART 3 – EXECUTION**

**3.1 GENERAL:**

- A. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- B. EQUIPMENT SHALL BE TIGHTLY COVERED AND PROTECTED AGAINST DIRT OR WATER, AND AGAINST CHEMICAL OR MECHANICAL INJURY DURING INSTALLATION AND CONSTRUCTION PERIODS.

**3.2 LABOR AND WORKMANSHIP:**

- A. ALL LABOR FOR THE INSTALLATION OF MATERIALS AND EQUIPMENT FURNISHED FOR THE ELECTRICAL SYSTEM SHALL BE INSTALLED BY EXPERIENCED WIREMEN, IN A NEAT AND WORKMAN-LIKE MANNER.
- B. ALL ELECTRICAL EQUIPMENT SHALL BE ADJUSTED, ALIGNED AND TESTED BY THE CONTRACTOR AS REQUIRED TO PRODUCE THE INTENDED PERFORMANCE.
- C. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED EQUIPMENT, REMOVE ALL LABELS AND ANY DEBRIS, CRATING OR CARTONS AND LEAVE THE INSTALLATION FINISHED AND READY FOR OPERATION.

**3.3 COORDINATION:**

- A. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRICAL ITEMS WITH THE OWNER-FURNISHED EQUIPMENT DELIVERY SCHEDULE TO PREVENT UNNECESSARY DELAYS IN THE TOTAL WORK.

**3.4 INSTALLATION:**

**A. CONDUIT:**

1. ALL ELECTRICAL WIRING SHALL BE INSTALLED IN CONDUIT AS SPECIFIED. NO CONDUIT OR TUBING OF LESS THAN 3/4 INCH TRADE SIZE.
2. PROVIDE RIGID PVC SCHEDULE 80 CONDUITS FOR ALL RISERS, RMC OTHERWISE NOTED. EMT MAY BE INSTALLED FOR EXTERIOR CONDUITS WHERE NOT SUBJECT TO PHYSICAL DAMAGE.
3. INSTALL SCH. 40 PVC CONDUIT WITH A MINIMUM COVER OF 24" UNDER ROADWAYS, PARKING LOTS, STREETS, AND ALLEYS. CONDUIT SHALL HAVE A MINIMUM COVER OF 18" IN ALL OTHER NON-TRAFFIC APPLICATIONS (REFER TO 2008 NEC, TABLE 300.5).
4. USE GALVANIZED FLEXIBLE STEEL CONDUIT WHERE DIRECT CONNECTION TO EQUIPMENT WITH MOVEMENT, VIBRATION, OR FOR EASE OF MAINTENANCE. USE LIQUID TIGHT, FLEXIBLE METAL CONDUIT FOR OUTDOOR APPLICATIONS. INSTALL GALVANIZED FLEXIBLE STEEL CONDUIT AT ALL POINTS OF CONNECTION TO EQUIPMENT MOUNTED ON SUPPORT TO ALLOW FOR EXPANSION AND CONTRACTION.
5. A RUN OF CONDUIT BETWEEN BOXES OR EQUIPMENT SHALL NOT CONTAIN MORE THAN THE EQUIVALENT OF THREE QUARTER-BENDS. CONDUIT BEND SHALL BE MADE WITH THE UL LISTED BENDER OR FACTORY 90 DEGREE ELBOWS MAY BE USED.
6. FIELD FABRICATED CONDUITS SHALL BE CUT SQUARE WITH A CONDUIT CUTTING TOOL AND REAMED TO PROVIDE A SMOOTH INSIDE SURFACE.
7. PROVIDE INSULATED GROUNDING BUSHING FOR ALL CONDUITS.
8. CONTRACTOR IS RESPONSIBLE FOR PROTECTING ALL CONDUITS DURING CONSTRUCTION. TEMPORARY OPENINGS IN THE CONDUIT SYSTEM SHALL BE PLUGGED OR CAPPED TO PREVENT ENTRANCE OF MOISTURE OR FOREIGN MATTER. CONTRACTOR SHALL REPLACE ANY CONDUITS CONTAINING FOREIGN MATERIALS THAT CANNOT BE REMOVED.
9. ALL CONDUITS SHALL BE SWABBED CLEAN BY PULLING AN APPROPRIATE SIZE MANDREL THROUGH THE CONDUIT BEFORE INSTALLATION OF CONDUCTORS OR CABLES. CONDUIT SHALL BE FREE OF DIRT AND DEBRIS.
10. INSTALL PULL STRINGS IN ALL CLEAN EMPTY CONDUITS. IDENTIFY PULL STRINGS AT EACH END.
11. INSTALL 2" HIGHLY VISIBLE AND DETECTABLE TAPE 12" ABOVE ALL UNDERGROUND CONDUITS AND CONDUCTORS.
12. CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO INSURE AGAINST COLLECTION OF TRAPPED CONDENSATION.

**B. CONDUCTORS AND CABLE:**

1. ALL POWER WIRING SHALL BE COLOR CODED AS FOLLOWS:

DESCRIPTION	208/240/120 VOLT SYSTEMS
PHASE A	BLACK
PHASE B	RED
PHASE C	BLUE
NEUTRAL	WHITE
GROUNDING	GREEN

2. SPLICES SHALL BE MADE ONLY AT OUTLETS, JUNCTION BOXES, OR ACCESSIBLE RACEWAY CONDULETS APPROVED FOR THIS PURPOSE.
3. PULLING LUBRICANTS SHALL BE UL APPROVED. CONTRACTOR SHALL USE NYLON OR HEMP ROPE FOR PULLING CONDUCTOR OR CABLES INTO THE CONDUIT.
4. CABLES SHALL BE NEATLY TRAINED, WITHOUT INTERLACING, AND BE OF SUFFICIENT LENGTH IN ALL BOXES & EQUIPMENT TO PERMIT MAKING A NEAT ARRANGEMENT. CABLES SHALL BE SECURED IN A MANNER TO AVOID TENSION ON CONDUCTORS OR TERMINALS. CONDUCTORS SHALL BE PROTECTED FROM MECHANICAL INJURY AND MOISTURE. SHARP BENDS OVER CONDUIT BUSHINGS IS PROHIBITED. DAMAGED CABLES SHALL BE REMOVED AND REPLACED AT THE CONTRACTOR'S EXPENSE.

**C. DISCONNECT SWITCHES:**

1. INSTALL DISCONNECT SWITCHES LEVEL AND PLUMB. CONNECT TO WIRING SYSTEM AND GROUNDING SYSTEM AS INDICATED.

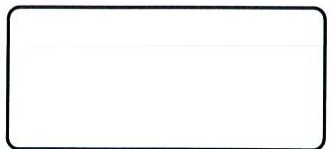
**D. GROUNDING:**

1. ALL METALLIC PARTS OF ELECTRICAL EQUIPMENT WHICH DO NOT CARRY CURRENT SHALL BE GROUNDED IN ACCORDANCE WITH THE REQUIREMENTS OF THE MANUFACTURER, AND THE NATIONAL ELECTRICAL CODE.
2. PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEM INDICATED WITH ASSEMBLY OF MATERIALS, INCLUDING GROUNDING ELECTRODES, BONDING JUMPERS AND ADDITIONAL ACCESSORIES AS REQUIRED FOR A COMPLETE INSTALLATION.
3. ALL GROUNDING CONDUCTORS SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND WITH GRADUAL BEND AS REQUIRED. GROUNDING CONDUCTORS SHALL NOT BE LOOPED OR SHARPLY BENT. ROUTE GROUNDING CONNECTIONS AND CONDUCTORS TO GROUND IN THE SHORTEST AND STRAIGHTEST PATHS POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISES.
4. TIGHTEN GROUNDING AND BONDING CONNECTORS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR CONNECTORS AND BOLTS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT AVAILABLE, TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUES SPECIFIED IN UL TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
5. CONTRACTOR SHALL VERIFY THE LOCATIONS OF GROUNDING TIE-IN-POINTS TO THE EXISTING GROUNDING SYSTEM. ALL UNDERGROUND GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
6. ALL GROUNDING CONNECTIONS SHALL BE INSPECTED FOR TIGHTNESS. EXOTHERMIC WELDED CONNECTIONS SHALL BE APPROVED BY THE INSPECTOR HAVING JURISDICTION BEFORE BEING PERMANENTLY CONCEALED.
7. APPLY CORROSION-RESISTANCE FINISH TO FIELD CONNECTIONS AND PLACES WHERE FACTORY APPLIED PROTECTIVE COATINGS HAVE BEEN DESTROYED. USE KOPR-SHIELD ANTI-OXIDATION COMPOUND ON ALL COMPRESSION GROUNDING CONNECTIONS.
8. A SEPARATE, CONTINUOUS, INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL FEEDER AND BRANCH CIRCUITS.
9. BOND ALL INSULATED GROUNDING BUSHINGS WITH A BARE 6 AWG GROUNDING CONDUCTOR TO A GROUND BUS.
10. DIRECT BURIED GROUNDING CONDUCTORS SHALL BE INSTALLED AT A NOMINAL DEPTH OF 36" MINIMUM BELOW GRADE, OR 6" BELOW THE FROST LINE, USE THE GREATER OF THE TWO DISTANCES.
11. ALL GROUNDING CONDUCTORS EMBEDDED IN OR PENETRATING CONCRETE SHALL BE INSTALLED IN SCHEDULE 40 PVC CONDUIT.
12. THE INSTALLATION OF CHEMICAL ELECTROLYTIC GROUNDING SYSTEM IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. REMOVE SEALING TAPE FROM LEACHING AND BREATHER HOLES. INSTALL PROTECTIVE BOX FLUSH WITH GRADE.
13. DRIVE GROUND RODS UNTIL TOPS ARE A MINIMUM DISTANCE OF 36" DEPTH OR 6" BELOW FROST LINE, USING THE GREATER OF THE TWO DISTANCES.
14. CONTRACTOR SHALL REPAIR, AND/OR REPLACE, EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE CONTRACTORS EXPENSE.

**3.5 ACCEPTANCE TESTING:**

- A. CERTIFIED PERSONNEL USING CERTIFIED EQUIPMENT SHALL PERFORM REQUIRED TESTS AND SUBMIT WRITTEN TEST REPORTS UPON COMPLETION.
- B. WHEN MATERIAL AND/OR WORKMANSHIP IS FOUND NOT TO COMPLY WITH THE SPECIFIED REQUIREMENTS, THE NON-COMPLYING ITEMS SHALL BE REMOVED FROM THE PROJECT SITE AND REPLACED WITH ITEMS COMPLYING WITH THE SPECIFIED REQUIREMENTS PROMPTLY AFTER RECEIPT OF NOTICE FOR NON-COMPLIANCE.
- C. TEST PROCEDURES:
  1. ALL FEEDERS SHALL HAVE INSULATION TESTED AFTER INSTALLATION, BEFORE CONNECTION TO DEVICES. THE CONDUCTORS SHALL TEST FREE FROM SHORT CIRCUITS AND GROUNDS. TESTING SHALL BE FOR ONE MINUTE USING 1000V DC. PROVIDE WRITTEN DOCUMENTATION FOR ALL TEST RESULTS.
  2. PRIOR TO ENERGIZING CIRCUITRY, TEST WIRING DEVICES FOR ELECTRICAL CONTINUITY AND PROPER POLARITY CONNECTIONS.
  3. MEASURE AND RECORD VOLTAGES BETWEEN PHASES AND BETWEEN PHASE CONDUCTORS AND NEUTRALS. SUBMIT A REPORT OF MAXIMUM AND MINIMUM VOLTAGES.
  4. PERFORM GROUNDING TEST TO MEASURE GROUNDING RESISTANCE OF GROUNDING SYSTEM USING THE IEEE STANDARD 3-POINT "FALL-OFF-POTENTIAL" METHOD. PROVIDE PLOTTED TEST VALUES AND LOCATION SKETCH. NOTIFY THE ENGINEER IMMEDIATELY IF MEASURED VALUE IS OVER 5 OHMS.

**GENERAL NOTES**



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PROJECT NO.	DRAWN BY	CHECKED BY
196954.9107	MSC	LW

REV	DATE	DESCRIPTION
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**EXTENET SYSTEMS**  
NC-MO-STLCHFV-VZW

SMALL CELL

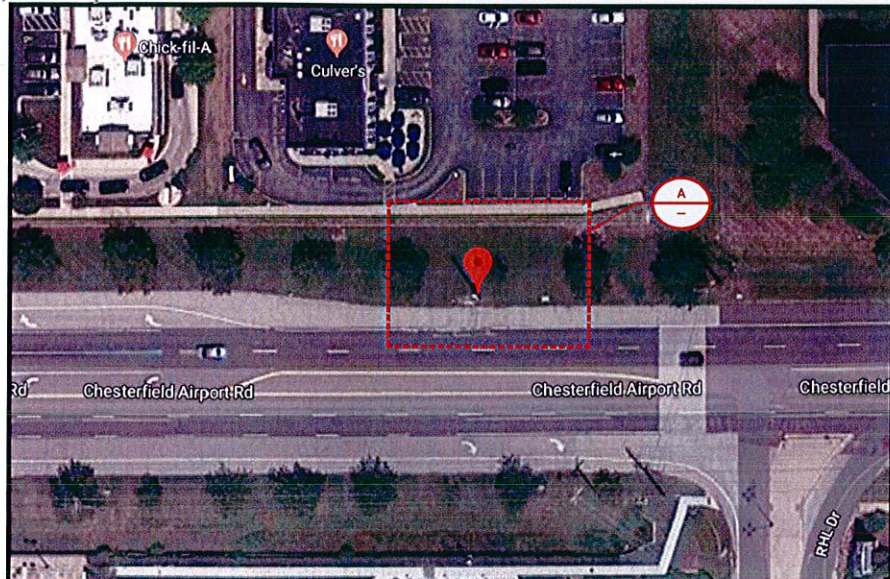
SITE ADDRESS  
CHESTERFIELD-02  
17359 CHESTERFIELD AIRPORT RD  
CHESTERFIELD, MO 63005

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

**GN-3**



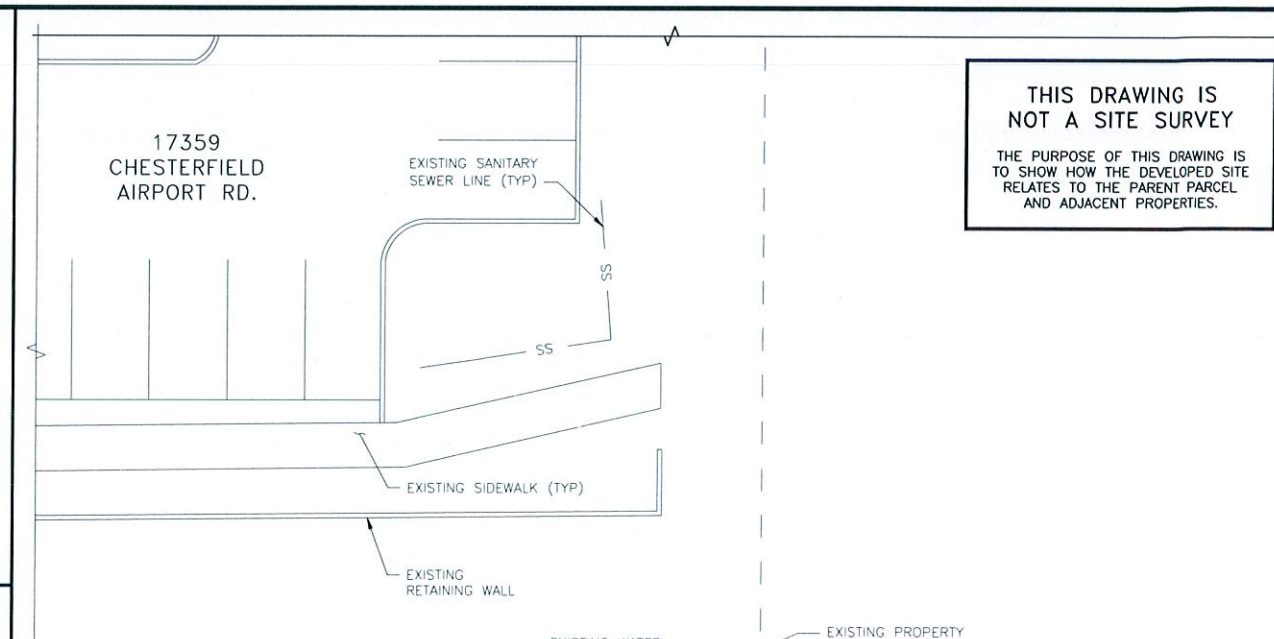
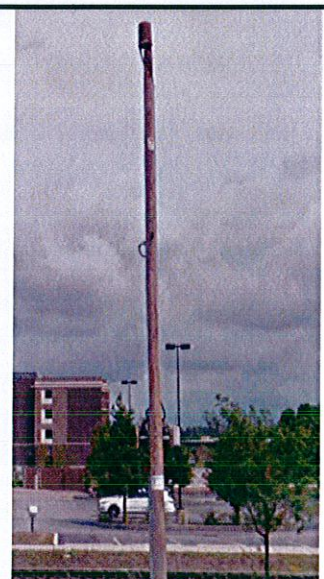
AERIAL SITE MAP

NO SCALE

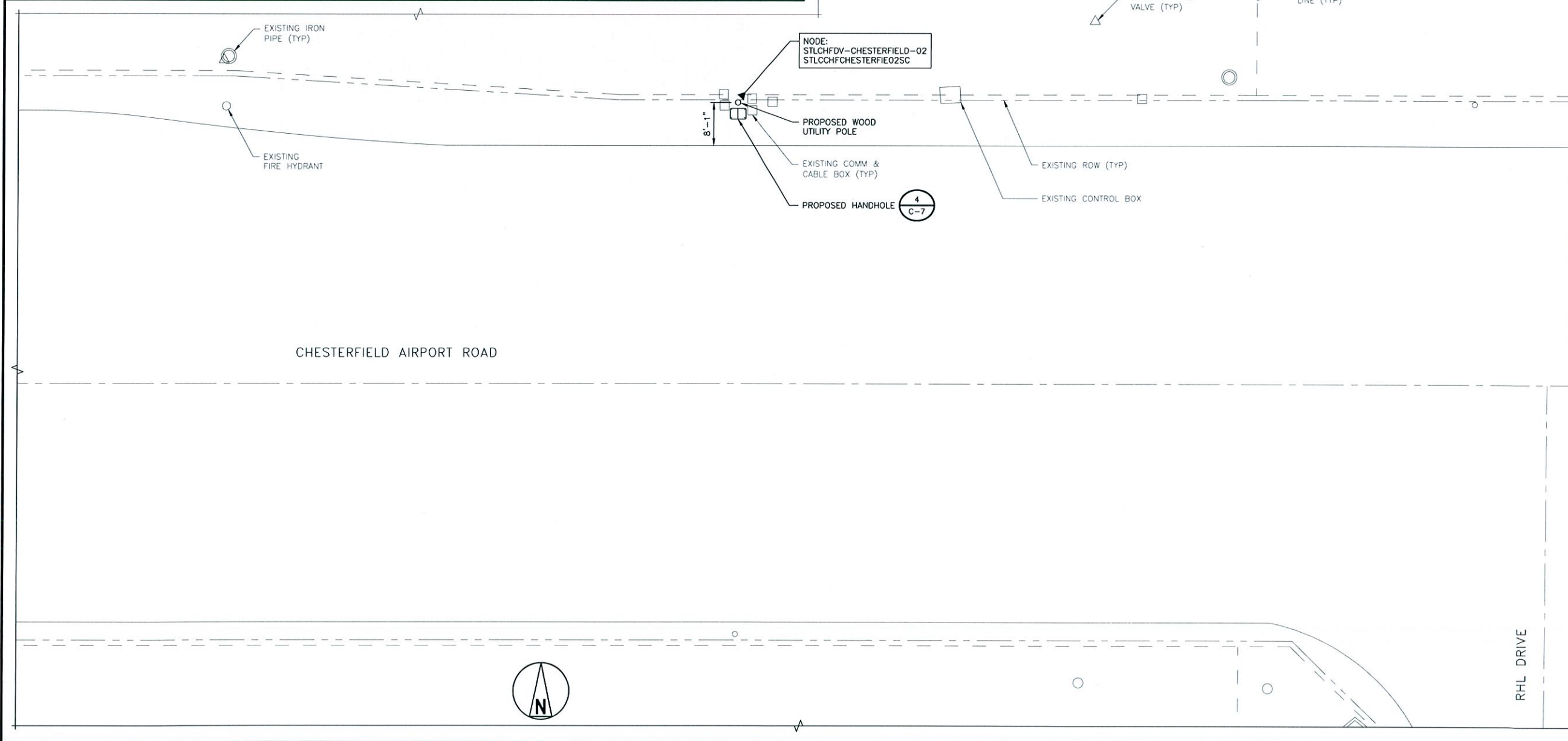
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SITE PHOTO

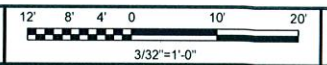
2



THIS DRAWING IS NOT A SITE SURVEY  
 THE PURPOSE OF THIS DRAWING IS TO SHOW HOW THE DEVELOPED SITE RELATES TO THE PARENT PARCEL AND ADJACENT PROPERTIES.



OVERALL SITE PLAN



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REV	DATE	DESCRIPTION
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STATE OF MISSOURI  
 TAYLOR MURPHY  
 NUMBER PE-2015000582  
 PROFESSIONAL ENGINEER  
 05/03/2018

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EXTENET SYSTEMS  
 NC-MO-STLCHFDV-VZW  
 SMALL CELL

SITE ADDRESS  
 CHESTERFIELD-02  
 17359 CHESTERFIELD AIRPORT RD  
 CHESTERFIELD, MO 63005

SHEET TITLE  
 OVERALL SITE PLAN

SHEET NUMBER  
**C-1**

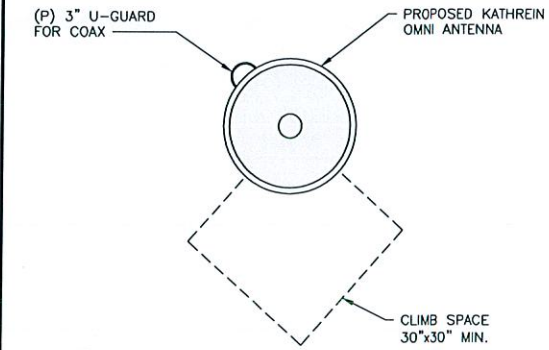
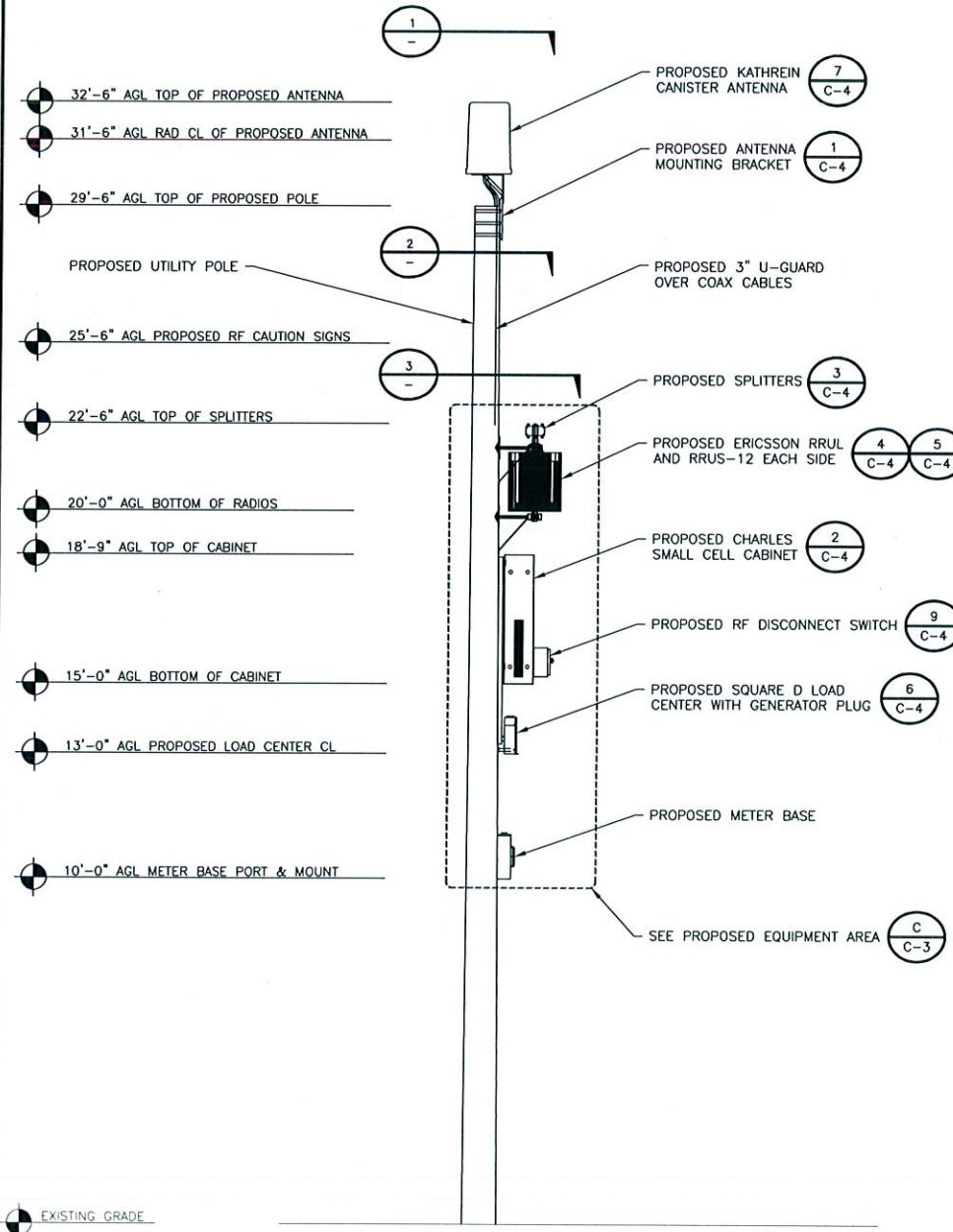


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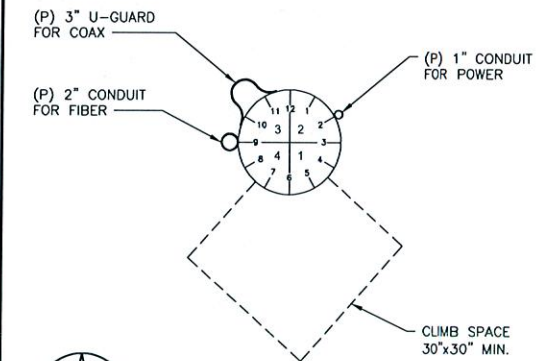
THESE DRAWINGS HAVE BEEN CREATED BASED ON THE ASSUMPTION THAT THE STRUCTURE HAS SUFFICIENT CAPACITY TO SUPPORT THE PROPOSED LOADING. IT IS THE RESPONSIBILITY OF THE POLE OWNER TO CONFIRM THAT THE PROPOSED LOADING IS WITHIN THE ORIGINAL DESIGN CAPACITY OF THE STRUCTURE.

**MAKE-READY NOTES:**

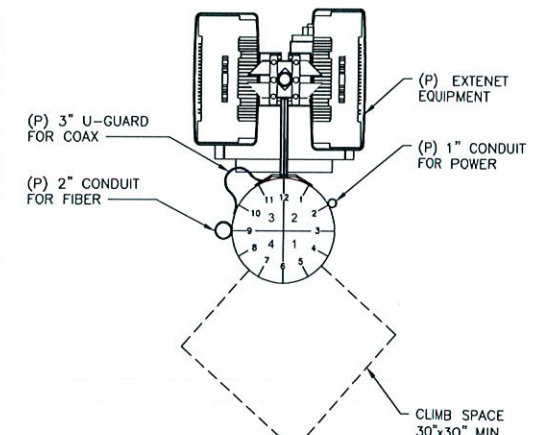
- PLACE NEW 35' CL3 POLE.
- INSTALL (1) OMNI ANTENNA ON POLE TOP.
- INSTALL (12) 1/2" COAX FROM EQUIPMENT SPACE TO ANTENNA AT 10:30 POSITION.
- INSTALL 3" SCH 80 U-GUARD OVER COAX AT 10:30 POSITION.
- INSTALL 2" SCH 80 CONDUIT FOR FIBER AT 9:00 POSITION.
- INSTALL 1" SCH 80 CONDUIT FOR POWER AT 2:00 POSITION.
- PROVIDE 120/240 3-WIRE SINGLE PHASE, 60 AMP SERVICE TO DISCONNECT FROM SECONDARY SOURCE.
- INSTALL CHARLES POWER CABINET, ERICSSON RADIOS AND DISCONNECT AT 12:00 POSITION.



ANTENNA PLAN VIEW NO SCALE 1



RISER PLAN VIEW NO SCALE 2



EQUIPMENT PLAN VIEW NO SCALE 3



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EXTENET SYSTEMS  
NC-MO-STLCHFV-VZW  
SMALL CELL

SITE ADDRESS  
CHESTERFIELD-02  
17359 CHESTERFIELD AIRPORT RD  
CHESTERFIELD, MO 63005

SHEET TITLE  
POLE ELEVATIONS  
AND RISER DETAILS

SHEET NUMBER  
**C-2**

NOT USED

NO SCALE

A

PROPOSED SOUTH ELEVATION

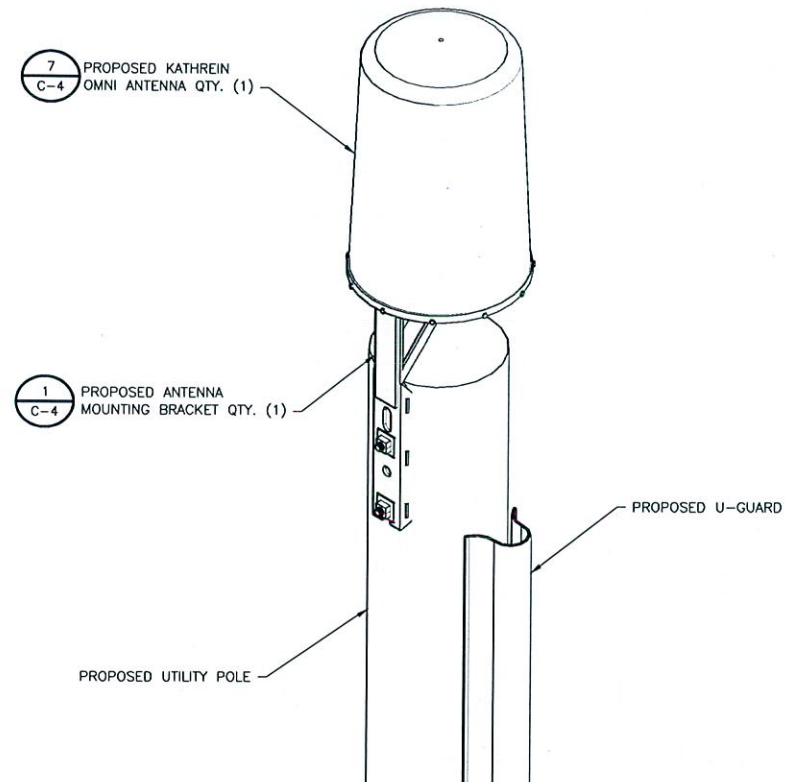


B

EQUIPMENT PLAN VIEW

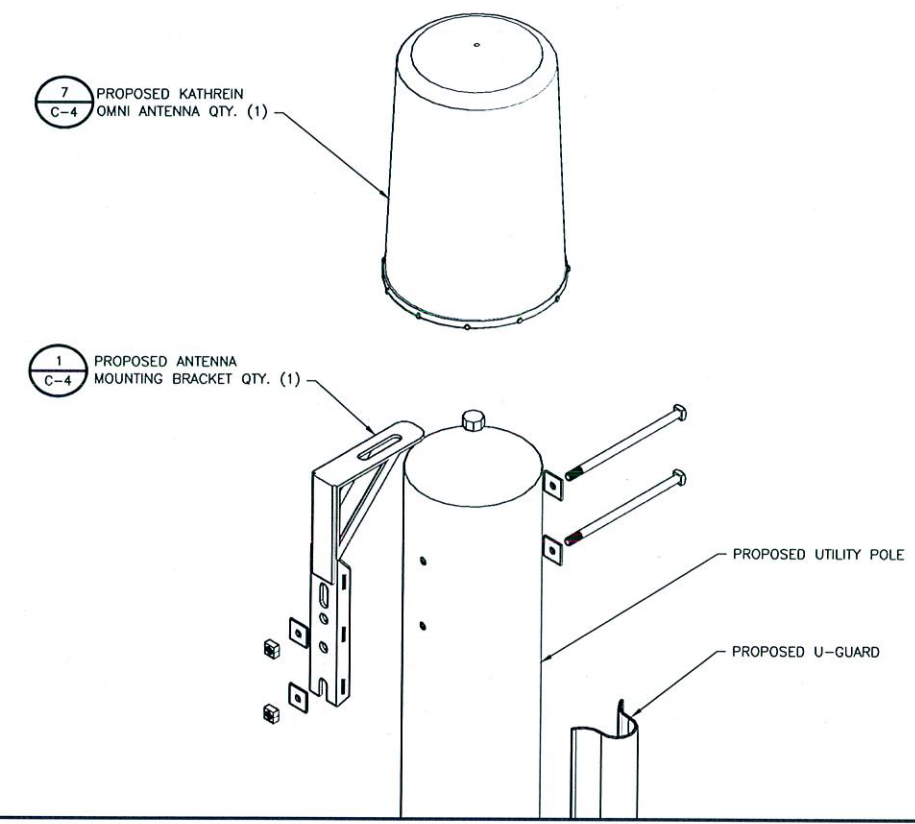
NO SCALE

3



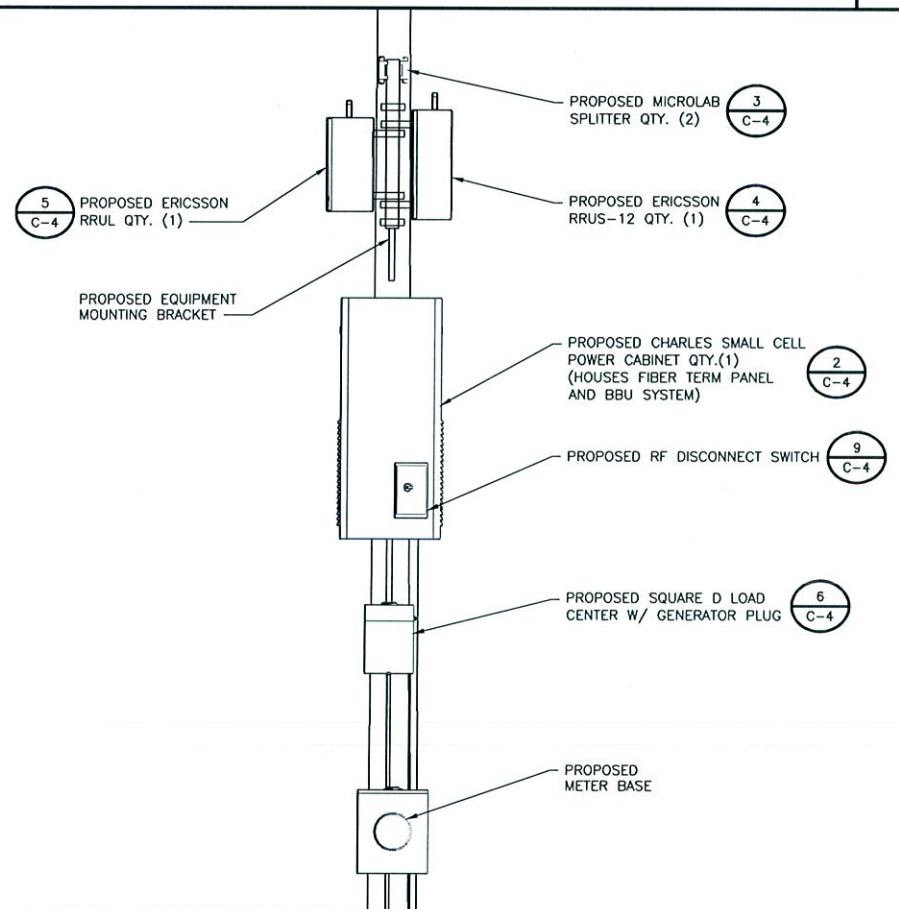
ANTENNA MOUNT ASSEMBLY DETAIL

NO SCALE 1



ANTENNA MOUNT ASSEMBLY DETAIL

NO SCALE 2



EQUIPMENT CONFIGURATION DETAIL

NO SCALE 3

NOT USED

NO SCALE 4

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REV	DATE	DESCRIPTION
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STATE OF MISSOURI  
TAYLOR MURPHY  
NUMBER PE-2015000582  
PROFESSIONAL ENGINEER  
05/03/2018

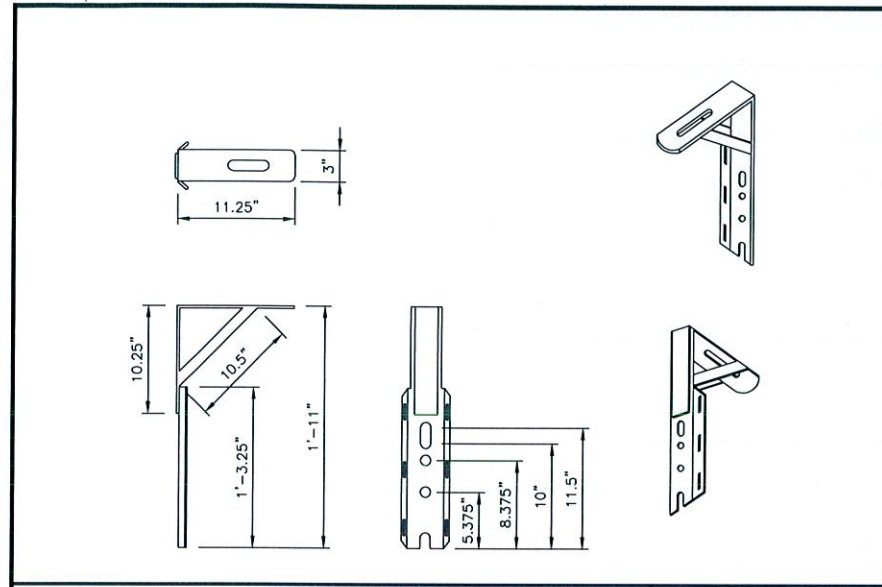
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EXTENET SYSTEMS  
NC-MO-STLCHFDV-VZW  
SMALL CELL

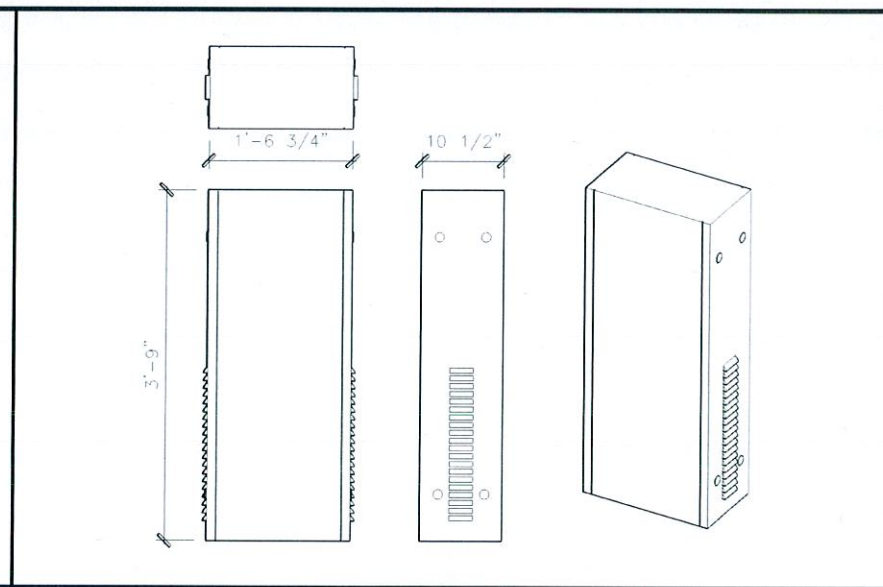
SITE ADDRESS  
CHESTERFIELD-02  
17359 CHESTERFIELD AIRPORT RD  
CHESTERFIELD, MO 63005

SHEET TITLE  
EQUIPMENT DETAILS

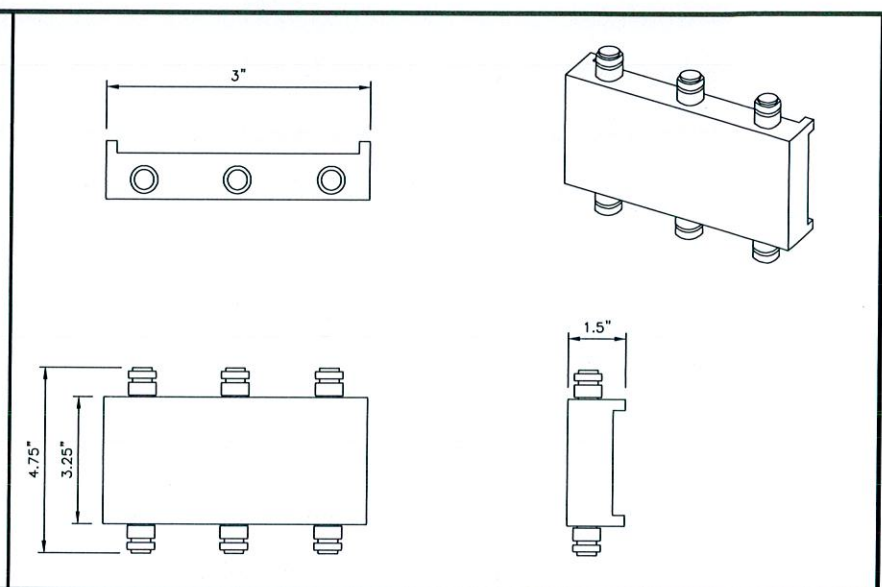
SHEET NUMBER  
**C-3**



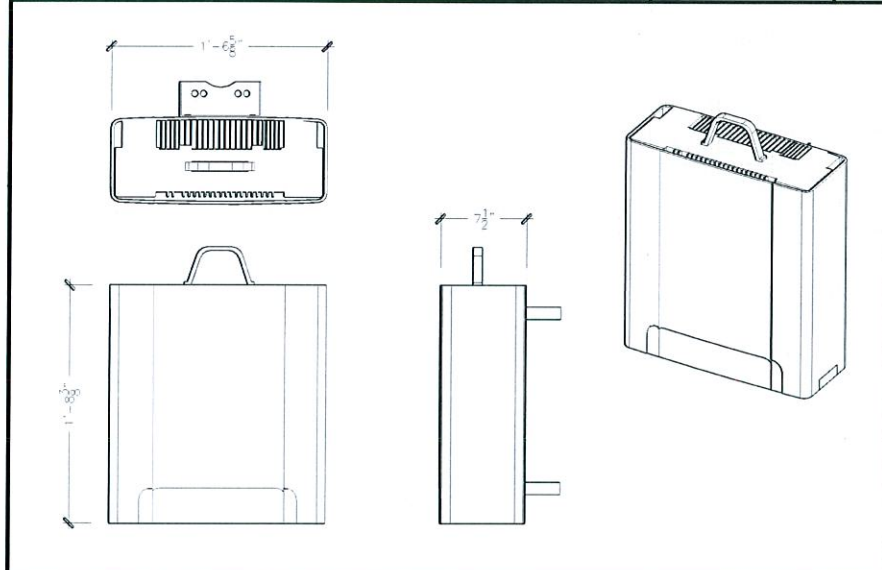
ANTENNA MOUNTING BRACKET NO SCALE 1



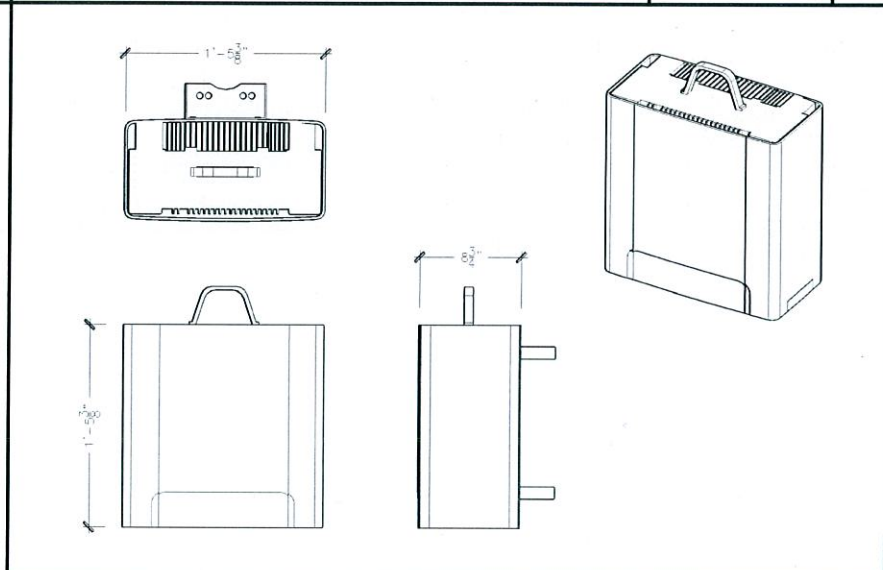
CHARLES SMALL CELL POWER CABINET NO SCALE 2



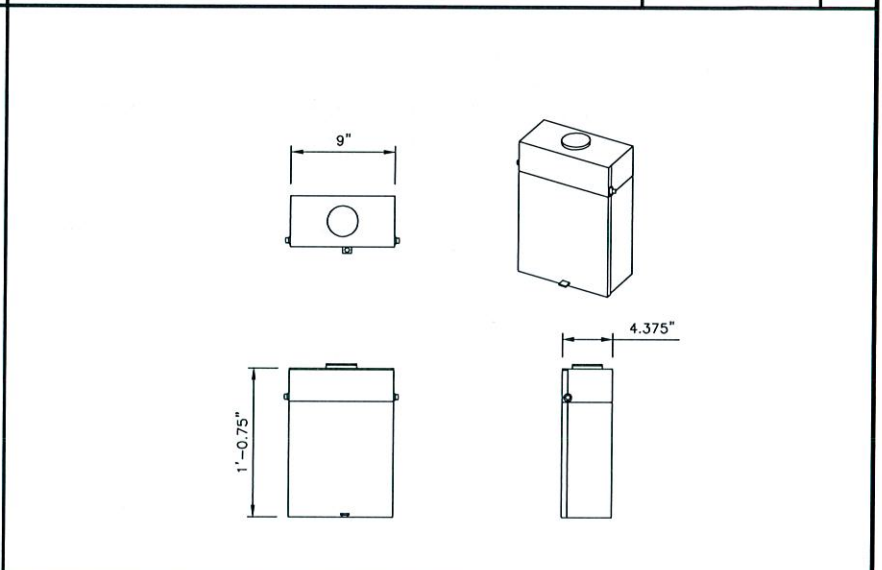
MICROLAB 3X3 HYBRID COUPLER CM-80DP NO SCALE 3



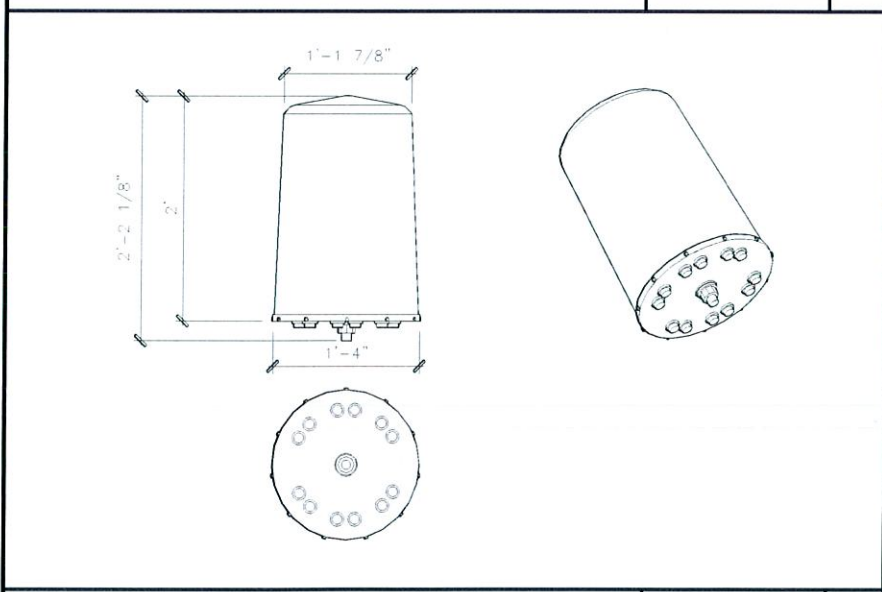
ERICSSON RRUS-12 NO SCALE 4



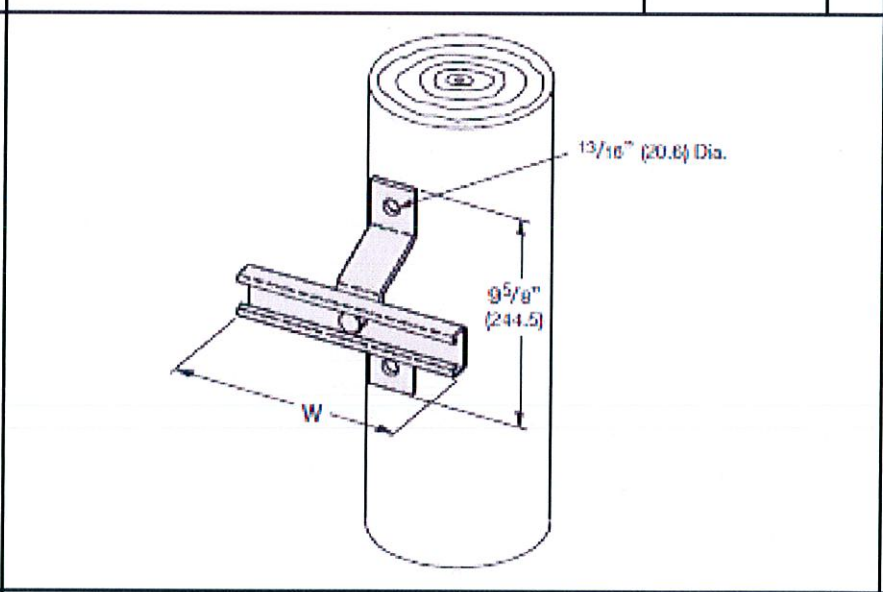
ERICSSON RRUL NO SCALE 5



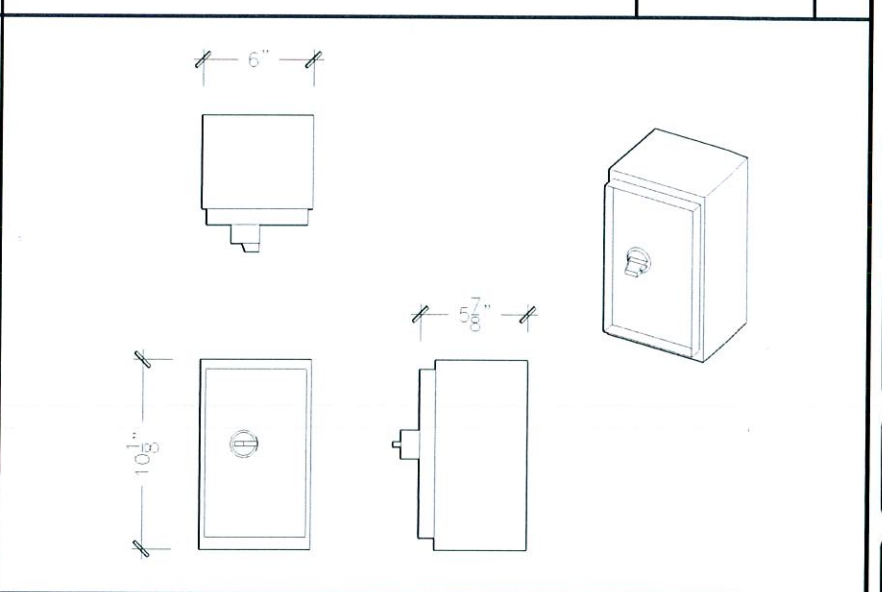
SQUARE D Q08-16L100RB LOAD CENTER NO SCALE 6



KATHREIN OMNI ANTENNA NO SCALE 7



COOPER B-LINE B802D-12 MOUNTING BRACKETS NO SCALE 8



PTS3010 REMOTE ACCESS RF-DISCONNECT NO SCALE 9

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 TAYLOR MURPHY  
 NUMBER PE-2015000582  
 PROFESSIONAL ENGINEER  
 05/03/2018

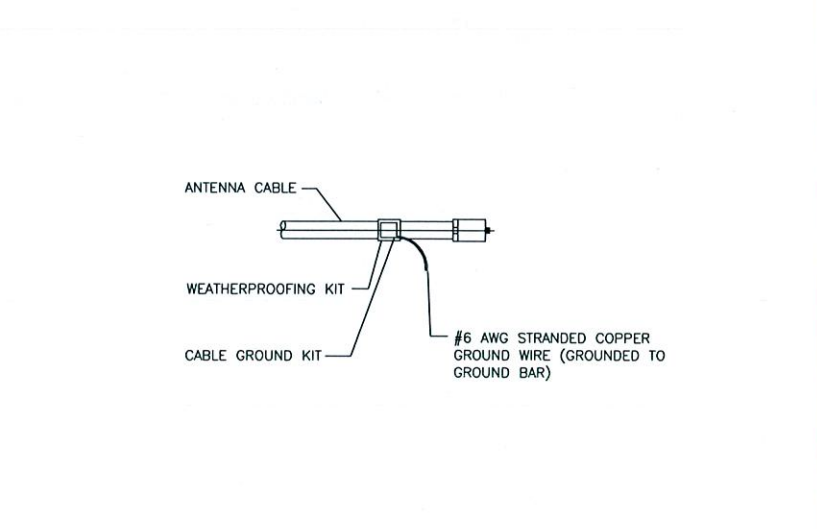
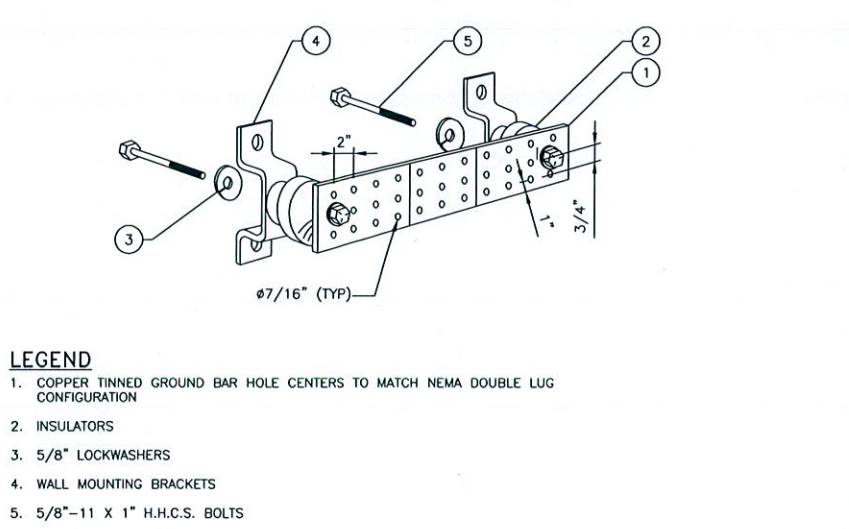
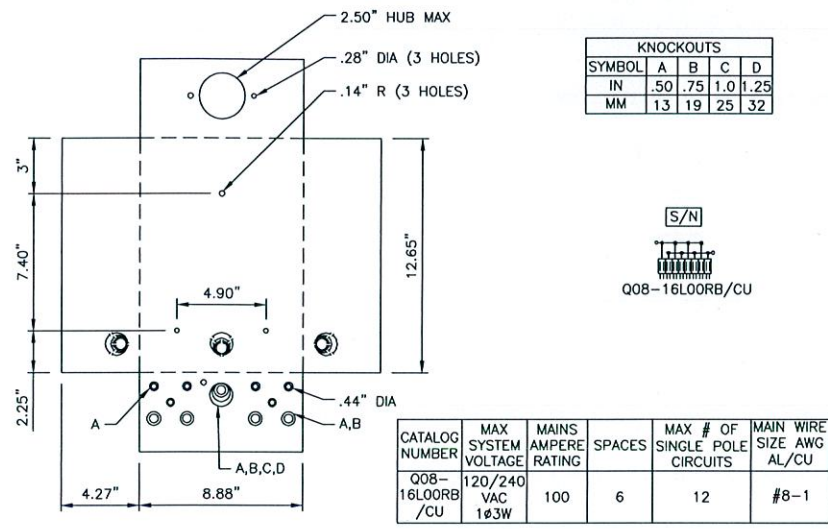
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EXTENET SYSTEMS  
 NC-MO-STLCHFV-VZW  
 SMALL CELL

SITE ADDRESS  
 CHESTERFIELD-02  
 17359 CHESTERFIELD AIRPORT RD  
 CHESTERFIELD, MO 63005

SHEET TITLE  
 EQUIPMENT DETAILS

SHEET NUMBER  
**C-4**



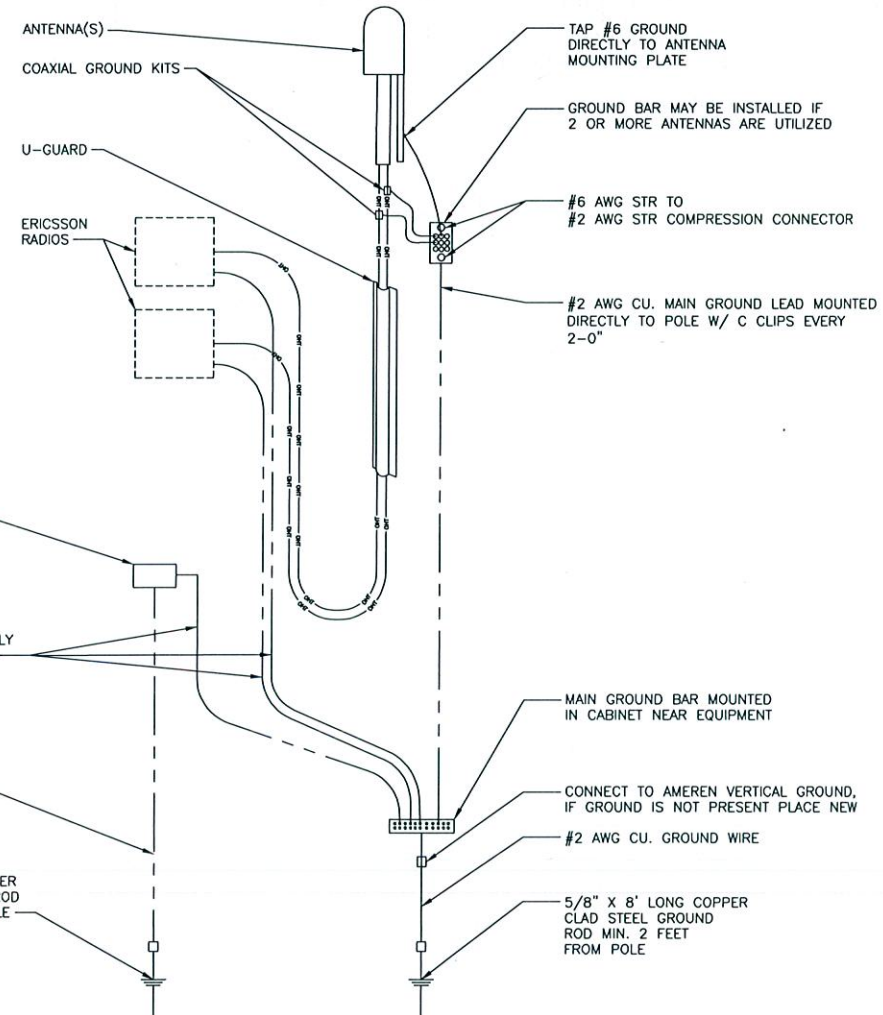
SQUARE D Q08-16L100RB LOAD CENTER NO SCALE 1

POLE MOUNTED GROUND BAR DETAIL (TYP) NO SCALE 2

ANTENNA CABLE GROUND KIT NO SCALE 3

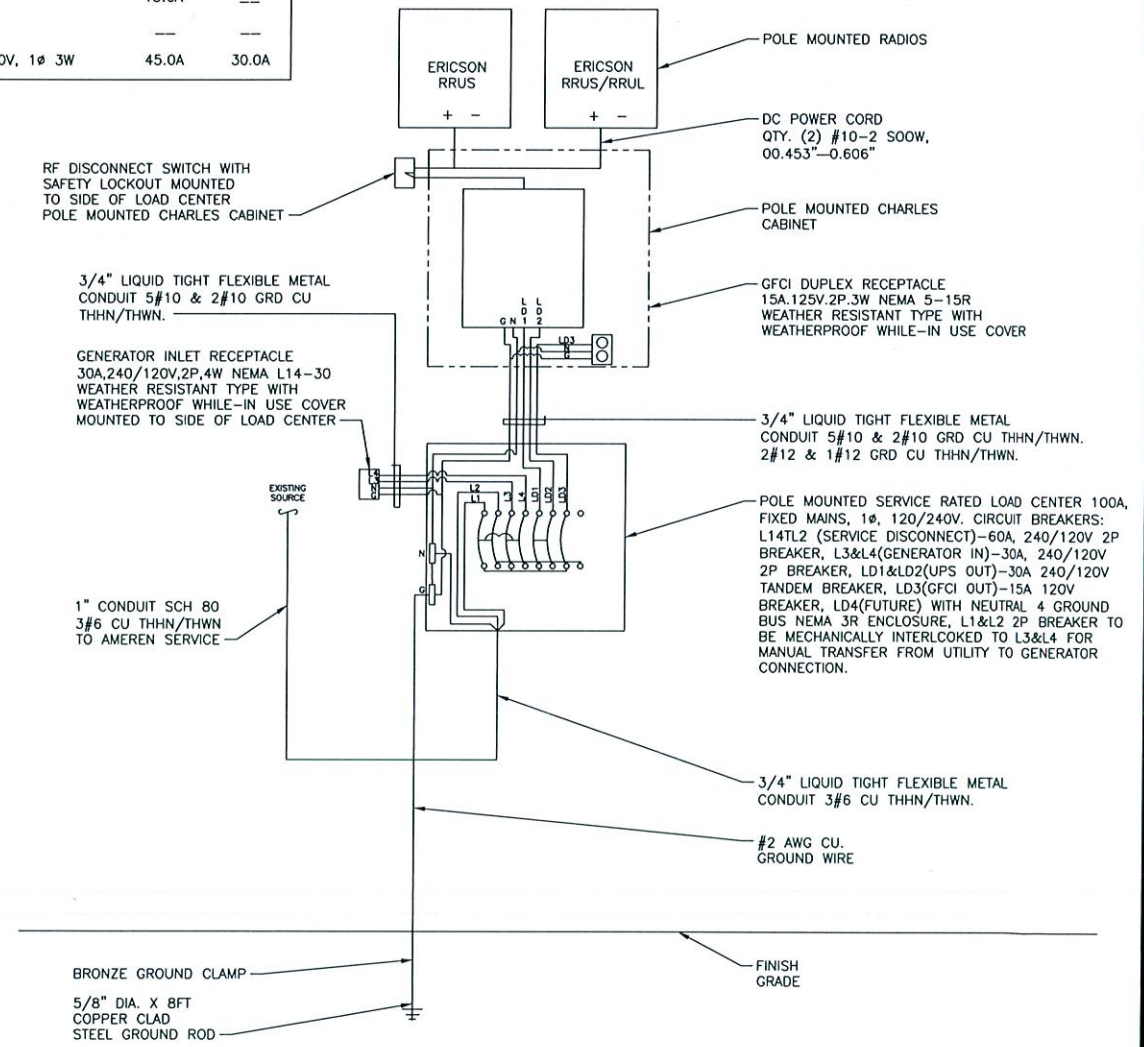
**UTILITY GENERAL NOTES**

1. UTILITY POINTS OF SERVICE AND WORK / MATERIALS SHOWN ARE BASED UPON PRELIMINARY INFORMATION PROVIDED BY THE UTILITY COMPANIES AND ARE FOR BID PURPOSES ONLY.
2. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANY FOR FINAL AND EXACT WORK / MATERIALS REQUIREMENTS AND CONSTRUCT TO UTILITY COMPANY ENGINEERING PLANS AND SPECIFICATIONS ONLY. CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT, PULL ROPES, CABLES, PULL BOXES, POLE RISERS, TRENCHING. BACKFILL, PAY ALL UTILITY COMPANY FEES AND INCLUDE ALL REQUIREMENTS IN SCOPE OF WORK.



**LOAD SUMMARY**

	L1	L2
ELTEK DC-UPS		
GFCI	30.0A	30.0A
FUTURE	15.0A	---
TOTAL	---	---
SERVICE: 120/240V, 1Ø 3W	45.0A	30.0A



GROUNDING SCHEMATIC NO SCALE 4

SINGLE LINE DIAGRAM OVERHEAD SERVICE NO SCALE 5

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05/03/2018

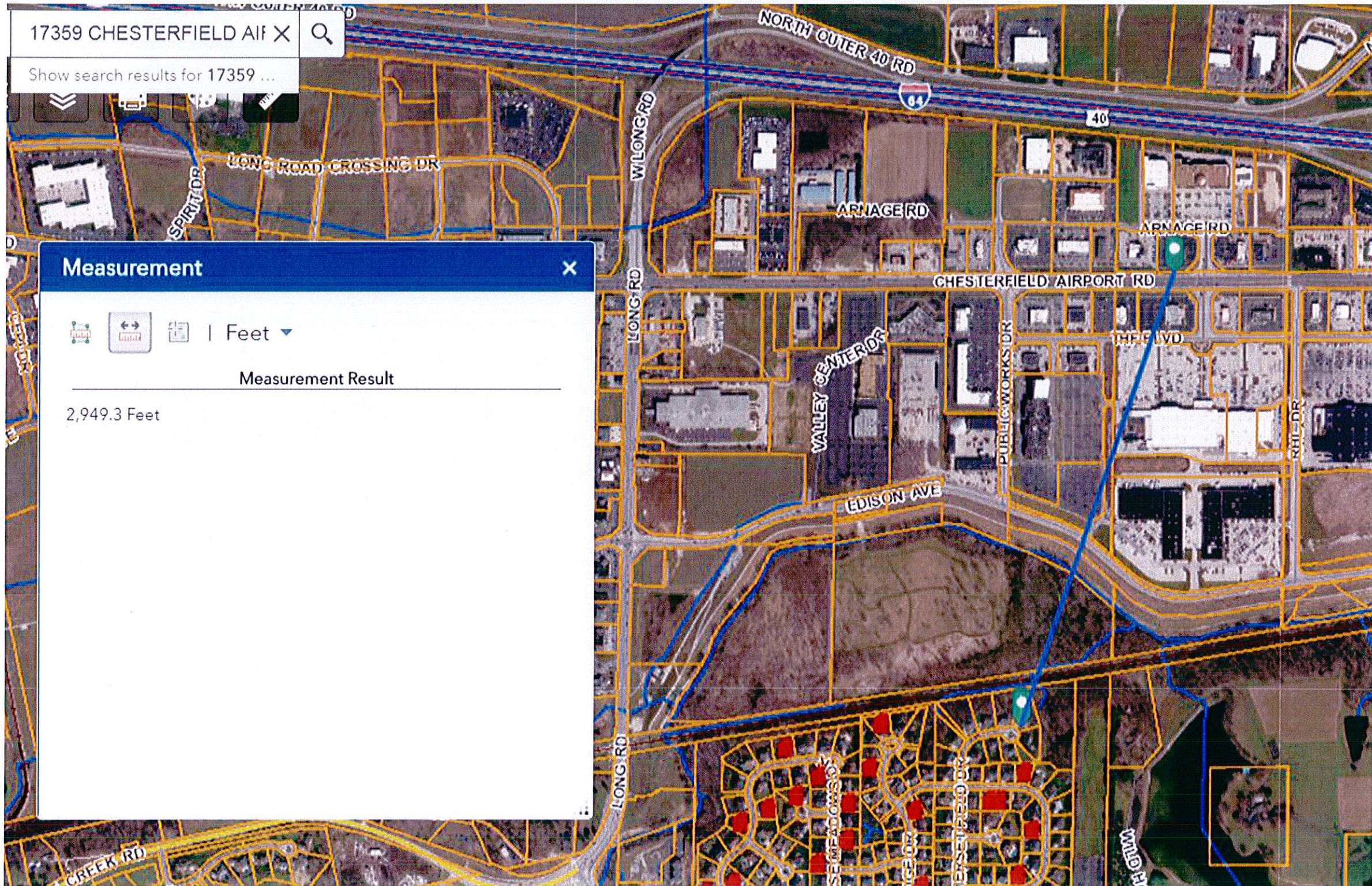
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EXTENET SYSTEMS  
NC-MO-STLCHFV-VZW  
SMALL CELL

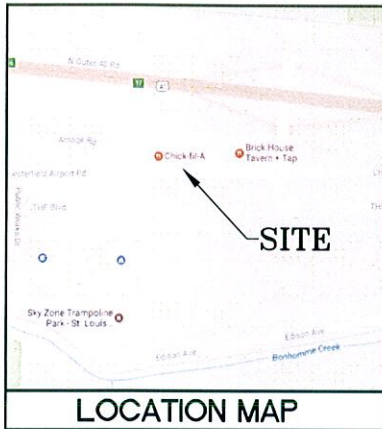
SITE ADDRESS  
CHESTERFIELD-02  
17359 CHESTERFIELD AIRPORT RD  
CHESTERFIELD, MO 63005

SHEET TITLE  
GROUNDING DETAILS

SHEET NUMBER  
**C-5**



Distance to the nearest residential structure.

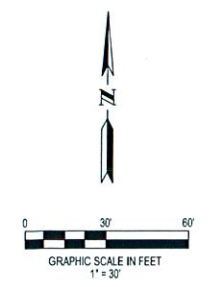


**GLS** GATEWAY LAND SERVICES  
Land Surveying

Gateway Land Services, Inc.  
3078 Olive Blvd.  
St. Louis, MO 63132  
Office 314.881.9558  
www.gls.com  
Land Surveying Services No. LB-200904482

STATE OF MISSOURI  
JAMES L. DEGENHARDT  
NUMBER PLS-2649  
PROFESSIONAL LAND SURVEYOR

James L. Degenhardt, PLS  
License No: PLS-2649

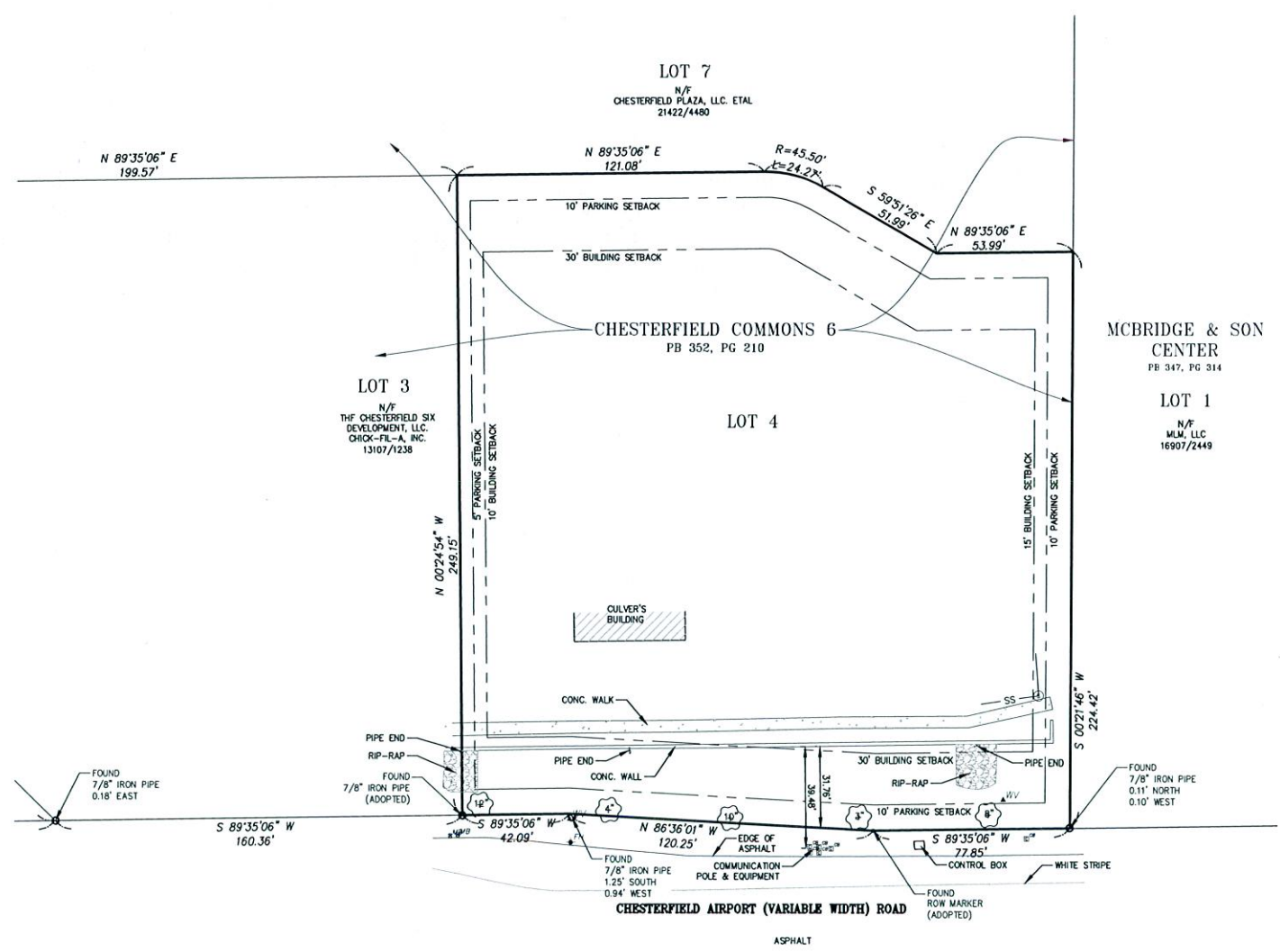


**ABBREVIATIONS**

AC	ACRES
ASPH	ASPHALT
BK	BOOK
BLOG	BUILDING
BM	BENCH MARK
CLF	CHAIN LINK FENCE
CONC	CONCRETE
DB	DEED BOOK
E	EAST
EMH	ELECTRIC MANHOLE
EL	ELEVATION
FF	FINISHED FLOOR
FL	FLOW LINE
L	LENGTH
MH	MANHOLE
N	NORTH
NE	NORTHEAST
NTS	NOT TO SCALE
PB	PLAT BOOK
PG	PAGE
PVC	POLYVINYL CHLORIDE
P.O.C.	POINT OF COMMENCEMENT
P.O.B.	POINT OF BEGINNING
R	RADIUS
RCP	REINFORCED CONC. PIPE
REC	RECORD
RR/TIE	RAIL ROAD TIE WALL
R/W	RIGHT OF WAY
S	SOUTH
SA	SANITARY
SBM	SITE BENCHMARK
SF	SQUARE FEET
ST	STORM
SUR	SURVEY
SW	SOUTHWEST
TRANS	TRANSFORMER
VCP	VITRIFIED CLAY PIPE
W	WEST
WMH	WATER MANHOLE
W/	DENOTES WITH

**LEGEND**

PP	POWER POLE W/DUY WIRE
PP	POWER POLE
SS	STREET SIGN
GV	GAS VALVE
GM	GAS METER
WV	WATER VALVE
WM	WATER METER
WF/WS	WATER FAUCET OR SPRINKLER
CO	CLEAN OUT
ER	ELECTRIC RISER
YD	YARD DRAIN
EB/EM	ELECTRIC BOX OR METER
MB	MAIL BOX
TB/CB	TELEPHONE OR CABLE BOX
LS	LIGHT STANDARD
FH	FIRE HYDRANT
TS	TRAFFIC SIGNAL
YL	YARD LIGHT
CM	COIN METER
TH	TEST HOLE
FP	FLAGPOLE
BOLLARD	BOLLARD
OU	OVERHEAD UTILITY LINE
G	GAS LINE
UE	UNDERGROUND ELECTRIC
SS	SANITARY SEWER
W	WATER LINE
ST	STORM SEWER
FENCE	FENCE
UT	UNDERGROUND TELEPHONE
FO	FIBER OPTIC
TREE LINE	TREE LINE
TREE W/SIZE	TREE W/SIZE
SGI	STORM GRATE INLET
SI	STORM INLET
ET	ELECTRIC TRANSFORMER
SMH	SANITARY MANHOLE
UMH	UTILITY MANHOLE
BUSH	BUSH W/ DIAMETER
EPB	ELEC. PULL BOX



**PROPERTY DESCRIPTION:**  
A tract of land being Lot 4 of Chesterfield Commons Six, as per the plat thereof recorded in Plat Book 352, page 210 of the St. Louis County Records.

**SURVEYOR'S NOTES:**  
BASIS OF BEARINGS: The bearing system used has been adopted from the record plat of Chesterfield Commons Six, recorded in Plat Book 352, page 210 of the St. Louis County Records.  
FLOOD PLAIN INFORMATION: Subject Tract is within "Zone X", areas determined to be outside the 0.2% annual chance floodplain, as shown on the FEMA FIRM (Flood Insurance Rate Map) 29189C0214K, Dated February 4, 2015.  
Utilities have been field located based on field observations.

**SURVEYOR'S CERTIFICATE**

This is to certify that we, Gateway Land Services, Inc., at the request of Black & Veatch have during the month of May, 2017, executed a Partial Property Boundary & Improvement Survey in accordance with the current Minimum Standards for Property Boundary Surveys as established by the Missouri Board for Architects, Professional Engineers, and Professional Land Surveyors and Landscape Architects, and the Department of Agriculture, Division of Land Survey on a Tract of Land as shown hereon and that the results of said survey are represented upon this plat. The subject property is an URBAN property as defined in said Standards. The bearing reference system and assessments unless referenced otherwise are taken from the record plat.

Gateway Land Services (Agent)  
*James L. Degenhardt*  
(Agent) James L. Degenhardt - PLS 2649

Missouri One Call System, Inc.  
Call Before You Dig!  
1-800-DIG-RITE  
(1-800-344-7483)

All the improvements & facilities and utilities, above ground and underground shown herein were plotted from available information and do not necessarily reflect the actual existence, nonexistence, elevation, size, type, number or location of these or other improvements, facilities, or utilities. The General Contractor and/or owner shall be responsible for verifying the actual location & elevation of all improvements, facilities, & utilities, shown or not shown, and said improvements, facilities, & utilities shall be located in the field prior to any grading, excavation or construction of any improvements. These provisions shall in no way absolve any part from complying with the Underground Facility Safety & Damage Prevention Act, Chapter 319, RSMo.

CALL MISSOURY ONE-CALL, 1-800-DIG-RITE.

**PROJECT REVISION:**

NO.	DATE	DESCRIPTION

**SITE NAME: STITCHED**

17359 W. CHESTERFIELD  
AIRPORT RD # 60005  
CHESTERFIELD, MO 63005  
ST. LOUIS COUNTY

**PARTIAL BOUNDARY & IMPROVEMENT SURVEY**

DATE: 5/31/17  
BOOK NO.: BOOK NO  
DRAFTED BY: LJV  
APPROVED BY: JLD  
FILE NAME:  
17-109.DWG

SHEET TITLE:  
SURVEY

SHEET NUMBER  
**SUV-1**

SHEET NO: 1 OF 1  
PROJECT NO: 17-109