



The Utilities as shown on this drawing were developed from the information available. This is not implied nor intended to be the complete inventory of utilities in this area. It is the clients/contractors responsibility to verify the location of all utilities (whether shown or not) and protect said utilities from any damage.

### GPS COORDINATES

LATITUDE: N38° 47' 32.78"  
 LONGITUDE: W90° 41' 26.47"  
 ELEVATION AT GRADE: 530'  
 SITE BENCHMARK: TOP OF WATER VALVE, ELEV.=537.45'

### LOCAL JURISDICTION INFO

JURISDICTION: CITY OF O'FALLON  
 ZONING: C-2 (GENERAL BUSINESS)  
 EXISTING BUILDING     EXISTING TOWER     RAWLAND  
 EXISTING WATER TOWER     OTHER:

FLOODPLAIN INFORMATION:  
 THIS TRACT IS LOCATED WITHIN ZONE "X", AREA DETERMINED TO BE OUTSIDE THE 500-YEAR FLOODPLAIN, AS LOCATED ON FIRM MAP NO. 29183C0237 E, DATED AUGUST 2, 1996

### PROFESSIONAL CERTIFICATION

SHIVE-HATTERY, INC ARCHITECTURE CERTIFICATION NUMBER: 2005027659  
 SHIVE-HATTERY, INC ENGINEERING CERTIFICATION NUMBER: 2004032498



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



MARTIN VALENTINE, PROFESSIONAL ENGINEER  
 REGISTRATION NUMBER: 2007005050

# ST. CHARLES TOWER

## MEXICO & SONDEREN - MO2014-19

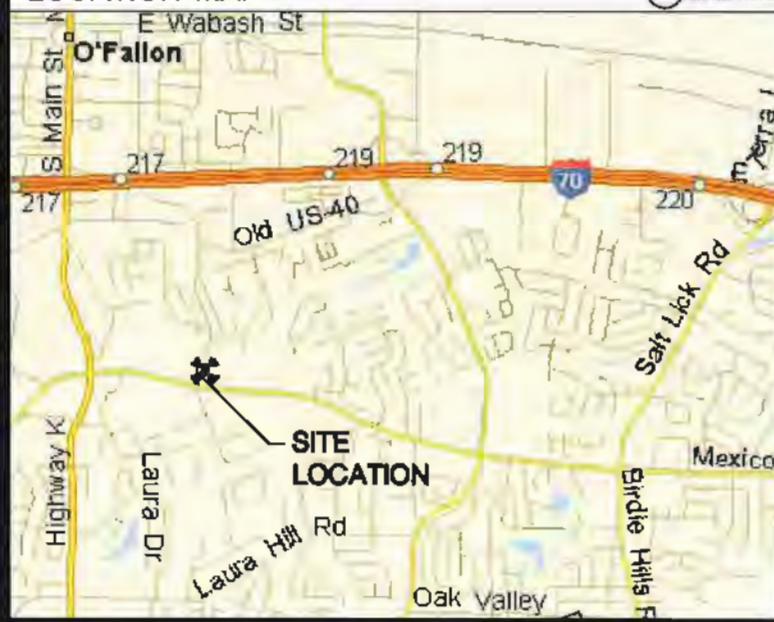
NEW SITE BUILD  
 8368 MEXICO RD.  
 O'FALLON, MO 63366  
 ST. CHARLES COUNTY  
 S/H PROJECT # 8156607

### NEW MONOPOLE

### PROJECT DESCRIPTION

1. PROPOSED ST. CHARLES (MONOPOLE) INSTALLED WITHIN A NEW LEASE AREA, EASEMENTS, AND VINYL FENCED COMPOUND
2. PROPOSED SITE GRADING, NEW CONCRETE APRON, ASPHALT DRIVE & EROSION CONTROL MEASURES PER CITY OF O'FALLON SPECIFICATIONS SHOWN HEREIN.
3. PROPOSED POWER / SITE GROUNDING.

### LOCATION MAP



### DRIVING DIRECTIONS

FROM THE ST. CHARLES TOWER INC. OFFICE IN CHESTERFIELD DRIVE ON WEST DR (SOUTH) 0.3 MI TURN RIGHT (WEST) ONTO MO-340 [OLIVE BLVD] FOR 0.7 MI. TURN RIGHT (WEST) ONTO N OUTER FORTY RD [N OUTER 40] FOR 0.4 MI. TAKE RAMP (LEFT) ONTO I-64 [US-40] FOR 8.9 MI. AT EXIT 9, TURN RIGHT ONTO RAMP FOR 0.3 MI. MO-K / O'FALLON KEEP RIGHT TO STAY ON RAMP FOR 0.3 MI. MO-K / O'FALLON TURN RIGHT (NORTH) ONTO SR-K. FOR 5.6 MI TURN RIGHT (EAST) ONTO MEXICO RD FOR 0.4 MI. TURN LEFT (NORTH) ONTO SONDEREN EXT. FOR 98 YDS. TURN RIGHT (EAST) SITE.

CONTRACTOR SHALL VERIFY PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

### PROJECT SUMMARY

SITE NUMBER: MO2014-19  
 SITE NAME: MEXICO & SONDEREN  
 SITE ADDRESS: 8368 MEXICO ROAD  
 O'FALLON, MO 63366  
 ST. CHARLES COUNTY  
 CURRENT ZONING: C-2 (GENERAL BUSINESS)  
 PARCEL NUMBER: T082500003  
 PROPERTY OWNER: GREYSTONE HOLDINGS LLC  
 3555 HWY F  
 DEFIANCE MO, 63341  
 TOWER OWNER: ST. CHARLES TOWER  
 #4 WEST DR. SUITE 110  
 CHESTERFIELD, MO 63017  
 (636) 530-9824  
 APPLICANT: ST. CHARLES TOWER  
 #4 WEST DR. SUITE 110  
 CHESTERFIELD, MO 63017  
 MICHELLE DOHRMAN  
 (636) 230-9824  
 A/E FIRM: SHIVE-HATTERY  
 3025 HIGHLAND PKWY.  
 SUITE 140  
 DOWNERS GROVE, IL 60515  
 (630) 390-7444  
 JEFF PFAFF

### UTILITIES

ELECTRICAL UTILITY: AMEREN  
 CONTACT: 800-552-7583  
 TELCO UTILITY: CENTURY LINK  
 CONTACT: 636-332-3011

### CODE COMPLIANCE

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

BUILDING CODE: IBC 2009 w/ AMENDMENTS  
 RESIDENTIAL CODE: IRC 2009 w/ AMENDMENTS  
 PLUMBING CODE: IPC 2009 w/ AMENDMENTS  
 MECHANICAL CODE: IMC 2009 w/ AMENDMENTS  
 ELECTRICAL CODE: NEC 2008 w/ AMENDMENTS  
 FIRE CODE: IFC 2009 w/ AMENDMENTS  
 TIA/EIA-222G OR LATEST EDITION

### REQUIREMENTS OF APPROVAL

1. IN ACCORDANCE WITH SECTION 400.870 B. 2., THE PETITIONER SHALL STATE THAT AN ANALYSIS WAS CONDUCTED ON ANY FACILITIES WITHIN A ONE (1) MILE RADIUS, AND PROVIDE AN EXPLANATION TO WHY COLOCATION WAS NOT POSSIBLE.

### CONSTRUCTION HOURS:

CITY OF O'FALLON CONSTRUCTION WORKING HOURS PER ORDINANCE 3429 IN SECTION 500.420 OF THE CITY OF O'FALLON MUNICIPAL CODE.

OCTOBER 1 - MAY 31:  
 7:00 A.M. TO 7:00 P.M. MONDAY - SUNDAY  
 JUNE 1 - SEPTEMBER 30:  
 6:00 A.M. TO 8:00 P.M. MONDAY - FRIDAY  
 7:00 A.M. TO 8:00 P.M. SATURDAY AND SUNDAY  
 CONSTRUCTION WORK TO BE DONE OUTSIDE OF THESE HOURS REQUIRES PRIOR WRITTEN APPROVAL FROM THE CITY ADMINISTRATOR OR CITY ENGINEER

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PLANNING AND DEVELOPMENT DIVISION  
 FILE NUMBER: 1302.14 DATED MAY 28, 2015

ST. CHARLES  
 TOWER  
 #4 WEST DRIVE, SUITE 110  
 CHESTERFIELD, MO. 63017

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

PROJECT NO: 8156607

DRAWN BY: JAP

CHECKED BY: JMD

0	8/5/15	CLIENT REVIEW
1	9/23/15	BID/PERMIT
2	11/02/15	CITY COMMENTS
3	11/24/15	ENG REVIEW

MEXICO & SONDEREN  
 SITE# MO-2014-19  
 8368 MEXICO ROAD  
 O'FALLON, MO 63366  
 ST. CHARLES COUNTY  
 MONOPOLE

SHEET TITLE  
 TITLE SHEET

SHEET NUMBER  
 T-1



**GENERAL NOTES:**

SH-01-MO-01-008

1. THE EXISTING TOPOGRAPHY AND VERTICAL GEOMETRY REPRESENTED ON THESE DRAWINGS IS TO BE VERIFIED BY CONTRACTOR. CONTRACTOR SHALL CONTACT UTILITY LOCATE SERVICES A MINIMUM OF 72 HOURS PRIOR TO THE START OF CONSTRUCTION TO IDENTIFY THE EXISTENCE AND LOCATION OF UNDERGROUND AND OVERHEAD UTILITIES AND SERVICES. CONTRACTOR IS TO IMMEDIATELY NOTIFY ENGINEER OF DISCREPANCIES OR INTERFERENCE THAT WILL AFFECT THIS PROJECT. EXISTING UTILITIES SHALL BE PROTECTED AND REPAIRED @ THE CONTRACTOR'S EXPENSE IF DAMAGED. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW.
2. DAMAGE TO THE EXISTING FACILITY SHALL BE REPAIRED OR REPLACED TO MATCH EXISTING ORIGINAL CONDITIONS AT THE CONTRACTOR'S EXPENSE.
3. EXISTING INACTIVE UTILITIES WHICH PROHIBIT CONSTRUCTION SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AS REQUIRED TO ALLOW CONSTRUCTION TO CONTINUE. COORDINATE WITH PROJECT MANAGER, OWNER, AND/OR LOCAL UTILITY COMPANIES FOR APPROVAL.
4. CONTRACTOR SHALL NOTIFY THE PROPERTY OWNER OF THE CONSTRUCTION START WELL IN ADVANCE (MIN. 1 WEEK) OF THE CONSTRUCTION DATE.
5. INFORMATION ON TOWER STRUCTURE, FOUNDATIONS, EQUIPMENT, AND/OR SHELTER SHALL BE PROVIDED BY OTHERS.
6. A 20' HORIZONTAL CLEARANCE SHALL BE MAINTAINED FROM EXISTING POWER LINES TO PROPOSED TOWER COMPOUND.
7. SURVEY INFORMATION REFERENCED IN THESE DRAWINGS COMPLIES WITH FAA ORDER 8260.19D ACCURACY TOLERANCES.
8. PROVIDE LABOR, MATERIAL, TOOLS, EQUIPMENT, TRANSPORTATION AND TEMPORARY POWER SERVICES NECESSARY FOR AND INCIDENTAL TO COMPLETION OF WORK AS INDICATED ON THE DRAWINGS AND/OR AS SPECIFIED HEREIN.
9. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND EQUIPMENT UNLESS OTHERWISE INDICATED BY DIMENSIONS OR DETAILS. EXACT EQUIPMENT LOCATIONS SHALL BE GOVERNED BY ACTUAL FIELD CONDITIONS AND/OR INSTRUCTIONS OF THE ENGINEER AND/OR TOWER OWNER'S REPRESENTATIVE.
10. THE CONTRACTOR SHALL FURNISH AND INSTALL MATERIALS AS REQUIRED FOR COMPLETE SYSTEMS, INCLUDING PARTS OBVIOUSLY OR REASONABLY INCIDENTAL TO A COMPLETE INSTALLATION, WHETHER SPECIFICALLY INDICATED OR NOT. SYSTEMS SHALL BE COMPLETELY ASSEMBLED, TESTED, ADJUSTED AND DEMONSTRATED TO BE READY FOR OPERATION PRIOR TO OWNER'S ACCEPTANCE.
11. THE CONTRACTOR SHALL OBTAIN, PAY FOR AND DELIVER REQUIRED PERMITS, CERTIFICATES OF INSPECTION, INCLUDING UTILITY CONNECTION FEES, ETC., REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. DELIVER CERTIFICATES TO THE OWNER PRIOR TO FINAL ACCEPTANCE OF THE WORK.
12. THE CONTRACTOR SHALL MAINTAIN BENCHMARKS, CONSTRUCTION STAKING, AND OTHER ELEVATION CONTROL POINTS AND SHALL REESTABLISH, IF DISTURBED OR DESTROYED, AT NO ADDITIONAL COST TO THE OWNER.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR AND OR RESTORATION OF DAMAGE TO THE EXISTING ACCESS ROADWAY AND ADJACENT SITE AREAS AS A RESULT OF USE DURING CONSTRUCTION. DISTURBED AND DAMAGED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION OR BETTER UPON COMPLETION OF WORK AT THE EXPENSE OF THE CONTRACTOR.
14. THE CONTRACTOR SHALL REMOVE WASTE, DEBRIS AND TRASH FROM SITE AND DISPOSE OF IN A LEGAL MANNER ON A DAILY BASIS.
15. CONTRACTOR SHALL COORDINATE THE CONSTRUCTION STAGING AREA AND PARKING WITH THE PROPERTY OWNER PRIOR TO THE CONSTRUCTION START DATE.
16. CONTRACTOR SHALL VERIFY WITH THE LOCAL AUTHORITIES (CITY, COUNTY, OR STATE) FOR THE GOVERNING BUILDING CODE.
17. THE CONTRACTOR SHALL NOT INTERFERE w/ THE FACILITY'S NORMAL OPERATIONS. ACCESS TO THE WORK AREA SHALL BE AS DIRECTED BY THE FACILITY'S OWNER.

18. THE CONTRACTOR SHALL CONFINE THEIR OPERATIONS TO THE DESIGNATED AREAS AND SHALL KEEP THE CONSTRUCTION AREA CLEAN. AISLES AND PATHWAYS SHALL BE KEPT UNOBSTRUCTED.
19. THE CONTRACTOR SHALL COORDINATE THE WORK OF VARIOUS TRADES SO AS TO INSURE PROPER SEQUENCING AND INSTALLATION.
20. CITY APPROVAL OF THE CONSTRUCTION SITE PLANS DOES NOT MEAN THAT ANY BUILDING CAN BE CONSTRUCTED ON THE LOTS WITHOUT MEETING THE BUILDING SETBACKS AS REQUIRED BY THE ZONING CODE.
21. ANY EXISTING WELLS AND/OR SPRINGS WHICH MAY EXIST ON THE PROPERTY MUST BE SEALED IN A MANNER ACCEPTABLE TO THE CITY OF O'FALLON CONSTRUCTION INSPECTION DEPARTMENT AND FOLLOWING MISSOURI DEPARTMENT OF NATURAL RESOURCES STANDARDS AND SPECIFICATIONS.

**ST. CHARLES TOWER**  
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 CHESTERFIELD, MO 63017

**SHIVEHATTERY**  
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 3025 Highland Park Suite 140 | Downers Grove, Illinois 60515  
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PROJECT NO: 8156807		
DRAWN BY: JAP		
CHECKED BY: JMD		
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WILLIAM C. THOMPSON, JR.  
 REGISTERED PROFESSIONAL ENGINEER  
 REGISTRATION NUMBER: E-22147

**MEXICO & SONDEREN**  
 SITE# MO-2014-19  
 8368 MEXICO ROAD  
 O'FALLON, MO 63368  
 ST. CHARLES COUNTY  
 MONOPOLE

SHEET TITLE  
 GENERAL NOTES

SHEET NUMBER  
**N-1**

# SITE WORK GENERAL NOTES

SH-01-NO-01-008

## 1. SITE AREA

- 1.1 VERIFY THAT SITE LOCATION CONFORMS TO THE SITE PLAN. THE FOUR (4) CORNERS OF THE SITE AREA SHALL BE STAKED AND ADEQUATE PRECAUTIONS SHALL BE TAKEN TO PROTECT THEM DURING THE CLEARING OPERATION. IF THE STAKES ARE MISSING OR DO NOT CONFORM TO INFORMATION ON SITE PLAN, CONSULT WITH THE PROJECT MANAGER.
- 1.2 A REGISTERED LAND SURVEYOR UNDER CONTRACT WITH THE TOWER OWNER SHALL STAKE OUT THE SITE AREA, ROAD AND GUY AREAS. CARELESS REMOVAL OF MARKERS, MONUMENTS OR STAKES SHALL BE REPLACED BY THE SURVEYOR AT COSTS TO THE CONTRACTOR.
- 1.3 THE SITE AREA SHALL BE GRADED TO PROVIDE A MAXIMUM SLOPE OF ONE PERCENT (1%) UNLESS OTHERWISE SPECIFIED & CAUSE SURFACE WATER TO FLOW AWAY FROM SHELTER / EQUIPMENT & TOWER AREAS.
- 1.4 GRADING SHALL NOT EXCEED THE LEASED OR PURCHASED PROPERTY LINES. SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- 1.5 EXISTING INACTIVE UTILITIES WHICH PROHIBIT CONSTRUCTION SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AS REQUIRED TO ALLOW CONSTRUCTION TO CONTINUE. COORDINATE WITH PROJECT MANAGER, OWNER, AND /OR LOCAL UTILITY COMPANIES FOR APPROVAL.
- 1.6 FILL OR EMBANKMENT MATERIAL SHALL NOT BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN FILL OR EMBANKMENT.

## 2. SPECIAL REQUIREMENTS

- 2.1 VERIFY THAT THE ACCESS ROAD RIGHT-OF-WAY AND SITE LOCATION CONFORM TO THE SITE PLAN AND DO NOT EXCEED LEASED OR PURCHASED PROPERTY LINES.
- 2.2 COMPARE SURVEYOR STAKE POSITIONS WITH EXISTING USE OF AREA FOR CONFLICTS.
- 2.3 IF ACCESS ROAD ENTERS ROAD OR HIGHWAY, DETERMINE LOCAL PERMIT OR ENVIRONMENTAL REQUIREMENTS BEFORE CONSTRUCTION TO ENSURE COMPLIANCE.
- 2.4 CLEARING AND GRUBBING SHALL BE RESTRICTED TO AREAS DETERMINED ON SPECIFIC PLAN FOR SITE. AREAS OF PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE PROJECT SPECIFICATIONS AND PER LOCAL MUNICIPALITY REQUIREMENTS.
- 2.5 DISPOSAL OF ITEMS REMOVED SHALL BE IN ACCORDANCE WITH THE PROJECT MANAGER AND/OR LOCAL ORDINANCES.
- 2.6 SITE SIGNAGE SHALL BE PROVIDED IN ACCORDANCE WITH THE TOWER OWNER TECHNICAL SPECIFICATIONS FOR SITE SIGNAGE & LOCAL SIGN ORDINANCES/REQUIREMENTS.

## 3. ACCESS ROAD

- 3.1 VERIFY WITH THE LANDOWNER (IF OTHER THAN TOWER OWNER), BEFORE STARTING CONSTRUCTION TO ENSURE THEIR UNDERSTANDING OF CONSTRUCTION ACTIVITY.
- 3.2 ROAD SHALL BE CONSTRUCTED PROPERLY WITH RESPECT TO LINES AND GRADES. EACH SITE SHALL HAVE DIFFERENT CONSIDERATIONS DURING CONSTRUCTION TO AVOID PROBLEMS IN THE FUTURE (I.E. SWAMPS, BOGS, STEEP INCLINES, UNSTABLE SOIL, SOLID ROCK AND LAYERED ROCK). ROAD SHALL BE BUILT-UP AND CROWNED. DEEP INITIAL CUTS SHALL BE AVOIDED. REFERENCE DETAILS FOR TYPICAL CROSS SECTION.
- 3.3 SUITABLE BASE COARSE MATERIALS SHALL BE USED. REFERENCE DETAILS FOR TYPICAL CROSS SECTION SHOWING PREFERRED MATERIALS.

- 3.4 BASE COARSE SHALL BE APPLIED IN MAXIMUM 5" LAYERS AND COMPACTED. THE MATERIAL SHALL BE DAMP FOR GOOD COMPACTING.
- 3.5 IN SITUATIONS WHERE WATER IS PREVALENT NEAR THE SURFACE (SUB-GRADE), THE USE OF 6 OZ. GEOTEXTILE BY TENCATE OR EQUIVALENT TYPE MATERIAL, TO RETAIN SOIL AND PERMIT WATER TO FLOW IS REQUIRED. LARGE BASE MATERIAL MINIMUM 4" SHALL BE USED.
- 3.6 IF THE AREA WHERE THE ACCESS ROAD IS BEING CONSTRUCTED IS BEING USED FOR ANIMAL CONTAINMENT, SAFEGUARDS SHALL BE TAKEN TO PREVENT THEIR ESCAPE UNTIL PERMANENT GUARDS OR FENCING CAN BE INSTALLED.
- 3.7 CHANGES IN METHODS OR MATERIALS MUST BE APPROVED IN ADVANCE BY THE PROJECT MANAGER.

## 4. DRAINAGE

- 4.1 DRAINAGE DITCHES SHALL BE DEEP AND WIDE ENOUGH TO CONTROL THE WATER RUN OFF. CHECK DAMS SHALL BE INSTALLED IN DITCHES ON SLOPES OF GREATER THAN 10 PERCENT (10%).
- 4.2 DRAINAGE DITCHES SHALL NOT CREATE WATER PROBLEMS WITH THE LANDLORD OR LOCAL RESIDENTS. LOCAL PERMITS AND ENVIRONMENTAL REQUIREMENTS MUST BE VERIFIED PRIOR TO DE-WATERING.
- 4.3 DRAINAGE DITCHES SHALL BE PROTECTED FROM EROSION WITH SEEDING, RIP-RAP OR SOD AS REQUIRED BY LOCAL REQUIREMENTS.
- 4.4 CULVERTS SHALL BE INSTALLED ACCORDING TO THE SITE PLAN AND SITE CONDITIONS. VERIFY WITH THE HIGHWAY DEPARTMENT TO DETERMINE THE TYPE AND SIZE OF CULVERT REQUIRED WHEN THE ACCESS ROAD ENTERS A ROAD OR HIGHWAY. CULVERTS AT THE ENTRANCE TO THE ACCESS ROAD SHALL BE A MINIMUM 18" DIAMETER AND 40' IN LENGTH.
- 4.5 CULVERTS SHALL HAVE SUFFICIENT COVER OVER THE PIPE SO THAT THE MOUTH OF THE CULVERT IS PROTECTED AGAINST JAMMING OR COLLAPSE.
- 4.6 CULVERTS SHALL HAVE, AT EACH END, A MINIMUM 30 SQ FT LAYER OF 5" ROCK.
- 4.7 ADEQUATE PROVISIONS SHALL BE TAKEN FOR WATER DRAINAGE IN LOW-LYING AREAS.
- 4.8 IN THE OCCURRENCE OF LOCATING EXISTING FIELD TILE: CARE MUST BE TAKEN BY CONTRACTOR NOT TO DESTROY TILE FOR DRAINAGE. FIELD TILE DESTROYED BY CONTRACTOR MUST BE REPAIRED BY SUCH CONTRACTOR AT CONTRACTOR'S EXPENSE.

## 5. GRADING / SEDIMENT & EROSION CONTROL:

- 5.1 SEDIMENT AND EROSION CONTROL SHALL NOT BE LIMITED TO THE MEASURES SHOWN ON THE PLANS. THE CONTRACTOR, WITH THE APPROVAL OF THE LOCAL INSPECTOR, SHALL UTILIZE BEST MANAGEMENT PRACTICES TO PREVENT SEDIMENT FROM ENTERING ADJACENT PROPERTIES, ROADWAYS, STORM SEWERS, AND DRAINAGEWAYS.
- 5.2 FILLED PLACES UNDER PROPOSED STORM AND SANITARY SEWER LINES AND/OR PAVED AREAS INCLUDING TRENCH BACKFILLS WITHIN AND OFF THE ROAD RIGHT-OF-WAY SHALL BE COMPACTED TO 90 PERCENT OF MAXIMUM DENSITY AS DETERMINED BY THE "MODIFIED AASHTO T-180 COMPACTION TEST" (ASTM D-1557). TESTS SHALL BE VERIFIED BY A SOILS ENGINEER CONCURRENT WITH GRADING AND BACKFILLING OPERATIONS.
- 5.3 DEBRIS AND FOUNDATION MATERIAL FROM EXISTING ON-SITE BUILDING OR STRUCTURE WHICH IS SCHEDULED TO BE REMOVED FOR THIS DEVELOPMENT MUST BE PROPERLY DISPOSED OF OFF-SITE.
- 5.4 SOFT SOILS IN THE BOTTOM AND BANKS OF EXISTING OR FORMER POND SITES OR TRIBUTARIES OR SEDIMENT BASINS OR TRAPS SHOULD BE REMOVED, SPREAD OUT AND PERMITTED TO DRY SUFFICIENTLY TO BE USED AS FILL NONE OF THIS MATERIAL SHOULD BE PLACED IN PROPOSED PUBLIC RIGHT-OF-WAY LOCATIONS OR ON STORM SEWER LOCATION.

- 5.5 A PRE-CONSTRUCTION REVIEW CONFERENCE MUST BE SCHEDULED WITH THE CONSTRUCTION MANAGER PRIOR TO THE START OF EACH CONSTRUCTION PHASE OF LAND DISTURBANCE ACTIVITY. THE PERMITEE WILL BE RESPONSIBLE FOR NOTIFYING CONTRACTORS, UTILITY CREWS, AND OTHER ENTITIES THAT WILL PERFORM WORK AT THE SITE TO BE IN ATTENDANCE.
- 5.6 NOTIFY THE EROSION CONTROL INSPECTOR OF THE JURISDICTION (IF APPLICABLE), A MINIMUM OF 48 HOURS PRIOR TO THE COMMENCEMENT OF CLEARING, GRADING, AND/OR PRIOR TO THE COMMENCEMENT OF CONSTRUCTION TO ARRANGE FOR AN INSPECTION OF THE SITE.
- 5.7 TEMPORARY SILTATION CONTROL MEASURES (STRUCTURAL) SHALL BE MAINTAINED UNTIL VEGETATIVE COVER IS ESTABLISHED AT A SUFFICIENT DENSITY TO PROVIDE EROSION CONTROL ON THE SITE.
- 5.8 UPON COMPLETION OF STORM SEWERS, SILTATION CONTROL SHALL BE PROVIDED AROUND OPEN SEWER INLETS AND SHALL REMAIN UNTIL THE DISTURBED DRAINAGE AREAS HAVE BEEN PROPERLY STABILIZED.
- 5.9 WHERE NATURAL VEGETATION IS REMOVED DURING GRADING, VEGETATION SHALL BE RE-ESTABLISHED IN SUCH A DENSITY AS TO PREVENT EROSION.
- 5.10 WHEN GRADING OPERATIONS ARE COMPLETED OR SUSPENDED FOR MORE THAN 30 DAYS, PERMANENT GRASS MUST BE ESTABLISHED AT SUFFICIENT DENSITY TO PROVIDE EROSION CONTROL ON THE SITE. BETWEEN PERMANENT GRASS SEEDING PERIODS, TEMPORARY COVER SHALL BE PROVIDED ACCORDING TO THE RECOMMENDATION OF THE JURISDICTIONAL REQUIREMENTS (IF APPLICABLE) OR STANDARD STATE ADOPTED PROCEDURE WHERE LOCAL REQUIREMENTS ARE NOT SPECIFIED. FINISHED GRADES IN EXCESS OF 20% SLOPES (5:1) SHALL BE MULCHED AND TACKED AT THE RATE OF 100 POUNDS PER 1,000 SQUARE FEET WHEN SEEDED.

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

**MEXICO &  
SONDEREN**  
SITE# MO-2014-19  
8388 MEXICO ROAD  
OFALLON, MO 63366  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
GENERAL  
NOTES

SHEET NUMBER  
N-2

**GENERAL STEEL NOTES:**

SH-01-NO-04-005

1. STEEL WORK SHALL BE GALVANIZED UNLESS NOTED OTHERWISE.
2. NON-GALVANIZED STEEL WORK SHALL BE PAINTED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND IN ACCORDANCE WITH ASTM A36 UNLESS NOTED OTHERWISE.
3. WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS USING E70XX ELECTRODES. WELDING SHALL CONFORM TO AISC & AWS D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION", LATEST EDITION. AT THE COMPLETION OF WELDING, DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.
4. STEEL BOLTING - ASTM A325-N BOLTS, SEE PLAN/DETAILS FOR DIAMETER, NON SLIP CRITICAL CONNECTIONS AND SHALL HAVE MINIMUM OF TWO BOLTS UNLESS NOTED OTHERWISE.
5. DAMAGE TO THE EXISTING FACILITY SHALL BE REPAIRED OR REPLACED TO MATCH EXISTING ORIGINAL CONDITIONS AT THE CONTRACTOR'S EXPENSE.
6. STEEL DESIGN, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH AISC STANDARDS LATEST EDITION.
7. STEEL W SHAPES SHALL CONFORM TO ASTM A992 (MINIMUM YIELD STRENGTH=50KSI) GRADE 50.
8. SIZE STANDARD BEAM CONNECTIONS BASED ON 3/4 OF THE TOTAL UNIFORM LOAD CAPACITY OF THE BEAM. USE DOUBLE CLIP ANGLES AND AISC TABLE 10-1 UNLESS INDICATED OTHERWISE.
9. STEEL ANGLES AND PLATES - ASTM A36. (MINIMUM YIELD STRENGTH = 36KSI)
10. STEEL TUBE SHAPES - ASTM A500 GRADE B. (MINIMUM YIELD STRENGTH = 45KSI)
11. STEEL PIPES - ASTM A53 TYPE E. (MINIMUM YIELD STRENGTH = 35KSI)
12. CONTRACTOR SHALL COORDINATE AND VERIFY LAYOUT, PLACEMENT, ETC. OF EQUIPMENT PRIOR TO FABRICATION AND ERECTION.
13. VERIFY EQUIPMENT MOUNTING DIMENSIONS PER MANUFACTURER DRAWINGS.
14. INSTALLATION OF CONCRETE EXPANSION/WEDGE ANCHOR, SHALL BE PER MANUFACTURER'S RECOMMENDED PROCEDURE. THE ANCHOR BOLT, DOWEL OR ROD SHALL CONFORM TO MANUFACTURER'S RECOMMENDATION FOR EMBEDMENT DEPTH OR AS SHOWN ON THE DRAWINGS. NO REBAR SHALL BE CUT WITHOUT PRIOR CONTRACTOR APPROVAL WHEN DRILLING HOLES IN CONCRETE. SPECIAL INSPECTIONS, REQUIRED BY GOVERNING CODES, SHALL BE PERFORMED IN ORDER TO MAINTAIN MANUFACTURER'S MAXIMUM ALLOWABLE LOADS.

**CONCRETE & REINFORCING STEEL NOTES**

SH-01-NO-04-009

1. CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318 AND THE SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. STRUCTURE MAY BE INSTALLED ON FOUNDATION AT A TIME EARLIER THAN 28 DAYS WITH CONFIRMING CONCRETE CYLINDER TEST RESULTS. AT CONTRACTOR'S OPTION, A HIGH EARLY STRENGTH (TYPE III) CEMENT OR A STRENGTH ACCELERATING ADMIXTURE MAY BE USED. NO CALCIUM CHLORIDE ALLOWED. SUBMIT DESIGN MIX FOR APPROVAL.
3. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, DEFORMED UNLESS NOTED OTHERWISE. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 WELDED STEEL WIRE FABRIC, U.N.O. SPLICES SHALL BE CLASS "B" AND HOOKS SHALL BE STANDARD, U.N.O.
4. REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE ACI "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.
5. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
  - CONCRETE CAST AGAINST EARTH.....3 IN.
  - CONCRETE EXPOSED TO EARTH OR WEATHER:
    - #6 AND LARGER.....2 IN.
    - #5 AND SMALLER & WWF...1 1/2 IN.
6. A 3/4" CHAMFER SHALL BE PROVIDED AT EXPOSED EDGES OF CONCRETE, U.N.O., IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.
7. SAMPLES FOR STRENGTH TESTS SHALL BE TAKEN IN ACCORDANCE WITH ASTM C172.
8. CYLINDERS FOR STRENGTH TESTS SHALL BE IN ACCORDANCE WITH ASTM C31 AND TESTED IN ACCORDANCE WITH ASTM C39.
9. SAMPLES FOR STRENGTH TESTS SHALL BE IN ACCORDANCE WITH ACI 318 WITH A MINIMUM OF (4) CYLINDERS. (1) 7 DAY, (1) 14 DAY AND (2) 28 DAY.
10. SCOPE / SUBMITTALS  
CONCRETE FOR SHELTER FOUNDATION AND FENCE POST SETTING - SUBMIT PROPOSED MODIFICATIONS TO THESE DRAWINGS AND SPECIFICATIONS FOR APPROVAL BY TOWER OWNER.
11. QUALITY STANDARDS  
QUALITY STANDARDS COMPLY WITH THE STANDARDS OF THE AMERICAN CONCRETE INSTITUTE, THE CONCRETE REINFORCING STEEL INSTITUTE, AND APPLICABLE ASTM REQUIREMENTS.
12. FORMWORK MATERIALS  
CONCRETE HAS GENERALLY BEEN DESIGNED FOR PLACEMENT AGAINST EARTH OR FILL MATERIALS, HOWEVER, THE TOP 4-FOOT MINIMUM OF SHELTER AND TOWER FOUNDATIONS SHALL BE PLACED USING FORMS. CONSTRUCT FORMWORK TO PROVIDE FINISHED CONCRETE ACCURATE TO LINES AND LEVELS SHOWN ON THE DRAWINGS. CONSTRUCT FORMWORK WITH TIGHT JOINTS TO MINIMIZE LEAKAGE. INCLUDE ACCESSORIES NECESSARY TO SUPPORT EMBEDDED ITEMS DURING PLACEMENT OF CONCRETE.
13. PLACEMENT AND FINISHING  
INSTALL FORMWORK AND REINFORCING AS REQUIRED FOR CONFIGURATION OF CONCRETE SHOWN ON THE DRAWINGS. PLACE CONCRETE CONTINUOUSLY IN EACH LOCATION. CONSOLIDATE CONCRETE USING EQUIPMENT APPROPRIATE TO EACH CONDITION, LIMITING THE DURATION TO PREVENT BRINGING AN EXCESS OF FINE AGGREGATE TO THE SURFACE. BRING SURFACES TO CORRECT LEVEL WITH STRAIGHT EDGE, FLOAT SMOOTH AND TROWEL TO A HARD, DENSE FINISH HAVING A TOLERANCE OF 1/8" IN 10'-0". EXTERIOR WALKING SURFACES SHALL BE GIVEN A BROOMED FINISH PERPENDICULAR TO DIRECTION OF TRAVEL. HOT AND COLD WEATHER PLACEMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 305 AND 306.

**ST. CHARLES TOWER**  
#1 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO. 63017

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

PROJECT NO: B156607

DRAWN BY: JAP

CHECKED BY: JMD

0	8/5/15	CLIENT REVIEW
1	9/23/15	END/PERMIT
2	11/02/15	CITY COMMENTS
3	11/24/15	EMG REVIEW



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

**MEXICO & SONDEREN**  
SITE# MO-2014-19  
8388 MEXICO ROAD  
OFALLON, MO 63368  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
GENERAL NOTES

SHEET NUMBER  
N-3

**GENERAL NOTES:**

SH-01-MO-07-002

1. CONTRACTOR SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR AND INCIDENTAL TO THE COMPLETE INSTALLATION AND OPERATION OF ELECTRICAL WORK.
2. CONTRACTOR SHALL CONFORM TO THE REQUIREMENT OF THE RULES, REGULATIONS, AND CODES OF LOCAL, STATE, AND FEDERAL AUTHORITIES HAVING JURISDICTION, AND CONFORM TO THE NATIONAL ELECTRICAL SAFETY CODES, AND NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION LATEST EDITIONS.
3. CONTRACTOR SHALL NOTE THAT DRAWINGS ARE GENERALLY DIAGRAMMATIC. BENDS, FITTINGS AND ACCESSORIES ARE NOT NECESSARILY SHOWN. PROVIDE SUCH ITEMS AS REQUIRED.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION & INSTALLATION OF ELECTRICAL SERVICE CABLE SIZES & RUNS BASED ON LOCAL CODE REQUIREMENTS & OR NEC (LATEST ENFORCED EDITIONS). CHANGE ORDERS WILL NOT BE ACCEPTED DUE TO LACK OF VERIFICATION.

**ELECTRICAL IDENTIFICATION:**

1. GENERAL:  
LOCATE NAMEPLATE, MARKING, OR OTHER IDENTIFICATION MEANS ON OUTSIDE EQUIPMENT OR BOX FRONT COVERS.
2. NAMEPLATES:  
PROVIDE NAMEPLATE ENGRAVED WITH EQUIPMENT DESIGNATION FOR EACH SAFETY SWITCH AND OTHER ELECTRICAL CABINETS.
3. UNDERGROUND WARNING TAPE:  
DURING TRENCH BACK-FILLING FOR EACH UNDERGROUND ELECTRICAL, TELEPHONE, SIGNAL AND COMMUNICATIONS LINE, PROVIDE A CONTINUOUS UNDERGROUND WARNING TAPE SIX INCHES BELOW FINISHED GRADE. WARNING TAPE SHALL BE TYPE IID. DETECTABLE THREE LAYER LAMINATE.
4. AT COMPLETION OF PROJECT, ACCURATELY COMPLETE EACH PANELBOARD CIRCUIT DIRECTORY CARD, IDENTIFYING LOAD SERVED OR "SPARE" OR "SPACE" FOR EACH CIRCUIT POLE. WHEN MODIFYING CIRCUITS, UPDATE THE EXISTING (OR PROVIDE NEW) CIRCUIT DIRECTORY CARD TO ACCURATELY REFLECT FINAL CONDITIONS.

**ELECTRICAL INSTALLATION NOTES:**

SH-01-MO-07-001

1. ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND APPLICABLE LOCAL CODES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. SUBCONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
5. CABLES SHALL NOT BE ROUTED THROUGH LADDER-STYLE CABLE TRAY RUNGS.
6. EACH END OF EVERY POWER, POWER PHASE CONDUCTOR (I.E., HOTS), GROUNDING AND T1 CONDUCTOR AND CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
7. ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH PLASTIC TAPE PER COLOR SCHEDULE. EQUIPMENT SHALL BE LABELED WITH THEIR VOLTAGE RATING, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (I.E. PANEL BOARD AND CIRCUIT ID'S).
8. PANEL BOARDS (ID NUMBERS) AND INTERNAL CIRCUIT BREAKERS (CIRCUIT ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
9. TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
10. POWER, CONTROL AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE CONDUCTOR (14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET & DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
11. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE CONDUCTOR (6 AWG OR LARGER), 600V, OIL RESISTANT THHN OR THWN-2 GREEN INSULATION CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION LISTED OR LABELED FOR THE LOCATION AND RACEWAY SYSTEM USED UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING, NOT IN TUBING OR CONDUIT, SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (14 AWG OR LARGER), 600 V, OIL RESISTANT THHN OR THWN-2, CLASS B STRANDED COPPER CABLE RATED FOR 90° C (WET AND DRY) OPERATION WITH OUTER JACKET LISTED OR LABELED FOR THE LOCATION USED UNLESS OTHERWISE SPECIFIED.
13. POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION AT NO LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT) OR RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80 FOR LOCATIONS SUBJECT TO PHYSICAL DAMAGE) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT), ELECTRICAL NONMETALLIC TUBING (ENT) OR RIGID NONMETALLIC CONDUIT (RIGID PVC, SCHEDULE 40) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. GALVANIZED STEEL RIGID METAL CONDUIT (RMC) SHALL BE USED FOR OUTDOOR LOCATIONS ABOVE GRADE.
18. RIGID NONMETALLIC CONDUIT (I.E. RIGID PVC SCHEDULE 40 OR RIGID PVC SCHEDULE 80) SHALL BE USED UNDERGROUND; DIRECT BURIED, IN AREAS OF OCCASIONAL LIGHT VEHICLE TRAFFIC OR ENCASED IN REINFORCED CONCRETE IN AREAS OF HEAVY VEHICLE TRAFFIC.
19. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
20. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
21. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
22. WIREWAYS SHALL BE EPOXY-COATED (GRAY) AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS; SHALL BE PANDUIT TYPE E (OR EQUAL); AND RATED NEMA 1 (OR BETTER).
23. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND RATED NEMA 1 (OR BETTER) INDOORS OR NEMA 3R (OR BETTER) OUTDOORS.
24. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
25. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2; AND RATED NEMA 1 (OR BETTER) INDOORS OR WEATHER PROTECTED (WP OR BETTER) OUTDOORS.
26. THE SUBCONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CONTRACTOR BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
27. THE SUBCONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD AGAINST LIFE AND PROPERTY.
28. UTILITY POLES SHALL BE 35 FT., CLASS 4., UNO OR AS REQUIRED BY LOCAL UTILITY COMPANIES.

**ST. CHARLES  
TOWER**  
#4 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO. 63017

**SHIVEHATTERY**  
ARCHITECTURE + ENGINEERING  
3025 Highland Park, Suite 140, J. Doyers Grove, Illinois 60515  
630.980.7444 | fax 630.437.5800 | shivehattery.com  
Iowa | Illinois | Missouri

PROJECT NO: 8156607

DRAWN BY: JAP

CHECKED BY: JMD

0 8/5/15 CLIENT REVIEW

1 9/23/15 BID/PERMIT

2 11/02/15 CITY COMMENTS

3 11/24/15 ENG REVIEW



MARTIN VALENTINE, PROFESSIONAL ENGINEER  
REGISTRATION NUMBER: 2007005050

**MEXICO &  
SONDEREN**  
SITE# MO-2014-19  
8388 MEXICO ROAD  
OFALLON, MO 63368  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
ELECTRICAL  
NOTES

SHEET NUMBER  
N-4

# GROUNDING NOTES

SH-01-NO-08-001

1. GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWG CU WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED, BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE 2 AWG SOLID TINNED BCW UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR GROUNDING CONNECTIONS BELOW GRADE.
12. GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESSURE CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND CONNECTIONS.
18. BOND METALLIC OBJECTS WITHIN 6 FT. OF MAIN GROUND WIRES WITH 1-2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS, WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.



MARTIN VALENTINE, PROFESSIONAL ENGINEER  
REGISTRATION NUMBER: 2007005050

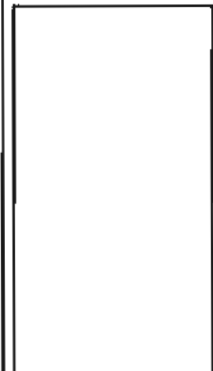
**ST. CHARLES  
TOWER**

#1 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO 63017

**SHIVEHATTERY**  
ARCHITECTURE+ENGINEERING

3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
630.950.7444 | Fax 630.437.5600 | shive-hattery.com  
Iowa | Illinois | Missouri

PROJECT NO: 8156807	
DRAWN BY: JAP	
CHECKED BY: JMD	
0	8/5/15 CLIENT REVIEW
1	9/23/15 BID/PERMIT
2	11/02/15 CITY COMMENTS
3	11/24/15 ENG REVIEW


























































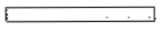

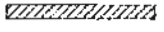
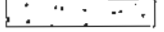


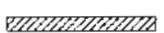
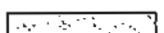



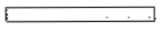

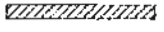
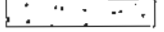


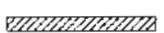
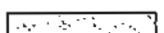




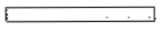

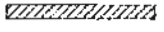
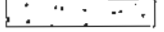


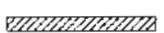
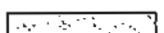





**MEXICO & SONDEREN**  
SITE# MO-2014-19  
8388 MEXCO ROAD  
O'FALLON, MO 63366  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
GROUNDING  
NOTES

SHEET NUMBER  
**N-5**



PLAN SYMBOLS	UTILITY PLAN SYMBOLS	GROUNDING PLAN SYMBOLS	ABBREVIATIONS																																																																																																																								
 NEW ANTENNA  EXISTING ANTENNAS  NEW PARKING BOLLARD  EXISTING PARKING BOLLARD  BENCH MARK  TOWER CENTER  FOUND MONUMENT  SPOT ELEVATION  REVISION  GRID REFERENCE  DETAIL REFERENCE  ELEVATION  SECTIONS & DETAILS  ELEVATION TAG  CENTER LINE  PROPERTY LINE  GROUND WIRE  COAXIAL CABLE  EXISTING CONTOUR LINE  NEW CONTOUR LINE  EXISTING FENCE  NEW FENCE  EXISTING FENCE WOOD/MYLN  NEW FENCE WOOD/MYLN  NEW SILT FENCE  NEW RIGHT OF WAY  PROPOSED LEASE AREA  PROPOSED ACCESS/UTILITY EASEMENTS  EXISTING LEASE AREA  EXISTING ACCESS/UTILITY EASEMENTS	 TELEPHONE PEDESTAL  ELECTRIC BOX  PAD MOUNTED TRANSFORMER  EXISTING UTILITY POLE  NEW UTILITY POLE  GUY ANCHOR  LIGHT POLE  EXISTING OVERHEAD TELEPHONE  NEW OVERHEAD TELEPHONE  EXISTING UNDERGROUND TELEPHONE  NEW UNDERGROUND TELEPHONE  EXISTING OVERHEAD POWER  NEW OVERHEAD POWER  NEW OVERHEAD POWER & TELEPHONE  EXISTING UNDERGROUND POWER  NEW UNDERGROUND POWER  NEW UNDERGROUND POWER & TELEPHONE  NEW UNDERGROUND FIBER HORIZONTAL BORE  NEW UNDERGROUND FIBER DIRECT BURY  NEW OVERHEAD FIBER	 EXOTHERMIC WELD  BOLTED CONNECTION  GROUND BAR  GROUND ROD  GROUND ACCESS PORT  GROUND RING/GROUND CONDUCTOR  COILED GROUND CONNECTION	<table border="0"> <tr> <td>ADJ</td><td>ADJUSTABLE</td> <td>N.I.C.</td><td>NOT IN CONTRACT</td> </tr> <tr> <td>APPROX</td><td>APPROXIMATE</td> <td>NTS</td><td>NOT TO SCALE</td> </tr> <tr> <td>BCW</td><td>BARE COPPER WIRE</td> <td>O.C.</td><td>ON CENTER</td> </tr> <tr> <td>CAB</td><td>CABINET</td> <td>OPP</td><td>OPPOSITE</td> </tr> <tr> <td>CLG</td><td>CEILING</td> <td>RMC</td><td>RIGID METAL CONDUIT</td> </tr> <tr> <td>CONC</td><td>CONCRETE</td> <td>SF</td><td>SQUARE FOOT</td> </tr> <tr> <td>CONT</td><td>CONTINUOUS</td> <td>SHT</td><td>SHEET</td> </tr> <tr> <td>CJ</td><td>CONSTRUCTION JOINT</td> <td>SIM</td><td>SIMILAR</td> </tr> <tr> <td>DIA</td><td>DIAMETER</td> <td>SS</td><td>STAINLESS STEEL</td> </tr> <tr> <td>DWG</td><td>DRAWING</td> <td>STL</td><td>STEEL</td> </tr> <tr> <td>EGB</td><td>EQUIPMENT GROUND BAR</td> <td>T/C</td><td>TOP OF CONCRETE</td> </tr> <tr> <td>EA</td><td>EACH</td> <td>T/M</td><td>TOP OF MASONRY</td> </tr> <tr> <td>ELEC</td><td>ELECTRICAL</td> <td>T/S</td><td>TOP OF STEEL</td> </tr> <tr> <td>EL</td><td>ELEVATION</td> <td>(TYP.)</td><td>TYPICAL</td> </tr> <tr> <td>EQ</td><td>EQUAL</td> <td>F.V.</td><td>FIELD VERIFY</td> </tr> <tr> <td>EQUIP</td><td>EQUIPMENT</td> <td>UNO</td><td>UNLESS NOTED OTHERWISE</td> </tr> <tr> <td>(E)</td><td>EXISTING</td> <td>WWF</td><td>WELDED WIRE FABRIC</td> </tr> <tr> <td>EXT</td><td>EXTERIOR</td> <td>w/</td><td>WITH</td> </tr> <tr> <td>FF</td><td>FINISHED FLOOR</td> <td>XMFR</td><td>TRANSFORMER</td> </tr> <tr> <td>GA</td><td>GAUGE</td> <td>BTS</td><td>BASE TRANSMISSION STATION</td> </tr> <tr> <td>GALV</td><td>GALVANIZED</td> <td>PCS</td><td>PERSONAL COMMUNICATIONS SERVICES</td> </tr> <tr> <td>GC</td><td>GENERAL CONTRACTOR</td> <td>☉</td><td>CENTERLINE</td> </tr> <tr> <td>GRND</td><td>GROUND</td> <td>Ⓟ</td><td>PLATE</td> </tr> <tr> <td>LG</td><td>LONG</td> <td>&amp;</td><td>AND</td> </tr> <tr> <td>MAX</td><td>MAXIMUM</td> <td>⊙</td><td>AT</td> </tr> <tr> <td>MECH</td><td>MECHANICAL</td> <td></td><td></td> </tr> <tr> <td>MFGR</td><td>MANUFACTURER</td> <td></td><td></td> </tr> <tr> <td>MGB</td><td>MASTER GROUND BAR</td> <td></td><td></td> </tr> <tr> <td>MIN</td><td>MINIMUM</td> <td></td><td></td> </tr> <tr> <td>MTL</td><td>METAL</td> <td></td><td></td> </tr> </table>	ADJ	ADJUSTABLE	N.I.C.	NOT IN CONTRACT	APPROX	APPROXIMATE	NTS	NOT TO SCALE	BCW	BARE COPPER WIRE	O.C.	ON CENTER	CAB	CABINET	OPP	OPPOSITE	CLG	CEILING	RMC	RIGID METAL CONDUIT	CONC	CONCRETE	SF	SQUARE FOOT	CONT	CONTINUOUS	SHT	SHEET	CJ	CONSTRUCTION JOINT	SIM	SIMILAR	DIA	DIAMETER	SS	STAINLESS STEEL	DWG	DRAWING	STL	STEEL	EGB	EQUIPMENT GROUND BAR	T/C	TOP OF CONCRETE	EA	EACH	T/M	TOP OF MASONRY	ELEC	ELECTRICAL	T/S	TOP OF STEEL	EL	ELEVATION	(TYP.)	TYPICAL	EQ	EQUAL	F.V.	FIELD VERIFY	EQUIP	EQUIPMENT	UNO	UNLESS NOTED OTHERWISE	(E)	EXISTING	WWF	WELDED WIRE FABRIC	EXT	EXTERIOR	w/	WITH	FF	FINISHED FLOOR	XMFR	TRANSFORMER	GA	GAUGE	BTS	BASE TRANSMISSION STATION	GALV	GALVANIZED	PCS	PERSONAL COMMUNICATIONS SERVICES	GC	GENERAL CONTRACTOR	☉	CENTERLINE	GRND	GROUND	Ⓟ	PLATE	LG	LONG	&	AND	MAX	MAXIMUM	⊙	AT	MECH	MECHANICAL			MFGR	MANUFACTURER			MGB	MASTER GROUND BAR			MIN	MINIMUM			MTL	METAL		
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335' SIGHT DISTANCE  
POSTED SPEED 30 MPH

GREYSTONE HOLDINGS LLC  
PIN: 2-0119-1766-00-0023.0000000  
ZONING: C-2

PROPOSED ST. CHARLES TOWER  
WIDE ACCESS/UTILITY  
EASEMENT w/ PARKING AREA

EXISTING FIRE HYDRANT

PROPOSED ST. CHARLES TOWER UNDERGROUND  
UTILITIES IN 10' UTILITY EASEMENT

CLEAR TREES WITHIN  
SIGHT DISTANCE  
TRIANGLE

PROPOSED ST. CHARLES TOWER  
COMMERCIAL DRIVE ENTRANCE PER  
CITY OF O'FALLON STANDARDS,  
SEE SHEETS C-1 THRU C-10

RELOCATED LIGHT POST AND  
UTILITY PEDESTAL COORDINATE  
w/CITY OF O'FALLON PUBLIC  
WORKS DEPARTMENT

GREYSTONE HOLDINGS LLC  
PIN: 2-0119-1766-00-0023.4000000  
ZONING: C-2

EXISTING PAD MOUNTED  
XFMR & TELCO  
PEDESTAL #P6L5C

WHISPERING WOODS HOMEOWNERS  
ASSOCIATION  
PIN: 2-0119-9586-00-00A.0000000  
ZONING: R-1

PROPOSED ST. CHARLES  
TOWER 40'x50' LEASE  
AREA & VINYL FENCED  
COMPOUND

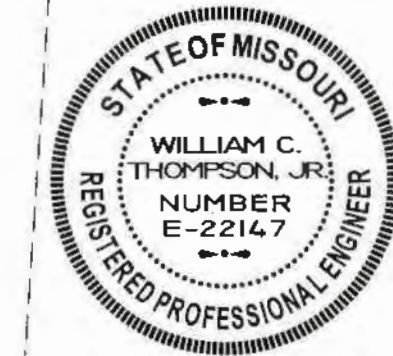
PROPOSED ST. CHARLES  
TOWER MONOPOLE

GREYSTONE HOLDINGS LLC  
PIN: 2-0119-1766-00-0023.2000000  
ZONING: C-2

APPROXIMATE LOCATION  
OF PROPERTY

APPROXIMATE LOCATION OF R.O.W.

APPROXIMATE LOCATION OF  
EXISTING OVERHEAD UTILITY  
SERVICE, PROTECT DURING  
CONSTRUCTION



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

GRIFFEY TIMOTHY  
PIN: 2-0119-1766-  
00-0023.3000000  
ZONING: C-2

**NOTE:**

1. SITE/ROAD GRADING NOT SHOWN FOR CLARITY. SEE SHEETS A-2.1 AND A-2.2 FOR DETAILS.
2. NO TREES WILL BE REMOVED OR DISTURBED DURING THE INSTALLATION OF THIS PROPOSED TOWER, COMPOUND, AND ASSOCIATED ACCESS DRIVEWAY.



**ST. CHARLES  
TOWER**  
#4 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO. 63017

**SHIVEHATTERY**  
ARCHITECTURE+ENGINEERING  
3025 Highland Parky Suite 140 | Downers Grove, Illinois 60515  
630.983.7444 | fax 630.497.5800 | shive-hattery.com  
Iowa | Illinois | Missouri

PROJECT NO: 8156607	
DRAWN BY: JAP	
CHECKED BY: JMD	
0	8/5/15 CLIENT REVIEW
1	9/23/15 BID/PERMIT
2	11/02/15 CITY COMMENTS
3	11/24/15 ENG REVIEW

**MEXICO &  
SONDEREN**  
SITE# MO-2014-19  
8388 MEXICO ROAD  
O'FALLON, MO 63366  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
**SITE PLAN**

SHEET NUMBER  
**A-1**



# ST. CHARLES TOWER

#4 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO. 63017

**SHIVEHATTERY**  
ARCHITECTURE + ENGINEERING  
3025 Highland Place, Suite 140 J, Downers Grove, Illinois 60515  
630.390.7444 | fax 630.437.5600 | shive-hattery.com  
Iowa | Illinois | Missouri

PROJECT NO. B156607

DRAWN BY: JAP

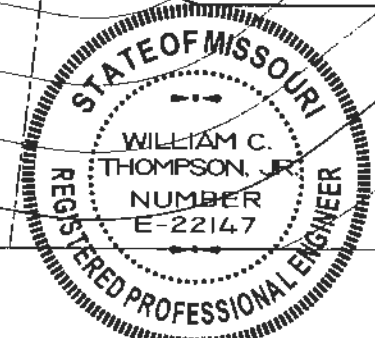
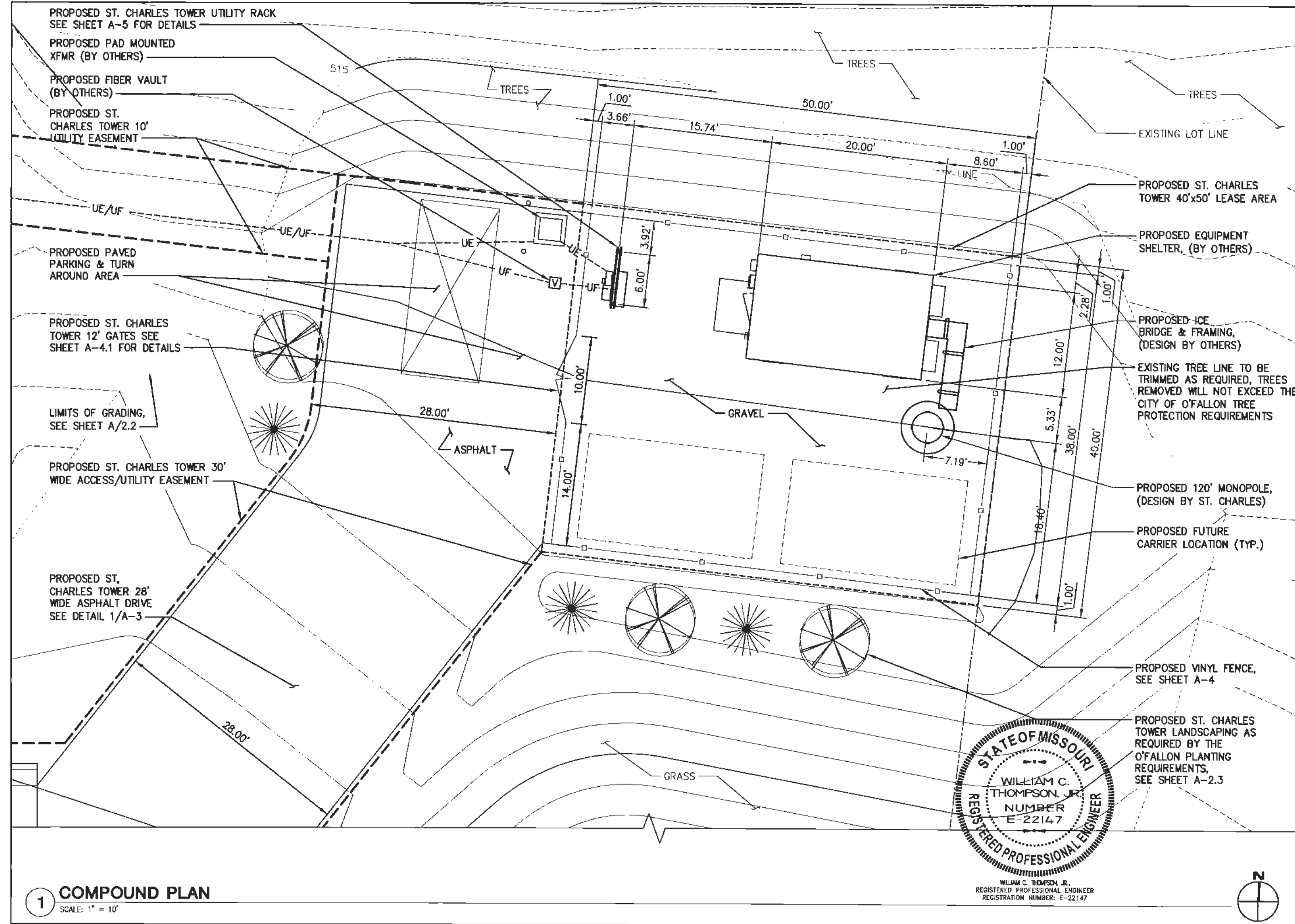
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MEXICO & SONDEREN  
SITE# MO-2014-19  
6368 MEXICO ROAD  
O'FALLON, MO 63366  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
COMPOUND PLAN

SHEET NUMBER  
A-21



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

**1 COMPOUND PLAN**  
SCALE: 1" = 10'

CUT/FILL CALCULATIONS
CUT = 1619 CU. YD.
FILL = 94 CU. YD.
WASTE = 1501 CU. YD. (25% SHRINK FACTOR)

**NOTE:**  
FOR EXISTING CURB INLET PROTECTION DURING CONSTRUCTION REFERENCE SHEET C-8

**ST. CHARLES TOWER**  
44 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO. 63017

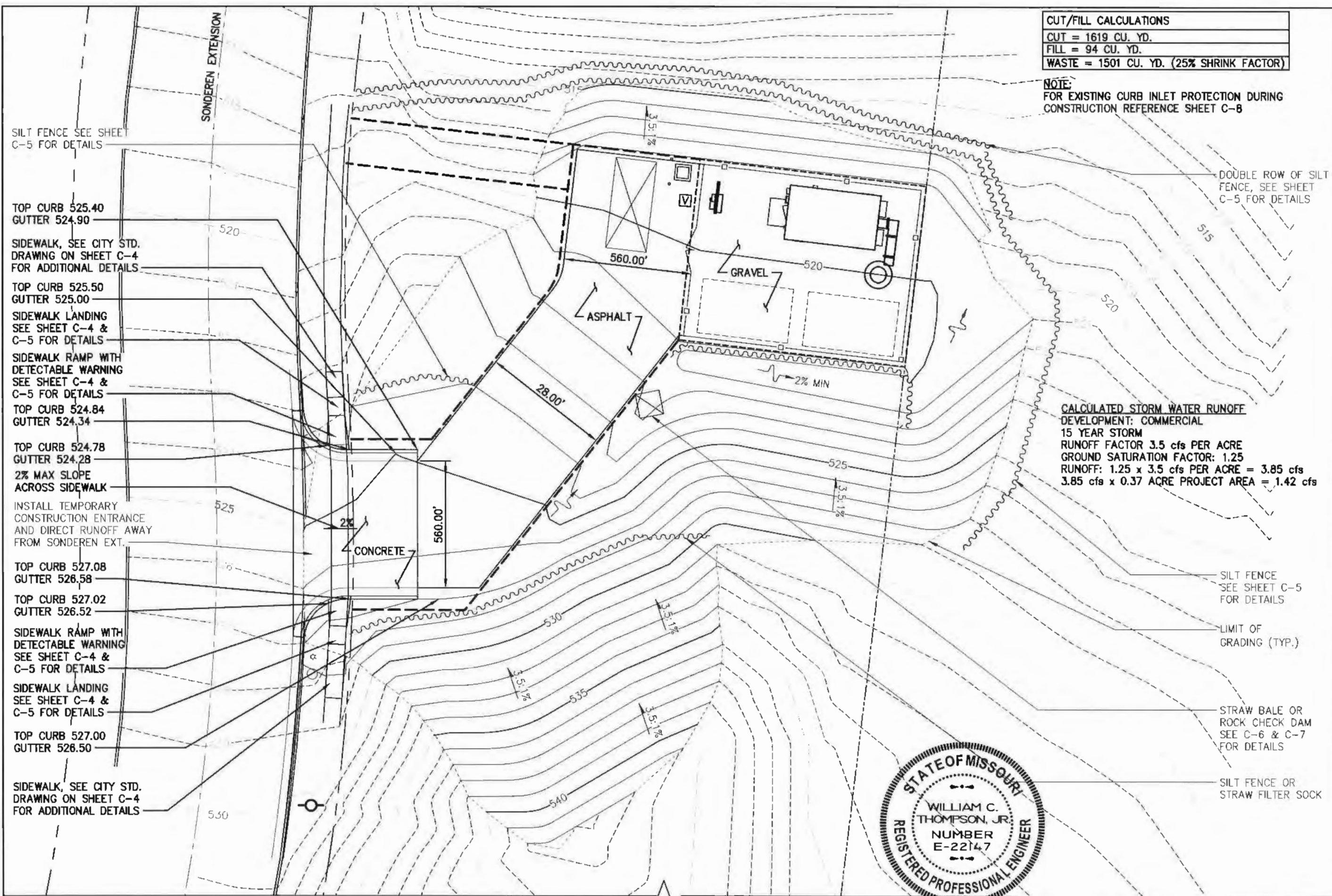
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PROJECT NO. 8156607
DRAWN BY: JAP
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0 8/5/15 CLIENT REVIEW
1 9/23/15 BID/PERMIT
2 11/02/15 QTY COMMENTS
3 11/24/15 ENG REVIEW

**MEXICO & SONDEREN**  
SITE# MO-2014-19  
8368 MEXICO ROAD  
OFALLON, MO 63366  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
**SITE GRADING PLAN**

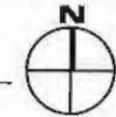
SHEET NUMBER  
**A-2.2**



**CALCULATED STORM WATER RUNOFF**  
DEVELOPMENT: COMMERCIAL  
15 YEAR STORM  
RUNOFF FACTOR 3.5 cfs PER ACRE  
GROUND SATURATION FACTOR: 1.25  
RUNOFF: 1.25 x 3.5 cfs PER ACRE = 3.85 cfs  
3.85 cfs x 0.37 ACRE PROJECT AREA = 1.42 cfs



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



SILT FENCE SEE SHEET C-5 FOR DETAILS

TOP CURB 525.40  
GUTTER 524.90

SIDEWALK, SEE CITY STD. DRAWING ON SHEET C-4 FOR ADDITIONAL DETAILS

TOP CURB 525.50  
GUTTER 525.00

SIDEWALK LANDING SEE SHEET C-4 & C-5 FOR DETAILS

SIDEWALK RAMP WITH DETECTABLE WARNING SEE SHEET C-4 & C-5 FOR DETAILS

TOP CURB 524.84  
GUTTER 524.34

TOP CURB 524.78  
GUTTER 524.28

2% MAX SLOPE ACROSS SIDEWALK

INSTALL TEMPORARY CONSTRUCTION ENTRANCE AND DIRECT RUNOFF AWAY FROM SONDEREN EXT.

TOP CURB 527.08  
GUTTER 526.58

TOP CURB 527.02  
GUTTER 526.52

SIDEWALK RAMP WITH DETECTABLE WARNING SEE SHEET C-4 & C-5 FOR DETAILS

SIDEWALK LANDING SEE SHEET C-4 & C-5 FOR DETAILS

TOP CURB 527.00  
GUTTER 526.50


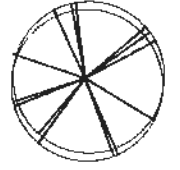
SIDEWALK, SEE CITY STD. DRAWING ON SHEET C-4 FOR ADDITIONAL DETAILS

**1 SITE GRADING PLAN**  
SCALE: 1" = 20'



LANDSCAPE SCHEDULE				
DESCRIPTION: COMMON NAME	BOTANICAL NAME	MATURE SPREAD	MATURE HEIGHT	QTY.
COLORADO SPRUCE	PICEA PUNGENS	30'-40'	40'-50'	3
DOWNY SERVICEBERRY	AMELANCHIER ARBOREA	20'-25'	20'-25'	3

SH-01-LA-01-001

LANDSCAPE LEGEND		
	TYPE	COMMON NAME
	EVERGREEN	COLORADO SPRUCE
	FLOWERING DECIDUOUS TREE	DOWNY SERVICEBERRY

SH-01-LA-01-002

**ST. CHARLES TOWER**  
#4 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO. 63017

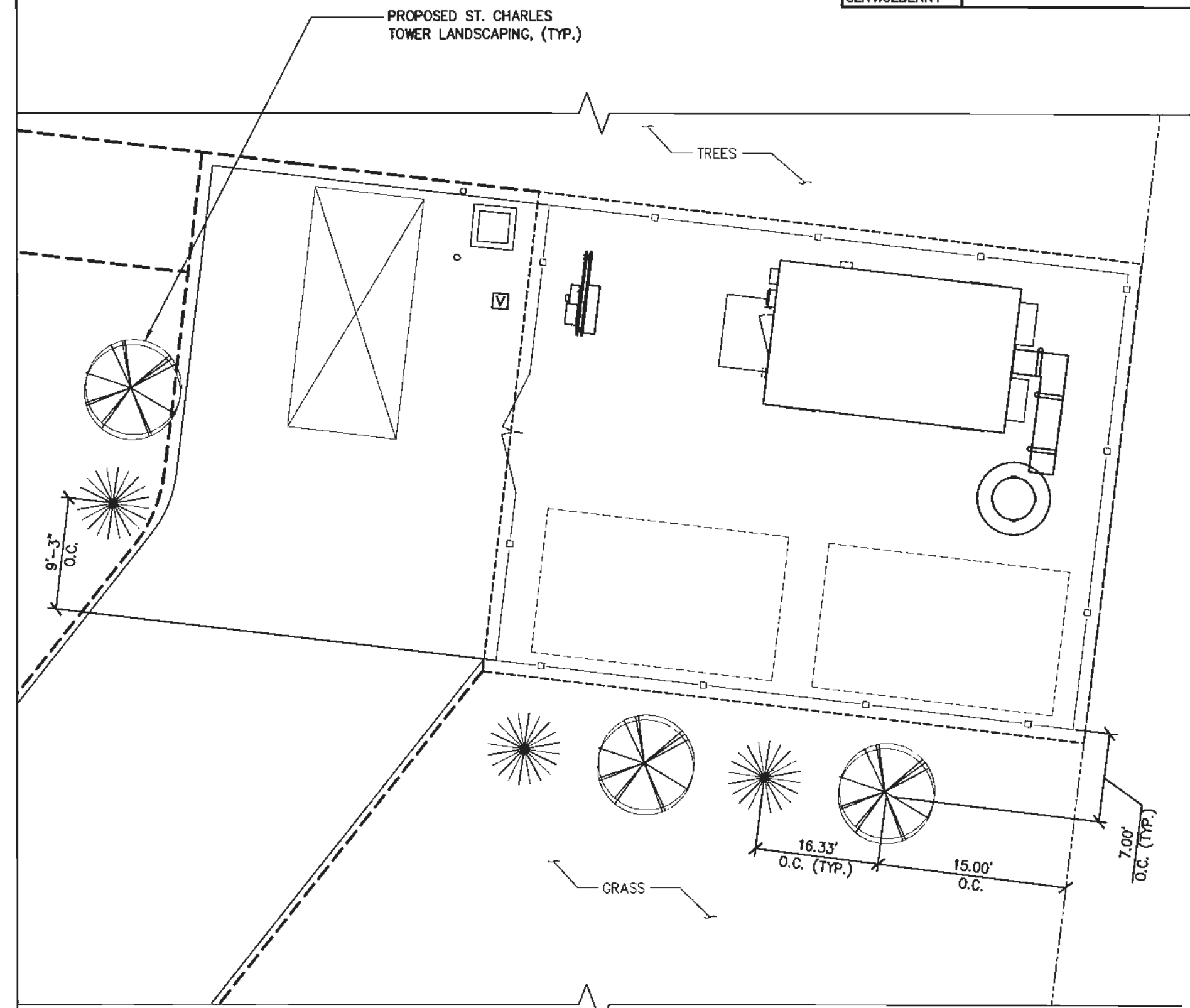
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PROJECT NO: 8156607	
DRAWN BY: JAP	
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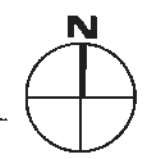
**LANDSCAPE NOTES:**

SH-01-LA-05-001

- TREES SHOULD BE BALLED AND BURLAPPED. THE USE OF WIRE NURSERY BASKETS IS PROHIBITED.
- CONTACT THE PROPERTY OWNER A MINIMUM OF ONE WEEK PRIOR TO ON-SITE PLANT INSTALLATION, SEE COVER SHEET FOR CONTACT INFORMATION. CITY PERSONAL SHALL FIELD VERIFY LOCATION OF PROPOSED TREES PRIOR TO PLANTING.
- CONTRACTOR SHALL GIVE VERBAL NOTICE TO UTILITY LOCATE, NOT LESS THAN 48 HOURS BEFORE EXCAVATING, EXCLUDING WEEKENDS AND HOLIDAYS.
- SUBSTITUTIONS SHALL BE MADE ONLY WHEN PLANT IS NOT OBTAINABLE, AND THE PROPERTY OWNER, AFTER BEING NOTIFIED IN WRITING, AUTHORIZES A CHANGE ORDER PROVIDING FOR THE NEAREST EQUIVALENT OBTAINABLE SIZE OR VARIETY OF PLANT HAVING THE SAME ESSENTIAL CHARACTERISTICS.
- CONTRACTOR SHALL GUARANTEE PLANT MATERIAL FOR A PERIOD OF TWO YEARS FROM THE DATE OF INITIAL ACCEPTANCE.
- LANDSCAPE CONTRACTOR TO COMPLY WITH REQUIREMENTS OF GOVERNING AGENCIES REGARDING LANDSCAPE REQUIREMENTS.
- MULCH TREES LOCATED OUTSIDE OF DESIGNATED MULCH BEDS WITH A MINIMUM 3" DEPTH CIRCULAR (6-FOOT DIAMETER) OF APPROVED SHREDDED BARK MULCH.



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



**1 LANDSCAPING PLAN**  
SCALE: 1" = 10'

**MEXICO & SONDEREN**  
SITE# MO-2014-19  
8368 MEXICO ROAD  
OF FALLON, MO 63366  
ST. CHARLES COUNTY  
MONOPOLE

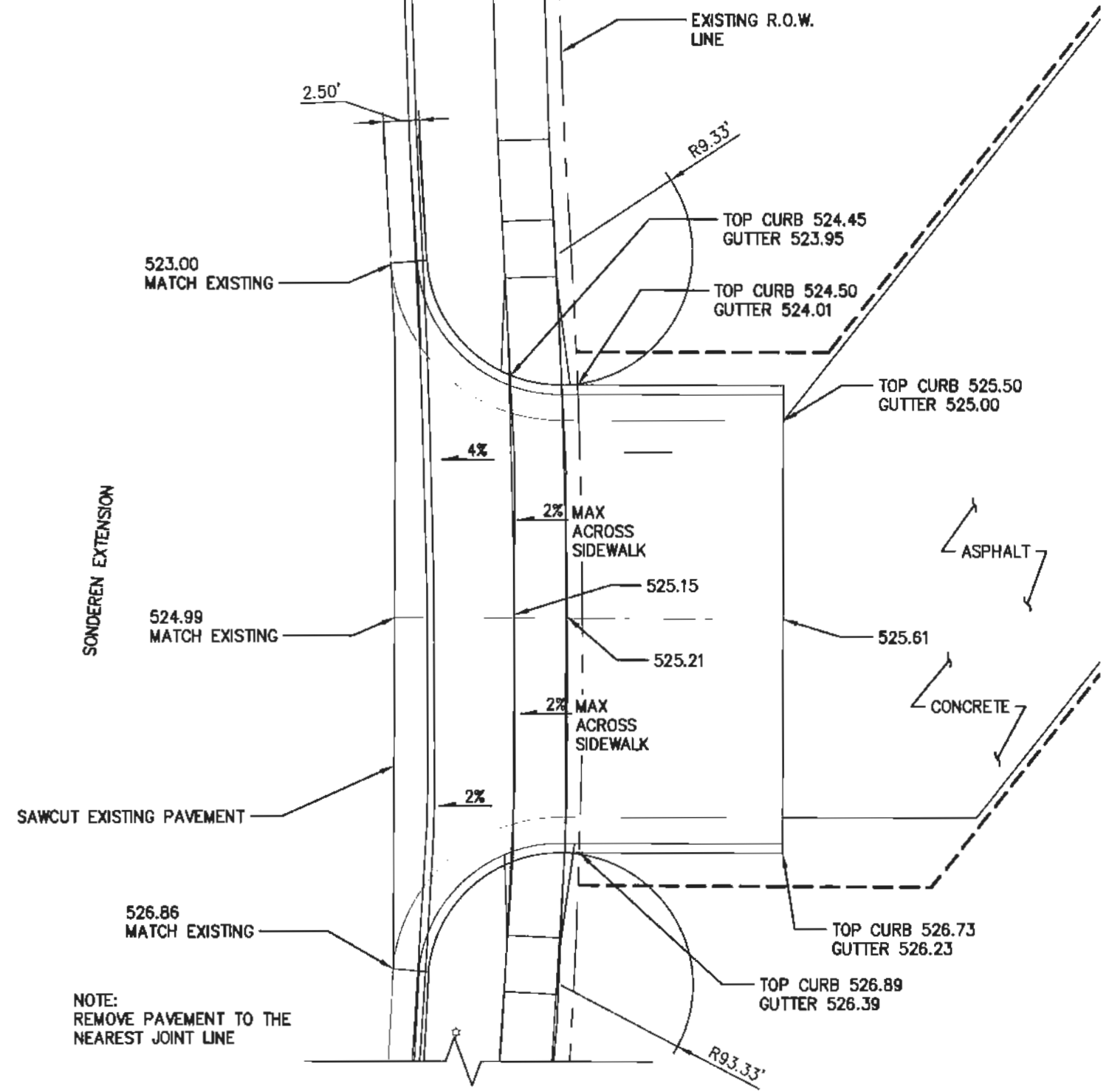
SHEET TITLE  
**LANDSCAPING PLAN & DETAILS**

SHEET NUMBER  
**A-2.3**

**CALCULATED STORM WATER RUNOFF**  
 DEVELOPMENT: COMMERCIAL  
 15 YEAR STORM  
 RUNOFF FACTOR 3.5 cfs PER ACRE  
 GROUND SATURATION FACTOR: 1.25  
 RUNOFF: 1.25 x 3.5 cfs PER ACRE = 3.85 cfs  
 3.85 cfs x 0.37 ACRE PROJECT AREA = 1.42 cfs

CUT/FILL CALCULATIONS
CUT = 1619 CU. YD.
FILL = 94 CU. YD.
WASTE = 1501 CU. YD. (25% SHRINK FACTOR)

**NOTE:**  
 FOR EXISTING CURB INLET PROTECTION DURING CONSTRUCTION REFERENCE SHEET C-8



**NOTE:**  
 REMOVE PAVEMENT TO THE NEAREST JOINT LINE

**1 ENTRANCE PLAN**  
 SCALE: 1" = 10'



**ST. CHARLES TOWER**  
 #4 WEST DRIVE, SUITE 110  
 CHESTERFIELD, MO. 63017

**SHIVEHATTERY**  
 ARCHITECTURE + ENGINEERING  
 3025 Highland Park, Suite 140, J. Downers Grove, Illinois 60515  
 630.380.7444 | fax.630.437.5800 | shivehattery.com  
 Iowa | Illinois | Missouri

PROJECT NO. 8156607
DRAWN BY: JAP
CHECKED BY: JMD
0 8/5/15 CLIENT REVIEW
1 9/23/15 BID/PERMIT
2 11/02/15 CITY COMMENTS
3 11/24/15 ENG REVIEW

**MEXICO & SONDEREN**  
 SITE# MO-2014-19  
 8368 MEXICO ROAD  
 O'FALLON, MO 63386  
 ST. CHARLES COUNTY  
 MONOPOLE

SHEET TITLE  
**ENTRANCE PLAN**

SHEET NUMBER  
**A-2.4**

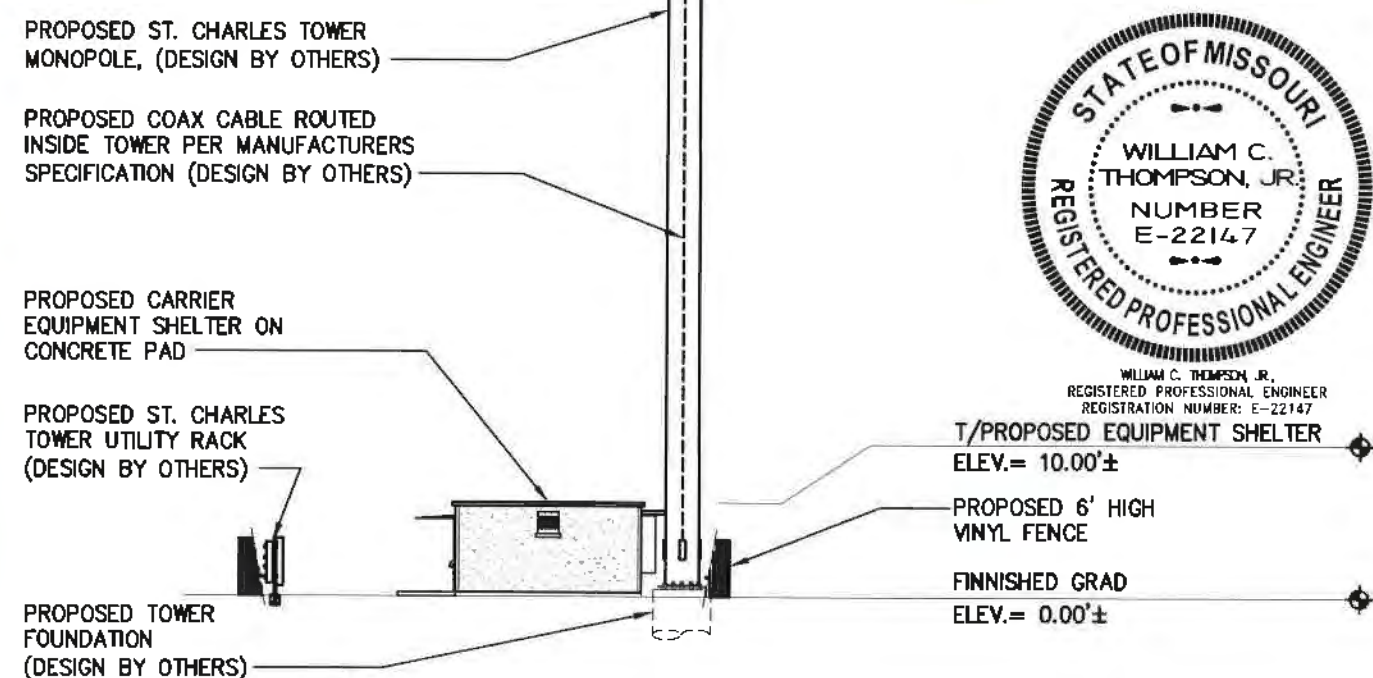
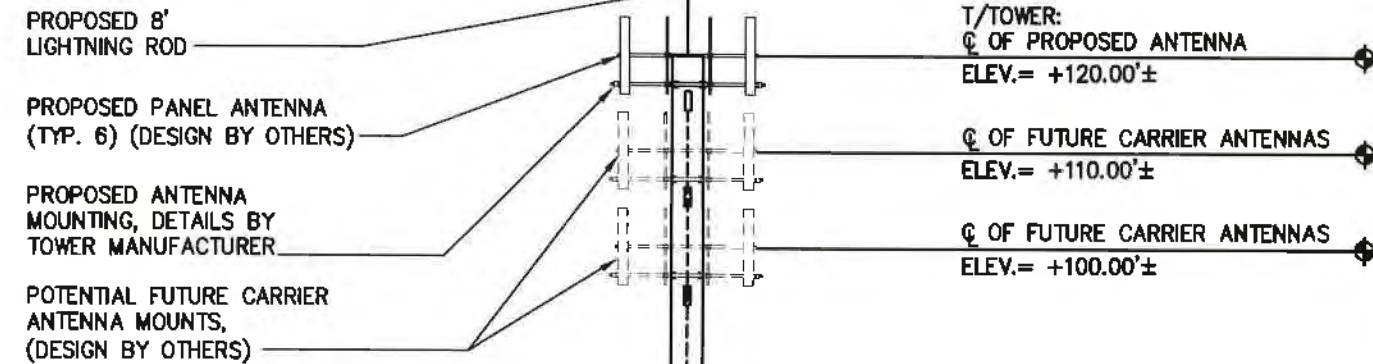


**GENERAL NOTES:**

SH-01-NO-01-013

1. ELEVATION IS FOR REFERENCE PURPOSE ONLY.
2. CONTRACTOR SHALL PERFORM WORK DONE TO OR ON STRUCTURE IN ACCORDANCE WITH PROVIDED STRUCTURAL ANALYSIS SEPARATE FROM SHIVE-HATTERY, INC ENGINEERED DRAWINGS.
3. ACTUAL FUTURE CENTERLINES SHALL BE COORDINATED WITH AND APPROVED BY TOWER OWNER. FUTURE ANTENNA AND MOUNTING PLATFORMS MAY NOT BE DEPICTED ON THE ELEVATION.

NOTE: TOWER DOES NOT REQUIRE FAA LIGHTING.



NOTE:  
 1. CARRIERS WILL NEED TO INSTALL COAX TRAYS & ICE BRIDGES, ALL COAX TO BE LOWER THAN FENCE.



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



**A** PROPOSED TOWER LOCATION  
 SCALE: NONE

**1** ELEVATION - LOOKING NORTH  
 SCALE: 1" = 20'

**ST. CHARLES TOWER**  
 #4 WEST DRIVE, SUITE 110  
 CHESTERFIELD, MO 63017

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 630.390.7444 | Fax 630.437.5800 | shive-hattery.com  
 Iowa | Illinois | Missouri

PROJECT NO: B156607

DRAWN BY: JAP

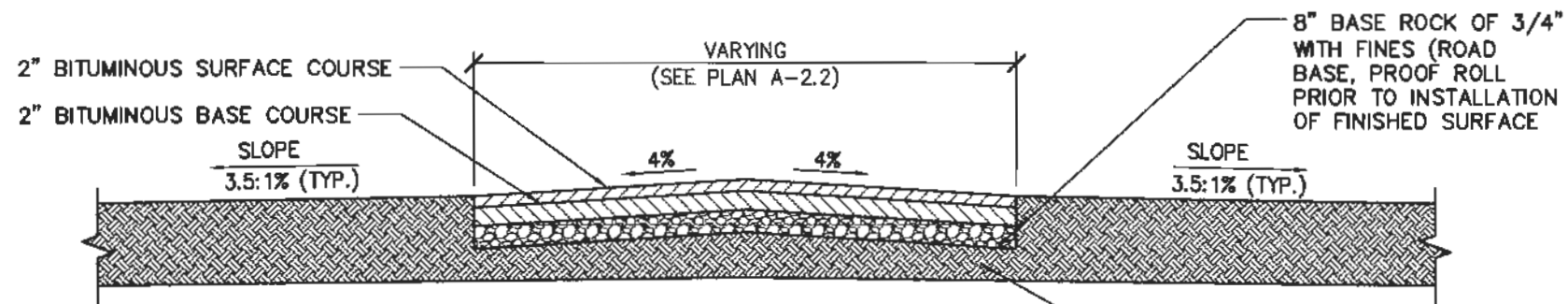
CHECKED BY: JMD

NO	DATE	REVISION
0	8/5/15	CLIENT REVIEW
1	9/23/15	BID/PERMIT
2	11/02/15	CITY COMMENTS
3	11/24/15	ENG REVIEW

MEXICO & SONDEREN  
 SITE# MO-2014-19  
 8568 MEXICO ROAD  
 OFALLON, MO 63366  
 ST. CHARLES COUNTY  
 MONOPOLE

SHEET TITLE  
 ELEVATION

SHEET NUMBER  
**A-2.5**



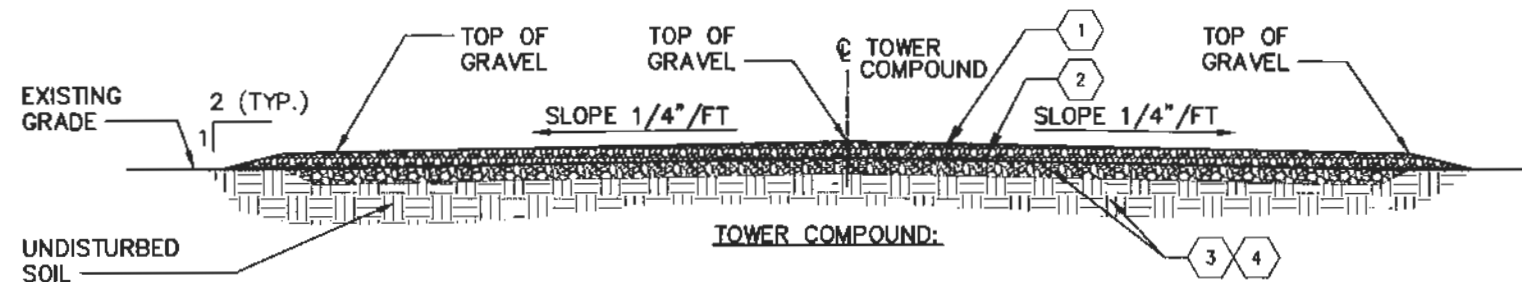
**NOTE:**

1. ROAD SHALL BE CLEARED OF ORGANIC MATERIAL OR UNSUITABLE MATERIAL. SUBGRADE MUST BE COMPACTED TO 90% OF STANDARD PROCTOR DENSITY AND VERIFIED BY PROOF-ROLL OR GEOTECH RECOMMENDATIONS.

**1 TYPICAL ACCESS ROAD w/ CULVERT SECTION**

SCALE: NONE

SH-01-EA-02-005



- 1 3" OF 3/4"-1" MINUS (CRUSHER RUN, FINE) ROCK.
- 2 WEED CONTROL FABRIC - MIRAFI 500X, OR APPROVED EQUIVALENT (WHEN SPECIFIED BY PROJECT MANAGER)
- 3 5" BASE ROCK OF 3" DIA. ROCK (ROAD BASE), PROOF-ROLL PRIOR TO INSTALLATION OF FINISHED GRAVEL.
- 4 SITE SHALL BE CLEARED OF ORGANIC MATERIAL OR UNSUITABLE MATERIAL. SUBGRADE MUST BE COMPACTED TO 90% OF STANDARD PROCTOR DENSITY AND VERIFIED BY PROOF-ROLL OR GEOTECHNICAL RECOMMENDATIONS.
5. SITES WITH NO FENCE SHALL HAVE AN AREA COVERED WITH WEED BARRIER THAT IS A MINIMUM OF 5 FT WIDE AROUND THE SHELTER AND TOWER AREAS; THIS AREA SHALL BE USABLE AS PARKING SPACE OR FOR STORAGE OF A PORTABLE GENERATOR. LOCAL FIRE CODES MIGHT DICTATE MORE STRINGENT REQUIREMENTS.
6. THE FINISHED GRADE SHALL DIRECT WATER AWAY FROM THE SHELTER.

**2 TYPICAL COMPOUND CROSS SECTION**

SCALE: NONE

SH-01-EA-04-001

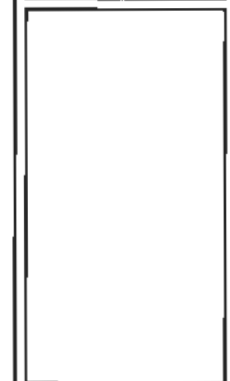


WILLIAM C. THOMPSON, JR.  
REGISTERED PROFESSIONAL ENGINEER  
REGISTRATION NUMBER: E-22147

**ST. CHARLES TOWER**  
#4 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO 63017

**SHIVEHATTERY**  
ARCHITECTURE + ENGINEERING  
3025 Highland Plaza, Suite 140 | Owensboro, Illinois 60515  
630.980.7444 | fax 630.437.8000 | shivehattery.com  
Iowa | Illinois | Missouri

PROJECT NO: 8156807		
DRAWN BY: JAP		
CHECKED BY: JMD		
0	8/5/15	CLIENT REVIEW
1	9/23/15	BID/PERMIT
2	11/02/15	CITY COMMENTS
3	11/24/15	ENG REVIEW



MEXICO & SONDEREN  
SITE# MO-2014-19  
8388 MEXICO ROAD  
O'FALLON, MO 63366  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
**SITE WORK DETAILS**

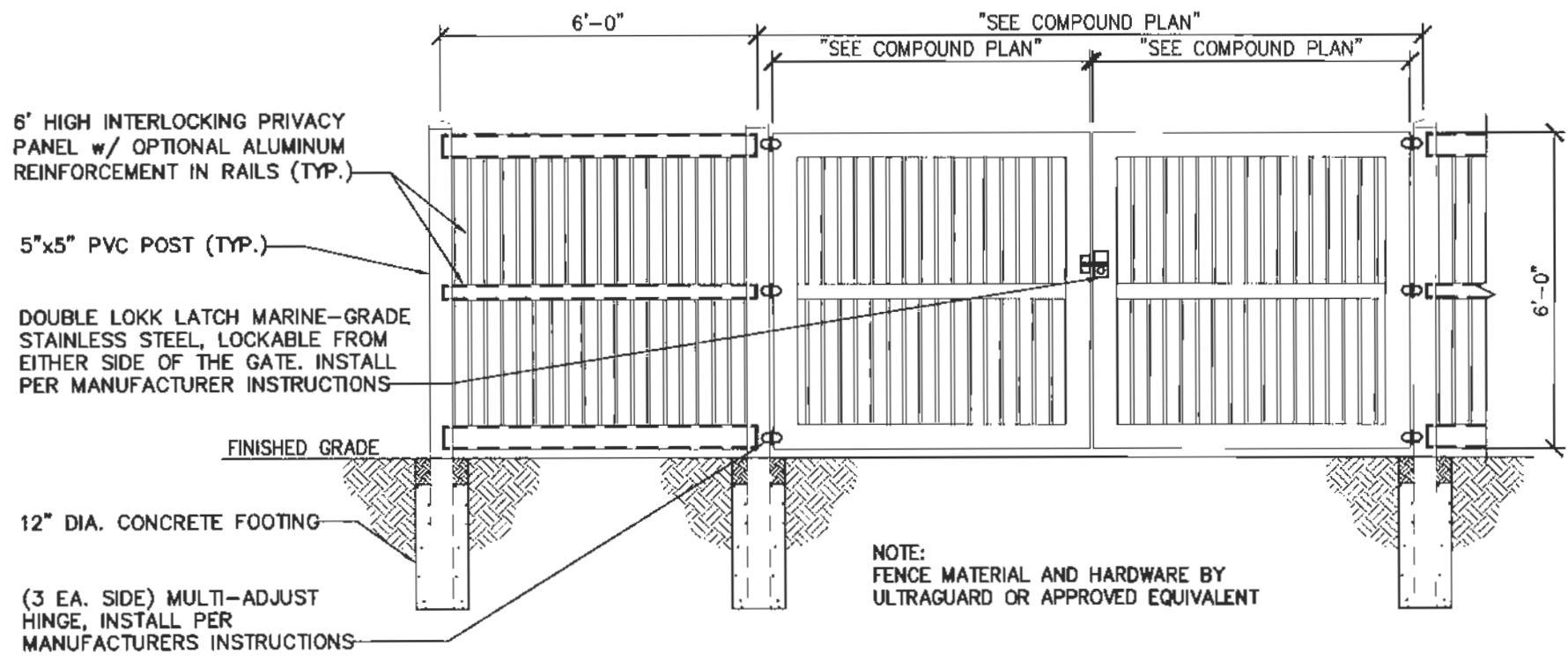
SHEET NUMBER  
**A-3**





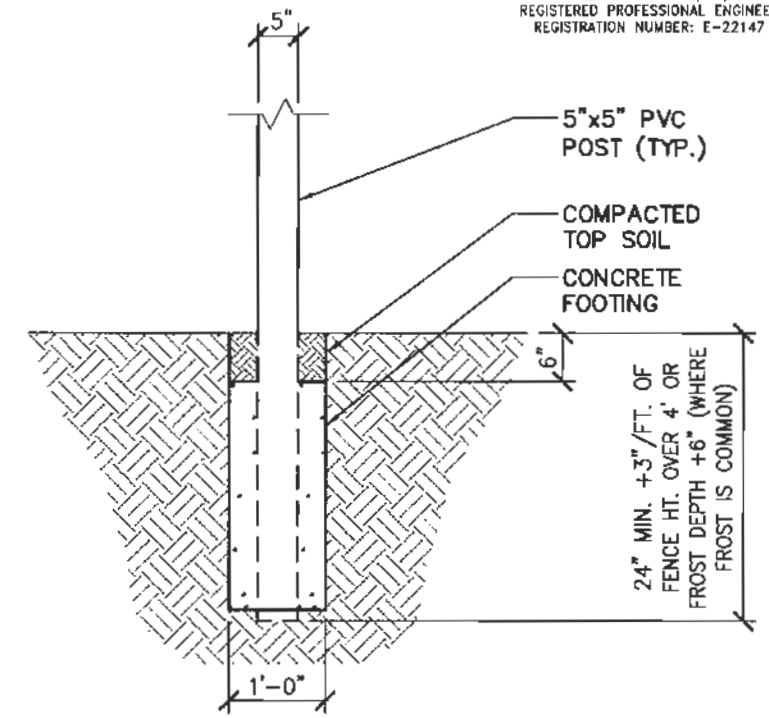
WILLIAM C. THOMPSON, JR.  
 REGISTERED PROFESSIONAL ENGINEER  
 REGISTRATION NUMBER: E-22147

PROJECT NO: B156607	
DRAWN BY: JAP	
CHECKED BY: JMD	
0	8/5/15 CLIENT REVIEW
1	9/23/15 BID/PERMIT
2	11/02/15 CITY COMMENTS
3	11/24/15 ENG REVIEW



**1** TYPICAL FENCE SECTION & GATE  
 SCALE: NONE

SH-01-FN-04-003



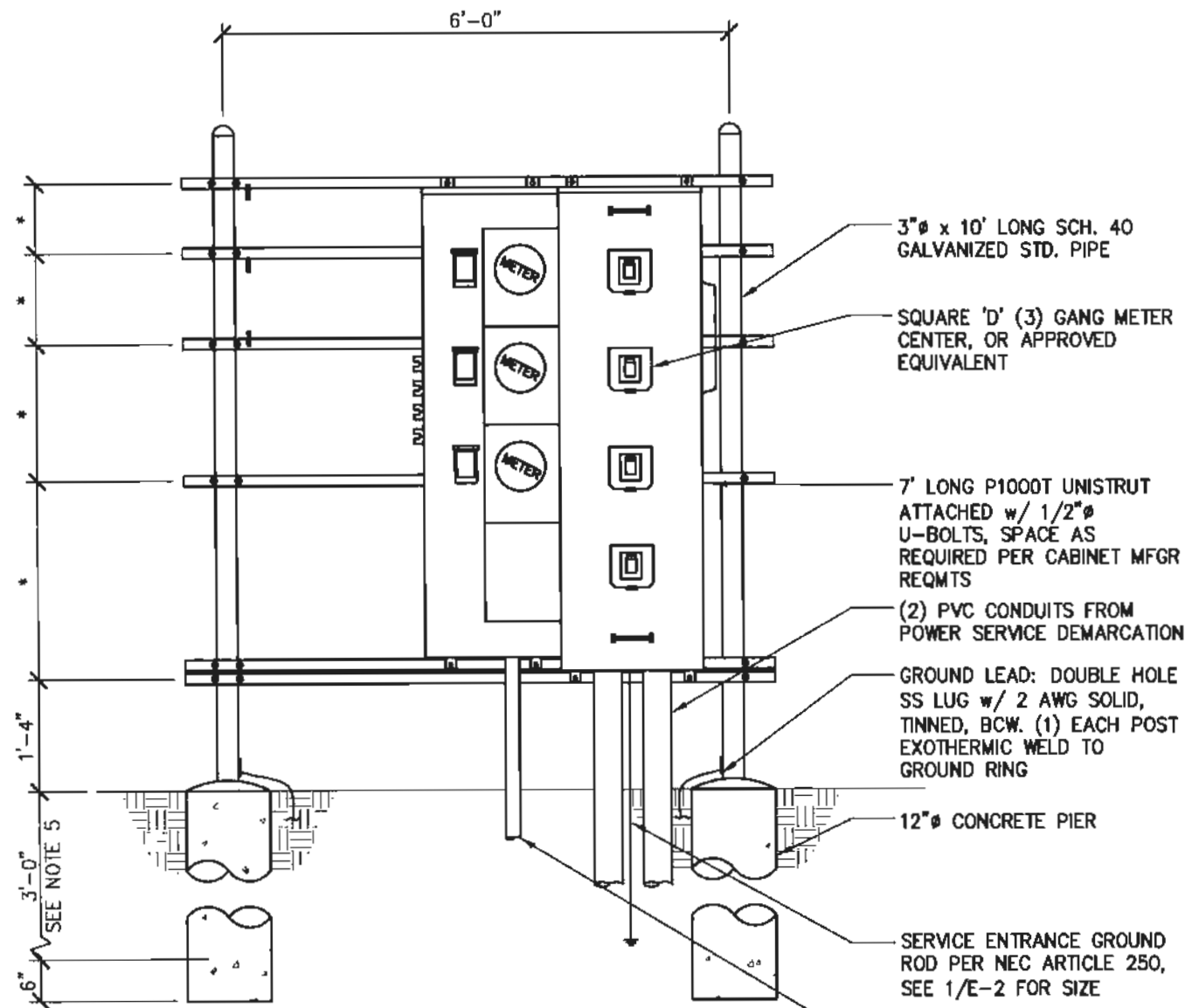
**2** FENCE POST DETAIL  
 SCALE: 1/2"=1'-0"

SH-01-FN-04-002

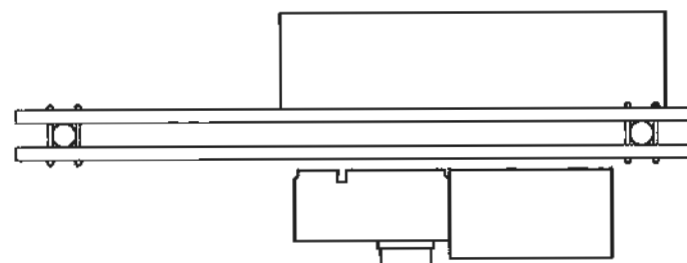
**MEXICO & SONDEREN**  
 SITE# MO-2014-19  
 8366 MEXICO ROAD  
 O'FALLON, MO 63368  
 ST. CHARLES COUNTY  
 MONOPOLE

SHEET TITLE  
 FENCE DETAIL

SHEET NUMBER  
**A-4**



FRONT ELEVATION

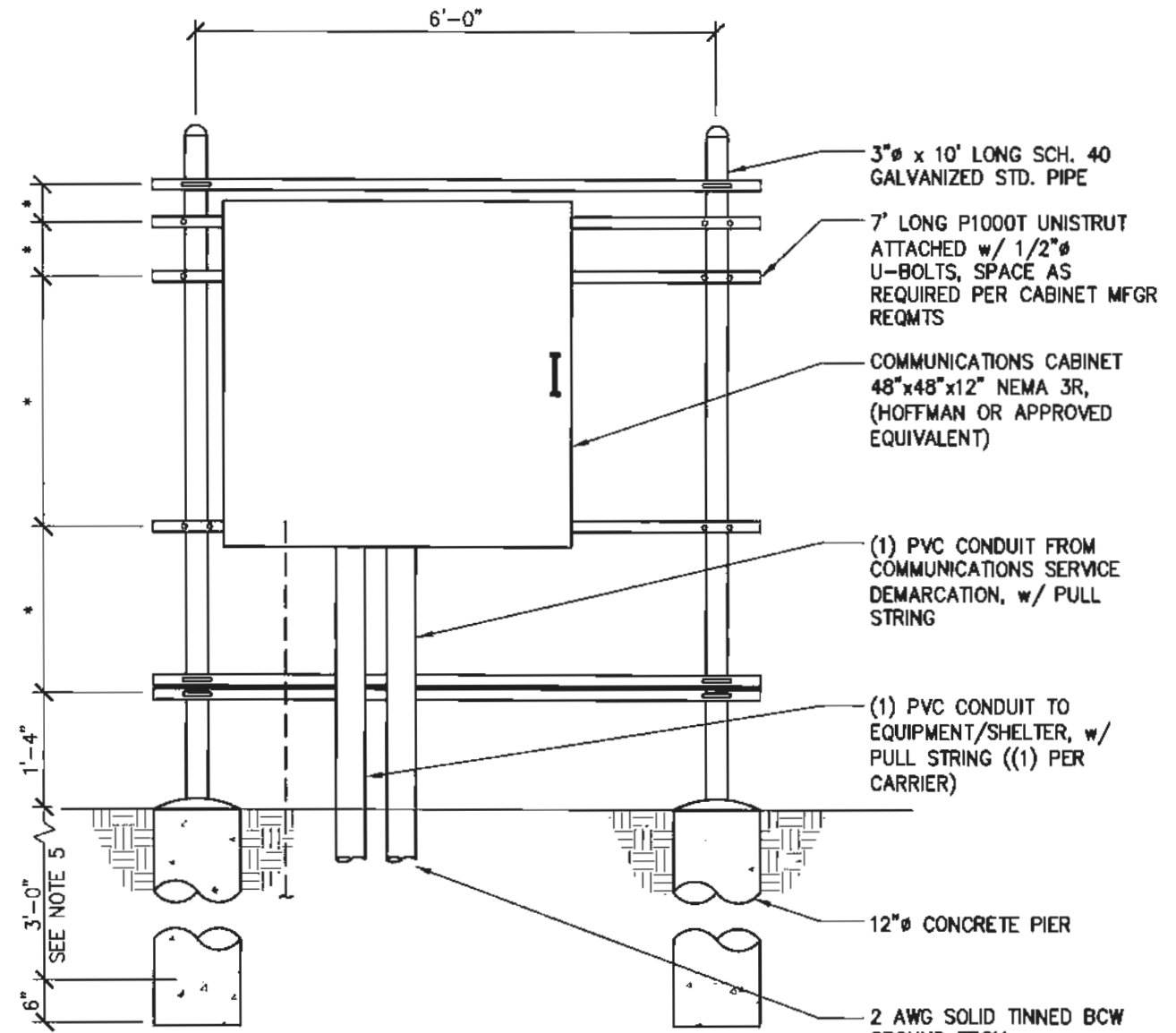


PLAN

NOTES:

1. \*- COORDINATE ELEVATIONS WITH EQUIPMENT/MOUNTING HEIGHT.
2. STEEL SHALL BE HOT DIP GALVANIZED.
3. CABINETS SHALL BE MOUNTED WITH STAINLESS STEEL BOLTS
4. ADD NAMEPLATE TO INDICATE METER LETTER & CARRIER FOR EACH DISTRIBUTION BREAKER, UNUSED METER SOCKETS SHALL BE COVERED w/ LEXAN METER COVER.
5. 3'-0" MIN. OR FROST DEPTH +6" (WHERE FROST IS MOST COMMON)

1 UTILITY RACK - FRONT VIEW  
SCALE: NONE



REAR ELEVATION

2 UTILITY RACK - REAR VIEW  
SCALE: NONE

ST. CHARLES TOWER  
#4 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO. 63017

SHIVEHATTERY  
ARCHITECTURE+ENGINEERING  
3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
630 390 7444 | fax 630 437 9600 | shivehattery.com  
Iowa | Illinois | Missouri

PROJECT NO: 8156607	
DRAWN BY: JAP	
CHECKED BY: JMD	
0	8/5/15 CLIENT REVIEW
1	9/23/15 BID/PERMIT
2	11/02/15 CITY COMMENTS
3	11/24/15 ENG REVIEW

MEXICO & SONDEREN  
SITE# MO-2014-19  
8388 MEXICO ROAD  
O'FALLON, MO 63366  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
UTILITY RACK  
DETAILS

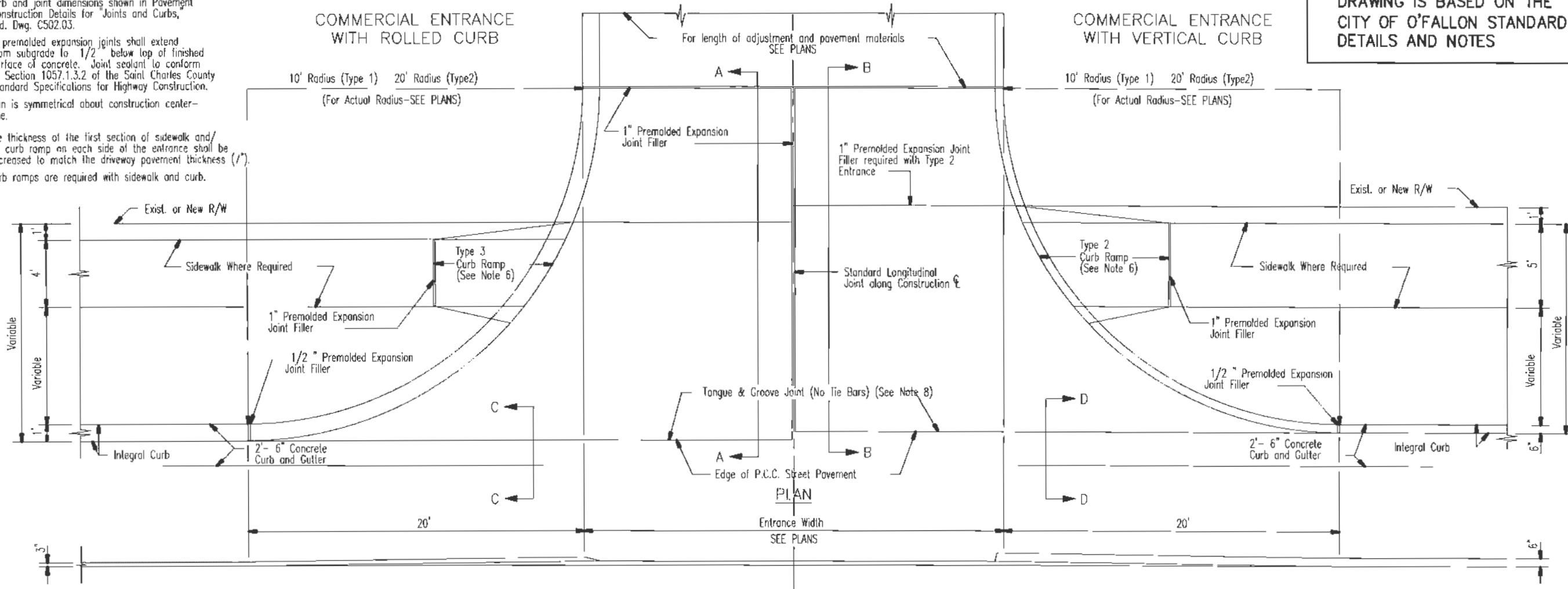
SHEET NUMBER  
A-5



**GENERAL NOTES**

1. Do not scale drawing. Follow dimensions.
2. Curb and joint dimensions shown in Pavement Construction Details for Joints and Curbs, Std. Dwg. C502.03.
3. All preformed expansion joints shall extend from subgrade to 1/2" below top of finished surface of concrete. Joint sealant to conform to Section 1057.1.3.2 of the Saint Charles County Standard Specifications for Highway Construction.
4. Plan is symmetrical about construction center-line.
5. The thickness of the first section of sidewalk and/or curb ramp on each side of the entrance shall be increased to match the driveway pavement thickness (1").
6. Curb ramps are required with sidewalk and curb.

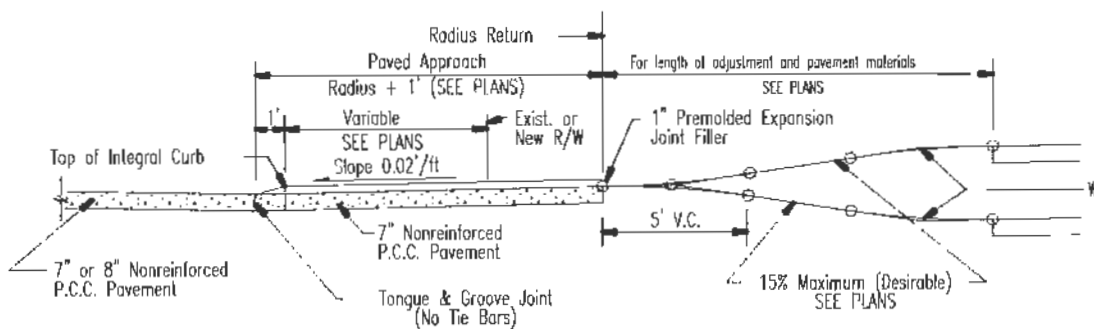
**DRAWING IS BASED ON THE CITY OF O'FALLON STANDARD DETAILS AND NOTES**



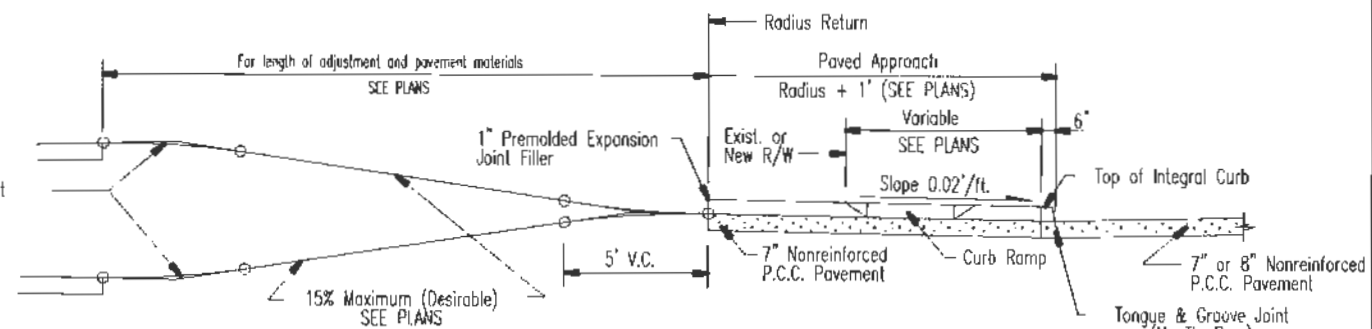
HALF DETAIL SHOWING ROLLED INTEGRAL CURB OR CURB AND GUTTER

ELEVATION

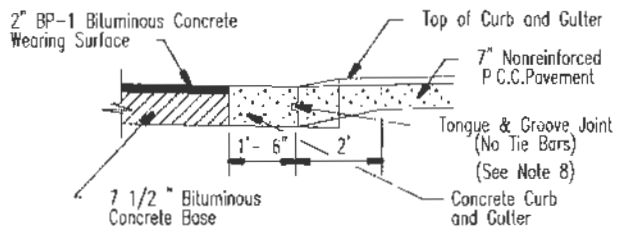
HALF DETAIL SHOWING VERTICAL INTEGRAL CURB OR CURB AND GUTTER



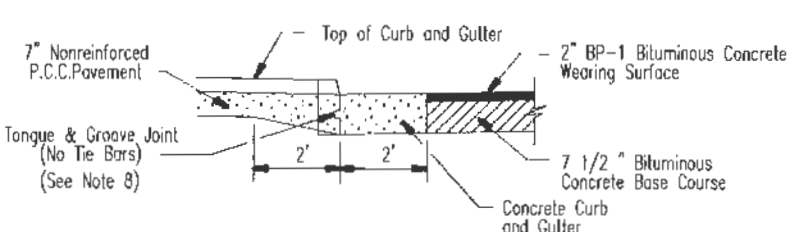
SECTION A-A



SECTION B-B



SECTION C-C



SECTION D-D

7. Preformed Expansion Joint Filler material shall consist of a solid polymer foam or sponge rubber product that exhibits at least 90% recovery when tested in accordance to ASTM D-5249.
8. For new concrete entrance at existing pavement and curbing, sawcut at 1 foot and install tie bars, 5/8" diameter, 18" long, at 12" centers along all saw cut edges. New tie bars shall be placed in drilled holes with Non-Shrink Grout. Tie bars, where existing, shall be cleaned and straightened for incorporation in the new concrete.
9. The asphalt surface shall be compacted to 98% maximum density.
10. All non-reinforced concrete shall be 4000 psi.

**CITY OF O'FALLON  
ENGINEERING DEPARTMENT  
O'FALLON, MISSOURI**

**ENTRANCE CONSTRUCTION DETAILS  
TYPE 1 & 2 SPECIAL  
COMMERCIAL  
CONCRETE ENTRANCES**

**ST. CHARLES  
TOWER**  
#4 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO. 63017

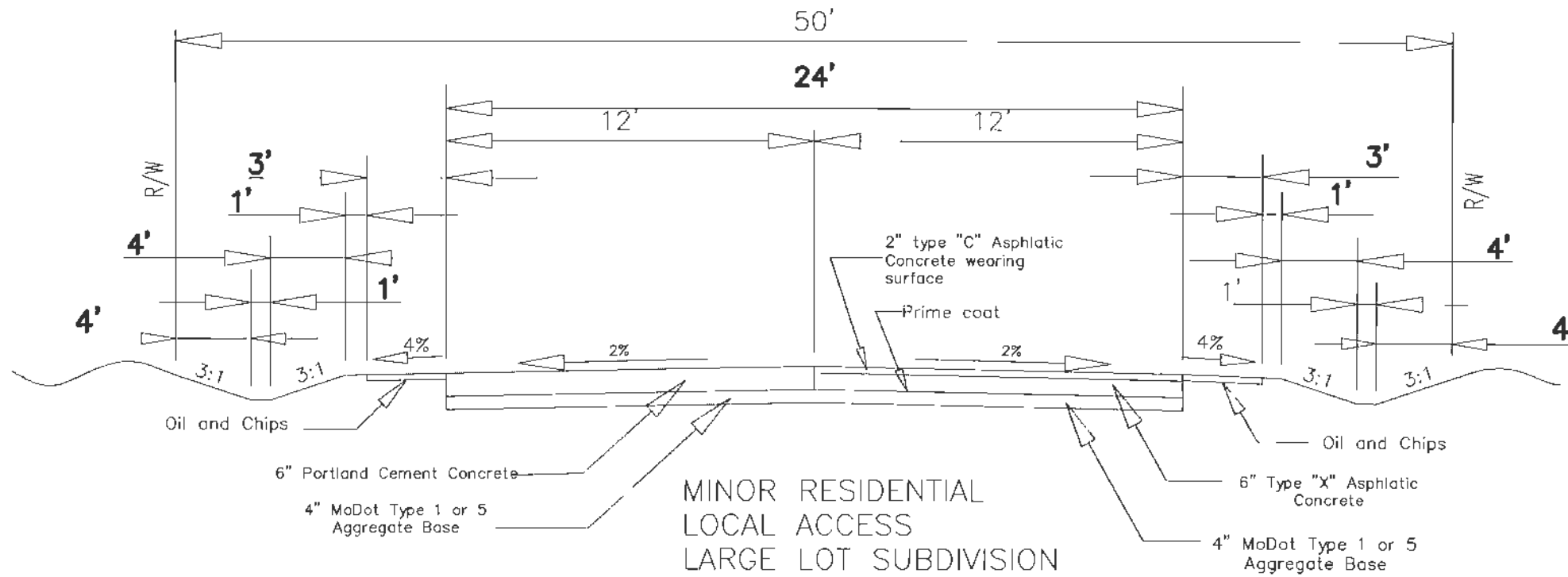
**SHIVEHATTERY**  
ARCHITECTURE + ENGINEERING  
3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
630.390.7444 | Fax 630.437.5800 | shivehattery.com  
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PROJECT NO:	BT56607
DRAWN BY:	JAP
CHECKED BY:	JMD
0	8/5/15 CLIENT REVIEW
1	9/23/15 ERO/PERMIT
2	11/02/15 CITY COMMENTS
3	11/24/15 ENQ REVIEW

**MEXICO &  
SONDEREN**  
SITE# MO-2014-19  
8368 MEXICO ROAD  
O'FALLON, MO 63386  
ST. CHARLES COUNTY  
MISSOURI

SHEET TITLE  
**COMMERCIAL  
DRIVE DETAILS**

SHEET NUMBER  
**C-1**



DRAWING IS BASED ON THE CITY OF O'FALLON STANDARD DETAILS AND NOTES

	ROW Width	Pavement Width	Lane Width	No. of Drive Lanes	Utility Easement	Design Speed
Minor Arterial	84	60	12	5	10	40
Collector	60	39	12	3	10	35
Residential Collector	56	32**	N/A	2	10	25
Minor Residential Local Access	50	26	N/A	2	10	25*

Notes: \* = Can be varied with City Engineer's approval  
 \*\* = Detail to match minor residential street with wider pavement  
 - these requirements may be varied by other City ordinances  
 - these standards are minimum standards  
 - Parkway options can be provided as indicated above

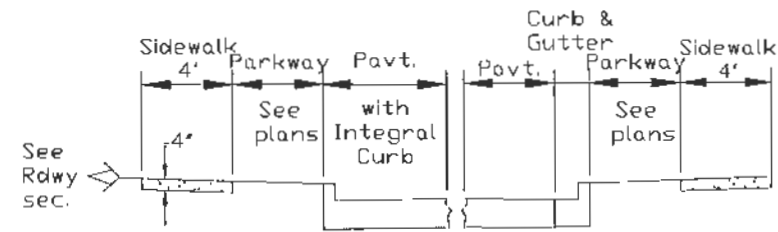
Designer will provide roadway cross section and joint locations in a separate detail drawing.

CITY OF O'FALLON ENGINEERING DEPARTMENT O'FALLON, MISSOURI	MEXICO & SONDEREN SITE# MO-2014-19 8388 MEXICO ROAD O'FALLON, MO 63366 ST. CHARLES COUNTY MONOPOLE
Typical Pavement Design	SHEET TITLE COMMERCIAL DRIVE DETAILS
SECTION NO. 405.370	SHEET NUMBER C-2

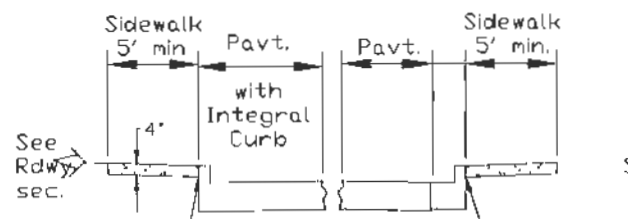
**ST. CHARLES TOWER**  
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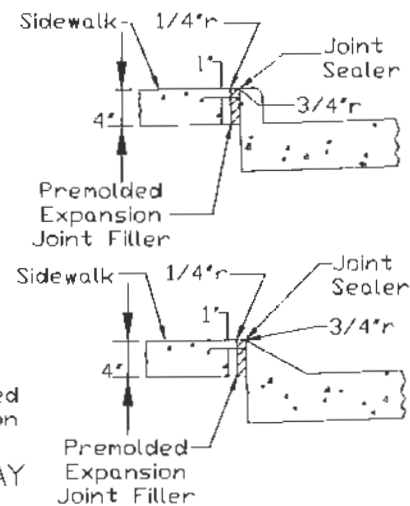
PROJECT NO. 8156807
DRAWN BY: JAP
CHECKED BY: JMD
0 8/5/15 CLIENT REVIEW
1 8/23/15 ENG/PERMIT
2 11/02/15 CITY COMMENTS
3 11/24/15 ENG REVIEW



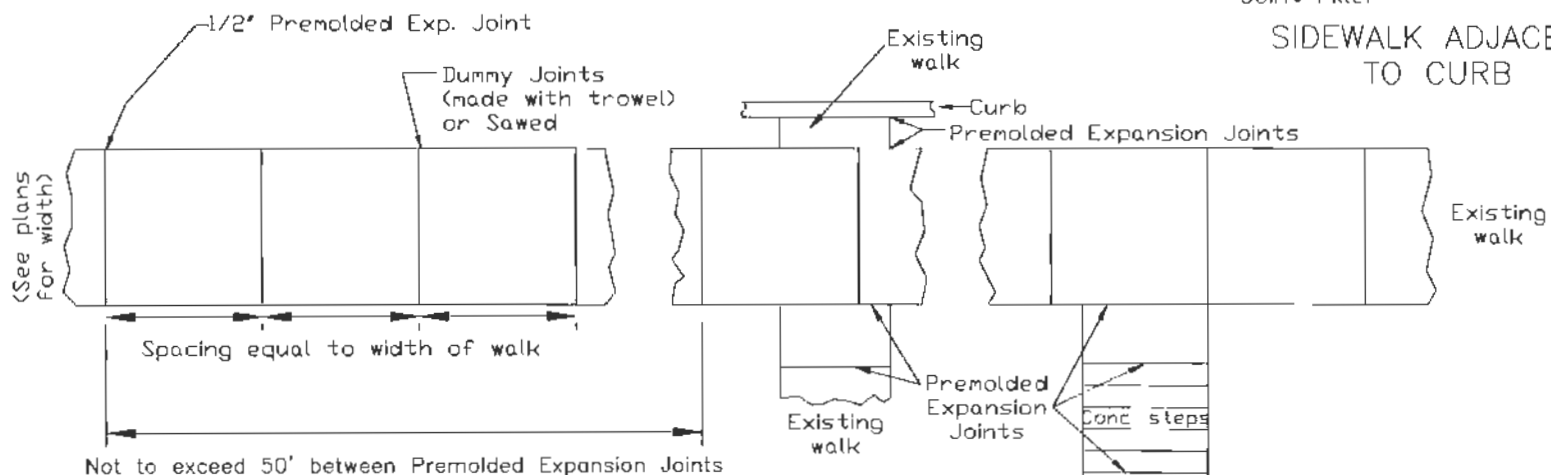
CONCRETE SIDEWALK WITH PARKWAY



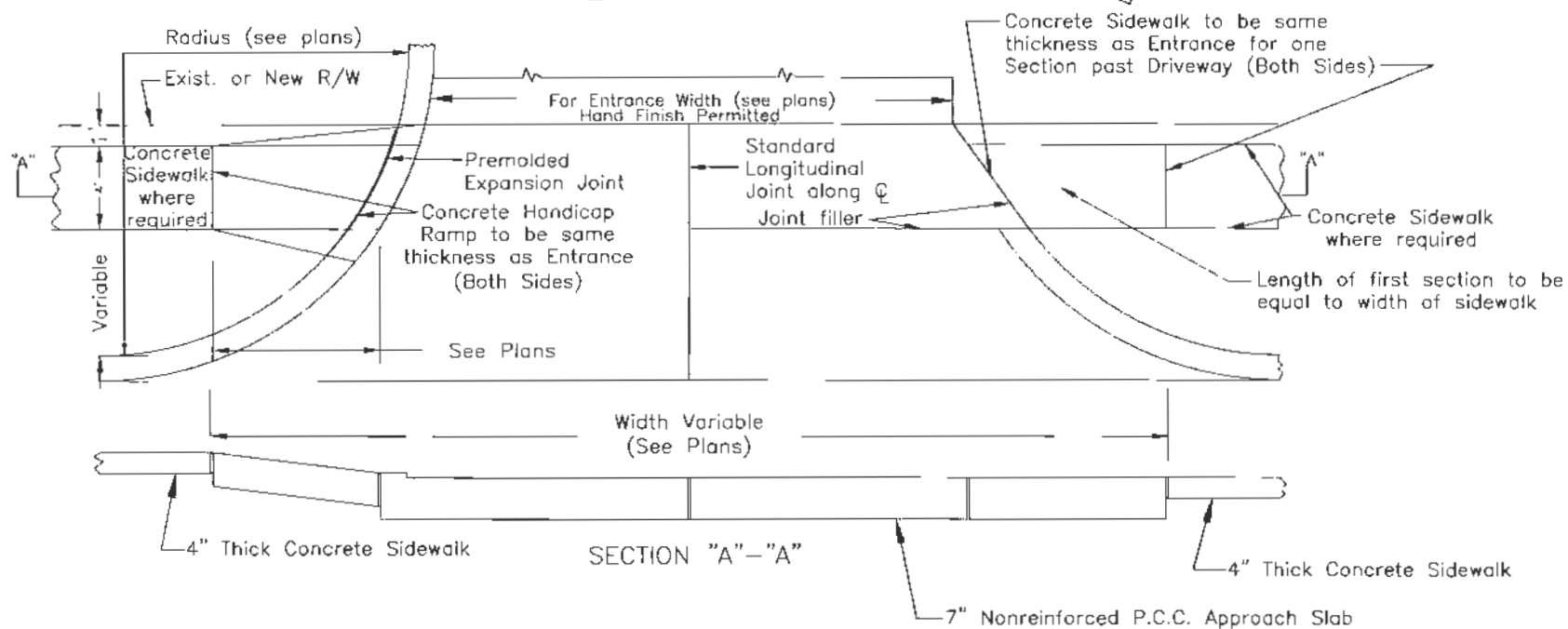
CONCRETE SIDEWALK NO PARKWAY



SIDEWALK ADJACENT TO CURB



CONCRETE SIDEWALK JOINTS



GENERAL NOTES

1. Do not scale drawing. Follow dimensions.
2. Sidewalk cross slope 0.02'/ft.
3. Sidewalk thickness increases to 6" on each side of Private Driveways and 7" on each side of Commercial Driveways for one section of sidewalk equal in length to the width of the sidewalk. See "Entrance Construction Details".
4. For sidewalk locations on Cul-De-Sacs see "Pavement Construction Details".
5. For longitudinal and transverse joints, dowel, and tie bar requirements and dimensions refer to the "Integral Curb Pavement Typical Sections and Details".
6. For roadway cross slopes, pavement types, and thickness, refer to "Standard Typical Section".
7. All non-reinforced concrete shall be 4000 psi.

DRAWING IS BASED ON THE CITY OF O'FALLON STANDARD DETAILS AND NOTES

CITY OF O'FALLON  
ENGINEERING DEPARTMENT  
O'FALLON, MISSOURI

CONCRETE SIDEWALK  
THROUGH  
COMMERCIAL ENTRANCES

ST. CHARLES  
TOWER

#4 WEST DRIVE, SUITE 110  
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SHIVEHATTERY  
ARCHITECTURE + ENGINEERING

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PROJECT NO: 8156807

DRAWN BY: JAP

CHECKED BY: JMD

0	8/5/15	CLIENT REVIEW
1	9/23/15	END/PERMIT
2	11/02/15	CITY COMMENTS
3	11/24/15	ENG REVIEW

MEXICO &  
SONDEREN  
SITE# MO-2014-19  
8368 MEXICO ROAD  
O'FALLON, MO 63366  
ST. CHARLES COUNTY  
MISSOURI

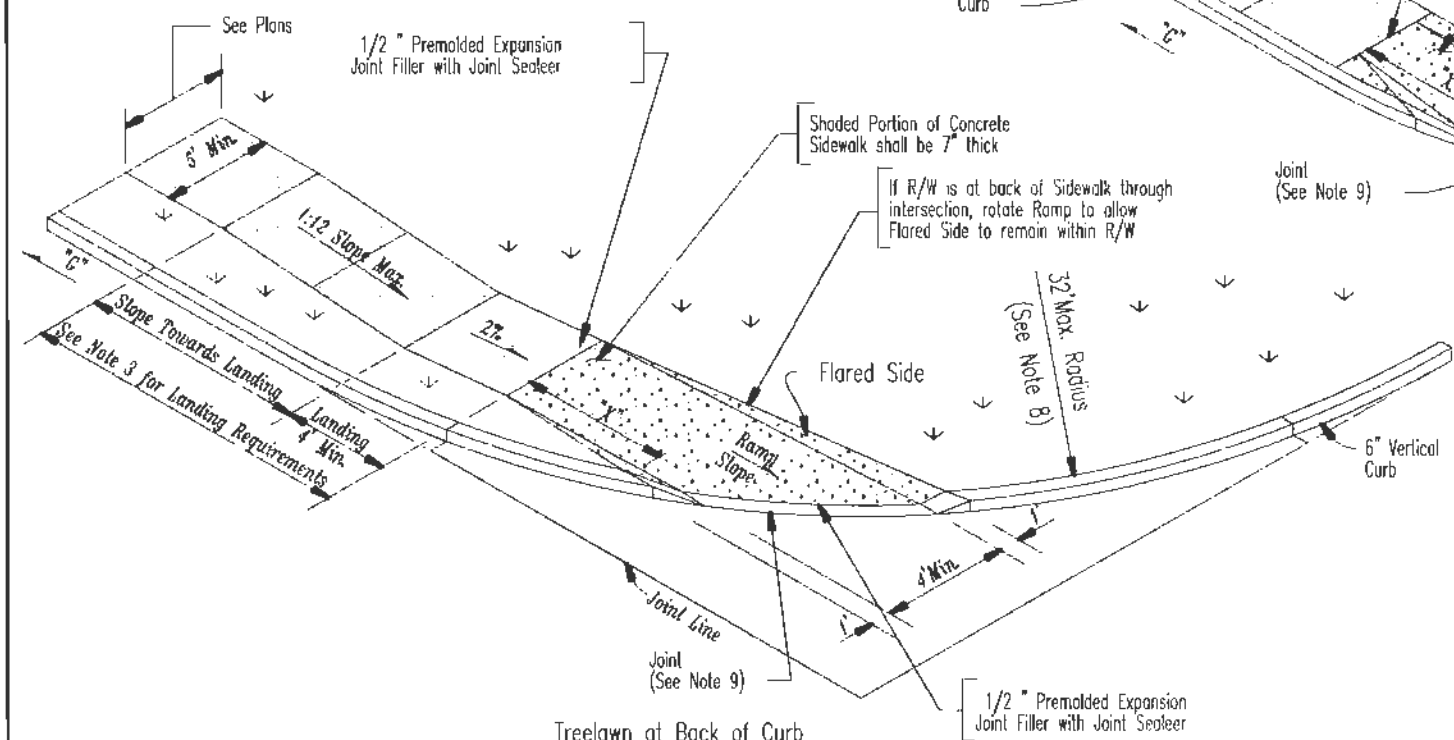
SHEET TITLE  
COMMERCIAL  
DRIVE DETAILS

SHEET NUMBER  
C-3

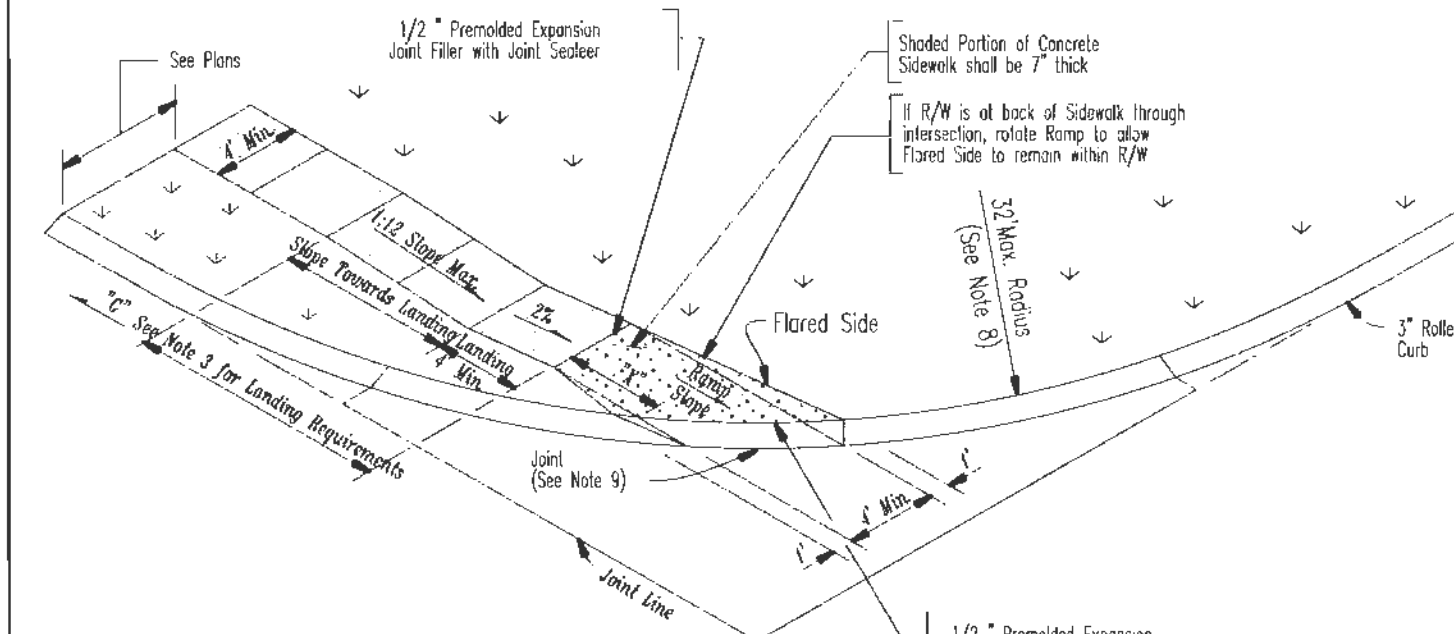


Truncated domes for curb ramps located in public right-of-way shall meet ada requirements and shall be constructed using red precast truncated domes such as those manufactured by armor tile or approved equal.

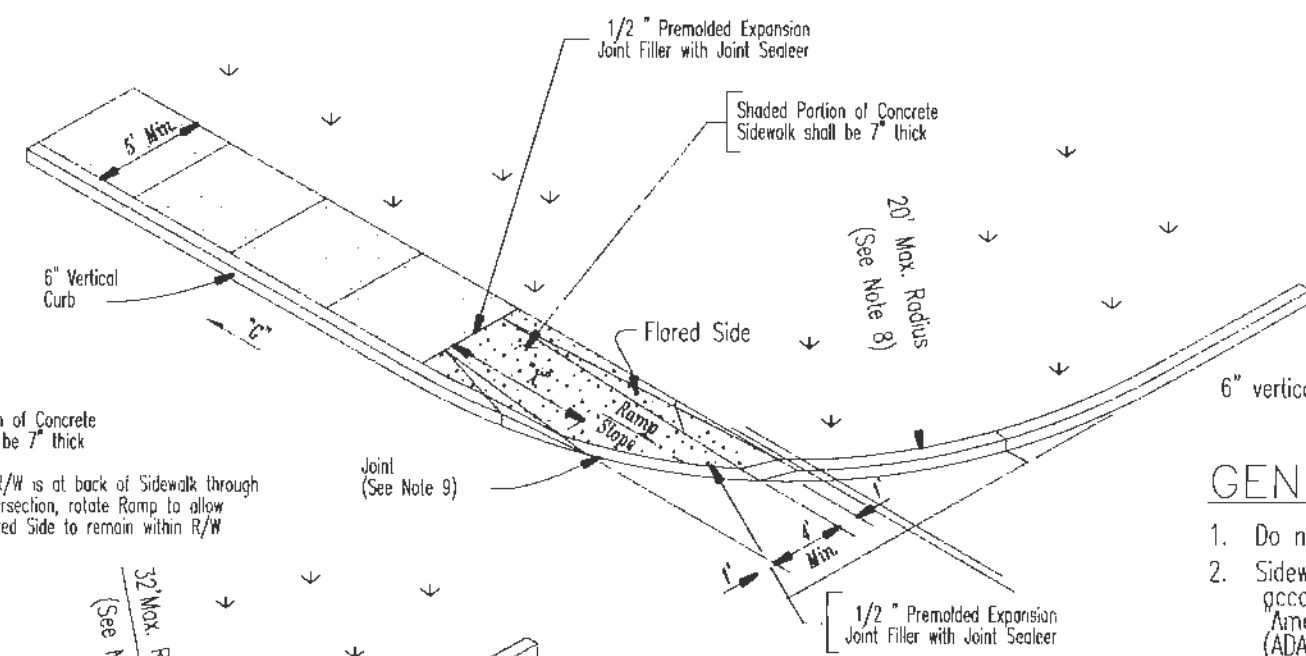
DRAWING IS BASED ON THE CITY OF O'FALLON STANDARD DETAILS AND NOTES



STRAIGHT CURB RAMP - 6" VERTICAL CURB (TYPE 2)



STRAIGHT CURB RAMP - 3" ROLLED CURB (TYPE 3)



STRAIGHT CURB RAMP - 6" VERTICAL CURB (TYPE 1)

TYPE 1 AND TYPE 2 CURB RAMPS	
"G" GRADE ALONG CURB (%)	"X" MIN. LENGTH OF RAMP SLOPE (L.F.)
NEGATIVE (-) VALUES	6
0 TO +1	7
+1.01 TO +2	8
+2.01 TO +3	10
+3.01 TO +4	12
GREATER THAN +4	15

NOTE: Positive (+)"G"- Proceeding away from intersection and up a grade.  
 Negative (-)"G"- Proceeding away from intersection and down a grade.

TYPE 3 CURB RAMP	
"G" GRADE ALONG CURB (%)	"X" MIN. LENGTH OF RAMP SLOPE (L.F.)
NEGATIVE (-) VALUES	3
0 TO +2	4
+2.01 TO +3	5
+3.01 TO +4	6
+4.01 TO +5	8
+5.01 TO +6	11
GREATER THAN +6	15

NOTE: Positive (+)"G"- Proceeding away from intersection and up a grade.  
 Negative (-)"G"- Proceeding away from intersection and down a grade.

GENERAL NOTES

1. Do not scale drawing. Follow dimensions.
2. Sidewalks and sidewalk curb ramps shall be constructed in accordance with these details and the current approved Americans with Disabilities Act Accessibility Guidelines (ADAAG)
3. Minimum sidewalk width along 6" vertical curb shall be 5 feet. Minimum sidewalk width along 3" rolled curb shall be 4 feet.
4. Maximum sidewalk cross slope 0.02'/ft..
5. All sidewalk sections shall be 4" thick, except where indicated as 7" thick by shaded portions shown on details. All sidewalk sections and curb ramps, regardless of thickness, shall be paid for as Concrete Sidewalk.
6. Where curb ramp meets pavement, Bullnose will not be permitted.
7. If integral concrete curb is constructed, strike a dummy joint across bottom of ramp at curb line. If concrete curb is doweled-on, block out pavement to provide full depth curb across ramp from outer point of curb taper to outer point of curb taper.
8. For sidewalk locations on Cul-De-Sacs, refer to "Pavement Construction Details".
9. For roadway cross slopes, pavement types, and thicknesses, refer to "Standard Typical Sections".
10. The intersection of two sidewalks or the intersection of a sidewalk and a driveway may serve as a wheelchair passing space on sidewalks less than 5 feet wide.
11. All curb ramps shall have a detectable warning complying with "Americans with Disabilities Act Accessibility Guidelines" (ADAAG).
12. All non-reinforced concrete shall be 4000 psi.

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PROJECT NO: 8158607	
DRAWN BY: JAP	
CHECKED BY: JMD	
0 8/5/15	CLIENT REVIEW
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CITY OF O'FALLON  
 ENGINEERING DEPARTMENT  
 O'FALLON, MISSOURI

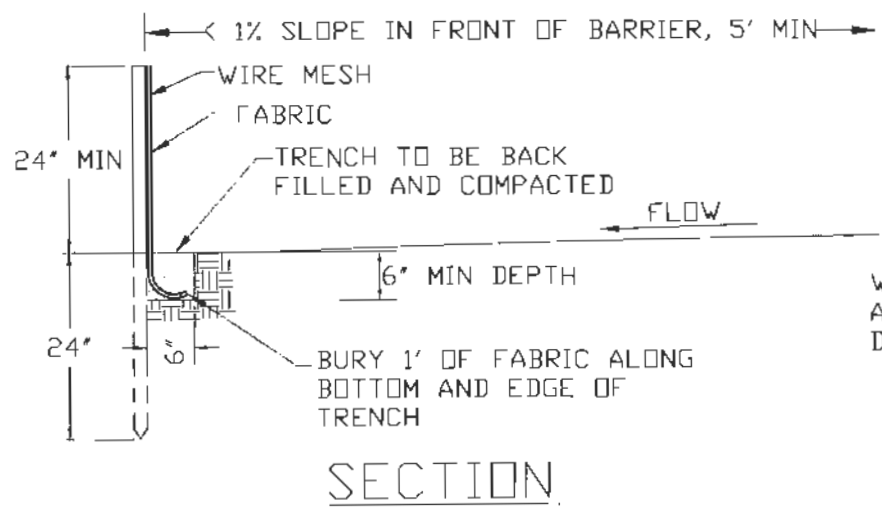
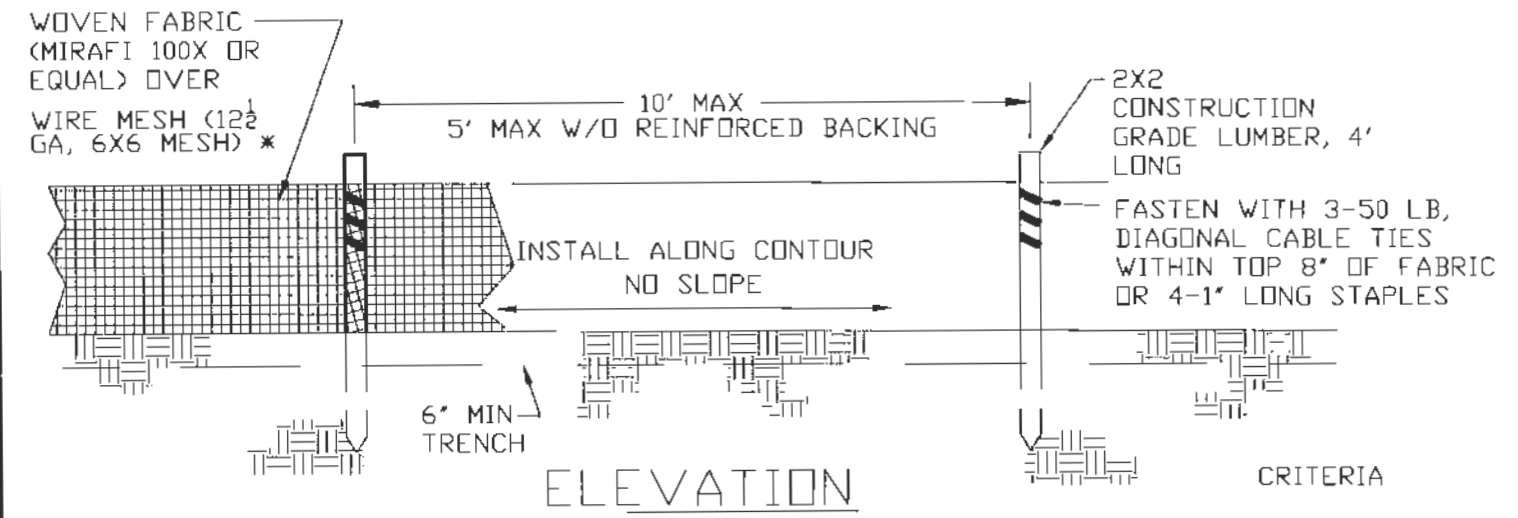
CONCRETE SIDEWALK  
 WITHIN CUL-DE-SACS

MEXICO & SONDEREN  
 SITE# MO-2014-19  
 8385 MEDCO ROAD  
 O'FALLON, MO 63368  
 ST. CHARLES COUNTY  
 MONOPOLE

SHEET TITLE  
 COMMERCIAL  
 DRIVE DETAILS

SHEET NUMBER  
 C-4

DRAWING IS BASED ON THE CITY OF O'FALLON STANDARD DETAILS AND NOTES



WRAP GEOTEXTILE AROUND STAKES BEFORE DRIVING

JOINING SECTIONS OF SILT FENCE

CRITERIA

1. SILT FENCE SHALL BE 24 INCHES HIGH
2. SILT FENCE SHALL NOT BE USED FOR CONCENTRATED FLOWS.
3. GEOSYNTHETIC REINFORCED SILT FENCE BACKING MAY BE USED IN LIEU OF WIRE MESH.
4. WIRE MESH WILL BE USED AT LOCATIONS SHOWN ON THE APPROVED SWPPP.

NOTE: IF FABRIC IS INSTALLED BY EQUIPMENT DESIGNED TO SLICE INTO THE GROUND, THE TRENCH IS NOT REQ'D.

CITY OF O'FALLON  
ENGINEERING DEPARTMENT  
O'FALLON, MISSOURI

SILT FENCE INSTALLATION  
SHEET FLOW (ONLY)

ST. CHARLES TOWER  
#1 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO. 63017

SHIVEHATTERY  
ARCHITECTURE + ENGINEERING  
3025 Highland Pkwy, Suite 140 | Downers Grove, Illinois 60515  
630.300.7444 | fax 630.437.5800 | shive-hattery.com  
Iowa | Illinois | Missouri

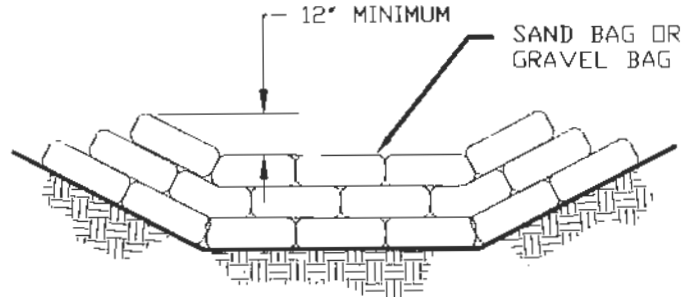
PROJECT NO: 8156807	
DRAWN BY: JAP	
CHECKED BY: JMD	
0	8/5/15 CLIENT REVIEW
1	9/23/15 BID/PERMIT
2	11/02/15 CITY COMMENTS
3	11/24/15 ENG REVIEW

MEXICO & SONDEREN  
SITE# MO-2014-19  
8388 MEXCO ROAD  
O'FALLON, MO 63368  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
SILT FENCE  
INSTALLATION

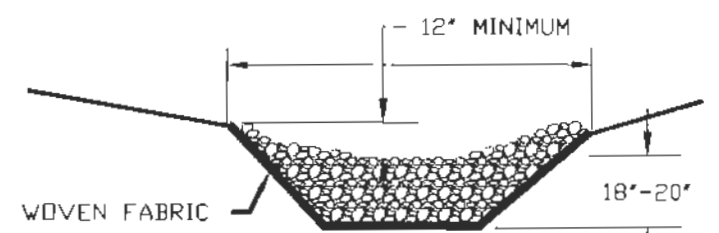
SHEET NUMBER  
C-5

DRAWING IS BASED ON THE CITY OF O'FALLON STANDARD DETAILS AND NOTES

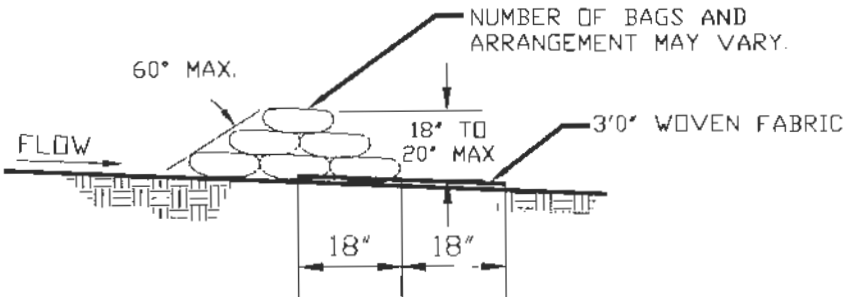


CROSS SECTION

LEVEL CENTER SECTION, WITH 12" RISE ON BOTH SIDES TO CAUSE FLOW OVER, NOT AROUND, CHECK DAM

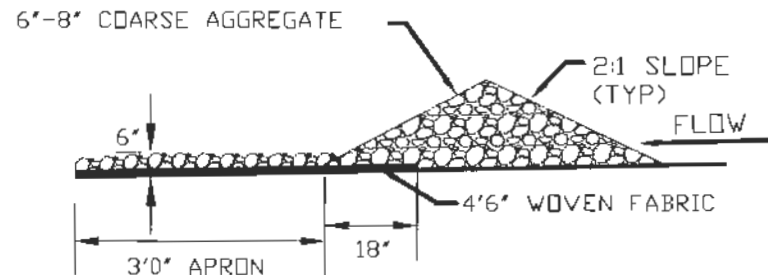


CROSS SECTION



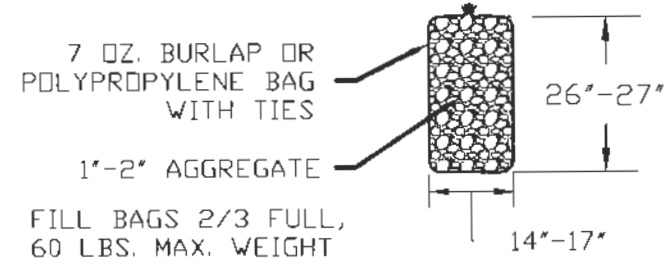
PROFILE

SAND BAG OR GRAVEL BAG CHECK DAM



PROFILE

ROCK CHECK DAM



GRAVEL BAG

NOTE:  
1. CHECK DAMS MAY BE CONSTRUCTED OF SEVERAL ESC CHECK DAM PRODUCTS.

CITY OF O'FALLON  
ENGINEERING DEPARTMENT  
O'FALLON, MISSOURI

CHECK DAMS

ST. CHARLES  
TOWER  
14 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO. 63017

SHIVEHATTERY  
ARCHITECTURE+ENGINEERING  
3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
630.330.7444 | fax 630.437.5600 | shive-hattery.com  
Iowa | Illinois | Missouri

PROJECT NO: 8156607	
DRAWN BY: JAP	
CHECKED BY: JMD	
0	8/3/15 CLIENT REVIEW
1	8/23/15 BID/PERMIT
2	11/02/15 CITY COMMENTS
3	11/24/15 ENG REVIEW

MEXICO & SONDEREN  
SITE# MO-2014-19  
8388 MEXICO ROAD  
O'FALLON, MO 63368  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
CHECK DAMS

SHEET NUMBER  
C-6



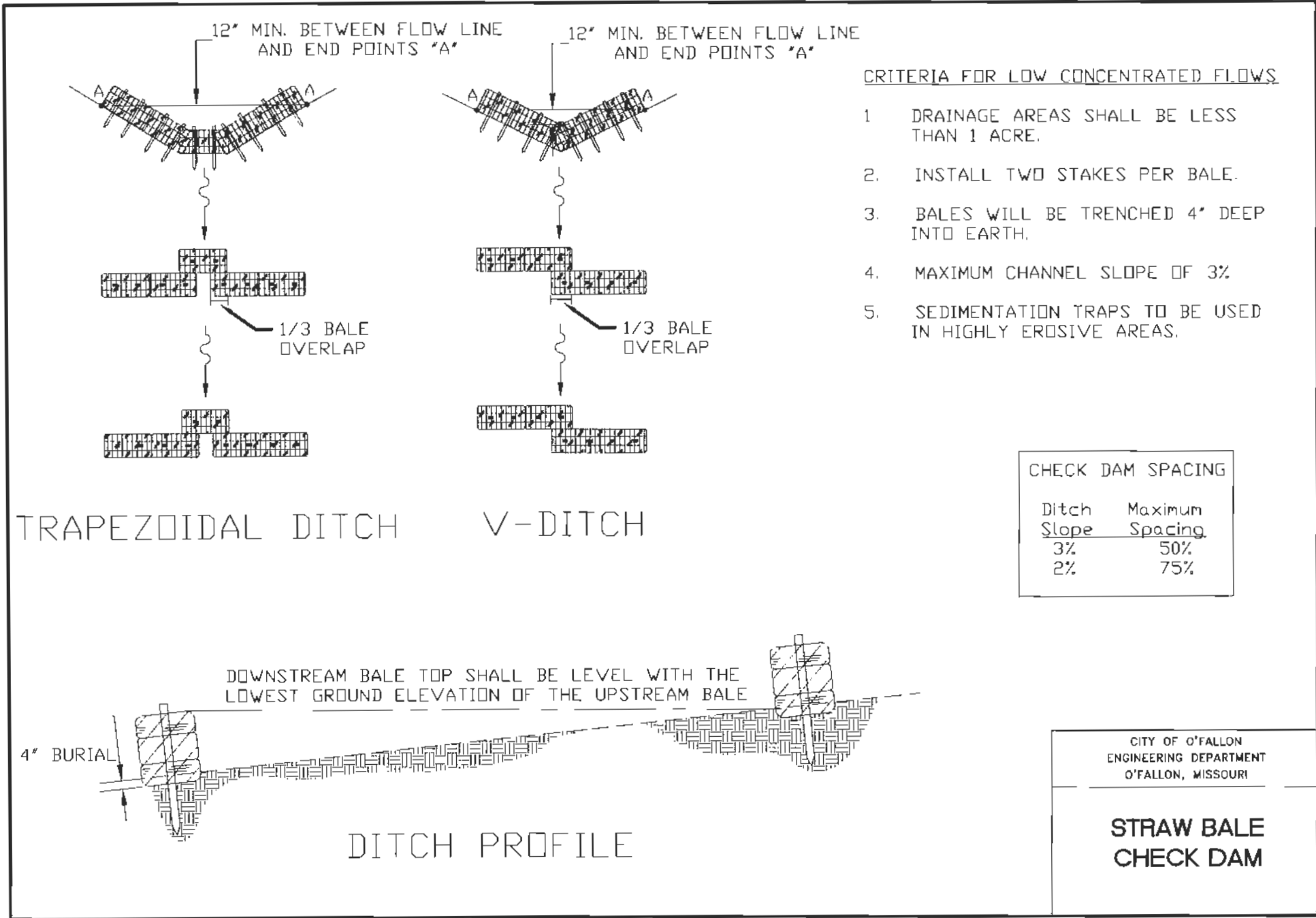
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DRAWN BY: JAP

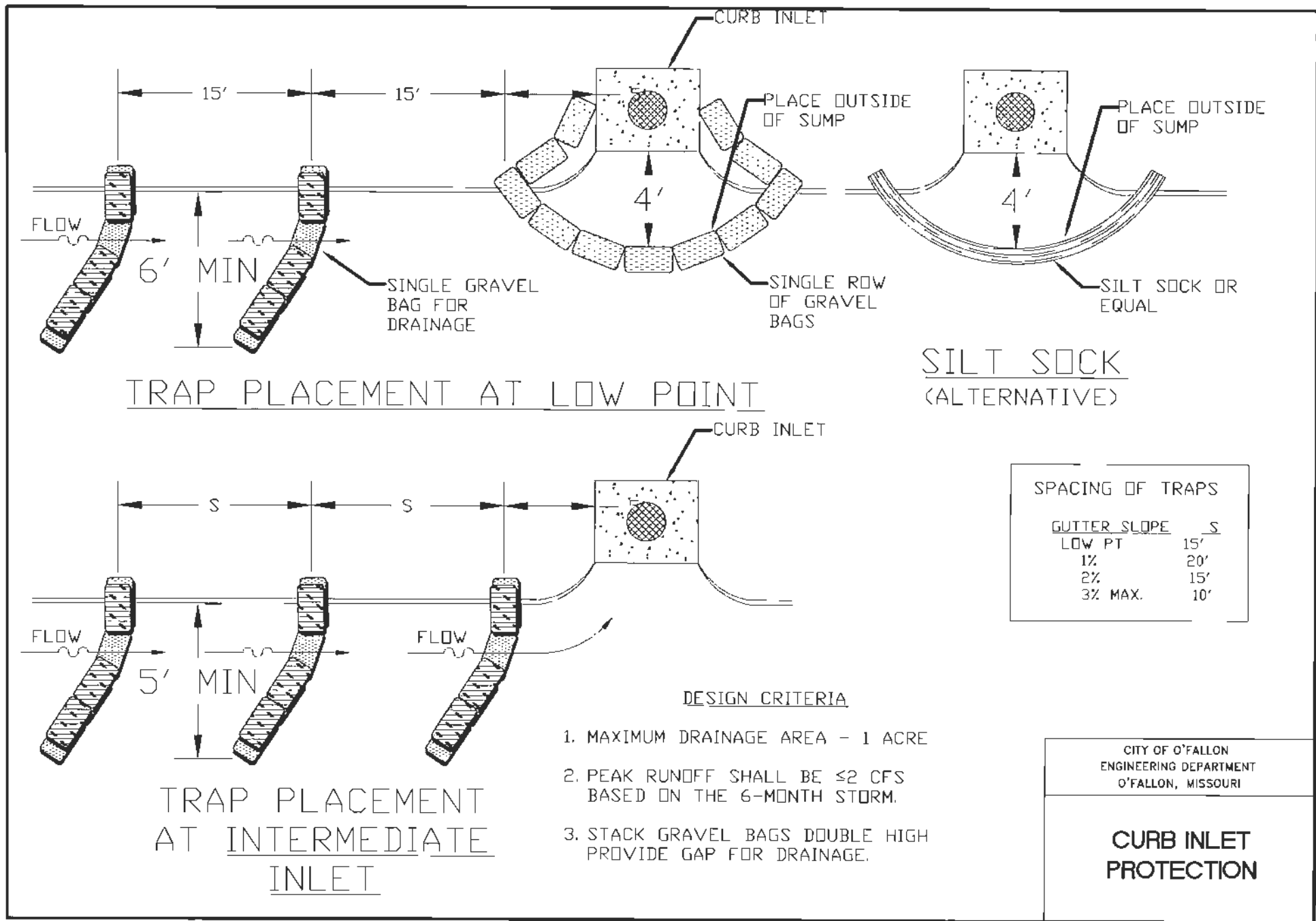
CHECKED BY: JMD

0	8/5/15	CLIENT REVIEW
1	9/23/15	IND/PERMIT
2	11/02/15	CITY COMMENTS
3	11/24/15	ENG REVIEW

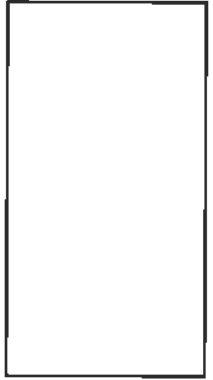
DRAWING IS BASED ON THE  
CITY OF O'FALLON STANDARD  
DETAILS AND NOTES



DRAWING IS BASED ON THE CITY OF O'FALLON STANDARD DETAILS AND NOTES



PROJECT NO:	8156807
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3	11/24/15 ENG REVIEW



**MEXICO & SONDEREN**  
 SITE# MO-2014-19  
 8366 MEADOW ROAD  
 O'FALLON, MO 63366  
 ST. CHARLES COUNTY  
 MISSOURI

SHEET TITLE  
 CURB INLET PROTECTION

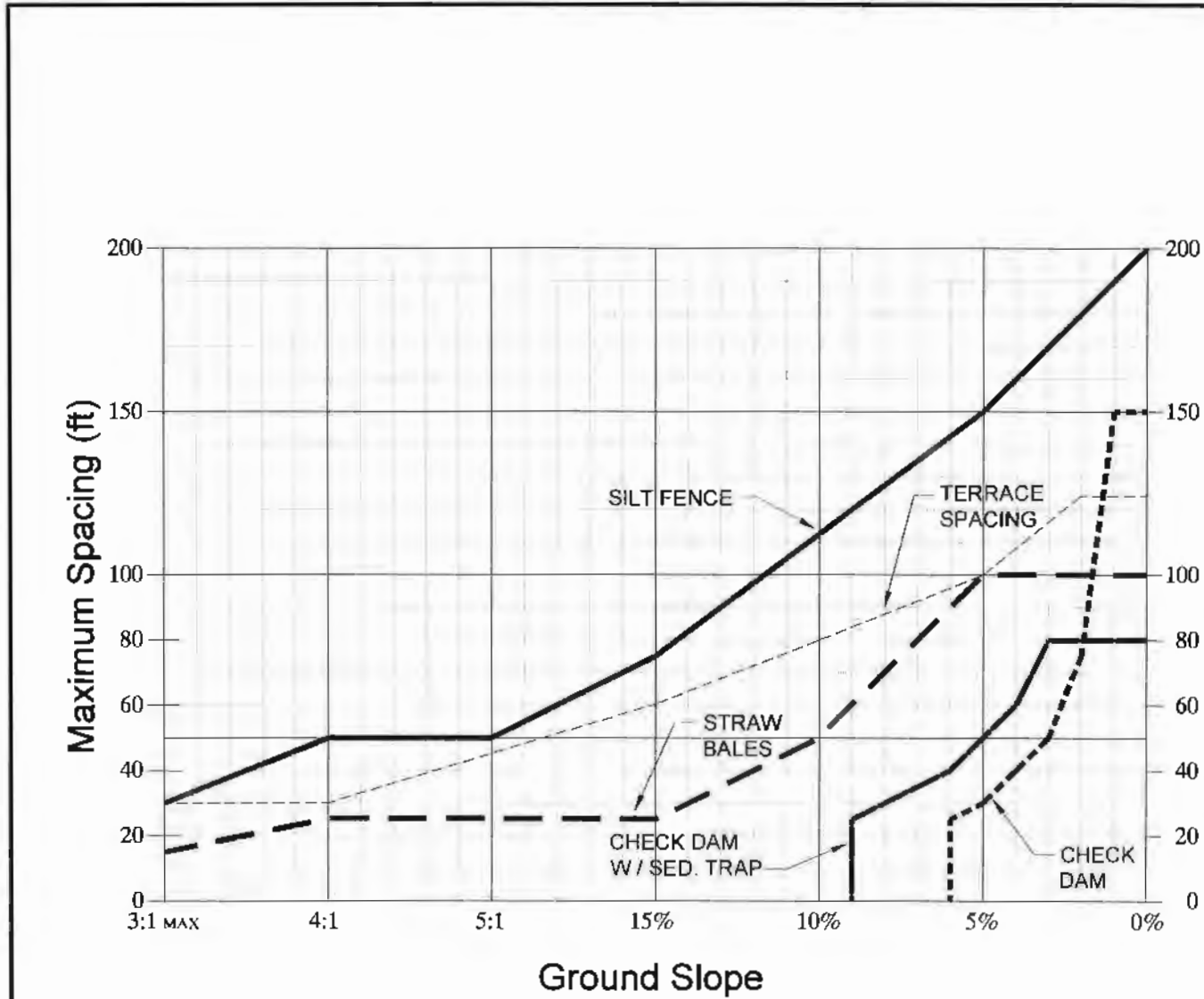
SHEET NUMBER  
 C-8

SPACING OF TRAPS	
GUTTER SLOPE	S
LOW PT	15'
1%	20'
2%	15'
3% MAX.	10'

CITY OF O'FALLON  
 ENGINEERING DEPARTMENT  
 O'FALLON, MISSOURI

**CURB INLET PROTECTION**

DRAWING IS BASED ON THE CITY OF O'FALLON STANDARD DETAILS AND NOTES



- DESIGN CRITERIA**
1. SILT FENCE FOR SHEET FLOW SHALL HAVE A MAXIMUM DRAINAGE AREA OF 1/4 ACRE PER 100 LF.
  2. STRAW BALE BARRIERS FOR SHEET FLOW SHALL HAVE A MAXIMUM DRAINAGE AREA OF 1/4 ACRE PER 100 LF.
  3. REFER TO INDIVIDUAL ESC FIGURE FOR INSTALLATION.
  4. TERRACING INCLUDES LOGS, WATTLES & FILTER SOCKS.

CITY OF O'FALLON  
ENGINEERING DEPARTMENT  
O'FALLON, MISSOURI

**SPACING CHART  
FOR ESC DEVICES**

**ST. CHARLES  
TOWER**  
#1 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO 63017

**SHIVE-HATTERY**  
ARCHITECTURE + ENGINEERING  
3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
630.980.7444 | fax 630.437.5600 | shive-hattery.com  
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**MEXICO &  
SONDEREN**  
SITE# MO-2014-19  
8388 MEDCO ROAD  
O'FALLON, MO 63366  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
SPACING CHART  
FOR ESC DEVICES

SHEET NUMBER  
**C-9**



**GENERAL NOTES**

- GN #1 DRIVEWAY LOCATIONS SHALL NOT INTERFERE WITH THE SIDEWALK HANDICAP RAMPS, OR CURB INLET SUMPS
- GN #2 SIDEWALKS, CURB RAMPS, RAMPS AND ACCESSIBLE PARKING SPACES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT APPROVED "AMERICAN WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES" (ADAAG) ALONG WITH THE REQUIRED GRADES, CONSTRUCTION MATERIALS, SPECIFICATIONS AND SIGNAGE. IF ANY CONFLICT OCCURS BETWEEN THE ABOVE INFORMATION AND THE PLANS, THE ADAAG GUIDELINES SHALL TAKE PRECEDENCE AND THE CONTRACTOR PRIOR TO ANY CONSTRUCTION SHALL NOTIFY THE PROJECT ENGINEER.
- GN #3 TRUNCATED DOMES FOR CURB RAMPS LOCATED IN PUBLIC RIGHT OF WAY SHALL MEET ADA REQUIREMENTS AND SHALL BE CONSTRUCTED USING RED PRE CAST TRUNCATED DOMES PER PAVEMENT DETAILS.
- GN #4 ANY PROPOSED PAVILIONS OR PLAYGROUND AREAS WILL NEED A SEPARATE PERMIT FROM THE BUILDING DIVISION.
- GN #5 THE CONTRACTOR IS RESPONSIBLE TO CALL MISSOURI ONE CALL AND THE CITY OF O'FALLON FOR THE LOCATION OF UTILITIES. CONTACT THE CITY OF O'FALLON (636) 379-3814 FOR THE LOCATION OF CITY MAINTAINED CABLE FOR STREET LIGHTS AND TRAFFIC SIGNALS, ALL OTHER UTILITIES CALL MISSOURI ONE CALL 1-800-DIG-RITE. 1-800-344-7483
- GN #6 ALL PROPOSED UTILITIES AND/OR UTILITY RELOCATIONS SHALL BE LOCATED UNDERGROUND.
- GN #7 ALL PROPOSED FENCING REQUIRES A SEPARATE PERMIT THROUGH THE BUILDING DIVISION.
- GN #8 ALL CONSTRUCTION OPERATIONS AND WORK ZONE TRAFFIC CONTROL WITHIN THE RIGHT OF WAY WILL FOLLOW MODOT OR M.U.T.C.D. STANDARDS WHICHEVER IS MORE STRINGENT.
- GN #9 ALL FREE STANDING SIGNS SHALL BE LOCATED A MINIMUM OF TEN (10) FEET AWAY FROM ANY RIGHT OF WAY LINE AND/OR PROPERTY LINE AND A MINIMUM OF THREE (3) FEET FROM THE BACK OF CURBING OR SIDEWALK. ALL SIGNS SHALL ABIDE BY THE REGULATIONS FOR VISIBILITY AT CORNERS, INCLUDING CORNERS FROM DRIVEWAYS AND THE STREET IT INTERSECTS PER SECTION 400.260 OF THE O'FALLON ZONING CODE.
- GN #10 ALL SUBDIVISION IDENTIFICATION OR DIRECTIONAL SIGN(S) MUST HAVE THE LOCATIONS AND SIZES APPROVED AND PERMITTED SEPARATELY THROUGH THE PLANNING AND DEVELOPMENT DIVISION.
- GN #11 MATERIALS SUCH AS TREES, ORGANIC DEBRIS, RUBBLE, FOUNDATIONS AND OTHER DELETERIOUS MATERIAL THAT ARE NOT TO BE RE-USED, THEY SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IF THE MATERIALS LISTED PREVIOUSLY ARE REUSED, A LETTER FROM A SOILS ENGINEER MUST CLARIFY AMOUNT, LOCATION, DEPTH, ECT. AND BE APPROVED WITH THE CONSTRUCTION PLANS. LANDFILL TICKETS FOR SUCH DISPOSAL SHALL BE MAINTAINED ON FILE BY THE DEVELOPER. BURNING ON SITE SHALL BE ALLOWED ONLY BY PERMIT FROM THE LOCAL FIRE DISTRICT. IF A BURN PIT IS PROPOSED THE LOCATION AND MITIGATION SHALL BE SHOWN ON THE GRADING PLAN AND DOCUMENTED BY THE SOILS ENGINEER.
- GN #12 TWENTY-FOUR (24) HOURS PRIOR TO STARTING ANY OF THE WORK COVERED BY THE ABOVE PLANS AND AFTER APPROVAL THEREOF, THE DEVELOPER SHALL MAKE ARRANGEMENTS WITH THE CONSTRUCTION INSPECTION OFFICE TO PROVIDE FOR INSPECTION OF THE WORK, SUFFICIENT IN THE OPINION OF THE CITY ENGINEER, TO ASSURE COMPLIANCE WITH THE PLANS AND SPECIFICATIONS AS APPROVED.
- GN #13 THE CITY ENGINEER OR THEIR DULY AUTHORIZED REPRESENTATIVE SHALL MAKE ALL NECESSARY INSPECTIONS OF CITY INFRASTRUCTURE, ESCROW ITEMS OR INFRASTRUCTURE LOCATED ON THE APPROVED PLANS.

**EROSION CONTROL NOTES**

- EN #1 THE PERMITTEE SHALL ASSUME COMPLETE RESPONSIBILITY FOR CONTROLLING ALL SILTATION AND EROSION OF THE PROJECT AREA. THE PERMITTEE SHALL USE WHATEVER MEANS NECESSARY TO CONTROL EROSION AND SILTATION INCLUDING, BUT NOT LIMITED TO, STAKED STRAW BALES AND/OR SILTATION FABRIC FENCES (POSSIBLE METHODS OF CONTROL ARE DETAILED IN THE PLAN). CONTROL SHALL COMMENCE WITH THE CLEARING OPERATIONS AND BE MAINTAINED THROUGHOUT THE PROJECT UNTIL ACCEPTANCE OF THE WORK BY THE CITY OF O'FALLON AND AS NEEDED BY MODOT. THE PERMITTEE'S RESPONSIBILITIES INCLUDE ALL DESIGN AND IMPLEMENTATION AS REQUIRED TO PREVENT EROSION AND THE DEPOSITING OF SILT. THE CITY OF O'FALLON AND AS REQUIRED BY MODOT MAY AT THEIR OPTION DIRECT THE PERMITTEE IN HIS METHODS AS DEEMED FIT TO PROTECT PROPERTY AND IMPROVEMENTS. ANY DEPOSITING OF SILT OR MUD ON NEW OR EXISTING PAVEMENT SHALL BE REMOVED IMMEDIATELY. ANY DEPOSITING OF SILTS OR MUD IN NEW OR EXISTING STORM SEWERS AND/OR SWALES SHALL BE REMOVED AFTER EACH RAIN AND AFFECTED AREAS CLEANED TO THE SATISFACTION OF THE CITY OF O'FALLON AND AS REQUIRED BY MODOT."
- EN #2 ALL EROSION CONTROL SYSTEMS ARE TO BE INSPECTED AND CORRECTED WEEKLY, ESPECIALLY WITHIN 48 HOURS OF ANY RAIN STORM RESULTING IN ONE-HALF INCH OF RAIN OR MORE. ANY SILT OR DEBRIS LEAVING THE SITE AND AFFECTING PUBLIC RIGHT OF WAY OR STORM WATER DRAINAGE FACILITIES SHALL BE CLEANED UP WITHIN 24 HOURS AFTER THE END OF THE STORM.
- EN #3 EROSION CONTROL DEVICES (SILT FENCE, SEDIMENT BASIN, ETC.) SHALL BE IN ACCORDANCE WITH ST. CHARLES COUNTY SOIL AND WATER CONSERVATION DISTRICT EROSION AND SEDIMENT CONTROL GUIDELINES.
- EN #4 THIS DEVELOPMENT IS REQUIRED TO PROVIDE LONG TERM POST CONSTRUCTION BMP'S SUCH AS; LOW IMPACT DESIGN, SOURCE CONTROL AND TREATMENT CONTROLS THAT PROTECTS WATER QUALITY AND CONTROLS RUN OFF TO MAXIMUM EXTENT PRACTICAL IN COMPLIANCE WITH PHASE II ILLICIT STORM WATER DISCHARGE GUIDELINES. (ORD. 5082, SECTION 405.D245)
- EN #5 GRADED AREAS SHALL BE SEEDED AND MULCHED (STRAWED) WITHIN 14 DAYS OF STOPPING LAND DISTURBANCE ACTIVITIES. UNLESS IT CAN BE SHOWN TO THE CITY ENGINEER THAT WEATHER CONDITIONS ARE NOT FAVORABLE, VEGETATIVE GROWTH IS TO BE ESTABLISHED WITHIN 6 WEEKS OF STOPPING GRADING WORK ON THE PROJECT. THE VEGETATIVE GROWTH ESTABLISHED SHALL BE SUFFICIENT TO PREVENT EROSION AND THE STANDARD SHALL BE AS REQUIRED BY EPA AND DNR. (70% COVERAGE PER SQUARE FOOT) ORD. 5242, SECTION 405.070

DRAWING IS BASED ON THE CITY OF O'FALLON STANDARD DETAILS AND NOTES

**ST. CHARLES TOWER**  
 44 WEST DRIVE, SUITE 110  
 CHESTERFIELD, MO. 63017

**SHIVEHATTERY**  
 ARCHITECTURE + ENGINEERING  
 3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
 630.390.7444 | fax 630.437.6800 | shive-hattery.com  
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PROJECT NO: 8156807	
DRAWN BY: JAP	
CHECKED BY: JMD	
0	8/5/15 CLIENT REVIEW
1	9/23/15 BID/PERMIT
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3	11/24/15 ENG REVIEW



**MEXICO & SONDEREN**  
 SITE# MO-2014-19  
 8388 MEDCO ROAD  
 O'FALLON, MO 63308  
 ST. CHARLES COUNTY  
 MONOPOLE

SHEET TITLE  
 GENERAL NOTES

SHEET NUMBER  
**C-10**

## GRADING NOTES

GRN #1 DEVELOPER MUST SUPPLY CITY CONSTRUCTION INSPECTORS WITH AN ENGINEER'S SOILS REPORT PRIOR TO AND DURING SITE GRADING. THE SOIL REPORT WILL BE REQUIRED

TO CONTAIN THE FOLLOWING INFORMATION ON SOIL TEST CURVES (PROCTOR REPORTS) FOR PROJECTS WITHIN THE CITY:

1. MAXIMUM DRY DENSITY.
2. OPTIMUM MOISTURE CONTENT.
3. MAXIMUM AND MINIMUM ALLOWABLE MOISTURE CONTENT.
4. CURVE MUST BE PLOTTED TO SHOW DENSITY FROM A MINIMUM OF 90% COMPACTION AND ABOVE AS DETERMINED BY THE "MODIFIED AASHTO T-180 COMPACTION TEST" (A.S.T.M.-D-1157) OR FROM A MINIMUM OF 95% COMPACTION AND ABOVE AS DETERMINED BY THE "STANDARD PROCTOR TEST AASHTO T-99, METHOD C" (A.S.T.M.-D-698). PROCTOR TYPE MUST BE DESIGNATED ON DOCUMENT.
5. CURVE MUST HAVE AT LEAST 5 DENSITY POINTS WITH MOISTURE CONTENT AND SAMPLE LOCATIONS LISTED ON DOCUMENT.
6. SPECIFIC GRAVITY.
7. NATURAL MOISTURE CONTENT.
8. LIQUID LIMIT.
9. PLASTIC LIMIT.

BE ADVISED THAT IF THIS INFORMATION IS NOT PROVIDED TO THE CITY'S CONSTRUCTION INSPECTOR THE CITY WILL NOT ALLOW GRADING OR CONSTRUCTION ACTIVITIES TO PROCEED ON ANY PROJECT SITE.

DRAWING IS BASED ON THE  
CITY OF O'FALLON STANDARD  
DETAILS AND NOTES

GRN #2 ALL FILL PLACED IN AREAS OTHER THAN PROPOSED STORM SEWERS, SANITARY SEWERS, PROPOSED ROADS, AND PAVED AREAS SHALL BE COMPACTED FROM THE BOTTOM OF THE FILL UP IN 8" LIFTS AND COMPACTED TO 90% MAXIMUM DENSITY AS DETERMINED BY MODIFIED AASHTO T-180 COMPACTION TEST OR 95% OF MAXIMUM DENSITY AS DETERMINED BY THE STANDARD PROCTOR TEST AASHTO T-99. ENSURE THE MOISTURE CONTENT OF THE SOIL IN FILL AREAS CORRESPONDS TO THE COMPACTIVE EFFORT AS DEFINED BY THE STANDARD OR MODIFIED PROCTOR TEST. OPTIMUM MOISTURE CONTENT SHALL BE DETERMINED USING THE SAME TEST THAT WAS USED FOR COMPACTION. SOIL COMPACTION CURVES SHALL BE SUBMITTED TO THE CITY OF O'FALLON PRIOR TO THE PLACEMENT OF FILL.

GRN #3 THE SURFACE OF THE FILL SHALL BE FINISHED SO IT WILL NOT IMPOUND WATER. IF AT THE END OF A DAYS WORK IT WOULD APPEAR THAT THERE MAY BE RAIN PRIOR TO THE NEXT WORKING DAY, THE SURFACE SHALL BE FINISHED SMOOTH. IF THE SURFACE HAS BEEN FINISHED SMOOTH FOR ANY REASON, IT SHALL BE SCARIFIED BEFORE PROCEEDING WITH THE PLACEMENT OF SUCCEEDING LIFTS. FILL SHALL NOT BE PLACED ON FROZEN GROUND, NOR SHALL FILLING OPERATIONS CONTINUE WHEN THE TEMPERATURE IS SUCH AS TO PERMIT THE LAYER UNDER PLACEMENT TO FREEZE.

GRN #4 ALL SEDIMENT AND DETENTION BASINS ARE TO BE CONSTRUCTED DURING THE INITIAL PHASE OF THE GRADING OPERATION OR IN ACCORDANCE WITH THE APPROVED SWPPP.

GRN #5 WHEN GRADING OPERATIONS ARE COMPLETE OR SUSPENDED FOR MORE THAN 14 DAYS, PERMANENT GRASS MUST BE ESTABLISHED AT SUFFICIENT DENSITY TO PROVIDE EROSION CONTROL ON SITE. BETWEEN PERMANENT GRASS SEEDING PERIODS, TEMPORARY COVER SHALL BE PROVIDED ACCORDING TO ST. CHARLES SOIL AND WATER CONSERVATION DISTRICT - MODEL SEDIMENT AND EROSION CONTROL REGULATIONS. ALL FINISHED GRADES (AREAS NOT TO BE DISTURBED BY IMPROVEMENTS) IN EXCESS OF 20% SLOPES (5:1) SHALL BE MULCHED AND TACKED AT A RATE OF 100 POUNDS PER 1000 SQUARE FEET WHEN SEEDING.

GRN #6 NO SLOPES SHALL EXCEED 3 (HORIZONTAL): 1 (VERTICAL) UNLESS OTHERWISE APPROVED BY THE SOILS REPORT AND SPECIFICALLY LOCATED ON THE PLANS AND APPROVED BY THE CITY ENGINEER.

GRN #7 ALL LOW PLACES WHETHER ON SITE OR OFF SHALL BE GRADED TO PROVIDE DRAINAGE WITH TEMPORARY DITCHES.

GRN #8 ALL EXISTING WELLS ON SITE SHALL BE CAPPED PER DNR STANDARDS.

GRN #10 ALL TRENCH BACK FILLS UNDER PAVED AREAS SHALL BE GRANULAR BACK FILL, AND COMPACTED MECHANICALLY. ALL OTHER TRENCH BACK FILLS MAY BE EARTH MATERIAL (FREE OF LARGE CLODS, OR STONES) AND COMPACTED USING EITHER MECHANICAL OR WATER JETTING, GRANULAR MATERIAL AND EARTH MATERIAL ASSOCIATED WITH NEW CONSTRUCTION OUTSIDE OF PAVEMENTS MAY BE JETTED, TAKING CARE TO AVOID DAMAGE TO NEWLY LAID SEWERS. THE JETTING SHALL BE PERFORMED WITH A PROBE ROUTE ON NOT GREATER THAN 7.5 FOOT CENTERS WITH THE JETTING PROBE CENTERED OVER AND PARALLEL WITH THE DIRECTION OF THE PIPE. TRENCH WIDTHS GREATER THAN 10 FEET WILL REQUIRE MULTIPLE PROBES EVERY 7.5 FOOT CENTERS.

- A) DEPTH, TRENCH BACK FILLS LESS THAN 8 FEET DEEP SHALL BE PROBED TO A DEPTH EXTENDING HALF THE DEPTH OF THE TRENCH BACK FILL, BUT NOT LESS THAN 3 FEET. TRENCH BACK FILL GREATER THAN 8 FEET IN DEPTH SHALL BE PROBED TO HALF THE DEPTH OF THE TRENCH BACK FILL BUT NOT GREATER THAN 8 FEET.
- B) EQUIPMENT, THE JETTING PROBE SHALL BE A METAL PIPE WITH AN INTERIOR DIAMETER OF 1.5 TO 2 INCHES.
- C) METHOD, JETTING SHALL BE PERFORMED FROM THE LOWEST SURFACE TOPOGRAPHIC POINT AND PROCEED TOWARD THE HIGHEST POINT, AND FROM THE BOTTOM OF THE TRENCH BACK FILL TOWARD THE SURFACE. THE FLOODING OF EACH JETTING PROBE SHALL BE STARTED SLOWLY ALLOWING SLOW SATURATION OF THE SOIL. WATER IS NOT ALLOWED TO FLOW AWAY FROM THE TRENCH WITHOUT FIRST SATURATING THE TRENCH.
- D) SURFACE BRIDGING, THE CONTRACTOR SHALL IDENTIFY THE LOCATIONS OF THE SURFACE BRIDGING (THE TENDENCY FOR THE UPPER SURFACE TO CRUST AND ARCH OVER THE TRENCH RATHER THAN COLLAPSE AND CONSOLIDATE DURING THE JETTING PROCESS). THE CONTRACTOR SHALL BREAK DOWN THE BRIDGED AREAS USING AN APPROPRIATE METHOD SUCH AS WHEELS OR BUCKET OF A BACKHOE. WHEN SURFACE CRUST IS COLLAPSED, THE VOID SHALL BE BACK FILLED WITH THE SAME MATERIAL USED AS TRENCH BACK FILL AND REJETTED. COMPACTION OF THE MATERIALS WITHIN THE SUNKEN/JETTED AREA SHALL BE COMPACTED SUCH THAT NO FURTHER SURFACE SUBSIDENCE OCCURS.

GRN #11 SITE GRADING.

- A. WITHIN CITY RIGHT-OF-WAY. MATERIAL IS TO BE PLACED IN EIGHT (8) INCH TO TWELVE (12) INCH LOOSE LIFTS AND COMPACTED PER THE APPROVED COMPACTION REQUIREMENTS. ONE (1) COMPACTION TEST WILL BE PERFORMED EVERY TWO HUNDRED FIFTY (250) FEET ALONG THE CENTERLINE FOR EACH LIFT.
- B. OUTSIDE OF CITY RIGHT-OF-WAY. MATERIAL IS TO BE PLACED IN EIGHT (8) INCH TO TWELVE (12) INCH LOOSE LIFTS AND COMPACTED PER THE APPROVED COMPACTION REQUIREMENTS. ONE (1) COMPACTION TEST WILL BE PERFORMED AT TWO (2) FOOT VERTICAL INTERVALS AND APPROXIMATELY EVERY ONE THOUSAND (1,000) CUBIC YARDS.

ST. CHARLES  
TOWER

#4 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO. 63017

SHIVEHATTERY  
ARCHITECTURE + ENGINEERING

3025 Highland Plaza, Suite 140, J. Downers Grove, Illinois 60515  
630 990 7444 | fax 630 437 5800 | shive-hattery.com  
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PROJECT NO: B158807

DRAWN BY: JAP

CHECKED BY: JMD

0	8/5/15	CLIENT REVIEW
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3	11/24/15	ENG REVIEW

MEXICO &  
SONDEREN  
SITE# MO-2014-19  
8388 MEDCO ROAD  
O'FALLON, MO 63386  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
GENERAL  
NOTES

SHEET NUMBER  
C-11

**SERVICE KEY NOTES:**

- ① ELECTRICAL SERVICE FROM DEMARCATION TO PROPOSED XFRM  
- LENGTH 75'-0" ±:  
(2) SETS OF (3) - 350 KCMIL CU IN (2) 4" SCH. 40 PVC OR  
DIRECT BURY BY UTILITY COMPANY, COORDINATE w/ LOCAL  
UTILITY COMPANY,
- ② COMMUNICATIONS SERVICE FROM DEMARCATION TO VAULT -  
LENGTH 75'-0" ± (FIELD VERIFY LOCATION):  
(1) 4" SCH. 40 PVC w/MULE TAPE, 1-1/4" INNER DUCT &  
PULL STRING.



MARTIN VALENTINE, PROFESSIONAL ENGINEER  
REGISTRATION NUMBER: 2007005050

**ST. CHARLES  
TOWER**  
44 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO. 63017

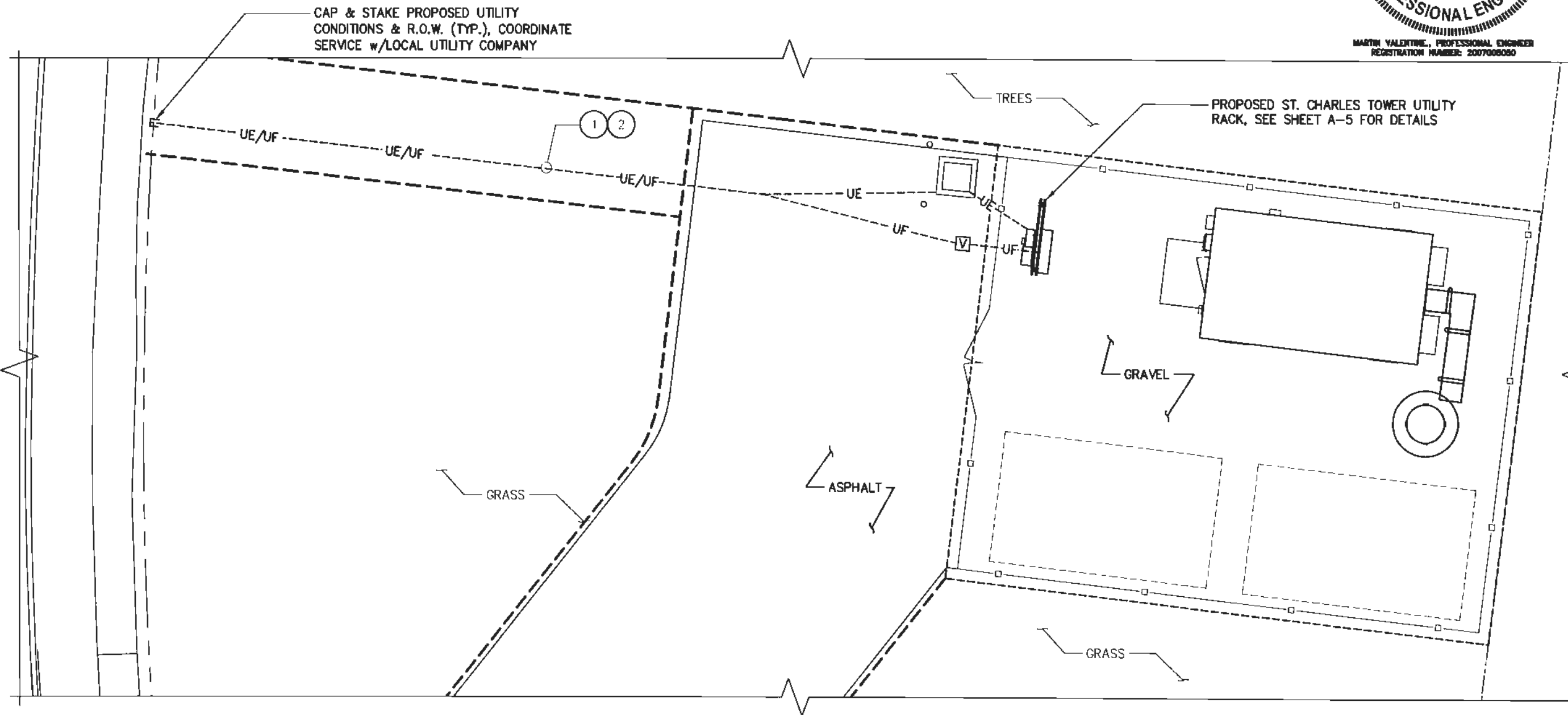
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**MEXICO &  
SONDEREN**  
SITE# MO-2014-19  
8388 MEXICO ROAD  
O'FALLON, MO 63386  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
**UTILITY PARTIAL  
SITE PLAN**

SHEET NUMBER  
**E-1**



**1 UTILITY PARTIAL SITE PLAN**  
1" = 10'



**SERVICE NOTES:**

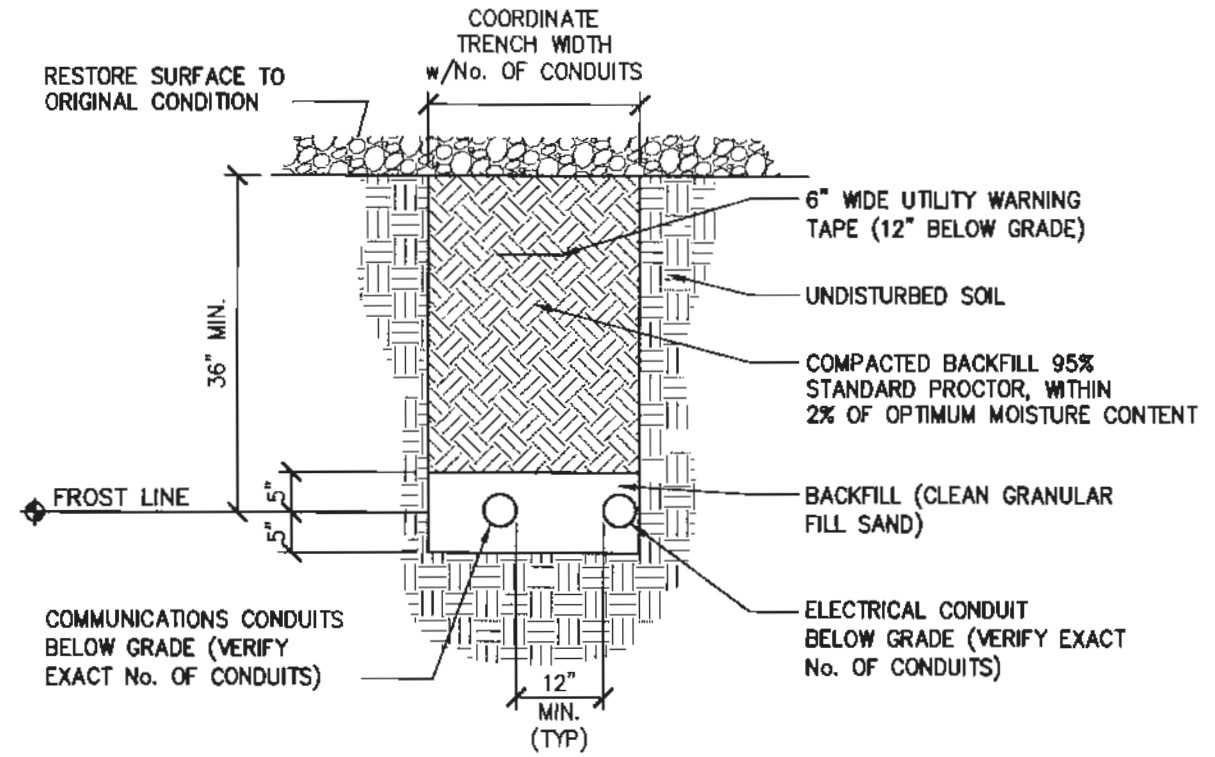
- SERVICE POWER SHALL BE (120/240VAC, 600A, 1 $\phi$ , 3W) OR (120/208VAC, 600A, 1 $\phi$ , 3W).
- A 600 AMP, 120/240V, 1 $\phi$  METER RACK SHALL BE INSTALLED WHERE IT IS ACCESSIBLE FOR READOUT. THE NUMBER OF JAWS IN THE METER SOCKET AND THEIR ARRANGEMENT WILL DEPEND ON THE VOLTAGE SERVICE.
- CABLE SIZES SHALL BE ADJUSTED TO COMPENSATE FOR VOLTAGE DROP IF LONGER THAN 180FT. VERIFY CONDUIT SIZE WHEN CHANGING CABLE SIZE.
- FOR COMPLETE INTERNAL WIRING AND ARRANGEMENT REFER TO VENDOR PRINTS PROVIDED BY MANUFACTURER.
- CONDUITS ROUTED BELOW GRADE NEAR ACCESS DRIVE OR WITH/IN COMPOUND SHALL BE SCHEDULE 40 PVC (U.N.O.).

**ELECTRICAL SERVICE KEY NOTES:**

- |   |  |  |
|---|--|--|
| 1 (FUTURE CONDUIT DESIGNED AND INSTALLED BY OTHERS)                                     | 8 COMPOUND FENCE   | 12 PROVIDE PULL CORD CAP & STAKE CONDUIT AT EDGE OF R.O.W./PROPERTY LINE   |
| 2 (FUTURE CONDUIT DESIGNED AND INSTALLED BY OTHERS)                                     | 9 PAD MOUNTED TRANSFORMER (BY UTILITY PROVIDER)  | 13 SERVICE RATED 200A MAIN DISCONNECT & UTILITY COMPANY APPROVED METER IN, MULTI-GANG METER CENTER. 600A, 120/240V, 1 PHASE, NEMA 3R |
| 3 UTILITY RACK, SEE DETAIL, 1 & 2/A-5   | 10 SECONDARY CONDUCTORS: (3) - 350 KCMIL CU IN (2) 4" SCH. 40 PVC OR DIRECT BURY BY UTILITY COMPANY, COORDINATE W/ LOCAL UTILITY COMPANY | 14 COMMUNICATION VAULT (BY OTHERS)   |
| 4 NEMA-3R, COMMUNICATION CABINET MOUNTED TO UTILITY RACK                                | 11 (1) 4" SCH. 40 PVC BETWEEN COMMUNICATIONS BOX AND VAULT W/ COMMUNICATIONS SERVICE CABLES & PULL STRING                                | 15 NOT USED  |
| 5 2 AWG SOLID TINNED BCW FROM COMMUNICATION CABINET GROUND BUS TO GROUND RING           |  | 16 COMMUNICATION SERVICE CONDUIT BY COMMUNICATION PROVIDER   |
| 6 3/0 AWG SOLID TINNED BCW - UTILITY GROUND   |  |  |
| 7 5/8" x10'-0" LG COPPER CLAD STEEL GROUND ROD, GROUND RESISTANCE NOT TO EXCEED 5 OHMS. |  |  |

**GENERAL NOTES:**

- THIS DRAWING IS A SCHEMATIC ONLY.
- SEE COMPOUND PLAN FOR EXACT EQUIPMENT LOCATION.
- STUB CONDUITS 6" ABOVE FINISHED GRADE/SLAB, PROVIDE PULL CORD, & CAP CONDUIT. DUCT TAPE IS NOT ALLOWED FOR CAPPING.
- PROVIDE LONG SWEEPS FIBERGLASS ELBOW.

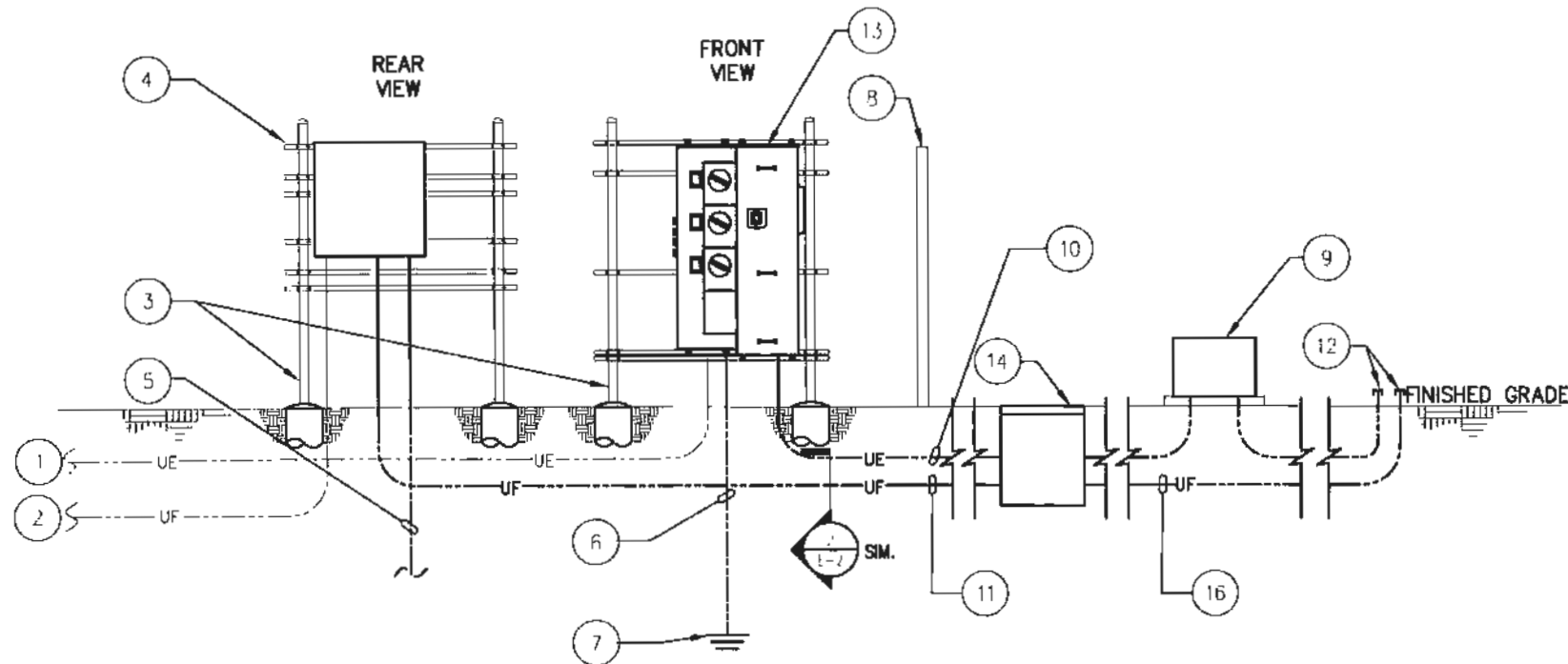


**NOTE:**  
1. SEPARATION DIMENSION TO BE VERIFIED WITH LOCAL UTILITY COMPANY REQUIREMENTS

**2 JOINT TRENCH ELECTRIC/COMMUNICATIONS**

SCALE: NONE

SH-01-EL-02-001



**1 UNDERGROUND UTILITY SERVICE ENTRANCE - (TYP.)**

SCALE: NONE

SH-01-EL-01-014



**ST. CHARLES TOWER**  
#4 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO. 63017

**SHIVEHATTERY**  
ARCHITECTURE + ENGINEERING  
3025 Highland Plaza Suite 140 | Downers Grove, Illinois 60515  
630 980 7444 | fax 630 437 5800 | shive-hattery.com  
Iowa | Illinois | Missouri

PROJECT NO: 8156807

DRAWN BY: JAP

CHECKED BY: JMD

0 8/5/15 CLIENT REVIEW

1 9/23/15 BID/PERMIT

2 11/02/15 CITY COMMENTS

3 11/24/15 ENG REVIEW

**MEXICO & SONDEREN**  
SITE # MO-2014-18  
8388 MEXICO ROAD  
OFALLON, MO 63368  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
UTILITY SERVICE  
ENTRANCE  
SCHEMATIC

SHEET NUMBER

E-2

PROJECT NO. 8156607

DRAWN BY: JAP

CHECKED BY: JMD

0	8/5/15	CLIENT REVIEW
1	9/23/15	BID/PERMIT
2	11/02/15	CITY COMMENTS
3	11/24/15	ENG REVIEW

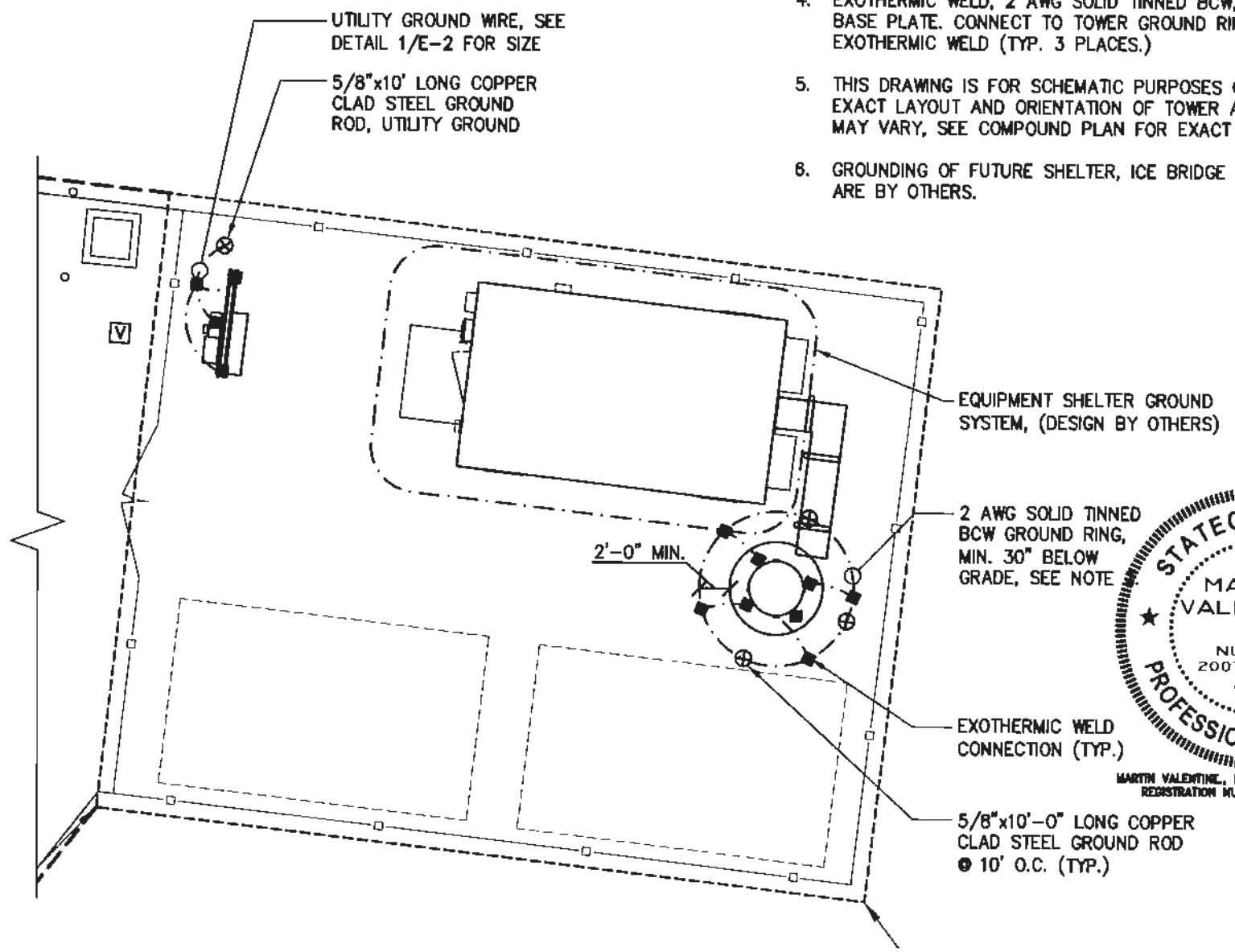
MEXICO & SONDEREN  
 SITE# MO-2014-19  
 8388 MEXICO ROAD  
 O'FALLON, MO 63366  
 ST. CHARLES COUNTY  
 MONOPOLE

SHEET TITLE  
 COMPOUND  
 GROUNDING  
 PLAN

SHEET NUMBER  
**E-3**

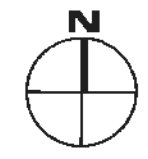
NOTES:

- GROUND WIRES ARE 2 AWG SOLID TINNED BCW U.N.O.
- GROUND RING/RODS SHALL BE 30" BELOW FINISHED GRADE OR 6" BELOW FROST DEPTH, WHICHEVER IS DEEPER, DEPTH MAY VARY.
- METALS WITHIN 6' OF THE GROUND RING SHALL BE BONDED TO THE GROUND RING.
- EXOTHERMIC WELD, 2 AWG SOLID TINNED BCW, ⊕ TOWER BASE PLATE. CONNECT TO TOWER GROUND RING w/ EXOTHERMIC WELD (TYP. 3 PLACES.)
- THIS DRAWING IS FOR SCHEMATIC PURPOSES ONLY THE EXACT LAYOUT AND ORIENTATION OF TOWER AND EQUIPMENT MAY VARY, SEE COMPOUND PLAN FOR EXACT PLACEMENT.
- GROUNDING OF FUTURE SHELTER, ICE BRIDGE & GENERATOR ARE BY OTHERS.



MARTIN VALENTINE, PROFESSIONAL ENGINEER  
 REGISTRATION NUMBER: 2007005050

**1** COMPOUND GROUNDING PLAN  
 SCALE: 1" = 10'



**GROUNDING RISER KEY NOTES:**

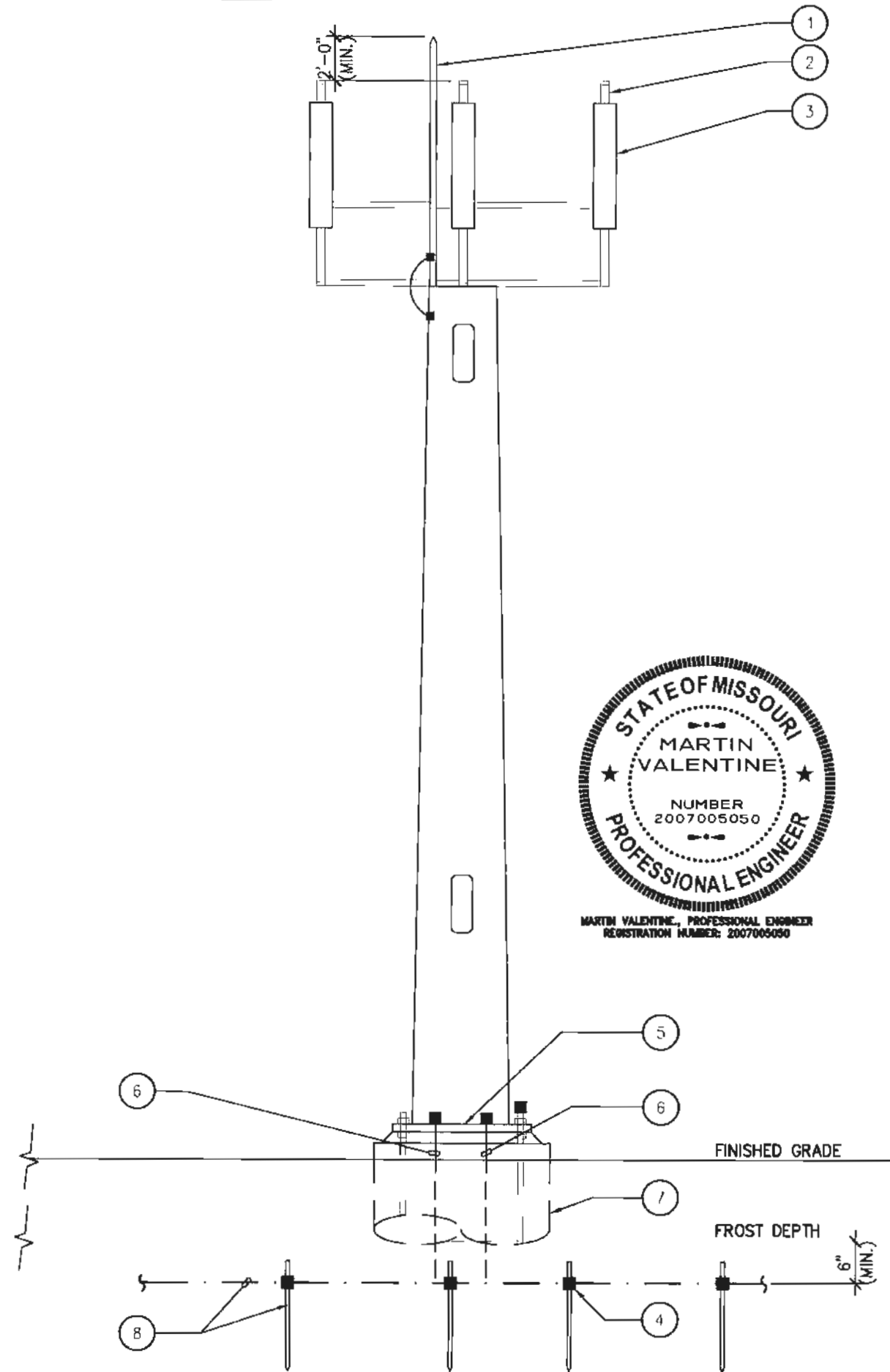
- 1 AIR TERMINAL, BONDED w/ 2 AWG SOLID TINNED BCW, EXOTHERMIC WELD DIRECT TO TOWER OR USING VANCOMM, INC. CLAMP
- 2 ANTENNA MOUNTING MAST, (TYP.)
- 3 PANEL ANTENNA (TYP.), (BY OTHERS)
- 4 2 AWG SOLID TINNED BCW, EXOTHERMIC WELD TO GROUND RING
- 5 TOWER BASE
- 6 2 AWG SOLID TINNED BCW, EXOTHERMIC WELD TO TOWER BASE & EXOTHERMICALLY WELDED TO TOWER GROUND RING, (TYP. 3, EQUALLY SPACED)
- 7 TOWER FOUNDATION
- 8 TOWER GROUND RING: 2 AWG SOLID TINNED BCW, SPACE @ 2'-0" FROM TOWER FOUNDATIONS MIN., 5/8" x 10' LONG COPPER CLAD STEEL GROUND RODS @ (10'-0" O.C. ±1'), @ 30" BELOW GRADE OR 6" BELOW FROST LINE WHICHEVER IS DEEPER (MIN.)

**GENERAL NOTES:**

- 1. SUPPORT CLAMPS FOR GROUND WIRES SHALL BE NONMETALLIC.
- 2. INTERIOR GROUND WIRES SHALL BE STRANDED GREEN INSULATED CU.
- 3. GROUNDING SYSTEM TO MAINTAIN A GROUNDING RESISTANCE OF 5 OHMS OR LESS.
- 4. METALS WITHIN 6' (SIX FEET), OF GROUND RING SHALL BE BONDED w/ EXOTHERMIC WELD & 2 AWG SOLID TINNED BCW, GROUND WIRE.

**ANTI-THEFT NOTES:**

- 1. GROUND BARS AT ACCESSIBLE HEIGHT FOR POTENTIAL VANDALISM SHALL BE CONNECTED BY REPLACING THE KIT PROVIDED BOLTS w/ A SAME SIZED TAPCO TUFBOLT # (180-37) w/ A TAPCO 3/8" TUFNUT # (180-7) OR APPROVED EQUAL VANDAL-PROOF HARDWARE.



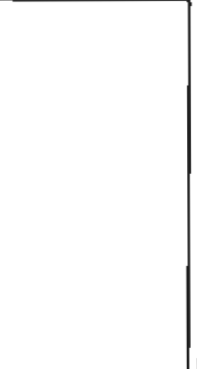
**1 TYPICAL GROUNDING RISER DIAGRAM**  
SCALE: NONE

SH-01-GN-01-0028

**ST. CHARLES TOWER**  
#4 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO. 63017

**SHVEHATTARY**  
ARCHITECTURE + ENGINEERING  
3025 Highland Pkwy Suite 140 | Downers Grove, Illinois 60515  
630.350.7444 | fax 630.437.5800 | shve-hattary.com  
Iowa | Illinois | Missouri

PROJECT NO: 8156607	
DRAWN BY: JAP	
CHECKED BY: JMD	
0	8/5/15 CLIENT REVIEW
1	9/23/15 BID/PERMIT
2	11/02/15 CITY COMMENTS
3	11/24/15 ENG REVIEW

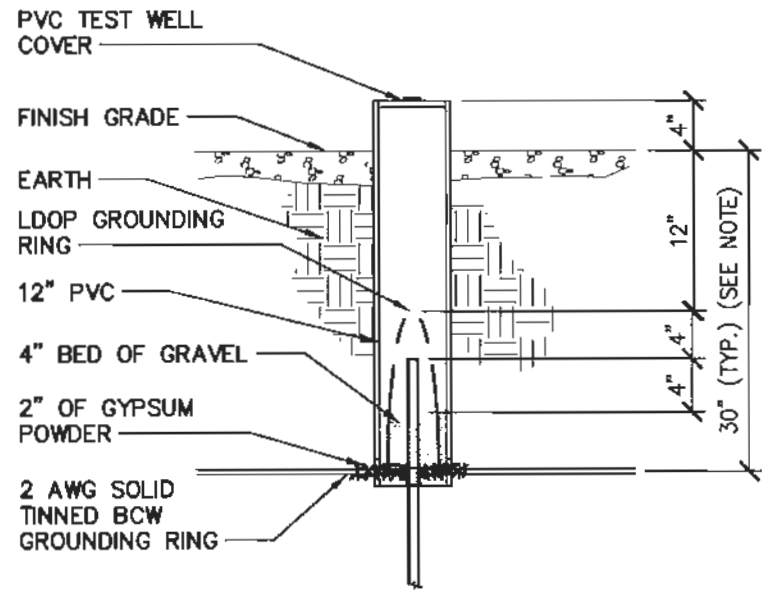


**MEXICO & SONDEREN**  
SITE# MO-2014-19  
5388 MEXICO ROAD  
OFALLON, MO 63368  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
GROUNDING RISER

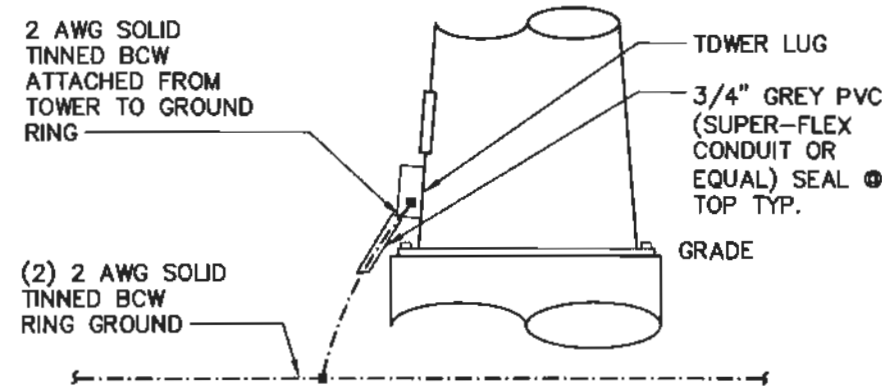
SHEET NUMBER  
**E-4**



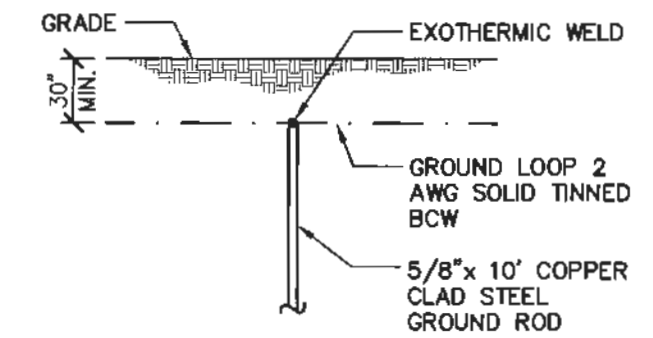


NOTE: 6" BELOW FROST DEPTH, DEPTH MAY VARY, WORK SHALL CONFORM TO THE LOCAL BUILDING CODES.

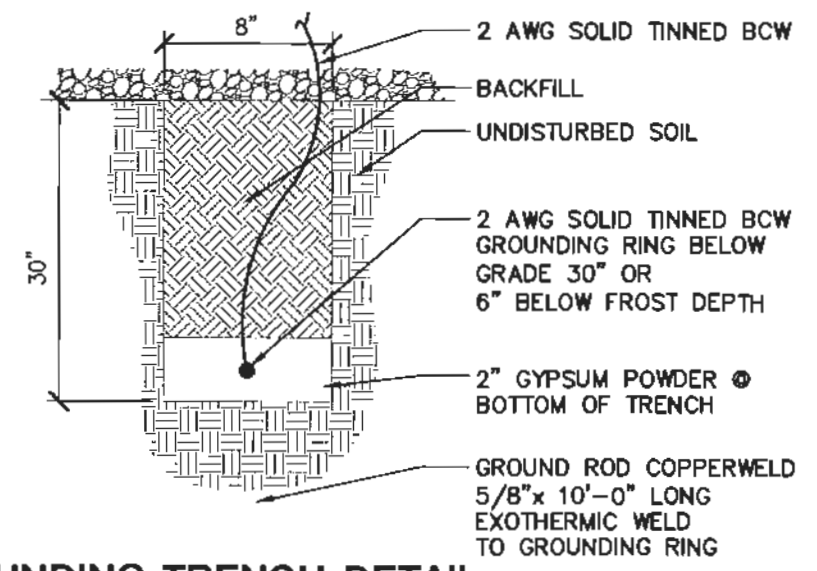
**1 INSPECTION WELL DETAIL**  
SCALE: NONE SH-01-GN-05-002



**2 TOWER GROUNDING DIAGRAM**  
SCALE: NONE TCO-01-GN-05-001



**3 GROUND ROD**  
SCALE: NONE SH-01-GN-05-007



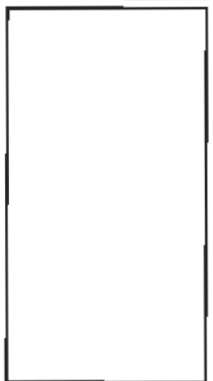
**4 GROUNDING TRENCH DETAIL**  
SCALE: NONE TCO-01-GN-05-010



**ST. CHARLES TOWER**  
44 WEST DRIVE, SUITE 110  
CHESTERFIELD, MO 63017

**SHIVEHATTERY**  
ARCHITECTURE + ENGINEERING  
3025 Highland Plaza, Suite 140 | Downsview Grove, Illinois 60515  
630.390.7444 | Fax 630.437.6800 | shivehattery.com  
Iowa | Illinois | Missouri

PROJECT NO: 8158607	
DRAWN BY: JAP	
CHECKED BY: JMD	
0	8/5/15 CLIENT REVIEW
1	9/23/15 END/PERMIT
2	11/02/15 CITY COMMENTS
3	11/24/15 ENG REVIEW



**MEXICO & SONDEREN**  
SITE# MO-2014-19  
8398 MEXICO ROAD  
OF FALLOM, MO 63366  
ST. CHARLES COUNTY  
MONOPOLE

SHEET TITLE  
GROUNDING  
DETAILS

SHEET NUMBER  
**E-5**