

CONVENTIONAL SYMBOLS

(USED IN PLANS)

	EXISTING	PROPOSED
RIGHT-OF-WAY	R/W	R/W
PROPERTY LINE	P	P
PERMANENT EASEMENTS	E	E
PERMANENT DRAINAGE EASEMENT	D	D
TEMPORARY CONSTRUCTION EASEMENT	T	T
OVERHEAD ELECTRIC	OE	OE
UNDERGROUND ELECTRIC	E	E
UNDERGROUND SANITARY SEWER	SS	SS
UNDERGROUND STORM SEWER	ST	ST
UNDERGROUND TELEPHONE	T	T
UNDERGROUND WATER	W	W
MANHOLE	MH	MH
CONSTRUCTION LIMITS / SLOPE LIMITS	C/L	C/L
TREE OR SHRUB (DESIGNATED DIA AND TYPE)	T/S	T/S
FENCE	F	F
GUARDRAIL / CRASHWORTHY END TERMINAL	G	G
SIGN	S	S
BUILDING	B	B
MAILBOX	M	M
POWER POLE	P	P
COTTON SPINDLE	CS	CS
DITCH FLOWLINE	FL	FL
CONSTRUCTION LIMITS	C/L	C/L
LIMITS OF PAVEMENT	L	L

ABBREVIATIONS

(USED IN PLANS)

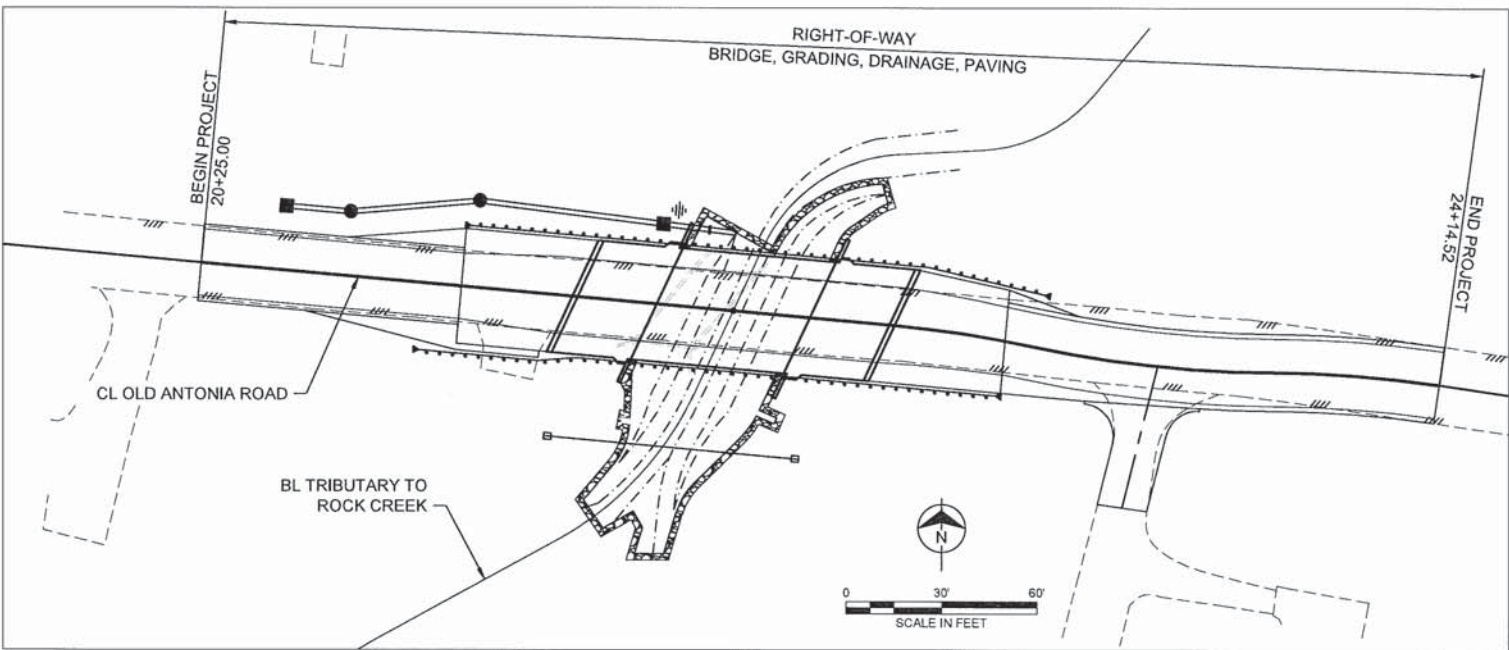
PERMANENT DRAINAGE EASEMENT	PDE
PERMANENT ROADWAY EASEMENT	PRE
PERMANENT SEWER EASEMENT	PSE
PERMANENT WATER EASEMENT	PWE
DO NOT DISTURB	DND
TYPICAL	TYP
USE IN PLACE	UIP
SANITARY	SAN
MANHOLE	MH
OFFSET	OFF.
ELEVATION	EL OR ELEV
RIGHT-OF-WAY	R/W
BASELINE	BL
CENTERLINE	CL
PROFILE GRADE	P.G.
POLYVINYL CHLORIDE	PVC
CORRUGATED METAL PIPE	CMP
EXISTING	EXIST
STATION	STA
DOUBLE SOLID YELLOW STRIPING	DSY
SOLID WHITE STRIPING	SW
FLOW LINE	FL
TANGENT LENGTH	T
REMOVE OR RADIUS	R
NORTH	N
EAST	E
POINT OF CURVATURE	PC
POINT OF REVERSE CURVATURE	PRC
POINT OF INTERSECTION	PI
POINT OF TANGENT	PT
POINT OF VERTICAL INTERCEPTION	PVI
TO BE REMOVED AND REPLACED BY OTHERS	TBR&RBO
CURVE LENGTH	L
TRIBUTARY	TRIB
DRIVEWAY	DWY
RIGHT	RT
LEFT	LT
REMAINING	REM
PROPOSED	PROP.
CONTROL POINT	CP #1
AGGREGATE	AGG
SHOULDER	SHLDR
ADJUST TO GRADE	ATG
NUMBER	NO.
EDGE OF PAVEMENT	EOP

Jefferson County, Missouri Old Antonia Road Bridge Over Tributary to Rock Creek

STP-5403(630) BRIDGE NO. 11900021

Final Plans

AUGUST, 2014
BURNS & McDONNELL PROJECT NO. 60165



SITE MAP
SECTION 18, TOWNSHIP 42 N, RANGE 6 E
JEFFERSON COUNTY, MO

UTILITY CONTACTS:

AT&T
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122 NORTH SECOND STREET
FESTUS, MISSOURI 63028
(636) 931-7525
(636) 232-4385

ROCK CREEK PUBLIC SEWER
DISTRICT
MR. DON DANIEL
4133 WEST OUTER ROAD
ARNOLD, MISSOURI 63010
(636) 464-3305

CONSOLIDATED PUBLIC WATER
SUPPLY, DISTRICT #1
MR. DONOVAN LARSON
6645 MOSS HOLLOW ROAD
BARNHART, MISSOURI 63012
(636) 948-2500

AMEREN UE
MR. JOHN FRIEL
6450 ROUTE MM
HOUSE SPRINGS, MISSOURI 63051
(636) 671-6108



JEFFREY R. MUES
PROFESSIONAL ENGINEER
LICENSE NO. 2000162446

DESIGN DESIGNATION

AADT - 2009 = 1,462
AADT - 2029 = 2,641
CLASSIFICATION - LOCAL (RURAL MINOR COLLECTOR)
DESIGN SPEED - 30 MPH
POSTED SPEED - 30 MPH

INDEX OF SHEETS

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STANDARD DRAWING	

LENGTH OF PROJECT

OLD ANTONIA ROAD

END OF PROJECT	STA 24+14.52
BEGINNING OF PROJECT	STA 20+25.00
APPARENT LENGTH	389.52 FEET
EQUATIONS AND EXCEPTIONS	NONE

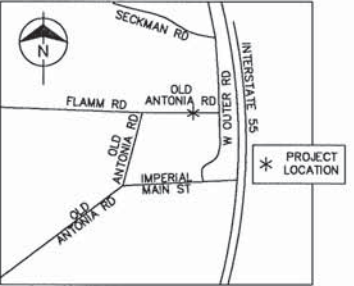
TOTAL CORRECTIONS	0 FEET
NET LENGTH OF OLD ANTONIA ROAD	389.52 FEET

TRIBUTARY TO ROCK CREEK

END OF PROJECT	STA 11+00.00
BEGINNING OF PROJECT	STA 9+48.00
APPARENT LENGTH	152.00 FEET
EQUATIONS AND EXCEPTIONS	NONE

TOTAL CORRECTIONS	0 FEET
NET LENGTH OF TRIBUTARY TO ROCK CREEK	152.00 FEET

LOCATION MAP



APPROVED: JASON JONAS - DIRECTOR OF PUBLIC WORKS
DATE: 8/8/2014
PROJECT:

no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION

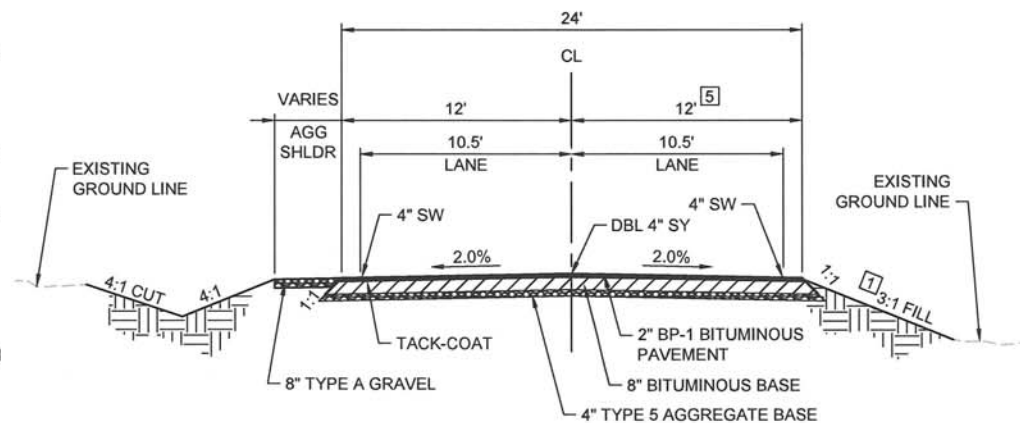
Burns & McDonnell
Professional Engineering Corporation
MO Certificate of Authority # 000165



425 S. Woods Mill Road
Saint Louis, Missouri 63017
Phone: (314) 682-1500
Fax: (314) 682-1600

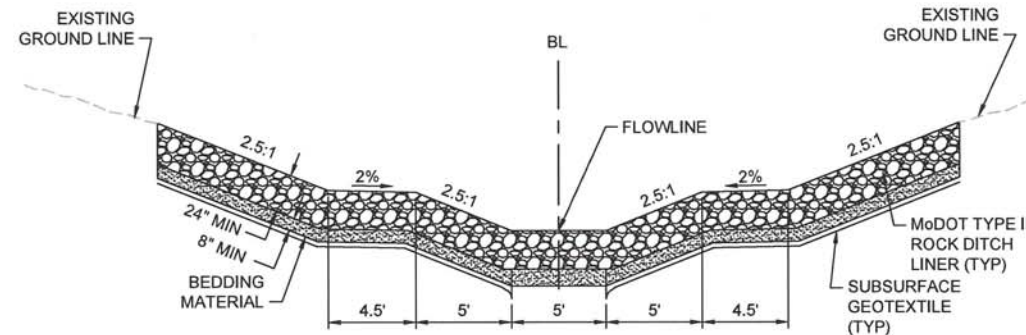
KEYED NOTES:

- SLOPES SHALL BE 2:1 FOR DITCH LEFT OF CENTERLINE FROM STATIONS 23+00.00 TO 23+26.10. SEE CROSS SECTIONS.
- SHOULDER WIDTH VARIES FROM STATIONS 22+47.24 TO 22+76.09.
- SLOPES SHALL BE 4:1 FOR DITCH LEFT OF CENTERLINE FROM STATIONS 21+50 TO 21+67. SEE CROSS SECTIONS.
- LANE AND SHOULDER WIDTHS VARY FROM ORIGINAL CONDITIONS TO ULTIMATE WIDTH AT APPROACH TO AND FROM BRIDGE.
- ASPHALT PAVEMENT WIDTH VARIES RIGHT OF CENTERLINE FROM STATIONS 22+77.54 TO STA 23+26.10. SEE CROSS SECTIONS.



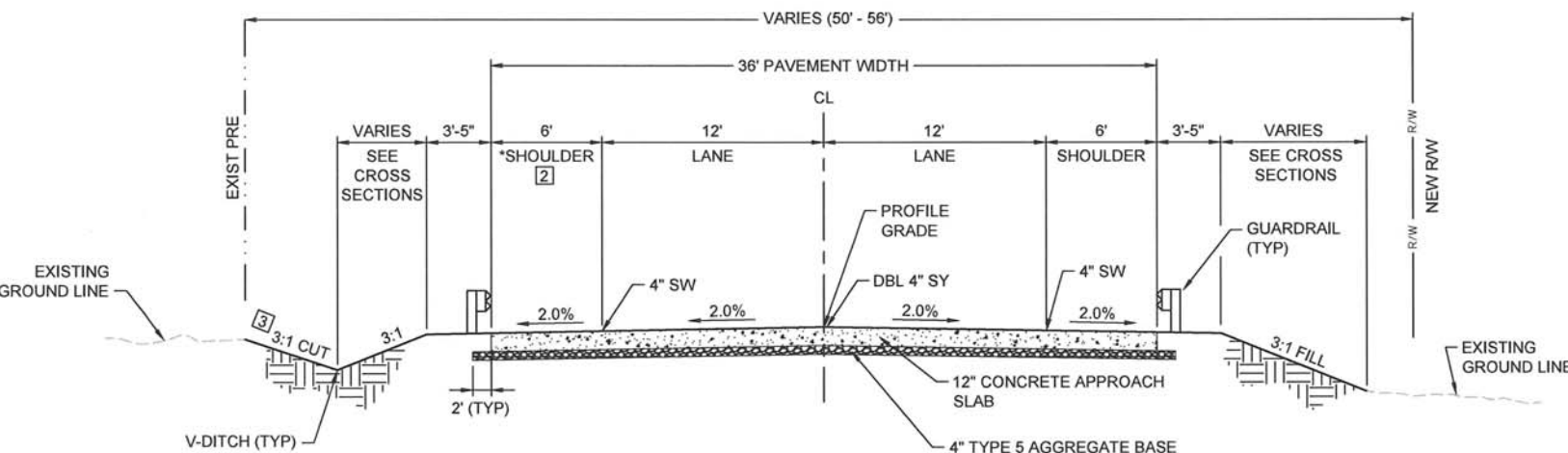
TYPICAL BITUMINOUS PAVEMENT SECTION

OLD ANTONIA ROAD
STA 20+25 TO STA 21+06.51
STA 22+77.54 TO STA 24+14.52
AGGREGATE SHOULDER - STA 20+70.43 TO STA 21+06.51 LT
AGGREGATE SHOULDER - STA 22+76.09 TO STA 23+00.00 LT
AGGREGATE SHOULDER - STA 20+69.94 TO STA 21+06.51 RT



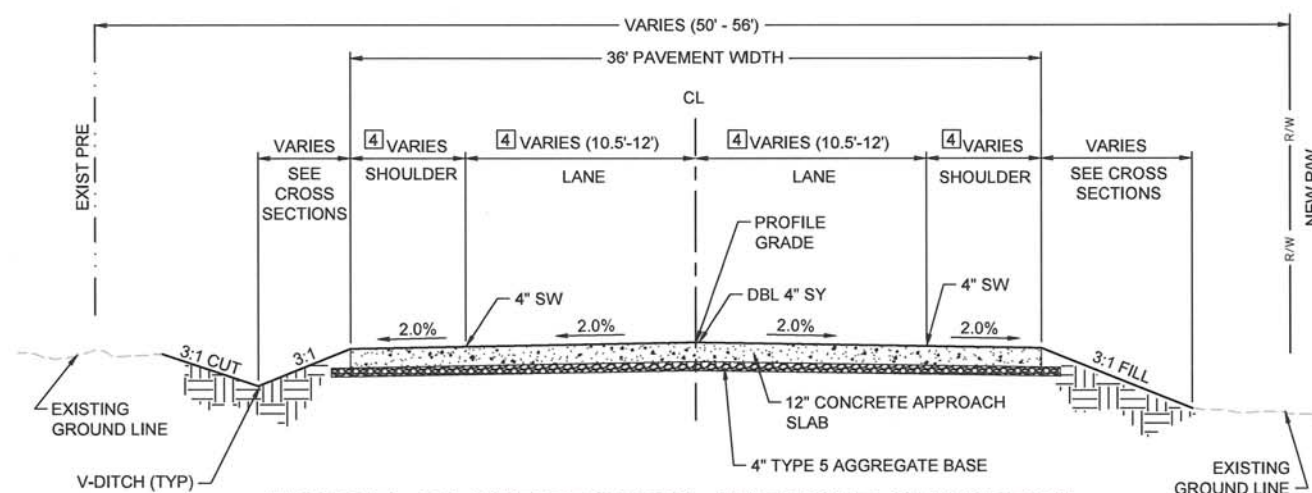
TYPICAL FLAT BOTTOM CREEK SECTION

TRIBUTARY TO ROCK CREEK
STA 9+48 TO STA 11+00
(NOT TO SCALE)
CREEK SECTION VARIES (SEE CROSS SECTIONS FOR DETAILS)



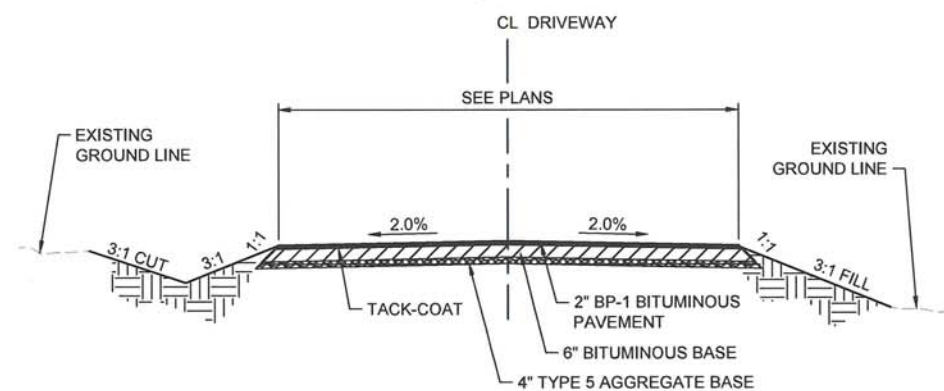
TYPICAL 2-LANE SECTION - WITH GUARDRAIL

OLD ANTONIA ROAD
STATION RANGES VARY LEFT AND RIGHT OF CENTERLINE



TYPICAL 2-LANE SECTION - WITHOUT GUARDRAIL

OLD ANTONIA ROAD
STATION RANGES VARY LEFT AND RIGHT OF CENTERLINE

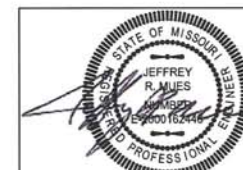


TYPE I DRIVEWAY (ASPHALT)

DRIVEWAY AT STA 23+26.10 RIGHT

NOTES:

- CONTRACTOR SHALL REFER TO MoDOT STANDARD DRAWING 504.00H FOR LONGITUDINAL JOINTING DETAILS ON CONCRETE APPROACH PAVEMENT SECTIONS.



8/6/2014
JEFFREY R. MUES
PROFESSIONAL ENGINEER
LICENSE NO. 2000162446

no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION



Burns & McDonnell
Professional Engineering
Corporation
MO Certificate of
Authority # 000165

date	MAY 2014	detailed	J. BIRKE
designed	J. BIRKE	checked	J. MUES



OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
TYPICAL SECTIONS

project	60165	contract	STP-5403(630)
drawing	2	rev.	0
sheet	2	of	31
file	02_TYPICAL		

JEFFERSON COUNTY, MISSOURI
SUMMARY OF QUANTITIES

no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION

					PAVEMENT										LINEAR GRADING, CLASS 1											
SHEET NUMBER	FROM STATION	TO STATION	ROADWAY	CONCRETE APPROACH PAVEMENT SQ YD	BITUMINOUS PAVEMENT (BP-1) TON	BITUMINOUS BASE (BASE) TON	TYPE 5 AGG BASE (4" THICK) SQ YD	TACK COAT GAL	TYPE A GRAVEL (8" THICK) SQ YD	REMARKS		SHEET NUMBER	FROM STATION	TO STATION	ROADWAY	LOCATION	LENGTH FEET	REMARKS								
7	20+25.00	21+06.51	OLD ANTONIA		25	101	233	24	40	TYPE A GRAVEL FOR SHOULDER		7	23+26.10		OLD ANTONIA	RT	30	ASPHALT DRIVEWAY								
7	21+06.51	21+43.06	OLD ANTONIA	147			163										TOTAL=	0.3 STATIONS								
7	22+40.94	22+77.54	OLD ANTONIA	147			163																			
7	22+77.54	24+14.52	OLD ANTONIA		41	170	416	40	5	TYPE A GRAVEL FOR SHOULDER																
7	23+26.10		OLD ANTONIA		7	21	66	7		ASPHALT DRIVEWAY																
			TOTAL=	294	73	292	1,041	71	45								PAVEMENT MARKINGS									
			REMOVALS														4" WHITE ACRYLIC WATERBRNE PAINT LF	4" YELLOW ACRYLIC WATERBRNE PAINT LF								
SHEET NUMBER	FROM STATION	TO STATION	ROADWAY	LOCATION	REMARKS							SHEET NUMBER	FROM STATION	TO STATION	ROADWAY	LOCATION	PAINT LF	PAINT LF	REMARKS							
7	21+54.72		OLD ANTONIA	RT	REMOVAL OF SIGN							7	20+25.00	24+14.52	OLD ANTONIA	LT	390									
7	21+76.88		OLD ANTONIA	LT	REMOVAL OF SIGN							7	20+25.00	24+14.52	OLD ANTONIA	RT	390									
7	22+03.36		OLD ANTONIA	LT	REMOVAL OF SIGN							7	20+25.00	24+14.52	OLD ANTONIA	CENTER			780	DOUBLE YELLOW						
7	22+05.56		OLD ANTONIA	LT	REMOVAL OF SIGN												TOTAL=	780	780							
7	20+25.00	24+14.52	OLD ANTONIA	LT/RT	PAVEMENT REMOVAL (INCLUDES SAWCUTS AT STATIONS 20+25.00 AND 24+14.52)																					
7	21+09.78	21+33.87	OLD ANTONIA	RT	REMOVAL OF 12-INCH CMP																					
7	21+92.00		OLD ANTONIA	LT/RT	REMOVAL OF 4-INCH ABANDON FORCE MAIN (SEE JSP L.)																					
			TOTAL=	1 LUMP SUM													TEMPORARY EROSION CONTROL									
			EARTHWORK																							
FROM STATION	TO STATION	ROADWAY	CLASS A EXC CY	COMPACT EMBANK CY	REMARKS							SHEET NUMBER	FROM STATION	TO STATION	ROADWAY	LOCATION	SILT FENCE LF	TYPE I DITCH CHECK EACH	SEDIMENT REMOVAL CY	INLET CHECK EACH	REMARKS					
												25	20+27.08	21+75.31	OLD ANTONIA	LT		3	4	2						
20+25.00	24+15.52	OLD ANTONIA	156	542	EXCESS MATERIAL TO BE DISPOSED OF OFF SITE							25	20+48.26	21+55.00	OLD ANTONIA	RT		3	2							
9+48.00	11+00.00	CREEK	686	0	AT A LOCATION PROVIDED BY CONTRACTOR							25	22+12.14	23+12.26	OLD ANTONIA	RT		3	3							
			TOTAL=	842	542							25	23+59.01	24+12.19	OLD ANTONIA	RT		2	2							
												25	9+96.34	11+00.00	CREEK	RT	105		2							
												25	9+48.00	10+42.27	CREEK	LT	85		2							
												25	23+02.00	24+14.52	OLD ANTONIA	LT	113									
			TYPE III ROCK DITCH LINER													TOTAL=	303	11	15	2						
SHEET NUMBER	FROM STATION	TO STATION	ROADWAY	LOCATION	FURNISHING CY	PLACING CY	SUBSURFACE GEOTEXTILE SY	BEDDING MATERIAL CY	REMARKS																	
7	11+00.00	9+25.00	CREEK	RT/LT	337	337	553	118																		
				TOTAL=	337	337	553	118																		
			GUARDRAIL																							
SHEET NUMBER	FROM STATION	TO STATION	ROADWAY	FROM OFFSET FEET	TO OFFSET FEET	LOCATION	TYPE A CRASHWTH END TERM EACH	BRIDGE ANCHOR SECTION THRIE-BEAM EACH	TRANSITION SECTION EACH	REMARKS																
7	21+07.93	21+70.40	OLD ANTONIA	18.00	18.00	LT	1	1	1	TYPE A CRASHWORTHY END TERMINAL LENGTH OF 37.5-FEET																
7	20+94.99	21+32.49	OLD ANTONIA	20.00	20.00	RT	1			TYPE A CRASHWORTHY END TERMINAL LENGTH OF 37.5-FEET																
7	21+32.49	21+44.83	OLD ANTONIA	20.00	18.00	RT			1											CONTRACTOR FURNISHED SURVEYING AND STAKING	TOTAL=	1 LUMP SUM				
7	21+44.83	21+57.33	OLD ANTONIA	18.00	18.00	RT		1																		
7	22+26.68	22+51.22	OLD ANTONIA	18.00	18.12	LT		1	1											SEEDING WARM SEASON MIXTURES	TOTAL=	0.3 ACRE				
7	22+51.22	22+86.99	OLD ANTONIA	18.12	15.51	LT	1			TYPE A CRASHWORTHY END TERMINAL LENGTH OF 37.5-FEET																
7	22+13.58	22+77.79	OLD ANTONIA	18.00	16.37	RT	1	1	1	TYPE A CRASHWORTHY END TERMINAL LENGTH OF 37.5-FEET																
							TOTAL=	4	4	4										TEMPORARY SEEDING	TOTAL=	0.3 ACRE				
			DRAINAGE STRUCTURES																							
SHEET NUMBER	STATION	ROADWAY	LOCATION	PRECAST 48" MANHOLE FEET	FRAME AND COVER (TYPE 4) EACH	AREA INLET EACH	CLASS III EXCAVATION CY	REMARKS																		
7	20+50.00	OLD ANTONIA	LT			1	17																			
7	20+70.00	OLD ANTONIA	LT	5.0	1		15																			
7	21+10.00	OLD ANTONIA	LT	5.0	1		15																			
7	21+60.00	OLD ANTONIA	LT			1	17																			
			TOTAL=	10.0	2	2	64																			
			CULVERTS																							
SHEET NUMBER	FROM STRUCTURE	TO STRUCTURE	GROUP A 18" FEET	GROUP B 24" FEET	CLASS III EXCAVATION CY	PIPE COLLAR TYPE A EACH	REMARKS																			
7	A	B	16		13																					
7	B	C	36		35																					
7	C	D	54		55																					
7	D	E	13	8	4	1																				
		TOTAL=	119	8	107	1																				

SANITARY SEWER MODIFICATIONS
(NON FEDERAL PARTICIPATION)

SHEET NUMBER	CLASS 3 EXCAVATION (CY)	DUCTILE IRON PIPE (FEET)	CONCRETE ENCASEMENT (CY)	TRANS ADAPTER (EACH)
C1	65	80	19.6	2

SANITARY SEWER MODIFICATIONS (NON FEDERAL PARTICIPATION)				
SHEET NUMBER	CLASS 3 EXCAVATION (CY)	DUCTILE IRON PIPE (FEET)	CONCRETE ENCASEMENT (CY)	TRANS ADAPTER (EACH)
C1	65	80	19.6	2

STATE OF MISSOURI
JEFFREY R. MUES
PROFESSIONAL ENGINEER
LICENSE NO. 2000162446
8/6/2014

Burns & McDonnell
Professional Engineering Corporation
MO Certificate of Authority # 000165

date	MAY 2014	detailed	J. BIRKE
designed	J. BIRKE	checked	J. MUES



OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
2B SHEET
SUMMARY OF QUANTITIES, 1 OF 2
project 60165 contract STP-5403(630)
drawing 3 - 0 rev.
sheet 3 of 31 sheets
file 03_SUMMARY OF QUANTITIES_01

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Millimeters

Scale For Microfilming

Inches

JEFFERSON COUNTY, MISSOURI
SUMMARY OF QUANTITIES

EFFECTIVE: 08-01-2009

D-2BS

no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION

SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION
WARNING SIGNS							
W01-1L	48X48	16.00					TURN (SYMBOL LEFT ARROW)
W01-1R	48X48	16.00					TURN (SYMBOL RIGHT ARROW)
W01-2L	48X48	16.00					CURVE (SYMBOL LEFT ARROW)
W01-2R	48X48	16.00					CURVE (SYMBOL RIGHT ARROW)
W01-3L	48X48	16.00					REVERSE TURN (SYMBOL LEFT ARROW)
W01-3R	48X48	16.00					REVERSE TURN (SYMBOL RIGHT ARROW)
W01-4L	48X48	16.00					REVERSE CURVE (SYMBOL LEFT ARROW)
W01-4R	48X48	16.00					REVERSE CURVE (SYMBOL RIGHT ARROW)
W01-4bL	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)
W01-4bR	48X48	16.00					DOUBLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)
W01-4cL	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL LEFT ARROWS)
W01-4cR	48X48	16.00					TRIPLE ARROW REVERSE CURVE (SYMBOL RIGHT ARROWS)
W01-6	48X24	8.00					HORIZONTAL ARROW (SYMBOL)
W01-6a	72X36	18.00					HORIZONTAL ARROW (SYMBOL ON PERMANENT BARRICADE)
W01-7	48X24	8.00					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL)
W01-7a	72X36	18.00					DOUBLE HEAD HORIZONTAL ARROW (SYMBOL ON PERMANENT BARRICADE)
W01-8	18X24	3.00					CHEVRON (SYMBOL)
W01-8a	36X48	12.00					CHEVRON (SYMBOL FOR DIVIDED HIGHWAYS)
W03-1a	48X48	16.00					STOP AHEAD (SYMBOL)
W03-2a	48X48	16.00					YIELD AHEAD (SYMBOL)
W03-3	48X48	16.00					SIGNAL AHEAD (SYMBOL)
W03-4	48X48	16.00					BE PREPARED TO STOP
W03-5	48X48	16.00					SPEED LIMIT 50 AHEAD (SYMBOL)
W04-1L	48X48	16.00					MERGE (SYMBOL FROM LEFT)
W04-1R	48X48	16.00					MERGE (SYMBOL FROM RIGHT)
W05-1	48X48	16.00					ROAD/BRIDGE/RAMP NARROWS
W05-3	48X48	16.00					ONE LANE BRIDGE
W05-5	48X48	16.00					NARROW LANES
W06-1	48X48	16.00					DIVIDED HIGHWAY (SYMBOL)
W06-2	48X48	16.00					DIVIDED HIGHWAY END (SYMBOL)
W06-3	48X48	16.00					TWO WAY TRAFFIC (SYMBOL)
W07-3a	30X24	5.00					NEXT XX MILES (PLAQUE)
W08-1	48X48	16.00					BUMP
W08-2	48X48	16.00					DIP
W08-3	48X48	16.00					PAVEMENT ENDS
W08-4	48X48	16.00					SOFT SHOULDER
W08-5	48X48	16.00					SLIPPERY WHEN WET (SYMBOL)
W08-6	48X48	16.00					TRUCK CROSSING WITH FLAGS
W08-6c	48X48	16.00					TRUCK ENTRANCE
W08-7	36X36	9.00					LOOSE GRAVEL
W08-9	48X48	16.00					LOW SHOULDER
W08-9a	48X48	16.00					SHOULDER DROP-OFF
W08-11	48X48	16.00					UNEVEN LANES
W08-12	36X36	9.00					NO CENTER STRIPE
W10-1	42 RND.	9.62					RAILROAD CROSSING
W012-1	24X24	4.00					DOUBLE DOWN ARROW (SYMBOL)
W012-2	48X48	16.00					LOW CLEARANCE (SYMBOL)
W012-2x	24X18	3.00					LOW CLEARANCE (PLAQUE)
W012-3a,b	144X24	24.00					OVERHEAD LOW CLEARANCE (FEET AND INCHES)
SPECIAL	120X60	50.00					LOW CLEARANCE XX FT XX IN XX MILES AHEAD
SPECIAL	120X60	50.00					WIDTH RESTRICTION XX FT XX IN XX MILES AHEAD
W013-1	30X30	6.25					ADVISORY SPEED (PLAQUE)
W016-2	30X24	5.00					XXX FEET (PLAQUE)
W016-3	30X24	5.00					X MILE (PLAQUE)
W020-1	48X48	16.00					ROAD/BRIDGE/RAMP WORK AHEAD
W020-2	48X48	16.00					DETOUR AHEAD
W020-3	48X48	16.00	3	48			ROAD CLOSED AHEAD
W020-4	48X48	16.00					ONE LANE ROAD AHEAD
W020-5	48X48	16.00					RIGHT/CENTER/LEFT LANE CLOSED AHEAD

SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	QTY RELOC	TOTAL RELOC AREA	DESCRIPTION
W020-5a	48X48	16.00					RIGHT/CENTER/LEFT TWO LANES CLOSED AHEAD
W020-6a	48X48	16.00					RIGHT/CENTER/LEFT LANE CLOSED
W020-7a	48X48	16.00					FLAGGER (SYMBOL) WITH FLAGS
W021-2	36X36	9.00					FRESH OIL
W021-5b	48X48	16.00					SHOULDER WORK AHEAD
W022-1	48X48	16.00					BLASTING ZONE AHEAD
W022-2	42X36	10.50					TURN OFF 2-WAY RADIO AND PHONE
W022-3	42X36	10.50					END BLASTING ZONE
W022-6e	21X15	2.19					WET PAINT (ARROW PIVOTS)
GUIDE SIGNS							
E05-1	36X48	12.00					GORE EXIT
E05-2	48X36	12.00					EXIT OPEN
E05-2a	48X36	12.00					EXIT CLOSED
G020-1	60X24	10.00					ROAD WORK NEXT 22 MILES
G020-2	48X24	8.00					END ROAD WORK
G020-4	36X18	4.50					PILOT CAR FOLLOW ME
G023-1	36X12	3.00					WORK ZONE (PLAQUE)
M04-1	24X12	2.00					ALTERNATE (PLAQUE)
M04-8	24X12	2.00	4	8			DETOUR (PLAQUE)
M04-8a	24X18	3.00					END DETOUR
M04-9L	48X36	12.00	4	48			DETOUR (LEFT ARROW)
M04-9R	48X36	12.00	3	36			DETOUR (RIGHT ARROW)
M04-10L	48X18	6.00					DETOUR (ARROW LEFT)
M04-10R	48X18	6.00					DETOUR (ARROW RIGHT)
M5-1L	21X15	2.19					ADVANCE LEFT TURN ARROW
M5-1R	21X15	2.19					ADVANCE RIGHT TURN ARROW
M6-1	21X15	2.19	2	5			TURN ARROW
M6-3	21X15	2.19					STRAIGHT ARROW
REGULATORY SIGNS							
R1-1	48X48	13.25					STOP
R1-2	48 TRI.	6.93					YIELD
R1-2a	36X36	9.00					TO ONCOMING TRAFFIC (PLAQUE)
R1-3	20X9	1.25					X-WAY (PLAQUE)
R2-1	36X48	12.00					SPEED LIMIT XX (2 @ 60, 2 @ 70)
R3-1	48X48	16.00					NO RIGHT TURN (SYMBOL)
R3-2	48X48	16.00					NO LEFT TURN (SYMBOL)
R3-3	36X36	9.00					NO TURNS
R3-4	48X48	16.00					NO U-TURN (SYMBOL)
R3-7L	30X30	6.25					LEFT LANE MUST TURN LEFT
R3-7R	30X30	6.25					RIGHT LANE MUST TURN RIGHT
R4-1	36X48	12.00					DO NOT PASS
R4-2	36X48	12.00					PASS WITH CARE
R4-7aL	36X48	12.00					KEEP LEFT (HORIZONTAL ARROW)
R4-7a	36X48	12.00					KEEP RIGHT (HORIZONTAL ARROW)
R5-1	30X30	6.25					DO NOT ENTER
R5-1a	36X24	6.00					WRONG WAY
R6-1L	48X18	6.00					ONE WAY ARROW (LEFT)
R6-1R	48X18	6.00					ONE WAY ARROW (RIGHT)
R6-2L	24X30	5.00					ONE WAY (LEFT)
R6-2R	24X30	5.00					ONE WAY (RIGHT)
R10-6	24X36	6.00					STOP HERE ON RED (45° ARROW)
R11-2	48X30	10.00	3	30			ROAD CLOSED
R11-3a	60X30	12.50					ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50	3	38			ROAD CLOSED TO THRU TRAFFIC
S4-4	36X15	3.75					WHEN FLASHING
CONST-3A	60X48	20.00					FINE SIGN
CONST-3X	56X12	4.67					SPEEDING/PASSING (PLATE)
MISCELLANEOUS SIGNS							
SPECIAL	60X12	5.00	10	50			SPECIAL SIGN "OLD ANTONIA RD"
SPECIAL	42X12	3.50	1	4			SPECIAL SIGN "FLAMM RD"
616-10.05 CONSTRUCTION SIGNS TOTAL							
616-10.10 RELOCATED SIGNS TOTAL							

ITEM NUMBER	TOTAL QTY	DESCRIPTION
612-20.08		IMPACT ATTENUATOR (8 SAND BARRELS)
612-20.09		IMPACT ATTENUATOR (9 SAND BARRELS)
612-20.10		IMPACT ATTENUATOR (10 SAND BARRELS)
612-20.12		IMPACT ATTENUATOR (12 SAND BARRELS)
612-20.14		IMPACT ATTENUATOR (14 SAND BARRELS)
612-20.17		IMPACT ATTENUATOR (17 SAND BARRELS)
612-20.19		IMPACT ATTENUATOR (19 SAND BARRELS)
612-20.20		REPLACEMENT SAND BARREL
612-20.30		IMPACT ATTENUATOR ARRAY (RELOCATION)
612-30.00A		TRUCK OR TRAILER MOUNTED ATTENUATOR (TMA)
616-10.07		SPEED LIMIT AND STROBE LIGHT ASSEMBLY
616-10.08		ADVANCED WARNING RAIL SYSTEM
616-10.09	3	FLAG ASSEMBLY
616-10.20		CHANNELIZER (DRUM-LIKE)
616-10.22		CHANNELIZER (CONES)
616-10.24		CHANNELIZER (TRIM LINE) WITH LIGHT
616-10.25		CHANNELIZER (TRIM LINE)
616-10.26		CHANNELIZER (VERTICAL PANEL)
616-10.27		CHANNELIZER (VERTICAL PANEL) WITH LIGHT
616-10.28		CHANNELIZER
616-10.30	6	TYPE III MOVEABLE BARRICADE
616-10.31		TYPE III MOVEABLE BARRICADE WITH LIGHT
616-10.33		DIRECTION INDICATOR BARRICADE
616-10.34		DIRECTION INDICATOR BARRICADE, WITH LIGHT
616-10.40		FLASHING ARROW PANEL
616-10.47		TYPE III OBJECT MARKER
616-10.51		WARNING LIGHT, TYPE A
616-10.52		WARNING LIGHT, TYPE B
616-10.53		WARNING LIGHT, TYPE C
616-10.70		TUBULAR MARKER
616-10.95		RADAR SPEED ADVISORY SYSTEM
616-10.96		CHANGEABLE MESSAGE SIGN, COMMISSION FURNISHED/RETAINED
616-10.98		CHANGEABLE MESSAGE SIGN, CONTRACTOR FURNISHED/RETAINED
616-11.00		CHANGEABLE MESSAGE SIGN, CONTRACTOR FURNISHED/COMMISSION RETAINED
616-11.20		INSTALLING "DRIVE SMART", 48 IN. X 48 IN. SIGN
616-11.33A		INSTALLING "POINT OF PRESENCE", 96 IN. X 48 IN. SIGN
616-11.34		INSTALLING "POINT OF PRESENCE", 36 IN. X 48 IN. SIGN
617-36.00D		CONTRACTOR FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER
617-36.02B		CONTRACTOR FURNISHED/COMMISSION RETAINED TEMPORARY TRAFFIC BARRIER
617-40.00A		TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION
617-50.10A		RELOCATING TEMPORARY TRAFFIC BARRIER
617-60.00B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER
617-70.00B		COMMISSION FURNISHED/RETAINED TEMPORARY TRAFFIC BARRIER HEIGHT TRANSITION
901-94.00		TEMPORARY LIGHTING
902-94.00		TEMPORARY TRAFFIC SIGNALS
902-94.01		TEMPORARY TRAFFIC SIGNALS AND LIGHTING

JEFFREY R. MUES
PROFESSIONAL ENGINEER
LICENSE NO. 2000162446
8/6/2014

Burns & McDonnell
Professional Engineering Corporation
MO Certificate of Authority # 000165

date	MAY 2014	detailed	J. BIRKE
designed	J. BIRKE	checked	J. MUES



OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
2B SHEET
SUMMARY OF QUANTITIES, 2 OF 2
project 60165 contract STP-5403(630)
drawing 4 - 0 rev.
sheet 4 of 31 sheets
file 04_SUMMARY OF QUANTITIES_02

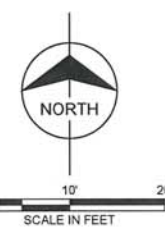
WOODLYNN TERRACE RESUB
PB 92, PG 8

1
N/F
WILLIAM & FELOX GILLIAM
1612 BLACKBERRY ROAD
PARCEL #094.018.04001004
LOT 111
DOC. NO. 06R001372
NO TAKING

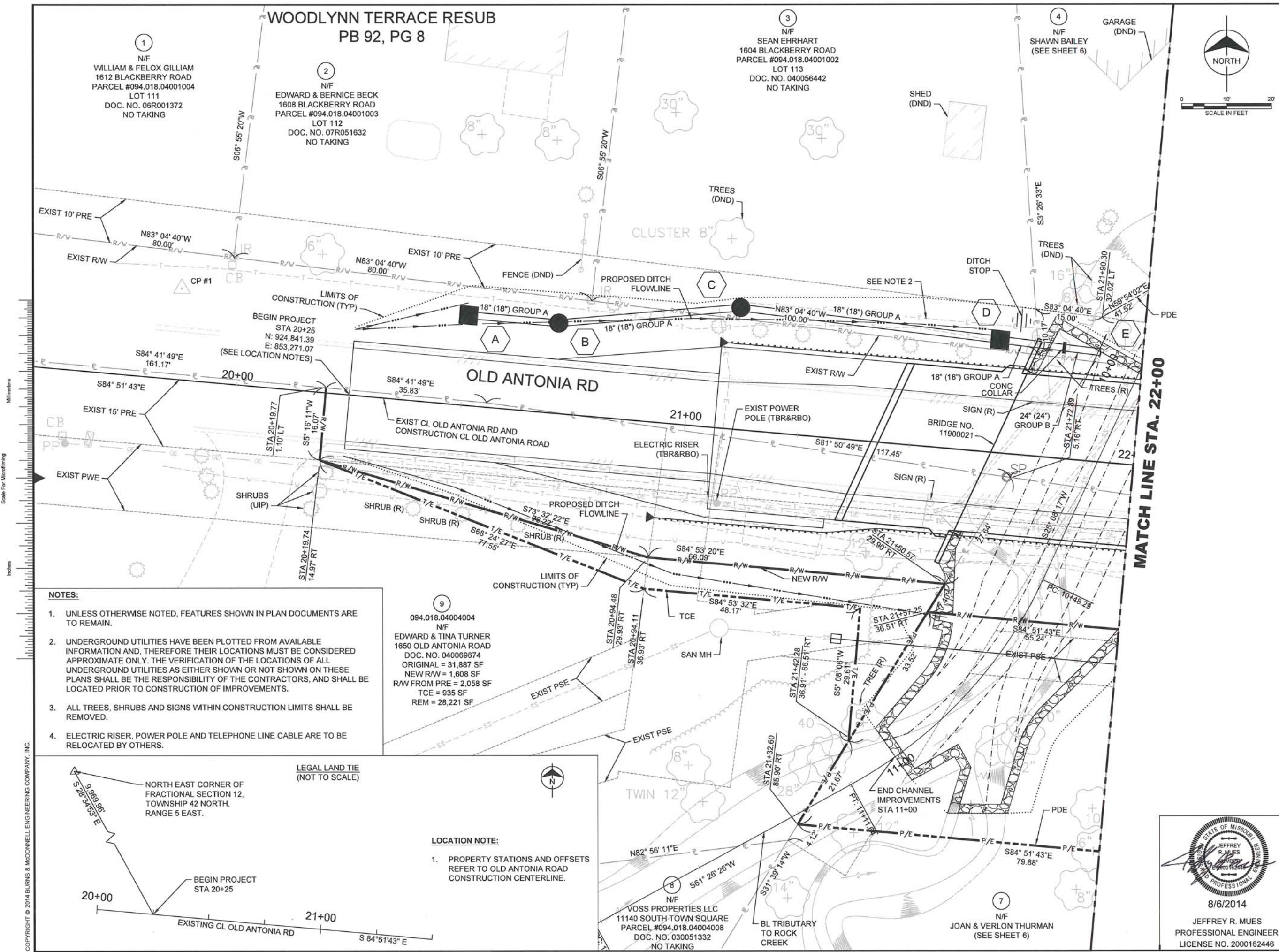
2
N/F
EDWARD & BERNICE BECK
1608 BLACKBERRY ROAD
PARCEL #094.018.04001003
LOT 112
DOC. NO. 07R051632
NO TAKING

3
N/F
SEAN EHRHART
1604 BLACKBERRY ROAD
PARCEL #094.018.04001002
LOT 113
DOC. NO. 040056442
NO TAKING

4
N/F
SHAWN BAILEY
(SEE SHEET 6)

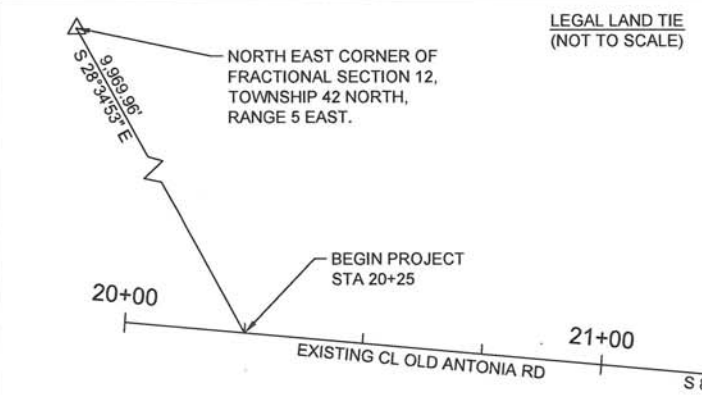


no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION



- NOTES:**
- UNLESS OTHERWISE NOTED, FEATURES SHOWN IN PLAN DOCUMENTS ARE TO REMAIN.
 - UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND, THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATIONS OF ALL UNDERGROUND UTILITIES AS EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS, AND SHALL BE LOCATED PRIOR TO CONSTRUCTION OF IMPROVEMENTS.
 - ALL TREES, SHRUBS AND SIGNS WITHIN CONSTRUCTION LIMITS SHALL BE REMOVED.
 - ELECTRIC RISER, POWER POLE AND TELEPHONE LINE CABLE ARE TO BE RELOCATED BY OTHERS.

9
094.018.04004004
N/F
EDWARD & TINA TURNER
1650 OLD ANTONIA ROAD
DOC. NO. 040069674
ORIGINAL = 31,887 SF
NEW R/W = 1,608 SF
R/W FROM PRE = 2,058 SF
TCE = 935 SF
REM = 28,221 SF



- LOCATION NOTE:**
- PROPERTY STATIONS AND OFFSETS REFER TO OLD ANTONIA ROAD CONSTRUCTION CENTERLINE.

Burns & McDonnell
Professional Engineering Corporation
MO Certificate of Authority # 000165

date	MAY 2014	detailed	J. BIRKE
designed	J. BIRKE	checked	J. MUES



project		contract	
60165		STP-5403(630)	
drawing		rev.	
5		0	
sheet 5 of 31 sheets		file 05_Plan_R/W	

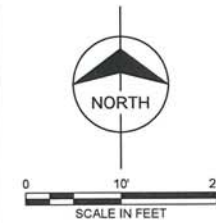
8/6/2014
JEFFREY R. MUES
PROFESSIONAL ENGINEER
LICENSE NO. 2000162446

WOODLYNN TERRACE RESUB
PB 92, PG 8

N/F
SHAWN BAILEY
1600 BLACKBERRY ROAD
PARCEL #094.018.04001001
LOT 114
DOC. NO. 040042742
ORIGINAL = 17,549 SF
PDE = 914 SF
REM = 17,549 SF

NOTES:

1. UNLESS OTHERWISE NOTED, FEATURES SHOWN IN PLAN DOCUMENTS ARE TO REMAIN.
2. UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND, THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATIONS OF ALL UNDERGROUND UTILITIES AS EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS, AND SHALL BE LOCATED PRIOR TO CONSTRUCTION OF IMPROVEMENTS.
3. ALL TREES, SHRUBS AND SIGNS WITHIN CONSTRUCTION LIMITS SHALL BE REMOVED.
4. ELECTRIC RISER, POWER POLE AND TELEPHONE LINE CABLE ARE TO BE RELOCATED BY OTHERS.



no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION

5
N/F
MASTODON STATE PARK
DEPARTMENT OF NATURAL RESOURCES
STATE OF MISSOURI
PARCEL #093.008.03002006
DB 572, PG 196
NO TAKING

OLD ANTONIA ROAD CURVE 1
PI STA 22+64.20
 $\Delta = 6^\circ 46' 33''$
R = 375.00'
T = 22.20'
L = 44.35'
SE = N/A

OLD ANTONIA ROAD CURVE 2
PI STA 23+24.58
 $\Delta = 11^\circ 38' 35''$
R = 375.00'
T = 38.23'
L = 76.20'
SE = N/A

OLD ANTONIA ROAD CURVE 3
PI STA 23+88.58
 $\Delta = 7^\circ 56' 25''$
R = 375.00'
T = 26.03'
L = 51.97'
SE = N/A

EXIST OLD ANTONIA ROAD CURVE 4
PI STA 23+55.98
 $\Delta = 3^\circ 03' 54''$
R = 600.00'
T = 16.05'
L = 32.10'

MATCH LINE STA. 22+00

Millimeters

Scale For Microfilming

Inches

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date	MAY 2014	detailed	J. BIRKE
designed	J. BIRKE	checked	J. MUES



OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
RIGHT-OF-WAY PLAN SHEET

project	60165	contract	STP-5403(630)
drawing	6	rev.	0
sheet	6	of	31
file	06_Plan_R/W		

JEFFREY R. MUES
PROFESSIONAL ENGINEER
LICENSE NO. 2000162446
8/6/2014

STOVESAND HILLS 1
PB 14, PG 15

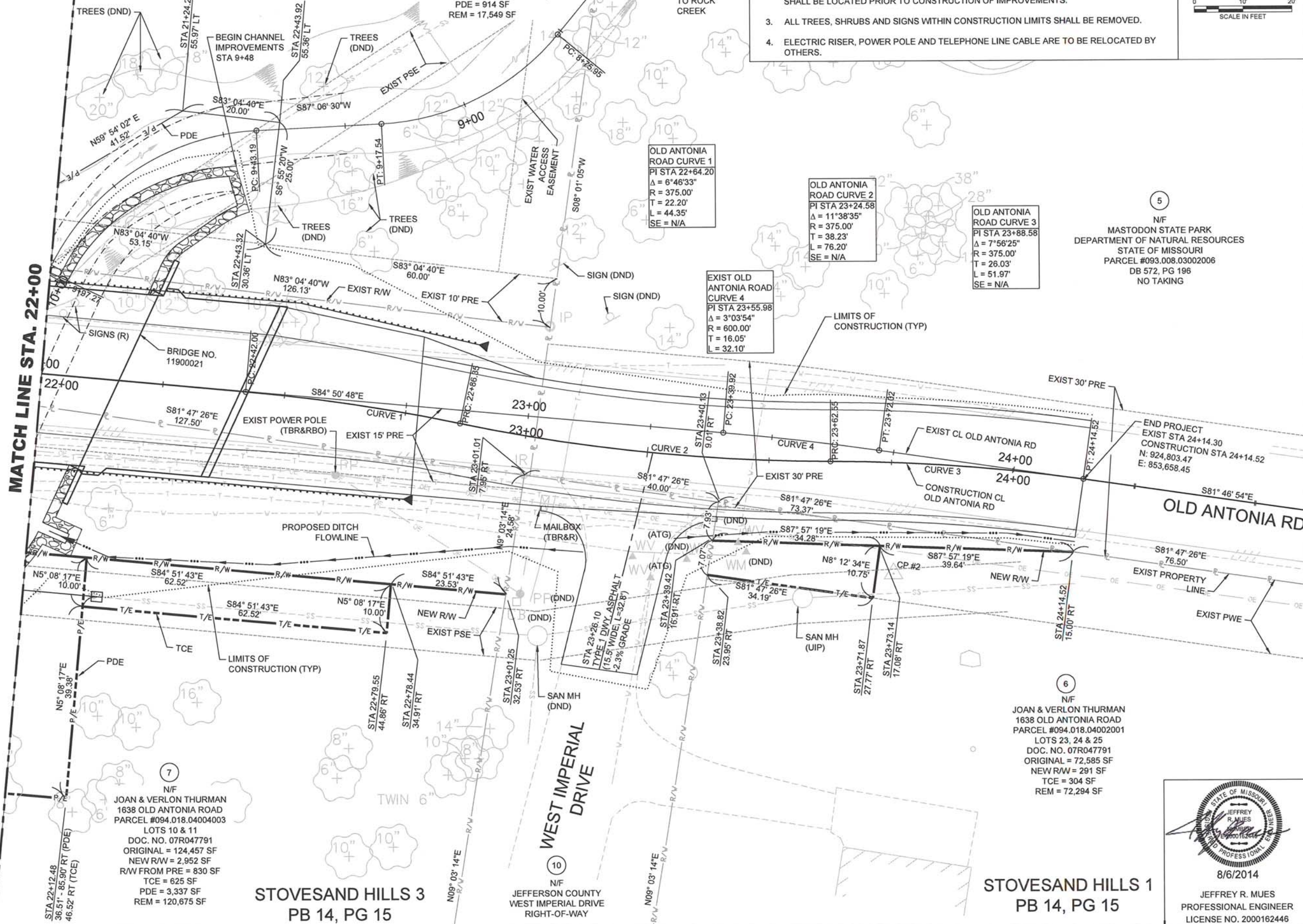
STOVESAND HILLS 3
PB 14, PG 15

JEFFERSON COUNTY
WEST IMPERIAL DRIVE
RIGHT-OF-WAY

WEST IMPERIAL DRIVE

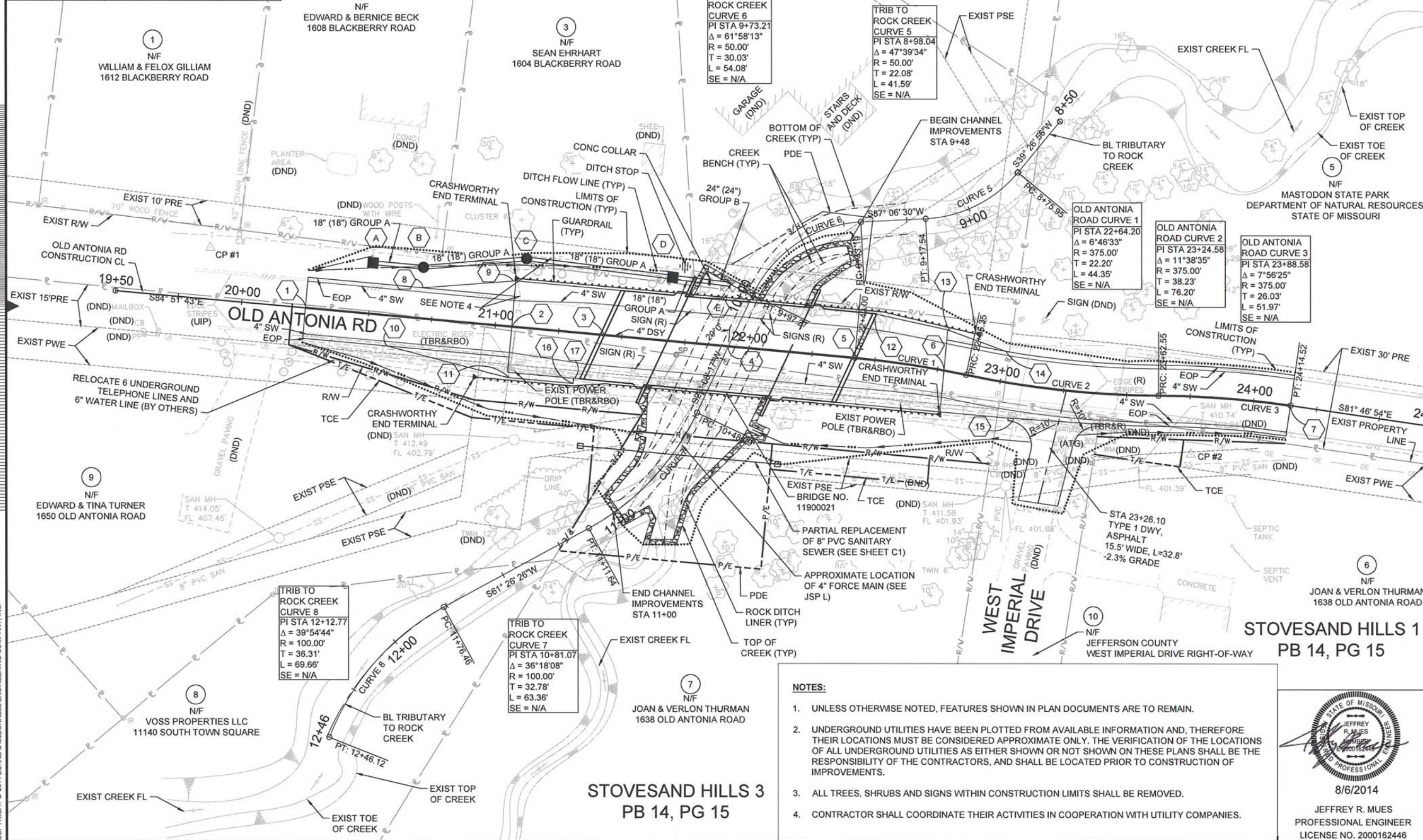
7
N/F
JOAN & VERLON THURMAN
1638 OLD ANTONIA ROAD
PARCEL #094.018.04004003
LOTS 10 & 11
DOC. NO. 07R047791
ORIGINAL = 124,457 SF
NEW R/W = 2,952 SF
R/W FROM PRE = 830 SF
TCE = 625 SF
PDE = 3,337 SF
REM = 120,675 SF

6
N/F
JOAN & VERLON THURMAN
1638 OLD ANTONIA ROAD
PARCEL #094.018.04002001
LOTS 23, 24 & 25
DOC. NO. 07R047791
ORIGINAL = 72,585 SF
NEW R/W = 291 SF
TCE = 304 SF
REM = 72,294 SF



POINT	STATION	DESCRIPTION
1	20+25.00	BEGIN PROJECT FULL DEPTH SAWCUT ACROSS ROAD BEGIN ASPHALT PAVEMENT
2	21+06+51	END ASPHALT PAVEMENT BEGIN CONC APPROACH PAVEMENT
3	21+43.06	END CONC APPROACH PAVEMENT BEGIN BRIDGE APPROACH SLAB
4	21+92.00 10+19.49	OLD ANTONIA ROAD AND TRIBUTARY TO ROCK CREEK INTERSECTION
5	22+40.94	END BRIDGE APPROACH SLAB BEGIN CONC APPROACH PAVEMENT
6	22+77.54	END CONC APPROACH PAVEMENT BEGIN ASPHALT PAVEMENT
7	24+14.52	FULL DEPTH SAWCUT ACROSS ROAD END ASPHALT PAVEMENT END PROJECT

WOODLYNN
TERRACE RESUB
PB 92, PG 8



PAVEMENT SHOULDER WIDENING LOCATION TABLE			
POINT	STATION	OFFSET	DESCRIPTION
12	22+47.24	-18.04	BEGIN CONCRETE APPROACH SLAB TAPER
13	22+76.09	-15.93	END CONCRETE APPROACH PAVEMENT BEGIN ASPHALT PAVEMENT
14	23+00.00	-12.00	END ASPHALT SHOULDER TAPER
15	23+05.50	13.64	END ASPHALT SHOULDER

AGGREGATE SHOULDER WIDENING LOCATION TABLE		
POINT	STATION	OFFSET
8	20+70.43	-12.00
9	21+06.51	-18.00
10	20+58.51	12.00
11	21+06.51	20.00
16	21+32.49	20.00
17	21+32.49	18.00

no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION

- NOTES:
- UNLESS OTHERWISE NOTED, FEATURES SHOWN IN PLAN DOCUMENTS ARE TO REMAIN.
 - UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND, THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATIONS OF ALL UNDERGROUND UTILITIES AS EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS, AND SHALL BE LOCATED PRIOR TO CONSTRUCTION OF IMPROVEMENTS.
 - ALL TREES, SHRUBS AND SIGNS WITHIN CONSTRUCTION LIMITS SHALL BE REMOVED.
 - CONTRACTOR SHALL COORDINATE THEIR ACTIVITIES IN COOPERATION WITH UTILITY COMPANIES.

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Authority # 000165

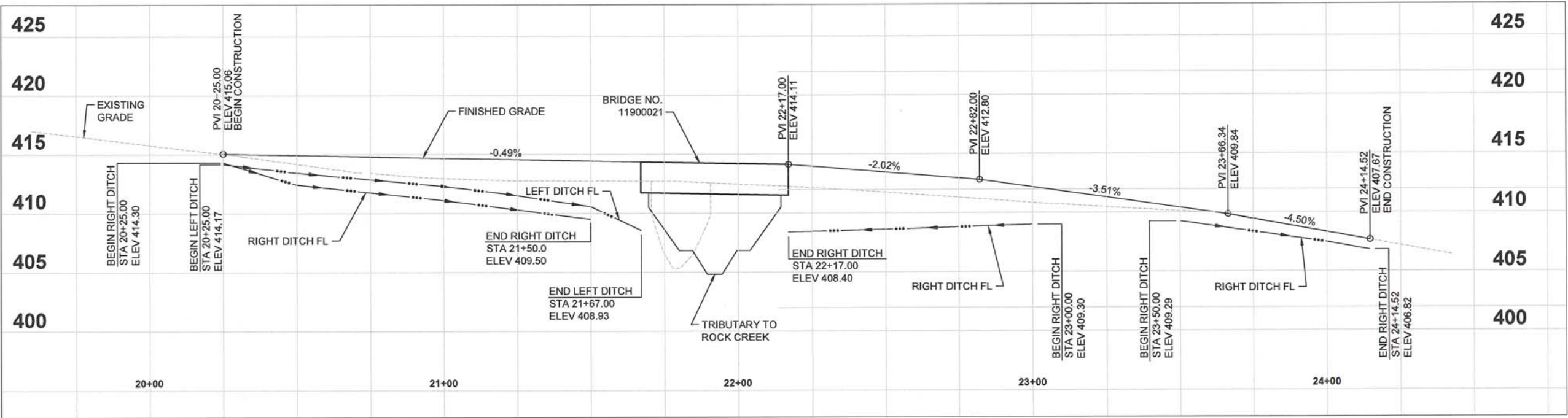
date	MAY 2014	detailed	J. BIRKE
designed	J. BIRKE	checked	J. MUES



OLD ANTONIA ROAD BRIDGE OVER TRIBUTARY TO ROCK CREEK CONSTRUCTION PLAN SHEET			
project	60165	contract	STP-5403(630)
drawing	7	rev.	0
sheet	7	of 31	sheets
file	07_Plan		

JEFFREY R. MUES
PROFESSIONAL ENGINEER
LICENSE NO. 2000162446

OLD ANTONIA ROAD PROFILE

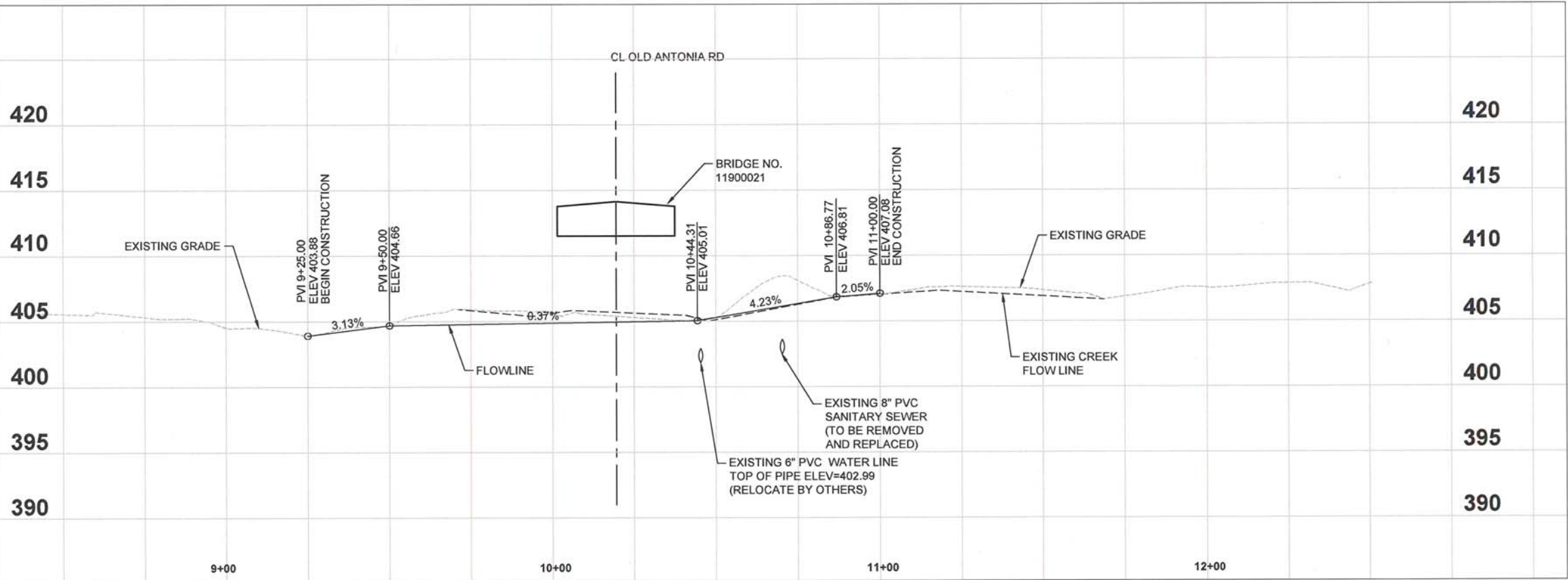


PROJECT BENCHMARK NOTES:

- STATE PLANE COORDINATES ARE BASED ON GPS OBSERVATION OF GEOGRAPHIC REFERENCE SYSTEM (GRS) MONUMENT; JE-56 (MISSOURI STATE PLANE COORDINATE SYSTEM NAD 1983, EAST ZONE). JE-56 ELEV=496.224 FT (151.249 M) USED AS PROJECT BENCHMARK.

MISSOURI STATE PLANE COORDINATES FOR GRS STATION:
JE-56: NORTH (Y) =281027.662 METERS (921995.078 U.S. FEET)
EAST (X) =259941.173 METERS (852823.664 U.S. FEET)
- BASIS OF BEARINGS FOR THE COORDINATE SYSTEMS IS MISSOURI STATE PLANE COORDINATE SYSTEM 1983, EAST ZONE, GRID NORTH.

TRIBUTARY TO ROCK CREEK PROFILE



no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION

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Professional Engineering Corporation
MO Certificate of Authority # 000165

date	MAY 2014	detailed	J. BIRKE
designed	J. BIRKE	checked	J. MUES

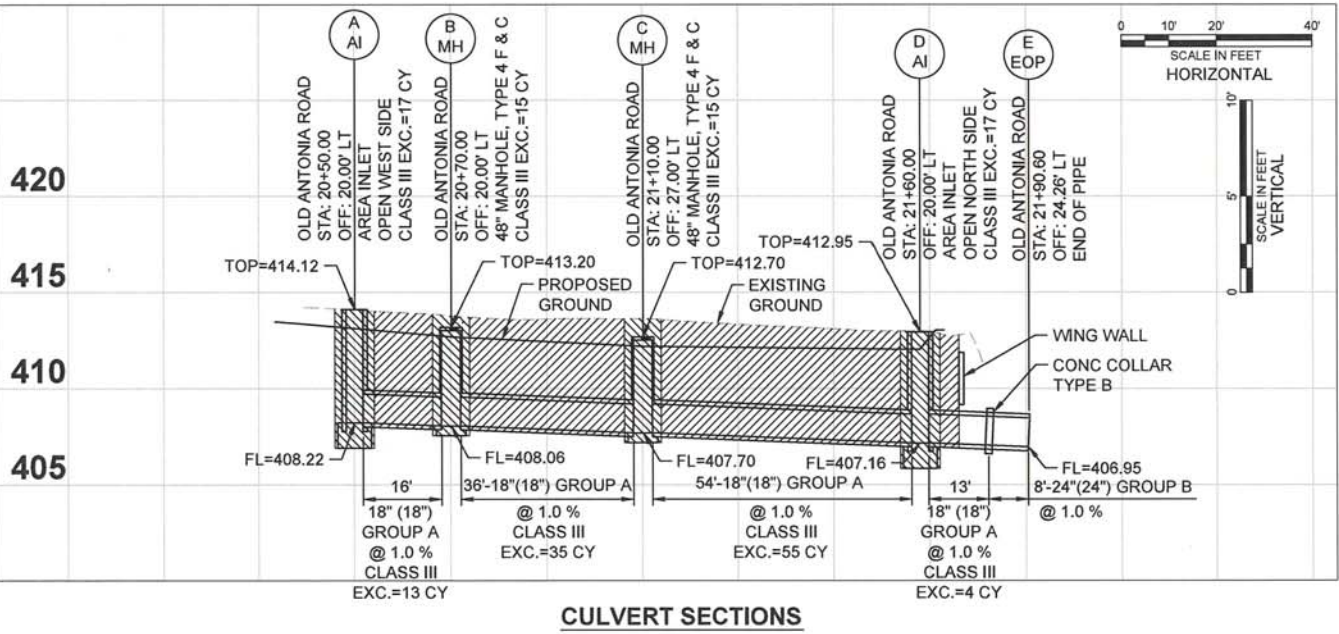


OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
PROFILE SHEET

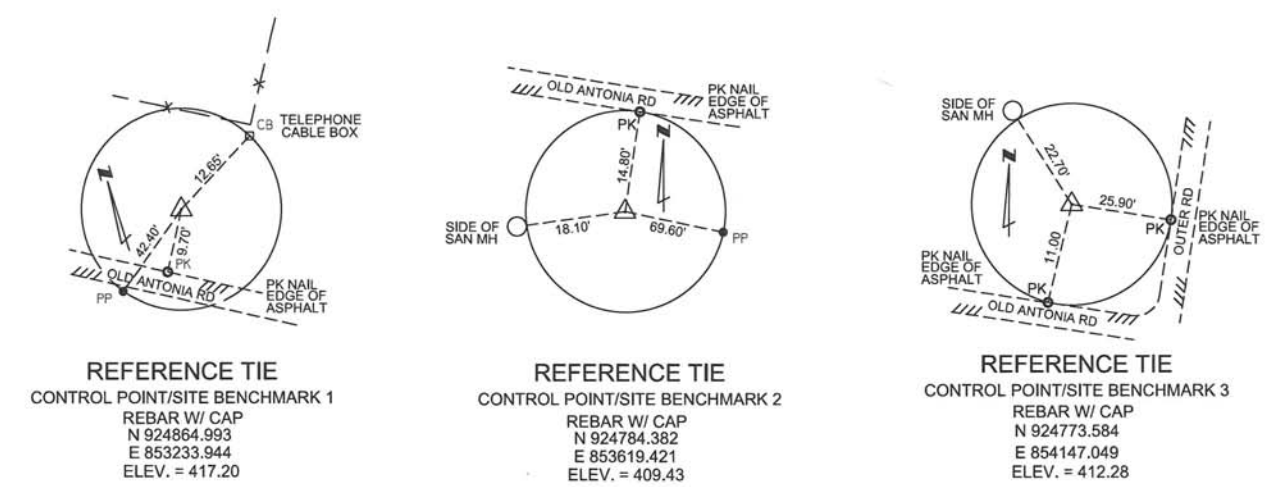
project	60165	contract	STP-5403(630)
drawing	8	rev.	0
sheet	8	of	31
file	08_Profiles		

JEFFREY R. MUES
PROFESSIONAL ENGINEER
LICENSE NO. 2000162446

COORDINATE POINT LISTING				
MISSOURI STATE PLANE COORDINATE SYSTEM				
STATION	LOCATION	NORTHING	EASTING	DESCRIPTION
20+25.00	OLD ANTONIA ROAD	924,841.39	853,271.07	BEGIN CONSTRUCTION
21+23.05	OLD ANTONIA ROAD	924,832.61	853,368.73	ASPHALT DRIVEWAY CENTERLINE
22+42.00	OLD ANTONIA ROAD	924,821.95	853,487.19	PC CURVE #1
22+64.20	OLD ANTONIA ROAD	924,819.97	853,509.30	PI CURVE #1
22+86.35	OLD ANTONIA ROAD	924,815.38	853,531.03	PRC CURVE #2
23+24.58	OLD ANTONIA ROAD	924,807.49	853,568.43	PI CURVE #2
23+26.10	OLD ANTONIA ROAD	924,809.25	853,570.29	ASPHALT DRIVEWAY CENTERLINE
23+62.55	OLD ANTONIA ROAD	924,807.31	853,606.67	PRC CURVE #3
23+88.58	OLD ANTONIA ROAD	924,807.19	853,632.72	PI CURVE #3
24+14.52	OLD ANTONIA ROAD	924,803.47	853,658.45	PT CURVE #3 / END CONSTRUCTION
8+75.95	CREEK	924,894.71	853,551.28	PC CURVE #5
8+98.04	CREEK	924,877.66	853,537.25	PI CURVE #5
9+17.54	CREEK	924,876.54	853,515.19	PT CURVE #5
9+25.00	CREEK	924,876.17	853,507.74	BEGIN CONSTRUCTION
9+43.19	CREEK	924,875.25	853,489.58	PC CURVE #6
9+73.21	CREEK	924,873.73	853,459.59	PI CURVE #6
9+97.27	CREEK	924,846.55	853,446.84	PT CURVE #6
10+48.29	CREEK	924,800.37	853,425.16	PC CURVE #7
10+81.07	CREEK	924,770.69	853,411.24	PI CURVE #7
11+00.00	CREEK	924,761.16	853,392.32	END CONSTRUCTION
11+11.64	CREEK	924,755.01	853,382.44	PT CURVE #7
11+76.46	CREEK	924,724.03	853,325.51	PC CURVE #8
12+12.77	CREEK	924,706.67	853,293.62	PI CURVE #8
12+46.12	CREEK	924,672.89	853,280.29	PT CURVE #8



no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION



- NOTES:
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MISSOURI STATE PLANE COORDINATES FOR GRS STATION:
JE-56: NORTH (Y) =281027.662 METERS (921995.078 U.S. FEET)
EAST (X) =259941.173 METERS (852823.664 U.S. FEET)
 - BASIS OF BEARINGS FOR THE COORDINATE SYSTEMS IS MISSOURI STATE PLANE COORDINATE SYSTEM 1983, EAST ZONE, GRID NORTH.
 - UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS. THEREFORE; THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY UNKNOWN.



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MO Certificate of Authority # 000165

date	MAY 2014	detailed	J. BIRKE
designed	J. BIRKE	checked	J. MUES



OLD ANTONIA ROAD BRIDGE OVER TRIBUTARY TO ROCK CREEK CONTROL POINTS AND CULVERT SECTION			
project	60165	contract	STP-5403(630)
drawing	9	rev.	0
sheet	9	of	31
file	09_CONTROL POINTS		



JEFFREY R. MUES
PROFESSIONAL ENGINEER
LICENSE NO. 2000162446

EXISTING STRUCTURE

CONSISTS OF 24 FT LONG SINGLE SPAN STEEL BEAMS SUPPORTING CONCRETE DECK, CURB, AND STEEL RAIL WITH REINFORCED CONCRETE HIGH WALL ABUTMENTS AND WINGS. EXISTING ROADWAY WIDTH IS 25 FT.

EXISTING STRUCTURE TO BE REMOVED TO 2'-0" BELOW PROPOSED GRADE OR COMPLETELY REMOVED IF OBSTRUCTING NEW CONSTRUCTION. FOR BIDDING PURPOSES ONLY THE BOTTOM OF EXISTING STRUCTURE SHALL BE ASSUMED TO BE ELEVATION 401.

NO SALVAGE.

PROJECT TEMPORARY BENCH MARK

ELEVATION = 417.20 - REBAR WITH CAP CONTROL POINT/ SITE BENCHMARK 1. N. 924864.993 E. 853233.944
STA: 9+85.91 OFFSET: 20.17 FT LEFT

BRIDGE INDEX OF SHEETS

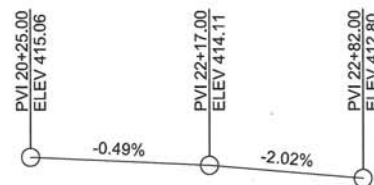
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10	GENERAL PLAN AND ELEVATION
11	GENERAL NOTES AND ESTIMATED QUANTITIES
12	BORING DATA
13	END BENT DETAILS
14	VERTICAL DRAIN AT END BENTS
15	FRAMING PLAN
16	SUPERSTRUCTURE DETAILS
17	PRESTRESSED CONCRETE BOX GIRDER DETAILS
18	PRESTRESSED CONCRETE BOX GIRDER DETAILS
19	THREE BEAM DETAILS
20	THREE BEAM DETAILS
21	BRIDGE APPROACH SLAB
22	BILL OF REINFORCING-END BENTS
23	BILL OF REINFORCING-SLAB AND SUMMARY OF REINFORCING STEEL
24	AS-BUILT PILE DATA

* INDICATES APPROXIMATE LOCATIONS OF BORINGS

NOTICE & DISCLAIMER REGARDING BORING LOG DATA

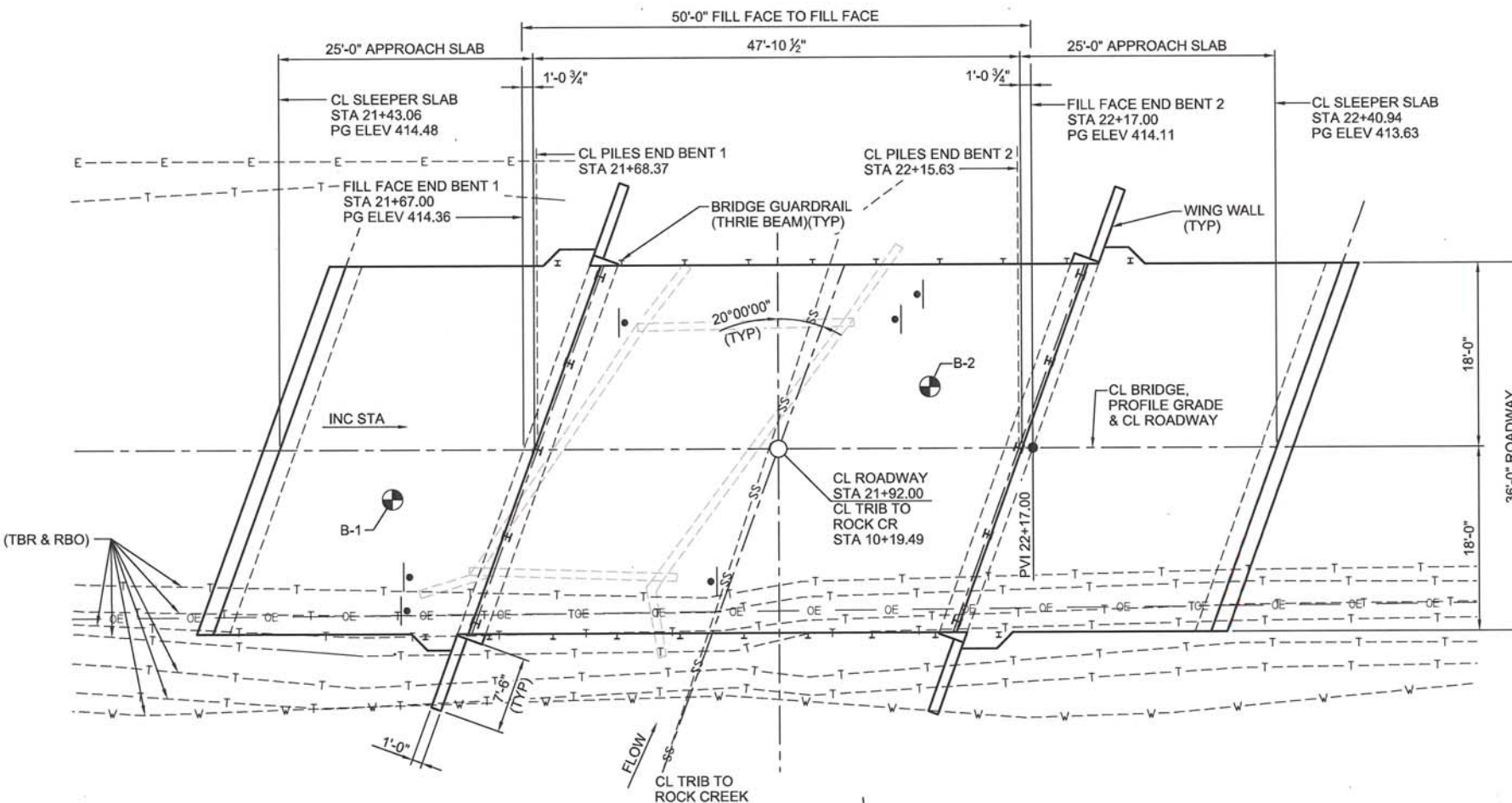
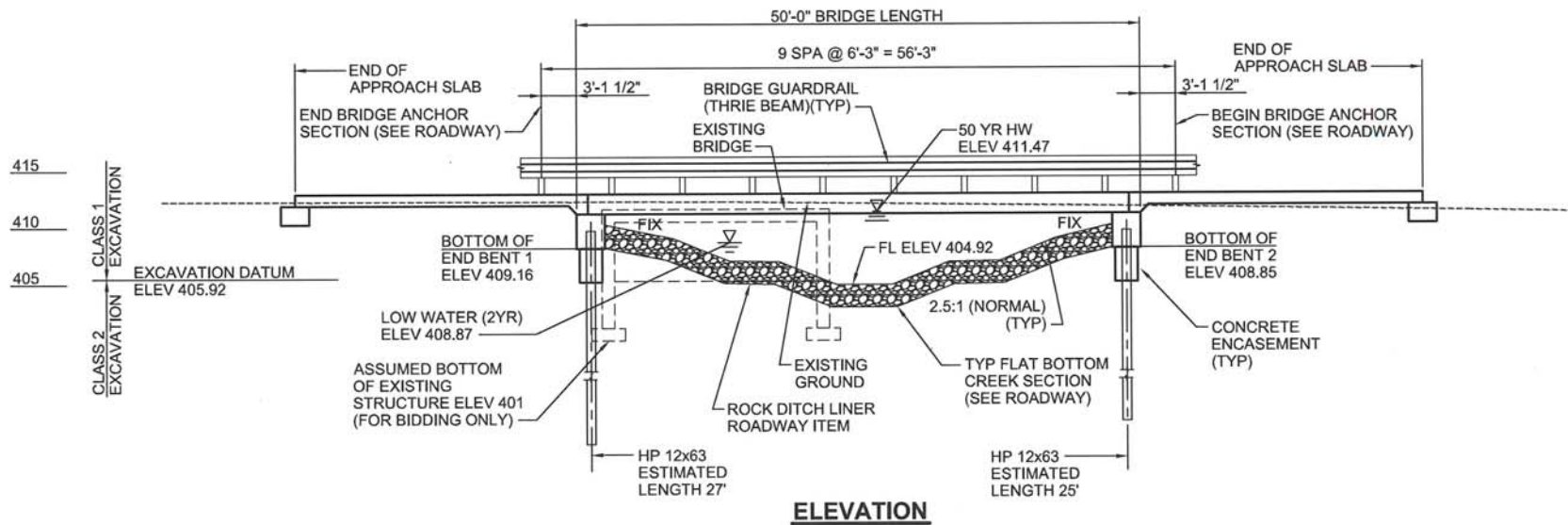
THE LOCATIONS OF ALL SUBSURFACE BORINGS FOR THIS STRUCTURE ARE SHOWN ON THIS SHEET. BORING DATA FOR THE NUMBERED LOCATIONS IS SHOWN ON THE BORING DATA SHEET. THE BORING DATA FOR ALL LOCATIONS INDICATED, AS WELL AS ANY OTHER BORING LOGS OR OTHER FACTUAL RECORDS OF SUBSURFACE DATA AND INVESTIGATIONS PERFORMED BY THE COUNTY FOR THE DESIGN OF THE PROJECT, IS AVAILABLE FROM THE PROJECT CONTACT UPON WRITTEN REQUEST. NO GREATER SIGNIFICANCE OR WEIGHT SHOULD BE GIVEN TO THE BORING DATA DEPICTED ON THE PLAN SHEETS THAN IS SUBSURFACE DATA AVAILABLE FROM THE COUNTY OR ELSEWHERE.

THE COUNTY DOES NOT REPRESENT OR WARRANT THAT ANY SUCH BORING DATA ACCURATELY DEPICTS THE CONDITIONS TO BE ENCOUNTERED IN CONSTRUCTING THIS PROJECT. A CONTRACTOR ASSUMES ALL RISKS IT MAY ENCOUNTER IN BASING ITS BID PRICES, TIME OR SCHEDULE OF PERFORMANCE ON THE BORING DATA DEPICTED HERE OR THOSE AVAILABLE FROM THE COUNTY, OR ON ANY OTHER DOCUMENTATION NOT EXPRESSLY WARRANTED, WHICH THE CONTRACTOR MAY OBTAIN FROM THE COUNTY.



ROADWAY PROFILE

47' SIMPLE SPAN PRESTRESSED CONCRETE BOX GIRDER



PLAN



NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS

BRIDGE NUMBER
11900021

no.	date	by	ckd	description
0	8/6/14	RL	RB	ISSUE FOR CONSTRUCTION

KEVIN P. HEFFERN, P.E.
PROFESSIONAL ENGINEER
No. PE-2007002795

Burns & McDonnell
SINCE 1898

Burns & McDonnell
Professional Engineering
Corporation
MO Certificate of
Authority # 000165

date
JANUARY 2012
designed
K. HEFFERN

detailed
D. MICKE
checked
R. BERNHARDT



OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
GENERAL PLAN & ELEVATION

project
60165
drawing
10
sheet 10 of 10 sheets
file 60165_10_GPE.DWG

contract
STP-5403(630)
rev.
0

GENERAL NOTES

CONSTRUCTION SPECIFICATIONS:
2011 MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY
CONSTRUCTION AND SUPPLEMENTAL SPECIFICATIONS.

DESIGN SPECIFICATIONS:
AASHTO LRFD 2010
SEISMIC PERFORMANCE ZONE 2
DESIGN SPECTRAL ACCELERATION @ 1.0 SEC (SD1) = 0.245
DESIGN SPECTRAL ACCELERATION @ 0.2 SEC (SDS) = 0.553
SOIL SITE CLASS = D

DESIGN LOADING:
LIVE LOAD: HL-93
FUTURE WEARING SURFACE: 35 PSF
EARTH: 120 PCF
EQUIVALENT FLUID PRESSURE: 49 PCF
SUPERSTRUCTURE: SIMPLY-SUPPORTED

DESIGN UNIT STRESSES:
CLASS B CONCRETE (SUBSTRUCTURE): $f_c = 3,000$ PSI
CLASS B-2 CONCRETE (OVERLAY): $f_c = 5,000$ PSI
REINFORCING STEEL (GRADE 60): $f_y = 60,000$ PSI
STEEL PILE (ASTM A709 GRADE 36): $f_y = 36,000$
FOR PRESTRESSED CONCRETE BOX GIRDER STRESSES SEE SHEET 17 & 18

NEOPRENE PADS:
PLAIN PADS SHALL BE OF 70 DUROMETER NEOPRENE AND SHALL BE IN
ACCORDANCE WITH SEC 716 (SEE THRIE BEAM DETAILS SHEET).

FABRIC BEARING PADS:
FABRIC BEARING PADS FOR GIRDERS SHALL BE IN ACCORDANCE WITH
JOB SPECIAL PROVISIONS.

JOINT FILLER:
ALL JOINT FILLER SHALL BE IN ACCORDANCE w/
SEC 1057 FOR PREFORMED SPONGE RUBBER
EXPANSION AND PARTITION JOINT FILLER,
EXCEPT AS NOTED.

REINFORCING STEEL:
MINIMUM CLEARANCE TO REINFORCING STEEL
1 1/2" UNLESS OTHERWISE SHOWN.

MISCELLANEOUS:
THESE DRAWINGS ARE NOT TO SCALE. FOLLOW
DIMENSIONS.
*SEC REFERS TO THE SECTIONS IN THE STANDARD
SPECIFICATIONS UNLESS SPECIFIED OTHERWISE.

HYDROLOGIC DATA

DRAINAGE AREA	0.95 SQ. MILES
DESIGN FREQUENCY	50 YEAR
DESIGN DISCHARGE	1300 CFS
MAXIMUM BACKWATER FOR DESIGN FREQUENCY	0.41 FT
DESIGN H.W. ELEVATION AT THE STRUCTURE	411.47
LOW ELEVATION OF SUPERSTRUCTURE	411.43
100-YEAR DISCHARGE	1600 CFS
100-YEAR HIGH WATER ELEV AT STRUCTURE	411.85
APPROACH ROADWAY OVERTOPPING FREQUENCY	LESS THAN 2 YEAR

FOUNDATION DATA

BENT NO.	1	2
PILE TYPE AND SIZE	HP12x63	HP12x63
NUMBER	5	5
APPROXIMATE LENGTH	27	25
PILE DRIVING VERIFICATION METHOD	GATES	GATES
MINIMUM NOMINAL AXIAL COMPRESSIVE RESISTANCE	456	456
MINIMUM TIP PENETRATION	384	386
CRITERIA FOR MINIMUM TIP PENETRATION	REFUSAL	REFUSAL
HAMMER ENERGY REQUIRED	14,600	14,600

MINIMUM NOMINAL AXIAL COMPRESSIVE RESISTANCE = MAXIMUM FACTORED LOADS/RESISTANCE FACTOR
MANUFACTURED PILE POINT REINFORCEMENT SHALL BE USED ON ALL PILES IN THIS STRUCTURE.

ESTIMATED QUANTITIES

ITEM NUMBER	ITEM	SUBSTR.	SUPERSTR.	TOTAL
206-10.00	CLASS 1 EXCAVATION	CU. YARD	70	70
216-05.00	REMOVAL OF BRIDGES (1190002) *	LUMP SUM	-	1
503-10.10A	BRIDGE APPROACH SLAB (BRIDGE)	SQ. YARD	203	203
702-10.12	STRUCTURAL STEEL PILES (12 IN.)	LINEAR FOOT	260	260
702-70.00	PILE POINT REINFORCEMENT	EACH	10	10
703-20.03	CLASS B CONCRETE (SUBSTRUCTURE)	CU. YARD	25.6	25.6
703-42.26	REINFORCED CONCRETE SLAB OVERLAY	SQ. YARD	192	192
705-99.02	PRESTRESSED CONCRETE BOX GIRDER, (47 FT SPAN)*	EACH	9	9
706-10.60	REINFORCING STEEL (BRIDGES) (100% TIED) *	POUND	4,460	4,460
710-10.00	REINFORCING STEEL (EPOXY COATED) (100% TIED)*	POUND	560	560
711-99.05	CONCRETE SEALANT *	SQ. YARD	29	29
713-40.00	BRIDGE GUARD RAIL (THRIE BEAM)	LINEAR FOOT	113	113
715-10.01	VERTICAL DRAINS AT END BENTS	EACH	2	2

COST OF PILE ANCHORS C4X5.4 (ASTM A709 GRADE 36) IN PLACE TO BE INCLUDED IN
CONTRACT UNIT PRICE FOR STRUCTURAL STEEL PILES (12 IN.).

*SEE JOB SPECIAL PROVISIONS.

ESTIMATED QUANTITIES FOR
REINFORCED CONCRETE SLAB OVERLAY

ITEM	TOTAL
CLASS B-2 CONCRETE	29.5
REINFORCING STEEL	0
REINFORCING STEEL (EPOXY COATED)	2560

THE TABLE OF ESTIMATED QUANTITIES FOR THE REINFORCED CONCRETE SLAB
OVERLAY REPRESENTS THE QUANTITIES USED IN PREPARING THE COST
ESTIMATE FOR CONCRETE SLABS. THE AREA OF THE CONCRETE SLAB WILL BE
MEASURED TO THE NEAREST SQUARE YARD WITH THE HORIZONTAL
DIMENSIONS AS SHOWN ON THE PLAN OF THE SLAB. PAYMENT FOR THE
CONVENTIONAL FORMS, ALL CONCRETE AND COATED AND UNCOATED
REINFORCING STEEL WILL BE CONSIDERED COMPLETELY COVERED BY THE
CONTRACT SQUARE YARD UNIT PRICE FOR THE SLAB. VARIATIONS MAY BE
ENCOUNTERED IN THE ESTIMATED QUANTITIES BUT THE VARIATIONS CANNOT
BE USED FOR AN ADJUSTMENT IN THE CONTRACT UNIT PRICE.

METHOD OF FORMING THE SLAB SHALL BE AS SHOWN ON THE PLANS AND IN
ACCORDANCE w/ SEC 703. ALL HARDWARE FOR FORMING THE SLAB TO BE
LEFT IN PLACE AS A PERMANENT PART OF THE STRUCTURE SHALL BE
COATED IN ACCORDANCE w/ ASTM A123 OR ASTM B633 w/ A THICKNESS
CLASS SC 4 AND A FINISH TYPE I, II OR III.

ABBREVIATIONS
(USED IN PLANS)

ABOUT
BASELINE
BEARING
CENTERLINE
CENTERS
CLEAR
CONSTRUCTION
CORRUGATED METAL PIPE
DIAMETER
EACH FACE
ELEVATION
FLOW LINE
HIGH STRENGTH
INCREASING
NUMBER
OPENING
PLATE
POINT OF VERTICAL INTERCEPTION
POLYVINYL CHLORIDE
PROFILE GRADE
RADIUS
ROADWAY
SPACE OR SPACES
STATION
SYMMETRICAL
TO BE REMOVED AND REPLACED BY OTHERS
TRIBUTARY
TYPICAL

ABT
BL
BRG
CL
CTS
CLR
CONST
CMP
DIA
EF
EL OR ELEV
FL
HS
INC
NO
OPNG
PL
PVI
PVC
PG
R
RDWY
SPA
STA
SYMM
TBR & RBO
TRIB
TYP

no.	date	by	ckd	description
0	8/6/14	KH	RB	ISSUE FOR CONSTRUCTION

STATE OF MISSOURI
KEVIN P. HEFFERN
PE 2007002795
8/7/14

KEVIN P. HEFFERN, P.E.
PROFESSIONAL ENGINEER
No. PE-2007002795



Burns & McDonnell
Professional Engineering
Corporation
MO Certificate of
Authority # 000165

date	MAY 2014	detailed	K. HEFFERN
designed	K. HEFFERN	checked	R. BERNHARDT



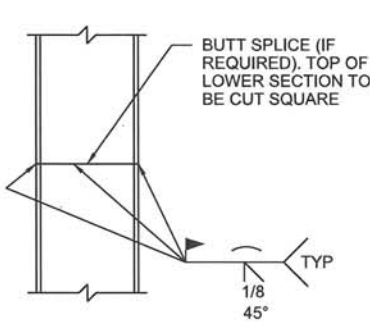
OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
GENERAL NOTES AND
ESTIMATED QUANTITIES

project	60165	contract	STP-5403(630)
drawing	11	rev.	0
sheet	11	of	31
file			

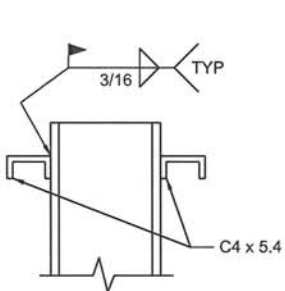
BRIDGE NUMBER
11900021

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS

STEEL PILE SPLICE DETAIL

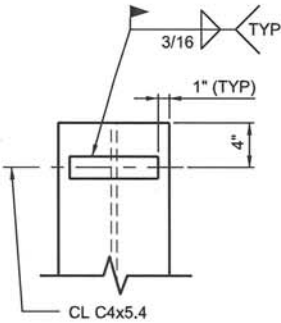


FRONT
ELEVATION



DETAILS OF
PILE ANCHORS

SIDE
ELEVATION



HOLCOMB FOUNDATION ENGINEERING INC.

P.O. Box 88

618-529-5262

Carbondale, IL 62903

618-457-8991 fax

Page 1 of 1

Bridge Foundation Boring Log

Project: H-11028 Bridge Old Antonio Rd Date: 4/21/2011

Section: Station Bored by: D. Russell

Structure: Checked By: T. Holcomb

County: Jefferson

Boring No: 1
 Station:
 Offset:

Surface Water Elev. _____
 Ground Water Elev. 405.78
 During Drilling
 Upon Completion plugged

Ground Surface 412.78 0
 6" Bituminous Concrete over
 4" Crushed Stone

Gray Silty CLAY (A-6) with
 gravel

388.78
 Gravel (A-2-4)

386.28
 Gray Weathered LIMESTONE

406.28
 Gray Silty CLAY (A-6)

403.78
 Gravel (A-2-4)

401.28
 Gray Silty CLAY (A-6) with
 gravel

396.28
 Gray CLAY (A-7-6)

372.78 -40
 End of Boring @ -40.0'

Recovery=100%
 RQD=90%

Recovery=100%
 RQD=81%

Recovery=100%
 RQD=71%

Recovery=100%
 RQD=68%

Recovery=100%
 RQD=71%

Recovery=100%
 RQD=68%

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Recovery=100%
 RQD=68%

HOLCOMB FOUNDATION ENGINEERING INC.

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Carbondale, IL 62903

618-457-8991 fax

Page 1 of 1

Bridge Foundation Boring Log

Project: H-11028 Bridge Old Antonio Rd Date: 4/21/2011

Section: Station Bored by: D. Russell

Structure: Checked By: T. Holcomb

County: Jefferson

Boring No: 2
 Station:
 Offset:

Surface Water Elev. _____
 Ground Water Elev. 405.36
 During Drilling
 Upon Completion plugged

Ground Surface 412.36 0
 6" Bituminous Concrete over
 4" Crushed Stone

388.36
 Brown Mottled Gray Silty
 CLAY (A-6) with gravel

408.36
 Brown Mottled Gray Silty
 CLAY (A-6)

405.86
 Gray Mottled Brown Silty
 CLAY (A-6) with gravel

400.86
 Gray Silty CLAY (A-6)

374.36
 End of Boring @ -38.0'

Recovery=100%
 RQD=71%

Recovery=100%
 RQD=68%

Recovery=100%
 RQD=68%

Recovery=100%
 RQD=68%

Recovery=100%
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Recovery=100%
 RQD=68%

Recovery=100%
 RQD=68%

Recovery=100%
 RQD=68%

N = Standard Penetration Test
 Blows per foot to drive 2" O.D.
 Split Spoon Sampler 12" with
 a 140 lbs. hammer falling 30"

Qu-Unconfined Compressive
 Strength in tons/sq.ft.
 w-Water Content-percentage
 of oven dry weight-%

B = Bulge Failure
 S = Shear Failure
 E = Estimated Value
 P = Penetrometer

N = Standard Penetration Test
 Blows per foot to drive 2" O.D.
 Split Spoon Sampler 12" with
 a 140 lbs. hammer falling 30"

Qu-Unconfined Compressive
 Strength in tons/sq.ft.
 w-Water Content-percentage
 of oven dry weight-%

B = Bulge Failure
 S = Shear Failure
 E = Estimated Value
 P = Penetrometer

no. date by ckd description
 0 8/6/14 KH RB ISSUE FOR
 CONSTRUCTION

STATE OF MISSOURI
 KEVIN P. HEFFERN
 PROFESSIONAL ENGINEER
 No. PE-2007002795
 8/7/14



Burns & McDonnell
 Professional Engineering
 Corporation
 MO Certificate of
 Authority # 000165

date MAY 2014 detailed K. HEFFERN
 designed K. HEFFERN checked R. BERNHARDT

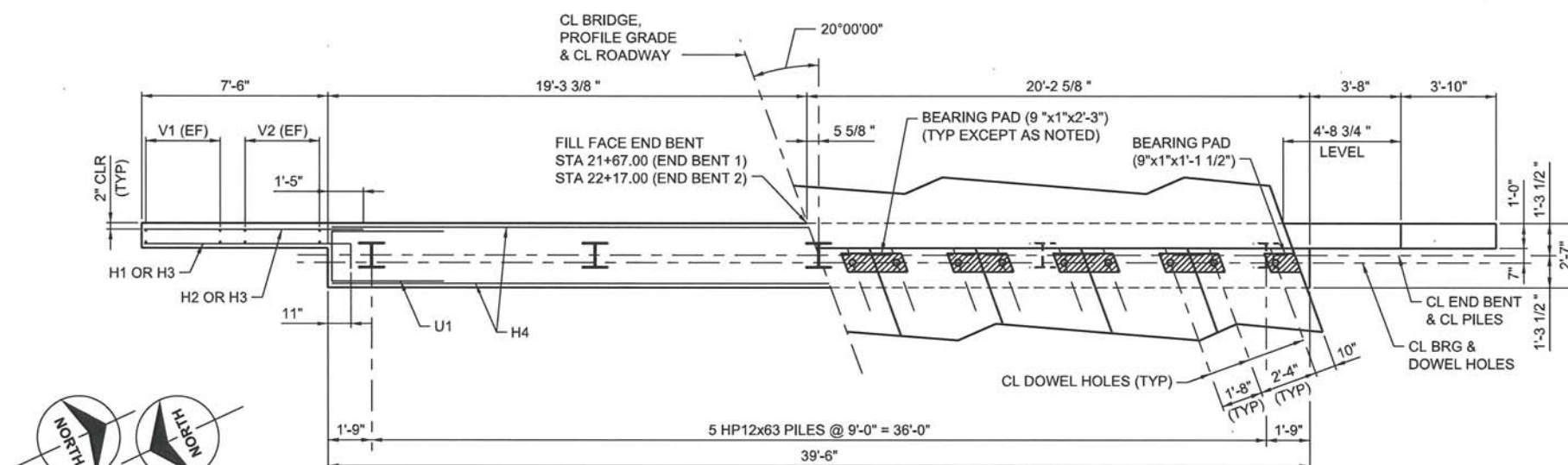


OLD ANTONIA ROAD
 BRIDGE OVER TRIBUTARY TO ROCK CREEK
 BORING DATA

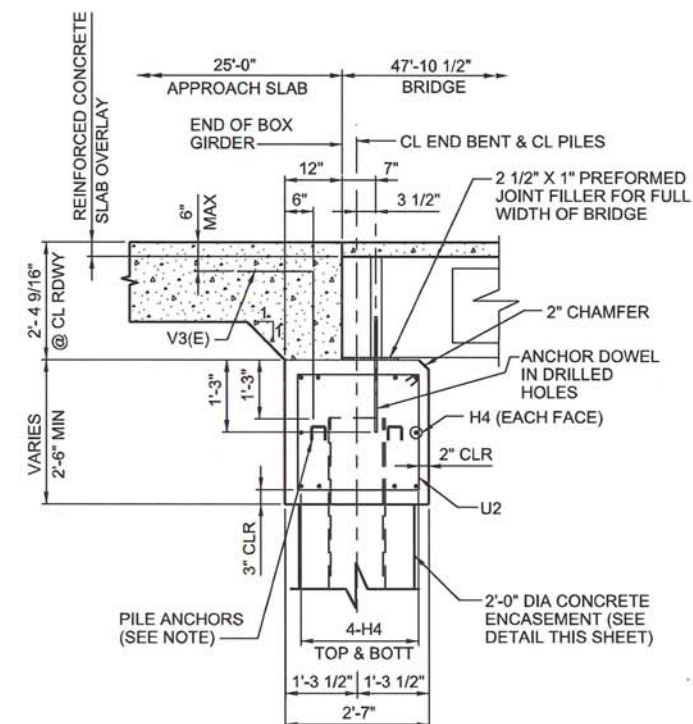
project 60165 contract STP-5403(630)
 drawing 12 - 0
 sheet 12 of 31 sheets
 file

BRIDGE NUMBER
 11900021

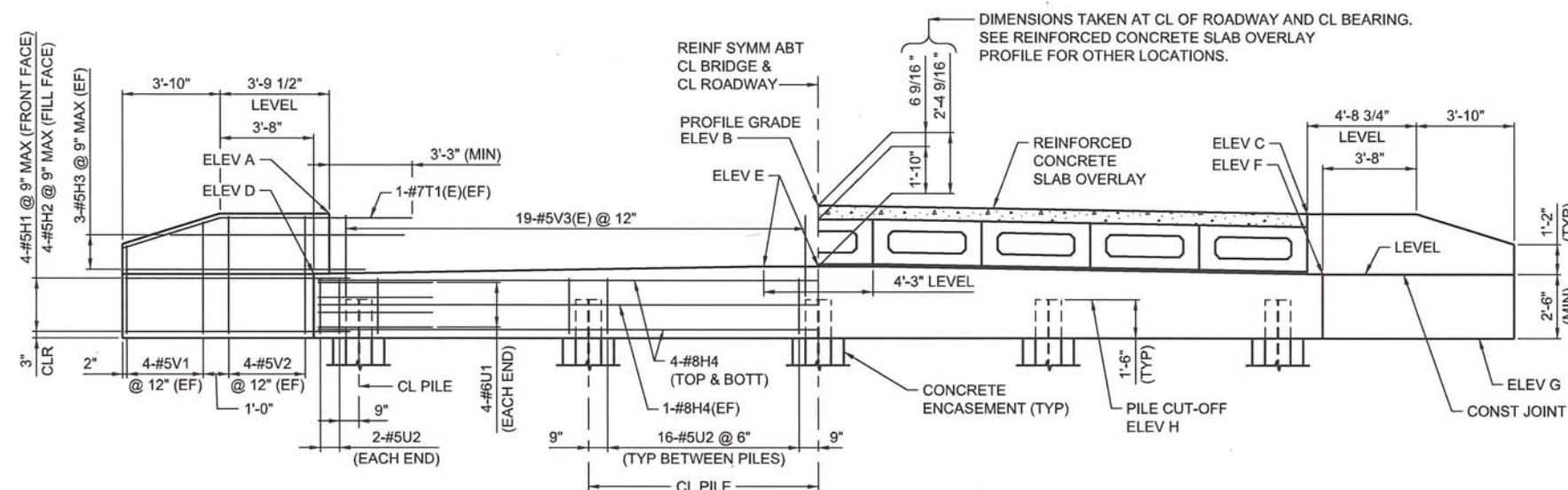
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS



PLAN



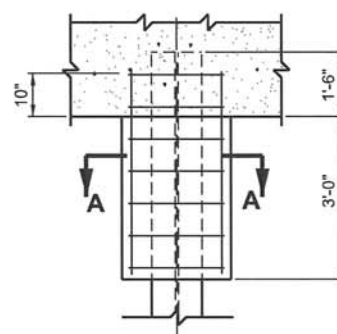
SECTION THRU END BENT
(AT RIGHT ANGLES)



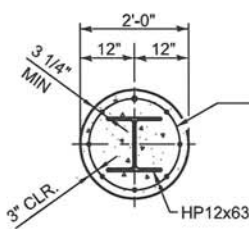
ELEVATION

NOTE:
LOOKING BACK STATION AT END BENT 1
LOOKING AHEAD STATION AT END BENT 2

DIMENSIONS ARE TAKEN ALONG FILL FACE OF END BENT UNLESS NOTED OTHERWISE.



TYPICAL HP PILE ENCASEMENT



SECTION A-A

WELDED WIRE FABRIC
6x6-W4,0xW4,0
WEIGHING 58#/100 SQ. FT.
THE COST OF EXCAVATION,
CONCRETE ENCASMENT
AND REINFORCEMENT SHALL
BE INCLUDED WITH STRUCTURAL
STEEL PILES (12 IN.). FORM FOR
ENCASMENT MAY BE OMITTED
WHEN SOIL CONDITIONS WILL
PERMIT.

NOTES:

AFTER GIRDERS HAVE BEEN ERECTED, HOLES SHALL BE DRILLED INTO SUBSTRUCTURE AND ANCHOR DOWELS PLACED. SPACE END BENT REINFORCEMENT TO AVOID DRILLED HOLE LOCATIONS. DOWEL HOLES SHALL BE FILLED WITH NON-SHRINK GROUT TO TOP OF GIRDER AND ALLOWED TO CURE MIN 24 HOURS PRIOR TO GROUTING THE SHEAR KEYS.

ALL V-BARS OR U-BARS IN THE SUBSTRUCTURE BEAM SHALL BE ADJUSTED TO CLEAR PILES BY AT LEAST 1 1/2".

THE APPROACH SLAB AND THE PORTION OF THE WING WALLS ABOVE THE CONSTRUCTION JOINT SHALL BE CAST AGAINST THE IN-PLACE GIRDER.

REINFORCEMENT BARS SHALL CONFORM TO AASHTO M-31, M-42 OR M-53, GRADE 60.

REFER TO GENERAL NOTES SHEET FOR PILE ANCHOR DETAIL AND STEEL
PILE SPLICE DETAIL.

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS

TABLE OF ELEVATIONS			
ELEV	END BENT 1	END BENT 2	NOTES
A	414.02	413.65	CL BRG
B	414.35	414.12	CL BRG
C	413.96	413.79	CL BRG
D	411.68	411.35	CL BRG
E	411.97	411.74	CL BRG
F	411.66	411.45	CL BRG
G	409.16	408.85	CL PILES
H	410.66	410.35	CL PILES

* TOP OF REINFORCED CONCRETE SLAB OVERLAY

SUBSTRUCTURE QUANTITIES TABLE FOR END BENTS			
ITEM		END BENT 1	END BENT 2
CLASS 1 EXCAVATION	CU. YD.	35	35
STRUCTURAL STEEL PILES (12 IN.)	FT.	135	125
PILE POINT REINFORCEMENT	EACH	5	5
CLASS B CONCRETE (SUBSTRUCTURE)	CU. YD.	12.7	12.9
REINFORCING STEEL	LBS.	2230	2230
REINFORCING STEEL (EPOXY COATED)	LBS.	310	250
VERTICAL DRAINS AT END BENTS	EACH	1	1

NOTE: THESE QUANTITIES ARE INCLUDED IN THE ESTIMATED QUANTITIES TABLE ON THE GENERAL NOTES AND QUANTITIES SHEET.



KEVIN P. HEFFERN, P.E.
PROFESSIONAL ENGINEER
No. PE-2007002795



Burns & McDonnell
Professional Engineering
Corporation
MO Certificate of
Authority # 000165

date	MAY 2014
designed	K. HEFFERN

detailed	K. HEFFERN
checked	R. BERNHARDT



OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
END BENT DETAILS

project	contract
60165	STP-5403(630)

drawing 13 - rev. 0

sheet	13	of	31	sheet
file				

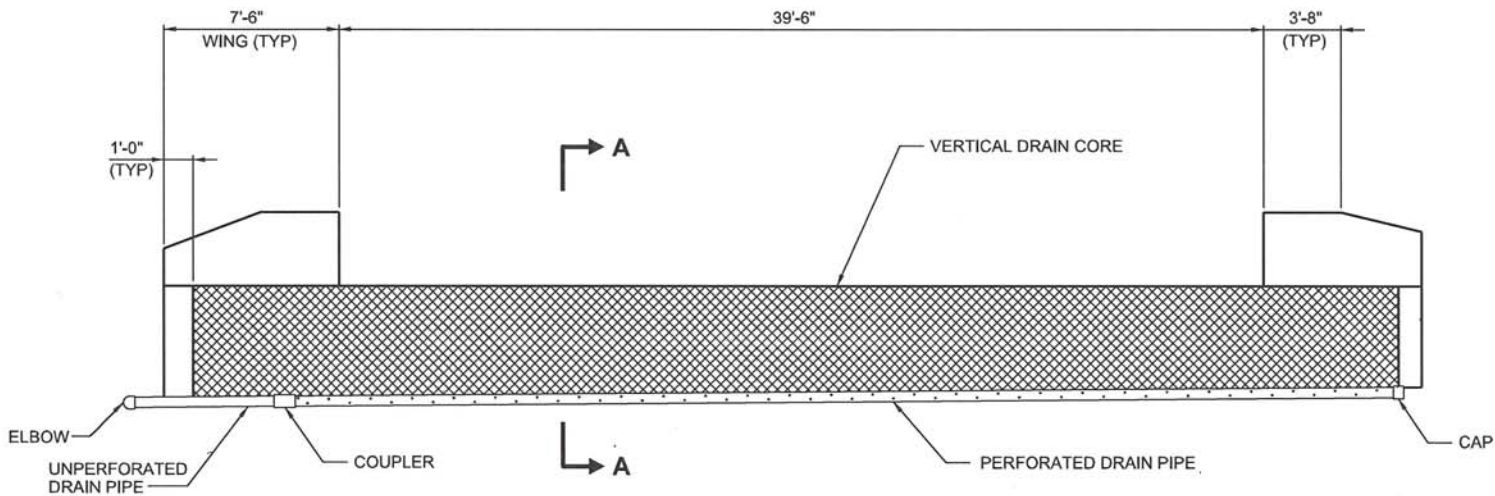
BRIDGE NUMBER
11900021

no.	date	by	ckd	description
0	8/6/14	KH	RB	ISSUE FOR CONSTRUCTION

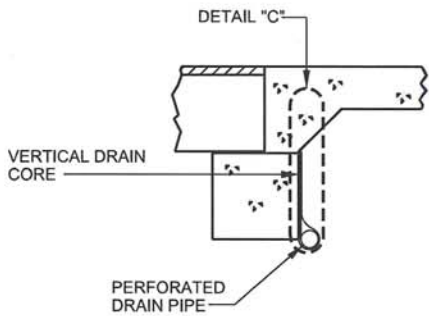
GENERAL NOTES:
 DRAIN PIPE MAY BE EITHER 6" DIAMETER CORRUGATED METALLIC-COATED STEEL PIPE UNDERDRAIN, 4" DIAMETER CORRUGATED POLYVINYL CHLORIDE (PVC) DRAIN PIPE, OR 4" DIAMETER CORRUGATED POLYETHYLENE (PE) DRAIN PIPE.
 PLACE DRAIN PIPE AT FILL FACE OF END BENT AND SLOPE TO LOWEST GRADE OF GROUND LINE, ALSO LOWER THAN THE LOWER BEAM OF END BENT BY 1-1/2". (SEE ELEVATION AT END BENT.)

DRAIN PIPE OUTFALL AT END BENT 1 SHALL BE AT NORTH END OF BENT. EITHER END OF END BENT 2 SHALL BE PERMISSIBLE FOR OUTFALL LOCATION.

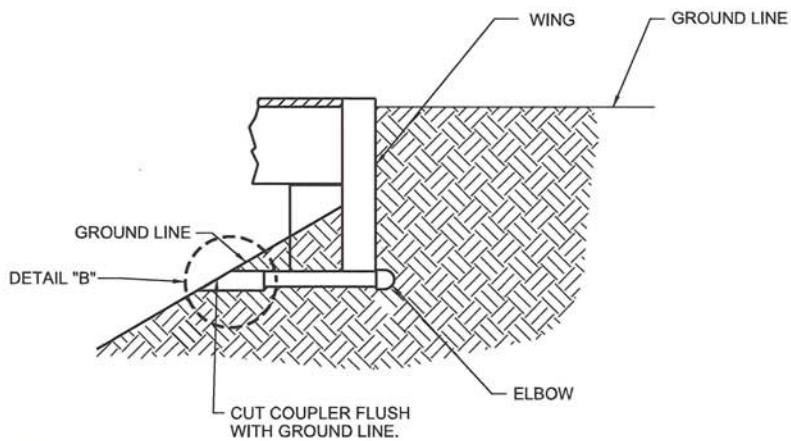
PERFORATED PIPE SHALL BE PLACED AT FILL FACE SIDE AT THE BOTTOM OF END BENT AND PLAIN PIPE SHALL BE USED WHERE THE VERTICAL DRAIN ENDS TO THE EXIT AT GROUND LINE.



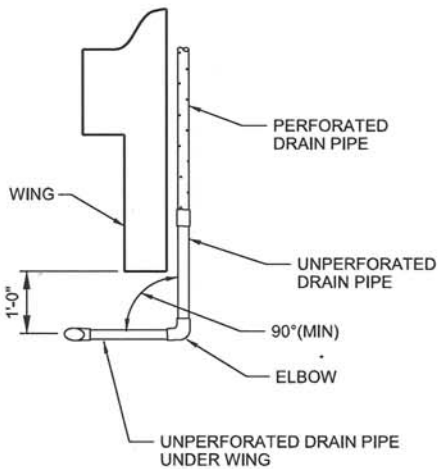
ELEVATION AT END BENT



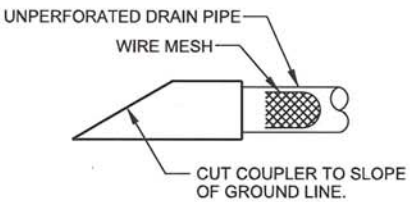
SECTION A-A



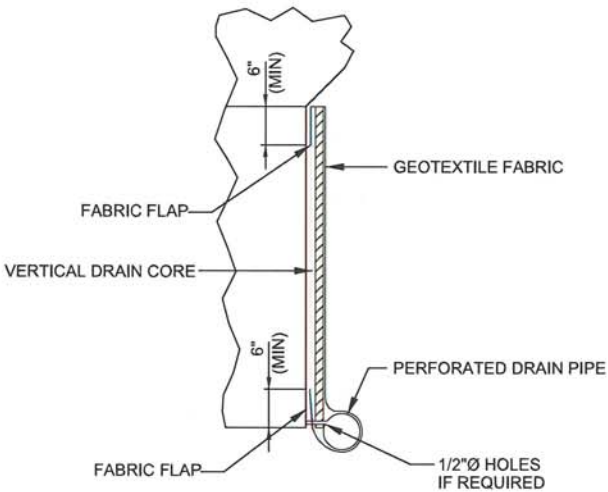
END VIEW AT END BENT



PART PLAN



DETAIL "B"



DETAIL "C"

STATE OF MISSOURI
 KEVIN P. HEFFERN
 PROFESSIONAL ENGINEER
 No. PE-2007002795
 8/7/14

Burns & McDonnell
 Professional Engineering Corporation
 MO Certificate of Authority # 000165

date MAY 2014	detailed K. HEFFERN
designed K. HEFFERN	checked R. BERNHARDT



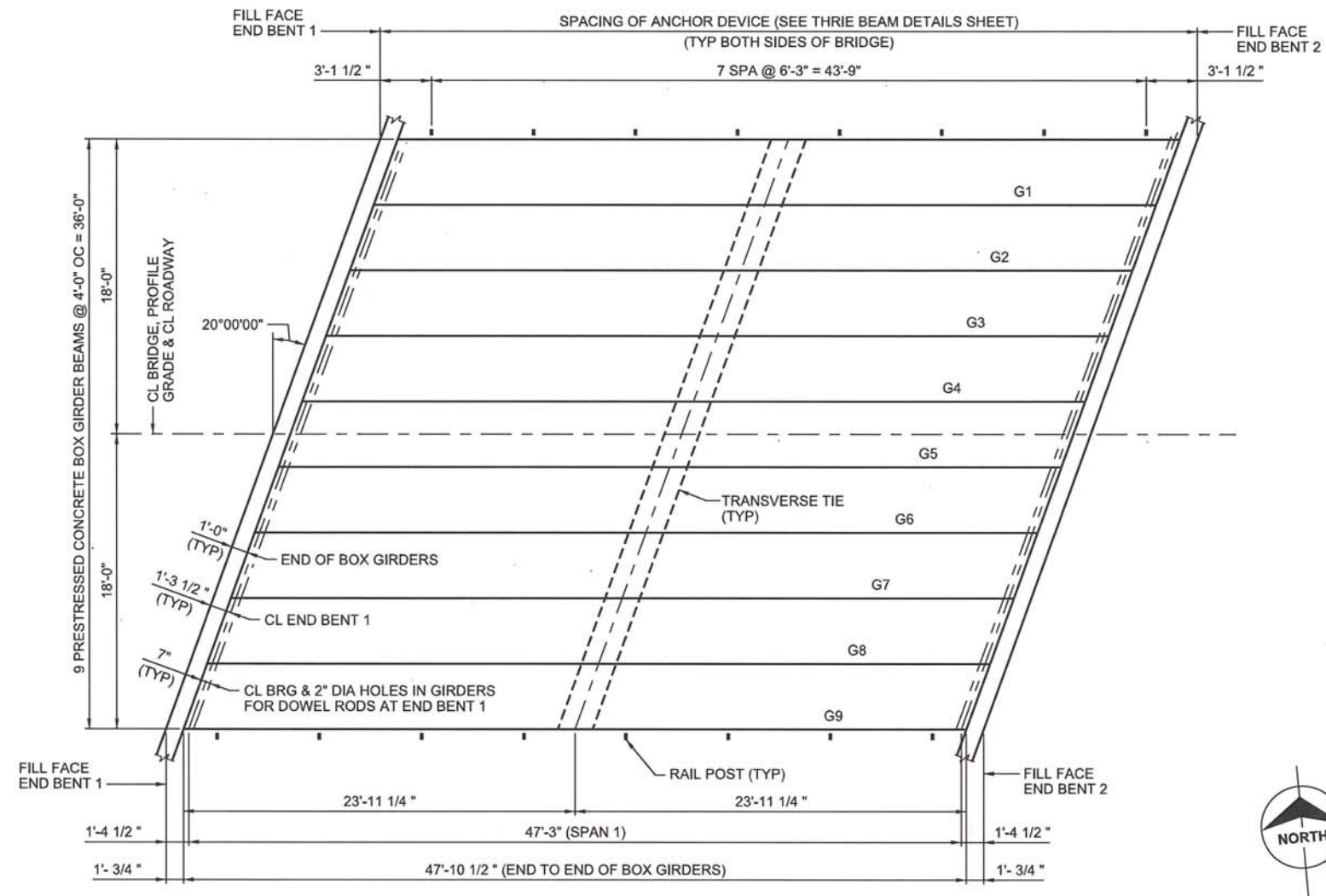
OLD ANTONIA ROAD
 BRIDGE OVER TRIBUTARY TO ROCK CREEK
 VERTICAL DRAIN AT END BENTS

project 60165	contract STP-5403(630)
drawing 14	rev. 0
sheet 14	of 31
file	sheets

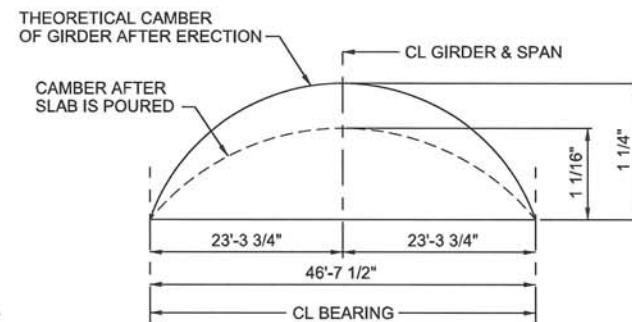
BRIDGE NUMBER
 11900021

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS

no.	date	by	ckd	description
0	8/6/14	KH	RB	ISSUE FOR CONSTRUCTION



FRAMING PLAN AND LAYOUT OF APPURTENANCES



ANTICIPATED CAMBER DIAGRAM

NOTES:
CAMBER AT THE 1/4 POINT OF BOX GIRDER IS EQUAL TO 0.7125 MULTIPLIED BY THE CAMBER AT THE CENTERLINE OF THE BOX GIRDER.

IF BOX GIRDER CAMBER IS DIFFERENT FROM THAT SHOWN IN THE CAMBER DIAGRAM IT SHALL BE NECESSARY TO ADJUST THE CONCRETE OVERLAY THICKNESS, OR RAISE THE GRADE UNIFORMLY THROUGHOUT THE STRUCTURE. NO PAYMENT WILL BE MADE FOR ADDITIONAL LABOR OR MATERIALS REQUIRED FOR VARIATION IN CONCRETE OVERLAY THICKNESS OR GRADE ADJUSTMENT.

NOTES FOR BOX GIRDER FRAMING

1. THE COMPLETED PRESTRESSED CONCRETE BOX GIRDERS SHALL BE HANDLED AND ERECTED IN A MANNER THAT WILL NOT IMPAIR THE STRENGTH OF THE BOX GIRDER.
2. WORK THIS SHEET WITH TYPICAL DECK SECTION AND PRESTRESSED CONCRETE BOX GIRDER DETAILS SHEETS.

STATE OF MISSOURI
KEVIN P. HEFFERN
PROFESSIONAL ENGINEER
PE-2007002795
8/7/14

Burns & McDonnell
Professional Engineering Corporation
MO Certificate of Authority # 000165

date MAY 2014	detailed K. HEFFERN
designed K. HEFFERN	checked R. BERNHARDT

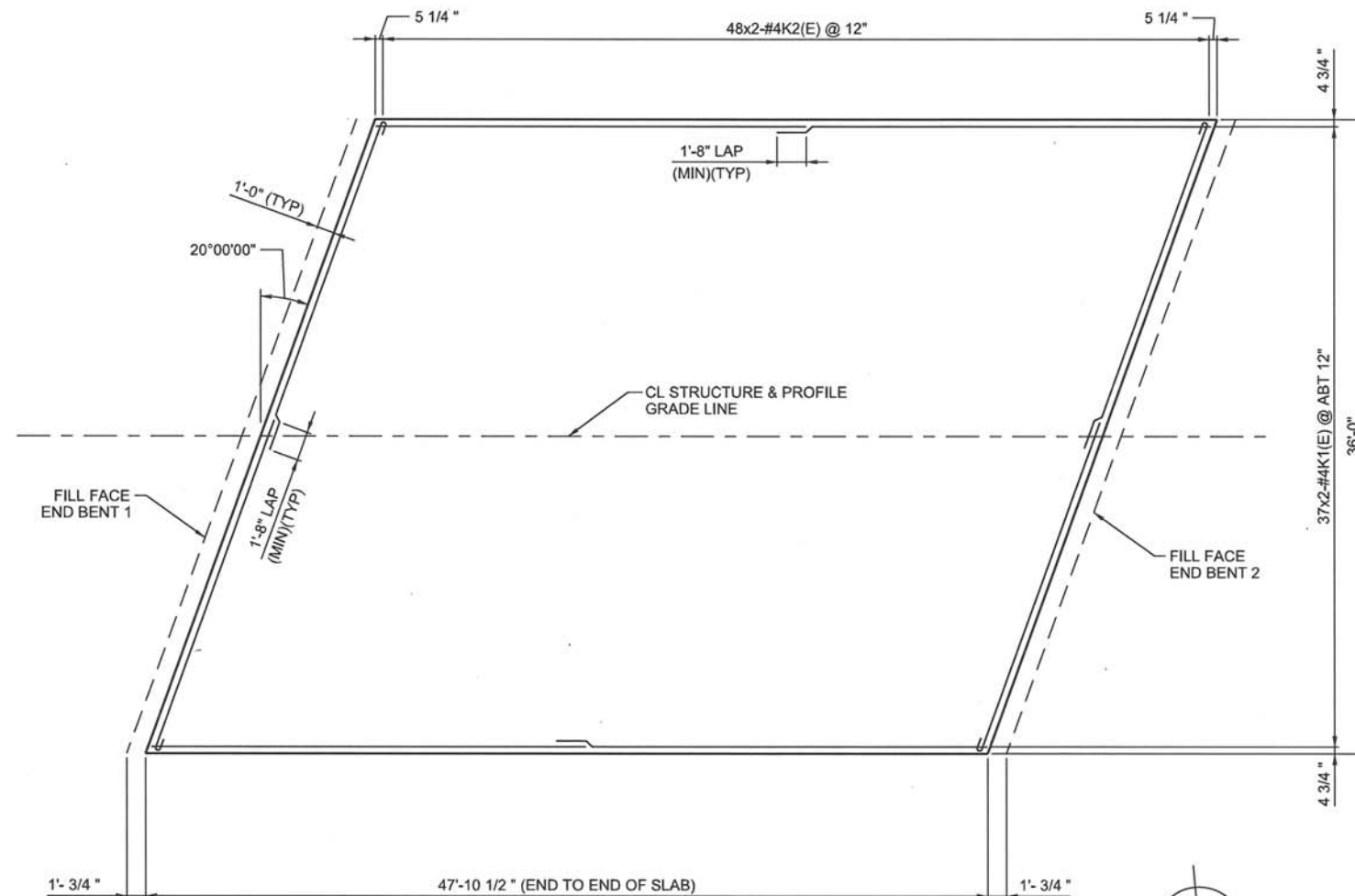


OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
FRAMING PLAN

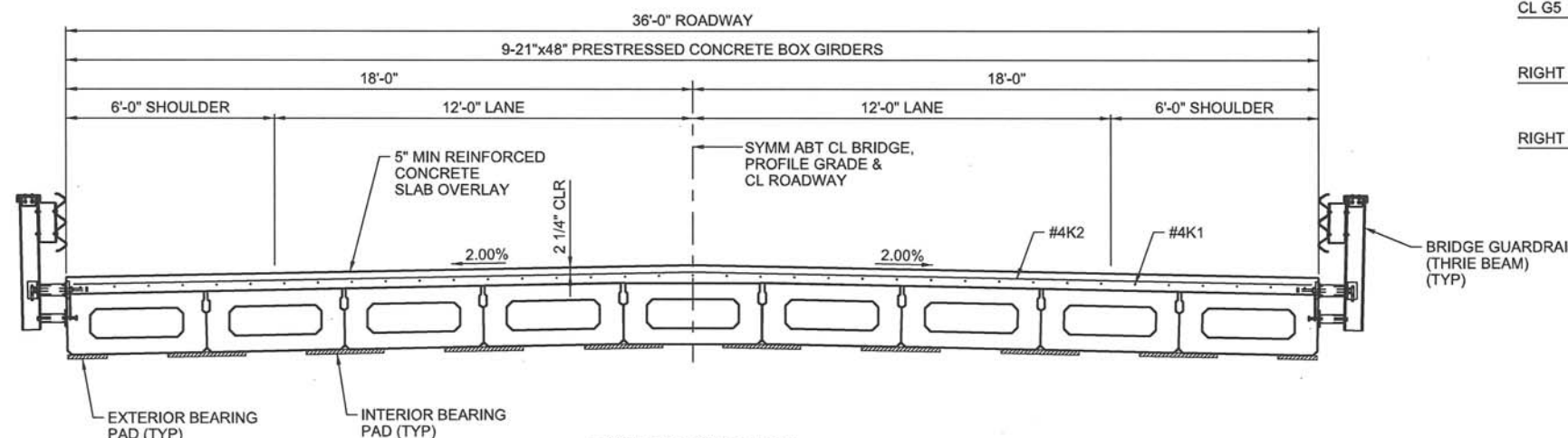
project 60165	contract STP-5403(630)
drawing 15	rev. 0
sheet 15	of 31
file	sheet

BRIDGE NUMBER
11900021

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS

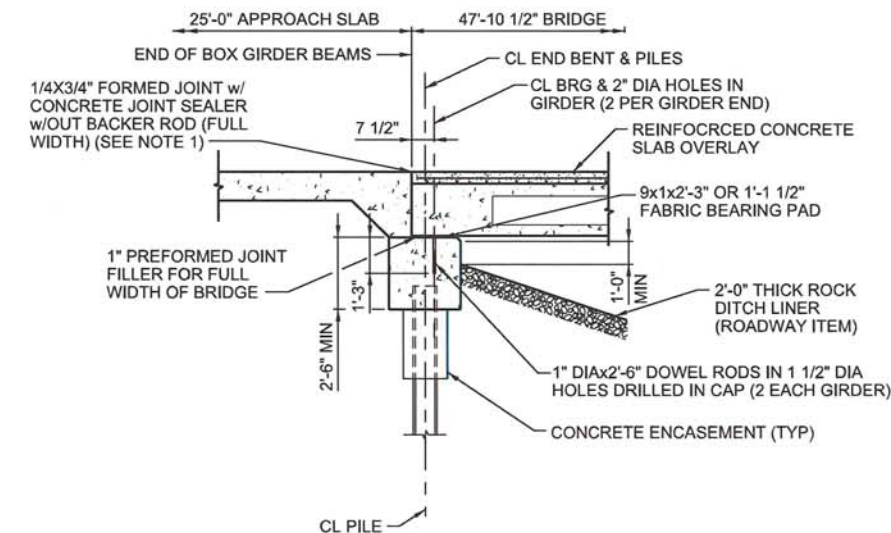


**PLAN OF SLAB
SHOWING REINFORCEMENT**
(LONGITUDINAL SLAB DIMENSIONS ARE MEASURED HORIZONTALLY)



TYPICAL SECTION

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS

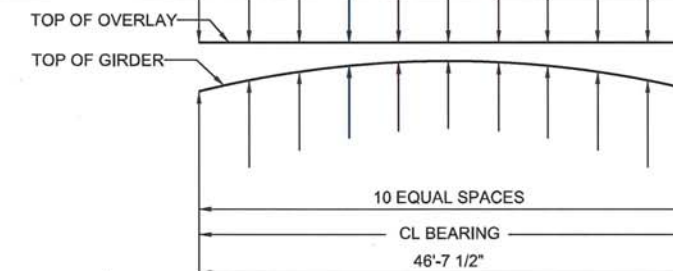


SECTION AT END BENT 1 & 2
NOTE: END BENT 2 OPPOSITE HAND
(SECTION TAKEN PARALLEL WITH GIRDERS)

NOTES:

1. CONCRETE JOINT SEALER SHALL BE INCIDENTAL TO CONCRETE WEARING SURFACE AND SHALL CONFORM TO SECTION 1057.5.
2. PREFORMED JOINT FILLER SHALL CONFORM TO SECTION 1057.6 AND SHALL BE INCIDENTAL TO "PRESTRESSED CONCRETE BOX GIRDER".
3. STEEL DOWEL RODS SHALL CONFORM TO AASHTO M31 OR M53.
4. SEE THE PRESTRESSED CONCRETE BOX GIRDER DETAILS SHEET FOR DETAILS OF 1" FABRIC BEARING PADS.
5. DOWEL RODS TO BE GROUTED AFTER GIRDERS ARE IN PLACE AND ALLOWED TO CURE (MIN. 24 HOURS) PRIOR TO GROUTING SHEAR KEYS.
6. SLAB OVERLAY SHALL NOT BE PLACED UNTIL GROUTED SHEAR KEYS HAVE CURED FOR AT LEAST 3 DAYS.
7. BARS INDICATED BY 37x2 - #4 ETC. INDICATES 37 LINES OF BARS WITH 2 LENGTHS PER LINE.
8. BRIDGE DECK SURFACE MAY BE FINISHED WITH A VIBRATORY SCREED.

LEFT EDGE OF G1	5 5/8"	5 3/8"	5 3/16"	5"	4 15/16"	5"	5 1/8"	5 3/8"	5 11/16"	6 1/16"	5 5/8"
LEFT EDGE OF G5	6 1/16"	5 3/4"	5 7/16"	5 3/16"	5 1/16"	5"	5 1/16"	5 3/16"	5 7/16"	5 3/4"	6 1/16"
CL G5	6 9/16"	6 1/4"	5 15/16"	5 11/16"	5 9/16"	5 1/2"	5 9/16"	5 11/16"	5 15/16"	6 1/4"	6 9/16"
RIGHT EDGE OF G5	6 1/16"	5 3/4"	5 7/16"	5 3/16"	5 1/16"	5"	5 1/16"	5 3/16"	5 7/16"	5 3/4"	6 1/16"
RIGHT EDGE OF G9	6 1/16"	5 3/4"	5 7/16"	5 3/16"	5 1/16"	5"	5 1/16"	5 3/16"	5 7/16"	5 3/4"	6 1/16"



**REINFORCED CONCRETE SLAB
OVERLAY PROFILE**

SEE FRAMING PLAN FOR CAMBER DETAILS.

BRIDGE NUMBER
11900021

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No. PE-2007002795
8/7/14

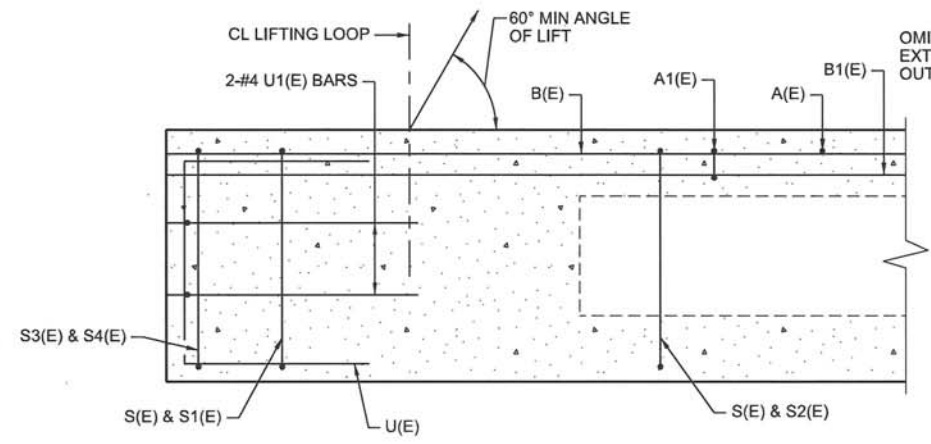
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MO Certificate of Authority # 000165

date MAY 2014	detailed K. HEFFERN
designed K. HEFFERN	checked R. BERNHARDT

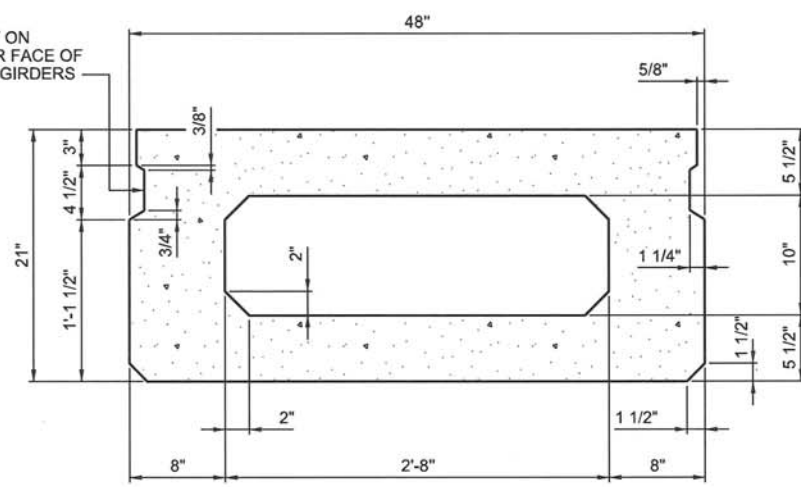


OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
SUPERSTRUCTURE DETAILS

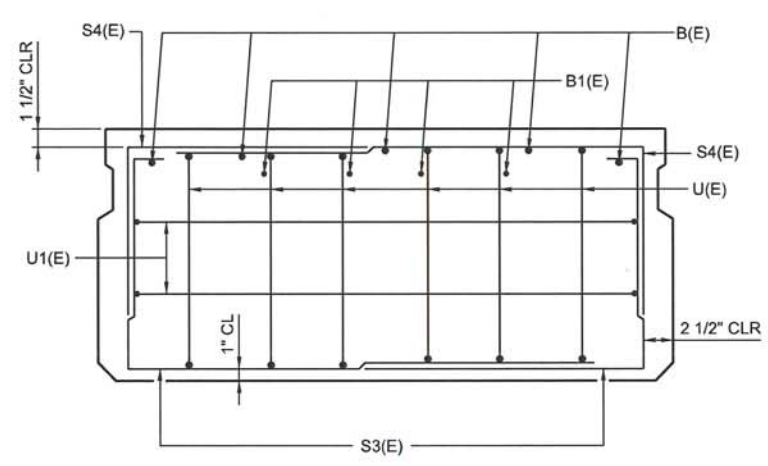
project 60165	contract STP-5403(630)
drawing 16	rev. 0
sheet 16	of 31
file	sheet



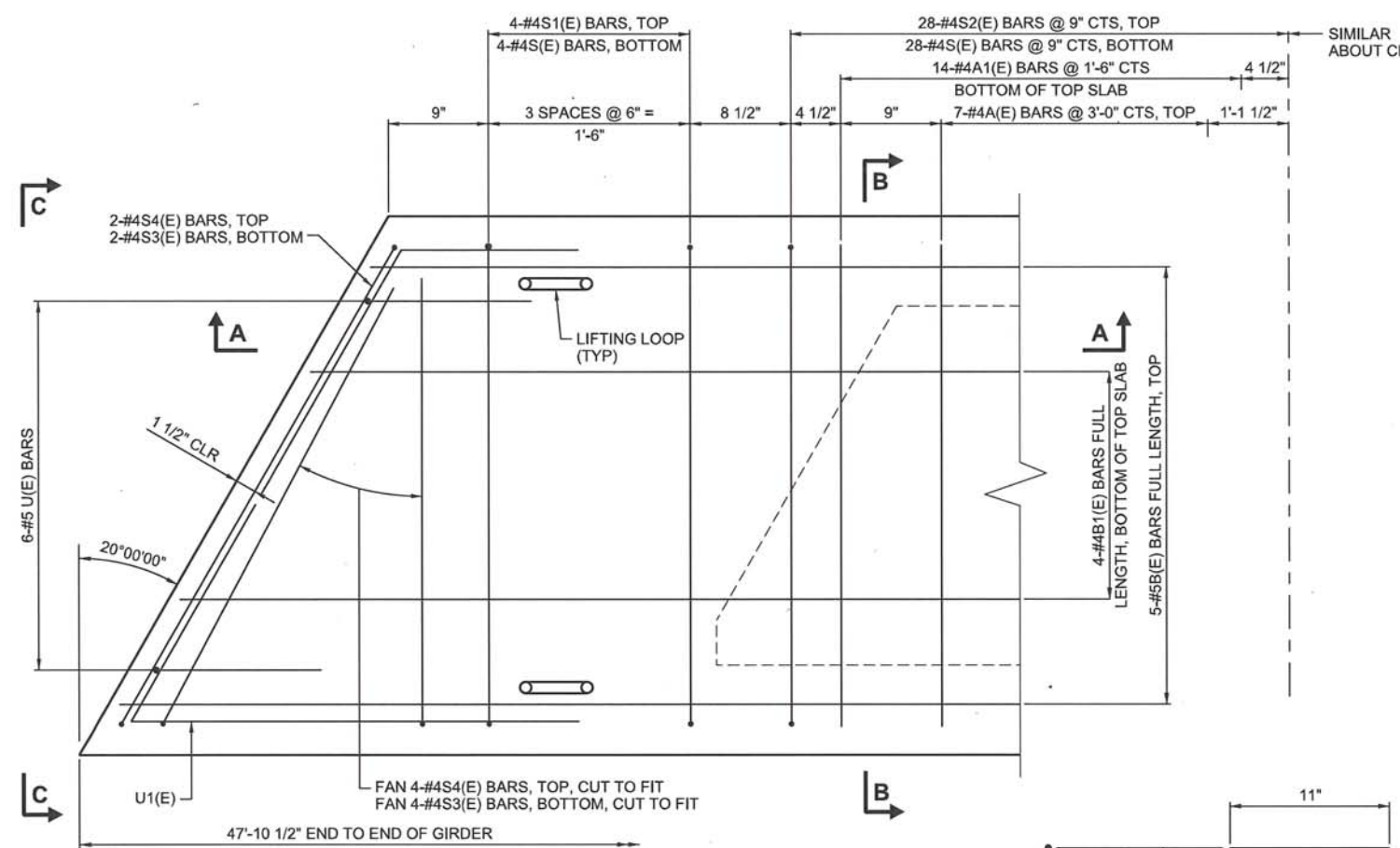
SECTION A-A



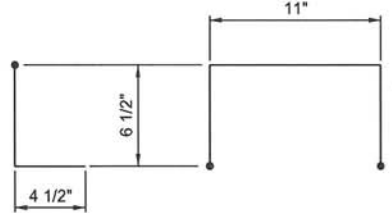
**SECTION B-B
(SHOWING DIMENSIONS)**



VIEW C-C

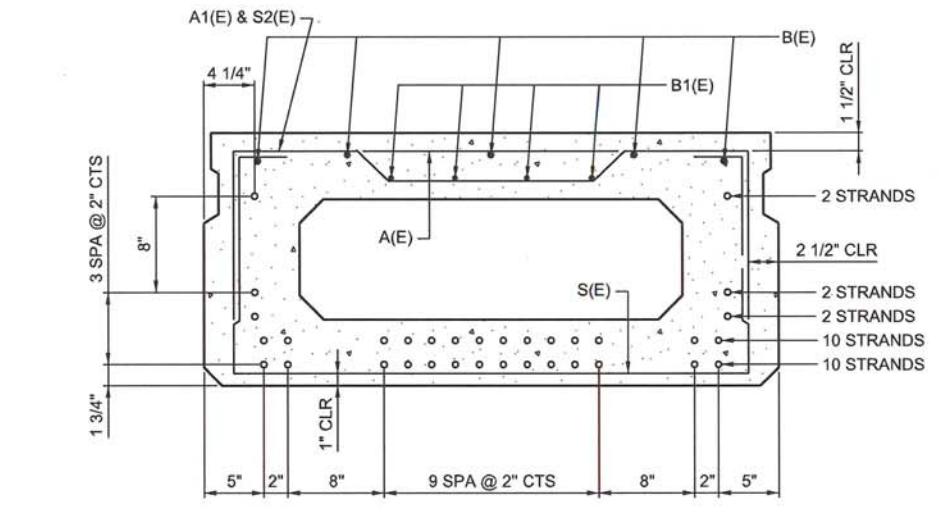


PLAN VIEW

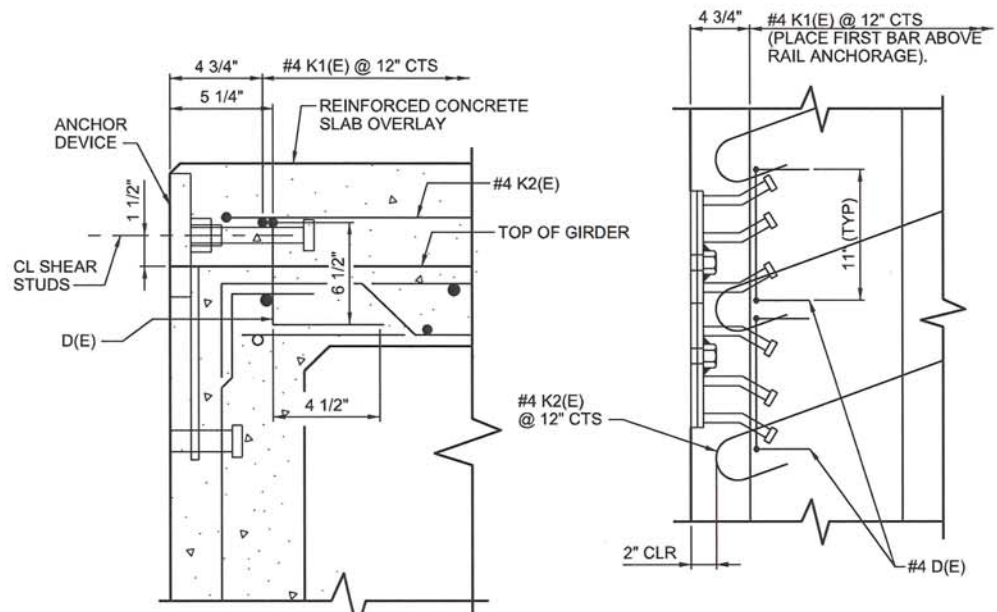


BAR D(E)

NOTE:
BARS TO BE PARTIALLY CAST INTO EXTERIOR GIRDERS AT ANCHOR DEVICE LOCATIONS AS SHOWN ON THIS SHEET



**SECTION B-B
(SHOWING REINFORCEMENT AND PERMISSIBLE STRAND LOCATIONS)**



SECTION THRU EXTERIOR GIRDER

PART PLAN ANCHOR DEVICE IN EXTERIOR GIRDER

- NOTE:
1. PLACE THE NUMBER OF STRANDS SPECIFIED IN EACH ROW SYMMETRICALLY ABOUT THE CENTERLINE OF GIRDER IN THE PERMISSIBLE STRAND LOCATIONS SHOWN.
 2. 1/2" DIA STRANDS, EACH STRAND STRESSED TO 30,900 LBS
 3. SEE SHEET 18 FOR ADDITIONAL BOX GIRDER NOTES & REINFORCING DETAILS.
 4. THE ANCHOR DEVICE FOR THE THREE BEAM BRIDGE RAIL SHALL BE CAST WITH THE GIRDER. THE SLAB OVERLAY SHALL BE CAST IN THE FIELD. FORMWORK NECESSARY FOR THE SLAB OVERLAY MAY BE SECURED UTILIZING THE BOTTOM RAIL ANCHORAGE INSERTS AND/OR ADDITIONAL INSERTS CAST INTO THE GIRDER.
 5. ANCHORAGE DEVICES CAST INTO THE GIRDER SHALL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR PRESTRESSED CONCRETE BOX GIRDERS.
 6. LAP SPLICE #4 BARS A MINIMUM OF 2'-4".
 7. LAP SPLICE #5 BARS A MINIMUM OF 2'-11".

NOTE:
SPACING OF S(E) AND S2(E) BARS MAY BE ADJUSTED UP TO 4" IN THE IMMEDIATE AREA OF THE TRANSVERSE TIE DIAPHRAGMS TO MISS THE BLOCK OUT FOR THE TRANSVERSE TIES.

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS

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STATE OF MISSOURI
KEVIN P. HEFFERN
PROFESSIONAL ENGINEER
NUMBER PE-2007002795
8/7/14

KEVIN P. HEFFERN, P.E.
PROFESSIONAL ENGINEER
No. PE-2007002795

Burns & McDonnell
Professional Engineering Corporation
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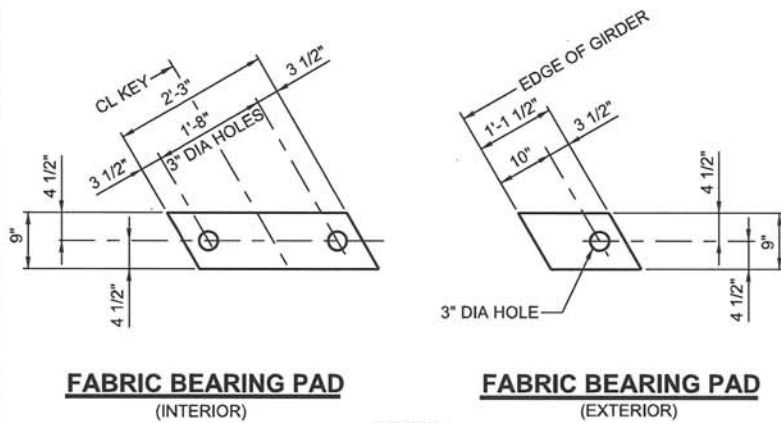
date	MAY 2014	detailed	K. HEFFERN
designed	K. HEFFERN	checked	R. BERNHARDT



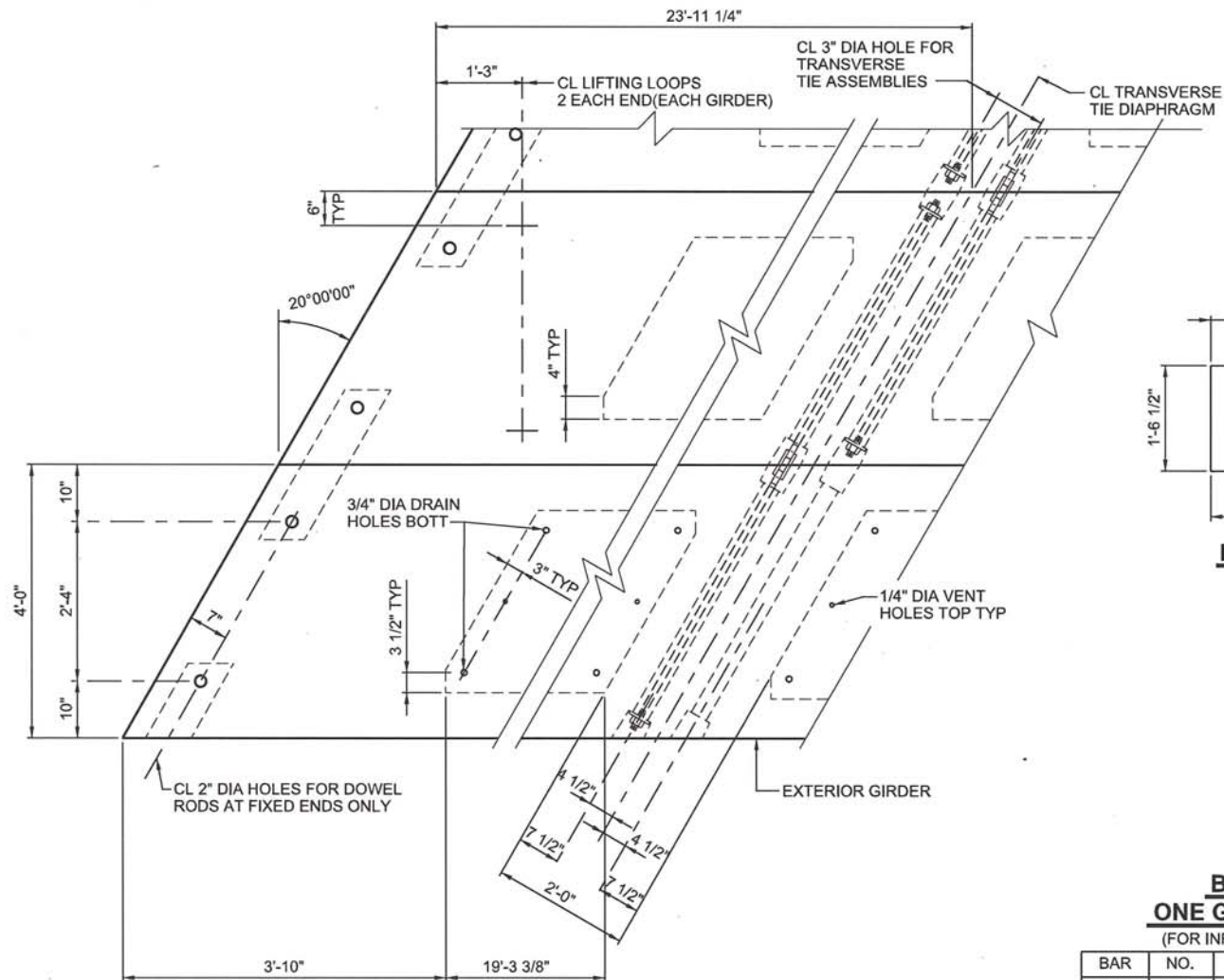
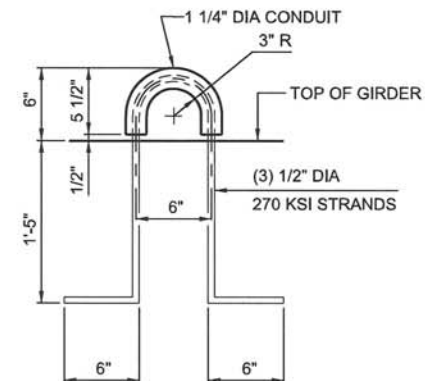
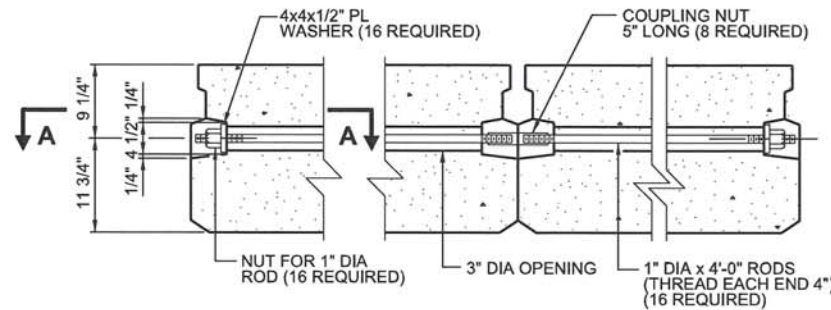
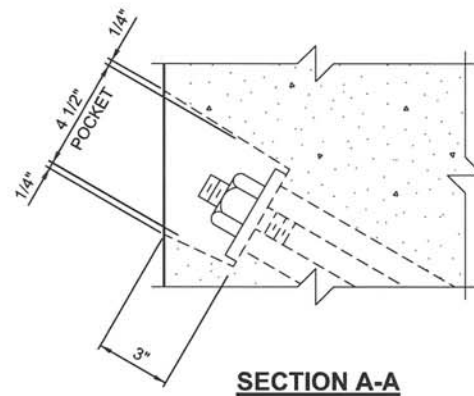
OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
PRESTRESSED CONCRETE BOX GIRDER DETAILS

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11900021



NOTE: ALL BEARING PADS SHALL BE 1" THICK.



NOTE: CONNECT BEAMS IN PAIRS WITH THE TRANSVERSE TIE CONFIGURATION SHOWN.

**BAR LIST
ONE GIRDER ONLY
(FOR INFORMATION ONLY)**

BAR	NO.	SIZE	LENGTH	SHAPE
A(E)	14	#4	3'-7"	—
A1(E)	28	#4	3'-10"	—
B(E)	5	#5	47'-6"	—
B1(E)	4	#4	47'-6"	—
S(E)	63	#4	7'-5"	⌈
S1(E)	8	#4	5'-11"	⌈
S2(E)	55	#4	6'-2"	⌈
S3(E)	12	#4	5'-6"	⌈
S4(E)	12	#4	4'-10"	⌈
U(E)	12	#5	4'-0"	⌈
U1(E)	4	#4	7'-2"	⌈
D(E)	16	#4	2'-5"	⌈

* D(E) BARS REQUIRED ON EXTERIOR GIRDERS ONLY.

NOTES:

- PRESTRESSING STEEL SHALL BE UNCOATED HIGH STRENGTH, LOW RELAXATION 7-WIRE STRAND, GRADE 270. THE NOMINAL DIAMETER SHALL BE 1/2" AND THE NOMINAL CROSS-SECTIONAL AREA SHALL BE 0.153 SQ. IN.
- STEEL FOR TRANSVERSE TIE RODS SHALL BE ACCORDING TO AASHTO M 227 GRADES 70 THROUGH 80 OR AASHTO M 31 PLAIN BARS. AFTER FABRICATION, THE TRANSVERSE TIE ASSEMBLIES (TIE RODS, NUTS, WASHERS, AND SLEEVES) SHALL BE HOT-DIPPED GALVANIZED ACCORDING TO AASHTO M 232. THE SMALL ARTICLES MAY BE ZINC-COATED BY THE MECHANICALLY DEPOSITED PROCESS ACCORDING TO AASHTO M 298, CLASS 50. THE THICKNESS OF THE MECHANICAL GALVANIZING SHALL NOT EXCEED 6 MILS.
- THE 1" DIA RODS IN THE TRANSVERSE TIE ASSEMBLY SHALL BE TIGHTENED TO A SNUG FIT AND THE THREADS SET.
- POCKETS ON EXTERIOR FACES OF BRIDGE SHALL BE FILLED WITH GROUT AFTER TRANSVERSE TIE ASSEMBLY IS IN PLACE.
- NON PRESTRESSING STEEL SHALL BE EPOXY COATED AND CONFORM TO AASHTO M-31, GRADE 60.
- THE BEARING SEAT SURFACES SHALL BE ADJUSTED BY SHIMMING TO ASSURE FIRM AND EVEN BEARING.
- A MINIMUM 2 1/2" DIA LIFTING PIN SHALL BE USED TO ENGAGE THE LIFTING LOOPS DURING HANDLING.
- A CALCIUM NITRITE CORROSION INHIBITOR, AS COVERED IN THE SPECIAL PROVISIONS, SHALL BE USED IN THE CONCRETE FOR PRECAST PRESTRESSED CONCRETE BOX GIRDERS.
- COMPRESSIVE STRENGTH OF PRESTRESSED CONCRETE, F_{ci}, SHALL BE 6000 PSI. COMPRESSIVE STRENGTH OF PRESTRESSED CONCRETE AT RELEASE, F_{cr}, SHALL BE 5000 PSI.
- THE COST FOR FURNISHING AND INSTALLING ALL TRANSVERSE TIE ASSEMBLIES SHALL BE INCIDENTAL TO THE UNIT PRICE BID FOR "PRESTRESSED CONCRETE BOX GIRDER".
- TWO 1/8" FABRIC ADJUSTING SHIMS OF THE DIMENSIONS OF THE EXTERIOR BEARING PAD SHALL BE PROVIDED FOR EACH BEARING PAD LOCATION.

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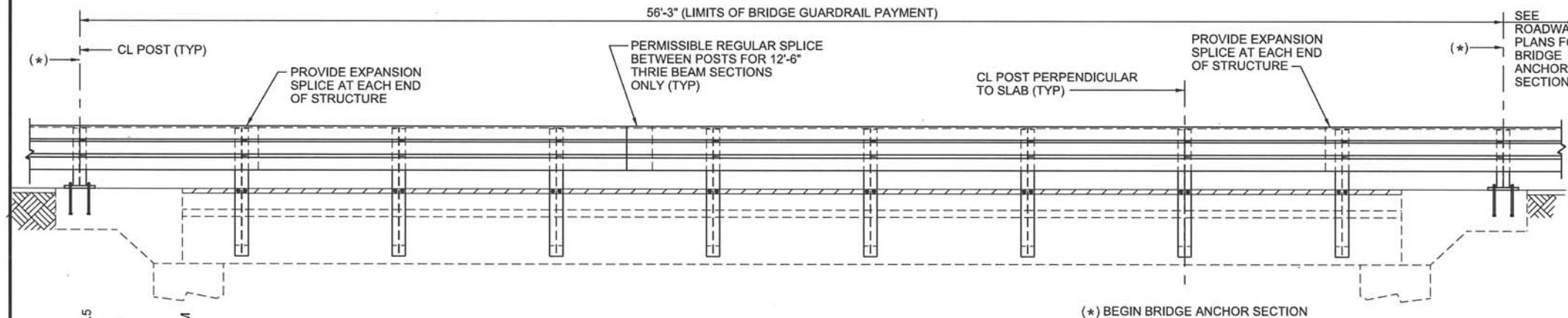
**OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
PRESTRESSED CONCRETE BOX GIRDER
DETAILS**

project 60165	contract STP-5403(630)
drawing 18	rev. 0
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file	sheet 18

**BRIDGE NUMBER
11900021**

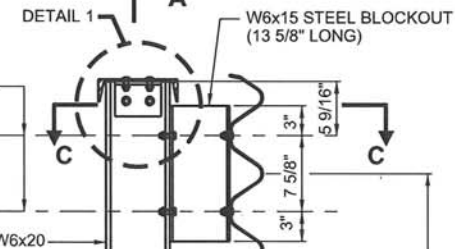
NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS

56'-3" (LIMITS OF BRIDGE GUARDRAIL PAYMENT)

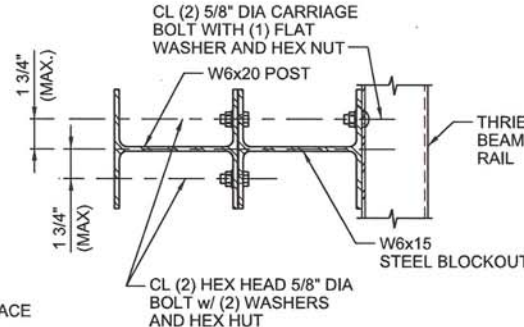


PART ELEVATION SHOWING THRIE BEAM RAIL

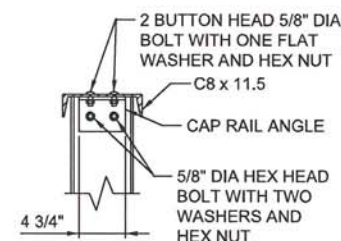
DETAIL 1



SECTION C-C



DETAIL 1

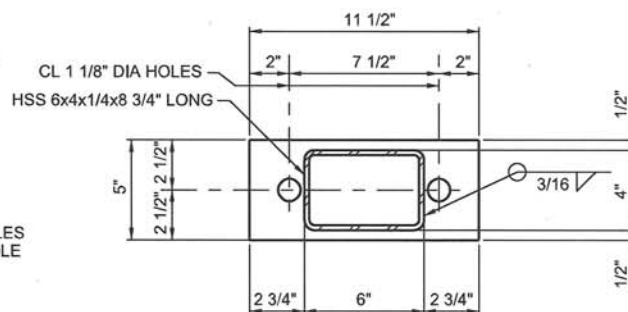


PART SECTION AT RAIL POST

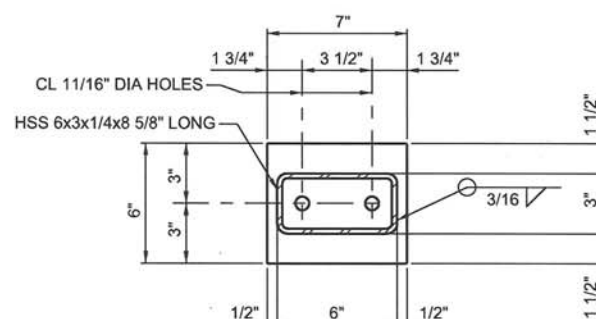
(**) REQUIRED ON ONE SIDE OF WEB ONLY, BUT MAY BE PROVIDED ON BOTH SIDES OF WEB AT THE CONTRACTORS OPTION.

(***) THE STUDS OF THE ANCHOR DEVICES SHALL BE PLACED BELOW THE TOP REINFORCEMENT BARS AND THE OUTERMOST LONGITUDINAL REINFORCEMENT BARS SHALL BE PLACED DIRECTLY ABOVE THE STUDS OF THE RAIL POST ANCHOR DEVICE.

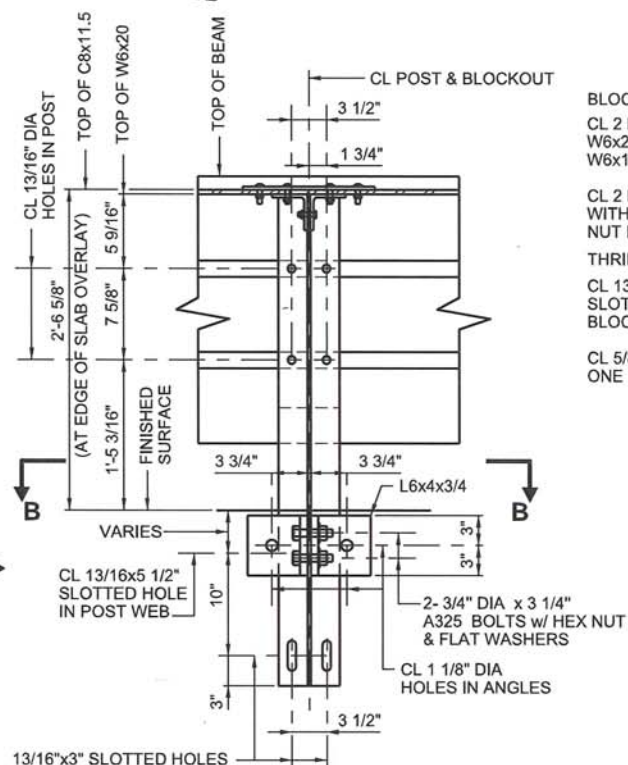
DETAIL 2



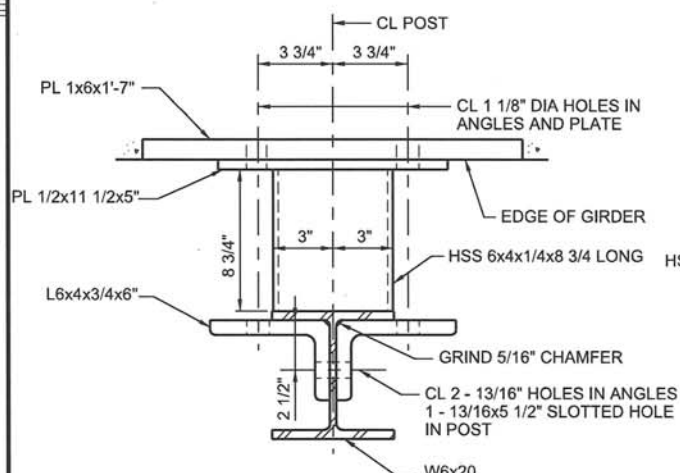
DETAIL 3



SECTION A-A



SECTION B-B



GENERAL NOTES:

DESIGN SPECIFICATIONS: 2002 - AASHTO 17TH EDITION

PANEL LENGTHS OF CHANNEL MEMBERS SHALL BE ATTACHED CONTINUOUSLY TO A MINIMUM OF FOUR POSTS AND A MAXIMUM OF SIX POSTS (EXCEPT AT END BENTS).

ALL BOLTS AND CAP SCREWS SHALL BE IN ACCORDANCE w/ ASTM A307, UNLESS OTHERWISE NOTED.

ALL BOLTS, NUTS, WASHERS, AND PLATES AND ELASTOMERIC MATERIALS WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR BRIDGE GUARDRAIL (THRIE BEAM).

ALL STEEL CONNECTING BOLTS AND FASTENERS FOR POSTS AND RAILING, AND ALL ANCHOR BOLTS, NUTS, WASHERS AND PLATES SHALL BE GALVANIZED AFTER FABRICATION. PROTECTIVE COATING AND MATERIAL REQUIREMENT OF STEEL RAILING SHALL BE IN ACCORDANCE WITH SEC 1040.

RAIL POSTS SHALL BE SET PERPENDICULAR TO ROADWAY PROFILE GRADE, VERTICALLY IN CROSS SECTION AND ALIGNED IN ACCORDANCE WITH SEC 713 EXCEPT THAT THE RAIL POSTS SHALL BE ALIGNED BY THE USE OF SHIMS SUCH THAT THE POST DEVIATES NOT MORE THAN 1/2 INCH FROM TRUE HORIZONTAL ALIGNMENT AFTER FINAL ADJUSTMENT. THE SHIMS SHALL BE 3" X 1 3/4" AND PLACED BETWEEN THE BLOCKOUT AND THE THRIE BEAM RAIL. THE THICKNESS OF THE SHIMS SHALL BE DETERMINED BY THE CONTRACTOR AND VERIFIED BY THE ENGINEER BEFORE ORDERING MATERIAL FOR THIS WORK.

AT THE EXPANSION SLOTS IN THE THRIE BEAM RAILS AND CHANNELS, THE BOLTS SHALL BE TIGHTENED AND BACKED OFF ONE-HALF TURN AND THE THREADS SHALL BE BURRED.

PLAIN BEARING PADS SHALL BE OF 70 DUROMETER NEOPRENE AND SHALL BE IN ACCORDANCE WITH SEC 716.

THE 1" DIA M164 BOLTS CONNECTING THE ANGLES TO THE CONCRETE SHALL BE TIGHTENED TO A SNUG FIT AND GIVEN AN ADDITIONAL 1/8" TURN, THE 5/8" DIA CAP SCREWS IN BOTTOM OF POSTS SHALL BE TIGHTENED TO A SNUG FIT ONLY.

HOLLOW STRUCTURAL STEEL TUBING SHALL BE IN ACCORDANCE w/ ASTM A500 GRADE B AND SHALL BE GALVANIZED. ALL OTHER STEEL SHAPES AND PLATES SHALL BE FABRICATED FROM AASHTO M270 GRADE 36 STEEL AND GALVANIZED.

WELDED SHEAR STUD CONNECTORS FOR ANCHOR DEVICES SHALL BE IN ACCORDANCE w/ SEC 1037.

MINIMUM LENGTH OF THRIE BEAM SECTIONS IS EQUAL TO ONE POST SPACE.

5/8" DIA BUTTON-HEAD, OVAL SHOULDER BOLTS WITH 3/8" MIN THICKNESS HEX NUTS SHALL BE USED AT ALL SLOTS.

THRIE BEAM GUARD RAIL ON THE BRIDGE SHALL BE 12 GAGE STEEL.

POSTS, CAP RAIL ANGLES, TOP PLATES, BASE PLATES, CHANNELS AND CHANNEL SPLICE PLATES SHALL BE FABRICATED FROM AASHTO M270 GRADE 36 STEEL AND GALVANIZED.

WASHERS SHALL BE USED AT ALL POST BOLTS BETWEEN THE BOLT HEAD AND BEAM. THE FLAT WASHERS SHALL BE RECTANGULAR IN SHAPE 3" X 1 3/4" X 3/16" MINIMUM AND WITH A 11/16" X 1" SLOT, OR WHEN NECESSARY OF SUCH DESIGN AS TO FIT THE CONTOUR OF THE BEAM. A 3" X 1 3/4" X 5/8" RECTANGULAR WASHER SHALL BE USED BETWEEN THE BLOCKOUT AND THE THRIE BEAM RAIL.

SPECIAL DRILLING OF THE THRIE BEAM MAY BE REQUIRED AT THE SPLICES. ALL DRILLING DETAILS SHALL BE SHOWN ON THE SHOP DRAWINGS.

FABRICATION OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH SEC 1080.

EXPANSION SPLICES IN THE THRIE BEAM RAIL SHALL BE MADE AT THE FIRST POST ON STRUCTURE AT BRIDGE ENDS.

SHIM PLATES 6" X 6" X 1/16" MAY BE USED BETWEEN THE TOP OF THE POST AND THE CHANNEL MEMBER AS REQUIRED FOR VERTICAL ALIGNMENT.

SEE MISSOURI STANDARD PLANS DRAWING 606.00 FOR DETAILS NOT SHOWN.

ANCHOR DEVICES SHALL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICES FOR PRESTRESSED CONCRETE BOX GIRDER, AS SHOWN ELSEWHERE IN PLANS. FOR ANCHOR DEVICE DETAILS, CAP RAIL ANGLE AND DETAILS OF SPLICES, SEE SHEET 20.

FOR RAIL POST LAYOUT, SEE SHEET 15.

BARRIER SYSTEM CRASH TEST LEVEL: TL-3.

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0	8/6/14	KH	RB	ISSUE FOR CONSTRUCTION

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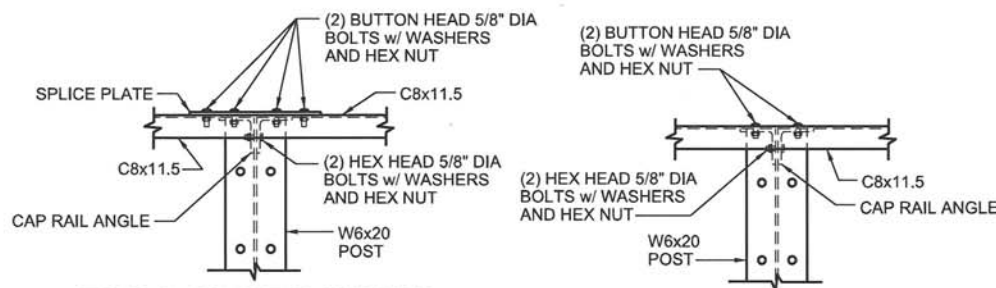


OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
THRIE BEAM DETAILS

project	60165	contract	STP-5403(630)
drawing	19	rev.	0
sheet	19	of	31
file		sheets	

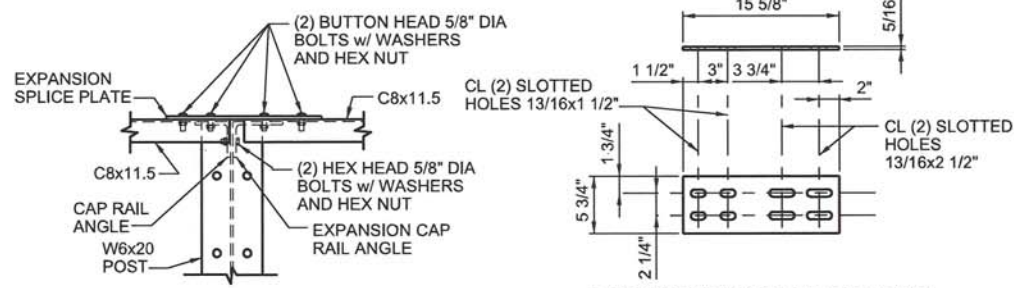
BRIDGE NUMBER
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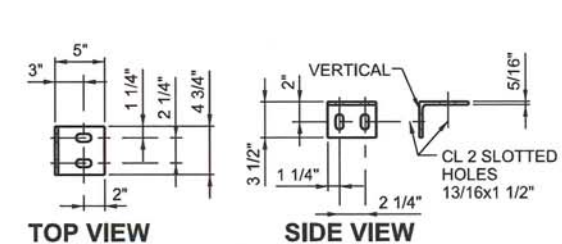
TYPICAL SPLICE ELEVATION

CONNECTION TO RAIL POST ELEVATION

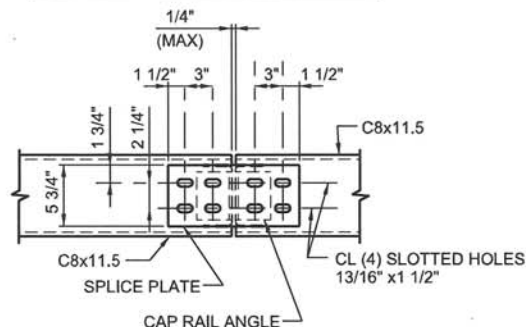


EXPANSION SPLICE ELEVATION

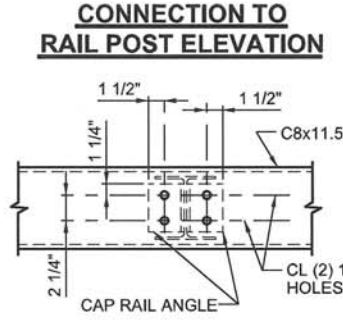
EXPANSION SPLICE PLATE



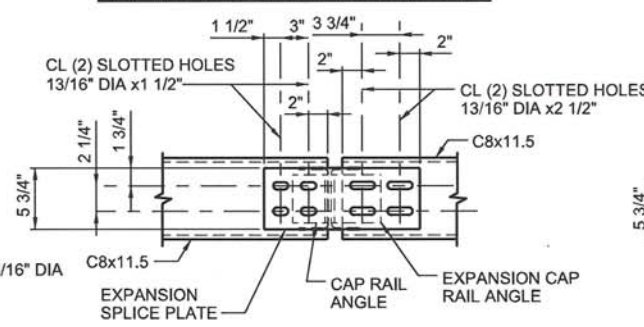
EXPANSION CAP RAIL ANGLE



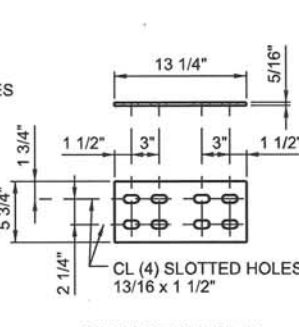
TYPICAL SPLICE PLAN



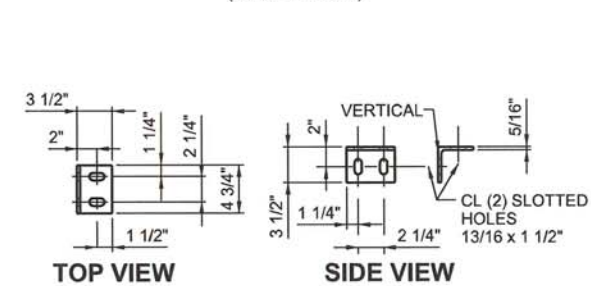
CONNECTION TO RAIL POST PLAN



EXPANSION SPLICE PLAN



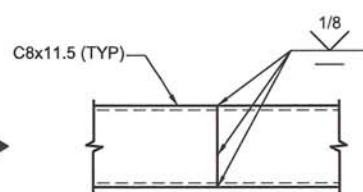
SPLICE PLATE



CAP RAIL ANGLE

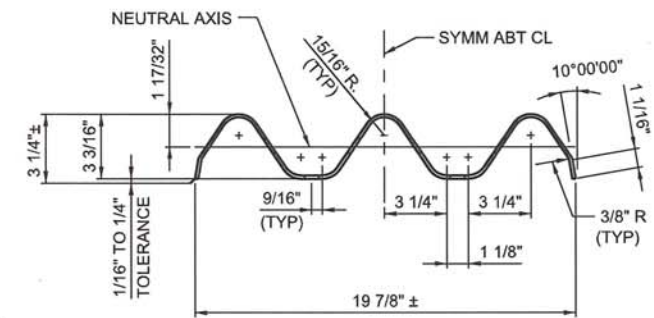
NOTE: SHOP OR FIELD SPLICE AT ANY LOCATION (MAX ONE PER PANEL)

NOTE: EXPANSION SLOTS SAME SIDE OF POST AS JOINT

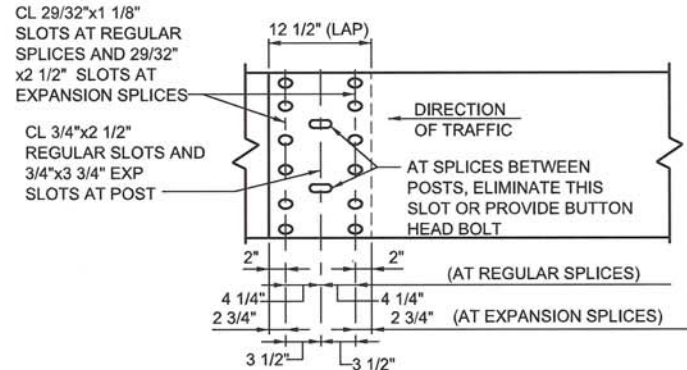


OPTIONAL SPLICE

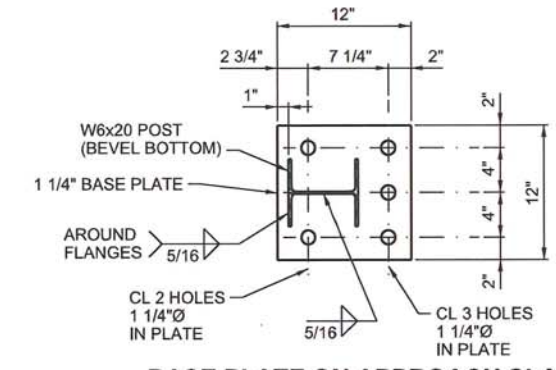
NOTE: SHOP OR FIELD SPLICE AT ANY LOCATION (MAX. ONE PER PANEL.)



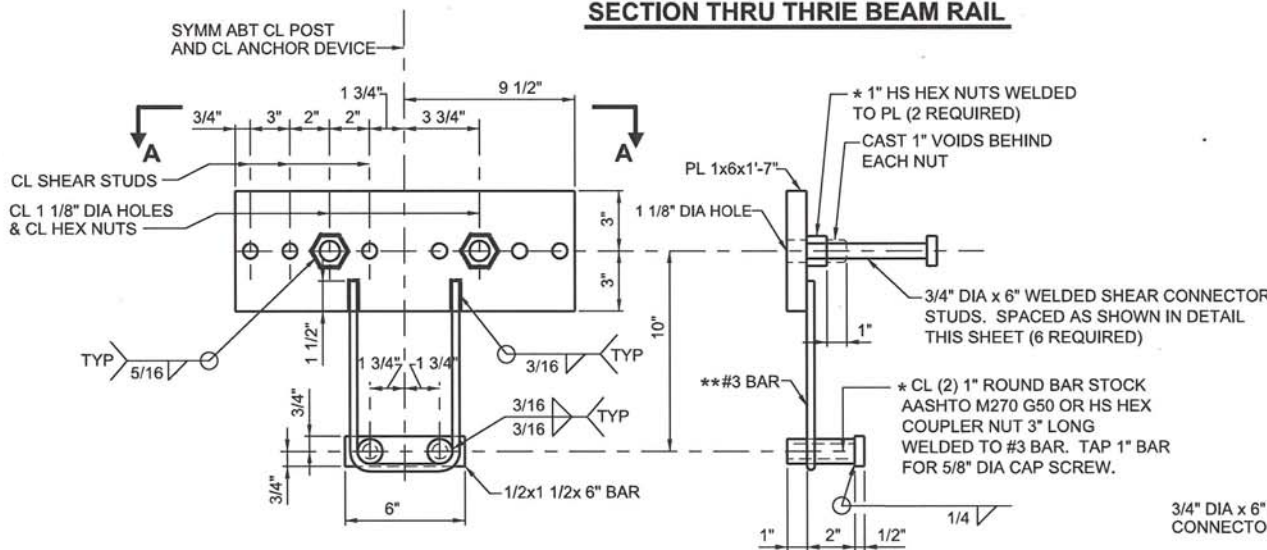
SECTION THRU THRIE BEAM RAIL



THRIE BEAM RAIL SPLICE DETAILS



BASE PLATE ON APPROACH SLAB



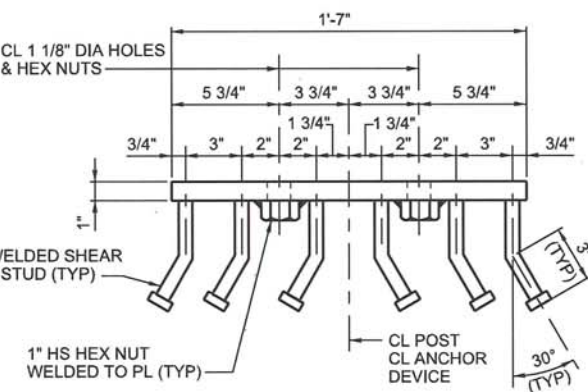
FRONT VIEW

SIDE VIEW

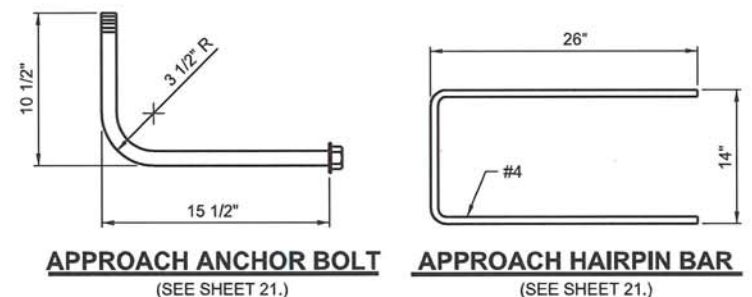
ANCHOR DEVICE

* THREADED AREAS SHALL BE PLUGGED OR BLOCKED OFF DURING CASTING OF GIRDER. GALVANIZE AFTER FABRICATION.
 ** WHENEVER THE LOWER INSERT ASSEMBLIES INTERFERE WITH STRAND LOCATIONS, THE #3 BARS SHALL BE CUT AND ADJUSTED IN ORDER TO ALLOW RAISING OR LOWERING OF THE LOWER INSERTS. MAXIMUM ADJUSTMENT SHALL NOT EXCEED 1/2".

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS



SECTION A-A



APPROACH ANCHOR BOLT

APPROACH HAIRPIN BAR

ESTIMATED QUANTITIES		
ITEMS	LINEAR FOOT	TOTAL
BRIDGE GUARD RAIL (THRIE BEAM)	113	

BRIDGE NUMBER
11900021

STATE OF MISSOURI
 KEVIN P. HEFFERN
 PROFESSIONAL ENGINEER
 No. PE-2007002795

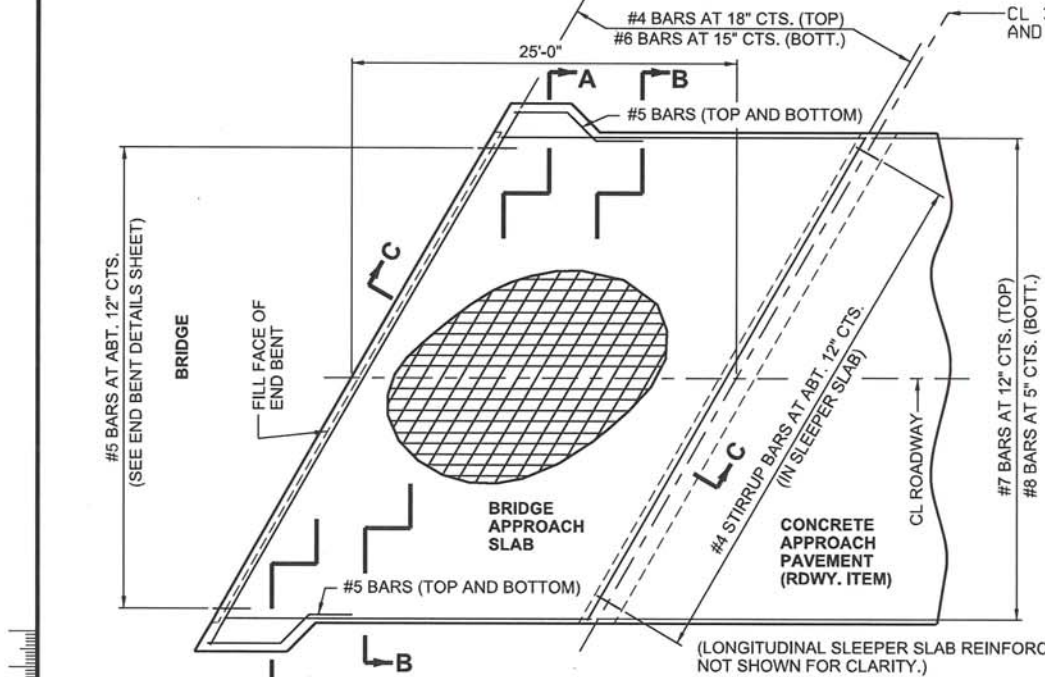
Burns & McDonnell
 Professional Engineering Corporation
 MO Certificate of Authority # 000165

date MAY 2014
 designed K. HEFFERN
 detailed K. HEFFERN
 checked R. BERNHARDT

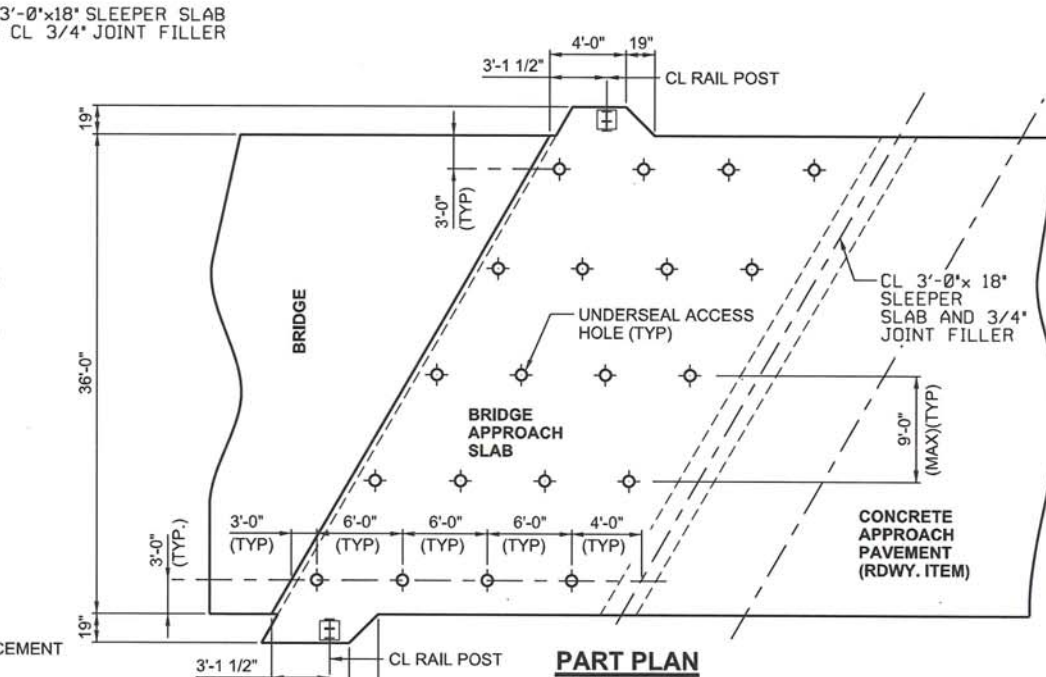


OLD ANTONIA ROAD
 BRIDGE OVER TRIBUTARY TO ROCK CREEK
 THRIE BEAM DETAILS

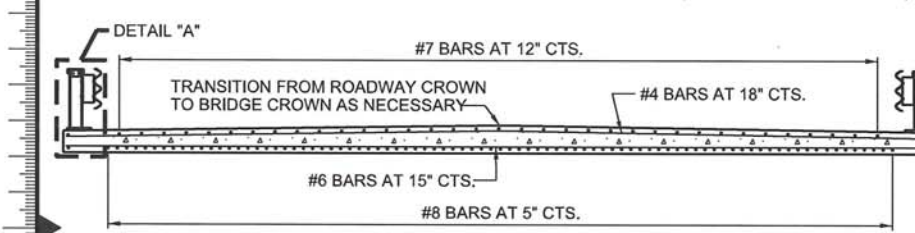
project 60165 contract STP-5403(630)
 drawing 20 of 31 sheets
 rev. 0



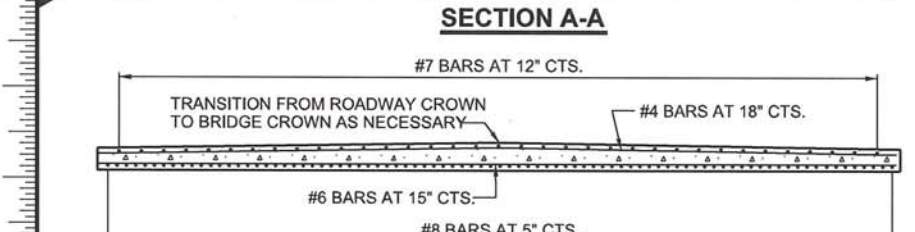
PART PLAN SHOWING REINFORCEMENT
NOTE: SEE ROADWAY FOR BRIDGE ANCHOR SECTION, TRANSITION SECTION AND GUARDRAIL (NOT SHOWN FOR CLARITY).



PART PLAN
(SHOWING TYPICAL UNDERSEAL ACCESS HOLE LOCATIONS)
NOTE: SEE ROADWAY FOR BRIDGE ANCHOR SECTION, TRANSITION SECTION AND GUARDRAIL (NOT SHOWN FOR CLARITY).

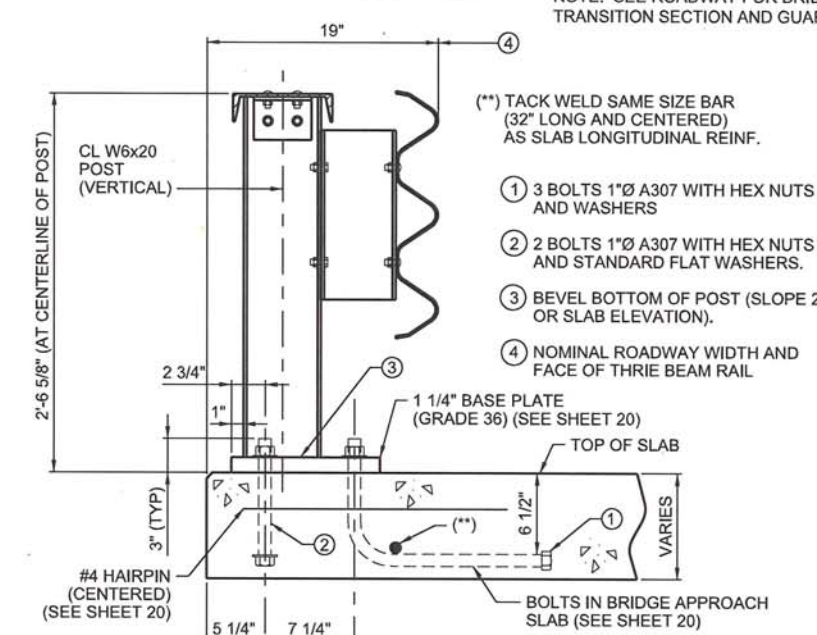


SECTION A-A

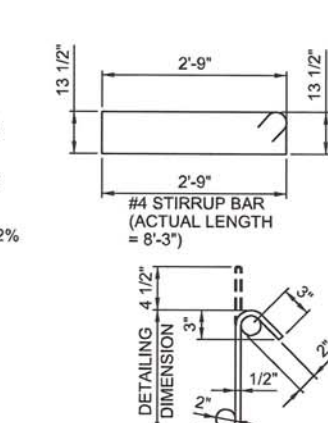


SECTION B-B

- NOTE:
1. SEE ROADWAY FOR BRIDGE ANCHOR SECTION, TRANSITION SECTION AND GUARDRAIL (NOT SHOWN FOR CLARITY).
 2. WITH THE APPROVAL OF THE ENGINEER, THE CONTRACTOR MAY CROWN THE BOTTOM OF THE APPROACH SLAB TO MATCH THE CROWN OF THE ROADWAY SURFACE.

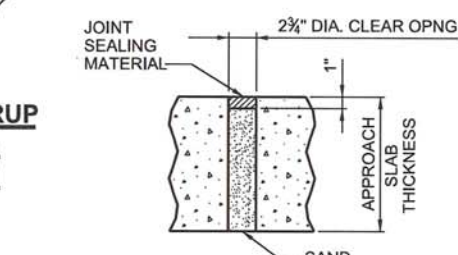


DETAIL 'A'

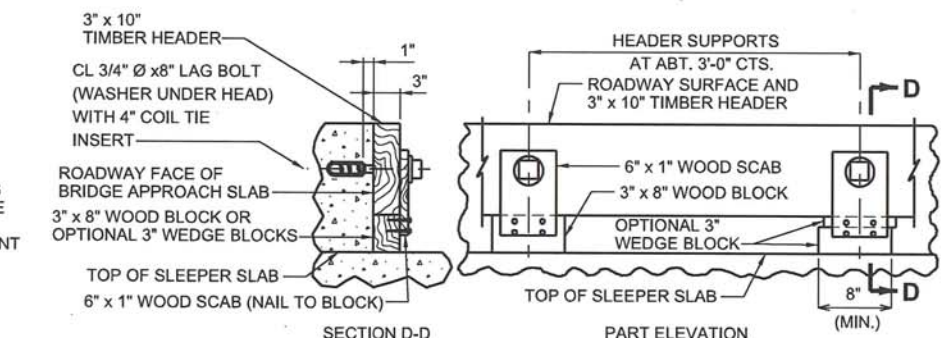


TYPICAL 135° STIRRUP HOOK DIMENSIONS BENDING DIAGRAM

NOTE: NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAM AND ARE LISTED FOR FABRICATOR'S USE (NEAREST INCH).

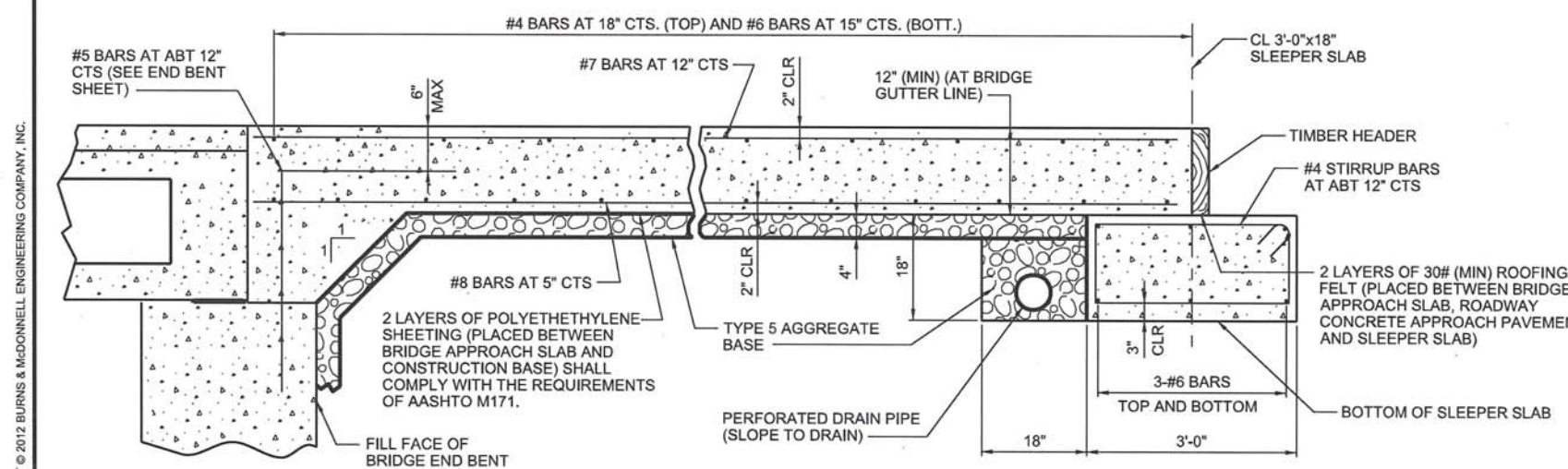


TYPICAL UNDERSEAL ACCESS HOLE DETAIL



DETAILS OF TIMBER HEADER

NOTE: REMOVE TIMBER HEADER WHEN CONCRETE PAVEMENT IS PLACED.



SECTION C-C

NOTE: THIS DRAWING IS NOT TO SCALE. FOLLOW DIMENSIONS

GENERAL NOTES:

ALL CONCRETE FOR THE BRIDGE APPROACH SLAB AND SLEEPER SLAB SHALL BE IN ACCORDANCE WITH SEC 503 ($f_c = 4,000$ PSI).

ALL JOINT FILLER SHALL BE IN ACCORDANCE WITH SEC 1057 FOR PREFORMED FIBER EXPANSION JOINT FILLER, EXCEPT AS NOTED.

THE REINFORCING STEEL IN THE BRIDGE APPROACH SLAB AND THE SLEEPER SLAB SHALL BE EPOXY COATED GRADE 60 WITH $F_y = 60,000$ PSI.

MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1-1/2", UNLESS OTHERWISE SHOWN.

THE REINFORCING STEEL IN THE BRIDGE APPROACH SLAB AND THE SLEEPER SLAB SHALL BE CONTINUOUS. THE TRANSVERSE REINFORCING STEEL MAY BE MADE CONTINUOUS BY LAP SPLICING THE #4 & #6 BARS 18" AND 2'-2" RESPECTIVELY.

MECHANICAL BAR SPLICES WILL BE IN ACCORDANCE WITH SEC 706.

HOOKE AND BENDS SHALL BE IN ACCORDANCE WITH THE CRSI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, STIRRUP AND TIE DIMENSIONS.

THE CONTRACTOR SHALL SATISFACTORILY PLACE THE BOX GIRDERS BEFORE POURING THE BRIDGE APPROACH SLABS.

PAYMENT FOR FURNISHING ALL MATERIALS, LABOR AND EXCAVATION NECESSARY TO CONSTRUCT THE APPROACH SLAB, INCLUDING THE TIMBER HEADER, SLEEPER SLAB, UNDERDRAIN, TYPE 5 AGGREGATE BASE, JOINT FILLER, RAIL POST ANCHOR BOLTS AND ALL OTHER APPURTENANCES AND INCIDENTAL WORK AS SHOWN ON THIS SHEET, COMPLETE IN PLACE, WILL BE CONSIDERED COMPLETELY COVERED BY THE CONTRACT UNIT PRICE FOR BRIDGE APPROACH SLAB (BRIDGE), PER SQUARE YARD.

FOR CONCRETE APPROACH PAVEMENT DETAILS, SEE ROADWAY PLANS.

AT THE CONTRACTOR'S OPTION, GRADE 40 REINFORCEMENT MAY BE SUBSTITUTED FOR THE GRADE 60 #5 DOWEL BARS CONNECTING THE BRIDGE APPROACH SLAB TO THE BRIDGE ABUTMENT. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS SUBSTITUTION.

WHEN GRADE 40 REINFORCEMENT IS SUBSTITUTED FOR THE GRADE 60 #5 DOWEL BARS CONNECTING THE BRIDGE APPROACH SLAB TO THE BRIDGE ABUTMENT, THE REINFORCEMENT MAY BE BENT UP TO 90 DEGREES WITH A 2" MINIMUM RADIUS NEAR THE ABUTMENT TO ALLOW COMPACTION OF THE BACKFILL MATERIAL NEAR THE ABUTMENT. DAMAGE TO EPOXY COATING SHALL BE REPAIRED IN ACCORDANCE WITH SEC 710.

DRAIN PIPE MAY BE EITHER 6" DIAMETER CORRUGATED METALLIC-COATED PIPE UNDERDRAIN, 4" DIAMETER CORRUGATED POLYVINYL CHLORIDE (PVC) DRAIN PIPE, OR 4" DIAMETER CORRUGATED POLYETHYLENE (PE) DRAIN PIPE.

no.	date	by	ckd	description
0	8/6/14	KH	RB	ISSUE FOR CONSTRUCTION

KEVIN P. HEFFERN, P.E.
PROFESSIONAL ENGINEER
No. PE-2007002795

Burns & McDonnell
Professional Engineering Corporation
MO Certificate of Authority # 000165

date	MAY 2014	detailed	K. HEFFERN
designed	K. HEFFERN	checked	R. BERNHARDT

KEVIN P. HEFFERN, P.E.
PROFESSIONAL ENGINEER
No. PE-2007002795

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date	MAY 2014	detailed	K. HEFFERN
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KEVIN P. HEFFERN, P.E.
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MO Certificate of Authority # 000165

project	60165	contract	STP-5403(630)
drawing	21	rev.	0

KEVIN P. HEFFERN, P.E.
PROFESSIONAL ENGINEER
No. PE-2007002795

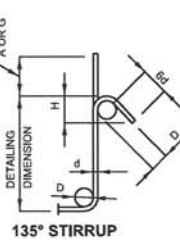
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Professional Engineering Corporation
MO Certificate of Authority # 000165

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Scale For Microfitting
Inches
Millimeters

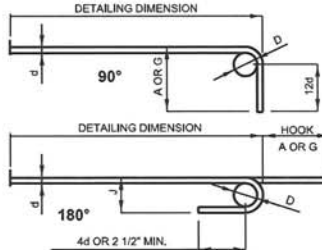
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO.		LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT
	SIZE	MARK								B	C	D	E	F	H	K			
										FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.			
END BENT 1																			
8	5	H1	WING		19		X			8 3.500	0 10.000						9 2	9 0	75
8	5	H2	WING		20		X			8 10.000							8 10	8 10	74
12	5	H3	WING		20		X			8 10.000							8 10	8 10	111
10	8	H4	BEAM		20		X			39 2.000							39 2	39 2	1046
6	7	T1	WING *	E	14		X				7 11.750	3 10.750			1 2.125	3 8.500	11 10	11 10	145
8	6	U1	BEAM		10	S	X				4 6.000	2 1.000					11 1	10 9	129
68	5	U2	BEAM		13	S	X			2 3.000	2 1.500	2 3.000	2 1.500				9 8	9 4	662
16	5	V1	WING		20		X	V	4	3 2.000							3 2	3 2	
INC=4.000"										4 2.000							4 2	4 2	61
16	5	V2	WING		20		X			4 5.000							4 5	4 5	74
40	5	V3	BEAM *	E	19	S	X			3 1.000	0 10.000						3 11	3 10	160
													</						



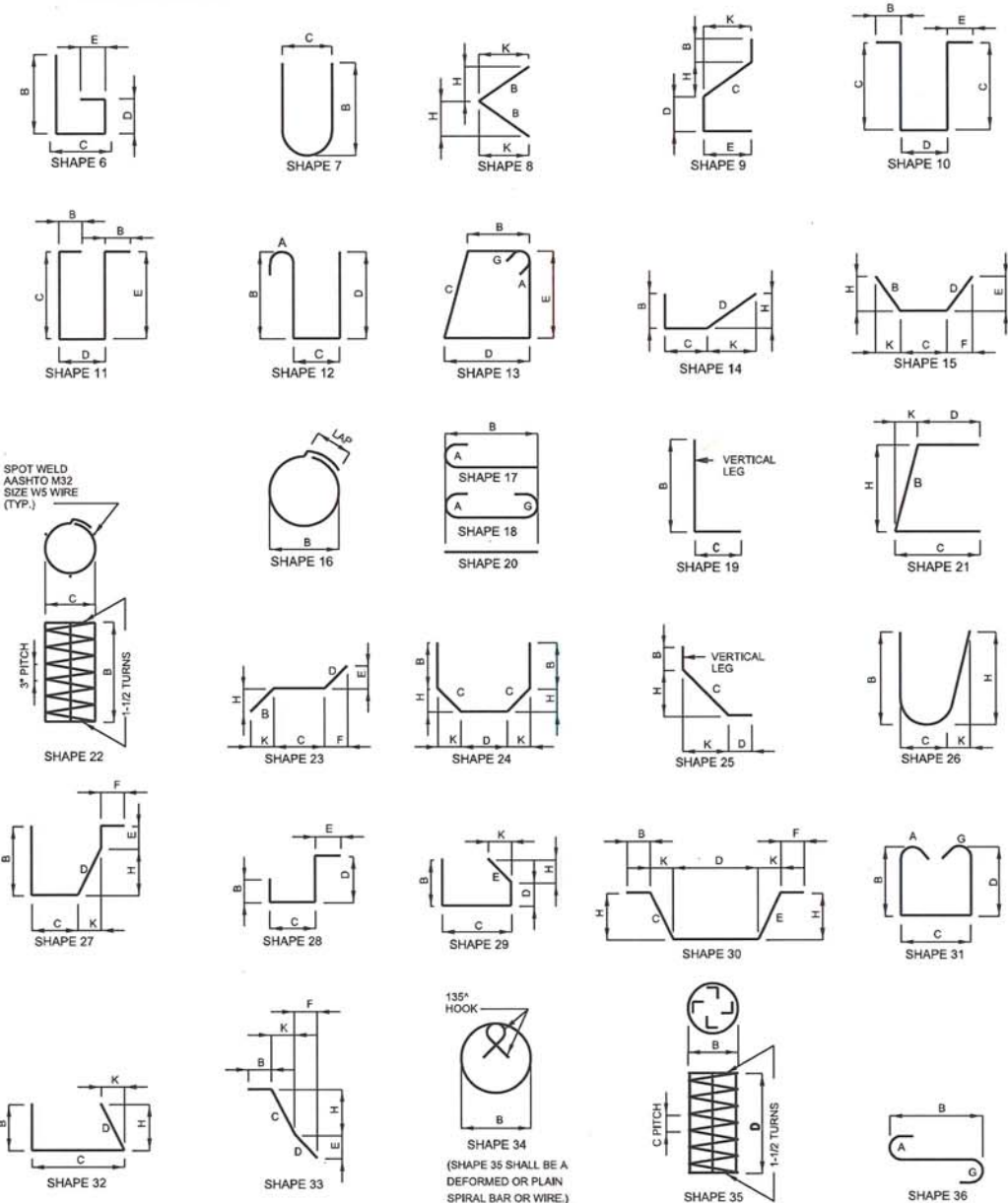
STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
ALL GRADES				
BAR SIZE	D (IN.)	180° HOOKS		90° HOOKS
		A OR G	J	A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	2'-0"
#14	18 1/4"	2'-3"	21 3/4"	2'-7"

NOTE: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS. HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
PAYWEIGHTS ARE BASED ON ACTUAL LENGTHS.
FOUR ANGLE OR CHANNEL SPACERS ARE REQUIRED FOR EACH COLUMN SPIRAL. SPACERS ARE TO BE PLACED ON INSIDE OF SPIRALS. LENGTH AND WEIGHT OF COLUMN SPIRALS DO NOT INCLUDE SPLICES OR SPACERS.
REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.



NOTES:
THIS DRAWING IS NOT TO SCALE FOLLOW DIMENSIONS
* 2 ADDITIONAL #5V3 & #7T1 BARS ARE INCLUDED IN BAR BILL FOR TESTING

BRIDGE NUMBER
11900021

no.	date	by	ckd	description
0	8/6/14	KH	RB	ISSUE FOR CONSTRUCTION

KEVIN P. HEFFERN, P.E.
PROFESSIONAL ENGINEER
No. PE-2007002795

Burns & McDonnell
Professional Engineering Corporation
MO Certificate of Authority # 000165

date	MAY 2014	detailed	K. HEFFERN
designed	K. HEFFERN	checked	R. BERNHARDT



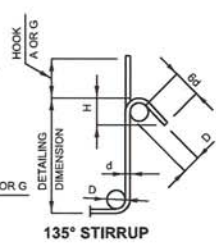
OLD ANTONIA ROAD BRIDGE OVER TRIBUTARY TO ROCK CREEK BILL OF REINFORCING - END BENTS			
project	60165	contract	STP-5403(630)
drawing	22	rev.	0
sheet	22	of	31
file		sheets	

BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO.	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS							NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT	
	SIZE								MARK	B	C	D	E	F	H				K
									FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	FT. IN.	LBS.	

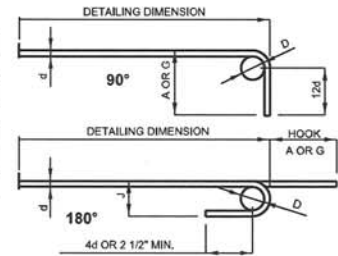
SLAB REINFORCEMENT

76	4	K1	OVERLAY *	E	20				24	8.000						24	8	24	8	1252
96	4	K2	OVERLAY	E	17				19	11.000						20	5	20	5	1309



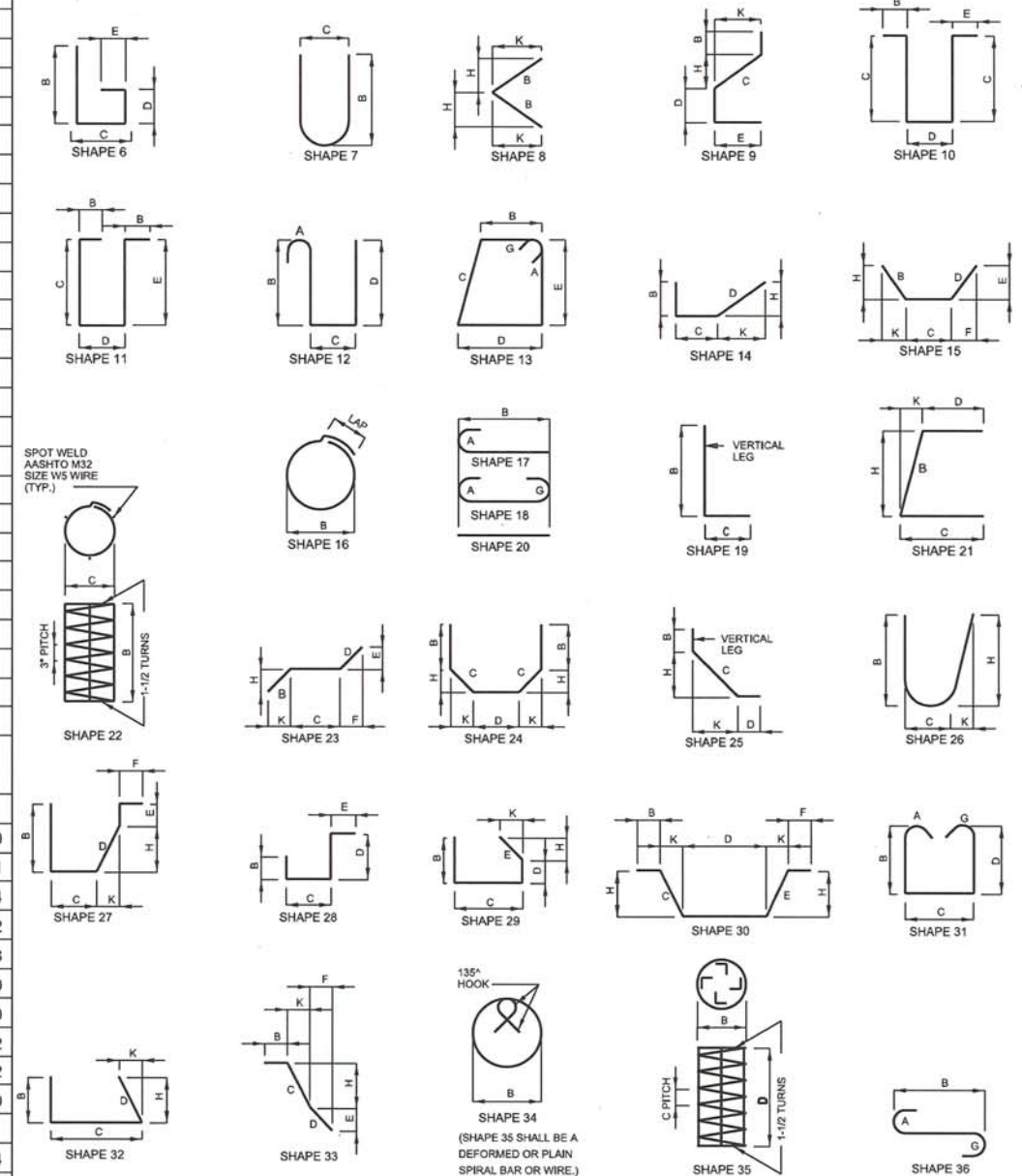
STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK A OR G	135° HOOK A OR G	APPROX. H
#4	2"	4 1/2"	4 1/2"	3"
#5	2 1/2"	6"	5 1/2"	3 3/4"
#6	4 1/2"	12"	8"	4 1/2"

NOTE: UNLESS OTHERWISE NOTED DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS				
BAR SIZE	D (IN.)	ALL GRADES		
		180° HOOKS A OR G	J	90° HOOKS A OR G
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 1/4"	22"
#11	12"	19"	14 3/4"	2'-0"
#14	18 1/4"	2'-3"	21 3/4"	2'-7"

NOTE: ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS. HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
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NO. EA. = NUMBER OF BARS OF EACH LENGTH.
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ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
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REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.



NOTES:
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* 2 ADDITIONAL #4 K1 BARS ARE INCLUDED IN BAR BILL FOR TESTING

BENDING DIAGRAMS

BRIDGE NUMBER
11900021

no.	date	by	ckd	description
0	8/6/14	KH	RB	ISSUE FOR CONSTRUCTION

STATE OF MISSOURI
KEVIN P. HEFFERN
PE 2007002795
8/7/14
KEVIN P. HEFFERN, P.E.
PROFESSIONAL ENGINEER
No. PE-2007002795

Burns & McDonnell
Professional Engineering Corporation
MO Certificate of Authority # 000165

date MAY 2014	detailed K. HEFFERN
designed K. HEFFERN	checked R. BERNHARDT

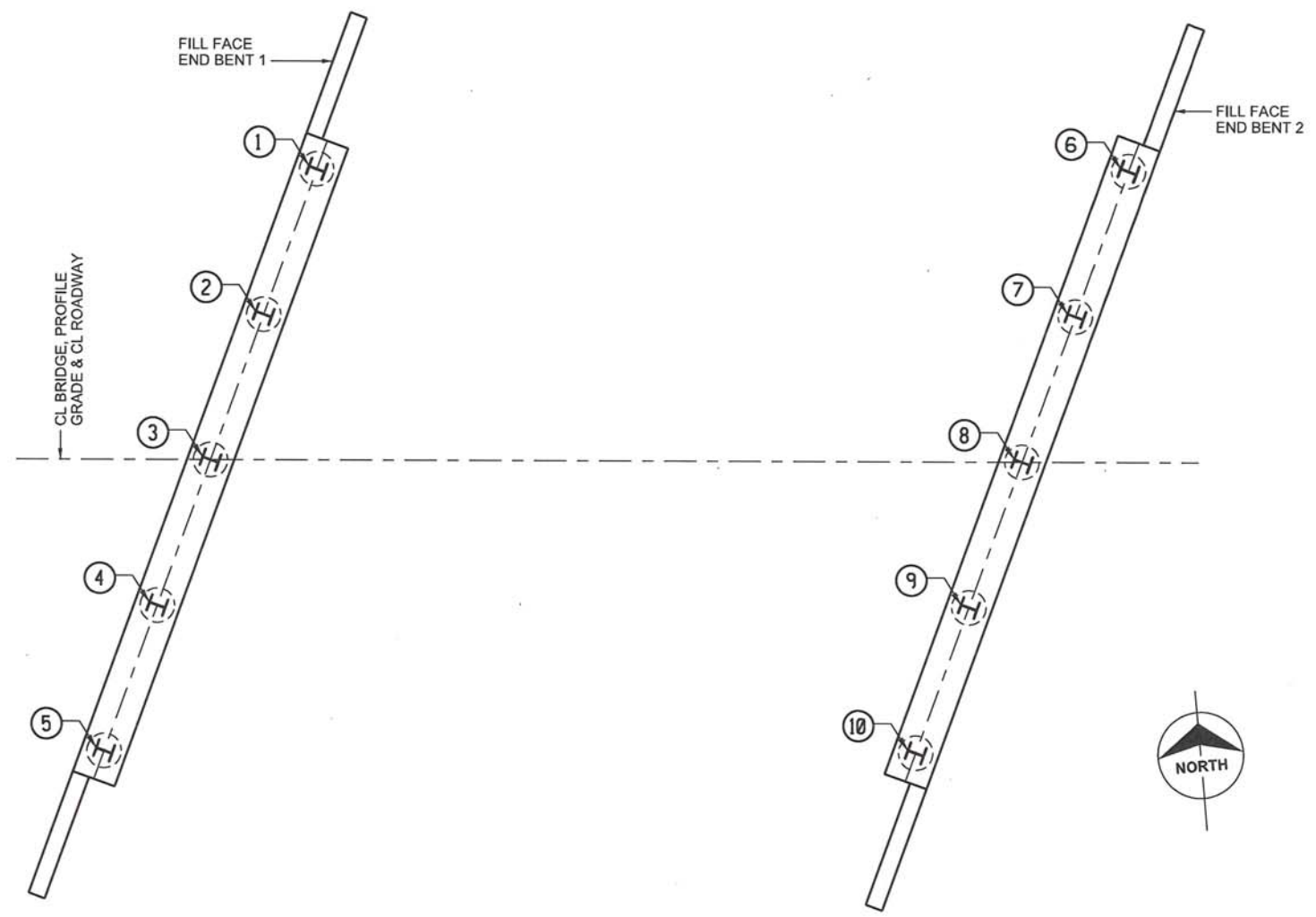


OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
BILL OF REINFORCING - SLAB
& SUMMARY OF REINFORCING

project 60165	contract STP-5403(630)
drawing 23	rev. 0
sheet 23	of 31
file	sheets

Scale For Microblasting
Inches
Millimeters

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PART PLAN SHOWING
PILE NUMBERING FOR RECORDING
"AS BUILT PILE" DATA

LOCATION	"AS BUILT PILE" DATA			
	PILE NO.	LENGTH IN PLACE (FEET)	NOMINAL AXIAL COMPRESSIVE RESISTANCE (KIPS)	REMARKS
END BENT NO. 1	1			
	2			
	3			
	4			
	5			

NOTE:
THIS SHEET TO BE COMPLETED BY
COUNTY CONSTRUCTION PERSONNEL.

NOTE:
INDICATE IN REMARKS COLUMN:
A.) IF PILING WERE DRIVEN TO PRACTICAL REFUSAL
B.) TYPE OF PILING USED.

LOCATION	"AS BUILT PILE" DATA			
	PILE NO.	LENGTH IN PLACE (FEET)	NOMINAL AXIAL COMPRESSIVE RESISTANCE (KIPS)	REMARKS
END BENT NO. 2	6			
	7			
	8			
	9			
	10			

no.	date	by	ckd	description
0	8/6/14	KH	RB	ISSUE FOR CONSTRUCTION

8/7/14

KEVIN P. HEFFERN, P.E.
PROFESSIONAL ENGINEER
No. PE-2007002795

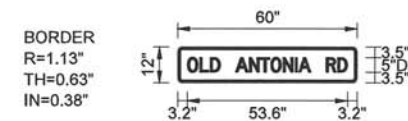
Burns & McDonnell
Professional Engineering Corporation
MO Certificate of Authority # 000165

date MAY 2014	detailed K. HEFFERN
designed K. HEFFERN	checked R. BERNHARDT

OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
AS-BUILT PILE DATA

project 60165	contract STP-5403(630)
drawing 24	rev. 0
sheet 24	of 31
file	sheets

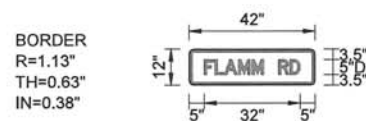
BRIDGE NUMBER
11900021



LETTER POSITIONS (X)													LENGTH
O	L	D	A	N	T	O	N	I	A	R	D		
3.2	7.3	10.8	14.2	19.2	23.8	27.6	31	35.1	39.1	40.3	44.6	49.6	53.6

Letter locations are panel edge to lower left corner
All units are in inches unless otherwise specified

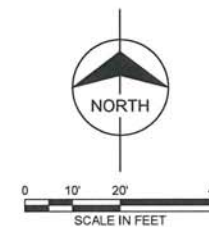
SPECIAL SIGN
"OLD ANTONIA ROAD" DETAIL
NOT TO SCALE



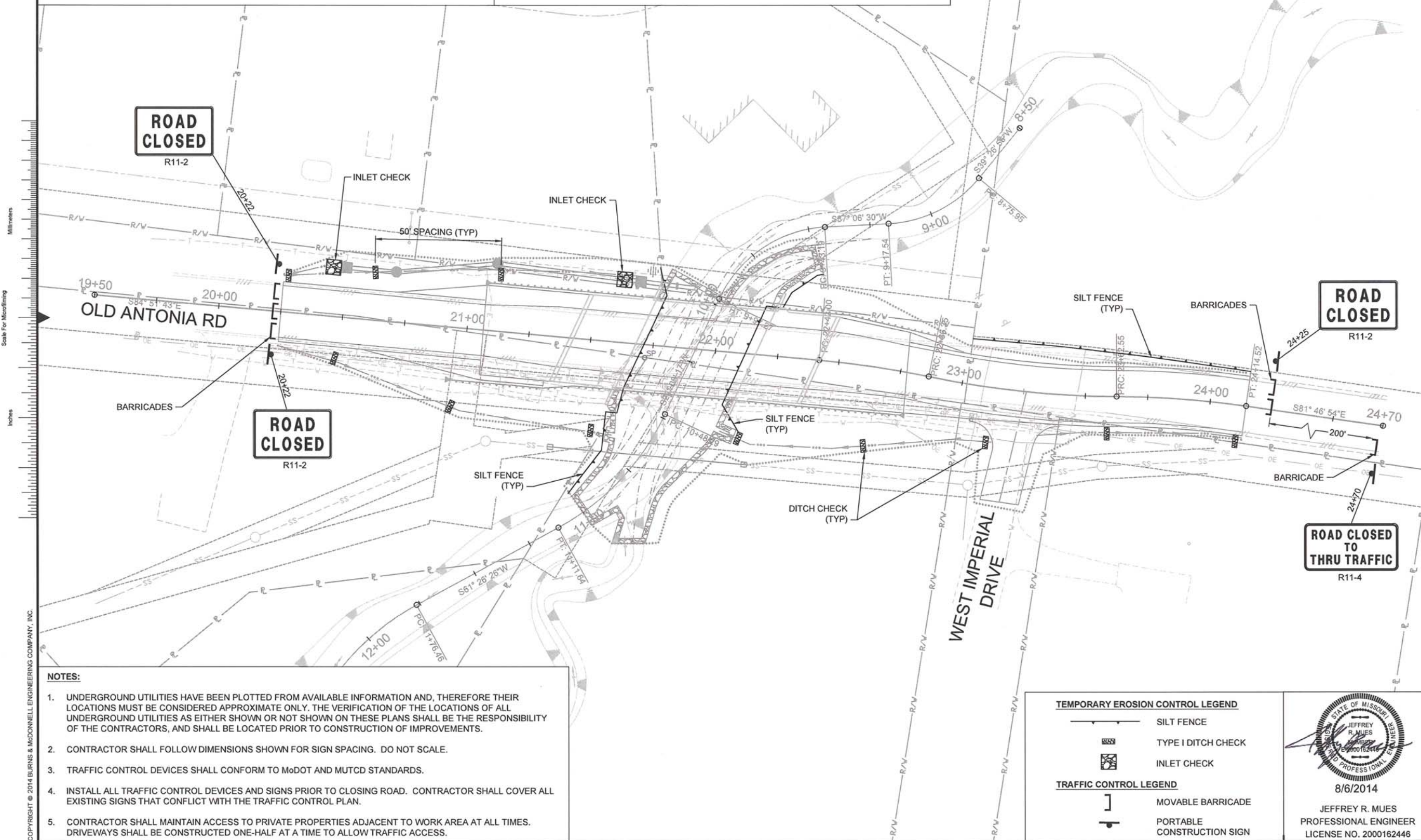
LETTER POSITIONS (X)													LENGTH
F	L	A	M	M	R	D							
5	8.5	11.7	16.4	20.9	24.8	29.8	33.6						32

Letter locations are panel edge to lower left corner
All units are in inches unless otherwise specified

SPECIAL SIGN
"FLAMM ROAD" DETAIL
NOT TO SCALE



no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION



NOTES:

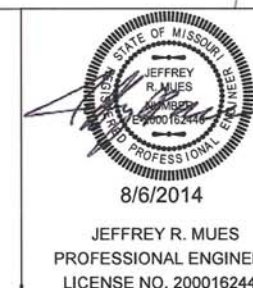
1. UNDERGROUND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND, THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. THE VERIFICATION OF THE LOCATIONS OF ALL UNDERGROUND UTILITIES AS EITHER SHOWN OR NOT SHOWN ON THESE PLANS SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS, AND SHALL BE LOCATED PRIOR TO CONSTRUCTION OF IMPROVEMENTS.
2. CONTRACTOR SHALL FOLLOW DIMENSIONS SHOWN FOR SIGN SPACING. DO NOT SCALE.
3. TRAFFIC CONTROL DEVICES SHALL CONFORM TO MoDOT AND MUTCD STANDARDS.
4. INSTALL ALL TRAFFIC CONTROL DEVICES AND SIGNS PRIOR TO CLOSING ROAD. CONTRACTOR SHALL COVER ALL EXISTING SIGNS THAT CONFLICT WITH THE TRAFFIC CONTROL PLAN.
5. CONTRACTOR SHALL MAINTAIN ACCESS TO PRIVATE PROPERTIES ADJACENT TO WORK AREA AT ALL TIMES. DRIVEWAYS SHALL BE CONSTRUCTED ONE-HALF AT A TIME TO ALLOW TRAFFIC ACCESS.

TEMPORARY EROSION CONTROL LEGEND

- SILT FENCE
- TYPE I DITCH CHECK
- INLET CHECK

TRAFFIC CONTROL LEGEND

- MOVABLE BARRICADE
- PORTABLE CONSTRUCTION SIGN



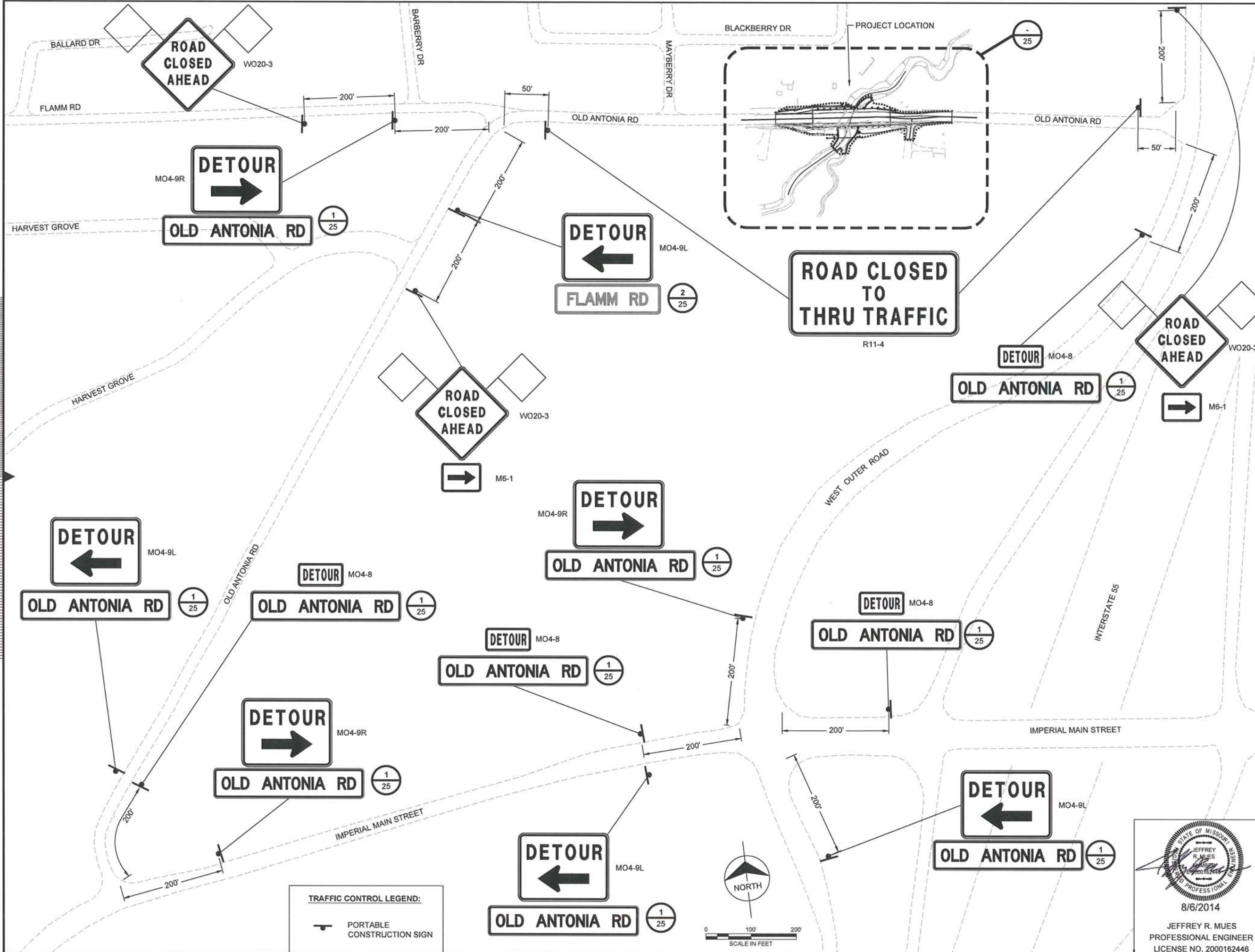
Burns & McDonnell
Professional Engineering Corporation
MO Certificate of Authority # 000165

date	MAY 2014	detailed	J. BIRKE
designed	J. BIRKE	checked	J. MUES



OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
TRAFFIC AND EROSION CONTROL PLAN

project	60165	contract	STP-5403(630)
drawing	25	rev.	0
sheet	25	of 31	sheets
file	25_Traffic and Erosion Control Plan		



no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION

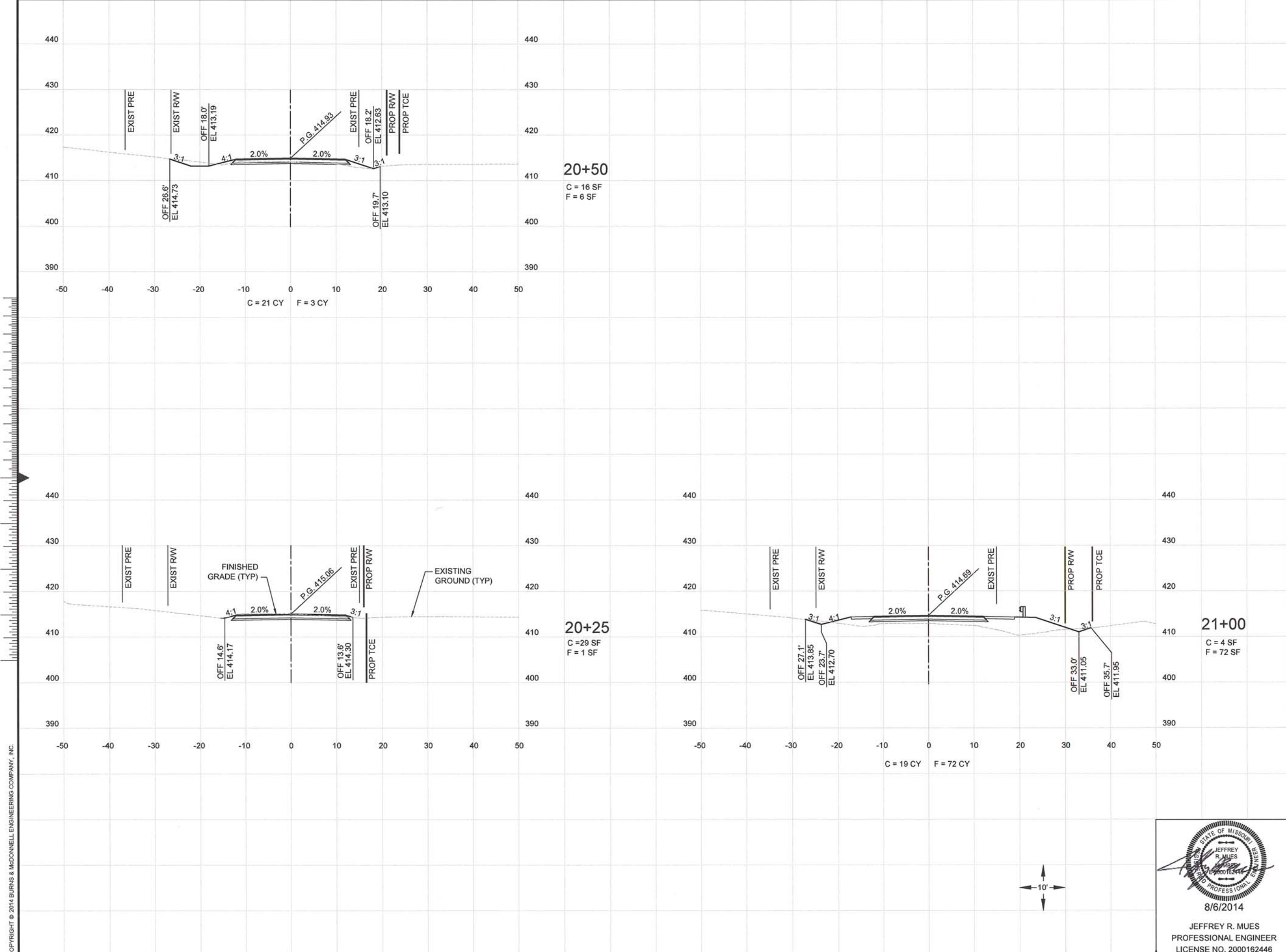
NOTES:

- CONTRACTOR SHALL FOLLOW DIMENSIONS SHOWN FOR SIGN SPACING. DO NOT SCALE.
- TRAFFIC CONTROL DEVICES SHALL CONFORM TO MoDOT AND MUTCD STANDARDS.
- INSTALL ALL TRAFFIC CONTROL DEVICES AND SIGNS PRIOR TO CLOSING ROAD. CONTRACTOR SHALL COVER ALL EXISTING SIGNS THAT CONFLICT WITH THE TRAFFIC CONTROL PLAN.
- CONTRACTOR SHALL MAINTAIN ACCESS TO PRIVATE PROPERTIES ADJACENT TO WORK AREA AT ALL TIMES. DRIVEWAYS SHALL BE CONSTRUCTED ONE-HALF AT A TIME TO ALLOW TRAFFIC ACCESS.
- CONTRACTOR SHALL CONTACT MISSOURI ONE CALL (DIG-RITE) PRIOR TO INSTALLING SIGNS.
- CONTRACTOR SHALL NOTIFY MoDOT MAINTENANCE OFFICE 7 DAYS PRIOR TO INSTALLING SIGNS ALONG MoDOT RIGHT OF WAY.

Burns & McDonnell Professional Engineering Corporation MO Certificate of Authority # 000165	
date MAY 2014 designed J. BIRKE	detailed J. BIRKE checked J. MUES

OLD ANTONIA ROAD BRIDGE OVER TRIBUTARY TO ROCK CREEK DETOUR PLAN	
project 60165	contract STP-5403(630)
drawing 26	rev. 0
sheet 26 of 31 sheets file 26 Detour Plan	

JEFFREY R. MUES
 PROFESSIONAL ENGINEER
 LICENSE NO. 2000162446
 8/6/2014



no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION

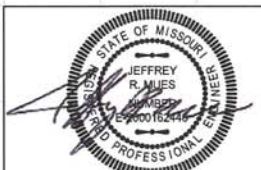


Burns & McDonnell
Professional Engineering Corporation
MO Certificate of Authority # 000165

date MAY 2014	detailed J. BIRKE
designed J. BIRKE	checked J. MUES

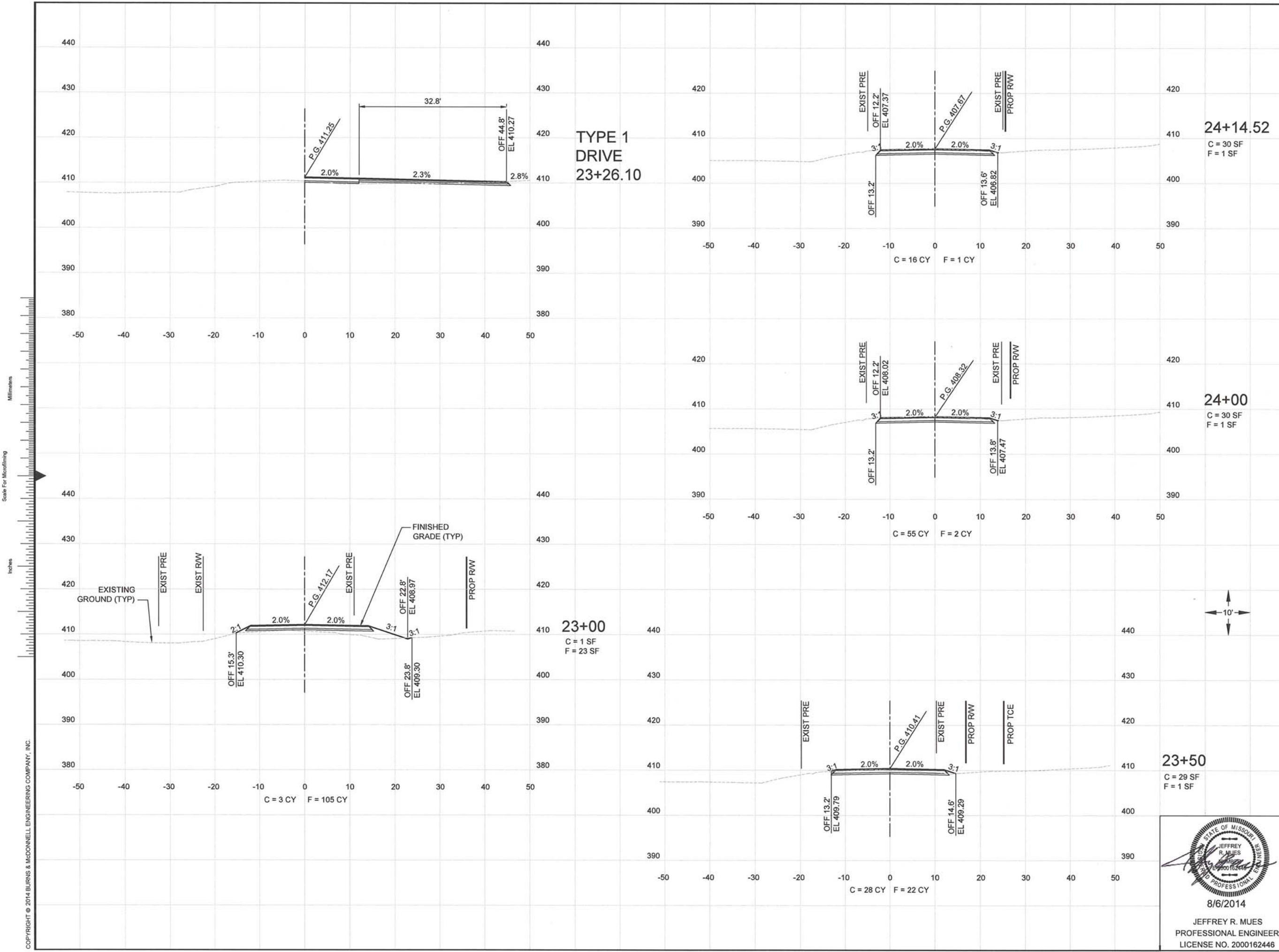


OLD ANTONIA ROAD BRIDGE OVER TRIBUTARY TO ROCK CREEK OLD ANTONIA ROAD CROSS SECTIONS	
project 60165	contract STP-5403(630)
drawing 27	rev. 0
sheet 27 of 31 sheets	file 27 Sections



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PROFESSIONAL ENGINEER
LICENSE NO. 2000162446
8/6/2014

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no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION

date MAY 2014

designed J. BIRKE

detailed J. BIRKE

checked J. MUES



JEFFERSON COUNTY
MISSOURI

OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
OLD ANTONIA ROAD
CROSS SECTIONS

project 60165 contract STP-5403(630)

drawing **29** - **0** rev.

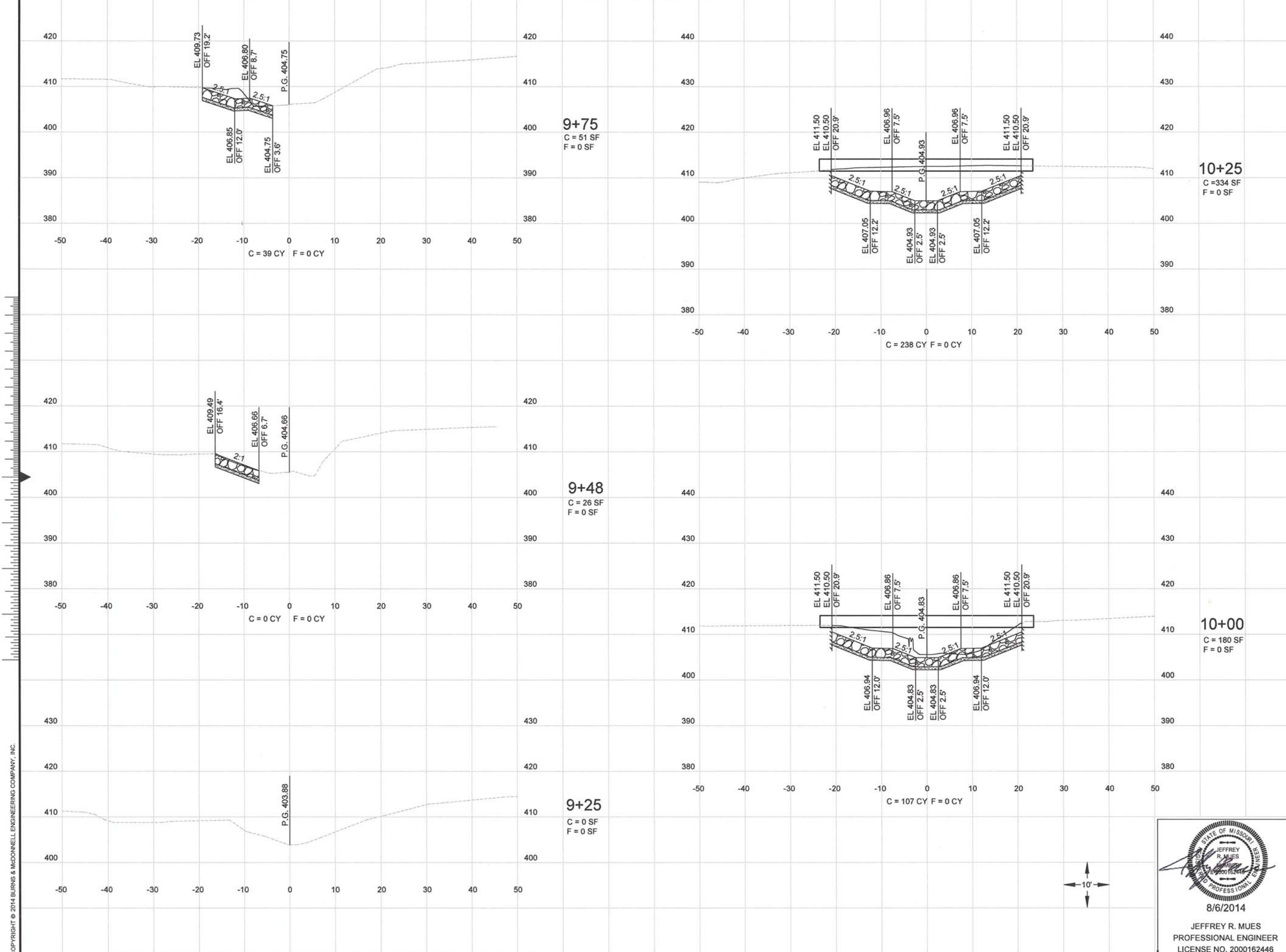
sheet 29 of 31 sheets

file 29_Sections



8/6/2014

JEFFREY R. MUES
PROFESSIONAL ENGINEER
LICENSE NO. 2000162446



no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION

Burns & McDonnell
Professional Engineering Corporation
MO Certificate of Authority # 000165

date MAY 2014	detailed J. BIRKE
designed J. BIRKE	checked J. MUES

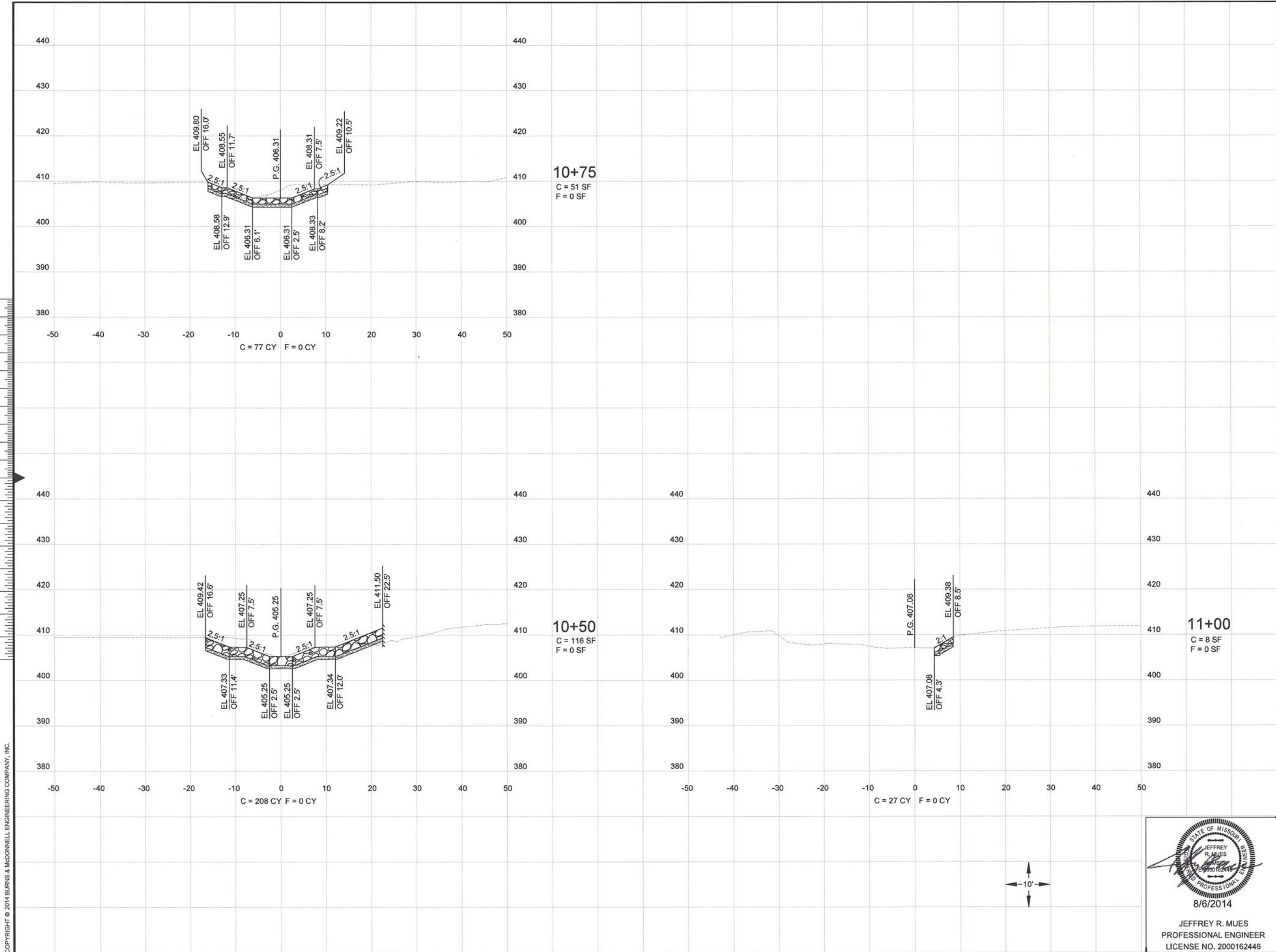


OLD ANTONIA ROAD
BRIDGE OVER TRIBUTARY TO ROCK CREEK
TRIBUTARY TO ROCK CREEK
CROSS SECTIONS

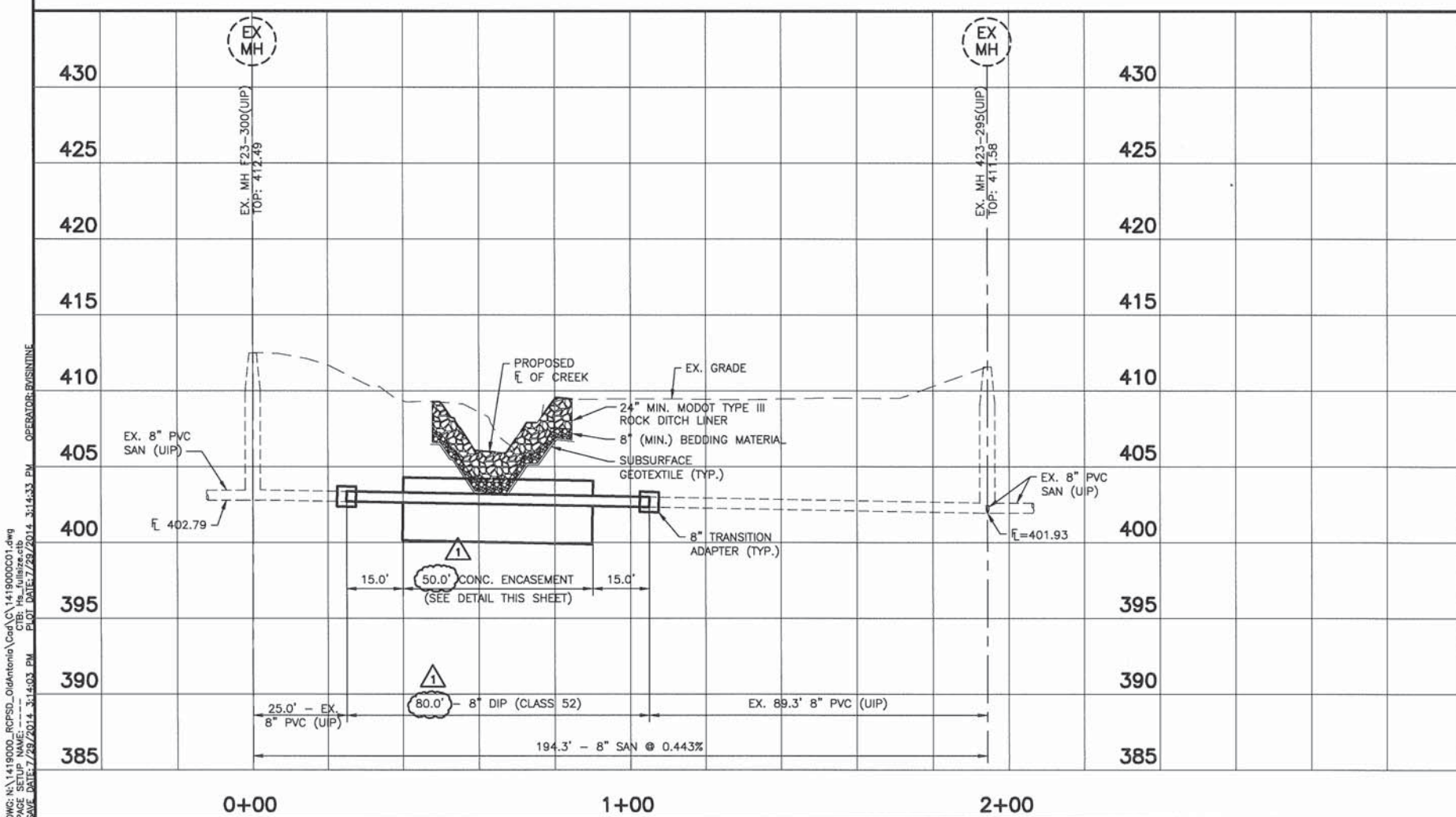
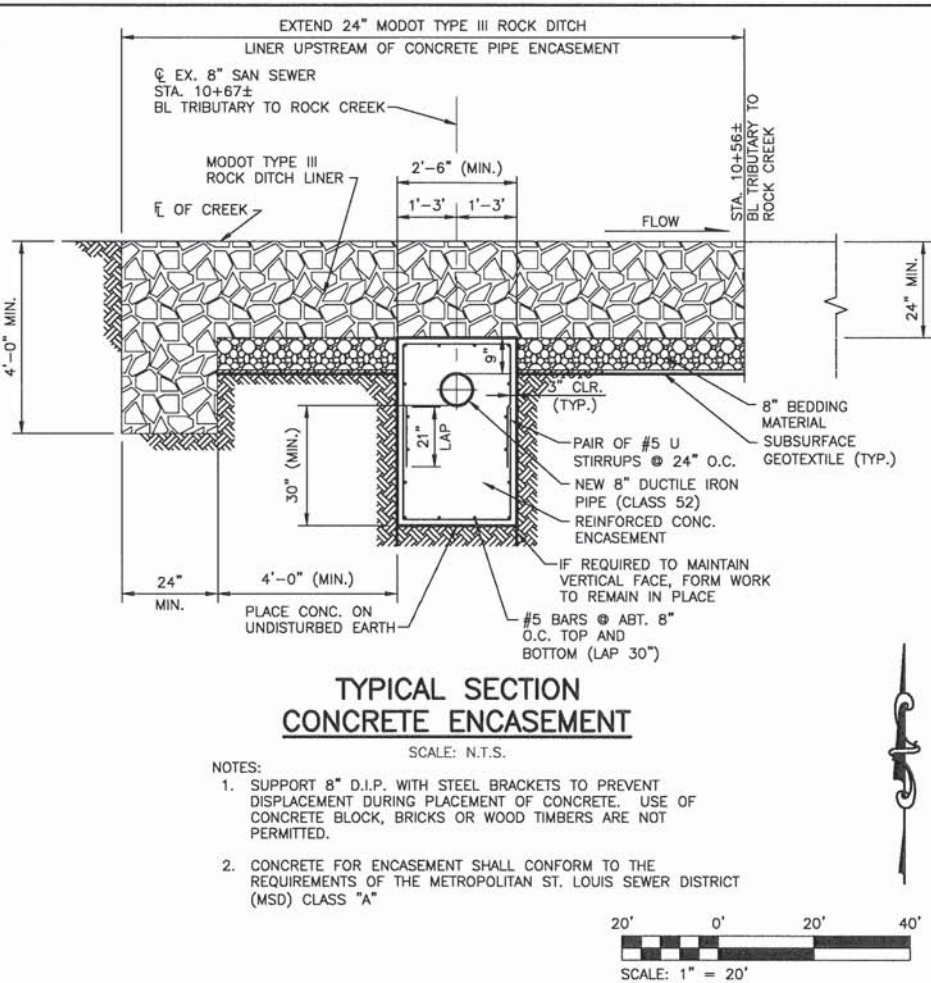
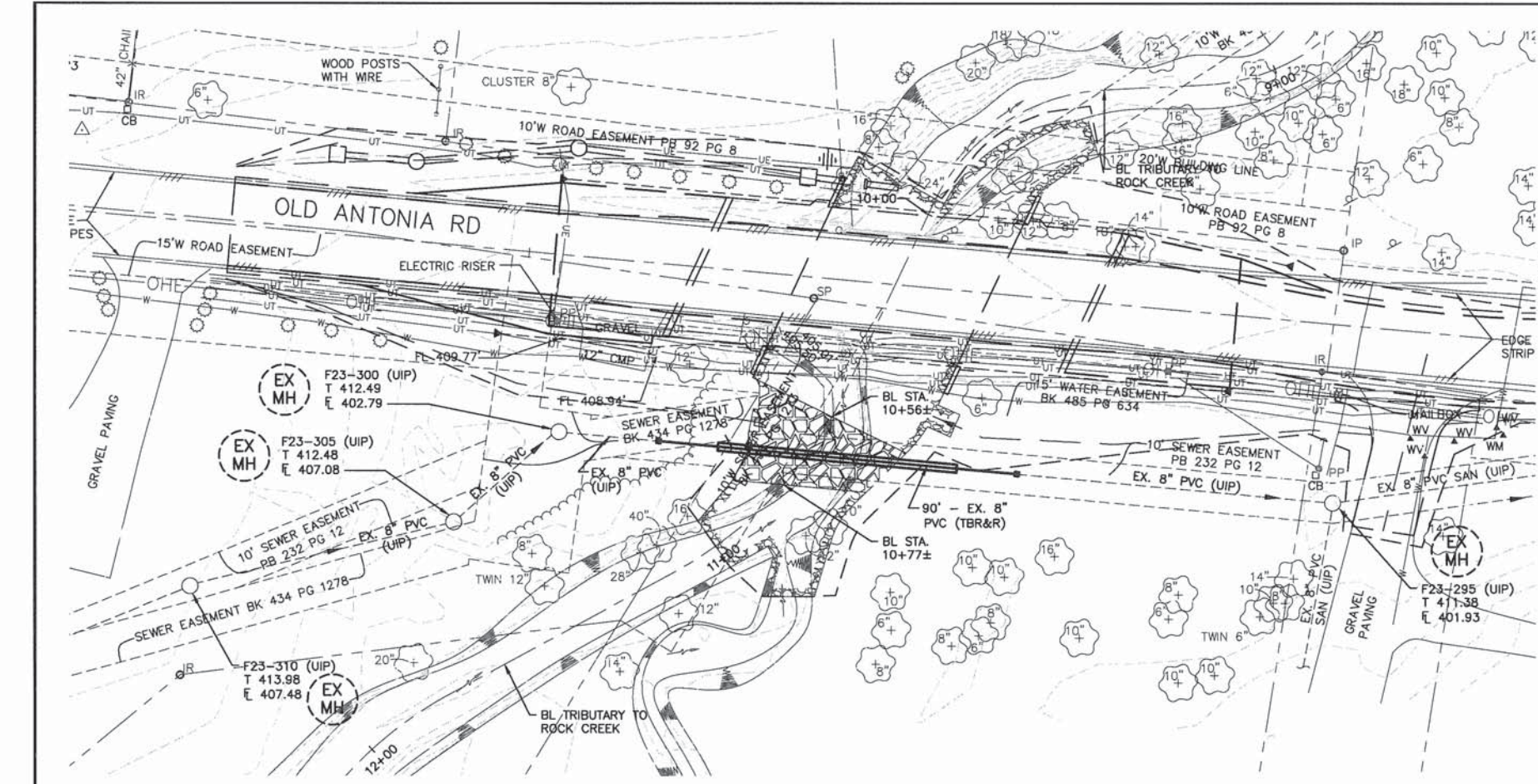
project 60165	contract STP-5403(630)
drawing 30	rev. 0
sheet 30 of 31	sheets
file 30 Sections	

JEFFREY R. MUES
PROFESSIONAL ENGINEER
LICENSE NO. 2000162446
8/6/2014





no.	date	by	ckd	description
0	8/6/14	JB	JM	ISSUE FOR CONSTRUCTION



- GENERAL NOTES:
- ALL WORK AND MATERIALS TO BE COMPLETED IN ACCORDANCE WITH THE ROCK CREEK PUBLIC SEWER DISTRICT (RCPD) SANITARY SEWER CONSTRUCTION STANDARDS, UNLESS OTHERWISE NOTED ON THIS PLAN SHEET.
 - ALL MATERIALS SHALL BE SUBMITTED TO THE RCPD FOR APPROVAL PRIOR TO CONSTRUCTION.
 - DUCTILE IRON PIPE SHALL BE CLASS 52. PIPE JOINTS SHALL BE RUBBER-GASKETED MECHANICAL JOINTS WITH STAINLESS STEEL BOLTS, NUTS AND WASHERS. EXTERIOR COATING OF PIPE SHALL BE COAL TAR EPOXY AND INTERIOR COATING SHALL BE PROTECTO 401.
 - MATERIALS FOR REINFORCED CONCRETE ENCASEMENT SHALL CONFORM TO THE REQUIREMENTS OF THE "STANDARD CONSTRUCTION SPECIFICATIONS OF THE METROPOLITAN ST. LOUIS SEWER DISTRICT, DATED 2009".
 - DUCTILE IRON TRANSITION ADAPTERS SHALL BE PROVIDED TO CONNECT THE NEW DUCTILE IRON PIPE TO THE EXISTING PVC SEWER PIPE WHERE NOTED ON THE PLAN SHEET. THE ADAPTERS SHALL BE A "HARCO TRANSITION COUPLING" AS MANUFACTURED BY THE HARRINGTON CORPORATION. ADAPTERS SHALL HAVE AN EXTERIOR COATING OF COAL TAR EPOXY (ASTM C210) AND INTERIOR COATING OF PROTECTO 401.
 - CONTRACTOR SHALL PROVIDE BY-PASS PUMPING OF ALL SANITARY FLOW BETWEEN EXISTING MANHOLES F23-300 AND F23-295 DURING THE REPLACEMENT OF THE EXISTING 8-INCH SANITARY SEWER LINE. A BY-PASS PUMPING PLAN SHALL BE SUBMITTED TO THE RCPD FOR APPROVAL PRIOR TO BEGINNING CONSTRUCTION. THE EXISTING SEWER IS INTENDED TO CONVEY SANITARY SEWAGE ONLY; HOWEVER, INFILTRATION AND INFLOW FROM WET WEATHER EVENTS CAN CAUSE SIGNIFICANT INCREASE IN FLOWS. THE CONTRACTOR'S BY-PASS SYSTEM SHALL BE SIZED TO HANDLE ALL ANTICIPATED FLOWS. THE BYPASSING OR DISCHARGING OF SANITARY FLOW INTO THE ADJACENT CREEK, DITCHES OR STORM SEWERS WILL NOT BE ALLOWED. AT NO TIME SHALL THE CONTRACTOR'S OPERATION CAUSE SANITARY SEWAGE TO BACKUP INTO BUILDINGS OR HOMES.
 - ALL WORK SHALL BE INSPECTED BY THE RCPD. UPON COMPLETION OF THE WORK, THE SEWER LINE BETWEEN MANHOLES F23-295 AND F23-300 SHALL BE AIR TESTED IN ACCORDANCE WITH THE RCPD SANITARY SEWER CONSTRUCTION STANDARDS.

JEFFERSON COUNTY, MISSOURI		REVISED DIMENSIONS	
OLD ANTONIA ROAD		ISSUED FOR CONSTRUCTION	
BRIDGE OVER TRIBUTARY TO ROCK CREEK		DATE	
		NO.	
		12/31/2015	
		07/28/14	
		7/29/14	
		1	

HORNER & SHIFRIN, INC.
ENGINEERS

3200 OAKLAND AVE., ST. LOUIS, MO 63110-1490
314-531-4321 • FAX 314-531-6966 • www.horner-shifrin.com
Discipline: Professional Engineering
Certificate Authority: 00013
Expiration Date: December 31, 2014

NAME: GILBERT E. SEWING
DISCIPLINE: ENGINEER
LICENSE NO.: E-23310
EXPIRATION DATE: 12/31/2015

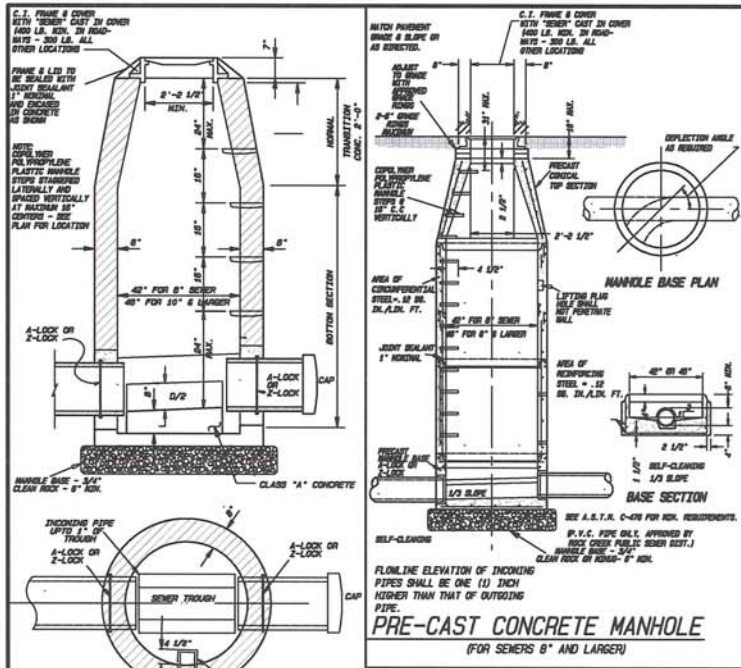
DATE: 07/28/2014

DESIGNED: GES
DRAWN: KJM
CHECKED: GES

HS JOB NO. 1419000

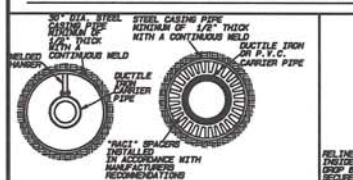
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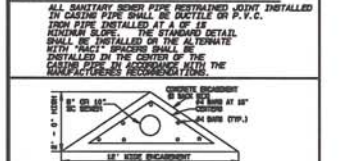


PRE-CAST CONCRETE MANHOLE
(FOR SEWERS 8" & LARGER)

TERMINAL MANHOLE



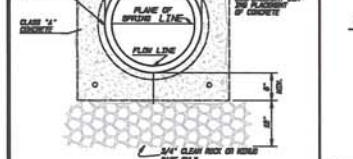
ALTERNATE BOREING DETAIL



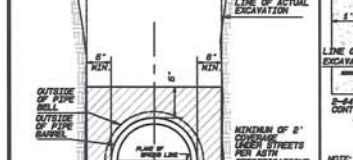
CONCRETE ENCASEMENT AT STREAM CROSSING AND WET WEATHER CROSSING



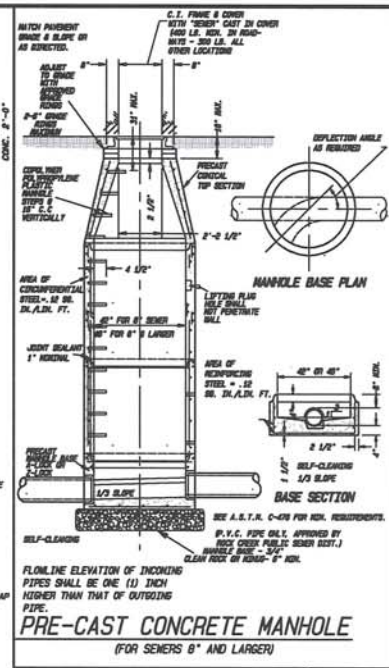
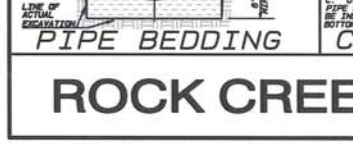
CONCRETE ENCASEMENT



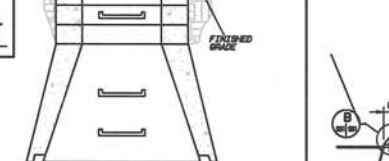
PIPE BEDDING



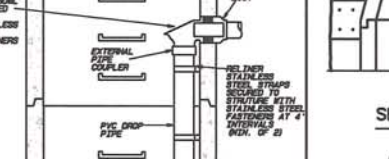
CONCRETE CRADLE



INSIDE DROP MANHOLE (NEW MANHOLE)



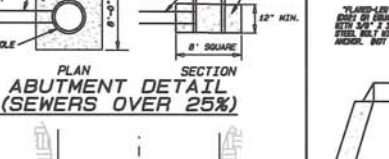
PLAN ABUTMENT DETAIL (SEWERS OVER 25")



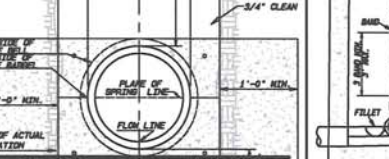
CONCRETE ENCASEMENT AT STREAM CROSSING AND WET WEATHER CROSSING



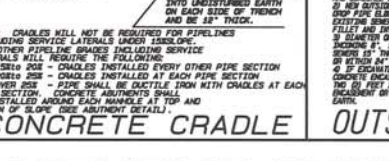
CONCRETE ENCASEMENT



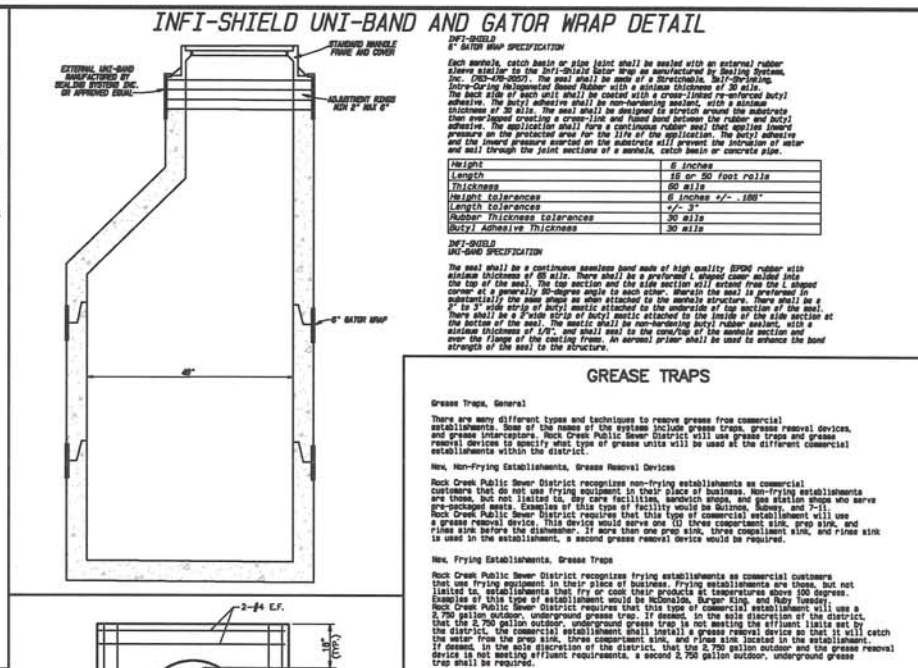
PIPE BEDDING



CONCRETE CRADLE



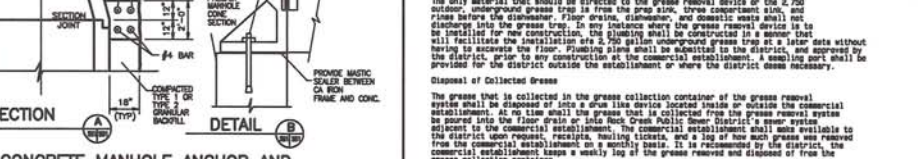
OUTSIDE DROP MANHOLE



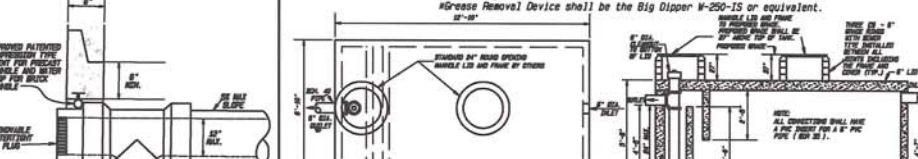
GREASE TRAPS



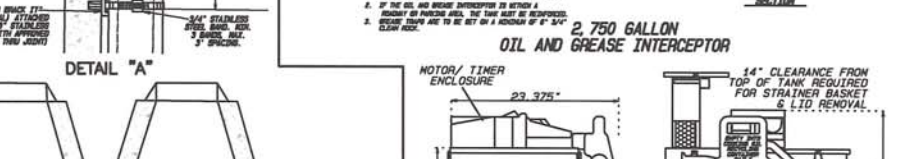
CONCRETE MANHOLE ANCHOR AND WATER TIGHT FRAME AND COVER



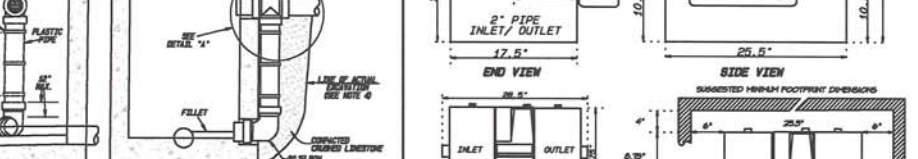
2,750 GALLON OIL AND GREASE INTERCEPTOR



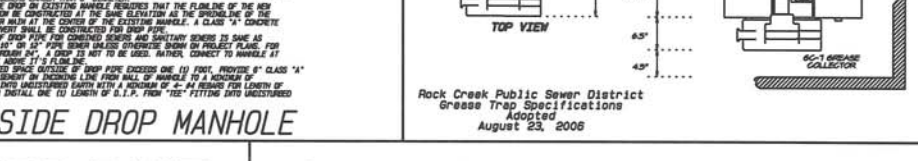
DETAIL "A"



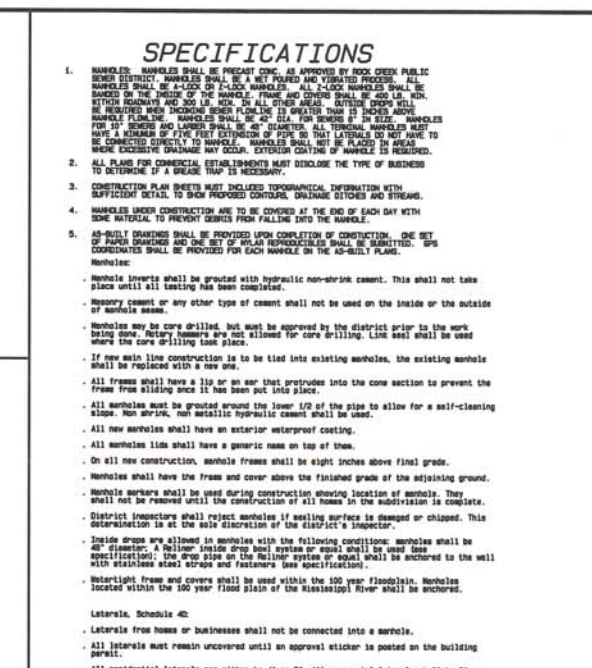
ROCK CREEK PUBLIC SEWER DISTRICT STANDARD TESTING REQUIREMENTS FOR SANITARY SEWERS AND MANHOLES



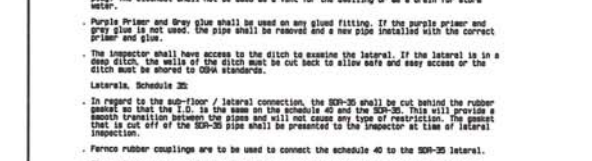
ROCK CREEK PUBLIC SEWER DISTRICT STANDARD TESTING REQUIREMENTS FOR SANITARY SEWERS AND MANHOLES



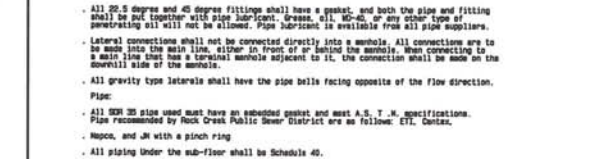
ROCK CREEK PUBLIC SEWER DISTRICT STANDARD TESTING REQUIREMENTS FOR SANITARY SEWERS AND MANHOLES



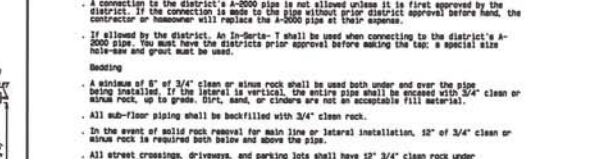
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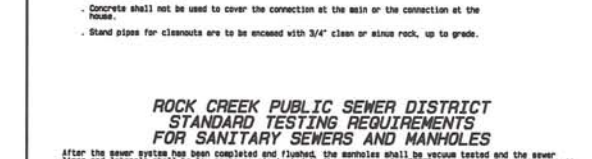
CONCRETE MANHOLE ANCHOR AND WATER TIGHT FRAME AND COVER



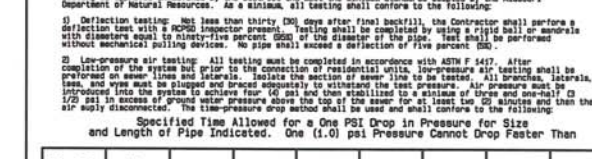
2,750 GALLON OIL AND GREASE INTERCEPTOR



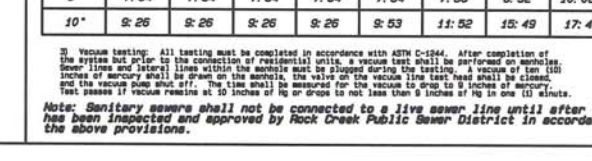
DETAIL "A"



ROCK CREEK PUBLIC SEWER DISTRICT STANDARD TESTING REQUIREMENTS FOR SANITARY SEWERS AND MANHOLES



ROCK CREEK PUBLIC SEWER DISTRICT STANDARD TESTING REQUIREMENTS FOR SANITARY SEWERS AND MANHOLES



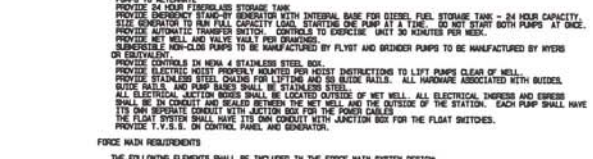
ROCK CREEK PUBLIC SEWER DISTRICT STANDARD TESTING REQUIREMENTS FOR SANITARY SEWERS AND MANHOLES



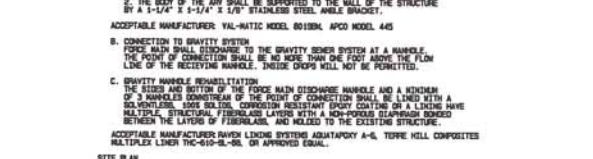
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CONCRETE MANHOLE ANCHOR AND WATER TIGHT FRAME AND COVER



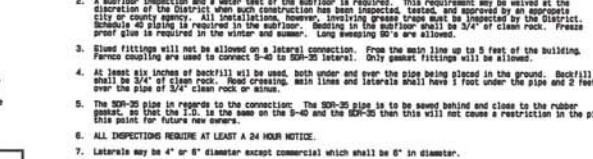
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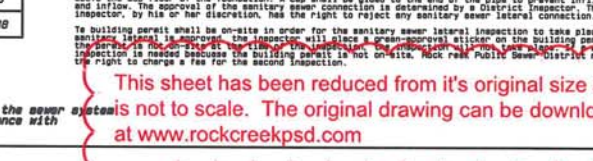
DETAIL "A"



ROCK CREEK PUBLIC SEWER DISTRICT STANDARD TESTING REQUIREMENTS FOR SANITARY SEWERS AND MANHOLES



ROCK CREEK PUBLIC SEWER DISTRICT STANDARD TESTING REQUIREMENTS FOR SANITARY SEWERS AND MANHOLES



ROCK CREEK PUBLIC SEWER DISTRICT STANDARD TESTING REQUIREMENTS FOR SANITARY SEWERS AND MANHOLES



ROCK CREEK PUBLIC SEWER DIST. SANITARY SEWER CONSTRUCTION STANDARDS

This sheet has been reduced from its original size and is not to scale. The original drawing can be downloaded at www.rockcreekpsd.com

Rock Creek Public Sewer District
Revised Construction Standards
07-10-2012