

## DESIGN DESIGNATION

A.A.D.T. - 2011 = 760  
 A.A.D.T. - 2031 = 1000  
 D.H.V. = 12%  
 T = 17%  
 V = 40 M.P.H.  
 D = 60%

## FUNCTIONAL CLASSIFICATION- RURAL MINOR COLLECTOR

## UTILITY CONTACTS

AMEREN MISSOURI  
 DONALD W. KNOTTS  
 6450 HIGHWAY MM  
 HOUSE SPRINGS, MO 63051  
 636-671-6112

AT&T  
 BARRY FOSTER  
 122 N 2ND ST.  
 FESTUS, MO 63028  
 636-931-7506

CONVENTIONAL SYMBOLS  
(USED IN PLANS)

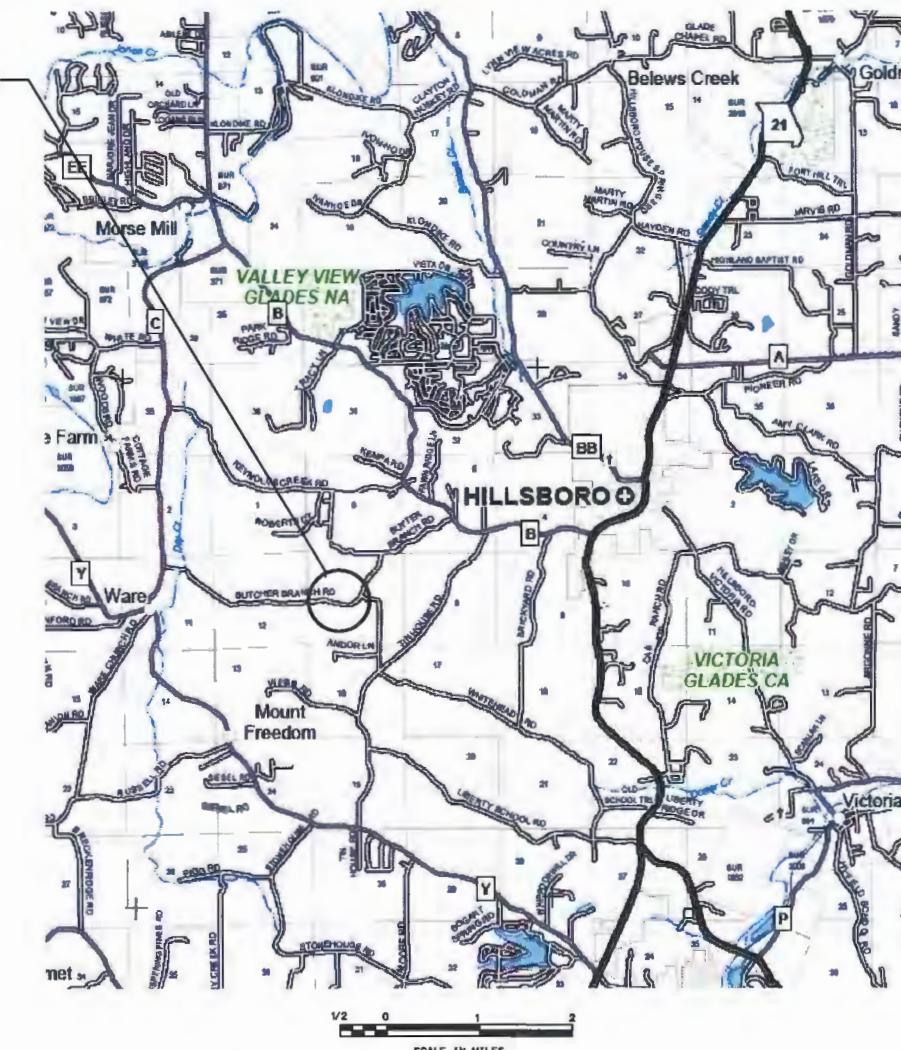
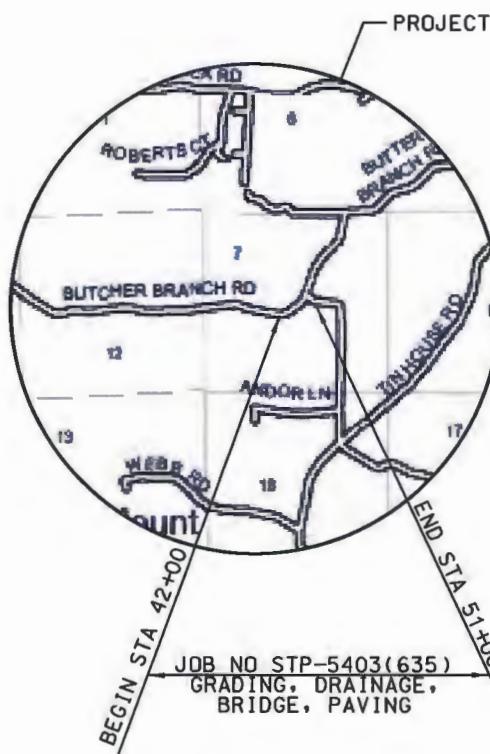
	EXISTING	NEW
BUILDINGS AND STRUCTURES	□	■
GUARD RAIL	□	■
CONCRETE RIGHT-OF-WAY MARKER	□	■
STEEL RIGHT-OF-WAY MARKER	□	■
LOCATION SURVEY MARKER	○	○
UTILITIES		
FIBER OPTICS	—FO—	—FO—
OVERHEAD TELEPHONE	—○—	●
UNDERGROUND TELEPHONE	—T—	—T—
OVERHEAD POWER	—□—	■
UNDERGROUND POWER	—P—	—P—
GAS	—G—	—G—
WATER	—W—	—W—
MANHOLE	○	○
FIRE HYDRANT	HYD	HYD
WATER VALVE	WV	WV
WATER METER	WM	WM
DROP INLET	DI	DI
DITCH BLOCK	DB	DB
GROUND MOUNTED SIGN	SIGN	SIGN
LIGHT POLE	LP	LP
H-FRAME POWER POLE	HP	HP
TELEPHONE PEDESTAL	PED	PED
FENCE	—V—	—X—
CHAIN LINK	V	X
WOVEN WIRE	W	W
GATE POST	GP	GP
BENCHMARK	BM	BM

NOTE: DASHED OR OPEN SYMBOLS INDICATE EXISTING FEATURES

STATE OF MISSOURI  
 JEFFERSON COUNTY PUBLIC WORKS DEPARTMENT  
 BRIDGE REPLACEMENT

BUTCHER BRANCH ROAD OVER BUTCHER BRANCH CREEK  
 BRIDGE NO 26700211

FINAL PLANS  
 FEBRUARY 19, 2014



APPROVED FOR SUBMITTAL

JASON JONAS, P.E. DIRECTOR OF PUBLIC WORKS

## INDEX OF SHEETS

DESCRIPTION	SHEET NUMBER
TITLE SHEET	1
TYPICAL SECTIONS (1 SHEET)	2
QUANTITIES (1 SHEET)	2B
PLAN-PROFILE	3-4
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CROSS SECTIONS-ROADWAY	1-6
CROSS SECTIONS-CHANNEL	1-4



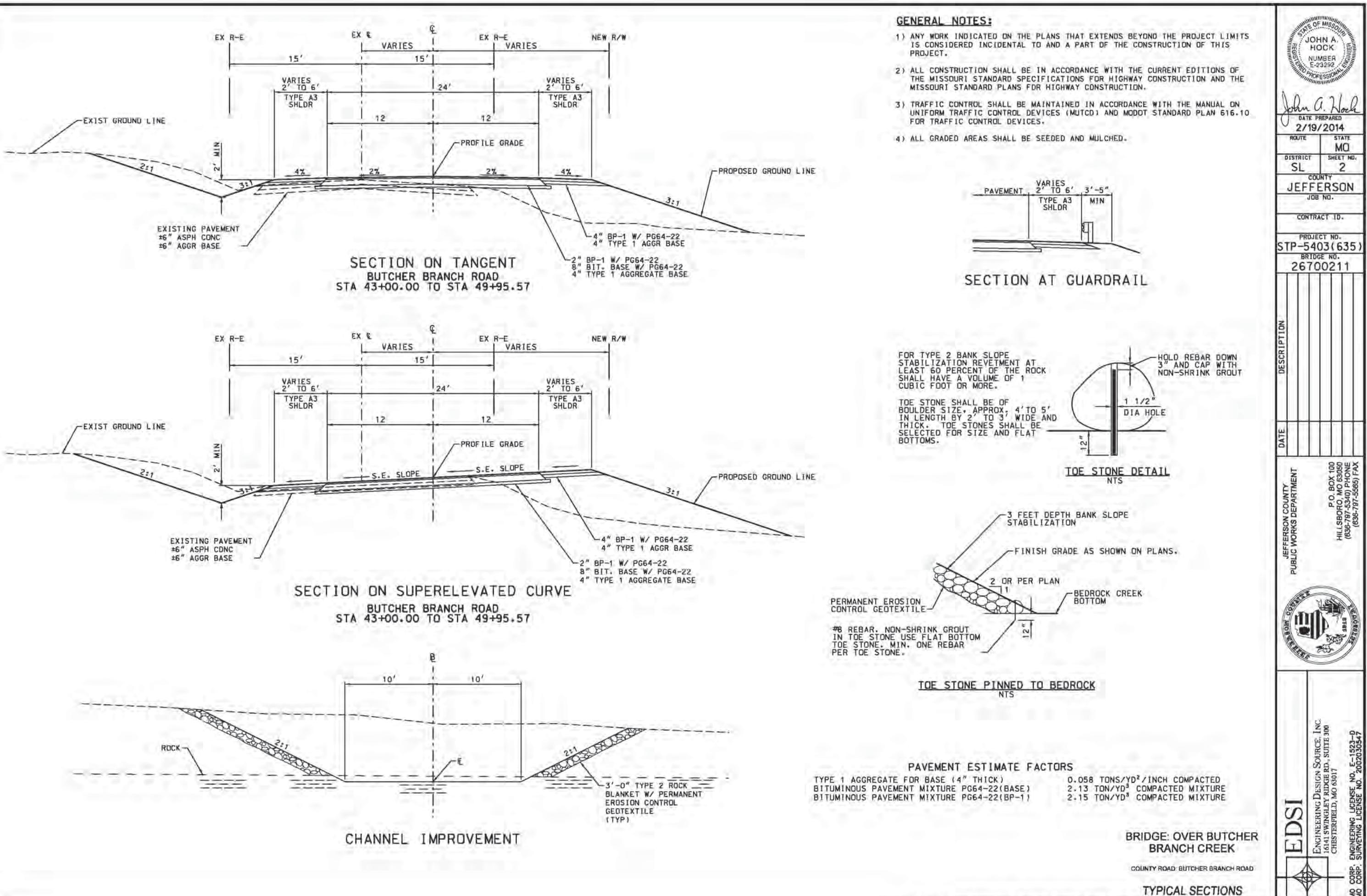
John A. Hock  
 DATE PREPARED  
 2/19/2014

ROUTE STATE  
 MO  
 DISTRICT SHEET NO.  
 SL 1  
 COUNTY JEFFERSON  
 JOB NO.  
 CONTRACT ID.  
 PROJECT NO.  
 STP-5403(635)  
 BRIDGE NO.  
 26700211

DESCRIPTION	DATE
ROADWAY SHEETS	1-10
CROSS SECTIONS - ROADWAY	1-6
CROSS SECTIONS - CHANNEL	1-4
EDSI	
STRUCTURES, INC.	
BRIDGE SHEETS	1-17

LENGTH OF PROJECT	
BEGINNING OF PROJECT	STA. 42 + 00.00
END OF PROJECT	STA. 51 + 00.00
APPARENT LENGTH	900.00 FEET
EQUATIONS AND EXCEPTIONS:	
BK 49+05.51 AHD 49+05.74	
TOTAL CORRECTIONS	
NET LENGTH OF PROJECT	
STATE LENGTH	

STRUCTURES, INC.	A STRUCTURAL ENGINEERING FIRM
2615 Grandin	St. Louis, MO 63123
Phone: (314) 639-2650	Fax: (314) 639-2652
CERT. OF AUTHORITY: E-2006035000	
REV.	





John A. Hock

DATE PREPARED  
2/19/2014

ROUTE STATE  
MO  
DISTRICT SHEET NO.  
SL 2B  
COUNTY  
JEFFERSON  
JOB NO.  
CONTRACT ID.  
PROJECT NO.  
STP-5403(635)  
BRIDGE NO.  
26700211

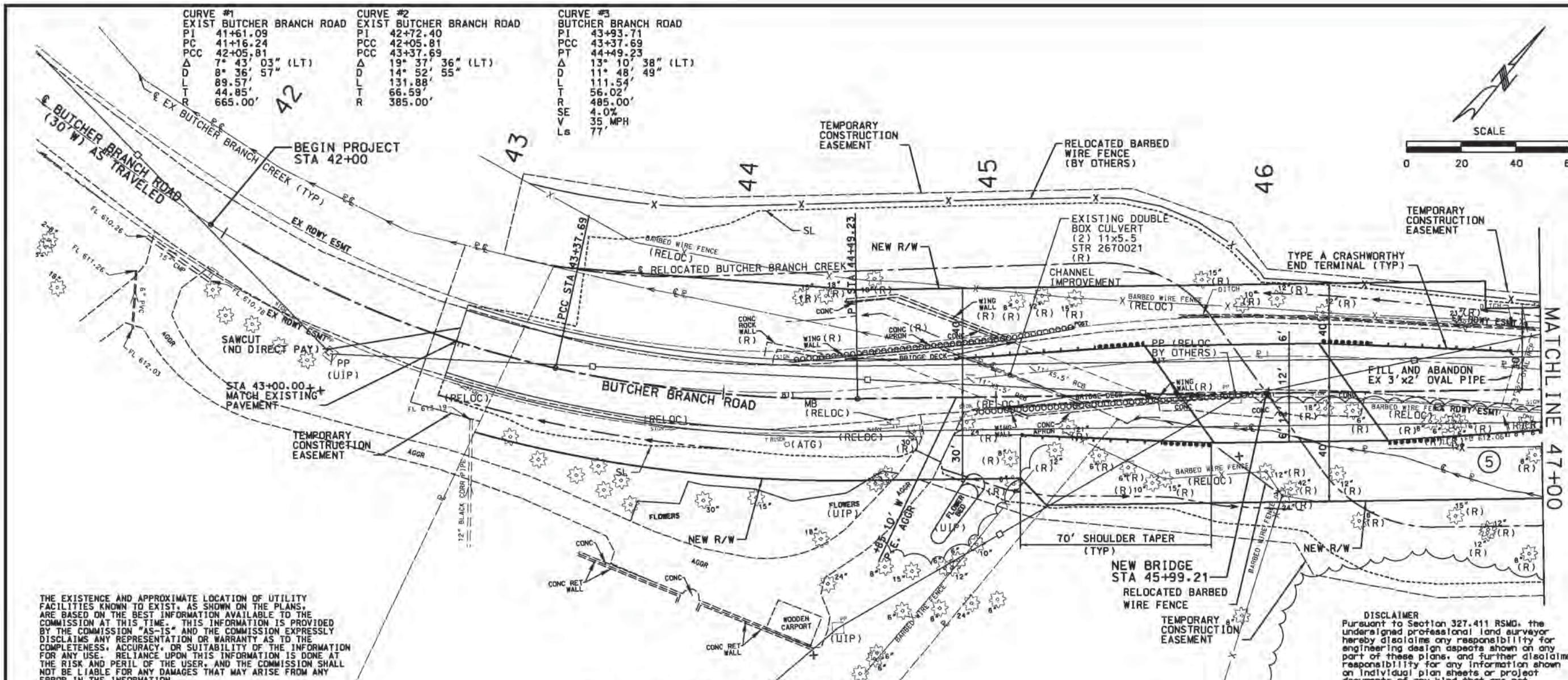
REMOVAL OF IMPROVEMENTS						
BEGIN STATION	END STATION	ROADWAY	LOCATION	DESCRIPTION	QUANTITY	UNITS
43+00		BUTCHER BRANCH RD	LT & RT	SAWCUT	26	LF
43+00	49+96	BUTCHER BRANCH RD	LT & RT	PAVEMENT REMOVAL	1,906	SY
43+07		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
43+56	46+98	BUTCHER BRANCH RD	RT	BARBED WIRE FENCE	332	LF
43+83		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
44+24		BUTCHER BRANCH RD	RT	TELEPHONE RISER (ATG)	1	EA
44+25	45+29	BUTCHER BRANCH RD	LT	GUARDRAIL REMOVAL	104	LF
44+59		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
44+63		BUTCHER BRANCH RD	RT	MAILBOX RELOCATION	1	EA
44+92	45+94	BUTCHER BRANCH RD	RT	GUARDRAIL REMOVAL	103	LF
44+93		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
45+04	45+60	BUTCHER BRANCH RD	RT	CONCRETE APRON	146	SF
45+25	46+20	BUTCHER BRANCH RD	LT	BARBED WIRE FENCE	105	LF
45+95	49+69	BUTCHER BRANCH RD	LT	BARBED WIRE FENCE	288	LF
46+23		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
46+92		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
47+54		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
48+17		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
48+71		BUTCHER BRANCH RD	LT	SIGN REMOVAL	1	EA
48+78		BUTCHER BRANCH RD	RT	SIGN RELOCATION	1	EA
49+33		BUTCHER BRANCH RD	LT	SIGN RELOCATION	1	EA
49+57		BUTCHER BRANCH RD	RT	TELEPHONE RISER (ATG)	1	EA
49+96		BUTCHER BRANCH RD	LT & RT	SAWCUT	50	LF
				TOTAL (202-20.10)	1	LS

GRADING AND REMOVALS						
BEGIN STATION	END STATION	ROADWAY	LOCATION	CLEARING AND GRUBBING ACRE 201-30.00	REMOVAL OF IMPROVEMENTS LS 202-20.10	UNCLASSIFIED EXCAVATION CUYD 203-50.00
43+00	49+96	BUTCHER BRANCH RD	RT	0.432		
43+00	49+96	BUTCHER BRANCH RD	LT	0.285		
43+00	49+96	BUTCHER BRANCH RD	LT & RT		1	
43+00	49+96	BUTCHER BRANCH RD	LT & RT		2,978.0	1,803.0
			TOTAL		1	2,978
						1,803

BASES AND AGGREGATE SURFACES				
BEGIN STATION	END STATION	ROADWAY	LOCATION	TYPE 1 AGGREGATE FOR BASE (4 IN. THICK) SQYD 304-01.43
43+00	45+76	BUTCHER BRANCH RD	LT & RT	859
44+85		BUTCHER BRANCH RD	RT	14
46+23	49+96	BUTCHER BRANCH RD	LT & RT	1,159
			TOTAL	2,032

FLEXIBLE PAVEMENTS						
BEGIN STATION	END STATION	ROADWAY	LOCATION	TYPE A3 SHOULDER	BITUMINOUS PAVEMENT MIXTURE PG64-22, (BP-1) TONS 401-12.09	BITUMINOUS PAVEMENT MIXTURE PG64-22 (BASE) TONS 401-30.00
43+00	45+59	BUTCHER BRANCH RD	LT	72.6		
43+00	44+70	BUTCHER BRANCH RD	RT	38.4		
43+00	45+76	BUTCHER BRANCH RD	LT & RT		85.1	337.3
44+64	45+79	BUTCHER BRANCH RD	RT	35.4		
46+20	49+96	BUTCHER BRANCH RD	LT	97.1		
46+23	49+96	BUTCHER BRANCH RD	LT & RT		116.0	459.8
46+39	49+69	BUTCHER BRANCH RD	RT	90.3		
			TOTAL	333.8	201.1	797.1

INCIDENTAL CONSTRUCTION																	
BEGIN STATION	END STATION	ROADWAY	LOCATION	TRANSITION SECTION, 6.5 FT. POSTS	BRIDGE ANCHOR SECTION (THRIE BEAM)	TYPE A CRASHWORTHY END TERMINAL	BARBED WIRE FENCE	FURNISHING TYPE 2	PLACING TYPE 2 ROCK BLANKET	TOE STONE PINNED TO BEDROCK	TEMPORARY TRAFFIC CONTROL	MOBILIZATION	4 IN. WHITE ACRYLIC WATERBORNE PAVEMENT MARKING PAINT	4 IN. YELLOW ACRYLIC WATERBORNE PAVEMENT MARKING PAINT	FLOWABLE BACKFILL	PERMANENT EROSION CONTROL GEOTEXTILE	CONTRACTOR FURNISHED SURVEYING AND STAKING
43+13	45+74	BUTCHER BRANCH RD	LT	EA 606-23.00A	EA 606-24.00	EA 606-30.15	LF 607-99.03	CUYD 611-30.20	CUYD 611-30.40	LF 611-99.01	LS 616-99.01	LS 618-10.00	LF 620-60.00B	CUYD 621-46.00A	SY 624-01.03A	LS 627-40.00	
43+13	46+19	BUTCHER BRANCH RD	LT					465	465	296					465		
44+85	45+37	BUTCHER BRANCH RD	LT			1											
45+09	45+61	BUTCHER BRANCH RD	RT			1											
45+37	45+56	BUTCHER BRANCH RD	LT	1		1											
45+56		BUTCHER BRANCH RD	LT			1											
45+61	45+79	BUTCHER BRANCH RD	RT	1		1											
45+79		BUTCHER BRANCH RD	RT			1											
45+79	47+42	BUTCHER BRANCH RD	RT					204	204	171					204		
45+81	46+04	BUTCHER BRANCH RD	RT					41									
46+20		BUTCHER BRANCH RD	LT			1											
46+20	46+38	BUTCHER BRANCH RD	LT	1		1										174	
46+24	47+48	BUTCHER BRANCH RD	RT					174	174	171							
46+38	46+89	BUTCHER BRANCH RD	LT			1											
46+43		BUTCHER BRANCH RD	RT			1											
46+43	46+62	BUTCHER BRANCH RD	RT	1		1											
46+44	48+27	BUTCHER BRANCH RD	RT					188								6	
46+62	47+13	BUTCHER BRANCH RD	RT			1											
46+86	46+95	BUTCHER BRANCH RD	LT & RT														
43+00	49+96	BUTCHER BRANCH RD	LT									696		1,391			
43+00	49+96	BUTCHER BRANCH RD	LT & RT									669					
43+00	49+69	BUTCHER BRANCH RD															



John A. Hock  
DATE PREPARED  
2/19/2014

ROUTE STATE MO  
DISTRICT SHEET NO. 3  
COUNTY JEFFERSON  
JOB NO.  
CONTRACT ID.  
PROJECT NO. STP-5403(635)  
BRIDGE NO. 26700211

DESCRIPTION  
DATE 7/29/2013 REVISE ROW AND TEE SHEET (REISSUED)

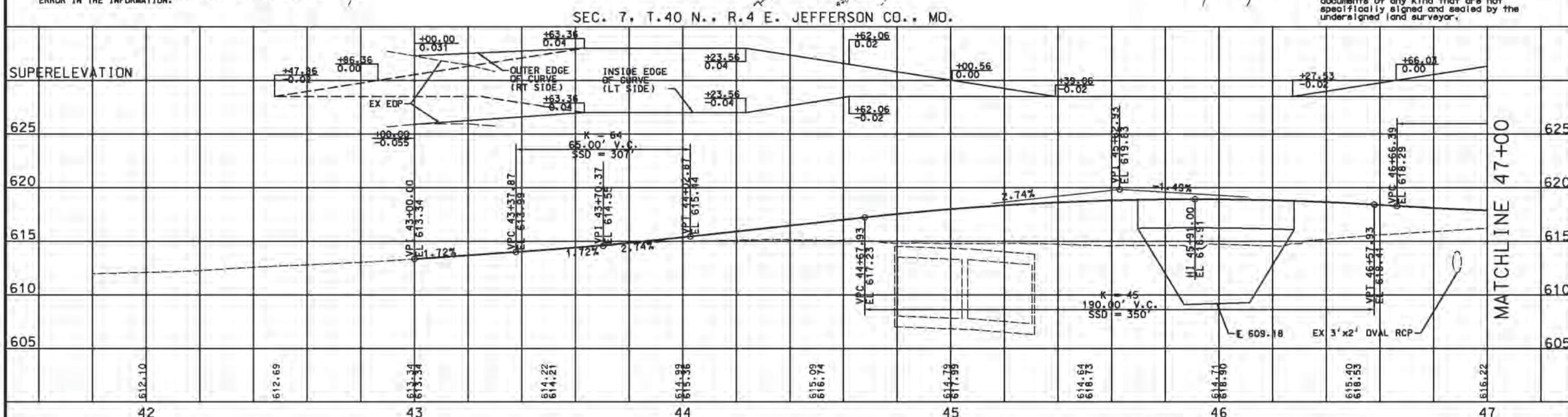
PO. BOX 100  
HILLSBORO, MO 63050  
(636) 787-5585 / FAX

JEFFERSON COUNTY  
PUBLIC WORKS DEPARTMENT



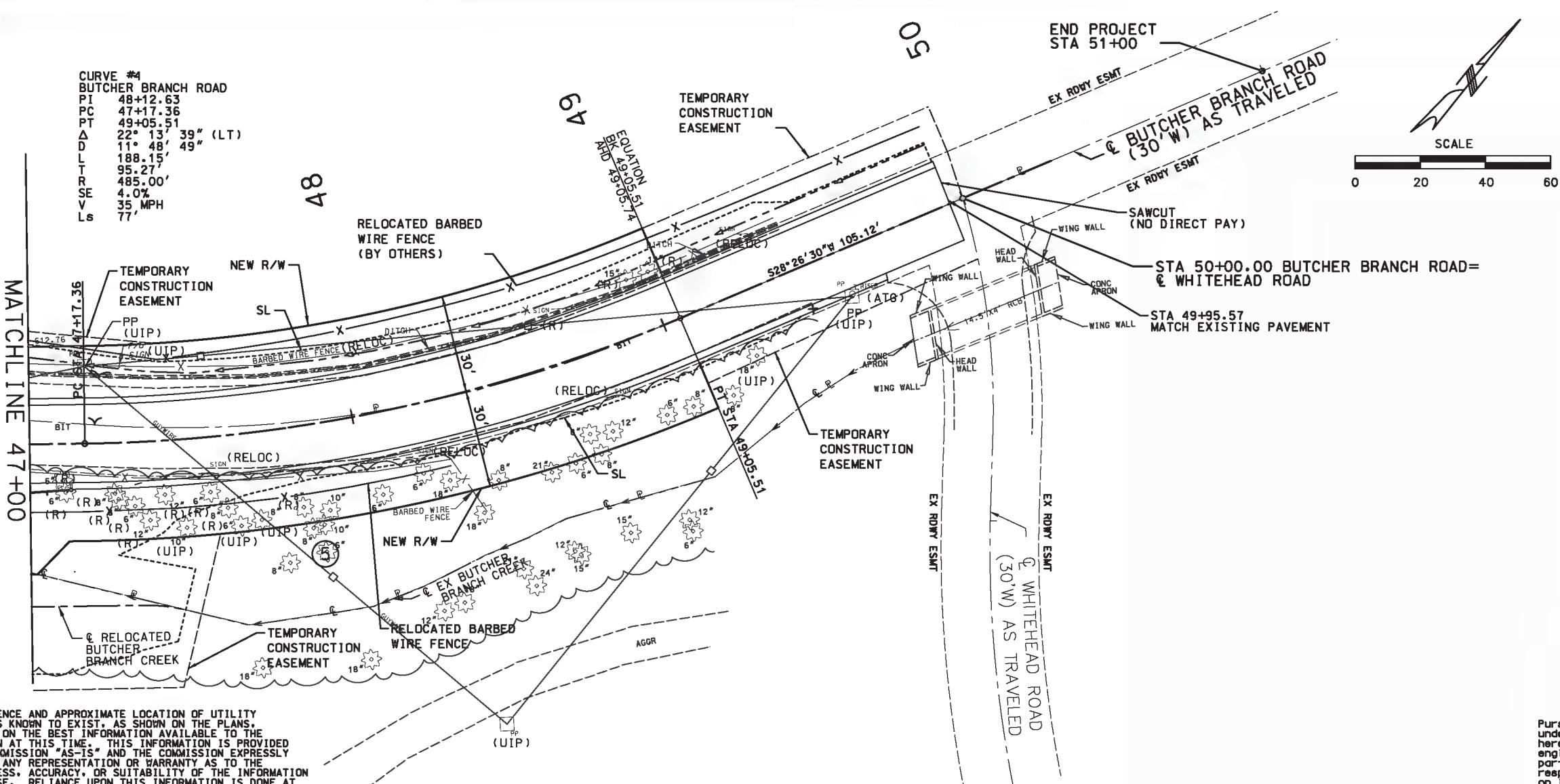
SCALE  
0 20 40 60

MATCHLINE 47+00



EDSI  
ENGINEERING DESIGN SOURCE, INC.  
16141 SWINGLEY RIDGE RD., SUITE 300  
CHESTERFIELD, MO 63117  
NO CORP. SURVEYING LICENSE NO. 2002035047

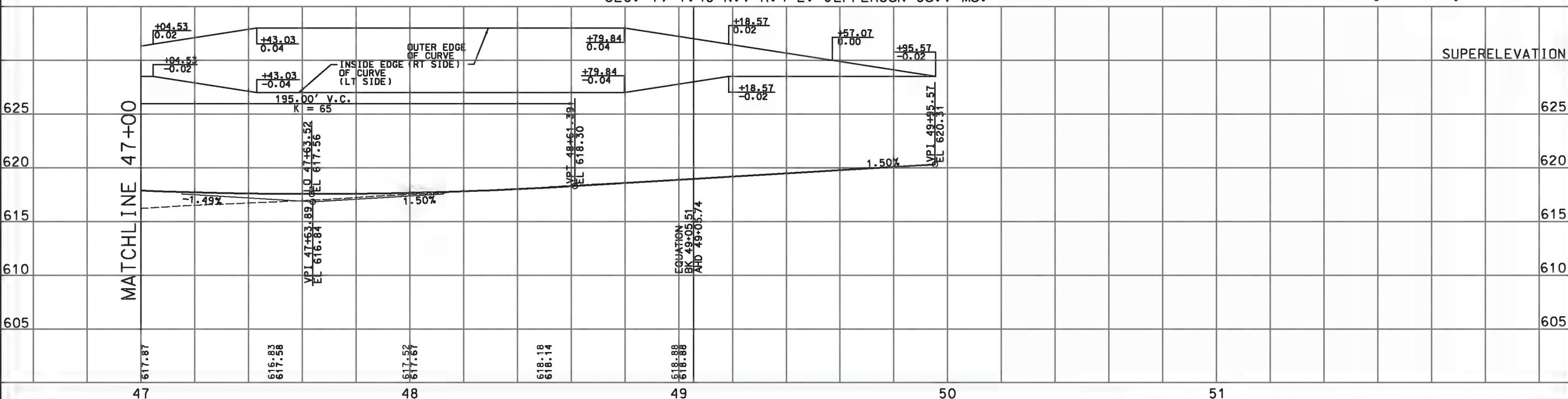
CURVE #4  
 BUTCHER BRANCH ROAD  
 PI 48-12.63  
 PC 47-17.36  
 PT 49-05.51  
 Δ 22° 13' 39" (LT)  
 D 11° 48' 49"  
 L 188.15'  
 T 95.27'  
 R 485.00'  
 SE 4.0%  
 V 35 MPH  
 Ls 77'



THE EXISTENCE AND APPROXIMATE LOCATION OF UTILITY FACILITIES KNOWN TO EXIST, AS SHOWN ON THE PLANS, ARE BASED ON THE BEST INFORMATION AVAILABLE TO THE COMMISSION AT THIS TIME. THIS INFORMATION IS PROVIDED BY THE COMMISSION "AS-IS" AND THE COMMISSION EXPRESSLY DISCLAIMS ANY REPRESENTATION OR WARRANTY AS TO THE COMPLETENESS, ACCURACY, OR SUITABILITY OF THE INFORMATION FOR ANY USE. RELIANCE UPON THIS INFORMATION IS DONE AT THE RISK AND PERIL OF THE USER, AND THE COMMISSION SHALL NOT BE LIABLE FOR ANY DAMAGES THAT MAY ARISE FROM ANY ERROR IN THE INFORMATION.

SEC. 7, T.40 N., R.4 E. JEFFERSON CO., MO.

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PERSON COUNTY  
WORKS DEPARTMENT  
P.O. BOX 100  
HILLSBORO, MO 63050  
(636-797-5340) PHONE  
(636-797-5565) FAX

EDSI

CHESTERTFIELD, MO 63017  
CORP. ENGINEERING LICENSE NO. E-1523-D  
CORP. SURVEYING LICENSE NO. 2002030547

A circular Missouri state seal. The outer ring contains the text "STATE OF MISSOURI" at the top and "REGISTERED PROFESSIONAL ENGINEER" at the bottom, separated by small dots. The inner circle contains "JOHN A. HOCK" in the center, with "NUMBER" above it and "E-23292" below it.

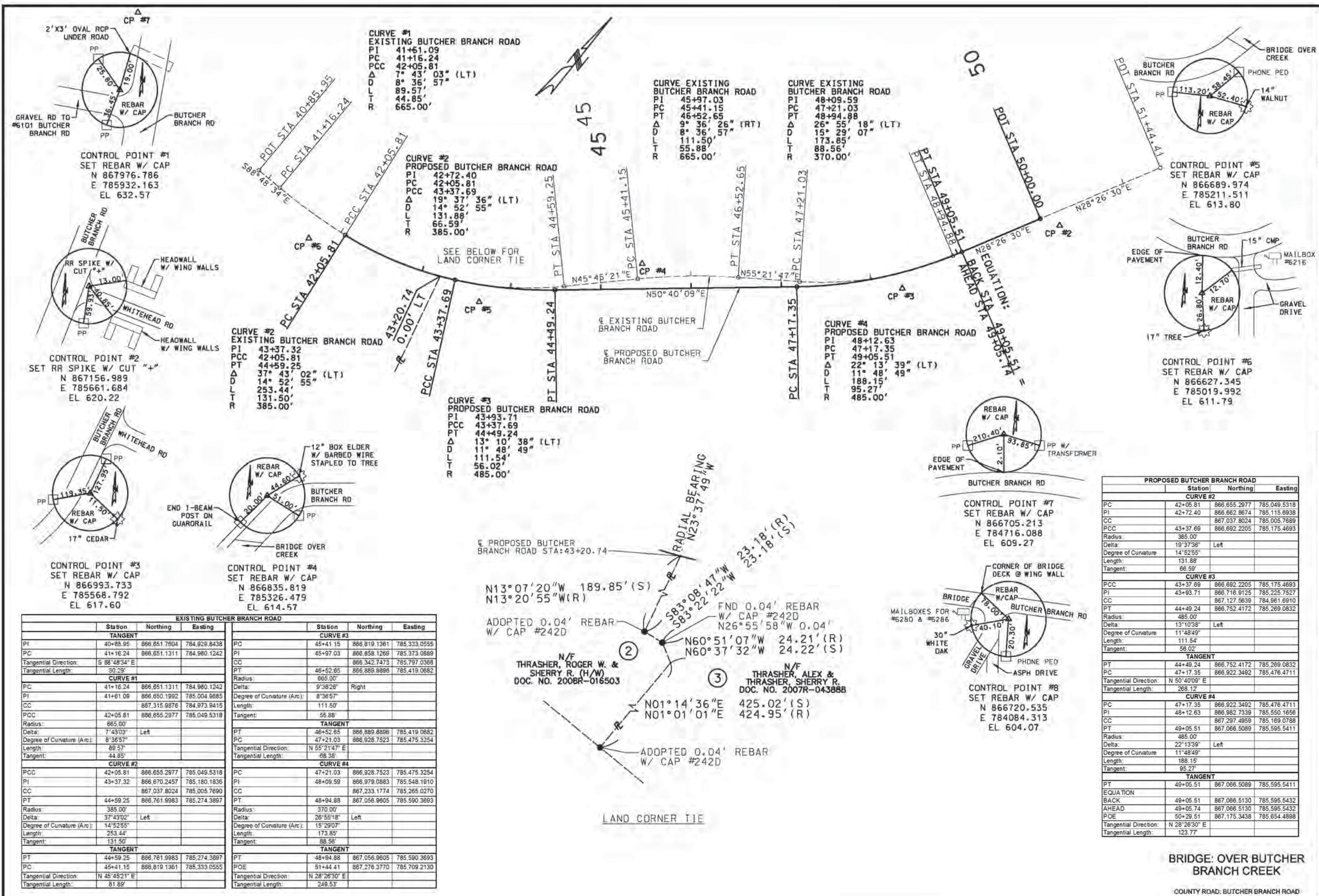
John A. Noe  
DATE PREPARED  
2/19/2014  
ROUTE STATE  
MO  
DISTRICT SHEET NO.  
SL 4  
COUNTY  
JEFFERSON  
JOB NO.  
CONTRACT ID.  
PROJECT NO.  
STP-5403(1635)

BRIDGE NO.  
26700211

\_\_\_\_\_

ISSUED)

N  
REIS



A circular registration stamp with a double-lined border. The outer ring contains the text "STATE OF MISSOURI" at the top and "REGISTERED PROFESSIONAL ENGINEER" at the bottom. The inner circle contains "JOHN A. HOCK" in large letters, "NUMBER" in smaller letters above "E-23292", and "MISSOURI" at the bottom.

John A. Nock  
DATE PREPARED  
2/19/2014  
POLICE STATE

ROUTE	STATE
MO	
DISTRICT	SHEET NO.
SL	5
COUNTY	
JEFFERSON	
JOB NO.	
CONTRACT ID.	
PROJECT NO.	
STP-5403(635)	
BRIDGE NO.	
26700211	

JEFFERSON COUNTY  
PUBLIC WORKS DEPARTMENT  
P.O. BOX 100  
HILLSBRO, MO 63056  
(836-79-5340) PHONE  
(836-787-5566) FAX

**SING DESIGN SOURCE, INC.**  
100 BRIGLE RIDGE RD., SUITE 300  
FELD, MO 63017  
LICENSE NO. E-1923-D  
LICENSE NO. 2020050547

EDSI

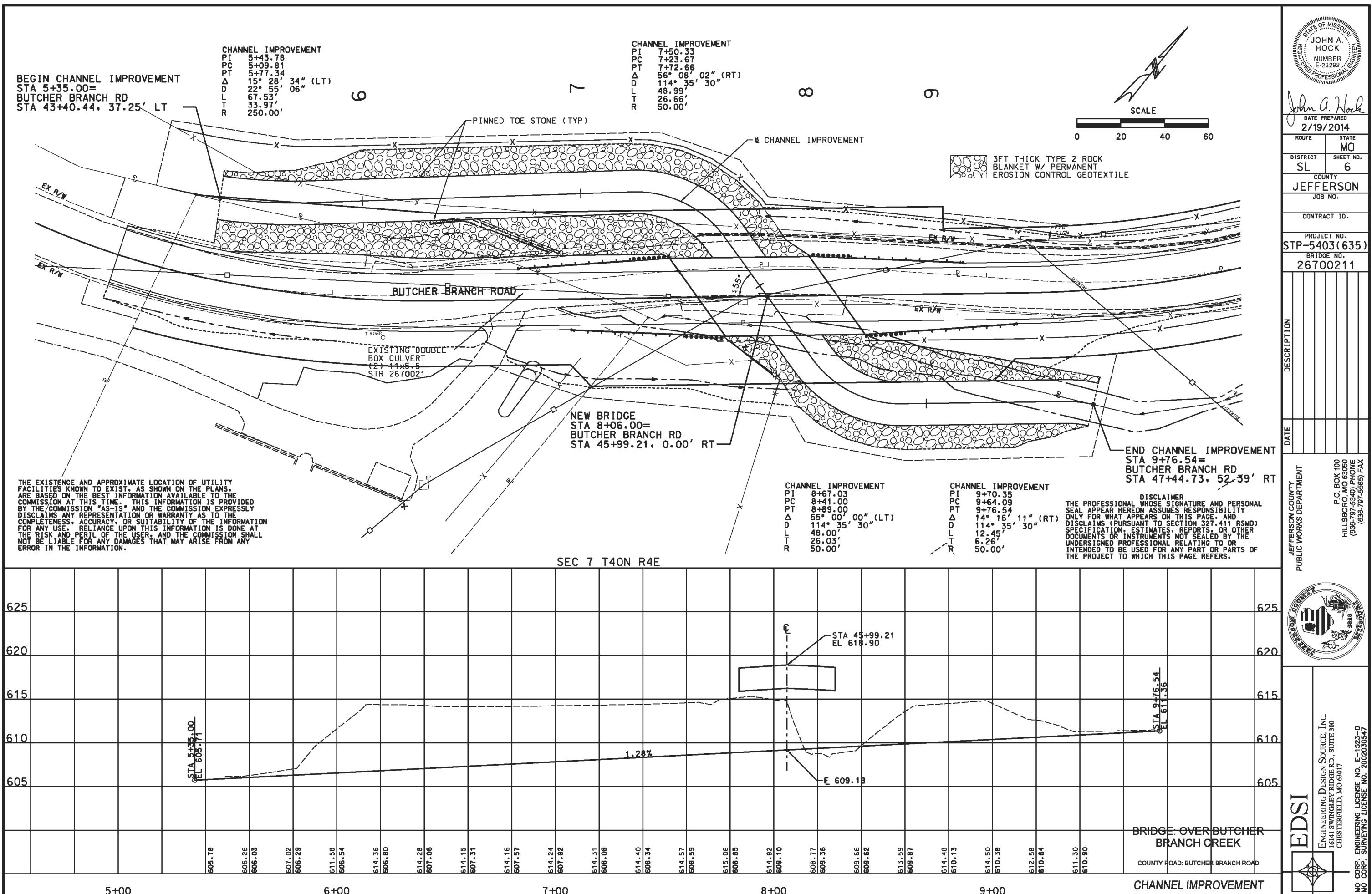
111

BRIDGE: OVER BUTCHER  
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

REFERENCE POINTS

## REFERENCE POINTS & GEOMETRY



John A. Hock

DATE PREPARED  
2/19/2014

ROUTE STATE  
MO  
DISTRICT SHEET NO.  
SL 6  
COUNTY JEFFERSON  
JOB NO.  
CONTRACT ID.  
PROJECT NO.  
STP-5403 (635)  
BRIDGE NO.  
26700211

DATE DESCRIPTION

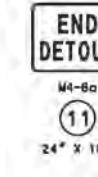
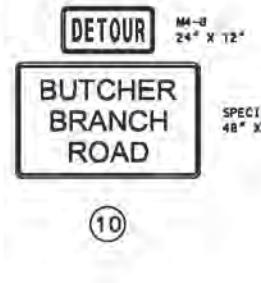
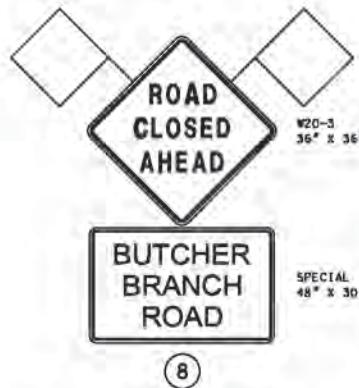
JEFFERSON COUNTY  
PUBLIC WORKS DEPARTMENT  
P.O. BOX 100  
HILLSBORO, MO 63350  
(636-797-5340) PHONE  
(636-797-5565) FAX



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ENGINEERING DESIGN SOURCE, INC.  
16141 SWINGLEY RIDGE RD., SUITE 300  
CHESTERFIELD, MO 63017  
NO. CORP. ENGINEERING LICENSE NO. E-1523-D  
NO. CORP. SURVEYING LICENSE NO. 200203047

**GENERAL NOTES:**

- 1) TRAFFIC CONTROL SHALL BE MAINTAINED IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND MODOT STANDARD PLAN 616.10 FOR TRAFFIC CONTROL DEVICES.
- 2) NO DIRECT PAY WILL BE MADE FOR RELOCATION OF CONSTRUCTION SIGNING.



**TRAFFIC CONTROL LEGEND**

- SIGN
- BARRICADE

ONE TYPE III MOBILE BARRICADE WILL BE REQUIRED TO COMPLETELY CLOSE EACH 8' OF PAVEMENT. PAVED SHOULDERS SHALL BE INCLUDED IN THE AREA TO BE CLOSED.

SIGNS SHALL BE LIGHT WEIGHT (ROLL-UP OR PLASTIC) AND OBSCURE NO MORE THAN 50 PERCENT OF THE TOP 2 RAILS OR 33 PERCENT OF ALL THREE RAILS.

TYPE C WARNING LIGHTS SHALL BE LIGHT WEIGHT (3.3 LBS. OR LESS) OR HAVE BATTERY PACK MOUNTED NO HIGHER THAN 18-INCH AND SHALL NOT COVER ANY PORTION OF THE BARRICADED FACE.

IF SIGNS OR LIGHTS CANNOT MEET THE ABOVE REQUIREMENTS, THEY SHALL BE MOUNTED ON SEPARATE CRASHWORTHY DEVICES AT HEIGHTS SPECIFIED FOR POST MOUNTED SIGNS.

WHERE A BARRICADE ARRAY EXTENDS ACROSS A ROADWAY, THE STRIPES SHALL SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN OR PASS.

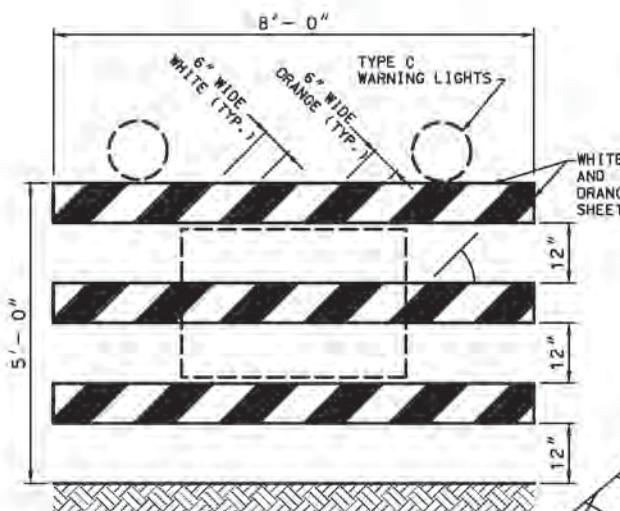
WHERE BOTH RIGHT AND LEFT VEHICULAR MOVEMENTS ARE PROVIDED, THE STRIPES SHALL SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE ARRAY.

WHERE NO VEHICULAR MOVEMENTS ARE PROVIDED, THE STRIPES SHALL SLOPE DOWNWARD TOWARD THE CENTER OF THE BARRICADE ARRAY.

TYPE III MOBILE BARRICADES SHALL BE ENTIRELY FREE STANDING AND PORTABLE. MARKING SHALL ONLY BE APPLIED TO THE FRONT OF EACH RAIL OR MAY BE APPLIED TO BOTH THE FRONT AND THE BACK OF EACH RAIL PROVIDED THE MARKING ON THE BACK DOES NOT CONFLICT WITH INTENDED OPPONING TRAFFIC MOVEMENT. WHERE MARKING IS NOT PROVIDED ON THE BACKSIDE, STRIPS OF 3" WIDE ORANGE SHEETING MAY BE APPLIED TO THE ENDS OF EACH RAIL TO HELP DELINEATE THE DEVICE.

WHITE AND ORANGE REFLECTIVE SHEETING SHALL BE IN ACCORDANCE WITH SEC 104.2.7.3.

**TYPE III MOBILE BARRICADE**



WORK AREA

SIGN	SIZE (IN.)	AREA (SQ. FT.)	QTY	TOTAL AREA	DESCRIPTION
<b>WARNING SIGNS</b>					
W20-2	36X36	9.00	4	36	DETOUR AHEAD
W20-3	36X36	9.00	6	54	ROAD CLOSED AHEAD
<b>GUIDE SIGNS</b>					
M4-8a	24X18	3.00	2	6	END DETOUR
M4-8	24X12	2.00	20	40	DETOUR (PLAQUE)
M4-10R	48X18	6.00	1	6	DETOUR ARROW (RIGHT)
M4-10L	48X18	6.00	1	6	DETOUR ARROW (LEFT)
M5-1R	21X15	2.19	4	8.75	ADVANCE TURN ARROW (RIGHT)
M5-1L	21X15	2.19	4	8.75	ADVANCE TURN ARROW (LEFT)
M6-1R	21X15	2.19	4	8.75	DIRECTIONAL ARROW (RIGHT)
M6-1L	21X15	2.19	4	8.75	DIRECTIONAL ARROW (LEFT)
SPECIAL	48X30	10.00	22	220	"BUTCHER BRANCH ROAD"
<b>REGULATORY SIGNS</b>					
R11-2	48X30	10.00	2	20	ROAD CLOSED
R11-3a	60X30	12.50	2	25	ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY
R11-4	60X30	12.50	4	50	ROAD CLOSED TO THRU TRAFFIC
616-10.05 CONSTRUCTION SIGNS TOTAL					498

BRIDGE: OVER BUTCHER  
BUTCHER CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

TRAFFIC CONTROL PLAN



John A. Hock  
DATE PREPARED  
2/19/2014

ROUTE STATE  
MO  
DISTRICT SHEET NO.  
SL 7  
COUNTY  
JEFFERSON  
JOB NO.

CONTRACT ID.

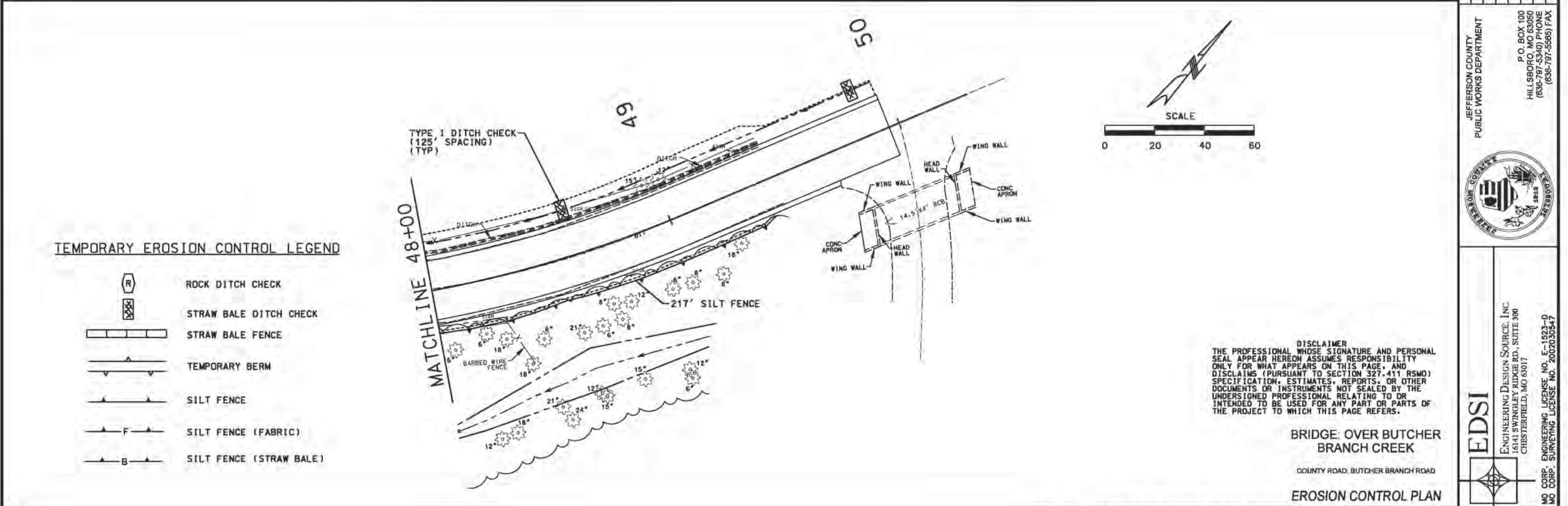
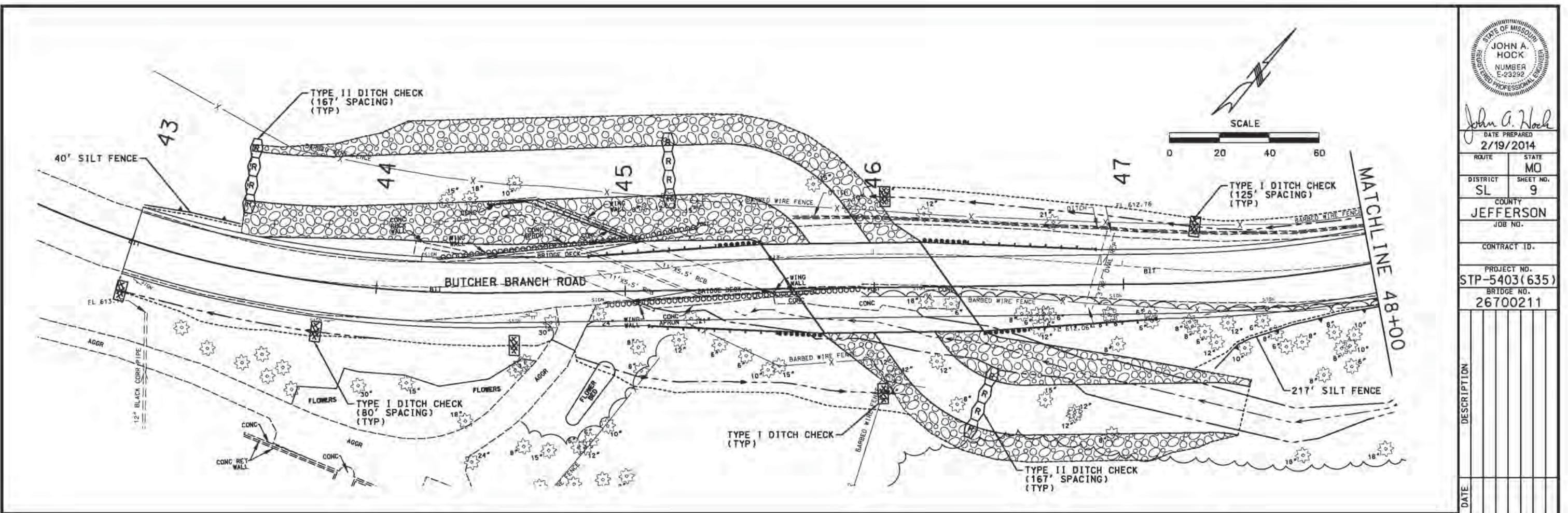
PROJECT NO.  
STP-5403 (635)  
BRIDGE NO.  
26700211

DESCRIPTION  
DATE  
JEFFERSON COUNTY  
PUBLIC WORKS DEPARTMENT  
P.O. BOX 100  
HILLSBORO, MO 63050  
(636) 787-5585 FAX



EDSI  
ENGINEERING DESIGN SOURCE, INC.  
1614 SWINGLEY RIDGE RD., SUITE 300  
CHASFIELD, MO 63017  
NO. CORP. ENGINEERING LICENSE NO. E-1523-D  
NO. CORP. SURVEYING LICENSE NO. 200203047





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SPECIFICATION, ESTIMATES, REPORTS, OR OTHER  
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INTENDED TO BE USED FOR ANY PART OR PARTS OF  
THE PROJECT TO WHICH THIS PAGE REFERS.

## BRIDGE: OVER BUTCHER BRANCH CREEK

COUNTY ROAD BUTCHER BRANCH ROAD

## EROSION CONTROL PLAN

ENGINEERING DESIGN SOURCE, INC.  
16141 SWINGLEY RIDGE RD., SUITE 300  
CHESTERFIELD, MO 63017

MO CORP. ENGINEERING LICENSE NO. E-1523-D  
MO CORP. SURVEYING LICENSE NO. 202030547

P.O. BOX 100  
LLISBORO, MO 63050  
(336-797-5340) PHONE  
(636-797-5565) FAX

A circular seal for a Missouri Professional Engineer. The outer ring contains the text "STATE OF MISSOURI" at the top and "PROFESSIONAL ENGINEER" at the bottom. The center of the seal contains the name "JOHN A. HOCK" and the number "E-23292" below it.

*A. Hoch*  
PREPARED  
19/2014  
STATE

STATE	
MO	
CT	SHEET NO.
9	
COUNTY	
FERSON	
JOB NO.	
TRACT ID.	

OBJECT NO.	5403(635)
BRIDGE NO.	700211

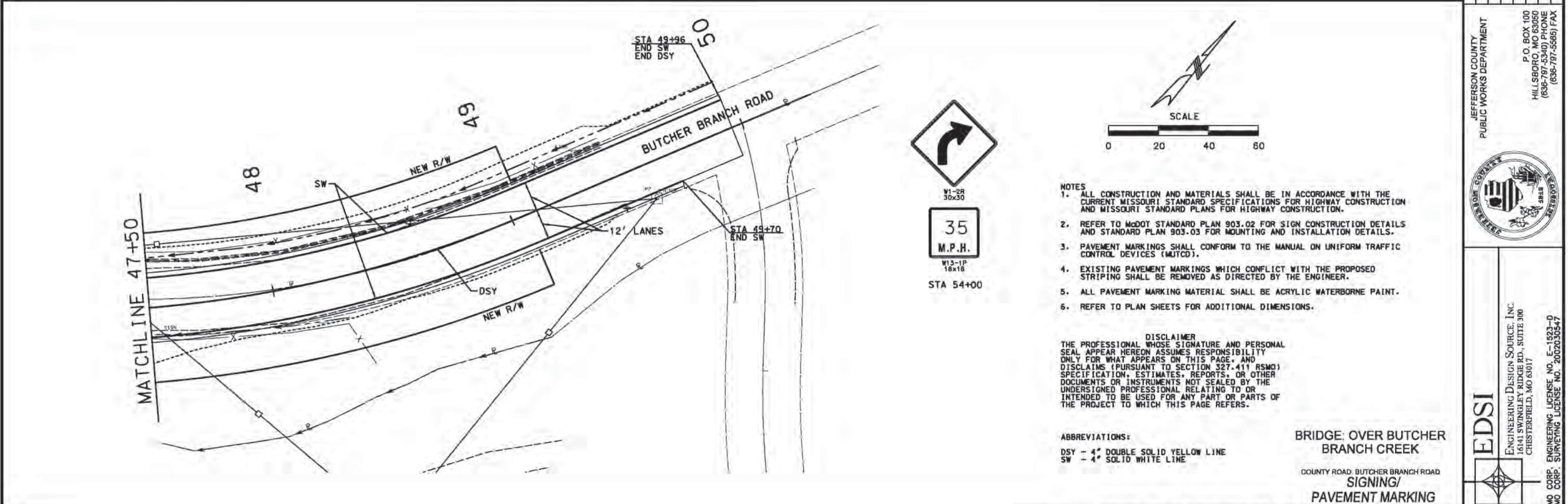
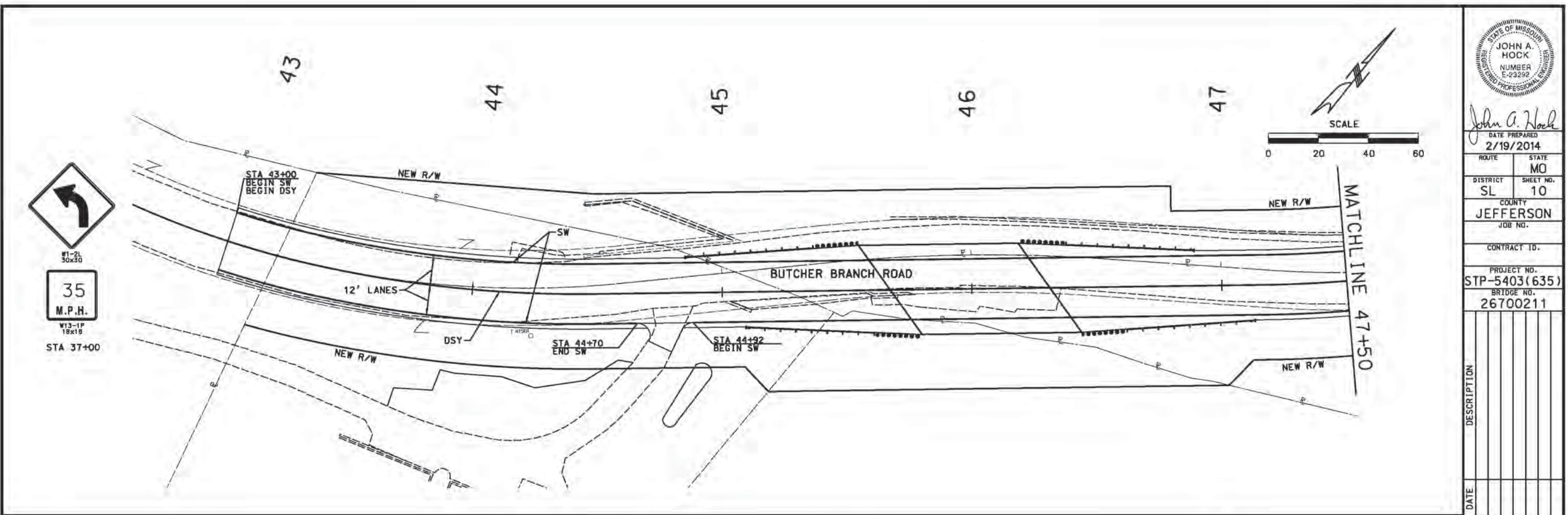
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HILLSBORO, MO 63050  
(636-787-5340) PHONE  
(636-787-5585) FAX

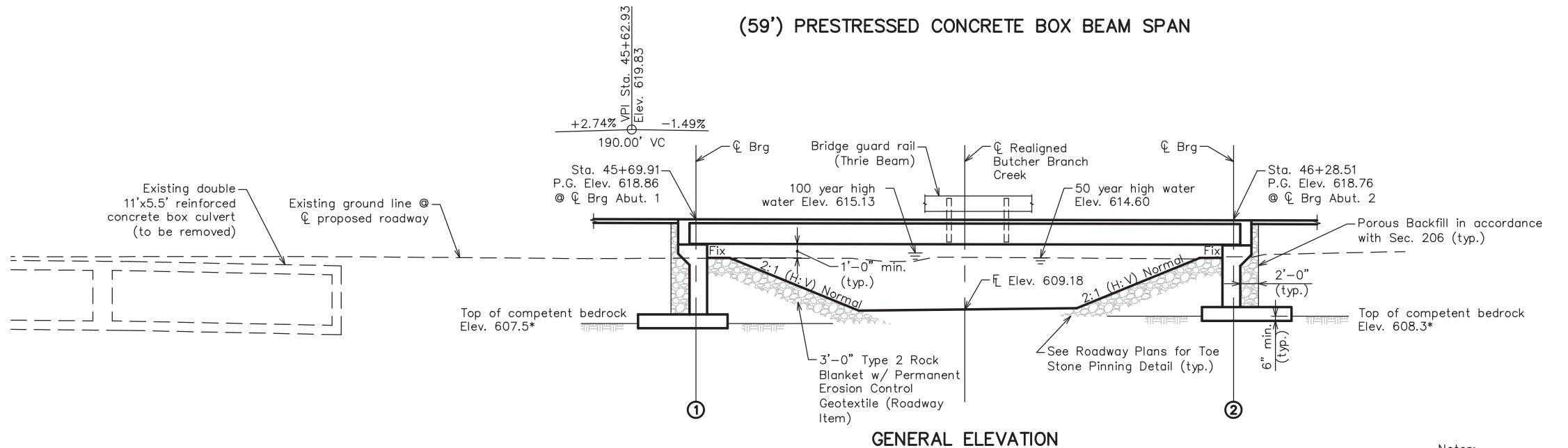
The Wisconsin state seal, featuring a central shield with a plow, a sheaf of wheat, and a sheaf of corn, surrounded by a circular border with the words "THE GREAT SEAL OF THE STATE OF WISCONSIN" and the date "1848".

ENGINEERING DESIGN SOURCE, INC.  
16141 SWINGLEY RIDGE RD., SUITE 300  
CHESTERFIELD, MO 63017

MO CORP. ENGINEERING LICENSE NO. E-1523-D  
MO CORP. SURVEYING LICENSE NO. 2002030547



(59') PRESTRESSED CONCRETE BOX BEAM SPAN

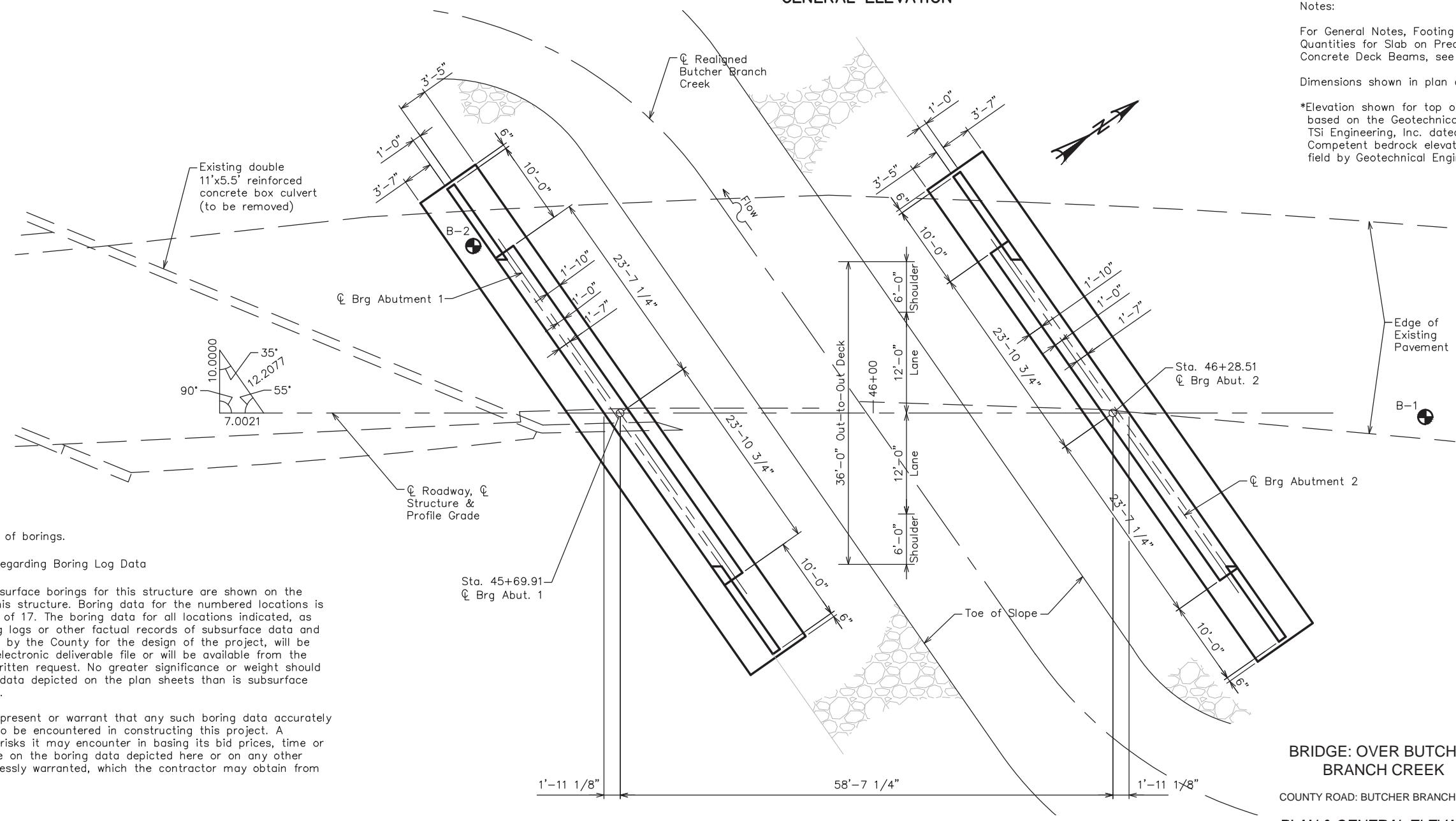


### Notes:

For General Notes, Footing Data and Estimated Quantities for Slab on Precast Prestressed Concrete Deck Beams, see Sheet No. 2 of 17.

Dimensions shown in plan are horizontal.

\*Elevation shown for top of competent bedrock is based on the Geotechnical Report prepared by TSi Engineering, Inc. dated December 18, 2012. Competent bedrock elevation to be verified in field by Geotechnical Engineer.



"" Indicates location of borings.

#### Notice and Disclaimer Regarding Boring Log Data

The locations of all subsurface borings for this structure are shown on the bridge plan sheet for this structure. Boring data for the numbered locations is shown on Sheet No. 17 of 17. 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, will be provided in the bridge electronic deliverable file or will be 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 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 on any other documentation not expressly warranted, which the contractor may obtain from the County.

Note: This drawing is not to scale. Follow dimensions.

## BRIDGE: OVER BUTCHER BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

### PLAN & GENERAL ELEVATION

TD. 706.35  
26700211

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(36-797-5340) PHONE  
(636-797-5565) FAX

P.O. BOX 100  
HILLSBORO, MO  
(36-797-5340) PHONE  
(636-797-5565) FAX

**STRUCTURE, INC.**  
STRUCTURAL ENGINEERING FIRM  
5 Gravity  
Suite 63123  
1513 1/2 3rd Street  
Sacramento, CA 95814  
916/483-2682  
CERT. OF AUTHORITY: E-2006035000

Estimated Quantities			
Item	Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	415	415
Class 1 Excavation in Rock	cu. yard	30	30
Porous Backfill	cu. yard	63	63
Removal of Bridges	lump sum		1
Class B Concrete (Substructure)	cu. yard	119.3	119.3
Reinforced Concrete Slab Overlay	sq. yard	250	250
27" Prestressed Concrete Adjacent Box Beam	linear foot	720	720
Reinforcing Steel (Bridges)	pound	12,160	12,160
Reinforcing Steel (Epoxy Coated)	pound	1,380	1,380
Penetrating Sealer	sq. yard	43	43
Bridge Guard Rail (Thrie Beam)	linear foot	113	113
Vertical Drain at End Bents	each	2	2
Plain Neoprene Bearing Pad	each	26	26

All concrete and reinforcement in the Reinforced Concrete Slab Overlay and end diaphragms is included in the Estimated Quantities for Reinforced Concrete Slab Overlay.

Plain Neoprene Bearing Pads shall be in accordance with Sec 716.

Estimated Quantities for Reinforced Concrete Slab Overlay	
Item	Total
Class B-2 Concrete	cu. yard 45.5
Reinforcing Steel (Epoxy Coated)	pound 7,950

The table of Estimated Quantities for Reinforced Concrete Slab Overlay represents the quantities used by the County 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 slab. Payment for conventional forms, all concrete and coated and uncoated reinforcing steel will be considered completely covered by the contract 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 with 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 with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.



LOCATION MAP

Note: This drawing is not to scale. Follow dimensions.

Foundation Data			
Abutment No.	1	2	
Spread Footing	Foundation Material	Limestone	Limestone
	Design Bearing	ksf 4.96	4.96

Spread Footings:

Spread Footings shall be keyed into competent bedrock in accordance with Sec. 206 and the Special Provisions. Competent bedrock elevation to be verified in field by Geotechnical Engineer.

HYDROLOGIC DATA	
Drainage Area	= 1.64 sq. miles
Design Discharge	= 1,977 cu. ft./sec. (100 years)
Design H.W. Elev.	= 615.13 feet (100 years)
Estimated Backwater	= 0.0 feet
OVERTOPPING FLOOD DATA	
Discharge	= - cu. ft./sec. (> 500 years)

GENERAL NOTES:

Design Specifications:  
2012 – AASHTO LRFD Bridge Design Specifications (6th Edition) and 2013 Interim Revisions  
Seismic Performance Category B  
Seismic Acceleration Coefficient = 0.10

Standard Specifications:  
Missouri Standard Specifications for Highway Construction, 2011 Edition, and Supplemental Specifications, Latest Edition

Design Loading:  
HL-93 (LRFD Superstructure, LRFD Substructure)  
35#/Sq. Ft. Future Wearing Surface  
Earth – 120 #/Cu. Ft., Equivalent Fluid Pressure: Active 50 pcf  
At-Rest 70 pcf  
 $\phi = 25^\circ$   
Superstructure: Simply-supported, non-composite for dead and live load.

Design Unit Stresses:  
Class B Concrete (Substructure)  $f'_c = 3,000$  psi  
Class B-2 Concrete (Superstructure, except Prestressed Girders)  $f'_c = 4,000$  psi  
Reinforcing Steel (Grade 60)  $fy = 60,000$  psi  
For prestressed box beam stresses, see sheet no. 10 of 17.

Neoprene Pads:  
Bearings shall be 60 durometer neoprene pads.

Joint Filler:  
All joint filler shall be in accordance with Sec 1057 for preformed sponge rubber expansion and partition joint filler, except as noted.

Reinforcing Steel:  
Minimum clearance to reinforcing steel shall be 1 1/2", unless otherwise shown.

Miscellaneous:  
Structure to be closed during construction.

"Sec" refers to sections in the Standard and Supplemental Specifications unless noted otherwise.

JOHN J. GRUENDLER NUMBER E-23263	
DATE 2/19/14	
DATE PREPARED 2/19/2014	
ROUTE	STATE MO
DISTRICT	SHEET NO. 2
COUNTY	JEFFERSON
JOB NO.	
CONTRACT ID.	
PROJECT NO.	STP-5403(635)
BRIDGE NO.	26700211

JEFFERSON COUNTY PUBLIC  
WORKS DEPARTMENT  
P.O. BOX 100  
HILLSBORO, MO  
(636-797-5340) PHONE  
(636-797-5565) FAX



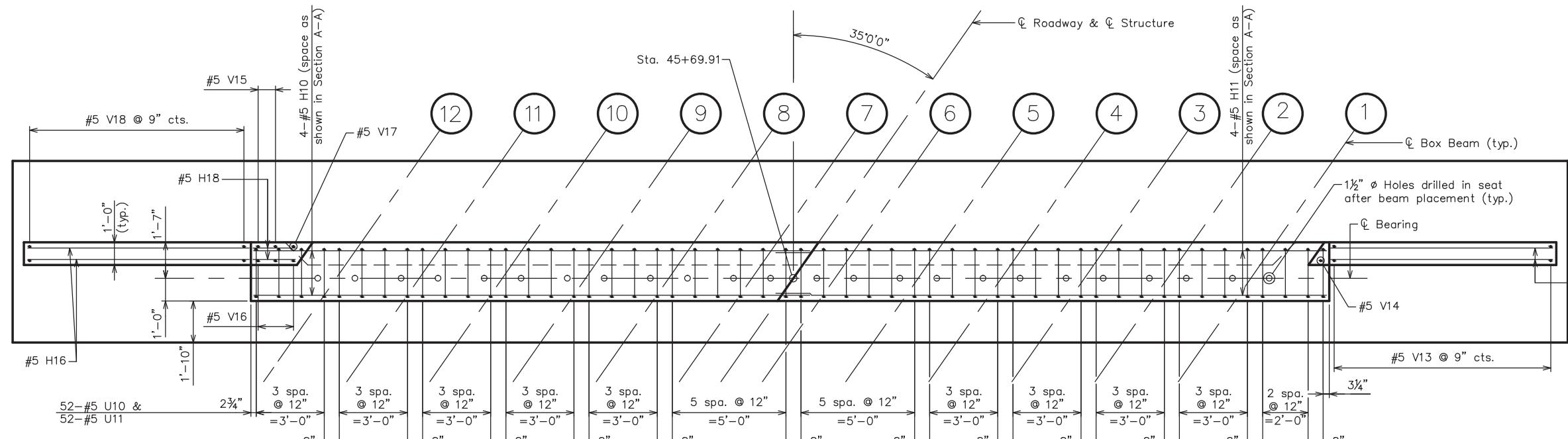
**STRUCTURES, INC.**  
A STRUCTURAL ENGINEERING FIRM  
8615 Gravois  
St. Louis, MO 63123  
PHONE (314) 635-6650  
FAX (314) 638-2622  
CERT. OF AUTHORITY: E-2006035000

BRIDGE: OVER BUTCHER  
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

ESTIMATED QUANTITIES & GENERAL NOTES

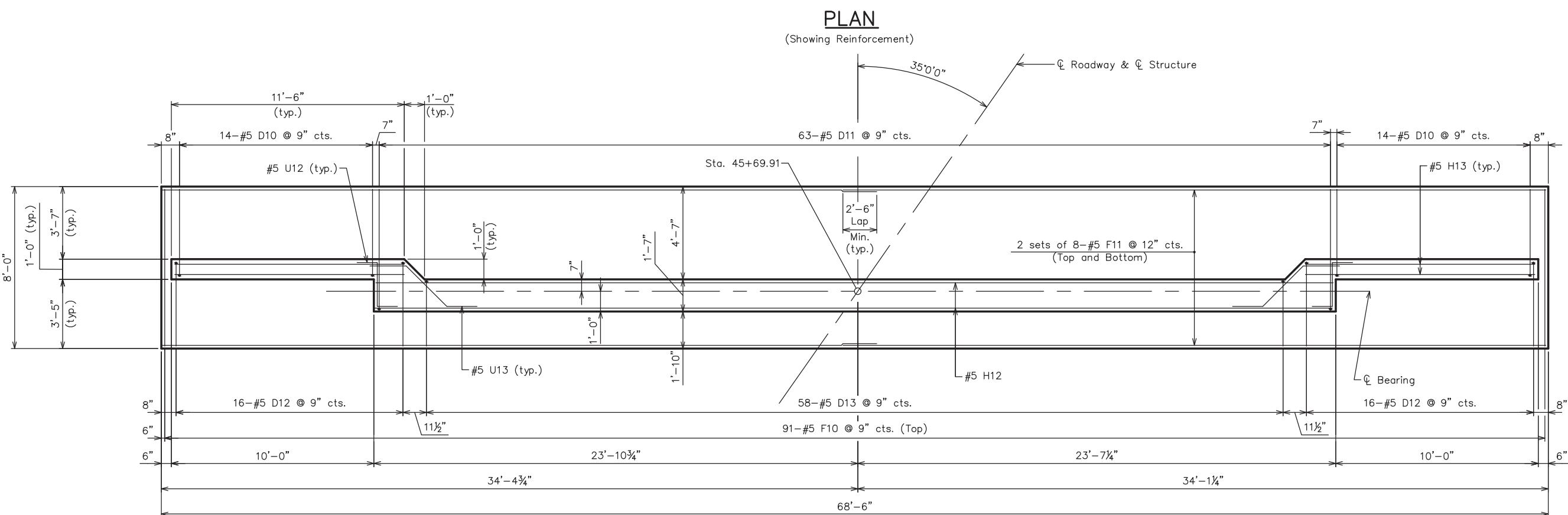




STATE OF MISSOURI  
JOHN J. GRENDELER  
REGISTERED PROFESSIONAL ENGINEER  
NUMBER E-25263  
DATE 2/19/14  
DATE PREPARED 2/19/2014  
ROUTE MO  
DISTRICT BR SHEET NO. 4  
COUNTY JEFFERSON  
JOB NO.  
CONTRACT ID.  
PROJECT NO. STP-5403(635)  
BRIDGE NO. 26700211

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HILLSBORO, MO  
(636-797-5340) PHONE  
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JEFFERSON COUNTY PUBLIC  
WORKS DEPARTMENT



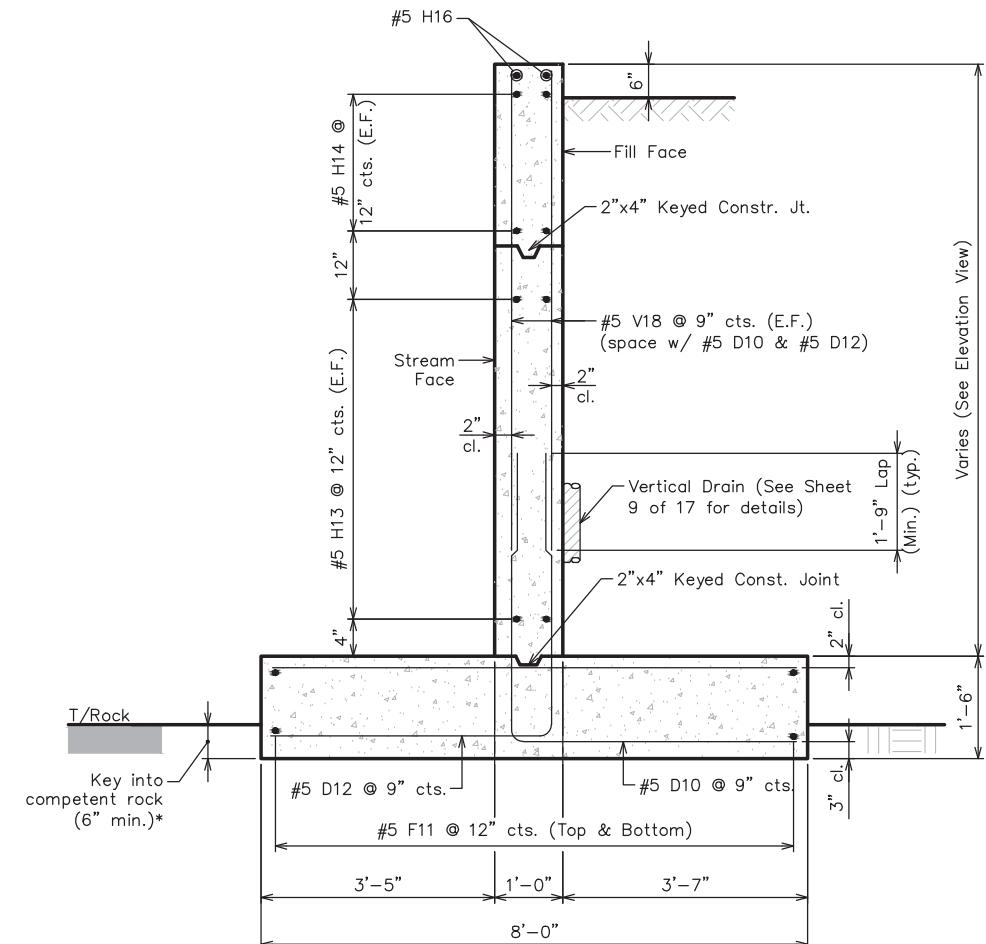
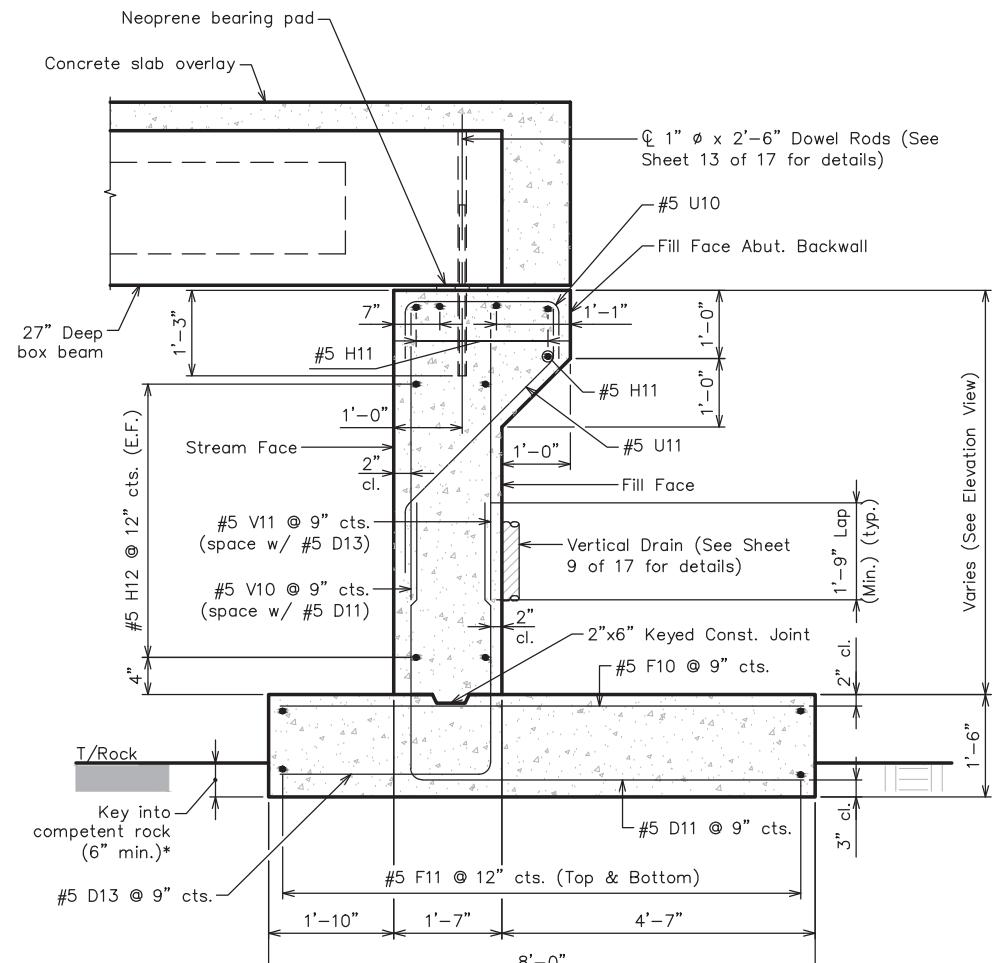
### FOUNDATION PLAN

BRIDGE: OVER BUTCHER  
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

**STRUCTURES, INC.**  
A STRUCTURAL ENGINEERING FIRM  
8615 GARDEN  
St. Louis, MO 63123  
Phone (314) 615-2650  
Fax (314) 615-2652

CERT. OF AUTHORITY: E-20060356000



\* Adjust footing elevation as necessary to key footing into competent bedrock in accordance with Sec. 206.4.2. (See Special Provisions)

Substructure Quantity Table for Abutment No. 1	
Item	Quantity
Class 1 Excavation	cu. yard 219
Class 1 Excavation in Rock	cu. yard 15
Porous Backfill	cu. yard 33
Class B Concrete (Substructure)	cu. yard 61.2
Reinforcing Steel (Bridges)	pound 6250
Reinforcing Steel (Epoxy Coated)	pound 690
Vertical Drain at End Bents	each 1

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 5 of 17

BRIDGE: OVER BUTCHER  
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

ABUTMENT 1 SECTIONS AND DETAILS

**STRUCTURES, INC.**  
A STRUCTURAL ENGINEERING FIRM

8615 GRANDS  
ST. LOUIS, MO 63123  
PHONE: (314) 638-2682  
FAX: (314) 638-2682  
CERT. OF AUTHORITY: E-2006035000



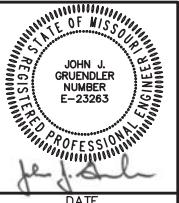
JOHN J.  
GRUENDLER  
NUMBER  
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DATE  
2/19/14  
DATE PREPARED  
2/19/2014  
ROUTE STATE  
MO  
DISTRICT SHEET NO.  
BR 5  
COUNTY  
JEFFERSON  
JOB NO.  
CONTRACT ID.  
PROJECT NO.  
STP-5403(635)  
BRIDGE NO.  
26700211

P.O. BOX 100  
HILLSBORO, MO  
(636-797-5565) FAX  
(636-797-5565)

THE STATE OF MISSOURI  
PROFESSIONAL ENGINEER  
REGISTRATION







JOHN J.  
GRUENDLER  
NUMBER  
E-23263

DATE  
2/19/14

DATE PREPARED  
2/19/2014

ROUTE STATE  
MO

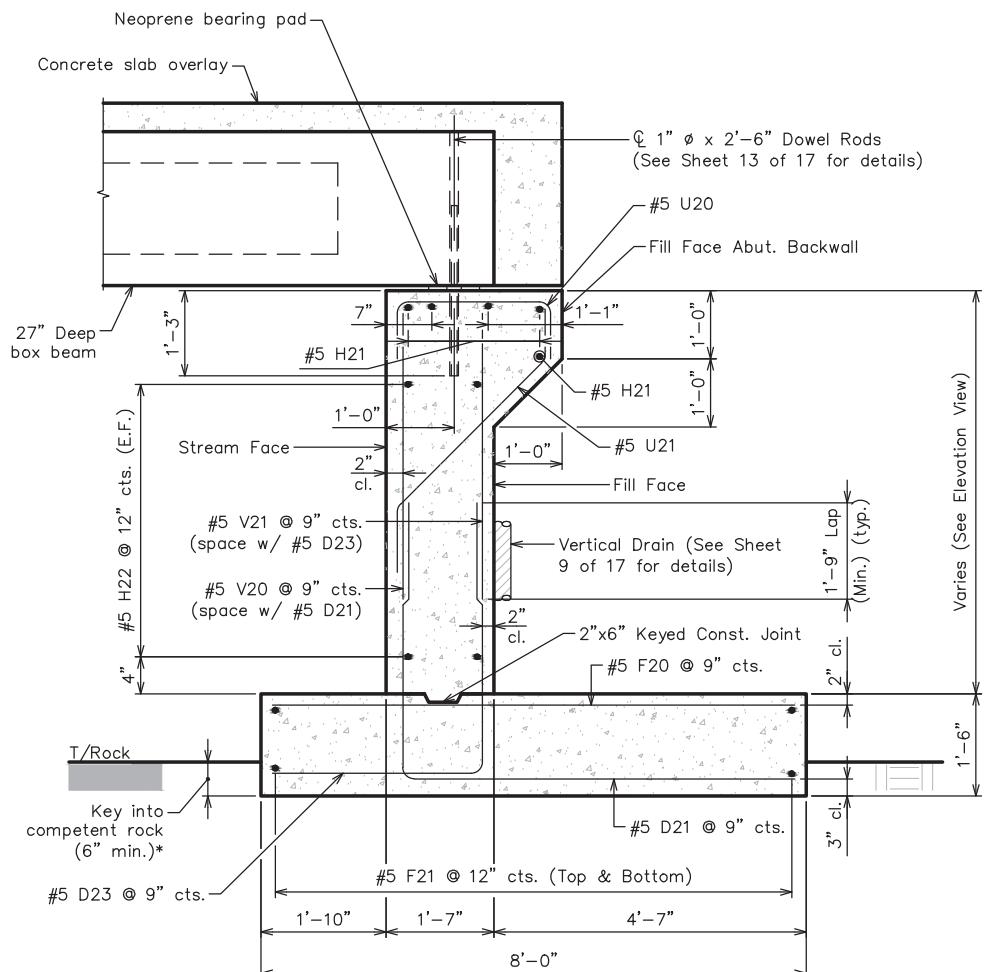
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BR 8

COUNTY JEFFERSON  
JOB NO.

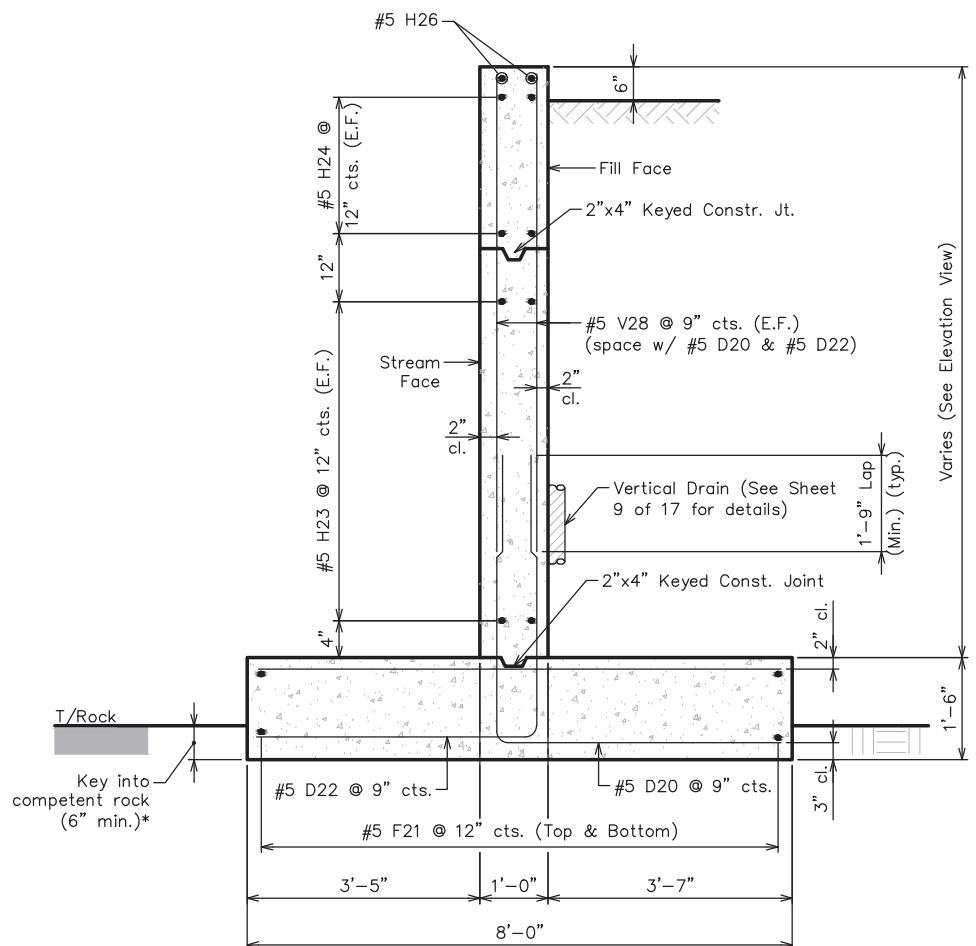
CONTRACT ID.

PROJECT NO.  
STP-5403(635)

BRIDGE NO.  
26700211



SECTION A-A



SECTION B-B

\* Adjust footing elevation as necessary to key footing into competent bedrock in accordance with Sec. 206.4.2. (See Special Provisions)

Substructure Quantity Table for Abutment No. 2	
Item	Quantity
Class 1 Excavation	cu. yard 196
Class 1 Excavation in Rock	cu. yard 15
Porous Backfill	cu. yard 30
Class B Concrete (Substructure)	cu. yard 58.1
Reinforcing Steel (Bridges)	pound 5910
Reinforcing Steel (Epoxy Coated)	pound 690
Vertical Drain at End Bents	each 1

Note: This drawing is not to scale. Follow dimensions.

BRIDGE: OVER BUTCHER  
BROOK CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

ABUTMENT 2 SECTIONS AND DETAILS

Sheet No. 8 of 17

**STRUCTURES, INC.**  
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St. Louis, MO 63123  
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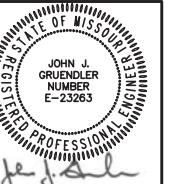
JEFFERSON COUNTY PUBLIC  
WORKS DEPARTMENT

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St. Louis, MO 63123  
Phone (314) 658-6650  
Fax (314) 658-2882









JOHN J.  
GRUENDLER  
NUMBER  
E-23263

*[Signature]*

DATE  
2/19/14

DATE PREPARED  
2/19/2014

ROUTE STATE  
BR MO

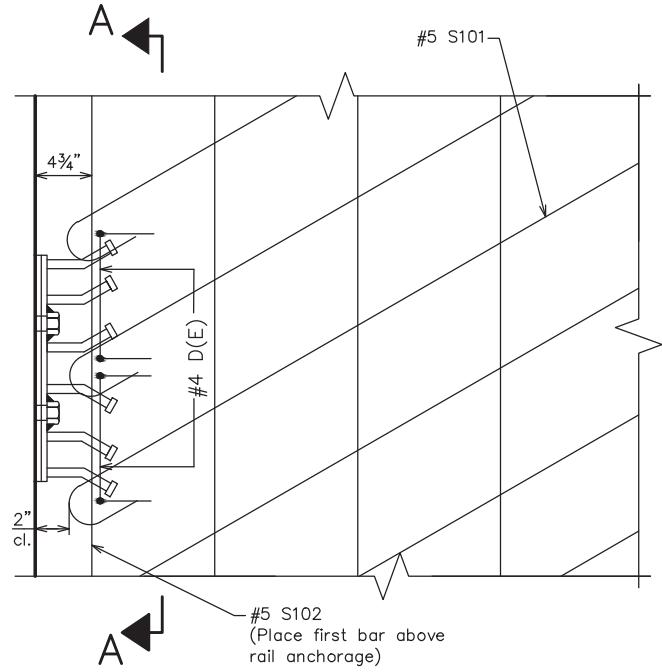
DISTRICT SHEET NO.  
12

COUNTY JEFFERSON  
JOB NO.

CONTRACT ID.

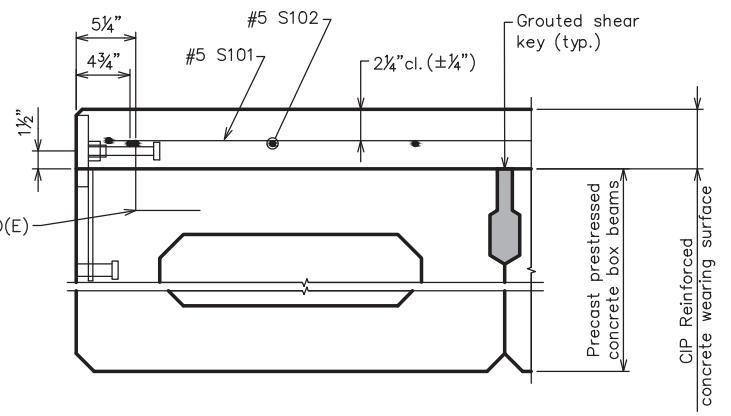
PROJECT NO.  
STP-5403(635)

BRIDGE NO.  
26700211

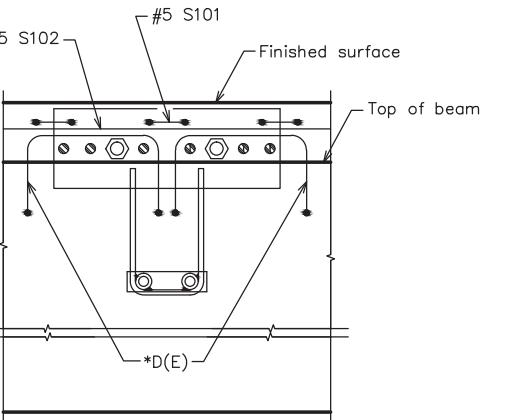


### PLAN

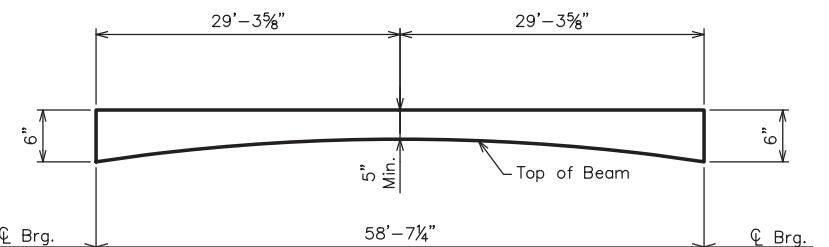
Notes:  
Formwork necessary for the wearing surface  
may be secured utilizing the bottom rail  
anchorage inserts and/or additional inserts cast  
into the beam.



SECTION THRU FASCIA BEAM

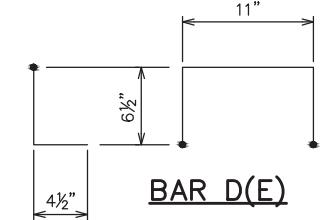


SECTION A-A



### ANTICIPATED CONCRETE WEARING SURFACE PROFILE

(For information only)



\* Place 2-#4 D(E) bars in beam at  
each post location as shown. D(E)  
bar included in cost of beam.

BRIDGE: OVER BUTCHER  
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

BEAM DETAILS

Note: This drawing is not to scale. Follow dimensions.

Sheet No. 12 of 17

**STRUCTURES, INC.**  
A STRUCTURAL ENGINEERING FIRM  
6615 Gravois  
St. Louis, MO 63123  
Phone (314) 658-6650  
Fax (314) 658-2882  
CERT. OF AUTHORITY: E-2006035000



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HILLSBORO, MO  
(636-797-5340) PHONE  
(636-797-5565) FAX

JOHN J.  
GRUENDLER  
NUMBER  
E-23263  
PROFESSIONAL  
ENGINEER  
je g

DATE  
2/19/14

DATE PREPARED  
2/19/2014

ROUTE STATE  
MO

DISTRICT SHEET NO.  
BR 13

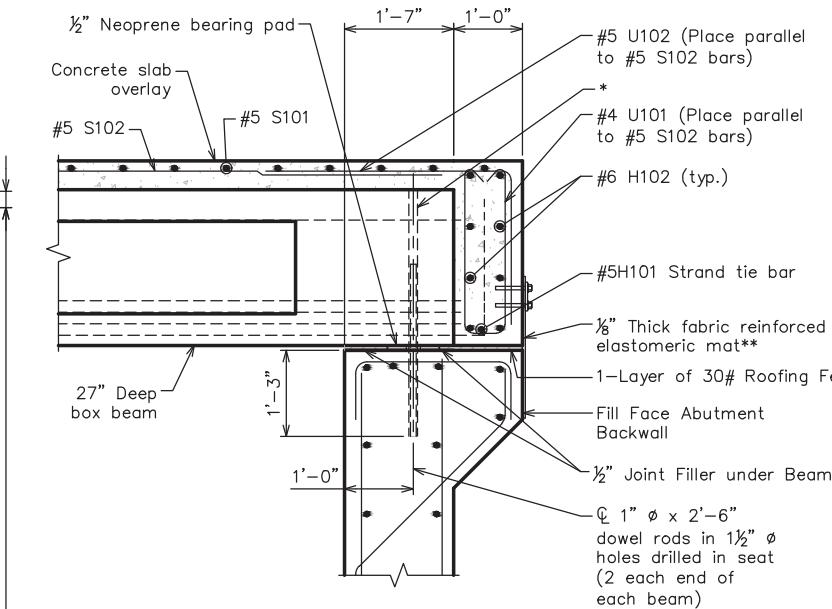
COUNTY  
JEFFERSON

JOB NO.

CONTRACT ID.

PROJECT NO.

STP-5403(635)  
BRIDGE NO.  
26700211



### SECTION A-A

( Dimensions are at Rt. L's)

Notes:

See sheet 10 of 17 for neoprene bearing pad details.

Neoprene bearing pads and joint filler shall be bonded to the bearing seat with an epoxy adhesive.

\* Fill holes in seat and beams at Abutment 1 with joint sealer meeting the requirements of Section 1057.5. Fill holes in seat and beams at Abutment 2 with non-shrink grout.

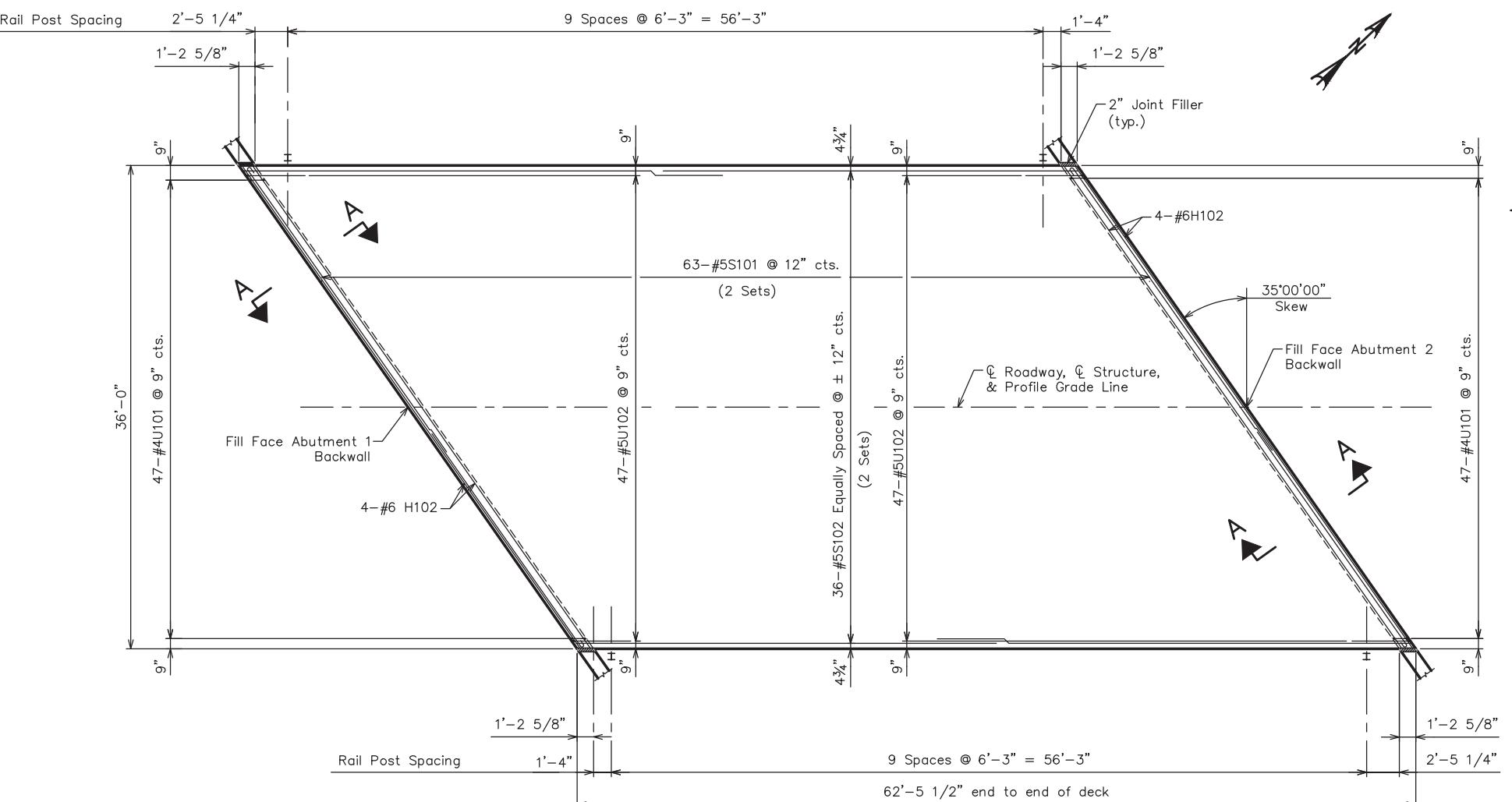
\*\* Fabric mat shall be 24" wide and attached full width and vertically at edges to the abutment with a  $\frac{3}{8}$ " x 5" steel plate (full width) and  $\frac{1}{2}$ " Ø studs with nuts and washers at 12" cts (full width). The cost of furnishing and installing the fabric mat and all misc. fasteners, plates, and hardware shall be included in the unit price bid for "Reinforced Concrete Slab Overlay."

P.O. BOX 100  
HILLSBORO, MO  
(636-797-5340) PHONE  
(636-797-5565) FAX

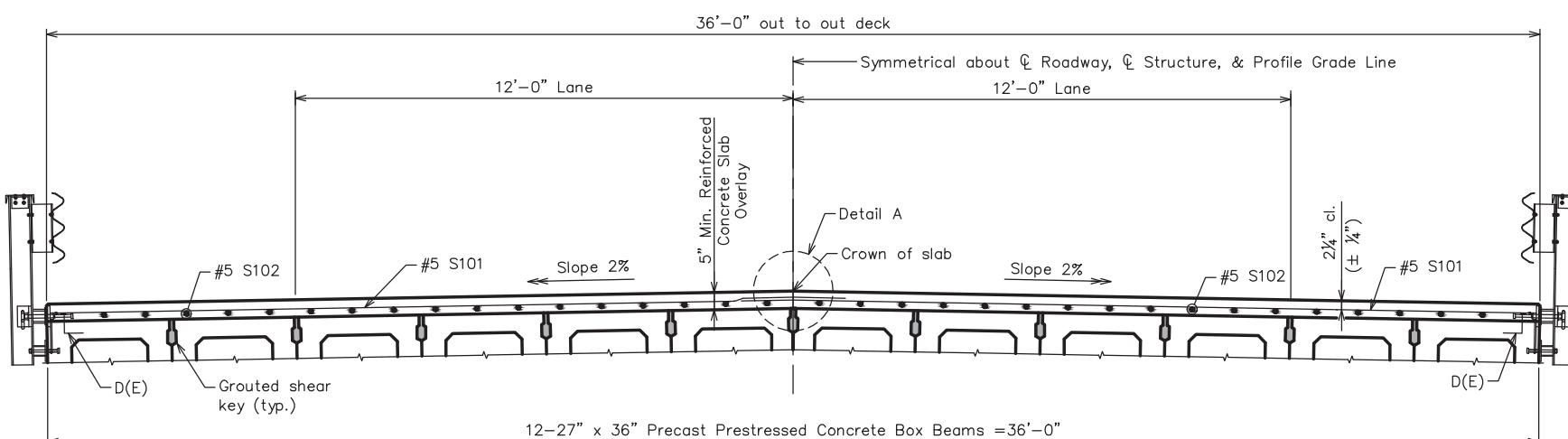
JEFFERSON COUNTY PUBLIC  
WORKS DEPARTMENT



STRUCTURES, INC.  
A STRUCTURAL ENGINEERING FIRM  
8615 GRANADA  
BLDG #3141638-6550  
FAX (314) 638-2682  
CERT. OF AUTHORITY: E-2006035000



### PLAN



### CROSS SECTION

(Near Midspan)

Notes:  
See sheets 10-12 of 17 for Superstructure Details and Bill of Materials.

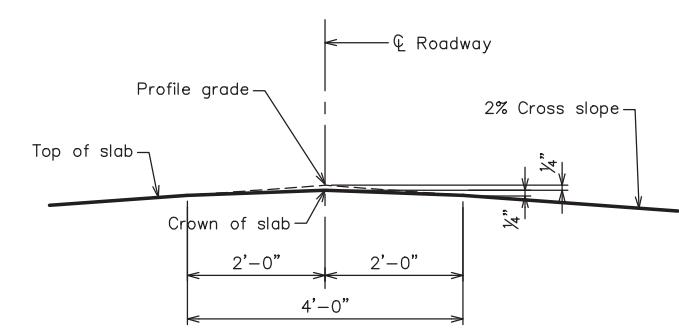
Spacing of S101 bars shall be measured along the  $\frac{1}{2}$  of structure.

Apply a penetrating sealer to the exterior face and 1 ft on the underside of the outside beams after the beams have been erected (See Special Provisions).

Note: This drawing is not to scale. Follow dimensions.

### MINIMUM BAR LAP

#5 BAR = 2'-7"

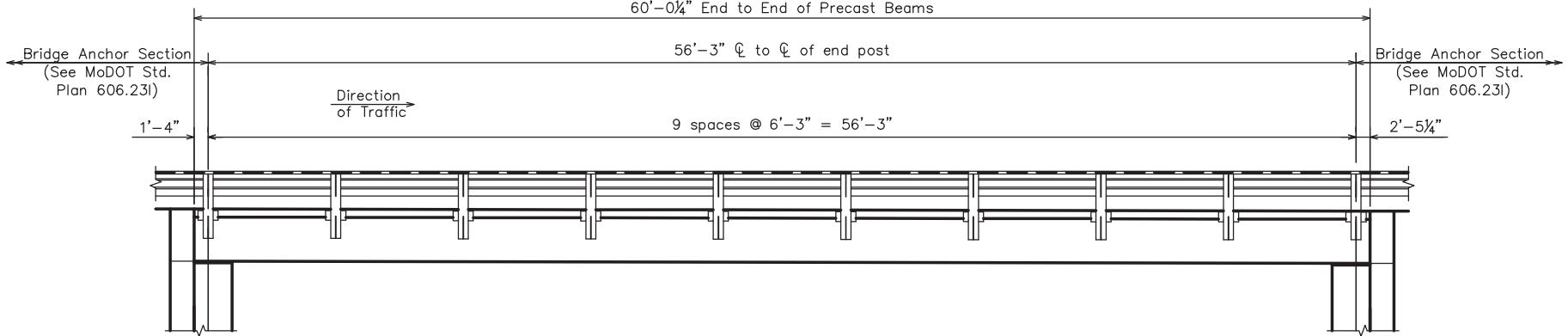


### DETAIL A

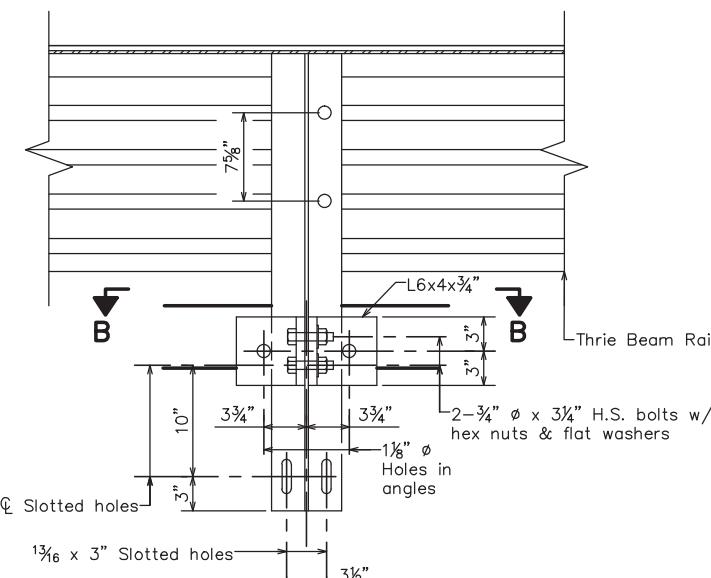
BRIDGE: OVER BUTCHER  
BREACH CREEK  
COUNTY ROAD: BUTCHER BREACH ROAD

SLAB PLAN & CROSS SECTION

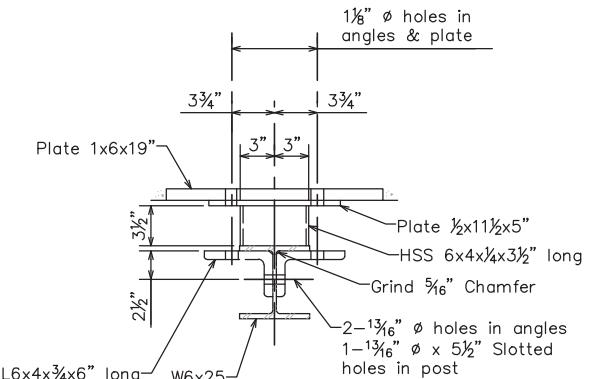
Sheet No. 13 of 17



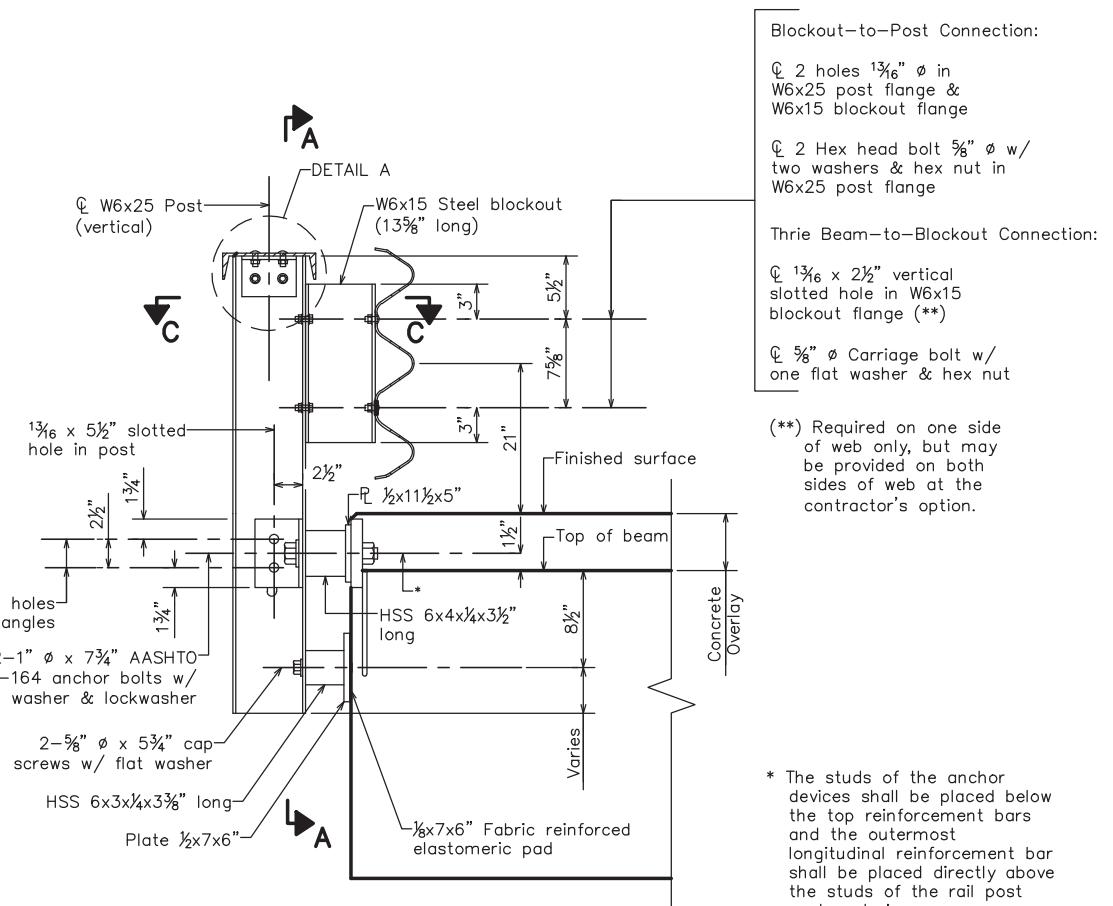
PART ELEVATION SHOWING THRIE BEAM RAIL



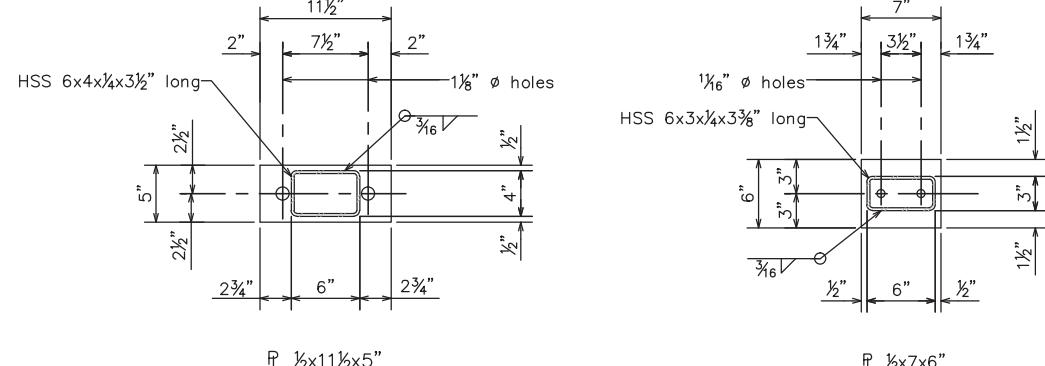
SECTION A-A



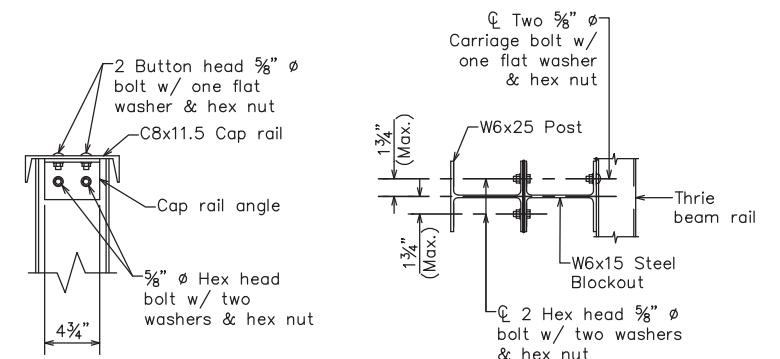
SECTION B-B



SECTION AT RAIL POST



DETAIL A



SECTION C-C

Note: This drawing is not to scale. Follow dimensions.

GENERAL NOTES:

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, nuts, washers, 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.

Minimum length of thrie beam sections is equal to one post space.

5/8"  $\varnothing$  button-head, oval shoulder bolts with 3/8" min. thickness hex nuts shall be used at all slots.

Thrie beam guardrail on the bridge shall be 12 gauge steel.

Posts, cap rail angles, post plates, channels and channel splice plates shall be fabricated from ASTM A709 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.

The guard rail anchor detail shown on this sheet shall be supplied by the precast concrete beam supplier for installation during beam fabrication.

The guard rail supplier shall supply the rail system which shall include all thrie beam railing, channels, posts, connecting plates, and bolts, including the guard rail anchor bolts.

Shim plates 6x6x1/16" may be used between the top of the post and the channel member as required for vertical alignment.

All field drilled holes shall be coated with an approved zinc rich paint before erection.

See Missouri Standard Plans drawing 606.00 for details not shown.



John J. Gruendler  
REGISTERED PROFESSIONAL ENGINEER  
Signature

DATE  
2/19/14

DATE PREPARED  
2/19/2014

ROUTE STATE  
MO

DISTRICT SHEET NO.  
BR 14

COUNTY  
JEFFERSON

JOB NO.

CONTRACT ID.

PROJECT NO.  
STP-5403(635)

BRIDGE NO.  
26700211

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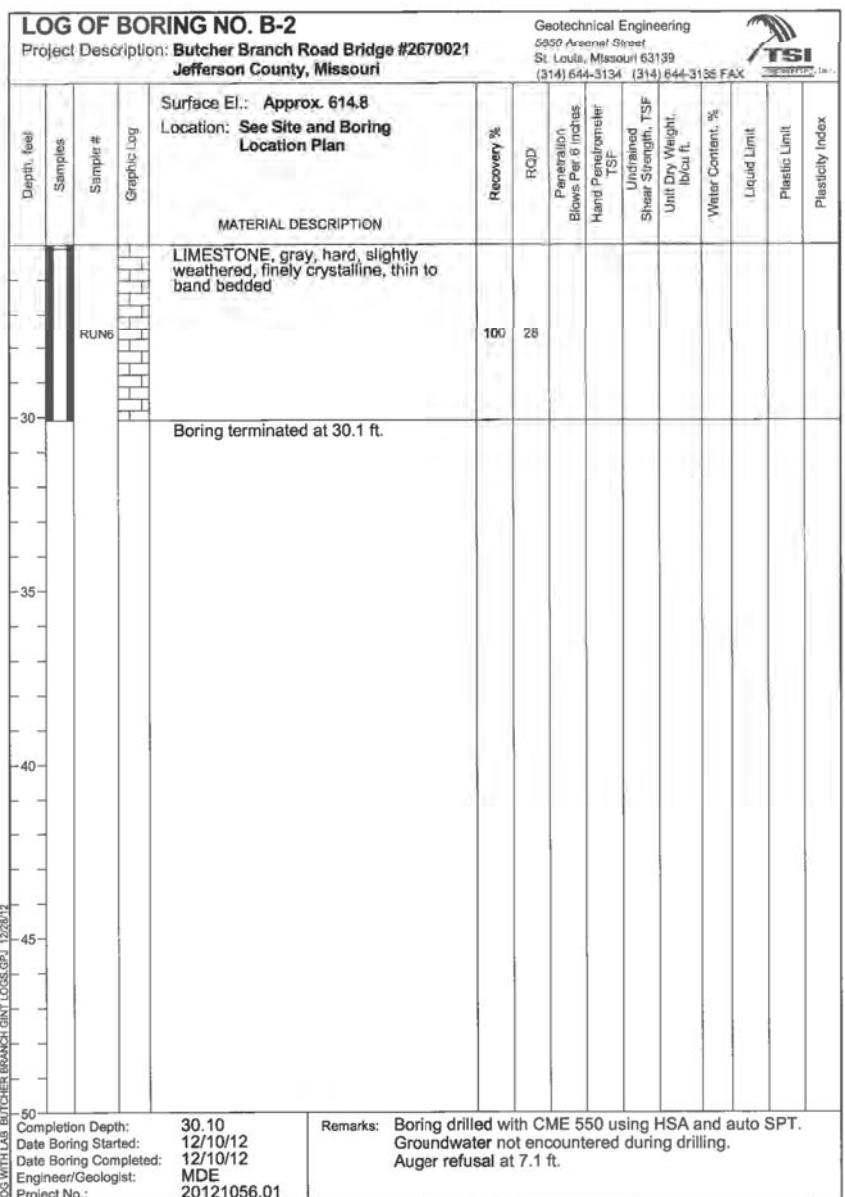
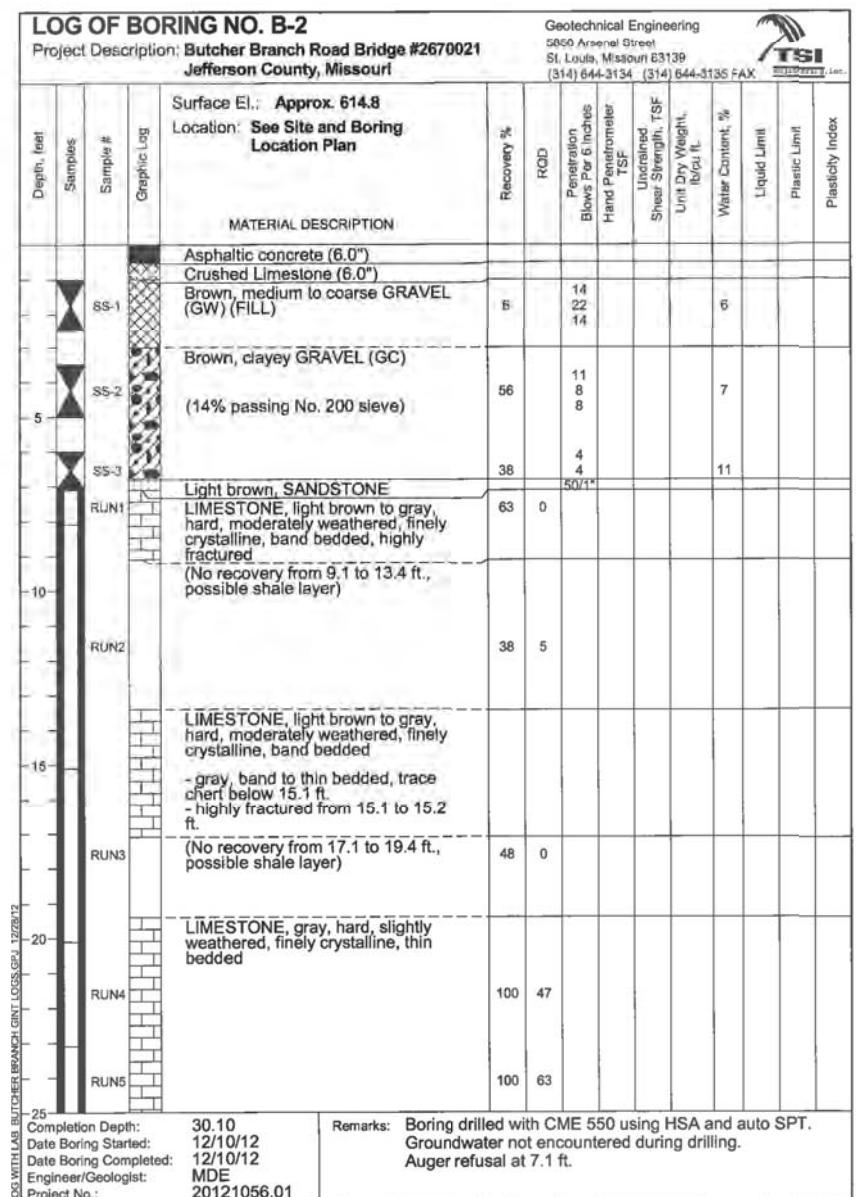
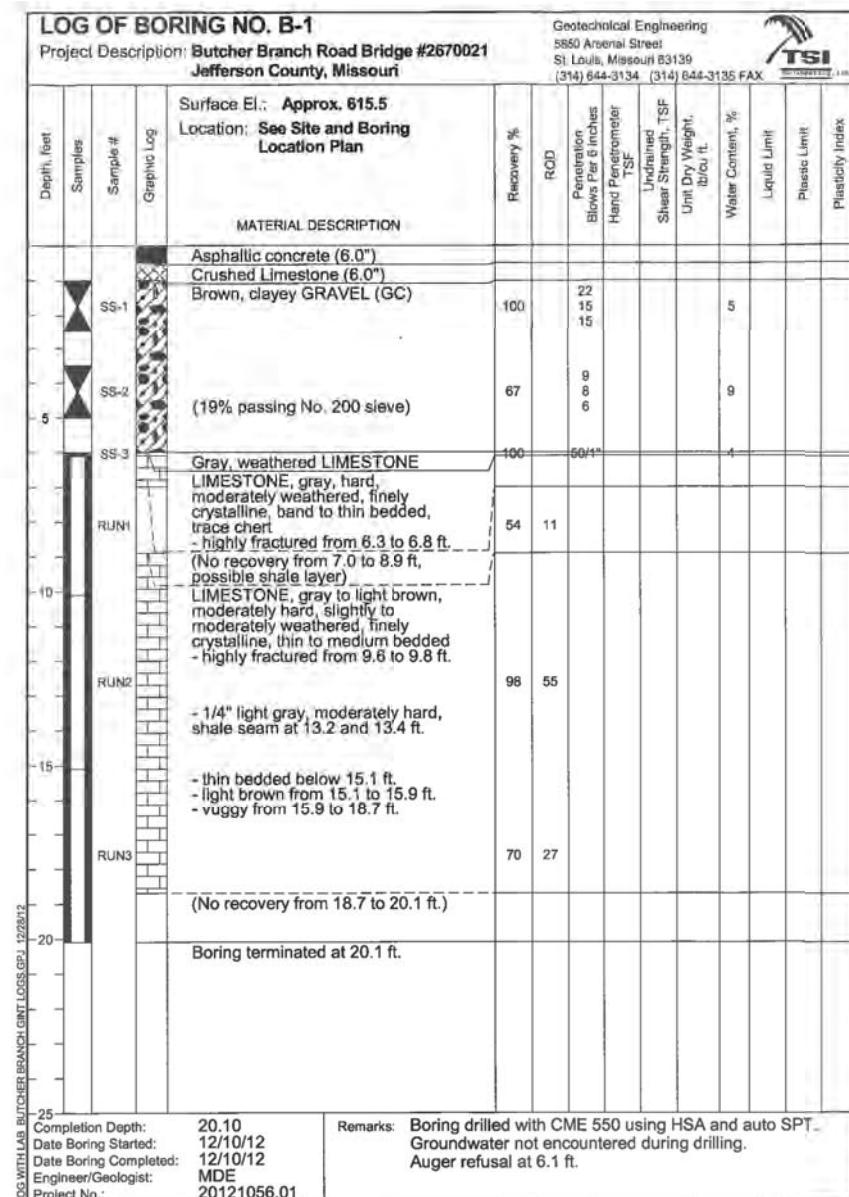
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DATE  
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BILL OF REINFORCING STEEL																			
NO. REQ'D.	MARK NO.	LOCATION	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT						
			SIZE	MARK	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIETIES (V)	NO. EACH	B	C	D	E	F	H	K		
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	LBS.		
		ABUTMENT 1																	
28	5 D10	FOOTING	19	X	5	0	4	2			9	2	9	0	263				
63	5 D11	FOOTING	19	X	5	0	5	9			10	9	10	7	695				
32	5 D12	FOOTING	19	X	5	0	4	0			9	0	8	10	295				
58	5 D13	FOOTING	19	X	5	0	3	0			8	0	7	10	474				
91	5 F10	FOOTING	20	X	7	6					7	6			712				
32	5 F11	FOOTING	20	X	35	3					35	3			1177				
5	5 H10	WALL	E	20	X	25	2				25	2			131				
5	5 H11	WALL	E	20	X	24	11				24	11			130				
14	5 H12	WALL	E	20	X	47	2				47	2			689				
28	5 H13	WINGWALL	E	20	X	11	4				11	4			331				
6	5 H14	WINGWALL	E	20	X	V	2	11	2		11	2							
		INCR=3ft-7.5in			3	11					3	11			47				
6	5 H15	WINGWALL	E	20	X	V	2	8	11		8	11							
		INCR=3ft-7.5in			1	8					1	8			33				
2	5 H16	WINGWALL	E	20	X	10	3				10	3			21				
2	5 H17	WINGWALL	E	20	X	10	3				10	3			21				
2	5 H18	WINGWALL	E	20	X	1	11				1	11			4				
52	5 U10	WALL	E	10	S	X		9	2	3	3	9	3	6	190				
52	5 U11	WALL	E	23	S	X	8	3	2	8	5.625	5.625	5.625	4	6	4	5	240	
16	5 U12	WALL	E	28	S	X	2	6	2	3	2	6			7	3	7	0	117
12	5 U13	WALL	E	23	S	X	1	2	3	2	1	2	9.875	9.875	9.875	5	6	5	68
63	5 V10	WALL	E	20	X	6	4				6	4			416				
58	5 V11	WALL	E	20	X	6	4				6	4			383				
2	5 V12	WALL	E	20	X	5	11				5	11			12				
28	5 V13	WINGWALL	E	20	X	V	2	8	8		8	8							
		INCR=2.500in			6	0					6	0			214				
1	5 V14	WINGWALL	E	20	X	4	8				4	8			5				
2	5 V15	WINGWALL	E	20	X	8	10				8	10			18				
3	5 V16	WINGWALL	E	20	X	8	10				8	10			28				
1	5 V17	WINGWALL	E	20	X	3	10				3	10			4				
28	5 V18	WINGWALL	E	20	X	V	2	8	10		8	10							
		INCR=2.500in			6	2					6	2			219				
Total Epoxy Coated														691					
Total Plain														6246					

BILL OF REINFORCING STEEL																		
NO. REQ'D.	MARK NO.	LOCATION	DIMENSIONS								NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT					
			SIZE	MARK	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIETIES (V)	NO. EACH	B	C	D	E	F	H	K	
			FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	LBS.	
		ABUTMENT 2																
28	5 D20	FOOTING	19	X	5	0	4	2			9	2	9	0	263			
63	5 D21	FOOTING	19	X	5	0	5	9			10	9	10	7	695			
32	5 D22	FOOTING	19	X	5	0	4	0			9	0	8	10	295			
58	5 D23	FOOTING	19	X	5	0	3	0			8	0	7	10	474			
91	5 F20	FOOTING	20	X	7	6					7	6			712			
32	5 F21	FOOTING	20	X	35	3					35	3			1177			
5	5 H20	WALL	E	20	X	25	2				25	2			131			
5	5 H21	WALL	E	20	X	24	11				24	11			130			
14	5 H22	WALL	E	20	X	47	2				47	2			590			
24	5 H23	WINGWALL	E	20	X	11	4				11	4			284			
6	5 H24	WINGWALL	E	20	X	V	2	11	8		11	8						
		INCR=3ft-7.5in			3	11					4	5			50			
6	5 H25	WINGWALL	E	20	X	V	2	9	0			9	0					
		INCR=3ft-7.5in			1	9					1	9			34			
2	5 H26	WINGWALL	E	20	X	10	3				10	3			21			
2	5 H27	WINGWALL	E	20	X	10	3				10	3			21			
2	5 H28	WINGWALL	E	20	X	1	11				1	11			4			
52	5 U20	WALL	E															



JOHN J.  
GRUENDLER  
NUMBER  
E-23263

DATE  
2/19/14

DATE PREPARED  
2/19/2014

ROUTE STATE  
MO

DISTRICT SHEET NO.  
BR 17

COUNTY JEFFERSON

JOB NO.

CONTRACT ID.

PROJECT NO.  
STP-5403(635)

BRIDGE NO.  
26700211

DATE DESCRIPTION

LOG WITH LAB BUTCHER BRANCH GINT LOGS GPJ 12/20/12

P.O. BOX 100  
HILLSBORO, MO  
(636-797-5340) PHONE  
(636-797-5665) FAX

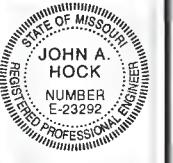


**STRUCTURES, INC.**  
A STRUCTURAL ENGINEERING FIRM  
6615 Grand  
St. Louis, MO 63123  
Phone (314) 645-2682  
Fax (314) 645-2682  
CERT. OF AUTHORITY: E-2006035000

For location of borings, see Sheet No. 1 of 17.

See December 18, 2012 TSI Engineering, Inc.  
geotechnical report for additional data.

Continued Next Page



John A. Hock

DATE PREPARED  
2/19/2014

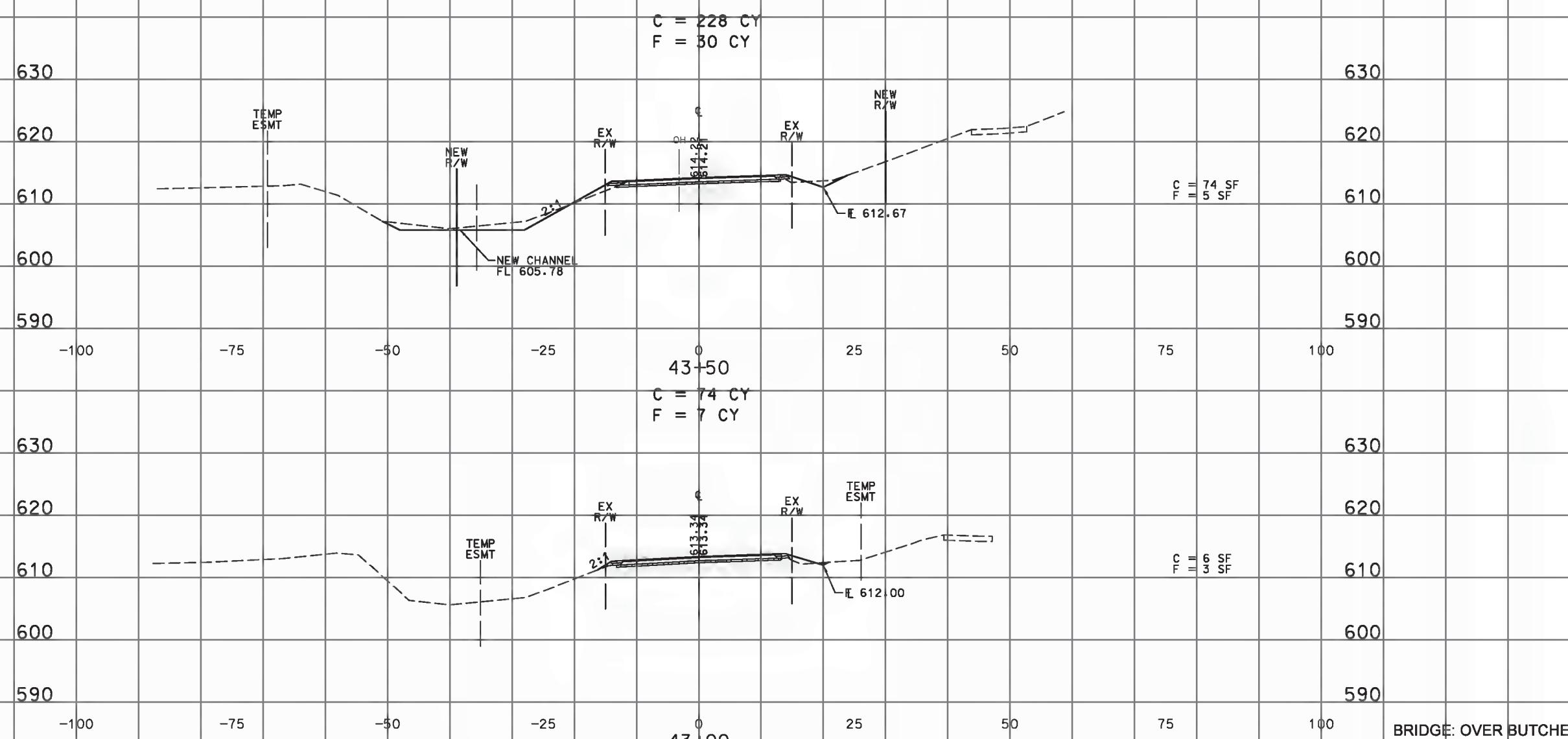
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COUNTY JEFFERSON  
JOB NO.  
CONTRACT ID.  
PROJECT NO. STP-5403 (635)  
BRIDGE NO. 26700211

DESCRIPTION  
DATE

JEFFERSON COUNTY  
PUBLIC WORKS DEPARTMENT  
P.O. BOX 100  
HILLSBORO, MO 63350  
(636) 797-5540 (PHONE)  
(636) 797-5566 (FAX)



EDSI  
ENGINEERING DESIGN SOURCE, INC.  
16141 SWINGLEY RIDGE RD., SUITE 300  
CHESTERFIELD, MO 63017  
MO CORP. ENGINEERING LICENSE NO. E-1523-D  
MO CORP. SURVEYING LICENSE NO. 2002030547



COUNTY ROAD: BUTCHER BRANCH ROAD  
ROADWAY CROSS SECTIONS



John A. Hock

DATE PREPARED  
2/19/2014

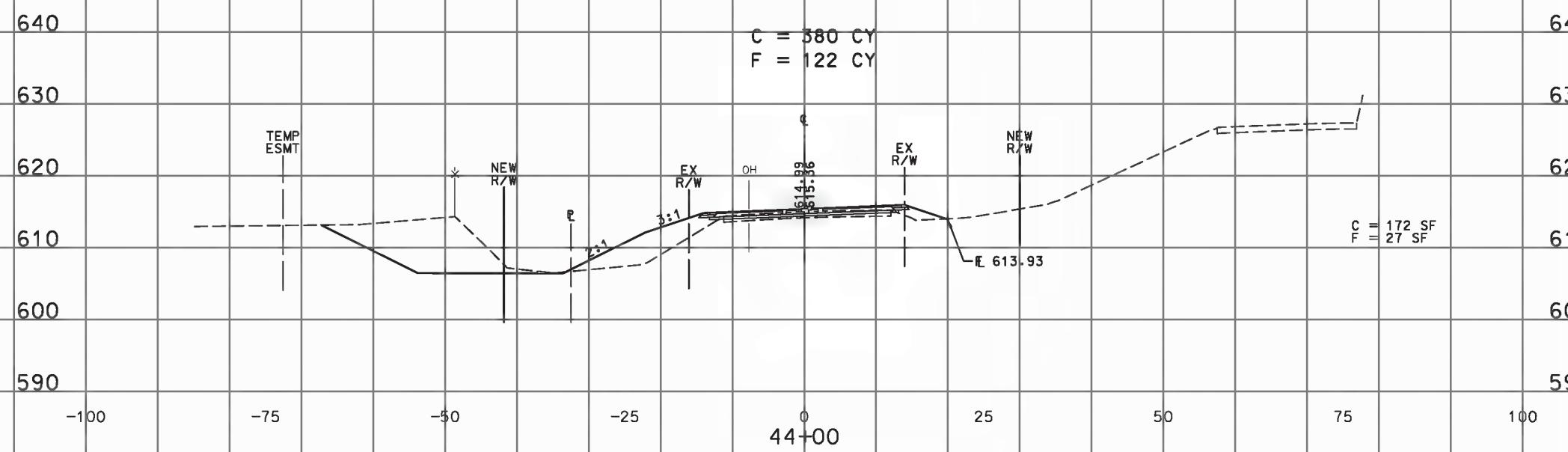
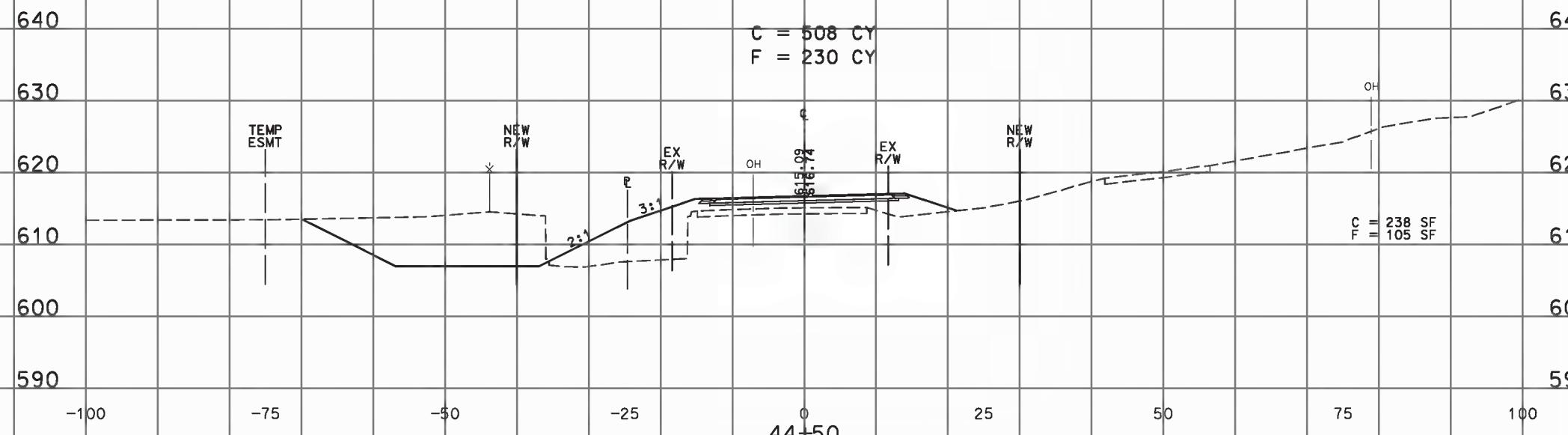
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COUNTY JEFFERSON  
JOB NO.  
CONTRACT ID.  
PROJECT NO. STP-5403 (635)  
BRIDGE NO. 26700211

DESCRIPTION  
DATE

JEFFERSON COUNTY  
PUBLIC WORKS DEPARTMENT  
P.O. BOX 100  
HILLSBORO, MO 63950  
(636-797-5540) PHONE  
(636-797-5566) FAX



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ENGINEERING DESIGN SOURCE, INC.  
16141 SWINGLEY RIDGE RD., SUITE 300  
CHESTERFIELD, MO 63017  
MO CORP. ENGINEERING LICENSE NO. E-1523-D  
MO CORP. SURVEYING LICENSE NO. 2002030547



BRIDGE: OVER BUTCHER  
BRANCH CREEK  
COUNTY ROAD: BUTCHER BRANCH ROAD  
ROADWAY CROSS SECTIONS



John A. Hock

DATE PREPARED  
2/19/2014

ROUTE STATE MO  
DISTRICT SHEET NO. 3  
COUNTY JEFFERSON  
JOB NO.  
CONTRACT ID.  
PROJECT NO.  
STP-5403 (635)  
BRIDGE NO.  
26700211

DESCRIPTION

DATE

JEFFERSON COUNTY  
PUBLIC WORKS DEPARTMENT  
P.O. BOX 100  
HILLSBORO, MO 63350  
(636-797-5540) PHONE  
(636-797-5565) FAX



EDSI  
ENGINEERING DESIGN SOURCE, INC.  
16141 SWINGLEY RIDGE RD., SUITE 300  
CHESTERFIELD, MO 63017  
NO. E-1523-D  
NO. 2002030547  
NO. CORP. SURVEYING LICENSE NO. 2002030547

C = 560 CY  
F = 218 CY

EX  
R/W  
614.71  
618.90

P

NEW  
R/W

TEMP  
ESMT

630

620

610

600

590

580

570

560

550

540

530

520

510

500

490

480

470

460

450

440

430

420

410

400

390

380

370

360

350

340

330

320

310

300

290

280

270

260

250

240

230

220

210

200

190

180

170

160

150

140

130

120

110

100

90

80

70

60

50

40

30

20

10

0

C = 471 CY  
F = 287 CY

EX  
R/W  
614.71  
618.90

P

NEW  
R/W

TEMP  
ESMT

630

620

610

600

590

580

570

560

550

540

530

520

510

500

490

480

470

460

450

440

430

420

410

400

390

380

370

360

350

340

330

320

310

300

290

280

270

260

250

240

230

220

210

200

190

180

170

160

150

140

130

120

110

100

90

80

70

60

50

40

30

20

10

0

C = 548 CY  
F = 409 CY

EX  
R/W  
614.79  
617.99

P

NEW  
R/W

TEMP  
ESMT

630

620

610

600

590

580

570

560

550

540

530

520

510

500

490

480

470

460

450

440

430

420

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390

380

370

360

350

340

330

320

310

300

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270

260

250

240

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220

210

200

190

180

170

160



John A. Hock

DATE PREPARED  
2/19/2014

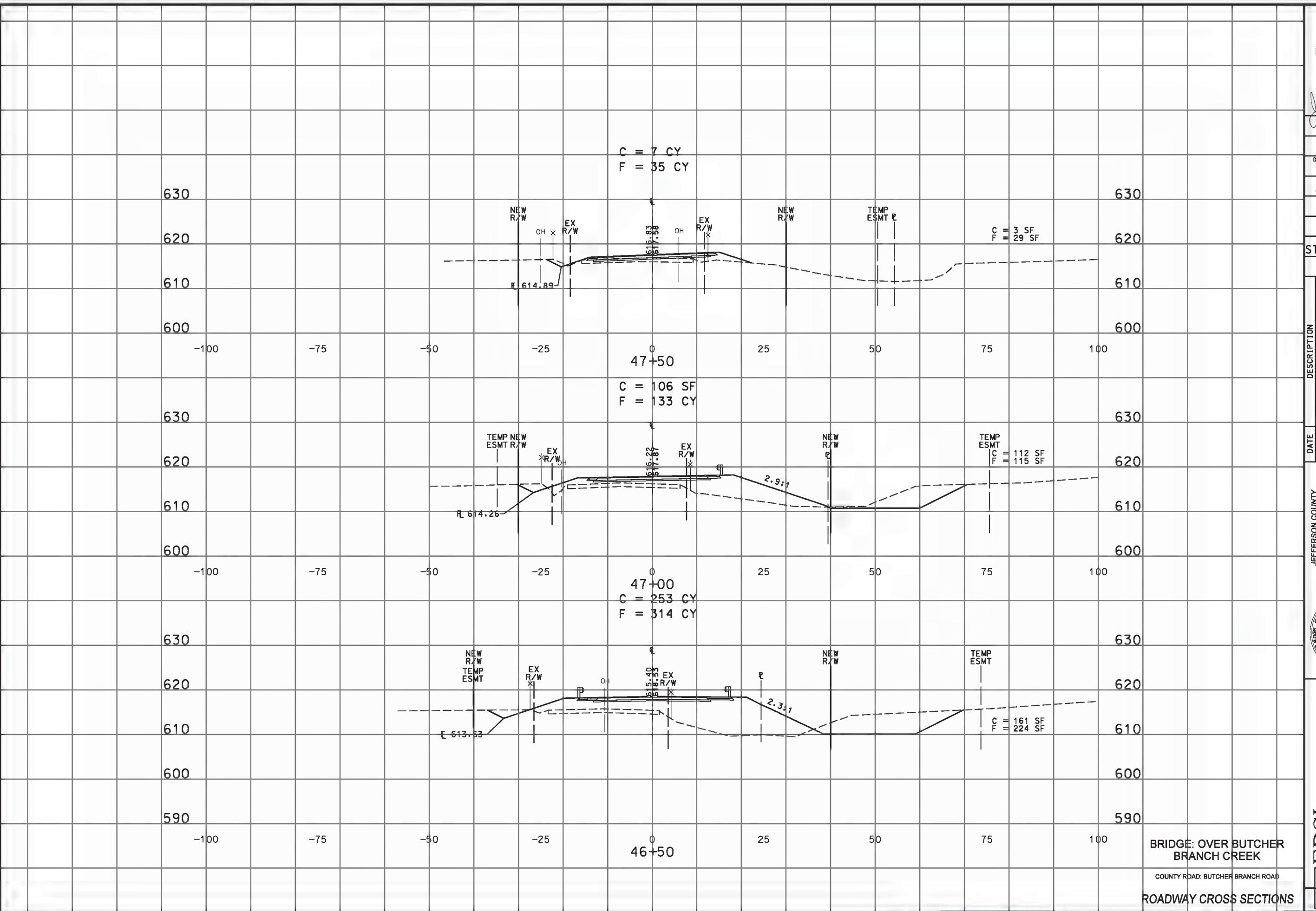
ROUTE STATE MO  
DISTRICT SHEET NO. 4  
COUNTY JEFFERSON  
JOB NO.  
CONTRACT ID.  
PROJECT NO. STP-5403 (635)  
BRIDGE NO. 26700211

DESCRIPTION  
DATE

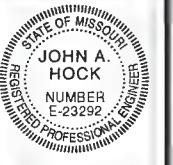
JEFFERSON COUNTY  
PUBLIC WORKS DEPARTMENT  
P.O. BOX 100  
HILLSBORO, MO 63350  
(636-797-5540) PHONE  
(636-797-5566) FAX



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16141 SWINGLEY RIDGE RD., SUITE 300  
CHESTERFIELD, MO 63017  
NO. E-1523-D  
SURVEYING LICENSE NO. 2002030547







John A. Hock

DATE PREPARED  
2/19/2014

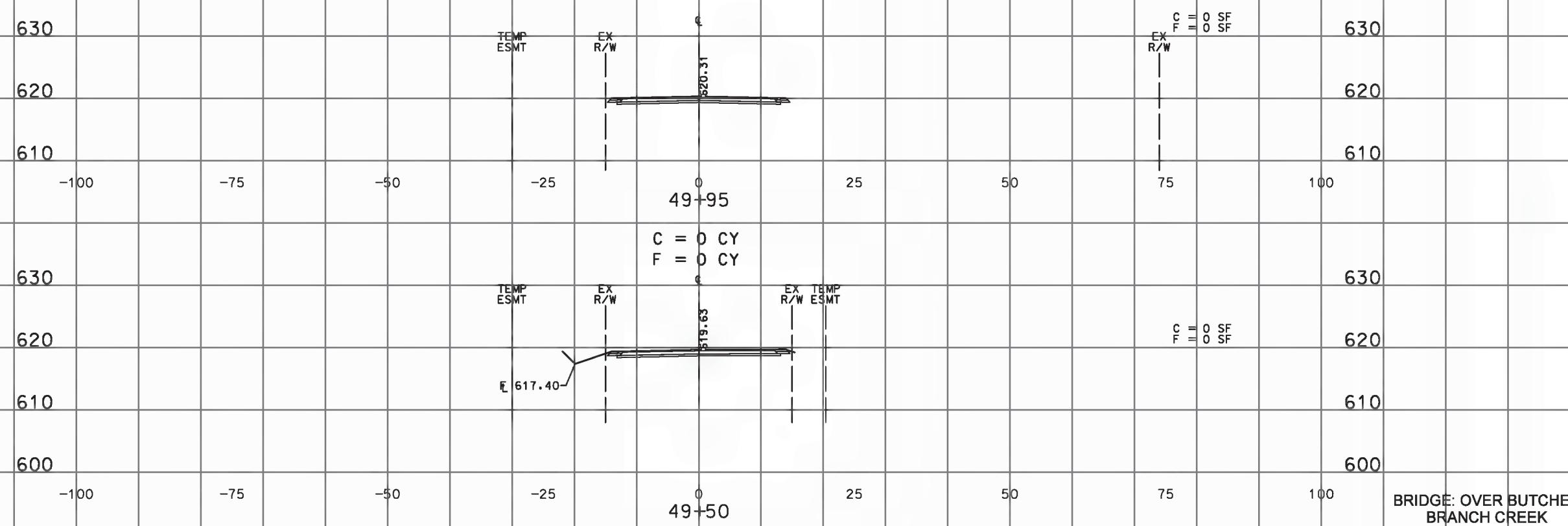
ROUTE STATE  
MO  
DISTRICT SHEET NO.  
SL 6  
COUNTY JEFFERSON  
JOB NO.  
CONTRACT ID.  
PROJECT NO.  
STP-5403 (635)  
BRIDGE NO.  
26700211

DESCRIPTION  
DATE

JEFFERSON COUNTY  
PUBLIC WORKS DEPARTMENT  
P.O. BOX 100  
HILLSBORO, MO 63050  
(636-797-5540) PHONE  
(636-797-5565) FAX



EDSI  
ENGINEERING DESIGN SOURCE, INC.  
16141 SWINGLEY RIDGE RD., SUITE 300  
CHESTERFIELD, MO 63017  
MO CORP. ENGINEERING LICENSE NO. E-1523-D  
MO CORP. SURVEYING LICENSE NO. 2002030547





John A. Hock

DATE PREPARED  
2/19/2014

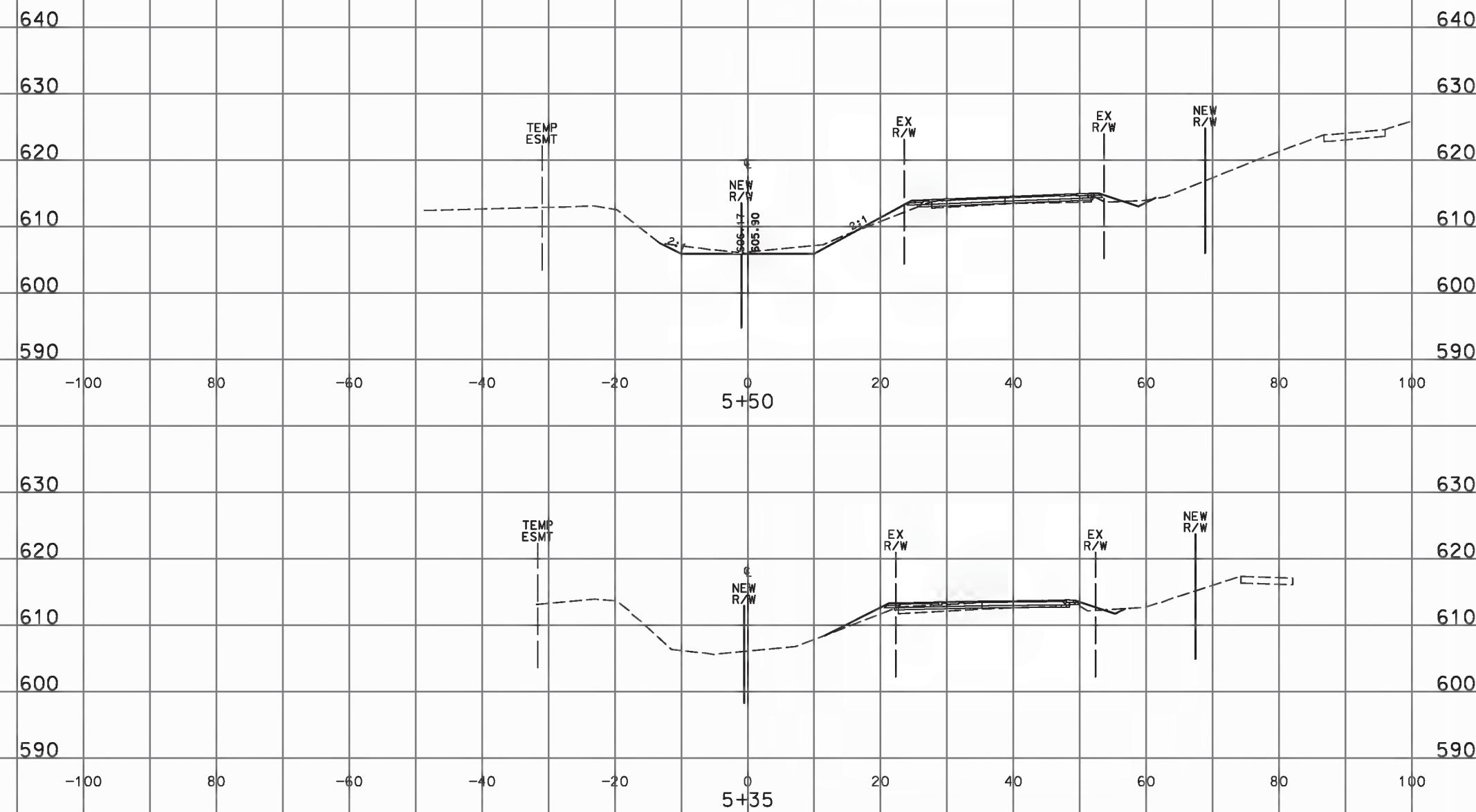
ROUTE STATE  
MO  
DISTRICT SHEET NO.  
SL 1  
COUNTY JEFFERSON  
JOB NO.  
CONTRACT ID.  
PROJECT NO.  
STP-5403 (635)  
BRIDGE NO.  
26700211

DESCRIPTION  
DATE

JEFFERSON COUNTY  
PUBLIC WORKS DEPARTMENT  
P.O. BOX 100  
HILLSBORO, MO 63350  
(636-797-5540) PHONE  
(636-797-5566) FAX



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ENGINEERING DESIGN SOURCE, INC.  
16141 SWINGLEY RIDGE RD., SUITE 300  
CHESTERFIELD, MO 63017  
MO CORP. ENGINEERING LICENSE NO. E-1523-D  
MO CORP. SURVEYING LICENSE NO. 2002030547

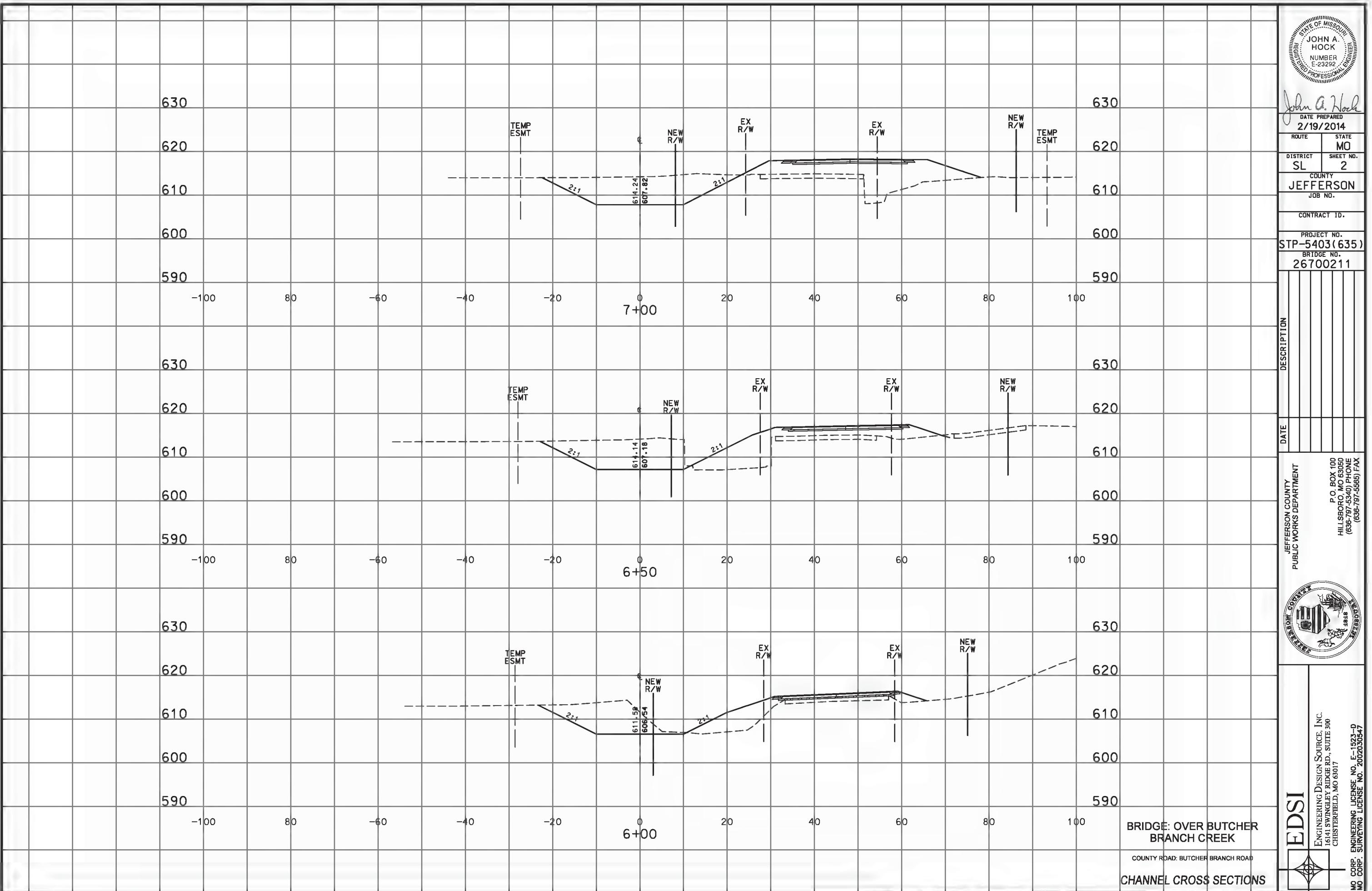


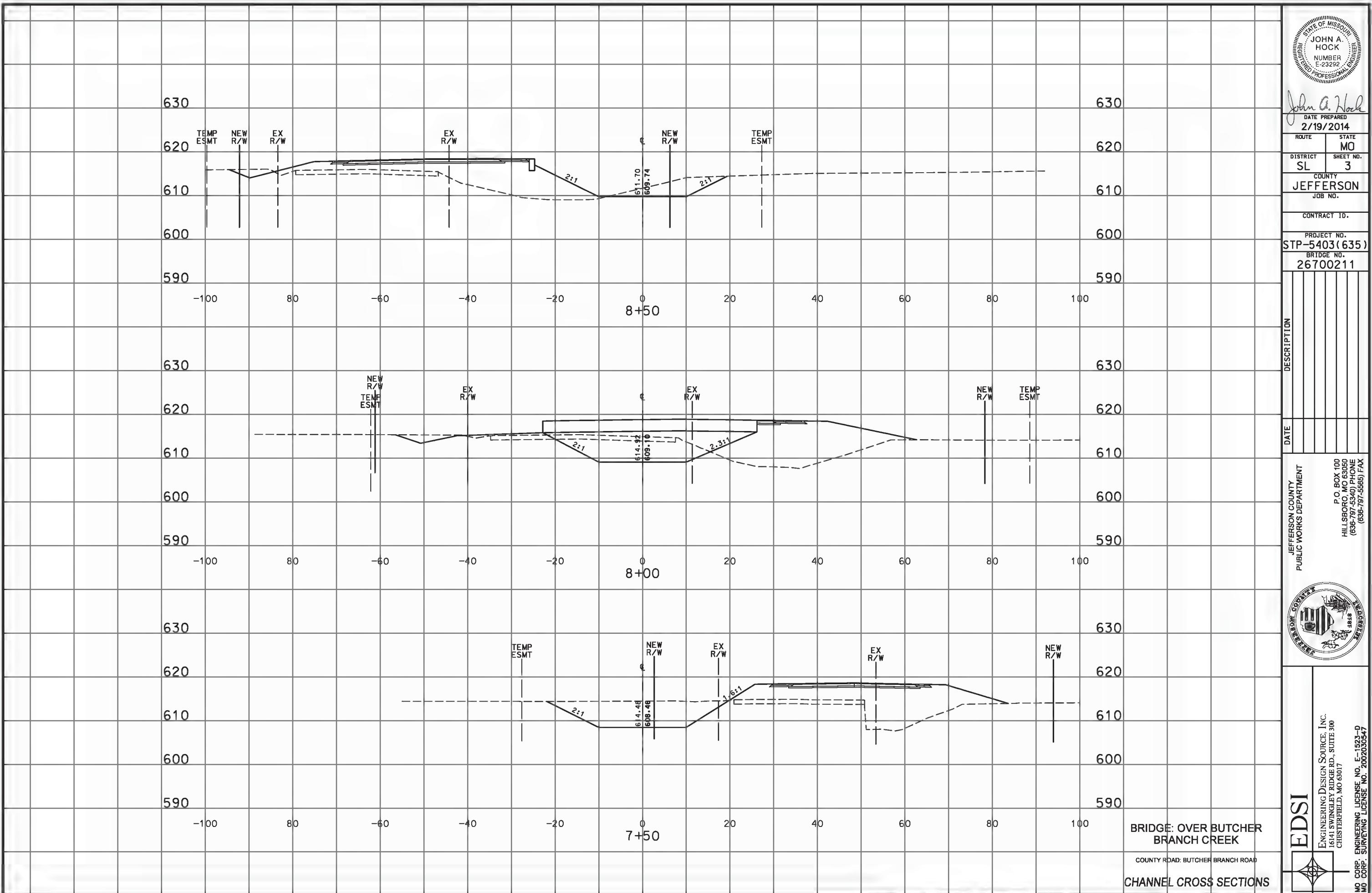
5+35

BRIDGE: OVER BUTCHER  
BRANCH CREEK

COUNTY ROAD: BUTCHER BRANCH ROAD

CHANNEL CROSS SECTIONS







John A. Hock  
DATE PREPARED  
2/19/2014

ROUTE	STATE
MO	
DISTRICT	SHEET NO.
SL	4
COUNTY	
JEFFERSON	
JOB NO.	
CONTRACT ID.	
PROJECT NO.	
STP-5403 (635)	
BRIDGE NO.	
26700211	

DESCRIPTION	
DATE	

JEFFERSON COUNTY  
PUBLIC WORKS DEPARTMENT  
P.O. BOX 100  
HILLSBORO, MO 63350  
(636) 797-5340 PHONE  
(636) 797-5566 FAX



EDSI  
ENGINEERING DESIGN SOURCE, INC.  
16141 SWINGLEY RIDGE RD., SUITE 300  
CHESTERFIELD, MO 63017  
NO. E-1523-D  
NO. 2002030547  
NO. CORP. SURVEYING LICENSE NO. 2002030547

