MoDOT PROJECTS
2008 APPLICATION FORM
(required for each entry)

Job No. J6S1597 **Route** 100 **County** Franklin

STIP Description (Scoping or Construction, state which STIP) 2008-12 STIP - Construction
Replace bridge 0.5 mile east of Route 185 at Little Boeuf Creek. Project involves bridge J960.

Is the submittal for the entire project or just a portion of the project? Please explain: The submittal is for the construction portion of the project.

Project Manager (could have both) **MoDOT** Tim Schroeder **Consultant**

Key core team members as approved by the MoDOT PM (may include consultants) (limit of 9)

Greg Sanders	Jenn Becker	Rick Schneider
Judy Wagner	Justin Wolf	Kara Price
Tim Hellebusch	Larry Rohr	Jim Smith

Project Contacts: District Tim Schroeder **Consultant**

Project Budget:

Conceptual budget $ 1863 **Initial STIP Budget** $ 1863 04-08 STIP
Final STIP budget $ 1466 (08-12) **Award amount** $ 1169 final estimate
Other : in January 2008 letting

Value Engineering study during design? yes ☐ no ☒ (if yes) **Project Stage**
Total VE savings implemented $ **VE Contact Person**
Construction-stage VE (VECP)? yes ☐ no ☒ (if yes) **Explain**
Total VECP savings $ **VECP Contact Person**

What would make this entry stand out from the rest of the entries when considering MoDOT's practical design philosophy? (In layman's terms - 100 words or fewer) We utilized temporary bridge parts from D10 to facilitate two-way traffic during construction. We were able to replace the existing structure in place; thereby, reducing the scope for pavement replacement.

Send entries to: MoDOT Design Division, ATTN: Jay Bestgen
1320 Creek Trail Dr., Jefferson City, Missouri 65109

ALL ENTRIES MUST BE RECEIVED NO LATER THAN CLOSE OF BUSINESS ON DECEMBER 15, 2007.

Practical Design 2008 Awards for Excellence Competition

Route 100
Franklin County
J6S1597

Presented by: District 6

Summary:

The existing Route 100 bridge was built in 1934, is 24 ft wide, and has no shoulders. The current ADT of Route 100 is 9,600 vehicles/day. The 20 year design ADT is 15,742 vehicles/day. There are 10.5 percent trucks.

Our original design would have constructed a new bridge that was raised six to eight feet higher than existing to minimize flooding in the future, per MoDOT bridge division's practice at the time. The new structure would have been 44 ft wide – two 12 ft lanes with 10 ft outside shoulders. The 10 ft shoulders were to be constructed at full depth, because the traffic control plan was to build the northern half of the bridge first, and utilize the new driving lane and shoulder to facilitate two-way traffic on the bypass. Then, the existing bridge would be demolished and the second half of the new structure would be built in its place. Because of the elevation change and the realignment of Route 100, we proposed a 0.3 mile long project to realign Route 100 to the proposed new structure.

With the advent of practical design, the core team took another look at the scope. We determined that the existing bridge experienced backwater flooding from the Missouri River; but, the road never went underwater. Therefore, we decided that we could afford to replace the existing bridge in place, and at the same vertical elevation.

We pursued the idea of closing Route 100 and setting up a local Route KK/185 detour. The detour was seven miles long. We held a public meeting on 2/22/07 to present this idea, and the public totally rejected the detour, saying that the detour route wasn't safe for truck traffic. We agreed, and withdrew our plans to close the road.

Our current scope is to replace the existing structure in place with a prestressed concrete I girder bridge. The new structure is 32 ft wide, and features modest 4 ft shoulders to match future improvements to the corridor. By utilizing the existing alignment and profile of the roadway, we were able to virtually eliminate any reconstruction of the roadway on both approaches to the bridge. To facilitate two-way traffic during construction, we will construct a temporary crossing immediately to the north of the existing bridge, using spare bridge parts from District 10.

Total construction costs went from $1,863,000 (04-08 STIP) to a final PS&E estimate of $1,169,000. The project is scheduled for a January 25, 2008 bid opening.

04-08 STIP Construction Budget:	$1,863,000
PS&E Final Estimate:	$1,169,000
Total Savings:	$ 694,000 (37.2 percent savings)

Why is this entry the "poster" image for MoDOT's practical design philosophy?

Scope Comparison: When you examine the scope before and after practical design, you'll see that the design elevation of the bridge was lowered from its calculated "standard" elevation due to public input that the road didn't experience flooding problems. We were able to keep the present horizontal and vertical alignment of the roadway, which virtually eliminated the need to reconstruct 0.3 mile of the roadway. We utilized spare bridge parts from District 10 to construct a temporary crossing to address traffic control staging during reconstruction.

Purpose and Need: The purpose and need of this project was to replace the existing bridge on Route 100 over Little Boeuf Creek. In recent flooding of the 1990's, flood backwater from the Missouri River lapped at the roadway, but never overtopped the roadway. Therefore, there was no justification for raising the vertical alignment of the replacement structure. Although the original design called for 10 ft shoulders, we reduced the shoulders to 4 ft to be consistent with what's along the immediate corridor.

New techniques and non-traditional design: MoDOT Bridge Division suggested the use of spare bridge parts from District 10 to create a temporary water crossing during construction. This solved the problem of traffic control during construction and greatly pleased the public.

Cost Savings: The total construction costs went from $1,863,000 (04-08 STIP) to a final PS&E estimate of $1,169,000. The project is scheduled for a January 25, 2008 bid opening.

04-08 STIP Budget:	$1,863,000
PS&E Estimate:	$1,169,000
Total Savings:	$ 694,000 (37.2 percent savings)

Roadway User Expectations: The public was very outspoken in their opposition to any kind of detour during construction. Our proposed local route detour over Routes KK and 185 was soundly rejected. The public said that the detour was too narrow, hilly, and curvy for the truck traffic that would be forced onto it. Public input suggested that floodwater would come close to the road, but never overtopped it.

ROUTE	STATE	DISTRICT	SHEET NO.
100	MO	6	5

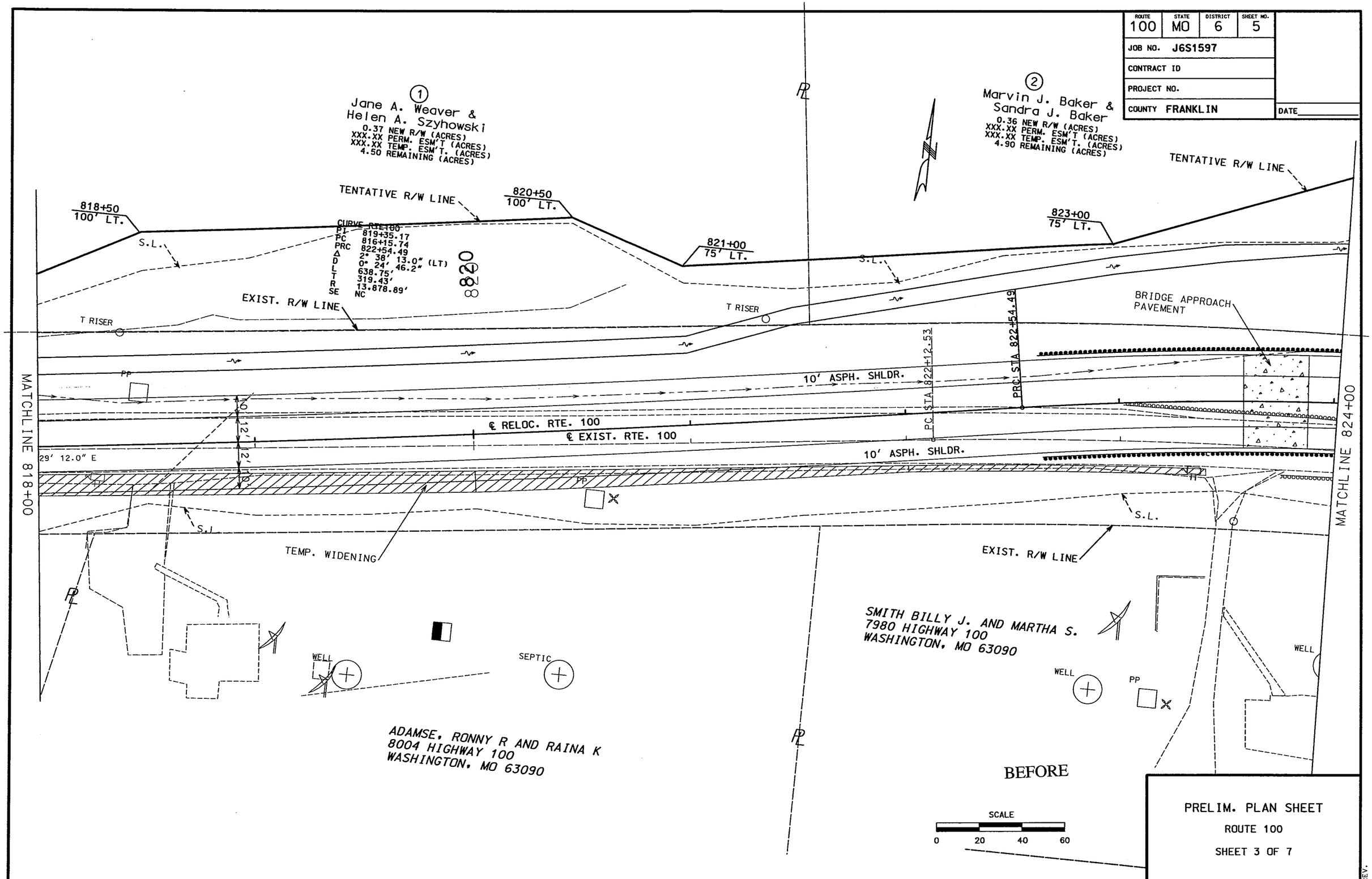
JOB NO. J6S1597

CONTRACT ID

PROJECT NO.

COUNTY FRANKLIN

DATE



PRELIM. PLAN SHEET

ROUTE 100

SHEET 3 OF 7

REV.

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ROUTE	STATE	DISTRICT	SHEET NO.
100	MO	6	6

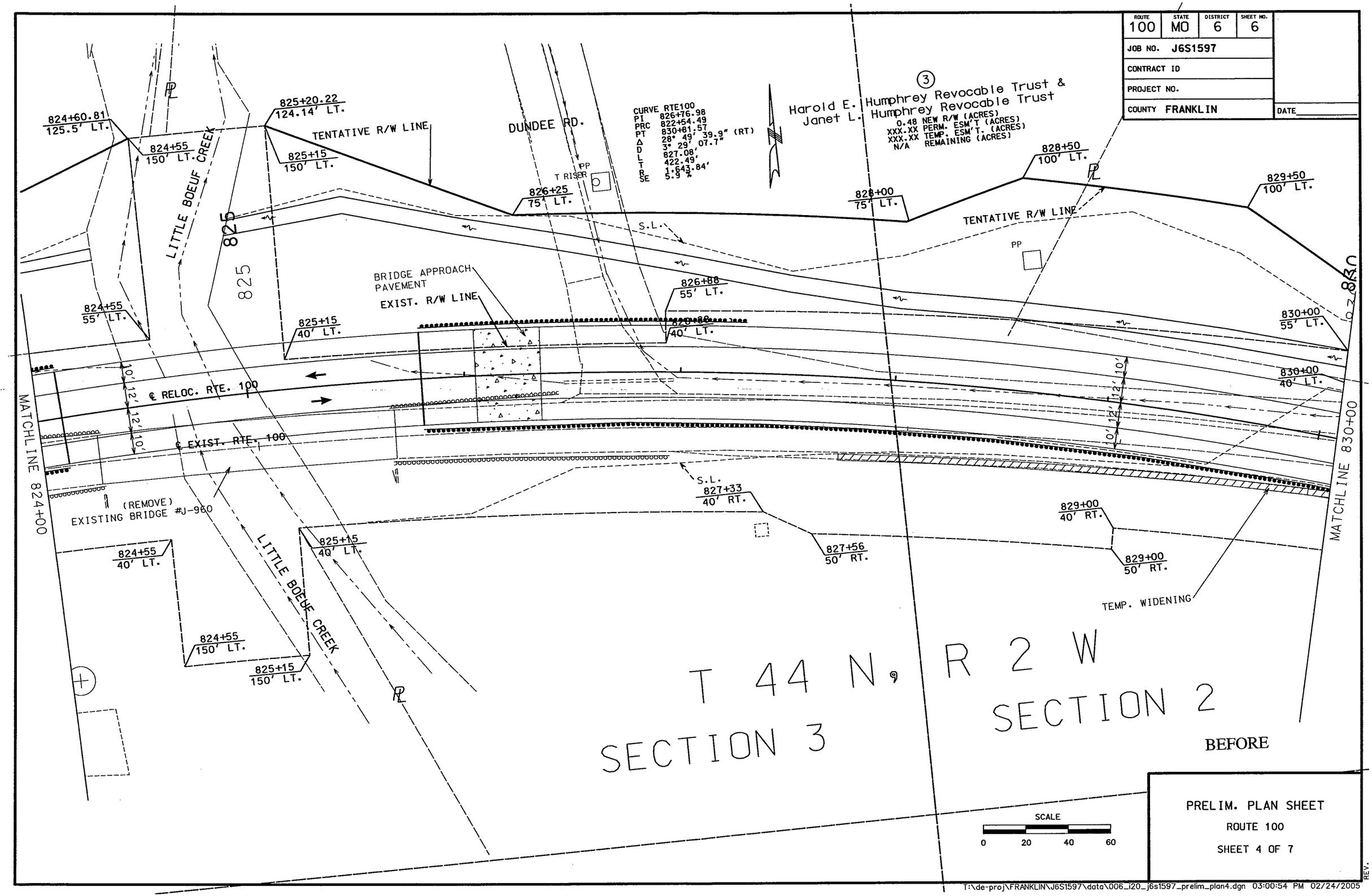
JOB NO. J6S1597

CONTRACT ID

PROJECT NO.

COUNTY FRANKLIN

DATE



PRELIM. PLAN SHEET

ROUTE 100

SHEET 4 OF 7

REV.

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ROUTE	STATE	DISTRICT	SHEET NO.
100	MO	6	7

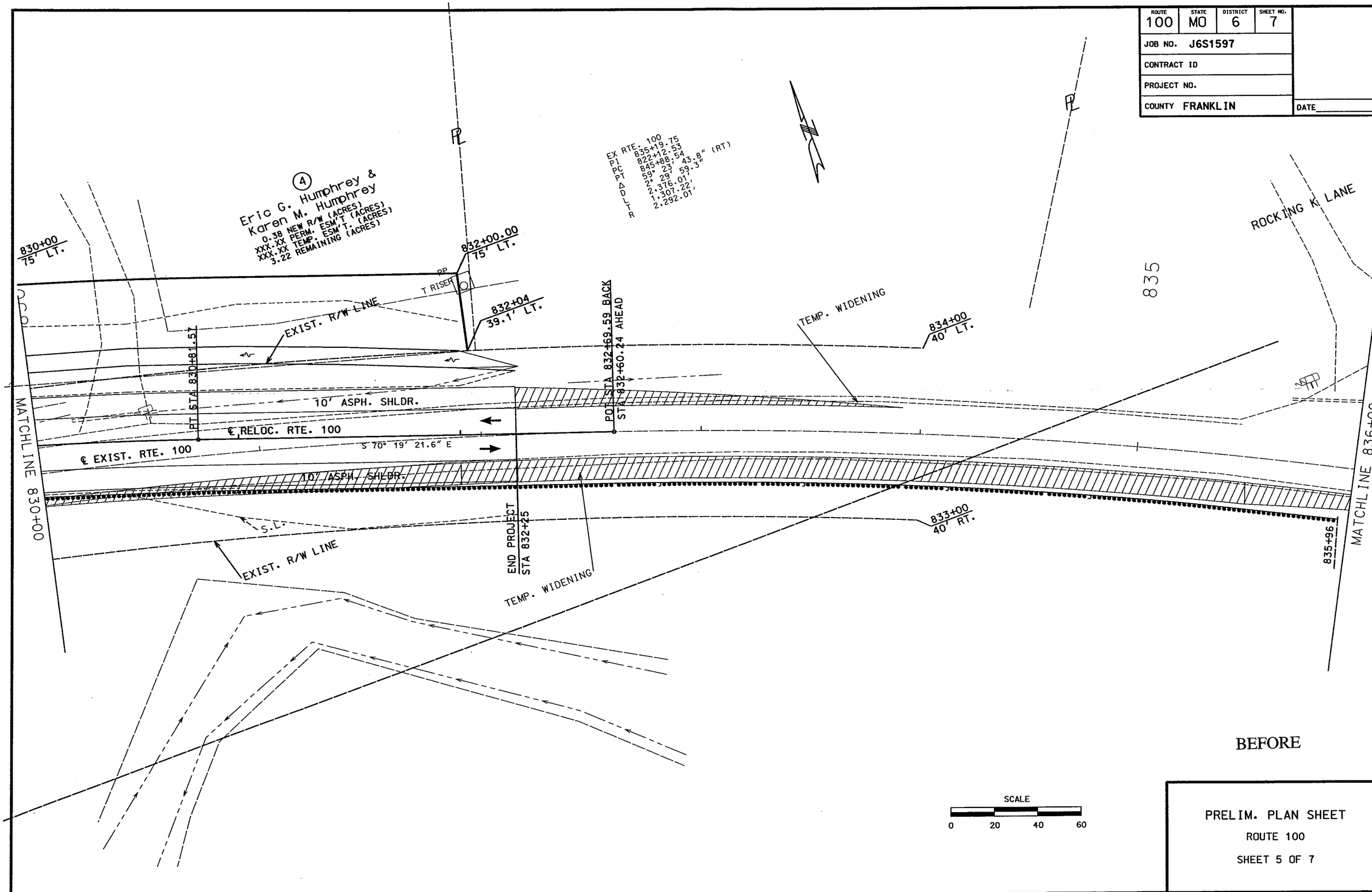
JOB NO. J6S1597

CONTRACT ID

PROJECT NO.

COUNTY FRANKLIN

DATE



PRELIM. PLAN SHEET

ROUTE 100

SHEET 5 OF 7

REV.

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ROUTE	STATE	DISTRICT	SHEET NO.
100	MO	6	4

JOB NO. J6S1597

CONTRACT ID.

PROJECT NO.

COUNTY FRANKLIN

STATE OF MISSOURI
TIMOTHY J. SCHROEDER
NUMBER PE-29739
PROFESSIONAL ENGINEER
THIS SHEET HAS BEEN SIGNED, SEALED AND DATED ELECTRONICALLY.

UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEY AND RECORDS. THE COMMISSION DOES NOT WARRANT THE LOCATIONS OF THESE FACILITIES AS PRECISE. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE EXISTENCE AND PRECISE LOCATION OF ALL FACILITIES AND TO AVOID DAMAGE. SEE THE JOB SPECIAL PROVISIONS FOR A LIST OF UTILITY COMPANIES ON OR WITHIN THE VICINITY OF THE PROJECT LIMITS.

ALL BEARINGS BASED ON STATE PLANE COORDINATES.

RIGHT OF WAY LIMITS FOR THIS PROJECT EXTEND FROM 817+30 TO 832+00. A DISTANCE OF 0.28 MILES.

BRIDGE NOTE: A-7194T
3 @ 40' PREFAB. SIMPLE SEGMENTED WIDE FLANGE BEAM SPANS
(SEE BRIDGE PLANS)

FOR DETAILS OF TEMP. CROSS. ALIGNMENT, SEE SHEET 7.
FOR DETAILS OF ROCK BLANKET AROUND BRIDGE ABUTMENTS, SEE SHEET 8.
FOR UTILITY RELOCATIONS, SEE SHEET 9.

T 44N R 2W SEC 2,3,10,11

TYPE II DRWY. LT.
826+68.54 EX. 100
∠ 76° 26' 46.0"
18' WIDE (AGGREGATE)
18" x 53' GR. C PIPE (18") - TEMP.
18" x 53' GR. C PIPE (18") - PERM.

① Jane A. Weaver & Helen A. Szyhowski
0.37 NEW R/W (ACRES)
0.00 PERM. ESM'T. (ACRES)
0.00 TEMP. ESM'T. (ACRES)
4.50 REMAINING (ACRES)
LOT 34R – CENTURY ESTATES
2693 Scenic Point Drive

② Marvin J. Baker & Sandra J. Baker
0.36 NEW R/W (ACRES)
0.00 PERM. ESM'T. (ACRES)
0.00 TEMP. ESM'T. (ACRES)
4.90 REMAINING (ACRES)
LOT 36 – CENTURY ESTATES
2677 Scenic Point Drive

③ Harold E. Humphrey Revocable Trust & Janet L. Humphrey Revocable Trust
0.48 NEW R/W (ACRES)
0.00 PERM. ESM'T. (ACRES)
0.04 TEMP. ESM'T. (ACRES)
N/A REMAINING (ACRES)
Dundee Road

④ Eric G. Humphrey & Karen M. Humphrey
0.33 NEW R/W (ACRES)
0.00 PERM. ESM'T. (ACRES)
0.05 TEMP. ESM'T. (ACRES)
3.27 REMAINING (ACRES)
7945 Highway 100

⑤ Adamse, Ronny R
0.07 NEW R/W (ACRES)
0.00 PERM. ESM'T. (ACRES)
0.00 TEMP. ESM'T. (ACRES)
2.53 REMAINING (ACRES)
8004 Highway 100

⑥ Smith, Billy J. and Martha S.
0.09 NEW R/W (ACRES)
0.00 PERM. ESM'T. (ACRES)
0.02 TEMP. ESM'T. (ACRES)
4.04 REMAINING (ACRES)
7980 Highway 100

CURVE TC3-1
PI 0+82.34
PC 0+00.00
PRC 1+63.65
Δ 15° 37' 40.3" (LT)
D 9° 32' 57.5"
L 163.65'
T 82.34'
R 600.00'

CURVE TC3-2
PI 2+80.78
PRC 1+63.65
PT 3+95.00
Δ 22° 05' 30.8" (RT)
D 9° 32' 57.5"
L 231.35'
T 117.13'
R 600.00'
S/E 0.058'/'

CURVE TC3-3
PI 8+90.55
PC 7+44.25
PRC 10+31.24
Δ 27° 24' 21.9" (RT)
D 9° 32' 57.5"
L 287.00'
T 146.30'
R 600.00'
S/E 0.058'/'

CURVE TC3-4
PI 10+97.03
PRC 10+31.24
PT 11+62.28
Δ 12° 30' 48.0" (LT)
D 9° 32' 57.5"
L 131.04'
T 65.78'
R 600.00'

CURVE EX100-1
PI 835+19.87
PC 822+12.53
PT 845+88.53
Δ 59° 24' 00.0" (RT)
D 2° 30' 00.0"
L 2,376.00'
R 2,292.01'
T 1,307.34'
S/E 0.0358'/'

SAWCUT AND REMOVE EX. SHOULDER REPLACE AFTER TEMPORARY CROSSING REMOVAL

EX. 15" PLASTIC PIPE (R) REPLACE WITH 18" GROUP C (18") AFTER REMOVAL OF TEMP. CROSSING

TEMP. CROSS.
BRIDGE A-7194T SEE NOTE
BRIDGE J-960 (R)
BRIDGE A-7194 SEE NOTE

BEGIN TEMP. BRIDGE STA. 4+95.00 ℄ TEMP. CROSS.
END TEMP. BRIDGE STA. 6+15.00 ℄ TEMP. CROSS.

TYPE 'A' C.E.T., GR. TRANS. SEC., & BRIDGE ANCHOR SEC.
APPROX. LOCATION TEMP. SHORING STAGE 2 19'-21' LT.
APPROX. LOCATION TEMP. SHORING STAGE 2 21.5'-20' LT.
EX. C.E.T., GR. B.A.S. (R)
EX. GR., TURNED DOWN END (R)
TEMP. CONST. EASM'T.
END ANCHOR, GR TRANS. SEC., & BRIDGE ANCHOR

LITTLE BOEUF CREEK
BEGIN BRIDGE STA. 824+14.71 ℄ RTE 100
END BRIDGE STA. 825+54.70 ℄ RTE 100
BEGIN PROJECT STA. 819+26.66 ℄ RTE 100
END PROJECT STA. 830+56.98 ℄ RTE 100
SECTION LINE: SECTION 1 SECTION 2 SECTION 3
SECTION LINE: SECTION 2 SECTION 11
SECTION LINE: SECTION 3 SECTION 10
SECTION LINE: SECTION 11 SECTION 10

BRIDGE NOTE: A-7194
PRESTRESSED CONCRETE I-GIRDER SPANS
43'-54'-43'
(SEE BRIDGE PLANS)
+ REMOVE BRIDGE J-960
LITTLE BOEUF CREEK
D.A. = 5.40 sq. mi.
Q_{50} = 3831 cfs
D.H.W. = 493.20
O.H.W. = 485.00
(MO RIVER BACKWATER = 498.60)

SCALE
0 50 100 150

AFTER

REGISTERED LAND CORNER MARKER
6" x 6" LIMESTONE 2" ABOVE GROUND "X" ON TOP
CLOSING CORNER OF SECTIONS 9-10-USS974, T 44N, R 2W
NORMAN L. BROWN, LS-1047
FILED FOR RECORD WITH THE MISSOURI LAND SURVEY AS DOCUMENT NUMBER 600-34032 ON 3/19/1984

ANY WORK INDICATED ON THE PLANS THAT EXTENDS BEYOND THE PROJECT LIMITS IS CONSIDERED INCIDENTAL TO AND A PART OF THE CONSTRUCTION OF THIS PROJECT.

PLAN SHEET

RTE 100

SHEET 1 OF 1

REV.

IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.