Tue

4/27/12

Safe & Sound =

Missouri Department of Transportation
2011 Bridge Inspection History

DISTRICT : NW COUNTY : GRUNDY A0906

GENERAL STRUCTURE INFORMATION

STRUCTURE NUMBER :	A0906 659	STRUCTURE STATUS :	A-OPEN	OWNED BY :	MODOT	PLACE CODE :	73834 TRENTON
DISTRICT :	NW	DIRECTION OF TRAFFIC :	2-WAY TRAF	MAINTAINED BY :	MODOT	INSPECTORS :	SCOTT STEPHENS (STATE), TOM ALLEN
COUNTY :	GRUNDY	STRUCTURE CLASS :	STATBR	FUNCTIONAL CLASSIFICATION :	PRINCIPAL ARTERIAL	INSPECTION DATE :	1/20/2010
FACILITY CARRIED :	MO 6 E	DEFICIENT CODE :		LANES ON STRUCTURE :	2	INSPECTION FREQUENCY :	24
CURB TO CURB :	28 Ft. 0 In.	SUB AREA :	223	LANES UNDER STRUCTURE :	0	LATITUDE :	40 4 12 (DMS)
STRUCTURE LENGTH :	870 FEET	YEAR BUILT :	1962	BEGINNING COMPASS DIRECTION :	WEST	LONGITUDE :	93 38 18 (DMS)
FEATURE INTERSECTED :	THOMPSON RVR	RECONSTRUCTION YEAR :	2005	ENDING COMPASS DIRECTION :	EAST		

POSTING INFORMATION

APPROVED POSTING CATEGORY : S-1 LIMITS : NO POSTING REQUIRED
FIELD POSTING CATEGORY : S-1 LIMITS : NO POSTING REQUIRED
POSTING PROBLEM : DIRECTION :
COMMENTS :

ADVANCE SIGNING

SIGN TYPE :
PROBLEM :
DIRECTION :

FACILITY CARRIED INFORMATION

(ITEM 29) AVERAGE DAILY TRAFFIC : 4202 (ITEM 30) YEAR OF AVERAGE DAILY TRAFFIC : 2011
(ITEM 53) VERTICAL CLEARANCE OVER DECK : DATE : COMMENTS :

OTHER INSPECTION INFORMATION

	UNDERWATER INFORMATION		INDEPTH INFORMATION
NBI :	NBI : NO FREQUENCY : 60	NBI : FREQUENCY :	NBI : NO FREQUENCY : 24
PIN :	PIN : NO DATE : 06/17/2009	PIN : DATE :	PIN : NO DATE : ~~05/18/2010~~ 4-27-12
CATEGORY :	CATEGORY : DRY	CATEGORY :	CATEGORY : PG-NON INTERSTATE
METHODS :	METHODS : VISUAL	METHODS :	METHODS : SNOOPER
INSPECTORS :	INSPECTORS : CURT STEGE, JESSE ELSE	INSPECTORS :	INSPECTORS : LARRY FRIT
COMMENTS :	COMMENTS :	COMMENTS :	INSPECTION TIME 2 HRS - SIGHT DISTANCE > 1000'

PROGRAM NOTES

PROGRAM YEAR : PROJECT NO. : LETTING MONTH : LETTING YEAR :
COMMENT :
PROGRAM ITEMS :

GENERAL COMMENTS : (70'-85'-68') CONT WF - (17'-120'-150'-120'-17') CONT COMP WLD PL GDR - (68'-85'-70') CONT COMP WF GDR SPANS

RATINGS : **(ITEM 58) DECK RATING :** 7-GOOD CONDITION **COMMENTS :**
(ITEM 59) SUPERSTRUCTURE RATING : 7-GOOD CONDITION **COMMENTS :**
(ITEM 60) SUBSTRUCTURE RATING : 6-SATISFACTORY CONDITION **COMMENTS :**

SUMMARY COMPONENTS

APPROACH SERIES	1	CONTINUOUS SPAN	STEEL	WIDE FLANGE GIRDERS	NUMBER OF SPANS :	3
MAIN SERIES	2	CONTINUOUS SPAN	STEEL	PLATE GIRDERS	NUMBER OF SPANS :	3
APPROACH SERIES	3	CONTINUOUS SPAN	STEEL	WIDE FLANGE GIRDERS	NUMBER OF SPANS :	3

TOTAL NUMBER OF SPANS : 9

RAILING RATINGS :

(ITEM 36A) BRIDGE RAILING :	1 MEETS CURRENT STANDARDS	**COMMENTS :**
(ITEM 36B) TRANSITION RAILING :	1 MEETS CURRENT STANDARDS	**COMMENTS :**
(ITEM 36C) APPROACH RAILING :	1 MEETS CURRENT STANDARDS	**COMMENTS :**
(ITEM 36D) RAIL END TREATMENT :	1 MEETS CURRENT STANDARDS	**COMMENTS :**

(ITEM 36A) BRIDGE RAILING :			
COMPONENT : BRIDGE RAILING	REINFORCED CONCRETE	SAFETY BARRIER CURB	DIRECTION : BOTH
(ITEM 36B) TRANSITION RAILING :			
COMPONENT : TRANSITION RAILING	GALVANIZED STEEL	THRIE BEAM TO W-BEAM	DIRECTION : ALL
(ITEM 36C) APPROACH RAILING :			

P# 72 OK E-W

Design_No = A0906 and Bridge_History_Year = 2011

COMPONENT : APPROACH RAILING	GALVANIZED STEEL	W-BEAM	DIRECTION : ALL	
(ITEM 36D) RAIL END TREATMENT :				
COMPONENT : RAIL END TREATMENT	GALVANIZED STEEL	BREKAWAY SYSTEM	MANUFACTURE : ET-2000	DIRECTION : ALL
APPROACH PAVEMENT :				
COMPONENT : APPROACH PAVEMENT	REINFORCED CONCRETE	TIED SLAB	DIRECTION : BOTH	

DECK / RAILING ELEMENTS

(ITEM 58) OVERALL CONDITION RATING : 7-GOOD CONDITION

DECK COMPONENTS			
APPROACH SPANS 1			
COMPONENT : DECK	REINFORCED CONCRETE	CAST-IN-PLACE	
CONDITION : TRANSVERSE CRACKS	RANDOM	MANY	
CONDITION : EFFLORESCENCE	RANDOM	MINOR	
APPROACH SPANS 2			
COMPONENT : DECK	REINFORCED CONCRETE	CAST-IN-PLACE	
CONDITION : TRANSVERSE CRACKS	RANDOM	MANY	
CONDITION : EFFLORESCENCE	RANDOM	MINOR	
APPROACH SPANS 3			
COMPONENT : DECK	REINFORCED CONCRETE	CAST-IN-PLACE	
CONDITION : EFFLORESCENCE	RANDOM	MINOR	
CONDITION : TRANSVERSE CRACKS	RANDOM	MANY	
MAIN SPANS 4			
COMPONENT : DECK	REINFORCED CONCRETE	CAST-IN-PLACE	
CONDITION : TRANSVERSE CRACKS	RANDOM	MANY	
CONDITION : EFFLORESCENCE	RANDOM	MINOR	
MAIN SPANS 5			
COMPONENT : DECK	REINFORCED CONCRETE	CAST-IN-PLACE	
CONDITION : TRANSVERSE CRACKS	RANDOM	MANY	
CONDITION : EFFLORESCENCE	RANDOM	MINOR	
MAIN SPANS 6			
COMPONENT : DECK	REINFORCED CONCRETE	CAST-IN-PLACE	
CONDITION : TRANSVERSE CRACKS	RANDOM	MANY	
CONDITION : EFFLORESCENCE	RANDOM	MINOR	
APPROACH SPANS 7			
COMPONENT : DECK	REINFORCED CONCRETE	CAST-IN-PLACE	
CONDITION : TRANSVERSE CRACKS	RANDOM	FEW	
CONDITION : EFFLORESCENCE	RANDOM	MINOR	
APPROACH SPANS 8			
COMPONENT : DECK	REINFORCED CONCRETE	CAST-IN-PLACE	
CONDITION : TRANSVERSE CRACKS	RANDOM	FEW	
CONDITION : EFFLORESCENCE	RANDOM	MINOR	
APPROACH SPANS 9			
COMPONENT : DECK	REINFORCED CONCRETE	CAST-IN-PLACE	
CONDITION : TRANSVERSE CRACKS	RANDOM	FEW	
CONDITION : EFFLORESCENCE	RANDOM	MINOR	
DRAINAGE COMPONENTS			
DRAINAGE 0			
COMPONENT : DRAINAGE	GALVANIZED STEEL	FLOOR DRAIN	
COMPONENT : DRAINAGE	GEOTEXTILE FABRIC	VERTICAL DRAIN-END BENT	
EXPANSION DEVICES			
PIER 4			
COMPONENT : OPEN EXPANSION JOINT	STEEL	FINGER PLATE	
PIER 7			
COMPONENT : OPEN EXPANSION JOINT	STEEL	FINGER PLATE	
PROTECTIVE COMPONENTS			
APPROACH SERIES 1			

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span 3 many TCRKS bTm of d/c.

Design_No = A0906 and Bridge_History_Year = 2011

COMPONENT :	DECK PROTECTION	EPOXY POLYMER	COATED REBAR		
COMPONENT :	MEMBRANE	NOTAPPLICABLE	NONE		
COMPONENT :	WEARING SURFACE	PLAIN CONCRETE	MONOLITHIC		
COMPONENT :	SECONDARY DECK PROTECTION	LIQUID SEALANT	INTERNALLY SEALED	MANUFACTURE : STAR MACRO	YEAR APPLIED : 2010
MAIN SERIES	2				
COMPONENT :	DECK PROTECTION	EPOXY POLYMER	COATED REBAR		
COMPONENT :	MEMBRANE	NOTAPPLICABLE	NONE		
COMPONENT :	WEARING SURFACE	PLAIN CONCRETE	MONOLITHIC		
COMPONENT :	SECONDARY DECK PROTECTION	LIQUID SEALANT	INTERNALLY SEALED	MANUFACTURE : STAR MACRO	YEAR APPLIED : 2010
APPROACH SERIES	3				
COMPONENT :	DECK PROTECTION	EPOXY POLYMER	COATED REBAR		
COMPONENT :	MEMBRANE	NOTAPPLICABLE	NONE		
COMPONENT :	WEARING SURFACE	PLAIN CONCRETE	MONOLITHIC		
COMPONENT :	SECONDARY DECK PROTECTION	LIQUID SEALANT	INTERNALLY SEALED	MANUFACTURE : STAR MACRO	YEAR APPLIED : 2010

RAILING COMPONENTS

BRIDGE RAILING	0				
COMPONENT :	BRIDGE RAILING	REINFORCED CONCRETE	SAFETY BARRIER CURB		
COMPONENT :	APPROACH RAILING	GALVANIZED STEEL	W-BEAM		
COMPONENT :	RAIL END TREATMENT	GALVANIZED STEEL	BREKAWAY SYSTEM		
COMPONENT :	TRANSITION RAILING	GALVANIZED STEEL	THRIE BEAM TO W-BEAM		

SUPERSTRUCTURE ELEMENTS

(ITEM 59) OVERALL CONDITION RATING : 7-GOOD CONDITION

APPROACH SERIES	1	CONTINUOUS SPAN		STEEL	WIDE FLANGE GIRDERS	NUMBER OF SPANS : 3	
APPROACH ROADWAY WIDTH : 30 FOOT 6 INCH		CURB TO CURB : 30 FOOT 6 INCH		OUT TO OUT : 33 FOOT 2 INCH			
APPROACH SPANS 1	CONTINUOUS SPAN	COMPOSITE	STEEL	WIDE FLANGE GIRDERS	LENGTH : 70 FOOT 0 INCH		WEATHERING IND :
APPROACH SPANS 2	CONTINUOUS SPAN	COMPOSITE	STEEL	WIDE FLANGE GIRDERS	LENGTH : 85 FOOT 0 INCH		WEATHERING IND :
APPROACH SPANS 3	CONTINUOUS SPAN	COMPOSITE	STEEL	WIDE FLANGE GIRDERS	LENGTH : 85 FOOT 0 INCH		WEATHERING IND :
MAIN SERIES	2	CONTINUOUS SPAN		STEEL	PLATE GIRDERS	NUMBER OF SPANS : 3	
CURB TO CURB : 30 FOOT 6 INCH		APPROACH ROADWAY WIDTH : 30 FOOT 6 INCH		OUT TO OUT : 33 FOOT 2 INCH			
MAIN SPANS 4	CONTINUOUS SPAN	COMPOSITE	STEEL	PLATE GIRDERS	LENGTH : 120 FOOT 0 INCH		WEATHERING IND :
CONDITION : OTHER		NOT APPLICABLE	RANDOM				
COMMENTS : LIVE LOAD DEFLECTOR IN SPAN #4 & #5							
MAIN SPANS 5	CONTINUOUS SPAN	COMPOSITE	STEEL	PLATE GIRDERS	LENGTH : 150 FOOT 0 INCH		WEATHERING IND :
CONDITION : OTHER		NOT APPLICABLE	RANDOM				
COMMENTS : LIVE LOAD DEFLECTOR IN SPAN #4 & #5							
CONDITION : OTHER		NOT APPLICABLE	THROUGHOUT				
COMMENTS : HOAN LIKE DETAIL W/INTERSECTING WELDS							
CONDITION : OTHER		NOT APPLICABLE	STIFFENERS				
COMMENTS : REPRD 2 CRKS IN LONG STIFF @ BT 5 S. GDR 7/96							
MAIN SPANS 6	CONTINUOUS SPAN	COMPOSITE	STEEL	PLATE GIRDERS	LENGTH : 120 FOOT 0 INCH		WEATHERING IND :
APPROACH SERIES	3	CONTINUOUS SPAN		STEEL	WIDE FLANGE GIRDERS	NUMBER OF SPANS : 3	
CURB TO CURB : 28 FOOT 0 INCH		OUT TO OUT : 33 FOOT 2 INCH		APPROACH ROADWAY WIDTH : 30 FOOT 6 INCH			
APPROACH SPANS 7	CONTINUOUS SPAN	COMPOSITE	STEEL	WIDE FLANGE GIRDERS	LENGTH : 85 FOOT 0 INCH		WEATHERING IND :
CONDITION : RUSTING		HOLES	DIAPHRAGMS				
COMMENTS : AT CANT AREA 1" X 1" HOLE.							
APPROACH SPANS 8	CONTINUOUS SPAN	COMPOSITE	STEEL	WIDE FLANGE GIRDERS	LENGTH : 85 FOOT 0 INCH		WEATHERING IND :
APPROACH SPANS 9	CONTINUOUS SPAN	COMPOSITE	STEEL	WIDE FLANGE GIRDERS	LENGTH : 70 FOOT 0 INCH		WEATHERING IND :

TOTAL NUMBER OF SPANS : 9

SUBSTRUCTURE ELEMENTS

(ITEM 60) OVERALL CONDITION RATING : 6-SATISFACTORY CONDITION

ABUTMENT	1	LABEL :	REINFORCED CONCRETE	INTEGRAL
LENGTH : 33 FOOT 2 INCH				
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE	

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PILING		STEEL	H-SHAPE		
FIXED BEARING		STEEL	FLAT PLATE		
TURNED BACK WINGS		REINFORCED CONCRETE	CAST-IN-PLACE		
BENT 2	LABEL :			REINFORCED CONCRETE	MULTIPLE COLUMN
LENGTH : 29 FOOT 0 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
FOOTING		REINFORCED CONCRETE	H-PILE		
FIXED BEARING		STEEL	FLAT PLATE		
BENT 3	LABEL :			REINFORCED CONCRETE	MULTIPLE COLUMN
LENGTH : 29 FOOT 0 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
FOOTING		REINFORCED CONCRETE	H-PILE		
FIXED BEARING		STEEL	FLAT PLATE		
PIER 4	LABEL :			REINFORCED CONCRETE	MULTIPLE COLUMN
LENGTH : 30 FOOT 0 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
FOOTING		REINFORCED CONCRETE	H-PILE		
WEB BEAM		REINFORCED CONCRETE	CAST-IN-PLACE		
OPEN EXPANSION JOINT		STEEL	FINGER PLATE	EXPANSION GAP : 5 INCH 34 FARENHEIT	
EXPANSION BEARING		STEEL	ROCKER		
CANTILEVER BEARING		STEEL	ROCKER		
PIER 5	LABEL :			REINFORCED CONCRETE	MULTIPLE COLUMN
LENGTH : 30 FOOT 0 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
FOOTING		REINFORCED CONCRETE	H-PILE		
WEB BEAM		REINFORCED CONCRETE	CAST-IN-PLACE		
EXPANSION BEARING		STEEL	ROCKER		
PIER 6	LABEL :			REINFORCED CONCRETE	MULTIPLE COLUMN
COMMENTS : PROFILE GRADE ELEV. @ BT 6 = 756.5 (FLAT)					
LENGTH : 30 FOOT 0 INCH					
CONDITION : SMALL AMOUNT DRIFT WATERLINE					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
FOOTING		REINFORCED CONCRETE	H-PILE		
COMMENTS : SMALL AMOUNT OF DRIFT ON NORTH END OF BENT #6 (PICT. #14) BOF ELEV. = 706.0					
WEB BEAM		REINFORCED CONCRETE	CAST-IN-PLACE		
FIXED BEARING		STEEL	PEDESTAL(ROTATING)		
PIER 7	LABEL :			REINFORCED CONCRETE	MULTIPLE COLUMN
COMMENTS : PROFILE GRADE ELEV. @ BT 7 = 756.5 (FLAT)					
LENGTH : 30 FOOT 0 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
FOOTING		REINFORCED CONCRETE	H-PILE		
COMMENTS : BOF ELEV. = 706.0					
CONDITION : EXPOSED TOP		FULL			
COMMENTS : EXPOSED ON SHALE ROCK KEYED-IN					
WEB BEAM		REINFORCED CONCRETE	CAST-IN-PLACE		
OPEN EXPANSION JOINT		STEEL	FINGER PLATE	EXPANSION GAP : 5 INCH 34 FARENHEIT	
EXPANSION BEARING		STEEL	ROCKER		
CONDITION : TIPPED THROUGHOUT		MINOR			
COMMENTS : UNDER GIRDER #3, IS TIPPED EAST SLIGHTLY					
CANTILEVER BEARING		STEEL	ROCKER		

P#74 Small area of drift @ piers 6 & 7

Design_No = A0906 and Bridge_History_Year = 2011

BENT 8	LABEL :			REINFORCED CONCRETE	MULTIPLE COLUMN
LENGTH : 29 FOOT 0 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
CONDITION : HORIZONTAL CRACKS	RANDOM	MANY			
COMMENTS : CRKED EVER 1' APART (MINOR)					
FOOTING		REINFORCED CONCRETE	H-PILE		
FIXED BEARING		STEEL	FLAT PLATE		
BENT 9	LABEL :			REINFORCED CONCRETE	MULTIPLE COLUMN
LENGTH : 29 FOOT 0 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
FOOTING		REINFORCED CONCRETE	H-PILE		
FIXED BEARING		STEEL	FLAT PLATE		
ABUTMENT 10	LABEL :			REINFORCED CONCRETE	INTEGRAL
LENGTH : 33 FOOT 2 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COMMENTS : NEW REPAIR ON CAP UNDER GIRDER #3					
CONDITION : VERTICAL CRACKS	AT BEARING	FEW			
PILING		STEEL	H-SHAPE		
FIXED BEARING		STEEL	FLAT PLATE		
TURNED BACK WINGS		REINFORCED CONCRETE	CAST-IN-PLACE		

MISCELLANEOUS ITEMS

1 MEETS CURRENT STANDARDS

CHANNEL PROTECTION (ITEM 61) CHANNEL CONDITION RATING : 5-MAJOR DAMAGE

COMMENTS : CHANNEL MOVING E.

SCOUR CONDITION (ITEM 113) OVERALL SCOUR CONDITION RATING : 8-STABLE FOR CALCULATED

WATERWAY ADEQUACY (ITEM 71) WATERWAY ADEQUACY RATING : DECK/APPRCH OVERTOP SLIGT

APPROACH ROADWAY (ITEM 72) APPROACH ROADWAY ALIGNMENT RATING : 8-VERYGOOD

BANK PROTECTION

ROCK ✓ DEFLECTOR ✓

ROCK ✓ BLANKET ✓

UTILITY ATTACHMENTS

OTHER HANGER ✓ DIAMETER ✓ 4 INCH ✓

STRUCTURE PAINT DETAILS

OVERALL PAINT CONDITION : VERY GOOD ✓ RUST AMOUNT : STEEL TONS : 368

ORIGINAL PAINT		CONTRACT REPAINT		DEPARTMENT REPAINT		
PAINT TYPE :	A SYSTEM	PAINT TYPE :	G SYSTEM	PAINT TYPE :		MANUFACTURE :
NAME :	RED LEAD	NAME :	ZINC/EPOXY/ACRYLIC	NAME :		SURFACE PREPARATION :
PAINT COLOR :	ALUMINUM	PAINT COLOR :	GRAY	PAINT COLOR :		
PAINT YEAR :	1963	PAINT YEAR :	2006	PAINT YEAR :	0	
MILS :	4	MILS :	8	MILS :	0	

CREW : LAYER : DATE :

WORK

RESPONSIBILITY	LOCATION	WORK ITEM	PRIORITY	DATE REQUESTED
DISTRICT ROUTINE	ROADWAY SURFACE	SEAL DECK WITH STAR MACRO	3 ✓	9/8/2013 4-17-12

PROGRAM RECOMMENDATIONS

Safe & Sound = N

Missouri Department of Transportation
Bridge Inspection Report

DISTRICT : NW **COUNTY : GRUNDY** **A0906**

GENERAL STRUCTURE INFORMATION

STRUCTURE NUMBER :	**A0906** 659	STRUCTURE STATUS :	A-OPEN	MAINTENANCE DISTRICT : NW	MAINTENANCE COUNTY : GRUNDY	PLACE CODE :	73834 TRENTON
DISTRICT :	**NW**	DIRECTION OF TRAFFIC :	2-WAY TRAF	OWNED BY : MODOT	MAINTAINED BY : MODOT	INSPECTORS :	FRANK BAKER, LARRY FRITZ
COUNTY :	**GRUNDY**	STRUCTURE CLASS :	STATBR	FUNCTIONAL CLASSIFICATION :	PRINCIPAL ARTERIAL		
FACILITY CARRIED :	**MO 6 E**	DEFICIENT CODE :		LANES ON STRUCTURE	2	INSPECTION DATE :	4/1/2014
CURB TO CURB :	28 Ft. 0 In.	SUB AREA :	7A23	LANES UNDER STRUCTURE :	0	INSPECTION FREQUENCY :	24
STRUCTURE LENGTH :	870 FEET	YEAR BUILT :	1962	BEGINNING COMPASS DIRECTION :	WEST	LATITUDE :	40 4 9.69901 (DMS)
FEATURE INTERSECTED :	**THOMPSON RVR**	RECONSTRUCTION YEAR	2005	ENDING COMPASS DIRECTION :	EAST	LONGITUDE :	93 38 17.45267 (DMS)
						SCOUR EVALUATION TYPE :	

POSTING INFORMATION

APPROVED POSTING CATEGORY : S-1 LIMITS : NO POSTING REQUIRED
FIELD POSTING CATEGORY : S-1 LIMITS : NO POSTING REQUIRED
POSTING PROBLEM : DIRECTION :
COMMENTS :

ADVANCE SIGNING

SIGN TYPE :
PROBLEM :
DIRECTION :

FACILITY CARRIED INFORMATION

(ITEM 29) AVERAGE DAILY TRAFFIC : 4636 (ITEM 30) YEAR OF AVERAGE DAILY TRAFFIC : 2015 PERMITTED VERTICAL CLEARANCE : Date Measured:
(ITEM 53) VERTICAL CLEARANCE OVER DECK : DATE :

OTHER INSPECTION INFORMATION

NBI : FREQUENCY :
PIN : DATE :
CATEGORY :
METHODS :
INSPECTORS :
COMMENTS :

UNDERWATER INFORMATION

NBI : NO FREQUENCY : 60
PIN : NO DATE : 03/05/2014
CATEGORY : DRY
METHODS : VISUAL
INSPECTORS : CURT STEGE
COMMENTS : WATER LEVEL WAS VERY LOW IN MAR 2014

SPECIAL INFORMATION

NBI : NO FREQUENCY : 72
PIN : NO DATE : 07/17/2014
CATEGORY : CHANNEL SECTIONS
METHODS : WEIGHTED T
INSPECTORS : SCOTT STEP
COMMENTS :

INDEPTH INFORMATION

NBI : NO FREQUENCY : 24
PIN : NO DATE : 04/01/2014
CATEGORY : PG-NON INTERSTATE
METHODS : SNOOPER
INSPECTORS : FRANK BAKE, LARRY FRIT
INSPECTION TIME 2 HRS - SIGHT DISTANCE > 1000'

PROGRAM NOTES

PROGRAM YEAR : PROJECT NO. : LETTING MONTH LETTING YEAR :
COMMENTS :
PROGRAM ITEMS :

GENERAL COMMENTS : (70'-85'-68') CONT WF - (17'-120'-150'-120'-17') CONT COMP WLD PL GDR - (68'-85'-70') CONT COMP WF GDR SPANS

RATINGS : **(ITEM 58) DECK RATING :** 7-GOOD CONDITION 01/07/2008 **(ITEM 59) SUPERSTRUCTURE RATING :** 7-GOOD CONDITION 05/18/2001 **(ITEM 60) SUBSTRUCTURE RATING :** 6-SATISFACTORY CONDITION 05/18/2001

COMMENTS : **COMMENTS :** **COMMENTS :**

SUMMARY COMPONENTS

APPROACH SERIES	1	CONTINUOUS SPAN	STEEL	WIDE FLANGE GIRDERS	NUMBER OF SPANS :	3
MAIN SERIES	2	CONTINUOUS SPAN	STEEL	PLATE GIRDERS	NUMBER OF SPANS :	3
APPROACH SERIES	3	CONTINUOUS SPAN	STEEL	WIDE FLANGE GIRDERS	NUMBER OF SPANS :	3

TOTAL NUMBER OF SPANS : 9

RAILING RATINGS :

(ITEM 36A) BRIDGE RAILING : MEETS CURRENT STANDARDS-1 **COMMENT S :**
(ITEM 36B) TRANSITION RAILING : MEETS CURRENT STANDARDS-1 **COMMENT S :**
(ITEM 36C) APPROACH RAILING : MEETS CURRENT STANDARDS-1 **COMMENT S :**
(ITEM 36D) RAIL END TREATMENT : MEETS CURRENT STANDARDS-1 **COMMENT S :**

(ITEM 36A) BRIDGE RAILING :
COMPONENT : BRIDGE RAILING REINFORCED CONCRETE SAFETY BARRIER CURB DIRECTION : BOTH

(ITEM 36B) TRANSITION RAILING :
COMPONENT : TRANSITION RAILING GALVANIZED STEEL THRIE BEAM TO W-BEAM DIRECTION : ALL

(ITEM 36C) APPROACH RAILING :
COMPONENT : APPROACH RAILING GALVANIZED STEEL W-BEAM DIRECTION : ALL

Design_No = A0906

(ITEM 36D) RAIL END TREATMENT :

COMPONENT :	RAIL END TREATMENT	GALVANIZED STEEL	BREKAWAY SYSTEM	MANUFACTURE : ET-2000	DIRECTION : ALL

APPROACH PAVEMENT :

COMPONENT :	APPROACH PAVEMENT	REINFORCED CONCRETE	TIED SLAB	DIRECTION : BOTH

DECK / RAILING ELEMENTS

(ITEM 58) OVERALL CONDITION RATING : 7-GOOD CONDITION

DECK COMPONENTS

APPROACH SPANS	1		
COMPONENT :	DECK	REINFORCED CONCRETE	CAST-IN-PLACE
CONDITION :	EFFLORESCENCE	RANDOM	MINOR
CONDITION :	TRANSVERSE CRACKS	RANDOM	MANY
CONDITION :	MAP CRACKS	DRIVING SURFACE	RANDOM
APPROACH SPANS	2		
COMPONENT :	DECK	REINFORCED CONCRETE	CAST-IN-PLACE
CONDITION :	EFFLORESCENCE	RANDOM	MINOR
CONDITION :	TRANSVERSE CRACKS	RANDOM	MANY
CONDITION :	MAP CRACKS	DRIVING SURFACE	RANDOM
APPROACH SPANS	3		
COMPONENT :	DECK	REINFORCED CONCRETE	CAST-IN-PLACE
CONDITION :	EFFLORESCENCE	RANDOM	MINOR
CONDITION :	TRANSVERSE CRACKS	RANDOM	MANY
CONDITION :	MAP CRACKS	DRIVING SURFACE	RANDOM
MAIN SPANS	4		
COMPONENT :	DECK	REINFORCED CONCRETE	CAST-IN-PLACE
CONDITION :	EFFLORESCENCE	RANDOM	MINOR
CONDITION :	TRANSVERSE CRACKS	RANDOM	MANY
CONDITION :	MAP CRACKS	DRIVING SURFACE	RANDOM
MAIN SPANS	5		
COMPONENT :	DECK	REINFORCED CONCRETE	CAST-IN-PLACE
CONDITION :	EFFLORESCENCE	RANDOM	MINOR
CONDITION :	TRANSVERSE CRACKS	RANDOM	MANY
CONDITION :	MAP CRACKS	DRIVING SURFACE	RANDOM
MAIN SPANS	6		
COMPONENT :	DECK	REINFORCED CONCRETE	CAST-IN-PLACE
CONDITION :	EFFLORESCENCE	RANDOM	MINOR
CONDITION :	TRANSVERSE CRACKS	RANDOM	MANY
CONDITION :	MAP CRACKS	DRIVING SURFACE	RANDOM
APPROACH SPANS	7		
COMPONENT :	DECK	REINFORCED CONCRETE	CAST-IN-PLACE
CONDITION :	EFFLORESCENCE	RANDOM	MINOR
CONDITION :	TRANSVERSE CRACKS	RANDOM	FEW
CONDITION :	MAP CRACKS	DRIVING SURFACE	RANDOM
APPROACH SPANS	8		
COMPONENT :	DECK	REINFORCED CONCRETE	CAST-IN-PLACE
CONDITION :	EFFLORESCENCE	RANDOM	MINOR
CONDITION :	TRANSVERSE CRACKS	RANDOM	FEW
CONDITION :	MAP CRACKS	DRIVING SURFACE	RANDOM
APPROACH SPANS	9		
COMPONENT :	DECK	REINFORCED CONCRETE	CAST-IN-PLACE
CONDITION :	EFFLORESCENCE	RANDOM	MINOR
CONDITION :	TRANSVERSE CRACKS	RANDOM	FEW
CONDITION :	MAP CRACKS	DRIVING SURFACE	RANDOM

DRAINAGE COMPONENTS

DRAINAGE	0		
COMPONENT :	DRAINAGE	GALVANIZED STEEL	FLOOR DRAIN
COMPONENT :	DRAINAGE	GEOTEXTILE FABRIC	VERTICAL DRAIN-END BENT

EXPANSION DEVICES

PIER 4					
COMPONENT :	OPEN EXPANSION JOINT	STEEL	FINGER PLATE		
PIER 7					
COMPONENT :	OPEN EXPANSION JOINT	STEEL	FINGER PLATE		

PROTECTIVE COMPONENTS

APPROACH SERIES 1					
COMPONENT :	DECK PROTECTION	EPOXY POLYMER	COATED REBAR		
COMPONENT :	MEMBRANE	NOTAPPLICABLE	NONE		
COMPONENT :	WEARING SURFACE	PLAIN CONCRETE	MONOLITHIC		
COMPONENT :	SECONDARY DECK PROTECTION	LIQUID SEALANT	INTERNALLY SEALED	MANUFACTURE : STAR MACRO	YEAR APPLIED : 2010
MAIN SERIES 2					
COMPONENT :	DECK PROTECTION	EPOXY POLYMER	COATED REBAR		
COMPONENT :	MEMBRANE	NOTAPPLICABLE	NONE		
COMPONENT :	WEARING SURFACE	PLAIN CONCRETE	MONOLITHIC		
COMPONENT :	SECONDARY DECK PROTECTION	LIQUID SEALANT	INTERNALLY SEALED	MANUFACTURE : STAR MACRO	YEAR APPLIED : 2010
APPROACH SERIES 3					
COMPONENT :	DECK PROTECTION	EPOXY POLYMER	COATED REBAR		
COMPONENT :	MEMBRANE	NOTAPPLICABLE	NONE		
COMPONENT :	WEARING SURFACE	PLAIN CONCRETE	MONOLITHIC		
COMPONENT :	SECONDARY DECK PROTECTION	LIQUID SEALANT	INTERNALLY SEALED	MANUFACTURE : STAR MACRO	YEAR APPLIED : 2010

RAILING COMPONENTS

BRIDGE RAILING 0					
COMPONENT :	BRIDGE RAILING	REINFORCED CONCRETE	SAFETY BARRIER CURB		
COMPONENT :	APPROACH RAILING	GALVANIZED STEEL	W-BEAM		
COMPONENT :	RAIL END TREATMENT	GALVANIZED STEEL	BREKAWAY SYSTEM		
COMPONENT :	TRANSITION RAILING	GALVANIZED STEEL	THRIE BEAM TO W-BEAM		

SUPERSTRUCTURE ELEMENTS

(ITEM 59) OVERALL CONDITION RATING : 7-GOOD CONDITION

APPROACH SERIES	1	CONTINUOUS SPAN		STEEL	WIDE FLANGE GIRDERS	NUMBER OF SPANS : 3	
APPROACH ROADWAY WIDTH :	30 FOOT 6 INCH	CURB TO CURB :	30 FOOT 6 INCH	OUT TO OUT :	33 FOOT 2 INCH		
APPROACH SPANS 1	CONTINUOUS SPAN	COMPOSITE	STEEL	WIDE FLANGE GIRDERS	LENGTH : 70 FOOT 0 INCH		WEATHERING IND :
APPROACH SPANS 2	CONTINUOUS SPAN	COMPOSITE	STEEL	WIDE FLANGE GIRDERS	LENGTH : 85 FOOT 0 INCH		WEATHERING IND :
APPROACH SPANS 3	CONTINUOUS SPAN	COMPOSITE	STEEL	WIDE FLANGE GIRDERS	LENGTH : 85 FOOT 0 INCH		WEATHERING IND :
MAIN SERIES	2	CONTINUOUS SPAN		STEEL	PLATE GIRDERS	NUMBER OF SPANS : 3	
CURB TO CURB :	30 FOOT 6 INCH	APPROACH ROADWAY WIDTH :	30 FOOT 6 INCH	OUT TO OUT :	33 FOOT 2 INCH		
MAIN SPANS 4	CONTINUOUS SPAN	COMPOSITE	STEEL	PLATE GIRDERS	LENGTH : 120 FOOT 0 INCH		WEATHERING IND :
CONDITION :	OTHER	NOT APPLICABLE	RANDOM				
COMMENTS :	LIVE LOAD DEFLECTOR IN SPAN #4 & #5						
MAIN SPANS 5	CONTINUOUS SPAN	COMPOSITE	STEEL	PLATE GIRDERS	LENGTH : 150 FOOT 0 INCH		WEATHERING IND :
COMMENTS :	PAINT PEELING ON SOUTH GIRDER. 7" CRACK AT HOANLIKE GDR 2 SOUTH SIDE GUSSET SPAN 7						
CONDITION :	OTHER	NOT APPLICABLE	RANDOM				
COMMENTS :	LIVE LOAD DEFLECTOR IN SPAN #4 & #5						
CONDITION :	OTHER	NOT APPLICABLE	THROUGHOUT				
COMMENTS :	HOAN LIKE DETAIL W/INTERSECTING WELDS						
CONDITION :	OTHER	NOT APPLICABLE	STIFFENERS				
COMMENTS :	REPRD 2 CRKS IN LONG STIFF @ BT 5 S. GDR 7/96						
MAIN SPANS 6	CONTINUOUS SPAN	COMPOSITE	STEEL	PLATE GIRDERS	LENGTH : 120 FOOT 0 INCH		WEATHERING IND :
APPROACH SERIES	3	CONTINUOUS SPAN		STEEL	WIDE FLANGE GIRDERS	NUMBER OF SPANS : 3	
CURB TO CURB :	28 FOOT 0 INCH	OUT TO OUT :	33 FOOT 2 INCH	APPROACH ROADWAY WIDTH :	30 FOOT 6 INCH		
APPROACH SPANS 7	CONTINUOUS SPAN	COMPOSITE	STEEL	WIDE FLANGE GIRDERS	LENGTH : 85 FOOT 0 INCH		WEATHERING IND :
CONDITION :	RUSTING	HOLES	DIAPHRAGMS				
COMMENTS :	AT CANT AREA 1" X 1" HOLE.						
APPROACH SPANS 8	CONTINUOUS SPAN	COMPOSITE	STEEL	WIDE FLANGE GIRDERS	LENGTH : 85 FOOT 0 INCH		WEATHERING IND :
APPROACH SPANS 9	CONTINUOUS SPAN	COMPOSITE	STEEL	WIDE FLANGE GIRDERS	LENGTH : 70 FOOT 0 INCH		WEATHERING IND :

TOTAL NUMBER OF SPANS 9

SUBSTRUCTURE ELEMENTS

(ITEM 60) OVERALL CONDITION RATING : 6-SATISFACTORY CONDITION

ABUTMENT	1	LABEL :		REINFORCED CONCRETE	INTEGRAL
LENGTH : 33 FOOT 2 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
PILING		STEEL	H-SHAPE		
FIXED BEARING		STEEL	FLAT PLATE	OVERALL CONDITION:	
TURNED BACK WINGS		REINFORCED CONCRETE	CAST-IN-PLACE		
BENT	2	LABEL :		REINFORCED CONCRETE	MULTIPLE COLUMN
LENGTH : 29 FOOT 0 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
FOOTING		REINFORCED CONCRETE	H-PILE		
FIXED BEARING		STEEL	FLAT PLATE	OVERALL CONDITION:	
BENT	3	LABEL :		REINFORCED CONCRETE	MULTIPLE COLUMN
LENGTH : 29 FOOT 0 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
FOOTING		REINFORCED CONCRETE	H-PILE		
FIXED BEARING		STEEL	FLAT PLATE	OVERALL CONDITION:	
PIER	4	LABEL :		REINFORCED CONCRETE	MULTIPLE COLUMN
LENGTH : 30 FOOT 0 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
FOOTING		REINFORCED CONCRETE	H-PILE		
WEB BEAM		REINFORCED CONCRETE	CAST-IN-PLACE		
OPEN EXPANSION JOINT		STEEL	FINGER PLATE	OVERALL CONDITION:	
EXPANSION GAP : 5 INCH 34 FARENHEIT					
EXPANSION BEARING		STEEL	ROCKER	OVERALL CONDITION:	
CANTILEVER BEARING		STEEL	ROCKER		
PIER	5	LABEL :		REINFORCED CONCRETE	MULTIPLE COLUMN
LENGTH : 30 FOOT 0 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
FOOTING		REINFORCED CONCRETE	H-PILE		
WEB BEAM		REINFORCED CONCRETE	CAST-IN-PLACE		
EXPANSION BEARING		STEEL	ROCKER	OVERALL CONDITION:	
PIER	6	LABEL :		REINFORCED CONCRETE	MULTIPLE COLUMN
COMMENTS : PROFILE GRADE ELEV. @ BT 6 = 756.5 (FLAT)					
LENGTH : 30 FOOT 0 INCH					
CONDITION : SMALL AMOUNT DRIFT WATERLINE					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
COMMENTS : PIER 6 SCOUR AT SOUTH COLUMN					
FOOTING		REINFORCED CONCRETE	H-PILE		
COMMENTS : SMALL AMOUNT OF DRIFT ON NORTH END OF BENT #6 (PICT. #14) BOF ELEV. = 706.0					
WEB BEAM		REINFORCED CONCRETE	CAST-IN-PLACE		
FIXED BEARING		STEEL	PEDESTAL(ROTATING)	OVERALL CONDITION:	
PIER	7	LABEL :		REINFORCED CONCRETE	MULTIPLE COLUMN
COMMENTS : PROFILE GRADE ELEV. @ BT 7 = 756.5 (FLAT)					
LENGTH : 30 FOOT 0 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
FOOTING		REINFORCED CONCRETE	H-PILE		

COMMENTS : BOF ELEV. = 706.0					
CONDITION : EXPOSED	TOP	FULL			
COMMENTS : EXPOSED ON SHALE ROCK KEYED-IN					
WEB BEAM		REINFORCED CONCRETE	CAST-IN-PLACE		
OPEN EXPANSION JOINT		STEEL	FINGER PLATE	OVERALL CONDITION:	
EXPANSION GAP : 5 INCH 34 FARENHEIT					
EXPANSION BEARING		STEEL	ROCKER	OVERALL CONDITION:	
CONDITION : TIPPED	THROUGHOUT	MINOR			
COMMENTS : UNDER GIRDER #3, IS TIPPED EAST SLIGHTLY					
CANTILEVER BEARING		STEEL	ROCKER		
BENT 8	LABEL :			REINFORCED CONCRETE	MULTIPLE COLUMN
LENGTH : 29 FOOT 0 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
CONDITION : HORIZONTAL CRACKS	RANDOM	MANY			
COMMENTS : CRKED EVER 1' APART (MINOR)					
FOOTING		REINFORCED CONCRETE	H-PILE		
FIXED BEARING		STEEL	FLAT PLATE	OVERALL CONDITION:	
BENT 9	LABEL :			REINFORCED CONCRETE	MULTIPLE COLUMN
LENGTH : 29 FOOT 0 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COLUMN		REINFORCED CONCRETE	CAST-IN-PLACE		
FOOTING		REINFORCED CONCRETE	H-PILE		
FIXED BEARING		STEEL	FLAT PLATE	OVERALL CONDITION:	
ABUTMENT 10	LABEL :			REINFORCED CONCRETE	INTEGRAL
LENGTH : 33 FOOT 2 INCH					
BEAM CAP		REINFORCED CONCRETE	CAST-IN-PLACE		
COMMENTS : NEW REPAIR ON CAP UNDER GIRDER #3					
CONDITION : VERTICAL CRACKS	AT BEARING	FEW			
PILING		STEEL	H-SHAPE		
FIXED BEARING		STEEL	FLAT PLATE	OVERALL CONDITION:	
TURNED BACK WINGS		REINFORCED CONCRETE	CAST-IN-PLACE		

MISCELLANEOUS ITEMS

CHANNEL PROTECTION (ITEM 61) CHANNEL CONDITION RATING : 5-MAJOR DAMAGE
COMMENTS : CHANNEL MOVING E.

SCOUR CONDITION (ITEM 113) OVERALL SCOUR CONDITION RATING : 8-STABLE FOR CALCULATED

WATERWAY ADEQUACY (ITEM 71) WATERWAY ADEQUACY RATING : DECK/APPRCH OVERTOP SLIGT

APPROACH ROADWAY (ITEM 72) APPROACH ROADWAY ALIGNMENT RATING : 8-VERYGOOD

BANK PROTECTION

ROCK	DEFLECTOR
ROCK	BLANKET

UTILITY ATTACHMENTS

OTHER HANGER DIAMETER 4 INCH

STRUCTURE PAINT DETAILS

OVERALL PAINT CONDITION VERY GOOD RUST AMOUNT : 8=.1% OF SURFACE RUSTED STEEL TONS : 368

ORIGINAL PAINT		CONTRACT REPAINT		DEPARTMENT REPAINT			
PAINT TYPE :	A SYSTEM	PAINT TYPE :	G SYSTEM	PAINT TYPE :		MANUFACTURE :	
NAME :	RED LEAD	NAME :	ZINC/EPOXY/ACRYLIC	NAME :		SURFACE PREPARATION :	
PAINT COLOR :	ALUMINUM	PAINT COLOR :	GRAY	PAINT COLOR :			
PAINT YEAR :	1963	PAINT YEAR :	2006	PAINT YEAR :	0		
MILS :	4	MILS :	8	MILS :	0		
CREW :	LAYER :	DATE :					

Design_No = A0906

WORK

RESPONSIBILITY	LOCATION	WORK ITEM	PRIORITY	DATE REQUESTED

PROGRAM RECOMMENDATIONS

MISSOURI DEPARTMENT OF TRANSPORTATION

UNDERWATER BRIDGE INSPECTION REPORT

ML

AUG 04 2000

INSPECTION DATE: 08/01/00 SCUBA ____ WADING/PROBING ✓

BRIDGE: A 906 DIST: 2 COUNTY: GRUNDY RTE: MO 6
FEATURE CROSSED: / THOMPSON RIVER SKEW: 00 SUB-AREA: 223

SUPERSTRUCTURE: (PN)
(68'-85'-68') CONT. COMP. I-BMS., (17'-120'-150'-120'-17') CONT. COMP. WLD. PL. GDRS., (68'-85'-68') CONT. COMP. I-BMS.

SUBSTRUCTURE:
E CONCRETE ABUTMENT
CRCKED UDNER BEARING
4 CONCRETE PIER
BT 8 COLUMNS H-CRACKING AT 1' INTERVALS-MINOR
4 CONCRETE BENT SPALLING REBARS EXPOSED

W CONCRETE ABUTMENT

PIER 7 FTG EXP DOWN TO SHALE-KEYED IN

PREVIOUS UW INSPECTION DATE: ~~06/96~~ 08/00 TYPE: C ✓ FREQUENCY: 60 MONTHS ✓
DECK (58): 6 SUPER (59): 7 SUBSTR (60): 6 ✓
BANK & CHANNEL (61): 5 CHANNEL ADEQUACY (71): 6 PROGRAM NOTES:
SCOUR: 8
BANK AND CHANNEL COMMENTS:
CHANNEL MOVING E; FTG PIER 7 EXPOSED ✓
PROFILE GRADE ELEVATION (FROM PLANS): 756.5 (FLAT)
PILE TIP PENETRATION (MINIMUM FROM PLANS): 706.0 (ON SHALE)
DISTANCE FROM TOP OF SLAB TO WATER LINE: 34.0 BENTS INSPECTED: 6 & 7
BOTTOM CONDITION: MUD/SAND VISIBILITY: 0'

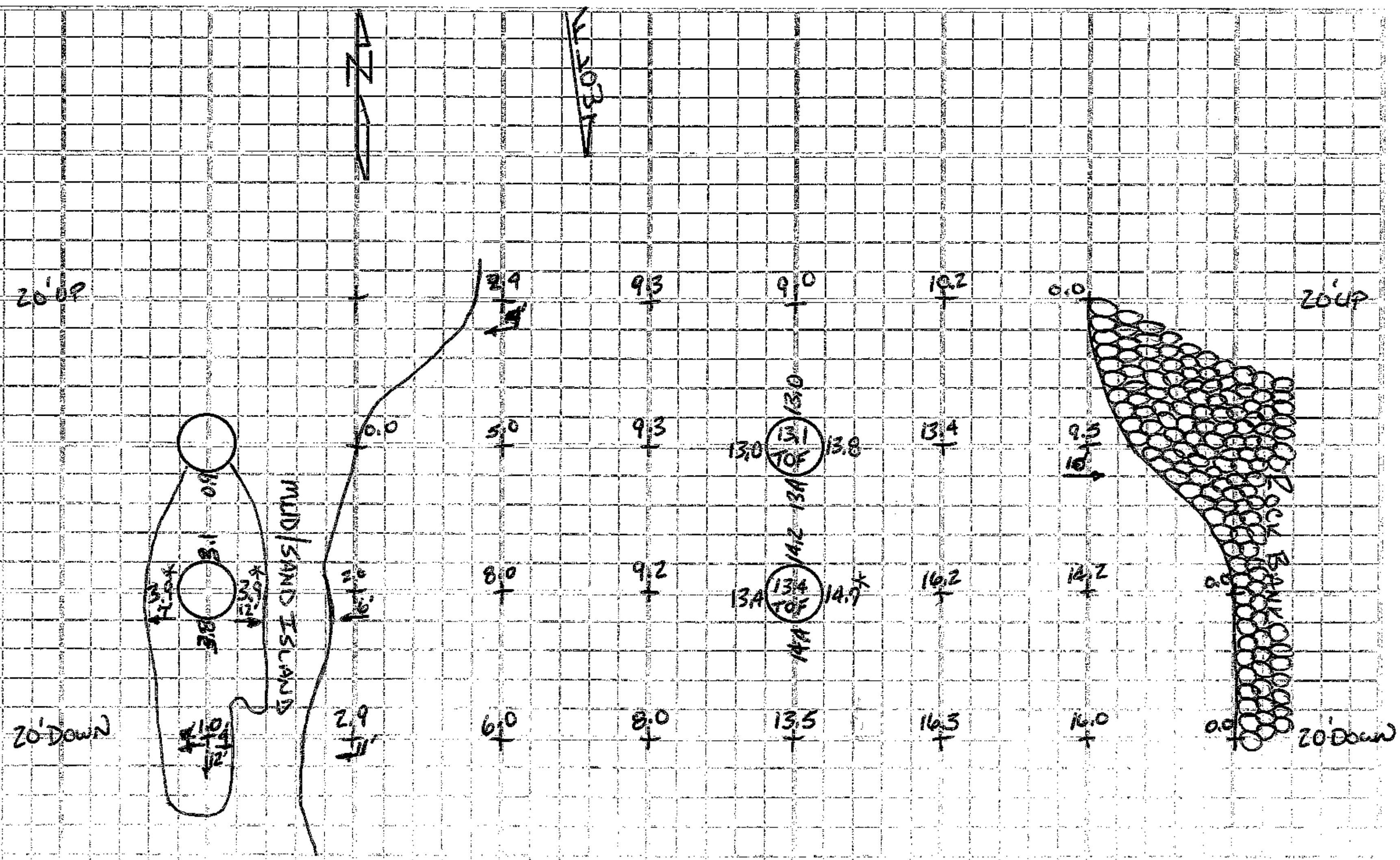
BRIDGE CONDITION: H_2O ELEV. → 756.5 - 34.0 = 722.5

MAINTENANCE RECOMMENDATIONS: NONE !

HAZARDS: MINOR DRIFT @ PIER 7

DIVE SUPERVISOR: [signature]

MAIN DIVER/INSPECTOR: Curtis W. Stegeman 8/1/2000
DATE



PIER 6

722.5
− 3.9
− 706.0

12.6+

PIER 7

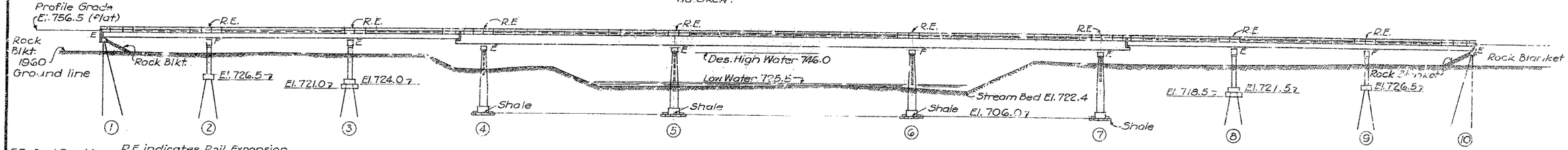
722.5
− 14.7
− 706.0

1.8+

MISSOURI STATE HIGHWAY DEPARTMENT

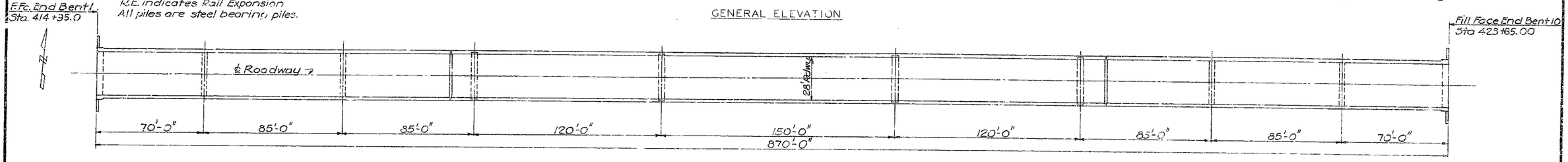
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	66	

Cont. I-beams - Cont. Welded PL Girders - Cont. I-beams.
(68-85-68)(17-120-150-120-17)(68-85-68)
All spans composite.
No Skew.

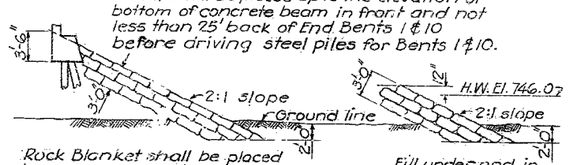


GENERAL ELEVATION

R.E. indicates Rail Expansion
All piles are steel bearing piles.



PLAN



Compacted roadway fill (full roadway width) shall be placed up to the elevation of bottom of concrete beam in front and not less than 25' back of End Bents 1 & 10 before driving steel piles for Bents 1 & 10.

Rock Blanket shall be placed on fill at End Bents 1 & 10 as shown in sketches. See Road Plans for quantities

FRONT OF END BENTS

Fill under and in front of End Bents to be firmly tamped.

SIDE SLOPES OF FILLS

ROCK BLANKET

ESTIMATED QUANTITIES					
Item		Substr.	Superstr.	Totals	
Class 1 Excavation for Structures	Cu.Yds.	710		710	
Class 2 Excavation for Structures	Cu.Yds.	963		963	
Steel Piles in Place 10"	Lin.ft.	658		658	
Steel Piles in Place 14"	Lin.ft.	784		784	
Steel Pile Cut-offs 10"	Lin.ft.	42		42	
Steel Pile Cut-offs 14"	Lin.ft.	96		96	
Class B Concrete	Cu.Yds.	469.4		469.4	
Class B1 Concrete	Cu.Yds.		715.8	715.8	
Class B Concrete (Seal Course)	Cu.Yds.	38.0		38.0	
Reinforcing Steel	Lbs.	66,590	235,960	302,550	
Fabricated Structural Carbon Steel (I-Beams)	Lbs.		338,530	338,530	
Fabricated Structural Carbon Steel (Girders)	Lbs.		293,260	293,260	
Fabricated Structural Low Alloy Steel (Girders)	Lbs.		103,810	103,810	
Painting	Tons		364.7	364.7	

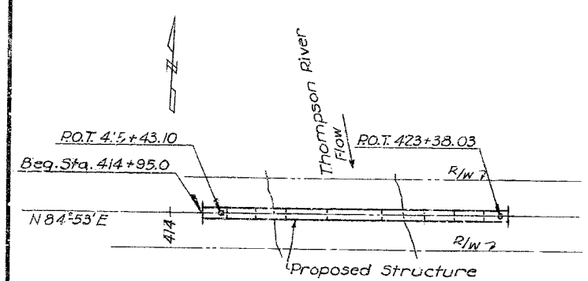
Excavation for bridge made above El. 726.5 will be paid for as Class 1 Excav. for Struc.
Excavation for bridge made below El. 726.5 will be paid for as Class 2 Excav. for Structures.
No payment for excavation will be allowed for End Bents 1 & 10.

Concrete in end posts is included with superstructure concrete.
Weight of shear connectors is included in weight of Fabricated Struct. Carbon Steel as noted below, but not included in painting.

All A7, A373 and A36 steels which are part of or attached to the beam spans (including handrail, expansion devices, shear connectors, and bearings on Bents 1, 2, 3, 8, 9, 10) will be included for payment under Fabricated Struct. Carbon Steel (I-Beams).

All A7 and A373 steels which are part of or attached to the girder spans (including expansion devices, handrail on all girder spans, shear connectors on all girder spans, and bearings on Piers 4, 5, 6, 7, Hinge 3 and Hinge 7) will be included for payment under Fabricated Structural Carbon Steel (Girders).

All A441 steel in the girder spans will be included for payment under Fabricated Structural Low Alloy Steel (Girders).



Drainage Area = 1670 Sq.Mi. (Rolling)

LOCATION SKETCH

NOTES:

See Sheet No. 2 for General Notes.

All piling shall be Steel Bearing Piles and splices if required shall conform to details on Sh. No. 4. Estimated Quantities shown are based on the following lengths: For End Bents (10BP42) 14 @ 50'. For Bents 2 & 9 (14BP73) 16 @ 30', Bents 3 & 8, 16 @ 25'. These indicated lengths are approximate only. Proper length to give required bearing and/or penetration will be authorized by the Engineer.

All piles shall be driven to or into solid rock, cemented gravel, boulders or shale, or to not less than full length authorized and to sustain a load of at least 37 tons per pile for 10" and 64 tons per pile for 14" piles.

All piles shall be driven with a power hammer.

Footings of Piers 4, 5, 6 and 7 shall be carried at least 18" into and cast against vertical faces of firm undisturbed shale or other soft rock. If solid hard rock is encountered, all loose, shelly, or disintegrated material shall be removed and the footings placed on or into hard, solid undisturbed rock.

Bearing of 5.0 ton per sq. ft. used in design of footings for Piers 4-5-6 & 7 on shale.

In case seal courses are omitted during construction by authority of the Engineer, bottoms of footings proper of Bents 3 and 8 shall be placed at plan elevation for footings.

FINISHED

Bench Marks (U.S.G.S. Datum)
B.M. "76 Mine spike in 8" Elm 90' Rt. Sta. 415+50 Elev. 743.26
B.M. "77 Mine spike in 18" Cottonwood 125' Rt. Sta. 420+50 El. 743.87

BRIDGE OVER THOMPSON RIVER

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON
ABOUT .6 MILE S.W. OF TRENTON
PROJECT NO. RTE. 6-SEC. 40 (2) STA. 414 + 95

GRUNDY COUNTY

FINISHED

FINISHED

SUBMITTED BY D.B. Jenkins BRIDGE ENGINEER DATE 8/2/61
APPROVED BY J.J. Corbett CHIEF ENGINEER DATE 8/2/61

STD. 54.00
A-906

Drawn April 1961 by JER
Checked July 1961 by GHK

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

Sheet No. 1 of 12 Revised 4-5-62

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

438

SEE FINAL PLANS BROWN-LINES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	6	

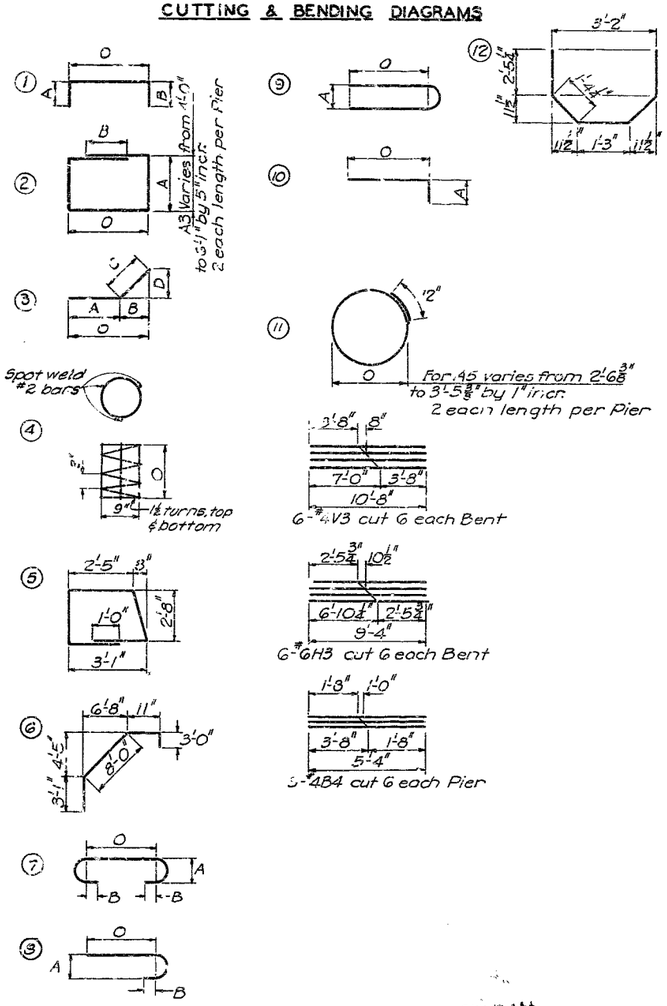
BILL OF REINFORCING STEEL

No.	Size	Length	Mark	Shape	Location	O	A	B	C	D
END BENTS NO. 1 & 10										
Quantities for One End Bent (2 reqd.)										
4	6	15'-0"	H1	6	Wings					
12	6	10'-0	H2	——	do					
6	6	9'-4	H3	‡——	do					
2	6	37'-3	H4	——	Backwall					
4	4	37'-3	H5	——	do					
16	6	32'-8	H6	——	Beam					
34	4	11'-11	T1	5	do					
10	4	3'-6	U1	1	do	2'-5"	6"	6"		
68	4	3'-9	V1	——	Backwall					
2	4	7'-6	V2	——	Wings					
6	4	10'-8	V3	‡——	do					
8	2	19'-9	W1	4	Anch. Bolt Wells	1'-0				
BENTS 2, 3, 8, 9										
Quantities for One Bent (4 reqd.)										
16	7	4'-11	D1	8	Cols. & Footing	3'-9½	7	3½		
16	6	9'-2	F1	9	Footings	3'-5	1'-6			
8	10	31'-6	H7	7	Cap	27'-7½	1'-0½	5		
4	6	28'-8	H8	——	do					
8	11	26'-8	H9	——	do					
40	5	13'-2	T2	2	do	2'-8	3'-5	1'-0		
8	4	3'-8	U2	1	do	2'-8	6	6		
16	6	8'-3	V4	3	Cap & Cols.	7'-11½	7'-3	8½	1'-0	8½
8	2	19'-9	W1	4	A.B. Wells	1'-0				
Variable Bents 2 & 9 Quantities for One Bent (2 reqd.)										
38	3	9'-8	T3	2	Columns	2'-2	2'-2	1'-0		
76	7	21'-7	V5	——	do					
Variable Bents 3 & 8 Quantities for One Bent (2 reqd.) ⚠										
44	3	9'-8	T3	2	Columns	2'-2	2'-2	1'-0		
16	7	24'-1	V6	——	do					
Variable - Bent 8										
⚠ 48	3	9'-8"	T3	2	Columns	2'-2	2'-2	1'-0"		
16	7	26'-7"	V7	——	do					

No.	Size	Length	Mark	Shape	Location	O	A	B	C	D
PIERS 4, 5, 6 & 7										
Quantities for One Pier (4 reqd.)										
32	6	5'-8"	A1	1	Cap	3'-2"	1'-3"	1'-3"		
30	5	8'-10	A2	12	do					
12	4	*12'-10	A3	2	do	11		11		
4	6	8'-3	A4	3	do	7'-8	6'-3	1'-5	2'-0	1'-5
24	4	*10'-5	A5	11	Columns					
5	6	30'-10	B1	7	Cap	29'-0	6	5		
8	7	11'-10	B2	8	do	10'-8½	7	3½		
2	6	28'-6	B3	——	do					
6	4	5'-4	B4	*——	do					
6	6	7'-1	B5	1	do	3'-0½	2'-0½	2'-0½		
4	6	25'-6	B6	——	do					
36	9	26'-6	E1	——	Columns					
3	10	22'-6	G1	——	Web Wall					
10	5	7'-7	G2	1	do	11	3'-4	3'-4		
12	4	5'-2	U3	1	Cap	3'-2	1'-0	1'-0		
Variable-Piers 4 & 7 Quantities for One Pier (2 reqd.)										
12	4	12'-0	A6	11	Columns	3'-6				
36	9	7'-0	D2	8	Footings	5'-3⅜	11¼	4⅜		
36	9	15'-3	E2	——	Columns					
14	11	12'-0	F2	——	Footings					
26	6	6'-7	F4	——	do					
20	4	19'-2	G3	——	Web Wall					
22	4	16'-11	G4	10	do	16'-0	11			
8	2	23'-0	W2	4	A.B. Wells	1'-3				
Variable-Pier 5										
12	4	12'-0	A6	11	Columns	3'-6				
36	9	7'-0"	D2	8	Footings	5'-3⅜	11¼	4⅜		
36	9	15'-3	E2	——	Columns					
14	11	12'-0	F2	——	Footings					
26	6	6'-7	F4	——	do					
24	4	19'-2	G3	——	Web Wall					
22	4	19'-11	G5	10	do	19'-0	11			
8	2	23'-0	W2	4	A.B. Wells	1'-3				
Variable - Pier 6										
14	4	12'-0"	A6	11	Columns	3'-6				
56	11	8'-1	D3	8	Footings	5'-11	1'-2	5⅜		
56	11	16'-2	E3	——	Columns					
20	11	13'-6	F3	——	Footings					
28	6	7'-7	F5	——	do					

No.	Size	Length	Mark	Shape	Location	O	A	B	C	D
Variable-Pier 6 - continued										
24	4	19'2"	G5	——	Web Wall					
22	4	20'-10	G6	10	do	19'-11"	11"			
16	2	23'-0	W2	4	A.B. Wells	1'-3				
SUPERSTRUCTURE										
20	5	4'-8	C1	1	Curb	2'-2	1'-3	1'-3		
1112	5	5'-10	C2	1	do	1'-1¼	1'-3	1'-3		
4	5	6'-0	C3	3	do	5'-5⅜	4'-2	1'-3⅜	1'-10	1'-3⅜
24	5	35'-9	C4	——	do					
36	6	29'-7	C5	——	do					
24	6	35'-2	C6	——	do					
12	6	15'-7	C7	——	do					
48	6	31'-5	C8	——	do					
24	6	38'-11	C9	——	do					
24	4	3'-9	R1	——	End Post					
20	5	7'-5	R2	1	do	9	3'-4	3'-4		
3200	6	31'-3	S1	——	Slab					
64	6	2'-10	S2	——	do					
1148	4	30'-0	S3	——	do					
82	4	22'-4	S4	——	do					
41	4	18'-10	S5	——	do					
804	5	40'-0	S6	——	do					
80	5	31'-2	S7	——	do					
40	5	36'-10	S8	——	do					
168	5	24'-0	S9	——	do					
84	5	30'-0	S10	——	do					

CUTTING & BENDING DIAGRAMS



FINISHED

GENERAL NOTES

Design Specifications: AASHO 1957 as modified

Loading

Design includes 15 psf future wearing surface.

Design Stresses:

Structural Steel A7 & A373	18,000 psi
Structural Steel A36	20,000 psi
Structural Steel A441	27,000 psi
Reinforcing Steel	20,000 psi
Class S Concrete	1,200 psi
Class B1 Concrete	1,600 psi

Concrete for superstructure shall be Class B1, air-entrained and for substructure, except seal courses, shall be Class B, air-entrained.

Concrete for seal courses shall be Class B.

Rivets ¾"ϕ; holes 13/16"ϕ except in splices, handrail and expansion joints.

Field connections, except where specifically noted otherwise, may be riveted or bolted with high strength steel bolts.

Preparation of welded joints shall be in accordance with AWS Specifications. Details shown are for manual arc welding. Qualification of welding operators will be required. See Special Provisions for welding inspection.

Paint: Shop none; Field, contact surfaces of bolted field connections, except where high strength bolts are used, one coat of red lead and surfaces inaccessible after erection, three coats of red lead. All other exposed surfaces, first coat of red lead, second coat brown, third coat aluminum. Payment for paint, cleaning and painting such surfaces will be included in the price bid for

See Section 52.4.7 of Standard Specifications for required painting of steel piles in End Bents Nos. 1 and 10.

Joint Filler: Where joint filler is specified on the plans it shall conform to the requirements for Gray Sponge Rubber Compound Joints, Section 157.2.4 of the Standard Specifications.

Permits must be obtained for all truck loads over legal length.

NOTE

All bar dimensions are out to out of bar.

*Denotes average length

Bars to be billed and tagged separately for each unit.

FINISHED

BRIDGE OVER THOMPSON RIVER

FINISHED

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON

ABOUT .6 MILE S.W. OF TRENTON

PROJECT NO. RTE 6-SEC. 40 (2) STA. 414 + 45 95 ⚠

GRUNDY COUNTY

FINISHED

Drawn June 1961 by JER

Checked July 1961 by M.R.H.

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

⚠ Revised 4-5-62

Sheet No. 2 of 12

HARRINGTON AND CORTELYOU CONSULTING ENGINEERS KANSAS CITY, MO.

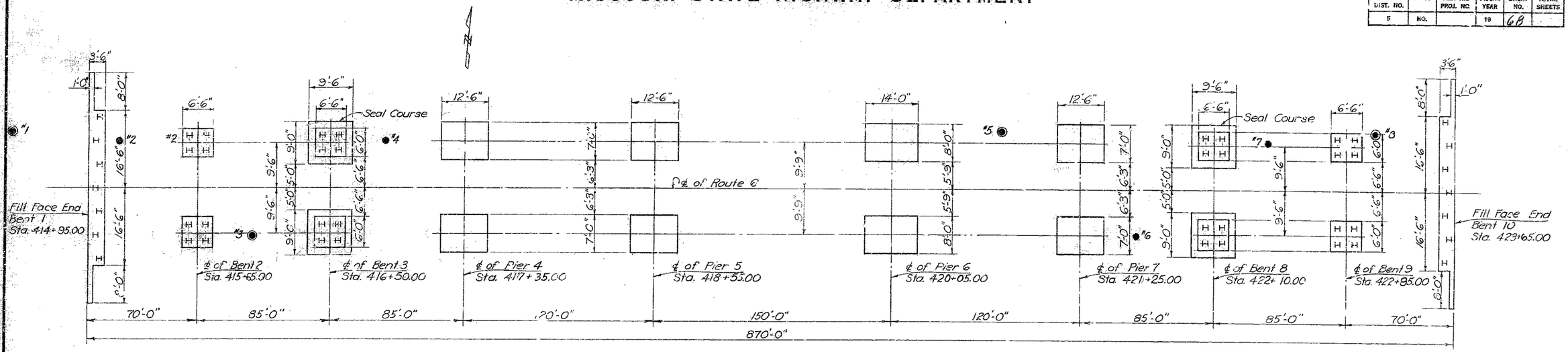
A-906

NO CONSTRUCTION CHANGES

439

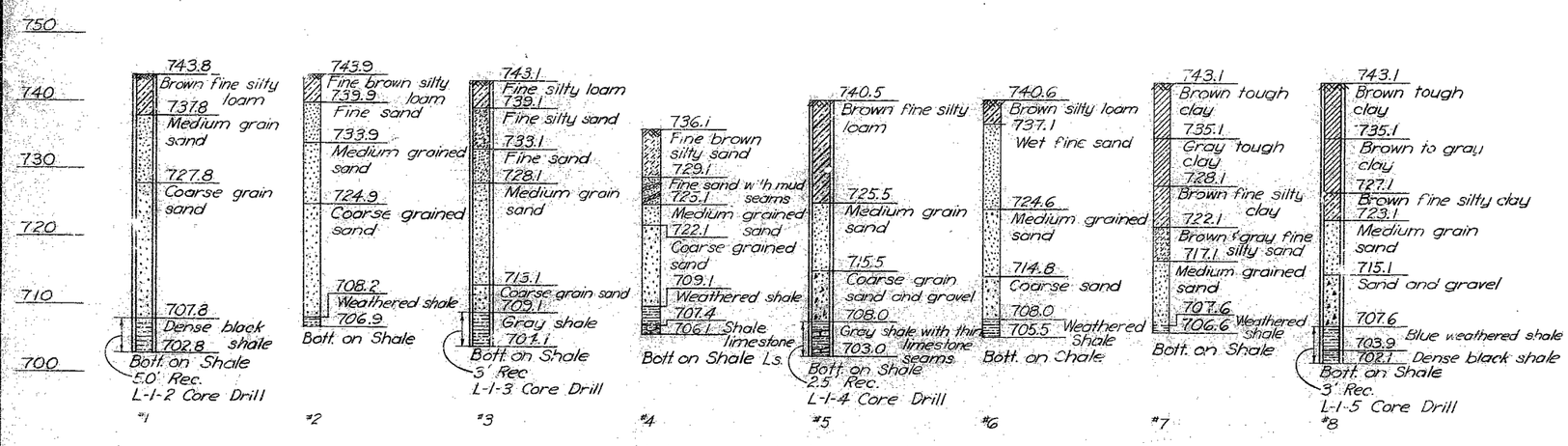
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	68	-



FOUNDATION PLAN

Notes: All dimensions are horizontal.
See Sh. No. 1 & 2 for General Notes.
#1 ◉ Core drill hole.
#2 ● Auger hole.



LOG OF SOUNDINGS

440

FINISHED

FINISHED

FINISHED

BRIDGE OVER THOMPSON RIVER

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON
ABOUT .6 MILE S.W. OF TRENTON
PROJECT NO. RTE 6-SEC. 40 (2) STA. 414 + 95

GRUNDY COUNTY

FINISHED

Drawn May 1961 by H.G.J.
Checked July 1961 by M.B.H.

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

Sheet No. 3 of 12 Revised 4-5-67

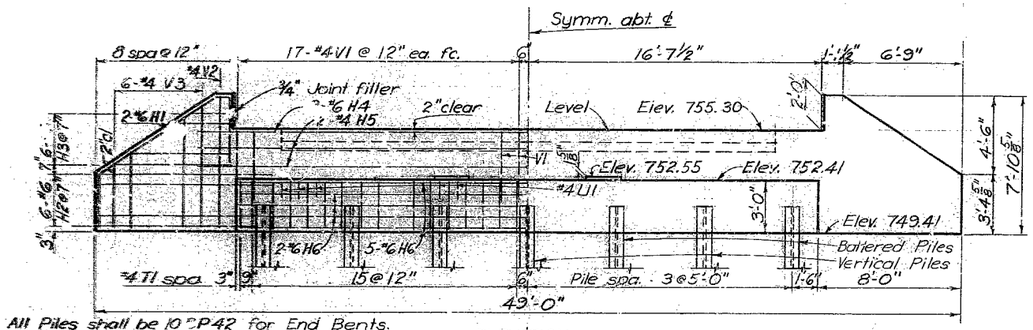
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-906

NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

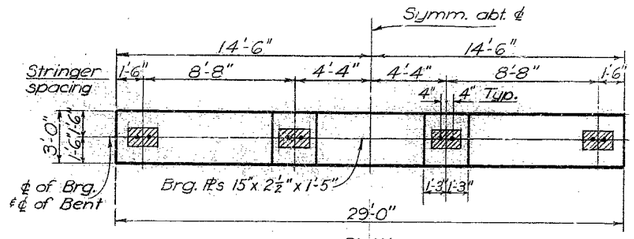
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	69	



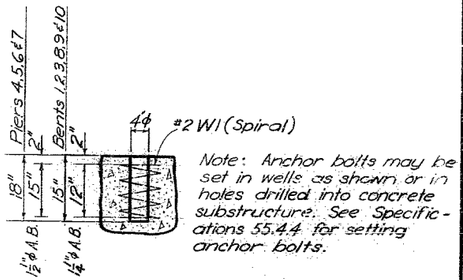
ELEVATION

All Piles shall be 10"ℓP42 for End Bents.
Fill of End Bents No. 1 & 10 not to be carried above bottom of beam and wings until superstructure is in place and slab poured in adjacent span.

Notes. Place U bars under bearings, alternate with stirrups to provide a 6" max. spacing under bearing plates.
Reinforcing steel in bridge seats to be placed to clear anchor bolts.
Bridge seats shall be sloped to drain between bearing areas.

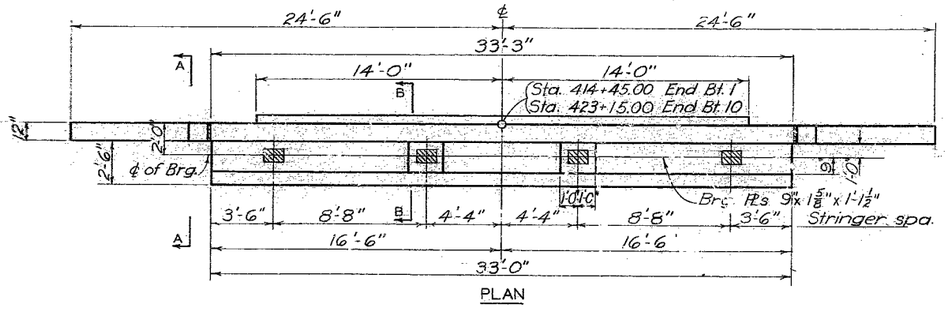


PLAN

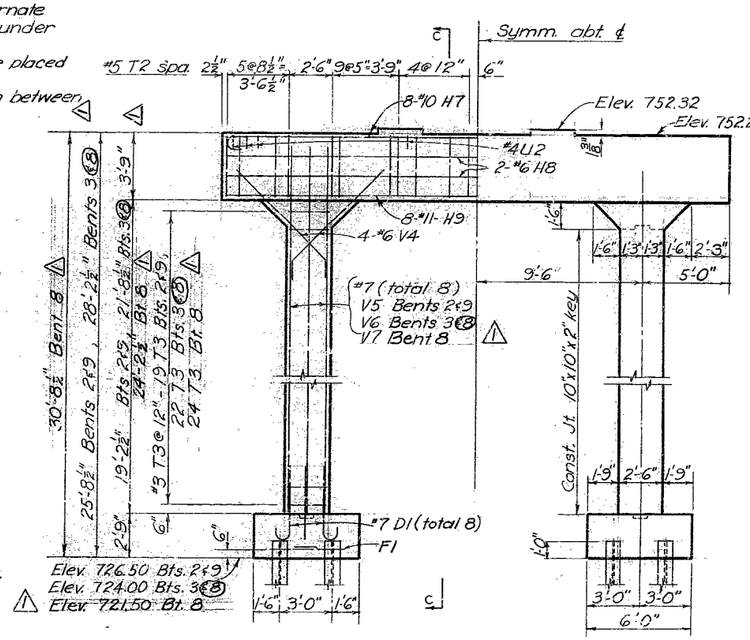


Note: Anchor bolts may be set in wells as shown or in holes drilled into concrete substructure. See Specifications 55.4.4 for setting anchor bolts.

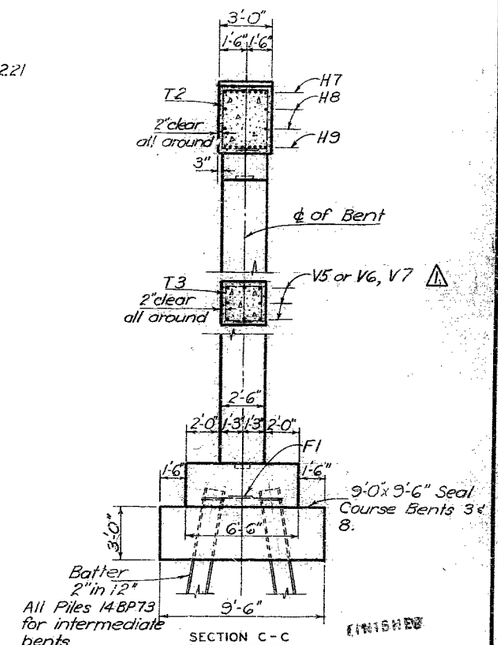
DETAIL OF SPIRAL AROUND ANCHOR BOLTS



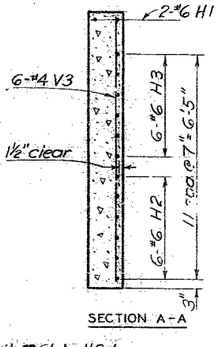
PLAN



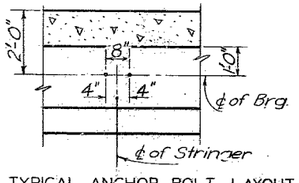
ELEVATION



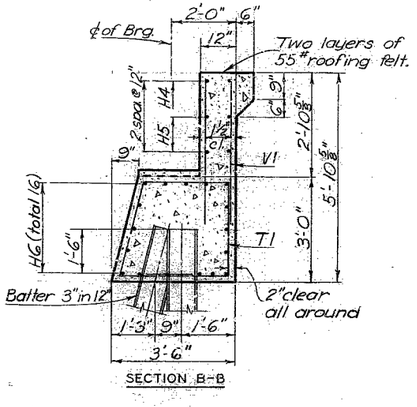
SECTION C-C



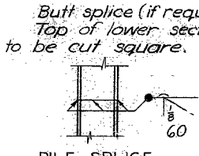
SECTION A-A



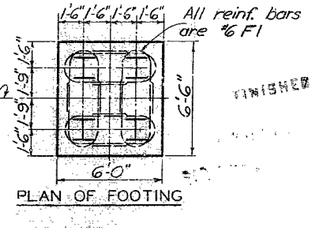
TYPICAL ANCHOR BOLT LAYOUT



SECTION B-B



PILE SPLICE



PLAN OF FOOTING

FINISHED

FINISHED

FINISHED

BRIDGE OVER THOMPSON RIVER

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON
ABOUT .6 MILE S.W. OF TRENTON
PROJECT NO. RTE. 6-SEC. 40.(2) STA. 414 + 45 95 ⚠
GRUNDY COUNTY

Drawn April 1961 by HGJ
Checked July 1961 by M.P.H.

DETAILS OF END BENTS NO. 1 & 10

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

DETAILS OF BENTS NO. 2, 3, 8 & 9

Sheet No. 4 of 12. ⚠ Revised 4-5-62

HARRINGTON AND CORTELYOU CONSULTING ENGINEERS KANSAS CITY, MO.

A-906

NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	10	

PLAN

ELEVATION

DETAILS OF PIERS 4,5,6 & 7

ANCHOR BOLT LAYOUT

For details of spiral around anchor bolts see Sh. No. 4

PIERS 4,5&7

PIER 6

SECTION A-A

SECTION B-B

SECTION C-C

Reinforcing steel in bridge seats to be placed to clear anchor bolts. Bridge seat shall be sloped to drain between bearing areas.

FINISHED

BRIDGE OVER THOMPSON RIVER

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON
ABOUT .6 MILE S.W. OF TRENTON
PROJECT NO. RTE.6-SEC.40 (2) STA. 414 + 45 95 ⚠

GRUNDY COUNTY

FINISHED

FINISHED

Drawn May 1961 by O.C.C.
Checked July 1961 by M.R.H.

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

Sheet No. 5 of 12

3 Final Plans
2 Revised 4-24-62
1 Revised 4-5-62

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-906

CONSTRUCTION CHANGES NOTED HEREON 2

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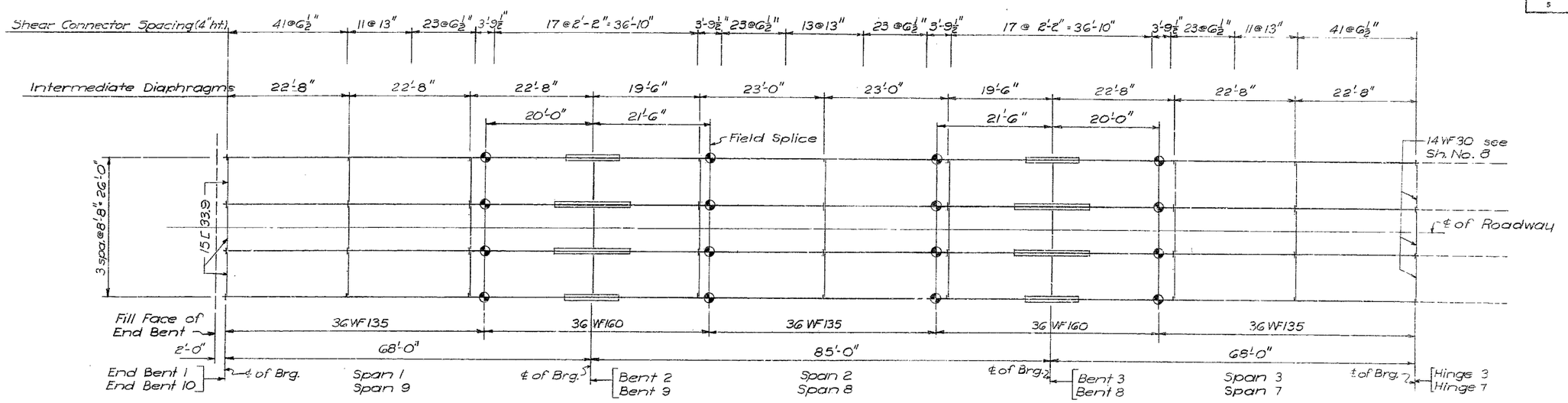
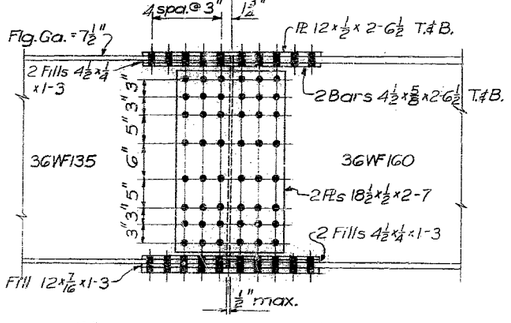
MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	7	



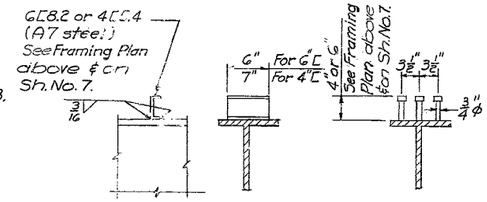
FRAMING PLAN - I BEAM SPANS 1-2-3 & 7-8-9

All dimensions shown are at 60° F.



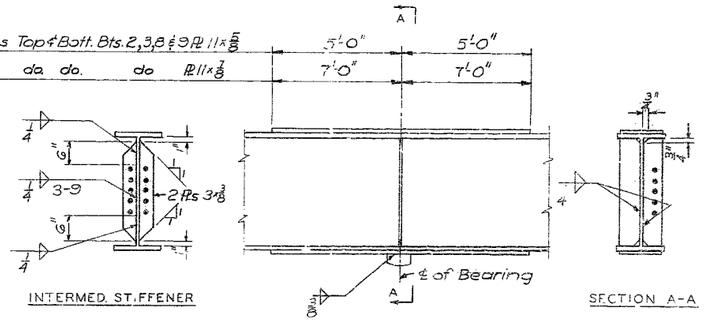
Note: 15/16" ϕ Reamed Holes for ⅞" ϕ Rivets.

FIELD SPLICE



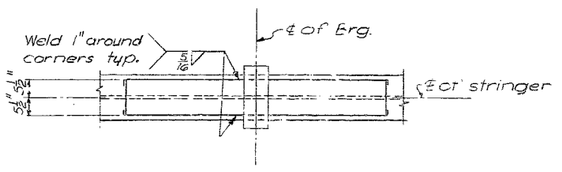
Shear connectors may be studs or channels at the contractor's option. See Special Provisions. Payment for shear connectors will be based on weight of type furnished.

All diaphragms shall be A.S.T.M. A7-58T steel. Material for stringers, cover Pls, web stiffeners, and splice material shall be A.S.T.M. A36-60T. Bearing stiffeners to be ground to bear top and bottom.

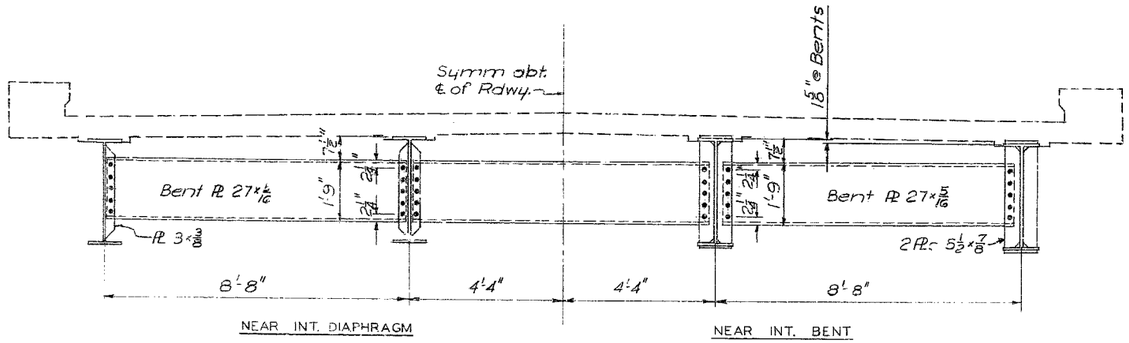


INTERMED. STIFFENER

SECTION A-A



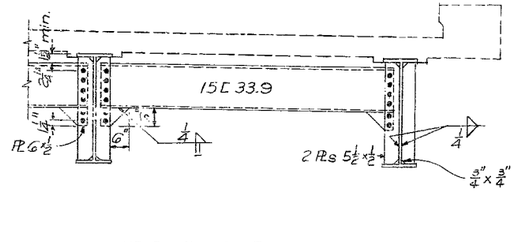
WELDING DETAILS FOR PLATES ON STRINGERS AT BENTS NO. 2, 3, 8 & 9



NEAR INT. DIAPHRAGM

NEAR INT. BENT

TYPICAL CROSS SECTIONS



NEAR END BENT

BRIDGE OVER THOMPSON RIVER

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON
ABOUT .6 MILE S.W. OF TRENTON
PROJECT NO. RTE. 6-SEC. 40 (2) STA. 414 + 45 95 △1

GRUNDY COUNTY

Drawn April 1961 by O.C.C.
Checked July 1961 by G.H.K.

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

Sheet No. 6 of 12 △1 Revised 4-5-62

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-906

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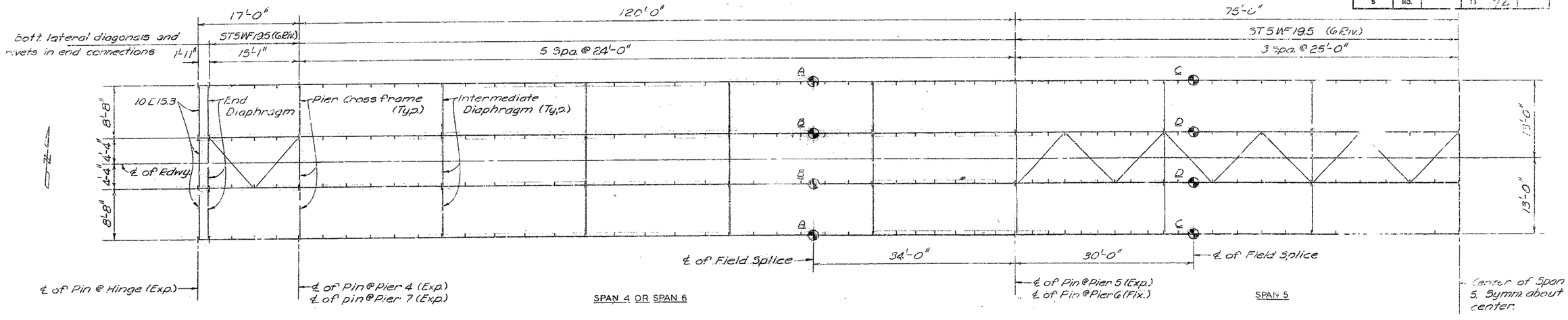
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

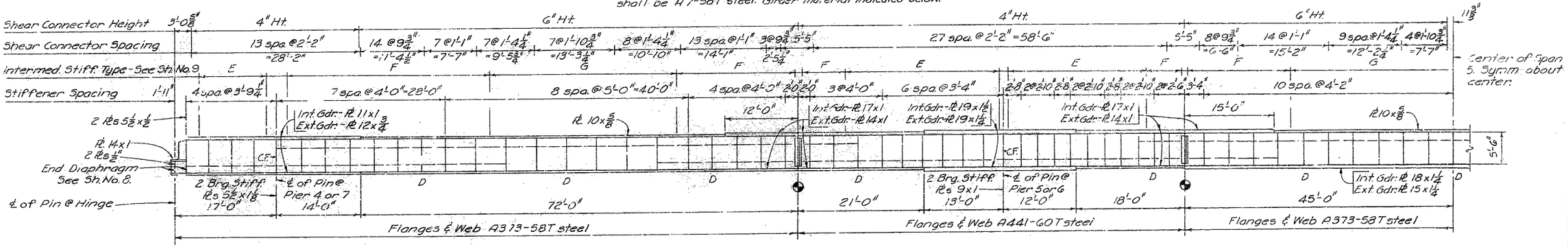
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		13	72	



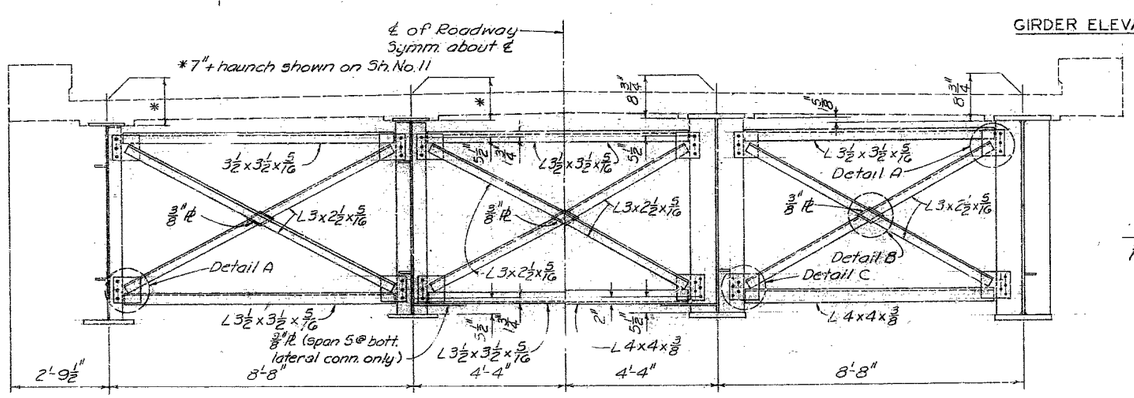
FRAMING PLAN

Longitudinal dimensions shown are horizontal at 60°F normal temperature under full dead load. Stiffeners and lateral conn. ℄s to be A373-58T steel. Material for laterals, diaphragms & crossframes shall be A7-58T steel. Girder material indicated below.

A ⓐ indicates ℄ of Field splice A.



GIRDER ELEVATION



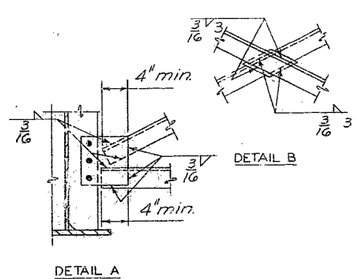
INTERMEDIATE DIAPHRAGM

CROSS FRAME AT PIERS

TYPICAL ROADWAY SECTONS

All connection Rs 3/8"

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



"D" indicates Intermediate Diaphragm location.
"C.F." indicates Cross Frame location.
Shop web splices may be made at locations approved by the engineer. (For details see Sh. No. 9.)
For Shear Connector Details see Sh. No. 6.

All intermediate stiffeners R 4 1/2 x 5/16
All longitudinal stiffeners R 4 x 5/16
Girder web R 66 x 5/16

FINISHED

BRIDGE OVER THOMPSON RIVER

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON
ABOUT .6 MILE S.W. OF TRENTON
PROJECT NO. RTE. 6-SEC. 40 (2) STA. 414 + (45) 95 ⚠

GRUNDY COUNTY

FINISHED

Drawn May 1961 by W.B.H.
Checked July 1961 by M.R.H.

Sheet No. 7 of 12 ⚠ Revised 4-5-62

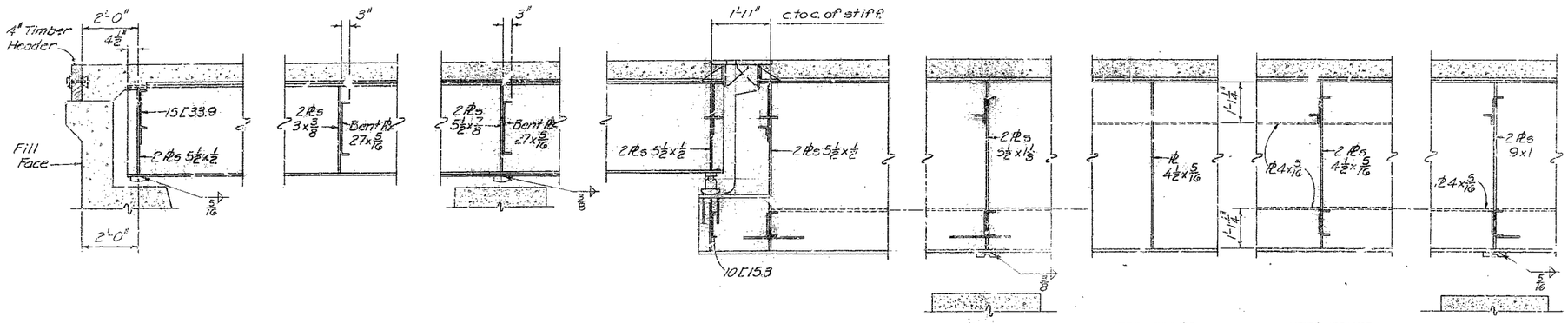
HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-906

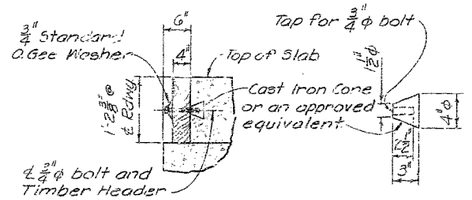
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	73	

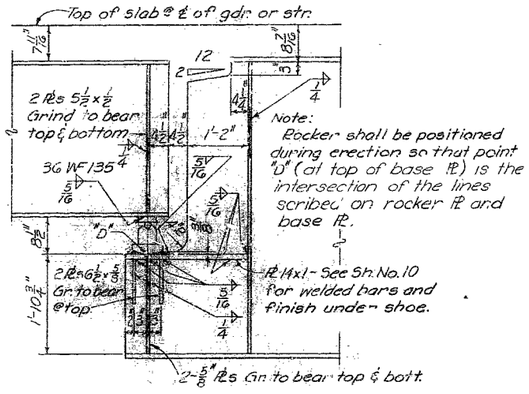


END BENTS 1 & 10 | INTERMEDIATE DIAPHRAGM | INTERMEDIATE BENTS 2,3,8 & 9 | HINGE | PIERS 4 & 7 | INTERMEDIATE STIFFENER | INTERMEDIATE DIAPHRAGM | PIERS 5 & 6



Note: ¾" ϕ bolt shall be 6¼" long with square head, threaded 3" and placed at about 3'-0" centers.
Cost of timber headers complete in place to be included in price bid for concrete.

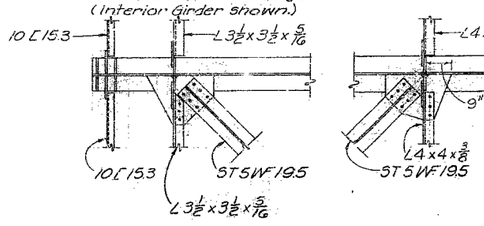
DETAILS OF TIMBER HEADER



Note: Rocker shall be positioned during erection so that point "D" (at top of base Pl.) is the intersection of the lines scribed on rocker Pl. and base Pl.

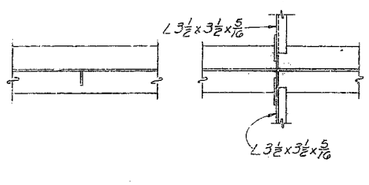
HINGE DETAIL

PART LONGITUDINAL SECTION
(Parallel to ℄ of Rdwy.)
(Interior Girder shown.)

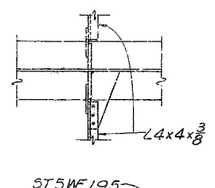


HINGE

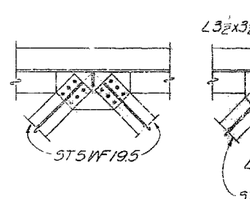
PIERS 4 & 7



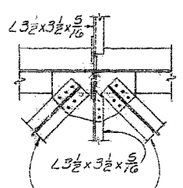
INTERMEDIATE STIFFENER



INTERMEDIATE DIAPHRAGM

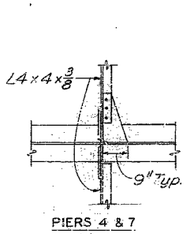


BOTT. LATERAL CONN. AT INT. STIFF.

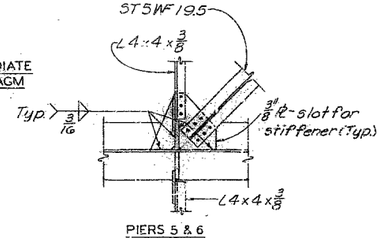


BOTT. LATERAL CONN. AT INT. DIAPH.

SPAN 5

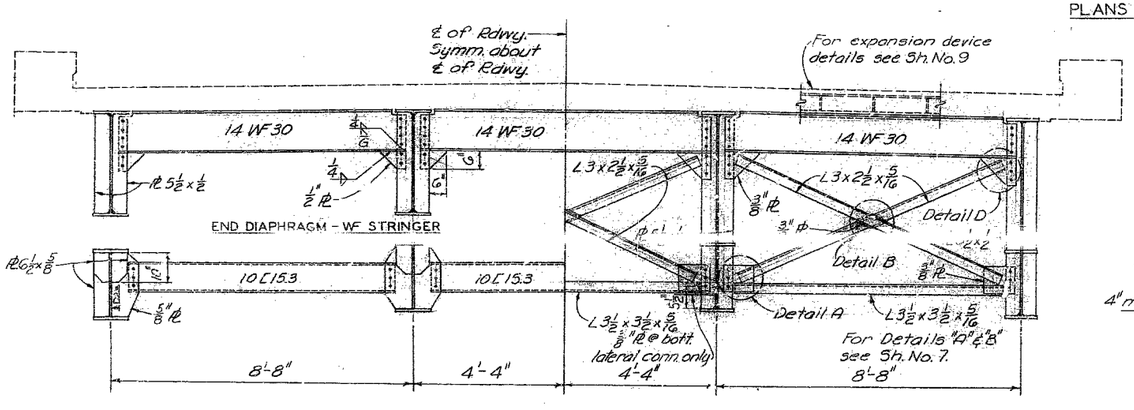


PIERS 4 & 7



PIERS 5 & 6

PLANS OF BOTTOM STRUT AND LATERAL CONNECTIONS
All connection Pl's ⅜

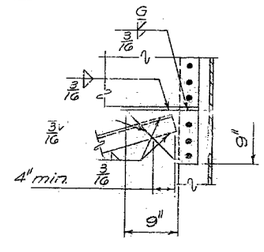


END DIAPHRAGM - WF STRINGER

DIAPHRAGM UNDER HINGE

END DIAPHRAGM - WELDED GIRDER

DIAPHRAGMS AT HINGE



DETAIL D

Note:
Longitudinal dimensions are horizontal at 60°F.
Each line of girders shall be completely erected at least two spans ahead before any field rivets are driven.
Spans 4, 5, and 6 shall be completely erected and splices riveted prior to erection of adjacent spans on hinges.

FINISHED

BRIDGE OVER THOMPSON RIVER

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON
ABOUT .6 MILE S.W. OF TRENTON
PROJECT NO. RTE. 6-SEC. 40 (2) STA. 414 + 45 95 ⚠

GRUNDY COUNTY

FINISHED

Drawn May 1961 by WBH
Checked July 1961 by M.I.Z.H.

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

Sheet No. 8 of 12 ⚠ Revised 4-5-62

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

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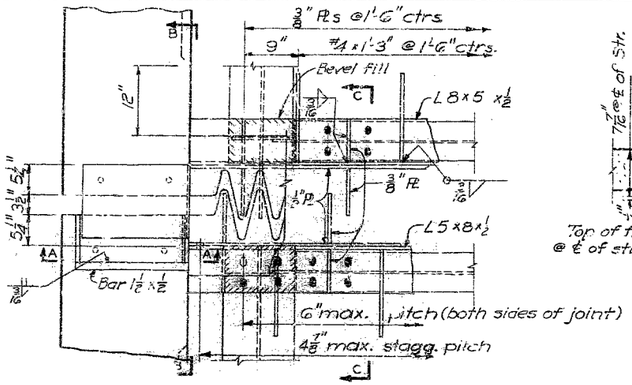
4-25

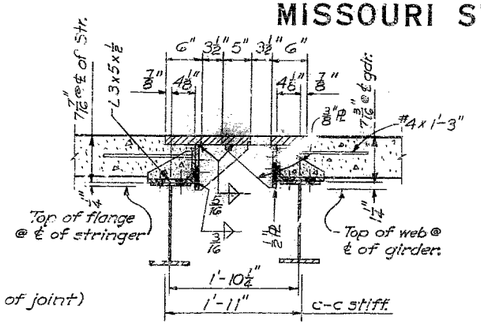
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

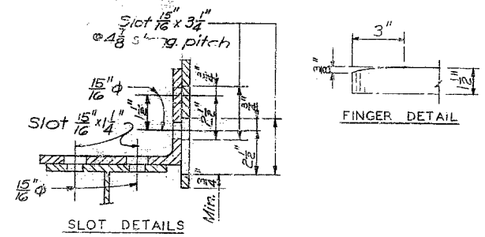
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	74	



PART PLAN HINGE 3 OR 7



SECTION C-C



SLOT DETAILS

FINGER DETAIL

Final adjustment of expansion device shall be made just prior to pouring of abutting concrete.

Material for expansion device shall be A373 or A7 steel meeting the carbon and manganese requirements of A.S.T.M. A373-58T steel.

Bend and cut plates and angles to conform to crown of roadway.

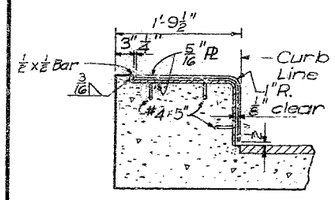
Vertical slots at Hinges to provide for 1/4" lowering and 2" raising of finger plates.

Dimensions shown are for a normal temperature of 60°F

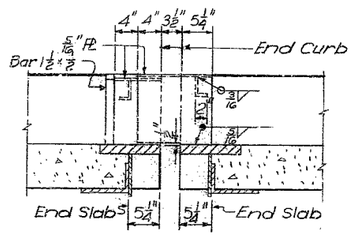
Open holes and slots to be 15/16" for 7/8" ϕ H.S. bolts.

For additional details at joints see Sh. No. 8 & 11.

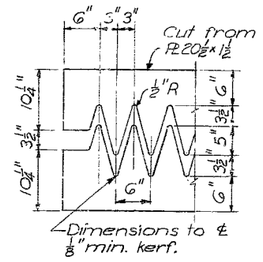
For shipping, the roadway joints shall be so bolted and braced as to prevent bending of the finger plates.



SECTION A-A



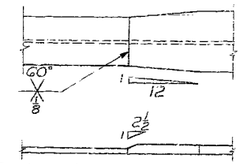
SECTION B-B



FINGER PLATE DETAILS

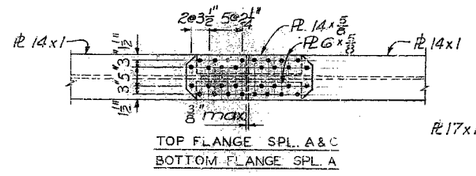
The contractor shall provide 3/8" ϕ erection bolts w/square nuts welded to underside of batt. Pls and 7/16" slotted holes in top Pls to hold curb Pls in position during pouring of concrete. Remove bolts after concrete has set.

Extension bars shall be used for welded flange splices.

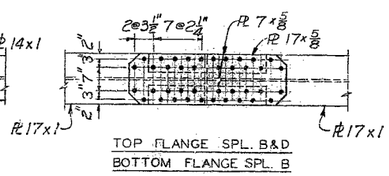


Preheating will be required in accordance with the American Welding Society Specifications.

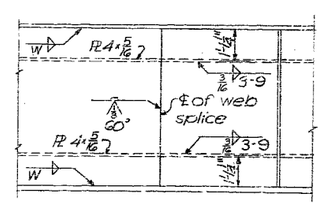
DETAILS OF SHOP FLANGE SPLICES



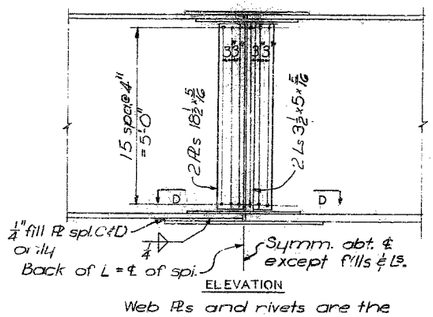
TOP FLANGE SPL. A & C
BOTTOM FLANGE SPL. A



TOP FLANGE SPL. B & D
BOTTOM FLANGE SPL. B

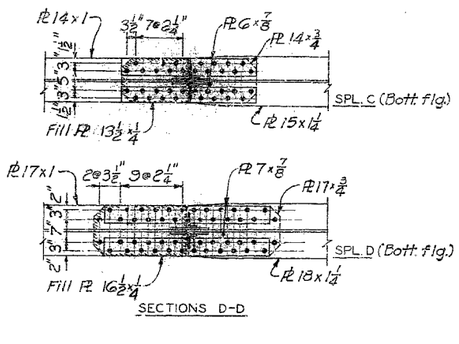


SHOP WEB SPLICE & GIRDER WELDING



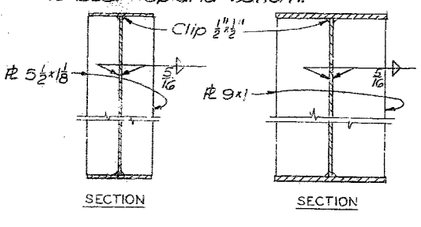
ELEVATION

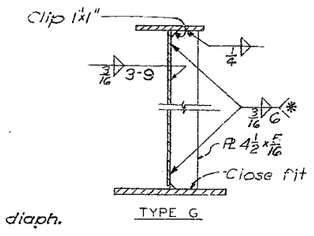
Web Pls and rivets are the same for all splices.

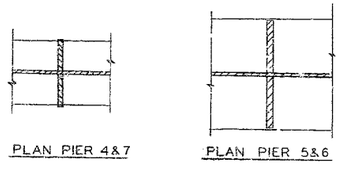


SECTIONS D-D

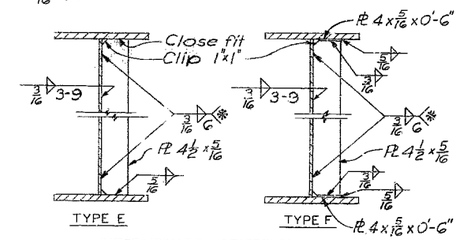
TABLE OF WELD SIZES (Flange Pl. to Web)	
Flange Pl. Thickness	W
5/8"	1/4
3/4"	1/4
1"	5/16
1 1/4"	5/16
1 1/2"	5/16







BRG. STIFF. AT PIERS



INTERMEDIATE STIFFENERS
See Sh. No. 7 for location of types E, F & G stiffeners.

STIFFENER DETAILS

FIELD SPLICES
All holes 15/16" ϕ for 7/8" rivets.
Splice material shall be A.S.T.M. A7-58T steel.

BRIDGE OVER THOMPSON RIVER

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON
ABOUT .6 MILE S.W. OF TRENTON
PROJECT NO. RTE 6-SEC. 40(2) STA. 414 + 45.93 △

GRUNDY COUNTY

Drawn May 1961 by OCC
Checked July 1961 by M.R.H.

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

Sheet No. 9 of 12 △ Revised 4-5-62

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

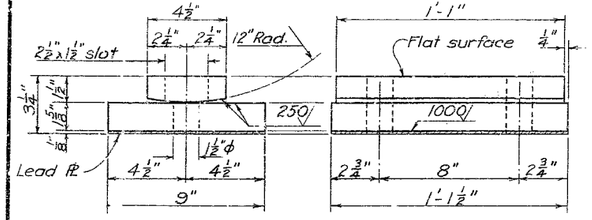
A-906

1246

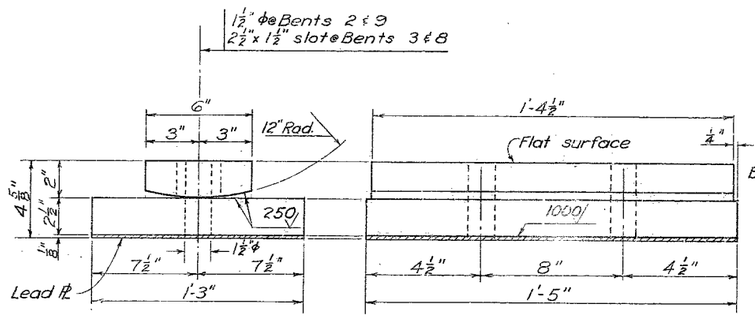
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

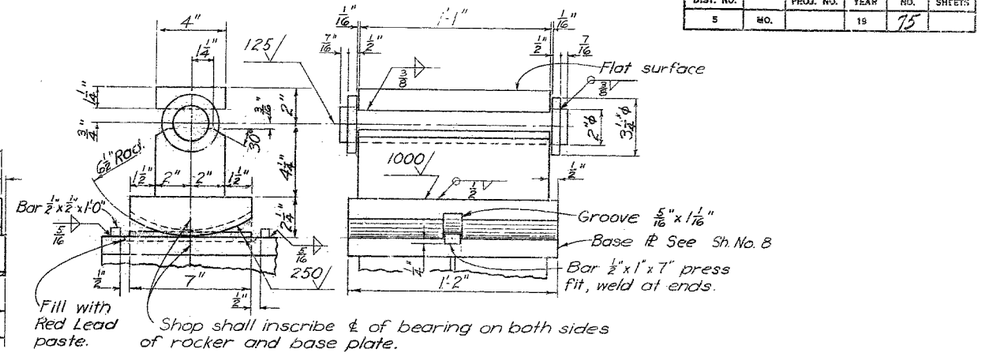
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	75	



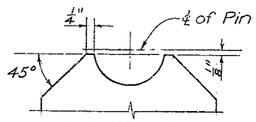
EXPANSION END BENTS 1 & 10
(8 Req'd.)



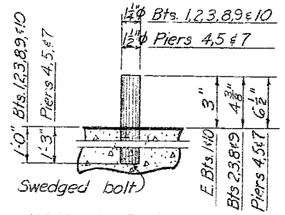
FIXED BENTS 2 & 9 - EXPANSION BENTS 3 & 8
(8 Req'd.) (8 Req'd.)



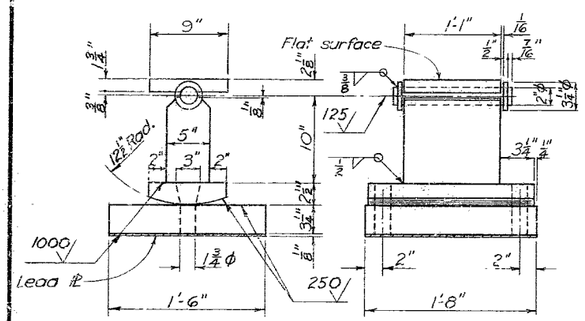
EXPANSION HINGES 3 & 7
(8 Req'd.)



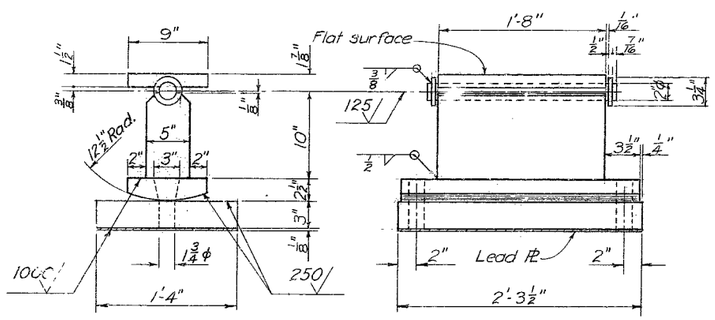
END VIEW OF WEB
EXPANSION ROCKER



ANCHOR BOLT PROJECTION

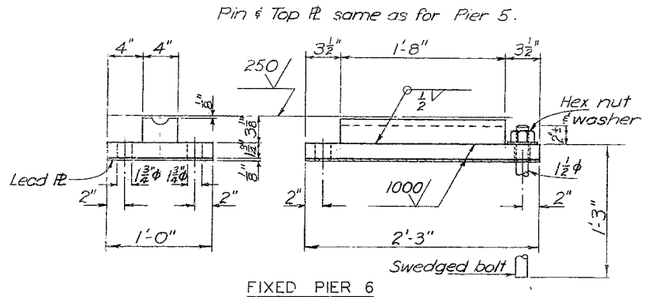


EXPANSION PIERS 4 & 7
(8 Req'd.)



EXPANSION PIER 5
(4 Req'd.)

Pin & Top Pt same as for Pier 5.



FIXED PIER 6
(4 Req'd.)

Estimated weight of bearings, pins and anchor bolts for bents 1, 2, 3, 8, 9 & 10 = 4,382 Lbs.
Estimated weight of bearings, pins and anchor bolts for piers 4, 5, 6 & 7 and hinges 3 & 7 = 11,679 Lbs.

NOTES:

Material for bearings Bents 1, 2, 3, 8, 9 and 10 shall be A.S.T.M. A-36 steel.

Except as noted, material for bearings Piers 4, 5, 6 & 7 and Hinges 4 & 7 shall be A.S.T.M. A-373 steel or A-7 meeting the carbon and manganese requirements of A-373.

Material for pins shall be A.I.S.I. C-1018.

Lead plates under bearings shall be approximately ⅛" thickness and weigh 8 #/ sq. ft. Cost of lead plates shall be included in price bid for other items.

Material for Bearings will be paid for as Fabricated Structural Carbon Steel.

Top plates shall be shop welded to beams and girders. See Sh. No. 8.

BRIDGE OVER THOMPSON RIVER

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON
ABOUT .6 MILE S.W. OF TRENTON
PROJECT NO. RTE 6-SEC. 40 (2) STA. 414 + (45) 95 ⚠

GRUNDY COUNTY

Drawn May 1961 by H.G.J.
Checked July 1961 by G.H.K.

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

Sheet No. 10 of 12 ⚠ Revised 4-5-62

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

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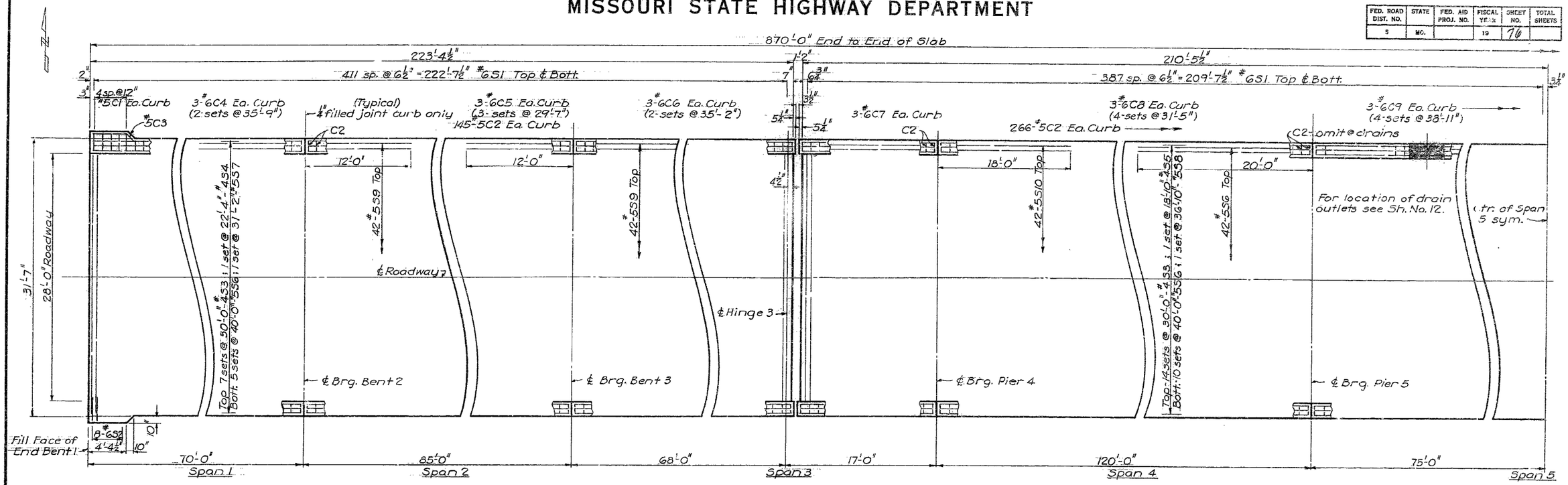
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

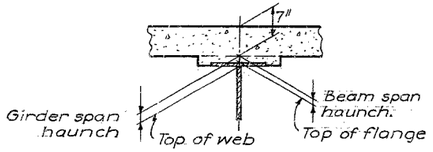
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO.		19	76	



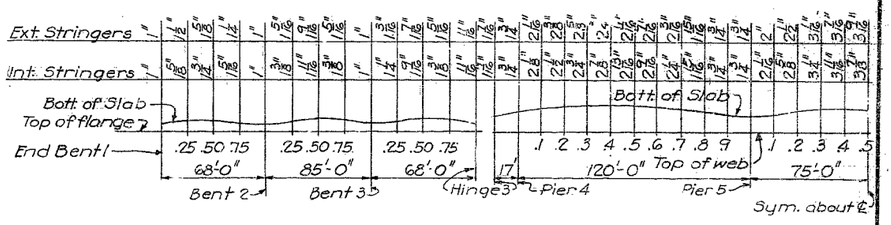
PLAN OF SLAB REINFORCEMENT
All dimensions are horizontal.

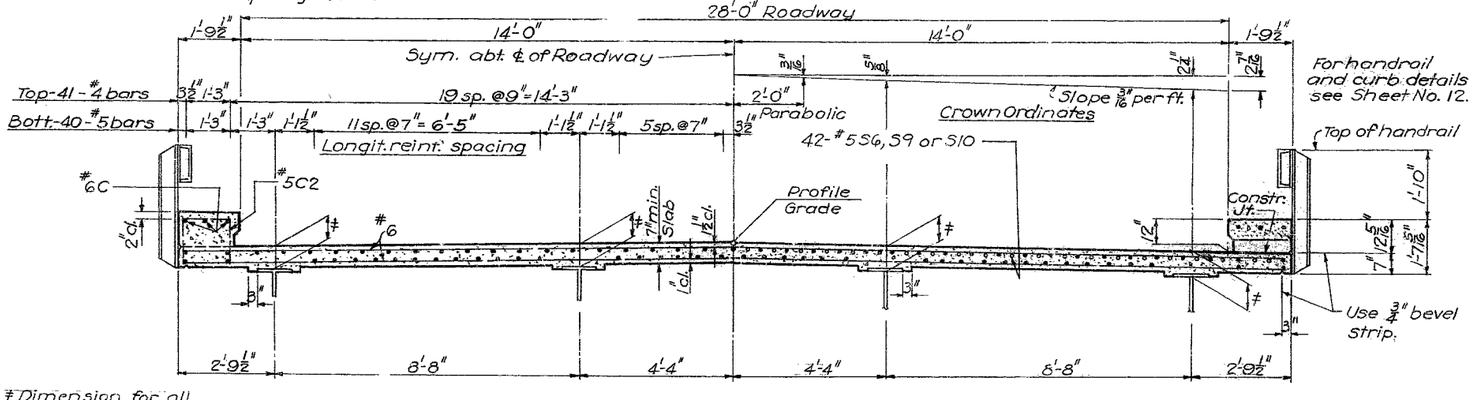
CONSTRUCTION JOINT

Curbs to be cast independently of slab. Slab to be constructed to a uniform thickness of not less than 7", or if desired, the bottom of the slab may be built on chords between top of haunches. Haunch slab to bear on end diaphragms.



TYPICAL HAUNCH





‡ Dimension for all Spans = 7" plus haunch shown in Slab Haunching Diagram.

WF BEAM SPANS

GIRDER SPANS

TYPICAL ROADWAY SECTION

Slab shall be built parallel to grade and to a minimum thickness of 7". Dead load deflection (including ‡ % due to weight of structural steel) shall be taken care of by haunching to the bottom of top flange of girder or to the top of WF beam by the dimensions shown. The additional concrete (flange, flange plates, splice plates, etc. excluded) is included in Estimated Quantities.

‡ 16% for beam spans.
20% for girder spans.

SLAB HAUNCHING DIAGRAM

BRIDGE OVER THOMPSON RIVER

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON
ABOUT .6 MILE S.W. OF TRENTON
PROJECT NO. RTE. 6-SEC. 40 (2) STA. 414 + (45) 95 △

GRUNDY COUNTY

Drawn April 1961 by JER
Checked July 1961 by G.H.K.

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

Sheet No. 11 of 12 △ Revised 4-5-62

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

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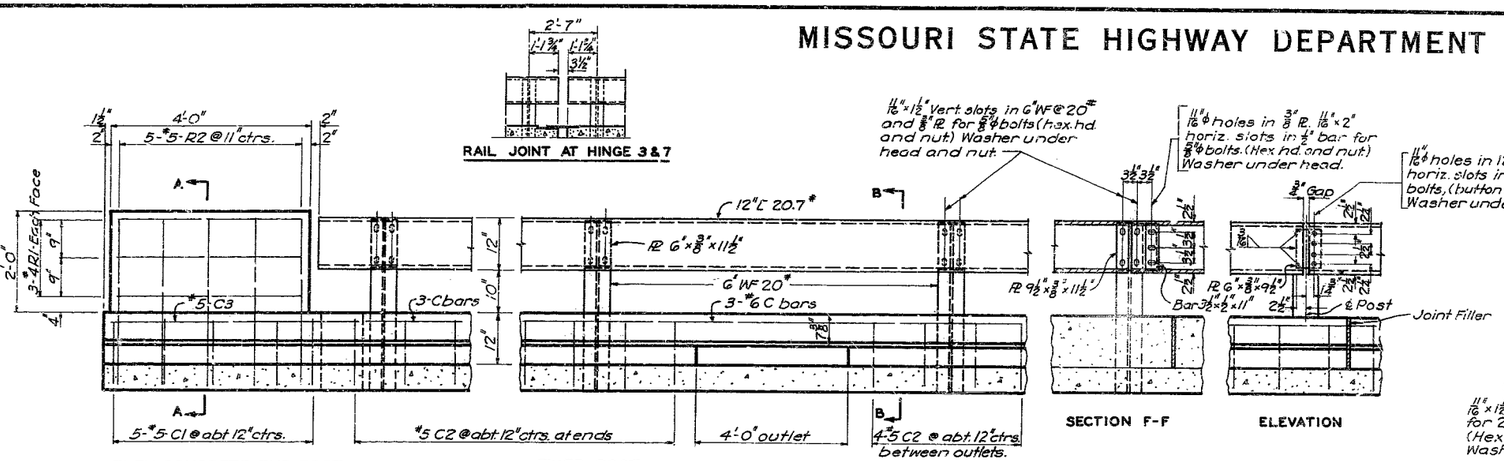
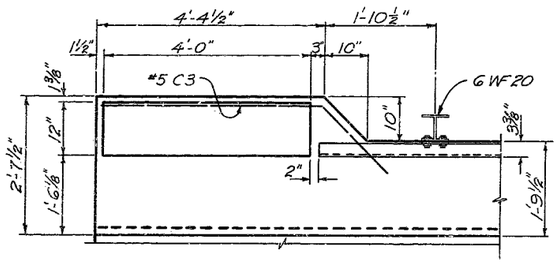
NO CONSTRUCTION CHANGES

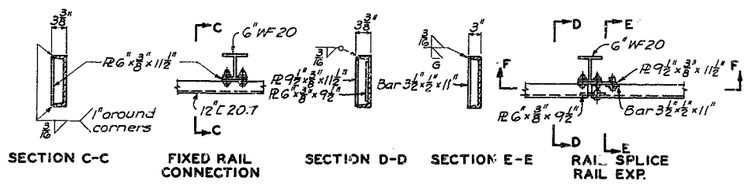
MISSOURI STATE HIGHWAY DEPARTMENT

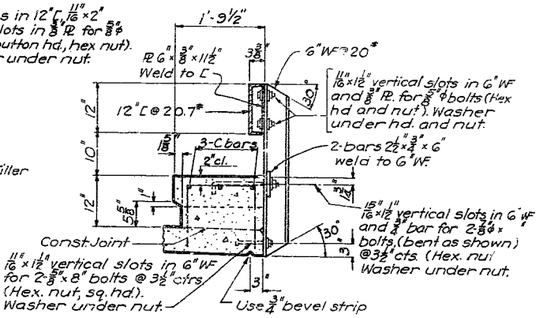
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	MO.		19 77		

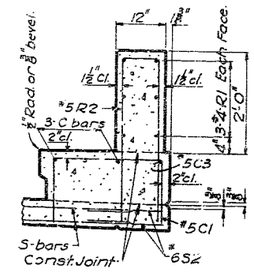


Note: Outlets to be centered between rail posts.

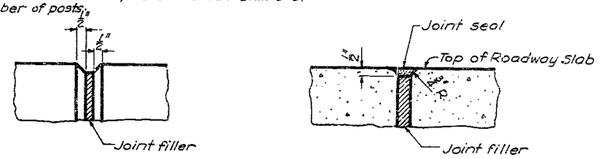






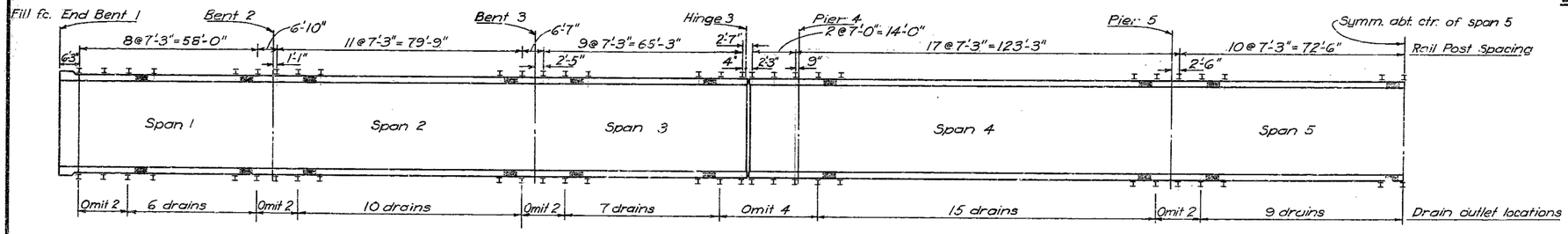


Note: Channel rail to be adjusted for horizontal alignment by use of full size metal shims placed between 6"WF and connection PL, shims of ⅛" and ¼" thickness to be furnished with structural steel. Cost of shims to be included in price bid for other items. Slot holes in shims same as in posts. Provide shims of each size ≈ ½ number of posts.



Note: Use bevel as shown for exposed faces of all filled joints except at top surface of roadway slab. Use edging tool with ¾" radius at top surface of roadway slab each side of joint and fill flush with joint seal as shown.

DETAILS OF BEVEL FOR FILLED JOINTS



HANDRAIL POST SPACING

Handrail post spacing and drain outlet locations are the same for each curb.

GENERAL NOTES:

Top of curbs and end posts to be built parallel to grade. Vertical faces of end posts to be vertical. All exposed edges of end posts to be beveled ¾". 6"WF posts to be set normal to grade.

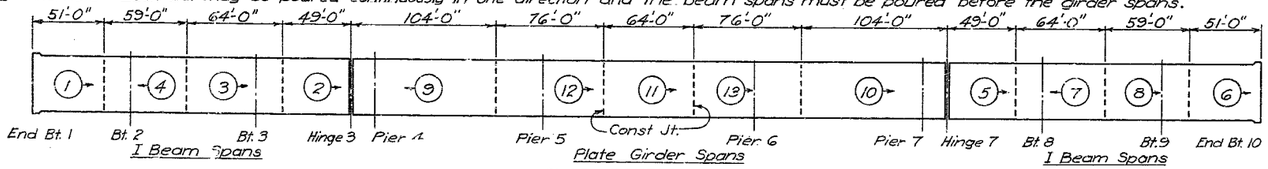
12"L rails shall be fabricated to conform to horizontal and vertical alignment of curb.

Material: AT Structural Steel.

Channel rail shall be fabricated in at least two or three panel lengths unless otherwise approved.

Longitudinal dimensions are horizontal at 60°F.

1/ Alternate Each unit may be poured continuously in one direction and the beam spans must be poured before the girder spans.



SLAB POURING SEQUENCE

Notes:

The slab shall be poured in sections of the lengths shown and in the sequence indicated by the numbers (1) thru (12) or, as an alternate by the number [1]. The separate pours shall progress in the direction indicated by the arrows. Longitudinal construction joints will not be permitted. The pouring sequence and the number of construction joints shown may be altered by the Engineer in order to obtain a more satisfactory surface finish. See Sec. 53.4.12 of the Standard Specifications.

Final adjustment of expansion device shall be made just prior to pouring abutting concrete. See Sh. No. 9 for expansion device details.

FINISHED

BRIDGE OVER THOMPSON RIVER

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON

ABOUT .6 MILE S.W. OF TRENTON

PROJECT NO. RTE 6-SEC. 40 (2) STA. 414 +45 95 △

GRUNDY COUNTY

FINISHED

FINISHED

FINISHED

Drawn April 1961 by H.G.J.

Checked July 1961 by G.H.K.

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

Sheet No. 12 of 12 △Revised 4-5-62

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

A-906

449

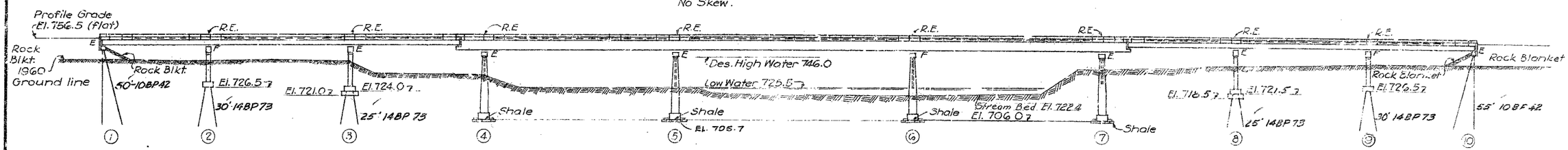
NO CONSTRUCTION CHANGES

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO	TOTAL SHEETS
5	MO.		19		

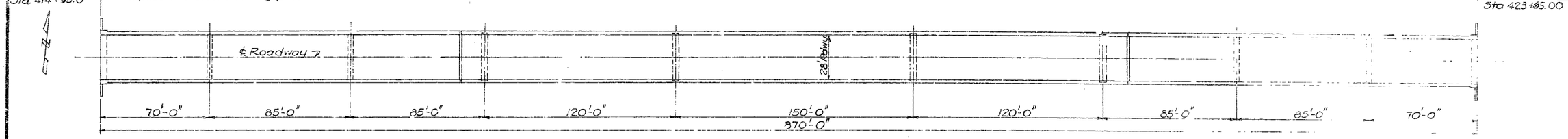
FINAL PLANS

Cont. I-beams - Cont. Welded R. Girders - Cont. I-beams.
(68-85-68)(17-120-150-120-17)(68-85-68)
All spans composite.
No Skew.

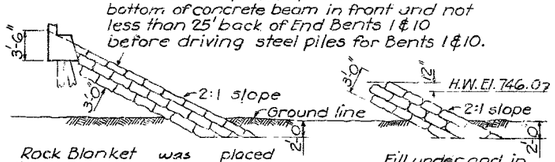


R.E. indicates Rail Expansion
All piles are steel bearing piles.

GENERAL ELEVATION



PLAN



Compacted roadway fill (full roadway width) was placed up to the elevation of bottom of concrete beam in front and not less than 25' back of End Bents 1 & 10 before driving steel piles for Bents 1 & 10.

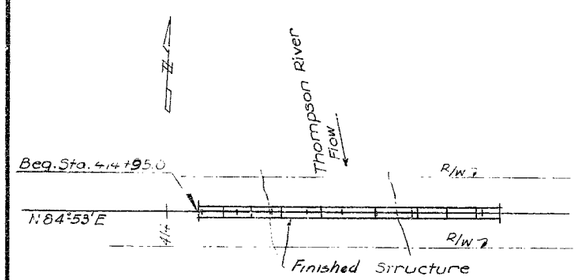
Rock Blanket was placed on fill at End Bents 1 & 10 as shown in sketches. See Road Plans for quantities

FRONT OF END BENTS

Fill under and in front of End Bents firmly tamped.

SIDE SLOPES OF FILLS

ROCK BLANKET



Drainage Area = 1670 Sq. Mi. (Rolling)

LOCATION SKETCH

FINAL QUANTITIES

Item		Substr.	Superstr.	Totals
Class 1 Excavation for Structures	Cu.Yds.	665.5		665.5
Class 2 Excavation for Structures	Cu.Yds.	989.0		989.0
Steel Piles in Place 10"	Lin.ft.	655		655
Steel Piles in Place 14"	Lin.ft.	705		705
Steel Pile Cut-offs 10"	Lin.ft.	80		80
Steel Pile Cut-offs 14"	Lin.ft.	175		175
Class B Concrete	Cu.Yds.	469.6		469.6
Class B1 Concrete	Cu.Yds.		715.8	715.8
Class B Concrete (Seal Course)	Cu.Yds.	38.0		38.0
Reinforcing Steel	Lbs.	66590	235,960	302,550
Fabricated Structural Carbon Steel (I-Beams)	Lbs.		346,780	346,780
Fabricated Structural Carbon Steel (Girders)	Lbs.		295,460	295,460
Fabricated Structural Low Alloy Steel (Girders)	Lbs.		103,780	103,780
Painting	Tons		367.8	367.8

Excavation for bridge made above El. 726.5 was paid for as Class 1 Excav. for Struc.
Excavation for bridge made below El. 726.5 was paid for as Class 2 Excav. for Structures.
No payment for excavation was allowed for End Bents 1 & 10.
Class B Concrete in Bents 1 & 10
Concrete in end posts was included with superstructure concrete.
Weight of shear connectors is included in weight of Fabricated Struct. Carbon Steel as noted below, but not included in painting.

All A7, A373 and A36 steels which are part of or attached to the beam spans (including handrail, expansion devices, shear connectors, and bearings on Bents 1, 2, 3, 8, 9, 10) were included for payment under Fabricated Struct. Carbon Steel (I-Beams).

All A7 and A373 steels which are part of or attached to the girder spans (including expansion devices, handrail on [illegible] shear connectors on all girder spans, and bearings on Piers 4, 5, 6, 7, Hinge 3 and Hinge 11 were included for payment under Fabricated Structural Carbon Steel (Girders).

All A441 steel in the girder spans was included for payment under Fabricated Structural Low Alloy Steel (Girders).

Test holes for foundation tests were drilled in footings of Piers 4, 5, 6 & 7. Pier 4, Rt. ftg. - 1@6', Lt. ftg. - 1@6', 2@8'; Pier 5, Rt. ftg. - 1@6.5', Lt. ftg. - 2@8'; Pier 6, Rt. ftg. - 1@8', 1@6'; Lt. ftg. - 1@6.5', 1@4'; Pier 7, Rt. ftg. - 1@7.5', 1@6.5'; Lt. ftg. - 1@8', 1@7'. Total 92 Lin. Ft.

NOTES:

See Sheet No. 2 for General Notes.

All piling were Steel Bearing Piles and splices if required were to conform to details on Sh. No. 4. Estimated Quantities shown are based on the following lengths: For End Bents (10BP42) 14 @ 50'. For Bents 2 & 9 (14BP73) 16 @ 30', Bents 3 & 8, 16 @ 25'. These indicated lengths are approximate only. Proper length to give required bearing and/or penetration was authorized by the Engineer.

All piles were driven to or into solid rock, cemented gravel, boulders or shale, or to not less than full length authorized and to sustain a load of at least 37 tons per pile for 10" and 64 tons per pile for 14" piles.

All piles were driven with a power hammer.

Footings of Piers 4, 5, 6 and 7 were carried at least 18" into and cast against vertical faces of firm undisturbed shale

Seal courses were necessary under footings of Bents 3 and 8 and were poured as provided for on plans

Bearing of 5.0 ton per sq. ft. used in design of footings for Piers 4-5 6 & 7 on shale

CONTINGENT ITEMS		
Item		Totals
Class 2 Exc. +50%	Cu.Yds.	18.0
Test Holes	Lin.Ft.	92

FINISHED

Bench Marks (U.S.G.S. Datum)
B.M. Elev. 752.21 - Top of Rt. wing Bent #1, 17' Rt. 414+95
B.M. Elev. 757.28 Top of Lt. wing Bent #10, 17' Lt. 423+65

BRIDGE OVER THOMPSON RIVER

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON
ABOUT .6 MILE S.W. OF TRENTON
PROJECT NO. RTE.6-SEC.40(2) STA. 414+95

GRUNDY COUNTY

FINISHED

SUBMITTED BY D.B. Jamison, BRIDGE ENGINEER, DATE 8/2/61
APPROVED BY J.J. Corbett, CHIEF ENGINEER, DATE 8/2/61

HARRINGTON AND CORTELYOU
CONSULTING ENGINEERS KANSAS CITY, MO.

STD. 54.00
A-906

Drawn April 1961 by JER
Checked July 1961 by GHK

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

Sheet No. 1A of 1

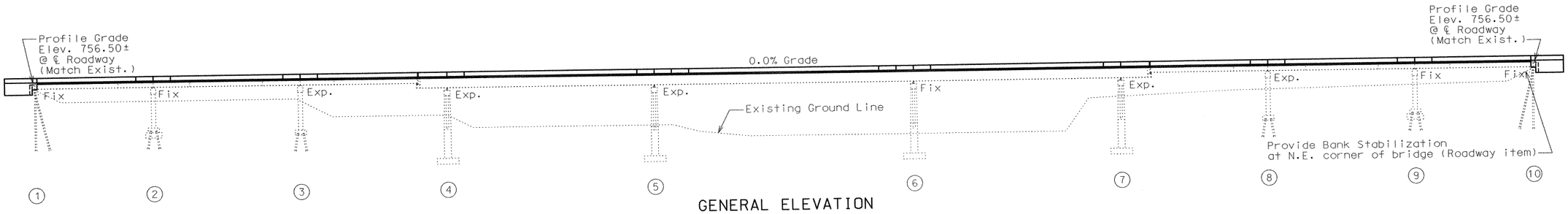
450

FINAL PLANS

State	Proj. No.	Sheet No.
MO		B25
SEC/SUR 19	TWP 61N	RGE 24W

MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

U.I.P. and Redeck Existing (68'-85'-68') Continuous Composite Wide Flange Beam Spans (17'-120'-150'-120'-17') Continuous Composite Plate Girder Spans (68'-85'-68') Continuous Composite Wide Flange Beam Spans



GENERAL ELEVATION

Estimated Quantities

Item		Substr.	Superstr.	Total
Class 1 Excavation	cu. yard	70		70
Removal and Storage of Existing Bridge Rails	linear foot		1,723	1,723
* Removal of Existing Bridge Decks	sq. foot		27,478	27,478
Partial Removal of Substructure Concrete	lump sum	1		1
Bridge Approach Slab (Bridge)	sq. yard		174	174
Slab on Steel	sq. yard		3,194	3,194
** Safety Barrier Curb	linear foot		1,804	1,804
Substructure Repair (Formed)	sq. foot	12		12
Expansion Device (Finger Plate)	linear foot		61	61
Rehabilitate Bearing	each		8	8
Existing Diaphragm Connections to Flange	lump sum		1	1
Slab Drain	each		166	166
Surface Preparation for Recoating Structural Steel	sq. foot		2,000	2,000
Surface Preparation for Overcoating Structural Steel	sq. foot		43,400	43,400
Field Application of Inorganic Zinc Primer	sq. foot		2,000	2,000
Intermediate Field Coat (System G)	sq. foot		1,900	1,900
Finish Field Coat (System G)	sq. foot		1,900	1,900
Calcium Sulfonate Rust Penetrating Sealer	lump sum		1	1
Calcium Sulfonate Primer	sq. foot		39,700	39,700
Calcium Sulfonate Topcoat	sq. foot		39,700	39,700
Non-Destructive Testing	linear foot		37	37
Vertical Drain at End Bents	each			2

* Includes removal and disposal of slab, curbs, end posts and expansion devices.

** Safety barrier curb shall be cast-in-place option or slip-form option.

Estimated Quantities for Slab on Steel

Item		Total
Class B-2 Concrete	cu. yard	684.9
Reinforcing Steel	pound	6,140
Reinforcing Steel (Epoxy Coated)	pound	279,580

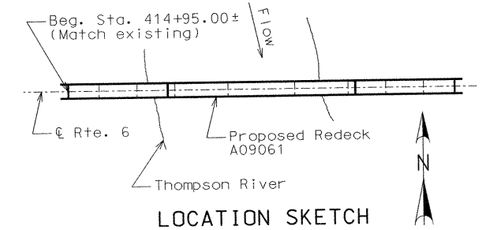
The table of Estimated Quantities for Slab on Steel represents the quantities used by the State in preparing the cost estimate for concrete slabs. The area of the concrete slab will be measured to the nearest square yard with the horizontal dimensions as shown on the plan of slab. Payment for conventional 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.

Slab shall be cast-in-place. Precast prestressed panels are not permitted.

All concrete in the end bents is included in the Estimated Quantities for Slab on Steel.

All reinforcement in the end bents is included in the Estimated Quantities for Slab on Steel.



LOCATION SKETCH

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

B.M. ELEV. 756.52 (NGVD 29 DATUM), 3-1/2" BRASS DISC IN TOP OF 10" CONCRETE POST, 30' EAST OF S.E. CORNER OF BRIDGE NO. A-906, STA. 423+95.00±

REPAIRS TO BRIDGE OVER THOMPSON RIVER

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON

ABOUT 8.0 MILES N.E. OF DAVIESS CO. LINE

PROJECT NO. STA. 414+95.00± (MATCH EXIST.)

JOB NO. J2P0691 RTE. 6

GRUNDY COUNTY

Date: 8/9/05

STD. 609.00
STD. 617.10
STD. 617.20
STD. 706.35
A09061

REV.

Designed Mar. 2005
Detailed Mar. 2005
Checked July 2005

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

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State	Proj. No.	Sheet No.
MO		B26

General Notes:

Design Specifications:

2002 - AASHTO 17th Edition
Load Factor Design
Seismic Performance Category A

Design Loading:

HS20-44 (Slab only)
15#/sq. ft. Future Wearing Surface
Earth - 120 #/Cu. Ft., Equivalent Fluid Pressure 45#/Cu. Ft.
Fatigue Stress - Case II

Design Unit Stresses:

Class B-1 Concrete (Safety Barrier Curb) f'c = 4,000 psi
Class B-2 Concrete (End Bents & Superstructure, except Safety Barrier Curb) f'c = 4,000 psi
Reinforcing Steel (Grade 60) fy = 60,000 psi
Structural Steel (ASTM A709 Grade 50) fy = 50,000 psi

Fabricated Steel Connections:

Field connections shall be made with 3/4" diameter high strength bolts and 13/16" diameter holes, except as noted.

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.

Structural Steel Protective Coatings (near Expansion Joints):

Protective Coating: System G in accordance with Sec 1081.

Surface Preparation: Surface preparation of the existing steel shall be in accordance with Sec 1081 for "Recoating of Structural Steel (System G or H)". The limits of surface preparation shall extend ten feet from each side of Expansion Device. The cost of surface preparation will be considered completely covered by the contract unit price per sq. foot for "Surface Preparation for Recoating Structural Steel".

Prime Coat: The cost of the prime coat will be considered completely covered by the contract unit price per sq. foot for the "Field Application of Inorganic Zinc Primer". Tint of the prime coat for System G shall be similar to the color of the field coat to be used.

Field Coat: The color of the finish field coat shall be Gray (Federal Standard #26373). The cost of the intermediate field coat will be considered completely covered by the contract unit price per sq. foot for "Intermediate Field Coat (System G)". The cost of the finish field coat will be considered completely covered by the contract unit price per sq. foot for "Finish Field Coat (System G).

Sec 1081.4.5 shall be modified such that the word "RECOATED" is replgced by the words "RECOATED - SYSTEM G - EXPANSION AREAS ONLY". Identification in accordance with Sec 1081.5.5 shall also be perfomed.

The surfaces of all existing structural steel located under expansion joints shall be coated with complete System G within a distance of 1-1/2 times the girder depth, but not less than 10 feet, from the centerline of all deck joints. Within this limit, items to be coated shall include all surfaces of stringers, girders, diaphragms, stiffeners, bearings and miscellaneous structural steel items.

It shall be required that the Calcium Sulfonate System overlap the System G Epoxy Intermediate Field Coating between 6 inches and 12 inches in order to achieve maximum coverage at the paint limit of each complete system near the expansion areas. The Final Field Coatings shall be masked to provide crisp, straight lines and to prevent overspray beyond the overlap required (see detail on this sheet).

Structural Steel Protective Coatings (all other areas):

Protective Coating: Calcium Sulfonate System in accordance with Sec 1081.

Surface Preparation: Surface preparation of the existing steel shall be in accordance with Sec 1081 for "Overcoating of Structural Steel (Calcium Sulfonate System)". The cost of surface preparation will be considered completely covered by the contract unit price per sq. foot for "Surface Preparation for Overcoating Structural Steel".

Rust Penetrating Sealer: The rust penetrating sealer shall be applied to the surfaces of all bearings, overlapping steel plates, pin connections, pin and hanger connections and other locations where rust bleeding, pack rust and layered rust is occurring. The cost of the rust penetrating sealer will be considered completely covered by the contract lump sum price for "Calcium Sulfonate Rust Penetrating Sealer".

General Notes (Cont.):

Structural Steel Protective Coatings (all other areas)(Cont.):

Prime Coat: The cost of the prime coat will be considered completely covered by the contract unit price per sq. foot for "Calcium Sulfonate Primer".

Topcoat: The color of the topcoat shall be Gray (Federal Standard #26373). The cost of the topcoat will be considered completely covered by the contract unit price per sq. foot for "Calcium Sulfonate Topcoat".

Miscellaneous:

"Sec" refers to the sections in the standard and supplemental specifications unless specified otherwise.

High strength bolts, nuts and washers will be sampled for quality assurance as specified in Sec 106 and Field Section (FS-712) from Materials Manual.

Outline of old work is indicated by dashed lines. Heavy lines indicate new work.

Contractor shall verify all dimensions in field before ordering new material.

Bars bonded in old concrete not removed shall be cleanly stripped and embedded into new concrete where possible. If length is available, old bars shall extend into new concrete at least 40 diameters for smooth bars and 30 diameters for deformed bars, unless otherwise noted.

Roadway surfacing adjacent to bridge ends shall match new bridge approach slab surface (Roadway Item).

The existing bridge rails and posts shall be stored at a location as designated by the engineer on the MoDOT Maintenance Lot at 230 E. Hwy. 6, Trenton, MO 64683.

Maintain USGS Stream gauge during construction.

Resin Anchors:

The contractor shall use one of the qualified resin anchor systems in accordance with Sec 1039.

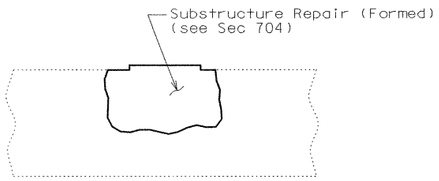
Cost of furnishing and installing the resin anchor system complete-in-place will be considered completely covered by the contract unit price for Slab on Steel.

The 3/4" diameter resin anchor systems shall have a minimum ultimate pullout strength of 20,400 lbs. in concrete with f'c = 4,000 psi.

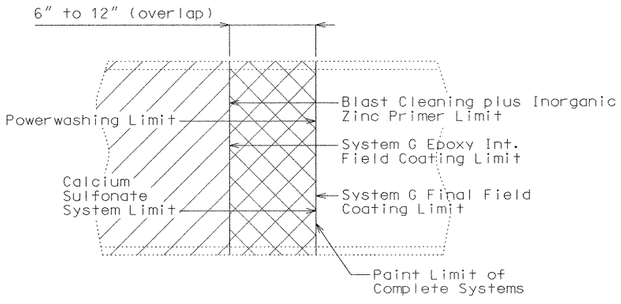
A #6 Grade 60 reinforcing bar 31" long shall be substituted for the 3/4" Ø threaded rod.

Traffic Handling:

Maintain one lane of traffic during construction per the staging details shown on sheet no. 3 (see Roadway Traffic Control Plans).



PART ELEVATION OF END BENT NO. 10
SHOWING SUBSTRUCTURE REPAIR



PART ELEVATION SHOWING LIMITS OF PAINT OVERLAP
(Vertical or horizontal paint limit. Horizontal limit shown)

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-29985
REGISTERED PROFESSIONAL ENGINEER
DATE 8-4-05

Detailed Mar. 2005
Checked July 2005

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

GRUNDY COUNTY A09061 REV.

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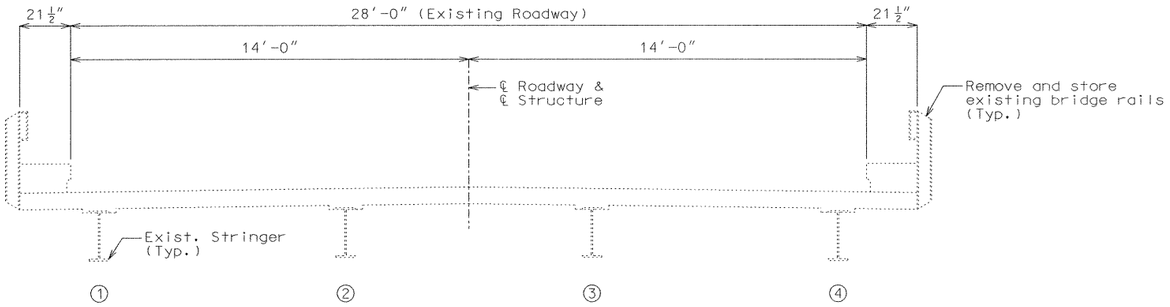
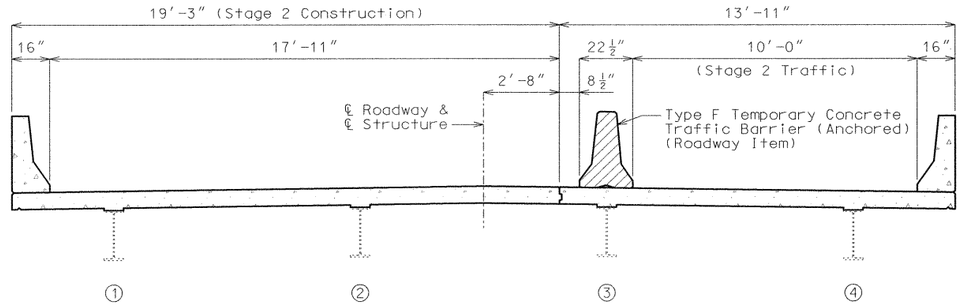
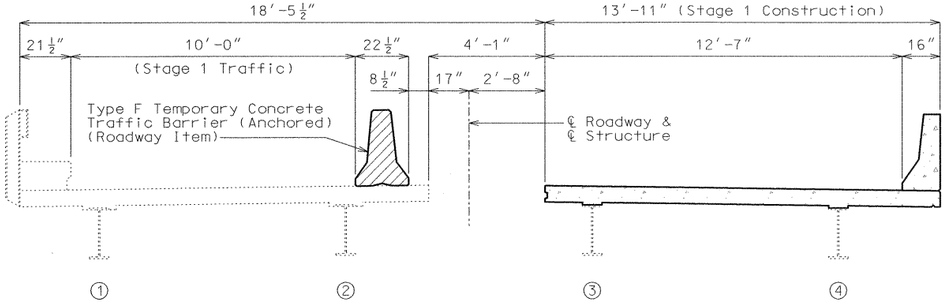
State	Proj. No.	Sheet No.
MO		827



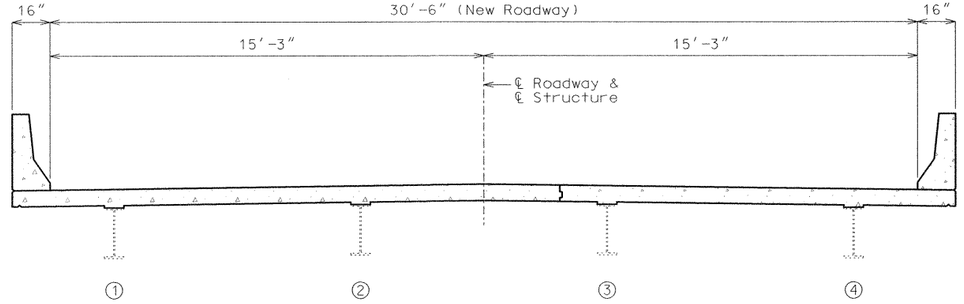
SECTION THRU EXISTING SLAB



STAGE 2 CONSTRUCTION



STAGE 1 CONSTRUCTION



FINAL CONSTRUCTION

Note: Method of attachment for the Type F Temporary Barrier shall be bolt through deck during Stage 1 Construction and the tie-down strap during Stage 2 Construction.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28885
REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

DETAILS OF STAGED CONSTRUCTION

Detailed Mar. 2005
Checked July 2005

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

GRUNDY COUNTY A09061

REV.

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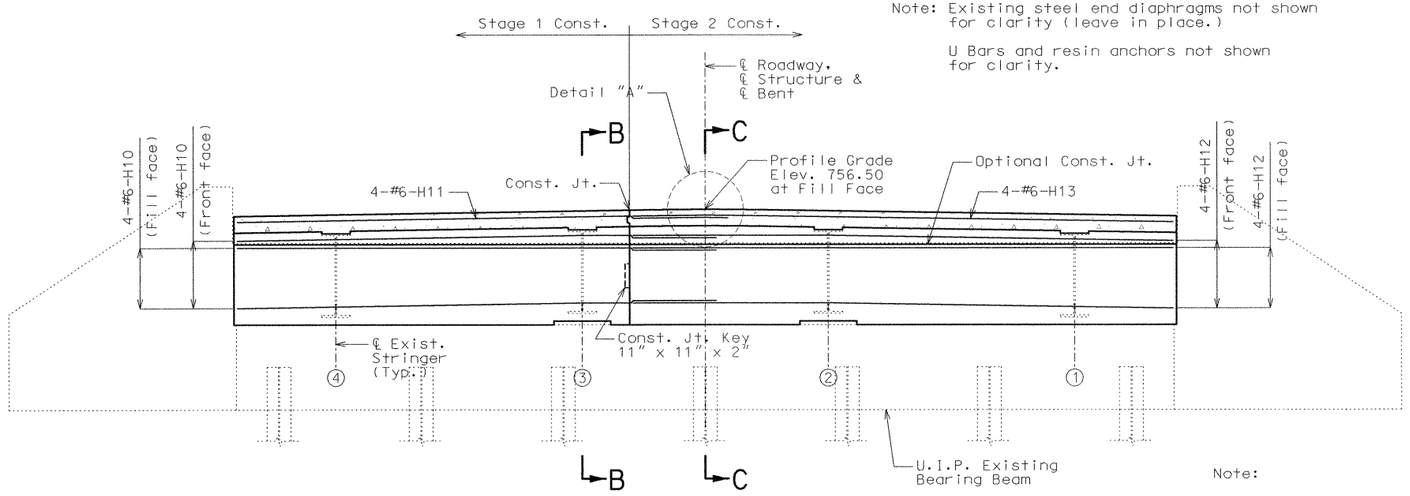
State	Proj. No.	Sheet No.
MO		B28



SECTION NEAR END BENT

Note: Existing steel end diaphragms not shown for clarity (leave in place.)

U Bars and resin anchors not shown for clarity.

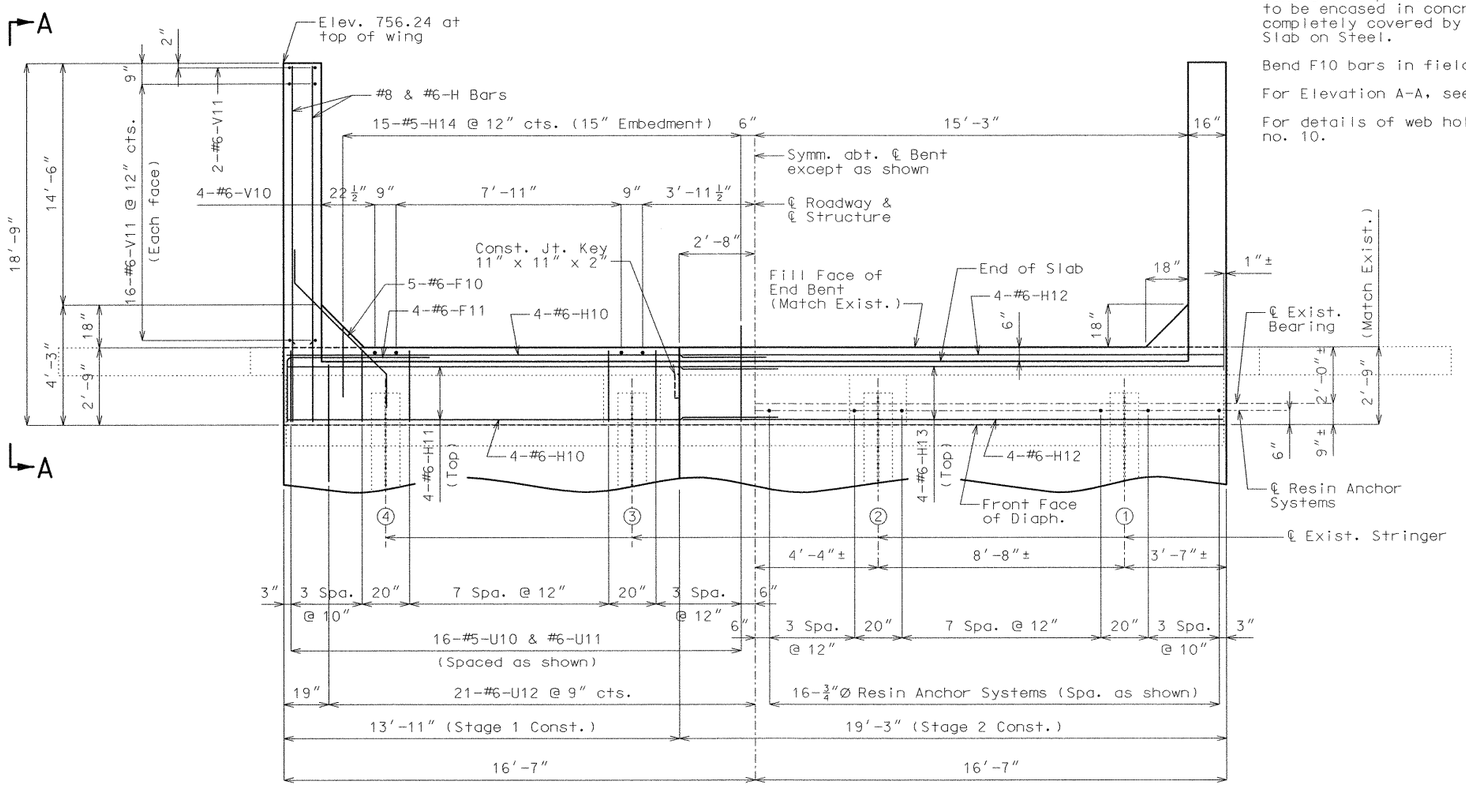
Note:

The exposed and accessible surfaces of the existing structural steel and bearings that will be encased in concrete shall be cleaned with a minimum of SSPC-SP-2 surface preparation before concrete is poured. Payment for cleaning steel to be encased in concrete will be considered completely covered by the contract unit price for Slab on Steel.

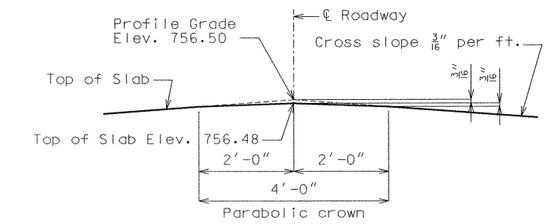
Bend F10 bars in field to clear stringers.

For Elevation A-A, see sheet no. 5.

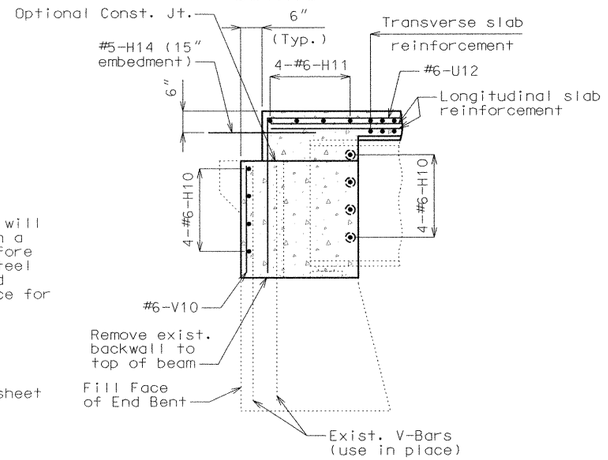
For details of web holes at End Bents, see sheet no. 10.



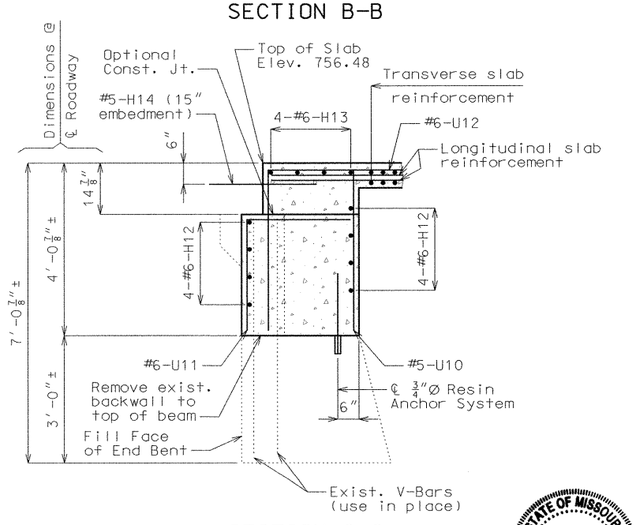
PART PLAN



DETAIL "A"



SECTION B-B



SECTION C-C

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

DETAILS OF END BENT NO. 1

Detailed Mar. 2005
Checked July 2005

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

Sheet No. 4 of 28

GRUNDY COUNTY A09061

REV.

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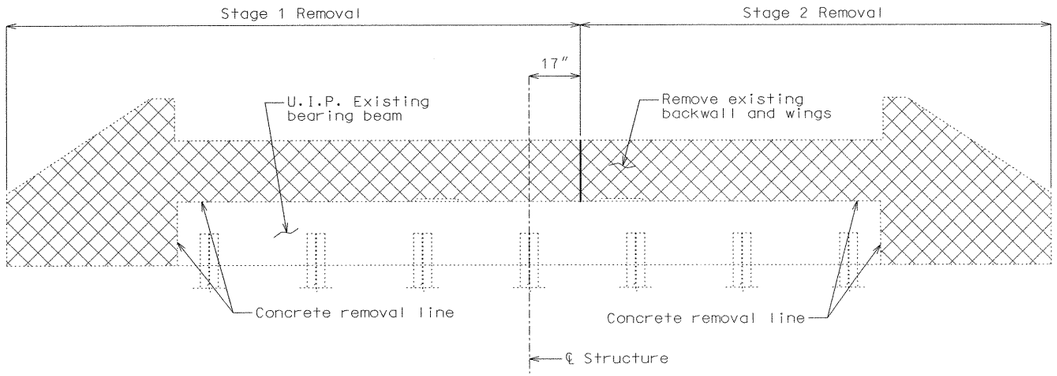
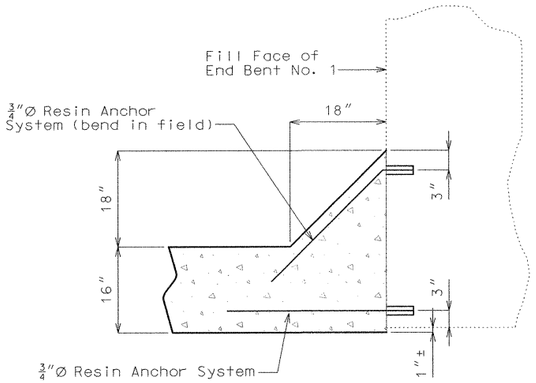
State	Proj. No.	Sheet No.
MO		B29



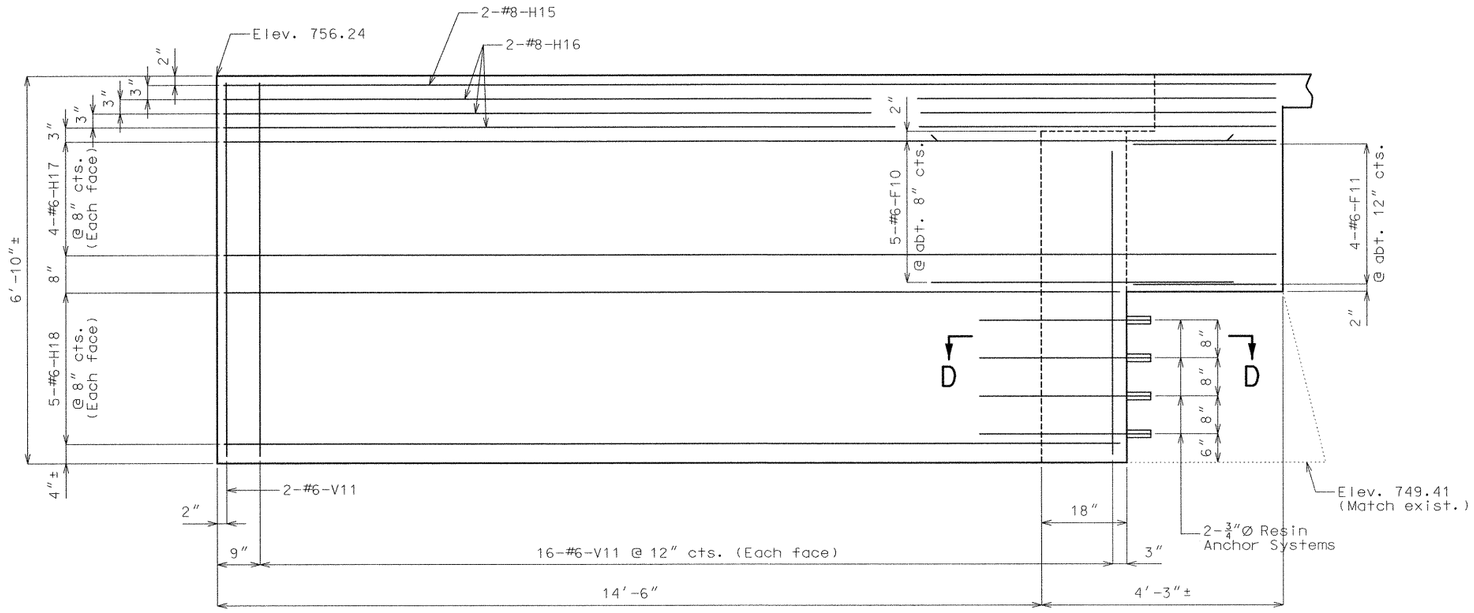
DETAILS OF CONCRETE REMOVAL @ END BENT NO. 1

Note: The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved bituminous paint in accordance with Sec 704.

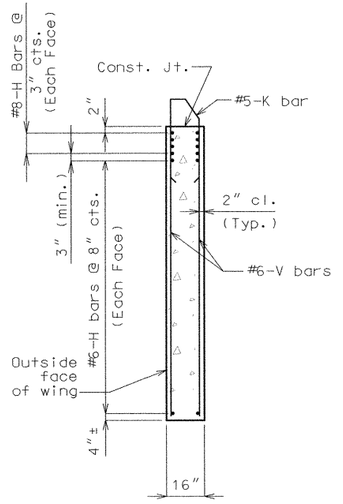
The cost of concrete removal shown above will be considered completely covered by the contract lump sum price for Partial Removal of Substructure Concrete.



SECTION D-D



ELEVATION A-A



TYPICAL SECTION THRU WING

Note: For location of Elevation A-A, see sheet no. 4.

DETAILS OF END BENT NO. 1

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

Detailed Mar. 2005
Checked July 2005

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

Sheet No. 5 of 28

GRUNDY COUNTY A09061

REV.

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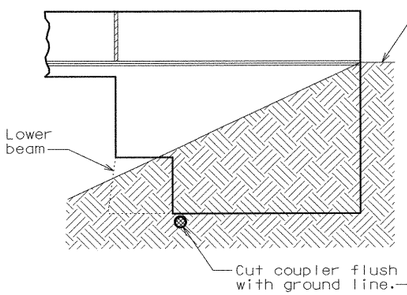
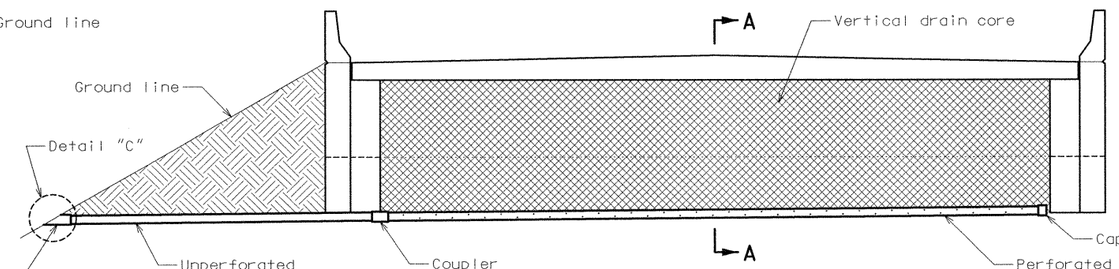
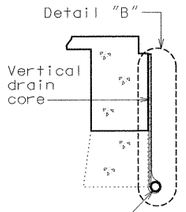
State	Proj. No.	Sheet No.
MO		B30



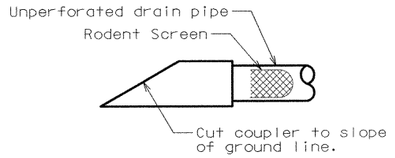
ELEVATION OF WING



ELEVATION AT END BENT



SECTION A-A

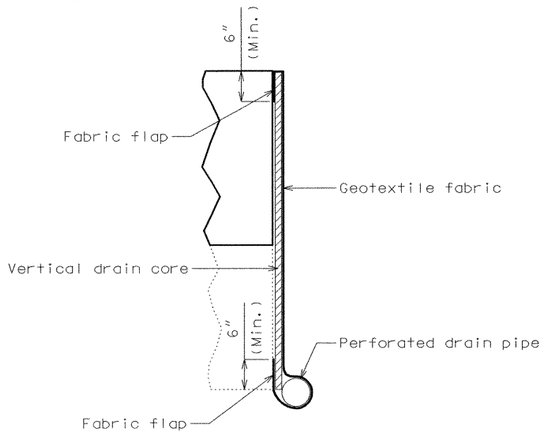


DETAIL "C"

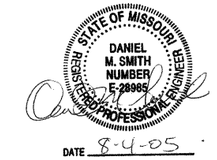
Note:
Drain pipe may be either 6" diameter corrugated metallic-coated steel pipe underdrain, 4" diameter corrugated polyvinyl chloride (PVC) drain pipe, or 4" diameter corrugated polyethylene (PE) drain pipe.

Place drain pipe at fill face of end bent and slope to lowest grade of ground line, also missing the lower beam of end bent by 1-1/2". (See elevation at end bent.)

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.



DETAIL "B"



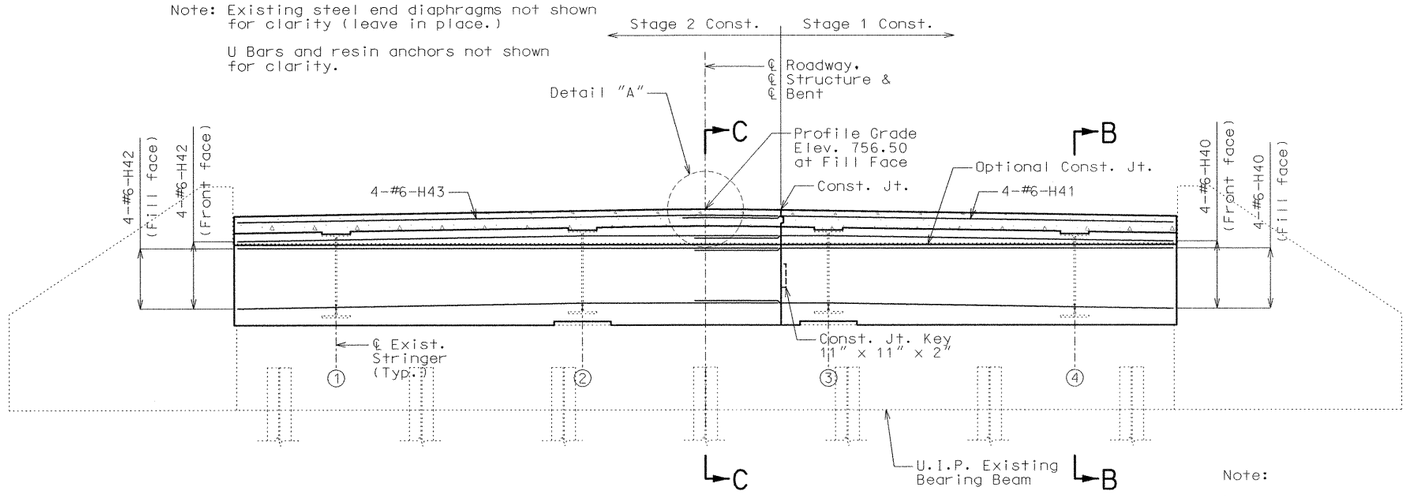
DATE 8-4-05

VERTICAL DRAIN AT END BENTS

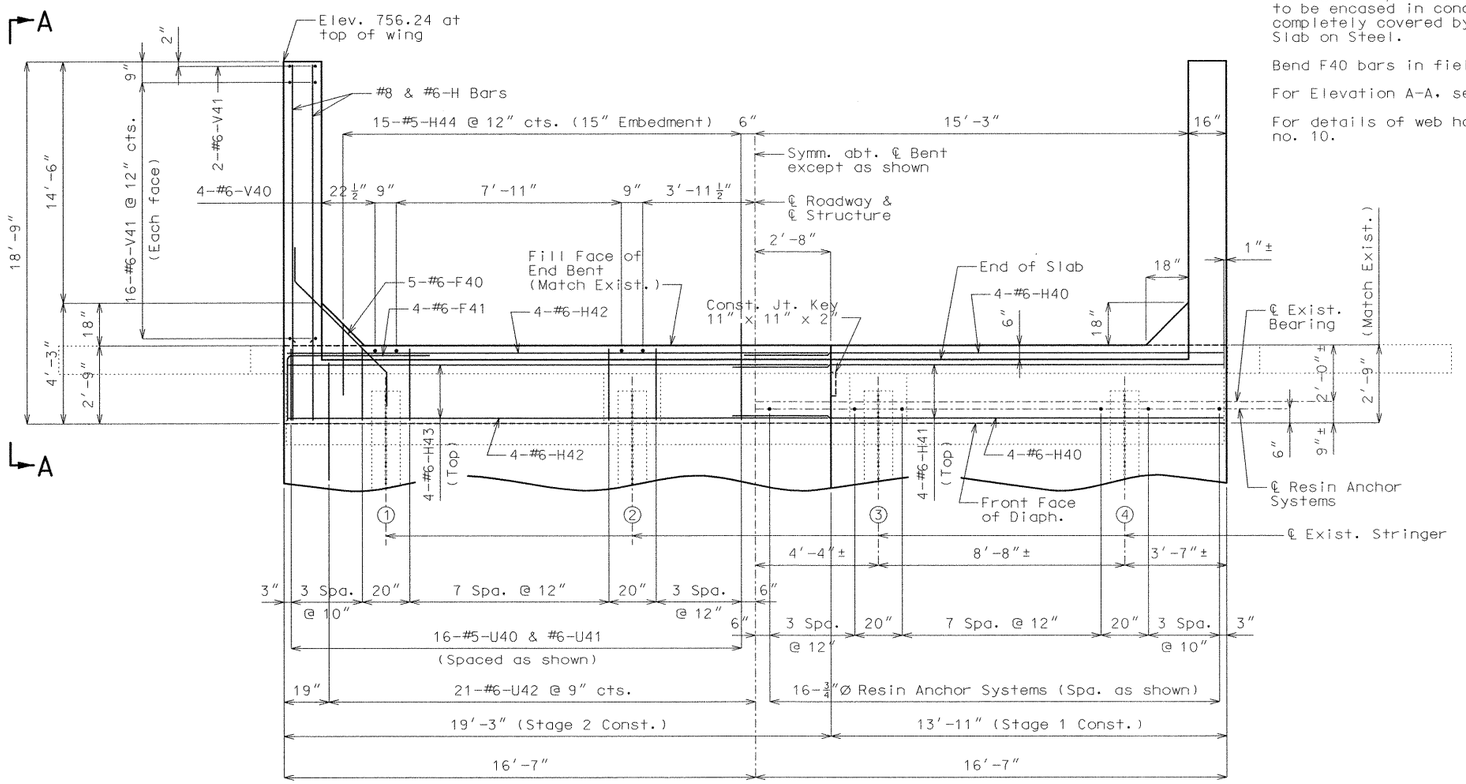
State	Proj. No.	Sheet No.
MO		B31

Note: Existing steel end diaphragms not shown for clarity (leave in place.)

U Bars and resin anchors not shown for clarity.



SECTION NEAR END BENT



PART PLAN

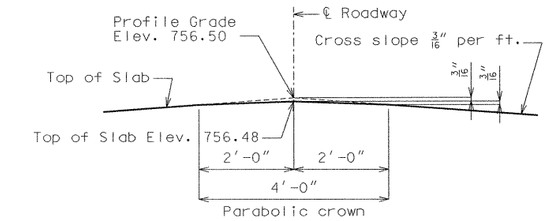
Note:

The exposed and accessible surfaces of the existing structural steel and bearings that will be encased in concrete shall be cleaned with a minimum of SSPC-SP-2 surface preparation before concrete is poured. Payment for cleaning steel to be encased in concrete will be considered completely covered by the contract unit price for Slab on Steel.

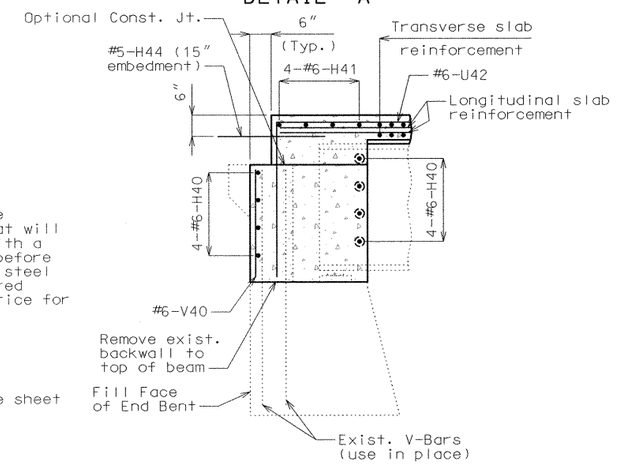
Bend F40 bars in field to clear stringers.

For Elevation A-A, see sheet no. 8.

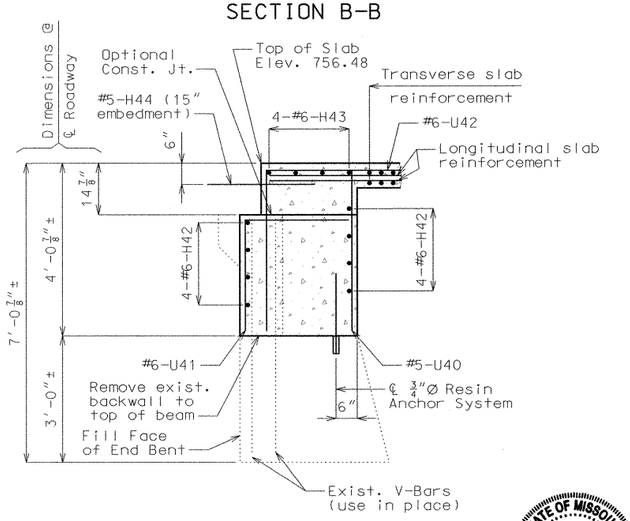
For details of web holes at End Bents, see sheet no. 10.



DETAIL "A"



SECTION B-B



SECTION C-C

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

DETAILS OF END BENT NO. 10

Detailed Mar. 2005
Checked July 2005

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

GRUNDY COUNTY A09061

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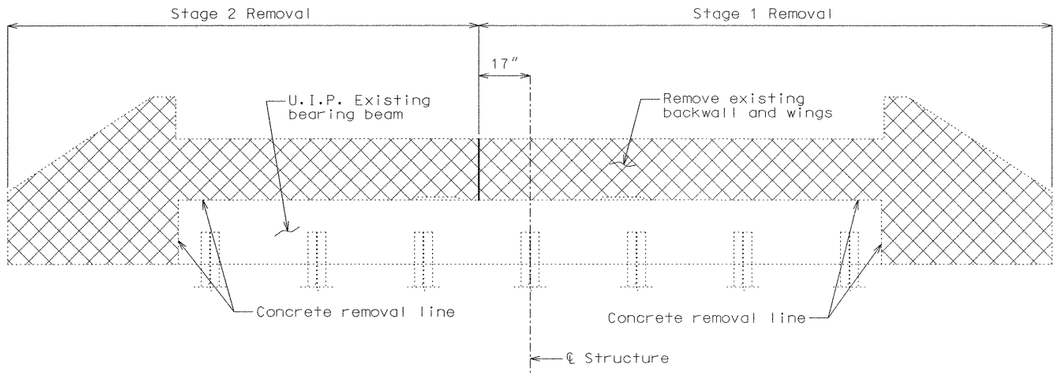
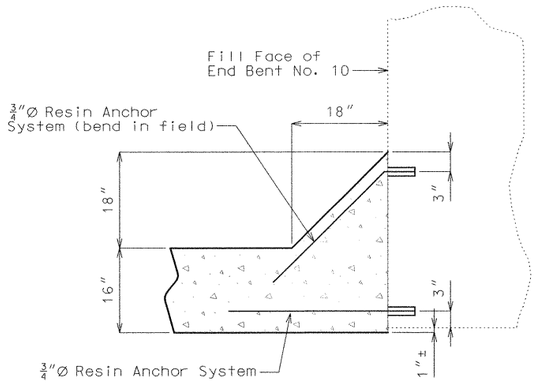
State	Proj. No.	Sheet No.
MO		B32



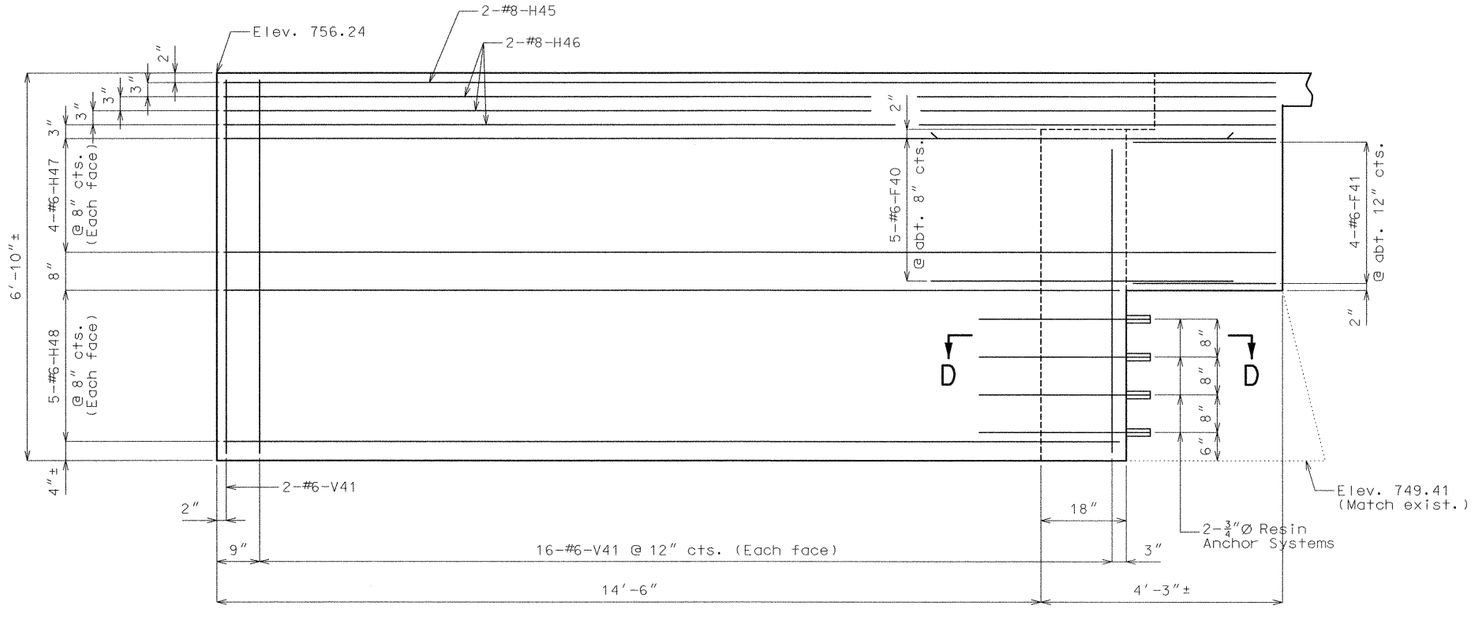
DETAILS OF CONCRETE REMOVAL @ END BENT NO. 10

Note: The area exposed by the removal of concrete and not covered with new concrete shall be coated with an approved bituminous paint in accordance with Sec 704.

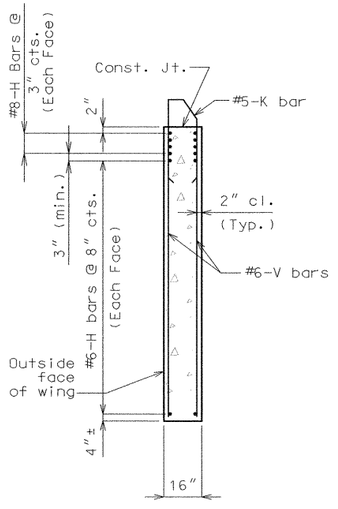
The cost of concrete removal shown above will be considered completely covered by the contract lump sum price for Partial Removal of Substructure Concrete.



SECTION D-D



ELEVATION A-A



TYPICAL SECTION THRU WING

Note: For location of Elevation A-A, see sheet no. 7.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

DETAILS OF END BENT NO. 10

Detailed Mar. 2005
Checked July 2005

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

GRUNDY COUNTY A09061

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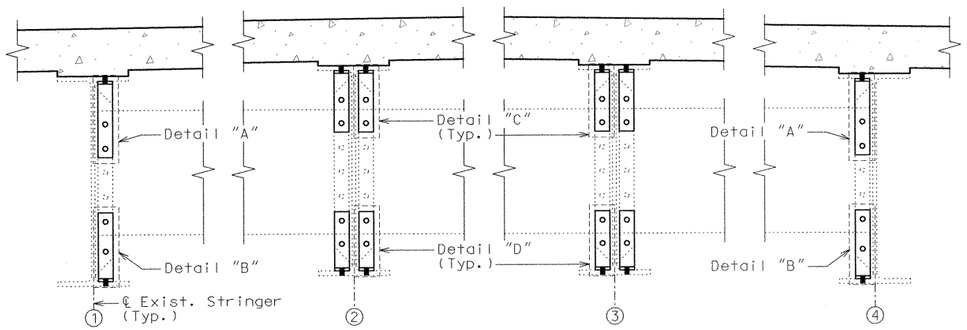
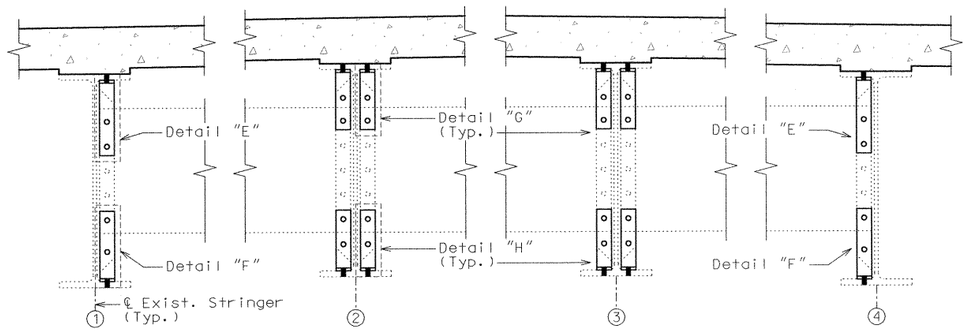
State	Proj. No.	Sheet No.
MO		B33



PART SECTIONS SHOWING EXISTING INTERMEDIATE DIAPHRAGMS FOR W36 X 135 STRINGERS



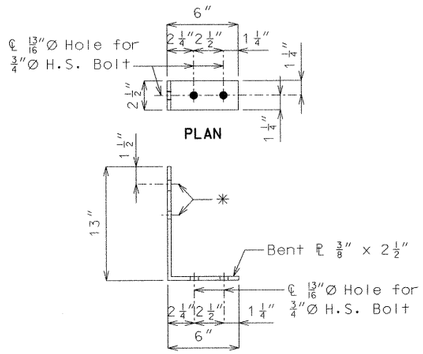
PART SECTIONS SHOWING EXISTING INTERMEDIATE DIAPHRAGMS FOR W36 X 160 STRINGERS

Note: The two ¾" Ø H.S. bolts that connect the ⅜" bent ℄ to the top flange shall be placed so the nut is on the inside of the flange toward the web.

Fabricated structural steel for ⅜" bent plates shall be ASTM A709 Grade 50.

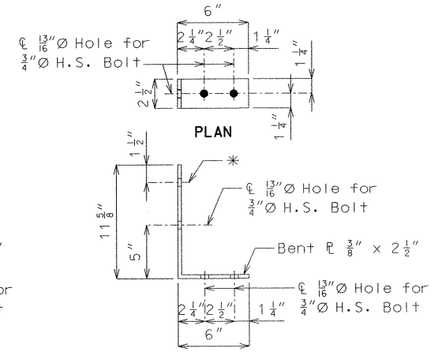
The cost of fabricating and installing connections of existing diaphragms to flanges will be considered completely covered by the contract lump sum price for Existing Diaphragm Connections to Flange.

Remove existing shear connectors as necessary to facilitate installation of ⅜" bent plates to top flanges. Cost of removing existing shear connectors will be considered incidental to other pay items.



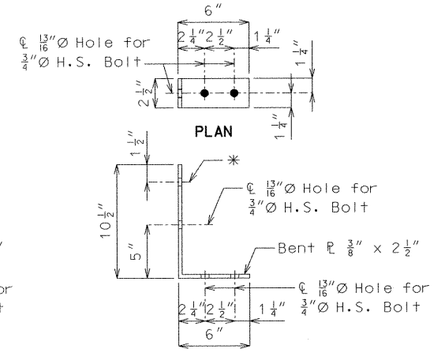
DETAIL "A"

Note: Field verify plate length before ordering new steel.



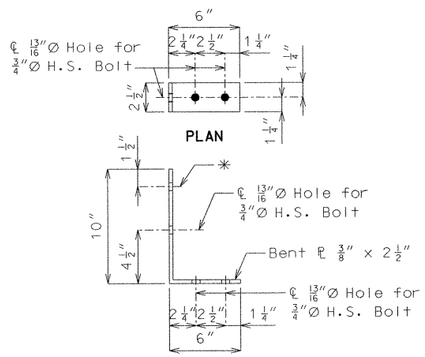
DETAIL "B"

Note: Field verify plate length before ordering new steel.



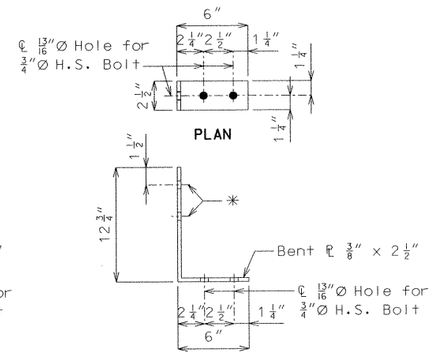
DETAIL "C"

Note: Field verify plate length before ordering new steel.



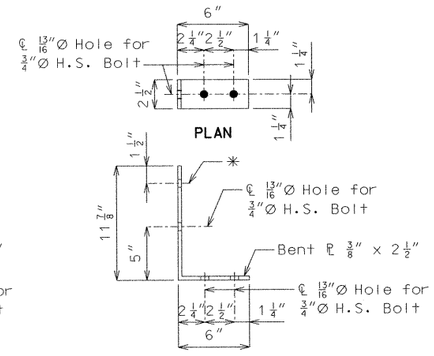
DETAIL "D"

Note: Field verify plate length before ordering new steel.



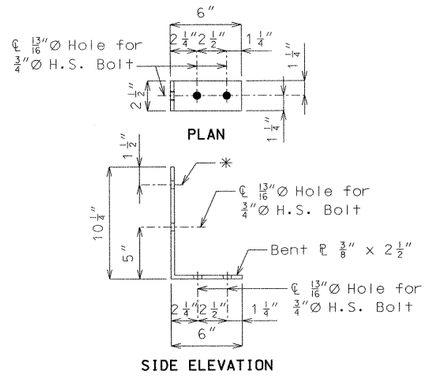
DETAIL "E"

Note: Field verify plate length before ordering new steel.



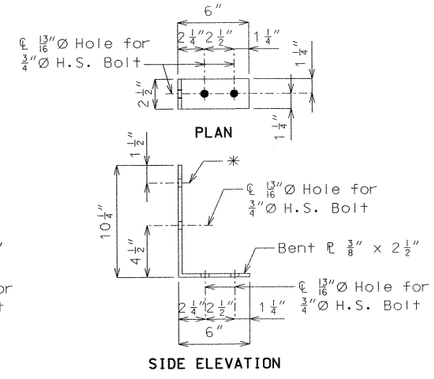
DETAIL "F"

Note: Field verify plate length before ordering new steel.



DETAIL "G"

Note: Field verify plate length before ordering new steel.



DETAIL "H"

Note: Field verify plate length before ordering new steel.

* Field drill 13/16"Ø hole for ¾"Ø H.S. bolt thru Bent ℄ to match hole in existing int. diaph.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER
DATE 8-4-05

DETAILS OF REPAIRS IN WIDE FLANGE BEAM SPANS

Detailed Mar. 2005
Checked July 2005

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

GRUNDY COUNTY A09061

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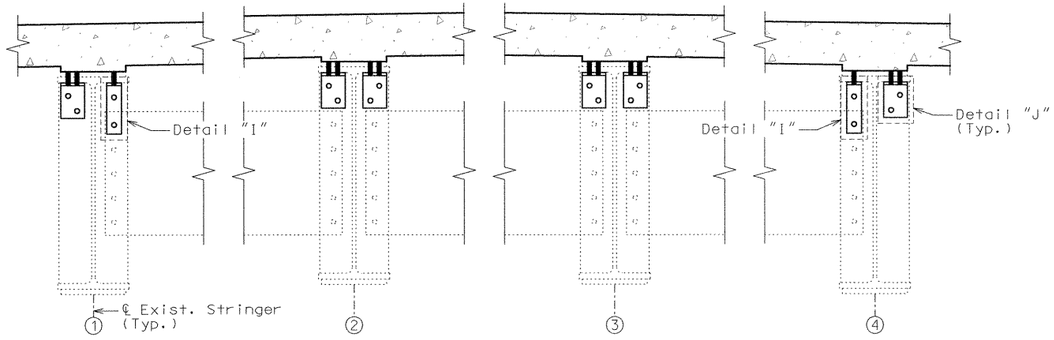
State	Proj. No.	Sheet No.
MO		B34



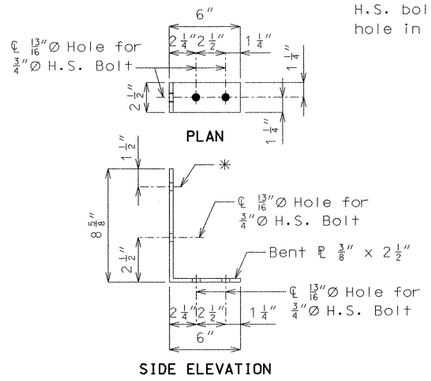
PART SECTIONS SHOWING EXISTING CROSS FRAMES FOR W36 X 160 STRINGERS AT INTERMEDIATE BENTS

Note: The two $\frac{3}{4}$" Ø H.S. bolts that connect the $\frac{3}{8}$" bent ℄ or ∠ 6 x 6 x $\frac{3}{8}$ to the top flange shall be placed so the nut is on the inside of the flange toward the web.

Fabricated structural steel for $\frac{3}{8}$" bent plates and ∠ 6 x 6 x $\frac{3}{8}$ shall be ASTM A709 Grade 50.

The cost of fabricating and installing connections of existing diaphragms to flanges will be considered completely covered by the contract lump sum price for Existing Diaphragm Connections to Flange.

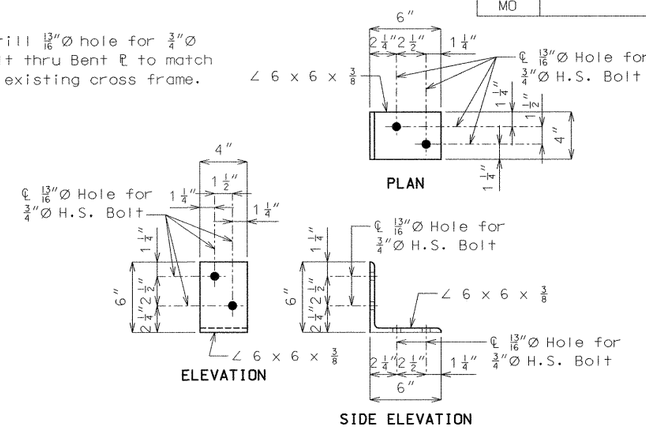
Remove existing shear connectors as necessary to facilitate installation of $\frac{3}{8}$" bent plates or ∠ 6 x 6 x $\frac{3}{8}$ to top flanges. Cost of removing existing shear connectors will be considered incidental to other pay items.



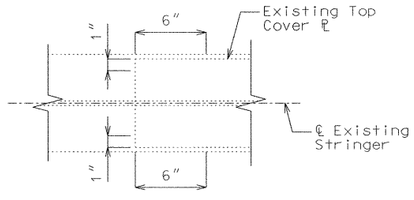
* Field drill $\frac{13}{16}$"Ø hole for $\frac{3}{4}$"Ø H.S. bolt thru Bent ℄ to match hole in existing cross frame.

DETAIL "I"

Note: Field verify plate length before ordering new steel.

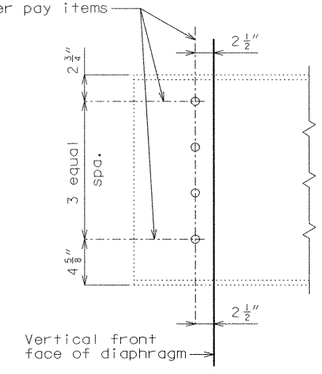


DETAIL "J"

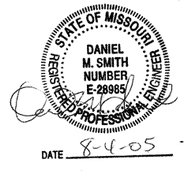


DETAIL SHOWING LIMITS OF NON-DESTRUCTIVE TESTING ON EXISTING TOP COVER ℄'S AT INT. BENTS

℄ $1\frac{1}{16}$"Ø holes in each stringer. Cost of field drilling holes in existing webs will be considered incidental to other pay items



DETAIL OF WEB HOLES AT END BENTS



DETAILS OF REPAIRS IN WIDE FLANGE BEAM SPANS

Detailed Mar. 2005
Checked July 2005

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

Sheet No. 10 of 28

GRUNDY COUNTY A09061 REV.

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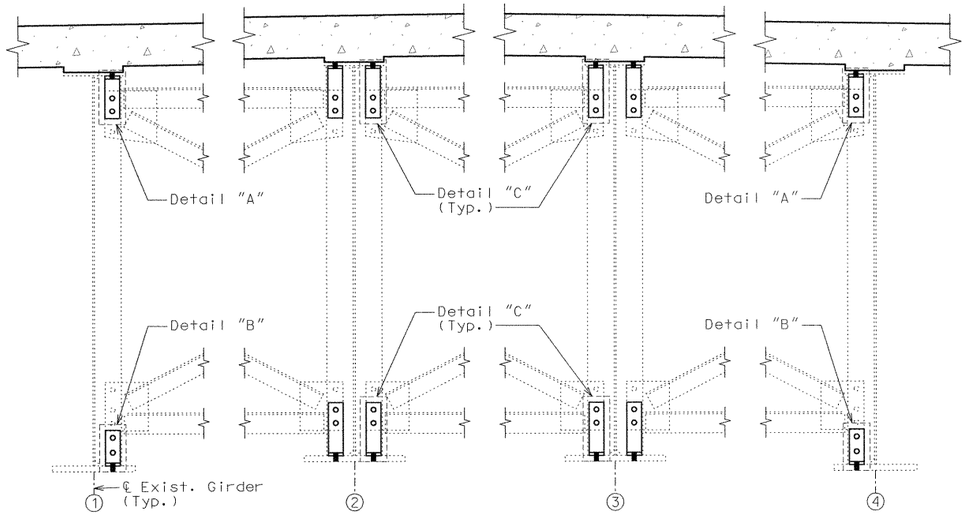
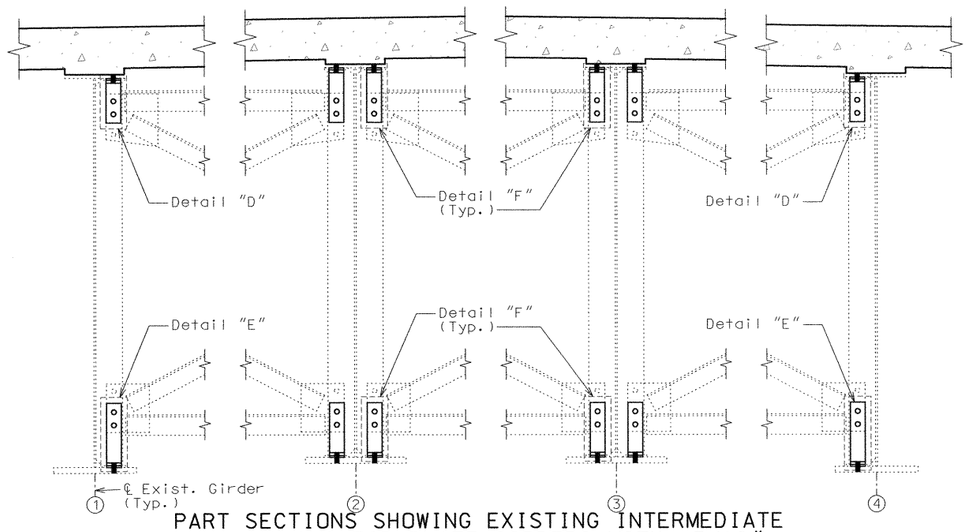
State	Proj. No.	Sheet No.
MO		B35



PART SECTIONS SHOWING EXISTING INTERMEDIATE DIAPHRAGMS FOR PLATE GIRDERS



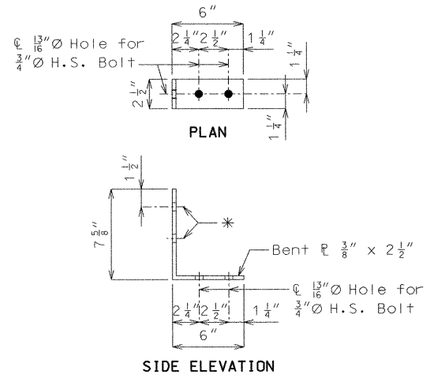
PART SECTIONS SHOWING EXISTING INTERMEDIATE DIAPHRAGMS FOR PLATE GIRDERS WITH 5/16" AUXILIARY PLATE WELDED TO DIAPHRAGM CONNECTION PLATE AND GIRDER FLANGES

Note: The two $\frac{3}{4}$" Ø H.S. bolts that connect the $\frac{3}{8}$" bent ℄ to the top flange shall be placed so the nut is on the inside of the flange toward the web.

Fabricated structural steel for $\frac{3}{8}$" bent plates shall be ASTM A709 Grade 50.

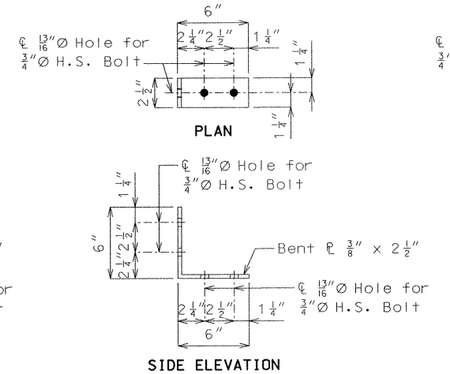
The cost of fabricating and installing connections of existing diaphragms to flanges will be considered completely covered by the contract lump sum price for Existing Diaphragm Connections to Flange.

Remove existing shear connectors as necessary to facilitate installation of $\frac{3}{8}$" bent plates to top flanges. Cost of removing existing shear connectors will be considered incidental to other pay items.



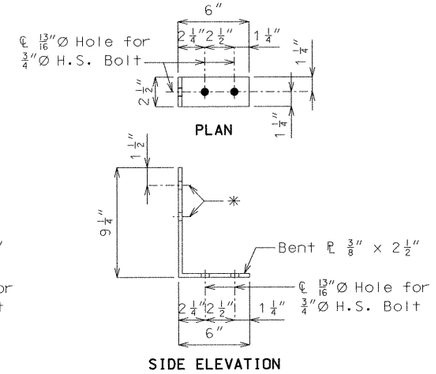
DETAIL "A"

Note: Field verify plate length before ordering new steel.



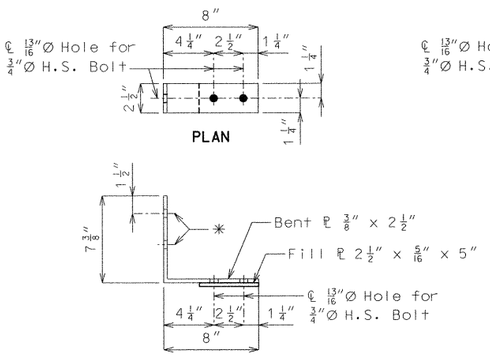
DETAIL "B"

Note: Field verify plate length before ordering new steel.



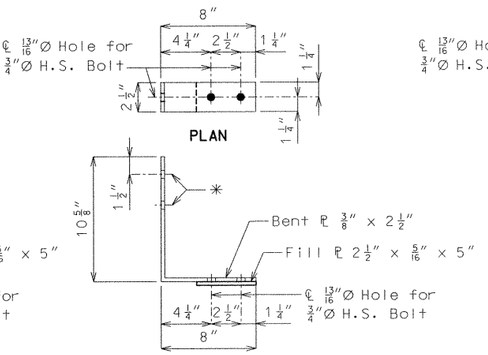
DETAIL "C"

Note: Field verify plate length before ordering new steel.



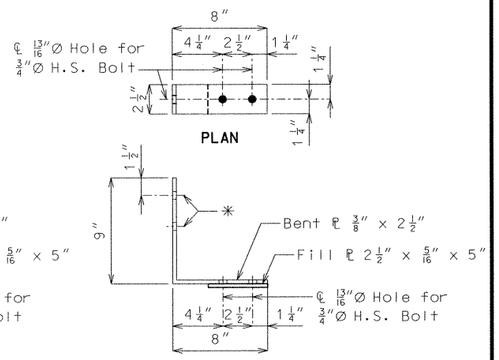
DETAIL "D"

Note: Field verify plate length before ordering new steel.



DETAIL "E"

Note: Field verify plate length before ordering new steel.



DETAIL "F"

Note: Field verify plate length before ordering new steel.

* Field drill 13/16"Ø hole for $\frac{3}{4}$"Ø H.S. bolt thru Bent ℄ to match hole in existing int. diaph.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-26965
REGISTERED PROFESSIONAL ENGINEER
DATE 8-4-05

DETAILS OF REPAIRS IN PLATE GIRDER SPANS

Detailed Mar. 2005
Checked July 2005

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

GRUNDY COUNTY A09061 REV.

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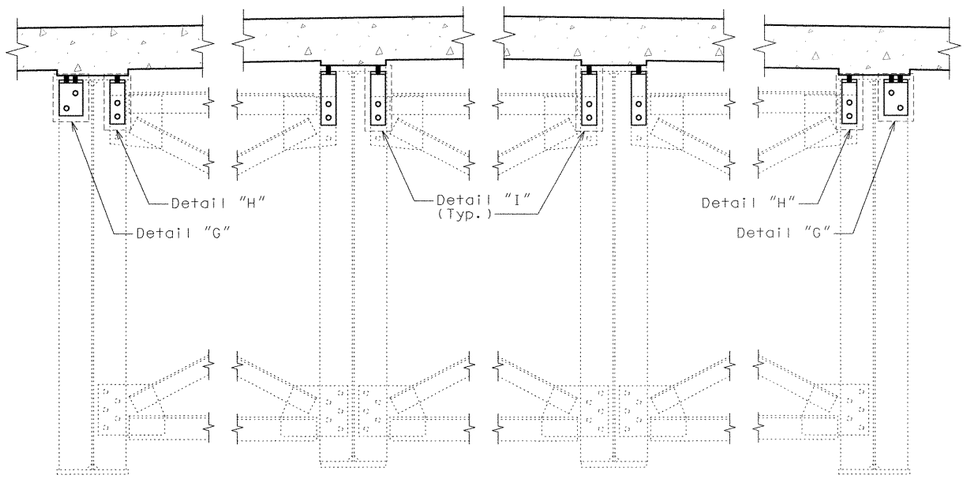
State	Proj. No.	Sheet No.
MO		B36



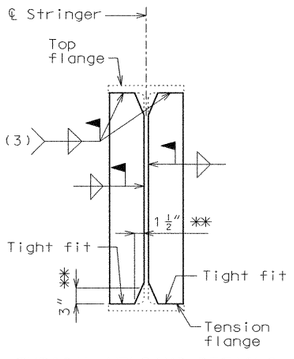
PART SECTIONS SHOWING EXISTING CROSS FRAMES FOR PLATE GIRDERS AT PIERS

Note: The two $\frac{3}{4}$" Ø H.S. bolts that connect the $\frac{3}{8}$" bent ℄ or ∠ 6 x 6 x $\frac{3}{8}$ to the top flange shall be placed so the nut is on the inside of the flange toward the web.

Fabricated structural steel for $\frac{3}{8}$" bent plates and ∠ 6 x 6 x $\frac{3}{8}$ shall be ASTM A709 Grade 50.

The cost of fabricating and installing connections of existing diaphragms to flanges will be considered completely covered by the contract lump sum price for Existing Diaphragm Connections to Flange.

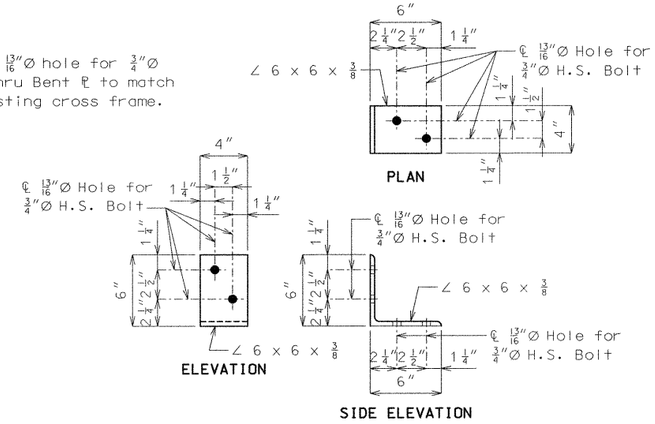
Remove existing shear connectors as necessary to facilitate installation of $\frac{3}{8}$" bent plates or ∠ 6 x 6 x $\frac{3}{8}$ to top flanges. Cost of removing existing shear connectors will be considered incidental to other pay items.



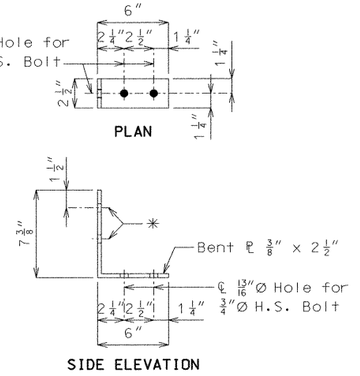
TYPICAL WELDING DETAILS FOR NEW BRG. STIFF.

(3) Grind or mill to bear.

** Typical for brg. stiff.

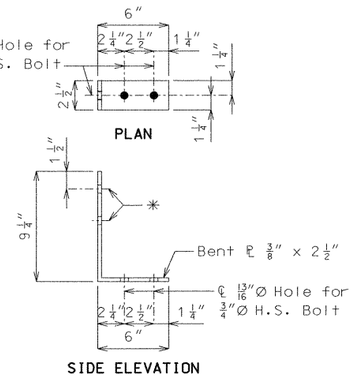


DETAIL "G"



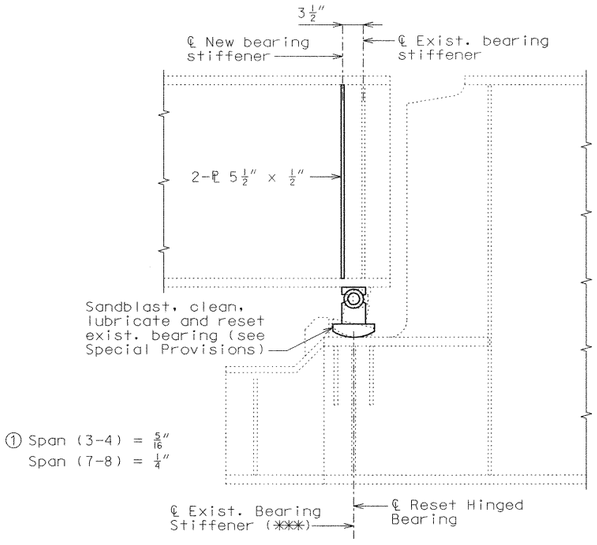
DETAIL "H"

Note: Field verify plate length before ordering new steel.



DETAIL "I"

Note: Field verify plate length before ordering new steel.



PART ELEVATION SHOWING EXISTING HINGE BEARINGS NEAR PIERS NO. 4 & 7

Notes: Plan dimensions are based on resetting hinge bearings to vertical at 60°F. At all other temperatures, bearings shall be reset to tilt. New bearing tilt shall be adjusted ① from vertical for each 10°F rise or fall in temperature at time of resetting.

*** Center the reset hinged bearing on exist. bearing stiffener.

The cost of adding new bearing stiffeners will be considered completely covered by the contract unit price for Rehabilitate Bearing per each.

STATE OF MISSOURI DANIEL M. SMITH NUMBER E-28985 REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

DETAILS OF REPAIRS IN PLATE GIRDER SPANS

Detailed Mar. 2005
Checked July 2005

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

GRUNDY COUNTY A09061

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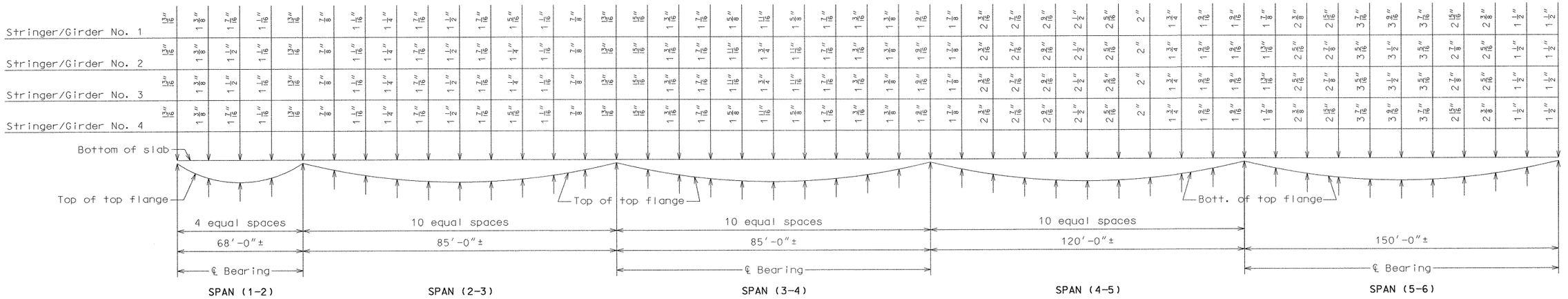
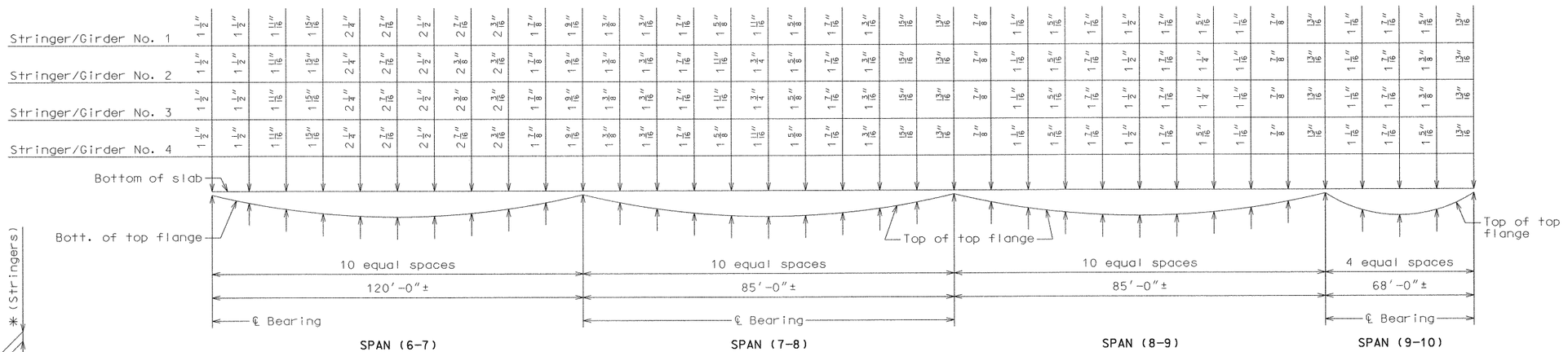
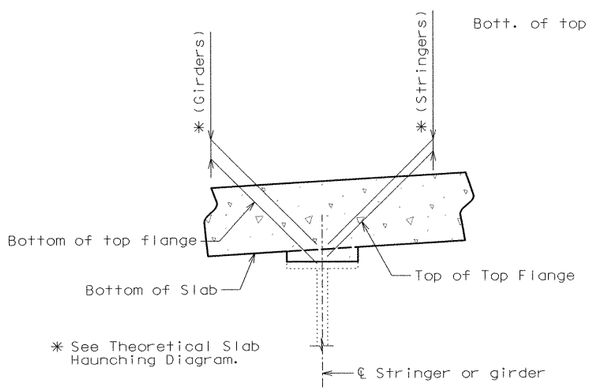
State	Proj. No.	Sheet No.
MO		B37







THEORETICAL SLAB HAUNCH

Note: If stringer or girder elevations differ from those used to compute the theoretical slab haunches, it shall be necessary to adjust the slab haunches or raise the grade uniformly throughout the structure. No payment will be made for additional labor or materials required for variation in haunching or grade adjustment.

THEORETICAL SLAB HAUNCHING DIAGRAM

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER
DATE 8-4-05

Detailed Mar. 2005
Checked July 2005

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

Sheet No. 13 of 28

GRUNDY COUNTY A09061

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State	Proj. No.	Sheet No.
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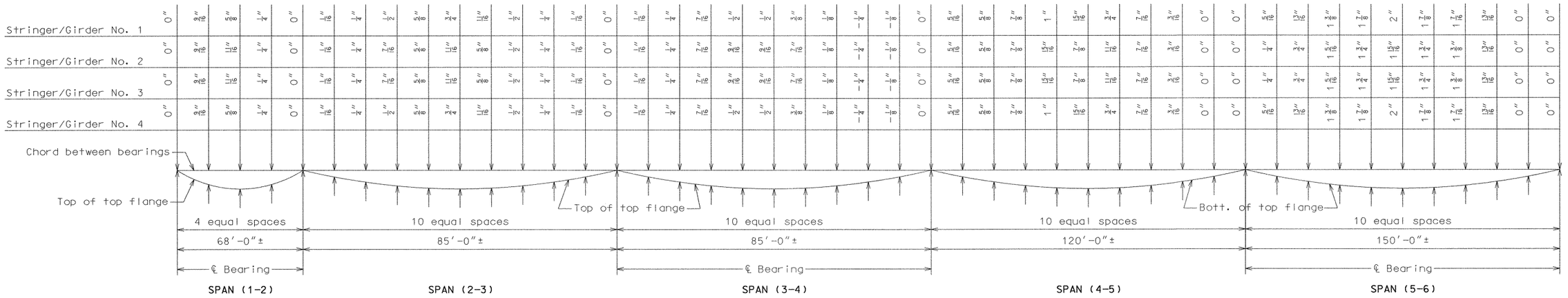

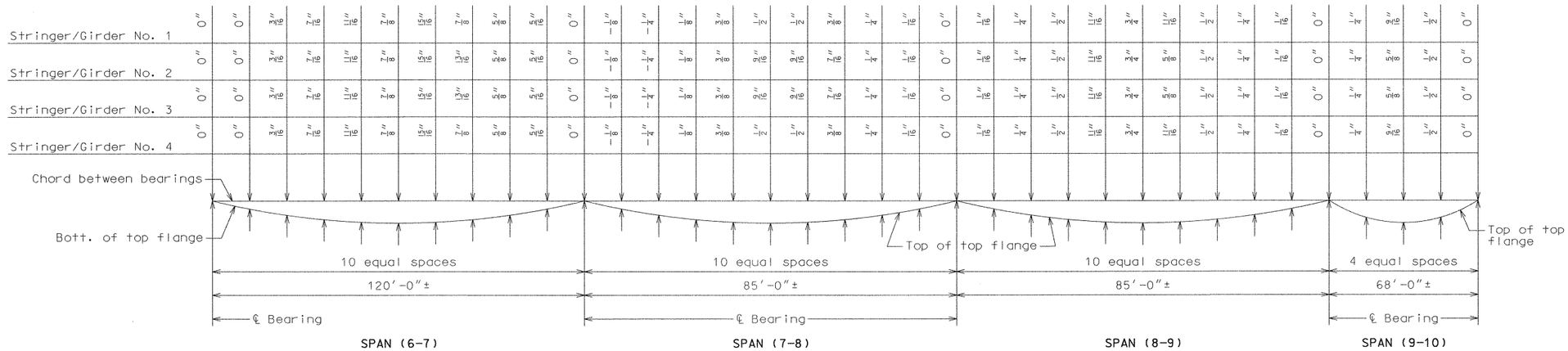

DEAD LOAD DEFLECTION DIAGRAM

Note: 19% of dead load deflection is due to the weight of structural steel.

Dead load deflection includes weight of structural steel, concrete slab, and barrier curb.

STATE OF MISSOURI
DANIEL M. SMITH
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REGISTERED PROFESSIONAL ENGINEER

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Detailed Mar. 2005
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GRUNDY COUNTY A09061

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State	Proj. No.	Sheet No.
MO		839

Theoretical Bottom of Slab Elevations at ℄ of Stringer or Girder (Prior to Forming for Slab) * *

	Span (1-2) (68′-0″± ℄ brg - ℄ brg.)				
	℄ brg.	.25	.50	.75	℄ brg.
Stringer No. 1	755.71	755.75	755.76	755.73	755.71
Stringer No. 2	755.85	755.89	755.90	755.87	755.85
Stringer No. 3	755.85	755.89	755.90	755.87	755.85
Stringer No. 4	755.71	755.75	755.76	755.73	755.71

	Span (2-3) (85′-0″± ℄ brg - ℄ brg.)										
	℄ brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ brg.
Stringer No. 1	755.71	755.72	755.73	755.75	755.76	755.76	755.76	755.75	755.73	755.72	755.71
Stringer No. 2	755.85	755.85	755.87	755.88	755.89	755.90	755.89	755.88	755.87	755.85	755.85
Stringer No. 3	755.85	755.85	755.87	755.88	755.89	755.90	755.89	755.88	755.87	755.85	755.85
Stringer No. 4	755.71	755.72	755.73	755.75	755.76	755.76	755.76	755.75	755.73	755.72	755.71

	Span (3-4) (85′-0″± ℄ brg - ℄ brg.)										
	℄ brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ brg.
Stringer No. 1	755.71	755.72	755.73	755.74	755.75	755.75	755.74	755.72	755.70	755.70	755.71
Stringer No. 2	755.85	755.85	755.87	755.88	755.89	755.89	755.88	755.86	755.83	755.84	755.85
Stringer No. 3	755.85	755.85	755.87	755.88	755.89	755.89	755.88	755.86	755.83	755.84	755.85
Stringer No. 4	755.71	755.72	755.73	755.74	755.75	755.75	755.74	755.72	755.70	755.70	755.71

	Span (4-5) (120′-0″± ℄ brg - ℄ brg.)										
	℄ brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ brg.
Girder no. 1	755.71	755.74	755.76	755.78	755.78	755.78	755.77	755.75	755.73	755.72	755.71
Girder no. 2	755.85	755.87	755.89	755.91	755.92	755.91	755.90	755.88	755.86	755.85	755.85
Girder no. 3	755.85	755.87	755.89	755.91	755.92	755.91	755.90	755.88	755.86	755.85	755.85
Girder no. 4	755.71	755.74	755.76	755.78	755.78	755.78	755.77	755.75	755.73	755.72	755.71

	Span (5-6) (150′-0″± ℄ brg - ℄ brg.)										
	℄ brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ brg.
Girder no. 1	755.71	755.73	755.77	755.81	755.84	755.85	755.84	755.81	755.77	755.71	755.71
Girder no. 2	755.85	755.87	755.90	755.94	755.97	755.98	755.97	755.94	755.90	755.85	755.85
Girder no. 3	755.85	755.87	755.90	755.94	755.97	755.98	755.97	755.94	755.90	755.85	755.85
Girder no. 4	755.71	755.73	755.77	755.81	755.84	755.85	755.84	755.81	755.77	755.71	755.71

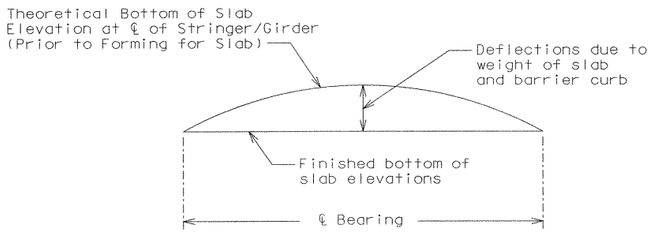
	Span (6-7) (120′-0″± ℄ brg - ℄ brg.)										
	℄ brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ brg.
Girder no. 1	755.71	755.71	755.73	755.75	755.76	755.78	755.78	755.78	755.76	755.74	755.71
Girder no. 2	755.85	755.85	755.86	755.88	755.90	755.91	755.92	755.91	755.89	755.87	755.85
Girder no. 3	755.85	755.85	755.86	755.88	755.90	755.91	755.92	755.91	755.89	755.87	755.85
Girder no. 4	755.71	755.71	755.73	755.75	755.76	755.78	755.78	755.78	755.76	755.74	755.71

	Span (7-8) (85′-0″± ℄ brg - ℄ brg.)										
	℄ brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ brg.
Stringer No. 1	755.71	755.70	755.70	755.72	755.74	755.75	755.75	755.74	755.73	755.72	755.71
Stringer No. 2	755.85	755.84	755.83	755.86	755.88	755.89	755.89	755.88	755.86	755.85	755.85
Stringer No. 3	755.85	755.84	755.83	755.86	755.88	755.89	755.89	755.88	755.86	755.85	755.85
Stringer No. 4	755.71	755.70	755.70	755.72	755.74	755.75	755.75	755.74	755.73	755.72	755.71

	Span (8-9) (85′-0″± ℄ brg - ℄ brg.)										
	℄ brg.	.10	.20	.30	.40	.50	.60	.70	.80	.90	℄ brg.
Stringer No. 1	755.71	755.72	755.73	755.75	755.76	755.77	755.76	755.75	755.73	755.72	755.71
Stringer No. 2	755.85	755.85	755.87	755.88	755.90	755.90	755.90	755.88	755.87	755.85	755.85
Stringer No. 3	755.85	755.85	755.87	755.88	755.90	755.90	755.90	755.88	755.87	755.85	755.85
Stringer No. 4	755.71	755.72	755.73	755.75	755.76	755.77	755.76	755.75	755.73	755.72	755.71

	Span (9-10) (68′-0″± ℄ brg - ℄ brg.)				
	℄ brg.	.25	.50	.75	℄ brg.
Stringer No. 1	755.71	755.73	755.75	755.75	755.71
Stringer No. 2	755.85	755.87	755.89	755.89	755.85
Stringer No. 3	755.85	755.87	755.89	755.89	755.85
Stringer No. 4	755.71	755.73	755.75	755.75	755.71

* * Elevations are based on a constant slab thickness of 7″ and include allowance for theoretical dead load deflections due to weight of slab and barrier curb.



TYPICAL SLAB ELEVATIONS DIAGRAM

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28935
REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

Detailed Mar. 2005
Checked July 2005

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

GRUNDY COUNTY A09061 REV.

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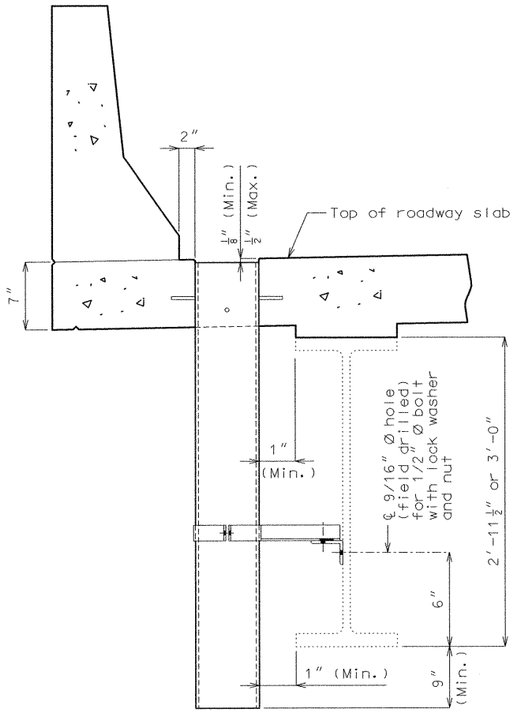
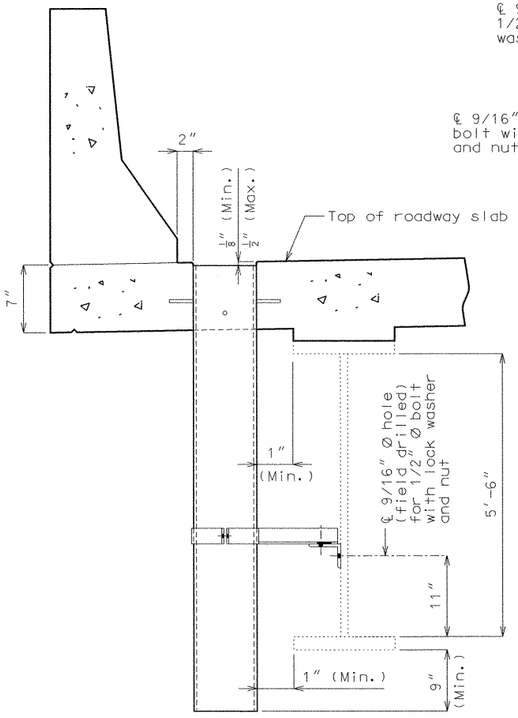
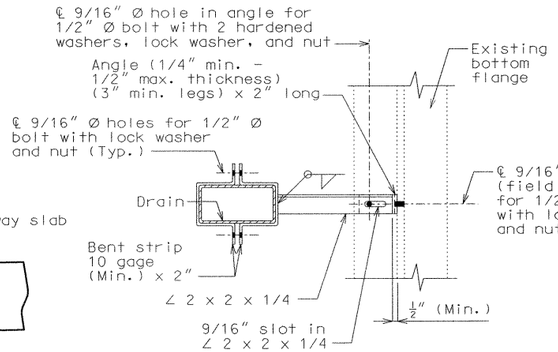


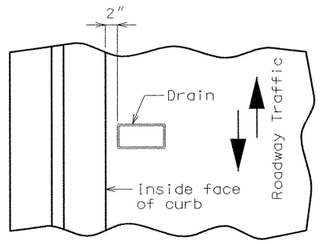
PART SECTION NEAR DRAIN (SRINGERS)



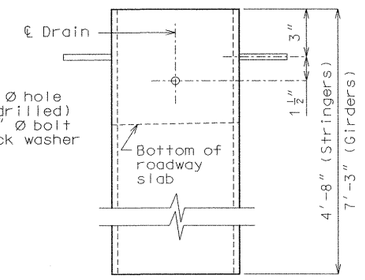
PART SECTION NEAR DRAIN (GIRDERS)



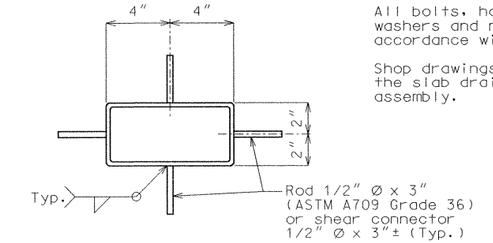
PART SECTION SHOWING BRACKET ASSEMBLY



PART PLAN OF SLAB AT DRAIN



ELEVATION OF DRAIN



PLAN OF DRAIN

DETAILS OF DRAINS TRANSVERSE TO ROADWAY

NOTE:

Slab drains may be fabricated of either 1/4" welded sheets of ASTM A709 Grade 36 steel or from 1/4" structural steel tubing ASTM A500 or A501.

Slab drain bracket assembly shall be ASTM A709 Grade 36 steel.

Outside dimensions of drains are 8" x 4".

Locate drains in slab by dimensions shown in Part Section Near Drain.

Shift reinforcing steel in field where necessary to clear drains.

The drains and bracket assembly shall be galvanized in accordance with ASTM A123.

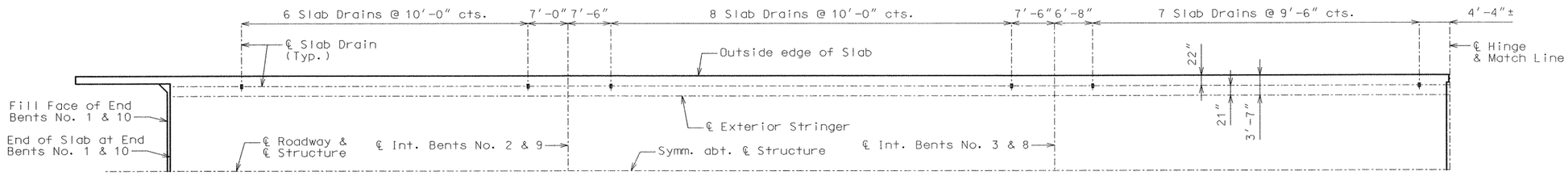
All bolts, hardened washers, lock washers and nuts shall be galvanized in accordance with ASTM A153.

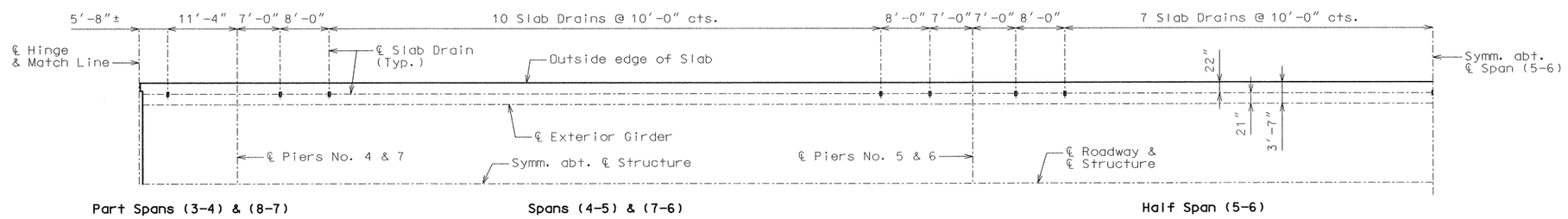
Shop drawings will not be required for the slab drains and the bracket assembly.

Note: Longitudinal dimensions are horizontal along ℄ Exterior Stringer or Girder.

Slab drain locations shall be shifted the minimum extent necessary to allow for field drilling bolt hole in web of existing stringer or girder for bracket assembly attachment.

SLAB DRAIN DETAILS





HALF PLAN SHOWING SLAB DRAIN LOCATIONS

STATE OF MISSOURI DANIEL M. SMITH NUMBER E-28985 REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

Detailed Mar. 2005
Checked July 2005

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

GRUNDY COUNTY A09061

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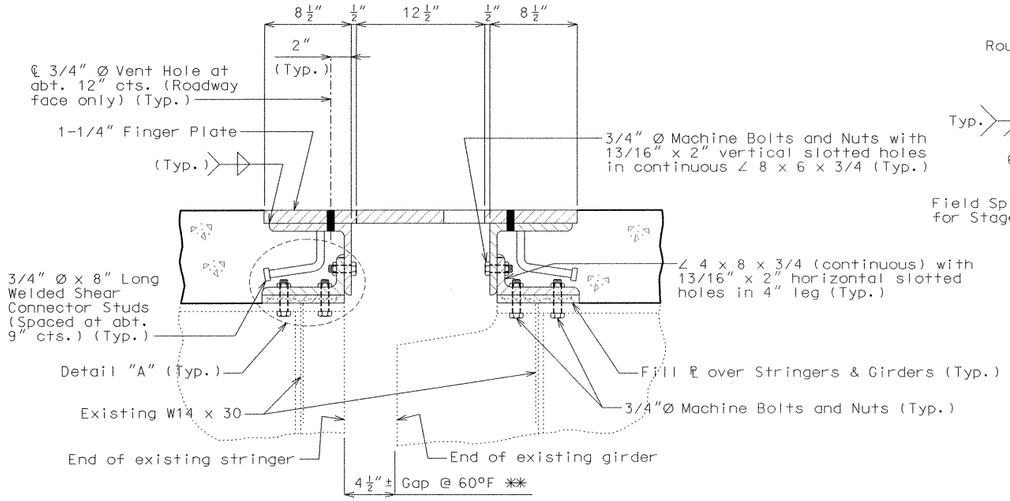
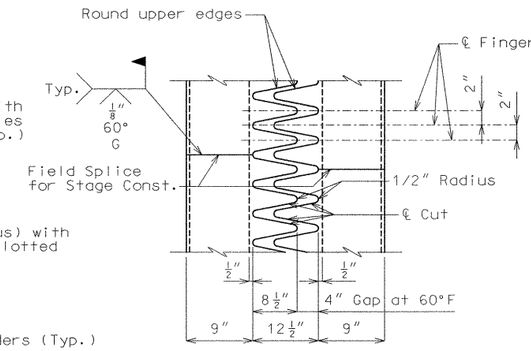


PART SECTION THRU EXPANSION DEVICE

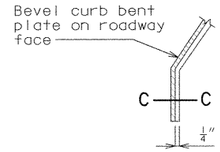
Notes: Concrete shall be forced under and around finger plate supporting hardware, anchors, angles and bars. Proper consolidation shall be achieved by localized internal vibration.

The existing holes in top flange of W14 x 30 for the new finger plate expansion device may be reamed or slotted for installation.

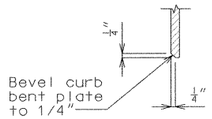
** End of existing stringer may be trimmed upon the engineers approval to maintain the 4-1/2" ± gap @ 60°F.



TYPICAL PLAN OF PLATE



PART ELEVATION AT END OF BEVELED CURB BENT PLATE



SECTION C-C

GENERAL NOTES:

Finger plate shall be cut with a machine guided gas torch from one plate. The plate from which fingers are cut may be spliced before fingers are cut. The surface of cut shall be perpendicular to the surface of the plate. The cut shall not exceed 1/8" in width. The centerline of cut shall not deviate more than 1/16" from the position of centerline of cut shown. No splicing of finger plate or finger plate assembly will be allowed after fingers are cut except to accommodate stage construction. The expansion device shall be fabricated and installed to the crown and grade of the roadway.

Plan dimensions are based on installation at 60°F. The expansion gap and other dimensions shall be increased or decreased by ① for each 10°F rise or fall in temperature at installation.

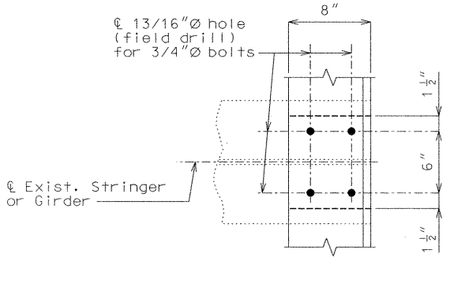
Material for the expansion device shall be ASTM A709 Grade 36 structural steel. Anchors for the expansion device shall be in accordance with Sec 1037.

Structural steel for the expansion device and curb plate shall be coated with a minimum of two coats of inorganic zinc primer (5 mils minimum) or galvanized in accordance with ASTM A123. Anchors need not be protected from overspray.

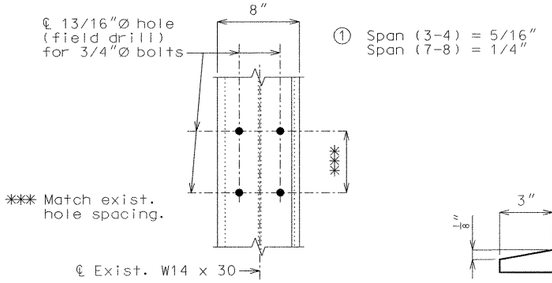
Payment for furnishing, coating or galvanizing and installing the structural steel for the expansion device will be considered completely covered by the contract unit price for Expansion Device (Finger Plate) per linear foot.

All holes shown for connections to be subpunched 11/16" Ø (shop or field drill) and reamed to 13/16" Ø in field.

Longitudinal reinforcing steel shall be placed so that ends shall not be more than ±1" from the vertical leg of 8 x 4 x 3/4 mounting angle.

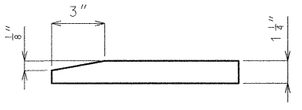


PLAN

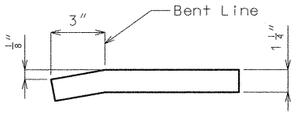


PLAN

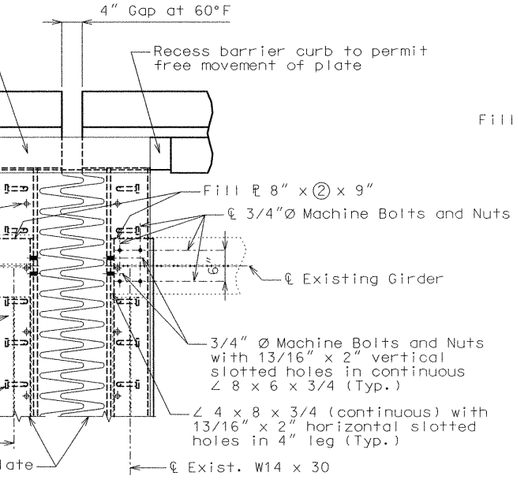
① Span (3-4) = 5/16"
Span (7-8) = 1/4"



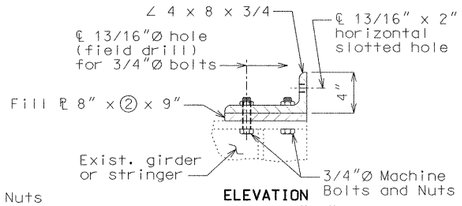
FINGER DETAIL



OPTIONAL FINGER DETAIL

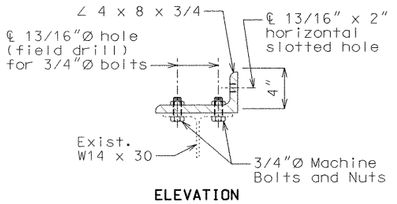


PART PLAN OF EXPANSION DEVICE



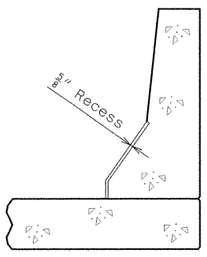
ELEVATION

DETAIL "A"
(over Girders & Stringers)

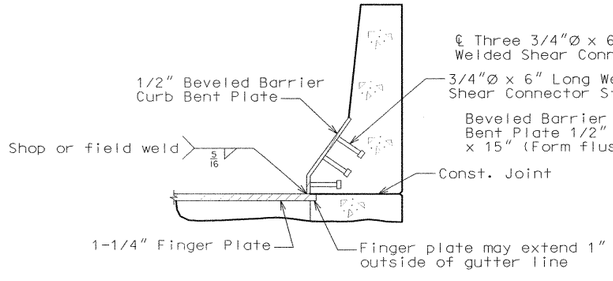


ELEVATION

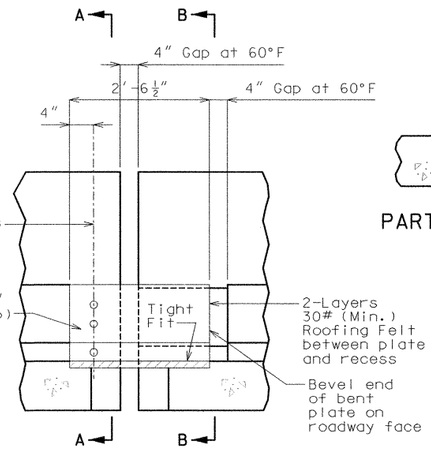
DETAIL "A"
(W14 x 30 between Girders & Stringers)



PART SECTION B-B



PART SECTION A-A



ELEVATION OF BARRIER CURB

② 1/2" (Exterior Girders) (Girder Span)
3/16" (Interior Girders) (Girder Span)
1/2" (Exterior Stringers) (Stringer Span)
7/16" (Interior Stringers) (Stringer Span)

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER
DATE 8-4-05

DETAILS OF FINGER PLATE EXPANSION DEVICE NEAR INT. BENTS NO. 4 & 7

Detailed Mar. 2005
Checked July 2005

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

GRUNDY COUNTY | A09061

REV.

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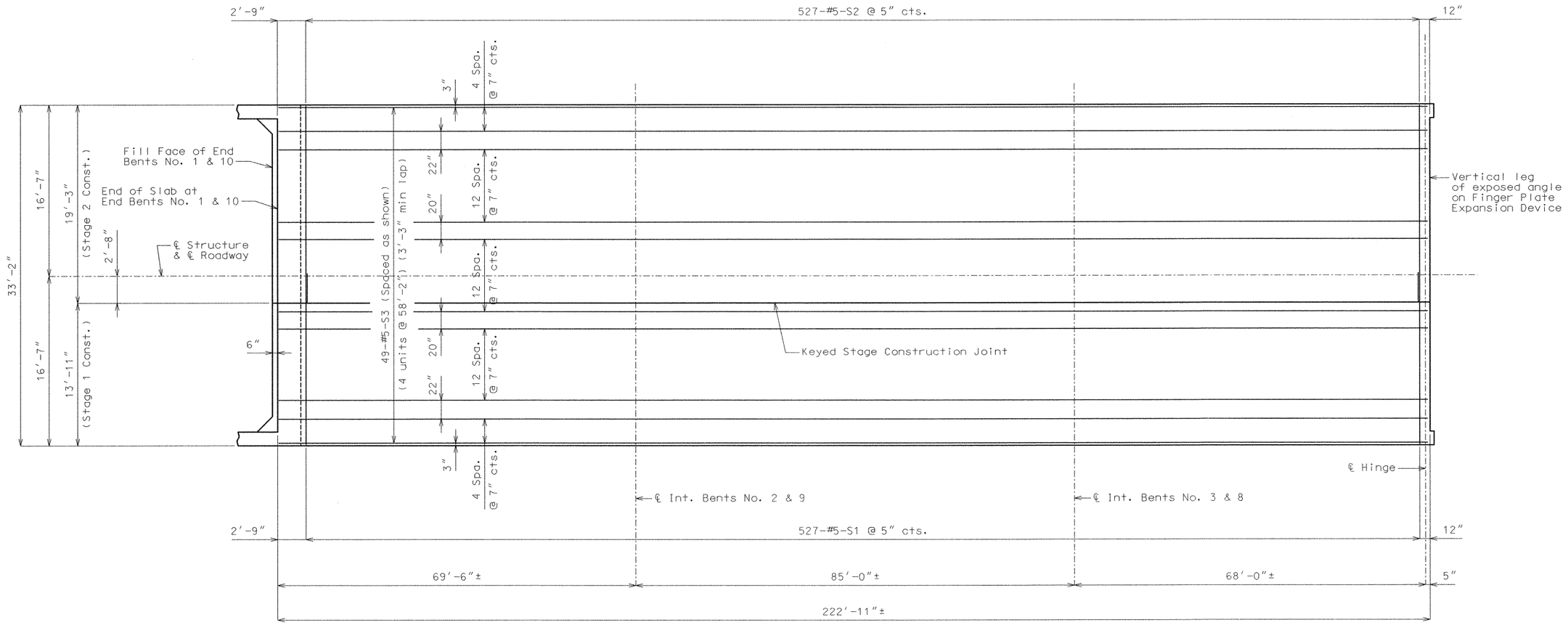
State	Proj. No.	Sheet No.
MO		B42



Spans (1-2) & (10-9) Spans (2-3) & (9-8) Part Spans (3-4) & (8-7)

PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

Note: Longitudinal dimensions shown are horizontal.

For Plan of Slab Showing Top Reinforcement, see sheets no. 20 & 21.

For Theoretical Slab Haunching Diagram, see sheet no. 13.

For Theoretical Bottom of Slab Elevations, see sheet no. 15

For Section Thru Slab & Slab Pouring Sequence, see sheet no. 22.

For details and reinforcement of Safety Barrier Curb, see sheet no. 23.

For details and locations of Slab Drains, see sheet no. 16.

For details of Finger Plate Expansion Device, see sheet no. 17.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28995
REGISTERED PROFESSIONAL ENGINEER
DATE 8-4-05

SLAB DETAILS

Detailed Mar. 2005
Checked July 2005

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

GRUNDY COUNTY A09061 REV.

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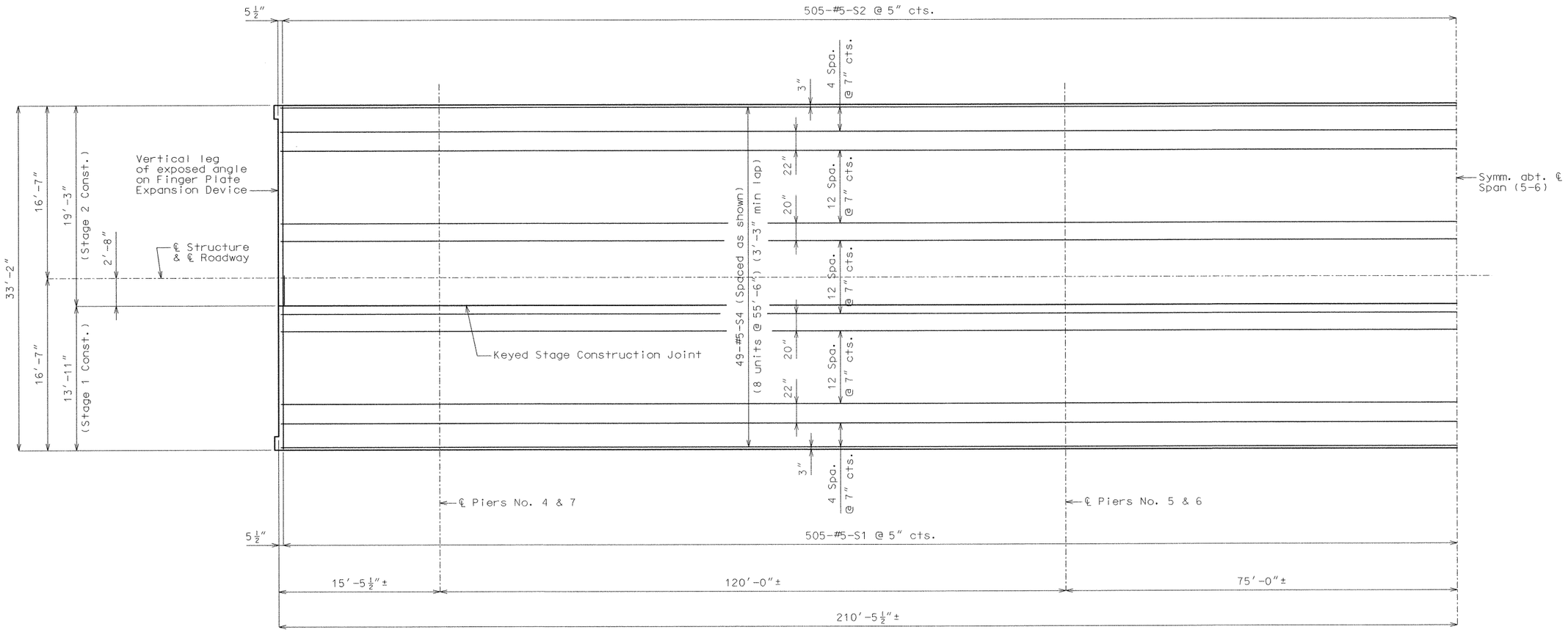

Part Spans (3-4) & (8-7) Spans (4-5) & (7-6) Half Span (5-6)

PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

Note: Longitudinal dimensions shown are horizontal.

For Plan of Slab Showing Top Reinforcement, see sheets no. 20 & 21.

For Theoretical Slab Haunching Diagram, see sheet no. 13.

For Theoretical Bottom of Slab Elevations, see sheet no. 15

For Section Thru Slab & Slab Pouring Sequence, see sheet no. 22.

For details and reinforcement of Safety Barrier Curb, see sheet no. 23.

For details and locations of Slab Drains, see sheet no. 16.

For details of Finger Plate Expansion Device, see sheet no. 17.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

SLAB DETAILS

Detailed Mar. 2005
Checked July 2005

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

GRUNDY COUNTY A09061 REV.

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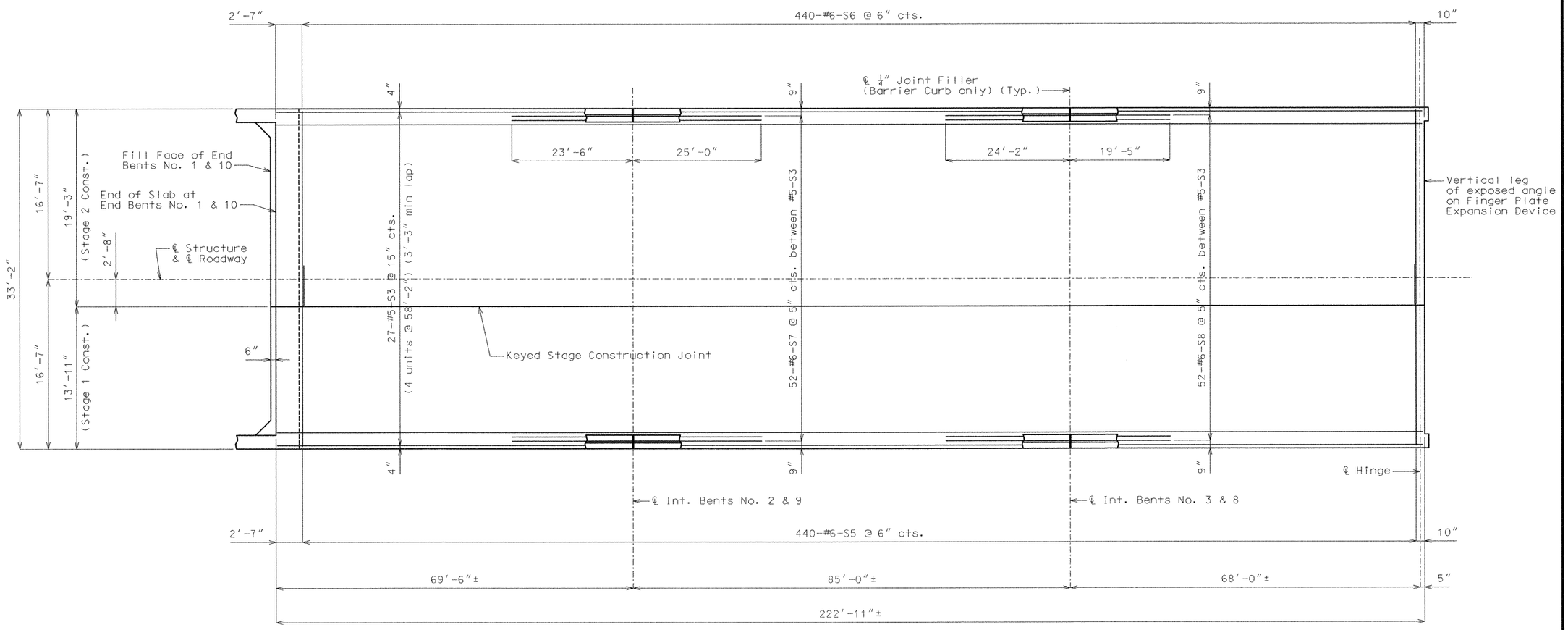
State	Proj. No.	Sheet No.
MO		B44



Spans (1-2) & (10-9) Spans (2-3) & (9-8) Part Spans (3-4) & (8-7)

PLAN OF SLAB SHOWING TOP REINFORCEMENT

Note: Longitudinal dimensions shown are horizontal.

For Plan of Slab Showing Bottom Reinforcement, see sheets no. 18 & 19.

For Theoretical Slab Haunching Diagram, see sheet no. 13.

For Theoretical Bottom of Slab Elevations, see sheet no. 15

For Section Thru Slab & Slab Pouring Sequence, see sheet no. 22.

For details and reinforcement of Safety Barrier Curb, see sheet no. 23.

For details and locations of Slab Drains, see sheet no. 16.

For details of Finger Plate Expansion Device, see sheet no. 17.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28986
REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

SLAB DETAILS

Detailed Mar. 2005
Checked July 2005

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

Sheet No. 20 of 28

GRUNDY COUNTY A09061

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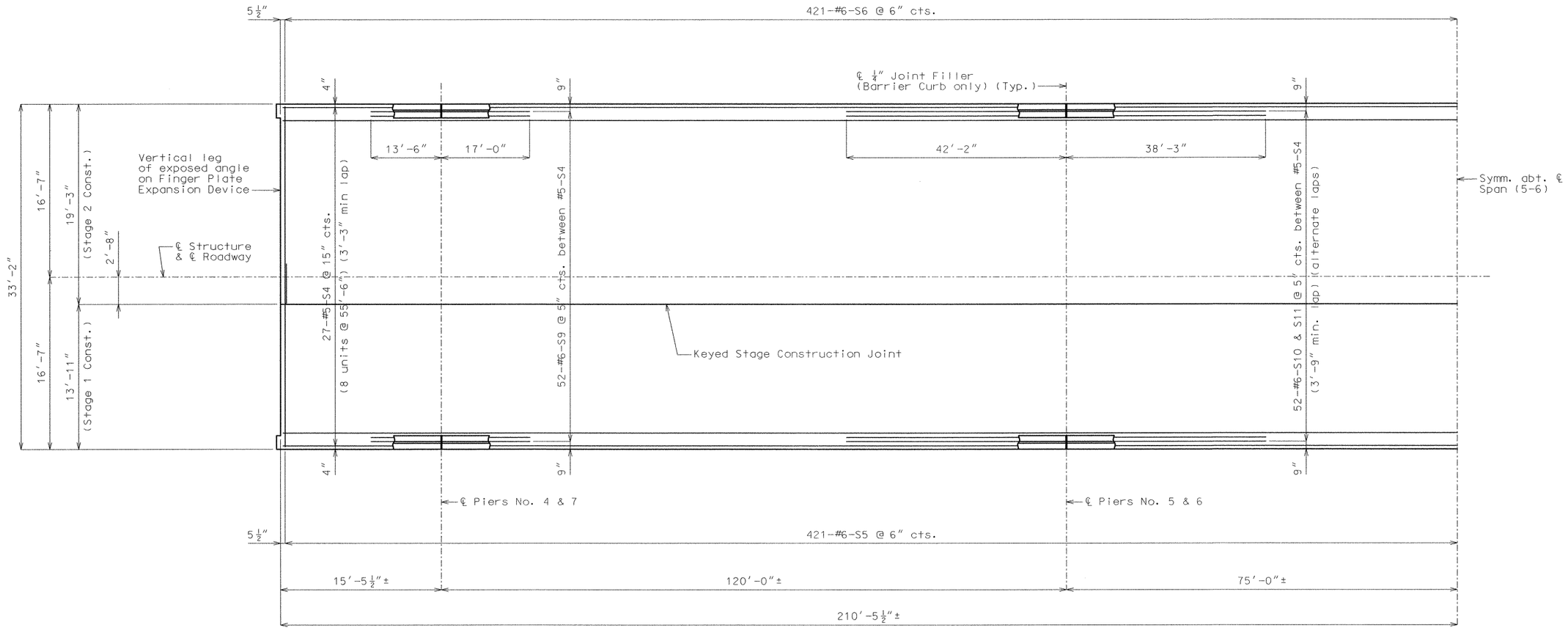
State	Proj. No.	Sheet No.
MO		B45



Part Spans (3-4) & (8-7) **Spans (4-5) & (7-6)** **Half Span (5-6)**

PLAN OF SLAB SHOWING TOP REINFORCEMENT

Note: Longitudinal dimensions shown are horizontal.

For Plan of Slab Showing Bottom Reinforcement, see sheets no. 18 & 19.

For Theoretical Slab Haunching Diagram, see sheet no. 13.

For Theoretical Bottom of Slab Elevations, see sheet no. 15

For Section Thru Slab & Slab Pouring Sequence, see sheet no. 22.

For details and reinforcement of Safety Barrier Curb, see sheet no. 23.

For details and locations of Slab Drains, see sheet no. 16.

For details of Finger Plate Expansion Device, see sheet no. 17.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-26985
REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

SLAB DETAILS

Detailed Mar. 2005
Checked July 2005

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

Sheet No. 21 of 28

GRUNDY COUNTY A09061

REV.

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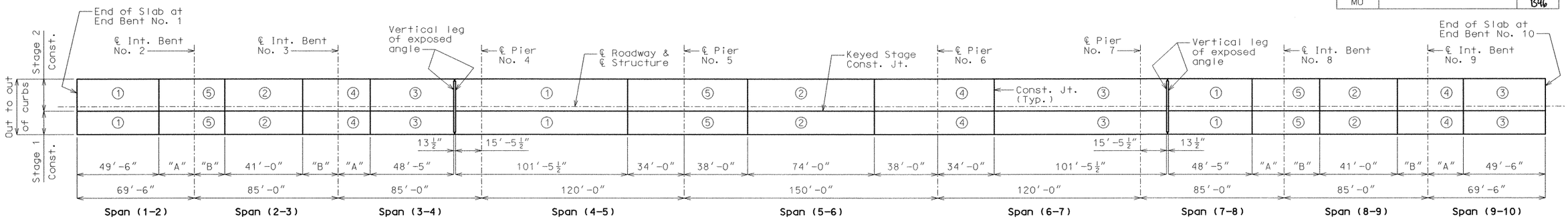
State	Proj. No.	Sheet No.
MO		B46



Wide Flange Beam Spans — Plate Girder Spans — Wide Flange Beam Spans

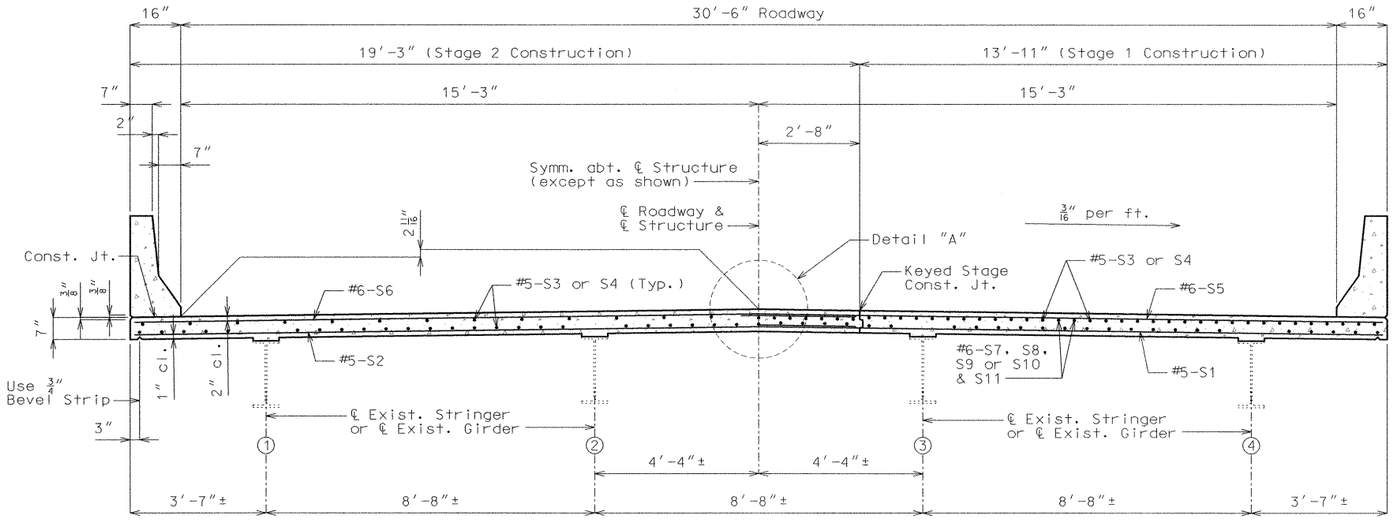
Note: Longitudinal dimensions are horizontal.

"A" = 20'-0"
"B" = 22'-0"

	Sequence of Pours					Min. rate of pour cu. yds./hr.	
	Direction					With retarder	No retarder
Basic sequence	1	2	3	4	5	25	25
	Either direction						
Alternate pours to the basic skip sequence are subject to the approval of the engineer in accordance with Sec 703.							
Alternate "A" pours	1	5 + 2		4 + 3		25	*
	End to 5	1 to 4		2 to end			
Alternate "B" pours	1 + 5 + 2		4 + 3			25	*
	End to 4		2 to end				
Alternate "C" pours	1 + 5 + 2 + 4 + 3					25	*
	End to end						

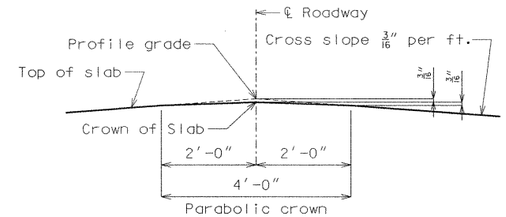
* Note: The contractor shall pour and satisfactorily finish the slab pours at the rate given or a rate not less than 25 cubic yards for Spans (1-2), (2-3), (3-4), (7-8), (8-9) & (9-10) and 32 cubic yards for Spans (4-5), (5-6) & (6-7) per hour with no retarder. Retarder, if used, shall be an approved type and retard the set of concrete to 2.5 hours. Wide flange beam spans shall be poured before the plate girder spans.

SLAB POURING SEQUENCE

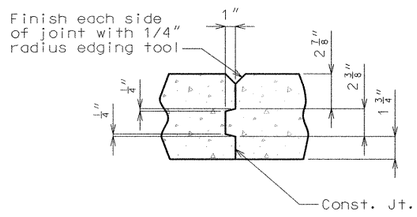


HALF SECTION NEAR MID SPAN — HALF SECTION NEAR INT. BENTS

SECTION THRU SLAB



DETAIL "A"



SLAB CONSTRUCTION JOINT DETAIL

Note: For Plan of Slab Showing Bottom Reinforcement, see sheets no. 18 & 19.

For Plan of Slab Showing Top Reinforcement, see sheets no. 20 & 21.

For details of Safety Barrier Curb not shown, see sheet no. 23.

For Theoretical Slab Haunching Diagram, see sheet no. 13.

For Theoretical Bottom of Slab Elevations, see sheet no. 15

For Details of Staged Construction, see sheet no. 3.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-26985
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DATE 8-4-05

Detailed Mar. 2005
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GRUNDY COUNTY A09061 REV.

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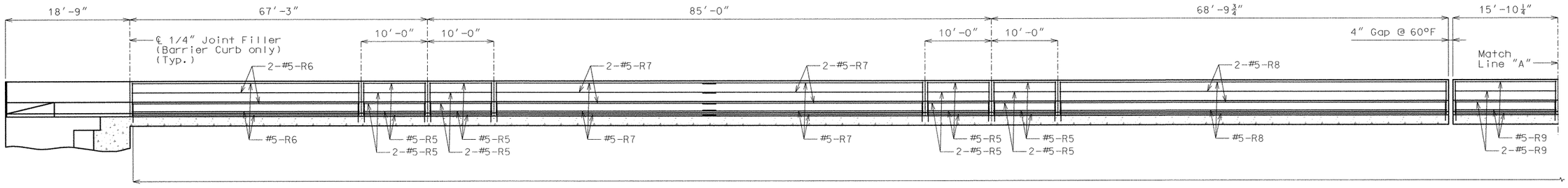
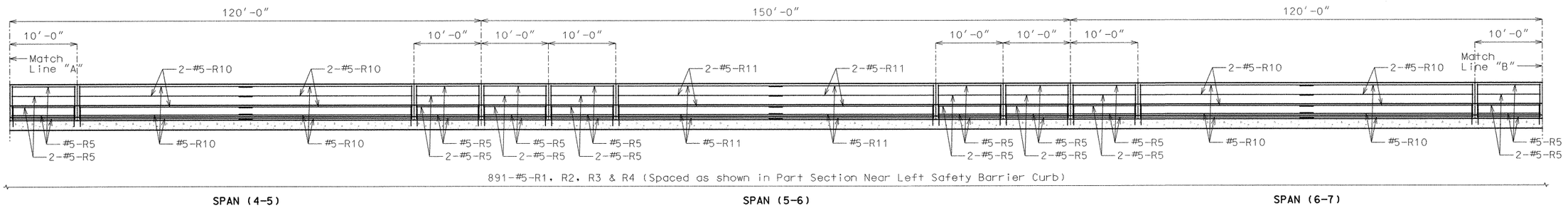
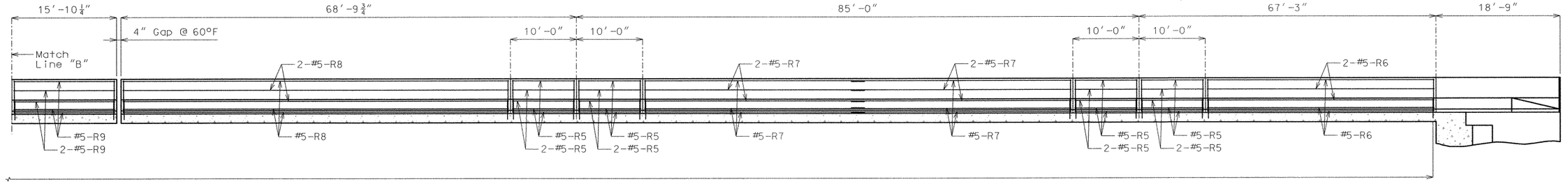
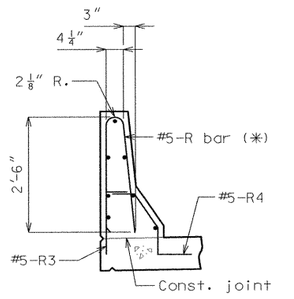
State	Proj. No.	Sheet No.
MO		B47









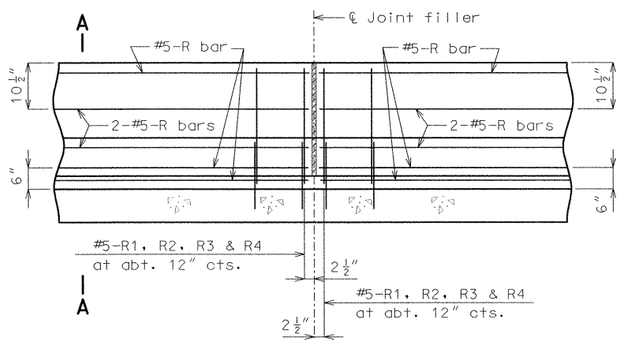
R-BAR PERMISSIBLE ALTERNATE SHAPE

(*) The R1 and R2 bar combination may be furnished as one bar, as shown, at the contractor's option. (All dimensions are out to out.)

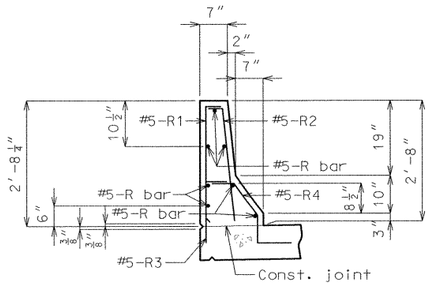
SECTION NEAR LEFT SAFETY BARRIER CURB

(Right safety barrier curb similar)

Note: Longitudinal dimensions are horizontal.



PART SECTION NEAR LEFT SAFETY BARRIER CURB (CAST-IN-PLACE CONVENTIONAL FORMING OPTION)



PART SECTION A-A

Notes:

Use a minimum lap of 2′-11″ for #5 horizontal safety barrier curb bars.

The cross-sectional area above the slab = 2.27 sq. ft.

Notes:

Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

All exposed edges of safety barrier curb shall have either a 1/2″ radius or a 3/8″ bevel, unless otherwise noted.

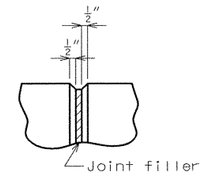
Payment for all concrete and reinforcement, complete-in-place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

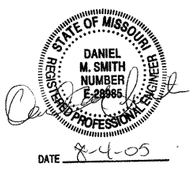
Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".

For details of Movement Gauge at expansion device, see sheet no. 24.



FILLED JOINT DETAIL



Detailed Mar. 2005
Checked July 2005

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

GRUNDY COUNTY A09061

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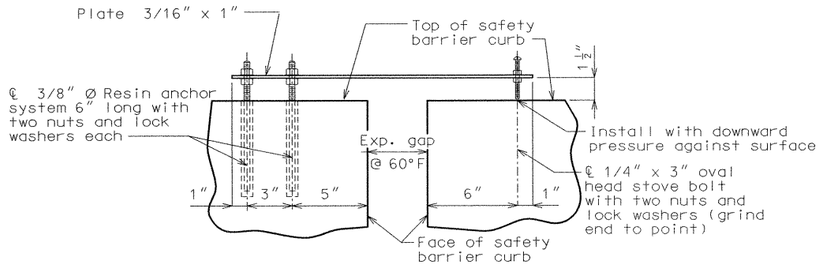
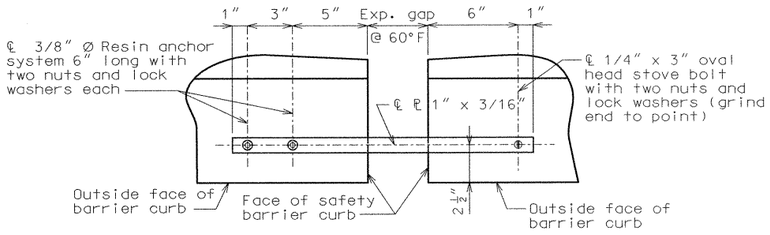
State	Proj. No.	Sheet No.
MO		B48



PART ELEVATION OF BARRIER CURB
SHOWING MOVEMENT GAUGE



PART PLAN OF BARRIER CURB
SHOWING MOVEMENT GAUGE

Notes:

A movement gauge shall be provided on one side of bridge at all safety barrier curb expansion joints.

All steel shall be galvanized.

Cost of movement gauge complete-in-place will be considered completely covered by the contract unit price for Safety Barrier Curb.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-29985
REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

Detailed Mar. 2005
Checked July 2005

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GRUNDY COUNTY A09061

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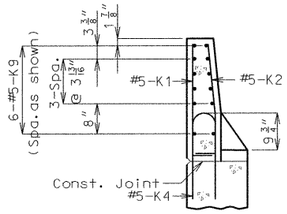
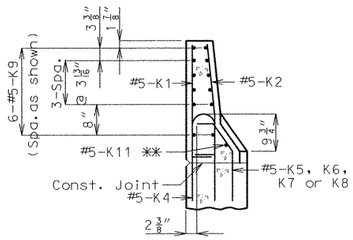
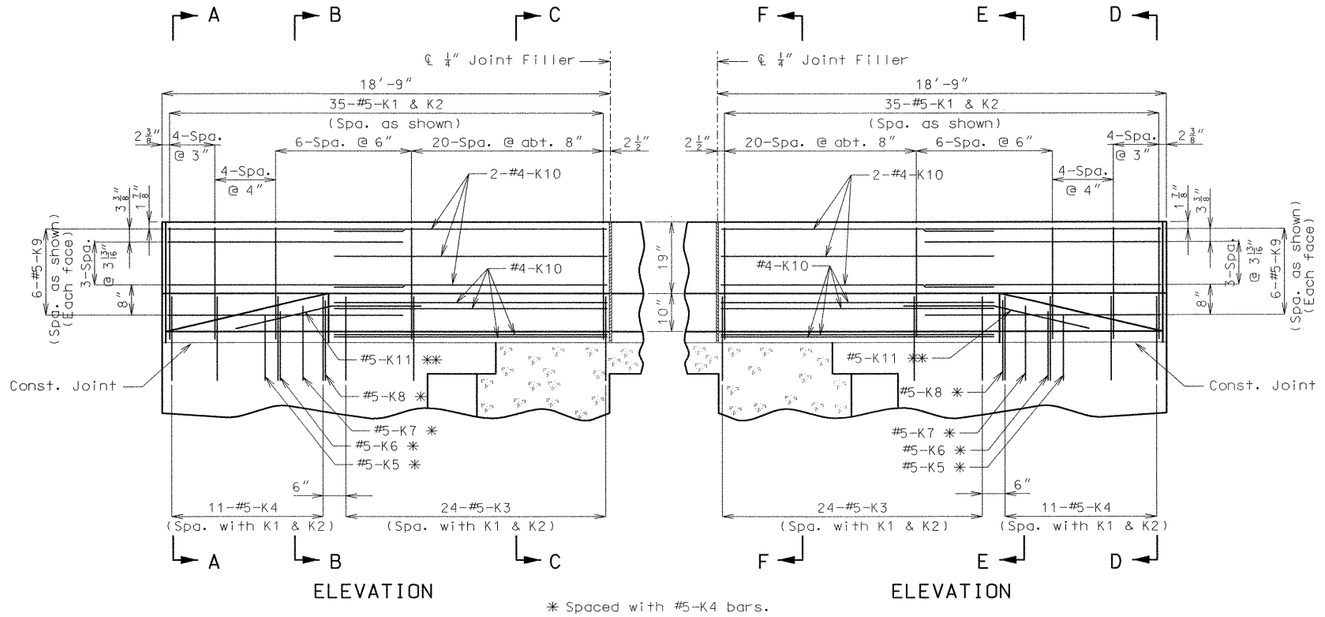
State	Proj. No.	Sheet No.
MO		B49



SECTION A-A



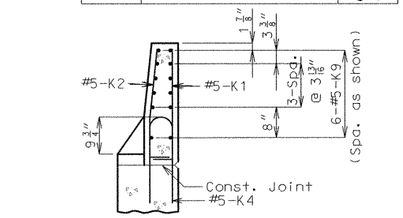
SECTION B-B



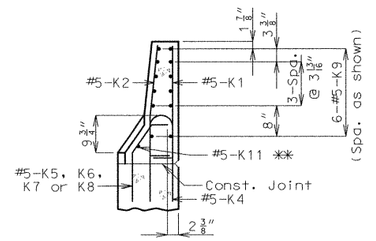
ELEVATION ELEVATION

* Spaced with #5-K4 bars.

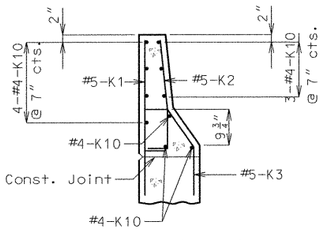
** Fit bar to follow transition face of curb.



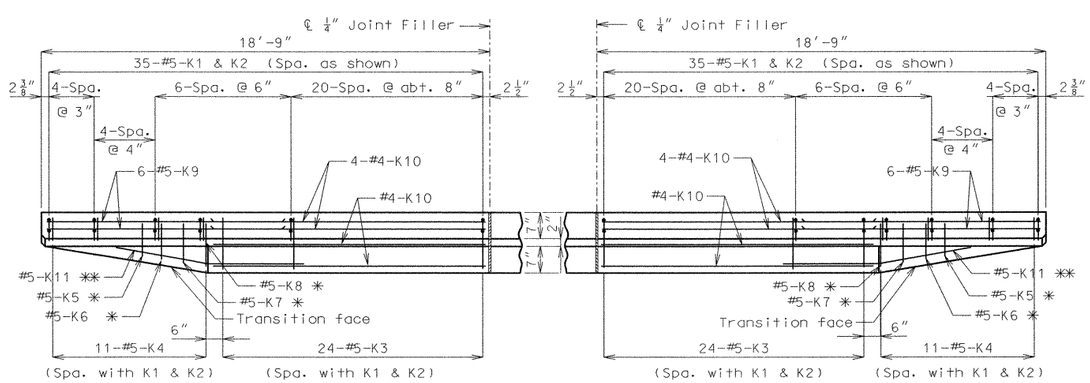
SECTION D-D



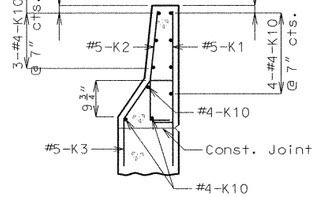
SECTION E-E



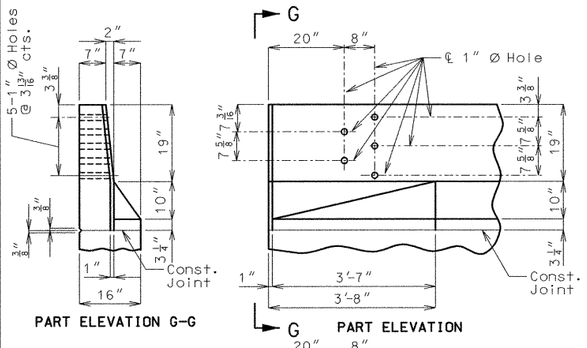
SECTION C-C



PLAN PLAN



SECTION F-F

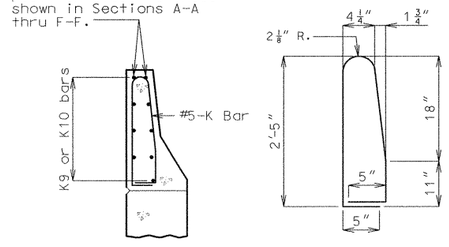


DETAILS OF GUARD RAIL ATTACHMENT

NOTE: Use a minimum lap of 2'-0" between K9 and K10 bars.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".

The top two K9 or K10 bars shall be kept with position close to those shown in Sections A-A thru F-F.



(K3 or K4 thru K8 bars not shown for clarity)

K1-K2 BAR PERMISSIBLE ALTERNATE SHAPE (***)

(***) The K1 and K2 bar combination may be furnished as one bar as shown, at the contractor's option.

DETAILS OF SAFETY BARRIER CURB AT END BENTS

(Left barrier curb shown; right barrier curb similar)

STATE OF MISSOURI DANIEL M. SMITH NUMBER E-28986 REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

Detailed Mar. 2005
Checked July 2005

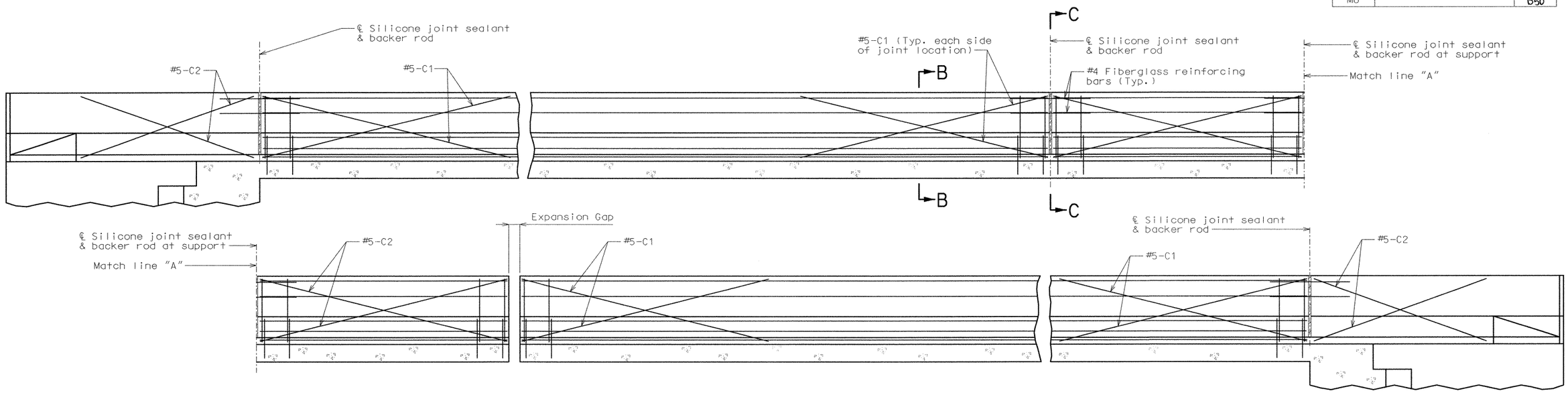
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 25 of 28

GRUNDY COUNTY

A09061

State	Proj. No.	Sheet No.
MO		B50



TYPICAL SECTION NEAR LEFT SAFETY BARRIER CURB AT SUPPORT LOCATIONS (OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB)

Notes:

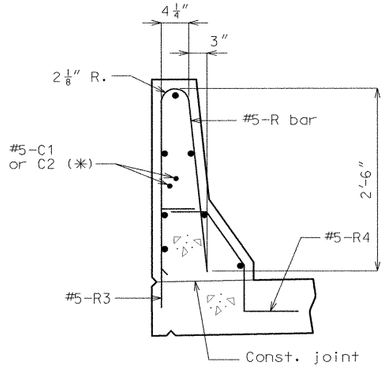
Top of safety barrier curb shall be built parallel to grade with barrier curb joints (except at end bents) normal to grade.

Payment for all concrete and reinforcement, complete-in-place, will be considered completely covered by the contract unit price for safety barrier curb per linear foot.

Concrete in the safety barrier curb shall be Class B-1.

Measurement of safety barrier curb is to the nearest linear foot for each structure, measured along the outside top of slab from end of wing to end of wing.

The curb shall be cured by application of Type 1-D or Type 2 Liquid Membrane-Forming Compound in accordance with Sec 1055. Surface sealing for concrete in accordance with Sec 703 will not be permitted.



PART SECTION B-B

(*) Each side of joint location.

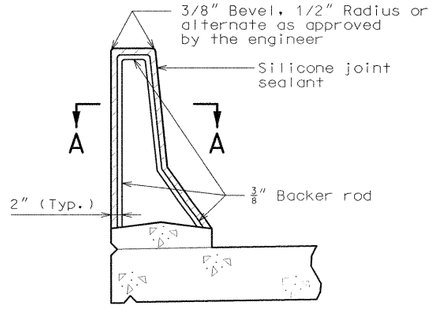
Notes:

Joint sealant and backer rods shall be used on all slip-form barrier curbs instead of joint filler and shall be in accordance with Sec 717 for silicone joint sealant for saw cut and formed joints.

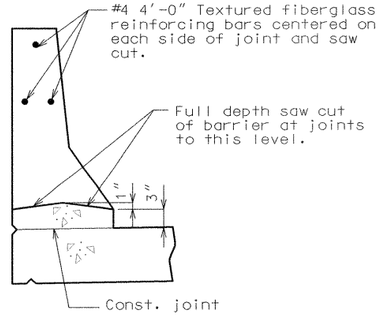
C Bars (Slip-form option only) shall be used in addition to cast-in-place conventional forming reinforcement for bridge safety barrier curb.

For Slip-Form option, all sides of the safety barrier curb shall have a vertically broomed finish and the curb top shall have a tranversely broomed finish.

Concrete traffic barrier delineators shall be placed on top of the safety barrier curb as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for "Safety Barrier Curb".



SECTION THRU JOINT



PART SECTION C-C

SECTION A-A

Note:

Cost of silicone joint sealant and backer rod complete-in-place will be considered completely covered by the contract unit price for Safety Barrier Curb.

STATE OF MISSOURI DANIEL M. SMITH NUMBER E-28985 REGISTERED PROFESSIONAL ENGINEER

DATE 8-4-05

OPTIONAL SLIP-FORM BRIDGE SAFETY BARRIER CURB

(Left barrier curb shown, right barrier curb similar.)

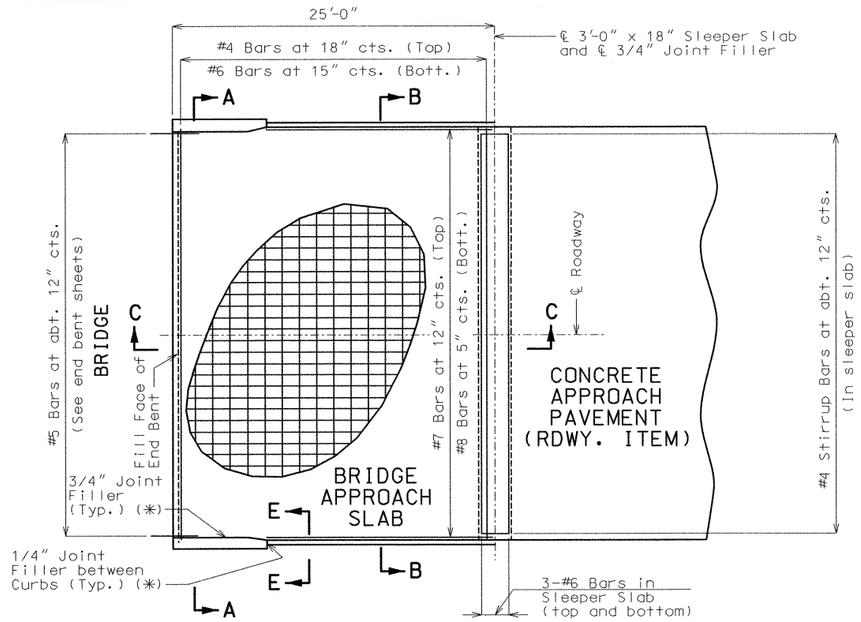
Detailed Mar. 2005
Checked July 2005

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

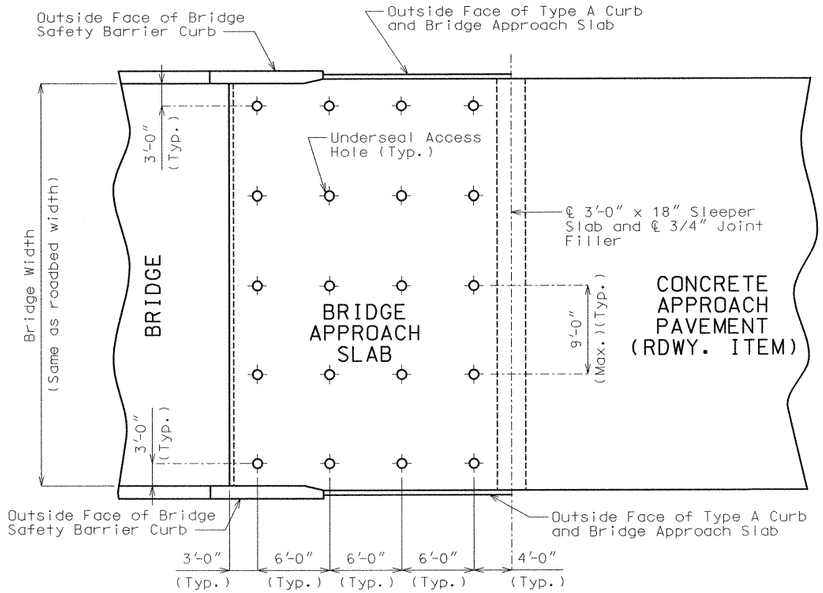
Sheet No. 26 of 28

GRUNDY COUNTY A09061

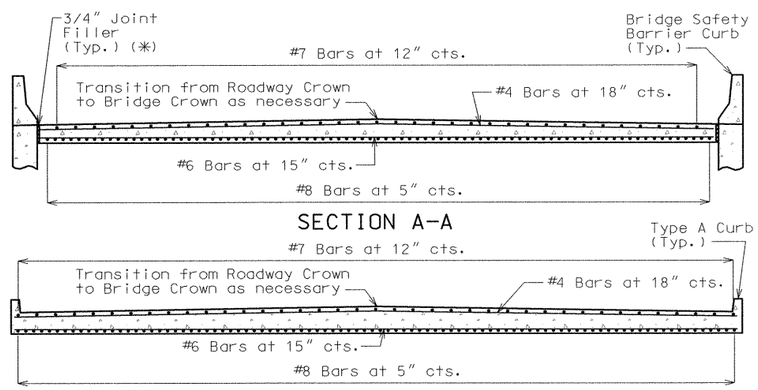
State	Proj. No.	Sheet No.
MO		851



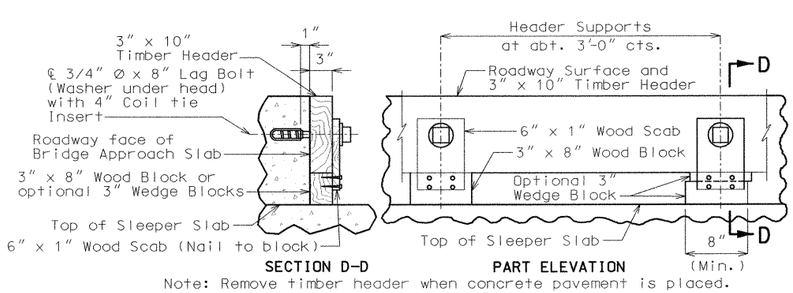
PART PLAN SHOWING REINFORCEMENT



PART PLAN
(SHOWING TYPICAL UNDERSEAL ACCESS HOLE LOCATIONS)

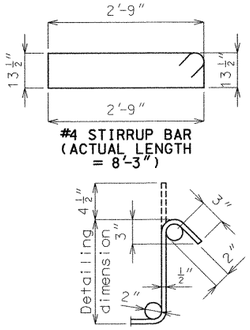


Note: With the approval of the engineer, the contractor may crown the bottom of the approach slab to match the crown of the roadway surface.

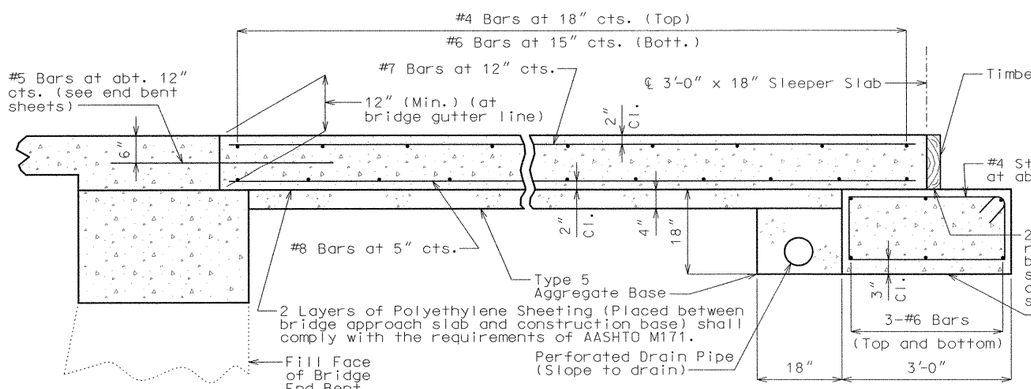


Note: Remove timber header when concrete pavement is placed.

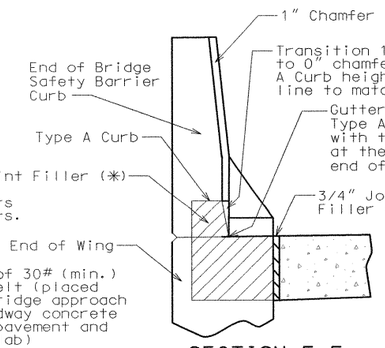
DETAILS OF TIMBER HEADER



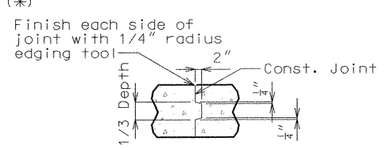
Note:
Nominal lengths are based on out to out dimensions shown in bending diagram and are listed for fabricators use (nearest inch).



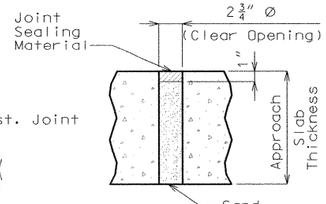
SECTION C-C



SECTION E-E
(BETWEEN CURBS)



CONST. JOINT DETAIL
(IF REQUIRED)



TYPICAL UNDERSEAL ACCESS HOLE DETAIL

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 Fy = 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

(*) Seal joint between vertical face of approach slab and wing with Silicone Joint Sealant for Saw Cut and Formed Joints in accordance with Sec 717.

Hooks 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 pour and satisfactorily finish the bridge or semi-deep slab before pouring the bridge approach slabs.

Longitudinal construction joints in approach slab and sleeper slab shall be aligned with longitudinal construction joints in bridge or semi-deep slab.

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 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.

See Missouri Standard Plans Drawing 609.00 for details of Type A Curb.

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.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-29985
REGISTERED PROFESSIONAL ENGINEER
DATE 8-4-05

Detailed Mar. 2005
Checked July 2005

BRIDGE APPROACH SLAB

GRUNDY COUNTY | A09061

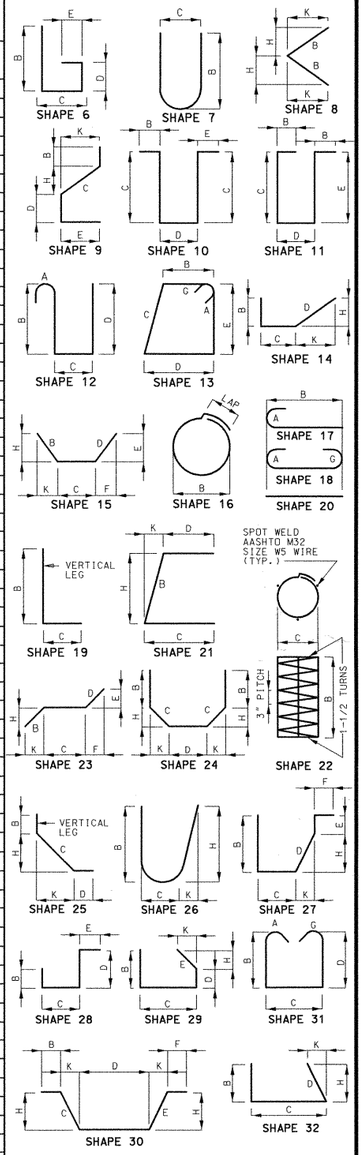
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
		END BT NO 1																
10	6 F10	WING BRACE		23	S				14.000	4 5.625	14.000	9.875	9.875	9.875	9.875	6 10	6 9	101
8	6 F11	DIAPHRAGM		19	S				5 0.000	2 5.250						7 5	7 3	87
8	6 H10	DIAPHRAGM		20					16 10.000							16 10	16 10	202
6	6 H11	DIAPHRAGM	E	20					18 2.000							18 2	18 2	164
8	6 H12	DIAPHRAGM		20					19 0.000							19 0	19 0	228
4	6 H13	DIAPHRAGM	E	20					19 0.000							19 0	19 0	114
30	5 H14	DIAPHRAGM	E	20					2 6.000							2 6	2 6	78
6	8 H15	WING	E	20					18 6.000							18 6	18 6	296
12	8 H16	WING		20					18 6.000							18 6	18 6	593
16	6 H17	WING		20					18 6.000							18 6	18 6	445
20	6 H18	WING		20					15 9.000							15 9	15 9	473
32	5 U10	DIAPHRAGM	E	10	S					3 6.000	2 0.000					9 0	8 10	295
32	6 U11	DIAPHRAGM		19	S				2 7.000	2 6.000						5 1	4 11	236
41	6 U12	DIAPHRAGM	E	19	S				3 6.000	4 9.000						8 3	8 1	498
8	6 V10	DIAPHRAGM		20					2 7.000							2 7	2 7	31
68	6 V11	WING		20					6 7.000							6 7	6 7	672
		END BT NO 10																
10	6 F40	WING BRACE		23	S				14.000	4 5.625	14.000	9.875	9.875	9.875	9.875	6 10	6 9	101
8	6 F41	DIAPHRAGM		19	S				5 0.000	2 5.250						7 5	7 3	87
8	6 H40	DIAPHRAGM		20					16 10.000							16 10	16 10	202
4	6 H41	DIAPHRAGM	E	20					18 2.000							18 2	18 2	109
8	6 H42	DIAPHRAGM		20					19 0.000							19 0	19 0	228
4	6 H43	DIAPHRAGM	E	20					19 0.000							19 0	19 0	114
30	5 H44	DIAPHRAGM	E	20					2 6.000							2 6	2 6	78
4	8 H45	WING	E	20					18 6.000							18 6	18 6	198
12	8 H46	WING		20					18 6.000							18 6	18 6	593
16	6 H47	WING		20					18 6.000							18 6	18 6	445
20	6 H48	WING		20					15 9.000							15 9	15 9	473
32	5 U40	DIAPHRAGM	E	10	S					3 6.000	2 0.000					9 0	8 10	295
32	6 U41	DIAPHRAGM		19	S				2 7.000	2 6.000						5 1	4 11	236
41	6 U42	DIAPHRAGM	E	19	S				3 6.000	4 9.000						8 3	8 1	498
8	6 V40	DIAPHRAGM		20					2 7.000							2 7	2 7	31
68	6 V41	WING		20					6 7.000							6 7	6 7	672
		SLAB																
2065	5 S1	SLAB	E	20					17 1.000							17 1	17 1	36794
2063	5 S2	SLAB	E	20					19 0.000							19 0	19 0	40882
608	5 S3	SLAB	E	20					58 2.000							58 2	58 2	36886
608	5 S4	SLAB	E	20					55 6.000							55 6	55 6	35195
1721	6 S5	SLAB	E	20					17 8.000							17 8	17 8	45667
1721	6 S6	SLAB	E	20					19 0.000							19 0	19 0	49114
104	6 S7	SLAB	E	20					48 6.000							48 6	48 6	7576
104	6 S8	SLAB	E	20					43 7.000							43 7	43 7	6808
104	6 S9	SLAB	E	20					30 6.000							30 6	30 6	4764
104	6 S10	SLAB	E	20					60 0.000							60 0	60 0	9372
104	6 S11	SLAB	E	20					24 3.000							24 3	24 3	3788

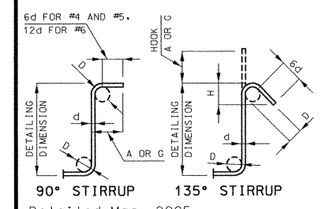
BILL OF REINFORCING STEEL

NO. REQ'D.	MARK NO. SIZE MARK	LOCATION	EPOXY (E)	SHAPE NO.	STIRRUP (S)	SUBSTR. (X)	VARIES (V)	NO. EACH	DIMENSIONS B FT. IN.	C FT. IN.	D FT. IN.	E FT. IN.	F FT. IN.	H FT. IN.	K FT. IN.	NOMINAL LENGTH FT. IN.	ACTUAL LENGTH FT. IN.	WEIGHT LBS.
		BARRIER CURB																
140	5 K1	BARRIER CURB	E	19	S				2 5.000	5.125						2 10	2 9	402
140	5 K2	BARRIER CURB	E	14	S				5.125	11.125	18.000			2.000	17.875	2 10	2 9	402
96	5 K3	BARRIER CURB	E	27	S				3 0.000	5.125	12.000	2 2.125		9.875	6.875	6 7	6 5	642
44	5 K4	BARRIER CURB	E	7					3 0.000	6.000						6 2	6 2	283
4	5 K5	BARRIER CURB	E	25	S				2 6.500	6.750	4.375			5.500	4.000	3 6	3 5	14
4	5 K6	BARRIER CURB	E	25	S				2 5.500	7.875	4.375			6.500	4.500	3 6	3 5	14
4	5 K7	BARRIER CURB	E	25	S				2 4.125	9.625	4.375			7.875	5.500	3 6	3 5	14
4	5 K8	BARRIER CURB	E	25	S				2 2.750	11.250	4.375			9.250	6.500	3 6	3 6	15
48	5 K9	BARRIER CURB	E	20					5 7.000							5 7	5 7	280
42	4 K10	BARRIER CURB	E	20					14 11.000							14 11	14 11	419
4	5 K11	BARRIER CURB	E	8					2 2.125					2 2.000	2.375	4 4	4 4	18
1782	5 R1	BARRIER CURB	E	19	S				2 6.000	3.500						2 10	2 8	4956
1782	5 R2	BARRIER CURB	E	15	S				2 6.125	3.500				2 6.000	3.000	2 10	2 9	5111
1782	5 R3	BARRIER CURB	E	19	S				15.500	6.000						0 22	0 20	3098
1782	5 R4	BARRIER CURB	E	27	S					6.000	11.250	5.500	12.000	9.250	6.375	2 11	2 9	5111
224	5 R5	BARRIER CURB	E	20					9 9.000							9 9	9 9	2278
28	5 R6	BARRIER CURB	E	20					57 0.000							57 0	57 0	1665
56	5 R7	BARRIER CURB	E	20					33 10.000							33 10	33 10	1976
28	5 R8	BARRIER CURB	E	20					58 6.000							58 6	58 6	1708
28	5 R9	BARRIER CURB	E	20					15 7.000							15 7	15 7	455
56	5 R10	BARRIER CURB	E	20					51 4.000							51 4	51 4	2998
28	5 R11	BARRIER CURB	E	20					56 4.000							56 4	56 4	1645
136	5 C1	SLIP FORM	E	20					10 0.000							10 0	10 0	1418
16	5 C2	SLIP FORM	E	20					15 0.000							15 0	15 0	250
		TOTALS																
	4		E															419
	5		E															185256
	6																	4950
	6		E															128586
	8																	1186
	8		E															494
TOTAL																		6136
TOTAL			E															314755

State	Proj. No.	Sheet No.
MO		B52



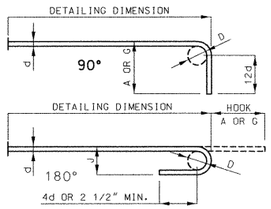
BENDING DIAGRAMS



Detailed Mar. 2005
Checked July 2005

STIRRUP HOOK DIMENSIONS				
GRADES 40 - 50 - 60 KSI				
BAR SIZE	D (IN.)	90° HOOK	135° HOOK	
		HOOK A OR G	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		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"

TWO ADDITIONAL #6-H11, #8-H15, #5-S1 & #4-K10 ARE INCLUDED IN THE BAR BILL FOR TESTING.

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.

STATE OF MISSOURI
DANIEL M. SMITH
NUMBER E-28985
REGISTERED PROFESSIONAL ENGINEER
DATE 8-4-05

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

Sheet No. 28 of 28

GRUNDY COUNTY A09061

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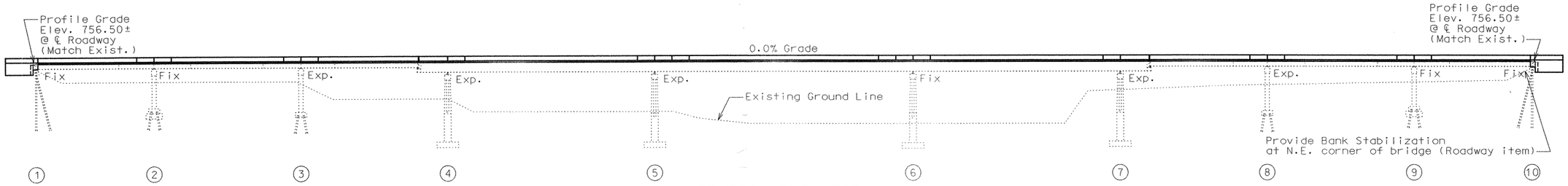
MISSOURI HIGHWAY AND TRANSPORTATION COMMISSION

U.I.P. and Redeck Existing (68'-85'-68') Continuous Composite Wide Flange Beam Spans
(17'-120'-150'-120'-17') Continuous Composite Plate Girder Spans
(68'-85'-68') Continuous Composite Wide Flange Beam Spans

State	Proj. No.	Sheet No.
MO		B1
SEC/SUR 19	TWP 61N	RGE 24W

REVISED OCT 12 2005

REVISED OCT 12 2005



GENERAL ELEVATION

Estimated Quantities

	Item		Substr.	Superstr.	Total
	Class 1 Excavation	cu. yard	70		70
	Removal and Storage of Existing Bridge Rails	linear foot		1,723	1,723
*	Removal of Existing Bridge Decks	sq. foot		27,478	27,478
	Partial Removal of Substructure Concrete	lump sum	1		1
	Bridge Approach Slab (Bridge)	sq. yard		174	174
	Slab on Steel	sq. yard		3,194	3,194
**	Safety Barrier Curb	linear foot		1,804	1,804
	Substructure Repair (Formed)	sq. foot	12		12
	Expansion Device (Finger Plate)	linear foot		61	61
	Rehabilitate Bearing	each		8	8
	Existing Diaphragm Connections to Flange	lump sum		1	1
	Slab Drain	each		166	166
	Surface Preparation for Recoating Structural Steel	sq. foot		1,900	1,900
	Surface Preparation for Overcoating Structural Steel	sq. foot		39,700	39,700
	Field Application of Inorganic Zinc Primer	sq. foot		1,900	1,900
	Intermediate Field Coat (System G)	sq. foot		1,900	1,900
	Finish Field Coat (System G)	sq. foot		1,900	1,900
	Calcium Sulfonate Rust Penetrating Sealer	lump sum		1	1
	Calcium Sulfonate Primer	sq. foot		39,700	39,700
	Calcium Sulfonate Topcoat	sq. foot		39,700	39,700
	Non-Destructive Testing	linear foot		37	37
	Vertical Drain at End Bents	each			2

* Includes removal and disposal of slab, curbs, end posts and expansion devices.

** Safety barrier curb shall be cast-in-place option or slip-form option.

Estimated Quantities for Slab on Steel

Item		Total
Class B-2 Concrete	cu. yard	684.9
Reinforcing Steel	pound	6,140
Reinforcing Steel (Epoxy Coated)	pound	279,580

The table of Estimated Quantities for Slab on Steel represents the quantities used by the State 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.

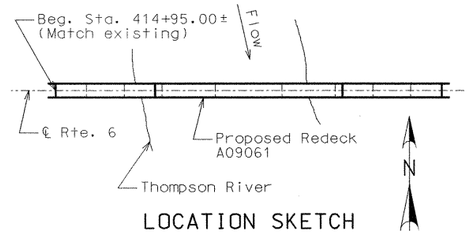
Method of forming the slab shall be as shown on the plans and in accordance with Sec 703. All hardware for forming the slab to be left in place as a permanent part of the structure shall be coated in accordance with ASTM A123 or ASTM B633 with a thickness class SC 4 and a finish type I, II or III.

Slab shall be cast-in-place. Precast prestressed panels are not permitted.

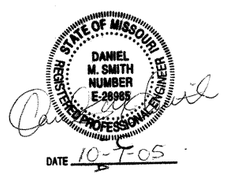
All concrete in the end bents is included in the Estimated Quantities for Slab on Steel.

All reinforcement in the end bents is included in the Estimated Quantities for Slab on Steel.

REVISED OCT 12 2005



LOCATION SKETCH



DATE 10-7-05

B.M. ELEV. 756.52 (NGVD 29 DATUM), 3-1/2" BRASS DISC IN TOP OF 10" CONCRETE POST, 30' EAST OF S.E. CORNER OF BRIDGE NO. A-906, STA. 423+95.00±

REPAIRS TO BRIDGE OVER THOMPSON RIVER

STATE ROAD FROM DAVIESS CO. LINE N.E. TO TRENTON
ABOUT 8.0 MILES N.E. OF DAVIESS CO. LINE
PROJECT NO. STA. 414+95.00± (MATCH EXIST.)
JOB NO. J2P0691 RTE. 6

GRUNDY COUNTY

Date: 10/7/05

STD. 609.00
STD. 617.10
STD. 617.20
STD. 706.35
A09061

REV.

Designed Mar. 2005
Detailed Mar. 2005
Checked July 2005

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

T:\br-proj\gabelr1\j2p0691\a09061\a09061_001.dgn 08:14:59 AM 10/07/2005

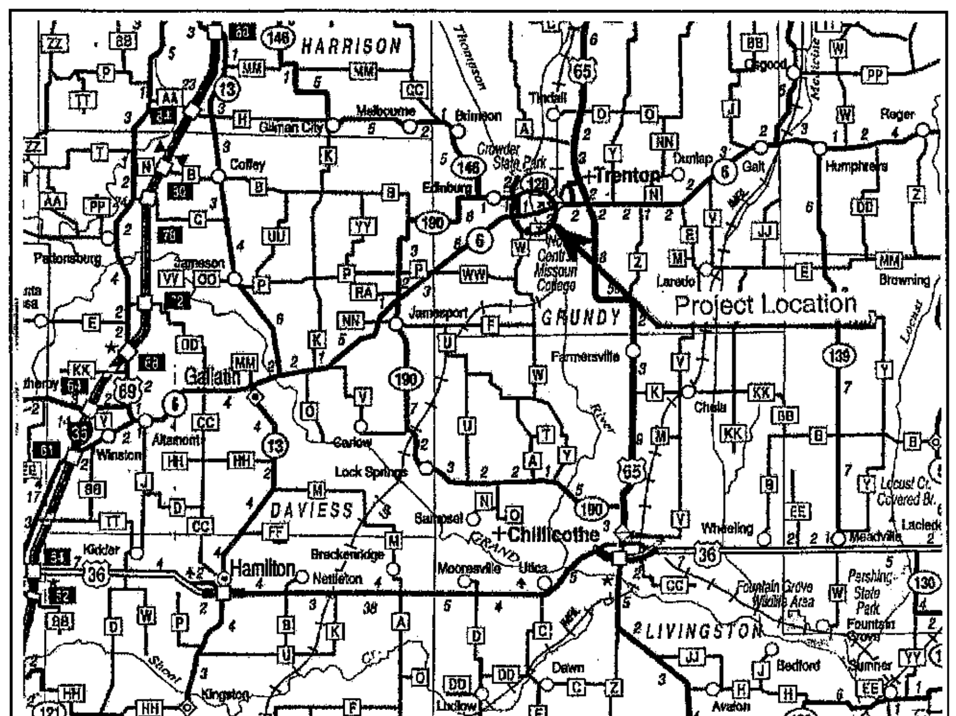
THOMPSON RIVER - ROUTE 6 BRIDGE
GRUNDY COUNTY, MISSOURI

STREAM BANK PROTECTION

SPONSORED IN COOPERATION
WITH MISSOURI DEPARTMENT OF TRANSPORTATION - DISTRICT 2

JULY 2005

INDEX



VICINITY MAP
SECTION 19
TOWNSHIP 61N
RANGE 24W

N
APPROXIMATELY
1" - 5 MILES

US Army Corps
of Engineers
Kansas City District

You Matter - We Care

STATE OF MISSOURI
JOHN BLANCETT
NUMBER E-23845
7-18-05

SIGNATURE AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF DRAWINGS IN THIS SET AS INDEXED ON THIS SHEET

CHIEF ENGINEERING AND CONSTRUCTION DIVISION

CONSTRUCTION NOTES:

1. PRELIMINARY TO SITEWORK: SUBMIT REQUIRED INFORMATION AND CERTIFICATIONS (SEE CONTRACT CLAUSES AND SPECIFICATIONS), AND ARRANGE FOR REVIEW OF 24-TON ROCK SAMPLES IN ACCORDANCE WITH CONTRACT. NOTE THE APPROVED SOURCE/QUARRY LIST IN THE CONTRACT.

2. TRAFFIC CONTROL, ROADS, AND BRIDGE LOADS:
A. PERFORM TRAFFIC CONTROL AS NECESSARY TO ENCOURAGE THE SAFETY OF THE PUBLIC TRAVELING NEAR THE PROJECT SITE. TRAFFIC CONTROL SHALL MEET MODOT STANDARDS FOR THIS TYPE OF WORK SITE. A FLAGMAN IS REQUIRED AT THE CROSSING/CONSTRUCTION ENTRANCE, ALONG WITH SIGNS ALERTING THE DRIVING PUBLIC OF THE CORRESPONDING FLAGMAN AND CROSSING/CONSTRUCTION ENTRANCE.
B. ROUTE 6 AND BRIDGE AT SITE WILL NOT CLOSE DUE TO CONSTRUCTION ACTIVITY. BE ADVISED THAT TRAFFIC ALONG ROUTE 6 MOVES AT HIGH RATES OF SPEED DURING ALL HOURS OF THE DAY. COORDINATE TRAFFIC MOVEMENT INTO AND AROUND THE SITE SO AS TO ENSURE SAFETY OF ALL PERSONS.
C. COORDINATE WITH FEDERAL, STATE AND LOCAL GOVERNMENT REPRESENTATIVES PRIOR TO TRANSPORTING HEAVY EQUIPMENT OVER LOCAL ROADS. HEAVY EQUIPMENT WHICH EXCEEDS THE RATED LOAD CAPACITY OF ANY BRIDGE (OR CROSSING) SHALL BE TRANSPORTED TO THE WORK SITE USING AN ALTERNATE HIGH CAPACITY ACCESS ROUTE. AVOID ALL LOW CAPACITY STRUCTURES.
D. PRIOR TO HAULING ANY ROCK TO PROJECT SITE, MAKE A VHS-VIDEOTAPE WHILE TRAVELING PAVED AND UNPAVED ROAD SURFACES ALONG HAUL ROUTE. THE VIDEOTAPE SHALL PROVIDE A VISUAL RECORD OF EXISTING MAJOR ROAD SURFACE CONDITION PROBLEMS. VIDEOTAPE SHALL CLEARLY SHOW POTHOLES, PAVEMENT BREAKAGE, RUTTING, OR ANY OTHER MAJOR SURFACE PROBLEMS. ALSO MARKUP A COUNTY HIGHWAY MAP (OR SIMILAR SCALE MAP) SHOWING LOCATIONS OF THE PROBLEMS THAT WERE VIDEOTAPED; INCLUDE A CROSSREFERENCE TO THE VIDEOTAPE RUN-TIME OR FRAME. SUBMIT ONE COPY OF VIDEOTAPE AND MAP FOR CORPS REVIEW AND APPROVAL. ANY SURFACE NOT RECORDED IN THIS MANNER WILL BE CONSIDERED AS IN GOOD CONDITION PRIOR TO THE PROJECT.
E. AVOID DAMAGING ROADS AND ALL PRIVATE AND PUBLIC LANDS OUTSIDE OF THE DESIGNATED CONSTUCTION LIMITS AND ACCESS ROUTES. THE CONTRACTOR SHALL PROVIDE NECESSARY MATERIALS, LABOR, AND EQUIPMENT TO MAKE REPAIRS (OR REPLACEMENT IF NEEDED) FOR DAMAGE CAUSED BY CONSTRUCTION ACTIVITY SO AS TO RETURN ALL DAMAGED ROADS AND STRUCTURES TO ORIGINAL (PRE-PROJECT) CONDITION. THE CONTRACTOR SHALL COORDINATE WITH ADJACENT LANDOWNERS AND THE AGENCY RESPONSIBLE FOR ROAD MAINTENANCE TO ENSURE AN ACCEPTABLE RESOLUTION OF ANY SUCH DAMAGES. COORDINATE FOR GOVERNMENT REVIEW AND APPROVAL OF SUCH REPAIRS PRIOR TO PROJECT COMPLETION.

3. UTILITIES: VERIFY UNDERGROUND UTILITY LOCATIONS PRIOR TO ANY EXCAVATION WORK AND TAKE APPROPRIATE STEPS TO PROTECT ALL UTILITIES FROM DAMAGE (SEE CONTRACT CLAUSES). FIBER OPTIC CABLE AND WATER SUPPLY LINES CROSS THE PROJECT SITE. ADVISE AND WARN ALL CREW MEMBERS (INCLUDING SUBCONTRACTED PERSONNEL) OF THE LOCATION OF UTILITIES BEFORE ALLOWING THEM TO WORK ON-SITE. CALL 1-800-DIG-RITE FOR UTILITY LOCATIONS.

4. ACCESS/HAUL ROUTES: PROVIDE AS NECESSARY AT THE APPROXIMATE LOCATIONS SHOWN.
A. MAINTAIN ADEQUATE DITCH DRAINAGE AT DITCH CROSSINGS. RESTORE DITCH BANKS TO PROPER SLOPE AND ALIGNMENT AT THE CROSSING AT COMPLETION OF WORK.
B. RESTRICT CONSTRUCTION TRAFFIC TO ACCESS ROUTES SHOWN. PROVIDE GRADING WITH SUITABLE FILL AND TRAFFICABLE SURFACE (3 INCH ROCK TYPICAL) AS NEEDED TO MAINTAIN TRAFFICABILITY DURING ADVERSE WEATHER. PLACE FILL AND TRAFFICABLE ROCK AS NEEDED TO PREVENT RUTTING OF ANY ROAD SHOULDER OR PARKING LOT AREA. BE ADVISED THAT THE GOVERNMENT IS OF THE OPINION THAT A TRAFFICABLE ROAD SURFACE WILL BE REQUIRED ALONG THE ACCESS ROUTE DUE TO NORMALLY WET AND MUDDY CONDITIONS. ACCESS ROADS SHALL BE OF SUFFICIENT WIDTH (LANE WIDTH) TO SAFELY OPERATE EQUIPMENT AND / OR HAUL TRUCKS ALONG THE ROUTE UNDER ALL-WEATHER CONDITIONS. UNLESS OTHERWISE APPROVED, ACCESS ROADS SHALL BE MINIMUM 10 (TEN) FT. WIDE.
C. ACCESS ROADS SHALL BE BUILT WITH MINIMUM PRACTICAL DISTURBANCE TO THE EXISTING TOPOGRAPHY AND SURROUNDING VEGETATION. PRESERVE EXISTING POSITIVE SHEET FLOW PATTERNS ACROSS FIELDS AND ACCESS ROADS WHERE EVER SO AS TO PREVENT THE FORMATION OF PONDING WATER. THE GOVERNMENT WILL ALLOW SOME LIMITED GRADING FOR STEEP OR SEVERELY UNEVEN AREAS. LIMITED DITCHING WILL BE ALLOWED IN PROBLEM LOW AREAS ALONG THE ACCESS ROUTES. DITCH DEPTH SHALL NOT EXCEED 18 INCHES DEEP. AVOID CAUSING EROSION AND GRADING WELL PRIOR TO EXECUTION. THE GOVERNMENT MAY REQUIRE THE CONTRACTOR TO RESTORE NATURAL DRAINAGE PATTERNS, OR PROVIDE OTHER RESTORATION REMEDY, IN ANY AREAS WHERE GRADING OR DITCHING CREATES FIELD EROSION, STANDING WATER, OR EXTENSIVE WET SOIL CONDITIONS.

5. TREE REMOVAL WALK-THROUGH: PRIOR TO ANY TREE CLEARING OR EARTHWORK, THE GOVERNMENT AND CONTRACTOR SHALL CONDUCT A WALK-THROUGH OF THE PROJECT SITE AND ACCESS ROUTES. TREES SHALL BE FIELD MARKED FOR REMOVAL. NO TREES ARE EXPECTED TO BE REMOVED FOR CONSTRUCTION ON THIS PROJECT. CONTRACTOR SHALL EXERCISE CARE TO PROTECT THE REMAINING TREES AND ROOT SYSTEMS.

6. CLEARING AND REMOVAL: CLEAR AND REMOVE DEBRIS, TREES, LOGS, STUMPS, DRIFT, EXCESS EXCAVATED SOIL OR OTHER OBJECTIONAL ITEMS WHICH IMPEDE CONSTRUCTION (BOTH EXPOSED AND UNDERWATER), OR WHICH WILL OVERHANG THE NEW WORK. THE CONTRACTOR SHALL PROVIDE FOR PROPER OFF-SITE DISPOSAL OF ALL DEBRIS. TRANSPORT DEBRIS ONLY AFTER PRIOR COORDINATION WITH THE GOVERNMENT. TRANSPORT AND DISPOSE OF DEBRIS IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. SPECIFIC GOVERNMENT APPROVAL DURING THE PRELIMINARY WALK-THROUGH IS REQUIRED PRIOR TO CLEARING AND REMOVAL OF ANY LIVE TREES OTHER THAN THOSE SCHEDULED.
A. CLEARING/REMOVAL LOCATIONS INCLUDE BUT ARE NOT LIMITED TO:
(1). FOR BURIED ROOT CONSTRUCTION AS INDICATED.
(2) BANKSIDE AND STREAMBED AREAS WHERE REVETMENT CONSTRUCTION AND EXCAVATION IS SCHEDULED
(3) ACCESS LANES AND TURNAROUND AREAS.

7. FIELD SURVEY AND CONSTRUCTION MEASUREMENT LAYOUT:
A. EXISTING SURVEY AND BASELINE INFORMATION IS AS INDICATED ON SHEETS TITLED 'EXISTING CONDITIONS TOPOGRAPHIC SURVEY'. SURVEY WAS PERFORMED APRIL 2004. A TOP OF BANK SURVEY WAS PERFORMED IN APRIL 2005 AS SHOWN ON THE NEW WORK SITE PLAN. ACTUAL FIELD CONDITIONS ARE KNOWN TO VARY AS A RESULT OF ONGOING EROSION. FIELD ADJUST IN COORDINATION WITH THE GOVERNMENT.
B. PRIOR TO PLACEMENT OF ROCK, ESTABLISH CONSTRUCTION LAYOUT MEASUREMENTS. RE-ESTABLISH AT THE SITE ORIGINAL SURVEY BASELINE AND STATIONING. ESTABLISH NEW TOP OF ROCK ELEVATION INDICATORS (SUCH AS A DRIVEN METAL POST/STAKE WITH ELEV. MARKED) AND STRUCTURE CONTROL POINTS FOR NEW WORK. THE CONTRACTOR SHALL ARRANGE FOR GOVERNMENT REVIEW AND APPROVAL OF THE LAYOUT MEASUREMENTS WELL IN ADVANCE OF ROCK PLACEMENT. LAYOUT MARKERS SHALL REMAIN IN-PLACE AND VISIBLE UNTIL APPROVED FOR REMOVAL NEAR THE COMPLETION OF NEW WORK.
C. LAYOUT WORK SHALL BE ACCOMPLISHED UNDER THE DIRECTION OF AN EXPERIENCED, COMPETENT SURVEY PARTY CHIEF MEETING THE QUALIFICATIONS DESCRIBED IN CONTRACT LANGUAGE RELATING TO 'LAYOUT OF WORK'.

8. NEW WORK: ALL ROCK-FILL STRUCTURES (E.G. REVETMENTS, DIKES, BAFFLES, BLANKETS, ROOTS, WINDROW, ETC.) SHOWN ARE NEW WORK. EXCAVATE (WHERE INDICATED), PREPARE SURFACE, AND CONSTRUCT NEW ROCK FILL STRUCTURES TO THE OVERALL DIMENSIONS, ELEVATIONS AND CROSS SECTIONS SHOWN AND IN ACCORDANCE WITH THE QUANTITIES AS REQUIRED BY CONSTRUCTION SCHEDULE. NEW WORK ALSO INCLUDES THE FOLLOWING:
A. CLEAR, GRADE, AND SURFACE ACCESS RAMPS AND ROUTES. MAINTAIN DITCH DRAINAGE AT THE INDICATED LOCATION BY CONSTRUCTING A CROSSING BY USING DRAINAGE CULVERT (NOT LESS THAN 18 INCH DIA, 16 GAGE, 2 2/3 INCH X½INCH CORRUGATIONS, ZINC COATED) AND SUITABLE FILL (CLEAN EXCAVATED MATERIAL AND ROCK). KEEP SAFE DISTANCE FROM ALL SLOPES AND WEAK ZONES. ACCESS RAMPS AND ROUTES SHALL PROVIDE FOR SAFE TRANSPORT OF ROCK AND EQUIPMENT. MINIMIZE SEGREGATION OF ROCK (SIZES) DURING TRANSPORT AND UNLOADING OPERATIONS. FREEFALL AND ROLLING DISTANCE FOR ROCK DUMPING OPERATIONS IS LIMITED TO 12 FT. MAXIMUM, UNLESS OTHERWISE APPROVED BY THE GOVERNMENT.
B. USE APPROPRIATE EQUIPMENT WITH ADEQUATE REACH OR HAND PLACE ROCK WHERE NECESSARY TO OBTAIN INDICATED THICKNESS OF REVETMENT.
C. ENSURE THAT A SMOOTHLY CONTOURED WATERLINE RESULTS ALONG THE NEW STRUCTURES AND THE TRANSITION ZONES INTO NATURAL BANK MATERIAL OR EXISTING STRUCTURES. RIPPLES OR EDDIES FORMING ALONG THE TOE OF NEW STRUCTURES ARE UNACCEPTABLE. CONSULT WITH GOVERNMENT REPRESENTATIVE AND MAKE ROCK PLACEMENT ADJUSTMENTS IF NECESSARY TO ENSURE A SMOOTHLY CONTOURED WATERLINE.
D. DO NOT ALTER CHANNEL GRADIENT. DO NOT REDUCE NOR RESTRICT CHANNEL OPENING (BEYOND FACE OF NEW REVETMENT) AT ANY TIME.
E. WATER SURFACE LEVELS CAN VARY FROM LOW FLOWS OF ROUGHLY 1 TO 3 FEET DEEP (ALONG THE CONSTRUCTION FOOTPRINT) TO BANKFULL OR HIGHER DEPENDING ON WEATHER IN THE UPSTREAM BASIN. FLOODING MAY INUNDATE WORK AREA.
F. TRANSPORT CLEAN EXCESS EXCAVATED MATERIAL TO DESIGNATED ON-SITE FILL AREAS.
G. AFTER COMPLETION OF REVETMENT, THEN ROUGH GRADE THE TOP OF LEFT BANK AREA BETWEEN STA 41+50 TO STA 45+00 LPSTP BASELINE TO PROVIDE A STABLE SLOPE FOR GRASS SEEDING, WITH THE SLOPE AS GENERALLY SHOWN ON CROSS SECTION SHEETS. RAKE, GATHER, AND DISPOSE OF ANY UNCOVERED DEBRIS IN ACCORDANCE WITH THE DEBRIS DISPOSAL NOTE. FINISH CONTOURS SHALL PROVIDE FOR EVEN SHEET FLOW ACROSS THE TOP OF BANK AND REVETMENTS UNLESS OTHERWISE INDICATED -- DO NOT ALLOW CONCENTRATED FLOW AREAS (SUCH AS A DITCH OR SWALE) UNLESS SPECIFICALLY SHOWN IN PLANS.
H. UNLESS OTHERWISE STATED OR APPROVED, CONSTRUCTION OF NEW REVETMENTS AND DIKES SHALL GENERALLY BEGIN AND COMPLETE IN AN UPSTREAM (FIRST) TO DOWNSTREAM (LAST) DIRECTION.

9. OFF-SITE BORROW PIT & DESIGNATED OFF-SITE SPOIL (FILL) AREA:
A. AN OFF-SITE SOIL BORROW AREA IS NOT ANTICIPATED AS NEEDED AND IS NOT PROVIDED BY THE GOVERNMENT.
B. AN OFF-SITE SPOIL AREA FOR CLEAN EXCESS EXCAVATION IS NOT ANTICIPATED AS NEEDED AND IS NOT PROVIDED BY THE GOVERNMENT. CONTRACTOR IS RESPONSIBLE FOR TRANSPORTING AND DISPOSING OF SPOIL OFFSITE, IN ACCORDANCE WITH ALL APPLICABLE LAWS AND REGULATIONS.

10. PERFORM TREE AND SHRUB PLANTING AND BOUNDARY MARKING AS LAST NEW WORK ITEM. SEE PLANTING SCHEDULE SPECIFICATIONS.

11. RESTORATION: AT THE CONCLUSION OF THE PROJECT, RESTORE ALL ACCESS POINTS AND HAUL ROADS TO ORIGINAL CONDITION, THEN SEED AND MULCH ALL EXPOSED DISTURBED AREAS EXCEPT AGRICULTURAL AREAS. FOR WORK DURING WINTER, APPLY WINTER SEEDING MIXTURE AND AN OAT COVER SEEDING.

12. KEEP MACHINERY OUT OF WATER AS MUCH AS POSSIBLE.

SITE PLAN NOTE: THE FOOTPRINT OF NEW STRUCTURES ARE SHOWN SUPERIMPOSED ON EXISTING CONTOURS. CONTOURS HAVE NOT BEEN REDRAWN TO SHOW FINISH ELEVATIONS. SEE CROSS SECTION SHEETS FOR FINISH ELEVATIONS.

STATE OF MISSOURI
JOHN BLANCETT
NUMBER E-28946
REGISTERED PROFESSIONAL ENGINEER
6-15-05

HNTB

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

US Army Corps of Engineers

GRUNDY COUNTY, MO
THOMPSON RIVER-ROUTE 6 BRIDGE

GENERAL CONST. NOTES

Designed by: JMB	Scale: N.T.S.	Sheet reference number:	
Drawn by: LYM, JRH	Date: 5-5-05		
Checked by: PGJ	Drawing Codes:		Sheet 1 of 7
Reviewed by: COE			
Approved by: COE			

14-JAN-2005
bmitchell
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BOOK 347
PAGE 599

NE¼ NW¼
19-61-24

NW¼ NE¼
19-61-24

NE¼ NE¼
19-61-24

¼ SECTION LINE

¼¼ SECTION LINE

NE COR. SEC 19-61-24
1" ø ALUM CAP

N89° 22'06"E
2666.74'

EAST LINE SEC. 19-61-24

SCALE: 1" = 100'-0"

SE¼ NW¼
19-61-24

SW¼ NE¼
19-61-24

SE¼ NE¼
19-61-24

FRANKLIN BOSLEY
NO TAKING

CHARLES & DEBORAH KING
NO TAKING

APPROXIMATE CENTERLINE OF RIVER

EXISTING PERMANENT EASEMENT

APPROXIMATE TOP OF BANK

PROJECT FOOTPRINT & NEW PERMANENT EASEMENT

EXISTING R/W

R/W MARKER

℄ ROUTE 6

N89° 17' 49"E

TEMP. CONST. ESMT.

① J. K. FARMS, INC.
3.75 NEW PERM. ESM'T.
72.92 REMAINING ACRES

② HOFFMAN'S FAIR ACRES, INC.
1.31 NEW PERM. ESM'T.
0.04 NEW TEMP. CONSTRUCTION ESM'T.
376.00 REMAINING ACRES

℄ SECTION LINE

NE¼ SW¼
19-61-24

NW¼ SE¼
19-61-24

400 410 415 420 425 430 437+82

HNTB	U.S.ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI
Designed by: MoDOT, COE	GRUNDY COUNTY, MO
Drawn by: MoDOT, COE, LYM	THOMPSON RIVER-ROUTE 6 BRIDGE
Checked by: JMB	PROPERTY EASEMENTS AND RIGHT OF WAY
Reviewed by: COE	Scale: 1"=100'
Approved by: COE	Date: 8-11-05
	Drawing Code:
	Sheet reference number:
	Sheet 2 of 7

ZX-SEP-2005
lwitzwell
100.000000 1.000000
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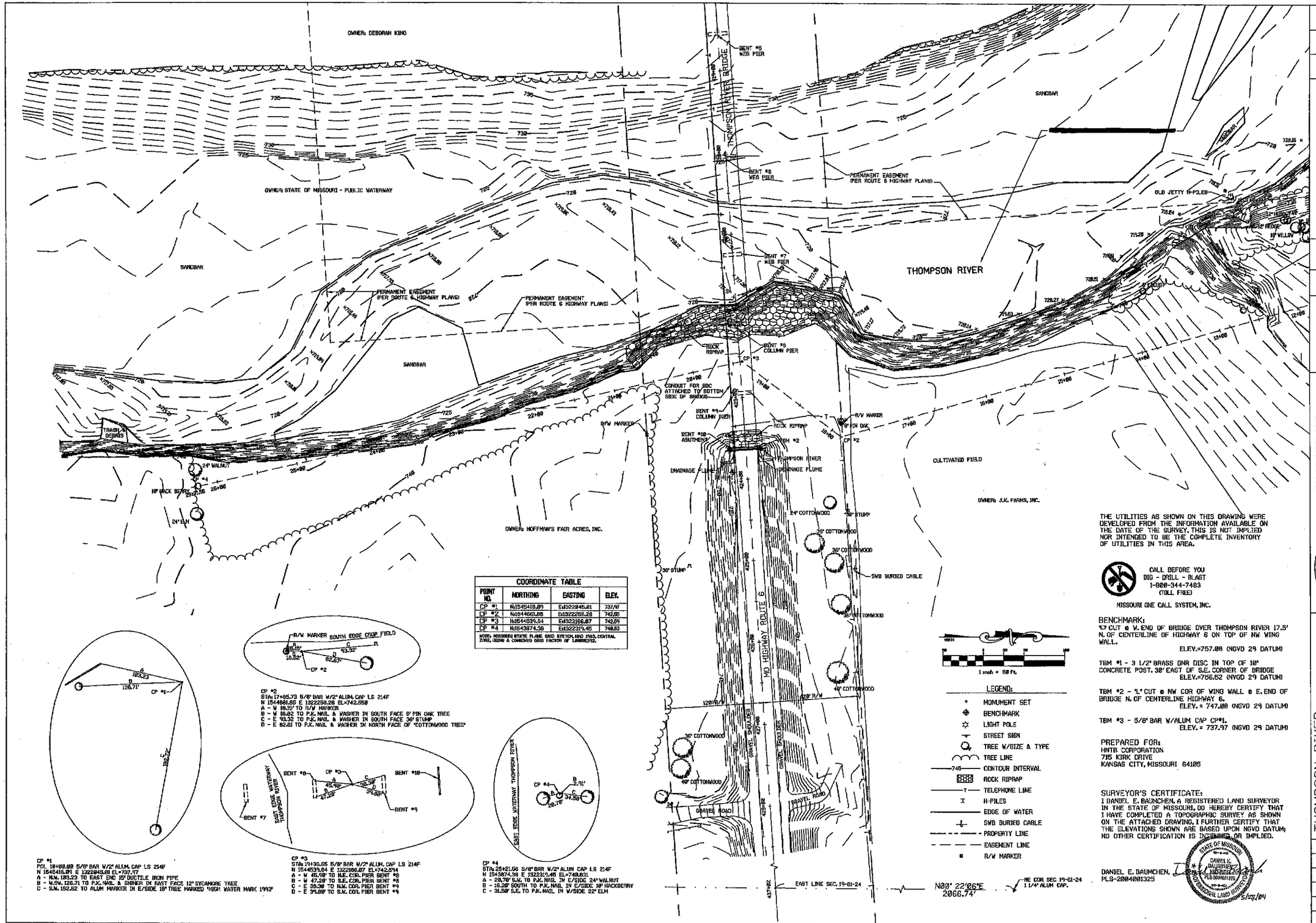


COORDINATE TABLE			
POINT NO.	NORTHING	EASTING	ELEV.
CP #1	N1545418.89	E1322845.81	737.97
CP #2	N1544661.86	E1322258.26	742.66
CP #3	N1544839.84	E1322186.87	742.69
CP #4	N1543874.36	E1322319.45	748.63

NOTE: MISSOURI STATE PLANE GRID SYSTEM, NAD 1983, CENTRAL ZONE, USING A COMBINED GRID FACTOR OF 1.0008232.

CP #1
POL 18+98.98 5/8" BAR W/2" ALUM. CAP LS 214F
N 1545418.89 E 1322845.81 EL=737.97
A - N.W. 193.23 TO EAST END 16" DUCTILE IRON PIPE
B - W.S.W. 126.71 TO P.K. NAIL & WASHER IN EAST FACE 12" SYCAMORE TREE
C - S.W. 152.82 TO ALUM MARKER IN E/SIDE 18" TREE MARKED "HIGH WATER MARK 1993"

CP #2
STA 17+95.79 5/8" BAR W/2" ALUM. CAP LS 214F
N 1544661.86 E 1322258.26 EL=742.658
A - W 18.15' TO R/W MARKER
B - W 18.82 TO P.K. NAIL & WASHER IN SOUTH FACE 8" PIN OAK TREE
C - E 93.32 TO P.K. NAIL & WASHER IN SOUTH FACE 36" STUMP
D - E 62.81 TO P.K. NAIL & WASHER IN NORTH FACE OF "COTTONWOOD TREE"

CP #3
STA 19+38.65 5/8" BAR W/2" ALUM. CAP LS 214F
N 1544839.84 E 1322186.87 EL=742.694
A - W 45.98' TO S.E. COR. PIER BENT #8
B - W 47.28' TO S.E. COR. PIER BENT #8
C - E 38.38' TO N.W. COR. PIER BENT #9
D - E 39.88' TO S.W. COR. PIER BENT #9

CP #4
STA 25+21.56 5/8" BAR W/2" ALUM CAP LS 214F
N 1543874.36 E 1322319.45 EL=748.631
A - 28.78° S.W. TO P.K. NAIL IN E/SIDE 24" WALNUT
B - 16.28' SOUTH TO P.K. NAIL IN E/SIDE 18" HACKBERRY
C - 31.58' S.E. TO P.K. NAIL IN W/SIDE 22" ELM

1 inch = 68 ft.

LEGEND:
- MONUMENT SET
- BENCHMARK
- LIGHT POLE
- STREET SIGN
- TREE W/SIZE & TYPE
- TREE LINE
- 745 CONTOUR INTERVAL
- ROCK RIPRAP
- T TELEPHONE LINE
- H H-PILES
- EDGE OF WATER
- SWB SWB BURIED CABLE
- PROPERTY LINE
- EASEMENT LINE
- R/W MARKER

THE UTILITIES AS SHOWN ON THIS DRAWING WERE DEVELOPED FROM THE INFORMATION AVAILABLE ON THE DATE OF THE SURVEY. THIS IS NOT IMPLIED NOR INTENDED TO BE THE COMPLETE INVENTORY OF UTILITIES IN THIS AREA.

CALL BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

BENCHMARK:
"X" CUT @ W. END OF BRIDGE OVER THOMPSON RIVER 17.5' N. OF CENTERLINE OF HIGHWAY 6 ON TOP OF NW WING WALL.
ELEV.=757.08 (NGVD 29 DATUM)

TBM #1 - 3 1/2" BRASS DNR DISC IN TOP OF 18" CONCRETE POST. 38' EAST OF S.E. CORNER OF BRIDGE
ELEV.=756.52 (NVGD 29 DATUM)

TBM #2 - "L" CUT @ NW COR OF WING WALL @ E. END OF BRIDGE N. OF CENTERLINE HIGHWAY 6.
ELEV. = 747.08 (NGVD 29 DATUM)

TBM #3 - 5/8" BAR W/ALUM CAP CP#1.
ELEV. = 737.97 (NGVD 29 DATUM)

PREPARED FOR:
HNTB CORPORATION
715 KIRK DRIVE
KANSAS CITY, MISSOURI 64105

SURVEYOR'S CERTIFICATE:
I DANIEL E. BAUMCHEN, A REGISTERED LAND SURVEYOR IN THE STATE OF MISSOURI, DO HEREBY CERTIFY THAT I HAVE COMPLETED A TOPOGRAPHIC SURVEY AS SHOWN ON THE ATTACHED DRAWING. I FURTHER CERTIFY THAT THE ELEVATIONS SHOWN ARE BASED UPON NGVD DATUM; NO OTHER CERTIFICATION IS INTENDED OR IMPLIED.

DANIEL E. BAUMCHEN
PLS-2004001325

STATE OF MISSOURI — DANIEL E. BAUMCHEN — NUMBER 2004001325 — PLS — SURVEYOR — 5/23/04

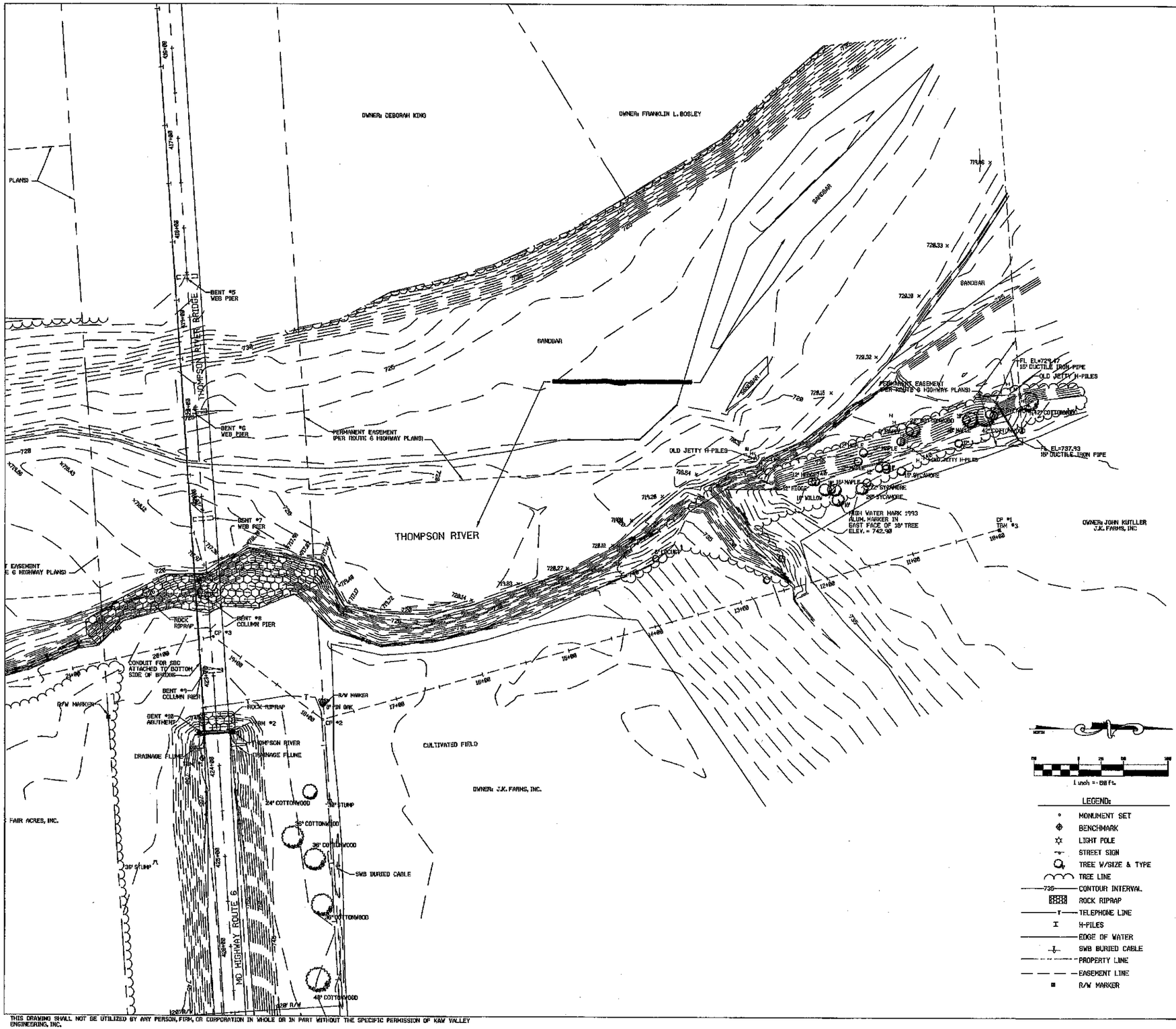
REV	DATE	DESCRIPTION	DSN	DWN	CHK

KAW VALLEY ENGINEERING, INC. - CONSULTING ENGINEERS
Kansas City, Kansas Office
1333 N.E. BARRY ROAD
KANSAS CITY, MISSOURI 64155
816-459-3888 FAX 816-468-8851
WEB SITE www.kveng.com

THOMPSON RIVER ROUTE 6 TRENTON MISSOURI
TOPOGRAPHIC SURVEY

PROJ. NO.	B0490557
DATE	05/18/04
DESIGNER	DEB
DRAWN BY	MJC
CFN	0557TOPO
SHEET	1 OF 2
REV	

ORIGINAL IN RED



THE UTILITIES AS SHOWN ON THIS DRAWING WERE DEVELOPED FROM THE INFORMATION AVAILABLE ON THE DATE OF THE SURVEY. THIS IS NOT IMPLIED NOR INTENDED TO BE THE COMPLETE INVENTORY OF UTILITIES IN THIS AREA.

CALL BEFORE YOU DIG - DRILL - BLAST
1-800-344-7483
(TOLL FREE)
MISSOURI ONE CALL SYSTEM, INC.

BENCHMARK:
"J" CUT @ W. END OF BRIDGE OVER THOMPSON RIVER 17.5' N. OF CENTERLINE OF HIGHWAY 6 ON TOP OF NW WING WALL.
ELEV.=767.08 (NGVD 29 DATUM)

TBM #1 - 3 1/2" BRASS DNR DISC IN TOP OF 18" CONCRETE POST. 39' EAST OF S.E. CORNER OF BRIDGE
ELEV.=766.62 (NVGD 29 DATUM)

TBM #2 - "L" CUT @ NW COR OF WING WALL @ E. END OF BRIDGE N. OF CENTERLINE HIGHWAY 6.
ELEV. = 747.08 (NGVD 29 DATUM)

TBM #3 - 5/8" BAR W/ALUM CAP CP#1.
ELEV. = 737.97 (NGVD 29 DATUM)

PREPARED FOR:
HNTB CORPORATION
715 KIRK DRIVE
KANSAS CITY, MISSOURI 64105

SURVEYOR'S CERTIFICATE:
I DANIEL E. BAUMCHEN, A REGISTERED LAND SURVEYOR IN THE STATE OF MISSOURI, DO HEREBY CERTIFY THAT I HAVE COMPLETED A TOPOGRAPHIC SURVEY AS SHOWN ON THE ATTACHED DRAWING. I FURTHER CERTIFY THAT THE ELEVATIONS SHOWN ARE BASED UPON NGVD DATUM; NO OTHER CERTIFICATION IS INTENDED OR IMPLIED.

DANIEL E. BAUMCHEN, PLS
PLS-2004001325
STATE OF MISSOURI DANIEL E. BAUMCHEN NUMBER PLS-2004001325 LICENSED LAND SURVEYOR
5/27/04

LEGEND:
- MONUMENT SET
- BENCHMARK
- LIGHT POLE
- STREET SIGN
- TREE W/SIZE & TYPE
- TREE LINE
- 735 CONTOUR INTERVAL
- ROCK RIPRAP
- T TELEPHONE LINE
- H-PILES
- EDGE OF WATER
- SWB BURIED CABLE
- PROPERTY LINE
- EASEMENT LINE
- R/W MARKER

REV	DATE	DESCRIPTION	DSN	DWN	CHK

KAW VALLEY ENGINEERING, INC. - CONSULTING ENGINEERS
Offices: Junction City, Ks. Kansas City, Mo. Lenexa, Ks.
1333 N.E. BARRY ROAD
KANSAS CITY, MISSOURI 64155
816-468-8858 FAX 816-468-8851
E-MAIL kvei@kvengr.com
WEB SITE www.kvengr.com

THOMPSON RIVER ROUTE 6 TRENTON MISSOURI
TOPOGRAPHIC SURVEY

PROJ. NO.	60450557
DATE	05/18/04
DESIGNER	DEB
DRAWN BY	MJC
CPN	0557TOPO
REV	
SHEET	2 OF 2

ORIGINAL IN RED

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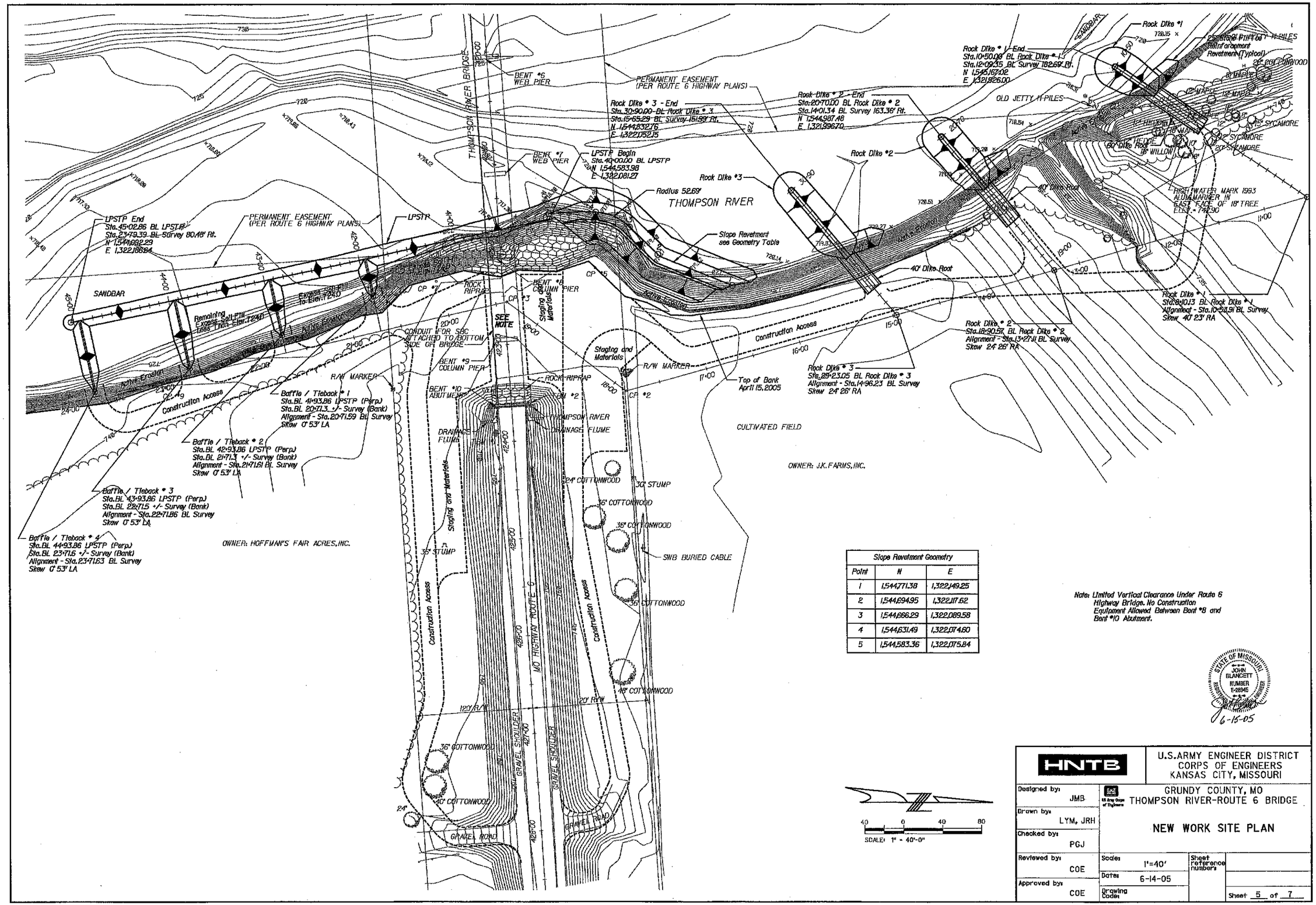

Slope Revetment Geometry		
Point	N	E
1	1,544,771.38	1,322,149.25
2	1,544,694.95	1,322,117.62
3	1,544,666.29	1,322,089.58
4	1,544,631.49	1,322,074.60
5	1,544,583.36	1,322,075.84

Note: Limited Vertical Clearance Under Route 6 Highway Bridge. No Construction Equipment Allowed Between Bent #8 and Bent #10 Abutment.

STATE OF MISSOURI
JOHN BLANCETT
NUMBER E-26945
REGISTERED PROFESSIONAL ENGINEER
6-15-05

HNTB

U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

GRUNDY COUNTY, MO
THOMPSON RIVER-ROUTE 6 BRIDGE

NEW WORK SITE PLAN

Designed by: JMB	
Drawn by: LYM, JRH	
Checked by: PGJ	
Reviewed by: COE	Scale: 1"=40'
Approved by: COE	Date: 6-14-05
	Drawing Code:
	Sheet reference number:
	Sheet 5 of 7

14-JAN-2005
lmitchell
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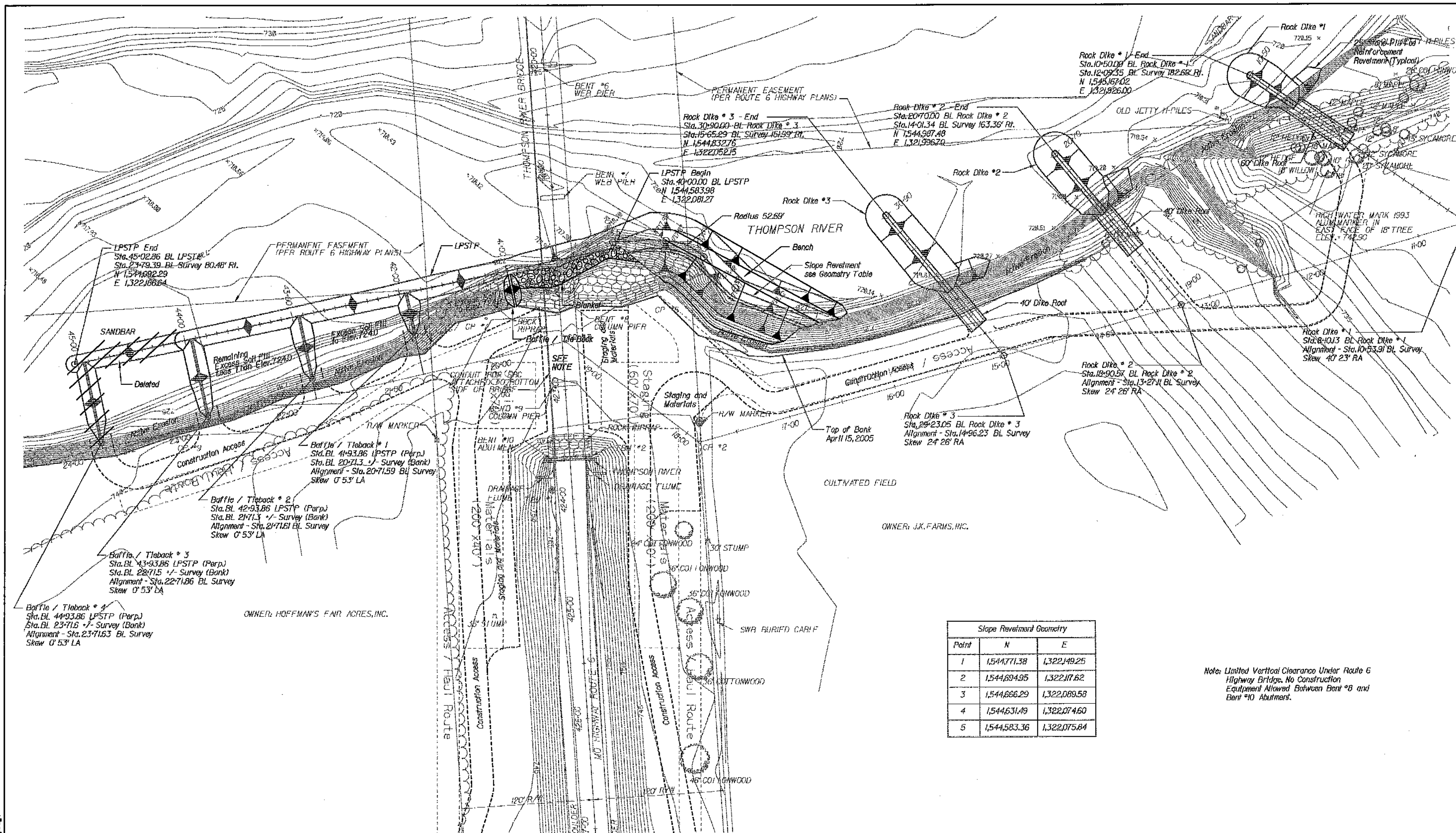

Slope Revetment Geometry		
Point	N	E
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3	1,544,666.29	1,322,089.58
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HNTB

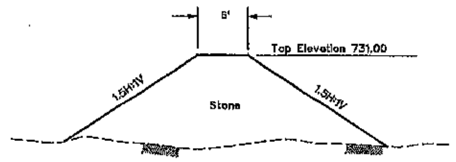
U.S.ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

GRUNDY COUNTY, MO
THOMPSON RIVER-ROUTE 6 BRIDGE

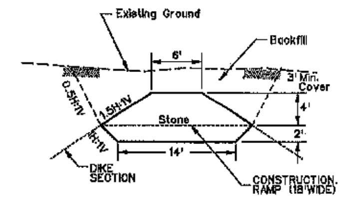
AS-BUILT NEW WORK SITE PLAN

Designed by:	JMB
Drawn by:	LYM
Checked by:	MCKINZIE
Reviewed by:	COE
Approved by:	COE
Scale:	1"=40'
Date:	3-8-06
Drawing Code:	
Sheet reference number:	

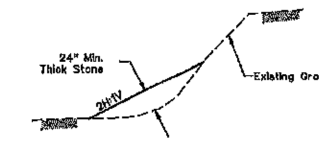
Sheet 5 of 7



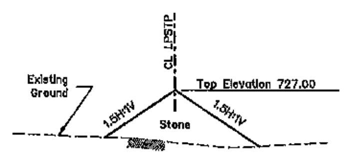
TYPICAL SECTION OF STONE DIKE



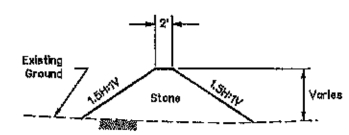
TYPICAL SECTION OF DIKE ROOT



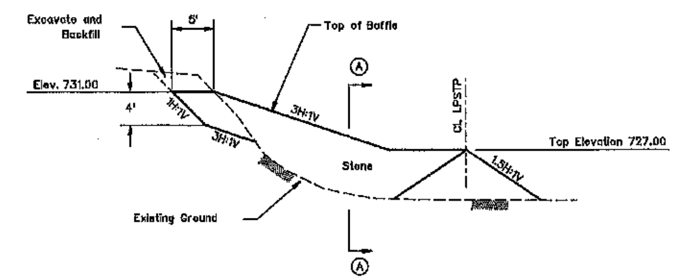
TYPICAL SECTION OF STONE FILL TOE REINFORCEMENT REVETMENT



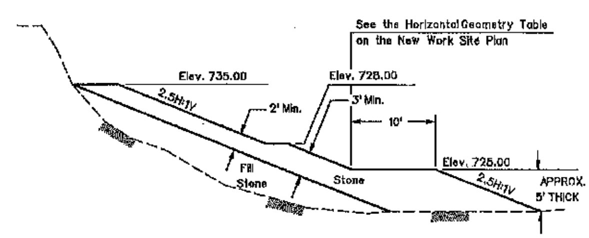
TYPICAL SECTION OF FREESTANDING LPSTP REVETMENT



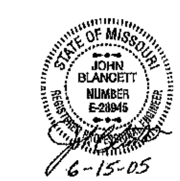
TYPICAL SECTION OF LPSTP BAFFLE / TIEBACK (A-A)

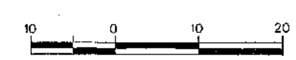


TYPICAL SECTION OF BAFFLE / TIEBACK FOR LPSTP REVETMENT



TYPICAL SECTION OF SLOPE REVETMENT





25-APR-2005
lmitchell
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HNTB	U.S.ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI		
Designed by: JMB	GRUNDY COUNTY, MO THOMPSON RIVER-ROUTE 6 BRIDGE		
Drawn by: LYM	TYPICAL SECTIONS AND DETAILS		
Checked by: PCJ			
Reviewed by: COE	Scale: 1"=10'	Sheet reference number:	
Approved by: COE	Date: 4-26-05		
	Drawing Code:		Sheet 6 of 7