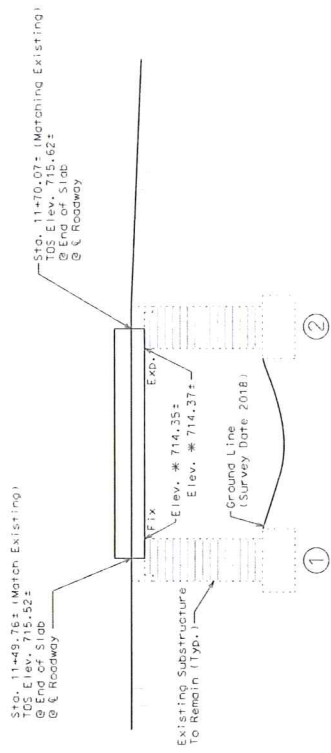
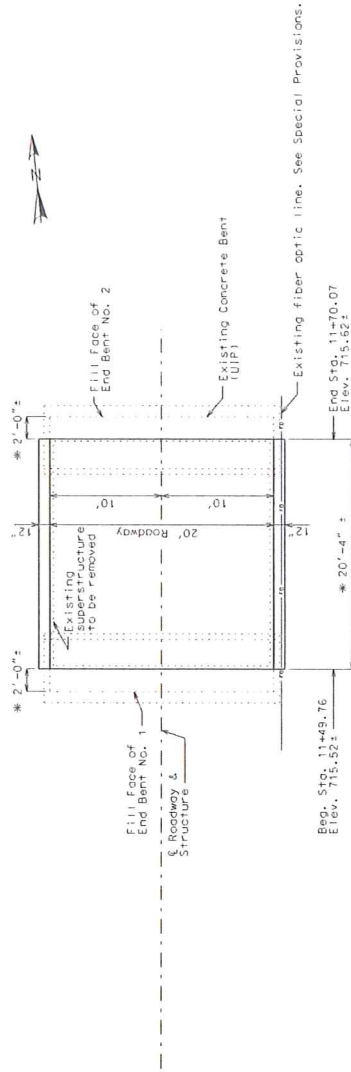


FRANKLIN COUNTY  
 RIP EXISTING SUBSTRUCTURE AND REPLACE  
 EXISTING SUPERSTRUCTURE WITH (20') CAST-IN-PLACE SOLID CONCRETE SLAB



GENERAL ELEVATION



PLAN

Notes:  
 RIP = Use In Place  
 All stationing is along & Roadway.  
 Plan dimensions are horizontal.  
 \* Dimensions and elevations shown are based on survey data and field measurements and are not guaranteed. See Special Provisions for new materials. See Special Provisions.  
 Dashed lines indicate old work. Heavy lines indicate new work.  
 For General Notes, Estimated Quantities & Location Sketch, see Sheet No. 2 of 7.

SITE BENCHMARK:  
 FALL ROCK PINE SET IN SOUTH  
 FACE OF WALKWAY NORTH OF  
 NORTH BRIDGE ABUTMENT & 12.5' WEST  
 FROM CENTER OF ROAD  
 ELEV. 1144.01

Designed: JDS  
 Drawn: JDS  
 Checked: CBW

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

Sheet No. 1 of 7



NAME	DATE PREPARED
PROJECT NO.	8212019
STATE	MO
COUNTY	B1
CITY	FRANKLIN
JOB NO.	1815510
CONTRACT NO.	
FEDERAL PROJECT NO.	

DATE	DESCRIPTION



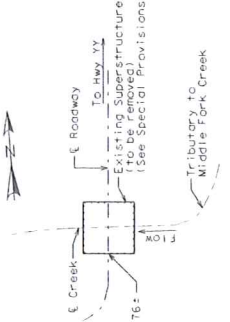
FRANKLIN COUNTY  
 BRIDGE  
 REHABILITATION  
 GENERAL PLAN  
 AND ELEVATION

**Estimated Quantities**

Item	Substr.	Superstr.	Total
Removal of Existing Superstructure	Lump sum		20.0
Class B-2 Concrete (Superstructure, Solid Slab)	cu. yard	20.0	41
Knee Wall Barrier Curb	Linear Foot	41	1
Substructure Repairs	Lump sum		1
Conduit System on Structure	Lump sum		3.010
Reinforcing Steel (Epoxy Coated)	bound		

**GENERAL NOTES:**  
 Design Specifications:  
 DOT MISSOURI LRFD Bridge Design Specifications (6th Edition)  
 and 2013 Interim Revisions  
 Design Loading:  
 Vehicular: HL-93  
 33k/56k Ft. Future Wearing Surface  
 Superstructure: Simply-supported  
 Design Unit Stresses:  
 Class B-2 Concrete (Superstructure)  $f'c = 4,000$  psi  
 Class B-1 Concrete (for Knee-Wall Barrier Curb)  $f'c = 4,000$  psi  
 Reinforcing Steel (Grade 60)  $fy = 60,000$  psi  
 Reinforcing Steel:  
 Minimum clearance to reinforcing steel shall be  $1\frac{1}{2}"$ , unless otherwise shown.  
 All reinforcing steel is to be epoxy coated.  
 Miscellaneous:  
 Existing plans are not available.  
 Contractor shall field verify all dimensions in field before ordering new material. The cost of field verification is incidental to other items. See Special Provisions.  
 Construction Specifications:  
 The 2019 Edition and Supplemental Revisions of the Missouri Department of Transportation's Missouri Standard Specifications for Highway Construction and the Job Special Provisions shall govern.  
 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 systems, complete in place, will be considered completely covered by the contract unit price for Class B-2 Concrete (Superstructure-Solid Slab).  
 Screed:  
 Bridge deck surface may be finished with a vibrator screed.  
 Joint Filler:  
 All joint filler shall be in accordance with Sec 1051 for preformed sponge rubber expansion and partition joint filler, except as noted.  
 Traffic Control:  
 The Road will be closed to all traffic during demolition and construction. See Roadway Plans and Special Provisions.

Joint Filler:  
 All joint filler shall be in accordance with Sec 1051 for preformed sponge rubber expansion and partition joint filler, except as noted.  
 Traffic Control:  
 The Road will be closed to all traffic during demolition and construction. See Roadway Plans and Special Provisions.



**LOCATION SKETCH**

Design: JDS  
 Detail: JDS  
 Check: CBW

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



PROJECT NO.	8212019
STATE	MO
COUNTY	BOONE
CITY	FRANKLIN
JOB NO.	1816510
CONTRACT ID.	
FEDERAL PROJECT NO.	

DATE	DESCRIPTION



**FRANKLIN COUNTY  
 SCHOENBERG ROAD  
 BRIDGE  
 REHABILITATION**  
 GENERAL NOTES

REV. 1  
 11/14/2019  
 11:49:23 AM  
 3:27:24 PM  
 General Notes 201



PROJECT NO.	8/21/2019
MO	
EST. NO.	B3
OWNER	FRANKLIN
JOB NO.	1815510
CONTRACT ID	
FEDERAL PROJECT NO.	

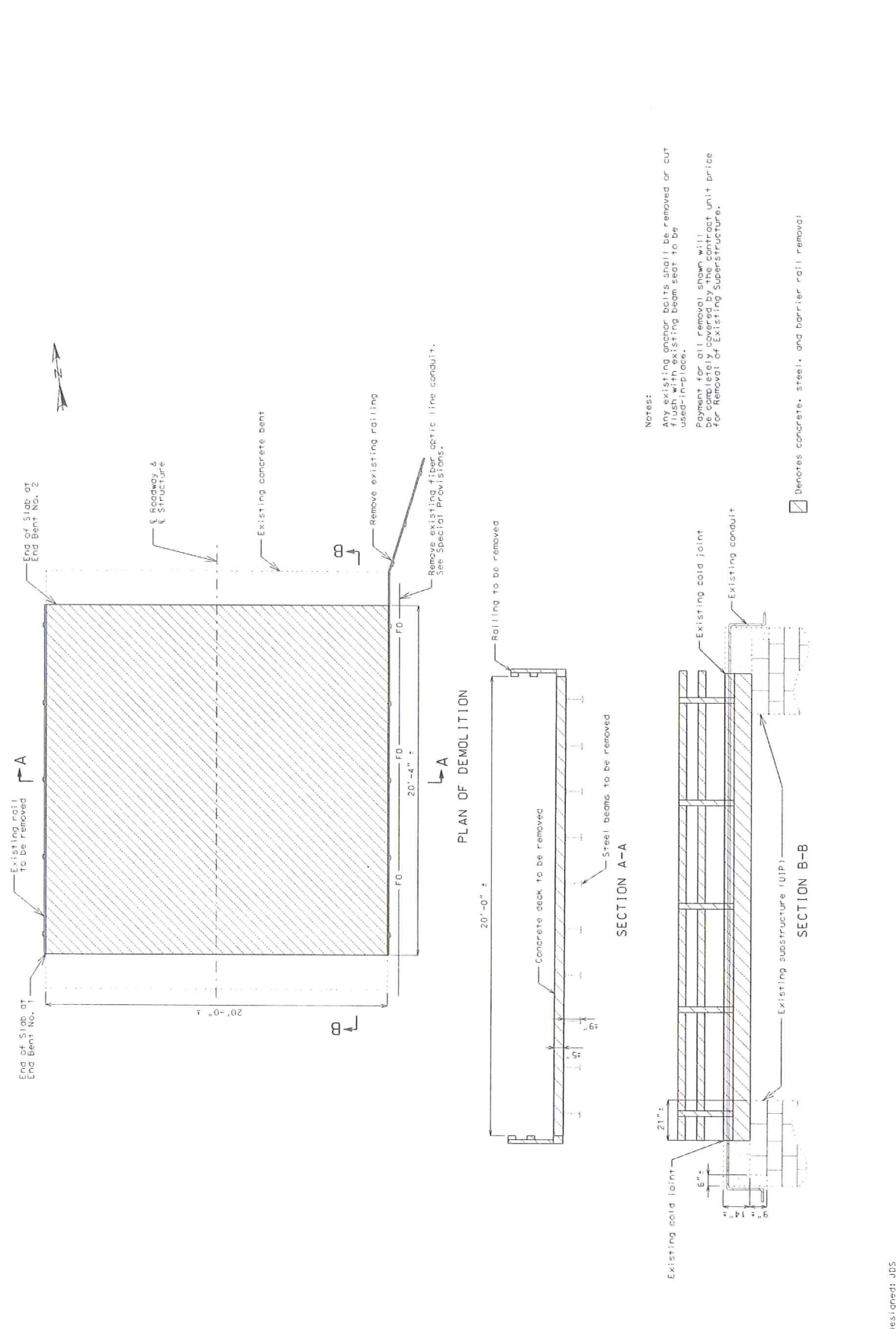
DATE	DESCRIPTION

**HORNER SHIFFRIN**

REGISTERED PROFESSIONAL ENGINEERS  
EXPIRATION DATE: DECEMBER 31, 2020

5115 S. 27th Street, Suite 100, Lincoln, MO 64603  
TEL: 660.321.1111 FAX: 660.321.2222  
WWW.HORNER-SHIFFRIN.COM

**FRANKLIN COUNTY  
SCHOENBERG ROAD  
BRIDGE  
REHABILITATION  
DEMOLITION PLAN**





DATE	8/21/2019
MO	MO
DISTRICT	DISTRICT
COUNTY	FRANKLIN
JOB NO.	1815510
CONTRACT ID	
FEDERAL PROJECT NO.	

DATE	DESCRIPTION



FRANKLIN COUNTY  
 SCHOENBERG ROAD  
 BRIDGE  
 REHABILITATION  
 END BENT REPAIRS



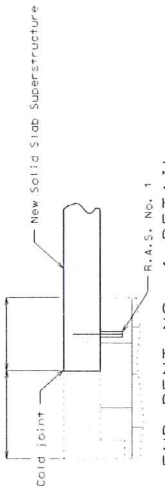
END BENT NO. 1



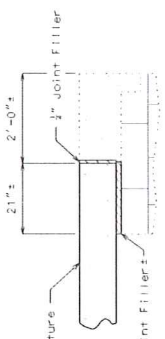
END BENT NO. 2

Notes:  
 A smooth, level surface shall be provided at End Bent No. 2 at the top of beam cap where joint filler will be installed. See End Bent No. 2 detail.  
 Mortar mix to be used must be appropriate for the stone present in the existing substructure. See Special Provisions.  
 Mortar repairs are to be completed only when existing and forecasted weather conditions permit; repointing work to be performed according to product manufacturers' written instructions and specified requirements.  
 Rake out and repoint all loose joints. Remove mortar from joints to full depth of stone. Apply sand paper to exterior surface of mortar. Cure for 72 hours. New mortar is placed as recommended by manufacturer.

Approximate quantity of substructure mortar repairs:  
 352 square feet  
 (For informational purposes only)



END BENT NO. 1 DETAIL



END BENT NO. 2 DETAIL

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

Designed: JDS  
 Checked: CBW





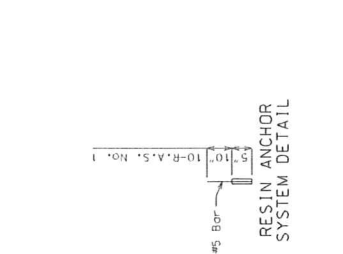
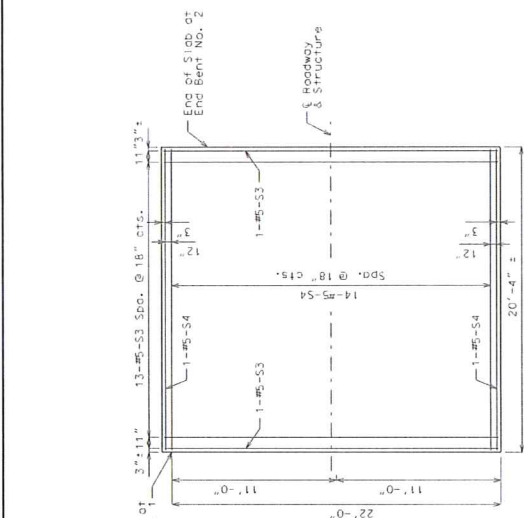
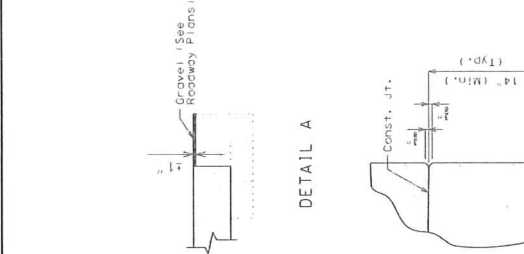
PROJECT NO.	8212019
DATE	MO
STATE	MO
CITY	FRANKLIN
COUNTY	FRANKLIN
JOB NO.	181510
CONTRACTOR	
GENERAL PROJECT NO.	

DATE	DESCRIPTION



**FRANKLIN COUNTY  
SCHOENBERG ROAD  
REHABILITATION  
BRIDGE**

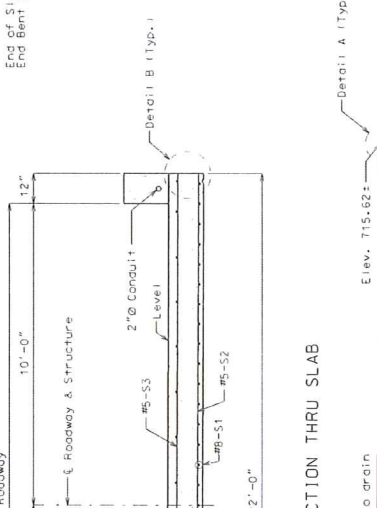
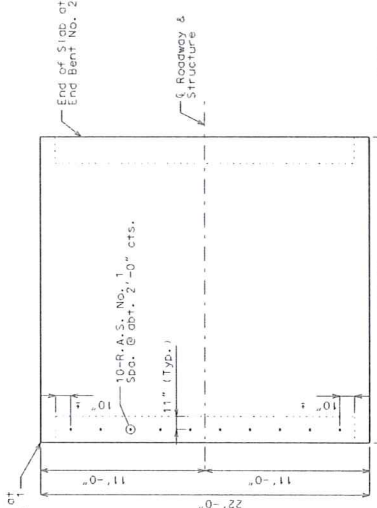
SLAB DETAILS



**Notes:**  
 Longitudinal dimensions are horizontal.  
 The contractor shall finish up, approved per order and shall pour and satisfactorily finish the roadway slab at a rate of not less than 25 cubic yards per hour.  
 See Sheet No. B6 for Knee Wall Barrier Curb details.  
 R.A.S. = Resin Anchor System

PLAN OF SLAB SHOWING TOP REINFORCEMENT

PLAN OF SLAB SHOWING RESIN ANCHOR SYSTEM



PLAN OF SLAB SHOWING BOTTOM REINFORCEMENT

TYPICAL SECTION THRU SLAB

SLAB LONGITUDINAL SECTION

(Reinforcing steel not shown for clarity)

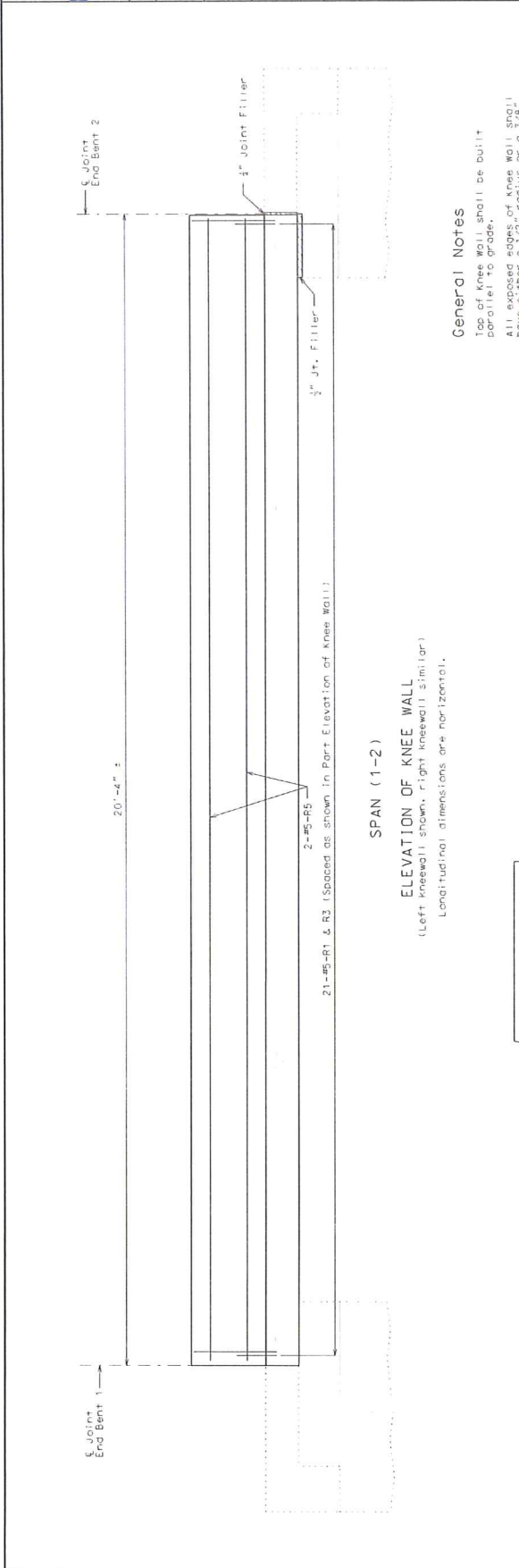


PROJECT NO.		8212019
STATE	MO	
COUNTY	BB	
CITY/TOWNSHIP	FRANKLIN	
OWNER	JOHN	
CONTRACT NO.	1815510	
FEDERAL PROJECT NO.		

DATE	DESCRIPTION

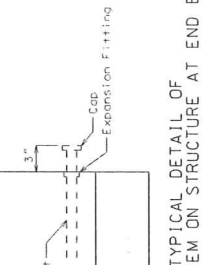
**HORNBERG SHIFFNER**  
 CIVIL ENGINEERS AND ARCHITECTS  
 1111 S. 1ST ST., SUITE 100, ST. LOUIS, MO 63102  
 PHONE: (314) 521-1200 FAX: (314) 521-1202  
 LICENSE NO. 000000000000000000000000  
 EXPIRES 12/31/2024

FRANKLIN COUNTY  
 SCHOENBERG ROAD  
 REHABILITATION  
 BRIDGE  
 BARRIER CURB



**General Notes**

- Top of knee wall shall be built parallel to grade.
- All exposed edges of knee wall shall be finished with a 3/8" chamfered bevel, unless otherwise noted.
- Payment for all concrete and reinforcement, complete in place, will be considered completely covered by this contract unless otherwise noted.
- Wall Barrier Curb shall be in place.
- Concrete in the Knee Wall Barrier Curb shall be Class B-1.
- Measurement of Knee Wall Barrier Curb shall be measured along the outside top of slab from end of slab to end of slab.
- Concrete traffic barrier delineators shall be placed on top of the knee wall barrier curb as shown on accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall be placed on both sides.
- Concrete traffic barrier delineators will be considered completely covered by this contract unless otherwise noted.
- Shift reinforcing steel in field where necessary to clear conduit.



**CONDUIT SYSTEM ON STRUCTURE AT END BENTS**

Section A-A: The cross-sectional area above the slab = 1.5 sq. ft.



**CONDUIT SYSTEM ON STRUCTURE AT END BENTS**

Section A-A: The cross-sectional area above the slab = 1.5 sq. ft.

**General Notes**

- Top of knee wall shall be built parallel to grade.
- All exposed edges of knee wall shall be finished with a 3/8" chamfered bevel, unless otherwise noted.
- Payment for all concrete and reinforcement, complete in place, will be considered completely covered by this contract unless otherwise noted.
- Wall Barrier Curb shall be in place.
- Concrete in the Knee Wall Barrier Curb shall be Class B-1.
- Measurement of Knee Wall Barrier Curb shall be measured along the outside top of slab from end of slab to end of slab.
- Concrete traffic barrier delineators shall be placed on top of the knee wall barrier curb as shown on accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall be placed on both sides.
- Concrete traffic barrier delineators will be considered completely covered by this contract unless otherwise noted.
- Shift reinforcing steel in field where necessary to clear conduit.
- Conduit shall be rigid nonmetallic chloride (PVC) with 3" minimum cover in concrete. Each section of conduit shall be marked with the manufacturer's laboratory (UL) label.
- Install conduit in east (right side) barrier only.
- Payment for finishing and painting conduit system, complete in place, will be considered completely covered by the contractor. Provide for conduit system on structure.
- Bridges shall be provided at low points or other critical locations of all conduits in accordance with Sec 617. A conduit shall be sloped to drain where possible.



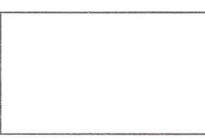
**CONDUIT SYSTEM ON STRUCTURE AT END BENTS**

Section A-A: The cross-sectional area above the slab = 1.5 sq. ft.



**FRANKLIN COUNTY**  
 COUNTY ENGINEER  
 FRANKLIN  
 COUNTY  
 1915510  
 JOB NO  
 8212019  
 DATE  
 FEDERAL PROJECT NO

DATE	DESCRIPTION



**FRANKLIN COUNTY**  
**REHABILITATION**  
**BRIDGE**  
**SCHOENBERG ROAD**  
**BILL OF REINFORCING STEEL**

NO. REQ'D.	MARK SIZE	LOCATION	DIMENSIONS											WEIGHT			
			B	C	D	E	F	H	K	NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT PER LB.					

NO. REQ'D.	MARK SIZE	LOCATION	DIMENSIONS											WEIGHT			
			B	C	D	E	F	H	K	NOMINAL LENGTH	ACTUAL LENGTH	WEIGHT PER LB.					

### STIRRUP HOOK DIMENSIONS

BAR SIZE	D	90°	135°	180°
#4	3"	4 1/2"	5 1/2"	6"
#5	4 1/2"	6"	7 1/2"	8"
#6	6"	8"	10"	11"
#7	8"	10"	13"	14"
#8	10"	13"	17"	18"
#9	13"	17"	22"	23"
#10	17"	22"	28"	30"
#11	22"	28"	35"	38"
#12	28"	35"	43"	46"

### DETAILING DIMENSION

90°  
 135°  
 180°  
 DETAILING DIMENSION

### END HOOK DIMENSIONS

BAR SIZE	D	90°	135°	180°
#4	3"	4 1/2"	5 1/2"	6"
#5	4 1/2"	6"	7 1/2"	8"
#6	6"	8"	10"	11"
#7	8"	10"	13"	14"
#8	10"	13"	17"	18"
#9	13"	17"	22"	23"
#10	17"	22"	28"	30"
#11	22"	28"	35"	38"
#12	28"	35"	43"	46"

NOTE: UNLESS OTHERWISE NOTED, DIMENSIONS ARE IN INCHES. ALL DIMENSIONS ARE TO THE CENTERLINE OF A BAR. SAME FOR ALL BENDS AND HOOKS.

**NOTE:** REBAR HOOKS AND BENDS OTHER THAN 90 DEGREE ARE TO BE BENT WITH SAME PROCEDURES AS FOR 90 DEGREE. STAIRS AND HOOKS:

- 1 = STAIRS
- 2 = BENDING
- 3 = STAIRS AND BENDING
- 4 = BENDING
- 5 = STAIRS
- 6 = BENDING

BAR DIMENSIONS VARY IN SUBSTRUCTURE QUANTITIES. NUMBER OF BARS OF EACH LENGTH, DIMENSIONS SHOWN ON THIS LINE ARE TO BE USED FOR ALL BARS. USE THE BAR SIZE AND LENGTH LISTED FOR ALL BARS. DIMENSIONS ARE TO THE CENTERLINE OF A BAR. DIMENSIONS ARE BASED ON ACTUAL LENGTHS. THE END OF COLUMN SPIRALS DO NOT INCLUDE THE END OF COLUMN SPIRALS. THE END OF COLUMN SPIRALS DO NOT INCLUDE THE END OF COLUMN SPIRALS. GRADE 60 F<sub>y</sub> = 60,000 PSI.

Design: JDS  
 Detail: JDS  
 Check: CWB