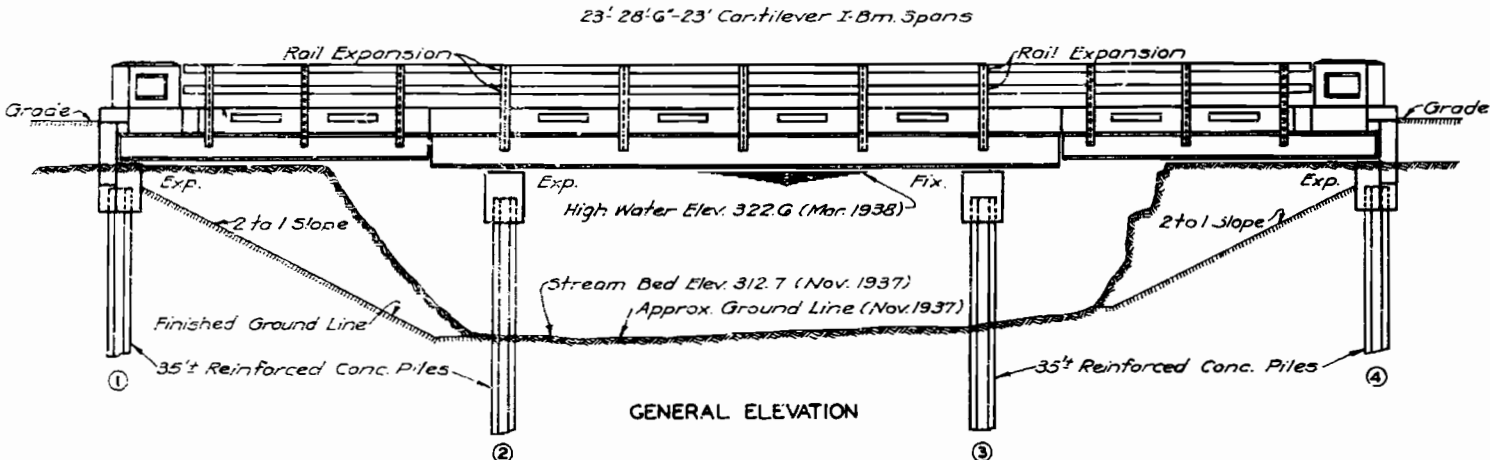
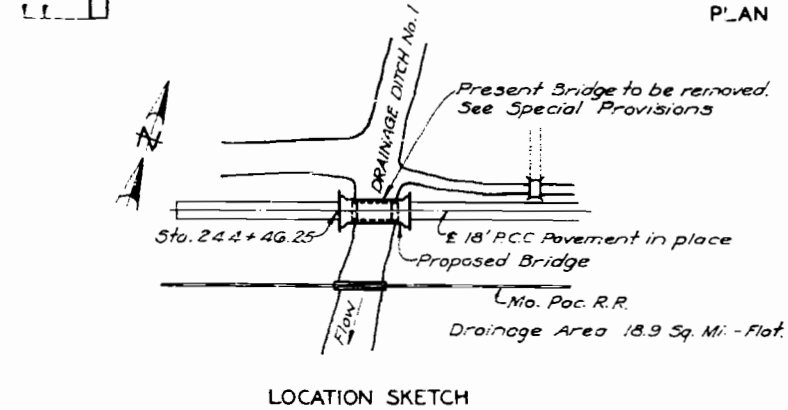
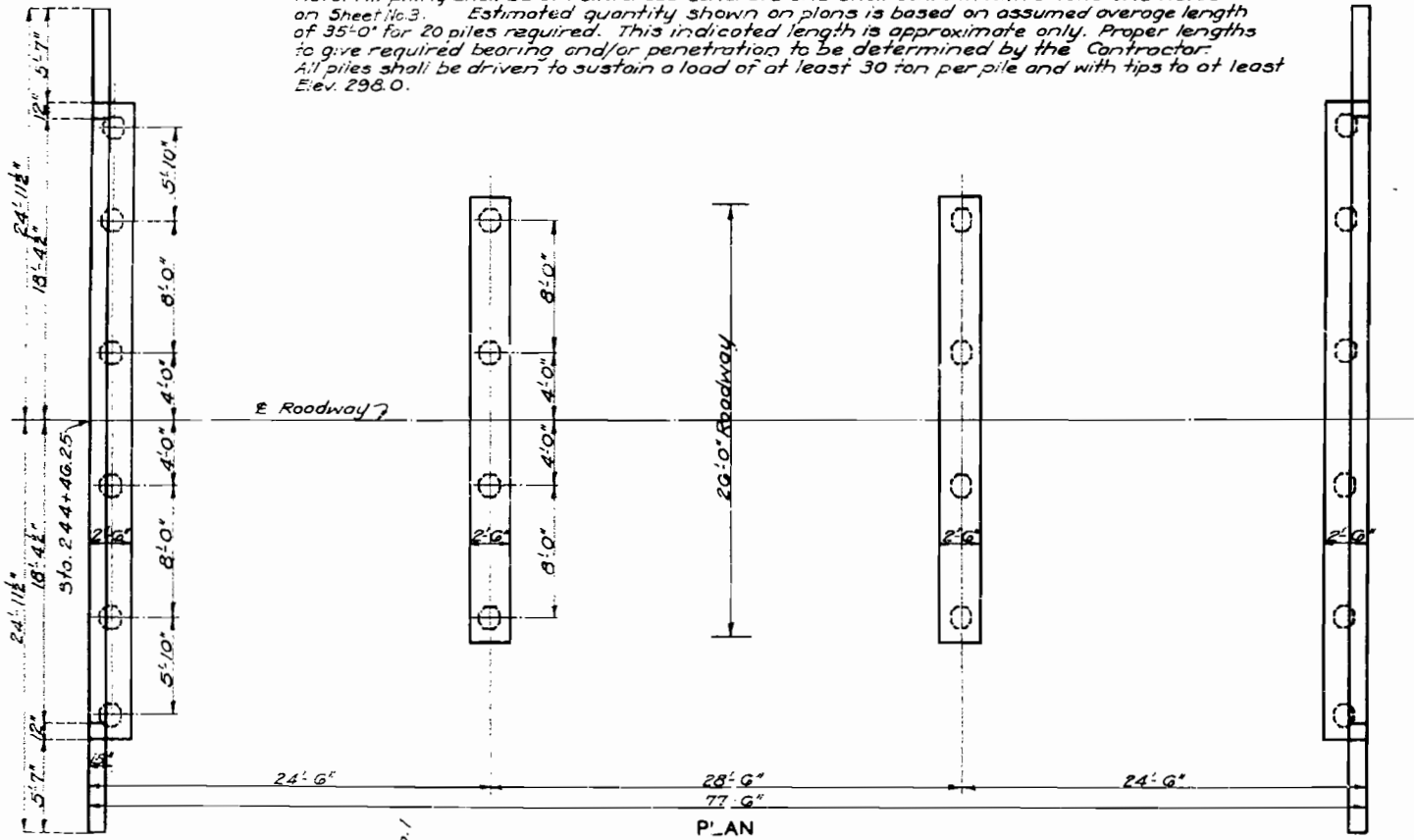


MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MU	FA 204-A(2)	1935	19	20



Note: All piling shall be of reinforced concrete and shall conform with details and notes on Sheet No. 3. Estimated quantity shown on plans is based on assumed average length of 35'-0" for 20 piles required. This indicated length is approximate only. Proper lengths to give required bearing and/or penetration to be determined by the Contractor. All piles shall be driven to sustain a load of at least 30 ton per pile and with tips to at least Elev. 298.0.



COMPLETE BILL OF REINFORCING STEEL									
No.	Size	Length	Mark	Location	Bending Sketches & Cutting Diagrams				
End Bents No. 1 & 4					Int. Bents No. 2 & 3				
8	3/4"	8'-0"	H1	Wing	16				
6	3/4"	13'-3"	H2	"	4				
16	3/4"	40'-3"	H3	Beam	46				
4	3/4"	38'-3"	H4	"	24				
8	3/4"	19'-6"	H5	Backwall					
8	3/4"	20'-0"	H6	"					
8	3/4"	7'-3"	V1	Wing					
144	3/4"	3'-6"	V2	Backwall					
8	3/4"	7'-6"	T1	Wing					
8	3/4"	11'-6"	T2	"					
70	3/4"	10'-9"	U1	Beam					
32	3/4"	5'-0"	U2	"					
					Superstructure				
					126				
					16				
					8				
					166				
					82				
					108				
					54				
					40				
					8				
					24				
					24				

GENERAL NOTES:

Design Specifications A.A.S.H.O.
Loading H-15
Reinforcing Steel Stress 18,000 ψ
Structural Steel Stress 18,000 ψ
Concrete Class "B" 3000 ψ
All concrete to be Class "B".
Qualification of welding operators and electrodes for welding shown on plans will not be required.
Paint: Shop, none; Field, contact surfaces of bolted field connections one coat red lead and surfaces inaccessible after erection three coats of red lead. No other paint to be applied by Contractor. Payment for cleaning and painting such surfaces will be included in unit price bid for structural steel. Red lead required shall be furnished by the Contractor.
Rivets 3/4", holes 1/2", except in hand-rail where rivets shall be 5/8", holes 3/4". Field connections for hand-rail channels shall be 5/8" button head bolts and for connection of rail to rail posts shall be 5/8" machine bolts, holes 1/2". All other field connections shall be riveted. Washers shall be used under nuts of all machine bolts.
See Special Provisions relative to Special Work.

ESTIMATED QUANTITIES			
Item	Substr.	Superstr.	Total
Class I Excavation for Structures Cu.Yds.	70		70
Class "B" Concrete Cu.Yds.	43.6	67.9	111.5
Fabricated Structural Steel Lbs.		23,200	23,200
Gray Iron Alloy Castings Lbs.		600	600
Reinforcing Steel Lbs.	4,160	13,160	17,320
Concrete Piles in Place Lin. Ft.	700		700

Note: All excavation for bridge will be paid for as Class I Excavation for Structures.

Material between side ditches and extending under bridge shall be removed to finished ground line as shown in General Elevation. Payment for this excavation, outside limits of excavation for structure will be made at unit contract price for Roadway Excavation.

B.M. Elev. 323.53 on N.E. wing wall of Bridge No. G-277 Lt. Sta. 245+10 (U.S.G.S. Datum)

BRIDGE OVER DRAINAGE DITCH NO. 1

STATE ROAD FROM POPLAR BLUFF TO FISK
ABOUT 5.25 MILES S.W. OF FISK
PROJECT NO. FA 204-A(2) (U.S. 60) STA. 244+46.25
BUTLER COUNTY

SUBMITTED BY *N.R. Sack* DATE 8/30/37
APPROVED BY *C.W. Brown* DATE 8/30/35

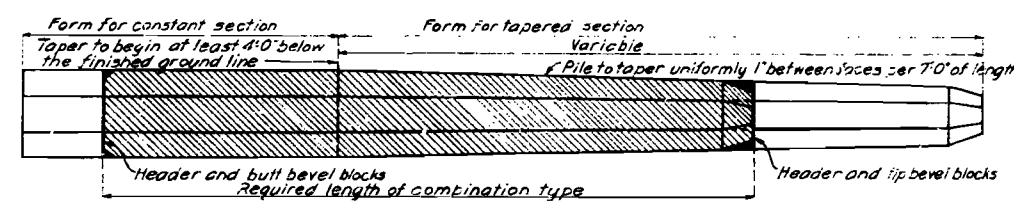
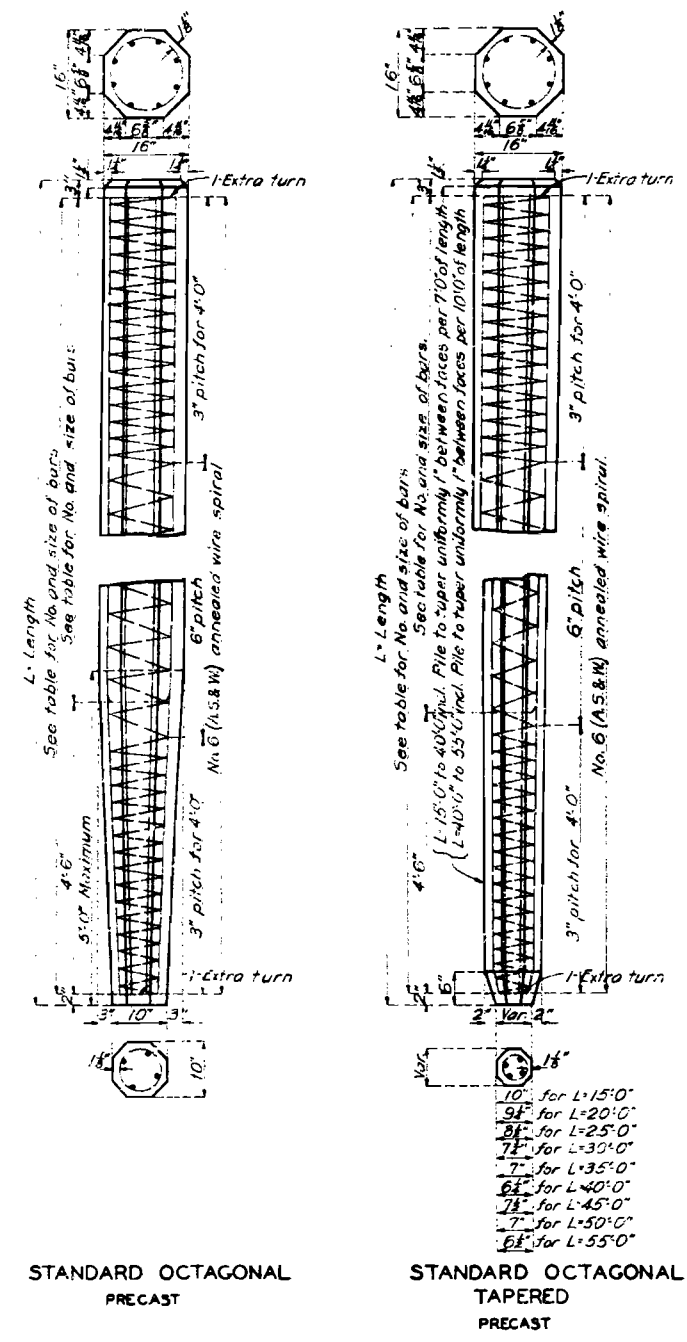
STD. C110R1
G-277R

Drawn July 1939 by F.C.L.
Traced July 1939 by G.W.
Checked Aug. 1939 by R.A.

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

MISSOURI STATE HIGHWAY DEPARTMENT

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	MO	FA 204-A(2)	1960	19	



SKETCH SHOWING METHOD OF CASTING COMBINATION TYPE
Note: Piles for trestles may be cast with butt ends of constant section and tip ends tapered as shown. If this combination type is used it shall be reinforced as shown for the tapered octagonal pile of same length.

GENERAL NOTES:-
Tapered piling shall not be used for trestle construction except for that portion of pile which lies more than 4'0" below finished ground line.
Piles 15'0" to 25'0" in length may be picked up at any point for handling.
Piles over 25'0" in length shall be supported at two points in handling. One point shall be between the quarter and third point from the butt and the other point between the tip and the quarter point from the tip.
See Supplemental Specifications and Special Provisions relative to permissible alternate types of concrete piles for this project.

TABLE OF REINFORCING STEEL				
Length of Piling	OCT. TAPERED		STD. OCTAGONAL	
	Full Length	Full Length	Full Length	Full Length
15'0"	4-1/2"	4-1/2"	4-1/2"	4-1/2"
20'0"	4-1/2"	4-1/2"	4-1/2"	4-1/2"
25'0"	4-1/2"	4-1/2"	4-1/2"	4-1/2"
30'0"	4-1/2"	4-1/2"	4-1/2"	4-1/2"
35'0"	4-1/2"	4-1/2"	4-1/2"	4-1/2"
40'0"	4-1/2"	4-1/2"	4-1/2"	4-1/2"
45'0"	4-1/2"	4-1/2"	4-1/2"	4-1/2"
50'0"	4-1/2"	4-1/2"	4-1/2"	4-1/2"
55'0"	4-1/2"	4-1/2"	4-1/2"	4-1/2"

BRIDGE OVER DRAINAGE DITCH NO.1
STATE ROAD FROM POPLAR BLUFF TO FISK
ABOUT 5.25 MILES S.W. OF FISK
PROJECT NO. FA 204-A(2)(US 60) STA. 244+46.25
BUTLER COUNTY

462

Traced July 1939 by C.S.H.
Checked July 1939 by H.H.M.

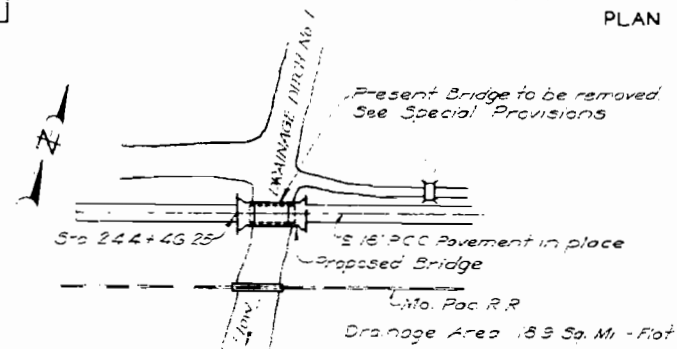
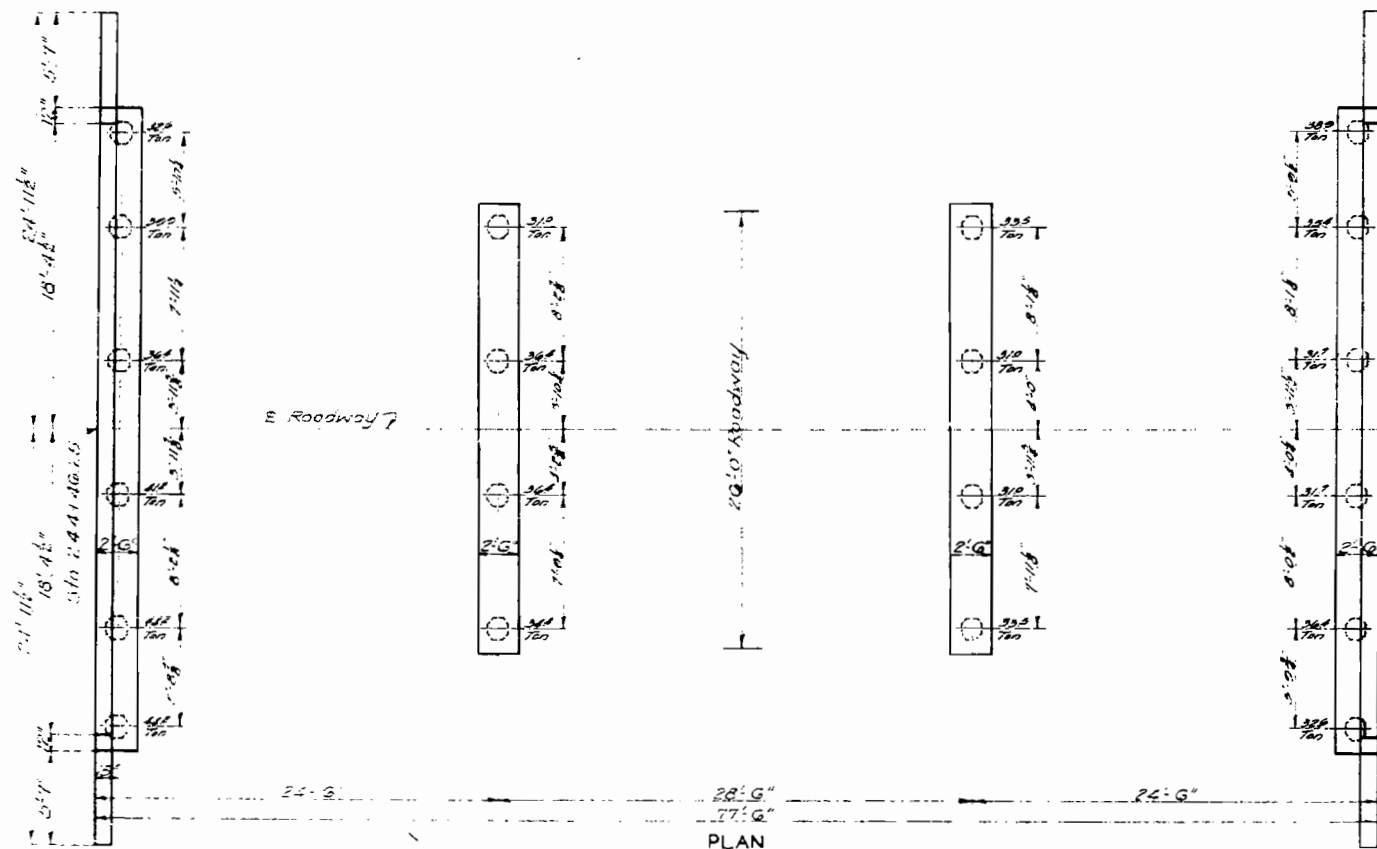
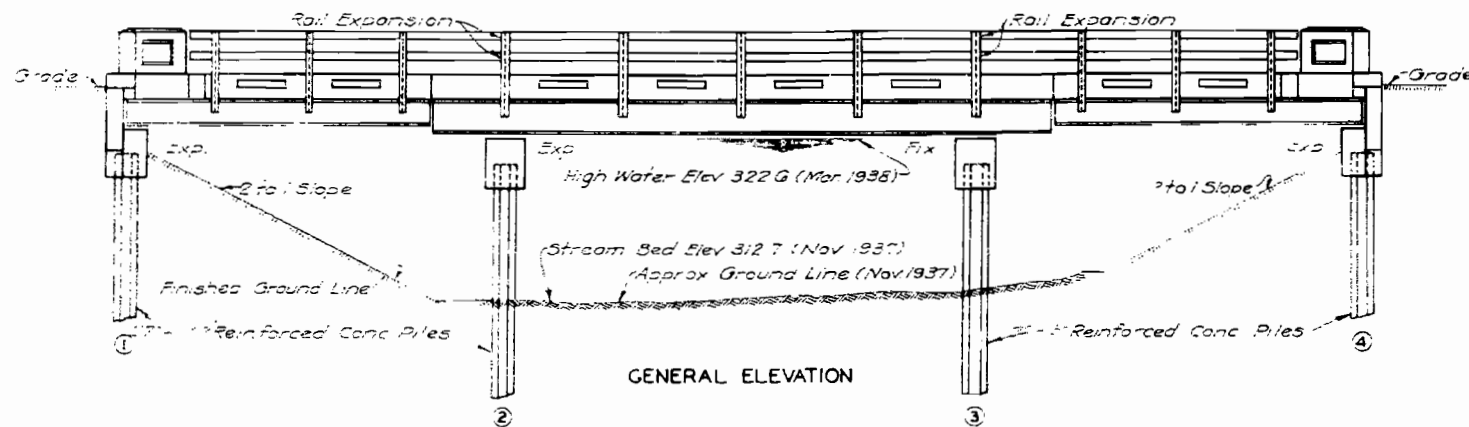
Note: This drawing is not to scale. Follow dimensions.

Sheet No. 3 of 4.

G-277R

MISSOURI STATE HIGHWAY DEPARTMENT

23'-28'-6"-23' Cantilever I-5m Spans



LOCATION SKETCH

Drawn July 1938 by F.C.
Traced July 1938 by G.H.
Checked July 1938 by J.H.

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

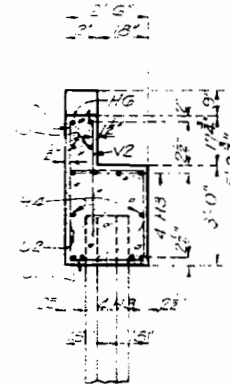
COMPLETE BILL OF REINFORCING STEEL									
No.	Size	Length	Mark	Location	Bending Sketches & Cutting Diagrams				
End Bents No. 1 & 4					Int Bents No. 2 & 3				
8	3/4"	8'-0"	H1	Wing	5'-6" 13 1/2"	5'-6" 13 1/2"	5'-6" 13 1/2"	5'-6" 13 1/2"	5'-6" 13 1/2"
6	3/4"	3'-3"	H2						
16	3/4"	40'-3"	H3	Beam	2'-9" 5'-6"	2'-9" 5'-6"	2'-9" 5'-6"	2'-9" 5'-6"	2'-9" 5'-6"
4	3/4"	38'-3"	H4						
8	3/4"	18'-6"	H5	Backwall	13'-5"	13'-5"	13'-5"	13'-5"	13'-5"
3	3/4"	20'-0"	H6						
5	3/4"	9'-3"	V1	Wing	2'-3 1/2" 10'-2"	2'-3 1/2" 10'-2"	2'-3 1/2" 10'-2"	2'-3 1/2" 10'-2"	2'-3 1/2" 10'-2"
44	3/4"	3'-6"	V2	Backwall					
6	3/4"	7'-6"	V3	Wing					
8	3/4"	11'-6"	V4						
70	3/4"	10'-9"	V5	Beam	4'-11 1/2" 2'-9"	4'-11 1/2" 2'-9"	4'-11 1/2" 2'-9"	4'-11 1/2" 2'-9"	4'-11 1/2" 2'-9"
32	3/4"	5'-0"	V6						
S2					S6				
S5					R2				
S3					H3 & H7				
S4									
S7									
S8									
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GENERAL NOTES:

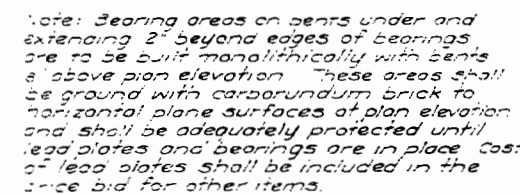
Design Specifications A 4.3.4.0
Loading H-15
Reinforcing Steel Stress 12,000 P.S.I.
Structural Steel Stress 12,000 P.S.I.
Concrete Class B 3,000 P.S.I.
All concrete to be Class B.
Qualification of welding operators and electrodes for welding shown on plans will not be required.
Paint Shop, none. Field contact surfaces of bolted field connections one coat red lead and surfaces inaccessible after erection three coats of red lead. No other paint to be applied by Contractor. Payment for cleaning and painting such surfaces will be included in unit price bid for structural steel. Red lead required shall be furnished by the Contractor.
Rivets 3/4", holes 1/2", except in handrail where rivets shall be 1/2" holes 1/4". Field connections for handrail channels shall be 1/2" button head bolts and for connection of rail to rail posts shall be 1/2" machine bolts, holes 1/2". All other field connections shall be riveted. Washers shall be used under nuts of all machine bolts.
See "Special Provisions" relative to "Special Work".

QUANTITIES

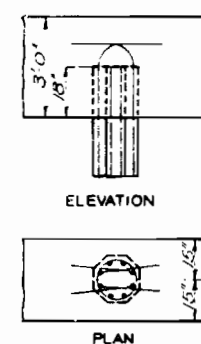
4050



SECTION AT E.

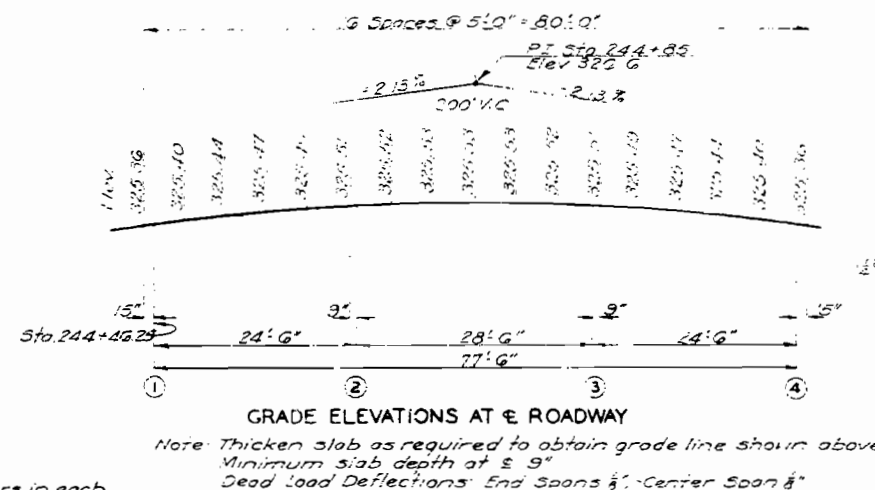


DETAILS OF INTERIOR BENTS



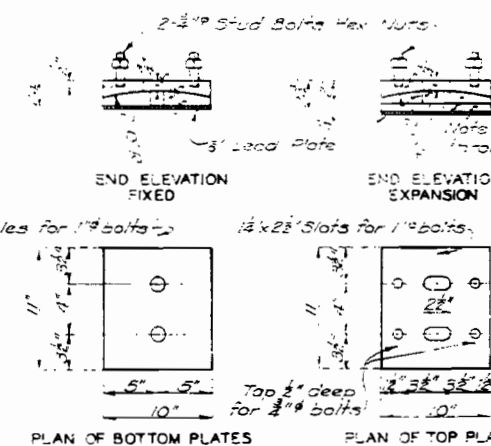
PILE ANCHORAGE

Note: Four of the vertical bars in each concrete pile shall be stripped and extended into beams as shown. Bent bars shall be stripped for a length of 2'-0"



GRADE ELEVATIONS AT E. ROADWAY

Note: Thicken slab as required to obtain grade line shown above.
Minimum slab depth at $\leq 9"$
Dead Load Deflections: End Span $\frac{1}{8}"$, Center Span $\frac{1}{8}"$



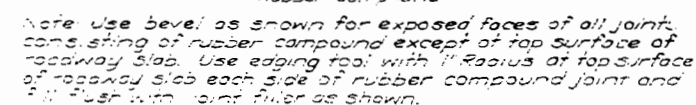
BEARING PLATES AT BTS.NO. 2 & 3

required: 4 Fixed and 4 Expansion plates

1. All finished surfaces shall be coated with white lead and tallow. See Supplemental Specifications for field coatings. Bearing plates to be either cast steel or gray. Finish all surfaces marked "S". Structural steel to be painted as structural steel. Anchor bolts to be 1" swaged bolts, no heads or nuts and shall extend 10" into concrete. Top ends of anchor bolts shall be above the top of casting, but not higher than 2" below top surface of bottom flange of beam.

Required: 4-P1 plates and 4-P2 plates.

Note: All bearing plates shall be straightened to plane surfaces
Anchor bolts to be 1"Ø swaged
bolts, no head; Hex. nuts and shall
extend 10" into concrete



DETAIL OF BEVEL FOR RUBBER COMPOUND JOINTS

Note: This drawing is not to scale. Follow dimensions

STATE ROAD FROM POPLAR BLUFF TO FISK

ABOUT 5 25 MILES S.W. OF FISK

PROJECT NO FA204-A(2) (U.S 60) STA 244+46.25

BUTLER

COUNTY

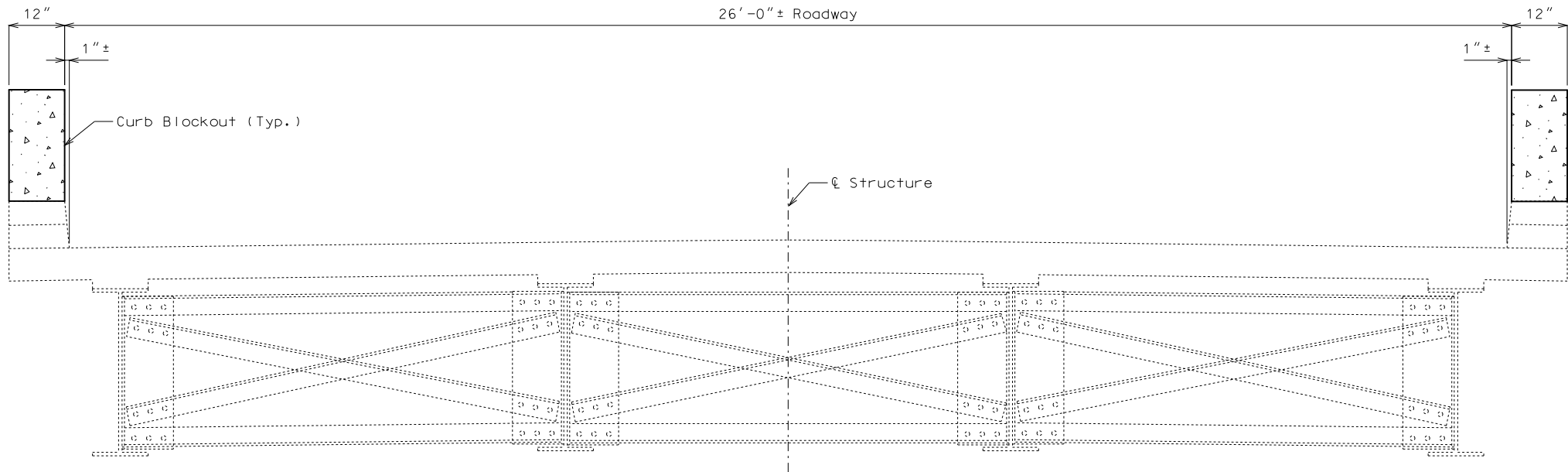
Drawn July 1939 by F.C.
Traced July 1939 by G.V.
Checked Aug. 1939 by J.H.

Sheet No. 24 of 2

G-2771

U.I.P. & REHAB. EXISTING (23'-28.5'-23') CONTINUOUS WIDE FLANGE BEAM SPANS

SEC/SUR 33 TWP 25N RGE 7E



SECTION THRU SLAB

GENERAL NOTES:

Design Specifications:
2002 AASHTO LFD (17th Ed.) Standard Specifications

Design Unit Stresses:
Class B-1 Concrete $f'_c = 4,000$ psi
Reinforcing Steel (Grade 60) $f_y = 60,000$ psi

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

All curb blockout reinforcement shall be epoxy coated.

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

The minimum embedment depth in concrete with $f'_c = 4,000$ psi for the resin anchor system shall be that required to meet the minimum ultimate pullout strength in accordance with Sec 1039 but shall not be less than 5".

An epoxy coated #6 Grade 60 reinforcing bar shall be substituted for the 3/4"Ø threaded rod.

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

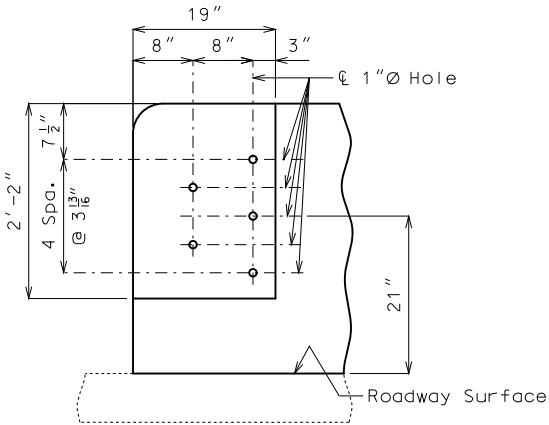
Miscellaneous:
One lane of traffic shall remain open during construction. See Roadway plans for traffic control.

All exposed edges of curb blockout shall have either a 1/2" radius or a 3/8" bevel unless otherwise shown.

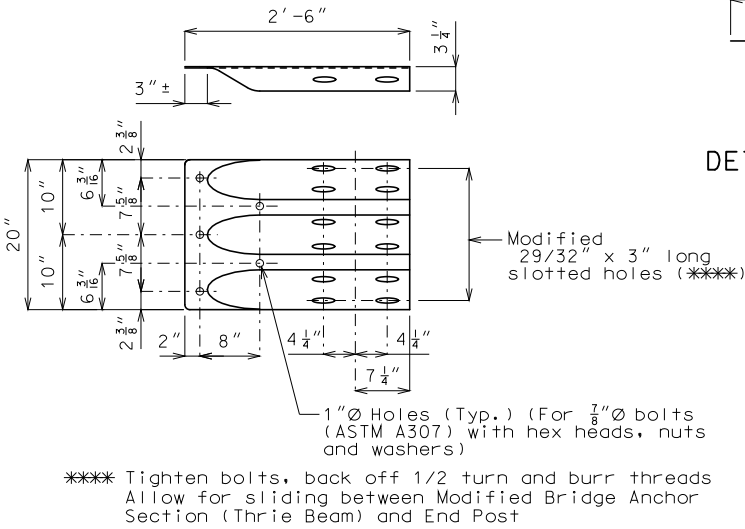
Outline of old work is indicated by light dashed lines. Heavy line indicate new work.

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

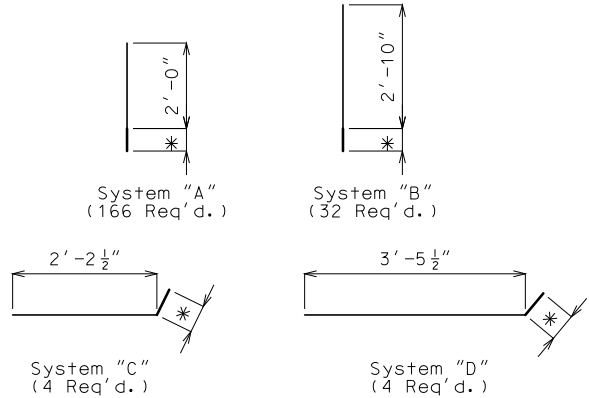
Estimated Quantities		
Item		Total
Curb Blockout	linear foot	155



PART ELEVATION SHOWING
BRIDGE ANCHOR SECTION ATTACHMENT
Note: Holes shall be cast in curb blockout for Modified Terminal Connection. Drilling is not allowed.



MODIFIED TERMINAL CONNECTION
AT ABUTMENTS (ROADWAY ITEM)



DETAILS OF RESIN ANCHOR SYSTEMS

* Manufacturer's recommended embedment length (5" min.)

BRIDGE: ROUTE B OVER LEVEE DITCH

ROUTE B FROM ROUTE 60 TO ROUTE Z/VV
ABOUT 1.0 MILES WEST OF ROUTE Z/VV
STA. 244+46.25 (MATCH EXISTING)

Detailed Nov. 2016
Checked Nov. 2016

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

Sheet No. 1 of 5

STD. 606.22
STD. 617.10



THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.

DATE PREPARED
12/29/2016

ROUTE B STATE MO

DISTRICT BR SHEET NO. 1

COUNTY BUTLER

JOB NO. J9S3249

CONTRACT ID.

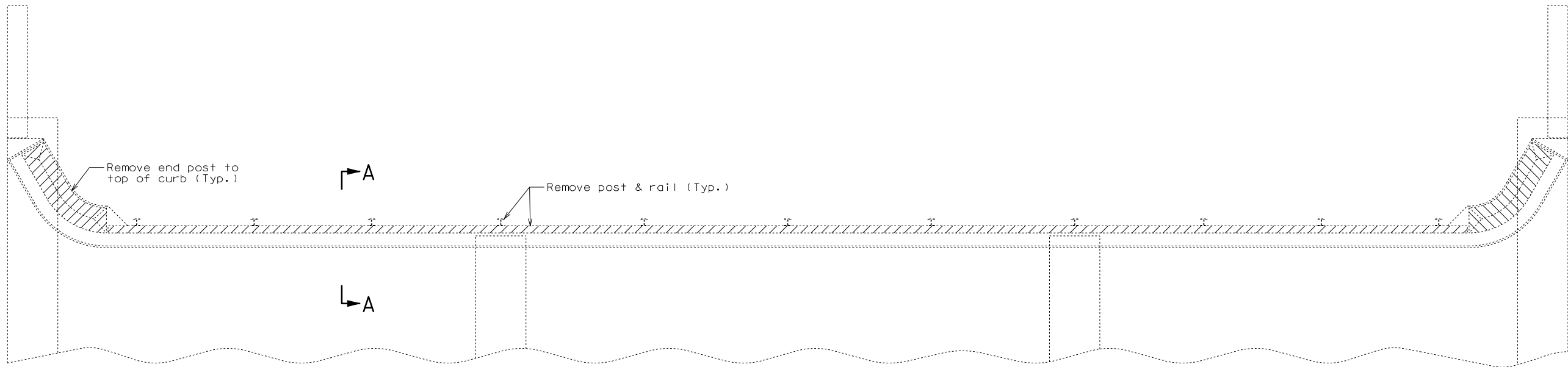
PROJECT NO.

BRIDGE NO. G02772

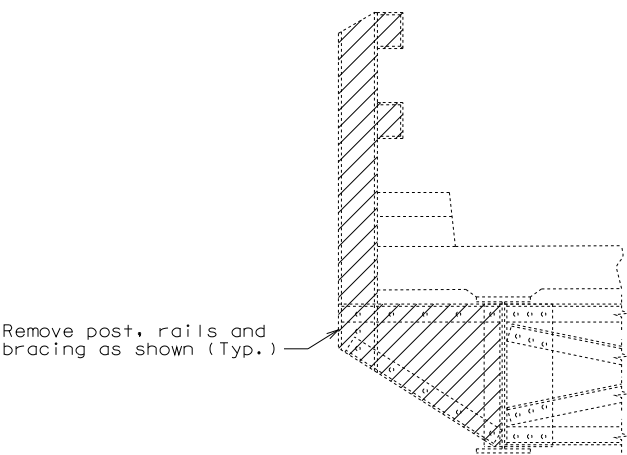
DESCRIPTION	DATE

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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



PART PLAN SHOWING REMOVAL
(Left curb shown, right similar)



SECTION A-A
(End Span bracing similar)

DETAILS OF REMOVAL

Note:
Removal of Rails, Posts, bracing and Concrete End Post as shown will be considered completely covered by the contract unit price for Curb Blockout.

STATE OF MISSOURI

BRYAN A. HARTNAGEL

NUMBER
PE-2002024473

PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.

DATE PREPARED
12/29/2016

ROUTE
B

DISTRICT
BR

STATE
MO

SHEET NO.
2

COUNTY
BUTLER

JOB NO.
J9S3249

CONTRACT ID.

PROJECT NO.

BRIDGE NO.
G02772

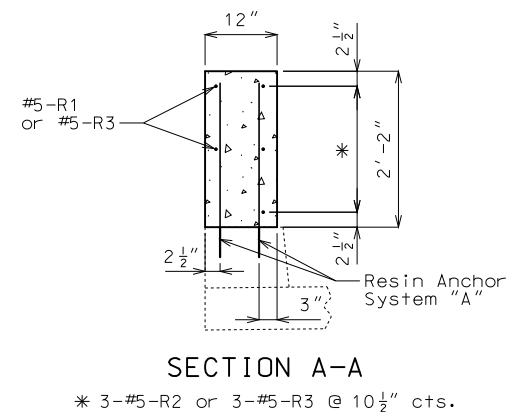
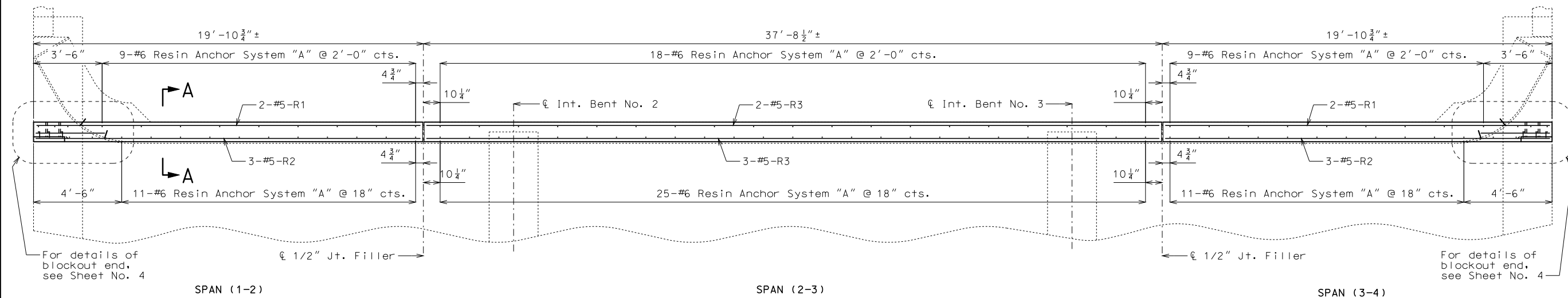
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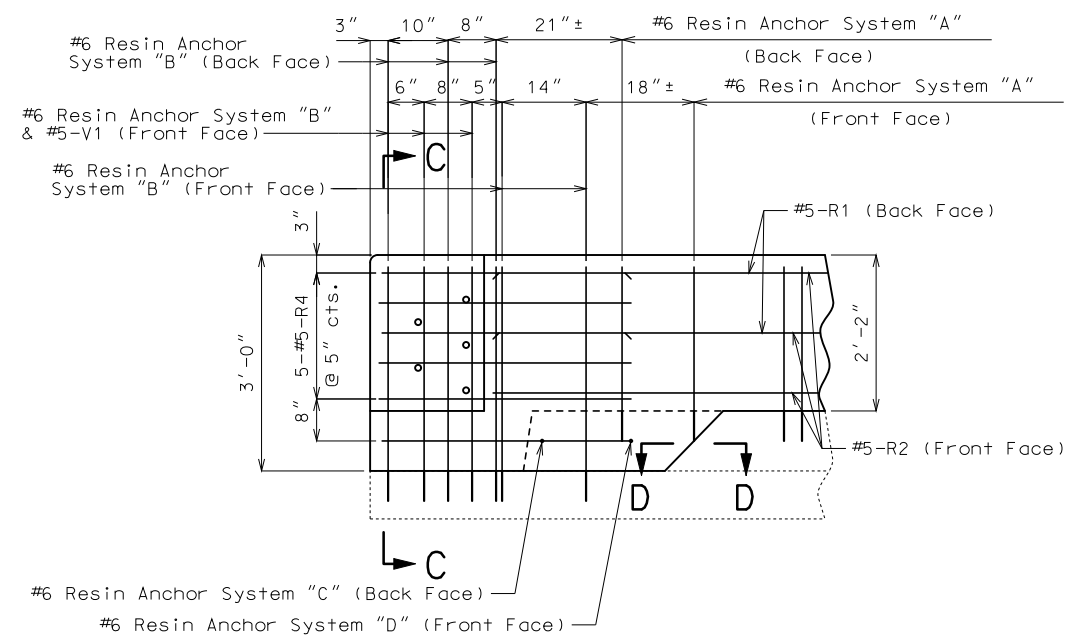
MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

MoDOT

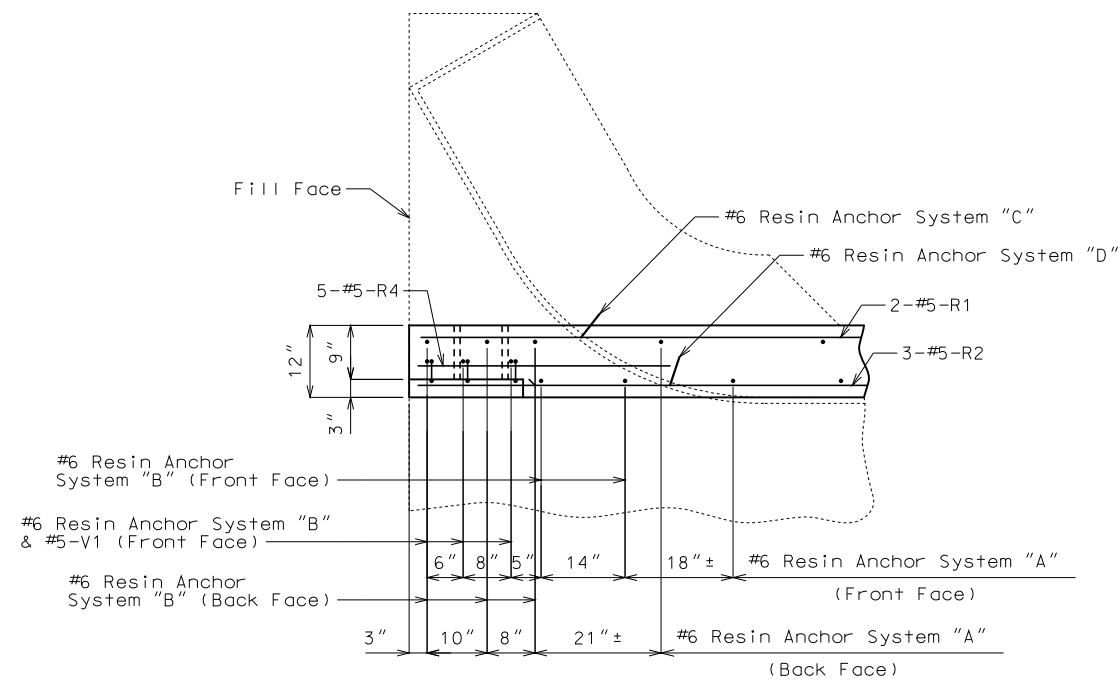
105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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

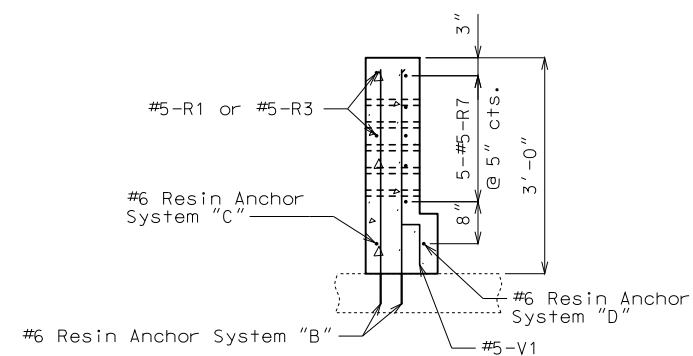
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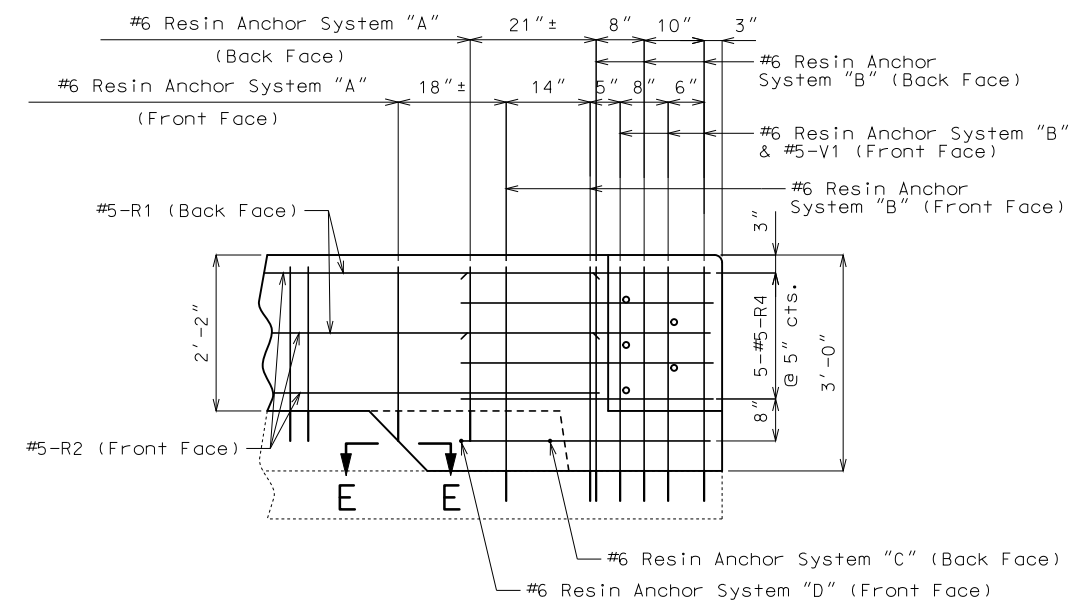
PART ELEVATION



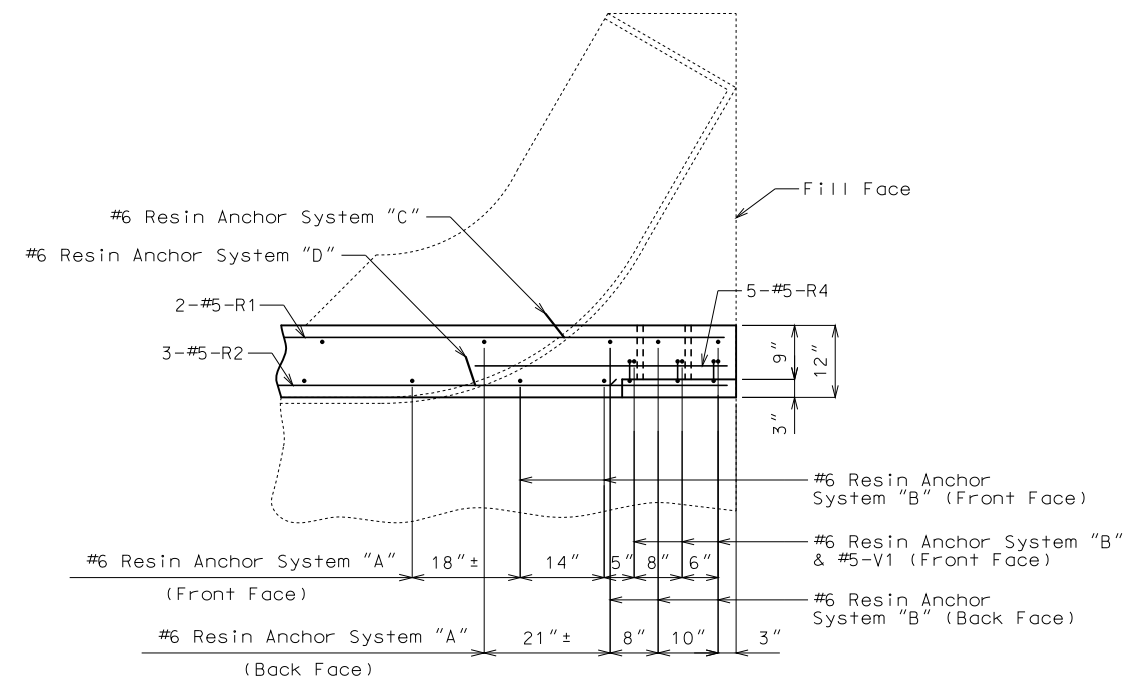
PART PLAN



SECTION C-C



PART ELEVATION



PART PLAN

Notes:

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

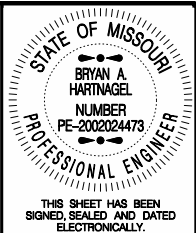
The cost of concrete, reinforcing steel, resin anchor systems and any other work incidental to the curb blockouts, complete in place, will be considered completely covered by the contract unit price for Curb Blockout.

Measurement of curb blockout is to the nearest linear foot for each structure, measured along the inside edge of curb from end of slab to end of slab.

Concrete traffic barrier delineators shall be placed on top of the curb breakout as shown on Missouri Standard Plans 617.10 and in accordance with Sec 617. Delineators on bridges with two-lane, two-way traffic shall have retroreflective sheeting on both sides. Concrete traffic barrier delineators will be considered completely covered by the contract unit price for Curb Breakout.

For Details and Notes of Resin Anchors, see Sheet No. 1.

For Plan of Curb Blockout Showing Reinforcement and Resin Anchor Systems, see Sheet No. 2.



DATE PREPARED
12/29/2016

ROUTE	STATE
-------	-------

B	MO
DISTRICT	SHEET NO.
BR	4

COUNTY
BUTLER

JOB NO.
J9S3249

CONTRACT ID.

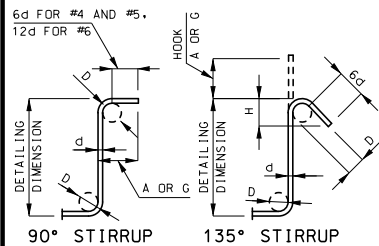
PROJECT NO.

BRIDGE NO.
G02772

[illegible]MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

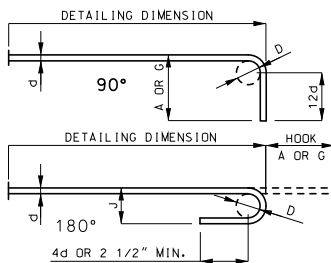
IF A SEAL IS PRESENT ON THIS SHEET IT HAS BEEN ELECTRONICALLY SEALED AND DATED.

BILL OF REINFORCING STEEL

[illegible]

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

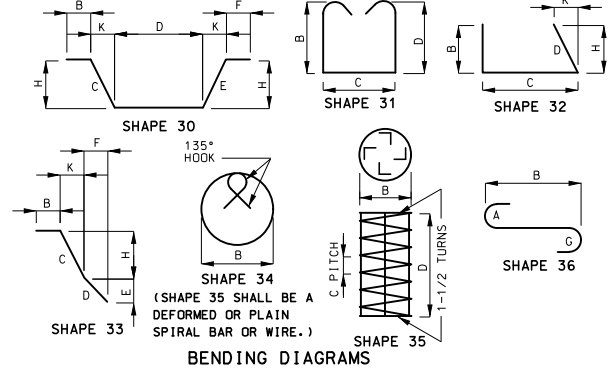
NOTE: UNLESS OTHERWISE NOTED, DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.



END HOOK DIMENSIONS					
BAR SIZE	D (IN.)	ALL GRADES			
		180° HOOKS		90° HOOKS	
		A OR G	J	A OR G	J
#3	2 1/4"	5"	3"	6"	
#4	3 3/4"	6"	4"	8"	
#5	3 3/4"	7"	5"	10"	
#6	4 1/2"	8"	6"	12"	
#7	5 1/4"	8"	7"	14"	
#8	6"	11"	8"	16"	
#9	9 1/2"	15"	11 3/4"	19"	
#10	13 3/4"	17"	13 1/4"	22"	
#11	12"	19"	14 3/4"	21'-0"	
#14	18 1/4"	23'-3"	21 3/4"	21'-7"	

NOTE:
ALL STANDARD HOOKS AND BENDS OTHER THAN 180 DEGREE ARE TO BE BENT WITH SAME
PROCEDURE AS FOR 90 DEGREE STANDARD HOOKS.
HOOKS AND BENDS SHALL BE IN ACCORDANCE WITH THE PROCEDURES AS SHOWN ON THIS SHEET.
E = EPOXY COATED REINFORCEMENT.
S = STIRRUP.
X = BAR IS INCLUDED IN SUBSTRUCTURE QUANTITIES.
V = BAR DIMENSIONS VARY IN EQUAL INCREMENTS BETWEEN DIMENSIONS SHOWN ON THIS LINE
AND THE FOLLOWING LINE.
NO. EA. = NUMBER OF BARS OF EACH LENGTH.
NOMINAL LENGTHS ARE BASED ON OUT TO OUT DIMENSIONS SHOWN IN BENDING DIAGRAMS AND
ARE LISTED FOR FABRICATORS USE. (NEAREST INCH)
ACTUAL LENGTHS ARE MEASURED ALONG CENTERLINE BAR TO THE NEAREST INCH.
P.WEIGHTS 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
SPICES OR SPACERS.
REINFORCING STEEL (GRADE 60) FY = 60,000 PSI.

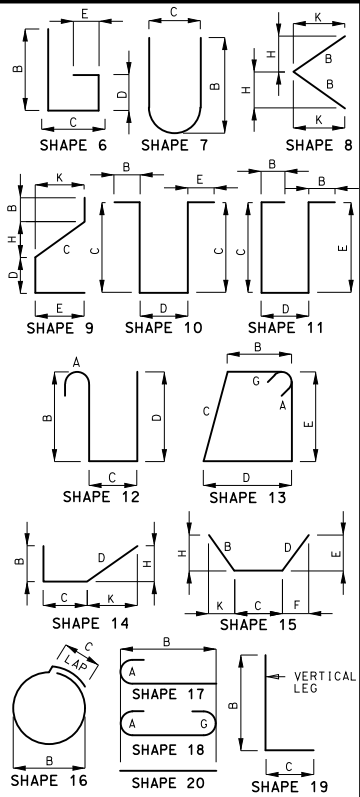
BILL OF REINFORCING STEEL

[illegible]

Detailed Nov. 2016
Checked Nov. 2016

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

Sheet No. 5 of 5



STATE OF MISSOURI
BRYAN A. HARTNAGEL
NUMBER
PE-2002024473
PROFESSIONAL ENGINEER

THIS SHEET HAS BEEN
SIGNED, SEALED AND DATED
ELECTRONICALLY.

DATE PREPARED
12/29/2016

ROUTE B	STATE MO
DISTRICT BR	SHEET NO. 5

COUNTY	BUTLER
JOB NO.	J9S3249
CONTRACT ID.	

PROJECT NO.

BRIDGE NO.	G02772
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DESCRIPTION

DATE _____

MISSOURI HIGHWAYS AND TRANSPORTATION
COMMISSION

105 WEST CAPITOL
JEFFERSON CITY, MO 65102
1-888-ASK-MODOT (1-888-275-6636)

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