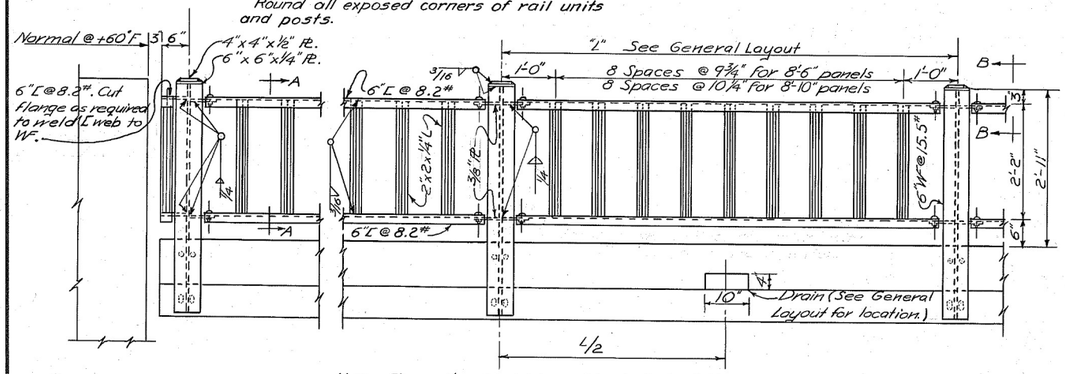
CONTRACT PLANS BUREAU
MONTANA DEPARTMENT OF TRANSPORTATION

As-Built Drawings

The following are as-built drawings for the structures. MDT provides them for informational purposes only. They do not include drawings for modifications to the structures, such as joint replacements and guardrail revisions and may not completely represent current conditions. Thus, some of the information contained in these documents may be out of date or not applicable with regard to the advertised project. The contractor should not rely solely on the as-built drawings provided for bidding purposes nor does any data in these files supersede the data in the contract documents.

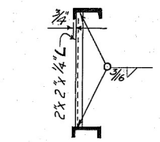
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	S-159(1)		//	//

NOTE: Steel rail units and posts shall receive one shop coat and two field coats of paint on all surfaces.
Round all exposed corners of rail units and posts.

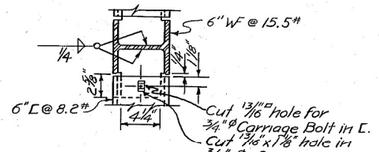


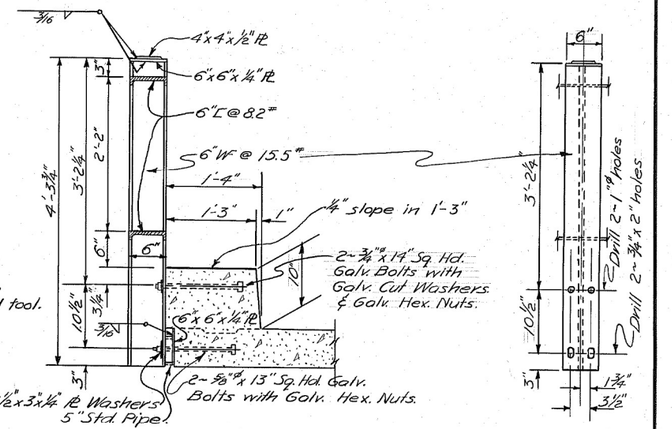
NOTE: The unit price bid per lineal foot of Steel Bridge Rail shall be full payment for all steel rail units, posts, shims and supporting bolts set in concrete curb, complete in place, including paint and all incidentals pertaining thereto.

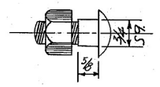
STEEL BRIDGE RAIL DETAILS
Scale ~ ¾" = 1'-0"

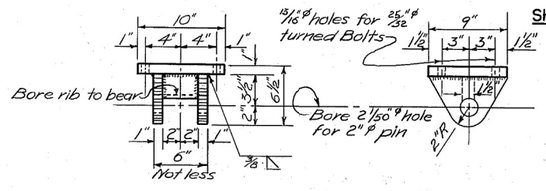


NOTE: Use 13/16" x ½" slotted holes in ⅜" Pls at each end of rail panels over Piers No. 2 & No. 3.

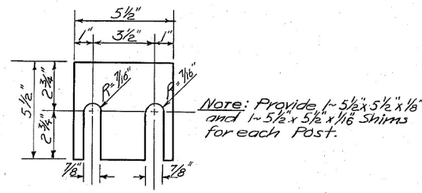


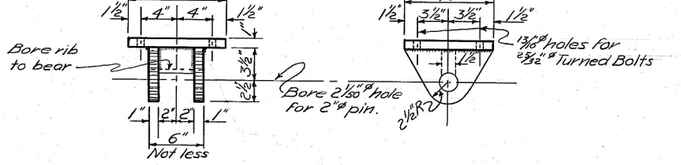




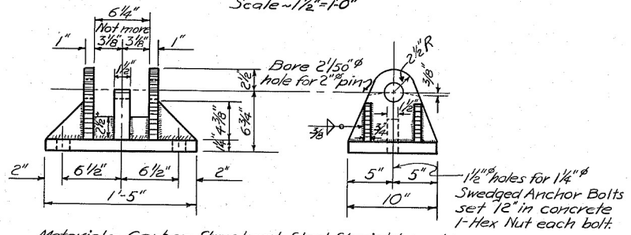


TOP SHOE AT BENT NO'S. 1 & 4
Scale ~ 1½" = 1'-0"



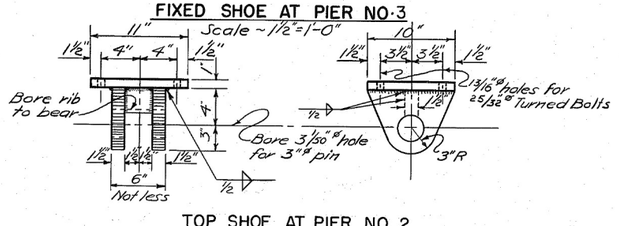


TOP SHOE AT PIER NO. 3
Scale ~ 1½" = 1'-0"

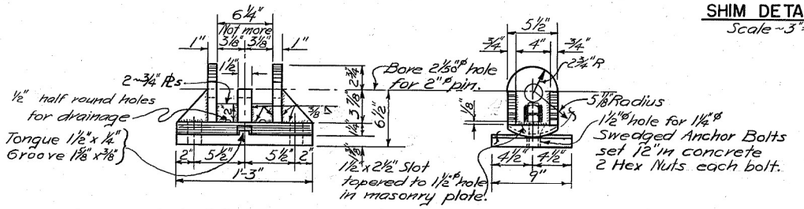


Material ~ Carbon Structural Steel Straightened.
Welds ~ Weld all around with ½" Fillet welds except as noted. (Top and Bottom Shoe at Pier No. 3).

FIXED SHOE AT PIER NO. 3
Scale ~ 1½" = 1'-0"

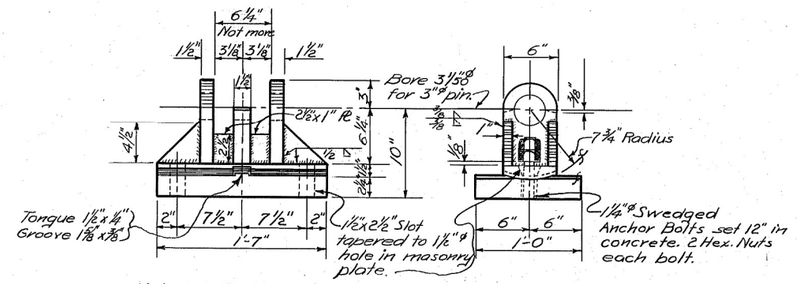


TOP SHOE AT PIER NO. 2
Scale ~ 1½" = 1'-0"



Material ~ Carbon Structural Steel Straightened.
Welds ~ Weld all around with ½" Fillet weld except as noted. (Top and Bottom Shoe at Bents No. 1 and No. 4)

ROCKER SHOE AT BENTS NO'S. 1 & 4
Scale ~ 1½" = 1'-0"



Material ~ Carbon Structural Steel, straightened.
Welds ~ Weld all around with ½" Fillet weld except as noted. (Top and Bottom Shoe at Pier No. 2)

ROCKER SHOE AT PIER NO. 2
Scale ~ 1½" = 1'-0"

NOTES

FINISHING OF SHOES :- To assure full bearing, all surfaces in contact shall be edge planed or otherwise finished before welding.
Shoes are to be fully annealed after all welding is completed and before pin-holes are drilled or curved bearing surfaces are finished.
Base plates under rockers are to be hot straightened before finishing.

WELDING OF SHOES :- Welding is symmetrical about ℄ of shoes.

SETTING OF SHOES :- Rocker shoes shall be set vertical under full dead load at 60 °F. If rockers are not in correct position with final dead load on spans, spans shall be jacked and adjustments made.

OTHER NOTES :- For "Other Notes" see Dwg. No. 3347 and Dwg. No. 3351.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER MILK RIVER
NEAR DODSON
FED. AID SECONDARY PROJ. NO. S 159 (1)
PHILLIPS COUNTY
BRIDGE RAIL & SHOE DETAILS
Scale - as noted

DESIGNED		
DRAWN	H.E.S.	5-29-53
TRACED	R.E.C.	7-8-53
CHECKED	R.E.P.	7-15-53
REVISED		
REVISED		

STATE PRECONST. NUMBER 3159-01

DRAWING NO. 3353

J.R.B.

STATE OF MONTANA

STATE HIGHWAY COMMISSION

BRIDGE PLANS & QUANTITIES

FEDERAL AID SECONDARY PROJECT NO. S 159(1)

DODSON – SOUTH

PHILLIPS COUNTY

LIST OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE
1	3346	GENERAL LAYOUT
2	S-1	STANDARD TREATED TIMBER TRESTLE
3	S-2	STANDARD TREATED TIMBER TRESTLE
4	S-7	STANDARD TREATED TIMBER TRESTLE
5	3347	GENERAL LAYOUT
6	3348	FOOTING PLAN
7	3349	BENTS NO. 1 & NO. 4
8	3350	PIERS NO. 2 & NO. 3
9	3351	GIRDER DETAILS
10	3352	CROSS SECTION, FLOOR-JOINTS & SLAB DETAILS
11	3353	BRIDGE RAIL & SHOE DETAILS

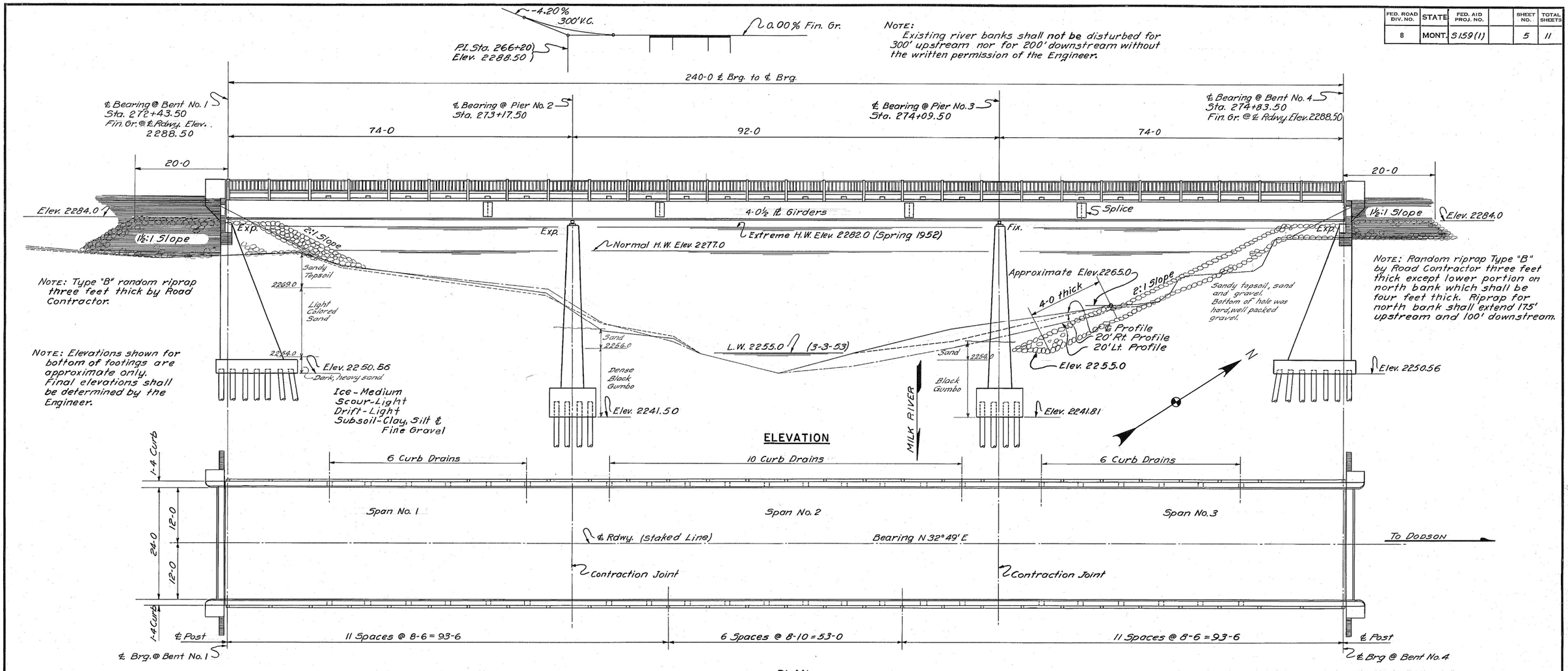
ESTIMATED BRIDGE PLAN QUANTITIES *5% Swell in Class "A" Concrete, 15% Swell in Structure Excavation*

	LOCATION	LENGTH IN FEET	STRUCTURAL STEEL LBS.	REINFORCING STEEL LBS.	CLASS "A" CONCRETE CU. YDS.	CLASS "AD" CONCRETE CU. YDS.	STEEL BRIDGE RAIL LIN. FT.	STRUCTURE EXCAVATION CU. YDS.	SHORING AND CRIBS LUMP SUM	UNTR. TBR. FOUND. PILES LIN. FT.	TEST PILES LUMP SUM	TREATED TIMBER M.b.m.	UNTREATED TIMBER M.b.m.	TREATED TBR. PILING 25'	30'	35'
	STRUCTURE AT STA. 267+01.0	63										25.03	1.36	2	8	18
MILK RIVER	BENT NO. 1			7,744	89			490		1260						
	PIER NO. 2		683	4,824	155			425		1100						
	PIER NO. 3		683	4,824	155			380	LUMP SUM	1100	LUMP SUM					
	BENT NO. 4			7,744	89			560		1260						
	SUPERSTRUCTURE	240	179,116	24,040		147.3	482.00									
	TOTAL	303	180,482	49,176	488	147.3	482.00	1,855	LUMP SUM	4720	LUMP SUM	25.03	1.36	2	8	18

Made by J.W.A. 8-21-53 Checked by J.R.B. 8-22-53 Revised by H.W.K. 10-28-53

DRAWING NO. 3346Q

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	S 159(1)		5	11



PLAN

NOTE: Existing river banks shall not be disturbed for 300' upstream nor for 200' downstream without the written permission of the Engineer.

NOTE: Type "B" random riprap three feet thick by Road Contractor.

NOTE: Elevations shown for bottom of footings are approximate only. Final elevations shall be determined by the Engineer.

NOTE: Random riprap Type "B" by Road Contractor three feet thick except lower portion on north bank which shall be four feet thick. Riprap for north bank shall extend 175' upstream and 100' downstream.

NOTES

SPECIFICATIONS:— Montana State Highway Commission Standard Specifications for Road and Bridge Construction, adopted January 1, 1946, and any amendments thereto, and Special Provisions shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.O. Specifications, 1953 Edition.

LIVE LOAD:— Standard H15-S12 Loading.

FINISHED GRADE:— Finished plan grade of bridge is same as profile grade shown on road plans.

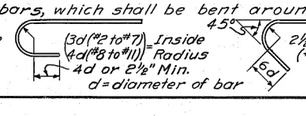
CONCRETE:— All concrete of superstructure shall be Class "AD". All concrete in Bents and Piers shall be Class "A". An "Air Entraining Agent" shall be added to all concrete except Class "S". Chamfer all exposed corners ¾ inch and fillet entrant angles ¾ inch unless otherwise noted.

CONSTRUCTION JOINTS:— Construction joints shall be made only at locations shown on the plans or as approved by the engineer. Adequate keys shall be provided at all construction joints as noted on the plans or determined by the engineer.

REINFORCING STEEL:— All reinforcing bars shall be of intermediate grade billet steel. Deformations shall conform to A.S.T.M. Specification A305-50 except as otherwise approved.

Slab bars shall be supported on steel chairs placed sufficiently close together to maintain bars in proper position. All other bars shall be supported on either steel chairs or precast concrete blocks. The unit price bid for reinforcing steel shall include the cost of furnishing and placing chairs, precast blocks, and all other materials used to fasten reinforcing steel in place.

Splicing of main reinforcing bars shall not be permitted except as shown on the plans. Bends in reinforcing bars shall be made to a radius of not less than four diameters of the bar except for stirrups and tie bars, which shall be bent around a pin having a diameter of not less than two bar diameters. Hooks shall conform to the dimensions shown in the following sketches.



STRUCTURAL STEEL:— For requirements governing structural steels and their fabrication, see the Standard Specifications. To avoid oversight, these requirements shall be clearly noted on the shop drawings.

Structural steel shall receive one shop coat of red lead and two field coats consisting of first field or primer coat and one coat of aluminum paint as specified in the Standard Specifications, on all surfaces not in contact with concrete, except as noted under paragraph 45.10(d).

STRUCTURAL STEEL (Method of Measurement and Payment):— The structural steel shall be paid for at the unit price bid for structural steel and the weight paid for shall be the computed weight as obtained in accordance with the rules and assumptions specified in the Standard Specifications. The computed weight of each shipping unit shall be shown on the shop drawings. This weight may or may not be checked at the time the details are checked.

FINISHING:— Attention is directed particularly to the requirements of paragraph 49.05(m)(2) of the Standard Specifications for the finishing of concrete floor slab.

REINFORCING COVERING:— Minimum covering from surface of concrete to face of any reinforcing bar shall be 2 inches except in slabs, where the minimum covering shall be one inch. In footings of bents and piers the minimum covering shall be 3 inches.

PREFORMED EXPANSION JOINT FILLER:— Preformed expansion joint filler shall be Type "A" as specified in the Standard Specifications. Cost of furnishing and placing shall be included in the unit price bid for Class "AD" concrete.

REFERENCES	
DWG. NO.	DESCRIPTION
3348	FOOTING PLAN
3349	BENTS No. 1 & No. 4
3350	PIERS No. 2 & No. 3
3351	GIRDER DETAILS
3352	CROSS SECTION, FLOOR JOINTS, SLAB DETAILS
3353	BRIDGE RAIL & SHOE DETAILS

DESIGNED		
DRAWN	C.A.M.	4-15-53
TRACED	J.W.A.	7-6-53
CHECKED	P.E.P.	7-16-53
REVISED		
REVISED		

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER MILK RIVER
NEAR DODSON
FED. AID SECONDARY PROJ. NO. S 159(1)
PHILLIPS COUNTY
GENERAL LAYOUT
Scale-1"=10'-0"

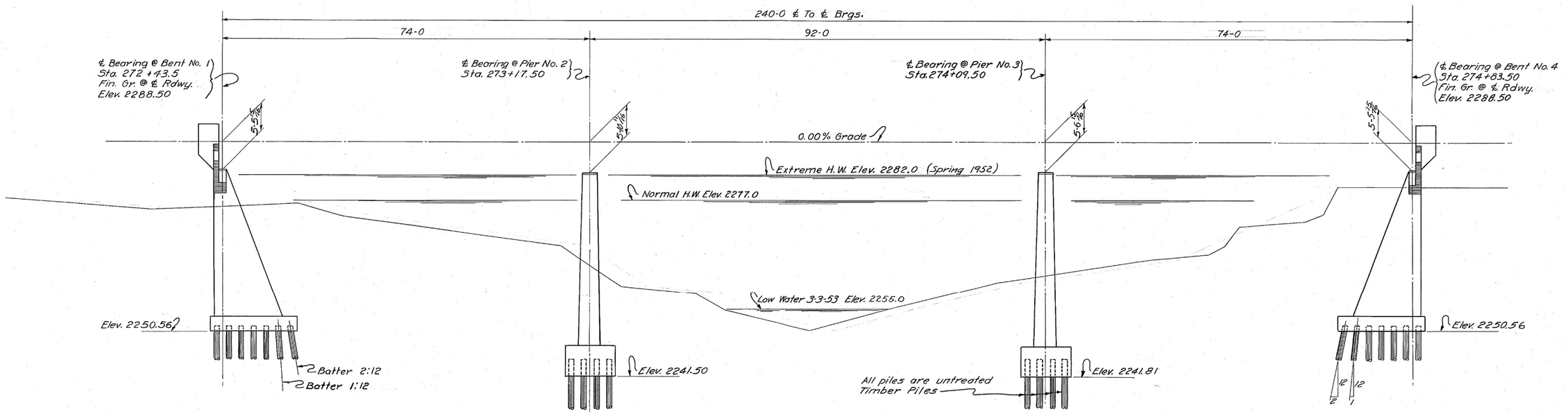
APPROVED BY ..... BRIDGE ENGINEER

STATE PRECONST. NUMBER 3159-01

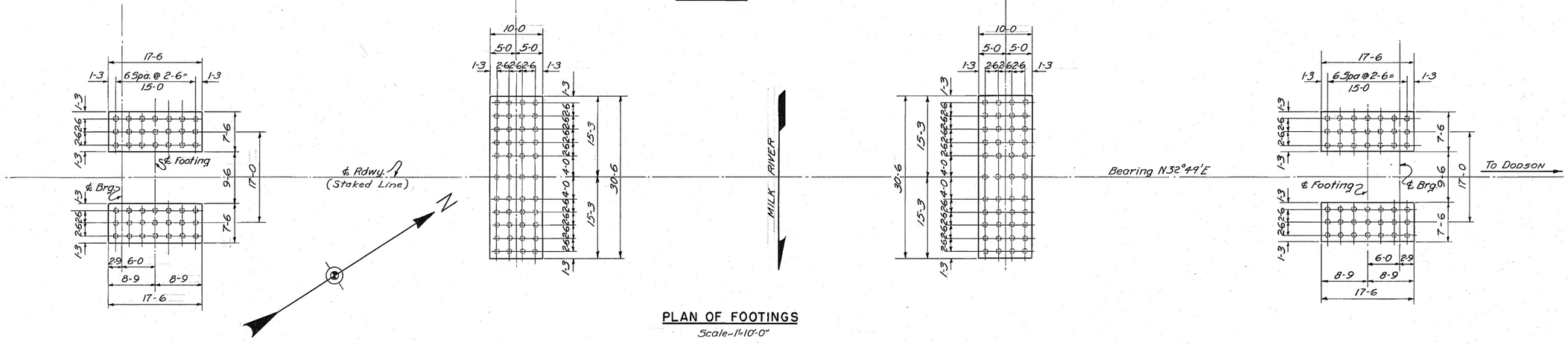
DRAWING NO. 3347

J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	S159(1)		6	11



ELEVATION



PLAN OF FOOTINGS

Scale-1"=10'-0"

NOTES

STRUCTURE EXCAVATION :— Only the excavation below ground line for Bents No. 1 & No. 4 and below Elev. 2258.0 for Piers No. 2 & No. 3 need be restricted to the area inside the cofferdams.

BACKFILL:— The backfill at end bents may be completed up to the bottoms of the backwalls before superstructure is in place. The backfill against the backwalls shall not be placed until after the concrete roadway slab has been placed.

TEST PILES:— One test pile shall be driven to practical refusal in each of the footings of Pier No. 2 and No. 3 and in Bents No. 1 and No. 4 after the excavation has been made to plan grade.

Test piles shall comply with the requirements of the Standard Specifications and shall be driven so that the test pile can be utilized as a service pile in the structure.

The lump sum price bid for "Test Piles" shall constitute full compensation for all materials, including labor, equipment, tools, and all incidentals necessary to complete the item.

FOUNDATION PILING:— All foundation piling shall be untreated timber and shall meet the requirements for untreated piling set forth in the Standard Specifications. All of the piling shall be driven to sustain safely the design load per pile as shown for the respective bents and piers in accordance with the Standard Specifications. The price bid per lineal foot shall be for piling in place, and payment shall be made only for the actual length of piling left in place below the cut-off.

OTHER NOTES:— For other notes see Dwg. No. 3347.

DESIGNED		
DRAWN	H.E.S.	6-15-53
TRACED	J.W.A.	6-18-53
CHECKED	P.E.P.	7-16-53
REVISED		
REVISED		

J.R.B.

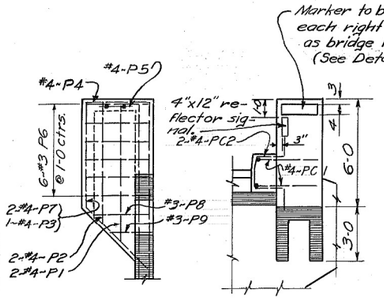
STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER MILK RIVER
NEAR DODSON
FED. AID SECONDARY PROJ. NO. S 159(1)
PHILLIPS COUNTY
FOOTING PLAN
Scale-1"=10'-0"

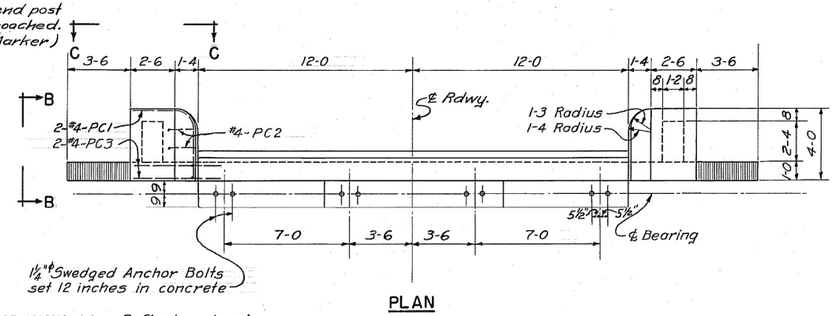
STATE PRECONST. NUMBER 3159-01

DRAWING NO. 3348

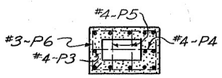
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	S-159(1)		7	11



VIEW B-B VIEW C-C



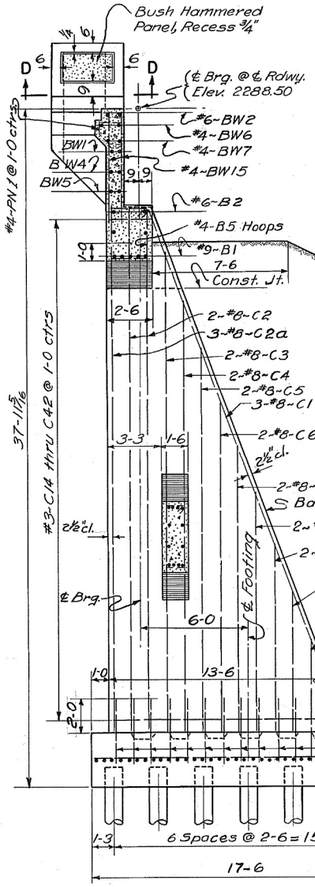
PLAN



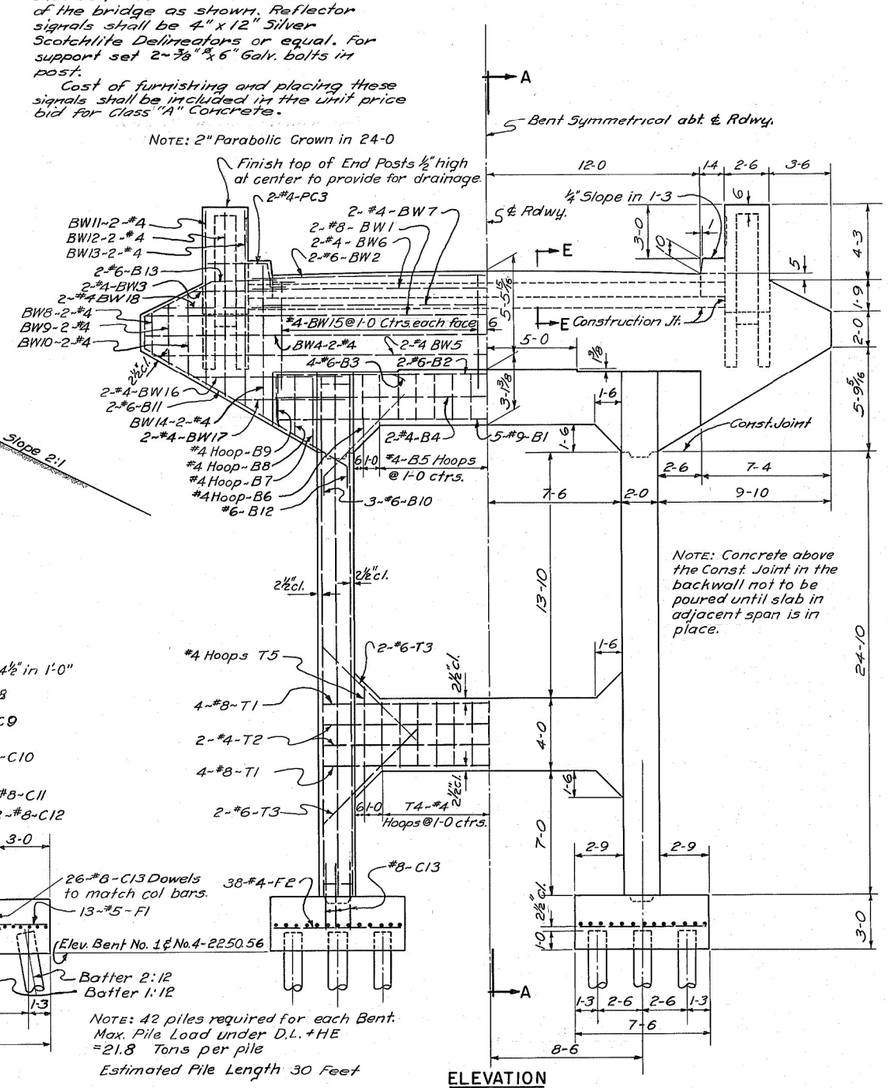
SECTION D-D

REFLECTOR SIGNALS:— Reflector signals shall be placed at all four corners of the bridge as shown. Reflector signals shall be 4" x 12" Silver Scotchlite Delineators or equal. For support set 2-⅜"ø x 6" Galv. bolts in post.

Cost of furnishing and placing these signals shall be included in the unit price bid for Class "A" Concrete.



SECTION A-A



NOTE: Concrete above the Const. Joint in the backwall not to be poured until slab in adjacent span is in place.

ELEVATION

NOTE: 42 piles required for each Bent.
Max. Pile Load under D.L.+HE = 21.8 Tons per pile
Estimated File Length 30 Feet



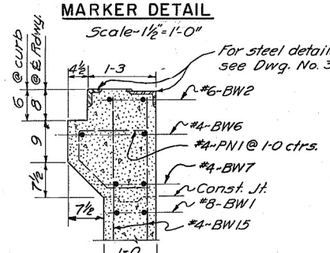
L=Length required to make sign of Gothic letters of proper proportions. For support set 4-½"ø x 6" Galv. bolts in concrete end post as shown.

Cost of markers complete in place shall be included in the unit price bid for Class "A" concrete.

PAINTING OF MARKERS: Letters shall be 2⅛ inches high made with ⅜ inch stroke with space of about ½ inch between letters. Before paint is applied, plate shall be cleaned with gasoline. One coat of flat white paint and two coats of white enamel shall then be applied over the entire surface of the plate. 'Silver Scotchlite' or equivalent reflectorizing material shall then be applied to entire face of the sign with the special water proof adhesive recommended by the manufacturers of the reflectorizing material. Lettering and border shall be put on with signwriter's lettering black.

MARKER DETAIL

Scale-1½" = 1'-0"



SECTION E-E

Scale-¾" = 1'-0

NOTES

CONCRETE:— All concrete of Bents No. 1 and No. 4 shall be Class "A".

Chamfer all exposed edges of concrete ¾" and fillet entrant angles ¾" unless otherwise noted.

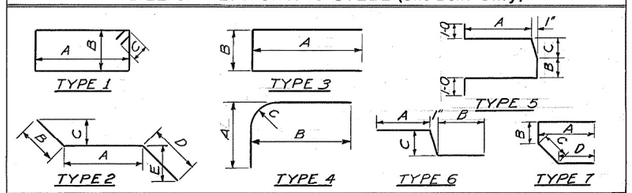
FORMS:— All forms for End Bents above construction joint at bottom of beam haunches shall be made of tongue and groove matched lumber, surfaced inside or shall be lined with plywood. See Special Provisions.

SETTING OF SHOES:— Care shall be taken in placing reinforcing steel so as to clear anchor bolts.

Contractor shall finish concrete under girder shoes slightly high and bush-hammer to exact elevation shown. Shoes shall be placed on three layers of canvas thoroughly swabbed with red lead, as called for in Standard Specifications.

OTHER NOTES:— For other notes see Dwg. No. 3347 and Dwg. No. 3348.

BILL OF REINFORCING STEEL (One Bent Only)



STRAIGHT BARS				BENT BARS (ALL DIMENSIONS OUT TO OUT)									
No.	Size	Length	Mark	No.	Size	Mark	Type	Length	A	B	C	D	E	F	G
5	#9	23'-8"	B1	2	#3	C14	1	29'-10"	12'-11	1'-8	0'-4				
2	6	23-8	B2	↓	↓	C15	↑	29-1	12-6½	↑	↑				
8	6	7-0	B3			C16		28-4	12-2						
2	8	38-4	BW1			C17		27-7	11-9½						
2	6	26-4	BW2			C18		26-10	11-5						
4	4	4-7	BW3			C19		26-1	11-0½						
2	↑	38-4	BW4			C20		25-4	10-8						
2		37-0	BW5			C21		24-7	10-3½						
2		26-3	BW6			C22		23-10	9-11						
2		26-3	BW7			C23		23-1	9-6½						
4		2-3	BW8			C24		22-4	9-2						
4		3-4	BW9			C25		21-7	8-9½						
4		4-6	BW10			C26		20-10	8-5						
4		9-9	BW11			C27		20-1	8-0½						
4		10-4	BW12			C28		19-4	7-8						
4		11-0	BW13			C29		18-7	7-3½						
4		8-7	BW14			C30		17-10	6-11						
24		6-6	BW15			C31		17-1	6-6½						
4		8-5	BW16			C32		16-4	6-2						
4	↓	6-4	BW17			C33		15-7	5-9½						
2	4	23-8	B4			C34		14-10	5-5						
6	8	31-2	C1			C35		14-1	5-0½						
8	8	29-2	C2			C36		13-4	4-8						
4	↑	26-10	C3			C37		12-7	4-3½						
↑		24-3	C4			C38		11-10	3-11						
		21-6	C5			C39		11-1	3-6½						
		18-10	C6			C40		10-4	3-2						
		16-2	C7	↓	↓	C41		9-7	2-9½	↑	↑				
		13-6	C8	2	3	C42		8-10	2-5	1-8	0-4				
		10-10	C9	13	4	T4		10-5	3-8	1-2	0-4½				
		8-2	C10	2	4	T5		14-5	5-8	1-2	0-4½				
↑		7-6	C11	13	4	B5		10-5	2-8	2-2	0-4½				
4	↓	4-10	C12	2	4	B6		12-5	3-8	2-2	0-4½				
52	8	4-0	C13	2	4	B7		13-1	4-0	2-2	0-4½				
8	8	18-8	T1	2	4	B8	↓	11-11	3-5	2-2	0-4½				
4	4	18-8	T2	2	4	B9	1	10-9	2-10	2-2	0-4½				
8	6	7-0	T3	6	6	B10	2	8-0	1-0	0-8½					
26	5	17-0	F1	4	6	B11	2	16-1	13-3	1-0	0-10	1'-10	1'-7"		
76	4	7-0	F2	2	6	B12	2	8-7	4-10	1-0	0-10	2-9	2-5½		
4	4	7-9	P1	4	6	B13	2	7-11	3-4	4-7	2-1				
4	4	6-9	P2	12	3	P6	1	12-4	3-8	2-2	0-4				
2	4	5-9	P3	4	4	P7	2	10-11	5-9	5-2	3-8				
2	4	3-8	P4	2	3	P8	3	8-10	3-4	2-2					
4	4	2-2	P5	2	3	P9	3	6-8	2-3	2-2					
4	4	6-2	BW18	4	4	PC1	4	6-8	3-6	3-8	1-1				
6	8	34-8	C2a	4	4	PC2	5	6-11	1-6	1-0	0-10				
				4	4	PC3	6	5-7	3-4	1-3	1-0				
				24	#4	PN1	7	3-3	1-3	0-6½	0-8½	0-9			

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER MILK RIVER
NEAR DODSON
FED. AID SECONDARY PROJ. NO. S 159(1)
PHILLIPS COUNTY
BENTS NO. 1 & NO. 4
Scale-½" = 1'-0" except as noted

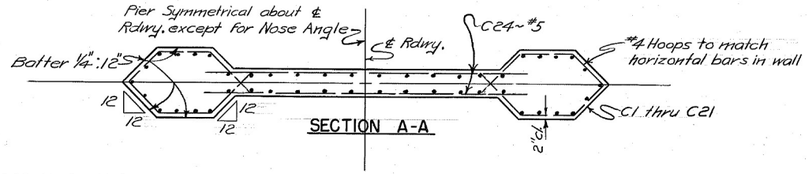
DESIGNED	H.E.S.	6-12-53
DRAWN	H.E.S.	6-13-53
TRACED	J.W.A.	7-1-53
CHECKED	PEP	7-16-53
REVISED		
REVISED		

STATE PRECONST. NUMBER 3159-01

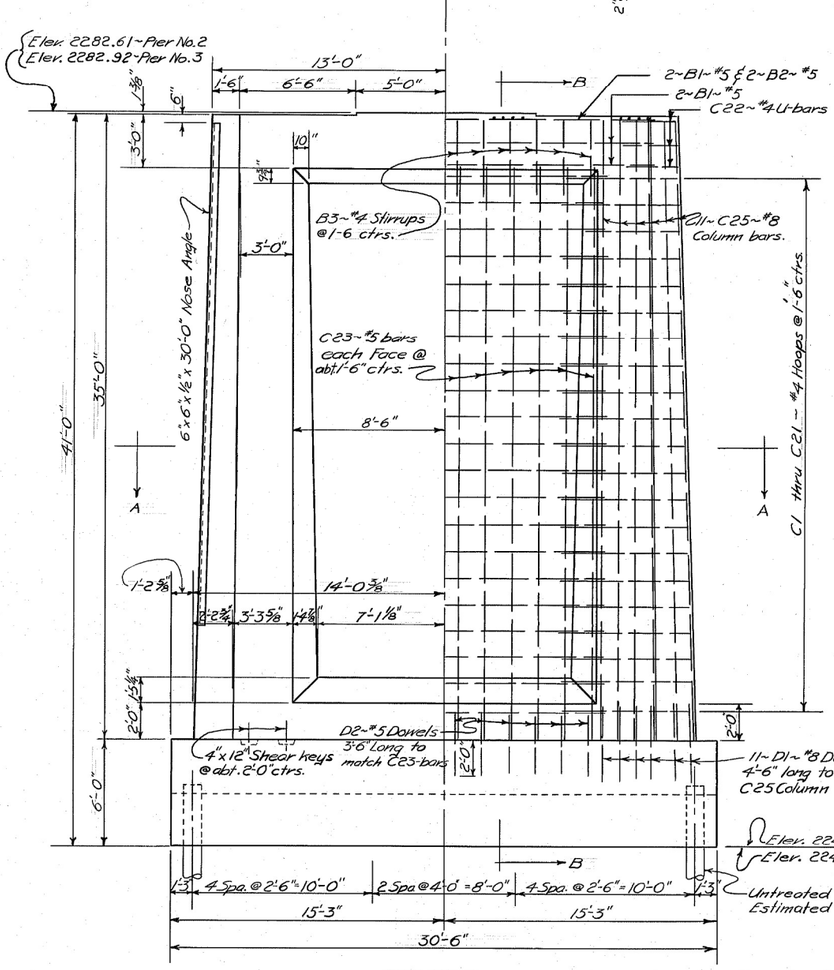
DRAWING NO. 3349

J.R.B.

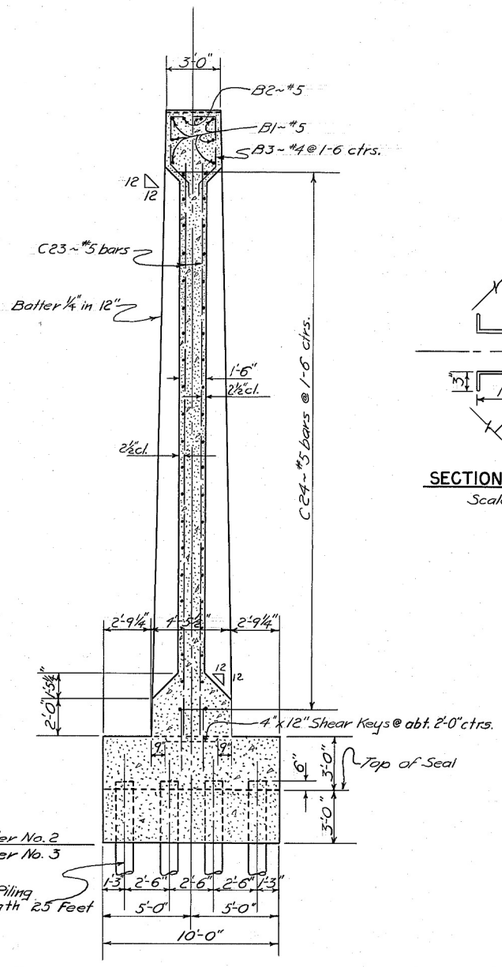
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	S-159(1)		8	11



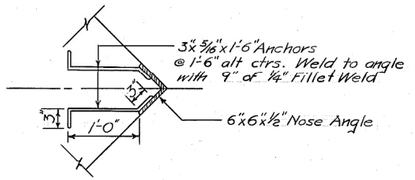
SECTION A-A



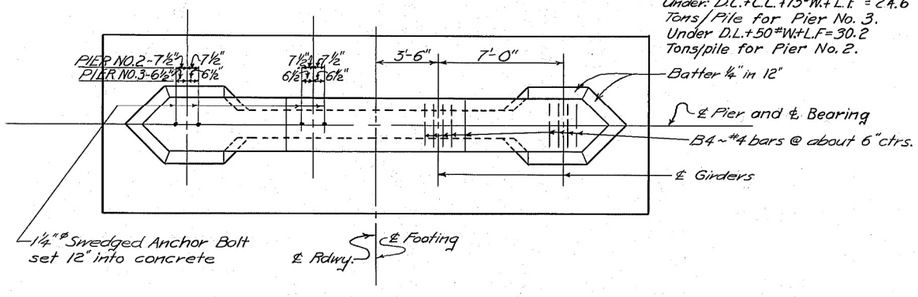
ELEVATION



SECTION B-B



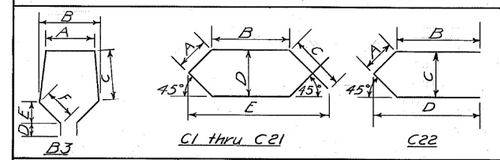
SECTION OF NOSE ANGLE
Scale - 1"=1'-0"



PLAN

NOTE: Max. Foundation Pressure Under: D.L.+L.L.+15%W.+L.F. = 24.6 Tons/Pile for Pier No. 3. Under D.L.+50%W+L.F.=30.2 Tons/pile for Pier No. 2.

BILL OF REINFORCING STEEL (FOR ONE PIER ONLY)



STRAIGHT BARS				BENT BARS (ALL DIMENSIONS ARE OUT TO OUT)								
No.	Size	Mark	Length	No.	Size	Mark	Length	A	B	C	D	E	F
6	#5	B1	22'-10"	12	#4	B3	12'-3"	2'-7"	2'-8½"	2'-8"	1'-0"	0'-10"	1'-2"
2	5	B2	24-8										
16	4	B4	2-8	2	4	C1	18-9	2-10½	3-1⅞	3-4½	4-0½	7-7	
				↑	↑	C2	18-7	2-10	3-1⅞	3-4	3-11⅜	7-6	
24	5	C23	33-0			C3	18-5	2-9½	3-1½	3-3½	3-11	7-5	
42	5	C24	18-0			C4	18-3	2-9	3-1⅞	3-3	3-10¼	7-4	
22	8	C25	34-9			C5	18-0	2-8½	3-1⅛	3-2½	3-9½	7-3	
22	8	D1	4-6			C6	17-10	2-8	3-1	3-2	3-8⅜	7-2	
24	#5	D2	3-6			C7	17-6	2-7	3-0⅝	3-1	3-8	7-1	
						C8	17-3	2-6½	3-0¾	3-0⅛	3-7¼	7-0	
						C9	17-1	2-6	3-0½	3-0	3-6½	6-11	
						C10	16-10	2-5½	3-0⅜	2-11½	3-5¾	6-10½	
						C11	16-8	2-5	3-0¼	2-11	3-5	6-9½	
						C12	16-6	2-4½	3-0⅛	2-10½	3-4¼	6-8½	
						C13	16-4	2-4	3-0	2-10	3-3½	6-8	
						C14	16-1	2-3½	2-11⅞	2-9½	3-2¾	6-7	
						C15	15-11	2-3	2-11⅝	2-9	3-2	6-6	
						C16	15-9	2-2½	2-11½	2-8½	3-1¼	6-5	
						C17	15-7	2-2	2-11⅜	2-8	3-0½	6-4	
						C18	15-4	2-1½	2-11¼	2-7½	2-11⅞	6-3½	
						C19	15-2	2-1	2-11	2-7	2-11	6-2½	
				↓	↓	C20	15-0	2-0½	2-10⅞	2-6½	2-10¼	6-1½	
				2	4	C21	14-9	2-0	2-10⅜	2-6	2-9½	6-0½	
				6	#4	C22	6-3	1-10½	1-3	2-8	2-7		

NOTES

CONCRETE÷ All concrete in piers shall be Class "A". The contractor will be permitted to deposit, for his convenience, a portion as shown of the pier base under water as a seal course if he desires, in which case he shall use Class "S" concrete for the concrete deposited under water, and he shall place it in accordance with the requirements for "Depositing Concrete Under Water," as called for in the Standard Specifications.

Concrete placed outside of neat lines shown on the plans, or neat lines as modified by the engineer, as well as the change in mix for the seal, will be for the contractor's convenience, and he shall include all cost connected therewith in the unit price bid for Class "A" concrete.

FORMS÷ All forms for shafts of piers above top of footings shall be made of tongue and groove matched lumber, surfaced inside or shall be lined with plywood, See Special Provisions.

SHAFTS÷ Shafts of piers shall be poured in not more than two continuous runs; other construction joints shall be made only as noted on the plans or as determined by the engineer.

CONSTRUCTION JOINTS÷ Construction joints shall be made on a true horizontal line at the surfaces of the piers and left rough in the interior with satisfactory shear keys.

NOSE ANGLES÷ Pier nose angles shall be paid for as structural steel. Two field coats of paint as specified for structural steel shall be applied to nose angles before erection.

CHAMFER÷ Chamfer all exposed corners 1½ inches.

OTHER NOTES÷ For other notes see Dwg. No. 3347, Dwg. No. 3348, & Dwg. No. 3349.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER MILK RIVER
NEAR DODSON
FED. AID SECONDARY PROJ. NO. S 159(1)
PHILLIPS COUNTY
PIERS NO. 2 & NO. 3
Scale - ½"=1'-0" except as noted

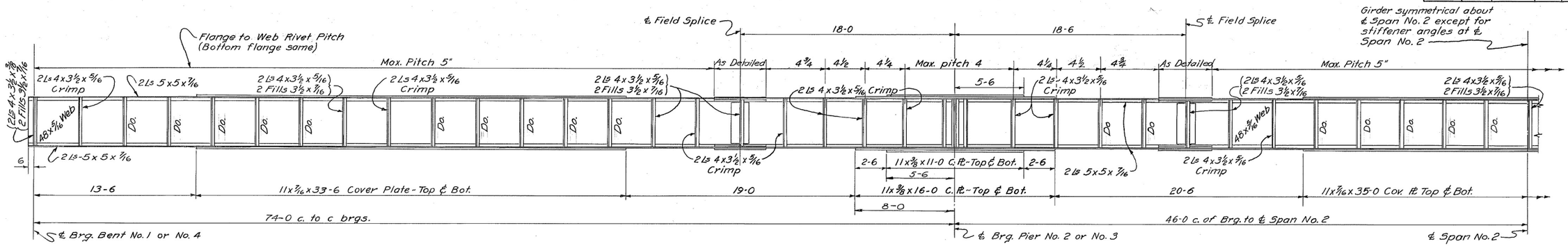
DESIGNED	H.E.S.	5-25-53
DRAWN	H.E.S.	6-5-53
TRACED	R.E.C.	6-25-53
CHECKED	P.E.P.	7-15-53
REVISED		
REVISED		

STATE PRECONST. NUMBER 3159-01

DRAWING NO. 3350

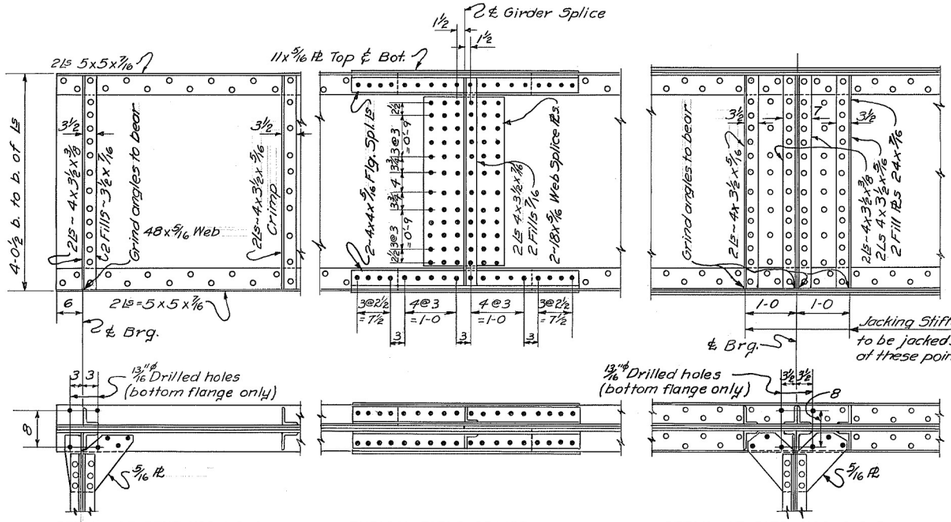
J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	S-159(1)		9	11



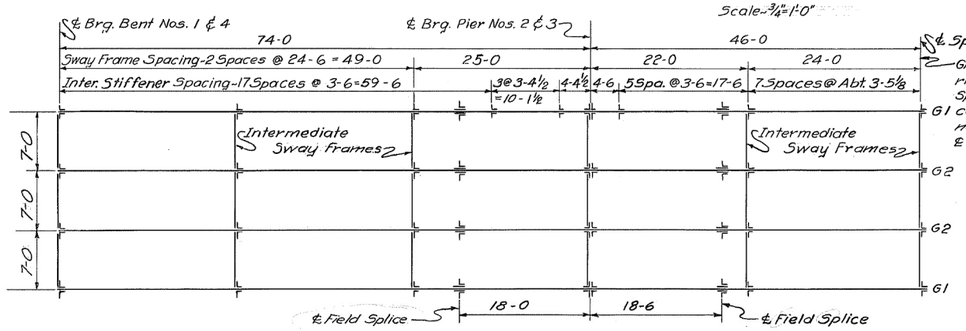
GIRDER ELEVATION

Scale-1/4"=1'0"
(G1 & G2 Similar)



DETAIL AT BENT NOS. 1 & 4 | TYPICAL FIELD SPLICE | DETAIL AT PIER NOS. 2 & 3 | BOTTOM FLANGE CONNECTION FOR INTERMEDIATE SWAY FRAMES | TOP FLANGE CONNECTION FOR INTERMEDIATE SWAY FRAMES

DETAILS FOR EXTERIOR GIRDERS
INTERIOR GIRDERS SIMILAR



ERECTION DIAGRAM

DESIGN INFORMATION

Moment in Ft. Kips.
Reactions & Shears in Kips
Deflections in Inches

	74' R1	92' R2	74' R3	R4

	END SPAN		INT. SPAN		R1 & R4		R2 & R3	
	G1	G2	G1	G2	G1	G2	G1	G2
Moment								
D.L.	.329	282	322	275			-616	-528
L.L.	400	560	400	560			-359	-501
Shear @ R1 & R4								
D.L.	24.2	20.8						
L.L.	29.7	41.6						
Shear @ R2 & R3								
D.L.	-41.0	-35.1	40.7	34.9				
L.L.	-32.1	-44.9	32.2	45.1				
Reactions								
D.L.					24.2	20.8	81.7	70.0
L.L.					29.7	41.6	41.3	57.7
Deflections								
D.L.	.55	.47	.67	.58				
L.L.	.67	.93	.87	1.21				

NOTES

RIVETS:— 3/4" ⌀ unless otherwise noted.
REAMING:— All field holes in girder splices shall be sub-punched 1"/16" ⌀ and reamed 13/16" ⌀ or drilled in the shop, as called for in Standard Specifications. In reaming field holes in girder splices, the adjacent sections of the girder must be assembled in exact positions with sufficient support throughout the entire length to maintain girders in proper position. Where turned bolts are used, holes shall be sub-punched 1"/16" ⌀ and reamed to 13/16" ⌀ or drilled.
APPROVAL:— Shop plans shall be approved by the Montana State Highway Department before fabrication is begun.
GIRDERS:— Girders shall be fabricated without camber.
SPLICE ANGLES:— Splice angles shall be ground to fit fillet of flange angles.

ERECTION:— Girders shall be supported at splice points and at sufficient intermediate intervals throughout their entire length to maintain girders at exact elevation and proper alignment during riveting of field splices.
All splices shall be pinned and bolted in accordance with the Standard Specifications before riveting is started.
WELDS:— All weld shall be continuous fillet stop welds unless otherwise noted. Welds shall be paid for at the unit price bid for structural steel and the weights shall be computed in accordance with the following; 5/16" at .072#/ft., 1/4" at .128#/ft., 3/8" at .287#/ft., and 1/2" at .510#/ft.
OTHER NOTES:— For other notes see Dwg. No. 3347

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER MILK RIVER
NEAR DODSON
FED. AID SECONDARY PROJ. NO. S 159(1)
PHILLIPS COUNTY
GIRDER DETAILS
Scale-As noted

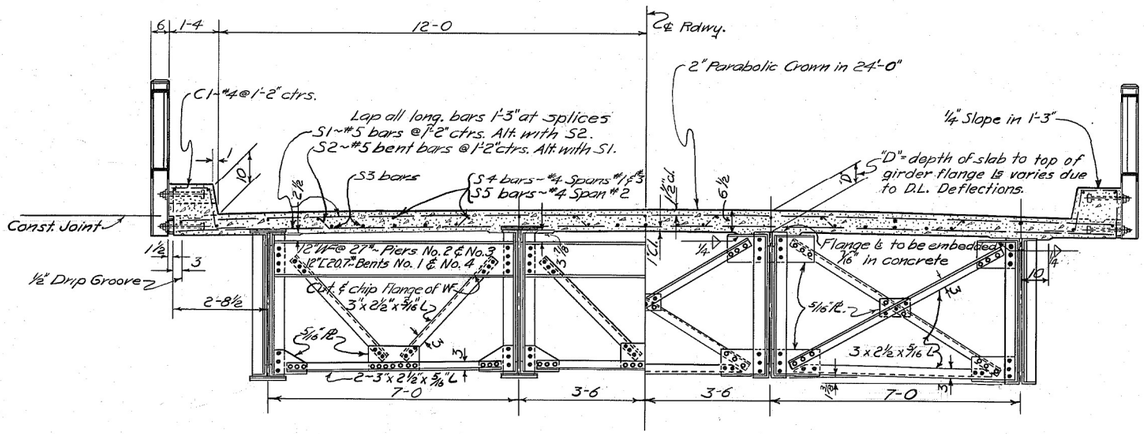
DESIGNED	H.E.S.	5-19-53
DRAWN	H.E.S.	6-3-53
TRACED	J.W.A.	6-23-53
CHECKED	P.E.P.	7-14-53
REVISED		
REVISED		

STATE PRECONST. NUMBER 3159-01

DRAWING NO. 3351

J.R.B.

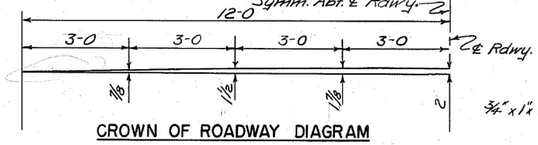
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	S-159(1)		10	11



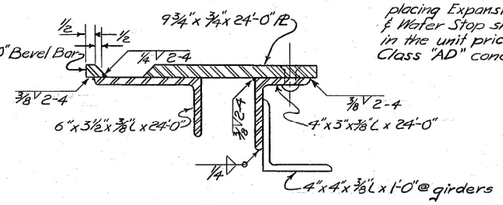
HALF SECTION AT PIER NOS. 2 & 3
HALF SECTION AT BENT NOS. 1 & 4 SIMILAR

Scale ~ 1/2" = 1'-0"

HALF SECTION AT TYPICAL INTERMEDIATE SWAY FRAME

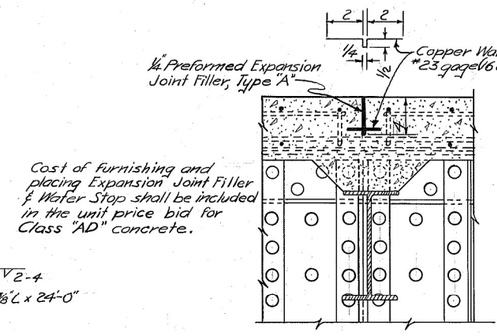


CROWN OF ROADWAY DIAGRAM



ENLARGED DETAIL OF EXPANSION JOINT

Scale : 3" = 1'-0"



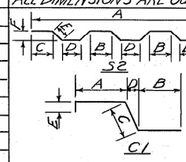
CONTRACTION JOINT AT PIER NO. 2

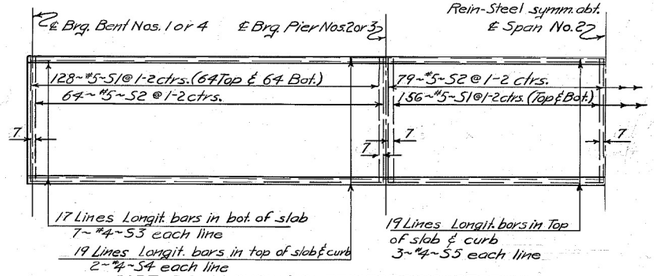
Contraction Joint at Pier No. 3 Similar.

Scale ~ 1/2" = 1'-0"

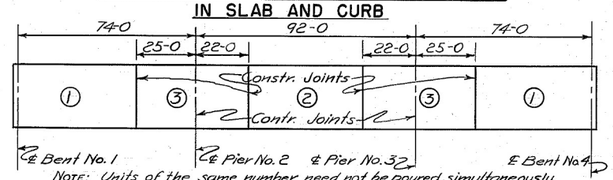
BILL OF REINFORCING STEEL (SLAB & CURB)

STRAIGHT BARS				BENT BARS										BENDING DIAGRAM
NO.	SIZE	LENGTH	MARK	NO.	SIZE	MARK	LENGTH	A	B	C	D	E	F	G	ALL DIMENSIONS ARE OUT TO OUT
412	#5	26'-1"	S1	207	#5	S2	26'-10"	26'-1"	2'-10	3-11/16	3'-7 7/8	0'-5 1/2	0'-4"		
119	#4	35-6	S3	416	#4	C1	4-0	1-0	1-3	1-2	0 1/16	0-7			
76	#4	37-7	S4												
57	#4	31-5	S5												





PART PLAN SHOWING REINFORCING STEEL IN SLAB AND CURB



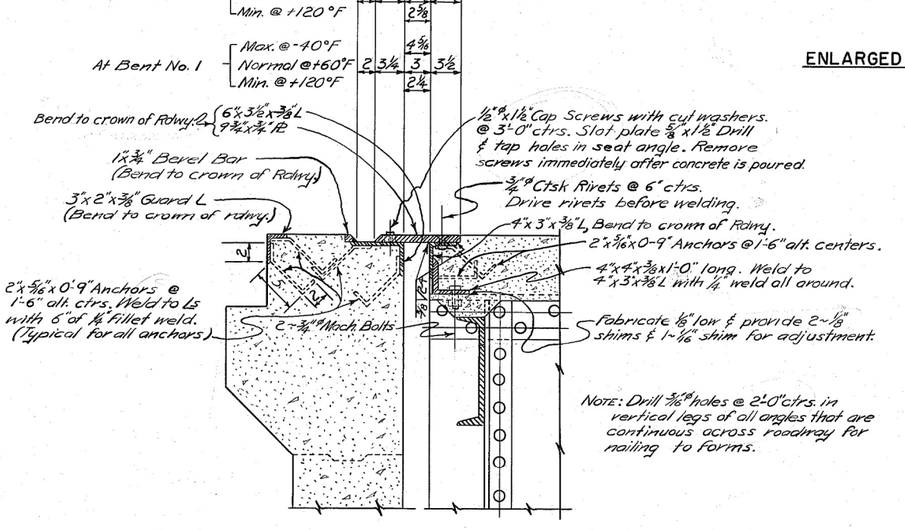
NOTE: Units of the same number need not be poured simultaneously. A combination of units numbered successively may be poured continuously but all units of one number must be poured before pouring is started on any unit of the succeeding number. All slab reinforcing to be in place before pouring is started.

SLAB POURING DIAGRAM

DEPTH OF SLAB "D" (IN INCHES)																
	R1	.1	.2	.3	.4	.5	.6	.7	.8	.9	R2	.1	.2	.3	.4	.5
G1	6 1/4	6 7/16	6 5/8	6 3/4	6 13/16	6 3/4	6 11/16	6 3/4	6 7/8	6 15/16	6 1/4	6 3/8	6 7/16	6 1/2	6 9/16	6 5/8
G2	6 1/4	6 7/16	6 5/8	6 11/16	6 3/4	6 11/16	6 3/8	6 1/2	6 3/8	6 5/16	6 1/4	6 5/16	6 1/2	6 11/16	6 13/16	6 13/16

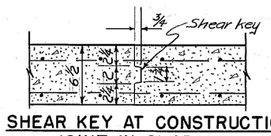
NOTE: Slab depth, "D," symmetrical about ℄ of Span No. 2.

For notes, see Dwg No. 3347.



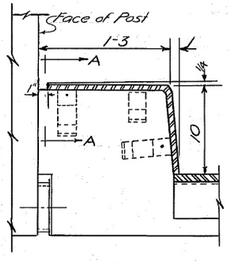
DETAIL OF EXPANSION JOINT AT BENT NO. 1 & NO. 4

Scale ~ 1 1/2" = 1'-0"



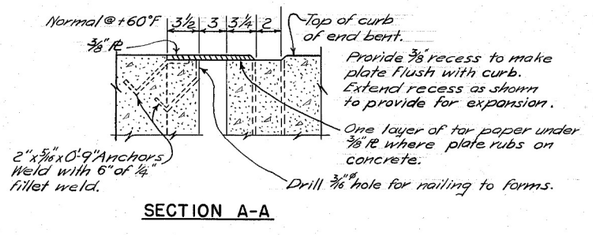
SHEAR KEY AT CONSTRUCTION JOINT IN SLAB

Scale ~ 1 1/2" = 1'-0"

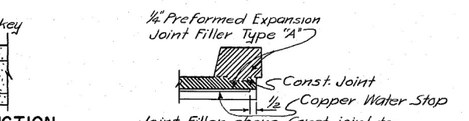


TYPICAL CURB EXPANSION JOINT

Scale ~ 1 1/2" = 1'-0"



SECTION A-A



CONTRACTION JOINT IN CURB AT PIER NOS. 2 & 3

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER MILK RIVER
NEAR DODSON
FED. AID SECONDARY PROJ. NO. S 159 (1)
PHILLIPS COUNTY

CROSS SECTION, FLOOR JOINTS & SLAB DETAILS

Scale ~ As noted

DESIGNED	H.E.S.	5-19-53
DRAWN	H.E.S.	6-1-53
TRACED	R.E.C.	7-1-53
CHECKED	R.E.P.	7-15-53
REVISED		
REVISED		

STATE PRECONST. NUMBER 3159-01

DRAWING NO. 3352

J.R.B.