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 Thus, some of the information contained in these documents may be out of date or not applicable with regard to the advertised project.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.

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE PLANS & QUANTITIES

FEDERAL AID PROJECT NO. F 49-2(3)27 P.E. BRF 49-2(4)27 CONST.

STRUCTURE REPAIR Structure Repair

MADISON COUNTY

LIST OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE
1	2750 QB	PIER NO. 2 - REPAIR DETAILS
2	2750	GENERAL LAYOUT - STA. 1431 + 57.28
3	2751	END BENTS NO. 1 & NO. 4 - STA. 1431 + 57.28
4	2752	PIERS NO. 2 & NO. 3
5	2753	GIRDERS
6	2754	GIRDERS

THESE DRAWINGS ARE FOR REFERENCE PURPOSES ONLY.

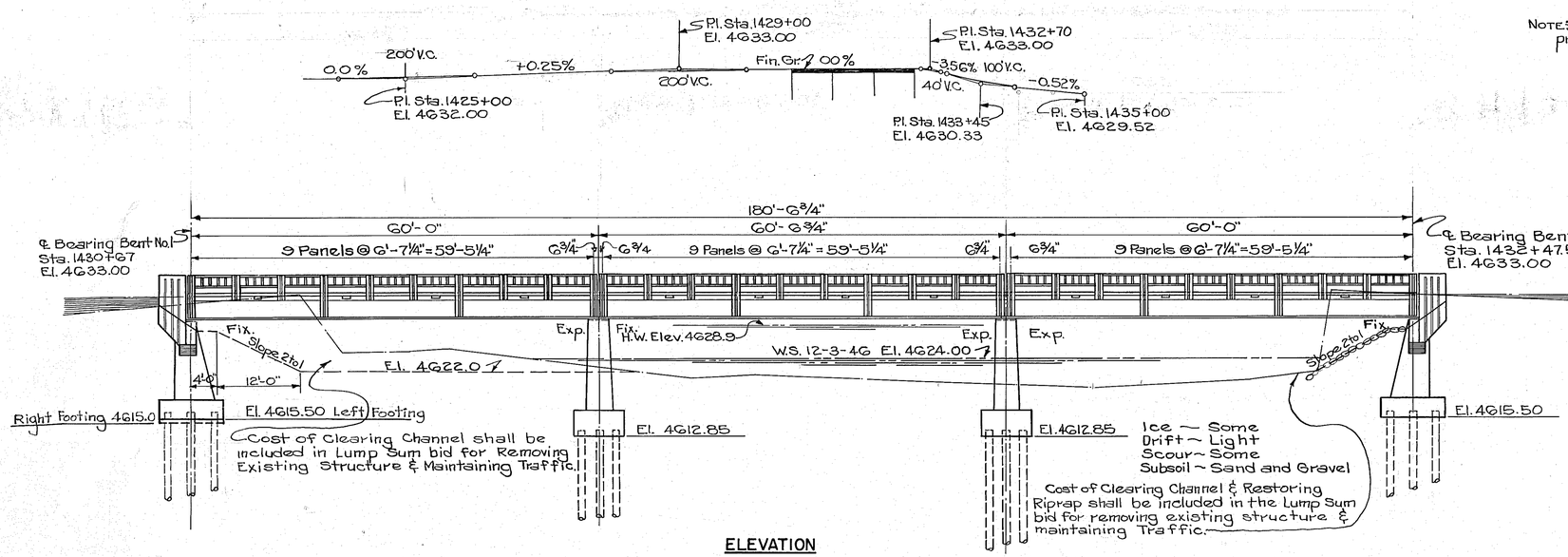
ESTIMATED BRIDGE PLAN QUANTITIES

LOCATION		REINFORCING STEEL LBS.	CLASS "BD" CONCRETE CU. YDS.	CRIBBING SYSTEM LUMP SUM	PAINT LUMP SUM
STRUCTURE AT STA. 1431 + 57.28	PIER NO. 2	394	4.3	1.0	1.0
TOTAL		394	4.3	1.0	1.0

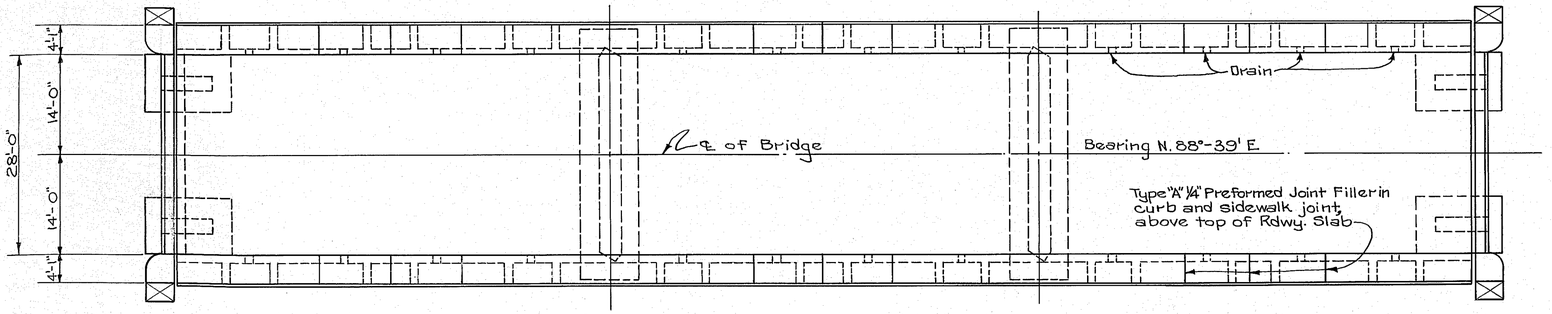
DRAWN BY: JLP 8/15/80 CHECKED BY: MLR 8/18/80

DRAWING NO. 2750 QA

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MONT.	F387(3)		7	11
		BRF 49-2(4)27		2	6



ELEVATION



PLAN

REFERENCES	
DWG. NO.	TITLE
2751	End Bents No.1 & No.4
2752	Piers No. 2 & No. 3
2753	Girders
2754	Cross Section, Diaphragm, Rail & Floor Joints.

* THIS CONTRACT BH 0002(761)
Scour Mitigation 19824 thru 19836

* Pier No. 2 modified as shown on Dwg. No. 2750 QB.

Note:- Finished Grade of Bridge is .33 Ft. above profile grade shown on Road Plans.

NOTES

SPECIFICATIONS:- Montana State Highway Commission Standard Specifications for Road and Bridge Construction, adopted Jan. 1, 1946 and any amendments thereto, and Special Provisions shall govern unless otherwise noted. Design prepared in accordance with Montana 1945 Design Specifications for Highway Structures, Revised March 1, 1946.

LIVE LOAD:- Standard H15-S12 Loading

CONCRETE:- All concrete of superstructure shall be Class "AD". All concrete in bents and piers shall be Class "A".

Chamfer all exposed edges of concrete 1½ inches and fillet entrant angles 1½ inches unless otherwise noted.

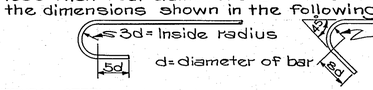
CONSTRUCTION JOINTS:- Construction joints shall be made only at locations shown on the plans or as approved by the Engineer. Adequate keys shall be provided at all construction joints as noted on the plans or determined by the Engineer.

REINFORCING STEEL:- All reinforcing bars shall be of intermediate grade billet steel. They shall be of approved deformed section except as noted.

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. Hooks shall conform to the dimensions shown in the following sketches.



STRUCTURAL STEEL:- For requirements governing structural steels see the Standard Specifications.

PAINT ~ 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, and as noted under "Painting for Steel Bridges".

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 1 inch. In footings of bents and piers the minimum covering shall be 3 inches.

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.

PILING:- All foundation piling shall be untreated timber and shall meet the requirements for untreated piling set forth in the Standard Specifications. Piling shall be driven to sustain safely a load of 20 tons per pile, 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 cutoff.

For bidding purposes only, pile lengths have been estimated as noted on the details of the bents and piers. The Contractor shall determine the required pile lengths, as provided in the Standard Specifications.

Untreated Timber Foundation Piling shall meet the requirements of the Standard Specifications except that piling shall show an average of at least six annual rings per inch measured radially over a distance of three inches on the butt beginning at a point three inches from the center of the heart pith.

WELDS:- All welds shall be continuous fillet shop 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" @ .772 Lbs. per Ft.; ¼" @ .128 lbs. per Ft.; 5/16" @ .199 Lbs. per Ft.; ⅜" @ .287 Lbs. per Ft. and ½" @ .510 Lbs. per Ft.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER BEAVERHEAD RIVER
AT TWIN BRIDGES
FED. AID PROJECT NO. F387(3)
MADISON COUNTY
GENERAL LAYOUT—STA. 1431+5728
Scale: 1"=10'-0"

DESIGNED	J. R. B.	5-47
DRAWN	C. A. M	8-5-47
TRACED	T. H. J.	10-22-47
CHECKED	H. W. K.	11-10-47
* REVISED	M. L. R	8-25-80
REVIEWED		

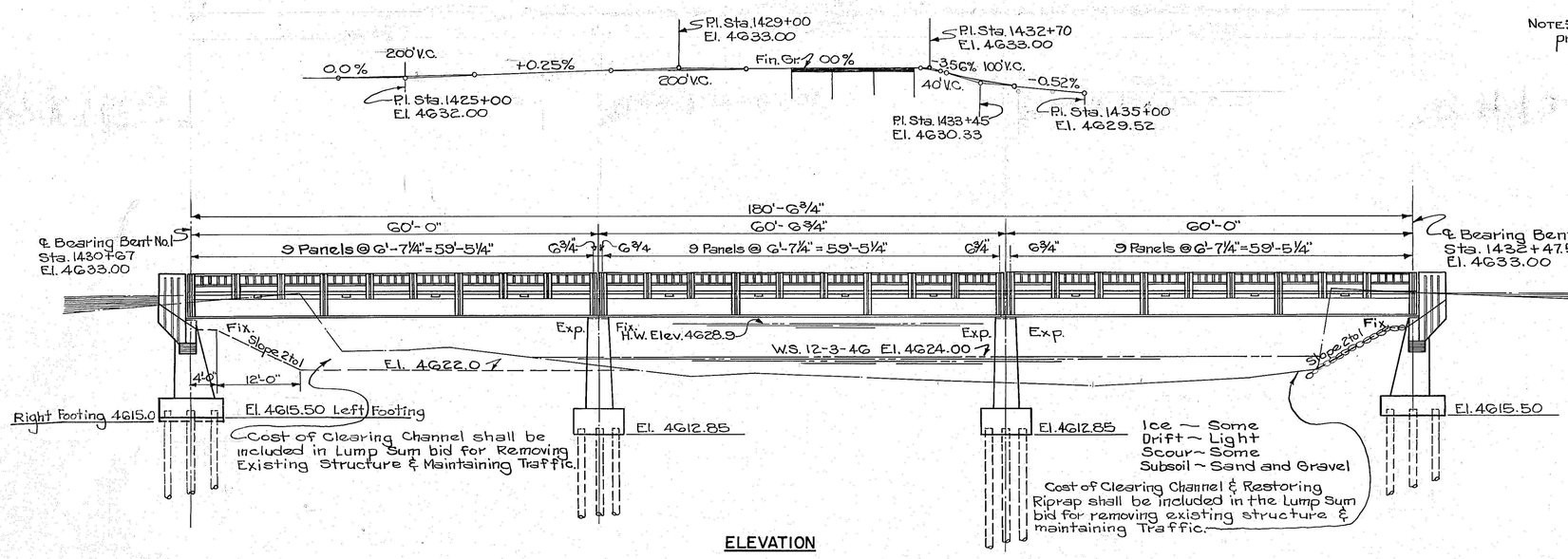
* Revised By DGG 1-17-06

APPROVED BY E. H. Tolman
BRIDGE PLANS ENGINEER

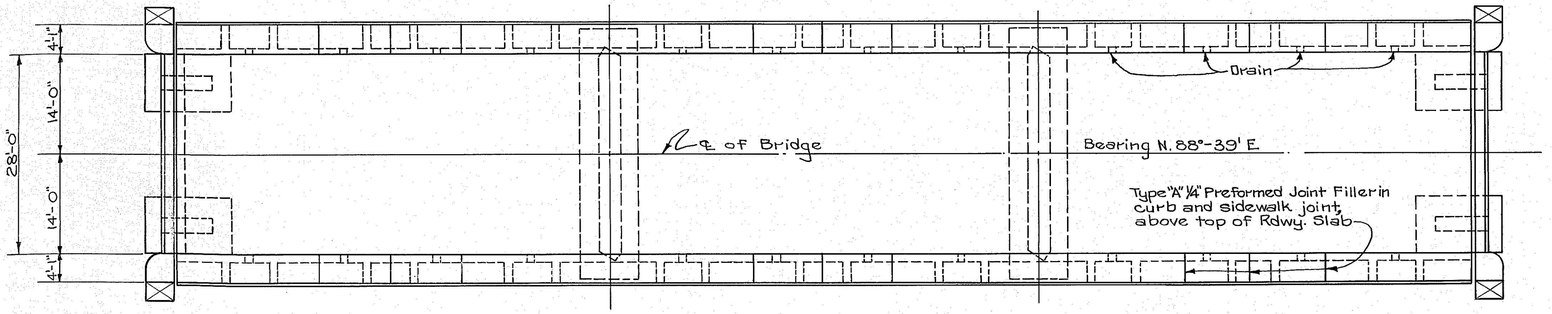
STATE NO. {PRECONST. 1601-04 / R/W / CONST.

DRAWING NO. 2750

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MONT.	F387(3)		7	11
		BRF 49-2(4)27		2	6



ELEVATION



PLAN

REFERENCES	
DWG. NO.	TITLE
2751	End Bents No.1 & No.4
2752	Piers No. 2 & No. 3
2753	Girders
2754	Cross Section, Diaphragm, Rail & Floor Joints.

Note:- Finished Grade of Bridge is .33 Ft. above profile grade shown on Road Plans.

NOTES

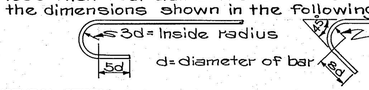
SPECIFICATIONS:- Montana State Highway Commission Standard Specifications for Road and Bridge Construction, adopted Jan. 1, 1946 and any amendments thereto, and Special Provisions shall govern unless otherwise noted. Design prepared in accordance with Montana 1945 Design Specifications for Highway Structures, Revised March 1, 1946.

LIVE LOAD:- Standard H15-S12 Loading

CONCRETE:- All concrete of superstructure shall be Class "AD". All concrete in bents and piers shall be Class "A".
Chamfer all exposed edges of concrete 1½ inches and fillet entrant angles 1½ inches 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.

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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.
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Bends in reinforcing bars shall be made to a radius of not less than four diameters of the bar. Hooks shall conform to the dimensions shown in the following sketches.



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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 1 inch. In footings of bents and piers the minimum covering shall be 3 inches.

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.

PILING:- All foundation piling shall be untreated timber and shall meet the requirements for untreated piling set forth in the Standard Specifications. Piling shall be driven to sustain safely a load of 20 tons per pile, 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 cutoff.
For bidding purposes only, pile lengths have been estimated as noted on the details of the bents and piers. The Contractor shall determine the required pile lengths, as provided in the Standard Specifications.
Untreated Timber Foundation Piling shall meet the requirements of the Standard Specifications except that piling shall show an average of at least six annual rings per inch measured radially over a distance of three inches on the butt beginning at a point three inches from the center of the heart pith.

WELDS:- All welds shall be continuous fillet shop 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" @ .772 Lbs. per Ft.; ¼" @ .128 lbs. per Ft.; 5/16" @ .199 Lbs. per Ft.; ⅜" @ .287 Lbs. per Ft. and ½" @ .510 Lbs. per Ft.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER BEAVERHEAD RIVER
AT TWIN BRIDGES
FED. AID PROJECT NO. F387(3)
MADISON COUNTY
GENERAL LAYOUT—STA. 1431+5728
Scale: 1"=10'-0"

DESIGNED	J. R. B.	5-47
DRAWN	C. A. M	8-5-47
TRACED	T. H. J.	10-22-47
CHECKED	H. W. K.	11-10-47
* REVISED	M. L. R	8-25-80
1 REVIEWED	T. J. B.	5-12-11

APPROVED BY _____ BRIDGE PLANS ENGINEER

STATE NO. (PRECONST. 1801-04 R/W CONST.

DRAWING NO. 2750

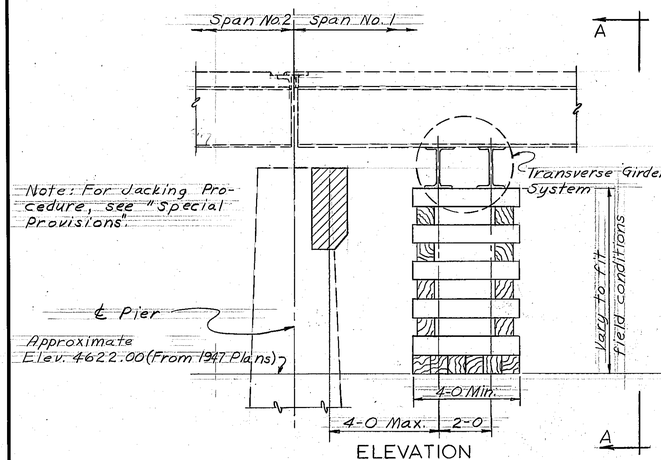
1 THIS CONTRACT: BH STWD(005)
REVISE BRIDGE RAIL TO CONCRETE BARRIER, REPLACED EXISTING EXPANSION JOINT AND PLACED CONCRETE OVERLAY. SEE DWG. NO. 21212

* THIS CONTRACT BH 0002(761)
Scour Mitigation 19824 thru 19836

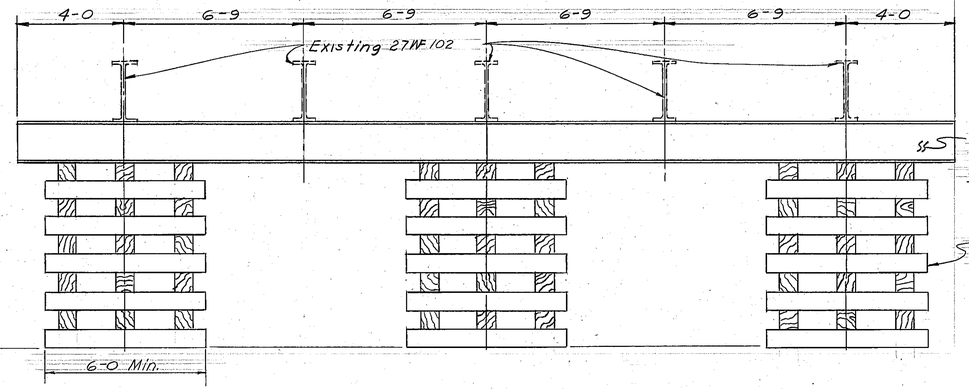
* Pier No. 2 modified as shown on Dwg. No. 2750 QB.

* Revised By DGG 1-17-06

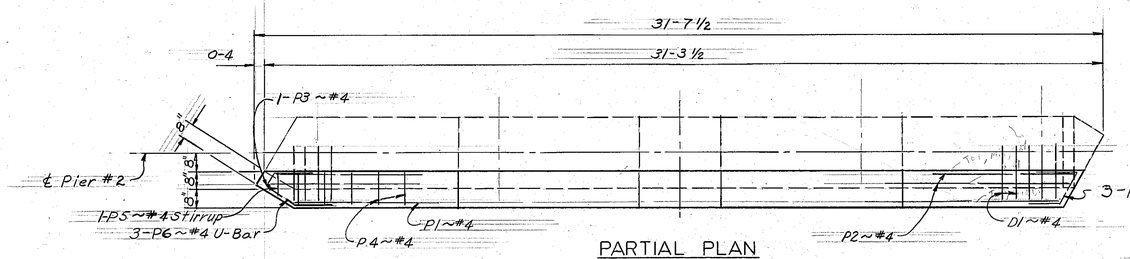
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	BRF 49-2(4)27	1	6



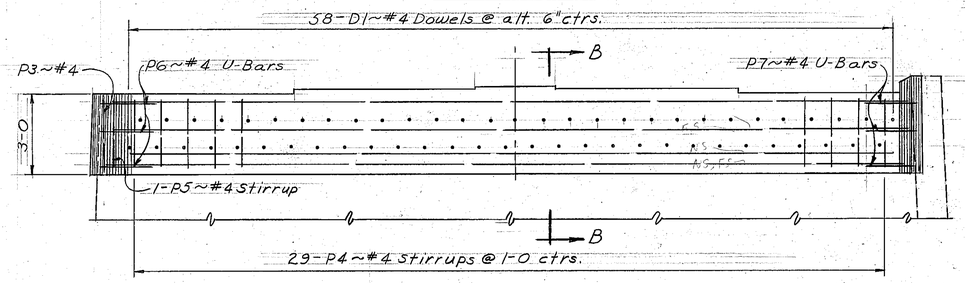
ELEVATION



VIEW A-A
TEMPORARY CRIBBING SYSTEM

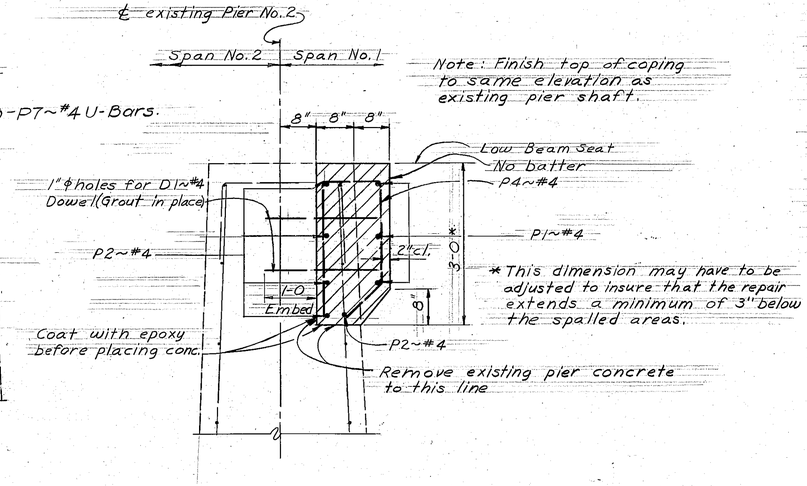


PARTIAL PLAN



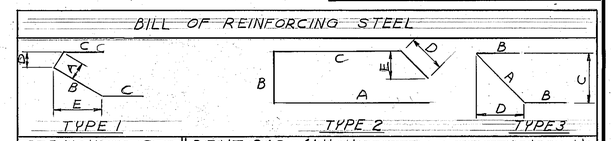
PARTIAL ELEVATION
Ahead on Line

CALCULATED DEAD LOAD REACTIONS		
Span #1 @ ℄ Cribbing System	Exterior	28.5 Kips
	Interior	22.3 "
Span #2 @ ℄ Brg.	Exterior	26.0 "
	Interior	20.3 "



SECTION B-B
Scale: 3/4" = 1'-0"

BILL OF REINFORCING STEEL



STRAIGHT BARS			
Mark	Size	No.	Length
P1	#4	3	28-10
P2	4	5	30-2
P3	4	1	2-7
D1	#4	58	2-2

BENT BARS (All dimensions are out to out)								
Mark	Size	No.	Type	Length	A	B	C	D	E
P4	#4	29	2	6-8	2'-9"	1'-0"	2'-1"	0-10	0'-8"
P5	4	1	2	6-0	2-9	0-8	2-1	0-6	0-5
P6	4	3	1	4-4	0-5	1-3	1-4	0-4	1-1
P7	#4	3	3	3-10	1-2	1-4	1-0	0-7	

NOTES

Existing features are shown by dashed lines & repair features are shown by solid lines.

In the event that the dimensions & details of the existing structure are not as shown on the plans the contractor shall vary the construction as necessary.

All concrete shown thus▨ is to be replaced with class "BD" concrete.

All reinforcing steel shall be of the deformed type & shall meet the requirements of A.S.T.M. Specifications A615, Grade 60 (A.A.S.H.T.O. M-31).

Specifications: Montana Department of Highways & the Montana Highway Commission Standard Specifications for Road and Bridge Construction, 1976 Edition, and any Amendments thereto, and Special Provisions shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.T.O. Specifications, 1977 Edition, and Amendments thereto.

Maintenance of Traffic: See "Special Provisions".

Scope and Description of Work: See "Special Provisions"

Transverse Girders: The two transverse girder system shall be adequately shimmed to distribute the load equally to both girders & shall be approved by the Engr.

Cast in Place Concrete: Unless otherwise approved all concrete in the repair work shall be class "BD". For properties of class "BD" concrete see "Special Provisions".

All reinforcing steel exposed as a result of the conc. removal shall be thorougly cleaned prior to placing new concrete.

Sequence of Operations: See "Special Provisions".

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

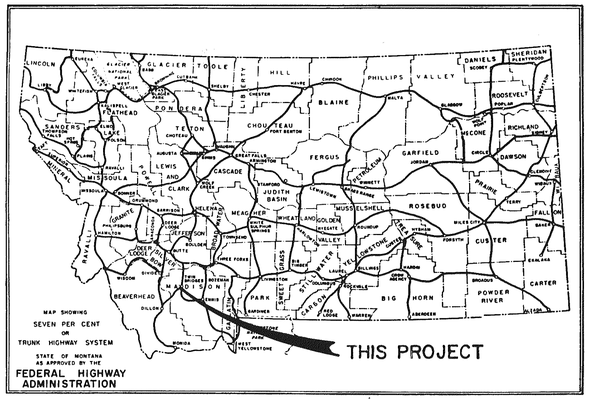
BRIDGE OVER BEAVERHEAD RIVER
AT TWIN BRIDGES
FEDERAL AID PROJECT NO. BRF 49-2(4)27
MADISON COUNTY

PIER NO. 2 REPAIR DETAILS

Scale: 3/8" = 1'-0" (Except as noted)

DRAWING NO. 2750 QB

DESIGNED	8-7-80	R.K.M.
DRAWN	8-13-80	J.L.P.
CHECKED	8-19-80	M.L.R.
REVISED		
REVISED		
REVISED		



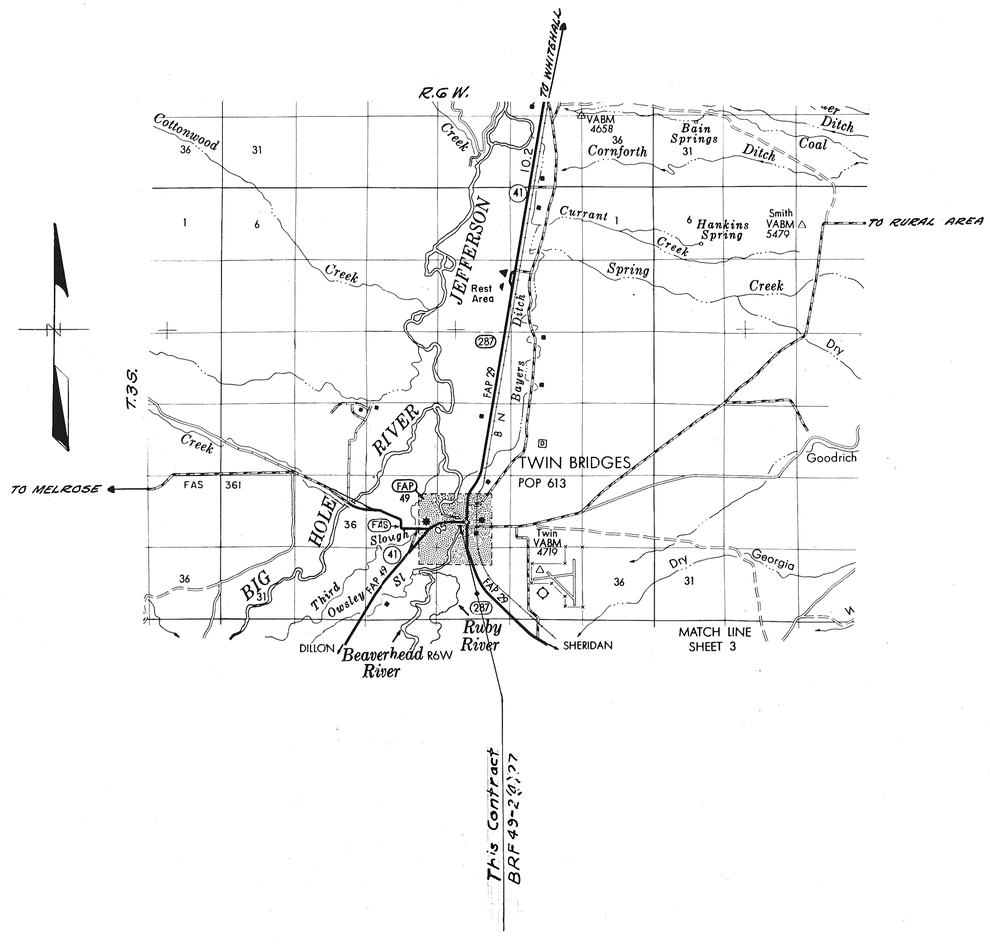
MONTANA DEPARTMENT OF HIGHWAYS

FEDERAL AID PROJECT BRF 49-2(4)27
STRUCTURE REPAIR
WEST OF TWIN BRIDGES
BEAVERHEAD RIVER BRIDGE
MADISON COUNTY

LENGTH 0.034 MILES

SCALES

HORIZONTAL: 1 Inch = 100 Feet
VERTICAL: 1 Inch = 10 Feet
CROSS SECTIONS--HOR. & VERT.: 1 Inch = 10 Feet
REDUCED PRINTS APPROX. 1/2 ORIGINAL SCALE



DESIGN DATA	
A.D.T. 1977	=
A.D.T. 1997	=
D. H.V.	=
D	=
T	=
V	=

LETTING DATE — _____

RELATED PROJECTS

ASSOCIATED PROJECT AGREEMENT NUMBERS	
R W & I.C.	
P. E.	(3)

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

APPROVED:

_____ 19 ____

GARY J. WICKS
DIRECTOR OF HIGHWAYS

BY _____
ADMINISTRATOR
ENGINEERING DIVISION

JACK R. BECKERT
205 ES
REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR
MONTANA

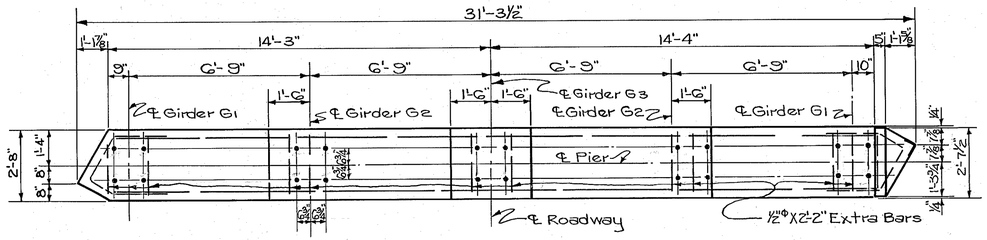
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

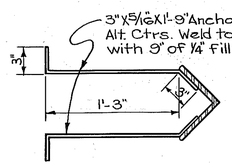
_____ _____
DIVISION ADMINISTRATOR DATE

2750T

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MONT.	F387(3)		9	11
		BRF 49-2(4)27		4	6



PLAN



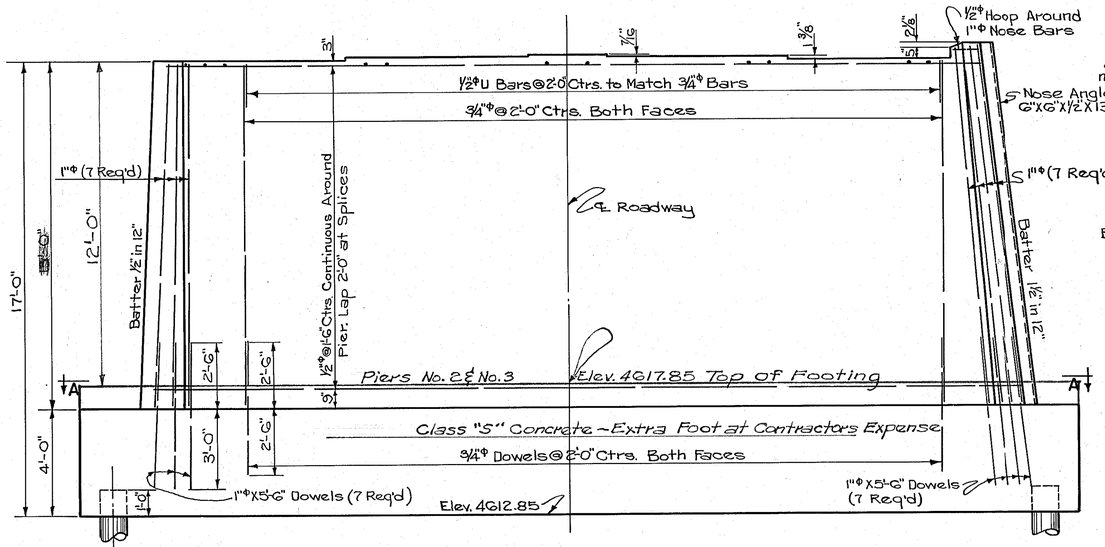
DETAIL OF NOSE ANGLE
Scale ~ 1½" = 1'-0"

NOTES

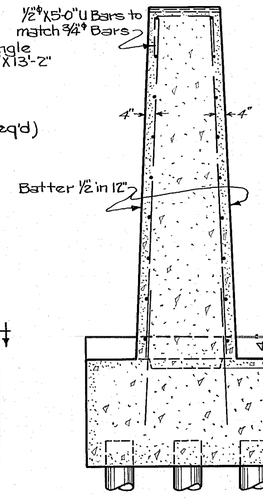
CONCRETE:- All concrete in Piers shall be Class "A". The Contractor will be permitted to deposit for his convenience a portion or all of the pier base under water as a seal course if he desires; in which case he shall use Class "S" concrete for the concrete deposited under water, and he shall place it in accordance with the requirements for "Depositing Concrete Under Water" as called for in the Standard Specifications.
Concrete placed outside of the neat lines as well as the change in mix for the seal will be for the Contractors Convenience and he shall include all cost therewith in the unit price bid for Class "A" Concrete.

FORMS:- All forms for shafts of piers above Elev. 4616.85 shall be lined with plywood or shall be made of tongue and groove matched timber, surfaced inside or of metal.

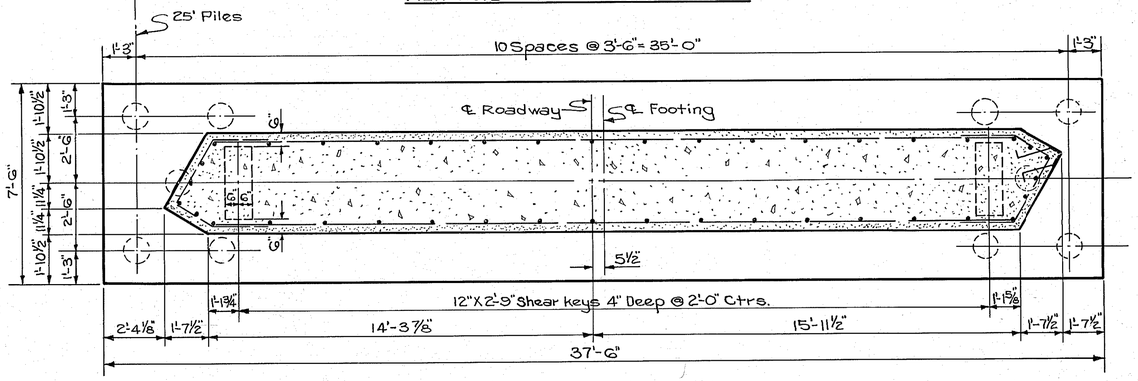
FINISHING:- Surfaces of piers shall be finished, as described in the Standard Specifications, to the satisfaction of the Engineer.



ELEVATION
PIER NO. 2 AND PIER NO. 3 SIMILAR



SECTION AT ℄ ROADWAY



SECTION A-A

Max. Pile Load Under D.L. + L.L. + I.F + Wind + 6" of Ice @ Elev. 4628.9 equals 19.0 Tons per Pile.

Piling
Pier No. 2 ~ 3 Piles
Pier No. 3 ~ 11 Piles

* *Pier No. 2 modified as shown on Dwg. No. 2750 Q8*

DESIGNED	J.R.B.	10 - 47
DRAWN	W.O.M.	10-24-47
TRACED	T.H.J.	10-27-47
CHECKED	H.W.K	11-7-47
* REVISED	M.L.R	8-25-00
REVIEWED		

STATE OF MONTANA
STATE HIGHWAY COMMISSION

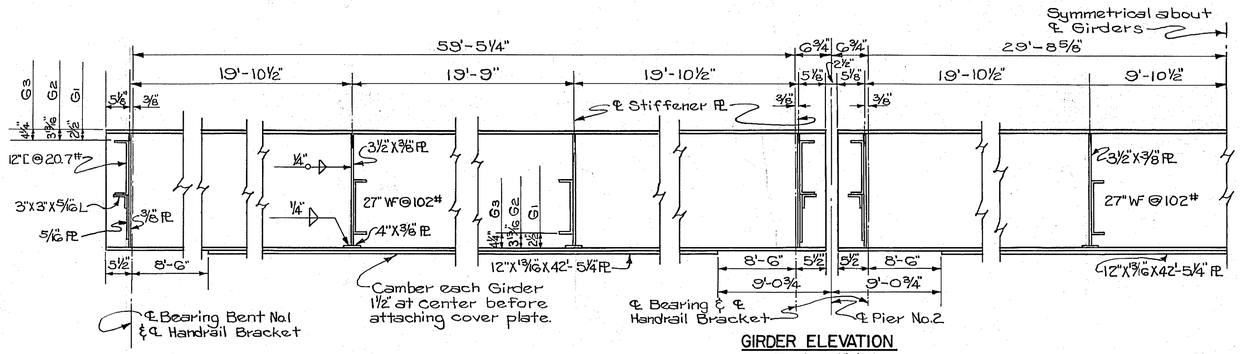
BRIDGE OVER BEAVERHEAD RIVER
AT TWIN BRIDGES
FED. AID PROJECT NO. F 387(3)
MADISON COUNTY
PIERS NO. 2 & NO. 3
Scale ~ ⅜"=1'-0" Unless Noted

APPROVED BY E. H. Thomas
BRIDGE PLANS ENGINEER

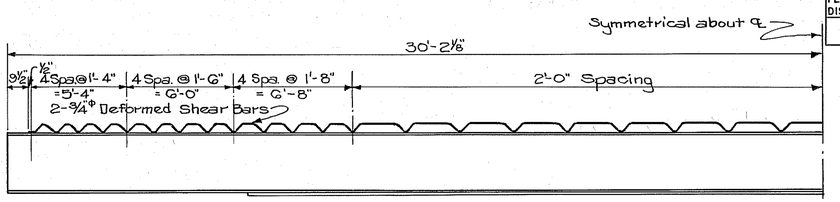
STATE NO. (PRECONST. / R/W / CONST.) 1801-04

DRAWING NO. 2752

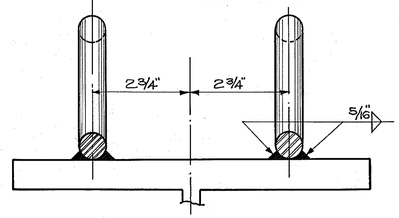
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MONT.	F387(3)		10	11
		BRF 49-2(4)27		5	6

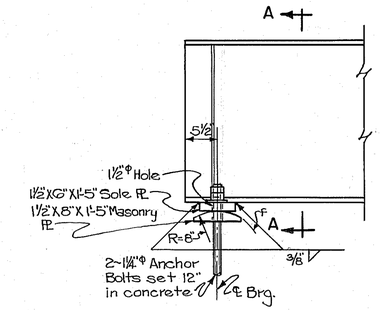


GIRDER ELEVATION
Scale~¾"=1'-0"

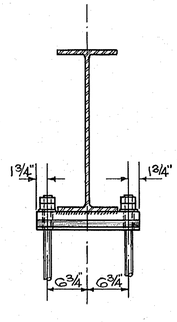


SHEAR BAR FOR GIRDERS G1, G2 & G3
Scale~⅜"=1'-0"

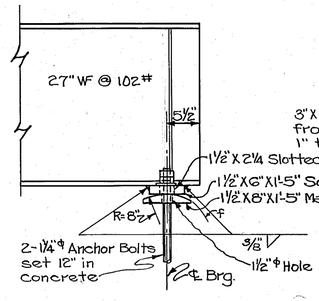




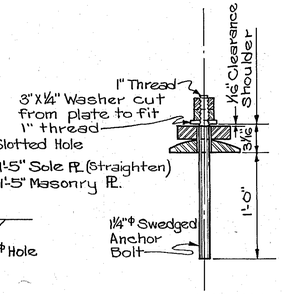
FIXED SHOE
BENTS NO. 1, 2 & 4
Scale~1"=1'-0"



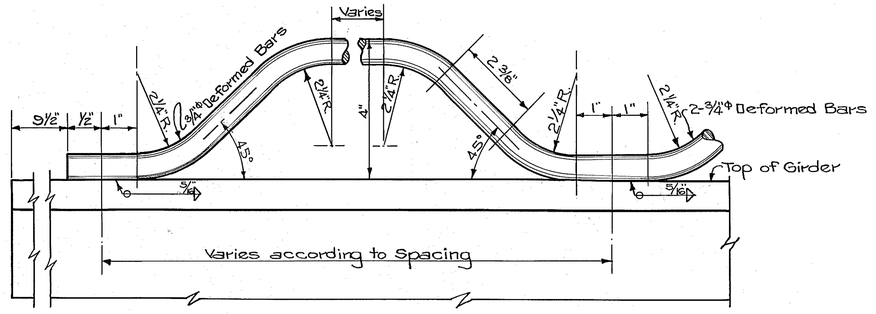
SECTION A-A
Scale~ 1"=1'-0"



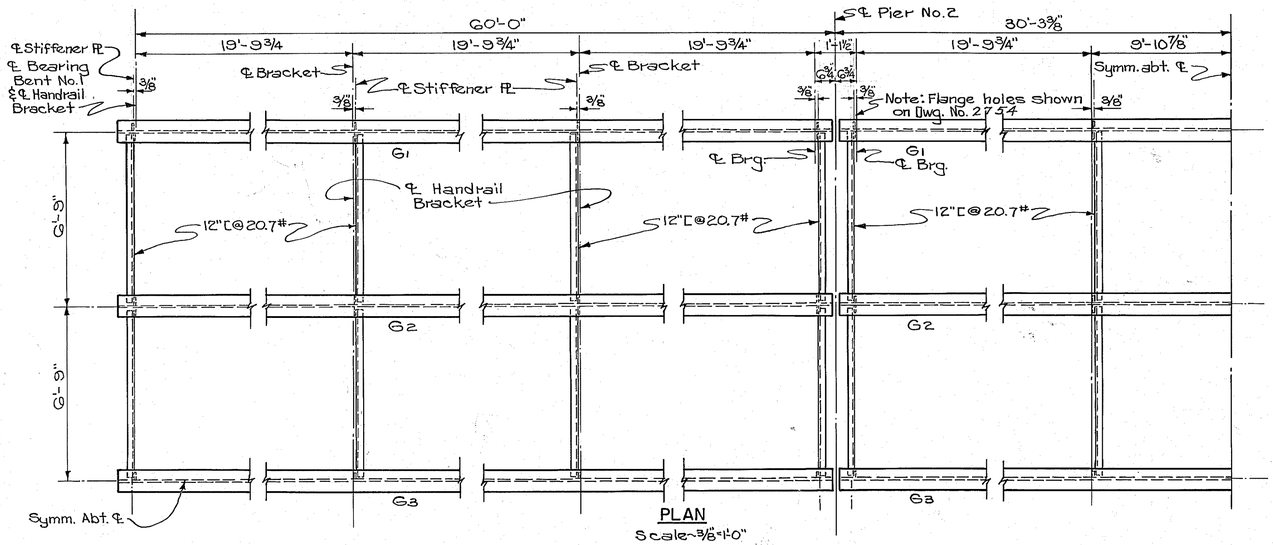
EXPANSION SHOE
BENTS NO. 2 & 3
Scale~1"=1'-0"



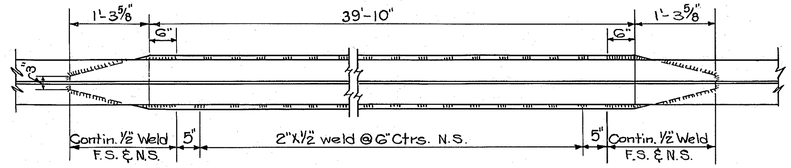
ANCHOR BOLT DETAIL
Scale~1½"=1'-0"



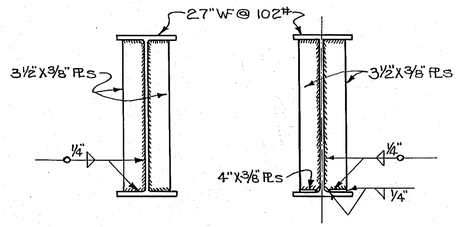
DETAIL OF SHEAR BAR
Scale~6"=1'-0"



PLAN
Scale~3/8"=1'-0"



SECTION SHOWING COVER PLATE WELDING AT BOTTOM FLANGE
Scale~¾"=1'-0"



END DIAPHRAGM CONNECTION PLATE

INTERMEDIATE DIAPHRAGM CONNECTION PLATE

Scale~1"=1'-0"

DESIGNED	J.P.B.	10-47
DRAWN	W.D.M.	10-47
TRACED	T.H.J.	10-28-47
CHECKED	L.W.H.	11-7-47
REVIEWED		
REVIEWED		

STATE OF MONTANA
STATE HIGHWAY COMMISSION

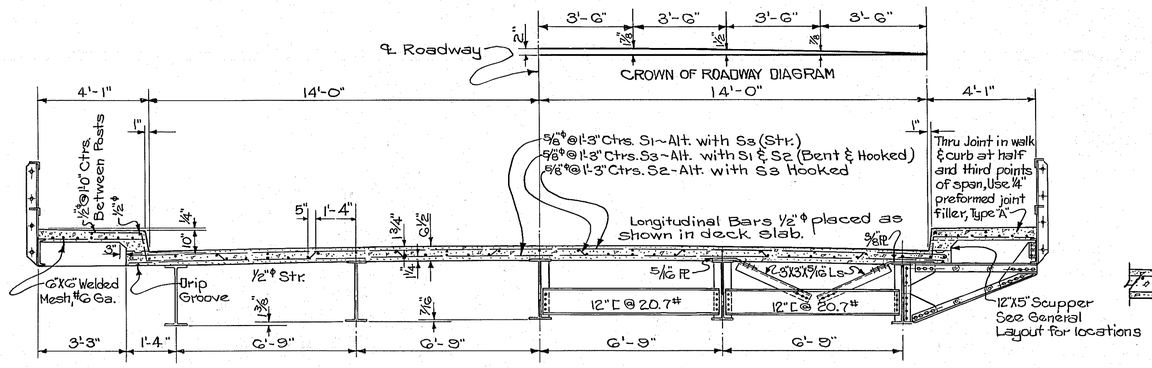
BRIDGE OVER BEAVERHEAD RIVER
AT TWIN BRIDGES
FED. AID PROJECT NO. F 387(3)
MADISON COUNTY
GIRDERS
Scale~As Noted

APPROVED BY E. H. Thomas
BRIDGE PLANS ENGINEER

STATE NO. {PRECONST. 1801-04 R/W CONST.

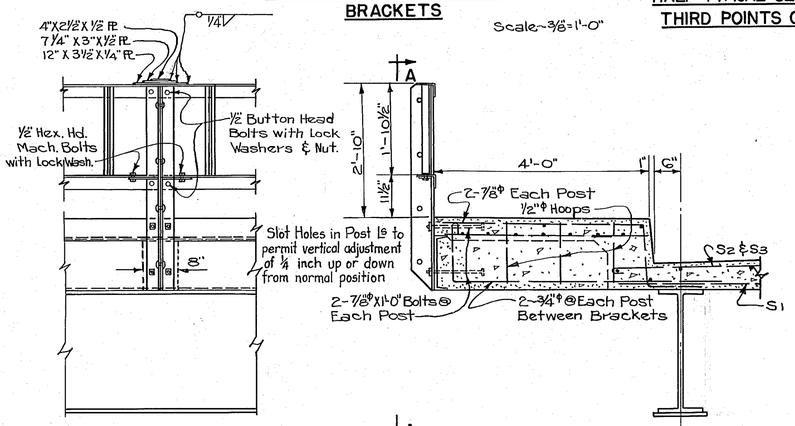
DRAWING NO. 2753

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MONT.	F 387 (3)		11	11
		BRF 49-2(4)27		6	6



HALF TYPICAL SECTION OF DECK AT INTERMEDIATE POSTS BETWEEN BRACKETS

Scale ~ 3/8" = 1'-0"

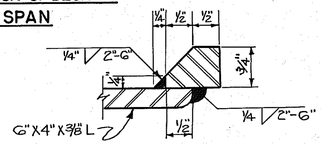


SECTION A-A

A SECTION AT INTERMEDIATE POST BETWEEN BRACKETS SHOWING CONCRETE DIAPHRAGM

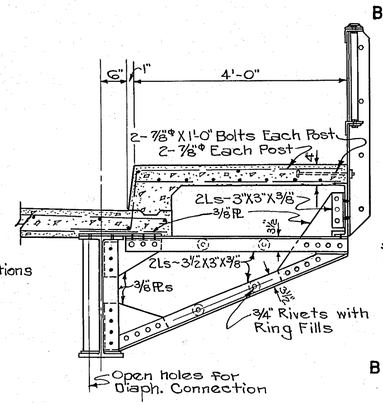
Scale ~ 3/4" = 1'-0"

HALF TYPICAL SECTION OF DECK AT THIRD POINTS OF SPAN

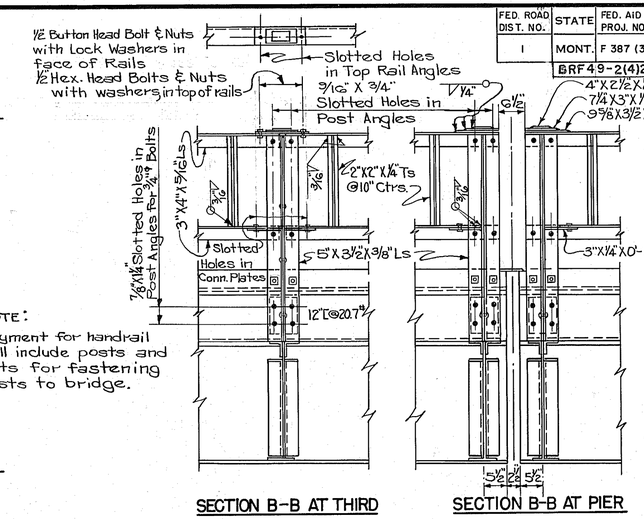


BEVELED BAR DETAIL

Scale ~ 3/4" = 1'-0"



NOTE:
Payment for handrail shall include posts and bolts for fastening posts to bridge.



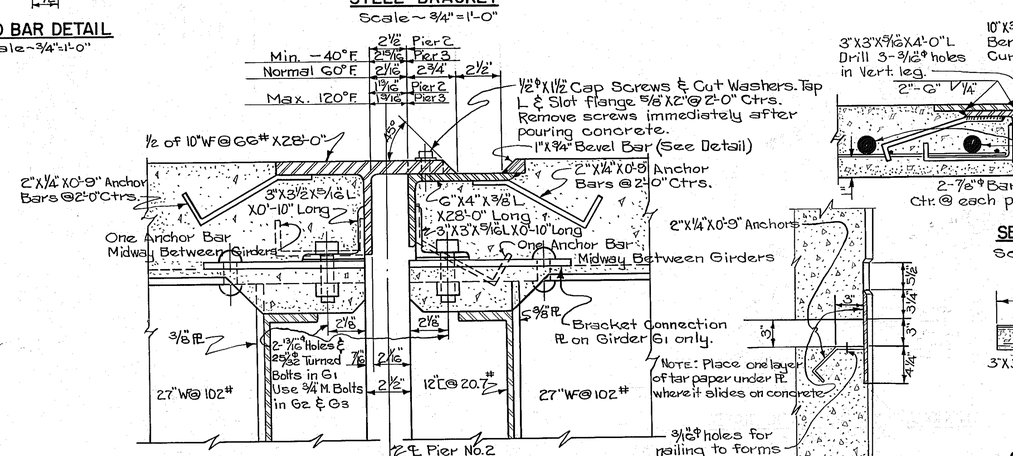
SECTION B-B AT THIRD POINTS OF SPAN

SECTION B-B AT PIER NO. 2 & 3

Scale ~ 3/4" = 1'-0"

SECTION AT END POSTS & POSTS AT THIRD POINTS OF SPAN SHOWING STEEL BRACKET

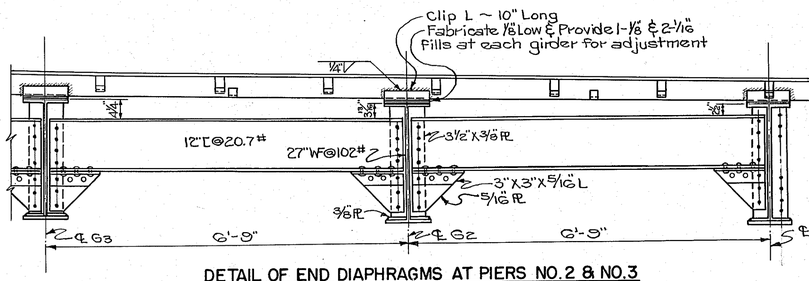
Scale ~ 3/4" = 1'-0"



EXPANSION JOINT AT PIER NO. 2

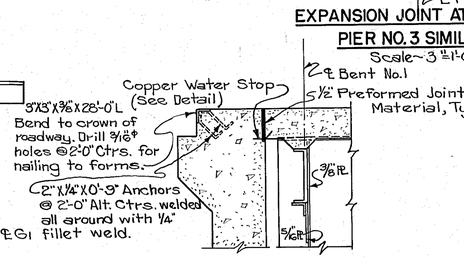
PIER NO. 3 SIMILAR

Scale ~ 3" = 1'-0"



DETAIL OF END DIAPHRAGMS AT PIERS NO. 2 & NO. 3
DIAPHRAGMS AT BENTS NO. 1 & NO. 2 SIMILAR EXCEPT FOR EXPANSION DEVICE

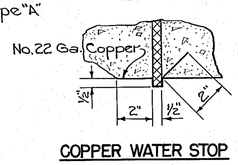
Scale ~ 3/4" = 1'-0"



DETAIL OF FLOOR JOINT AT BENT NO. 1

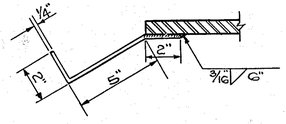
BENT NO. 4 SIMILAR

Scale ~ 3/4" = 1'-0"



COPPER WATER STOP

Scale ~ 3" = 1'-0"

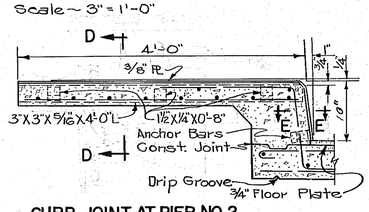


DETAIL OF 2"X 1/4" X0'-9" ANCHOR

Scale ~ 3" = 1'-0"

SECTION D-D

Scale ~ 3" = 1'-0"



CURB JOINT AT PIER NO. 2

PIER NO. 3 SIMILAR

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

SECTION E-E

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER BEAVERHEAD RIVER
AT TWIN BRIDGES
FED. AID PROJECT NO. F 387(3)
MADISON COUNTY
GIRDERS
Scales as noted

DESIGNED	J.R.B.	10 - 47
DRAWN	W.D.M.	10- 47
TRACED	T. H. J.	10-24-47
CHECKED	L.W.H.	11-7-47
REVIEWED		
REVIEWED		

APPROVED BY G. H. Thomas
BRIDGE PLANS ENGINEER

STATE NO. (PRECONST. 1801-04 R/W CONST.)

DRAWING NO. 2754