Appendix 2

Bridge Inspection Report, Plan Sheets, and Detail Drawings

Montana Department of Transportation

INITIAL ASSESSMENT FORM FOR STRUCTURE :

P00001142+02631

Location : HUNGRY HORSE Structure Name: none

General Location Data

District Code, Number, Location : **01** **Dist 1** **MISSOULA**

County Code, Location : **029** **FLATHEAD**

Kind fo Hwy Code, Description : **2** **2 U.S. Numbered Hwy**

Str Owner Code, Description : **1** **State Highway Agency**

Intersecting Feature : **SO. FORK FLATHEAD RIVER**

Structure on the State Highway System : [X]

Structure on the National Highway System : [X]

Str Meet or Exceed NBIS Bridge Length : [X]

Latitude : **48°23'04"**

Longitude : **114°04'43"**

Division Code, Location : **12** **KALISPELL**

City Code, Location : **00000** **RURAL AREA**

Signed Route Number : **00002**

Maintained by Code, Description : **1** **State Highway Agency**

Kilometer Post, Mile Post : **228.95 km** **142.26**

Construction Data

Construction Project Number : **F 257 F**

Construction Station Number : **111+37.00**

Construction Drawing Number : **1921**

Construction Year : **1938**

Reconstruction Year :

Traffic Data

Current ADT : **6,480** ADT Count Year : **2009** Percent Trucks : **2 %**

Structure Loading, Rating and Posting Data

Loading Data :

Design Loading :		**2 M 13.5 (H 15)**
Inventory Load, Design :	**21.7 mton**	**2 AS Allowable Stress**
Operating Load, Design :	**32.6 mton**	**2 AS Allowable Stress**
Posting :		**5 At/Above Legal Loads**

Rating Data :

	Operating	Inventory	Posting
Truck 1 Type 3 :			
Truck 2 Type 3-S3 :			
Truck 3 Type 3-3 :	**62**		

Structure, Roadway and Clearance Data

Structure Deck, Roadway and Span Data :

Structure Length : **180.44 m**

Deck Area : **1,601.00 m sq**

Deck Roadway Width : **7.92 m**

Approach Roadway Width : **9.75 m**

Median Code, Description : **0 No median**

Structure Vertical and Horizontal Clearance Data :

Vertical Clearance Over the Structure : **99.99 m**

Reference Feature for Vertical Clearance : **N Feature not hwy or RR**

Vertical Clearance Under the Structure : **0.00 m**

Reference Feature for Lateral Underclearance : **N Feature not hwy or RR**

Minimum Lateral Under Clearance Right : **0.00 m**

Minimum Lateral Under Clearance Left : **0.00 m**

Span Data

Main Span

Number Spans : **5**

Material Type Code, Description : **4 Steel continuous**

Span Design Code, Description : **3 Girder and Floorbeam System**

Deck

Deck Structure Type : **1 Concrete Cast-in-Place**

Deck Surfacing Type : **6 Bituminous**

Deck Protection Type : **0 None**

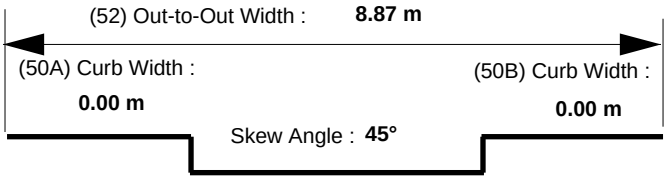
Deck Membrain Type : **0 None**

Approach Span

Number of Spans : **2**

Material Type Code, Description : **1 Concrete**

Span Design Code, Description : **4 Tee Beam**



Structure Vertical and Horizontal Clearance Data Inventory Route :

Over / Under Direction Name	Inventory Route	South, West or Bi-directional Travel			North or East Travel		
		Direction	Vertical	Horizontal	Direction	Vertical	Horizontal
Route On Structure	P00001	Both	99.99 m	7.92 m	N/A		

Montana Department of Transportation

INITIAL ASSESSMENT FORM FOR STRUCTURE :

P00001142+02631

Continue

Inspection Data

Sufficiency Rating : **27.6**
Health Index : **87.84**
Structure Status :**Struc Def - Elg Repl**

Inspection Due Date : 05 October 2012
(91) Inspection Fequency (months) : **24**
Next Fracture Critical Due Date : **05 Oct 2012**
Fracture Critical Detail : **1 or 2 Stl-girder systms**

NBI Inspection Data

(90) Date of Last Inspection : 05 October 2010
Last Inspected By : Donald Rasmussen - 96
(90) Inspection Date :
Inspected By :

(58) Deck Rating :	7	(68) Deck Geometry :	3	(36C) Approach Rail Rating :	1	(62) Culvert Rating :	N
(59) Superstructure Rating :	4	(67) Structure Rating :	4	(36A) Bridge Rail Rating :	1	(61) Channel Rating :	8
(60) Substructure Rating :	6	(69) Under Clearance :	N	(36B) Transition Rating :	0	(71) Waterway Adequacy :	8
(72) App Rdwy Align :	6	(41) Posting Status :	A	(36D) End Rail Rating :	0	(113) Scour Critical :	5

Unrepaired Spalls : 2 m sq
Deck Surfacing Depth : 0.50 in

Inspection Hours

Crew Hours for inspection :	26	Snooper Required :	Y
Helper Hours :	-1	Snooper Hours for inspection :	4
Special Crew Hours :	-1	Flagger Hours :	8
Special Equipment Hours :	-1		

Inspection Work Candidates

Candidate ID	Date Requested	Status	Priority	Effected Structure Unit	Scope of Work	Action	Covered Condition States
D11-FY2009-000047	**02 December 2008**	**Approved**	**Medium**	All Spans	Bridge	Remove	
Remove trees interfering with the snooper inspection, especially on the right side on the west bank; see photo, and anywhere else needed. Approved. DRC							
D11-FY2009-000048	**02 December 2008**	**Not Approved**	**High**	M Main	334 Metal Rail Coated	Rehab Elem	
Replace missing blockouts on the right side near the east end. Repair collision damage and broken posts west of the bridge.							

INITIAL ASSESSMENT FORM FOR STRUCTURE :

P00001142+02631

Continue

Element Inspection Data

********** Span : **Main-0 - Spans 2 thru 6** **********

Smart Flag	Scale Factor	Env	Quantity	Units	Insp Each	Pct Stat 1	Pct Stat 2	Pct Stat 3	Pct Stat 4	Pct Stat 5
Element Description										
Element 13 - Unp Conc Deck/AC Ovl										
	1	4	1352	sq.m.	X	0	100	0	0	0
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No significant changes noted. Deck is still state 2. MZKZ

11/18/2009 - Deck edges continue to deteriorate. There is at least one spall in eastbound traffic lane at B7 expansion joint. See pic. No other changes noted. QECW

08/29/2008 - Changed quantity from 1471 m2 to 1352 m2. 8.87 x (180.44 - (2 x 14))=1352 m2. 14m is approach span length. Asphalt overlay is over half gone in the west bound lane and about a quarter missing on the east bound lane. Numerous areas of edge of deck spalling with exposed both mats of deck rebar and at least two pieces of edge of deck rebar hanging down over the river. No obvious spalling between the curbs. CZJZ

Inspection Notes:

Element 107 - Paint Stl Opn Girder										
	1	4	331	m.		70	10	10	10	0
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No significant changes noted. Changed quantity back to 331 because the original change was made by mistake. MZKZ

11/18/2009 - Cracks previously detected at P4 left appear unchanged. Slight swelling of bottom flanges between bottom flange and cover plate under some of the joints. Heavier pack rust and swelling between bottom flange and the gusset over the bearings. No significant changes noted. Changed quantity from 331 to 305. QECW

08/29/2008 - Areas of freckled rust throughout with heavier rust under all the joints. Small areas of minor section loss on the web of the right girder at B3. Slight swelling on the flanges, mostly on the bottom flanges between the bottom flange and the cover plates under some of the joints; see fracture critical report for more detail. Heavier pack rust and swelling between the bottom flange and the gusset over the bearings. Some pack rust and swelling between the bearing stiffener plates. Lots of pack rust on one gusset on the right girder in mid span 3 under a joint. No changes noted on previous small cracks found at the welds on the riveted bottom flange sections where the girder bends vertically (planned bend) each side of the bearing mostly at B4. See photos. No rivets were missing or obviously failed from pack rust. CZJZ

Inspection Notes:

Element 152 - Paint Stl Floor Beam										
	1	4	837	m.		75	5	10	10	0
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - These is some section loss in the top flanges of the floor beams under joints but the top flange is embedded in the concrete deck and it is not measureable. I do not think it is severe enough yet to warrant structural analysis. MZKZ

11/18/2009 - No significant changes noted. QECW

08/29/2008 - Heavy rust with some corrosion and section loss under the joints at B2, B3, spans 3 and 4 and B7. The remainder and the majority of the floorbeams that are not under joints are in good shape with a little rust mostly on the flanges. See photos. CZJZ

Inspection Notes:

INITIAL ASSESSMENT FORM FOR STRUCTURE :

P00001142+02631

Continue

*** * * * * * * * * *** Span : **Main-0 - Spans 2 thru 6 (cont.) * * * * * * * * * ***

Element Description

Smart Flag	Scale Factor	Env	Quantity	Units	Insp Each	Pct Stat 1	Pct Stat 2	Pct Stat 3	Pct Stat 4	Pct Stat 5
Element 210 - R/Conc Pier Wall B3 - B6										
	1	4	50	m.		100	0	0	0	
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No significant changes noted. MZKZ

11/18/2009 - No significant changes noted. QECW

08/29/2008 - No changes noted. No spalls or scour noted. Four skewed pier walls. Quantity of 50 would be correct. CZJZ

Inspection Notes:

Smart Flag	Scale Factor	Env	Quantity	Units	Insp Each	Pct Stat 1	Pct Stat 2	Pct Stat 3	Pct Stat 4	Pct Stat 5
Element 215 - R/Conc Abutment B2 and B7										
	1	4	26	m.		100	0	0	0	
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No significant changes noted. MZKZ

11/18/2009 - No significant changes noted. QECW

08/29/2008 - The only side visible is on the sides facing the main spans. No problems or changes noted. CZJZ

Inspection Notes:

Smart Flag	Scale Factor	Env	Quantity	Units	Insp Each	Pct Stat 1	Pct Stat 2	Pct Stat 3	Pct Stat 4	Pct Stat 5
Element 234 - R/Conc Cap B3 - B6										
	1	4	50	m.		95	0	5	0	
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No significznt changes noted. MZKZ

11/18/2009 - No significant changes noted. QECW

08/29/2008 - One six inch spall with exposed rebar under the left girder at B4. No other changes noted. Changed quantity from 35 to 50 to agree with 9-16-05 calculations for element 210 - pier wall. CZJZ

Inspection Notes:

Smart Flag	Scale Factor	Env	Quantity	Units	Insp Each	Pct Stat 1	Pct Stat 2	Pct Stat 3	Pct Stat 4	Pct Stat 5
Element 304 - Open Expansion Joint										
	1	4	70	m.		80	20	0		
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No significant changes noted. MZKZ

11/18/2009 - No significant changes noted. QECW

08/29/2008 - Quantity: Use curb to curb. Skewed - 1 ea. at B2 and B7. 2x7.9/cos 45 = 22.3m. 6 non-skewed - 6x7.9=47.4 22.3 47.4 = 69.7m Changed quantity from 25 to 70. Except at B2 and B7, the joint openings were measured from none to 3/8 inch. Joint openings at B2 and B7 are larger. None have seals. Lots of corrosion on the floorbeams and x frames under these leaking joints. No changes noted with the joints. CZJZ

Inspection Notes:

INITIAL ASSESSMENT FORM FOR STRUCTURE :

P00001142+02631

Continue

*** * * * * * * * * *** Span : **Main-0 - Spans 2 thru 6 (cont.) * * * * * * * * * ***

Element Description

Smart Flag	Scale Factor	Env	Quantity	Units	Insp Each	Pct Stat 1	Pct Stat 2	Pct Stat 3	Pct Stat 4	Pct Stat 5
Element 305 - Assm Jt w/o Seal										
	1	3	25	m.		80	20	0		
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No significant changes noted. MZKZ

11/18/2009 - No significant changes noted. QECW

08/29/2008 - Quantity = 2x8.87/cos45 = 25. Changed quantity from 34 to 25. No changes noted. Rusting and corrosion below the joints. CZJZ

08/22/2007 - Sliding plate joints are mostly filled with asphalt. Some spalling and delamination along joint edges. (Joints are visible for inspection, they have asphalt in them, but not over the top of the joints.) NVJZ

09/16/2005 - No changes from last inspection. No other problems with the joints noted. CZLZ

08/19/2003 - Sliding plate joints are mostly filled with asphalt and loose material. Need cleaned. Rusting and corrosion underneath. UZJZ

10/10/2001 - Sliding plate joints at P-3 & P-6 skewed to CL. Asphalt material partially plugging joint(s). Some rusting and corrosion, with some minor spalliing in overhangs. JJEA

09/27/1999 - The sliding plate joints at P-3 and P-4 have been paved over with cracks in asphalt surface. The underside shows some spalling, corrosion and rusting. NJBX

09/22/1997 - B-3 and B-6 - sliding plates UJGS

10/01/1994 - None REFI

Inspection Notes:

Element 311 - Moveable Bearing B3, B5 and B6										
	1	4	10	ea.		40	60	0		
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No significant changes noted. MZKZ

11/18/2009 - No significant changes noted. QECW

08/29/2008 - 4 ea. at B3 and B6 and 2 at B5. The bearings at B5 have the most paint with very little paint left at B3 and B6. A small amount of gravel on some of the bearings. No other problems noted. CZJZ

Inspection Notes:

Element 313 - Fixed Bearing B2, B4 and B7										
	1	4	6	ea.		35	65	0		
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No significant changes noted. MZKZ

11/18/2009 - No significant changes noted. QECW

08/29/2008 - The paint at B4 is in pretty good shape with the bearings at B2 and B7 have heavy rust with almost no paint left. No other problems noted. CZJZ

Inspection Notes:

INITIAL ASSESSMENT FORM FOR STRUCTURE :

P00001142+02631

Continue

*** * * * * * * * * *** Span : **Main-0 - Spans 2 thru 6 (cont.) * * * * * * * * * ***

Element Description

Smart Flag	Scale Factor	Env	Quantity	Units	Insp Each	Pct Stat 1	Pct Stat 2	Pct Stat 3	Pct Stat 4	Pct Stat 5
Element 334 - Metal Rail Coated										
	1	3	305	m.		95	0	5	0	0
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No significant changes noted.	MZKZ
11/18/2009 - No significant changes noted.	QECW
08/29/2008 - Quantity = 2(180.44 -28) = 304.88m Changed quantity from 332 to 305. Put 5 percent in state 3 for missing blockouts behind the right rail near B7. No other problems noted.	CZJZ
08/22/2007 - No significant changes noted.	NVJZ
09/16/2005 - Deck rail is concrete rail and posts behind a large w beam steel rail. There is collision damage to the rail only at the approach to bent 1 left. The last 3 section of bridge rail near bent 8 right side is steel. No other problems noted. (109.398 * 2 = 218.796)	CZLZ
08/19/2003 - Rail shows minor collision damage. No problems noted.	UZJZ
10/10/2001 - Triple W-beam metal rail shows some minor collision type damage throughout. Old style BAS - Not To Std.. Approach rail shows some collision damage. Terminals OK.	JJEA
09/27/1999 - Some minor plow type damage to rail. Some minor corrosion and rusting.	NJBX
09/22/1997 - None	UJGS
10/01/1994 - None	REFI

Inspection Notes:

Element 356 - Sup Steel Fat SmFlag

X	1	1	1	ea.	X	0	100	0		
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No changes noted.	MZKZ
11/18/2009 - No changes noted in cracks on the bottom flange of the left girder just before and after P4.	QECW
08/29/2008 - No changes noted in the cracks in the bottom flange welds two feet back and two feet ahead of the center of bearing of the left girder.	CZJZ
08/22/2007 - Significant corrosion and pack rust with advanced section loss under joint locations. Lighter rust scattered throughout. No significant changes noted.	NVJZ
09/16/2005 - Significant corrosion, pack rust and lighter rust throughout with specific locations of more severe conditions. Several locations of section loss. No significant changes noted.	CZLZ
08/19/2003 - Significant corrosion, pack rust, and rust throughout with specific locations of more severe conditions. Several locations of section loss. No significant changes noted.	UZJZ
10/10/2001 - Heavy corrosion along bottom of bottom flanges of floorbeam at P-3 Lt. & Rt., also along inside webs along length of joint and bottom flanges. Several locations of heavy corrosion and rusting with severs section loss of skewed vertical cross braces at joint locations. All floorbeams at double guard angle joints show corrosion rusting and section loss.	JJEA
09/27/1999 - None	NJBX
09/22/1997 - _	UJGS

Inspection Notes:

INITIAL ASSESSMENT FORM FOR STRUCTURE :

P00001142+02631

Continue

*** * * * * * * * * *** Span : **Main-0 - Spans 2 thru 6 (cont.)** *** * * * * * * * * ***

Element Description

Smart Flag	Scale Factor	Env	Quantity	Units	Insp Each	Pct Stat 1	Pct Stat 2	Pct Stat 3	Pct Stat 4	Pct Stat 5
Element 357 - Sup Pack Rust SmFlag										
X	1	1	1	ea.	X	0	100	0	0	
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No significant changes noted. MZKZ

11/18/2009 - All pack rust noted in August 2009 inspection appears unchanged. QECW

08/29/2008 - Pack rust between bearing stiffener plates under the sliding plate joints at B3 and B6. Slight swelling from pack rust in the bottom flanges of both girders in mid span 3; at the bottom flange of the left girder under the first joint AOL of B4; at the bottom flanges of both girders and the top flange of the left girder under the first joint AOL of B5 and in the bottom flange at the very end of the cover plate of the right girder at the second joint AOL of B4. A larger amount of swelling between the bottom flanges and the gusset plates over the bearings. All rivets are holding. Severe swelling at one gusset in span 3 on the right side. CZJZ

08/22/2007 - Areas of severe pack rust under joint locations. No significant changes noted. NVJZ

09/16/2005 - Areas of severe pack rust. No significant changes noted. CZLZ

08/19/2003 - Areas of severe pack rust - no significant changes noted. UZJZ

10/10/2001 - Pack rust spreading double angle stiffeners Lt. & Rt. at P-3 at sliding plate joint. Pack rust at crest of all girders all spans. Numerous locations of small areas of pack rust. No significant changes noted. JJEA

09/27/1999 - None NJBX

09/22/1997 - _ UJGS

Inspection Notes:

Element 363 - Sup Sect Loss SmFlag

X	1	4	1	ea.	X	0	100	0	0	
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - Element 181 - Vertical Cross Frames was deleted this inspection per memo from Mike Murphy dated 5-10-10. Floorbeams section loss is not quite bad enough to warrant structural analysis. MZKZ

11/18/2009 - No significant changes noted. QECW

08/29/2008 - Section loss has put element 181 x-frames in state 4 and 5 and element 152 - floorbeams into state 4. An analysis has not been done. CZJZ

Inspection Notes:

*** * * * * * * * * *** Span : **Appr-2 - Tower Spans** *** * * * * * * * * ***

Element Description

Smart Flag	Scale Factor	Env	Quantity	Units	Insp Each	Pct Stat 1	Pct Stat 2	Pct Stat 3	Pct Stat 4	Pct Stat 5
Element 63 - Unp Top Flang/AC Ovl Tower Spans 1 and 7										
	1	4	248	sq.m.	X	100	0	0	0	0
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No significant changes noted. MZKZ

Inspection Notes:

INITIAL ASSESSMENT FORM FOR STRUCTURE :

P00001142+02631

Continue

*** * * * * * * * * *** Span : **Appr-2 - Tower Spans (cont.) * * * * * * * * * ***

Element Description

Smart Flag	Scale Factor	Env	Quantity	Units	Insp Each	Pct Stat 1	Pct Stat 2	Pct Stat 3	Pct Stat 4	Pct Stat 5
Element 110 - R/Conc Open Girder Tower spans 1 and 7										
	1	3	70	m.		100	0	0	0	
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No significant changes noted.	MZKZ
09/16/2005 - No problems noted with the concrete at the tower spans. (5 * 14.02 = 70.10) changed 02/17/2006 Please confirm - Nate.	CZLZ
08/19/2003 - None	UZJZ
10/10/2001 - None	JJEA
09/27/1999 - Don't believe this element exists. THESE ELEMENTS DO EXIST BUT ARE ONLY ACCESSIBLE VIA DOORS THROUGH THE BACKWALLS AT BENTS 1 & 8.	NJBX
09/22/1997 - None	UJGS
10/01/1994 - None	REFI

Inspection Notes:

Element 334 - Metal Rail Coated Tower spans 1 and 7

	1	4	56	m.		100	0	0	0	0
						%	%	%	%	%

Previous Inspection Notes :

10/05/2010 - No changes noted.	MZKZ

Inspection Notes:

INITIAL ASSESSMENT FORM FOR STRUCTURE :

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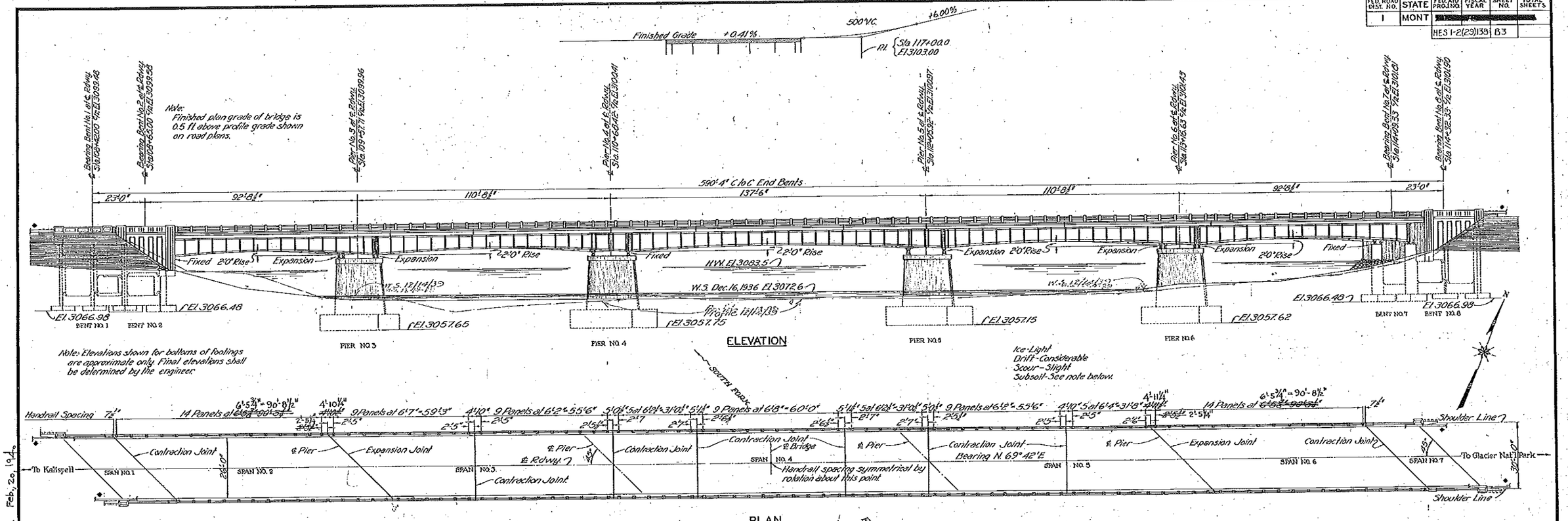
Continue

General Inspection Notes

10/05/2010 - None	MZKZ
11/18/2009 - None	QECW
08/29/2008 - Transition rail near B8 on the left does not have double guardrail. The end of the guardrail west of B1 on the right has broken posts from severe collision damage. Less severe collision damage to the guardrail west of B1 on the left. The guardrail on the right 40 feet west from B1 has broken posts.Deleted 4 concrete columns - element 205 as they are integral with the abutment. Snooper driver had 4 hours not including driving time and traffic control had 1.5 hours.	CZJZ
08/22/2007 - None	NVJZ
09/16/2005 - None	CZLZ
08/19/2003 - None	UZJZ
10/10/2001 - None	JJEA
09/27/1999 - It's this inspectors opinion that this structure has no approach spans and that the "tower spans" are not tower spans but backwalls and wingwalls only because there is no indication from the roadway behavior, as seen in other structures. Other bridges show cracks in the approach asphalt at the beginning of the tower span and at the beginning of the main span. This bridge does not exhibit this characteristic.	NJBX
09/22/1997 - None	UJGS
10/01/1994 - Sufficiency Rating Calculation Accepted by ops$u5963 at 3/10/97 11:19:12 Sufficiency Rating Calculation Accepted by OPS$U9004 at 2/19/97 12:33:34	REFI
10/01/1992 - Updated with tape 1994	NB94
01/01/1990 - Updated with tape 1992	NB92
04/01/1987 - Updated with tape 1989	NB89
09/01/1984 - Updated with tape 1987	NB87
10/01/1982 - Updated with tape 1984	NB84
07/01/1980 - Updated with tape 1983	NB83
03/01/1979 - Updated with tape 1980	NB80

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MONT	[redacted]			
		HES 1-2(23)138		83	



• THIS CONTRACT HES 1-2(29)38
New Curb Tapers & Thrie Beam Guard Rail added. Thrie Beam Guard Rail blocked out & made continuous w/ Approach rail. See Dwg. No. 14158 & 14159.

SPECIFICATIONS:- Montana State Highway Commission Standard Specifications for Road and Bridge Construction, revised April, 1935; Design Specifications for Highway Structures, revised July, 1935; and Special Provisions shall govern unless otherwise noted.

LIVE LOAD:- Standard H15 loading.

CONCRETE:- All concrete of super-structure, and as noted on details of bents shall be class "D". All other concrete shall be class "A" unless otherwise noted.

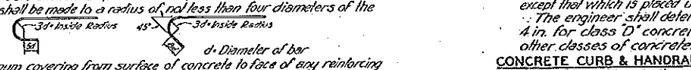
Chamfer all exposed edges of concrete 1½ inches and fillet all entrant angles 1½ inches unless otherwise noted.

REINFORCING STEEL:- All reinforcing bars shall be of intermediate grade billet steel. They shall be of approved deformed section unless otherwise 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 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.



REINFORCING COVERING:- Minimum covering from surface of concrete to face of any reinforcing bar shall be not less than 2 inches except in slabs, where the minimum covering shall be 1 inch. In footings and piers the minimum covering shall be 3 inches.

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.

MASTIC JOINT MATERIAL:- All mastic material shall be "Carey Elastite" or an approved equal. Cost of furnishing and placing mastic material shall be included in the unit price bid for class "D" concrete.

FINISHING:- Attention is directed particularly to the requirements of paragraph 26.5(m)(2) of the Standard Specifications for the finishing of concrete floor slab.

GENERAL NOTES

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 and two field coats of paint, on all surfaces not in contact with concrete, except as noted in paragraph 33.8 of the Standard Specifications.

SHOP COAT:- Lead paint as described in Section 53 of the Standard Specifications.

FIRST FIELD COAT:- Primer coat for aluminum paint as described in Section 54 of the Standard Specifications.

SECOND FIELD COAT:- Aluminum paint as described in Section 54 of the Standard Specifications.

PLACING OF CONCRETE:- In addition to the requirements of placing concrete as set forth in the Standard Specifications for Road and Bridge Construction, the contractor shall provide suitable vibratory tampers which shall operate at a speed of not less than 3200 blows per minute. These tampers shall be used in the placing and compacting of all concrete except that which is placed under water and in handrails and curbs when poured as separate units.

The engineer shall determine the allowable slump which in no case shall exceed 4 in. for class "D" concrete or limits set up in the Standard Specifications for other classes of concrete.

CONCRETE CURB & HANDRAIL:- The price bid for concrete curb and handrail shall be payment for curbs and handrails complete in place, except for reinforcing bars therein, which shall be paid for as reinforcing steel.

SOILS AND FOUNDATION MATERIALS:- Borings were taken by the Montana State Highway Commission approximately 650 ft upstream from the final bridge site and sand, gravel and boulders of varying degrees of compactness or cementation were encountered for a depth of 36 feet.

The State Highway Commission does not guarantee that the materials which will be actually encountered in the course of excavation for the structure will be the same as encountered where the borings were taken, neither does the State assume any responsibility for any variation or misinterpretation of the classes of materials.

No claim or adjustment in the unit price bid for excavation shall be made if the materials found in the course of excavation do not agree with those shown as found at the site where borings were taken.

STRUCTURE EXCAVATION:- Only the excavation below elevation 3064.65 for pier No. 3, elevation 3065.15 for pier No. 4, elevation 3065.15 for pier No. 5, elevation 3064.62 for pier No. 6, elevation 3069.25 for bents No. 1 and No. 2 and elevation 3069.25 for bents No. 7 and No. 8 need be restricted to the area inside the cofer dams.

All boulders taken out of holes in excavating for piers or bents shall be placed back around pier or bent from which they were taken in such a manner as to provide the best protection against scour.

Excavation for bents shall be paid for under item No. 7 and excavation for piers shall be paid for under item No. 8.

REFERENCES	
DWG. NO.	DESCRIPTION
1922	Tower Spans No. 1 & No. 7
1923	" " " " " "
1924	Piers No. 3, 4, 5 & 6
1925	Floor System and Shoes
1926	Special Floor Details
1927	Floor Plan & Bracing Details
1928	Girder details Spans No. 2 & 6
1929	" " " No. 3 & 5
1930	" " " " " "
1931	" " " " " "
1932	" " " " " "
1800	Standard Bronze Tablet

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER SOUTH FORK OF FLATHEAD RIVER
NEAR CORAM
FED. AID PROJ. NO. 257 F
FLATHEAD COUNTY
GENERAL LAYOUT
Scale: 1" = 20'-0"

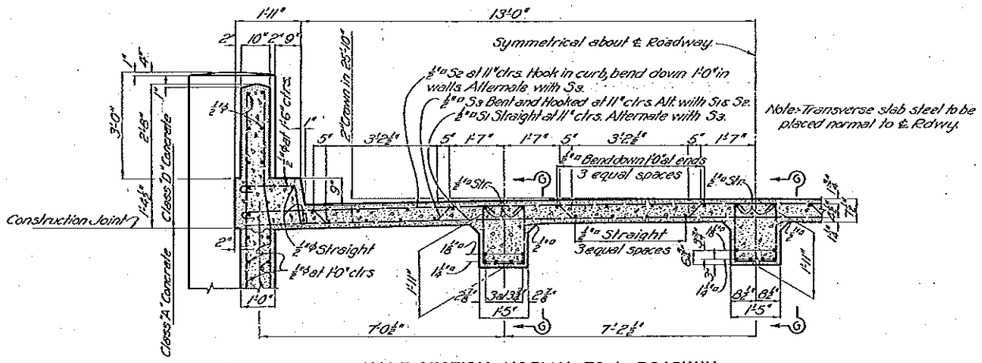
APPROVED BY B. J. Ambrose
BRIDGE DESIGNING ENGINEER

FILE NO. 795 DRAWING NO. 1921

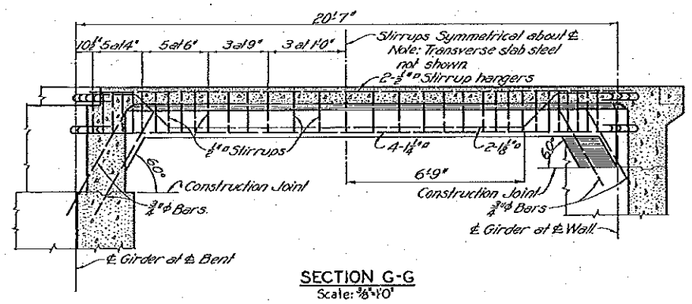
DESIGNED BY	V.P.M.	May, 1937	
DRAWN BY	J.M.McG.	7-29-37	
TRACED BY	J.M.McG.	7-29-37	
CHECKED BY	V.P.M.	8-12-37	
REVISED BY	R.O.H.	9-8-86	
REVISED BY			

Construction Change: Made by H.L. Feb. 20, 1942

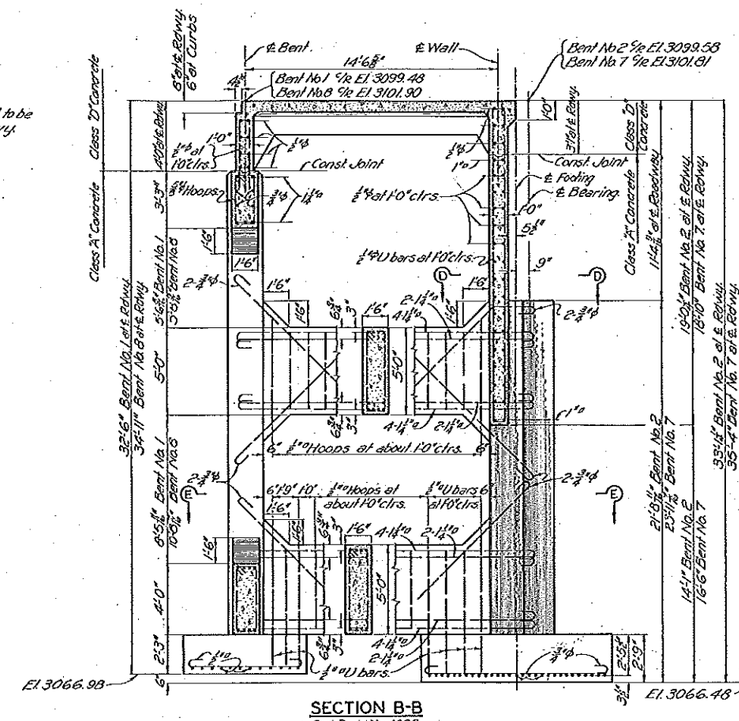
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MONT.	257-F		3	13



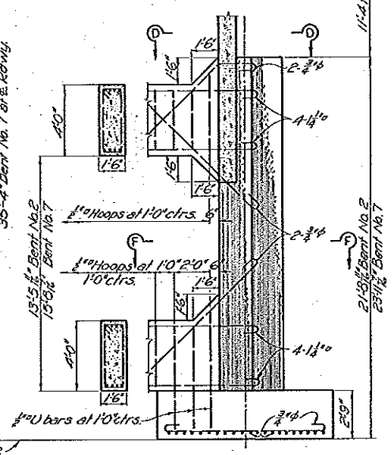
HALF SECTION - NORMAL TO ℄ ROADWAY
Scale: ½"=1'0"



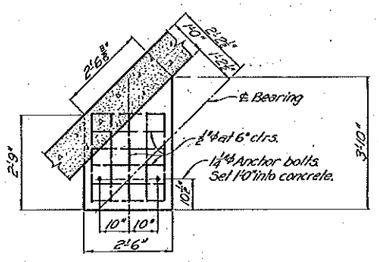
SECTION G-G
Scale: ⅜"=1'0"



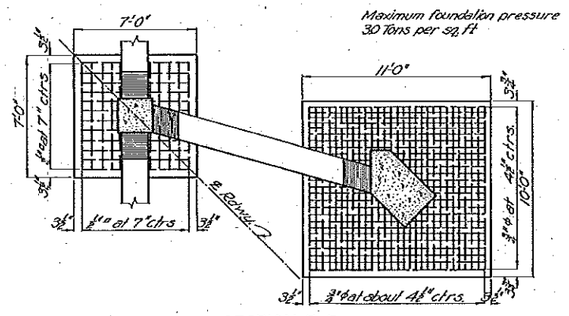
SECTION B-B
See Dwg. No. 1922



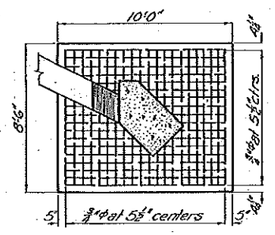
PART SECTION C-C
See Dwg. No. 1922



SECTION D-D
Scale: ½"=1'0"



SECTION E-E



SECTION F-F

DESIGNED	BY	A.W.G.
DRAWN	BY	W.H.Y.
TRACED	BY	J.N.H.
CHECKED	BY	A.L.H.
REVISED	BY	
REVISED	BY	

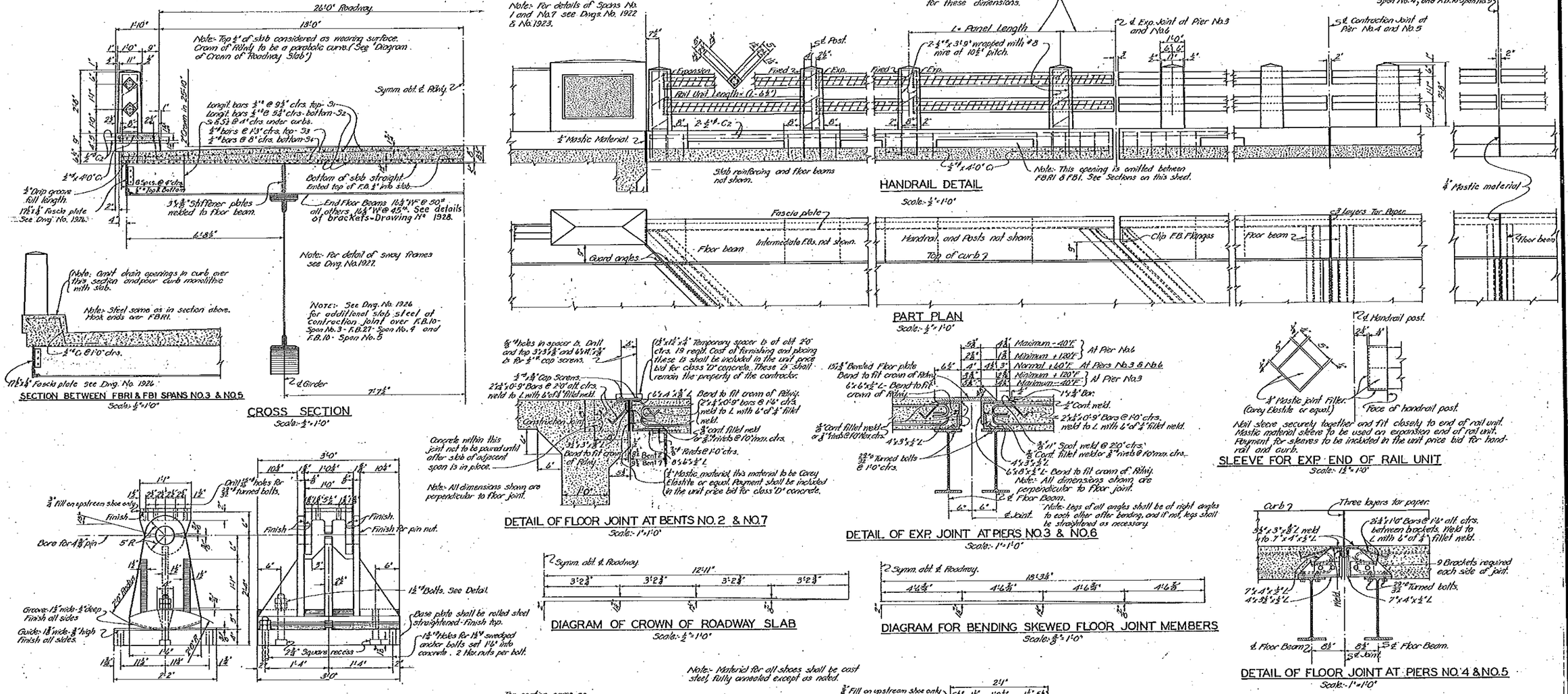
date 1937
6-19-37
6-23-37
6-29-37

STATE OF MONTANA
STATE HIGHWAY COMMISSION
BRIDGE OVER SOUTH FORK OF
FLATHEAD RIVER
NEAR CORAM
FED. AID PROJ. NO. 257-F
FLATHEAD COUNTY
TOWER SPANS NO. 1 & NO. 7
Scales ¼"=1'0" unless otherwise noted.

APPROVED BY B. J. Carlburg
BRIDGE DESIGNING ENGINEER

FILE NO. 795 DRAWING NO. 1923

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MONT.	257F		5	13



DESIGNED	BY	V.P.M.	May 1937
DRAWN	BY	W.A.H.	6-10-37
TRACED	BY	T.C.R.	6-14-37
CHECKED	BY	V.P.M.	8-12-37
REVISED	BY		
REVISED	BY		

STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER SOUTH FORK OF FLATHEAD RIVER NEAR CORAM.
FED. AID PROJ. NO. 257F
FLATHEAD COUNTY
FLOOR SYSTEM AND SHOES
Scales as noted.

APPROVED BY R. J. Anderson
BRIDGE DESIGNING ENGINEER

FILE NO. 795 DRAWING NO. 1925