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 Thus, some of the information contained in these documents may be out of date or not applicable with regard to the advertised project.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

STATE HIGHWAY COMMISSION

BRIDGE PLANS & QUANTITIES

FED. AID SECONDARY PROJ. NO. S388(1)

MILES CITY-KINSEY

CUSTER COUNTY

LIST OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE
1	4853	GENERAL LAYOUT
2	4854	BENTS NO. 1 & NO. 4 COLUMN & FOOTING DETAILS
3	4855	PIERS NO. 2 & NO. 3
4	PRES. BEAM STD. NO. 1	STANDARD PRE-TENSIONED & POST-TENSIONED PRESTRESSED CONCRETE BEAMS
5	SLAB-30to75-R24-L2(Rev.10-23-59)	STANDARD SLAB, CURB & DIAPHRAGM FOR PRESTRESSED CONCRETE BEAMS
6	PRES. S&C JOINTS(Rev.2-24-60)	STANDARD SLAB & CURB JOINTS FOR PRESTRESSED CONCRETE BEAMS
7	SBBR (Rev.10-23-59)	STEEL BEAM BRIDGE RAIL & DETAILS
8	E.B.65to70-R24-L2-SBBR, SBR-T2 & SBR-T3	STANDARD END BENT FOR PRESTRESSED CONCRETE BEAMS

ESTIMATED BRIDGE PLAN QUANTITIES

5% Swell in Class "A" Concrete
15% Swell in Structure Excavation

LOCATION	LENGTH IN FEET	REINFORCING STEEL LBS.	CLASS "A" CONCRETE CU. YDS.	CLASS "AD" CONCRETE CU. YDS.	STEEL BEAM BRIDGE RAIL LIN. FT.	STRUCTURE EXCAVATION CU. YDS.	PRESTRESSED BEAMS-EACH 65'	REMOVAL OF EXIST STRUCTURE AND MAINTAINING TRAFFIC LUMP SUM
BENT NO. 1		4459	29	6.9		155		LUMP SUM
PIER NO. 2		3710	77			160		
PIER NO. 3		3815	78			190		
BENT NO. 4		3833	23	6.9		125		
SUPERSTRUCTURE	198.0	21,822		133.3	401.08		15	
TOTAL	198.0	37,639	207	147.1	401.08	630	15	LUMP SUM

Made by E.R.T. 12-15-59 Checked by HES. 6-1-60

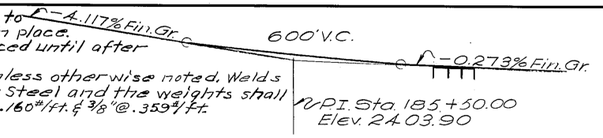
J.R.B.

DRAWING NO. 4853 Q

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	S388(1)		1	8
		RS 489-1(2)0			

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.

WELDS:- All welds shall be continuous fillet shop welds unless otherwise noted. Welds shall be paid for at the unit price bid for Reinforcing Steel and the weights shall be computed in accordance with the following: 1/4"@ .160#/ft. & 3/8"@ .353#/ft.



SETTING OF MASONRY PLATES:- Care shall be taken in placing reinforcing steel so as to clear anchor bolts. Contractor shall finish concrete under beam masonry plates slightly high and bush-hammer to exact elevation shown. Masonry plates shall be placed on three (3) layers of canvas thoroughly swabbed with red lead, as called for in the standard specifications.

NOTES

SPECIFICATIONS:- Montana State Highway Commission Standard Specifications for Road and Bridge Construction, 1959 Edition, and any amendments thereto and Special Provisions shall govern unless otherwise noted. Design prepared in accordance with A.A.S.H.O. Specifications, 1957 Edition.

LIVE LOAD:- Standard H15-S12 loading.

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

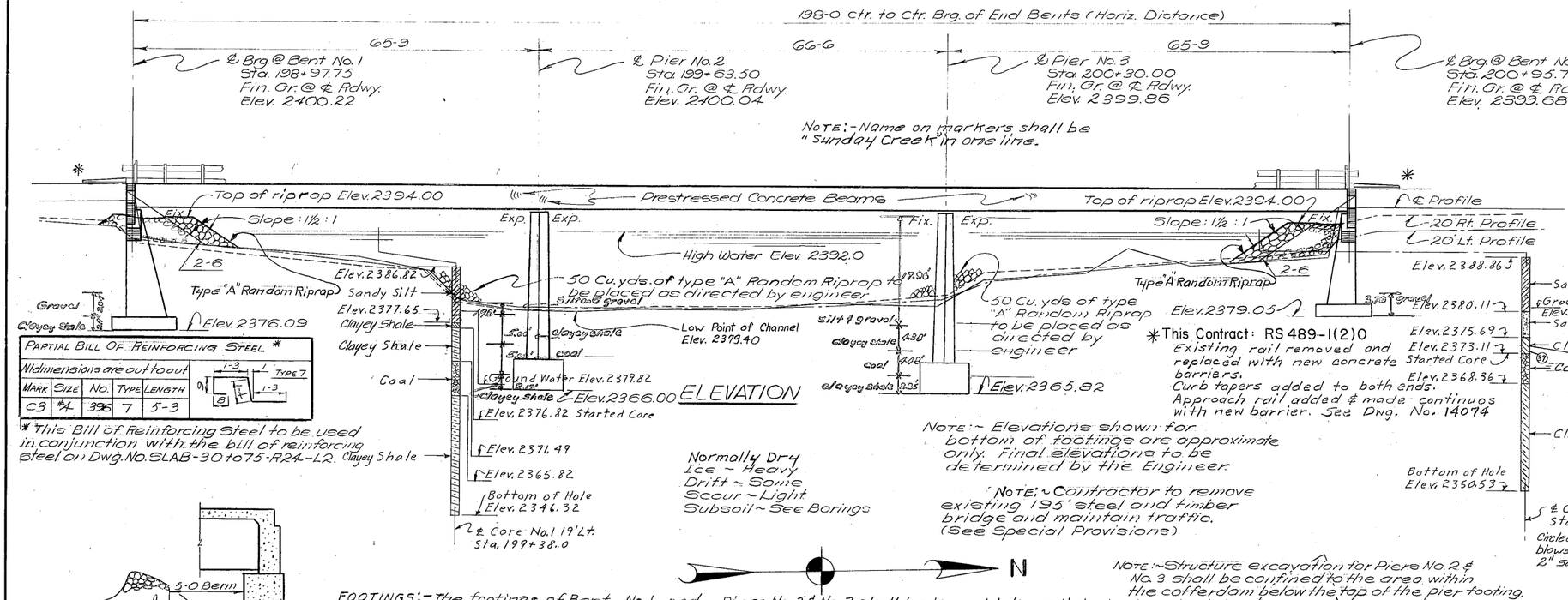
PRECAST PRESTRESSED CONCRETE:- All precast prestressed concrete shall have a minimum compressive strength of 5000 p.s.i. at the age of 28 days. (See Special Provisions for Precast Prestressed Concrete Beams.) An "Air Entraining Agent" may be added to any precast prestressed concrete. Chamfer all exposed edges of concrete 3/4 inches and do not fillet entrant angles unless otherwise noted.

CAST IN PLACE CONCRETE:- All cast in place concrete in the superstructure and as noted for the end bents shall be Class "AD". All other concrete in bents and piers shall be Class "A". "Air Entraining Agent" shall be added to all cast in place concrete except Class "S". Chamfer all exposed edges of concrete 3/4 inch and fillet entrant angles 3/4 inch, unless otherwise noted. Quantities of Class "AD" concrete have been computed using pretensioned beams. Quantities of Class "AD" concrete & reinforcing steel will vary slightly using post-tensioned beams.

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 or zinc chromate primer 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 in Standard Specifications.

STRUCTURAL STEEL (Method of Measurement & Payment):- The structural steel shall be paid for at the unit price bid for Reinforcing 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 drawings are checked.

APPROVAL:- Shop plans shall be approved by the Montana State Highway Department before fabrication is begun.



ELEVATION

PARTIAL BILL OF REINFORCING STEEL *				
All dimensions are out to out				
MARK	SIZE	NO.	TYPE	LENGTH
C3	#4	396	7	5-3

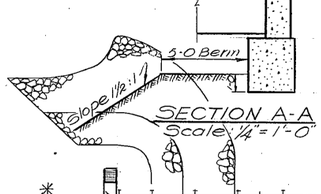
* This Bill of Reinforcing Steel to be used in conjunction with the bill of reinforcing steel on Dwg. No. SLAB-30 to 75-R24-L2.

Normally Dry
Ice ~ Heavy
Drift ~ Some
Scour ~ Light
Subsoil ~ See Boring

* This Contract: RS 489-1(2)0
Existing rail removed and replaced with new concrete barriers.
Curb tapers added to both ends.
Approach rail added & made continuous with new barrier. See Dwg. No. 14074

Note:- Elevations shown for bottom of footings are approximate only. Final elevations to be determined by the Engineer.

Note:- Contractor to remove existing 195' steel and timber bridge and maintain traffic. (See Special Provisions)



PLAN

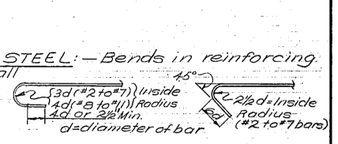
Note:- Structure excavation for Piers No. 2 & No. 3 shall be confined to the area within the cofferdam below the top of the pier footing.

FOOTINGS:- The footings of Bent No. 1 and Piers No. 2 & No. 3 shall be keyed into undisturbed material for a minimum depth of One (1) foot. The area excavated for keying footings into the material shall be completely filled with concrete. The quantity of concrete deposited outside of neat lines, because of this requirement, depends upon the contractor's procedure; therefore, it will vary and its cost shall be considered a part of the cost of the concrete inside of neat lines. The quantity of concrete for bent & piers to be paid for shall be the amount only within neat lines shown on the details. If changes in the details of the bent & piers are ordered by the engineer, the quantities will be revised according to the revised details.

REFERENCES	
DWG. NO.	DESCRIPTION
4854	Bents No. 1 & No. 4 (Column & Footing Details)
4855	Piers No. 2 & No. 3
PRES-BEAM STD. No. 1	Standard Pre-tensioned & Post-tensioned Prestressed Concrete Beams
SLAB-30 to 75-R24-L2 (Rev. 10-23-59)	Standard Slab, Curb & Diaphragm For Prestressed Concrete Beams
PRES-5 & C JOINTS (Rev. 2-24-60)	Standard Slab & Curb Joints For Prestressed Concrete Beams
E.B. 65 to 70-R24-L2-SBBR, SBR-T2 & SBR-T3	Standard End Bent For Prestressed Concrete Beams
S.B.B.R. (Rev. 10-23-59)	Steel Beam Bridge Rail & Details

OTHER NOTES:- For other notes see Dwg. No. 4855.

REINFORCING STEEL:- Bends in reinforcing steel shall be made- (Cont. below)



NOTES (Cont.):
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 above sketches, except as otherwise noted.

SOILS & FOUNDATION MATERIALS:- Borings were taken by the Montana State Highway Dept. at the points shown, to obtain information on the subsoil at this bridge site so that a more reasonable conclusion could be reached as to the type and approximate elevation of bottom of foundation that should be used. The State Highway Department's interpretation of the materials encountered from the results of the borings is shown hereon. The State Highway Department does not guarantee that the material which will be encountered in the course of excavation for the structure will be as listed in the log of borings shown hereon, neither does the State assume any responsibility for any variation or misinterpretation of the classes of materials. No claim of adjustment in the unit price bid for excavation will be made if the materials found do not agree with those shown on this sheet in the log of borings. Materials shown as sand & gravel may be of varying degree of compactness or cementation.

DESIGNED		
DRAWN	C.D.A.	6-2459
TRACED	K.L.F.	9-259
CHECKED	H.E.E.	12-11-59
REVISED	W.A.B.	3-6-87
REVISED		

STATE OF MONTANA
STATE HIGHWAY COMMISSION

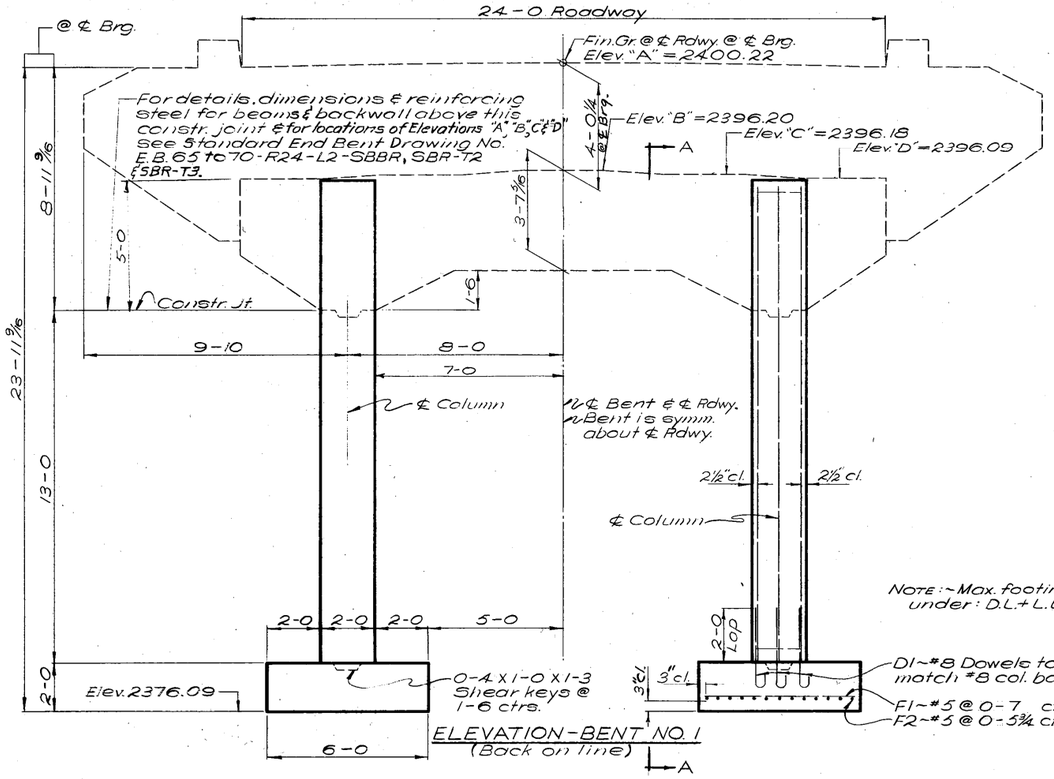
BRIDGE OVER SUNDAY CREEK
NEAR MILES CITY
FED. AID SECONDARY PROJECT NO. S388(1)
CUSTER COUNTY
GENERAL LAYOUT
Scale: 1" = 10'-0" Except As Noted

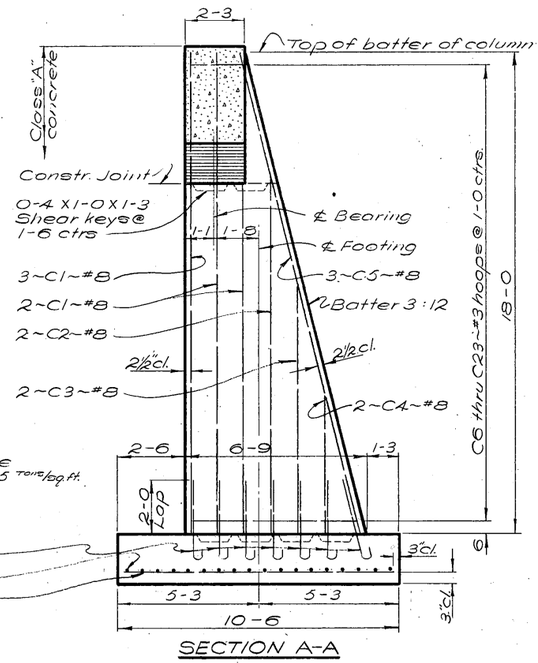
APPROVED BY _____ BRIDGE ENGINEER

DRAWING NO. 4853

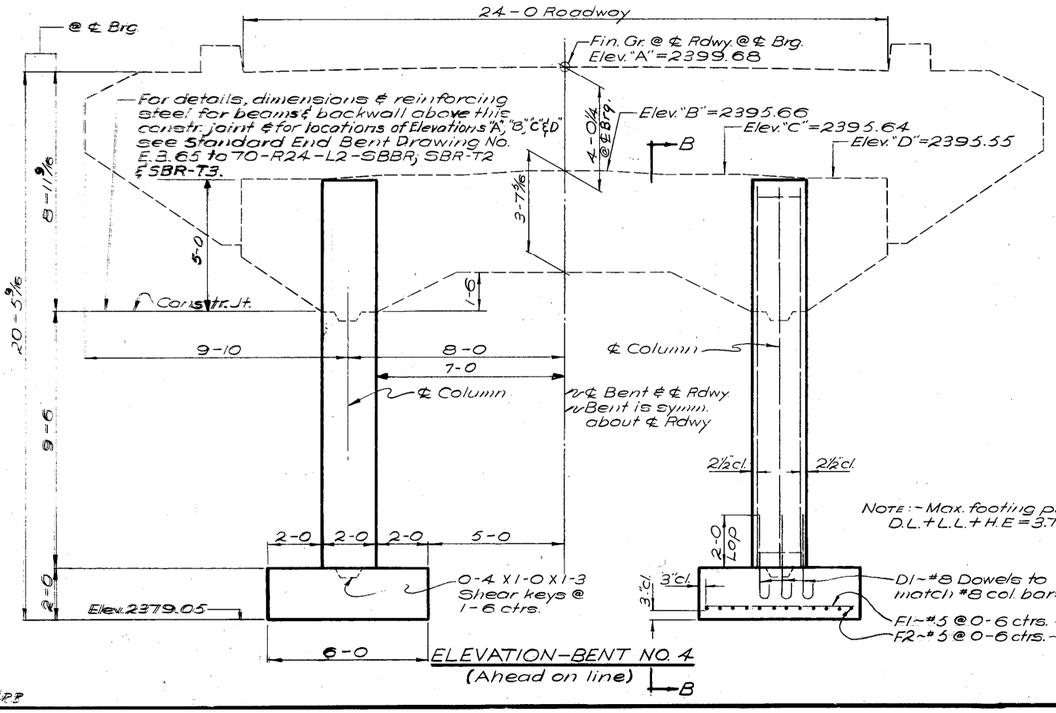
J.R.B.

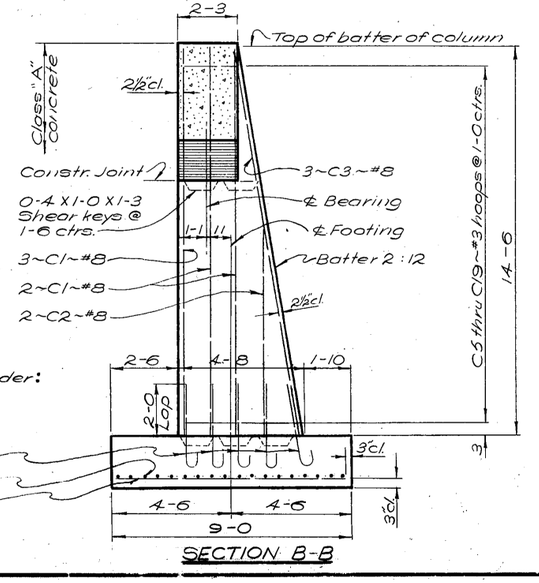
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	S388(1)		2	8





Note:- Max. footing pressure under: D.L.+L.L.+H.E.=3.35 tons/sq.ft.





Note:- Max. footing pressure under: D.L.+L.L.+H.E.=3.79 tons/sq.ft.

BILL OF REINFORCING STEEL



STRAIGHT BARS				BENT BARS (All dimensions are out to out)								
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	TYPE	LENGTH	A	B	C	D	E
Bars For Bent No.1 Only													
C1	#8	14	17'-10"	C6	#3	2	1	16'-7"	1'-8	6'-3½	0'-4		
C2	"	4	13'-6	7	"	"	"	16'-1		6'-0½	"		
C3	"	4	9'-6	8	"	"	"	15'-7		5'-9½	"		
C4	"	4	5'-6	9	"	"	"	15'-1		5'-6½	"		
C5	8	6	18'-4	10	"	"	"	14'-7		5'-3½	"		
				11	"	"	"	14'-1		5'-0½	"		
				12	"	"	"	13'-7		4'-9½	"		
F1	5	36	5'-6	13	"	"	"	13'-1		4'-6½	"		
F2	#5	26	10'-0	14	"	"	"	12'-7		4'-3½	"		
				15	"	"	"	12'-1		4'-0½	"		
				16	"	"	"	11'-7		3'-9½	"		
				17	"	"	"	11'-1		3'-6½	"		
				18	"	"	"	10'-7		3'-3½	"		
				19	"	"	"	10'-1		3'-0½	"		
				20	"	"	"	9'-7		2'-9½	"		
				21	"	"	"	9'-1		2'-6½	"		
				22	"	"	"	8'-7		2'-3½	"		
				C23	3	2	1	8'-1	1'-8	2'-0½	0'-4		
				D1	#8	32	2	4'-10	3'-9	1'-1			
Bars For Bent No.4 Only													
C1	#8	14	14'-4"	C5	#3	2	1	12'-7	1'-8	4'-3½	0'-4		
C2	8	4	7'-10	6	"	"	"	12'-3		4'-1½	"		
C3	8	6	14'-6	7	"	"	"	11'-11		3'-11½	"		
				8	"	"	"	11'-7		3'-9½	"		
				9	"	"	"	11'-3		3'-7½	"		
				10	"	"	"	10'-11		3'-5½	"		
F1	5	36	5'-6	11	"	"	"	10'-7		3'-3½	"		
F2	#5	24	8'-6	12	"	"	"	10'-3		3'-1½	"		
				13	"	"	"	9'-11		2'-11½	"		
				14	"	"	"	9'-7		2'-9½	"		
				15	"	"	"	9'-3		2'-7½	"		
				16	"	"	"	8'-11		2'-5½	"		
				17	"	"	"	8'-7		2'-3½	"		
				18	"	"	"	8'-3		2'-1½	"		
				C19	3	2	1	7'-11	1'-8	1'-11½	0'-4		
				D1	#8	24	2	4'-10	3'-9	1'-1			

Note:- This Bill Of Reinforcing Steel to be used in conjunction with the Bill Of Reinforcing Steel shown on Dwg. No. E.B.-65 to 70-R24-L2-SBBR, SBR-T2 & SBR-T3.

NOTES

OTHER NOTES:- For other notes see Dwg. No. 4853

STATE OF MONTANA
STATE HIGHWAY COMMISSION

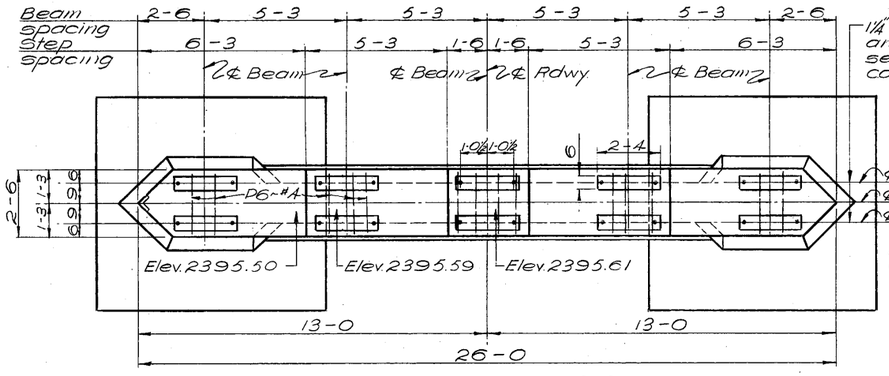
BRIDGE OVER SUNDAY CREEK
NEAR MILES CITY
FED. AID SECONDARY PROJECT NO. S388(1)
CUSTER COUNTY
BENTS NO.1 & NO.4
COLUMN & FOOTING DETAILS
Scale-⅛"=1'-0"

DESIGNED	H&L	5-1260
DRAWN	H&L	5-1760
TRACED		
CHECKED	H.E.S.	5/27/60
REVISED		
REVISED		

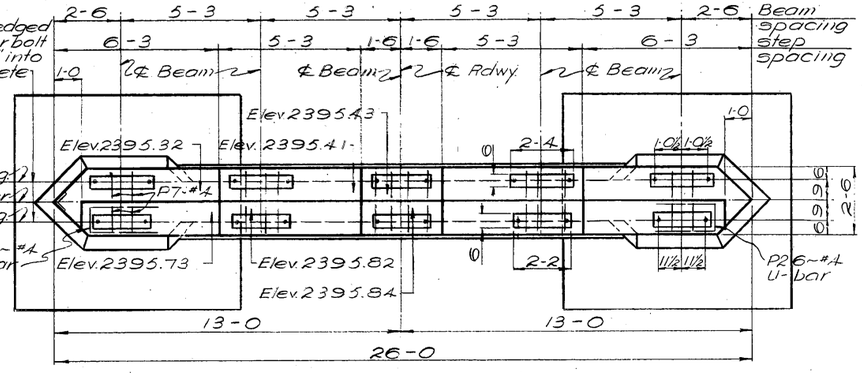
DRAWING NO. 4854

JPB

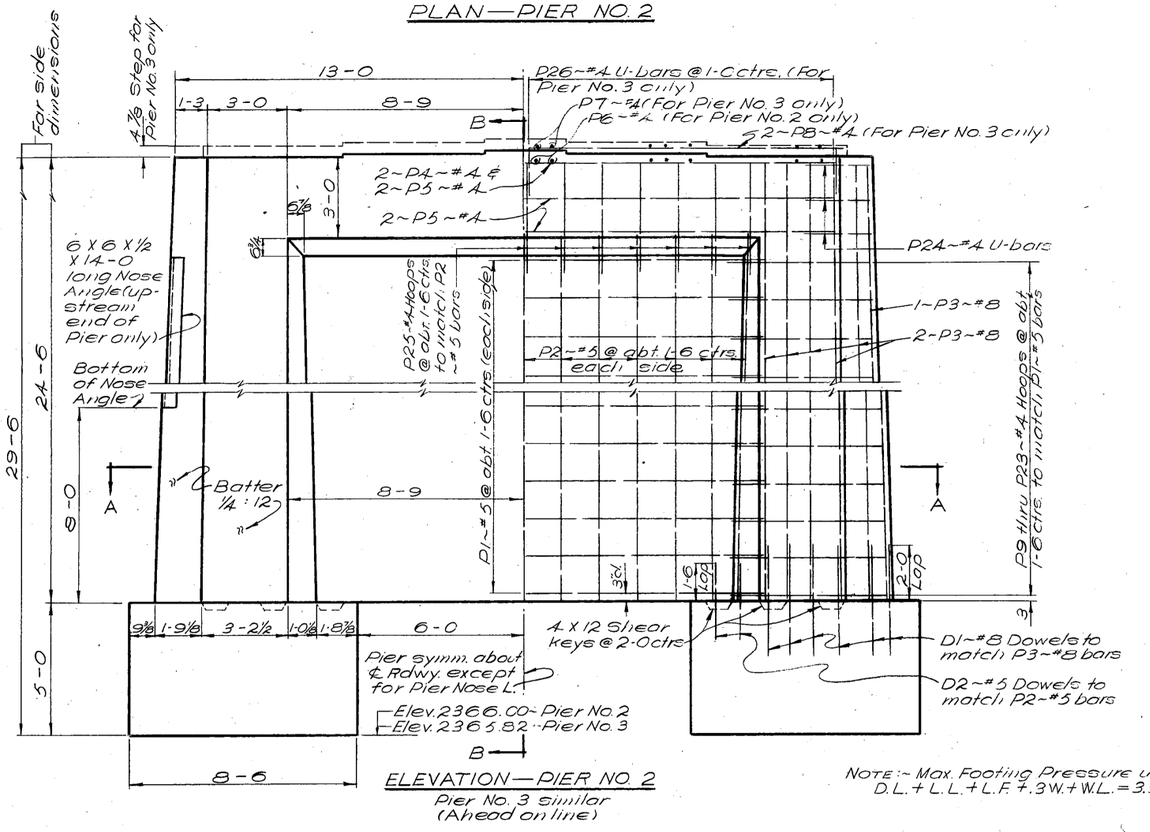
FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.	S388(1)		3	8



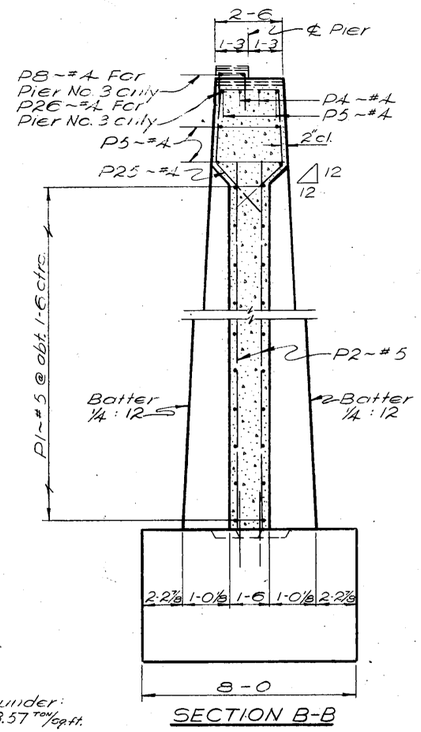
PLAN—PIER NO. 2



PLAN—PIER NO. 3



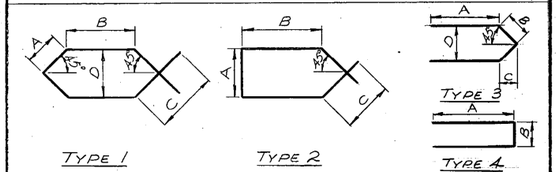
ELEVATION—PIER NO. 2
Pier No. 3 similar (Ahead on line)



SECTION B-B

Note:- Max. Footing Pressure under: D.L. + L.L. + L.F. + .3W. + W.L. = 3.57 Tons/Sq. ft.

BILL OF REINFORCING STEEL (One Pier Only)



STRAIGHT BARS				BENT BARS (All dimensions are out to out)								
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	TYPE	LENGTH	A	B	C	D	E
P1	#5	30	18'-0"	P9	#4	2	1	15'-8"	2'-2"	3'-0"	2'-8"	3'-1"	
P2	5	26	22'-0"	P10				15'-5"	2'-1½"	3'-0"	2'-7"	3'-0½"	
P3	8	22	24'-3"	P11				15'-4"	2'-1"	3'-0"	2'-7"	2'-11½"	
P4	4	2	24'-8"	P12				15'-0"	2'-0½"	2'-11½"	2'-6"	2'-10½"	
P5	4	6	23'-4"	P13				14'-11"	2'-0"	2'-11½"	2'-6"	2'-10"	
				P14				14'-8"	1'-11½"	2'-11½"	2'-5"	2'-9½"	
				P15				14'-7"	1'-11"	2'-11½"	2'-5"	2'-9½"	
D1	8	22	4'-0"	P16				14'-3"	1'-10½"	2'-11"	2'-4"	2'-7½"	
D2	5	8	3'-0"	P17				14'-2"	1'-10"	2'-11"	2'-4"	2'-7"	
				P18				13'-11"	1'-9½"	2'-11"	2'-3"	2'-6½"	
				P19				13'-10"	1'-9"	2'-11"	2'-3"	2'-5½"	
BARS FOR PIER NO. 2 ONLY				P20				13'-6"	1'-8½"	2'-10½"	2'-2"	2'-4½"	
P6	4	14	2'-2"	P21				13'-5"	1'-8"	2'-10½"	2'-2"	2'-4"	
				P22				13'-2"	1'-7½"	2'-10½"	2'-1"	2'-3¼"	
				P23		2	1	13'-1"	1'-7"	2'-10½"	2'-1"	2'-2½"	
BARS FOR PIER NO. 3 ONLY				P24		6	3	5'-5"	1'-3"	1'-5½"	1'-0½"	2'-1"	
P7	4	28	0'-11"	P25	4	13	2	11'-8"	2'-2"	2'-9"	2'-0"		
P8	4	2	23'-8"										
				BARS FOR PIER NO. 3 ONLY									
				P26	4	27	4	4'-3"	1'-8"	0'-11"			

NOTES

CONCRETE:—All concrete in Piers No. 2 & No. 3 shall be Class "A". The contractor will be permitted to deposit for his convenience all of the pier footings as a seal course in Piers No. 2 & No. 3 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.

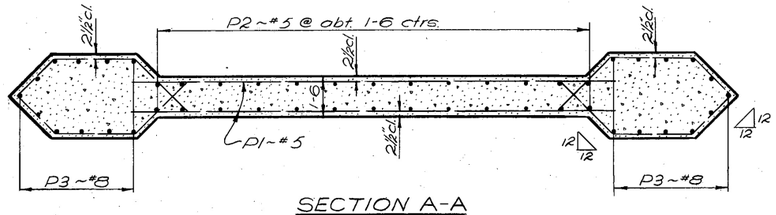
SHAFTS:—Shaft of piers shall be poured in not more than two continuous runs. Other construction joints shall be made only as noted on the plans or as determined by the Engineer. Footings shall be poured in one continuous run.

CHAMFER:—Chamfer all exposed corners with enclosed angle less than 120°, ½ inches, and do not fillet entrant angles except as otherwise noted.

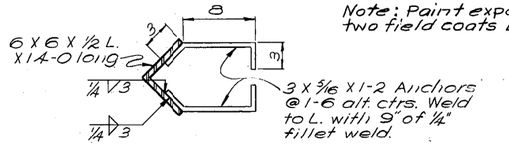
CONSTRUCTION JOINTS:—Construction joints shall be made on a true horizontal line at the surfaces of the piers and left rough in the interior with satisfactory shear keys.

GUARD ANGLES AND ARMORED JOINT:—Slab Guard Angles, pier nose angles and armored slab & curb joints shall be paid for at the unit price bid for reinforcing steel.

OTHER NOTES:—For other notes see Dwg. No. 4853.



SECTION A-A



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

Note: Paint exposed surfaces two field coats before erection.

DESIGNED	H K S	10-27-59
DRAWN	H K L	11-4-59
TRACED		
CHECKED	H.E.B.	12-11-59
REVISED		
REVISED		

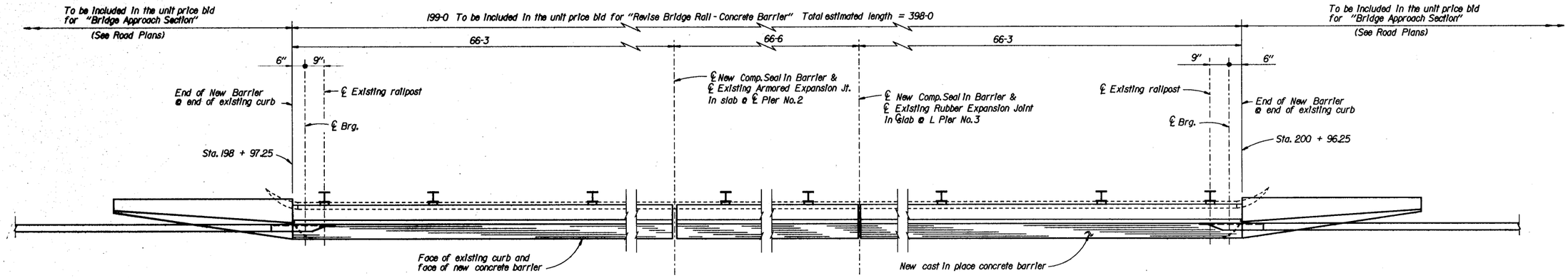
STATE OF MONTANA
STATE HIGHWAY COMMISSION

BRIDGE OVER SUNDAY CREEK
NEAR MILES CITY
FED. AID SECONDARY PROJECT NO. S388(1)
CUSTER COUNTY
PIERS NO. 2 & NO. 3
Scale - 3/8" = 1'-0" Except As Noted

DRAWING NO. 4855

J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.
8	MONT.	RS489-1(2)0	

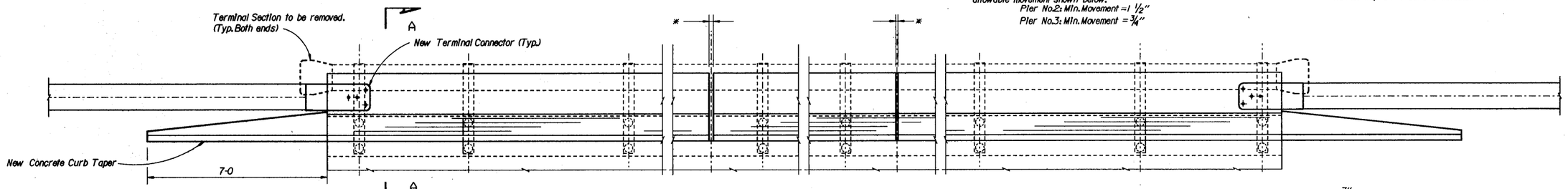


PARTIAL PLAN

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

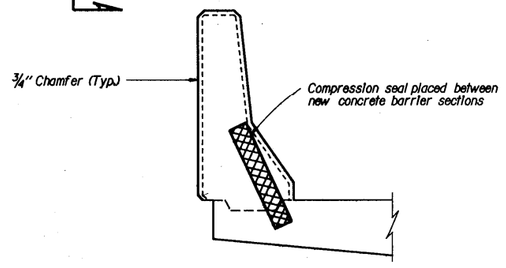
* NOTE: Opening dependant on Seal Manufacturers recommendation. Joint used must be capable of providing the total min. allowable movement shown below.
Pier No.2: Min. Movement = 1 1/2"
Pier No.3: Min. Movement = 3/4"

NOTE: Lap all #4 bars a minimum of 1'-4".



PARTIAL ELEVATION

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

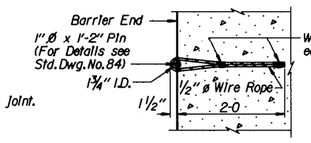


COMPRESSION SEAL DETAIL

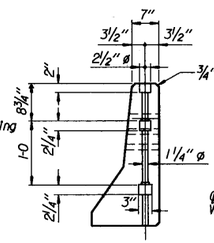
No Scale

NOTE: Remove existing 1'-4" curb to the original construction joint. Roughen and clean surface before placing the new concrete barrier.

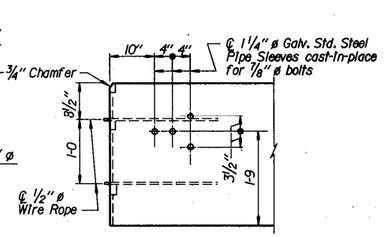
NOTE: Remove existing longitudinal curb reinforcing steel. Clip back existing stirrups so approximately 1'-8" of the bar is left exposed. Clean the exposed portion of the stirrup and bend as shown to tie in the new concrete barrier.



WIRE ROPE DETAIL



END VIEW

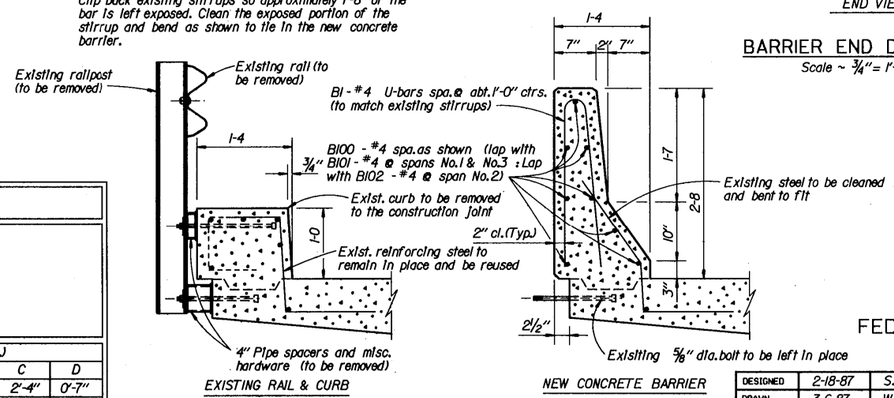


FRONT VIEW

BARRIER END DETAILS

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

NOTE: Wire rope shall be zinc-coated steel wire (7) strand utility grade with a minimum breaking strength of 25,000 lbs. and shall conform to A.S.T.M. A-475.



SECTION A-A

Scale: 1" = 1'-0"

NOTES

For location of existing guard rail, expansion joints, and required concrete curb tapers and barriers, see Dwg. No. 4853.

Details shown on this drawing shall apply to both sides for the entire length of the structure.

Contractor shall verify all dimensions in the field before ordering any materials and before fabrication is begun.

Existing rail, rail posts, bolts, spacers, concrete curb and reinforcing steel shall be removed by the contractor as shown on this drawing. All removed items shall become the property of the Contractor to be disposed of as approved by the Engineer. Removal costs shall be included in the unit price bid for "Revise Bridge Rail-Concrete Barrier".

The cost of terminal connector, and the cost of furnishing and installing the curb tapers to be included in the unit price bid for "Bridge Approach Section". For curb taper, terminal connectors and bridge approach section-Type I details see Std. Dwg. No. 86.

The cost of furnishing and placing the new concrete barriers, reinforcing steel and compression seals shall be included in the unit price bid for "Revise Bridge Rail - Concrete Barrier". "Revise Bridge Rail - Concrete Barrier" shall be paid for by the lineal foot which shall be full compensation for furnishing all materials, equipment and labor necessary to complete the item. The total number of lineal feet for payment is the distance between the existing curb ends on both sides of the structure (Estimated to be 398'-0").

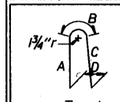
Concrete in the concrete barriers shall be Class "BD Modified".

Reinforcing steel used in the new concrete barriers shall be of the deformed type and shall meet the requirements of A.S.T.M. Specification A-615, Grade 60 (A.A.S.H.T.O. M-31).

The face and top of the new barrier shall have a protective coating applied in accordance with Section 560 of the Standard Specification.

All hardware to be galvanized.

BILL OF REINFORCING STEEL (BOTH SIDES)



Type 1

STRAIGHT BARS			
Mark	Size	No.	Length
Bl00	#4	48	40'-0"
Bl01	4	32	27-0
Bl02	#4	16	27'-6"

BENT BARS (All dimensions are out to out)								
Mark	Size	No.	Type	Length	A	B	C	D
Bl	#4	396	1	5'-0"	2'-3"	0'-5"	2'-4"	0'-7"

DESIGNED	2-18-87	S.A.N.
DRAWN	3-6-87	W.A.B.
CHECKED	6-11-87	R.W.M.
REVISED		
REVISED		
REVISED		

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER SUNDAY CREEK

AT STA. 199 + 97.0

FEDERAL AID PROJECT NO. RS 489-1(2)0

CUSTER COUNTY

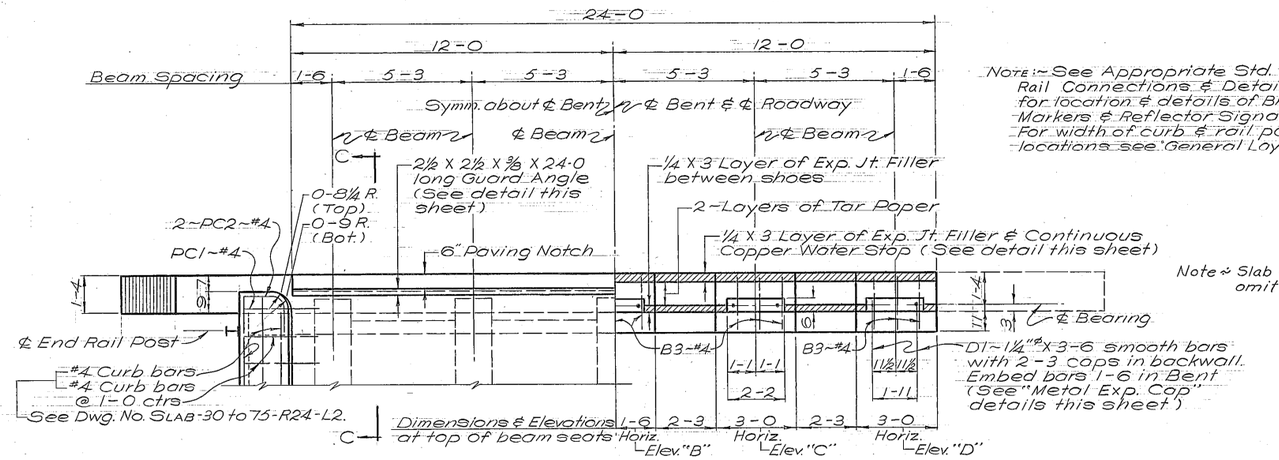
BRIDGE RAIL REVISION

Scale ~ as noted

DRAWING NO. 14074

[60,2]0938RAILR.BRG

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.				



Note:- See Appropriate Std. Rail Dwg. for Rail Connections & Details & for location & details of Bridge Markers & Reflector Signals. For width of curb & rail post locations see "General Layout."

Note:- Slab & beam reinforcing omitted for clarity.

Note:- For Slab, Reinforcing Steel & Beam details see Dwg. No. Pres.-Beam Std. No. 1 Type A and Dwg. No. Slab-30 to 75-R24-L2.

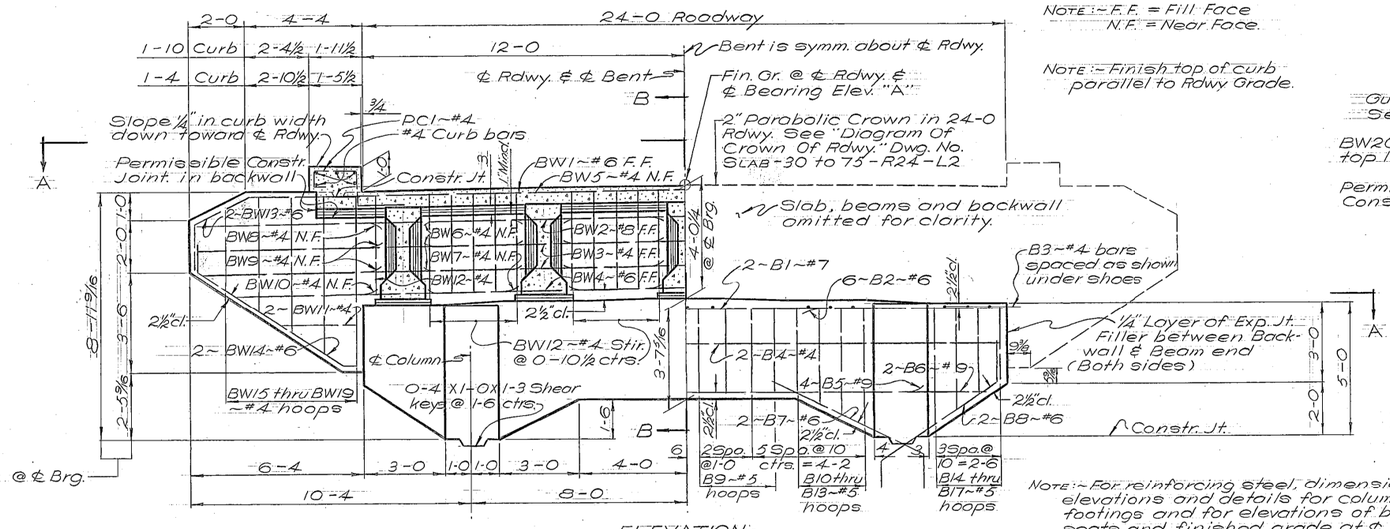
SECTION A-A

Note:- 1-6 each side of ℄ of beams shall be finished level to elevations shown. The 2-3 area between beam seats to be sloped as required.

Note:- F.F. = Fill Face
N.F. = Near Face.

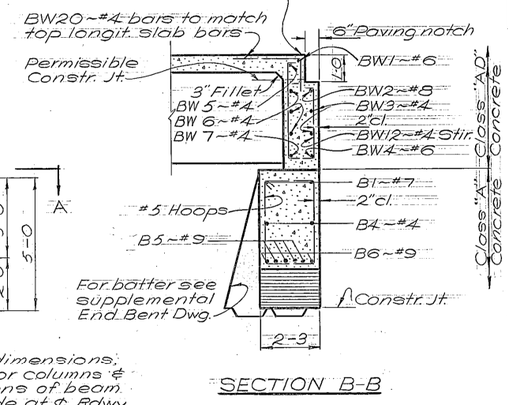
Note:- Finish top of curb parallel to Rdwy Grade.

Note:- Details above Constr. Jt. in backwall are typical for Post-tensioned beams only. Details for Pre-tensioned beams are similar. Cost of furnishing and placing exp. jt. filler, tar paper & copper water stop to be included in the unit price bid for Class "AD" concrete.



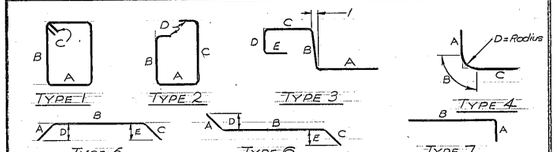
ELEVATION

Note:- For reinforcing steel, dimensions, elevations and details for columns & footings and for elevations of beam seats and finished grade at ℄ Rdwy. see supplemental End Bent drawing.



SECTION B-B

BILL OF REINFORCING STEEL (For One End Bent)

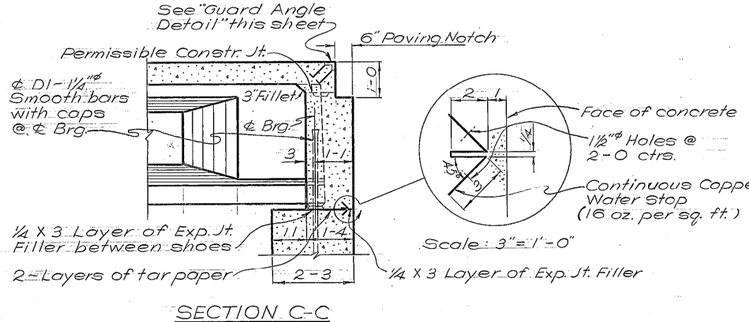


Straight Bars				Bent Bars (All dimensions are out to out)									
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D	E
D1	1¼"ø Smo.	10	3'-6"	BW12	#4	22	2	7'-11"	1'-0	2'-9	3'-8	0'-3	
				13	6	4	5	8'-5	1'-8	2'-0	4'-9	1'-6	2'-1½
				14	6	4	5	7'-11	0'-6	6'-5	1'-0	0'-3	0'-10
BW1	#6	1	26'-4	15	4	2	1	9'-1	1'-0	3'-2	0'-4½		
2	8	1	36'-4	16	↑	↑	↑	11'-3	↑	4'-3	↑		
3	4	2	36'-4	17				12'-9		5'-0			
4	6	1	33'-7	18				14'-3		5'-9			
5	4	1	26'-4	19		2	1	15'-1	1'-0	6'-2	0'-4½		
6	4	12	3'-9	BW20	4	19	7	3'-3	1'-3	2'-0			
7	4	4	3'-5										
8	4	2	6'-11										
9	4	4	6'-11	B7	6	4	6	7'-9	1'-0	6'-9		0'-11	
10	4	2	5'-4	8	6	4	6	7'-6	1'-0	5'-6	1'-0	0'-10	0'-10
BW11	4	4	2'-6	9	3	8	1	11'-0	1'-11	3'-2	0'-3		
				10	↓	2	↓	11'-1		3'-2½	↑		
				11				11'-11		3'-7½			
B1	7	2	23'-8	12				12'-9		4'-0½			
2	6	12	8'-0	13				13'-7		4'-5½			
3	4	15	1'-11	14				13'-7		4'-5½			
4	4	2	23'-8	15				12'-4		3'-10			
5	9	4	18'-0	16	↓	↓	↓	11'-3	↓	3'-3½	↓		
B6	#9	2	22'-6	B17	#5	2	1	10'-2	1'-11	2'-9	0'-3		

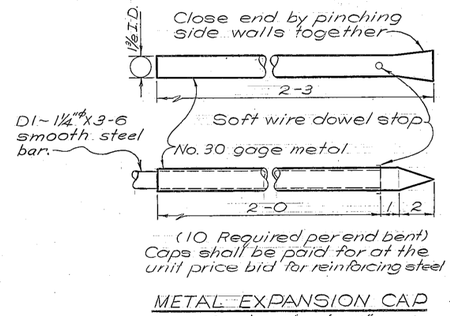
Bars For 1-10 Curb Only								
PC1	#4	2	3	5'-7"	1'-3	1'-4	1'-7½	0'-9	0'-8
PC2	#4	4	4	3'-2	1'-1½	0'-9½	1'-3	0'-6	

Bars For 1-4 Curb Only								
PC1	#4	2	3	5'-1"	1'-3	1'-4	1'-1½	0'-9	0'-8
PC2	#4	4	4	2'-8	0'-7½	0'-9½	1'-3	0'-6	

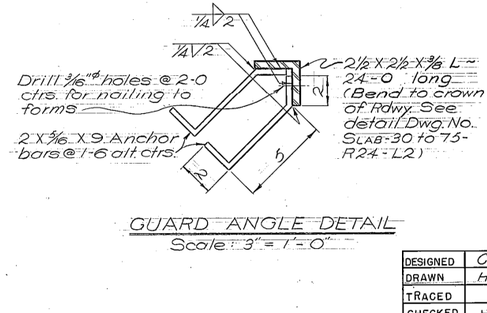
Note:- For remainder of reinforcing steel in columns & footings of End Bent that is required for completed End Bent, see Bill Of Reinforcing Steel on supplemental End Bent drawing.



SECTION C-C
Scale: ½"=1'-0"



METAL EXPANSION CAP
Scale: 3"=1'-0"



GUARD ANGLE DETAIL
Scale: 3"=1'-0"

DESIGNED	C.R.S.	4-22-60
DRAWN	H.K.L.	2-21-61
TRACED		
CHECKED	Hes.	7-6-61
REVISED		
REVISED		

STATE OF MONTANA
STATE HIGHWAY COMMISSION

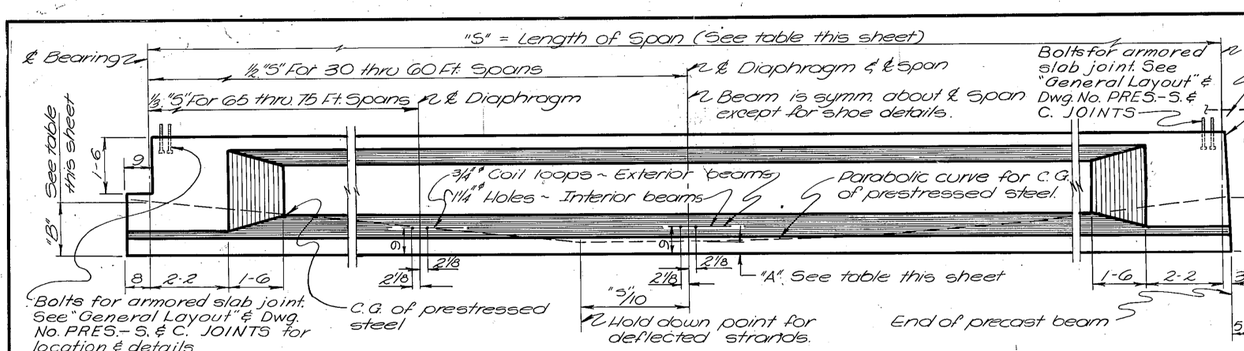
STANDARD END BENT
FOR PRESTRESSED CONCRETE BEAMS
65FT. & 70FT SPANS
24FT. ROADWAY
H15-S12 LOADING
Scale: ⅜"=1'-0" Except As Noted

APPROVED BY _____ BRIDGE ENGINEER

DWG. NO. E.B. 65 to 70-R24-L2

J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.			SHEET NO.	TOTAL SHEETS
8	MONT.					



HALF ELEVATION – PRE-TENSIONED BEAM

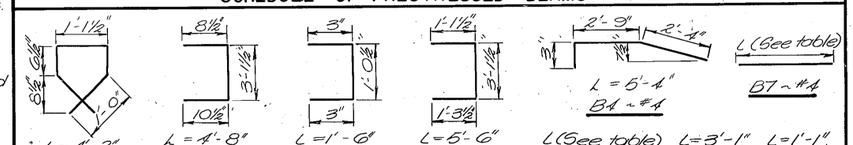
HALF ELEVATION – POST-TENSIONED BEAM

Note: Location of diaphragms not shown for the Post-tensioned beam shall be as shown for Pre-tensioned beam.

Note:- Details for post-tensioned beams shall be as shown for the pre-tensioned beams except as otherwise noted. Pre-stressing details are shown for the pre-tensioned beams using 7/16" ϕ deflected strands. Any modification of the pre-tensioned prestressing system shown, and all post-tensioned prestressing systems shall be approved by the engineer prior to the fabrication of the beams. See Special Provisions.

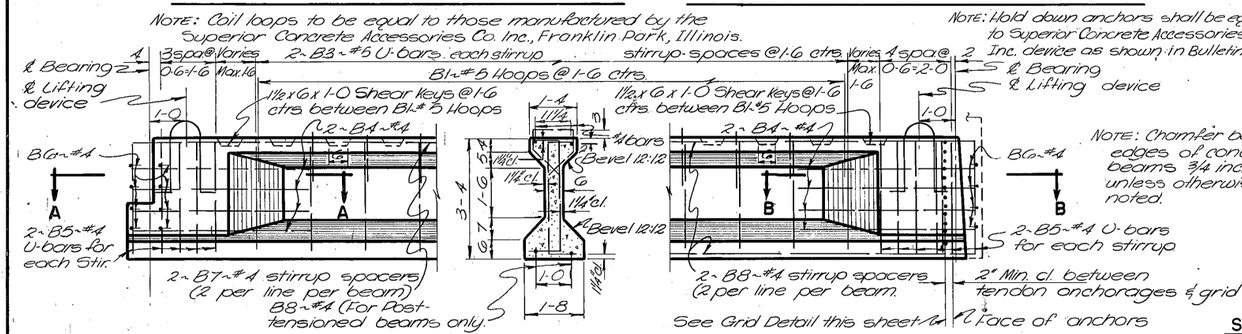
Note: "B" dimension for post-tensioned beams is the minimum required. This dimension may be increased to provide adequate spacing between end anchorages.

SCHEDULE OF PRESTRESSED BEAMS



NOTE:- L = Total Length of Bar

Span "S"	No. Of Beams per Span	Min. Concrete Strength Req'd. At Transfer of Prestressing	Prestressing Steel (Per Beam)					Reinforcing Steel (No. Of Bars Per Beam)																	
			Pre-tensioned Beam			Post-tensioned Beam		For Pre-tensioned Beam Or Post-tensioned Beam				For Pre-tensioned Beam Only				For Post-tensioned Beam Only									
			Final Force Req'd. At ℄ Beam (Tons)	No. Of 7/16" ϕ Strands	Dimensions To C.G. Of Prestress Force "A"	"B"	Final Force Req'd. At ℄ Beam (Tons)	Dimensions To C.G. Of Prestress Force "A"	"B"	B1	B3	B4	B5	B6	B7 No.	B7 Length	B8 No.	B8 Length	B5	B6	B9	B10			
Beam Details For 24 Ft Roadway H15-S12 Loading																									
30-0	4	1000	76.0	10	3 1/8"	10	67.5	4	10	17	- 34	10	20	16	4	16-2"	24	8	8	16-2"	8	24			
35-0			91.0	12	4		85.0			20	- 40					18-8				18-8					
40-0			121.0	16	5 1/2		120.0			24	- 48					21-2				21-2					
45-0			151.5	20	5 1/2		145.0			27	- 54					23-8				23-8					
50-0			166.5	22	5		160.0	4		30	- 60					26-2				26-2					
55-0	4	1000	196.5	26	5 1/2		195.0	4 1/2		34	- 68					28-8				28-8					
60-0	4	1500	227.0	30	5 1/2	10	222.5	4 1/2		37	- 74					31-2				31-2					
65-0	5	1500	212.5	28	5	10	210.0	4	10	40	- 80					33-8				33-8					
70-0	5	1500	242.5	32	5 1/8	11	242.5	5	10	44	- 88	10	20	16	4	36-2	24	8	8	36-2	8	24			
Beam Details For 24 Ft Roadway H20-S16 Loading																									
30-0	4	1000	91.0	12	4"	10	80.0	4 1/2	10	17	- 34	10	20	16	4	16-2	24	8	8	16'-2"	8	24			
35-0			106.0	14	5		105.0	5		20	- 40					18-8				18-8					
40-0			136.0	18	5 1/8		130.0	5		24	- 48					21-2				21-2					
45-0			166.5	22	5 1/8		157.5	5		27	- 54					23-8				23-8					
50-0	4	1000	196.5	26	5 1/8		195.0	5 1/8		30	- 60					26-2				26-2					
55-0	4	1500	227.0	30	5 1/8		222.5	5 1/8		34	- 68					28-8				28-8					
60-0	5		212.5	28	5		210.0	5		37	- 74					31-2				31-2					
65-0	5		242.5	32	5 1/8	10	242.5	5	10	40	- 80					33-8				33-8					
70-0	6	1500	267.5	36	6	12	267.5	5 1/8	12	44	- 88	10	20	16	4	36-2	24	8	8	36-2	8	24			
Beam Details For 28 Ft Roadway H20-S16 Or Alternate Loading																									
30-0	4	4000	106.0	14	5"	10"	105.0	5"	10"	17	- 34	10	20	16	4	16-2	24	8	8	16'-2"	8	24			
35-0			136.0	18	5 1/8		130.0	5		20	- 40					18-8				18-8					
40-0			166.5	22			157.5	5 1/8		24	- 48					21-2				21-2					
45-0		4000	196.5	26	5 1/8		195.0	5 1/8		27	- 54					23-8				23-8					
50-0	4	4500	227.0	30	5 1/8		222.5	5 1/8		30	- 60					26-2				26-2					
55-0	5		212.5	28	5		210.0	5		34	- 68					28-8				28-8					
60-0	5		242.5	32	5 1/8		242.5	5		37	- 74					31-2				31-2					
65-0	6		242.5	32	5 1/8	10	242.5	5	10	40	- 80					33-8				33-8					
70-0	6	4500	272.0	36	6	12	267.5	5 1/8	12	44	- 88	10	20	16	4	36-2	24	8	8	36-2	8	24			
Beam Details For 38 Ft. Roadway H20-S16 Or Alternate Loading																									
30-0	5	4000	106.0	14	5"	10"	105.0	5"	10"	17	- 34	10	20	16	4	16-2"	24	8	8	16'-2"	8	24			
35-0			136.0	18	5 1/8		130.0	5		20	- 40					18-8				18-8					
40-0			166.5	22	5 1/8		157.5	5		24	- 48					21-2				21-2					
45-0		4000	196.5	26	5 1/8		195.0	5 1/8		27	- 54					23-8				23-8					
50-0	5	4500	242.5	32	6		232.5	5 1/8		30	- 60					26-2				26-2					
55-0	6		227.0	30	5 1/8		222.5	5		34	- 68					28-8				28-8					
60-0	7		227.0	30	5 1/8	10	222.5	5		37	- 74					31-2				31-2					
65-0	7		257.0	34	5 1/8	11	255.0	5	10	40	- 80					33-8				33-8					
70-0	8	4500	272.0	36	6"	12	267.5	5 1/8	11	44	- 88	10	20	16	4	36-2	24	8	8	36-2	8	24			
Beam Details For 44 Ft Roadway H20-S16 Or Alternate Loading																									
30-0	6	4000	106.0	14	5"	10	105.0	5	10	17	- 34	10	20	16	4	16-2	24	8	8	16-2"	8	24			
35-0			136.0	18	5 1/8		130.0	5		20	- 40					18-8				18-8					
40-0			166.5	22	5 1/8		157.5	5 1/8		24	- 48					21-2				21-2					
45-0		4000	196.5	26	5 1/8		195.0	5 1/8		27	- 54					23-8				23-8					
50-0	6	4500	227.0	30	5 1/8		222.5	5 1/8		30	- 60					26-2				26-2					
55-0	7		227.0	30	5 1/8	10	222.5	5		34	- 68					28-8				28-8					
60-0	7		257.0	34	5 1/8	11	250.0	5		37	- 74					31-2				31-2					
65-0	8		257.0	34	5 1/8	11	255.0	5	10	40	- 80					33-8				33-8					
70-0	9	4500	272.0	36	6	12	267.5	5 1/8	11	44	- 88	10	20	16	4	36-2	24	8	8	36-2	8	24			



PRE-TENSIONED BEAM

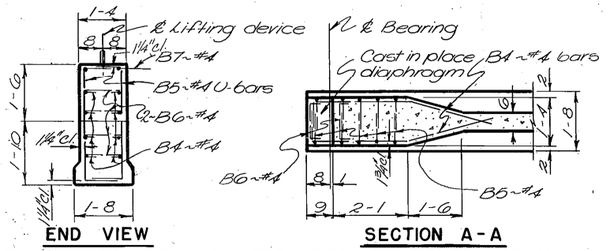
POST-TENSIONED BEAM

DETAILS OF REINFORCING STEEL

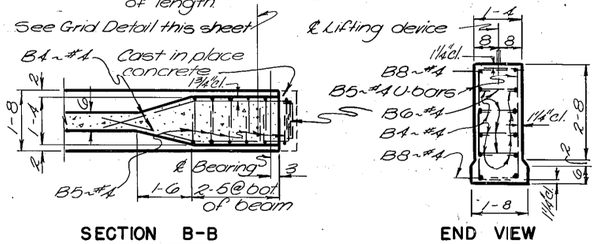
Note: For Slab, Curb & Diaphragm details see "Standard Slab Drawings."

Note: To allow for elastic shortening, concrete shrinkage and creep of beams the overall length of beams shall be increased by 0.0075 in per ft. of length.

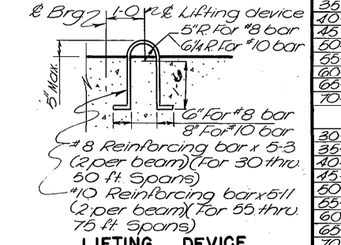
STANDARD GRID SYSTEM FOR LOCATION OF 7/16" ϕ STRANDS AT ℄ SPAN OR ℄ BEARING FOR PRE-TENSIONED BEAMS



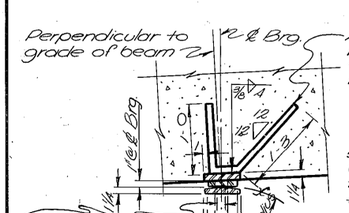
END BLOCK DETAILS FOR PRE-TENSIONED BEAM



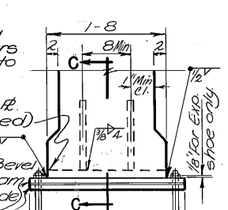
END BLOCK DETAILS FOR POST-TENSIONED BEAM



LIFTING DEVICE



SECTION C-C



END VIEW

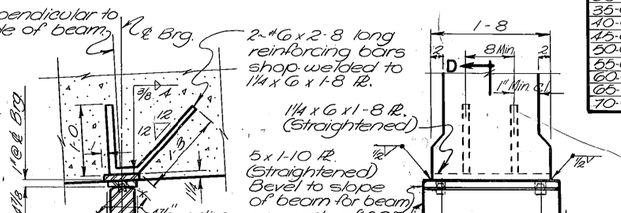
FIX. SHOE DETAILS FOR ALL BEAMS

EXP. SHOE DETAILS FOR 30-50 FT. BEAMS

PINTLE DETAIL

Note:- 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.

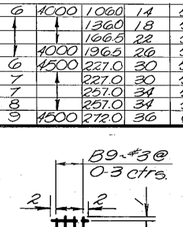
Note: For post-tensioning notes and General Notes, see Special Provisions.



SECTION D-D

END VIEW

EXP. SHOE DETAILS FOR 55-75 FT. BEAMS



GRID DETAIL

(2 ~ Grids per beam)

Note:- Grid reinforcing steel placement subject to change due to placement of preetressing steel.

Scale: 1" = 1'-0"

DESIGNED	H.E.F.	12-25-59
DRAWN	H.K.L.	1-28-59
TRACED	K.L.F.	2-3-59
CHECKED	H.E.S.	2-10-59
REVISED		
REVISED		

STATE OF MONTANA
STATE HIGHWAY COMMISSION

STANDARD PRE-TENSIONED & POST-TENSIONED PRESTRESSED CONCRETE BEAMS

24 FT. RDWY. H15-S12 LOADING

24 FT. RDWY. H20-S16 LOADING

28, 38, & 44 FT. RDWY. H20-S16 SPECIAL LOADING

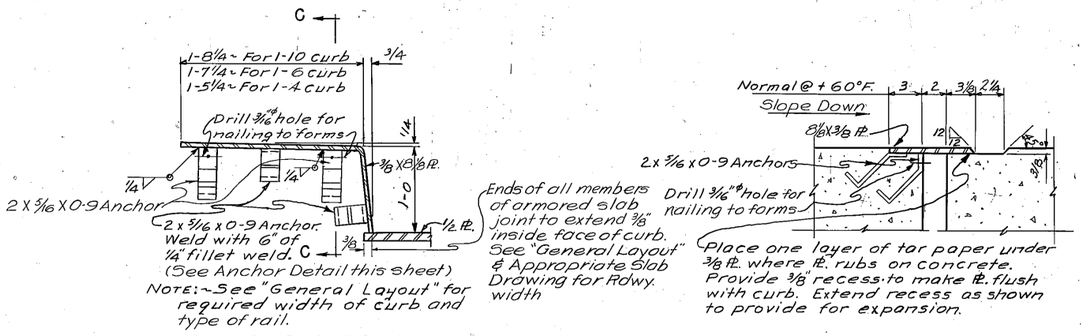
Scale ~ 1½" = 1'-0" Except As Otherwise Noted

APPROVED BY _____ BRIDGE ENGINEER

DRAWING NO. PRES-BEAM STD. NO. 1

J.R.B.

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.				

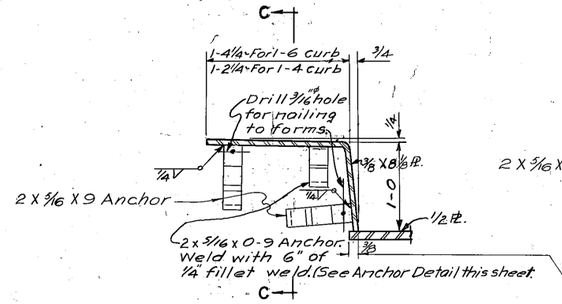


NOTE:- See "General Layout" for required width of curb and type of rail.

ARMORED CURB JOINT DETAIL
I-10 CURB & STANDARD STEEL BRIDGE RAIL-TYPE NO. 3
I-6 CURB & STEEL BEAM BRIDGE RAIL
I-4 CURB & STEEL BEAM BRIDGE RAIL

Scale:- 1½" = 1'-0"

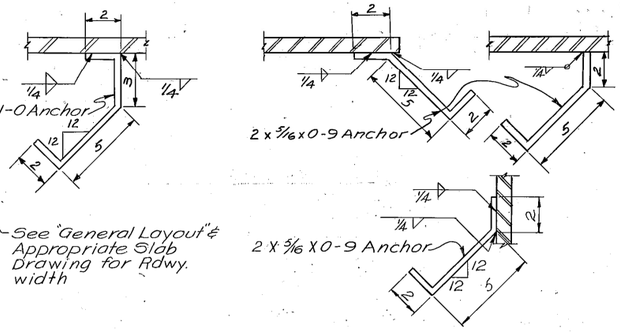
SECTION C-C
Scale:- 1½" = 1'-0"



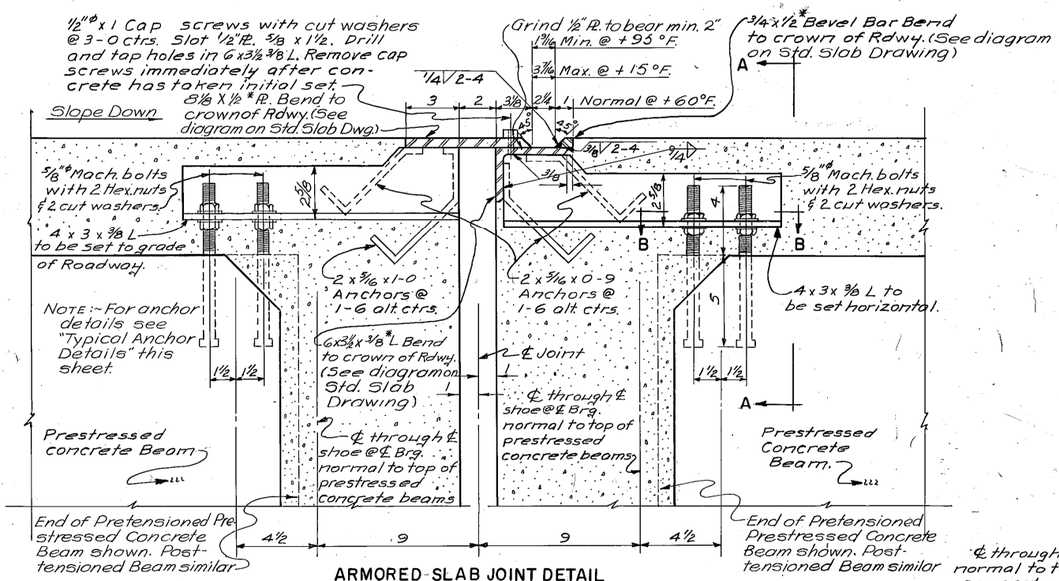
NOTE:- See "General Layout" for required width of curb and type of rail.

ARMORED CURB JOINT DETAIL
I-6 CURB & STANDARD STEEL BRIDGE RAIL-TYPE NO. 2
I-4 CURB & STANDARD STEEL BRIDGE RAIL-TYPE NO. 2

Scale:- 1½" = 1'-0"

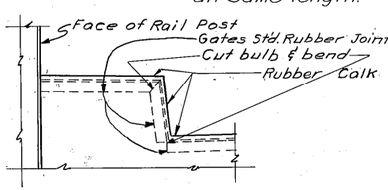


TYPICAL ANCHOR DETAILS
Scale: 3" = 1'-0"

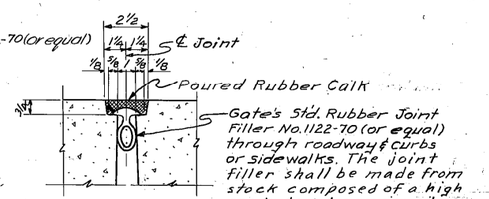


ARMORED SLAB JOINT DETAIL
Scale:- 3" = 1'-0"

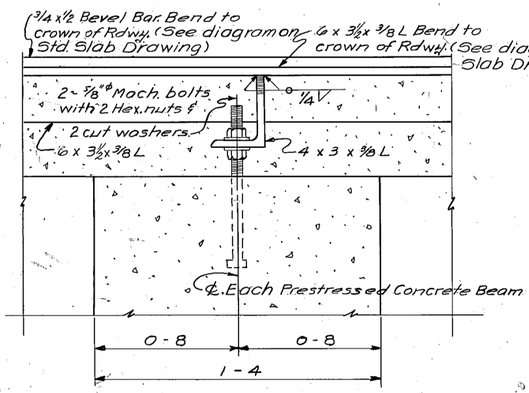
NOTE: Armored Slab Joint is to accommodate Prestressed Concrete Beam Expansion of Spans totaling 71 Feet or more.
* See "Armored Curb Joint Detail" (this sheet) for length. ½ Pl., 6 X 3½ X 3/8 L, & ¾ X ½ Bevel Bar all same length.



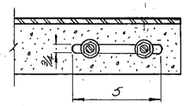
RUBBER CURB JOINT DETAIL
Scale:- 1" = 1'-0"



DETAIL NO. 1
Scale:- 3" = 1'-0"

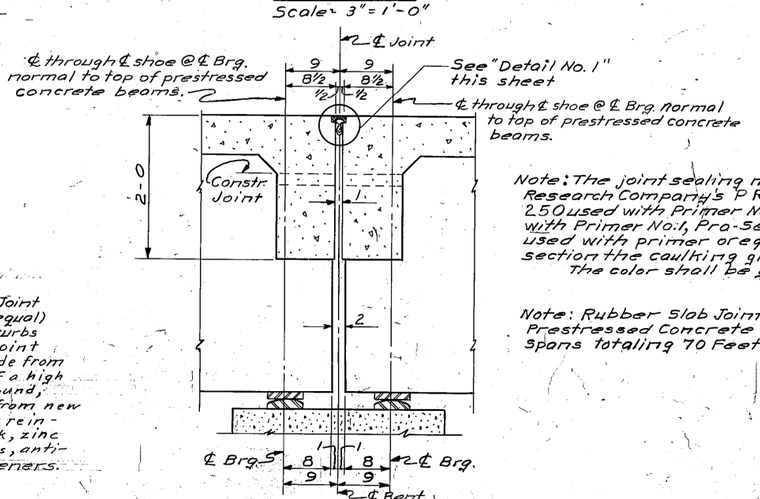


SECTION A-A
Scale:- 3" = 1'-0"



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

NOTE: Cost of furnishing & placing Rubber Curb & Slab Joint Filler, rubber calk, primer & tar paper to be included in the unit price bid for Class "AD" concrete.



RUBBER SLAB JOINT DETAIL
Scale:- 1" = 1'-0"

NOTE: The joint sealing material shall be Products Research Company's PRC. Rubber Calk 250 used with Primer No. 1, Chem. Seal 2414 used with Primer No. 1, Pro-Seal pourable compound used with primer or equal. For sealing the curb section the caulking grade may be used. The color shall be gray.

NOTE: Rubber Slab Joint is to accommodate Prestressed Concrete Beam Expansion of Spans totaling 70 Feet or less.

STATE OF MONTANA
STATE HIGHWAY COMMISSION

STANDARD SLAB & CURB JOINTS FOR PRESTRESSED CONCRETE BEAM SPANS

Scale: As Noted

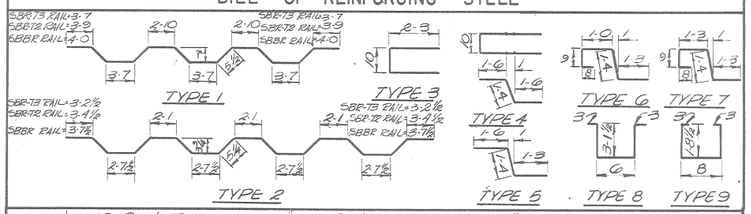
DESIGNED	J.C.B.	4-1-59
DRAWN	H.K.L.	4-15-59
TRACED	E.R.T.	4-20-59
CHECKED	H.E.S.	5-7-59
REVISED	J.C.B.	10-23-59
REVISED	H.E.S.	2-24-60

APPROVED BY _____ BRIDGE ENGINEER

DRAWING NO. PRES-S.&C. JOINTS

FED. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.		SHEET NO.	TOTAL SHEETS
8	MONT.				

BILL OF REINFORCING STEEL



SPAN	1-10 Curb-Type No.3 Rail					1-4 Curb-Type No.2 Rail					1-4 Curb-Steel Beam Rail				
	MARK	SIZE	TYPE	No.	LENGTH	MARK	SIZE	TYPE	No.	LENGTH	MARK	SIZE	TYPE	No.	LENGTH
30 thru 75	C2	#4	str.	Varies	1'-4"	C3	#4	G	Varies	5'-0"	C8	#4	7	Varies	5'-3"
	C3	4	5	Varies	4-1										
	C4	6	4	Varies	9-6										
	C5	4	3	Varies	5-4										
30-0	S1	4	str.	70	16-2	S1	4	str.	70	16-2	S1	4	str.	70	16-2
	S2	5	str.	44	25-4	S2	5	str.	44	25-8	S2	5	str.	44	26-2
	S3	5	1	24	26-1	S3	5	1	24	26-5	S3	5	1	24	26-11
	C1	4	str.	16	16-2	C1	4	str.	20	16-2	C1	4	str.	20	16-2
35-0	S1	4	str.	70	18-8	S1	4	str.	70	18-8	S1	4	str.	70	18-8
	S2	5	str.	52	25-4	S2	5	str.	52	25-8	S2	5	str.	52	26-2
	S3	5	1	28	26-1	S3	5	1	28	26-5	S3	5	1	28	26-11
	C1	4	str.	16	18-8	C1	4	str.	20	18-8	C1	4	str.	20	18-8
40-0	S1	4	str.	70	21-2	S1	4	str.	70	21-2	S1	4	str.	70	21-2
	S2	5	str.	60	25-4	S2	5	str.	60	25-8	S2	5	str.	60	26-2
	S3	5	1	32	26-1	S3	5	1	32	26-5	S3	5	1	32	26-11
	C1	4	str.	16	21-2	C1	4	str.	20	21-2	C1	4	str.	20	21-2
45-0	S1	4	str.	70	23-8	S1	4	str.	70	23-8	S1	4	str.	70	23-8
	S2	5	str.	68	25-4	S2	5	str.	68	25-8	S2	5	str.	68	26-2
	S3	5	1	34	26-1	S3	5	1	34	26-5	S5	5	1	34	26-11
	C1	4	str.	16	23-8	C1	4	str.	20	23-8	C1	4	str.	20	23-8
50-0	S1	4	str.	70	26-2	S1	4	str.	70	26-2	S1	4	str.	70	26-2
	S2	5	str.	76	25-4	S2	5	str.	76	25-8	S2	5	str.	76	26-2
	S3	5	1	38	26-1	S3	5	1	38	26-5	S3	5	1	38	26-11
	C1	4	str.	16	26-2	C1	4	str.	20	26-2	C1	4	str.	20	26-2
55-0	S1	4	str.	70	28-8	S1	4	str.	70	28-8	S1	4	str.	70	28-8
	S2	5	str.	84	25-4	S2	5	str.	84	25-8	S2	5	str.	84	26-2
	S3	5	1	42	26-1	S3	5	1	42	26-5	S3	5	1	42	26-11
	C1	4	str.	16	28-8	C1	4	str.	20	28-8	C1	4	str.	20	28-8
60-0	S1	4	str.	70	31-2	S1	4	str.	70	31-2	S1	4	str.	70	31-2
	S2	5	str.	92	25-4	S2	5	str.	92	25-8	S2	5	str.	92	26-2
	S3B	5	1	46	26-1	S3	5	1	46	26-5	S3	5	1	46	26-11
	C1	4	str.	16	31-2	C1	4	str.	20	31-2	C1	4	str.	20	31-2
65-0	S1	4	str.	74	33-8	S1	4	str.	74	33-8	S1	4	str.	74	33-8
	S2	5	str.	84	25-4	S2	5	str.	84	25-8	S2	5	str.	84	26-2
	S3	5	2	48	26-4	S3	5	2	48	26-8	S3	5	2	48	27-2
	C1	4	str.	16	33-8	C1	4	str.	20	33-8	C1	4	str.	20	33-8
70-0	S1	4	str.	74	36-2	S1	4	str.	74	36-2	S1	4	str.	74	36-2
	S2	5	str.	90	25-4	S2	5	str.	90	25-8	S2	5	str.	90	26-2
	S3	5	2	48	26-4	S3	5	2	48	26-8	S3	5	2	48	27-2
	C1	4	str.	16	36-2	C1	4	str.	20	36-2	C1	4	str.	20	36-2
75-0	S1	4	str.	80	38-8	S1	4	str.	80	38-8	S1	4	str.	80	38-8
	S2	5	str.	168	25-4	S2	5	str.	168	25-8	S2	5	str.	168	26-8
	C1	#4	str.	16	38-8	C1	#4	str.	20	38-8	C1	#4	str.	20	38-8

INTER. DIAPHRAGM & END DIAPHRAGM REINFORCING STEEL	FOR 30 THRU 60 FT. SPANS					FOR 65 & 70 FT. SPANS					FOR 75 FT. SPAN				
	D1	#6	str.	4	25'-4"	D1	#6	str.	4	25'-4"	D1	#6	str.	4	25'-4"
	D2	6		6	5-7	D2	6		8	3-10	D2	6		10	2-9
	D3	6		2	22-0	D3	6		2	22-0	D3	6		2	22-0
	D4	6		4	22-0	D4	6		4	22-0	D4	6		4	22-0
	D5	6		2	25-4	D5	6		4	25-4	D5	6		4	25-4
	D6	4		6	6-4	D6	4		16	4-7	D6	4		20	3-6
	D7	6		4	4-10	D7	6		12	4-4	D7	6		16	3-4
	D8	6	str.	6	5-6	D8	6	str.	16	3-9	D8	6	str.	20	2-8
	D9	4	9	36	4-7	D9	4	9	40	4-7	D9	4	9	40	4-7
	D10	#4	8	18	7-3	D10	#4	8	40	7-3	D10	#4	8	40	7-3

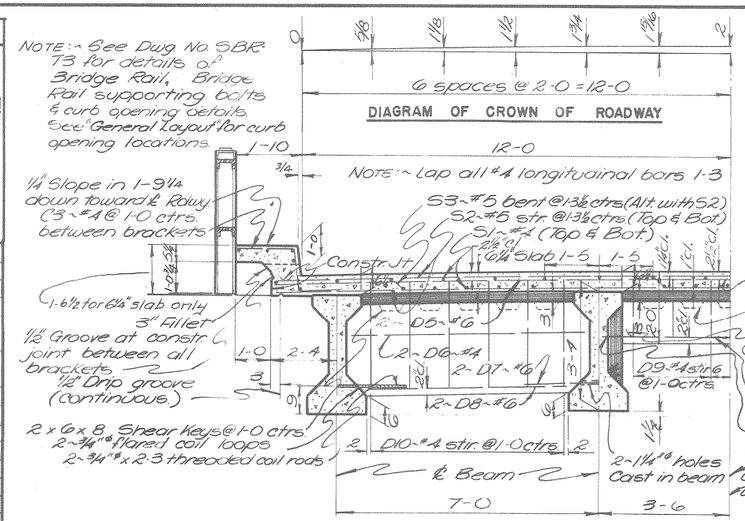
NOTE: D2 & D3 bars to be used with Post-tensioned beams only. D4 bars to be used with Pre-tensioned beams only.

NOTE: Eliminate one-half of all D1, D2, D3, D4 and D9 end diaphragm bars for end span. Eliminate all D1, D2, D3, D4 and D9 end diaphragm bars for Single Span. See End Bent for additional details of end span.

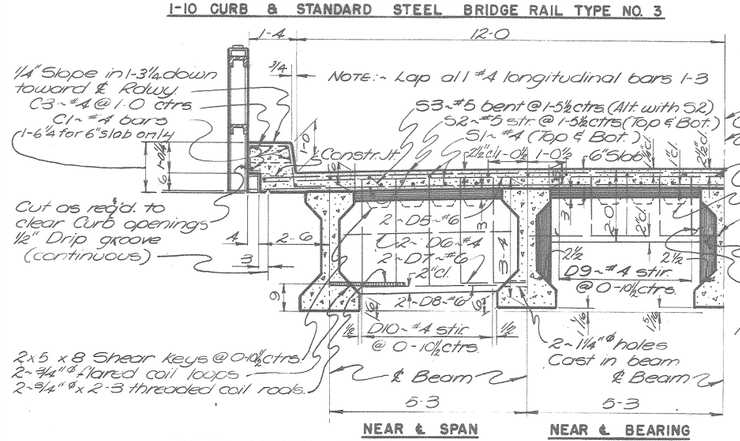
NOTE: For number of C2, C3, C4 and C5 bars that are required for completed structure, see "Partial Bill of Reinforcing Steel" on "General Layout."

NOTE: For "Detail of Curb at End Bent" & End Bent details, see End Bent Drawing.

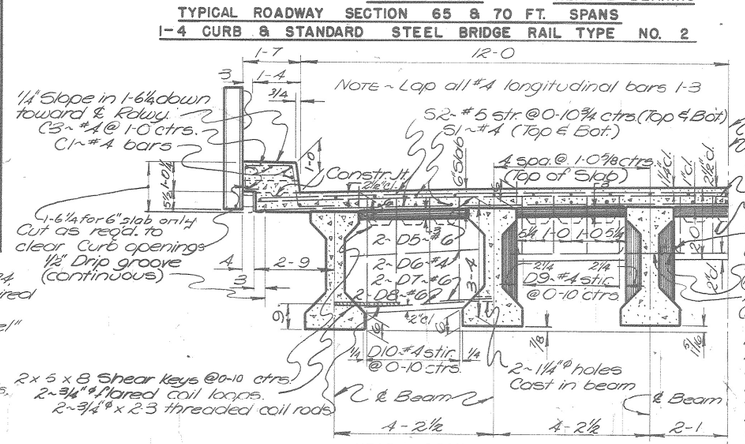
NOTE:- See Dwg. No. 5BR-T3 for details of Bridge Rail, Bridge Rail supporting bolts & curb opening details. See "General Layout" for curb opening locations.



TYPICAL ROADWAY SECTION 30 THRU 60 FT. SPANS
1-10 CURB & STANDARD STEEL BRIDGE RAIL TYPE NO. 3



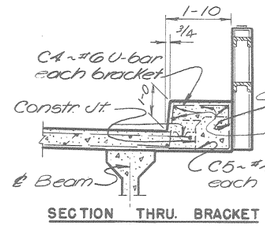
TYPICAL ROADWAY SECTION 65 & 70 FT. SPANS
1-4 CURB & STANDARD STEEL BRIDGE RAIL TYPE NO. 2



TYPICAL ROADWAY SECTION 75 FT. SPAN
1-4 CURB & STEEL BEAM BRIDGE RAIL

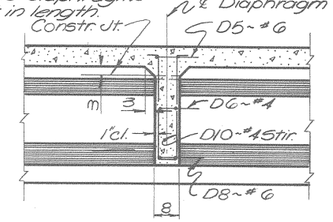
NOTE:- See "General Layout" for required type of rail & width of curb.

NOTE:- Concrete curb on 65'10" & 75' spans shall not be poured for at least 72 hrs. after concrete in slab has taken initial set.



SECTION THRU. BRACKET

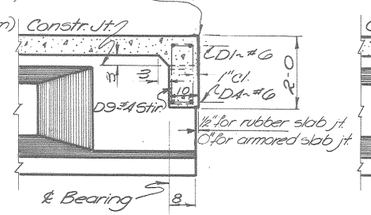
NOTE: Provide one intermediate diaphragm at ℄ of beam for all beams 60 ft or less in length. Provide 2 intermediate diaphragms for beams over 60 ft. in length.



SECTION THRU. INTERMEDIATE DIAPHRAGM
(Cast in Place)

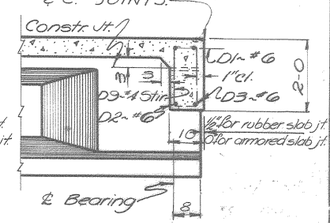
For details of rubber & armored slab joint, see Dwg. No. PRES.-S. & C. JOINTS.

NOTE: See End Bent drawing for details at End Bent.



SECTION THRU.
END DIAPHRAGM FOR
PRE-TENSIONED BEAM
AT INTER. BENT OR PIER

For details of rubber & armored slab joint, see Dwg. No. PRES.-S. & C. JOINTS.



SECTION THRU
END DIAPHRAGM FOR
POST-TENSIONED BEAM
AT INTER. BENT OR PIER

NOTE: For details of Prestressed Concrete Beams and for other notes & details see Dwgs. No. PRES. -BEAM STD. NO. 1 & No. PRES. S. & C. JOINTS.

DESIGNED	H.E.E.	8-6-58
DRAWN	H.K.L.	11-14-58
TRACED	K.L.F.	11-24-58
CHECKED	H.E.S.	2-17-59
REVISED	J.C.B.	10-23-59
REVISED		

STATE OF MONTANA
STATE HIGHWAY COMMISSION
STANDARD SLAB, CURB & DIAPHRAGM
FOR PRESTRESSED CONCRETE BEAMS
30 THRU 75 FT. SPANS-24 FT. ROADWAY
H15-S12 LOADING
1-10 CURB & STD. STEEL BRIDGE RAIL-TYPE NO. 3
1-4 CURB & STD. STEEL BRIDGE RAIL-TYPE NO. 2
1-4 CURB & STEEL BEAM BRIDGE RAIL
Scale: ½" = 1'-0"

APPROVED BY _____ BRIDGE ENGINEER

DRAWING NO. SLAB-30to75-R24-L2