



**ENGINEERING CONSTRUCTION CONTRACTING SECTION
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 Thus, some of the information contained in these documents may be out of date or not applicable with regard to the advertised project.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. I-94-6(15)216 P.E.
I-94-6(29)226 UI CONST.

WIBAUX COUNTY LINE-WEST--EAST SECTION

DAWSON COUNTY

LIST OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE
1	9489	GENERAL LAYOUT AT STA. 1105+14.13
2	9490	BORING LOGS & FOOTING PLAN
3	9491	BENTS NO. 1 & NO. 4
4	9492	BENTS NO. 2 & NO. 3
5	9493	ERECTION PLAN
6	9494	GENERAL LAYOUT AT STA. 1217+50.00
7	9495	BORING LOGS & FOOTING PLAN
8	9496	ABUTMENT & BENT DETAILS-W.B. & E.B. ROADWAY
9	FSA 10 (REV. 12-29-72)	STANDARD ABUTMENT FOR THREE SPAN CONTINUOUS FLAT SLAB
10	FSB 30 (REV. 12-29-72)	STANDARD INTERMEDIATE BENT FOR THREE SPAN CONTINUOUS FLAT SLAB
11	SL-1 (REV. 12-29-72)	STANDARD SLAB, CURB, DIAPHRAGM & END POST DETAILS
12	SL-2 (REV. 12-29-72)	STANDARD FLAT SLAB & CURB DETAILS FOR THREE SPAN CONTINUOUS
13	B-A (REV. 3-31-72)	STANDARD PRESTRESSED CONCRETE BEAM-TYPE A
14	SBR-T5 (REV. 12-29-72)	STANDARD STEEL BRIDGE RAIL-TYPE NO. 5

C.O. NO. 1 - CONCRETE - CLASS AD + 0.531 CU. YD
C.O. NO. 1 - FURNISH STEEL BEARING PILE + 11 LN. FT.
C.O. NO. 1 - DRIVE STEEL BEARING PILE + 11 LN. FT.
C.O. NO. 1 - REINFORCING STEEL + 25 LB.

"AS BUILT" ESTIMATED BRIDGE PLAN QUANTITIES																										
LOCATION		LENGTH IN FEET	REINFORCING STEEL LBS.	STRUCTURAL STEEL LUMP SUM	CLASS "AD" CONCRETE CU. YDS.	STRUCTURE EXC. TYPE I CU. YDS.	PRESTRESSED BEAMS TYPE A-EACH		TREATED TIMBER PILES		TREATED TIMBER TEST PILES LUMP SUM	PREBORE HOLES FOR PILES LIN. FT.	STEEL BEARING PILES		STEEL BRIDGE RAIL TYPE 5 LIN. FT.	PROTECTIVE COATING SQ. YDS.	Mobilization	Traffic Control	TEMP EROSION CONTROL	COST OF TRAINING PROGRAM						
STRUCTURE AT STA. 1105+14.13	W.B. RDWY.	BENT NO. 1		2216.	27.847	27.5	24.12	20		297	380	164.4	288		63			LUMP SUM	UNITS	UNITS	HOURS					
		BENT NO. 2		4932	50.659	51.2	63.76	80		416	480	266.7	472													
		BENT NO. 3		4932	50.659	51.2	56.68	80		416	480	406.1	472													
		BENT NO. 4		2216.	27.847	27.5	24.05	20		297	380	172.4	234													
		SUPERSTRUCTURE	123	55036	53191	0.352	148.978	159.1		10	5	100	100000	117			238.34	639.0	637	0.115	34	0	352			
		SUB TOTAL	123	67332	67487	0.352	310.149	316.5	168.61	200	10	5	132.6	1600	1009.6	1466	100	100000	180			238.34	639.0	637	0.115	34
STRUCTURES AT STA. 1217+50.00	W.B. RDWY.	ABUT. NO. 1		3296.	33.866	33.8	70.15	95						259.9	220	252.9	213.0									
		BENT NO. 2		3826.	21.787	21.5	42.48	40						189.6	180	185.1	175.5									
		BENT NO. 3		3826.	21.787	21.5	40.13	40						252.1	180	247.6	175.5									
		ABUT. NO. 4		3296.	33.866	33.8	66.18	95						271.9	220	264.9	213.0									
		SUPERSTRUCTURE	78	36960	36982	0.324	173.260	173.0									181.33	416.5	416	0.0575	45	0	178.5			
		SUB TOTAL	78	51228	51226	0.324	284.564	283.6	218.94	270					713.5	800	750.5	777.0	181.33	416.5	416	0.0575	45	0	178.5	
	E.B. RDWY.	ABUT. NO. 1		3296.	33.866	33.8	77.57	100						207.6	220	202.8	213.0									
		BENT NO. 2		3826.	21.521	21.5	41.69	40						208.3	180	203.8	175.5									
		BENT NO. 3		3826.	21.521	21.5	36.63	40						213.0	180	208.5	175.5									
		ABUT. NO. 4		3296.	33.866	33.8	88.41	100						230.5	220	223.5	213.0									
		SUPERSTRUCTURE	78	36960	36982	0.324	173.260	173.0									181.33	416.5	416	0.0575	45	0	178.5			
		SUB TOTAL	78	51204	51226	0.324	284.034	283.6	264.30	280					861.6	800	838.6	777.0	181.33	416.5	416	0.0575	45	0	178.5	
TOTAL		279	171,764	171,764	1000	651.85	651.85	750	10	5	132.6	1600	1009.6	1466	100	100000	180			238.34	639.0	637	0.115	34	0	352

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

IR 94-6(37)217 B8

NOTES

FINISHED GRADE: FINISHED PLAN GRADE OF BRIDGE AT ROADWAY IS THE SAME AS PROFILE GRADE SHOWN ON ROAD PLANS.

LIVE LOAD: STANDARD HS20-44 LOADING OR ALTERNATE LOADING. ALTERNATE LOADING FOR BRIDGES AND FLOOR SYSTEMS WITH SPANS UNDER 40 FEET CONSISTS OF TWO AXLES FOUR FEET APART WITH EACH AXLE WEIGHING 24,000 POUNDS.

APPROVAL: SHOP PLANS SHALL BE APPROVED BY THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS BEFORE FABRICATION IS BEGUN.

CAST IN PLACE CONCRETE: UNLESS OTHERWISE APPROVED, ALL CONCRETE SHALL BE CLASS "AD". AN "AIR ENTRAINING AGENT" SHALL BE ADDED TO ALL CONCRETE EXCEPT CLASS "AS". CHAMFER ALL EXPOSED EDGES OF CONCRETE WITH ENCLOSED ANGLE LESS THAN 120°, 3/4" AND FILLET ENTRANT ANGLES 3/4" UNLESS OTHERWISE NOTED. ALL FORMS FOR DECK SLAB SHALL BE REMOVED.

STRUCTURAL STEEL: ALL STRUCTURAL STEEL SHALL BE MEASURED AND PAID FOR ON THE LUMP SUM BASIS AS SET FORTH IN THE STANDARD SPECIFICATIONS. ESTIMATED WEIGHT = 683 POUNDS.

FOR REQUIREMENTS GOVERNING THE FABRICATION OF "STRUCTURAL STEEL" SEE THE STANDARD SPECIFICATIONS. TO AVOID OVERSIGHTS THESE REQUIREMENTS SHALL BE CLEARLY NOTED ON THE SHOP DRAWINGS.

ALL STRUCTURAL STEEL AND BRIDGE RAIL SHALL RECEIVE ONE (1) SHOP COAT OF RED LEAD OR BASIC LEAD SILICO CHROMATE PRIMER AND TWO (2) FIELD COATS CONSISTING OF FIRST FIELD OR PRIMER COAT AND ONE (1) COAT OF ALUMINUM PAINT AS SPECIFIED IN THE STANDARD SPECIFICATIONS OR AS OTHERWISE SPECIFIED IN THE "SPECIAL PROVISIONS."

FOOTINGS: ELEVATIONS SHOWN FOR BOTTOM OF FOOTINGS ARE APPROXIMATE ONLY. FINAL ELEVATIONS TO BE DETERMINED BY THE ENGINEER.

PROTECTIVE COATING: DECK, CURBS AND CONCRETE END POSTS SHALL BE GIVEN A PROTECTIVE COATING OF BOILED LINSEED OIL. "SEE STANDARD SPECIFICATIONS."

UTILITIES: FOR LOCATION OF UTILITIES, SEE APPROPRIATE ROAD PLANS SHEET.

COVERING: THE MINIMUM COVERING, MEASURED FROM THE SURFACE OF THE CONCRETE TO THE FACE OF ANY REINFORCEMENT BAR, SHALL BE NOT LESS THAN 2 INCHES EXCEPT AS FOLLOWS OR OTHERWISE NOTED.

BOTTOM OF SLAB	1 INCH
STIRRUPS AND TIES	1 1/2 INCHES
FOOTINGS AND PIER SHAFTS	3 INCHES

SETTING OF MASONRY PLATES: CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL SO AS TO CLEAR ANCHOR BOLTS. MASONRY PLATES SHALL BE PLACED ON THREE LAYERS OF CANVAS THOROUGHLY SWABBED WITH RED LEAD AS CALLED FOR IN THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL FINISH CONCRETE UNDER MASONRY PLATES TO THE EXACT ELEVATION SHOWN. BUSH HAMMERING WILL BE PERMITTED AND USED ONLY AS A MEANS OF LEVELING THE CONCRETE SURFACE TO ASSURE FULL AND LEVEL BEARING AND TO REMOVE LAITANCE, LOOSE AND FOREIGN MATERIAL. STEEL SHIMS SHALL BE USED TO BRING THE MASONRY PLATES UP TO GRADE IF NECESSARY. STEEL SHIMS SHALL BE THE SAME SIZE EXCEPT FOR THICKNESS AS THE MASONRY PLATE. MINIMUM THICKNESS OF ANY SHIMS SHALL BE 1/2". THE COST OF BUSH HAMMERING AND SHIMS, IF ANY, SHALL BE INCLUDED IN THE UNIT PRICE BID FOR CLASS "AD" CONCRETE.

FOUNDATION PILES: FOR BIDDING PURPOSES ONLY, PILE LENGTHS HAVE BEEN ESTIMATED AS NOTED ON THE DETAILS. THE "METHOD OF MEASUREMENT" FOR DRIVING TREATED TIMBER PILES SHALL BE AS SET FORTH IN THE STANDARD SPECIFICATIONS EXCEPT THE NUMBER OF LINEAL FEET TO BE MEASURED FOR PAYMENT SHALL BE THE LINEAL FEET OF PILING DRIVEN BELOW THE BOTTOM OF THE PREBORED HOLES. PREBORING OF HOLES FOR TEST PILES SHALL BE INCLUDED IN THE LUMP SUM BID FOR TEST PILES.

BACKFILL: THE BACKFILL AT END BENTS MAY BE COMPLETE 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.

CONCRETE SUBSTITUTION: CONTRACTOR MAY SUBSTITUTE CLASS "DD" CONCRETE FOR CLASS "AD" CONCRETE; HOWEVER, ALL CONCRETE SHALL BE BID AS CLASS "AD" CONCRETE UNLESS THE STATE SPECIFIES OTHERWISE.

STRUCTURE EXCAVATION: Struct. exc. for end bents shall be calculated from below subgrade elev. and Struct. exc. for intermediate bents shall be calculated from below the limits of the unclassified excavation and ground lines that existed before any construction began in the vicinity of the bridge structure.

PREPARED BY
MORRISON-MAIERLE, INC.
ENGINEERS & CONSULTANTS
HELENA, MONTANA

FOR

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

HODGES COUNTY ROAD
INTERCHANGE AT STA. 1105+14.13
FEDERAL AID PROJECT NO. I-94-6(29)226

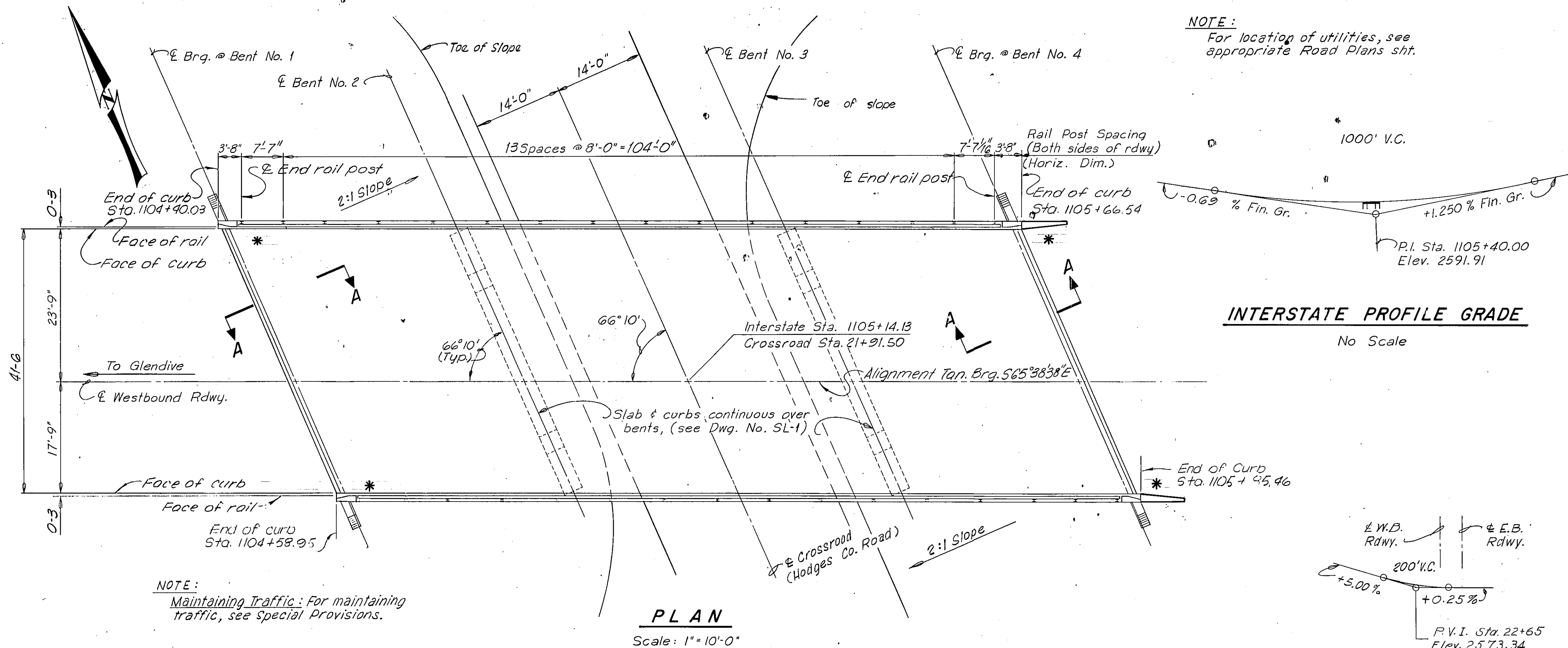
DAWSON COUNTY
GENERAL LAYOUT

SCALE: As Shown

DRAWING NO. 9489

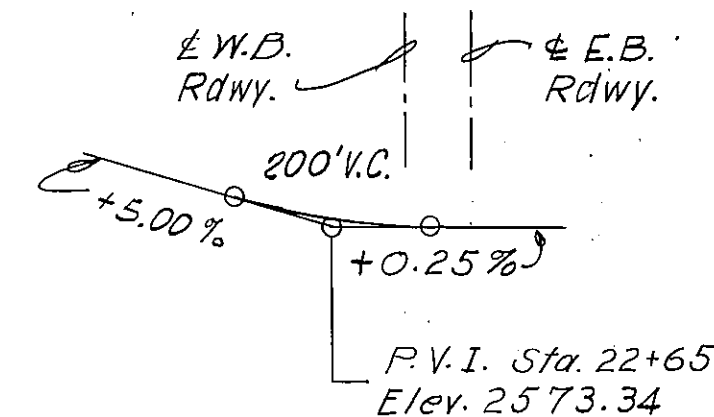
NOTE:

For location of utilities, see appropriate Road Plans sht.



INTERSTATE PROFILE GRADE

No Scale

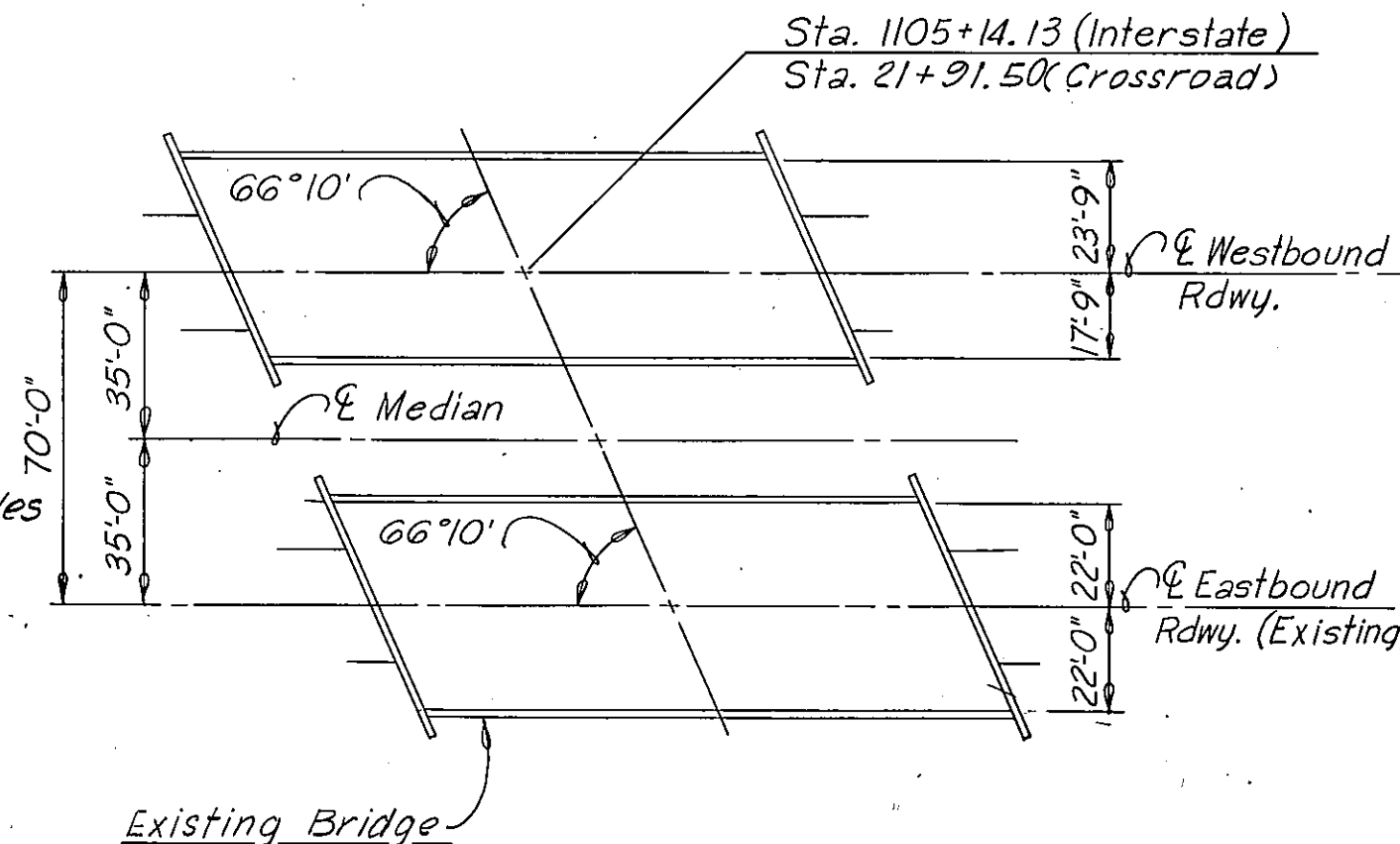


CROSSROAD PROFILE GRADE

No Scale

SEQUENCE OF WORK: See Special Provisions

SPECIFICATIONS: Montana Department of Highways and 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 AASHTO Specifications, 1969 edition, and any amendments thereto.

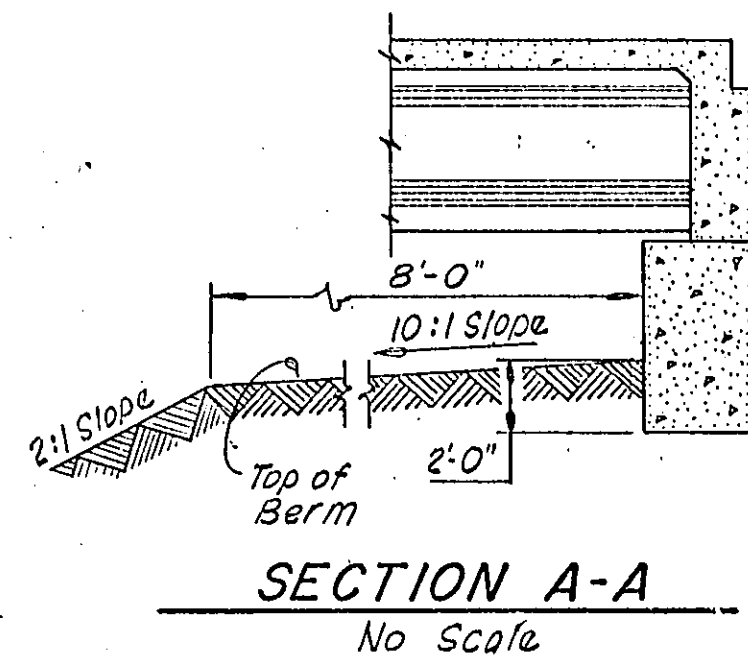


BRIDGE ORIENTATION PLAN

No Scale

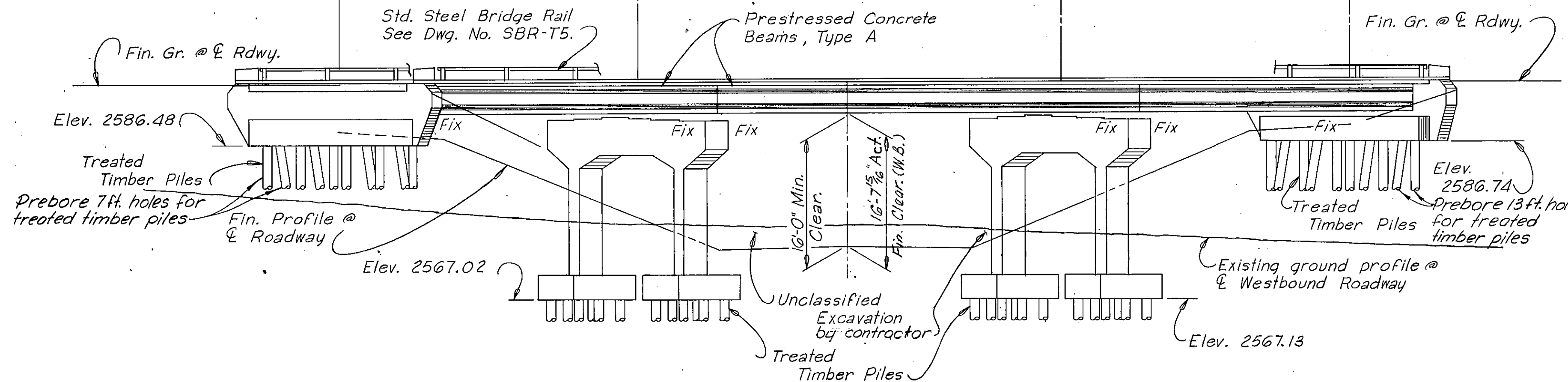
* THIS CONTRACT: IR 94-6(37)217
Existing rail removed and replaced with Thrie Beam Rail.
Curb tapers added. See Dwg. No. 14293.

DESIGN	DC	10-30-69
DRAWN	THJ	11-10-69
TRACED	THJ	11-10-69
CHECKED	DC	1-8-70
APPROVED	Hes.	6-29-70
REVISED	L.M.S.	3-8-88
REVISED		
M-M NO.	275-24-17.4	



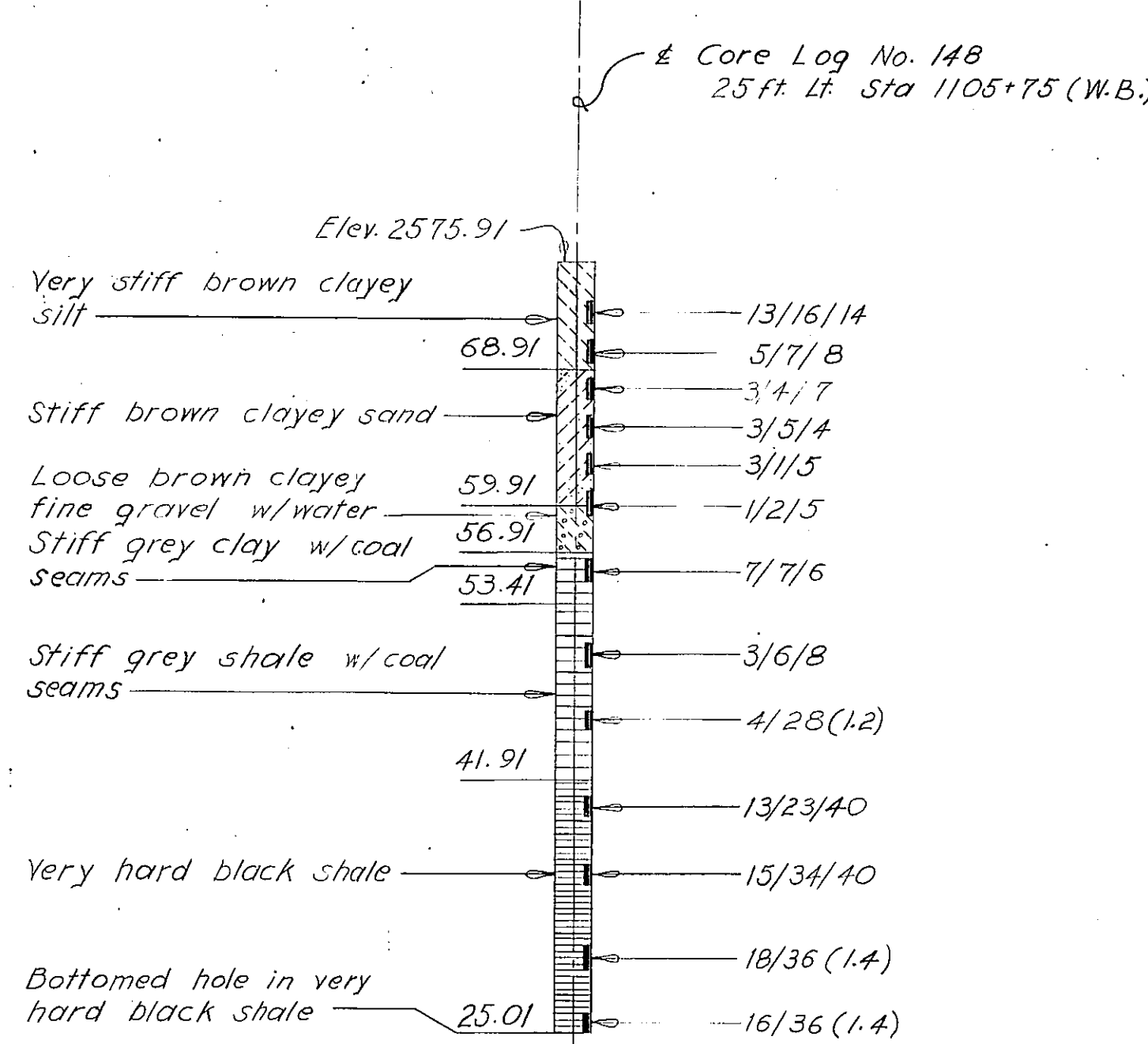
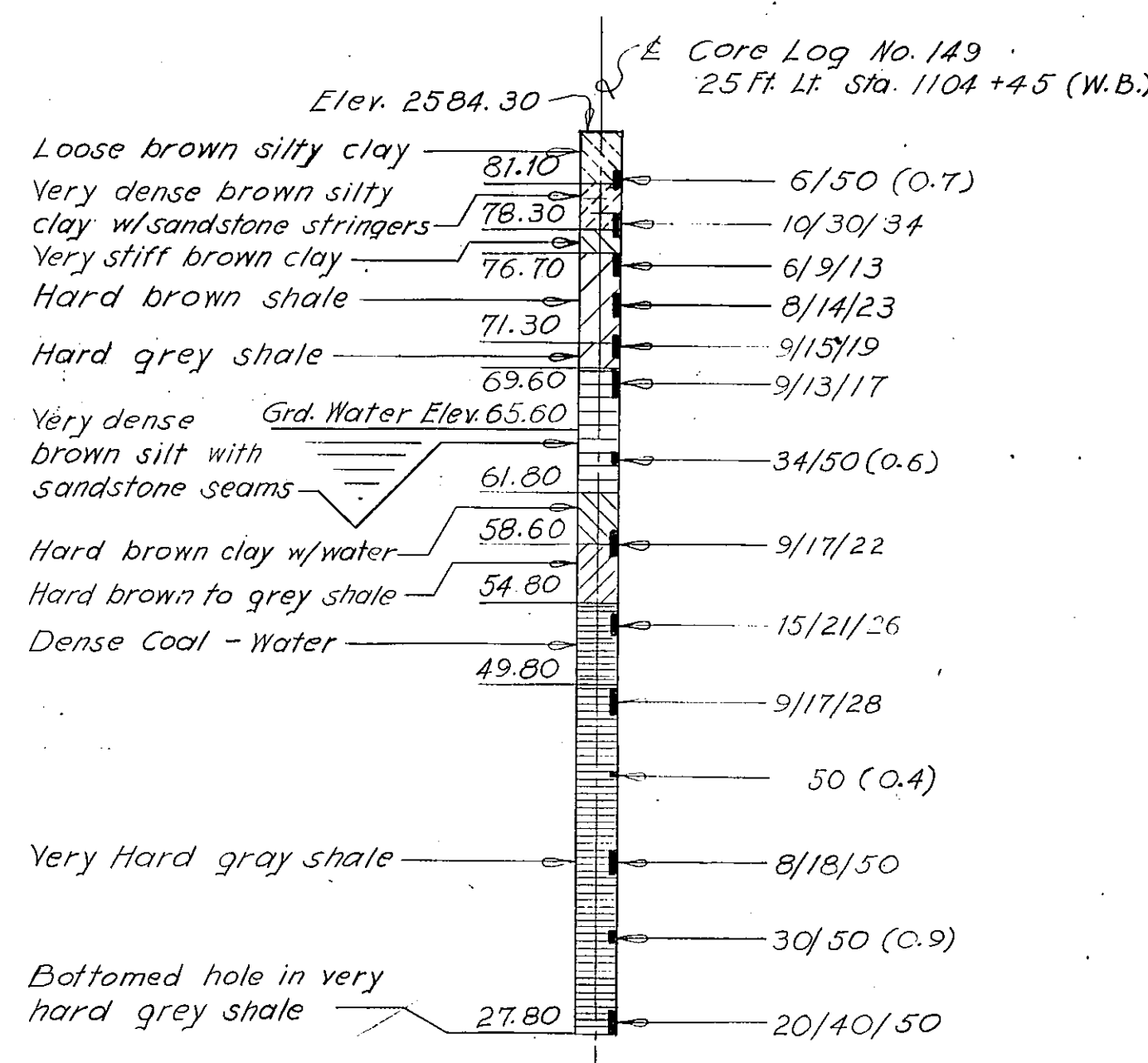
SECTION A-A

No Scale



ELEVATION

Scale: 1" = 10'-0"



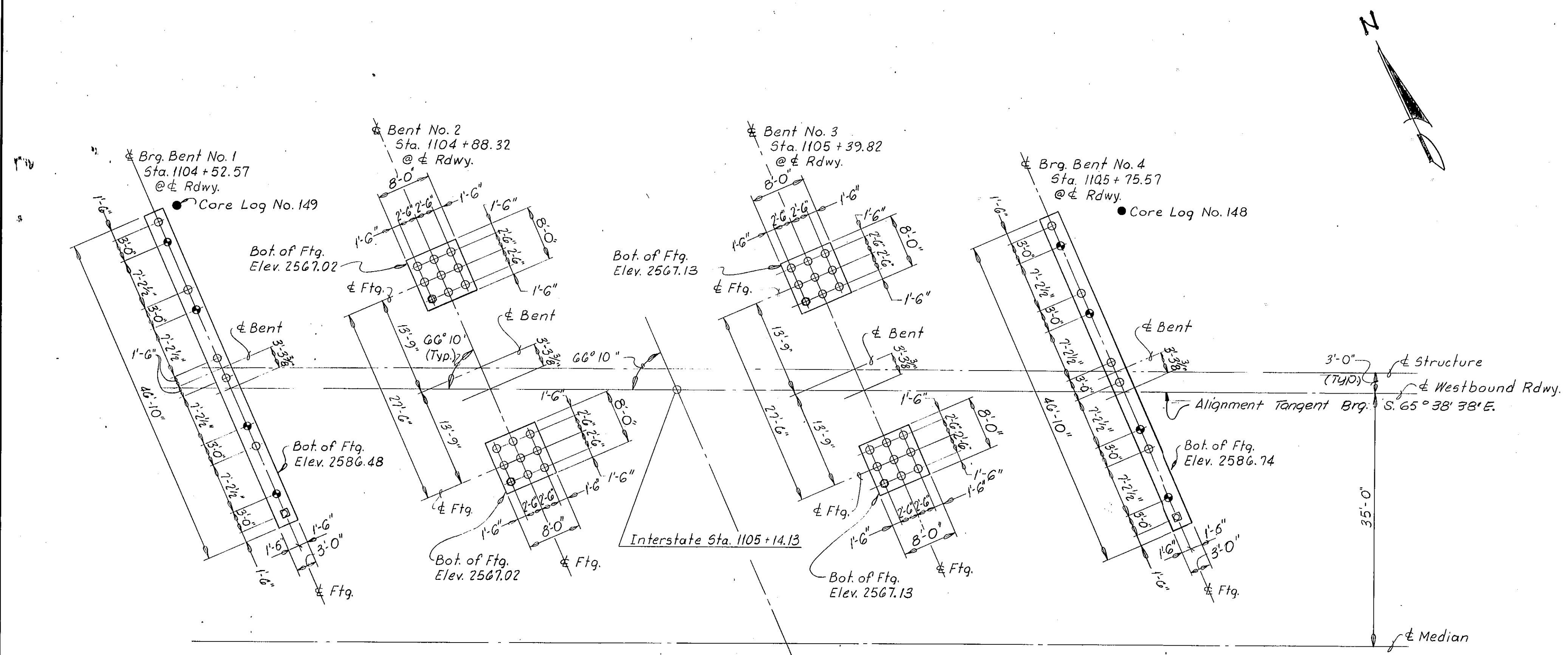
LOG OF BORINGS
Scale: 1" = 10'-0"

NOTES

SOILS AND FOUNDATION MATERIALS: BORINGS WERE TAKEN BY THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS AT THE POINTS SHOWN ON THE GENERAL LAYOUT OR FOOTING PLAN.

THE SERIES OF NUMBERS SHOWN ON THE LOG OF BORINGS INDICATES THE NUMBER OF BLOWS PER 6" PENETRATION FOR EACH NUMBER OF THE SERIES OF A 2" SAMPLE TUBE WHICH WAS DRIVEN IN ACCORDANCE WITH THE STANDARD PENETRATION TEST MADE WITH A 2" SPLIT TUBE SAMPLER USING A 140# HAMMER HAVING A 30" DROP. THE TOTAL PENETRATION OF THE SAMPLER TUBE IS INDICATED ON THE CORE LOGS AFTER EACH SERIES IF 6" PENETRATION WAS NOT ACHIEVED IN 50 BLOWS.

THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS DOES NOT ASSUME ANY RESPONSIBILITY FOR ANY VARIATION OR MISINTERPRETATION OF THE CLASSES OF MATERIALS, AND ADJUSTMENT IN BID PRICES WILL NOT BE MADE IF THE MATERIALS FOUND DO NOT AGREE WITH THOSE SHOWN IN THE LOG OF BORINGS.



- LEGEND
- Indicates treated timber pile.
 - Indicates battered treated timber pile.
 - Indicates 45 ft treated timber test pile.
 - ⊙ Indicates 35 ft treated timber test pile.

FOOTING PLAN
Scale: 1" = 10'-0"

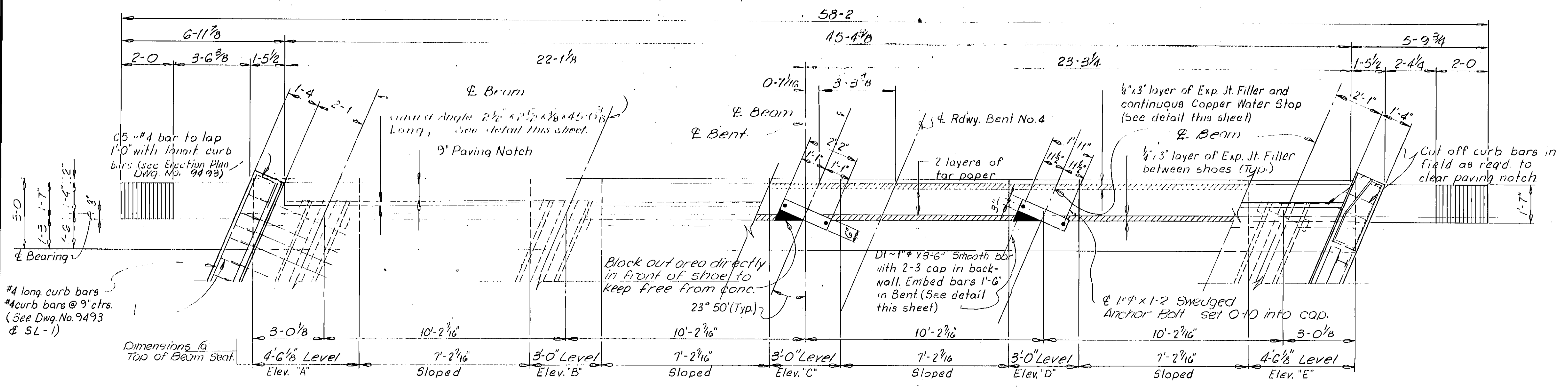
DESIGN	D.C.	11-5-69
DRAWN	K.R.J./R.D.K.	1-8-70
TRACED	K.R.J./R.D.K.	1-8-70
CHECKED	D.C./P.R.	1-15-70
APPROVED	D.W.K.	2-15-72
REVISED		
REVISED		
M.M. NO.	275-24-17.4	

PREPARED BY
MORRISON-MAIERLE, INC.
ENGINEERS & CONSULTANTS
HELENA, MONTANA

FOR
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HODGES COUNTY ROAD
INTERCHANGE AT STA. 1105+14.13
FEDERAL AID PROJECT NO. I-94-6 (29) 226

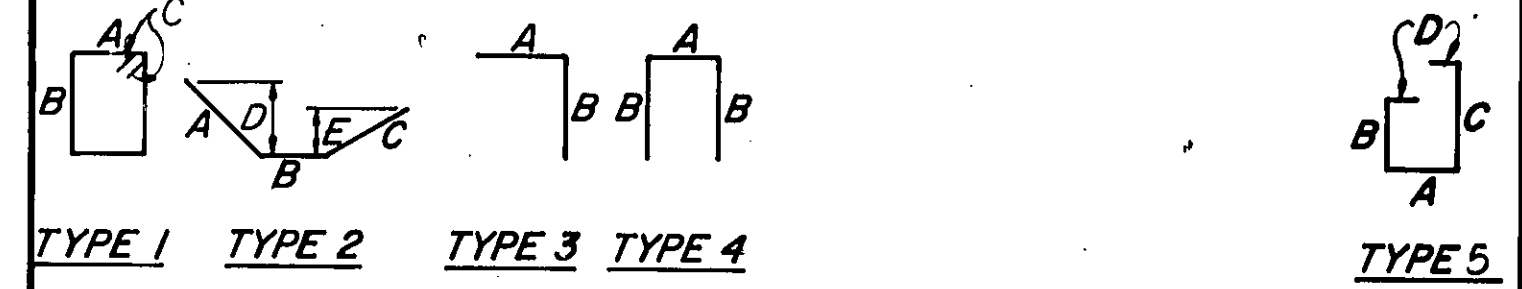
DAWSON COUNTY
BORING LOGS & FOOTING PLAN

SCALE: As Shown



* One Bent Only

*** 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
BW1	#6	2	47'-8"	BW12	#4	2	2	7'-9"	1'-0"	6'-0"	0'-9"	0'-0"	0'-0"
BW2	#6	2	29'-11"	BW13	#4	2	2	8'-6"	4'-8"	2'-1"	1'-9"	2'-1"	1'-7"
BW3	#6	4	29'-11"	BW14	#4	1	2	8'-6"	4'-10"	2'-1"	1'-9"	2'-2"	1'-7"
BW4	#6	2	23'-9"	BW15	#4	40	5	8'-6"	1'-3"	2'-10"	3'-10"	0'-3"	1'-7"
BW5	#4	12	8'-7"	BW16	#4	2	2	8'-4"	4'-6"	2'-1"	1'-9"	2'-0"	1'-7"
BW6	#4	4	8'-2"	BW17	#4	1	2	7'-7"	3'-9"	2'-7"	1'-9"	1'-8"	1'-7"
BW7	#6	5	4'-6"	BW18	#4	2	1	7'-9"	1'-3"	2'-3"	0'-4"		
BW8	#4	4	7'-8"	BW19	#4			10'-6"		3'-7"			
BW9	#4	2	6'-1"	BW20	#4			12'-9"		4'-9"			
BW10	#4	4	3'-0"	BW21	#4			12'-5"		5'-7"			
BW11	#4	4	1'-11"	BW22	#4			16'-2"		6'-3"			
				BW23	#4	2	1	16'-7"	1'-3"	6'-8"	0'-4"		
				BW24	#4	29	3	4'-0"	2'-0"				
B1	#6	6	24'-3"										
B2	#6	6	3'-0"	B5	#4	21	4	6'-2"	2'-8"	1'-9"			
B3	#6	8	24'-3"	B6	#4	47	1	11'-5"	2'-8"	2'-8"	0'-4"		
B4	#4	4	23'-11"										
*D1	#6sm	5	3'-6"										

*D1-1" smooth bars shall conform to ASTM A-36 steel.

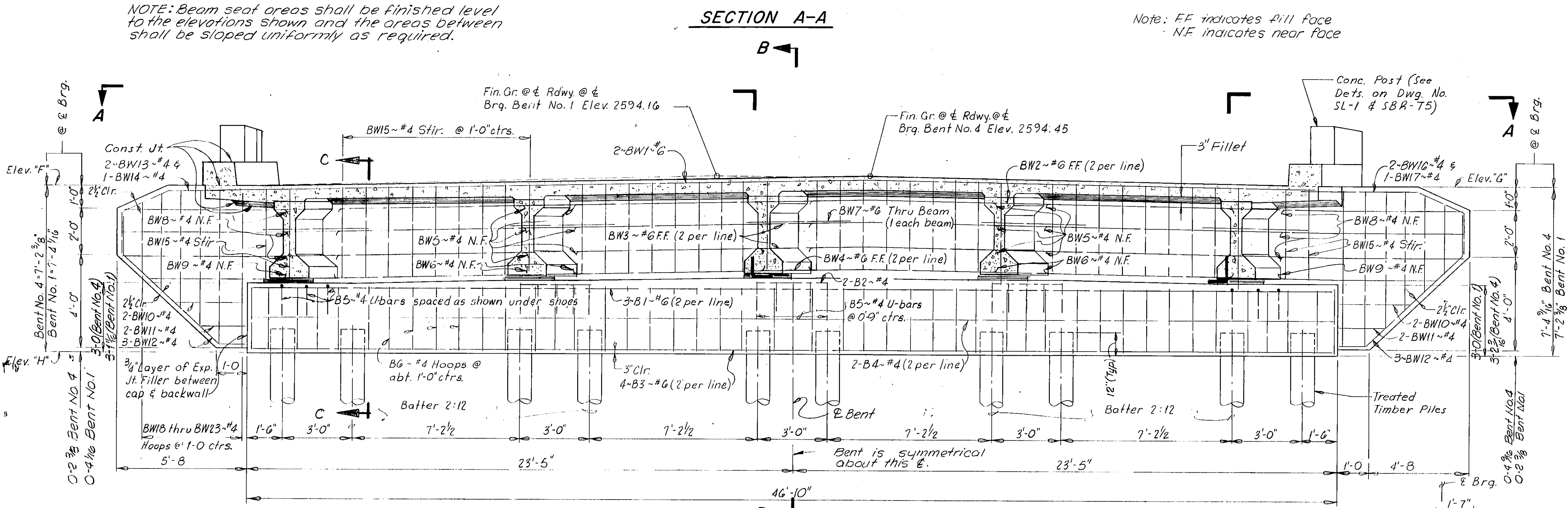


TABLE OF ELEVATIONS

Elev.	Bent No. 4	Bent No. 1
A	2589.74	2589.62
B	2589.94	2589.80
C	2590.14	2589.86
D	2590.09	2589.67
E	2589.92	2589.48
F	2593.94	2593.82
G	2594.12	2593.68
H	2586.74	2586.48

SECTION C-C

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

COPPER WATER STOP

Scale: 3" = 1'-0"

METAL EXPANSION CAP

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

GUARD ANGLE DETAIL

Scale: 3" = 1'-0"

SECTION B-B

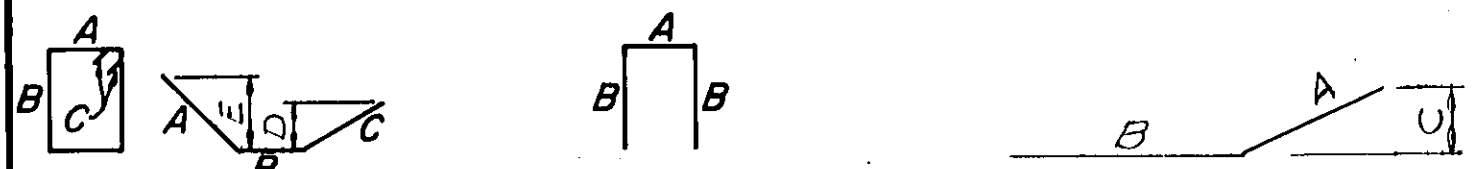
PREPARED BY
MORRISON-MAIERLE, INC.
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HELENA, MONTANA

FOR
STATE OF MONTANA
DEPARTMENT OF HIGHWAYS
HODGES COUNTY ROAD
INTERCHANGE AT STA. 1105+14.13
FEDERAL AID PROJECT NO. I-94-6(29) 226
DAWSON COUNTY
BENTS NO. 1 & NO. 4
SCALE: 3/8" = 1'-0" Except as shown

DESIGN	D.C.	11-5-69
DRAWN	R.D.K.	12-30-69
TRACED	R.D.K.	12-30-69
CHECKED	D.C.	1-15-70
APPROVED	AwK	2-15-72
REVISED		
REVISED		
M-M NO.	275-24-17.4	

* One Bent Only

* **BILL OF REINFORCING STEEL**

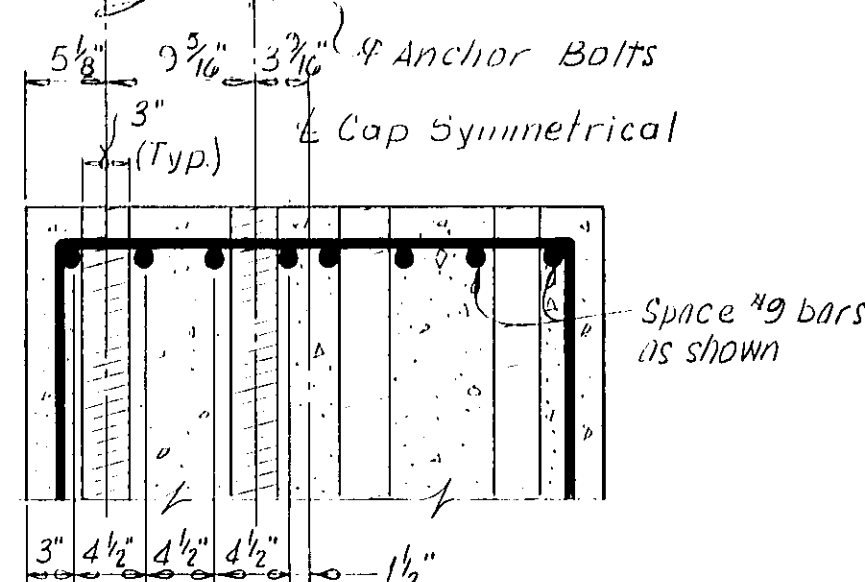


TYPE 1 TYPE 2 TYPE 3 TYPE 4

STRAIGHT BARS BENT BARS (all dimensions are out to out)

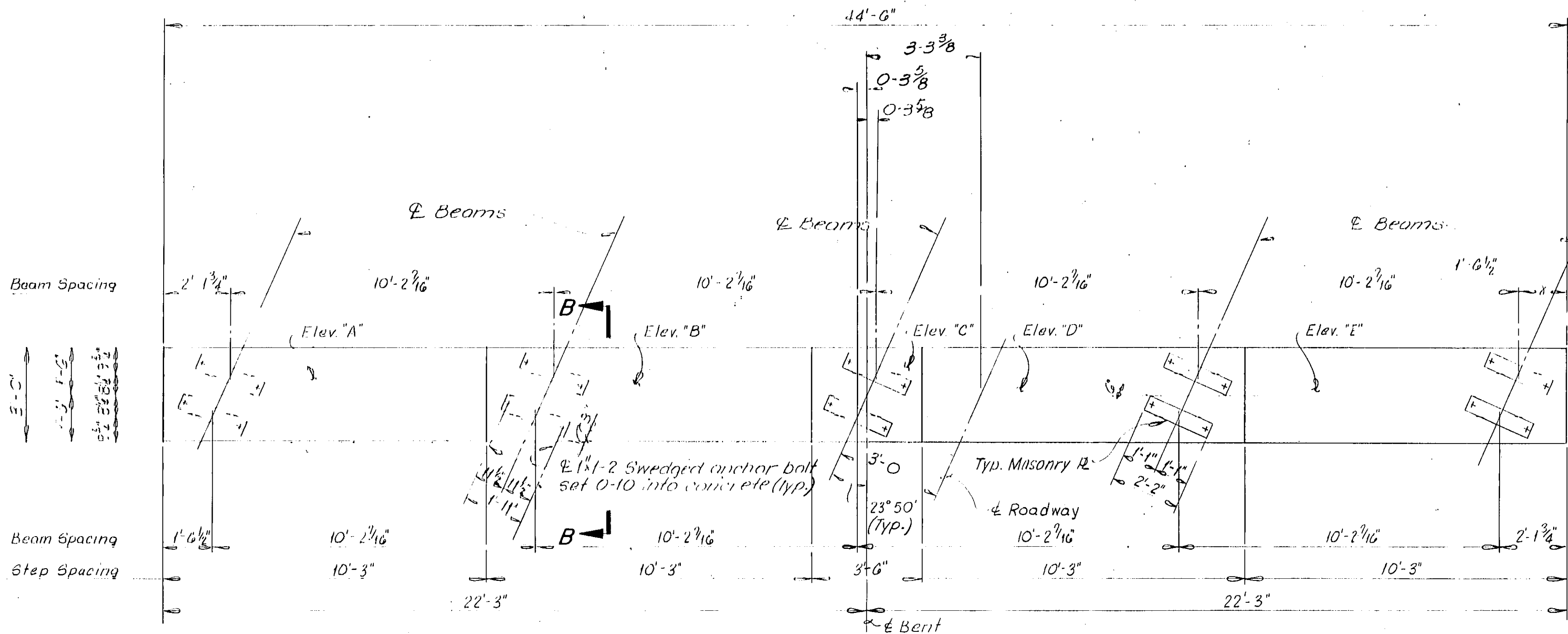
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C	D	E
B1	#5	2	44-2"	B4	#10	9	2	30'-6"	3'-3"	2'-0"	3'-3"	1'-9"	1'-0"
B2	#9	12	16-4"	B6	#6	6	2	10'-0"	1'-8"	7'-4"	1'-0"	0'-11 1/2"	0'-6 1/2"
B3	#4	8	22'-9"	B7	#4	2	1	13'-5"	2'-8"	3'-8"	0'-4 1/2"		
B5	#4	4	5'-1"	B8	#8	8	1	14'-2"	4'-0 1/2"				
				B9	#8	8	1	14'-10"	4'-8 1/2"				
				B10	#8	8	1	15'-6"	4'-8 1/2"				
				B11	#8	8	1	16'-2"	5'-0 1/2"				
				B12	#8	8	1	16'-10"	5'-4 1/2"				
C1	#8	24	19'-0"	B13	#8	8	1	17'-6"	5'-8 1/2"				
				B14	#8	8	1	18'-2"	6'-0 1/2"				
D1	#8	24	4'-6"	B15	#8	8	1	18'-0"	5'-11 1/2"				
				B16	#8	8	1	17'-3"	5'-7"				
				B17	#8	8	1	16'-7"	5'-3"				
				B18	#8	8	1	15'-10"	4'-10 1/2"				
F1	#5	48	7'-6"	B19	#8	8	1	15'-5"	4'-8"	0'-4 1/2"			
				B20	#4	12	3	5'-4"	2'-8"	1'-4"	0'-5"		
				B21	#6	6	4	9'-4"	1'-8"	7'-8"	0'-5"		
				C2	#4	26	1	11'-5"	2'-8"	2'-8"	0'-4 1/2"		

Elev.	Bent No. 2	Bent No. 3
A	2589.52	2589.63
B	2589.72	2589.83
C	2589.91	2590.03
D	2589.85	2589.97
E	2589.67	2589.80
F	2567.02	2567.15

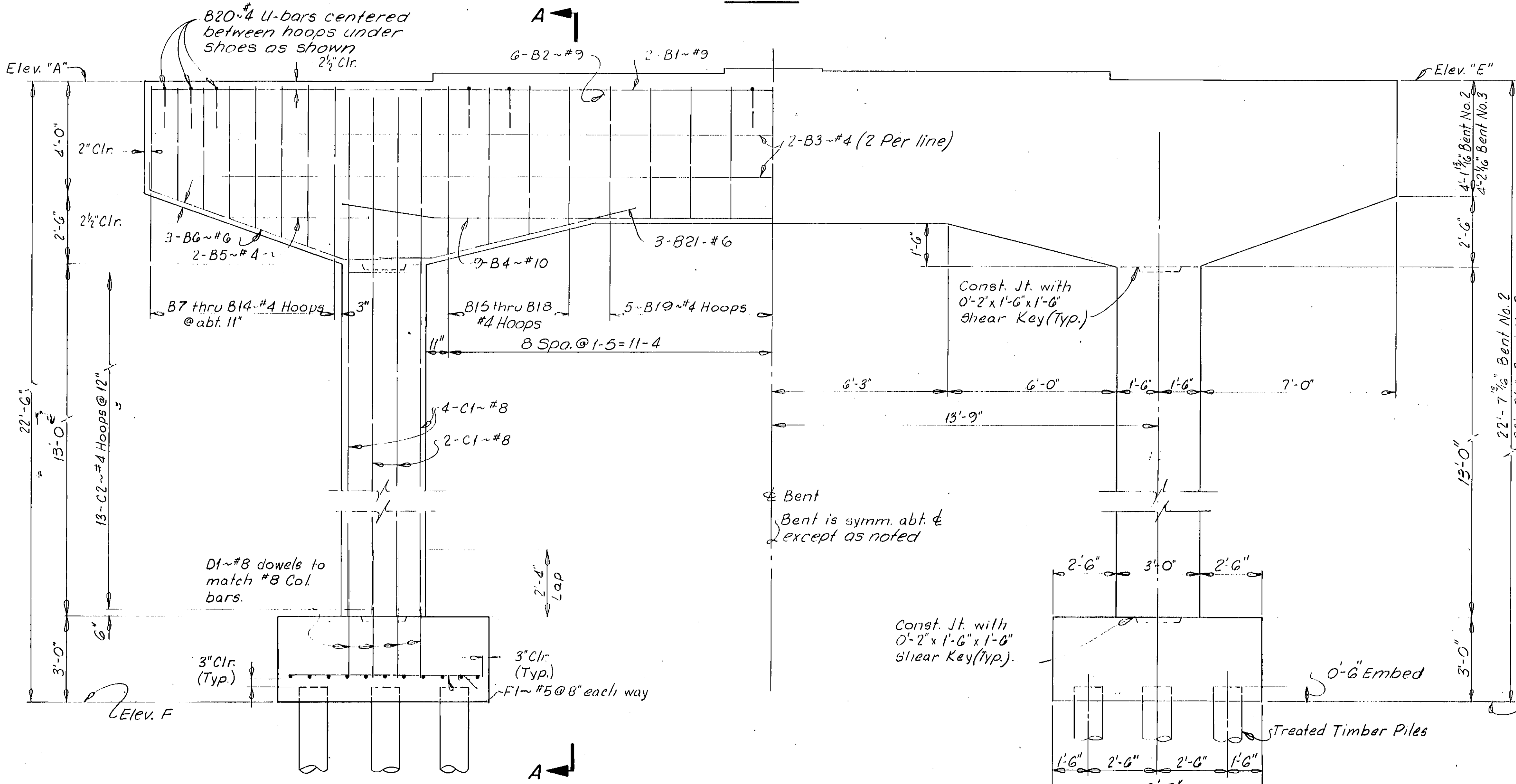


SECTION B-B

Scale: 1" = 1'-0"

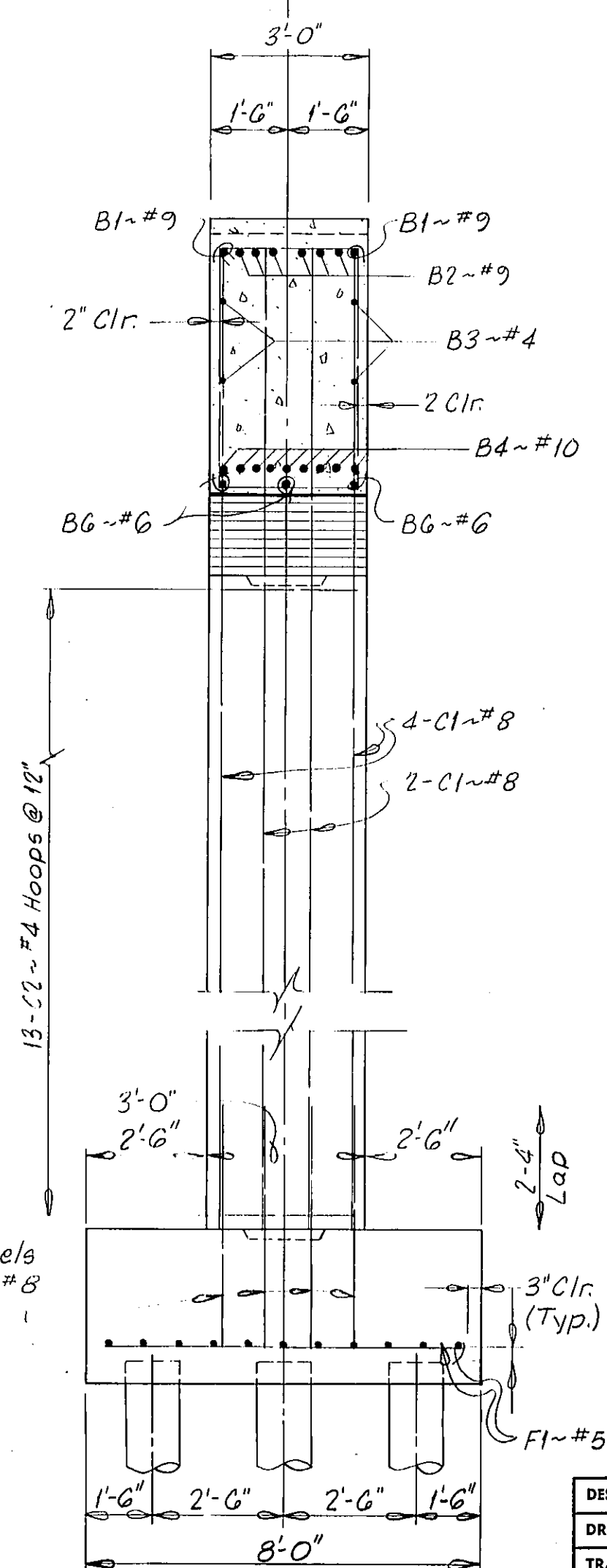


PLAN



ELEVATION

(Looking Ahead on Line)



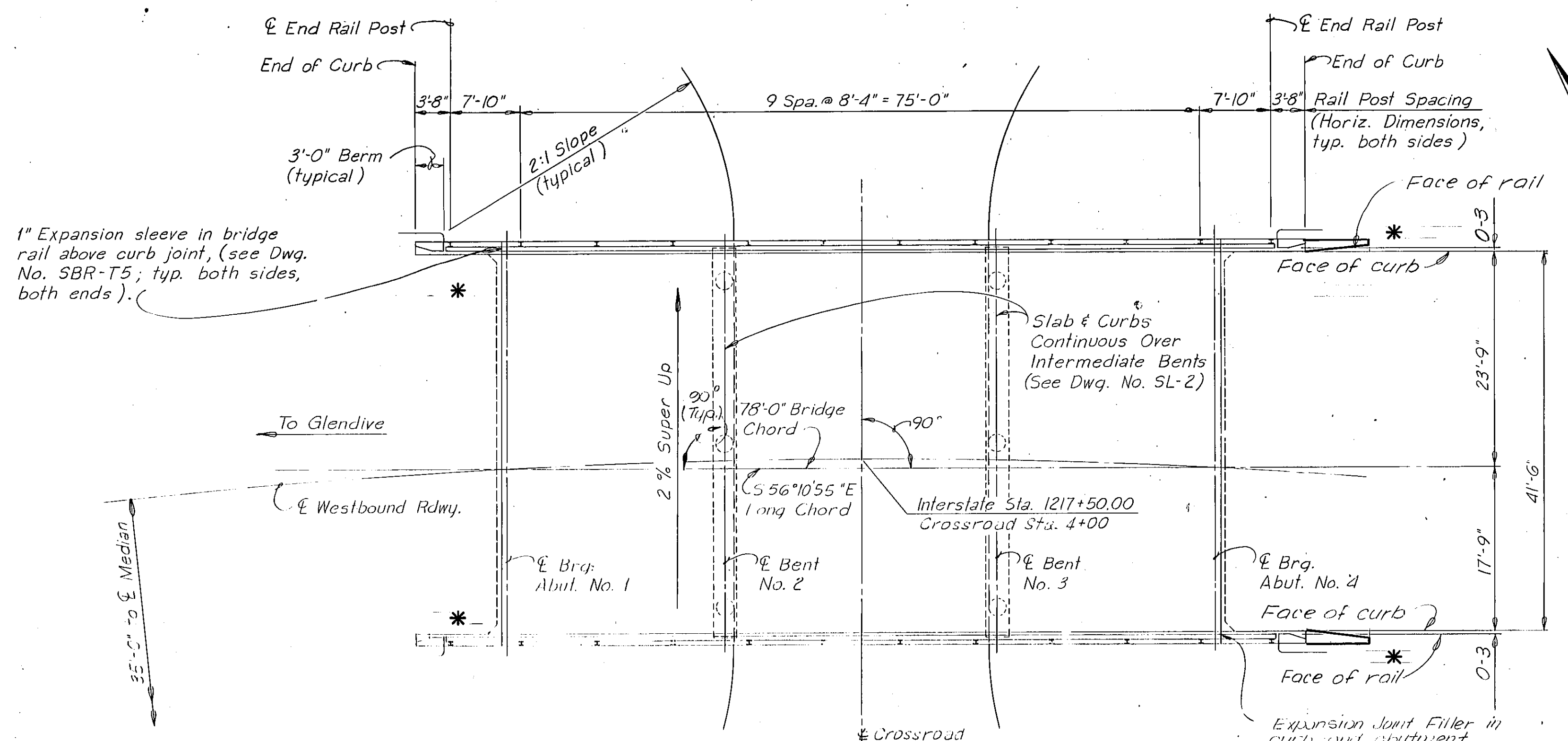
SECTION A-A

NOTE:
Max. Pile Load: Group I = 21 Tons/Pile
Estimated Pile Length = 30 ft.
NOTE: For location of test piles
See Dwg. No. 9490

DESIGN	D.C.	10-30-69
DRAWN	R.D.K.	12-3-69
TRACED	R.D.K.	12-3-69
CHECKED	D.C.	1-14-70
APPROVED	C.W.K.	12-15-72
REVISED		
REVISED		

PREPARED BY
MORRISON-MAIERLE, INC.
ENGINEERS & CONSULTANTS
HELENA, MONTANA
FOR
STATE OF MONTANA
DEPARTMENT OF HIGHWAYS
HODGES COUNTY ROAD
INTERCHANGE AT STA. 1105+14.13
FEDERAL AID PROJECT NO. I-94-6(29) 226
DAWSON COUNTY
BENTS NO. 2 & NO. 3
SCALE: 3/8" = 1'-0" (except as shown)

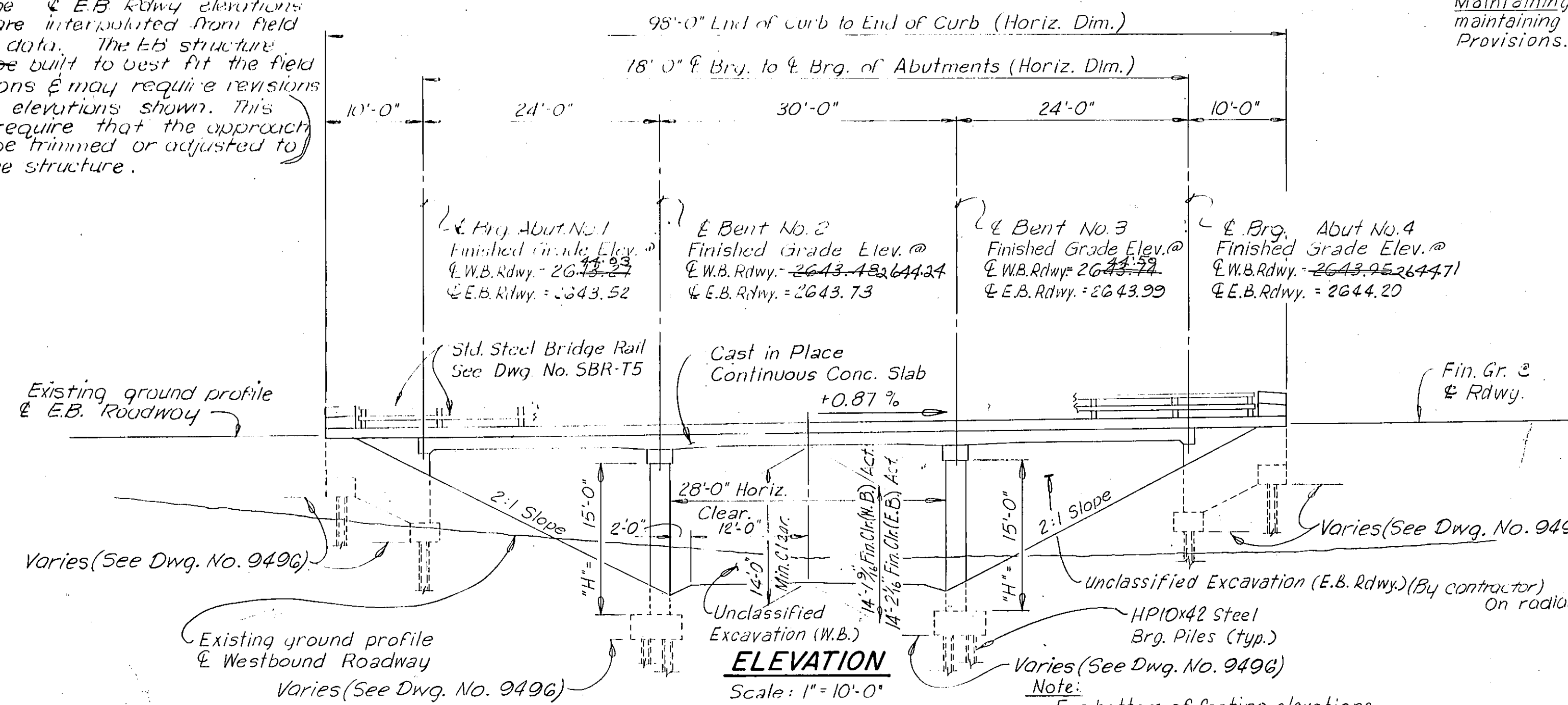
DRAWING NO. 9492



PLAN
Scale: 1" = 10'-0"

NOTE: Westbound Roadway shown, Eastbound Roadway is similar. See Bridge Orientation Plan this sheet.

Note: The E.B. Rdwy. elevations shown are interpolated from field survey data. The E.B. structure is to be built to best fit the field conditions & may require revisions to the elevations shown. This may require that the approach fills be trimmed or adjusted to fit the structure.



ELEVATION
Scale: 1" = 10'-0"

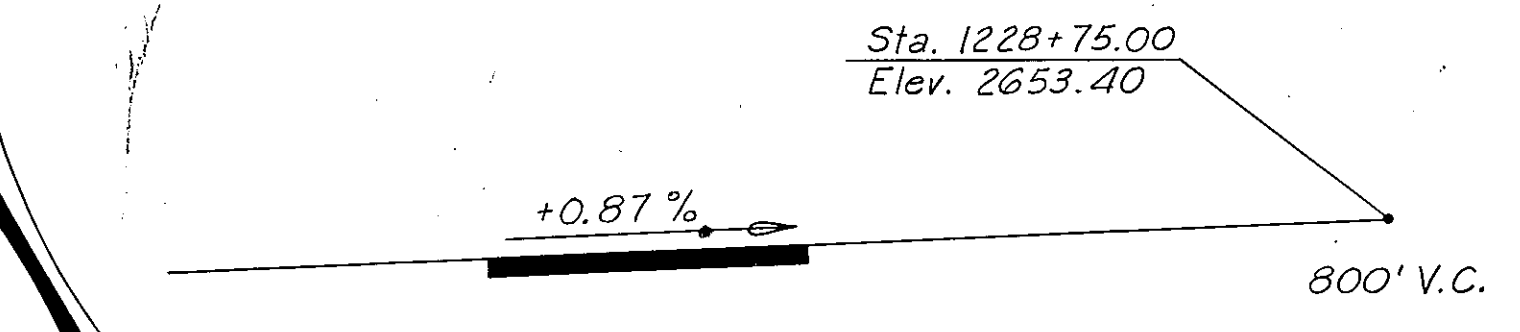
Note: Slab, curb, and rail to be constructed parallel to long chord between & brys. of end abutments.

NOTE: The contractor will be permitted to substitute HPS10x42 for the HPS10x42 steel H piles shown on the details for this structure.

Note: For Core Logs, see Dwg. No. 9495.

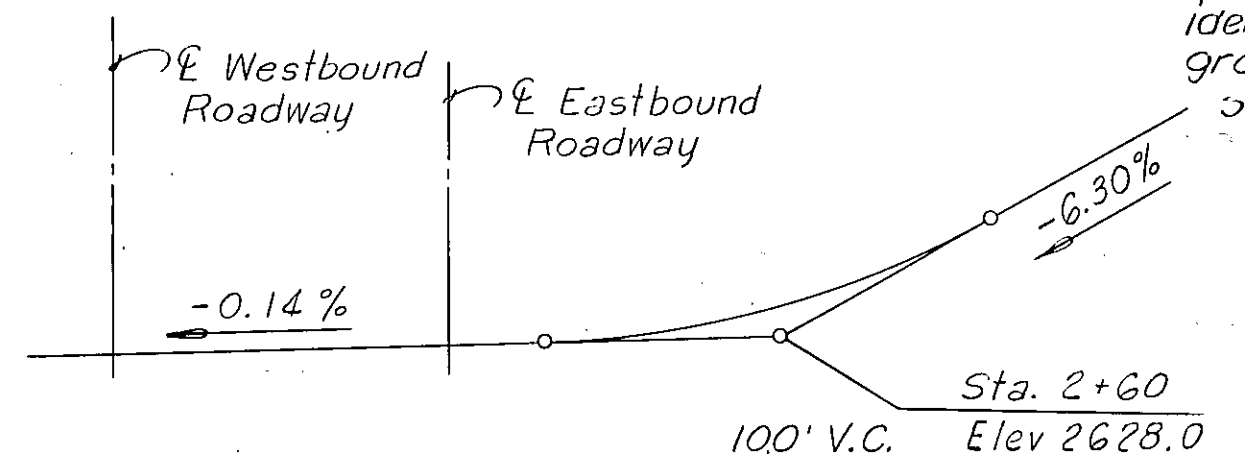
*** THIS CONTRACT: IR 94-6(37)217**
Existing rail removed and replaced with Thrie Beam Rail. Curb tapers added. See Dwg. No. 14293.

W.B. INTERSTATE PROFILE GRADE
No Scale



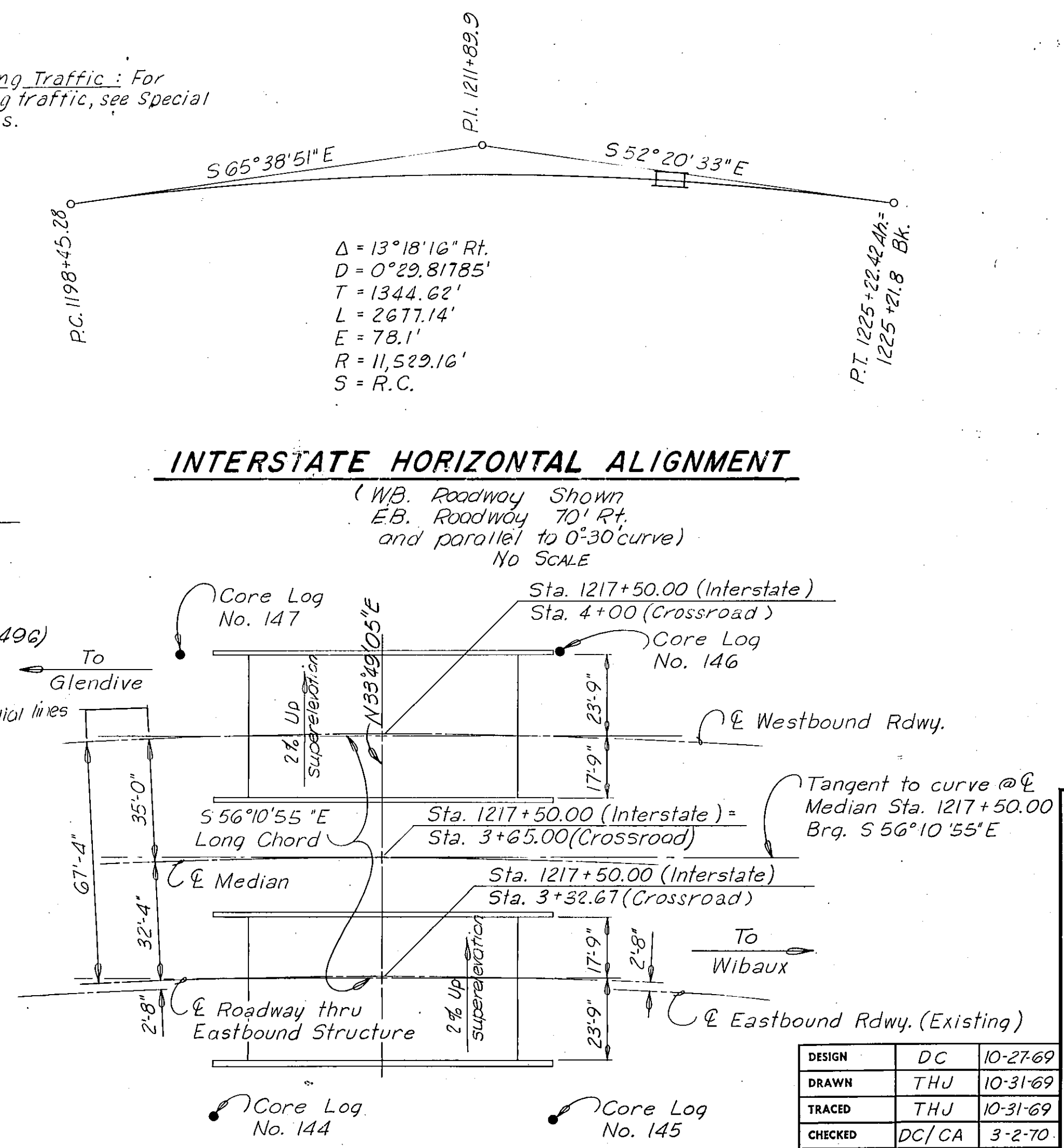
Note: Existing E.B. Profile grade is theoretically identical to the W.B. profile grade. See other note this sheet.

CROSSROAD PROFILE GRADE
No Scale



NOTE: Maintaining Traffic: For maintaining traffic, see Special Provisions.

INTERSTATE HORIZONTAL ALIGNMENT
No Scale



BRIDGE ORIENTATION PLAN
No Scale

FINISHED GRADE: FINISHED PLAN GRADE OF BRIDGE AT & ROADWAY IS THE SAME AS PROFILE GRADE SHOWN ON ROAD PLANS.

LIVE LOAD: STANDARD HS20-44 LOADING OR ALTERNATE LOADING. ALTERNATE LOADING FOR BRIDGES AND FLOOR SYSTEMS WITH SPANS UNDER 40 FEET CONSISTS OF TWO AXLES FOUR FEET APART WITH EACH AXLE WEIGHING 24,000 POUNDS.

APPROVAL: SHOP PLANS SHALL BE APPROVED BY THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS BEFORE FABRICATION IS BEGUN.

CAST IN PLACE CONCRETE: UNLESS OTHERWISE APPROVED, ALL CONCRETE SHALL BE CLASS "AD." AN "AIR ENTRAINING AGENT" SHALL BE ADDED TO ALL CONCRETE EXCEPT CLASS "AS." CHAMFER ALL EXPOSED EDGES OF CONCRETE WITH ENCLOSED ANGLE LESS THAN 120°, 3/4" AND FILLET ENTRANT ANGLES 3/4" UNLESS OTHERWISE NOTED. ALL FORMS FOR DECK SLAB SHALL BE REMOVED.

STRUCTURAL STEEL: ALL STRUCTURAL STEEL SHALL BE MEASURED AND PAID FOR ON THE LUMP SUM BASIS AS SET FORTH IN THE STANDARD SPECIFICATIONS. ESTIMATED WEIGHT = 1256 POUNDS.

FOR REQUIREMENTS GOVERNING THE FABRICATION OF "STRUCTURAL STEEL" SEE THE STANDARD SPECIFICATIONS. TO AVOID OVERSIGHTS THESE REQUIREMENTS SHALL BE CLEARLY NOTED ON THE SHOP DRAWINGS.

ALL STRUCTURAL STEEL AND BRIDGE RAIL SHALL RECEIVE ONE (1) SHOP COAT OF RED LEAD OR BASIC LEAD SILICO CHROMATE PRIMER AND TWO (2) FIELD COATS CONSISTING OF FIRST FIELD OR PRIMER COAT AND ONE (1) COAT OF ALUMINUM PAINT AS SPECIFIED IN THE STANDARD SPECIFICATIONS OR AS OTHERWISE SPECIFIED IN THE "SPECIAL PROVISIONS."

FOOTINGS: ELEVATIONS SHOWN FOR BOTTOM OF FOOTINGS ARE APPROXIMATE ONLY. FINAL ELEVATIONS TO BE DETERMINED BY THE ENGINEER.

PROTECTIVE COATING: DECK, CURBS AND CONCRETE END POSTS SHALL BE GIVEN A PROTECTIVE COATING OF BOILED LINSEED OIL. "SEE STANDARD SPECIFICATIONS."

UTILITIES: FOR LOCATION OF UTILITIES, SEE APPROPRIATE ROAD PLANS SHEET.

COVERING: THE MINIMUM COVERING, MEASURED FROM THE SURFACE OF THE CONCRETE TO THE FACE OF ANY REINFORCEMENT BAR, SHALL BE NOT LESS THAN 2 INCHES EXCEPT AS FOLLOWS OR OTHERWISE NOTED.

BOTTOM OF SLAB 1 INCH
STIRRUPS AND TIES 1 1/2 INCHES
FOOTINGS AND PIER SHAFTS 3 INCHES

BACKFILL AT ABUTMENTS: SUPERSTRUCTURE SHALL BE IN PLACE BEFORE ANY BACKFILL IS PLACED AGAINST THE ABUTMENTS. FILLS AT THE TWO ENDS OF THE STRUCTURE SHALL BE KEPT AT ABOUT THE SAME ELEVATION DURING THE PROCESS OF BACKFILLING. SEE ARTICLE 11.04(B) OF THE STANDARD SPECIFICATIONS.

CONCRETE SUBSTITUTION: CONTRACTOR MAY SUBSTITUTE CLASS "DD" CONCRETE FOR CLASS "AD" CONCRETE; HOWEVER, ALL CONCRETE SHALL BE BID AS CLASS "AD" CONCRETE UNLESS THE STATE SPECIFIES OTHERWISE.

STRUCTURE EXCAVATION: STRUCTURE EXCAVATION FOR END ABUTMENTS SHALL BE CALCULATED FROM BELOW SUBGRADE ELEVATION AND STRUCTURE EXCAVATION FOR INTERMEDIATE BENTS SHALL BE CALCULATED FROM BELOW THE LIMITS OF THE UNCLASSIFIED EXCAVATION.

SEQUENCE OF WORK: See Special Provisions.

SPECIFICATIONS: Montana Department of Highways and 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, 1969 edition, and any amendments thereto.

FOUNDATION PILES: For bidding purposes only, pile lengths have been estimated as shown on Dwg.

PREPARED BY
MORRISON-MAIERLE, INC.
ENGINEERS & CONSULTANTS
HELENA, MONTANA

FOR
STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

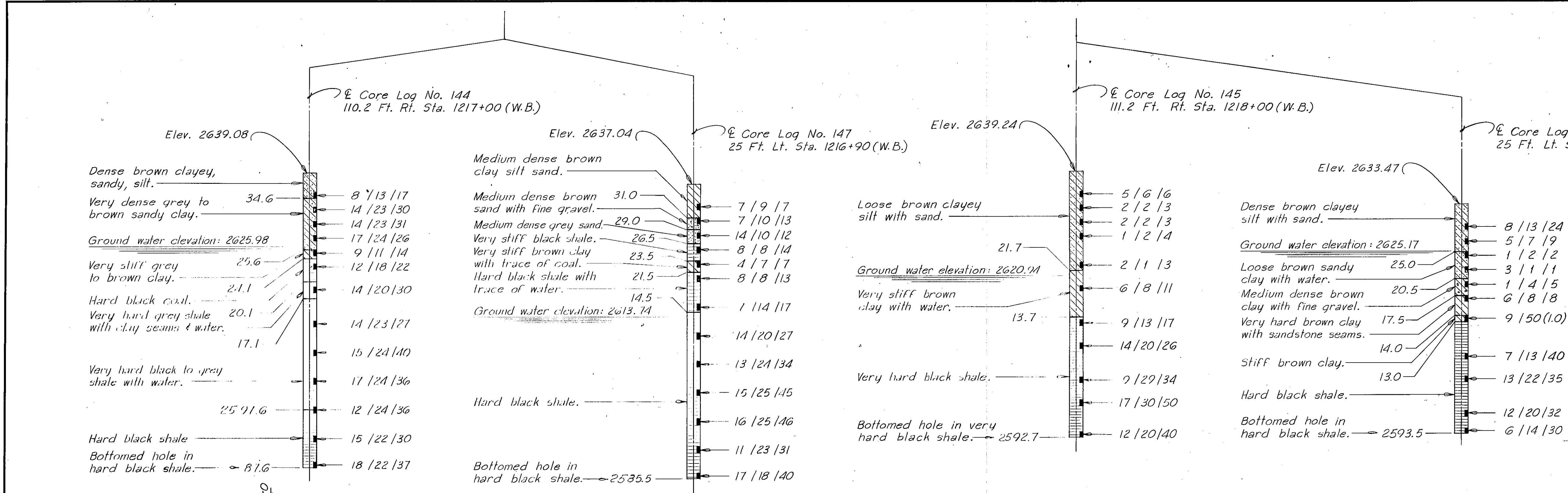
SEPARATION STRUCTURE
AT STA. 1217+50.00
FEDERAL AID PROJECT NO. 1-94-6(29)226

DAWSON COUNTY
GENERAL LAYOUT

SCALE: As Shown

DESIGN	DC	10-27-69
DRAWN	THJ	10-31-69
TRACED	THJ	10-31-69
CHECKED	DC/CA	3-2-70
APPROVED	HES.	6-29-76
REVISED	L.M.S.	3-8-88
REVISED		
M-M NO.	275-24-17.5	

DRAWING NO. 9494

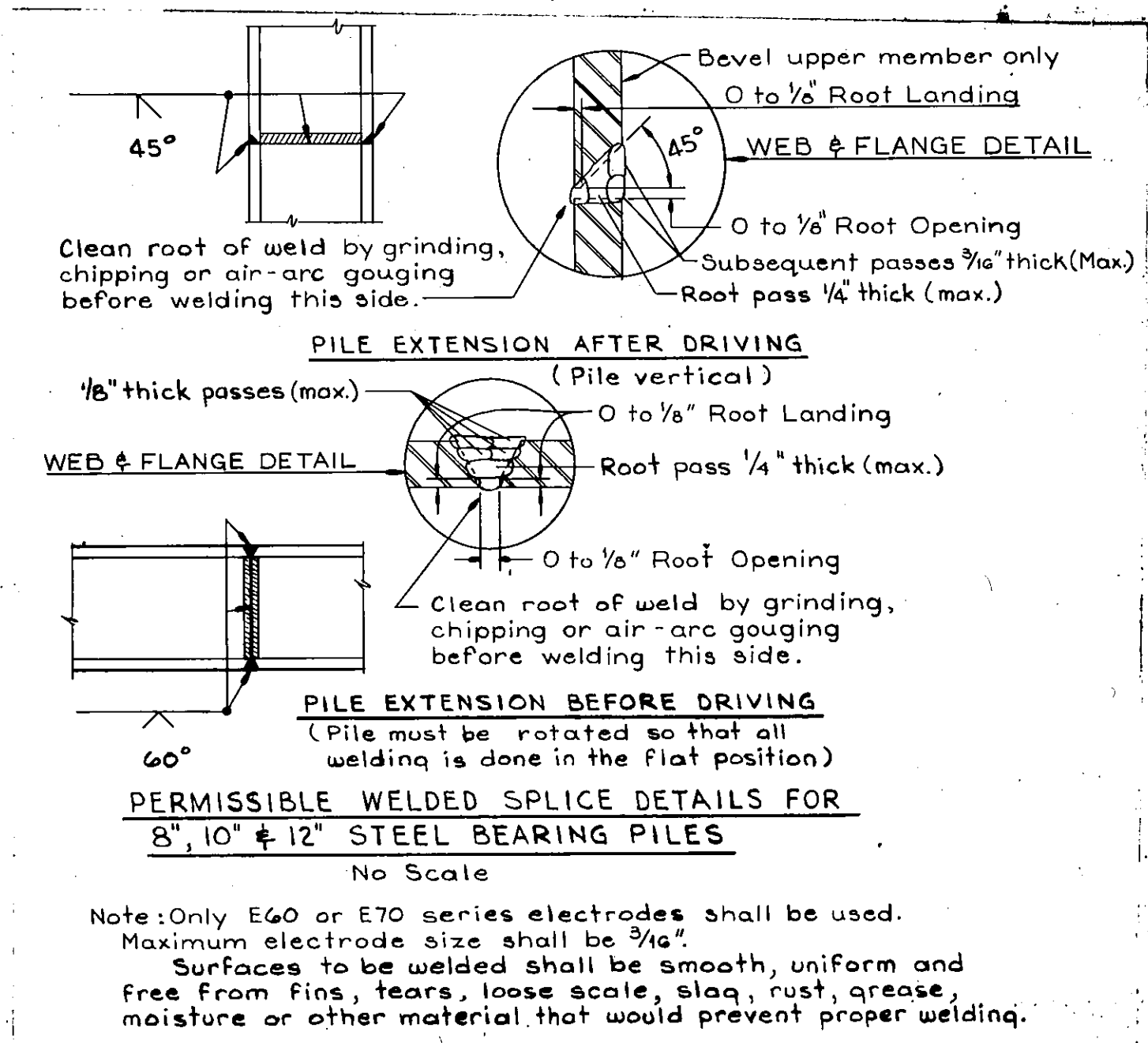
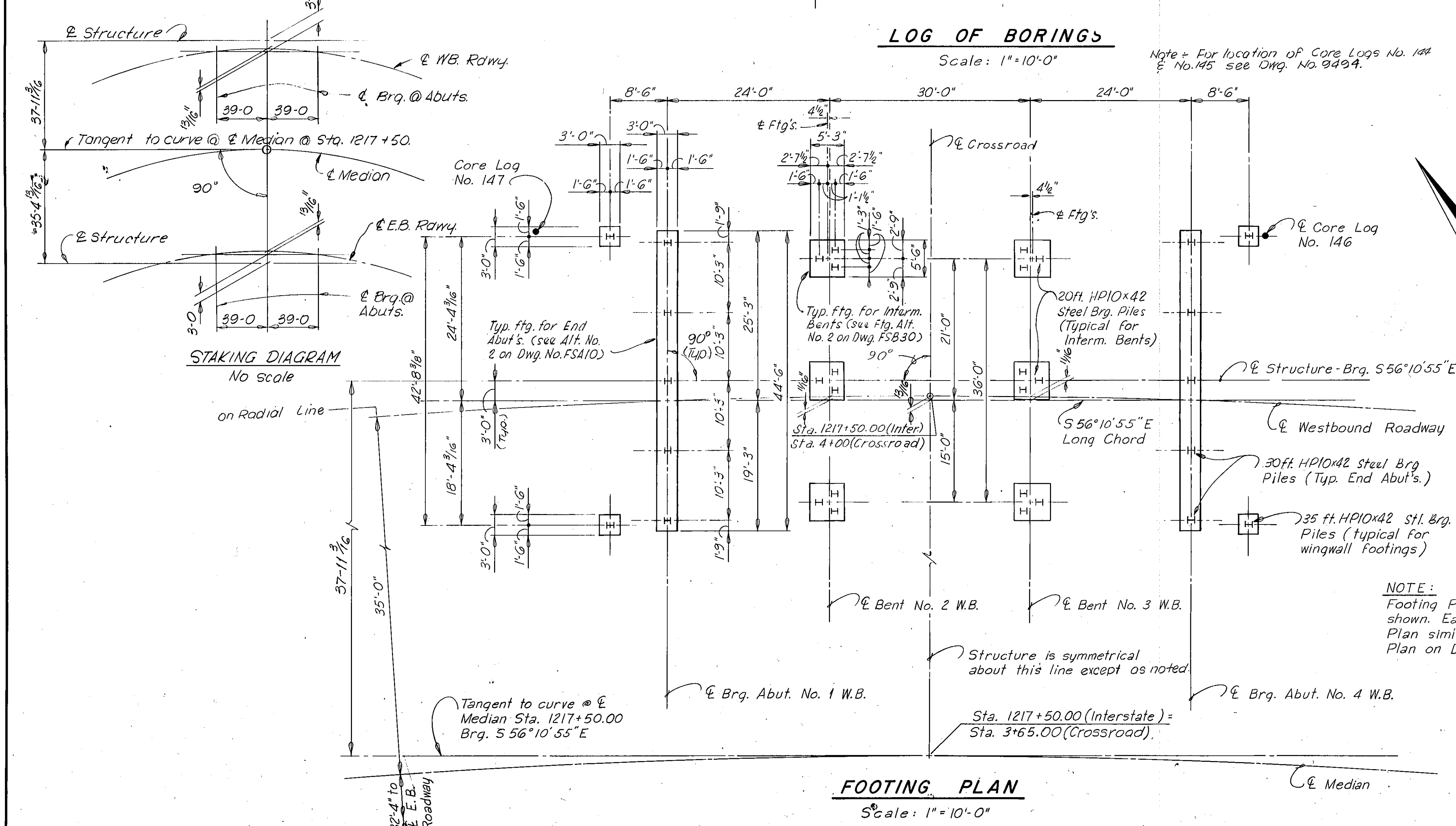


NOTES

SOILS AND FOUNDATION MATERIALS: BORINGS WERE TAKEN BY THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS AT THE POINTS SHOWN ON THE GENERAL LAYOUT OR FOOTING PLAN.

THE SERIES OF NUMBERS SHOWN ON THE LOG OF BORINGS INDICATES THE NUMBER OF BLOWS PER 6" PENETRATION FOR EACH NUMBER OF THE SERIES OF A 2" SAMPLE TUBE WHICH WAS DRIVEN IN ACCORDANCE WITH THE STANDARD PENETRATION TEST MADE WITH A 2" SPLIT TUBE SAMPLER USING A 140# HAMMER HAVING A 30" DROP. THE TOTAL PENETRATION OF THE SAMPLER TUBE IS INDICATED ON THE CORE LOGS AFTER EACH SERIES IF 6" PENETRATION WAS NOT ACHIEVED IN 50 BLOWS.

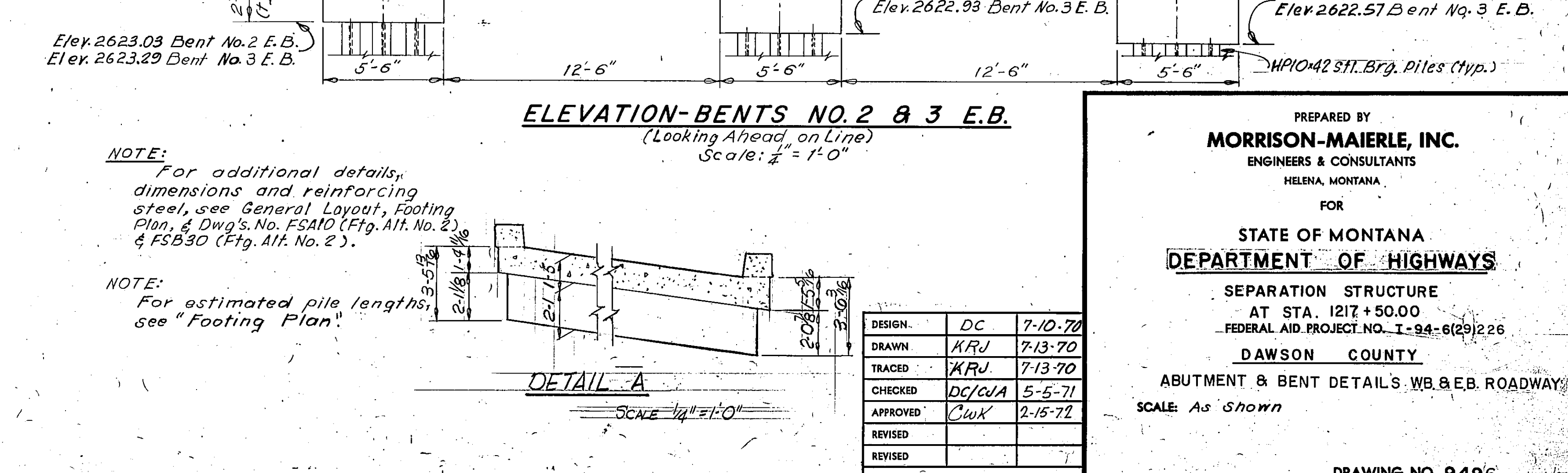
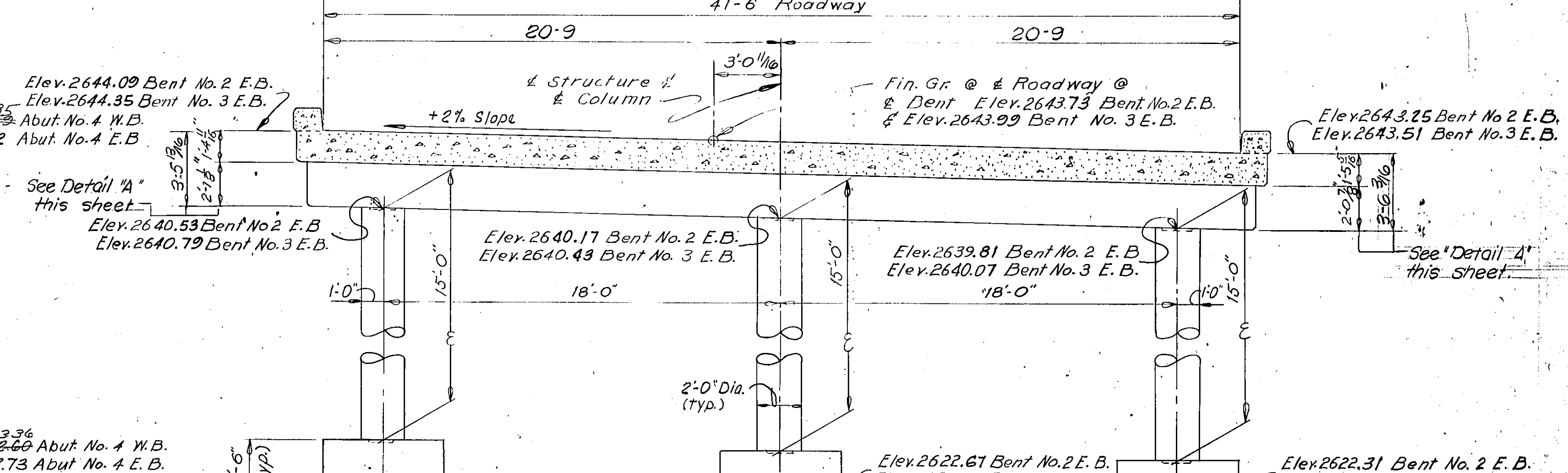
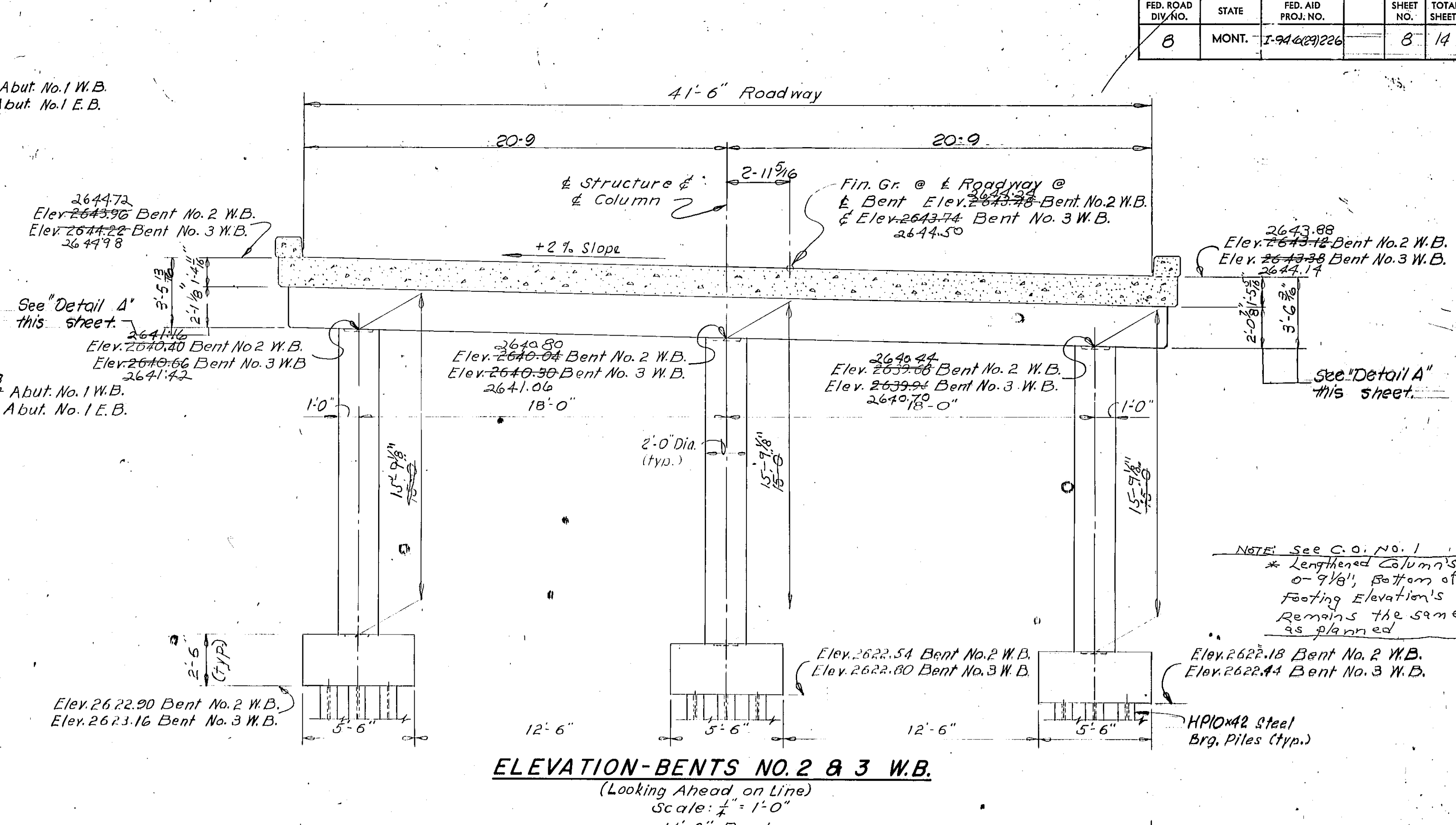
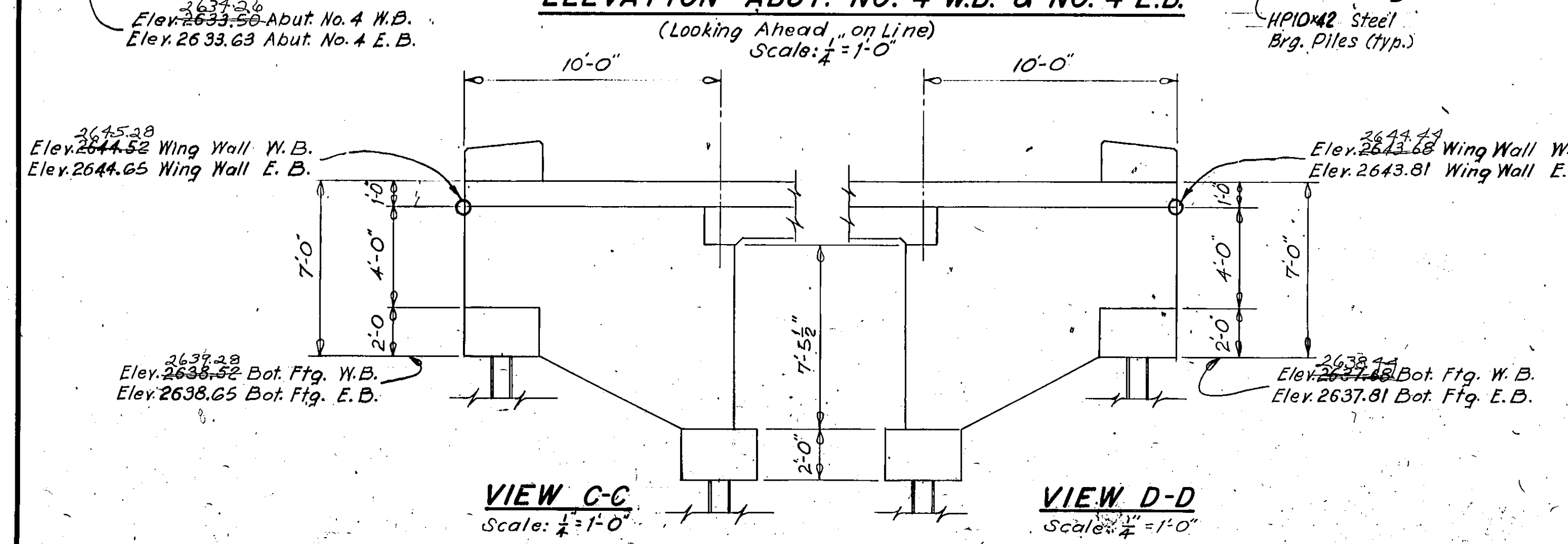
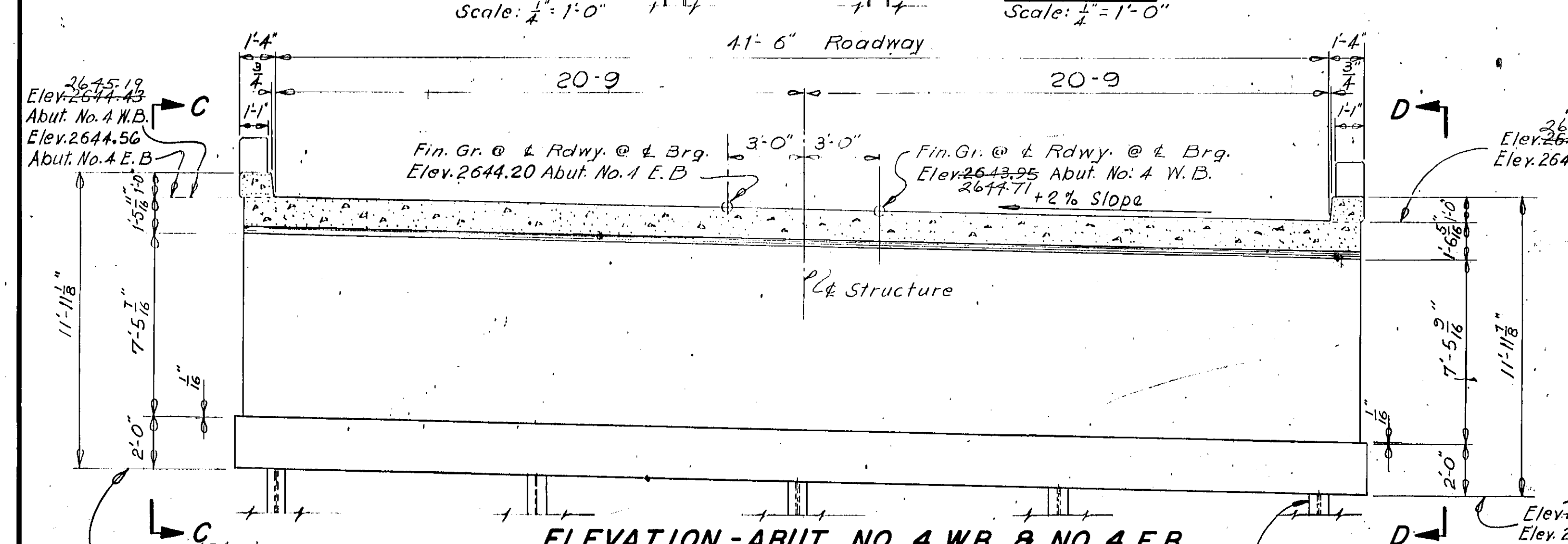
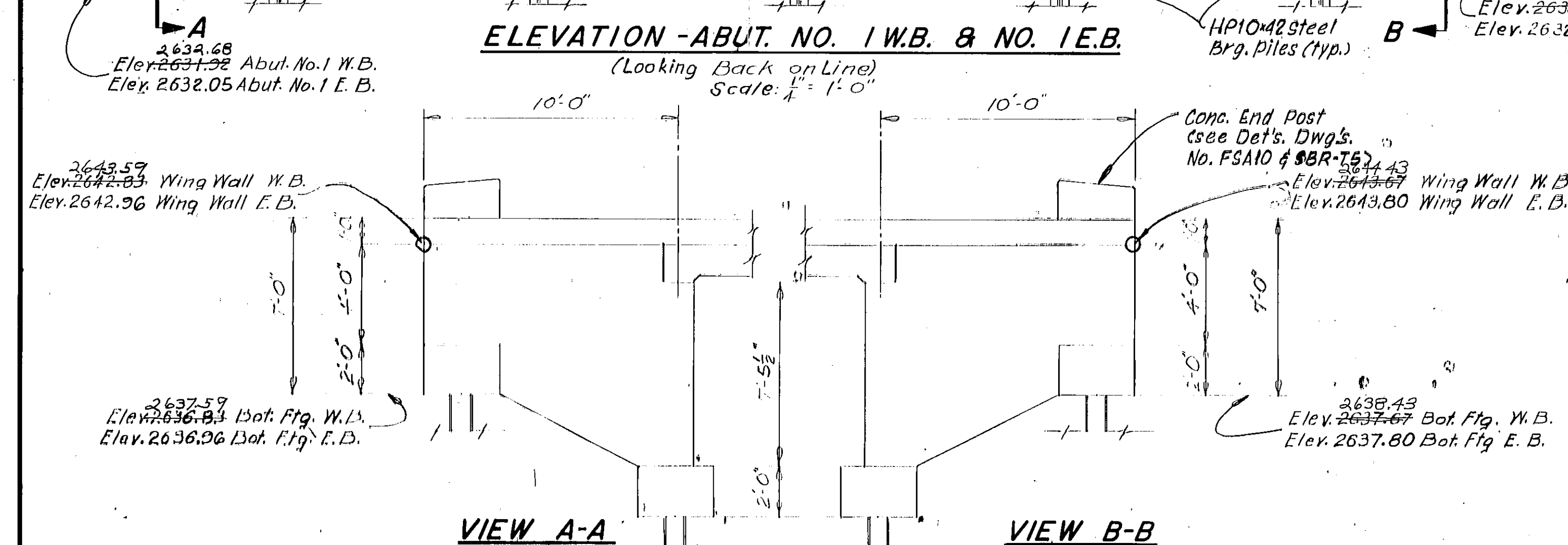
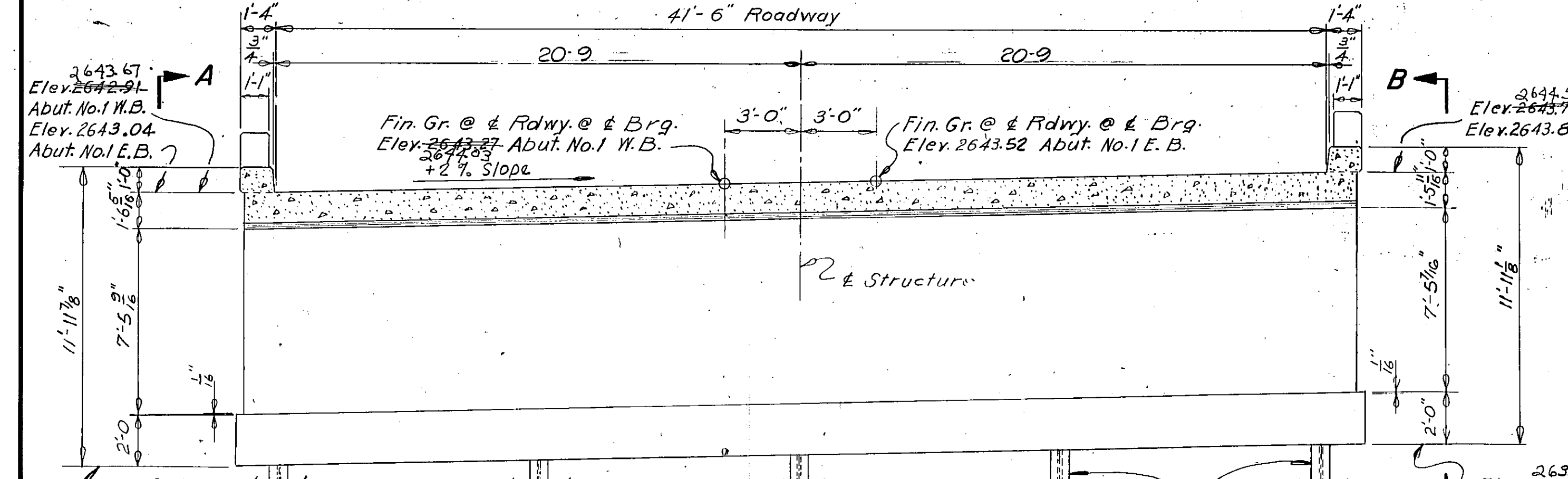
THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS DOES NOT ASSUME ANY RESPONSIBILITY FOR ANY VARIATION OR MISINTERPRETATION OF THE CLASSES OF MATERIALS, AND ADJUSTMENT IN BID PRICES WILL NOT BE MADE IF THE MATERIALS FOUND DO NOT AGREE WITH THOSE SHOWN IN THE LOG OF BORINGS.



NOTE:
Footing Plan for Westbound Roadway shown. Eastbound Roadway Footing Plan similar. See Bridge Orientation Plan on Dwg. No. 9494.

DESIGN	DC	10/27/69
DRAWN	THJ	1/6/70
TRACED	THJ	1/6/70
CHECKED	DC/CA	3/31/70
APPROVED	CWL	2/15/72
REVISED		
REVISED		
M-M NO.	275-24-17.5	

PREPARED BY
MORRISON-MAIERLE, INC.
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HELENA, MONTANA
FOR
STATE OF MONTANA
DEPARTMENT OF HIGHWAYS
SEPARATION STRUCTURE
AT STA 1217+50.00
FEDERAL AID PROJECT NO. 1-94-6(29)226
DAWSON COUNTY
BORING LOGS & FOOTING PLAN
SCALE: As Shown



NOTE:
For additional details, dimensions and reinforcing steel, see General Layout, Footing Plan, & DWG's No. FSA10 (Ftg. Alt. No. 2) & FSB30 (Ftg. Alt. No. 2).

NOTE:
For estimated pile lengths, see "Footing Plan".

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STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

SEPARATION STRUCTURE
AT STA. 1217+50.00
FEDERAL AID PROJECT NO. 1-94-6(29)226

DAWSON COUNTY
ABUTMENT & BENT DETAILS W.B. & E.B. ROADWAY

SCALE: As Shown

DESIGN	DC	7-10-70
DRAWN	KRJ	7-13-70
TRACED	KRJ	7-13-70
CHECKED	DC/WJA	5-5-71
APPROVED	CWK	2-15-72
REVISED		
REVISED		

M.M. NO. 275-24-17.5

DRAWING NO. 9496

NOTES

For location of new compression seals, refer to General Layout Dwg. No. 6324.

Dimensions of expansion joint blockout may vary slightly depending on the joint manufacturers specifications.

Shop plans shall be approved by the State of Montana, Department of Highways before fabrication is begun.

All exposed rebar and existing guard angle shall be cleaned before placement of new concrete. Any reinforcing steel or guard angle that, in the opinion of the Engineer, is too corroded to function correctly shall be replaced. The cost of cleaning or replacing reinforcing steel or guard angle shall be included in the unit price bid for lineal feet of "Neoprene Compression Seals". All new reinforcing steel shall be of the deformed type and shall meet the requirements of A. S. T. M. Specification A615, Grade 60. (A. A. S. H. T. O. M-31.)

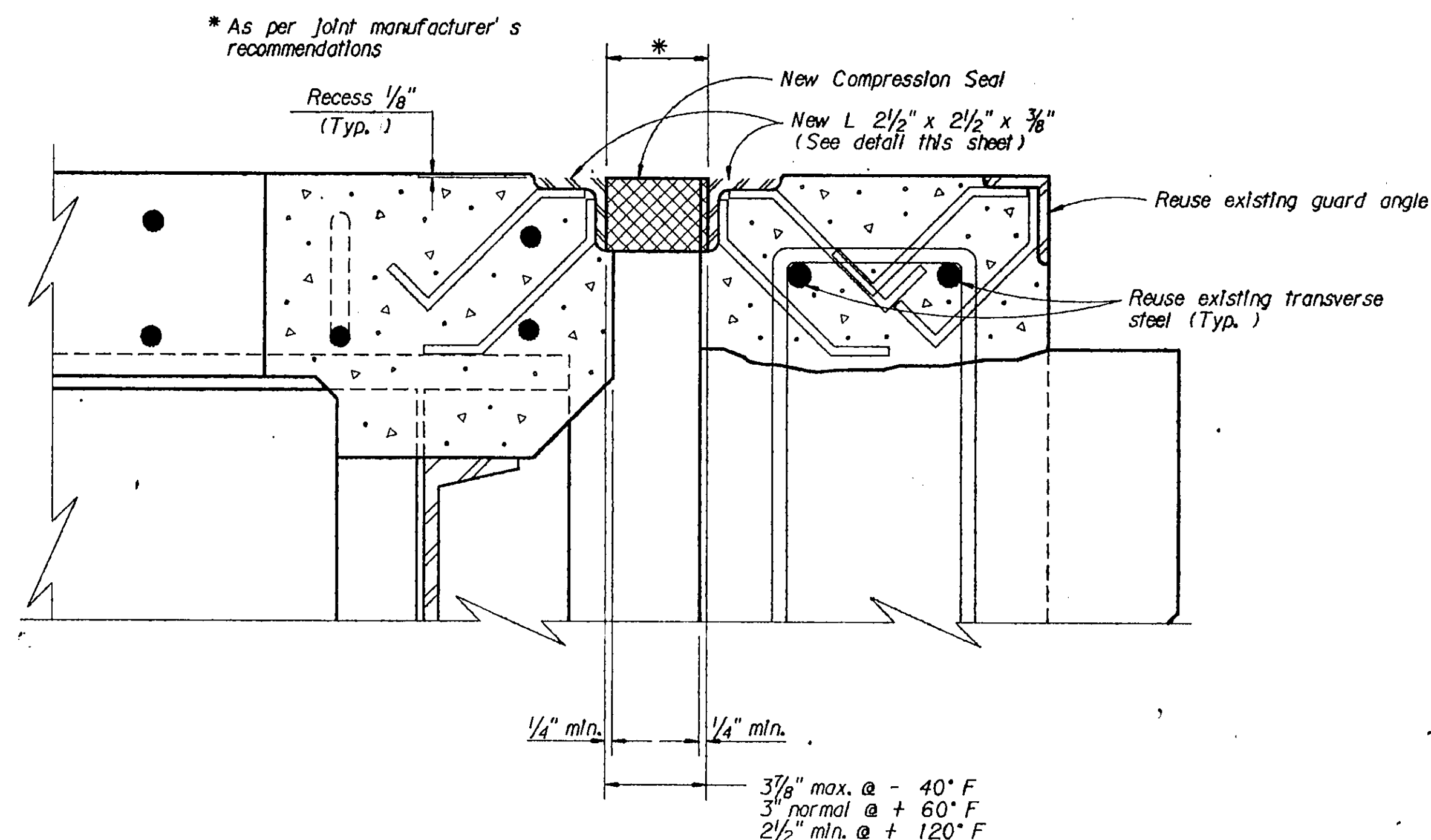
The Contractor shall verify all dimensions of the existing structure in the field before ordering any materials.

All necessary precautions shall be taken to assure that concrete is well compacted under the joint angles. The joint assemblies shall be accurately and firmly held in place while the concrete is placed. The method of holding the joint assemblies in place shall be strong enough to withstand contact with the concrete vibrators.

The cost of furnishing and placing compression seals, concrete, angles, anchor bars and labor necessary to complete the items at Bent No. 3 are to be included in the unit price bid for lineal feet of "Neoprene Compression Seals". Total estimated lineal feet for payment = 46'-6".

For specification of compression joint seals see "Special Provisions".

The cost of cleaning the joint area at Bent No. 1, furnishing and placing the joint filler, and any additional work necessary to complete the work shall be included in the unit price bid for lineal feet of "Poured Joint Sealant". Total estimated lineal feet for payment = 44'-0".



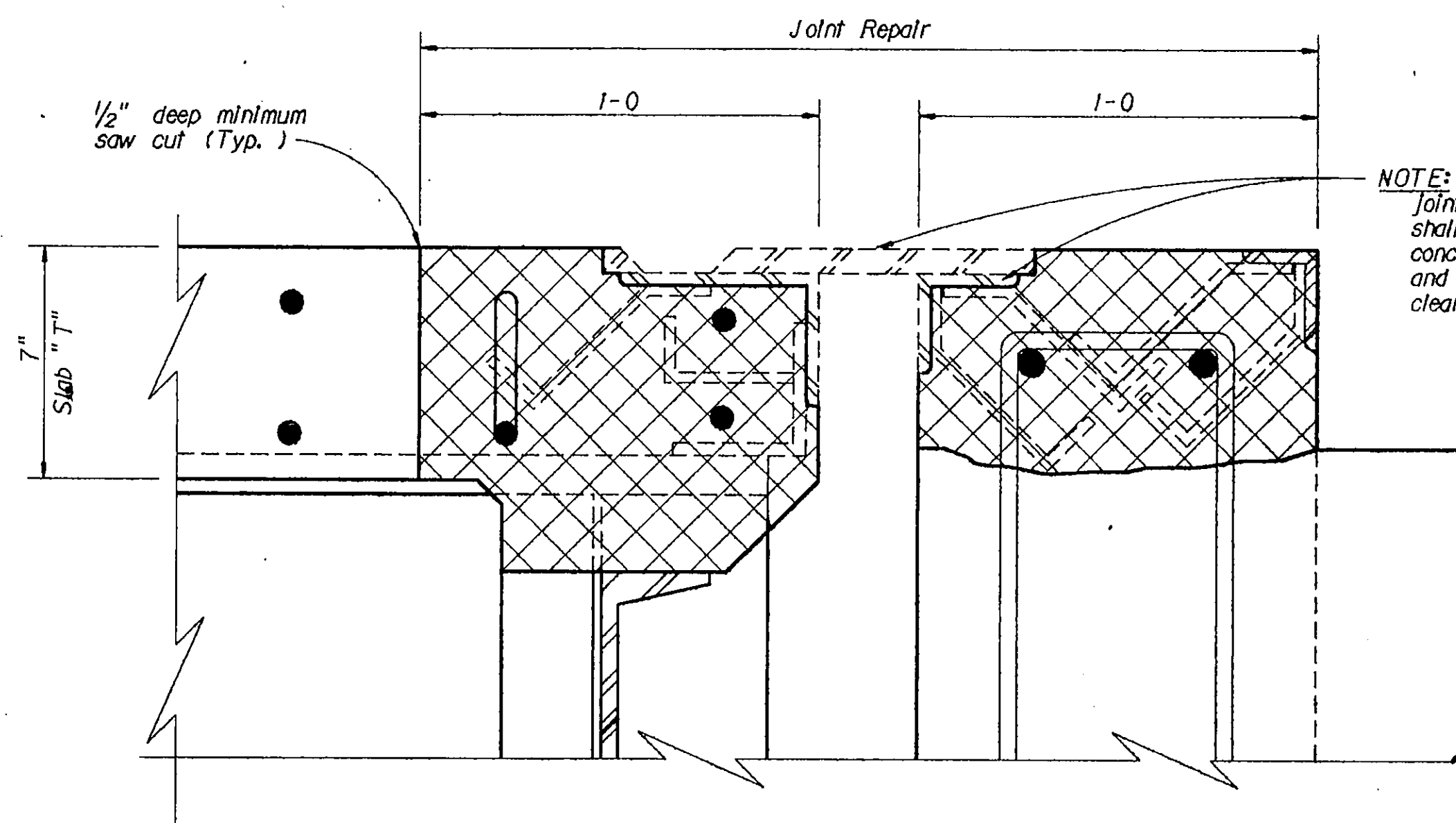
**NEW COMPRESSION SEAL
AT BENT NO. 3**

NOTE: The compression seal used must be capable of providing for the total minimum allowable movement of 1 1/2".

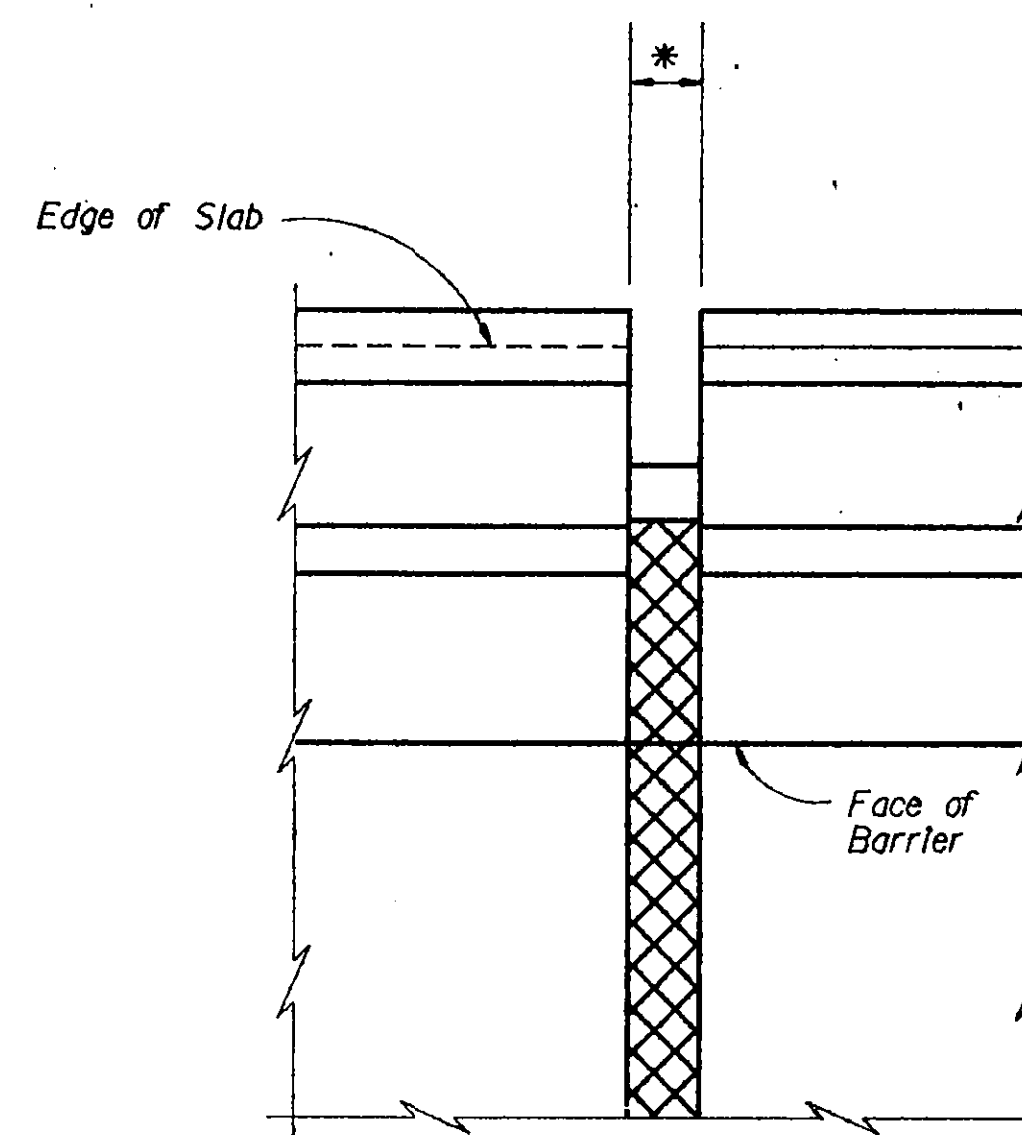
NOTE: The Contractor shall remove the concrete at the joint to sound concrete as determined by the Engineer. All costs of extra concrete replacement other than shown on this drawing shall be paid for in the unit price bid for lineal feet of "Neoprene Compression Seal".

NOTE: Concrete removed at the armored expansion joint locations shall be to a sufficient depth to insure removal of the existing anchor bars and placement of the new anchor bars.

NOTE: The Contractor shall remove all expansion joint angles, bolts, nuts and concrete. Concrete shall be replaced with Class "BD" Modified concrete. Existing transverse reinforcing steel and existing guard angle shall be thoroughly cleaned before reusing.



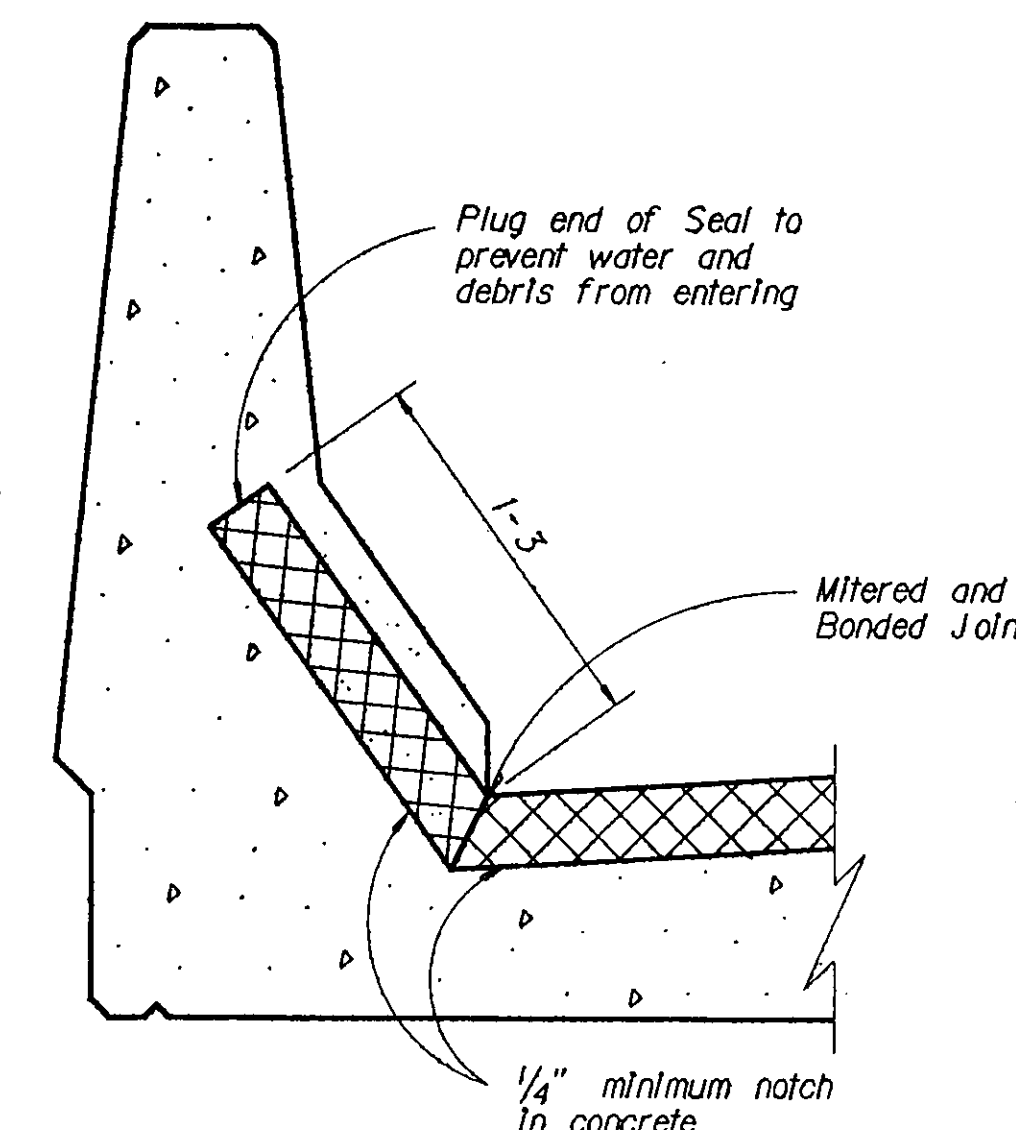
**EXISTING EXPANSION JOINT
AT BENT NO. 3**



PARTIAL PLAN VIEW

NEW COMPRESSION SEAL AT CONCRETE BARRIER

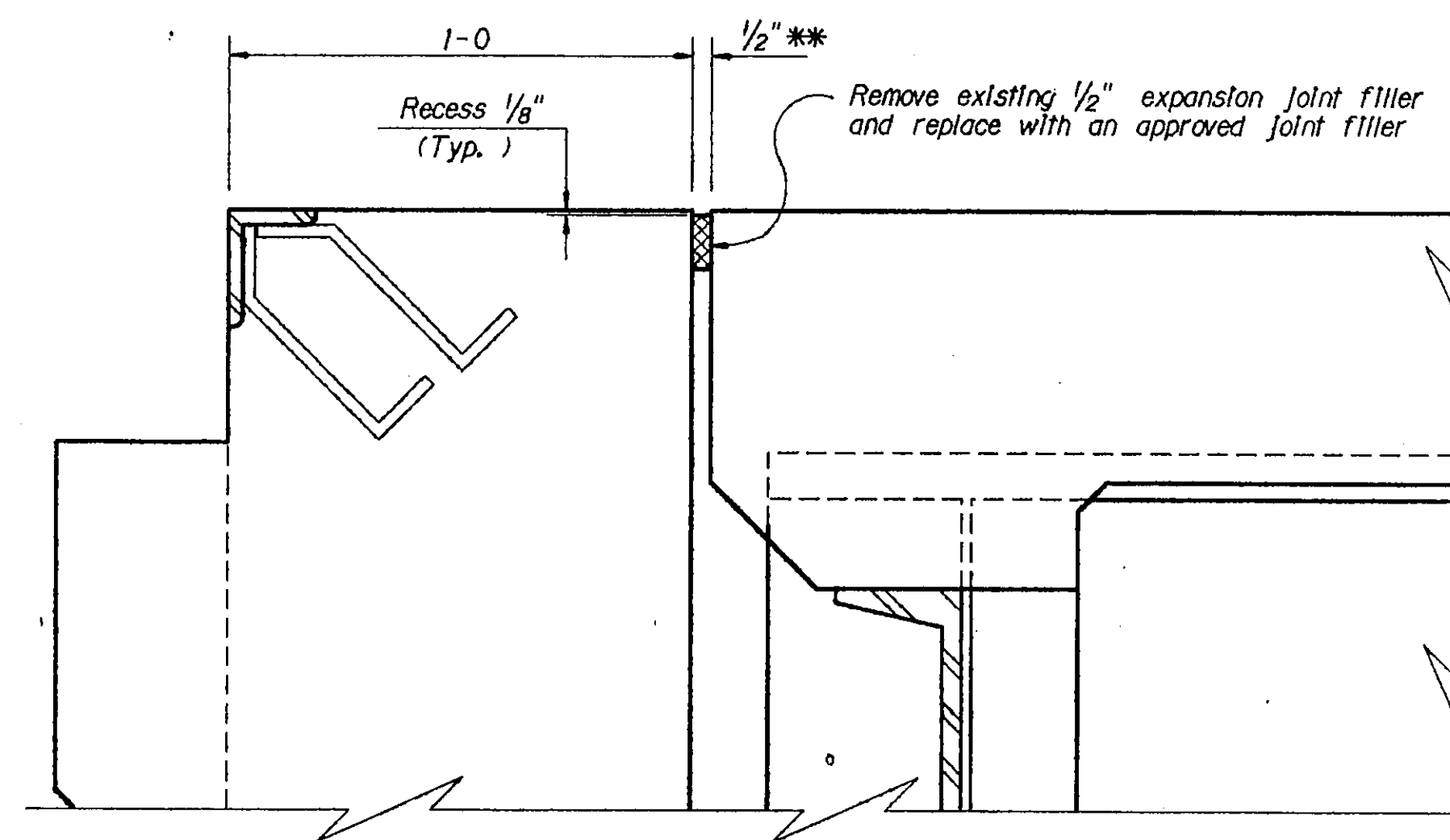
Scale: 1 1/2" = 1' - 0"



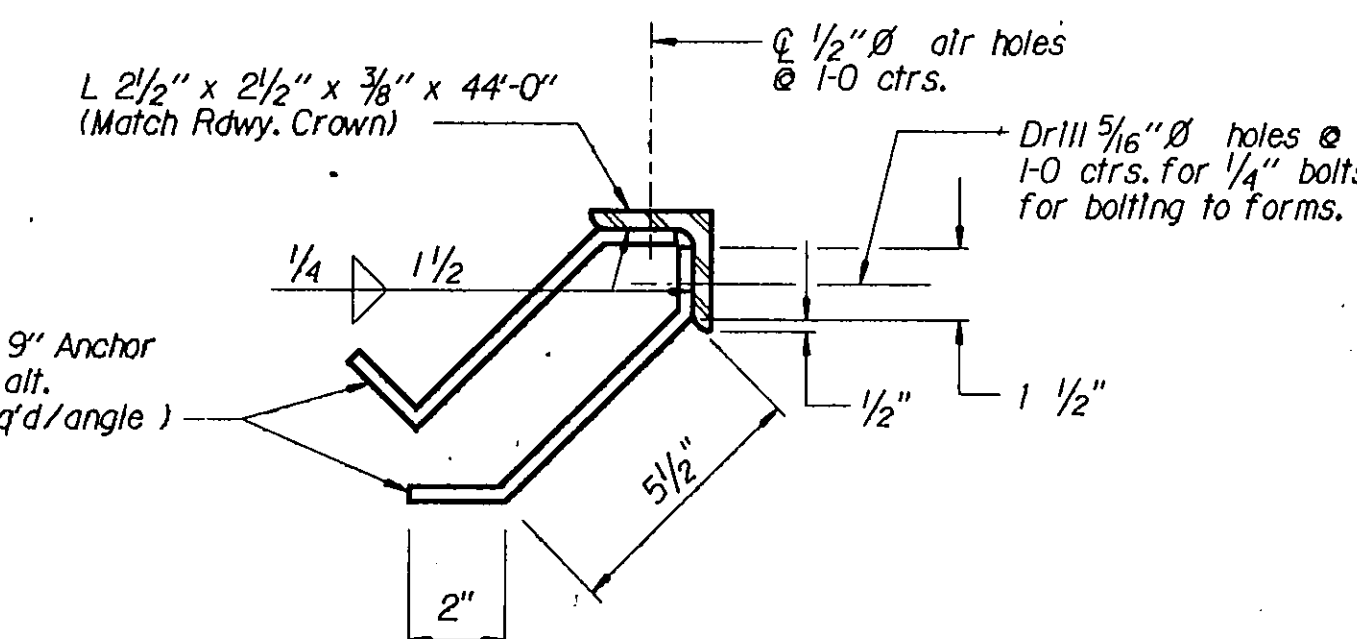
ELEVATION

NOTE: The joint filler shall be a two component cold applied copolymer material meeting the requirements of A. S. T. M. C920, Type M, Grade P, Class 25.

** This dimension may vary.



**NEW JOINT FILLER
AT BENT NO. 1**



GUARD ANGLE DETAIL

Scale ~ 3" = 1'-0"

NOTE: Guard angle may be furnished in two pieces with end anchor bars 6" maximum from each end, in which case the angles will be field welded together. Recess angle 1/8" below finished grade and hold in accurate position while concrete is being placed.

NOTE: Guard angle and anchor bars shall be A. S. T. M. A36 steel and painted in accordance with Standard Specifications.

**STATE OF MONTANA
DEPARTMENT OF HIGHWAYS**

**BRIDGE OVER GRIFFITH CREEK - W.B. ONLY
AT STA. 627 + 62.00**

FEDERAL AID PROJECT NO. IR 94-6(37)217

DAWSON COUNTY

**EXPANSION JOINT
REPLACEMENT DETAILS**

Scale: 3" = 1' - 0" Except as noted

DRAWING NO. 14292

DESIGNED	9-12-88	L. M. S.
DRAWN	9-16-88	L. M. S.
CHECKED	9-21-88	C. O. F.
REVIEWED		
REVIEWED		

To be Included in the unit price bid for "Bridge Approach Section" (See Road Plans)
Warp new guardrail down gradually to conform with normal height of Road guardrail

* To be Included in the unit price bid for "Revise Bridge Rail - Thrie Beam" (For actual length refer to the Summary Table on this sheet)

Four-lane divided departure ends to be included in the unit price bid for "New Metal Guard Rail" (See Road Plans)

NOTES:

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

The contractor shall determine actual bolt lengths.

The contractor shall verify all dimensions in the field before ordering any materials.

Lap all rail splices in the direction of traffic flow.

For location of required approach rail to bridge rail connections, curb tapers, expansion joints and guardrail revisions see General Layouts referred to in the Summary Table on this sheet.

Place a reflectorized washer approximately every 25'-0". See Std. Dwg. No. 85-B.

Plug predrilled holes in rail with std. splice bolts. See Std. Dwg. No. 85-A.

For Plate Washer Detail see Std. Dwg. No. 85-A.

All new hardware shall be galvanized.

Rail sections which are cut shall be cut square. Flame cutting will not be permitted. New cut ends or holes shall be coated with an approved galvanizing paint.

Bridge rail to be continuous with bridge approach rail.

The existing structural tube rail shall become the property of the State. The contractor shall stockpile the structural tube rail at a site designated by the Engineer for pickup by State forces.

The 6'-3" transition section from standard metal guardrail to Thrie beam shall be A. A. S. H. T. O. designation Type I, Class A.

All Thrie beam sections shall be A. A. S. H. T. O. designation Type I, Class B.

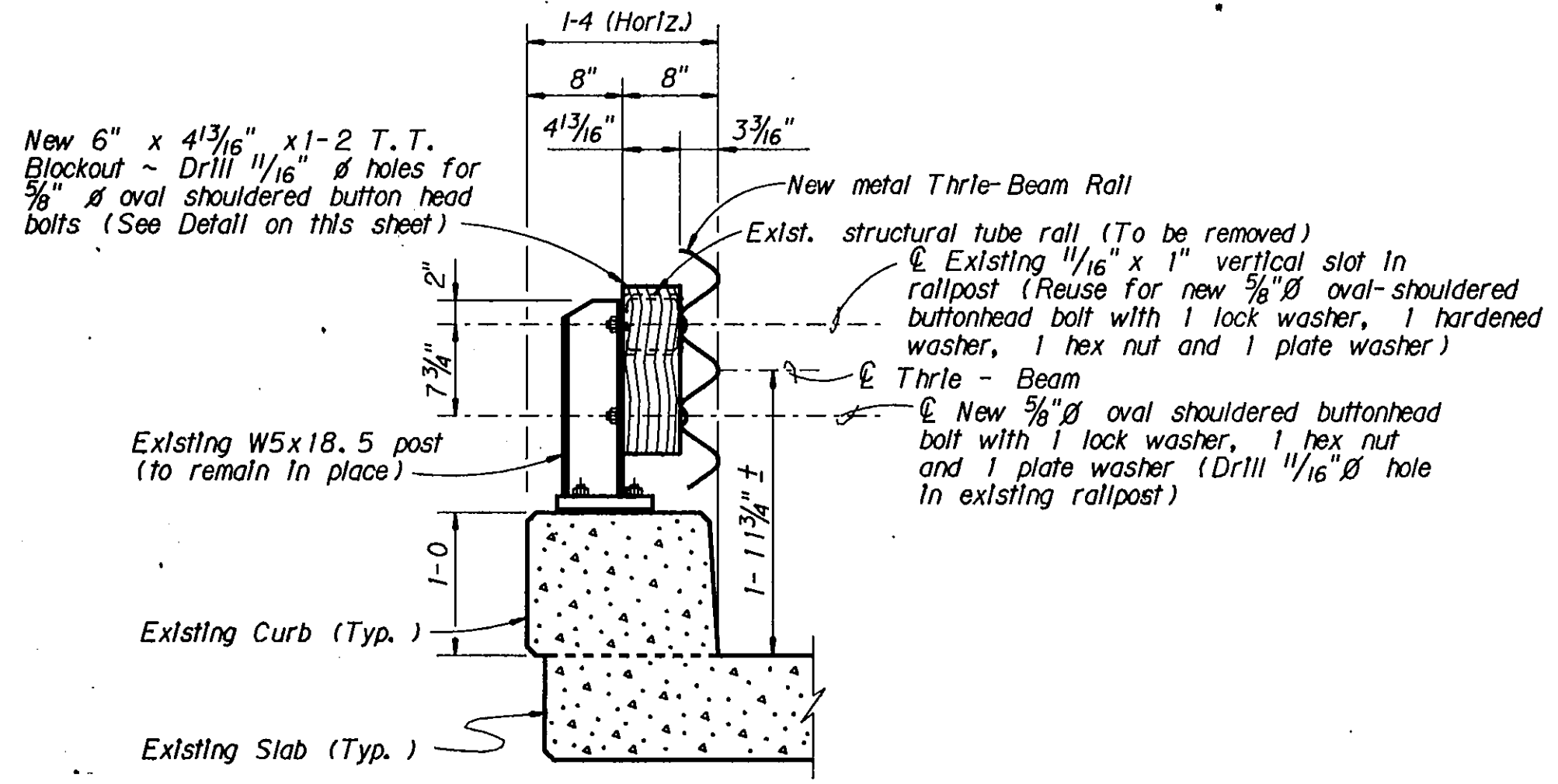
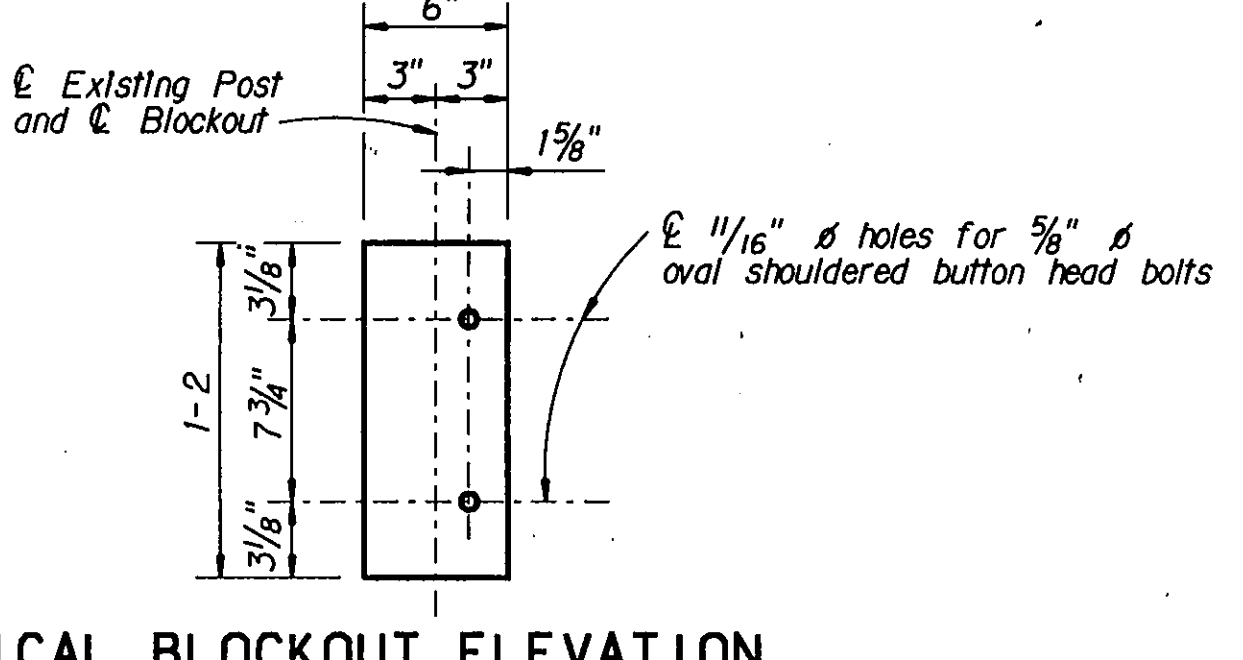
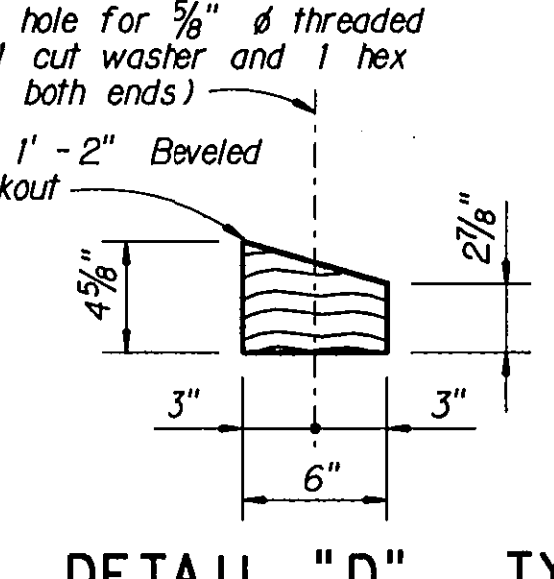
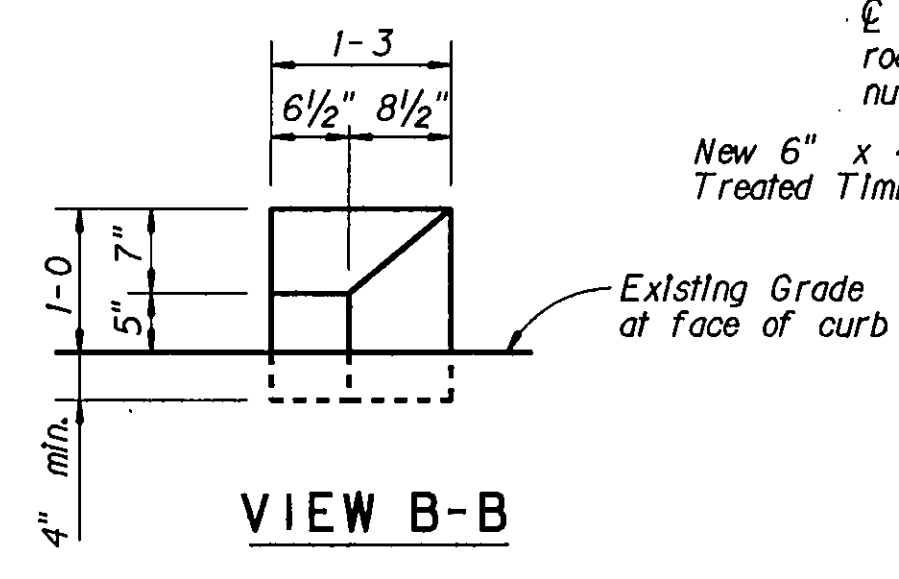
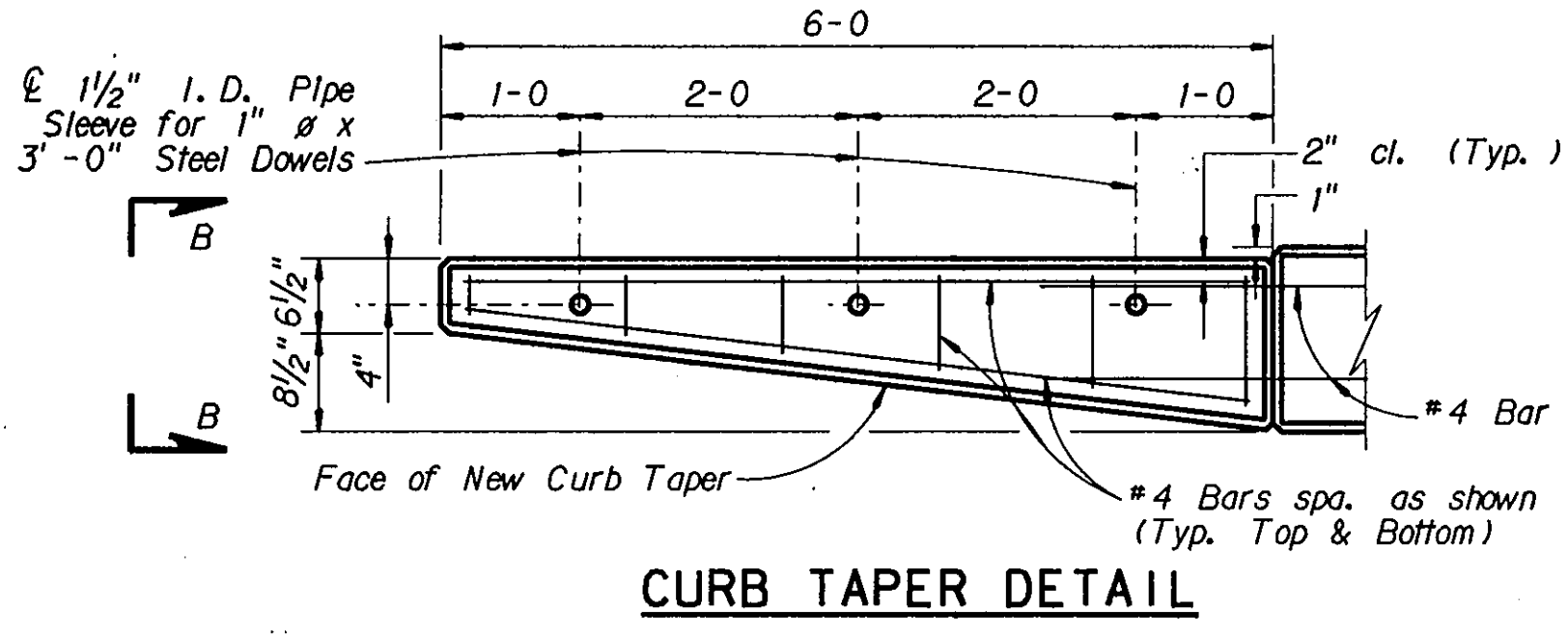
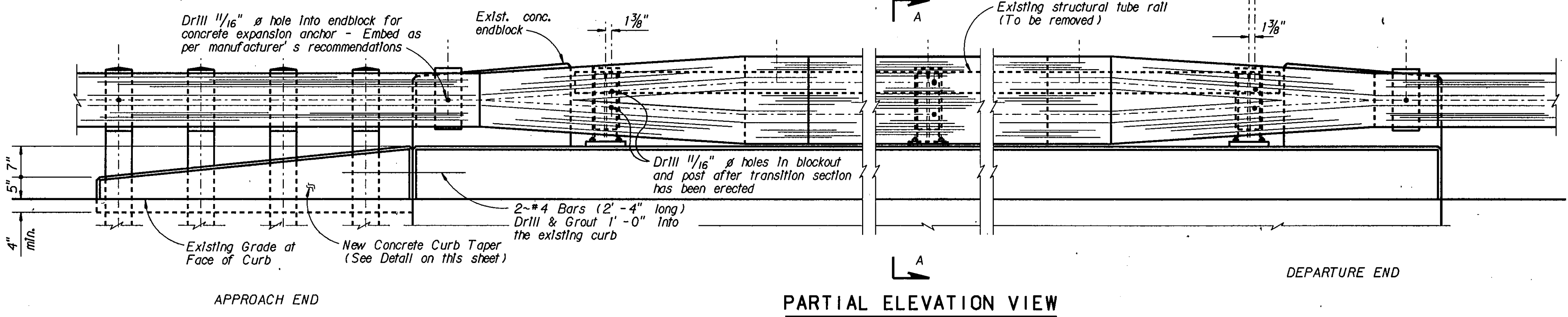
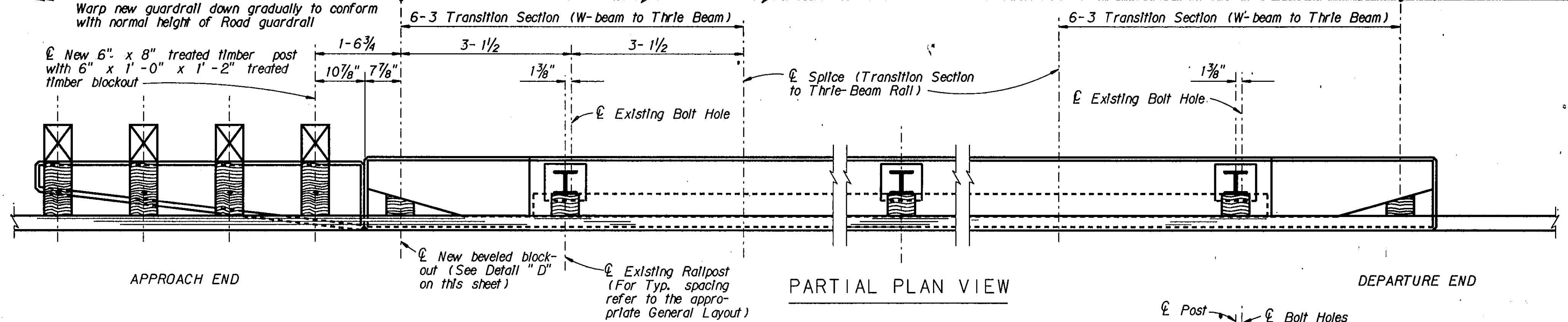
The cost of furnishing and placing new metal thrie beam, transition sections, treated timber blockouts, washers, nuts, bolts and reflectorized washers shall be included in the unit price bid for "Revise Bridge Rail - Thrie Beam". Also included in the subject bid item shall be the cost of removing and stockpiling the existing structural tube rail. "Revise Bridge Rail - Thrie Beam" 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 number of lineal feet for payment is shown in the Summary Table on this sheet.

All new wood blockouts shall be treated timber and shall be placed with the wood grain perpendicular to the bolt centerline.

The existing surface under the new concrete curb tapers shall be removed as approved by the Engineer. The curb taper shall be embedded a minimum of 4" into the subgrade measured at the inside face of the taper.

Reinforcing steel used in the curb tapers shall be of the deformed type and shall meet the requirements of A. S. T. M. Specification A-615 Grade 40 (A. A. S. H. T. O. M-31). Estimated weight of reinforcing steel per curb taper is 20 lbs.

Concrete used in the curb tapers shall be Class "DD". All costs associated with the furnishing of materials, equipment and labor necessary to install the curb tapers, including any required asphalt material removal, shall be included in the unit price bid for "Bridge Approach Section". Est. volume of conc. per curb taper is .23 cu. yds.



SUMMARY TABLE							
FEATURE CROSSED	STATION	GENERAL LAYOUT DWG. NO.	*Length of Rail (One side only)	TOTAL LENGTH		CURB TAPERS	
				Eastbound	Westbound	E. B.	W. B.
Int. Griffith Creek	729 + 00.00	9484	124-4 1/4	248-8 1/2	248-8 1/2	2	2
Int. Hodges Co. Rd.	1105 + 14.13	9489	125-2 5/16	—	250-4 5/8	—	2
Sep. County Road	1217 + 50.00	9494	96-8 1/4	193-4 1/2	193-4 1/2	2	2

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

GRIFFITH CREEK INTERCHANGE - E.B. & W.B.
AT STA. 729 + 00

HODGES ROAD SEPARATION - W.B. ONLY
AT STA. 1105 + 14.00

SEPARATION STRUCTURE - E.B. & W.B.
AT STA. 1217 + 50.00

FEDERAL AID PROJECT NO. IR 94-6(37)217

DESIGNED	3-8-88	L. M. S.
DRAWN	4-26-88	L. M. S.
CHECKED	8-29-88	C. O. F.
REVIEWED		
REVISOR		
REVISION		

DAWSON COUNTY
RAIL REVISION

Scale: 3/4" = 1' - 0" Except as noted

DRAWING NO. 14293

[60, 2107 15RA ILR. BRG]

NOTES:

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

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

For location of existing guardrail, curb drains, and required concrete curb tapers and barriers, see Dwg. No. 6329.

All new hardware shall be galvanized.

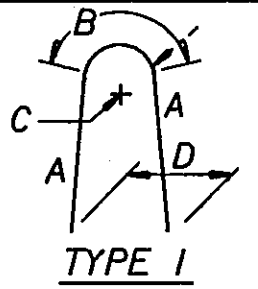
Existing rail, rail posts, blockouts, hardware, concrete curb and reinforcing steel shall be removed by the contractor as shown on this drawing. Except for the rail, rail posts, blockouts, and related hardware, all removed items shall become the property of the Contractor and shall be disposed of as approved by the Engineer. Existing rail rail posts, blockouts, and related hardware shall be set aside for pickup by the state forces. Removal costs shall be included in the unit price bid for "Revise Bridge Rail ~ Concrete Barrier".

The cost of furnishing and placing the new concrete barriers, reinforcing steel, galvanized pipe sleeves, wire rope and styrofoam blockouts 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 of the structure (Estimated to be 251'-5 7/8").

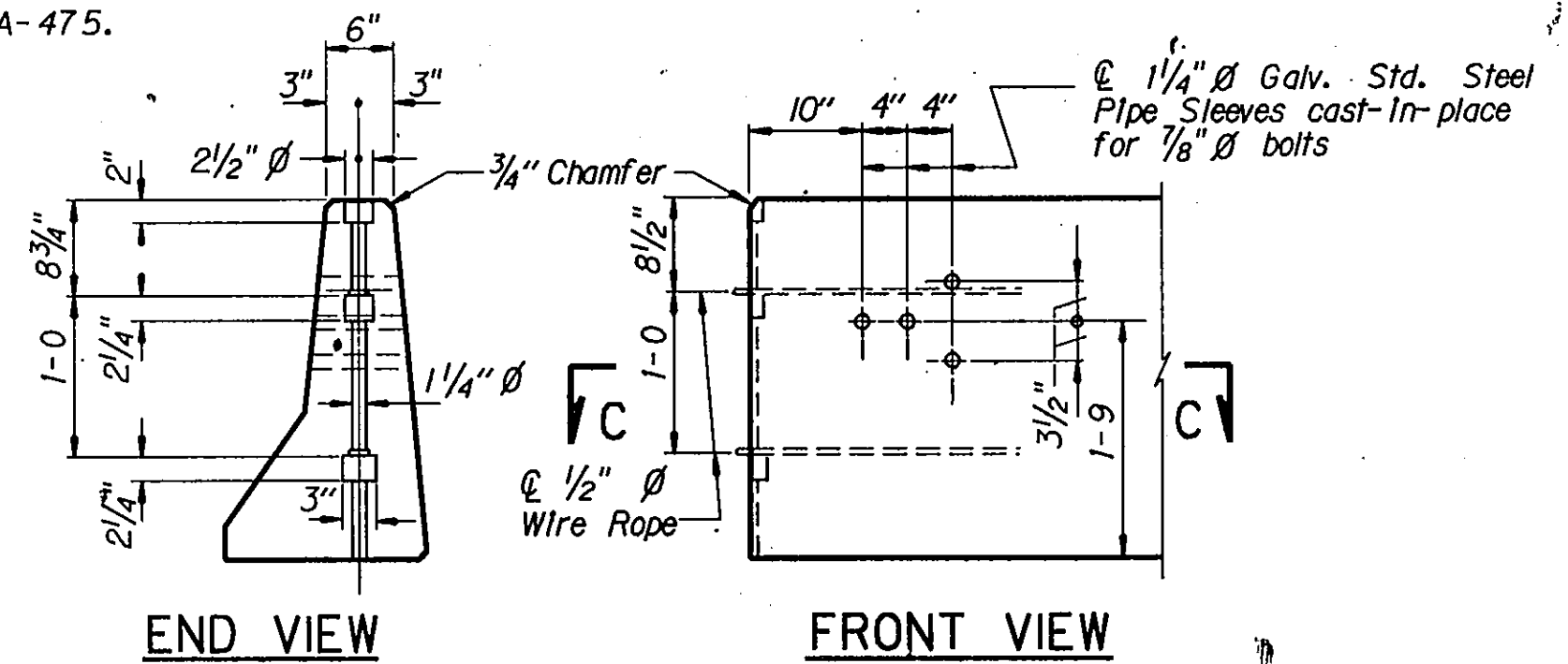
Concrete in the concrete barriers shall be Class "BD Modified".

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).

BILL OF REINFORCING STEEL



STRAIGHT BARS & BENT BARS (All dimensions are out to out)								
Mark	Size	No.	Type	Length	A	B	C	D
B1	4	250	I	5'-11"	2'-4"	0'-5"	0'-1 3/4"	0'-9"
S6	5	8	Str.	10'-0"				
B100	4	48	Str.	40'-0"				
B101	4	16	Str.	9'-5"				



BARRIER END DETAILS

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

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

HODGES ROAD SEPARATION - E.B. ONLY

AT STA. 1105 + 14.13

FEDERAL AID PROJECT NO. IR 94-6(37)217

DAWSON COUNTY

RAIL REVISION

Scale: 1/2" = 1'-0" Except as noted

DRAWING NO. 14294

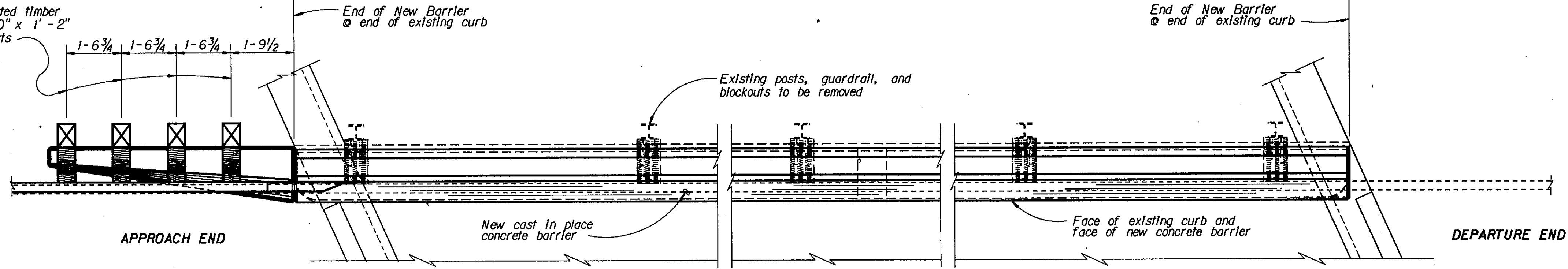
[60, 2107 15RAILR, BRG

To be Included In the unit price bid for "Bridge Approach Section" (See Bridge Approach Sections detail sheet)

125'-8 3/16 To be Included In the unit price bid for "Revise Bridge Rail ~ Concrete Barrier" Total Estimated Length = 251'-5 7/8"

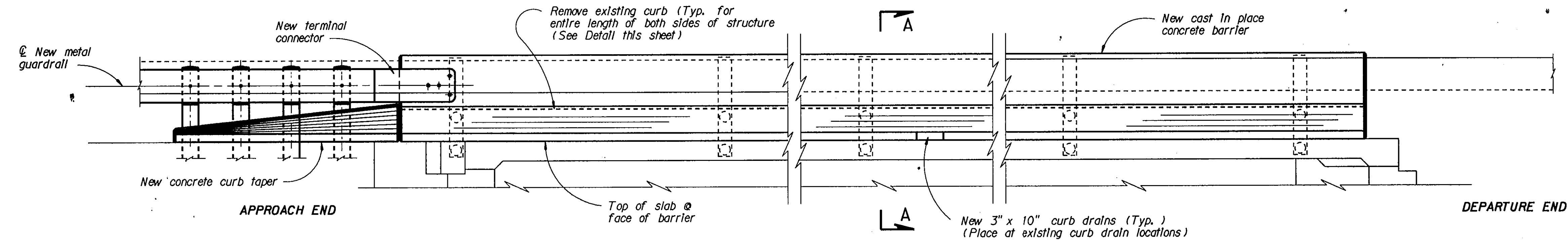
Four-lane divided departure ends to be Included In the unit price bid for "New Metal Guard Rail" (See Road Plans)

4 New 6" x 8" treated timber posts with 6" x 1'-0" x 1'-2" treated timber blockouts



NOTE: The existing surface under the new curb taper shall be removed to a depth as approved by the Engineer. Minimum depth shall be 4".

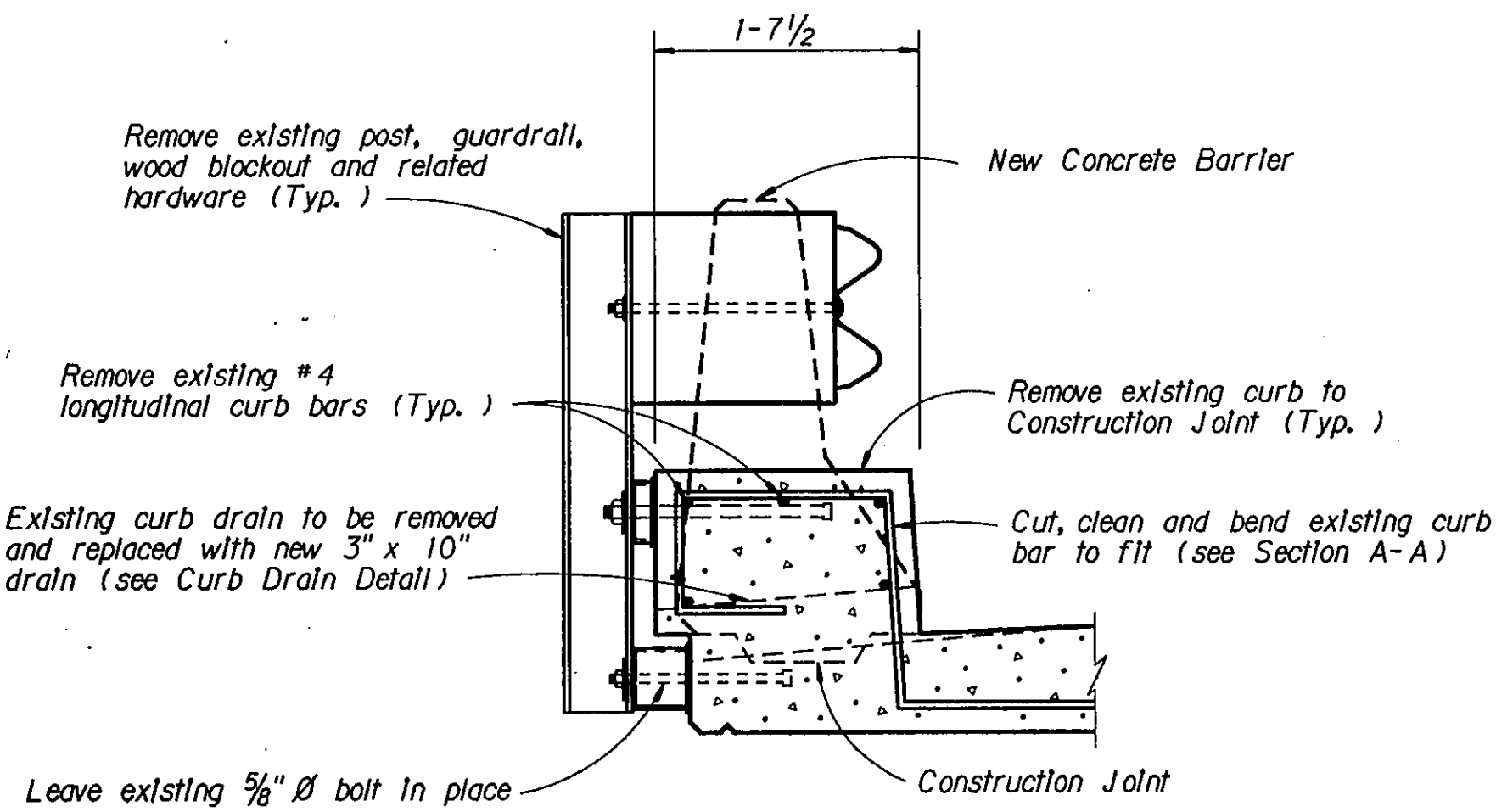
NOTE: The face and top of the new barrier shall have a protective coating applied in accordance with Section 560 of the Standard Specifications.



NOTE: Remove existing 1-7 1/2" curb to the original construction joint. Roughen and clean surface before placing the new concrete barrier.

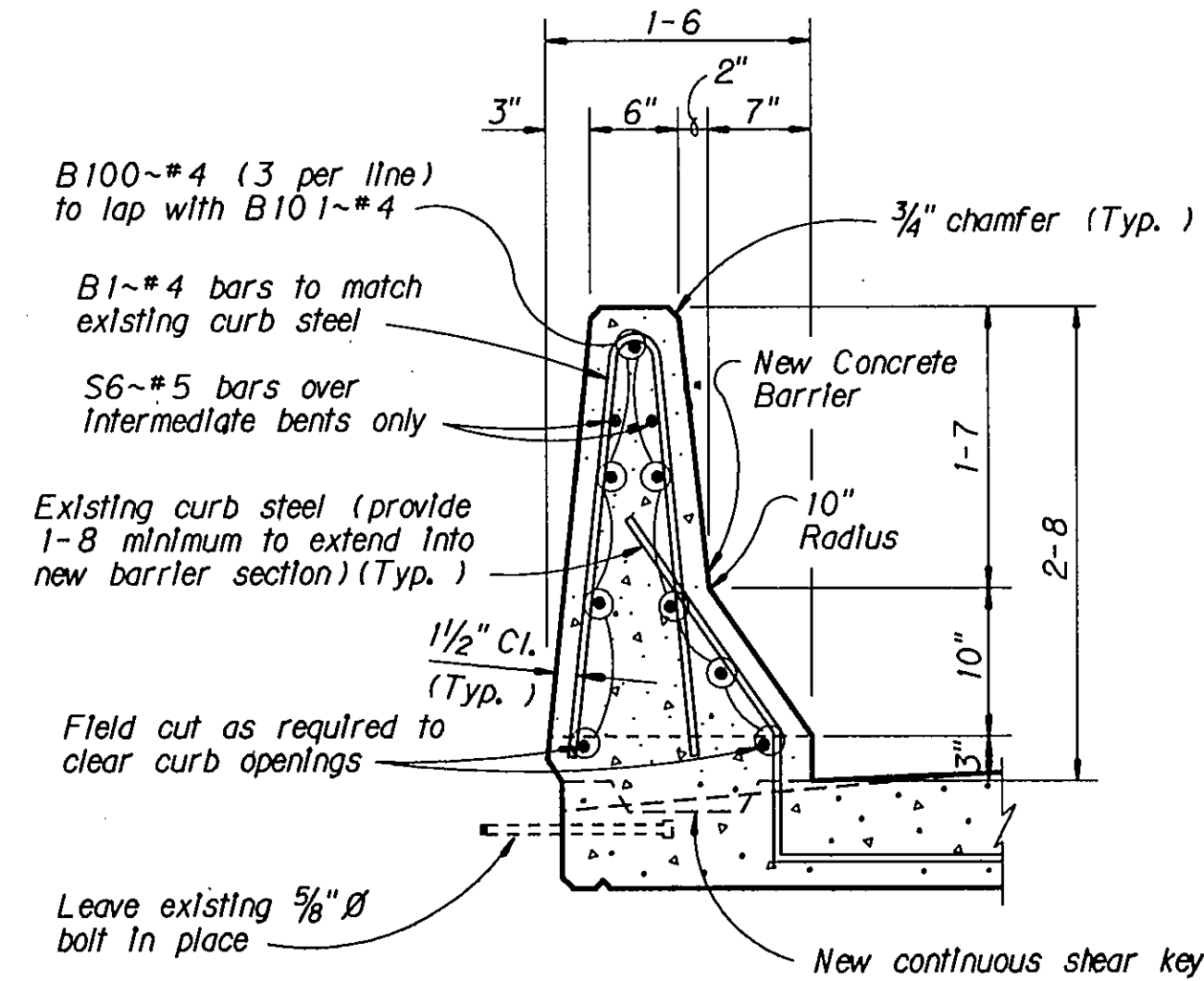
NOTE: Remove existing longitudinal curb reinforcing steel. Clean the exposed portion of the existing transverse reinforcing steel and bend, as shown in Section A-A, to tie in with the new concrete barrier steel.

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



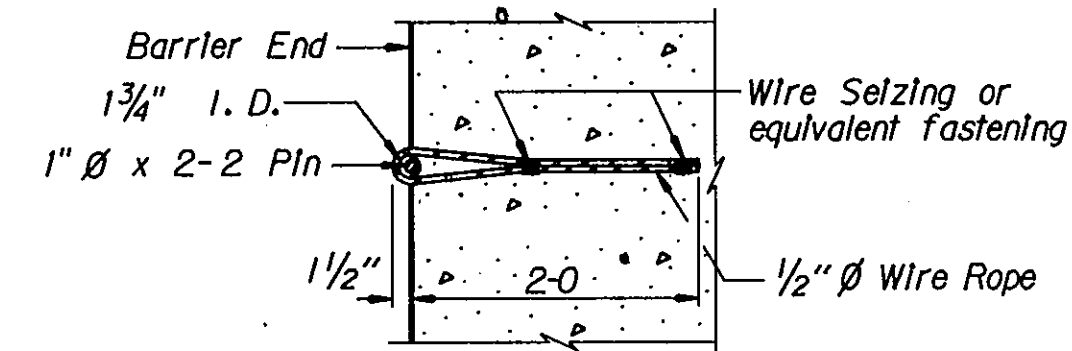
EXISTING CURB SECTION

Scale: 1" = 1'-0"

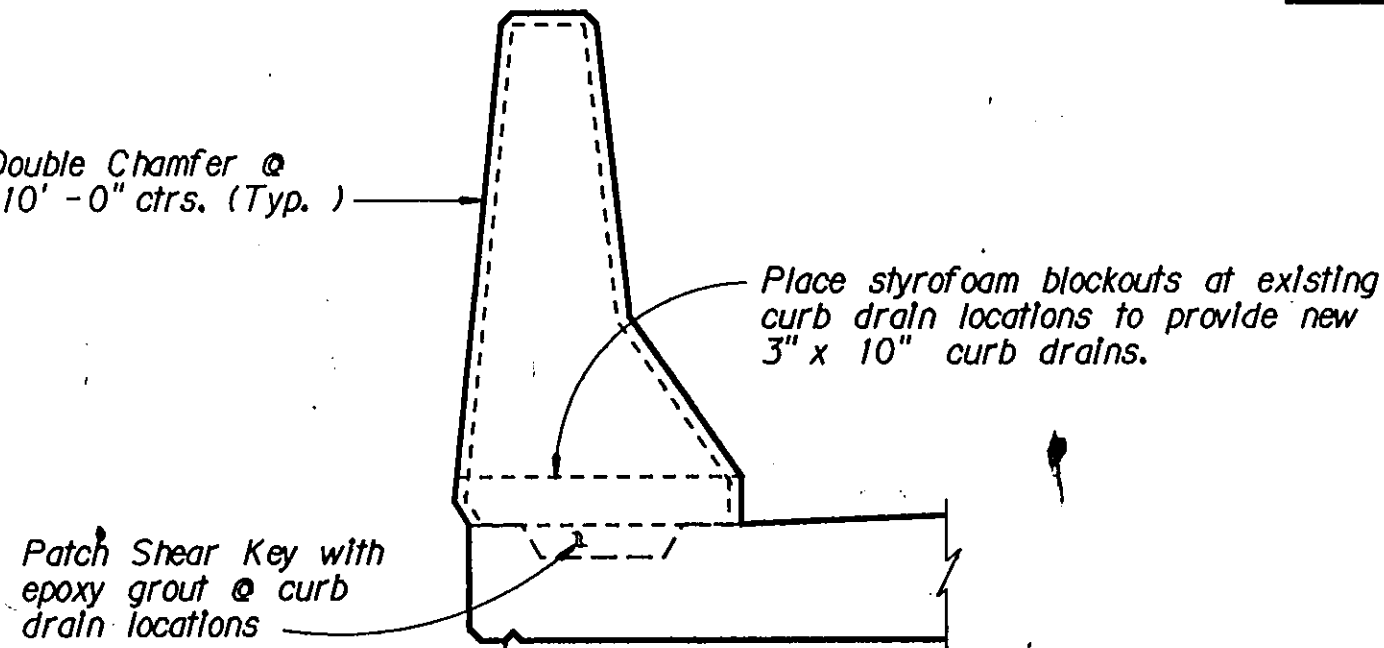


SECTION A-A

Scale: 1" = 1'-0"



SECTION C-C



CURB DRAIN DETAIL

No Scale

Note: For location of utilities see appropriate Road Plan sheets.

FINISHED GRADE: Finished plan grade of bridge at E Rdwy is 0.32 Ft above profile grade shown on Road Plans due to 0.02% crown.

FED. AID DIV. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	MONT.	194-7(10)233	18	47

* IR94-7(17)235

NOTES

LIVE LOAD: STANDARD HS20-44 LOADING OR ALTERNATE LOADING. ALTERNATE LOADING FOR BRIDGES AND FLOOR SYSTEMS WITH SPANS UNDER 40 FEET CONSISTS OF TWO AXLES FOUR FEET APART WITH EACH AXLE WEIGHING 24,000 LBS.

SPECIFICATIONS: MONTANA STATE HIGHWAY COMMISSION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 1970 EDITION, AND ANY AMENDMENTS THERETO, AND SECTION PROVISIONS SHALL COVER UNLESS OTHERWISE NOTED. DESIGN PREPARED IN ACCORDANCE WITH A.A.S.H.O. SPECIFICATIONS, 1969 EDITION, AND ANY AMENDMENTS THERETO.

CAST IN PLACE CONCRETE: UNLESS OTHERWISE APPROVED, ALL CONCRETE SHALL BE CLASS "AD". AN "AIR ENTRAINING AGENT" SHALL BE ADDED TO ALL CONCRETE EXCEPT CLASS "AS". CHAMFER ALL EXPOSED EDGES OF CONCRETE WITH ENCLOSED ANGLE LESS THAN 120°, 3/4" AND FILLET ENTRANT ANGLES 3/4" UNLESS OTHERWISE NOTED. ALL FORMS FOR DECK SLAB SHALL BE REMOVED.

STRUCTURAL STEEL: ALL STRUCTURAL STEEL SHALL BE MEASURED AND PAID FOR ON THE LUMP SUM BASIS AS SET FORTH IN THE STANDARD SPECIFICATIONS. ESTIMATED WEIGHT = 2132 POUNDS.

FOR REQUIREMENTS GOVERNING THE FABRICATION OF "STRUCTURAL STEEL" SEE THE STANDARD SPECIFICATIONS. TO AVOID OVERSIGHT THESE REQUIREMENTS SHALL BE CLEARLY NOTED ON THE SHOP DRAWINGS.

STRUCTURAL STEEL SHALL RECEIVE ONE (1) SHOP COAT OF RED LEAD OR BASIC LEAD SILICO CHROMATE PRIMER AND TWO (2) FIELD COATS CONSISTING OF FIRST FIELD OR PRIMER COAT AND ONE (1) COAT OF ALUMINUM PAINT AS SPECIFIED IN THE STANDARD SPECIFICATIONS.

APPROVAL: SHOP PLANS SHALL BE APPROVED BY THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS BEFORE FABRICATION IS BEGUN.

SETTING OF MASONRY PLATES: CARE SHALL BE TAKEN IN PLACING REINFORCING STEEL SO AS TO CLEAR ANCHOR BOLTS. MASONRY PLATES SHALL BE PLACED ON THREE LAYERS OF CANVAS THOROUGHLY SWABBED WITH RED LEAD AS CALLED FOR IN THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL FINISH CONCRETE UNDER MASONRY PLATES TO THE EXACT ELEVATION SHOWN. BUSH HAMMERING WILL BE PERMITTED AND USED ONLY AS A MEANS OF LEVELING THE CONCRETE SURFACE TO ASSURE FULL AND LEVEL BEARING AND TO REMOVE LATENCY, LOOSE AND FOREIGN MATERIAL. STEEL SHIMS SHALL BE USED TO BRING THE MASONRY PLATES UP TO GRADE IF NECESSARY. STEEL SHIMS SHALL BE THE SAME SIZE EXCEPT FOR THICKNESS, AS THE MASONRY PLATE. MINIMUM THICKNESS OF ANY SHIMS SHALL BE 1/8". THE COST OF BUSH HAMMERING AND SHIMS, IF ANY, SHALL BE INCLUDED IN THE UNIT PRICES BID FOR CLASS "AD" CONCRETE.

BACKFILL: THE BACKFILL AT END BENTS MAY BE COMPLETE 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.

FOOTINGS: ELEVATIONS SHOWN FOR BOTTOM OF FOOTINGS ARE APPROXIMATE ONLY. FINAL ELEVATIONS TO BE DETERMINED BY THE ENGINEER.

PROTECTIVE COATING: DECK, CURBS AND CONCRETE END POSTS SHALL BE GIVEN A PROTECTIVE COATING OF BOILED LINED OIL. "SEE STANDARD SPECIFICATIONS".

COVERING: THE MINIMUM COVERING, MEASURED FROM THE SURFACE OF THE CONCRETE TO THE FACE OF ANY REINFORCEMENT BAR, SHALL BE NOT LESS THAN 2 INCHES EXCEPT AS FOLLOWS OR OTHERWISE NOTED:

BOTTOM OF SLAB 1 INCH
STIRRUPS AND TIES 1 1/2 INCHES

IN ALL FOOTINGS AND PIER SHAFTS, THE MINIMUM COVERING SHALL BE 3 INCHES.

SEQUENCE OF WORK: No Work shall be performed on Bents No. 1 & No. 6 until the approach Rdwy. fills have been completed to Berm Elevation See Special Provisions.

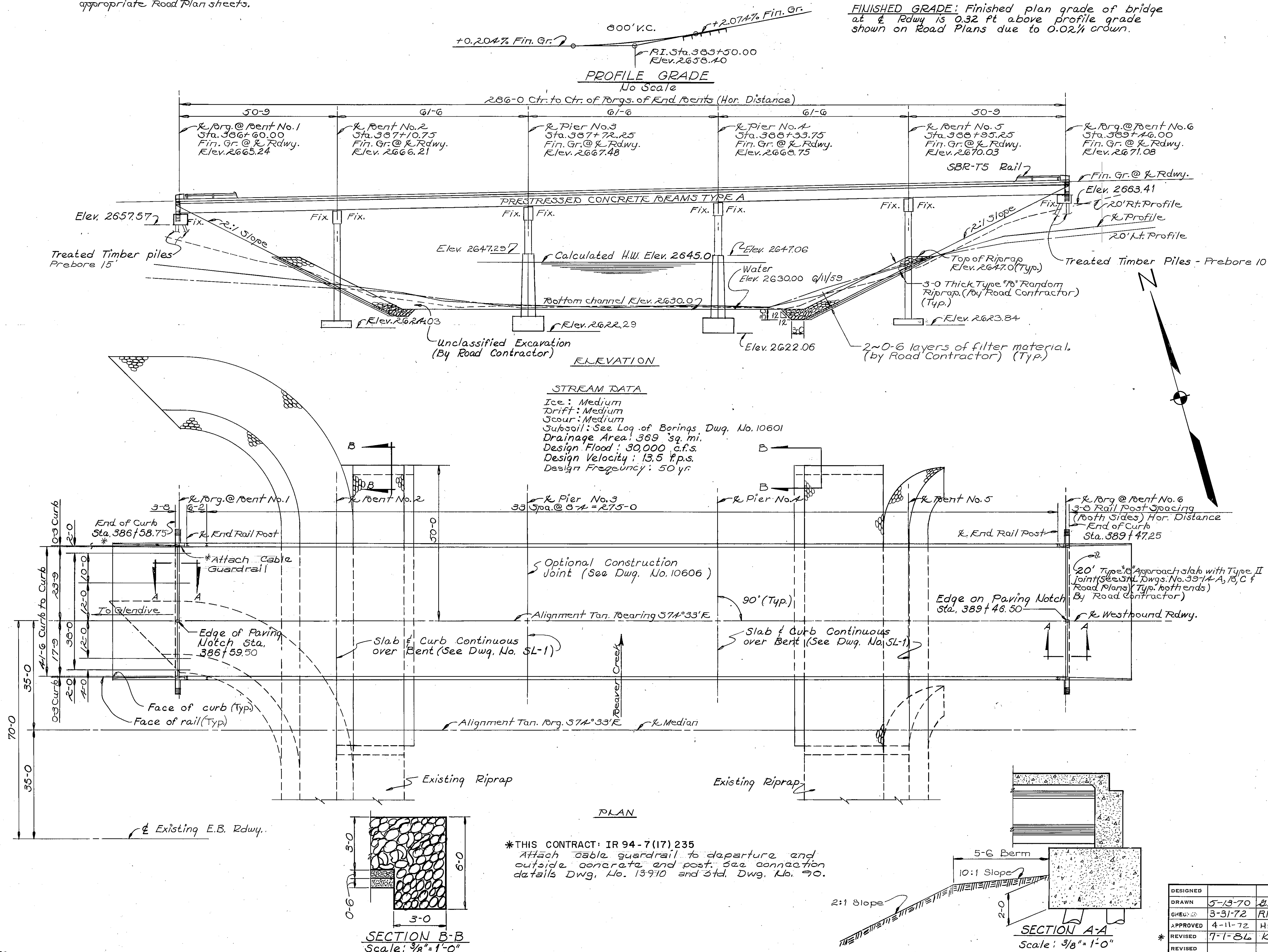
STATE OF MONTANA DEPARTMENT OF HIGHWAYS

BRIDGE OVER BEAVER CREEK
AT STA. 388+03.00
FEDERAL AID PROJECT NO. 194-7(10)233
WIBAUX COUNTY
GENERAL LAYOUT

Scale: 1" = 15'-0" Except as Noted

DESIGNED		
DRAWN	5-13-70	E.C.D.
CHECKED	3-31-72	RND
APPROVED	4-11-72	H.E.O.
REVISED	7-1-86	K.B.
REVISED		

DRAWING NO. 10600



NOTES

SOILS AND FOUNDATION MATERIALS: BORINGS WERE TAKEN BY THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS AT THE POINTS SHOWN ON THE GENERAL LAYOUT OR FOOTING PLAN.

THE SERIES OF NUMBERS SHOWN ON THE LOG OF BORINGS INDICATES THE NUMBER OF BLOWS PER 6" PENETRATION FOR EACH NUMBER OF THE SERIES OF A 2" SAMPLE TUBE WHICH WAS DRIVEN IN ACCORDANCE WITH THE STANDARD PENETRATION TEST MADE WITH A 2" SPLIT TUBE SAMPLER USING A 140# HAMMER HAVING A 30" DROP. THE TOTAL PENETRATION OF THE SAMPLER TUBE IS INDICATED ON THE CORE LOGS AFTER EACH SERIES IF 6" PENETRATION WAS NOT ACHIEVED IN 50 BLOWS.

THE STATE OF MONTANA, DEPARTMENT OF HIGHWAYS DOES NOT ASSUME ANY RESPONSIBILITY FOR ANY VARIATION OR MISINTERPRETATION OF THE CLASSES OF MATERIALS, AND ADJUSTMENT IN BID PRICES WILL NOT BE MADE IF THE MATERIALS FOUND DO NOT AGREE WITH THOSE SHOWN IN THE LOG OF BORINGS.

FOUNDATION PILES: FOR BIDDING PURPOSES ONLY, PILE LENGTHS HAVE BEEN ESTIMATED AS NOTED ON THE DETAILS. THE "METHOD OF MEASUREMENT" FOR DRIVING TREATED TIMBER PILES SHALL BE AS SET FORTH IN THE STANDARD SPECIFICATIONS EXCEPT THE NUMBER OF LINEAL FEET TO BE MEASURED FOR PAYMENT SHALL BE THE LINEAL FEET OF PILING DRIVEN BELOW THE BOTTOM OF THE PREBORED HOLES. PREBORING OF HOLES FOR TEST PILES SHALL BE INCLUDED IN THE LUMP SUM BID FOR TEST PILES.

FOOTINGS: The Footing for Bents No. 2 & No. 5 and Piers No. 3 & No. 4 shall be keyed into undisturbed material a minimum of 1'-6". The area excavated for Keying footings into undisturbed 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 the neat lines. The quantity of concrete for piers and bents to be paid for shall be the amount only within neat lines shown on the details. If changes in the details of the piers or bents are ordered by the Engineer, the quantities will be revised according to the revised details.

STATE OF MONTANA DEPARTMENT OF HIGHWAYS

BRIDGE OVER BEAVER CREEK

AT STA. 388+03.00

FEDERAL AID PROJECT NO. 194-7(10)233

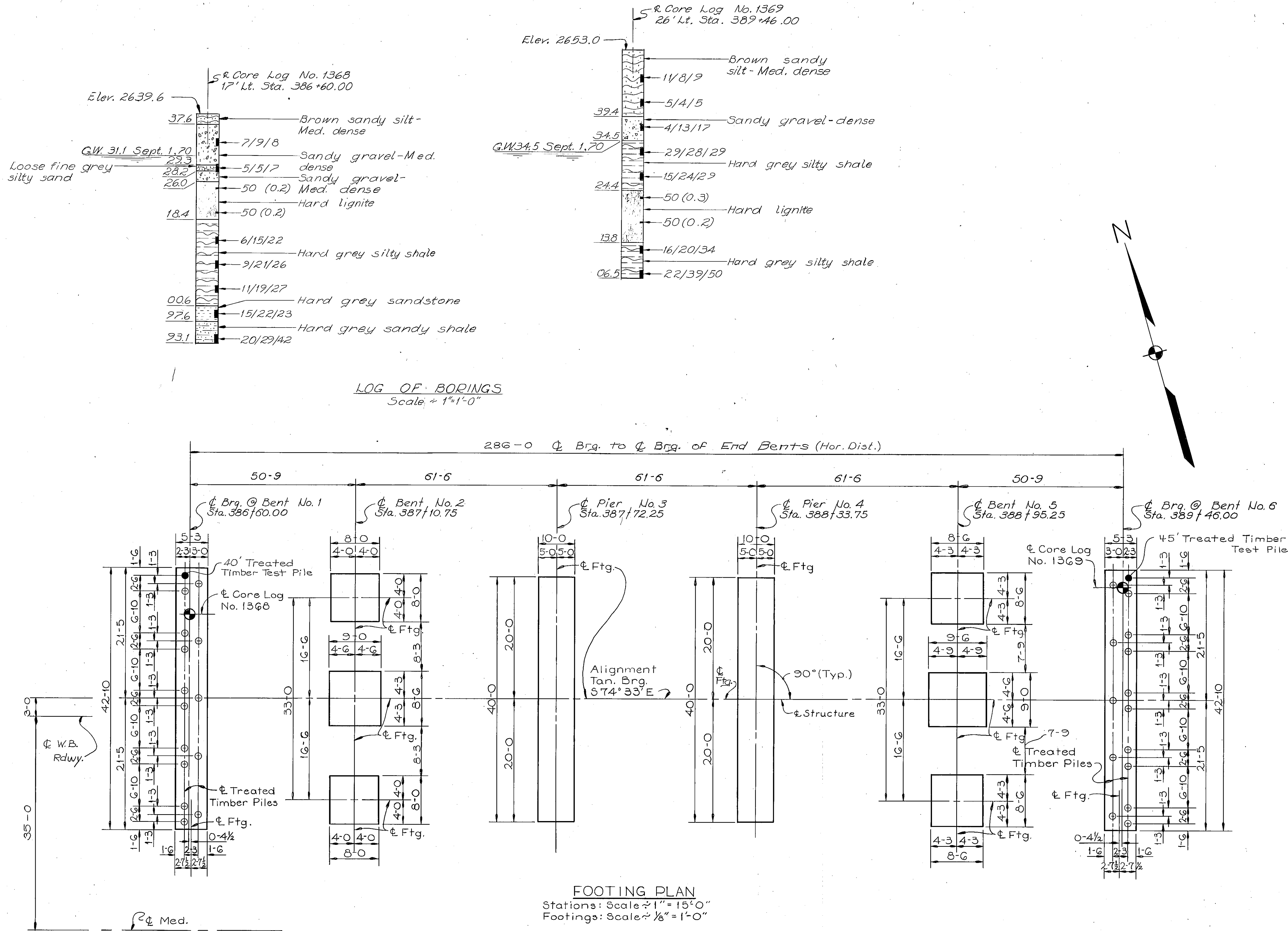
WIBAUX COUNTY

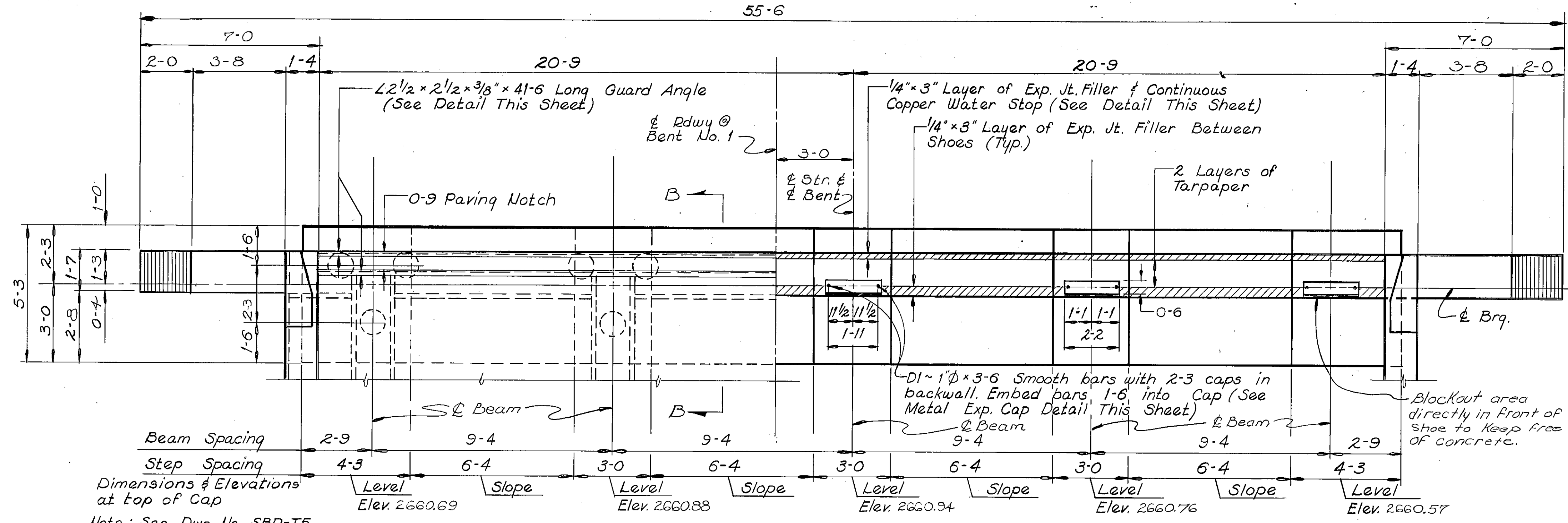
FOOTING PLAN

Scale - As noted

DRAWING NO. 10601

DESIGNED		
DRAWN	9-25-70	REM
TRACED		
CHECKED	3-31-72	RND
REVISED		
REVISED		

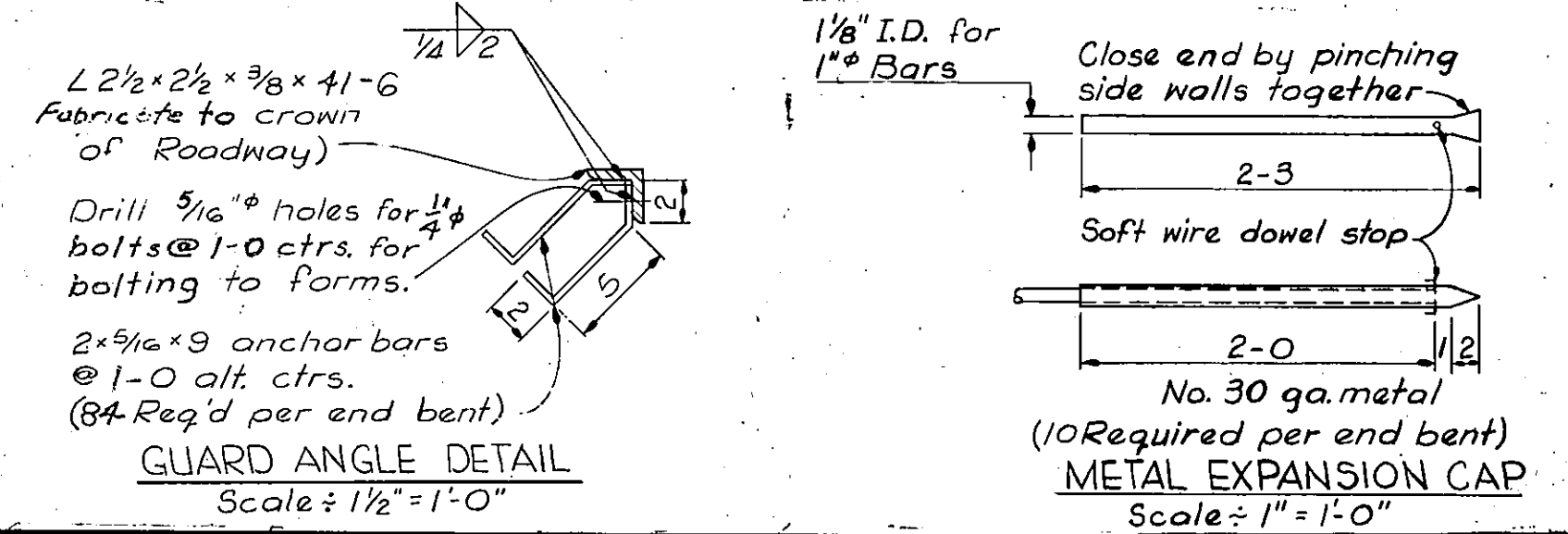
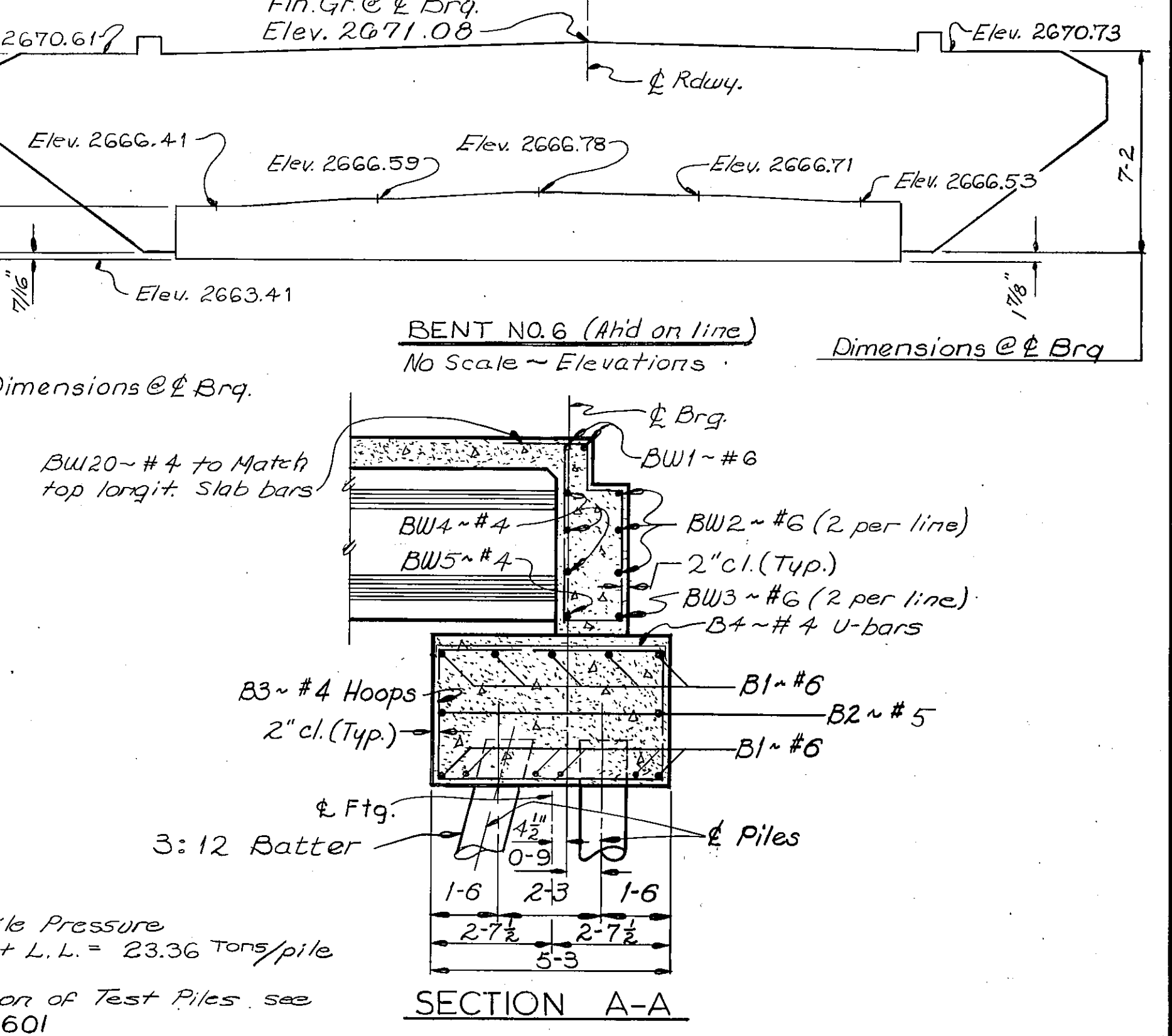
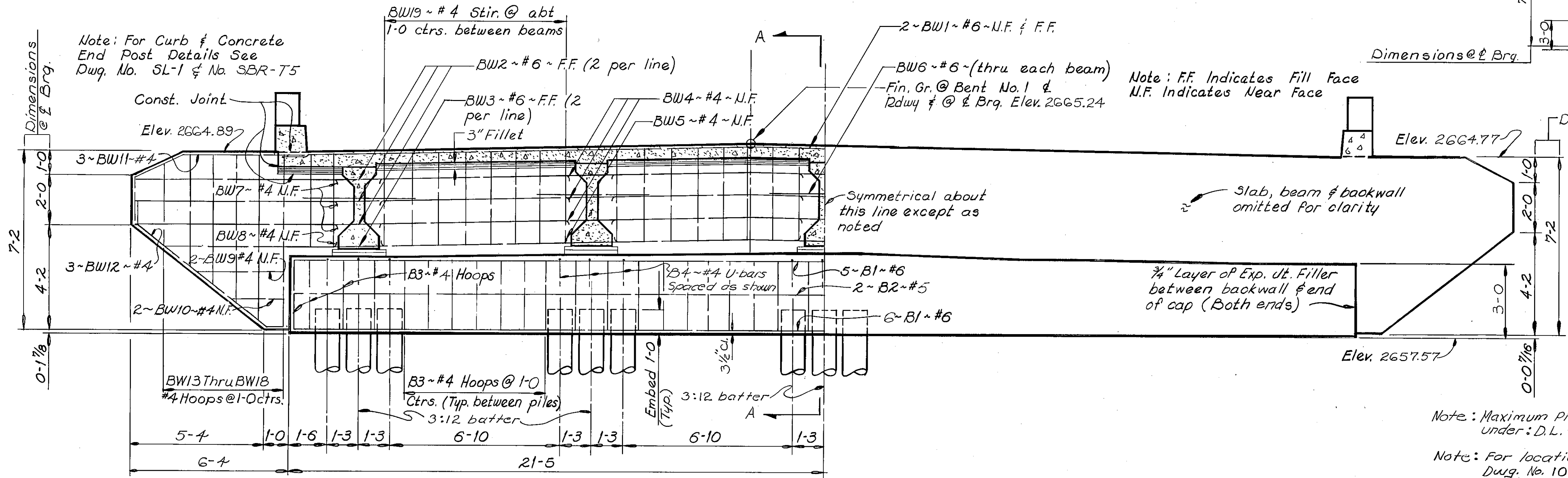




BILL OF REINFORCING STEEL (One Bent Only)

Type 1				Type 2				Type 3				Type 4				Type 5			
Straight Bars				Bent Bars (All dimensions are out to out)				Bent Bars (All dimensions are out to out)				Bent Bars (All dimensions are out to out)				Bent Bars (All dimensions are out to out)			
Mark	Size	No.	Length	Mark	Size	No.	Length	Mark	Size	No.	Length	Mark	Size	No.	Length	Mark	Size	No.	Length
B1	#6	11	42'-6"	B3	#4	42	15'-9"	B1	#6	11	42'-6"	B3	#4	42	15'-9"	B1	#6	11	42'-6"
B2	#5	2	42'-6"	B4	#4	15	3'-11"	B2	#5	2	42'-6"	B4	#4	15	3'-11"	B2	#5	2	42'-6"
BW1	#6	2	43'-6"	BW11	#4	6	5'-8"	BW1	#6	2	43'-6"	BW11	#4	6	5'-8"	BW1	#6	2	43'-6"
BW2	#6	6	28'-4"	BW12	#4	6	5'-8"	BW2	#6	6	28'-4"	BW12	#4	6	5'-8"	BW2	#6	6	28'-4"
BW3	#6	2	27'-0"	BW13	#4	2	1'-9"	BW3	#6	2	27'-0"	BW13	#4	2	1'-9"	BW3	#6	2	27'-0"
BW4	#4	12	7'-8"	BW14	#4	2	1'-9"	BW4	#4	12	7'-8"	BW14	#4	2	1'-9"	BW4	#4	12	7'-8"
BW5	#4	4	7'-4"	BW15	#4	2	1'-9"	BW5	#4	4	7'-4"	BW15	#4	2	1'-9"	BW5	#4	4	7'-4"
BW6	#6	5	4'-6"	BW16	#4	2	1'-9"	BW6	#6	5	4'-6"	BW16	#4	2	1'-9"	BW6	#6	5	4'-6"
BW7	#4	6	8'-1"	BW17	#4	2	1'-9"	BW7	#4	6	8'-1"	BW17	#4	2	1'-9"	BW7	#4	6	8'-1"
BW8	#4	2	6'-7"	BW18	#4	2	1'-9"	BW8	#4	2	6'-7"	BW18	#4	2	1'-9"	BW8	#4	2	6'-7"
BW9	#4	4	3'-3"	BW19	#4	36	8'-6"	BW9	#4	4	3'-3"	BW19	#4	36	8'-6"	BW9	#4	4	3'-3"
BW10	#4	4	1'-11"	BW20	#4	31	4'-0"	BW10	#4	4	1'-11"	BW20	#4	31	4'-0"	BW10	#4	4	1'-11"
*D1	1" Dia	10	3'-6"					*D1	1" Dia	10	3'-6"					*D1	1" Dia	10	3'-6"

*D1 - 1" Smooth Bars shall conform to ASTM A-36 Steel
Fin. Gr. @ Bent No. 1 & Bent No. 6

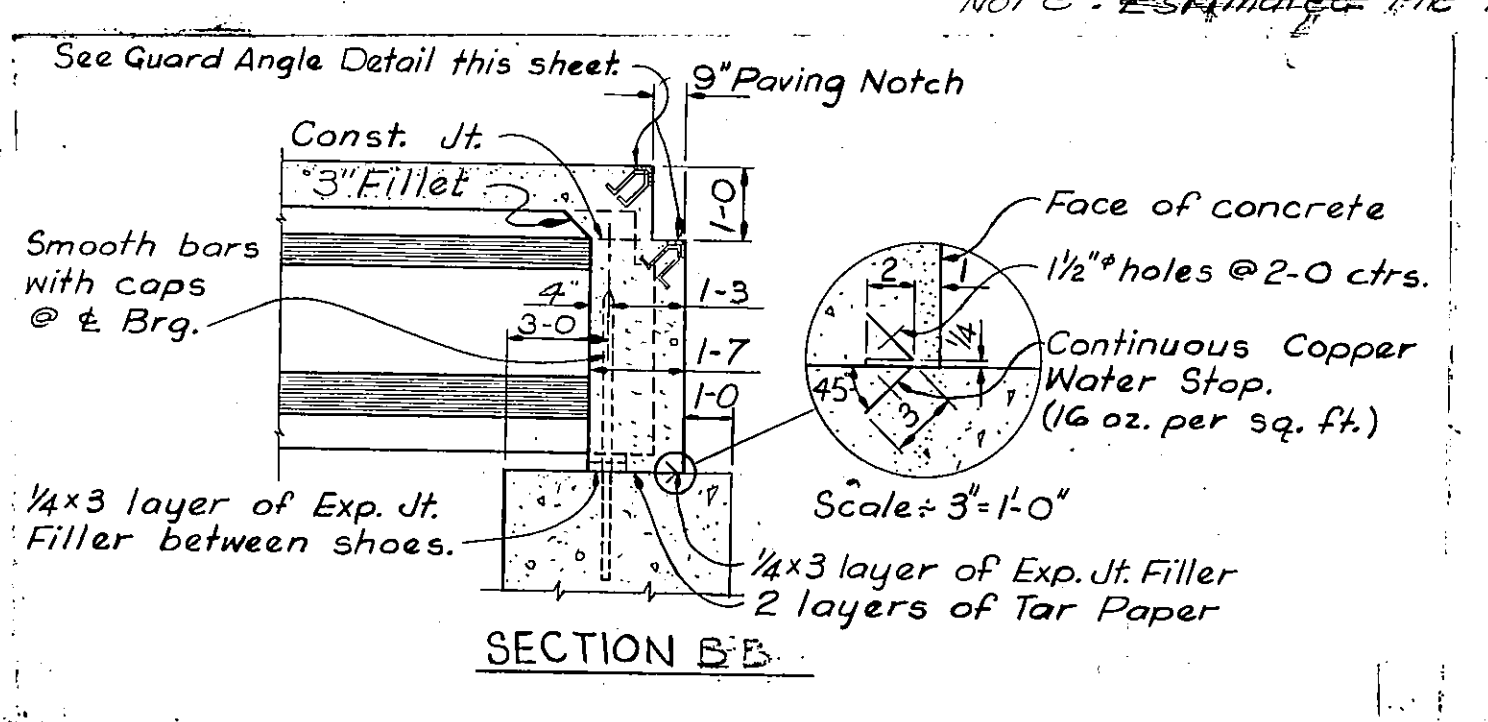


ELEVATION
(Bent No. 1 Back on Line - Shown)
(Bent No. 6 Similar)

Note: Guard Angle may be furnished in two pieces with end anchor bars 0-6 maximum from each end.

Note: Cost of furnishing and placing expansion joint filler, tarpaper, and copper water stop shall be included in the unit price bid for class "AD" concrete.

Note: Paint all guard angle surfaces not in contact with concrete with one (1) shop coat and two (2) field coats of paint as provided in the standard specifications.



DESIGNED	11-16-71	HKL
DRAWN	12-14-71	HA
CHECKED	3-31-72	RND
REVISED		
REVISED		

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER BEAVER CREEK
AT STA. 388+03.00

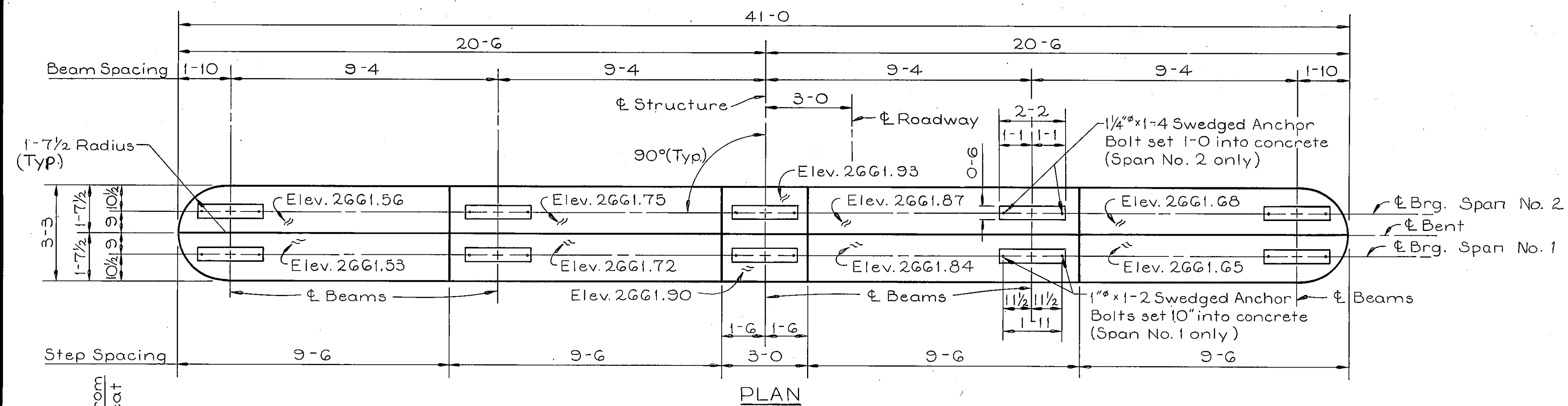
FEDERAL AID PROJECT NO. 194-7(10)233

WIBAUX COUNTY

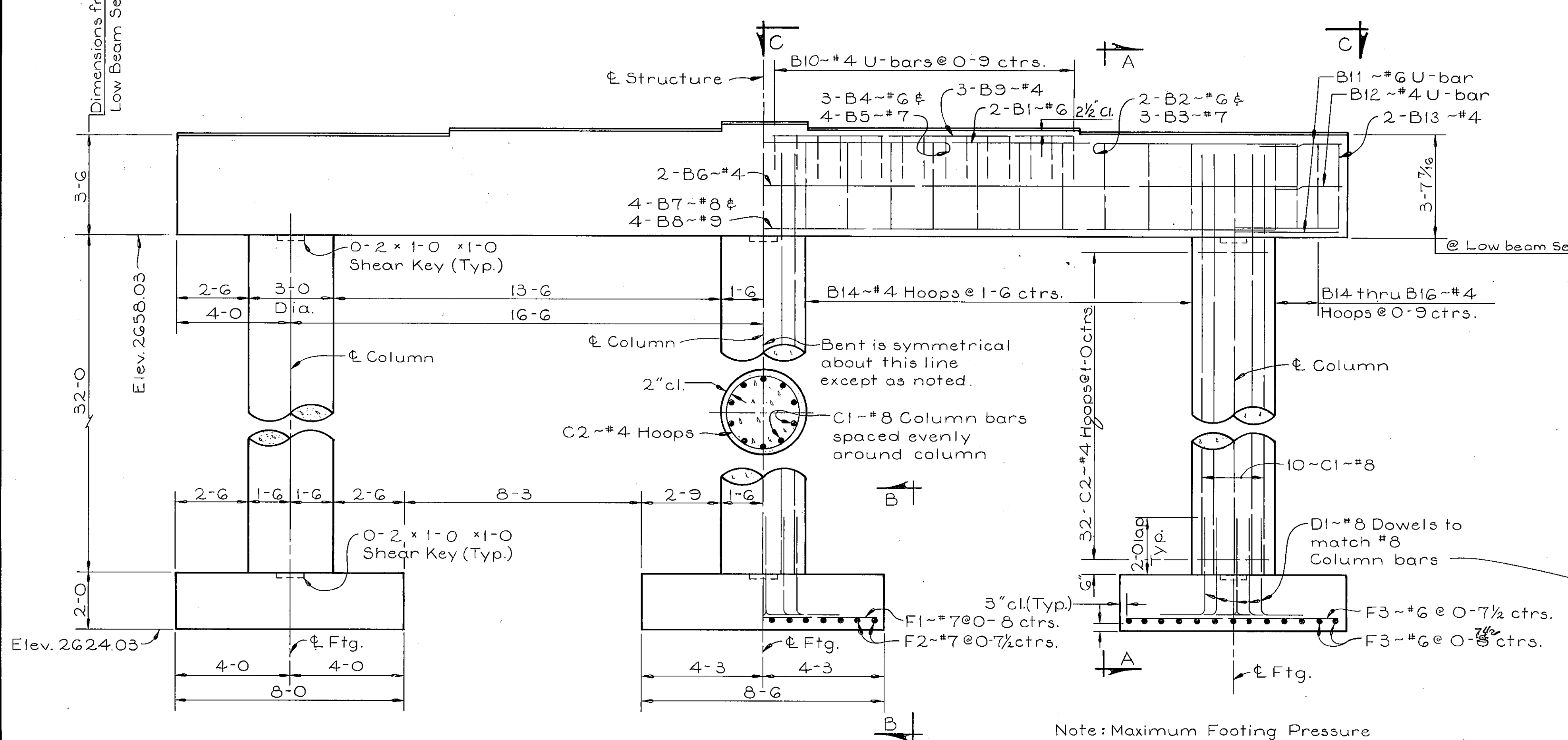
BENT NO. 1 & BENT NO. 6

Scale: 3/8" = 1'-0" (Except As Noted)

DRAWING NO. 10602

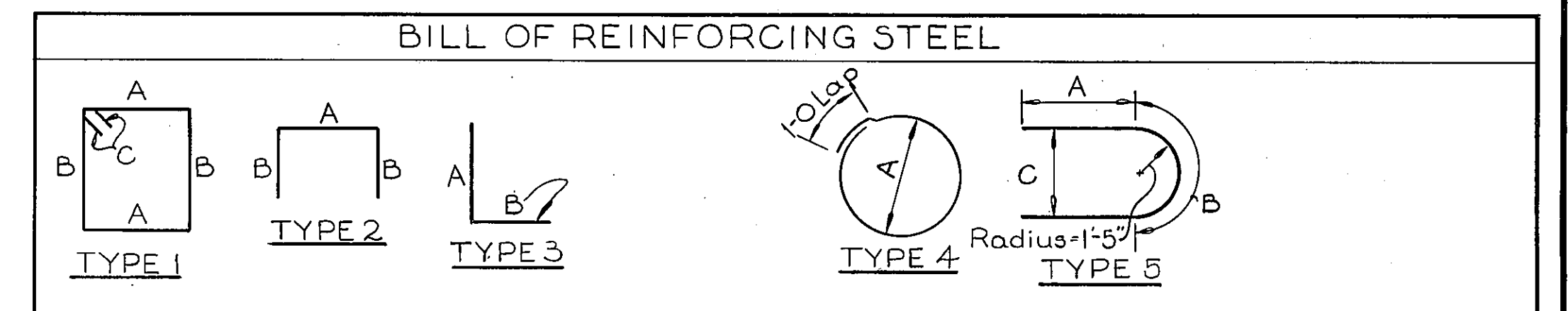
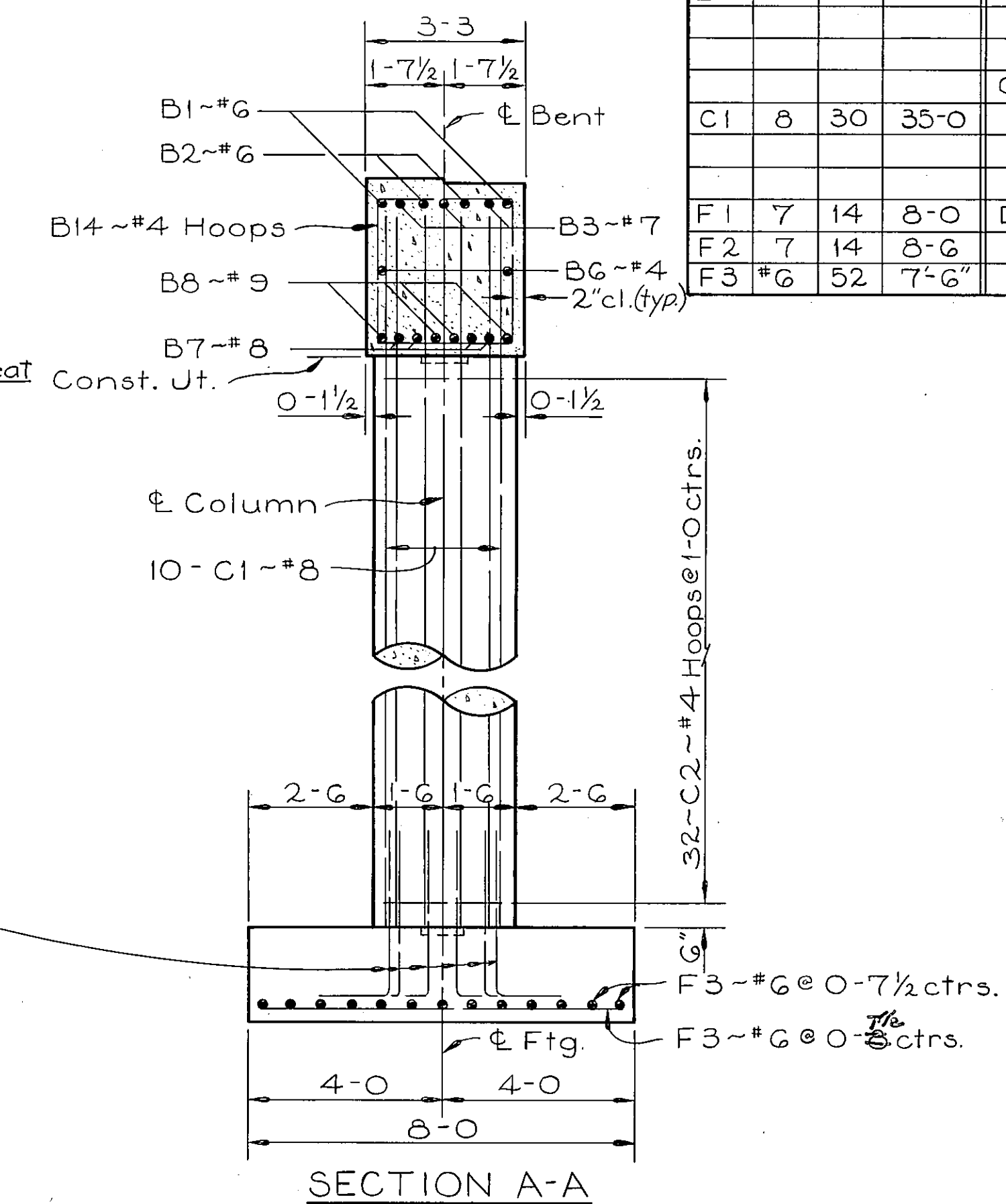


PLAN

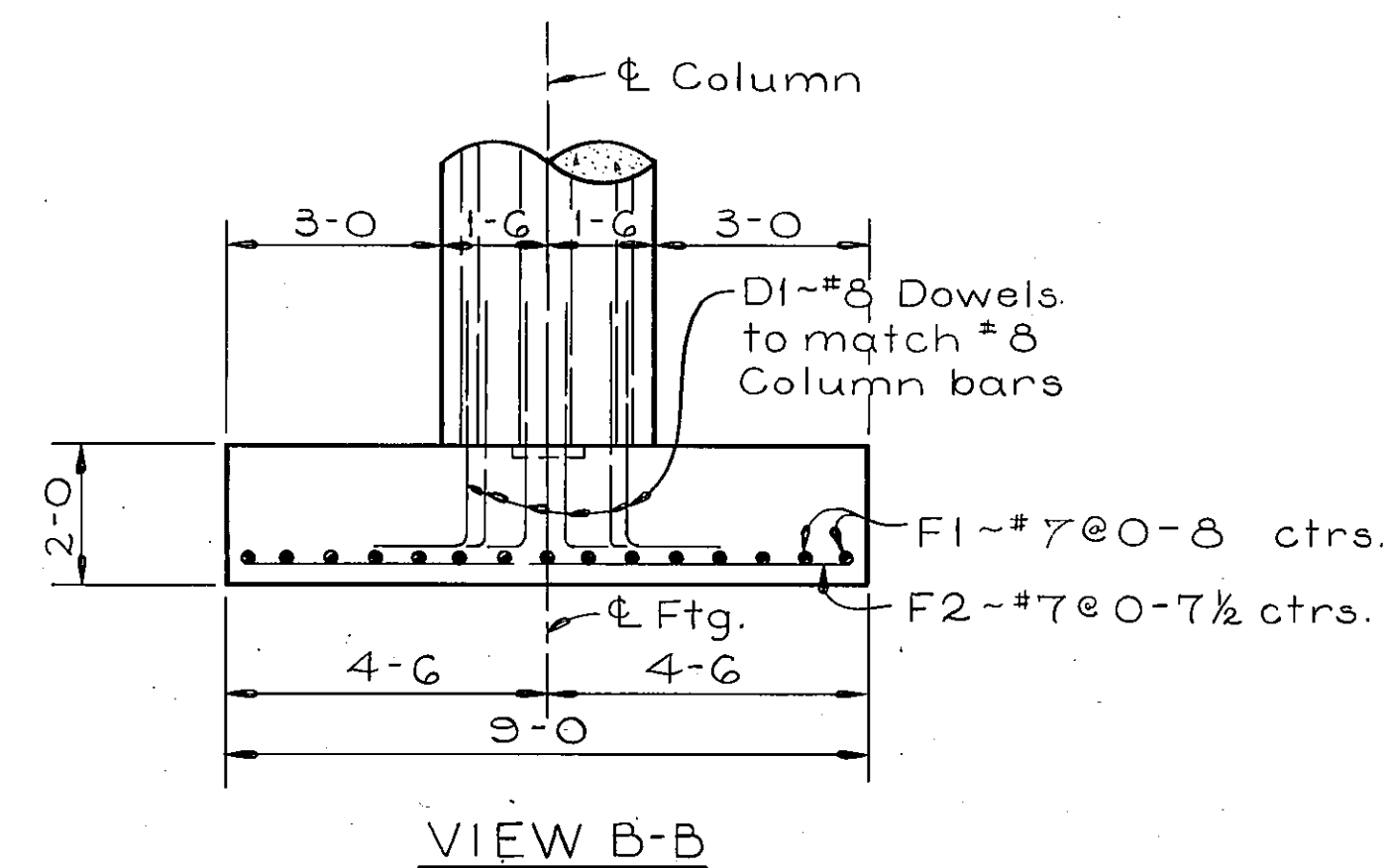


ELEVATION
(Ahd. on line)

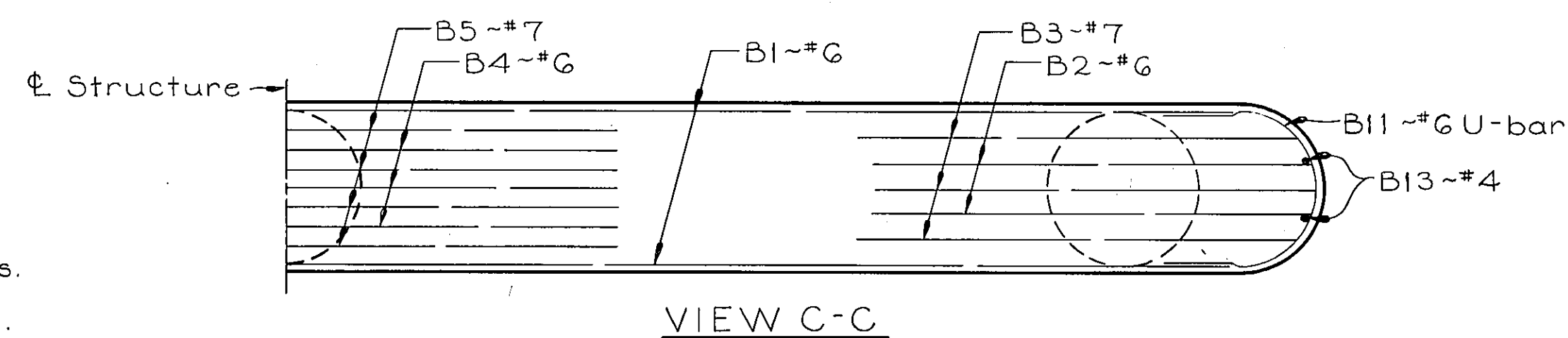
Note: Maximum Footing Pressure
Under: D.L. + L.L. + .3W + W.L. +
L.F. = 3.43 Tons per sq. ft.

[illegible]

SECTION A-A



VIEW B-B



VIEW C-C

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

DEPARTMENT OF HIGHWAYS

BRIDGE OVER BEAVER CREEK

AT STA. 388+03.00

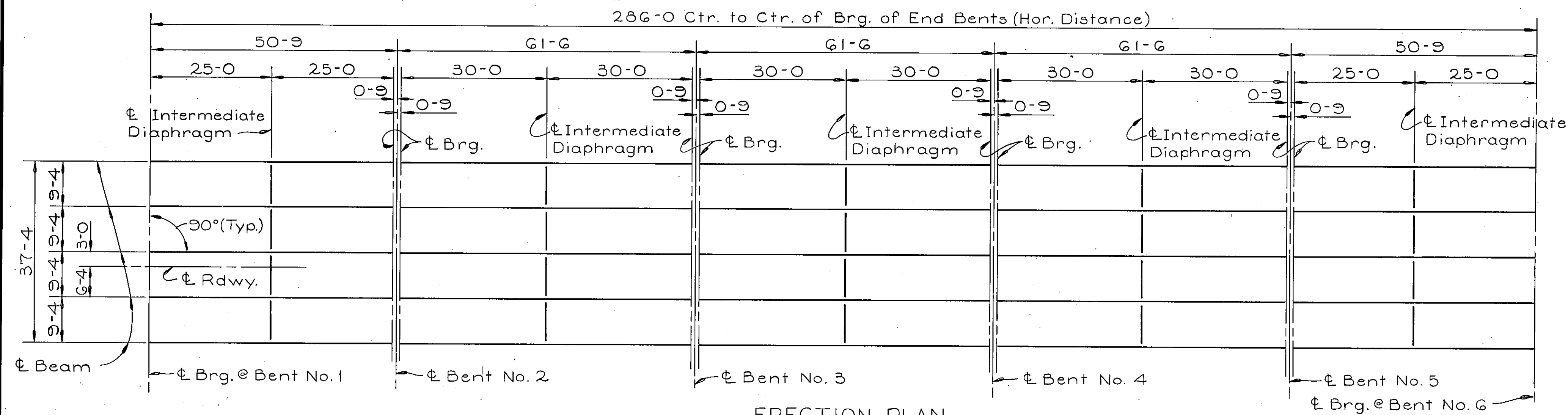
FEDERAL AID PROJECT NO. 194-7(10)233

WIBAUX COUNTY

BENT NO. 2

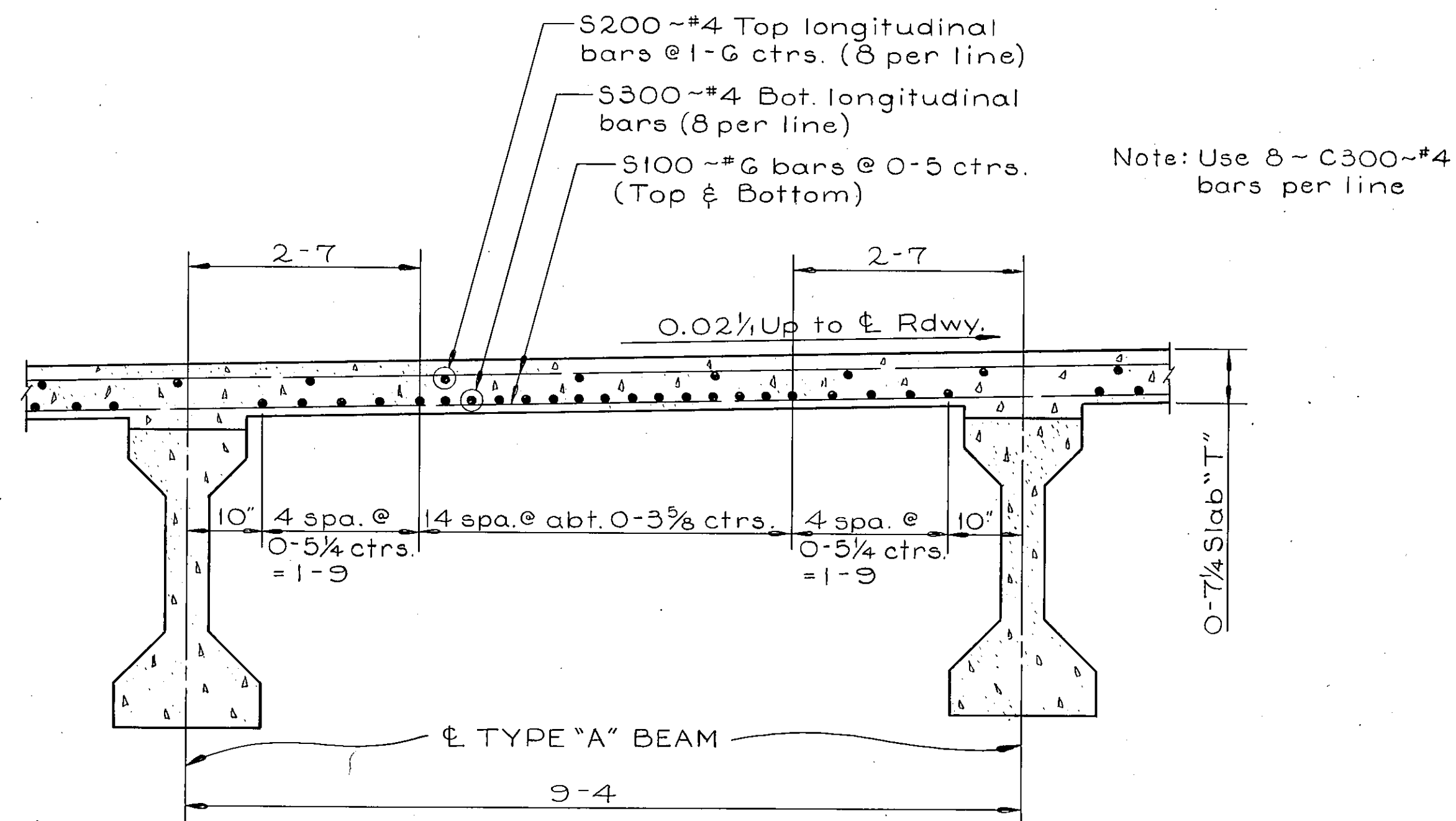
Scale $\approx \frac{3}{8}'' = 1' - 0''$

DESIGNED	11-22-71	H.K.J.
DRAWN	12-21-71	PAK
CHECKED	R.N.D.	3-31-71
REVISED		
REVISED		
REVISED		



ERECTION PLAN
Scale 1" = 15'-0"

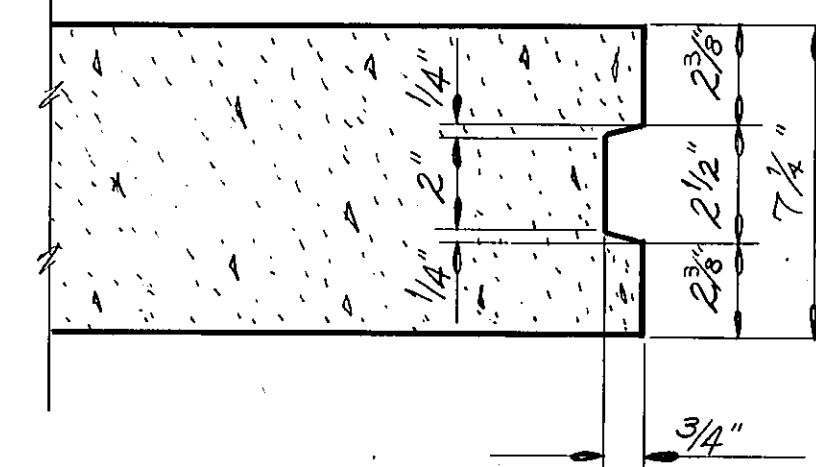
Note: For additional slab, curb, end diaphragm, intermediate diaphragm and concrete end post details see Dwgs No. SL-1 & No. SBR-T5



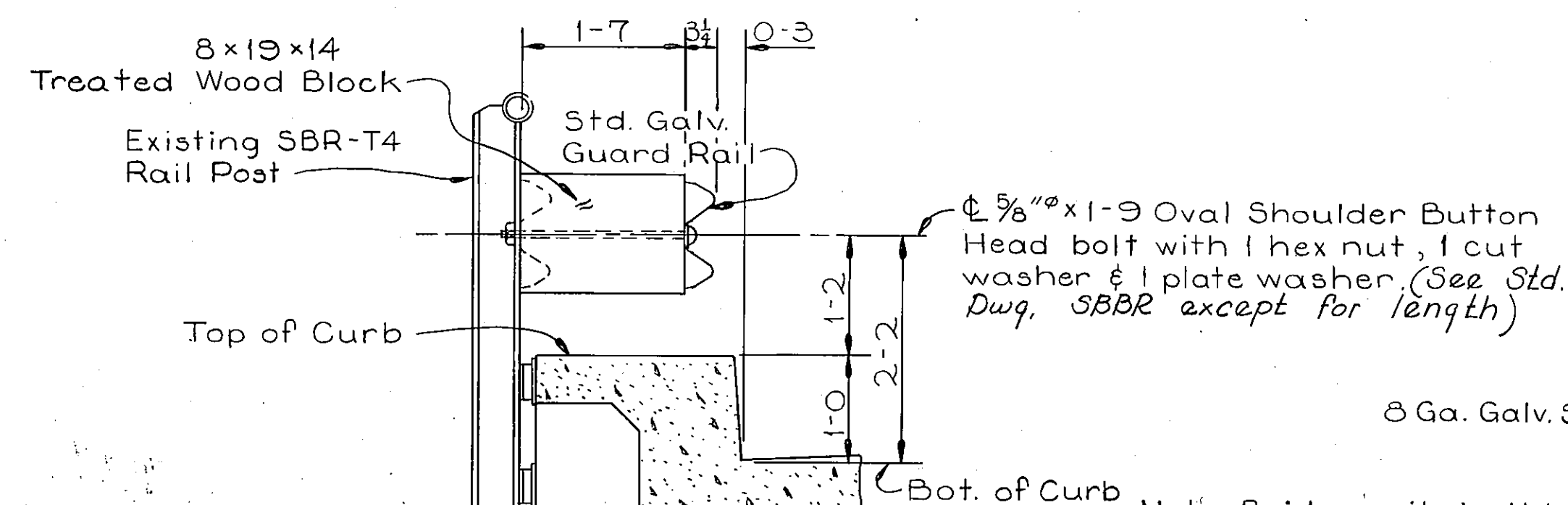
TRANSVERSE SECTION
Scale 3/4" = 1'-0"

Note: At the slab construction joint, coat the concrete surface thoroughly with epoxy resin bonding agent (AASHTO Designation M200-65 Type A) just before the last pour at the joint. Slab reinforcing steel shall be continuous thru joint, as shown on Dwg. No. SL-1

Note: If the contractor elects to use the optional construction joint at Pier No. 3 he shall arrange and Pier No. 4 with concrete placement in this sequence of pouring the slab so that the last pour is concluded at the end of Pier No. 3. Three separate pours as directed by written permission in letter dated May 25, 1973.



OPTIONAL CONSTRUCTION JOINT
No Scale



REVISED RAIL CONNECTION DETAIL
Scale 3/4" = 1'-0"

Note: Bridge rail shall be continuous with end-welded down to match Std. approach guard rail height, warped up to match Bridge Rail

Washer to be placed between rail and head of post bolt

PLATE

WASHER DETAIL

Full Size

BILL OF REINFORCING STEEL											
STRAIGHT BARS											
Mark	Size	No.	Length	Mark	Size	No.	Type	Length	A	B	C
S5	#5	88	15'-0"	C1	#4	770	1	3'-4"	1'-0"	0'-9"	0'-5"
6	5	100	10'-0"	2	4	754	3	2'-6"	0'-6"	1'-0"	0'-1"
100	6	1370	43'-6"	3	4	140	2	3'-7"	0'-8"	0'-10"	0'-3 1/2"
200	4	248	36'-9"	4	5	156	3	4'-9"	0'-6"	1'-0"	3'-3"
S300	4	768	36'-9"	C5	4	4	7	2'-0"	1'-0"	1'-0"	0'-1"
BENT BARS (All dimensions are out to out)											
C300	4	64	36'-11"	D4	4	256	5	4'-10"	1'-10"	0'-7"	0'-3 1/2"
D3	6	64	7'-10"	D7	4	160	6	6'-4"	2'-7"	0'-7"	0'-3 1/2"
D5	4	40	7'-10"								
D6	6	40	7'-10"	P2	5	16	4	2'-9"	1'-1 1/2"	1'-7 1/2"	0'-6"
D8	6	39	4'-6"	3	4	12	2	6'-3"	0'-10"	2'-0"	0'-3 1/2"
				4		4		6'-1"	0'-9"		
				5				5'-11"	0'-8"		
P1	#5	24	2'-9"	6				5'-9"	0'-7"		
				7				5'-7"	0'-6"		
				8				5'-5"	0'-5"		
				P9	#4	4	2	5'-3"	0'-4"	2'-0"	0'-3 1/2"

PRESTRESSED CONCRETE BEAMS: Prestressed concrete beams shall be fabricated in accordance with Dwg. No. B-A. Maximum f'c (Compressive strength of concrete at 28 days) for design shall be 6000 p.s.i. Design stresses before prestress are as follows:

Span Length	50'-0"	60'-0"
Beam D.L. Stresses (p.s.i.)	f _b -370	-532
	f _t +456	+657
Total D.L.+L.L. Design Stresses (p.s.i.)	f _b -2442	-3300
	f _t +1963	+2725
Required Ultimate Moment Capacity (Ft. Kips)	M	2464

* Refer to Dwg. No. 5141 for General Layout

STATE OF MONTANA
DEPARTMENT OF HIGHWAYS

BRIDGE OVER BEAVER CREEK

AT STA. 388+03.00

FEDERAL AID PROJECT NO. 194-7(10)233

WIBAUX COUNTY

ERECTION PLAN & E.B. RDWY.
RAIL REVISIONS

Scale As Noted

DRAWING NO. 10606

DESIGNED		
DRAWN	11-24-71	PK
CHECKED	3-31-72	RND
REVIS		
REVIS		
REVIS		

