

STATE DEPARTMENT OF HIGHWAYS DIVISION OF HIGHWAYS - STATE OF COLORADO

R-2 Rev. Standards 8/25/71 W.E.M.
R-3 Added Sheets 42 A and 42 B to Index 10-20-71 W.E.M.

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLORADO	F 085-2(3)	1

R-1 Rev. Standards 8-18-71 W.E.M.
R.O.W., Utilities, & Prel. Engr. Under P.E. No. U 085-2(1)



PLAN AND PROFILE OF PROPOSED FEDERAL AID PROJECT NO. F 085-2(3) STATE HIGHWAY NO. 85 DENVER COUNTY

SCALES OF ORIGINAL DRAWINGS
ON PLAN, 1 IN. = 50 FT.
ON PROFILE, 1 IN. = 50 FT. HORIZONTAL
1 IN. = 10 FT. VERTICAL
GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD
AVERAGE LENGTH OF PROJECT = 7,270.6 FT. = 1.377 Miles

CONTRACTOR: RAN SOU'R BROS. INC.
RESIDENT ENGR: F. N. SCRUGGS
CONSTRUCTION ENGR: R. L. CLEVENGER
DATE COMPLETED: AUGUST 27, 1973
PROJECT ENGR: W. S. MULHOLLAND

SHEET NO.	STD. NO.
1.	
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54-69	
70-109	
R-3 # Sheets 42 A and 42 B Added	

INDEX OF SHEETS AS CONSTRUCTED
REVISED DATE Aug. 27, 1973

TITLE PAGE, SKETCH MAP, INDEX OF SHEETS	DATE
TYPICAL SECTIONS	
GENERAL NOTES; TAB OF LENGTH AND DESIGN DATA	
SUMMARY OF APPROXIMATE QUANTITIES	
STRUCTURE QUANTITIES	
TAB OF CURB AND GUTTER, GUARD RAIL, AND FENCING	
SUMMARY OF EARTHWORK QUANTITIES	
TAB OF DELINEATORS, DRAINAGE STRUCTURES, BITUMINOUS MATERIALS, BASE COURSE AND SURFACE COURSE PLAN	
DETAILS OF PROPOSED CHECK DAM AT STA 225+00	
DETAILS OF COLUMN RELOCATION, RETAINING WALL AND INLET CAP	
DETAILS OF STRUCTURE NO. F-16-1K	
DETAILS OF STRUCTURE NO. F-16-1L	
PLAN AND PROFILE SHEETS	
SIGNING PLANS	
CROSS SECTIONS	
"M" STANDARD DRAWINGS	

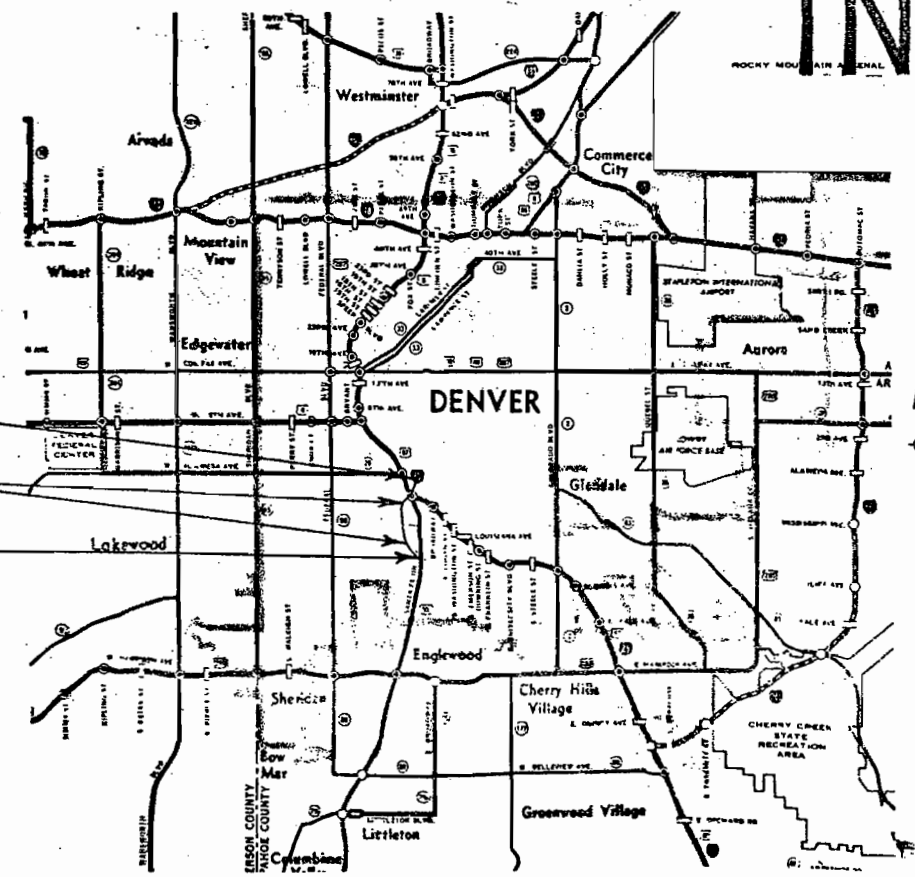
STD. NO.	DESCRIPTION	DATE
M-203-A-1	SUPERELEVATION OF CURVES-DIVIDED HIGHWAYS	7-30-68
M-203-B	APPROACH ROADS, FLARING, CUT SLOPE TREATMENT, BRIDGE AND CREST WIDENING	4-27-70
M-206-A-A	EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS)	3-1-71
M-603-CA	CONCRETE AND METAL END SECTIONS	6-25-71
M-603-RC	REINFORCED CONCRETE PIPE	3-1-71
M-604-D	STEPS FOR MANHOLES AND INLETS	7-23-68
M-604-E	MANHOLES	4-20-71
M-604-AA	CONCRETE INLETS, TYPES 3 & 3 DOUBLE	12-2-68
M-604-AB	CONCRETE INLET TYPE 13	4-15-71
M-606-AB	GUARD RAIL TYPE 3 (3 SHEETS)	6-25-71
M-607-A	WIRE FENCES AND GATES (2 SHEETS)	8-19-71
M-607-B	CHAIN LINK FENCE (2 SHEETS)	4-20-71
M-609-A	CURBS AND GUTTERS	5-7-71
M-612-C	DELINEATORS (2 SHEETS)	7-11-68
M-614-TB	TRAFFIC SIGNING FOR HIGHWAY CONSTRUCTION (3 SHEETS)	12-24-68
M-500-A	LETTERS AND FIGURES FOR STRUCTURE NUMBERS	7-1-68
M-612-A	MARKER POSTS AND BENCH MARKS	6-30-71
M-614-A	TIMBER BARRICADES	4-23-69
M-614-IC	STANDARD CONSTRUCTION IDENTIFICATION SIGNS (2-SHEETS)	9-25-70

INACTIVE
DEC 24 1974

"S" STANDARDS

S-614-19B	TYPICAL GROUND SIGN PLACEMENT	11-18-70
S-614-20B	CLASS I GROUND SIGN INSTALLATIONS	7-1-68
S-614-21B	CLASS II GROUND SIGN INSTALLATIONS	12-2-69
S-614-22C	TYPICAL MARKER ASSEMBLY INSTALLATIONS	6-16-71
S-614-23C	LAMINATED ALUMINUM PANELS AND POST SPACING TABLE FOR CLASS III SIGNS (2 SHEETS)	10-20-69
S-614-26B	BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS (2 SHEETS)	12-9-68
S-614-27B	PEDESTALS, FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS (2 SHEETS)	5-16-69
S-614-29B	TYPICAL PAVEMENT MARKINGS (2 SHEETS)	8-18-71
S-614-30B	INTERSTATE ROUTE MARKERS	11-18-70
S-614-31C	U.S. & COLORADO ROUTE MARKERS	11-18-70
S-614-32B	AUXILIARY MARKERS	3-22-71
S-614-35A	TYPICAL MULTI-SIGN INSTALLATIONS	12-10-69

SEE SPECIAL PROVISIONS FOR NOTICE TO BIDDERS



BEGIN PROJECT F 085-2(3)
STA. 200+00, STA. 300+00
STRUCTURES
F-16-1K, F-16-1L
END PROJECT F 085-2(3)
STA. 273+36.67, STA. 371+88.37

"As Constructed NO Revisions"
Sheets 2, 15, 16, 23-26, 28,
29, 32, 34, 40, 41, 42A-43,
52, 59-62 and 64

W. E. MITCHELL

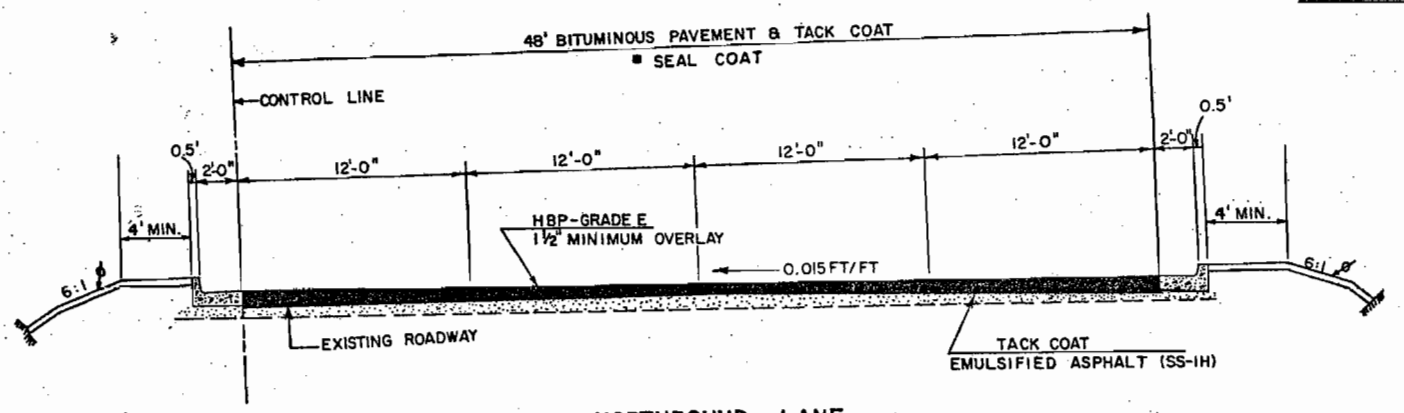
W. G. BROWN

MEURER-SERAFINI-MEURER
CONSULTING ENGINEERS
PREPARED BY:
PROJECT ENGINEER
PRINCIPAL

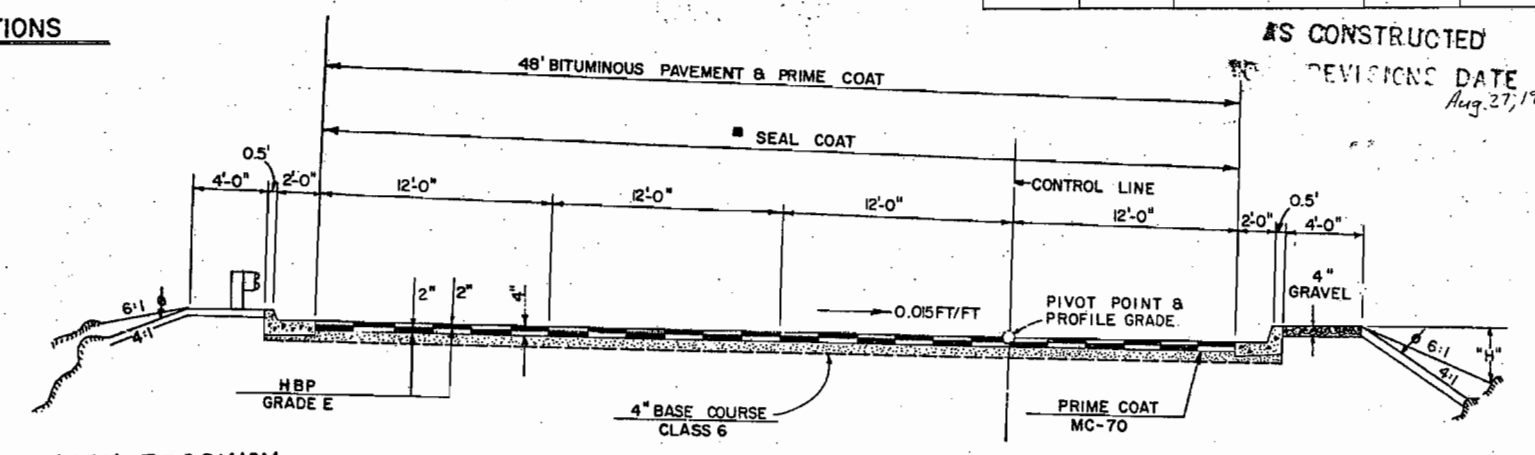
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED: _____
DIVISION ENGINEER

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F085-2(3)	2	75

TYPICAL SECTIONS



NORTHBOUND LANE



SOUTHBOUND LANE

FOR TRANSITIONS BETWEEN ROADWAY WIDTHS SEE PLAN-PROFILE SHEETS

AS CONSTRUCTED
REVISIONS DATE
Aug. 27, 1973

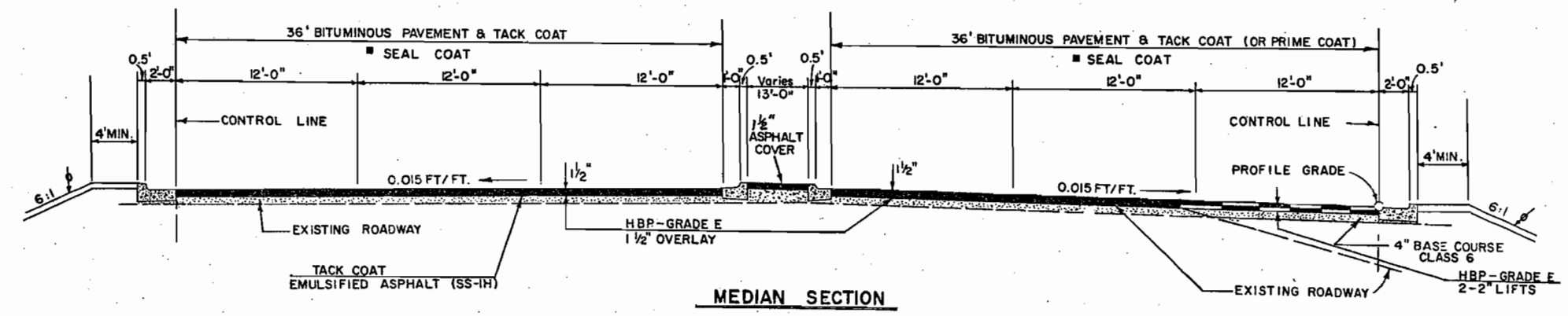
NOTE:
CONTRACTOR WILL BE REQUIRED TO SLOPE THE CURB ON THE "HIGH" SIDE OF THE ROADWAY TO DRAIN TO THE "LOW" SIDE OF THE ROADWAY WHEN IN SUPER ELEVATION.

FILL SLOPES

"H"	SLOPE
4' OR LESS	6:1
4' TO 10'	4:1
OVER 10'	3:1

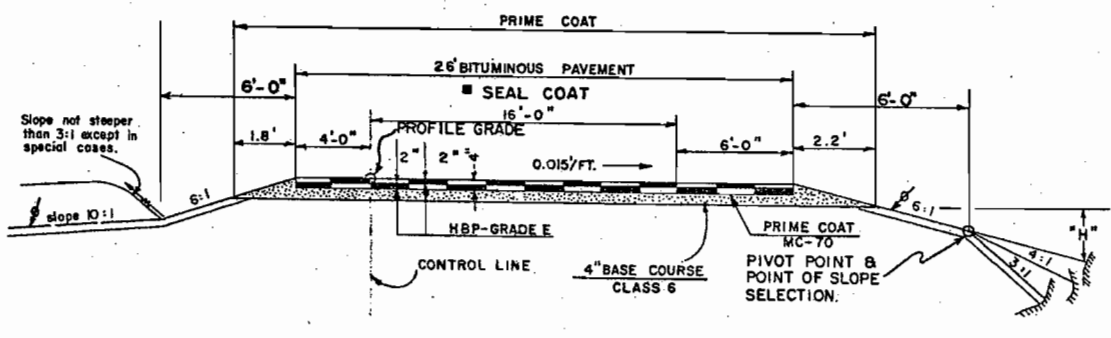
IN SPECIAL CASES SLOPE MAY BE STEEPENED.

4" GRAVEL SIDEWALK LOCATED ONLY BETWEEN STA 222+00-237+00



MEDIAN SECTION

■ FUTURE CONSTRUCTION



RAMP SECTION

MATERIAL SHALL BE PLACED IN SEPARATE COURSES AT THE FOLLOWING RATES PER 100 LIN. FEET OF ROADWAY:

BITUMINOUS PAVEMENT	TOP LAYER	1.22 T/FT. OF WIDTH
	BOTTOM LAYER	1.22 T/FT. OF WIDTH
	(OVERLAY)	.916 T/FT. OF WIDTH
BASE COURSE		2.25 T/FT. OF WIDTH

ALL THICKNESSES SHOWN ARE APPROXIMATE.

⊕ INDICATES AREA WHERE CONTRACTOR WILL BE REQUIRED TO PLACE TOPSOIL AFTER COMPLETION OF PAVING OPERATION. MATERIAL TO BE PAID FOR AS PROVIDED IN ITEM 207.

THE DEPTH AND WIDTH OF SIDE DITCH SHALL BE VARIED WHERE NECESSARY IN ORDER TO PROVIDE PROPER DRAINAGE.

SEE STANDARDS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING & WIDENING. EXCAVATION BELOW 6:1 SLOPE AND/OR 10:1 SLOPE WILL NOT BE PERMITTED EXCEPT WHERE NOTED OTHERWISE.

BREAK POINTS ON SLOPES AND IN BOTTOMS OF DITCHES SHALL BE ROUNDED ON CONSTRUCTION FOR A PLEASING APPEARANCE.

GENERAL NOTES

AS CONSTRUCTED

REVISED DATE Aug. 27, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F 085-2(3)	3	75

R-1 8-18-71 Rev. Gen. Note W.E.M.
R-2 10-7-71 Rev. Gen. Note W.E.M.

For preliminary plan quantities of Bituminous Materials, the following rates of application were used:

Prime Coat MC-70	@	0.4 Gals. per Sq. Yd.
Tack Coat (SS-1H)	@	1.0 Gals. per Sq. Yd.
Bituminous Pavement	@	110 Lbs. per Sq. Yd. per Inch

Rates of application shall be as determined by the Engineer at the time of application.

Any layer of bituminous pavement that is to have a succeeding layer placed thereon shall be completed full width before succeeding layer is placed.

Road approaches which require bituminous pavement shall be primed and a 2 inch thickness of pavement placed as follows:

Public approaches and entrances to buildings or residents shall be paved 50 feet out from edge of shoulder or to the Right of Way line, whichever is less.
Field entrances shall be paved 4 feet out from edge of shoulder.

It is estimated that old road ~~is to be~~ obliterated at the following locations: W.D. # 01217

Southbound	Northbound	Ramp
202 to 207 Lt.	313 to 344 Rt.	1 to 12 Rt.
213 to 216 Lt.	366 to 370 Rt.	
	376 to 380 Rt.	

Depth of Moisture-Density control for this project shall be as follows:

- Full depth of all embankments
- Bases of cuts 1/2 foot.
- Bases of fills 4 feet or less in height, 1/2 foot.

The minimum thickness of topsoil shall be 4 inches, except as otherwise shown.

Earth slopes shall be disked or roughened by other approved methods for mulching or erosion protection.

Seeding, Fertilizing with Commercial Fertilizer, and Mulching ~~will~~ be required within Right of Way limits on all areas not surfaced. For Seeding, the following shall be used (~~@ Acres~~)

COMMON NAME	BOTANICAL NAME	PERCENT PURITY	PERCENT GERMINATION	RATE PLS./ACRE
Blue Grama	Bouteloua gracilis	35	60	5 Lb.
Crested Wheat Grass (Fairway Strain) Smooth Brome W.D. 05464	Agropyron cristatum	90	85	5 Lb.

It is estimated that 1500 Hours of Flagging for controlling traffic will be required for this project.

Seeding shall be accomplished by a means of mechanical drawn drill followed by a packing wheel, except areas on slopes 2:1 or steeper or other inaccessible areas.

The type of compaction for Structure Backfill (Class 2) shall be AASHTO T99.

Aggregate for Class "A" Concrete may be substituted for Class "P" Pavement Aggregate.

R-2 Thickness of Riprap on this project shall be as shown on plans and shall be a nominal size of 12 inches; except minimum size of Riprap for Check Dam shall be 18 inches.

Concrete pipe for this project shall be furnished with metal joint fasteners as shown on "M" Standard. Joint fasteners shall be installed on the last two connections at the outlet end of each culvert.

Mulching ~~will~~ be accomplished at the rate of ~~1400 lbs.~~ ^{1400 lbs.} /acre. of Wood Cellulose Fiber. ~~W.D. 05464~~

Fertilizer will be composed of 50 Lbs/acre - available nitrogen.
250 Lbs/acre - superphosphate.

The Force Account Item, "Clearing of Building Sites, etc." shall include removal of all foundations, wells, buildings and other appurtenances not removed by the owner, and any necessary backfilling of cellars, cesspools, wells, etc., to provide neat roadside conditions. It is estimated that this item applies at the following locations: Sta 266+ So. Bound. W.D. # 01134

Ski Type Device at least 30 feet in length shall be furnished with each bituminous paver equipped with an automatic control system.

The Contractor shall provide on-the-job training aimed at developing full journeyman in the type of trade involved. The number of trainees to be trained under this contract will be three (3).

R-1 Superelevation for the new bridges is to be pivoted at the profile grade.

TABULATION OF LENGTH & DESIGN DATA

STATION	DESCRIPTION	ROADWAY	MAJOR STRUCTURE
		Lin. Ft.	Lin. Ft.
SOUTHBOUND			
200 + 00	Begin Proj. No. F085-2(3)	1646.1	
218 + 46.08	Str. No. F-16-1K		364.2
220 + 10.33		3876.0	
258 + 85.35	Str. No. F-16-1L		217.5
261 + 02.85		179.0	
262 + 81.84 BK	Equation		
262 + 83.15 AH		1053.5	
273 + 36.67	Project End (Southbound)		
NORTHBOUND			
300 + 00	Begin Proj. No. F085-2(3)	1847.8	
318 + 47.81 BK	Equation		
318 + 30.27 AH		5358.1	
371 + 88.37	Project End (Northbound)		
TOTALS		13,959.5	581.7
SUMMARY		Lin. Ft.	Miles
Roadway (N. & S. Bound)		13,959.5	2.644
Major Structures		581.7	0.110
Gross & Net Length (N. & S. Bound)		14,541.2	2.754
Average Length of Project		7,270.6	1.377
DESIGN DATA			
Maximum Design Speed		50 MPH	
Maximum Degree of Curve		9°30'	
Maximum Grade		2.65%	
Minimum SSD - Horizontal		350'	
Minimum SSD - Vertical		350'	
Design Loading of Major Structures		HS-20-44	
1990 Design Traffic Volume		{ 68,200 A.D.T. 7,500 D.H.V.	

SUMMARY OF APPROXIMATE QUANTITIES

R-2 10-20-71 Rev. Bridge Expansion Device Quants Type 4
R-1 8-18-71 Rev. Quants W.E.M.
 Added Bridge Expansion Device Quants Type 2 W.E.M.

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F 085-2(3)	4	75

EX	PAGE	SPECIFICATION ITEM NO.	ITEM	UNIT	ROADWAY	STR. NO. F-16-1K	STR. NO. F-16-1L	N.O. No. 05416	References for W.O. 05416	AS CONSTRUCTED REVISED DATE	PROJECT TOTALS	TOTAL SHEETS
		201	CLEARING AND GRUBBING	L.S.						27, 1973		
		202	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	L.S.								
		202	REMOVAL OF CONCRETE SLOPE & DITCH PAVING W.O. 01136	SQ. YD.	352 300						352 300	
		202	REMOVAL OF CURB AND GUTTER W.O. 0140	LIN. FT.	9745 7,205			1854	Book 6, Page 27		9745 7,205	1854
		202	REMOVAL OF PORTIONS OF PRESENT STRUCTURE	EACH							1	
		202	REMOVAL OF FENCE	LIN. FT.	621 600						621 600	
		203	UNCLASSIFIED EXCAVATION (HAUL)	CU. YD.	20,617 27,000						20,617 27,000	
		203	BORROW (HAUL)	CU. YD.	15,000						12,436 15,000	
		203	COMPACTION (AASHTO T99)	CU. YD.	24,000						15,000 24,000	
		206	STRUCTURE EXCAVATION W.O. 01135 W.O. 01136	CU. YD.	775 770	1923 1800	1961 1840				4708 4,410	
		206	STRUCTURE BACKFILL (CLASS-2) W.O. 01135	CU. YD.	320 310	1924 1880	2014 2020				4372 4,210	
		207	TOPSOIL (HAUL)	CU. YD.	5221 3,200						5221 3,200	
		209	WETTING	M. GAL.	415 1,100						415 1,100	
		210	RESET FENCE	LIN. FT.	245 300						245 300	
		210	RESET GUARD RAIL (TYPE 3)	LIN. FT.	588 625						588 625	
		210	ADJUST STRUCTURE	EACH	24			2	Book 2, 260		24	2
		210	ADJUST MANHOLE	EACH	17 48						17 48	
		212	SEEDING W.O. 05464	ACRE	7 6						7 6	
		213	MULCHING W.O. 05464	ACRE	7 6						7 6	
		304	AGGREGATE BASE COURSE (CLASS 6) (HAUL)	TON	7636 6,200						7,636 6,200	
		403	HOT BITUMINOUS PAVEMENT (GRADE E) (HAUL AND ASPHALT)	TON	1302 10,600	137 75	6745				11644 10,600	R-1
		403	HOT BITUMINOUS PAVEMENT (GRADE-DX) (HAUL AND ASPHALT)	TON	13575 250		6745 150				205 2400	R-1
		411	EMULSIFIED ASPHALT (SS-1H)	GAL.	2141 5,100	0 200	0150	121.50	Scale Book 5 for Gr E		2141 5,450	121.50
		411	LIQUID ASPHALTIC MATERIAL (MC-70)	GAL.	8,603 11,700						8,603 11,700	
		501	STEEL SHEET PILING (TYPE II) W.O. No. 01140	SQ. FT.	3505 3,500						3505 3,500	
		502	REINFORCING TIPS	EACH		126	82				208	
		502	STEEL PILING (12-BP-53) W.O. No. 01220	LIN. FT.	2823 2,738		1974 1832				4777 4,570	
		502	STEEL PILING (12-BP-74)	LIN. FT.		174	181 150				181 150	
		506	RIPRAP W.O. 01136	CU. YD.	1152 500	702 600	521 470				2391 1,710	
		507	CONCRETE SLOPE & DITCH PAVING (REINFORCED) W.O. No. 01136	CU. YD.	0 4						0 4	
		509	STRUCTURAL STEEL	LB.	671,200		231,300				902,500	
		509	STRUCTURAL STEEL (GALVANIZED)	LB.	31,200		19,400				50,600	
		512	BEARING DEVICE (6-8 INCH)	EACH		8	12				20	
		512	BEARING DEVICE (8-12 INCH)	EACH		16					16	
		515	WATERPROOFING (MEMBRANE)	SQ. YD.	2173 2,160		953 1,000				3126 3,160	
		518	BRIDGE EXPANSION DEVICE (TYPE 4)	LIN. FT.		93 100			R-2		93 100	R-2
		518	BRIDGE EXPANSION DEVICE (TYPE 2)	LIN. FT.			125 133		R-2		125 133	R-2
		601	CONCRETE, CLASS A	CU. YD.	27,000 26	25,111 1,250	565 15 710				154,93 1,935	
		601	CONCRETE, CLASS D	CU. YD.		490 500	228 230				720 730	
		602	REINFORCING STEEL	LB.	1317 1,350	264,650	158,800				424,800	R-1
		603	15" REINFORCED CONCRETE PIPE W.O. 01135	LIN. FT.	959 921						959 921	
		603	15" REINFORCED CONCRETE END SECTION W.O. 01135	EACH	8 6						8 6	
		604	MANHOLE, SLAB BASE (10 FOOT)	EACH		1					1	
		604	INLET TYPE 3 (5 FOOT)	EACH		12 9					12 9	
		604	INLET TYPE 3 (10 FOOT)	EACH		5 2					5 2	
		604	INLET TYPE 13 (5 FOOT)	EACH		3					3	

★ STRUCTURE QUANTITIES

AS CONSTRUCTED
REVISED DATE Aug. 27, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
1	COLORADO	F 085-2(3)	6

LUMP SUM	LOCATION	REMOVAL OF STRUCTURES & OBSTRUCTIONS	UNCLASSIFIED EXCAVATION			STRUCTURE EXCAVATION	STRUCTURE BACKFILL	STEEL SHEET PILING	AGGREGATE BASE COURSE SURFACING (CLASS 6)	HOT BITUMINOUS PAVEMENT (GRADING E)	Adjust Structure	CONCRETE	REINFORCING STEEL	RIPRAP	CULVERT PIPE			"H" OVER CULV.	REINFORCING SLOPE AND DITCH PAVING	END SECTION	MISCELLANEOUS	
			CUBIC YARD												LINEAR FEET							EACH
			EXCAV.	EMB.	DITCH										CUBIC YARD	CUBIC YARD	SQFT					
	SOUTHBOUND																					
	200+00 - 216+00										.41	51.1									Reset 14 light poles (Work by Public Service Co) Cap Inlet - LT Remove existing bridge column in median	
	203+80										7.7	67.7									Required new column (details on Sheet No. 12)	
	204+10										.41	51.1									Cap inlet (Detail Sheet No. 12)	
	209+45										.42	51.1									Cap inlet - LT (Detail Sheet No. 12)	
	213+40										.42	51.1									Cap Remove inlet - LT	
	214+75										.47	58.4									Cap Remove inlet - LT	
	215+65																				Remove inlet - RT	
	216+00																				Required retaining wall - RT (details on Sheet No. 12)	
	218+20																				Replace slope paving - RT W.O. No. 01136	
	216+30																				Required gutter, Type 2 (8') - 70 L.F. - RT W.O. No. 01140	
	216+50																				Removal of slope paving (388 sq. yds.) (388 yd. ²)	
	216+46 - 220+10																				Required bridge (details on Sheet No. 13)	
	220+30																				Remove check dam - LT	
	221+00																				Required approach to West South Platte River Drive	
	222+00 - 237+00																				Required 4' gravel sidewalk - RT	
	225+00																				Required steel sheet pile check dam (details on Sheet No. 11)	
	225+2																				Remove 325' of fence	
	236+																				Remove 130' of fence - RT - Not in place @ start of construction.	
	237+00																				Required road approach to Tennessee Avenue	
	237+00																				Required gutter, Type 2 (8') - 24 linear feet - RT	
	237+2.5 Lt.																				Outlet 15" R.C.P.	
	237+10																				Adjust manhole - LT (Book 1, Form 266, dated 9-28-72)	
	238+10 - 243+50																				Required 8' driveways - 150' of Type 2 (8') gutter - RT W.O. No. 01140	
	241+30																				Adjust manhole - LT (Book 1, Form 266, dated 9-28-72)	
	244+00																				Required approach to Mississippi Avenue	
	245+15																				Adjust manhole - LT (Book 1, Form 266, dated 9-28-72)	
	246+																				Outlet 15" R.C.P.	
	248+90																				Adjust manhole - LT (Book 1, Form 266, dated 9-28-72)	
	257+55																				Adjust manhole - RT - River adjustment on Private Sewer Line.	
	258+00																				Required approach to West Louisiana Avenue	
	258+85.4 - 261+02.9																				Required bridge (details on Sheet No. 30)	
	261+00																				Required approach to East South Platte River Drive	
	261+40																				Adjust manhole - LT (Book 1, Form 266, dated 10-28-72)	
	261+50																				Required gutter, Type 2 (8') - 50 linear feet - LT	
	261+70																				Reset 105' of fence - LT and RT	
	266+00																				Remove vault - LT W.O. No. 01134	
	261+85 - 264+35																				Place 250' of new fence - RT	
	265+90																				Reset 115' of fence - LT and RT	
	268+00 - 272+00																				Required left turn lane	
	264+ TO 265+ @ 267+																				Remove concrete waste piles	
	272+40																				Required approach to Florida Avenue	
	NORTHBOUND																					
	308+67																				Adjust inlet - RT	
	313+10																				Remove inlet - RT	
	316+20																				Ramp to southbound lane - RT	
	318+18																				Adjust manhole - RT (Book 1, Form 266 dated 6-8-73)	
	318+40																				Cap inlet - RT (Detail Sheet No. 12)	
	319+50 - 323+50																				Remove 400' of .14 fence - RT	
	322+78																				Adjust manhole - RT (Book 1, Form 266 dated 6-8-73)	
	323+00																				Required approach to West Ohio Avenue	
	325+10																				Adjust Inlet W.O. 05416	
	326+85																				Adjust manhole - RT (Book 1, Form 266 dated 6-8-73)	
	330+65																				Adjust manhole - RT (Book 1, Form 266 dated 6-8-73)	
	331+00																				Required approach to Estes Plant	
	332+70																				Adjust Inlet W.O. 05416	
	335+15																				Adjust manhole - RT (Book 1, Form 266 dated 6-8-73)	
	339+75																				Adjust Manhole - RT (Book 1, Form 266 dated 6-8-73)	
	343+80																				Required approach to Mississippi Avenue	
	344+50																				Adjust manhole - RT (Book 1, Form 266 dated 6-8-73)	
	351+45																				Adjust manhole - RT (Book 1, Form 266 dated 6-8-73)	
	351+50																				Required approach to Arizona Avenue	
	351+80																				Adjust inlet - RT (Book 1, Form 266 dated 6-8-73)	

* Quantities included in Summary of Earthwork
▲ River Channel Excavation, not in Total.
⊕ Quantities included in Surfacing Plan
★ See Drainage Structure Tabulation (Sheet No. 10)

CURB & GUTTER

STATION	SIDE	REMOVAL OF CURB AND GUTTER	CURB AND GUTTER TYPE 2 (Section 1-B)	CURB AND GUTTER TYPE 2 (Section 1-B)	GUTTER TYPE 2 (Eight foot)
		Lineal Feet	Lineal Feet	Lineal Feet	Lineal Feet
SOUTHBOUND					
202 + 00 to 207 + 50	LT	See below	-510	367.2	
207 + 50 to 217 + 00	LT		-1025	220.7	
204 + 50 to 214 + 00	RT			1005 1016.5	
205 + 50 to 215 + 25	LT			425 908.8	
215 + 25 to 221 + 40	LT			-615	70
220 + 00 to 220 + 00	RT		925 236.9		
218 + 75 to 237 + 00	RT		1010 1828.2		
221 + 40 to 243 + 00	LT		2250 2275.7		
237 + 00 to 237 + 60	RT		-60	23.7	
237 + 00 to 243 + 00	RT		-60	655.6	
238 + 10 to 243 + 50	RT		-60	101.9	
244 + 00 to 245 + 00	RT		-1005	1399.9	
244 + 00 to 258 + 00	LT		-335	122.2	
258 + 15 to 261 + 20	RT			28.7	
260 + 70 to 261 + 30	LT		-1005	907.3	
261 + 00 to 271 + 35	LT		-120	1192.1	
262 + 00 to 272 + 40	RT		-120		
271 + 70 to 272 + 40	LT				
NORTHBOUND					
302 + 00 to 303 + 00	RT	-500	500	49.5	
305 + 00 to 310 + 00	LT	-500	-500	585.7	
303 + 00 to 315 + 00	RT		-600	1166.4	
310 + 00 to 318 + 00	RT	-2200		-600	118.0
311 + 00 to 315 + 00	LT			3050	2995.7
315 + 00 to 344 + 30	RT			720	796.3
345 + 00 to 352 + 20	RT	-500			640.1
344 + 00 to 371 + 00	RT	-70	-120		462.0
369 + 65 to 370 + 85	RT				
371 + 35 to 371 + 88	RT				
355 + 00 to 365 + 00	LT, RT				
RAMP					
1 + 50 to 12 + 00	RT	-900		100	158.4
8 + 00 to 10 + 50	LT			-310	284.9
8 + 00 to 12 + 00	RT				
TOTAL		-7205	-2175	16,773.5	-310
			2075.2	16,774	57.7
			2075	16,774	58
Summary					
South bound					
202 + 00 to 207 + 50	LT	746.2			
203 + 00 to 216 + 75	RT	1576.0			
209 + 65 to 209 + 50 ft		1687.7			
243 + 50 to 245 + 00	LT, RT	211.9			
North bound					
302 + 50 to 309 + 50	RT	701.9			
304 + 75 to 310 + 49	LT	642.0			
311 + 00 to 315 + 25	LT	450.6			
344 + 00 to 365 + 00	LT, RT	656.9			
365 + 75 to 371 + 50	RT	604.5			
Ramp					
1 + 00 to 12 + 50	RT	1674.8			
0 + 00 to 8 + 30	LT	792.1			
TOTAL		9744.6			
		9745			

AS CONSTRUCTED

REVISED DATE Aug. 27, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F 085-2(3)	8	75

R-1 Rev. Guard Rail 10-1-71 W.E.M.

R-1 GUARD RAIL

STATION	SIDE	END ANCHOR	GUARD RAIL TYPE 3	RESET GUARD RAIL
		TYPE	LIN. FT.	LIN. FT.
SOUTHBOUND				
199 + 75 to 203 + 40	RT	I @ 199 + 75	375	
201 + 90 to 203 + 40	LT and RT	III @ 201 + 90, LT	300	
203 + 40 to 204 + 40	LT	IV @ 203 + 40, RT	320	
210 + 15 to 211 + 20	RT	III @ 204 + 40, LT	100	
211 + 20 to 213 + 00	LT and RT	I @ 210 + 15, RT	105	
213 + 00 to 217 + 10	LT	III @ 211 + 20, LT	673	
231 + 00 to 243 + 60	LT	I @ 213 + 00, RT	360	
		See Sheet No 28 for 217 + 10	405	
		I @ 231 + 00	1260	
		IV @ 243 + 60	1262.5	
NORTHBOUND				
302 + 00 to 303 + 00	RT	See 201 + 90 (S.B.)	300	
303 + 00 to 304 + 45	LT and RT	IV @ 303 + 00, LT	290	
304 + 45 to 306 + 50	LT	See 211 + 20 (S.B.LT)	337.5	
		I @ 306 + 50	205	
314 + 00 to 321 + 15	RESET - RT	I @ 321 + 15		625.88
310 + 00 to 311 + 00	RT	See 210 + 20 (S.B.)	100	412.5
311 + 00 to 314 + 00	LT and RT	IV @ 311 + 80, LT	620	
311 + 00 to 315 + 40	LT	I @ 315 + 40	362.5	
314 + 00 to 315 + 40	LT	II @ 315 + 40	50	
345 + 00 to 352 + 45	RT	I @ 345 + 00	775	
		IV @ 352 + 45	745	
RAMP - 1-25				
1 + 45 to 12 + 00	RT	I @ 1 + 45	1075	
		IV @ 12 + 00	1025	
TOTAL		TYPE I = 9-10 TYPE III = 3 TYPE IV = 6	5,905	625
			6,358	588
ADDITIONAL RUNS				
256 + 75 to F-16-IL	LT	I @ 256 + 75		150
258 + 00 to F-16-IL	RT	I @ 258 + 00		87.5

FENCING

STATION	SIDE	Build Fence	REMOVE FENCE	RESET FENCE
		* Chain Link Lineal Feet	Lineal Feet	Lineal Feet
225 ± (City Fence)	RT		325	
235 + 50 to 236 + 85	RT		1000	245
261 + 70	LT and RT			165
261 + 85 to 264 + 35	RT	228		
265 + 90	LT and RT	250		0
319 + 50 to 323 + 50	RT		400 296	115
TOTAL		228	621	245
		250	500	220

* Top rail shall be used on all Chain Link Fence.
It is estimated that 1 Corner and Line Brace Post, Chain Link, and 1 End Post, Chain Link, will be required for this project.

TABULATION OF DELINEATORS

STATION TO STATION	SIDE	SPACING	DELINEATORS		
			TYPE I	TYPE II	TYPE III
			Ea.	Ea.	Ea.
SOUTHBOUND					
202 + 00 - 207 + 20	LT and RT	6° Curve	14		
210 + 12 - 213 + 58	LT and RT	6° Curve	8		2
216 + 50	LT and RT	Bridge	5	4	2
216 + 62 - 223 + 53	LT and RT	4° Curve	10		
231 + 82 - 241 + 22	LT and RT	4-1/2° Curve	18	4	
253 + 22 - 255 + 97	LT and RT	4° Curve	10		
258 + 37 - 262 + 83	LT and RT	9-1/2° Curve	10	4	
258 + 90	LT and RT	Bridge	7	3	2
268 + 91 - 272 + 64	LT and RT	9-1/2° Curve	14	3	
NORTHBOUND					
302 + 07 - 306 + 67	LT and RT	7° Curve	9	3	2
309 + 95 - 312 + 46	LT and RT	5-1/2° Curve	3	3	2
314 + 16 - 318 + 80	LT and RT	5° Curve	5	7	2
329 + 32 - 341 + 26	LT and RT	3° Curve	18		
342 + 75 - 345 + 70	LT and RT	6° Curve	4	3	
347 + 85 - 350 + 74	LT and RT	7° Curve	10		
357 + 35 - 359 + 38	LT and RT	3° Curve	8		
366 + 73 - 368 + 20	LT and RT	4° Curve	6		
RAMP - 125					
0 + 00 - 10 + 00	RT	Ramp		9	
TOTAL			141 157	35 45	9 12

BITUMINOUS MATERIALS

STATION	GAL. PER SQ. YD.	EMULSIFIED ASPHALT SS-1H	Liquid Asphalt Material MC-70
		GAL.	Gal.
SOUTHBOUND			
200 + 00 - 273 + 36.67	0.10 0.40	1,247	8,172
NORTHBOUND			
300 + 00 - 371 + 88.37	0.10 0.40	3,482	2,393
1-25 RAMP			
0 + 00 - 12 + 00	0.10 0.40	34	888
ROAD APPROACHES			
	0.10 0.40	699	342
TOTALS		2,141 5,058	8,603 11,656

DRAINAGE STRUCTURES

STATION	LOC.	INLETS			R. C. P.			ELEVATION		WH	STRUCT. EXCAV. Yds.	STRUCT. BACKFILL Yds.	NOTES	Book #
		No.	Type	H	0	L	End Sec.	H	Rim					
215 + 62 246 + 22											11.6 8.1		Remove & Relay Pipe w/ 6" 01125	1
202 + 90	LT	202A	3	4'-6" 4.97				24.08	20.7		0	4	Inlet placed over Connect to existing 15" RCP flowing east	5 21
204 + 70	RT	204A	3	3'-6" 4.22	15"	55'	5'	27.6	24.72 40.5		34	13.3	Connect to collector inlet north	5 7
209 + 45	RT	209A	3	5'-0" 5.68				26.5	23.542		10	5	Inlet placed over Connect to 18" RCP flowing west	5 22
213 + 20	RT	213A	3	3'-6" 15"	15"	50'	4'	30.5	27.04		36	13	Connect to inlet on ramp	5 8
215 + 34	LT	215A	3	5'-6" 15"	15"	55'	5.5'	32.87	27.37		44	33.8	Connect to MH No. 1 skew @ 58°	5 9
215 + 65	RT							33.86	27.55				Replaces existing inlet	5 23
223 + 07 222 + 75	LT	223A	3	3'-0" 3.60	15"	20'	3'	32.6	29.72 28.5		11	9.1		5 10
224 + 43 224 + 50	RT	224A	3	3'-6" 3.63	15"	71'	1	32.03	30.9 31.08		40	40.6	10 13.5	5 11
238 + 47 236 + 50	RT	238A	3	3'-6" 3.67	15"	84'	1	35.32	32.4 33.02		72	71	18 18.7	5 12 33
239 + 25	LT							36.23	35.0				Additional	5 13
244 + 05 257 + 50	LT	244A	3	3'-6" 3.67	15"	40'	1	40.18	36.0 35.75		28	28	4 2.8	5 30 35
261 + 1	LT							41.0	36.60				Additional	5 14 16
264 + 33 264 + 43	RT	264A	3	3'-6" 3.67	15"	55'	1	46.16	43.2 43.16		208	185.4	69 6.4	5 14 16
246 + 22	LT	246A	3	3'-6" 3.67	15"	4.5		37.75	34.24				Additional placed over existing	5 24
252 + 28	LT	252A	3	3'-6" 3.67	15"	3.97		36.15	34.85				Additional placed over existing	5 25
NORTHBOUND														
313 + 10	LT	313A	3	3'-0" 3.37	15"	10'	2'	31.2	28.7 27.20		12	10.6	5 4.5	5 17
315 + 60	RT	315A	3	3'-0" 3.37	15"	85'	2'	32.0	29.1		44	44.7	15 15.2	5 18
325 + 14	RT	325A	3	3'-0" 3.37	15"	10'	2'	33.33	28.35				Additional placed over existing	5 19
332 + 02	RT	332A	3	3'-0" 3.37	15"	10'	2'	34.20	29.41				Additional placed over existing	5 20
347 + 85	RT	347A	3	3'-0" 3.37	15"	10'	2'	37.43	32.67				Additional placed over existing	5 28
1-25 RAMP														
4 + 25	LT	4A	13	4'-0" 2.5	15"	10'	5'	29.10	26.7 26.81		18	7	Connect to existing 15" RCP	5 19
9 + 13	RT	9A	3	4'-0" 2.5	15"	100'	1	31.81	27.01		82	23		5 20 34
TOTALS			774 - 3		15" - 954					1'	671.4	238.0		
			3 - 13		15" - 821						652	218		
					15" - 959						673	238		

Remove & Relay

5-16" Inlets
12-5" Inlets

BASE COURSE AND SURFACE COURSE PLAN

STATION TO STATION	FT LENGTH	Tons AGGREGATE BASE COURSE Class 6	Tons HOT BITUMINOUS PAVEMENT	
			Bottom Layer Grading E	Top Layer Grading E
			SOUTHBOUND	
202 + 00 - 216 + 50.5	1,450.5	680.3	368.8	695.0
220 + 04 - 258 + 90	3,886.0	2,896.1	1,570.3	2,114.4
* 260 + 98 - 272 + 64.7	1,166.7	1,048.9	568.8	568.8
NORTHBOUND				
Δ 300 + 00 - 371 + 88.37	7,188.37	920.5	118.3	3,428.9
1-25 RAMP				
1 + 00 - 11 + 00	1,000.0	750.4	392.3	752.3
MEDIAN				
202 + 60 - 207 + 10	450.0	56.3		18.3
310 + 00 - 313 + 00	300.0	11.3		4.6
ROAD APPROACHES & GRAVEL SIDEWALK				
		486.0	84.0	265.0
TOTALS		5,496.0 7,260.0	3,013.5 3,448.0	7,461.0 8,265.95

NOTE: The estimated quantities are based on the following rates of application. Actual rates of application shall be as directed by the Engineer.

- A.B.C. - 2.25 Tons Ft. of Width per Sta. or 135 Lbs./Ft.³
- H.B. - 2" Top Layer 1.22 Ton Ft. of Width per Sta. or 110 Lbs./In.²
- 2" Bottom Layer 1.22 Ton Ft. of Width per Sta. or 110 Lbs./In.²
- 1-2" Overlay 0.910 Ton Ft. of Width per Sta. or 110 Lbs./In.²

- NOTE: Stabilization Based on:
- 1. EDLA, 18^K 200
 - 2. Regional Factor 1.0
 - 3. Serviceability Index 2.5
 - 4. Hot Bituminous Paving 0.44 (R_t=95)
 - 5. ABC (Class 6) 0.12 (R=80)

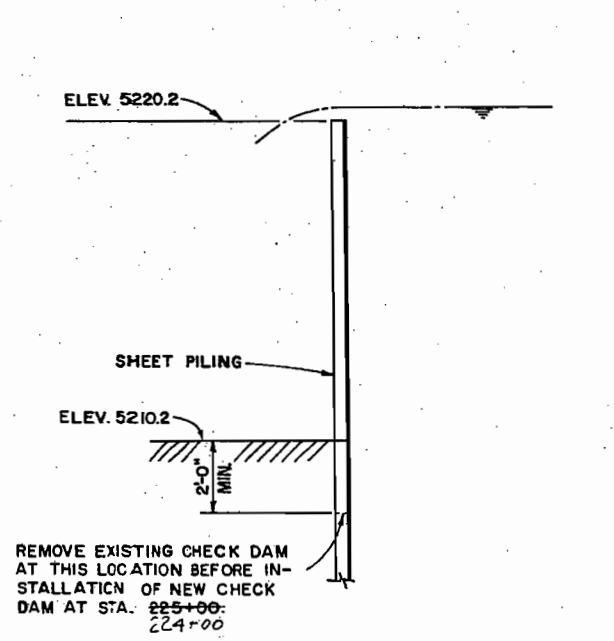
* - Includes Lt. Turn from Sta. 268+00 to 272+00
Δ - Includes Ramp to Southbound Lane, Rt. Sta. 316+20

AS CONSTRUCTED

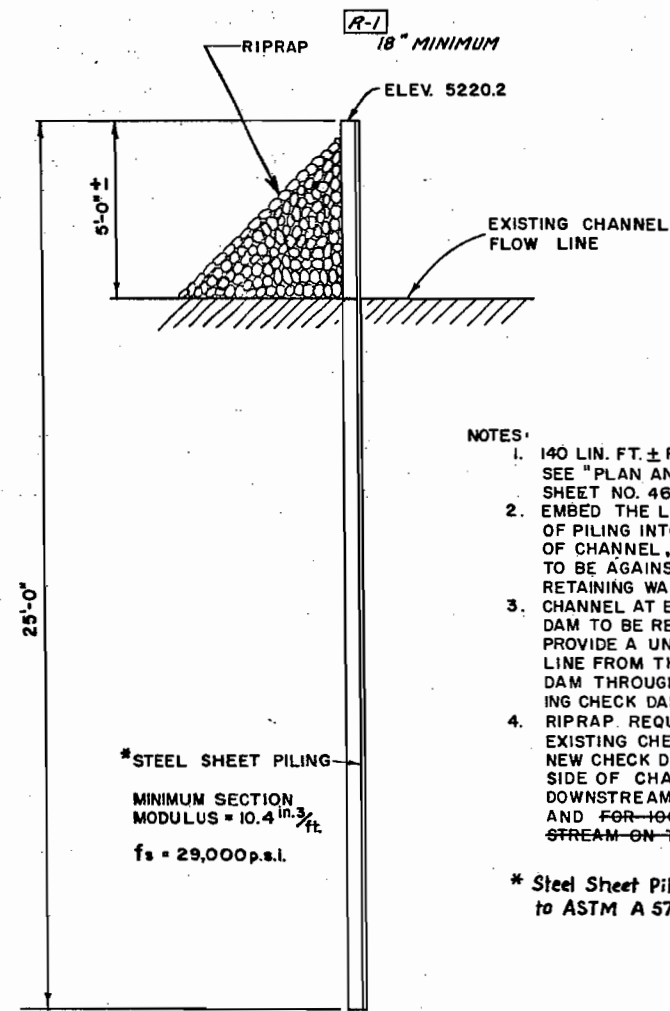
REVISED DATE: Aug 27, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F 085-2(3)	11	75

R-1 10-7-71 Added Riprap Size W.E.M.

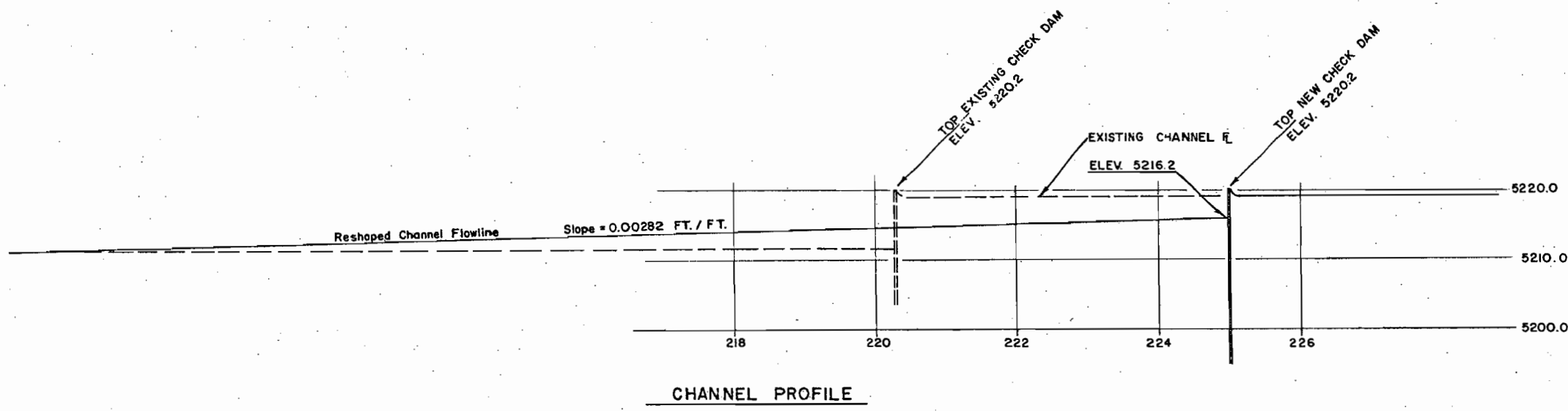


EXISTING CHECK DAM — STA. 220+30
(TO BE REMOVED AS SHOWN)



NEW CHECK DAM — STA. 224+00 225+00

- NOTES:
1. 140 LIN. FT. ± REQUIRED, SEE "PLAN AND PROFILE" SHEET NO. 46
 2. EMBED THE LAST 10 FT. OF PILING INTO WEST BANK OF CHANNEL, EAST END TO BE AGAINST EXISTING RETAINING WALL.
 3. CHANNEL AT EXISTING CHECK DAM TO BE RESHAPED TO PROVIDE A UNIFORM FLOW LINE FROM THE NEW CHECK DAM THROUGH THE EXISTING CHECK DAM LOCATION.
 4. RIPRAP REQUIRED FROM EXISTING CHECK DAM TO NEW CHECK DAM ON EAST SIDE OF CHANNEL, ACROSS DOWNSTREAM FACE OF DAM, AND FOR 100 FT. DOWNSTREAM ON THE WEST BANK.
- * Steel Sheet Piling shall Conform to ASTM A 572 Grade 45

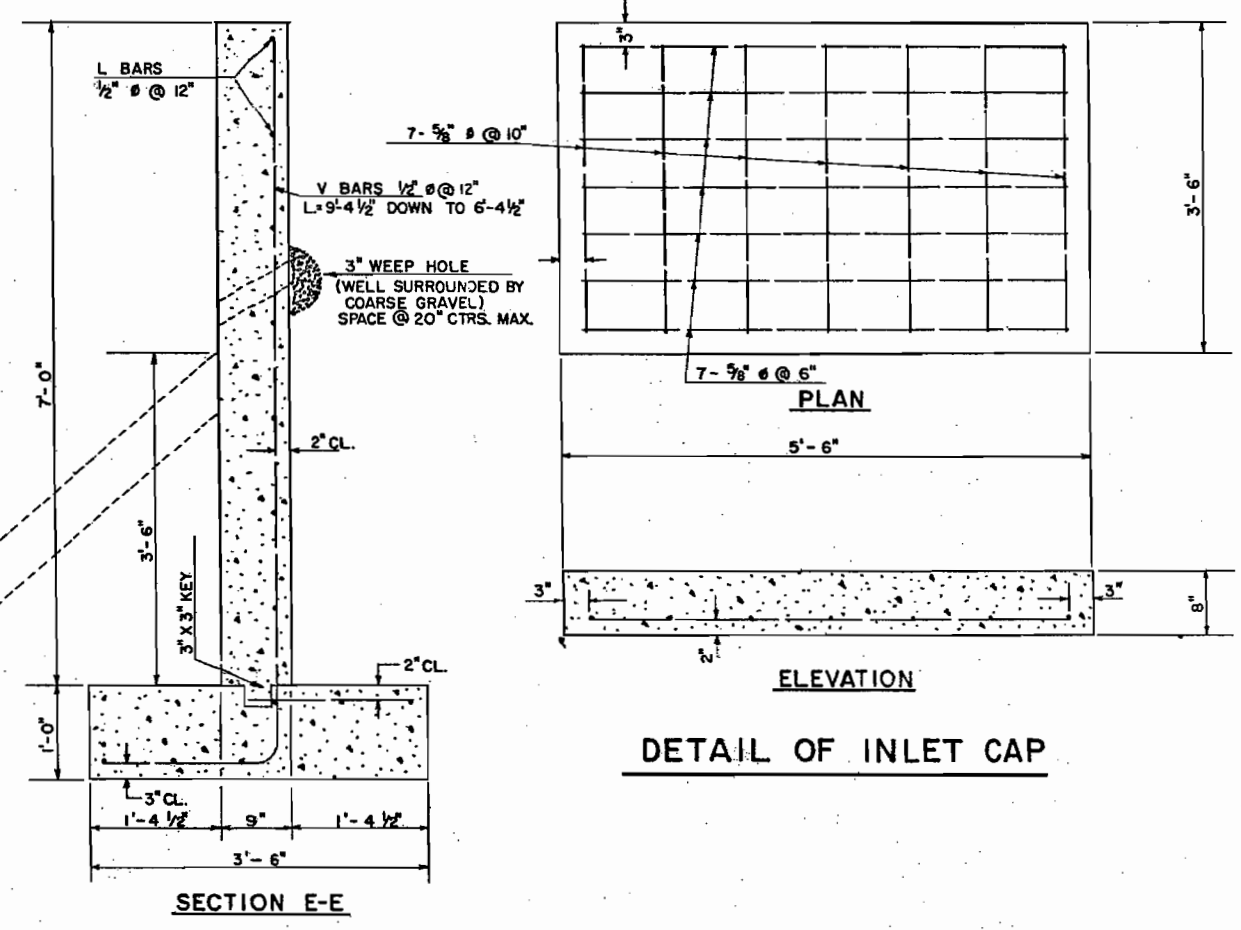
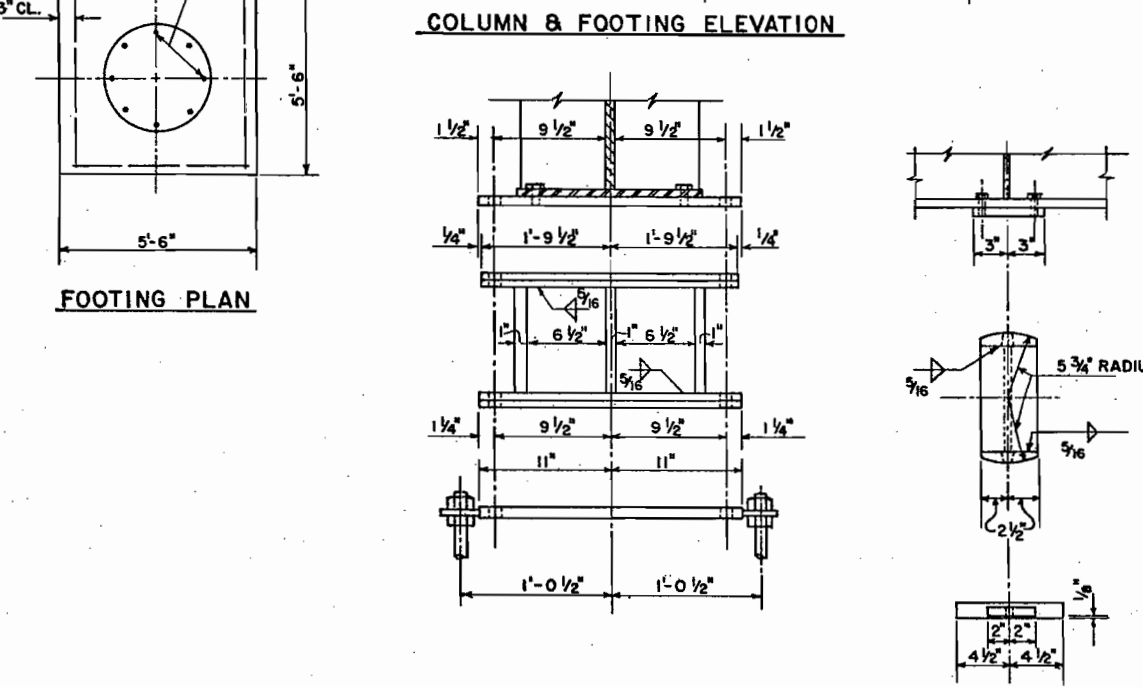
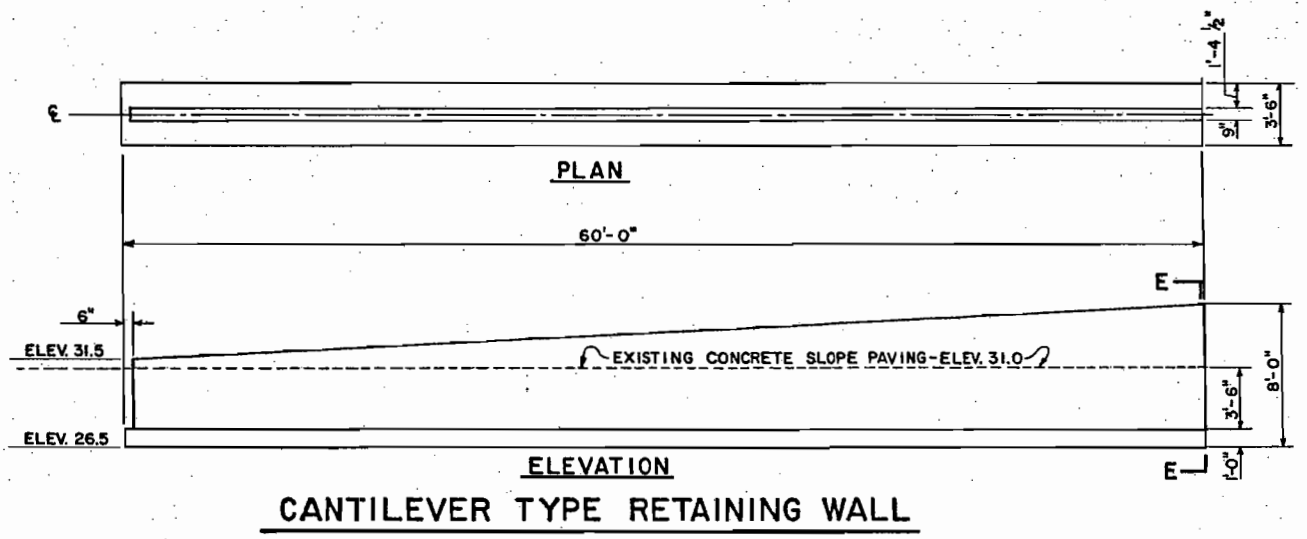
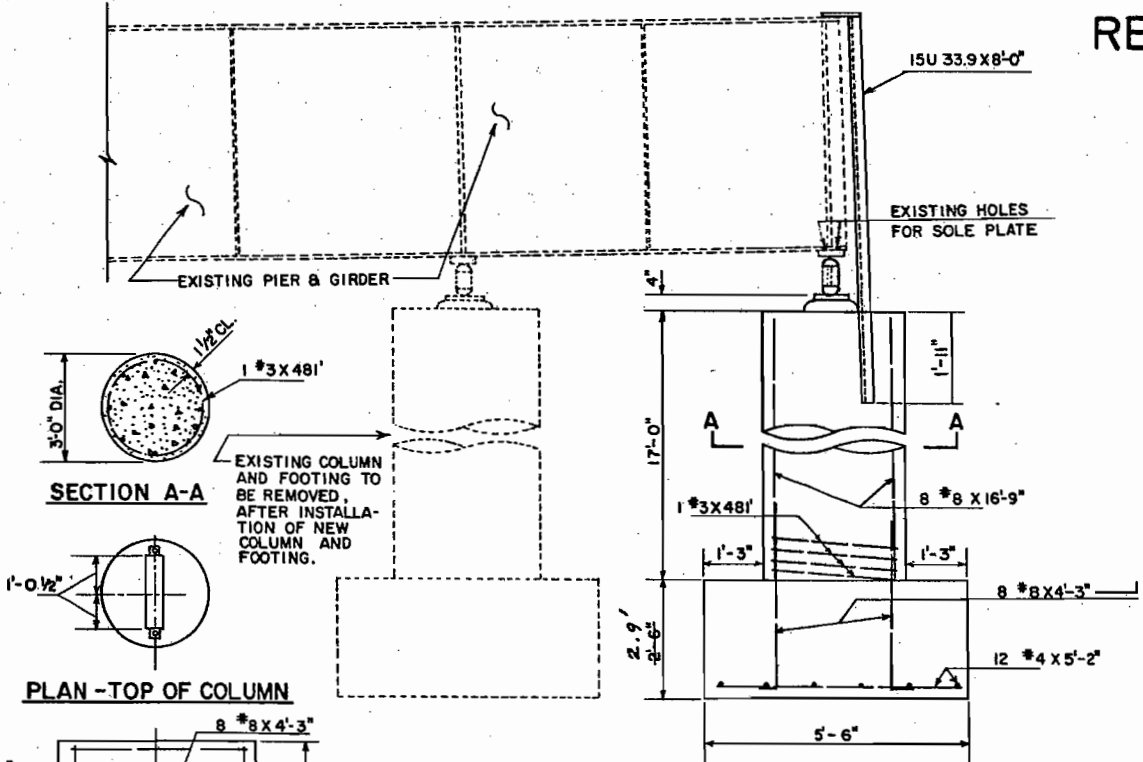


CHANNEL PROFILE

AS CONSTRUCTED
REVISED DATE Aug. 27, 1973

FED. ROAD DIST. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F 085-2(3)	12	75

DETAIL COLUMN RELOCATION RETAINING WALL AND INLET CAP



COLUMN RELOCATION ON PIER 3
EXISTING STRUCTURE F-16-DW
(SEE SHEET 44)

DIVISION OF HIGHWAYS

MISC. STRUCTURES

Across _____ Sta. _____
Near DENVER Sec. _____ T. _____ R. _____

Designed by J.G.N. Approved by _____
Made by R.J.D.
Checked by _____ Date: _____ 19

CURVE DATA

Δ = 29°03'24.5"
 R = 1432.395'
 D = 4°00'
 T = 371.200'
 L = 726.419'



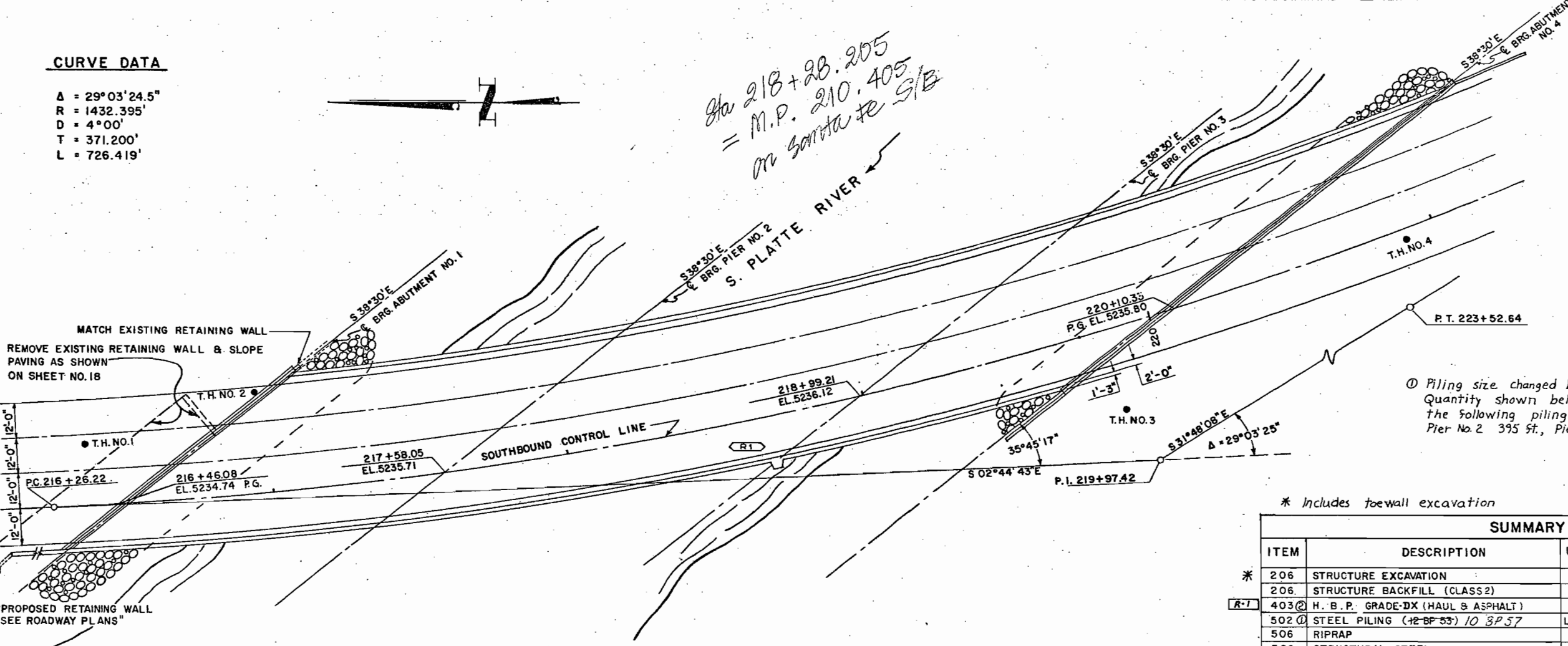
*Sta 218+28.205
 = M.P. 210.405
 on Santa Fe S/B*

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	13	

REVISIONS				
R1	8-18-71	Added light standard		NJH
	8-18-71	Rev. Quants		W.E.M.

**AS CONSTRUCTED
 REVISED** DATE 08/17/73

MATCH EXISTING RETAINING WALL
 REMOVE EXISTING RETAINING WALL & SLOPE
 PAVING AS SHOWN
 ON SHEET NO. 18



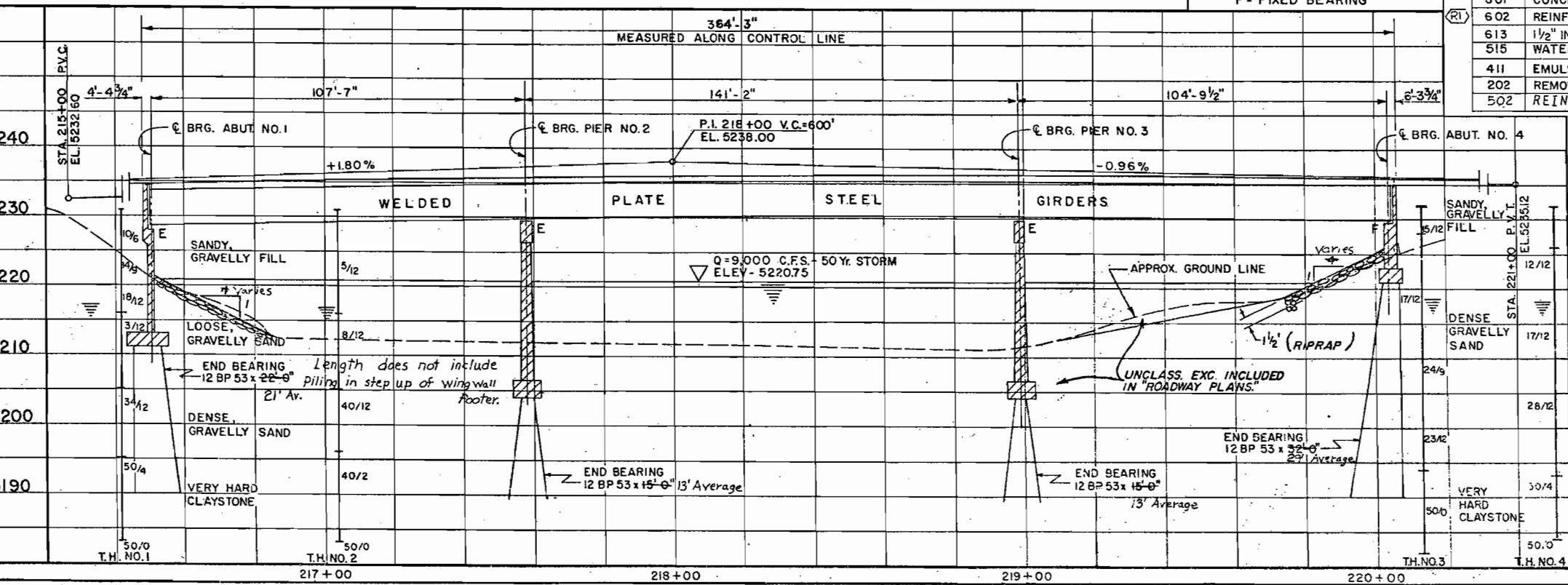
① Piling size changed by W.O. #01220 (3), Cut off = 174 ft., Quantity shown below includes welds, (65 welds total) and the following piling in place excluding welds: Abut. No. 1 890 ft., Pier No. 2 395 ft., Pier No. 3 364 ft., and Abut. No. 4 979 ft.

* Includes toewall excavation

SUMMARY OF QUANTITIES (R-1)								
ITEM	DESCRIPTION	UNIT	SUPER STRUCTURE	ABUT. NO. 1	PIER NO. 2	PIER NO. 3	ABUT. NO. 4	STRUCTURE TOTALS
* 206	STRUCTURE EXCAVATION	CU.YD.		808	290	345	503	1946
206	STRUCTURE BACKFILL (CLASS 2)	CU.YD.		1056	160	208	560	1984
* 403	H. B. P. GRADE-IX (HAUL & ASPHALT)	TONS	135.75					135.75
502	STEEL PILING (12 BP 53) 10 3P 57	LIN. FT.		1002	518	368	1042	2930
506	RIPRAP	CU.YD.		327	14		32	373
509	STRUCTURAL STEEL	LB.	668850		645	706	917	67118
509	STRUCTURAL STEEL (GALVANIZED)	LB.	31144					31144
512	BEARING DEVICE (6-8 INCH)	EACH		8				8
512	BEARING DEVICE (9-12 INCH)	EACH			8	8		16
518	BRIDGE EXPANSION DEVICE (TYPE 4)	LIN. FT.	92.6+00	34				100.93
601	CONCRETE CLASS A	CU.YD.		308	283	360	297	1248
601	CONCRETE CLASS D	CU.YD.	492					492
602	REINFORCING STEEL	LB.	171200	4933	17670	22524	18037	279232
613	1/2" INCH ELECTRICAL CONDUIT	LIN. FT.	340	343	3037			3980
515	WATERPROOFING (MEMBRANE)	SQ. YD.	2160					2160
411	EMULSIFIED ASPHALT (SS-1H)	GAL.	2173					2173
202	REMOVAL OF PORTIONS OF PRES. STRUCTURE	EA.		1	24	28	33	86
502	REINFORCING TIPS	EA.		41	24	28	33	126

LEGEND

E = EXPANSION BEARING
 F = FIXED BEARING



200 Sq. Ft. of 1/2" Expansion Joint Material To Be Included In The Bid Price For Item 601, Concrete, COMPOSITE, CURVED, WELDED PLATE GIRDER THREE-SPAN CONTINUOUS 108' - 141' - 135'
 Class A.
 ② Added: 403 H.B.P. Grade - E (Haul & Asphalt) Superstructure 135.75 Tons

GENERAL NOTES
 ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE COLORADO DEPARTMENT OF HIGHWAYS APPLICABLE TO THE PROJECT.
 ALL REINFORCING STEEL SHALL BE INTERMEDIATE GRADE STEEL OF A DEFORMED TYPE. EACH BAR SHALL BE TAGGED WITH THE BAR DESIGNATION AND STATION NUMBER OF THE PROJECT.
 IF BY PERMISSION OF THE ENGINEER MANY BARS ARE SPICED, THEY SHALL LAP A MINIMUM OF 40 DIAMETERS FOR BARS NEAR TOP; OF BARS NEAR MORE THAN 12 INCHES OF CONCRETE UNDER THE BASE; AND 80 DIAMETERS FOR BARS NEAR BOTTOM OF MEMBERS. SECONDARY BARS WHEN SPICED SHALL LAP 24 DIAMETERS OF THE BAR.
 DIMENSIONS FOR REINFORCING STEEL NOT SHOWN AS CLEAR SHALL BE TO THE CENTERLINE OF THE BAR.
 SOUNDINGS AND DEPTH OF FOOTINGS ARE IN ACCORDANCE WITH THE BEST AVAILABLE DATA, AND WHEN DIFFERENT SOUNDINGS ARE ENTERED THE BRIDGE ENGINEER WILL INSPECT FOOTINGS IN ROCK SHALL BE POLLED OUT TO ROCK AND NOT FORMED.
 WHEN EXCAVATING FOR FOOTINGS THE FINAL ONE FOOT IN DEPTH SHALL BE DONE BY HAND-LABOR METHODS.
 FOR DETAILS OF STRUCTURAL EXCAVATION AND STRUCTURE BACKFILL SEE STANDARD M-208-A ALL CONCRETE SURFACES MARKED WITH THE SYMBOL SHALL RECEIVE CLASS "2" SURFACE FINISH.
 ALL STRUCTURAL STEEL SHALL BE PAINTED IN ACCORDANCE WITH SECTION 500 FOR GREEN PAINT.
 ALL BOLTS SHALL BE 7/8" INCH DIAMETER UNLESS OTHERWISE NOTED.
 ALL BOLTS SHALL BE HIGH TENSILE STRENGTH.
 BOLTS SHALL BE FURNISHED BY THE END USER AT TWO PERCENT IN EXCESS OF THE NORMAL NUMBER REQUIRED FOR EACH SIZE AND LENGTH.
 WELDING SHALL CONFORM TO THE LATEST EDITION OF THE A.W.S. STANDARD SPECIFICATIONS FOR WELDING STEEL STRUCTURES.
 FOR WELDED GIRDERS ALL SHOT BUTT WELDS IN FLANGES AND WEBS SHALL BE MADE BEFORE WELDING INTO GIRDERS.
 SHOP WELDS SHALL BE INSPECTED RADIOGRAPHICALLY OR BY THE PENETRANT DYE METHOD.
 ALL CONCRETE CHANGERS TO BE 3/8" INCH UNLESS OTHERWISE NOTED.
 ALL PILE LENGTHS ARE ESTIMATED & PILING MUST BE DRIVEN TO END BEARING.
 NO WELDING OF ANY KIND SHALL BE PERMITTED ON THE FLANGES OF STEEL GIRDERS UNLESS SPECIFICALLY CALLED FOR ON THE PLANS.
 * BEGIN BRIDGE STA. 216+46.08 - END BRIDGE STA. 220+10.33
 STRUCTURE NO. F-16-1K

DIVISION OF HIGHWAYS

LAYOUT AND SUMMARY OF QUANTITIES

Across SOUTH PLATTE RIVER

Sta. _____

Near DENVER Sec. 15 T. 4 S. R. 68 W.

Designed by R.M.K. Approved by _____
 Made by K.L.L. Bridge Engineer
 Checked by _____ Date: 1970

BAR LIST - SUPERSTRUCTURE						
MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
401	4	747	2'-7"	II	10"	11"
498	4	107	4'-8"	I	1'-2"	10"
501	5	84	55'	Str.		
502	5	14	31'	"		
503	5	20	22'-4"	"		
504	5	12	15'-6"	"		
505	5	11	9'	"		
506	5	5	3'	"		
507	5	11	50'-8"	"		
508	5	12	45'	"		
508	5	12	40'	"		
510	5	10	35'	"		
511	5	12	30'	"		
512	5	12	25'	"		
601	6	87	54'-3"	Str.		
6001	6	2 Ea.	10'	Str.		
6129	6	2 Ea.	10'	Str.		
6308	6	2 Ea.	10'	Str.		
6542	6	2 Ea.	10'	Str.		
801	8	64	60'-0"	Str.		
475	4	2	6'-10"	V		
697	6	2	4'-8"	VI	1'-5"	
698	6	2	6'-8"	VI	2'-5"	
699	6	4	7'-8"	II	3'-5"	0'-10"

Additional Bars

Size	No.	Length	Type
6	1	2.00	Str.
6	1	2.50	"
6	1	3.00	"
6	1	3.50	"
6	1	4.00	"
6	1	4.50	"
6	1	1.50	"
6	1	1.90	"
6	1	2.30	"
6	1	2.70	"
6	1	3.10	"
6	1	3.50	"
6	1	3.00	"
6	1	3.22	"
6	1	3.44	"
6	1	3.66	"
6	1	3.88	"
6	1	4.10	"
6	1	4.32	"
6	1	4.54	"
6	1	4.76	"
6	1	5.00	"
6	1	1.30	"
6	1	1.47	"
6	1	1.64	"
6	1	1.81	"
6	1	1.98	"
6	1	2.15	"
6	1	2.32	"
6	1	2.49	"
6	1	2.66	"
6	1	2.83	"
6	1	3.00	"
6	1	3.17	"
6	1	3.34	"
6	1	3.51	"
6	1	3.68	"
6	1	3.85	"
6	1	4.02	"
6	1	4.19	"
6	1	4.36	"
6	1	4.53	"
6	1	4.70	"
6	1	4.87	"
6	1	5.04	"
6	1	5.21	"

BAR SUMMARY

2444	lin. ft. No. 4 at 0.668 lbs. per lin. ft. = 1633
49251	lin. ft. No. 5 at 1.043 lbs. per lin. ft. = 51369
69970	lin. ft. No. 6 at 1.502 lbs. per lin. ft. = 105095
3849	lin. ft. No. 8 at 3.400 lbs. per lin. ft. = 13056
TOTAL = 171,150	

BAR LIST - ABUTMENT NO. 1						
MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
402	4	96	10'-4"	VII	7'-10"	2'-6"
403	4	96	9'-0"	Str.		
404	4	96	1'-10"	II	4'	1'-2"
405	4	96	3'-3"	Str.		
406	4	16	10'-6"	"		
407	4	21	21'-8"	"		
408	4	35	15'-2"	"		
409	4	25	14'-8"	"		
410	4	25	14'-0"	"		
411	4	12	13'-6"	"		
412	4	12	19'-4"	"		
415	4	1 Ea.	to	Str.		
416	4	16	14'-9"	Str.		
417	4	30	18'-8"	"		
418	4	24	52'-0"	"		
419	4	2	34'-4"	"		
420	4	144	4'-0"	"		
421	4	16	6'-11"	"		
422	4	123	11'-9"	"		
8265	6	16	6'-11"	Str.		
8264	6	16	14'-9"	"		
902	9	18	10'-8"	Str.		
903	9	52	52'-0"	"		
904	9	28	19'-9"	"		
906	9	16	8'-11"	IV	1'-11"	4'-7-3/4"
1001	10	170	11'-9"	Str.		
1101	11	30	21'-8"	Str.		
1102	11	35	15'-2"	"		
1103	11	25	14'-9"	"		
1104	11	25	14'-0"	"		
1105	11	12	13'-6"	"		
1106	11	1	19'-4"	"		
1110	11	1 Ea.	to	Str.		
1112	11	132	11'-9"	IX	4'-0"	5'-4-3/4"

BAR SUMMARY

10709	lin. ft. No. 4 at 0.668 lbs. per lin. ft. = 7154
347	lin. ft. No. 6 at 1.502 lbs. per lin. ft. = 521
3532	lin. ft. No. 9 at 3.400 lbs. per lin. ft. = 12008
1927	lin. ft. No. 10 at 4.303 lbs. per lin. ft. = 8292
3785	lin. ft. No. 11 at 5.313 lbs. per lin. ft. = 19874
TOTAL = 49,693	

BAR LIST - PIER NO. 2						
MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
513	5	164	7'-10"	Str.		
514	5	32	41'-6"	"		
6236	6	28	21'-0"	Str.		
6237	6	86	41'-0"	"		
6238	6	4 Ea.	to	Str.		
6243	6	4 Ea.	to	Str.		
6244	6	2 Ea.	to	Str.		
6257	6	4	7'-2"	III	2'-0"	9'-0"
6258	6	4	20'-0"	Str.		2'-9"
6259	6	2	29'-0"	"		
6260	6	6	28'-0"	"		
6298	6	30	21'-5"	"		
6299	6	28	21'-9"	"		
6300	6	28	22'-2"	"		
6301	6	30	22'-6"	"		
6302	6	22	22'-10"	"		
6307	6	158	6'-0"	IV	0'-6"	3'-1-3/4"
1111	11	6	20'-0"	IV	15'-9"	1'-0"
1112	11	8	25'-0"	IV	15'-9"	1'-0"

BAR SUMMARY

2613	lin. ft. No. 5 at 1.043 lbs. per lin. ft. = 2728
8819	lin. ft. No. 6 at 1.502 lbs. per lin. ft. = 13249
320	lin. ft. No. 11 at 5.313 lbs. per lin. ft. = 1700
TOTAL = 17,677	

BAR LIST - PIER NO. 3						
MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
513	5	164	7'-10"	Str.		
514	5	32	41'-6"	"		
515	5	16	21'-6"	"		
6236	6	28	21'-0"	Str.		
6237	6	86	41'-0"	"		
6238	6	4 Ea.	to	Str.		
6243	6	4 Ea.	to	Str.		
6244	6	2 Ea.	to	Str.		
6257	6	4	7'-2"	III	2'-0"	9'-0"
6258	6	4	20'-0"	Str.		2'-9"
6259	6	2	29'-0"	"		
6260	6	6	28'-0"	"		
6298	6	30	21'-5"	"		
6299	6	28	21'-9"	"		
6300	6	28	22'-2"	"		
6301	6	30	22'-6"	"		
6302	6	22	22'-10"	"		
6306	6	24	22'-11"	"		
6307	6	294	6'-0"	IV	0'-6"	3'-1-3/4"
1111	11	6	20'-0"	IV	15'-9"	1'-0"
1112	11	8	25'-0"	IV	15'-9"	1'-0"

BAR SUMMARY

3445	lin. ft. No. 5 at 1.043 lbs. per lin. ft. = 3444
11472	lin. ft. No. 6 at 1.502 lbs. per lin. ft. = 16863
320	lin. ft. No. 11 at 5.313 lbs. per lin. ft. = 1700
TOTAL = 22,007	

BAR LIST - ABUTMENT NO. 4						
MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
418	4	48	52'-0"	Str.		
423	4	167	6'-6"	"		
424	4	25	4'-1"	"		
425	4	23	4'-8"	"		
426	4	21	5'-4"	"		
427	4	22	6'-0"	"		
428	4	20	6'-6"	"		
429	4	19	7'-1"	"		
430	4	20	7'-7"	"		
431	4	17	8'-1"	"		
432	4	25	9'-1"	"		
433	4	23	9'-9"	"		
434	4	21	10'-4"	"		
435	4	22	11'-0"	"		
436	4	20	11'-6"	"		
437	4	19	12'-1"	"		
438	4	20	12'-7"	"		
439	4	17	13'-1"	"		
440	4	56	14'-10"	"		
441	4	1 Ea.	to	Str.		
461	4	18	7'-9"	"		
462	4	18	24'-0"	Str.		
463	4	167	5'-9"	"		
464	4	2 Ea.	to	Str.		
468	4	25	22'-3"	"		
469	4	25	10'-4"	"		
470	4	22	24'-8"	"		
471	4	2	28'-5"	"		
472	4	385	3'-6"	"		
473	4	167	3'-2"	"		
474	4	16	20'-0"	"		
516	5	338	5'-11"	Str.		
517	5	42	57'-8"	"		
8263	6	164	6'-11"	Str.		
8265	6	9	14'-10"	"		
8266	6	1 Ea.	to	Str.		
8295	6	30	7'-0"	"		
8296	6	38	10'-4"	Str.		
8297	6	32	24'-9"	"		
8543	6	76	7'-2"	IV	2'-0"	2'-9-3/4"
801	8	9	58'-0"	Str.		

BAR SUMMARY

10456	lin. ft. No. 4 at 0.668 lbs. per lin. ft. = 6998
4416	lin. ft. No. 5 at 1.043 lbs. per lin. ft. = 4655
2933	lin. ft. No. 6 at 1.502 lbs. per lin. ft. = 4405
522	lin. ft. No. 8 at 2.670 lbs. per lin. ft. = 1394
TOTAL = 17,347	

Revised in number; number shown was placed in the structure. Where the number placed was less than plan quantity, plan quantity was paid as the steel was delivered to the project before the changes were made.

* Field cut

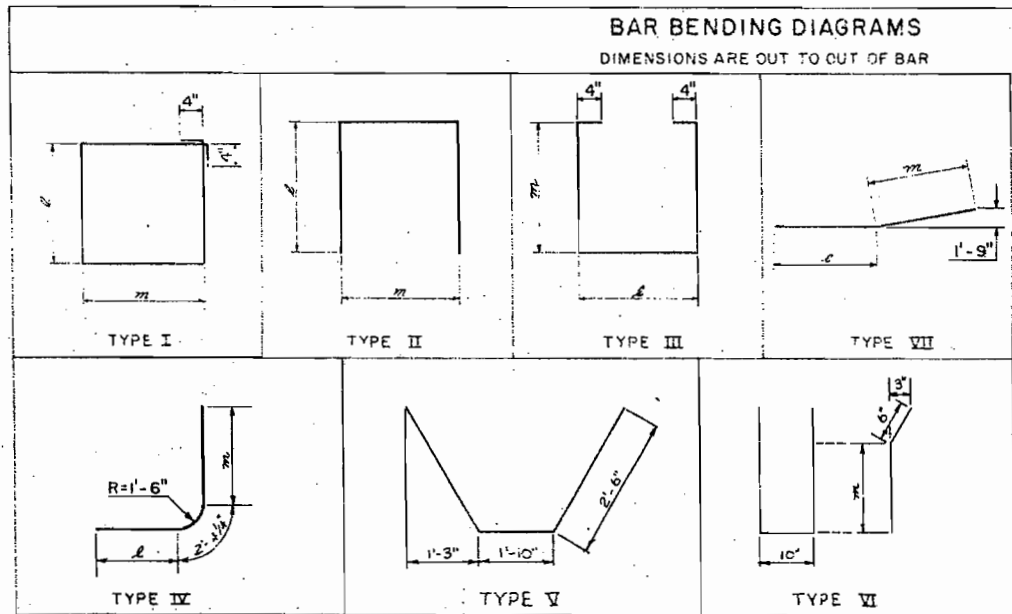
Additional bars Abut. No. 1 due to change of south end

Size	No. Req'd	Length	Type
4	11	7.80	Str.
4	11	8.00	Str.
4	3	16.75	Str.
4	2	17.00	Str.
4	6	3.00	Str.
10	7	4.00	Str.
10	6	11.50	Str.
11	6	16.75	Str.
11	5	6.00	Str.

* Additional length (spliced bars)
Additional bars Abut. 4 as required for proper spacing and clearance

Size	No. Req'd	Length	Type
4	1	17.00	Str.
4	1	64.00	Str.
4	1	107.00	Str.
4	1	125.00	Str.
4	1	176.00	Str.
4	1	52.00	Str.
4	1	72.00	Str.
4	1	104.00	Str.
4	1	154.00	Str.
4	2	5.00	Str.
4	76	3.00	Str.
4	6	3.50	Str.
4	6	1.00	Str.
4	6	.67	Str.

** Entire lengths (including splices) field measured



DIVISION OF HIGHWAYS

BAR LISTS

Across SOUTH PLATTE RIVER
Sta. 218+10

Near DENVER Sta. 15+45.7 68W

Designed by R.M.K. Approved by
Made by K.L.L. Bridge Engineer
Checked by [Signature] Date: 1970

PROJECT NO. F 085-2(3)
STRUCTURE NO. F-16-1K

SOUTH SANTA FE
SOUTHBOUND OVER SO. PLATTE RIVER
STATION 218

FED. ROAD DIST. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	15	

INPUT DATA FOR BRIDGE F-16-1K

POC = 216 + 26.2220
PI = 218 + 0.0000
CTLST = 216 + 26.2220

BTSTA = 215 + 6.2220
HPOFF = .0001

ALPHA = -54°14'43.00"
EPI = 5230.0000
RAADIUS = 1432.3950
VC = 600.
ETSTA = 217 + 6.2220
SMIN = .0150

PLOFF = 0.0000
CLOFF = 0.0000
CTLS = 0.0000
PLES = 0.0000
PCSTA = 216 + 26.2220
SMAX = .0620

GBK = 1.8000
GAH = -.9500
SUPER = .0150

AS CONSTRUCTED
NO REVISIONS DATE AUG 27 1970

		GIRDER NO. 1		GIRDER NO. 2		GIRDER NO. 3		GIRDER NO. 4		GIRDER NO. 5		GIRDER NO. 6		GIRDER NO. 7		GIRDER NO. 8	
		Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
Centerline Abut. 1																	
Centerline Pier 2																	
Sta Back		217 + 5.9484	5233.0723	216 + 94.8253	5233.5342	216 + 83.9422	5233.9307	216 + 73.2886	5234.2640	216 + 62.8546	5234.5363	216 + 52.6318	5234.7495	216 + 42.6111	5234.9055	216 + 32.7848	5235.0061
1 10th		217 + 17.7841	5233.1662	217 + 6.4315	5233.5066	216 + 95.3307	5233.9377	216 + 84.4702	5234.3066	216 + 73.8395	5234.6130	216 + 63.4288	5234.8591	216 + 53.2290	5235.0468	216 + 43.2314	5235.1781
2 10th		217 + 29.6199	5233.2574	217 + 18.0376	5233.6022	217 + 6.7191	5233.9430	216 + 95.6518	5234.3433	216 + 84.8243	5234.6841	216 + 74.2259	5234.9533	216 + 63.8469	5235.1830	216 + 53.6780	5235.3451
3 10th		217 + 41.4556	5233.3422	217 + 29.8438	5233.8916	217 + 18.1075	5234.0368	217 + 6.8334	5234.3780	216 + 95.8090	5234.7497	216 + 85.0230	5235.0822	216 + 74.4648	5235.3140	216 + 64.1246	5235.5076
4 10th		217 + 53.2914	5233.4208	217 + 41.2499	5233.7749	217 + 29.4980	5234.1245	217 + 18.0150	5234.4700	217 + 6.7938	5234.8117	216 + 95.8201	5235.1558	216 + 85.0327	5235.4398	216 + 74.5712	5235.6640
5 10th		217 + 65.1271	5233.4925	217 + 52.8361	5233.8518	217 + 40.8844	5234.2063	217 + 29.1986	5234.5553	217 + 17.7785	5234.9021	217 + 6.6172	5235.2442	216 + 95.7007	5235.5604	216 + 85.0179	5235.8159
6 10th		217 + 76.9628	5233.5580	217 + 64.4522	5233.9276	217 + 52.2728	5234.2821	217 + 40.3782	5234.6366	217 + 28.7633	5234.9870	217 + 17.4143	5235.3332	217 + 16.9365	5235.7634	216 + 95.4645	5235.9628
7 10th		217 + 88.7986	5233.6170	217 + 76.0884	5233.9373	217 + 63.6613	5234.3520	217 + 51.5588	5234.7115	217 + 39.7480	5234.0664	217 + 28.2184	5235.4169	217 + 16.9365	5235.7634	217 + 5.9111	5236.1047
8 10th		218 + 0.6343	5233.6696	217 + 87.6745	5234.0457	217 + 75.0487	5234.4158	217 + 62.7414	5234.7805	217 + 50.7328	5235.1402	217 + 39.0085	5235.4952	217 + 27.5544	5235.8460	217 + 16.3577	5236.1927
9 10th		218 + 12.4701	5233.7158	217 + 99.2307	5234.0979	217 + 86.4381	5234.4738	217 + 73.9230	5234.8439	217 + 61.7175	5235.2085	217 + 49.8056	5235.5882	217 + 38.1724	5235.9233	217 + 26.8043	5236.2743
Sta Ahead		218 + 24.3058	5233.7555	218 + 10.8868	5234.1439	217 + 97.8266	5234.5257	217 + 85.1046	5234.9013	217 + 72.7022	5235.2712	217 + 60.6026	5235.6358	217 + 48.7903	5235.9955	217 + 37.2509	5236.3508
Centerline Pier 2																	
Centerline Pier 3																	
Sta Back		218 + 24.3058	5233.7555	218 + 10.8868	5234.1439	217 + 97.8266	5234.5257	217 + 85.1046	5234.9013	217 + 72.7022	5235.2712	217 + 60.6026	5235.6358	217 + 48.7903	5235.9955	217 + 37.2509	5236.3508
1 10th		218 + 40.4601	5233.7992	218 + 26.5351	5234.1964	218 + 13.1041	5234.8660	217 + 99.9921	5234.9889	217 + 87.2269	5235.3456	217 + 74.7884	5235.7164	217 + 62.6585	5236.0820	217 + 50.8209	5236.4428
2 10th		218 + 56.6143	5233.8310	218 + 42.2335	5234.2374	218 + 28.3817	5234.8356	218 + 14.8797	5235.0284	218 + 1.7515	5235.4102	217 + 88.9741	5235.7878	217 + 76.5268	5236.1597	217 + 64.3909	5236.5262
3 10th		218 + 72.7686	5233.8508	218 + 57.9318	5234.2672	218 + 43.6593	5234.8745	218 + 29.7673	5235.0736	218 + 16.2762	5235.4652	218 + 3.1599	5235.8500	217 + 90.3951	5236.2285	217 + 77.9610	5236.5912
4 10th		218 + 88.9228	5233.8586	218 + 73.6801	5234.2956	218 + 58.9363	5234.9026	218 + 44.6548	5235.1105	218 + 30.8008	5235.5105	218 + 17.3456	5235.9029	218 + 4.2634	5236.2884	217 + 91.5310	5236.6677
5 10th		219 + 5.0770	5233.8543	218 + 89.3785	5234.2926	218 + 74.2144	5234.9200	218 + 59.5424	5235.1375	218 + 45.3255	5235.5461	218 + 31.5314	5235.9465	218 + 18.1316	5236.3355	218 + 5.1010	5236.7258
6 10th		219 + 21.2313	5233.8381	219 + 5.0768	5234.2883	218 + 83.4923	5234.9266	218 + 74.4300	5235.1541	218 + 39.8501	5235.5719	218 + 45.7171	5235.9509	218 + 31.9999	5236.3818	218 + 18.6710	5236.7753
7 10th		219 + 37.3855	5233.8099	219 + 20.7751	5234.2727	219 + 4.7696	5234.9225	218 + 89.3175	5235.1606	218 + 74.3748	5235.5831	218 + 59.9029	5236.0080	218 + 45.8682	5236.4152	218 + 32.2410	5236.8165
8 10th		219 + 53.5397	5233.7696	219 + 36.4735	5234.2458	219 + 20.0472	5234.9077	219 + 4.2051	5235.1569	218 + 88.8994	5235.5946	218 + 74.0886	5236.0219	218 + 31.9999	5236.4152	218 + 45.8110	5236.8491
9 10th		219 + 69.6940	5233.7174	219 + 52.1718	5234.2075	219 + 35.3243	5234.6821	219 + 19.0927	5235.1423	219 + 3.4241	5235.5913	218 + 88.2744	5236.0285	218 + 59.7365	5236.4398	218 + 45.8110	5236.8491
Sta Ahead		219 + 85.8482	5233.6531	219 + 67.8701	5234.1579	219 + 58.6023	5234.6458	219 + 33.9802	5235.1188	219 + 17.9487	5235.5784	219 + 2.4601	5236.0258	218 + 73.6047	5236.4555	218 + 59.3810	5236.8733
Centerline Pier 3																	
Centerline Abut. 4																	
Sta Back		219 + 85.8482	5233.6531	219 + 67.8701	5234.1579	219 + 58.6023	5234.6458	219 + 33.9802	5235.1188	219 + 17.9487	5235.5784	219 + 2.4601	5236.0258	218 + 87.4730	5236.4624	218 + 72.9510	5236.8889
1 10th		219 + 98.7564	5233.5932	219 + 80.1856	5234.1110	219 + 62.3987	5234.6105	219 + 45.3169	5235.0936	219 + 28.8742	5235.5622	219 + 13.0148	5236.0179	218 + 97.6911	5236.4618	218 + 82.8617	5236.8951
2 10th		220 + 11.6645	5233.5255	219 + 92.5010	5234.0572	219 + 74.1951	5234.5687	219 + 56.6535	5235.0625	219 + 39.7996	5235.5406	219 + 23.5696	5236.0048	219 + 7.9093	5236.4564	218 + 92.7724	5236.8966
3 10th		220 + 24.5727	5233.4502	220 + 4.8164	5233.9364	219 + 85.9915	5234.5205	219 + 67.9301	5235.0255	219 + 50.7251	5235.5135	219 + 34.1243	5235.9465	219 + 18.1275	5236.4461	219 + 2.6830	5236.8853
4 10th		220 + 37.4808	5233.3673	220 + 17.1319	5233.9286	219 + 97.7879	5234.4659	219 + 79.3268	5234.9823	219 + 61.6506	5235.4809	219 + 44.6791	5235.9632	219 + 28.3456	5236.4311	219 + 12.5937	5236.8853
5 10th		220 + 50.3690	5233.2766	220 + 29.4473	5233.8538	220 + 3.5843	5234.4049	219 + 90.6634	5234.9823	219 + 72.5760	5235.4428	219 + 55.2338	5235.9347	219 + 38.5638	5236.4113	219 + 22.5044	5236.8743
6 10th		220 + 63.2972	5233.1783	220 + 41.7827	5233.7720	220 + 21.8807	5234.3376	220 + 2.0000	5234.8763	219 + 83.5015	5235.3932	219 + 65.7886	5235.9011	219 + 48.7819	5236.3667	219 + 32.4150	5236.8578
7 10th		220 + 76.2053	5233.0724	220 + 54.0782	5233.6833	220 + 33.1770	5234.2638	220 + 13.3365	5234.8182	219 + 94.4270	5235.3511	219 + 76.3433	5235.8524	219 + 59.0061	5236.3573	219 + 42.3257	5236.8368
8 10th		220 + 89.1135	5232.9588	220 + 66.3936	5233.5876	220 + 44.8734	5234.1836	220 + 24.6733	5234.7516	220 + 5.3524	5235.2956	219 + 86.8981	5235.8185	219 + 69.2182	5236.3231	219 + 52.2363	5236.8113
9 10th		221 + 2.0216	5232.8376	220 + 78.7090	5233.4850	220 + 56.7893	5234.0970	220 + 36.0093	5234.6791	220 + 16.2779	5235.2355	219 + 97.4528	5235.7696	219 + 79.4364	5236.2841	219 + 62.1470	5236.7813
Sta Ahead		221 + 14.9298	5232.7137	220 + 91.0244	5233.3753	220 + 68.5662	5234.0040	220 + 47.3465	5234.6007	220 + 27.2033	5235.1699	220 + 8.0076	5235.7155	219 + 89.6545	5236.2402	219 + 72.0577	5236.7467

NOTE:
ELEVATIONS TO TOP OF ASPHALT.

DIVISION OF HIGHWAYS

TENTH POINT
DECK ELEVATIONS

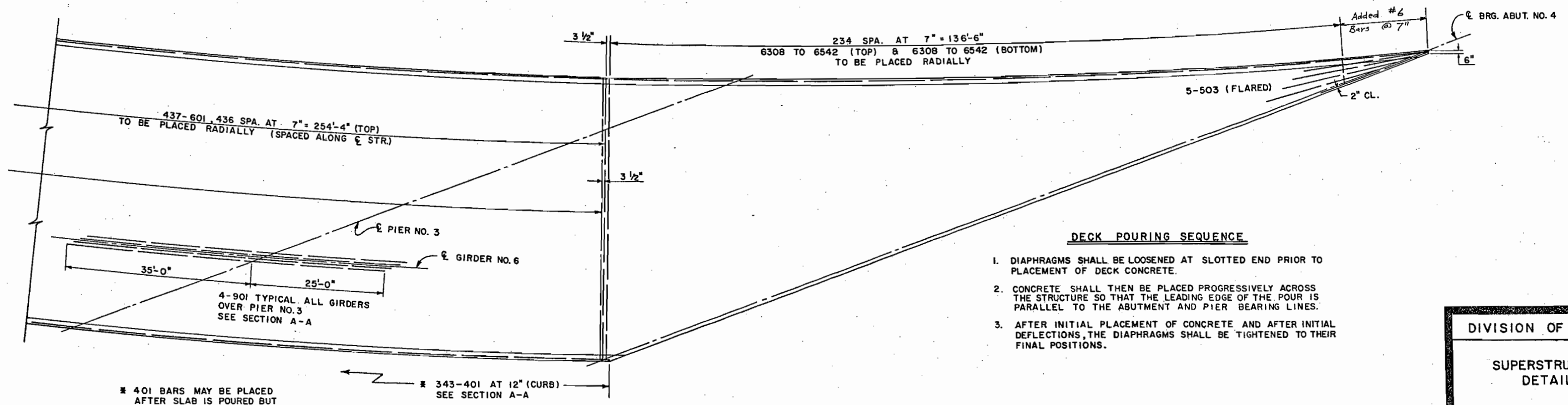
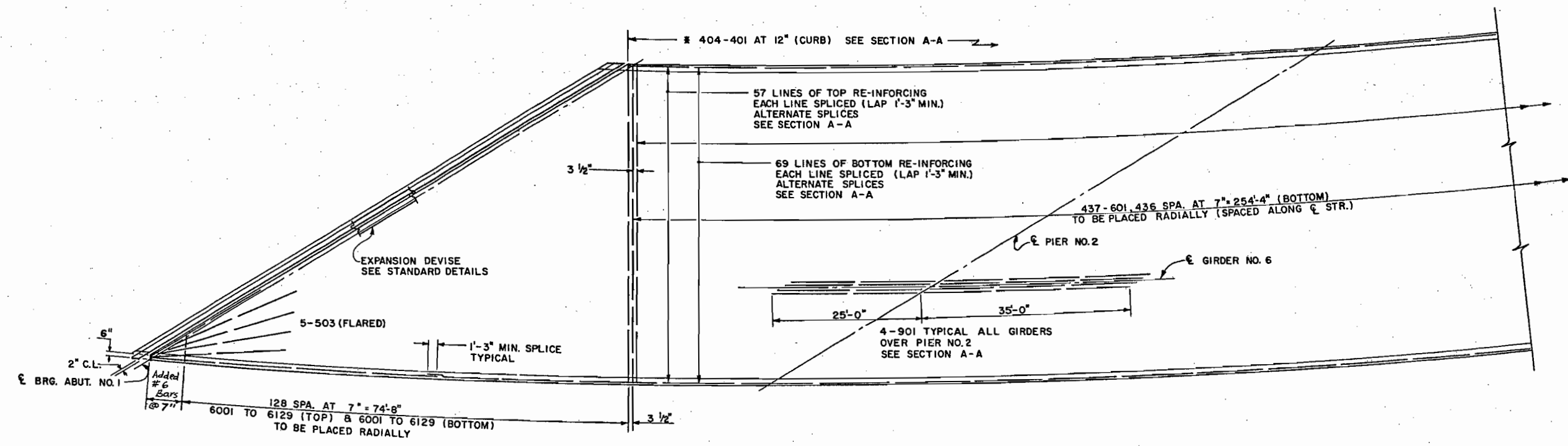
Across SOUTH PLATTE RIVER
Sta 218 + 30

Near DENVER Sec. 15 T. 4 S. R. 66 N.

Designed by R.M.K. Approved by
Made by A.M.W.
Checked by R.J.D. Date: 1970

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	17	

AS CONSTRUCTED
 REVISED DATE AUG 27 1973



- DECK POURING SEQUENCE**
1. DIAPHRAGMS SHALL BE LOOSENEED AT SLOTTED END PRIOR TO PLACEMENT OF DECK CONCRETE.
 2. CONCRETE SHALL THEN BE PLACED PROGRESSIVELY ACROSS THE STRUCTURE SO THAT THE LEADING EDGE OF THE POUR IS PARALLEL TO THE ABUTMENT AND PIER BEARING LINES.
 3. AFTER INITIAL PLACEMENT OF CONCRETE AND AFTER INITIAL DEFLECTIONS, THE DIAPHRAGMS SHALL BE TIGHTENED TO THEIR FINAL POSITIONS.

* 401 BARS MAY BE PLACED AFTER SLAB IS POURED BUT BEFORE INITIAL SET TAKES PLACE.

SUPERSTRUCTURE DETAILS
 (NO SCALE)

DIVISION OF HIGHWAYS

SUPERSTRUCTURE DETAILS

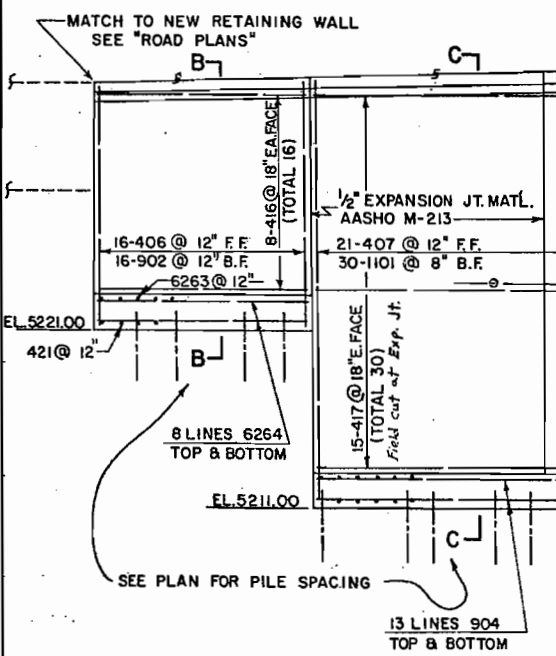
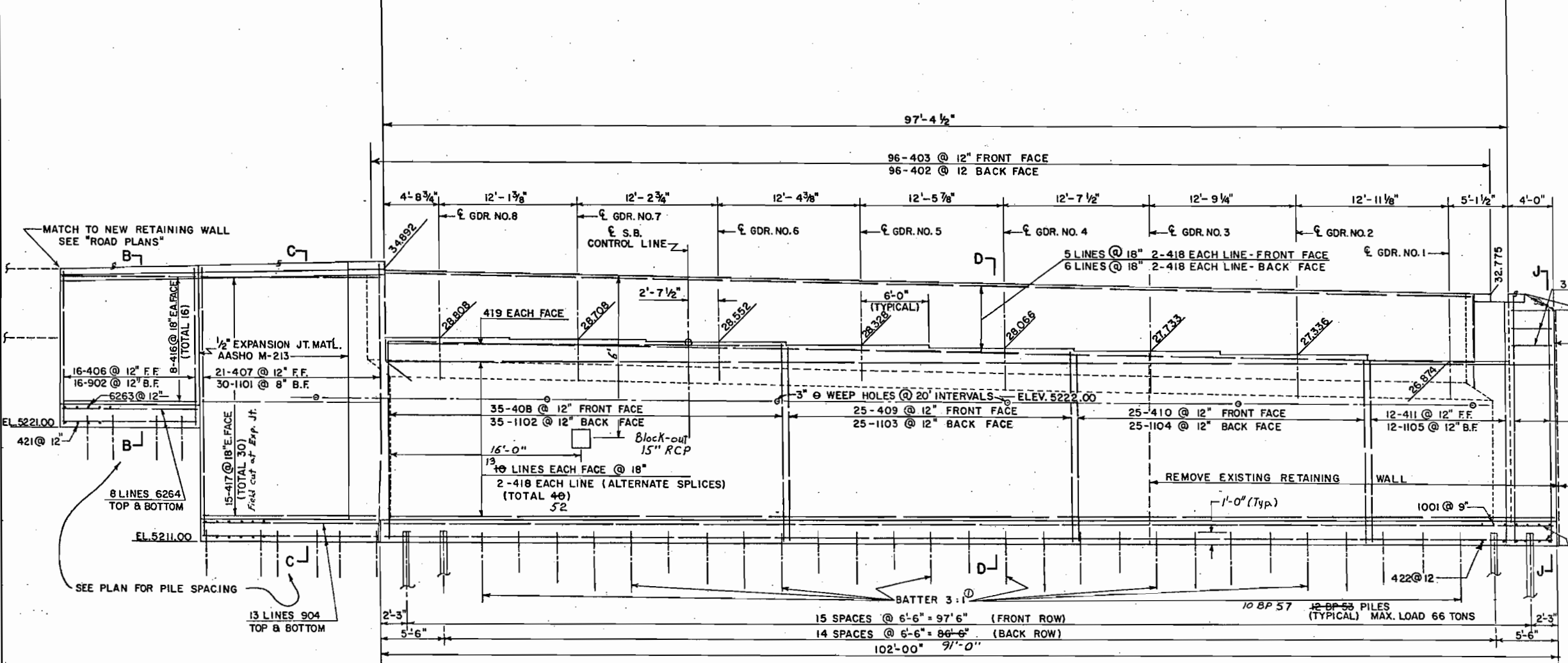
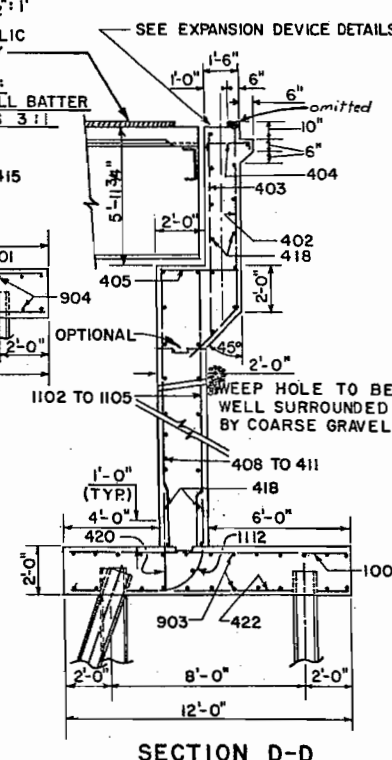
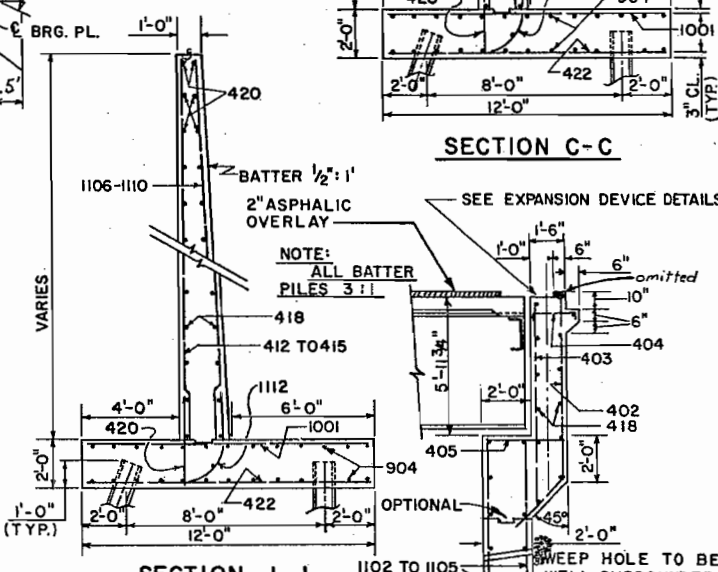
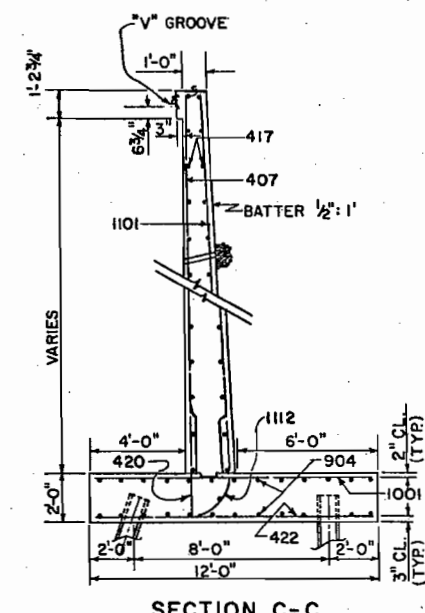
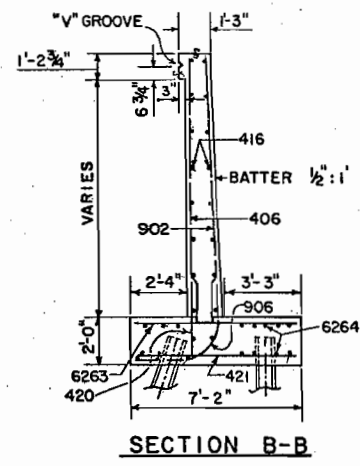
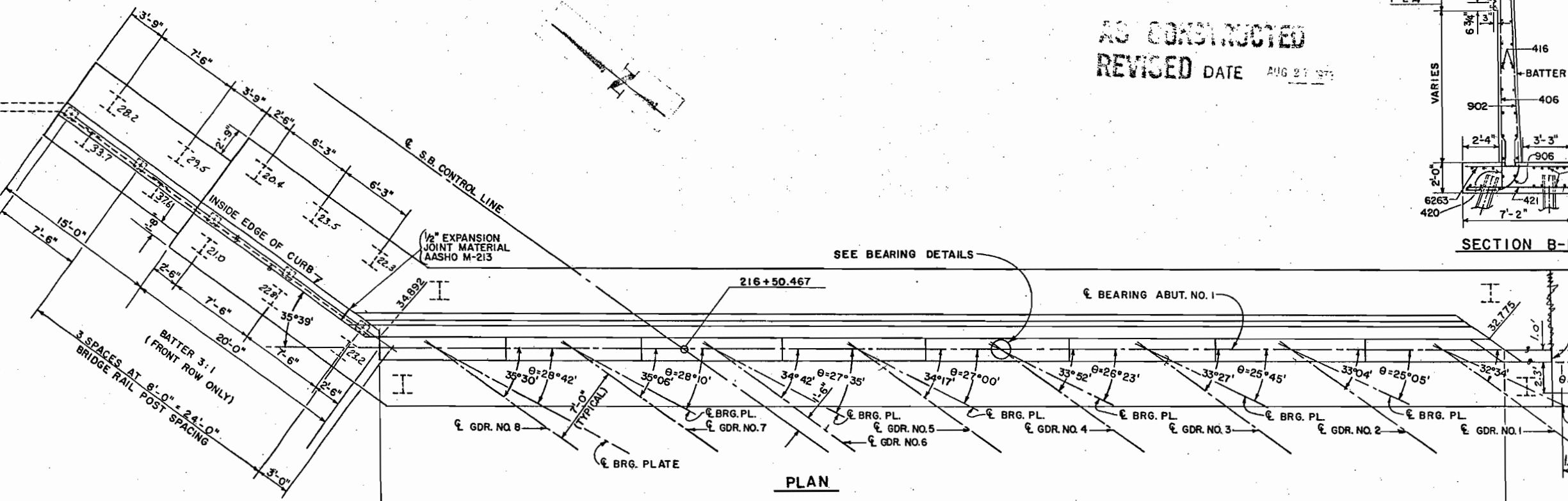
Across SOUTH PLATTE RIVER
 Sta. 218+30
 Near DENVER Sec. 15 T.4S. R.68W.

Designed by R.M.K. Approved by
 Made by K.L.L. Checked by [Signature] Date: 1970

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	18	

AS CONSTRUCTED
REVISED DATE AUG 27 1970

NOTE:
ALL EXPANSION JOINT MATERIAL TO BE
NAILED IN PLACE.



Front Row	#11	20.7	#12	20.0	#13	19.6	#14	22.1	#15	21.3	#16	21.1	#17	21.0	#18	20.4	#19	20.4	#20	19.4	#21	19.3	#22	18.9	#23	19.2	#24	19.3	#25	18.7	STRUCTURE NO.	F-16-1K
Back Row	#41	20.6	#40	20.5	#39	21.1	#38	21.5	#37	18.8	#36	19.8	#35	23.2	#34	21.4	#33	20.7	#32	20.3	#31	20.4	#30	19.5	#29	21.3	#28	18.4	#27	19.6	#26	19.0

① Front Row only. Piles not marked "Batter" shall be vertical.
Piling lengths shown excluding welds

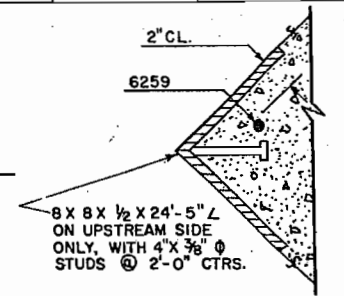
DIVISION OF HIGHWAYS

ABUTMENT NO. 1

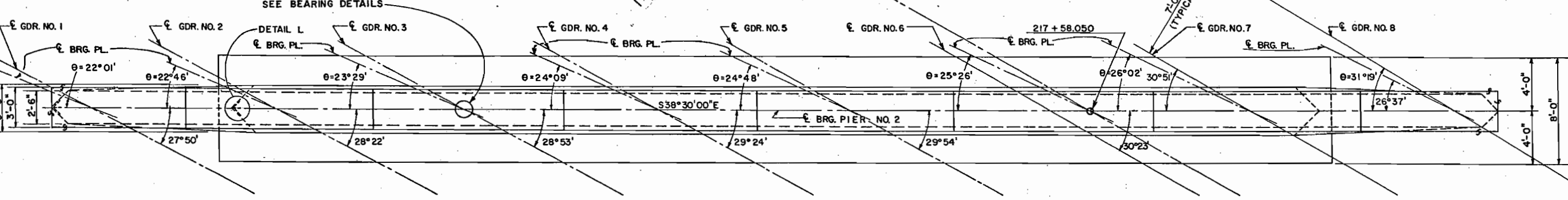
Across SOUTH PLATTE RIVER
Sta. 218+30
Near DENVER Sec. 15 T. 4 S. R. 68 W.
Designed by R.M.K. Approved by
Made by R.J.D. Checked by Date: 1970

AS CONSTRUCTED
REVISED DATE AUG 27 1973

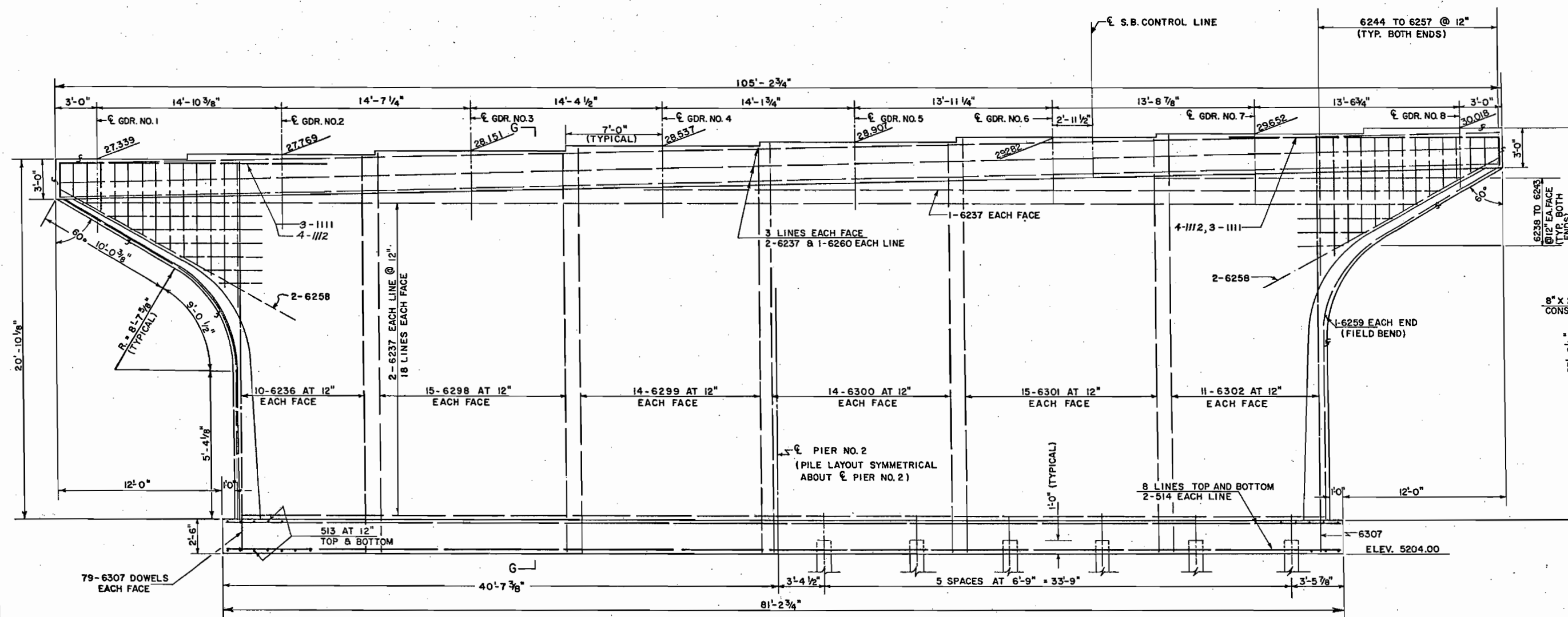
FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	19	



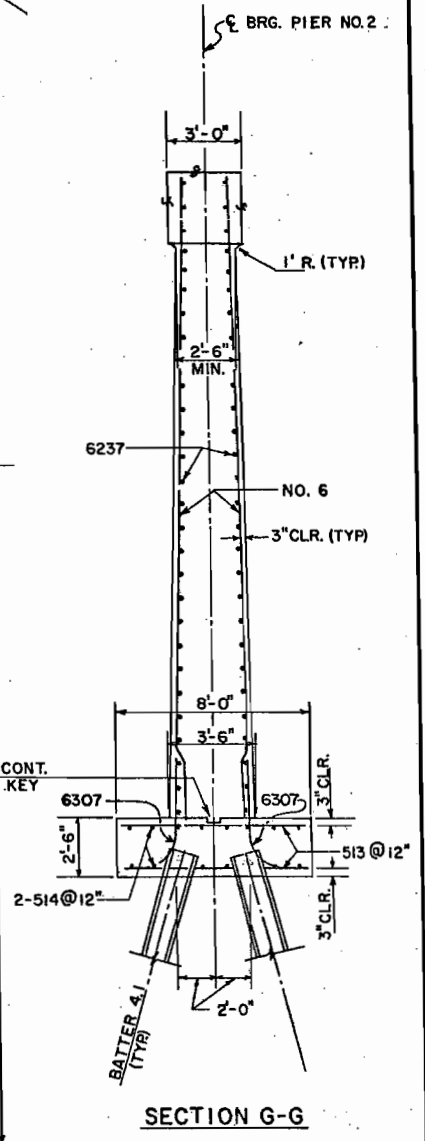
DETAIL L



PLAN



ELEVATION



SECTION G-G

Front Row	#42 18.5	#43 16.0	#44 15.4	#45 18.0	#46 18.0	#47 18.0	#48 18.0	#49 16.5	#50 17.9	#51 14.0	#52 14.0	#53 13.6
Back Row	#65 16.7	#64 18.0	#63 18.0	#62 18.0	#61 15.9	#60 16.0	#59 16.0	#58 16.7	#57 18.0	#56 18.0	#55 14.0	#54 14.0

10 BP 57
ALL PILES 12 BP 53
MAXIMUM PILE PRESSURE 70 TONS
Piling lengths shown excluding welds.

STRUCTURE NO. F-16-1K

DIVISION OF HIGHWAYS

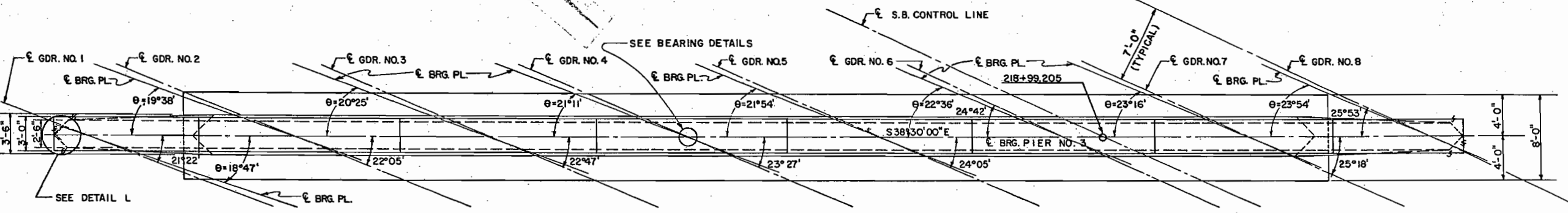
PIER NO. 2

Across **SOUTH PLATTE RIVER**
Sta. **218 + 30**
Near **DENVER** Sec. **15** T. **4 S.** R. **88 W.**

Designed by **R.M.K.** Approved by
Made by **R.J.D.**
Checked by **[Signature]** Date: **1970**

FED. ROAD DIST. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	20	

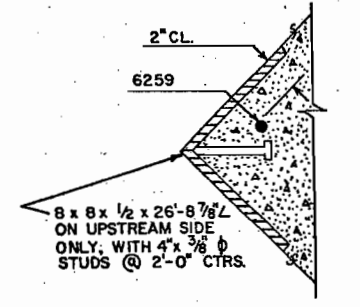
AS CONSTRUCTED
REVISED DATE 4/17/70



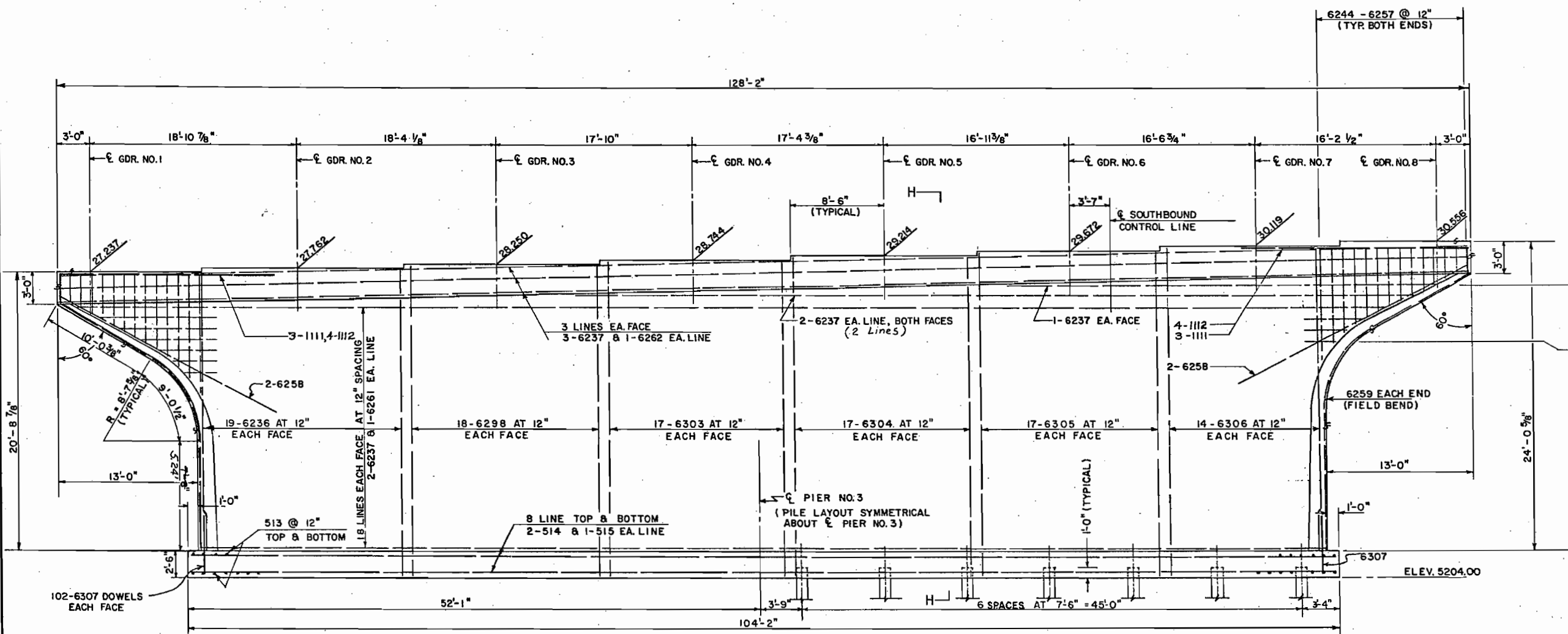
PLAN

Piling lengths shown excluding welds.

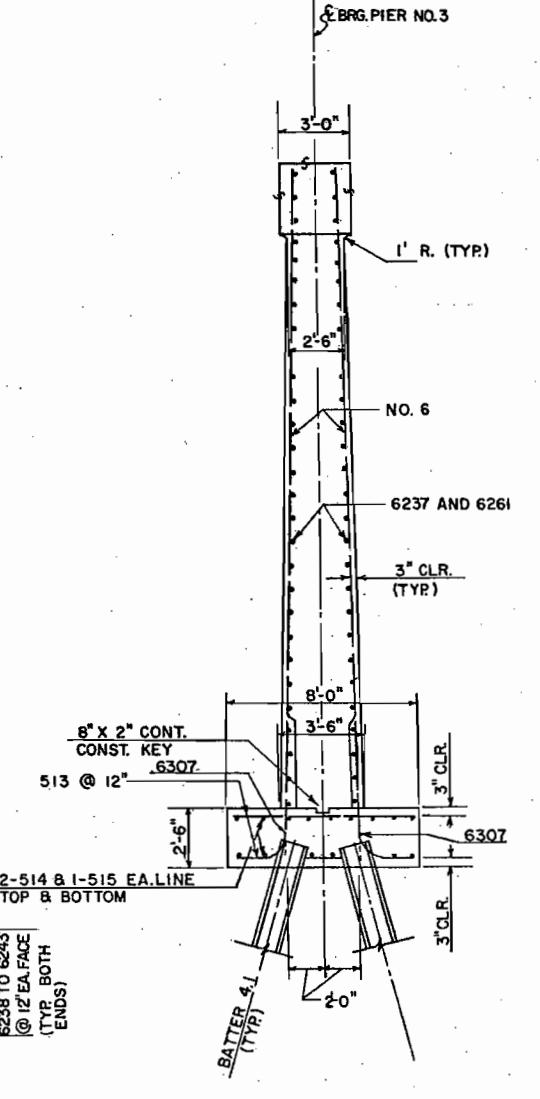
Front Row	#66	11.8	#67	11.4	#68	12.0	#69	12.1	#70	12.0	#71	11.5	#72	12.3	#73	12.5	#74	12.0	#75	12.0	#76	14.0	#77	14.0	#78	14.9	#79	16.0
Back Row	#93	12.5	#92	14.1	#91	11.7	#90	14.0	#89	12.3	#88	11.6	#87	11.3	#86	12.6	#85	11.8	#84	14.1	#83	12.8	#82	15.1	#81	16.0	#80	16.0



DETAIL L



ELEVATION



SECTION H-H

DIVISION OF HIGHWAYS

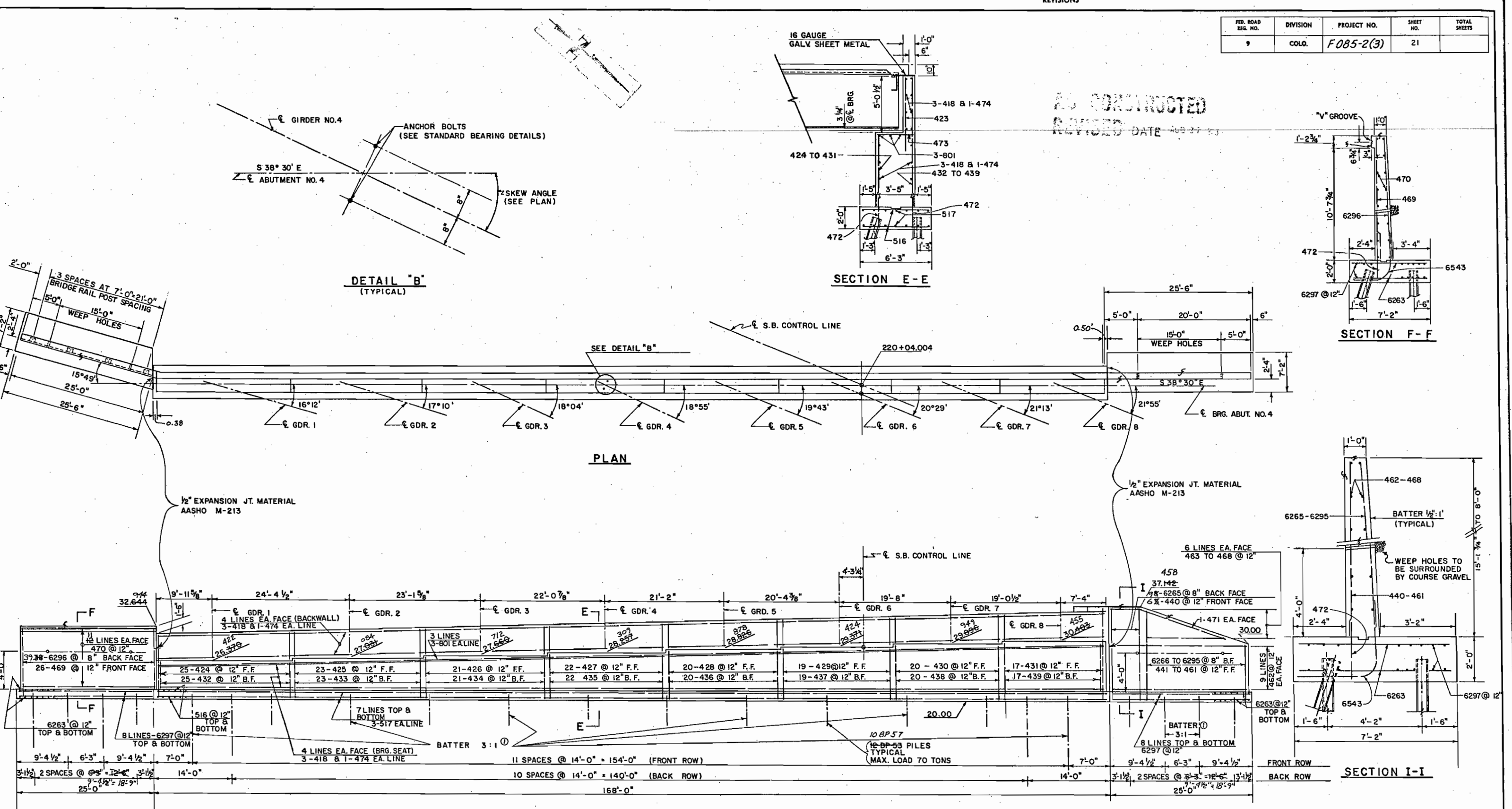
PIER NO. 3

Across SOUTH PLATTE RIVER
Sta. 218 + 30
Near DENVER Sec. 15 T. 4 S. R. 68 W

Designed by R.M.K. Approved by _____
Made by R.J.D.
Checked by _____ Date: 1970

STRUCTURE NO. F-16-1K

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	21	



AS CONSTRUCTED
REVISED DATE 8-27-63

DETAIL "B"
(TYPICAL)

SECTION E-E

SECTION F-F

PLAN

SECTION I-I

ELEVATION

⊙ Front Row only. Piles not marked *Batter* shall be vertical.
Piling lengths shown excluding welds.

NOTE:
ALL ELEVATIONS BASED ON 5200.00

Front Row: #126 29.9 #125 29.7 #124 28.4 #123 28.4 #122 27.2 #121 28.5 #120 30.8 #119 29.7 #118 28.6 #117 30.0 #116 29.6 #115 30.9 #114 28.3 #113 34.3 #112 33.7 #111 32.1
Back Row #94 28.2 #95 28.5 #96 28.2 #97 27.9 #98 28.9 #99 28.1 #100 28.6 #101 29.5 #102 29.6 #103 29.2 #104 29.4 #105 28.4 #106 28.9 #107 32.0 #108 31.0 #109 30.9 #110 31.2

DIVISION OF HIGHWAYS

ABUTMENT NO. 4

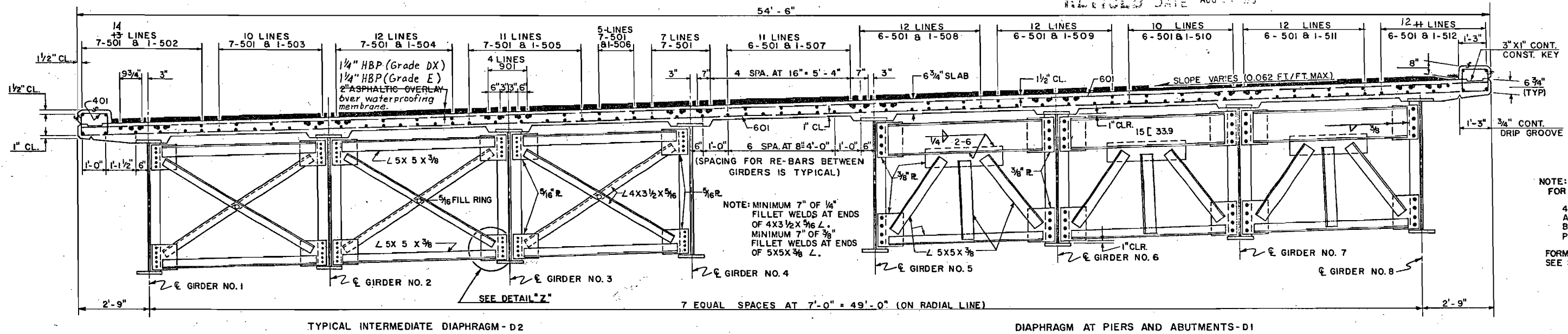
Across SOUTH PLATTE RIVER
Sta. 218+30
Near DENVER Sec. 15 T. 4 S. R. 68 W.

Designed by R.M.K. Approved by
Made by R.J.D.
Checked by Date: 1970

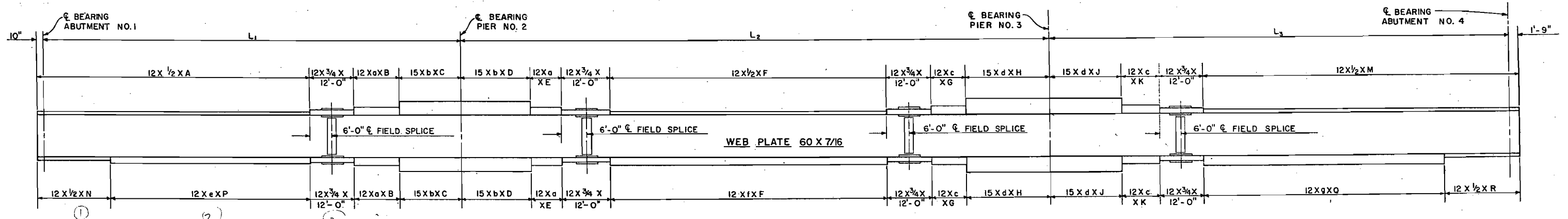
STRUCTURE NO. F-16-1K

AS CONSTRUCTED
REVISED DATE AUG 27 1973

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	22	

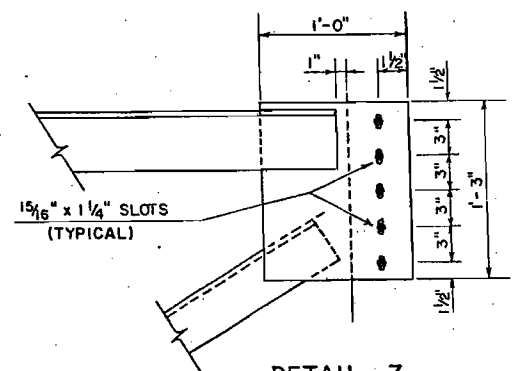


NOTE:
FOR BRIDGE RAIL, SEE SHEET 28
401 BARS MAY BE PLACED AFTER SLAB IS POURED BUT BEFORE INITIAL SET TAKES PLACE.
FORM BRIDGE RAIL POCKETS SEE SHEET 28.



GIRDER FLANGE DETAIL
(NO SCALE)

GIRDER NO.	SPAN LENGTHS			FLANGE PLATE LENGTH														FLANGE PLATE THICKNESS							
	L ₁	L ₂	L ₃	A	B	C	D	E	F	G	H	J	K	M	N	P	Q	R	a	b	c	d	e	f	g
1	115'-4 1/8"	157'-5 1/8"	125'-9 1/2"	74'-10"	12'-0"	17'-4 1/8"	18'-0"	10'-0"	74'-0"	9'-0"	22'-5 1/8"	19'-0"	10'-0"	86'-6 1/2"	20'-10"	54'-0"	65'-0"	21'-6 1/2"	1 1/4"	2 1/4"	1 1/4"	2 1/2"	7/8"	1 1/4"	1 1/8"
2	113'-8"	153'-9"	120'-7 3/8"	73'-10"	12'-0"	16'-8"	17'-0"	9'-0"	73'-0"	9'-0"	21'-9"	18'-0"	10'-0"	82'-4 3/8"	19'-10"	54'-0"	61'-0"	21'-4 3/8"	1"	2"	1 1/4"	2 1/4"	7/8"	1 1/8"	1 1/8"
3	112'-1 1/8"	150'-4 1/2"	116'-1 3/8"	72'-10"	11'-0"	17'-1 1/8"	16'-0"	10'-0"	73'-0"	10'-0"	17'-4 1/2"	17'-0"	9'-0"	79'-10 3/8"	19'-10"	53'-0"	60'-0"	19'-10 3/8"	1"	2"	1 1/4"	2 1/4"	7/8"	1 1/8"	1 1/8"
4	110'-7 1/4"	147'-3 3/8"	112'-1 5/8"	71'-10"	11'-0"	16'-7 1/4"	16'-0"	9'-0"	69'-0"	9'-0"	20'-3 1/8"	17'-0"	8'-0"	76'-10 5/8"	19'-10"	52'-0"	57'-0"	19'-10 5/8"	1"	1 7/8"	1"	2"	7/8"	1"	1"
5	109'-2 3/8"	144'-4 5/8"	108'-7 1/4"	70'-10"	10'-0"	17'-2 3/8"	16'-0"	9'-0"	71'-0"	9'-0"	15'-4 5/8"	16'-0"	11'-0"	71'-4 1/4"	19'-10"	51'-0"	51'-0"	20'-4 1/4"	1"	1 7/8"	1"	1 7/8"	3/4"	1"	3/4"
6	107'-10 1/4"	141'-8 1/2"	105'-5 1/4"	72'-10"	8'-0"	15'-10 1/4"	16'-0"	8'-0"	70'-0"	8'-0"	15'-8 1/2"	16'-0"	8'-0"	71'-2 1/4"	18'-10"	54'-0"	52'-0"	19'-2 1/4"	1"	1 3/4"	1"	1 3/4"	3/4"	1"	3/4"
7	106'-7"	139'-2 3/8"	102'-6 7/8"	71'-10"	7'-0"	16'-7"	15'-0"	11'-0"	63'-0"	11'-0"	15'-2 5/8"	17'-0"	6'-0"	69'-3 7/8"	18'-10"	53'-0"	51'-0"	18'-3 7/8"	7/8"	1 5/8"	7/8"	1 5/8"	5/8"	7/8"	5/8"
8	105'-4 1/2"	136'-10 5/8"	99'-11 5/8"	70'-10"	8'-0"	15'-4 1/2"	15'-0"	8'-0"	66'-0"	8'-0"	15'-10 5/8"	15'-0"	8'-0"	66'-8 5/8"	25'-10"	45'-0"	37'-0"	29'-8 5/8"	3/4"	1 1/2"	3/4"	1 1/2"	3/4"	3/4"	1/2"

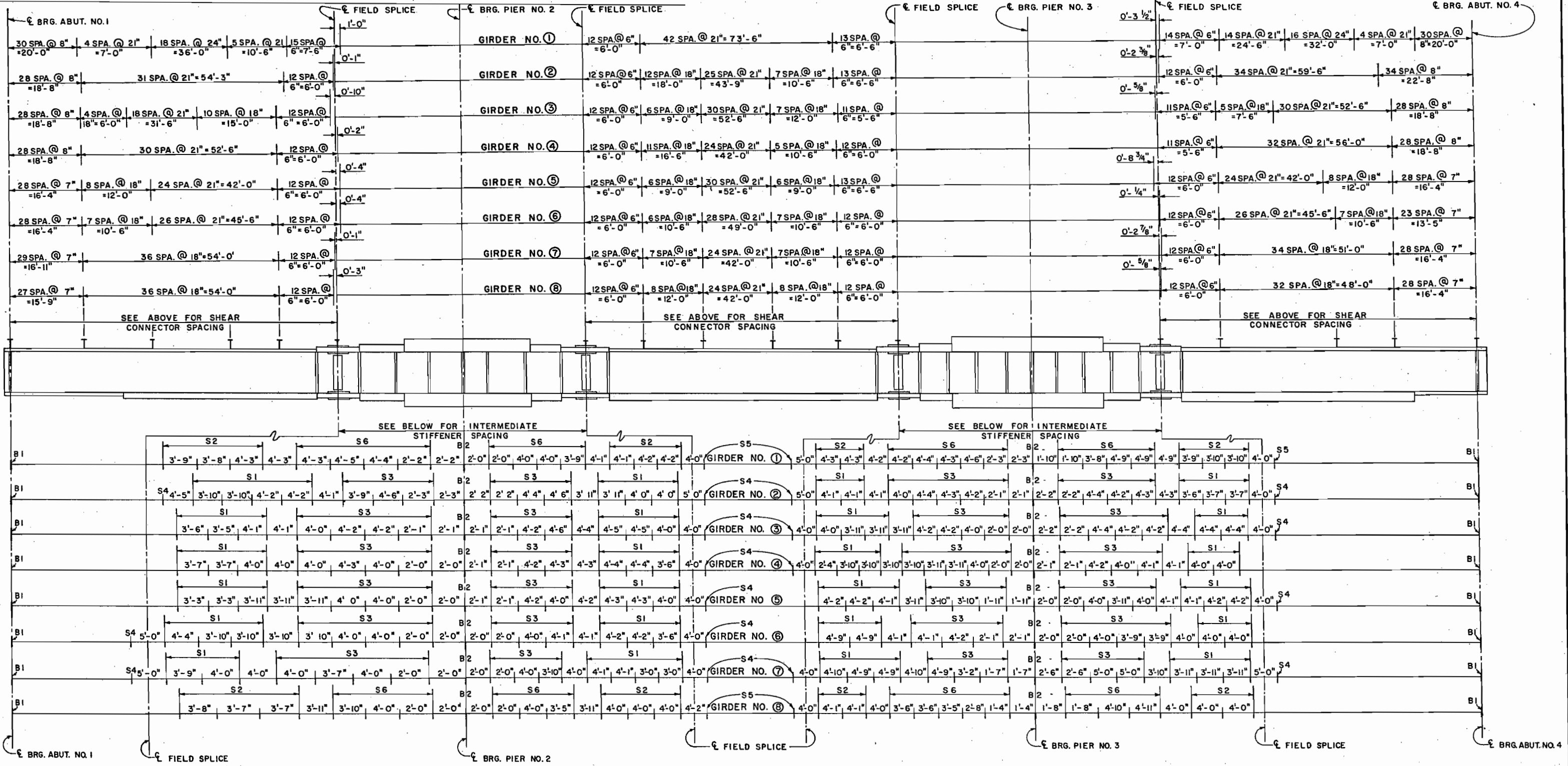


DETAIL Z
NOTE: TYPICAL OF ALL INTERM. DIAPHRAGM PLATES TOWARDS CENTER OF BRIDGE.

DIVISION OF HIGHWAYS
TYPICAL SECTION AND GIRDER FLANGE DETAILS
Across SOUTH PLATTE RIVER
Sta. 218 + 30
Near DENVER Sec. 15, T. 4 S. R. 68 W.
Designed by R.M.K. Approved by _____
Made by K.L.L. Checked by _____ Date: 1970.

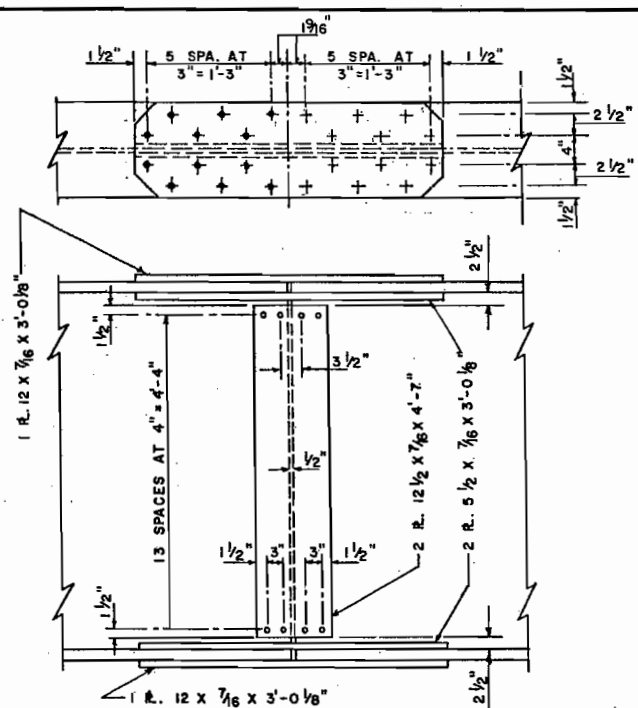
NO CORRECTIONS TO REVISIONS DATE AUG 27 1973

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	23	

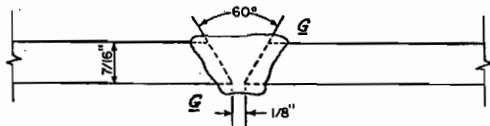


DIVISION OF HIGHWAYS
INTERMEDIATE STIFFENERS SPACING & SHEAR CONNECTOR SPACING
 Across SOUTH PLATTE RIVER
 Sta. 218 + 30
 Near DENVER Sec. 15 T.4S. R.88W.
 Designed by R.M.K. Approved by
 Made by K.L.L.
 Checked by [Signature] Date: 1970

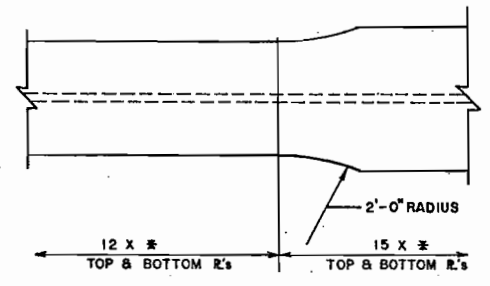
FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	24	



FIELD SPLICE

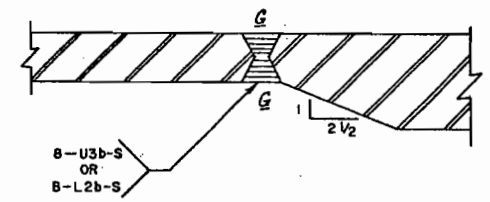


WEB SPLICE B-L2-S



FLANGE PLATE TRANSITION SPLICE

* SEE FLANGE PLATE CHART FOR THICKNESS.

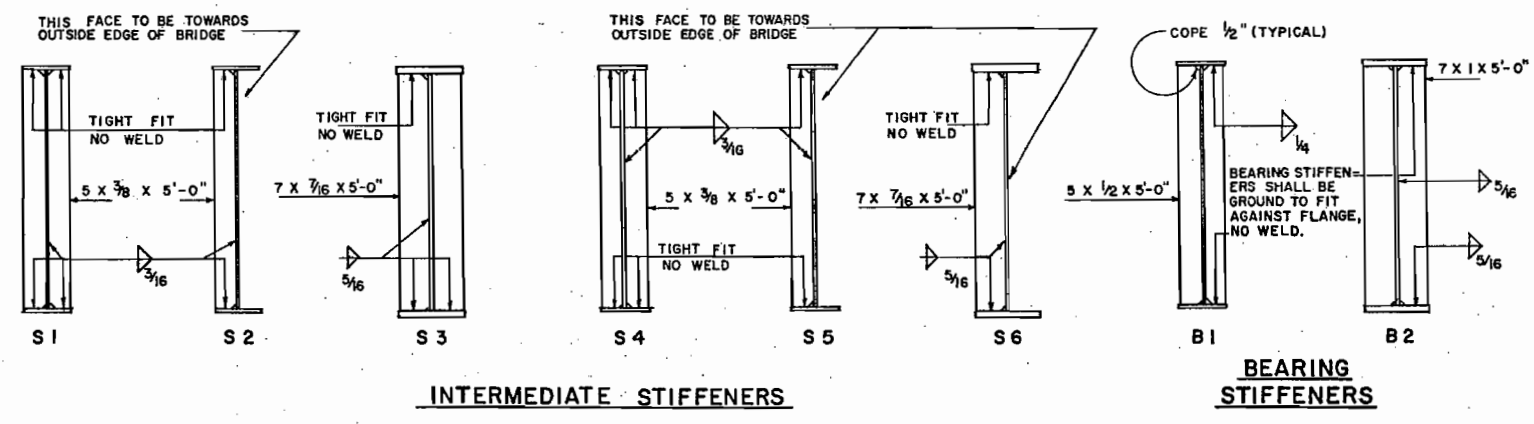


DETAIL M

TYPICAL AT CHANGES IN FLANGE PLATE THICKNESS

NOTES

- ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM SPECIFICATIONS A-36.
- FIELD SPLICE IS A HIGH-TENSILE STRENGTH BOLT FRICTION TYPE JOINT. ALL BOLTS ARE 7/8" HIGH STRENGTH STEEL BOLTS A A S H O M-164 (ASTM-325).
- SUBPUNCH FIELD SPLICE HOLES 1 1/16" AND REAM TO 1 5/16" WITH PARTS ASSEMBLED IN POSITION IN SHOP.
- TWO ADJACENT GIRDERS MUST BE SET WITH DIAPHRAGMS IN PLACE BEFORE RELEASE OF EXTERNAL SUPPORT.

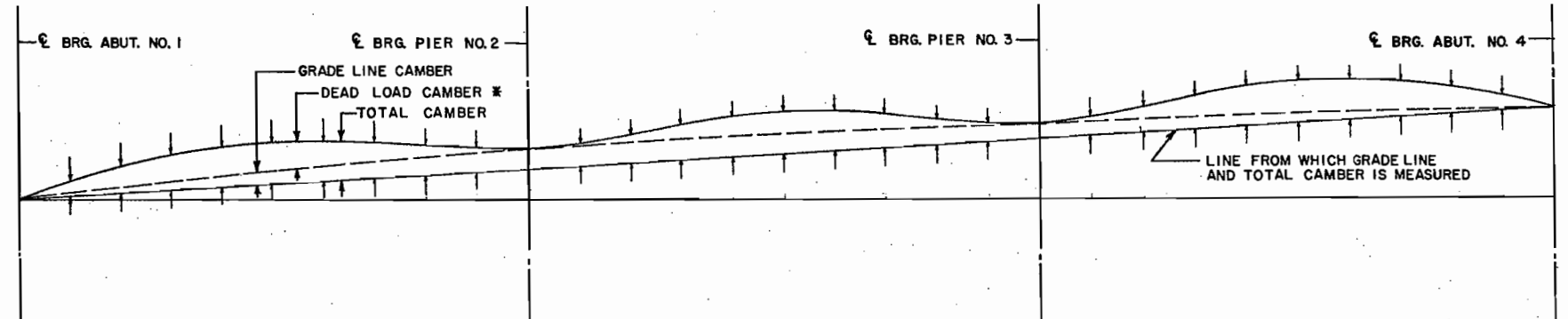


INTERMEDIATE STIFFENERS

BEARING STIFFENERS

SHEAR CONNECTOR DETAIL

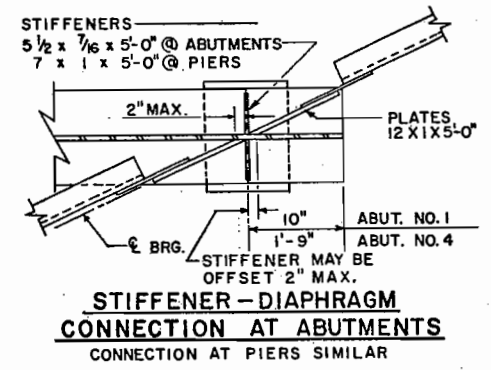
GIRDER EMBEDMENT DETAIL



0		0.1		0.2		0.3		0.4		0.5		0.6		0.7		0.8		0.9		0		0.1		0.2		0.3		0.4		0.5		0.6		0.7		0.8		0.9		0	
GIRDER 1																																									
0	.051	.091	.116	.122	.109	.083	.051	.022	.004	0	.021	.062	.112	.151	.163	.143	.099	.048	.012	0	.014	.044	.087	.133	.167	.181	.169	.132	.074	0											
0	.157	.300	.422	.518	.589	.640	.679	.715	.755	.803	.879	.964	1.046	1.105	1.124	1.100	1.040	.960	.884	.820	.786	.760	.740	.715	.670	.598	.492	.353	.186	0											
10 SPACES @ 11.534' = 115'-4 1/8"										10 SPACES @ 15.742' = 157'-5 1/2"										10 SPACES @ 12.579' = 125'-9 1/2"																					
GIRDER 2																																									
0	.050	.090	.114	.120	.109	.084	.052	.022	.004	0	.027	.075	.129	.170	.182	.164	.119	.064	.021	0	.010	.035	.071	.109	.138	.150	.141	.111	.062	0											
0	.028	.169	.287	.382	.453	.504	.542	.576	.615	.663	.747	.842	.931	.996	1.020	1.003	.947	.871	.795	.730	.698	.675	.655	.631	.590	.526	.433	.313	.166	0											
10 SPACES @ 11.367' = 113'-8"										10 SPACES @ 15.375' = 153'-9"										10 SPACES @ 12.062' = 120'-7 3/8"																					
GIRDER 3																																									
0	.046	.083	.106	.111	.100	.077	.047	.019	.003	0	.022	.063	.112	.150	.163	.148	.108	.060	.020	0	.007	.028	.059	.091	.116	.127	.119	.094	.052	0											
0	.092	.157	.205	.295	.363	.414	.451	.485	.524	.571	.650	.739	.824	.888	.916	.905	.858	.793	.725	.666	.635	.612	.593	.568	.529	.470	.386	.278	.148	0											
10 SPACES @ 11.209' = 112'-1 1/8"										10 SPACES @ 15.038' = 150'-4 1/2"										10 SPACES @ 11.611' = 116'-1 3/8"																					
GIRDER 4																																									
0	.045	.081	.102	.108	.098	.076	.047	.020	.003	0	.021	.062	.109	.146	.160	.145	.107	.060	.021	0	.004	.020	.048	.077	.100	.110	.104	.082	.046	0											
0	.076	.138	.182	.269	.334	.382	.416	.447	.482	.525	.602	.690	.773	.836	.865	.855	.813	.751	.687	.630	.598	.572	.551	.526	.489	.433	.355	.255	.136	0											
10 SPACES @ 11.060' = 110'-7 1/4"										10 SPACES @ 14.726' = 147'-3 1/8"										10 SPACES @ 11.214' = 112'-1 1/8"																					
GIRDER 5																																									
0	.044	.079	.101	.106	.096	.074	.046	.020	.004	0	.020	.058	.104	.140	.154	.141	.106	.061	.022	0	.005	.022	.048	.076	.098	.107	.101	.079	.044	0											
0	.100	.185	.251	.297	.356	.398	.428	.455	.486	.524	.597	.678	.758	.818	.847	.839	.799	.739	.676	.620	.587	.562	.539	.514	.476	.421	.345	.247	.131	0											
10 SPACES @ 10.920' = 109'-2 3/8"										10 SPACES @ 14.438' = 144'-4 3/8"										10 SPACES @ 10.861' = 108'-7 1/4"																					
GIRDER 6																																									
0	.044	.079	.101	.107	.098	.077	.049	.023	.005	0	.020	.058	.102	.136	.148	.135	.102	.059	.021	0	.002	.015	.037	.062	.081	.090	.086	.067	.038	0											
0	.121	.228	.317	.385	.432	.467	.491	.411	.534	.564	.633	.710	.784	.839	.862	.851	.811	.752	.688	.632	.594	.562	.533	.503	.461	.404	.330	.234	.124	0											
10 SPACES @ 10.786' = 107'-10 7/8"										10 SPACES @ 14.171' = 141'-8 1/2"										10 SPACES @ 10.544' = 105'-5 1/4"																					
GIRDER 7																																									
0	.043	.078	.100	.106	.097	.076	.048	.021	.004	0	.018	.054	.096	.130	.143	.132	.100	.058	.021	0	.001	.014	.035	.058	.076	.085	.081	.063	.035	0											
0	.140	.266	.375	.462	.529	.579	.594	.606	.621	.645	.705	.774	.841	.890	.910	.896	.853	.792	.726	.667	.623	.586	.552	.516	.470	.409	.332	.235	.123	0											
10 SPACES @ 10.659' = 106'-7"										10 SPACES @ 13.922' = 139'-2 5/8"										10 SPACES @ 10.257' = 102'-6 7/8"																					
GIRDER 8																																									
0	.042	.077	.097	.104	.095	.075	.048	.022	.005	0	.022	.061	.104	.138	.151	.139	.106	.063	.023	0	.000	.010	.030	.052	.070	.078	.075	.059	.032	0											
0	.156	.300	.424	.530	.615	.684	.740	.744	.751	.764	.820	.885	.945	.987	1.000	.980	.930	.862	.788	.722	.671	.624	.583	.540	.488	.421	.339	.240	.125	0											
10 SPACES @ 10.538' = 105'-9 1/2"										10 SPACES @ 13.688' = 136'-10 5/8"										10 SPACES @ 9.997' = 99'-11 1/8"																					

CAMBER DIAGRAM (GIRDER WEB TO REMAIN CONSTANT DEPTH)

DEAD LOAD DEFLECTION PLUS VERTICAL CURVE CORRECTION IN FT.
 * DEAD LOAD DEFLECTION IN FT.
 † FOR FABRICATOR'S USE.



STIFFENER-DIAPHRAGM CONNECTION AT ABUTMENTS CONNECTION AT PIERS SIMILAR

TENTH POINTS

- DEAD LOAD DEFLECTION IN FT. *
- DEAD LOAD DEFLECTION PLUS VERTICAL CURVE CORRECTION IN FT.
- DEAD LOAD DEFLECTION IN FT. *
- DEAD LOAD DEFLECTION PLUS VERTICAL CURVE CORRECTION IN FT.
- DEAD LOAD DEFLECTION IN FT. *
- DEAD LOAD DEFLECTION PLUS VERTICAL CURVE CORRECTION IN FT.
- DEAD LOAD DEFLECTION IN FT. *
- DEAD LOAD DEFLECTION PLUS VERTICAL CURVE CORRECTION IN FT.
- DEAD LOAD DEFLECTION IN FT. *
- DEAD LOAD DEFLECTION PLUS VERTICAL CURVE CORRECTION IN FT.

DIVISION OF HIGHWAYS

SUPERSTRUCTURE DETAILS AND CAMBER DIAGRAM

Across SOUTH PLATTE RIVER
 Sta. 218 + 30

Near DENVER Sec. 15 T. 4 S. R. 68 W

Designed by R.M.K. Approved by R.J.D. Bridge Engineer
 Made by R.J.D. Checked by [Signature] Date: 1970

AS CORRECTED DATE AUG 27 1973
 NO REVISIONS

SPECIFICATIONS

A. SCOPE: Provide self-lubricating rotational slide and rotational fixed bearings as shown and specified, as complete factory-produced assemblies. Assemblies shall include all directly connected or welded anchorage hardware.

B. BEARING DESCRIPTIONS: Bearings shall be rotational - non-translation sliding units as shown on the drawings, in the locations indicated, meeting the loading requirements of the design and conforming to the details on the drawings. Slide bearing shall consist of a slightly tapered loading piston operating on a suitably proportioned bridge-bearing neoprene pad confined in a steel cylindrical retainer welded to a correctly sized bearing plate.

And in addition shall have the interface between the upper and lower bearing halves provided with a sliding upper surface of burnished stainless steel operating against a bearing surface of special bearing quality Teflon recessed into the upper surface of the loading piston, operating at a coefficient of static friction of not more than .03. Material components shall be as follows:

1. Steel: Structural steel plates for all parts, ASTM A 36, except that cylindrical retainer may be cut from ASTM A 53 pipe, Grade B.
2. Stainless Steel Sliding Surface: Chromium-Nickel Steel Sheet, ASTM A 167, Alloy 316, polished and burnished.
3. Neoprene Elastomer: Bridge bearing quality neoprene cast in molds under pressure and heat, with a minimum tensile strength of 2,250 psi and a Shore A Hardness of 55 ± 5.
4. Special Bearing Quality Teflon (opposite stainless steel): 100 percent virgin tetrafluorethylene polymer of special quality cast into pads and bonded into recesses in the backing plate substrate with a special heat cured, high temperature epoxy.

The material, operating against its opposing polished and burnished stainless steel plate shall have a static coefficient when loaded, of not more than .03, at initial installation.

5. Shop Coating: All carbon steel surfaces shall be prepared by commercial blast or pickling and shop coated with not less than 1.5 mil thick shop coat of Fed. Spec. TT-P-615d, Basic Lead Chromate, Type II.

C. SHOP DRAWINGS AND DATA: Submit five copies, shop drawings, load data and material descriptions or specifications for review and approval by the Engineer, prior to furnishing material for job.

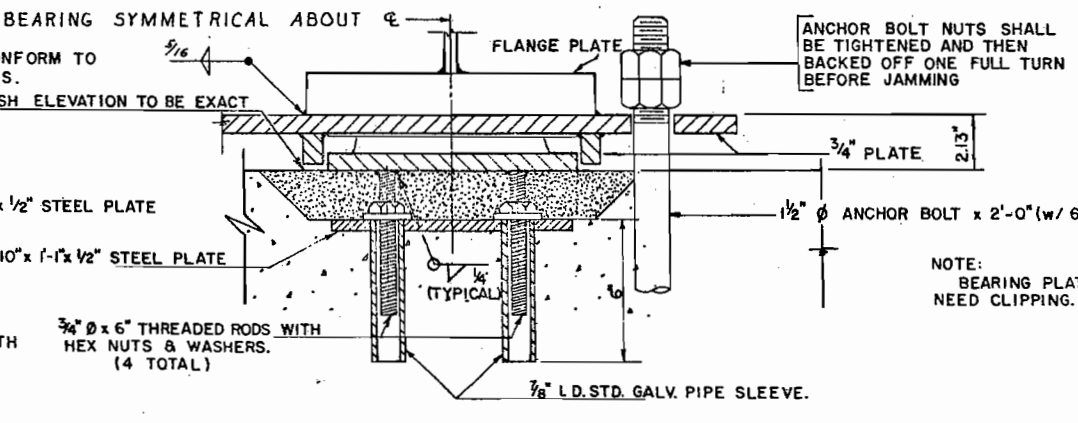
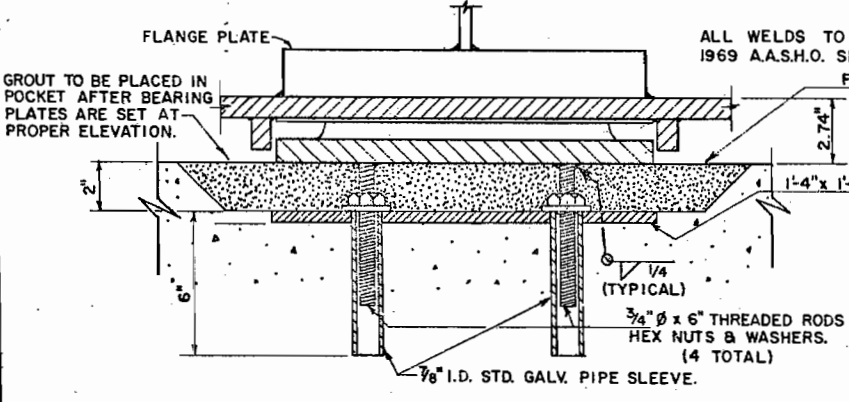
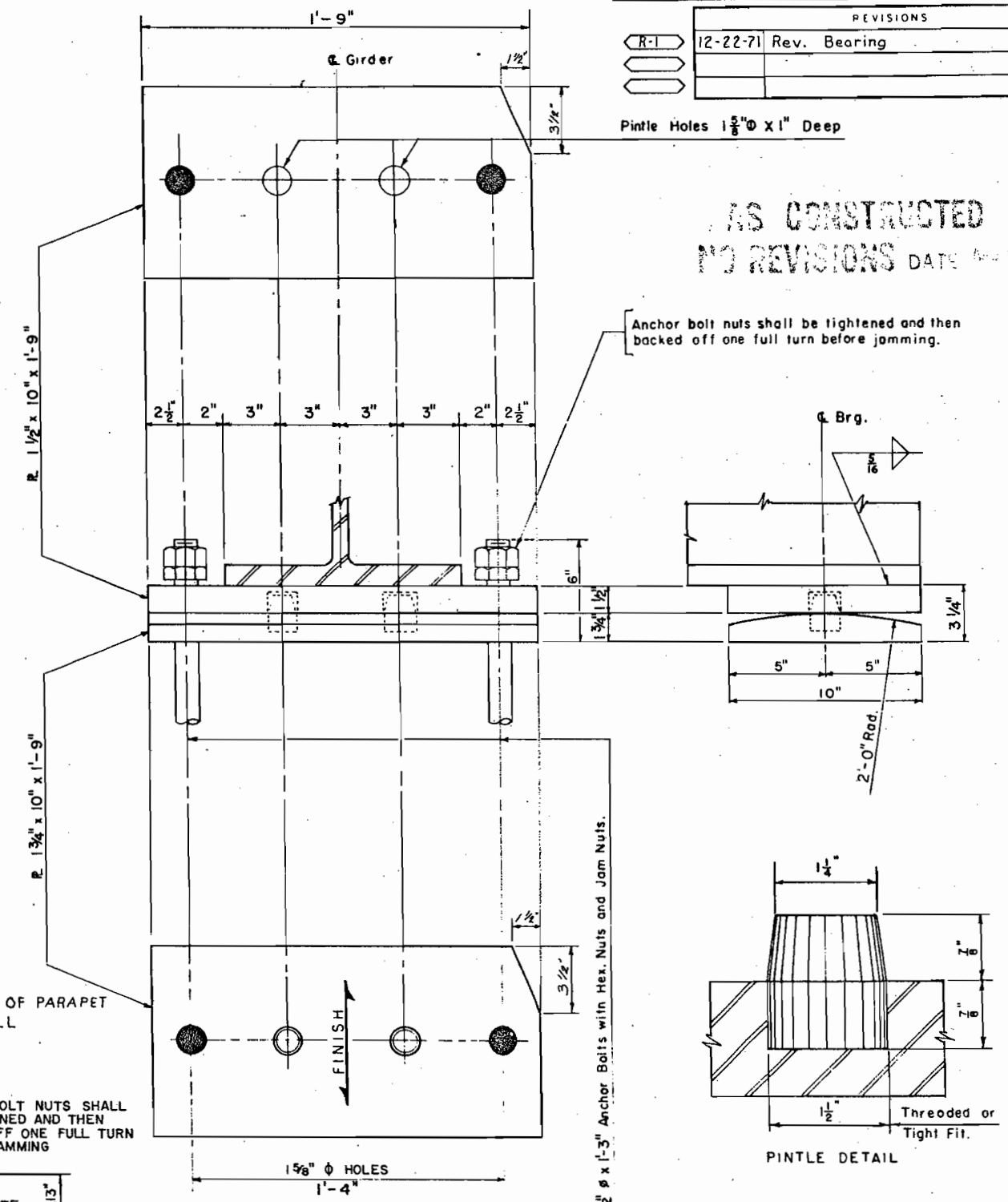
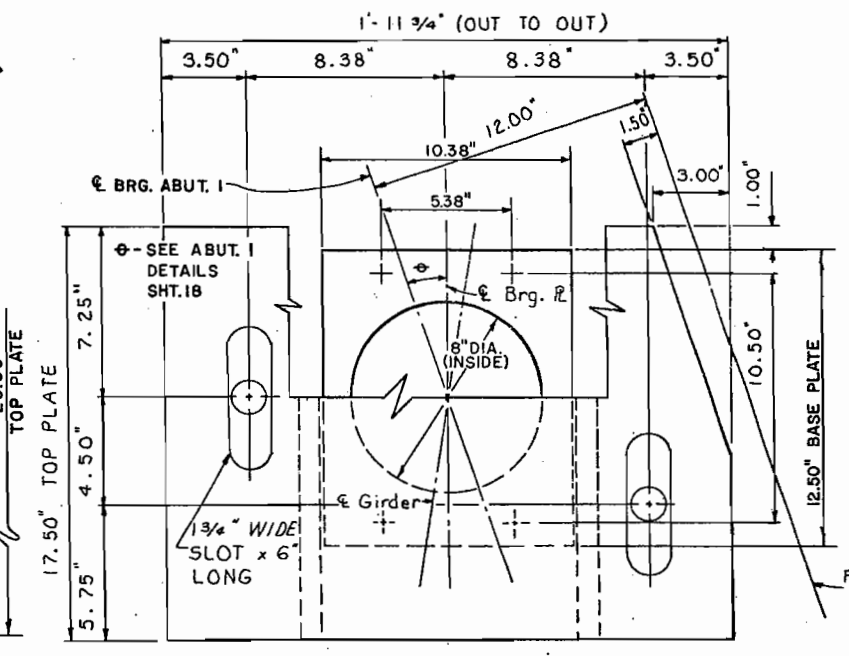
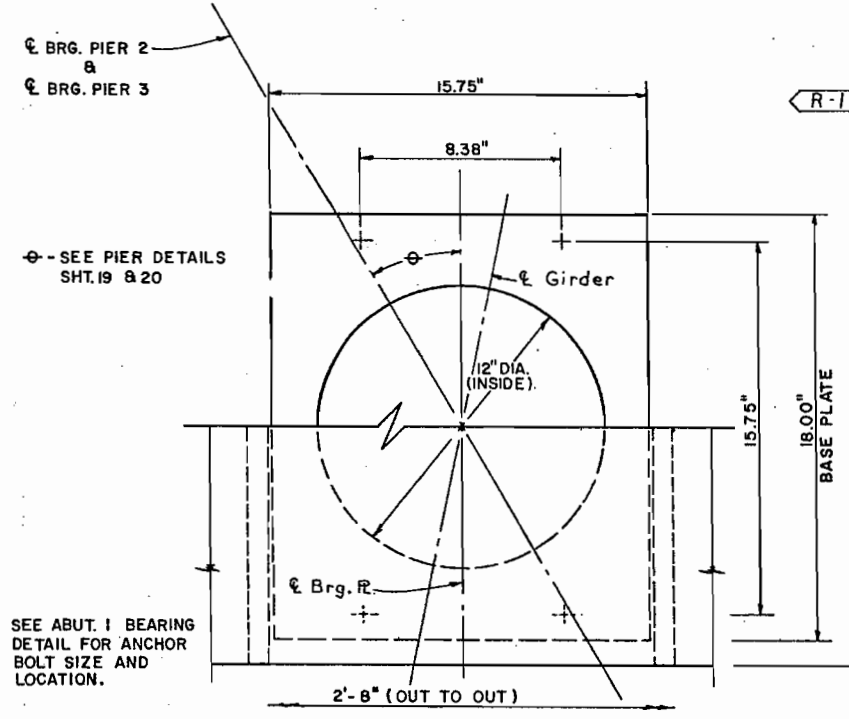
D. INSTALLATION: By the Contractor, install bearings in conformance with project and shop drawings, in the exact locations, at required elevations, true to orientation and level, assuring that the correct half of each bearing is in its proper position. Store bearings to protect from weather and mechanical damage prior to installation, and protect during and after installation, and protect during and after installation from contamination and damage due to placing of concrete and other materials. Clean operating surfaces of bearings thoroughly before final bearing assembly.

E. The manufacturer of the bearing device is to submit in writing to the Engineer a certificate of compliance that the bearing device and all materials used in the construction of the device meet all of the above specifications.

Load Data:
 Abutment 1 85 Kip/Bearing
 Pier 2 240 Kip/Bearing
 Pier 3 250 Kip/Bearing
 Maximum Rotation 0°15'

FEDERAL ROAD REGION NO	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F085-2(3)	25	

REVISIONS		
12-22-71	Rev. Bearing	K.G.S.



AS CONSTRUCTED
 NO REVISIONS DATE 4-11-70

PIER 2 & PIER 3 — 16 REQUIRED

ABUTMENT 1 — 8 REQUIRED

FREE ROTATION - RESTRICTED TRANSLATION BEARING

FIXED BEARING
 8 Req'd.

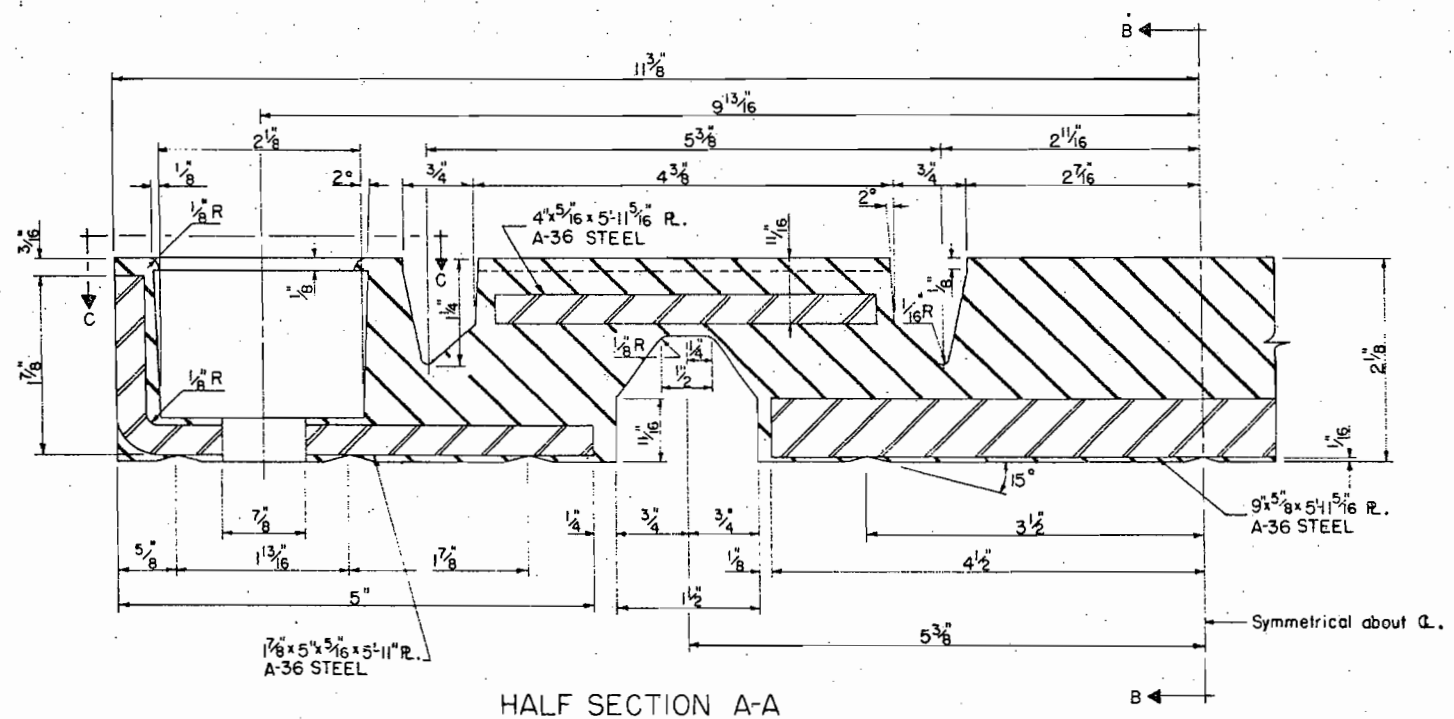
Number of bolts required 16

DIVISION OF HIGHWAYS

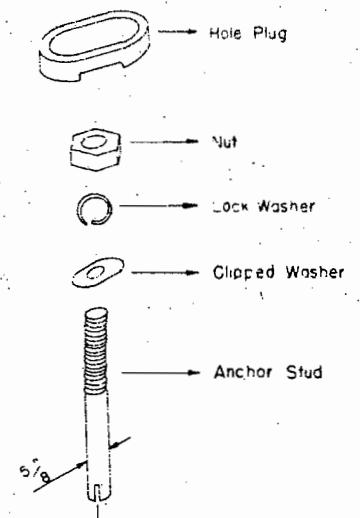
BEARING DETAILS

Approved	Designer R.M.K.	Detailer R.J.D.
Bridge Engineer	Structure Numbers F-16-1K	
Date 1970	DWG. No. 8	OF

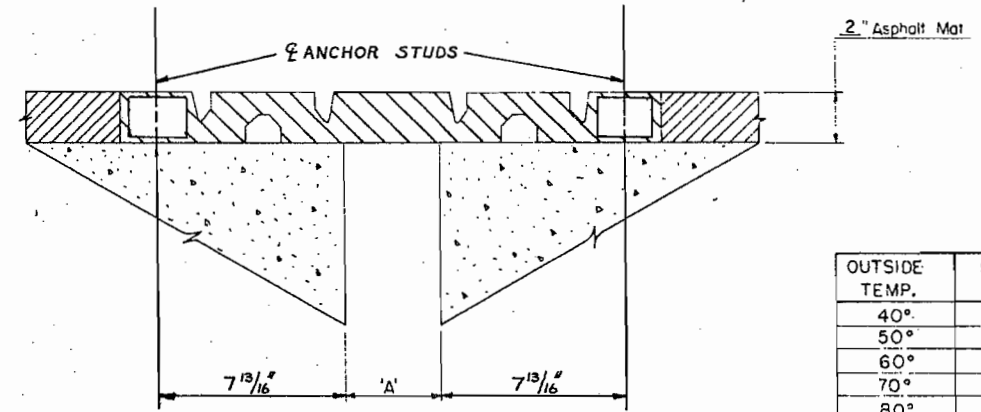
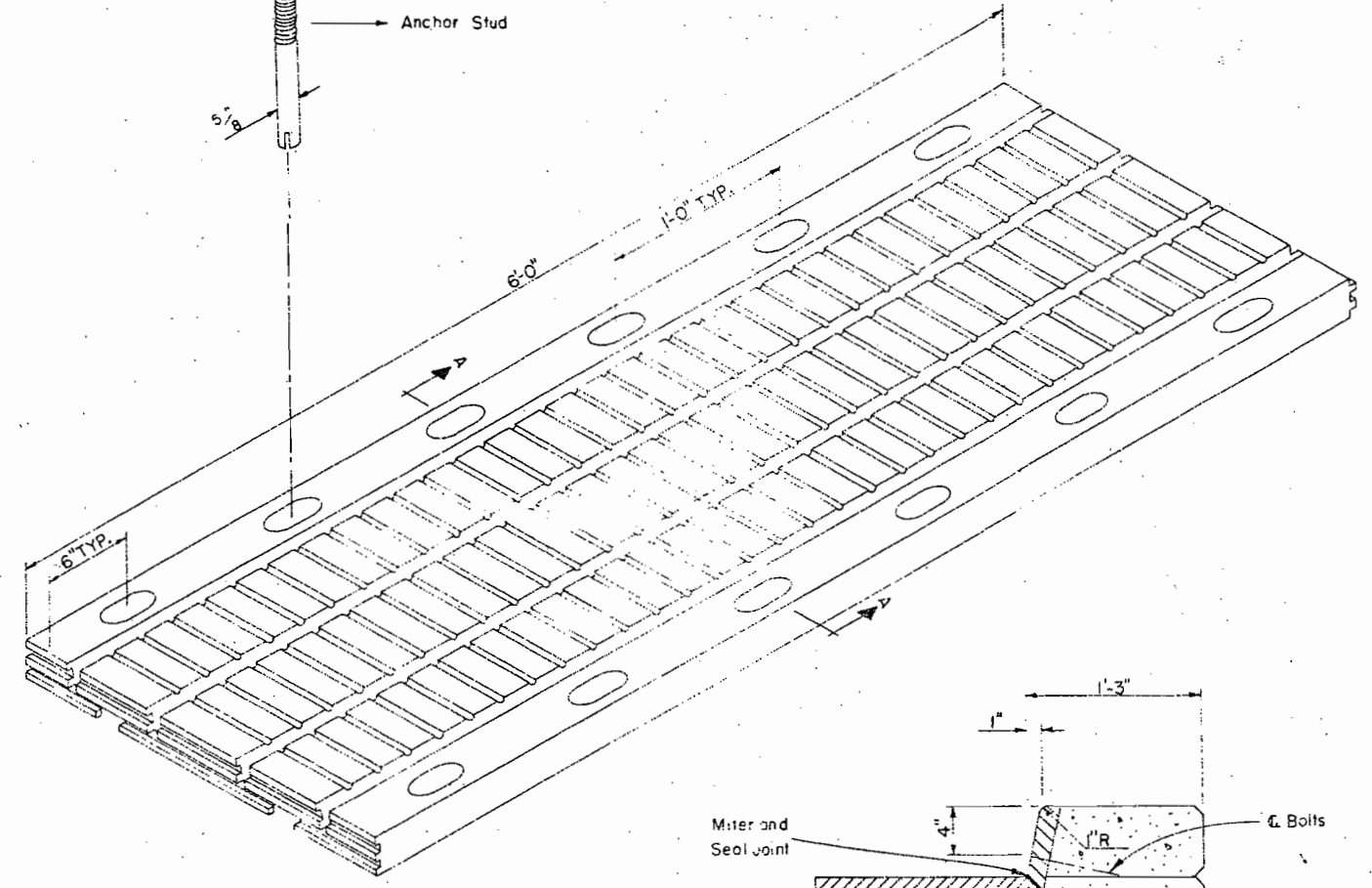
PROJECT NO.	DISTRICT	PHASE	SHEET NO.	TOTAL SHEETS
			26	
REVISED				



HALF SECTION A-A

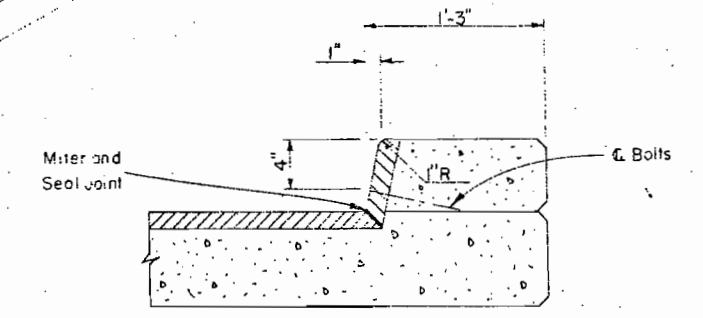


AS CONSTRUCTED
NO REVISIONS DATE AUG 27 1973

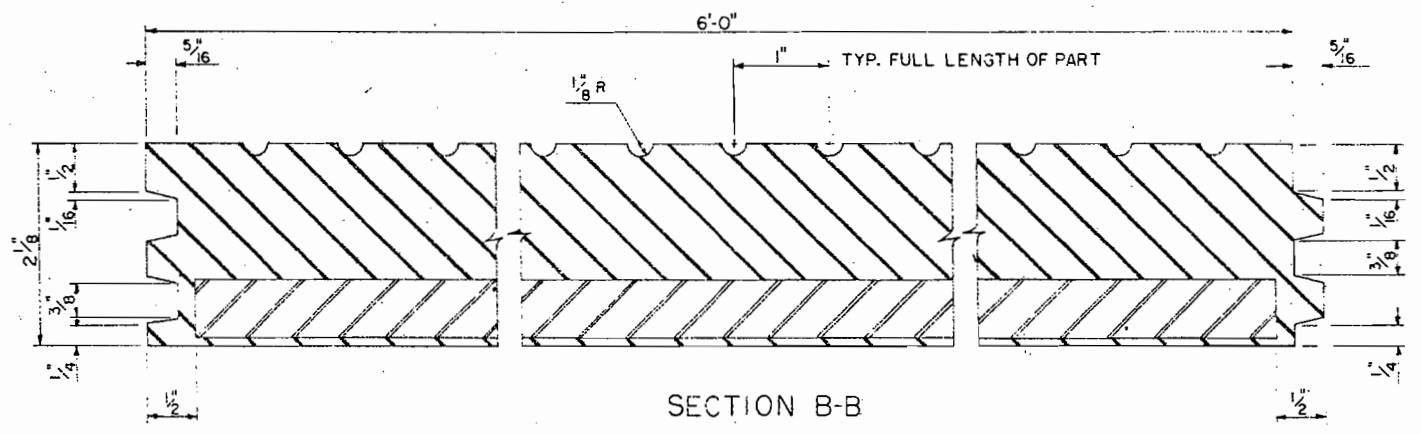


SECTION Q PIER OR ABUTMENT

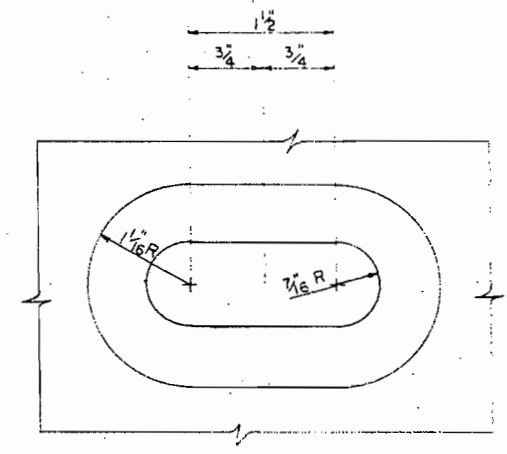
OUTSIDE TEMP.	DIM 'A' (MIN.)	DIM 'A' (MIN.)	DIM 'A' (MIN.)
40°	4 1/8"		
50°	3 7/8"		
60°	3 5/8"		
70°	3 1/4"		
80°	3"		
90°	2 3/4"		
100°	2 1/2"		



TYPICAL SECTION @ CURB



SECTION B-B



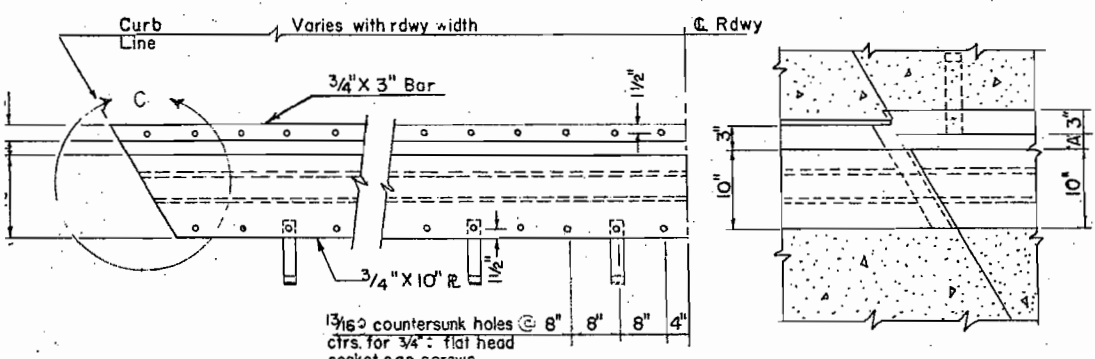
SECTION C-C

DIVISION OF HIGHWAYS	
BRIDGE EXPANSION DEVICE	
PREMCLDED (TYPE 4)	
Approved:	R.M.K. K.L.L.
Checked:	F-16-1K
DWG No. 5	OF

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	FO85-2(3)	27	

REVISIONS		
R1	8-18-71	Added Light Standard

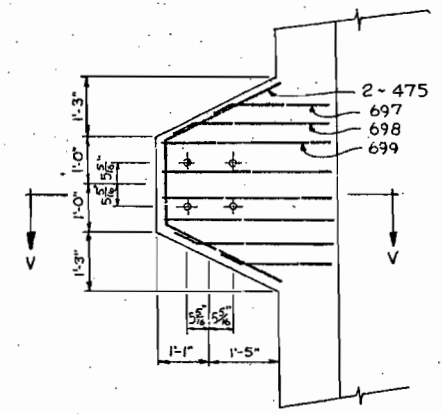
AS CONSTRUCTED
REVISED DATE



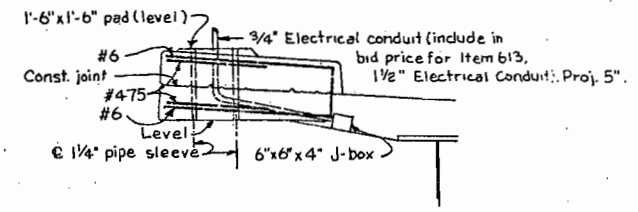
ABUTMENTS
PLAN

PLAN
Curb Expansion Device

*Note: Granular flux filled concrete anchors 3/4" automatically end welded, spaced similar to 2 1/4 x 5/16 anchors, may be used as an alternate.

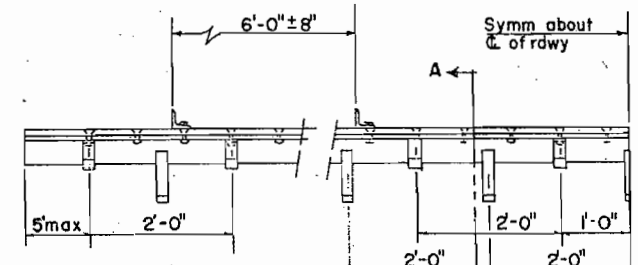


PLAN

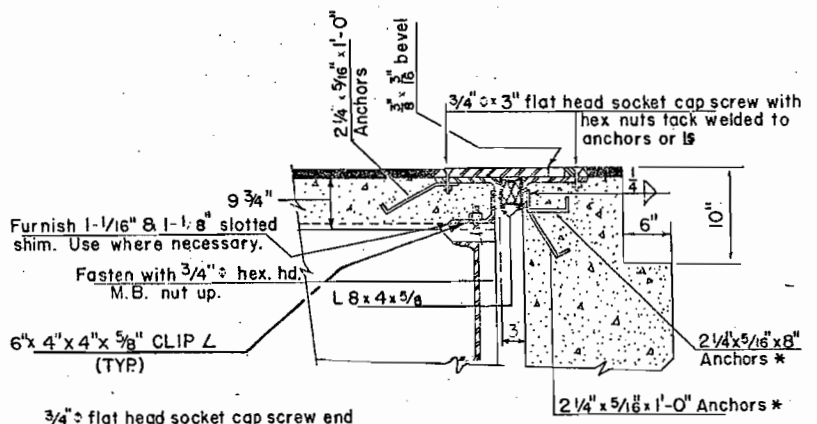


SECTION VV

LIGHT STANDARD PAD DETAILS R1



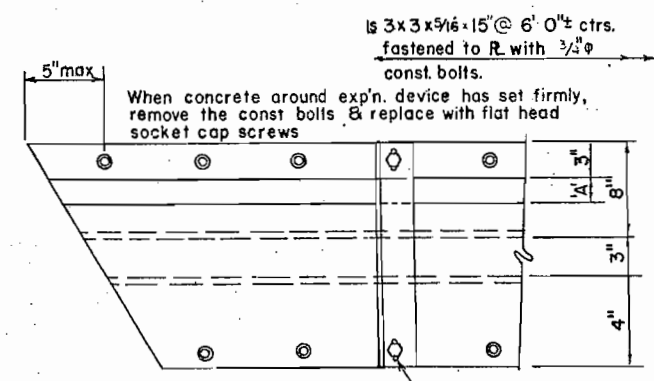
ABUTMENTS
ELEVATION



SECTION A-A-ABUTMENT

3/4" flat head socket cap screw end threads to be coated with tallow & white lead.

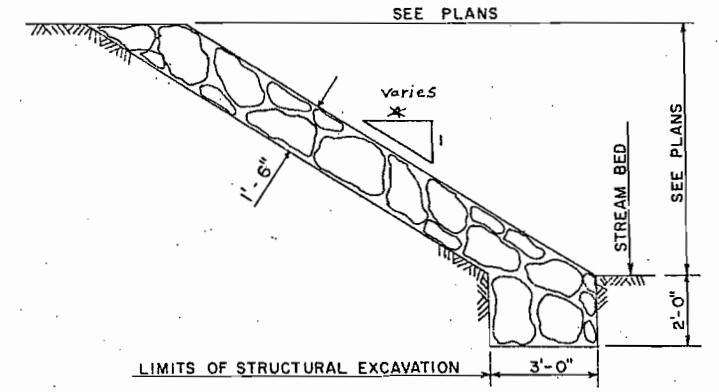
NOTES
FORM THE CURB FACES TO THE PROPER DIMENSION TO RECEIVE JOINT SEALER.
DO NOT PAINT STEEL SURFACES IN CONTACT WITH CONCRETE AND COMPRESSION JOINT SEALER.



DETAIL 'C'

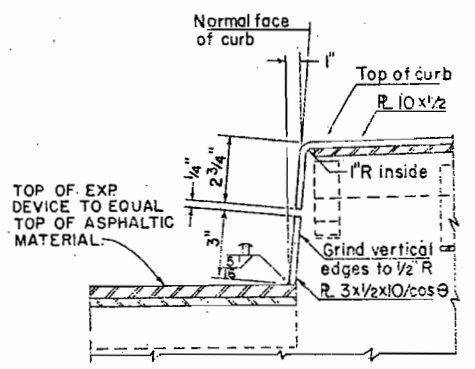
NOTE: AFTER CONCRETE HAS ATTAINED INITIAL SET, LOOSEN CONST. BOLTS TO ALLOW MOVEMENT DUE TO TEMP. CHANGE.

OUTSIDE TEMP	DIMENSION 'A'
40° F.	2 3/4"
60° F.	2 5/8"
80° F.	1 1/2"
100° F.	7/8"

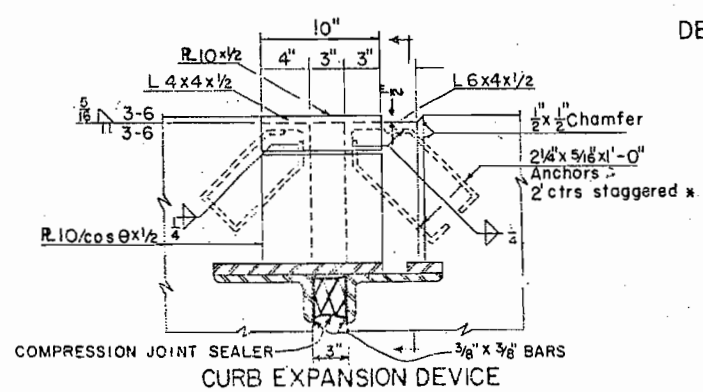


DETAIL OF RIPRAP WITH TOE

NOTES: TRANSITION ENDS OF RIPRAP MAY BE MODIFIED BY THE ENGINEER TO FIT CONDITIONS ENCOUNTERED IN THE FIELD.

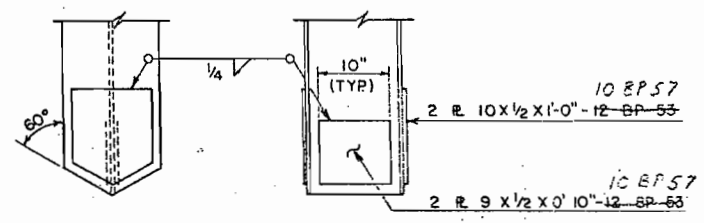


SECTION THRU CURB



CURB EXPANSION DEVICE

DETAILS of EXPANSION DEVICE - Concrete Slab & Steel Girder (May be made from A7 steel) (Alternate)



BEARING PILE
TIP REINFORCEMENT

DIVISION OF HIGHWAYS

MISCELLANEOUS DETAILS

Across SOUTH PLATTE RIVER

Sta. 218 + 30

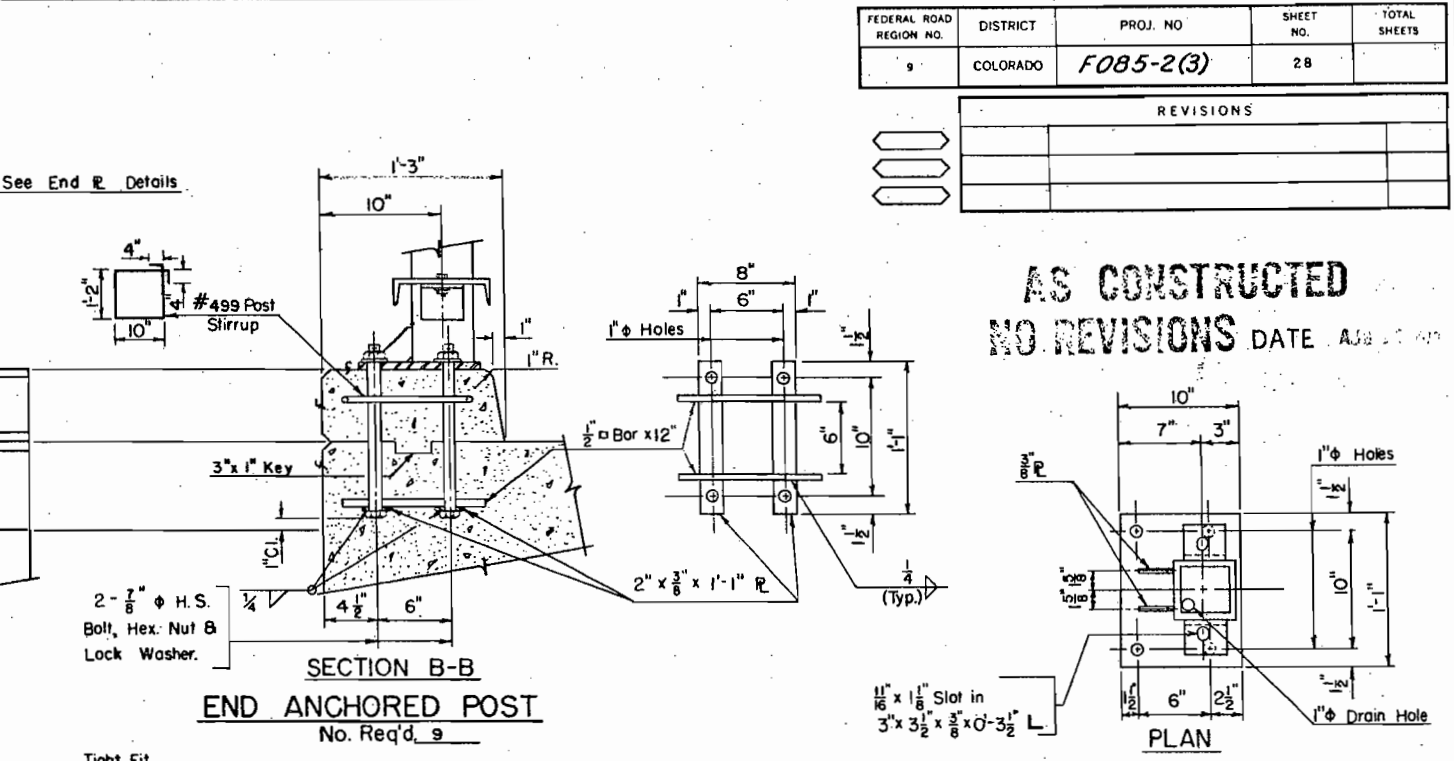
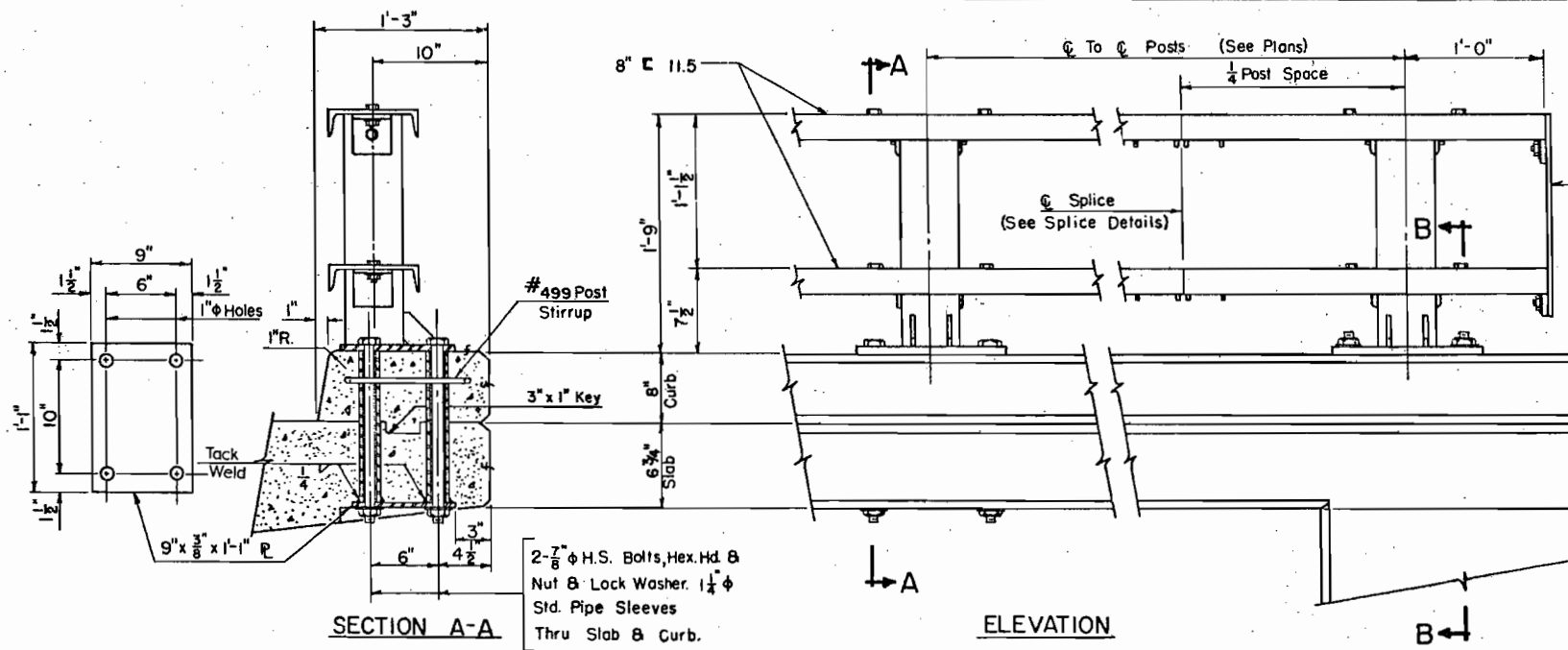
Near DENVER Sec. 15 T. 4 S. R. 68 W

Designed by R.M.K. Approved by R.J.D. Bridge Engineer

Checked by [Signature] Date 1970

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	FOB5-2(3)	28	

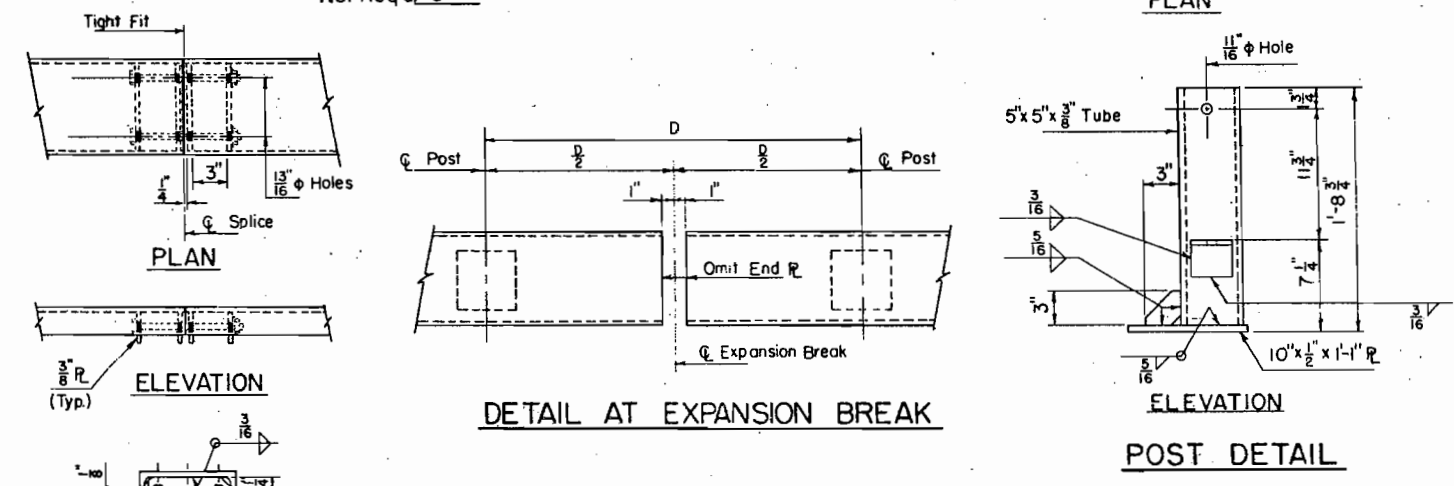
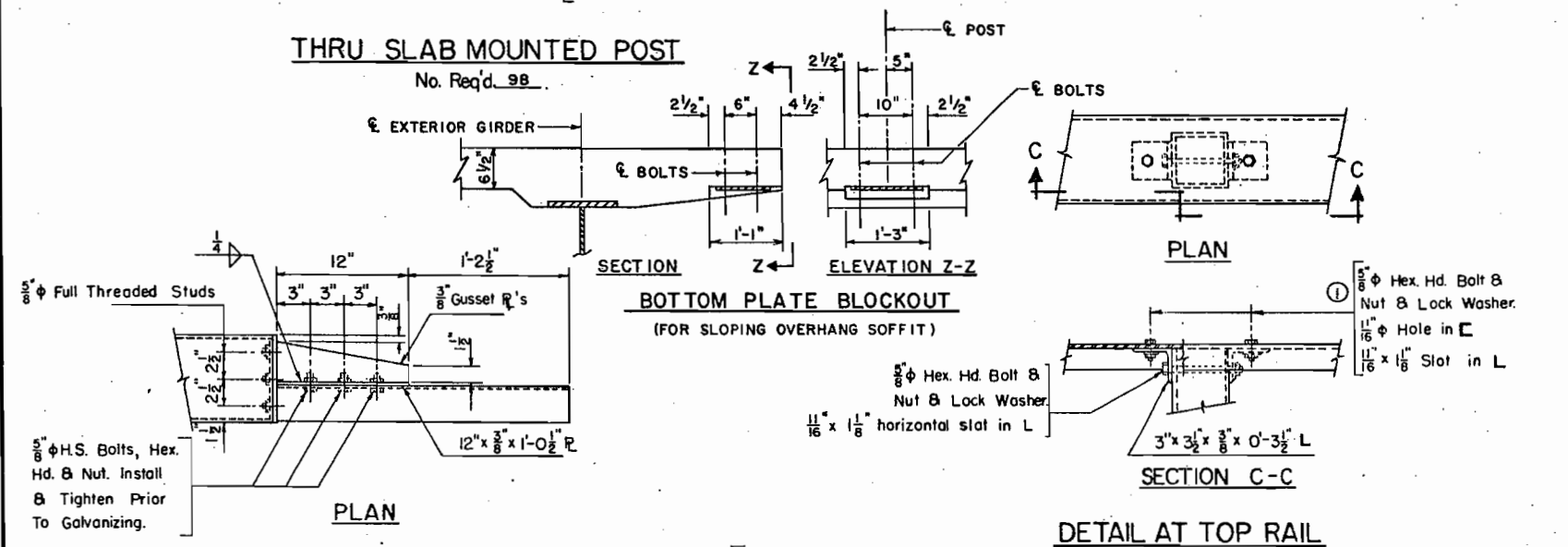
REVISIONS	



AS CONSTRUCTED
NO REVISIONS DATE AUG 1970

THRU SLAB MOUNTED POST
No. Req'd. 98

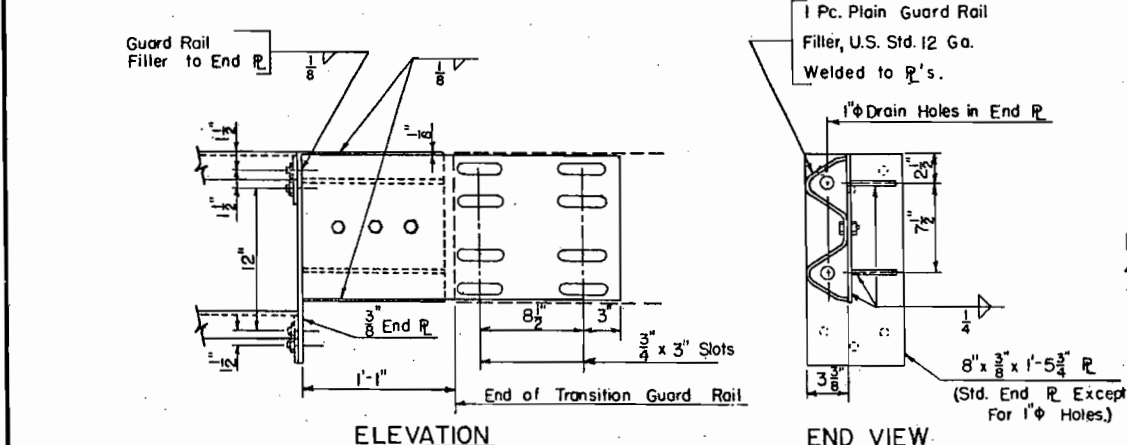
END ANCHORED POST
No. Req'd. 9



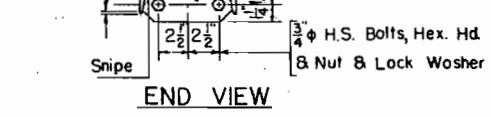
BOTTOM PLATE BLOCKOUT
(FOR SLOPING OVERHANG SOFFIT)

DETAIL AT EXPANSION BREAK

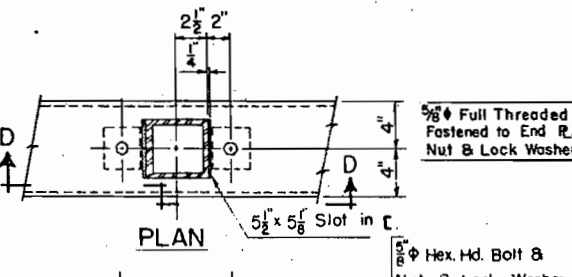
POST DETAIL



DETAIL AT TOP RAIL

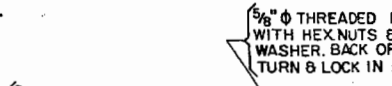


SPLICE DETAIL



DETAIL AT BOTTOM RAIL

SPLICE DETAIL



SLEEVE DETAIL
No. Req'd. 2

NOTES:

Posts shall be perpendicular to grade and slope of the deck.

All rail elements, anchor assemblies, anchor bolts, nuts and washers shall be galvanized after fabrication in accordance with the specifications.

A.I.S.I. 1144 Steel Rods May Be Used In Lieu Of H.S. Bolts Shown. 10° Wedge Test Not Req. For Either Bolts Or Rods Used In Rail Assembly.

3/8" Standard Full Threaded Studs Welded To The Channel May Be Used. Increase Size Of Slot In The Angle To 1 1/8" x 1 1/4".

Channels Shall Be Continuous Over 3 Or 4 Posts Before Splicing.

When thru slab mounted posts are used, prior to setting the posts and tightening the nuts a perimeter bead of caulking grade, polyurethane joint sealer, shall be placed on the concrete 1" inside the edges of the post base plate.

DETAIL OF END CONNECTION FOR FASTENING BRIDGE RAIL TO TRANSITION GUARD RAIL

Complete Unit Shall Be Galvanized After Fabrication
Detail Shown is For Right Hand Rail. No. Req'd. 1
Opposite Hand For Left Hand Rail. No. Req'd. 1

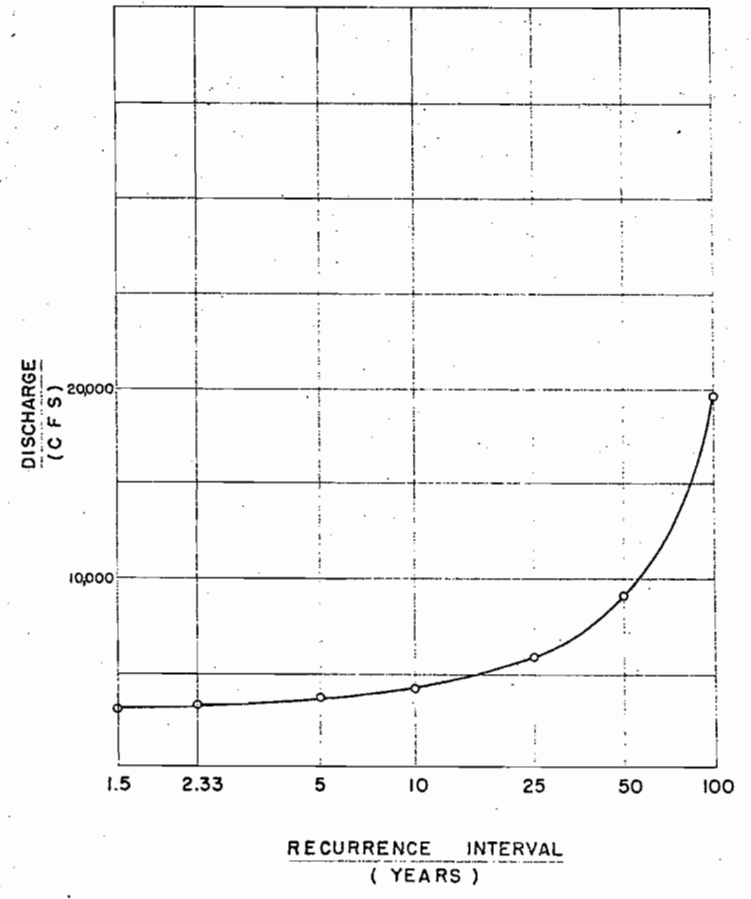
DIVISION OF HIGHWAYS		
DETAILS OF GALVANIZED STEEL BRIDGE RAIL		
Approved:	Designer: R. M. K.	Detailer: R. J. D.
Bridge Engineer:	Structure Numbers: F-16-1K	
Date: 1970	DWG. No. B	OF

FEDERAL ROAD DISTRICT NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F085-2(3)	29	

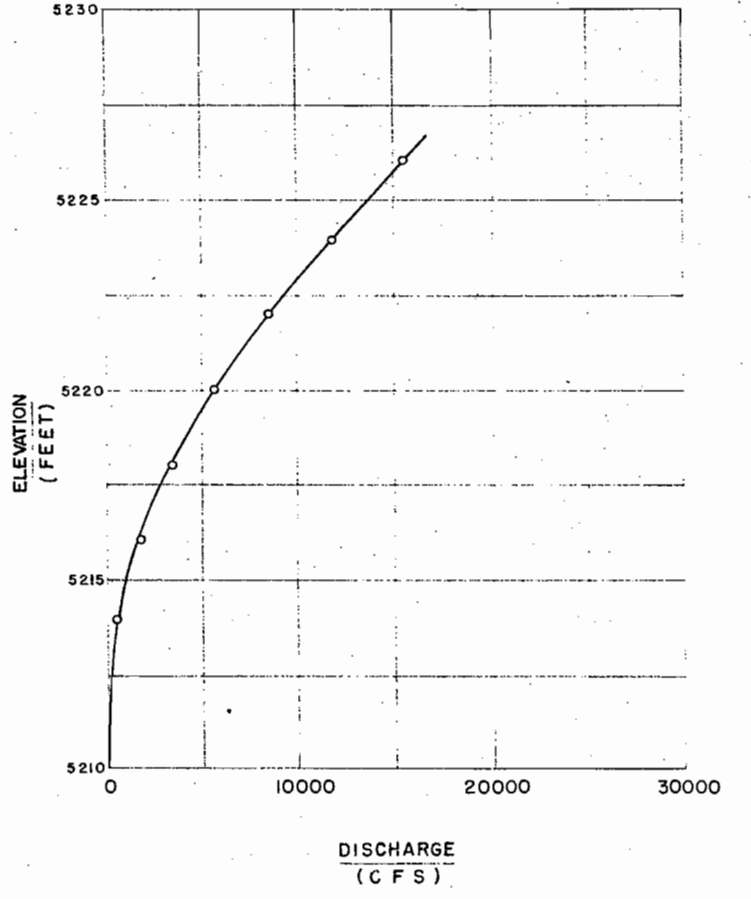
BRIDGE HYDRAULIC INFORMATION

REVISIONS	

FLOOD FREQUENCY CURVE



STAGE-DISCHARGE CURVE



AS CONSTRUCTED
NO REVISIONS DATE AUG 27 1970

SUMMARIZED STREAM DATA

NATURAL (BEFORE NEW CONSTRUCTION)

- Drainage Area (or Water Right) PLATTE RIVER BASIN
- Average Slope of Streambed 0.0008 Ft / Ft.
- Description of Channel RANGES FROM VERY SMOOTH TO VERY ROUGH
- Stability of Channel: Stable Aggrading Degrading
- Drift: Insignificant Brush & Debris
Large Trees & Logs Other _____
- Ice: Yes No Unknown
- Streambed Elevation 5211.5
- Design Flow Elevation 5220.75
- Maximum Velocity at Design Flow 8.07 F P S
- Remarks _____

- Probable Design Velocity Through Structure 8.07 F P S
- Remarks: DESIGN BASED ON THE ASSUMPTION THAT CHATFIELD DAM WILL BE CONSTRUCTED AND IN PLACE.

DESIGN (AFTER NEW CONSTRUCTION)

- Design Frequency 50 Year
- Design Discharge (or Water Right) 9000 C F S
- Source of Design Discharge DEPARTMENT OF THE ARMY, OMAHA DISTRICT, CORPS OF ENGINEERS
- Water Surface Elevation at Upstream Edge of Structure 5220.75
- Maximum Backwater Increase Due To Structure 0.115 Ft.

DIVISION OF HIGHWAYS

BRIDGE HYDRAULIC INFORMATION
SOUTH PLATTE RIVER & SOUTH SANTA FE

Approved:	Designer <u>R.M.K.</u>	Checker <u>K.L.L.</u>
Bridge Engineer	Structure Number <u>F-16-1K</u>	
Date <u>1970</u>	DWG. No. <u>8</u>	OF _____

FED. ROAD DIST. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	30	

REVISIONS		
0-18-71	Added Light Standard	NJH
8-18-71	Rev. Summary	W.E.M.
GENERAL NOTES		

All work shall be done according to the standard specifications of the Colorado Department of Highways applicable to the project.

All reinforcing steel shall be intermediate grade steel of a deformed type. Each bar shall be tagged with the bar designation and station number of the project. If by permission of the Engineer, primary bars are spliced, they shall lap a minimum of 40 diameters for bars near tops of beams having more than 12 inches of concrete under the bars, and 24 diameters for bars near bottom of members. Secondary bars when spliced shall lap 24 diameters of the bar.

Dimensions for reinforcing steel not shown as clear shall be to the centerline of the bar.

Soundings and depth of footings are in accordance with the best available data, and when different conditions are encountered the Bridge Engineer will inspect and determine if redesign is necessary.

Footings in rock shall be poured out to rock and not formed. When excavating for footings the final one foot in depth shall be done by hand labor methods.

For details of structural excavation and structure jackfill, see Standard M-208-A. All concrete surfaces marked with the symbol *f* shall receive Class "A" surface finish.

All structural steel shall be painted in accordance with Section 509 for green paint. All bolts shall be 7/8 inch diameter unless otherwise noted.

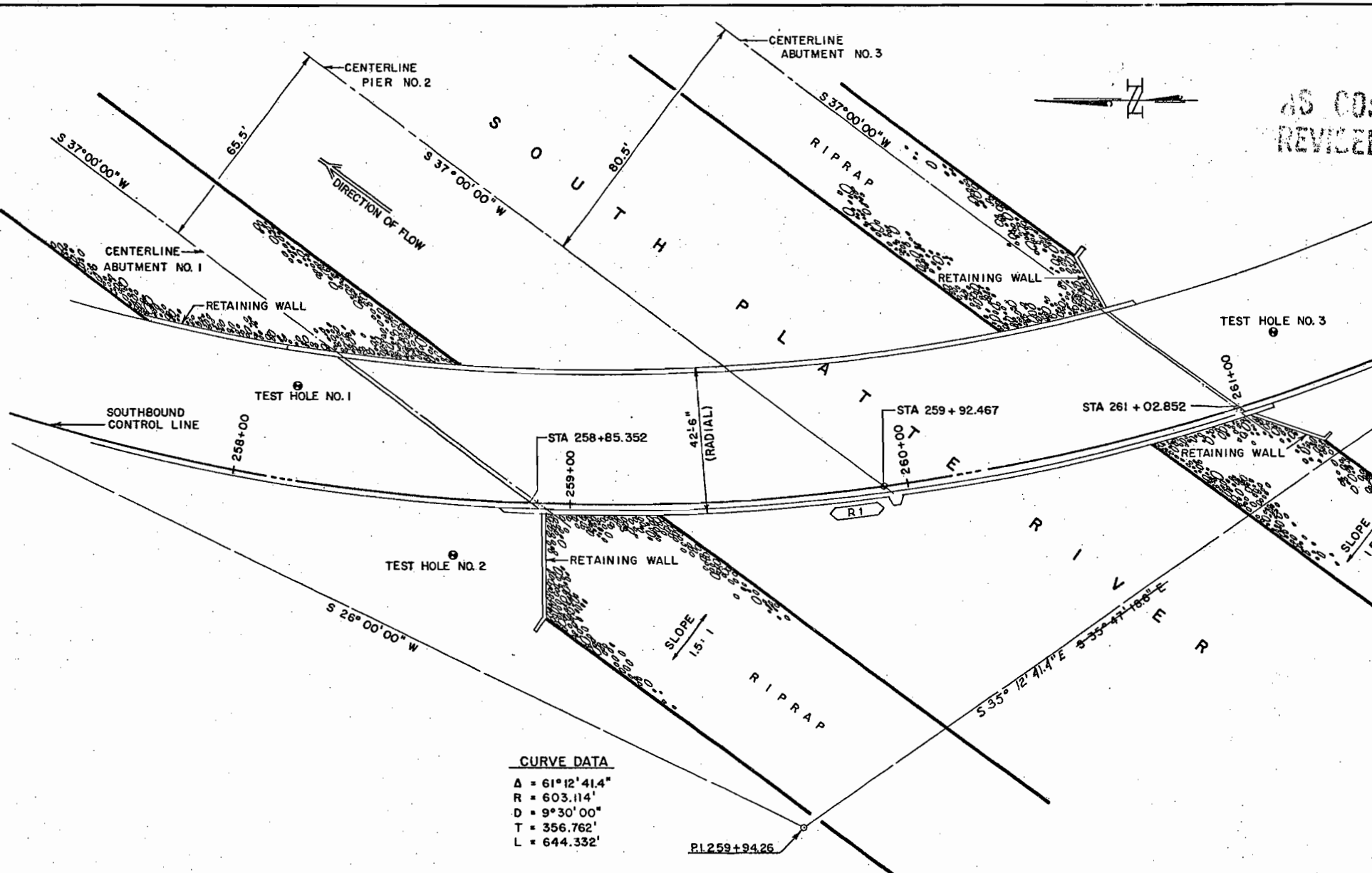
All bolts shall be high tensile strength. Bolts shall be furnished in the amount of two percent in excess of the normal number required for each size and length.

Welding shall conform to the latest edition of the A.W.S. standard specifications for welding highway bridges. For welded girders all shop butt welds in flanges and webs shall be made before welding into girder. Shop welds shall be inspected radiographically or by the penetrant dye method.

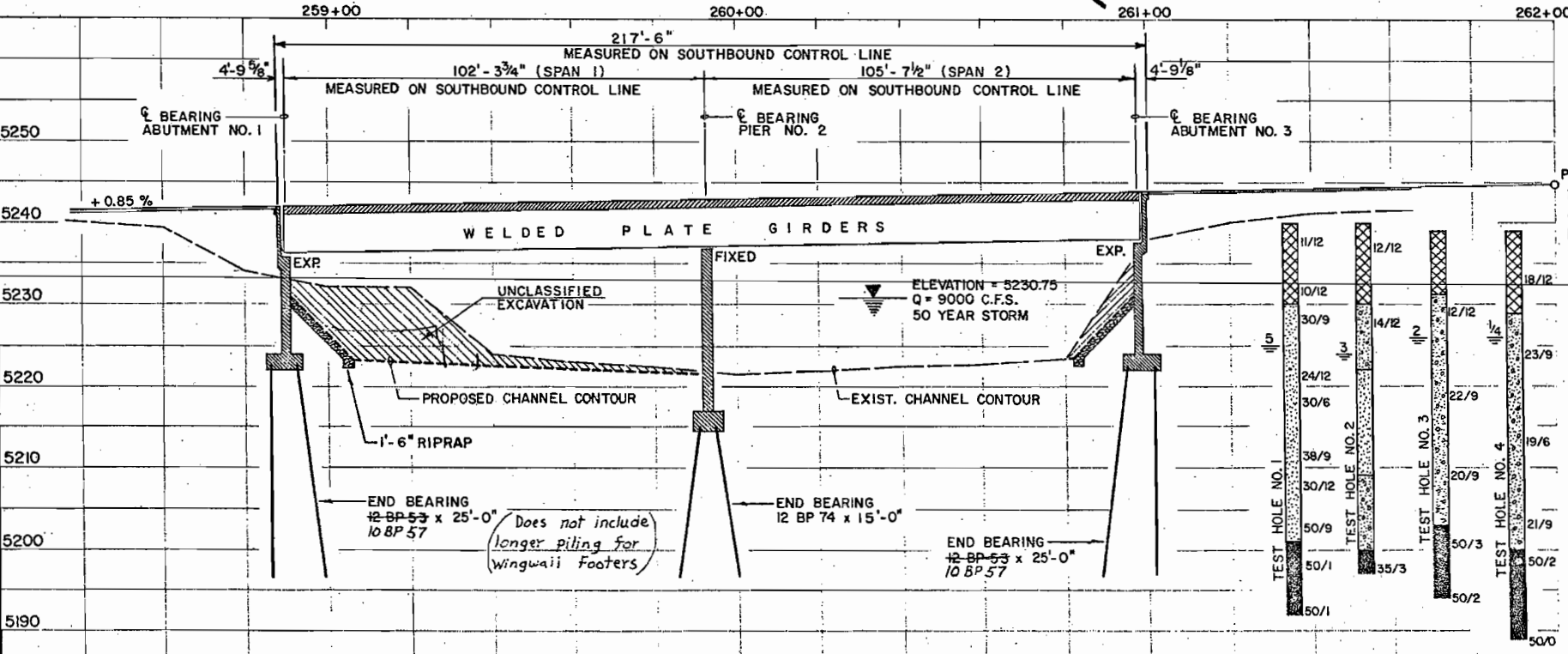
All concrete chamfers to be 3/4 inch unless otherwise noted. All pile lengths are estimated and piling must be driven to end bearing.

No welding of any kind shall be permitted on the flanges of steel girders unless specifically called for on the plans.

AS CONSTRUCTED
REVISED DATE APR 27 1973



SUMMARY OF QUANTITIES							
ITEM	DESCRIPTION	UNIT	SUPER-STRUCTURE	ABUTMENT 1	PIER 2	ABUTMENT 3	STRUCTURE TOTALS
206	STRUCTURE EXCAVATION	C.U.YD.		800	1551	258	1961
206	STRUCTURE BACKFILL (CLASS 2)	C.U.YD.		1150	116	800	2066
403	H. B. P. (GRADE-DX) (HAUL & ASPHALT)	TONS	69.45				69.45
411	EMULSIFIED ASPHALT (SS-1H)	GAL.	0				0
403	H.B.P. (Grade E) (Haul & Asphalt)	Tons	69.45				69.45
506	RIPRAP	C.U.YD.		203		172	375
509	STRUCTURAL STEEL	LB.	230,642		582		231,224
509	STRUCTURAL STEEL (GALVANIZED)	LB.	19,364				19,364
512	BEARING DEVICE (6-8 INCH)	EACH		6		6	12
518	BRIDGE EXPANSION DEVICE (TYPE 2)	LIN.FT.		75		49	124
515	WATERPROOFING (MEMBRANE)	SQ.YD.	983	268	94	200	1445
601	CONCRETE CLASS A	C.U.YD.		343	144	251	738
601	CONCRETE CLASS D	C.U.YD.	228	39	237	37	632
602	REINFORCING STEEL	LB.	74,909	36,811	8,412	36,859	156,991
613	1/2" INCH ELECTRICAL CONDUIT	LIN.FT.	234	240			474
502	STEEL PILING (12 BP 74)	LIN.FT.		1,279	181	69	1,529
502	STEEL PILING (12 BP 57) (10 BP 57)	LIN.FT.		1,004		748	1,752
502	REINFORCING TIPS	E.A.		44	10	28	82
1	1/2" EXPANSION JOINT MATERIAL (As Per Plan)	SQ.FT.					



BRIDGE DESCRIPTION:
 TWO SPAN STRUCTURE OVER THE SOUTH PLATTE RIVER. HORIZONTALLY CURVED STEEL WELDED PLATE GIRDERS WITH COMPOSITE CONCRETE DECK AND SKEWED SUPPORTS. 102'-106'

LEGEND
 [Symbol] FILL, SAND, GRAVELLY, SLIGHTLY SILTY, SOME CONCRETE & ASPHALT PIECES, MOIST BROWN.
 [Symbol] SAND, MED. DENSE TO VERY DENSE, PREDOMINATELY FINE GRAINED, SLIGHTLY GRAVELLY, POORLY GRADED, MOIST TO WET, TAN (SP-SW)
 [Symbol] SAND, MED. DENSE, FINE TO COARSE GRAINED, GRAVELLY, OCCASIONAL SILT LENSE, MOIST TO WET, TAN (SP-SW)
 [Symbol] CLAYSTONE, VERY HARD, MOIST, BLUE-GRAY (BEDROCK)
 50/2 INDICATES 50 BLOWS OF A 140 LB. HAMMER FALLING 30 INCHES WERE REQUIRED TO DRIVE A 2" DIAM. SAMPLER 2 INCHES.

DIVISION OF HIGHWAYS

LAYOUT AND SUMMARY OF QUANTITIES

Across SOUTH PLATTE RIVER
 Sta. 259+92.467
 Near DENVER Sec. 15 T. 4 S. R. 65 W

Designed by B.A.R. Approved by R.J.D.
 Checked by [Signature] Date: 1970

AS CONSTRUCTED

REVISIONS		
R1	8-18-71	Added Light Standard
		NJH

FEDERAL ROAD DISTRICT	PROJ. NO.	SHEET NO.
9 COLORADO	F05-2(3)	31

BAR LIST - ABUTMENT 1

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
4300	4	64	5'-0"	Str.	ℓ	m
4301	4	66	10'-0"	Str.		
to	4	2 Ea.	to	Str.		
4303	4	0	30'-0"			
4304	4	8	33'-0"	VII	31'-0"	2'-0"
4305	4	8	18'-0"	Str.		
4306	4	12	11'-0"	"		
4307	4	8	52'-0"	VII	50'-0"	2'-0"
4308	4	6	37'-0"	Str.		
4309	4	8	23'-0"	"		
4310	4	6	8'-0"	"		
4311	4	11	3'-0"	"		
4312	4	10	6'-0"	"		
4313	4	10	10'-0"	"		
4314	4	6	14'-0"	"		
4315	4	9	3'-0"	"		
4316	4	7	8'-0"	"		
4317	4	7	17'-0"	"		

BAR LIST - PIER 2

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
583	5	14	38'-0"	Str.		
584	5	78	9'-6"	"		
6143	6	2 Ea.	5'-10"	IV	2'-0"	1'-7"
6151	6	2 Ea.	18'-0"	IV	2'-0"	6'-8"
6152	6	1	18'-0"	IV	2'-0"	8'-0"
6153	6	18	17'-5"	Str.		
6154	6	22	18'-0"	"		
6155	6	20	18'-7"	"		
6156	6	14	19'-3"	"		
6157	6	1	20'-8"	IV	2'-0"	9'-0"
6158	6	18	36'-0"	Str.		
6159	6	2 Ea.	36'-8"	to	Str.	
6165	6	2	51'-0"	to	Str.	
6166	6	2	37'-0"	Str.		
6167	6	2	46'-0"	"		
6168	6	2	36'-6"	"		
6169	6	2	27'-3"	"		
6170	6	18	7'-0"	"		
6171	6	4	16'-0"	"		
6206	6	72	8'-6"	VI	3'-0"	4'-0"
1101	11	18	17'-0"	Str.		

BAR LIST - ABUTMENT 3

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
4500	4	30	5'-0"	Str.		
4501	4	4	15'-0"	to		
to	4	1 Ea.	to	Str.		
4530	4	22	19'-0"	VII	18'-0"	2'-0"
4531	4	22	21'-0"	VII	22	1'-10" Pieces
4532	4	2 Ea.	6'-0"	to	Str.	
to	4	2 Ea.	to	Str.		
4534	4	22	18'-0"	VII	18'-0"	2'-0"
4535	4	22	18'-0"	VII	22	1'-10" Pieces
4536	4	2	9'-0"	Str.		
4537	4	13	17'-0"	"		
5500	5	52	11'-6"	Str.		
5501	5	60	6'-0"	"		
5502	5	1	17'-0"	"		
5503	5	8	11'-0"	"		
5504	5	9	12'-0"	"		
5505	5	9	12'-0"	"		
5506	5	9	13'-0"	"		
5507	5	8	13'-0"	"		
5508	5	9	14'-0"	"		
5509	5	11	30'-0"	"		
5510	5	11	28'-0"	VII	25'-0"	3'-0"

BAR LIST - ABUTMENT 3

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
5511	5	15	56'-0"	Str.		
5512	5	2 Ea.	12'-0"	to	Str.	
to	5	2 Ea.	to	Str.		
5514	5	2 Ea.	47'-0"	VII	44'-0"	3'-0"
5515	5	2 Ea.	10'-0"	VII	7'-0"	3'-0"
5517	5	2 Ea.	45'-0"	VII	42'-0"	3'-0"
5518	5	6	33'-0"	VII	30'-0"	3'-0"
5519	5	6	28'-0"	VII	25'-0"	3'-0"
5520	5	2 Ea.	15'-0"	to	Str.	
to	5	2 Ea.	to	Str.		
5522	5	53	49'-0"	VII	46'-0"	3'-0"
5523	5	56	10'-0"	VII	7'-0"	3'-0"
5524	5	56	2'-0"	VII	1'-6"	1'-0"
5525	5	56	4'-0"	VII	2'-6"	1'-6"
5526	5	1 Ea.	20'-0"	to	Str.	
to	5	1 Ea.	to	Str.		
5528	5	22	22'-0"	Str.		
6500	6	26	30'-0"	Str.		
6501	6	26	32'-0"	"		
7500	7	24	20'-0"	Str.		
7501	7	24	25'-0"	"		
7502	7	42	11'-0"	VII	7'-0"	4'-0"
1001	10	80	10'-8"	Str.		
1002	10	80	11'-8"	"		
1003	10	104	9'-0"	"		
1004	10	60	9'-8"	VI	4'-0"	4'-0"
1005	10	85	10'-8"	VI	4'-0"	4'-0"
1006	10	1 Ea.	15'-0"	to	Str.	
to	10	1 Ea.	to	Str.		
1035	10	25	19'-0"	Str.		
1036	10	25	17'-0"	Str.		
1037	10	13	11'-0"	"		
1038	10	12	12'-0"	"		
1039	10	12	12'-0"	"		
1040	10	13	13'-0"	"		
1041	10	13	13'-0"	"		
1042	10	15	14'-0"	"		

BAR LIST - SUPERSTRUCTURE (CONT.)

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
401	4	442	3'-0"	II	1'-0"	1'-0"
402	4	18	50'-0"	Str.		
403	4	2	15'-0"	"		
404	4	2	35'-0"	"		
499	4	57	4'-8"	I	1'-2"	0'-10"
Additional	5	3	50'-0"	Str.		
501	5	352	50'-0"	Str.		
581	5	6	14'-0"	Str.		
582	5	4	19'-8"	"		
5330	5	1 Ea.	15'-0"	to	Str.	
to	5	1 Ea.	to	Str.		
5427	5	1 Ea.	35'-0"	to	Str.	
601	6	608	42'-3"	Str.		
602	6	2 Ea.	7'-0"	to	Str.	
to	6	2 Ea.	to	Str.		
693	6	12	42'-2"	Str.		
694	6	12	56'-0"	Str.		
6100	6	2 Ea.	42'-0"	to	Str.	
to	6	2 Ea.	to	Str.		
6148	6	2 Ea.	7'-3"	to	Str.	

BAR SUMMARY

1,038 lin. ft. No. 5 at 1.043 lbs. per lin. ft. = 1,084 lbs.
3,048 lin. ft. No. 6 at 2.502 lbs. per lin. ft. = 7,624 lbs.
272 lin. ft. No. 11 at 5.313 lbs. per lin. ft. = 1,444 lbs.
TOTAL 8,379 lbs.

BAR SUMMARY

4,092 lin. ft. No. 4 at 0.668 lbs. per lin. ft. = 2,722 lbs.
4,745 lin. ft. No. 5 at 1.043 lbs. per lin. ft. = 4,949 lbs.
1,612 lin. ft. No. 6 at 1.502 lbs. per lin. ft. = 2,421 lbs.
4,620 lin. ft. No. 7 at 2.044 lbs. per lin. ft. = 9,447 lbs.
5,047 lin. ft. No. 10 at 4.303 lbs. per lin. ft. = 21,716 lbs.
TOTAL 37,715 lbs.

BAR SUMMARY

2,247 lin. ft. of No. 4 at 0.663 lbs. per lin. ft. = 1,491 lbs.
6,036 lin. ft. of No. 5 at 1.043 lbs. per lin. ft. = 6,301 lbs.
3,149 lin. ft. of No. 6 at 1.502 lbs. per lin. ft. = 4,730 lbs.
1,441 lin. ft. of No. 7 at 2.044 lbs. per lin. ft. = 2,948 lbs.
599 lin. ft. of No. 8 at 2.570 lbs. per lin. ft. = 1,540 lbs.
4,509 lin. ft. of No. 10 at 4.303 lbs. per lin. ft. = 19,402 lbs.
TOTAL 38,611 lbs.

BAR SUMMARY

2,525 lin. ft. No. 4 at 0.668 lbs. per lin. ft. = 1,687 lbs.
8,178 lin. ft. No. 5 at 1.043 lbs. per lin. ft. = 8,528 lbs.
3,350 lin. ft. No. 6 at 1.502 lbs. per lin. ft. = 5,031 lbs.
TOTAL 17,246 lbs.

BAR SUMMARY

2,525 lin. ft. No. 4 at 0.668 lbs. per lin. ft. = 1,687 lbs.
8,178 lin. ft. No. 5 at 1.043 lbs. per lin. ft. = 8,528 lbs.
3,350 lin. ft. No. 6 at 1.502 lbs. per lin. ft. = 5,031 lbs.
TOTAL 17,246 lbs.

* Indicated bars field cut to obtain end clearance. Plans did not allow for nose angles.

* Indicated bars field cut to obtain end clearance. Plans did not allow for nose angles.

Additional bars Abut. 3 not shown above (Included in above totals)

* Revised in number (Number shown was placed in structure) where number placed was less than plan quantity was paid as the steel was delivered to the project before the changes were made

* Revised in number (Number shown was placed in structure) where number placed was less than plan quantity was paid as the steel was delivered to the project before the changes were made

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
801	8	40	8'-6"	Str.		
802	8	17	7'-6"	VI	3'-0"	3'-0"
803	8	9	14'-0"	Str.		
1050	10	130	11'-6"	Str.		
1051	10	34	10'-6"	"		
1052	10	15	10'-6"	VI	5'-0"	4'-0"
1053	10	118	9'-6"	VI	4'-0"	4'-0"
1054	10	15	18'-0"	Str.		
1055	10	28	9'-0"	Str.		
1056	10	20	9'-6"	"		
1057	10	20	10'-0"	"		
1058	10	18	11'-0"	"		
1059	10	18	11'-8"	"		
1060	10	21	12'-0"	"		

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
1050	10	130	11'-6"	Str.		
1051	10	34	10'-6"	"		
1052	10	15	10'-6"	VI	5'-0"	4'-0"
1053	10	118	9'-6"	VI	4'-0"	4'-0"
1054	10	15	18'-0"	Str.		
1055	10	28	9'-0"	Str.		
1056	10	20	9'-6"	"		
1057	10	20	10'-0"	"		
1058	10	18	11'-0"	"		
1059	10	18	11'-8"	"		
1060	10	21	12'-0"	"		

Size	No. Req'd	Length	Type	Reference
5	4	8.00'	Str	DOH-279 4-21-72
5	16	3.00'	Str	DOH-279 4-18-72
4	13	14.67'	Str	DOH-279 2-14-72
5	53	1.20'	Str	DOH-279 6-5-72
5	4	9.00'	Str	DOH-279 4-18-72

BAR LIST - SUPERSTRUCTURE

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
475	4	2	6'-10"	III		
697	6	2	4'-8"	X	1'-5"	
698	6	2	6'-8"	X	2'-5"	
699	6	4	7'-6"	II	3'-5"	0'-10"

BAR LIST - SUPERSTRUCTURE

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
475	4	2	6'-10"	III		
697	6	2	4'-8"	X	1'-5"	
698	6	2	6'-8"	X	2'-5"	
699	6	4	7'-6"	II	3'-5"	0'-10"

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
6200	6	25	6'-6"	Str.		
6201	6	6	16'-0"	V	13'-0"	3'-0"
6202	6	6	17'-0"	V	14'-0"	3'-0"
6203	6	6	21'-0"	VII	15'-0"	3'-0"
6204	6	14	17'-0"	V	14'-0"	3'-0"
6205	6	48	42'-0"	Str.		
6206	6	24	8'-6"	VI	3'-0"	4'-0"
6207	6	15	16'-0"	Str.		
6208	6	10	9'-6"	"		
740	7	8	21'-0"	VII	15'-0"	3'-0"
741	7	7	16'-0"	VII	10'-0"	3'-0"
742	7	8	17'-0"	V	14'-0"	3'-0"
743	7	24	18'-0"	V	11'-0"	7'-0"
744	7	59	11'-0"	VII	7'-0"	4'-0"

MARK	SIZE	NO. REQ'D	LENGTH	TYPE	DIMENSIONS	
6200	6	25	6'-6"	Str.		
6201	6	6	16'-0"	V	13'-0"	3'-0"
6202	6	6	17'-0"	V	14'-0"	3'-0"
6203	6	6	21'-0"	VII	15'-0"	3'-0"
6204	6	14	17'-0"	V	14'-0"	3'-0"
6205	6	48	42'-0"	Str.		
6206	6	24	8'-6"	VI	3'-0"	4'-0"
6207	6	15	16'-0"	Str.		
6208	6	10	9'-6"	"		
740	7	8</				

PROJECT NO.	DIVISION	PROJECT NO.	REV. NO.	TOTAL SHEETS
9	COLO	F085-2(3)	32	

PROJECT NO F085-2(3)

STRUCT NO F 16 1L
SOUTH STRUCTURE
SOUTH PLATTE RIVER AT
LOUISIANA AVENUE

AS CONSULTED
NO REVISIONS DATE AUG 27 1973

INPUT DATA FOR BRIDGE F-16-1L
 PDC = 0.259+92.4670 ALPHA = 45 16 42.00 PLOFF = 0.000.0001 GBK = 0.8500
 PI = 0.262+00.0000 EPI = 5244.8000 CLOFF = 0.000.0001 GAN = 0.5600
 CTLST = 0.259+92.4670 RADIUS = 00603.1140 CTLS = 0.000.0001 SUPER = .0800
 VC = 00400. PLES = 0.4670

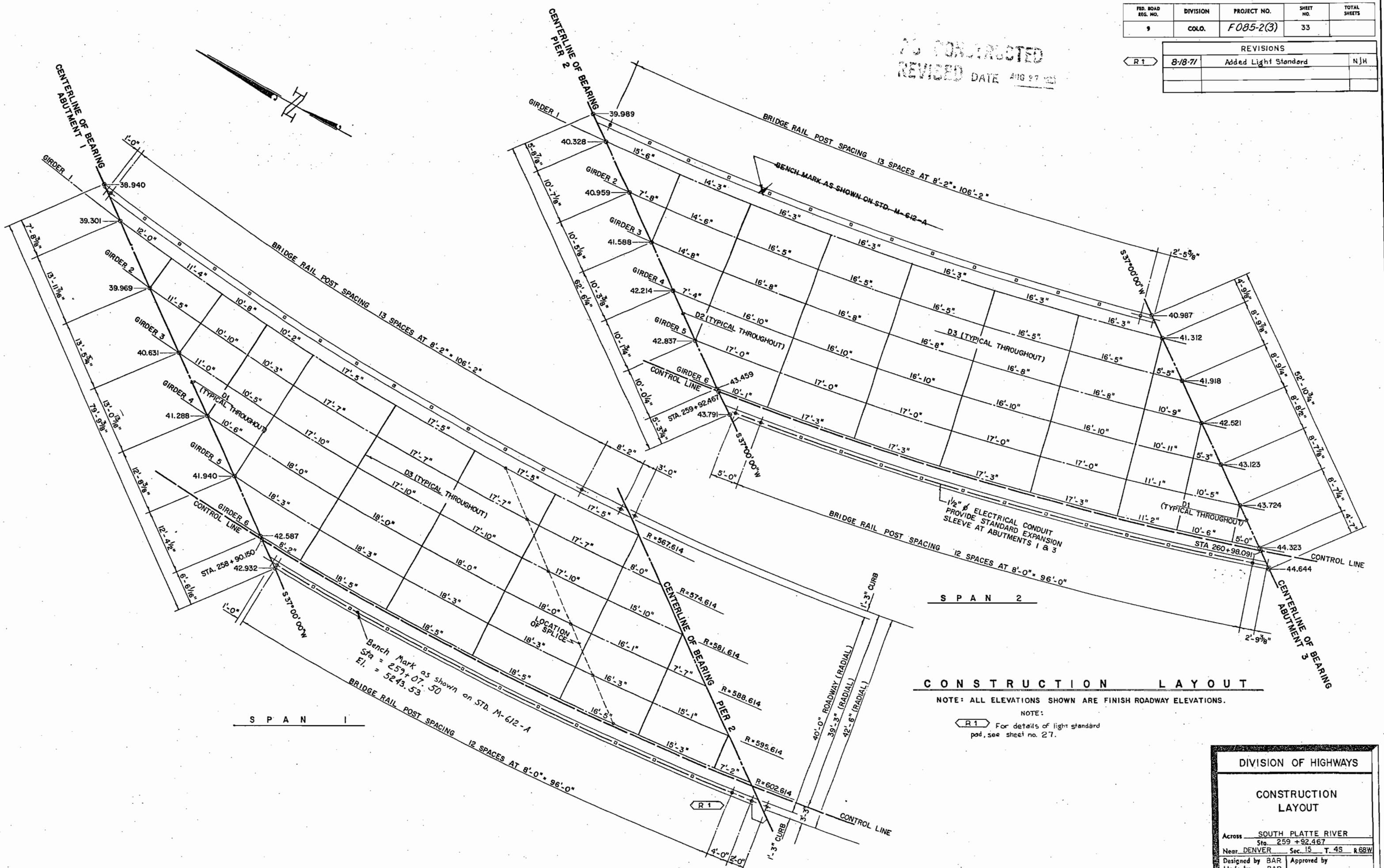
SPAN 1 ABUTMENT NO. 1 PIER NO. 2 NORTH EDGE	STATION	ELEVATION	NX	PX	R	W	OFFSET
STA BACK	258+25.0594	5238.9400	494.0327	271.7984	563.8641	1.067828155	
1 TENTH	258+37.3946	5239.0449	488.3708	281.8451	563.8641	1.047375567	
2 TENTH	258+49.7299	5239.1497	482.5046	291.7739	563.8641	1.026922978	
3 TENTH	258+62.0651	5239.2546	476.4366	301.5807	563.8641	1.006470390	
4 TENTH	258+74.4004	5239.3594	470.1693	311.2613	563.8641	0.986017601	
5 TENTH	258+86.7356	5239.4643	463.7053	320.8117	563.8641	0.965565213	
6 TENTH	258+99.0708	5239.5691	457.0473	330.2279	563.8641	0.945112624	
7 TENTH	259+11.4061	5239.6740	450.1982	339.5060	563.8641	0.924660036	
8 TENTH	259+23.7413	5239.7788	443.1607	348.6421	563.8641	0.904207447	
9 TENTH	259+36.0766	5239.8837	435.9379	357.6323	563.8641	0.883754859	
STA AHEAD	259+48.4118	5239.9885	428.5327	366.4729	563.8641	0.863302270	
GIRDER 1	STA BACK	258+32.2247	5239.3009	494.0327	279.4950	567.6141	1.055947586
1 TENTH	258+44.3073	5239.4036	488.3346	289.3355	567.6141	1.035913568	
2 TENTH	258+56.3898	5239.5063	482.4406	299.0599	567.6141	1.015880350	
3 TENTH	258+68.4724	5239.6090	476.3529	308.6643	567.6141	0.995846732	
4 TENTH	258+80.5549	5239.7117	470.0741	318.1448	567.6141	0.975813114	
5 TENTH	258+92.6375	5239.8144	463.6066	327.4976	567.6141	0.955779496	
6 TENTH	259+04.7201	5239.9171	456.9531	336.7190	567.6141	0.935745878	
7 TENTH	259+16.8026	5240.0198	450.1161	345.8052	567.6141	0.915712260	
8 TENTH	259+28.8852	5240.1225	443.0985	354.7527	567.6141	0.895678642	
9 TENTH	259+40.9677	5240.2252	435.9031	363.5578	567.6141	0.875645024	
STA AHEAD	259+53.0503	5240.3279	428.5327	372.2169	567.6141	0.855611406	
GIRDER 2	STA BACK	258+44.9743	5239.9693	494.0327	293.4502	574.6141	1.034808088
1 TENTH	258+56.6210	5240.0683	488.2741	302.9325	574.6141	1.015496993	
2 TENTH	258+68.2678	5240.1673	482.3334	312.2075	574.6141	0.996185957	
3 TENTH	258+79.9146	5240.2663	476.2129	321.5628	574.6141	0.976874802	
4 TENTH	258+91.5614	5240.3653	469.9147	330.6985	574.6141	0.957563707	
5 TENTH	259+03.2082	5240.4643	463.4414	339.7108	574.6141	0.938252612	
6 TENTH	259+14.8550	5240.5633	456.7952	348.5965	574.6141	0.918941515	
7 TENTH	259+26.5018	5240.6623	449.9786	357.3522	574.6141	0.899630421	
8 TENTH	259+38.1486	5240.7613	442.9943	365.9746	574.6141	0.880319326	
9 TENTH	259+49.7954	5240.8603	435.8448	374.4605	574.6141	0.861008230	
STA AHEAD	259+61.4422	5240.9593	428.5327	382.8068	574.6141	0.841697135	
GIRDER 3	STA BACK	258+56.9938	5240.6314	494.0327	306.9310	581.6141	1.014878931
1 TENTH	258+68.2452	5240.7271	488.2211	316.0935	581.6141	0.996223414	
2 TENTH	258+79.4966	5240.8227	482.2396	325.1460	581.6141	0.977567897	
3 TENTH	258+90.7480	5240.9184	476.0903	334.0853	581.6141	0.958912381	
4 TENTH	259+01.9994	5241.0140	469.7753	342.9084	581.6141	0.940256864	
5 TENTH	259+13.2508	5241.1096	463.2968	351.6121	581.6141	0.921601347	
6 TENTH	259+24.5022	5241.2053	456.6570	360.1935	581.6141	0.902945830	
7 TENTH	259+35.7536	5241.3009	449.8584	368.6495	581.6141	0.884290313	
8 TENTH	259+47.0050	5241.3965	442.9031	376.9772	581.6141	0.865634797	
9 TENTH	259+58.2564	5241.4922	435.7938	385.1737	581.6141	0.846979280	
STA AHEAD	259+69.5078	5241.5878	428.5327	393.2361	581.6141	0.828323763	
GIRDER 4	STA BACK	258+68.3665	5241.2881	494.0327	319.9972	588.6141	0.996022253
1 TENTH	258+79.2569	5241.3807	488.1744	328.8652	588.6141	0.977366736	
2 TENTH	258+90.1472	5241.4733	482.1568	337.6260	588.6141	0.958711219	
3 TENTH	259+01.0375	5241.5658	475.9821	346.2767	588.6141	0.940055702	
4 TENTH	259+11.9279	5241.6584	469.6522	354.8146	588.6141	0.921399185	
5 TENTH	259+22.8182	5241.7510	463.1692	363.2367	588.6141	0.902742668	
6 TENTH	259+33.7085	5241.8435	456.5351	371.5404	588.6141	0.884086151	
7 TENTH	259+44.5989	5241.9361	449.7522	379.7230	588.6141	0.865429634	
8 TENTH	259+55.4892	5242.0287	442.8227	387.7817	588.6141	0.846773117	
9 TENTH	259+66.3795	5242.1212	435.7487	395.7140	588.6141	0.828116600	
STA AHEAD	259+77.2698	5242.2138	428.5327	403.5173	588.6141	0.809460083	
GIRDER 5	STA BACK	258+79.1611	5241.9399	494.0327	332.6978	595.6141	0.978124122
1 TENTH	258+89.7199	5242.0296	488.1328	341.2954	595.6141	0.960617117	
2 TENTH	259+00.2786	5242.1194	482.0832	349.7884	595.6141	0.943110109	
3 TENTH	259+10.8373	5242.2091	475.8859	358.1742	595.6141	0.925603094	
4 TENTH	259+21.3960	5242.2989	468.5427	366.4503	595.6141	0.908096082	
5 TENTH	259+31.9548	5242.3886	461.0556	374.6140	595.6141	0.890589071	
6 TENTH	259+42.5135	5242.4784	453.4266	382.6629	595.6141	0.873082060	
7 TENTH	259+53.0722	5242.5681	445.6578	390.5945	595.6141	0.855575043	
8 TENTH	259+63.6309	5242.6579	442.7511	398.4064	595.6141	0.838068037	
9 TENTH	259+74.1897	5242.7476	435.7087	406.0962	595.6141	0.820561025	
STA AHEAD	259+84.7484	5242.8374	428.5327	413.6615	595.6141	0.803054014	
GIRDER 6	STA BACK	258+89.4349	5242.5872	494.0327	345.0731	602.6141	0.961089675
1 TENTH	258+99.6875	5242.6770	488.0955	353.4212	602.6141	0.944582118	
2 TENTH	259+09.9402	5242.7665	482.0173	361.6571	602.6141	0.927974562	
3 TENTH	259+20.1929	5242.8561	475.7957	369.8085	602.6141	0.911367005	
4 TENTH	259+30.4455	5242.9456	469.4447	377.8431	602.6141	0.894759448	
5 TENTH	259+40.6982	5243.0352	462.9540	385.7885	602.6141	0.878151891	
6 TENTH	259+50.9509	5243.1247	456.3276	393.5824	602.6141	0.861544334	
7 TENTH	259+61.2036	5243.2143	449.5732	401.2825	602.6141	0.844936777	
8 TENTH	259+71.4562	5243.3038	442.6870	408.8667	602.6141	0.828329220	
9 TENTH	259+81.7089	5243.3934	435.6728	416.3328	602.6141	0.811721663	
STA AHEAD	259+91.9616	5243.4830	428.5327	423.6785	602.6141	0.795114106	
SOUTH EDGE	STA BACK	258+94.7415	5242.9323	494.0327	351.5808	606.3641	0.952251024
1 TENTH	259+04.8395	5243.0181	488.0772	359.8029	606.3641	0.935643467	
2 TENTH	259+14.9376	5243.1040	481.9848	367.9241	606.3641	0.919035910	
3 TENTH	259+25.0357	5243.1898	475.7572	375.9421	606.3641	0.902428353	
4 TENTH	259+35.1338	5243.2756	469.3964	383.8548	606.3641	0.885820796	
5 TENTH	259+45.2319	5243.3615	462.9039	391.6598	606.3641	0.869213239	
6 TENTH	259+55.3300	5243.4473	456.2816	399.3551	606.3641	0.852605682	
7 TENTH	259+65.4281	5243.5331	449.5315	406.9394	606.3641	0.835998125	
8 TENTH	259+75.5262	5243.6190	442.6553	414.4076	606.3641	0.819390568	
9 TENTH	259+85.6243	5243.7048	435.4551	421.7607	606.3641	0.802783011	
STA AHEAD	259+95.7224	5243.7906	428.5327	428.9955	606.3641	0.786175454	

SPAN 2 PIER NO. 2 ABUTMENT NO. 3 NORTH EDGE	STATION	ELEVATION	NX	PX	R	W	OFFSET
STA BACK	259+48.4118	5239.9885	428.5327	368.4729	563.8641	0.863302270	
1 TENTH	259+60.3538	5240.0930	421.1898	374.8892	563.8641	0.843849357	
2 TENTH	259+72.3057	5240.1916	413.6815	383.1543	563.8641	0.824396444	
3 TENTH	259+84.2526	5240.2931	406.0110	391.2772	563.8641	0.804943531	
4 TENTH	259+96.1996	5240.3947	398.1811	399.2424	563.8641	0.785490618	
5 TENTH	260+08.1465	5240.4960	390.1950	407.0511	563.8641	0.766037705	
6 TENTH	260+20.0935	5240.5963	382.0558	414.7000	563.8641	0.746584792	
7 TENTH	260+32.0404	5240.6956	373.7667	422.1862	563.8641	0.727131879	
8 TENTH	260+43.9874	5240.7939	365.3309	429.5067	563.8641	0.707678966	
9 TENTH	260+55.9343	5240.8911	356.7518	436.6587	563.8641	0.688226053	
STA AHEAD	260+67.8812	5240.9873	348.0327	443.6394	563.8641	0.668773140	
GIRDER 1	STA BACK	259+53.0503	5240.3279	428.5327	372.2169	567.6141	0.855611406
1 TENTH	259+64.8453	5240.4282	421.1718	380.5260	567.6141	0.836158493	
2 TENTH	259+76.6404	5240.5284	413.6499	388.6895	567.6141	0.816705580	
3 TENTH	259+88.4354	5240.6287	405.9637	396.7044	567.6141	0.797252667	
4 TENTH	260+00.2305	5240.7290	398.1344	404.5676	567.6141	0.777799754	
5 TENTH	260+12.0255	5240.8292	390.1465	412.2760	567.6141	0.758346841	
6 TENTH	260+23.8206	5240.9274	382.0096	419.8267	567.6141	0.738893928	
7 TENTH	260+35.6156	5241.0251	373.7265	427.2169	567.6141	0.719441015	
8 TENTH	260+47.4107	5241.1219	365.3005	434.4436	567.6141	0.699988102	
9 TENTH	260+59.2057	5241.2175	356.7348	441.5043	567.6141	0.680535189	
STA AHEAD	260+71.0008	5241.3122	348.0327	448.3960	567.6141	0.661082276	
GIRDER 2	STA BACK	259+61.4422	5240.9593	428.5327	382.8068	574.6141	0.841697135
1 TENTH	259+72.9662	5241.0572	421.1404	390.9247	574.6141	0.822244222	
2 TENTH	259+84.4903	5241.1552	413.5944	398.8998	574.6141		

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	33	

NOT FOR CONSTRUCTION
REVISED DATE AUG 27 1970

REVISIONS			
R 1	8-18-71	Added Light Standard	NJH



SPAN 2

SPAN 1

CONSTRUCTION LAYOUT

NOTE: ALL ELEVATIONS SHOWN ARE FINISH ROADWAY ELEVATIONS.

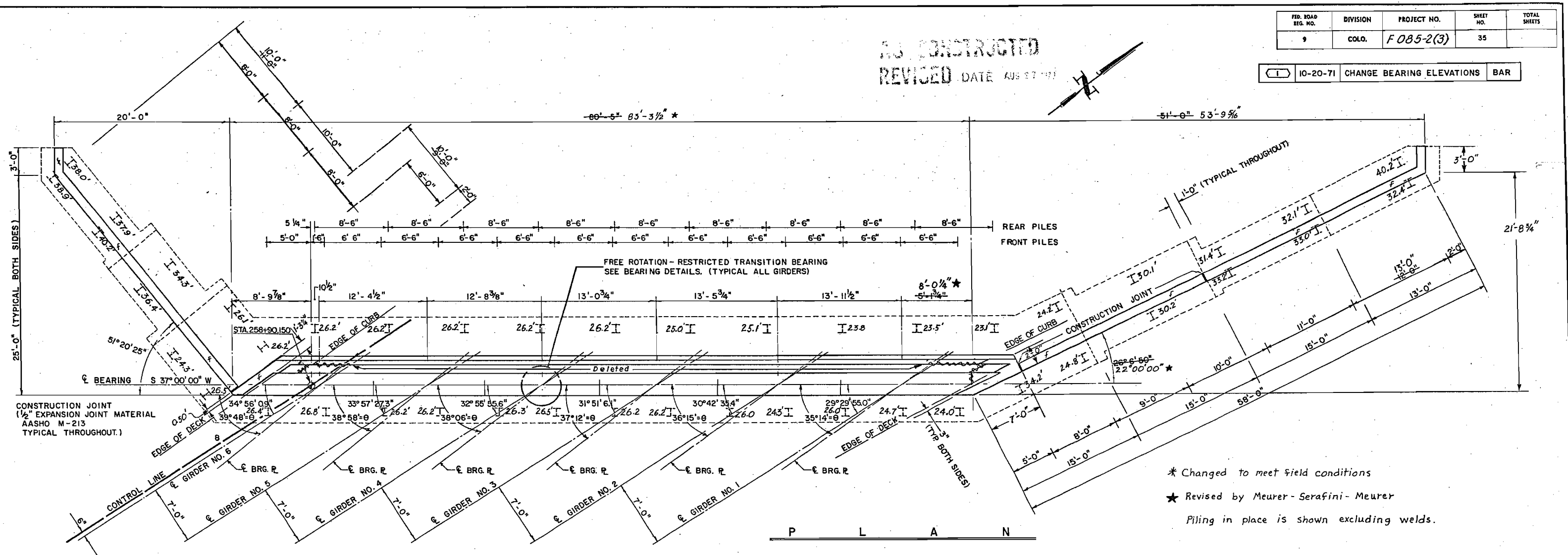
NOTE:
R 1 For details of light standard
pd, see sheet no. 27.

DIVISION OF HIGHWAYS	
CONSTRUCTION LAYOUT	
Across SOUTH PLATTE RIVER	
Sta. 259 + 92.467	
Near DENVER	Sec. 15 T. 4S R. 68W
Designed by BAR	Approved by
Made by BAR	
Checked by BAR	Date: 1970

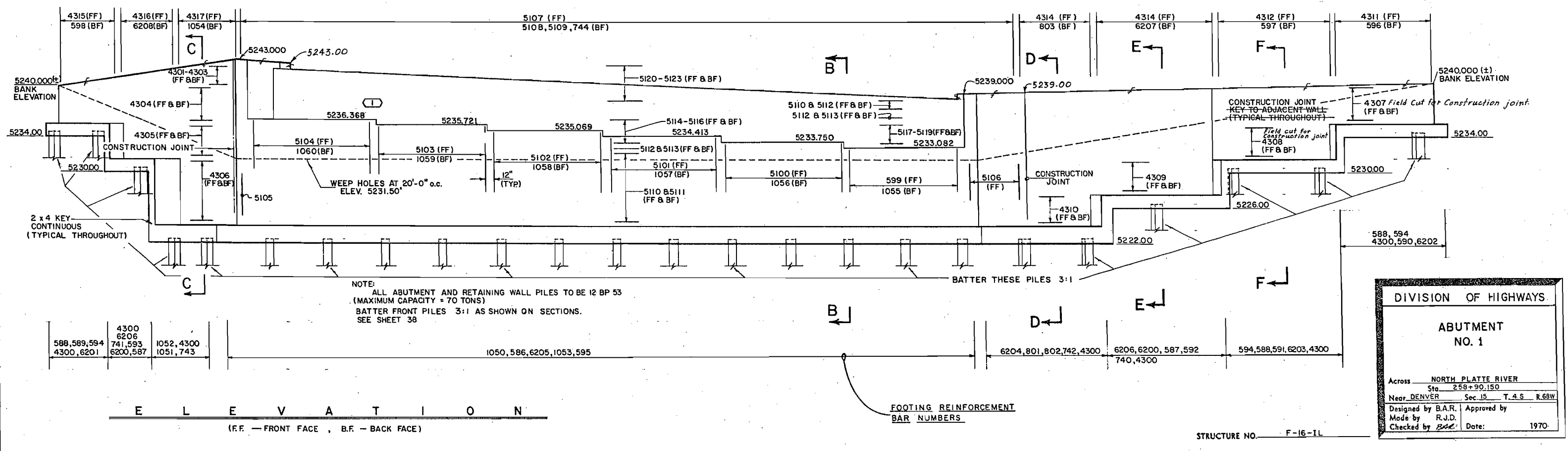
FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F 085-2(3)	35	

AS CONSTRUCTED
REVISED DATE AUG 27 1971

10-20-71 CHANGE BEARING ELEVATIONS BAR



* Changed to meet field conditions
★ Revised by Meurer-Serafini-Meurer
Piling in place is shown excluding welds.



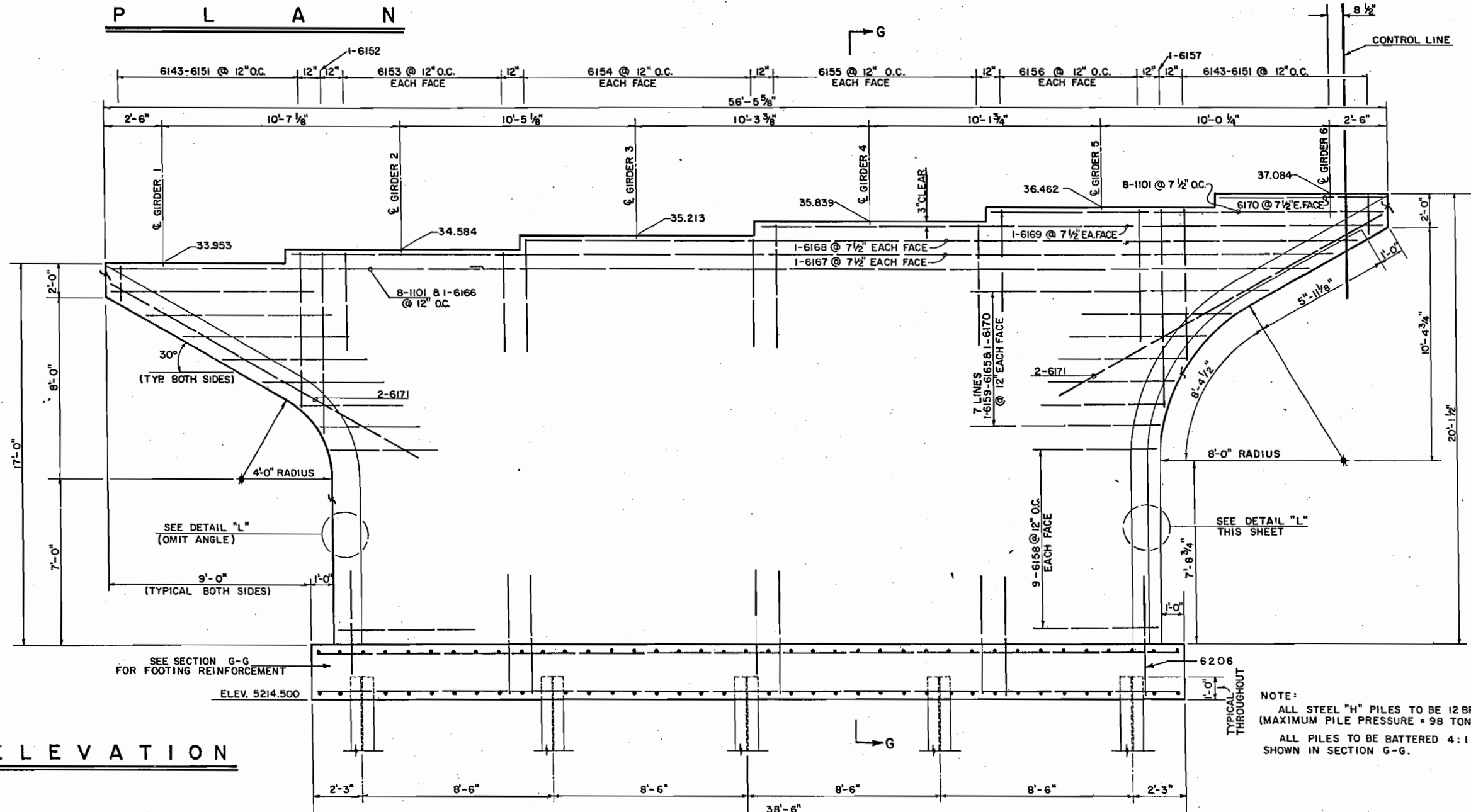
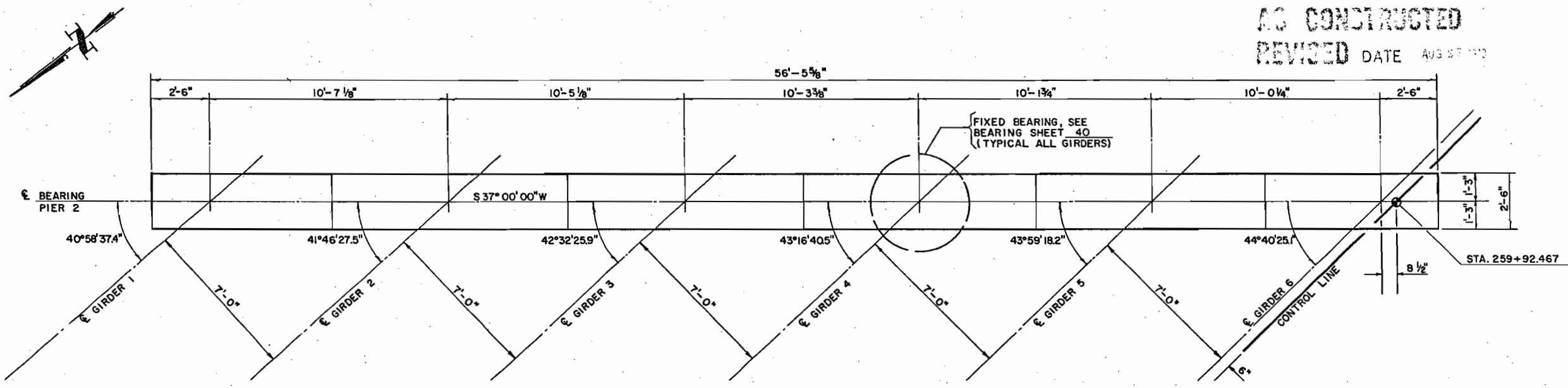
NOTE:
ALL ABUTMENT AND RETAINING WALL PILES TO BE 12 BP 53
(MAXIMUM CAPACITY = 70 TONS)
BATTER FRONT PILES 3:1 AS SHOWN ON SECTIONS.
SEE SHEET 38

DIVISION OF HIGHWAYS	
ABUTMENT NO. 1	
Across	NORTH PLATTE RIVER
Sta.	258+90.150
Near DENVER	Sec. 15 T. 4 S. R. 68 W
Designed by B.A.R.	Approved by
Made by R.J.D.	
Checked by B.M.	Date: 1970

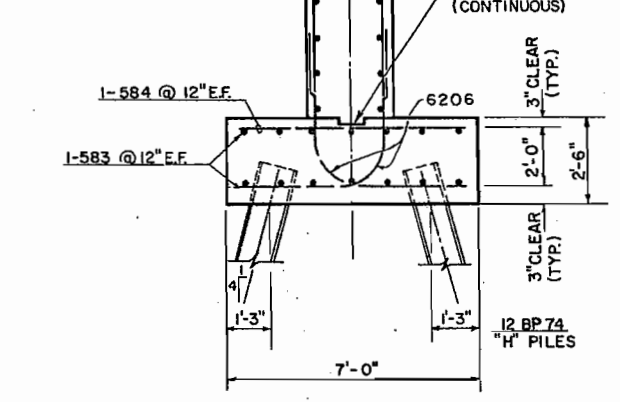
STRUCTURE NO. F-16-11

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	36	

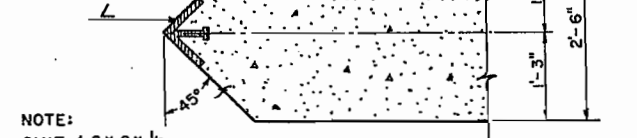
AS CONSTRUCTED
 REVISED DATE AUG 27 1970



SECTION G-G



NOTE:
 8 x 8 x 1/2 x 22'-0 3/8" L ON UPSTREAM SIDE ONLY, WITH 6 x 1/2" Ø STUDS AT 2'-0" CTRS.



NOTE:
 OMIT L 8 x 8 x 1/2 ON DOWNSTREAM SIDE OF PIER.

NOTE:
 ALL STEEL "H" PILES TO BE 12 BP 74 (MAXIMUM PILE PRESSURE = 98 TONS)
 ALL PILES TO BE BATTERED 4:1 AS SHOWN IN SECTION G-G.

Piling lengths / Front Row excluding welds, Back Row

- #171 17.7'
- #180 14.3'
- #172 16.3'
- #179 14.0'
- #173 @ 16.3'
- #178 14.0'
- #174 13.5'
- #177 16.3'
- #175 17.4'
- #176 17.4'

STRUCTURE NO. F-16-IL

DIVISION OF HIGHWAYS

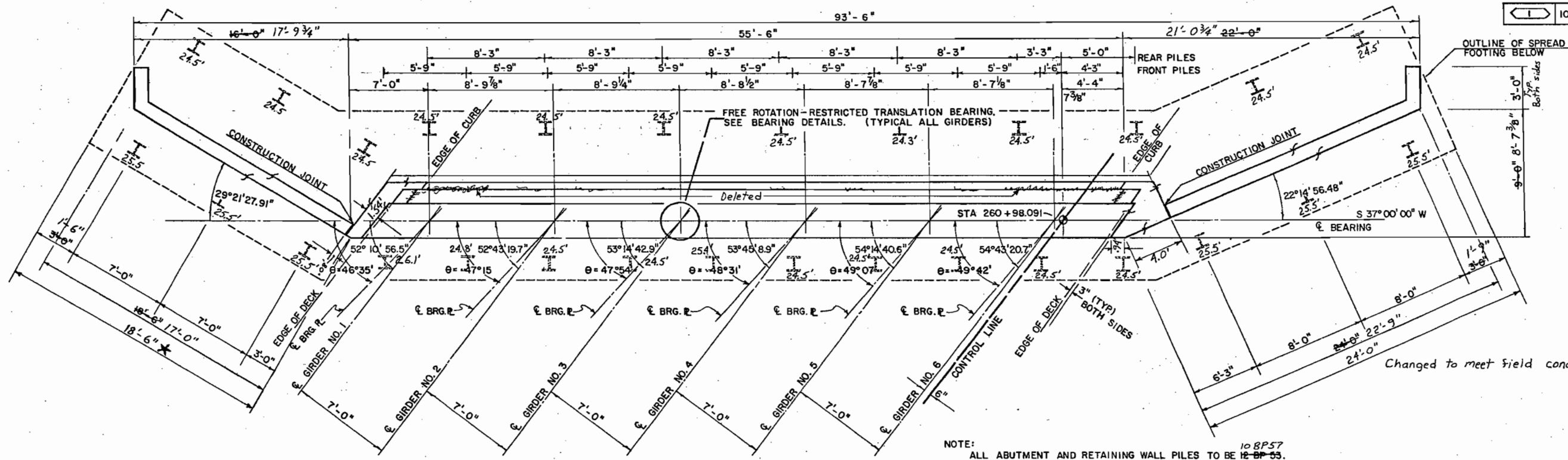
PIER NO. 2

Across SOUTH PLATTE RIVER
 Sta. 259 + 92.467
 Near DENVER Sec. 15 T. 4 S. R. 66 W

Designed by B.A.R. Approved by R.J.D.
 Made by Checked by Date: 1970

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	37	

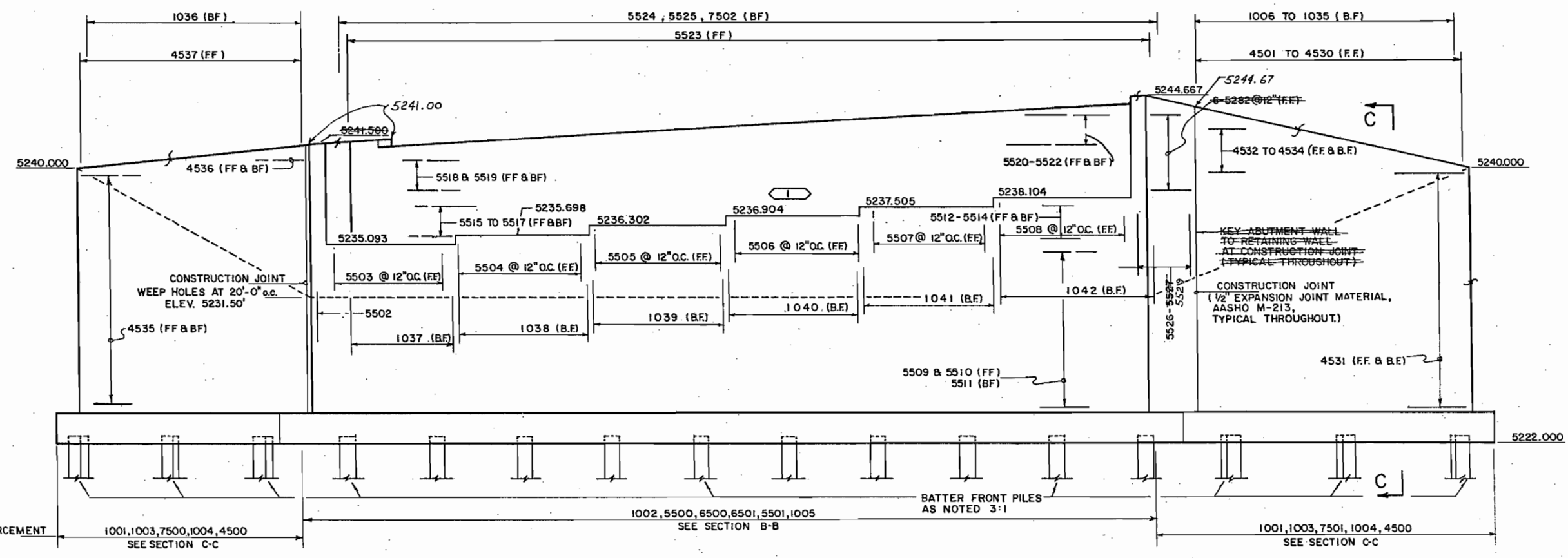
10-20-71 CHANGE BEARING ELEVATIONS BAR



AS CONSTRUCTED
REVISED DATE AUG 27 1973

NOTE:
ALL ABUTMENT AND RETAINING WALL PILES TO BE 10 BP57.
(MAXIMUM CAPACITY = 70 TONS)
BATTER FRONT PILES 3:1 AS SHOWN ON SECTIONS, SEE SHEET 38.
Piling in place is shown excluding welds.

P L A N



FOOTING REINFORCEMENT BAR NUMBERS
1001, 1003, 7500, 1004, 4500
SEE SECTION C-C

1002, 5500, 6500, 6501, 5501, 1005
SEE SECTION B-B

1001, 1003, 7501, 1004, 4500
SEE SECTION C-C

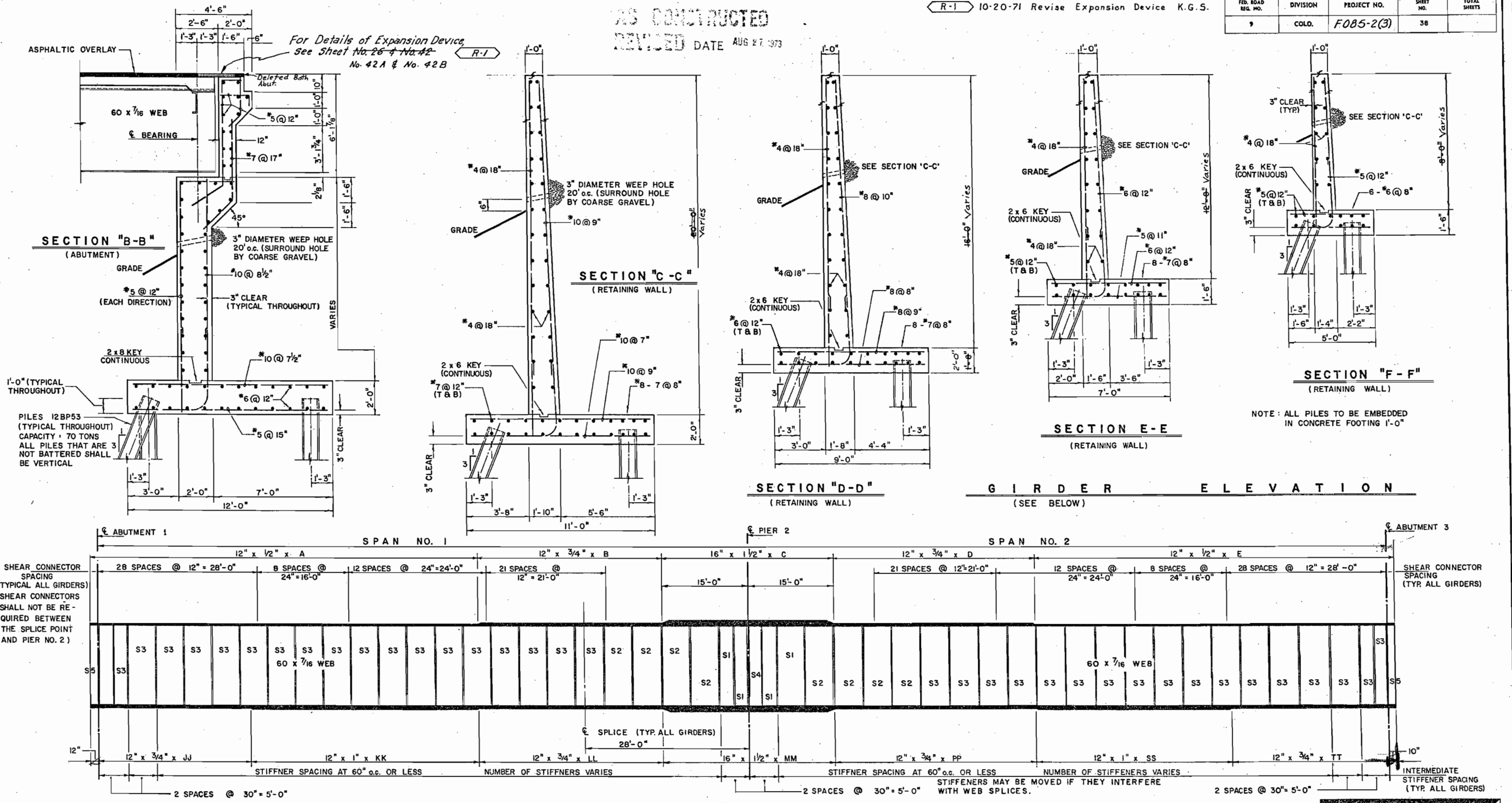
E L E V A T I O N
(FRONT FACE = F.F., BACK FACE = B.F.)

DIVISION OF HIGHWAYS	
ABUTMENT NO. 3	
Across SOUTH PLATTE RIVER	
Sta. 260+98.09	
Near DENVER	Sec. 15 T. 4 S. R. 68 W.
Designed by B.A.R.	Approved by R.J.D.
Made by [Signature]	Checked by [Signature]
Date: 1970	

STRUCTURE NO. F-16-1L

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	38	

AS CONSTRUCTED
REVISED DATE AUG 27, 1973



GIRDER	SPAN		TOTAL GIRDER LENGTH	FLANGE PLATE LENGTH											
	SPAN 1	SPAN 2		TOP FLANGE						BOTTOM FLANGE					
	€ BRG. to € BRG.	€ BRG. to € BRG.		A	B	C	D	E	JJ	KK	LL	MM	PP	SS	TT
GIRDER 1	113' - 8 1/2"	111' - 0 1/8"	226' - 6 7/8"	67' - 8 1/2"	32' - 0"	30' - 0"	35' - 0"	61' - 10 1/8"	27' - 8 1/2"	40' - 0"	32' - 0"	30' - 0"	35' - 0"	34' - 0"	27' - 10 1/8"
GIRDER 2	110' - 11 5/8"	109' - 9 1/2"	222' - 7 7/8"	65' - 11 5/8"	31' - 0"	30' - 0"	34' - 6"	61' - 1 1/2"	27' - 5 7/8"	38' - 6"	31' - 0"	30' - 0"	34' - 6"	33' - 4"	27' - 9 1/2"
GIRDER 3	108' - 6"	108' - 8"	219' - 0"	63' - 9"	30' - 9"	30' - 0"	34' - 0"	60' - 6"	26' - 3"	37' - 6"	30' - 9"	30' - 0"	34' - 0"	33' - 0"	27' - 6"
GIRDER 4	106' - 3 3/8"	107' - 7 3/8"	215' - 8 3/4"	62' - 0 7/8"	30' - 3"	30' - 0"	33' - 8"	59' - 9 3/8"	25' - 6 3/8"	36' - 6"	30' - 3"	30' - 0"	33' - 8"	32' - 6"	27' - 3 3/8"
GIRDER 5	104' - 3 1/4"	106' - 7 1/2"	212' - 8 3/4"	60' - 3 1/4"	30' - 0"	30' - 0"	33' - 4"	59' - 1 1/2"	25' - 3 1/4"	35' - 0"	30' - 0"	30' - 0"	33' - 4"	32' - 0"	27' - 1 1/2"
GIRDER 6	102' - 5 1/4"	105' - 8 1/4"	209' - 11 1/2"	58' - 8 1/4"	29' - 9"	30' - 0"	33' - 4"	58' - 2 1/4"	24' - 8 1/4"	34' - 0"	29' - 9"	30' - 0"	33' - 4"	31' - 8"	26' - 6 1/4"

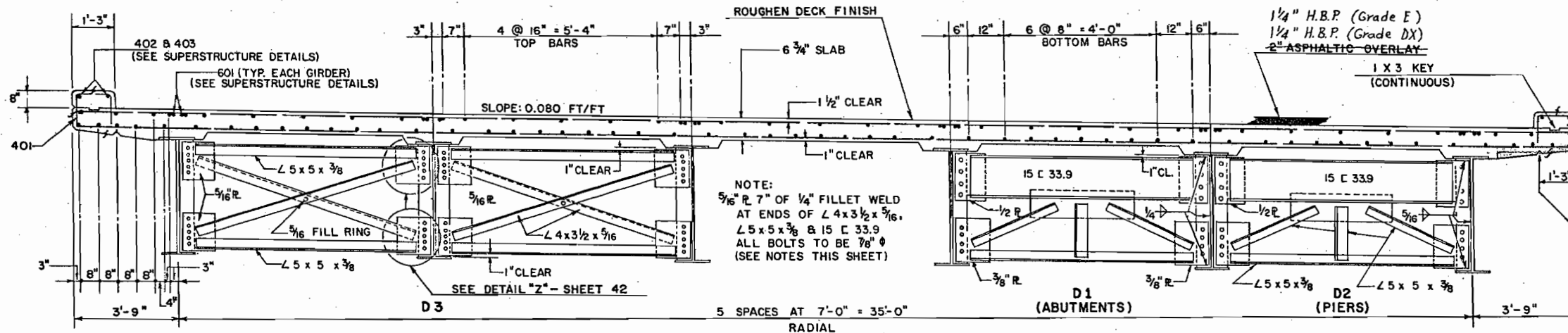
DIVISION OF HIGHWAYS

GIRDER LAYOUT & ABUTMENT SECTIONS

Across SOUTH PLATTE RIVER
 Sta. 259 + 92.467
 Near DENVER - Sec. 15 - T. 4 S. - R. 68 W

Designed by B.A.R. Approved by B.A.R.
 Made by B.A.R. Checked by B.A.R. Date: 1970

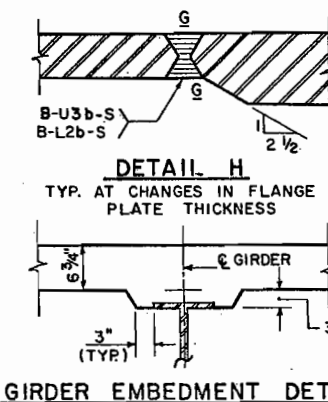
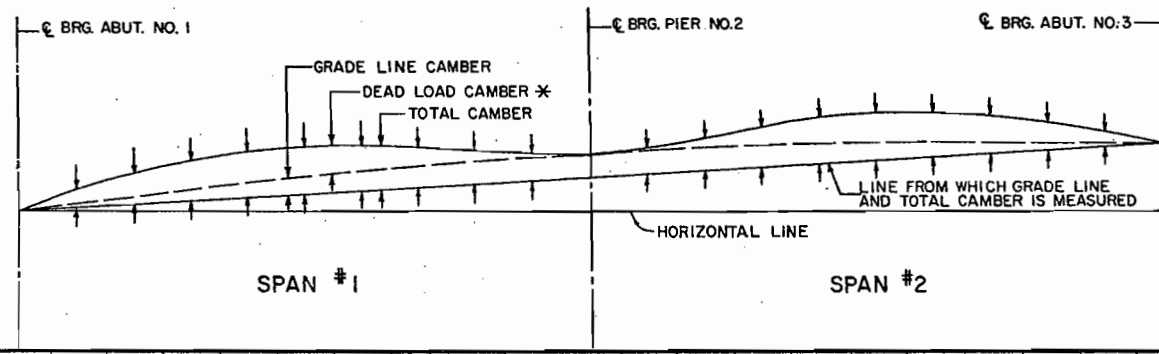
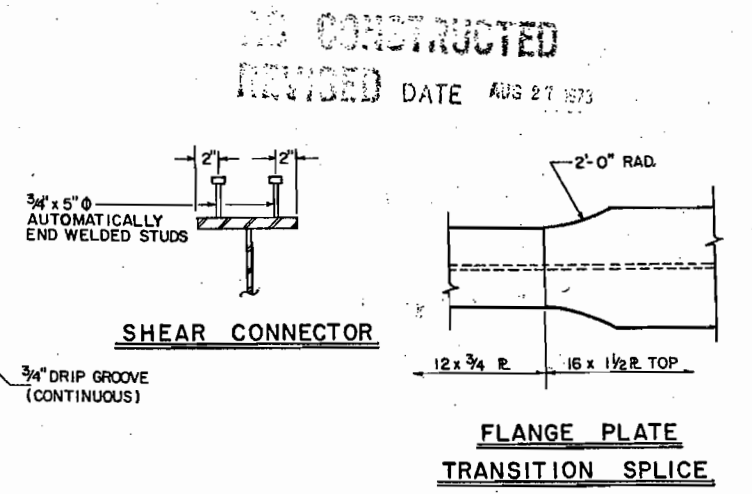
FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	39	



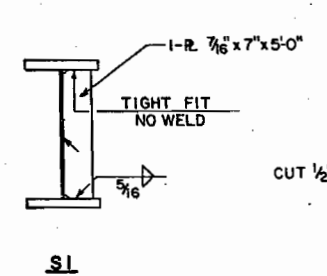
TYPICAL INTERMEDIATE DIAPHRAGMS

SECTION "A-A"

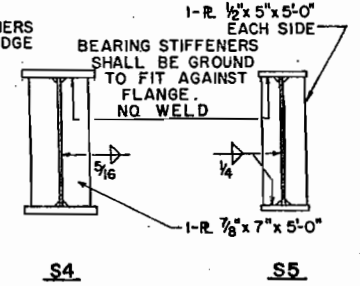
DIAPHRAGMS @ PIERS & ABUTMENTS



GIRDER EMBEDMENT DETAIL



TRANSVERSE INTERMEDIATE STIFFENERS



BEARING STIFFENERS

GIRDER	TENTH POINTS																				
	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0
GIRDER 1	0	.058	.106	.137	.148	.140	.115	.080	.043	.023	0	.008	.030	.061	.093	.115	.124	.116	.090	.046	0
	0	.060	.110	.145	.156	.151	.128	.095	.060	.042	.021	.029	.051	.082	.113	.134	.142	.131	.101	.052	0
10 SPACES @ 11.371 FT. = 113.713 FT.											10 SPACES @ 11.101 FT. = 111.007 FT.										
GIRDER 2	0	.058	.106	.137	.148	.140	.115	.080	.043	.023	0	.008	.030	.061	.093	.115	.124	.116	.090	.046	0
	0	.060	.109	.142	.154	.148	.125	.091	.056	.037	.016	.024	.047	.079	.111	.132	.140	.129	.100	.051	0
10 SPACES @ 11.096 FT. = 110.964 FT.											10 SPACES @ 10.980 FT. = 109.795 FT.										
GIRDER 3	0	.058	.106	.137	.148	.140	.115	.080	.043	.023	0	.008	.030	.061	.093	.115	.124	.116	.090	.046	0
	0	.059	.108	.141	.153	.146	.122	.088	.052	.033	.012	.021	.044	.077	.109	.131	.138	.128	.099	.051	0
10 SPACES @ 10.850 FT. = 108.503 FT.											10 SPACES @ 10.866 FT. = 108.664 FT.										
GIRDER 4	0	.058	.106	.137	.148	.140	.115	.080	.043	.023	0	.008	.030	.061	.093	.115	.124	.116	.090	.046	0
	0	.059	.108	.139	.151	.144	.120	.086	.050	.030	.008	.018	.042	.075	.107	.129	.137	.127	.098	.051	0
10 SPACES @ 10.629 FT. = 106.285 FT.											10 SPACES @ 10.761 FT. = 107.607 FT.										
GIRDER 5	0	.058	.106	.137	.148	.140	.115	.080	.043	.023	0	.008	.030	.061	.093	.115	.124	.116	.090	.046	0
	0	.059	.107	.139	.150	.143	.118	.084	.047	.028	.006	.016	.041	.073	.106	.128	.136	.126	.098	.050	0
10 SPACES @ 10.427 FT. = 104.247 FT.											10 SPACES @ 10.662 FT. = 106.617 FT.										
GIRDER 6	0	.058	.106	.137	.148	.140	.115	.080	.043	.023	0	.008	.030	.061	.093	.115	.124	.116	.090	.046	0
	0	.058	.107	.138	.149	.142	.117	.082	.046	.026	.004	.015	.039	.072	.105	.127	.135	.125	.097	.050	0
10 SPACES @ 10.244 FT. = 102.441 FT.											10 SPACES @ 10.569 FT. = 105.689 FT.										

CAMBER DIAGRAM (GIRDER WEBS TO REMAIN AT CONSTANT DEPTH)

DEAD LOAD DEFLECTION IN FT. * DEAD LOAD DEFLECTION PLUS VERTICAL CURVE CORRECTION IN FT.

DEAD LOAD DEFLECTION IN FT. * DEAD LOAD DEFLECTION PLUS VERTICAL CURVE CORRECTION IN FT.

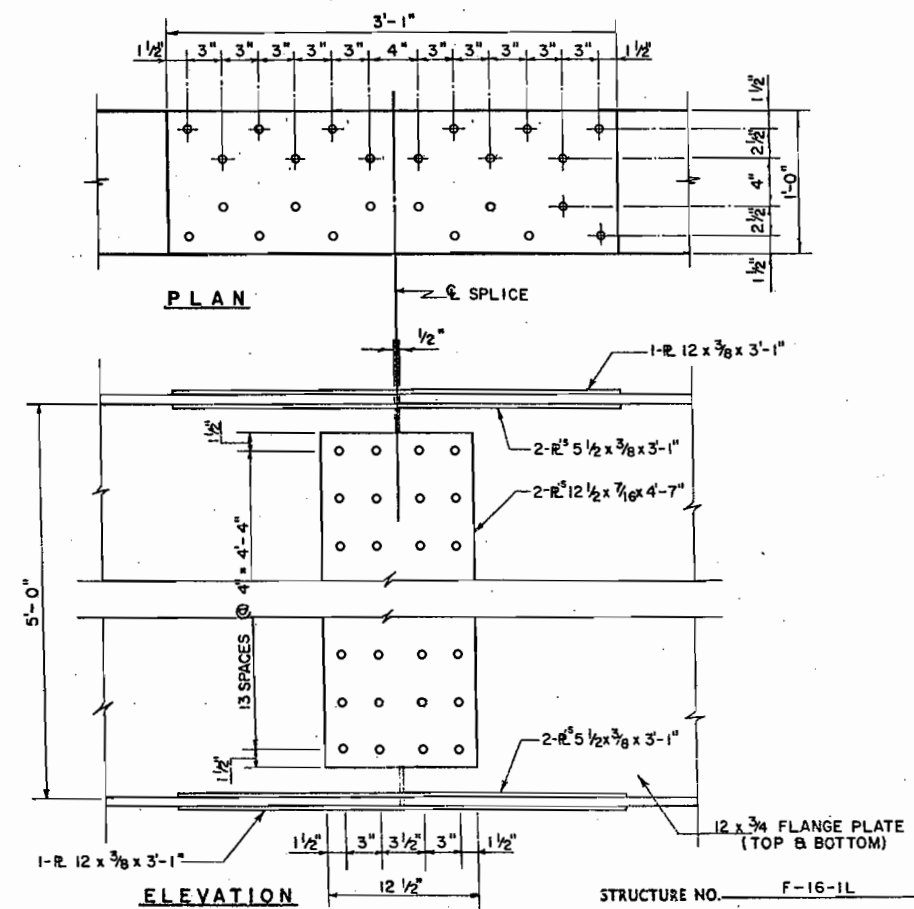
DEAD LOAD DEFLECTION IN FT. * DEAD LOAD DEFLECTION PLUS VERTICAL CURVE CORRECTION IN FT.

DEAD LOAD DEFLECTION IN FT. * DEAD LOAD DEFLECTION PLUS VERTICAL CURVE CORRECTION IN FT.

DEAD LOAD DEFLECTION IN FT. * DEAD LOAD DEFLECTION PLUS VERTICAL CURVE CORRECTION IN FT.

DEAD LOAD DEFLECTIONS IN FT. * DEAD LOAD DEFLECTION PLUS VERTICAL CURVE CORRECTION IN FT.

* FOR FABRICATOR'S USE ONLY.



FIELD SPLICE

- NOTES
- SUBPUNCH FIELD SPLICE HOLES 1 3/16" AND REAM TO 1 5/16" DIAM. WITH PARTS ASSEMBLED IN POSITION IN THE SHOP.
 - ALL STRUCTURAL STEEL SHALL CONFORM TO A.S.T.M. SPECIFICATIONS A 36.
 - FIELD SPLICE IS A HIGH-TENSILE STRENGTH FRICTION TYPE BOLT CONNECTION. ALL BOLTS ARE 7/8" DIA HIGH STRENGTH STEEL BOLTS A.A.S.H.Q. M-164 (A.S.T.M.A-325).
 - TWO ADJACENT GIRDERS MUST BE SET WITH DIAPHRAGMS IN PLACE BEFORE RELEASE OF EXTERNAL SUPPORT.
 - HEAT CURVING OF GIRDERS TO BE PERMITTED. MAX. EDGE TEMP. SHALL NOT EXCEED 1000°F. UNIFORM HEAT SHALL BE APPLIED SIMULTANEOUSLY TO EDGE OF TOP & BOTTOM FLANGES. QUENCHING WITH WATER OR WATER AND AIR WILL NOT BE PERMITTED.

DIVISION OF HIGHWAYS

TYPICAL SECTION & CAMBER DIAGRAM

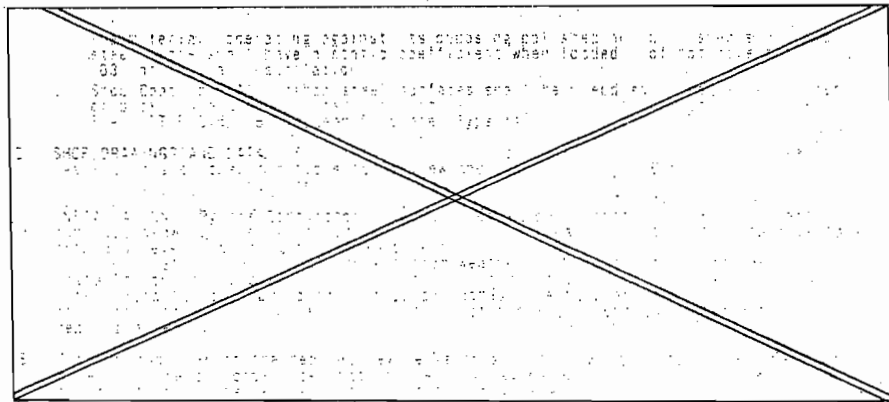
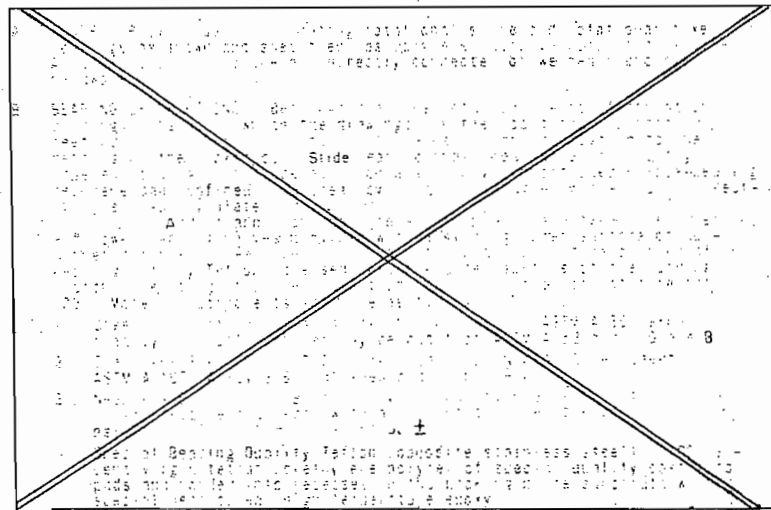
Across SOUTH PLATTE RIVER
Sta. 259+92.467

Near DENVER Sec. 15 T. 4 S. R. 68 W

Designed by B.A.R. Approved by R.J.D.
Checked by S.M. Date: 1970

STRUCTURE NO. F-16-1L

SPECIFICATIONS



Load Data:
 Abut. 1 85 Kip/Bearing
 Abut. 3 85 Kip/Bearing
 Maximum Rotation 0°15'

SCOPE: Provide self-lubricating rotational slide and rotational fixed bearings as shown and specified, as complete factory-produced assemblies. Assemblies shall include all directly connected or welded anchorage hardware.

3. BEARING DESCRIPTIONS: Bearings shall be rotational - non-translation sliding units as shown on the drawings. In the locations indicated meeting the loading requirements of the design and conforming to the details on the drawings. Slide bearing shall consist of a slightly tapered loading piston operating on a suitably proportioned bridge-bearing neoprene pad confined in a steel cylindrical retainer welded to a correctly sized bearing plate.

In addition shall have the interface between the upper and lower bearing halves provided with a sliding upper surface of burnished stainless steel operating against a bearing surface of special bearing quality Teflon recessed into the upper surface of the loading piston, operating at a coefficient of static friction of not more than .03. Material components shall be as follows:

1. Steel: Structural steel plates for all parts: ASTM A 36, except that cylindrical retainer may be cut from ASTM A 53 pipe, Grade B.
2. Stainless-Steel Sliding Surface: Chromium-Nickel Steel Sheet, ASTM A 167, Alloy 316, polished and burnished.
3. Neoprene Elastomer: Bridge bearing quality neoprene cast in molds under pressure and heat, with a minimum tensile strength of 2,250 psi, and a Shore A Hardness of 55±.
4. Special Bearing Quality Teflon (composite stainless steel): 100 percent virgin tetrafluoroethylene polymer of special quality cast into pads and bonded into recesses in the backing plate substrate with a special heat cured, high temperature epoxy.

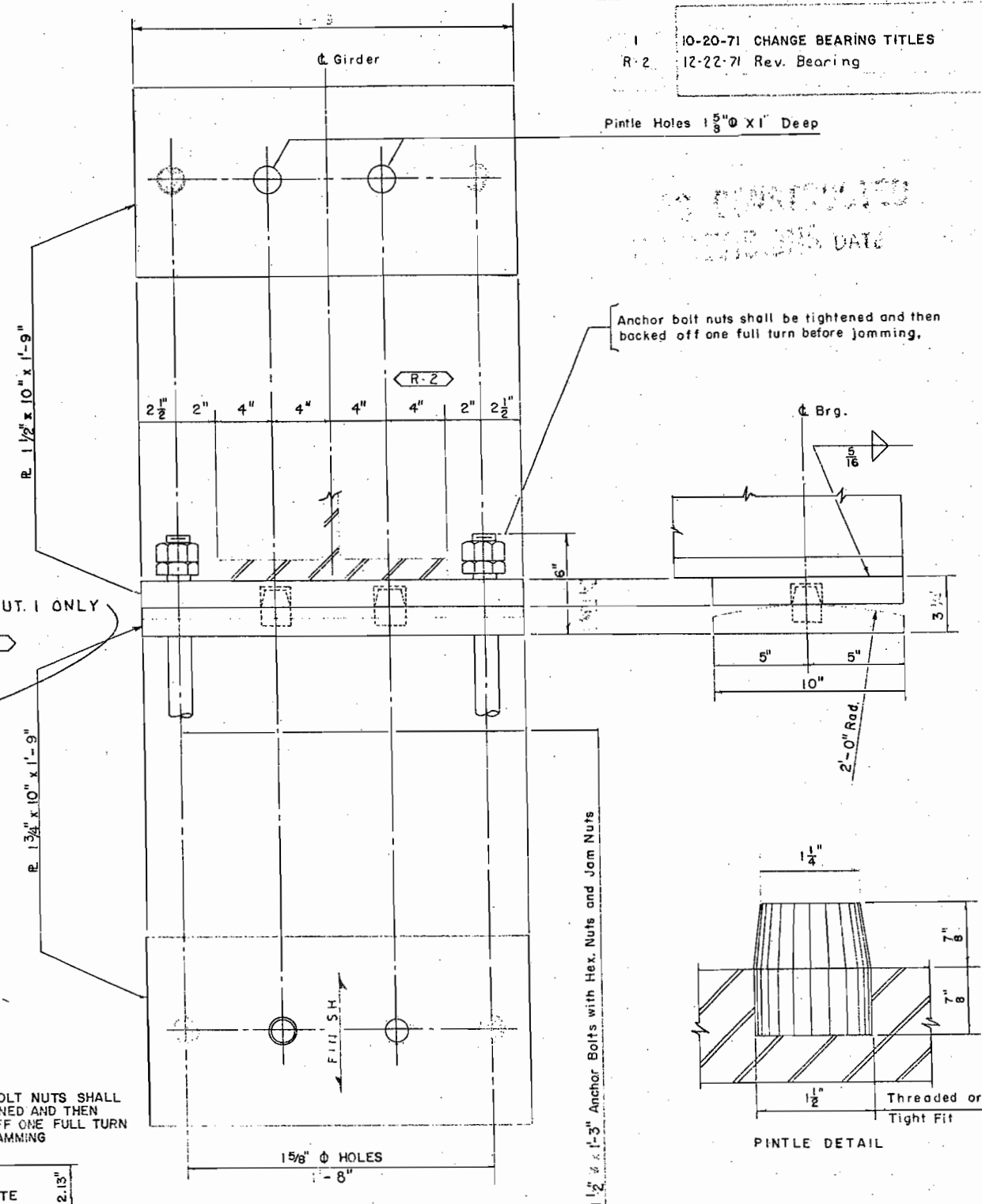
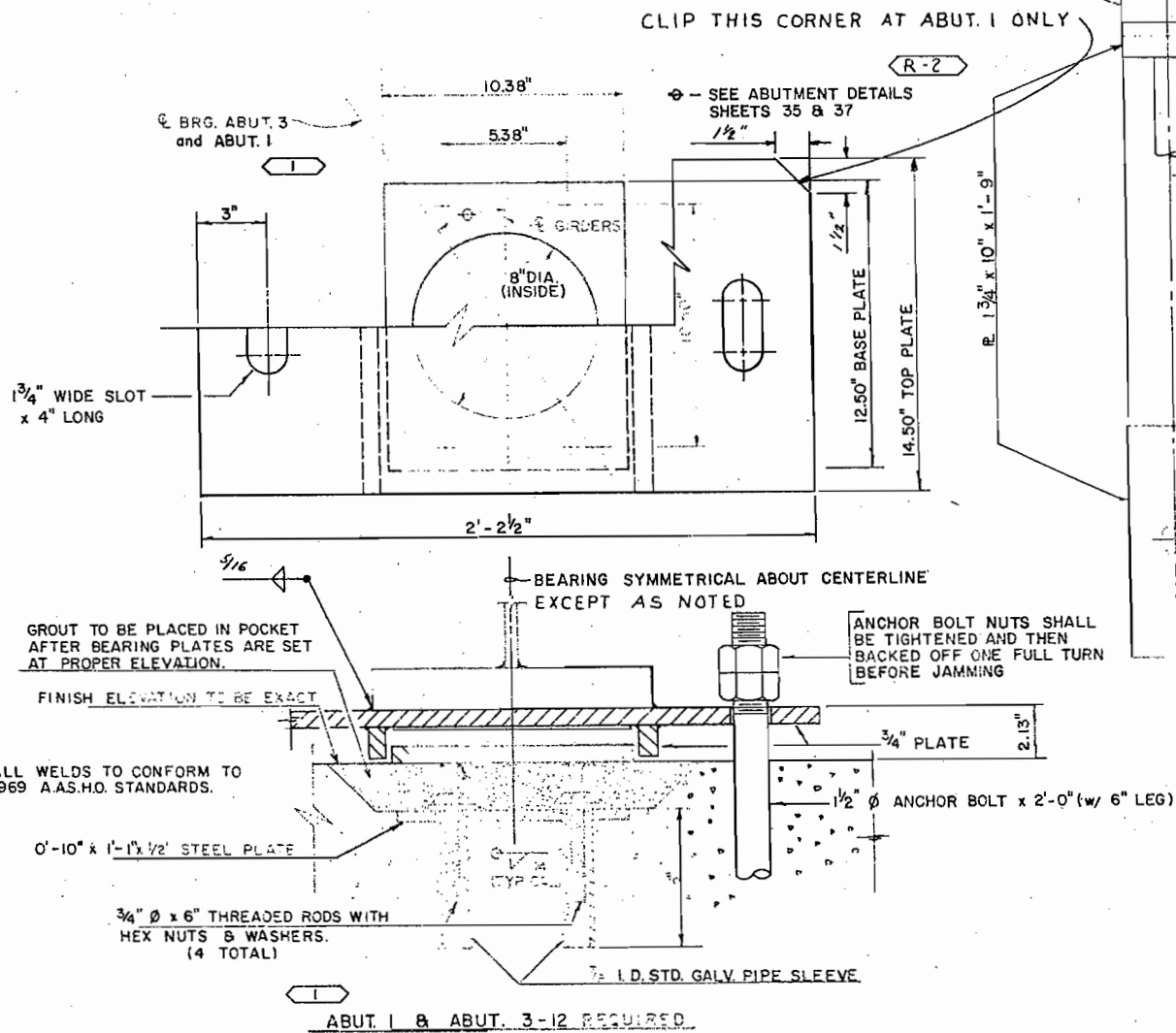
The material, operating against its opposing polished and burnished stainless steel plate shall have a static coefficient when loaded, of not more than .03, at initial installation.

5. Shop Coating: All carbon steel surfaces shall be prepared by commercial blast or pickling and shop coated with not less than 1.5 mil. thick shop coat of Fed. Spec. TT-P-819, Basic Lead Chromate, Type II.

C. SHOP DRAWINGS AND DATA: Submit five copies, shop drawings, load data and material descriptions or specifications for review and approval by the Engineer prior to furnishing material for job.

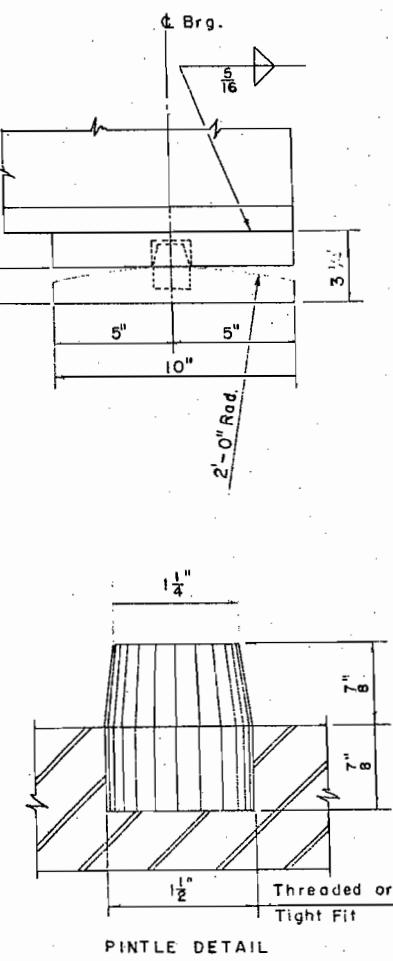
D. INSTALLATION: By the Contractor. Install bearings in accordance with project and shop drawings, in the exact locations at required elevations, true to orientation and level, assuring that the correct half of each bearing is in its proper position. Store bearings to protect from weather and mechanical damage prior to installation, and protect during and after installation from contamination and damage by oil, grease, or concrete and other materials. Clean operating surfaces of bearings thoroughly before final bearing assembly.

E. The manufacturer of the bearing device is to submit in writing to the Engineer a certified date of compliance that the bearing device and all materials used in the construction of the device meet all of the above specifications.



F085-2(3) 40
 10-20-71 CHANGE BEARING TITLES
 R-2 12-22-71 Rev. Bearing
 BAR K.G.S.

Pintle Holes 1 5/8" Ø X 1" Deep



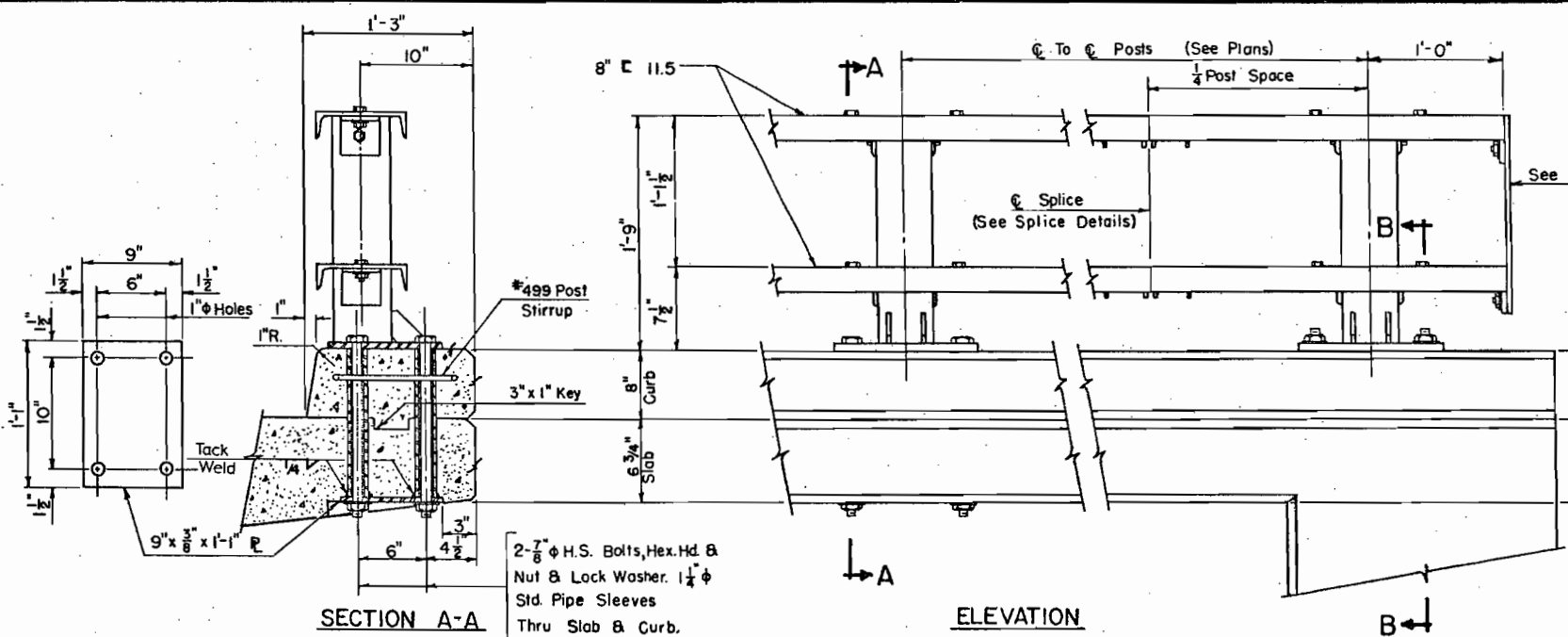
PIER NO. 2
 FIXED BEARING
 6 Req'd.

Number of Units Required 12
 DIVISION OF HIGHWAYS
 BEARING DETAILS

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F 085-2(3)	41	

REVISIONS	

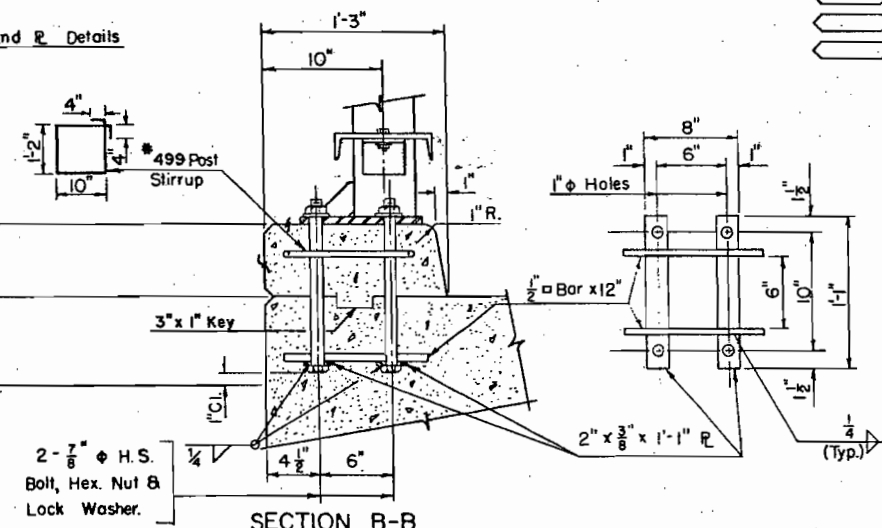
AS CONSTRUCTED
NO REVISIONS DATE: AUG 27 1970



SECTION A-A

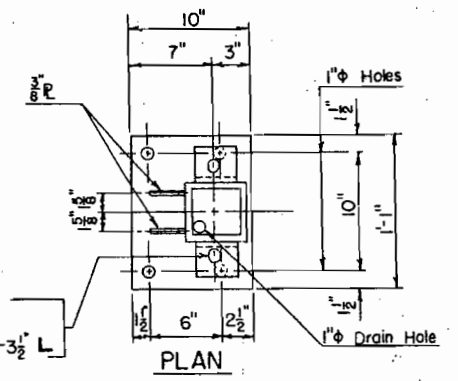
ELEVATION

THRU SLAB MOUNTED POST
No. Req'd. 57

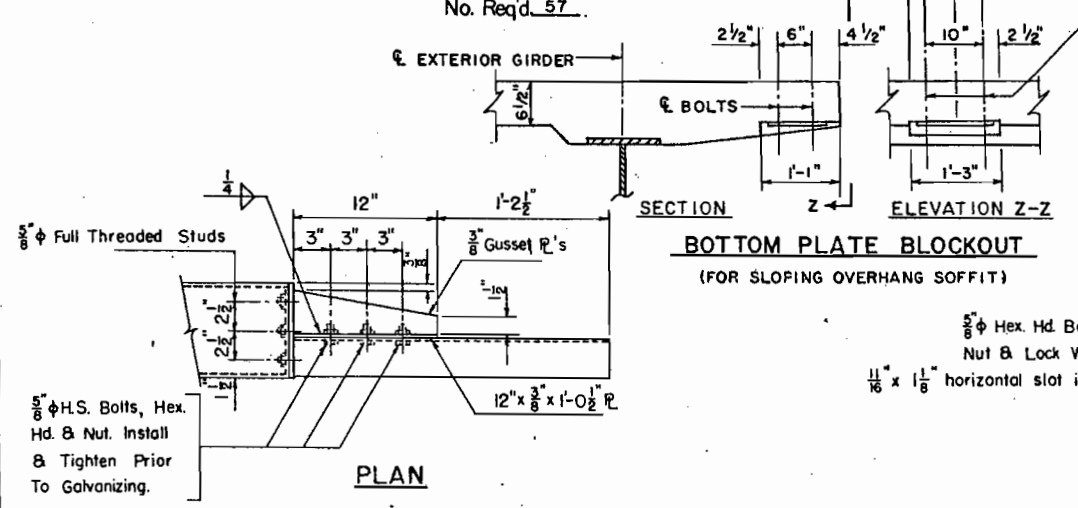


SECTION B-B

END ANCHORED POST
No. Req'd. 0



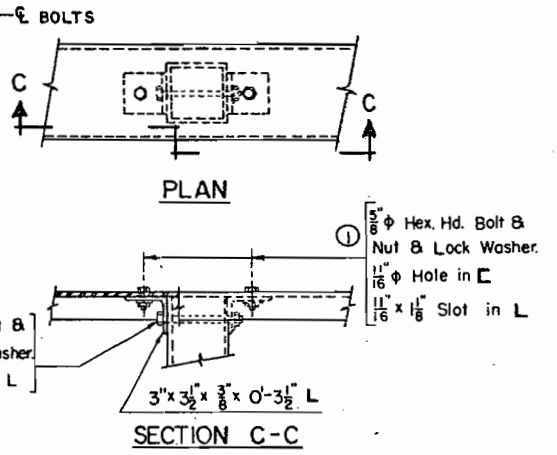
PLAN



SECTION C-C

PLAN

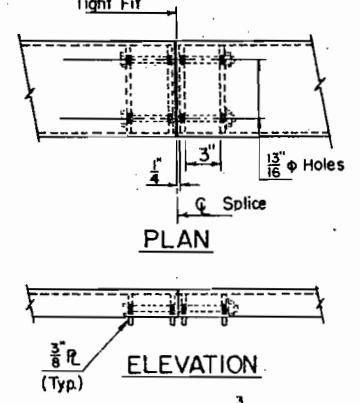
BOTTOM PLATE BLOCKOUT
(FOR SLOPING OVERHANG SOFFIT)



SECTION D-D

PLAN

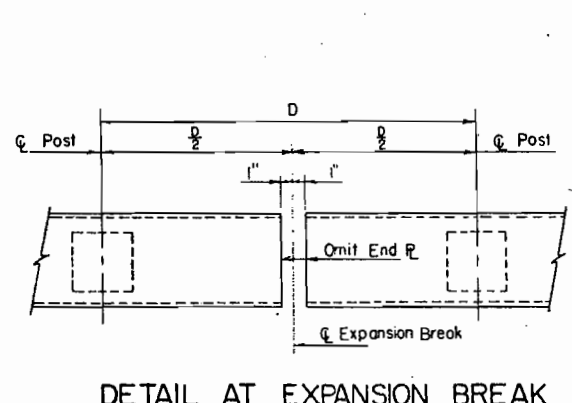
DETAIL AT TOP RAIL



SECTION E-E

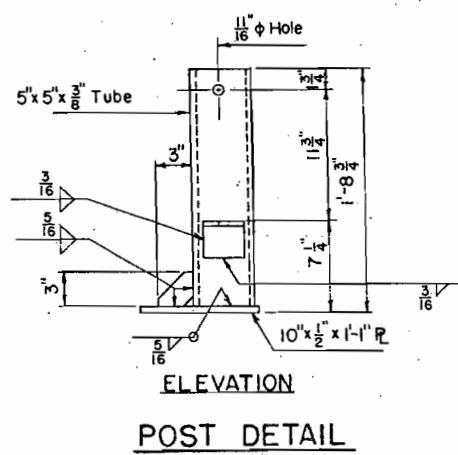
PLAN

SPLICE DETAIL



SECTION F-F

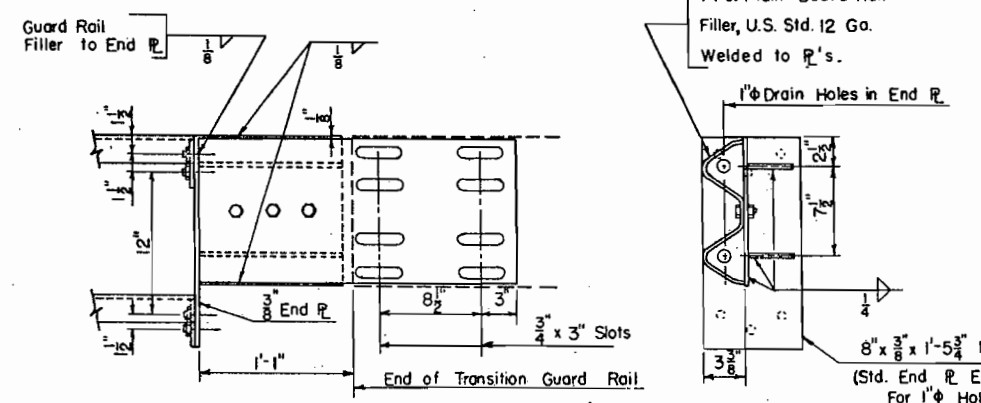
DETAIL AT EXPANSION BREAK



SECTION G-G

ELEVATION

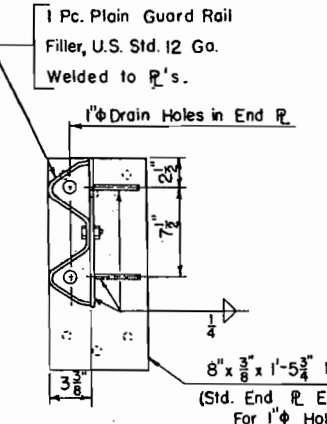
POST DETAIL



SECTION H-H

ELEVATION

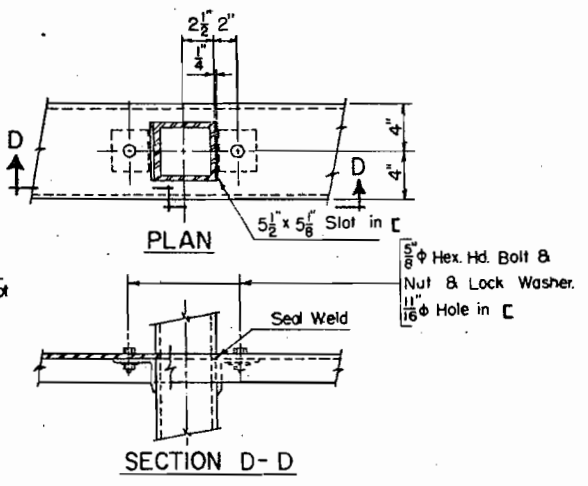
DETAIL OF END CONNECTION FOR FASTENING BRIDGE RAIL TO TRANSITION GUARD RAIL



SECTION I-I

END VIEW

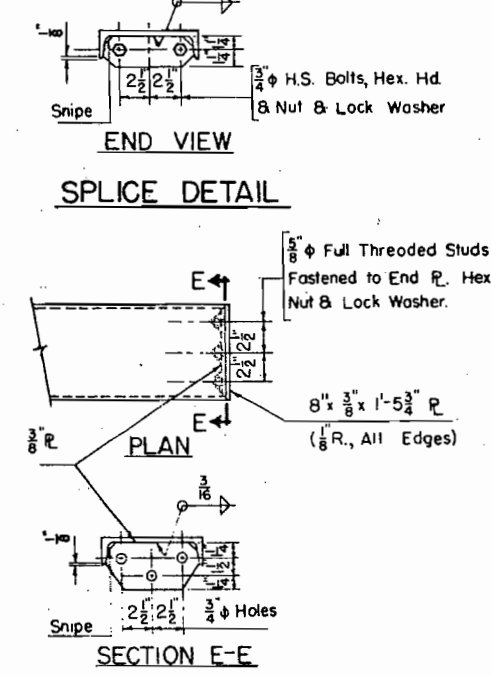
DETAIL OF END CONNECTION FOR FASTENING BRIDGE RAIL TO TRANSITION GUARD RAIL



SECTION J-J

PLAN

DETAIL AT BOTTOM RAIL



SECTION K-K

END PLATE DETAIL

END PLATE DETAIL
No. Req'd. 4

NOTES:

Posts shall be perpendicular to grade and slope of the deck.

All rail elements, anchor assemblies, anchor bolts, nuts and washers shall be galvanized after fabrication in accordance with the specifications.

A.I.S.I. 1144 Steel Rods May Be Used In Lieu Of H.S. Bolts Shown. 10° Wedge Test Not Req. For Either Bolts Or Rods Used In Rail Assembly.

① 5/8" Standard Full Threaded Studs Welded To The Channel May Be Used. Increase Size Of Slot In The Angle To 1 3/16" x 1 1/4".

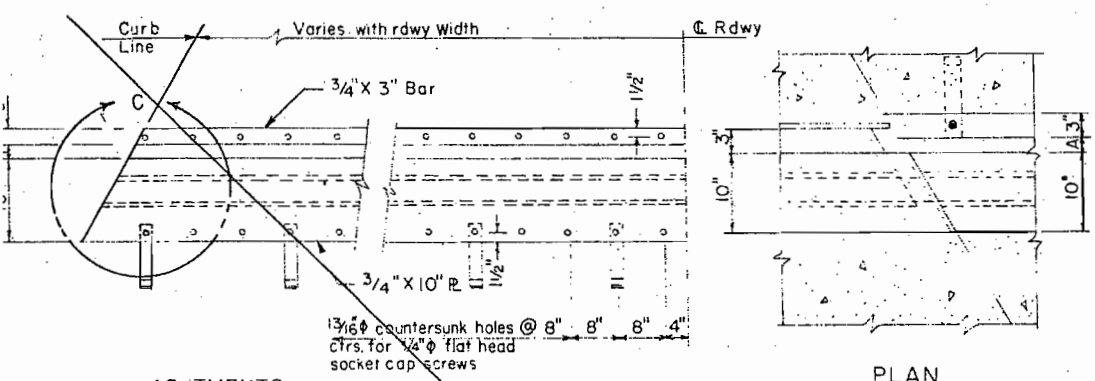
Channels Shall Be Continuous Over 3 Or 4 Posts Before Splicing.

When thru slab mounted posts are used, prior to setting the posts and tightening the nuts a perimeter bead of caulking grade, polyurethane joint sealer, shall be placed on the concrete 1" inside the edges of the post base plate.

DIVISION OF HIGHWAYS		
DETAILS OF GALVANIZED STEEL BRIDGE RAIL		
Approved:	Designer: B.A.R.	Detailer: R.J.D.
Bridge Engineer:	Structure Numbers:	F-16-IL
Date: 1970	DWG. No. B	OF

Complete Unit Shall Be Galvanized After Fabrication
Detail Shown is For Right Hand Rail. No. Req'd. 0
Opposite Hand For Left Hand Rail. No. Req'd. 0

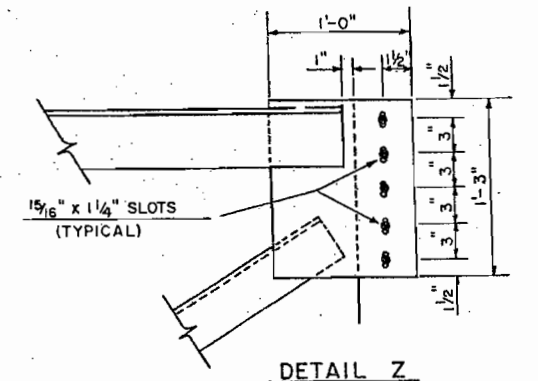
FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	42	



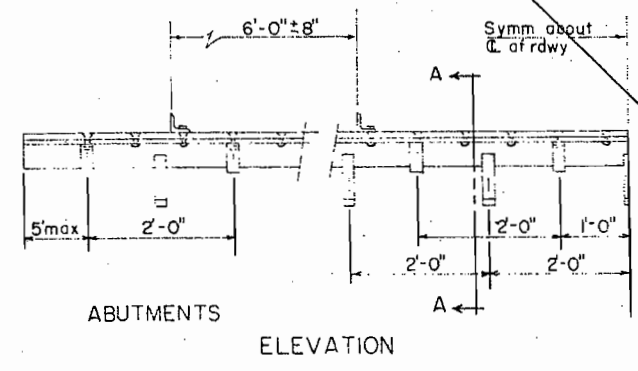
PLAN Curb Expansion Device

*Note Granular flux filled concrete anchors 3/4" automatically end welded, spaced similar to 2 1/4" x 5/16" anchors, may be used as an alternate.

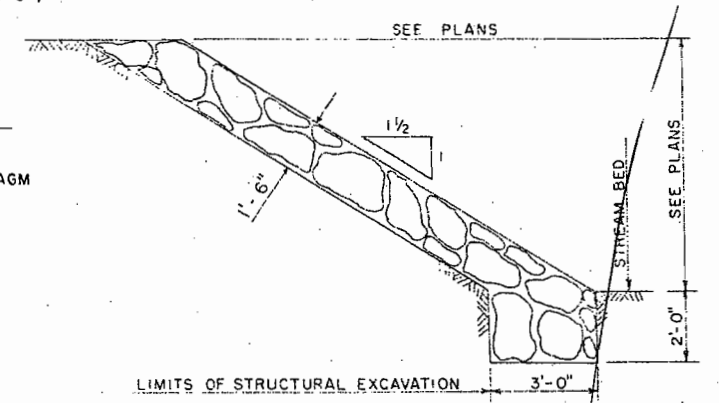
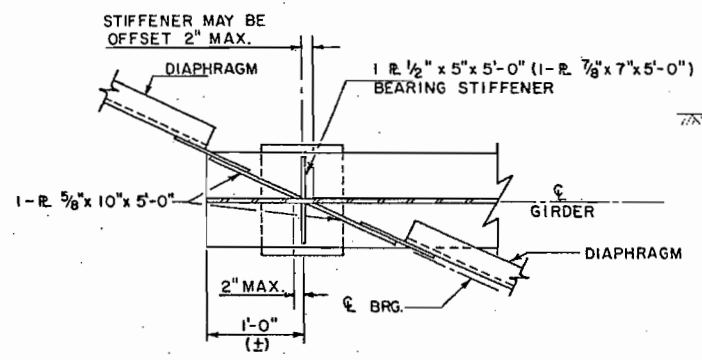
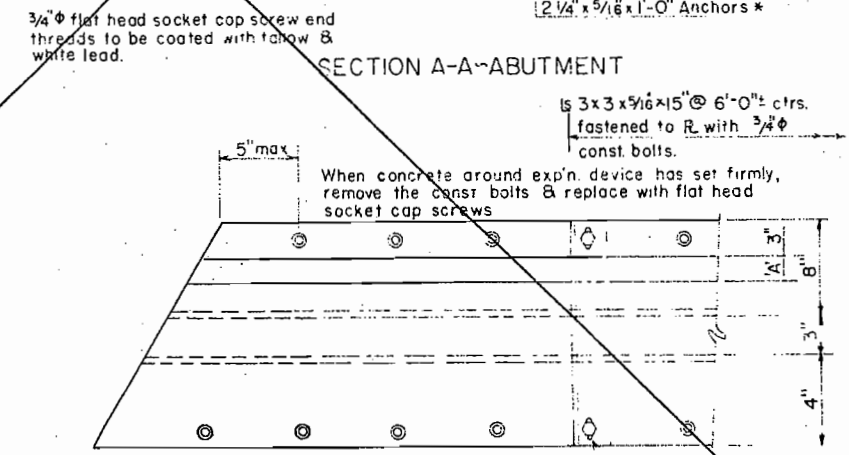
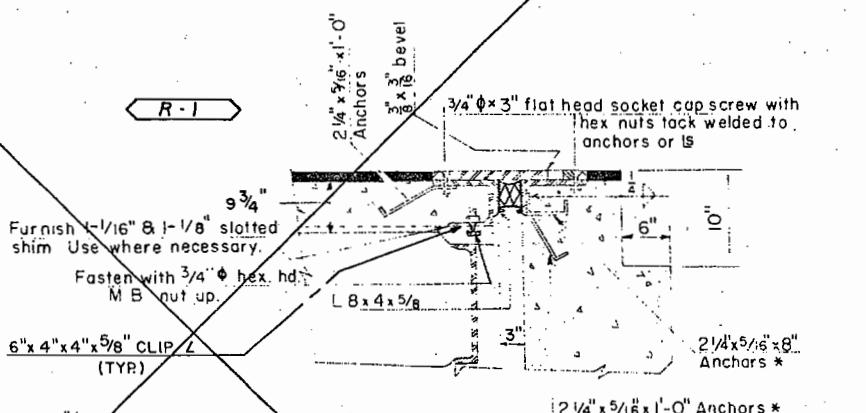
AS CONSTRUCTED
REVISED DATE 10-27-73



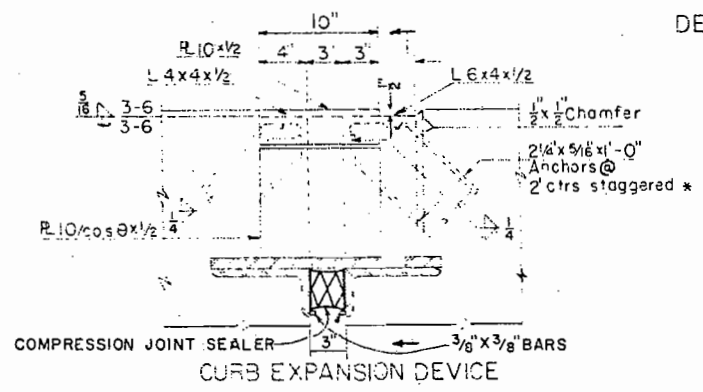
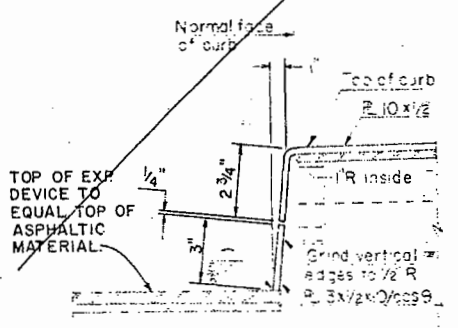
NOTE: TYPICAL OF ALL INTERM. DIAPHRAGM PLATES TOWARDS CENTER OF BRIDGE.



NOTES:
FORM THE CURB FACES TO THE PROPER DIMENSION TO RECEIVE JOINT SEALER.
DO NOT PAINT STEEL SURFACES IN CONTACT WITH CONCRETE AND COMPRESSION JOINT SEALER.



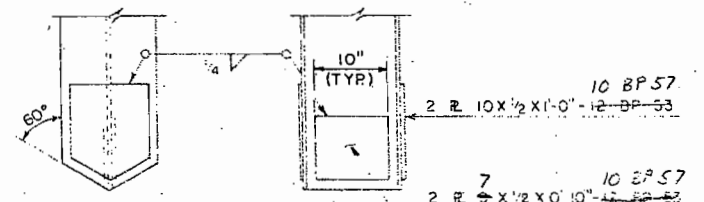
NOTES: TRANSITION ENDS OF RIPRAP MAY BE MODIFIED BY THE ENGINEER TO FIT CONDITIONS ENCOUNTERED IN THE FIELD.



DETAIL 'C'

NOTE: AFTER CONCRETE HAS ATTAINED INITIAL SET, LOOSEN CONST. BOLTS TO ALLOW MOVEMENT DUE TO TEMP. CHANGE.

OUTSIDE TEMP.	DIMENSION 'A'
40° F.	2 5/16"
60° F.	2 1/8"
80° F.	1 15/16"
100° F.	1 3/4"



DIVISION OF HIGHWAYS

MISCELLANEOUS DETAILS

Across SOUTH PLATTE RIVER

Sta 259+92.467

Near DENVER Sec 15 T 43 R 66W

Designed by B.A.R. Approved by

Made by R.J.C. Bridge Engineer

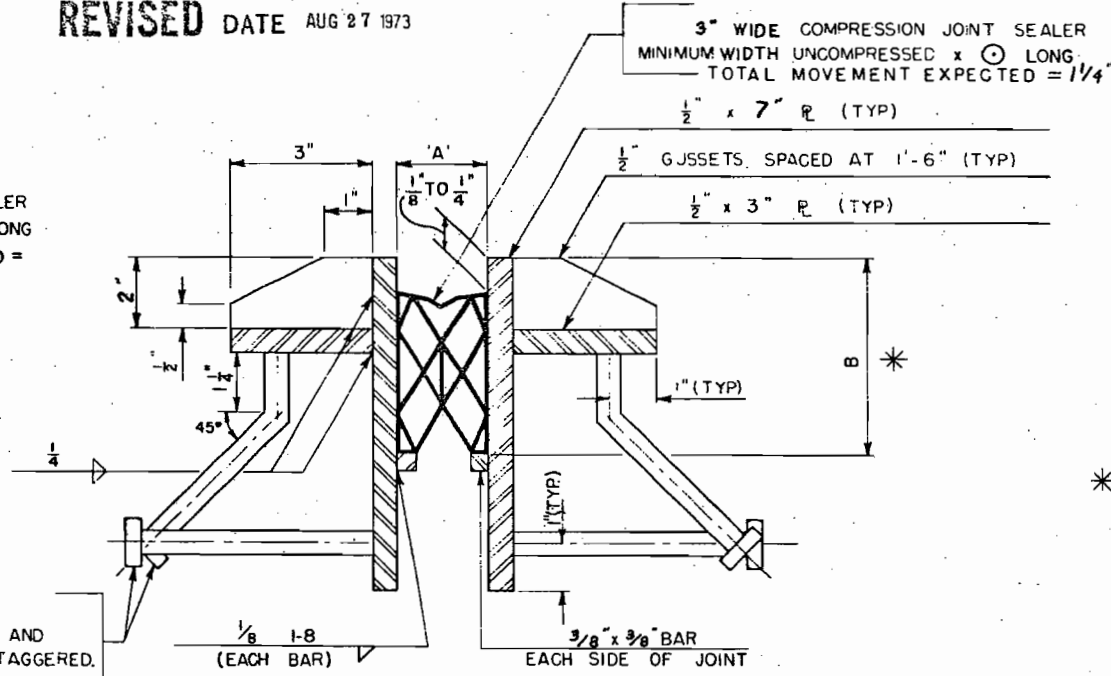
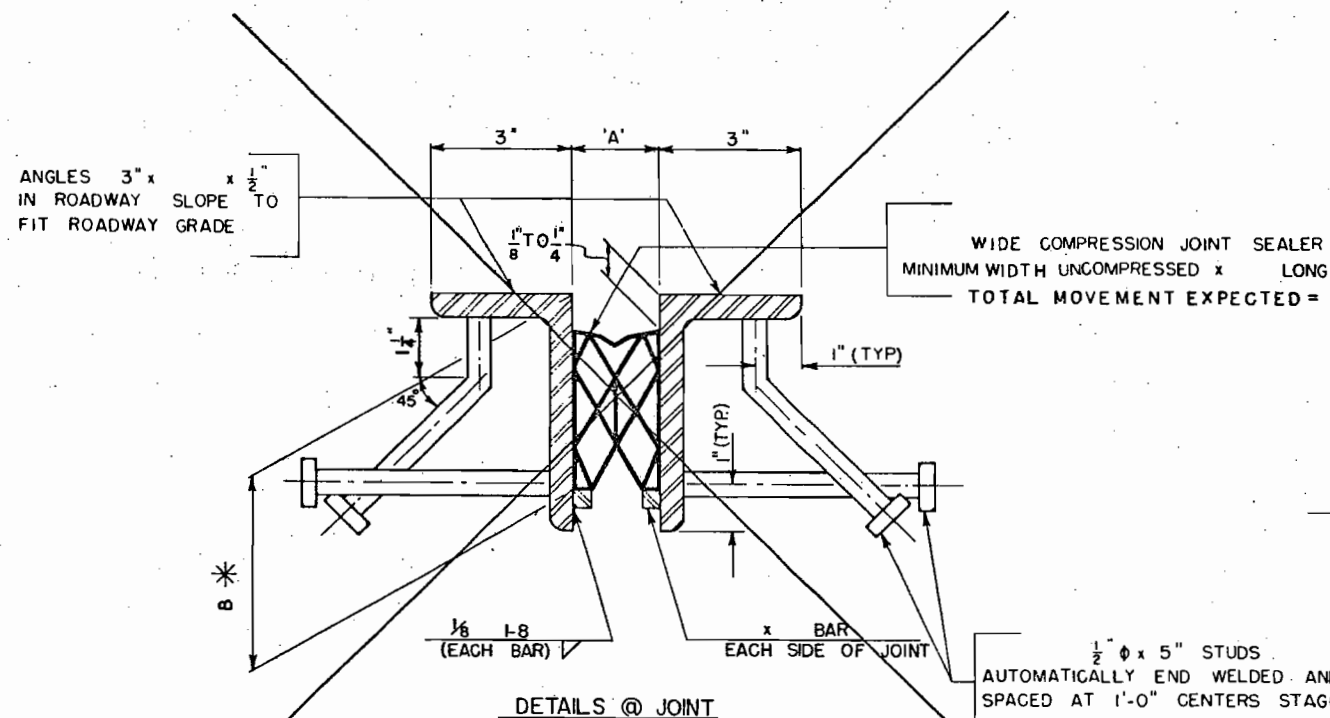
Checked by B.M. Date 1970

AS CONSTRUCTED
REVISED DATE AUG 27 1973

Abut. 1 - 81'-4" 75.5'
Abut. 3 - 54'-2" 49.8'

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F085-2(3)	42 A	-

REVISIONS			
R-1	10-20-71	New Sheet	K.G.S.



NOTES

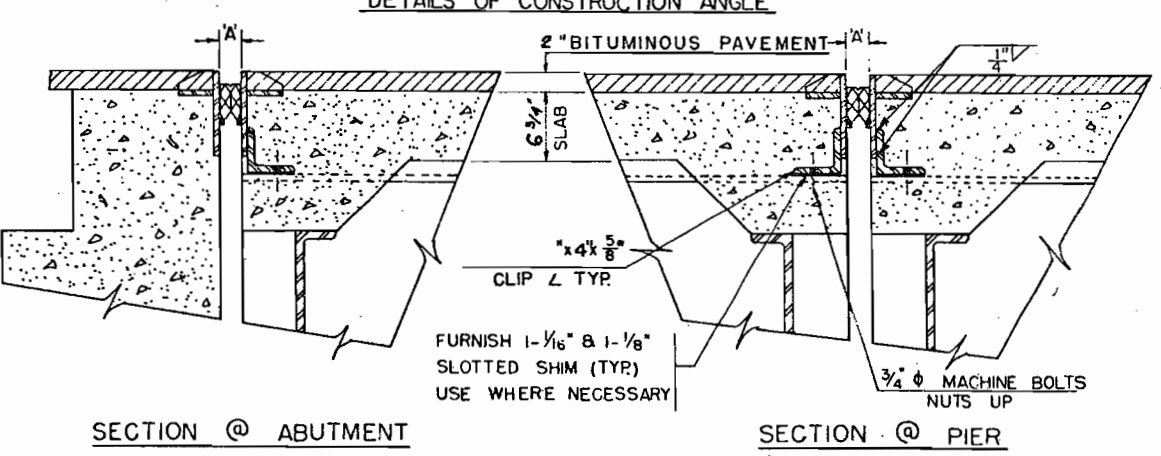
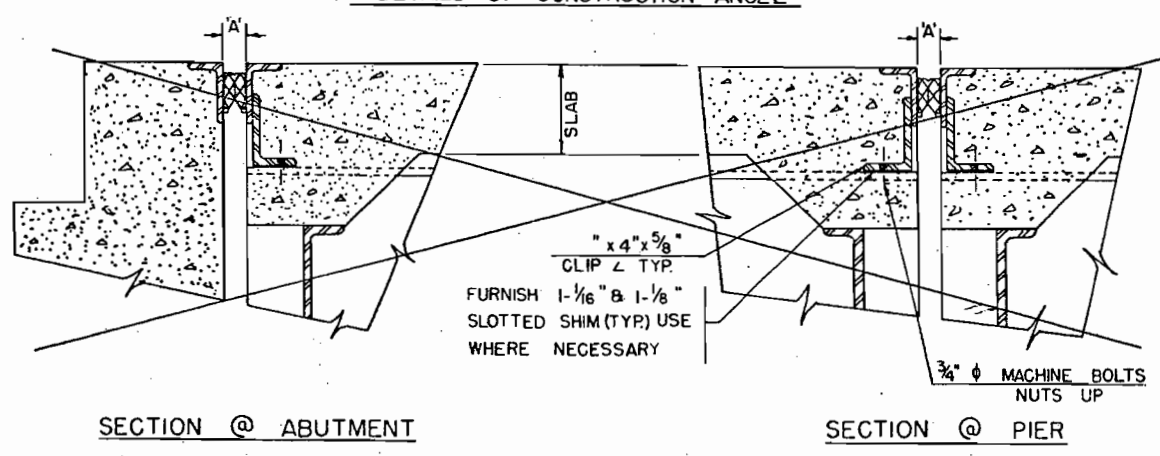
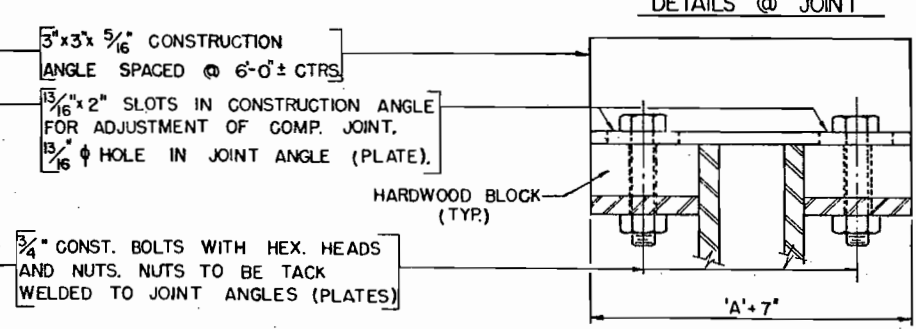
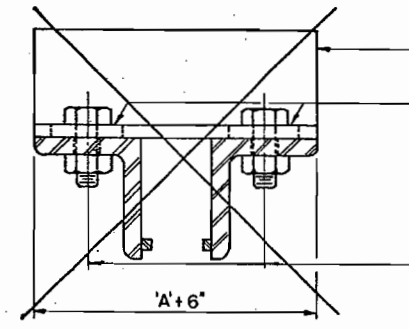
FORM THE CURB FACES TO THE 'A' DIMENSION TO RECEIVE JOINT SEALER.

AFTER THE CONCRETE HAS ATTAINED INITIAL SET, THE CONSTRUCTION BOLTS, ANGLES, AND BLOCKS SHALL BE REMOVED.

DO NOT PAINT STEEL SURFACES IN CONTACT WITH CONCRETE AND COMPRESSION JOINT SEALER.

* B DIMENSIONS ARE DEPENDENT UPON COMPRESSION JOINT SEALER SUPPLIED.

PLATES OR ANGLES EXTEND GUTTER TO GUTTER ONLY.



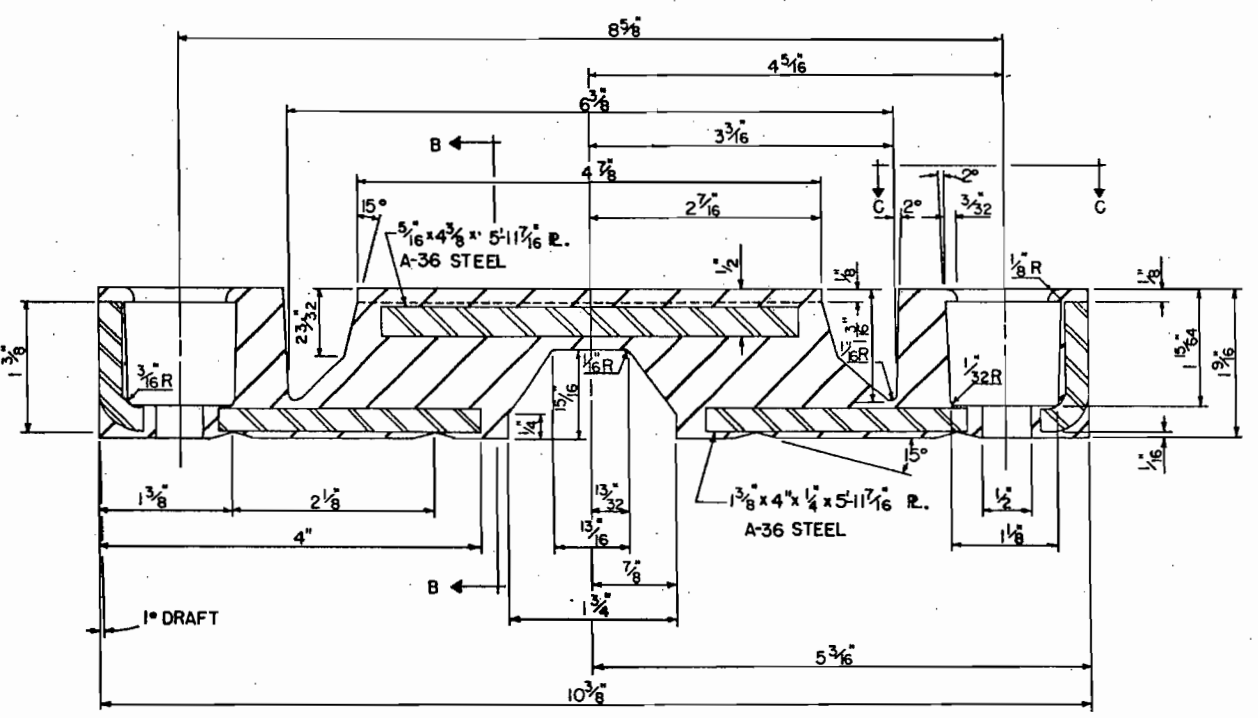
OUTSIDE TEMP	DIM 'A' MIN.	DIM 'A' MIN.	DIM 'A' MIN.
30°	2 1/4"		
40°	2 1/8"		
50°	2"		
60°	1 7/8"		
70°	1 3/4"		
80°	1 5/8"		
90°	1 1/2"		
100°	1 3/8"		

DIVISION OF HIGHWAYS

BRIDGE EXPANSION DEVICE
FABRICATED (TYPE 2)

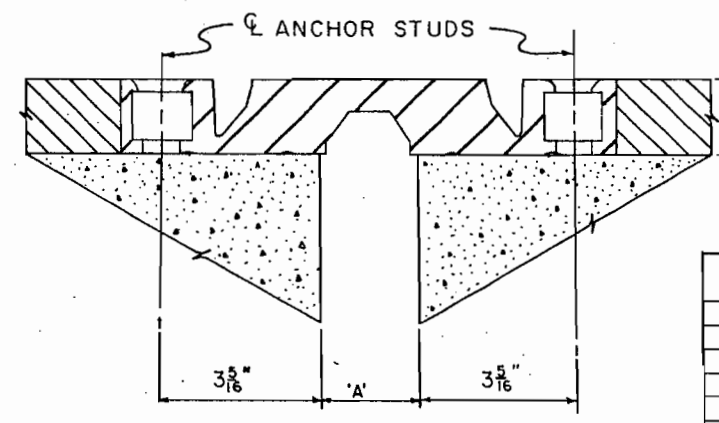
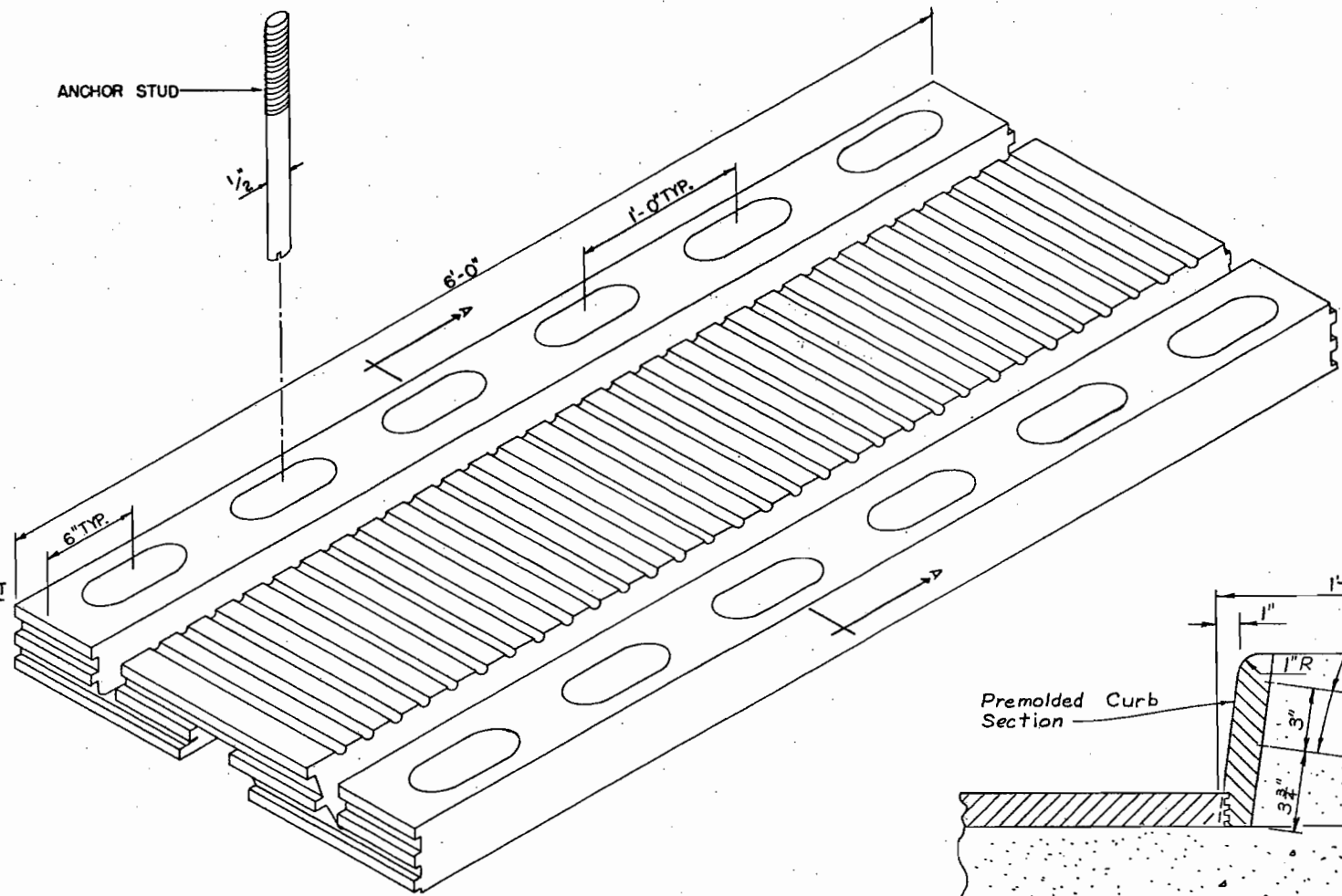
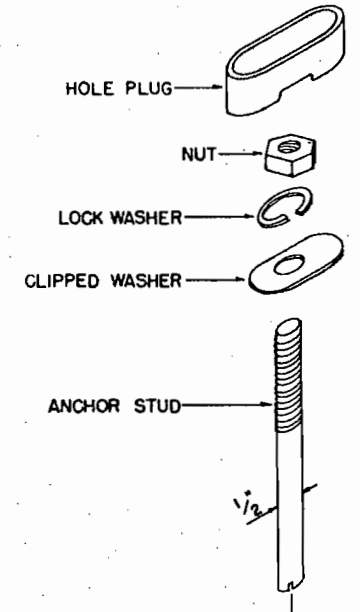
Approved: _____ Designer: B. A. R. Detainer: K. Sharpley
Structure Numbers: F-16-IL
Date: _____ DWG. No. B OF _____

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F085-2(3)	42 B	
REVISIONS				
R-1	10-20-71	New Sheet		K.G.S.



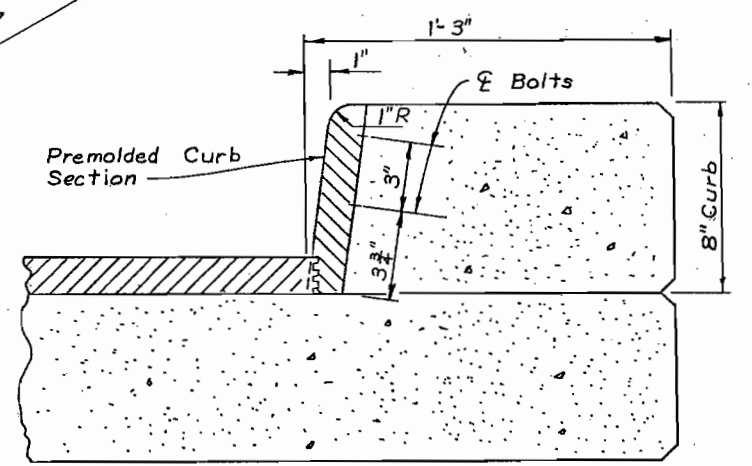
All dimensions are as moulded dimensions

SECTION A-A

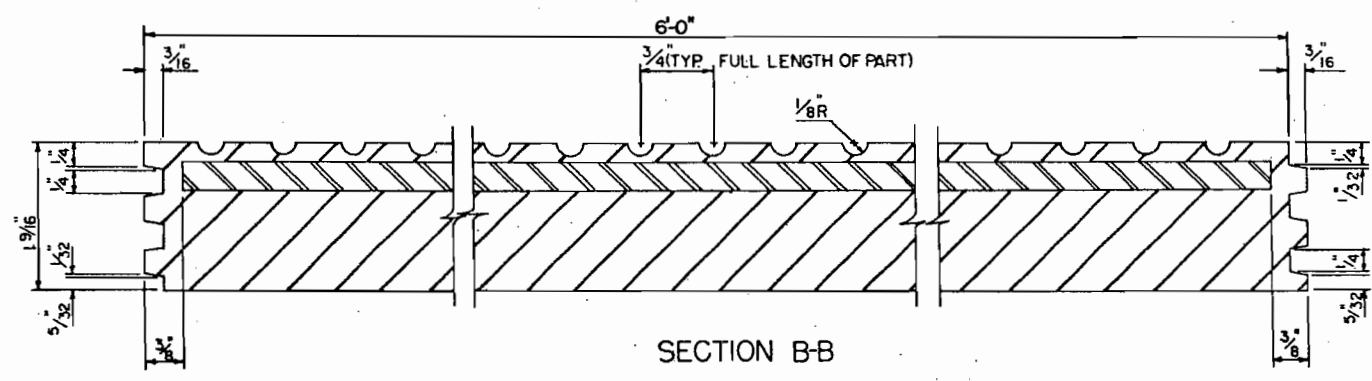


SECTION @ PIER OR ABUTMENT

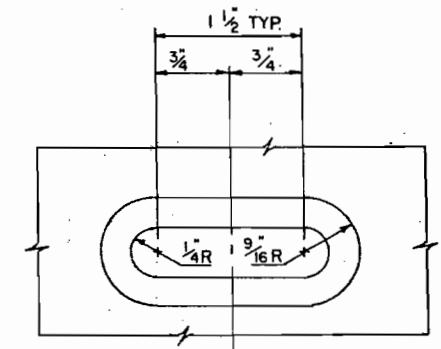
OUTSIDE TEMP.	DIM 'A' (MIN.)
30°	2 1/4"
40°	2 1/8"
50°	2"
60°	1 7/8"
70°	1 3/4"
80°	1 1/2"
90°	1 3/8"
100°	1 1/4"



TYPICAL SECTION @ CURB



SECTION B-B



SECTION C-C

DIVISION OF HIGHWAYS
BRIDGE EXPANSION DEVICE
PREMOLDED (TYPE 2)

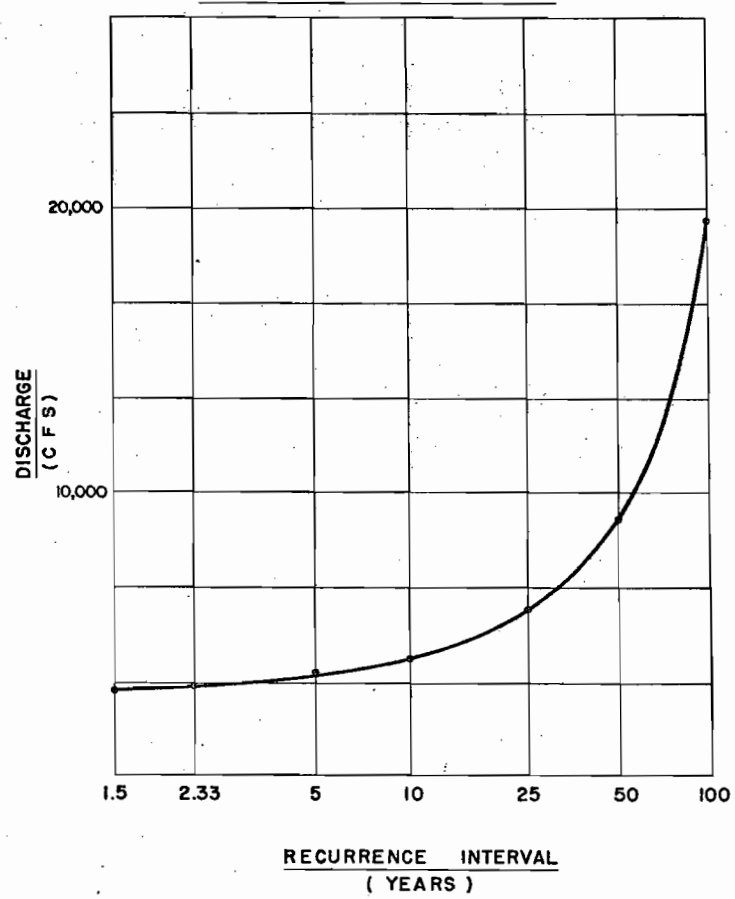
Approved:	Designer: B. A. R.	Detailer: K. Shorpley
Bridge Engineer:	Structure Numbers: F-16-IL	
Date:	DWG. No. B	OF

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F 085-2(3)	43	

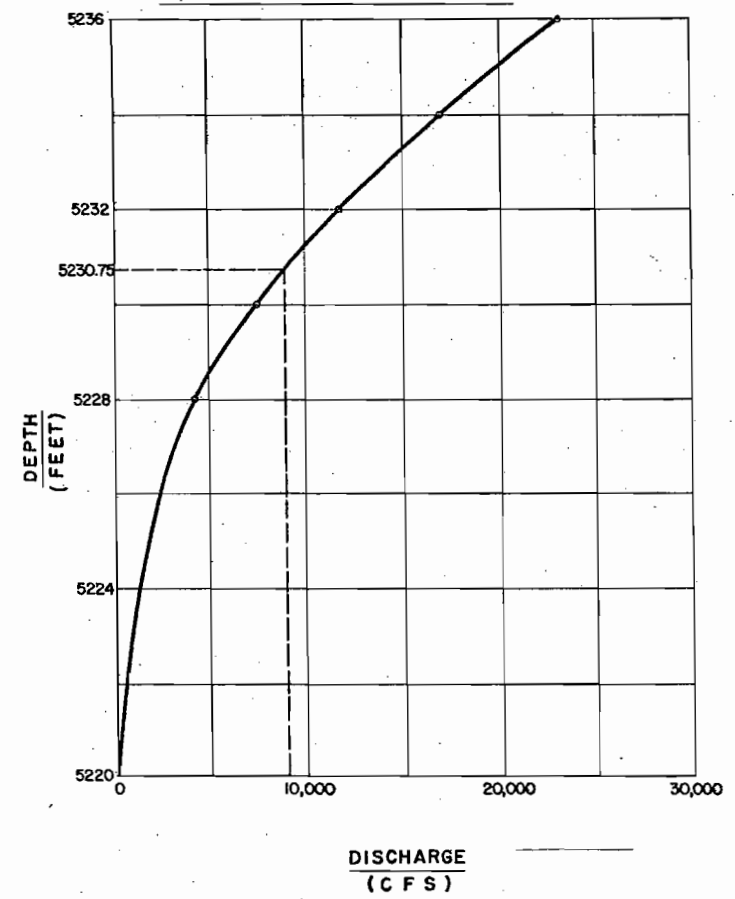
REVISIONS	

BRIDGE HYDRAULIC INFORMATION

FLOOD FREQUENCY CURVE



STAGE - DISCHARGE CURVE



AS CONSTRUCTED
NO REVISIONS DATE AUG 27 1973

SUMMARIZED STREAM DATA

NATURAL (BEFORE NEW CONSTRUCTION)

1. Drainage Area (or Water Right) PLATTE RIVER BASIN
2. Average Slope of Streambed 0.002850 Ft./Ft.
3. Description of Channel EARTH BANKS OF MEDIUM ROUGHNESS
4. Stability of Channel: Stable Aggrading Degrading
5. Drift: Insignificant Brush & Debris
Large Trees & Logs Other _____
6. Ice: Yes No Unknown
7. Streambed Elevation 5222.0
8. Design Flow Elevation 5230.75
9. Maximum Velocity at Design Flow 13.50 F P S
10. Remarks _____

6. Probable Design Velocity Through Structure 13.50 F P S
7. Remarks: DESIGN BASED ON THE ASSUMPTION THE CHATFIELD DAM WILL BE CONSTRUCTED

DESIGN (AFTER NEW CONSTRUCTION)

1. Design Frequency 50 Year
2. Design Discharge (or Water Right) 9000 C F S
3. Source of Design Discharge DEPARTMENT OF THE ARMY, OMAHA DISTRICT, CORPS OF ENGINEERS, COLORADO DIVISION OF HIGHWAYS
4. Water Surface Elevation at Upstream Edge of Structure 5230.75
5. Maximum Backwater Increase Due To Structure 0.362 Ft.

DIVISION OF HIGHWAYS			
BRIDGE HYDRAULIC INFORMATION SOUTH PLATTE RIVER & W. LOUISIANA			
Approved:	Designer: <u>BAR</u>	Detailer: <u>BAR</u>	
Bridge Engineer	Structure Numbers	<u>F - 16 - 1L</u>	
Date: <u>1970</u>	DWG. No. <u>B</u>	OF _____	

AS CONSTRUCTED
REVISED DATE Aug. 27, 1973

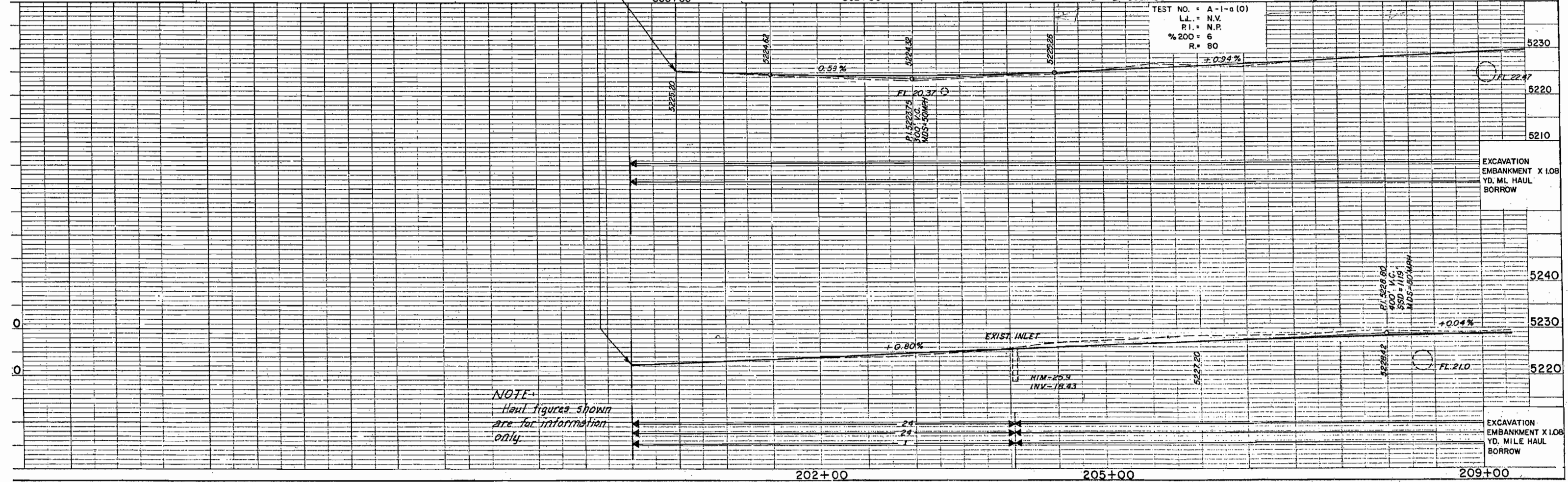
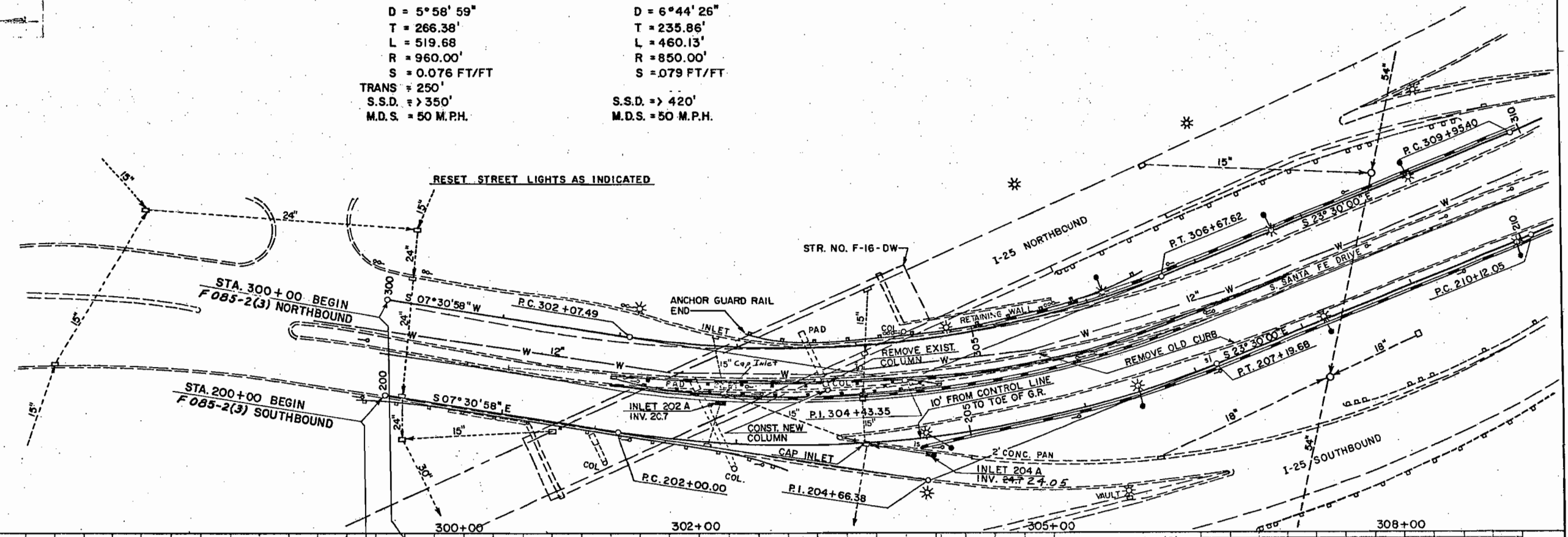
FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
0	COLO.	F 085-2(3)	44	75

CURVE DATA (S.B.)

$\Delta = 31^{\circ}00'58''$
 $D = 5^{\circ}58'59''$
 $T = 266.38'$
 $L = 519.68$
 $R = 960.00'$
 $S = 0.076 \text{ FT/FT}$
 $\text{TRANS} = 250'$
 $\text{S.S.D.} = > 350'$
 $\text{M.D.S.} = 50 \text{ M.P.H.}$

CURVE DATA (N.B.)

$\Delta = 31^{\circ}00'58''$
 $D = 6^{\circ}44'26''$
 $T = 235.86'$
 $L = 460.13'$
 $R = 850.00'$
 $S = 0.079 \text{ FT/FT}$
 $\text{S.S.D.} = > 420'$
 $\text{M.D.S.} = 50 \text{ M.P.H.}$



FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	SOLO.	F 085-2 (3)	45	75

CURVE DATA (N.B.)

$\Delta = 13^{\circ}50'00''$
 $D = 5^{\circ}30'00''$
 $T = 126.37'$
 $R = 1041.74'$
 $L = 251.52'$
 $S = .073 \text{ FT/FT}$
 $SSD = > 350'$
 $MDS = 50 \text{ MPH}$

CURVE DATA (N.B.)

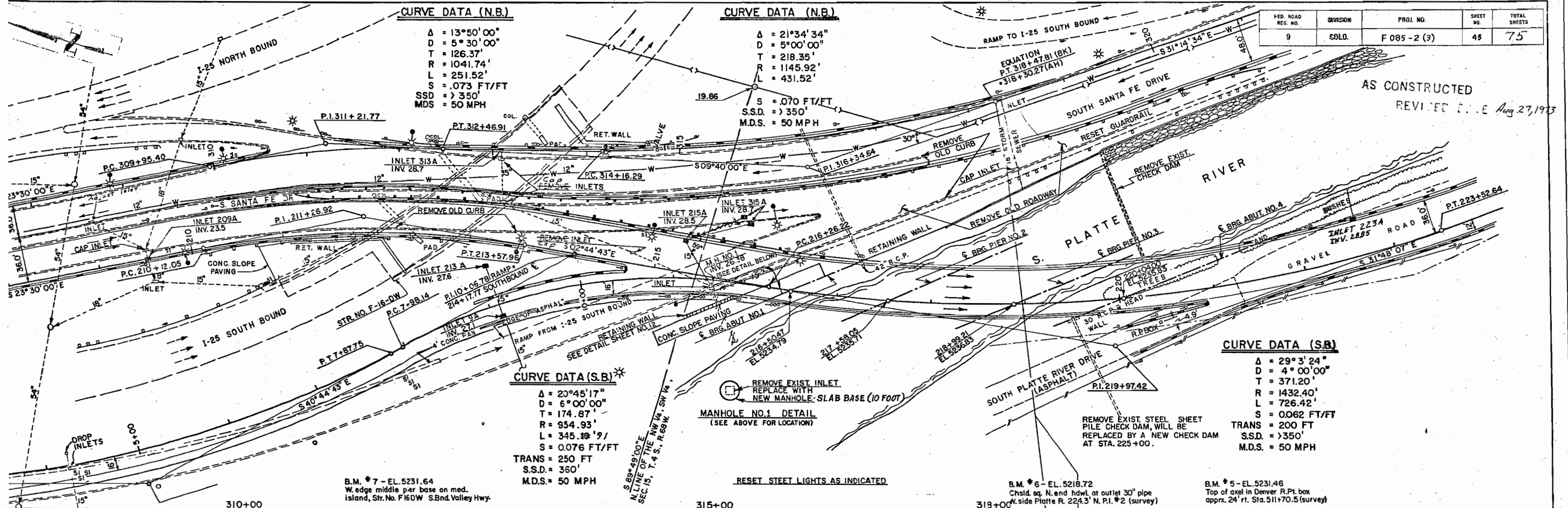
$\Delta = 21^{\circ}34'34''$
 $D = 5^{\circ}00'00''$
 $T = 218.35'$
 $R = 1145.92'$
 $L = 431.52'$
 $S = .070 \text{ FT/FT}$
 $SSD = > 350'$
 $MDS = 50 \text{ MPH}$

CURVE DATA (S.B.)

$\Delta = 29^{\circ}3'24''$
 $D = 4^{\circ}00'00''$
 $T = 371.20'$
 $R = 1432.40'$
 $L = 726.42'$
 $S = 0.062 \text{ FT/FT}$
 $TRANS = 250 \text{ FT}$
 $SSD = > 350'$
 $MDS = 50 \text{ MPH}$

CURVE DATA (S.B.)

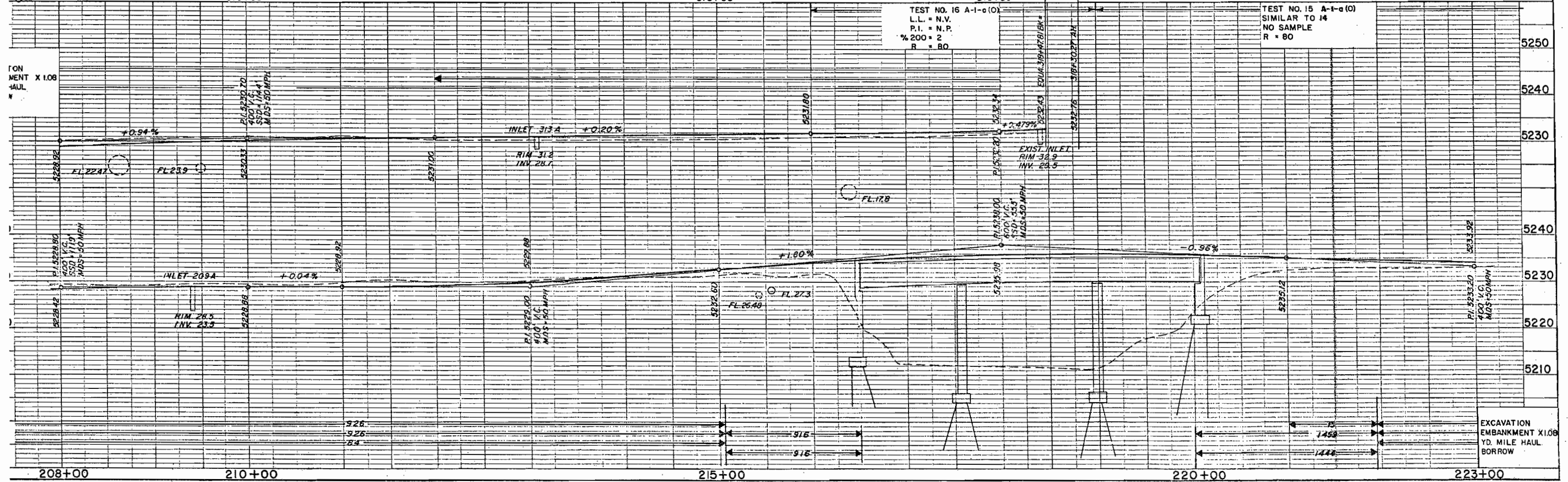
$\Delta = 20^{\circ}45'17''$
 $D = 6^{\circ}00'00''$
 $T = 174.87'$
 $R = 954.93'$
 $L = 345.89'$
 $S = 0.076 \text{ FT/FT}$
 $TRANS = 250 \text{ FT}$
 $SSD = 360'$
 $MDS = 50 \text{ MPH}$



B.M. *7 - EL. 5231.64
W. edge middle pier base on med. island, Str. No. F160W S.Bnd. Valley Hwy.

B.M. *6 - EL. 5218.72
Chsd. sq. N. end hdwl. at outlet 30" pipe N. side Platte R. 224.3' N. P.I. #2 (survey)

B.M. *5 - EL. 5231.46
Top of axel in Denver R.Pt. box approx. 24' rt. Sta. 511+70.5 (survey)



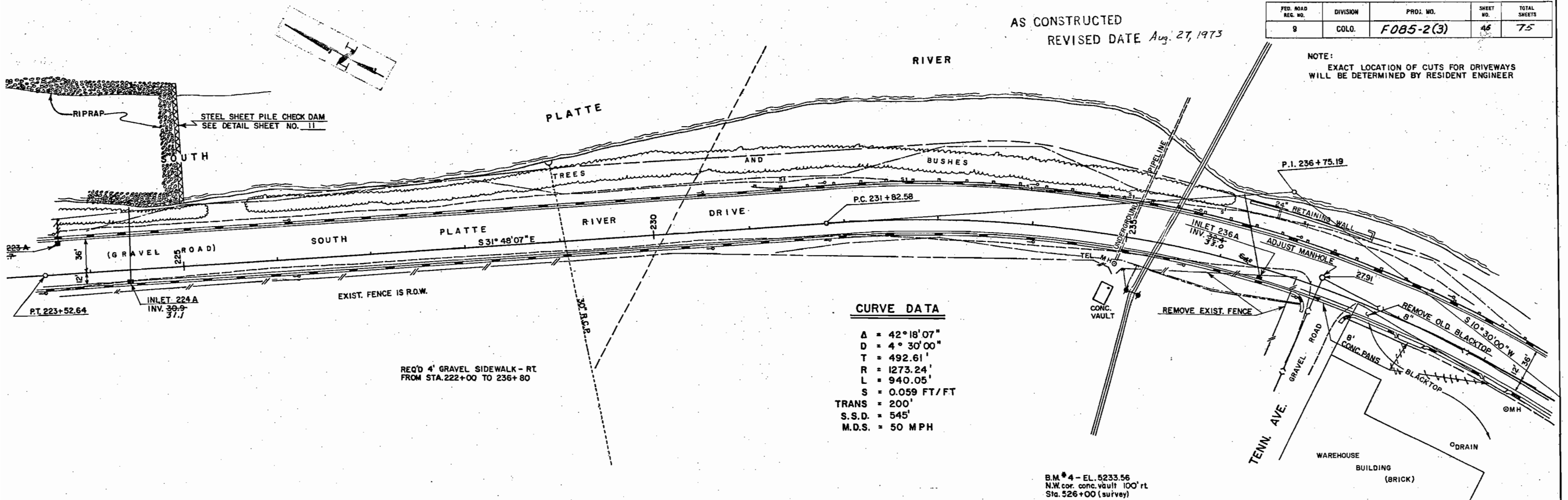
TEST NO. 16 A-1-a(0)
L.L. = N.V.
P.I. = N.P.
% 200 = 2
R = 80

TEST NO. 15 A-1-a(0)
SIMILAR TO 14
NO SAMPLE
R = 80

AS CONSTRUCTED
REVISED DATE Aug. 27, 1973

FED. ROAD DIST. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	46	75

NOTE:
EXACT LOCATION OF CUTS FOR DRIVEWAYS
WILL BE DETERMINED BY RESIDENT ENGINEER



CURVE DATA

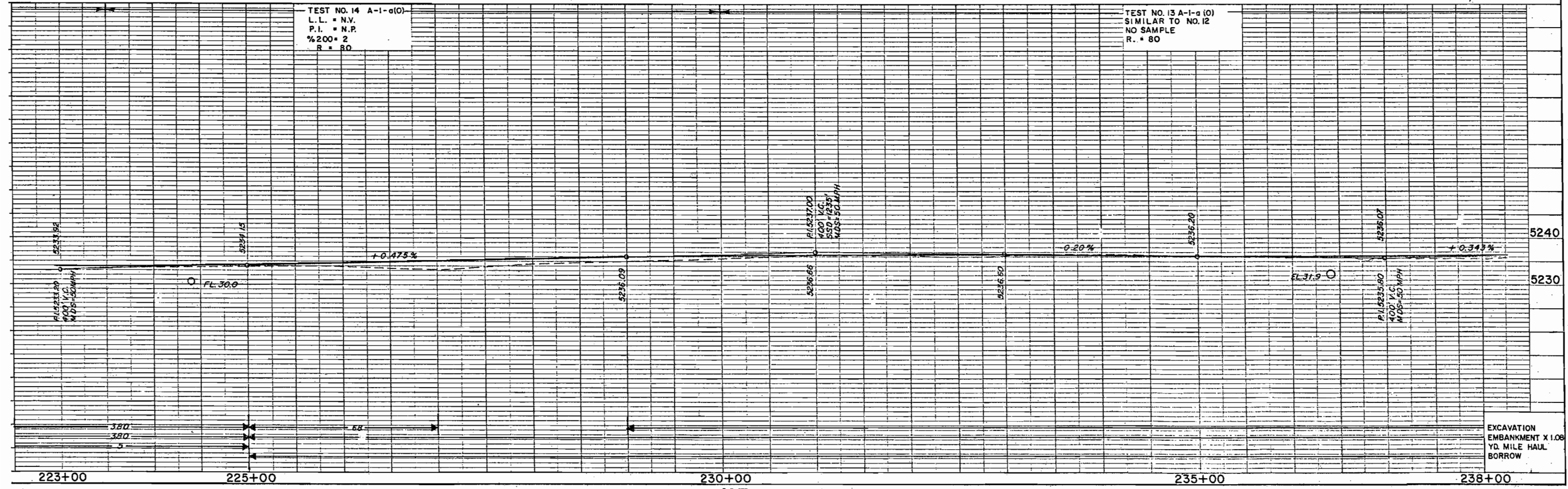
Δ	= 42° 18' 07"
D	= 4° 30' 00"
T	= 492.61'
R	= 1273.24'
L	= 940.05'
S	= 0.059 FT/FT
TRANS	= 200'
S.S.D.	= 545'
M.D.S.	= 50 MPH

REQ'D 4' GRAVEL SIDEWALK - RT
FROM STA. 222+00 TO 236+80

B.M. #4 - EL. 5233.56
N.W. cor. conc. vault 100' rt.
Sta. 526+00 (survey)

TEST NO. 14 A-1-a(0)
L.L. = N.V.
P.I. = N.P.
%200 = 2
R = 80

TEST NO. 13 A-1-a(0)
SIMILAR TO NO. 12
NO SAMPLE
R = 80



EXCAVATION
EMBANKMENT X 1.08
YD. MILE HAUL
BORROW

B.M. #2- EL. 5238.39
Point (•) on top of box sim. sewer outlet
E. side of Platte, R. of Ariz. & Santa Fe.

FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	47	75

AS CONSTRUCTED
REVISED DATE Aug. 27, 1973

NOTE:
EXACT LOCATION OF CURB CUTS
FOR DRIVEWAYS WILL BE DETERMINED
BY THE RESIDENT ENGINEER

CURVE DATA (N.B.)

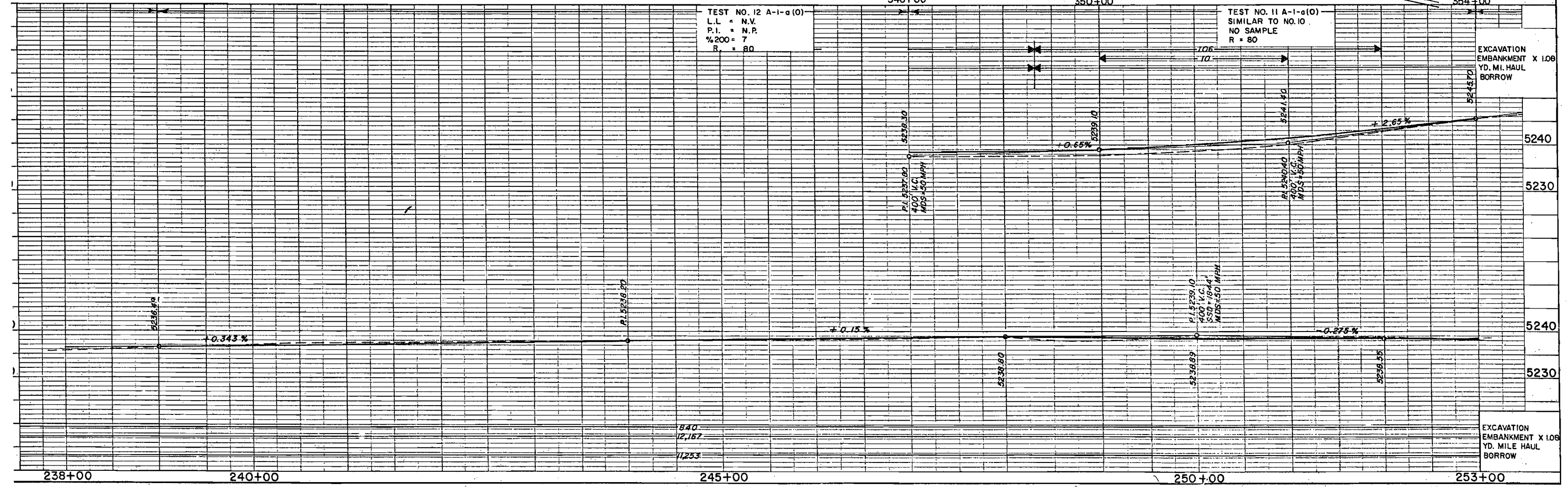
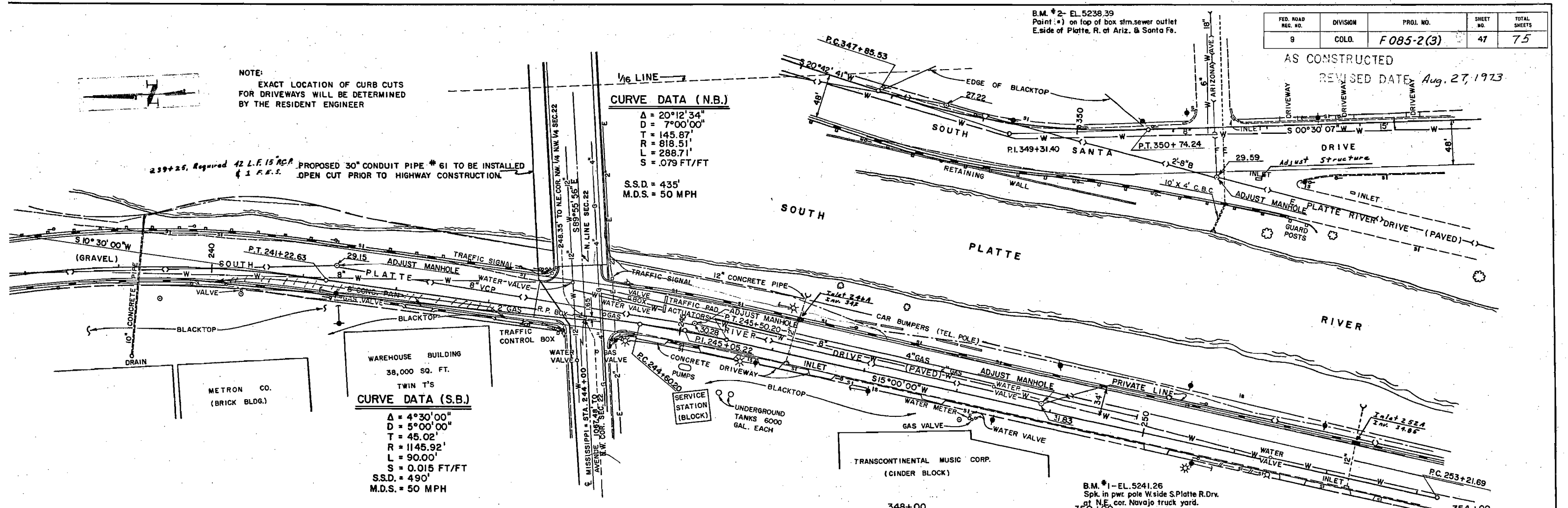
$\Delta = 20^{\circ}12'34''$
 $D = 7^{\circ}00'00''$
 $T = 145.87'$
 $R = 818.51'$
 $L = 288.71'$
 $S = .079 \text{ FT/FT}$

S.S.D. = 435'
M.D.S. = 50 MPH

CURVE DATA (S.B.)

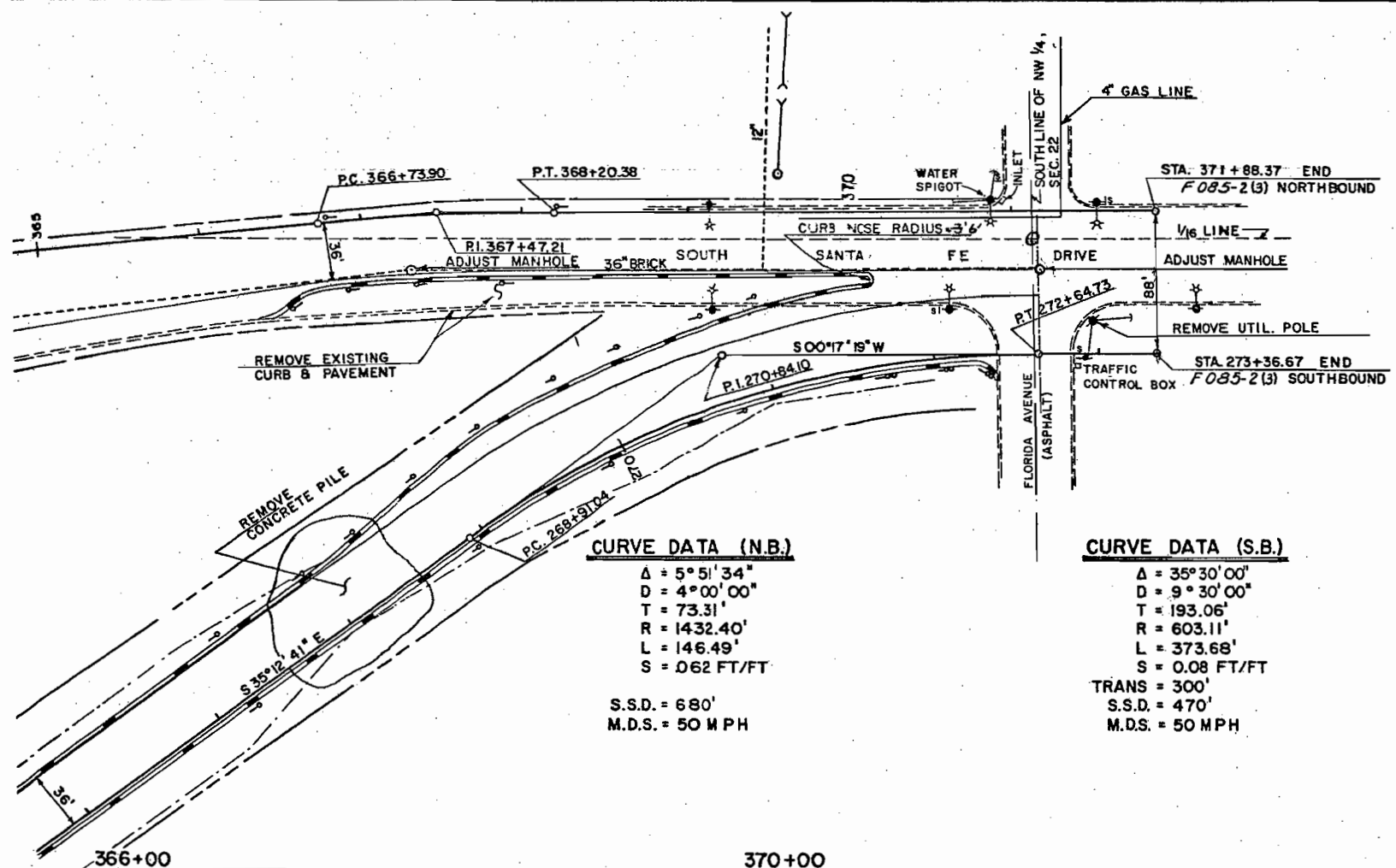
$\Delta = 4^{\circ}30'00''$
 $D = 5^{\circ}00'00''$
 $T = 45.02'$
 $R = 1145.92'$
 $L = 90.00'$
 $S = 0.015 \text{ FT/FT}$
S.S.D. = 490'
M.D.S. = 50 MPH

239+25, Required 42 L.F. 15 ACP. PROPOSED 30" CONDUIT PIPE # 61 TO BE INSTALLED
OPEN CUT PRIOR TO HIGHWAY CONSTRUCTION.



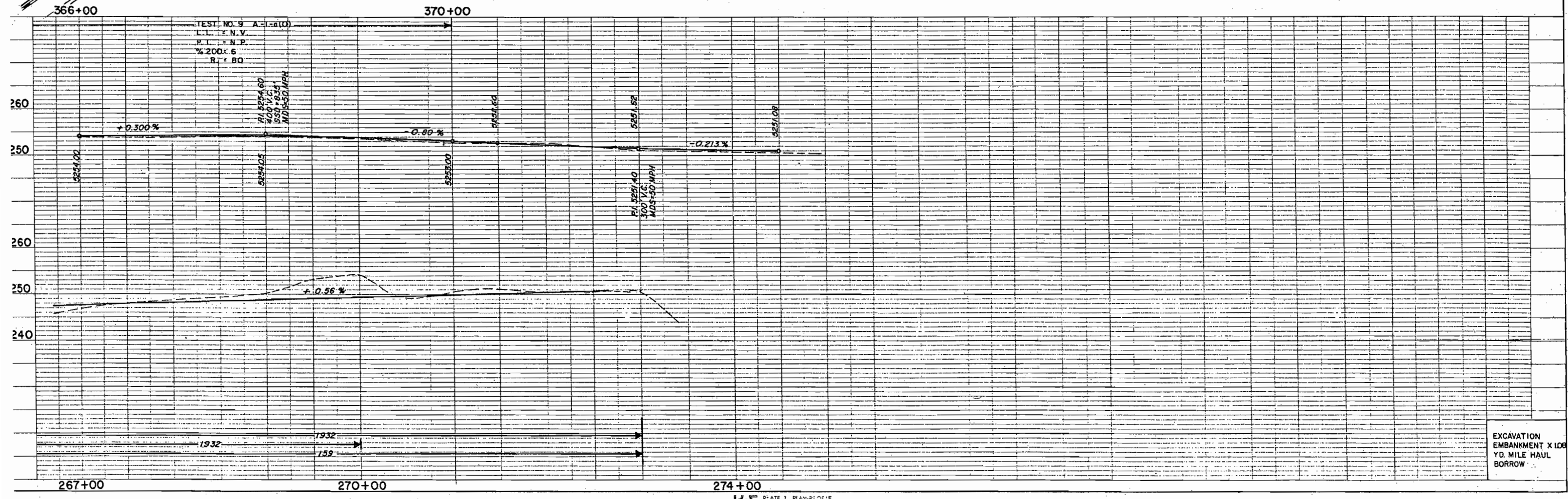
AS CONSTRUCTED
REVISED DATE Aug. 27, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F085-2(3)	49	75



CURVE DATA (N.B.)
 $\Delta = 5^{\circ} 51' 34''$
 $D = 4^{\circ} 00' 00''$
 $T = 73.31'$
 $R = 1432.40'$
 $L = 146.49'$
 $S = 0.62 \text{ FT/FT}$
 S.S.D. = 680'
 M.D.S. = 50 MPH

CURVE DATA (S.B.)
 $\Delta = 35^{\circ} 30' 00''$
 $D = 9^{\circ} 30' 00''$
 $T = 193.06'$
 $R = 603.11'$
 $L = 373.68'$
 $S = 0.08 \text{ FT/FT}$
 TRANS = 300'
 S.S.D. = 470'
 M.D.S. = 50 MPH



AS CONSTRUCTED

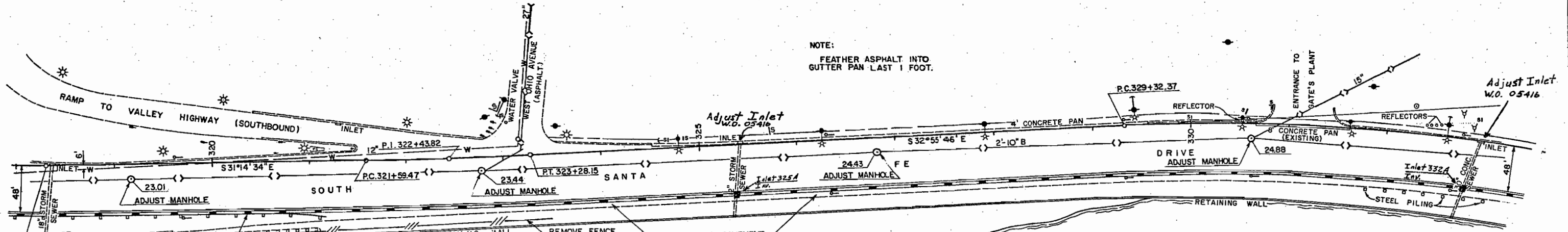
REVISED DATE Aug. 27, 1973

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLO.	F085-2(3)	50

1854 Lin. Ft. of Curb + Gutter Type 2 (Sec. II B)
from W. Ohio Ave. to W. Mississippi Ave.

W.O. 05416

"GATES RUBBER CO."



NOTE:
FEATHER ASPHALT INTO
GUTTER PAN LAST 1 FOOT.

CURVE DATA

$\Delta = 1^{\circ}41'12''$
 $D = 1^{\circ}00'00''$
 $T = 84.35'$
 $R = 5729.58'$
 $L = 168.68'$
 $S = 0.18 \text{ FT/FT}$
 $\text{TRANS} = 150 \text{ FT}$
 $\text{S.S.D.} = > 350'$
 $\text{M.D.S.} = 50 \text{ MPH}$

CURVE DATA

$\Delta = 35^{\circ}49'58''$
 $D = 3^{\circ}00'00''$
 $T = 617.48'$
 $R = 1909.86'$
 $L = 1194.42'$
 $S = 0.05 \text{ FT/FT}$
 $\text{TRANS} = 150 \text{ FT}$
 $\text{S.S.D.} = > 350'$
 $\text{M.D.S.} = 50 \text{ MPH}$

B.M. *8 - EL. 5233.67
 N.W. edge of light std. base *15
 Sta. 749+96.8 (survey)

B.M. *9 - EL. 5236.62
 Center of "W", S. edge fire hgt. (Irg ring)
 Santa Fe Dr., Sta. 739+09.3 (survey) ft.

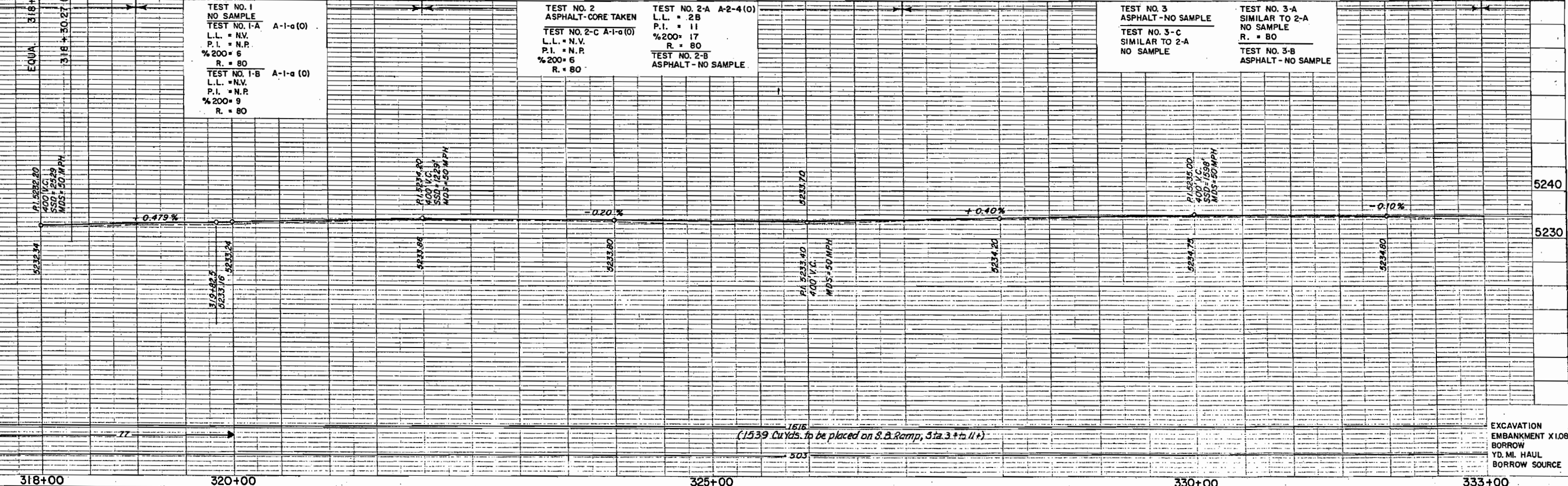
TEST NO. 1
 NO SAMPLE
 TEST NO. 1-A A-1-a(0)
 L.L. = N.V.
 P.I. = N.P.
 %200 = 6
 R. = 80
 TEST NO. 1-B A-1-a(0)
 L.L. = N.V.
 P.I. = N.P.
 %200 = 9
 R. = 80

TEST NO. 2
 ASPHALT-CORE TAKEN
 TEST NO. 2-C A-1-a(0)
 L.L. = N.V.
 P.I. = N.P.
 %200 = 6
 R. = 80

TEST NO. 2-A A-2-4(0)
 L.L. = 2B
 P.I. = 11
 %200 = 17
 R. = 80
 TEST NO. 2-B
 ASPHALT-NO SAMPLE

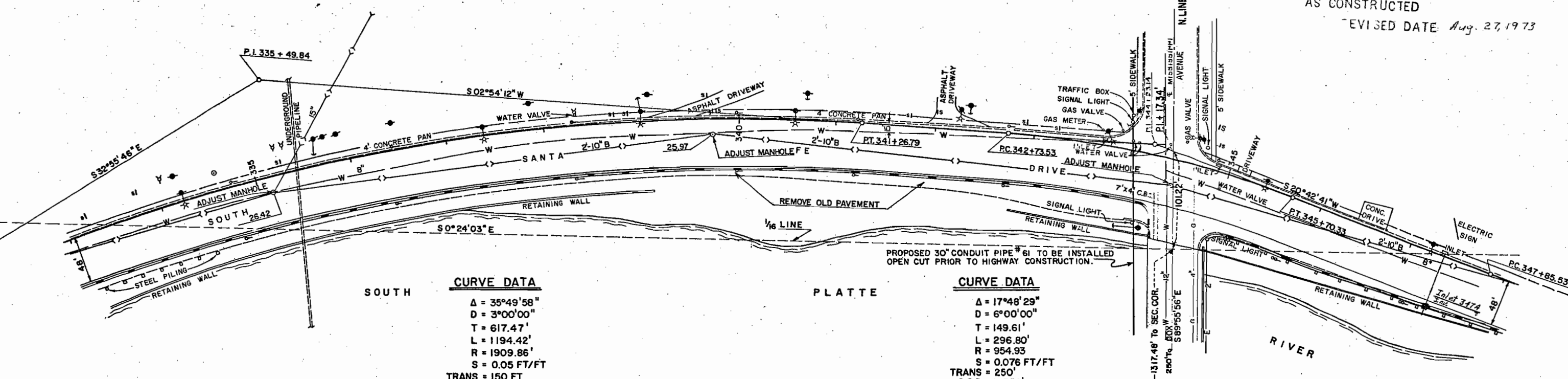
TEST NO. 3
 ASPHALT-NO SAMPLE
 TEST NO. 3-C
 SIMILAR TO 2-A
 NO SAMPLE

TEST NO. 3-A
 SIMILAR TO 2-A
 NO SAMPLE
 R. = 80
 TEST NO. 3-B
 ASPHALT-NO SAMPLE



(1539 Cu Yds. to be placed on S.B. Ramp, Sta. 3+ to 11+)

AS CONSTRUCTED
REVISED DATE Aug. 27, 1973



SOUTH

CURVE DATA

Δ = 35°49'58"
D = 3°00'00"
T = 617.47'
L = 1194.42'
R = 1909.86'
S = 0.05 FT/FT
TRANS = 150 FT
S.S.D. = > 350'
M.D.S. = 50 MPH

PLATTE

CURVE DATA

Δ = 17°48'29"
D = 6°00'00"
T = 149.61'
L = 296.80'
R = 954.93'
S = 0.076 FT/FT
TRANS = 250'
S.S.D. = > 350'
M.D.S. = 50 MPH

FOR PLAN & PROFILE OF STA. 348+00 TO 354+00
(NORTHBOUND) SEE SHEET NO. 47

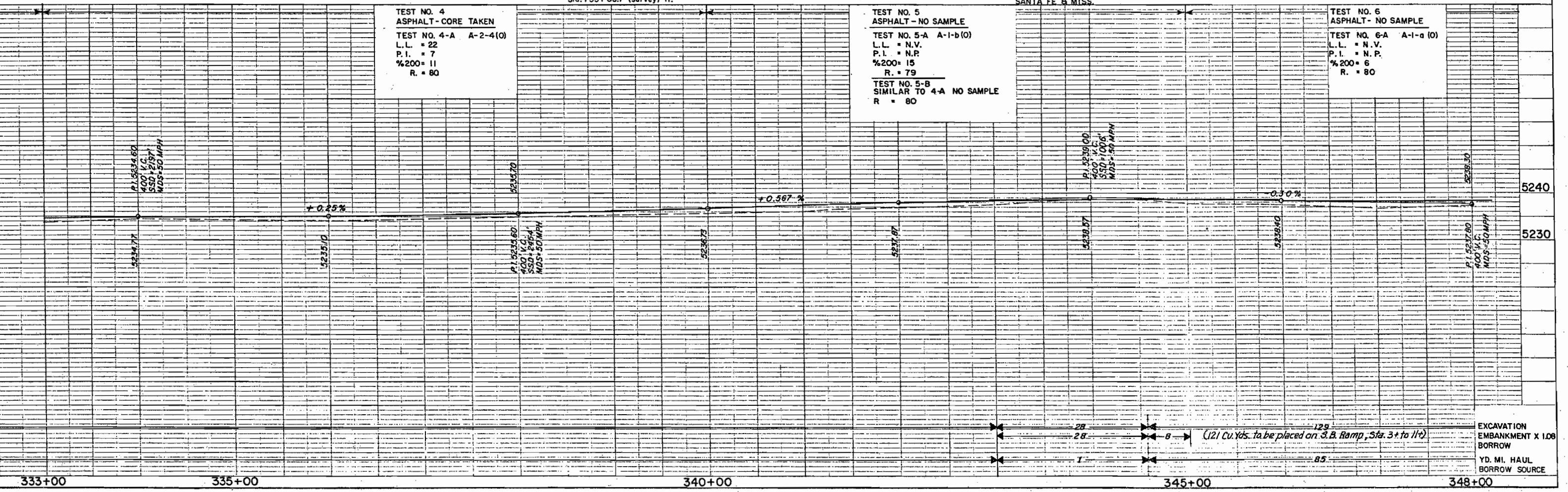
B.M. *10 - EL. 5237.86
Center of "D", N. edge fire hvt. (g. ring)
Santa Fe Dr. by lost Gates warehouse.
Sta. 733+65.7 (survey) II.

B.M. -EL. 5238.94
BR. CAP. N.E. COR. BRG.
SANTA FE & MISS.

TEST NO. 4
ASPHALT - CORE TAKEN
TEST NO. 4-A A-2-4(0)
L.L. = 22
P.I. = 7
%200 = 11
R. = 80

TEST NO. 5
ASPHALT - NO SAMPLE
TEST NO. 5-A A-1-b(0)
L.L. = N.V.
P.I. = N.P.
%200 = 15
R. = 79
TEST NO. 5-B
SIMILAR TO 4-A NO SAMPLE
R. = 80

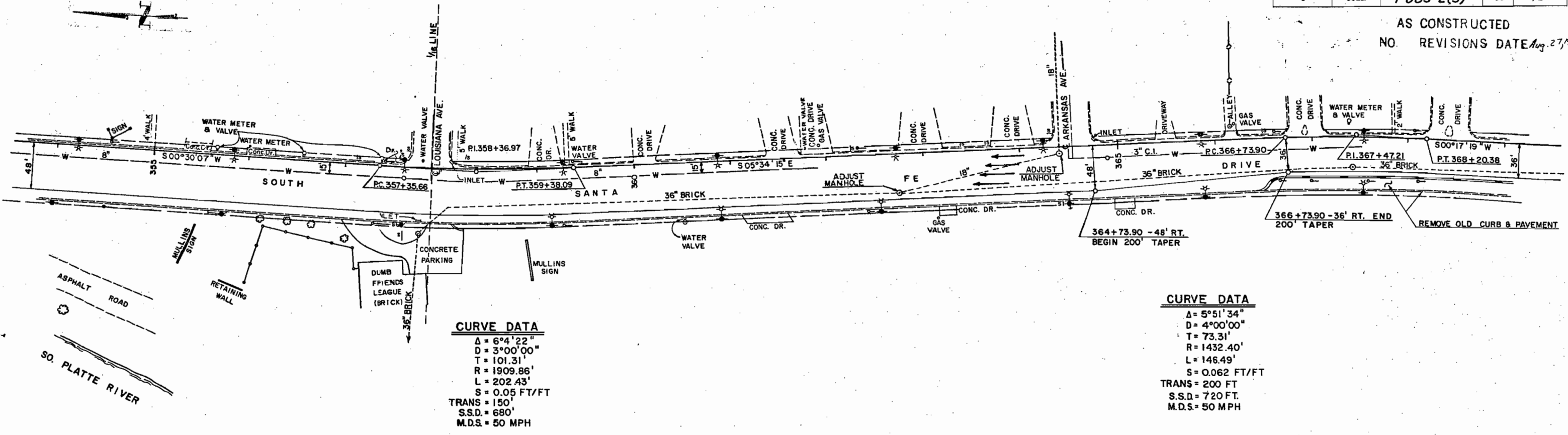
TEST NO. 6
ASPHALT - NO SAMPLE
TEST NO. 6-A A-1-a(0)
L.L. = N.V.
P.I. = N.P.
%200 = 6
R. = 80



EXCAVATION
EMBANKMENT X 1.08
BORROW
YD. MI. HAUL
BORROW SOURCE

FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	F085-2(3)	52	75

AS CONSTRUCTED
NO. REVISIONS DATE Aug. 27, 1975



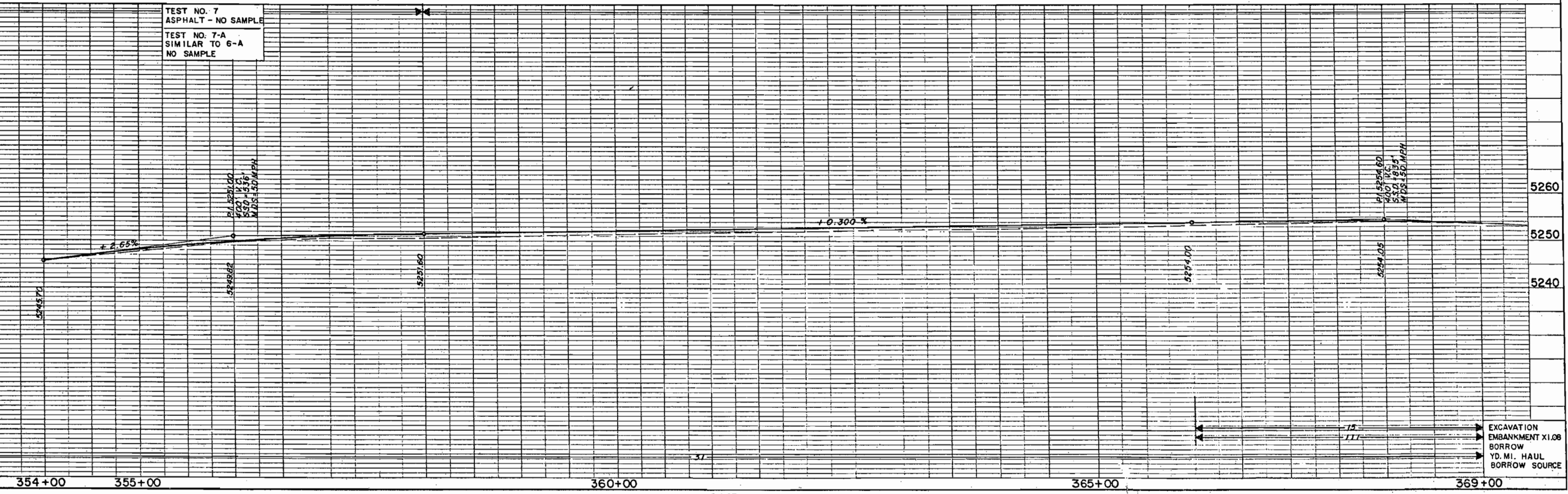
CURVE DATA

Δ = 6°4'22"
D = 3°00'00"
T = 101.31'
R = 1909.86'
L = 202.43'
S = 0.05 FT/FT
TRANS = 150'
S.S.D. = 680'
M.D.S. = 50 MPH

CURVE DATA

Δ = 5°51'34"
D = 4°00'00"
T = 73.31'
R = 1432.40'
L = 146.49'
S = 0.062 FT/FT
TRANS = 200 FT
S.S.D. = 720 FT
M.D.S. = 50 MPH

B.M. #3 - EL. 5253.11
Cap bolt N. side fire hyd.
on N.E. cor. Louisiana & Santa Fe.



TEST NO. 7
ASPHALT - NO SAMPLE

TEST NO. 7-A
SIMILAR TO 6-A
NO SAMPLE

EXCAVATION
EMBANKMENT X1.08
BORROW
YD. MI. HAUL
BORROW SOURCE

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO	SHEET NO.	TOTAL SHEETS
9	COLORADO	F085-2(3)	53	75

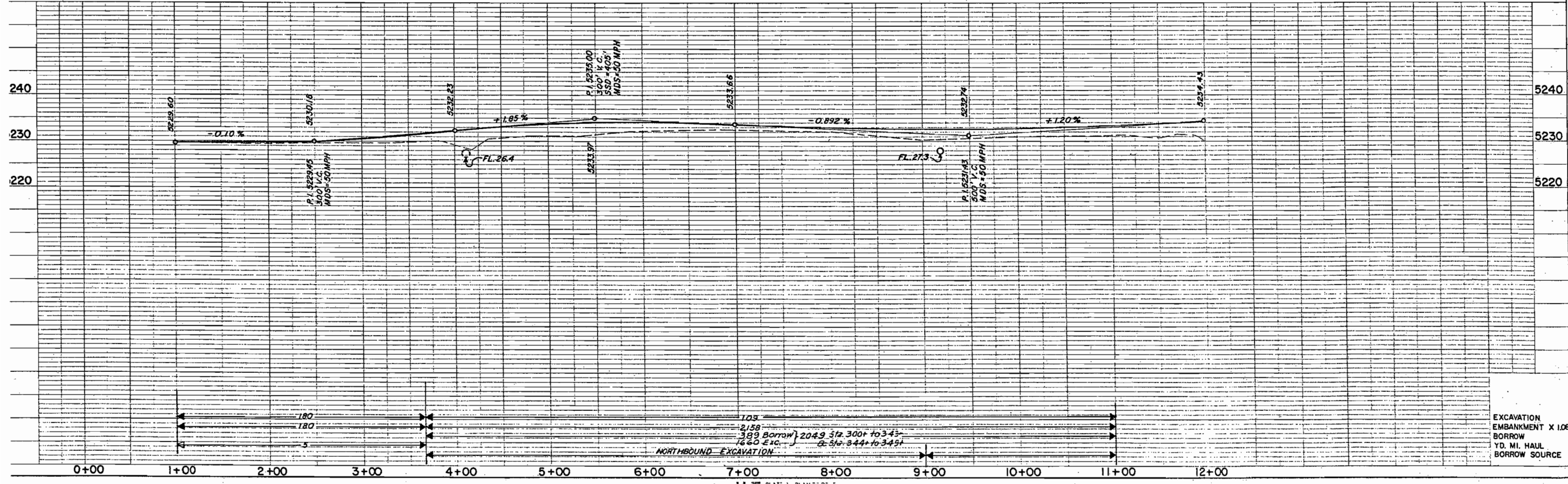
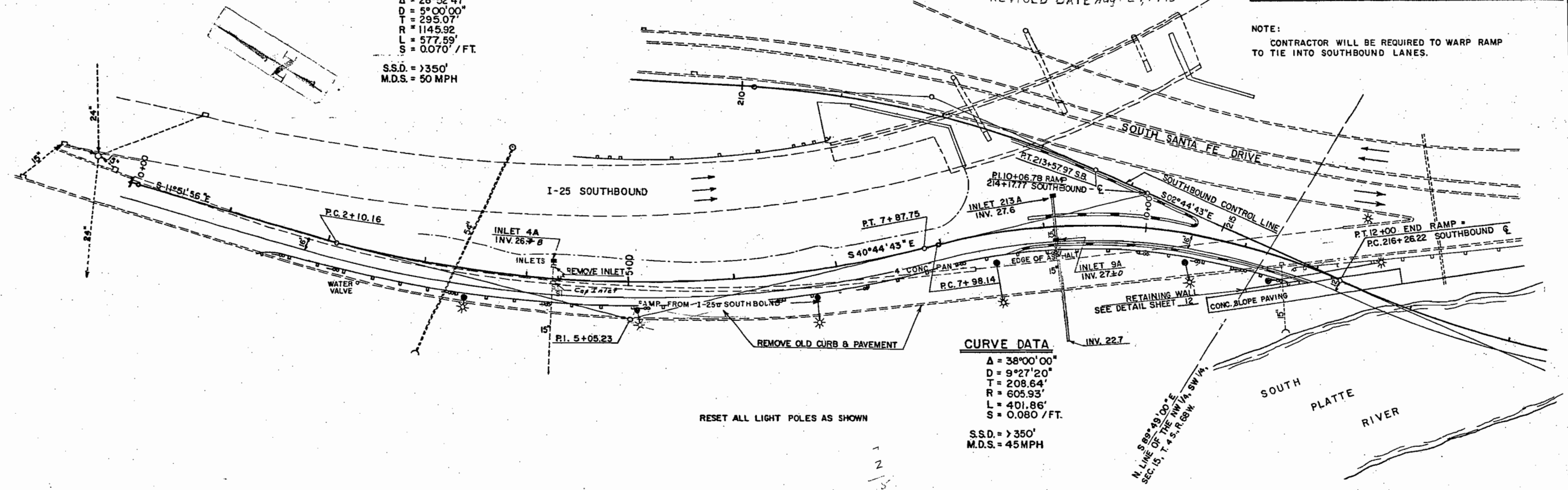
CURVE DATA

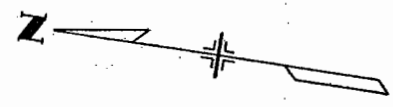
$\Delta = 28^{\circ}52'47''$
 $D = 5^{\circ}00'00''$
 $T = 295.07'$
 $R = 1145.92'$
 $L = 577.59'$
 $S = 0.070' / FT.$

 $S.S.D. = >350'$
 $M.D.S. = 50 MPH$

AS CONSTRUCTED
REVISED DATE Aug. 27, 1973

NOTE:
CONTRACTOR WILL BE REQUIRED TO WARP RAMP TO TIE INTO SOUTHBOUND LANES.

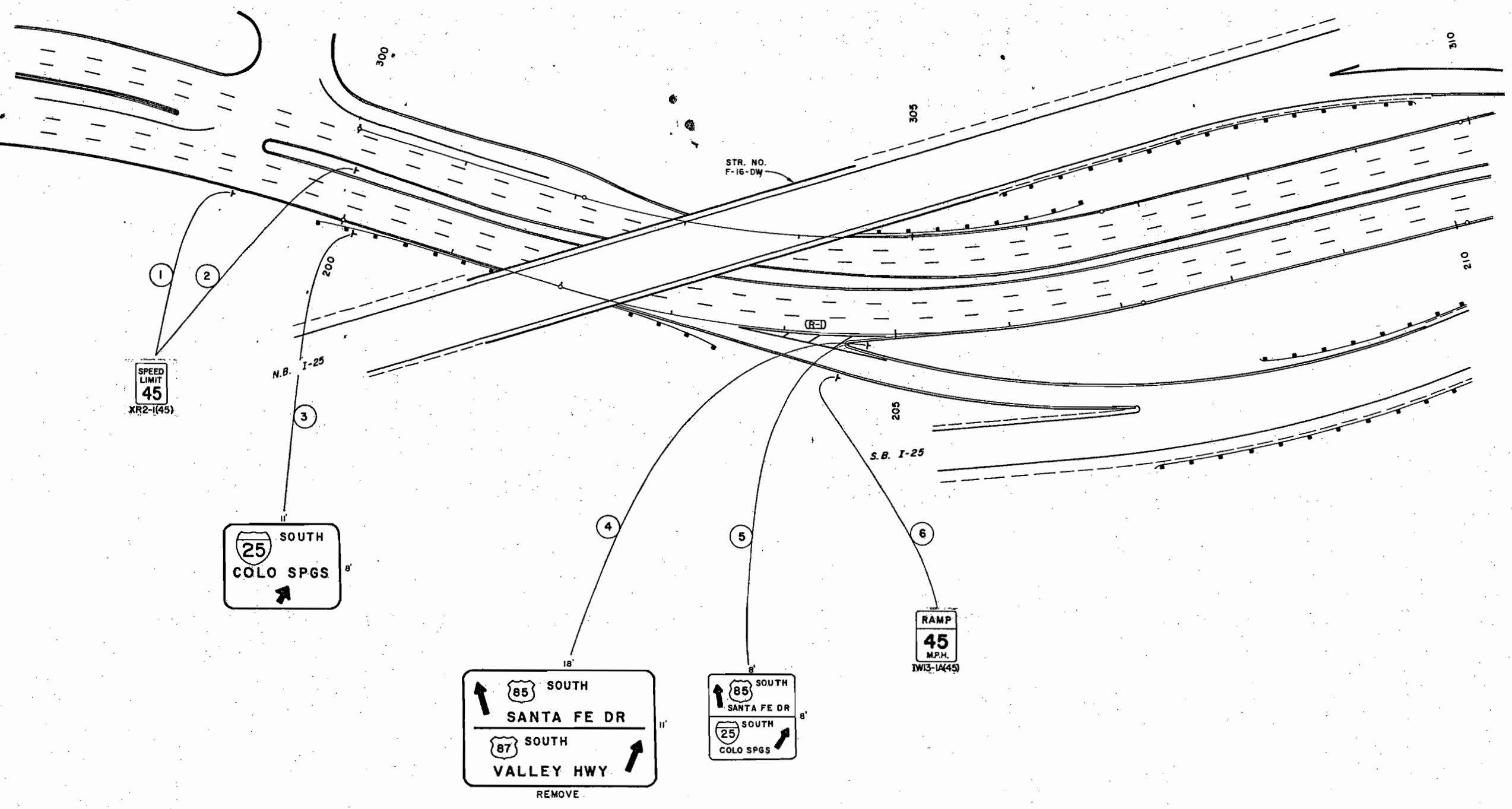




FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F.085-2(3)	64	75

(R-1) 8-25-71, Rev. Pvm. Mkg. J.J.S.

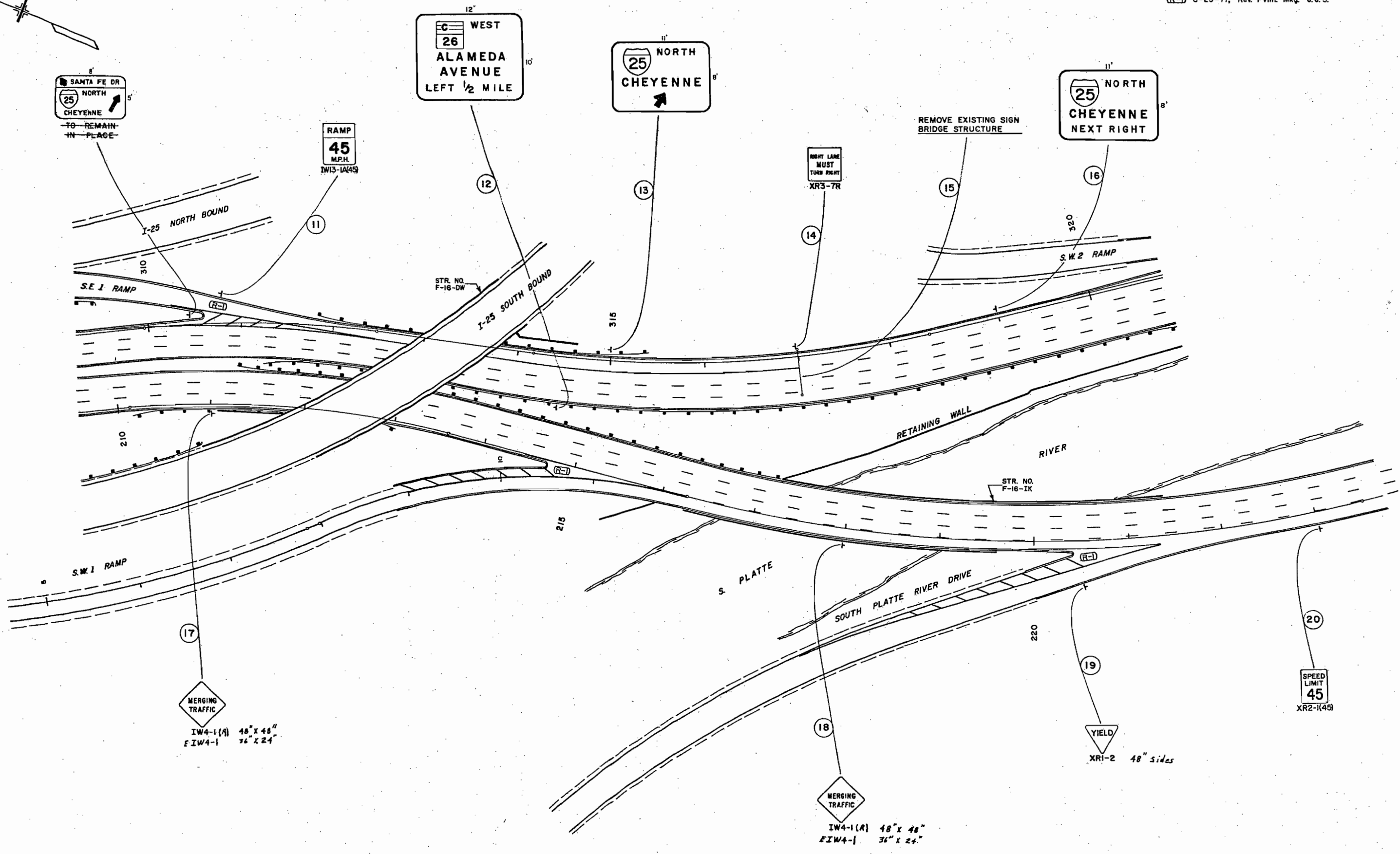
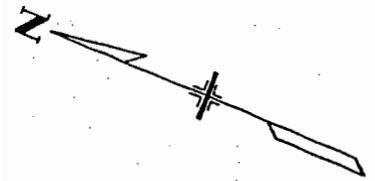
AS CONSTRUCTED
NO REVISIONS DATE Aug-27, 1973



AS CONSTRUCTED
REVISED DATE Aug. 27, 1973

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F085-2(3)	65	75

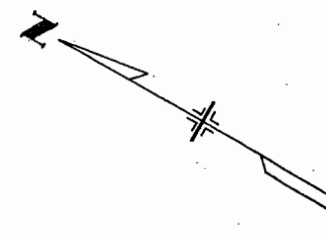
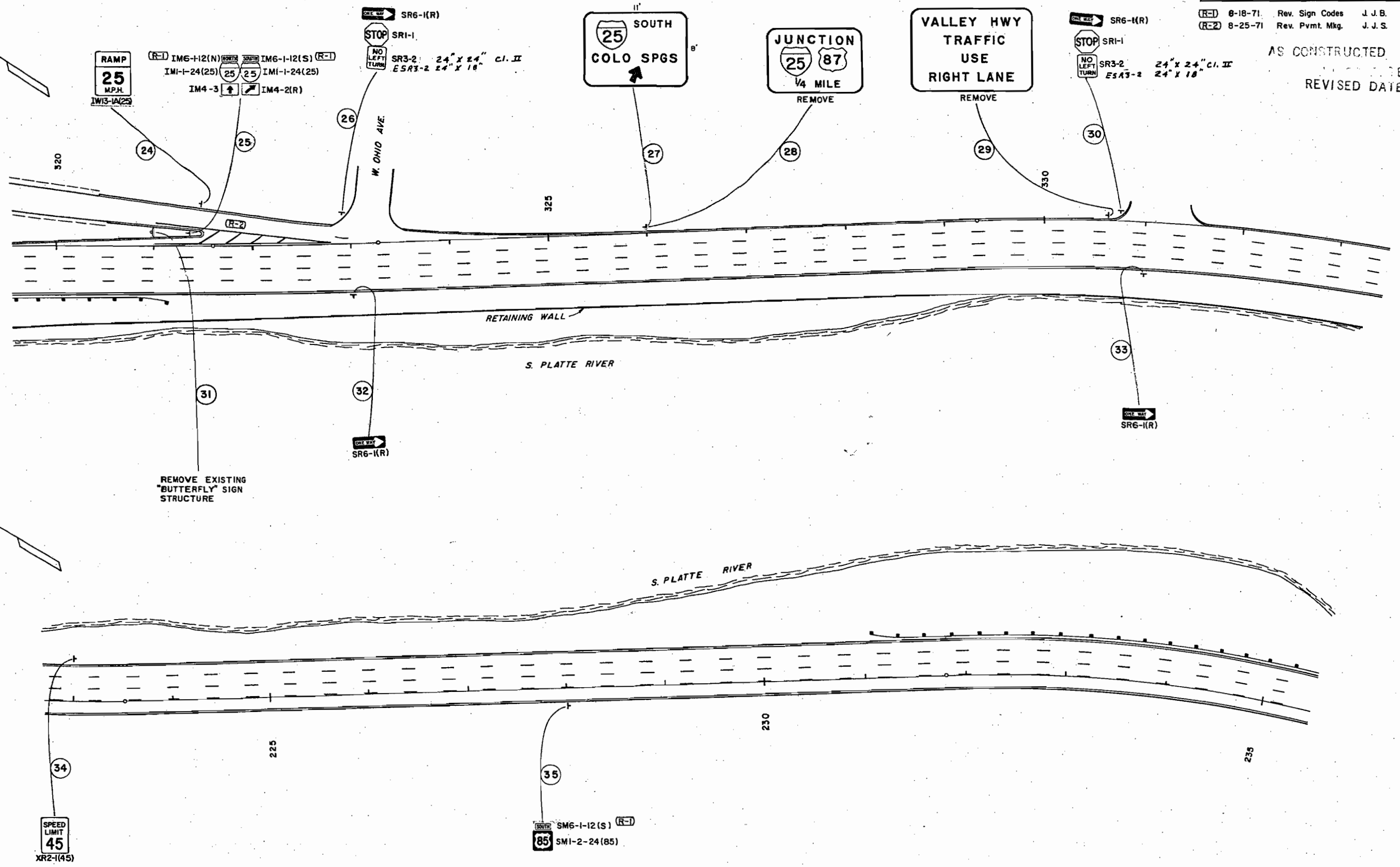
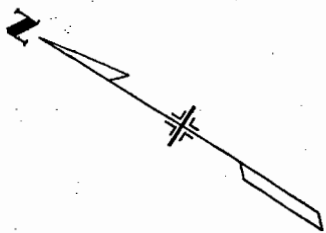
(R-1) 8-25-71, Rev. Pymt. Mkg. J.J.S.



FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F085-2(3)	66	75

(R-1) 8-18-71 Rev. Sign Codes J. J. B.
 (R-2) 8-25-71 Rev. Pvmt. Mkg. J. J. S.

AS CONSTRUCTED
 REVISED DATE Aug 27, 1973



SPEED LIMIT
45
XR2-(45)

SM6-1-12(S) (R-1)
SM1-2-24(85)



FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F085-2(3)	67	75

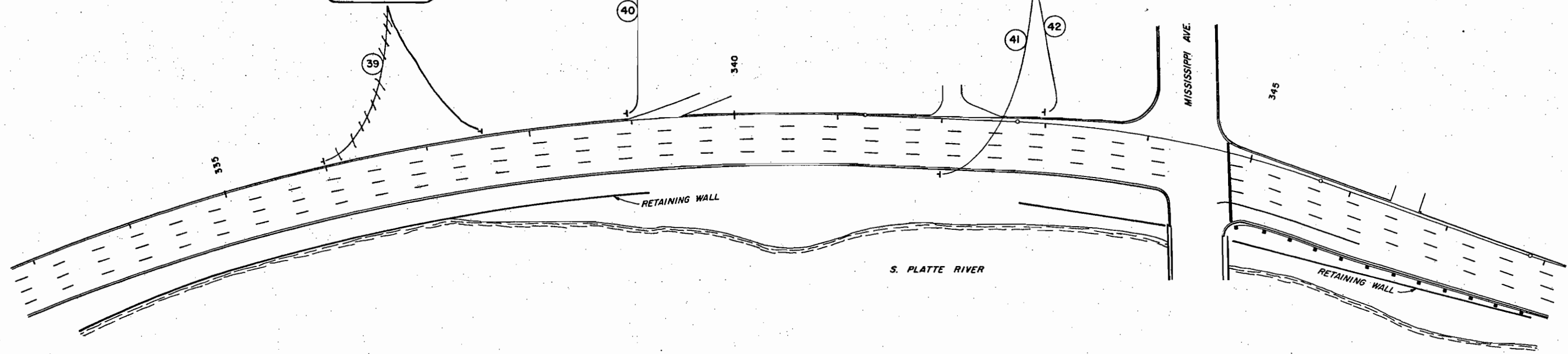
9-18-71 Rev. Sign Codes J.J.B.

AS CONSTRUCTED
REVISED DATE Aug 27, 1973

25 SOUTH
COLO SPGS
1/4 MILE

85 SM6-1-12(N) (R-1)
SMI-2-24(85)

SPEED LIMIT 45
XR2-(45)



SR6-(R)

43

44

SR6-(R)

STOP

NO LEFT TURN SR3-2 24' 2 1/2" C.I. II
ES43-2 24' 1 1/8"

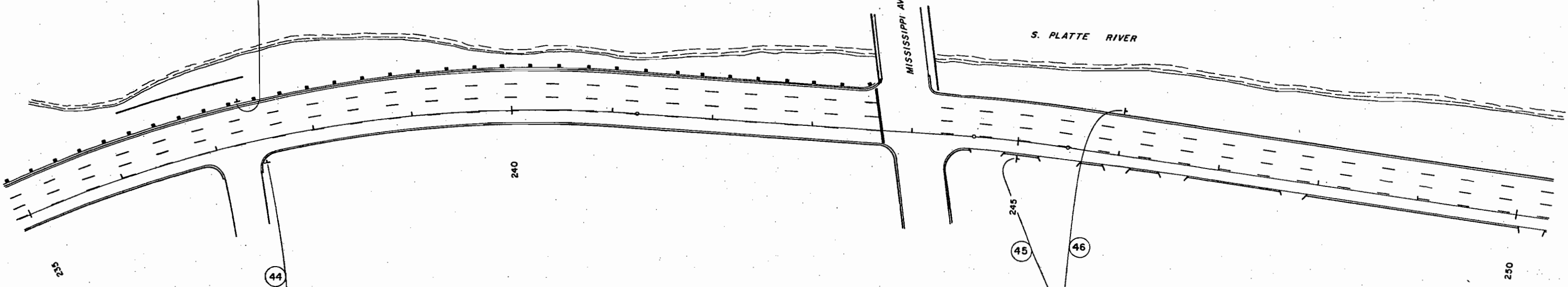
S. PLATTE RIVER

MISSISSIPPI AVE.

45

46

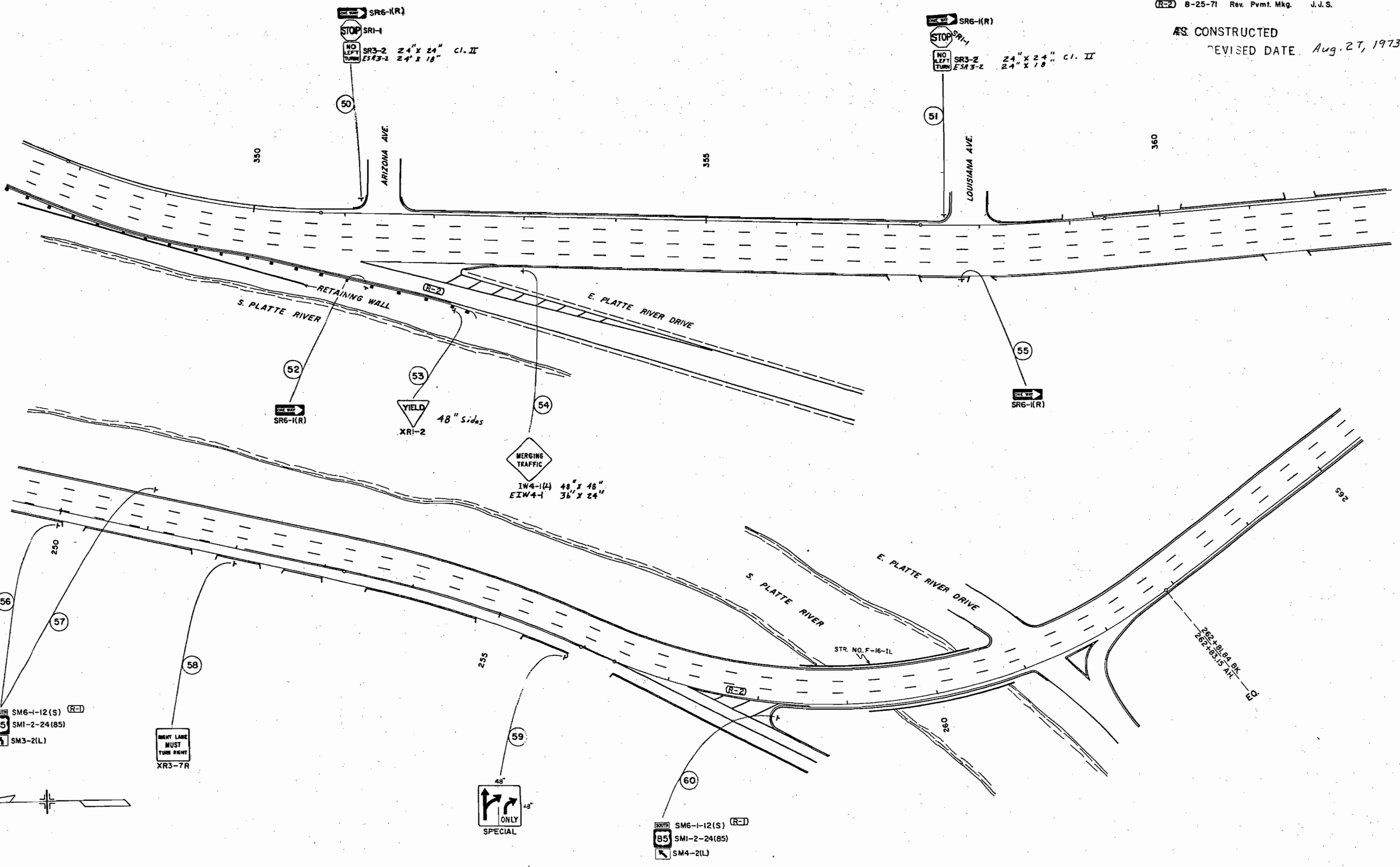
SPEED LIMIT 45
XR2-(45)



FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F085-2(3)	68	75

(R-1) 8-18-71 Rev. Sign Codes J.J.B.
 (R-2) 8-25-71 Rev. Pvm't. Mkg. J.J.S.

AS CONSTRUCTED
 REVISED DATE Aug. 27, 1973



SOUTH
 85 SM6-1-12(S) (R-1)
 SMI-2-24(85)
 SM3-2(L)

WIDE LAKE
 MUST
 TURN RIGHT
 XR3-7R

48"
 ONLY
 SPECIAL

SOUTH
 85 SM6-1-12(S) (R-1)
 SMI-2-24(85)
 SM4-2(L)

262-18184 BK
 262-8515 AT
 EQ

