FED. ROAD DIVN. NO.	DISTRICT	PROJ. NO.	
9	COLO.	S 0036(1)	1

COLORADO
STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED
FEDERAL AID SECONDARY PROJECT NO. S 0036(1)
STATE HIGHWAY NO. 12
LAS ANIMAS COUNTY

INDEX OF SHEETS

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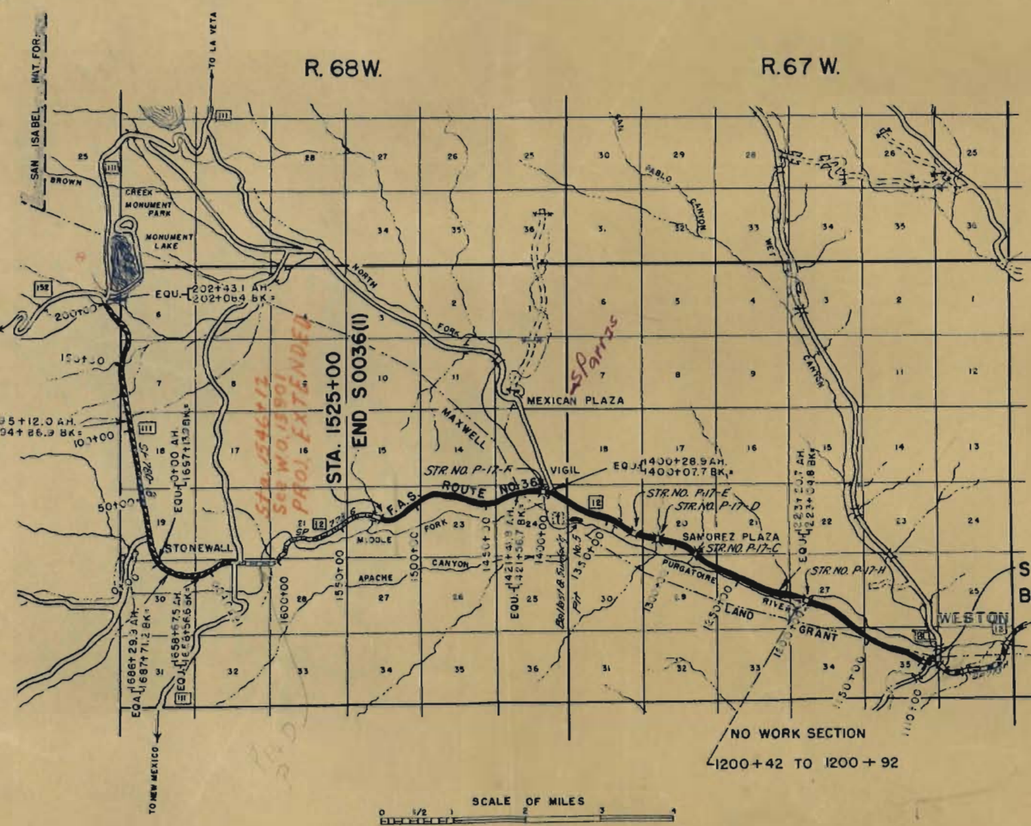
CONVENTIONAL SIGNS

CENTER LINE
RIGHT-OF-WAY LINE
TOWNSHIP OR RANGE LINE — T. 6 S., R. 89 W.
SECTION LINE — T. 7 S., R. 89 W.
CITY LIMITS
RAILROAD
BARBED WIRE FENCE — X — X —
WOVEN WIRE COMB. FENCE
TELEPH. OR TELEG. LINE
POWER LINE

SCALES OF ORIGINAL TRACINGS
ON PLAN, 1 IN. = 100 FT.
ON PROFILE 1 IN. = 100 FT. HORIZONTAL
1 IN. = 10 FT. VERTICAL
GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD
GROSS LENGTH OF PROJECT 41477.8 FT. = 7.856 MI.
NET LENGTH OF PROJECT 41427.8 FT. = 7.846 MI.



NOTE:
It is recommended that bidders on this Project go over the plan details with one of the following field representatives of this Department.

J.A. Solmonson, Construction Engineer, Pueblo
A.F. Copeland, Resident Engineer, Trinidad

HIGHWAY DEPARTMENT
STATE OF COLORADO
RECOMMENDED FOR APPROVAL:
Jas. H. Powell — 9-26-50
ASSISTANT ENGINEER — DATE
APPROVED:
H. Hunt C. Watson — 9-26-50
STATE HIGHWAY ENGINEER — DATE

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
RECOMMENDED FOR APPROVAL:
DISTRICT ENGINEER — DATE
APPROVED:
DIVISION ENGINEER — DATE

Drawer # 36

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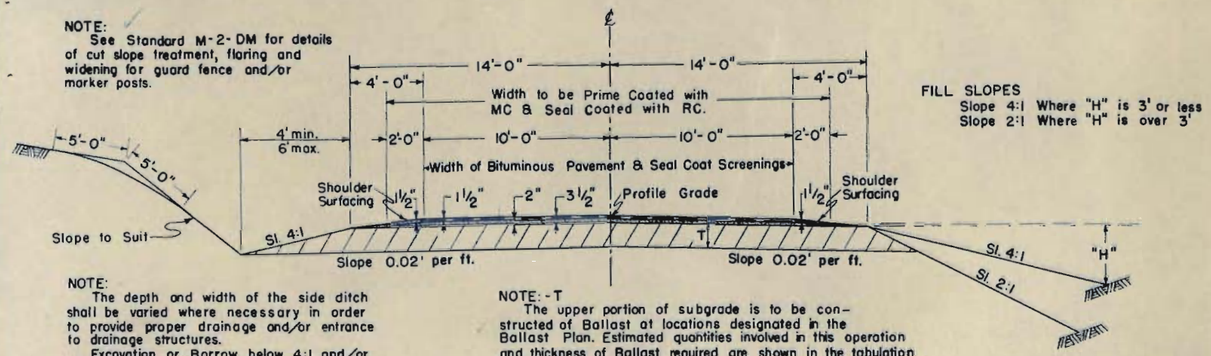
TYPICAL SECTION



FILL SLOPES
Slope 4:1 Where "H" is 3' or less
Slope 2:1 Where "H" is over 3'

NOTE:
The depth and width of the side ditch shall be varied where necessary in order to provide proper drainage and/or entrance to drainage structures.
Excavation or Borrow below 4:1 and/or 10:1 will not be permitted.

NOTE: - T
The upper portion of subgrade is to be constructed of Ballast at locations designated in the Ballast Plan. Estimated quantities involved in this operation and thickness of Ballast required are shown in the tabulation on Sheet No. 3

The center line elevation of the constructed Roadway shall be the combined thickness of Ballast and Surfacing above the Profile of the present Roadway, except for new Grade as shown on plans.
3½" Compacted thickness of Gravel or Crushed Rock Surfacing to be placed in two courses:
Approximate 1½" Top Course Surfacing to be placed at the rate of 17 tons per 100 linear feet of Roadway.
Approximate 2" Bottom Course Surfacing to be placed at the rate of 25 tons per 100 linear feet of Roadway.
Approximate 1½" Bottom Course Surfacing for shoulder area to be placed at the rate of 5 tons per 100 linear feet of Roadway.

GENERAL NOTES

This Project is to be constructed in conformity with the Standard Specifications of the Colorado State Highway Department adopted January 1, 1948.

All quantities on preliminary plans are to be considered approximate only.

All concrete used on this project shall be "Air Entrained Concrete".

Culverts projecting from embankments shall be covered with approximately 6 inches of embankment material in such a manner that a minimum of pipe shall be exposed in the completed work. This shall be accomplished by warping embankment slopes around and adjacent to the culvert.

Except as otherwise noted on the plans, payment for overhaul will be based on measurement along the centerline of the project.

All curves are to be superelevated and widened as provided by the Standard Superelevation sheet included with the plans, except as otherwise noted on plans.

Curves on this project over 6 degrees shall be provided with the superelevation shown on the Standard Superelevation sheet for a 6 degree curve.

Asphaltic Road Material MC is to be used for prime coat over the roadway width shown on the typical section previous to placing of Oil Processed Material. Grade of MC oil to be determined by the Engineer.

Asphaltic Road Material MC-3 fortified with an acceptable additive shall be used for processing oil mat on this project.

At Bridge Approaches, the Oil Processing shall be widened to meet the curbed width of the bridge and shall take place gradually over a distance of 300 feet, each way from the bridge ends.

It is estimated that rolling of the oil processed material with a flat wheeled roller will be necessary after compaction of mat with rubber tired rollers in order to produce a smooth firm surface.

All side approach roads to the project shall be primed and seal coated to approximately 50 feet out from edge of the oil mat or to the Right of Way line, whichever is less, unless otherwise noted on the plans.

Asphaltic Road Material RC is to be used for seal coat over the roadway width shown on the typical section. Grade of RC oil to be determined by the Engineer.

Stone screenings for this project shall conform to the requirements for Stone Screenings (Type 1) of the Specifications.

The present oil processed material on Bridges at Sta. 1287+, Sta. 1320+, Sta. 1334+, & Sta. 1404+, is to be removed by State Maintenance Forces.

Bridge Decks at Sta. 1287+, 1320+, 1334+ & 1404+ shall receive an application of RC oil of the grade designated by the Engineer and an application of Stone Screenings at the rate of 20 Lbs. per Sq. Yd.

SHAPING ROADBED

STATION	MILES
1110+00 to 1199+00	1.686
1202+00 to 1286+50	1.597
1289+00 to 1319+00	0.568
1321+50 to 1333+00	0.218
1336+00 to 1403+00	1.265
1405+75 to 1525+00	2.261
TOTAL	7.595

SUMMARY OF APPROXIMATE QUANTITIES

ITEM NO.	ITEM	UNIT	FEDERAL AID	BRIDGES FED. AID	NON-FED. AID	PROJECT TOTALS
11a	Removal of Portions of Present Structure Sta 1200+	Lp. Sum			•	•
11b	Removal of 4 Structures	Lp. Sum	•			•
11c	Cleaning Culverts	Each			4	4
11d	Removing and Resetting Mail Boxes	Lp. Sum	•			•
11e	Removing and Reset Guard Posts Sta. 1200+ and Guard Fence Sta. 1404+.	Lp. Sum	•			•
13c	Unclassified Excavation	Cu. Yd.	1000			1000
13d	Unclassified Ditch Excavation	Cu. Yd.	50		50	100
14a	Dry Rock Excavation (Str.)	Cu. Yd.	20		60	80
14b	Dry Common Excavation (Str.)	Cu. Yd.	130		30	160
14c	Wet Rock Excavation (Str.)	Cu. Yd.	10		40	50
14d	Wet Common Excavation (Str.)	Cu. Yd.	20		10	30
16a	Structure Backfill (Class 1)	Cu. Yd.	240		60	300
16d	Mechanical Tamping	Hour	30		10	40
17ax	Rolling with Tamping Roller (2 Unit)	Hour	60			60
17ay	Rolling with Tamping Roller (4 Unit)	Hour	30			30
17b	Rolling with Flat Wheeled Roller	Hour	380			380
17c	Rolling with Rubber Tired Roller	Hour	70			70
17dx	Furnishing Tamping Roller (2 Unit)	Each	1			1
17dy	Furnishing Tamping Roller (4 Unit)	Each	1			1
17e	Furnishing Flat Wheeled Roller	Each	1			1
17f	Furnishing Rubber Tired Roller	Each	1			1
17g	Wetting	M Gal.	2070			2070
18c	Ton Mile Overhaul	Ton Mi.	130,700			130,700
23a	Ballast (Class 1)	Ton	41,000			41,000
23b	Ballast (Class 2)	Ton	31,100			31,100
26c	Gravel or Crushed Rock Surfacing (Grading C)	Ton	19,800			19,800
30x	Asphaltic Road Material RC	Gal.	29,200	200		29,400
30j	Asphaltic Road Material MC-3	Gal.	97,000			97,000
30y	Asphaltic Road Material MC	Gal.	46,700			46,700
31a	Road Mix Oil Processing	Sq. Yd.	93,520			93,520
31c	Stone Screenings (Type 1)	Ton	980	10		990
46a	Class "A" Concrete	Cu. Yd.	14		32	46
47	Reinforcing Steel	Lb.	1100		2700	3800
51c	Relaying 24" Pipe	Lin. Ft.	24			24
53b	18" Corr. Metal Culv. Pipe	Lin. Ft.	18			18
53c	24" Corr. Metal Culv. Pipe	Lin. Ft.	272			272
53d	30" Corr. Metal Culv. Pipe	Lin. Ft.	34			34
53e	36" Corr. Metal Culv. Pipe	Lin. Ft.	51			51
53g	48" Corr. Metal Culv. Pipe	Lin. Ft.	19			19
53m	84" Corr. Metal Culv. Pipe	Lin. Ft.	44			44
94	Marker Posts	Each	145			145
119	Shaping Roadbed	Miles	7.6			7.6
	STATE FORCES					
81a	Project Markers		2			2
	FORCE ACCOUNT					
	Placing 6" Earth in C.M.P. Stock Pass Sta 1386+	Lp Sum	•			•

▲ Includes Bridges at Sta. 1287+, Sta. 1320+, Sta. 1334+ & Sta. 1404+

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BALLAST PLAN

It is estimated that Ballast material for this project is available in the vicinity of the pit indicated in the following tabulation. Estimated quantities involved in this operation are shown below.

Alteration of the plan as here outlined will be allowed only on written permission from the Department.

MATERIAL TO BE PLACED	SOURCE & QUANTITY AVAILABLE	THICKNESS* CL.1	THICKNESS* CL.2	QUANTITY TONS USED CLASS 1	QUANTITY TONS USED CLASS 2	OVERHAUL TON MILE CLASS 1	OVERHAUL TON MILE CLASS 2
1110+00 - 1118+00		6"		792		3391	
1118+00 - 1122+00		4"		260		1084	
1122+00 - 1175+00		8"		7102		25,764	
1175+00 - 1192+00		4"	9"	1105	2754	3276	8165
1192+00 - 1200+42		4"	6"	547	884	1490	2408
1200+92 - 1221+00		6"		1988		4860	
1229+00 - 1287+50		4"	9"	3803	9477	5903	14,709
1287+75 - 1311+00		4"	9"	1511	3767	1168	2913
1311+00 - 1320+22	Pit No.5 (Paul Apodaca)	8"		1235		575	
1320+47 - 1334+38	W½ Sec. 19	8"		1864		451	
1334+65 - 1340+20	T.33S., R.67W.	6"		549		29	
1340+20 - 1366+00	1000' from Sta. 1383+00	6"		2554		F.H.	
1366+00 - 1379+00		8"		1742		F.H.	
1379+00 - 1404+12	52,000 cu.yd.	4"	9"	1619	4035	F.H.	F.H.
1421+00 - 1425+86.3		4"	9"	326	812	F.H.	F.H.
1425+86.3 - 1436+00		4"	9"	659	1642	63	158
1436+00 - 1495+00		8"		7906		5935	
1495+00 - 1525+00		4"	9"	1950	4860	3107	7744
~~1525+00 - 1530+00~~		~~4"~~	~~9"~~	~~324~~	~~810~~	~~660~~	~~1563~~
~~1530+00 - 1540+84~~		~~2"~~		~~208~~		~~134~~	~~0~~
Approaches				850		1294	
Estimated for Correcting Irregularities in Subgrade				2599	2823	4209	3610
TOTALS:				~~40,961~~ 41,991	~~31,054~~ 31,864	~~62,599~~ 64,690	~~39,707~~ 41,270

* Based on Curve "C" of S.H.D. Design 12.
Changes in the various thicknesses of Ballast shall take place over a distance of 300 ft.

SURFACING PLAN

It is estimated that material for Gravel Surfacing for the project is available in the vicinity of the pit indicated in the following tabulation. Estimated quantities involved in this operation are shown below.

Alteration of the plan as here outlined will be allowed only on written permission from the Department.

MATERIAL TO BE PLACED	SOURCE	AVAILABLE	QUANTITY TONS USED BASE COURSE GRADING C	QUANTITY TONS USED TOP COURSE GRADING C	QUANTITY TONS USED SHOULDER COURSE GRADING C	OVERHAUL TON MILES BASE COURSE	OVERHAUL TON MILES TOP COURSE	OVERHAUL TON MILES SHOULDER COURSE
1110+00 - 1200+42			2261	1537	452	7915	5380	1582
1200+92 - 1223+04.8 Bk.			553	376	111	1341	912	269
1223+20.7Ah. - 1287+50			1607	1093	321	2582	1756	516
1287+75 - 1320+22	Pit No. 5 (Paul Apodaca)		812	552	162	557	379	111
1320+47 - 1334+38	W½ Sec. 19		348	236	70	84	57	17
1334+65 - 1340+20	T.33S., R.67W.	52,000	139	94	28	7	5	1
1340+20 - 1400+07.7 Bk.	1000' from	cu.yd.	1497	1018	299	F.H.	F.H.	F.H.
1400+28.9Ah. - 1404+12	Sta. 1383+00		96	65	19	F.H.	F.H.	F.H.
1404+75 - 1421+56.7 Bk.			420	286	84	F.H.	F.H.	F.H.
1421+41.8Ah. - 1425+86.3			111	76	22	F.H.	F.H.	F.H.
1425+86.3 - 1525+00			2478	1685	496	2326	1582	466
Approaches			△320			457		
~~1525+00 - 1540+84~~			396	269	79	804	546	160
TOTALS:			~~10,642~~ 11038	~~7018~~ 7287	~~2064~~ 2143	~~15,269~~ 16073	~~10,071~~ 10,617	~~2962~~ 3122

△ Approximate 2" Thickness

MARKER POSTS

STATION	SIDE	SPACING	NO.	STATION	SIDE	SPACING	NO.
1114+27	Lt & Rt	Culv.	2				
1117+00	Lt & Rt	"	2	1425+72	Lt. & Rt.	Culv.	2
1123+85	Lt. & Rt.	"	2	1429+17	Lt. & Rt.	"	2
1128+69	Lt & Rt	"	2				
1129+00	Lt. & Rt.	"	2				
				1445+50	Lt. & Rt.	Culv.	2
1143+09	Lt. & Rt.	Culv.	2	1446+42	Lt. & Rt.	"	2
				1464+30	Lt. & Rt.	Culv.	2
1171+52	Lt. & Rt.	Culv.	2				
1175+42	Lt. & Rt.	"	2				
				1482+25	Lt. & Rt.	Culv.	2
1228+54	Lt. & Rt.	Culv.	2	1486+36	Lt. & Rt.	Culv.	2
				1490+28	Lt. & Rt.	"	2
1236+17	Lt. & Rt.	Culv.	2	1496+18	Lt. & Rt.	Culv.	2
1245+71	Lt. & Rt.	"	2				
				1500+82	Lt. & Rt.	Culv.	2
				1506+64	Lt. & Rt.	"	2
				1511+48	Lt. & Rt.	Culv.	2
				1515+74	Lt. & Rt.	"	2
1269+71	Lt. & Rt.	Culv.	2	1518+15	Lt. & Rt.	"	2
1277+00	Lt. & Rt.	"	2				
1281+93	Lt. & Rt.	Culv.	2				
1286+86 to 1288+14	Lt. & Rt.	Bridge	20				
1319+26	Lt. & Rt.	Culv.	2				
1319+58 to 1321+11	Lt. & Rt.	Bridge	20				
1328+06	Lt. & Rt.	Culv.	2				
1333+74 to 1335+29	Lt. & Rt.	Bridge	20				
1350+37	Lt & Rt.	Culv.	2				
1361+23	Lt. & Rt.	Culv.	2				
1366+00 to 1370+00	Lt.	50'	9				
1367+17	Lt. & Rt.	Culv.	2				
1375+81	Lt & Rt	"	2				
1386+57	Lt. & Rt.	"	2				
1388+04	Lt. & Rt.	"	2				
1396+40	Lt. & Rt.	Culv.	2				
1397+06	Lt. & Rt.	"	2				
				TOTAL			145

TABULATION OF LENGTH & DESIGN DATA

STATION		ROADWAY	MAJOR STRUCTURES	MAJOR STRUCTURES NO WORK
		LIN. FT.	LIN. FT.	LIN. FT.
1110+00	Begin S0036(1)			
1200+42	Begin Bridge	9042.0		
1200+92	End Bridge			50.0
1223+04.8 Bk. = 1223+20.7 Ah.	Equation	2212.8		
1287+50	Begin Bridge	6429.3		
1287+75	End Bridge		25.0	
1320+22	Begin Bridge	3247.0		
1320+47	End Bridge		25.0	
1334+38	Begin Bridge	1391.0		
1334+65	End Bridge		27.0	
1400+07.7 Bk. = 1400+28.9 Ah.	Equation	6542.7		
1404+12	Begin Bridge	383.1		
1404+75	End Bridge		63.0	
1421+56.7 Bk. = 1421+41.8 Ah.	Equation	1681.7		
1525+00	End S0036(1)	10358.2		
~~1540+84~~		1584.0		
TOTALS		~~41287.8~~ 42,871.8	140.0	50.0

SUMMARY	LIN. FT.	M'LES
Roadway	41287.8	~~7.820~~ 8.120
Bridges	140.0	0.026
NET LENGTH S 0036(1)	~~41427.8~~ 42,971.8	~~7.846~~ 8.146
No Work Section	50.0	0.009
GROSS LENGTH S 0036(1)	~~41477.8~~ 43,021.8	~~7.856~~ 8.155

DESIGN DATA	
Maximum Grade	5.5 %
Maximum Degree of Curve	10°00'
Minimum N.P.S.D. - Horizontal	320'
Minimum N.P.S.D. - Vertical	240'
Maximum Design Speed	40 M.P.H.

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LIST OF STRUCTURES

LOCATION OF STRUCTURE	DESCRIPTION	REMOVE STRUCTURE	EXCAVATION CU.YDS.			STRUCT. EXCAV. CU.YDS.				STRUCTURE BACKFILL CU. YDS. CLASS		MECH. TAMP.	BALLAST CLASS I	CONCRETE CU. YDS. CLASS		REINF. STEEL	GRAVEL OR CRUSHED ROCK SURFACING		CORRUGATED METAL CULVERT PIPE LIN. FT.							MISCELLANEOUS
		NO.	UNCL.	EMBANK.	UNCL. DITCH	•				1		HR.	TONS	"A"	"B"	LBS.	TONS		18"	24"	30"	36"	48"	84"	
1110+00	Approach to Project												50				30								
1110+00	Project Marker																								1 - Project Marker (To be furnished and installed by State Forces).
1120+75	Road Approach, Lt.												10				5								
1122+50	Road Approach, Lt.												10				5								
1123+85	Extend Cross Culvert, Lt. Inlet Ditch.				5	1				3										*7					
1130+30	Road Approach, Rt.												10				5								
1131+47	Extend Cross Culvert, Lt.					1				3										*7					
1143+09	Extend Cross Culvert, Lt.					2				3												*7			
1148+38	Extend Cross Culvert, Lt.					1				3										*7					
1148+58	Extend Cross Culvert, Lt.					1				2										*5					
1148+90	Road Approach, Rt.												10				5								
1157+85	Extend Cross Culvert, Lt.					1				3										*7					
1168+32	Extend Cross Culvert, Lt.					1				2											*5				
1171+75	Road Approach, Rt.												10				5								
1175+42	Extend Cross Culvert, Lt. & Rt.					1				4										{*5 Lt.					
1175+75	Road Approach, Rt.												20				5			*5 Rt.					
1179+55	Road Approach, Rt.												20				5								
1180+82	Extend Cross Culvert, Lt.					2				3												*7			
1186+55	Extend Cross Culvert, Rt.					1				3										*7					
1196+75	Road Approach, Lt.												10				5								
1200+42	Replace Portion of Present Structure			ϕ (Quantities in Summary)																					
1204+15	Road Approach, Rt.												10				5								
1214+10	Road Approach, Lt.												10				5								
1228+54	Extend Cross Culvert, Rt.					1				2										* 5					
1230+15	Extend Cross Culvert, Lt. & Rt.					1				4										{* 5 Lt.					
1200+	Remove & Reset Guard Posts, Lt & Rt.																			* 5 Rt.					Remove & Reset Guard Posts.
1232+30	Road Approach, Lt.												20				5								
1252+80	Road Approach, Rt.												20				5								
1253+67	Extend Cross Culvert, Lt.					2				4												*9			
1259+96	Extend Cross Culvert, Rt.					1				3										*9					
1266+10	Extend Cross Culvert, Lt. & Rt. Outlet Ditch Clean out Culvert				5	4				9														{*9 Lt. *5 Rt.		ϕ Cleaning Culvert
1269+20	Road Approach, Lt.												20				5								
1286+80	Road Approach, Rt.												20				5								
1293+20	Road Approach, Lt.												20				5								
1293+64	Extend Cross Culvert, Rt.					1				3										*7					
1298+47	Extend Cross Culvert, Lt. & Rt.					1				4										{*5 Lt.					
1299+80	Road Approach, Lt.												20				5			*5 Rt.					
1303+00	Road Approach, Lt.												20				5								
1305+11	Extend Cross Culvert, Rt.					2				3												*7			
1305+60	Road Approach, Lt.												20				5								
1312+66	Extend Cross Culvert, Lt.					1				2										*5					
1314+85	Road Approach, Rt.												10				5								
1319+26	Extend Cross Culvert, Lt. & Rt.					1				2										{*3 Lt.					
1320+00	Road Approach, Lt.												10				5			*3 Rt.					
1320+80	Road Approaches, Lt. & Rt.												20				10								
1322+36	Extend Cross Culvert, Lt. & Rt.					1				4										{*5 Lt.					
1328+35	Road Approach, Rt.												10				5			*5 Rt.					
1332+00	Road Approach, Rt.												30				10								
1335+30	Road Approaches, Lt. & Rt.												20				10								
1346+55	Road Approach, Rt.												10				5								
1346+90	Road Approach, Lt.												10				5								
1347+50	Side Drain & Road Approach Rt. Remove W.B.C., Rt.	1				1				5			10				5		18						
1353+50	Road Approaches, Lt. & Rt.												40				15								
1358+52	Extend Cross Culvert, Rt.					1				2										*5					
1361+23	Extend Cross Culvert, Rt.					2				3													*5		
1362+88	Extend Cross Culvert, Rt.					1				2											*5				

Continued on Sheet No. 5

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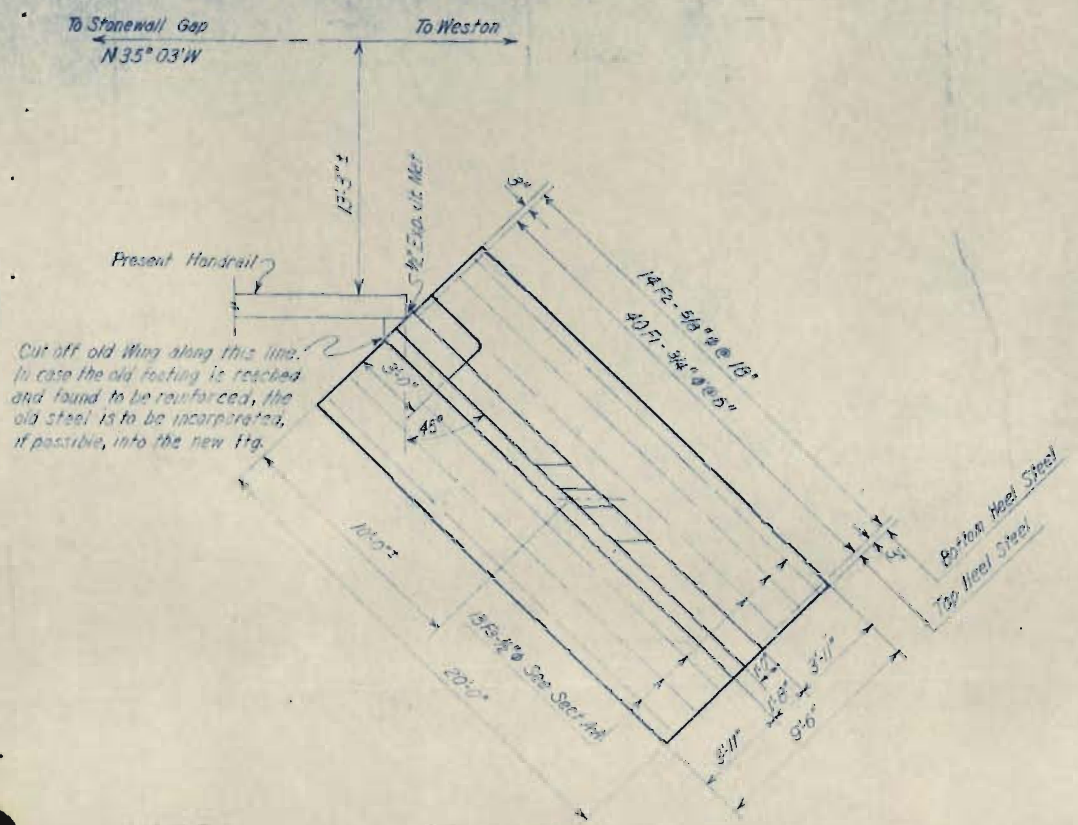
LIST OF STRUCTURES

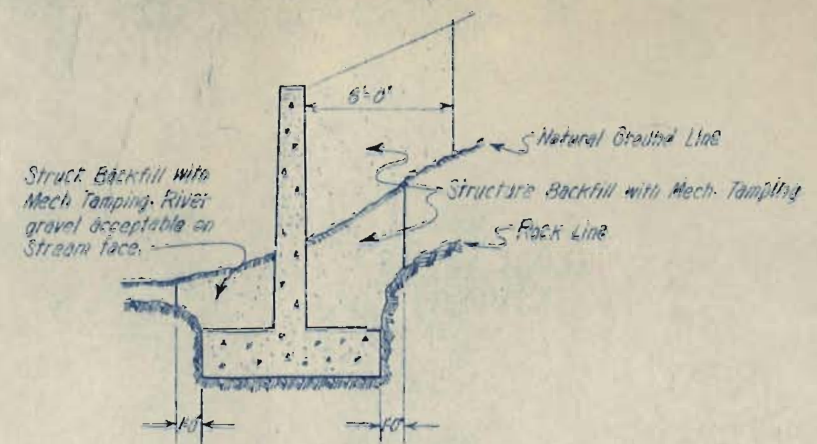
Continued from Sheet No. 4

LOCATION OF STRUCTURE	DESCRIPTION	REMOVE STRUCTURE	EXCAVATION			STRUCT. EXCAV.	STRUCTURE BACKFILL	MECH. TAMP.	BALLAST	CONCRETE		REINF. STEEL	GRAVEL OR CRUSHED ROCK SURFACING	CORRUGATED METAL CULVERT PIPE						MISCELLANEOUS
			CU. YDS.			CU. YDS.	CU. YDS. CLASS		CLASS 1	CU. YDS. CLASS				LIN. FT.						
		NO.	UNCL.	EMBANK	UNCL. DITCH	•	1	HR.	TONS	"A"	"B"	LBS.	TONS	18"	24"	30"	36"	48"	54"	
1376+60	Road Approach, Rt.								10				5							
1385+60	Road Approach, Rt.								20				5							
1386+57	Cross Culvert, Headwalls, Ditches Remove 18" X 44' C.M.P.	1			5	90	70	7		13.9		1070							44	
1388+04	Extend Cross Culvert, Rt.					1	2								*5					
1391+72	Extend Cross Culvert, Lt. & Rt.					1	4								*5 Lt.					
1395+35	Road Approach, Lt.								20				5		*5 Rt.					
1401+20	Road Approach, Rt.								30				10							
1410+90	Road Approach, Lt.								20				5							
1413+90	Road Approach, Rt.								20				5							
1416+10	Cross Culvert, Remove 2'x2'x24' W.B.C.	1				5	18								56					
1418+90	Relay 24"X24' C.M.P. as Side Drain Rt. of Sta. 1418+90. Relay 24"x24' C.M.P. (From 1416+10) as side drain Rt. Rd Approach, Rt.					5	10		20				5							Relay 24"X24' C.M.P.
1404+	Remove & Reset Guard Fence, Lt. & Rt.																			Remove & Reset Guard Fence
1422+45	Road Approach, Rt.								20				5							
1423+16	Extend Cross Culvert, Lt. & Rt.					2	5								*7 Lt.					
1430+90	Road Approach, Rt.								20				5		*5 Rt.					
1431+21	Extend Cross Culvert, Lt.					1	3								*9					
1434+22	Extend Cross Culvert, Lt. & Rt.					2	7										*9 Lt.			
1434+65	Road Approaches, Lt. & Rt.								20				10				*5 Rt.			
1436+70	Extend Cross Culvert, Lt. & Rt.					2	5								*7 Lt.					
1445+20	Road Approach, Lt.								10				5		*5 Rt.					
1446+65	Road Approach, Lt.								10				5							
1451+21	Extend Cross Culvert, Lt. & Rt.	1				2	5									*7 Lt.				
	Remove 6' of present C.M.P., Lt.															*5 Rt.				
1456+25	Extend Cross Culvert, Lt. & Rt.					2	5								*7 Lt.					
1456+45	Road Approach, Lt.								10				5		*5 Rt.					
1461+36	Extend Cross Culvert, Rt.					1	3									*7				
1461+40	Extend Cross Culvert, Rt.					2	3										*7			
1464+30	Extend Cross Culvert, Lt.					1	3								*7					
1468+55	Extend Cross Culvert, Lt.					1	2								*5					
1473+81	Extend Cross Culvert, Lt. & Rt.					2	5								*7 Lt.					
1475+90	Road Approach, Lt.								10				5		*5 Rt.					
1482+25	Ditches				ϕ5															ϕCleaning Culvert
1490+28	Extend Cross Culvert, Lt.					1	2									*5				
1499+40	Clean Out Cross Culvert, Inlet Ditch				ϕ5															ϕCleaning Culvert
1500+82	Clean out Cross Culvert, Inlet Ditch				ϕ5															ϕCleaning Culvert
1506+20	Road Approach, Lt.								20				5							
1507+10	Road Approach, Lt.								20				5							
1507+45	Extend Cross Culvert, Lt.					1	2								*5					
1511+59	Extend Cross Culvert, Lt.					1	2								*5					
1512+40	Road Approach, Lt.								20				5							
1515+75	Clean out Cross Culvert, Inlet Ditch				ϕ5															ϕCleaning Culvert
1518+15	Extend Cross Culvert, Lt.					1	2								*5					
1525+00	Approach to Project								50				30							
1525+00	Project Marker																			1 - Project Marker (To be furnished and installed by State Forces)
	Mechanical Tamping (Pipes up to 60")							17												
	TOTALS:	4			ϕ20 / 5	157	239	24	850	13.9		1070	320	18	272	34	51	19	44	

ϕ Non Federal Aid
* Includes 1 ft. for Connecting Band
• Structural Excavation is estimated to be 90% Common and 10% Rock, each of which is estimated to be 90% Dry and 10% Wet.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S9036 (1)	6	





STRUCTURE BACKFILL AND MECHANICAL TAMPING DIAGRAM

All material that is to be mechanically tamped shall be placed in horizontal layers not more than 6 inches in depth and tamped before the next layer is placed.

SUMMARY OF QUANTITIES ⌀

No.	ITEM	UNIT	QUANTITY
11a	Removal of Portions of Present Structure	L.S.	Lump Sum
†14a	Dry Rock Excavation (Struct)	Cu Yd.	60.0
†14b	Dry Common Excavation (Struct)	Cu Yd	23.0
†14c	Wet Rock Excavation (Struct)	Cu Yd.	40.0
†14d	Wet Common Excavation (Struct)	Cu Yd	10.0
15a	Structure Backfill	Cu Yd	60.0
15d	Mechanical Tamping	Hr	5.0
16a	Class "A" Concrete	Cu Yd	32.0
41	Reinforcing Steel (includes Overrun 1%)	Lb.	2620
*	½" Expansion Joint Material	Sq Ft.	24.0

* To be included in bid price for Class "A" Concrete
† Based on E of 64.1± and assumed stream bed elev. of 55.3±
⌀ Non-Federal Aid

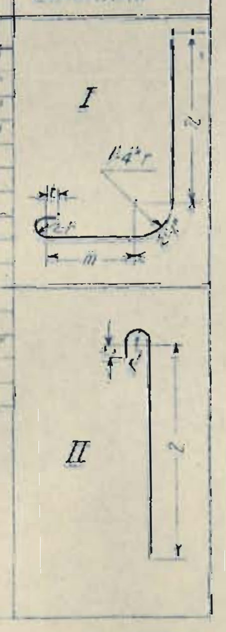
BAR LIST

Mark	Size	No. Req'd	Length	Type	l	m	r	t
A1	1"φ	12	24'-11"	I	18'-1"	3'-5"	4"	3½"
A2	1"φ	2	21'-8"	I	14'-10"	3'-5"	4"	3½"
A3	1"φ	13	13'-9"	I	8'-1"	2'-3"	4"	3½"
A4	1"φ	13	8'-6"	I	4'-1"	1'-0"	4"	3½"
A5	½"φ	15	19'-8"	Str.				
A6	½"φ	2	7'-8"	Str.				
A7	½"φ	2	8'-4"	Str.				
A8	½"φ	2	8'-10"	Str.				
A9	½"φ	6	3'-6"	Str.				
A10	½"φ	3	2'-8"	Str.				
F1	¾"φ	40	6'-7"	II	5'-7"		3"	2½"
F2	⅝"φ	14	6'-3"	II	5'-5"		2½"	2"
F3	½"φ	13	19'-8"	Str.				

J.R.E.

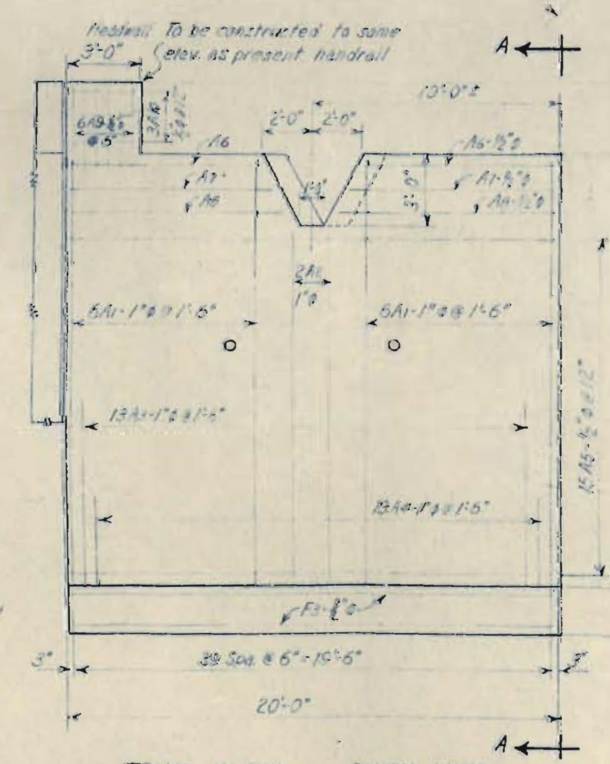
BAR SUMMARY
629 lin ft of ½"φ @ 0.668 #/ft = 420#
88 lin ft of ⅝"φ @ 1.043 #/ft = 92#
263 lin ft of ¾"φ @ 1.502 #/ft = 395#
632 lin ft of 1"φ @ 2.67 #/ft = 1687#
Overrun 1% = 26#
TOTAL 2620#

BENDING DIAGRAMS

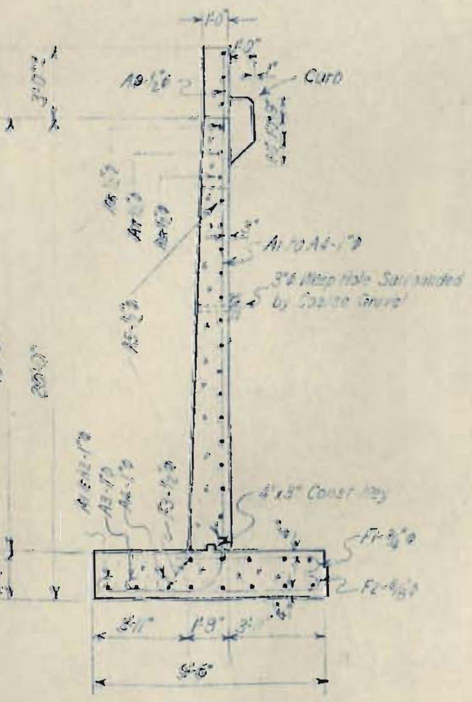


POURING SCHEDULE

Footing	14.0 cu yd.
Wingwall, Headwall & Curb	18.0 cu yd.
TOTAL	32.0 cu yd.



TRUE ELEV. OF SOUTH WING



SECT. A-A

MAX. FOOTING PRESSURE = 1.65 T. per Sq. Ft.

GENERAL NOTES

All work shall be done according to the Standard Specifications of The Colorado State Highway Department - Adopted January 1, 1948.

All concrete shall be Class "A" and air entrained as specified.

Forms for concrete surfaces exposed in the finished work shall be constructed of Shiplap or tongue and groove lumber S3S unless faced with panel board.

All concrete exposed to view shall receive Class "1" surface finish.

All reinforcing bars shall be intermediate grade, deformed, and tagged with the station number and letter designation. Main bars shall not be spliced.

Footings in rock shall be poured out to rock and not formed.

DESIGNING DATA
AASHO 1949 UNIT STRESSES
fc = 1000 lbs. per sq. in.
fs = 20000 lbs. per sq. in.
n = 10

COLORADO STATE HIGHWAY DEPARTMENT

REPLACEMENT OF EXISTING SOUTH WING WITH NEW REINFORCED CONCRETE WING

Across PURGATOIRE RIVER
Sta. 1200+42
Near Trinidad Sec. 27 T 33S R 67W

Designed by PC
Made by PC
Approved by P. L. Bailey
Bridge Engineer

STRUCTURE No. P-17-H

REVISIONS
Rev 12-13-47 J.P.K.
Rev 7-1-49 J.R.E.
Rev 9-14-50 J.E.R.

STANDARD M-10-B.	FED. ROAD DIST. NO.	STATE	SHEET NO.	TOTAL SHEETS
	3	COLO.	50636(1)	9

1 2 3 4 5 6 7 8 9 0.

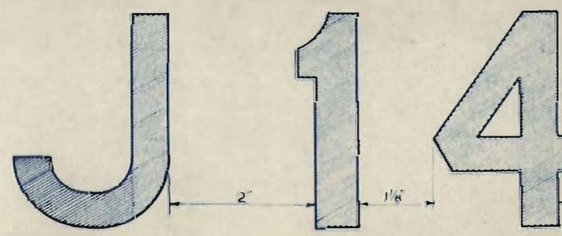
A B C D E F G H I J K L

M N O P Q R S T U V W

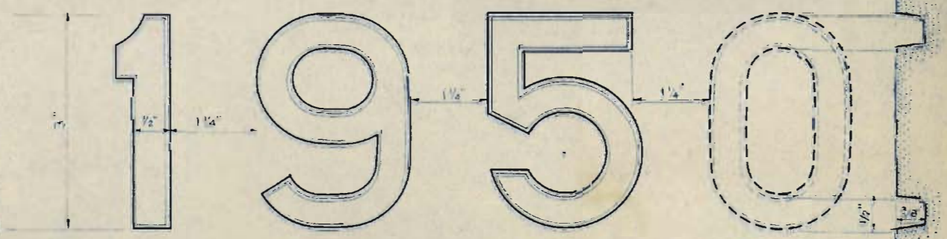
a f g l J 14 K 1950

abcdefghijklmnopqrstuvwxyz

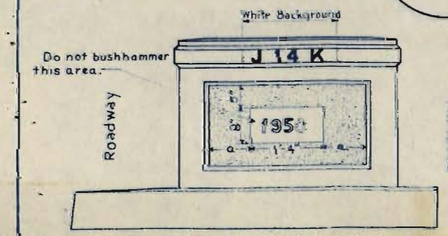
SAMPLE BRIDGE NUMBER



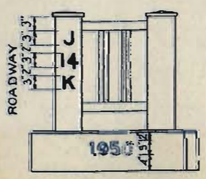
SAMPLE YEAR NUMBER



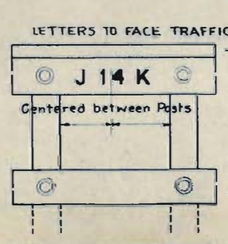
SECTION



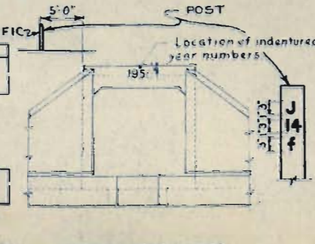
TYPICAL FOR CONCRETE ENDPOST



TYPICAL FOR STEEL HANDRAIL END POST



TYPICAL FOR TIMBER WING HANDRAIL



TYPICAL FOR LARGE BOX CULVERTS

General Notes

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT ADOPTED JANUARY 1ST 1946.

COMPENSATION FOR THIS WORK SHALL BE INCLUDED IN THE ORIGINAL CONTRACT ITEMS AND WILL NOT BE PAID FOR AS A SEPARATE ITEM.

THE SIZE, SHAPE AND SPACING OF THE LETTERS AND FIGURES SHALL BE IN ACCORDANCE WITH THE FULL SIZE SHOWN ON THIS SHEET.

ADDITIONAL COPIES OF THIS FULL SIZE SHEET CAN BE OBTAINED FROM THE DEPARTMENT WITHOUT CHARGE.

THE YEAR NUMBERS ARE RECESSED IN CONCRETE 1/8 MINIMUM AS SHOWN INTO THE PANEL OF THE END POST ON THE RIGHT HAND SIDE OF EACH BRIDGE END AND INTO THE FACE OF THE DOWNSTREAM HEADWALL OF CULVERTS AS SHOWN ON PLAN DETAILS. NUMBERS TO BE MADE OF WOOD METAL OR OTHER SUITABLE MATERIAL AND ATTACHED TO THE FORMS BEFORE CONCRETE IS POURED.

THE YEAR NUMBER OF EACH STRUCTURE SHALL CORRESPOND WITH THE YEAR IN WHICH THE CONCRETE IS POURED.

THE STRUCTURE NUMBER SHALL BE STENCILED ON THE RIGHT HAND SIDE OF EACH BRIDGE END AS SHOWN ON THIS STANDARD AND AS SPECIFIED FOR MAJOR STRUCTURES OVER 20'-0" CLEAR SPAN.

THE CORRECT NUMBER FOR EACH BRIDGE IS SHOWN IN THE LOWER RIGHT HAND CORNER OF THE DETAIL SHEETS FOR THAT BRIDGE.

A PROPER WHITE BACKGROUND RECTANGULAR IN SHAPE AND EXTENDING THREE INCHES BEYOND THE LIMITS OF THE NUMBER SHALL BE PAINTED WITH TWO COATS OF ACCEPTABLE WHITE PAINT UNLESS AN APPROVED WHITE CONCRETE PAINT IS USED. BEFORE PAINTING THE SURFACE MUST BE THOROLY DRIED, CLEANED AND PROPERLY SIZED. ON TIMBER HANDRAILS THE WHITE PAINT USED ON THE BRIDGE WILL BE SATISFACTORY.

AFTER THE WHITE BACKGROUND HAS DRIED SUFFICIENTLY THE CORRECT STRUCTURE NUMBER SHALL BE CAREFULLY STENCILED ON IT WITH TWO COATS OF SECOND FIELD COAT-DARK OR EXTERIOR BLACK PAINT(MAINT) AS SPECIFIED UNDER ITEM 38 PAINTS AND OILS (M) THE BRACES OF THE STENCILED LETTERS AND FIGURES SHALL BE CAREFULLY FILLED IN BY HAND TO MAKE SOLID FIGURES.

SUFFICIENT TIME BETWEEN SUCCESSIVE COATS SHALL BE ALLOWED TO PERMIT THORO DRYING.

MINOR STRUCTURES WITH CLEAR SPANS 12 TO 20 FEET INCLUSIVE SHALL BE STENCILED WITH STRUCTURE NUMBER THUS W-18-2 ON 3" STEEL MARKER POSTS WHERE PROVIDED AND AS SHOWN ON STATE HIGHWAY STD M-23-A

STRUCTURE NO.

Scale in Inches 0 1 2 3

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
LETTERS AND FIGURES
FOR
YEAR NUMBERS AND STRUCTURE NUMBERS

Designed by
Made by W.F.M.
Checked by
Approved by
Bridge Engineer
Date June 1, 1949

REVISIONS

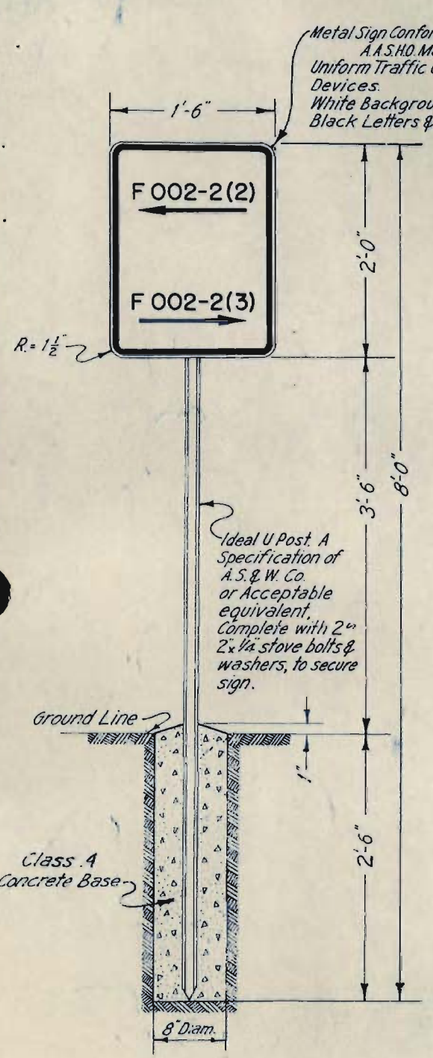
Rev. 6-28-40, A.Z. 1940 Specs.
Rev. 1-2-46, C.S.D. Item 81a

STANDARD M-7-B

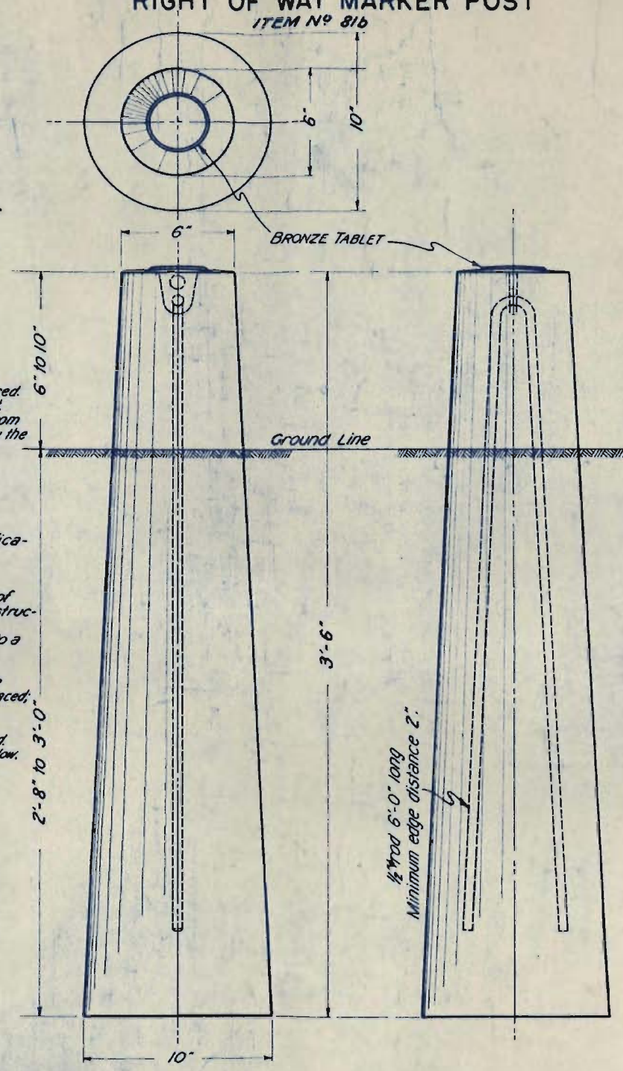
Rev. B Jan. 46 P.S.B. ½" ø to ½" ¢
Rev. June 10 '46, W.E.M. Bronze Tablet
Rev. Mar. 21-1947, W.H.M. ~ Project Marker Post.
Rev. Nov. 20-1947, J.P.K. ~ Metal Project Marker
Rev. Dec. 13-1947, J.P.K. ~ Concrete Base for Metal Project Marker
Rev. July 5-1950, J.C.R. ~ Rev. Note Re. Metal Sign for Project Marker, & R.O.W. Marker Markings.

FED. ROAD DIST. NO.	STATE		SHEET NO.	TOTAL SHEETS
3	COLO.	S0036(1)	7A	

PROJECT MARKER POST
ITEM No 81a



RIGHT OF WAY MARKER POST
ITEM No 81b



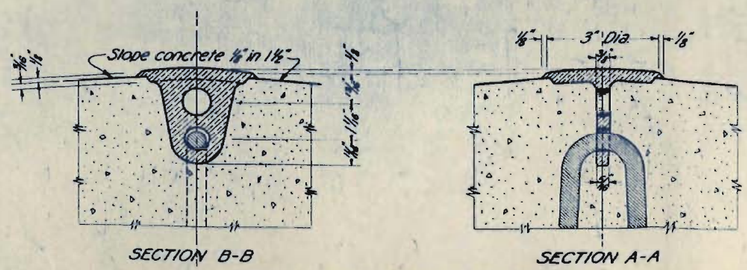
NOTES FOR PROJECT MARKER POSTS

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted January 1st 1948

Numbers and arrows shall show the proper numbers and directions of the projects each way from where the post is placed. Post to be set with sign facing the road at the end of the project, two feet inside the R.O.W. line or at a point amply protected from traffic in such a position that the sign will indicate properly the projects to which it refers.

NOTES FOR R.O.W. MARKER POSTS

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted January 1st 1948
Posts shall be made of Class "A" Concrete.
The upper 12 inches of marker posts shall be rubbed free of form marks, and the top surface of the post must be constructed to drain thoroughly.
All exposed surfaces of the bronze tablet are to be ground to a smooth surface.
All letters are to be depressed a minimum of 1/16 inch.
Information on the bronze tablet indicated by pin lines is to be stamped in the field by the engineering party after post is placed.
⅜ inch letters and figures to be used.
Project designations on tablets shall be properly shown.
I.E., F.I. for Fed. Aid Interstate, F. for Fed. Aid Primary, S. for Fed. Aid Secondary etc. & S.R. Nos. for State Projects; See detail below.



DETAIL OF BRONZE TABLET
FOR RIGHT OF WAY MARKER POST

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
MARKER POSTS

Designed by R.E.L
Made by F.F.S
Checked by R.E.L
Approved by John Marshall
Date: January 1st 1948

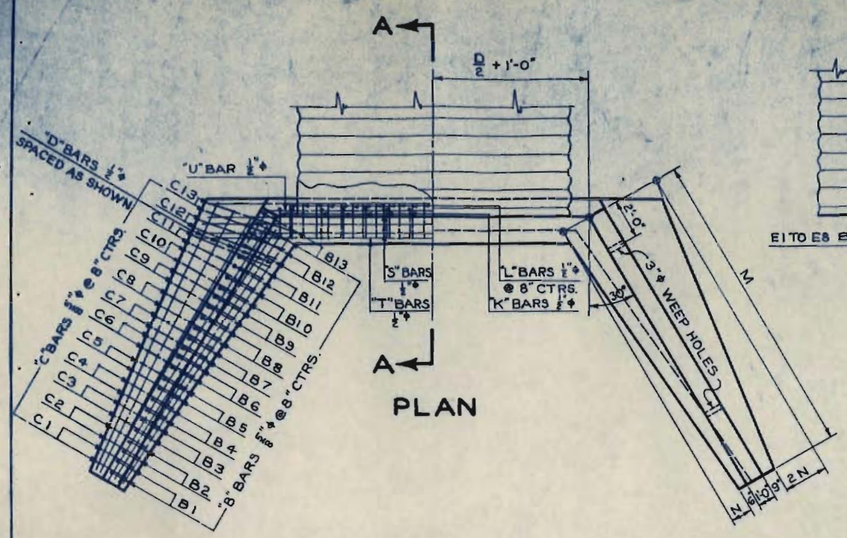
REVISIONS Rev. 2-7-48 Added T bars & length of anchors #28
Rev. 4-15-48 Added Note 15° Skew. H.A.W.
Rev. 6-29-48 Added note on pouring concrete "C"

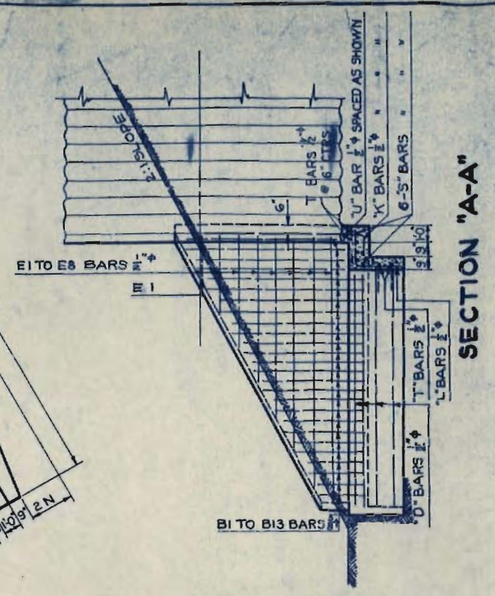
STANDARD M-115-BX

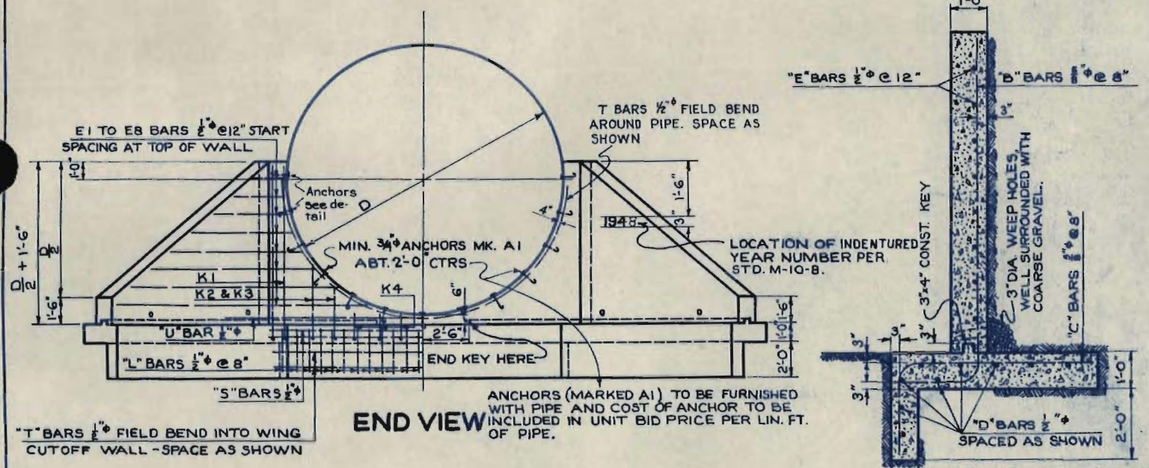
Rev. 6-29-1950, A.L.P. Added anchor detail.

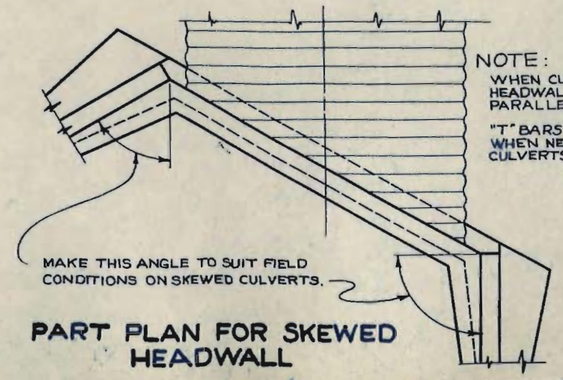
FED. ROAD DIST. NO.	STATE		SHEET NO.	TOTAL SHEETS
3	COLO.	5003(01)	8	

JER. & H.W.P.



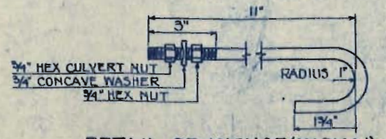






NOTE:
WHEN CULVERT IS SKEWED, 15 DEGREES OR MORE, HEADWALLS SHALL BE PLACED PARALLEL TO ℄ OF ROADWAY

"T" BARS TO BE LENGTHENED WHEN NECESSARY TO FIT SKEWED CULVERTS.



BENDING DIAGRAMS

JER. - H.W.P.

ALL DIMENSIONS ARE TO ℄ OF BARS

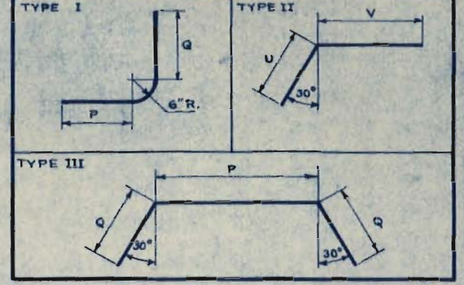


TABLE OF DIMENSIONS & QUANTITIES

JER. - H.W.P.

DIAMETER OF PIPE -D-	LENGTH OF WINGWALL -M-	NUMBER OF L BARS FOR TWO H'DWLS.	DIMENSION -N-	QUANTITIES FOR TWO HEADWALLS	
				CONCRETE CU. YD.	STEEL* LB.
60"	5'-9 1/2"	16	4"	9.4	780
66"	6'-4 1/2"	16	4 1/2"	7.5	840
72"	6'-11"	18	5"	11.5	875
75"	7'-2 1/2"	20	5 1/2"	12.1	845
78"	7'-6"	20	6"	12.7	960
84"	8'-1"	22	6 1/2"	13.9	1070
90"	8'-8"	24	7"	15.0	1155
96"	9'-3"	24	7 1/2"	16.3	1235
102"	9'-10"	26	8"	17.6	1325
108"	10'-5"	28	8 1/2"	18.9	1390
114"	11'-0"	30	9"	20.3	1480
120"	11'-6 1/2"	32	9 1/2"	21.6	1570
126"	12'-1"	32	10"	23.0	1660
132"	12'-8"	34	10 1/2"	24.4	1800
135"	13'-0"	36	10 1/2"	25.1	1820
138"	13'-3"	36	11"	26.0	1900
144"	13'-10"	38	11 1/2"	27.5	2000
150"	14'-5"	40	1'-0"	29.0	2030
156"	15'-0"	40	1'-0 1/2"	30.7	2180
162"	15'-7"	42	1'-1"	32.3	2290
168"	16'-2"	44	1'-1 1/2"	33.9	2390
174"	16'-9"	46	1'-2"	35.7	2500
180"	17'-4"	48	1'-2"	37.2	2680

*INCLUDES 1% ± OVERRUN

REINFORCEMENT BAR LIST (TWO HDWLS)

JER. - H.W.P.

USE BARS FOR	MARK	SIZE	Nº REQ'D.	DIMENSIONS		TOTAL LENGTH	TYPE
ALL SIZES	B 1	1"ϕ	8	P= 0'-7"	Q= 1'-10"	3'-2"	I
" "	B 2	1"ϕ	8	P= 0'-8"	Q= 2'-5"	3'-10"	I
" "	B 3	1"ϕ	8	P= 0'-9 1/2"	Q= 2'-11 1/2"	4'-6"	I
" "	B 4	1"ϕ	8	P= 0'-10 1/2"	Q= 3'-6 1/2"	5'-2"	I
D= 60"	B 5	1"ϕ	4	P= 0'-11 1/2"	Q= 4'-1 1/2"	5'-10"	I
D=66" AND OVER			8				
D= 75", D=78"	B 6	1"ϕ	4	P= 1'-0 1/2"	Q= 4'-8 1/2"	6'-6"	I
D=84" AND OVER			8				
D=90"	B 7	1"ϕ	4	P= 1'-1 1/2"	Q= 5'-3 1/2"	7'-2"	I
D=96" AND OVER			8				
D=102", D=108"	B 8	1"ϕ	4	P= 1'-2 1/2"	Q= 5'-10 1/2"	7'-10"	I
D=114" AND OVER			8				
D=120"	B 9	1"ϕ	4	P= 1'-3 1/2"	Q= 6'-5 1/2"	8'-6"	I
D=126" AND OVER			8				
D=132", D=135"	B 10	1"ϕ	4	P= 1'-4 1/2"	Q= 7'-0 1/2"	9'-2"	I
D=138" AND OVER			8				
D=144", D=150"	B 11	1"ϕ	4	P= 1'-5 1/2"	Q= 7'-7 1/2"	9'-10"	I
D=156" AND OVER			8				
D=162"	B 12	1"ϕ	4	P= 1'-7"	Q= 8'-2"	10'-6"	I
D=168" AND OVER			8				
D=174"	B 13	1"ϕ	4	P= 1'-8"	Q= 8'-9"	11'-2"	I
D=180"			8				
ALL SIZES	C 1	1"ϕ	8	P= 1'-5"	Q= 2'-0 1/2"	4'-2 1/2"	I
" "	C 2	1"ϕ	8	P= 1'-8 1/2"	" "	4'-5 1/2"	I
" "	C 3	1"ϕ	8	P= 1'-11 1/2"	" "	4'-9"	I
" "	C 4	1"ϕ	8	P= 2'-2 1/2"	" "	5'-0 1/2"	I
D= 60"	C 5	1"ϕ	4	P= 2'-6"	" "	5'-3 1/2"	I
D=66" AND OVER			8				
D= 75", D=78"	C 6	1"ϕ	4	P= 2'-9 1/2"	" "	5'-6 1/2"	I
D=84" AND OVER			8				
D=90"	C 7	1"ϕ	4	P= 3'-0 1/2"	" "	5'-10"	I
D=96" AND OVER			8				
D=102", D=108"	C 8	1"ϕ	4	P= 3'-3 3/4"	" "	6'-1 1/2"	I
D=114" AND OVER			8				
D=120"	C 9	1"ϕ	4	P= 3'-7"	" "	6'-4 1/2"	I
D=126" AND OVER			8				
D=132", D=135"	C 10	1"ϕ	4	P= 3'-10 1/4"	" "	6'-7 3/4"	I
D=138" AND OVER			8				
D=144", D=150"	C 11	1"ϕ	4	P= 4'-1 1/2"	" "	6'-11"	I
D=156" AND OVER			8				
D=162"	C 12	1"ϕ	4	P= 4'-4 3/4"	" "	7'-2 1/4"	I
D=168" AND OVER			8				
D=174"	C 13	1"ϕ	4	P= 4'-8"	" "	7'-5 1/2"	I
D=180"			8				
ALL SIZES	D	1/2"ϕ	36	STRAIGHT		M-(1'-0")	STR.
" "	E 1	1"ϕ	4	U= 2'-0"	V= 1'-3"	3'-3"	II
" "	E 2	1"ϕ	4	U= 4'-5"	V= 1'-4"	5'-9"	II
" "	E 3	1"ϕ	4	U= 6'-9"	V= 1'-6"	8'-3"	II
D=84" AND OVER	E 4	1"ϕ	4	U= 9'-1"	V= 1'-11"	11'-0"	II
D=108" AND OVER	E 5	1"ϕ	4	U= 11'-4"	V= 2'-5"	13'-9"	II
D=132" AND OVER	E 6	1"ϕ	4	U= 13'-9"	V= 3'-2"	16'-11"	II
D=156" AND OVER	E 7	1"ϕ	4	U= 16'-0"	V= 4'-2"	20'-2"	II
D=180"	E 8	1"ϕ	4	U= 17'-4"	V= 5'-9"	23'-1"	II
ALL SIZES	K 1	1"ϕ	8	P= 1/2 H(1'-6 1/2")	Q= 1'-3 1/2"	P+(2'-0 1/2")	I
" "	K 2	1"ϕ	4	P= 0.25 D	" "	" "	I
" "	K 3	1"ϕ	4	P= 0.15 D	" "	" "	I
" "	K 4	1"ϕ	12	P= 0'-7"	" "	2'-7 1/2"	I
" "	L	1"ϕ	▲	P= 1'-6 1/2"	Q= 2'-0 1/2"	4'-4"	I
" "	S	1/2"ϕ	12	STRAIGHT		D+(4'-3")+4N	STR.
" "	T	1/2"ϕ	8	FIELD BEND		D+(4'-0")	STR.
" "	U	1"ϕ	2	P= D+2'-10"	Q= 2'-0"	D+(6'-10")	III

▲ SEE TABLE OF DIMENSIONS AND QUANTITIES

GENERAL NOTES

ALL WORK SHALL BE DONE ACCORDING TO THE SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT, ADOPTED JAN. 1, 1948.
ALL CONCRETE SHALL BE CLASS "A".
ALL EXPOSED SURFACES SHALL BE RUBBED FREE OF FORM MARKS.
ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS POURED.
SECONDARY BARS WHEN SPLICED SHALL BE GIVEN A LAP OF (50) FIFTY DIAMETERS.
ALL WALLS SHALL HAVE FORMS ON BOTH SIDES.
ALL REINFORCING BARS SHALL BE TAGGED WITH THE STATION NUMBER AND LETTER DESIGNATION.
END STRUTTING FOR PIPES SHALL BE GRADUATED FROM FULL ROUND AT THE HEADWALL TO FULL ELONGATION AT (20) TWENTY FT. DISTANCE FROM EACH END.
COST OF ANCHORS TO BE INCLUDED IN UNIT BID PRICE PER LIN. FT. OF PIPE.
ALL CONCRETE SHALL BE "AIR-ENTRAINED" AS SPECIFIED.
ALL SURFACES EXPOSED TO VIEW ON THE HEAD WALLS SHALL RECEIVE CLASS 1 SURFACE FINISH.
HORIZONTAL CONSTRUCTION JOINTS NOT REQUIRED WHEN FOOTING AND WALLS ARE POURED MONOLITHICALLY.
ALL ANCHORS, BOLTS, NUTS AND WASHERS TO BE HOT DIP GALVANIZED.

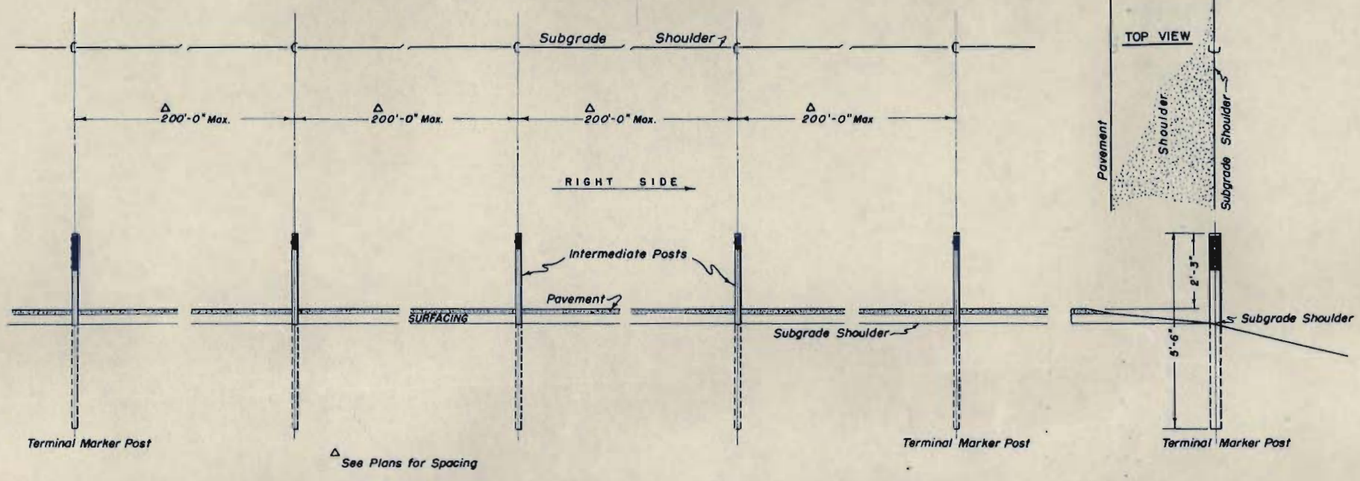
COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD CORR. METAL PIPE CULVERT HEADWALL

60"	90"	126"	156"
66"	96"	132"	162"
72"	102"	135"	168"
75"	108"	138"	174"
78"	114"	144"	180"
84"	120"	150"	

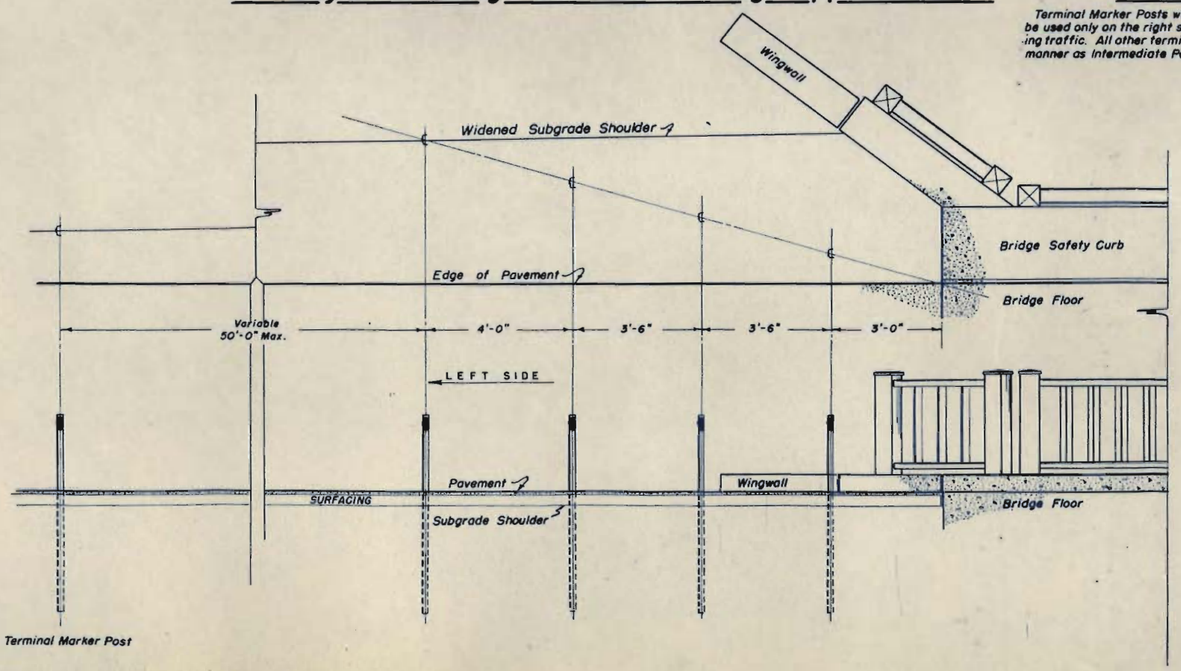
Designed by T.G. Approved by C.A. Bradley
Made by J.E.R. Bridge Engineer
Checked by H.W.P. Date: 6-29-48

MARKER POST

Layout Showing Placement on Normal Roadway Fills



Layout Showing Placement at Bridge Approaches



NOTE

Terminal Marker Posts with four (4) Reflector Units will be used only on the right side of the roadway facing approaching traffic. All other terminal posts to be marked in the same manner as Intermediate Posts.

General Notes

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department applicable to the Project.

All posts shall be securely set or driven at locations shown on plans and as staked by the Engineer.

All posts shall be placed in such position that reflector units will function at a distance of 500 feet. On tangents posts shall be placed at an angle of approximately 5 degrees to a line parallel to the centerline of the roadway.

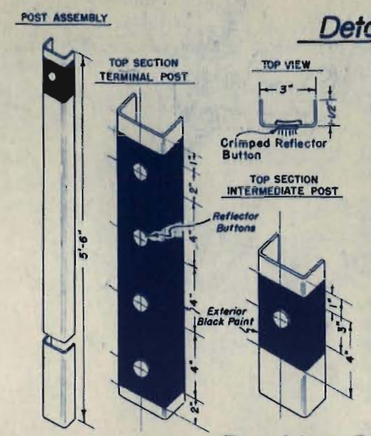
In all instances a test shall be made to assure the maximum effect from reflector units.

STANDARD M-23-A

FED. ROAD DIVISION NO.	DISTRICT		SHEET NO.	TOTAL SHEETS
9	COLO.	50036(1)	9	

Rev. 9-15-49 "J.P.K." Details for Marker Posts
Rev. 1-30-50 E.A.R. - Details for Marker Posts

Details for Marker Post



POSTS- *Channel Type Metal Post weighing not less than 2.3 lbs per linear foot. 7/8" diameter holes for reflector buttons shall be made as indicated on post detail*

REFLECTOR BUTTONS- *"No.1 Stimsonite" Reflector Buttons or an acceptable equivalent to be attached to post by crimping the button in hole as indicated on post detail*

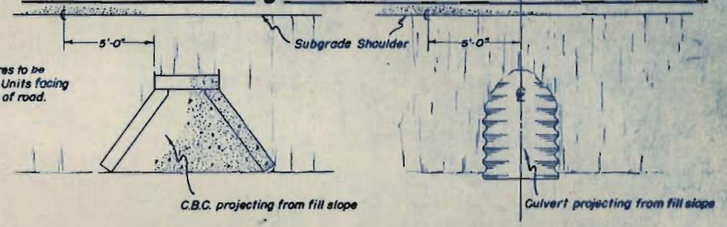
MARKINGS- *Posts to receive Zinc Chromate Shop Coat and painted with two (2) coats of Aluminum Paint above the ground line. One (1) coat of Exterior Black Paint to be applied at reflector button area as shown in detail.*

DIMENSION TOLERANCES: *Cross-Section dimensions shall have not more than 1/16" tolerance.*

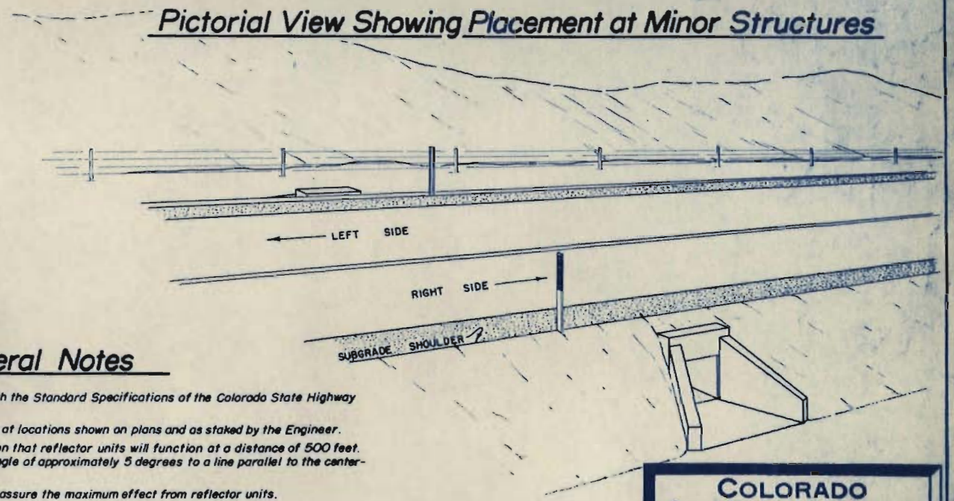
Plan View Showing Placement at Minor Structures

NOTE

Marker Posts at minor structures to be provided with four (4) Reflector Units facing approaching traffic on right side of road.



Pictorial View Showing Placement at Minor Structures



COLORADO
STATE HIGHWAY DEPARTMENT

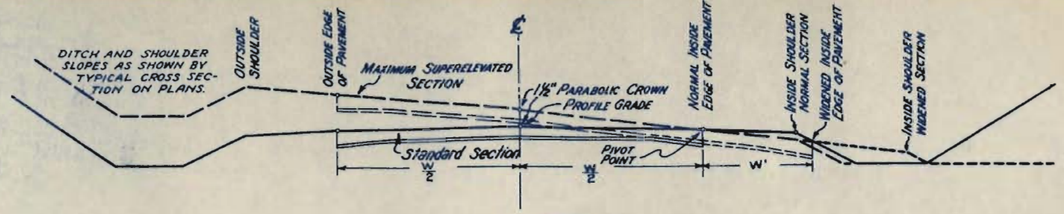
Marker Post

Designed by C.G.M.	Approved by [illegible]
Made by C.G.M.	Engineer, Surveys & Plans
Checked by [illegible]	Date: 9-15-1949

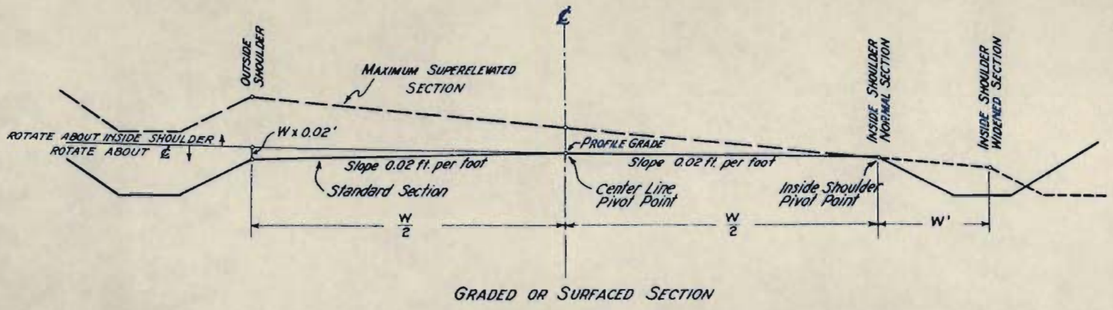
STANDARD M-I-B

U.S. ROUTE	STATE	
DIST. NO. 3	COLO.	S0036(1) 10

Rev 11-2-38 P.B.B. Widening Transition.
Rev 12-13-47 J.P.K.



PAVEMENT SECTION

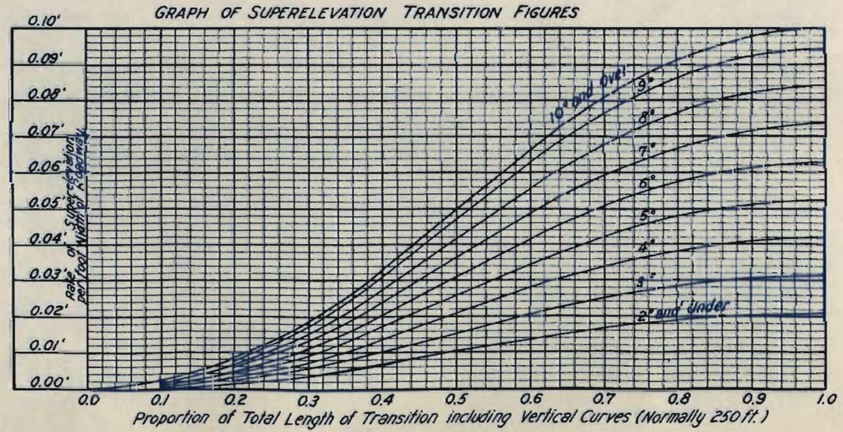


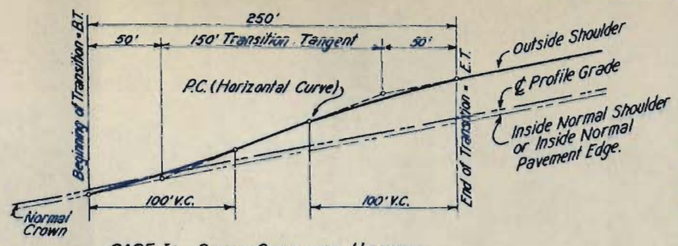
GRADED OR SURFACED SECTION

SUPERELEVATION AND WIDENING TABLES

DISTANCE FROM B.T. (PROPORTION)	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	Max. 1.0
Degree of Curvature	RATE OF SUPERELEVATION (IN FEET) PER FOOT WIDTH OF ROADWAY									
2° and Under	0.00044	0.00175	0.00394	0.00700	0.01050	0.01400	0.01706	0.01925	0.02056	0.02100
3°	0.00066	0.00263	0.00591	0.01050	0.01575	0.02100	0.02559	0.02888	0.03084	0.03150
4°	0.00088	0.00350	0.00788	0.01400	0.02100	0.02800	0.03413	0.03850	0.04113	0.04200
5°	0.00109	0.00438	0.00984	0.01750	0.02625	0.03500	0.04266	0.04813	0.05141	0.05250
6°	0.00131	0.00525	0.01181	0.02100	0.03150	0.04200	0.05119	0.05775	0.06169	0.06300
7°	0.00153	0.00613	0.01378	0.02450	0.03675	0.04900	0.05972	0.06738	0.07197	0.07350
8°	0.00175	0.00700	0.01575	0.02800	0.04200	0.05600	0.06825	0.07700	0.08225	0.08400
9°	0.00197	0.00788	0.01772	0.03150	0.04725	0.06300	0.07678	0.08663	0.09253	0.09450
10° and Over	0.00208	0.00833	0.01875	0.03333	0.05000	0.06667	0.08125	0.09166	0.09792	0.10000
	OFFSETS FOR WIDENING - W' - (IN FEET)									
Over 10° - Under 12°	0.03	0.12	0.27	0.48	0.75	1.08	1.47	1.92	2.43	3.00
12° - " 15°	0.04	0.16	0.36	0.64	1.00	1.44	1.96	2.56	3.24	4.00
15° - " 20°	0.05	0.20	0.45	0.80	1.25	1.80	2.45	3.20	4.05	5.00
20° and Over	0.06	0.24	0.54	0.96	1.50	2.16	2.94	3.84	4.86	6.00

GRAPH OF SUPERELEVATION TRANSITION FIGURES

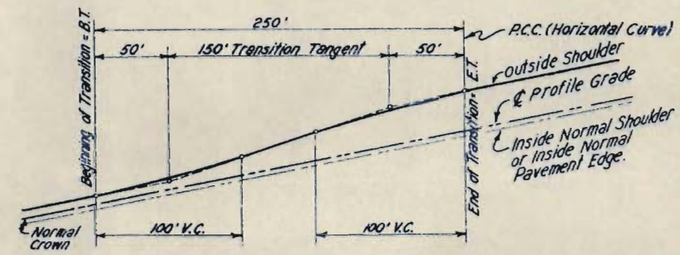




CASE I: SIMPLE CURVE WITH UNLIMITED TANGENT APPROACH

NOTE: CASE I

The transition in this case, from crowned section to superelevated section, shall proceed uniformly by raising the outside shoulder, over a distance of 250 ft. as shown, beginning at a point on the tangent 150 ft. from the end of the curve and acquiring full superelevation at a point 100 ft. inside the curve.



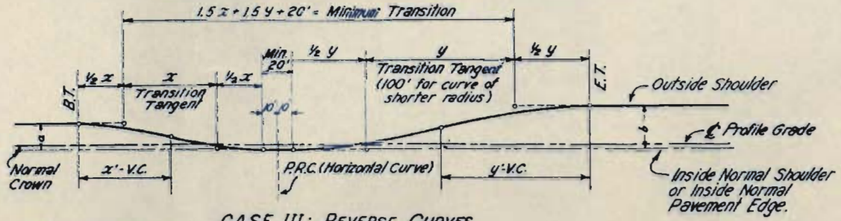
CASE II: COMPOUND CURVE

NOTE: CASE II

Superelevation transitions at the outside ends of compound curves shall be constructed in accordance with rules given under CASE I.

Superelevation transition between the arcs of different radii shall be made as in CASE I, except that the entire transition shall lie within the limits of the curve of the longer radius.

In cases where curves in the same direction have a tangent distance of less than 300 ft. between points of curve, the intervening tangent shall be superelevated an amount equal to that of the curve of greater radius and the transition shall be made as in the case of a true compound curve.



CASE III: REVERSE CURVES

NOTE: CASE III

Transitions between true reverse curves shall be accomplished as shown on the above diagram.

Transition tangents shall be directly proportional to the amount of superelevation of the respective curves.

EXAMPLE: Let a represent the amount of superelevation on 1st curve;
" b " " " " " 2nd " ;
" x " " " " transition tangent on 1st " ;
" y " " " " " 2nd " ;
then, a : b = x : y.

The transition tangent of the curve having the shorter radius shall be set at 100 ft.

A normal crowned section 20 ft. long, 10 ft. on each side of the P.R.C. shall be used.

In cases where curves in opposite directions are in such proximity that a standard transition can not be had, the practice outlined for true reversing curves shall be used.

The total distance between the P.T. of the first curve and the P.C. of the succeeding curve shall be prorated into the transition distance of the respective curves until a maximum of 150 ft. of transition tangent for each curve is achieved.

GENERAL NOTES

Curves on projects using the Sections shown are to be superelevated and widened as indicated in the accompanying drawings and tables.

The normal inside edge of the Pavement slab is to remain at the standard elevation of 0.125 ft. below the profile grade, and the outside edge of the slab is to be superelevated at the rate per foot width of roadway given in the table. The Section is to be rotated about the normal inside edge of the Pavement, with a 1½" parabolic crown for curves of 10° and under, and a flat crown for widened Sections.

The normal inside edge of the Graded or Surfaced Section is to remain at the standard elevation of 0.02 ft. per foot width of roadway below the profile grade, or as shown on the Typical Section for the Project. Also, the center-line pivot point is to be used until the superelevation equals 0.02 ft. per foot width of roadway, but when this elevation is exceeded the normal inside shoulder pivot point is to be used.

When the degree of curvature exceeds 10°, the inside edge of the Pavement slab or the inside shoulder of the Graded or Surfaced Section is to be widened from the normal inside edge or shoulder, respectively, as shown by the table and plan or by cross-sections. Curves of 10° or less are not to be widened.

The slope of the shoulders and widened sections shall conform to the rate per foot width of roadway required, except that the inside shoulder of paved sections shall maintain the Typical Section slope until this slope is exceeded by the required superelevation slope.

The outside ditch on superelevated Sections is to be modified, where necessary to provide drainage. Otherwise, this ditch shall conform to normal ditch section shown for Project.

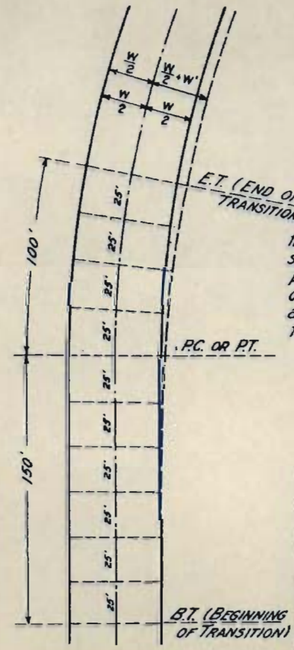
The rate of superelevation per foot width of roadway to be applied at the outside shoulder of the roadway is computed as follows:

The full superelevation per foot width of roadway rate for a given degree of curvature is

0.0105 ft. x Degree of Curvature.

The maximum superelevation of 0.10 ft. per foot width, applying to curves of 10° and over, is not to be exceeded.

Special transition problems not covered by this standard sheet shall be covered by appropriate notes included with curve data on plans.



GENERAL PLAN OF WIDENING

Curves of over 10° are to have the inside portion of the pavement slab and shoulder, or the inside portion and shoulder in a graded or surfaced section, widened in accordance with the plan, offsets for widening, and cross sections.

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD METHODS FOR SUPERELEVATION & WIDENING OF CURVES

Designed by R.E.L.
Made by P.B.B.
Checked by E.E.S. & M.
Approved: J.C. Marshall
Date: January 1st 1948

REVISIONS

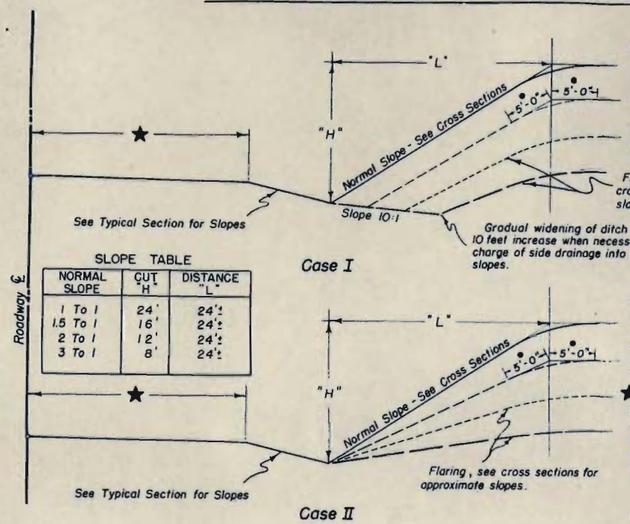
FED. ROAD DIVISION NO.	DISTRICT		SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(1)	11	

STANDARD M-2-DM

Rev. 7-12-49, C.G.M., Details for widening at Crest of Grades
Rev. 12-7-49, C.G.M., Rev notes re Type I Rd. Apprs. & widen. at Bridge Apprs., added note re accell & decell. lanes

STANDARD SIDE APPROACH ROADS, FLARING, CUT SLOPE TREATMENT & WIDENING AT BRIDGES AND AT CREST OF GRADES

GENERAL DETAILS FOR FLARING OF EARTH CUTS, CUT SLOPE TREATMENT & WIDENING AT BRIDGES



SLOPE TABLE

NORMAL SLOPE	CUT "H"	DISTANCE "L"
1 To 1	24'	24'±
1.5 To 1	16'	24'±
2 To 1	12'	24'±
3 To 1	8'	24'±

FLARING OF EARTH CUTS: *The backslopes at ends of all earth cuts shall be flattened & where necessary the ditch shall be widened gradually to discharge side ditch drainage away from the base of adjacent fill slopes in order to avoid erosion & to improve appearance. The transition of flattened backslopes & widened ditch shall be constructed in such a manner that a uniform appearance of slope & ditch results. Backslopes shall be flared to the approximate "L" distance shown on Slope Table included with this detail. Rock cuts shall not be flared.*

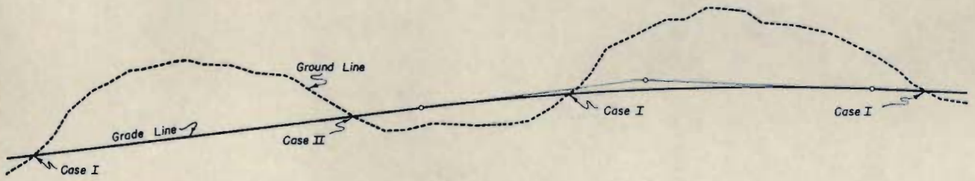
Flaring with widened ditch, see cross sections for approximate slopes.

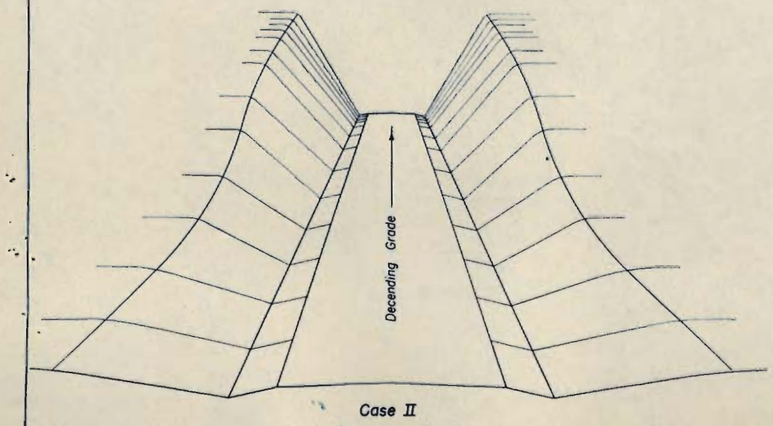
● CUT SLOPE TREATMENT IN EARTH CUTS: *The intersection of cut slopes with the existing ground shall be rounded in earth cuts, beginning 5 ft. outside the slope stake and extending 5 ft. down the cut slope. Where the cut slope is less than 5 ft. reduce each of the above widths of slope treatment to the actual slope distance. Quantities shall be included in "Unclassified Excavation."*

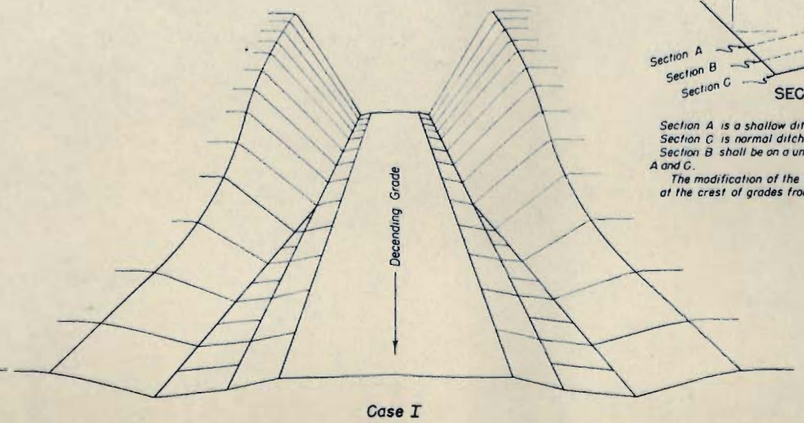
★ WIDENING AT BRIDGE APPROACHES: *Roadway embankment at bridge approaches shall be so constructed that the finish point of the subgrade shoulder is a Min. of 2 ft. beyond the outside edge of bridge deck. Where widening of the section is necessary to achieve this result it shall take place gradually over a distance of 300 ft. This is done to accomodate guard fence and/or guard or marker posts at bridge approaches. (See additional requirements for Guard Fences below)*

WIDENING TO ACCOMODATE GUARD FENCES: *At all locations on the project (except as provided above for bridge approaches) where guard fence is to be constructed the shoulders shall be widened 2 ft. to provide additional lateral support for guard fence posts.*

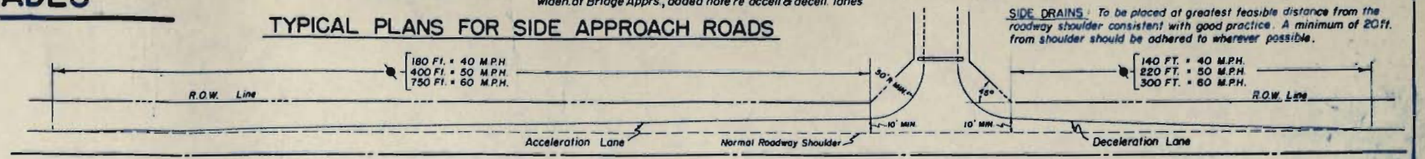
PLAN OF FLARING IN EARTH CUTS







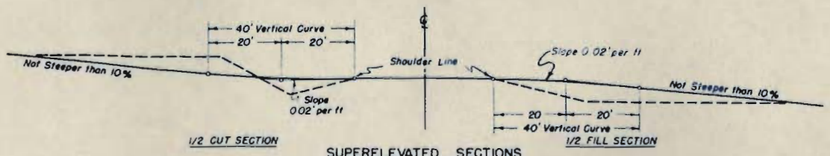
TYPICAL PLANS FOR SIDE APPROACH ROADS



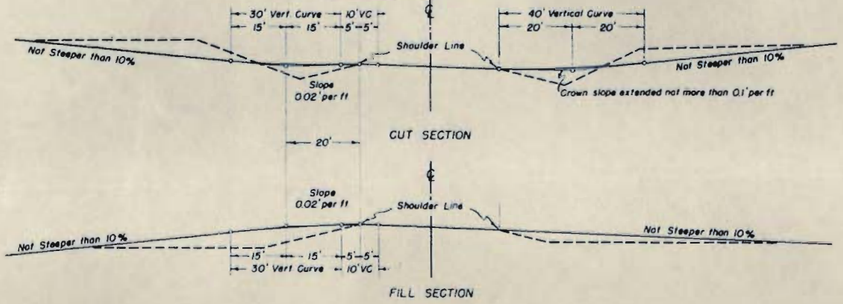
SIDE DRAINS: *To be placed at greatest feasible distance from the roadway shoulder consistent with good practice. A minimum of 20 ft. from shoulder should be adhered to wherever possible.*

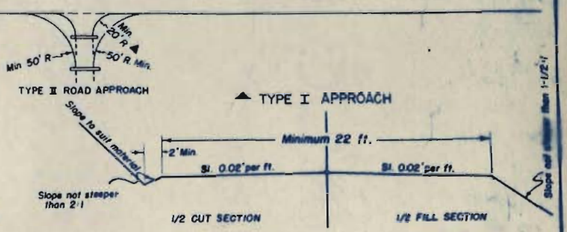
● *Values shown are general, see plans for specific requirements of each Type I Road Approach.*

STANDARD CROWNED SECTION



SUPERELEVATED SECTIONS





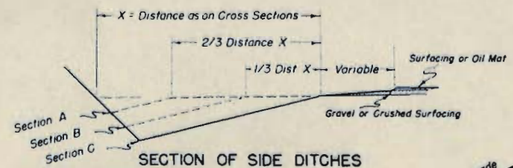
▲ TYPE I ROAD APPROACHES: *To be used only when called for on plans. The width of crowned section shall not be less than the existing crowned width of the approaching road but in no case shall less than twenty two (22) feet.*

● TYPE II ROAD APPROACHES: *To be used at all places which are not indicated as "Type I Road Approaches." The width of crowned section shall not be less than the existing crowned width of the approaching road but in no case shall be less than sixteen (16) feet.*

▲ 20 FT. RADII: *To be used only on private road approaches.*

DETAILS FOR DITCH & WIDENED SHOULDERS AT CREST OF GRADES

(TO BE USED ONLY WHERE SIGHT DISTANCE AT CREST OF GRADE IS 600 FT. OR LESS)

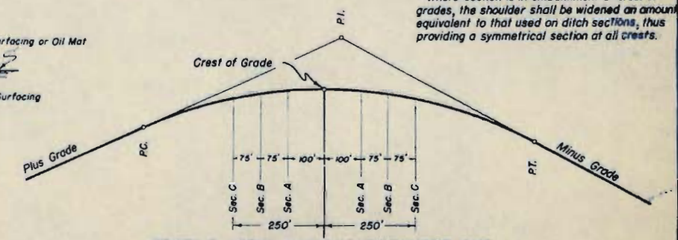


SECTION OF SIDE DITCHES

Section A is a shallow ditch section.
Section C is normal ditch section
Section B shall be on a uniform transition between Sections A and C.
The modification of the ditch indicated shall be used only at the crest of grades from which drainage breaks both ways

NOTE

Where section is in embankment at crest of grades, the shoulder shall be widened an amount equivalent to that used on ditch sections, thus providing a symmetrical section at all crests.



PROFILE VIEW SHOWING DISTANCES AND RELATIVE POSITIONS OF DITCH-TREATMENT SECTIONS

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department applicable to the Project.

All side approach roads to the Project shall be Gravel Surfaced with a four (4) inch thickness of "Gravel or Crushed Rock Surfacing" extending approximately to the Right of Way Line. Estimated tonnage & type of material required for this operation are shown in the Surfacing Plan.

The maximum grades shown are to be the limiting grades for all road approaches. Modifications of grades will be permitted where adherence to the grades as shown would cause damage to property or create other unsatisfactory conditions. Grades less than the maximum shown are to be used wherever feasible.

COLORADO
STATE HIGHWAY DEPARTMENT

STANDARD
SIDE APPROACH ROADS,
FLARING, CUT SLOPE TREATMENT,
& WIDENING AT BRIDGES AND AT
CREST OF GRADES

Designed by A.Z.
Made by C.G.M.
Checked by W.R.

Approved by L. W. Marshall
Engineer, Surveys & Plans
Date: April 20th, 1949

REVISIONS

STANDARD ROADWAY CONSTRUCTION TRAFFIC SIGNS

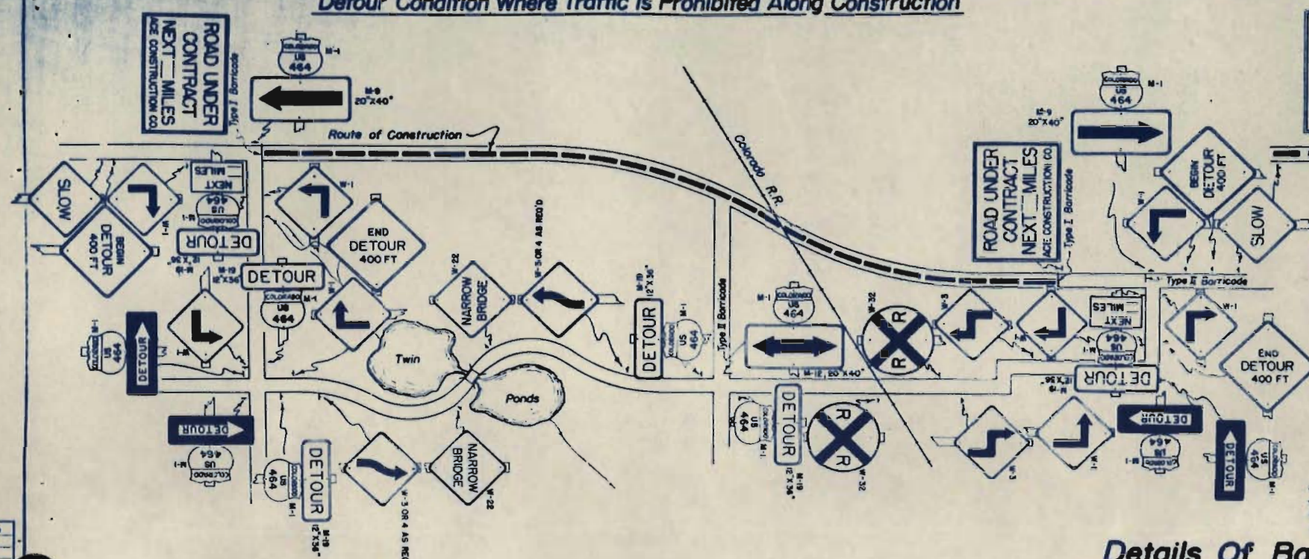
STANDARD M-2-DS

FED. ROAD DIVISION NO.	DISTRICT		SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(1)	12	

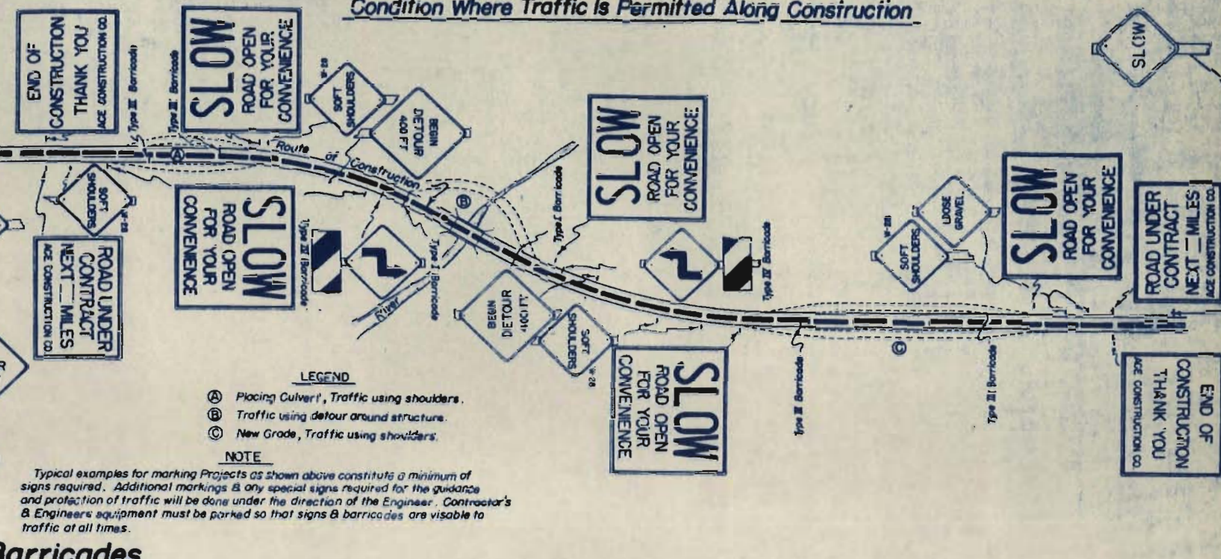
REV.- 8/16/49 - E.E.O.
REV.- 2/3/50 - E.A.R.

Typical Methods Of Marking Highways & Detours

Detour Condition Where Traffic Is Prohibited Along Construction



Condition Where Traffic Is Permitted Along Construction



LEGEND

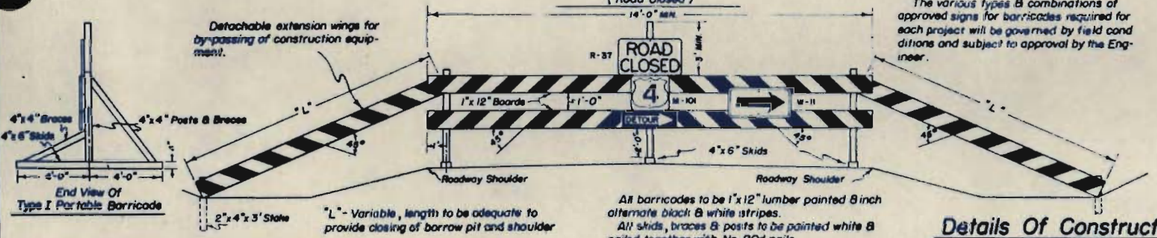
Ⓐ Placing Culvert, Traffic using shoulders.
Ⓑ Traffic using detour around structure.
Ⓒ New Grade, Traffic using shoulders.

NOTE

Typical examples for marking Projects as shown above constitute a minimum of signs required. Additional markings & any special signs required for the guidance and protection of traffic will be done under the direction of the Engineer. Contractor's & Engineers equipment must be parked so that signs & barricades are visable to traffic at all times.

Details Of Barricades

Type I (Road Closed)

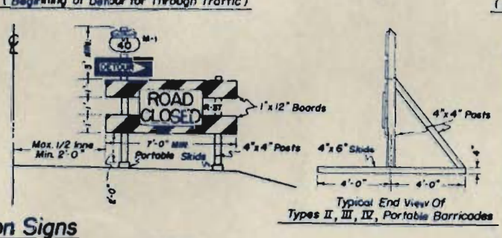


NOTE

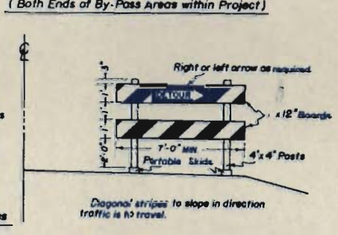
The various types & combinations of approved signs for barricades required for each project will be governed by field conditions and subject to approval by the Engineer.

All barricades to be 1"x12" lumber painted 8 inch alternate black & white stripes.
All skids, braces & posts to be painted white & nailed together with No. 20d nails.
Bases to be weighted where necessary to provide stability

Type II (Beginning of Detour for Through Traffic)

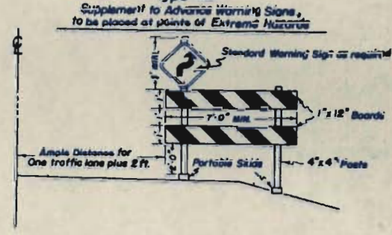


Type III (Both Ends of By-Pass Areas within Project)

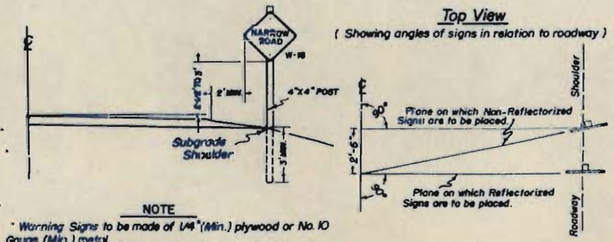


Type IV

Supplement to Advance Warning Signs, to be placed at points of Extreme Hazards



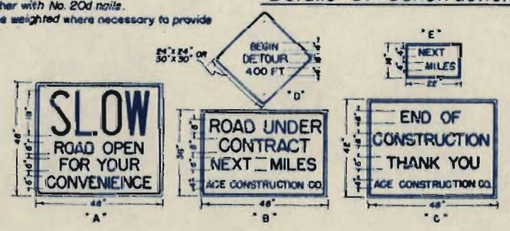
Position Of Signs Relative To Roadbed & Hazards



NOTE

" Warning Signs to be made of 1/4"(Min.) plywood or No. 10 Gauge (Min.) metal.
Location to be governed by field conditions. Exact location to be staked by the Engineer. In all cases warning signs are to be placed well in advance of hazard, the distance depending on topography, and existing approach speeds.

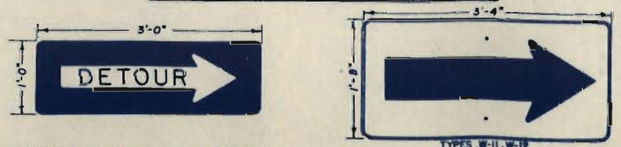
Details Of Construction Signs



MARKINGS

Construction Sign "A" - to be of 1" material painted White, the word "SLOW" lettered in Red, balance of lettering to be Black.
Construction Signs "B", "C", "E" - to be of 1" material painted White, all lettering to be Black.
Detour Warning Sign "D" to be of 1/4"(min.) plywood or No. 10 (min.) gauge metal, painted Yellow, all lettering to be Black.
Construction Signs - "B", "E" - 3.4"x 9" metal slides to be placed between words "Next & Miles" spaced so as to accomodate appropriate size numerals. Required numerals to be furnished by the Department and to be installed by the Contractor.
Signs to be fastened to 2- 4"x 4" posts set 4 ft. in the ground with a minimum of 3 cleats on the back.

Details Of Reflectorized Arrows



MARKINGS. *A White Reflectorized Arrow of "Scotchlite" Reflective Sheeting or suitable equivalent to be placed on a Black background. Letters to be 4" in height.*

TYPES W-11, W-12

MARKINGS. *A Black Arrow on a "Highway Yellow" background of "Scotchlite" Reflective Sheeting or suitable equivalent.*

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department applicable to the Project

Where traffic is maintained through or over any part of the Project, the Contractor will be required to mark all hazards within the limits of the Project with well painted, well maintained Barricades, Warning Signs and Directional Type Signs. All Barricades & Signs shall be moved added to, changed or removed as required during the progress of construction.

All Warning & Directional Type Signs will be "Reflectorized" with "Scotchlite" Reflective Sheeting or a suitable equivalent. Except for variations noted on this sheet all signs will be in conformity with the specifications outlined in "Manual on Uniform Traffic Control Devices for Streets & Highways" issue of August 1948 by the U.S. Public Roads Administration. U.S. or State Route Markers required for the Project will be furnished by the Department and installed by the Contractor. Numbers adjacent to signs refer to Standards in the Manual.

The Contractor shall furnish & install the following as required within the limits of the Project:

1.	All Barricades	As Required
2.	"SLOW, ROAD OPEN FOR YOUR CONVENIENCE" Signs	Minimum-2
3.	Standard Warning & Directional Signs	As Required
4.	"ROAD UNDER CONTRACT, NEXT ___ MILES, CONTRACTORS NAME" Signs	Minimum-2
5.	Approved Directional Arrows for Barricades	As Required
6.	"END OF CONSTRUCTION, THANK YOU, CONTRACTORS NAME" Signs	Minimum-2
7.	Torches and Flares as follows: Type I Barricades	Minimum-3
	Type III, IV Barricades	Minimum-1
	Standard Warning Signs	Minimum-1

Where traffic is prohibited from the Project, the Detour will be marked by the Department except for Barricades complete with approved Warning Signs & Arrows which will be provided, erected & maintained by the Contractor at ends of Project and intersecting roads.

All lumber used shall be of sound durable material. Barricades, Signs, Symbols & Lettering conforming to styles noted hereon will be well painted & maintained. Uneven or smeared lettering will not be accepted.

Flares and Torches shall be of the Oil Burning Type approved by the Department and shall be placed 3 ft to 5 ft ahead of the object to be illuminated. Particular care shall be taken to protect all signs and barricades from smoke and smudge arising from torches and flares.

COLORADO
STATE HIGHWAY DEPARTMENT

Standard Roadway Construction Traffic Signs

Designed by	Approved by
Made by C.G.M.	Engineer, Chief Engineer
Checked by	Date: 7-25-1949

STANDARD M-2-DS

REVISIONS

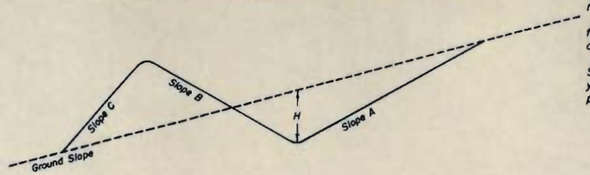
FED. AID DIVISION NO.	DISTRICT		SHEET NO.	TOTAL SHEETS
9.	COLO	5003-(9)	13	

STANDARD TYPES of DITCHES and CONSTRUCTION METHODS

STANDARD M-107-C

DETAILS for CONTOUR INTERCEPTING DITCHES

Typical Section for Contour Intercepting Ditches



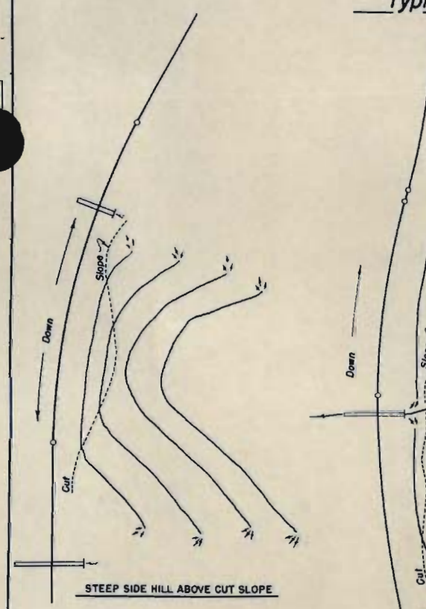
PURPOSE & USE OF THE TABLE

The primary purpose of the information for Contour and Intercepting Ditches shown on this sheet is to serve as a guide in construction and to readily arrive at yardages of excavation involved.

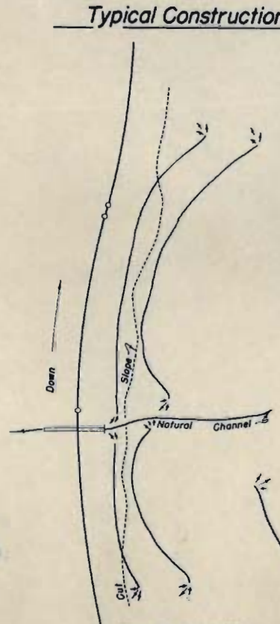
Foremost consideration in constructing these ditches is given first to the natural ground line slope confronted in construction, thence to the other values shown on the Typical Section.

By properly arriving at the combination of values shown on the Typical Section and in the Table for a specified condition, the number of cubic yards of excavation per 100 lin. ft. of ditch may be read under the appropriate column for this item.

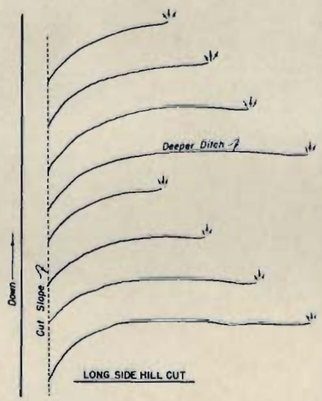
Typical Construction Layouts



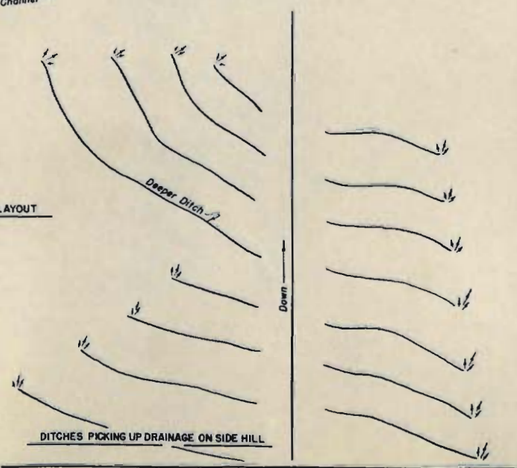
STEEP SIDE HILL ABOVE CUT SLOPE



USUAL SIDE HILL LAYOUT



LONG SIDE HILL CUT



DITCHES PICKING UP DRAINAGE ON SIDE HILL

Scale of Sketches in Feet

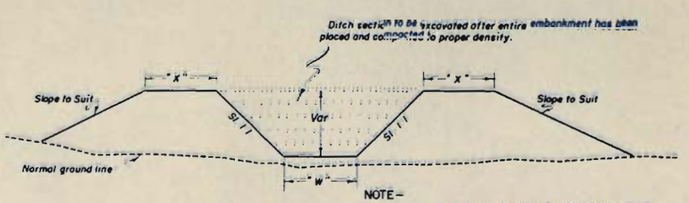
100 0 100 200 300 400

Table of Slopes and Yardages

▲ SLOPES				H	Cubic Yards per 100 lin. ft. of Ditch
Ground	A	B	C		
5:1 Or Flatter	2:1	4:1	2:1	15"	16
				18"	23
				21"	32
		3:1		15"	15
				18"	22
				21"	30
		2:1		15"	14
				18"	20
				21"	27
		1-1/2:1		15"	13
				18"	19
				21"	25
	1-1/2:1	4:1	1-1/2:1	15"	12
				18"	18
				21"	25
		3:1		15"	12
				18"	17
				21"	23
		2:1		15"	10
				18"	15
				21"	20
		1-1/2:1		15"	10
				18"	14
				21"	19
4:1	2:1	4:1	2:1	15"	17
				18"	25
				21"	34
		3:1		15"	17
				18"	24
				21"	32
		2:1		15"	15
				18"	22
				21"	30
		1-1/2:1		15"	15
				18"	21
				21"	29
	1-1/2:1	4:1	1-1/2:1	15"	13
				18"	18
				21"	25
		3:1		15"	12
				18"	17
				21"	23
		2:1		15"	11
				18"	16
				21"	21
		1-1/2:1		15"	10
				18"	14
				21"	20
3:1	2:1	3:1	2:1	15"	22
				18"	31
				21"	43
		2:1		15"	21
				18"	30
				21"	41
		1-1/2:1		15"	20
				18"	29
				21"	40
	1-1/2:1	3:1	1-1/2:1	15"	13
				18"	19
				21"	26
		2:1		15"	12
				18"	17
				21"	24
		1-1/2:1		15"	12
				18"	17
				21"	23
2:1	1-1/2:1	2:1	1-1/2:1	15"	20
				18"	29
				21"	40
		1-1/2:1		15"	20
				18"	28
				21"	39
	1:1	2:1	1:1	15"	9
				18"	13
				21"	17
		1-1/2:1		15"	8
				18"	12
				21"	16
1-1/2:1	1:1	1-1/2:1	1:1	15"	11
				18"	16
				21"	21

▲ *Slopes are approximate and may be varied to suit conditions encountered during construction.*

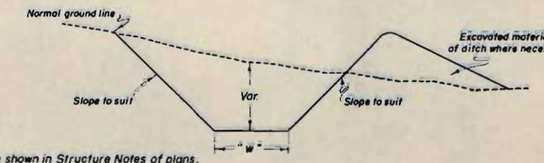
TYPICAL SECTIONS for DRAINAGE, IRRIGATION DITCHES and CHANNEL CHANGES



NOTE –
See Structure Notes on plans for dimension "W".
Dimension "X" = $\frac{W}{2}$ with minimum of 2 feet.

For Embankment Sections

(Generally for use in Irrigation Ditches & Channel Changes)



NOTE –
Unless otherwise shown in Structure Notes of plans, dimension "W" = 1 foot.

For Cut Sections

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department applicable to the Project.

All ditches are to be constructed to lines and grades as staked by the Engineer using the ditch section shown on plans or as ordered by the Engineer.

CONTOUR INTERCEPTING DITCHES: *Ditches are to be laid out along the ground contour on a grade of not over 1% (Type of soil shall govern the grade).*

Ends of ditches are to be lined up so that concentration of flow from a higher contour ditch into one of lower contour is, as far as possible avoided. The use of a deeper ditch is recommended where this condition is encountered.

The following horizontal spacing of ditches is recommended:

4% to 6%	Approximately 70' Centers
8% to 10%	Approximately 60' Centers
20% to 4:1 Slope	Approximately 55' Centers
30% to 1-1/2:1 Slope	Approximately 50' Centers

Where ditch checks are required the intervening ditch between one set of ditch checks shall not exceed a grade of 1.0%. Details of checks will be shown on plans when required.

COLORADO
STATE HIGHWAY DEPARTMENT

Standard Types of Ditches and Construction Methods

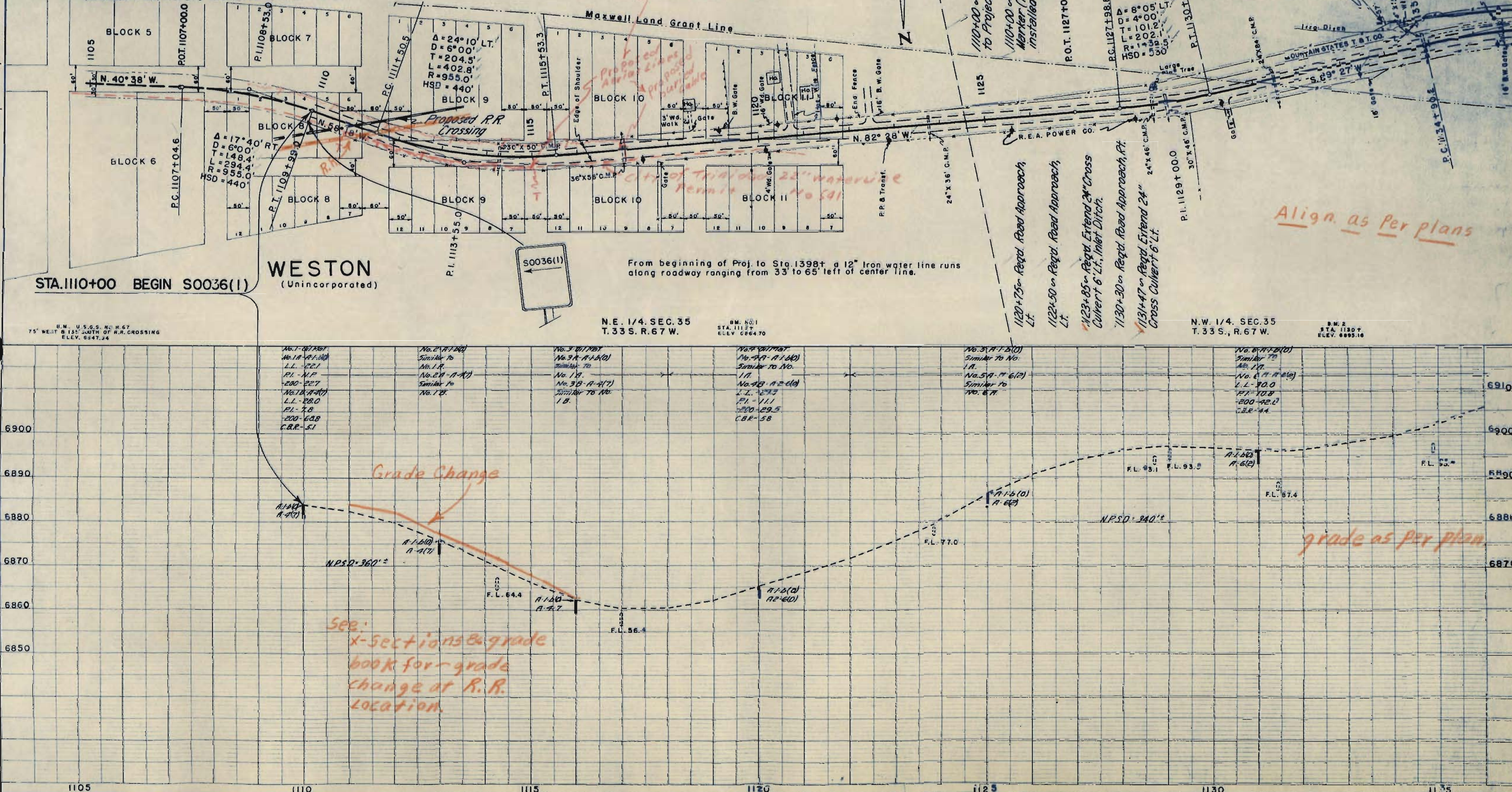
Designed by C.G.M.
Made by C.G.M.
Checked by

Approved by [signature]
Engineer of Surveys & Plans
Date: Aug. 18, 1950

FED. ROAD DIV. NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(1)	14	

NOTE:
Alignment and Grades as shown are subject to modification during construction after approval by the Denver Office.

Soil data shown on the plans is obtained from the best available testing laboratory information. This information is shown for convenience of the Contractor and the Department does not guarantee the accuracy of these tests. If materials not conforming to the data on plans are encountered during construction the grading plan shown on plans will be modified where necessary to secure dense, stable embankments.
All signs encroaching on construction shall be moved by owners.
Marker Posts, Ballast Plan, etc. are tabulated on sheet No. 3.



N.E. 1/4. SEC. 35
T. 33 S., R. 67 W.
N.W. 1/4. SEC. 35
T. 33 S., R. 67 W.
Mtn. Bell Proposed buried & aerial cables; Permit #374, 9-16-70
Maxwell Land Grant Line
1110+00 - Reqd. Approach to Project.
1110+00 - Reqd. Project Marker (To be furnished and installed by State forces.)
P.O.T. 1127+00
P.C. 1127+98.8
Δ = 8°05' LT.
D = 4°00'
T = 101.2'
L = 202.1'
R = 1432.5'
HSD = 530'
P.T. 1130+00.9
Proposed ℄ of C.&W. R.R. (As Staked in Field)
BLOCK 5
BLOCK 6
BLOCK 7
BLOCK 8
BLOCK 9
BLOCK 10
BLOCK 11
P.O.T. 1107+00.0
P.C. 1107+04.6
P.I. 1108+53.0
P.C. 1111+50.5
P.T. 1109+39.2
P.I. 1113+55.0
P.T. 1115+53.3
Δ = 24°10' LT.
D = 6°00'
T = 204.5'
L = 402.8'
R = 955.0'
HSD = 440'
Δ = 17°40' RT.
D = 6°00'
T = 148.4'
L = 294.4'
R = 955.0'
HSD = 440'
N. 40° 38' W.
N. 58° 18' W.
N. 82° 38' W.
S. 89° 27' W.
Proposed R.R. Crossing
Proposed Aerial Lines
Proposed buried cable
City of Trinidad 22" waterline Permit No 541
R.E.A. POWER CO.
MOUNTAIN STATES T. & T. CO.
Irrg. Ditch
P.C. 1134+90.5
Align. as Per plans
1120+75 - Reqd. Road Approach, Lt.
1122+50 - Reqd. Road Approach, Lt.
1123+85 - Reqd. Extend 24" Cross Culvert 6' Lt. Inlet Ditch.
1130+30 - Reqd. Road Approach, Rt.
1131+47 - Reqd. Extend 24" Cross Culvert 6' Lt.
P.I. 1129+00.0
S0036(1)
STA. 1110+00 BEGIN S0036(1)
WESTON (Unincorporated)
From beginning of Proj. to Sta. 1398+ a 12" Iron water line runs along roadway ranging from 33' to 65' left of center line.
B.M. U.S.G.S. No. R 67 75' WEST & 135' SOUTH OF R.R. CROSSING ELEV. 6847.34
BM. No. 1 STA. 1113+ ELEV. 6864.70
B.M. 2 STA. 1130+ ELEV. 6895.16
Grade Change
N.P.S.D. = 360'±
N.P.S.D. = 340'±
F.L. 64.4
F.L. 56.4
F.L. 77.0
F.L. 93.1
F.L. 93.8
F.L. 87.4
See: x-Sections & grade book for grade change at R.R. Location.
grade as Per plan.
6850
6860
6870
6880
6890
6900
6910
1105
1110
1115
1120
1125
1130
1135

FED. ROAD DIV. NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(11)	15	

N.E. 1/4 SEC. 34
T. 33 S., R. 67 W.

Proposed toe of R.R. fill.
(As Staked in Field)

1143+09 ∞ Regtl. Extend 36" Cross Culvert 6' Lt.

1148+38 ∞ Regtl. Extend 24" Cross Culvert 6' Lt.

1148+58 ∞ Regtl. Extend 24" Cross Culvert 4' Lt.

1148+90 ∞ Regtl. Road Approach Rt.

Casa de Deaguero Ditch

1157+85 ∞ Regtl. Extend 24" Cross Culvert 6' Lt.

Proposed ℄ of R.R.

Δ = 11° 00' LT.
D = 5° 00'
T = 110.3'
R = 1220.0'
L = 146.0'
HSD = 380'

57' B.W. Gate
24" x 56' C.M.P.
Wd. Flume
P.P. Guy Pole
16' Gate
16' B.W. Gate
14' B.W. Gate
16' B.W. Gate
15' Gate

P.I. 1137+00.0
P.C. 1134+90.2
P.T. 1139+06.9
P.O.T. 1151+00.0
P.I. 1153+80.0
P.C. 1152+38.3
P.T. 1155+21.6
P.C. 1164+39.7
P.T. 1166+32.2
P.I. 1165+50.0

36" x 42' C.M.P.
36" x 46' C.M.P.
24" x 42' C.M.P.
24" x 46' C.M.P.
24" x 9' Conc. Flume
24" x 46' C.M.P.
Drainage
Rockwall 3' Ht.
36" x 44' C.M.P.
24" x 54' C.M.P.
36" x 66' C.M.P.

S. 89° 27' W.
N. 73° 53' W.
N. 7° 03' W.
N. 82° 03' W.

Δ = 16° 40' RT.
D = 4° 00'
T = 209.8'
L = 416.7'
R = 1432.5'
HSD = 530'

Δ = 2° 50' RT.
D = 1° 00'
T = 141.7'
L = 283.3'
R = 5730.0'
HSD > 1300'

Maxwell Land Grant Line

MTN. ST. T. & T. CO.

R.E.A. POWER CO.

Align as per plans

N.W. 1/4. SEC. 35
T. 33 S., R. 67 W.

B.M. NO. 3
STA. 1139+
E.LEV. 6913.14

B.M. NO. 4
STA. 1149+
ELEV. 6935.78

B.M. NO. 5
STA. 1165+
ELEV. 6950.18

No. 1-(11) Mat
No. 7A A-1-b(0)
Similar to
No. 1A.
No. 7-B-A-6(2)
Similar to
No. 6A.

No. 8-A-1-b(0)
Similar to
No. 1A.
No. 8A-A-6(2)
Similar to
No. 6A.

No. 9-(11) Mat
No. 9A A-1-b(0)
Similar to
No. 1A.
No. 9B-A-6(2)
Similar to
No. 6A.

No. 10-(11)-b(1)
Similar to
No. 1A.
No. 10A A-6(2)
Similar to
No. 6A.

No. 11-(11) Mat
No. 11A-A-1-b(0)
Similar to
No. 1A.
No. 11B-A-6(2)
Similar to
No. 6A.

A-1-b(0)
A-6(2)

F.L. 33.4
F.L. 15.2
F.L. 16.0
F.L. 29.0
F.L. 28.4
F.L. 39.1
F.L. 35.0
F.L. 36.4

N.P.S.D. = 450' ±
N.P.S.D. = 405' ±

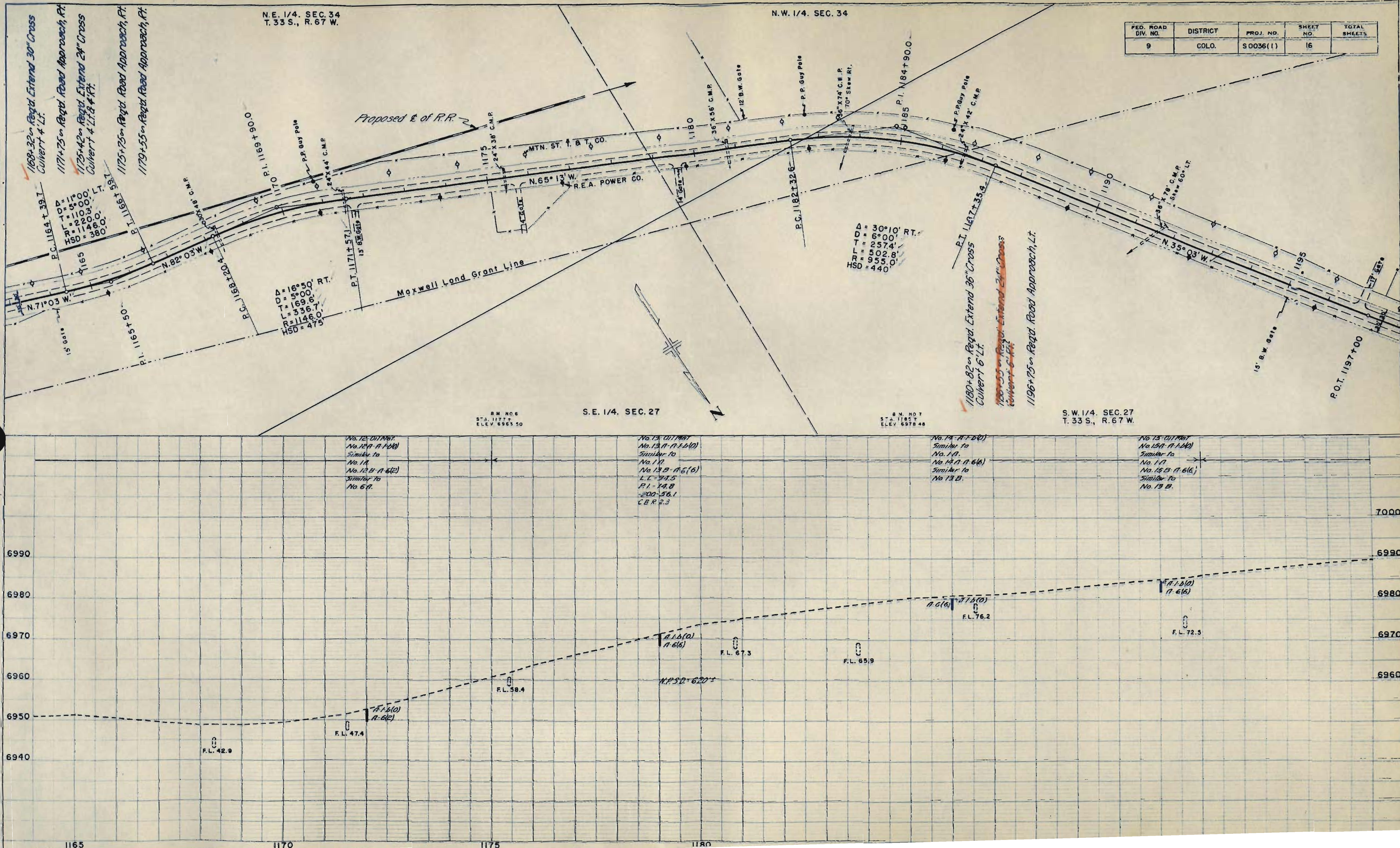
grade as per plan.

6960
6950
6940
6930
6920
6910
6900
6890

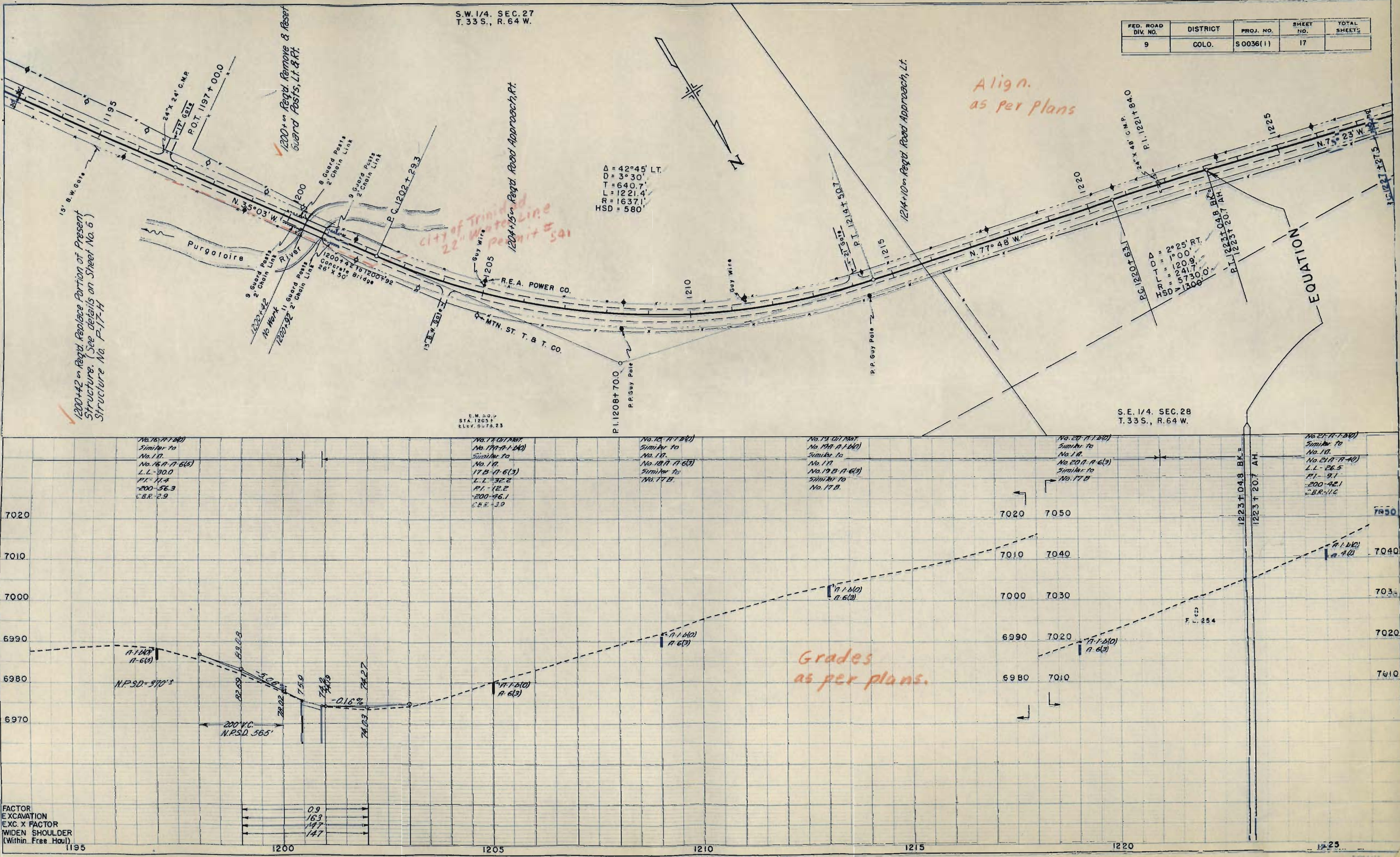
1135
1140
1145
1150
1155
1160
1165

PLATE 1-PLAN-PROFILE B.P.R. STANDARD

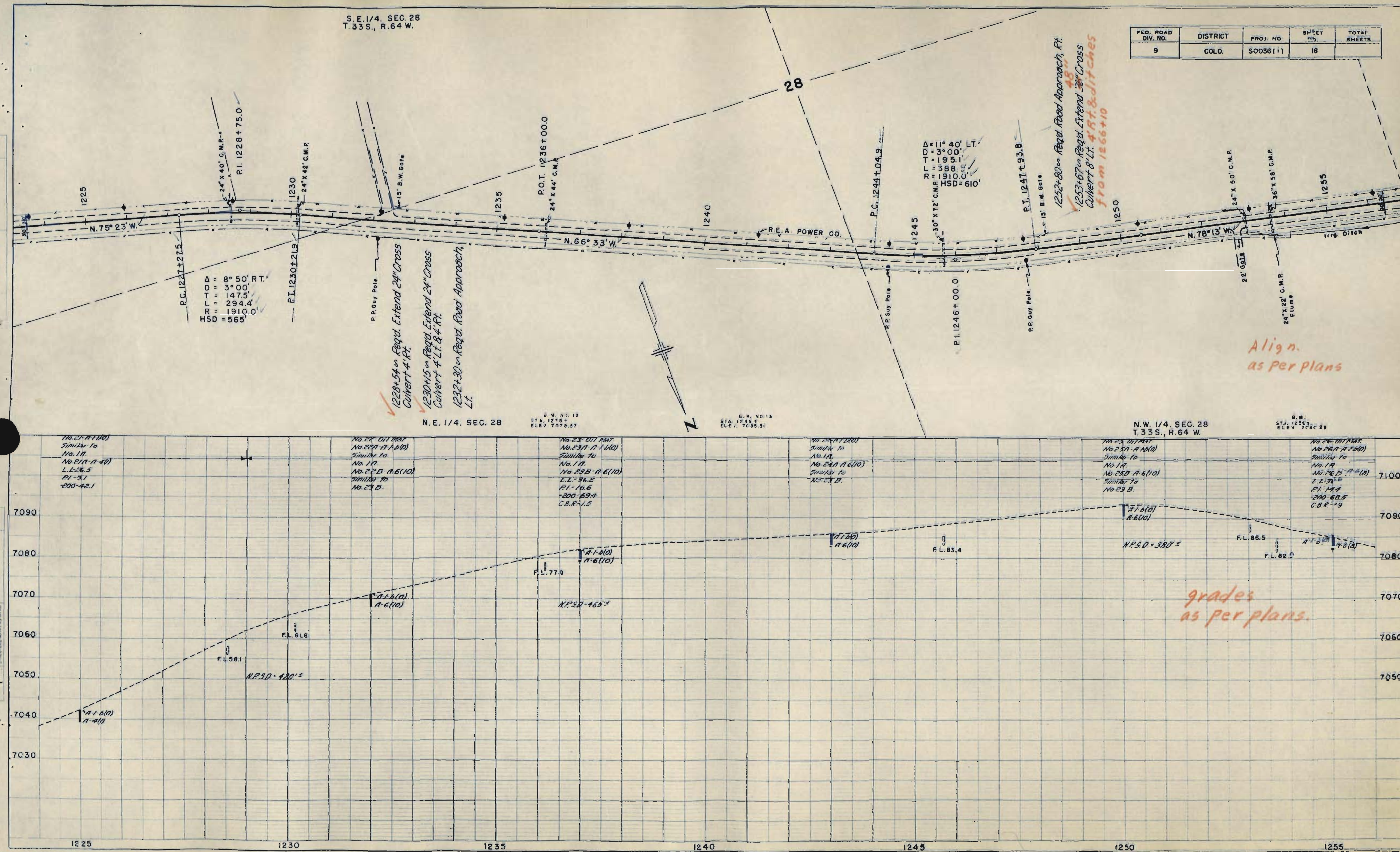
FED. ROAD DIV. NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S 0036(1)	16	



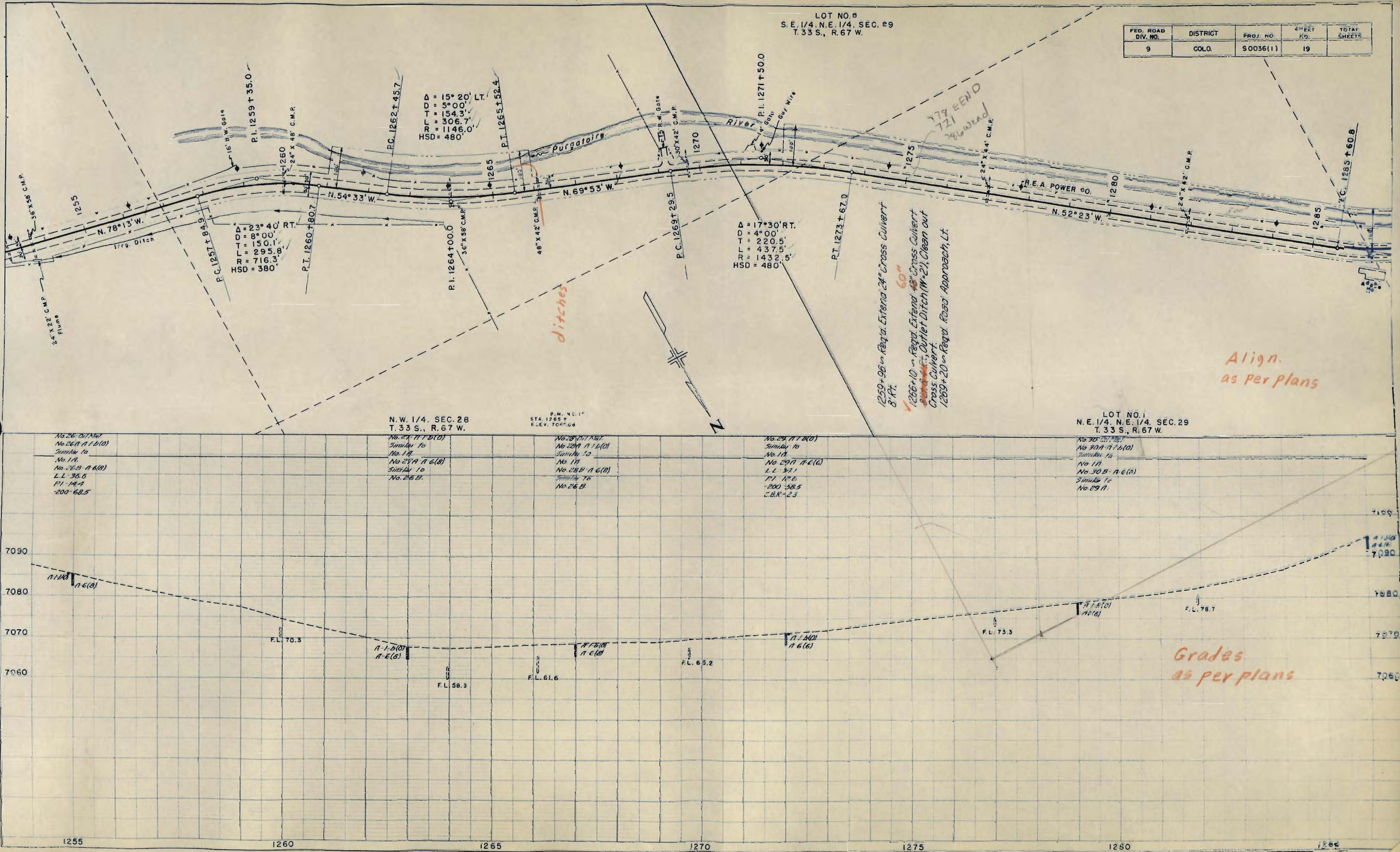
FED. ROAD DIV. NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(1)	17	



FED. ROAD DIV. NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(11)	18	



FED. ROAD DIV. NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(1)	19	



FED. ROAD DIV. NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(1)	20	

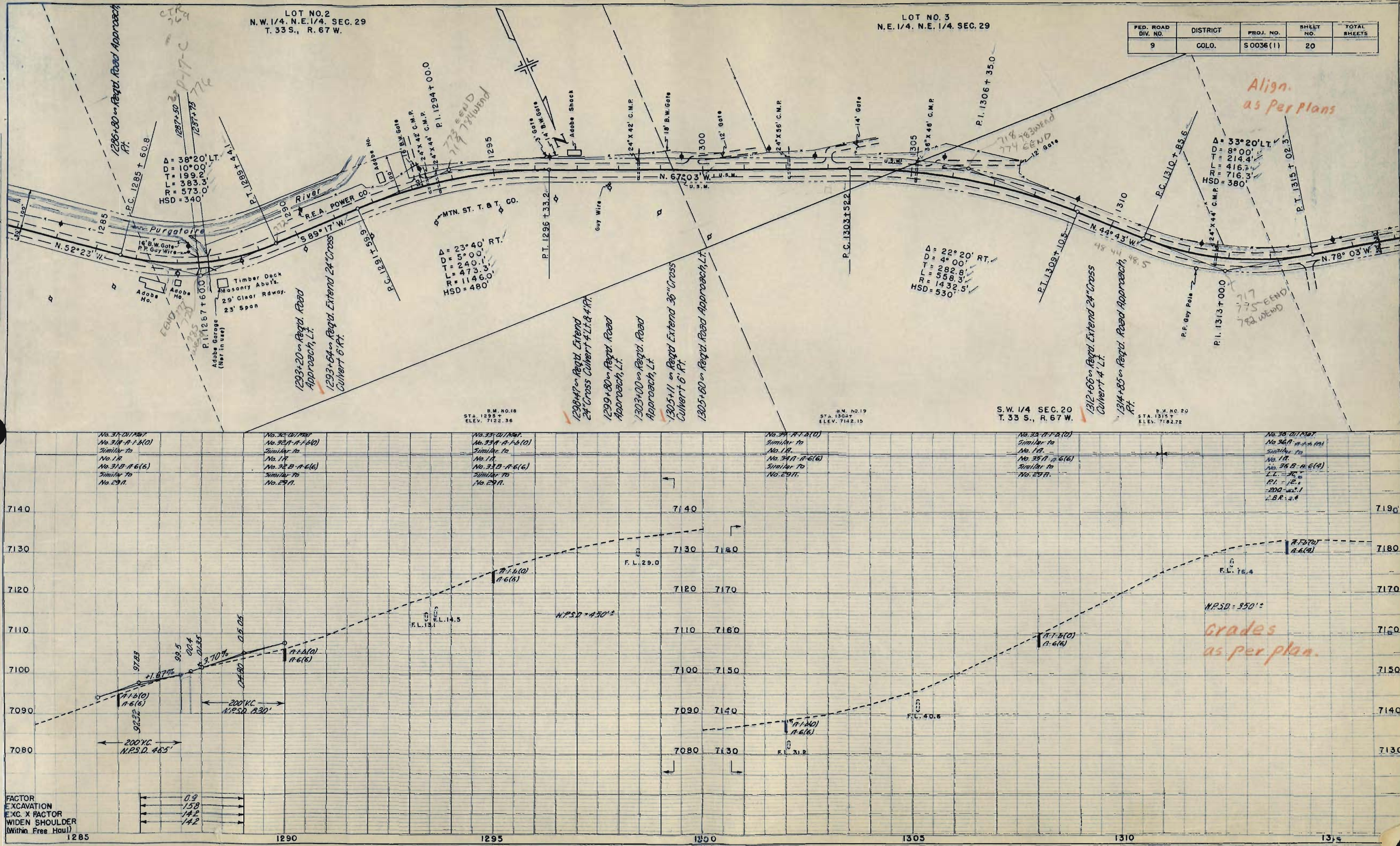
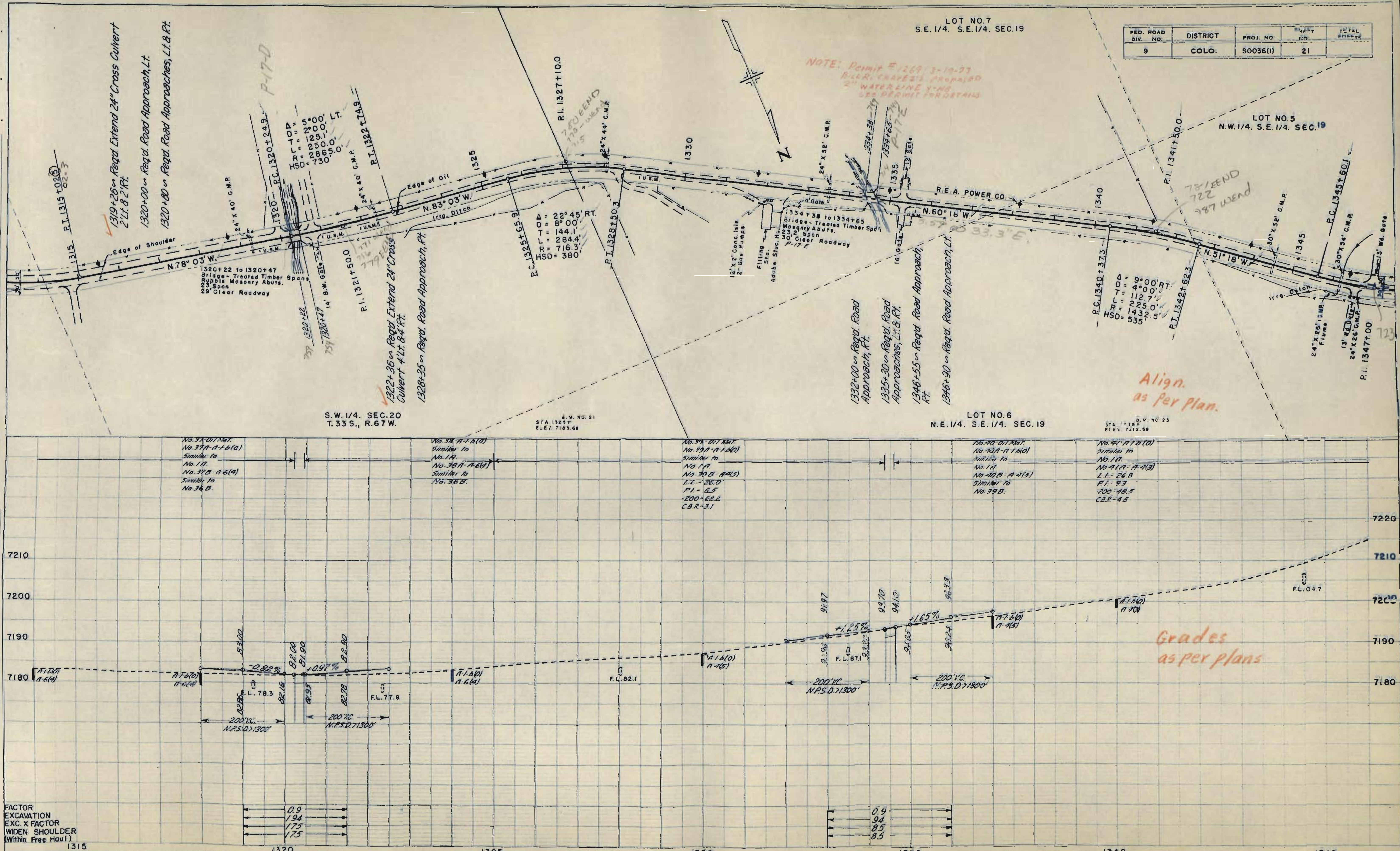


PLATE 1-PLAN-PROFILE

FED. ROAD DIV. NO.	DISTRICT	PROJ. NO	SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(1)	21	



FED. ROAD DIV. NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(1)	22	

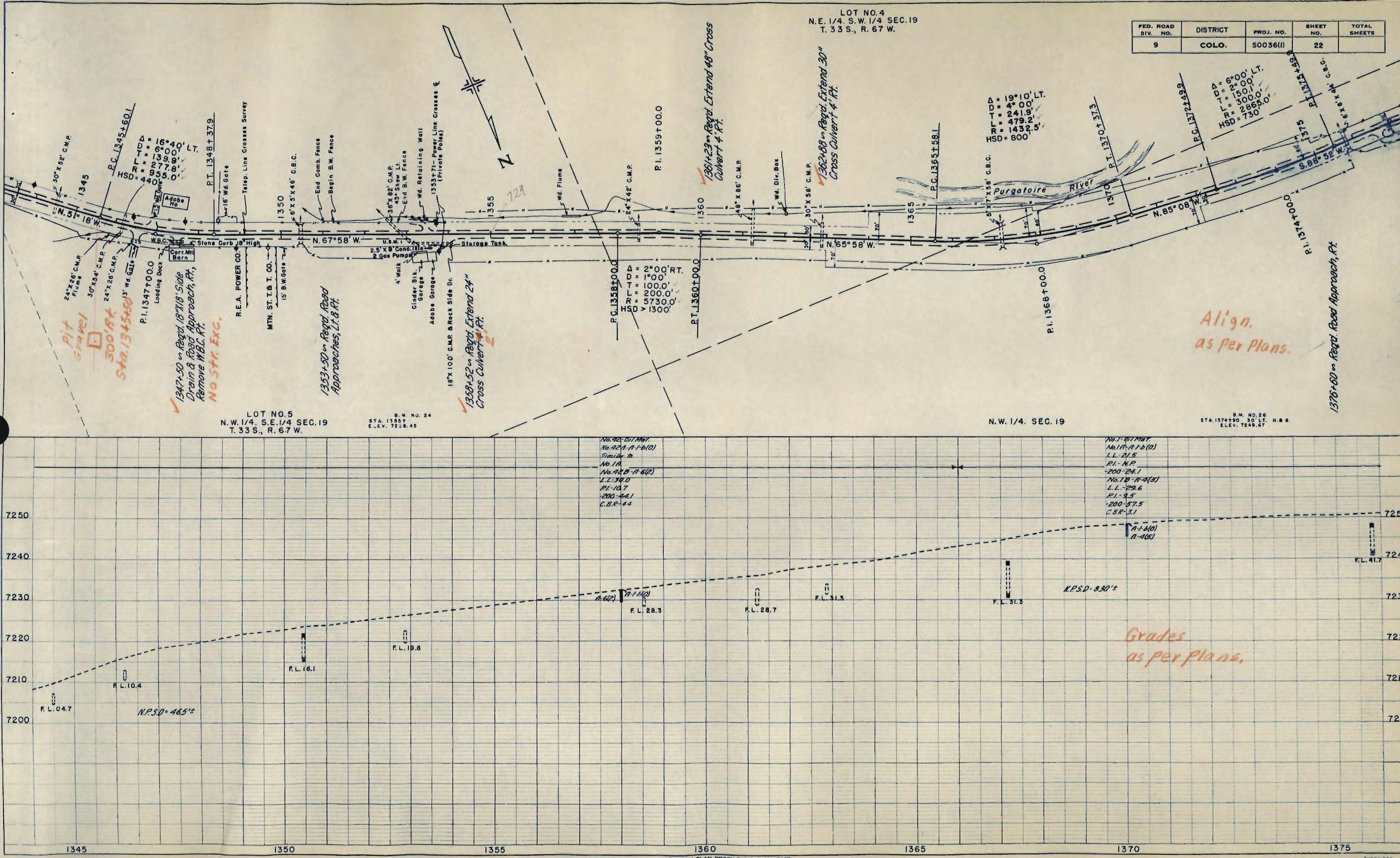
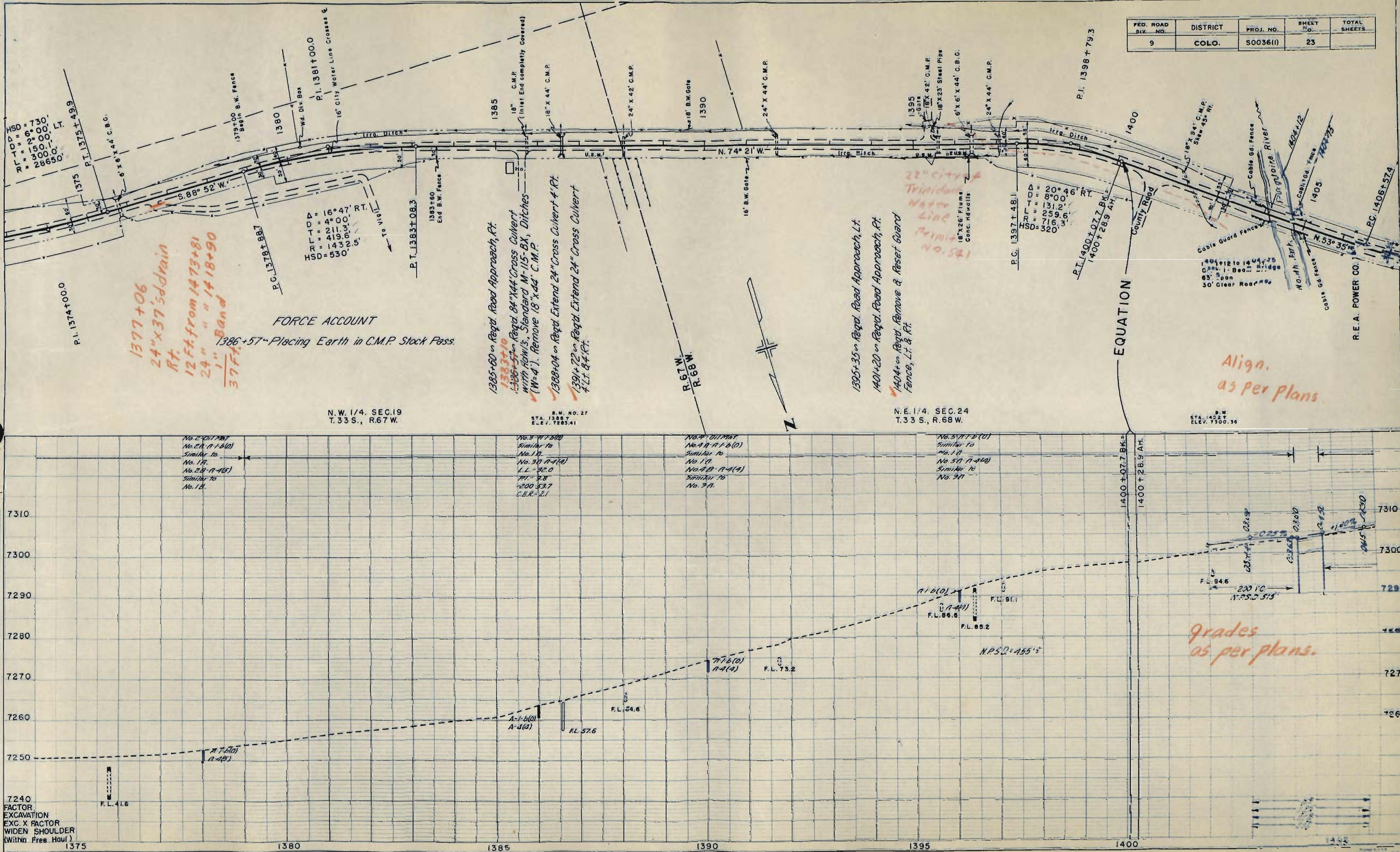
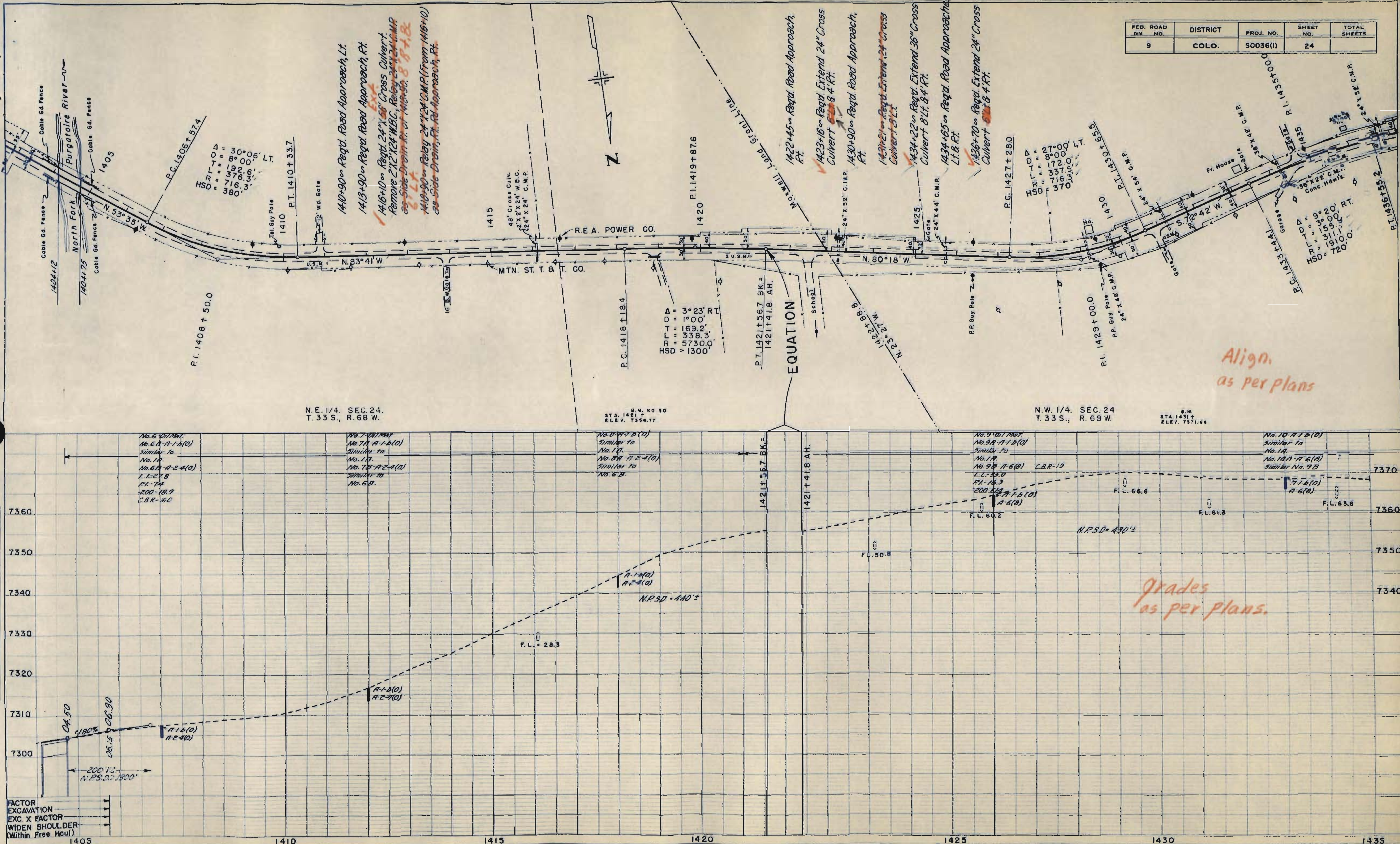


PLATE 1-PLAN-PROFILE B. P. R. STANDARD
EUGENE DIETZGEN CO., Chicago New York

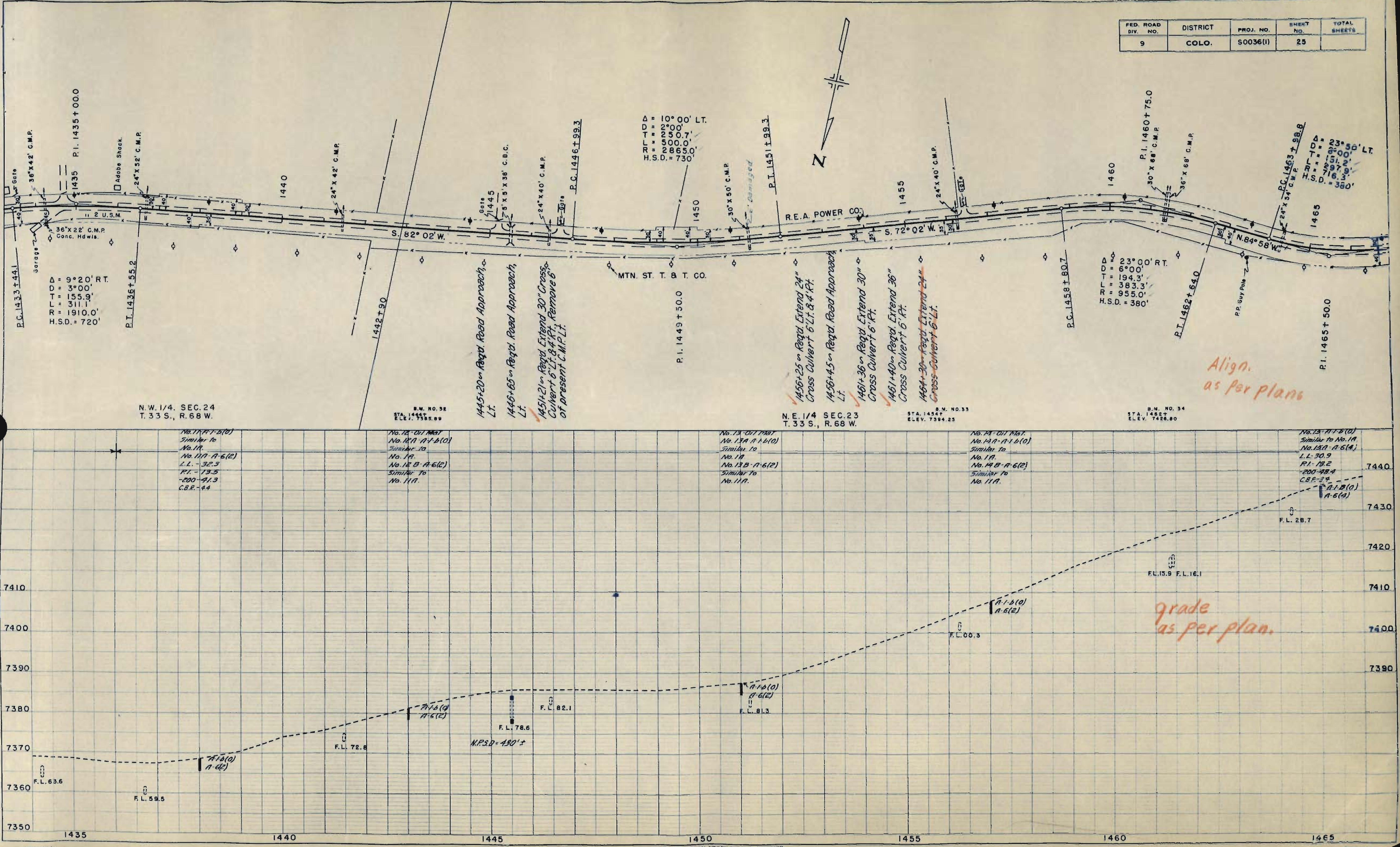
FED. ROAD DIV. NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(1)	23	



FED. ROAD DIV. NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(1)	24	



FED. ROAD DIV. NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(1)	25	



FED. ROAD DIV. NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(11)	26	

P.C. 1463+98.8
Δ = 23°50' LT.
D = 8°00'
T = 151.2'
L = 297.9'
R = 716.3'
H.S.D. = 380'
P.T. 1466+96.7
24"X 34' C.M.P.
24"X 48' C.M.P.
24"X 34' C.M.P.
24"X 30' C.M.P.
Adobe Shack
6'X 4'X 44' C.B.C.
Gate
R.E.A. POWER CO.
P.I. 1485+00.0
24"X 48' C.M.P.
30"X 42' C.M.P.
24"X 42' C.M.P.
N.84°58'W.
S.71°12' W.
S.80°22' W.
Guy Wire
P.P. Guy Pole
MTN. ST. T. & T. CO.
1465
1470
1475
1480
1490
1495
P.I. 1465+500
1468+55 ± Regd. Extend 24" Cross Culvert + 4' Lt.
1473+81 ± Regd. Extend 24" Cross Culvert + 6' Lt. & Rt.
1475+90 ± Regd. Road Approach, Lt.
1482+25 ± Regd. Ditches, (Rt. + Lt.)
P.C. 1483+46.9
Δ = 9°10' RT.
D = 3°00'
T = 153.1'
L = 305.6'
R = 1910.0'
H.S.D. = 480'
P.T. = 1486+52.5
1490+28 ± Regd. Extend 30" Cross Culvert + Lt.
Align. as Per Plan.
N.E. 1/4. SEC. 23 T. 33 S., R. 68 W.
N.W. 1/4. SEC. 23 T. 33 S., R. 68 W.
B.M. NO. 36 STA. 1483 + ELEV. 7462.38
B.M. NO. 37 STA. 1495+ ELEV. 7474.57

No. 15-A-1-b(0) Similar to No. 1A. No. 15A-A-6(4) L.L.-30.9 P.I.-13.2 -200-10.4
No. 16-A-1-b(0) Similar to No. 1A. No. 16A-A-6(4) Similar to No. 15A.
No. 17-Ditches No. 17A-A-1-b(0) Similar to No. 1A. No. 17B-A-6(4) Similar to No. 15A.
No. 18-A-1-b(0) Similar to No. 1A. No. 18A-A-6(4) Similar to No. 15A.
No. 19-Ditches No. 19A A-1-b(0) Similar to No. 1A. No. 19B-A-6(4) Similar to No. 15A.
No. 20-Ditches No. 20A-A-1-b(0) Similar to No. 1A. No. 20B-A-6(4) Similar to No. 15A.

A-1-b(0) A-6(4)
F.L. 28.7
F.L. 35.0
F.L. 40.2
F.L. 48.2
F.L. 56.4
F.L. 53.4
F.L. 30.9
N.P.S.D.-420'±
N.P.S.D.-410'±
Grades as per plan.

7460
7450
7440
7430
7420
7490
7480
7470
7460
7450
7440

PLATE I-PLAN-PROFILE U. P. R. STANDARD

FED. ROAD DIV. NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S0036(1)	27