

- SHEET NO. 1. SKETCH MAP AND TITLE PAGE
 2. TYPICAL SECTION AND SUMMARY OF QUANTITIES
 3 TO 5. LIST OF STRUCTURES
 6 & 7. DETAILS AND LAYOUT FOR 135" MULTIPLE PLATE CULVERT, STA. 269+60
 8 TO 10. DETAILS OF DOUBLE 14'x14' CONCRETE BOX CULVERT, STA. 482+
 11. DETAILS OF PERFORATED C.M.P. UNDERDRAINS, STA. 259+ & 305+
 12. STANDARD HEADWALLS FOR C.M.P. CULVERTS M 102 E
 13. " CONCRETE BOX CULVERT M 104 D
 14. " TIMBER GUARD POSTS M 19 B
 15. " WIRE CABLE GUARD FENCE M 20 B
 16. " MARKER POSTS M 24 F
 17. " STRUCTURE NUMBER LETTERING M 10 A
 18. " METHODS FOR SUPERELEVATION AND WIDENING OF CURVES M 1 B
 19. TYPICAL SIDE APPROACH ROADS / ROADWAY CONSTRUCTION TRAFFIC SIGNS M 2 B X
 20 TO 37. ALIGNMENT PLAN AND PROFILE
 38 TO 333. CROSS SECTIONS

COLORADO STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED P.W.A. DOCKET COLO. 1220-F UNIT NO. 3 CONST. DIV. NO. 2 STATE HIGHWAY NO. 78 SUMMIT AND EAGLE COUNTIES

CONVENTIONAL SIGNS

CENTER LINE OF SURVEY
 RIGHT OF WAY LINES
 TOWNSHIP OR RANGE LINES
 SECTION LINES
 QUARTER SECTION LINES
 BARBED WIRE FENCE
 SNOW FENCE
 TELEPHONE LINES
 POWER LINES

1220.060300

SCALES ON ORIGINAL TRACINGS

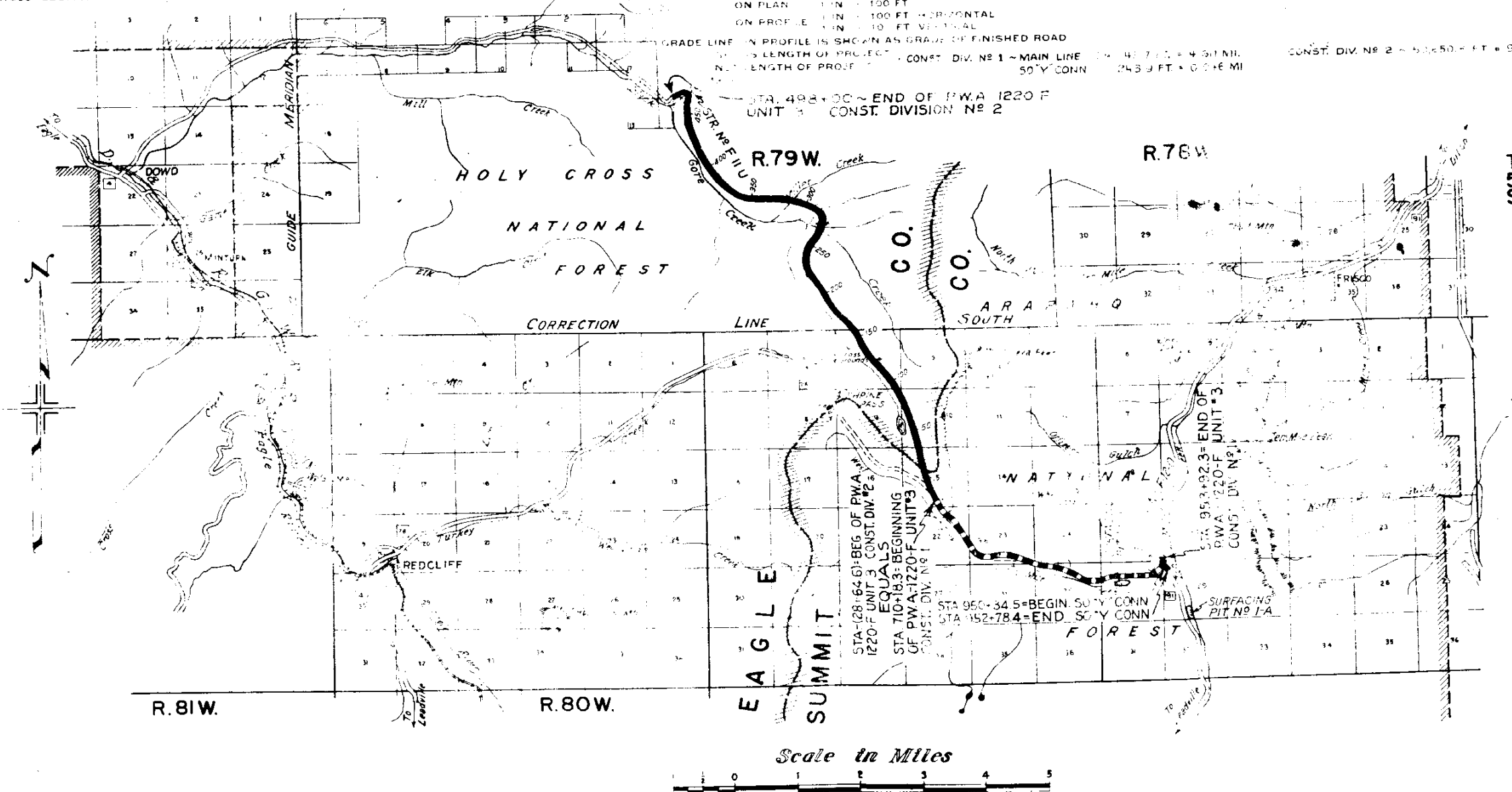
ON PLAN 1" = 100 FT.
 ON PROFILE 1" = 100 FT. HORIZONTAL
 1" = 10 FT. VERTICAL

GRADE LINE IN PROFILE IS SHOWN AS GRADE OF FINISHED ROAD
 LENGTH OF PROJECT - CONST. DIV. NO. 1 - MAIN LINE 4.77 MI. = 4.50 MI.
 50' Y' CONN. 243.9 FT. = 0.46 MI.

STA. 488+00 - END OF P.W.A. 1220-F
 UNIT 2 - CONST. DIVISION NO. 2

CONST. DIV. NO. 2 - 5.250 MI. = 9.13 MILES

TOTAL - 74,999.5 FT. = 14.204 MILES



T. 5 S.
 T. 6 S.

NOTE

It is recommended that bidders on this project go over the plan details with one of the following field representatives of this Department:
 H.L. Jenness - Division Engineer - Glenwood Spgs.
 H.E. Rowbotham - Resident Engineer - Redcliff

RECOMMENDED BY: *Chas. J. ...* 4/6/29
 CIVIL ENGINEER

APPROVED: *Chas. J. ...*
 STATE HIGHWAY ENGINEER

RECOMMENDED FOR APPROVAL

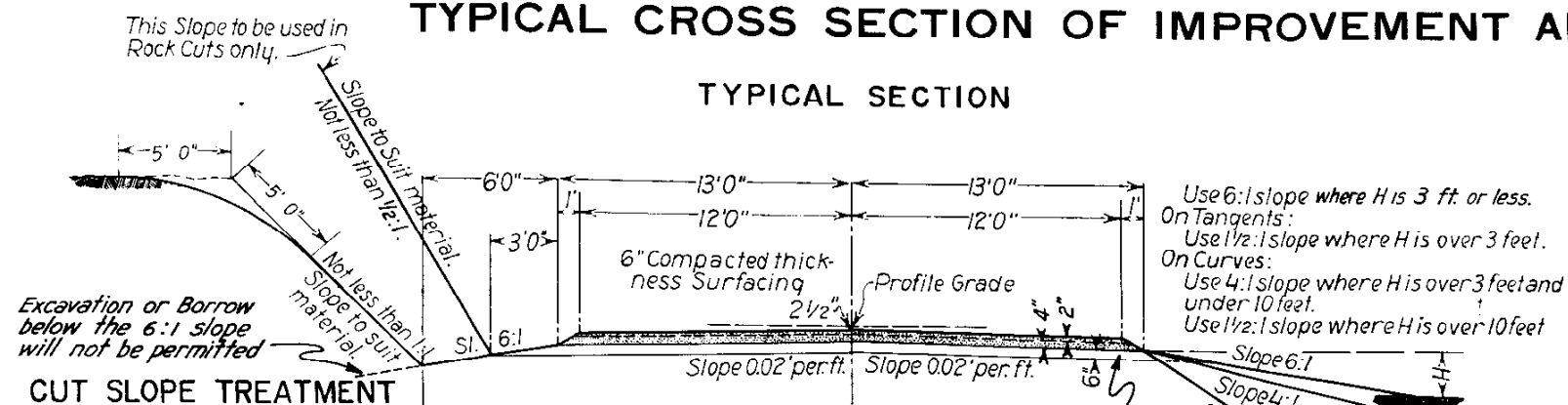
DIST. ENG. BUREAU OF PUBLIC WORKS
 RECOMMENDED BY: *...*

APPROVED: *...*

DIRECTOR BUREAU PUBLIC WORKS

TYPICAL CROSS SECTION OF IMPROVEMENT AND SUMMARY OF QUANTITIES

TYPICAL SECTION



CUT SLOPE TREATMENT

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 feet reduce each of the above widths of slope treatment to the actual slope distance. Quantities involved in cut slope treatment shall be included in, and paid for as "Unclassified Excavation."

The area between Sta. 258± and 261± is to be stripped approximately 2 feet below the ground line and backfilled with selected material. Quantities involved in this operation are to be classified and paid for as "Unclassified Excavation."

GENERAL NOTES

This Project is to be constructed in conformity with the Standard Specifications of the Colorado State Highway Department, adopted June 1, 1937.

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

All roadway excavation required to construct the project shall be obtained as indicated on the plans. Quantities involved beyond the limits of the ditch as shown on the Typical Section, and those quantities either noted on the plans as "Borrow" or on the List of Structures as "Embankment" are to be classified and paid for as "Unclassified Excavation."

These quantities are to be staked as part of the original excavation at locations indicated on the plans. Slope stakes beyond the limits of the Typical ditch are subject to change by the Engineer to fit embankment requirements actually met during construction.

All curves are to be super-elevated and widened in conformity with the Standard Super-elevation and Widening Sheet unless otherwise noted on the plans.

All corrugated metal pipe cross culverts are to be provided with one headwall, and that on the inlet end, unless otherwise noted on the plans.

All side approach roads to the Project shall be gravel surfaced with a 4" thickness of Gravel or Crushed Rock Surfacing extending approximately 30 feet from the edge of the roadbed. Estimated tonnage of surfacing material required in this operation is shown in the List of Structures.

Unless otherwise noted on the plans all overhaul shall be measured along the centerline of the project.

All poles encroaching on the construction are to be moved by owners.

The entire project is to be cleared for variable widths which shall be held to a minimum required for the construction of the road, borrow pits, channel changes and for widths to accommodate visibility. Ordinarily clearing shall not extend more than 8 feet beyond the toes of the fills or the top of cut banks and the cost thereof included in the lump sum price for "Clearing and Grubbing the Entire Project."

The thickness of surfacing is to be considered approximate only. The 4" Base Course Surfacing is to be placed at the rate of 52 tons per 100 ft. of roadway. The 2" Top Course Surfacing is to be placed at the rate of 25 tons per 100 ft. of roadway.

HAND PLACED FILLS

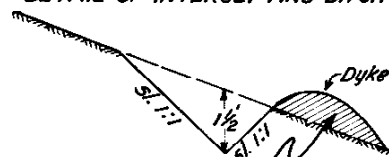
At locations indicated below, where embankments are constructed of rock, fill slopes shall be hand placed if necessary to secure a slope not to exceed one to one (1:1).

Serration of the present ground to stabilize embankment slopes in such areas will also be required.

No extra compensation will be allowed for this work. The cost of hand placing fills and serrating of slopes shall be included in the unit price per cubic yard for "Unclassified Excavation."

Sta. 463± to 465± on Lt.
Sta. 472± to 475± on Lt.

DETAIL OF INTERCEPTING DITCH



Excavated material to be used to build dyke on lower side of ditch.

See plan sheets for location of ditches.

SUMMARY OF APPROXIMATE QUANTITIES

No.	ITEM	UNIT	ROADWAY	DOUBLE 14'x14' C. B. C. STA. 482±	TOTALS
10a	Clearing & Grubbing Entire Project	Lump Sum	•		•
19c	Unclassified Excavation	Cu. Yd.	464,400	600	465,000
14a	Dry Rock Excavation (Structural)	" "	1,380	20	1,400
14b	" Common "	" "	1,135	375	1,510
14c	Wet Rock	" "	345	95	380
14d	" Common "	" "	290	150	480
18a	Station Yard Overhaul	Sta. Yd.	571,000	1,000	572,000
18b	Yard Mile Overhaul	Yd. Mi.	6,500		6,500
26a	Gravel or Crushed Rock Surfacing	Ton	39,350	50	39,400
46a	Class "A" Concrete	Cu. Yd.	174	572	746
47	Reinforcing Steel	Lb.	16,200	54,000	70,200
49	Cement Rubble Masonry	Cu. Yd.	313		313
50	Dry Rubble Masonry	" "	41		41
53c	24" Corrugated Metal Culvert Pipe	Lin. Ft.	5,344		5,344
53d	30" " " " "	" "	108		108
53e	36" " " " "	" "	1,136		1,136
53g	48" " " " "	" "	98		98
57e	135" Multiple Plate Corrugated Metal Pipe Culvert	" "	140		140
63d	Heavy Riprap	Cu. Yd.	205		205
64	Grouted Rubble Slope & Ditch Paving (12" Thick)	Sq. Yd.	69		69
72x	8" Perforated Corrugated Metal Pipe Underdrain	Lin. Ft.	418		418
72c	24" " " " "	" "	96		96
74	Wire Cable Guard Fence	" "	5,872		5,872
74x	Timber Guard Posts	Each	622		622
81a	Project Markers	" "	1		1
81b	Right of Way Markers	" "	90		90

SELECTED MATERIAL

Selected Material shall be placed and spread on the subgrade approximately 6" thick at the rate of approximately 62 cu.yds. per 100 lin. ft. of roadway at locations indicated in the tabulation below.
This selected material shall be classified and paid for as "Unclassified Excavation." It is estimated that the material will be obtained in the vicinity of the pits indicated in the tabulation below. The estimated quantities involved in the placing of selected material are shown below.

MATERIAL TO BE PLACED STA. TO STA.	SOURCE STA. TO STA.	QUANTITY		OVERHAUL	
		CU. YDS.	STA. YDS.	YD. MI.	
28+44.61 TO 22+00	Within R.O.W. 6+30 TO 9+53	2393	11031	32	
41+50 TO 122+00	" " 28+62 TO 37+00	4962	54239	3077	
28+00 TO 220+00	" " 179+00 TO 182+00	5672	47542	1031	
20+00 TO 300+00	" " 259+00 TO 265+50	4797	36817	497	
00+00 TO 336+00	" " 337+00 TO 364+00	2306	25366	690	
63+50 TO 370+25	" " 368+00 TO 370+00	419			
42+00 TO 462+19	" " 436+75 TO 441+31	1155	7922	9	
62+19 TO 481+00	" " 480+13 TO 486+25	1226	8133	4	
86+50 TO 489+00	" " 485+00 TO 486+25	171			
TOTALS		23101	191050	5340	

R.O.W. MARKERS

STATION	SIDE	NO.	STATION	SIDE	NO.
-(28+64.61)	Mts. in Place		353+833 BK	R&L	2
-(111+00)	R&L	2	370+00	R&L	2
-(19+163) BK	R&L	2	372+00	R&L	2
7+00	R&L	2	389+762	R&L	2
32+96	R&L	2	408+266	R&L	2
38+00	R&L	2	411+765	R	1
40+00	R&L	2	413+093	R	1
61+703	R&L	2	430+613	R&L	2
82+969	R&L	2	432+18	R&L	2
112+63	R&L	2	437+888	R&L	2
130+84.6 BK	R&L	2	446+573 BK	R&L	2
139+00	L	1	450+00	R&L	2
140+00	L	1	459+705	R&L	2
159+69.1	R&L	2	473+673	R&L	2
173+548 BK	R&L	2	479+544	R&L	2
175+658	R&L	2	491+00	R&L	2
184+90	R&L	2	492+718	R&L	2
187+00	R&L	2	498+00	R&L	2
192+00	R&L	2			
220+12	R&L	2			
242+55.1	R&L	2			
255+67.7	R&L	2			
257+99.3	R&L	2			
265+94.1	R&L	2			
267+98.8	R&L	2			
272+38.1	R&L	2			
303+65.5	R&L	2			
328+36.4	R&L	2			
334+00	R&L	2			
335+92	R&L	2			
TOTAL					90

LIST OF STRUCTURES

1220-F UNIT 3 #2 3

STATION	DESCRIPTION	REMOVE STRUCT.	UNCLASSIFIED EXCAVATION		STRUCTURAL EXCAVATION		GRAVEL OR CR. ROCK SURFACING	CONCRETE		REINFORC. STEEL	CEMENT RUBBLE MASONRY	CORRUGATED METAL CULVERT PIPE				MULT. PLATE PERFORATED C.M.P. CULVERT		C.M.P. UNDERDRAIN		GR. RUBBLE SL. PAVING 12" THICK	MISCELLANEOUS
			CU. YDS.	CU. YDS.	CU. YDS.	CU. YDS.		LIN. FT.	24"			30"	36"	48"	LIN. FT.	8"	24"				
																		NO.	EXCAV.		
-(28+30)	C.M.P. Cr. Culv. (Intercept. h/wall)				25						2.30	52									
-(18+00) to -(16+00)	Intercepting Ditch Rt.		20																		
-(16+00)	C.M.P. Cr. Culv. & Inlet		20		20						2.05	42									
-(16+00) to -(12+25)	Intercepting Ditch Rt.		40																		
-(11+00) to 3+05	Perf. C.M.P. Underdrain & Outlet Rt.		60		90													204			
4+05	C.M.P. Cr. Culv. & Ditches		35		35						3.70		88								
10+00	" " " " Inlet & Dike Lt.		5		5						2.05	62									
10+00 to 14+00	Intercepting Ditch Lt.		40																		
25+45	C.M.P. Cr. Culv. (Sk. 60° Lt.) & Ditches		60		60						2.05	104									
29+25 to 30+50	Intercepting Ditch Rt.		15																		
30+50	C.M.P. Cr. Culv. (Intercept. h/wall) & Ditches		110		30						2.30	44									
33+50 to 34+50	Intercepting Ditch Rt.		15																		
34+50	C.M.P. Cr. Culv. (Intercept. h/wall) & Ditches		15		25						2.30	40									
38+00	" " " " & Ditches		10		10						2.05	58									
43+75	" " " " " "		20		30						2.05	42									
48+00	" " " " & Inlet		15		25						2.05	44									
54+00	" " " " " "		5		15						2.05	70									
58+70	" " " " Ditches		250		45						3.70		42								
60+00 to 63+00	Intercepting Ditch Rt.		30																		
63+00	C.M.P. Cr. Culv. & Ditches		10		15						2.05	78									
63+00 to 66+92	Intercepting Ditch Rt.		40																		
64+50	Road Approach Lt.			40		10															
66+92	C.M.P. Cr. Culv. (Intercept. h/wall) & Inlet		15		30						2.30	42									
69+00 to 69+75	Channel Change 90 ft. Lt. & Dike		50																		
71+30 to 72+30	Intercepting Ditch Rt.		10																		
72+30	C.M.P. Cr. Culv. (Intercept. h/wall) & Inlet		20		15						2.30	44									
73+50 to 74+00	Intercepting Ditch Rt.		10																		
74+00	C.M.P. Cr. Culv. & Ditches		30		25						2.05	44									
74+00 to 76+50	Intercepting Ditch Rt.		25																		
76+50	C.M.P. Cr. Culv. & Inlet		5		10						2.05	46									
78+50 to 79+40	Intercepting Ditch Rt.		10																		
79+40	C.M.P. Cr. Culv. & Inlet		5		15						2.05	62									
79+40 to 81+92	Intercepting Ditch Rt.		30																		
81+92	C.M.P. Cr. Culv. & Inlet		10		25						3.70		86								
81+92 to 86+42	Intercepting Ditch Rt.		45																		
86+42	C.M.P. Cr. Culv. & Ditches		10		15						2.05	44									
86+42 to 87+00	Intercepting Ditch Rt.		10																		
88+17	C.M.P. Cr. Culv. & Inlet		30		80						3.70		108								
93+00 to 94+91	Intercepting Ditch Rt.		20																		
94+91	C.M.P. Cr. Culv. & Inlet		10		15						2.05	66									
100+00 to 101+42	Intercepting Ditch Rt.		15																		
101+42	C.M.P. Cr. Culv. & Inlet		20		45						3.70		48								
101+42 to 103+00	Intercepting Ditch Rt.		20																		
104+65	C.M.P. Cr. Culv. & Inlet		15		15						2.05	36									
108+00 to 109+48	Intercepting Ditch Rt.		15																		
109+48	C.M.P. Cr. Culv. Inlet & Dike Rt.		10		15						2.05	74									
110+85 to 111+36	Intercepting Ditch Rt.		5																		
111+36	C.M.P. Cr. Culv. & Inlet		5		15						2.05	92									
111+36 to 112+37	Intercepting Ditch Rt.		10																		
112+20	C.M.P. Cr. Culv. (Sk. 55° Rt.) & Inlet		10		40						2.05	82									
113+40 to 114+41	Intercepting Ditch Rt.		10																		
114+41	C.M.P. Cr. Culv. Inlet & Dike Rt.		5		10						2.05	58									
114+41 to 115+63	Intercepting Ditch Rt.		15																		
115+63	C.M.P. Cr. Culv. & Inlet		5		25						2.05	56									
117+50 to 119+50	Intercepting Ditch Rt.		20																		
117+75 to 118+25	Channel Change Lt.		50																		
119+50	C.M.P. Cr. Culv. & Inlet		5		20						3.70		92								
119+50 to 124+00	Intercepting Ditch Rt.		45																		
120+00 to 121+00	Channel Change Lt. & Dike		60																		
127+50 to 129+50	Intercepting Ditch Rt.		20																		
128+75 to 131+30	Channel Change Lt. & Dike		400																		
129+50	C.M.P. Cr. Culv. Inlet & Heavy Riprap Lt.		5		15						2.05	74								5 cu yds. Heavy Riprap	
129+50 to 131+00	Intercepting Ditch Rt.		15																		
134+85	C.M.P. Cr. Culv. & Ditches		20		10						2.05	48									
134+85 to 137+60	Intercepting Ditch Rt.		30																		

TIMBER GUARD POSTS

STATION TO STATION	SIDE	SPACING	NO. POSTS
126+00 TO 118+50	L	50'	16
110+00 TO 6+55	L	50'	10
9+50 TO 14+00	L	50'	10
20+50 TO 28+00	R	50'	16
21+00 TO 28+00	L	50'	15
45+50 TO 57+02	L	50'	24
78+80 TO 83+20	L	40'	12
93+00 TO 98+50	L	50'	12
100+00 TO 104+40	L	40'	12
107+50 TO 115+50	L	40'	21
127+50 TO 137+10	L	40'	25
139+00 TO 142+00	L	50'	7
143+00 TO 149+50	L	50'	14
152+50 TO 154+00	R	50'	4
152+50 TO 154+00	L	50'	4
161+00 TO 175+04	L	50'	29
175+34 TO 181+64	L	30'	22
184+00 TO 192+90	L	50'	18
203+00 TO 208+50	L	50'	12
210+75 TO 212+75	L	40'	6
215+00 TO 218+00	L	50'	7
225+00 TO 227+00	R	40'	6
232+60 TO 241+00	L	30'	29
257+34 TO 258+94	L	40'	5
262+00 TO 265+50	L	50'	8
286+00 TO 304+00	L	40'	46
317+50 TO 321+50	L	50'	9
323+50 TO 330+00	L	50'	14
334+50 TO 339+00	L	50'	10
344+75 TO 358+17	L	40'	31
359+75 TO 361+25	L	50'	4
363+00 TO 366+60	L	40'	10
363+50 TO 365+00	R	50'	4
368+00 TO 369+50	L	50'	4
393+75 TO 395+75	L	40'	6
394+15 TO 395+35	R	40'	4
398+70 TO 416+42	L	40'	44
400+15 TO 401+35	R	40'	4
402+50	R		1
418+00 TO 423+00	L	50'	11
419+00 TO 423+00	R	50'	9
429+50 TO 433+40	L	30'	14
430+00 TO 433+60	L	40'	10
441+20 TO 442+40	L	40'	4
441+20 TO 442+40	R	40'	4
448+25 TO 450+25	L	40'	6
452+00 TO 461+20	L	40'	24
478+00 TO 478+50	L	50'	2
478+50 TO 479+50	R	50'	3
TOTAL			622

GUARD FENCE

STATION TO STATION	SIDE	LIN. FT.
220+00 TO 227+60	L	760
249+50 TO 256+94	L	744
268+00 TO 270+96	L	296
268+90 TO 270+58	R	168
277+40 TO 279+56	L	216
277+80 TO 279+64	R	184
306+30 TO 314+06	L	776
307+80 TO 310+92	R	312
463+00 TO 468+68	L	568
464+50 TO 467+30	R	280
472+50 TO 477+54.5	L	488
473+40 TO 475+72	R	232
482+00 TO 486+40	R	440
482+50 TO 486+58	L	408
TOTAL		5872

LIST OF STRUCTURES

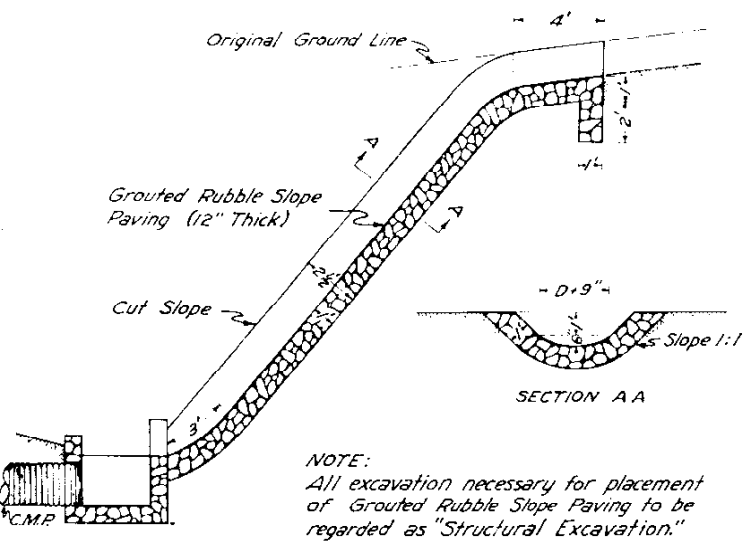
(CONTINUED FROM SHEET NO. 3)

STATE P.W.A. 1220-F #2 4
COLO UNIT 3 #2

STATION	DESCRIPTION	REMOVE STRUCT.	UNCLASSIFIED EXCAVATION		STRUCTURAL EXCAVATION		GRAVEL OR CR. ROCK SURFACING	CONCRETE	REINF. STEEL	CEMENT RUBBLE MASONRY	CORRUGATED METAL CULVERT PIPE				MULT. PLATE C.M.P. CULVERT	PERFORATED C.M.P. UNDERDRAIN	GR. RUBBLE SL. PAVING 12" THICK	MISCELLANEOUS
			CU. YDS.		CU. YDS.			CU. YDS.			LIN. FT.				LIN. FT.	LIN. FT.		
			NO.	EXCAV.	EMBANK.	*		CLASS			24"	30"	36"	48"	8"	24"		
			TDNS	"A"	LBS.	CU. YDS.		24"			30"	36"	48"	135"	8"	24"		
142+25 to 144+75	Intercepting Ditch Rt.		25															
144+75	C.M.P. Cr. Culv. & Inlet		5		30					2.05	70							
145+50 to 148+12	Intercepting Ditch Rt.		30															
148+12	C.M.P. Cr. Culv. & Inlet		5		15					2.05	84							
149+50 to 150+50	Intercepting Ditch Rt.		10															
150+50	C.M.P. Cr. Culv. Inlet & Dike Rt.		20		20					2.05	40							
150+50 to 151+50	Intercepting Ditch Rt.		10															
153+08	C.M.P. Cr. Culv. & Ditches		20		20					2.05	104							
160+75 to 162+50	Drain Ditch Rt.		75															
162+50	C.M.P. Cr. Culv. & Ditches		30		25					2.05	72							
166+91	" " " Inlet & Dike Rt.		5		15					2.05	58							
169+47	" " " (Intercept. h'dwall) & Inlet		10		30					2.30	58							
170+90	" " " " " " "		10		25					2.30	40							
173+74	" " " & Inlet		5		20					2.05	84							
177+22	" " " " " "		5		15					2.05	64							
180+90	" " " " " "		5		15					2.05	52							
180+90 to 182+85	Intercepting Ditch Rt.		20															
186+60	C.M.P. Cr. Culv. (Intercept. h'dwall) & Inlet		10		20					2.30	38							
188+25	" " " " " "		5		20					2.30	40							
191+00	" " " " " "		5		20					2.30	38							
196+33	" " " " " "		10		20					2.30	38							
201+00	" " " " " & Ditches		5		30					2.30	38							
205+00	" " " & Inlet		5		15					2.05	62							
208+30	" " " (Intercept. h'dwall) & Inlet		5		25					2.30	40							
212+48	C.M.P. Cr. Culv. & Inlet		5		15					2.05	44							
215+24	" " " (Intercept. h'dwall) & Inlet		5		20					2.30	40							
222+40 to 224+20	Heavy Riprap Lt.				100												200 cu. yds. Heavy Riprap	
223+30	C.M.P. Cr. Culv. (Intercept. h'dwall) & Inlet		10		20					2.30	40							
223+50 to 226+30	Intercepting Ditch Rt.		35															
226+90	C.M.P. Cr. Culv. & Inlet		10		20					2.05	80							
233+57	" " " & Inlet		10		15					2.05	62							
236+80	" " " " " "		10		15					2.05	54							
238+50 to 239+75	Intercepting Ditch Rt.		15															
239+75 to 241+04	Drain Ditch Rt.		70															
241+04	C.M.P. Cr. Culv. & Inlet		5		10					2.05	60							
241+04 to 243+05	Drain Ditch Rt.		75															
243+05	C.M.P. Cr. Culv. (Intercept. h'dwall) & Ditches		15		25					2.30	40							
243+05 to 245+05	Intercepting Ditch Rt.		20															
251+23	C.M.P. Cr. Culv. & Inlet		5		10					2.05	52							
256+00 to 257+25	Drain Ditch Rt.		75															
257+25	C.M.P. Cr. Culv. & Inlet		5		25					3.70		86						
257+25 to 259+10	Drain Ditch Rt.		50															
259+10 to 261+22	Perf. C.M.P. Underdrain & Outlet		5		85										214			
261+75 to 262+25	Drain Ditch Rt.		15															
262+25	C.M.P. Cr. Culv. & Ditches		10		15					2.05	66							
264+15	" " " (Intercept. h'dwall) & Inlet		10		25					2.30	44							
269+60	Multiple Plate Cr. Culv. (Sk. 80° Rt.) & Ditches				255					60.00			140					
275+95	C.M.P. Cr. Culv. (Intercept. h'dwall) & Inlet		10		25					2.30	38							
278+85	" " " & Inlet		5		30					3.70		112						
286+75	" " " (Intercept. h'dwall) & Inlet		5		20					3.10		54						
287+80	" " " Inlet & Dike Rt.		5		10					2.05	42							
292+33	" " " " " " "		5		15					2.05	56							
296+00	" " " " " " "		5		10					2.05	42							
301+97	" " " " " " "		10		10					2.05	46							
305+30	Perf. C.M.P. Cr. Culv. (Sk. 70° Lt.) & Inlet		30		30					2.05					96			
308+85	C.M.P. Cr. Culv. Inlet & Dike Rt.		10		25					2.05	108							
310+70	10'x10'x55' Conc. Box Culv. (Sk. 83° Rt.)				330		174	16,135										
310+70 to 317+20	Type 10-III & Channel Improvement		700															
317+20	Intercepting Ditch Rt.		65															
319+40	C.M.P. Cr. Culv. (Intercept. h'dwall) & Ditches		10		30					2.30	40							
319+40	" " " & Inlet		5		15					2.05	78							
327+10	" " " " & Dike Rt.		10		15					2.05	50							
331+60	" " " (Intercept. h'dwall) & Inlet		5		25					2.30	40							
336+60	" " " Inlet & Dike Rt.		5		10					2.05	70							
336+60 to 340+50	Intercepting Ditch Rt.		40															
340+50	C.M.P. Cr. Culv. (Intercept. h'dwall) Inlet & Slope Paving Rt.		5		40					2.30	50							
																20		

(CONTINUED ON SHEET NO. 5)

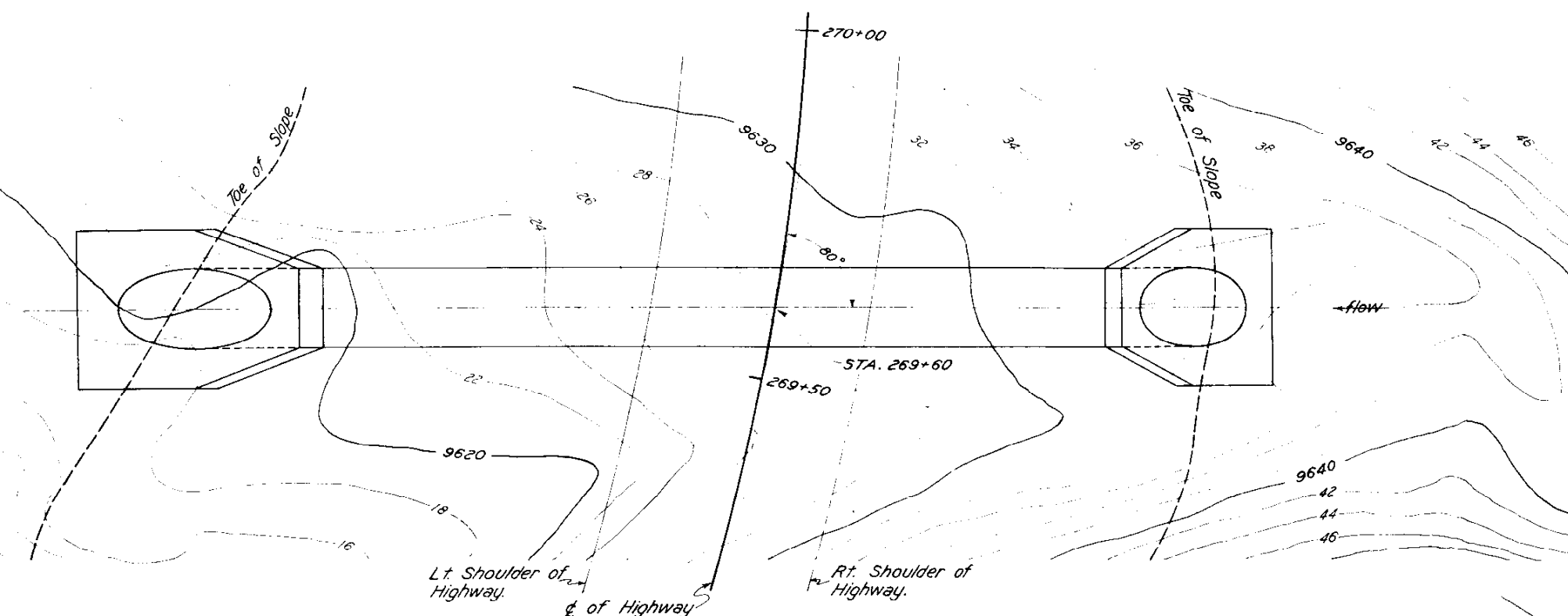
DETAIL OF GROUTED RUBBLE SLOPE
PAVING FOR INLET DITCH



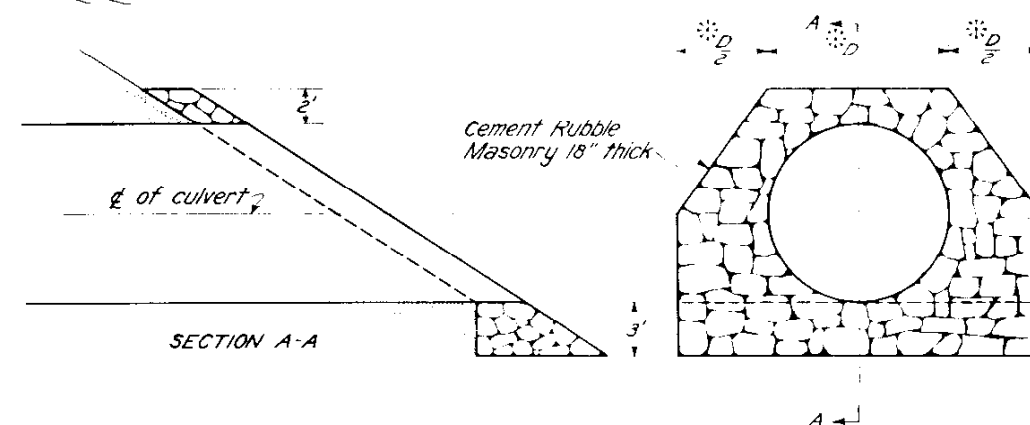
DETAILS AND LAYOUT FOR 135" MULTIPLE PLATE CULVERT AT STA. 269+60

STATE P.H. 4
COLD 1220 F
UNIT 3"2

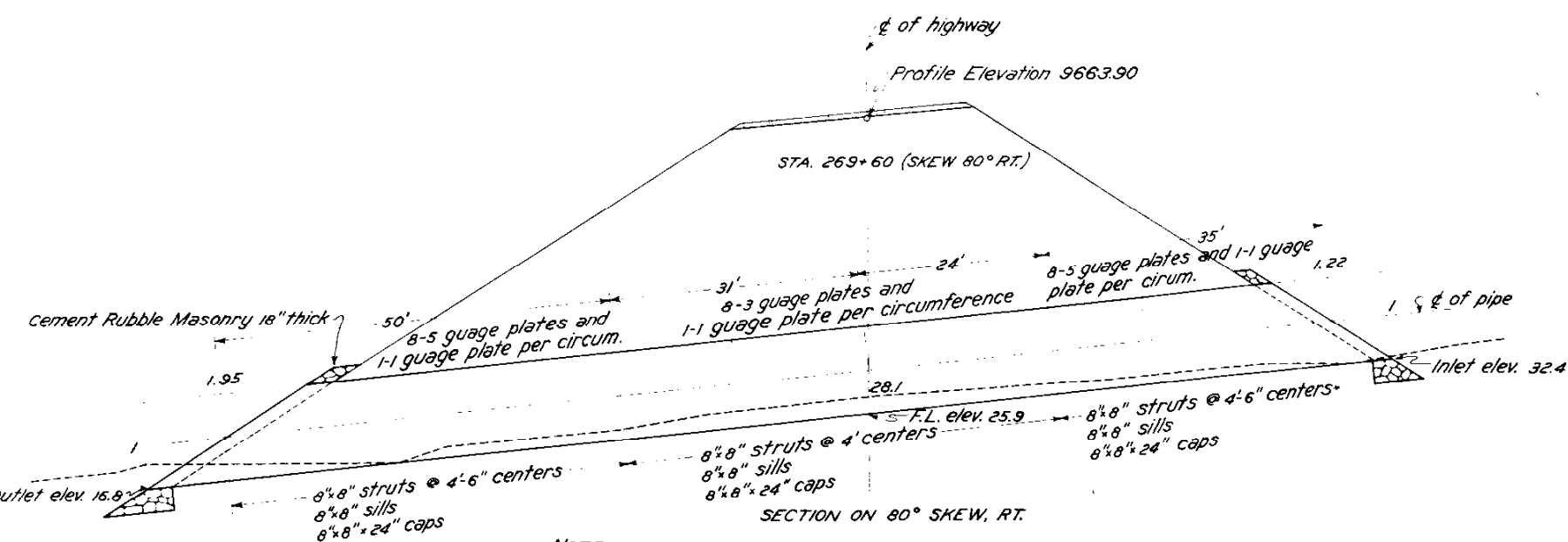
6



*In cases where the pipe is mitered for skew angle the outside of the headwall is to be a minimum of 3 feet from the outside edge of the pipe.
Dimension D shall in all cases be the distance across the mitered face measured on the horizontal diameter.



DETAIL OF CEMENT RUBBLE MASONRY HEADWALL FOR MULTIPLE PLATE CULVERT

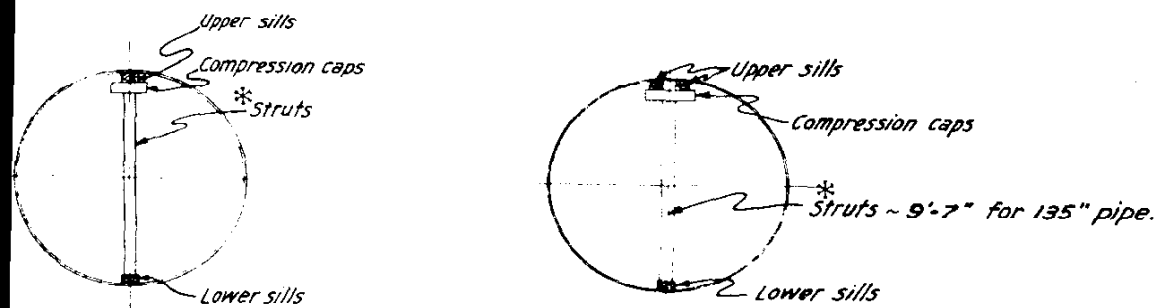


NOTE:
On this structure the longitudinal joints shall be secured with a sufficient number of bolts of adequate strength to develop a joint which will be effective to an ultimate strength of 63,000 pounds in shear-tension. In no case, however, shall more than eight bolts, nor less than four bolts per linear foot of seam be used. The number of bolts provided and used shall be identical on all longitudinal joints and over the entire length of each joint.

Arrangement of plates and strutting diagram are shown on sheet No. 7.

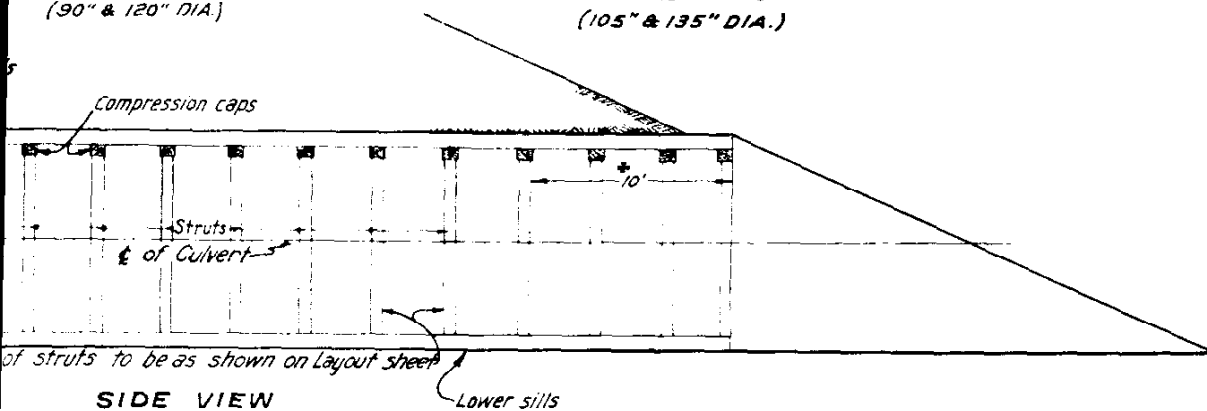
DETAILS FOR MULTIPLE PLATE CORRUGATED METAL CULVERT PIPE

FED. ROAD DIST. NO.	STATE	R.W.A.	SHEET NO.
3	COLO.	1220 F (3)*2	7



END ELEVATION
(90" & 120" DIA.)

END ELEVATION
(105" & 135" DIA.)



SIDE VIEW

is and Struts used shall be Select Structural Grade West
as Fir or Dense Southern Yellow Pine.
struts and spacing are shown above.
ion Caps shall be of clear soft wood, placed with grain at right
axis of culvert and vertical elongation.
shall be left in place until the fill has taken initial settle-
shall not be removed until completion of contract, or
ed removed by the Engineer
ts when removed, shall be removed in such a manner as
age the pipe or spelter coating of the pipe
caps are to be of full size timber in all cases.
struts given are of full size timber. If surfaced timber is
cutting the spacing of struts shall be reduced an amount
to maintain a bearing area on struts equal to that resulting
full sawn timber.
sills, caps and struts, and spacing of struts are
layout sheets.

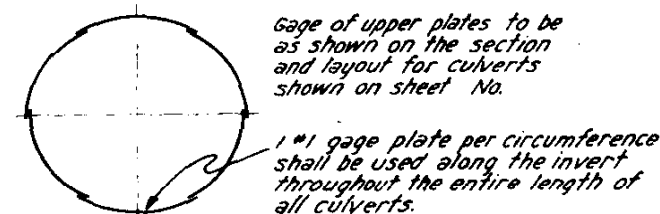
* Beginning 10 feet back from the top ends of the
pipe, the strutting shall be so placed as to permit
the vertical elongation to diminish uniformly from
full elongation to zero at the end of the pipe.

* Where the gradient of structures is in excess of 5%, strutting shall be
done in the following described manner:

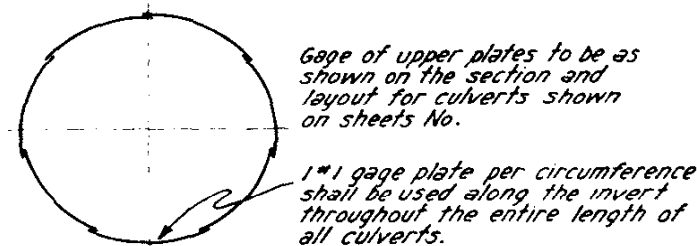
1. Struts shall be placed in true vertical position rather than perpendicular
to the pipe axis.
2. Compression cap and the base of strut shall be dapped an amount
sufficient to secure full bearing for the strut in vertical position.
3. The strut lengths shown above on "End Elevation" sections shall be
increased an amount sufficient to secure full vertical elongation as shown.
Example: If grade of pipe requires a dap of 1" to secure full bearing,
the length would be calculated as follows:

$$\text{Tangent of Angle} = \frac{\text{Per Cent of Slope}}{100}$$

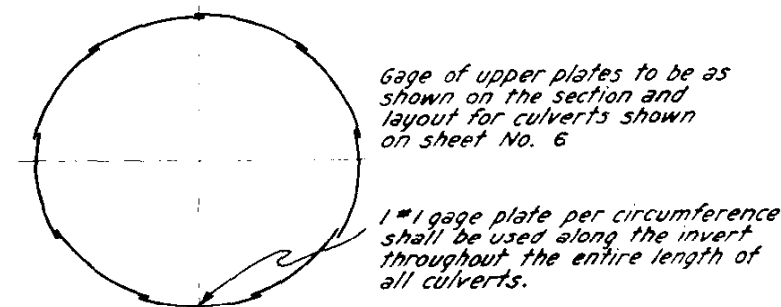
$$\text{Length of Strut} = \frac{\text{Length of Strut shown in End Elevation}}{\cos. \text{ angle}} + 1" (\text{Am't of dap})$$



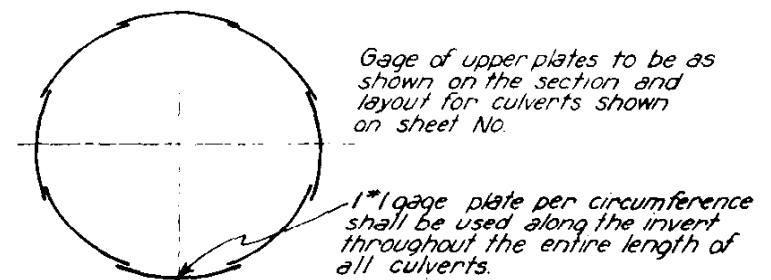
SECTION SHOWING ARRANGEMENT
OF PLATES FOR 90" PIPES



SECTION SHOWING ARRANGEMENT
OF PLATES FOR 105" PIPES



SECTION SHOWING ARRANGEMENT
OF PLATES FOR 135" PIPES



SECTION SHOWING ARRANGEMENT
OF PLATES FOR 120" PIPES

GENERAL NOTES

Plates must be placed in conformity with the diagrams shown
on this sheet.

The footage of pipe to be paid for shall be measured along the center line of pipe as
indicated on the layouts of the various culverts.

All struts are to be as indicated on the layouts for the various culverts.

The ends of pipes are to be mitered to the slopes indicated on the layouts of the various
culverts. All culverts having a skew angle of 75° or less to the $\perp$ are to be mitered for the indicated
slopes and skew angles. Culverts with skew angles between 75° and 90° are to be mitered for the
indicated slopes only.

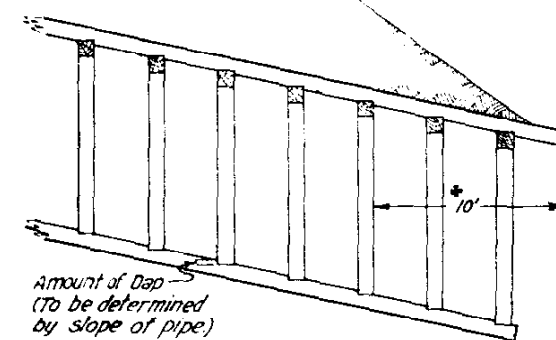
Bolts in circumferential seams shall be spaced not more than 12" apart.

Bolts in longitudinal seams shall be placed in conformity with information
given on the layouts for the individual structures.

Multiple plate culverts shall not be laid on a sod base. In all cases where
the subgrade material is of a porous or spongy nature, a trench the full
diameter of the pipe shall be excavated and backfilled with selected
material.

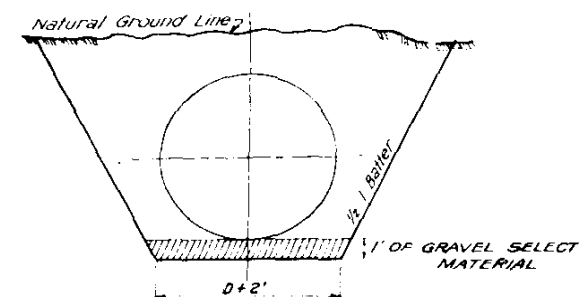
The Department will accept for consideration pipes designed on the basis
of full circumferential seams and staggered longitudinal seams in place of
the arrangement shown hereon.

DETAIL OF DAPPED STRUTS AND CAPS FOR USE ON PIPES HAVING A GRADIENT IN EXCESS OF 5 PER CENT



Amount of Dap
(To be determined
by slope of pipe.)

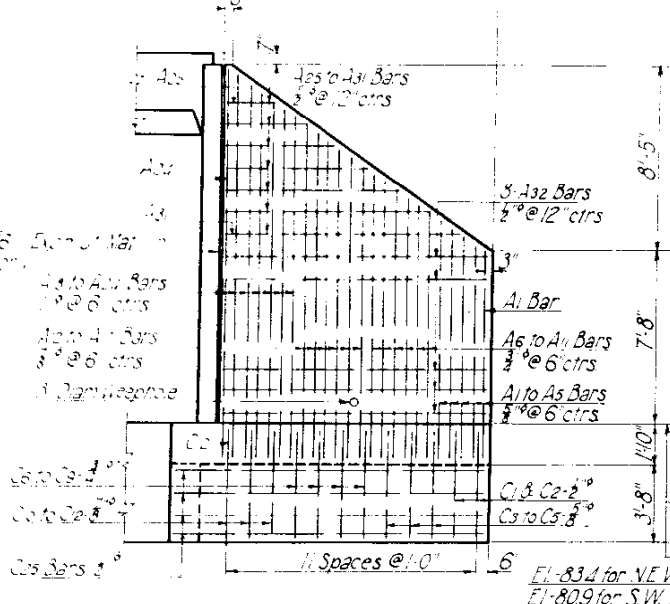
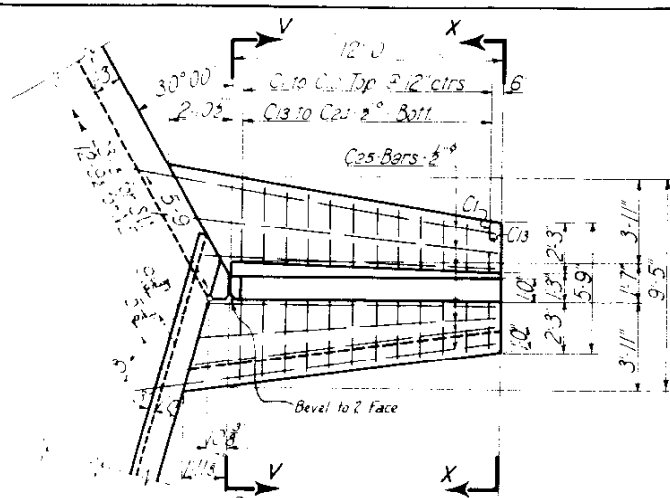
TYPICAL CROSS SECTION



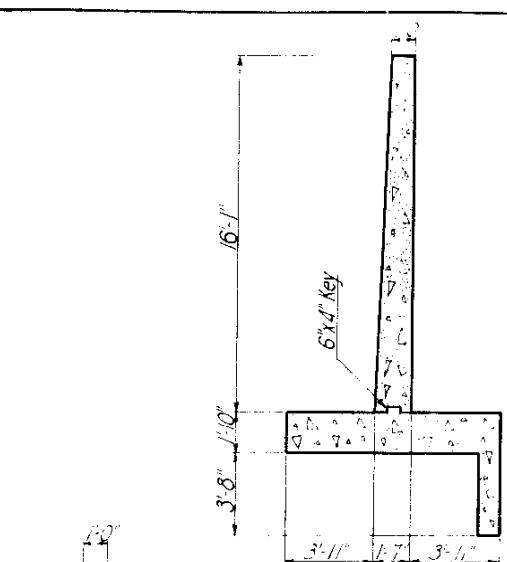
SHOWING STRUCTURAL EXCAVATION AND
BACKFILL FOR MULTIPLE PLATE CULVERT

REVISIONS

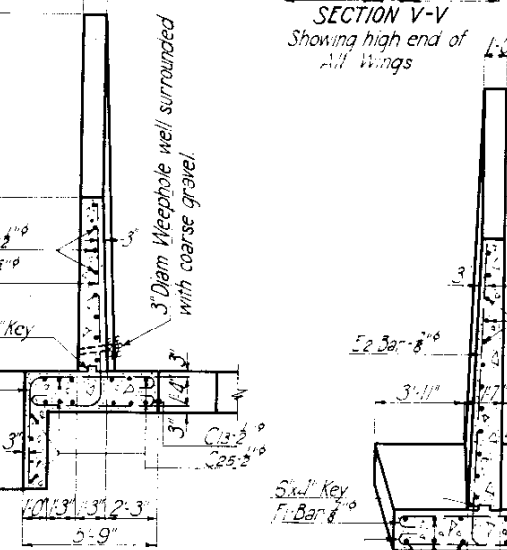
FED. ROAD DIST. NO.	STATE	P.W.A.	SHEET NO.	TOTAL SHEETS
3	COLO.	1220-F3*2	9	



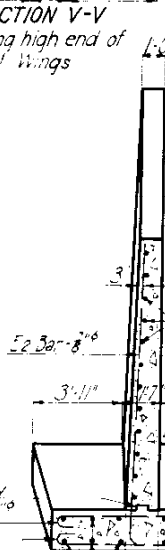
DETAILS OF N.E. & S.W. WINGS



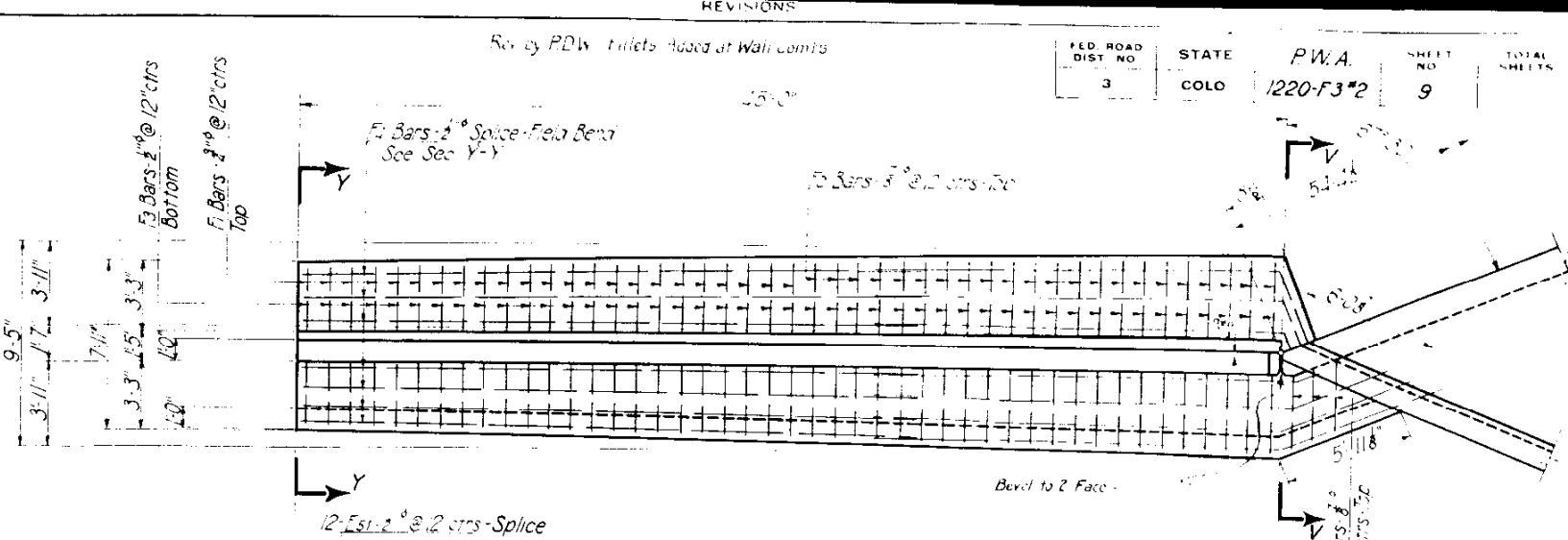
SECTION V-V
Showing high end of
All Wings



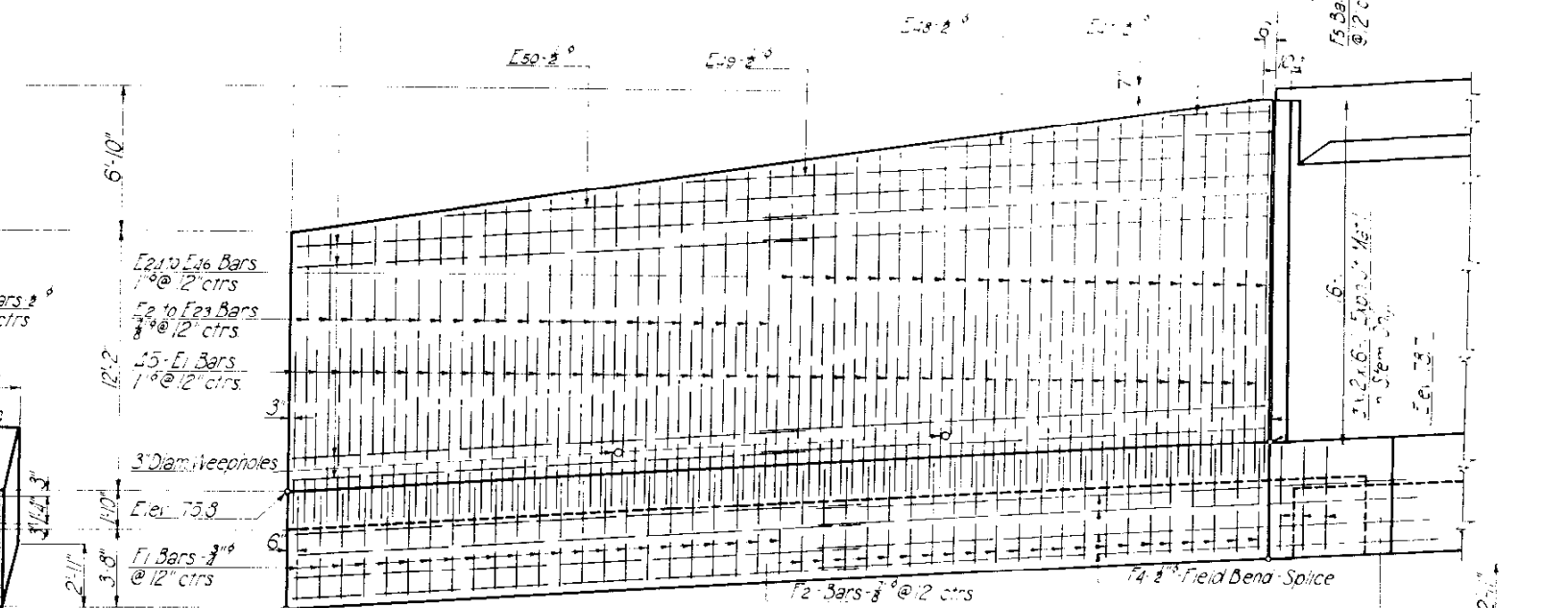
SECTION X-X



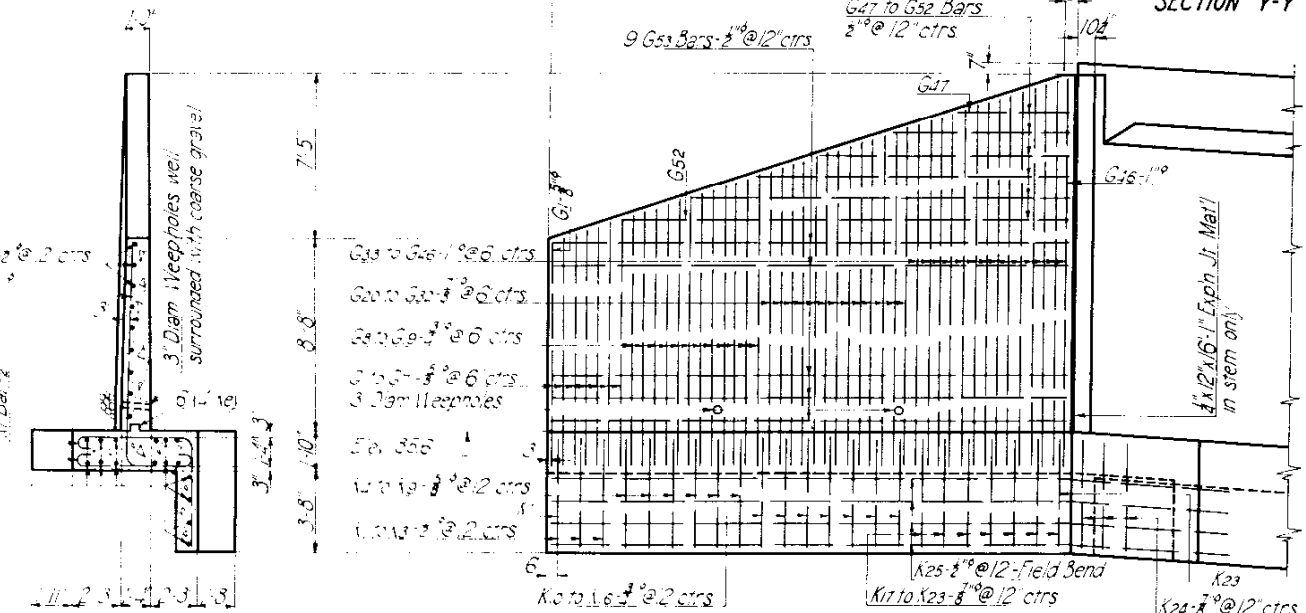
SECTION Y-Y



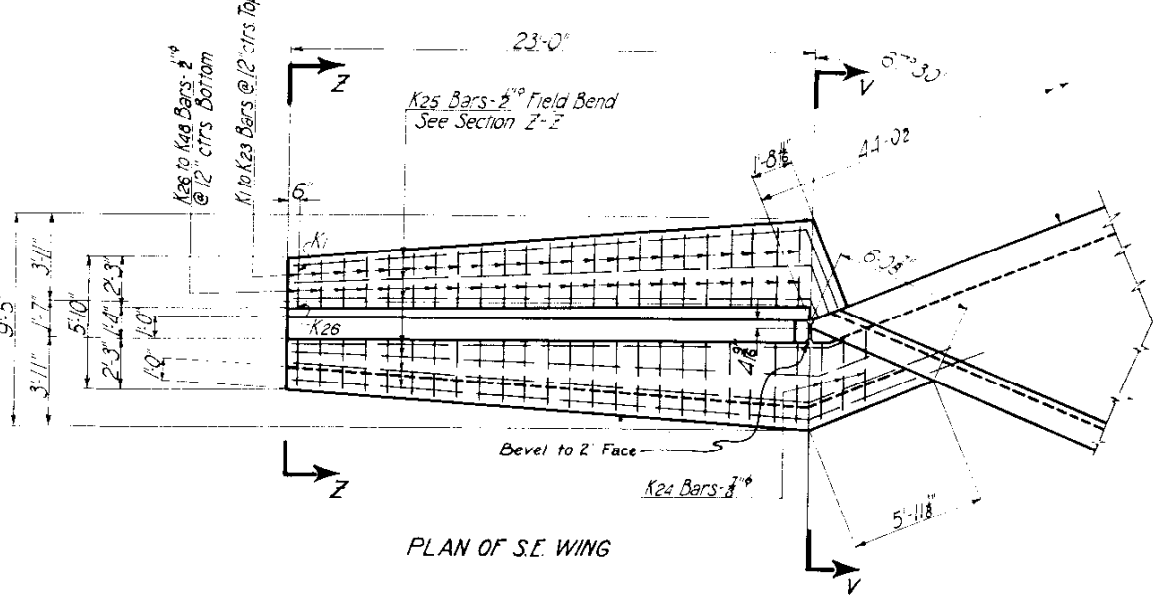
DETAILS OF N.W. WING



PLAN OF S.E. WING



ELEVATION OF S.E. WING



STRUCTURE NO. F-11-U

REFERENCE DRAWINGS
Sheet No 8 Details of Concrete Box
Culvert
Sheet No 10 Bar Lists & Quantities

COLORADO
STATE HIGHWAY DEPARTMENT
DOUBLE 14x14' CONC. BOX CULV.
45° SKEW
DETAILS OF WINGS
Across GORE CREEK
Sta. 482+83.3 to 483+28.3
Near Mtn. Sec. 7 T. 5 S. R. 79 W.
Designed by PDW Approved by PDW
Made by PDW Bridge Engineer
Checked by ALC Date: 1939

BAR LIST FOR WINGS

Mark	Size	No. Req'd	Length	Type	ℓ	m	r	t	Mark	Size	No. Req'd	Length	Type	ℓ	m	r	t
A 1	3/8"	2 each	12'-7"	VI	8'-8"	2'-3"	2 1/2"	2"	G 20	3/8"	1 each	17'-9"	VII	12'-8"	3'-1"		
A 5	3/8"	2 each	14'-3"	VI	10'-0"	2'-7"			G 32	3/8"	1 each	20'-3"	VII	14'-8"	3'-7"		
A 6	3/8"	2 each	15'-0"	VI	10'-6"	2'-8"			G 33	3/8"	1 each	20'-7"	VII	14'-10"	3'-7"		
A 11	3/8"	2 each	17'-1"	VI	12'-2"	3'-1"	3"	2 1/2"	G 46	3/8"	1 each	23'-3 1/2"	VII	17'-0"	4'-1 1/2"		
A 12	3/8"	2 each	17'-10"	VI	12'-8"	3'-2"	3 1/2"	3"	G 47	3/8"	1 each	23'-4"	VII	17'-0"	4'-1 1/2"		
A 17	3/8"	2 each	19'-11"	VI	14'-4"	3'-7"			G 52	3/8"	1 each	19'-2"	VII	17'-0"	4'-1 1/2"		
A 18	3/8"	2 each	20'-7"	VI	14'-10"	3'-7"			G 53	3/8"	9	22'-6"	VII	17'-0"	4'-1 1/2"		
A 24	3/8"	2 each	23'-1"	VI	16'-10"	4'-1"			K 1	3/8"	1	10'-9"	VII	4'-9"		2"	2"
A 25	3/8"	2 each	21'-4"	VI	16'-10"	4'-1"			K 2	3/8"	1	10'-11"	VII	4'-11"		2"	2"
A 31	3/8"	2 each	10'-4"	VI	11'-1"	5'-3"			K 3	3/8"	1	11'-1"	VII	5'-1"		2"	2"
A 32	3/8"	16	11'-6"	VI	11'-3"	5'-1"			K 4	3/8"	1 each	11'-3"	VII	5'-1"			
C 1	3/8"	2	10'-9"	VII	4'-9"		2"	2"	K 9	3/8"	1 each	12'-1"	VII	6'-0"			
C 2	3/8"	2	11'-1"	VII	5'-1"		2"	2"	K 10	3/8"	1 each	12'-4"	VII	6'-0"			
C 3	3/8"	2	11'-5"	VII	5'-3"		2 1/2"	2"	K 16	3/8"	1 each	13'-4"	VII	7'-0"			
C 4	3/8"	2	11'-9"	VII	5'-7"		2 1/2"	2"	K 17	3/8"	1 each	13'-6"	VII	7'-0"			
C 5	3/8"	2	12'-1"	VII	5'-11"		2 1/2"	2"	K 22	3/8"	1 each	14'-6"	VII	8'-0"			
C 6	3/8"	2	12'-6"	VII	6'-2"		3"	2 1/2"	K 23	3/8"	1 each	14'-6"	VII	8'-0"			
C 7	3/8"	2	12'-9"	VII	6'-5"		3"	2 1/2"	K 24	3/8"	3	9'-9"	VII	3'-3"		3 1/2"	3"
C 8	3/8"	2	13'-1"	VII	6'-9"		3"	2 1/2"	K 25	3/8"	16	29'-0"	Field	Bend			
C 9	3/8"	2	13'-5"	VII	7'-1"		3"	2 1/2"	K 26	3/8"	1 each	4'-7"	VII	3'-11"			
C 10	3/8"	2	13'-10"	VII	7'-4"		3 1/2"	3"	K 48	3/8"	1 each	6'-5"	VII	5'-9"		2"	2"
C 11	3/8"	2	14'-1"	VII	7'-7"		3 1/2"	3"									
C 12	3/8"	2	14'-6"	VII	8'-0"		3 1/2"	3"									
C 13	3/8"	2 each	4'-8"	VII	4'-0"												
C 24	3/8"	2 each	6'-2"	VII	5'-10"		2"	2"									
C 25	3/8"	32	16'-0"	Field	Bend												
E 1	3/8"	45	12'-6"	VII	7'-0"	3'-4"	4"	3 1/2"									
E 2	3/8"	1 each	18'-5"	VII	13'-1"												
E 23	3/8"	1 each	20'-2"	VII	14'-10"												
E 24	3/8"	1 each	20'-11"	VII	15'-0"												
E 46	3/8"	1 each	22'-9"	VII	16'-10"												
E 47	3/8"	1 each	38'-2"	VII													
E 50	3/8"	1 each	4'-2"	VII													
E 51	3/8"	24	23'-6"	VII													
F 1	3/8"	23	13'-0"	VII	6'-8"		3"	2 1/2"									
F 2	3/8"	22	13'-10"	VII	7'-4"		3 1/2"	3"									
F 3	3/8"	45	6'-3"	VII	5'-7"		2"	2"									
F 4	3/8"	32	27'-0"	Field	Bend												
F 5	3/8"	3	9'-9"	VII	3'-3"		3 1/2"	3"									
G 1	3/8"	1 each	13'-7 1/2"	VII	9'-7"	2'-4 1/2"											
G 7	3/8"	1 each	14'-10 1/2"	VII	10'-7"	2'-7 1/2"											
G 8	3/8"	1 each	15'-2 1/2"	VII	10'-9"	2'-7 1/2"											
G 13	3/8"	1 each	17'-6"	VII	12'-7"	3'-1"											

BENDING DIAGRAMS

VI

BAR SUMMARY

1677 lin.ft of 1" @ 2.670 lb per lin.ft = 4,478 lb.
 1444 " " " 3/4" @ 2.044 " " " = 2,952 "
 881 " " " 3/8" @ 1.502 " " " = 1,323 "
 374 " " " 3/8" @ 1.043 " " " = 390 "
 3652 " " " 3/8" @ 0.668 " " " = 2,440 "
 Plus 1% for Overrun = 117 "
TOTAL = 11,700 lb.

BAR LIST FOR CULVERT

Mark	Size	No. Req'd	Length	Type	ℓ	m	n	p	r	t	Mark	Size	No. Req'd	Length	Type	ℓ	m	r	t
B 1	3/8"	44	31'-3"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"	X 4	3/8"	84	11'-8"	IV	4'-11"	7"		
B 2	3/8"	43	34'-0"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"	Y 1	3/8"	8	24'-6"	V	23'-0"		4 1/2"	4"
B 3	3/8"	2 each	33'-8"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"	Y 2	3/8"	8	30'-10"	V	29'-6"		4"	3 1/2"
B 19	3/8"	by odd numbers	27'-0"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"	Y 3	3/8"	98	6'-11"	IV	2'-3"	10 1/2"		
B 4	3/8"	2 each	30'-5"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
B 18	3/8"	by even numbers	24'-7"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
B 20	3/8"	2 each	23'-9"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
B 38	3/8"	by even numbers	16'-3"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
B 21	3/8"	2 each	25'-7 1/2"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
B 39	3/8"	by odd numbers	18'-1 1/2"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
B 40	3/8"	2 each	15'-5"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
B 70	3/8"	2 each	21'-11"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
B 71	3/8"	68	12'-4"	III	10'-0"				3 1/2"	3"									
B 72	3/8"	2 each	11'-9"	III	10'-0"				3 1/2"	3"									
B 77	3/8"	2 each	7'-7"	III	5'-7"				3"	2 1/2"									
B 78	3/8"	72	5'-6"	V	4'-6"				3"	2 1/2"									
B 79	3/8"	16	13'-0"	V	4'-6"				3"	2 1/2"									
L 1	3/8"	164	34'-9"	I	5'-8"	1'-2"	11'-4"	1'-8"	3 1/2"	3"									
L 2	3/8"	40	35'-6"	I	5'-8"	1'-2"	11'-4"	1'-8"	3 1/2"	3"									
T 1	3/8"	44	31'-3"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
T 2	3/8"	43	34'-0"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
T 3	3/8"	2 each	33'-8"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
T 4	3/8"	by odd numbers	26'-11"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
T 18	3/8"	2 each	30'-5"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
T 20	3/8"	by even numbers	24'-7"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
T 21	3/8"	2 each	25'-7 1/2"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
T 38	3/8"	by even numbers	16'-3"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
T 40	3/8"	2 each	15'-5"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
T 70	3/8"	2 each	21'-11"	I	5'-4"	1'-4"	11'-4"	1'-10 1/2"	3 1/2"	3"									
T 71	3/8"	68	12'-4"	III	10'-0"				3 1/2"	3"									
T 72	3/8"	2 each	11'-9"	III	10'-0"				3 1/2"	3"									
T 77	3/8"	2 each	7'-7"	III	5'-7"				3"	2 1/2"									
T 78	3/8"	72	5'-6"	V	4'-6"				3"	2 1/2"									
T 79	3/8"	16	13'-0"	V	4'-6"				3"	2 1/2"									
V 1	3/8"	136	17'-0"	IV	4'-11"	7"													
V 2	3/8"	324	17'-0"	IV	4'-11"	7"													
V 3	3/8"	4	13'-6"	IV	4'-11"	7"													
X 1	3/8"	8	29'-6"	V	28'-0"				4 1/2"	4"									
X 2	3/8"	8	22'-6"	V	21'-0"				4 1/2"	4"									
X 3	3/8"	12	23'-3"	V	21'-0"				4 1/2"	4"									

BAR SUMMARY

612 lin.ft of 1" @ 4.303 lb per lin.ft = 2,634 lb.
 247 " " " 3/4" @ 3.400 " " " = 840 "
 6570 " " " 3/8" @ 2.044 " " " = 13,429 "
 7669 " " " 3/8" @ 1.502 " " " = 11,519 "
 6796 " " " 3/8" @ 1.043 " " " = 7,088 "
 9472 " " " 3/8" @ 0.668 " " " = 6,321 "
 Plus 1% for Overrun = 423 "
TOTAL = 42,260 lb.

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted June 1, 1937.
 All concrete shall be Class "A".
 All walls shall have forms on both sides.
 Forms for concrete surfaces exposed in the finished work shall be constructed of shiplap or tongue and groove lumber unless faced with panel board.
 Footings in rock shall be poured out to the rock and not formed.
 All reinforcing bars shall be deformed and tagged with station number and letter designation. Main bars shall not be spliced.
 This design not to be used when height of fill over box exceeds design data.
 Supporting soils for all culverts must be composed of firm uniform material throughout.
 All backfilling to and over culverts shall be laid in layers not exceeding 6 inches in depth and each layer shall be rolled or hand tamped where inaccessible to roller, also moistened when necessary.
 All construction joints shall be thoroughly cleaned before fresh concrete is poured.
 Minimum distance from centerline of bars to edge of concrete to be 2 inches.
 All exposed corners to be beveled to a 2 inch face.

REFERENCE DRAWINGS
 Sheet No. 8 Details of Box
 Sheet No. 9 Details of Wing Walls.

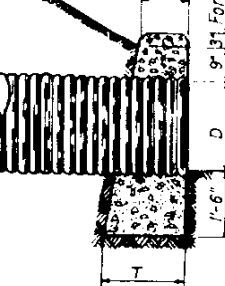
DESIGN DATA:
 Fill on top slab computed for 7 ft @ 100%
 Slab Moment Spans = 14.62 ft.
 Bottom Slab includes 3" monolithic conc. abrasion surface (Str depth = 1' 10").

COLORADO
STATE HIGHWAY DEPARTMENT
DOUBLE 14'x14' CONC. BOX
CULVERT-45° SKEW-
BAR LISTS
SUMMARY OF QUANTITIES

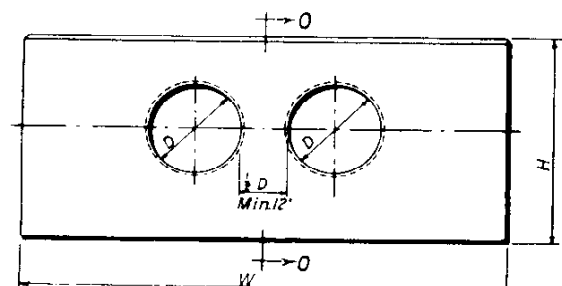
Across GORE CREEK
 Sta. 482+83.3 to 483+28.3
 Near Minturn Sec. 7 T. 5-S R. 79W

Designed by A.L.C. Approved by F.D. Bailey
 Made by D.M.C.D. Bridge Engineer
 Checked by Date: March 29, 1939.

Length in feet face to face of headwalls



SECTIONAL ELEV. 0-0

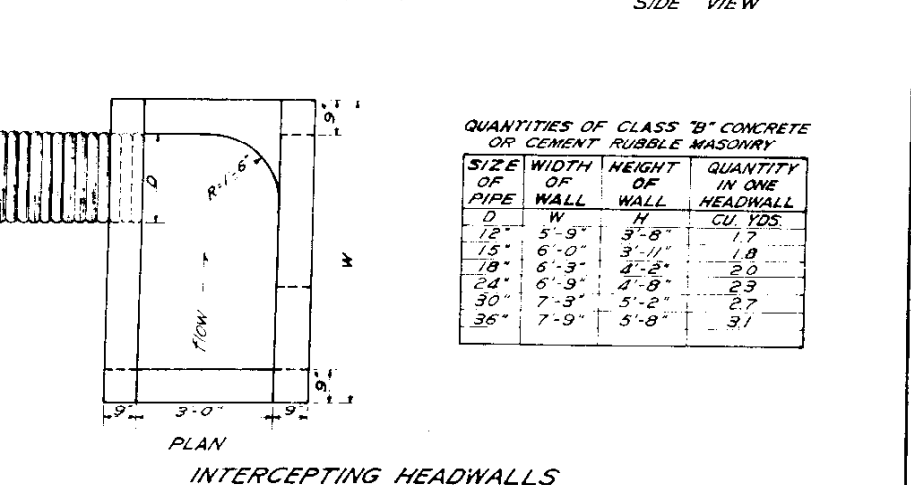
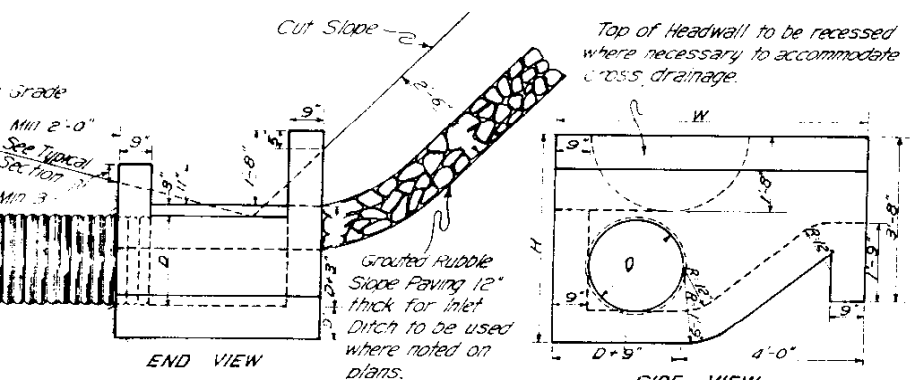


FRONT ELEVATION

TABLE OF DIMENSIONS & QUANTITIES FOR DOUBLE CORRUGATED METAL PIPE CULVERT & HEADWALLS

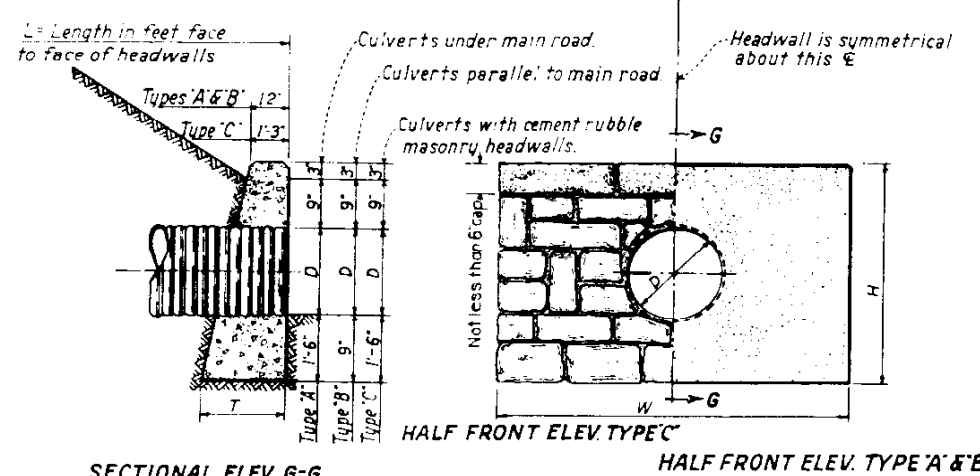
D	W	H	T	CL. B CONCRETE FOR 2 HD WALLS	CORRUGATED METAL PIPE	CEMENT RUBBLE MASONRY
12"	4'-6"	3'-6"	1'-5"	1.4 CU. YDS.	16 GAGE 2 x L = LIN. FT.	16 DO 2 x L = DO
15"	5'-0"	4'-0"	1'-7"	2.2 DO	18 DO L = DO	18 DO L = DO
18"	5'-6"	4'-6"	1'-9"	3.3 DO	18 DO L = DO	18 DO L = DO
24"	6'-0"	5'-0"	2'-0"	4.5 DO	18 DO L = DO	18 DO L = DO
30"	6'-6"	5'-6"	2'-2"	6.0 DO	18 DO L = DO	18 DO L = DO
36"	7'-0"	6'-0"	2'-5"	8.0 DO	18 DO L = DO	18 DO L = DO
42"	7'-6"	6'-6"	2'-7"	10.0 DO	18 DO L = DO	18 DO L = DO

TABLE OF DIMENSIONS & QUANTITIES FOR DOUBLE CORR. METAL PIPE CULV'S.



QUANTITIES OF CLASS "B" CONCRETE OR CEMENT RUBBLE MASONRY

SIZE OF PIPE	WIDTH OF WALL	HEIGHT OF WALL	QUANTITY IN ONE HEADWALL
12"	5'-9"	3'-8"	1.7
15"	6'-0"	3'-11"	1.8
18"	6'-3"	4'-2"	2.0
24"	6'-9"	4'-8"	2.3
30"	7'-3"	5'-2"	2.7
36"	7'-9"	5'-8"	3.1



SECTIONAL ELEV. G-G

TABLE OF DIMENSIONS & QUANTITIES FOR CORRUGATED METAL PIPE CULVERTS & HEADWALLS

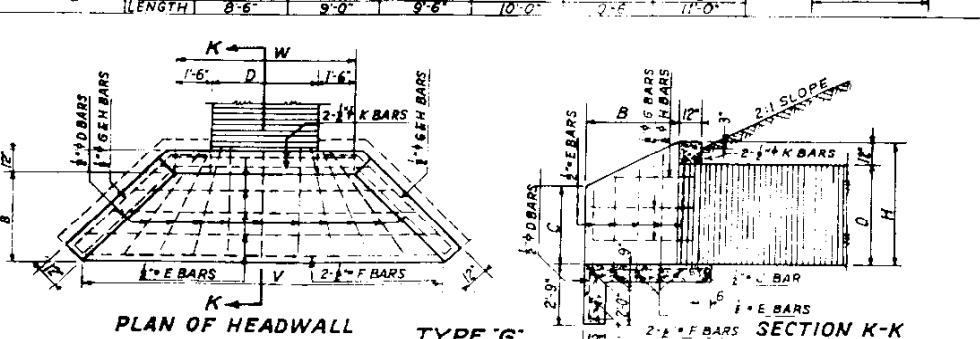
D	W	H	T	CL. B CONCRETE FOR 2 HD WALLS	CORRUGATED METAL PIPE	CEMENT RUBBLE MASONRY
12"	4'-6"	3'-6"	1'-5"	1.4 CU. YDS.	16 GAGE 2 x L = LIN. FT.	16 DO 2 x L = DO
15"	5'-0"	4'-0"	1'-7"	2.2 DO	18 DO L = DO	18 DO L = DO
18"	5'-6"	4'-6"	1'-9"	3.3 DO	18 DO L = DO	18 DO L = DO
24"	6'-0"	5'-0"	2'-0"	4.5 DO	18 DO L = DO	18 DO L = DO
30"	6'-6"	5'-6"	2'-2"	6.0 DO	18 DO L = DO	18 DO L = DO
36"	7'-0"	6'-0"	2'-5"	8.0 DO	18 DO L = DO	18 DO L = DO
42"	7'-6"	6'-6"	2'-7"	10.0 DO	18 DO L = DO	18 DO L = DO

D	W	H	V	B	C	UNIT	CONCRETE CLASS "A"	CORRUGATED METAL PIPE	UNIT	REINFORCING STEEL
54"	7'-6"	5'-6"	15'-6"	4'-0"	3'-6"	CU. YDS.	12.6	8 GAGE 2 x L = LIN. FT.	LBS.	446
60"	8'-0"	6'-0"	16'-0"	4'-0"	4'-0"	DO	13.5	8 DO L = DO	DO	463
66"	8'-6"	6'-6"	16'-6"	4'-0"	4'-6"	DO	14.4	8 DO L = DO	DO	480
72"	9'-0"	7'-0"	17'-0"	4'-0"	5'-0"	DO	15.3	8 DO L = DO	DO	500
78"	9'-6"	7'-6"	17'-6"	4'-0"	5'-6"	DO	16.2	8 DO L = DO	DO	520
84"	10'-0"	8'-0"	18'-0"	4'-0"	6'-0"	DO	17.1	8 DO L = DO	DO	540

REINFORCING STEEL QUANTITIES ARE FOR TWO HEADWALLS

CONCRETE QUANTITIES ARE FOR TWO HEADWALLS

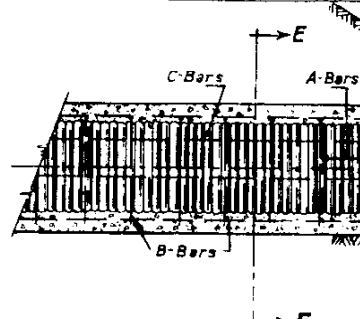
DIAMETER OF PIPE	54"	60"	66"	72"	78"	84"	BENDING DIAGRAM
D BARS 1/2"	SPACING 12"	12"	12"	12"	12"	12"	12"
E BARS 1/2"	SPACING 12"	12"	12"	12"	12"	12"	12"
F BARS 1/2"	SPACING 12"	12"	12"	12"	12"	12"	12"
G BARS 1/2"	SPACING 12"	12"	12"	12"	12"	12"	12"
H BARS 1/2"	SPACING 12"	12"	12"	12"	12"	12"	12"
J BARS 1/2"	SPACING 12"	12"	12"	12"	12"	12"	12"
K BARS 1/2"	SPACING 12"	12"	12"	12"	12"	12"	12"



STD. HEADWALLS FOR CORRUGATED METAL PIPE CULVERTS

STANDARD M-102-E

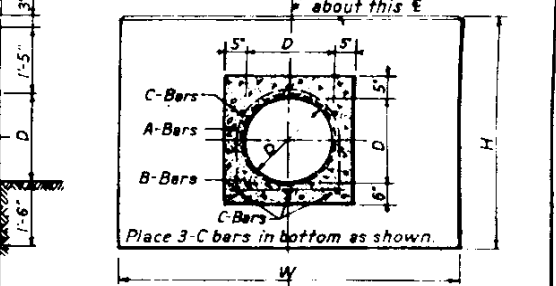
Revised 10-13-38 P.A.K. New intercepting headwall
Revised 3-13-35 W.G.S. Changed Masonry in Headwall
L = Length in feet face to face of headwalls



LONGITUDINAL SECTION F-F

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	D.W.A. HEADWALLS	12	12

Revised 6-1-37 A.G.K. Changed to 537 Specifications
Revised 10-13-38 A.G.K. Added L on cement rubble masonry headwalls
Revised 6-28-38 A.V.F. Extended table dimensions & quantities Type C headwalls to include 47.5" pipes. Changed intercepting headwalls & added table for cement rubble masonry wells.



SECTIONAL ELEVATION E-E

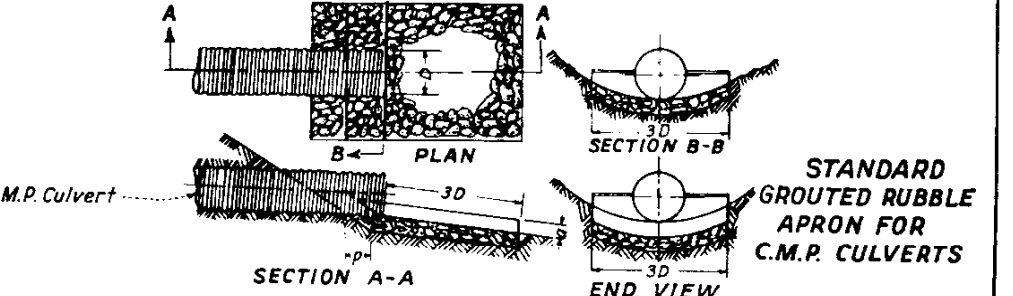
TABLE OF DIMENSIONS AND QUANTITIES FOR INCASED PIPE CULVERTS

Diameter of pipe	D	12"	15"	18"	24"	30"	BENDING DIAGRAM
Width of headwall	W	4'-6"	5'-3"	6'-0"	7'-6"	9'-0"	12"
Height of headwall	H	4'-2"	4'-5"	4'-8"	5'-2"	5'-8"	12"
Width of headwall base	T	1'-7"	1'-8"	1'-9"	2'-0"	2'-3"	12"
A BARS	SPACING	12"	12"	12"	12"	12"	12"
B BARS	SPACING	12"	12"	12"	12"	12"	12"
C BARS	SPACING	12"	12"	12"	12"	12"	12"

* Concrete quantities shown above include two headwalls.
* When L = 40 feet or more add 10.6 Lbs. for lap in C-bars.
* When L = 40 feet or more add 14.17 Lbs. for lap in C-bars.

SPECIAL NOTES
All reinforcing bars shall be 1/2".
Minimum distance of bar to surface of concrete shall be 2".
Pipe shall be thoroughly cleaned before incasing with concrete.

INCASED PIPE CULVERTS



STANDARD GROUDED RUBBLE APRON FOR C.M.P. CULVERTS

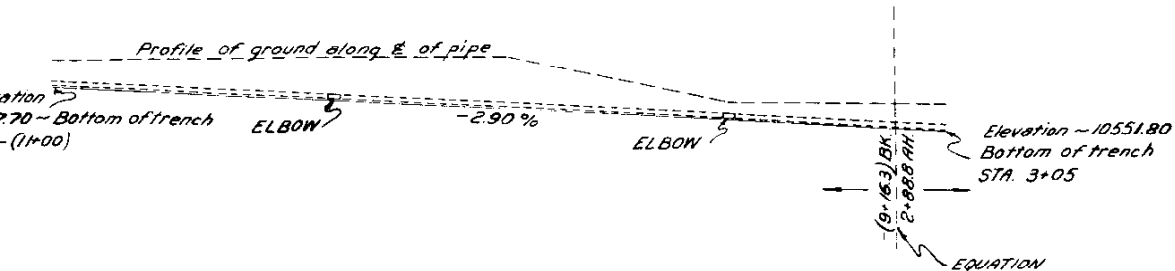
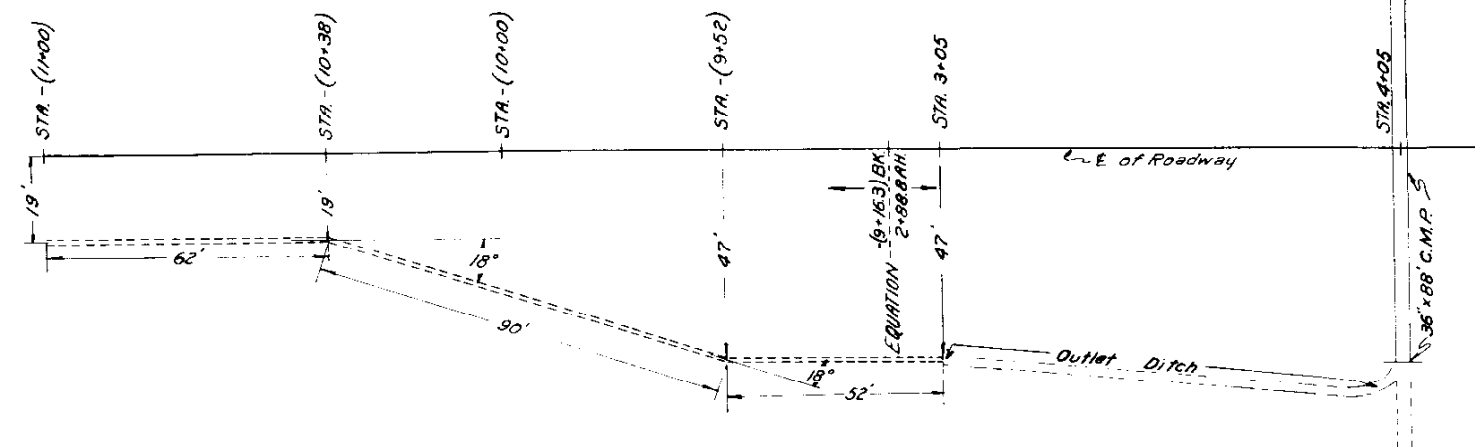
SQUARE YARDS GROUDED RUBBLE SLOPE & DITCH PAVING "1 FOOT THICK"

FILL SLOPE	D	15"	18"	24"	30"	36"	42"	48"	54"	60"	66"	72"	78"	84"
1/2:1	2'-0"	3	4	6	9	12	17	21	27	33	39	45	51	57
2:1	2'-0"	3	4	7	10	13	18	22	28	34	41	49	57	66
3:1	3'-0"	3	4	7	11	15	20	25	31	38	45	54	63	72
4:1	4'-0"	3	5	8	12	16	22	28	34	42	50	59	69	79

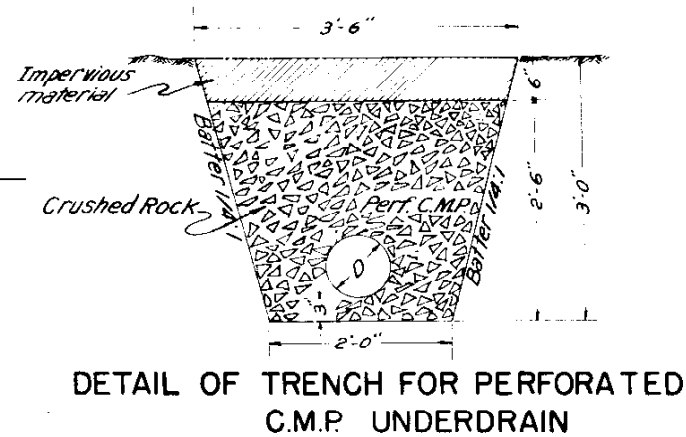
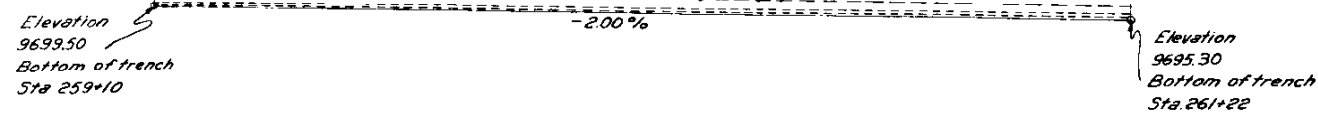
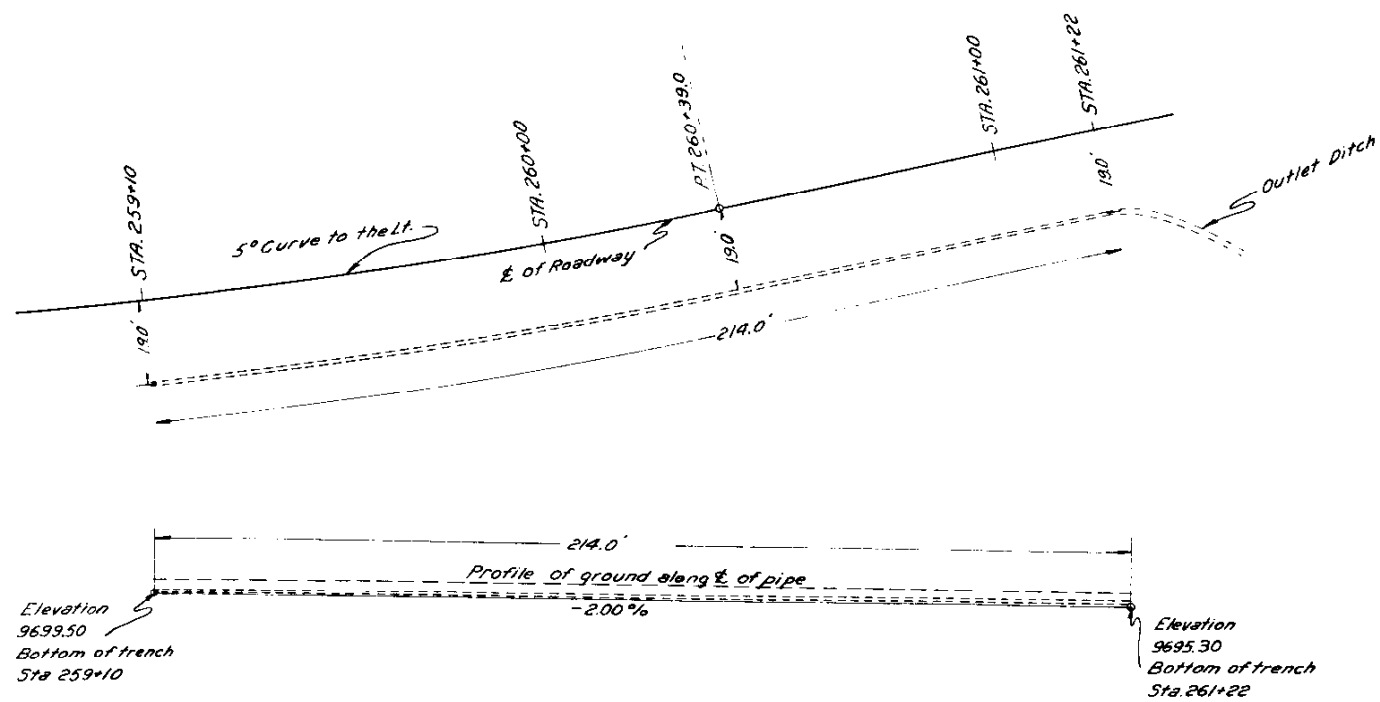
GENERAL NOTES FOR ALL STRUCTURES
All work shall be done according to the standard specifications of the Colorado State Highway Department, adopted June 1-1937.
All concrete shall be class "A" except types A & B, which shall be class "B".
All exposed surfaces shall be rubbed free of form marks.
All exposed corners shall be beveled to a 2" face.
All construction joints shall be thoroughly cleaned before fresh concrete is poured.
All walls shall have forms on both sides.
All reinforcing bars shall be deformed.
All reinforcing bars shall be tagged with the station number & letter designation.
Secondary bars when spliced shall be given a lap of 50 diameters.
Main bars shall not be spliced.
Minimum fill over top of culverts shall be 1'-0".
When culvert is skewed, headwalls shall be placed parallel to centerline of roadway.
Minimum grade of pipe shall be 1%.
For size and location of culverts see sheet No. 2.
Footings in rock shall be poured out to the rock and not formed.

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD HEADWALLS
INTERCEPTING HEADWALLS
INCASED METAL PIPE CULVERT
WITH HEADWALLS
FOR CORRUGATED
METAL PIPE CULVERTS
Designed by G.H.D. Approved by J.D. Bailey
Made by L.S.-A.V.F. Bridge Engineer
Checked G.H.D.-W.M. Date 4/27/1937

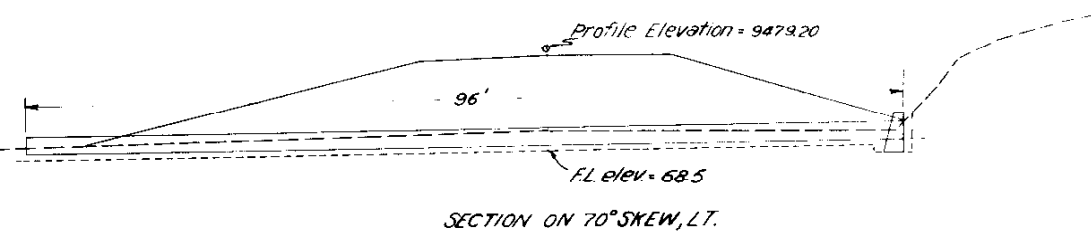
DETAIL OF 8" PERFORATED C.M.P. UNDERDRAIN STA. - (11+00) TO 3+05.0



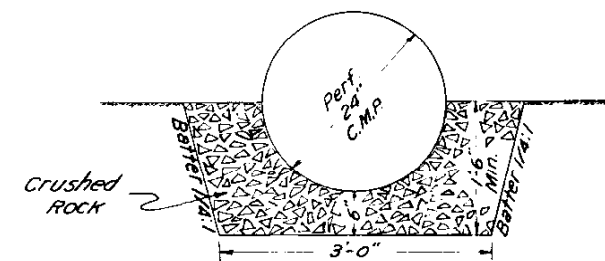
DETAIL OF 8" PERFORATED C.M.P. UNDERDRAIN STA. 259+10 TO 261+22

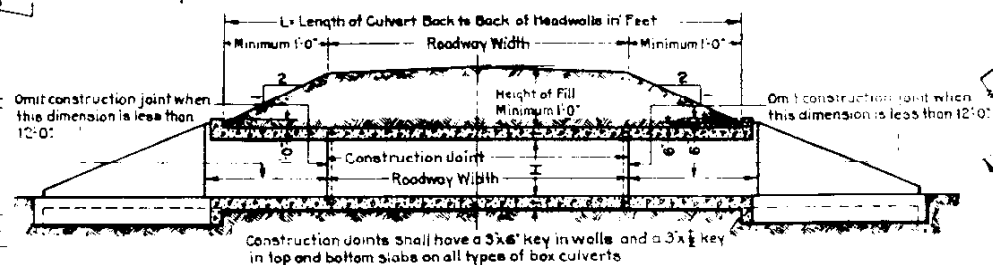


DETAIL OF 24" PERFORATED C.M.P. CULVERT STA. 305+30



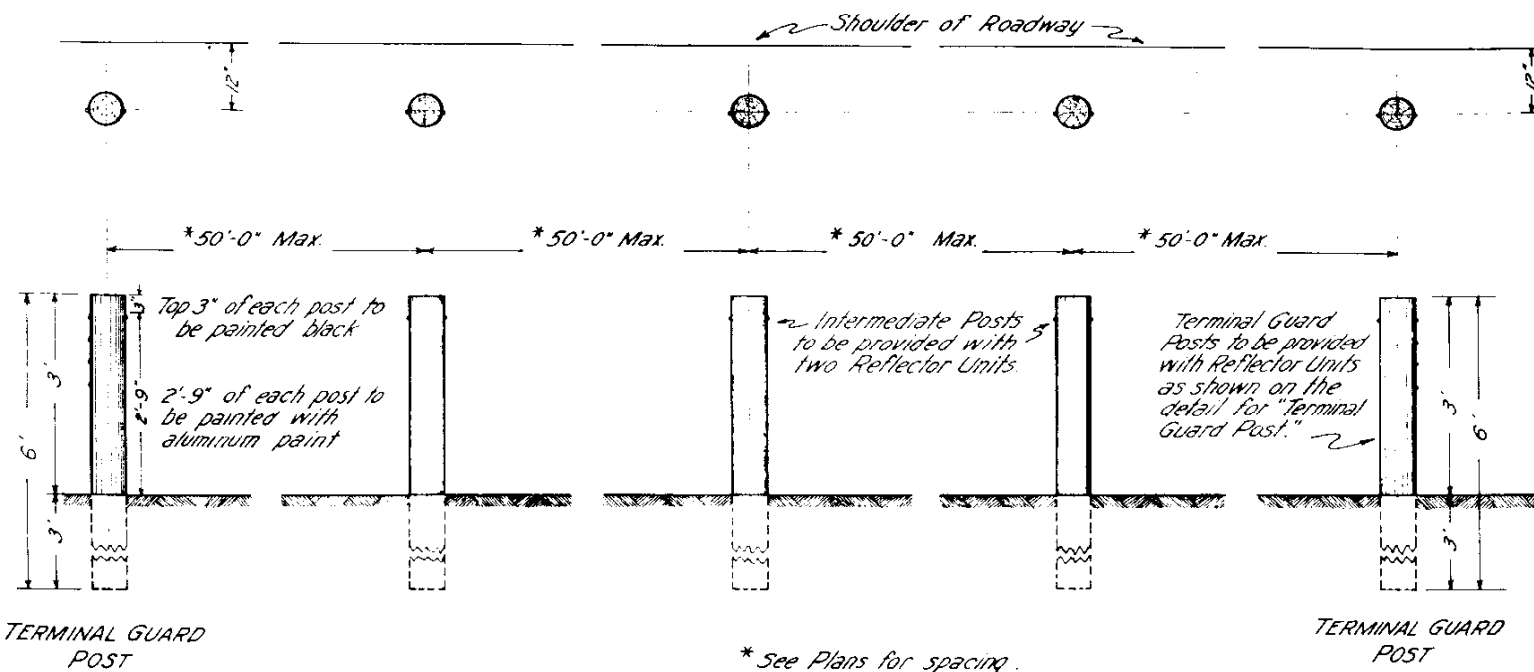
DETAIL OF TRENCH FOR 24" PERFORATED C.M.P. CULVERT



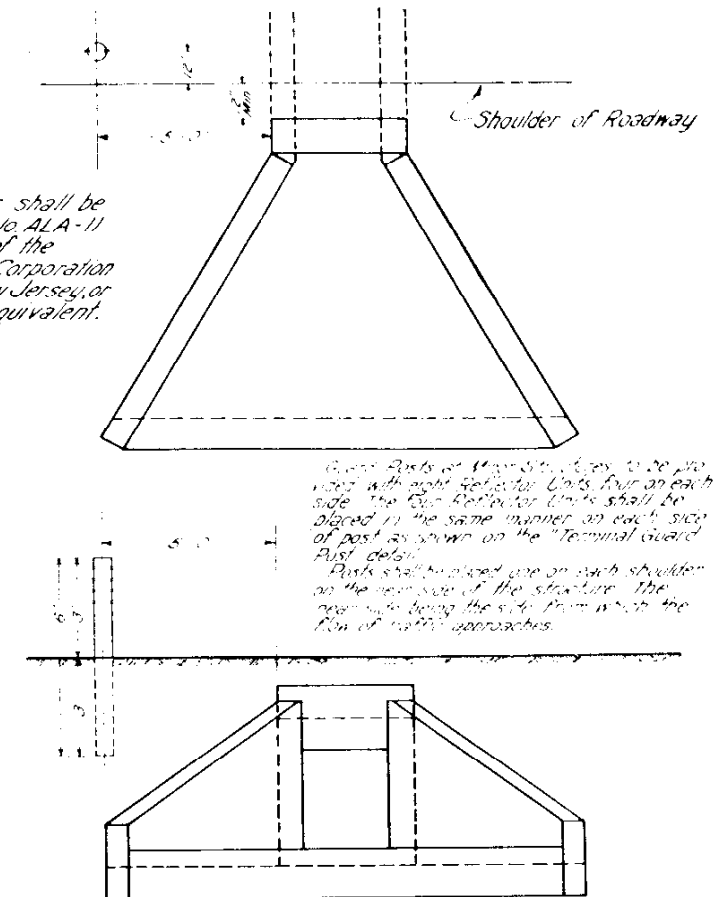
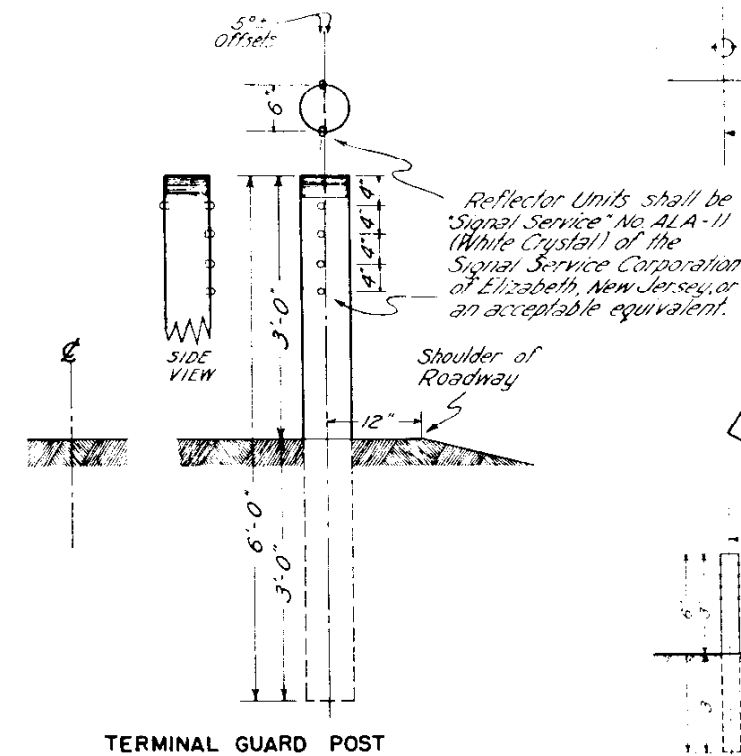


STANDARD M-19-B

FED. ROAD DIST. NO. 3 STATE P.W.A. 12207-Unit 14 SHEET NO. 14 TOTAL SHEETS



SHOWING PLACEMENT ON NORMAL ROADWAY FILLS



GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted on June 1, 1937.

All wood posts shall be made from seasoned, straight, sound Lodgepole Pine, Southern Yellow Pine, or West Coast Douglas Fir.

No section of wood posts shall be less than 6" in diameter.

All wood posts shall be entirely peeled and shaved, thoroly seasoned and dry, with square tops. Posts shall not be treated.

All wood posts shall be set and tamped in plumb and firm, to the lines and grades as directed by the Engineer.

Reflector Units in all posts shall be placed in such position that the units will function at a distance of 500 feet.

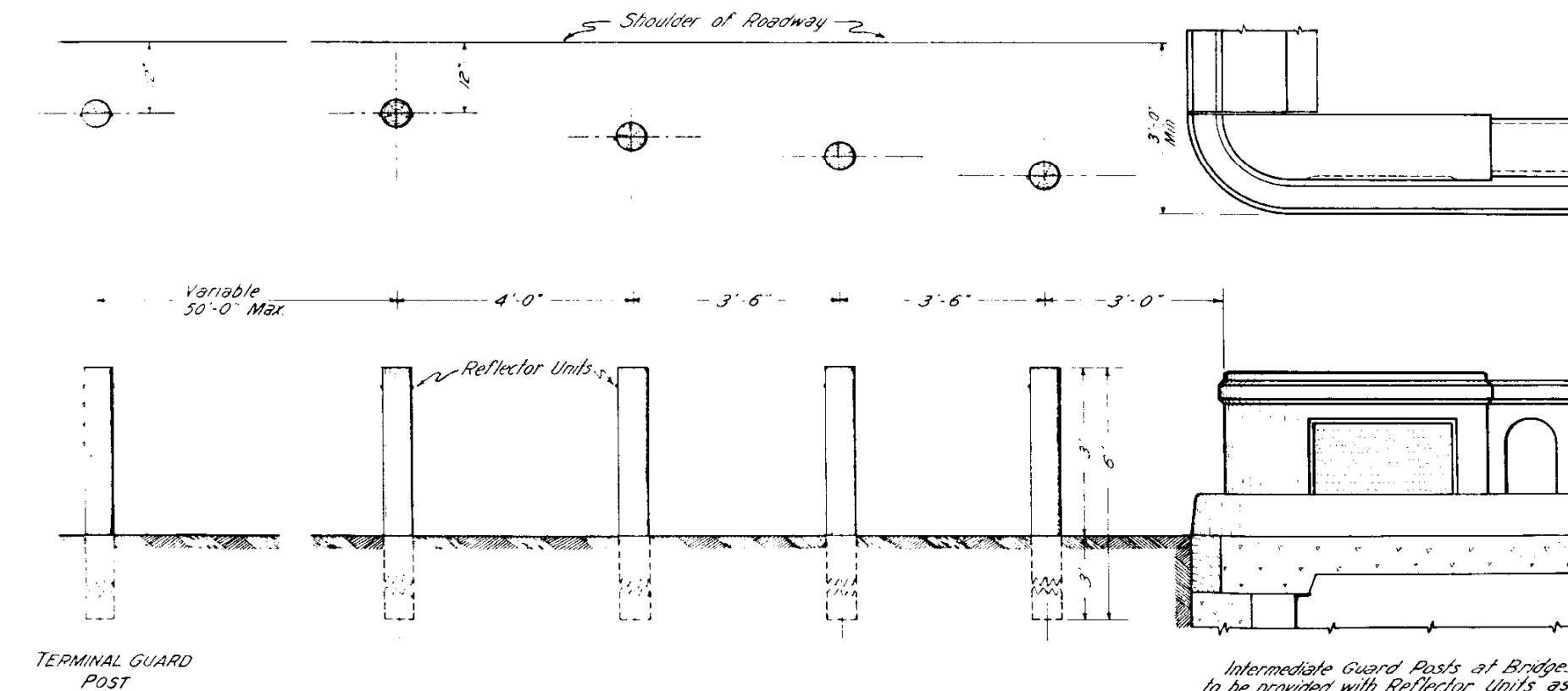
On tangents the Reflector Units shall be placed at an angle of approximately five degrees to a line parallel to the centerline of the highway.

In all instances a test shall be made to assure the position of the Reflector Units to be the most effective possible.

The diameter of holes drilled in the posts shall be drilled approximately one-sixteenth (1/16) inch less than the diameter of the signal button base. In all instances the hole shall be enough undersize that the button when driven into the post shall have complete bond with the post and be securely locked in correct position.

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
TIMBER GUARD
POSTS

Designed by R.E.L. Approved by J.H. Marshall
Made by P.B.B. Chief Draftsman
Checked by Date: 2-28-1939

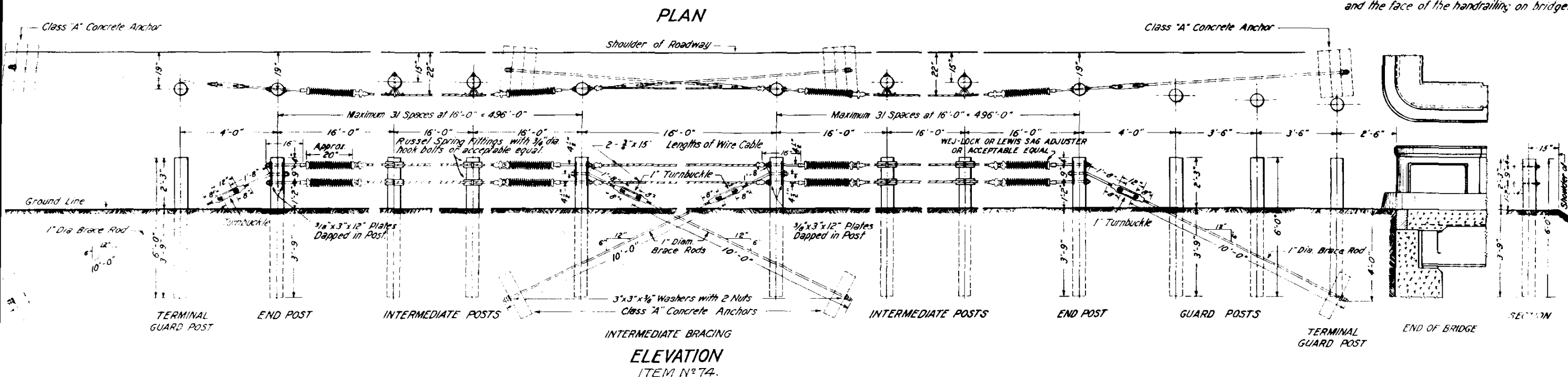


SHOWING PLACEMENT AT BRIDGE APPROACHES

Rev. 3-25-38. A.G.K. Added paint n

STANDARD M-20-B

NOTE: The 3 guard posts between the End Post and the end of bridge railings shall be so placed that the faces of the posts are in a direct line between the face of the end post and the face of the handrailing on bridge.



GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted June 1-1937.

The length of guard fence to be paid for and designated on plans shall be measured from terminal guard post to terminal guard post.

When continuous wire cable fence is more than 500 Ft. in length it shall have intermediate bracing complete with turnbuckles.

All wood posts shall be made from seasoned, straight, sound Lodge Pole Pine, Southern Yellow Pine, or West Coast Douglas Fir.

No section of wood posts shall be less than 6" diameter.

All wood posts shall be entirely peeled and shaved, thoroly seasoned and dry, with square tops and all holes to be drilled $\frac{1}{2}$ " larger than diameter of bolt or rod before treatment is applied.

All wood posts shall be pressure treated with creosote for the full length of posts as provided for in the Specifications.

All wood posts shall be set and tamped in plumb and firm, to the lines and grades directed by the Engineer.

Standard galvanized cast iron O.G. or galvanized malleable cast washers shall be used under all bolt heads and nuts coming in contact with wood posts.

Only one style of eyebolts, turnbuckles, and other fittings may be used on a project.

Turnbuckles on all brace rods shall be so placed that the entire turnbuckle clears the ground line.

All sag adjusters shall be compressed a minimum of 1" @ 100°F to allow for initial tension in the cable. The adjusted amount of compression of springs due to temperature shall be figured in the following manner. For every 10° of

due to temperature shall be figured in the following manner: For every 10° of temperature below 100°F an additional $\frac{1}{32}$ " of compression per 100 ft. of cable shall be used. Illustration: Length between end posts: 400ft. Temp. 40°F: $(4 \times 6 \times \frac{1}{32}) + 1 = 1\frac{1}{4}$ ".

Sag adjusters and appurtenances shall be either hot dip galvanized or painted with 2 coats of approved aluminum paint. Paint and painting shall conform to requirements of Item 41 of the Standard Specifications.

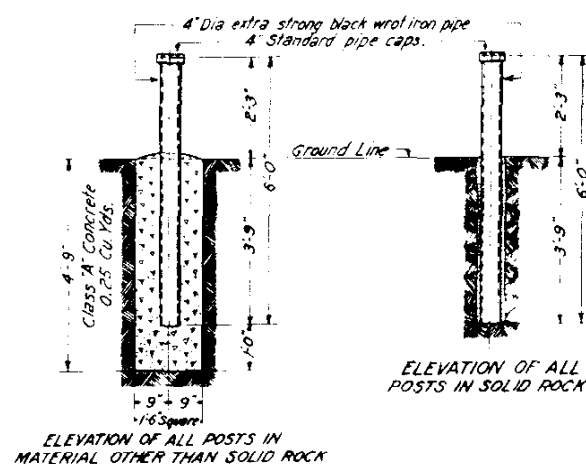
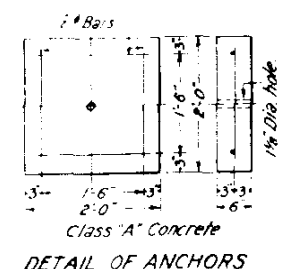
Where sidewalks are constructed adjacent to the lane for traffic, Guard Fence shall be placed in such manner that the cable lies on the line between the sidewalk area and the normal roadway shoulder.

Where Guard Fences are constructed on the approaches to bridges with sidewalks, the cable at bridge shall be placed in line with the face of the curbing on the bridge.

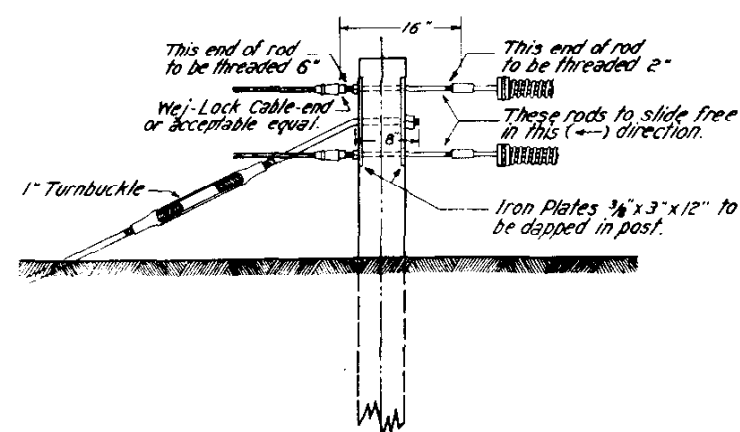
Note:
All wrought iron posts shall have one shop coat,
red lead, and two coats aluminum as specified
under item N° 41.

NOTE: Holes in rock shall be constructed as near
as possible to diameter of pipe, the remaining
space between pipe and wall of hole to be
filled with cement grout.

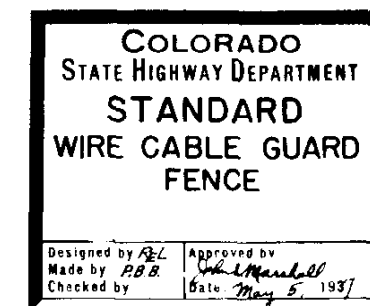
Holes necessary for type of fence used
shall be drilled in pipe posts.



DETAILS FOR WROT IRON PIPE
ITEM N°74b.



**SIDE VIEW OF POST AT
INTERMEDIATE BRACING**

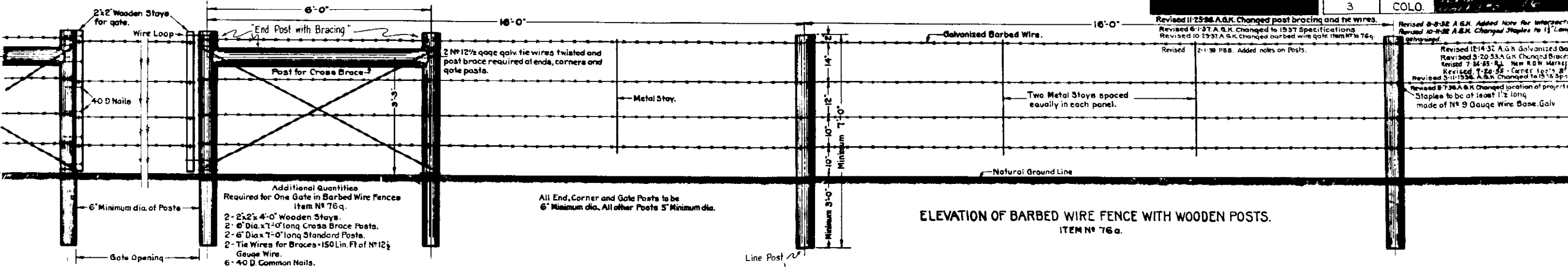


End Posts, Corner Posts, and Gate Posts.
(See description under General Notes)

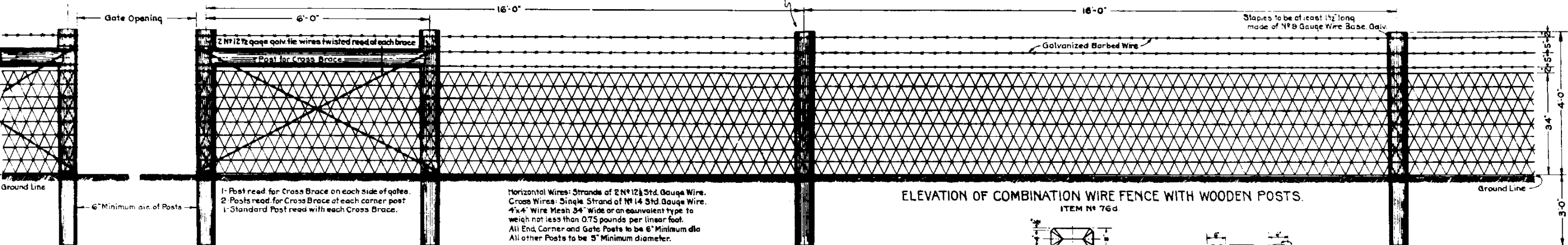
STANDARD M-24-F

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	10-10-32	16	

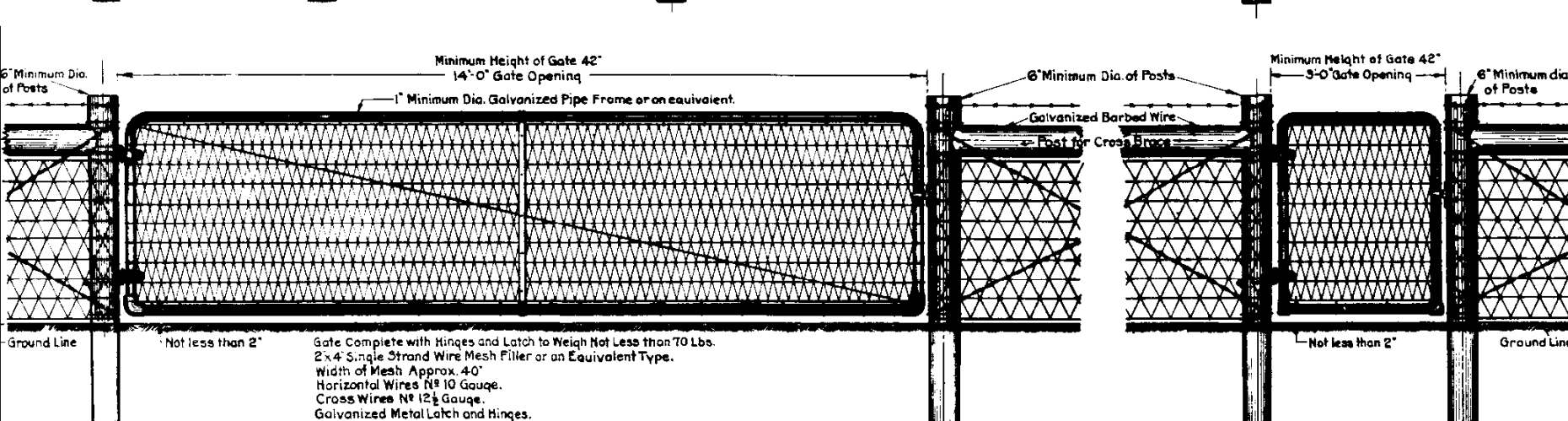
Revised 11-23-36 A.G.K. Changed post bracing and tie wires.
Revised 6-1-37 A.G.K. Changed to 1937 Specifications.
Revised 10-29-37 A.G.K. Changed barbed wire gate item to 76g.
Revised 2-1-38 P.B.B. Added notes on Posts.
Revised 12-14-32 A.G.K. Galvanized Gate Frames.
Revised 3-20-33 A.G.K. Changed Braces & Post details.
Revised 7-14-35 R.J. New R.O.W. Markers.
Revised 7-20-35 - Corner Posts & Structures.
Revised 3-11-1936 A.G.K. Changed to 1936 Specifications.
Revised 8-7-36 A.G.K. Changed location of project marker posts.
Staples to be at least 1 1/2" long made of No. 9 Gauge Wire Base Galv.



ELEVATION OF BARBED WIRE FENCE WITH WOODEN POSTS.
ITEM NO. 76a.



ELEVATION OF COMBINATION WIRE FENCE WITH WOODEN POSTS.
ITEM NO. 76d.

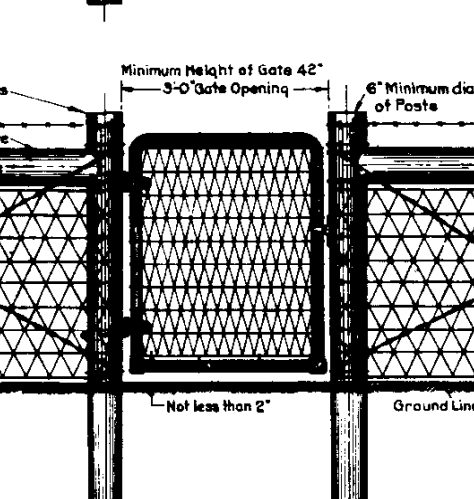


ELEVATION OF DRIVEWAY GATE.
ITEM NO. 76h.

GENERAL NOTES FOR WIRE FENCES.

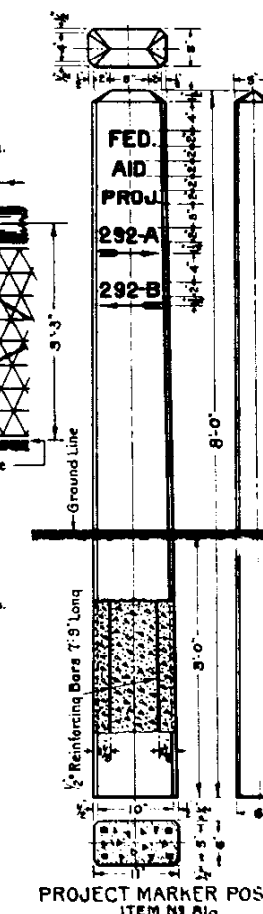
All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, Adopted June 1, 1937.
Barbed Wire shall be of Standard Make, not lighter than No. 12 1/2 Gauge, Galvanized and with Two Point Barbs spaced not more than 5" apart.
Wire Mesh must be galvanized and not lighter than shown and noted on this plan.
Wire Mesh used in Driveway Gates shall be painted with an approved waterproof asphalt or mineral paint.
Staples shall be at least 1 1/2" long, made of No. 9 Gauge Wire Base Galv., 8 staples per post for barbed wire fence and 14 Staples per post for Combination Wire Fence.
All wooden posts shall be made from seasoned, straight, sound Lodgepole or Southern Yellow Pine, peeled and tops sawed off square before pressure treatment, as provided in the Specifications.
Cross Braces, Brace Posts and Tie Wires are to be used at all places where intersecting fences are encountered.
Cross Braces to be securely nailed with 4-40d. nails at each post.

Four Corner Posts (with Brace and supplemental Posts) and four Endposts shall be used at each Structure over 4'x4' in size and fence turned in and ended at Wings.
"END POST WITH BRACING" shall conform to detail shown above on gate details. (3 Posts req'd.)
"CORNER POST WITH BRACING" shall be constructed of two end posts as above described except that the post at the intersection of the two fence lines shall be common to both lines. (5 Posts req'd.)
"LINE POSTS" shall be the minimum five (5) inch diameter posts shown above on details.
Fence intersections shall be constructed of three "END POSTS WITH BRACING". The post at the intersection of fence lines shall be common to all three end post sections. (7 Posts req'd.)

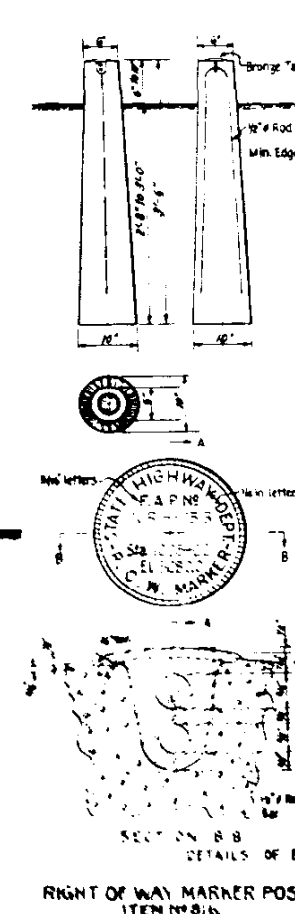


ELEVATION OF WALK GATE.
ITEM NO. 76i.

3/4" Minimum Dia. galvanized pipe frame or an equivalent.
Gate Complete with Hinges and Latch to Weigh Not Less than 15 Lbs.
2x4 Single Strand Wire Mesh Filler or an Equivalent Type.
Width of Mesh Approx. 40".
Horizontal Wires No. 10 Gauge.
Cross Wires No. 12 1/2 Gauge.
Galvanized Metal Latch and Hinges.



PROJECT MARKER POST.
ITEM NO. 81a.



RIGHT OF WAY MARKER POST.
ITEM NO. 81b.

NOTES FOR PROJECT MARKER POSTS.

All Letters and Numbers shall be 2" Plain Upright Block, Painted or Stenciled on the Concrete with a good quality of Black Paint. See Item No. 41 "Second Field Coat-Block".
Numbers and arrows shall show the proper numbers and directions of the projects each way from where the post is placed.
Post is 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.
All work shall be done in accordance with Standard Specifications of the Colorado State Highway Department, adopted June 1, 1937.
Posts shall be made of Class "D" Concrete (Slump 8" to 6") except use White Portland Cement.
All exposed surfaces shall be rubbed free of form marks.

NOTES FOR R.O.W. MARKER POSTS.

All work shall be done in accordance with Standard Specifications of the Colorado State Highway Department, adopted June 1, 1937.
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. 3/4" letters & figures to be used.
Posts shall be made of Class "A" Concrete.
The upper 12 inches of marker shall be rubbed free of form marks, and the top surface of marker must be constructed to drain thoroughly.
Project Designations on tablets shall be properly shown. Thus: F.A.P.N. for Fed Aid Projs., S.P.N. for State Projs., P.W.A. Projs., etc.



DETAILS OF BRONZE TABLET.

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD WIRE FENCES -
TREATED WOOD POSTS -
AND
MARKER POSTS

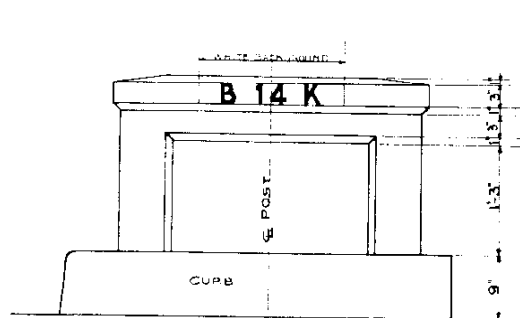
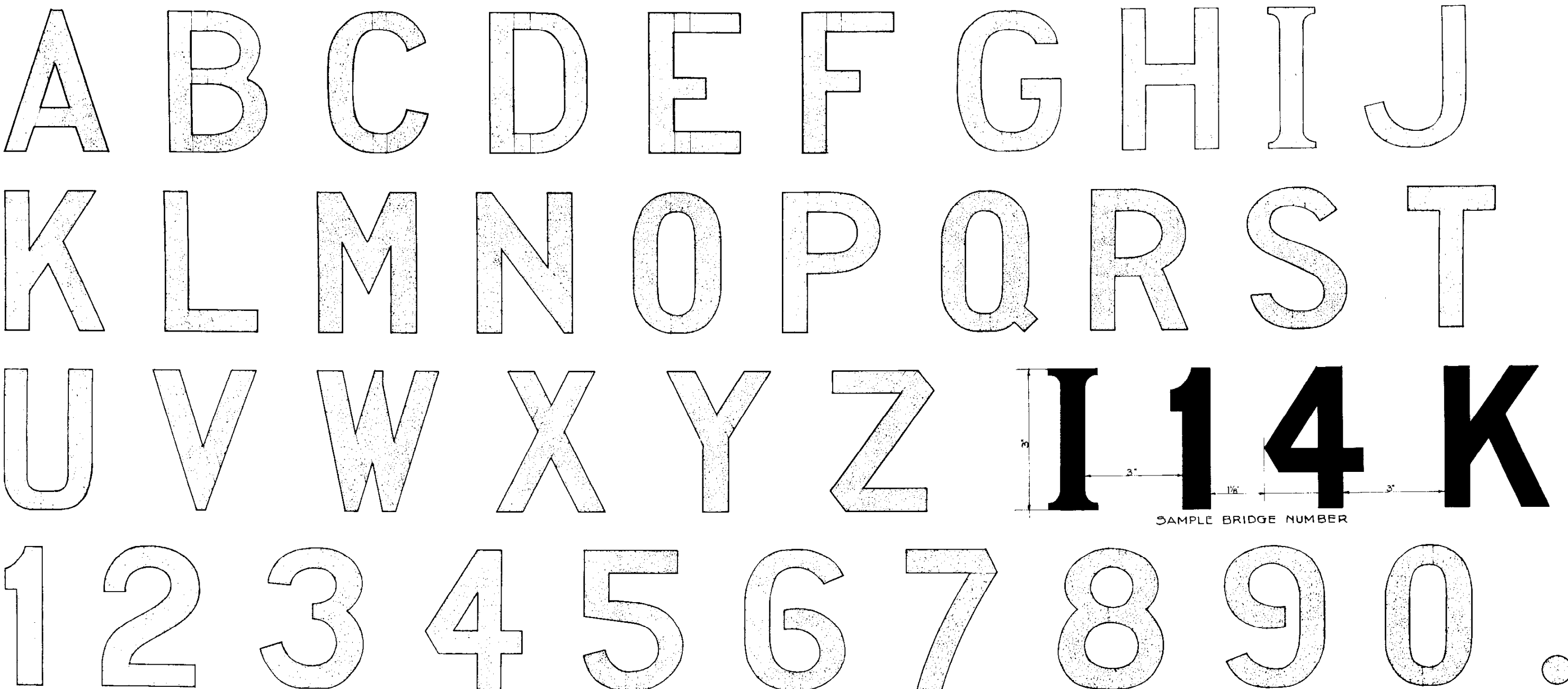
Designed by AGK
Made by AGK
Checked by GHD
Approved by P.D. Bailey
Bridge Engineer
Date: Feb. 1, 1932.



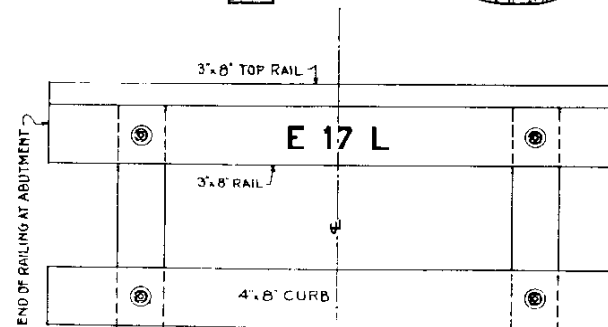
STANDARD M-10-A

FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	1220 P Unit 302	17	

You need not use this form if you are using the standard specifications.
Revised 6/13/37 A.G.N. Changed to 1937 Specifications



TYPICAL CONCRETE ENDPOST.



TYPICAL TIMBER WING

GENERAL NOTES

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT ADOPTED JUNE 1, 1937.

THE STRUCTURE NUMBER SHALL BE STENCILED ON THE RIGHT HAND SIDE OF EACH BRIDGE, END AS SHOWN ON THIS STANDARD, AND AS SPECIFIED.

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

THE SIZE, SHAPE AND SPACING OF THE LETTERS AND FIGURES SHALL BE IDENTICAL WITH THE FULL SIZE SHOWN ON THIS SHEET. ADDITIONAL COPIES OF THIS FULL SIZE SHEET CAN BE OBTAINED FROM THE DEPARTMENT WITHOUT CHARGE.

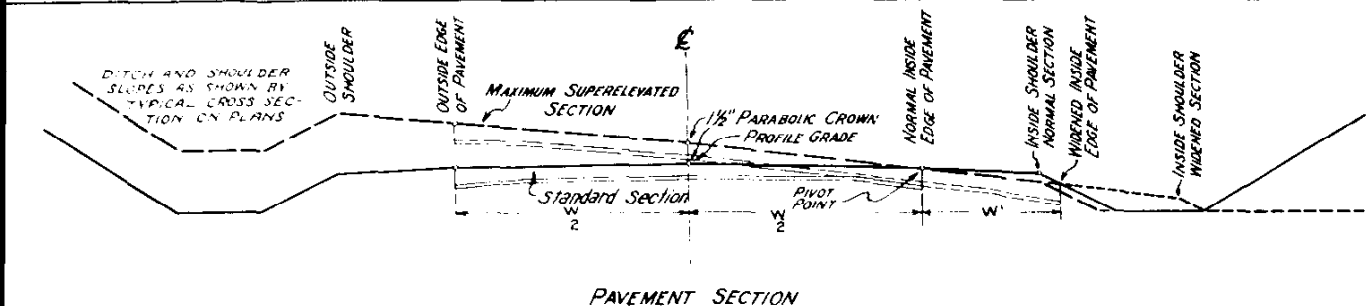
BEFORE STENCILING THE NUMBER ON THE BRIDGE, THE SURFACE MUST BE THOROUGHLY CLEANED, A PROPER WHITE BACKGROUND SHALL BE PAINTED ON CONCRETE SURFACES. ON TIMBER HANDRAILS THE WHITE PAINT USED ON THE BRIDGE WILL BE SATISFACTORY. ON CONCRETE ENDPOSTS THE DRY CONCRETE SURFACE SHALL BE PROPERLY SIZED BEFORE PLACING THE WHITE RECTANGLE, UNLESS AN APPROVED WHITE CONCRETE PAINT IS USED.

TWO COATS OF ACCEPTABLE WHITE PAINT SHALL BE APPLIED TO THE CONCRETE IN A NEAT RECTANGULAR SHAPE, AND EXTEND THREE INCHES BEYOND THE LIMITS OF THE STRUCTURE NUMBER.

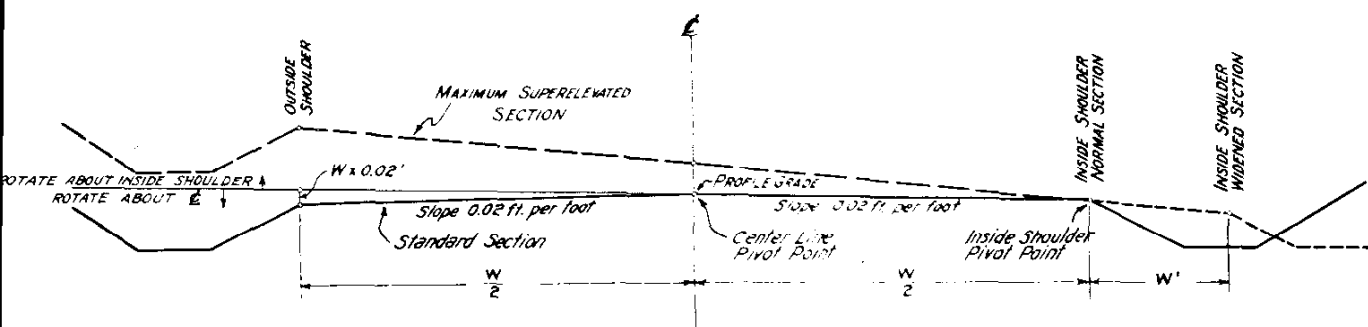
AFTER THIS WHITE BACKGROUND HAS DRIED SUFFICIENTLY, THE CORRECT STRUCTURE NUMBER SHALL BE CAREFULLY STENCILED ON IT WITH TWO COATS OF STANDARD 'C' SECOND FIELD COAT DARK AS SPECIFIED UNDER ITEM 411 STEEL BRIDGES. THE BRACES OF THE STENCILED LETTERS AND FIGURES SHALL BE CAREFULLY FILLED IN BY HAND TO MAKE SOLID FIGURES. SUFFICIENT TIME BETWEEN SUCCESSIVE COATS SHALL BE ALLOWED TO PERMIT THE PRECEDING COAT TO DRY.

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

COLORADO			
STATE HIGHWAY DEPARTMENT			
STANDARD STRUCTURE			
NUMBER LETTERING.			
Across	Sta.	Sec.	T. R.
Near			
Designed by G.H.D.	Approved by <i>Ed Bailey</i>		
Made by G.H.D.	Bridge Engineer		
Check Design	Date: Feb. 6, 1935.		
Check Detail			



PAVEMENT SECTION

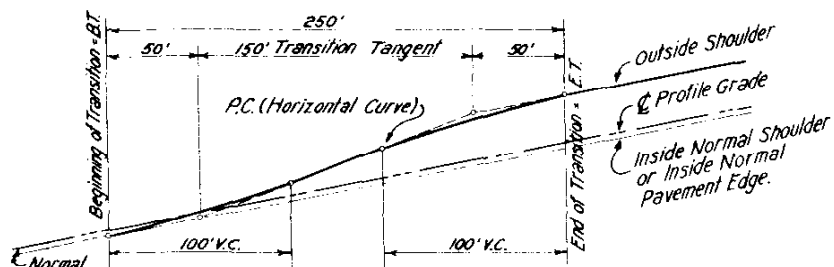
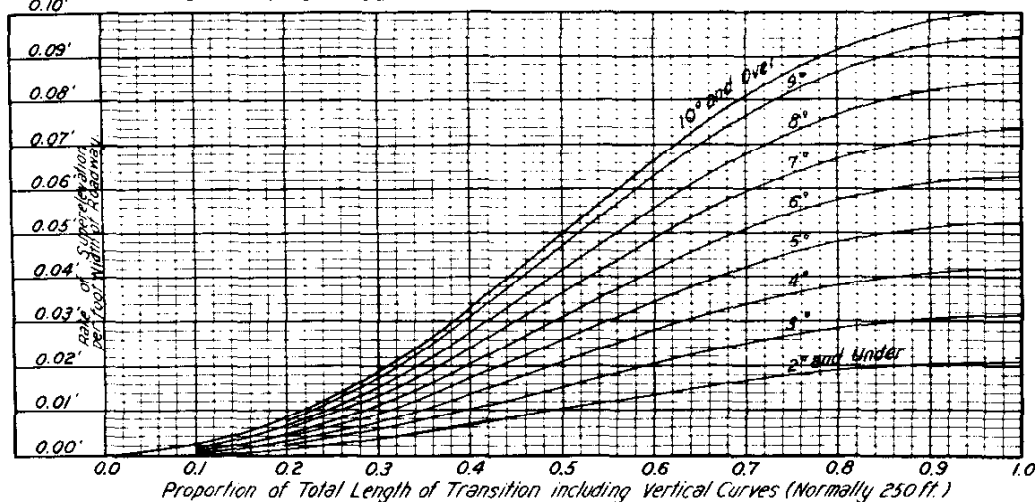


GRADED OR SURFACED SECTION

SUPERELEVATION AND WIDENING TABLES

DISTANCE FROM B.T. (FEET)	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	0.04819	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°	0.06	0.24	0.54	0.96	1.50	2.16	2.94	3.84	4.86	6.00

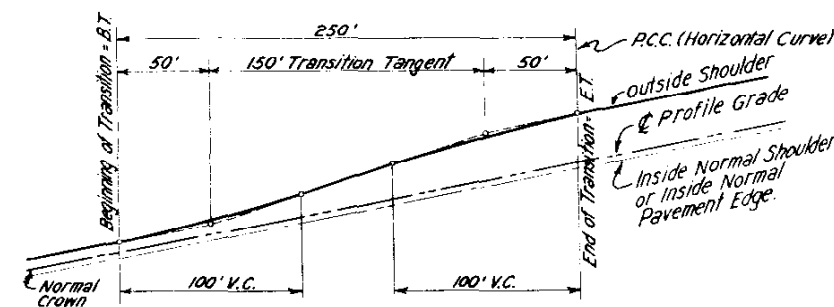
GRAPH OF SUPERELEVATION TRANSITION FIGURES



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.



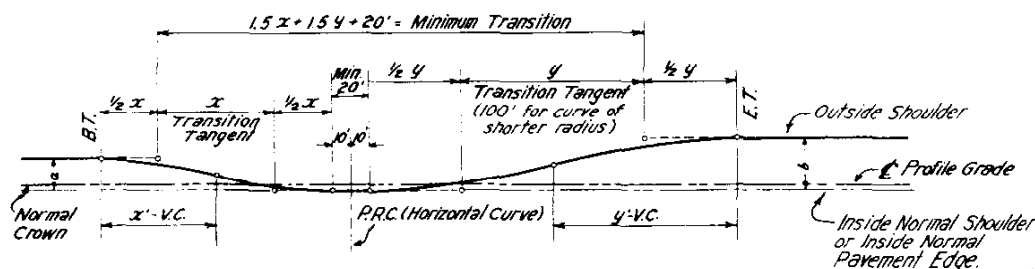
CASE II: COMPOUND CURVE

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 super-elevated 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 α represent the amount of superelevation on 1st curve:

EXAMPLE: Let a represent the amount of superextension on 1st curve,
 " b " " " " " " " 2nd " :

"	x	"	"	"	transition tangent on 1st	"
---	---	---	---	---	---------------------------	---

[illegible]

then $a:b = x:y$

The transition tangent of the curve having the shorter radius shall be set

A normal crowned section 30 ft long, 10 ft on each side of the P.D.C. and

A normal crowned section 20 ft. long, 10 ft. on each side of the P.R.C. s.
In cases where curves in opposite directions are in such proximity that

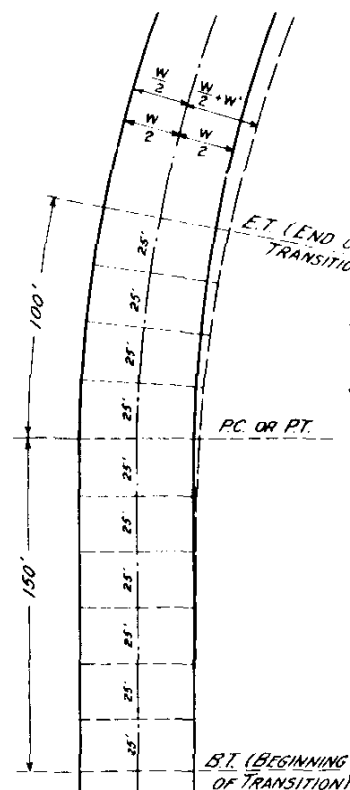
In cases where curves in opposite directions are in such proximity that a transition can not be had, the practice outlined for true converging curves is

The total distance between the BT of the first curve and the BC of

The total distance between the P.T. of the first curve and the P.C. of the second curve shall be computed as the transition distance of the new line.

ing curve shall be prorated into the transition distance of the respective c

a maximum of 150 ft. of transition tangent for each curve is achieved.

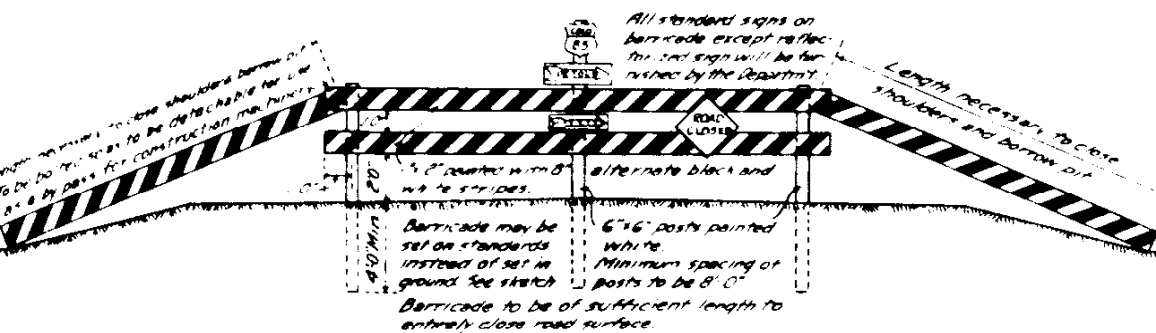


GENERAL PLAN OF WIDENING

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

Designed by <i>R.E.L.</i>	Approved by <i>J.S. Marshall</i>
Made by <i>P.B.B.</i>	
Checked by <i>F.F.S. & P.M.</i>	Date: <i>FEB. 23RD 1937</i>

DETAILS OF PERMANENT BARRICADE



POSITION OF SIGNS RELATIVE ROAD BED

This distance to be governed by the maximum day and night visibility which is influenced by grade, curvature, interference of local signs, shrubbery, fences, etc.

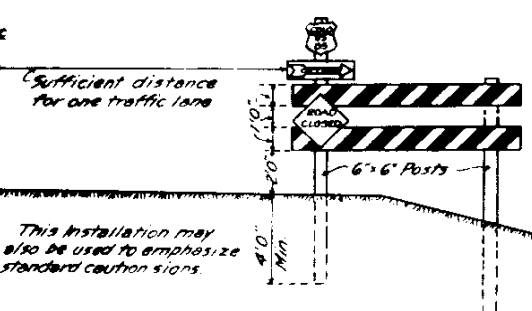
Exact location is to be staked by the Engineer, but in no case shall it be more than 8 feet from the travelled zone.

SUGGESTED DETAIL OF REFLECTORIZED ARROW

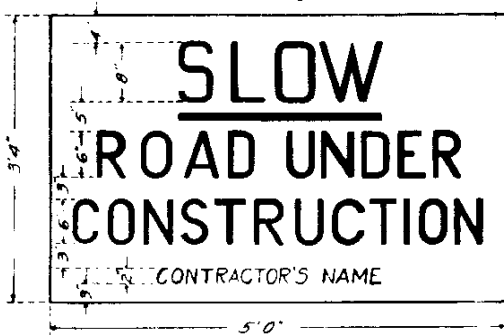


Contractor shall be required to have at least two such arrows for use on barricades at the ends of each project. Reflector Buttons shall be of a type and size, and the sign shall be subject to Department approval.

DETAILS OF PARTIAL BARRICADE



DETAILS OF ROAD UNDER CONSTRUCTION SIGN



Sign to be made on 1" material with at least three cleats on the back. Background to be white, SLOW and underline to be red, and other lettering to be black. Sign to be set on 2' 6" posts 4 ft in the ground.

GENERAL NOTES ON APPROACHES

The maximum grades shown are to be the limiting grades for all except extreme cases. When the length of the approach as determined by the intersection of these grades with the natural ground is such as to damage the property to be served, or cause unreasonable conditions, the grades may be modified. In such cases, methods used, and maximum grades, shall be as indicated on the plans, or provided by work order.

GENERAL NOTES FOR ROADWAY CONSTRUCTION TRAFFIC SIGNS

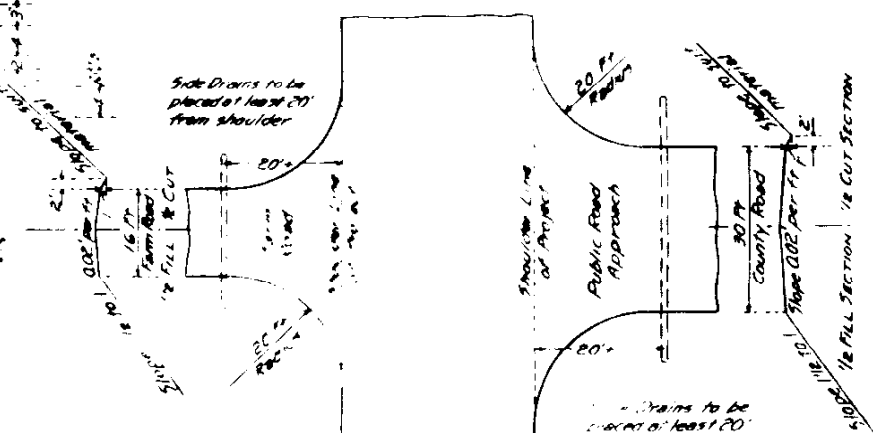
- All Work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, adopted June 1, 1937.
- Whenever traffic is permitted on a road while under construction, the Contractor shall at all times adequately and appropriately mark any and all hazards on the Project with well painted, well maintained barricades and standard caution and warning signs. The Contractor shall also mark with standard directional signs any places where the direction of the flow of traffic is not plain.
- Whenever traffic is prohibited from a Project under construction, the Detour will be marked by the Department and the barricades at either end of the Project shall be erected and maintained by the Contractor.
- All signs and barricades shall be immediately moved, added to, removed, or changed to appropriately mark hazards, or conditions altered, corrected, or changed by construction progress.
- The Contractor shall furnish:
 - All barricade material. It shall always be well painted, as per sketch, and well maintained.
 - A reflectORIZED arrow of an approved type for each barricade at the ends of the Project, and at other barricades required where traffic is permitted on road under construction.
 - "SLOW-ROAD UNDER CONSTRUCTION" signs as required.
 - Any special signs the Department may deem necessary for the protection of traffic over the Project.
 - At least three (3) flares or torches for each barricade, and other flares to illuminate such signs as are called for on these plans, or as the Department may direct.
- Flares or torches shall be placed between 3 and 5 feet ahead of the sign or object to be illuminated, and shall be kept burning from sunset to sunrise.
- Costs of all of the foregoing materials and work by the Contractor shall be included in the original contract prices for the Project.
- The Highway Department will furnish all standard signs not required to be furnished by the Contractor.

STANDARD M-2-BX

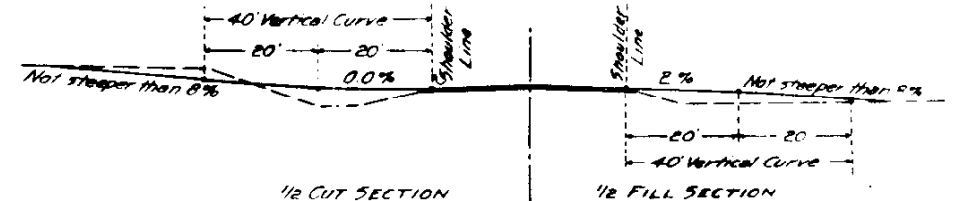
FED. ROAD DIST. NO.	STATE	P.W.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	12208 Unit 3 R.R.	10	

Rev. 5-9-37 S.B.I. WPA Signs
Revised 6-1-37 A.A. Changed to 1937 Specifications

TYPICAL PLAN FOR SIDE APPROACH ROADS



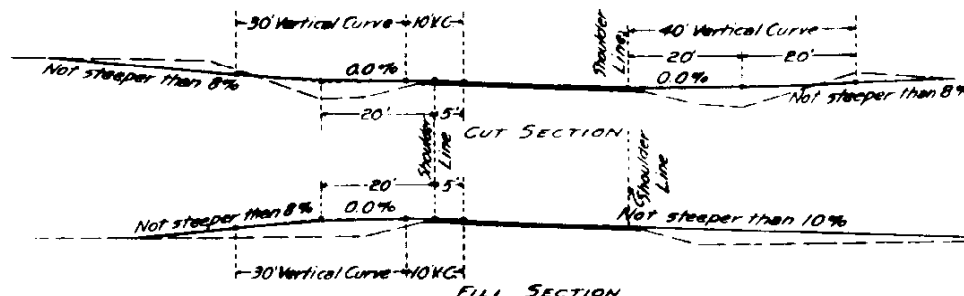
STANDARD CROWNED SECTION



1/2 CUT SECTION

1/2 FILL SECTION

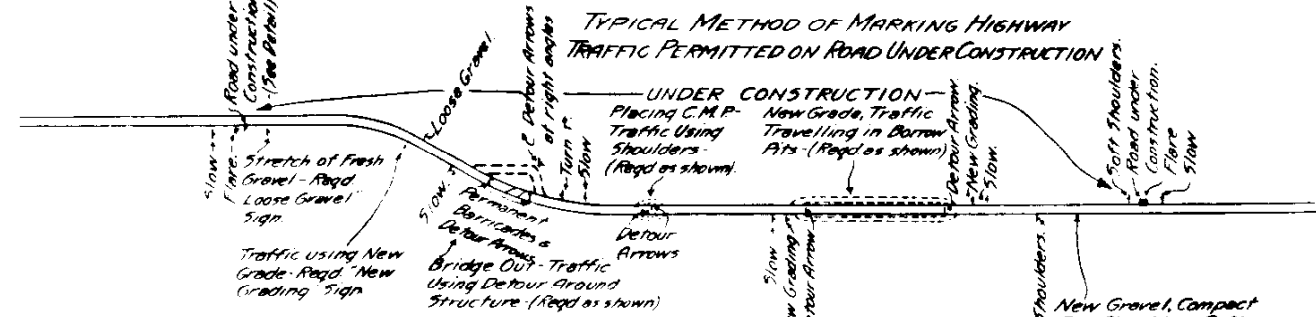
SUPERELEVATED SECTION



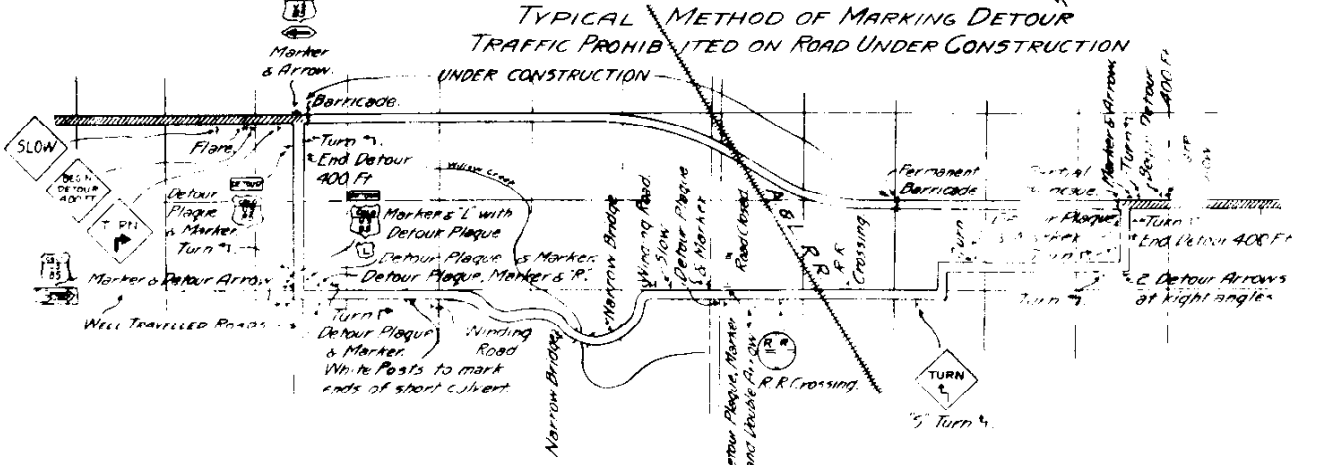
CUT SECTION

FILL SECTION

TYPICAL METHOD OF MARKING HIGHWAY TRAFFIC PERMITTED ON ROAD UNDER CONSTRUCTION



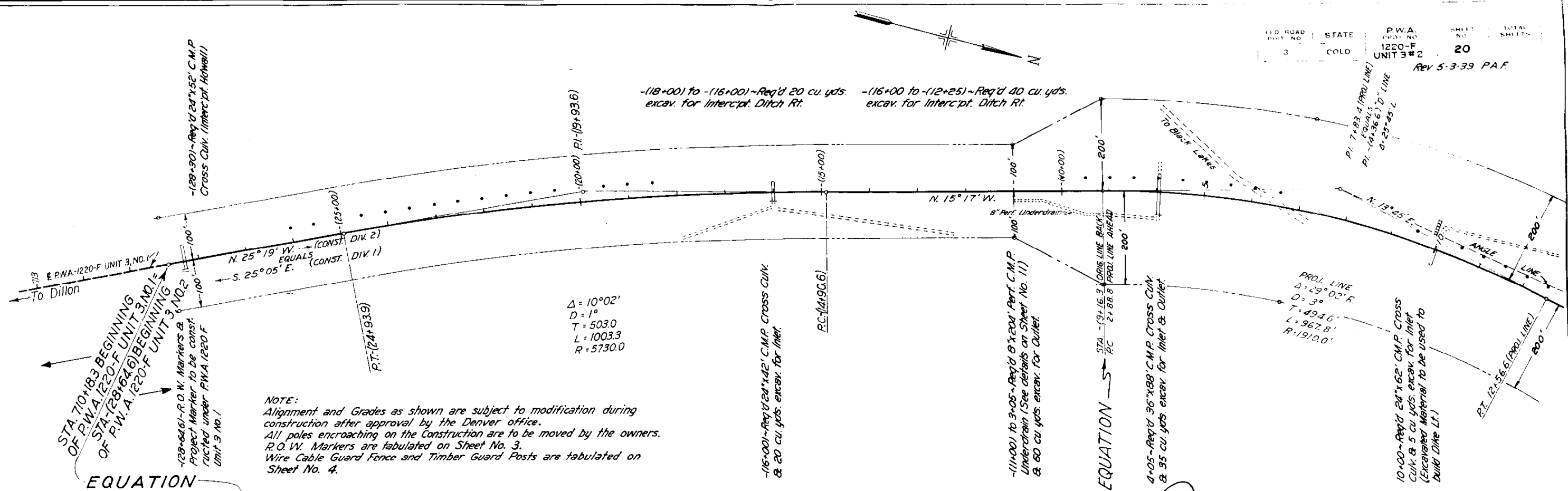
TYPICAL METHOD OF MARKING DETOUR TRAFFIC PROHIBITED ON ROAD UNDER CONSTRUCTION



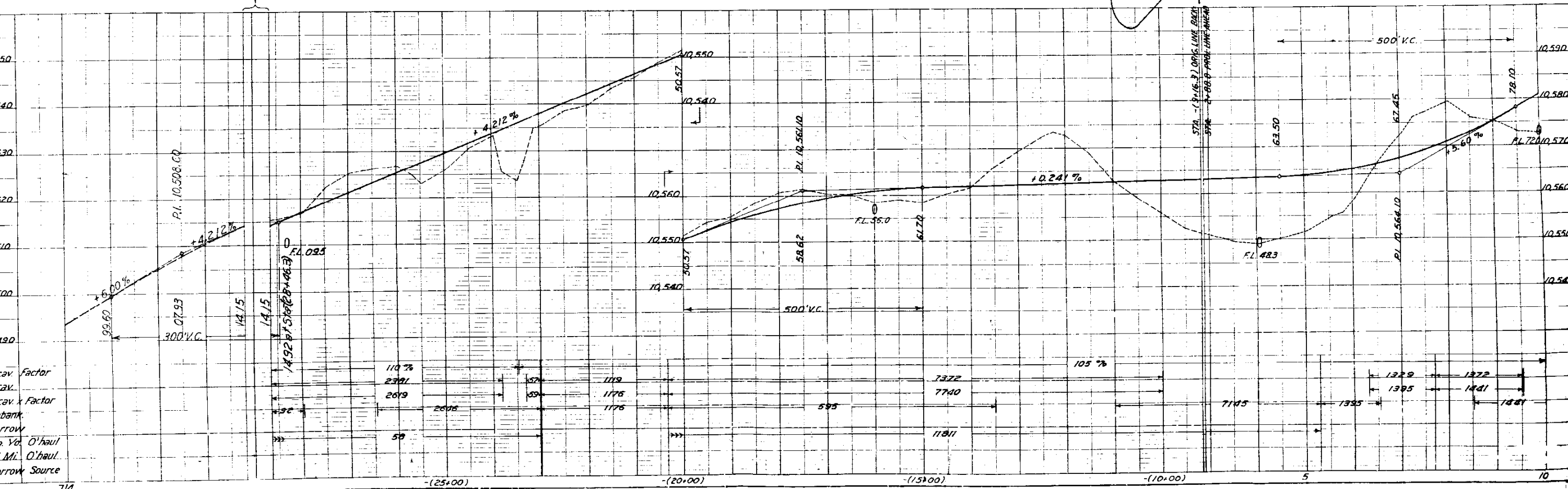
COLORADO
STATE HIGHWAY DEPARTMENT
TYPICAL
SIDE APPROACH ROADS
ROADWAY CONSTRUCTION
TRAFFIC SIGNS

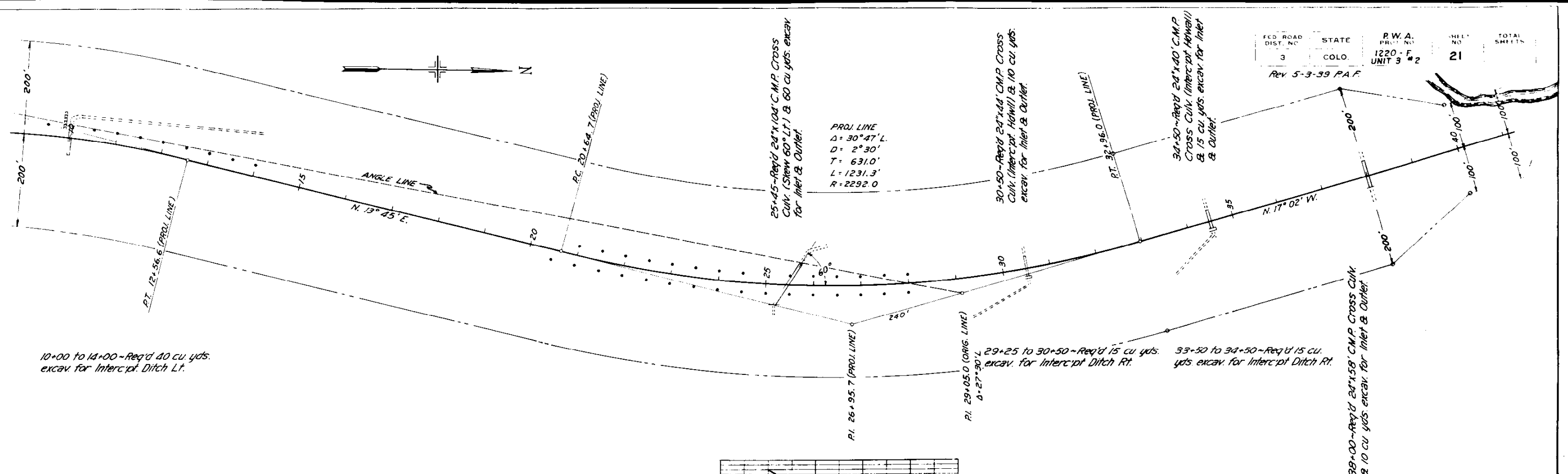
Designed by
Made by
Check by
Check by

Approved by
Date Aug. 20, 1935

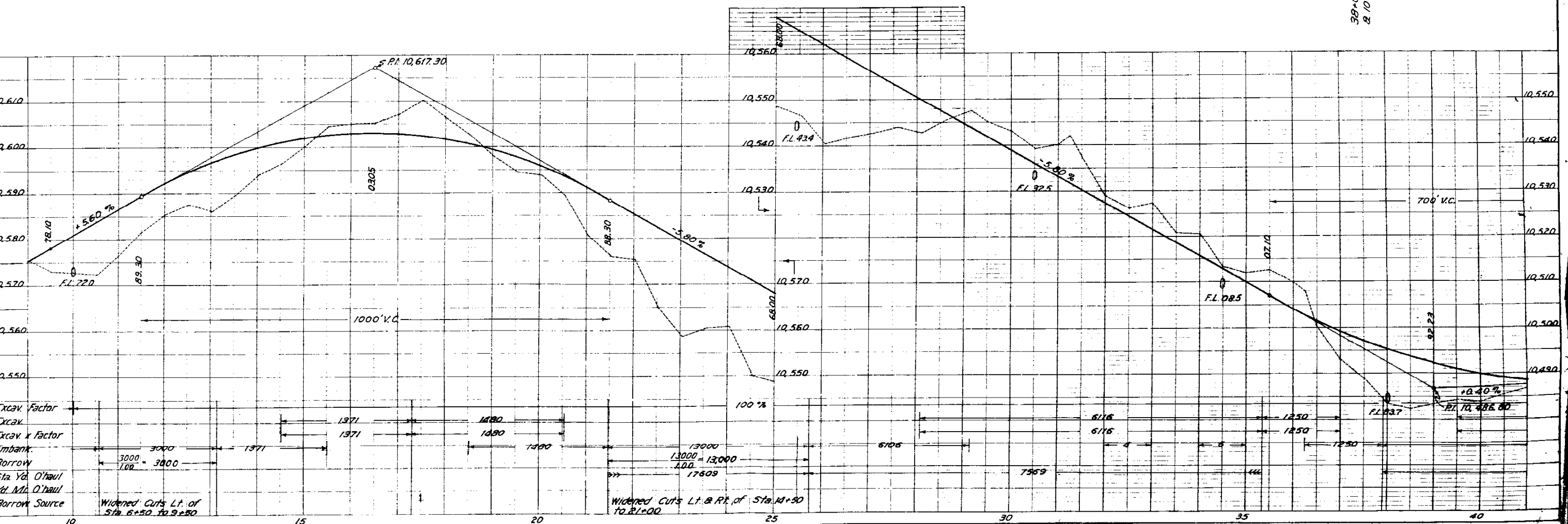


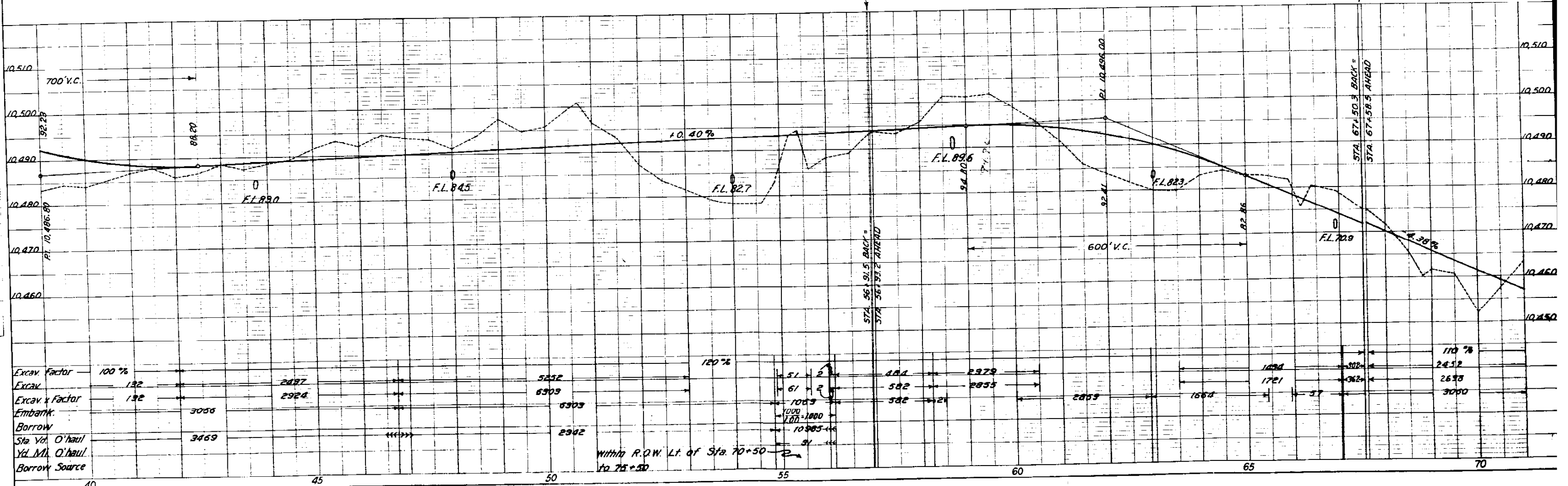
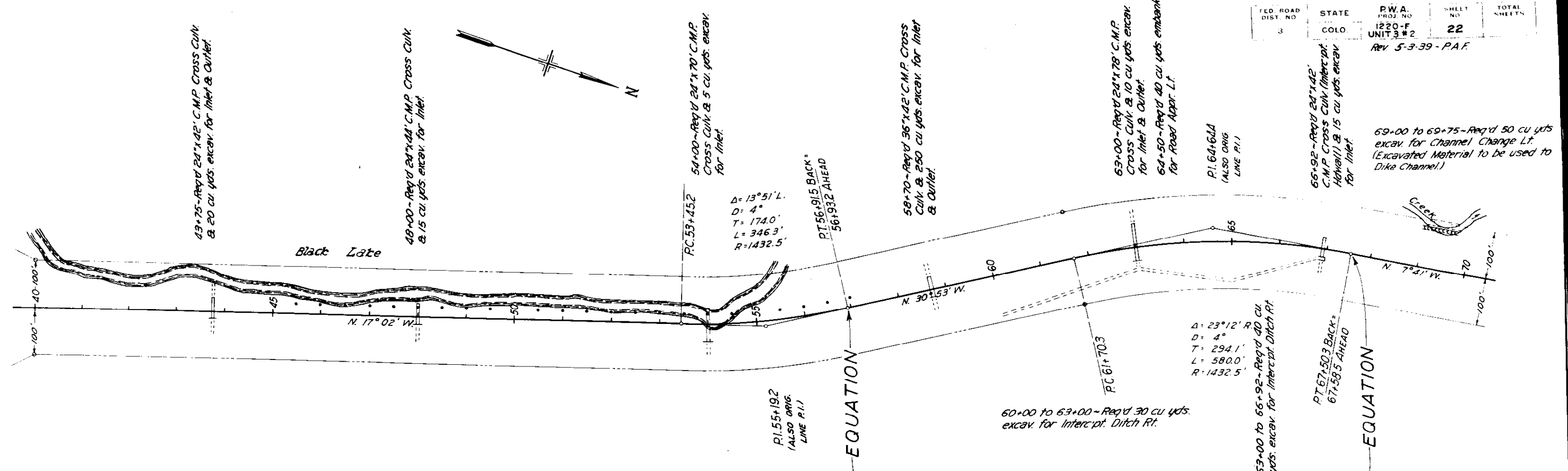
NOTE:
 Alignment and Grades as shown are subject to modification during construction after approval by the Denver office.
 All poles encroaching on the Construction are to be moved by the owners.
 R.O.W. Markers are tabulated on Sheet No. 3.
 Wire Cable Guard Fence and Timber Guard Posts are tabulated on Sheet No. 4.

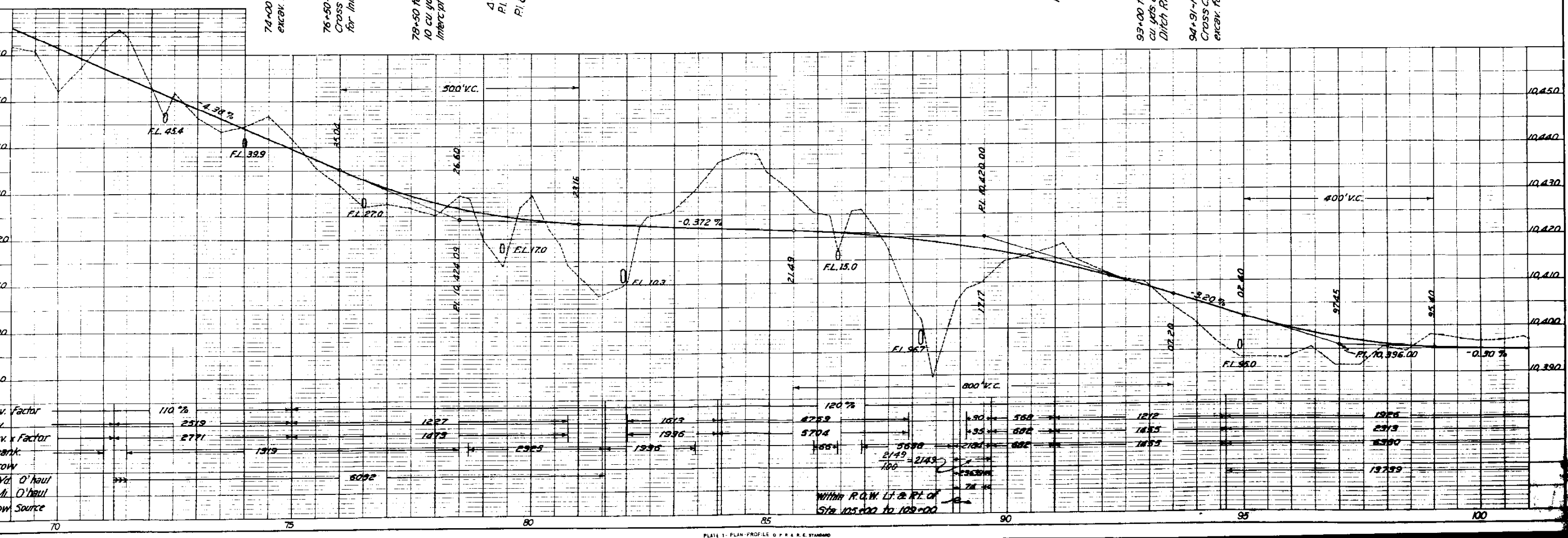
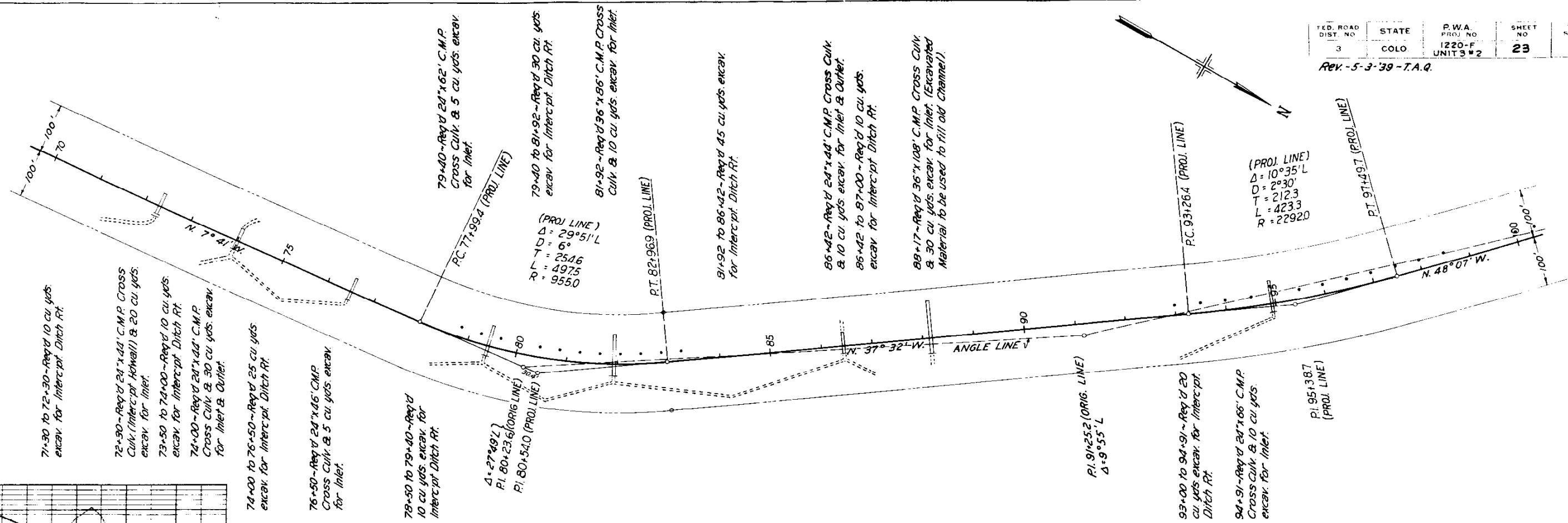




FED. ROAD DIST. NO. 3
STATE COLO.
P.W.A. PROJ. NO. 1220-F
UNIT 3 #2
Rev. 5-3-39 P.A.F.
SHEET NO. 21
TOTAL SHEETS





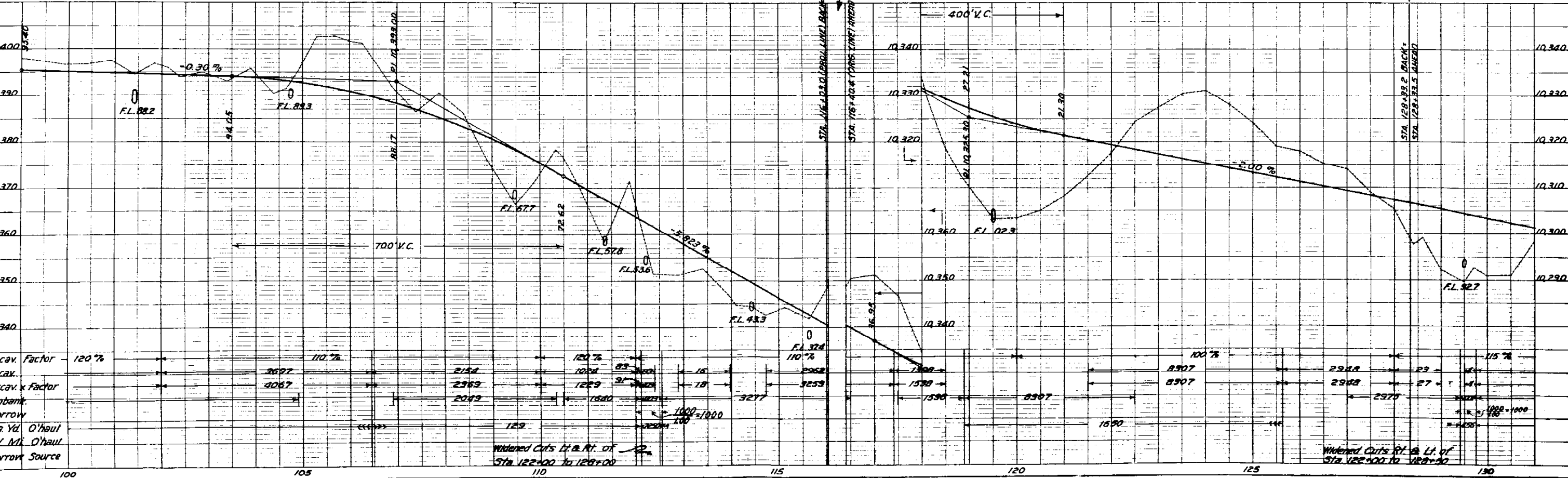
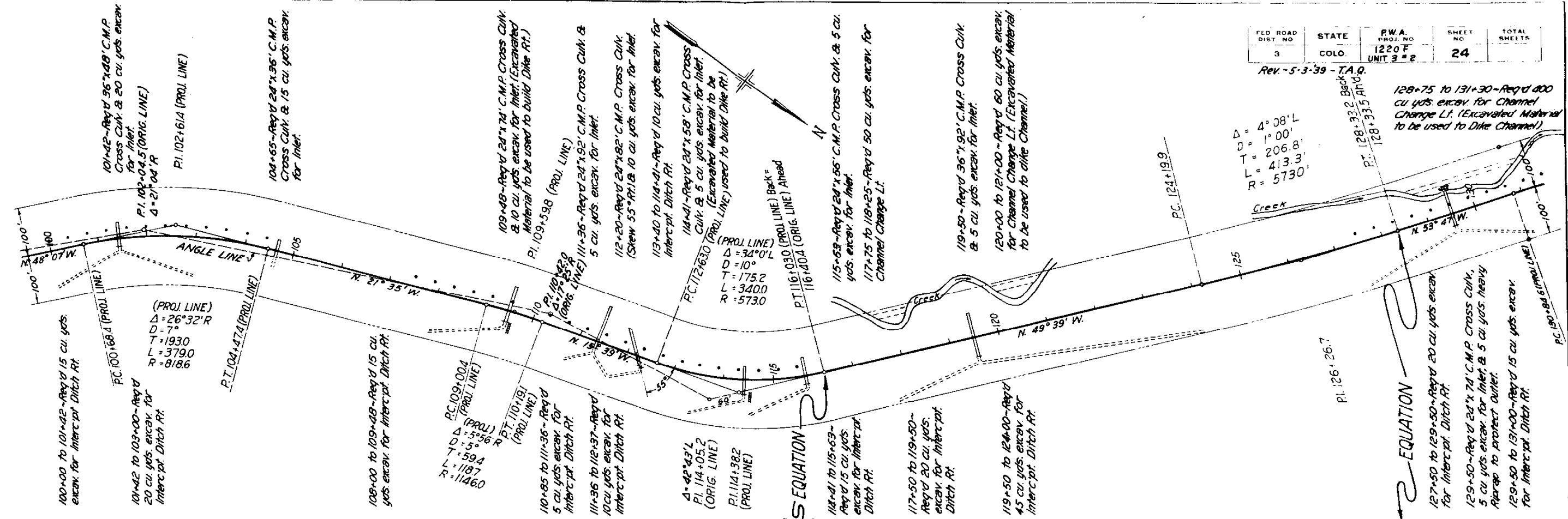


FED. ROAD DIST. NO.	STATE	P.W.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	1220 F UNIT 3 # 2	24	

Rev. 5-3-39 - T.A.Q.

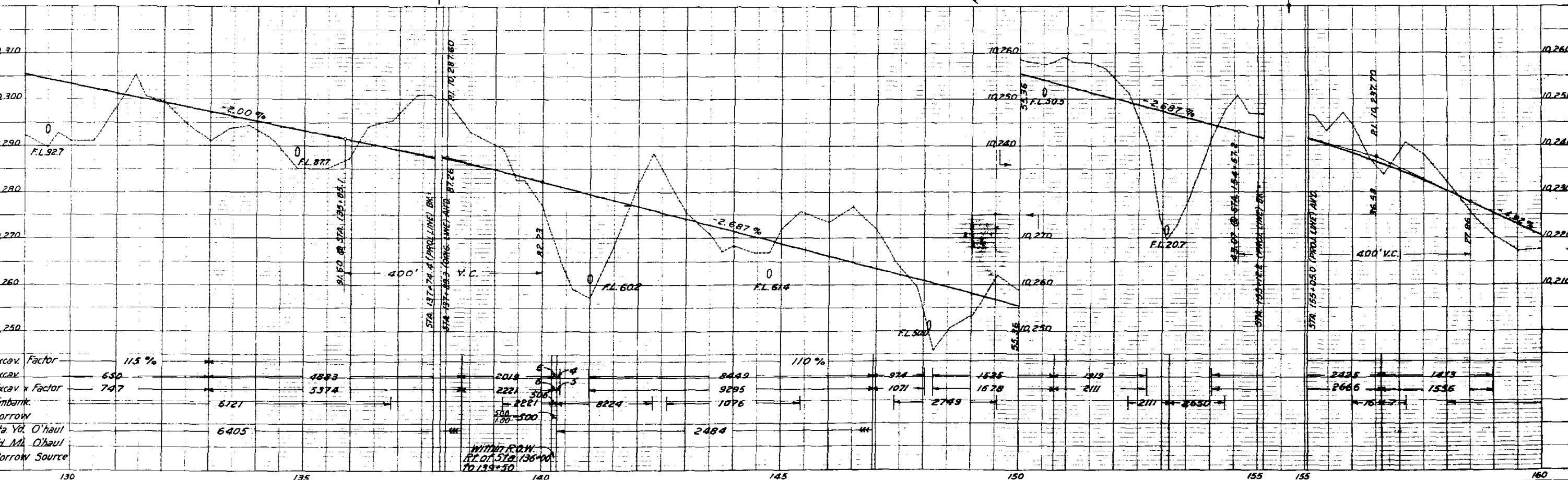
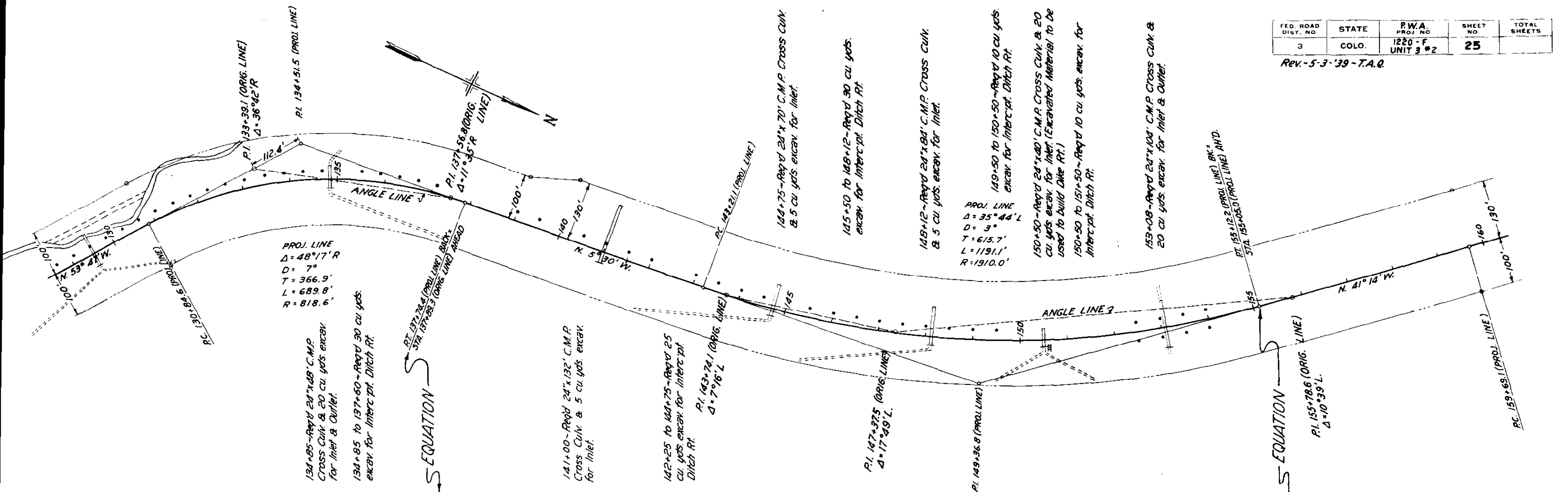
$\Delta = 4^{\circ}08' L$
 $D = 1^{\circ}00'$
 $T = 206.8'$
 $L = 413.3'$
 $R = 5730'$

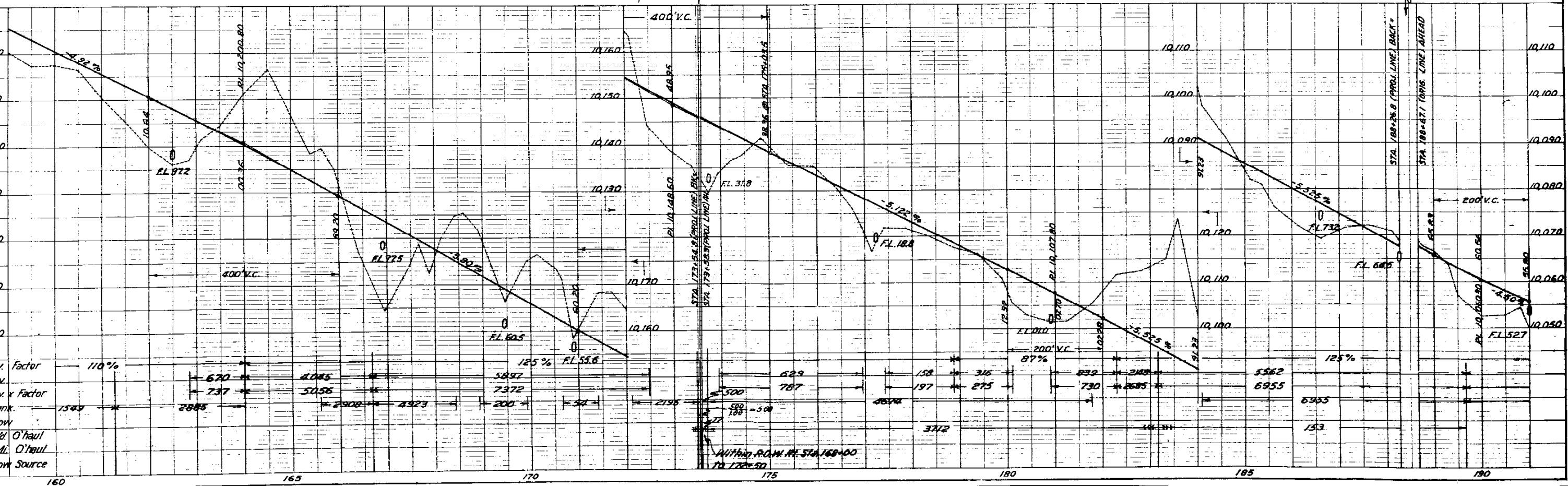
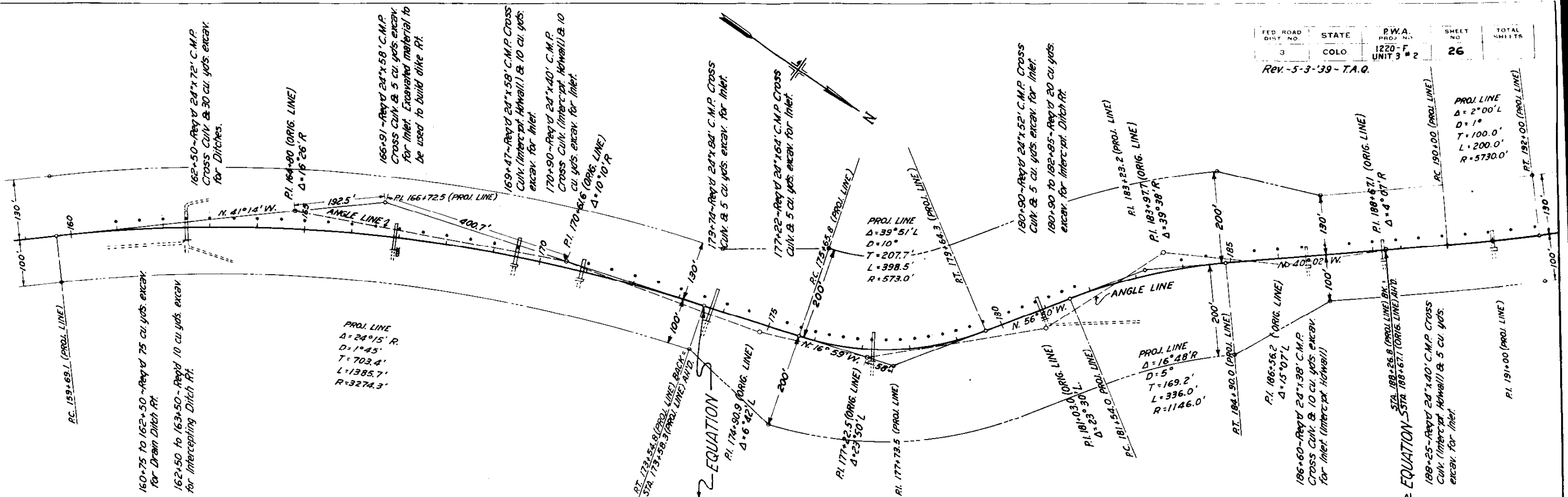
128+75 to 131+30 - Req'd 400 cu yds. excav. for Channel Change Lt. (Excavated Material to be used to Dike Channel)

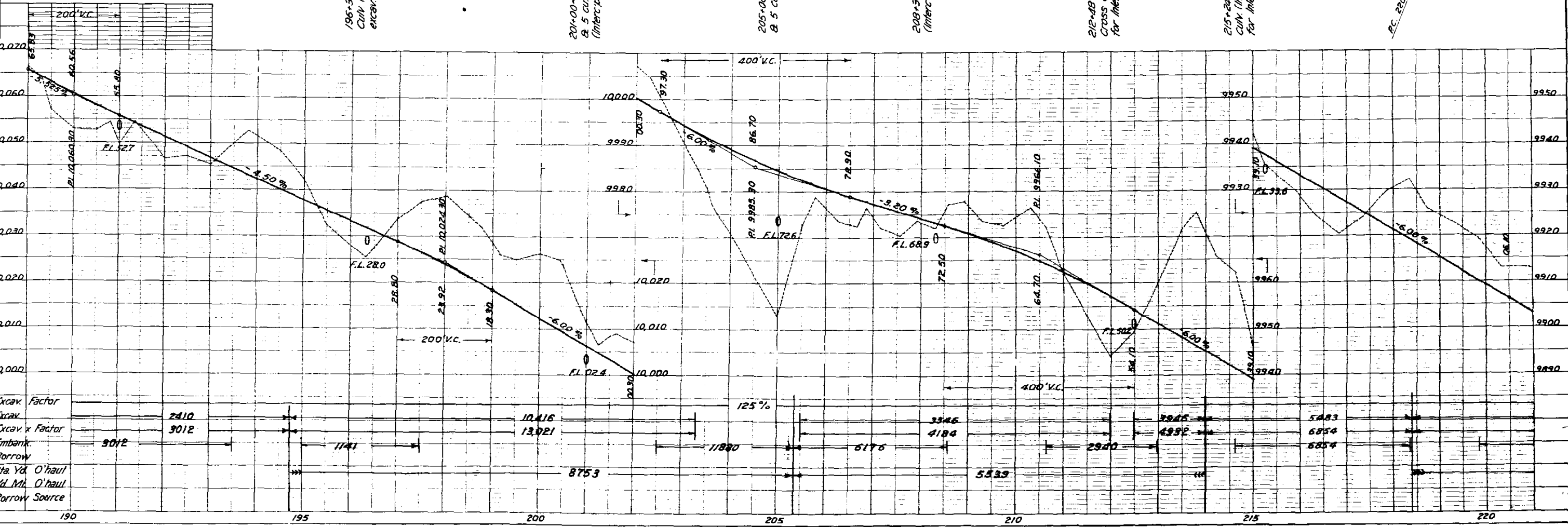
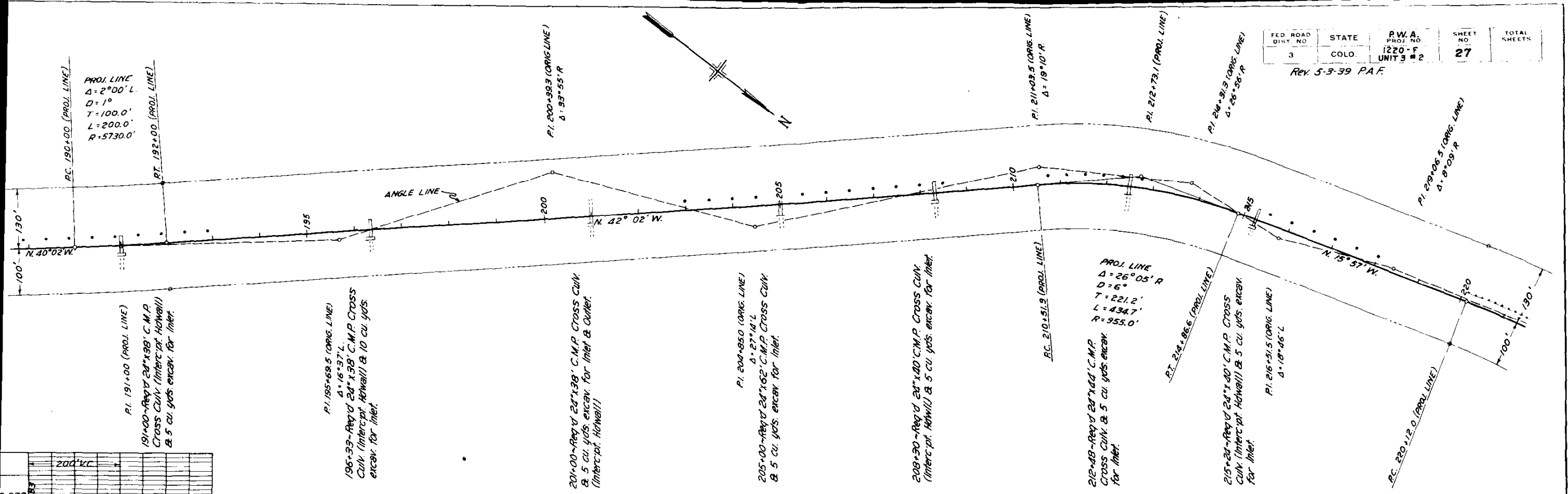


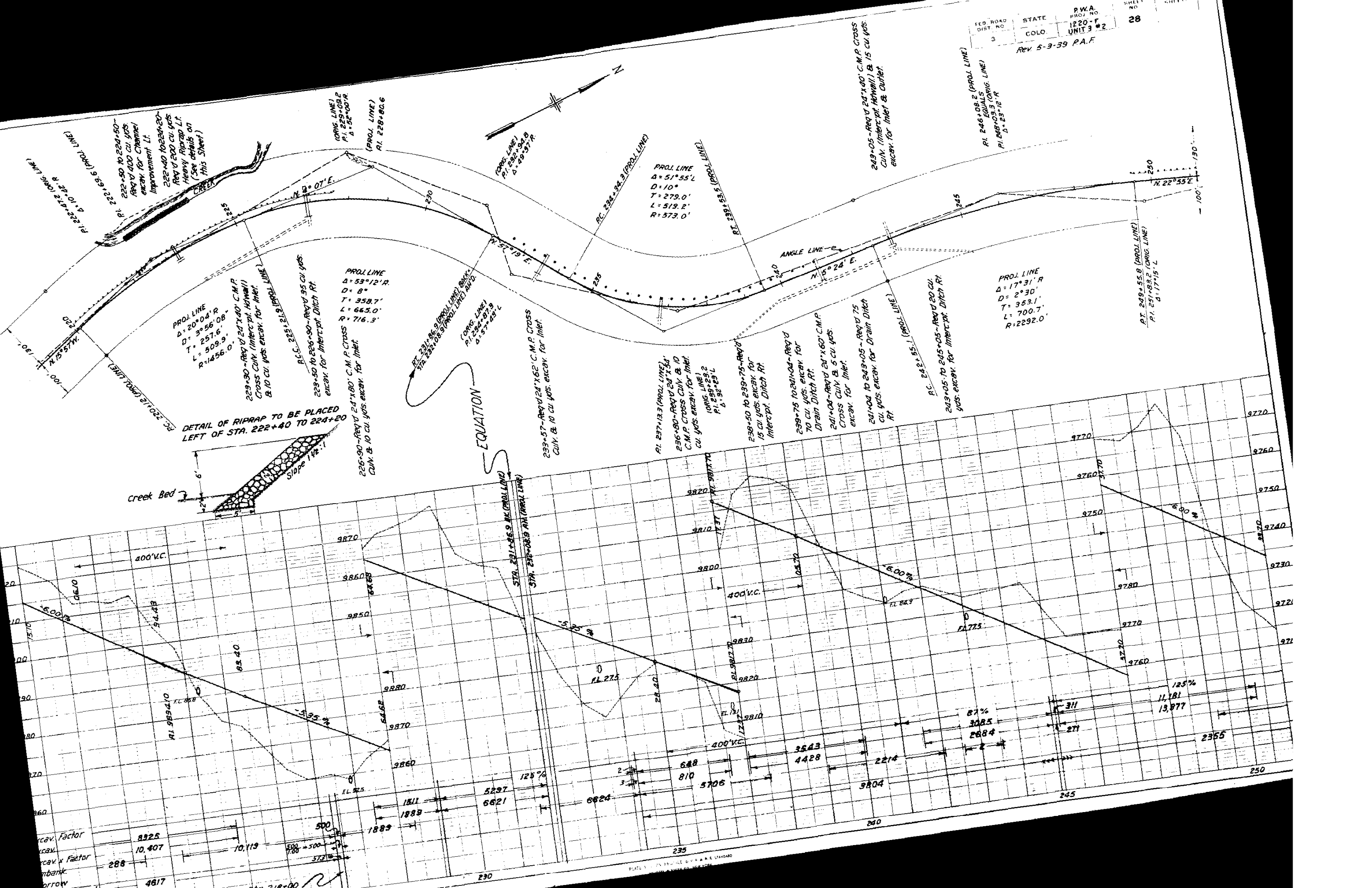
FED. ROAD DIST. NO.	STATE	P.W.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	1220 - F UNIT 3 #2	25	

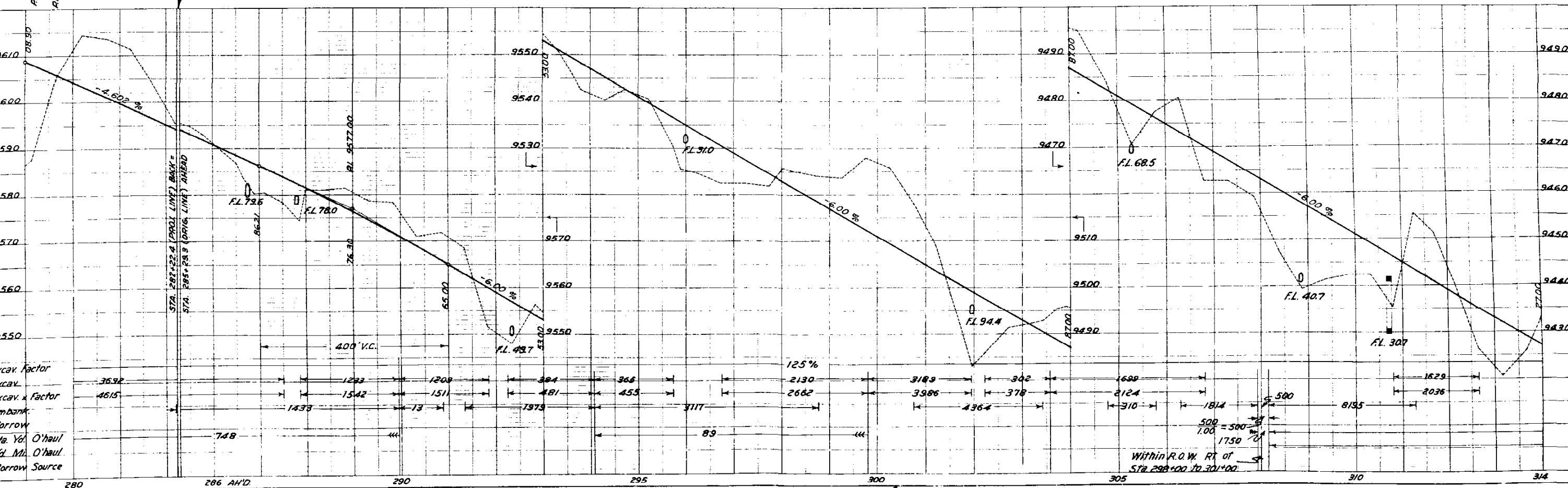
Rev. 5-3-'39 - T.A.Q.

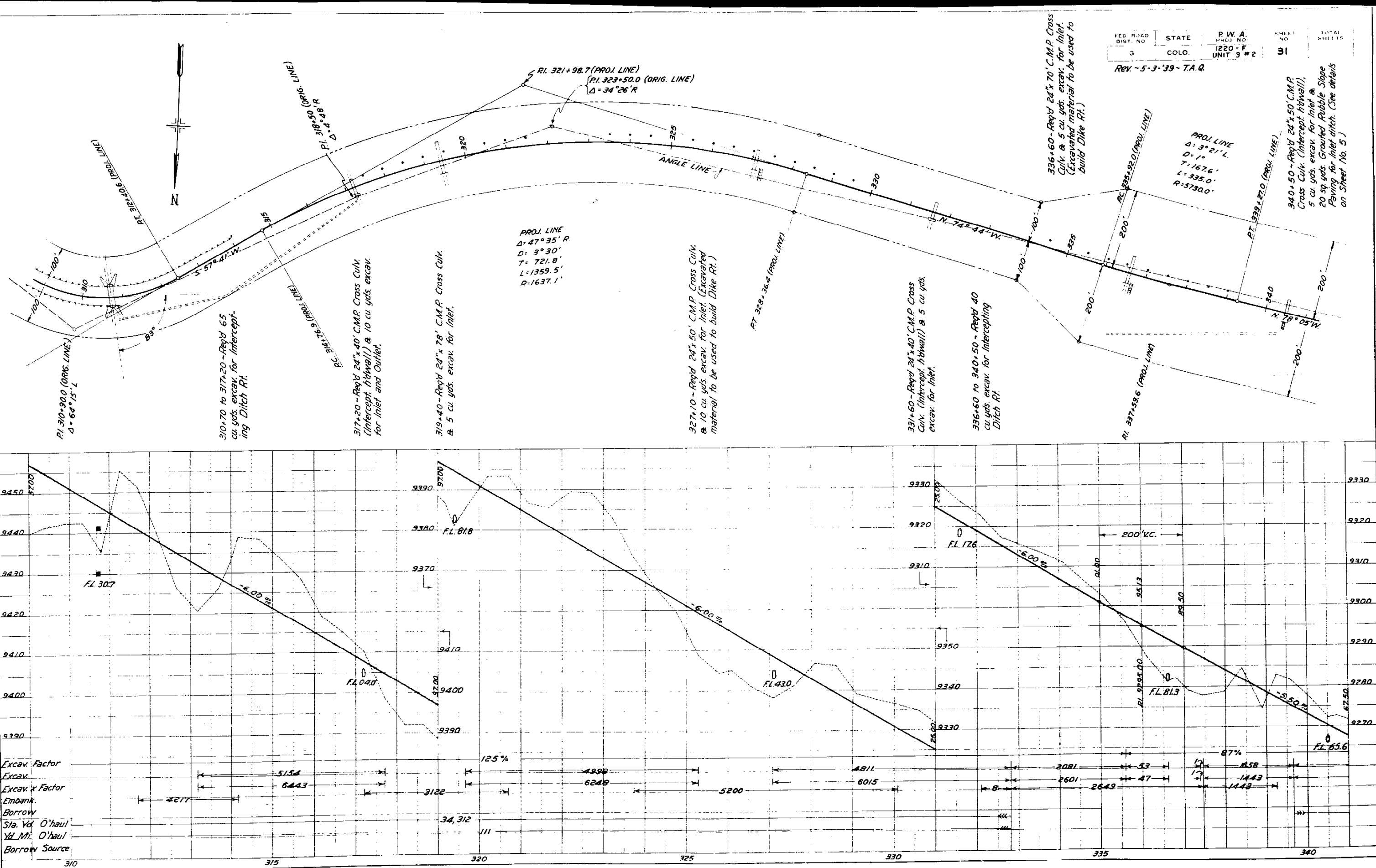


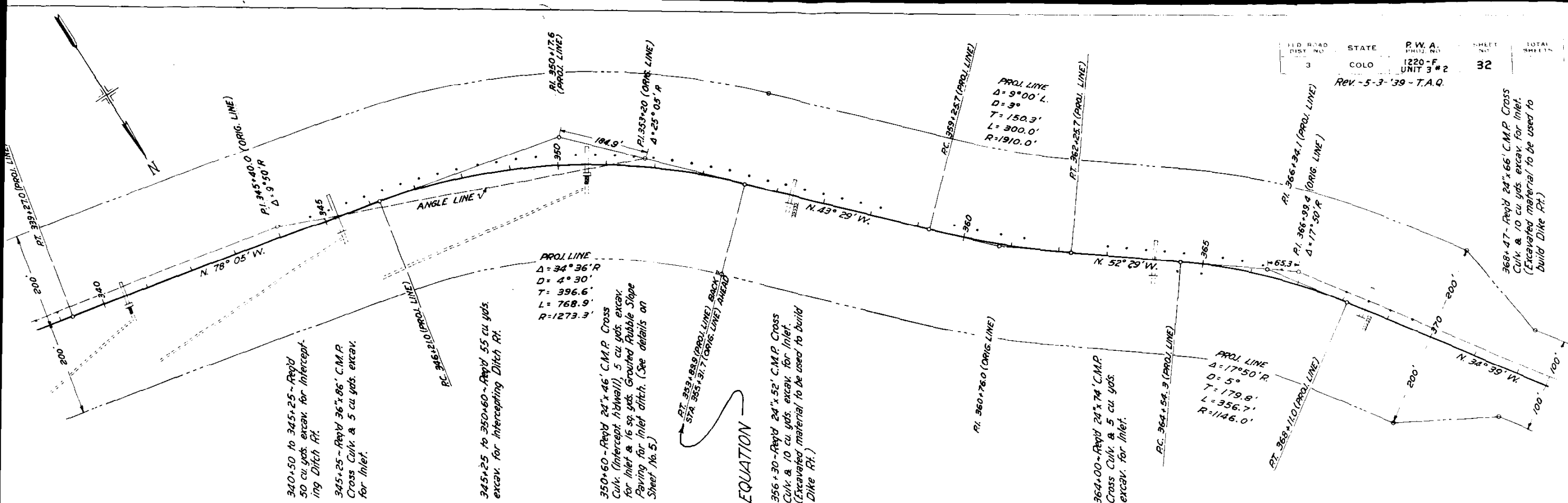












STATE P.W.A. SHEET TOTAL
 COLO. 1220-F UNIT 3#2 32
 Rev. 5-3-39 - T.A.Q.

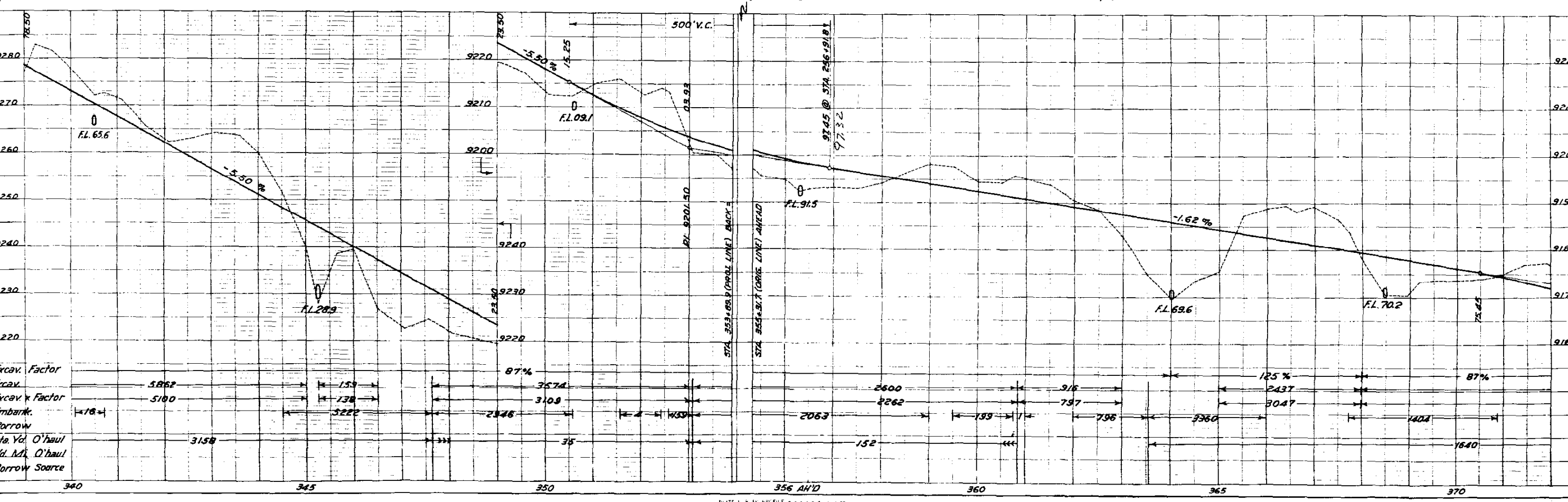
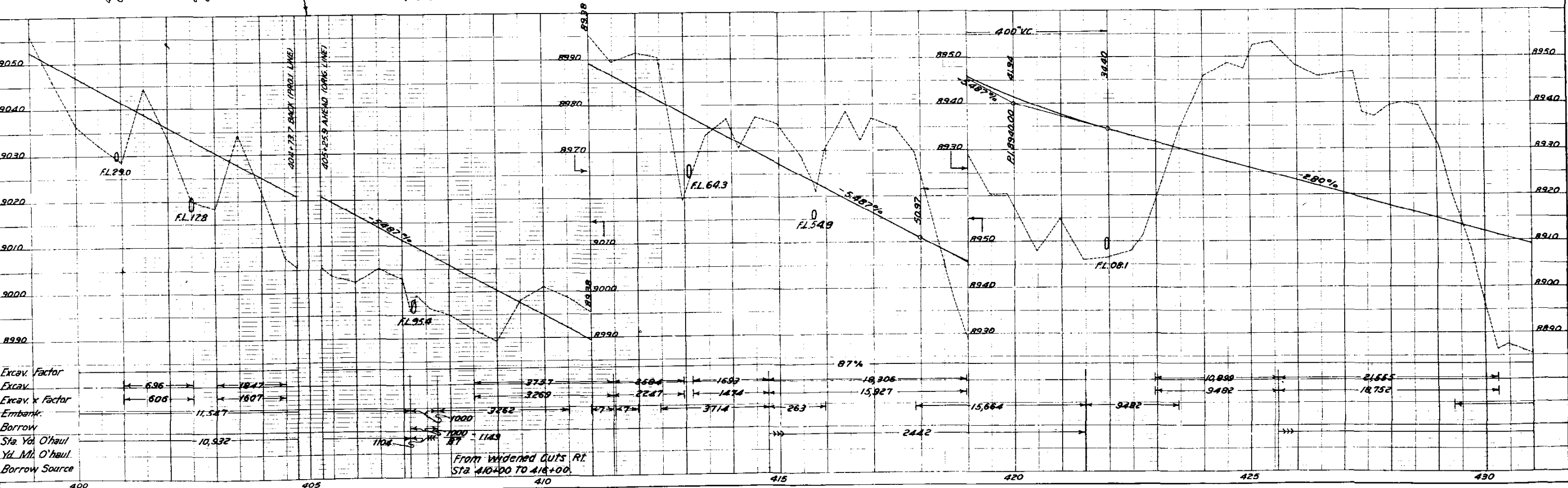
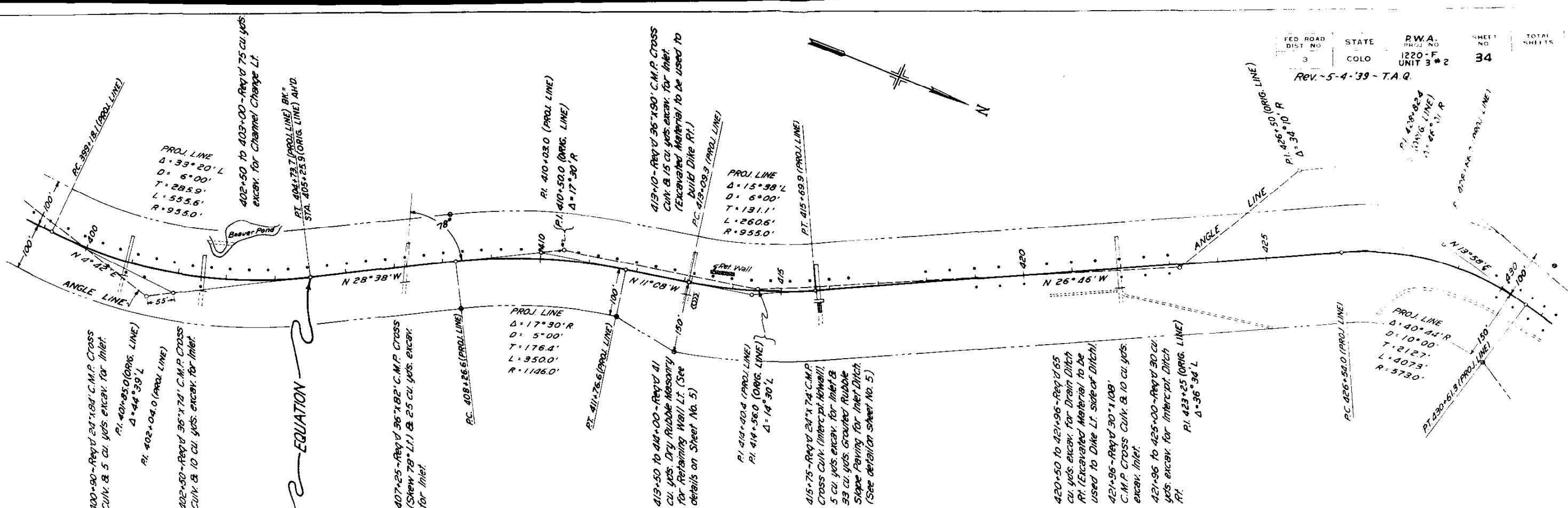
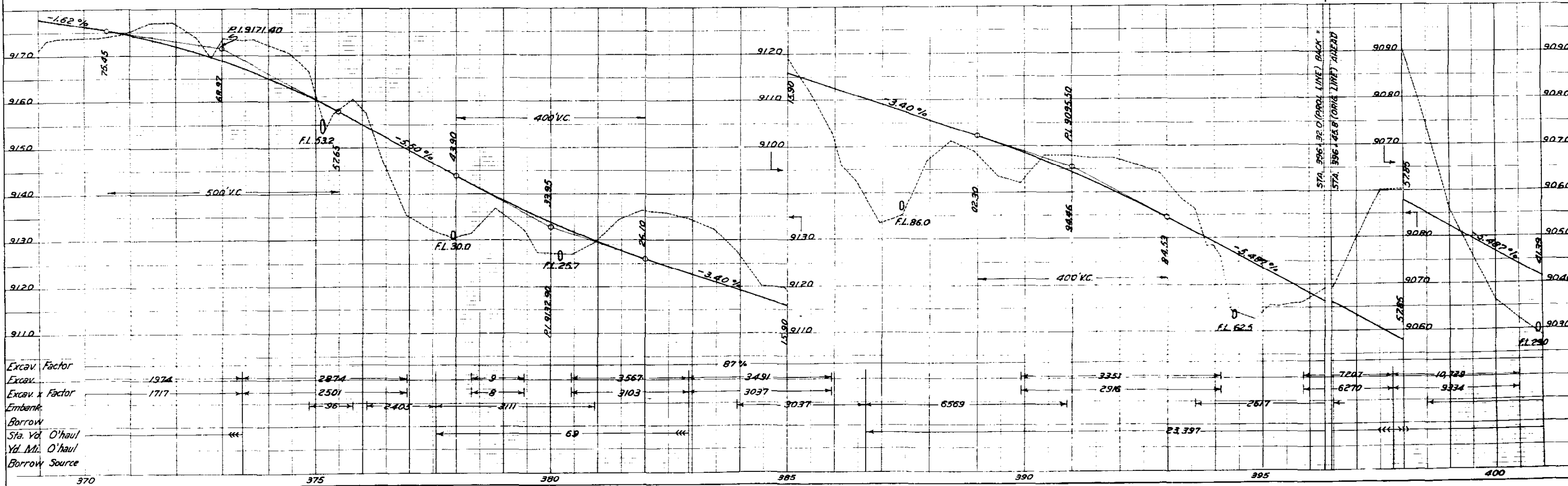
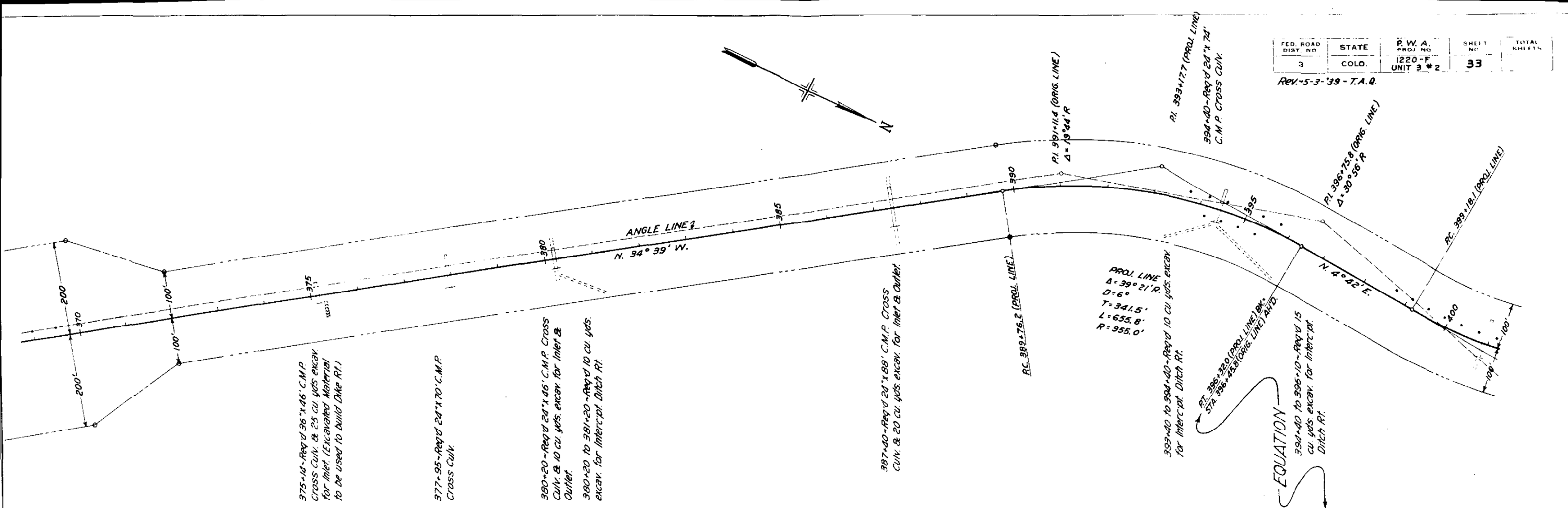
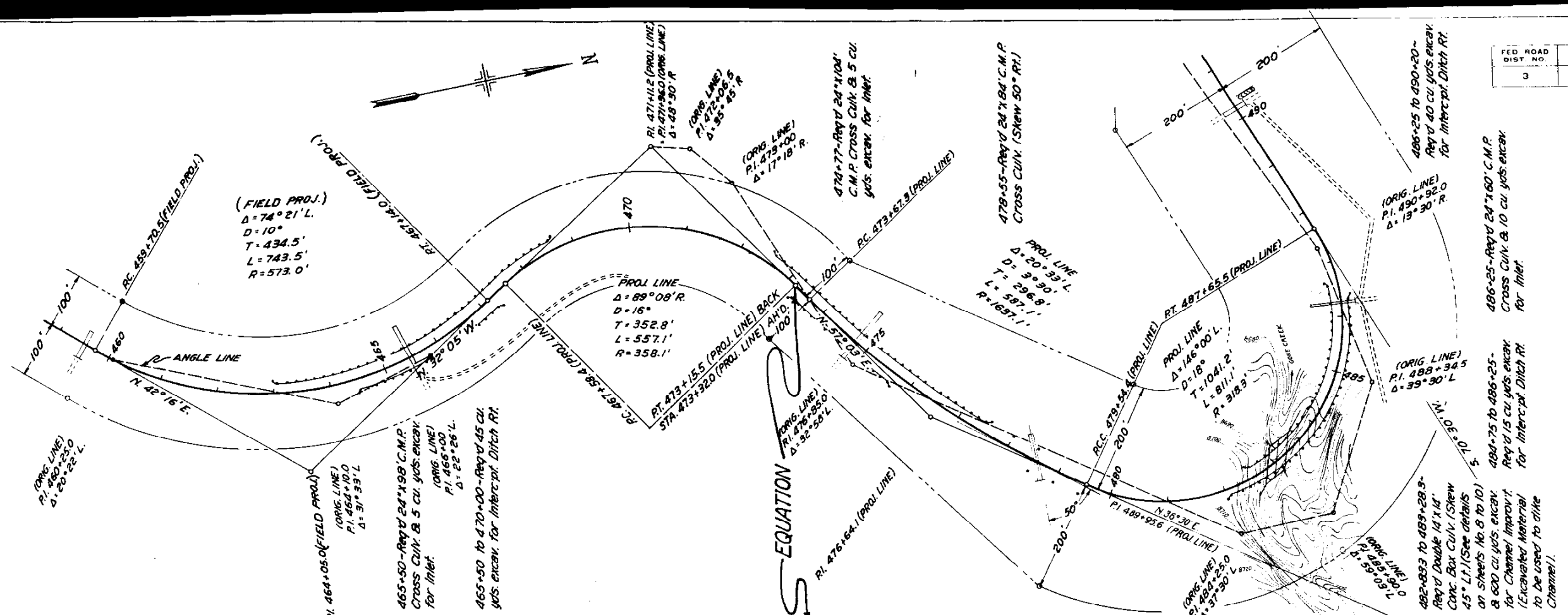


PLATE 1 - PLAN PROFILE OF P.R.R. STANDARD





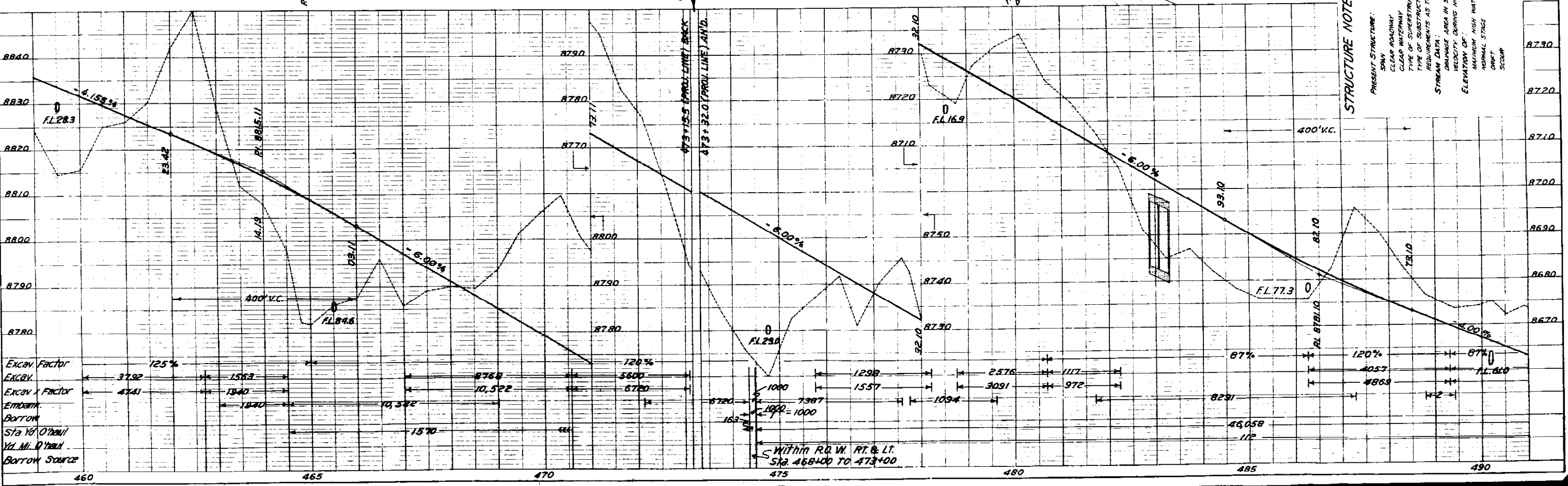


FED. ROAD DIST. NO.	STATE	R.W.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	1220-F UNIT 3 #2	36	

Rev. 5-4-39. P.A.F.

**STRUCTURE NOTES FOR CONCRETE BOX CULVERT STA. 482+83.3 TO 489+28.3
STRUCT. NO. F-11-U (SKEW 45° LT.)**

- PROPOSED STRUCTURE:**
- SPAN: DOUBLE 14' BOX CULVERT
 - POSITION: REFERRED TO PRESENT STRUCTURE
 - SKIN: DOUBLE 14' BOX CULVERT
 - TYPE OF SUPERSTRUCTURE: DOUBLE 14' X 14' CONC. BOX CULVERT
 - TYPE OF SUBSTRUCTURE: DETOUR STRUCTURE
 - REQUIREMENTS: AS TO REMOVAL
 - STREAM DATA: DRAINAGE AREA IN SQ. MILES - 11
 - VELOCITY DURING HIGH WATER: MAXIMUM HIGH WATER
 - ELEVATION OF: NORMAL STAGE
 - SCOUR: DRAFT
- NEW ALIGNMENT:**
- SPAN: DOUBLE 14' BOX CULVERT
 - POSITION: REFERRED TO PRESENT STRUCTURE
 - SKIN: DOUBLE 14' BOX CULVERT
 - TYPE OF SUPERSTRUCTURE: DOUBLE 14' X 14' CONC. BOX CULVERT
 - TYPE OF SUBSTRUCTURE: DETOUR STRUCTURE
 - REQUIREMENTS: AS TO REMOVAL
 - STREAM DATA: DRAINAGE AREA IN SQ. MILES - 11
 - VELOCITY DURING HIGH WATER: MAXIMUM HIGH WATER
 - ELEVATION OF: NORMAL STAGE
 - SCOUR: DRAFT



FED. ROAD DIST. NO.	STATE	P.W.A. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	1220-F UNIT 3-2	37	

REV. 5-4-39 - T.A.Q.

N.W. 1/4, N.W. 1/4, SEC. 18
T. 5 S., R. 70 W.

