FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
7	COLO.	E 9C	1	

Revised 5-23-33-S.B.L.
New for Constr. Divn. #2-6-22-33 H.S.D.

INDEX OF SHEETS

CONSTRUCTION DIVISION No. 1

1. Title Sheet.
2. Typical Section, Tabulation & Summary Sheet.
11. Standard Method of Superelevation, M 1 A.
12. " Wire Fences & Marker Posts, M 24 F.
13. " Wire Cable Guard Fence, M 20 F.
14. " Corrugated Galv. Iron Siphon, M 123 A.

15-17. Plan and Profile Sheets.
18-28 and 31 -96. Cross Section Sheets.

CONSTRUCTION DIVISION No. 2

1. Title Sheet.
2. Typical Section, Tabulation & Summary Sheet.
3-6. Bridge Details, Sta. 1277+
7-10. " " Sta. 1238+
11. Standard Method of Superelevation, M 1 A.
12. " Wire Fences & Marker Posts, M 24 F.
13. " Wire Cable Guard Fence, M 20 F.

16-17. Plan & Profile Sheets.
29, 30, 36 & 37. Cross Section Sheets.

COLORADO
STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED
FEDERAL AID PROJECT NO. E 9 C
STATE HIGHWAY NO. 16
LARIMER COUNTY

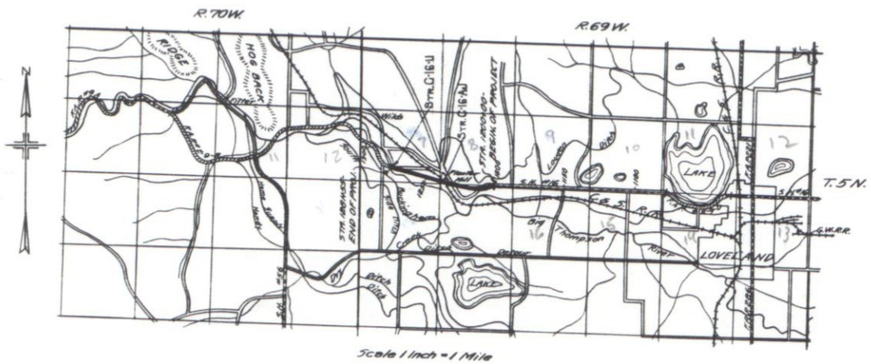
SCALES

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 & NET LENGTH OF CONSTR. DIVN. NO. 1 - 7059.9 FT. = 1.336 MI.
" " " " " " " NO. 2 - 1080.0 FT. = 0.205 MI.
" " " " " TOTAL F.A.P. E 9 C - 8139.3 FT. = 1.541 MI.

CONVENTIONAL SIGNS

Survey Line 1+25
Right of Way Line
Section Line
Quarter Section Line
Fence Line
Railroad
Pole Line



RECOMMENDED FOR APPROVAL 3/30/33
J. E. Allen
ASSISTANT ENGINEER

APPROVED
Chas. D. Vail
STATE HIGHWAY ENGINEER

RECOMMENDED FOR APPROVAL
[redacted]
DIST. ENG. BUREAU PUBLIC ROADS

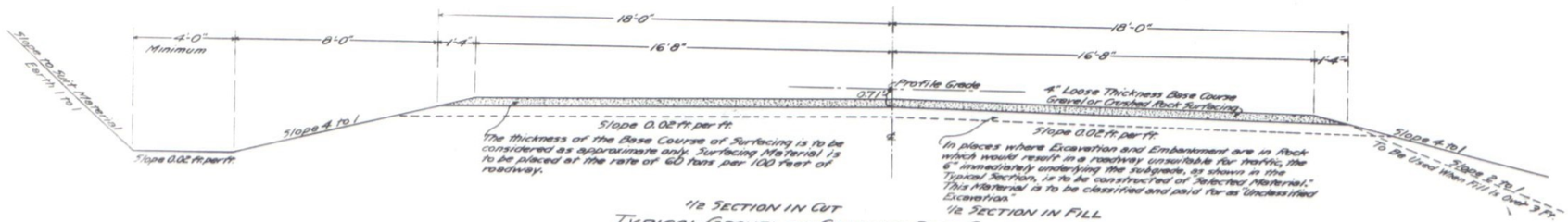
RECOMMENDED FOR APPROVAL
[redacted]
CHIEF ENG. BUREAU PUBLIC ROADS

APPROVED
[redacted]
DIRECTOR BUREAU PUBLIC ROADS

TYPICAL CROSS SECTION OF IMPROVEMENT AND SUMMARY OF QUANTITIES

ROAD (DIST. NO.)	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
		E-9C	2	

Revised 5-23-33-S.B.L.
Rev. for Constr. Div. #2 - 6-22-33 H.S.B
" 8-9-33 - R.E.L.



1/2 SECTION IN CUT
1/2 SECTION IN FILL

TYPICAL GRAVEL OR CRUSHED ROCK SURFACING SECTION

GENERAL NOTES

This Project is to be constructed in conformity with the Specifications of the Colorado State Highway Department adopted January 1, 1930.
All Quantities on preliminary plans are to be considered approximate only.
All Curves are to be Superelevated as provided for by the Standard Superelevation Sheet included with the plans.
All Roadway excavation required to construct this Project is to be obtained as indicated on the plans. Quantities involved beyond the limits of the ditch as shown on the Typical Section, either noted on the profile as Borrow, or on the List of Structures as Embankment, or required to backfill the Subgrade, are to be classified and paid for as "Unclassified Excavation." This quantity is to be stated as part of the original excavation at locations indicated on the plans. Slope Stakes beyond the limits of the Typical Section as shown are subject to change by the Engineer to fit embankment conditions actually encountered in construction.
The Entire Project is to be cleared & grubbed for the full width of the right of way, and the cost thereof is to be included in the lump sum price for Clearing and Grubbing the Entire Project. Notes on the plans indicate the approximate location and character of the Clearing and Grubbing required.
Unless otherwise noted on the plan sheets and list of structures, the inlet ends of all corrugated metal pipe cross culverts are to be protected by dry rubble slope paving 1 foot thick placed about the end of the pipe. The approximate yardage of dry rubble slope paving required is indicated in the list of structures.
The Detour for this Project shall be over the route shown on the Title Sheet. The Contractor shall, at his own expense, maintain in safe condition all temporary approaches to, and crossings of intersecting roads.
Pole Lines encroaching on construction are to be moved by the Owners. The cost of moving power lines is to be included in the Project.
Except as limited by the Special Provisions, power equipment may be used on this Project.

R.O.W. MARKERS & GATES

Sta.	Side	No. R.O.W. Markers	No. Barbed Wire Gates	No. Driveway Gates
1200+00	Rt.	2		
1201+42	"	4		2
1204+75	R	1		
1206+70	L			1
1206+80	R	1		
1215+00	Rt.	2		
1216+10	R			1
1220+75	R			
1224+25	"	1	1	
1230+25	L	1		
1232+90	R		1	
1245+00	Rt.	4		
1247+85	L		1	
1248+05	R		1	
1258+60	Rt.		2	
1266+60	"	2		
1272+00	"		2	
Constr. Divn. #1		18	8	4
1238+00	Rt.	4		
1242+27	"	2		
Constr. Divn. #2		6		

WIRE AND GUARD FENCE

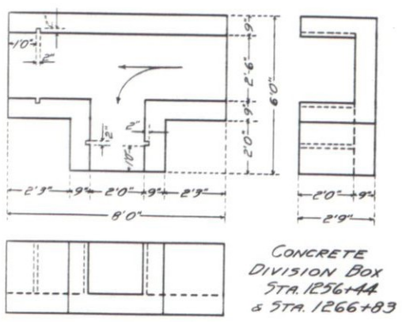
Stations	Side	Remove Wire Fence Lin. Ft.	Build Barbed Wire Fence Lin. Ft.	Build Combin. Wire Fence Lin. Ft.	Build Guard Fence Lin. Ft.
1200+00 - 1204+75	R	540			
1200+00 - 1204+75	R			525	
1201+42 - 1206+40	L	510			
1201+42 - 1209+55	L			815	
1205+75 - 1204+75	R				200
1207+70 - 1205+50	L				200
1206+40 - 1208+45	R			205	
1208+45 - 1210+00	R		155		
1208+50 - 1210+20	L				170
1208+60 - 1209+50	R				90
1209+05	Y	150			
1209+35 - 1210+70	L		115		
1210+40 - 1214+45	R		405		
1210+90 - 1216+60	L		535		
1214+45 - 1217+40	X	410			
1217+65 - 1219+50	L			210	
1219+65	Y	105			
1223+80 - 1229+65	Y	670			
1234+55 - 1237+75	Y	440			
1244+00 - 1276+00	R		3,270		
1244+00 - 1277+00	L		3,350		
1249+05	X	105			
1266+60	X	100			
1272+30 - 1277+00	X	580			
1276+60 - 1277+00	R		175		
1234+05 - 1219+80	R			520	
1219+50 - 1237+75	L		1,825		
1219+90 - 1237+75	R		1,795		
Constr. Divn. #1		3,610	11,645	2,275	660
1237+75 - 1238+16	L		40		
"	R		60		
1237+75 - 1238+50	X	75			
1240+39 - 1244+00	L		430		
" - "	R		350		
1277+00 - 1277+80	L		90		
" - "	R		130		
1277+00 - 1278+20	X	120			
1279+37 - 1281+55	L		290		
" - "	R		130		
1279+50 - 1281+55	X	290			
Constr. Divn. #2		485	1580		

LIST OF STRUCTURES FOR CONSTRUCTION DIVISION No. 1

Stations	Description	Remove Structure No.	Excavation Cu. Yds. Unclass.	Excavation Cu. Yds. Embank.	Structural Excavation Cu. Yds. *	Class A Concrete Cu. Yds.	Reinforcing Steel Lbs.	Corrugated Metal Culvert Pipe Lin. Ft. 15"	18"	24"	30"	60"	Dry Rubble Slope Paving Sq. Yds.	Corrugated Metal Siphon Pipe Lin. Ft. 18"	Miscellaneous
1200+00	Project Marker														
1201+32	Special 18"x82" C.M.P. Siphon, 8" Tile Line, Remove Tile Siphons, Rem. Box	2			60	3.5	253							89	Project Marker
do	Lower Water Pipe S.F.														2-18" Trash Guards
1201+40	Special 18"x82" C.M.P. Siphon, 8" Tile Line, Remove Tile Siphons, Rem. Box														8 of 8" Wtr. Tile Pipe
1201+50	C Road Approaches			50											
1204+60	Cross Culvert				35										
1206+30	Road Approach			25						104			6		
1207+00	Special 18"x82" C.M.P. Siphon, 10" Tile Line, Class A Conc. Collar				50	2.8	128							85	1-18" Trash Guard, 56' of 10" Wtr. Tile Pipe
do	Cross Culvert				5										
1209+20	Side Drain, 2 Road Approaches				5				14				4.5		
1210+60	Side Drain, Road Approach			500	5					30					
1216+10	Cross Culvert			100	80						30				
1219+05	"				10							150	20.5		
1226+75	Road Approach									96			6		
1232+80	Cross Culvert		400		70										
1235+75	Ditch Change				5					138			4.5		
1239+50 - 1248+20	Side Drain, Road Approach		180												
1247+75	Side Drain			50	5					24					
1247+85	Side Drain, Road Approach			50	10										
1248+05	Cross Culvert, 2 Headwalls			50	10										
1248+11	Ditch Change				5					52					
1250+70 - 1256+50	Cross Culvert, 2 Helmets, Divn. Box		120		10								9		
1256+46	2 Side Drains, 2 Road Approaches				10	2.1				62			12		
1256+62	Ditch Change			100	10										
1257+00 - 1266+89	Cross Culvert, 2 Headwalls, Ditch Changes, Division Box		200							80					
1266+83	Cross Culvert, No Headwalls		20		20	2.1							12		
do	Road Approach									70					
1267+59	Remove Cor. Metal Pipe				5					74					
1203+90	Road Approach			450											
1204+95	Side Drain, Road Approach			400											
1216+50	Side Drain, 2 Road Approaches			150	5										
1220+75	2 Road Approaches		600		5					40					
1237+75	Side Drain, 2 Road Approaches			225						28					
1272+00	2 Road Approaches			500	20										
1276+30	Side Drain, 2 Road Approaches									120					
Construction Division No. 1 Totals		3	1520	2600	* 385	10.5	383	282	368	526	—	150	—	74.5	174	(In Summary)

S.F. - Denotes Work to be done by State Forces.

* Structural Excavation is estimated to be 75% Common and 25% Rock; each of which is estimated to be 75% Dry and 25% Wet.



Scale 3/8" = 1'.

CONCRETE DIVISION BOX STA. 1256+44 & STA. 1266+83

2.1 Cu. Yd. Class "A" Concrete per Box

SUMMARY OF APPROXIMATE QUANTITIES - CONST. DIVN. No. 1

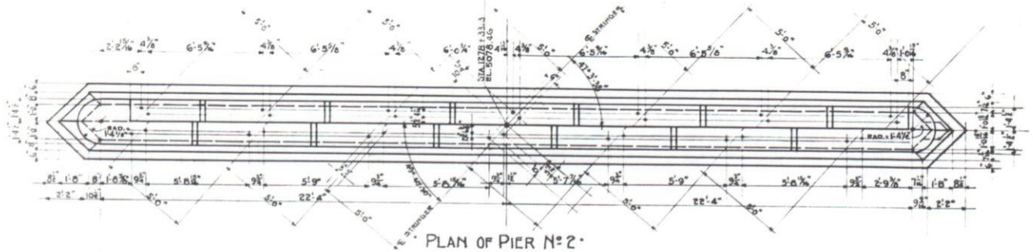
No.	Item	Unit	Prelim'ry Quantity	Final Quantity
10a	Clearing & Grubbing the Entire Project	Lump Sum		
11	Removing 3 Structures	"		
12a	Removing Fence	Lin. Ft.	3,700	
13c	Unclassified Excavation	Cu. Yd.	69,000	
14a	Dry Rock Excavation (Structural)	" "	100	
14b	" Common " "	" "	250	
14c	Wet Rock " "	" "	50	
14d	" Common " "	" "	100	
18a	Station Yard Overhaul	Sta. Yd.	294,000	
18b	Yard Mile Overhaul	Yd. Mi.	2,000	
30x	Gravel or Crushed Rock Surfacing	Tons	4,840	
46a	Class "A" Concrete	Cu. Yd.	11	
47	Reinforcing Steel	Lbs.	400	
53a	18" Corrugated Metal Culvert Pipe	Lin. Ft.	282	
53b	18" " " " "	" "	368	
53c	24" " " " "	" "	526	
53i	60" " " " "	" "	150	
65	Dry Rubble Slope Paving (1 Ft. thick)	Sq. Yd.	75	
72	Wire Cable Guard Fence	Lin. Ft.	660	
75a	Galvanized Barbed Wire Fence (Wd. Posts)	" "	11,700	
75b	Gates in Barbed Wire Fence	Each	8	
78	Project Marker	"	1	
79	Right of Way Markers	"	18	
95b	Trash Guards for 18" Siphons	"	3	
95a	Combination Wire Fence (Wooden Posts)	Lin. Ft.	2,900	
95b	Driveway Gates	Each	4	
96b	18" Corrugated Metal Siphon Pipe	Lin. Ft.	174	
54x	8" Vitrified Clay Culvert Pipe	" "	8	
54y	10" " " "	" "	56	
	Materials to be Furnished & Work to be Done by State Forces			
	Lower Water Pipe, Sta. 1201+	Lump Sum		
	Moving Power Line	"		

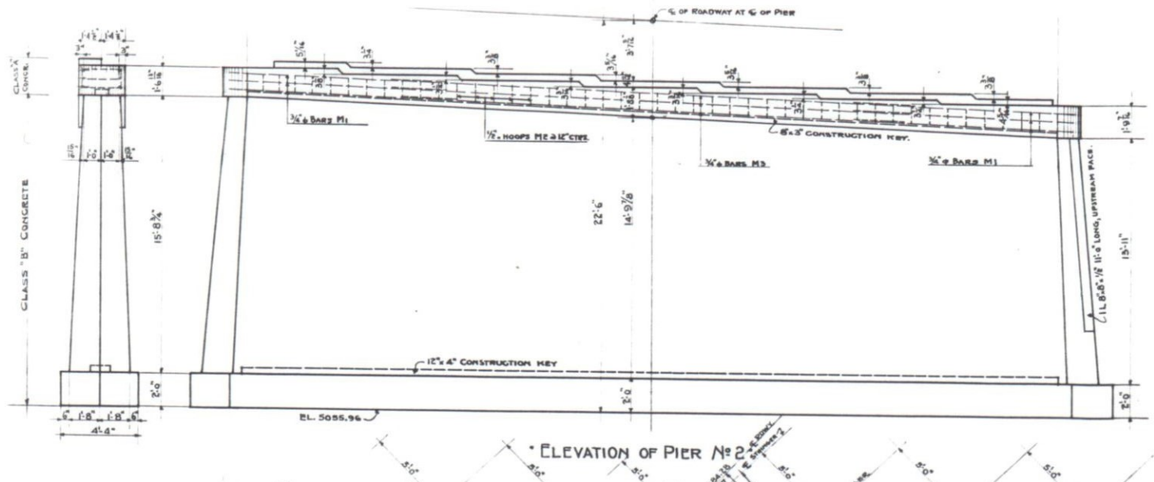
SUMMARY OF APPROXIMATE QUANTITIES - CONST. DIVN. No. 2

No.	Item	Unit	Bridge & Approx. 1237+75 - 1241+00	Bridge & Approx. 1277+80 - 1280+55	Totals
10a	Clearing & Grubbing (Bridge Section)	Lump Sum	*		*
10b	" " " "	" "			
12a	Removing Fence	Lin. Ft.	100	500	
13c	Unclassified Excavation	Cu. Yd.	300	300	600
14a	Dry Rock Excavation (Structural)	" "	75	5	80
14b	" Comm. " "	" "	640	505	1,145
14d	" Comm. " "	" "	165	215	380
18a	Station Yard Overhaul	Sta. Yd.	270	630	900
18b	Yard Mile "	Yd. Mi.	4,000	143,000	143,000
30x	Gravel or Crushed Rock Surfacing	Tons	300		300
42a	Untreated Bridge Timber	M. H. B. M.	250	180	430
46a	Class "A" Concrete	Cu. Yd.	0.5	0.5	1.1
46b	" "B" " "	" "	728	529	1,257
47	Reinforcing Steel	Lbs.	27	172	199
48	Structural Steel	" "	96,800	57,400	154,200
72	Wire Cable Guard Fence	" "	215,300	152,200	367,500
75a	Galv. Barbed Wire Fence (Wood Posts)	Lin. Ft.	200	330	530
81	Bronze Name Plates	Each	900	700	1,600
82	Sheet Copper	Lbs.	460	300	760
84	Removal of Disused Bridge Sta 1278+	Lump Sum		*	*
89a	Drain Pipes (3'x 4'-0")	Each	6		6
89b	" " (3'x 2'-6")	"		3	3
79	R.O.W. Markers	Each	6		6
	Materials to be Furnished by State				
	Borrow Material	Cu. Yds.	11,000	3,000	14,000

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	F-9-C	3	

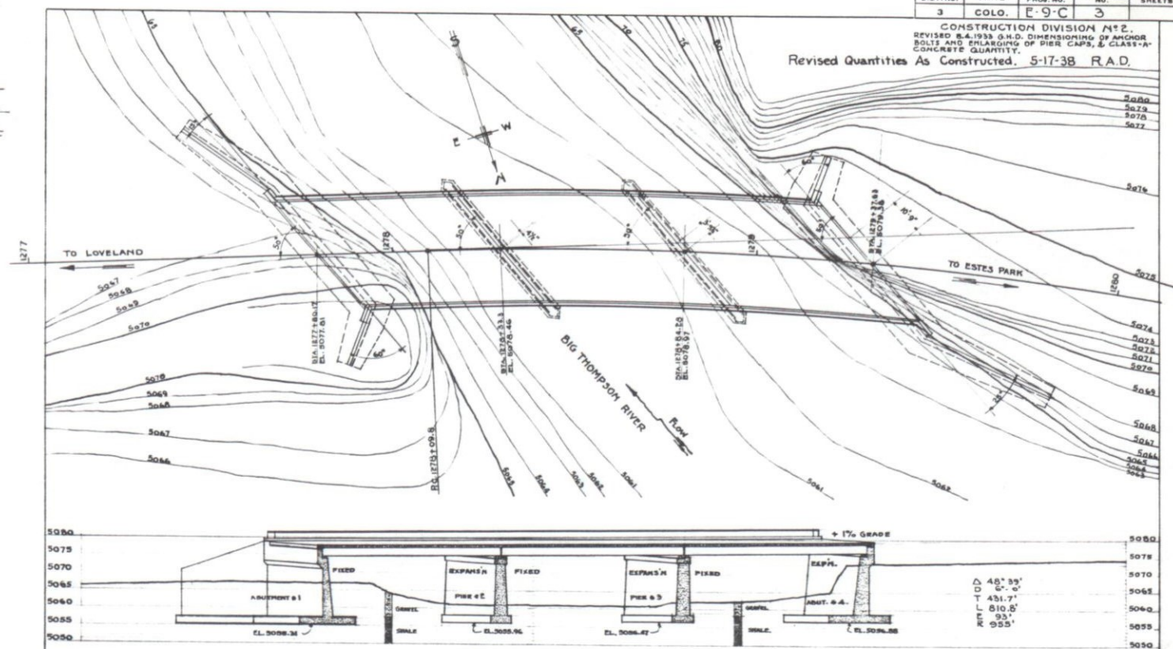
CONSTRUCTION DIVISION Nº 2.
REVISED 8-4-1938 G.H.D. DIMENSIONING OF ANCHOR BOLTS AND ENLARGING OF PIER CAPS, & CLASS-A CONCRETE QUANTITY.
Revised Quantities As Constructed. 5-17-38 R.A.D.





ELEVATION OF PIER Nº 2.

ELEVATION OF PIER Nº 3.



GENERAL LAYOUT.

BAR LIST FOR PIER Nº 2

MARK	SIZE	NO.	LENGTH	TYPE	ℓ	m	r	t.
M1	¾" ϕ	6	25'-6"	VIII	11'-1½"	2'-1"		
M2	½"	46	7'-0½"	IX	1'-0"	2'-2¼"		4"
M3	¾" ϕ	6	28'-8"	—				

324 LIN. FT. ½" ϕ BARS @ 0.850 LBS. PER LIN. FT. = 276 LBS.
313 LIN. FT. ¾" ϕ BARS @ 1.502 LBS. PER LIN. FT. = 470 LBS.
1% ± FOR OVERRUN = 9 LBS.
TOTAL = 755 LBS.

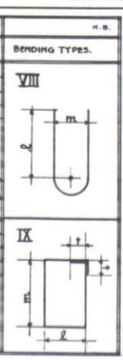
BAR LIST FOR PIER Nº 3.

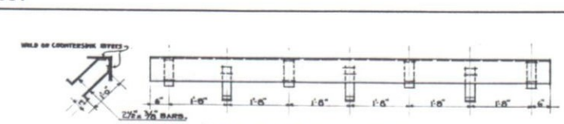
MARK	SIZE	NO	LENGTH	TYPE	ℓ	m	r	t
M2	½" ϕ	46	7'-0½"	IX	1'-0"	2'-2¼"		4"
M1	¾" ϕ	6	25'-6"	VIII	11'-1½"	2'-1"		
M4	¾" ϕ	6	31'-0"	—				

338 LIN. FT. ½" ϕ BARS @ 0.850 LBS. PER LIN. FT. = 287 LBS.
339 LIN. FT. ¾" ϕ BARS @ 1.502 LBS. PER LIN. FT. = 509 LBS.
1% ± FOR OVERRUN = 9 LBS.
TOTAL = 805 LBS.

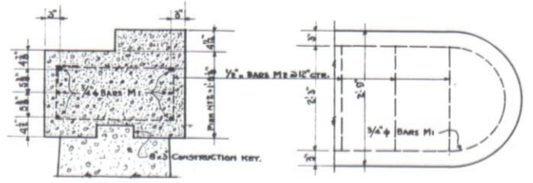
K.B.

BENDING TYPES.





DETAIL OF PIER NOSING ANGLES.
2 REQUIRED.



DETAIL OF PIER CAP (CLASS "A" CONCRETE).

SUMMARY OF QUANTITIES FOR ENTIRE BRIDGE.

ITEM NUMBER	DESCRIPTION		UNIT	SUPER STRUCTURE	ABUTMENT #1	PIER #2	PIER #3	ABUTMENT #4	TOTAL
14a	DRY ROCK EXCAVATION		CU.YDS.					770	770
14b	DRY COMMON EXCAVATION		CU.YDS.		225.5			196.0	421.5
14c	WET ROCK EXCAVATION	*	CU.YDS.		90.8	28.1	30.1	169.1	318.1
14d	WET COMMON EXCAVATION	*	CU.YDS.		270.5	40.5	45.3	258.6	614.9
42a	UNTREATED BRIDGE TIMBER		M.F.B.M.	0.430					0.430
46a	CLASS "A" CONCRETE		CU.YDS.	159.6	16.7	8.9	9.0	18.4	528.5
46b	CLASS "B" CONCRETE		CU.YDS.			83.6	88.4		172
47	REINFORCING STEEL (OVERRUN INCLUDED)		LBS.	31710	16270	755	805	17860	♦66754
48	STRUCTURAL STEEL (OVERRUN INCLUDED)		LBS.	150582	104	540	540	104	151870
81	BRONZE NAME PLATES		PIECES	2					2
82	SHEET COPPER B.&S. GAUGE Nº 16		LBS.	300					300
84	REMOVAL OF DISUSED BRIDGE		LUMP SUM						
89	GALV. PIPE DRAINS 3" DIA. 2'-6" LONG		PIECES	3					3
	¾"x 10" EXPANSION JOINT MATERIAL		LIN. FT.	135					135

* WATERLINE AS SHOWN ON FIELD PLANS.
♦ Scale Weight.

REFERENCE DRAWINGS.
SHEET Nº 4 DETAILS OF SUPER STRUCTURE.
SHEET Nº 5 DETAILS OF ABUTMENT Nº 1.
SHEET Nº 6 DETAILS OF ABUTMENT Nº 4.

LOADING DATA.
LIVE LOAD = A. A. S. H. O. Aug. 1926. CLASS A. (H-15)
DEAD LOAD = ASSUMED 15 LBS. PER SQ. FT. ADDITIONAL WEARING SURFACE, WHICH INCLUDES THE ½ in. CONCRETE MONOLITHIC WEARING SURFACE.

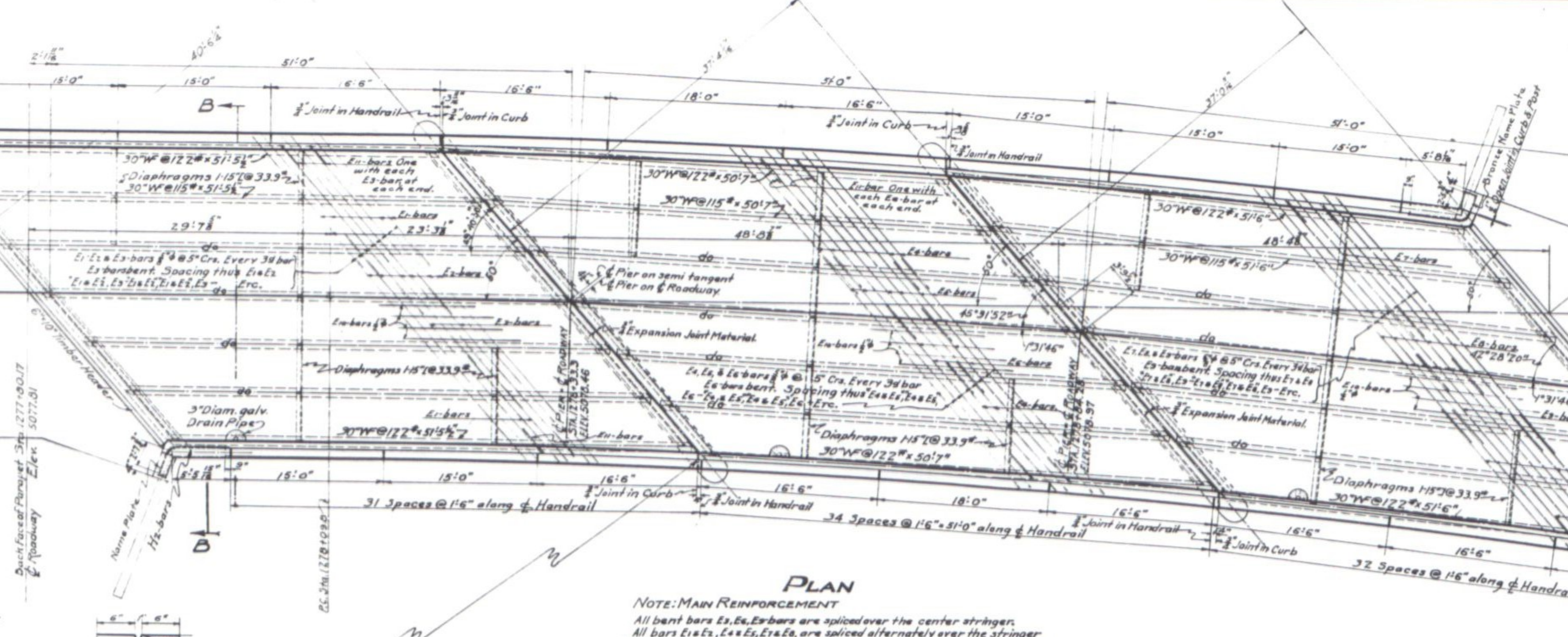
COLORADO
STATE HIGHWAY DEPARTMENT
3 SPAN @ 51'-0" x 30'-0" CONCRETE I BEAM BRIDGE
DETAILS OF PIERS Nº 2 & 3. SUMMARY.
Across Big Thompson River.
Sta. 1277 + 80.17 To 1279 + 37.63
Near LOVELAND Sec. 7 T. 5N. R. 69 W.

Designed by K.B.	Approved by
Made by G.H.D.	Bridge Engr
Checked by K.B.	Date: June 2

STRUCTURE NO. C-16-U

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	SHEET No.	TOTAL SHEETS
3	COLO.	E-9C	4	

CONSTRUCTION DIVISION No. 2



PLAN

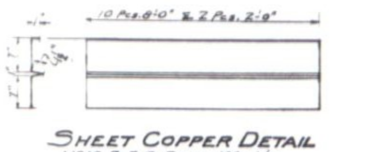
NOTE: MAIN REINFORCEMENT

All bent bars E3, E6, E9 bars are spliced over the center stringer.
All bars E1&E2, E4&E5, E7&E8, are spliced alternately over the stringer right or left of center line of roadway in groups between bent bars as shown on Plan.

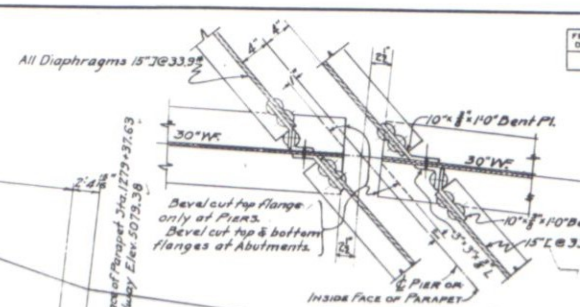
SHEET COPPER DETAIL

No. 16 B.&S. Gage 18" wide.
10 Pcs. Required 18" × 8'-0"
2 Pcs. do 18" × 2'-0"
Copper sheets to be notched around webs of stringers in the field by contractors forces. All joints to overlap 2"

No. 10 B.&S. Gage Copper Wire
24 Pcs. Required
Place 6 pcs. @ 3" crs. ± in each curb expansion joint to carry Expansion Joint Material.

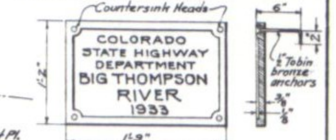


TYPICAL DETAIL OF END DIAPHRAGM CONNECTIONS



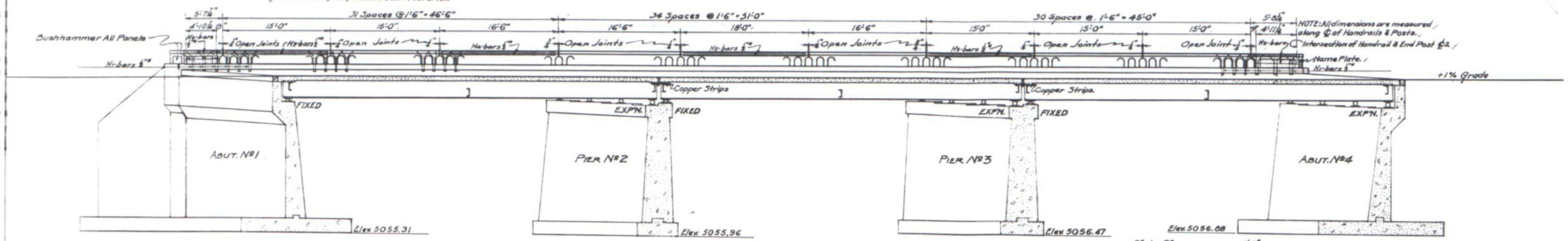
DETAIL OF BRONZE NAME PLATE

2 REQUIRED
BORDER AND LETTERS TO BE RAISED 1/8"
DESIGN TO BE APPROVED BY THE BRIDGE ENG'R.



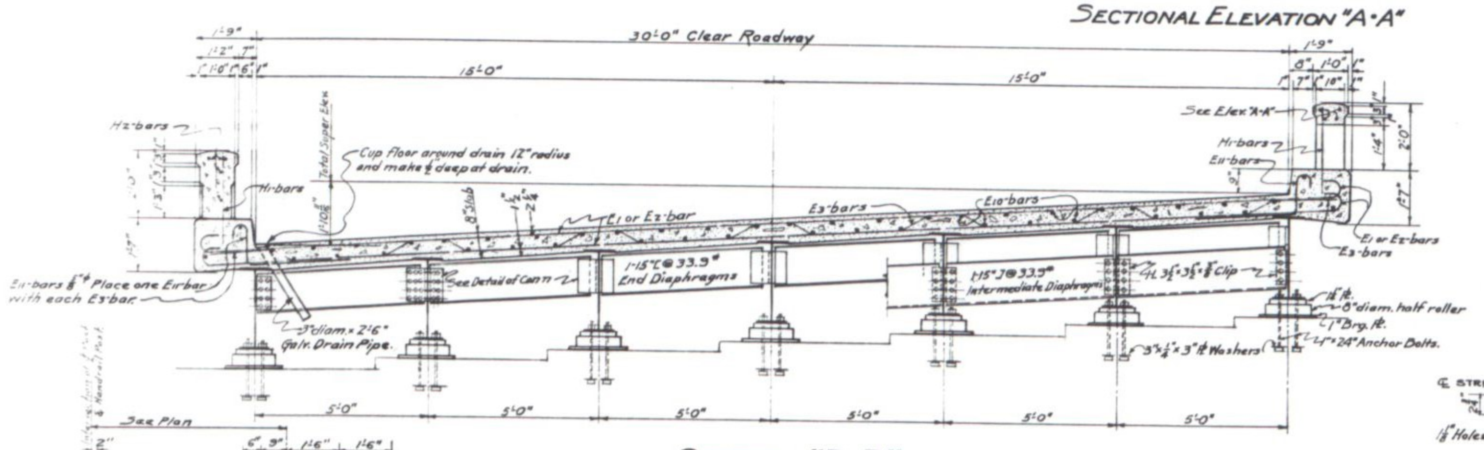
NOTE: All dimensions are measured along ℄ of Handrails & Posts. Intersection of Handrail & End Post ℄s.

SECTIONAL ELEVATION "A-A"

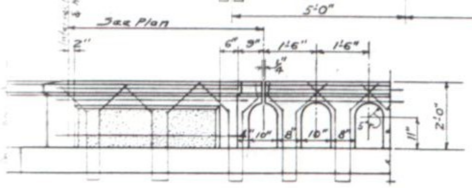


SECTION "B-B"

THIS SECTION IS TYPICAL FOR ALL SPANS EXCEPT REINFORCEMENT BAR No. 3



HANDRAIL DETAIL

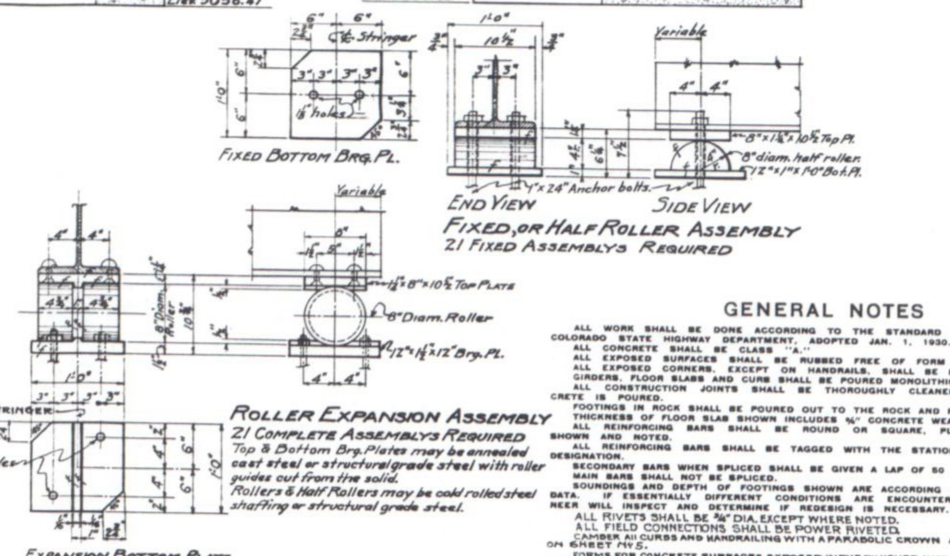


FIXED BOTTOM BRG. PL.

END VIEW — SIDE VIEW

FIXED, OR HALF ROLLER ASSEMBLY

21 FIXED ASSEMBLYS REQUIRED



ROLLER EXPANSION ASSEMBLY

21 COMPLETE ASSEMBLYS REQUIRED

Top & Bottom Brg. Plates may be annealed cast steel or structural grade steel with roller guides cut from the solid.
Rollers & Half Rollers may be cold rolled steel shafting or structural grade steel.

EXPANSION BOTTOM PLATE

BAR LIST FOR 3 SPANS OF SUPERSTRUCTURE

G.H.D.

Mark	Size	No.	Length	l	m	n	o	p	Bending Diagram
E3	5/8"ϕ	64	23'-5 5/16"	1'-11"	0'-8½"	4'-1 7/16"	1'-2"	2'-7"	
E6	5/8"ϕ	60	24'-6 3/4"	2'-0"	0'-8½"	4'-3⅜"	1'-4"	2'-10"	
E9	5/8"ϕ	58	25'-8⅜"	2'-1"	0'-8½"	4'-5⅝"	1'-6"	3'-0"	
E1	5/8"ϕ	128	17'-0"	16'-2"					
E2	5/8"ϕ	128	30'-1"	29'-3"					
E4	5/8"ϕ	120	17'-8"	16'-10"					
E5	5/8"ϕ	120	31'-4"	30'-6"					
E7	5/8"ϕ	118	18'-7"	17'-9"					
E8	5/8"ϕ	118	33'-0"	32'-2"					
H2	½"■	12	5'-4"						Straight
H3	½"■	32	14'-8"						Straight
H4	½"■	32	16'-2"						Straight
H5	½"■	8	17'-8"						Straight
H6	½"■	4	5'-10"						Straight
E10	½"ϕ	276	27'-0"						Straight
H1	½"■	204	6'-6"						
E11	5/8"ϕ	182	4'-5"						

7452 LIN. FT. ½"■ BARS @ 0.668 LBS. PER LIN. FT. EQUALS 4978 LBS.
2541 do do ½"■ do @ 0.850 do do do 2160 do
23262 do do 5/8"ϕ do @ 1.043 do do do 24262 do
1%± For Overrun do 310 do
TOTAL 31710 LBS.

GENERAL NOTES

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT, ADOPTED JAN. 1, 1930.

ALL CONCRETE SHALL BE CLASS "A."

ALL EXPOSED SURFACES SHALL BE RUBBED FREE OF FORM MARKS.

ALL EXPOSED CORNERS, EXCEPT ON HANDRAILS, SHALL BE BEVELED TO A 2" FACE.

GIRDERS, FLOOR SLABS AND CURB SHALL BE POURED MONOLITHICALLY.

ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS POURED.

FOOTINGS IN ROCK SHALL BE POURED OUT TO THE ROCK AND NOT FORMED.

THICKNESS OF FLOOR SLAB SHOWN INCLUDES ¾" CONCRETE WEARING SURFACE.

ALL REINFORCING BARS SHALL BE ROUND OR SQUARE, PLAIN OR DEFORMED AS SHOWN AND NOTED.

ALL REINFORCING BARS SHALL BE TAGGED WITH THE STATION NUMBER AND LETTER DESIGNATION.

SECONDARY BARS WHEN SPLICED SHALL BE GIVEN A LAP OF 50 DIAMETERS.

MAIN BARS SHALL NOT BE SPLICED.

SOUNDINGS AND DEPTH OF FOOTINGS SHOWN ARE ACCORDING TO THE BEST AVAILABLE DATA. IF ESSENTIALLY DIFFERENT CONDITIONS ARE ENCOUNTERED, THE BRIDGE ENGINEER WILL INSPECT AND DETERMINE IF REDESIGN IS NECESSARY.

ALL RIVETS SHALL BE ¾" DIA. EXCEPT WHERE NOTED.

ALL FIELD CONNECTIONS SHALL BE POWER RIVETED.

CAMBER ALL CURBS AND HANDRAILING WITH A PARABOLIC CROWN AS SHOWN IN DIAGRAM ON SHEET No. 5.

FORMS FOR CONCRETE SURFACES EXPOSED IN THE FINISHED WORK SHALL BE CONSTRUCTED OF SHIPLAP OR TONGUE AND GROOVE LUMBER S3S.

THE EQUIVALENT OF AT LEAST TWO (2) ONE HALF (½) CU. YD. CAPACITY MIXERS MUST BE MAINTAINED IN RUNNING ORDER ON THIS JOB BY THE CONTRACTOR WHILE POURING THIS BRIDGE.

LOADING DATA.

LIVE LOAD = A. A. S. H. O. AUG. 1928. CLASS A. (H-15)

DEAD LOAD = ASSUMES 15 LBS. PER SQ. FT. ADDITIONAL WEARING SURFACE, WHICH INCLUDES THE ¾ IN. CONCRETE MONOLITHIC WEARING SURFACE.

REFERENCE DRAWINGS

SHEET No. 3 GENERAL LAYOUT, SUMMARY OF QUANTITIES, DETAILS OF PIERS No. 2 & No. 3
SHEET No. 5 DETAILS OF ABUTMENT No. 1
SHEET No. 6 DETAILS OF ABUTMENT No. 4

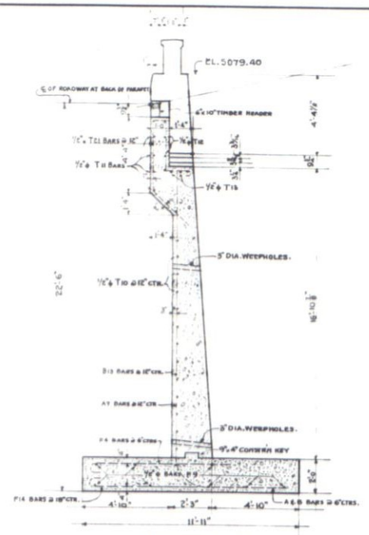
COLORADO
STATE HIGHWAY DEPARTMENT
3 SPANS @ 51'-0" × 30'-0" CONCRETE I-BEAM BRIDGE
SUPERSTRUCTURE DETAILS
Across BIG THOMPSON RIVER
Sta. 1277+80.17 To 1279+37.63
Near LOVELAND Sec. 7 T. 5N. R. 69W.

Designed by E.F.W.	Approved by P. S. Bailey
Made by E.F.W.	Bridge Engineer
Checked by K.B.	Date: June 24th 1933

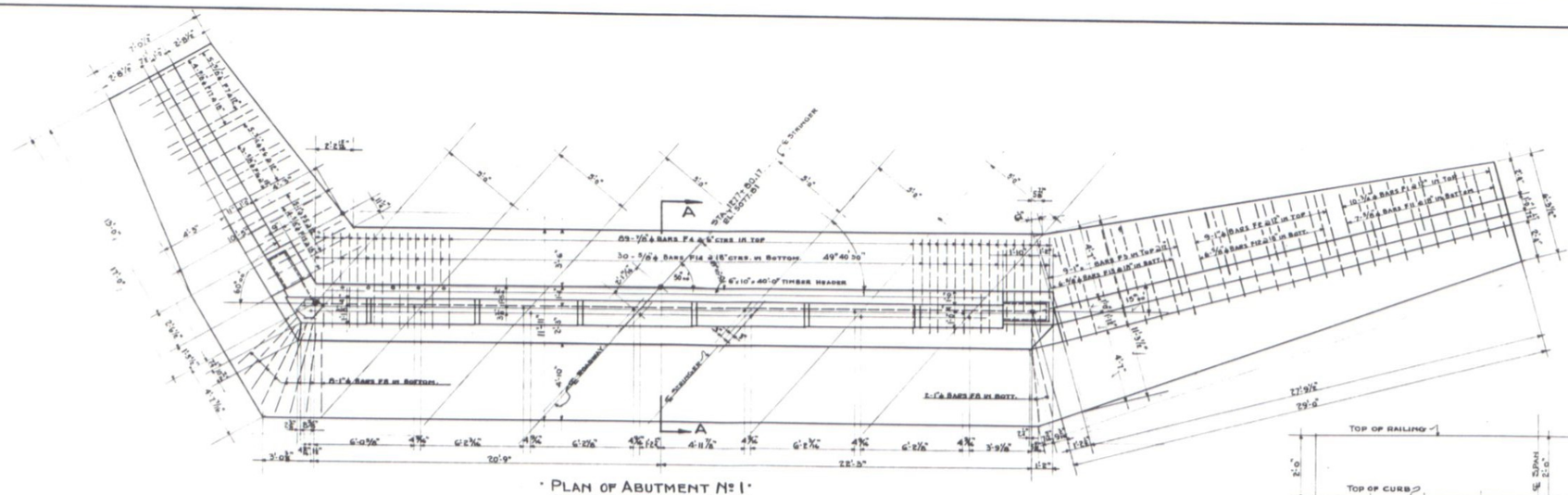
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	E9C	5	

CONSTRUCTION DIVISION Nº2.

REVISED 8.4.33 BY G.H.D. SKEW ANGLE AND LOCATION OF ANCHOR BOLT DIMENSIONS, CAMBER DIAGRAM.

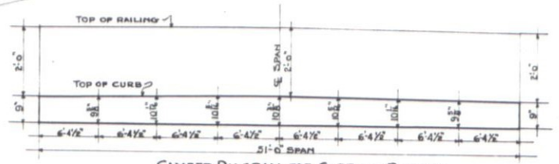


"SECTION A-A"

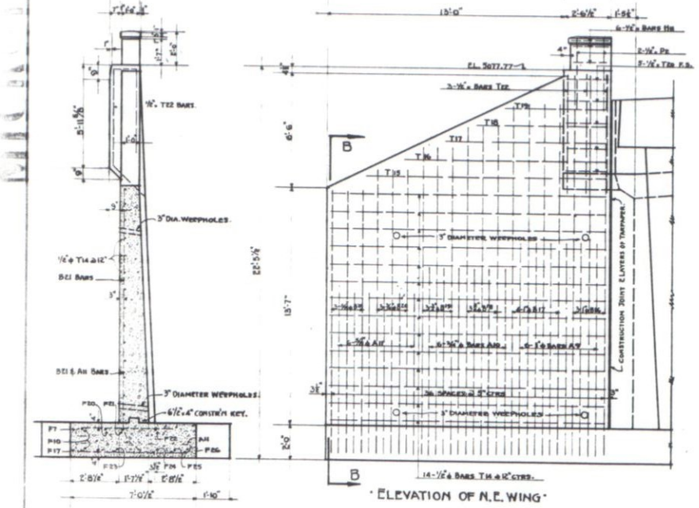


"PLAN OF ABUTMENT Nº 1"

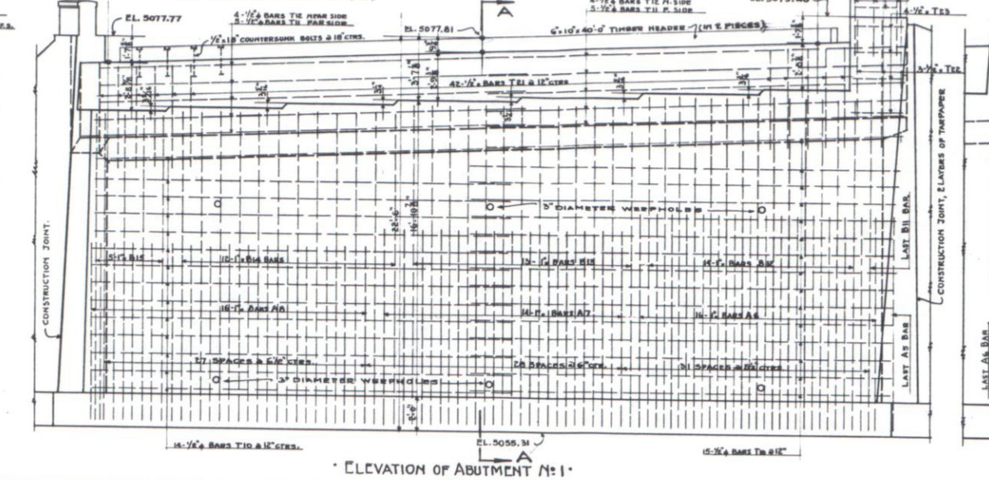
MAXIMUM TOE PRESSURE 3570 LBS.



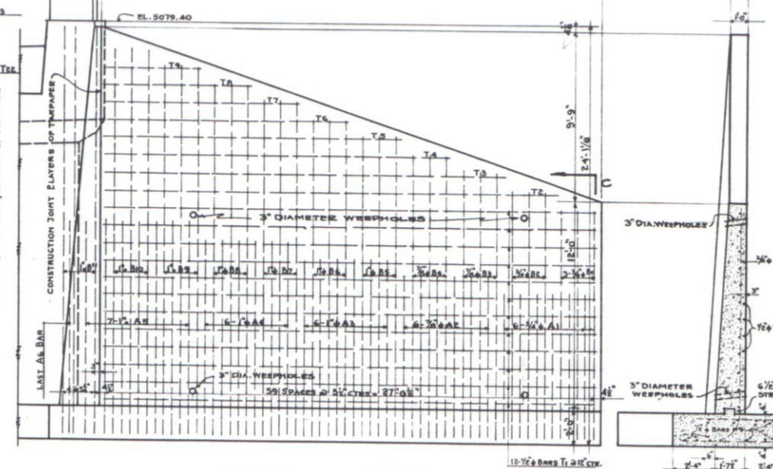
CAMBER DIAGRAM FOR CURB AND RAILING



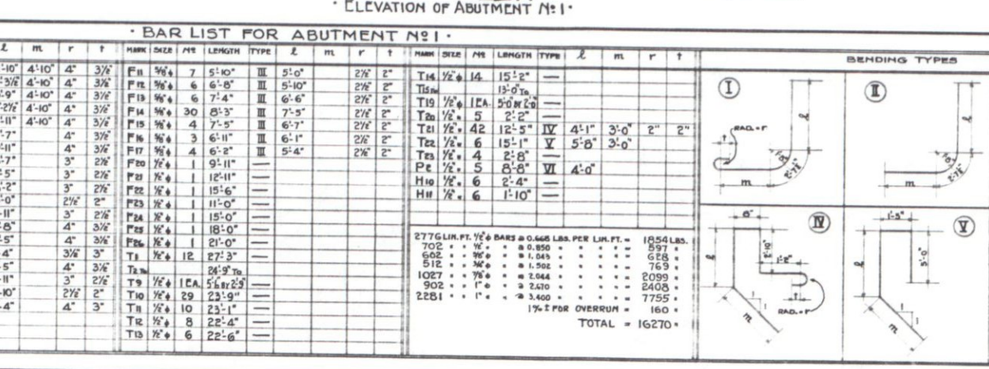
"SECTION B-B"



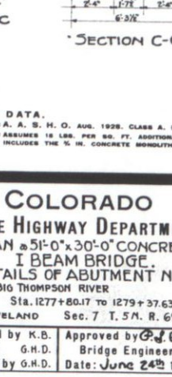
"ELEVATION OF ABUTMENT Nº 1"



"ELEVATION OF S.E. WING"



"ELEVATION OF N.E. WING"



"SECTION C-C"

BAR LIST FOR ABUTMENT Nº 1

K.B.

MARK	SIZE	Nº	LENGTH	TYPE	ℓ	m	r	t
A1	¾" ϕ	6	11'-10"	I	6'-8"	1'-6½"	3"	2½"
A2	⅞" ϕ	6	13'-6"	I	7'-8"	2'-0½"	3½"	3"
A3	1" ϕ	6	15'-2"	I	8'-8"	2'-6½"	4"	3½"
A4	1" ϕ	6	16'-8"	I	9'-8"	3'-0½"	4"	3½"
A5	1" ϕ	7	18'-3"	I	10'-8"	3'-7½"	4"	3½"
A6	1" ϕ	16	18'-1½"	I	10'-8"	4'-10"		
A7	1" ϕ	14	17'-1½"	II	9'-8"	4'-10"		
A8	1" ϕ	16	16'-1½"	II	8'-8"	4'-10"		
A9	1" ϕ	6	17'-10"	I	10'-8"	3'-2½"	4"	3½"
A10	¾" ϕ	6	15'-4½"	I	9'-2"	2'-7"	3"	2½"
A11	⅝" ϕ	6	13'-1"	I	7'-8"	1'-11½"	2½"	2"
B1	¾" ϕ	3	14'-3"	III	13'-3"		3"	2½"
B2	¾" ϕ	3	15'-3"	III	14'-3"		3"	2½"
B3	⅞" ϕ	3	16'-4"	III	15'-2"		3½"	3"
B4	⅞" ϕ	3	17'-3"	III	16'-1"		3½"	3"
B5	1" ϕ	3	18'-5"	III	17'-1"		4"	3½"
B6	1" ϕ	3	19'-4"	III	18'-0"		4"	3½"
B7	1" ϕ	3	20'-4"	III	19'-0"		4"	3½"
B8	1" ϕ	3	21'-4"	III	20'-0"		4"	3½"
B9	1" ϕ	3	22'-3"	III	20'-11"		4"	3½"
B10	1" ϕ	3	23'-3"	III	21'-11"		4"	3½"
B11	1" ϕ	3	29'-3½"	II	21'-10"	4'-10"	4"	3½"
B12	1" ϕ	14	24'-9"	II	17'-3½"	4'-10"	4"	3½"
B13	1" ϕ	13	24'-2½"	II	16'-9"	4'-10"	4"	3½"
B14	1" ϕ	12	23'-8"	II	16'-2½"	4'-10"	4"	3½"
B15	1" ϕ	5	23'-4½"	II	15'-11"	4'-10"	4"	3½"
B16	1" ϕ	3	22'-11"	III	21'-7"		4"	3½"
B17	1" ϕ	4	21'-3"	III	19'-11"		4"	3½"
B18	¾" ϕ	3	19'-9"	III	18'-7"		3"	2½"
B19	¾" ϕ	3	18'-5"	III	17'-5"		3"	2½"
B20	¾" ϕ	3	17'-2"	III	16'-2"		3"	2½"
B21	⅝" ϕ	3	15'-10"	III	15'-0"		2½"	2"
F1	⅜" ϕ	10	5'-11"	III	4'-11"		3"	2½"
F2	1" ϕ	9	8'-0"	III	6'-8"		4"	3½"
F3	1" ϕ	9	8'-9"	III	7'-5"		4"	3½"
F4	⅞" ϕ	89	9'-6"	III	8'-4"		3½"	3"
F5	1" ϕ	5	8'-7"	III	7'-5"		4"	3½"
F6	¾" ϕ	5	6'-11"	III	5'-11"		3"	2½"
F7	⅝" ϕ	5	5'-8"	III	4'-10"		2½"	2"
F8	1" ϕ	10	9'-8"	III	8'-4"		4"	3"
F9	½" ϕ	18	40'-0"	—				
F10	½" ϕ	2	7'-0"	—				
F11	⅝" ϕ	7	5'-10"	III	5'-0"		2½"	2"
F12	⅝" ϕ	6	6'-8"	III	5'-10"		2½"	2"
F13	⅝" ϕ	6	7'-4"	III	6'-6"		2½"	2"
F14	⅝" ϕ	30	8'-3"	III	7'-3"		2½"	2"
F15	⅝" ϕ	4	7'-5"	III	6'-7"		2½"	2"
F16	⅝" ϕ	3	6'-11"	III	6'-1"		2½"	2"
F17	⅝" ϕ	4	6'-2"	III	5'-4"		2½"	2"
F20	½" ϕ	1	9'-11"	—				
F21	½" ϕ	1	12'-11"	—				
F22	½" ϕ	1	15'-6"	—				
F23	½" ϕ	1	11'-0"	—				
F24	½" ϕ	1	15'-0"	—				
F25	½" ϕ	1	18'-0"	—				
F26	½" ϕ	1	21'-0"	—				
T1	½" ϕ	12	27'-3"	—				
T2 to T8			24'-9" To 5'-8"	—				
T9	⅞" ϕ	1 EA.	5'-8" TO 2'-3"	—				
T10	⅞" ϕ	29	23'-9"	—				
T11	⅞" ϕ	10	23'-1"	—				
T12	⅞" ϕ	8	22'-4"	—				
T13	⅞" ϕ	6	22'-6"	—				
T14	½" ϕ	14	15'-2"	—				
T15 to T18			13'-0" To 2'-2"	—				
T19	½" ϕ	1 EA.	5'-0" TO 2'-0"	—				
T20	½" ϕ	5	2'-2"	—				
T21	½" ϕ	42	12'-5"	IV	4'-1"	3'-0"	2"	2"
T22	½" ϕ	6	15'-1"	V	5'-8"	3'-0"		
T23	½" ϕ	4	2'-8"	—				
Pe	½" ϕ	5	8'-8"	VI	4'-0"			
H10	½" ϕ	6	2'-4"	—				
H11	½" ϕ	6	1'-10"	—				

277 G LIN. FT. ½" ϕ BARS @ 0.668 LBS. PER LIN. FT. = 1854 LBS.
702 " " ⅜" " @ 0.850 " " " " = 597 "
602 " " ⅝" " @ 1.043 " " " " = 628 "
512 " " ¾" " @ 1.502 " " " " = 769 "
1027 " " ⅞" " @ 2.044 " " " " = 2099 "
902 " " 1" " @ 2.670 " " " " = 2408 "
2281 " " 1" " @ 3.400 " " " " = 7755 "
1% I FOR OVERRUN = 160 "
TOTAL = 16270 "

BENDING TYPES

LOADING DATA.

LIVE LOAD = A. A. S. H. O. Aug. 1926. Class A. (M-18)

DEAD LOAD = ASSUMED 18 LBS. PER SQ. FT. ADDITIONAL WEARING SURFACE, WHICH INCLUDES THE ½ IN. CONCRETE MONOLITHIC WEARING SURFACE.

REFERENCE DRAWINGS.

SHEET Nº3 GENERAL LAYOUT, SUMMARY OF QUANTITIES AND DETAILS OF PIERS Nº 2 & 3.
SHEET Nº4 DETAILS OF SUPER STRUCTURE.
SHEET Nº6 DETAILS OF ABUTMENT Nº 4.

COLORADO
STATE HIGHWAY DEPARTMENT

3 SPAN @ 51'-0" x 30'-0" CONCRETE I BEAM BRIDGE.

DETAILS OF ABUTMENT Nº 1

Across BIG THOMPSON RIVER

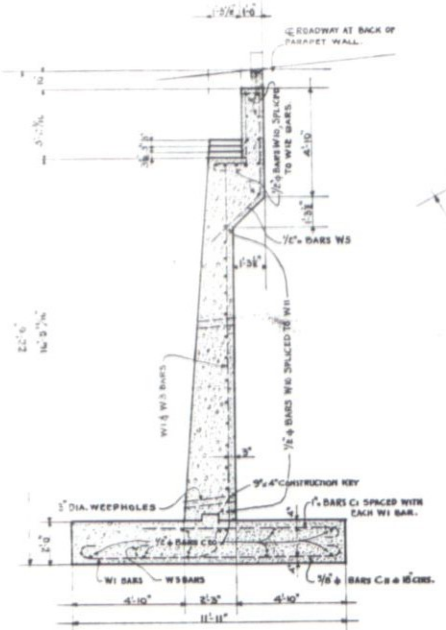
Sta. 1277+80.17 TO 1279+37.63

Near LOVELAND Sec. 7 T. 5 N. R. 69 W.

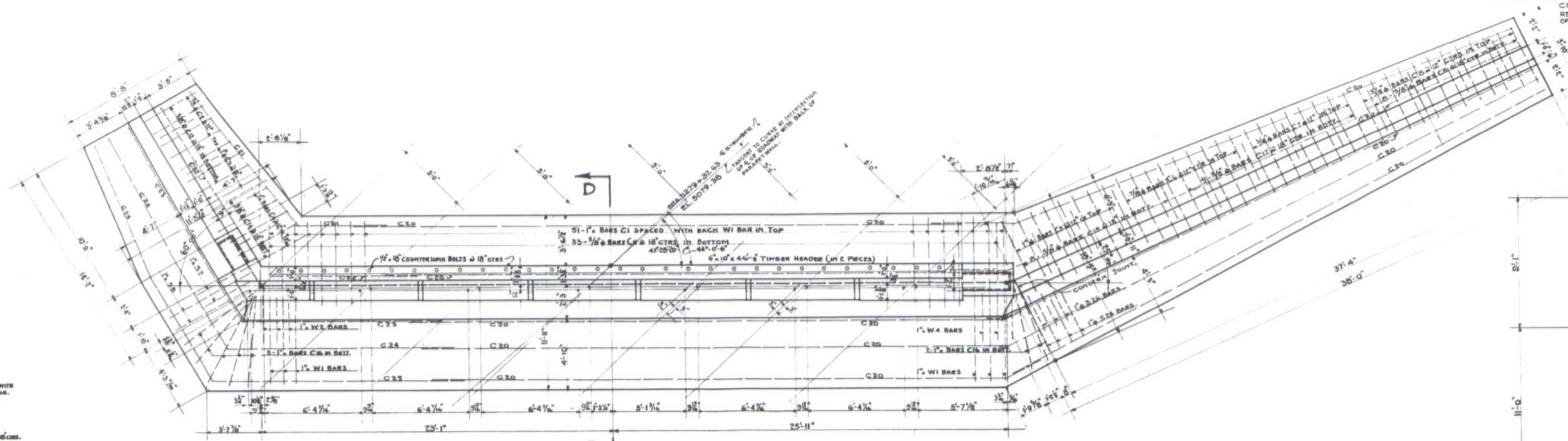
Designed by K.B.	Approved by P. L. Bailey
Made by G.H.D.	Bridge Engineer
Checked by G.H.D.	Date: June 24th 1933.

FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	SHEET No.	TOTAL SHEETS
3	COLO.	E9C	6	

CONSTRUCTION DIVISION No 2.
REVISED 8.4.33 G.H.D. DIMENSIONING OF ANCHOR BOLTS.

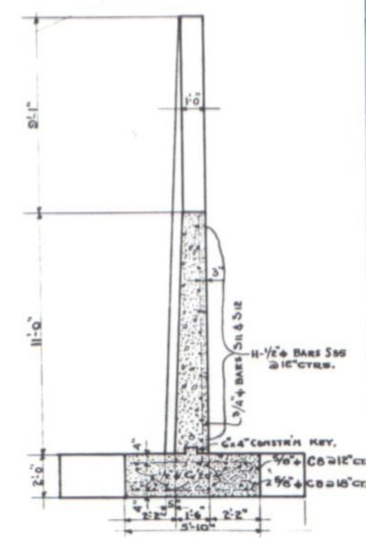


·SECTION D-D·

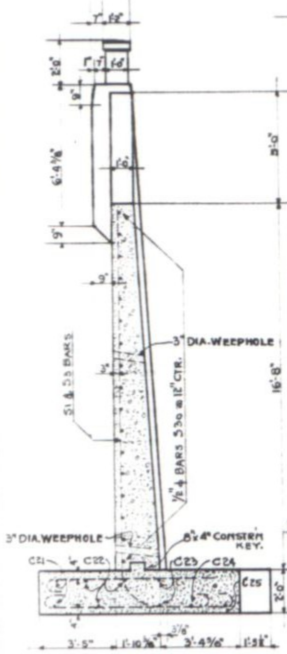


·PLAN OF ABUTMENT No 4·
MAXIMUM TOE PRESSURE 3570 LBS.

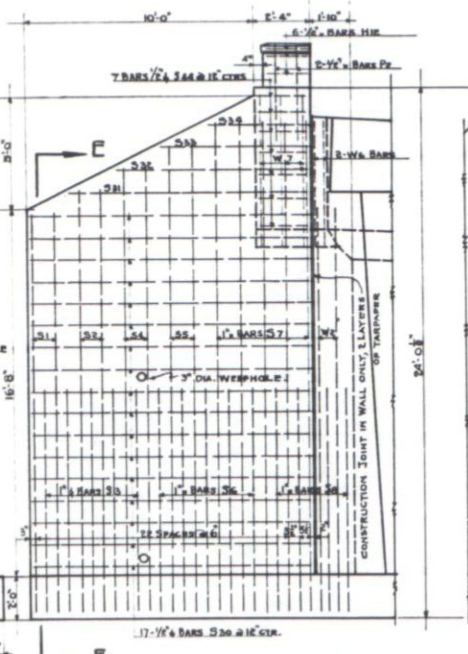
NOTE: ALL TEMPERATURE BARS TO BE BENT IN FIELD WHERE NECESSARY AND TO BE LAP SPLICED 2'-1" MINIMUM WHERE NECESSARY.



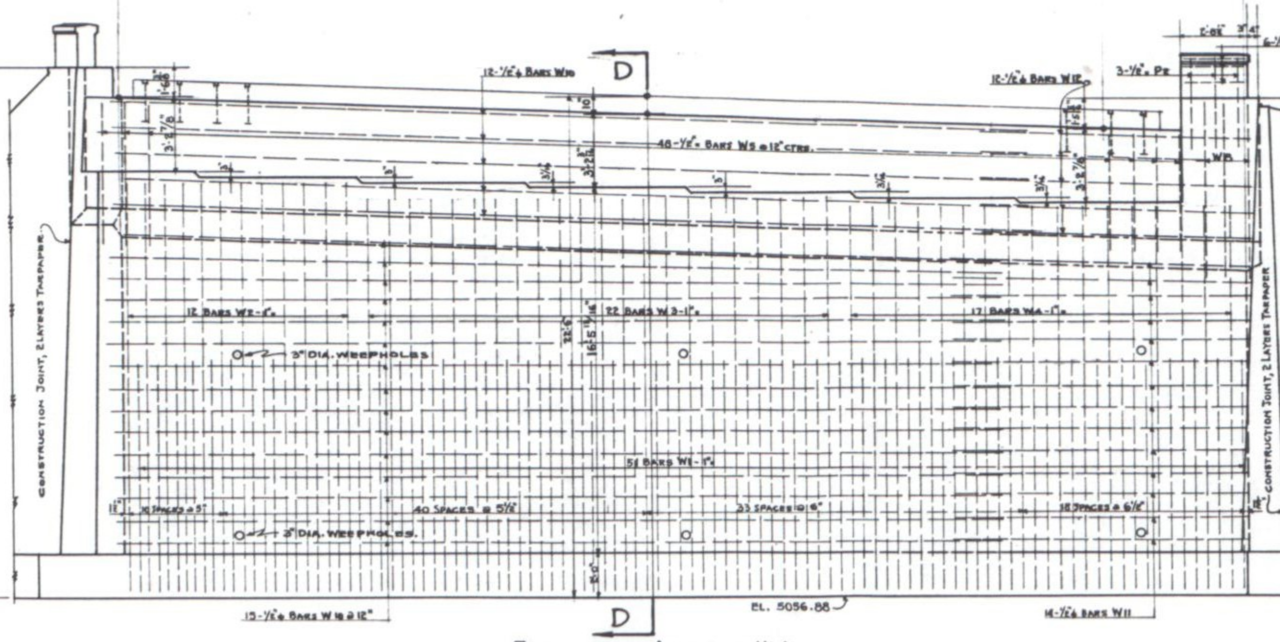
·SECTION F-F·



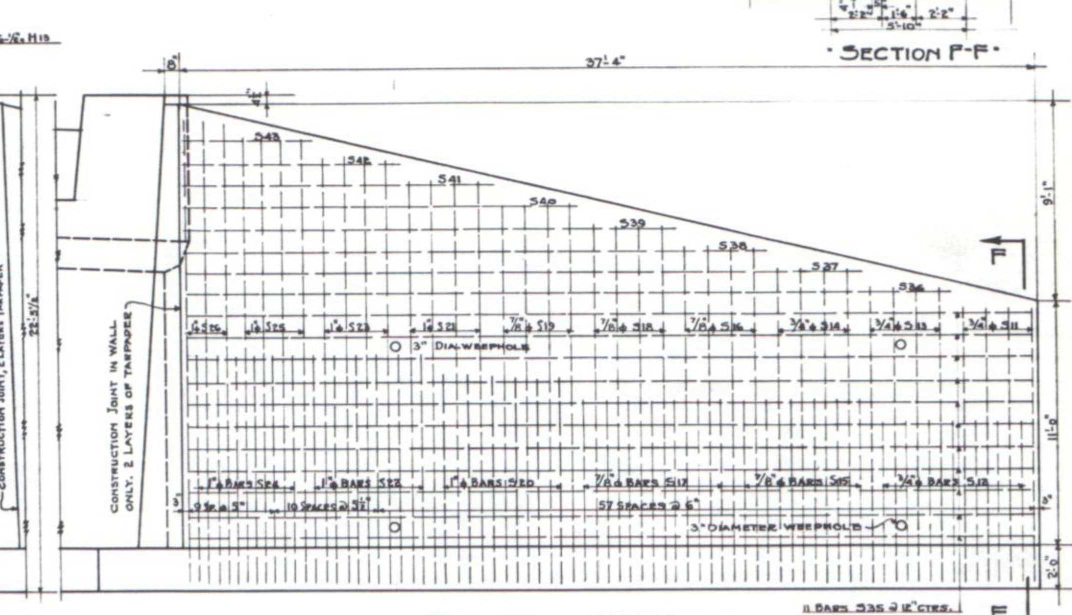
·SECTION E-E·



·ELEVATION OF S.W. WING·



·ELEVATION OF ABUTMENT No 4·



·ELEVATION OF N.W. WING·

·BAR LIST FOR ABUTMENT No 4·

G.H.D.

MARK	SIZE	No	LENGTH	TYPE	l	m	r	t
W1	1" ▪	52	17'-1"	I	8'-8"	4'-6"	4"	3½"
W2	1" ▪	14	22'-8"	I	16'-9"	2'-0"	4"	3½"
W3	1" ▪	22	21'-11"	I	16'-0"	2'-0"	4"	3½"
W4	1" ▪	18	21'-5"	I	15'-6"	2'-0"	4"	3½"
W5	½" ▪	48	13'-4"	IV				
W6	½" ▪	2	7'-4"	VII	2'-4"	4'-4"	2"	2"
W7	½" ▪	3	8'-10"	VII	2'-4"	5'-10"	2"	2"
W8	½" ▪	3	9'-7"	VII	3'-0"	5'-11"	2"	2"
W10	½" ϕ	27	40'-0"	—				
W11	½" ϕ	14	13'-4"	—				
W12	½" ϕ	12	12'-0"	—				
S1	1" ϕ	2	22'-5"	I	16'-6"	2'-0"	4"	3½"
S2	1" ϕ	2	23'-5"	I	17'-6"	2'-0"	4"	3½"
S3	1" ϕ	5	15'-4"	I	8'-8"	2'-9"	4"	3½"
S4	1" ϕ	2	24'-5"	I	18'-6"	2'-0"	4"	3½"
S5	1" ▪	2	25'-5"	I	19'-6"	2'-0"	4"	3½"
S6	1" ▪	5	15'-11"	I	8'-8"	3'-4"	4"	3½"
S7	1" ▪	5	26'-5"	I	20'-6"	2'-0"	4"	3½"
S8	1" ▪	4	16'-6"	I	8'-8"	3'-11"	4"	3½"

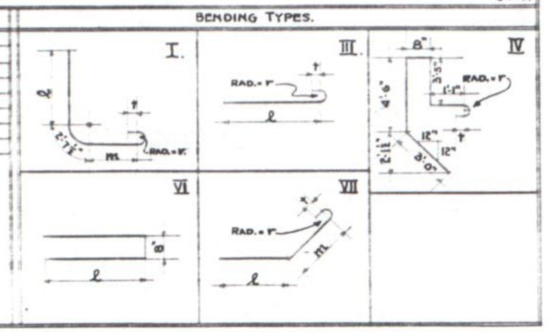
MARK	SIZE	No	LENGTH	TYPE	l	m	r	t
S11	¾" ϕ	4	15'-7"	I	10'-10"	1'-2"	3"	2½"
S12	¾" ϕ	7	10'-5"	I	5'-8"	1'-2"	3"	2½"
S13	¾" ϕ	4	16'-9"	I	11'-9"	1'-5"	3"	2½"
S14	¾" ϕ	4	18'-0"	I	12'-9"	1'-8"	3"	2½"
S15	⅞" ϕ	6	12'-1"	I	6'-8"	1'-8"	3½"	3"
S16	⅞" ϕ	4	19'-5"	I	13'-9"	1'-11"	3½"	3"
S17	⅞" ϕ	7	12'-6"	I	6'-8"	2'-1"	3½"	3"
S18	⅞" ϕ	4	20'-5"	I	14'-8"	2'-0"	3½"	3"
S19	⅞" ϕ	4	21'-5"	I	15'-8"	2'-0"	3½"	3"
S20	1" ϕ	6	14'-1"	I	7'-8"	2'-6"	4"	3½"
S21	1" ϕ	4	22'-7"	I	16'-8"	2'-0"	4"	3½"
S22	1" ϕ	6	15'-6"	I	8'-8"	2'-11"	4"	3½"
S23	1" ϕ	4	23'-6"	I	17'-7"	2'-0"	4"	3½"
S24	1" ϕ	6	15'-10"	I	8'-8"	3'-3"	4"	3½"
S25	1" ϕ	4	24'-5"	I	18'-6"	2'-0"	4"	3½"
S26	1" ϕ	3	25'-3"	I	19'-4"	2'-0"	4"	3½"
S30	½" ϕ	17	12'-0"	—				
S31 To S34	½" ϕ	1 EA.	10'-0" To 4'-0" BY 2'-0"	—				

MARK	SIZE	No	LENGTH	TYPE	l	m	r	t
S35	½" ϕ	11	37'-0"	—				
S36 To S43	½" ϕ	1 EA.	33'-0" To 5'-0" BY 4'-0"	—				
S44	½" ϕ	7	2'-0"	—				
C1	1" ▪	51	9'-8"	III	8'-4"		4"	3½"
C2	⅞" ϕ	4	8'-0"	III	6'-10"		3½"	3"
C3	1" ϕ	4	8'-11"	III	7'-7"		4"	3½"
C4	1" ▪	5	9'-5"	III	8'-1"		4"	3½"
C5	1" ϕ	8	9'-0"	III	7'-8"		4"	3½"
C6	⅞" ϕ	9	7'-10"	III	6'-8"		3½"	3"
C7	¾" ϕ	8	6'-10"	III	5'-10"		3"	2½"
C8	⅝" ϕ	20	5'-9"	III	4'-11"		2½"	2"
C11	⅝" ϕ	33	7'-9"		6'-11"		2½"	2"
C12	⅝" ϕ	5	6'-11"		6'-1"		2½"	2"
C14	⅝" ϕ	4	7'-8"		6'-10"		2½"	2"
C15	⅝" ϕ	8	7'-1"		6'-3"		2½"	2"
C16	1" ▪	7	10'-5"		9'-1"		4"	3½"
C17	⅝" ϕ	9	6'-5"		5'-7"		2½"	2"
C20	½" ϕ	18	40'-0"	—				

MARK	SIZE	No	LENGTH	TYPE	l	m	r	t
C21	½" ϕ	2	18'-0"	—				
C22	½" ϕ	3	25'-0"	—				
C23	½" ϕ	2	29'-0"	—				
C24	½" ϕ	1	30'-0"	—				
C25	½" ϕ	1	34'-6"	—				
P2	½" ▪	5	8'-8"	VI	4'-0"			
H12	½" ▪	6	1'-8"	—				
H13	½" ▪	6	2'-8"	—				

3162 LIN. FT. ½"ϕ BARS @ 0.668 LBS. PER LIN. FT. = 2112 LBS
779 " " ½"▪ " @ 0.850 " " " " = 662 "
550 " " ⅝"ϕ " @ 1.043 " " " " = 574 "
329 " " ¾"ϕ " @ 1.502 " " " " = 494 "
508 " " ⅞"ϕ " @ 2.044 " " " " = 1038 "
955 " " 1"ϕ " @ 2.670 " " " " = 2550 "
3015 " " 1"▪ " @ 3.400 " " " " = 10251 "
1% ± FOR OVERRUN = 179 "
TOTAL = 17860 LBS.

BENDING TYPES.



LOADING DATA.
LIVE LOAD = A. A. S. H. O. AUG. 1928. CLASS A. (H-15)
DEAD LOAD = ASSUMES 15 LBS. PER SQ. FT. ADDITIONAL WEARING SURFACE, WHICH INCLUDES THE ¾ IN. CONCRETE MONOLITHIC WEARING SURFACE.

REFERENCE DRAWINGS.
SHEET No 3 GENERAL LAYOUT, SUMMARY OF QUANTITIES AND DETAILS OF PIER No 2 & 3.
SHEET No 4 DETAILS OF SUPER STRUCTURE.
SHEET No 5 DETAILS OF ABUTMENT No 1.

COLORADO
STATE HIGHWAY DEPARTMENT
3 SPAN @ 51'-0" x 30'-0" CONCRETE I BEAM BRIDGE.
DETAILS OF ABUTMENT No 4
Across BIG THOMPSON RIVER
Sta. 1277+80.17 TO 1279+37.63
Near LOVELAND Sec. 7 T. 5N. R. 69 W.

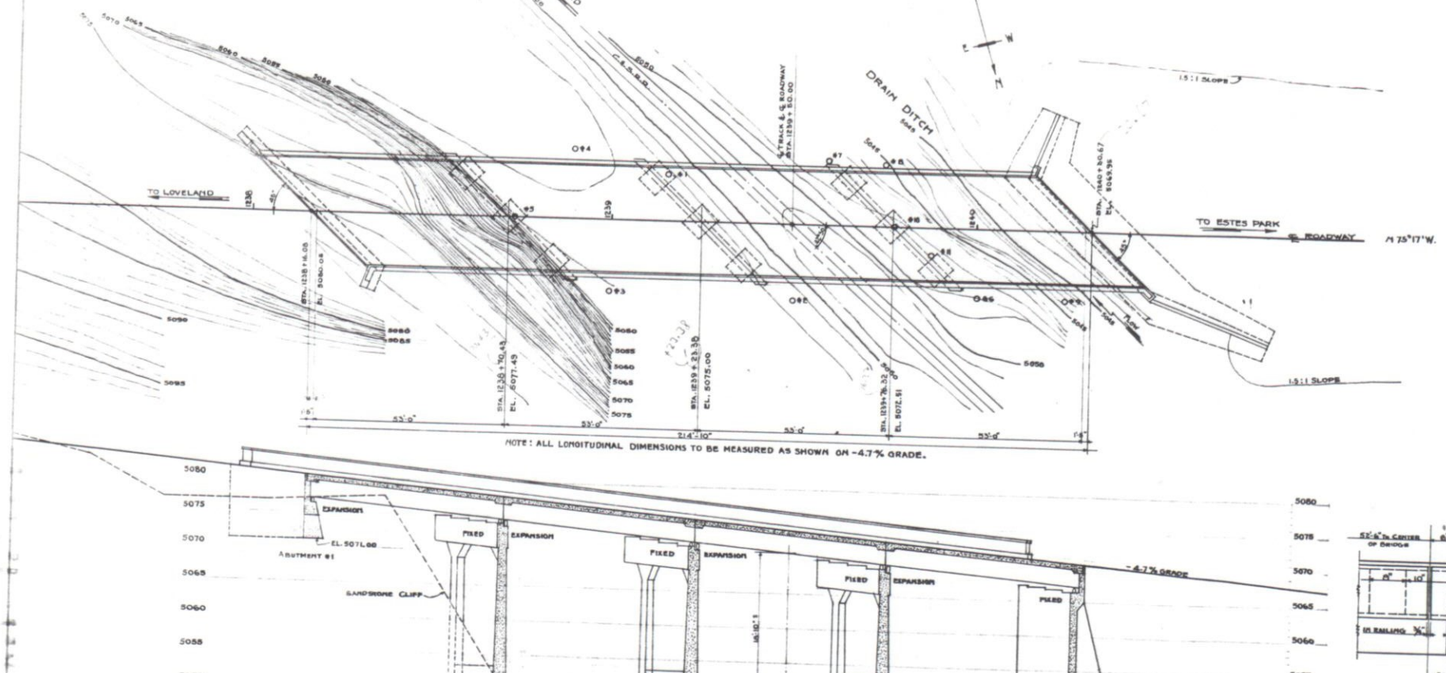
Designed by H.B.	Approved by P. L. Bailey
Made by G.H.D.	Bridge Engineer
Checked by G.H.D.	Date: June 24th, 1933.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	E 9C	7.	

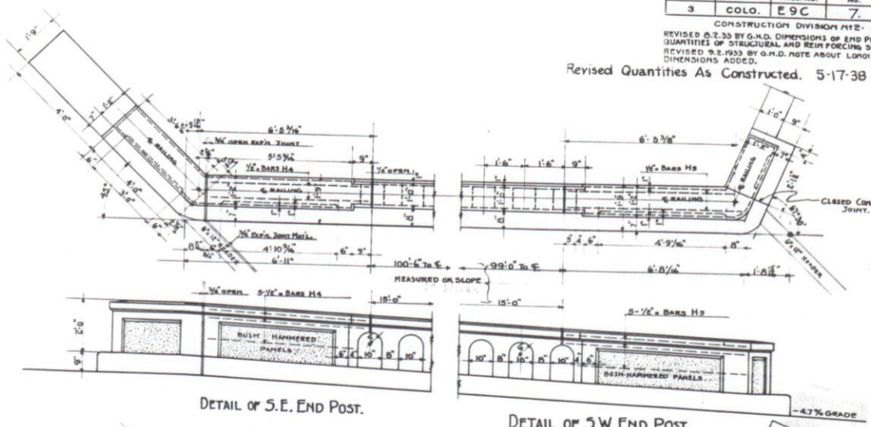
CONSTRUCTION DIVISION NO 2.

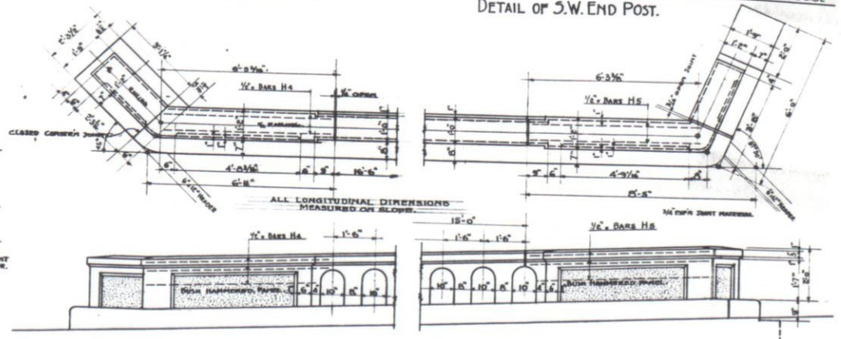
REVISED 8-2-35 BY G.H.D. DIMENSIONS OF END POST AND QUANTITIES OF STRUCTURAL AND REIN FORCING STEEL & CONCRETE.
REVISED 9-2-1933 BY G.H.D. NOTE ABOUT LONGITUDINAL DIMENSIONS ADDED.

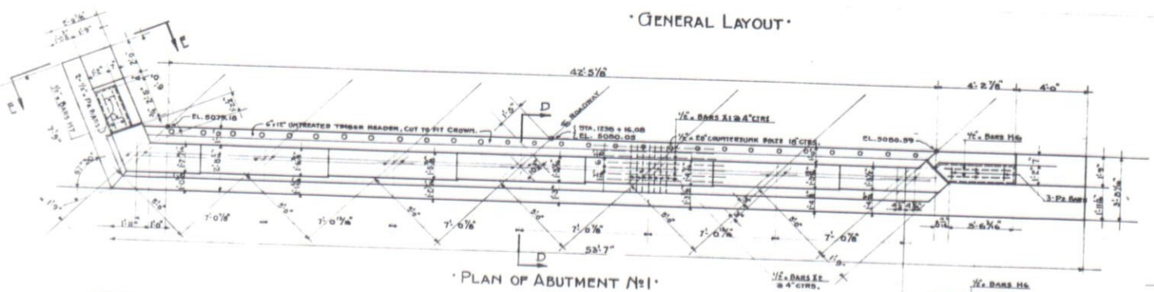
Revised Quantities As Constructed. 5-17-38 R.A.D.

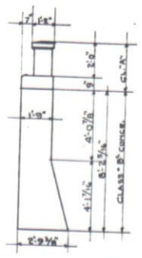


· GENERAL LAYOUT ·









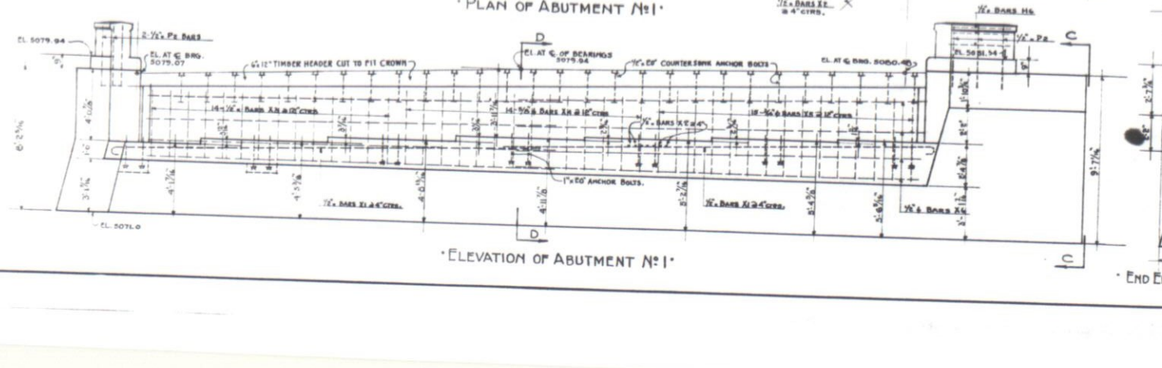
· Summary of Quantities for Entire Structure ·

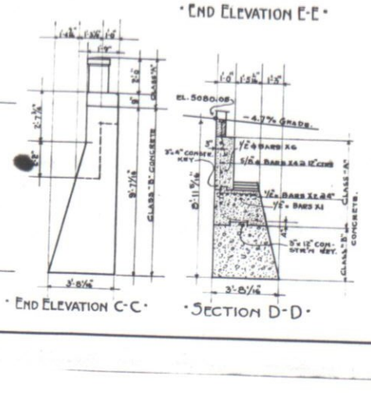
W. McM. G.H.D.

ITEM Nº	DESCRIPTION	UNIT	SUPER STRUCTURE	SUB STRUCTURE					TOTAL
				ABUT. #1	PIER #2	PIER #3	PIER #4	ABUT. #5	
14a	DRY ROCK EXCAVATION	CU. YDS.	70.2	56.3	191.5				318.0
14b	DRY COMMON	" "		132	246	349	334	328.4	434.5
14c	WET ROCK	* " "							117.9
14d	WET COMMON	* " "			32.4	81.5	498	394.4	558.1
42a	UNTREATED BRIDGE TIMBER	M.FT. B.M.		.264					.264
46a	CLASS "A" CONCRETE	CU. YDS.	212.3	10.6	59.3	55.5	50.3	340.0	728
46b	CLASS "B" CONCRETE	" "		27					27
47	REINFORCING STEEL (OVERRUN INCLUDED)	LBS.	38290	915	←	20300	→	27260	♦85932
48	STRUCTURAL STEEL (" ")	"	213946	92	196	196	196	104	214730
52	SHEET COPPER B&S GAGE #16	"			152	152	152		456
89	GALV. DRAIN PIPE 3" DIA. 4'-0" LONG.	PCS.	6						6
	EXPANSION JOINT MATERIAL	LIN. FT.		45	45	45	45		180

* WET LINE AS SHOWN ON FIELD PLANS

♦ Scale Weight.





GENERAL NOTES

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT, ADOPTED JAN. 1, 1930.
ALL CONCRETE SHALL BE CLASS "A."
ALL EXPOSED SURFACES SHALL BE RUBBED FREE OF FORM MARKS.
ALL EXPOSED CORNERS, EXCEPT ON HANDRAILS, SHALL BE BEVELED TO A 2" FACE.
GIRDERS, FLOOR SLABS AND CURB SHALL BE POURED MONOLITHICALLY.
ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED BEFORE FRESH CONCRETE IS POURED.
FOOTINGS IN ROCK SHALL BE POURED OUT TO THE ROCK AND NOT FORMED.
THICKNESS OF FLOOR SLAB SHOWN INCLUDES ½" CONCRETE WEARING SURFACE.
ALL REINFORCING BARS SHALL BE BOUND OR SQUARE, PLAIN OR DEFORMED AS SHOWN AND NOTED.
ALL REINFORCING BARS SHALL BE TAGGED WITH THE STATION NUMBER AND LETTER DESIGNATION.
SECONDARY BARS WHEN SPLICED SHALL BE GIVEN A LAP OF 50 DIAMETERS.
MAIN BARS SHALL NOT BE SPLICED.
SOUNDINGS AND DEPTH OF FOOTINGS SHOWN ARE ACCORDING TO THE BEST AVAILABLE DATA. IF ESSENTIALLY DIFFERENT CONDITIONS ARE ENCOUNTERED, THE BRIDGE ENGINEER WILL INSPECT AND DETERMINE IF REDESIGN IS NECESSARY.
ALL RIVETS TO BE ¾" DIAMETER. ALL FIELD CONNECTIONS TO BE POWER RIVETED.
FORMS FOR CONCRETE SURFACES EXPOSED IN THE FINISHED WORK SHALL BE CONSTRUCTED OF SHIPLAP OR TONGUE AND GROOVE LUMBER S.D.S.
THE EQUIVALENT OF AT LEAST TWO (2) ONE HALF (½) CUBIC YARD CAPACITY MIXERS MUST BE MAINTAINED IN RUNNING ORDER ON THIS JOB BY THE CONTRACTOR, WHILE POURING THIS BRIDGE.
CAMBER ALL CURBS & HANDRAILS WITH PARABOLIC CROWN, AS SHOWN IN DIAGRAM ON SHEET #9.

REFERENCE DRAWINGS.

SHEET #6 DETAILS OF SUPER STRUCTURE.
SHEET #7 & #9 DETAILS OF PIERS Nº 2, 3 & 4 AND BAR LIST OF ABUTMENT Nº 1.
SHEET #10 DETAILS OF ABUTMENT Nº 5

LOADING DATA.

LIVE LOAD = A. A. S. H. O. Aug. 1926. Class A. (H-15)
DEAD LOAD = Assumed 19 Lbs. per Cu. Ft. additional wearing surface, which includes the ½ in. concrete monolithic wearing surface.

COLORADO
STATE HIGHWAY DEPARTMENT

4 Span = 53'-0" x 30'-0" Concrete I Beam Bridge

GENERAL LAYOUT, SUMMARY & ABUTMENT Nº 1.

Across Drain Ditch & C. & S. R. R.

Sta. 1236+16.08 to 1240+30.67

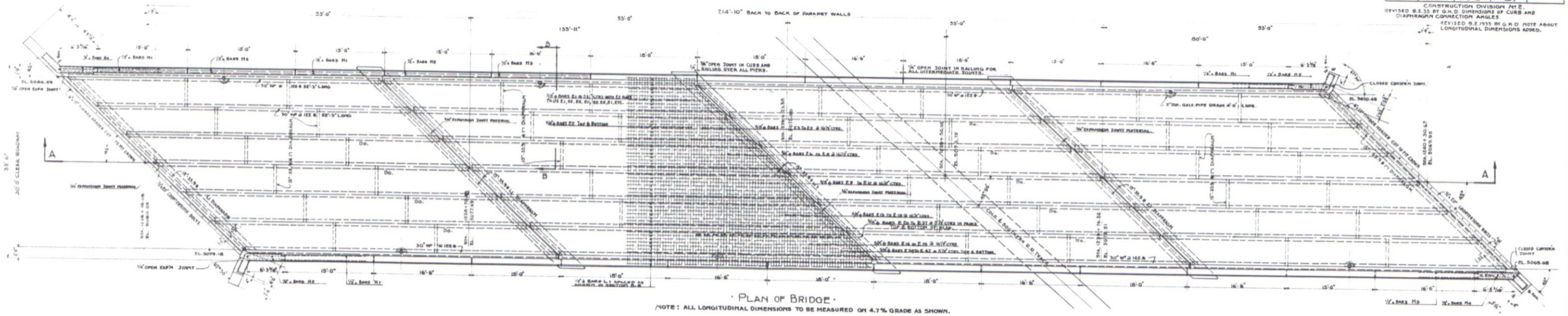
Near Loveland. Sec. 6 T. 6 N. R. 69 W.

Designed by G.H.D.	Approved by C. J. Bailey
Made by G.H.D.	Bridge Engineer
Checked by W.McM.	Date: June 24th 1933.

STRUCTURE NO. C-16-AJ.

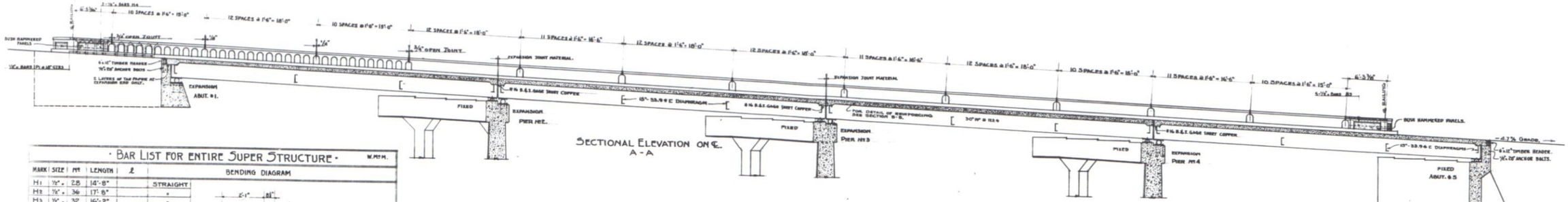
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	F9C	8.	

CONSTRUCTION DIVISION NTE.
REVISED 8.2.35 BY G.H.D. DIMENSIONS OF CURB AND DIAPHRAGM CONNECTION ANGLES.
REVISED 9.2.1935 BY G.H.D. NOTE ABOUT LONGITUDINAL DIMENSIONS ADDED.



PLAN OF BRIDGE.

NOTE: ALL LONGITUDINAL DIMENSIONS TO BE MEASURED ON 4.7% GRADE AS SHOWN.



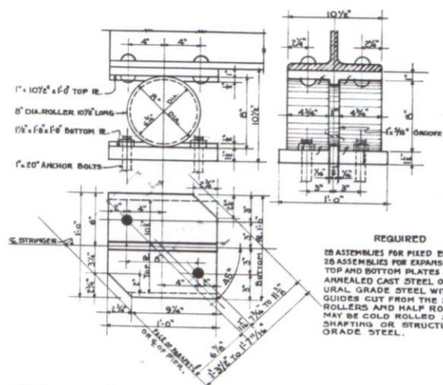
SECTIONAL ELEVATION ON ℄ A-A

BAR LIST FOR ENTIRE SUPER STRUCTURE.

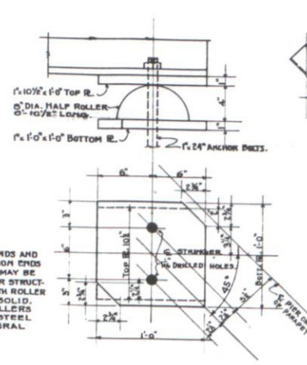
W.M.M.

MARK	SIZE	Nº	LENGTH	ℓ	BENDING DIAGRAM
H1	½" ⌀	28	14'-8"		STRAIGHT
H2	½" ⌀	36	17'-8"		"
H3	½" ⌀	32	16'-2"		"
H4	½" ⌀	10	5'-7"		"
H5	½" ⌀	10	9'-0"		"
L1	½" ⌀	384	27'-4"		"
P1	½" ⌀	284	6'-6"		"
E1	5/8" ⌀	68	34'-0½"		
E2 to E8	5/8" ⌀	8 EA.	31'-6⅞" to 28'-9⅞" BY 1'-4⅛"	3'-10½" to 1'-1⅞" BY 1'-4⅛"	
E9 to E12	5/8" ⌀	8 EA.	22'-11⅛" to 18'-9⅛" BY 1'-4⅛"	5'-7" TO 1'-5⅞" BY 1'-4⅛"	
E13 to E18	5/8" ⌀	8 EA.	17'-2⅛" to 14'-5⅛" BY 1'-4⅛"	5'-10⅞" to 3'-5⅛" BY 1'-4⅛"	
E19	5/8" ⌀	8 EA.	12'-10⅞" to 9'-7⅞" BY 1'-3⅛"	5'-11" TO 1'-10⅞" BY 1'-4⅛"	
E2	5/8" ⌀	264	34'-3"	32'-7"	
E20 to E37	5/8" ⌀	32 EA.	32'-0½" to 8'-0" BY 1'-4⅛"	30'-4⅝" to 7'-0" BY 1'-4⅛"	
E38 to E47	5/8" ⌀	16 EA.	7'-10⅞" to 3'-9" BY 1'-3⅛"	6'-2⅛" to 2'-1" BY 1'-3⅛"	

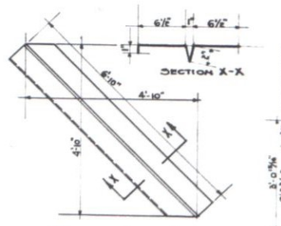
3526 LIN. FT. ½" ⌀ BARS @ 0.850 LBS. PER LIN. FT.	=	2997 LBS.
26753 LIN. FT. 5/8" ⌀ BARS @ 1.043 LBS. PER LIN. FT.	=	27904 LBS.
10496 LIN. FT. ¾" ⌀ BARS @ 0.668 LBS. PER LIN. FT.	=	7011 LBS.
1% % FOR OVERRUN	=	378 LBS.
TOTAL	=	38290 LBS.



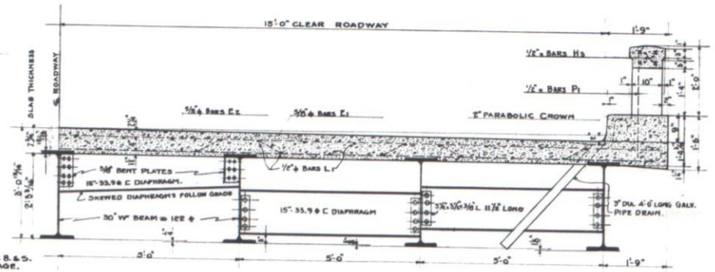
DETAIL OF EXPANSION ROLLERS



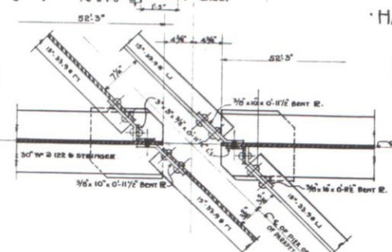
DETAIL OF FIXED BEARINGS.



DETAIL OF SHEET COPPER.
18 REQUIRED 1'-6" x 6'-10" AS SHOWN } #16 B.&S. GAGE.
6 " 1'-6" x 1'-0" }

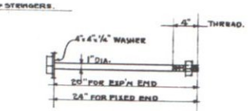


HALF SECTION B-B.



DETAIL OF END DIAPHRAGMS.

NOTE
CAMBER ALL CURBS AND HANDRAILINGS WITH PARABOLIC CROWN AS SHOWN IN DIAGRAM ON SHEET Nº 9.



DETAIL OF ANCHOR BOLTS.

LOADING DATA.
LIVE LOAD = A. A. S. H. O. Aug. 1926. Class A. (H-15)
DEAD LOAD = ASSUMED 18 LBS. PER SQ. FT. ADDITIONAL WEARING SURFACE, WHICH INCLUDES THE 5 IN. CONCRETE MONOLITHIC WEARING SURFACE.

REFERENCE DRAWINGS

SHEET Nº 7 GENERAL LAYOUT, SUMMARY OF QUANTITIES, GENERAL NOTES AND LOADING DATA, AND ABUTMENT Nº 1.
SHEET Nº 9 DETAILS OF PIERS Nº 2, 3 AND 4.
SHEET Nº 10 DETAILS OF ABUTMENT Nº 5.

COLORADO
STATE HIGHWAY DEPARTMENT

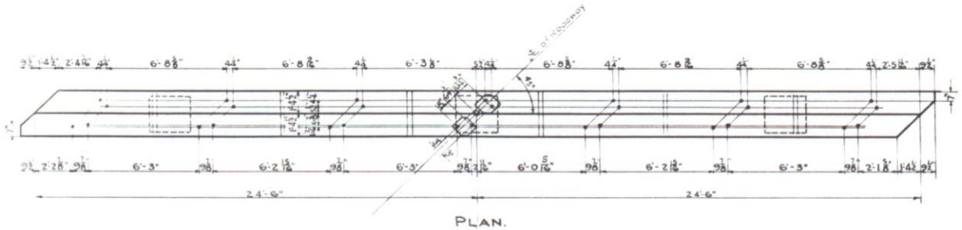
4 SPAN a 53'-0" x 30'-0" CONCRETE I BEAM BRIDGE
DETAILS OF SUPER STRUCTURE
Across DRAIN DITCH & C. & S. R.R.
Sta. 1238+16.08 TO 1240+30.67
Near LOVELAND Sec. 8 T. 6 N. R. 69 W.

Designed by G.H.D. | Approved by C. D. Bailey

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	E-9-C	9	

CONSTRUCTION DIVISION NO. 2.

REVISED 8-7-1933 BY O.H.D. DIMENSION OF PIER CAP AND STIRRUP U20, ADDED CAMBER DIAGRAM.
REVISED 9-2-1933 BY WHM. DIMENSIONS ON CAP PLAN.



PLAN.

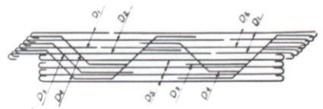


DIAGRAM OF ARRANGEMENT OF BENT BARS.

BAR LIST FOR ABUTMENT Nº 1.

W.H.M.

MARK	SIZE	Nº	LENGTH	℄	BENDING DIAGRAM
H6	⅞" ●	5	3'-5"		STRAIGHT
H7	½" ●	5	2'-1"		"
X1	⅞" ●	14	24'-2"		RAD. = 2" 23'-6"
X2	⅞" ●	49	3'-0"		RADIUS = 2" 1'-6"
X3	⅞" ●	14	5'-10"	3'-0"	
X4	⅝" ●	14	6'-4"	3'-6"	
X5	¾" ●	15	6'-10"	4'-0"	RADIUS = 5"
X6	⅞" ●	8	22'-6"		STRAIGHT
P2	⅝" ●	5	7'-7"		5'-6"

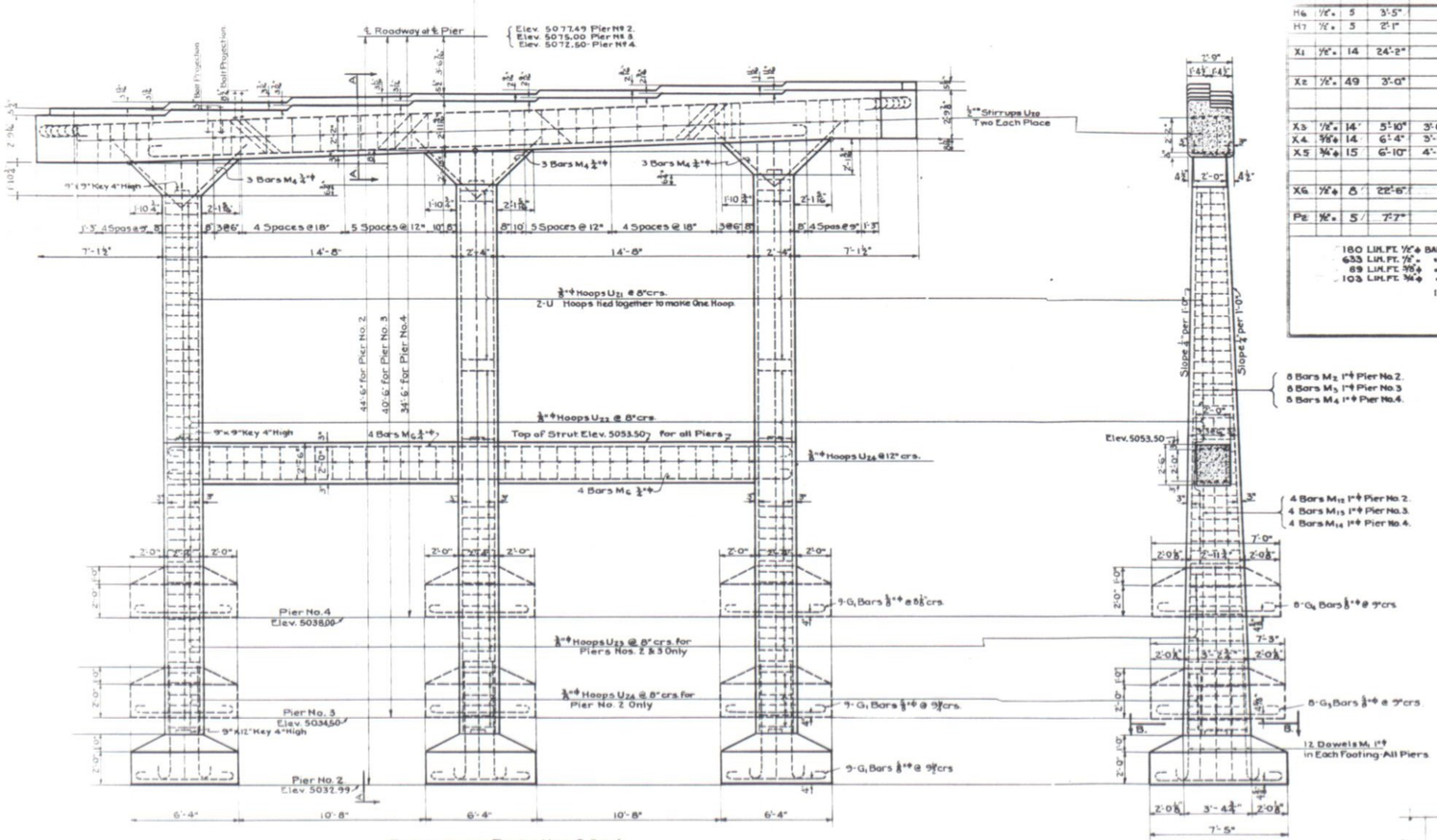
180 LIN.FT. ⅞" ● BARS @ 0.668 LBS. PER LIN.FT. = 120 LBS.
633 LIN.FT. ⅞" ● " @ 0.850 " " " = 538 "
89 LIN.FT. ⅝" ● " @ 1.043 " " " = 93 "
103 LIN.FT. ¾" ● " @ 1.502 " " " = 155 "
1% ± FOR OVERRUN = 9 "
TOTAL = 915 LBS.

BAR LIST FOR PIERS Nºs 2, 3, & 4.

E.M.A.

Mark	Size	Number	Length	Bending Diagrams — All dimensions are to ℄s of bars
D1	1" ●	12	16'-8"	Radius 4"
D2	1" ●	12	33'-8"	
D3	1" ●	9	22'-11"	
D4	1" ●	9	32'-4"	Radius 4"
D5	1" ●	12	40'-0"	Radius 4"
M1	1" ●	108	7'-10"	
M2	1" ●	24	34'-0"	Straight
M3	1" ●	24	30'-0"	do
M4	1" ●	24	24'-0"	do
M5	⅞" ●	27	10'-0"	
M6	¾" ●	24	37'-4"	Radius 3"
M12	1" ●	12	18'-6"	Straight
M13	1" ●	12	14'-6"	do.
M14	1" ●	12	8'-6"	do.
U20	½" ●	240	8'-9½"	Radius 12"
U21	⅜" ●	288	5'-8"	
U22	⅜" ●	324	6'-2"	
U23	⅜" ●	144	6'-8"	
U24	⅜" ●	90	8'-0"	
G1	⅜" ●	81	6'-11"	Radius 2"
G2	⅜" ●	24	8'-0"	G1 5'-3" G2 6'-4" G3 6'-2" G4 5'-11"
G3	⅜" ●	24	7'-10"	
G4	⅜" ●	24	7'-7"	

5310 Lin.Ft. ⅞" ● Bars	@ 0.376 Lbs. per Ft.	1997 Lbs
2040 Lin.Ft. ⅞" ● "	@ 0.850 " " "	1734 "
1122 Lin.Ft. ⅝" ● "	@ 1.043 " " "	1170 "
1166 Lin.Ft. ¾" ● "	@ 1.502 " " "	1751 "
5037 Lin.Ft. 1" ● "	@ 2.670 " " "	13449 "
17+ ± for overrun		199
	Total	20300 Lbs.



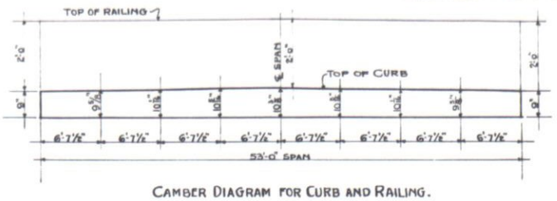
ELEVATION-PIERS NOS 2, 3, & 4.

SECTION A-A.

SECTION B-B.

NOTE.

All Pier Footings must rest on solid rock. If solid Rock is not encountered at the elevations shown for the three footings on each Pier, the Engineer must be notified.



CAMBER DIAGRAM FOR CURB AND RAILING.

REFERENCE DRAWINGS.

GENERAL LAYOUT, GENERAL NOTES, AND SUMMARY OF QUANTITIES FOR ENTIRE STRUCTURE, SHEET No. 7.
SUPERSTRUCTURE DETAILS, SHEET No. 8.
ABUTMENT No. 5 DETAILS SHEET No. 10.

LOADING DATA.

LIVE LOAD = A. A. S. H. O. Aug. 1929. Class A. (H-15)
DEAD LOAD = Assumes 15 Lbs. per Sq. Ft. additional wearing surface, which includes the ½ in. concrete monolithic wearing surface.

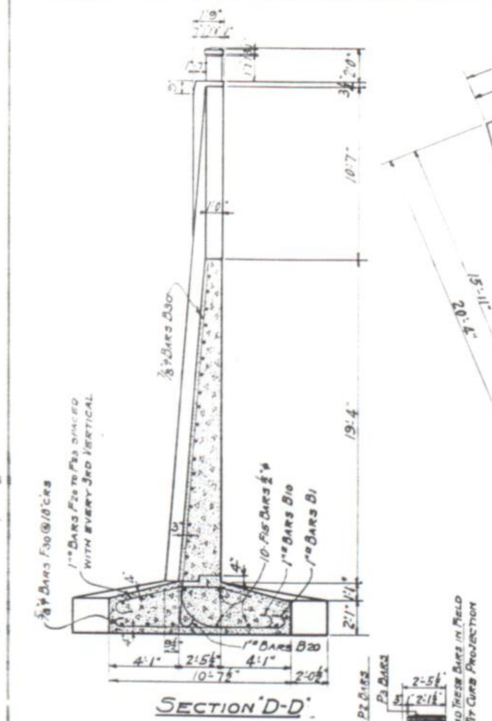
COLORADO
STATE HIGHWAY DEPARTMENT

4 SPAN @ 53'-0" × 30'-0" CONCRETE I-BEAM BRIDGE.
DETAILS FOR PIERS NOS. 2, 3 & 4.
Across C. & S. R.R. & Drain Ditch
Sta. 1238+1608 to 1240+30.67
Near Loveland Sec. 8 T. 6 N. R. 69 W.

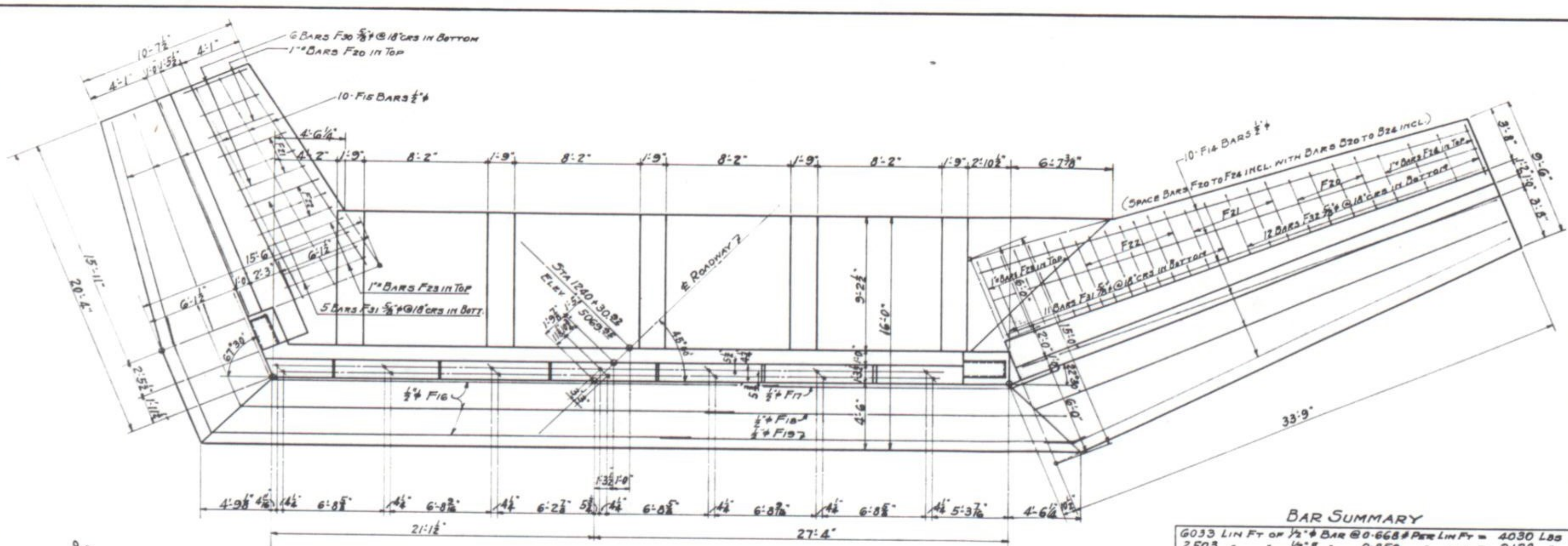
Designed by K.B.	Approved by P. L. Bailey
Made by K.B.	Bridge Engineer
Checked by RMA	Date: June 24th, 1933

STRUCTURE NO. C-16-A.J.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	E-9-C	10	



SECTION "D-D"



PLAN

BAR LIST FOR ABUT. Nº 5

CONSTRUCTION DIVISION Nº 2

MARK	SIZE	REQ'D	LENGTH	L	m	n	p
B1	1" ▫	3	13'-9"	5'-3"	3'-11"		
B2	1" ▫	7	14'-8"	5'-3"	4'-10"		
B3	1" ▫	10	15'-0"	5'-3"	5'-2"		
B4	1" ▫	12	16'-6"	6'-3"	5'-8"		
B5	1" ▫	4	14'-0"	5'-3"	4'-2"		
B6	1" ▫	3	13'-6"	5'-3"	3'-8"		
B7	1" ▫	3	12'-11"	5'-3"	3'-1"		
B10	1" ▫	9	17'-0"	9'-3"	3'-2"		
B11	1" ▫	6	18'-2"	10'-3"	3'-4"		
B12	1" ▫	12	19'-5"	11'-3"	3'-7"		
B13	1" ▫	5	20'-6"	12'-3"	3'-8"		
B14	1" ▫	6	21'-7"	13'-3"	3'-9"		
B15	1" ▫	4	22'-9"	14'-3"	3'-11"		
F20	1" ▫	7	9'-4"	3'-10"	2'-4"	1'-10"	5½"
F21	1" ▫	8	9'-9"	4'-3"	2'-5"	1'-9"	4¾"
F22	1" ▫	10	10'-2"	4'-8"	2'-7"	1'-7"	4"
F23	1" ▫	11	11'-1"	5'-7"	2'-9"	1'-5"	3"
F24	1" ▫	4	8'-11"	3'-5"	2'-1"	2'-1"	7"
B20	1" ▫	9	16'-8"	15'-4"	4"	3½"	
B21	1" ▫	6	17'-8"	16'-4"	4"	3½"	
B22	1" ▫	12	18'-8"	17'-4"	4"	3½"	
B23	1" ▫	5	19'-8"	18'-4"	4"	3½"	
B24	1" ▫	7	20'-8"	19'-4"	4"	3½"	
B25	1" ▫	4	21'-8"	20'-4"	4	3½"	
A1	½" ϕ	16	26'-0"	25'-4"	2"	2"	
A2	½" ϕ	8	12'-0"	11'-4"	2"	2"	
A3	½" ϕ	8	40'-0"	39'-4"	2"	2"	
A6	½" ▫	20	26'-0"	25'-4"	2"	2"	
A7	½" ▫	10	12'-0"	11'-4"	2"	2"	
A8	½" ▫	10	40'-0"	39'-4"	2"	2"	
V1	⅞" ϕ	70	6'-3"	5'-1"	3½"	3"	
F1	⅝" ϕ	24	26'-2"	25'-4"	2½"	2"	
F2	⅝" ϕ	12	40'-0"	39'-2"	2½"	2"	
F3	⅝" ϕ	12	12'-4"	11'-6"	2½"	2"	
F10	⅞" ϕ	108	8'-9"	7'-7"	3½"	3"	
F11	⅞" ϕ	5	11'-2"	10'-0"	3½"	3"	
F30	⅝" ϕ	6	8'-0"	7'-2"	2½"	2"	
F31	⅝" ϕ	16	9'-0"	8'-2"	2½"	2"	
F32	⅝" ϕ	12	7'-9"	6'-11"	2½"	2"	
C1	1⅛" ▫	10	33'-0"	26'-6"	1'-2"		
C2	1⅛" ▫	10	26'-0"	19'-6"	1'-2"		
C3	1⅛" ▫	10	19'-3"	12'-6"	1'-10"		
C4	1⅛" ▫	10	13'-8"	7'-0"	1'-10"		
A5	½" ϕ	3	14'-5"				
A10	½" ▫	5	14'-5"				

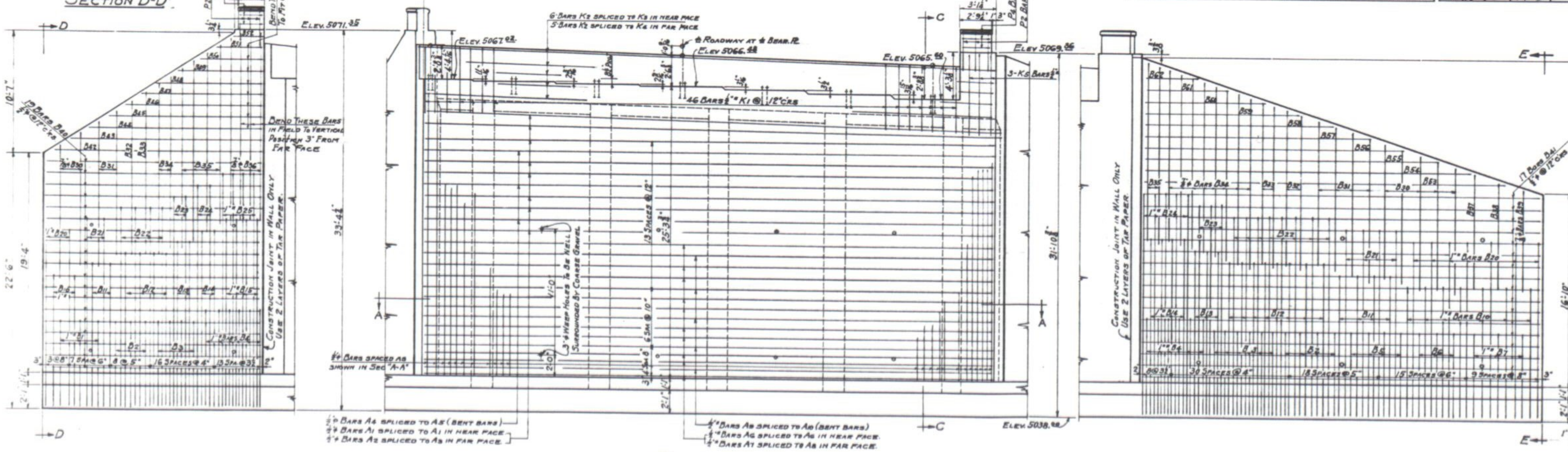
4" For C1 & C2, 7" For C3 & C4

MARK	SIZE	REQ'D	LENGTH	L
K5	½" ▫	3	7'-10"	
F6	½" ϕ	71	10'-6"	
F15	½" ϕ	10	20'-0"	
F16	½" ϕ	3	40'-0"	
F17	½" ϕ	1	20'-0"	
F18	½" ϕ	1	24'-0"	
F19	½" ϕ	1	28'-0"	
F14	½" ϕ	10	34'-0"	
A11	½" ϕ	76	24'-0"	
K2	½" ϕ	11	40'-0"	
K3	½" ϕ	6	7'-6"	
K4	½" ϕ	5	10'-6"	
P3	½" ▫	6	1'-10"	
P4	½" ▫	6	2'-5"	
B36	⅞" ϕ	4	16'-6"	
B37	⅞" ϕ	1	10'-1"	
B38	⅞" ϕ	1	9'-6"	
B39	⅞" ϕ	1	8'-10"	
B40	½" ϕ	19	18'-0"	
B41	½" ϕ	17	33'-5"	
B30	⅞" ϕ	7	11'-8"	
F5	⅝" ϕ	6	16'-11"	
F4	⅝" ϕ	6	40'-0"	
A4	½" ϕ	3	40'-0"	
A9	½" ▫	5	40'-0"	
B31	⅞" ϕ	6	12'-8"	
B32	⅞" ϕ	3	13'-6"	
B33	⅞" ϕ	3	14'-3"	
B34	⅞" ϕ	10	15'-0"	
B35	⅞" ϕ	6	15'-9"	
P2	½" ▫	6	7'-7"	
K1	½" ▫	46	11'-8"	
V2 To V6 Incl	⅝" ϕ	10 Each	7'-6" to 23'-6" By 4'-0"	
B42 To B57 Incl	½" ϕ	1 Each	17'-8" to 2'-8" By 1'-6"	
B58 To B62 Incl	½" ϕ	1 Each	30'-9" to 4'-6 By 2'-11"	
U1 To U9 Incl	½" ▫	5 Each	7'-11" to 16'-11" By 1'-1½"	2'-3" To 6'-9" by 6¾"
U10 To U13 Incl	⅝" ϕ	5 Each	17'-11" To 21'-3½" By 1'-1½"	7'-3" To 8'-11¼" by 6¾"
U14 To U16 Incl	¾" ϕ	5 Each	22'-6" to 24'-7" By 1'-1½"	9'-5½" to 10'-7" by 6¾"

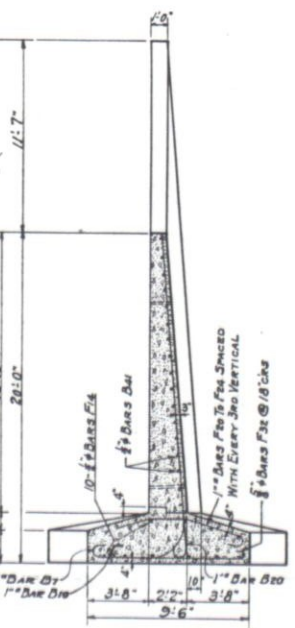
K.B.

BAR SUMMARY

6033	Lin Ft of	½" ϕ Bar	@ 0.668 # Per Lin Ft	=	4030 Lbs
2503	"	½" ▫ "	0.850 "	=	2128 "
3050	"	⅝" ϕ "	1.043 "	=	3182 "
352	"	¾" ϕ "	1.502 "	=	529 "
2019	"	⅞" ϕ "	2.044 "	=	4127 "
2658	"	1" ▫ "	3.400 "	=	9037 "
920	"	1⅛" ▫ "	4.303 "	=	3959 "
			Plus 1% ± For Overrun	=	268 "
			Total Weight	=	27260 Lbs



ELEVATION



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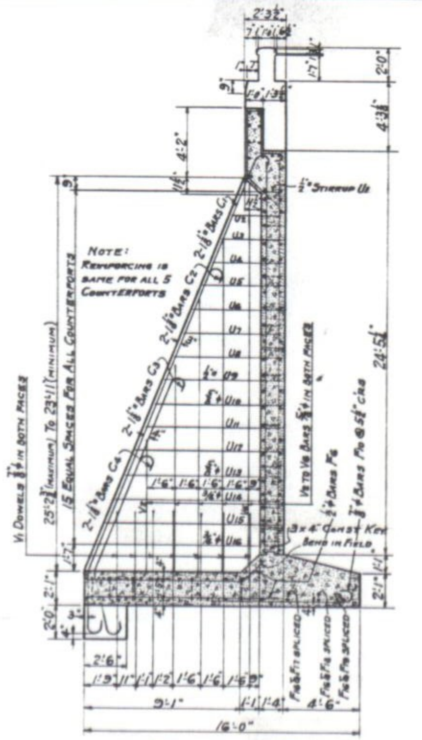

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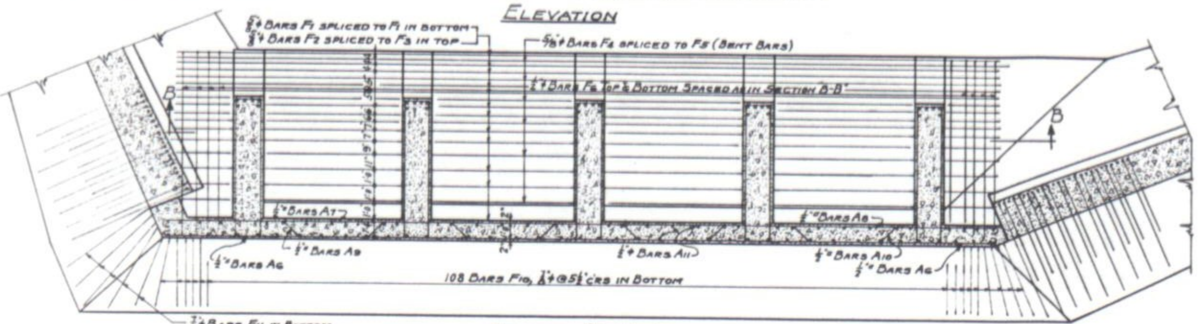

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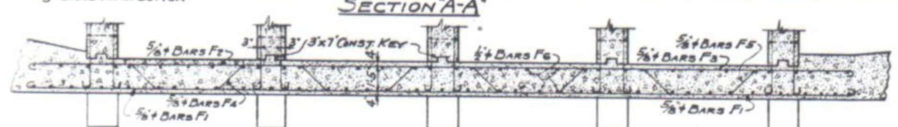

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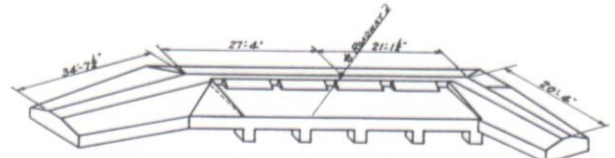


OBLIQUE PROJECTION OF FOOTING

KEYS IN CONCRETE AND PROJECTING REINFORCING BARS NOT SHOWN.

LOADING DATA.

LIVE LOAD = A. A. S. H. O. AUG. 1928. CLASS A. (H-15)

DEAD LOAD = ASSUMES 18 LBS. PER SQ. FT. ADDITIONAL WEARING SURFACE, WHICH INCLUDES THE ½ IN. CONCRETE MONOLITHIC WEARING SURFACE.

MAXIMUM PRESSURE AT TOE = 6100 LBS/SQ.FT.

COLORADO
STATE HIGHWAY DEPARTMENT

4 SPANS AT 53'-0" X 30'-0"
CONCRETE I BEAM BRIDGE
DETAILS OF ABUTMENT NO 5

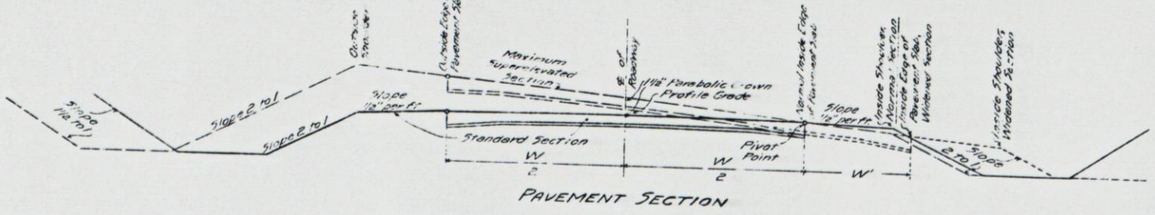
Across DRAIN DITCH AND C. & S. R.R.
Sta. 1238 + 16.98 TO 1240 + 30.92
Near LOVELAND Sec. 8 T. 6N R. 69W.

Designed by K.B.	Approved by C. J. Bailey
Made by K.B. & W.D.	Bridge Engineer
Checked by W.W.D.	Date: June 24th 1933.

STRUCTURE NO. C-16-AJ.

FED ROAD PROJ NO	STATE	FED AID PROJ NO	SHEET NO	TOTAL SHEETS
3	COLO	[illegible]		

Revised 8-17-32 - S.B.L. - 1200 Leaving
" 8-31-32 - S.B.L.



PAVEMENT SECTION

SUPERELEVATION AND WIDENING NOTES FOR PAVEMENT SECTION

Curves on projects using the pavement section are to be superelevated and widened as indicated in the accompanying drawings and table.

The normal inside edge of the pavement slab is to remain at the standard elevation of 0.875 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 or graph. The section is to be rotated about the normal inside edge of the pavement.

When the degree of curvature exceeds 10, the inside portion of the pavement slab is to be widened from the normal inside edge as per the table below. Curves of 10° or less are not to be widened. The 11½ parabolic crown is to be used for curves of 10° and under. The widened section is to have a flat crown.

The slope of the shoulders shall conform to the rate per foot width of roadway required except that the inside shoulder shall maintain the standard slope of 0.0417 ft per foot width until the superelevation rate exceeds this standard slope.

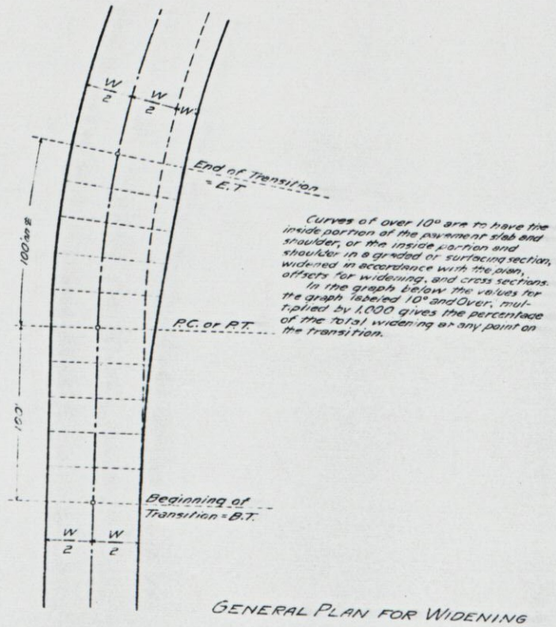
The outside ditch along a superelevated section is to be modified from the standard where a deeper ditch is required to provide drainage.

Details of plans for superelevating and widening are shown on the General Plan for Widening and the Graph of Superelevation Factors.

The subgrade for future pavement is to be constructed to conform to the superelevation and widening requirements for the pavement section.

SUPERELEVATION FACTORS AND OFFSETS FOR WIDENING FOR PAVEMENT SECTION

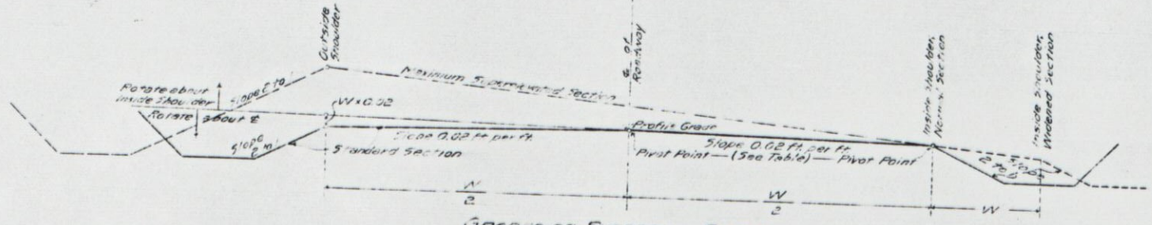
Distance from B.T.	20 Ft.	40 Ft.	60 Ft.	80 Ft.	100 Ft.=P.C.	120 Ft.	140 Ft.	160 Ft.	180 Ft.	200 Ft.=E.T.	On Curve
Factor	0.02	0.08	0.18	0.32	0.50	0.68	0.82	0.92	0.98	1.00	1.00
Degree of Curve	Rate of Super-elevation (in Feet per Foot Width of Roadway										
2° and Under	0.0004	0.0017	0.0038	0.0067	0.0105	0.0143	0.0172	0.0193	0.0206	0.0210	0.0210
3°	0.0006	0.0025	0.0057	0.0101	0.0158	0.0214	0.0258	0.0290	0.0309	0.0315	0.0315
4°	0.0008	0.0034	0.0076	0.0134	0.0210	0.0286	0.0344	0.0386	0.0412	0.0420	0.0420
5°	0.0010	0.0042	0.0094	0.0168	0.0262	0.0357	0.0430	0.0483	0.0514	0.0525	0.0525
6°	0.0013	0.0050	0.0113	0.0202	0.0315	0.0428	0.0517	0.0580	0.0617	0.0630	0.0630
7°	0.0015	0.0059	0.0132	0.0235	0.0368	0.0500	0.0603	0.0676	0.0720	0.0735	0.0735
8°	0.0017	0.0067	0.0151	0.0269	0.0420	0.0571	0.0689	0.0773	0.0823	0.0840	0.0840
9°	0.0019	0.0076	0.0170	0.0302	0.0472	0.0643	0.0775	0.0869	0.0926	0.0945	0.0945
10° and Over	0.0020	0.0080	0.0180	0.0320	0.0500	0.0680	0.0820	0.0920	0.0980	0.1000	0.1000
	Offsets for Widening W-in Feet										
Over 10° - Under 12°	0.06	0.24	0.54	0.96	1.50	2.04	2.46	2.76	2.94	3.00	3.00
12° - " 15°	0.08	0.32	0.72	1.28	2.00	2.72	3.28	3.68	3.92	4.00	4.00
15° - " 20°	0.10	0.40	0.90	1.60	2.50	3.40	4.10	4.60	4.90	5.00	5.00
Over 20°	0.12	0.48	1.08	1.92	3.00	4.08	4.92	5.52	5.88	6.00	6.00



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 surfacing section, widened in accordance with the plan, offsets for widening, and cross sections.

In the graph below the values for the graph labeled 10° and Over, multiplied by 1,000 gives the percentage of the total widening at any point on the transition.

GENERAL PLAN FOR WIDENING



GRADED OR SURFACING SECTION

SUPERELEVATION AND WIDENING NOTES FOR GRADED OR SURFACING SECTIONS

Curves on projects using the graded or surfacing section are to be superelevated and widened as indicated in the accompanying sketches and table.

The normal inside shoulder and ditch are to remain as shown in the typical section shown on sheet #2. The outside shoulder is to be the high point of the section.

The outside ditch along a superelevated section is to be modified from the standard where a deeper ditch is required to provide drainage.

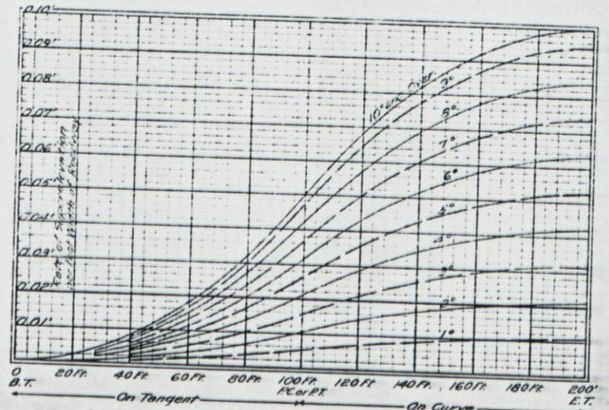
The center line pivot point is to be used as long as the superelevation does not exceed 0.02 feet per foot width of roadway. The normal inside shoulder pivot point is to be used for a superelevation rate in excess of 0.02 ft per foot width of roadway.

When the degree of curvature exceeds 10° the inside shoulder is to be widened from the normal inside shoulder line as shown by the table and cross section. Curves of 10° and less are not to be widened.

Details of plans for superelevation and widening are shown on the General Plan for Widening and the Graph of Superelevation Factors.

SUPERELEVATION FACTORS AND OFFSETS FOR WIDENING FOR GRADED OR SURFACING SECTIONS

Distance from B.T.	20 Ft.	40 Ft.	60 Ft.	80 Ft.	100 Ft.=P.C.	120 Ft.	140 Ft.	160 Ft.	180 Ft.	200'=E.T.	On Curve	Length of Transition Rotated about	
Factor	0.02	0.08	0.18	0.32	0.50	0.68	0.82	0.92	0.98	1.00	1.00	Center Line	Inside Shoulder
Degree of Curve	Rate of superelevation (in Feet) per Foot Width of Roadway												
2° and Under	0.0004	0.0017	0.0038	0.0067	0.0105	0.0143	0.0172	0.0193	0.0206	0.0210	0.0210	169 Ft.	31 Ft.
3°	0.0006	0.0025	0.0057	0.0101	0.0158	0.0214	0.0258	0.0290	0.0309	0.0315	0.0315	115 "	85 "
4°	0.0008	0.0034	0.0076	0.0134	0.0210	0.0286	0.0344	0.0386	0.0412	0.0420	0.0420	98 "	102 "
5°	0.0010	0.0042	0.0094	0.0168	0.0262	0.0357	0.0430	0.0483	0.0514	0.0525	0.0525	87 "	113 "
6°	0.0013	0.0050	0.0113	0.0202	0.0315	0.0428	0.0517	0.0580	0.0617	0.0630	0.0630	80 Ft.	120 Ft.
7°	0.0015	0.0059	0.0132	0.0235	0.0368	0.0500	0.0603	0.0676	0.0720	0.0735	0.0735	74 "	126 "
8°	0.0017	0.0067	0.0151	0.0269	0.0420	0.0571	0.0689	0.0773	0.0823	0.0840	0.0840	69 "	131 "
9°	0.0019	0.0076	0.0170	0.0302	0.0472	0.0643	0.0775	0.0869	0.0926	0.0945	0.0945	65 "	135 "
10° and Over	0.0020	0.0080	0.0180	0.0320	0.0500	0.0680	0.0820	0.0920	0.0980	0.1000	0.1000	63 "	137 "
	Offsets for Widening-W'-(in Feet)												
Over 10° - Under 12°	0.06	0.24	0.54	0.96	1.50	2.04	2.46	2.76	2.94	3.00	3.00		
12° - " 15°	0.08	0.32	0.72	1.28	2.00	2.72	3.28	3.68	3.92	4.00	4.00		
15° - " 20°	0.10	0.40	0.90	1.60	2.50	3.40	4.10	4.60	4.90	5.00	5.00		
Over 20°	0.12	0.48	1.08	1.92	3.00	4.08	4.92	5.52	5.88	6.00	6.00		



GRAPH OF SUPERELEVATION TRANSITION FACTORS

The rate of superelevation per foot width of roadway to be applied at the outside edge of the pavement slab, and 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.

The above graph has been prepared from the rates of superelevation shown in the tabulations.

COLORADO
STATE HIGHWAY DEPARTMENT

STANDARD METHODS FOR SUPERELEVATION AND WIDENING OF CURVES

Designed by S.B.L.	Approved by
Made by S.B.L.	
Checked by [illegible]	Date: Aug. 17, 1932.

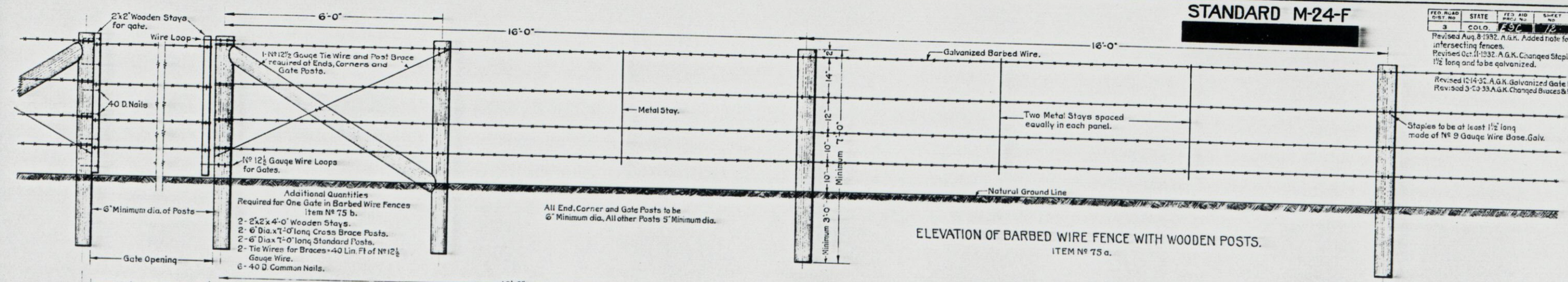
M-1-A

STANDARD M-24-F

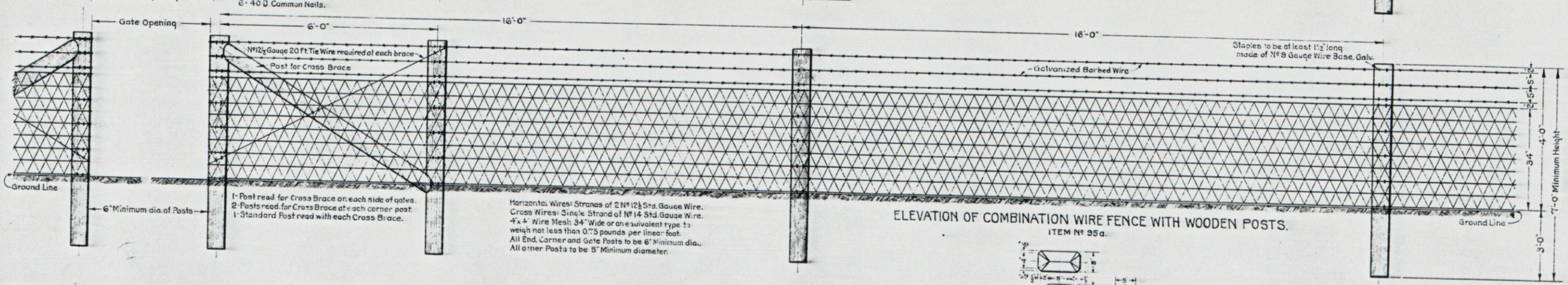
[redacted]

FED. ROAD DIST. NO	STATE	FED. AID PROJ. NO	SHEET NO	TOTAL SHEETS
3	COLO.	F.S.C.	12	

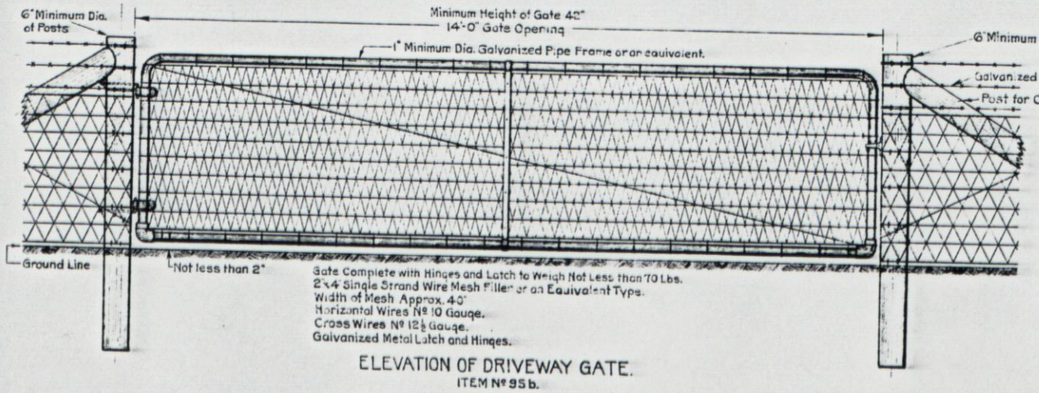
Revised Aug. 8-1932. A.G.K. Added note for intersecting fences.
Revised Oct. 11-1932. A.G.K. Changed Staples to be 1½ long and to be galvanized.
Revised 12-14-32. A.G.K. Galvanized Gate Frames.
Revised 3-20-33. A.G.K. Changed Braces & Post Sections.



ELEVATION OF BARBED WIRE FENCE WITH WOODEN POSTS.
ITEM № 75 a.

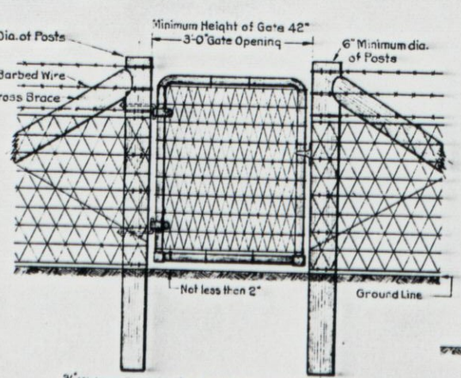


ELEVATION OF COMBINATION WIRE FENCE WITH WOODEN POSTS.
ITEM № 95 a.



Gate Complete with Hinges and Latch to Weigh Not Less than 70 Lbs.
2"x4" Single Strand Wire Mesh Filler or an Equivalent Type.
Width of Mesh Approx. 40"
Horizontal Wires № 10 Gauge.
Cross Wires № 12½ Gauge.
Galvanized Metal Latch and Hinges.

ELEVATION OF DRIVEWAY GATE.
ITEM № 95 b.



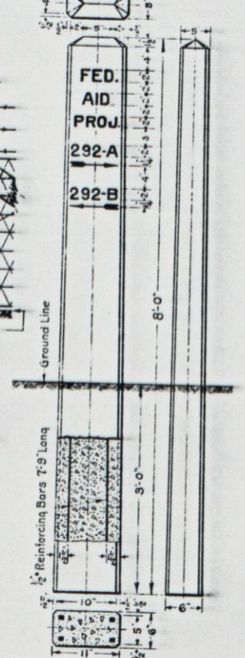
⅜" Minimum Dia. galvanized pipe frame or an equivalent.
Gate Complete with hinges and Latch to Weigh Not Less than 19 Lbs.
2"x4" Single Strand Wire Mesh Filler or an Equivalent Type.
Width of Mesh Approx. 40"
Horizontal Wires № 10 Gauge.
Cross Wires № 12½ Gauge.
Galvanized Metal Latch and Hinges.

ELEVATION OF WALK GATE.
ITEM № 95 c.

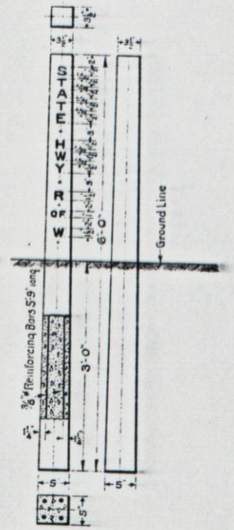
GENERAL NOTES FOR WIRE FENCES.

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department, Adopted January 1-1930.
Barbed Wire shall be of Standard Make, not lighter than № 12½ 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 1½" long, made of № 9 Gauge Wire Base Galv., 8 staples read. 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 Lodge Pole Pine, Southern Yellow Pine or [redacted]
All Wooden Posts shall be entirely peeled and shaved, thoroughly seasoned and dry before treatment.
All Wooden Posts shall be pressure treated with Creosote Oil for the full length of posts as provided in the specifications.
Cross Braces, Brace Posts and Tie Wires are to be used at all places where intersecting fences are encountered.

	INITIAL	DATE
ORIGINAL BY		
CHECKED BY		
VANDYKE BY		
CHECKED BY		



PROJECT MARKER POST.
ITEM № 78.



RIGHT OF WAY MARKER POST.
ITEM № 79.

NOTES FOR PROJECT MARKER POSTS.

All Letters and Numbers shall be 2" Plain Upright Block, Painted or Stencilled on the Concrete with a good quality of Black Paint. See Item № 41 "Second Field Coat-Dark."
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, Five feet beyond edge of shoulder in such a position that the sign will properly indicate the projects to which it refers.

NOTES FOR RIGHT OF WAY MARKER POSTS.

All Letters shall be 1½" Plain and Depressed ¼ inch.
Post shall be set with Lettering Facing the Road at Points indicated on the Plans.

GENERAL NOTES FOR MARKER POSTS.

All Work shall be done in accordance with the Standard Specifications of The Colorado State Highway Department, Adopted January 1-1930.
Posts shall be made of Class "D" Concrete (Slump 3" to 6") except use White Portland Cement.
Reinforcing Bars shall be round or square, plain or deformed as shown and noted.
All Exposed Surfaces shall be rubbed free of form marks.

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
WIRE FENCES
AND
MARKER POSTS

Designed by A.G.K.	Approved by P. L. Bailey
Made by A.G.K.	Bridge Engineer
Checked by G.H.D.	Date: Feb. 1, 1932.

M-24-F

STRUCTURE NO.

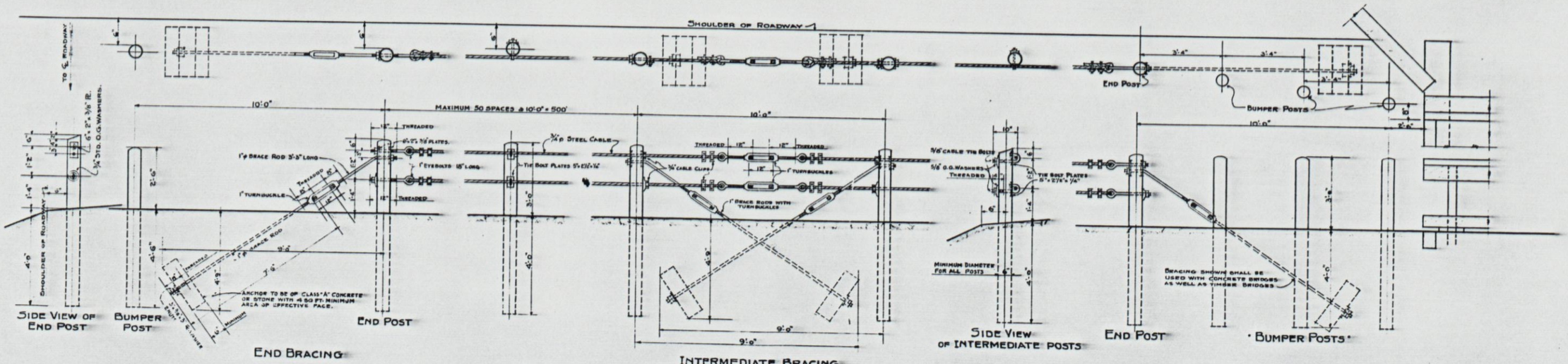
STANDARD
M-20-F.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	SCP 21	13	

Revised 4-1-33 By W.M.M. Note added-N.C. Douglas F.E.
REVISED 7.20.33 BY G.H.D. OMITTING ALUMINUM PAINT.

STANDARD WIRE CABLE GUARD FENCE WITH TIMBER POSTS.

ITEM Nº 72



GENERAL NOTES

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE COLORADO STATE HIGHWAY DEPARTMENT, ADOPTED JANUARY 1, 1930.

THE LENGTH OF GUARD FENCE TO BE PAID FOR AND DESIGNATED ON SHEET M-12 SHALL BE MEASURED FROM END POST TO END POST.

THE PRICE PER LINEAR FOOT SHALL BE AS SPECIFIED IN ITEM M-72 OF THE STANDARD SPECIFICATIONS AND SHALL INCLUDE THE NECESSARY BUMPER POSTS AND BRACINGS COMPLETE.

WHEN CONTINUOUS FENCE IS MORE THAN 500 FT. IN LENGTH, IT SHALL HAVE INTERMEDIATE SPLICES AND ANCHORS.

ALL POSTS SHALL BE MADE FROM SEASONED, STRAIGHT, SOUND LODGE POLE PINE, SOUTHERN YELLOW PINE OR WEST COAST DOUGLAS FIR.

NO SECTION OF POSTS SHALL BE LESS THAN 6" IN DIAMETER.

ALL POSTS SHALL BE ENTIRELY PEELED AND SHAVED, THOROLY SEASONED AND DRY, TOPS BEVELED AND ALL HOLES DRILLED BEFORE TREATMENT IS APPLIED.

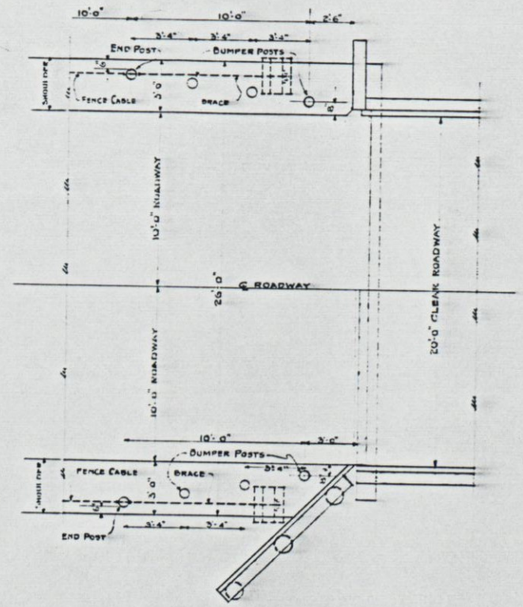
ALL POSTS SHALL BE PRESSURE TREATED WITH CREOSOTE FOR THE FULL LENGTH OF POSTS, AS PROVIDED FOR IN THE SPECIFICATIONS.

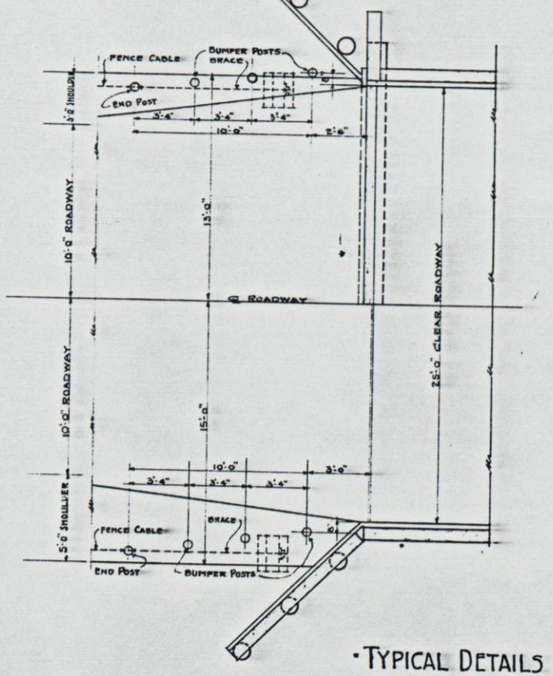
ALL POSTS SHALL BE SET AND TAMPED-IN PLUMB AND FIRM, TO THE LINES AND GRADES DIRECTED BY THE ENGINEER.

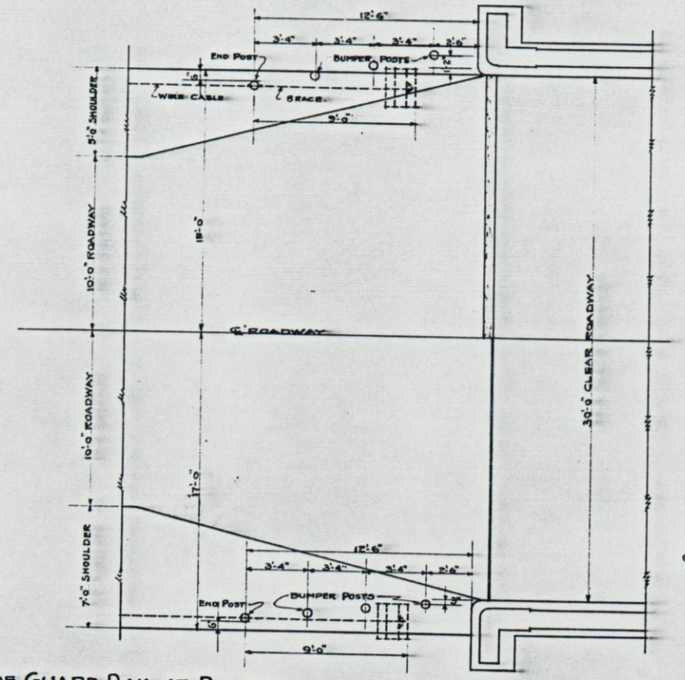
ALL FITTINGS SHALL BE HOT DIP GALV. STEEL, WITH SIZES AS NOTED AND LOCATED AS SHOWN.

EYE BOLTS SHALL BE WELDED OR DROP FORGED.

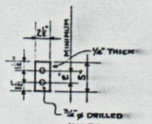
STANDARD CAST IRON O.G. WASHERS SHALL BE USED UNDER ALL NUTS AND CABLE CLIPS IN CONTACT WITH WOOD POSTS.







TYPICAL DETAILS OF GUARD RAIL AT BRIDGE.



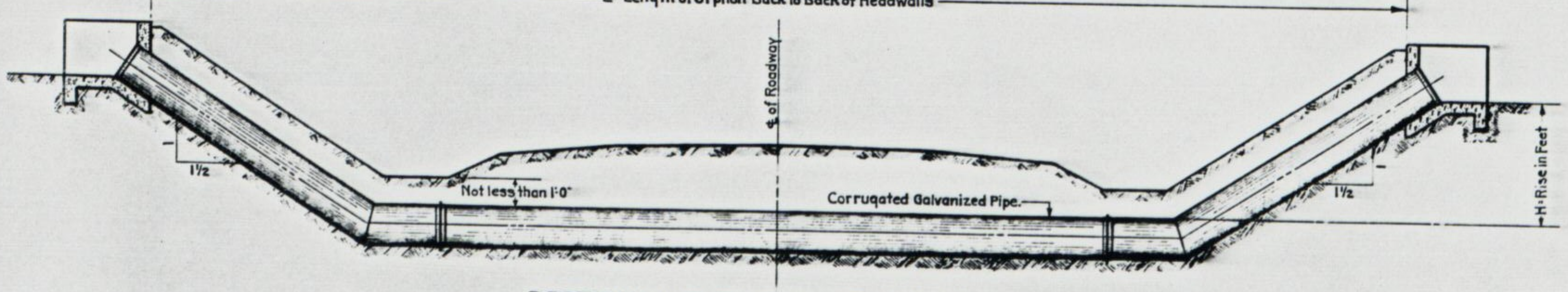
DETAIL OF TIE BOLT PLATE.

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD
WIRE CABLE GUARD FENCE

Designed by G.H.D.	Approved by P. T. Bailey
Made by G.H.D.	Bridge Engineer
Checked by F.E.W.	Date: Nov. 20th 1931.

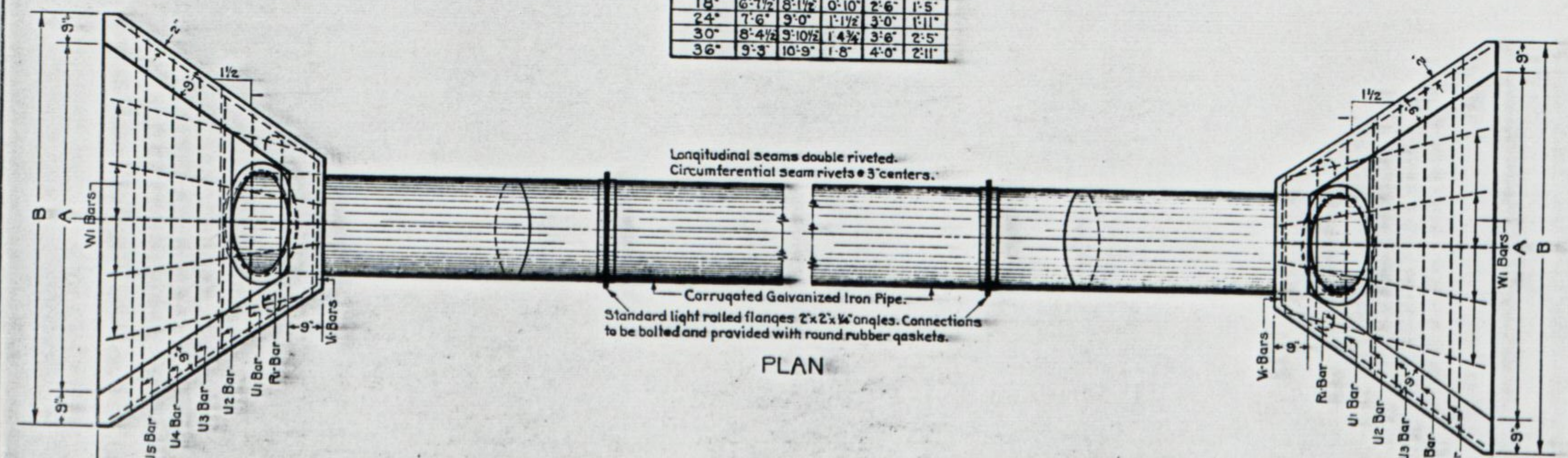
M-20-F

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	E9C	14	

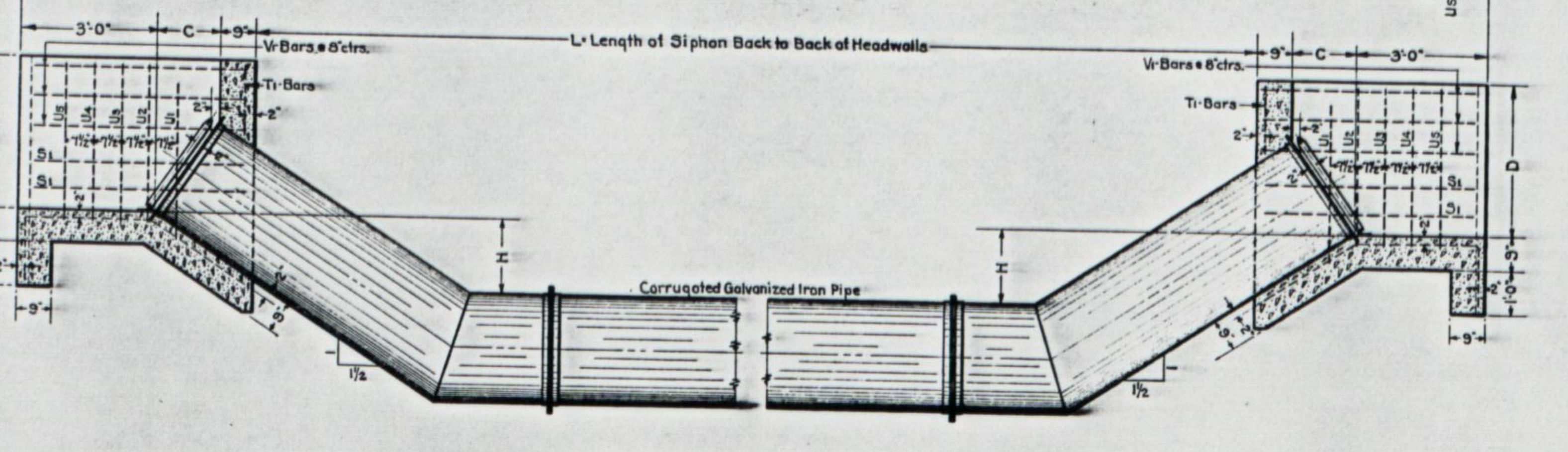


SECTIONAL ELEVATION OF SIPHON

TABLE OF DIMENSIONS					
DIA. OF SIPHON \ DIMENSION AT	A	B	C	D	E
18"	6'-7½"	8'-1½"	0'-10"	2'-6"	1'-5"
24"	7'-6"	9'-0"	1'-1½"	3'-0"	1'-11"
30"	8'-4½"	9'-10½"	1'-4¾"	3'-6"	2'-5"
36"	9'-3"	10'-9"	1'-8"	4'-0"	2'-11"



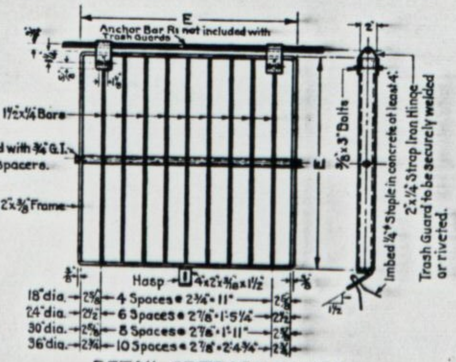
PLAN



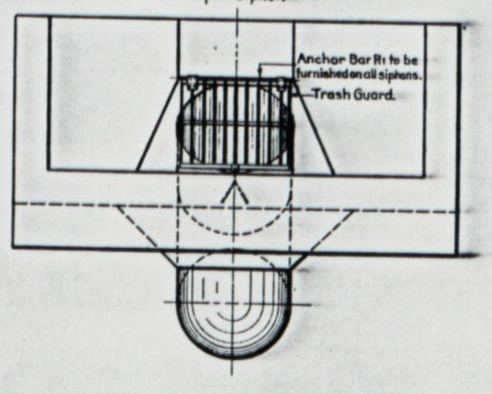
SECTIONAL ELEVATION

DIAMETER 18" AND 24"			BAR LIST FOR ONE SIPHON	DIAMETER 30" AND 36"		
MARK	NUMBER	LENGTH	BENDING DIAGRAM ALL BARS ½"⌀ EXCEPT ANCHOR BAR R1.	LENGTH	NUMBER	MARK
18" R1	2	4'-11"	¾"⌀ BAR; 2½"; 3"R.; 18" = 2'-11"; 24" = 3'-5"; 30" = 3'-11"; 36" = 4'-5"	5'-11"	2	30" R1
24" R1	2	5'-5"		6'-5"	2	36" R1
18" S1	8	4'-2"	18" = 4'-2"; 24" = 4'-5"; 30" = 4'-9"; 36" = 5'-0"	4'-9"	8	30" S1
24" S1	8	4'-5"		5'-0"	8	36" S1
18" T1	4	4'-0"	18" = 4'-0"; 24" = 4'-6"; 30" = 5'-4"; 36" = 5'-10"	5'-4"	4	30" T1
24" T1	4	4'-6"		5'-10"	4	36" T1
18"&24" U1 to U5	2 Each	8'-6" to 11'-10" Increase by 10"	18"&24" 3'-6" to 6'-10" by 10"; 30"&36" 5'-4" to 8'-8" by 10"; 2'-6" 18"&24"; 3'-6" 30"&36"	12'-4" to 15'-8" Increase by 10"	2 Each	30"&36" U1 to U5
18" V1	6	12'-0"	18" = 2'-0"; 24" = 2'-6"; 30" = 3'-0"; 36" = 3'-6"; 1½	14'-0"	6	30" V1
24 V1	6	13'-0"		15'-0"	6	36" V1
18"&24" W1	10	5'-6"	2'-6" All Sizes; 1'-8"; 2'-2"; 1½	6'-0"	10	30"&36" W1

QUANTITIES FOR ONE SIPHON				
	ITEM Nº 96	ITEM Nº 46a	ITEM Nº 47	ITEM Nº 85
SIPHON SIZES	PIPE GAUGE U.S.STD.	CONCRETE CLASS "A"	REINFORCING STEEL	TRASH GUARDS
18" Diameter	16	3.50 Cu. Yds.	255 Lbs.	2 @ 30 Lbs. Each
24" Diameter	14	4.25 Cu. Yds.	260 Lbs.	2 @ 40 Lbs. Each
30" Diameter	14	5.25 Cu. Yds.	310 Lbs.	2 @ 60 Lbs. Each
36" Diameter	12	6.25 Cu. Yds.	320 Lbs.	2 @ 80 Lbs. Each



DETAIL OF TRASH GUARD
2 Required per Siphon



FRONT ELEVATION

TABLE OF PIPE LENGTHS IN FEET MEASURED ON ℄ OF SIPHON

18" DIAMETER

H \ L	22	25	28	31	34	37	40	43	46	49	52	55	58	61	64	67	70	73	76	79	82	85
0	25.2	28.2	31.2	34.2	37.2	40.2	43.2	46.2	49.2	52.2	55.2	58.2	61.2	64.2	67.2	70.2	73.2	76.2	79.2	82.2	85.2	88.2
1		28.8	31.8	34.8	37.8	40.8	43.8	46.8	49.8	52.8	55.8	58.8	61.8	64.8	67.8	70.8	73.8	76.8	79.8	82.8	85.8	88.8
2			32.4	35.4	38.4	41.4	44.4	47.4	50.4	53.4	56.4	59.4	62.4	65.4	68.4	71.4	74.4	77.4	80.4	83.4	86.4	89.4
3				36.0	39.0	42.0	45.0	48.0	51.0	54.0	57.0	60.0	63.0	66.0	69.0	72.0	75.0	78.0	81.0	84.0	87.0	90.0
4					39.6	42.6	45.6	48.6	51.6	54.6	57.6	60.6	63.6	66.6	69.6	72.6	75.6	78.6	81.6	84.6	87.6	90.6
5						43.2	46.2	49.2	52.2	55.2	58.2	61.2	64.2	67.2	70.2	73.2	76.2	79.2	82.2	85.2	88.2	91.2
6							46.8	49.8	52.8	55.8	58.8	61.8	64.8	67.8	70.8	73.8	76.8	79.8	82.8	85.8	88.8	91.8
7								50.4	53.4	56.4	59.4	62.4	65.4	68.4	71.4	74.4	77.4	80.4	83.4	86.4	89.4	92.4
8									54.0	57.0	60.0	63.0	66.0	69.0	72.0	75.0	78.0	81.0	84.0	87.0	90.0	93.0
9	FOR "H" 1-FOOT INCREMENT = 0.6 LIN. FT.									57.6	60.6	63.6	66.6	69.6	72.6	75.6	78.6	81.6	84.6	87.6	90.6	93.6
10	FOR "L" 3 FT. INCREMENT = 3.0 LIN. FT.										61.2	64.2	67.2	70.2	73.2	76.2	79.2	82.2	85.2	88.2	91.2	94.2

24" DIAMETER

H \ L	22	25	28	31	34	37	40	43	46	49	52	55	58	61	64	67	70	73	76	79	82	85
0	25.7	28.7	31.7	34.7	37.7	40.7	43.7	46.7	49.7	52.7	55.7	58.7	61.7	64.7	67.7	70.7	73.7	76.7	79.7	82.7	85.7	88.7
1		29.3	32.3	35.3	38.3	41.3	44.3	47.3	50.3	53.3	56.3	59.3	62.3	65.3	68.3	71.3	74.3	77.3	80.3	83.3	86.3	89.3
2			32.9	35.9	38.9	41.9	44.9	47.9	50.9	53.9	56.9	59.9	62.9	65.9	68.9	71.9	74.9	77.9	80.9	83.9	86.9	89.9
3				36.5	39.5	42.5	45.5	48.5	51.5	54.5	57.5	60.5	63.5	66.5	69.5	72.5	75.5	78.5	81.5	84.5	87.5	90.5
4					40.1	43.1	46.1	49.1	52.1	55.1	58.1	61.1	64.1	67.1	70.1	73.1	76.1	79.1	82.1	85.1	88.1	91.1
5						43.7	46.7	49.7	52.7	55.7	58.7	61.7	64.7	67.7	70.7	73.7	76.7	79.7	82.7	85.7	88.7	91.7
6							47.3	50.3	53.3	56.3	59.3	62.3	65.3	68.3	71.3	74.3	77.3	80.3	83.3	86.3	89.3	92.3
7								50.9	53.9	56.9	59.9	62.9	65.9	68.9	71.9	74.9	77.9	80.9	83.9	86.9	89.9	92.9
8									54.5	57.5	60.5	63.5	66.5	69.5	72.5	75.5	78.5	81.5	84.5	87.5	90.5	93.5
9	FOR "H" 1-FT. INCREMENT = 0.6 LIN. FT.									58.1	61.1	64.1	67.1	70.1	73.1	76.1	79.1	82.1	85.1	88.1	91.1	94.1
10	FOR "L" 3 FT. INCREMENT = 3.0 LIN. FT.										61.7	64.7	67.7	70.7	73.7	76.7	79.7	82.7	85.7	88.7	91.7	94.7

30" DIAMETER

H \ L	22	25	28	31	34	37	40	43	46	49	52	55	58	61	64	67	70	73	76	79	82	85
0	26.3	29.3	32.3	35.3	38.3	41.3	44.3	47.3	50.3	53.3	56.3	59.3	62.3	65.3	68.3	71.3	74.3	77.3	80.3	83.3	86.3	89.3
1		29.9	32.9	35.9	38.9	41.9	44.9	47.9	50.9	53.9	56.9	59.9	62.9	65.9	68.9	71.9	74.9	77.9	80.9	83.9	86.9	89.9
2			33.5	36.5	39.5	42.5	45.5	48.5	51.5	54.5	57.5	60.5	63.5	66.5	69.5	72.5	75.5	78.5	81.5	84.5	87.5	90.5
3				37.1	40.1	43.1	46.1	49.1	52.1	55.1	58.1	61.1	64.1	67.1	70.1	73.1	76.1	79.1	82.1	85.1	88.1	91.1
4					40.7	43.7	46.7	49.7	52.7	55.7	58.7	61.7	64.7	67.7	70.7	73.7	76.7	79.7	82.7	85.7	88.7	91.7
5						44.3	47.3	50.3	53.3	56.3	59.3	62.3	65.3	68.3	71.3	74.3	77.3	80.3	83.3	86.3	89.3	92.3
6							47.9	50.9	53.9	56.9	59.9	62.9	65.9	68.9	71.9	74.9	77.9	80.9	83.9	86.9	89.9	92.9
7								51.5	54.5	57.5	60.5	63.5	66.5	69.5	72.5	75.5	78.5	81.5	84.5	87.5	90.5	93.5
8									55.1	58.1	61.1	64.1	67.1	70.1	73.1	76.1	79.1	82.1	85.1	88.1	91.1	94.1
9	FOR "H" 1-FT. INCREMENT = 0.6 LIN. FT.									58.7	61.7	64.7	67.7	70.7	73.7	76.7	79.7	82.7	85.7	88.7	91.7	94.7
10	FOR "L" 3 FT. INCREMENT = 3.0 LIN. FT.										62.3	65.3	68.3	71.3	74.3	77.3	80.3	83.3	86.3	89.3	92.3	95.3

36" DIAMETER

H \ L	22	25	28	31	34	37	40	43	46	49	52	55	58	61	64	67	70	73	76	79	82	85
0	26.8	29.8	32.8	35.8	38.8	41.8	44.8	47.8	50.8	53.8	56.8	59.8	62.8	65.8	68.8	71.8	74.8	77.8	80.8	83.8	86.8	89.8
1		30.4	33.4	36.4	39.4	42.4	45.4	48.4	51.4	54.4	57.4	60.4	63.4	66.4	69.4	72.4	75.4	78.4	81.4	84.4	87.4	90.4
2			34.0	37.0	40.0	43.0	46.0	49.0	52.0	55.0	58.0	61.0	64.0	67.0	70.0	73.0	76.0	79.0	82.0	85.0	88.0	91.0
3				37.6	40.6	43.6	46.6	49.6	52.6	55.6	58.6	61.6	64.6	67.6	70.6	73.6	76.6	79.6	82.6	85.6	88.6	91.6
4					41.2	44.2	47.2	50.2	53.2	56.2	59.2	62.2	65.2	68.2	71.2	74.2	77.2	80.2	83.2	86.2	89.2	92.2
5						44.8	47.8	50.8	53.8	56.8	59.8	62.8	65.8	68.8	71.8	74.8	77.8	80.8	83.8	86.8	89.8	92.8
6							48.4	51.4	54.4	57.4	60.4	63.4	66.4	69.4	72.4	75.4	78.4	81.4	84.4	87.4	90.4	93.4
7								52.0	55.0	58.0	61.0	64.0	67.0	70.0	73.0	76.0	79.0	82.0	85.0	88.0	91.0	94.0
8									55.6	58.6	61.6	64.6	67.6	70.6	73.6	76.6	79.6	82.6	85.6	88.6	91.6	94.6
9	FOR "H" 1-FOOT INCREMENT = 0.6 LIN. FT.									59.2	62.2	65.2	68.2	71.2	74.2	77.2	80.2	83.2	86.2	89.2	92.2	95.2
10	FOR "L" 3 FT. INCREMENT = 3.0 LIN. FT.										62.8	65.8	68.8	71.8	74.8	77.8	80.8	83.8	86.8	89.8	92.8	95.8

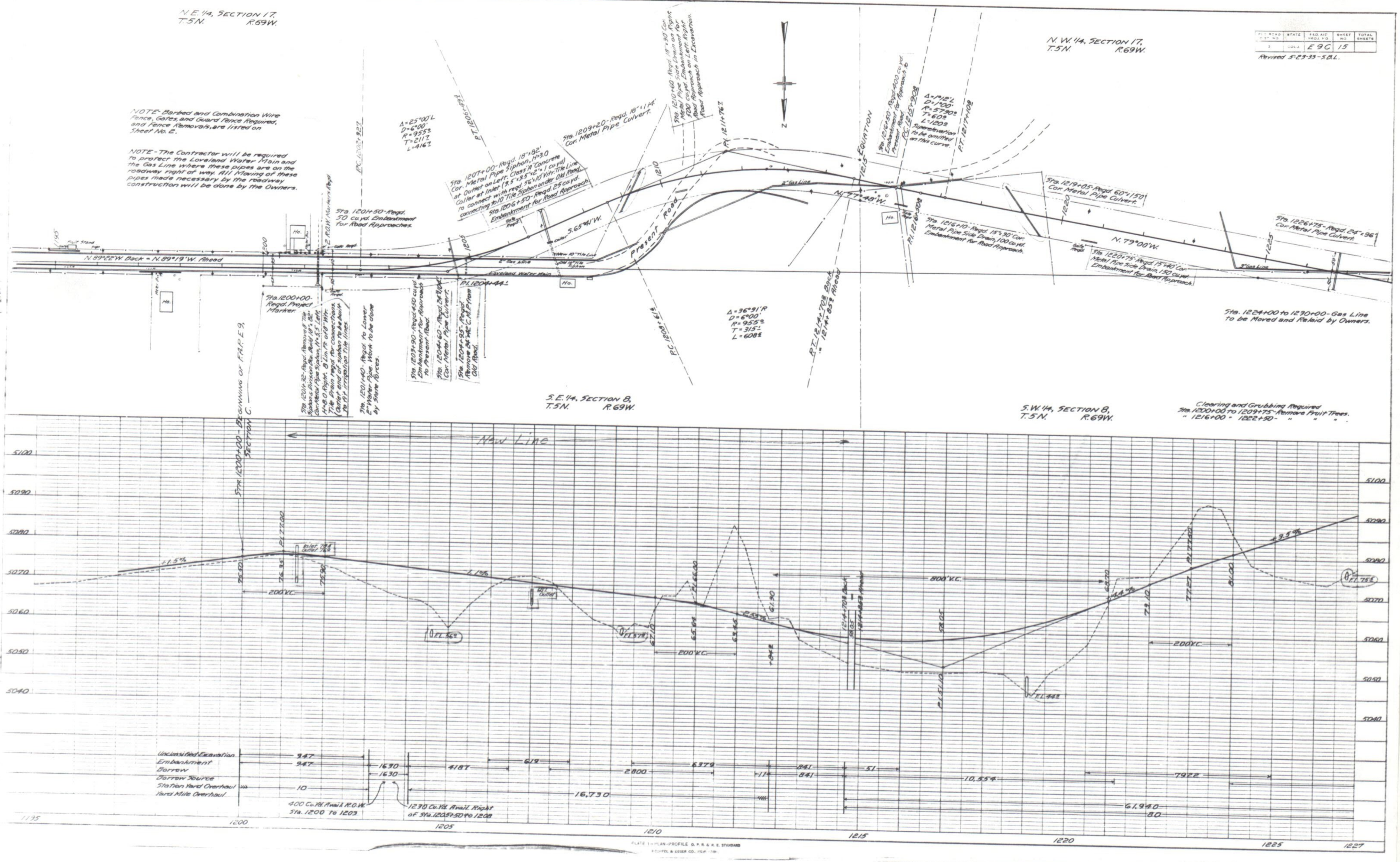
GENERAL NOTES.

All work shall be done according to the Standard Specifications of The Colorado State Highway Department, Adopted January 1-1930.
All concrete shall be Class "A".
All walls shall have forms on both sides.
All reinforcing bars shall be round or square, plain or deformed as shown and noted.
All reinforcing bars shall be tagged with the station number and letter designation.
All exposed corners in concrete shall be beveled to a 2" face.
All corrugated pipe to conform to the Colorado State Highway Specifications.
All flanges to be 2"x2"x¼" standard light rolled, securely riveted to corrugated pipe.
Trash guards to be furnished only when called for on sheet Nº 2.
For siphons required and governing dimensions see sheet Nº 2.
Trash guards to be painted as per specifications for structural steel.

COLORADO
STATE HIGHWAY DEPARTMENT
STANDARD SIPHON
CORRUGATED GALVANIZED IRON PIPE
WITH CONCRETE INLET & OUTLET BOXES
SIZES 18"-24"-30"-36"

Designed by A.G.K.	Approved by P. J. Bailey
Made by A.G.K.	Bridge Engineer
Checked by W.McM.	Date: Dec. 6th 1932

STRUCTURE NO.



N.E.1/4, SECTION 17. T.5N. R.69W.
N.W.1/4, SECTION 17. T.5N. R.69W.
S.E.1/4, SECTION 8. T.5N. R.69W.
S.W.1/4, SECTION 8. T.5N. R.69W.
COLO. E9C 15
Revised 5-23-33-S.B.L.
NOTE - Barbed and Combination Wire Fence, Gates, and Guard Fence Required, and Fence Removals, are listed on Sheet No. 2.
NOTE - The Contractor will be required to protect the Loveland Water Main and the Gas Line where these pipes are on the roadway right of way. All Moving of these pipes made necessary by the roadway construction will be done by the Owners.
Sta. 1201+50 - Reqd. 50 cu.yd. Embankment for Road Approaches.
Sta. 1209+20 - Reqd. 18"x 1 Cor. Metal Pipe Culvert.
Sta. 1219+05 - Reqd. 60"x 150 Cor. Metal Pipe Culvert.
Sta. 1226+75 - Reqd. 24"x 96 Cor. Metal Pipe Culvert.
Sta. 1216+10 - Reqd. 15"x 30 Cor. Metal Pipe Side Drain, 100 cu.yd. Embankment for Road Approach.
Sta. 1220+75 - Reqd. 15"x 40 Cor. Metal Pipe Side Drain, 150 cu.yd. Embankment for Road Approach.
Sta. 1224+00 to 1230+00 - Gas Line to be Moved and Relaid by Owners.
Sta. 1200+00 - Reqd. Project Marker.
Δ = 25°00' L D = 6°00' R = 955± T = 211± L = 416±
Δ = 36°31' R D = 6°00' R = 955± T = 315± L = 608±
Δ = 1°12' L D = 1°00' R = 5730± T = 60± L = 120±
Superelevation to be omitted on this curve.
N.89°22'W. Back = N.89°19'W. Ahead
S.65°41'W.
N.77°49'W.
N.79°00'W.
Present Road
Loveland Water Main
2" Gas Line
EQUATION
P.T. 1214+708 Back = 1214+85± Ahead
P.C. 1208+61±
P.I. 1204+44±
Clearing and Grubbing Required
Sta. 1200+00 to 1209+75 - Remove Fruit Trees.
" 1216+00 - 1222+50 - " " "
New Line
Sta. 1200+00 - BEGINNING OF F.A.P. E9, SECTION C.
200' V.C.
800' V.C.
+1.5%
-1.19%
+3.5%
5100
5090
5080
5070
5060
5050
5040
Unclassified Excavation
Embankment
Borrow
Borrow Source
Station Yard Overhaul
Yard Mile Overhaul
947
1630
4187
619
2800
6379
841
51
10,554
7922
16,730
61,940
80
400 Cu.Yd. Avail. R.O.W. Sta. 1200 to 1203
1230 Cu.Yd. Avail. Right of Sta. 1205+50 to 1208
1195
1200
1205
1210
1215
1220
1225
1227

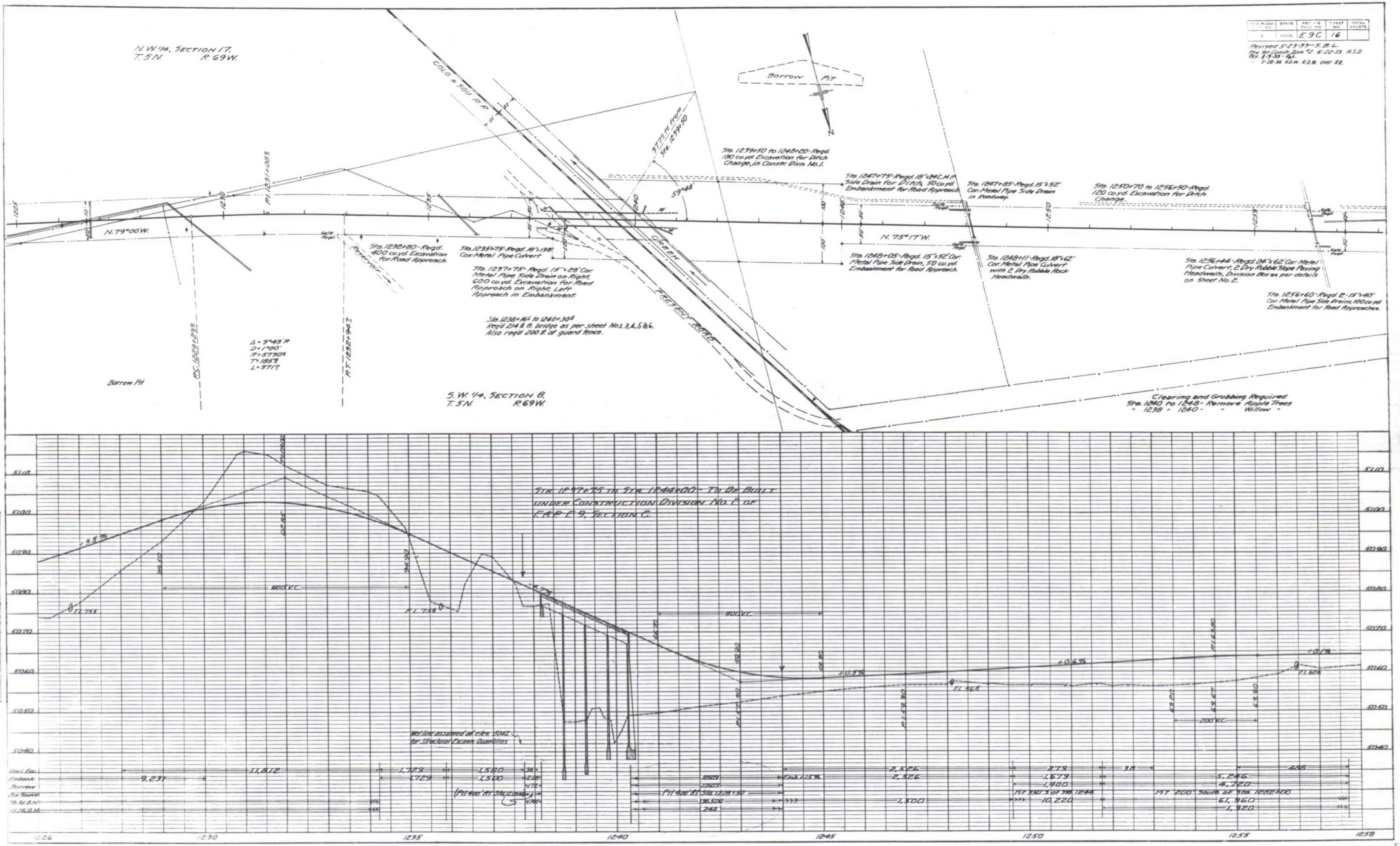
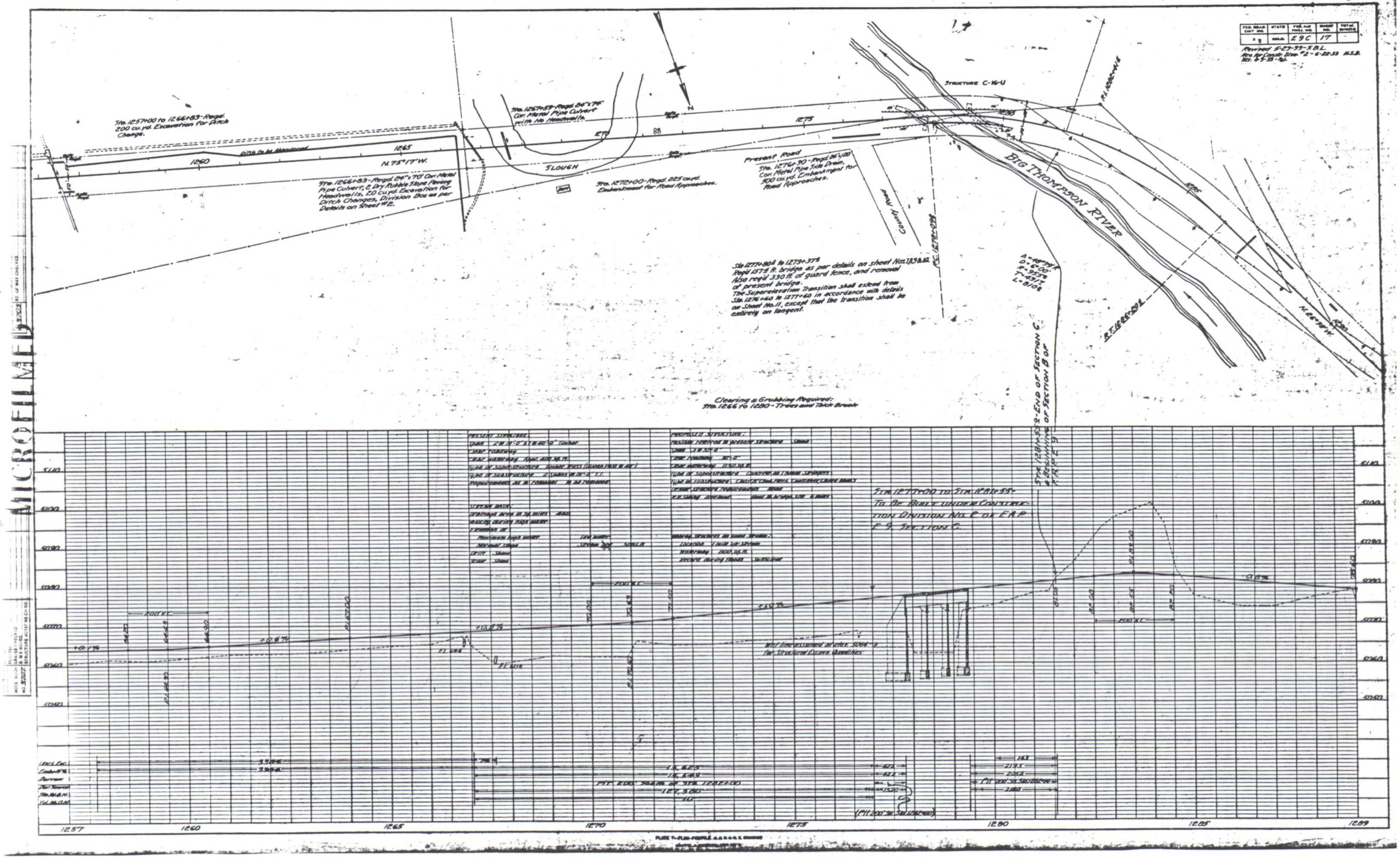


PLATE 1 - PLAN-PROFILE G.P.R. & R.C. STANDARD
KEUFFEL & ESSER CO., NEW YORK.



FED. ROAD DIST. NO. | STATE | FED. AID PROJ. NO. | SHEET NO. | TOTAL SHEETS
9 | COLO. | E9C | 17 | —
Revised 5-29-33-X.B.L.
Rev. for Constr. Div. #2 - 6-22-33 H.S.B.
Rev. 8-9-33
Sta. 1257+00 to 1266+83 - Reqd. 200 cu. yd. Excavation for Ditch Change.
Ditch to be Abandoned
1260
1265
N. 75°17' W.
Sta. 1266+83 - Reqd. 24" x 70' Cor. Metal Pipe Culvert, 2 Dry Rubble Slope Paving Headwalls, 20 cu. yd. Excavation for Ditch Changes, Division Box as per Details on Sheet #2.
Sta. 1267+59 - Reqd. 24" x 74' Cor. Metal Pipe Culvert with No Headwalls.
SLOUGH
1270
1275
N
Sta. 1272+00 - Reqd. 225 cu. yd. Embankment for Road Approaches.
Present Road
Sta. 1276+30 - Reqd. 24" x 120' Cor. Metal Pipe Side Drain, 300 cu. yd. Embankment for Road Approaches.
County Road
P.C. 1278+09.8
Sta. 1277+80± to 1279+37± Reqd. 157± ft. bridge as per details on sheet Nos. 7, 8, 9 & 10. Also reqd. 330 ft. of guard fence, and removal of present bridge.
The Superelevation Transition shall extend from Sta. 1276+60 to 1277+60 in accordance with details on Sheet No. 11, except that the transition shall be entirely on tangent.
Structure C-16-U
1280
P.I. 1282+41.6
BIG THOMPSON RIVER
1285
Δ = 48°39' R
D = 6°00'
R = 955.4
T = 431.7
L = 810.8
P.T. 1286+20.8
N. 26°38' W.
1290
Sta. 1281+55.9 - End of Section C & Beginning of Section B of F.A.P. E9
Clearing & Grubbing Required: Sta. 1266 to 1280 - Trees and Thick Brush
Sta. 1277+00 to Sta. 1281+55 - To Be Built under Construction Division No. 2 of F.A.P. E9, Section C.
5110
5100
5090
5080
5070
5060
5050
+0.1%
+0.67%
+0.87%
+1.07%
-0.8%
200' V.C.
FL. 64.8
FL. 60.5
Wet line assumed at elev. 5064 ± for Structural Excav. Quantities
Uncl. Exc.
Embank. 5%
Borrow
Per. Source
Sta. Yd. O.H.
Yd. Mi. O.H.
15,625
15,649
Pit 200' South of Sta. 1282+00
127,300
10
143
2195
2052
2180
1520
(Pit 200' So. Sta. 1282+00)
1257
1260
1265
1270
1275
1280
1285
1289