

Glenwood - Carbondale

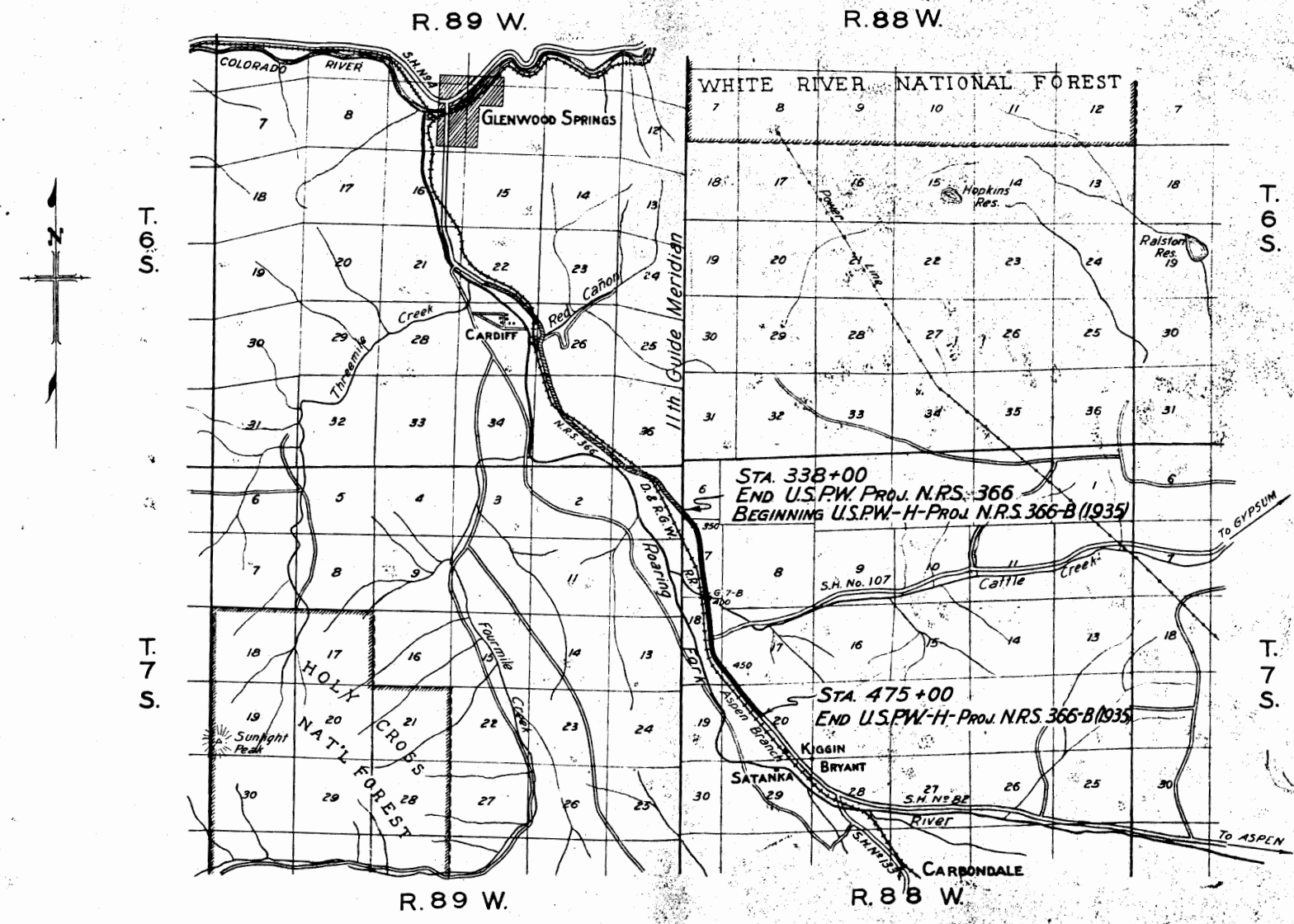
COLORADO STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED U.S.P.W. HIGHWAY PROJECT N.R.S. 366-B (1935) STATE HIGHWAY NO. 82 GARFIELD COUNTY

- CONVENTIONAL SIGNS**
- CENTER LINE OF SURVEY
 - RIGHT OF WAY LINES
 - SECTION LINES
 - FENCE LINES
 - RAILROADS

- INDEX OF SHEETS**
- Sheet No. 1 Sketch Map and Title Sheet.
 - 2 Typical Cross Section and Summary of Quantities
 - 3 Standard Culvert Headwalls M-102-E
 - 4 Standard Wire Fences and Marker Posts M-24-F
 - 5 Standard Wire Cable Guard Fence M-20-G
 - 6 Standard Methods for Superelevation M-1-A
 - 7-11 Alignment Plan and Profile Sheets

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 LENGTH OF PROJECT = 13,694.6 FEET = 2.593 MILES
 NET LENGTH OF PROJECT = 13,637.6 FEET = 2.582 MILES



Scale 1 inch = 1 mile

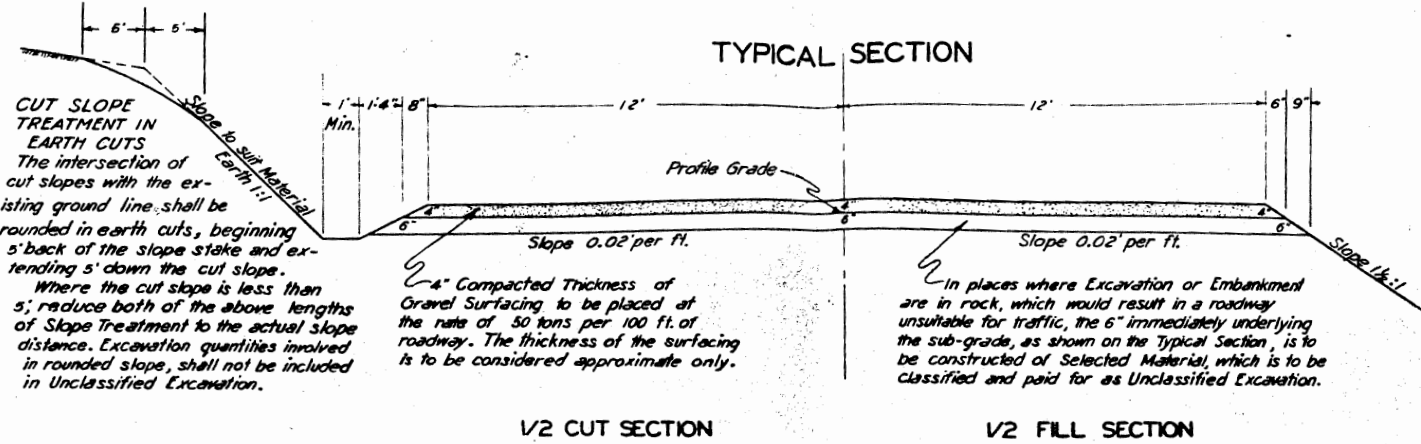
RECOMMENDED FOR APPROVAL 8/24
Chas. D. ... ASSIST. ENGINEER
 APPROVED
Chas. D. ... STATE HIGHWAY ENGINEER
 RECOMMENDED FOR APPROVAL
 DIST. ENG. BUREAU PUBLIC ROADS
 RECOMMENDED FOR APPROVAL
 CHIEF ENG. BUREAU PUBLIC ROADS
 APPROVED
 DIRECTOR BUREAU PUBLIC ROADS

TYPICAL CROSS SECTION OF IMPROVEMENT AND SUMMARY OF QUANTITIES

U.S. ROAD & BRIDGE
 N.B.S. 3868
 (1935) 2
 Revised 8-29-34 - A.Z.

GENERAL NOTES

This project is to be constructed in conformity with the Standard Specifications of the Colorado State Highway Department, adopted January 1, 1930.
 All quantities on preliminary plans are to be considered approximate only.
 All roadway excavation required to construct the 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 Tabulation of Structures as "Embankment", is 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 Section as shown are subject to change by the Engineer to fit Embankment requirements actually met in construction.
 Except as limited by the Special Provisions, power equipment may be used on this project.
 All curves are to be superelevated and widened as provided by the Standard Super-elevation Sheet.



All poles encroaching on the construction are to be moved by the owners.
 At all places on the project where the new work lies along the present travelled road, the Contractor shall at his own expense, prosecute construction in such a manner that traffic may readily pass over the road. Also, the Contractor shall maintain in safe condition and at his own expense, all temporary approaches.
 Unless otherwise specified, the inlet ends of all corrugated metal cross culverts are to be provided with one cement rubble masonry headwall.
 Clearing and grubbing shall be of variable widths and be held to the minimum required for the construction of the road to accommodate visibility. Ordinarily the clearing shall not extend more than 8 feet beyond the toes of fills or the tops of cut banks.

SUMMARY OF APPROXIMATE QUANTITIES

No.	Description	Unit	Quantity
10a	Clearing & Grubbing Entire Project	Lump Sum	•
11a	Removing 8 Structures	"	•
11x	and Resetting Mail Boxes	"	•
12a	Fence	Lin. Ft.	1620
13c	Unclassified Excavation	Cu. Yd.	15,000
14a	Dry Rock (Struc.)	"	70
14b	Common	"	70
14c	Wet Rock	"	10
14d	Common	"	10
18a	Station Yard Overhaul	Sta. Yd.	18,000
18b	Yard Mile	Yd. Mi.	400
30x	Gravel or Crushed Rock Surfacing	Ton	6820
49	Cement Rubble Masonry	Cu. Yd.	19
53a	15" Corr. Metal Culvert Pipe	Lin. Ft.	18
53b	18"	"	60
53c	24"	"	220
53e	36"	"	36
55	Relaying Pipe	Lin. Ft.	24
72	Wire Cable Guard Fence	"	200
75a	Galv. Barbed Wire Fence-Wood Posts	"	2,800
75b	Gates in "	Each	3
78	Project Marker	"	1
13x	Cut Slope Treatment	Mi.	2.3

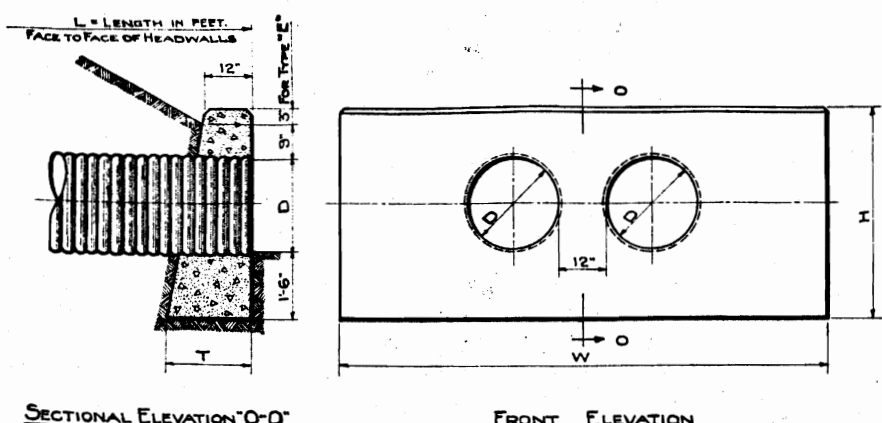
TABULATION OF STRUCTURES

Station	Description	Side	Remove Old Fence Hurs Each	Remove & Reset Mail Boxes Each	Remove Old Fence Lin. Ft.	Excavation Cu. Yd. Uncl. Emb.	Structural Excavation Cu. Yd.	Wire Cbl. Old Fence Lin. Ft.	Cement Rubble Masonry Cu. Yd.	Corr. Metal Pipe Lin. Ft.				Build New B.W. Fence Lin. Ft.	Gates in B.W. Fence Each	Conn. Bands Each	Misc.			
										15"	18"	24"	36"							
338+00 to 345+80	Rmv. Old Fence - Build New Fence	Rt.			600									780						
339 + 65	C.M.P. Cross Culvert & inlet & outlet					10	15		2.1				36							
343+50 to 351-00	Rmv. Old Fence - Build New Fence	Lt.			740									770						
344 + 00	C.M.P. Cross Culv. & inlet & outlet					50	20		2.1				34							
348 + 50	Road Approach	Lt.					25													
348 + 80	Gate in Barbed Wire Fence	Lt.															1			
349 + 00	C.M.P. Cross Culv. & inlet & outlet						25		2.1				34							
349 + 10	Remove & Reset Mail Box			1																
363 + 00	"			1																
389 + 50	"			1																
413 + 50	C.M.P. Cross Culv. & inlet & outlet						15		2.1				36							
412+00 to 417+00	Intercepting Ditches	Lt.				150	20													
418+00 to 422+00	"	Lt.				100														
419 + 58	Remove 15" x 24" C.M.P. Cr. Culv. & 2 Hdwls.																			
422+00 to 427+00	Intercepting Ditches	Lt.				150														
429+00 to 434+00	"	Lt.				150														
431 + 20	Extend 18" Cr. Culv. - inlet & outlet					20	5						16				1			
433 + 55	Remove Headwall																			
433 + 55	Extend 18" Cr. Culv.												12				1			
435+00 to 439+00	Remove Headwall																			
435+00 to 439+00	Intercepting Ditches	Lt.				100														
442+00 to 446+00	"	Lt.				125														
443+15	Relay 18" x 24" C.M.P. Culvert																1			
447+67	Extend 18" Cr. Culv.						15						20							
453+00	Remove Headwall						3						12				1			
454+18	Road Approach	Rt.					50													
454+18	Extend 15" Cr. Culv. - outlet					5	5		1.1				18				2			
454+00 to 459+00	Remove Headwalls																			
454+00 to 459+00	Intercepting Ditches	Lt.				150														
457+00	C.M.P. Cr. Culv. & inlet & outlet					50	20		2.1				38							
393+93 to 394+43	50' Wire Cable Guard Fence at each wing of bridge.																			
395+05 to 395+55	50' Wire Cable Guard Fence at each wing of bridge.																			
461 + 20	Remove 15" x 22" C.M.P. cr. culv.																			
464 + 00	C.M.P. Cross Culvert & inlet					10	15		2.1				42							
461+00 to 467+00	Intercepting Ditches	Lt.				200														
468 + 90	C.M.P. Cr. Culvert & inlet & outlet					50	10		3.7				36							
469 + 10	Remove Old Fence				80															
469+10 to 475+00	Build New B.W. Fence													1180						
473 + 00	Gates in B.W. Fence																2			
475 + 00	Project Marker & App. to Proj.						500										Proj. M.			
348 + 75	Remove 15" x 14" C.M.P. side drain	Lt.																		
Totals						8	3	1620	1360.875	483	200	18.8	18	60	220	36	2730	3	2	4

* Structural Excavation is estimated to be 50% Rock & 50% Common; each of which is estimated to be 10% Wet and 90% Dry.
 † Cost of Connecting Bands to be included in cost of Corr. Metal Pipe.

ESTIMATE OF CUT SLOPE TREATMENT

Station	Side	Length
342+25 to 354+25	L	1200
342+25	R	1000
360+00	L	400
363+00	R	100
365+25	L	250
368+75	L	450
387+25	L	100
389+50	L	450
390+00	R	300
396+50	R	500
397+75	L	950
402+00	R	100
408+25	R	200
407+25	L	400
413+75	L	1200
426+25	L	750
435+25	L	500
442+00	L	1600
458+00	L	700
467+50	L	750
Total		11,900 FT. 2.3 MI.

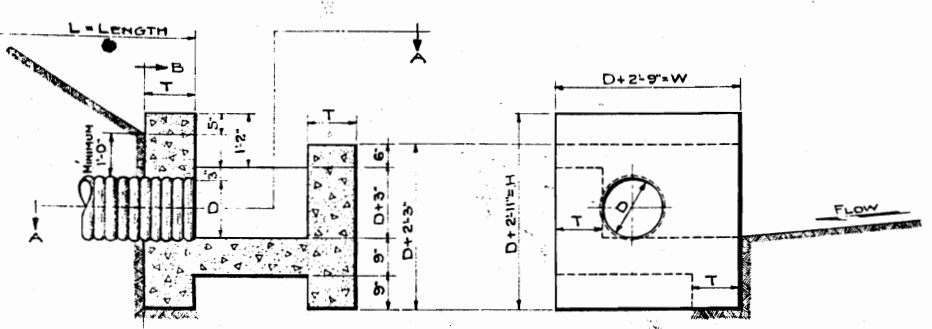


SECTIONAL ELEVATION "O-O" FRONT ELEVATION

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

TYPE "E"	D	W	H	T	CL. "B" CONCRETE FOR 2 HEADWALLS	CORRUGATED METAL PIPE	CEMENT RUBBLE MASONRY
15'	7'-6"	3'-9"	1'-6"	1'-6"	2.2 Cu. Yds.	16 GAGE 2xL = LIN. FT.	
18'	8'-6"	4'-0"	1'-7"	1'-7"	3.1 do	14 do 2xL = do	
24'	10'-6"	4'-6"	1'-10"	1'-10"	4.5 do	14 do 2xL = do	
30'	12'-6"	5'-0"	2'-0"	2'-0"	6.5 do	14 do 2xL = do	
36'	14'-6"	5'-6"	2'-2"	2'-2"	7.6 do	12 do 2xL = do	

STD. HEADWALLS FOR DOUBLE CORRUGATED METAL PIPE CULVERTS.

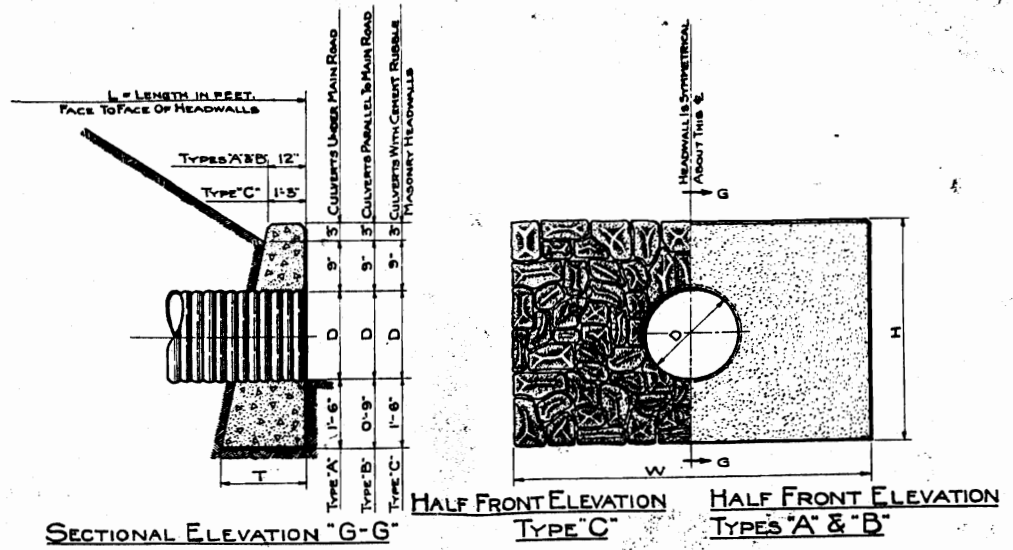


SECTIONAL ELEVATION "C-C" SECTIONAL ELEVATION "B-B"

TABLE OF DIMENSIONS & QUANTITIES FOR INTERCEPTING HEADWALLS

SIZE OF PIPE	WIDTH OF WALL	HEIGHT OF WALL	THICKNESS OF WALL	CONCRETE IN ONE HEADWALL
D	W	H	T	CU. YDS.
12"	3'-8"	3'-11"	9"	1.1
15"	4'-0"	4'-2"	9"	1.2
18"	4'-3"	4'-5"	9"	1.3
24"	4'-9"	4'-11"	9"	1.6

SECTIONAL PLAN "A-A" INTERCEPTING HEADWALLS.



SECTIONAL ELEVATION "G-G" HALF FRONT ELEVATION TYPE "C" HALF FRONT ELEVATION TYPES "A" & "B"

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

TYPE "A"	D	W	H	T	CL. "B" CONCRETE FOR 2 HEADWALLS	CORRUGATED METAL PIPE	CEMENT RUBBLE MASONRY
12'	4'-6"	3'-6"	1'-5"	1'-5"	1.4 Cu. Yds.	16 GAGE L = LIN. FT.	
15'	5'-3"	3'-9"	1'-6"	1'-6"	1.8 do	16 do L = do	
18'	6'-0"	4'-0"	1'-7"	1'-7"	2.2 do	16 do L = do	
24'	7'-6"	4'-6"	1'-10"	1'-10"	3.5 do	14 do L = do	
30'	9'-0"	5'-0"	2'-0"	2'-0"	4.5 do	14 do L = do	
36'	10'-6"	5'-6"	2'-2"	2'-2"	6.0 do	12 do L = do	
42'	12'-0"	6'-0"	2'-5"	2'-5"	8.0 do	10 do L = do	
48'	13'-6"	6'-6"	2'-7"	2'-7"	10.0 do	10 do L = do	

BAR LIST FOR TYPE "G"

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 L = LIN. FT.	LBS.	446
60"	8'-0"	6'-0"	16'-0"	4'-0"	4'-0"	do	13.5	do	do	482
66"	8'-6"	6'-6"	16'-6"	4'-0"	4'-6"	do	14.4	do	do	498
72"	9'-0"	7'-0"	17'-0"	5'-0"	5'-0"	do	17.9	do	do	610
78"	9'-6"	7'-6"	18'-0"	5'-0"	5'-6"	do	18.9	do	do	630
84"	10'-0"	8'-0"	20'-0"	5'-0"	5'-6"	do	20.0	do	do	684

GENERAL NOTES FOR ALL STRUCTURES

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" 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 ROUND OR SQUARE, AS SHOWN & 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.

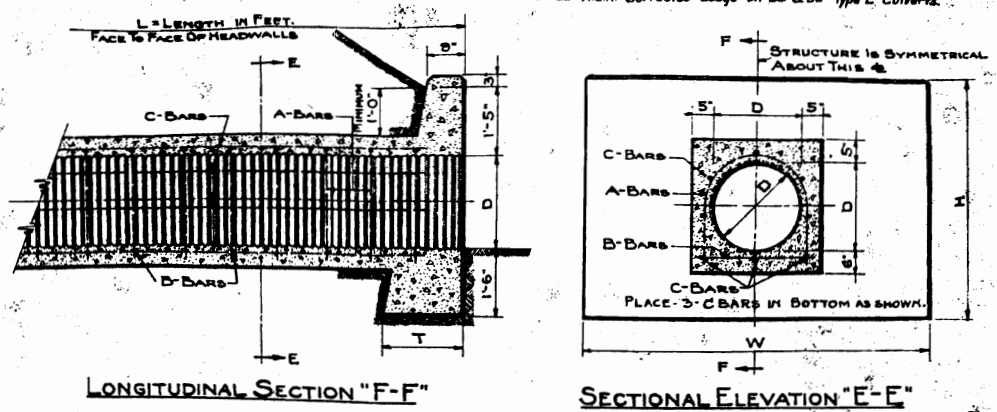
MINIMUM FILL OVER TOP OF CULVERTS SHALL BE 18".

WHEN CULVERT IS SKEWED HEADWALLS SHALL BE PLACED PARALLEL TO E OF ROADWAY. MINIMUM GRADE OF PIPE SHALL BE 1%.

FOR SIZE AND LOCATION OF CULVERTS SEE SHEET NO. 1.

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

STANDARD HEADWALLS FOR CORRUGATED METAL PIPE CULVERTS.



LONGITUDINAL SECTION "F-F" SECTIONAL ELEVATION "E-E"

TABLE OF DIMENSIONS & QUANTITIES FOR INCASED PIPE CULVERT

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"	
HEIGHT OF HEADWALL	H	4'-2"	4'-5"	4'-8"	5'-2"	5'-8"	
WIDTH OF HEADWALL BASE	T	1'-7"	1'-8"	1'-9"	2'-0"	2'-3"	
A-BARS	SPACING	12"	12"	12"	12"	12"	
	LENGTH	L-1	L-1	L-1	L-1	L-1	
	NUMBER	3-0"	4-5"	5-0"	6-4"	7-7"	
D-BARS	SPACING	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	
	LENGTH	1'-7"	1'-10"	1'-11"	2'-7"	3'-1"	
	NUMBER	6	6	6	6	6	
	LENGTH	L-(2'-0")	L-(2'-0")	L-(2'-0")	L-(2'-0")	L-(2'-0")	

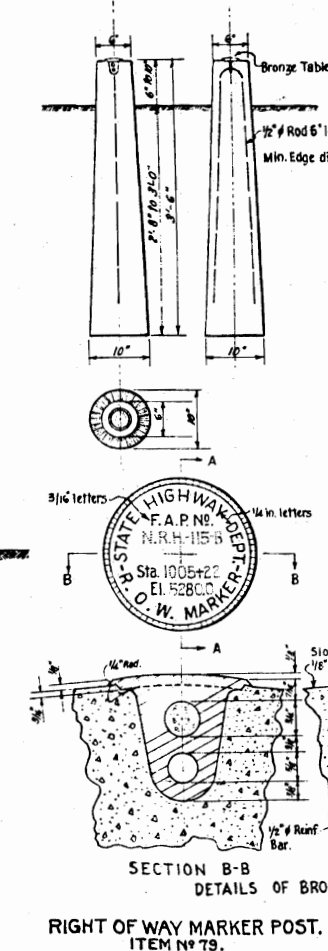
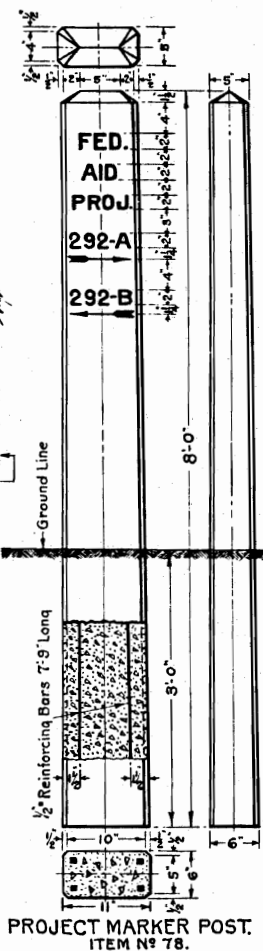
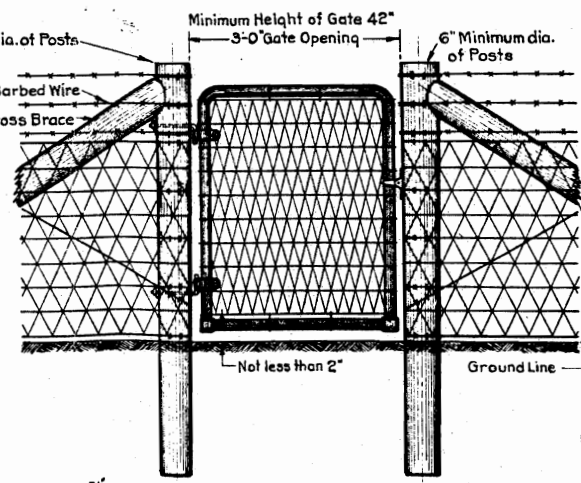
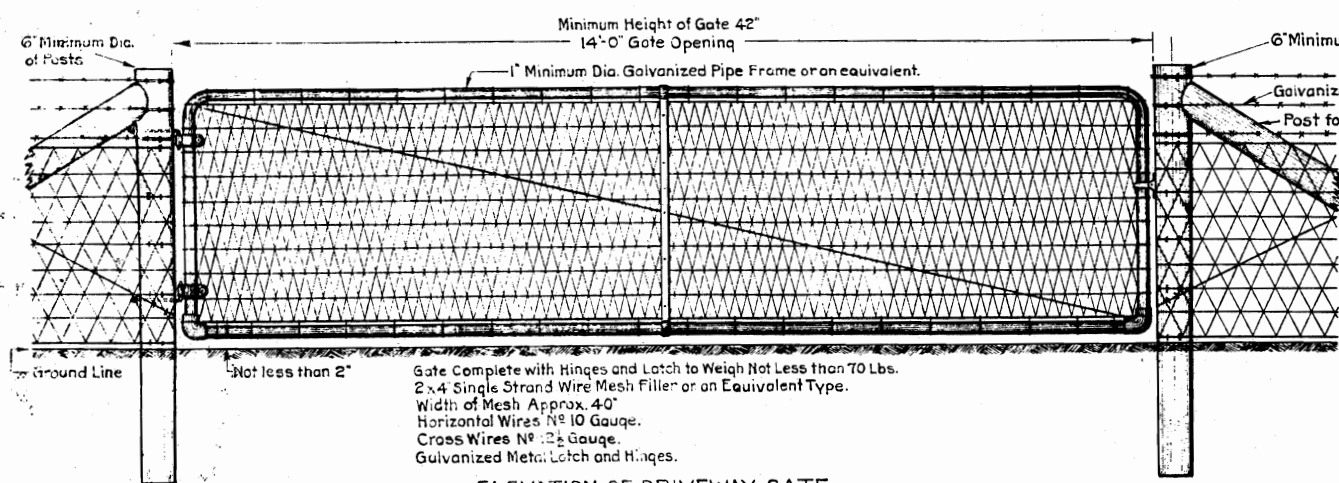
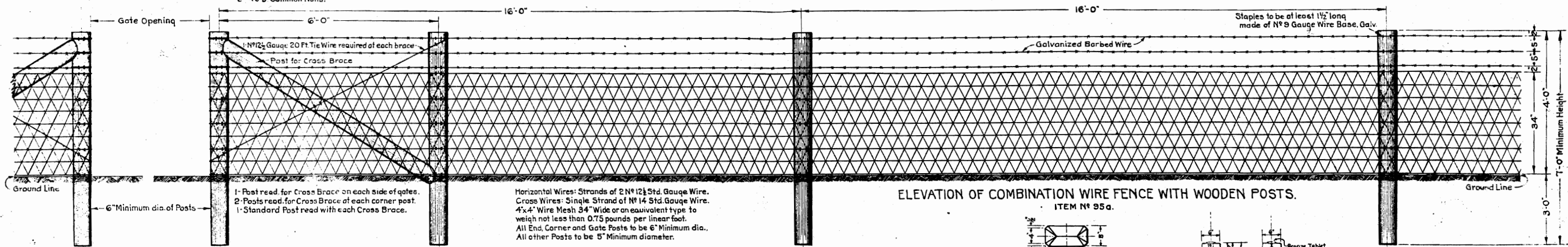
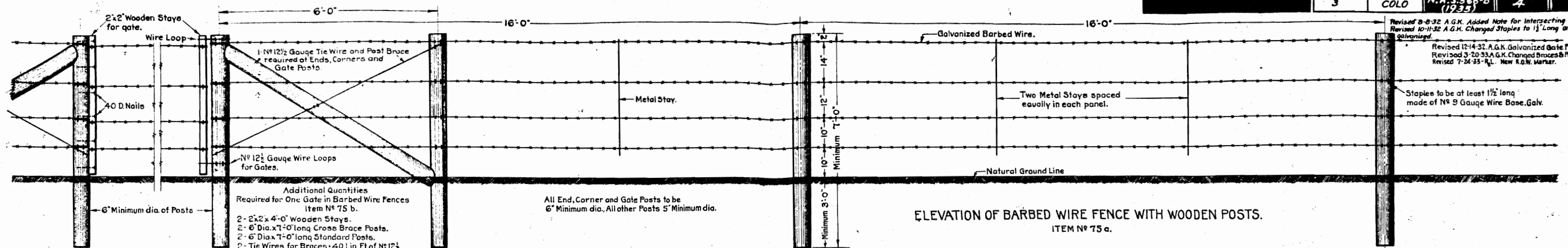
* CONCRETE QUANTITIES SHOWN ABOVE INCLUDE TWO HEADWALLS.
 @ WHEN L = 40 FT. OR MORE ADD 10.6 LBS. FOR LAP IN C-BARS.
 v WHEN L = 40 FT. OR MORE ADD 14.7 LBS. FOR LAP IN C-BARS.

SPECIAL NOTES
 ALL REINFORCING BARS SHALL BE 1/2" MINIMUM GRADE OF PIPE SHALL BE 1% PIPE SHALL BE THOROUGHLY CLEANED BEFORE INCASING WITH CONCRETE.

INCASED PIPE CULVERTS.

COLORADO
 STATE HIGHWAY DEPARTMENT
 STANDARD HEADWALLS
 INTERCEPTING HEADWALLS
 INCASED METAL PIPE CULVERT WITH HEADWALLS
 FOR CORRUGATED METAL PIPE CULVERTS

Designed by E. B. Bailey
 Made by G. H. W. D. Br. Jr. Engineer
 Checked by G. H. W. D. Br. Jr. April 30, 1932.



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 N° 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.

All work shall be done in accordance with Standard Specifications of the Colorado State Highway Department, adopted on Jan. 1, 1930.

Posts shall be made of Class "D" Concrete (Slump 3" 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 on Jan. 1, 1930.

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. 3/16" 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 surface of marker must be constructed to drain thoroughly.

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 N° 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 N° 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

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.

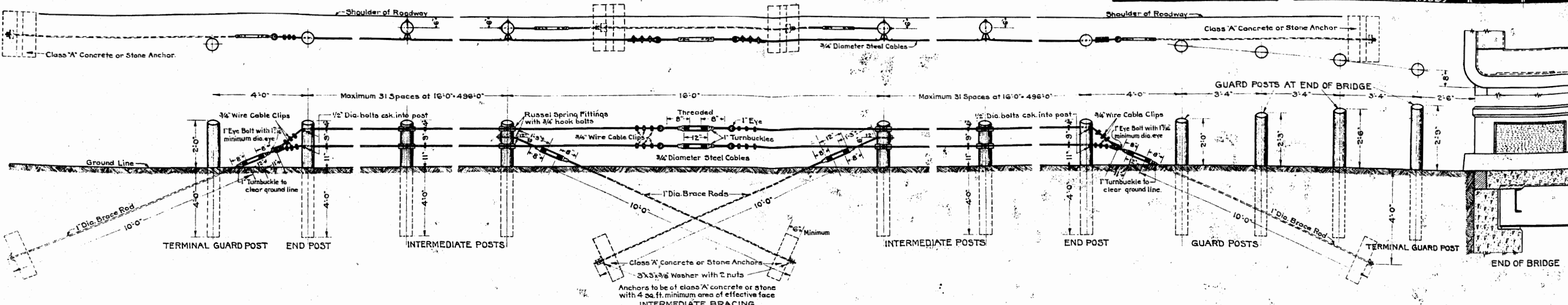
COLORADO STATE HIGHWAY DEPARTMENT
STANDARD WIRE FENCES AND MARKER POSTS

Designed by AGK. Approved by *Paul Bailey*
Made by AGK. Bridge Engineer
Checked by G.H.D. Date: Feb. 1, 1932.

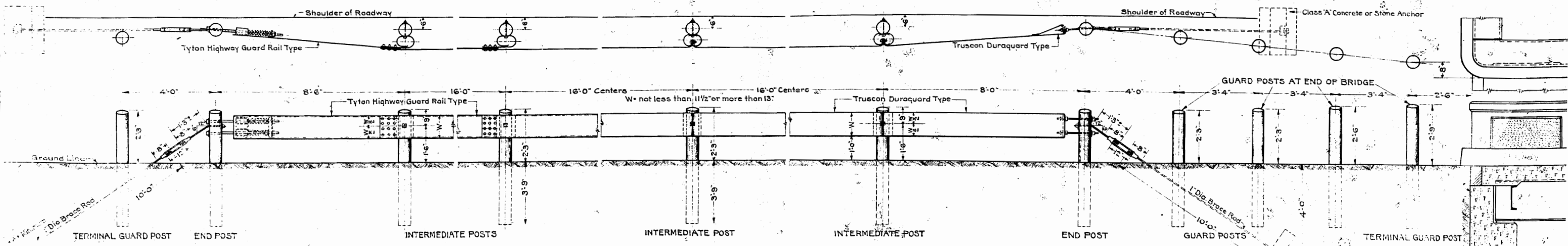
ORIGINAL BY	INITIAL	DATE
CHECKED BY		
VANDYKE BY		
CHECKED BY		

STANDARD M-20-G

FED. ROAD DIST. No.	STATE	U.S. P.W.-H. PROJ. No.	SHEET No.	TOTAL SHEETS
3	COLO.	N.R.S. 366-B (1935)	5	



STANDARD WIRE CABLE GUARD FENCE WITH TIMBER POSTS
ITEM N° 72.

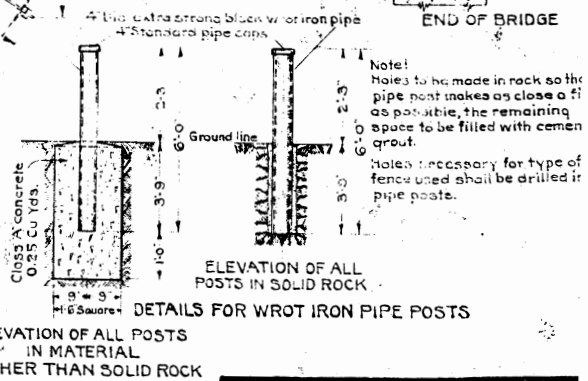


STANDARD METAL PLATE GUARD FENCE WITH TIMBER POSTS

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 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, thoroughly seasoned and dry, with square tops and all holes drilled 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.
All fittings, cables and hardware shall be hot dip galvanized 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 bolt heads and nuts coming in contact with wood posts.
In lieu of the Russel spring fitting, the contractor may use the Hubbard malleable offset casting fitting, the Blackburn 'U' bolt offset fitting, the standard Blackburn offset fitting, or other equivalent fittings providing a minimum offset of 3/2" from face of post to centerline of cable and approved by the engineer.
Welded fittings or other fittings equivalent to those shown on plans and approved by the engineer may be used in lieu of turnbuckles, eye bolts and clips shown on plans. Only one style of offset fittings, turnbuckles, eye bolts and clips may be used on a project.
Metal plates for metal plate guard fence shall be not lighter than N° 12 gauge.
In lieu of the metal plate guard fence types shown on this sheet, other equivalent types of plate guard fence approved by the engineer and complying with the specifications may be used. Only one type of plate guard fence may be used on a project.

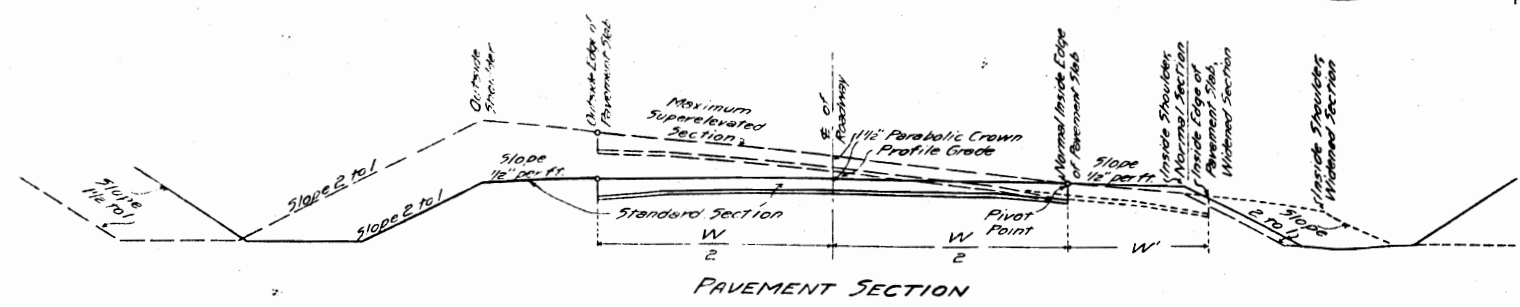


DESIGNED BY A.G.R. APPROVED BY O.D. Beckwith
MADE BY A.G.R. BRIDGE ENGINEER
CHECKED BY DATE May 1st, 1934

STANDARD M-1-A

FED. ROAD DIST. No.	STATE	U.S.P.W.-H PROJ. No.	SHEET No.	TOTAL SHEETS
3	COLORADO	W-1-1-1-1 (1-1-1)		

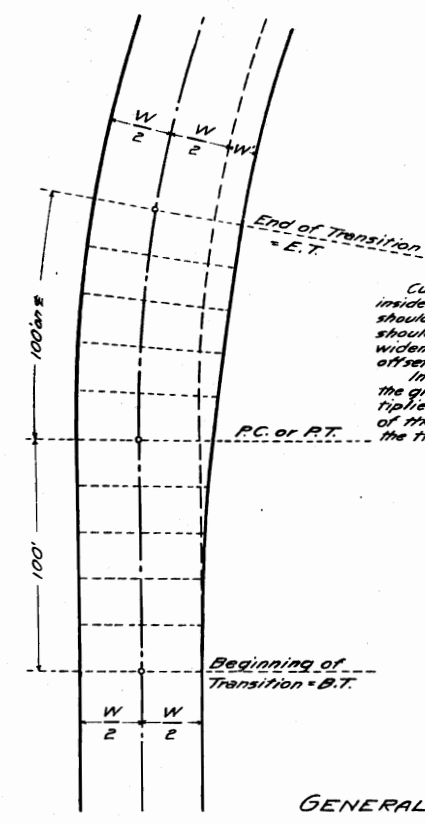
Revised 8-17-32 S.B.L. (200' Length)
 Revised 8-1-32 S.B.L.
 Revised 2-7-34 S.B.L.
 Revised 8-24-34 S.B.L. (Special Cases)



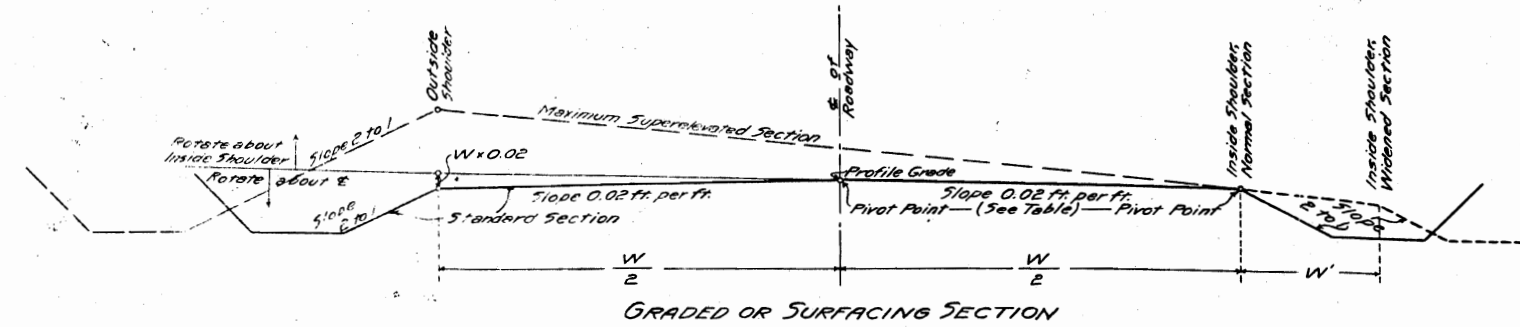
SUPERELEVATION AND WIDENING NOTES FOR PAVEMENT SECTION
 Curves on projects using the pavement section are to be superelevated and widened as indicated in the accompanying drawings and table.
 The normal inside edge of the pavement slab is to remain at the standard elevation of 0.125 ft. below the profile grade, and the outside edge of the slab is to be superelevated at the rate per foot width of roadway given in the table 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 1/4% 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 super-elevation rate exceeds this standard slope.
 The outside ditch along a super-elevated section is to be modified from the standard where a deeper ditch is required to provide drainage.
 Details of plans for super-elevating and widening are shown on the General Plan for Widening and the Graph of Super-elevation Factors.
 The subgrade for future pavement is to be constructed to conform to the super-elevation 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
Rate of Super-elevation (in Feet) per Foot Width of Roadway											
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	0.0259	0.0290	0.0309	0.0315	0.0315
4°	0.0008	0.0034	0.0076	0.0134	0.0210	0.0285	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	0.0674	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	0.52	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



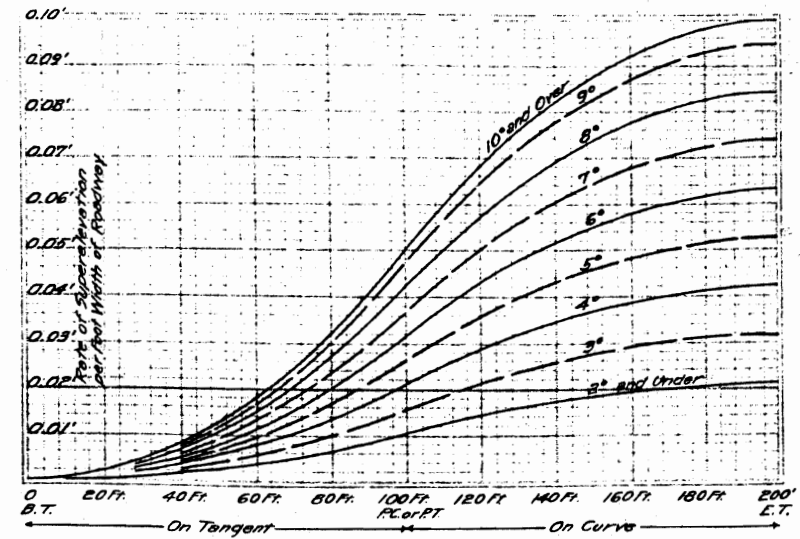
Curves of over 10° are to have the inside portion of the pavement slab and shoulder, or the inside portion and shoulder in a graded or surfacing section, widened in accordance with the plan, offsets for widening, and cross sections. In the graph below the values for the graph labeled "10° and Over," multiplied by 1,000 gives the percentage of the total widening at any point on the transition.



SUPERELEVATION AND WIDENING NOTES FOR GRADED OR SURFACING SECTIONS
 Curves on projects using the graded or surfacing section are to be super-elevated 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 super-elevated 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 super-elevation does not exceed 0.02 feet per foot width of roadway. The normal inside shoulder pivot point is to be used for a super-elevation 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 super-elevation and widening are shown on the General Plan for Widening and the Graph of Super-elevation Factors.

SUPERELEVATION FACTORS AND OFFSETS FOR WIDENING FOR GRADED OR SURFACING SECTIONS

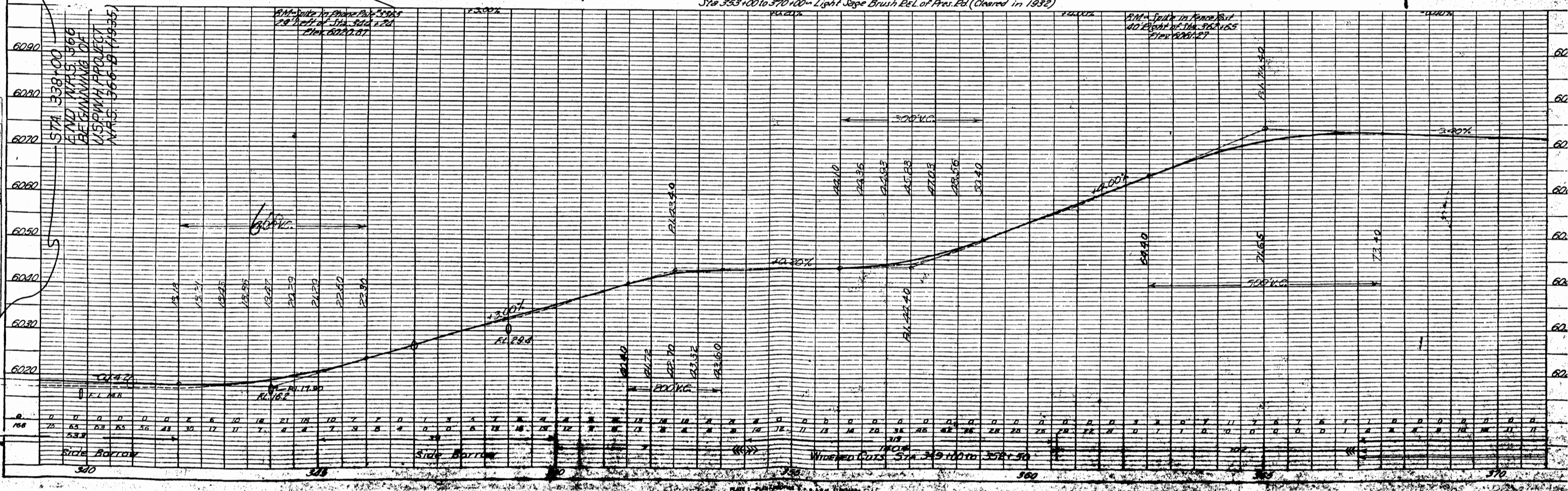
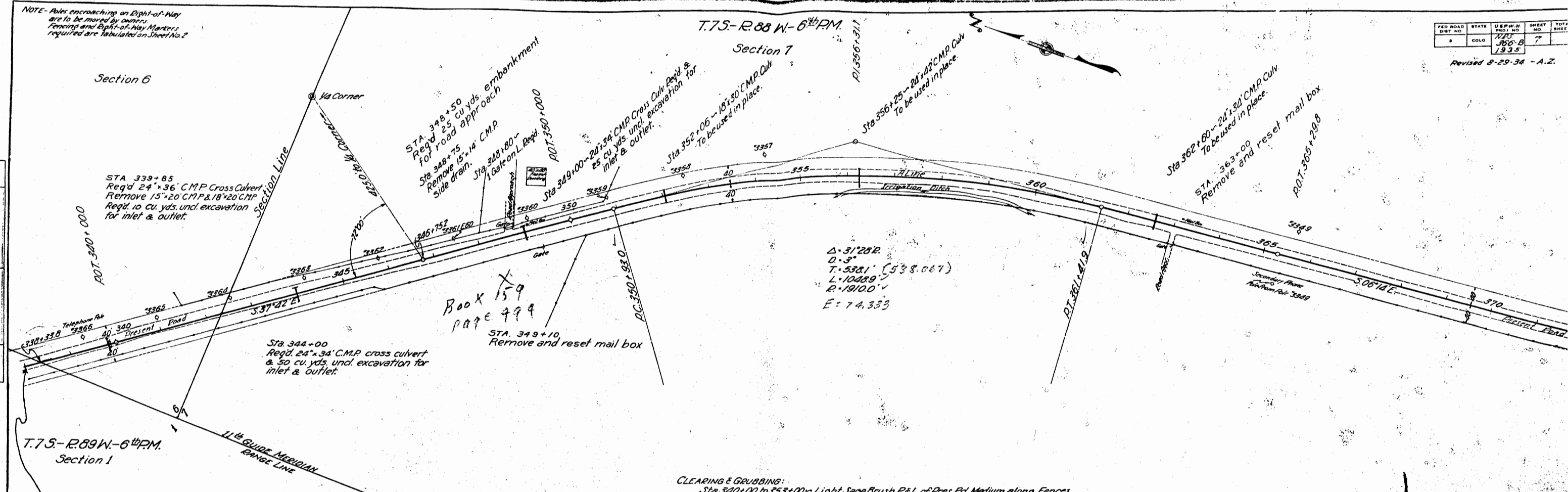
Distance from B.T.	20 Ft.	40 Ft.	60 Ft.	80 Ft.	100 Ft. = P.C.	120 Ft.	140 Ft.	160 Ft.	180 Ft.	200 Ft. = E.T.	On Curve	Length of Transition Rotated about	
Factor	0.02	0.08	0.18	0.32	0.50	0.68	0.82	0.92	0.98	1.00	1.00		
Rate of Super-elevation (in Feet) per Foot Width of Roadway													
Degree of Curve	Rate of Super-elevation (in Feet) per Foot Width of Roadway											Center Line	Inside Shoulder
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	0.0259	0.0290	0.0309	0.0315	0.0315	115 "	85 "
4°	0.0008	0.0034	0.0076	0.0134	0.0210	0.0285	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	0.0674	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	69 "	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	69 "	137 "
Offsets for Widening-W' (in Feet)													
Over 10° - Under 12°	0.06	0.24	0.52	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		



The rate of super-elevation 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 super-elevation per foot width of roadway rate for a given degree of curvature is
 0.0105 Ft. x Degree of Curvature.
 The maximum super-elevation 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 super-elevation shown in the tabulations.
SPECIAL CASES: When the roadway alignment does not permit the use of the 200 ft. transition lengths, the segment lengths may be proportionately shortened. A minimum distance of 200 ft. between the points of full super-elevation shall be used.

COLORADO STATE HIGHWAY DEPARTMENT
STANDARD METHODS FOR SUPERELEVATION AND WIDENING OF CURVES
 Designed by I.B.L. Approved by
 Made by S.B.L.
 Checked by [Signature] Date: Aug. 17, 1932.

NOTE - Poles encroaching on Right-of-Way are to be moved by owners. Fencing and Right-of-Way Markers required are tabulated on Sheet No. 2



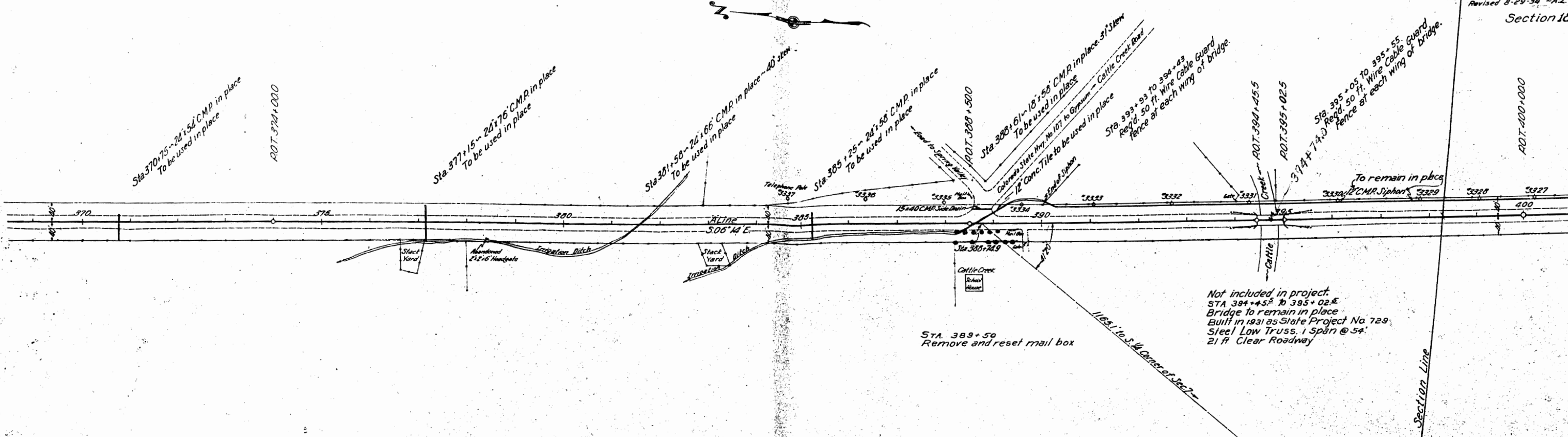
NOTE BOOK ALUMINUM CHECKED BY RT. OF WAY CHECKER

NOTE FROM C.E. REEVEY P.M.E. NOTED STRUCTURE NOT TO BE CHANGED

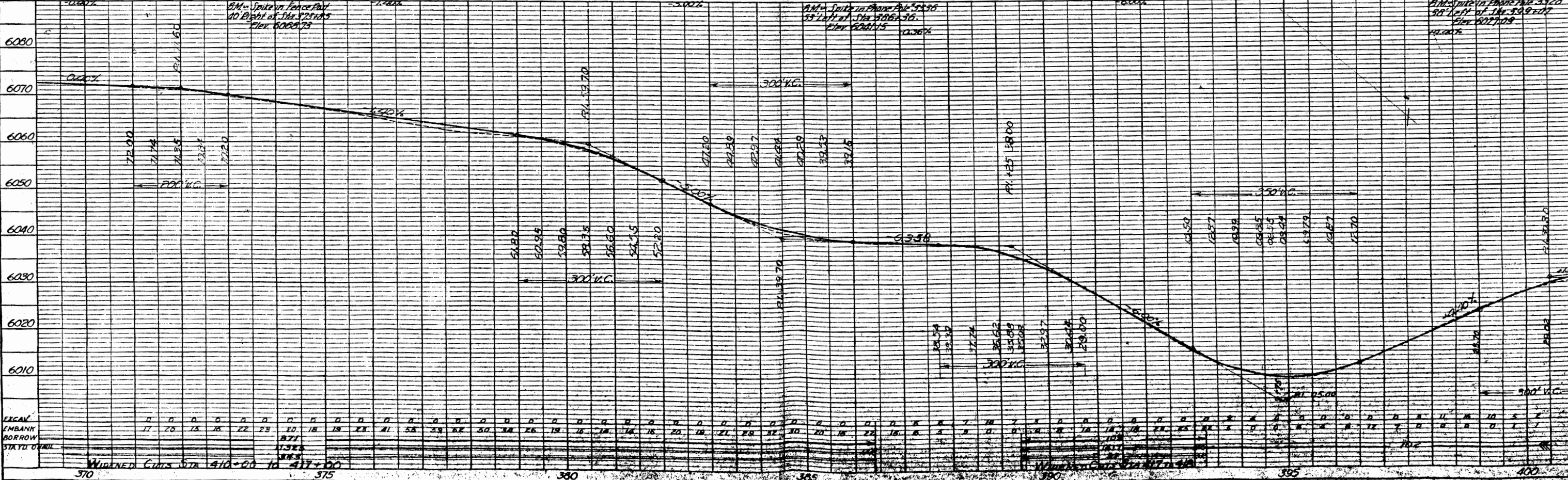
NOTE - Poles encroaching on Right-of-Way are to be moved by owners. Fencing and Right-of-Way Markers required are tabulated on Sheet No. 2

T.75-R.88 W-6th P.M.
Section 7

FED. ROAD DIST. NO.	STATE	U.S.P.W.H. PROJ. NO.	SHEET NO.	TOTAL SHEETS
	COLORADO	726-B	9	
(1935)				
Revised 8-29-34 - A.Z.				
Section 18				



CLEARING & GRUBBING:
Sta 370+00 to 400+00 - Light Sage Brush R.E.L. of Pres. Road (Cleared in 1932)



CHECKED BY: [Signature]
 DATE: [Date]
 PROJECT: [Project Name]
 SHEET: [Sheet No.]

CHECKED BY: [Signature]
 DATE: [Date]
 PROJECT: [Project Name]
 SHEET: [Sheet No.]

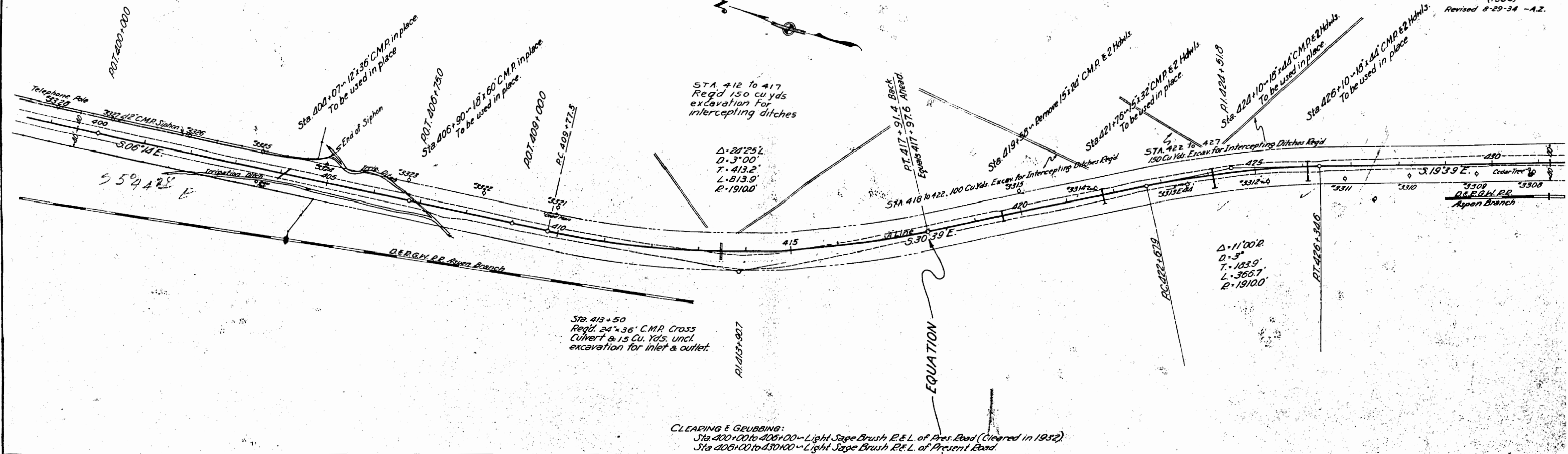
WIDENED CURB STA 410+00 TO 417+00

WIDENED CURB STA 417+00 TO 424+00

NOTE - Poles encroaching on Right-of-Way are to be moved by owners. Fencing and Right-of-Way Markers required are tabulated on Sheet No. 2

T.75-R.88W-6th P.M.
Section 18

FED. ROAD DIST. NO.	STATE	U.S. R.W. #	SHEET NO.	TOTAL SHEETS
336-B	NEB.	368-B	9	
Revised 8-29-34 -A.Z.				



CLEARING & GRUBBING:
Sta 400+00 to 406+00 - Light Sage Brush R.E.L. of Pres. Road (Cleared in 1932)
Sta 406+00 to 430+00 - Light Sage Brush R.E.L. of Present Road.

