TITLE SHEET

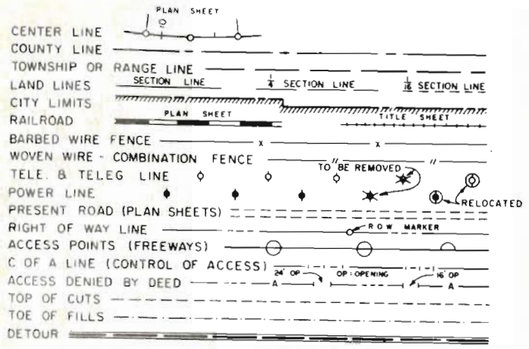
STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS — STATE OF COLORADO

P.E. & UTILITIES UNDER PROJECT
NO. T 7300(3)
R.O.W. UNDER PROJECT NOS.
C 02-0096-23 & T 7300(3)

FEDERAL ROAD REGION NO	DIVISION	PROJECT NO	SHEET NO
9	COLORADO	T 7300(3)	1

PLAN AND PROFILE OF ~~PROPOSED~~ *COMPLETED*
FEDERAL AID PROJECT NO. T 7300(3)
STATE HIGHWAY NO. 96
PUEBLO COUNTY

CONVENTIONAL SIGNS



SCALES OF ORIGINAL DRAWINGS

ON PLAN, 1 IN = 20 FT.
ON PROFILE { 1 IN = 50 FT. HORIZONTAL
1 IN = 5 FT. VERTICAL

GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD

(R-1) 7-22-71 ADDED M-STD. T.A.L.

AS CONSTRUCTED
REVISED DATE *11-19-71*
FINAL CONSTRUCTION

INDEX OF SHEETS

SHEET NO			
1	TITLE PAGE, SKETCH MAP, TABULATION OF LENGTH AND DESIGN DATA		
2	TYPICAL SECTION, GENERAL NOTES, DETAIL OF GUTTER TYPE 2 (8 FOOT)		
3 - 4	SUMMARY OF APPROXIMATE QUANTITIES		
5	STRUCTURE QUANTITIES		
6	SUMMARY OF EARTHWORK QUANTITIES, SURFACING PLAN, REMOVAL OF TREE, ADJUST MANHOLES AND VALVE BOXES TABULATIONS.		
7	CURB, GUTTER AND SIDEWALK TABULATION		
8 - 9	PLAN SHEETS		
10	PROFILES OF CURB & GUTTER		
11	DRAINAGE PLAN AND PROFILE		
12	DETAILS OF CHAIN LINK FENCE AND ADJUST VALVE BOX		
13 - ~~23~~ *22*	CROSS SECTIONS		
M-206-AA	EXCAVATION AND BACKFILL FOR STRUCTURES	(2 SHEETS)	3-1-71
M-603-M	METAL CULVERT PIPE - H-20 LOADING		2-11-71
*(R-1) ** → M-604-AA	CONCRETE INLETS - TYPES 3 AND 3 DOUBLE		12-2-68
M-604-D	STEPS FOR MANHOLES AND INLETS		7-23-68
M-604-E	MANHOLES		4-20-71
M-607-B	CHAIN LINK FENCE	(2 SHEETS)	4-20-71
M-609-A	CURBS AND GUTTERS		5-7-71
M-614-A	TIMBER BARRICADES		4-23-69
M-614-IC	STANDARD CONSTRUCTION IDENTIFICATION SIGNS	(2 SHEETS)	9-25-70
M-614-TB	TRAFFIC SIGNING FOR HIGHWAY CONSTRUCTION	(3 SHEETS)	12-24-68
*(R-1) ** M-603-RC	REINFORCED CONCRETE PIPE		3-1-71

"As Constructed No Revisions"
Sheets 10 and 12

TABULATION OF LENGTH AND DESIGN DATA

STATION	LIN. FT.
0 + 00.0 (PROJ.) BEGIN T7300(3)= 12.0' RT. 0+00.0 (SURV.)	
	885.8
8 + 81.4 W.B. 8 + 90.2 E.B. } 8 + 85.8 AVG. (PROJ.)	
	9.2
8 + 95.0 (PROJ.) END T7300(3)= 27.3' LT. 9+22.4 (SURV.)	
TOTAL	895.0

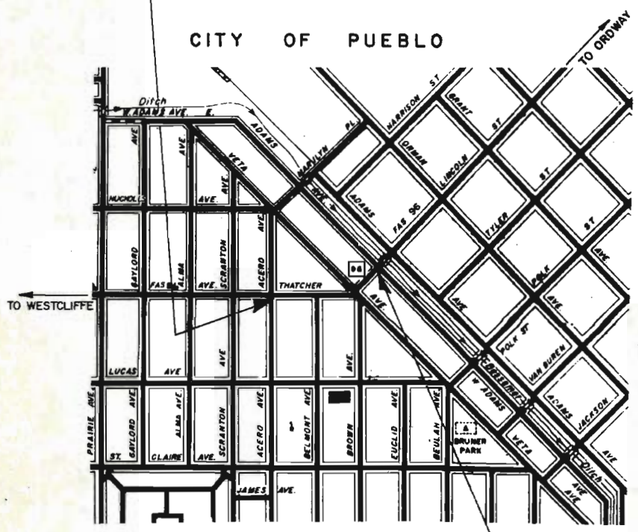
SUMMARY

	LIN. FT.	MILES
T 7300 (3) NET & GROSS LENGTH	895.0	0.170

DESIGN DATA

MAXIMUM DEGREE OF CURVE	16°00'
MAXIMUM GRADE	1° ±
MINIMUM S.S.D. HORIZONTAL	>900'
MINIMUM S.S.D. VERTICAL	>1300'
MAXIMUM DESIGN SPEED	35 M.P.H.
1991 DESIGN TRAFFIC VOLUME	28,600 A.D.T. 3,150 D.H.V.

STA. 0+00.0 (PROJ.) BEGIN T 7300(3)=
12.0' RT. STA. 0+00.0 SURVEY



STA. 8 + 95.0 (PROJ.) END T 7300(3)=
27.3' LT. STA. 9 + 22.4 SURVEY

SCALE IN FEET
0 500 1000 1500

MAR 1972
District 2
Design Off.
D.O.H.

SEE SPECIAL PROVISIONS FOR
NOTICE TO BIDDERS

DIVISION OF HIGHWAYS

FINAL APPROVAL AS CONSTRUCTED PLANS
John T. Prince *1-24-72*
DISTRICT CONSTRUCTION ENGR DATE

DIVISION OF HIGHWAYS

APPROVED
Chas E Shumate *6-8-71*
CHIEF ENGINEER DATE

CONTRACTOR: BRODERICK & GIBBONS
RESIDENT ENGR: V. E. WILLIAMS
PROJECT ENGR: R. J. QUAYLE
PROJECT STARTED: 8-30-71
PROJECT COMPLETED: 11-19-71

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED ________ DATE

DIVISION ENGINEER

T.A.L.

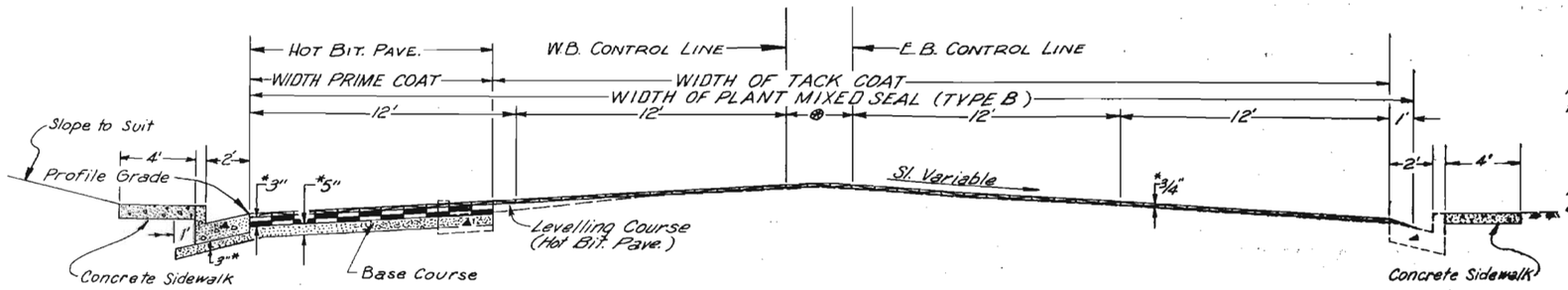
STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS — STATE OF COLORADO
FORM D.O.H. 126
JULY, 1964

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	T 7300 (3)	2	

(R-1) 7-8-71 Sheet Nos. T.A.L.

AS CONSTRUCTED
REVISED DATE 11-16-71

TYPICAL SECTION



* Approximate Thickness
(R-1) ⊛ Varies - See Sheet No. 8 & 9.
▲ For locations of curb & gutter removal & construction see Sheet No. 7

GENERAL NOTES

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

Prime Coat MC	@ 0.40 Gals. per Sq. Yd.
Tack Coat (SS-1h)	@ 0.10 Gals. per Sq. Yd. (1:1 Mix)
Seal Coat & Bit. Pave.	@ 110 Lb/Sq.Yd. per inch

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

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

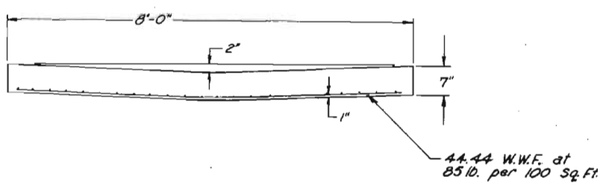
Moisture-Density control ~~will be~~ was required to a depth of 1/2 Foot on the subgrade in the areas where base course and Hot Bituminous Pavement are required. The type of compaction shall be AASHO T-99. The cost of wetting and compacting the subgrade ~~will be~~ included in the unit price for "Hot Bituminous Pavement."

~~It is estimated that 600~~ 477 Hours of Flagging for controlling traffic ~~will be~~ required for this project.

The Force Account Item, "Clearing of Building Sites, etc.," ~~shall~~ includes removal of all foundations, wells, buildings and other appurtenances not removed by the owner, and any necessary backfilling of cellars, cesspools, wells, etc., to provide neat roadside conditions. ~~It is estimated that~~ this item applies at the following locations: Sta. 4± Lt., Sta. 6± Lt.

Signs, interfering with construction, ~~will be~~ removed by State Forces.

DETAIL OF GUTTER TYPE 2 (8 FOOT)



Welded wire fabric will not be paid for separately, but shall be included in the unit price bid for Gutter Type 2 (8 Foot)

TE DEPARTMENT OF HIGHWAYS
OF HIGHWAYS — STATE OF COLORADO
e No. 113 (Mylar)
Y 1966

FINAL SUMMARY OF ~~APPROXIMATE~~ QUANTITIES

AS CONSTRUCTED (R-1) 7-22-71 Rev. Pipe Type T.A.L.
REVISED DATE 11-19-71
CONSTRUCTION

FEDERAL ROAD DIVISION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	T 7300 (3)	3	

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM		UNIT								CHANGE ORDER #19252			ADJUSTED TOTALS	PROJECT TOTALS	FINAL TOTALS	UNDERRUN OR OVERRUN	
	7	5	202	Removal of Structure		Each												2	2	0	
	7	6	202	Removal of Tree		Each												15	16	+1	
	8	7	202	Removal of Sidewalk		Sq. Yd.												220	351	+131	
	8	7	202	Removal of Gutter		Lin. Ft.												72	93	+21	
	9	7	202	Removal of Curb and Gutter		Lin. Ft.												1340	1300	-40	
	9	5	202	Plug Culvert		Each												2	2	0	
	10	13-21	203	Unclassified Excavation (Haul)		Cu. Yd.										Bid Field Quantity		1000	~~769~~ 768	-232	
	11	5+22	206	Structure Excavation		Cu. Yd.												1220	1260	+40	
	11	5+22	206	Structure Backfill (Class 2)		Cu. Yd.												230	216	-14	
	12		209	Wetting		M Gal.												10	12	+2	
	13	6	210	Adjust Manhole		Each												3	3	0	
	13	6	210	Adjust Valve Box		Each												9	8	-1	
	14	6	304	Aggregate Base Course (Class 6) (Haul)		Ton												400	411	+11	
	15	6	403	Hot Bituminous Pavement (Grading E) (Haul and Asphalt)		Ton									+175			475	300	485.1	+0.1
	16	6	410	Plant Mixed Seal (Type B) (Haul and Asphalt)		Ton													300	331.8	+31.8
	17		411	Emulsified Asphalt (SS-1 H)		Gal.													100	325	+225
	17		411	Liquid Asphaltic Material (MC-70)		Gal.													300	290	-10
	18	7	412	Concrete Pavement (6 Inch)		Sq. Yd.									+93	Bid Field Quantity		146	53	~~193.36~~ 192.72	- 0.64
	19	5	604	Inlet Type 3 (5 Foot)		Each													2	2	0
	19	5	604	Inlet Type 3 (10 Foot)		Each													2	2	0
(R-1)	20	5	604	Manhole Slab Base (10 Foot)		Each													2	2	0
(R-1)	21	5	608	Concrete Sidewalk		Sq. Yd.													554	553	- 1
	22	7	609	Curb and Gutter Type 2 (Section II-B)		Lin. Ft.													1163	1232.5	+69.5
	22	7	609	Gutter Type 2 (8 Foot)		Lin. Ft.													52	50	- 2
(R-1)	23	2	614	Flagging		Hour													600	477	-123
	24	5	617	24 Inch Culvert Pipe		Lin. Ft.													1,002	~~983~~ 964	- 19
	25		626	Mobilization		L. S.													•	100%	

SEE Book No 2

TE DEPARTMENT OF HIGHWAYS
OF HIGHWAYS — STATE OF COLORADO
No. 313 (Mylar)
Y 1968

SUMMARY OF APPROXIMATE QUANTITIES

FINAL CONSTRUCTION

AS CONSTRUCTED
REVISED DATE 11-19-71

FEDERAL ROAD DIVISION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	T7300(3)	4	

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM		UNIT											PROJECT TOTALS	FINAL TOTAL	OVERRUN	
				FORCE ACCOUNT																
				Clearing of Building Sites Etc.		L.S.											•			
				Work Order No. 15158		Labor $312.05 Plus 35% of Labor $109.22 Plus Fringe $24.10 Total Labor $445.37 Equipment $801.15											$1,000.00	$1,246.52	$246.52	
				STATE FORCES																
1	9(1)			Furnishing and Installing Identification Sign (State Forces)		Each											2			
				RIGHT OF WAY																
				Right of Way Entire Project		L.S.											•			
				RIGHT OF WAY (RELOCATION)																
				Relocation Payments		L.S.											•			
				NON-FEDERAL AID																
				Signing and Striping Entire Project (State Forces)		L.S.											•			

DEPARTMENT OF HIGHWAYS, STATE OF COLORADO
FORM D.O.H. 125 (LINEN)
REV. OCT. 1967

FINAL STRUCTURE QUANTITIES

(R-1) 7-22-71 Rev. Pipe Type T.A.L.

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLORADO	T 7300(3)	5

(R-1)

INDEX BOOK	INDEX PAGE	INDEX SHEET	LOCATION	REMOVE STRUCTURE EACH	PLUG CULVERT EACH	STRUCTURE EXCAVATION CUBIC YARD	STRUCTURE BACKFILL CUBIC YARD CL. 2	AGGREGATE BASE COURSE SURFACING (CLASS 6) TON	HOT BITUMINOUS PAVEMENT (GRADING E) TON	INLET TYPE 3 EACH 5 FT.	INLET TYPE 3 EACH 10 FT.	MANHOLE BOX BASE EACH 10 FT.	"H" FT.	ELEVATIONS RIM OR GRATE	ELEVATIONS INVERT	BIT. COAT. CORR. STEEL PIPE SEWER OR REIN. CONC. PIPE SEWER LIN. FT. 24"	PIPE INVERT ELEVATION OUT	PIPE INVERT ELEVATION IN	LINE FROM	LINE TO	"H" OVER CULV. FT.	% GRADE	MISCELLANEOUS
1	10		0+02 ~~0+35~~ (Surv.) ~~15'Lt.~~ 15'Lt. Inlet # 1	1	1	~~8.6~~ ~~33~~	3 ~~9~~	~~5~~ *	~~4~~ *	1			4'-6"	95.53	~~92.03~~ ~~91.70~~	15 ~~40~~	92.03 ~~91.76~~	—	Inlet #1	M.H. A	4.7	~~-1.30~~ ~~-0.33~~	AS CONSTRUCTED REVISED DATE 11-19-71
1	11		0+02 (Surv.) 3' Rt. M.H. A			~~376.5~~ ~~375~~	90	~~55~~ *	~~36~~ *			1	5'-6"	~~96.46~~	91.83 ~~91.57~~	392	91.83 ~~91.57~~	91.83 B ~~91.57~~	M.H. A	M.H. B	5.2	~~-0.24~~ ~~-0.17~~	
1	12		0+20 (Surv.) 34' Rt. Inlet # 2			16.9 ~~27~~	7 ~~9~~	~~5~~ *	~~4~~ *	1			5'-0"	96.40	~~93.68~~ ~~92.07~~	34 ~~36~~	93.63 ~~92.07~~	—	Inlet #2	M.H. A	4	~~-0.59~~ ~~-1.39~~	
1	13		3+98 (Surv.) 5' Lt. M.H. B			~~193~~ ~~191~~ ~~178~~	27					1	9'-0"	95.94	87.55	120	87.55	90.90 ~~90.93~~	M.H. B	Inlet #3	8	-0.258	
(R-1) 1	14		5+14 (Surv.) 45' Lt. Inlet # 3			85 ~~91~~	9	~~9~~ *	~~6~~ *		1		9'-0"	95.57	87.24	56	87.24	87.24	Inlet #3	Inlet #4	7	-0.04	
1	15		5+29 (Surv.) 35' Lt.	1	1																		
1	16		5+65 (Surv.) 70' Lt. Inlet # 4			380 ~~514~~	80	~~29~~ *	~~20~~ *		1		9'-0"	95.55	87.22	366 ▲0 ~~358~~	87.22	87.22	Inlet #4	Outlet	8	-0.49 ~~-0.337~~	
(R-1)			PROJECT TOTALS	2	2	~~1858~~ ~~1218~~ 1,260	214 ~~224~~	~~103~~ *	~~70~~ *	2	2	2				983 ~~1,002~~							

■ From Inlet #1 & Inlet #2. ø ~~To be~~ cantilevered 6 Ft. ~~Minimum~~ at Outlet.

(R-1) ▲ Remove and Rebuild Fence Rt. of Sta. 9+68 ~~to be~~ included in cost of 24" Pipe.

* INCLUDED IN ROADWAY QUANTITIES

DIVISION OF HIGHWAYS, STATE OF COLORADO
D. O. H. FORM NO. 126
JUNE 1969

Stabilization based on the following:
18k E.O.L.A. 52
Regional Factor 1.5
Serviceability Index 2.5
Strength Coefficients:
Plant Mixed Seal Coat 0.25
Bituminous Pavement 0.40 (R=92)
Aggregate Base Course(0.6)0.12 (R=80)

AS CONSTRUCTED
REVISED DATE 11-10-71
FINAL CONSTRUCTION

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	COLORADO	T 7500(3)	6	

FINAL SURFACING PLAN

STATION	SOURCE	TONS AGGREGATE BASE COURSE CLASS 6		BOTTOM LAYER HOT BITUMINOUS PVMT. GRADING B		TOP LAYER HOT BITUMINOUS PVMT. GRADING E		PLANT MIXED SEAL COAT TYPE B	
1+64 to 3+42 Lt.		~~21~~	93.1	~~4~~		~~4~~	17.9 ø		
3+42 to 5+36 Lt.		~~90~~	91.4	~~21~~		~~21~~	137.4 ø		
5+83 to 7+25 Lt.		~~33~~	46.6	~~8~~		~~8~~	154.7 ø		
ACERO AVE.							8.0 ø		
3+32 to 4+72 Rt.		~~30~~	60.0	~~7~~		~~7~~			
6+23 to 8+88 Rt.		~~55~~	85.5	~~13~~		~~13~~			
VETA AVE.									33.6
Brown Ave.		~~15~~	34.4	~~2~~		~~2~~	54.1 ø		33.4
0+00 to 1+64								~~37~~	17.2
1+64 to 3+62								~~40~~	46.3
3+62 to 8+95								~~139~~	181.9
~~From Structure Quant~~	Undesignated	~~103~~				~~70~~			
Est. For:									
Levelling Course				~~50~~			103.0 ø	~~25~~	
~~Rd Appr. 5+60 Lt.~~								~~9~~	
~~Rd Appr. 6+80 Rt.~~								~~18~~	
Project Totals		~~337~~	411.0	~~105~~		~~125~~	475.1 ø	~~252~~	331.8

ø INCLUDES BOTH BOTTOM & TOP LAYER

INDEX

BOOK	PAGE	SHEET

FINAL SUMMARY OF EARTHWORK QUANTITIES

UNCLASSIFIED

Roadway (From Cross Sections)		~~769~~ ~~768~~ ~~412~~	Cu. Yd.
	Total	~~412~~ ~~768~~ 769	Cu. Yd.

ROADWAY QUANTITIES BALANCE
(For Information Only)

EXCAVATION			
Unclassified		412	Cu. Yd.
*Less Excess Excavation		- 337	
	Total	75	Cu. Yd
EMBANKMENT			
Sidewalk Backup Material		75	Cu. Yd.

* Excess Excavation is to become the property of the Contractor.

REMOVAL OF TREE

STATION	SIDE	EACH	
5+83 W.B.	Lt.	1	
5+88 W.B.	Lt.	1	
6+64 W.B.	Lt.	1	
6+71 W.B.	Lt.	1	
6+86 W.B.	Lt.	1	
6+93 W.B.	Lt.	1	
7+05 W.B.	Lt.	1	
7+08 W.B.	Lt.	1	
7+79 E.B.	Rt.	1	
~~7+~~	~~Rt.~~	1	
7+94 E.B.	Rt.	1	
8+11 E.B.	Rt.	1	
8+31 E.B.	Rt.	1	
8+52 E.B.	Rt.	1	
8+73 E.B.	Rt.	1	
8+90 E.B.	Rt.	1	
TOTAL		~~16~~ ~~15~~ *	

* SEE BOOK NO. 1 PAGES 18 & 19

ADJUST MANHOLES & VALVE BOXES

STATION (SURV.)	SIDE	ADJUST MANHOLE EACH	ADJUST VALVE BOX EACH
0+00	℄		1ø
~~0+52~~ 0+02	Rt.	1	
2+57	Lt.		1
3+17	Rt.		1
3+30	℄		1ø
~~3+85~~ 3+98	~~Rt.~~ Lt.	1	
4+83	Rt.	1	
5+67	Lt.		1
6+09	Rt.		1
6+24	Rt.		1
6+24	℄		1ø
~~7+75~~	~~℄~~		~~1~~
Project Totals		3▲	~~8~~ 9▲

ø City Monuments. ▲ SEE BOOK No. 1 PAGES 21-26

DIVISION OF HIGHWAYS, STATE OF COLORADO
D. O. H. FORM NO. 126
JUNE 1969

AS CONSTRUCTED
REVISED DATE 11-19-71
FINAL CONSTRUCTION

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	T 7300(3)	7	

FINAL CURB, GUTTER & SIDEWALK TABULATION

STATION	SIDE	REMOVE						BUILD									
		CURB & GUTTER		GUTTER		SIDEWALK		CURB & GUTTER TYPE-2 SECTION II-B		CONCRETE SIDEWALK		CONCRETE PAVEMENT (6 INCH)		CURB CUTS*		GUTTER TYPE 2* (8 FOOT)	
		LIN. FT.	FINAL	LIN. FT.	FINAL	SQ. YD.	FINAL	LIN. FT.	FINAL	SQ. YD.	FINAL	SQ. YD.	FINAL	WIDTH	FINAL	LIN. FT.	FINAL
0 ±	Lt. & Rt.		78	~~32~~	53		40		61.5				17.51			~~32~~	30
0+07 to 1+44	Lt.									~~60~~	60		15.25				
1+~~64~~ to 2+22	Lt.	~~58~~	58			~~26~~	27	~~58~~	58	~~20~~	20	~~6~~	5.33				
2+22 to 3+~~42~~ 47	Lt.	~~124~~	126					~~124~~	118	~~53~~	53						
3+~~42~~ 47 to 3+~~62~~ 67	Lt.			~~20~~	20							~~12~~	2.61			~~20~~	20
3+~~62~~ 67 to 5+36 ϕ	Lt.	~~330~~	254			~~34~~	122	~~186~~	221	~~80~~	80		3.00				
5+83 ϕ to 7+25 ϕ	Lt.	~~159~~	154	~~20~~	20	~~22~~	29	~~166~~	147	~~83~~	83						
7+25 ϕ to 8+82 ϕ	Lt.									~~70~~	69	~~9~~					
3+32 to 4+72	Rt.	~~186~~	153					~~175~~	156	~~56~~	56	~~6~~	10.30				
6+23 □ to 7+45 □	Rt.	~~163~~	152			~~58~~	62	~~155~~	160	~~60~~	60						
7+45 □ to 7+65 □	Rt.	~~25~~	20			~~11~~	11					~~9~~	~~8.87~~ 10.67				
7+65 □ to 9+00 ⊖	Rt.	~~145~~	145			~~58~~	56	~~145~~	150	~~58~~	58	~~5~~	10.0				
9+29	Rt.	~~10~~	10					~~10~~	10								
Brown Ave.	Lt. & Rt.	~~140~~	150			~~4~~	4	~~144~~	151	~~14~~	14	~~6~~	60.70				
2 ±	Lt.													~~12'~~	12'		
4 ±	Rt.													~~12'~~	12'		
7 ±	Lt. & Rt.													~~20'~~	20'		
Brown Ave.	West													~~24'~~	24'		
Project Total		~~340~~	1300'	~~72~~	93'	~~13~~	351'	~~163~~	1232.5'	~~54~~	553'	~~53~~	~~43.58~~ ~~45.86~~			~~52~~	50'
		BK 2 Pg 9		BK 2 Pg 8		BK 2 Pg 8		BK 2 Pg 22		BK 2 Pg 21		BK 2 Pg 18		BK 1, Pg 42-45		BK 2, Pg 22	

* For Information Only.

* Detail on Sheet No. 2

ϕ W.B. Stationing

□ E.B. Stationing

⊖ Proj. Stationing

STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS — STATE OF COLORADO
FORM D.O.H. 129
JULY, 1962

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F 7300(3)	8	

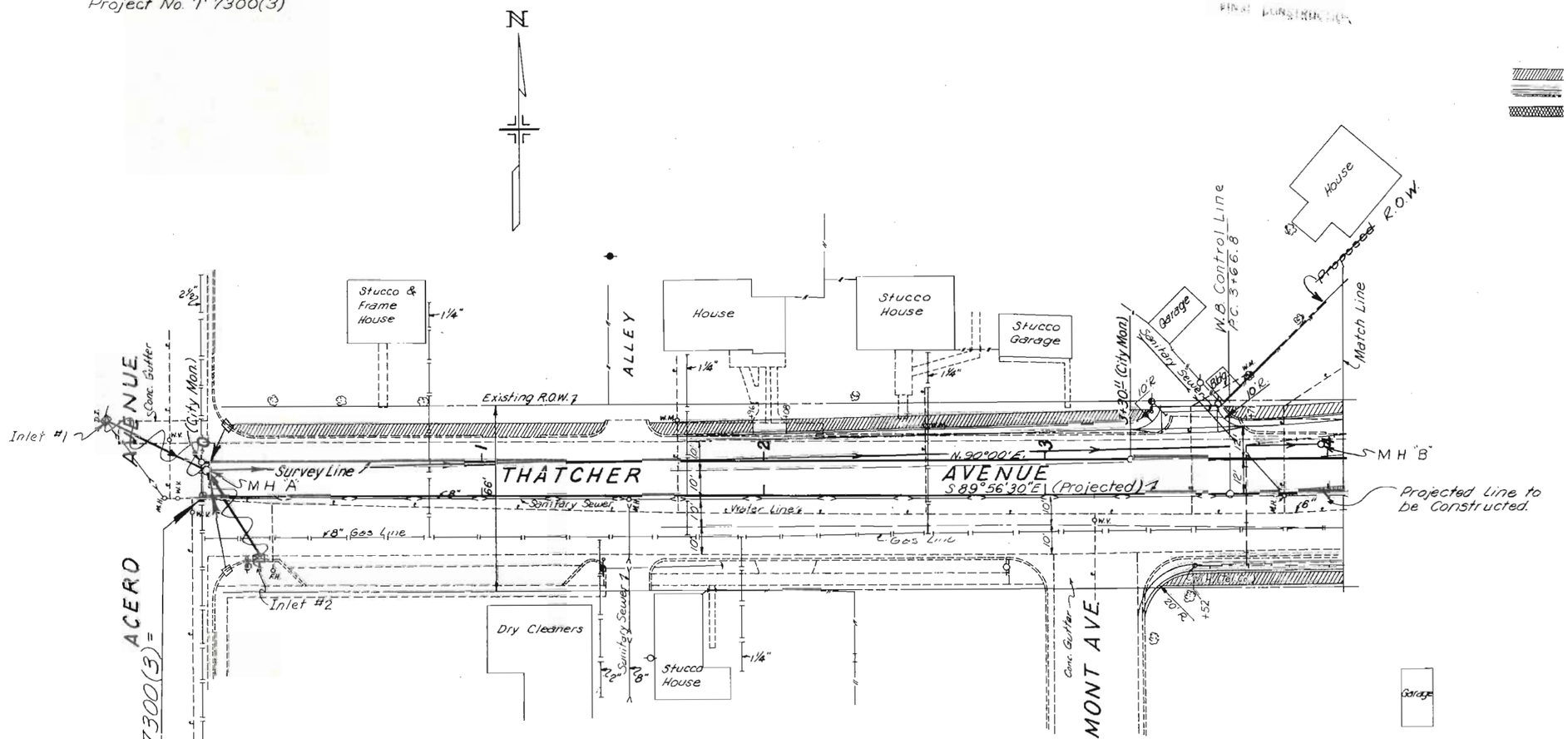
Scale: 1" = 20'

Preliminary Soil Survey :

Sample No. A 599
Project No. F 7300(3)

APPROVED AS TO DESIGN 11-19-71
FINAL CONSTRUCTION

New Sidewalk
Curb & Gutter
Painted Median



Survey Book No.s 31430 & 31467

UTILITY OWNERSHIP

City of Pueblo — Sanitary Sewer Lines, Water Lines

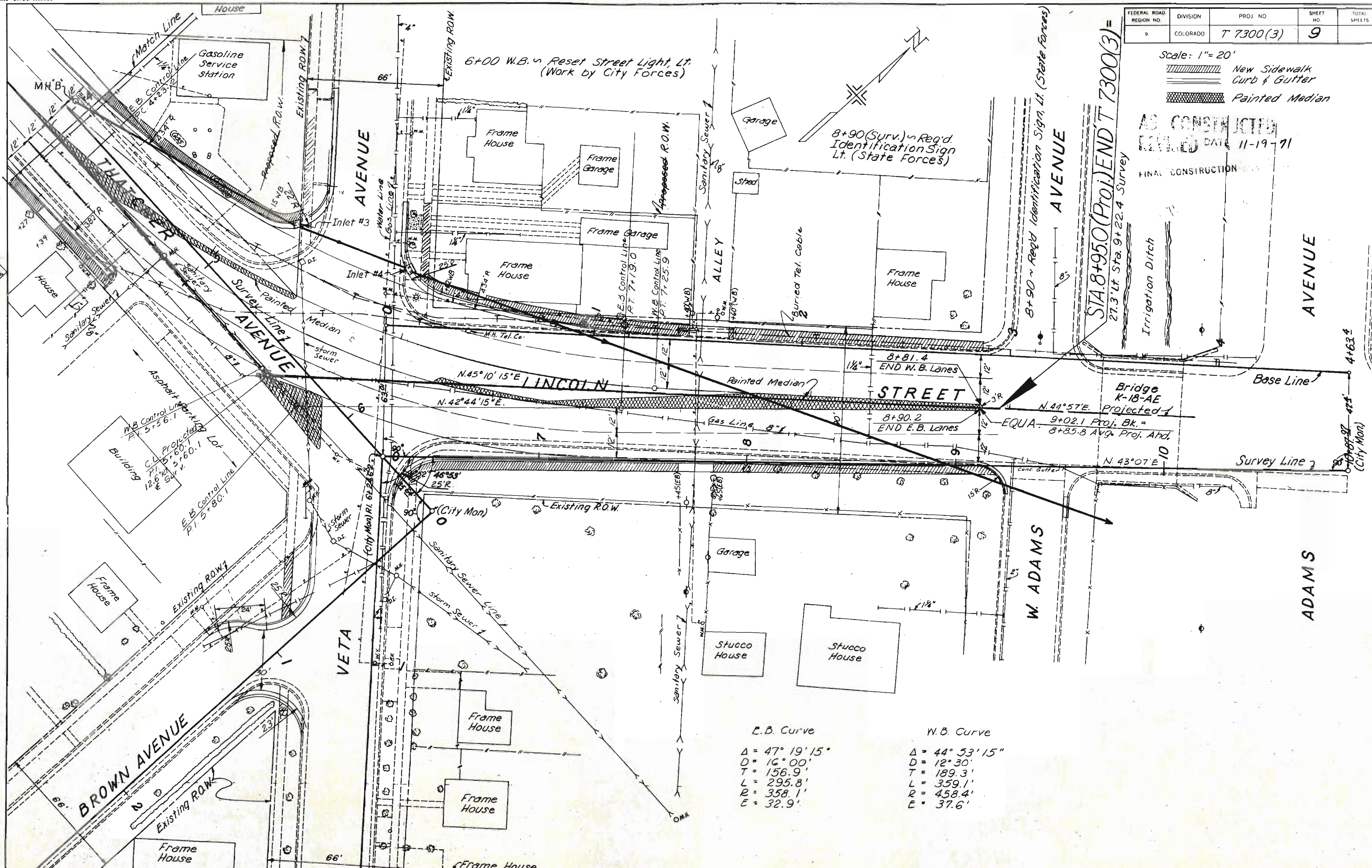
Mountain Bell — Telephone Poles and Buried Cable

Southern Colorado Power Co. — Power Poles

Pueblo Gas & Fuel Co. — Gas Lines

STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS – STATE OF COLORADO
FORM D.O.H. 125
JULY, 1968

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	T 7300(3)	9	

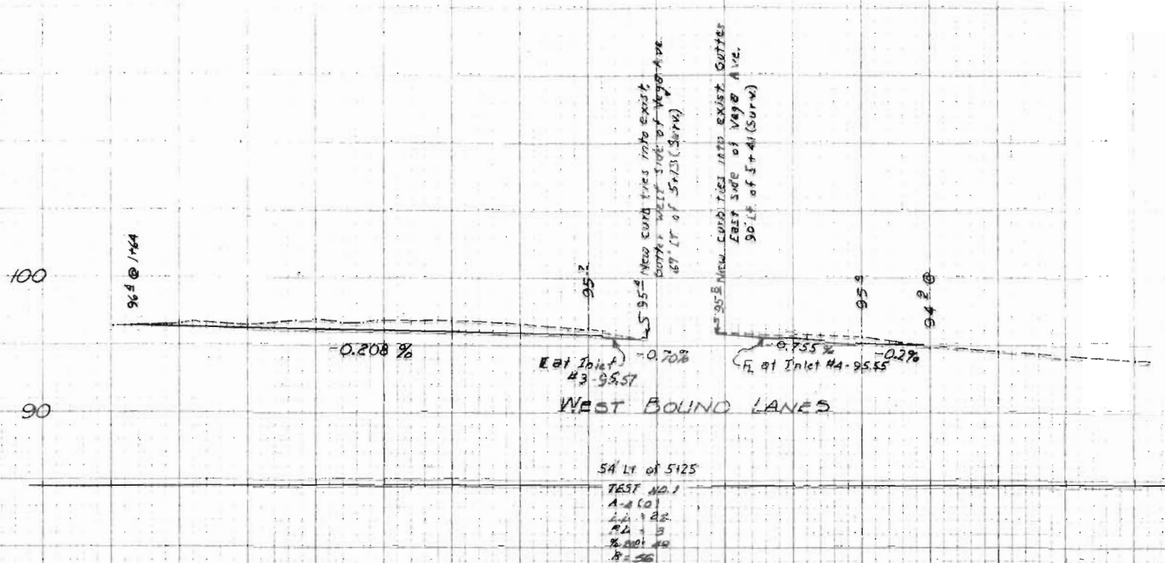


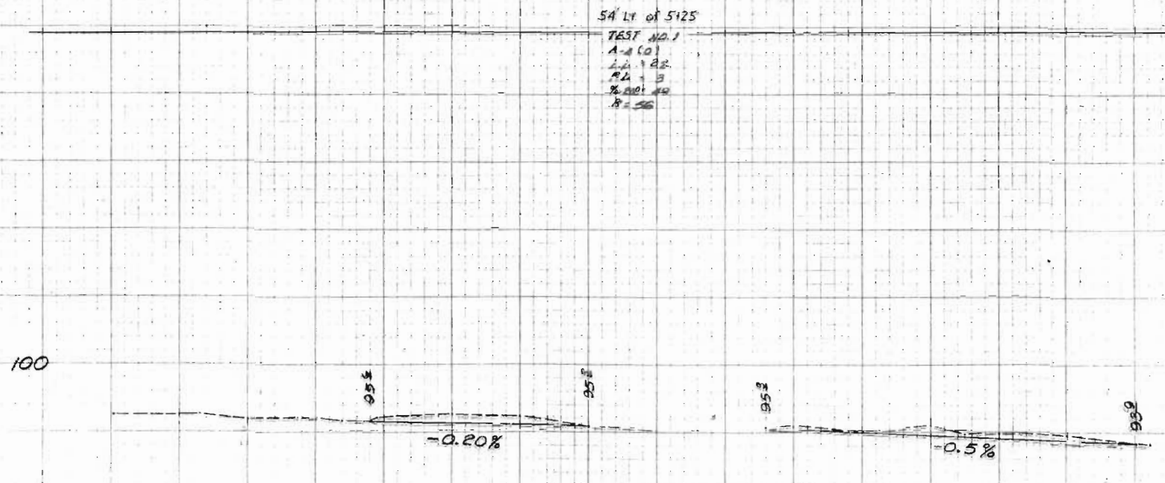
Scale: 1" = 20'
New Sidewalk
Curb & Gutter
Painted Median
AS CONSTRUCTED
REVISED DATE 11-19-71
FINAL CONSTRUCTION
Match Line
Gasoline Service Station
House
MH B
E.B. Control Line P.C. 4+23.1
Proposed R.O.W.
Existing R.O.W.
66'
AVENUE
6+00 W.B. ~ Reset Street Light, Lt. (Work by City Forces)
Frame House
Frame Garage
Frame Garage
Frame House
Garage
Shed
8+90 (Surv.) ~ Req'd. Identification Sign Lt. (State Forces)
8+90 ~ Req'd Identification Sign, Lt. (State Forces)
STA 8+95.0 (Proj.) END T 7300(3) = 27.3' Lt. Sta. 9+22.4 Survey
Irrigation Ditch
AVENUE
AVENUE
Water Line
Gas Line
Inlet #3
Inlet #4
THATCHER AVENUE
Survey Line
Painted Median
Storm Sewer
Sanitary Sewer
E.B. Control Line P.T. 7+19.0
W.B. Control Line P.T. 7+25.9
ALLEY
Buried Tel. Cable
Sanitary Sewer
M.H. Tel. Co.
N.45°10'15"E.
LINCOLN STREET
N.42°44'15"E.
Painted Median
8+81.4 END W.B. Lanes
8+90.2 END E.B. Lanes
Gas Line
Bridge K-18-AE
N.44°57'E. Projected
EQUA. 9+02.1 Proj. Bk. = 8+85.8 Avg. Proj. Ahd.
Base Line
4+63±
N. 43°07'E.
Survey Line
(City Mon)
Conc. Gutter
Asphalt Parking Lot
Building
W.B. Control Line P.I. 5+56.1
C.L. Projected P.I. 5+60.1
12.6' Lt. 5+60.1 Surv.
E.B. Control Line P.I. 5+80.1
Existing R.O.W.
(City Mon)
(City Mon) P.I. 6+26.5
45°53'
25'R
Sanitary Sewer Line
Storm Sewer
Frame House
VETA
Garage
Stucco House
Stucco House
W. ADAMS AVENUE
ADAMS
BROWN AVENUE
Existing R.O.W.
66'
Frame House
Frame House
Frame House
Frame House
Survey Book No.'s 31430 & 31467
E.B. Curve
Δ = 47° 19' 15"
D = 16° 00'
T = 156.9'
L = 295.8'
R = 358.1'
E = 32.9'
W.B. Curve
Δ = 44° 53' 15"
D = 12° 30'
T = 189.3'
L = 359.1'
R = 458.4'
E = 37.6'

T7300(3)

SHEET NO. 10

PROFILES OF CURB & GUTTER
(Profile at Pan Line)





STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS STATE OF COLORADO
DOH FORM NO. 134
JULY, 1956

FEDERAL AID REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
8	COLORADO	T 7300(3)	11	

(R-1) 7-22-71 Rev. Pipe T.A.L.

AS CONSTRUCTED
REVISED DATE 11-19-71
FINAL CONSTRUCTION

DRAINAGE PLAN & PROFILE

PLAN — SURVEYED / PLOTTED / AUTOMATIC CHECKS / MANUAL CHECKS / NOTE BOOK / No.

0+35 (Surv.), 15' Lt. Inlet #1 ⌐
Remove Drop Inlet, Plug Existing Sewer
Repair Street. Reqd. Inlet Type 3 (H=4'6")
24"x46' Sewer

0+02 (Surv.) 15' Rt. Reqd. Inlet Type 3 (H=5'0") 24"x15' Sewer

0+02 (Surv.), 3' Rt., M.H. 'A' ⌐ Reqd. Manhole (H=5'6") 24"x392' Sewer, Repair Street.

0+20 (Surv.), 34' Rt., Inlet #2 ⌐ Reqd. Inlet Type 3 (H=5'0") 24"x36' Sewer, Repair Street.

3+98 (Surv.), 5' Lt. M.H. 'B' ⌐ Reqd. Manhole (H=9'), 24"x120' Sewer.

(R-1) 5+14 (Surv.), 45' Lt. Inlet #3 ⌐ Reqd. Inlet Type 3 (H=9') 24"x56' Sewer. Repair Street.

5+29 (Surv.), 35' Lt. ⌐ Remove Drop Inlet, Plug Culvert, Lt.

5+65 (Surv.), 70' Lt. Inlet #4 ⌐ Reqd. Inlet Type 3 (H=9') 24"x358', Repair Street.

10+87.97 Survey Line

IRRIGATION DITCH

℄ SURVEY LINE

8" SANITARY SEWER

36" Water Main

46°53'

STORM SEWER

INLET #1 INLET #2 INLET #3 INLET #4 M.H. 'A' M.H. 'B' M.H. 1 M.H. 2 M.H. 3 M.H. 4 M.H. 5 M.H. 6 M.H. 7 M.H. 8 M.H. 9 DI

NEW STORM SEWER PROFILE

Inlet #2
Grate El.-96.40
Invert El.-92.07
H=5'0" 93.68

M.H. A
H=5'6"

24"x46'
-1.33%
-0.33%

E. Acera Ave.

Inlet #1
Grate El.-95.53
Invert El.-91.70
H=4'6" 92.08

M.H. 'A'
Rim El.-96.46
Invert El.-91.67
H=5'6" 91.83

24"x392'
-0.17%
-0.24%

M.H. 'B'
Rim El.-95.94
Invert El.-87.55
H=9'0"

Exist. 8" San. Sewer IE 89.78

24"x120'
-0.258%

Inlet #3
Grate El.-95.57
Invert El.-87.24
H=9'0"

(R-1)

24"x56'
-0.036%

Vela Ave.

Inlet #4
Grate El.-95.55
Invert El.-87.22
H=9'0"

36" Wooden Water Main IE 89.97

Exist. 8" San. Sewer IE 88.49

24"x358'
-0.837%

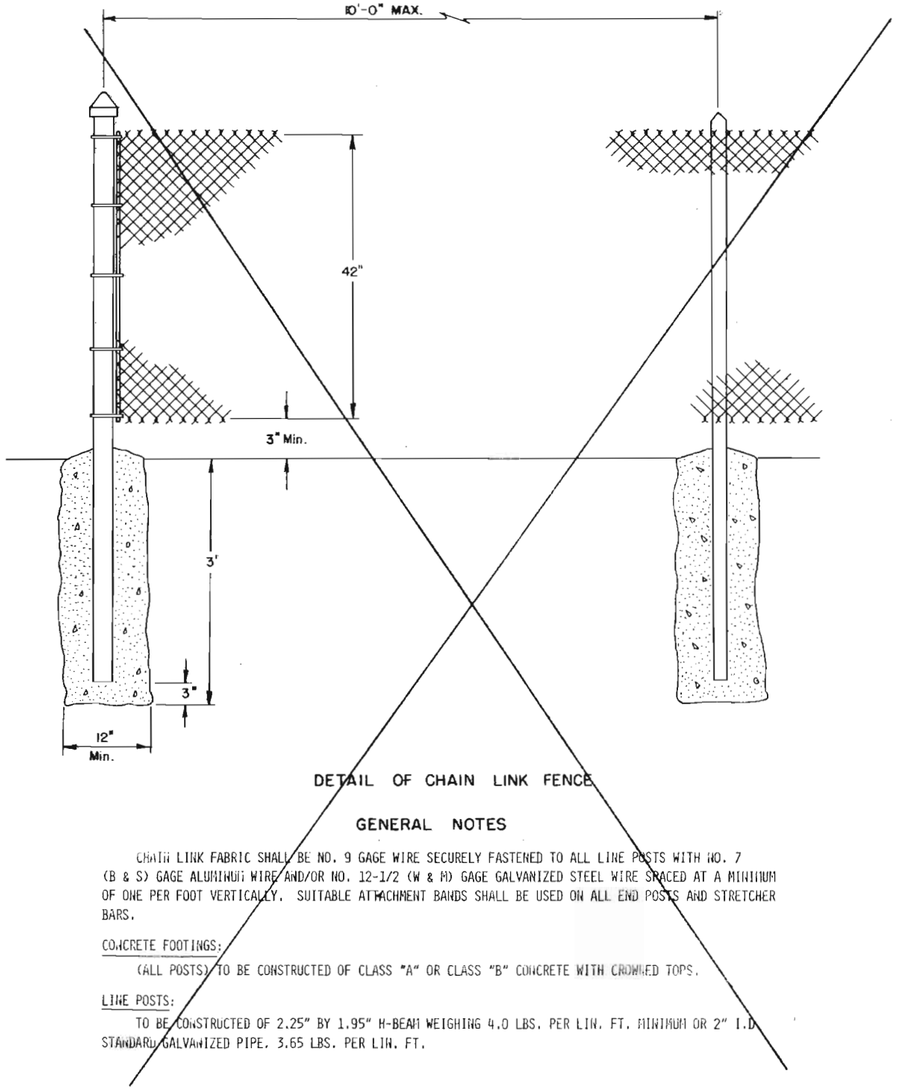
E. W. Adams Ave.

Fence

Outlet El. 84.22

95
90
85

REGION NO.	DESIGNATION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F 7300(3)	12	



DETAIL OF CHAIN LINK FENCE

GENERAL NOTES

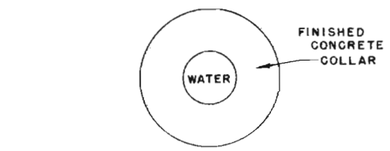
CHAIN LINK FABRIC SHALL BE NO. 9 GAGE WIRE SECURELY FASTENED TO ALL LINE POSTS WITH NO. 7 (B & S) GAGE ALUMINUM WIRE AND/OR NO. 12-1/2 (W & M) GAGE GALVANIZED STEEL WIRE SPACED AT A MINIMUM OF ONE PER FOOT VERTICALLY. SUITABLE ATTACHMENT BANDS SHALL BE USED ON ALL END POSTS AND STRETCHER BARS.

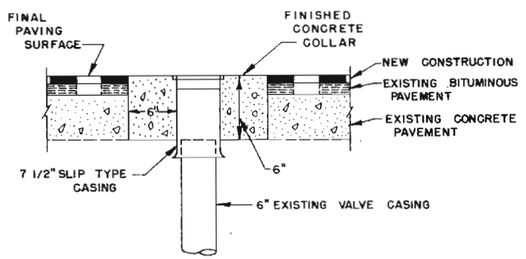
CONCRETE FOOTINGS:

(ALL POSTS) TO BE CONSTRUCTED OF CLASS "A" OR CLASS "B" CONCRETE WITH CROWNED TOPS.

LINE POSTS:

TO BE CONSTRUCTED OF 2.25" BY 1.95" H-BEAM WEIGHING 4.0 LBS. PER LIN. FT. MINIMUM OR 2" I.D STANDARD GALVANIZED PIPE, 3.65 LBS. PER LIN. FT.





DETAIL OF
ADJUST VALVE BOX

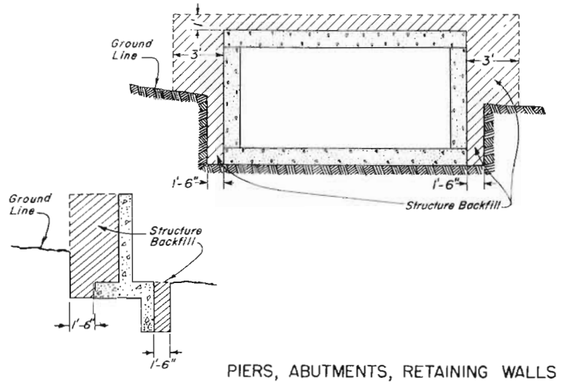
STANDARD M-206-AA

(MARCH 1, 1971)
(SHEET 1 OF 2)

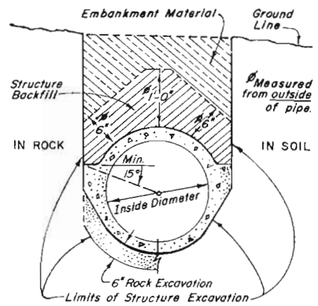
FED. ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLO.		

REVISION		

CONCRETE BOX CULVERTS & WINGWALLS

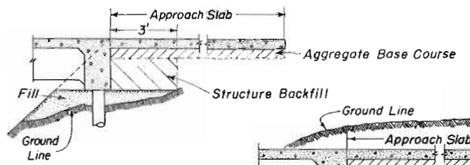


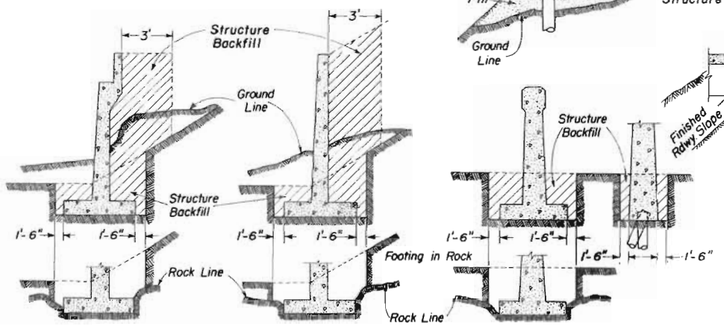
CAST IN PLACE CONDUIT



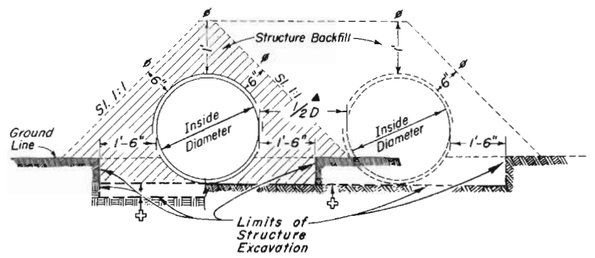
PIERS, ABUTMENTS, RETAINING WALLS ETC.

All material that is to be compacted shall be placed in horizontal layers not more than 6" inches in depth and compacted before the next layer is placed. For Arches, Rigid Frames and Box Culverts the fill shall be brought up uniformly on both sides of the center of structure to avoid stresses in the structure caused by unsymmetrical loading.



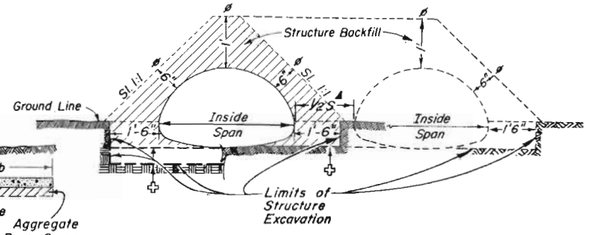


CIRCULAR CONDUIT

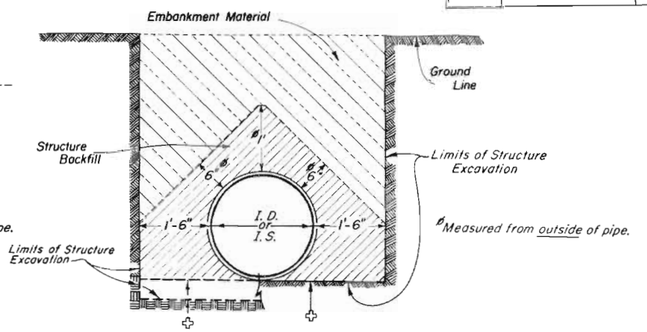


Measured from outside of pipe.

ELLIPTICAL OR ARCH CONDUIT



SIPHONS OR CONDUIT IN TRENCH

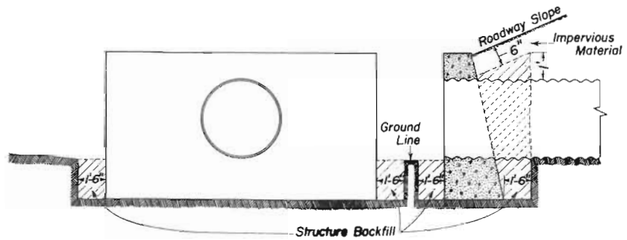


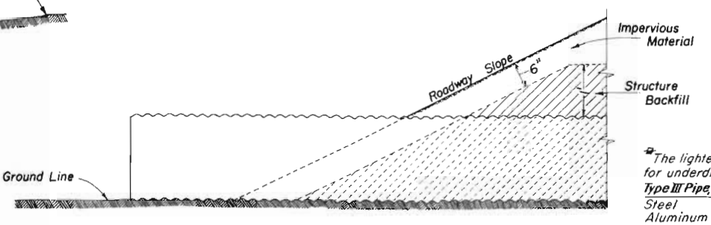
NOTES:

▲ When two or more conduits are laid side by side they shall be spaced so that the adjacent pipes will be 1/2 I.D., 1/2 I.S. or 3 feet apart (including wall thickness), whichever is less. Minimum spacing shall be not less than 1 foot between outside walls of pipe.
For additional culvert installation details see M Standards for metal, concrete, or structural plate pipe culverts.

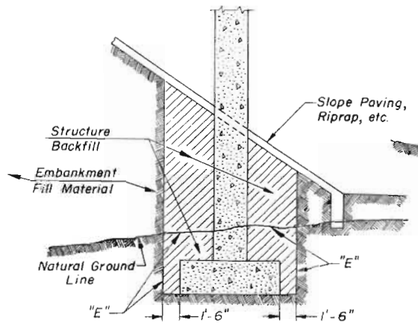
✣ Bottom of trench as excavated. For applicable limits of Structure Excavation, see bedding details on standards for culverts.

HEADWALLS AND END OF CULVERTS

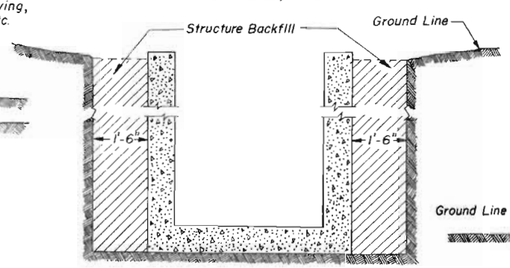




DROP INLETS, DIVISION BOXES, INTERCEPTING HEADWALLS, ETC.



Note:
"E" = Limits of Structure Excavation



GENERAL NOTES

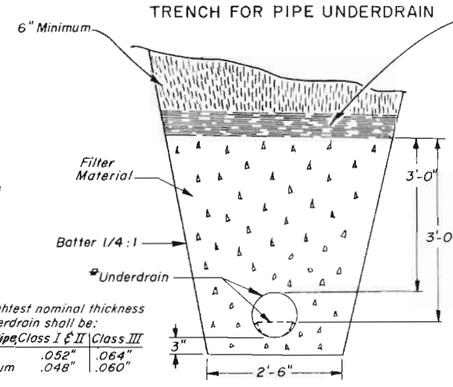
All work shall be done according to the Standard Specifications applicable to the Project.

Where the roadway cross section is in fill, excavation for concrete footings (except those in rock or those on piles) and for box culverts shall be done according to the following:
Embankment shall be built up and compacted to a point one foot above the bottom of the box or one foot above the bottom of the footing. The trench shall then be excavated to accommodate construction of the box or footing.

Excavation and backfill patterns different from those indicated on these sheets will be shown elsewhere on the plans.

Excavation for structure installation shall be classified as "Structure Excavation" unless otherwise shown on plans.

TRENCH FOR PIPE UNDERDRAIN



The lightest nominal thickness for underdrain shall be:

Type III Pipe	Class I & II	Class III
Steel	.052"	.064"
Aluminum	.048"	.060"

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

EXCAVATION AND BACKFILL FOR STRUCTURES

Designed by H.E.P.	Approved by: C. O. Dunn
Made by D.M.E.	Staff Design Engr.
Checked by L.E.O.	Date: March 1, 1971

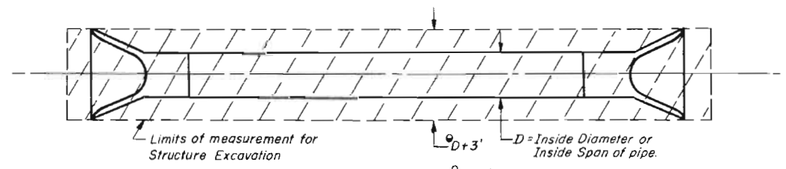
STANDARD M-206-AA

(MARCH 1, 1971)
(SHEET 2)

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO			

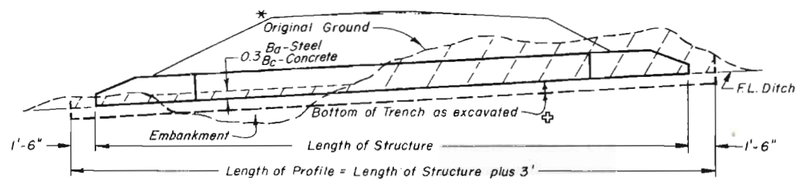
	REVISIONS:	

STRUCTURE EXCAVATION MEASUREMENT FOR PIPE CULVERTS



PLAN

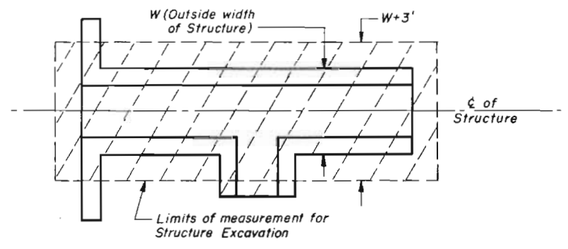
*D+6' for structural plate pipe culverts.



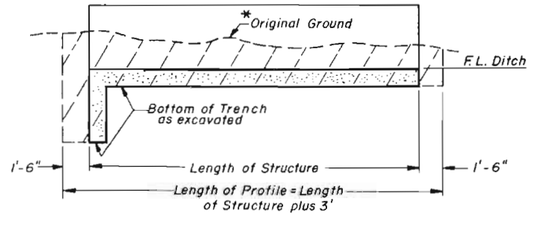
PROFILE

✠ For applicable limits of Structure Excavation, see bedding details on standards for metal, reinforced concrete and structural plate pipe culverts.

STRUCTURE EXCAVATION MEASUREMENT FOR DIVERSION OR DIVISION BOXES

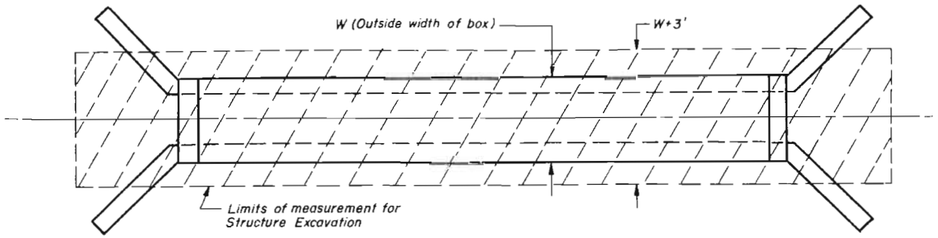


PLAN



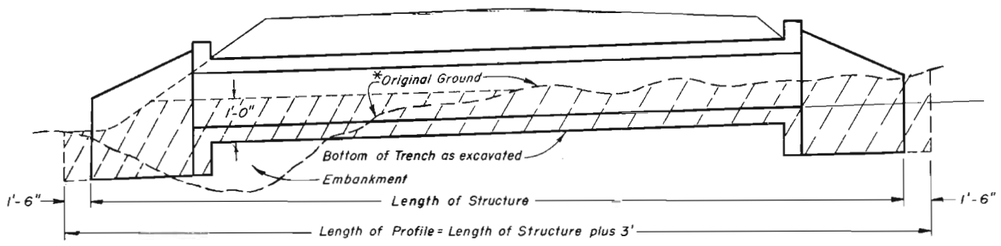
PROFILE

STRUCTURE EXCAVATION MEASUREMENT FOR CONCRETE BOX CULVERTS



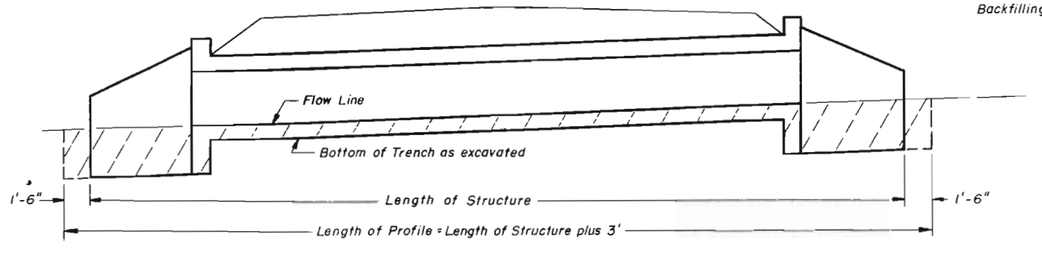
PLAN

Without Channel Change or Channel Improvement



PROFILE

With Channel Change or Channel Improvement



PROFILE

* Along ℄ of Structure

Areas to be used for Structure Excavation computations.

NOTE:
See Sheet 1 for General Notes and Backfilling Details.

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

EXCAVATION AND BACKFILL FOR STRUCTURES

Designed by: M.R.H.	Approved by: L.E. Olson
Made by: H.P.B.	Staff Design Engr.
Checked by:	Date: March 1, 1971

STANDARD M-603-M
(MARCH 20, 1967)

FEDERAL ROAD REGION NO	DIVISION	PROJ. NO	SHEET NO.	TOTAL SHEETS
9	COLORADO			

REVISIONS			
(R-1)	4-5-68	Added notes.	M.R.H.
(R-2)	7-23-68	Dept. Name & Ø Note	M.R.H.
(R-3)	2-11-71	Thickness Tables, General Notes.	M.R.H.

FILL HEIGHT & THICKNESS TABLES FOR METAL CULVERT PIPE (RIVETED, WELDED OR HELICAL FABRICATION) (R-3)

TABLE I
CORRUGATED STEEL PIPE
(2" x 1/2") OR (2·2/3" x 1/2") CORRUGATIONS

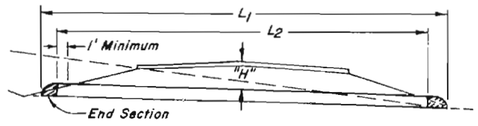
PIPE SIZE (B_d) Inches	AREA (Sq.Ft.)	HEIGHT OF FILL OVER TOP OF PIPE IN FEET: 1 to 10	10+ to 15	15+ to 20	20+ to 25	25+ to 30	30+ to 35	35+ to 40	40+ to 45	45+ to 50	50+ to 55	55+ to 60	60+ to 70	70+ to 80	80+ to 90	90+ to 100
		THICKNESS IN INCHES														
12	0.8	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	.079	.109
15	1.2	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	.064	.079	.109	.109	.138
18	1.8	.064	.064	.064	.064	.064	.064	.064	.064	.079	.079	.109	.109	.138	.168	
24	3.1	.064	.064	.064	.064	.064	.079	.109	.138	.138	.168					
30	4.9	.064	.064	.064	.064	.079	.079	.109	.109	.138	.168					
36	7.1	.064	.064	.064	.064	.079	.109	.138	.168							
42	9.6	.064	.064	.064	.064	.064	.079	.079	.109							
48	12.6	.064	.064	.064	.064	.079	.079	.109	.168							
54	15.9	.079	.079	.079	.079	.079	.109	.109								
60	19.6	.109	.109	.109	.109	.109	.109	.138								
66	23.8	.109	.109	.109	.109	.138	.138	.168								
72	28.3	.138	.138	.138	.138	.168										
78	33.0	.168	.168	.168	.168											
84	38.0	.168	.168	.168												

----See General Note.

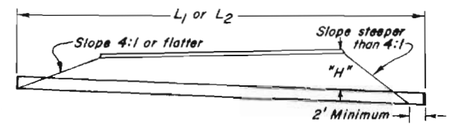
TABLE II
CORRUGATED STEEL PIPE ARCH
(2" x 1/2") OR (2·2/3" x 1/2") CORRUGATIONS

PIPE SIZE Span-Rise (Inches)	AREA (Sq.Ft.)	CORNER RADIUS (Inches)	HEIGHT OF FILL OVER TOP OF PIPE IN FEET: 1.5 to 7	7+ to 8	8+ to 9	9+ to 10	10+ to 12	12+ to 13
			THICKNESS IN INCHES					
18 x 11	1.1	3 1/2	.064	.064	.064	.064	.064	.064
22 x 13	1.6	4	.064	.064	.064	.064	.064	
25 x 16	2.2	4	.064	.064	.064	.064		
29 x 18	2.8	4 1/2	.064	.064	.064			
36 x 22	4.4	5	.064	.064	.064			
43 x 27	6.4	5 1/2	.064					
50 x 31	8.7	6	.079					
58 x 36	11.4	7	.109					
65 x 40	14.3	8	.109					
72 x 44	17.6	9	.138					

METAL CULVERT WITH END SECTIONS



METAL CULVERT WITHOUT END SECTIONS



"H" = Maximum height of fill over top of Culvert, including pavement.

L_1 = Length of Culvert to be measured when placed in accordance with Section 617.

L_2 = Length of pipe to be measured when placed in accordance with Section 603.

(R-1) *Length of extension, when placed in accordance with Section 617, shall be the actual number of feet of new culvert required.*

TABLE III
CORRUGATED STEEL PIPE
RIVETED OR HELICAL FABRICATION — 3" x 1" CORRUGATIONS

PIPE SIZE (B_d) Inches	AREA (Sq.Ft.)	HEIGHT OF FILL OVER TOP OF PIPE IN FEET: 1 to 10	10+ to 15	15+ to 20	20+ to 25	25+ to 30	30+ to 35	35+ to 40	40+ to 45	45+ to 50	50+ to 55	55+ to 60	60+ to 70	70+ to 80
		THICKNESS IN INCHES												
36	7.1	.064	.064	.064	.064	.064	.079	.079	.109	.109	.109	.109	.138	.168
42	9.6	.064	.064	.064	.064	.079	.079	.079	.109	.109	.109	.109	.168	
48	12.6	.064	.064	.064	.079	.079	.079	.109	.109	.109	.138	.168		
54	15.9	.064	.064	.064	.079	.079	.109	.109	.138	.168				
60	19.6	.064	.064	.064	.079	.109	.109	.109	.138					
66	23.8	.064	.064	.079	.079	.109	.109	.138						
72	28.3	.064	.064	.079	.109	.109	.109	.138						
78	33.0	.064	.064	.079	.109	.138	.168							
84	38.0	.079	.079	.079	.109	.109								
90	44.0	.079	.079	.109	.109	.109								
96	50.3	.109	.109	.109	.109	.138								
102	57.0	.109	.109	.109	.109									
108	64.0	.109	.109	.109	.138									
114	70.9	.138	.138	.138	.168									
120	78.6	.138	.138	.138	.168									

----See General Note.

5/16" rivets or helical fabrication shall be used on pipes with thickness to the left of or above the heavy solid line.

3/8" rivets or helical fabrication shall be used on pipes with thickness to the right of or below the heavy solid line.

TABLE IV
CORRUGATED STEEL PIPE
* SPOT WELDED OR BOLTED (1/2" ASTM A 325 BOLTS) FABRICATION — 3" x 1" CORRUGATIONS

PIPE SIZE (B_d) Inches	AREA (Sq.Ft.)	HEIGHT OF FILL OVER TOP OF PIPE IN FEET: 1 to 10	10+ to 15	15+ to 20	20+ to 25	25+ to 30	30+ to 35	35+ to 40	40+ to 45	45+ to 50	50+ to 55	55+ to 60	60+ to 70	70+ to 80	80+ to 90	90+ to 100
		THICKNESS IN INCHES														
36	7.1	.064	.064	.064	.064	.064	.064	.064	.064	.079	.079	.079	.109	.109	.109	.138
42	9.6	.064	.064	.064	.064	.064	.064	.064	.079	.079	.079	.109	.109	.109	.138	.168
48	12.6	.064	.064	.064	.064	.064	.079	.079	.079	.109	.109	.109	.138	.168		
54	15.9	.064	.064	.064	.064	.064	.079	.079	.109	.109	.138	.138				
60	19.6	.064	.064	.064	.064	.079	.079	.109	.109	.138	.168					
66	23.8	.064	.064	.064	.079	.079	.109	.109	.138	.168						
72	28.3	.064	.064	.064	.079	.079	.109	.109	.138							
78	33.0	.064	.064	.064	.079	.109	.109	.138	.168							
84	38.0	.079	.079	.079	.079	.109	.109	.138								
90	44.0	.079	.079	.079	.079	.109	.109	.138								
96	50.3	.109	.109	.109	.109	.109	.138	.168								
102	57.0	.109	.109	.109	.109	.109	.138	.168								
108	64.0	.109	.109	.109	.109	.109	.138									
114	70.9	.138	.138	.138	.138	.138	.168									
120	78.6	.138	.138	.138	.138	.138										

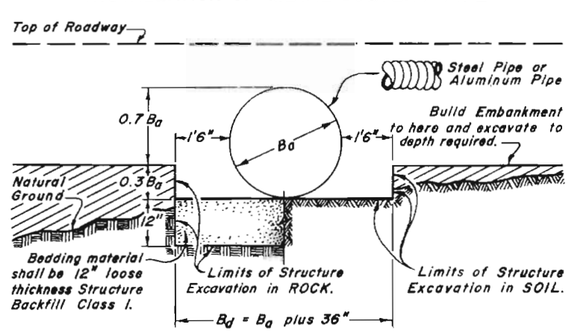
----See General Note.

** 3/8" rivets may be used on pipes with thickness to left of or above the heavy solid line.*
7/16" rivets may be used on pipes with thickness to right of or below the heavy solid line.

TABLE V
CORRUGATED STEEL PIPE ARCH
(R-2) — 3" x 1" CORRUGATIONS

PIPE SIZE Span-Rise (Inches)	AREA (Sq.Ft.)	CORNER RADIUS (Inches)	HEIGHT OF FILL OVER TOP OF PIPE IN FEET: 1.5 to 10	10+ to 11	11+ to 12	12+ to 14	14+ to 15
			THICKNESS IN INCHES				
43 x 27	6.4	7 3/4	.064	.064	.064		
50 x 31	8.7	9	.064	.064	.064		
58 x 36	11.4	10 1/2	.064	.064	.064		
65 x 40	14.3	12	.064	.064	.064		
72 x 44	17.6	13 1/4	.064	.064	.064		
73 x 55	22.0	18	.064	.064	.064	.064	.064
81 x 59	26.0	18	.079	.079	.079	.079	.079
Ø 87 x 63	31.0	18	.079	.079	.079	.079	
Ø 95 x 67	35.0	18	.109	.109	.109		
Ø 103 x 71	41.0	18	.109	.109			

INSTALLATION OF METAL CULVERT PIPE



NOTE: Spacing for multiple pipe installations shall conform to the details shown on M Standard for Excavation and Backfill for Structures.

TABLE VI
CORRUGATED ALUMINUM PIPE
2·2/3" x 1/2" CORRUGATIONS

PIPE SIZE (B_d) Inches	AREA (Sq.Ft.)	HEIGHT OF FILL OVER TOP OF PIPE IN FEET: 1 to 10	10+ to 15	15+ to 20	20+ to 25	25+ to 30	30+ to 35	35+ to 40	40+ to 45	45+ to 50	50+ to 55	55+ to 60	60+ to 70	70+ to 80
		THICKNESS IN INCHES												
12	0.8	.060	.060	.060	.060	.060	.060	.060	.075	.105	.105	.105	.105	.105
18	1.8	.060	.060	.060	.060	.075	.105	.135	.164	.164				
24	3.1	.060	.060	.060	.075	.135								
30	4.9	.060	.060	.060	.105	.105	.164							
36	7.1	.060	.060	.075	.105	.164								
42	9.6	.075	.075	.105	.075	.105	.105	.164						
48	12.6	.105	.105	.105	.105	.135	.164	.164						
54	15.9	.105	.105	.135	.164	.164								
60	19.6	.135	.135	.164										
66	23.8	.135	.164											
72	28.3	.164												

----See General Note.

TABLE VII
CORRUGATED ALUMINUM PIPE ARCH
2·2/3" x 1/2" CORRUGATIONS

PIPE SIZE Span-Rise (Inches)	AREA (Sq.Ft.)	CORNER RADIUS (Inches)	HEIGHT OF FILL OVER TOP OF PIPE IN FEET: 1.5 to 7	7+ to 9	9+ to 11	11+ to 13	13+ to 14	14+ to 15
			THICKNESS IN INCHES					
18 x 11	1.1	4 3/4	.060	.060	.060	.060	.060	.060
22 x 13	1.6	4 3/4	.060	.060	.060	.060	.060	
25 x 16	2.2	4 1/2	.060	.060	.060	.060		
29 x 18	2.8	4 1/2	.060	.060	.060			
36 x 22	4.4	5	.060	.060				
43 x 27	6.4	5 1/2	.075					
50 x 31	8.7	6	.105					
58 x 36	11.4	7	.135					
65 x 40	14.3	8	.135					
72 x 44	17.6	9	.164					

GENERAL NOTES (R-3)

All work shall be done in accordance with the Standard Specifications applicable to the project.

The tables on this sheet show minimum gages for structural requirements only. They are intended for use only where corrosive and/or abrasive conditions are negligible. Heavier metal and/or protective coatings shall be used where site investigations indicate corrosive and/or abrasive conditions.

▼ *Pipe arch with equal periphery and with span and rise dimensions approximately equal to those required by plans will be permitted.*

During construction, adequate cover (4') shall be provided to protect the structure from damage.

Pipe shall be placed with longitudinal seams at the sides or quarter points but not along top of vertical axis.

The minimum depth of fill excluding pavement over corrugated metal pipe culverts shall be as staked by the Engineer but in no case shall it be less than shown in the following tabulation:

Diameter of Culvert (B_d)	Minimum Allowable Cover
96" and smaller	1 foot
102" and larger	2 feet
Pipe Arch	1.5 feet

Structural plate pipes of equal or larger diameter, conforming to Section 510 of the Standard Specifications, may be substituted for the pipes shown on this sheet at no additional cost to the State.

NOTES FOR TABLES

---- *Pipes with thickness to right of or below the heavy dashed line shown in the tables on this sheet, shall be elongated 5 percent on the vertical axis as installed. (Tables I, III, IV and VI)*

Maximum fill heights shown are for bearing pressures of 2 tons per square foot. (Tables II, V and VII)

Fill heights greater than 90' shall be used only after thorough investigation of foundation material. (Tables I and IV)

Variations from corner radii shown will be acceptable provided the pipe is of sufficient strength to support it's designated fill height. (Tables II, V, and VII)

GENERAL NOTES (Continued) (R-1)

When a culvert is to be extended with pipe of different material, the connection shall conform to the detail on plans or be approved.

Ø May not be available. The designer should contact supplier before calling for the sizes denoted by this symbol. (R-2)

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

METAL CULVERT PIPE
H-20 LOADING (R-2)

Designed by M.R.H.	Approved by [signature]
Made by J.R.B.	Staff Design Engineer
Checked by R.S.M.	Date: March 20, 1967

STANDARD M-603-RC

(MARCH 20, 1967)

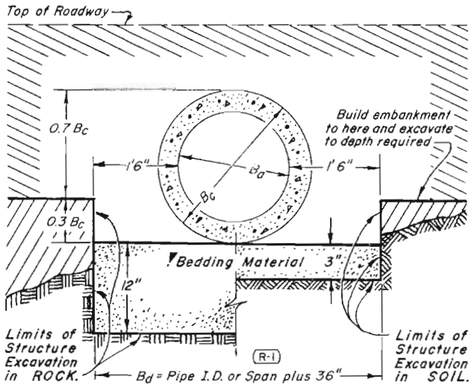
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
8	COLORADO			

REVISIONS			
(R-1)	4-19-68	Added Arch and Elliptical Pipe. Gen. Notes.	M.R.H.
(R-2)	7-23-68	Data Name	M.R.H.
(R-3)	3-1-71	GN's for C bed and NRCP Cl 2 bed matl.	M.R.H.

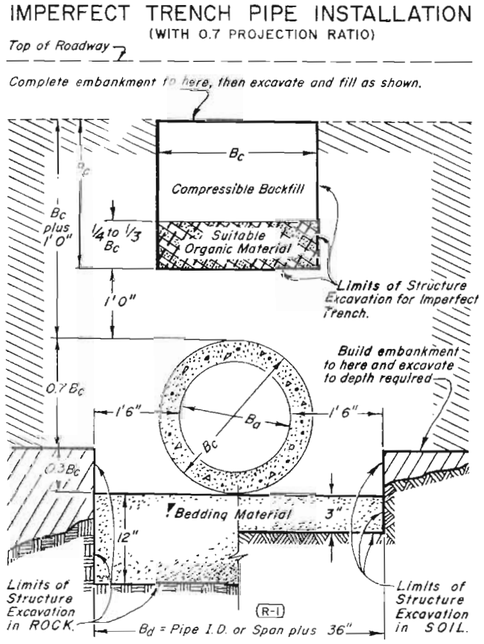
(R-1)

NOTE: B_c *Is the outside dimension for diameter, span or rise*

PIPE INSTALLATION
(WITH 0.7 PROJECTION RATIO)



IMPERFECT TRENCH PIPE INSTALLATION
(WITH 0.7 PROJECTION RATIO)



! *Bedding Material for SOIL shall be 3" loose thickness Structure Backfill Class 2.* (R-3)
Bedding Material for ROCK shall be 12" loose thickness Structure Backfill Class 1.

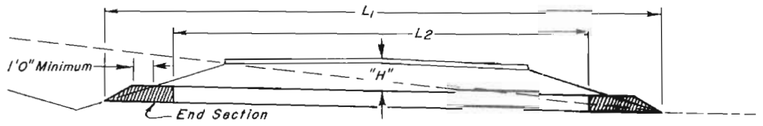
(R-1)

DIMENSIONS FOR REINFORCED CONCRETE PIPE
(For Information Only)

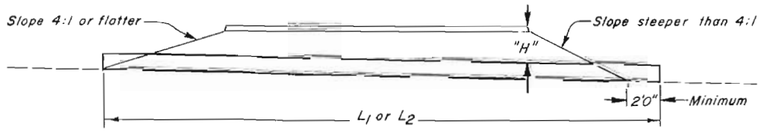
CIRCULAR			ARCH				VERTICAL ELLIPTICAL (VE)				HORIZONTAL ELLIPTICAL (HE)			
▲ PIPE SIZE: B_a (In. I.D.)	Wall Thickness (Inches)	0.3 B_c (Outside Dia.) (Feet)	ϕ Span (Inches)	ϕ Rise (Inches)	Wall Thickness (Inches)	0.3 Outside Rise (Feet)	Span (Inches)	Rise (Inches)	Wall Thickness (Inches)	0.3 Outside Rise (Feet)	Span (Inches)	Rise (Inches)	Wall Thickness (Inches)	0.3 Outside Rise (Feet)
12	2	0.40												
15	2-1/4	0.49	18	11	2-1/4	0.39								
18	2-1/2	0.58	22	13	2-1/2	0.45					23	14	2-3/4	0.49
21	2-3/4	0.66	25	16	2-3/4	0.54								
24	3	0.75	29	18	3	0.60					30	19	3-1/4	0.66
27	3-1/4	0.84									34	22	3-1/2	0.73
30	3-1/2	0.92	36	22	3-1/2	0.73					38	24	3-3/4	0.79
33	3-3/4	1.01									42	27	3-3/4	0.86
36	4	1.10	43	27	4	0.88	29	45	4-1/2	1.35	45	29	4-1/2	0.95
39							32	49	4-3/4	1.46	49	32	4-3/4	1.04
42	4-1/2	1.28	50	31	4-1/2	1.00	34	53	5	1.58	53	34	5	1.10
48	5	1.45	58	36	5	1.15	38	60	5-1/2	1.78	60	38	5-1/2	1.23
54	5-1/2	1.62	65	40	5-1/2	1.28	43	68	6	2.00	68	43	6	1.38
60	6	1.80	72	44	6	1.40	48	76	6-1/2	2.23	76	48	6-1/2	1.53
66	6-1/2	1.97					53	83	7	2.43	83	53	7	1.68
72	7	2.15	88	54	7	1.70	58	91	7-1/2	2.65	91	58	7-1/2	1.83
78	7-1/2	2.32					63	98	8	2.85	98	63	8	1.98
84	8	2.50	102	62	8	1.95	68	106	8-1/2	3.08	106	68	8-1/2	2.13
90	8-1/2	2.68	115	72	8-1/2	2.23	72	113	9	3.28	113	72	9	2.25
96	9	2.85	122	77	9	2.38	77	121	9-1/2	3.50	121	77	9-1/2	2.40
102	9-1/2	3.02					82	128	9-3/4	3.69	128	82	9-3/4	2.54
108	10	3.20	138	87	10	2.68	87	136	10	3.90	136	87	10	2.68

▲ *Also equivalent round dimension for Arch and Elliptical pipe.*
ϕ *Sizes shown are for identification purposes only. Actual sizes shall conform to those listed in Fig. 1 of ASTM Spec. C 506.*

CONCRETE CULVERT WITH END SECTIONS



CONCRETE CULVERT WITHOUT END SECTIONS



"H" = *Maximum height of fill over top of Culvert, including pavement.*
L_1 = *Length of Culvert to be measured when placed in accordance with Section 617.*
L_2 = *Length of Pipe to be measured when placed in accordance with Section 603.*

(R-1) *Length of extension, when placed in accordance with Section 617, shall be the actual number of feet of new culvert required.*

(R-1)

HEIGHTS OF FILL OVER REINFORCED CONCRETE PIPE
ALL SIZES

TYPE OF PIPE	HEIGHT OF FILL OVER TOP OF PIPE IN FEET CLASS OF PIPE (.001" Crack D-Load)				
	Class II / Class VE II / Class HE II — 1000 D	Class III / Class VE III / Class HE III — 1350 D	Class IV / Class VE IV / Class HE IV — 2000 D	Class V / Class VE V — 3000 D	Class VE VI — 4000 D
PIPE INSTALLATION WITH 0.7 PROJECTION RATIO					
CIRCULAR	Min. to 18	Min. to 25	25+ to 37	37+ to 45	
ARCH	Min. to 18	Min. to 25	25+ to 37		
VERTICAL ELLIPTICAL	Min. to 18	Min. to 25	25+ to 37	37+ to 45	45+ to 62
HORIZONTAL ELLIPTICAL	Min. to 18	Min. to 25	25+ to 37		
PIPE INSTALLATION WITH IMPERFECT TRENCH					
ALL TYPES	up to 35	up to 48	48+ to 75	75+ to 96	

(R-3)

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications applicable to the project.

Minimum cover excluding pavement shall be 1 foot.

Fill heights greater than maximum allowed in the Heights of Fill Table on this sheet will require special design of structure.

Pipe design is based on safety factor of 1.33 on ultimate strength.

The heights of fill over top of pipe are based on unit weight of soil at 120 lbs. per cubic foot.

Pipe Class is determined from .01 inch crack D-load.

Bedding is Class B (Modified) with Settlement Ratio R_{sd} = 0.0 (Yielding Bed).

Changes in design factors will require compensating change in pipe design.

Minimum wall thickness dimensions are based on AASHO Designation M 170 (Wall B) for Circular Pipe, AASHO Designation M 206 for Arch Pipe and AASHO Designation M 207 for Elliptical Pipe.

Spacing for multiple pipe installations shall conform to the details shown on M Standard for Excavation and Backfill for Structures.

When a culvert is to be extended with pipe of different material, the connection shall conform to the detail on plans or be approved.

NONREINFORCED CONCRETE PIPE

Nonreinforced Concrete Pipe is required to meet the same D-Load to produce the ultimate load under the three-edge-bearing method as specified for Reinforced Concrete Pipe in accordance with AASHO M-170. Wall thickness of pipe may be increased as required to meet D-Load requirement.

All requirements for Reinforced Concrete Pipe, except those referring to reinforcement shall apply to Nonreinforced Concrete Pipe.

(R-2)

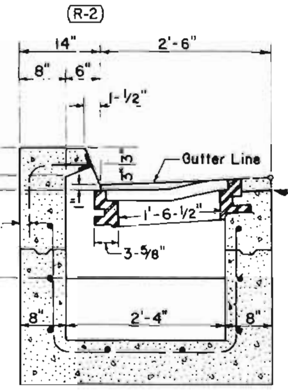
DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

REINFORCED CONCRETE PIPE

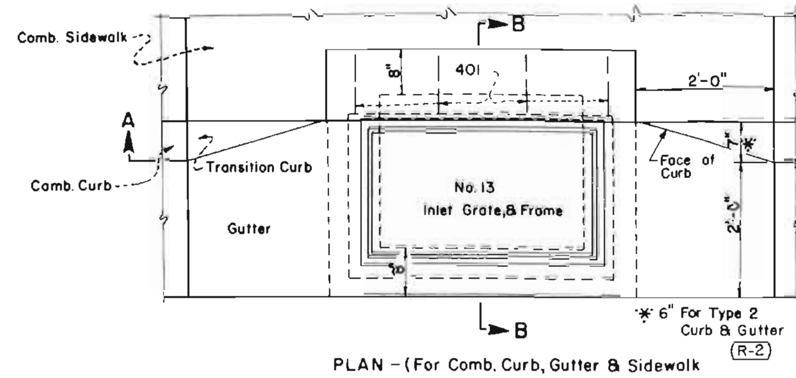
Designed by M.R.H.	Approved by [illegible]
Made by J.R.B.	Staff Design Eng'r.
Checked by R.S.M.	Date: 4-19-68

STANDARD M-604-AA
(APRIL 21, 1967)

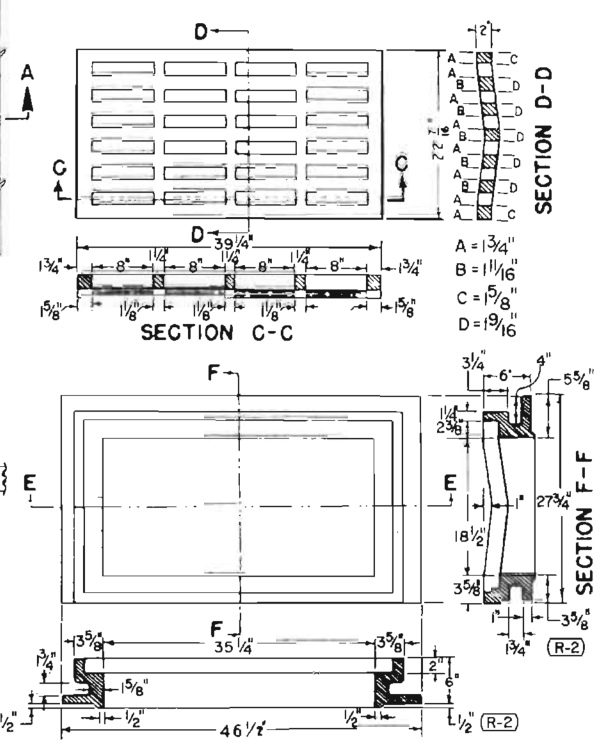
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO			



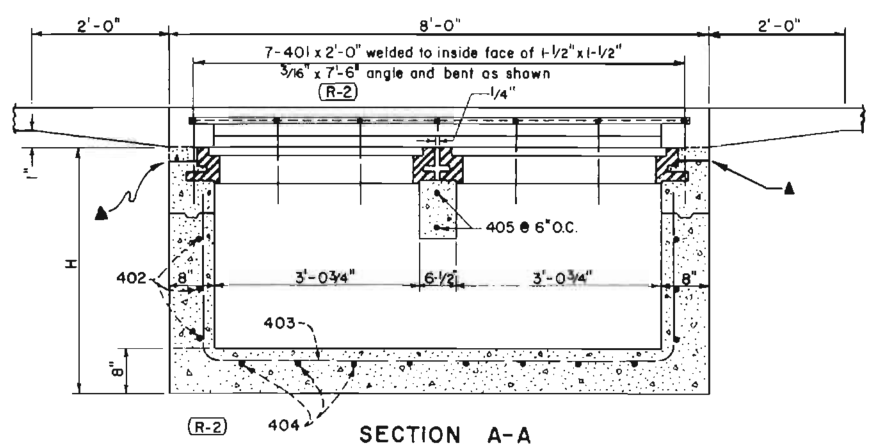
SECTION B-B



PLAN - (For Comb. Curb, Gutter & Sidewalk or Type 2 Curb & Gutter)

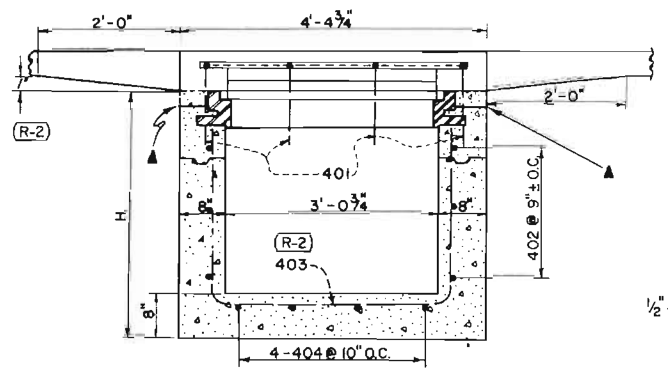


NO. 13 GRATING & FRAMES
Approx. Weight 680 lbs.

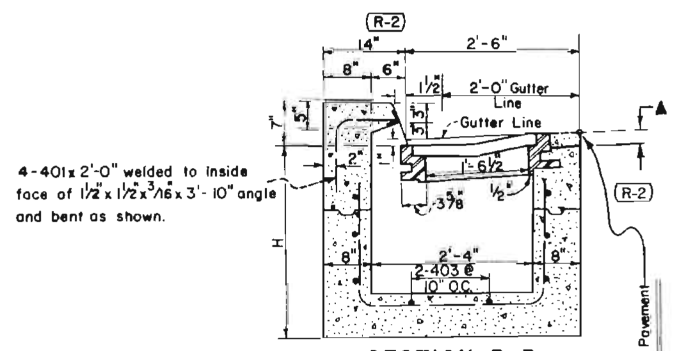


SECTION A-A

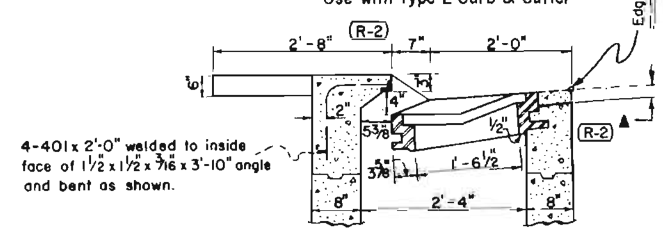
DOUBLE INLET
TYPE 3



SECTON A-A (For Comb. Curb, Gutter, & Sidewalk or Type 2 Curb & Gutter)



SECTION B-B
Use with Type 2 Curb & Gutter

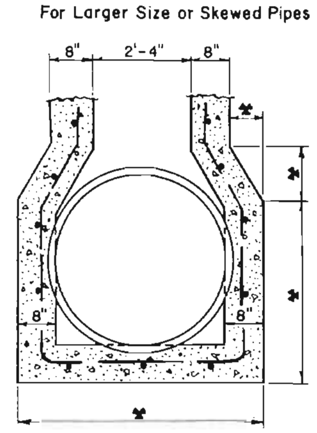


SECTION B-B
Use with Comb. Curb, Gutter, & Sidewalk

INLET TYPE 3

No. 13 Grate and Frame to be used with Type 3 Inlet.

DETAILS OF INLET ALTERATION
For Larger Size or Skewed Pipes



NOTE:
Vary steel shape and quantity as required.

* Variable - to suit pipe size or skew angle.

(R-2)

QUANTITIES

H	NO. OF 402 BARS REQ'D.	TYPE 3 INLET CLASS A CONCRETE Ẍ CU. YD.	TYPE 3 INLET REINFORCING STEEL θ LB.	TYPE 3 DOUBLE INLET CLASS A CONCRETE Ẍ CU. YD.	TYPE 3 DOUBLE INLET REINFORCING STEEL θ LB.
3'-0"	3	1.30	64.29	2.20	110.77
3'-6"	4	1.47	78.35	2.51	132.47
4'-0"	4	1.64	82.40	2.82	139.22
4'-6"	5	1.81	96.46	3.13	160.92
5'-0"	6	1.98	110.51	3.44	182.63
5'-6"	6	2.15	114.56	3.75	189.38
6'-0"	7	2.32	128.62	4.06	211.08
6'-6"	8	2.49	142.68	4.37	232.78
7'-0"	8	2.66	146.73	4.68	239.53
7'-6"	9	2.83	160.79	4.99	261.24
8'-0"	10	3.00	174.85	5.30	282.94
8'-6"	10	3.17	178.90	5.61	289.69
9'-0"	11	3.34	192.96	5.92	311.39
9'-6"	12	3.51	207.02	6.23	333.10
10'-0"	12	3.68	211.07	6.54	339.84

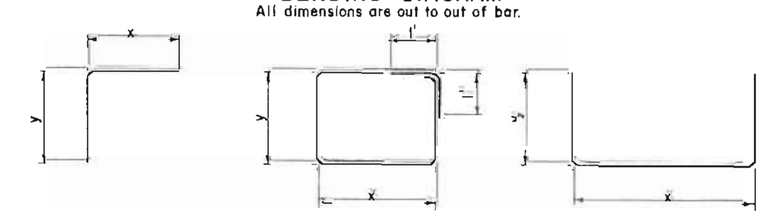
θ Includes 1% for overrun.
(R-2) Ẍ Includes volume occupied by pipes.

BAR LIST FOR H = 3'-0"

MARK	TYPE	TYPE 3 INLET NO. REQ'D.	TYPE 3 INLET DIMENSIONS x	TYPE 3 INLET DIMENSIONS y	TYPE 3 INLET LENGTH	TYPE 3 DOUBLE INLET NO. REQ'D.	TYPE 3 DOUBLE INLET DIMENSIONS x	TYPE 3 DOUBLE INLET DIMENSIONS y	TYPE 3 DOUBLE INLET LENGTH
401	I	4	1'-0"	1'-0"	2'-0"	7	1'-0"	1'-0"	2'-0"
402	II	3	3'-7 1/4"	2'-10 1/2"	14'-11 1/2"	3	7'-2 1/2"	2'-10 1/2"	22'-2"
403	III	2	3'-5 3/4"	* 2'-0 1/2"	7'-6 3/4"	2	7'-1"	* 2'-0 1/2"	11'-2"
404	III	4	2'-9"	* 2'-1"	6'-11"	8	2'-9"	* 2'-1"	6'-11"
405	STR.					2			3'-0"

* Add 6" to this dimension for each 6" increase in "H" above 3'-0".

BENDING DIAGRAM
All dimensions are out to out of bar.



TYPE I   TYPE II   TYPE III

REVISIONS			
(R-1)	7-19-68	Dept. Name	M.R.H.
(R-2)	12-2-68	Delete Alt. Frame, Note & Details	M.R.H.

▲ — When bituminous material is to extend to the edge of the grating frame, concrete may be depressed.

NOTE: Use steps for all Inlets with H = 3'-6" or more. Start 2'-0" below gutter line and space equally at Minimum of 18".

Details of Steps on Standard M-604-D.

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications applicable to the project.

All concrete shall be class "A".
All concrete walls shall be formed on both sides.
All exposed concrete corners shall be beveled to a 1" face.
(R-2) All reinforcing bars shall be tagged with bar designation and station number.
All dimensions not shown as clear are to ℄ of bar.
All gratings, rings and covers shall be cast iron.

(R-1) DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

CONCRETE INLETS
TYPES 3 & 3 DOUBLE

Designed by H.E.A. Approved by
Made by J.R.B. Staff Design Engr.
Checked by M.R.H. Date April 21, 1967

DEPARTMENT OF HIGHWAYS—STATE OF COLORADO
FORM D. O. H. 126
MARCH 1964

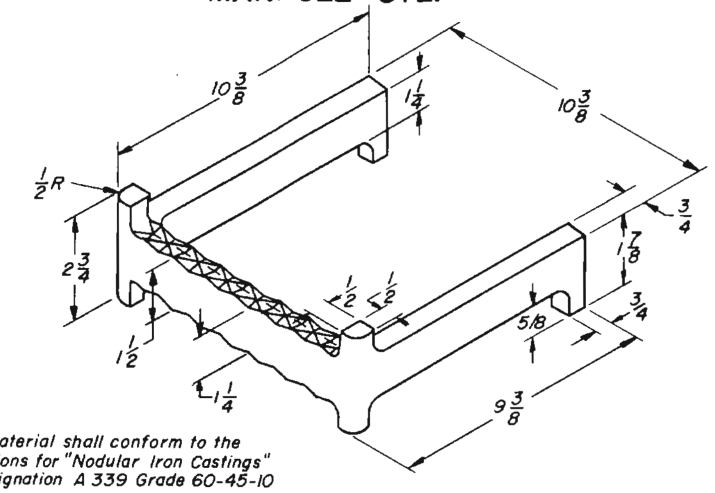
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO			

STANDARD M-604-D

(JULY 1, 1965)

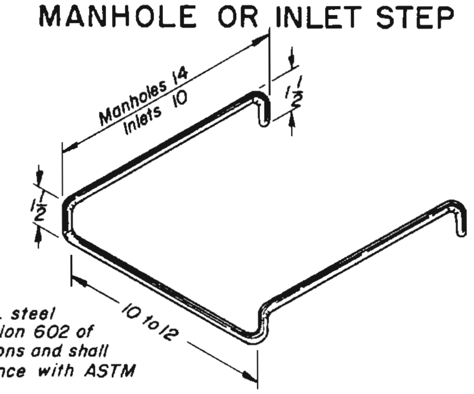
REVISIONS			
(R-1)	7-23-68	Dept. Name.	M.R.H.

CAST IRON MANHOLE STEP



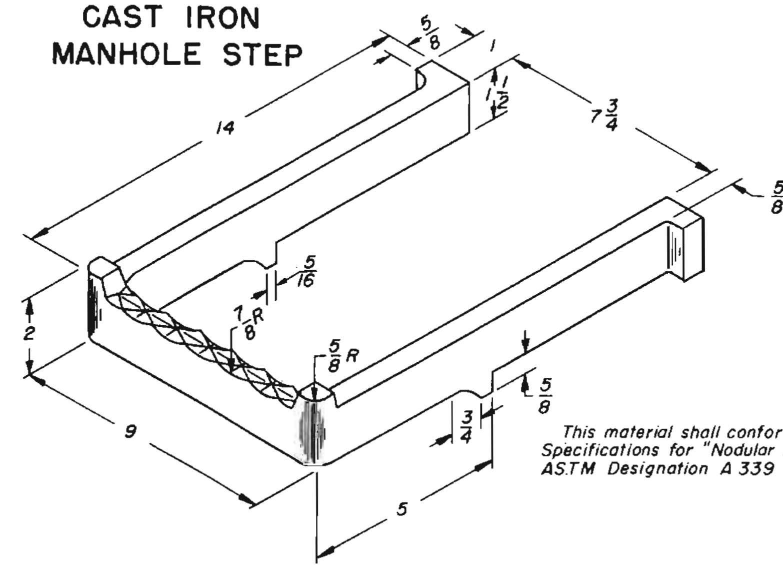
This material shall conform to the Specifications for "Nodular Iron Castings" ASTM Designation A 339 Grade 60-45-10

MILD STEEL MANHOLE OR INLET STEP



Step shall be 3/4 Dia. steel bars conforming to Section 602 of the Standard Specifications and shall be galvanized in accordance with ASTM Designation A 123.

CAST IRON MANHOLE STEP



This material shall conform to the Specifications for "Nodular Iron Castings" AS.TM Designation A 339 Grade 60-45-10.

GENERAL NOTES

All work shall be done according to the Standard Specifications applicable to the project.

Steps shall be included in the cost of "Manholes" or "Inlets".

All dimensions shown in inches.

(R-1)

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

STEPS FOR MANHOLES AND INLETS

Designed by: M.R.H. Made by: H.P.B. Checked by:	Approved by: [signature] Staff Design Engr. Date: July 1, 1965

STANDARD M-604-E

(OCTOBER 11, 1967)

FEDERAL-ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO			

REVISIONS			
(R-1)	7-24-68	Dept. Name.	M.R.H.
(R-2)	4-20-71	Concrete in Gen. Note.	M.R.H.

QUANTITIES FOR CONCRETE MANHOLE BOX BASE

MARK	SIZE	TYPE	Lb./Ft.	BARS	I.D. ⇨ 36"	48"	60"	72"	84"	96"
401	4	II	0.67	NO. REQ'D.	16	18	20	22	25	27
				LENGTH	6'-7"	6'-7"	6'-7"	6'-7"	6'-7"	6'-7"
				WEIGHT, lbs.	70.4	79.2	88.0	96.8	110.0	118.8
402	4	III	0.67	NO. REQ'D.	0	5	5	5	5	5
				LENGTH	0	4'-10"	6'-0"	7'-2"	8'-4"	9'-6"
				WEIGHT, lbs.	0	16.2	20.0	23.9	27.8	31.7
501	5	I	1.04	NO. REQ'D.	17	17	17	17	17	17
				LENGTH	5'-8"	6'-10"	8'-0"	9'-2"	10'-4"	11'-6"
				WEIGHT, lbs.	100.5	121.2	141.9	162.5	183.2	203.9
502	5	I	1.04	NO. REQ'D.	15	19	23	27	31	34
				LENGTH	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"
				WEIGHT, lbs.	78.2	99.1	120.0	140.8	161.7	177.3
503	5	I	1.04	NO. REQ'D.	30	30	30	30	30	30
				LENGTH	6'-2"	7'-4"	8'-6	9'-8"	10'-10"	12'-0"
				WEIGHT, lbs.	193.0	229.5	266.0	302.5	339.5	375.5
1101	11	I	5.31	NO. REQ'D.	4	4	4	4	4	4
				LENGTH	5'-8"	6'-10"	8'-0"	9'-2"	10'-4"	11'-6"
				WEIGHT, lbs.	120.5	145.2	170.0	194.8	219.6	244.4
1102	11	I	5.31	NO. REQ'D.	2	2	2	2	2	2
				LENGTH	2'-6"	2'-6"	2'-6"	2'-6"	2'-6"	2'-6"
				WEIGHT, lbs.	26.6	26.6	26.6	26.6	26.6	26.6
1103	11	I	5.31	NO. REQ'D.	2	2	2	2	2	2
				LENGTH	3'-6"	3'-6"	3'-6"	3'-6"	3'-6"	3'-6"
				WEIGHT, lbs.	37.2	37.2	37.2	37.2	37.2	37.2
1104	11	I	5.31	NO. REQ'D.	3	3	3	3	3	3
				LENGTH	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"	5'-0"
				WEIGHT, lbs.	79.7	79.7	79.7	79.7	79.7	79.7
REINFORCING STEEL — Pounds — Total					706.1	833.9	949.1	1064.8	1185.3	1295.1
CONCRETE — Cubic Yards — Total					4.2	5.3	6.6	8.0	9.5	11.1

NOTE: Quantities are based on same size pipe entrance to and exit from base and a 4 ft. manhole entrance into top slab of base.

FORMULAS

401
Number Bars Required = $\left(\frac{12 + I.D. + 2W}{6}\right) + 6$

402
Bar Length = I.D. + 2W

501
Bar Length = 24" + I.D. + 2W

502
Number Bars Req'd. = $\left(\frac{17 + I.D. + 2W}{5}\right) + \left(\frac{I.D. - 36}{12}\right) + 3$

503
Bar Length = 30" + I.D. + 2W

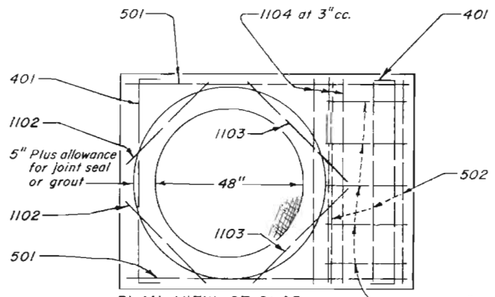
1101
Bar Length = 24" + I.D. + 2W

BENDING

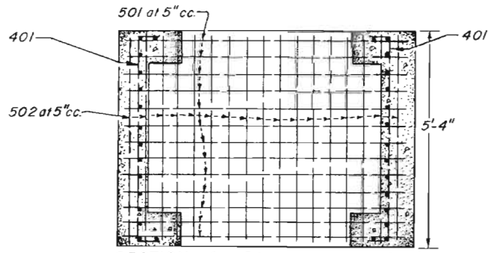
TYPE I — Straight

TYPE II

TYPE III

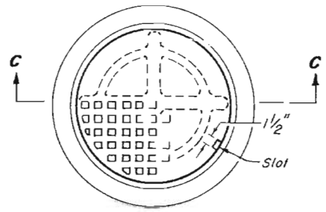


PLAN VIEW OF SLAB



SECTION A — A (Steel in Bottom of Base)

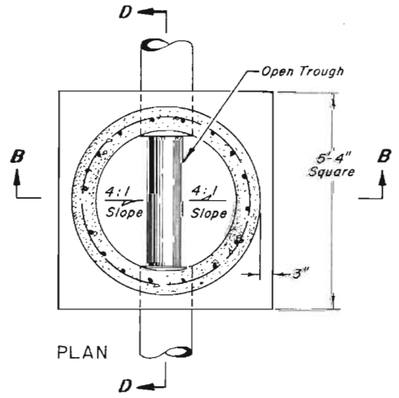
NOTE: Manhole Ring and Cover shall be dipped or painted with Ashpalt or Coal Tar and Oil.



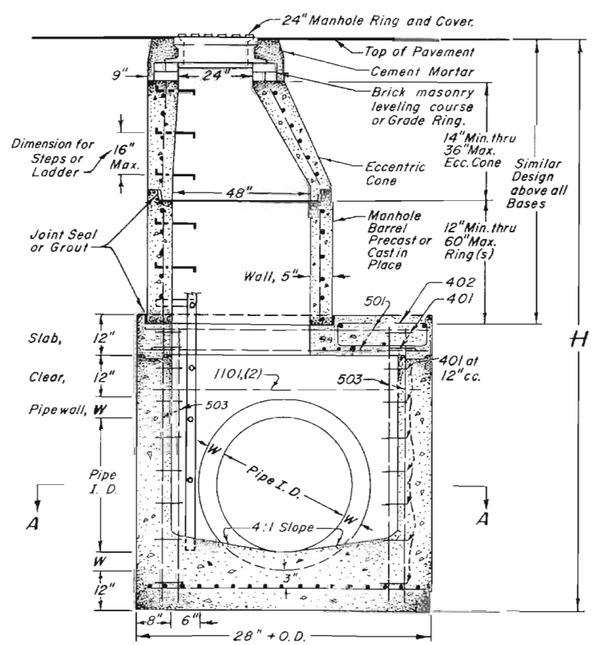
TOTAL WEIGHT: Approximately 400 lbs.

SECTION C — C

MANHOLE RING AND COVER

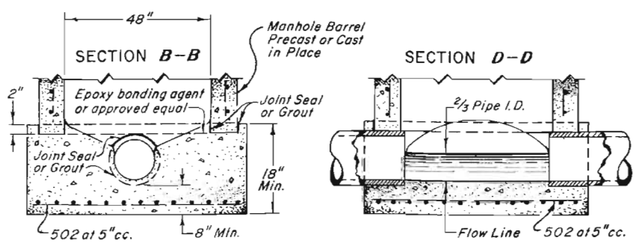


PLAN



CONCRETE MANHOLE AND BOX BASE

(Typical for Conduit 36" I.D. and Larger.)



CONCRETE SLAB BASE

(Typical for Conduit Smaller than 36" I.D.)

GENERAL NOTES (R-2)

All work shall be done in accordance with the Standard Specifications applicable to the project.

Since all pipe entries into the base are variable, the dimensions shown are typical. Actual dimensions and quantities for concrete and reinforcement shall be as required in the work.

Design is based on straight runs of conduit or change in direction under 45°.

All bars shall be a minimum 2" clear.

Precast Manholes shall conform to ASTM Designation C 478.

Cast in place Manholes shall be Class A, B or D concrete.

The following alternate materials for Manholes may be used when design details for construction are included in the plans:

MATERIAL	CONFORMANCE - DESIGNATION
Clay or Shale Brick	AASHO M 91
Concrete Brick	ASTM C 55, Grade P-I or P-II
Concrete Masonry Block	ASTM C 139
Corrugated Steel Unit	AASHO M 36

All pipe entries into the base of Manhole shall be connected by open gutter adjusted for pipe size, shape, slope and direction of flow.

Alternate designs will be permitted after approval by the Division.

Steps or Ladder will be required when Manhole depth exceeds 3'-6".

(R-1)

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

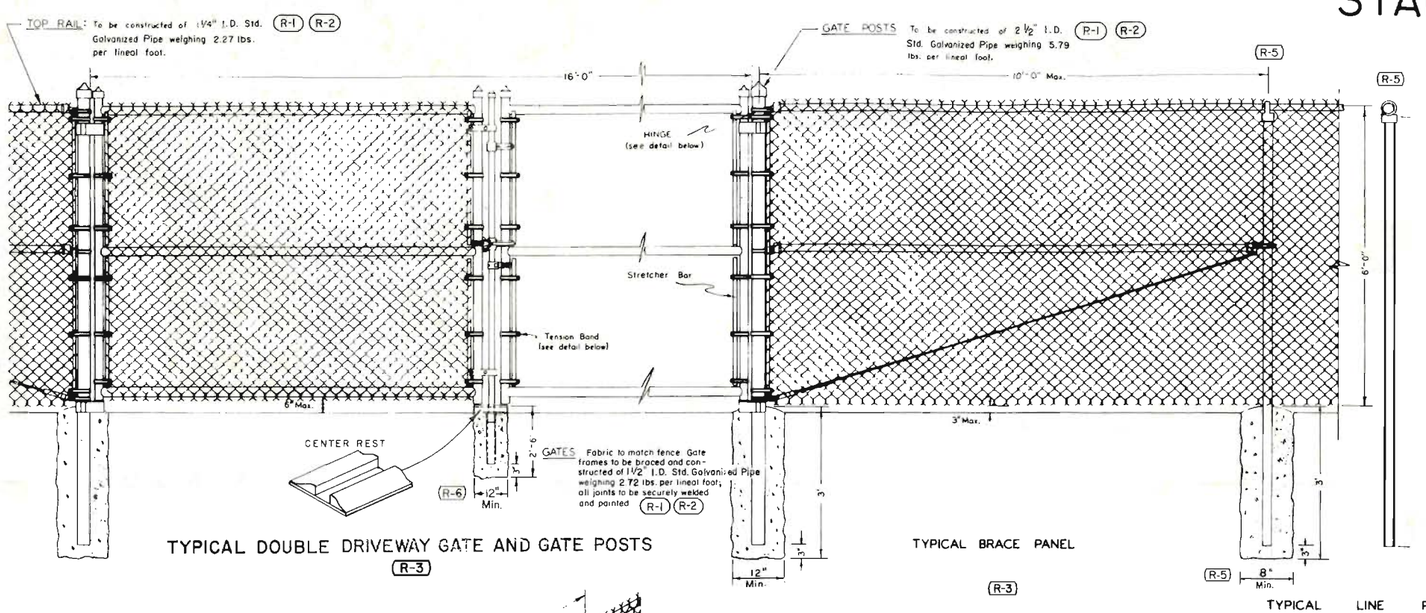
MANHOLES

Designed by M.R.H.	Approved by
Made by J.R.B.	Staff Design Engineer
Checked by R.S.M.	Date: October 11, 1967

STANDARD M-607-B

(JULY 1, 1965)
(SHEET 1 OF 2)

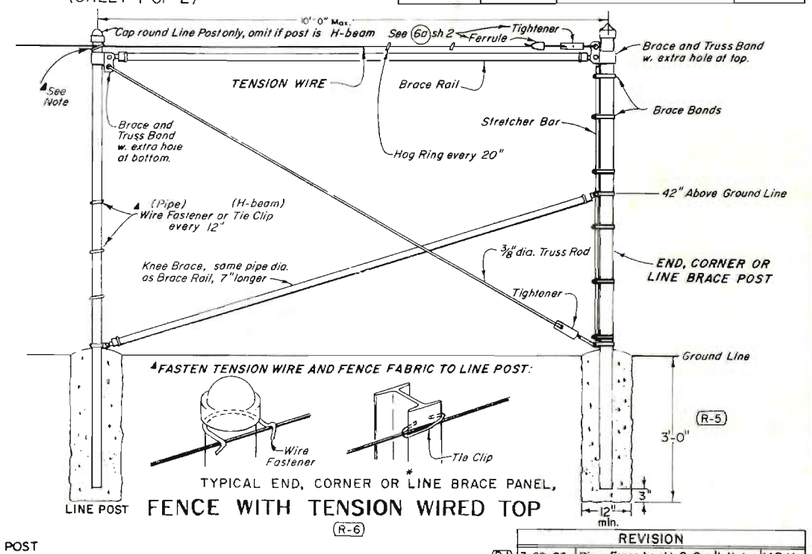
FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLORADO		



TYPICAL DOUBLE DRIVEWAY GATE AND GATE POSTS
(R-3)

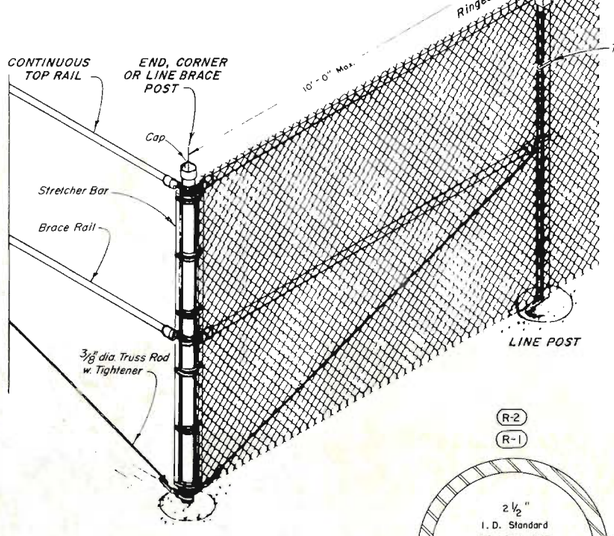
TYPICAL BRACE PANEL
(R-3)

TYPICAL LINE POST
(R-5)

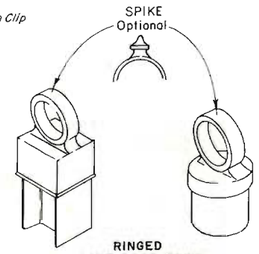


TYPICAL END, CORNER OR *LINE BRACE PANEL,
FENCE WITH TENSION WIRED TOP
(R-6)

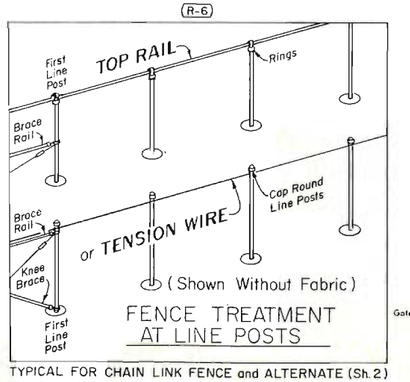
REVISION			
(R-1)	3-28-66	Pipe, Fence height & Gen'l. Notes	M.R.H.
(R-2)	4-7-66	Pipe diameters clarified	M.R.H.
(R-3)	2-6-67	Delete spec. No's.; add Gen.Notes	M.R.H.
(R-4)	7-24-68	Dept. Name.	M.R.H.
(R-5)	7-13-70	Post fittes & tops. Line brace. G.notes	M.R.H.
(R-6)	12-11-70	Add details for tension wire	M.R.H.
(R-7)	4-20-71	Conc. in Gen. Note.	M.R.H.



TYPICAL END, CORNER OR *LINE BRACE PANEL
for
FENCE WITH RAILED TOP
(R-6)

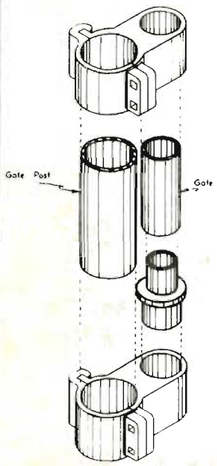


RINGED
LINE POST TOPS



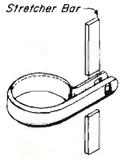
TYPICAL FOR CHAIN LINK FENCE and ALTERNATE (Sh.2)

*Note: Line Brace Panel shall be used in fence at intervals of not more than 400 feet. (R-6)

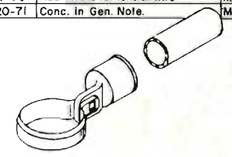


HINGE ASSEMBLY

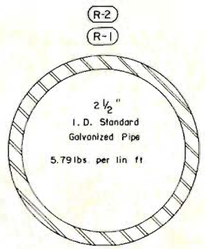
BRACE & TRUSS BAND
(R-6)



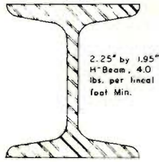
TENSION BAND



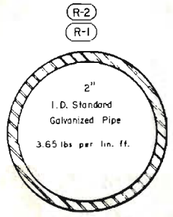
BRACE BAND & RAIL END



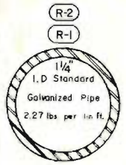
END, CORNER AND LINE BRACE POSTS
(R-5)



ALTERNATE LINE POST
(R-5)



LINE POST
(R-5)



BRACE RAIL & TOP RAIL

(R-7) GENERAL NOTES

All work shall be done in accordance with the Standard Specifications applicable to the Project.

Weights of pipe as shown are nominal for the diameter designated. Pipe for posts shall conform to ASTM Designation A 120, Series 40.

Alternate equivalent standard fittings, gates, posts, and rails other than as shown may be used subject to approval by the Engineer.

Chain Link Fabric shall be No.9 gage wire securely fastened to all Line Posts, Rails and Braces with No.7 (B&S) gage aluminum wire and/or No.12 1/2 (W&M) gage galvanized steel wire spaced at a minimum of 6 per 10 feet horizontally and one per foot vertically. Suitable attachment bands shall be used on all gate posts, End Posts, Braces, and stretcher bars.

Chain Link Fabric for use on rock slopes or in conjunction with rock bolts shall be No.6 gage wire.

Maximum Line Post spacing shall be 10' (c to c).
Concrete shall be Class **A**, **B** or **D**.

Lightweight aggregate conforming to ASTM C 330 will be allowed in concrete.

Concrete footings shall have crowned tops.

Toprail or tension wire shall be used as shown on the plans.

Tension wire shall be continuous between end or corner post and line brace post. A turnbuckle or other approved tightening device shall be used for each continuous span of tension wire. (R-4)

Tension wire shall be 7 gage galvanized coil spring steel, or approved equal.

Termination of fence at bridges or other structures shall be as shown on the plans.

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

CHAIN LINK FENCE

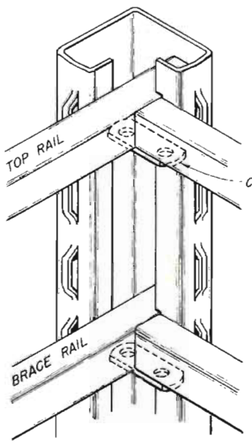
Designed by: V.L.A.	Approved by: L.E. Olsen
Made by: E.L.H.	Staff Design Engr.
Checked by:	Date: July 1, 1965

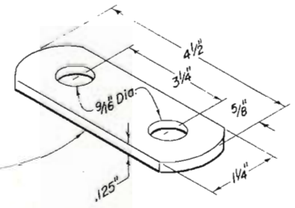
STANDARD M-607-B

(SHEET 2)
(JULY 13, 1970)

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO			

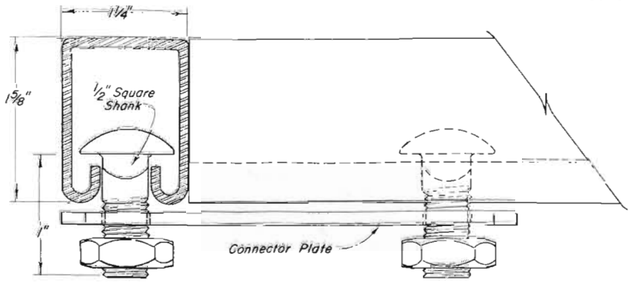
REVISIONS			
R-5	7-13-70	Entire sheet.	M.R.H.
R-6	12-11-70	Add details 6a and 13.	M.R.H.
R-7	4-20-71	Line brace title. Tension wire clamp.	M.R.H.





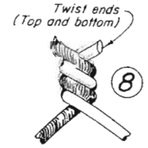
CORNER POST TREATMENT ①

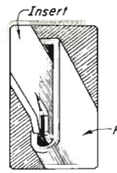
CONNECTOR PLATE ②

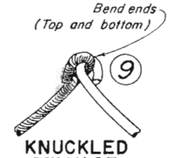


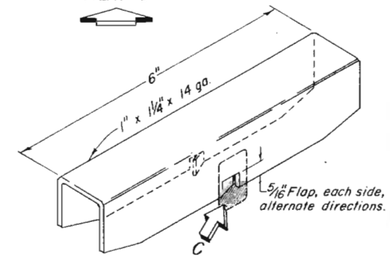
RAIL *(Showing Corner Assembly)* ③

14 GAGE ROLL FORMED STEEL, 20' LENGTHS, 1.35 LB. PER LIN. FT.

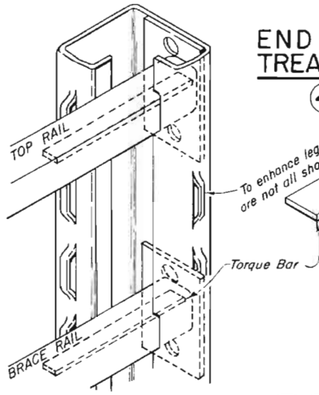


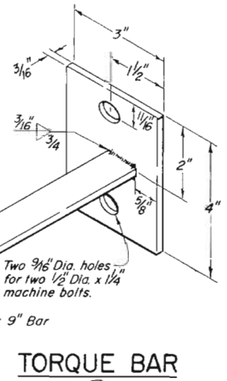






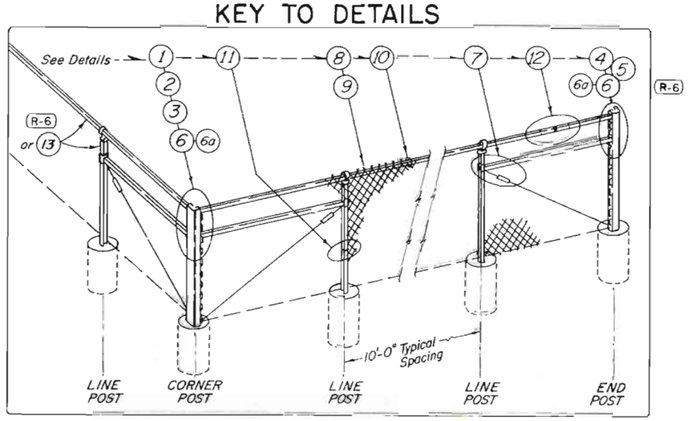
RAIL SPLICE INSERT ⑫



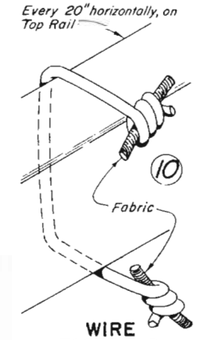


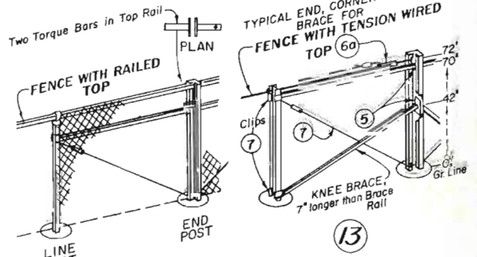
END POST TREATMENT ④

TORQUE BAR ⑤



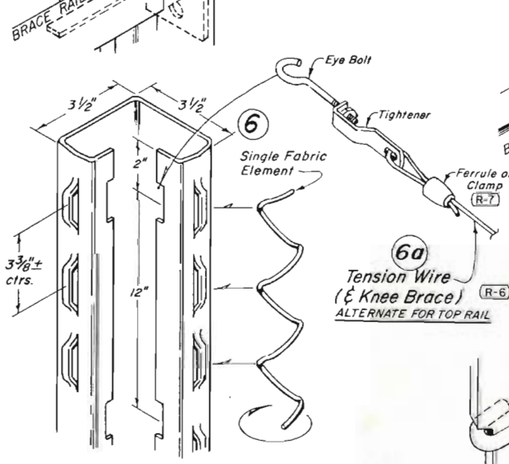
KEY TO DETAILS

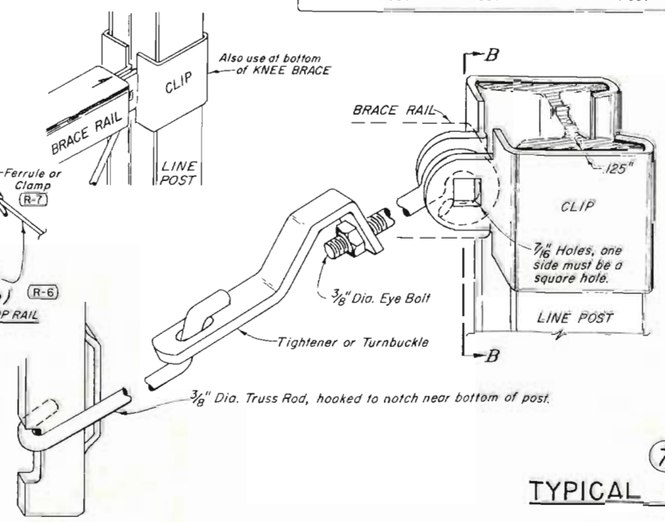


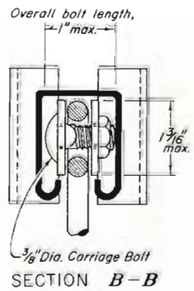


LINE BRACE (½ shown)

400 FT. INTERVALS R-7 R-6



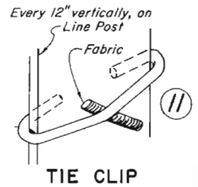




END POST OR CORNER POST

10 GAGE ROLL FORMED STEEL, 5.14 LB. PER LINEAR FOOT

TYPICAL BRACING ⑦



WIRE WORK

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

CHAIN LINK FENCE
(ALTERNATE)

Designed by M.R.H.	Approved by
Made by J.R.B.	Staff Design Engineer
Checked by R.S.M.	Date: July 13, 1970

STANDARD CURBS AND GUTTERS

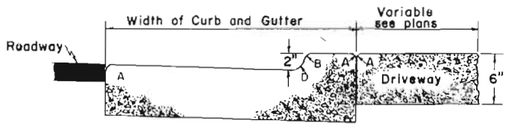
STANDARD M-609-A

(JULY 1, 1965)

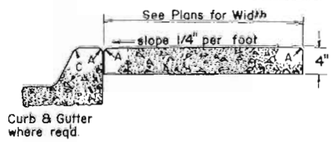
FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLO.		

REVISIONS			
R-1	11-16-65	Subtitles.	M.R.H.
R-2	2-14-66	General Notes.	M.R.H.
R-3	7-19-68	Dept. Name and Rev. Gtn's. Note.	M.R.H.
R-4	5-21-69	Provide variable width on conc. gtr.	M.R.H.
R-5	5-7-71	Add class B to conc. in Gen. Nots.	M.R.H.

CONCRETE PAVEMENT (DRIVEWAYS)

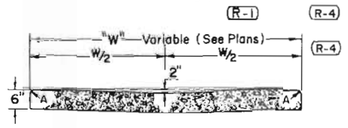


CONCRETE SIDEWALK

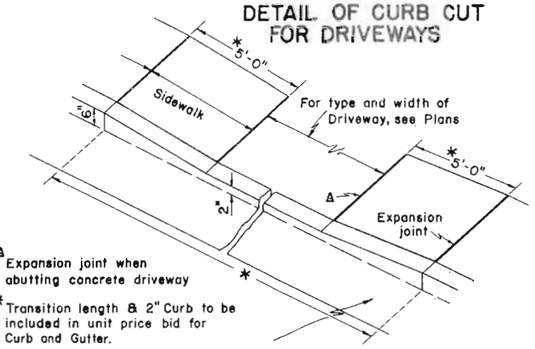


GUTTER Type 2

(R-1) (R-4)



DETAIL OF CURB CUT FOR DRIVEWAYS

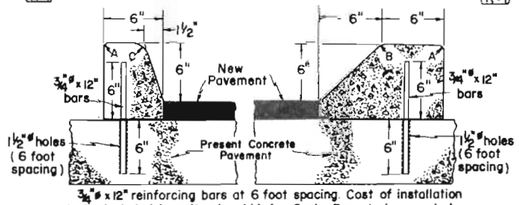


Δ Expansion joint when abutting concrete driveway

* Transition length & 2" Curb to be included in unit price bid for Curb and Gutter.

CURB Type 4 (6" Barrier) (Section B)

(R-1)



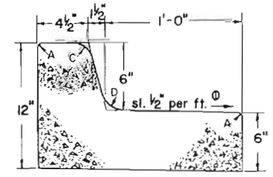
CURB Type 4 (6" Mountable) (Section M)

(R-1)

¾"ø x 12" reinforcing bars at 6 foot spacing. Cost of installation to be included in unit price bid for Curb. Bars to be grouted in 1½"ø holes in present concrete. Grout to consist of 2 parts clean sand and 1 part cement.

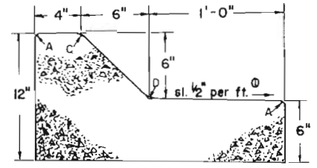
CURB AND GUTTER Type 2 (6" Barrier - 1' Gutter) (Section 1B)

(R-1)



CURB AND GUTTER Type 2 (6" Mountable - 1' Gutter) (Section 1M)

(R-1)



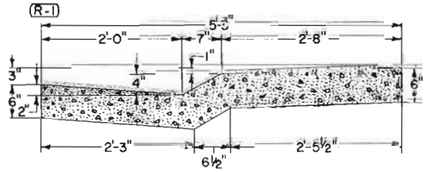
Φ Slope in opposite direction when required to fit field conditions.

LEGEND FOR RADII

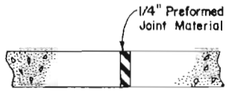
A	= ⅛"
B	= 1"
C	= 1½"
D	= ½" to 2"

CURB AND GUTTER (Type 2) (4" Mountable with Sidewalk) (Section MS)

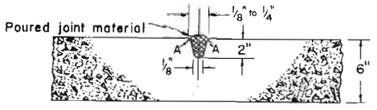
(R-1)



SIDEWALK EXPANSION JOINT

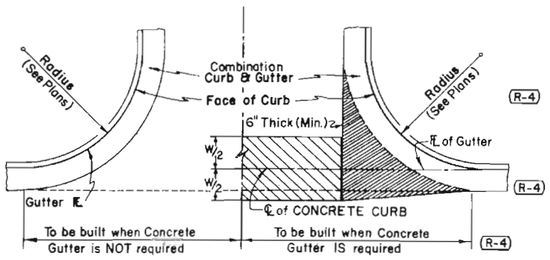


TRANSVERSE CONTRACTION JOINT FOR CONCRETE PAVEMENT (DRIVEWAYS)



This joint required where length of slab exceeds 15 feet.

CONSTRUCTION OF CONCRETE GUTTERS AT INTERSECTIONS



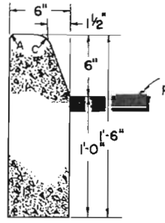
(R-4)

▨ This area shall be poured monolithically with curb and gutter and paid for as Concrete Pavement of specified thickness.

(R-4)

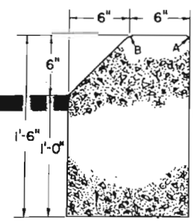
CURB Type 2 (6" Barrier) (Section B)

(R-1)



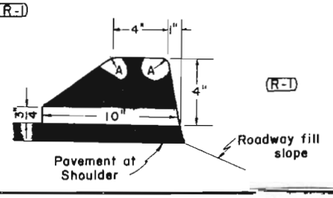
CURB Type 2 (6" Mountable) (Section M)

(R-1)



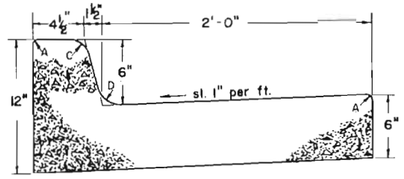
CURB Type 6 (4" Mountable) (Section M)

(R-1)



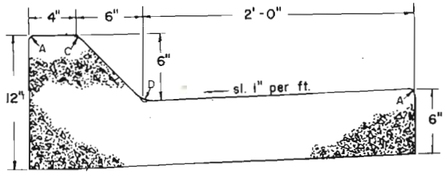
(R-1)

CURB AND GUTTER Type 2 (6" Barrier - 2' Gutter) (Section IIB)



(R-1)

CURB AND GUTTER Type 2 (6" Mountable - 2' Gutter) (Section IIM)



(R-5)

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications applicable to the project.

On Curves 3 degrees and sharper, Curbs and/or Gutters are to be placed on the Arc of the Curve unless otherwise noted on plans. A maximum chord length of 10 feet may be used when the degree of curve is less than 3 degrees.

Expansion joints shall be installed between concrete curb and any fixed structure, sidewalk or bridge. Expansion joint material shall be ½" thick and shall extend the full depth of contact surface.

Concrete shall be Class A, B or D.

(R-3)

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

CURBS AND GUTTERS

Designed by [illegible]	Approved by [illegible]
Made by [illegible]	Staff Design Engr.
Checked by C.R.S.	Date: July 1, 1965

STANDARD M-614-A

(JULY 1, 1965)

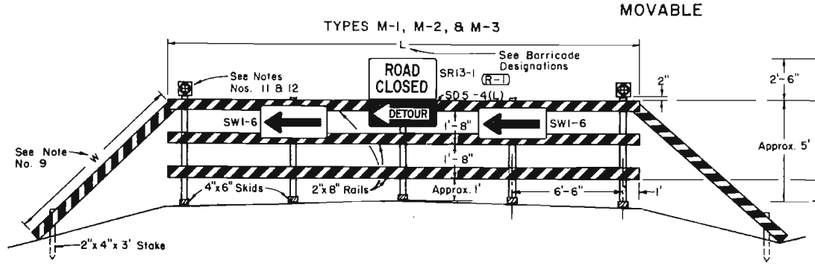
FEDERAL ROAD REGION NO.	DISTRICT	PROJECT NO.	SHEET NO.
9	COLORADO		

REVISIONS			
(R-1)	11-15-68	Rev. Dept. Name & Code Nos.	JLS
(R-2)	4-23-69	Rev. Code No. & Notes	JLS

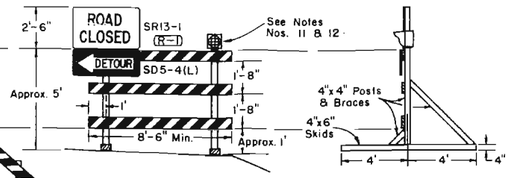
CLASS I BARRICADES
(3 RAILS)

MOVABLE

TYPES M-1, M-2, & M-3

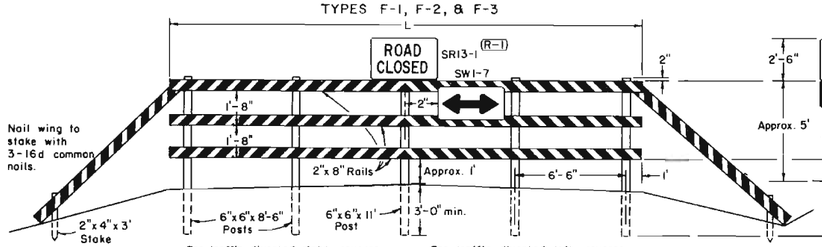


TYPE M-4



FIXED

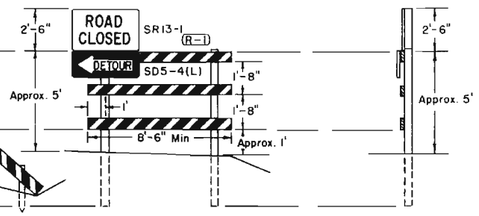
TYPES F-1, F-2, & F-3



For traffic diverted right, reverse angle of stripes this side and in lieu of sign SW1-7 use sign SW1-6. See Note No. 5.

For traffic diverted left, reverse angle of stripes this side and in lieu of sign SW1-7 use sign SW1-6. See Note No. 5.

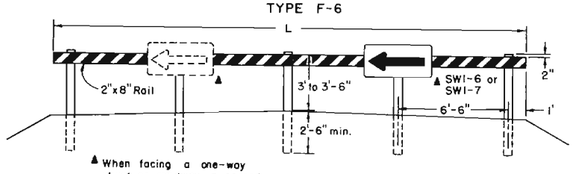
TYPE F-4

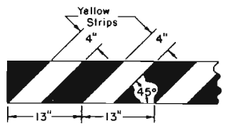


CLASS II BARRICADE
(1 RAIL)

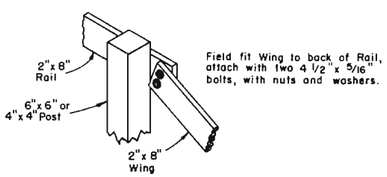
FIXED

TYPE F-6

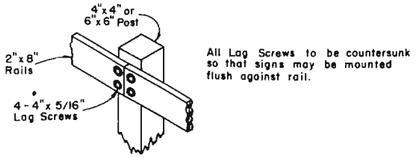




DETAIL OF RAIL AND WING STRIPING

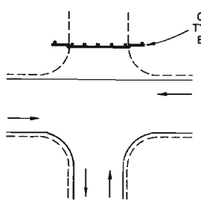


REAR VIEW OF BARRICADE SHOWING WING ATTACHED
(See Note No. 9)

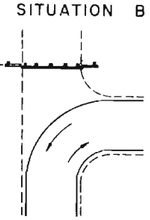


METHOD OF ATTACHING PLANKING TO POSTS AT JOINTS

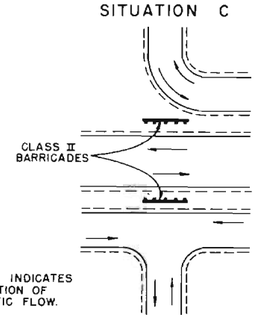
SITUATION A



SITUATION B



SITUATION C



← INDICATES DIRECTION OF TRAFFIC FLOW.

GENERAL NOTES

1. All work shall be done in accordance with the Standard Specifications applicable to the Project.
(R-2) 2. All signs and sign materials shall conform to the standards set forth in the "Manual on Uniform Traffic Control Devices for All Classes of Streets and Highways" published by the Division of Highways and this standard.
3. The various types and combinations of approved Signs and Beacons for Barricades required for each project shall be governed by field conditions and subject to approval by the Engineer. All traffic controls shall be placed for best visibility and legibility and maintained in good condition at all times. Oversigning is to be avoided.
(R-2) 4. Painting shall conform with Subsection 508.08 of the Standard Specifications. All skids, braces, and posts shall be painted with 2 coats of "Exterior Black Paint." Planking and wings on all barricades shall be painted with 2 coats of "Exterior Black Paint" on all sides before adding reflective strips. Reflective strips shall be "cut from smooth surface yellow reflective sheeting" of a type approved by the Division.
5. Each barricade rail shall be striped on the face side only with reflective yellow strips slanting downward at a 45° angle toward the side to which traffic is to turn or pass. See "DETAIL OF RAIL AND WING STRIPING."
6. When barricades are designated on plans the portion of the posts below ground line shall either be dipped in or painted with hot creosote oil. The portion of the post above ground line shall be painted with 2 coats of "Exterior Black Paint."
7. All skids, braces, and posts shall be nailed together with No. 20d nails. All screws, bolts, nuts, and washers shall be galvanized or cadmium plated. Skids (bases) of movable barricades shall be weighted where necessary to provide stability.
(R-2) 8. All timber shall be Standard Grade or better, S4S, Douglas Fir or Larch, as described in the 1965 Standard Grading Rules published by the Western Wood Products Association, and shall conform to paragraph 123c for the rails and paragraphs 122c and 125c for the posts.
9. Detachable extension wings for bypassing of construction equipment are permitted. "W" is variable, length shall be adequate to provide closing of borrow pit and/or shoulder as required.
(R-2) 10. Alternate materials or other reflective elements on Traffic signs or Barricades will be permitted only after approval of such material by the Division in writing.
11. A Flashing Beacon for use on Barricades is a section of a standard traffic signal head or a similar-type device having a yellow lens in the face, which is illuminated by intermittent flashes. Where commercial power is not available, the beacon may be adapted to operate from storage batteries. Each signal unit lens shall have a visible diameter of not less than 8 inches. Each unit complete shall be of such design as to render the lens when illuminated clearly visible to traffic facing the signal at all distances up to 1000 feet under all atmospheric conditions except dense fog. The color of the yellow lens for caution shall be in accordance with Technical Report No. 1 of the Institute of Traffic Engineers. All beacon flashers shall be equipped with filters for suppression of radio interference. The illuminating element in a flashing yellow beacon shall be flashed at a rate of not less than 50 times nor more than 60 times per minute. The illuminated period of each flash shall be not less than half and not more than two-thirds of the total cycle. The use of Flashing Beacons will be governed by field conditions. Flashing Beacons when warranted generally should be operated continuously throughout the 24 hours of the day. Warrant for Flashing Beacons may be found in Sec. 3G of the "Manual on Uniform Traffic Control Devices for Streets and Highways" published by the U.S. Department of Commerce, Bureau of Public Roads, June, 1961 (or latest revision).
12. Flashers are portable, power-operated, lens-directed, enclosed lights, illuminated by rapid intermittent flashes of short duration. Flashers may be used in connection with barricades when approved by the Engineer. An array of random flashers which tends to obscure rather than delineate the traveled way will not be permitted. The use of flashers on a job will be governed by Sec. 5D of the "Manual on Uniform Traffic Control Devices for Streets and Highways" published by the U.S. Department of Commerce, Bureau of Public Roads, June, 1961 (or latest revision). The color of the light emitted by a flasher shall be yellow.
13. Flashing Beacons and Flashers, when used, shall be positioned above the top rail of the barricades to produce the most effective results.
14. Barricades used as "Traffic Controls for Highway Construction" are not to be paid for separately.
15. Barricades will be paid for separately when designated on plans as bid items.
16. For additional general information on control of traffic through work areas refer to the "Manual on Uniform Traffic Control Devices for Streets and Highway", Part VI, published by the U.S. Department of Commerce, Bureau of Public Roads, June, 1961 (or latest revision).

BARRICADE DESIGNATIONS

	Class	Type Movable	Type Fixed	Roadway Width	L	Description
(R-1)	I	M-1	F-1	26'-34'	28'	Barricade complete with SR13-1 sign and SW1-6 or SW1-7 signs as required.
(R-2)	I	M-2	F-2	35'-44'	41'	Barricade complete with SR13-1 sign and SW1-6 or SW1-7 signs as required.
(R-1)	I	M-3	F-3	Variable	28'	Barricade (without extension wings) complete with SR13-1 sign and SW1-6 or SW1-7 signs as required.
	I	M-4	F-4	Variable	Variable 8'-6" min.	Wing Barricade (signs only as appropriate).
	II	—	F-6	Variable	28'	Barricade complete with appropriate signs.

(R-1)

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

TIMBER BARRICADES

Designed By: D.R.W.
Made By: JLS
Checked By: J.B

Approved By: [signature]
Date: JULY 1, 1965

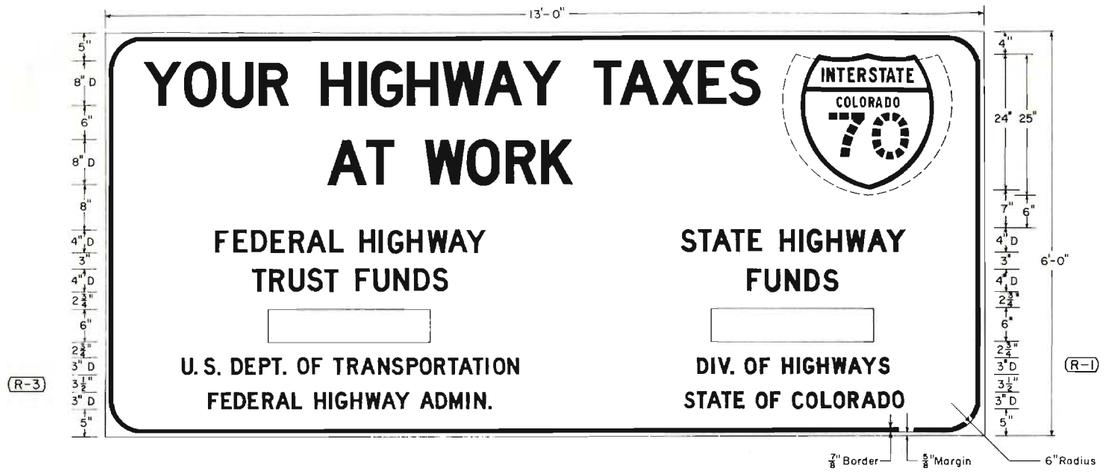
STANDARD M-614-IC

JULY 5, 1968

(SHEET 1 OF 2 SHEETS)

FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO			

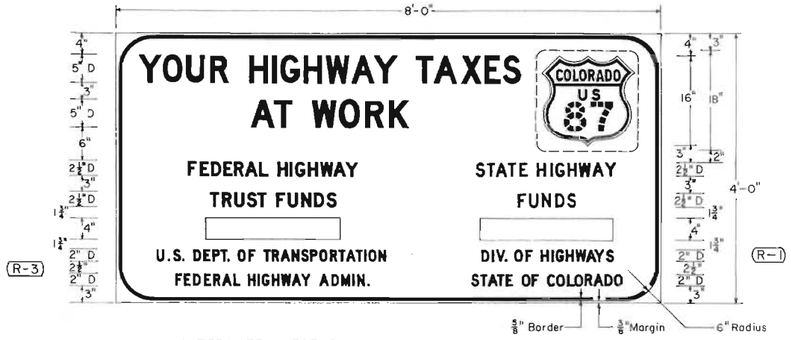
REVISIONS			
R-1	7-26-68	Rev. Legend and Notes	G.W.F.
R-2	5-20-69	Rev. Lateral Placement	J. J. B.
R-3	9-25-70	Rev. Legend	J. J. B.



ALTERNATE LEGEND

4" D FEDERAL

4" D FUNDS

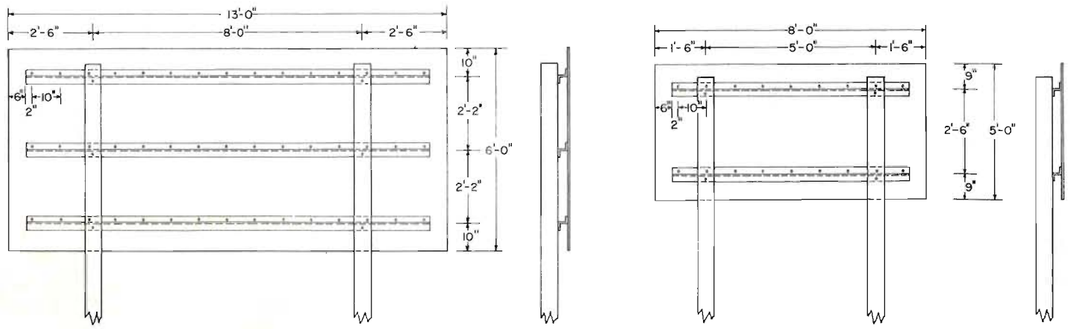


ALTERNATE LEGEND

2½" D FEDERAL

2½" D FUNDS

FABRICATION DETAILS

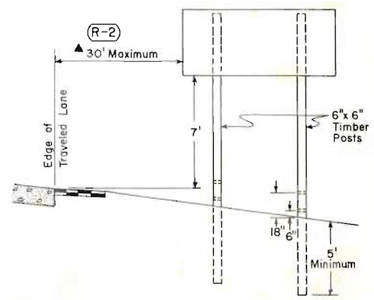


"AMOUNT OF FUNDS" PLAQUE DETAILS

GENERAL NOTES

1. These signs shall be furnished and installed by state forces.
2. All work shall be done in accordance with Standard Specifications applicable to the Project.
3. Signs are to be placed facing traffic approaching the Project. They shall be installed at a location where they will not obscure or detract from the effectiveness of other official signs.
4. ▲ The lateral placement may be reduced to a minimum of 2 ft. outside of the shoulder edge where necessary to fit field conditions.
5. When these signs are used on Beautification Projects, the words "HIGHWAY" and "TRUST" in lines 3 and 4 shall be deleted and the words "FEDERAL" and "FUNDS" shall be used in accordance with the spacing as shown under "Alternate Legend".
6. Sign panel shall be fabricated with ¾" plywood.
7. Route Marker plaques and "Amount of Funds" plaques shall be sheet aluminum 0.080" min. thickness.
8. Signs shall have a screen processed black legend and border on a plain white background. "Amount of Funds" plaques shall have a screen processed black legend on a plain white background.
9. Route Marker plaques shall be plain as indicated on the applicable standards.
10. Backing zees shall be 3" x 2¾" x ¼". Steel zees shall weigh 6.7 lbs. per ft. and aluminum zees shall be of 6061-T6 alloy weighing 2.33 lbs. per ft.
11. Posts shall be 6"x 6", S4S timber, painted white.
12. Each timber post shall be provided with two 2" diameter holes through the neutral axis, one at 6" and one at 18" above the ground level. The inside portion of each 2" diameter hole shall be painted white.
13. Panels shall be fastened to backing zees with ¼" thrust head lockbolt fasteners.
14. Backing zees shall be fastened to posts with ⅜" machine bolts.
15. Route Marker plaques and "Amount of Funds" plaques shall be fastened to the sign panels with ⅝" #9 round head wood screws.
16. Exposed lockbolt fastener heads and wood screw heads on the face of the sign shall be dipped or painted to match the surrounding color.
17. The underground portion of each timber post shall be treated with creosote.
18. Where a third governmental agency is shown as participating, its official name should be included centrally in lines 6, 7, and 8.
19. (R-1) It will not be necessary to change DEPT. to DIV. on any existing signs.

INSTALLATION DETAIL



DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

STANDARD CONSTRUCTION IDENTIFICATION SIGNS

Designed By:	J.L.S.	Approved By:	Traffic Engineer
Made By:	F.J.B.		
Checked By:	G.W.F.	Date:	July 5, 1968

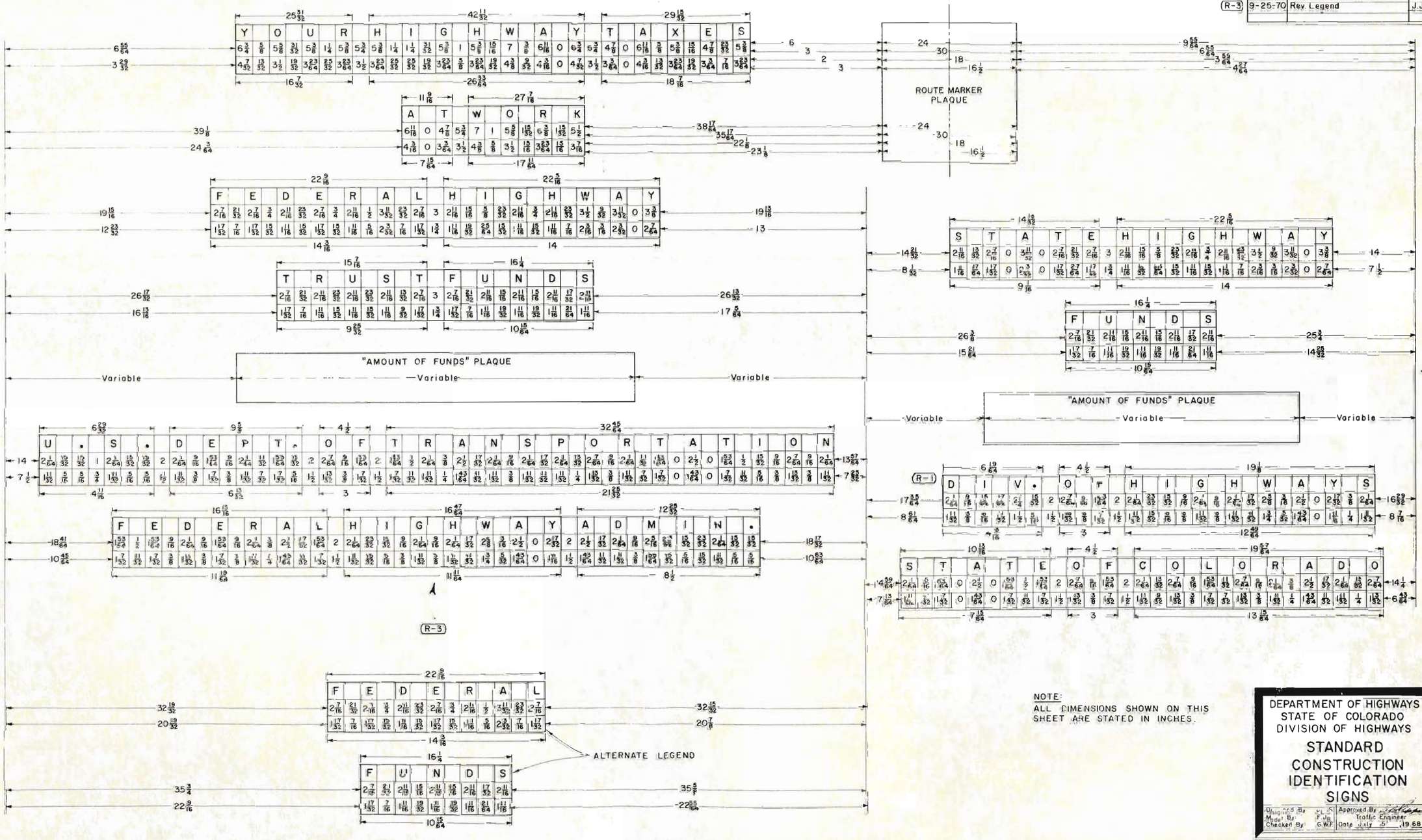
STANDARD M-614-IC

JULY 5, 1968

(SHEET 2 OF 2 SHEETS)

FEDERAL ROAD REGION NO.	DISTRICT	PROJ NO	SHEET NO.	TOTAL SHEETS
8	COLORADO	[redacted]		

REVISIONS			
R-1	7-26-68	Rev. Legend	G.W.F.
R-2	5-20-69	Rev. Lateral Placement	J.J.B.
R-3	9-25-70	Rev. Legend	J.J.B.



NOTE:
ALL DIMENSIONS SHOWN ON THIS SHEET ARE STATED IN INCHES.

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

STANDARD CONSTRUCTION IDENTIFICATION SIGNS

Designed By	K.L.S.	Approved By	[signature]
Made By	F.J.B.		Traffic Engineer
Checked By	G.W.F.	Date July 15	,1968

STANDARD M-614-TB

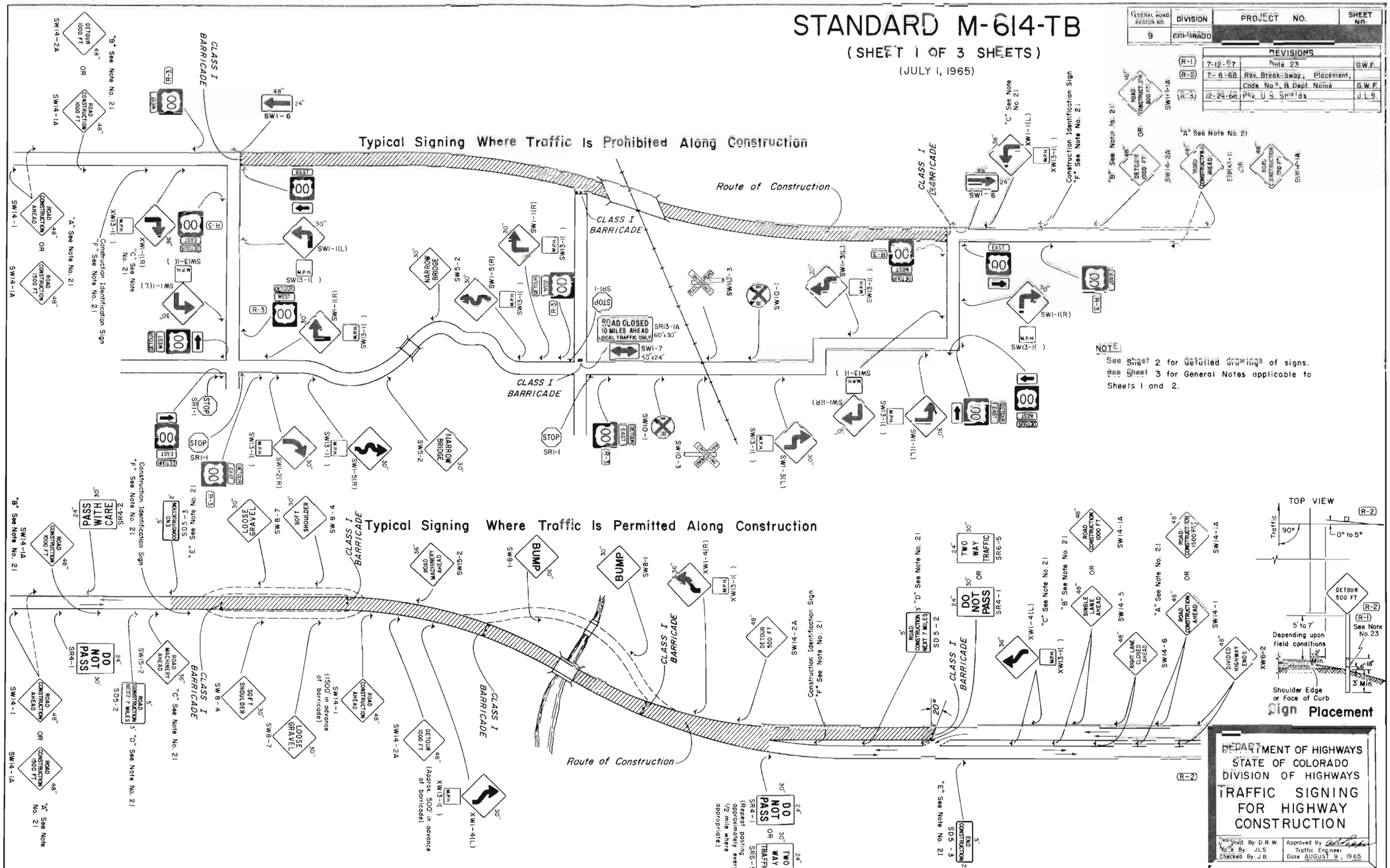
(SHEET 1 OF 3 SHEETS)

(JULY 1, 1965)

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLORADO	[redacted]	

REVISIONS			
R-1	7-12-67	Note 23	G.W.F.
R-2	7-8-68	Rev. Break-away, Placement,	
		Code No.'s, & Dept. Name	G.W.F.
R-3	12-24-68	Rev. U.S. Shields	J.L.S.

Typical Signing Where Traffic Is Prohibited Along Construction



NOTE:
See Sheet 2 for detailed drawings of signs.
See Sheet 3 for General Notes applicable to Sheets 1 and 2.

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

TRAFFIC SIGNING FOR HIGHWAY CONSTRUCTION

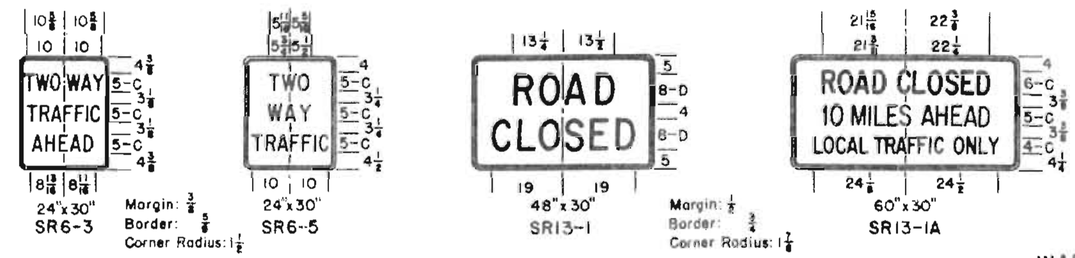
Designed By: D.R.W.	Approved By: [signature]
Detailed By: JLS	Traffic Engineer
Checked By: J.B.	Date AUGUST 9, 1965

STANDARD M-614-TB
(SHEET 2 OF 3 SHEETS)
(JULY 1, 1965)

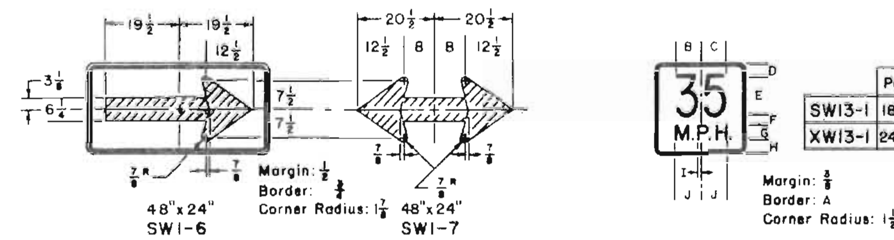
FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLORADO		

	REVISIONS		
(R-1)	7-12-67		M.R.H.
(R-2)	7-8-68	Rev. Code No. & Dept. Name	G.W.F.
(R-3)	12-24-68	Added Notes	J.L.S.

REGULATORY SIGNS
See Note No. 9

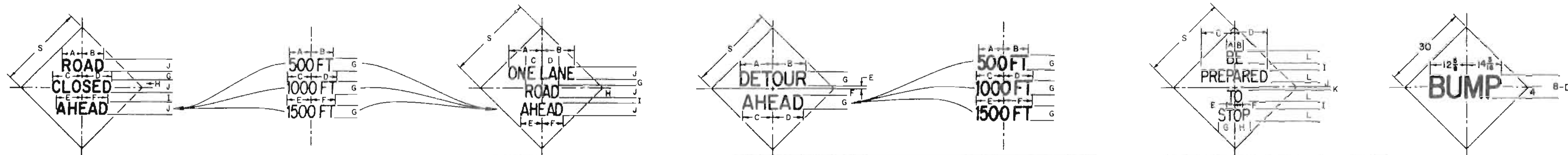


WARNING SIGNS
See Note No. 10



	Panel	A	B	C	D	E	F	G	H	I	J
SW13-1	18"x18"	3/8	5 1/2	5 5/16	2 1/4	8-C	2	3-E	2 3/4	3/4	5 3/16
XW13-1	24"x24"	3/8	6 5/8	6 9/16	3 1/4	10-C	2 3/4	4-E	4	15/16	6 7/8

WARNING SIGNS
See Note No. 10



	S	A	B	C	D	E	F	G	H	I	J
SW14-3	48	11 1/4	12 1/16	16 9/16	16 5/8	14 5/8	14 5/8	4 3/4	4 9/16	5 3/16	7-D
CW14-3	36	8 1/16	8 5/8	11 13/16	11 7/8	10 1/2	10 1/2	3 3/8	3 1/4	3 3/4	5-D

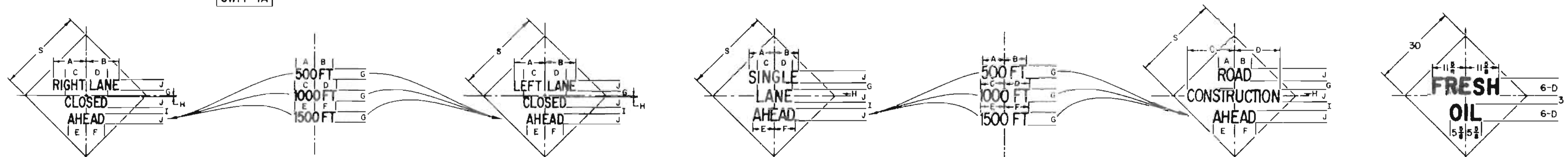
SW14-3A	S	A	B	C	D	E	F	G
SW14-4A	48	12	12 1/16	13 1/8	14 1/8	13 1/4	13 5/8	7-C
CW14-3A	36	8 9/16	8 5/8	[illegible]	10 1/8	9 1/2	9 3/4	5-C
CW14-4A								

	S	A	B	C	D	E	F	G	H	I	J
SW14-4	48	18 1/2	17 7/8	9 3/16	9 3/8	11 7/8	11 7/8	3 1/8	5 1/4	3 1/8	7-C
CW14-4	36	13 3/16	12 3/4	6 9/16	6 1/2	8 1/2	8 1/8	2 1/4	3 3/4	2 1/4	5-C

	S	A	B	C	D	E	F	G
SW14-2	48	18 5/16	18 5/16	16 3/8	16 3/4	1 1/4	3 1/2	8-D
CW14-2	36	13 5/8	13 1/2	12 5/8	12 5/8	[illegible]	2 5/8	6-D

	S	A	B	C	D	E	F	G
SW14-2A	48	13 3/4	13 3/4	15	16 3/16	15 1/8	15 9/16	8-C
CW14-2A	36	10 1/16	10 5/16	11 1/4	12 1/8	11 3/8	11 11/16	6-C

	S	A	B	C	D	E	F	G	H	I	J	K	L
SW14-7B	36	2 15/16	3 9/64	13 17/32	13 49/64	2 31/32	2 61/64	6 11/32	6 21/64	3	2	1	5-C



	S	A	B	C	D	E	F	G	H	I	J
SW14-6(R)	48	18 3/16	18 7/16	11 3/4	11 3/4	10 1/4	10 1/4	2 7/8	7/16	3 5/16	6-C
CW14-6(R)	36	15 1/16	15 3/8	9 13/16	9 13/16	8 9/16	8 9/16	2 3/8	3/8	2 3/4	5-C

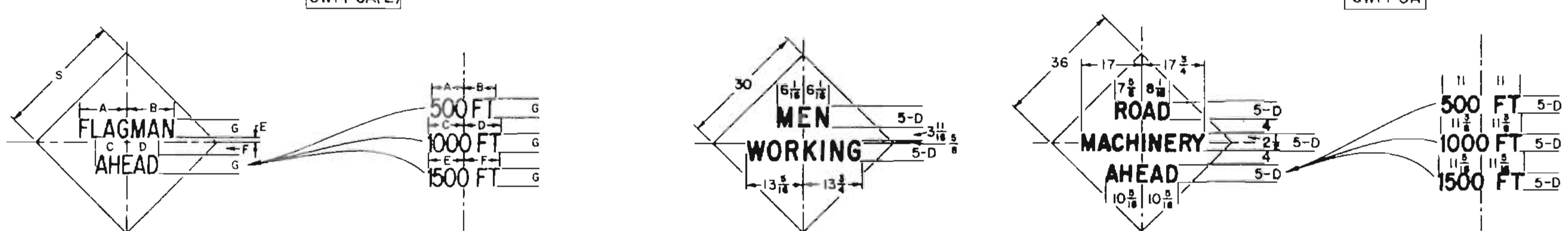
SW14-6A(R)	S	A	B	C	D	E	F	G
SW14-6A(L)	48	10 5/16	10 3/8	11 1/4	12 1/8	11 3/8	11 11/16	6-C
CW14-6A(R)	36	8 5/8	8 5/8	9 3/8	10 1/8	9 1/2	9 3/4	5-C
CW14-6A(L)								

	S	A	B	C	D	E	F	G	H	I	J
SW14-6(L)	48	17 1/8	17 1/8	11 3/4	11 3/4	10 1/4	10 1/4	2 7/8	7/16	3 5/16	6-C
CW14-6(L)	36	14 1/4	14 1/4	9 13/16	9 13/16	8 9/16	8 9/16	2 3/8	3/8	2 3/4	5-C

	S	A	B	C	D	E	F	G	H	I	J
SW14-5	48	13 13/16	13 5/16	9 7/16	10 1/16	11 7/8	11 7/8	3 11/16	3 1/2	3 9/16	7-C
CW14-5	36	11	10 3/4	8	8 1/4	10 7/8	10 7/8	2 5/8	2 1/2	2 9/16	5-D

SW14-1A	S	A	B	C	D	E	F	G
SW14-5A	48	12	12 1/16	13 1/8	14 1/8	13 1/4	13 5/8	7-C
CW14-1A	36	8 9/16	8 5/8	9 3/8	10 1/8	9 1/2	9 3/4	5-C
CW14-5A								

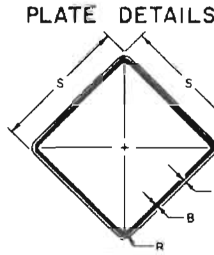
	S	A	B	C	D	E	F	G	H	I	J
SW14-1	48	9	9 3/16	26	25 9/16	11 7/8	11 7/8	4 13/16	3 1/2	4 13/16	7-C
CW14-1	36	6 3/4	6 7/8	19	18 1/2	8 1/2	8 1/2	3 3/4	2 1/2	3 3/4	5-C



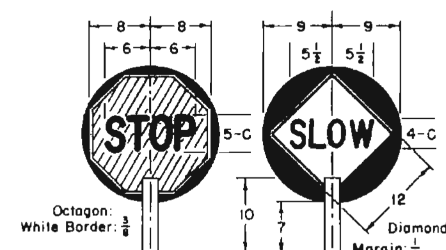
	S	A	B	C	D	E	F	G
SW14-7	48	18	18	11 7/8	11 7/8	1 1/2	4 3/4	7-C
CW14-7	36	15 7/16	15 7/16	10 3/16	10 3/16	1 5/16	4 1/16	6-C

	S	A	B	C	D	E	F	G
SW14-7A	48	12	12 1/16	13 1/8	14 1/8	13 1/4	13 5/8	7-C
CW14-7A	36	10 5/16	10 5/16	11 1/4	12 1/8	11 3/8	11 11/16	6-C

PLATE DETAILS



S	M	B	R
30	1/2	3/4	1 7/8
36	5/8	7/8	2 1/4
48	3/4	1 1/4	3



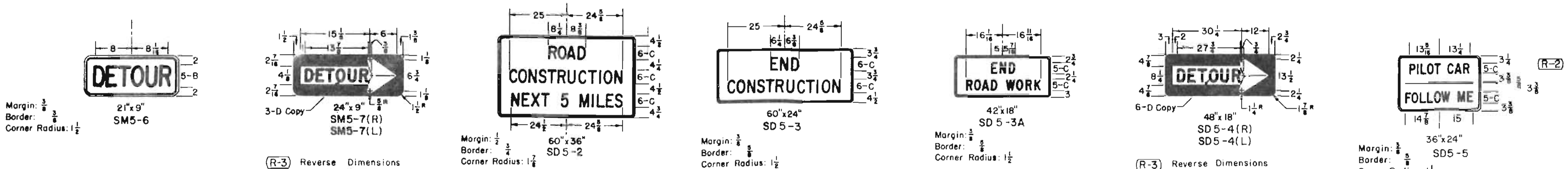
FLAGMAN SIGN
See Notes No. 20 and 22

NOTES:

SEE SHEET 1 FOR TYPICAL SIGNING AND SIGN PLACEMENT.
SEE SHEET 3 FOR GENERAL NOTES APPLICABLE TO SHEETS 1 AND 2.

ALL DIMENSIONS THAT ARE NOT LABELED ARE IN INCHES.

GUIDE SIGNS
See Note No. 11



DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

TRAFFIC SIGNING FOR HIGHWAY CONSTRUCTION

Designed By: D.R.W.
Made By: H.B.D.
Checked By: J.B.

Approved By: [signature]
Traffic Engineer
Date: AUGUST 9, 1965

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLORADO		

STANDARD M-614-TB

(SHEET 3 OF 3 SHEETS)

(JULY 1, 1965)

REVISIONS			
(R-1)	7-12-67	Added Note 23	G.W.F.
(R-2)	7-8-68	Rev. Note 23 & Dept Name -	
		Deleted Note	G.W.F.
(R-3)	12-24-68	Rev. Note No. 18	J.L.S.

GENERAL NOTES

1. All work shall be done in accordance with: (a) the Standard Specifications applicable to the Project, and (b) the "Manual on Uniform Traffic Control Devices for all Classes of Streets and Highways" published by the Department of Highways.

2. Where traffic is maintained through or over any part of the Project the Contractor will be required to mark all hazards within the limits of the Project (including connecting roads) with well-maintained Barricades, Warning, and Guide Signs. All Barricades and Signs shall be moved, added to, changed or removed as required during the progress of construction and removed entirely when the Project is completed.

3. Where traffic is prohibited from the Project the Detour will be marked by the Department except that the Contractor shall provide, erect and maintain Barricades, complete, (when required) at the ends of the Project, ends of the Detour and connecting roads. All U.S. or State Route Markers required for the Project will be furnished and installed by the Department. The location and positioning of Warning Signs, Barricades, and Regulatory Signs shall be as recommended by the appropriate District Engineering Forces of the Department.

4. Work on the Project shall not be started until all required signs are in place and approved by the Engineer. Where speed control appears necessary such speed control shall be requested from the Engineer by the Contractor. Control of speed through a construction zone may be achieved by Advisory Speed plates in conjunction with Warning Signs (SW13-1 for use with 30" Warning Signs and XW13-1 for use with 36" and 48" Warning Signs). The Advisory Speed plate is to be posted only at those locations where the safe speed is lower than the imposed Regulatory speed limit.

5. All Signs and Barricades shall be placed for best visibility and legibility, maintained in good condition and kept clean and free of dirt at all times. Contractor's and Engineer's vehicles and equipment must be parked so that signs and barricades are visible to approaching traffic at all times.

6. Where two identical signs are used for dual posting they are to be staggered on the two sides of the roadway for a minimum distance of 75' to avoid a tunneling effect.

7. Examples for marking Projects, as shown on Sheet 1, are typical of signs required and are subject to alteration to fit actual conditions encountered in the field. Locations for control devices are to be staked by the Engineer. In all cases Warning signs are to be placed well in advance of the hazard, the distance depending on topography and existing approach speeds. Additional markings and any special signs required for the guidance and protection of traffic will be placed as required on the Project at the Contractor's expense.

8. Desirable sizes for signs are shown on Sheet 1 of this Standard. Larger or smaller signs shall be used where warranted. Detailed dimensions for signs normally used in connection with construction are shown on Sheet 2 of this Standard. For information on standard roadway signs not detailed on this Standard see the "Manual on Uniform Traffic Control Devices for all Classes of Streets and Highways" published by the Department of Highways.

9. Signs with the prefix "R" in the sign code are Regulatory signs and as such impose legal compulsions or restrictions on drivers and should only be used as authorized by the Engineer.

10. Signs with the prefix "W" in the sign code are Warning signs and are used to alert traffic to existing or potentially hazardous conditions.

11. Signs with the prefix "D" or "M" in the sign code are Guide signs. Those with the prefix "D" convey general information and those with the prefix "M" are used for marking the traffic route.

12. All signs shall be reflectorized unless otherwise specified on plans. Regulatory and Guide signs (unless otherwise specified) shall have a screen processed black legend and border on a white flexible reflective sheeting, non-exposed lens background. The back side of Regulatory and Guide signs shall be painted with two coats of "Exterior Sign White Paint." Warning signs shall have a screen processed black legend and border on a highway yellow flexible reflective sheeting, non-exposed lens background. The back side of Warning signs shall be painted with two coats of "Federal Yellow Synthetic Sign Enamel."

13. Painting for wood surfaces shall conform with Section 508 of the Standard Specifications.

14. Posts for regulatory, warning, and guide signs will normally be 4" x 4" or 6" x 6" and shall conform to the Standard Specifications for Untreated Timber-S4S. Timber shall conform to Construction grade Paragraph 123B or 125B of Standard No. 15 Grading & Dressing Rules for West Coast Douglas Fir (1956) or Dense Structural 58 and LL Structural 58 Paragraph 284 or 285 of 1956 Grading Rules for Southern Pine. Posts shall be painted with one coat of "White Wood Primer" and one coat of "Outside White Paint."

15. Sign panels furnished by the Contractor for use only during construction may be fabricated from plywood, aluminum, steel or other suitable material but shall be stable and durable enough to meet other requirements of this Standard.

16. All material shall be sound and durable. Barricades, signs, symbols, and lettering shall be of good workmanship. Uneven lettering will not be accepted.

17. Alternate methods of processing signs or the substitution of symbols or other reflecting elements for painted symbols will be permitted only after approval by the Department.

(R-3) 18. Lanterns and Torches - Lanterns, with red globes, shall be used only in low speed urban areas. Open-flame torches shall not be used under any circumstances.

19. Barricades, Flashing Beacons and Flashers - Refer to appropriate "M" Standard (Timber Barricades) for details.

20. Flagman Sign - This sign shall have a black painted background on both sides to form a contrast for the octagonal Stop sign and the diamond Warning sign. The "STOP" sign shall be fabricated by reverse screen process using transparent red paint on smooth surface silver reflective sheeting. The "SLOW" side of the Flagman Sign shall be black process paint on smooth surface yellow reflective sheeting. Handle to be grooved on one side to indicate reading of sign to Flagman.

21. Sign "A": This is the first advance warning sign and shall be placed 1,500 feet ahead of Barricade or project terminal. Postings are required on both sides of the roadway on divided highways. Dual posting is required where warranted on two-lane, two-way highways.
Sign "B": This is the second advance warning sign and shall be placed 1,000 feet ahead of barricade or project terminal. Postings are required on both sides of the roadway on divided highways and singly on two-lane, two-way highways.
Sign "C": This is the third advance warning sign in cases where barricades are used and shall be placed 500 to 750 feet ahead of barricade or potentially hazardous condition. Postings are required on both sides of the roadway on divided highways and singly on two-lane, two-way highways.
Sign "D": SD5-2 - This sign shall be placed to mark the beginning of a Project of more than 2 miles in extent, where traffic is maintained through the project. It shall be placed singly and near the beginning of construction.
Sign "E": SD5-3 - This sign shall be placed to mark the end of the Project. It shall be placed singly and may be placed opposite barricade if desirable.
Sign "F": Construction identification signs shall be furnished and installed by the Department on all Federal-Aid and Forest Highway Projects where actual construction is in progress and visible to highway users. These signs should be located so as not to obscure or detract from the effectiveness of other official signs. Where two or more projects are contiguous the appropriate data may be included in one set of signs. Refer to appropriate "M" Standard (Identification Signs) for sign details.
Signs A through F shall be furnished, installed and maintained by the Department.

22. When Flags are used in lieu of the Flagman Sign, they shall be a minimum of 18"x18", made of a good grade of bright red material, and fastened securely to a staff of approximately 3 foot length. The free edge should be weighted to insure that the flag will hang vertically, even in heavy winds.

(R-1) (R-2) 23. Each 6"x6" timber sign post shall be provided with two 2" diameter holes through the neutral axis normal to the roadway, one hole at 6" and one hole at 18" above the ground level. The 4"x4" timber posts shall not be provided with any type of break-away device. The inside portion of each 2" diameter hole shall be painted white. The underground portion of each timber post shall be treated with creosote.

(R-2)

(R-2)

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

TRAFFIC SIGNING FOR HIGHWAY CONSTRUCTION

Designed By: D.R.W.	Approved By: [signature] Traffic Engineer
Made By: J.L.S.	
Checked By: J.E.	Date AUGUST 9, 1965

TITLE SHEET

STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS — STATE OF COLORADO

R.E. & UTILITIES UNDER PROJECT NO. T 7300(3)
R.O.W. UNDER PROJECT NOS. C 02-0096-23 & T 7300(3)

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLORADO	T 7300(3)	1

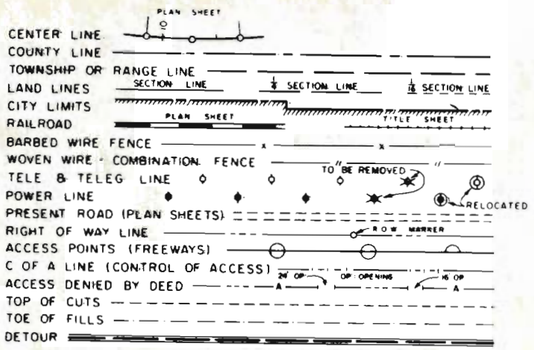
REVISIONS

RIGHT OF WAY
LINCOLN, VETA, & THATCHER

INDEX OF SHEETS

SHEET NO.	
1.	TITLE SHEET
2.	TABULATION OF PROPERTIES
3.-4.	LINE SHEETS

CONVENTIONAL SIGNS



PLAN AND PROFILE OF PROPOSED

FEDERAL AID PROJECT NO. T 7300(3)

STATE HIGHWAY NO. 96

PUEBLO COUNTY

SCALES OF ORIGINAL DRAWINGS

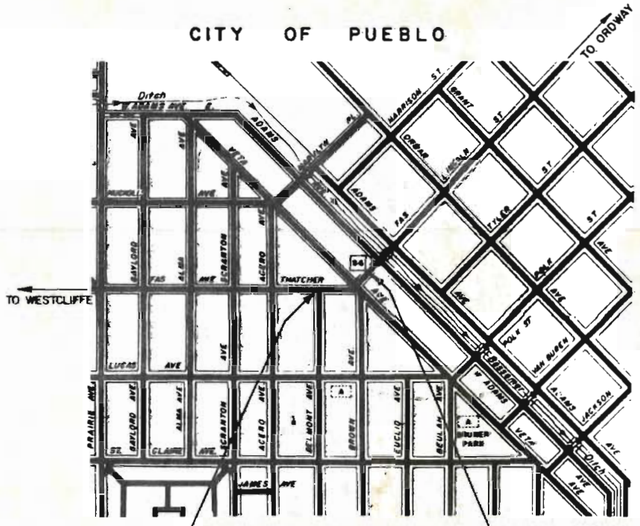
ON PLAN, 1 IN. = 20 FT.
ON PROFILE { 1 IN. = 50 FT. HORIZONTAL; 1 IN. = 5 FT. VERTICAL

GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD

RIGHT OF WAY

LENGTH OF PROJECT IN R.O.W. = 0.078 Mile

CITY OF PUEBLO



STA. 3+62.8 BEGIN R.O.W.

STA. 7+73.6 END R.O.W.

SCALE IN FEET
0 500 1000 1500

R.C. 4/71

OF HIGHWAYS — STATE OF COLORADO
126

R. O. W. TABULATION OF PROPERTIES IN PUEBLO COUNTY S.H. No. 96 PROJ. T 7300(3)

FEDERAL ROAD DIVISION NO.	DISTRICT	PROJECT NO.	SHEET NO.
9	COLORADO	T 7300(3)	2

RIGHT OF WAY LINCOLN, VETA, & THATCHER

PARCEL NO.	OWNER	ADDRESS	LOCATION	AREA IN ACRES			PURCHASE DATA					REMARKS	NO.
				PARCEL	TO BE ACQUIRED	REMAINDER	LAND	IMPROV'MTS	DAMAGE	MISC.	TOTAL		
			T. 20 S., R. 65 W., 6th P.M.			LT. RT.						REVISIONS	
			ARVONIA SUBDIVISION										
1	WALTER K. HURD (DEC.)		LOTS 36 Thru 38 BLK. 8	7,813	7,813	— —							
			SEC. 35										
2	CHARLOTTE A. PETTUS & CHARLOTTE F. PETTUS		LOTS 7&8 BLK. 7, SEC. 35	6,250	6,250	— —						Deed of Trust, Book 707, Page 467	2

DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS – STATE OF COLORADO
FORM D.H.R. 126
JULY, 1958

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	F 7300(3)	3	

RIGHT OF WAY
LINCOLN, VETA, & THATCHER

REVISIONS

ORIGINAL SCALE 1"=20'

Survey Book No's 31490 & 31467

SW 1/4 SEC. 35
T.20S., R.65 W.

N

ARVONIA

8

ALLEY

STA. 3+62.8 BEGIN R.O.W.

ALLEY

Stucco & Frame House

House

Stucco House

Stucco Garage

Garage

House

W.B. Control Line
Sta. 3+66.8

Proposed R.O.W.

Match Line

36

37

WALTER K. HURD (Dec.)
Lots 36, 37, 38 and 39 of Block 8, in Arvonia

AVENUE

(City Max)

Existing R.O.W.

Survey Line

THATCHER AVENUE

N. 90°00'E.

S 89°56'30"E (Projected)

Water Line

10" Gas Line

℄ Gas Line

M.H. (Tel. Co.)

ACERO

Sta. 0+000 Projected =
12.0' Rt. Sta. 0+000 Survey

Dry Cleaners

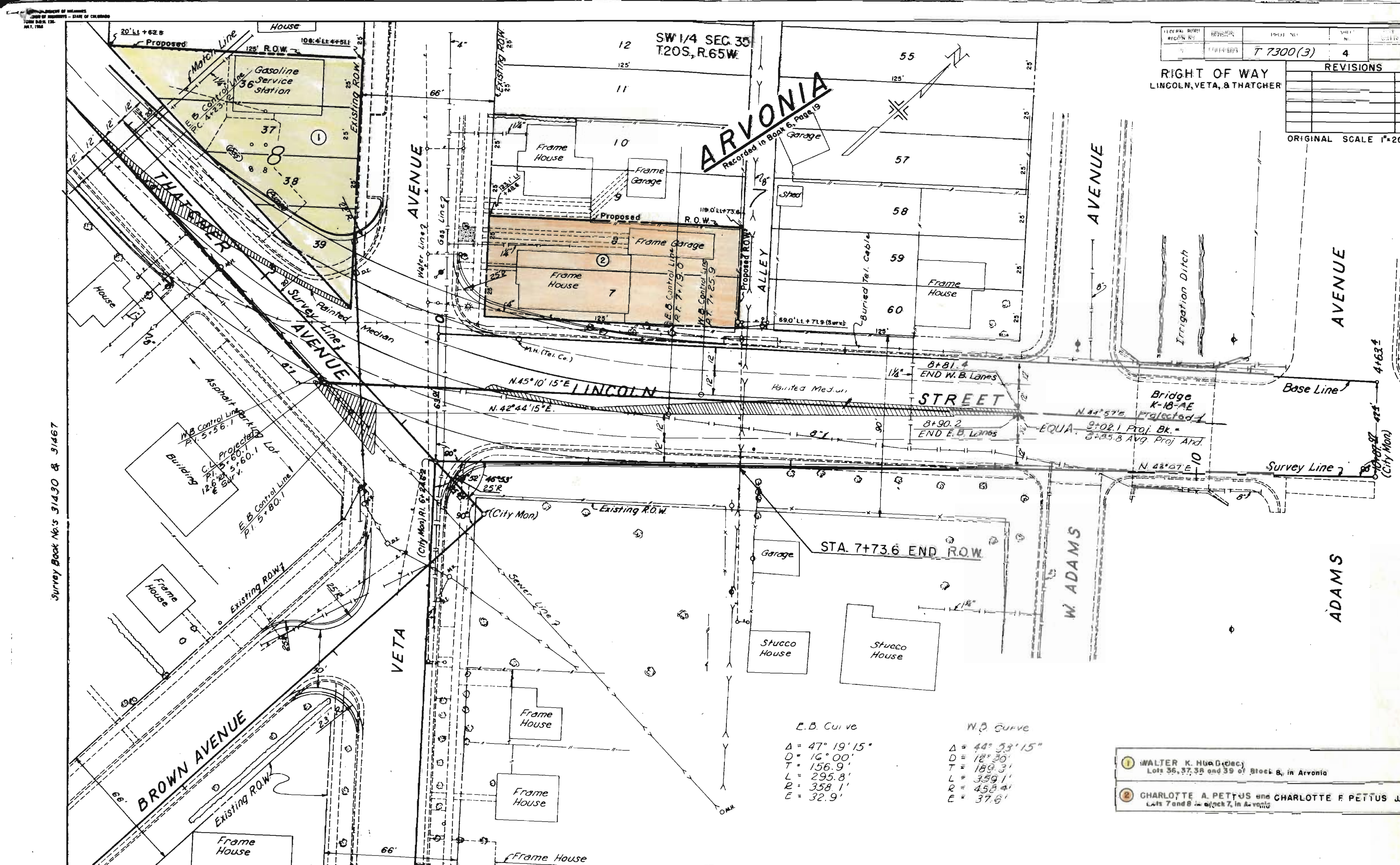
Sewer Line

Stucco House

Seven-Eleven Store

BELMONT AVE.

Garage


RIGHT OF WAY
LINCOLN, VETA, & THATCHER
T 7300(3)
4
REVISIONS
ORIGINAL SCALE 1"=20'
SW 1/4 SEC. 35
T.20S., R.65W.
ARVONIA
Recorded in Book 6, Page 19
THATCHER AVENUE
LINCOLN STREET
VETA AVENUE
BROWN AVENUE
W. ADAMS AVENUE
ADAMS AVENUE
ALLEY
Gasoline Service Station
Frame House
Frame Garage
Garage
Shed
House
Building
Stucco House
Asphalt Parking Lot
Irrigation Ditch
Buried Tel. Cable
Sewer Line 2
Water Line 2
Gas Line 2
Painted Median
Survey Line
Base Line
Existing R.O.W.
Proposed R.O.W.
Match Line
Bridge K-18-AE
STA. 7+73.6 END R.O.W.
8+81.4 END W.B. Lanes
8+90.2 END E.B. Lanes
N.45° 10' 15"E
N.42° 44' 15"E.
(City Mon)
Survey Book No's 31430 & 31467
E.B. Curve
Δ = 47° 19' 15"
D = 16° 00'
T = 156.9'
L = 295.8'
R = 358.1'
E = 32.9'
W.B. Curve
Δ = 44° 53' 15"
D = 12° 30'
T = 189.3'
L = 359.1'
R = 458.4'
E = 37.6'
1 WALTER K. HUB (dec)
Lots 36, 37, 38 and 39 of Block 8, in Arvonia
2 CHARLOTTE A. PETTUS and CHARLOTTE F. PETTUS J.T.
Lots 7 and 8 in Block 7, in Arvonia