TITLE SHEET

STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS — STATE OF COLORADO

FEDERAL ROAD REGION NO	DIVISION	PROJECT NO	SHEET NO
VIII	COLORADO	ER 80 (1)	1

AS CONSTRUCTED
REVISED DATE MAY 2, 1974

PLAN AND PROFILE OF ~~PROPOSED~~

FEDERAL AID PROJECT NO. ER 80 (1)

STATE HIGHWAY NO. 34 & 6

WELD & MORGAN COUNTIES

See Standard M-100-A for Standard Symbols

SCALES OF ORIGINAL DRAWINGS

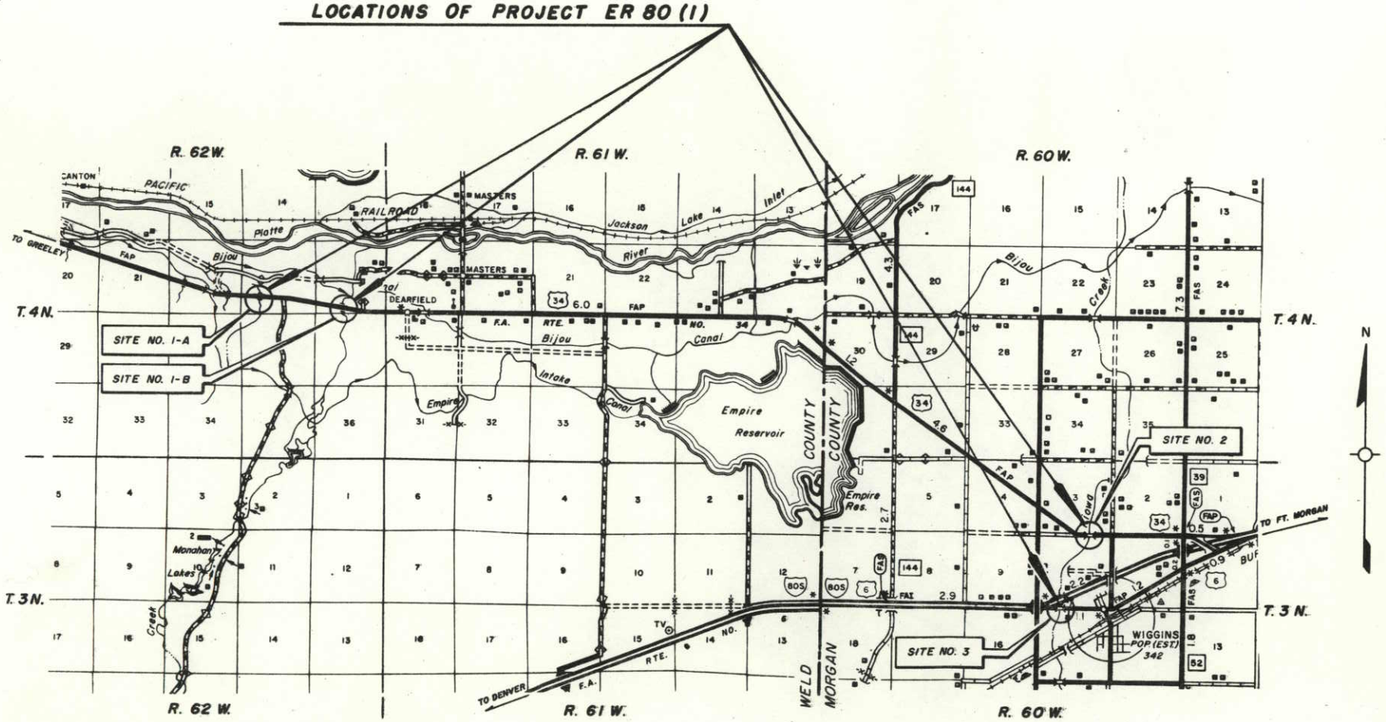
ON PLAN, 1 IN. = 100 FT.
ON PROFILE 1 IN. = 100 FT. HORIZONTAL
1 IN. = 10 FT. VERTICAL

GROUND LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD

NO CENTERLINE LENGTH INVOLVED

INDEX OF SHEETS

LOCATIONS OF PROJECT ER 80 (1)



SCALE OF MILES

0 1/2 1 2 3 4

AS CONSTRUCTED PLANS
RETURN TO DIST. 4 DESIGN

DIVISION OF HIGHWAYS
APPROVED
E. N. Haase
CHIEF ENGINEER
11/8/73
DATE

AS CONSTRUCTED INFORMATION

CONTRACTOR LARRY T. SMITH, INC.
RESIDENT ENGINEER (Project or Resident) M.H. GRICE
PROJECT STARTED DECEMBER 20, 1973
PROJECT COMPLETED MAY 2, 1974
AS CONSTRUCTED PLANS APPROVED J.C. Pittman by K.J. Mund
DIST. CONST. ENG. TITLE 6-26-74 DATE

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DATE
DIVISION ENGINEER

C. K. M.

TE DEPARTMENT OF HIGHWAYS
OF HIGHWAYS — STATE OF COLORADO
No. 113 (Mylar)
PT 1972

SUMMARY OF ~~APPROXIMATE~~ FINAL QUANTITIES

AS CONSTRUCTED
REVISED DATE MAY 2, 1974

R-1 11-15-73 C.R.M. Added ROW - NON FEDAID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	ER 80(1)	2	9

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	PROJECT TOTALS	FINAL TOTALS
				WELD COUNTY — SITE No. 1-B			
			202	Removal of Fence	Lin. Ft.	650	1,033
			203	Unclassified Excavation	Cu. Yd.	120	128
			203	Embankment Material (Haul and Compaction)	Cu. Yd.	400	429
			206	Structure Excavation	Cu. Yd.	360	360
			206	Structure Backfill (Class 2)	Cu. Yd.	120	120
		DOCUMENTATION SOURCE - DAILY FORMS 266 & 905	210	Reset Fence	Lin. Ft.	575	1,165
			403	Hot Bituminous Pavement (Grading E) (Haul and Asphalt) Change Order No. 04887	Ton	50	35.10
			601	Concrete Class A (Box Culvert)	Cu. Yd.	103	102.30
			602	Reinforcing Steel	Lb.	7,400	7,400
			607	End Post	Each	4	4
			607	Corner and Line Brace Post	Each	4	4
			607	Fence Barbed Wire with Metal Post Change Order No. 04887	Lin. Ft.	770	1,188
			614	Flagging	Hour	50	10
			620	Sanitary Facility	Each	1	1
			621	Maintenance of Detours	L. S.	•	•
			626	Mobilization	L. S.	•	•
				STATE FORCES			
				Construction Signing	L. S.	•	•
				FORCE ACCOUNT			
				WELD COUNTY — SITE Nos. 1-A and 1-B			
				Repairs Completed by Others	L. S.	•	•
				MORGAN COUNTY — SITE Nos. 2 and 3			
				Repairs Completed by Others (Site No. 2)	L. S.	•	•
				Repairs Completed by Others (Site No. 3)	L. S.	•	•
R-1				RIGHT OF WAY (NON FEDERAL AID)			
				Easements for Ramps	L.S.	•	•

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

AS CONSTRUCTED
REVISED DATE MAY 2, 1974

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO:	SHEET NO.	TOTAL SHEETS
9	COLORADO	ER 80 (1)	3	9

GENERAL NOTES

Depth of Moisture - Density control for the project shall be as follows:

Full depth of all embankments.

Class "AX" Concrete will be permitted on this project in lieu of Class "A". (Class "A" was used.)

It is estimated that 50 Hours of Flagging for Controlling traffic will be required for this project. (10 Hrs. was used.)

Modified Compaction AASHO T 180 will be required for this Project.

STRUCTURE QUANTITIES

INDEX BOOK	INDEX PAGE	INDEX SHEET	LOCATION	UNCLASSIFIED EXCAVATION CUBIC YARDS PLAN	UNCLASSIFIED EXCAVATION CUBIC YARDS FINAL	STRUCTURE EXCAVATION CUBIC YARDS PLAN	STRUCTURE EXCAVATION CUBIC YARDS FINAL	STRUCTURE BACKFILL CLASS 2 CUBIC YARDS PLAN	STRUCTURE BACKFILL CLASS 2 CUBIC YARDS FINAL	H. B. P. GRADING E TONS PLAN	H. B. P. GRADING E TONS FINAL	CONCRETE CLASS A (BOX CULVERT) CUBIC YARDS PLAN	CONCRETE CLASS A (BOX CULVERT) CUBIC YARDS FINAL	REINFORCING STEEL POUNDS PLAN	REINFORCING STEEL POUNDS FINAL	"H" OVER CULVERT FEET	MISCELLANEOUS
			1269+ To 1276+														1-Maintenance of Detour
			1270+ To 1276+														~~650~~ 1,033 Lin. Ft. – Remove Fence • ~~770~~ 1,188 Lin. Ft. – Build Barbed Wire Fence ~~515~~ 1,165 Lin. Ft. – Reset Fence
			1273+00	120	128	351	360	120	120	25	35.10	102.3	102.3	7,370	7,400	1	
TOTALS				120	128	351	360	120	120	25	35.10	102.3	102.3	7,370	7,400		

• ~~It is estimated that~~ 4 Corner and Line Brace Posts and 4 End Posts ~~will be~~ was required.
Two Barbed Wire Gates ~~will be~~ was required.

SUMMARY OF EARTHWORK

FINAL	PLAN
429	400 Cu. Yds. Embankment (H. & Comp.) – Widen Slopes on Roadway
128	120 Cu. Yds. Unclassified Excavation from Ramps
360	360 Cu. Yds. Structure Excavation
120	120 Cu. Yds. Structure Back fill

NOTE:
The 400 Cu Yds. of Embankment needed to widen Roadway Slopes ~~may be~~ was partially obtained from the Structure Excavation quantity and the remaining portion ~~may be~~ was obtained adjacent to the project.

STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS — STATE OF COLORADO
DOH FORM NO. 117
JULY 1968

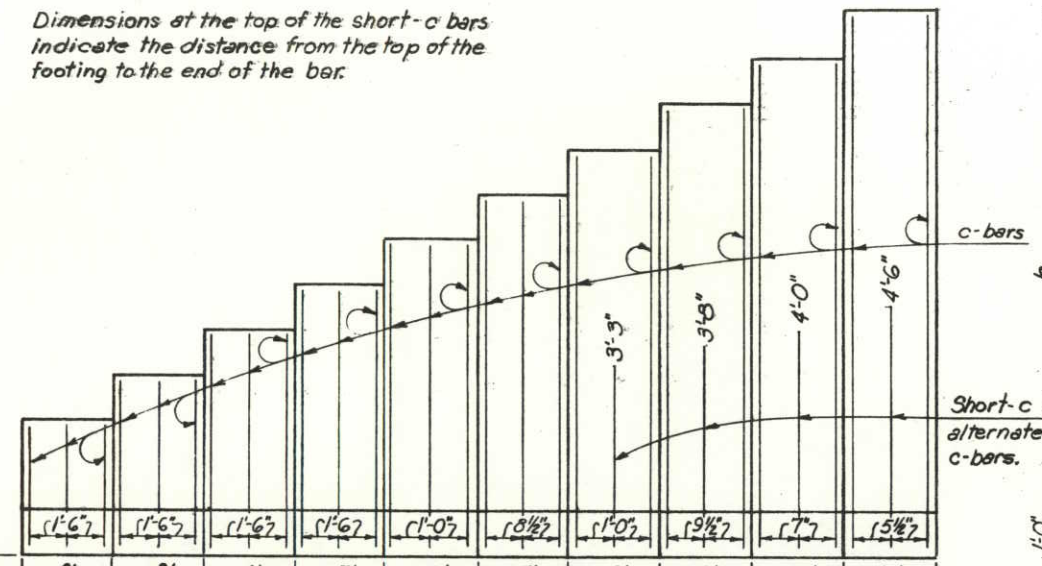
FEDERAL ROAD REGION NO.	DISTRICT	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	ER 80 (1)	4	9

REVISIONS		

AS CONSTRUCTED
NO REVISIONS DATE MAY 2, 1974

DESIGNED BY	INITIAL	DATE	CHECKED BY
CHECKED BY			QUANTITIES BY
DETAILED BY	J/EE	7-73	CHECKED BY

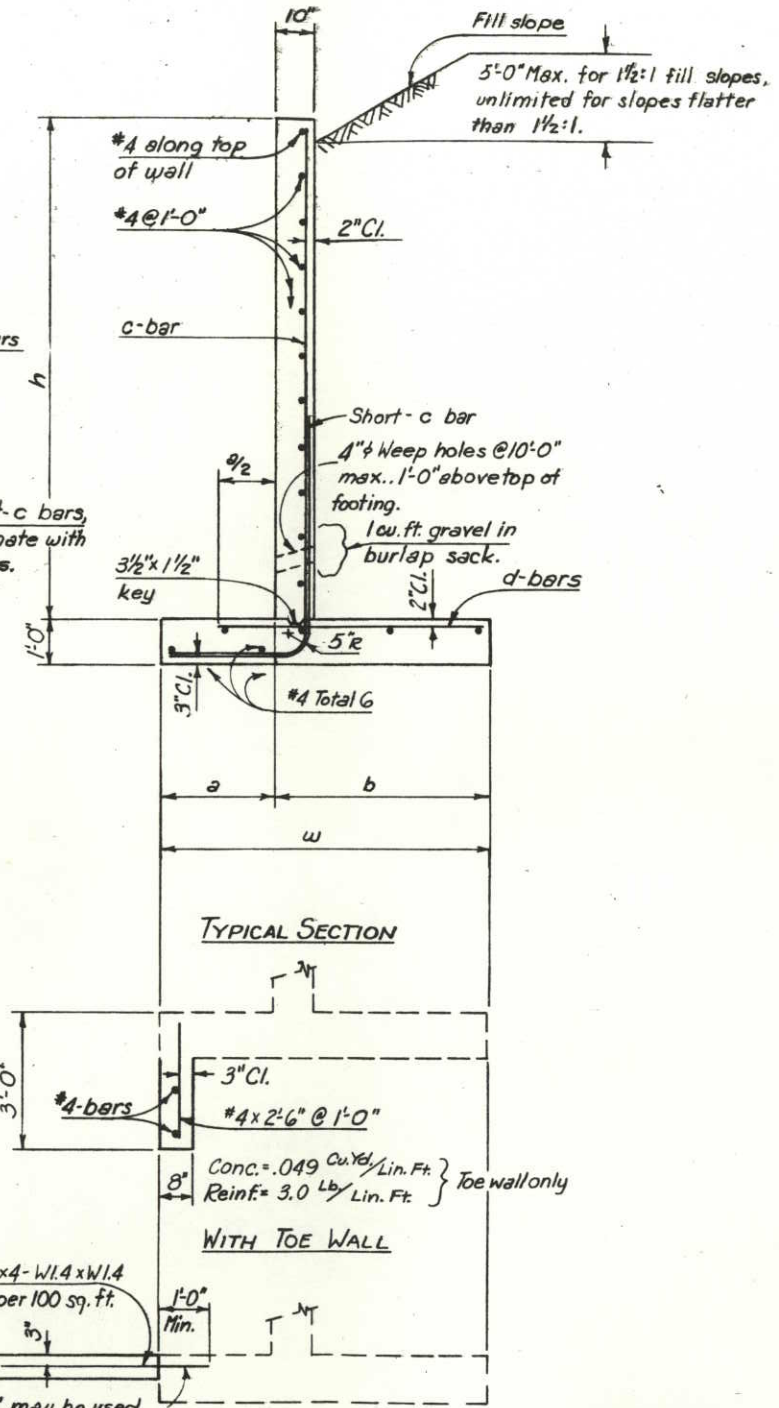
Dimensions at the top of the short-c bars indicate the distance from the top of the footing to the end of the bar.

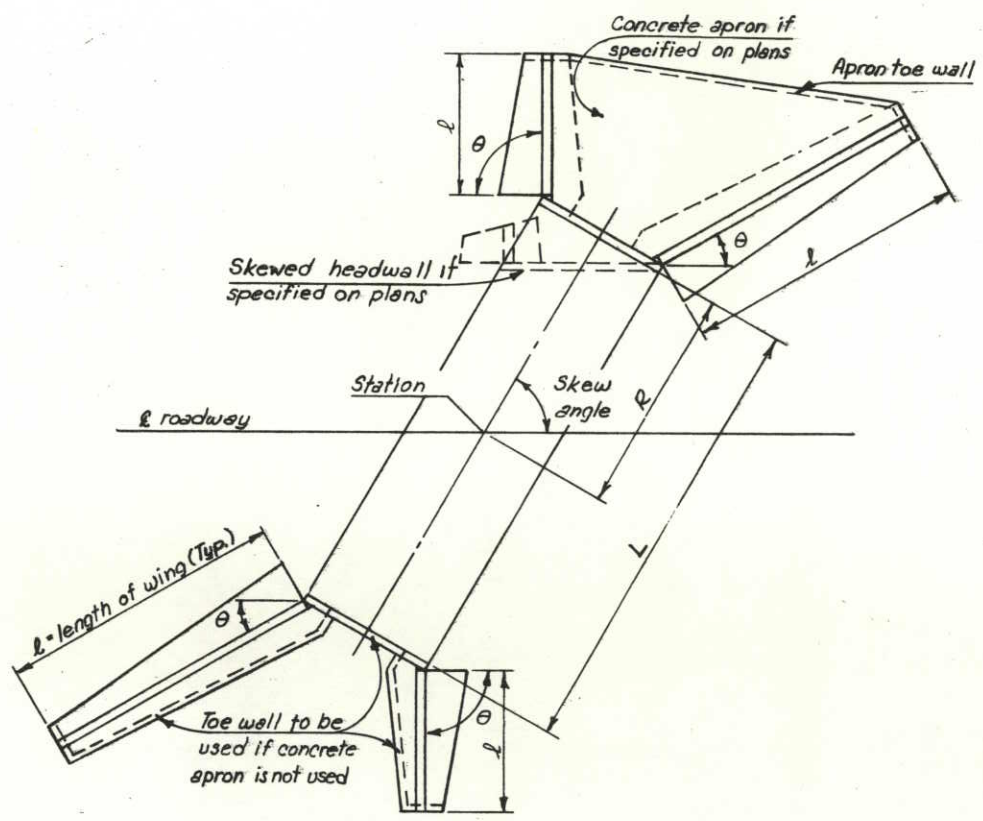


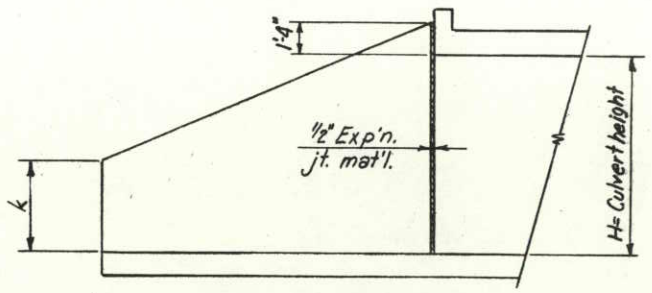
h	2'	3'	4'	5'	6'	7'	8'	9'	10'	11'
a	1'-0"	1'-2"	1'-4"	1'-6"	1'-8"	1'-10"	2'-0"	2'-2"	2'-4"	2'-6"
b	1'-8"	2'-0"	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-0"	4'-4"	4'-8"
w	2'-8"	3'-2"	3'-8"	4'-2"	4'-8"	5'-2"	5'-8"	6'-2"	6'-8"	7'-2"
c & d bars	#4@1'-6"	#4@1'-6"	#4@1'-6"	#4@1'-6"	#4@1'-0"	#4@8½"	#6@1'-0"	#6@9½"	#6@7"	#6@5½"
* Conc. CY/LF	0.161	0.210	0.259	0.308	0.358	0.407	0.457	0.506	0.556	0.604
* Reinf. LB/LF	8.0	9.3	10.7	12.1	16.2	21.7	29.0	37.0	51.0	67.3

* Does not include toe wall quantities.

DESIGN TABLE







GENERAL NOTES

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS APPLICABLE TO THE PROJECT.
ALL CONCRETE SHALL BE CLASS "A" (BOX CULVERT).
ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4".
SUPPORTING SOIL FOR WINGWALL FOOTINGS SHALL BE COMPACTED SOIL OR UNDISTURBED NATURAL SOIL.
WINGWALL FOOTINGS AND FLOOR OF BOX CULVERT SHALL BE PLACED MONOLITHICALLY.
FOOTINGS IN ROCK SHALL NOT BE FORMED BUT POURED AGAINST UNDISTURBED ROCK.
EXPANSION JOINT MATERIAL SHALL CONFORM TO AASHO M-213 AND PAYMENT THEREFORE SHALL BE INCLUDED IN THE PRICE FOR ITEM 601.
THE MINIMUM SPLICE LENGTH FOR COMMON BAR SIZES SHALL BE:

BAR SIZE	#4	#5	#6
SPLICE LENGTH	1'-0"	1'-3"	1'-6"

DIMENSIONS "H", "L", "R", "ℓ", "k" AND ANGLE θ SHALL BE AS SHOWN ON THE PLANS.

DESIGN DATA:

UNIT STRESSES: fs = 20,000 PSI, fc = 1,200 PSI, n = 10
EQUIVALENT FLUID PRESSURE = 30 PSI
MAXIMUM TOE PRESSURE = 1 TON/SQ. FT.

DIVISION OF HIGHWAYS

CULVERT WINGWALLS

Designer	Structure Numbers	
Detailer		
Drawing Number B	of	Drawings

80 (9-20-73)

~~STANDARD M-206-AA~~

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

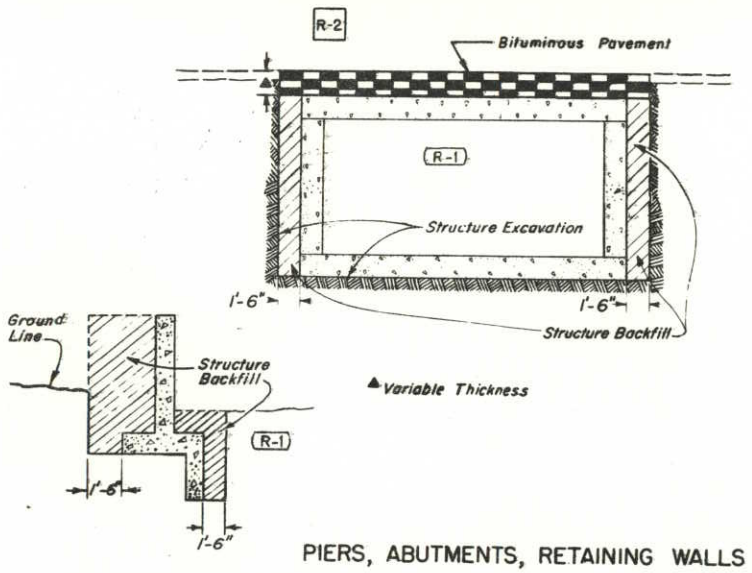
AS CONSTRUCTED
NO REVISIONS DATE MAY 2, 1974

SPECIAL THIS PROJECT ONLY

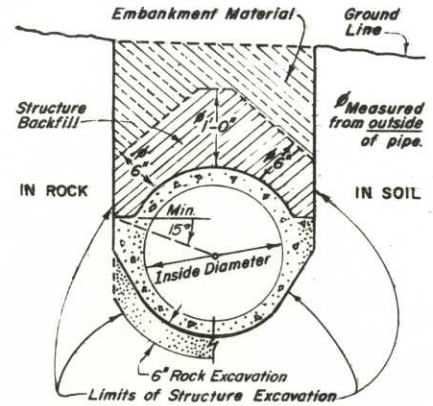
FED. ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
VIII	COLO.	ER 80 (1)	5

	REVISION		
R-1	2-16-72	CBC, Abut., Walls.	MRH
R-2	11-2-73	Spec. This Project Only	CKM

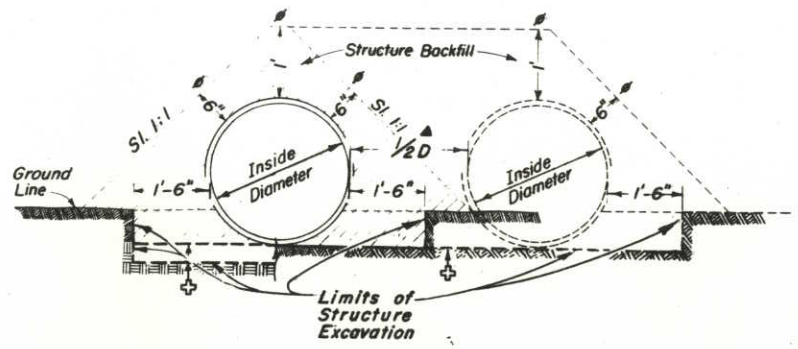
CONCRETE BOX CULVERTS & WINGWALLS



CAST IN PLACE CONDUIT

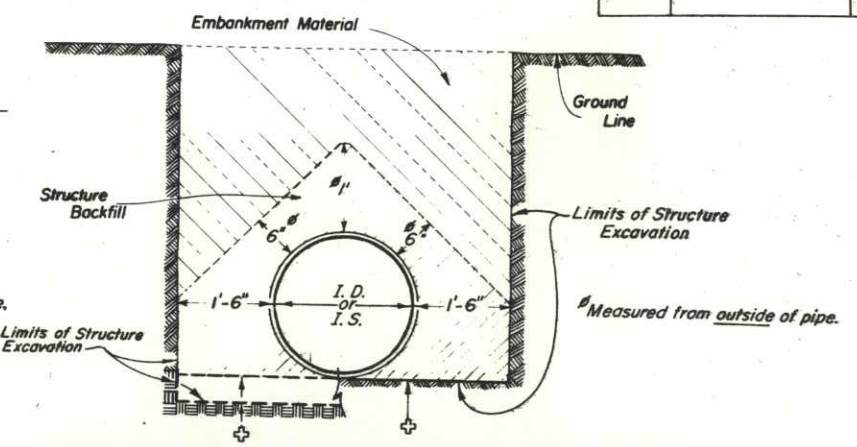


CIRCULAR CONDUIT



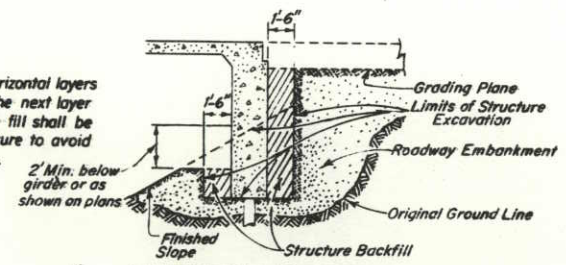
#Measured from outside of pipe.

SIPHONS OR CONDUIT IN TRENCH

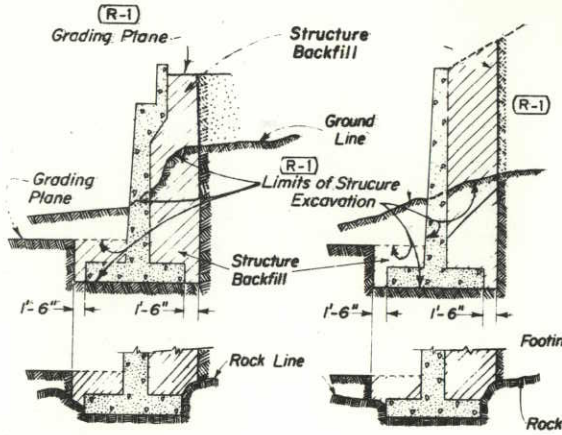


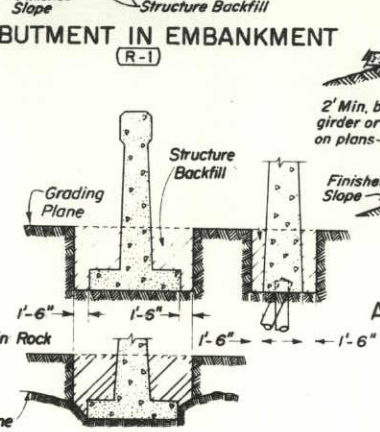
PIERS, ABUTMENTS, RETAINING WALLS ETC.

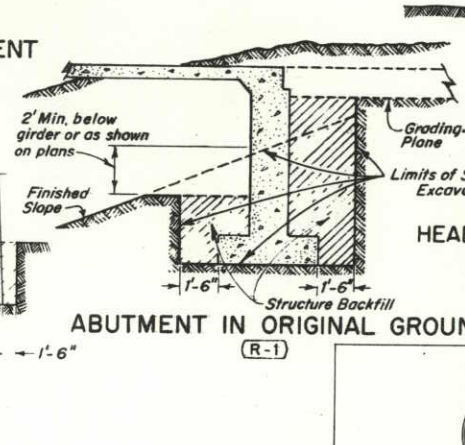
All material that is to be compacted shall be placed in horizontal layers not more than 6" inches in depth and compacted before the next layer is placed. For Arches, Rigid Frames and Box Culverts the fill shall be brought up uniformly on both sides of the center of structure to avoid stresses in the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



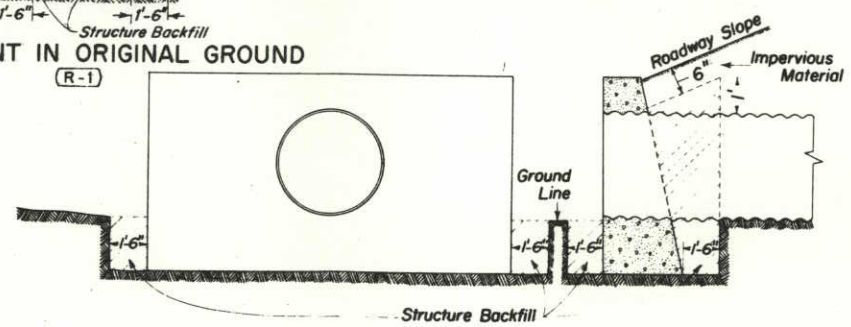
ABUTMENT IN EMBANKMENT



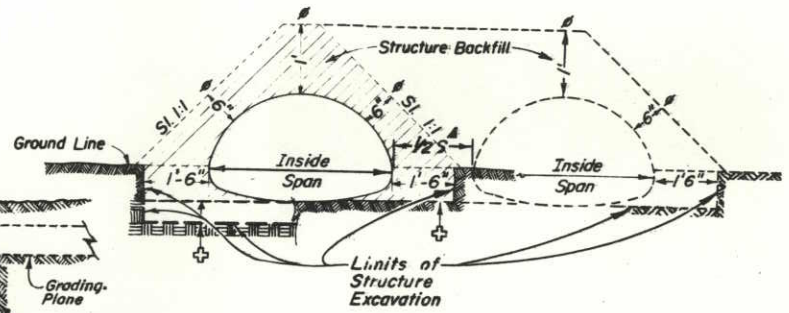




ABUTMENT IN ORIGINAL GROUND



ELLIPTICAL OR ARCH CONDUIT



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.

GENERAL NOTES

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

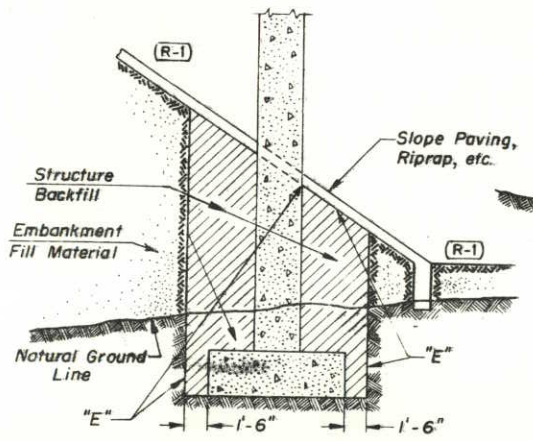
Where the roadway cross section is in fill, excavation for concrete footings (except those in rock or those on piles) and for box culverts shall be done according to the following:
Embankment shall be built up and compacted to a point one foot above the bottom of the box or one foot above the bottom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

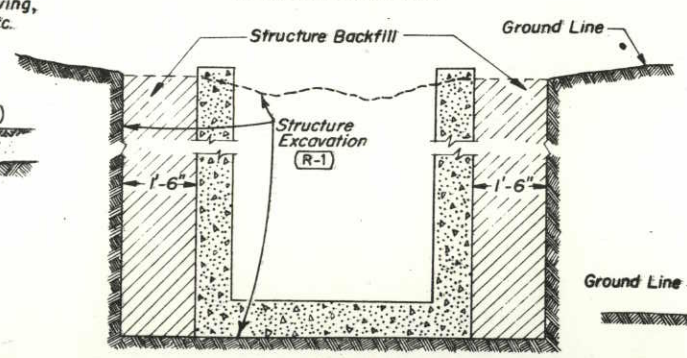
Excavation for structure installation shall be classified as "Structure Excavation" unless otherwise shown on plans.

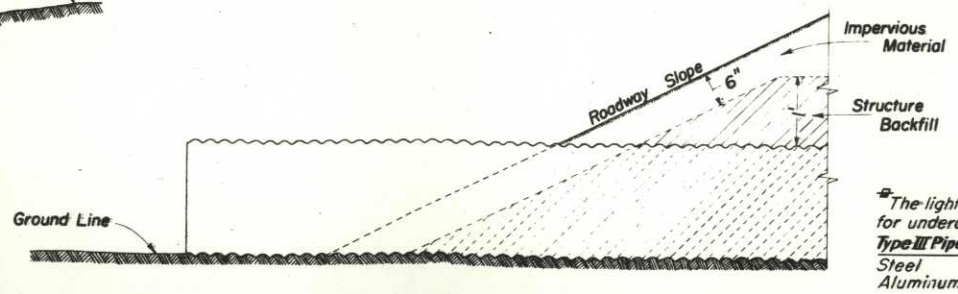
HEADWALLS AND END OF CULVERTS

DROP INLETS, DIVISION BOXES, INTERCEPTING HEADWALLS, ETC.



Note:
"E" = Limits of Structure Excavation

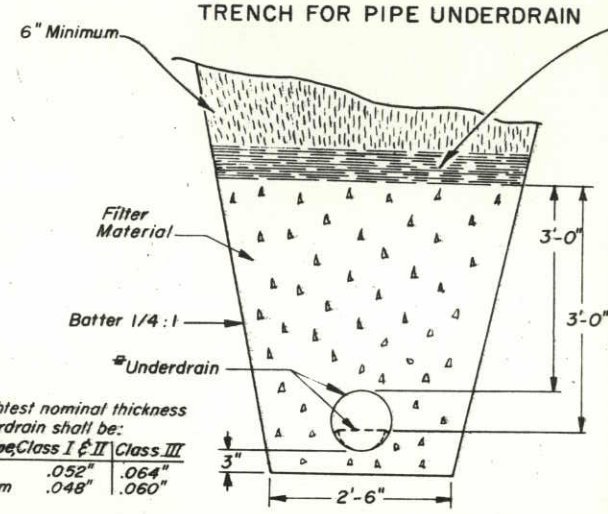




✣ The lightest nominal thickness for underdrain shall be:

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

TRENCH FOR PIPE UNDERDRAIN



DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

EXCAVATION AND BACKFILL FOR STRUCTURES

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

STANDARD M-206-AA (SHEET 1)

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

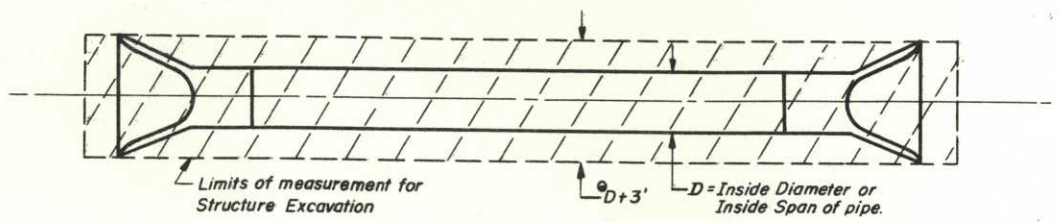
~~STANDARD M-206-AA~~
(MARCH 1, 1971)
(SHEET 2)

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	ER 80 (1)	6	9

	REVISIONS:	
R-1	2-16-72 Revision date only.	M.R.H.
R-2	11-2-73 Special This Project Only	C K M

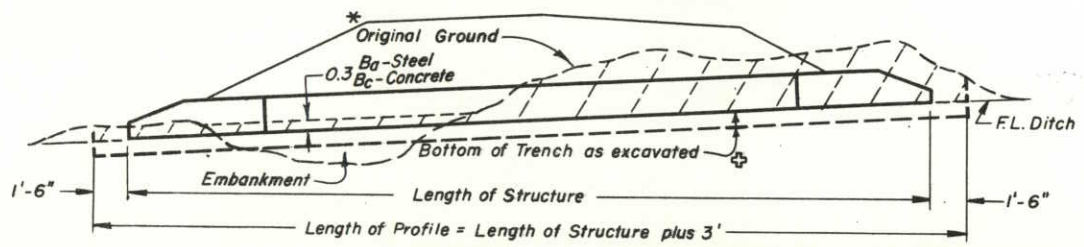
AS CONSTRUCTED
NO REVISIONS DATE MAY 2, 1974

STRUCTURE EXCAVATION MEASUREMENT FOR PIPE CULVERTS



PLAN

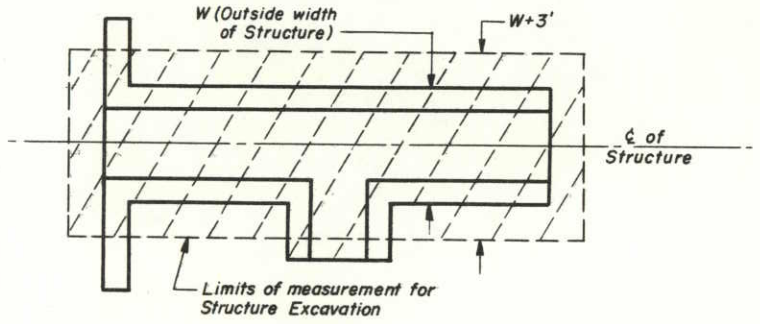
°D+6' for structural plate pipe culverts.



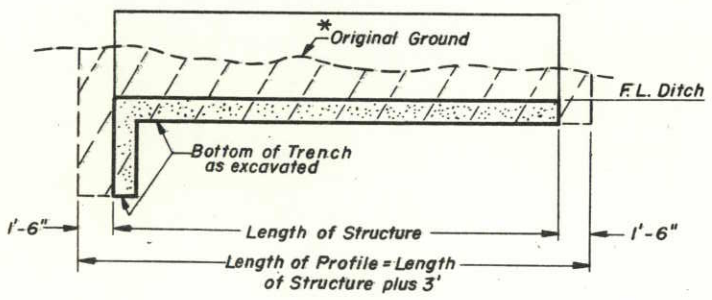
PROFILE

✠ 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



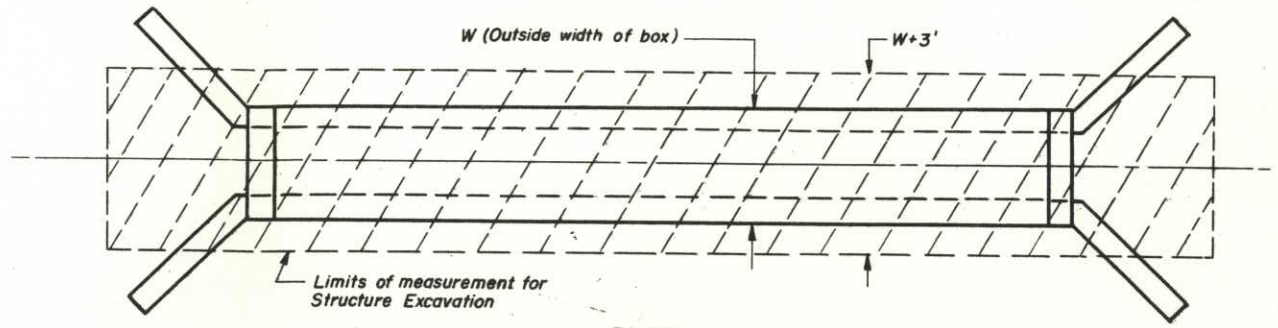
PLAN



PROFILE

SPECIAL THIS PROJECT ONLY

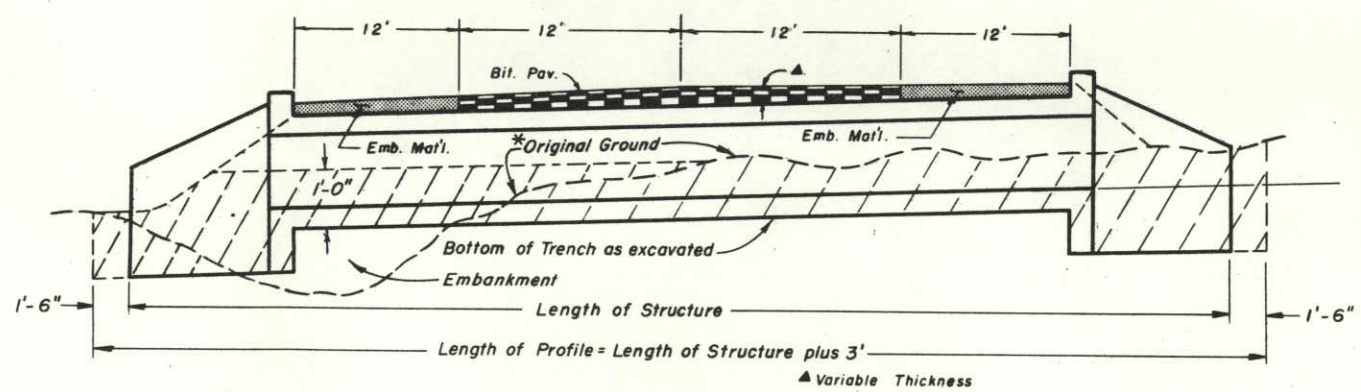
STRUCTURE EXCAVATION MEASUREMENT FOR CONCRETE BOX CULVERTS



PLAN

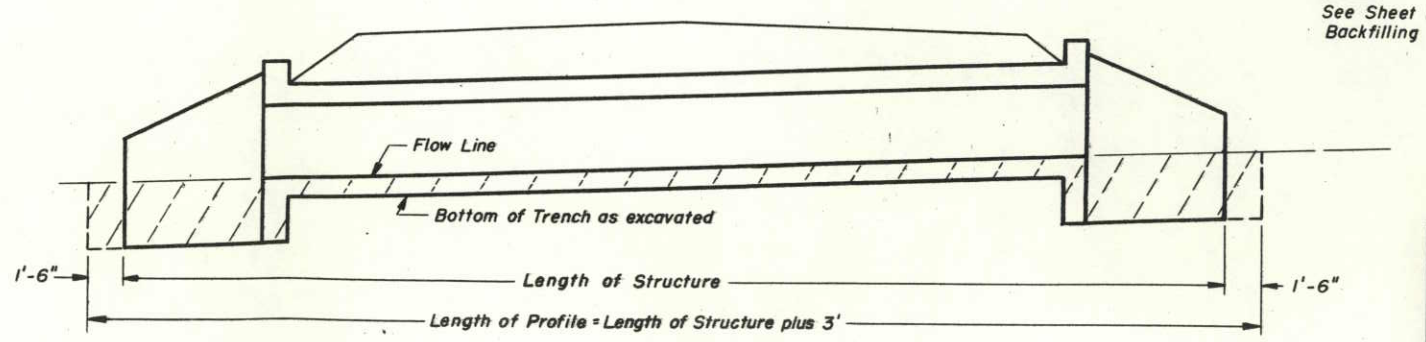
R-2 TO BE USED ON THIS PROJECT

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: [signature]
Made by: H.P.B.	Staff Design Engr.
Checked by:	Date: March 1, 1971

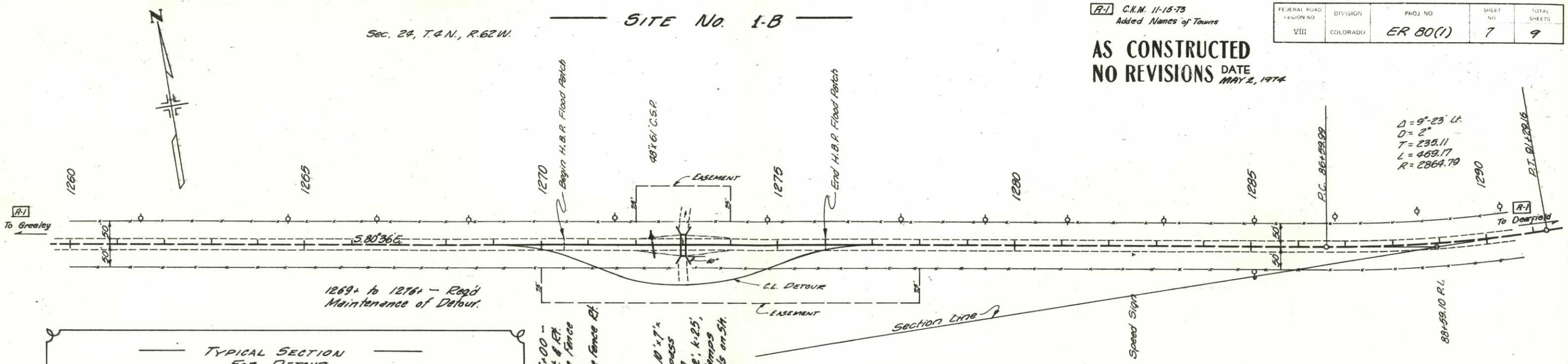
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	ER 80(1)	7	9

R-1 C.K.M. 11-15-73
Added Names of Towns

AS CONSTRUCTED
NO REVISIONS DATE MAY 2, 1974

SITE No. 1-B

Sec. 24, T.4 N., R.62 W.



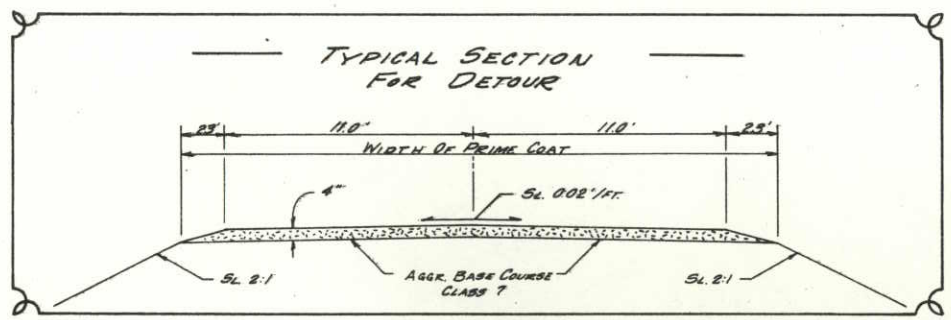
1269+ to 1276+ — Reqd Maintenance of Detour.

1270+00 to 1276+00 — Remove fence Lt. & Rt. Build Barbed Wire Fence Lt. and Rt. Reset Barbed Wire Fence Rt.

1273+00 — Reqd 10'x7'x 48" C.&G. Stockpass (Type IIA) with Wingwalls (1-22°, 1-25°, 2-60°) and Ramps (W= 20') (Details on Sh. Nos. 4 thru 6.)

Sec. 25, T. 24 N., R.62 W.

TYPICAL SECTION FOR DETOUR



APPROX. QUANTITIES FOR DETOUR
(FOR INFORMATION ONLY)

Emb. Material	2,200 Cu.Yd.
Aggr. Base Course (Class 1)	380 Ton
Lig. Asph. Matl. (MC-70) @ 0.40 Gal./Yd.²	1,000 Gal.

DETOUR PROFILE