FEDERAL PLAN REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	S 0002 (22)		

COLORADO
DEPARTMENT OF HIGHWAYS

PLAN AND PROFILE OF PROPOSED

FEDERAL AID PROJECT NO. S 0002 (22)

STATE HIGHWAY NO. 100

LAS ANIMAS COUNTY

SCALES OF ORIGINAL DRAWINGS

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

GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD.
GROSS LENGTH OF PROJECT 43,136.5 FT. = 8.170 MILES
NET LENGTH OF PROJECT 42,964.6 FT. = 8.137 MILES

CONVENTIONAL SIGNS

CENTER LINE
RIGHT OF WAY LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
LAND LINES (SECTION LINE, 1/4 SECTION LINE, 1/16 SECTION LINE)
RAILROAD
BARBED WIRE FENCE
COMBINATION WIRE FENCE
SNOW FENCE
TELEPHONE & TELEGRAPH LINES
POWER LINE
DETOUR
PRESENT ROAD (Plan Sheets)

TABULATION OF LENGTH AND DESIGN

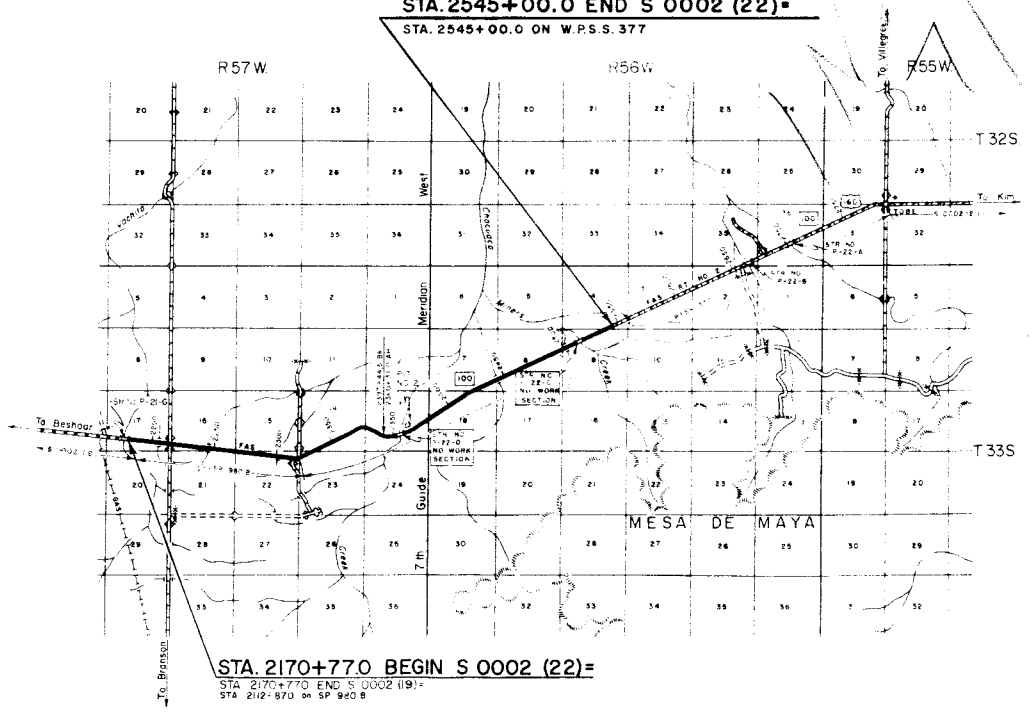
DESCRIPTION	ROADWAY LIN. FT.	NO WORK SECTION BRIDGES LIN. FT.	LOADING
STA. 2170+77.0 BEGIN S 0002 (22)= END S 0002 (19)= STA. 2112+87.0 ON SP 980 B	15,413.1		
STA 2324+90.1= STA. 2267+13.5 End SP 980 B= STA. 2267+90.1 on W.P.S.S. 377	7,254.4		
2397+44.5 Bk= EQUATION 2340+31.0 Ah	1,236.6		
2352+67.6 Str. No. P-22-D Bridge		108.9	H-15
2353+76.5	16,515.5		
2518+92.0 Str. No. P-22-C Bridge		63.0	H-15
2519+55.0	2,545.0		
STA. 2545+00.0 END S 0002 (22)= STA. 2545+00.0 ON W.P.S.S. 377			
TOTALS	42,964.6	171.9	

SUMMARY

	LIN. FT.	MILES
ROADWAY	42,964.6	8.137
TOTAL - NET LENGTH	42,964.6	8.137
NO WORK SECTION	171.9	0.033
TOTAL - GROSS LENGTH	43,136.5	8.170

DESIGN DATA

MAXIMUM DEGREE OF CURVE	6° 00'
MAXIMUM GRADE	8.5 %
MINIMUM N.P.S.D. - Horizontal	580'
MINIMUM N.P.S.D. - Vertical	200'
MAXIMUM DESIGN SPEED	30 M.P.H.



SCALE OF MILES

INDEX OF SHEETS

NOTE
For Haul Route to Pit No 1, see Sheet No 6

SEE SPECIAL PROVISIONS FOR NOTICE TO BIDDERS

COLORADO DEPARTMENT OF HIGHWAYS
APPROVED
CHIEF ENGINEER 1-6-61 DATE

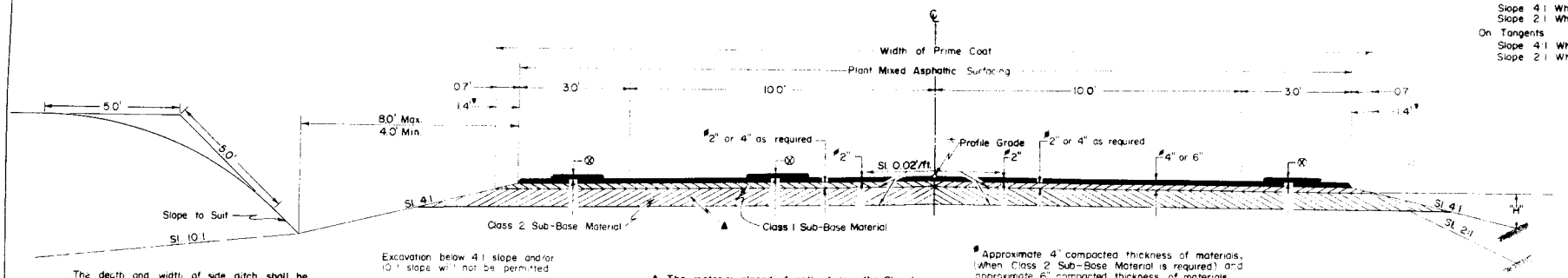
DEPARTMENT OF COMMERCE BUREAU OF PUBLIC ROADS
APPROVED
DATE
DIVISION ENGINEER

JRW

FEDERAL ROAD REGION NO	DIVISION	PROJ. NO.	SHEET NO	TOTAL SHEETS
9	COLORADO	S 0002 (22)	2	

NOTE:
See Standard for Details of Cut Slope Treatment, Flaring & Widening.

TYPICAL SECTION OF IMPROVEMENT



The depth and width of side ditch shall be varied where necessary in order to provide proper drainage and/or entrance to drainage structures.

Excavation below 4:1 slope and/or 1:1 slope will not be permitted.

▲ The material placed directly below the Class 1 Sub-Base Material is to be constructed of Class 2 Sub-Base material at locations designated in the Sub-Base Material Plan.

Estimated quantities involved in this operation and thickness of material required are tabulated in the Sub-Base Material Plan.

⊗ 1½" Asphaltic Surfacing (Future Construction)

FILL SLOPES
On Curves
Slope 4:1 Where "H" is 5' or less
Slope 2:1 Where "H" is over 5'
On Tangents
Slope 4:1 Where "H" is 3' or less
Slope 2:1 Where "H" is over 3'

GENERAL NOTES

This project is to be constructed in comformity with the Standard Specifications of the Colorado Department of Highways, adopted Jan. 1, 1958.

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

All Corrugated Metal Pipe Cross Culverts shall be laid without Metal Aprons unless otherwise noted on the plans.

All curves are to be superelevated and widened as provided by the Standard Superelevation sheet included with the plans.

Thickness of Sub-Base Materials and Asphaltic Pavement Materials as shown on plans is approximate only. These materials are to be placed on the basis of tonnages shown on plans.

Excavation materials obtained from roadbed, where required to permit placement of Sub-Base and Surfacing Materials, shall be used to widen subgrade within 500 ft. from its source.

For preliminary plan quantities of Asphaltic Road Materials, the following rates of application were used

PRIME COAT at 0.40 Gals. per Sq. Yd.
PAVING ASPHALT at 6.3 % by weight

Rate of application and grade of Asphaltic Material shall be as determined by the Engineer at time of application.

The following side approach roads shall be prime coated and receive 2" Plant Mixed Asphaltic Surfacing to the Right of Way line:

2212 + 57, Lt. & Rt.
2312 + 91, Rt.
2319 + 72, Lt.
2378 + 00, Rt.
2478 + 50, Lt.

All other approaches shall be paved and primed 4' out from the edge of roadway pavement.

In lieu of placing Base Course Surfacing on road approaches, as required by Department Standard M-2-EN, Sub-Base Material, as designated on List of Structures will be permitted.

Timber Guard Posts interfering with construction shall be removed by State Maintenance Forces.

* Approximate 4" compacted thickness of materials, (When Class 2 Sub-Base Material is required) and approximate 6" compacted thickness of materials, (When Class 2 Sub-Base Material is not required) shall be placed in separate courses at the following rates per 100 lin. ft. of roadway.

Plant Mixed Asphaltic Surfacing ..... 31 Tons
Class 1 Sub-Base Material (2") ..... 30 Tons
Class 1 Sub-Base Material (4") ..... 61 Tons

* The Profile Grade shall be the combined thickness of Sub-Base and Surfacing Materials above the present roadbed.

* Width when 4" Class 1 Sub-Base is applied

SUMMARY OF EARTHWORK QUANTITIES

UNCLASSIFIED EXCAVATION

LIST OF STRUCTURES AS EXCAVATION	940	CU YDS
LIST OF STRUCTURES AS EMBANKMENT	970	CU YDS
TOTAL	1,910	CU YDS

UNCLASSIFIED DITCH EXCAVATION

FROM LIST OF STRUCTURES	20	CU YDS
TOTAL	20	CU YDS

SUMMARY OF APPROXIMATE QUANTITIES

ITEM NO	ITEM	UNIT	PROJECT TOTALS
11	Removal of 1 Structure	Lump Sum	•
11	Reset Mail Boxes	Lump Sum	•
13	Unclassified Excavation	Cu Yd	2,000
13	Unclassified Ditch Excavation	Cu Yd.	20
13	Stripping	Cu Yd.	500
14	Unclassified Structural Excavation - Miscellaneous	Cu Yd	80
16	Structure Backfill (Class 1)	Cu Yd	50
17	Wetting	M Gal.	2,680
18	Ton Mile Overhaul	Ton Mi	538,700
23	Sub-Base Material (Class 1)	Ton	15,600
23	Sub-Base Material (Class 2)	Ton	76,200
29	Asphalt (120-150 Penetration)	Ton	940
30	Asphaltic Road Material MC (Prime)	Gal	53,200
32	Plant Mixed Asphaltic Surfacing	Ton	13,440
53	24" Corrugated Metal Culvert Pipe	Lin. Ft.	24
53	36" Corrugated Metal Culvert Pipe	Lin. Ft	9
53	48" Corrugated Metal Culvert Pipe	Lin. Ft.	58
67	Riprap	Cu Yd.	180
92	Timber Guard Posts	Each	164
	STATE FORCES		
	▲ Signing and Striping Entire Project	Lump Sum	•

▲ Non-Federal Aid

COLORADO STATE HIGHWAY DEPARTMENT
S H D Form 135
JANUARY 1958

LIST OF STRUCTURES

FED. ROAD DIVISION NO.	DISTRICT	PROJECT NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S 0002 (22)	4	

LOCATION	DESCRIPTION	REMOVE STRUCTURE	EXCAVATION (CUBIC YARDS)			UNCLASSIFIED STRUCTURAL EXCAVATION (MISCELLANEOUS) (CUBIC YARDS)	STRUCTURE BACKFILL (CUBIC YARDS)	MECH. TAMPING	SUB-BASE MATERIAL CLASS 1	SUB-BASE MATERIAL CLASS 2	CONCRETE (CUBIC YARDS)	REINFORCING STEEL	PLANT MIXED ASPHALTIC SURFACING	CORRUGATED METAL CULVERT PIPE (LINEAR FEET)			METAL APRONS FOR C.M.P. CULVERTS	MISCELLANEOUS
		NO. KIND	UNCL.	EMB	ROCK EXCH		CL. 1	HOURS	TONS	TON	CL. A CL. B	LBS.	TONS	24"	36"	48"	NO.	
2170+77 to 2173+			100															
2212+57									32	110			16					
2303+55		1		45	5	26	37									58		
2312+91									16	52			8					
2319+72									16	22			8					
2345+ to 2355+				115														
2369+Bk. to 2340+Ah.				810														
2366+18 Bk.									32	110			6					
2375+50 Bk.					5	2	1							6+1▲				
2383+90 Bk.									32	120			6					
2395+40 Bk.					5	1	1							6+1▲				
2395+65 Bk.									32	120			6					
2349+ to 2356+			380															
2358+32									16	50			3					
2378+00									32	100			11					
2396+88					5	1	1							4+1▲				
														4+1▲				
2446+ to 2448+			60															
2464+83						2	1							8+1▲				
2465+33									32	100			6					
2478+50									16	50			8					
2483+ to 2487+			200															
2499+90									16	50			3					
2517+ to 2521+			200															
2520+						42												177 Cu Yds. Riprap.
2527+75									16	30			3					
2528+54									16	30			3					
2545+									*	*			*					
TOTALS		1	940	970	20	74	41		304	944			87	24	9	58		

▲ Allowance for Connecting Band.
* Included in Surfacing or Sub-Base Plan.

It is estimated that material for Sub-Base and Surfacing for the project is available in the vicinity of the pit indicated in the following tabulations. Estimated quantities involved in these operations are shown below.

Alteration of the Sub-Base Plan or the Surfacing Plan as here outlined will be allowed only on written permission from the Department.

SUB-BASE PLAN

MATERIAL TO BE PLACED	SOURCE	QUANTITY AND THICKNESS					TON MILE OVERHAUL	
		AVAILABLE	CLASS 1 Ø THICKNESS INCHES *	CLASS 1 TONS	CLASS 2 Ø THICKNESS INCHES *	CLASS 2 TONS	CLASS 1	CLASS 2
2170+77 to 2183+00	PIT NO. 2 Haul 250' to Sta. 2355+00		2	367	9	1,859	1,652	8,366
2183+00 to 2190+00			2	210	13	1,610	907	6,955
2190+00 to 2202+00			2	360	9	1,824	1,490	7,551
2202+00 to 2220+00			2	540	11	3,420	2,084	13,201
2220+00 to 2253+00			2	990	9	5,016	3,336	16,904
2253+00 to 2280+00	Class 1, R = 82	100,000 Cu. Yds. +	2	810	11	5,130	2,276	14,415
2280+00 to 2313+00			2	990	9	5,016	2,218	11,236
2313+00 to 2320+00			2	210	5	567	391	1,055
2320+00 to 2350+00			2	900	11	5,700	1,359	8,607
2350+00 to 2374+00	Class 2, R = 70±		2	720	9	3,648	720	3,648
2374+00 to 2397+44.5 Bk.			2	703	11	4,455	387	2,450
2340+31.0 Ah. to 2352+67.6 BRIDGE			2	371	11	2,350	78	494
			—	—	—	—	—	—
2353+76.5 to 2355+00			2	37	11	235	2	14
2355+00 to 2367+50			2	375	11	2,375	64	404
2367+50 to 2415+00			2	1,425	9	7,220	1,040	5,271
2415+00 to 2472+00			2	1,710	11	10,830	2,941	18,628
2472+00 to 2518+92.0			4	2,662	0	—	7,756	—
BRIDGE			—	—	—	—	—	—
2519+55.0 to 2528+00			4	515	0	—	1,669	—
2528+00 to 2545+00			2	510	5	1,377	1,775	4,792
EST. FOR APPROACH TO PROJ. 2545+				15		40	55	146
EST. FOR IRREG. IN SUBGRADE				676 ±		12,526	1,886	24,798
FROM LIST OF STRUCTURES				304		944	669	1,869
TOTALS				15,600		76,142	34,755	150,804

* Based on Curve "B"
Ø Approximate

SURFACING PLAN

MATERIAL TO BE PLACED	SOURCE	AVAILABLE	QUANTITY GRADING "C" TONS PLANT MIX			OVERHAUL TON MILE PLANT MIX		
2170+77 to 2397+44.5 Bk	PIT NO. 1 Haul 22.2 Mi. to Sta. 2545+00		7,027			198,295		
2340+31.0 Ah. to 2352+67.6			383			9,941		
BRIDGE			—			—		
2353+76.5 to 2518+92.0		150,000 Cu. Yds.	5,120			124,175		
BRIDGE			—			—		
2519+55.0 to 2545+00			789			17,703		
EST. FOR APPROACH TO PROJ. 2545+			31			688		
FROM LIST OF STRUCTURES			87			2,287		
TOTALS			13,437			353,089		

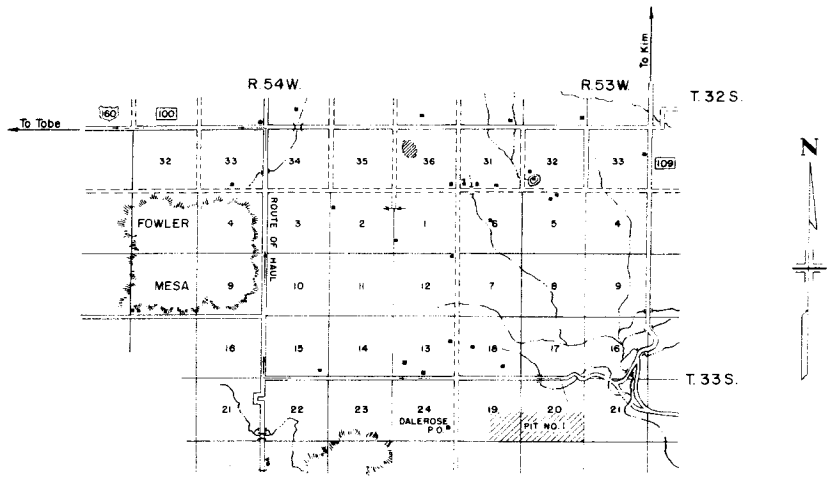
TIMBER GUARD POSTS

STATION	SIDE	SPACING	NUMBER
2170+	Lt. & Rt.	BRIDGE	10
2204+91	Lt. & Rt.	BOX	2
2211+37	Lt. & Rt.	CMP	2
2245+34	Lt. & Rt.	BOX	2
2250+24	Lt. & Rt.	CMP	2
2266+40	Lt. & Rt.	CMP	2
2273+38	Lt. & Rt.	CMP	2
2278+	Lt. & Rt.	CMP	2
2303+55	Lt. & Rt.	CMP	2
2305+00 to 2325+00	Rt.	100'	21
2327+26	Lt. & Rt.	CMP	2
2343+65	Lt. & Rt.	CMP	2
2372+00 Bk. to 2341+00 Ah.	Lt.	100'	27
2375+50	Rt.	CMP	1
2395+65	Rt.	CMP	1
2344+00 to 2350+00	Lt. & Rt.	50'	26
2352+	Lt. & Rt.	BRIDGE	10
2353+	Lt. & Rt.	BRIDGE	10
2378+92	Lt. & Rt.	CMP	2
2396+88	Lt. & Rt.	CMP	2
2409+42	Lt. & Rt.	CMP	2
2425+94	Lt. & Rt.	CMP	2
2447+30	Lt. & Rt.	BOX	2
2464+83	Lt. & Rt.	CMP	2
2485+73	Lt. & Rt.	CMP	2
2493+90	Lt. & Rt.	CMP	2
2506+37	Lt. & Rt.	BOX	2
2518+	Lt. & Rt.	BRIDGE	10
2519+	Lt. & Rt.	BRIDGE	10
TOTAL			164

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	S 0002 (22)	6	

LOCATION OF MATERIAL PITS

HAUL ROUTE FROM PIT NO. 1

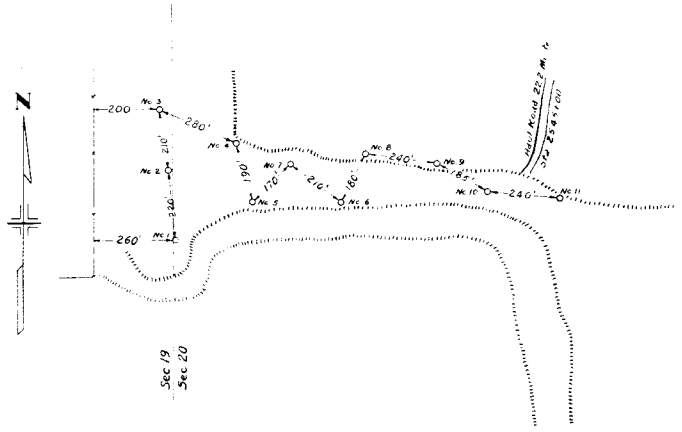


PIT NO. 1

LOCATION: SE 1/4, SEC. 19, , S 1/2 SEC. 20, T. 33 S , R. 53 W.
OWNER: W R Howe, Kim, Colorado.
QUANTITY AVAILABLE: 150,000 Cu Yds.
PROPOSED USE: AGGREGATE FOR PLANT MIXED ASPHALTIC SURFACING

HAUL DISTANCE: 22.2 Miles to Sta 2545+00
EST FOR STRIPPING OVERBURDEN: 200 Cu Yds.

NOTE: The Contractor will be required to place temporary Cattle Guard on haul road as required by Option for Pit No. 1



FIELD SAMPLE NO. 2094 & 34608

TEST NO.	DEPTH		DESCRIPTION
1	0.0'	1.5'	Overburden
1-A	1.5'	12'+	Sand and Gravel
2	0.0'	5.0'	Overburden
2-A	5.0'	12'+	Sand and Gravel Sim. to 1A
3	0.0	3.0'	Overburden
3-A	3.0'	12'+	Fine Sand and Lime Concretions
4	0.0'	3.0'	Overburden
4-A	3.0'	10'+	Fine Sand and Lime Concretions
5	0.0'	3.0'	Overburden
5-A	3.0'	12'+	Sand and Gravel Sim. to 1A
6	0.0'	2.0'	Overburden
6-A	2.0'	12'+	Sand and Gravel
7	0.0'	4.5'	Overburden
7-A	4.5'	12'+	Sand and Gravel Sim. to 6A
8	0.0'	5.0'	Overburden
8-A	5.0'	12'+	Sim. to 4-A
9	0.0	1.5'	Overburden
9-A	1.5'	10'	Sand and Gravel Sim. to 6A
9-B	10'+		Sim. to 4-A
10	0.0'	2.0'	Overburden
10-A	2.0'	12'	Sand and Gravel
10-B	12'+		Sim. to 4-A
11	0.0'	4.0'	Overburden
11-A	4.0'	10'	Sand and Gravel Sim. to 10A
11-B	10'+		Sim. to 4-A

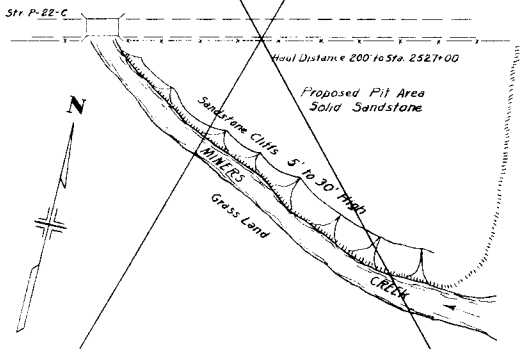
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLORADO	S 0002(22)	7	

LOCATION OF MATERIAL PITS

PIT NO.

LOCATION: N1/2 N1/2, SEC. 9, T. 33 S., R. 56 W.
OWNER: Jim & Ruby Jordan, Eva, Oklahoma.
QUANTITY AVAILABLE: 100,000 Cu. Yds.+
PROPOSED USE:

HAUL DISTANCE: 200 Ft. Rt. of Sta. 2527+00
EST. FOR STRIPPING OVERBURDEN:



FIELD SAMPLE NO. 2158

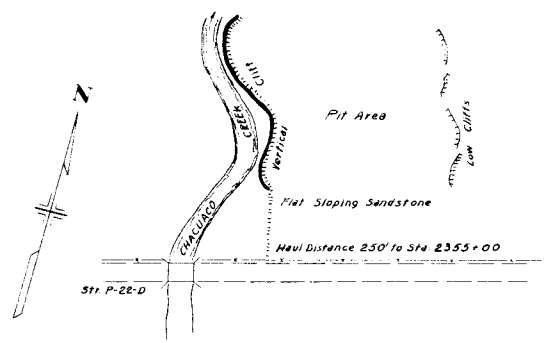
TEST NO.	DEPTH	DESCRIPTION
1		Sample of loose rock. Note: This pit, below loose rock, is solid sandstone.

PIT NO. 2

LOCATION: 8 Acres in the NW-SE SEC. 13, T. 33 S., R. 57 W.
OWNER: Howard & Thelma Sumpter, Branson, Colo.
QUANTITY AVAILABLE: 100,000 Cu. Yds.+
PROPOSED USE: SUB-BASE & STRUCTURE BACKFILL.

HAUL DISTANCE 250 Ft Lt. of Sta 2355+00
EST. FOR STRIPPING OVERBURDEN: 300 Cu. Yds.

NOTE:
The Contractor will be required to construct temporary Fence around pit area, and refrain from disturbing stream bed, as required by Option for Pit No. 2

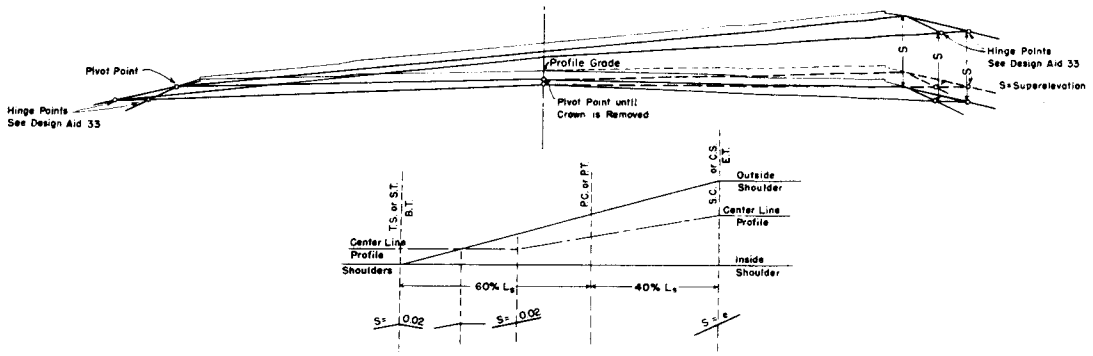


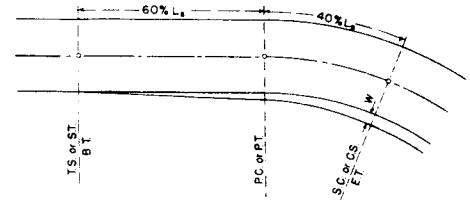
FIELD SAMPLE NO. 2157

TEST NO.	DEPTH	DESCRIPTION
1		Sample of loose Surface Rock. Note: This pit, below loose surface rock, is solid sandstone.

STANDARD M-1-D

REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
4	COLFAX	S 0002(22)	8





PAVEMENT WIDENING

Pavement Width	20 Ft	22 Ft	24 Ft
Degree of Curve			
0° – 3°	0 Ft	0 Ft.	0 Ft
4° – 6°	2.0 Ft	0 Ft	0 Ft
7° – 10°	2.5 Ft.	0 Ft	0 Ft
11° – 17°	3.0 Ft.	2.0 Ft	0 Ft
18° – 21°	3.5 Ft.	2.5 Ft.	0 Ft.
22° – Up	4.0 Ft.	3.0 Ft	2.0 Ft.

Widening is to be on the inside edge of the pavement and the transition is to extend over the same transition length as the superelevation

REVISIONS		
[illegible]	[illegible] General	[illegible]

SUPERELEVATION RATES FOR TWO LANE CROWNED SECTION

TABLE 1

Degree of Curve	Maximum Superelevation = 0.08			Maximum Superelevation = 0.10		
	Super. Rate Ft./Ft.	Maximum Design Speed M.P.H.	Minimum Transition or Spiral Length	Super. Rate Ft./Ft.	Maximum Design Speed M.P.H.	Minimum Transition or Spiral Length
0° 15'		Normal Crown			Normal Crown	
0° 30'	0.020	>70	100'	0.020	>70	100'
0° 45'	0.020	>70	100'	0.020	>70	100'
1° 00'	0.020	>70	100'	0.020	>70	100'
1° 30'	0.028	>70	150'	0.028	>70	150'
2° 00'	0.038	>70	200'	0.038	>70	200'
2° 30'	0.047	>70	250'	0.047	>70	250'
3° 00'	0.057	>70	300'	0.057	>70	300'
3° 30'	0.079	70	350'	0.079	70	350'
4° 00'	0.080	66	350'	0.100	69	400'
5° 00'	0.080	60	300'	0.100	63	350'
6° 00'	0.080	55	300'	0.100	58	350'
7° 00'	0.080	52	300'	0.100	54	300'
8° 00'	0.080	49	300'	0.100	51	300'
9° 00'	0.080	46	250'	0.100	48	300'
10° 00'	0.080	44	250'	0.100	46	300'
11° 00'	0.080	42	250'	0.100	44	300'
12° 00'	0.080	41	250'	0.100	42	250'
13° 00'	0.080	39	250'	0.100	41	250'
14° 00'	0.080	38	250'	0.100	39	250'
15° 00'	0.080	37	250'	0.100	38	250'
16° 00'	0.080	36	200'	0.100	37	250'
17° 00'	0.080	35	200'	0.100	36	250'
18° 00'	0.080	34	200'	0.100	35	250'
19° 00'	0.080	33	200'	0.100	34	200'
20° 00'	0.080	32	200'	0.100	33	200'
21° 00'	0.080	31	200'	0.100	32	200'
22° 00'	0.080	31	200'	0.100	32	200'
23° 00'	0.033	30	200'	0.100	31	200'
24° 00'				0.100	30	200'
25° 00'				0.100	30	200'

NOTE–Plains Areas use 0.10 Maximum Superelevation Rate.
Mountainous Areas & areas where icing conditions frequently exist, use 0.08 Maximum Superelevation Rate.

SUPERELEVATION RATES FOR SPECIAL CASES[9]

TABLE 2

Degree of Curve	30 M.P.H.		35 M.P.H.		40 M.P.H.		45 M.P.H.		50 M.P.H.		55 M.P.H.		60 M.P.H.	
	Required Super. Rate Ft./Ft.	Minimum Transition or Spiral	Required Super. Rate Ft./Ft.	Minimum Transition or Spiral	Required Super. Rate Ft./Ft.	Minimum Transition or Spiral	Required Super. Rate Ft./Ft.	Minimum Transition or Spiral	Required Super. Rate Ft./Ft.	Minimum Transition or Spiral	Required Super. Rate Ft./Ft.	Minimum Transition or Spiral	Required Super. Rate Ft./Ft.	Minimum Transition or Spiral
0° 15'	Normal Crown		Normal Crown		Normal Crown		Normal Crown		Normal Crown		Normal Crown		N.C.	
0° 30'	"		"		"		"		"		"		0.020	100'
0° 45'	"		"		"		"		0.020	100'	0.020	100'	0.020	100'
1° 00'	"		"		"		0.020	100'	0.020	100'	0.020	100'	0.020	100'
1° 30'	"		"		0.020	100'	0.020	100'	0.020	100'	0.020	100'	0.020	100'
2° 00'	"		"		0.020	100'	0.020	100'	0.020	100'	0.022	100'	0.026	150'
2° 30'	"		0.020	100'	0.020	100'	0.020	100'	0.022	100'	0.027	150'	0.033	150'
3° 00'	"		0.020	100'	0.020	100'	0.021	100'	0.026	100'	0.032	150'	0.040	200'
3° 30'	0.020	100'	0.020	100'	0.020	100'	0.024	100'	0.031	150'	0.038	200'	0.046	250'
4° 00'	0.020	100'	0.020	100'	0.021	100'	0.028	100'	0.035	150'	0.043	200'	0.053	250'
5° 00'	0.020	100'	0.020	100'	0.027	100'	0.034	150'	0.044	200'	0.054	250'	0.079	300'
6° 00'	0.020	100'	0.024	100'	0.032	100'	0.041	150'	0.052	200'	0.076	300'	0.100	350'
7° 00'	0.020	100'	0.028	100'	0.037	150'	0.048	200'	0.064	250'	0.100	300'		
8° 00'	0.023	100'	0.032	100'	0.043	150'	0.055	200'	0.093	300'				
9° 00'	0.026	100'	0.036	100'	0.048	200'	0.067	250'	0.100	300'				
10° 00'	0.029	100'	0.040	150'	0.053	200'	0.091	250'						
11° 00'	0.031	100'	0.044	150'	0.059	200'	0.100	300'						
12° 00'	0.034	100'	0.048	150'	0.073	250'								
13° 00'	0.037	100'	0.052	150'	0.092	250'								
14° 00'	0.040	100'	0.056	200'	0.100	250'								
15° 00'	0.043	150'	0.060	200'										
16° 00'	0.046	150'	0.073	200'										
17° 00'	0.049	150'	0.087	200'										
18° 00'	0.051	150'	0.100	250'										
19° 00'	0.054	150'												
20° 00'	0.057	150'												
21° 00'	0.060	150'												
22° 00'	0.070	200'												
23° 00'	0.081	200'												
24° 00'	0.091	200'												
25° 00'	0.100	200'												

NOTE–Transition or Spiral Lengths are shown in the tables for 2 Lane Crowned Highways
For 3 Lane Crowned Highways use 1.2 times the lengths shown, rounded to the nearest 50 feet.
For 4 Lane Crowned Highways use 1.5 times the lengths shown, rounded to the nearest 50 feet.
Width of Crowned Highway to be figured for Superelevation–left pivot point to right pivot point.

9 May be used on City Streets & Interchanges.

FORMULAE FOR TABLES

$$D = \frac{85{,}950\,(e+f)}{V^2}$$

$$L_s = \frac{1.6\,x\,D\,x\,V^3}{5730}$$

D = Degree of Curve
e = Superelevation Rate – Ft. per Ft. of Width
f = Side Friction Factor (varies from 0.12 at 70 M.P.H. to 0.16 at 30 M.P.H.)
V = Velocity – M.P.H.
L_s = Spiral Length – Feet
Note for Table II – A straight line transition was used for e from 0.02 to 0.06.

COLORADO DEPARTMENT OF HIGHWAYS

METHODS FOR SUPERELEVATION & WIDENING OF CURVES CROWNED HIGHWAYS

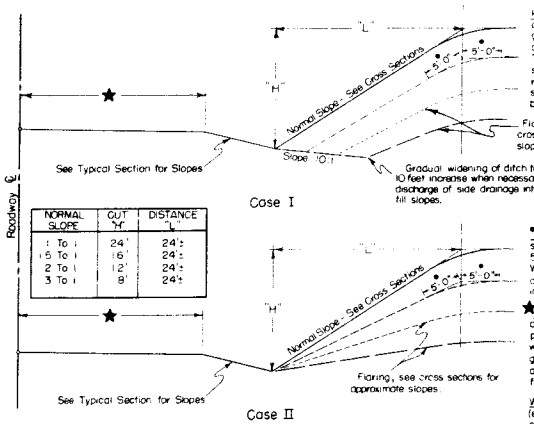
Designed by R.W.L.	Approved by
Made by S.B.L.	
Checked by L.E.C.	Date

STANDARD SIDE APPROACH ROADS, FLARING, CUT SLOPE TREATMENT & WIDENING AT BRIDGES AND AT CREST OF GRADES

STANDARD M-2-EN

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLO.	S 0002(22)	9

GENERAL DETAILS FOR FLARING OF EARTH CUTS, CUT SLOPE TREATMENT & WIDENING AT BRIDGES



NORMAL SLOPE	CUT "H"	DISTANCE "L"
1 To 1	24'	24'±
1.5 To 1	16'	24'±
2 To 1	12'	24'±
3 To 1	8'	24'±

FLARING OF EARTH CUTS: The backslopes at ends of all earth cuts shall be flattened & where necessary the ditch shall be widened gradually to discharge side ditch drainage away from the base of adjacent fill slopes in order to avoid erosion & to improve appearance. The transition of flattened backslopes & widened ditch shall be constructed in such a manner that a uniform appearance of slope & ditch results. Backslopes shall be flared to the approximate "L" distance shown on Slope Table included with this detail. Rock cuts shall not be flared.

Flaring with widened ditch, see cross sections for approximate slopes.

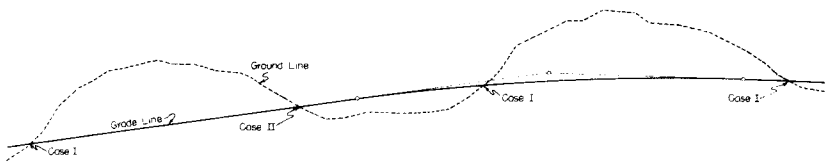
Gradual widening of ditch to minimum of 10 feet in order when necessary to avoid discharge of side drainage into adjoining fill slopes.

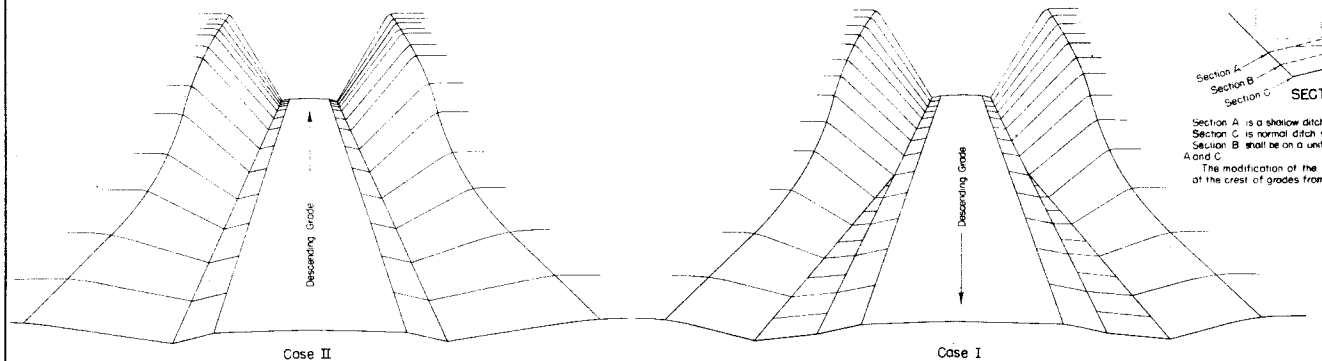
*CUT SLOPE TREATMENT IN EARTH CUTS: The intersection of cut slopes with the existing ground shall be rounded in earth cuts, beginning 5ft outside the slope stake and extending 5 ft down the cut slope. Where the cut slope is less than 5 ft. reduce each of the above widths of slope treatment to the actual slope distance. Quantities shall be included in "Unclassified Excavation".

★WIDENING AT BRIDGE APPROACHES: Roadway embankment at bridge approaches shall be so constructed that base of surfacing at shoulder point is a Min of 2 ft beyond the outside edge of bridge deck. Where widening of the section is necessary to achieve this result it shall take place gradually over a distance of 300 ft. This is done to accomodate guard fence and/or guard posts at bridge approaches. (See additional requirements for Guard Fences below.)

WIDENING TO ACCOMODATE GUARD FENCES: At all locations on the project (except as provided above for bridge approaches) where guard fence is to be constructed the shoulders shall be widened 2 ft. to provide additional lateral support for guard fence posts.

PLAN OF FLARING IN EARTH CUTS





TYPICAL PLANS FOR SIDE APPROACH ROADS

SIDE DRAINS: To be placed at greatest feasible distance from the roadway shoulder consistent with good practice. A minimum of 20 ft from shoulder should be adhered to wherever possible.

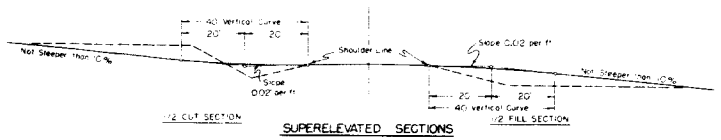
50' Road: To be used on all intersecting roads except on private approaches. Radii may be varied to suit local conditions.

TRAFFIC FLOW

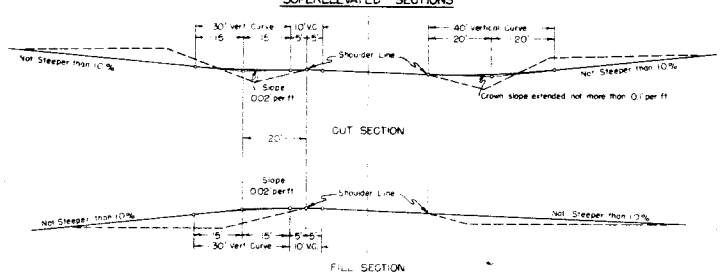
TRAFFIC FLOW

20' Road: To be used on private road approaches.

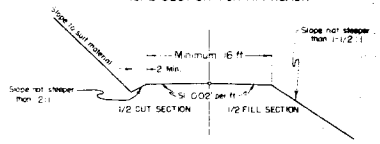
STANDARD CROWNED SECTION



SUPERELEVATED SECTIONS



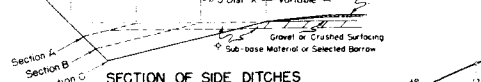
TYPICAL SECTION FOR APPROACH



NOTE:
ROAD APPROACHES: To conform to the above details unless otherwise indicated on plans by Special Details. The width of the crowned section shall be not less than the width of the crowned section of the existing approach road and in no case shall the new construction be less than sixteen (16) feet in width.

DETAILS FOR DITCH & WIDENED SHOULDERS AT CREST OF GRADES

(TO BE USED ONLY WHERE SIGHT DISTANCE AT CREST OF GRADE IS 600 FT OR LESS)



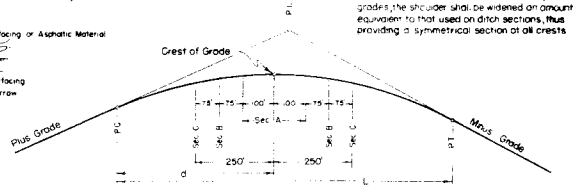
SECTION OF SIDE DITCHES

Section A is a shallow ditch section.
Section C is normal ditch section.
Section B shall be on a uniform transition between Sections A and C.
The modification of the ditch indicated shall be used only at the crest of grades from which drainage breaks both ways.

Formula for finding the Crest of Grade

$d = \frac{\text{Plus Grade}}{\text{Algebraic Diff}} \times L$

NOTE
Where section is in embankment at crest of grades, the shoulder shall be widened an amount equivalent to that used on ditch sections, thus providing a symmetrical section at all crests.



PROFILE VIEW SHOWING DISTANCES AND RELATIVE POSITIONS OF DITCH-TREATMENT SECTIONS

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the Colorado Department of Highways applicable to the Project.

All side approach roads to the Project shall be Gravel Surfaced with a four (4) inch thickness of "Gravel or Crushed Rock Surfacing" extending approximately to the Right of Way Line. Estimated tonnage & type of material required for this operation are shown in the Surfacing Plan.

The maximum grades shown are to be the limiting grades for all road approaches. Modifications of grades will be permitted where adherence to the grades as shown would cause damage to property or create other unsatisfactory conditions. Grades less than the maximum shown are to be used wherever feasible.

COLORADO
DEPARTMENT OF HIGHWAYS

STANDARD
SIDE APPROACH ROADS, FLARING, CUT SLOPE TREATMENT, AND WIDENING AT BRIDGES AND AT CREST OF GRADES

Designed by A. Z.	Approved by A. Julian
Made by SUM & ASH	
Checked by C.R.S.	Date: November 1, 1953

STANDARD TIMBER GUARD POSTS

FED. ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLO.	S 0002(22)	11

STANDARD M-19-E

SPECIFICATIONS

(Work By Contractor)

POSTS - Lodgepole Pine, Southern Yellow Pine or West Coast Douglas Fir, not less than six (6) inches in diameter. All posts shall be pressure treated with Pentachlorophenol as provided under paragraph 42.2.20 of the specifications, after being peeled and shaved in accordance with specifications.

PAINTING - Posts shall be painted with aluminum paint and a black band placed around each post as per details on this sheet. Number of coats and type of paint applied shall be in accordance with specifications.

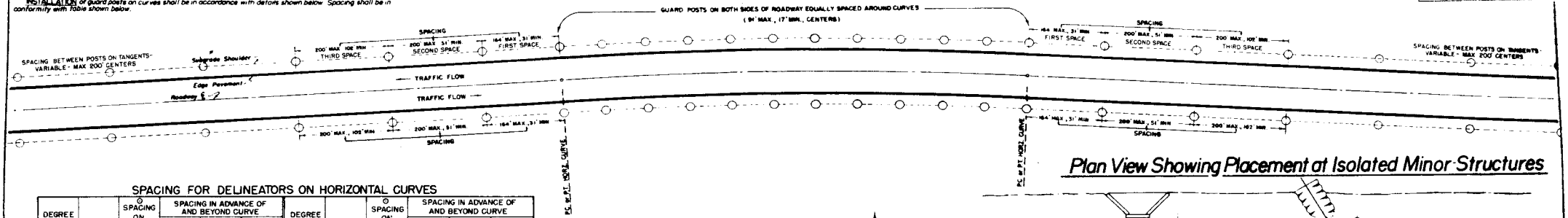
(Work By State Forces)

REFLECTIVE SHEETING - In accordance with the details hereon, State Forces will furnish and place the required 2" x 6" smooth surfaced reflective delineators fabricated from 3s - H14 aluminum alloy, minimum thickness 0.025", reflectorized with reflective sheeting strips or other approved reflective materials. Strips shall be suitable for placement around a curved surface.

REVISION	
10-9-58	Added Spacing Table

Typical Installation on Curves & Tangents

INSTALLATION of guard posts on curves shall be in accordance with details shown below. Spacing shall be in conformity with Table shown below.



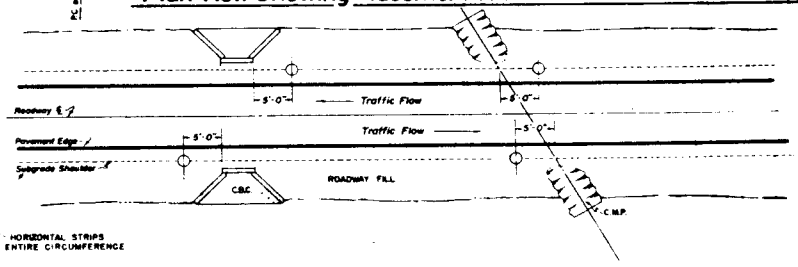
SPACING FOR DELINEATORS ON HORIZONTAL CURVES

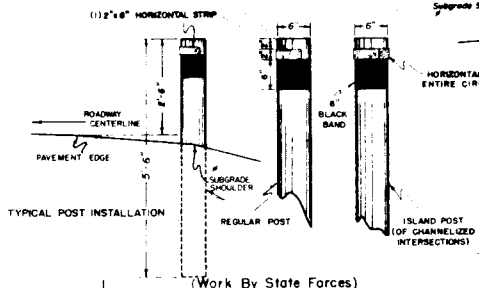
DEGREE OF CURVE	RADIUS	SPACING ON CURVE	SPACING IN ADVANCE OF AND BEYOND CURVE			DEGREE OF CURVE	RADIUS	SPACING ON CURVE	SPACING IN ADVANCE OF AND BEYOND CURVE		
			FIRST SPACE	SECOND SPACE	THIRD SPACE				FIRST SPACE	SECOND SPACE	THIRD SPACE
		FEET	FEET	FEET	FEET			FEET	FEET	FEET	FEET
0°30'	11460.0'	129	200	200	200	8°00'	716.3'	33	59	99	198
1°00'	5730.0'	91	164	200	200	8°30'	674.1'	32	58	96	192
1°30'	3820.0'	74	133	200	200	9°00'	636.7'	31	56	93	186
2°00'	2865.0'	64	115	192	200	9°30'	603.2'	30	54	90	180
2°30'	2292.0'	58	104	174	200	10°00'	573.0'	29	52	87	174
3°00'	1910.0'	53	95	159	200	10°30'	545.7'	28	50	84	168
3°30'	1637.1'	49	88	147	200	11°00'	520.9'	28	50	84	168
4°00'	1432.5'	46	83	138	200	11°30'	498.3'	27	49	81	162
4°30'	1273.3'	43	77	129	200	12°00'	477.5'	27	49	81	162
5°00'	1146.0'	41	75	123	200	15°00'	382.0'	24	43	72	144
5°30'	1041.8'	39	70	117	200	18°00'	318.3'	22	40	66	132
6°00'	955.0'	37	67	111	200	21°00'	272.9'	20	36	60	120
6°30'	881.5'	36	65	108	200	25°00'	229.2'	19	34	57	114
7°00'	818.6'	35	63	105	200	30°00'	191.0'	17	31	51	102
7°30'	764.0'	34	61	102	200						

$S = 12\sqrt{R+18}$ 1-ST SPACE = 1.8S 2-ND. SPACE = 3S 3-RD. SPACE = 6S

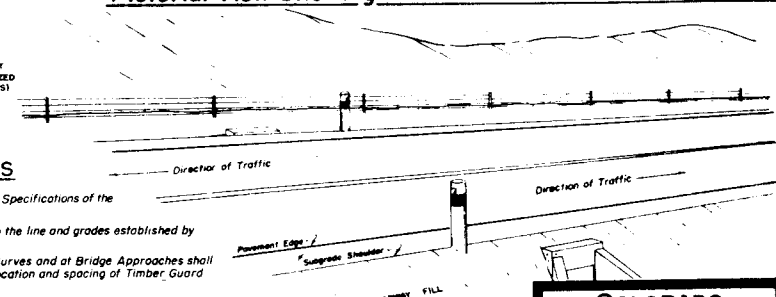
NO SPACES TO EXCEED 200 FT.

Plan View Showing Placement at Isolated Minor Structures

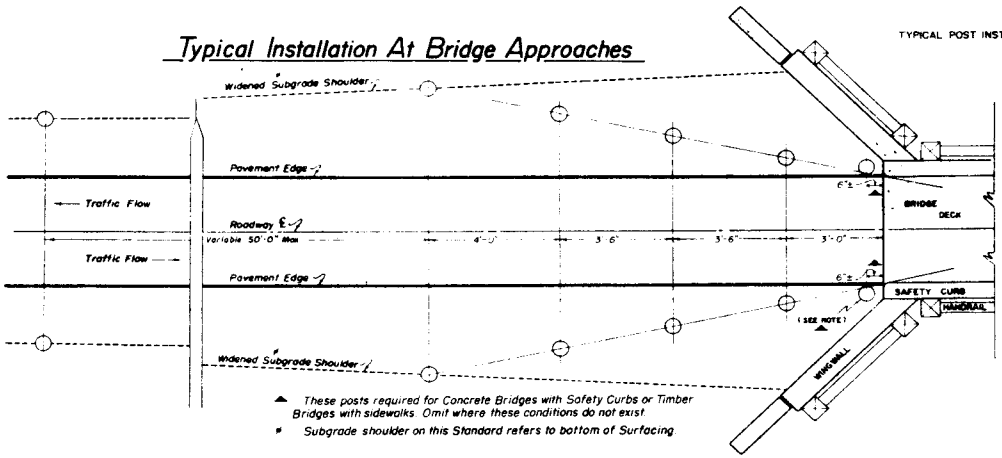




Pictorial View Showing Location at Isolated Minor Structures



Typical Installation At Bridge Approaches



▲ These posts required for Concrete Bridges with Safety Curbs or Timber Bridges with sidewalks. Omit where these conditions do not exist.

Subgrade shoulder on this Standard refers to bottom of Surfacing.

(Work By State Forces)

INSTALLATION DETAILS OF REFLECTORIZED STRIPS

GENERAL NOTES

(Work By Contractor)

All work shall be done in accordance with the Standard Specifications of the Colorado Department of Highways applicable to the project.

All posts shall be set and tamped in, plumb and firm, to the line and grades established by the Engineer.

INSTALLATION of Timber Guard Posts on Tangents, Curves and at Bridge Approaches shall be in conformity with details on this sheet. The number, location and spacing of Timber Guard Posts is shown on plans.

(Work By State Forces)

Reflective delineators shall be furnished and installed by State Forces after the Contractor has finished his operations.

Installation of reflective delineators shall be in accordance with the following: Wrap Around Reflective Sheeting Strips shall be installed horizontally one (1) sheet on all posts. Island posts shall have Wrap Around Reflective Sheeting Strips placed horizontally to cover entire circumference of Post.

On Divided Highways and Islands, Reflective Sheeting Strips shall be placed in a manner to obtain maximum visibility for the primary direction of travel. In all instances tests shall be made to insure the maximum effectiveness of reflective delineators.

All Traffic Islands shall be marked with Island Posts as indicated hereon.

COLORADO DEPARTMENT OF HIGHWAYS

STANDARD TIMBER GUARD POSTS

Designed by	Approved by: C. D. Rutledge
Made by	Engineer, Survey & Plans
Checked by	Date March 25, 1953

STANDARD ROADWAY CONSTRUCTION TRAFFIC SIGNS

STANDARD M-29-C
(SHEET 1 OF 2 SHEETS)

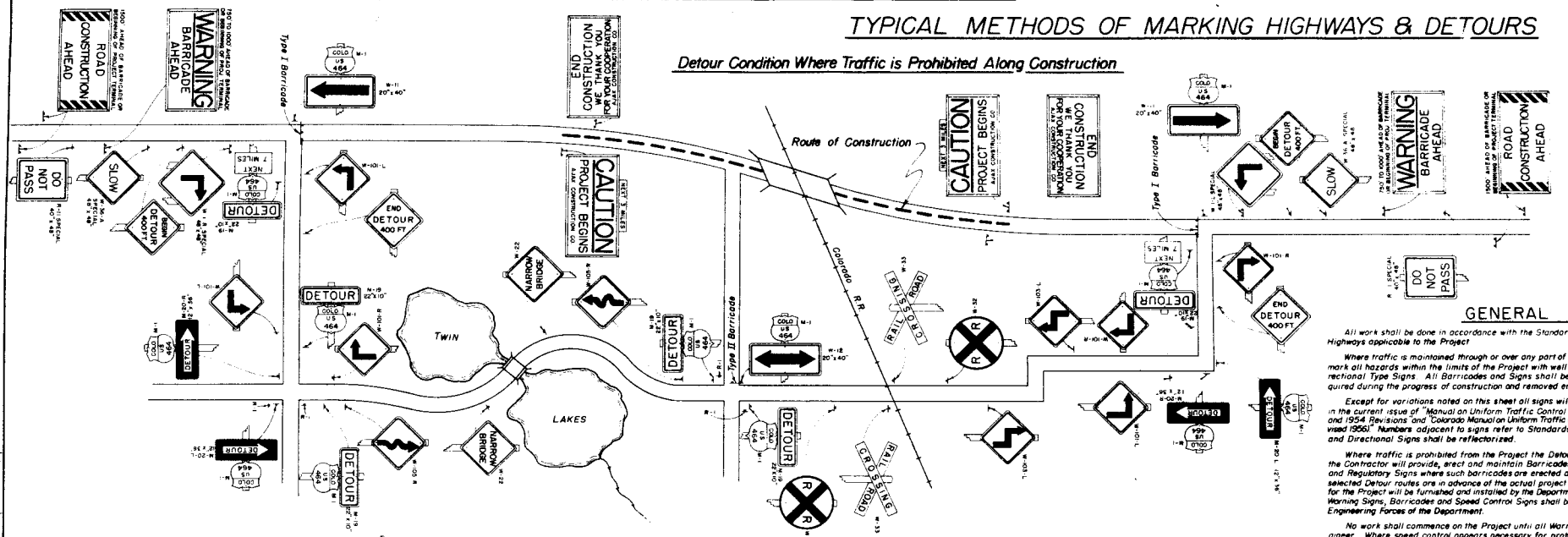
FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLO.	S 0002(22)	12

REVISIONS

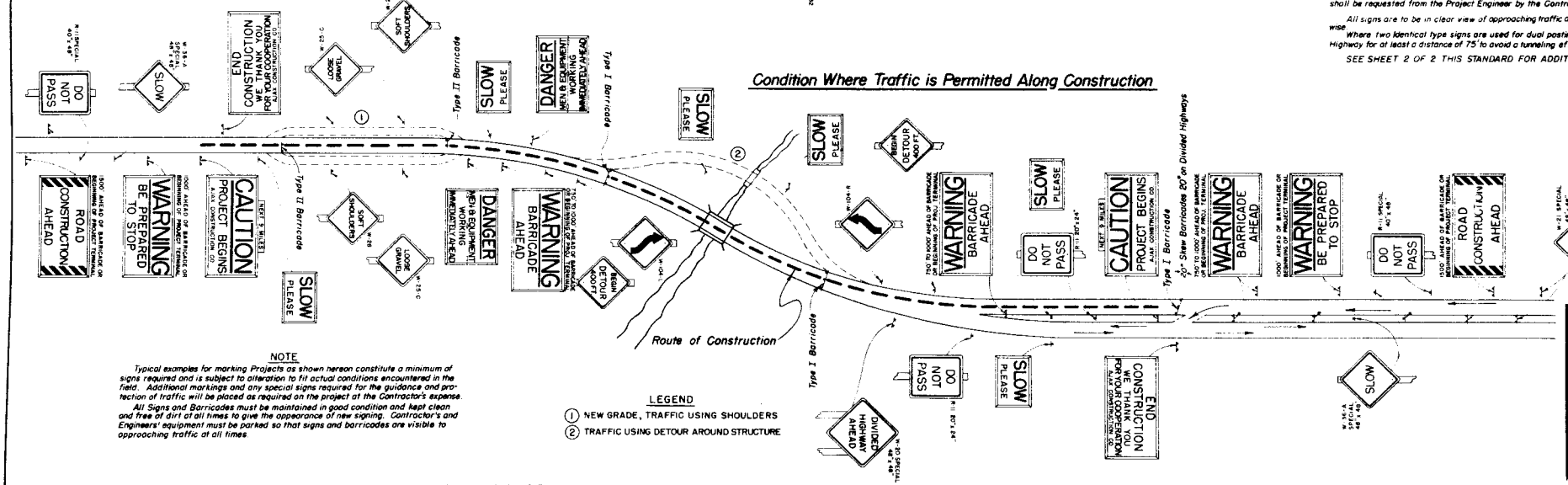
10-29-58	General	J.C.R.

TYPICAL METHODS OF MARKING HIGHWAYS & DETOURS

Detour Condition Where Traffic is Prohibited Along Construction



Condition Where Traffic is Permitted Along Construction



GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the Colorado Department of Highways applicable to the Project.

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 with well maintained Barricades, Warning Signs and Directional Type Signs. All Barricades and Signs shall be moved, added to, changed or removed as required during the progress of construction and removed entirely when project is completed.

Except for variations noted on this sheet all signs will be in conformity with the specification outlined in the current issue of "Manual on Uniform Traffic Control Devices for Streets & Highways, PRA August 1948 and 1954 Revisions and Colorado Manual on Uniform Traffic Control Devices for Streets & Highways CDOH 1952 Revised 1956." Numbers adjacent to signs refer to Standards in the manual. Standard Warning, Regulatory and Directional Signs shall be reflectorized.

Where traffic is prohibited from the Project the Detour will be marked by the Department except that the Contractor will provide, erect and maintain Barricades complete with approved Directional Arrows and Regulatory Signs where such barricades are erected and maintained at the ends of the Project or where selected Detour routes are in advance of the actual project terminal. U.S. or State Route Markers required for the Project will be furnished and installed by the Department. The location and positioning of Advance Warning Signs, Barricades and Speed Control Signs shall be as recommended by the appropriate District Engineering Forces of the Department.

No work shall commence on the Project until all Warning Signs are in place and approved by the Engineer. Where speed control appears necessary for protection of the travelling public, such speed control shall be requested from the Project Engineer by the Contractor.

All signs are to be in clear view of approaching traffic and are not to be obstructed by equipment, weeds or otherwise.

Where two identical type signs are used for dual posting they are to be staggered on the two sides of the Highway for at least a distance of 75' to avoid a tunneling effect.

SEE SHEET 2 OF 2 THIS STANDARD FOR ADDITIONAL NOTES AND DETAILS.

NOTE

Typical examples for marking Projects as shown hereon constitute a minimum of signs required and is subject to alteration to fit actual conditions encountered in the field. 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.

All Signs and Barricades must be maintained in good condition and kept clean and free of dirt at all times to give the appearance of new signing. Contractor's and Engineers' equipment must be parked so that signs and barricades are visible to approaching traffic at all times.

LEGEND

(1) NEW GRADE, TRAFFIC USING SHOULDERS
(2) TRAFFIC USING DETOUR AROUND STRUCTURE

COLORADO DEPARTMENT OF HIGHWAYS

Standard Roadway Construction Traffic Signs

Designed by J.C.R.	Approved by J. Julian
Made by J.C.R.	Engineer, Surveys & Plans
Checked by	Date: July 22, 1955

STANDARD ROADWAY CONSTRUCTION TRAFFIC SIGNS

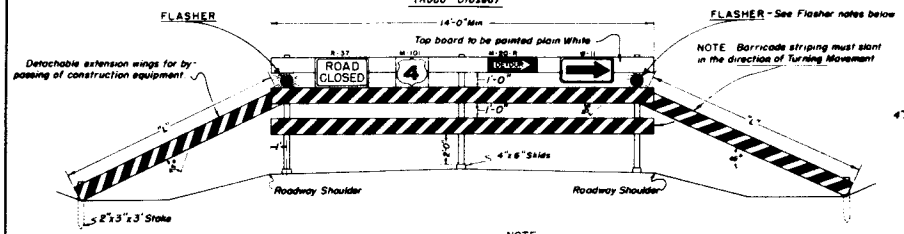
STANDARD M-29-C
(SHEET 2 OF 2 SHEETS)

FEDERAL ROAD REGION NO	DIVISION	PROJECT NO	SHEET NO
9	COLORADO	S 0002 (22)	13

Rev 10-23-58 ↔ J.C.R
Rev 12-12-60 ↔ C.J.S.

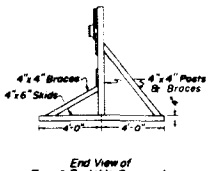
DETAILS OF BARRICADES

Type I
(Road Closed)



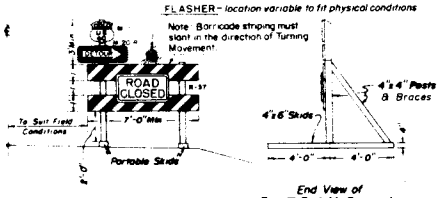
"L" Variable, length to be adequate to provide closing of borrow pit and shoulder.

NOTE
The various types & combinations of approved Signs and Beacons for Barricades required for each project will be governed by field conditions and subject to approval by the Engineer.



End View of Type I Portable Barricade
(Optional)

Type II
(Beg. of Detour, By-Pass Areas within Proj, Extreme Hazards, etc.)



End View of Type II Portable Barricade
(Optional)

NOTE: Alternate materials or other reflective elements on Construction Traffic Signs and Barricades will be permitted only after approval of such material by the Department

DETAILS OF CONSTRUCTION SIGNS

DETAILS OF SIGN AND BEACON FABRICATION AND USAGE

Construction Signs "A" through and including "G" shall be made of 3/4" Plywood or other material after approval by the Department, and as per details above. Signs shall be reflectorized with reflective sheeting or other reflective materials of types approved by the Department.

CONSTRUCTION SIGN "A" - Wide Angle White background with painted Black lettering. Barricade stripes of 4" Wide Angle White placed over Black painted vertical stripe spaced as shown above. This sign is the First advance warning sign and shall be placed 1500 feet ahead of barricade or beginning of project terminal and on both sides of the travelled way in all cases.

CONSTRUCTION SIGN "B" - Apply top 23" strip of Flat Top Silver, reversed screened or sprayed with Transparent Red Paint allowing the words "WARNING" and 1-inch Underline to remain as Flat Top Silver. Balance of lettering painted Black on a 22" strip of Wide Angle White. This sign is the Second advance warning sign and shall be placed 1000 feet ahead of barricade or beginning of project terminal and on both sides of the travelled way on divided highways and singly on two-lane highways.

CONSTRUCTION SIGN "C" - Apply top 23" strip of Flat Top Silver, reversed screened or sprayed with Transparent Red Paint allowing the words "WARNING" and 1-inch Underline to remain as Flat Top Silver. Balance of lettering painted Black on a 22" strip of Wide Angle White. This sign is the Third advance warning sign in cases where barricades are used and shall be placed 750 to 1000 feet ahead of barricade or beginning of project terminal and on both sides of the travelled way on divided highways and singly on two-lane highways.

REVERSE SIDES OF SIGNS "A", "B" and "C" - The word "SLOW" shall be painted Black and superimposed over a Yellow miniature W-36-A background panel. Balance of lettering shall be painted Black on a White background.

CONSTRUCTION SIGN "D" - Apply top 24 1/2" strip of Flat Top Silver, reversed screened or sprayed with Transparent Red Paint allowing the words "CAUTION" and 1 1/2"-inch Underline to remain as Flat Top Silver. Balance of lettering painted Black on a 20 1/2" strip of Wide Angle White. This sign will be provided with a detachable 1" material board mounted on back of sign with 2-1/4"x 2" bolts. This board shall be painted White with Black lettering. (Indicate to the nearest Mile). This sign shall be placed to mark the Beginning of the Project. To be placed singly and may be placed opposite barricade if desirable.

CONSTRUCTION SIGN "E" - Apply top 17 1/2" strip of Flat Top Silver, reversed screened or sprayed with Transparent Red Paint allowing the words "DANGER" and 1-inch Underline to remain as Flat Top Silver. Balance of lettering painted Black on a 27 1/2" strip of Wide Angle White. The sign is of the hinged and fold type to facilitate the closing down of sign when the need is not prevalent. This sign shall be placed 500 feet ahead of the situation on hand.

CONSTRUCTION SIGN "F" - The words "END CONSTRUCTION" and "CONTRACTORS NAME" shall be painted Black on strips 22" and 6 1/2" respectively of Wide Angle White. For balance of lettering, apply 16 1/2" strip of Flat Top Silver, reversed screened or sprayed with Transparent Red Paint allowing "WE THANK YOU FOR YOUR COOPERATION" remaining in Flat Top Silver. This sign shall be placed to mark the Ending of the Project. To be placed singly and may be placed opposite barricade if desirable.

CONSTRUCTION SIGN "G" - The words "SLOW" and "PLEASE" shall be painted Black on a background of Wide Angle Yellow. This sign shall be used frequently within the limits of the Project.

All of the preceding signs shall be fastened to 2-4"x 4" posts set 4 feet in the ground with a minimum of 3-1"x 4" nailing strips on the back. Bottom of sign to be not less than 36" above the ground.

FLAGMAN WARNING SIGN "H" - This sign shall be made of Plastic or other lightweight material, painted Red background with White lettering on the "STOP" side and painted Green background with White lettering on the "GO" side. Handle to be grooved on one side to indicate reading of sign to flagman. This sign will be used whenever flagmen are necessary. Sign to be reflectorized if used to stop traffic at night.

DETOUR WARNING SIGN "I" - To be of 3/8"(Min.) plywood or No. 16 (Min.) gauge metal with Black painted letters on a Wide Angle Yellow Background.

CONSTRUCTION SIGN "J" - 3/4"x 9" metal slides to be placed between "NEXT ___ MILES", spaced so as to accommodate appropriate size numerals. Required numerals to be furnished by the Department and to be installed by the Contractor. Numerals calculated to the nearest Mile.

All material shall be sound and durable. Barricades, signs, symbols and lettering conforming to styles noted hereon will be of good workmanship and well maintained. Uneven lettering will not be accepted.

FLARES AND TORCHES shall be either of the oil burning or electrical type approved by the Department and shall be placed 3 feet to 5 feet ahead of the object to be illuminated. Particular care shall be taken to protect all signs and barricades from smoke and smudge arising from the use thereof.

FLASHERS used on Type I or II Barricade shall be of the Battery or Electrical Type and shall have no less than 12.566 sq. inches of light area (4" dia. lens). The illuminating element in a flashing amber beacon or signal shall be flashed continuously at a rate between 50 or 60 flashes per minute which will be clearly distinguishable to traffic. The duration in which Flashers will be left in operation will be governed by field conditions and subject to approval by the Engineer.

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

The Department shall furnish and install the following as required OUTSIDE THE LIMITS of the Project:

1	"ROAD CONSTRUCTION AHEAD"	Minimum 4
2	"WARNING BE PREPARED TO STOP"	Minimum 2
3	"WARNING BARRICADE AHEAD"	As Required
4	* Standard Warning & Directional Signs	As Required

The Contractor shall furnish and install the following as required WITHIN THE LIMITS of the Project:

1	All Barricades		As Required
2	"CAUTION PROJECT BEGINS"		Minimum 2
3	"DANGER MEN & EQUIPMENT WORKING IMMEDIATELY AHEAD"		As Required
4	"END CONSTRUCTION WE THANK YOU FOR YOUR COOPERATION"		Minimum 2
5	"SLOW PLEASE"		As Required
6	Standard Warning & Directional Signs		As Required
7	Approved Directional Arrows & Regulatory Signs for Barricades		As Required
8	Torches and Flares as follows:	Type I Barricade	Minimum 3
		Type II Barricade	Minimum 1
9	Flashers - Type I Barricade		2 Required
	Type II Barricade		As Required

* To be installed on Type I Barricade located immediately inside of Project terminal points.

SPECIFICATIONS

PAINT - All paint and methods of painting shall be in conformity with the Standard Specifications of the Colorado Department of Highways for painting of Timber Structures.

STRIPING - Planking and Wings shall be painted with Maintenance Flat Black on both sides before adding any one of the following acceptable Reflective Strips:
(a) Wide Angle White, 7" strip, spaced 8' apart.
(b) Flat Top Silver, 3" strip, spaced 7' apart.
▲(c) Direct Process of Glass Beads on Paint, 3" strip, spaced 7' apart.

Stripes shall be applied on both front and back of barricades for opposite direction use. Diversion of traffic will be accomplished as follows:
1- Stripes for barricades diverting traffic to the left shall start on the right hand side of the lower plank and progress up to the left. Traffic diversion to the right will be just the opposite.
2- Stripes on barricades diverting traffic in both directions shall begin at the center of the lower plank and progress up in both directions.

TIMBER - All timber used shall conform to the Standard Specifications for Miscellaneous Untreated Timber:

Planking	1"x12" or 2"x12"	S4S
Posts (Barricades)	6"x 6"	S4S
Posts (Signs)	4"x 4"	S4S

The Reflectorized Stripes on planking & wings on all barricades shall be reflectorized with White or Silver Reflective Material of a type acceptable to the Department.

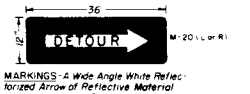
Barricades may be either portable as shown or fixed with posts set into the ground.

All skids, braces and posts to be painted white and nailed together with No. 20d nails.

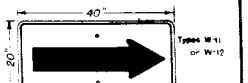
Bases to be weighted where necessary to provide stability.

▲ When this method is used as described above or when white binder and beads are applied to planking and wings, alternate black stripes using Maintenance Flat Black paint shall be applied over the reflective material in the prescribed pattern. All measurements for striping are to be made along the horizontal axis of the board.

Details of Reflectorized Arrows

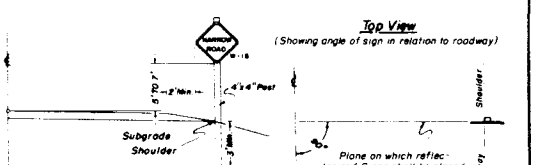


MARKINGS - A Wide Angle White Reflectorized Arrow of Reflective Material acceptable to the Department to be placed on a Black background. Letters to be 4" in height.



MARKINGS - A Black Arrow on a Wide Angle Yellow background of Reflective Material acceptable to the Department.

Position of Signs Relative to Roadbed & Hazards



NOTE
Warning Signs to be made of 3/8"(Min.) plywood or No. 16 Gauge (Min.) metal and shall be reflectorized.
Location to be governed by field conditions. Exact location to be staked by the Engineer in all cases warning signs are to be placed well in advance of hazard, the distance depending on topography, and existing approach speeds.

COLORADO DEPARTMENT OF HIGHWAYS

Standard Roadway Construction Traffic Signs

Designed by J.C.R.	Approved by [signature]
Made by J.C.R.	Engineer, Surveys & Plans
Checked by	Date: July 22, 1965

TYPICAL SIGNS

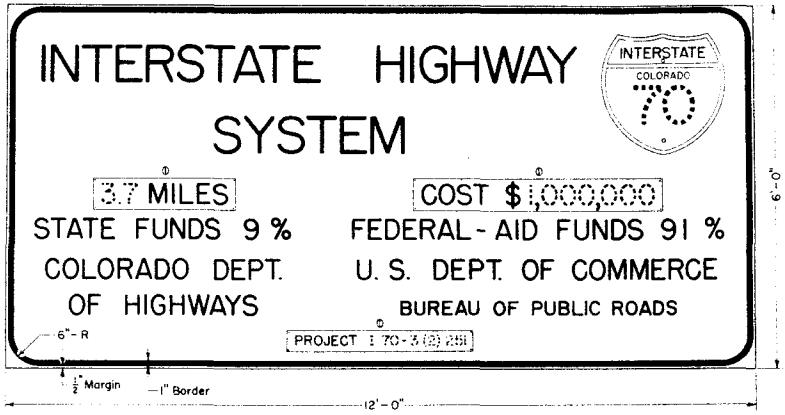
STANDARD M-31-A

FED. ROAD DEM. NO.	DIVISION	PROJECT NO.	SHEET NO.
9	COLO.	S 0002(22)	14

REVISIONS

1-9-61	GENERAL	E.E.O.
1-27-61	GEN. NOTES	E.E.O.

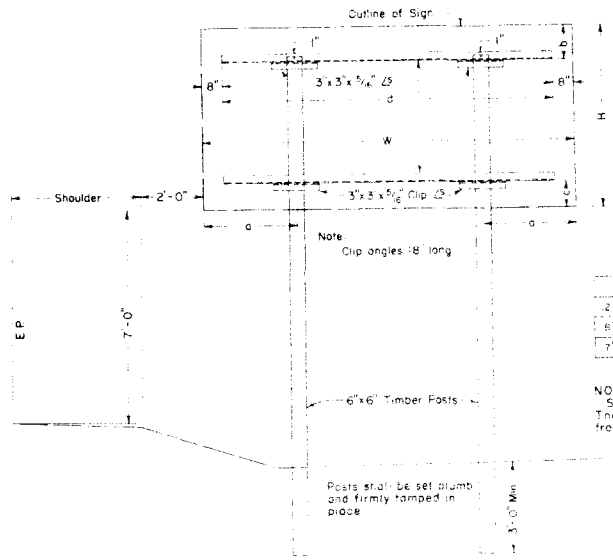
INTERSTATE SYSTEM



① Plaque length variable, as determined by message

24" Standard Interstate Shield, for dimensions see "Interstate Signing Manual" Background, letters and numerals plain (nonreflective - Red, White and Blue). (Removable Plaque)

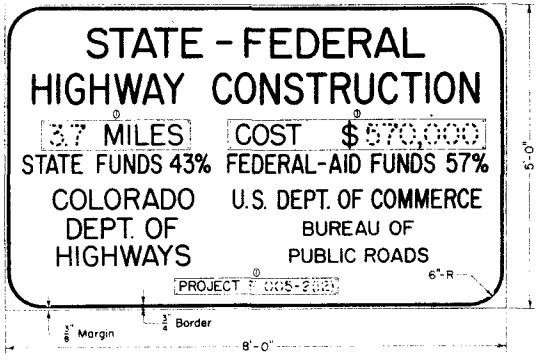
INSTALLATION DETAIL



W	H	a	b	c	d
2'-0"	6'-0"	3'-0"	1'-1½"	0'-10½"	10'-8"
6'-0"	5'-0"	2'-0"	1'-1½"	0'-10½"	6'-8"
7'-0"	4'-0"	1'-9"	1'-1½"	0'-10½"	5'-8"

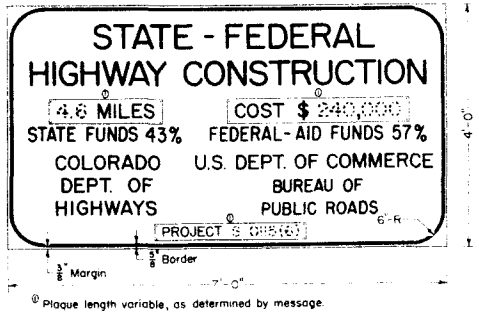
NOTE:
Signs are to be placed facing traffic approaching the work. These signs should be located so as not to obscure or detract from the effectiveness of other official signs.

PRIMARY SYSTEM



① Plaque length variable, as determined by message.

SECONDARY SYSTEM



① Plaque length variable, as determined by message.

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the Colorado Department of Highways, applicable to the Project.

Signs shall be made of ¾" Plywood or other material approved by the Department.

Backgrounds to be painted plain white with stencil black letters, numerals and border.

Posts shall be 6"x 6" S4S timber or other material approved by the Department and shall be painted white.

Layout of signs will be furnished the Contractor by the Traffic Operations Section indicating the details as to letter size, symbols, spacing, etc. which are required for these signs.

Figure for cost of project to be furnished contractor by Department.

If signs are for a single structure or interchange, name will be used in lieu of mileage. Such as COLORADO RIVER BRIDGE or ARAPAHOE INTERCHANGE.

COLORADO
DEPARTMENT OF HIGHWAYS

STANDARD IDENTIFICATION SIGNS

Designed by V.H.	Approved by: [illegible]
Made by D.M.E.	Engr. Surveys & Plans
Checked by E.E.O.	Date: [illegible] 19[illegible]

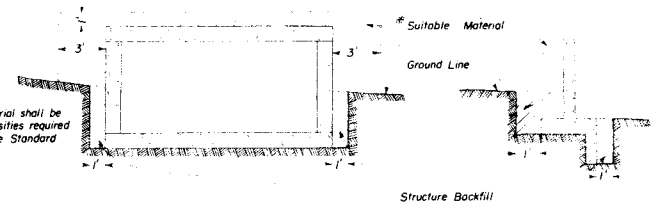
STANDARD M-31-A

STANDARD M-60-B

FED. ROAD REG. OR NO.	DIVISION	PROJECT NO	SHEET NO
9	0160	S 0002(22)	15

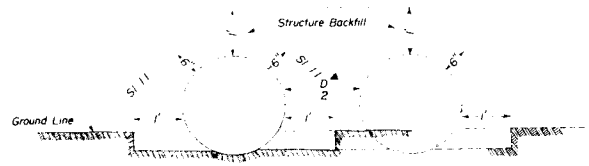
REVISION
2-9-59 Dbl Cond & Cond in Tr H.E.P.

CONCRETE BOX CULVERTS & WINGWALLS



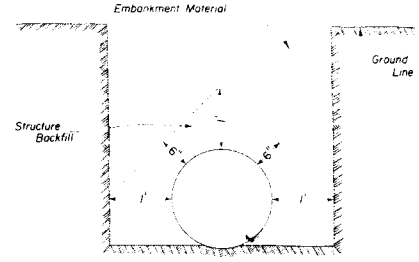
Suitable Material shall be compacted to densities required for Item 16 of the Standard Specifications.

CIRCULAR CONDUIT



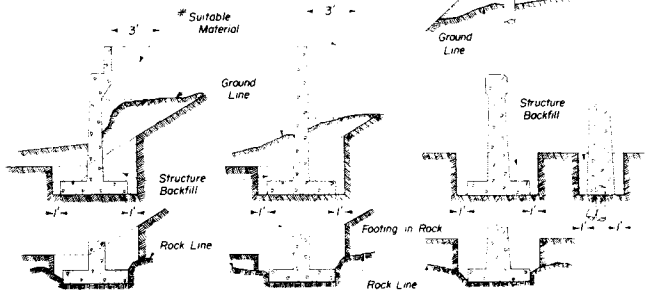
▲ When two or more conduits are layed side by side, the distance between conduits shall be 1/2 the conduit diameter but not less than 2'-0"

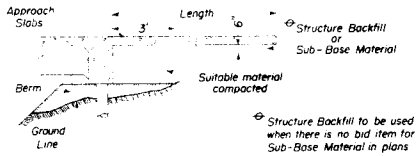
SIPHONS OR CONDUIT IN TRENCH



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.





Structure Backfill to be used when there is no bid item for Sub-Base Material in plans

ELLIPTICAL OR ARCH CONDUIT

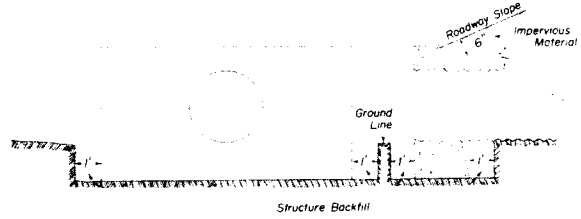
GENERAL NOTES

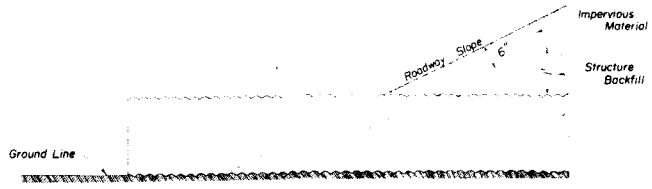
All work shall be done according to the Standard Specifications of the Colorado Department of Highways applicable to the Project.

If, in the opinion of the Engineer, the material beneath the Structure is of such character as to cause unequal settlement along the length of the Structure, the material shall be removed to such a depth ordered, and backfilled with gravel or other suitable material and compacted in accordance with Item 16 of the Standard Specifications.

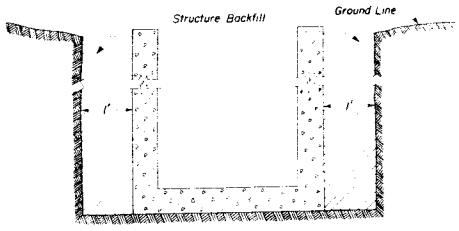
Suitable Material shall be any "Unclassified Excavation" material developed on the project except large rock, boulders or other materials considered by the Engineer to be undesirable for backfill around culverts, boxes etc.

HEADWALLS AND END OF CULVERTS





DROP INLETS, DIVISION BOXES, INTERCEPTING HEADWALLS ETC.



COLORADO
DEPARTMENT OF HIGHWAYS

STANDARD METHODS OF BACKFILL AROUND STRUCTURES

Designed by H.E.P.	Approved by L.E. Fountain
Made by D.M.E.	Bridge Engineer
Checked by L.E.O.	Date: May 2, 1955

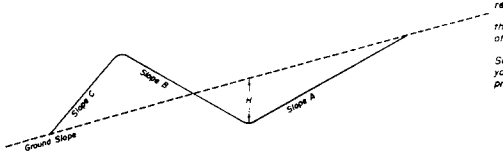
STANDARD TYPES of DITCHES and CONSTRUCTION METHODS

STANDARD M-107-D

FED. ROAD REG. NO.	DIVISION	PROJECT NO.	SHEET NO.
9.	COLO.	S0002(22)	16

DETAILS for CONTOUR INTERCEPTING DITCHES

Typical Section for Contour Intercepting Ditches



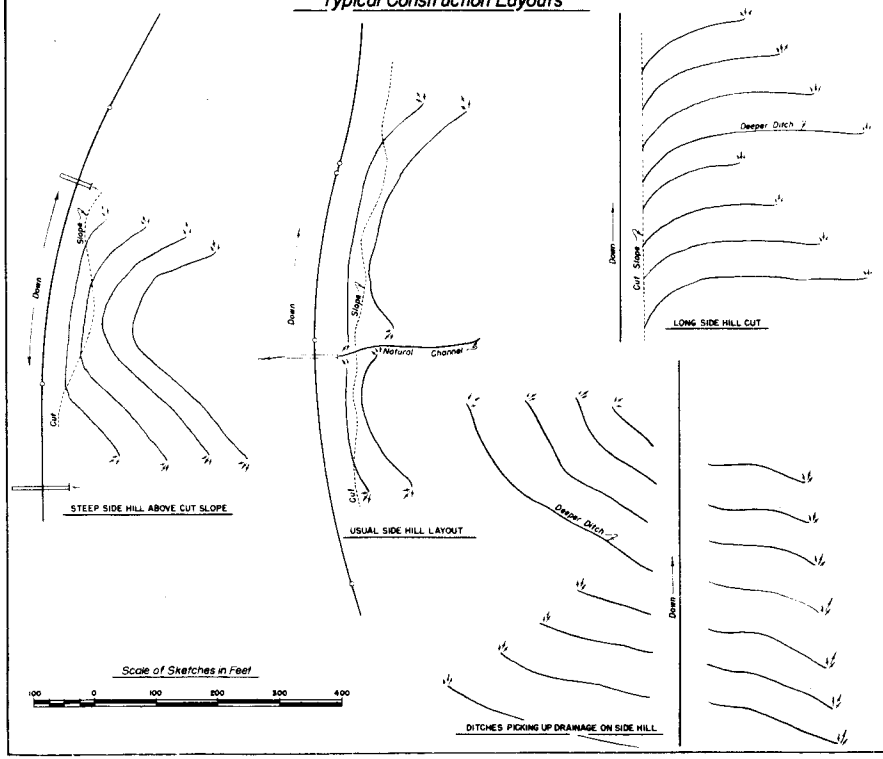
PURPOSE & USE OF THE TABLE

The primary purpose of the information for Contour and Intercepting Ditches shown on this sheet is to serve as a guide in construction and to readily arrive at yardages of excavation involved.

Foremost consideration in constructing these ditches is given first to the natural ground line slope confronted in construction, thence to the other values shown on the Typical Section.

By properly arriving at the combination of values shown on the Typical Section and in the Table for a specified condition, the number of cubic yards of excavation per 100 lin ft of ditch may be read under the appropriate column for this item.

Typical Construction Layouts



Scale of Sketches in Feet

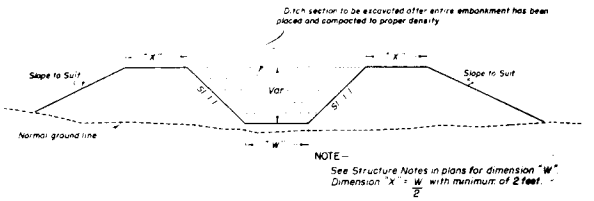
100 0 100 200 300 400

Table of Slopes and Yardages

SLOPES ▲ Ground	A	B	C	H	Cubic Yards per 100 lin ft of Ditch
5:1 Or Flatter	2:1	4:1	2:1	15"	16
				18"	23
				21"	32
		3:1		15"	15
				18"	22
				21"	30
		2:1		15"	14
				18"	20
				21"	27
		1-1/2:1		15"	13
				18"	19
				21"	25
	1-1/2:1	4:1	1-1/2:1	15"	12
				18"	18
				21"	25
		3:1		15"	12
				18"	17
				21"	23
		2:1		15"	10
				18"	15
				21"	20
		1-1/2:1		15"	10
				18"	14
				21"	19
4:1	2:1	4:1	2:1	15"	17
				18"	25
				21"	34
		3:1		15"	17
				18"	24
				21"	32
		2:1		15"	15
				18"	22
				21"	30
		1-1/2:1		15"	15
				18"	21
				21"	29
	1-1/2:1	4:1	1-1/2:1	15"	13
				18"	18
				21"	25
		3:1		15"	12
				18"	17
				21"	23
		2:1		15"	11
				18"	16
				21"	21
		1-1/2:1		15"	10
				18"	14
				21"	20
3:1	2:1	3:1	2:1	15"	22
				18"	31
				21"	43
		2:1		15"	21
				18"	30
				21"	41
		1-1/2:1		15"	20
				18"	29
				21"	40
	1-1/2:1	3:1	1-1/2:1	15"	13
				18"	19
				21"	26
		2:1		15"	12
				18"	17
				21"	24
		1-1/2:1		15"	12
				18"	17
				21"	23
2:1	1-1/2:1	2:1	1-1/2:1	15"	20
				18"	29
				21"	40
		1-1/2:1		15"	20
				18"	28
				21"	39
	1:1	2:1	1:1	15"	9
				18"	13
				21"	17
		1-1/2:1		15"	8
				18"	12
				21"	16
1-1/2:1	1:1	1-1/2:1	1:1	15"	11
				18"	16
				21"	21

▲ Slopes are approximate and may be varied to suit conditions encountered during construction

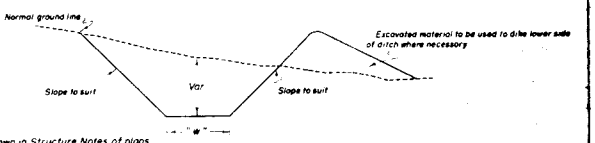
TYPICAL SECTIONS for DRAINAGE, IRRIGATION DITCHES and CHANNEL CHANGES



NOTE –
See Structure Notes in plans for dimension "W"
Dimension "X" = W/2 with minimum of 2 feet.

For Embankment Sections

(Generally for use in Irrigation Ditches & Channel Changes)



NOTE –
Unless otherwise shown in Structure Notes of plans, dimension "W" = 1 foot

For Cut Sections

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications of the Colorado State Highway Department applicable to the Project.

All ditches are to be constructed to lines and grades as staked by the Engineer using the ditch section shown on plans or as ordered by the Engineer.

CONTOUR INTERCEPTING DITCHES: Ditches are to be laid out along the ground contour on a grade of not over 1% (Type of soil shall govern the grade).

Ends of ditches are to be lined up so that concentration of flow from a higher contour ditch into one of lower contour is, as far as possible avoided. The use of a deeper ditch is recommended where this condition is encountered.

The following horizontal spacing of ditches is recommended:

4% to 6%	Approximately 70' Centers
8% to 10%	Approximately 60' Centers
20% to 4:1 Slope	Approximately 55' Centers
30% to 1-1/2:1 Slope	Approximately 50' Centers

Where ditch checks are required the intervening ditch between one set of ditch checks shall not exceed a grade of 1.0%. Details of checks will be shown on plans when required.

COLORADO
DEPARTMENT OF HIGHWAYS

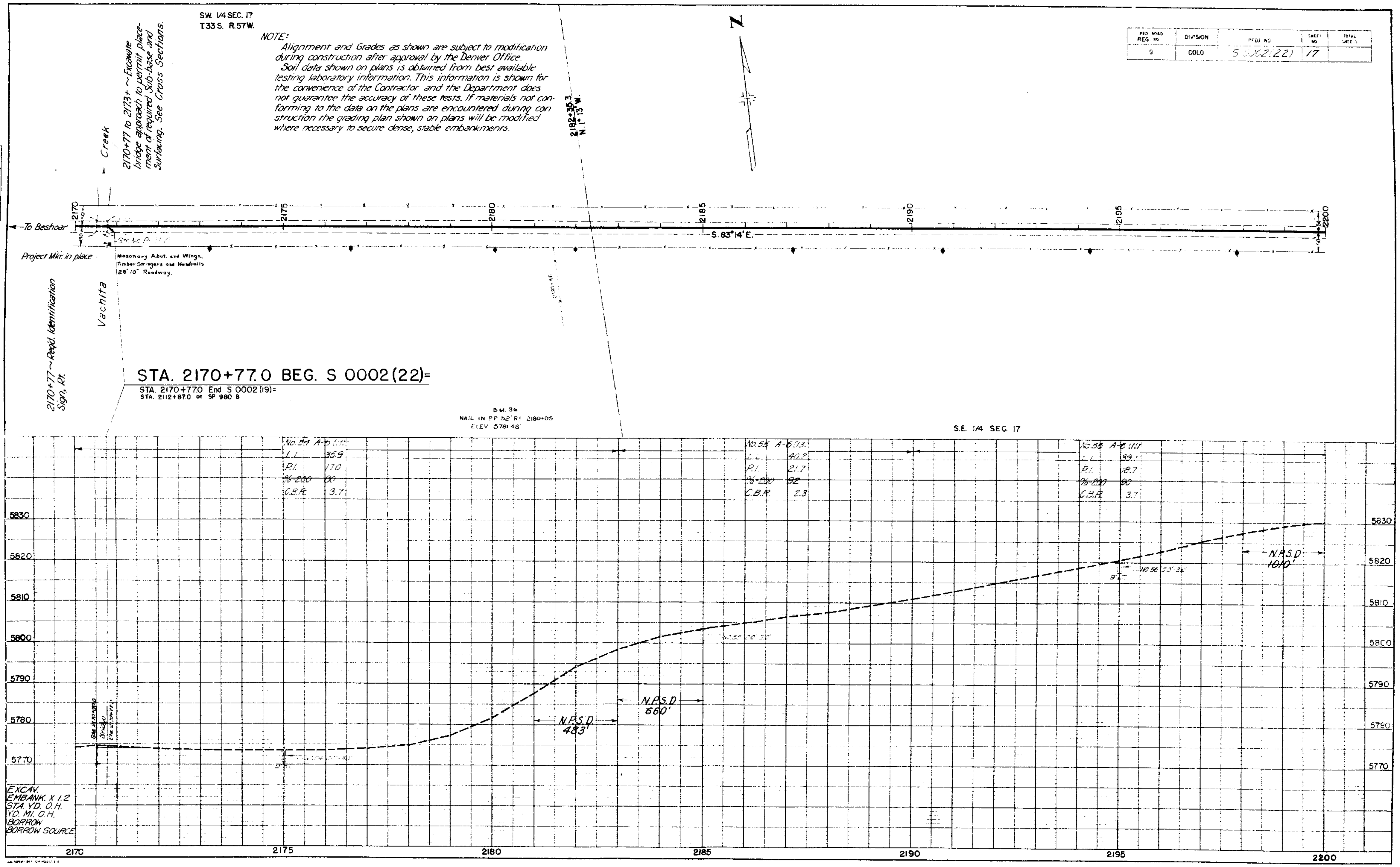
Standard Types of Ditches and Construction Methods

Designed by C.G.M.	Approved by
Made by C.G.M.	Engineer of Surveys & Plans
Checked by	Date: Aug. 18, 1950

FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO	S 0002(22)	17	

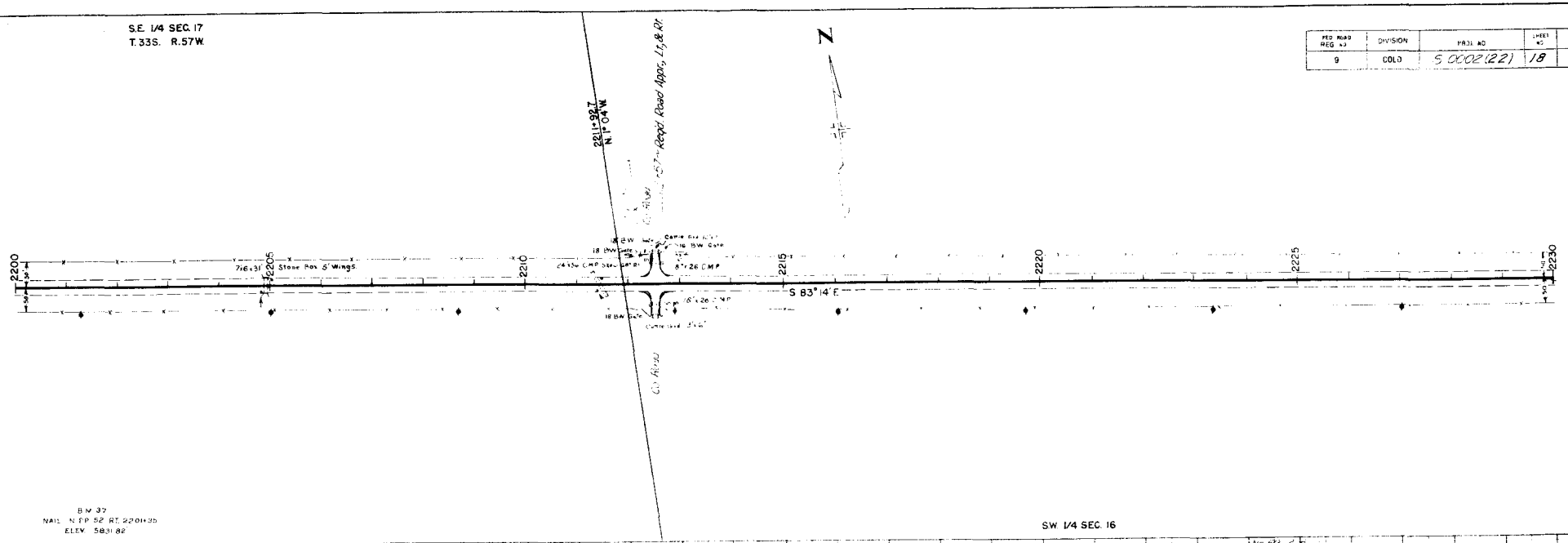
SW. 1/4 SEC. 17
T33 S. R.57 W.

NOTE:
Alignment and Grades as shown are subject to modification during construction after approval by the Denver Office.
Soil data shown on plans is obtained from best available testing laboratory information. This information is shown for the convenience of the Contractor and the Department does not guarantee the accuracy of these tests. If materials not conforming to the data on the plans are encountered during construction the grading plan shown on plans will be modified where necessary to secure dense, stable embankments.



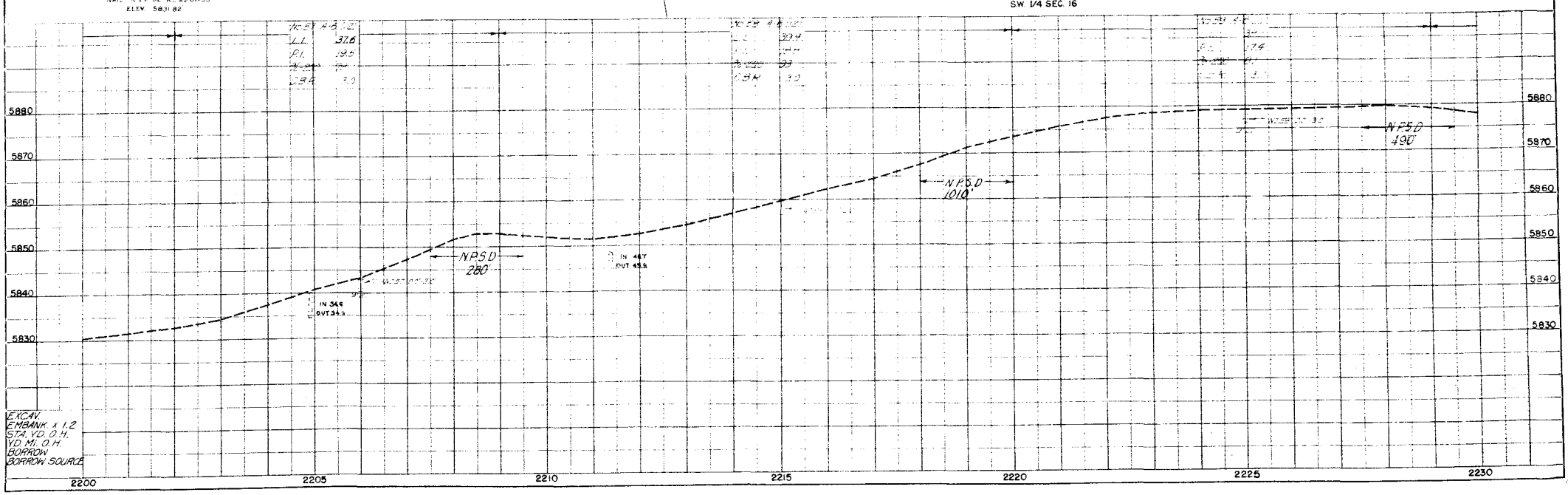
S.E. 1/4 SEC. 17
T. 33S. R. 57W.

FED. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S 0002(22)	18	

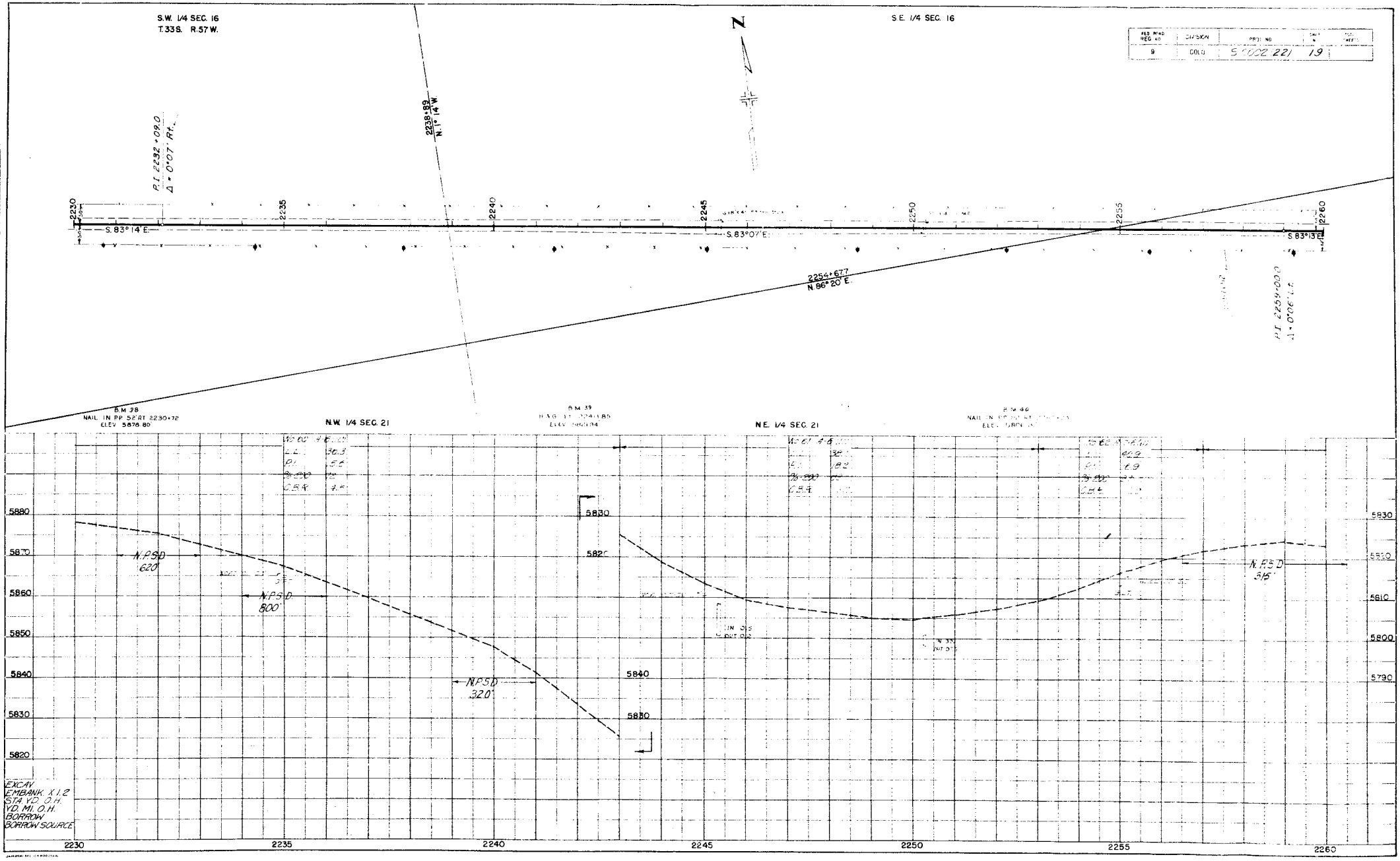


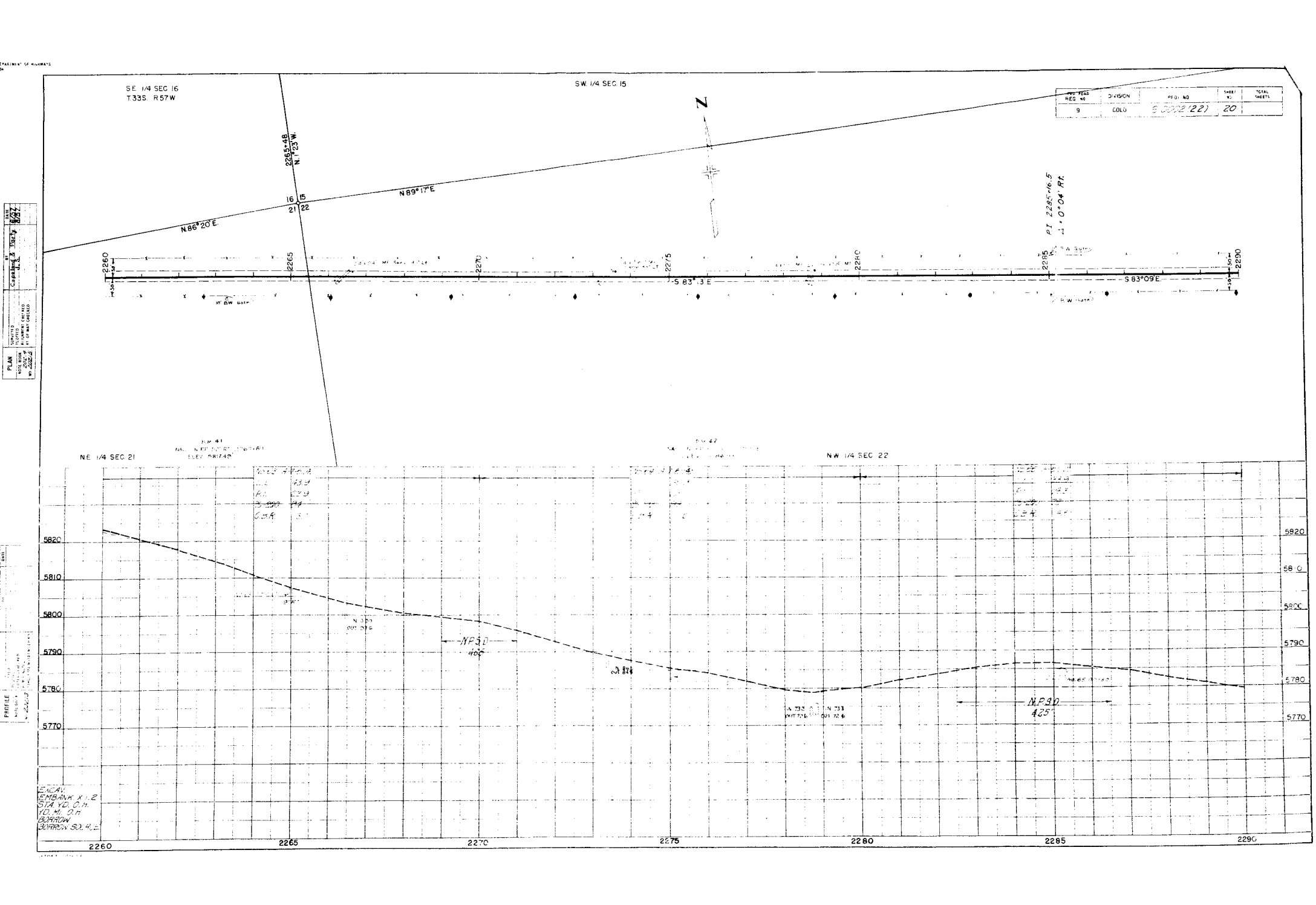
B.M. 37
NAIL N.FP 52 RT. 2201+35
ELEV. 5831.82

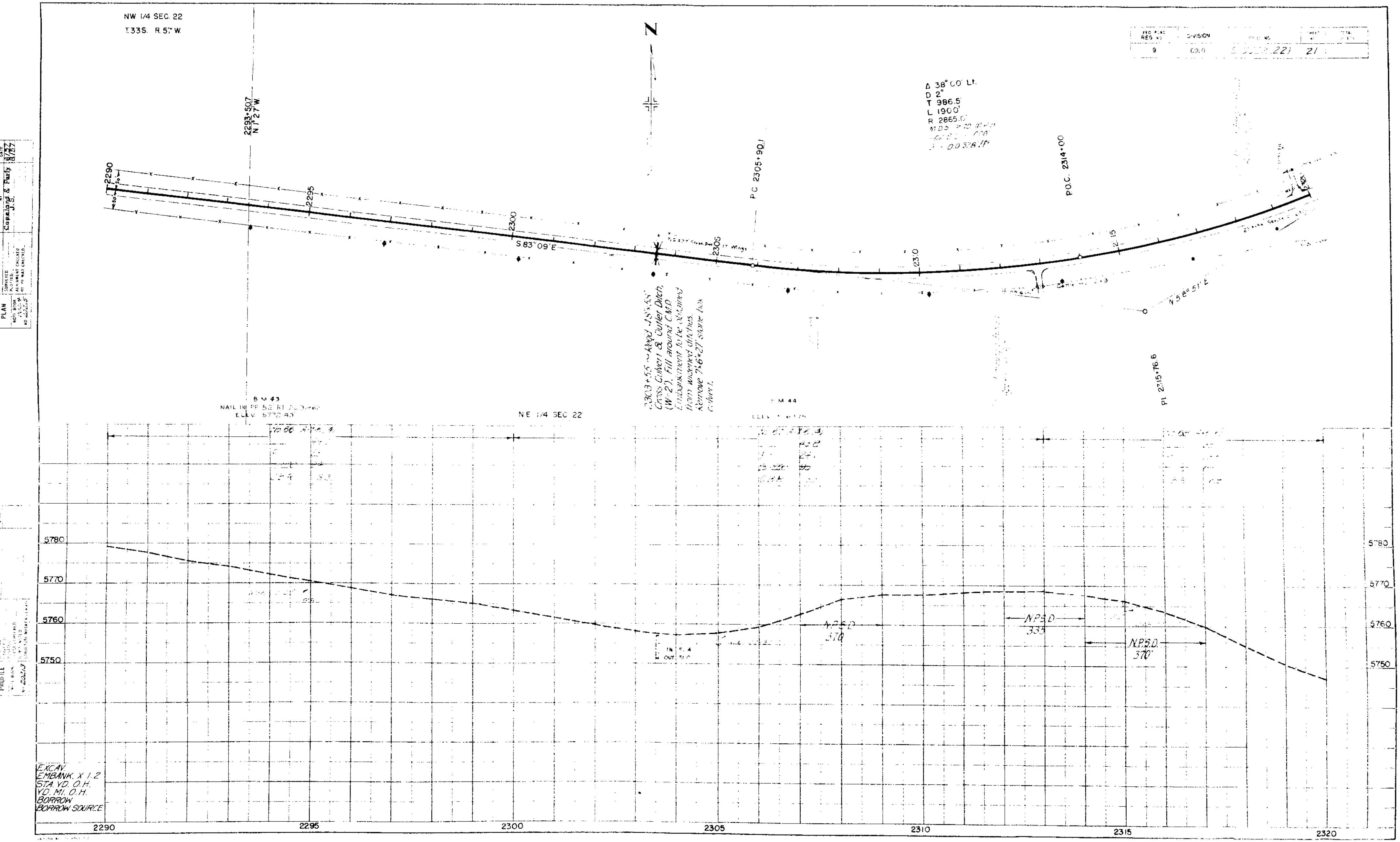
SW. 1/4 SEC. 16

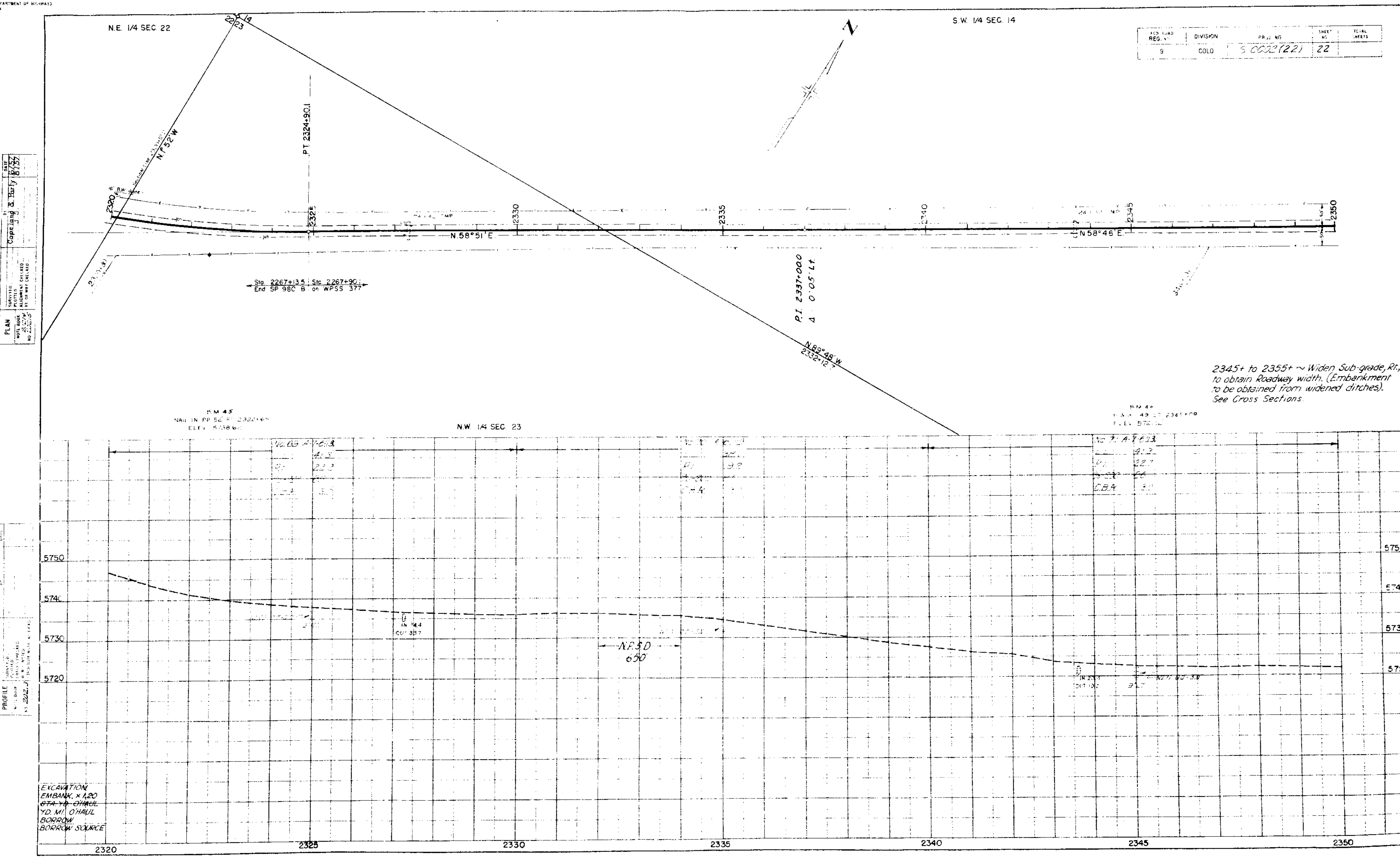


EXCAV.
EMBANK. x 1.2
STA. YD. O.H.
YD. MI. O.H.
BORROW
BORROW SOURCE

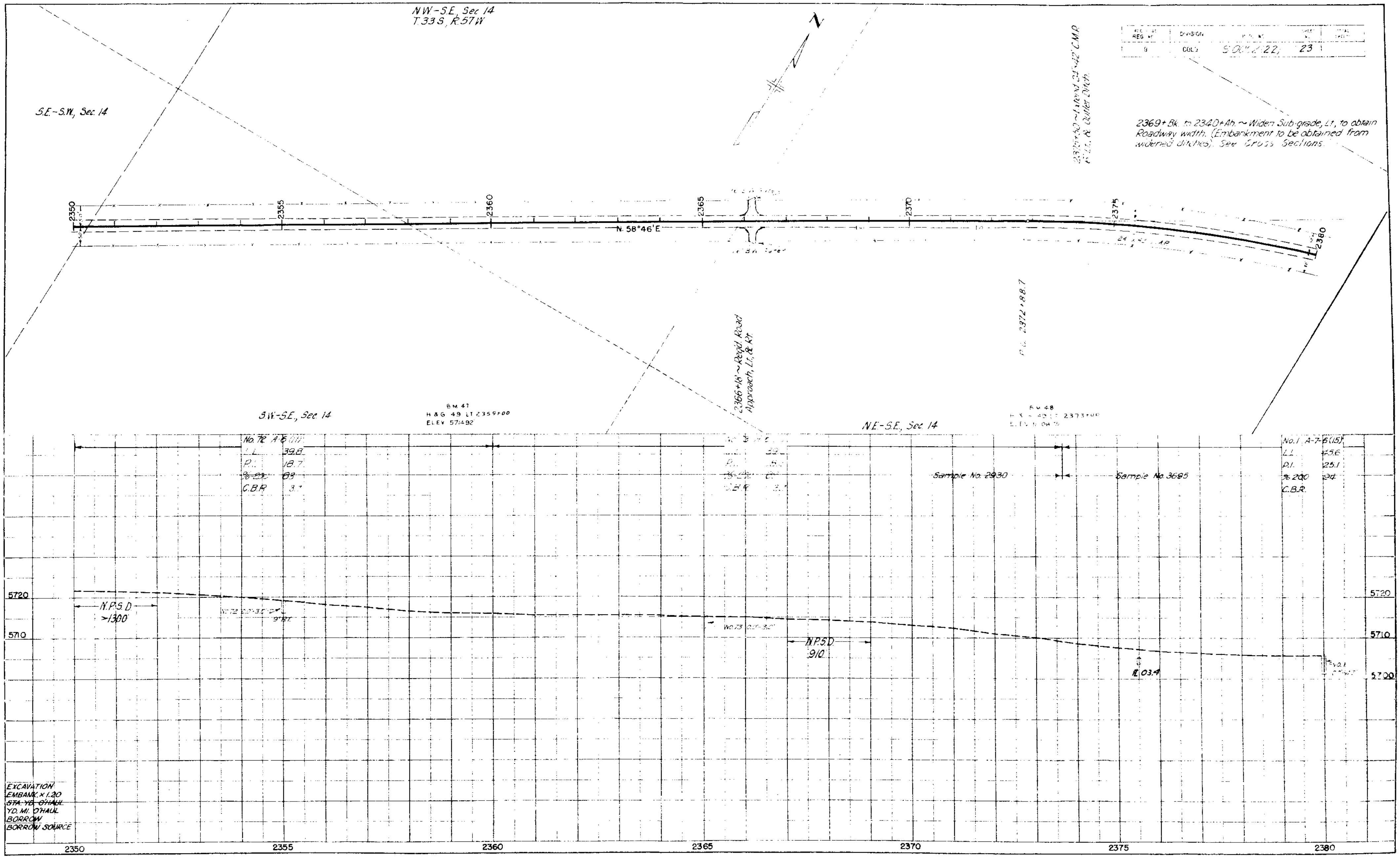

S.W. 1/4 SEC. 16
T.33S. R.57W.
S.E. 1/4 SEC. 16
N
P.I. 2232+09.0
Δ = 0°07' Rt.
2238+89
N. 1° 14' W.
2230
2235
2240
2245
2250
2255
2260
S. 83° 14' E.
S. 83° 07' E.
S 83° 13' E.
2254+67.7
N 86° 20' E.
P.I. 2259+00.0
Δ = 0°06' Lt.
B.M. 38
NAIL IN PP 52 RT 2230+72
ELEV. 5876.80
B.M. 39
ELEV. 5860.94
B.M. 40
N.W. 1/4 SEC. 21
N.E. 1/4 SEC. 21
5880
5870
5860
5850
5840
5830
5820
5830
5820
5840
5830
N.P.S.D.
620'
N.P.S.D.
800'
N.P.S.D.
320'
N.P.S.D.
315'
EXCAV.
EMBANK. X.I.2
STA. YD. O.H.
YD. MI. O.H.
BORROW
BORROW SOURCE


SE 1/4 SEC 16
T33S. R57W
SW 1/4 SEC 15
N
N89°17'E
N86°20'E
16
15
21
22
2265+48
N. 1.23 W.
PI 2285+16.5
Δ = 0°04' RT.
2260
2265
2270
2275
2280
2285
2290
S 83°13'E
S 83°09'E
NE 1/4 SEC 21
NW 1/4 SEC 22
5820
5810
5800
5790
5780
5770
NP3D
#65
EXCAV.
EMBANK X 1.2
STA. Y.D. C.M.
YD. M. O.H.
BORROW
BORROW SD. R.E.
2260
2265
2270
2275
2280
2285
2290

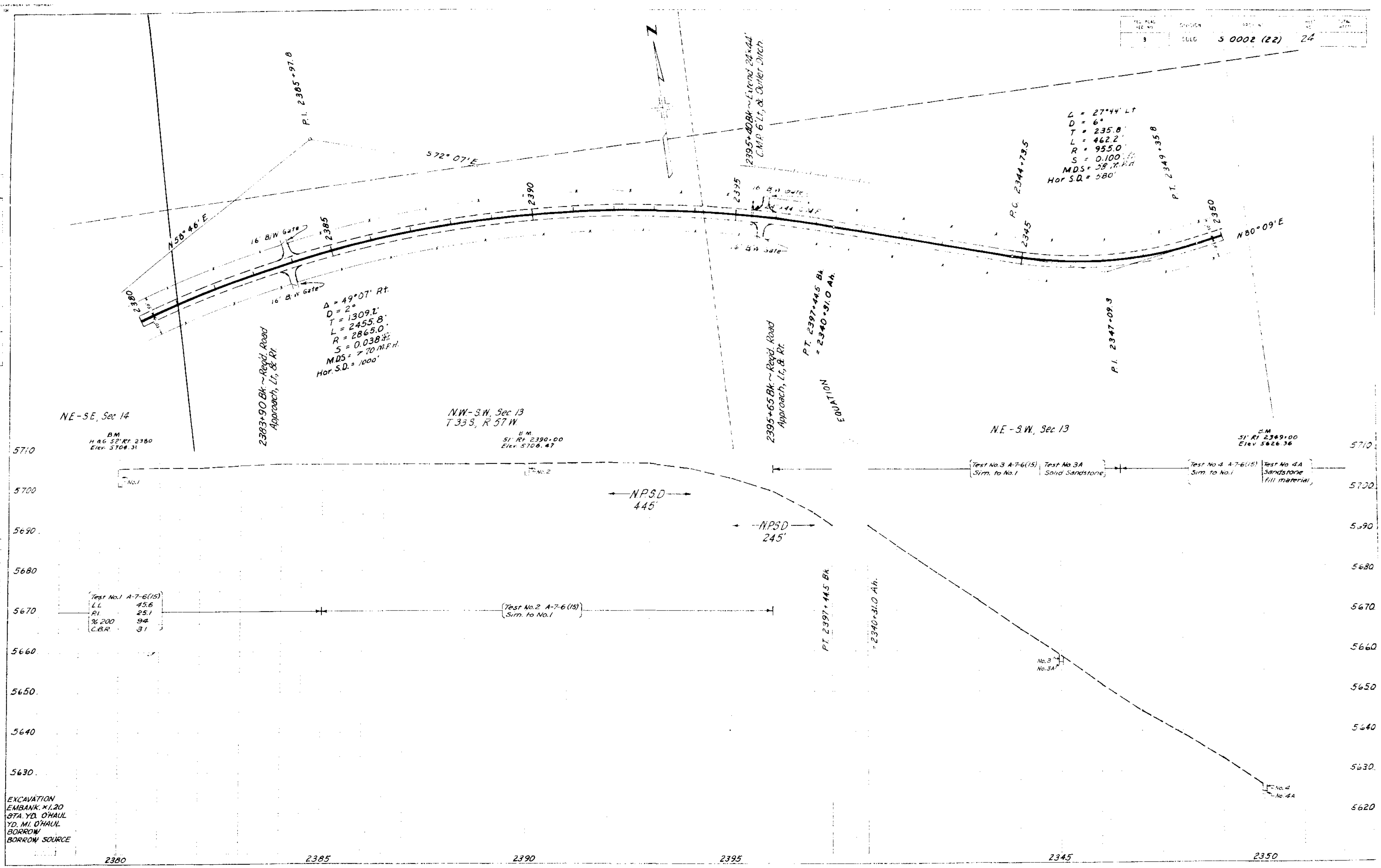

NW 1/4 SEC. 22
T.33S. R.57W.
N
2293+50.7
N 1°27' W.
Δ 38°00' Lt.
D 2°
T 986.5'
L 1900'
R 2865.0'
PC 2305+90.1
P.O.C. 2314+00
S.83°09'E.
N 58°51'E
P.I. 2315+76.6
2303+55 ~ Reqd. 48x35" Cross Culvert & Outlet Ditch, (W-2). Fill around CMP Embankment to be obtained from widened ditches. Remove 7x6x27 stone box culvert.
B.M. 43
ELEV. 5770.80
N.E. 1/4 SEC. 22
B.M. 44
5780
5770
5760
5750
N.P.S.D. 370'
N.P.S.D. 333'
N.P.S.D. 370'
EXCAV.
EMBANK. X 1.2
STA. YD. O.H.
YD. MI. O.H.
BORROW
BORROW SOURCE
2290
2295
2300
2305
2310
2315
2320
9
COLO.
21
PLAN
Copeland & Party
J.S.
PROFILE



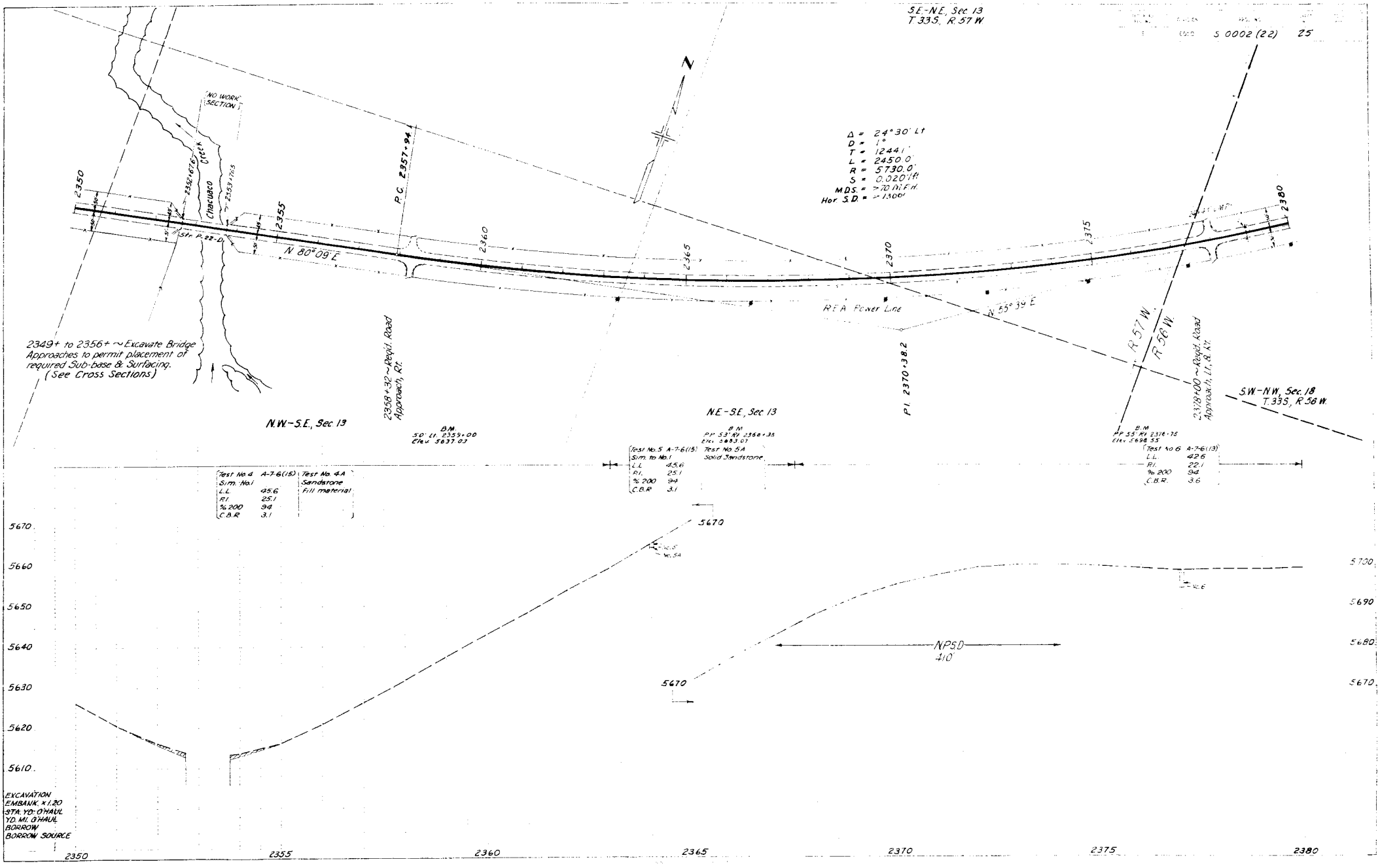
N.E. 1/4 SEC. 22
S.W. 1/4 SEC. 14
N.W. 1/4 SEC. 23
FED. ROAD REG. NO. 9
DIVISION COLO.
PROJ. NO. S 0022(22)
SHEET NO. 22
N
N.1°52'W
P.T. 2324+90.1
N.58°51'E
N.58°46'E
P.I. 2337+00.0
Δ 0°05' Lt.
N.89°48'W
2332+12.7
Sta. 2267+13.5 Sta. 2267+90.1
End SP 98C B on WPSS 377
2345+ to 2355+ ~ Widen Sub-grade, Rt., to obtain Roadway width. (Embankment to be obtained from widened ditches). See Cross Sections.
B.M. 45
NAIL IN PP 52' Rt. 2322+65
ELEV. 5738.67
N.P.S.D.
650
5750
5740
5730
5720
2320
2325
2330
2335
2340
2345
2350
EXCAVATION
EMBANK. x 1.20
STA. YD. O'HAUL
YD. MI. O'HAUL
BORROW
BORROW SOURCE
PLAN
PROFILE
Copeland & Harty



REG. NO. 9 | DIVISION COLO. | 23
NW-SE, Sec 14
T33S, R57W
N
S.E.-S.W., Sec 14
2369+Bk. to 2340+Ah.~ Widen Sub-grade, Lt. to obtain Roadway width. (Embankment to be obtained from widened ditches). See Cross Sections.
Outlet Ditch
2350
2355
2360
2365
2370
2375
2380
N. 58°46'E
2366+16 ~ Reqd. Road Approach, Lt. & Rt.
P.I. 2372+88.7
SW-SE, Sec 14
BM 41
H & G 49 LT 2359+00
ELEV. 5714.92
BM 48
NE-SE, Sec 14
No. 72 A-6 (11)
L.L. 39.8
P.I. 18.7
C.B.R. 3.1
Sample No. 2930
Sample No. 3695
No. 1 A-7-6 (15)
L.L. 45.6
P.I. 25.1
% 200 94
C.B.R.
5720
5710
5700
N.P.S.D.
>1300'
N.P.S.D.
910'
EXCAVATION
EMBANK. x 1.20
STA. YD. O'HAUL
YD. MI. O'HAUL
BORROW
BORROW SOURCE
2350
2355
2360
2365
2370
2375
2380
Copeland & Party



9
COLO
S 0002 (22)
24
PLAN
PROFILE
N
P.I. 2385+97.8
S72° 07' E
N58° 46' E
16' B/W Gate
16' B/W Gate
2380
2385
2390
2395
2345
2350
Δ = 49°07' Rt.
D = 2°
T = 1309.2'
L = 2455.8'
R = 2865.0'
S = 0.038'/ft.
M.D.S. = 70 M.P.H.
Hor. S.D. = 1000'
2383+90 Bk. ~ Req'd. Road Approach, Lt. & Rt.
2395+40 Bk. ~ Extend 24"x44' C.M.P. 6' Lt. & Outlet Ditch
2395+65 Bk. ~ Req'd. Road Approach, Lt. & Rt.
P.T. 2397+44.5 Bk. = 2340+31.0 Ah.
EQUATION
P.C. 2344+73.5
P.I. 2347+09.3
P.T. 2349+35.8
Δ = 27°44' Lt
D = 6°
T = 235.8'
L = 462.2'
R = 955.0'
S = 0.100
M.D.S. = 58 M.P.H.
Hor. S.D. = 580'
N80° 09' E
N.E.-S.E. Sec. 14
N.W.-S.W. Sec. 13
T 33 S, R 57 W
N.E.-S.W. Sec. 13
B.M. H.A.G. 52' Rt. 2380 Elev. 5704.31
B.M. 51' Rt. 2390+00 Elev. 5706.47
B.M. 51' Rt. 2349+00 Elev. 5626.36
5710
5700
5690
5680
5670
5660
5650
5640
5630
5620
No. 1
No. 2
N.P.S.D. 445'
N.P.S.D. 245'
Test No. 1 A-7-6(15)
L.L. 45.6
P.I. 25.1
% 200 94
C.B.R. 31
Test No. 2 A-7-6(15) Sim. to No. 1
Test No. 3 A-7-6(15) Sim. to No. 1
Test No. 3A Solid Sandstone
Test No. 4 A-7-6(15) Sim. to No. 1
Test No. 4A Sandstone fill material
P.T. 2397+44.5 Bk.
= 2340+31.0 Ah.
No. 3
No. 3A
No. 4
No. 4A
EXCAVATION
EMBANK. x 1.20
STA. YD. O'HAUL
YD. MI. O'HAUL
BORROW
BORROW SOURCE
2380
2385
2390
2395
2345
2350


SE-NE, Sec 13
T 33S, R 57 W
S 0002 (22) 25'
NO WORK SECTION
Chacuaco Creek
Sta. P 22-D
P.C. 2357+94
Δ = 24°30' Lt
D = 1°
T = 1244.1'
L = 2450.0'
R = 5730.0'
S = 0.020'/ft
MDS. = >70 M.P.H.
Hor. S.D. = >1300'
N 80°09' E
REA Power Line
N 55°39' E
2349+ to 2356+ ~ Excavate Bridge Approaches to permit placement of required Sub-base & Surfacing. (See Cross Sections)
2358+32 ~ Peqot Road Approach, Rt.
P.I. 2370+38.2
R 57 W.
R 56 W.
2378+00 ~ Peqot Road Approach, Lt. & Rt.
SW-NW, Sec. 18
T 33S, R 56 W.
NW-SE, Sec 13
NE-SE, Sec 13
B.M.
50' Lt. 2359+00
Elev. 5637.03
B.M.
PP 53' Rt. 2366+35
Elev. 5683.07
B.M.
PP 55' Rt. 2376+75
Elev. 5698.55
Test No. 4 A-7-6(15)
Sim. No. 1
L.L. 45.6
P.I. 25.1
% 200 94
C.B.R. 3.1
Test No. 4A
Sandstone
Fill material
Test No. 5 A-7-6(15)
Sim. to No. 1
L.L. 45.6
P.I. 25.1
% 200 94
C.B.R. 3.1
Test No. 5A
Solid Sandstone
Test No. 6 A-7-6(13)
L.L. 42.6
P.I. 22.1
% 200 94
C.B.R. 3.6
NPSO
4"O
EXCAVATION
EMBANK. x 1.20
STA. YD. O'HAUL
YD. MI. O'HAUL
BORROW
BORROW SOURCE
5670
5660
5650
5640
5630
5620
5610
5700
5690
5680
2350
2355
2360
2365
2370
2375
2380

COLORADO DEPARTMENT OF HIGHWAYS
Form C. D. H. 134
Feb. 1961

YLO. ROAD REG. NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
9	COLO.	S 0002(22)	26	

N.E.-N.W. Sec 18
T 33 S., R 56 W.

P.T. 2382+44.1

2380 | 2385 | 2390 | 2395 | 2400 | 2405 | 2410

2396+88 ~ Extend 24"x42" C.M.P. 4 Lt. & 4 Rt. Ditches

24"x42" C.M.P.

36"x40" C.M.P.

N 55°39 E

R.E.A. Power Line

P.C. 2409+94.1

S.W.-N.W. Sec 18

S.E.-N.W. Sec 18

N.W.-N.E. Sec 18

B.M.
P Pole 52 Rt. 2382+30
Elev. 5701.01

B.M.
Nail in PP 52 Rt. 2389+75
Elev. 5694.51

B.M.
Nail in PP 52 Rt. 2397+15
Elev. 5689.64

B.M.
Nail in PP 51 Rt. 2404+40
Elev. 5690.23

Test No. 7 A-7-6(13) Sim. to No. 6	
L.L.	42.6
P.I.	22.1
% 200	94
C.B.R.	3.6

Test No. 8 A-7-6(13) Sim. to No. 6

Test No. 9 A-7-6(13) Sim. to No. 6

5700
5690
5680

N.P.S.D. 790'

No. 7

No. 8

No. 9

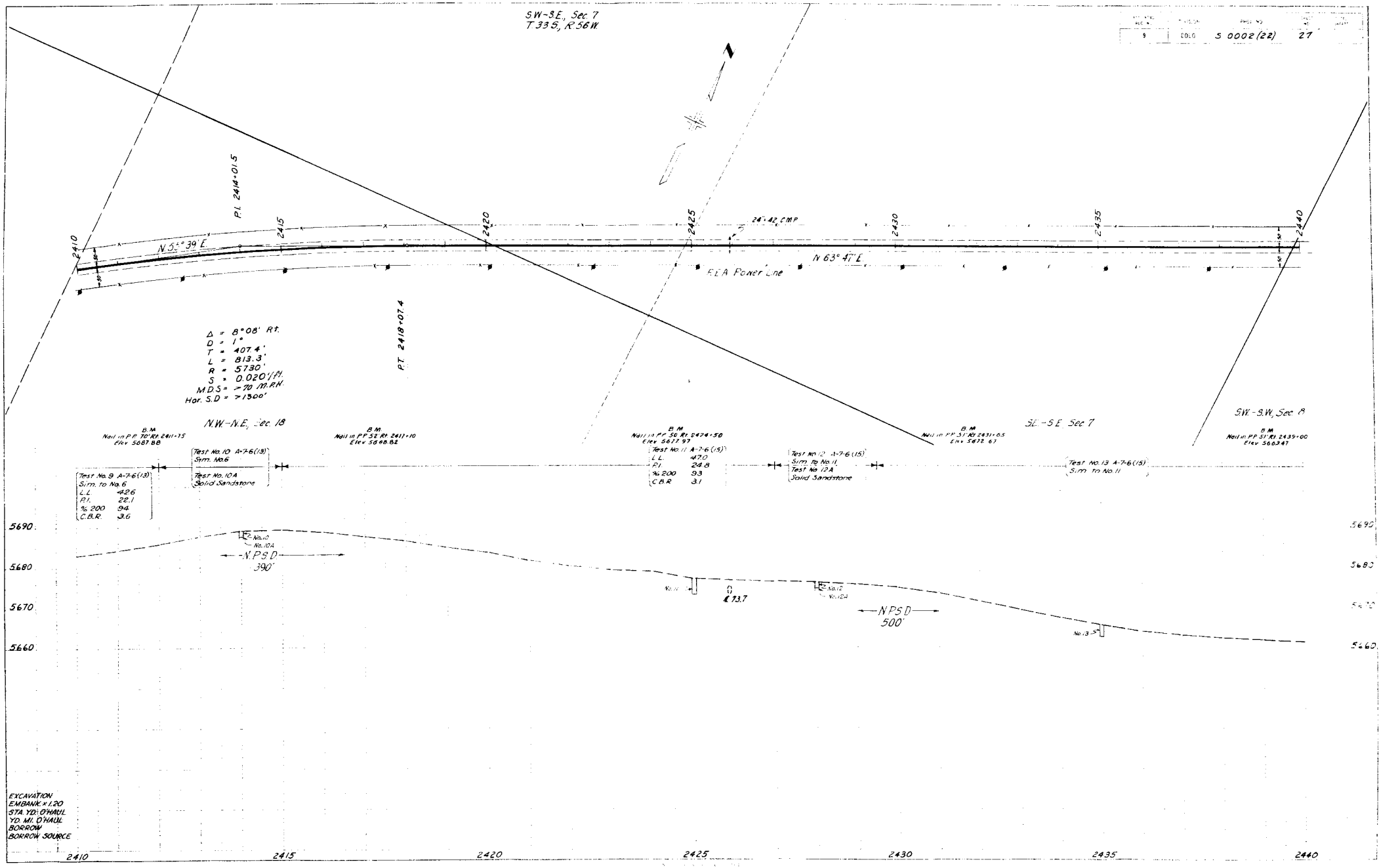
R 86.4

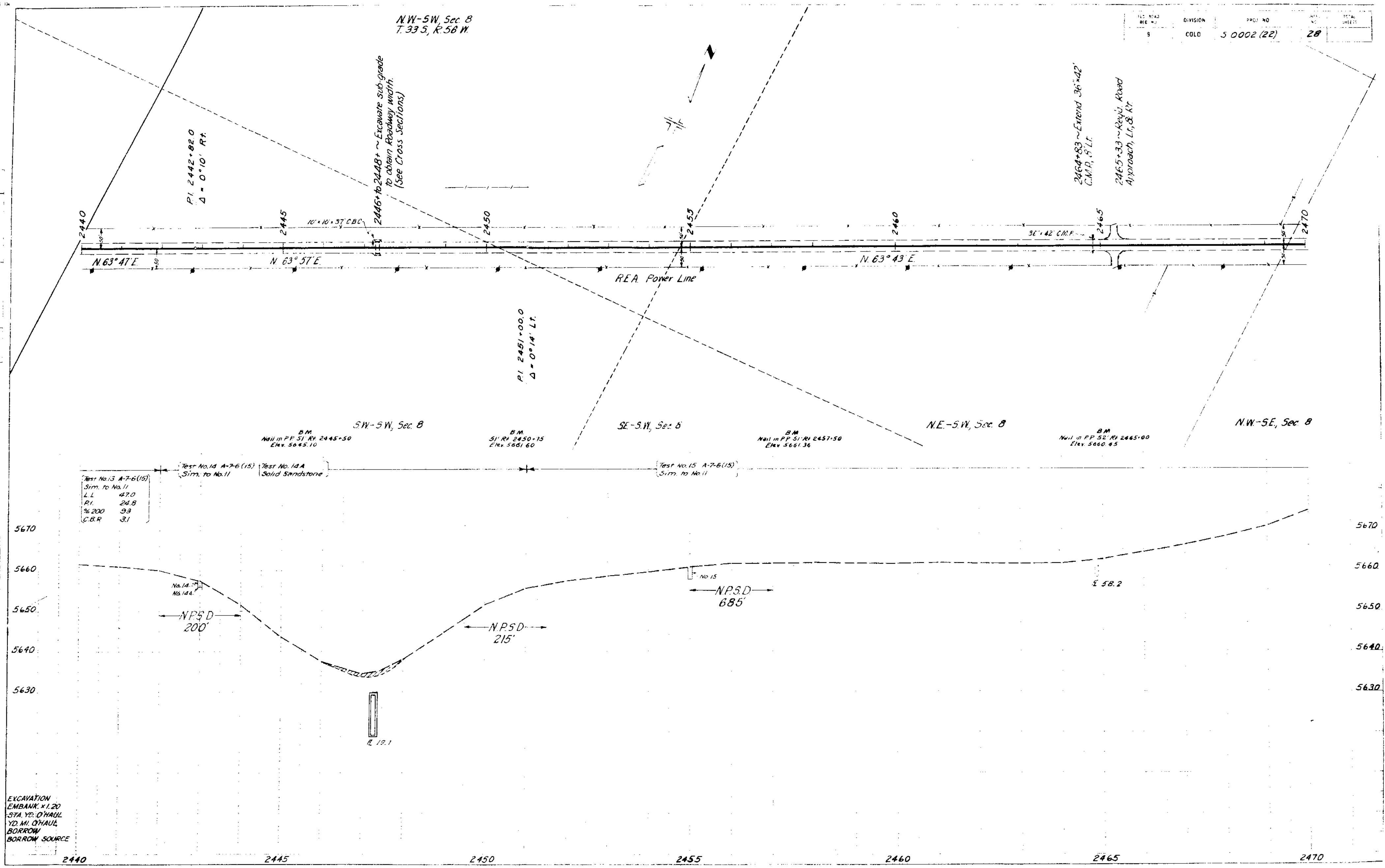
N.P.S.D. 470'

R 78.6

EXCAVATION
EMBANK. x 1.20
STA. YD. O'HAUL
YD. MI. O'HAUL
BORROW
BORROW SOURCE

2380 | 2385 | 2390 | 2395 | 2400 | 2405 | 2410


SW-SE, Sec 7
T 33 S, R 56 W
PROJ. NO. S 0002(22)
P.I. 2414+01.5
N 53° 39' E
24" 42 CMP
N 63° 47' E
P.E.A. Power Line
P.T. 2418+07.4
Δ = 8°08' Rt.
D = 1°
T = 407.4'
L = 813.3'
R = 5730'
S = 0.020'/Ft.
M.D.S = >70 M.P.H.
Hor. S.D = >1300'
NW-NE, Sec 18
SE-SE Sec 7
SW-SW, Sec 18
B.M. Nail in P.P. 70' Rt. 2411+15 Elev. 5687.88
B.M. Nail in P.P. 52' Rt. 2411+10 Elev. 5668.82
B.M. Nail in P.P. 50' Rt. 2424+50 Elev. 5677.97
B.M. Nail in P.P. 51' Rt. 2431+65 Elev. 5672.67
B.M. Nail in P.P. 51' Rt. 2439+00 Elev. 5663.47
Test No. 9 A-7-6(13) Sim. to No. 6 L.L. 42.6 P.I. 22.1 % 200 94 C.B.R. 3.6
Test No. 10 A-7-6(13) Sim. No. 6
Test No. 10A Solid Sandstone
Test No. 11 A-7-6(15) L.L. 47.0 P.I. 24.8 % 200 93 C.B.R. 3.1
Test No. 12 A-7-6(15) Sim. to No. 11
Test No. 12A Solid Sandstone
Test No. 13 A-7-6(15) Sim. to No. 11
N.P.S.D. 390'
N.P.S.D. 500'
℄ 73.7
5690
5680
5670
5660
2410
2415
2420
2425
2430
2435
2440
EXCAVATION
EMBANK. x 1.20
STA. YD. O'HAUL
YD. MI. O'HAUL
BORROW
BORROW SOURCE



DIVISION
COLO
PROJ. NO
S 0002 (22)
28
N.W.-SW, Sec. 8
T. 33 S, R. 56 W.
P.I. 2442+82.0
Δ = 0°10' Rt.
2446+ to 2448+ ~ Excavate sub-grade to obtain Roadway width. (See Cross Sections)
2464+83 ~ Extend 36"x42' C.M.P., 8' Lt.
2465+33 ~ Req'd. Road Approach, Lt. & Rt.
2440
2445
2450
2455
2460
2465
2470
10'x10'x 37' CBC
36"x 42' CMP
N. 63° 47' E.
N. 63° 57' E.
N. 63° 43' E.
R.E.A. Power Line
P.I. 2451+00.0
Δ = 0°14' Lt.
PLAN
PROFILE
SW-SW, Sec. 8
SE-S.W., Sec. 8
N.E.-S.W., Sec. 8
N.W.-SE, Sec. 8
B.M.
Nail in P.P. 51' Rt. 2445+50
Elev. 5645.10
B.M.
51' Rt. 2450+15
Elev. 5661.60
B.M.
Nail in P.P. 51' Rt. 2457+50
Elev. 5661.36
B.M.
Nail in P.P. 52' Rt. 2465+00
Elev. 5660.45
Test No. 13 A-7-6(15)
Sim. to No. 11
L.L. 47.0
P.I. 24.8
% 200 93
C.B.R. 3.1
Test No. 14 A-7-6(15)
Sim. to No. 11
Test No. 14A
Solid Sandstone
Test No. 15 A-7-6(15)
Sim. to No. 11
5670
5660
5650
5640
5630
No. 14
No. 14A
N.P.S.D.
200'
N.P.S.D.
215'
No. 15
N.P.S.D.
685'
℄ 58.2
℄ 19.1
EXCAVATION
EMBANK. x 1.20
STA. YD. O'HAUL
YD. MI. O'HAUL
BORROW
BORROW SOURCE

COLORADO DEPARTMENT OF HIGHWAYS
Form C. D. H. 134
Feb. 1956

REG. ROAD SEC. NO.	DIVISION	PROJ. NO.	SHEET
5	COLO	S 0002(22)	29

SW-NE, Sec. 8
T. 33 S., R. 58 W.

2478+50 ~ Regd. Road Approach, Lt.

P.I. 2478+96.9
Δ = 0°05' Rt.

2490+90 ~ Regd. Road Approach, Lt.

2470 2475 10'x7' Cattle Guard 2480 2485 2490 2495 2500

24"x 50' CMP

24"x 44' CM P

N. 63°43' E. N. 63° 48' E.

R.E.A. Power Line

2483+ to 2487+ ~ Excavate sub-grade to obtain Roadway width. (See cross sections).

NW-SE, Sec 8 SE-NE, Sec 8 SW-NW, Sec 9

B.M. Nail in P.P. 51' Rt. 2471-75 Elev. 5678.84

B.M. Nail in P.P. 52' Rt. 2485+00 Elev. 5689.09

B.M. P.P. in 52' Rt. 2489+35 Elev. 5670.56

B.M. Nail in P.P. 51' Rt. 2497-75 Elev. 5669.12

Test No. 15 A-7-6 (15)
Sim to No. 11
L.L. 47.0
P.I. 24.8
% 200 93
C.B.R. 3.1

Test No. 16 A-2-6(0)
L.L. 35.2
P.I. 11.8
% 200 16
R 56

Test No. 17 A-2-6(0)
Sim to No. 16

5710 5700 5690 5680 5670 5660

No. 16 N.P.S.D. 276' N.P.S.D. 280'

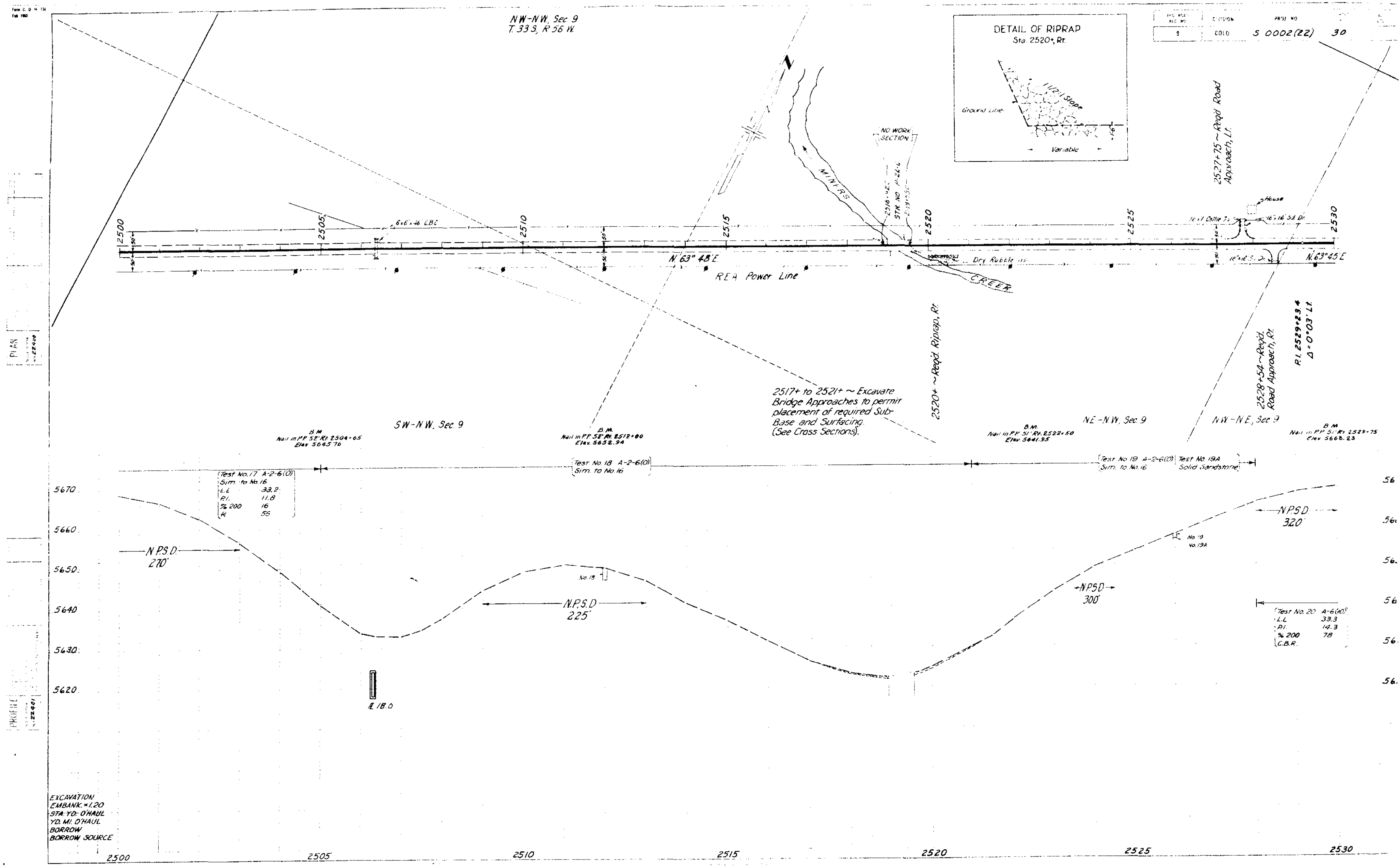
℄ 83.0

℄ 62.0

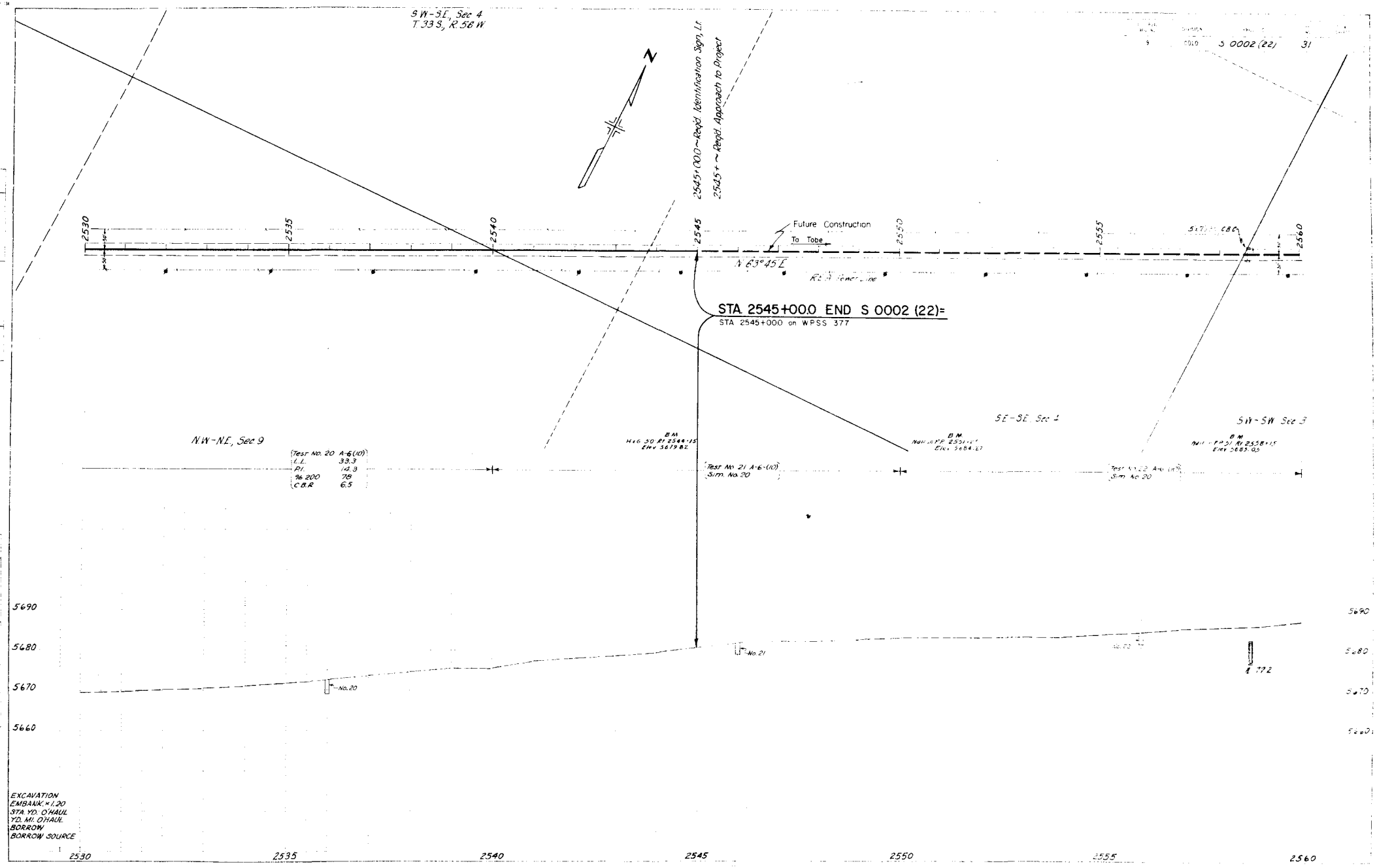
No. 17

EXCAVATION
EMBANK. x 1.20
-FTA. YD. O'HAUL
YD. MI. O'HAUL
BORROW
BORROW SOURCE

2470 2475 2480 2485 2490 2495 2500



9
COLO
S 0002(22)
30
DETAIL OF RIPRAP
Sta 2520+, Rt.
Ground Line
1 1/2:1 Slope
Variable
NW-NW, Sec 9
T. 33 S, R 56 W.
SW-NW, Sec 9
NE-NW, Sec 9
NW-NE, Sec 9
NO WORK SECTION
MINERS
CREEK
6x6x46 CBC
N. 63° 48' E
N. 63° 45' E
REA Power Line
Dry Rubble
House
2527+75 ~ Reqd. Road Approach, Lt.
2528+54 ~ Reqd. Road Approach, Rt.
2520+ ~ Reqd. Riprap, Rt.
P.I. 2529+23.4
Δ = 0°03' Lt.
2517+ to 2521+ ~ Excavate Bridge Approaches to permit placement of required Sub-Base and Surfacing. (See Cross Sections).
B.M. Nail in P.P. 52' Rt. 2504+65 Elev. 5645.76
B.M. Nail in P.P. 58' Rt. 2512+00 Elev. 5652.94
B.M. Nail in P.P. 51' Rt. 2522+50 Elev. 5641.95
B.M. Nail in P.P. 51' Rt. 2529+75 Elev. 5666.23
Test No. 17 A-2-6(0) Sim. to No. 16 L.L. 33.2 P.I. 11.8 % 200 16 R 56
Test No. 18 A-2-6(0) Sim. to No. 16
Test No. 19 A-2-6(0) Sim. to No. 16
Test No. 19A Solid Sandstone
Test No. 20 A-6(10) L.L. 33.3 P.I. 14.3 % 200 78 C.B.R.
N.P.S.D. 270'
N.P.S.D. 225'
N.P.S.D. 300'
N.P.S.D. 320'
℄ 18.0
5670
5660
5650
5640
5630
5620
PLAN
PROFILE
EXCAVATION
EMBANK. × 1.20
STA. YD. O'HAUL
YD. MI. O'HAUL
BORROW
BORROW SOURCE
2500
2505
2510
2515
2520
2525
2530


SW-SE, Sec 4
T 33 S, R 56 W
2545+00.0 ~ Reqd. Identification Sign, Lt
2545+ ~ Reqd. Approach to Project
S 0002 (22) 31
2530
2535
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Future Construction
To Tobe
N 63°45 E
STA 2545+00.0 END S 0002 (22)=
STA 2545+000 on WPSS 377
NW-NE, Sec 9
SE-SE Sec 4
SW-SW Sec 3
Test No. 20 A-6(10)
L.L. 33.3
P.I. 14.3
% 200 78
C.B.R 6.5
Test No. 21 A-6-(10)
Sim. No. 20
No. 20
No. 21
5690
5680
5670
5660
EXCAVATION
EMBANK. × 1.20
STA. YD. O'HAUL
YD. MI. O'HAUL
BORROW
BORROW SOURCE
PLAN
PROFILE