

STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS—STATE OF COLORADO

P.E. ROW and Utilities
under FR 034-2(11)
87047

FEDERAL ROAD DISTRICT NO.	DIVISION	PROJECT NO.	SHEET NO.
XXX	COLORADO	CXFR 03-0034-13	1

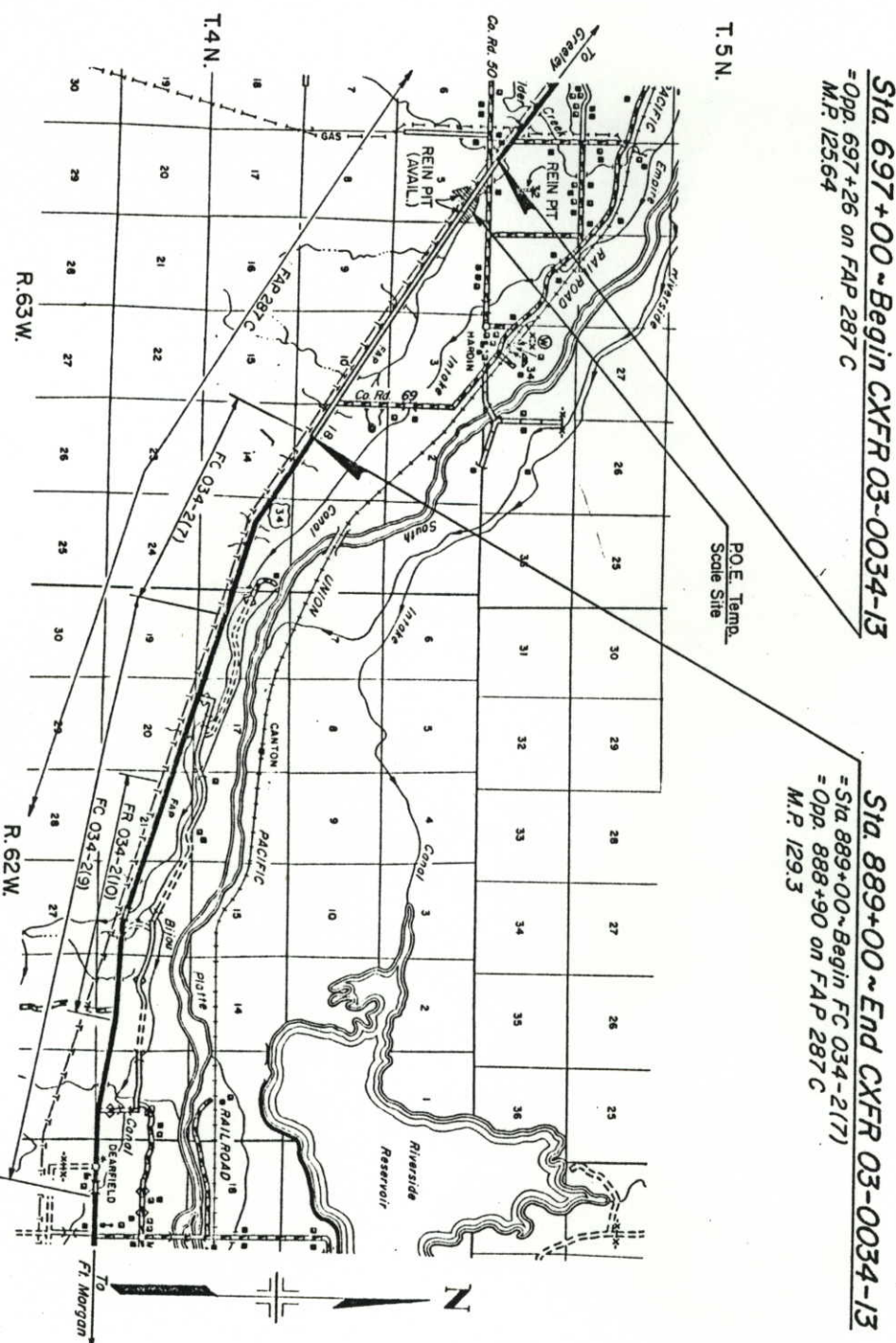
AS CONSTRUCTED	
NO REVISIONS	REVISED VOO

REVISIONS	

PLAN AND PROFILE OF PROPOSED ~~As Constructed~~
FEDERAL AID PROJECT NO. CXFR 03-0034-13
STATE HIGHWAY NO. 34
WELD COUNTY

LENGTH & DESIGN DATA

STATION	ROADWAY	
	LIN. FT.	
Sta. 697+00 Begin CXFR 03-0034-13 = Opp. 697+26 on FAP 287C M.P. 125.64	890.09	
EQ. 705+90.09 Bk. = 705+90.61 A.H.	609.39	
EQ. 712+00.00 Bk. = 712+02.32 A.H.	17,697.68	
Sta. 889+00 End CXFR 03-0034-13 = Opp. 889+00 Begin FC 034-2(17) = Opp. 888+90 on FAP 287C M.P. 129.3		
TOTAL	19,197.16	
SUMMARY	LIN. FT.	MILES
	19,197.16	3.636
PROJECT NET & GROSS LENGTH		
	19,197.16	3.636
DESIGN DATA		
MAXIMUM DEGREE OF CURVE	1° 30'	
MAXIMUM GRADE	4.75%	
MINIMUM S.S.D. HORIZONTAL	1900'	
MINIMUM S.S.D. VERTICAL	1450'	
MAXIMUM DESIGN SPEED	= 55 M.P.H.	
2008 DESIGN TRAFFIC	ADT 3700 DHY 480 % TRUCKS 15	



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

AS CONSTRUCTED PLANS
RETURN TO DIST. 4 DESIGN

SHEET NO.	INDEX OF SHEETS
1	TITLE SHEET
2	STANDARD PLANS LIST
3	TYPICAL SECTIONS AND NOTES
4	GENERAL NOTES, DETAILS OF DETOUR, DETAILS OF NOT BITUMINOUS PAVEMENT (PATCHING), TABULATION OF GUARD RAIL
5-6	SUMMARY OF APPROXIMATE QUANTITIES
7	STRUCTURE QUANTITIES
8	STANDARD M-601-1, SINGLE CONCRETE BOX CULVERT (SPECIAL FOR THIS PROJECT)
9	SUBPAVING PLAN, STABILIZATION CRITERIA, REMOVAL OF CONCRETE PAVEMENT AND ASPHALT MAT, TABULATION OF DELINEATORS, TABULATION OF FENCE, DETAILS OF C&G EXTENSIONS, PLUS C&G DETAIL
10	SUMMARY OF EARTHWORK QUANTITIES, DETAILS OF GUARD RAIL REFLECTOR TAIL, CONSTRUCTION TRAFFIC CONTROL DEVICES, HUR CUT & FILL TRANSITION DETAILS
11	REIN. BORROW PIT - AVAILABLE SOURCE
12	DETAILS OF GEOTEXTILES (PAVING)
13	DETAILS OF DETOUR STA. 787+00 TO 815+00
14	DETAILS OF CO. RDS. 50 & 60
15-21	PLAN AND PROFILE SHEETS
22	DETAILS OF ADDITIONAL WIDENING FOR TEMPORARY P.O.E. SCALE SITE

NEW AND REVISED STANDARDS
M-620-2 FIELD LABORATORY - CLASS 2 (5-25-88) (1 SHEET)

DIVISION OF HIGHWAYS

APPROVED: James E. Schickel 11-14-89
DIST. CHIEF ENGINEER DATE

AS CONSTRUCTED INFORMATION

CONTRACTOR Western Noble Construction Co.
Resident ENGINEER Bob Patrick
(Project or Resident)
PROJECT STARTED 1-1-89
PROJECT COMPLETED 10-6-89
AS CONSTRUCTED PLANS Approved
DATE 2/13/90

0 1 2 3 4 5 6
SCALE IN MILES
0 1 2 3 4 5 6
SCALE IN KILOMETRES

Plan No.	Title	Page
M-100-1	STANDARD SYMBOLS.....	1
M-107-1	TEMPORARY EROSION CONTROL.....	2
M-203-1	APPROACH ROADS, FLARING, CUT SLOPE TREATMENT, BRIDGE & CREST WIDENING.....	3
M-203-2	DITCH TYPES.....	4
M-203-10	SUPERELEVATION OF CURVES - CROWNED HIGHWAYS.....	5
M-203-11	SUPERELEVATION OF CURVES - DIVIDED HIGHWAYS - SHOULDER PIVOT.....	6
M-203-12	SUPERELEVATION OF CURVES - STREETS.....	7
M-203-13	SUPERELEVATION OF CURVES - DIVIDED HIGHWAYS - CENTER PIVOT.....	8
M-206-1	EXCAVATION AND BACKFILL FOR STRUCTURES...(2 SHEETS)	9
M-206-2	EXCAVATION AND BACKFILL FOR BRIDGES.....	11
M-214-1	PLANTING DETAILS.....	12
M-412-1	CONCRETE PAVEMENT JOINTS.....	13
M-504-1	STEEL CRIBBING.....	14
M-506-1	GABIONS AND SLOPE MATTRESS.....	15
M-510-1	STRUCTURAL PLATE CULVERT PIPE - H-20 LOADING.....(2 SHEETS)	16
M-601-1	SINGLE CONCRETE BOX CULVERT.....	18
M-601-2	DOUBLE CONCRETE BOX CULVERT.....	19
M-601-3	TRIPLE CONCRETE BOX CULVERT.....	20
M-601-10	HEADWALL FOR PIPE CULVERTS.....	21
M-601-11	TYPE "S" SADDLE HEADWALL FOR PIPE CULVERTS.....	22
M-601-12	HEADWALL, INTERCEPTING HEADWALL AND CULVERT OUTLET PAVING.....	23
M-601-20	WINGWALLS FOR PIPE OR BOX CULVERTS.....	24
M-603-1	METAL CULVERT PIPE - H-20 LOADING.....(2 SHEETS)	25
M-603-2	REINFORCED CONCRETE PIPE.....	27
M-603-3	PRECAST CONCRETE BOX CULVERT.....	28
M-603-10	CONCRETE AND METAL END SECTIONS.....	29
M-604-1	PIPE SEWER IN TRENCH.....	30
M-604-10	INLET, TYPE C.....	31
M-604-11	INLET, TYPE D.....	32
M-604-12	CURB INLET, TYPE R.....(2 SHEETS)	33
M-604-13	CONCRETE INLET, TYPE 13.....	35
M-604-20	MANHOLES.....	36
M-604-21	STEPS FOR MANHOLES & INLETS.....	37
M-606-1	GUARD RAIL, TYPE 3, W-BEAM.....(8 SHEETS)	38
M-606-2	GUARD RAIL, TYPE 3, W-BEAM FOR LOCAL ROADS & STREETS.....(4 SHEETS)	46
M-606-10	GUARD RAIL, TYPE 4, CONCRETE BARRIER, CAST-IN-PLACE.....	50
M-606-11	GUARD RAIL, TYPE 4, CONCRETE BARRIER, PRECAST-PORTABLE.....	51

Plan No.	Title	Page
M-607-1	WIRE FENCES AND GATES.....(2 SHEETS)	52
M-607-2	CHAIN LINK FENCE.....(3 SHEETS)	54
M-607-3	BARRIER FENCE.....	57
M-607-4	DEER FENCE AND GATE.....(2 SHEETS)	58
M-607-10	PICKET SNOW FENCE.....	60
M-608-1	CURB RAMPS.....	61
M-609-1	CURBS AND GUTTERS.....	62
M-611-1	CATTLE GUARD - WELDED GRILL UNITS - 10' THRU 42' ROADWAYS.....(2 SHEETS)	63
M-613-1	HIGHWAY LIGHTING.....(2 SHEETS)	65
M-615-1	EMBANKMENT PROTECTOR, TYPES 3 & 4.....	67
M-615-2	EMBANKMENT PROTECTOR, TYPE 5.....	68
M-616-1	INVERTED SIPHON.....(ALSO USE M-603 OR M-604 AS REQUIRED)	69
M-620-1	FIELD LABORATORY - CLASS 1.....	70
M-620-2	FIELD LABORATORY - CLASS 2.....	71
M-620-11	FIELD OFFICE - CLASS 1.....	72
M-620-12	FIELD OFFICE - CLASS 2.....	73

Plan No.	Title	Page
S-612-1	TYPICAL DELINEATOR INSTALLATIONS.....(4 SHEETS)	75
S-614-1	TYPICAL GROUND SIGN PLACEMENT.....	79
S-614-2	CLASS I GROUND SIGN INSTALLATIONS.....	80
S-614-3	CLASS II GROUND SIGN INSTALLATIONS.....	81
S-614-4	CLASS III SIGNS, LAMINATED ALUMINUM PANELS AND POST SPACING TABLE.....(2 SHEETS)	82
S-614-5	BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS.....(2 SHEETS)	84
S-614-6	CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS.....(2 SHEETS)	86
S-614-10	TYPICAL MARKER ASSEMBLY INSTALLATIONS.....	88
S-614-11	MILEPOST SIGN AND INSTALLATION.....	89
S-614-12	STRUCTURE NUMBER INSTALLATION (BRIDGE INFORMATION SHEET).....	90
S-614-13	STANDARD RAILROAD CROSSING SIGNS AND MARKINGS.....	91
S-614-20	TYPICAL POLE MOUNT SIGN INSTALLATION.....	92
S-614-21	CONCRETE BARRIER SIGN POST INSTALLATIONS.....	93
S-614-22	TYPICAL MULTI-SIGN INSTALLATIONS.....	94
S-614-30	INTERSTATE ROUTE MARKERS.....	95
S-614-31	U. S. & COLORADO ROUTE MARKERS.....	96
S-614-32	AUXILIARY MARKERS.....	97
S-614-40	TRAFFIC SIGNAL INSTALLATION DETAILS...(3 SHEETS)	98
S-614-50	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION.....(4 SHEETS)	101
S-614-51	BARRICADES, DRUMS, CONCRETE BARRIER (TEMP) & VERTICAL PANELS.....	105
S-627-1	TYPICAL PAVEMENT MARKINGS.....(3 SHEETS)	106

THE STANDARD PLAN SHEETS INDICATED HEREON BY A MARKED BOX ARE TO BE USED TO CONSTRUCT THIS PROJECT.

DEPARTMENT OF HIGHWAYS
STATE OF COLORADO
DIVISION OF HIGHWAYS

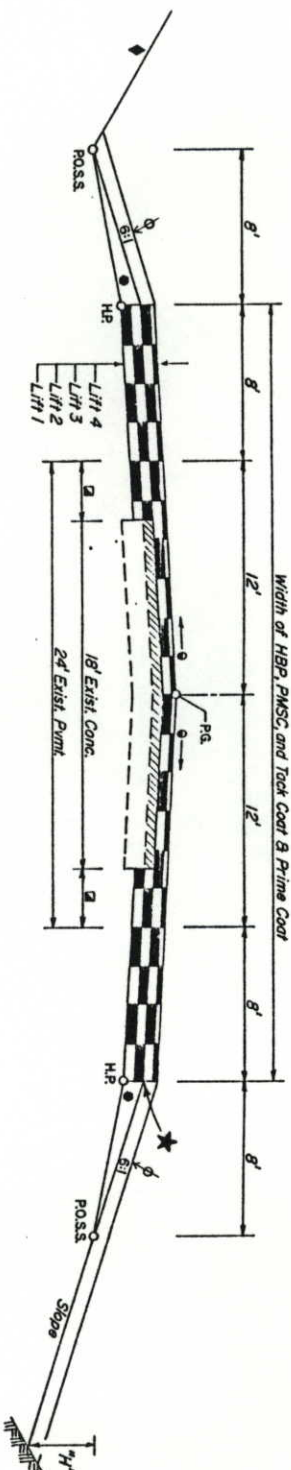
STANDARD PLANS LIST

M & S STANDARDS JANUARY, 1982

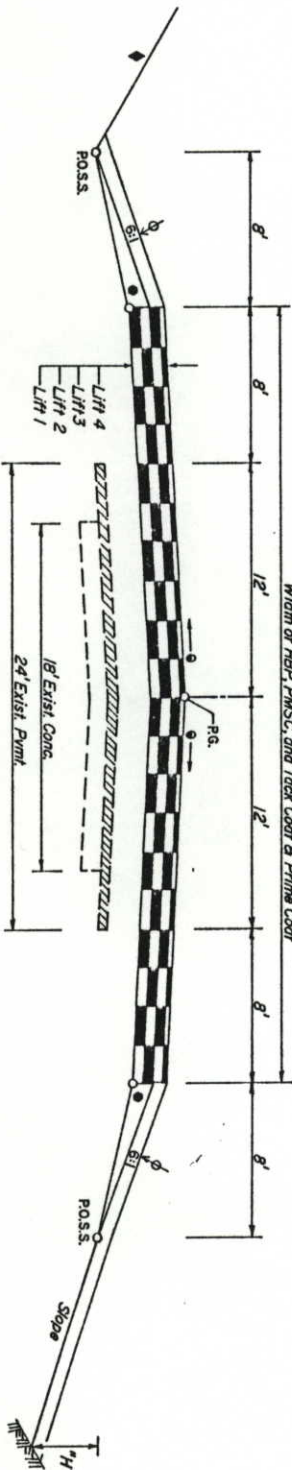
THE DEPTH AND WIDTH OF THE SIDE DITCH SHALL BE VARIED WHERE NECESSARY IN ORDER TO PROVIDE PROPER DRAINAGE. BREAK POINTS ON SLOPES AND IN BOTTOMS OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR A PLEASANT APPEARANCE. SEE STANDARDS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING, AND WIDENING.

SEE SURFACING PLAN FOR LIMITS OF EACH TYPICAL SECTION

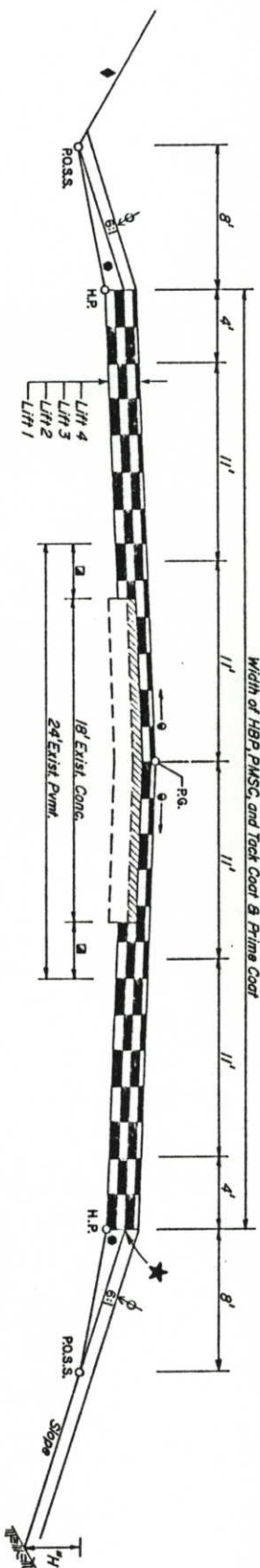
TYPICAL SECTION A



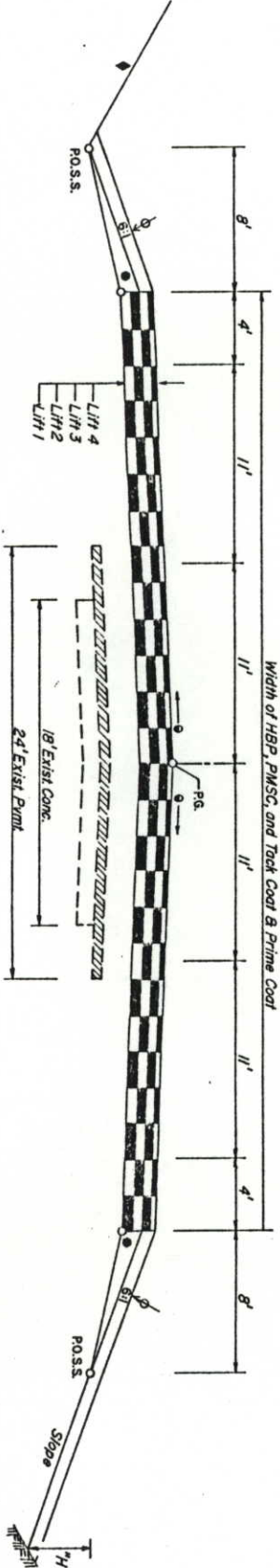
TYPICAL SECTION B



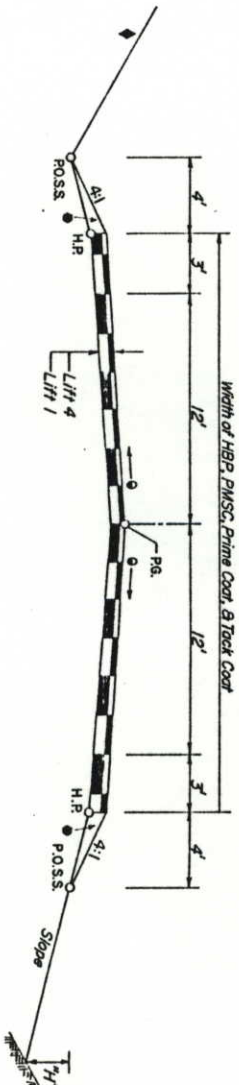
TYPICAL SECTION C



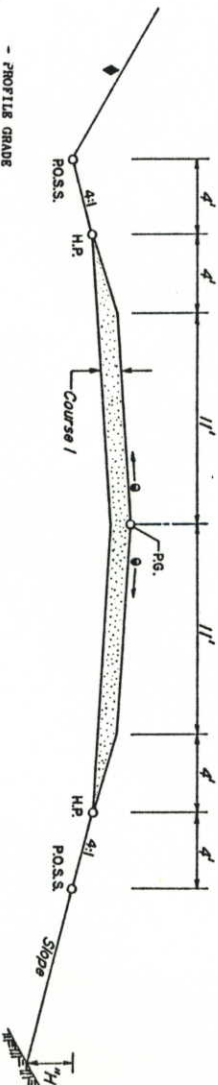
TYPICAL SECTION D



TYPICAL SECTION E County Roads 50 & 69



TYPICAL SECTION F ~ County Road 50



- P.G. - PROFILE GRADE
- H.P. - HINDER POINT
- P.O.S.S. - POINT OF SLOPE SELECTION
- SLOPE 0.02' / FT.
- CUT SLOPE NOT STEEPER THAN 3:1, EXCEPT IN SPECIAL CASES.
- THE CONTRACTOR WILL BE REQUIRED TO PLACE TOPSOIL TO THIS LINE AFTER COMPLETION OF THE PAVING OPERATION. MINIMUM THICKNESS OF TOPSOIL SHALL BE 4 INCHES.
- REMOVE EXISTING ASPHALT SHOULDERS PRIOR TO PLACING HBP FOR WIDENING.
- EMBANKMENT MATERIAL (COMPLETE IN PLACE)

FILL SLOPES:
SLOPE 4:1 WHERE "H" IS LESS THAN 10'
SLOPE 3:1 WHERE "H" IS 10' TO 15'
SLOPE 2:1 WHERE "H" IS OVER 15'
IN SPECIAL CASES, SLOPE MAY BE STEEPENED.

★ A 3/4" Leaveling Course (Approx. Thick 1" of HBP (Gr. C) (H & A) shall be placed between Layer 2 and Layer 3 for the full width of Typical Sections A and C as directed by the Engineer, at the following approximate rate per 100 lin. ft. of roadway:

Typical Section	Tons
A	18.3
Φ-C	23.8

MATERIAL SHALL BE PLACED IN SEPARATE COURSES AT THE FOLLOWING APPROXIMATE THICKNESSES AND RATES PER 100 LIN. FT. OF ROADWAY:

TYPICAL SECTION						
LAYER	THICKNESS	A	B	C	D	E
LIFT 4	3/4" P.M.S.C.	18.3	18.3	23.8	23.8	13.8
LIFT 3	1-1/2" HBP	36.7	36.7	47.7	47.7	
LIFT 2	1-1/4" HBP	16.8	30.6	20.8	31.8	
LIFT 1	1-3/4" HBP	23.5	42.8	36.4	55.6	36.7
COURSE 1	4" ABC					58

THE RATES SHOWN HAVE BEEN DETERMINED FROM INFORMATION AVAILABLE AT THE TIME OF DESIGN. RATES SHOULD BE ADJUSTED DURING CONSTRUCTION TO OBTAIN THE DESIRED APPROXIMATE THICKNESS.

FINAL
SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED		PROJ. NO.		SHEET NO.	
NO REVISIONS	REVISED <u>10-6-81</u>	CXFR 03-0034-13		5	
FED. ROAD REGION		DIVISION		C.O.D.	
VIII					

INDEX	BOOK PAGE SHEET F.T.D.	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY		P.O.E. SCALE SITE		PROJECT TOTALS		
					PLAN		PLAN		PLAN	AS CONST.	DIFF. +/- PLAN.
	305	201	CLEARING AND GRUBBING	L S	1				1	1	0
	7	202	REMOVAL OF STRUCTURE	EACH	2				2	2	0
	7	202	REMOVAL OF TREE	EACH	4				4	4	0
	7	202	REMOVAL OF HEADWALL	EACH	4				4	4	0
	9	202	REMOVAL OF DELINEATOR	EACH	40				40	52	+12
	9	202	REMOVAL OF CONCRETE PAVEMENT	SQ YD	14418				14418	14418	+986
	9	202	REMOVAL OF ASPHALT MAT	SQ YD	18136				18136	18270	+134
	10	202	REMOVAL OF PAVEMENT MARKING	SQ FT	2474				990	2474	+1484
	9	202	REMOVAL OF FENCE	LIN FT	3359				2395	3359	+964
	7	202	PLUG CULVERT	EACH	8				8	8	0
	305	203	EMBANKMENT MATERIAL (COMPLETE IN PLACE)	CU YD	124289				125980	126146	+166
	7	203	BLADING CMO5	HOOR	200			1691	200	181	-19
	305	207	TOPSOIL (HAUL) CMO4	CU YD	15514				15514	19450	+3936
	4	209	DUST PALLIATIVE (MAGNESIUM CHLORIDE)	GAL	9734				9734	10635	+901
	7	210	RESET GROUND SIGN	EACH	1				1	1	0
	9	210	RESET FENCE	LIN FT	36971				36971	36930	-41
	4	212	SEEDING (NATIVE) CMO4	ACRE	30				30	52	+22
	4	213	MULCHING CMO4	ACRE	30				30	52	+22
	9	304	AGGREGATE BASE COURSE (CLASS 6) (HAUL) CMO5	TON	5227				5227	5823.32	+596.32
	4,7	403	HOT BITUMINOUS PAVEMENT (PATCHING) (HAUL AND ASPHALT)	TON	30				30	31.27	+1.27
	9,22	403	HOT BITUMINOUS PAVEMENT (GRADING C) (HAUL AND ASPHALT)	TON	24827				25445	26625.60	+1198.60
	9,22	410	PLANT MIXED SEAL COAT (TYPE B) (HAUL AND ASPHALT)	TON	4084				4182	4233.59	+51.59
	4,22	411	EMULSIFIED ASPHALT (SLOW-SETTING)	GAL	28387				28960	11054	-17836
	12	420	GEOTEXTILE (PAVING)	SQ YD	2560				2560	2964	+404
	7	601	CONCRETE CLASS A (BOX CULVERT) MCR, CMO2	CU YD	310				310	262.36	-47.64
	7	602	REINFORCING STEEL MCR, CMO2	LB	28734				28734	24339	-4395
	4	606	GUARD RAIL TYPE 3 (12-6 POST SPACING)	LIN FT	450				450	450	0
	4	606	END ANCHORAGE TYPE 3E	EACH	4				4	4	0
	9	607	END POST	EACH	2				2	49	+47
	9	607	CORNER AND LINE BRACE POST	EACH	79				79	69	-10
	9	607	FENCE BARBED WIRE WITH METAL POSTS	LIN FT	41811				41811	40231	-1580
	9	612	DELINEATOR (TYPE I)	EACH	66				66	111	+45
	305	612	DELINEATOR (TYPE II)	EACH	52				52	27	-25

SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED

NO REVISIONS

REVISED 10-6-87

VOID

FED. ROAD REGION
VIII

DIVISION
COLO.

PROJ. NO.
CXFR 03-0034-13

SHEET NO.
6

INDEX		CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY		P.O.E. SCALE SITE		PROJECT TOTALS		DIFF. +/- PLAN.	
BOOK PAGE	SHEET				PLAN		PLAN		PLAN	AS CONST.		
305	4	612	DELINEATOR (TYPE III)	EACH	22	18			22	18	-4	82
7		614	FLAGGING CMO5	HOUR	4000	3449			4000	3474	-526	87
7		614	TRAFFIC CONTROL SUPERVISOR	DAY	100	114			100	119	+19	119
305	10	614	BARRICADE (TYPE 3 M-A)	EACH	2	2			2	2	0	100
	10	614	BARRICADE (TYPE 3 M-B)	EACH	3	6			3	6	+3	200
	10	614	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A) CMO5	EACH	30	36			30	36	+6	120
	10	614	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B) CMO5	EACH	33	73			33	73	+40	221
	4	614	VERTICAL PANEL (WITH LIGHT) (STEADYBURN)	EACH	100	236			100	236	+136	236
	4	614	DRUM CHANNELIZING DEVICE (WITH LIGHT) (FLASHING)	EACH	25	-			25	-	-25	0
	4	614	DRUM CHANNELIZING DEVICE (WITH LIGHT) (STEADYBURN)	EACH	80	9			80	9	-71	11
	4	614	TRAFFIC CONE	EACH	100	100			100	100	0	100
	10	614	RAISED PAVEMENT MARKER (TEMPORARY) CMO5	EACH	500	784			500	784	+284	157
		620	FIELD OFFICE (CLASS 1)	EACH	1	1			1	1	0	100
		620	FIELD LABORATORY (CLASS 2)	EACH	1	1			1	1	0	100
		620	SANITARY FACILITY	EACH	1	1			1	1	0	100
	7	624	18 INCH CULVERT PIPE (CR 3) CMO 2	LIN FT	123	285			123	285	+162	232
	7	624	24 INCH CULVERT PIPE (CR 3)	LIN FT	336	449			336	449	+173	134
	7	624	36 INCH CULVERT PIPE (CR 3) CMO 1	LIN FT	138	149			138	149	+11	165
	7	624	72 INCH CULVERT PIPE CMO4	L S	1	1			0	1	+1	100
	625		CONSTRUCTION SURVEYING	L S	1	1			1	0	0	100
	626		MOBILIZATION	L S	1	1			1	1	0	100
305	10	627	TELEPHONE ANSWERING MACHINE CMO 7 4 INCH PAVEMENT MARKING TAPE REPAIR OF DETOUR	EA LIN FT L.S.	0 14000 0	1 22121 1			0 14000 0	1 22121 1	+8121	156
			FORCE ACCOUNT =====									
		F/A01	MINOR CONTRACT REVISIONS	F.A.	1	1			1	1	0	100
		F/A02	FINAL SIGNING AND STRIPING (STATE FORCES)	F.A.	1	1			1	1	0	100
		F/A03	DBE INCENTIVE PAYMENT	F.A.	1	1			1	1	0	100
		F/A	UTILITY CROSSING INSTALLATION CMO 2	F.A.	0	1			0	1		
		F/A	REMOVE TEMPORARY STRIPING TAPE CMO 8	F.A.	0	1			0	1		
		F/A	REPAIR SIDE SLOPES	F.A.	0	1			0	1		

SPECIAL FOR THIS PROJECT

STANDARD M-601-1

(JANUARY, 1982)

f - BARS (Cont.)

SPAN	HEADWALL SKEW ANGLE
S	90° to 75°
5' or 6'	#4
7' or 8'	#4
9' or 10'	#5
11' or 12'	#6
13' or 14'	#7
	#8
	#9

HEADWALL & TOEWALL QUANTITIES

#	f-BAR APPROX. QUANTS. FOR ONE HEADWALL & TOEWALL SIZE LBS. PER LINEAR FT.
4	13
5	15
6	18
7	21
8	25
9	29

Concrete = 0.085 cu yds./lin. ft.
 Six f - bars required for each headwall.

▲ Deduct 0.049 cu yd. Concrete and 3.4 lb. Reinf Steel from these quantities when Concrete Apron is specified.

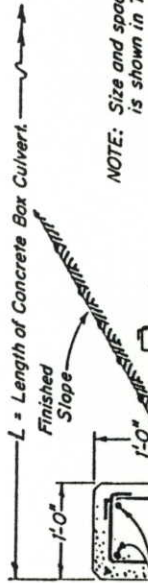
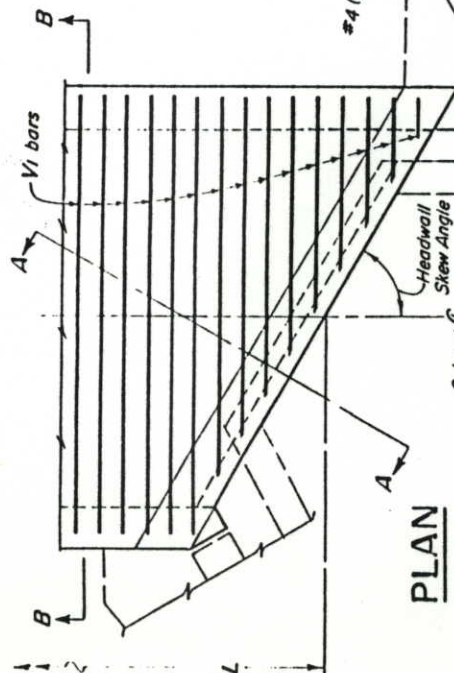
Includes all Headwall and Toewall reinforcing.

* SPECIAL FOR THIS PROJECT ONLY

DIMENSIONS & QUANTITIES

HEIGHT OF FILL ALLOWED ft.	TYPE	SPAN S	HEIGHT H	SLAB T	WALL W	BAR SIZE & SPACING			QUANTITIES for One lin. ft. of Box	
						V ₁	Size	Spa.	U ₁	CONCRETE cu. yds.
16	5A	5'	7'	8"	8"	#6	8"	#6	24	0.678
20	5B	5'	3'	8 1/2"	8"	#6	8"	#4	16	0.500
14	6A	6'	4'	8 1/2"	8"	#6	8"	#4	20	0.598
20	6B	6'	5'	10"	8"	#7	8"	#5	22	0.605
12	7A	7'	4'	9"	9"	#6	7"	#4	22	0.776
15	7B	7'	5'	10"	9"	#7	8"	#5	24	0.827
20	7C	7'	6'	11"	9"	#7	7"	#5	24	0.881
10	8A	8'	4'	9 1/2"	10"	#6	7"	#4	24	0.844
16	8B	8'	5'	11 1/2"	10"	#7	7"	#5	26	1.025
20	8C	8'	6'	12 1/2"	10"	#7	6"	#5	28	1.066
7	9A	9'	5'	10"	11"	#7	8"	#5	30	1.208
14	9B	9'	6'	12"	11"	#7	6"	#5	32	1.270
20	9C	9'	7'	14"	11"	#8	7"	#6	36	1.445
5	10A	10'	6'	10 1/2"	12"	#7	8"	#4	32	1.260

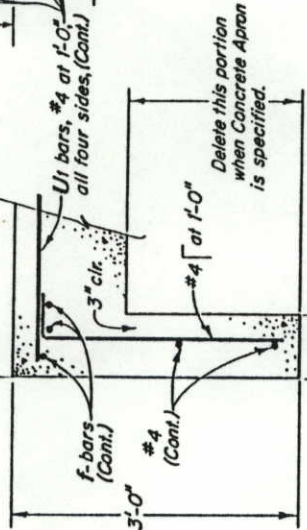
HEIGHT OF FILL ALLOWED ft.	TYPE	SPAN S	HEIGHT H	SLAB T	WALL W	BAR SIZE & SPACING				No. Bars Req'd	QUANTITIES for One lin. ft. of Box	
						V _i		W _i			CONCRETE cu. yds.	STEEL lbs.
						Size	Spd.	Size	Spd.			
10	10B	10'	6'	12"	12"	#7	7"	#5	7"	32	1.369	130.4
			7'							34	1.443	135.4
			8'							36	1.517	140.4
			9'							38	1.591	145.3
16	10C	10'	10'	12"	12"	#8	8"	#6	8"	40	1.665	150.3
			6'							32	1.518	150.7
			7'							34	1.593	155.6
			8'							36	1.668	162.5
5	11A	11'	9'	11"	12"	#7	7"	#4	7"	38	1.741	168.4
			10'							40	1.815	174.3
			6'							34	1.367	128.6
			7'							36	1.441	132.2
9	11B	11'	8'	12 1/2"	12"	#8	8"	#5	8"	38	1.515	135.9
			9'							40	1.589	139.6
			10'							42	1.664	143.1
			6'							34	1.490	148.3
13	11C	11'	7'	14"	12"	#7	6"	#5	6"	36	1.564	152.8
			8'							38	1.638	157.3
			9'							40	1.712	161.8
			10'							42	1.783	166.4
5	12A	12'	6'	12"	12"	#7	7"	#4	7"	34	1.608	159.5
			7'							36	1.682	165.1
			8'							38	1.756	170.7
			9'							40	1.830	176.2
10	12B	12'	10'	12"	12"	#7	7"	#4	7"	42	1.904	181.8
			6'							36	1.525	137.4
			7'							38	1.599	141.0
			8'							40	1.673	144.7
4	13A	13'	9'	12 1/2"	12"	#8	7"	#4	7"	42	1.747	148.4
			10'							44	1.821	152.0
			6'							36	1.697	177.7
			7'							38	1.772	182.7
8	13B	13'	8'	14"	12"	#8	7"	#5	7"	40	1.846	187.7
			9'							42	1.920	192.6
			10'							44	1.994	197.6
			6'							38	1.645	146.0
4	14A	14'	7'	13 1/2"	12"	#8	8"	#5	8"	40	1.720	149.7
			8'							42	1.794	153.3
			9'							44	1.868	157.0
			10'							46	1.942	160.7
8	14B	14'	6'	15"	12"	#8	7"	#5	7"	38	1.787	188.4
			7'							40	1.861	193.3
			8'							42	1.935	198.3
			9'							44	2.009	203.3
4	14B	14'	10'	15"	12"	#8	8"	#5	8"	46	2.083	208.2
			6'							40	1.827	177.2
			7'							42	1.901	181.7
			8'							44	1.975	186.2
8	14B	14'	9'	15"	12"	#8	7"	#5	7"	46	2.049	190.7
			10'							48	2.123	195.2
			6'							40	1.875	199.5
			7'							42	1.949	204.5
8	14B	14'	8'	15"	12"	#8	7"	#5	7"	44	2.123	209.4
			9'							46	2.198	214.4
			10'							48	2.270	219.4
			6'							48	2.270	219.4



NOTE: Size and spacing for V₁ & W₁ bars is shown in Table.

PLAN

SECTION B-B



SECTION A-A

GENERAL NOTES

All work shall be done in accordance with the Standard Specifications applicable to the project.
 All concrete shall be Class "B" (Box Culvert).
 All construction joints shall be thoroughly cleaned before fresh concrete is poured.
 Construction joints shall be spaced at 35 foot max. centers and shall extend through the entire cross section of the Box Culvert.
 Splice quantities for longitudinal bars are not included.

DESIGN DATA: Current AASHTO Specifications,
 Unit Stresses: $f_c = 24,000$ psi
 $f_t = 1,200$ psi
 $n = 10$

DESIGN CRITERIA:
 Culvert in trench on unyielding subgrade, or culvert unreinforced on yielding foundation. For culverts on piles or rock foundations, special design will be required.

LOADING DATA:
 Live Load = AASHTO, HS 20-44
 Dead Load = Earth Load = 84 lbs./cu. ft.
 Equivalent Fluid Pressure = 30 lbs./cu. ft.
 The minimum splice length for common bar sizes shall be:
 BAR SIZE #4 #5 #6 #7 #8 #9
 SPLICE LENGTH 1'-0" 1'-2" 1'-8" 2'-3" 3'-0" 3'-10"
 All exposed corners on concrete shall be chamfered 3/4".

DEPARTMENT OF HIGHWAYS
 STATE OF COLORADO
 DIVISION OF HIGHWAYS

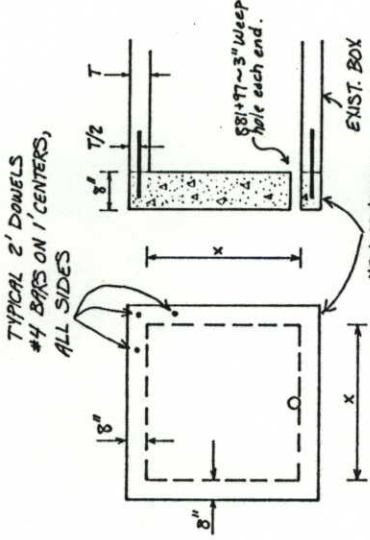
SINGLE
 CONCRETE BOX CULVERT

Designed by J E S
 Made by J R B
 Checked by J R E
 Approved by J E S
 Bridge Engineer
 Date: Sept. 9, 1974

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
III	COLORADO	CXFR 03-0034-13	8	22

NO REVISIONS 10-6-81
 AS CONSTRUCTED
 REVISED
 VOID

Plug CBC Detail



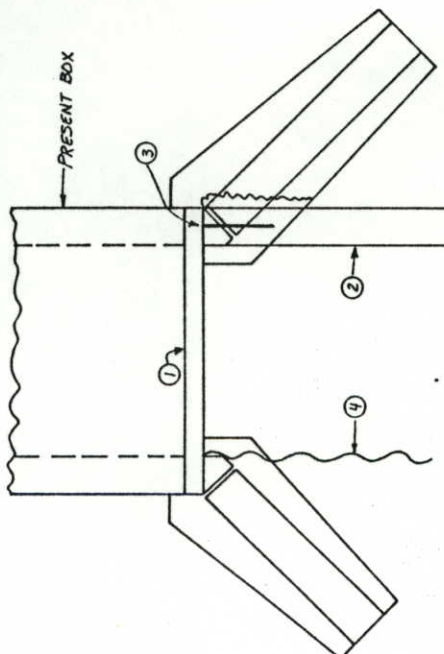
X=1.5' 714+79
748+99
764+87
815+98
X=2' 782+81
806+92
X=3' 854+09
X=10' 881+97
(Also requires an estimated 40 #5 bars, 1' on center, 10' long, to be placed as ordered by the Engineer. This shall be included in the cost of the pay item for a Plug Culvert.)
5' x 7' 756+37 (C40 #2)

FINAL Tabulation of Fence

LOCATION	SIDE	REMOVE FENCE	RESET FENCE	RESET METAL POSTS	RESET BARBED WIRE	RESET GATE	LINE BRACE	CORNER POST	END POST
700+ TO 704+09.35	LT	2500	1300	500	500			1	2
704+09.35 TO 709+65	LT	36	551	2378	691			3	2
709+65 TO 733+80	LT	33	2420	2560				3	2
733+80 TO 750+90	LT	60	1710	1710				3	2
750+90 TO 770+05	LT	35	1915	1915				3	2
770+05 TO 774+00	LT	34	355	535				3	2
774+00 TO 795+00	LT	31	2100	2240				3	2
795+00 TO 855+00	LT	34	5910	6310				3	2
855+00 TO 876+00	LT	440	1350	2450				3	2
876+00 TO 889+00	LT	1300	1300	1440				3	2
889+00 TO 899+00	RT	455		350				3	2
899+00 TO 909+00	RT	1464	3200	3450				3	2
909+00 TO 924+80	RT	162	3610	3765				3	2
924+80 TO 970+90	RT	34	2475	2790				3	2
970+90 TO 985+65	RT	72	6966	6735				3	2
985+65 TO 989+00	RT	415	3400	3200				3	2
989+00 TO 999+00	RT	59	4181	4254				3	2
TOTALS		2557	36011	41811	4254			3	2

* FOR INFORMATION ONLY.
** INCLUDES 2557 LIN. FT. AS ADDITIONAL TO FENCE ELEMENTS AT CULVERTS.
ANY NEW BARBED WIRE GATES REQUIRED FOR THIS PROJECT WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PAY ITEM FOR "FENCE BARBED WIRE WITH METAL POSTS".
WORK REQUIRED FOR RESETTING BARBED WIRE GATES AT NEW LOCATIONS WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF THE PAY ITEM FOR "RESET FENCE".
EXISTING FENCE WILL BE RESET ALONG THE TEMPORARY CONSTRUCTION EASEMENT LINE. AFTER COMPLETION OF CONSTRUCTION, THE OLD R.O.W. FENCE WILL BE LEFT IN PLACE UNTIL MULCHING AND RESEEDING IS ACCOMPLISHED AND SHALL BE REMOVED BY THE DIVISION AT A LATER DATE. THE CONTRACTOR WILL ASSUME THE LIABILITY FOR LOST LIVESTOCK CONTAINED AT ALL TIMES AND ACCEPTS THE LIABILITY FOR LOST LIVESTOCK ON THE HIGHWAY DURING CONSTRUCTION.

Details of CBC Extensions



- THIS HEADWALL IS TO BE REMOVED AS CALLED FOR IN THE PLANS.
 - WHEN EXTENDING CBC, GROUT THE BARS INTO WINGWALLS AS DIRECTED.
 - 2 FOOT REINFORCING BARS TO BE PLACED AT PER LONGITUDINAL BAR SHOWN IN THE STANDARD. SIZE TO BE THE SAME AS LONGITUDINAL BARS. THE COST OF DRILLING HOLES AND PLACING THE BARS TO BE INCLUDED IN THE PAY ITEM FOR "REINFORCING STEEL".
 - WHEN EXTENDING CBC WITH CULVERT PIPE, A CONCRETE COLLAR SHALL BE PLACED TO JOIN CULVERT PIPE TO THE BOX. THE COST FOR THIS COLLAR SHALL BE INCLUDED IN THE PAY ITEM FOR "CULVERT PIPE".
- CLEANING OF CBC'S PRIOR TO EXTENDING OR PLUGGING WILL BE CONSIDERED AS SUBSIDIARY TO THE OPERATION AND WILL NOT BE PAID FOR SEPARATELY.

FINAL Removal of Concrete Pavement and Asphalt Mat

LOCATION	REMOVAL OF CONCRETE PAVEMENT	REMOVAL OF ASPHALT MAT	SO. YDS.	WIDTH (FT)	LENGTH (FT)	SO. YDS.	WIDTH (FT)	LENGTH (FT)	SO. YDS.
697+00 TO 717+00	1222	1222	1222	18	1997.16	2422	18	1997.16	1334
717+00 TO 729+00	1400	1400	1400	18	1200	2400	18	1200	800
729+00 TO 765+00	911	911	911	18	3600	1400	18	3600	2400
765+00 TO 783+00	590	590	590	18	900	5766	18	900	600
783+00 TO 797	2800	2800	2800	18	900	5766	18	900	600
797+00 TO 815+00	5	5	5	18	2800	5766	18	2800	600
815+00 TO 827+00	912	912	912	18	1200	1400	18	1200	800
827+00 TO 836+00	590	590	590	18	900	5766	18	900	600
836+00 TO 843+00	760	760	760	18	300	1400	18	300	600
843+00 TO 846+00	6	6	6	18	2800	5766	18	2800	600
846+00 TO 872+00	600	600	600	18	1100	1200	18	1100	800
872+00 TO 878+00	5	5	5	18	10	10	18	10	800
878+00 TO 889+00	3200	3200	3200	18	18	1000	18	18	2400
889+00 TO 909+00	18	18	18	18	1490	1567	18	1490	2400
TOTALS	14728	14728	14728	18	1490	1567	18	1490	2400

* REMOVAL OF ASPHALT MAT FOR SHOULDER ONLY.
REMOVAL OF MAT ON EXIST. CONCRETE PAVEMENT SHALL BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE PAY ITEM FOR "REMOVAL OF CONCRETE PAVEMENT".

FINAL Tabulation of Delineators

LOCATION	SIDE	SPACING	TYPE I	TYPE II	TYPE III	EACH
706+ TO 709+65	LT & RT	CO RB	40	6	2	2
709+65 TO 717+00	LT & RT	1' 30" CURVE	4	2	2	2
717+00 TO 718+40	LT & RT	CNC	3	3	2	2
718+40 TO 731+74	LT & RT	CULVERT	8	2	2	2
731+74 TO 756+39	LT & RT	CULVERT	8	2	2	2
756+39 TO 774+30	LT & RT	CBC	8	2	2	2
774+30 TO 787+51	LT & RT	CULVERT	8	2	2	2
787+51 TO 806+92	LT & RT	CULVERT	8	2	2	2
806+92 TO 817+50	LT & RT	CULVERT	8	2	2	2
817+50 TO 827+00	LT & RT	TAPER	8	2	2	2
827+00 TO 840+33	LT & RT	CBC	8	2	2	2
840+33 TO 854+09	LT & RT	CULVERT	8	2	2	2
854+09 TO 866+	LT & RT	CULVERT	8	2	2	2
866+ TO 869+86	LT & RT	CBC	8	2	2	2
869+86 TO 887+36	LT & RT	CULVERT	8	2	2	2
887+36 TO 891+	LT & RT	CULVERT	8	2	2	2
891+ TO 909+00	LT & RT	CULVERT	8	2	2	2
TOTALS			4451	6227	4451	4451

IT IS ESTIMATED THAT THE FOLLOWING REMOVAL OF DELINEATORS WILL BE REQUIRED:
TYPE I - 10' 16'
TYPE II - 3' 7'
TYPE III - 27' 23'

FINAL SURFACING PLAN

LOCATION	TYPICAL SECTION	LENGTH (STA.)	PSFC	LIFT 4	LIFT 3	LIFT 2	LIFT 1	ABC CL. 6	COURSE 1
697+00	A	8.9009	203.48	372.40	367	367	367	12.425	367
705+90.09 BK=705+90.61 All	A	6.0039	125.44	276.36	367	367	367	12.425	367
712+00 BK=712+02.32 All	A	3.9708	72.75	150.47	367	367	367	12.425	367
716+00	A TO B	1.00	24.96	57.87	367	367	367	12.425	367
717+00	B	12.00	242.45	424.44	367	367	367	12.425	367
729+00	B TO A	1.00	19	57.87	367	367	367	12.425	367
730+00	A	34.00	422.04	1207.48	367	367	367	12.425	367
764+00	A TO B	1.00	27.70	75.35	367	367	367	12.425	367
765+00	B	9.00	174.6	367	367	367	367	12.425	367
774+00	B TO A	1.00	19	57.87	367	367	367	12.425	367
775+00	A	11.00	242.45	424.44	367	367	367	12.425	367
786+00	A TO B	1.00	24.96	57.87	367	367	367	12.425	367
787+00	B	28.00	574.75	972.1	367	367	367	12.425	367
815+00	B TO A	1.00	22.03	57.87	367	367	367	12.425	367
816+00	A	1.50	28	75.5	367	367	367	12.425	367
817+50	A TO C	7.50	244.80	241.79	367	367	367	12.425	367
825+00	C	1.00	22.03	57.87	367	367	367	12.425	367
826+00	C TO D	1.00	22.75	57.87	367	367	367	12.425	367
827+00	D	9.00	222.40	352.46	367	367	367	12.425	367
836+00	D TO C	1.00	24.97	57.87	367	367	367	12.425	367
837+00	C	5.00	124.33	202.74	367	367	367	12.425	367
842+00	C TO D	1.00	25.02	57.87	367	367	367	12.425	367
843+00	D	20.00	572.87	944.14	367	367	367	12.425	367
853+00	D TO C	1.00	22.77	57.87	367	367	367	12.425	367
864+00	C	7.00	124.41	276.36	367	367	367	12.425	367
871+00	C TO D	1.00	24.96	57.87	367	367	367	12.425	367
872+00	D	16.00	347.83	574.33	367	367	367	12.425	367
889+00	D TO C	1.00	24	48	367	367	367	12.425	367
CO. RD. 50	F	9.38	47.67	47.67	367	367	367	12.425	367
10+00 TO 19+38	E	3.88	20.32	20.32	367	367	367	12.425	367
21+12 TO 25+00	E	4.80	20.32	20.32	367	367	367	12.425	367
CO. RD. 69	E	12.00	174.40	367	367	367	367	12.425	367
DETROIT:									
717+00 TO 729+00		12.00	174.40	367	367	367	367	12.425	367
729+00 TO 744+00		9.00	174.40	367	367	367	367	12.425	367
744+00 TO 815+00		46.00	228.00	367	367	367	367	12.425	367
815+00 TO 827+00		9.00	174.40	367	367	367	367	12.425	367
827+00 TO 836+00		45.00	174.40	367	367	367	367	12.425	367
836+00 TO 889+00		45.00	174.40	367	367	367	367	12.425	367
EST. FOR LEVELING COURSE									
EST. FOR HD. APPR. *									
EST. FOR UNREG. *									
EST. FOR FILL TRANS.									
EST. FOR CUT TRANS.									
EST. FOR APPR. TO PROJ.									
SUBTOTALS			174.40	367	367	367	367	12.425	367
TOTALS			174.40	367	367	367	367	12.425	367

STABILIZATION BASED ON:
1. 18K ESAL (2 LANE)
2. 18K ESAL (4 LANE)
3. REGIONAL FACTOR
4. ASSUMED SUBGRADE R VALUE
* ESTIMATED FOR:
3 CO. HD. APPR.
9 FIELD APPR.

STRENGTH COEFFICIENTS:
5. HRP GR. C 0.44
6. FMS C TYPE A 0.44
7. ABC CL. 6 0.12

INCLUDED IN THE ABOVE QUANTITIES

AS CONSTRUCTED
NO REVISIONS
REVISED 10-6-93
VOID

FED. ROAD REGION
VIII
COLO.
CXFR 03-0034-13
SHEET NO.
9
SHEET TOTALS
22

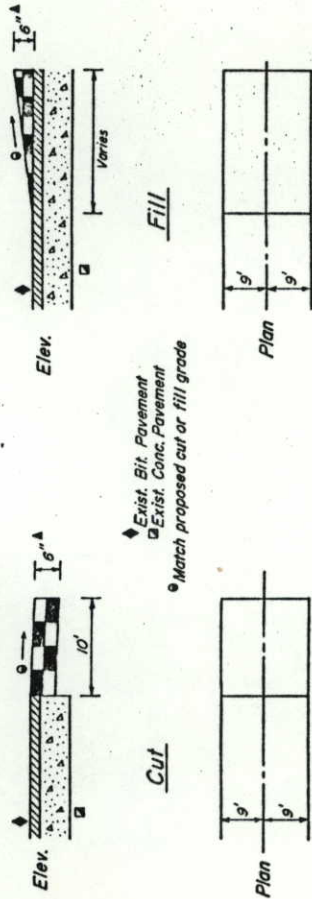
Final
CONSTRUCTION TRAFFIC CONTROL DEVICES

SIGN CODE	LEGEND	DIM. (INCHES)	PANEL SIZE -- QUANTITY			
			EACH			
			A	B	OTHER	
34H2-1(55)	"SPEED/LIMIT/55"	24x30	2	2		
34H2-2(55)	"SPEED/LIMIT/55"	36x48				
36H2-1(40)	"SPEED/LIMIT/40"	36x48		24		
36H2-1(30)	"SPEED/LIMIT/30"	36x48		26		
44H11-2	"ROAD/CLOSURE"	48x30		48		
48H1-1H	RVV CURVE LIGHT	48 DIAMOND		48		
48H1-1L	RVV CURVE LEFT	48 DIAMOND		48		
48H1-8	CHEVRON SYMBOL	30x36	24	12		
48H8-3a	PAVEMENT END SYMBOL	48 DIAMOND		42		
48H20-1	"ROAD/CONST./ (DISTANCE)"	48 DIAMOND		57		
48H20-2	"DETOUR/ (DISTANCE)"	48 DIAMOND		26		
48H20-4	"ONE LANE/ ROAD/(DISTANCE)"	48 DIAMOND		2		
48H-7	LOOSE GRAVEL	48 DIA		2		
48H20-7a	FLAGGER SYMBOL	48 DIAMOND		5		
W21-5	SHOULDER MARK	60x36		2		
60G20-1	"ROAD/CONST./NEXT (X) MILES"	60x36				
60G20-2	"END/CONST."	60x24		2		
48H4-10R	"DETOUR ->"	48x18	42			
48H4-10L	"<- DETOUR"	48x18	42			
48H4-7b	"DO NOT PASS"	48x30	42			
24H4-7b	"KEEP RIGHT"	24x30	12			
48H4-2(R)	RIGHT LANE TRANSITION	48 DIAMOND		1		
G20-4	PILOT CAR	36x24				
48H4-2(L)	LEFT LANE TRANSITION	48 DIAMOND		1		
W20-5	RIGHT LANE CLOSED AHEAD	48 DIA		1		
TOTAL			36	35		
34H-A BARRICADE				2		
34H-B BARRICADE				62		
DRUM CHANNELIZING DEVICE (LIGHT) (F)				025		
DRUM CHANNELIZING DEVICE (LIGHT) (SB)				988		
VERTICAL PANEL (LIGHT) (SB)				226,108		
TRAFFIC CONE (28")				100		
PAVEMENT MARKING PAINT REMOVAL (SQ. FT)				24,408		

NOTE: ALL CONSTRUCTION WARNING SIGNS PROVIDED ON THIS PROJECT SHALL BE PROVIDED WITH HIGH BRIGHTNESS ENCAPSULATED TYPE REFLECTIVE SHEETING. SEE SECTION 713.10 OF THE STANDARD SPECIFICATIONS.

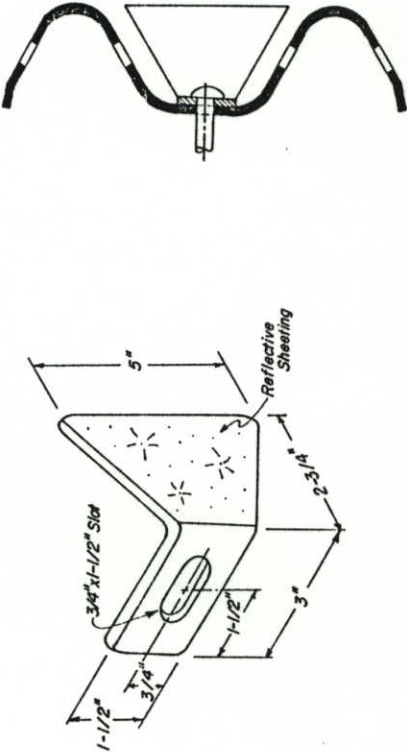
IT IS ESTIMATED THAT 14000 LIN. FT. OF PAVEMENT MARKING TAPE WILL BE REQUIRED FOR THIS PROJECT.
IT IS ESTIMATED THAT 350 RAISED PAVEMENT MARKERS (TEMPORARY) WILL BE REQUIRED FOR THIS PROJECT.

22(2)



Approx. thickness of HBP Gr. C to be placed in two 3 inch lifts prior to overlaying existing pavement.

DETAILS OF GUARD RAIL REFLECTOR TAB



REFLECTOR TAB

MOUNTING POSITION ON GUARD RAIL TYPE 3

NOTES:
REFLECTOR TAB SHALL BE MANUFACTURED FROM 14 GAUGE OR HEAVIER GALVANIZED STEEL.
SMOOTH SURFACE TYPE REFLECTIVE SHEETING AS SPECIFIED IN SECTION 713.10 OF THE STANDARD SPECIFICATIONS SHALL BE APPLIED TO THE REFLECTOR TAB.
REFLECTOR TAB SHALL BE MOUNTED WITH REFLECTORIZED SURFACE FACING APPROACHING TRAFFIC.

FOR TWO LANE ROADWAY, BOTH SIDES OF TAB SHALL BE REFLECTORIZED.
FOR DIVIDED ROADWAY, ONE SIDE OF TAB SHALL BE REFLECTORIZED AND THE COLOR OF REFLECTIVE SHEETING SHALL MATCH THE COLOR OF THE EDGE STRIPE ON THE PAVEMENT, EITHER CRISTAL OR YELLOW.

REFLECTOR TABS SHALL BE MOUNTED ON GUARD RAIL TYPE 3 AT ALTERNATE POSTS OR A MAXIMUM SPACING OF 12'-6\"/>

SEE COLORADO STANDARD PLAN M-606-1 OR M-696-2 FOR GUARD RAIL STANDARDS.
REFLECTOR TABS WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF GUARD RAIL ITEMS.

HBP CUT & FILL TRANSITION DETAILS

SUMMARY OF EARTHWORK QUANTITIES

DESCRIPTION	UNIT	QUANTITY	
		PLAN	FINAL
EMBANKMENT MATERIAL (COMPLETE-IN-PLACE) ROADWAY (FROM COMPUTER) EMBANKMENT MATERIAL IN SIDE SLOPES CO. RD. 50) CO. RD. 69) FROM CROSS SECTIONS ROAD APPROACHES) P.O.E. SCALE SITE) C.R. 50 P.O.E. SCALE SITE)	CU. YD.	110,672	113,545
	CU. YD.	1,436	4212
	CU. YD.	5,847	5703
	CU. YD.	5,970	31
	CU. YD.	1,601	1631
	CU. YD.	125,955	124,116
TOTAL			
TOPSOIL	CU. YD.	15,514	19450
TOPSOIL (HAUL)	CU. YD.	15,514	19450
TOTAL			
NETTING (FOR INFORMATION ONLY)			
COMPACTION (ROADWAY) SURFACING (CO. BUS.) SURFACING (DETOURS)	M. GAL.	5,365	52
	M. GAL.	52	
TOTAL		5,418	
UNCLASSIFIED EXCAVATION (FOR INFORMATION ONLY)			
ROADWAY (FROM COMPUTER) ESTIMATED FOR CUT SLOPE TREATMENT CO. RD. 50) CO. RD. 69) ROAD APPROACHES) P.O.E. SCALE SITE)	CU. YD.	42,359	212
	CU. YD.	18,680	42
	CU. YD.	572	457
TOTAL		62,322	
COMPACTION (ASHTO T99) (FOR INFORMATION ONLY)			
EMBANKMENT (NET) EMBANKMENT MATERIAL IN SIDE SLOPES CO. RD. 50) CO. RD. 69) FROM CROSS SECTIONS ROAD APPROACHES) P.O.E. SCALE SITE)	CU. YD.	110,672	1,436
	CU. YD.	27,565	5,847
	CU. YD.	5,970	5,970
	CU. YD.	1,601	1,601
TOTAL		153,340	
HAUL (FOR INFORMATION ONLY)	YD. MI.	13,191	
FROM MASS DIA. (+ADDED QUAN. -BORROW)	YD. MI.	13,191	
TOTAL		13,191	
ROADWAY QUANTITIES - BALANCE (FOR INFORMATION ONLY)			
EXCAVATION	CU. YD.	62,322	
UNCLASSIFIED BORROW FROM AVAILABLE SOURCE	CU. YD.	114,015	
TOTAL		176,337	
EMBANKMENT (NET)	CU. YD.	110,672	
ROADWAY (FROM COMPUTER) EMBANKMENT MATERIAL IN SIDE SLOPES CO. RD. 50) CO. RD. 69) FROM CROSS SECTIONS ROAD APPROACHES) P.O.E. SCALE SITE)	CU. YD.	1,436	1,436
	CU. YD.	5,847	5,847
	CU. YD.	5,970	5,970
	CU. YD.	1,601	1,601
TOTAL		125,955	
EMBANKMENT X FACTOR (1.4)	CU. YD.	176,337	
EMBANKMENT (NET) X 1.4	CU. YD.	176,337	
TOTAL		176,337	

NOTE: ADDITIONAL EMBANKMENT OR EXCAVATION REQUIRED FOR THE CONSTRUCTION AND REMOVAL OF DETOURS WILL NOT BE PAID FOR SEPARATELY BUT INCLUDED IN THE PAY ITEM FOR "EMBANKMENT MATERIAL (COMPLETE IN PLACE)".

AS CONSTRUCTED

NO REVISIONS ☐ REVISED ☐ VOID ☐

FED. ROAD REGION VIII
PROJ. NO. CXFR 03-0034-13
DIVISION COLO.
SHEET NO. 10
SHEET TOTALS 22

AREA 1 IS TO BE USED FIRST UNTIL DEPLETED, THEN AREA 2 UNTIL IT IS DEPLETED, AND FINALLY AREA 3 IF IT IS NEEDED.

AREA 1

1. THE ENGINEER SHALL ESTABLISH THE EXCAVATION BOUNDARIES, GRADE STAKES, STOCKPILE AREA, AND HAUL ROAD OUT OF THE AREA.
2. THE TOP 6 TO 8 INCHES OF VEGETATION AND OVERBUDDED SHALL BE STRIPPED AND EXCAVATED FOR WATER USE IN RECLAMATION OF THE PIT.
3. ANY BACKSLOPES LEFT BY THIS OPERATION SHALL BE NO STEEPER THAN THE ORIGINAL AREA.
4. WHEN NEEDED MATERIAL HAS BEEN BROUGHT TO THE AREA, THE ENGINEER SHALL UNIFORMLY AS POSSIBLE WITH THE PREVIOUSLY STOCKPILED OVERBUDDED THEN SEED, FERTILIZED, AND/OR MULCHED AS PER RECOMMENDATIONS OF THE U.S. SOIL CONSERVATION SERVICE FOR RETURN TO PRELIMINARY USE AS DRYLAND PASTURE.

AREA 2

1. THE EXISTING TAIL WATER POND SHALL BE CLEANED OUT TO THE ORIGINAL DEPTH OF APPROXIMATELY TEN FEET (10'), THEN IT SHALL BE EXTENDED 475 FEET TO THE NORTH AND 390 FEET TO THE SOUTH WITH SIDE SLOPES OF 2:1 AND END SLOPES OF 4:1, AS PER SOIL CONSERVATION SERVICE RECOMMENDATIONS.
2. ANY CULVERT PIPES ENCOUNTERED IN THE AREA SHALL BE SAVED FOR THE LANDOWNER, AND THE TREES GROWING IN THE AREA SHALL BE LEFT UNDISTURBED.
3. THE LANDOWNER SHALL BE CONTACTED ABOUT THE POSSIBILITY OF LEVELING A SMALL TRIANGLE OF LAND BETWEEN THE IRRIGATION DITCH, COUNTY ROAD 50, AND U.S. 34.

AREA 3

1. THE ABOVE AREAS DO NOT YIELD ENOUGH MATERIAL, ADDITIONAL VAIDNAGE CAN BE REMOVED FROM THIS HILL SOUTH OF U.S. 34.
2. THE TOP 6 INCHES, APPROXIMATELY, OF VEGETATION AND OVERBUDDED WILL BE STRIPPED AND EXCAVATED FOR LATER USE IN THE RECLAMATION OF THIS AREA.
3. THE EXCAVATION WILL BEGIN WITH THE REMOVAL OF THE OVERBUDDED MATERIAL SOUTH UNTIL THE NEEDED MATERIAL HAS BEEN REMOVED. THEN THE AREA WILL BE SLOPED AND RECLAIMED AS OUTLINED IN NOS. 4 AND 5 FOR AREA 1.
4. THIS AREA SHALL BE FENCED WITH A STANDARD 4-MIRE BARE WIRE FENCE FOR THE PROTECTION OF LIVESTOCK. WHEN THE AREA HAS SUFFICIENT GROWTH FOR MINED LAND RECLAMATION RELEASE, THE FENCE WILL BECOME THE PROPERTY OF THE LANDOWNER.
5. ALL QUANTITIES REMOVED FROM THIS SOURCE SHALL BE CALCULATED FOR PAYMENT USING THE CROSS SECTION METHOD.

THE QUANTITY OF EMBANKMENT MATERIAL TO BE REMOVED SHALL BE MEASURED BY THE CUBIC YARD. FOR ROYALTY PAYMENT, MEASUREMENT SHALL BE ACCOMPLISHED BY THE CONTRACTOR AT THE PIT SITE WITH A METHOD APPROVED AND CHECKED BY THE ENGINEER. THE CONTRACTOR SHALL PROVIDE A MEANS FOR CHECKING THE QUANTITY REMOVED THAT IS ACCEPTABLE TO THE ENGINEER.

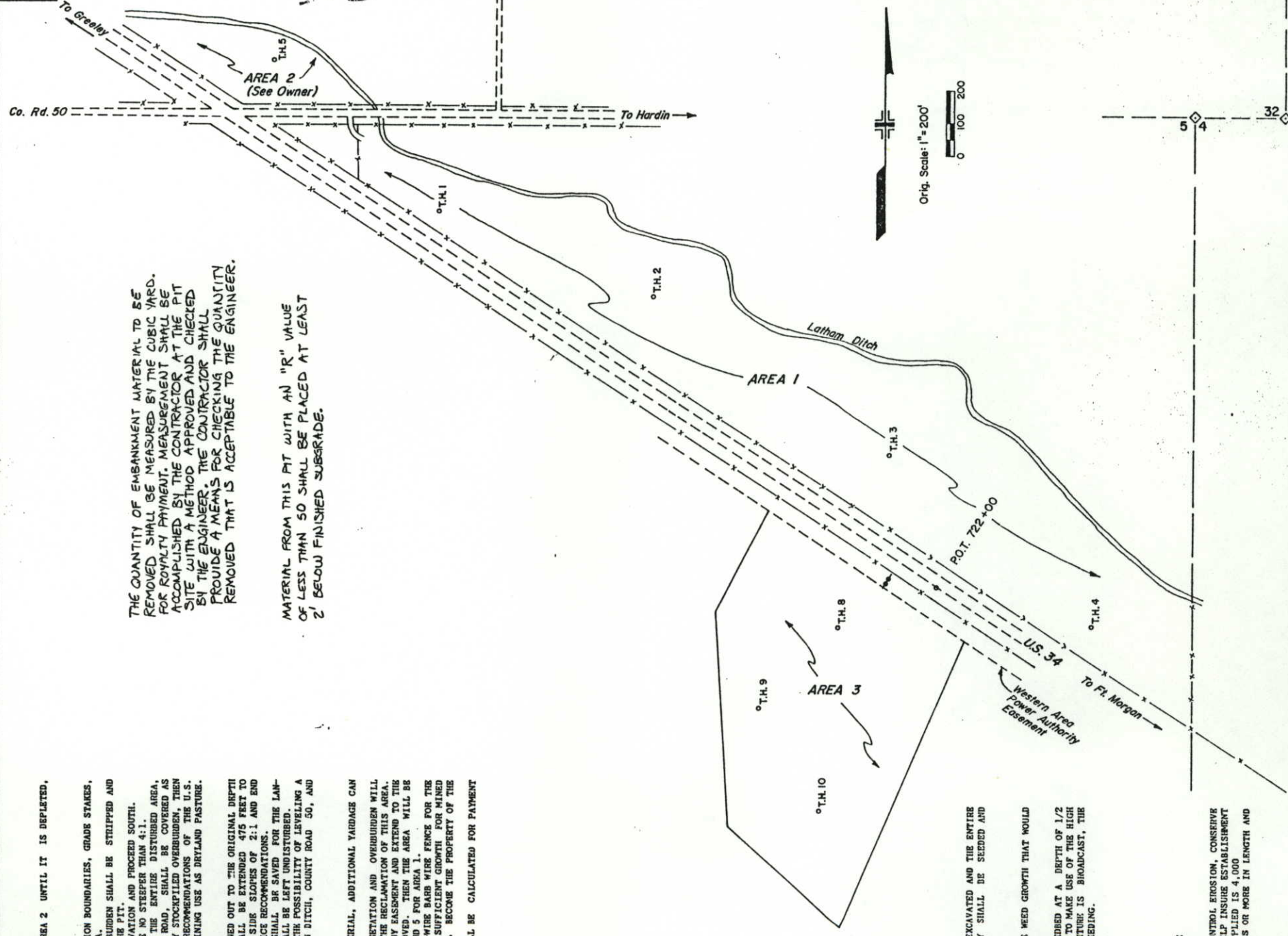
MATERIAL FROM THIS PIT WITH AN "R" VALUE OF LESS THAN 50 SHALL BE PLACED AT LEAST 2' BELOW FINISHED SUBGRADE.

REIN BORROW PIT ~ AVAILABLE SOURCE

AVAILABLE MATERIALS PIT INFORMATION

PIT NAME: REIN BORROW PIT
OWNER'S NAME: JOHNNY REIN, SHIRLEY A. REIN
OWNER'S ADDRESS: 31019 WELD COUNTY ROAD 50, KENSLEY, CO 80644
PIT LOCATION (LEGAL): PORTIONS OF THE N 1/2 OF SECTION 5, TOWNSHIP 4 NORTH, RANGE 63 WEST, AND PORTIONS OF THE SW 1/4 OF SECTION 32, TOWNSHIP 5 NORTH, RANGE 63 WEST, ALL IN WELD COUNTY.
TYPE OF PIT: BORROW
ROYALTY FEE: TWENTY FIVE CENTS (25 CENTS) PER CUBIC YARD
ROYALTY CHECKS PAYABLE TO: FEDERAL LAND BANK OF MICHITA FOR THE ACCOUNT OF JOHNNY REIN, SHIRLEY REIN, JOHN REIN, AND MOLLIE REIN.
OPTION EXPIRATION DATE: DECEMBER 31, 1988.
HAUL DISTANCE: APPROXIMATELY 2000 FEET TO JCT. US 34 AND CO. RD. 50.
STREPPING: APPROXIMATELY 20,000 CU. YDS. TO BE REMOVED AND APPROXIMATELY 20,000 CU. YDS. TO BE REPLACED.
AFFECTED AREA: APPROXIMATELY 35 ACRES OF THE PIT AREA ARE AFFECTED.
IT IS ESTIMATED THAT APPROXIMATELY 130,000 CU. YDS. OF BORROW MATERIAL IS AVAILABLE FROM THIS SOURCE.
THE CONTRACTOR WILL NEED TO FURNISH ADDITIONAL EMBANKMENT MATERIAL FROM A CONTRACTOR SOURCE BEYOND WHAT IS AVAILABLE IN THIS PIT.

TEST HOLES WERE DRILLED IN THIS SOURCE ON JUNE 23, 1988.
THE TYPE OF MATERIAL AND WATER TABLE ELEVATIONS ARE UNKNOWN.
ALL COSTS ASSOCIATED WITH OBTAINING NECESSARY PIT PERMITS, PIT CONSTRUCTION REQUIREMENTS, OPERATION, AND RECLAMATION REQUIREMENTS SHALL BE INCLUDED IN THE UNIT PRICE FOR EMBANKMENT (COMPLETE IN PLACE).



RECLAMATION REQUIREMENTS
WHEN THE REQUIRED QUANTITY OF MATERIAL HAS BEEN EXCAVATED AND THE ENTIRE DISTURBED AREAS HAVE BEEN COVERED WITH TOPSOIL, THEY SHALL BE SEED AND MULCHED AS PER THE FOLLOWING:

FERTILIZER
NO FERTILIZER IS RECOMMENDED. IT WOULD ONLY ENCOURAGE WEED GROWTH THAT WOULD COMPETE FOR SOIL MOISTURE.

THE FOLLOWING GRASSES SHOULD BE DRILLED INTO A FIRM SEEDBED AT A DEPTH OF 1/2 TO 1 INCH. DRILLING SHALL BE DONE BEFORE APRIL 1ST. TO MAKE USE OF THE HIGH MOISTURE MONTHS OF APRIL AND MAY. IF THE SEEDING MIXTURE IS BROADCAST, THE RATES SHALL BE DOUBLED AND THE AREA HAND RAKED AFTER SEEDING.

GRASSES	PLS./ACRE
BLUE GRAMA	3 LBS.
SIDROATS GRAMA	9 LBS.
WESTERN WHEATGRASS	16 LBS.
SWITCHGRASS	5 LBS.

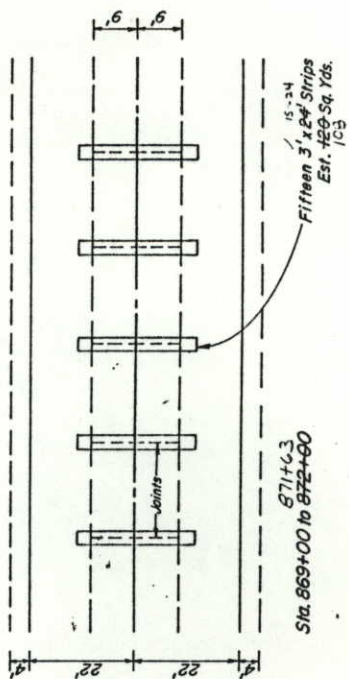
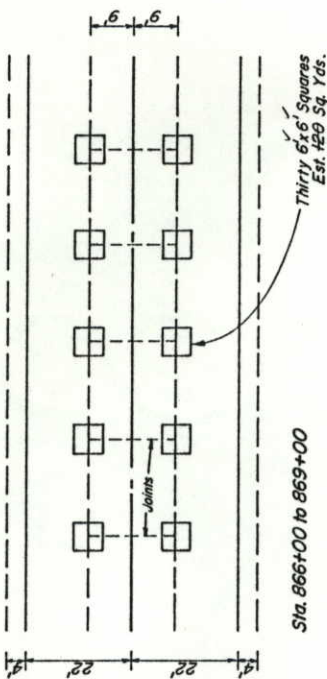
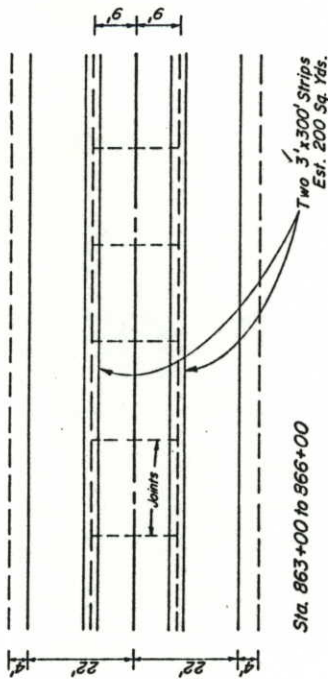
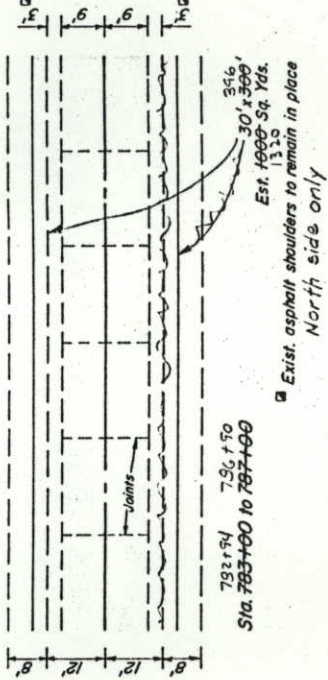
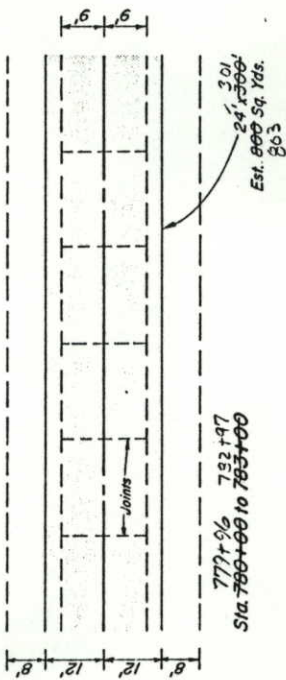
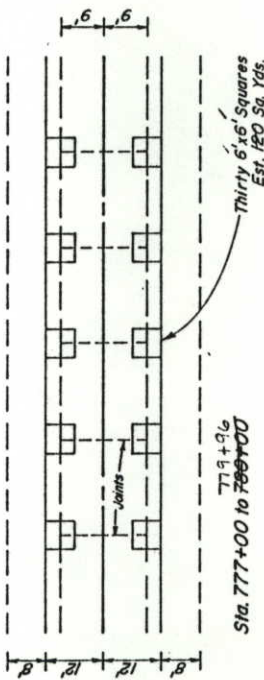
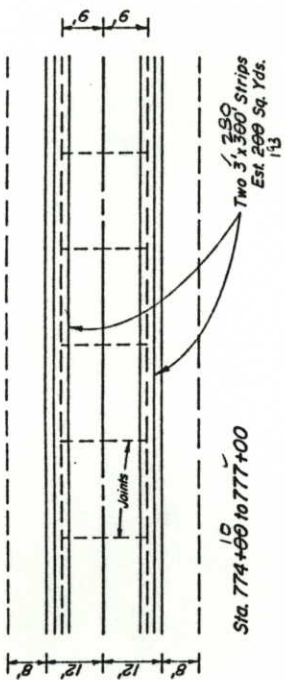
33 LBS. PLS./ACRE

MULCHING
MULCHING THE AREA AFTER SEEDING IS RECOMMENDED TO CONTROL EROSION, CONSERVE MOISTURE, AND PREVENT SURFACE COMPACTION. THIS WILL HELP INSURE ESTABLISHMENT OF PLANT COVER. THE NORMAL AMOUNT AND TYPE OF MULCH APPLIED IS 4,000 LBS./ACRE OF GRASS HAY, 50% OF WHICH IS 10 INCHES OR MORE IN LENGTH AND ANCHORED WITH EQUIPMENT THAT WILL NOT CUT THE STALKS.

Station and Log	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

AS CONSTRUCTED		PROJ. NO.		DIVISION		SHEET TOTALS	
NO REVISIONS		CXFR 03-0034-13		VIII		12 22	
REVISED 10-6-59		VOID					

DETAILS OF GEOTEXTILE (PAVING)



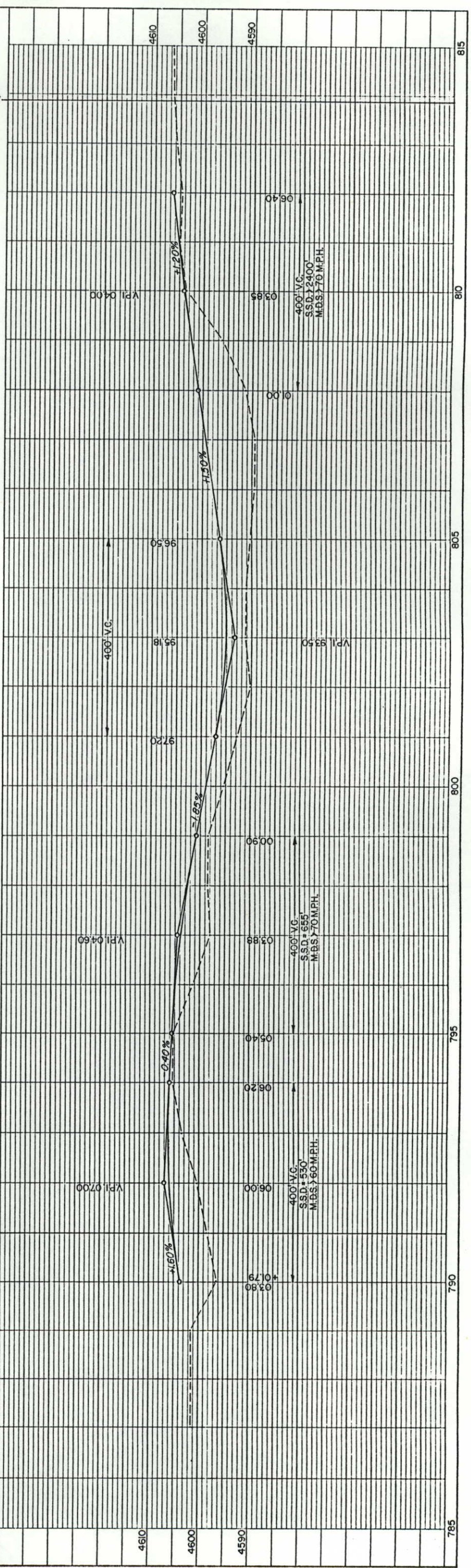
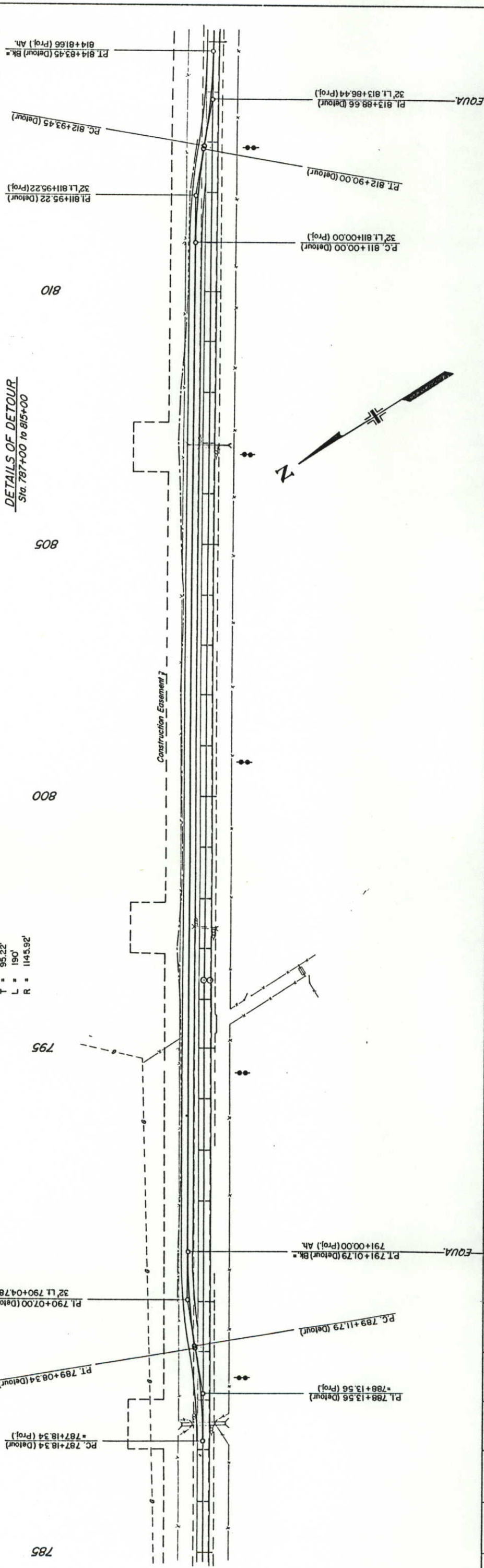
NOTE: It is estimated that 2500 Sq. Yds. Geotextile (Paving) will be required. Assumed joint spacing is 20'.

REVERSE CURVE DATA
 $\Delta = 9^{\circ}30'$
 $D = 5^{\circ}00'$
 $T = 95.22'$
 $L = 190'$
 $R = 1145.92'$

DETAILS OF DETOUR
Sta. 787+00 to 815+00

AS CONSTRUCTED	NO REVISIONS	10-6-97	REVISED	VOID
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FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
VIII	CCLD.	CXFR 03-0034-13	13



PLANNED	BY	DATE
NOTED		
ALIGNED		
CHECKED		
RT. OF WAY CHECKED		

PROFILE	BY	DATE
NOTED		
ALIGNED		
CHECKED		
RT. OF WAY CHECKED		

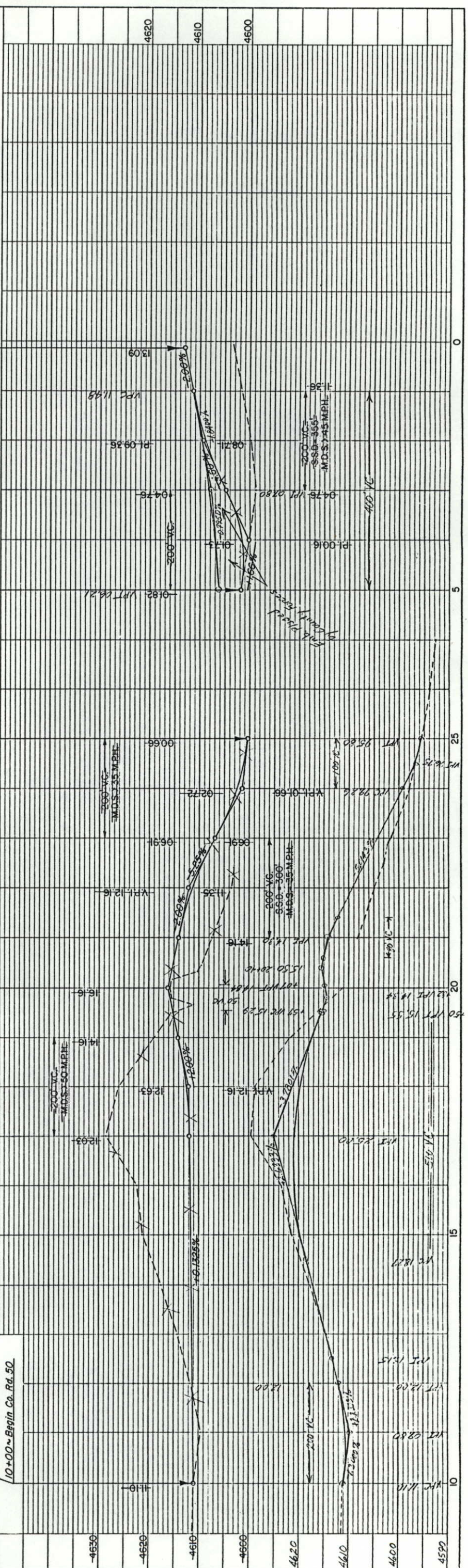
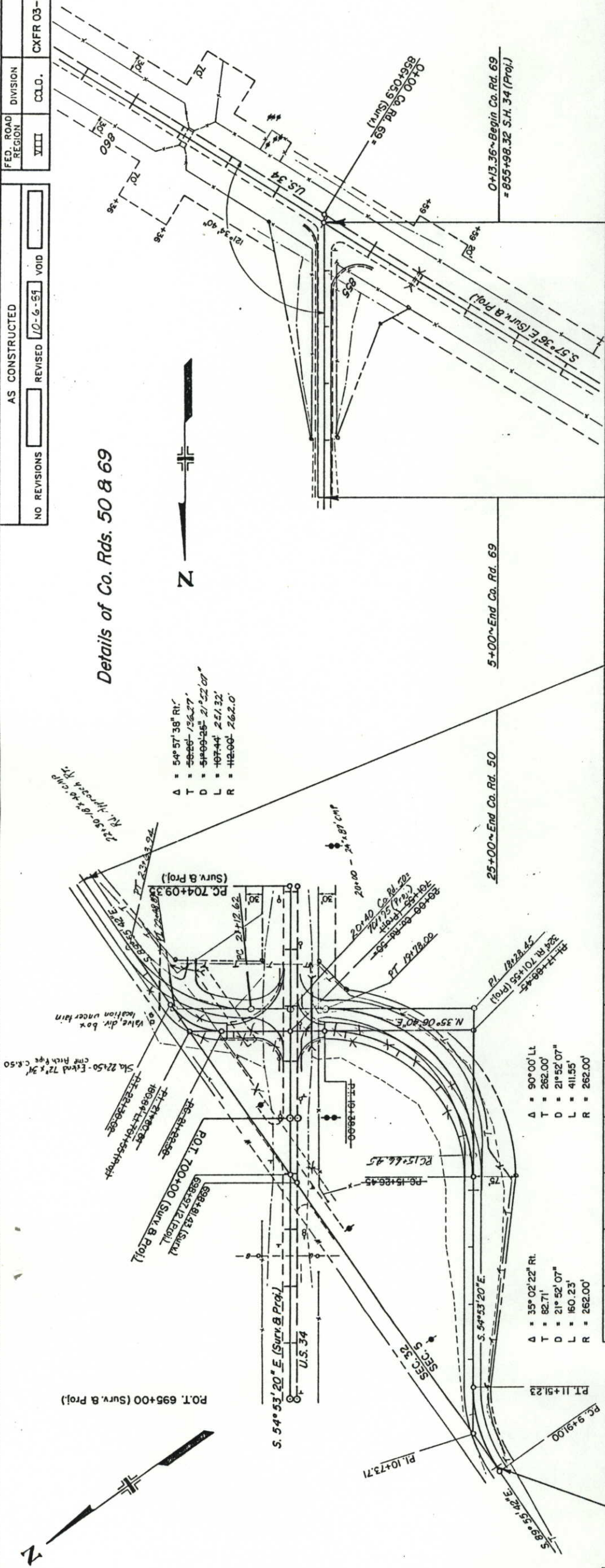
AS CONSTRUCTED		PROJ. NO.		SHEET NO.	
NO REVISIONS		CXFR 03-0034-13		14	
REVISED 10-6-51		DIVISION		C.O.D.	
VOID		VIII		C.O.D.	

Details of Co. Rds. 50 & 69

A = 54° 57' 38" RI
T = 500.00
D = 54° 57' 38" 21° 22' 00"
L = 107.44' 241.32'
R = 442.00' 262.0'

A = 35° 02' 22" RI
T = 82.71'
D = 21° 52' 07"
L = 160.23'
R = 262.00'

A = 90° 00' LI
T = 262.00'
D = 21° 52' 07"
L = 411.55'
R = 262.00'



PLAN	DATE
BY	
DATE	

PROF FILE	DATE
BY	
DATE	

Utilities:
Telephone ~ Min. Bell
Water ~ Central Weld Water Dist 352-1284
Gas ~ Associated Natural Gas, Inc. 454-3366
~ Panhandle Eastern Pipeline Co. 659-5922
Electric ~ WAPA
~ Poudre Valley R.E.A.

P.O.T. 695+00 (Surv. & Proj.)

SW 1/4 Sec. 32
T.5N., R.63W.

P.O.T. 700+00 (Surv. & Proj.)

P.C. 704+09.35 (Surv. & Proj.)

P.T. 705+90.09 (Proj.) B.K. =

P.T. 705+90.61 (Surv. & Proj.) A.H.

Proj. Δ = 2°42'40" LT
T = 90.39'
D = 1°30'
L = 180.74'
R = 3819.72'
E = 1.07'
e = 0.046'/ft
S.S.D. = 7900'
M.D.S. = 60 MPH

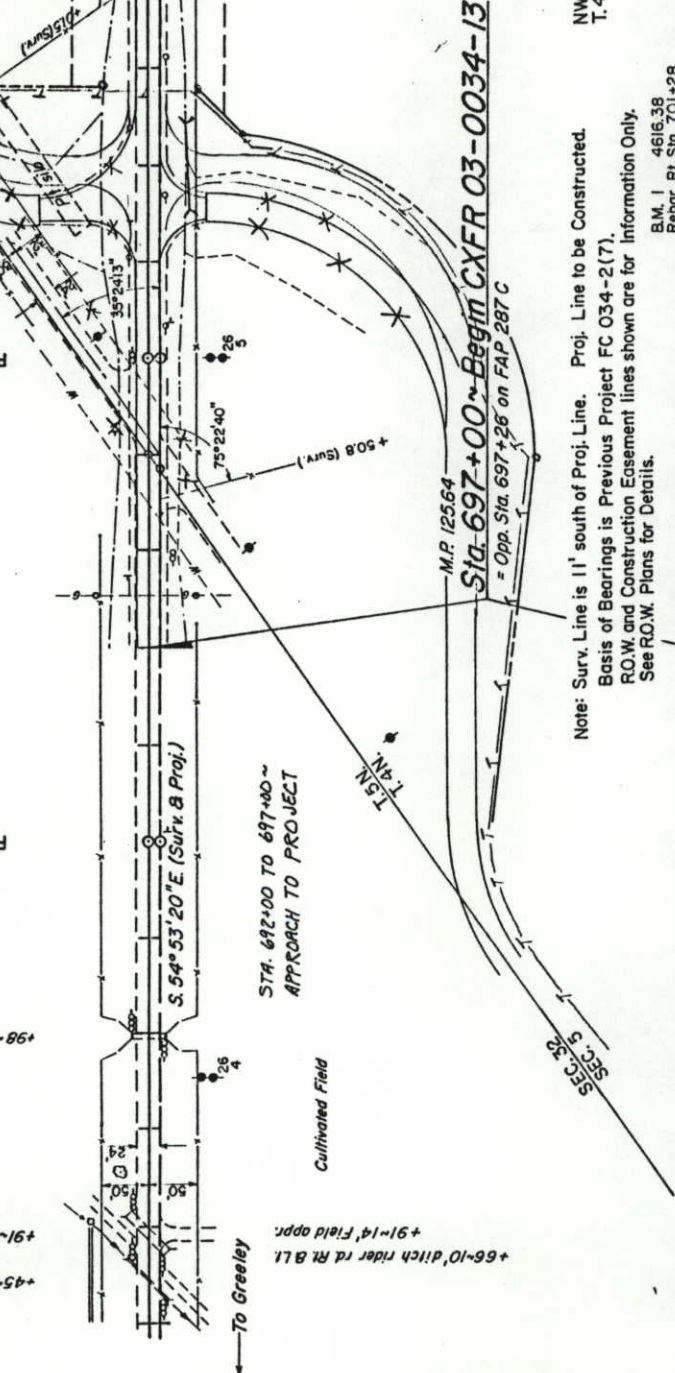
P.O.T. 712+00 B.K. =

714+79
PLUG 1.5'x1.5'x.36'
C.B.C. ADJUST DITCHES TO
FLOW TO 707+

715
+79-15'x15'x.36' C.B.C.
skew 84°52' LT
(plugged)

720
+40-2'x2'x.36' C.B.C.
skew 90°13' LT

PLAN
DATE
BY
REVIEWED
NOTED
RT. IF MAY CHECKED
NOTE BOOK
RT. IF MAY CHECKED



Note: Surv. Line is 11' south of Proj. Line. Proj. Line to be Constructed.
Basis of Bearings is Previous Project FC 034-2(7).
R.O.W. and Construction Easement lines shown are for information Only.
See R.O.W. Plans for Details.

NW 1/4 Sec. 5
T.4N., R.63W.

NE 1/4 Sec. 5
T.4N., R.63W.

EQUA

Sta. 717+00
BEGIN GRADING SECTION

B.M. 1 4616.38
Rebar Rt. Sta. 701+28

B.M. 2 4613.22
Rebar Rt. Sta. 706+20

B.M. 3 4612.22
Rebar Rt. Sta. 711+15

B.M. 4 4613.71
Rebar Rt. Sta. 716+22

ASPHALT MAT
NOTE: ALL SOIL SURVEY TEST HOLES TAKEN ON SURV. CENTERLINE EXCEPT FOR No. 21A.
No. 1A
No. 1B
No. 1C
No. 1D
No. 1E
No. 1F
No. 1G
No. 1H
No. 1I
No. 1J
No. 1K
No. 1L
No. 1M
No. 1N
No. 1O
No. 1P
No. 1Q
No. 1R
No. 1S
No. 1T
No. 1U
No. 1V
No. 1W
No. 1X
No. 1Y
No. 1Z

NOTE: EXCEPT FOR GRADING SECTIONS,
PROFILE GRADE SHALL BE THE THICKNESS
OF THE REQUIRED OVERLAY ABOVE THE
GRADE OF THE EXISTING PAVEMENT.

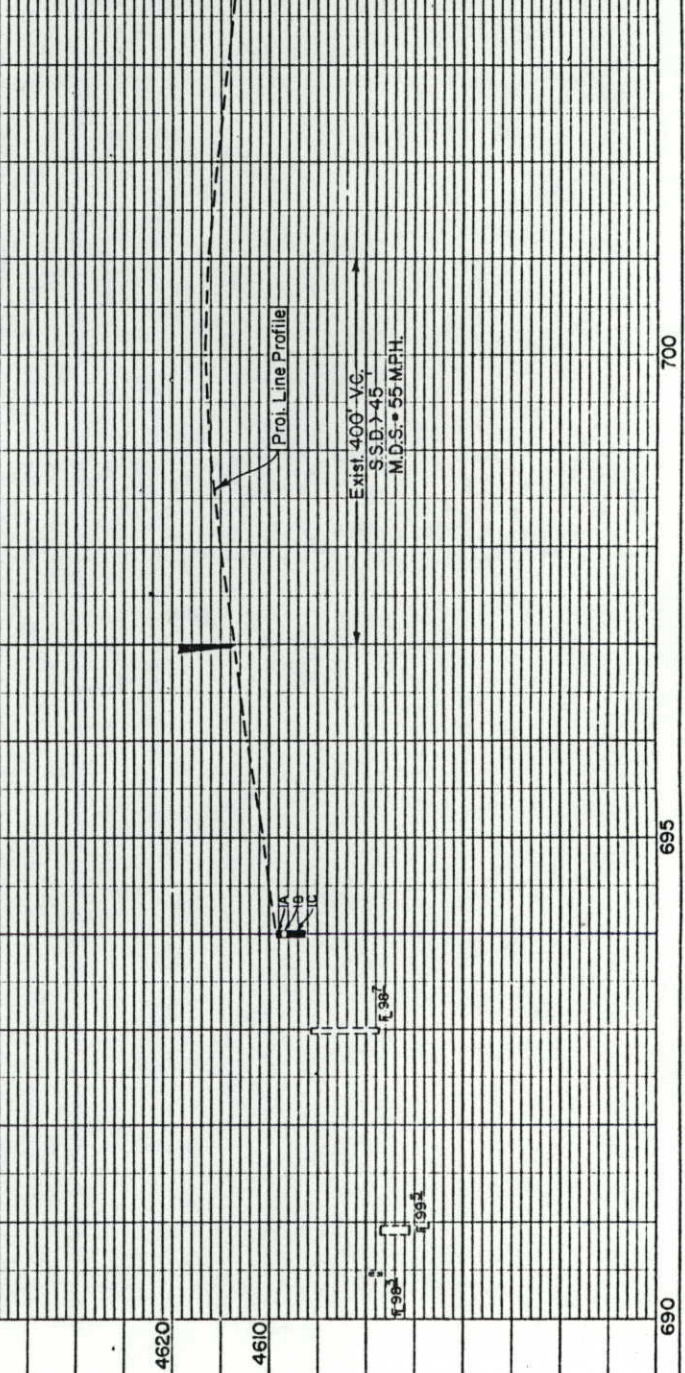
DATA FOR EXISTING VERTICAL CURVES
FROM PREVIOUS PROJECT FAP 287 C.
LOCATIONS ARE APPROXIMATE AND
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No. 1Q
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No. 1U
No. 1V
No. 1W
No. 1X
No. 1Y
No. 1Z

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Rebar Rt. Sta. 701+28

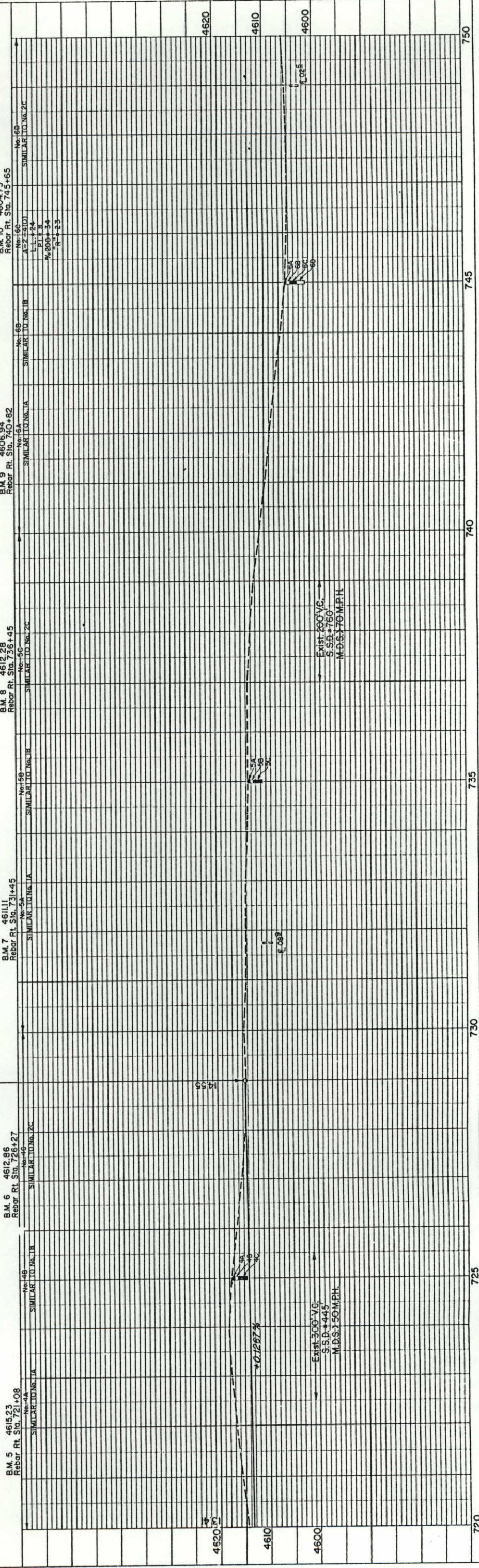
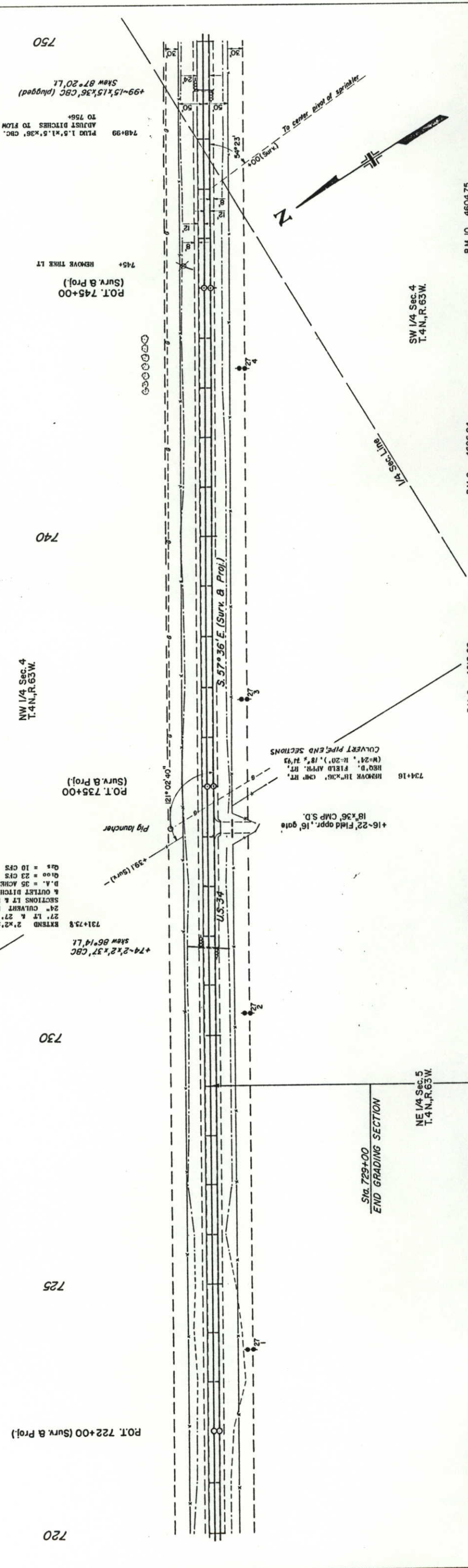
B.M. 2 4613.22
Rebar Rt. Sta. 706+20

B.M. 3 4612.22
Rebar Rt. Sta. 711+15

B.M. 4 4613.71
Rebar Rt. Sta. 716+22

NOTE: EXCEPT FOR GRADING SECTIONS,
PROFILE GRADE SHALL BE THE THICKNESS
OF THE REQUIRED OVERLAY ABOVE THE
GRADE OF THE EXISTING PAVEMENT.

AS CONSTRUCTED		DIVISION		PROJ. NO.		SHEET NO.		TOTAL SHEETS	
NO REVISIONS		XIII		CXFR 03-0034-13		10		10	
REVISED		VOID							



EXTEND 2'x2'x37' CBC
24" CULVERT PIPE, END
SECTIONS LT & RT, INLET
& OUTLET DITCHES
D.A. = 36 ACRES
Q₁₀₀ = 23 CFS
Q₂₅ = 10 CFS

P.O.T. 745+00
(Surv. B Proj.)
REMOVE TRUNK LT
745+
+99-15'x15'x36' CBC (plugged)
skew 87° 20' LT
748+99
ADJUST DITCHES TO FLOW
TO 756+

NW 1/4 Sec. 4
T.4N., R.63W.

SW 1/4 Sec. 4
T.4N., R.63W.

Sta. 729+00
END GRADING SECTION

NE 1/4 Sec. 5
T.4N., R.63W.

B.M. 10 4604.75
Rebor Rt. Sta. 745+65

B.M. 9 4606.94
Rebor Rt. Sta. 740+82

B.M. 8 4612.28
Rebor Rt. Sta. 736+45

B.M. 7 4611.11
Rebor Rt. Sta. 731+45

B.M. 6 4612.86
Rebor Rt. Sta. 726+27

B.M. 5 4615.23
Rebor Rt. Sta. 721+08

Exist. 200' VC.
S.S.D. +760'
M.D.S. 70 MPH

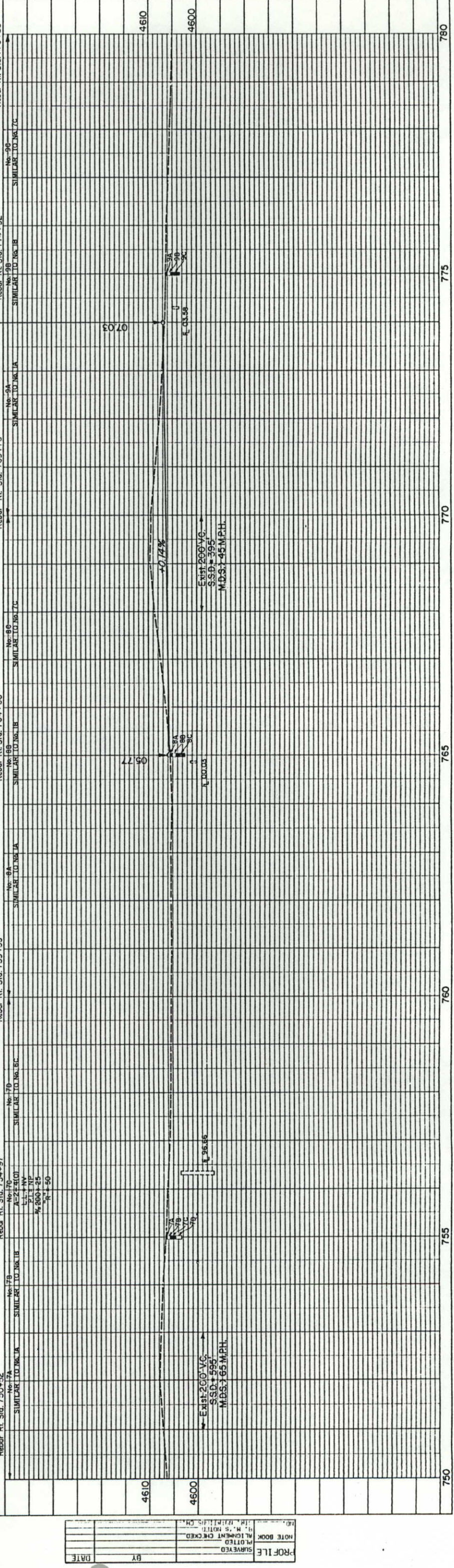
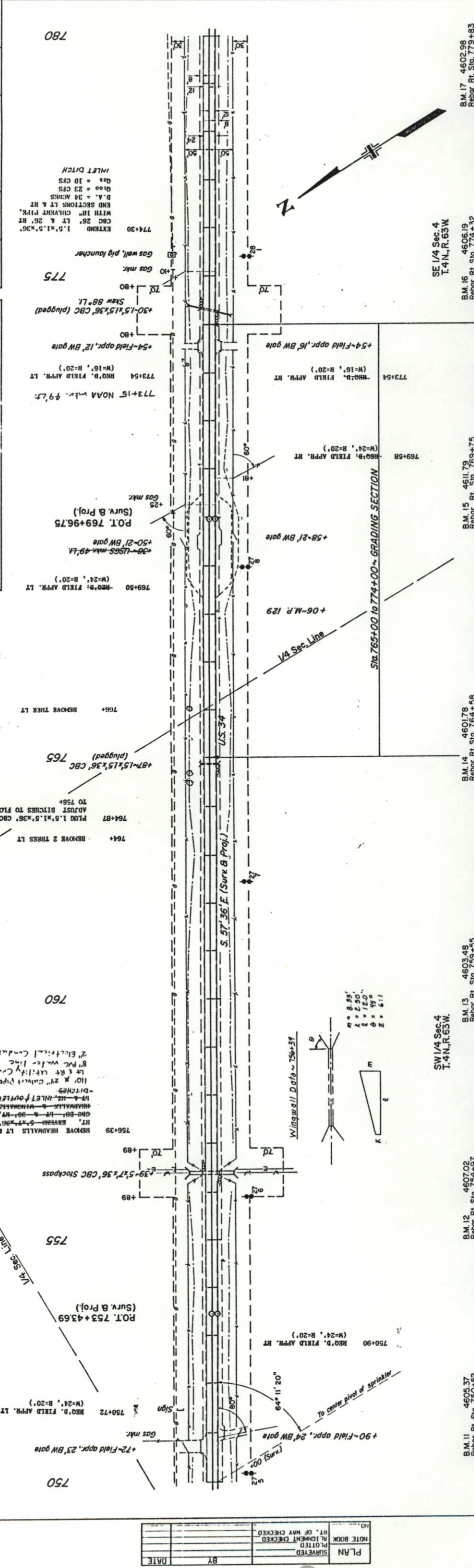
Exist. 300' VC.
S.S.D. +445'
M.D.S. 70 MPH

PLAN	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
RT. OF WAY CHECKED			

PROFILE	SURVEYED	BY	DATE
NOTE BOOK	ALIGNED		
RT. OF WAY CHECKED			

AS CONSTRUCTED		FED. ROAD REGION		DIVISION		PROJ. NO.		SHEET NO.		TOTAL SHEETS	
NO REVISIONS		REVISED 10-6-59		VOID							
						CKFR 03-0034-13		17		22	

NW 1/4 Sec. 4
 T.4N., R.63W.



NO.	DATE	BY	FILE
PLATED	SURVEYED		
ALIGNMENT CHECKED			
H. M. S. NOTED			
INSTRUMENTS CHG.			

PLAN	SURVEYED PLOTTED BY, OF MAY CHECKED	DATE
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AS CONSTRUCTED		DIVISION		PROJ. NO.		SHEET NO.		TOTAL SHEETS	
NO REVISIONS 10-2-59		VIII		CMFR 03-0034-13		19		22	
REVISED		VOID							

810 815 820 825 830 835 840

NE 1/4 Sec. 10
T. 4N., R. 63W.

P.O.T. 821+01.58
(Surv. & Proj.)

750' Transition

1/4 Sec. Line

P.O.T. 831+25.98
(Surv. & Proj.)

150' To be moved by Others

88-15' BW gate

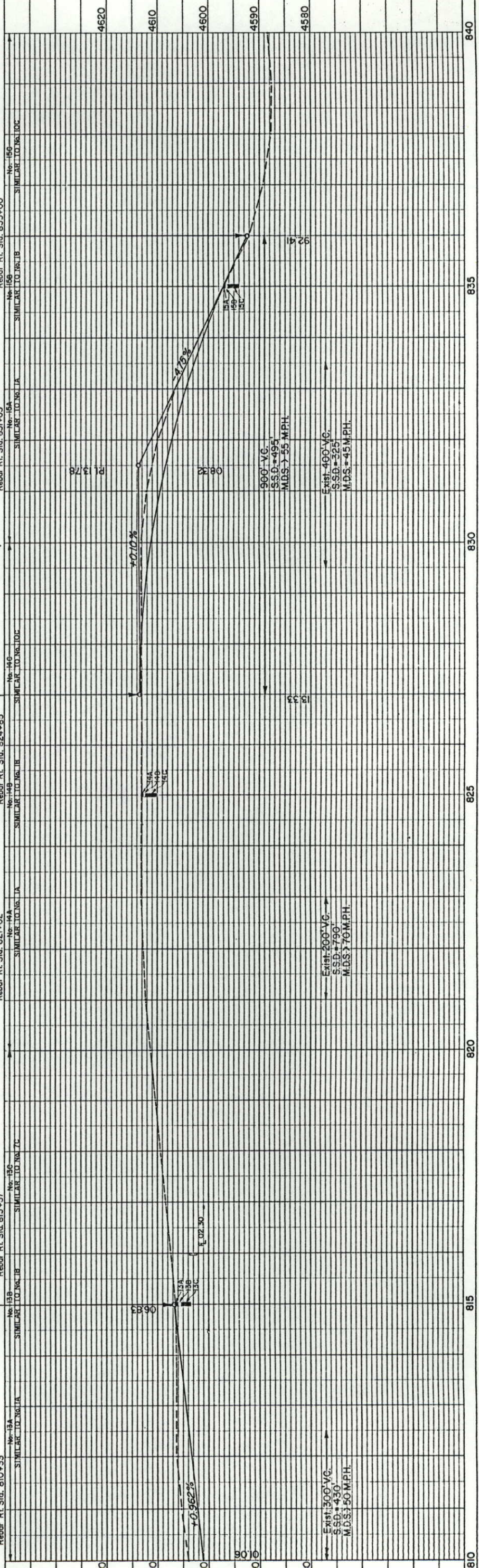
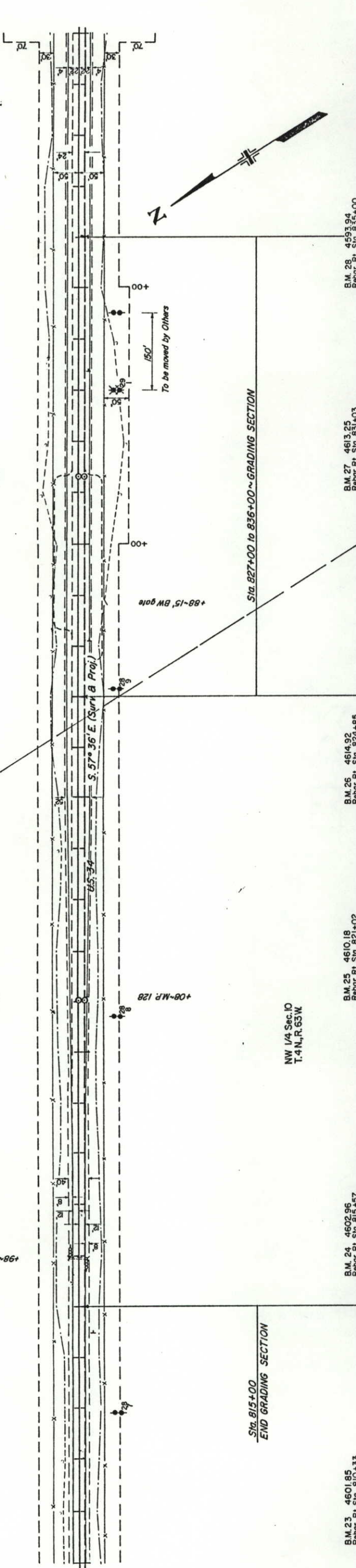
88-M.P. 128

815-98
PLUG 1.5'x1.5'x36' CBC.
ADJUST DITCHES TO FLOW
TO 806+

+98-15'x1.5'x36' CBC (plugged)

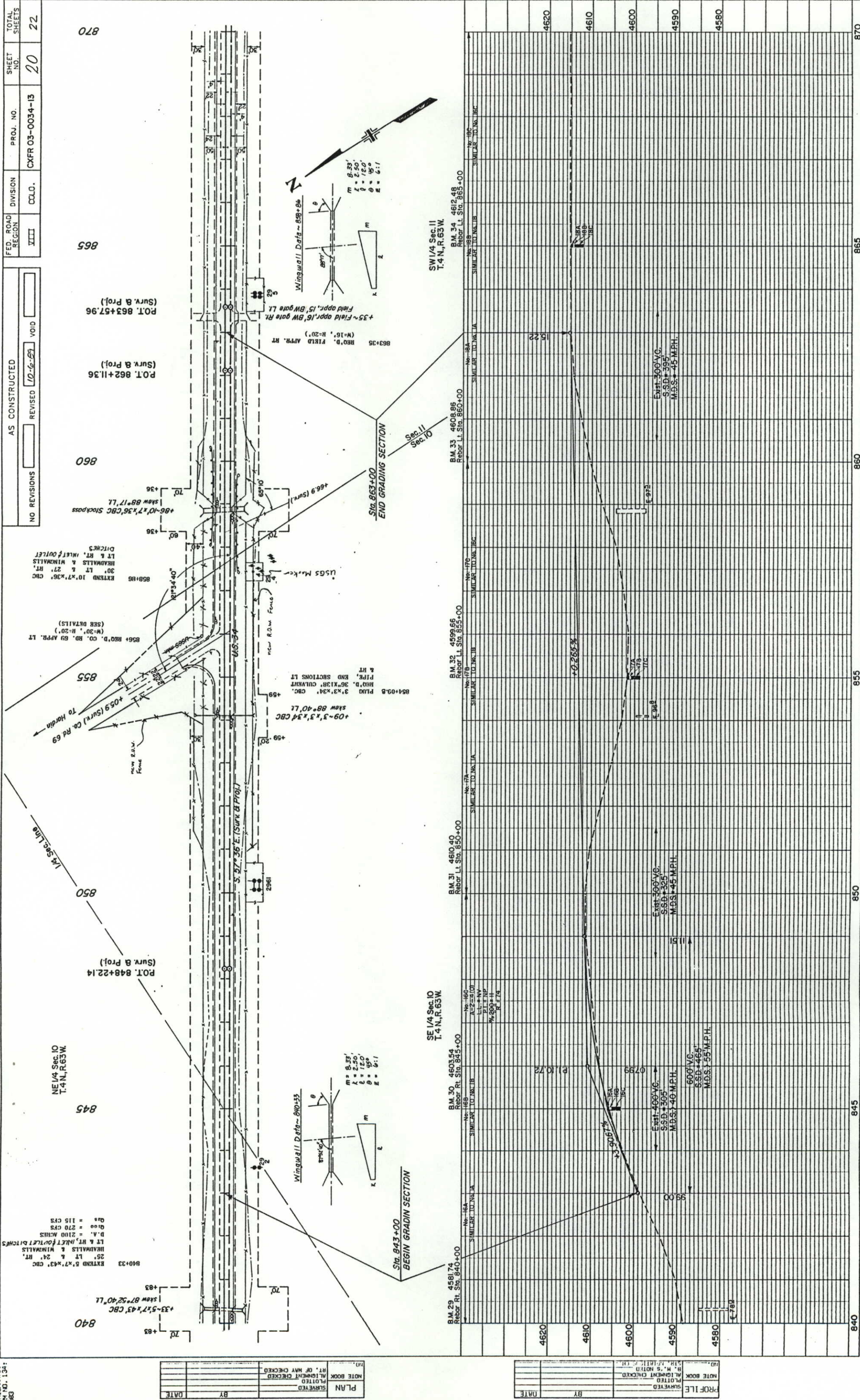
815 820 825 830 835 840

DATE	BY	PLN	PLAN	NOTE BOOK	PLOTTED	ALIGNMENT CHECKED	MT. OF HAY CHECKED



DATE	BY	PROF	PROFILE	NOTE BOOK	PLOTTED	ALIGNMENT CHECKED	B. M. S. NOTED

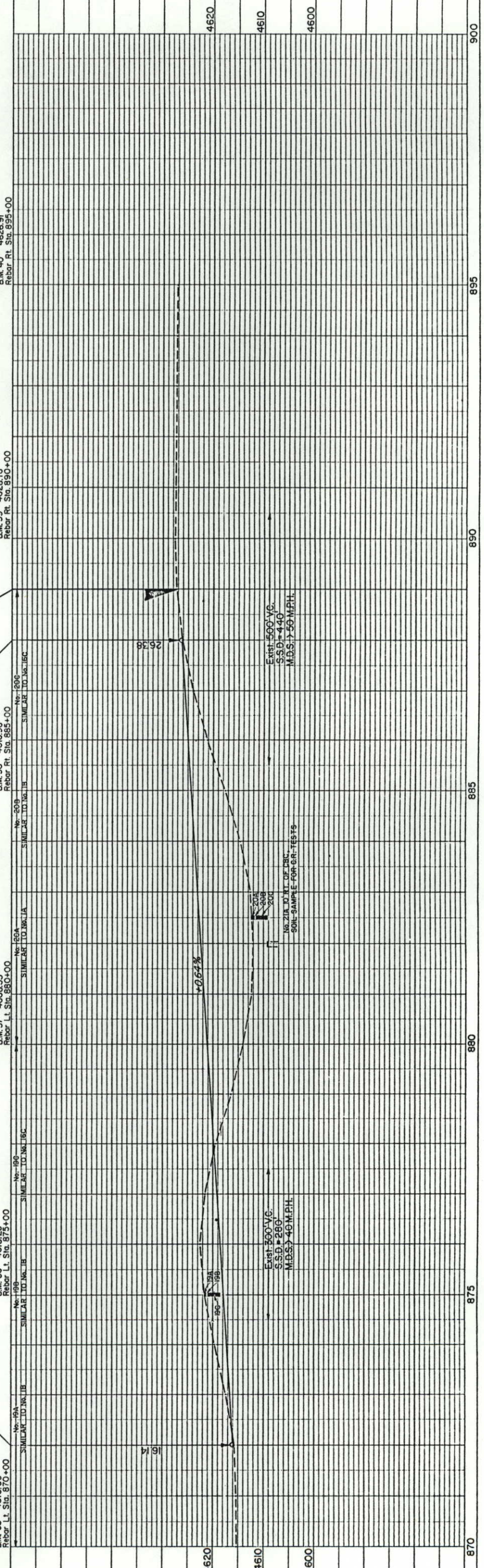
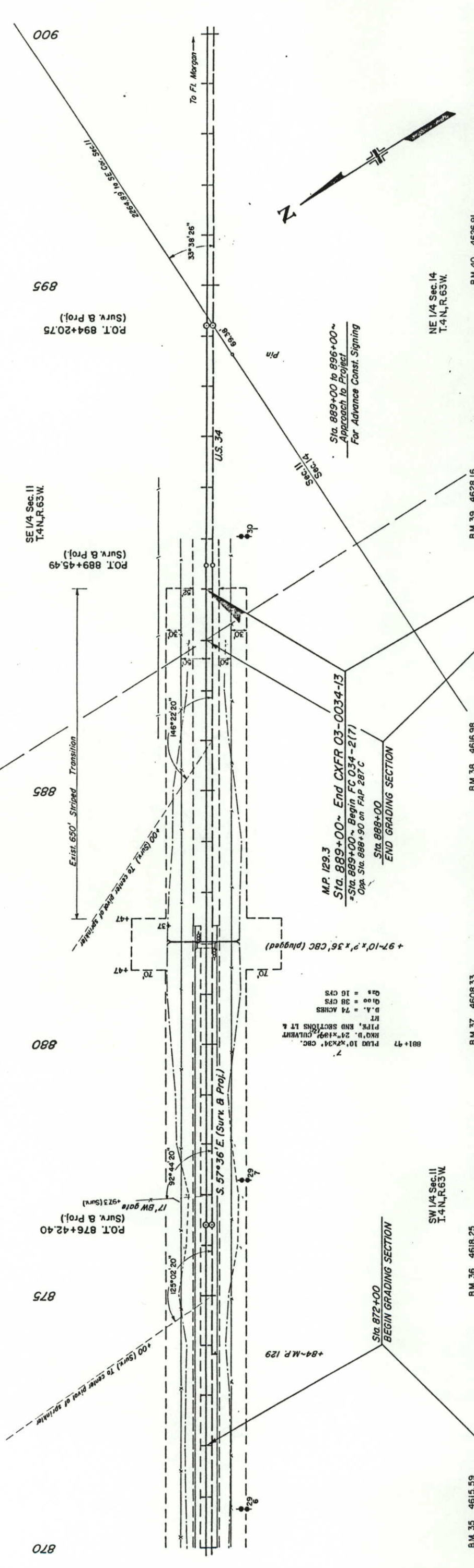
AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
NO REVISIONS	 REVISED VOID	VIII	CCLO.	CXFR 03-0034-13	20	22



PROFILE	SURVEYED	BY	DATE
NOTE BOOK	ALIGNMENT CHECKED		
B. M.'S NOTED			
SIR, LIGHTED IN ON			

PLAN	SURVEYED	PLOTTED	NOTE BOOK	NO.
BY	RT. OF WAY CHECKED	ALIGNMENT CHECKED		
DATE				

AS CONSTRUCTED		NO REVISIONS		REVISED		VOID	
FED. ROAD REGION		DIVISION		PROJ. NO.		SHEET NO.	
VII		CCLD.		CXFR 03-0034-13		21	
TOTAL SHEETS						22	



PLAN	DATE
BY	
SLAVEYED	
NOTE BOOK	
ALIGNMENT CHECKED	
RT. OF WAY CHECKED	

PROFILE	DATE
BY	
SLAVEYED	
NOTE BOOK	
ALIGNMENT CHECKED	
RT. OF WAY CHECKED	

AS CONSTRUCTED

NO REVISIONS

REVISED 12-6-87

VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	CXFR 03-0034-13	22	22

DETAILS OF ADDITIONAL WIDENING FOR
TEMPORARY P.O.E. SCALE SITE

Orig. Plan Scale: 1" = 30'

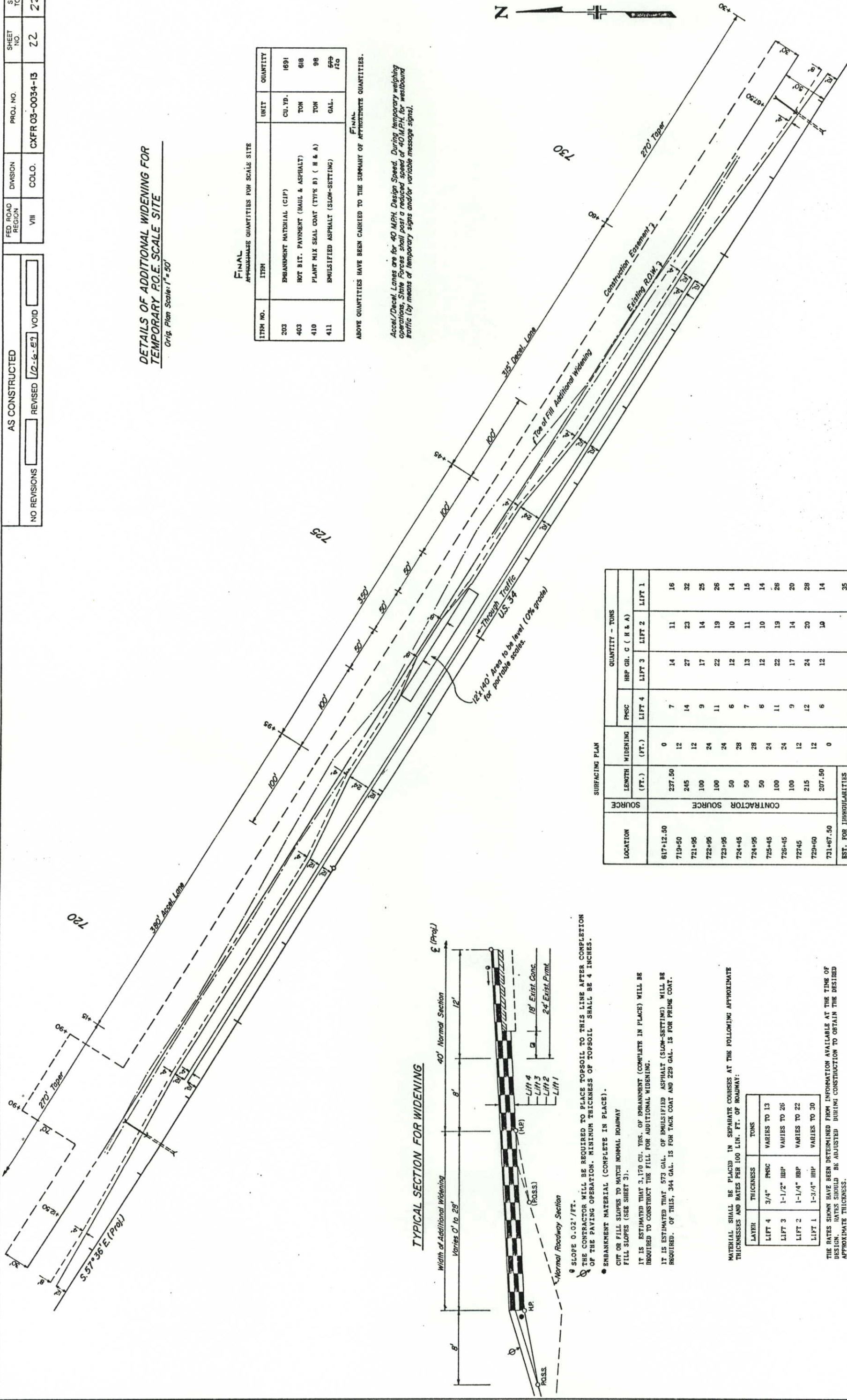
FINAL
APPROXIMATE QUANTITIES FOR SCALE SITE

ITEM NO.	ITEM	UNIT	QUANTITY
203	EMBANKMENT MATERIAL (CIP)	CU. YD.	1691
403	HOT BIT. PAVEMENT (HAUL & ASPHALT)	TON	618
410	PLANT MIX SEAL COAT (TYPE B) (H & A)	TON	98
411	EMULSIFIED ASPHALT (SLOW-SETTING)	GAL.	573 344 170

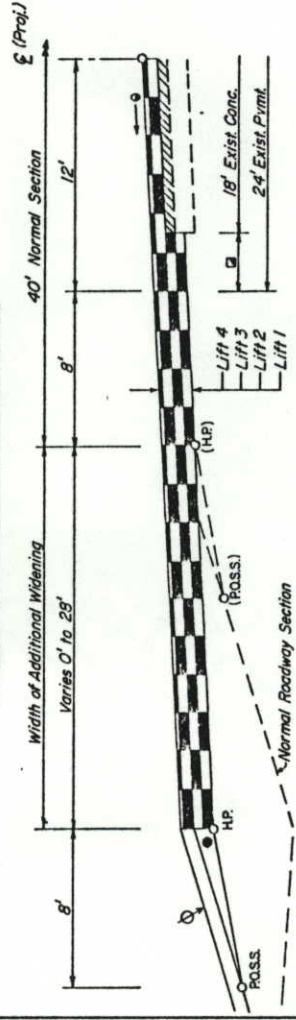
ABOVE QUANTITIES HAVE BEEN CARRIED TO THE SUMMARY OF APPROXIMATE QUANTITIES.

Final

Accel./Decel. Lanes are for 40 MPH Design Speed. During temporary weighing operations, State Forces shall post a reduced speed of 40 MPH for westbound traffic by means of temporary signs and/or variable message signs.



TYPICAL SECTION FOR WIDENING



8 SLOPE 0.02'/FT.
THE CONTRACTOR WILL BE REQUIRED TO PLACE TOPSOIL TO THIS LINE AFTER COMPLETION OF THE PAVING OPERATION. MINIMUM THICKNESS OF TOPSOIL SHALL BE 4 INCHES.

EMBANKMENT MATERIAL (COMPLETE IN PLACE).

CUT OR FILL SLOPES TO MATCH NORMAL ROADWAY FILL SLOPES (SEE SHEET 3).

IT IS ESTIMATED THAT 3,170 CU. YDS. OF EMBANKMENT (COMPLETE IN PLACE) WILL BE REQUIRED TO CONSTRUCT THE FILL FOR ADDITIONAL WIDENING.

IT IS ESTIMATED THAT 573 GAL. OF EMULSIFIED ASPHALT (SLOW-SETTING) WILL BE REQUIRED. OF THIS, 344 GAL. IS FOR TACK COAT AND 229 GAL. IS FOR PRIME COAT.

MATERIAL SHALL BE PLACED IN SEPARATE COURSES AT THE FOLLOWING APPROXIMATE THICKNESSES AND RATES PER 100 LIN. FT. OF ROADWAY:

LAYER	THICKNESS	TONS
LIFT 4	3/4" PMSC	VARIES TO 13
LIFT 3	1-1/2" HBP	VARIES TO 26
LIFT 2	1-1/4" HBP	VARIES TO 22
LIFT 1	1-3/4" HBP	VARIES TO 30

THE RATES SHOWN HAVE BEEN DETERMINED FROM INFORMATION AVAILABLE AT THE TIME OF DESIGN. RATES SHOULD BE ADJUSTED DURING CONSTRUCTION TO OBTAIN THE DESIRED APPROXIMATE THICKNESS.

SURFACING PLAN

LOCATION	LENGTH (FT.)	WIDENING (FT.)	QUANTITY - TONS				
			PMSC	LIFT 4	LIFT 3	LIFT 2	LIFT 1
617+12.50	237.50	0	7	14	14	11	16
719+50	245	12	14	27	23	23	32
721+95	100	12	9	17	14	14	25
722+95	100	24	11	22	19	19	26
723+95	50	24	6	12	10	10	14
724+45	50	28	7	13	11	11	15
724+95	50	28	6	12	10	10	14
725+45	50	24	11	22	19	19	26
726+45	100	24	9	17	14	14	20
727+45	215	12	12	24	20	20	28
729+60	207.50	12	6	12	10	10	14
731+67.50	0	0					35
EST. FOR IRREGULARITIES			98	192	161	285	285
SUBTOTALS			98	192	161	285	285
TOTALS			98	192	161	285	285

Carried to Summary of
Approximate Quantities