

STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS—STATE OF COLORADO

PLAN AND PROFILE OF PROPOSED "AS CONSTRUCTED" PLANS
FEDERAL AID PROJECT NO. FR 006-3(7)

STATE HIGHWAY NO. 6

LOGAN COUNTY

NO CONSTRUCTED PLANS
RETURN TO DIST. 4 DESIGN

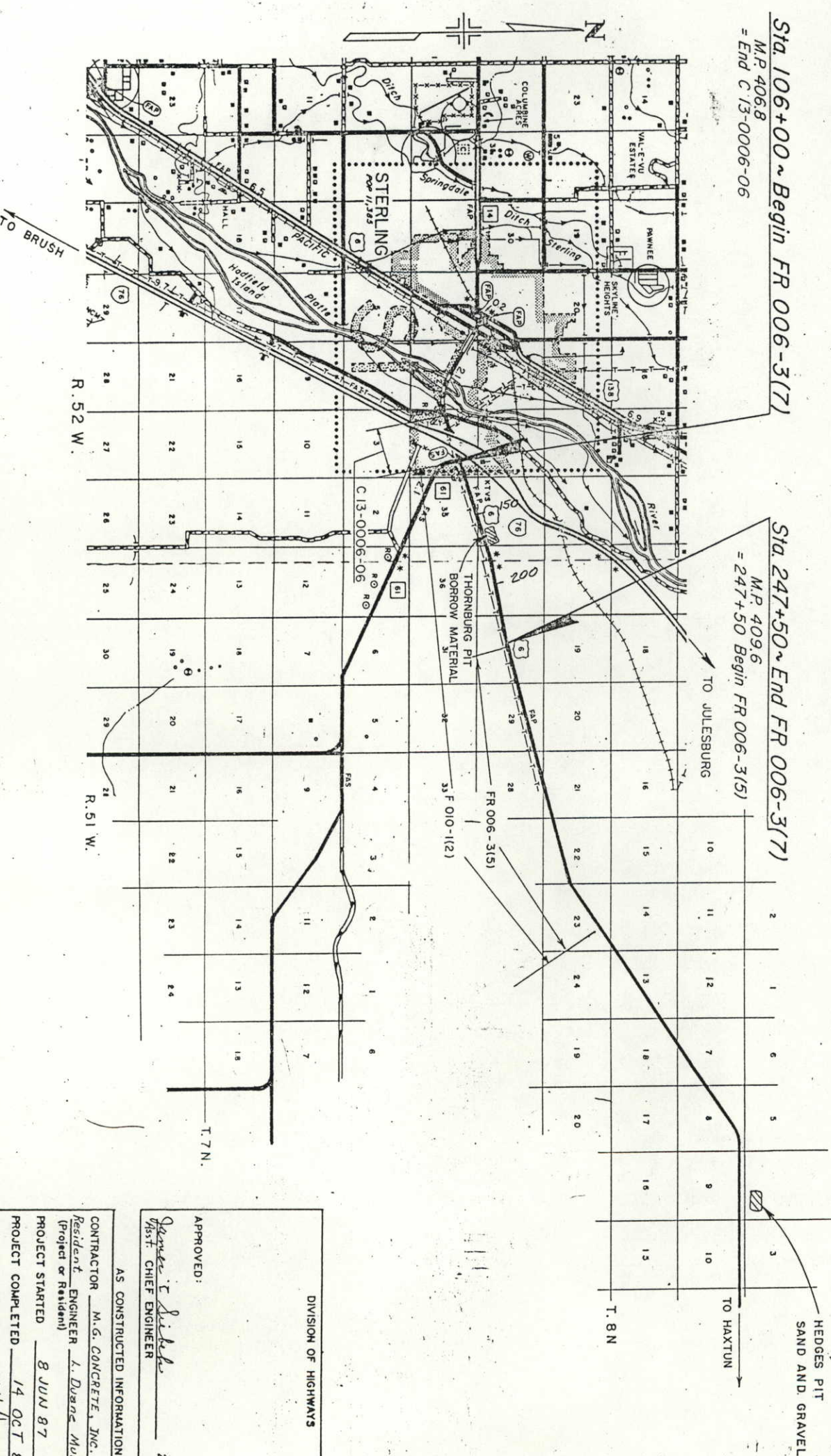
SEE SHEET NO. 2 FOR INDEX
OF SHEETS.

FEDERAL ROAD REGION NO.	DIVISION COLORADO	COLORADO PROJECT NO.	SHEET NO.
XIII	COLORADO	FR 006-3(7)	1

NO REVISIONS	AS CONSTRUCTED
REVISIONS	REVISED [14 OCT 87] VOID

TABULATION OF LENGTH & DESIGN DATA			
STATION TO STATION	ROADWAY		
	LIN. FT.		
106+00~Begin FR 006-3(7) M.P. 406.8 = End C13-0006-06	14,150		
247+50~End FR 006-3(7) M.P. 409.6 =247+50 on FR 006-3(5)	14,150		
TOTAL	14,150		
ROADWAY	SUMMARY		PROJECT NET & GROSS LENGTH
	LIN. FT.	MILES	
	14,150	2.680	
	14,150	2.680	
★ DESIGN DATA			
MAXIMUM DEGREE OF CURVE 2°00'			
MAXIMUM GRADE 4.8%			
MINIMUM S.S.D. HORIZONTAL >900'			
MINIMUM S.S.D. VERTICAL >545'			
MAXIMUM DESIGN SPEED >60 mph			
2007 DESIGN TRAFFIC VOLUME [DHY 292			
% TRUCKS ADT 2400			
23			

★ DESIGN DATA TAKEN FROM PREVIOUS PROJECT NO. F010-1(2)



APPROVED:	DATE
<i>James E. Lick</i>	2-24-97
ASST. CHIEF ENGINEER	
DIVISION OF HIGHWAYS	
AS CONSTRUCTED INFORMATION	
CONTRACTOR	M.G. CONCRETE, INC.
Resident ENGINEER	L. Duane Muller
(Project or Resident)	
PROJECT STARTED	8 JUN 87
PROJECT COMPLETED	14 OCT 87
AS CONSTRUCTED PLANS	
Approved	<i>W. L. Lick</i>
Dist. Constr. Engr.	3-31-88
TITLE	DATE

AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	14 OCT 87 REVISED	VIII	COLO.	FR 006-3(7)	2	
VOID						

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GENMADE
SURFACING

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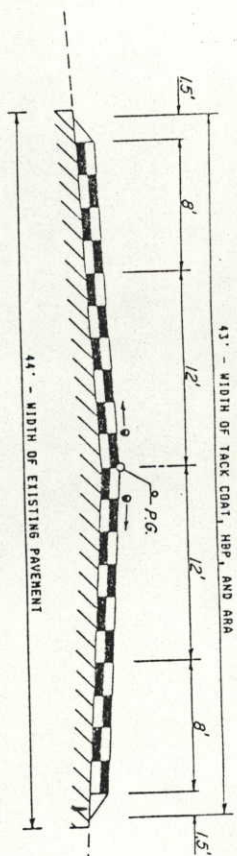
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THE STANDARD PLAN SHEETS INDICATED HEREON BY A MARKED BOX ARE TO BE USED TO CONSTRUCT THIS PROJECT.

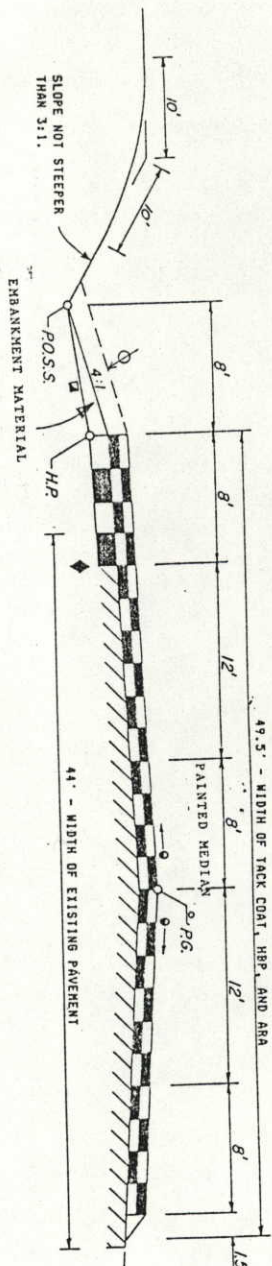
THE DEPTH AND WIDTH OF THE SIDE DITCH SHALL
BE VARIED WHERE NECESSARY IN ORDER TO
PROVIDE PROPER DRAINAGE.

BREAK POINTS ON SLOPES AND IN BOTTOM OF
DITCHES SHALL BE ROUNDED ON CONSTRUCTION
FOR A PLEASING APPEARANCE. SEE STANDARDS
FOR DETAILS OF CUT SLOPE TREATMENT, PLANTING,
AND WIDENING.

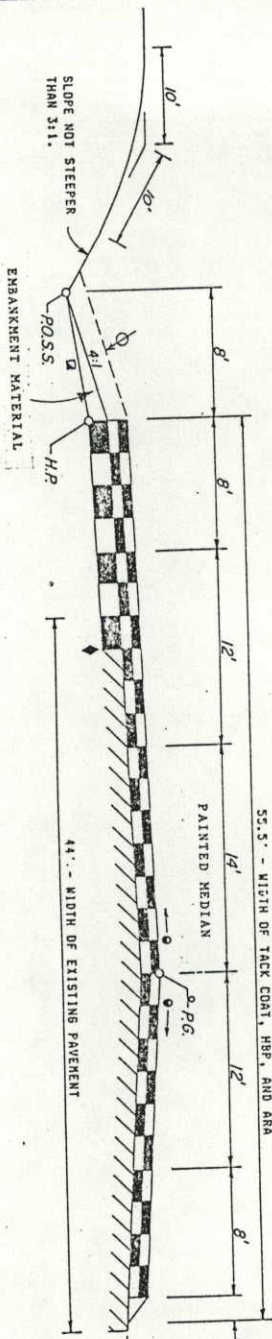
TYPICAL SECTION A, F



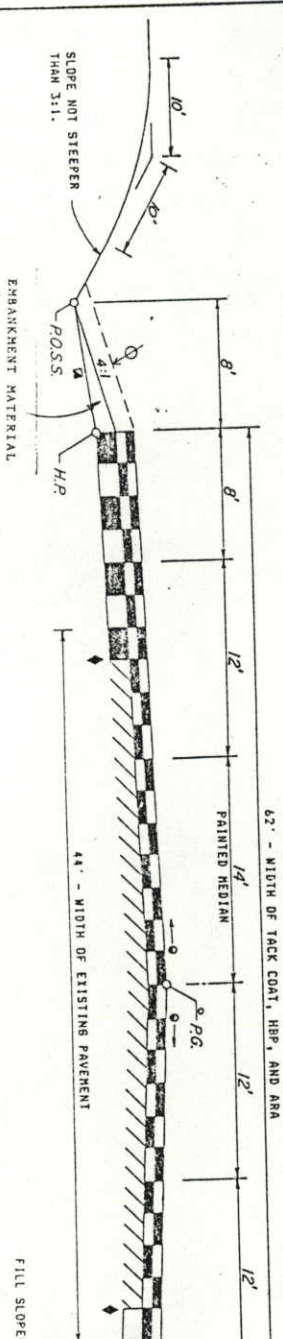
TYPICAL SECTION B



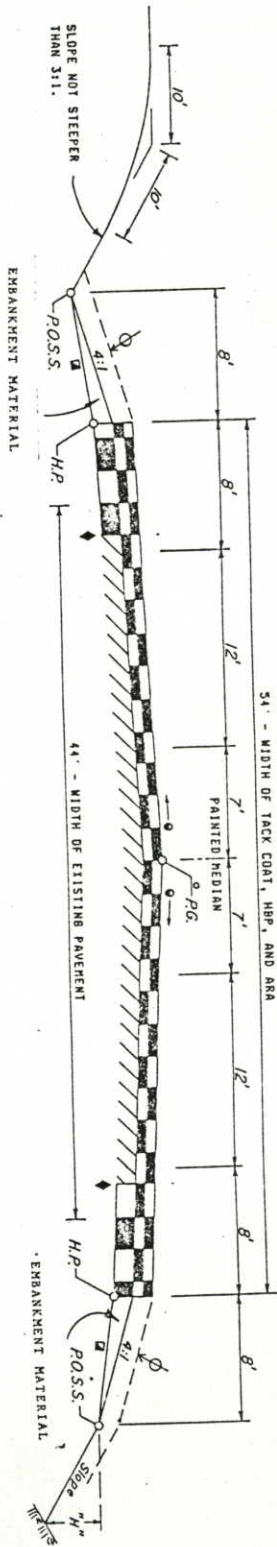
TYPICAL SECTION C



TYPICAL SECTION D



TYPICAL SECTION G



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

TYPICAL SECTION	TOP LAYER THICK.	BOTTOM LAYER THICK.	WIDENING RATE THICK.	RATE THICK.
A	1"	27	1"	25
B	1"	31	1"	30
C	1"	34	1"	33
D	1"	38	1"	38
F	1"	25	1 1/2"	13
G	1"	33	1 1/2"	17

* USED AS LEVELING COURSE

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

SEE SURFACING PLAN FOR STATION LIMITS OF EACH TYPICAL SECTION.

- NOTE: THIS SECTION MAY REQUIRE TWO LIFTS OF 2 INCH AND 1 3/4 INCH
LAYERS AS DIRECTED BY THE ENGINEER.

- APPROXIMATE THICKNESS
- SLOPE 0.02' / FT. OR MATCH EXISTING SLOPE AS DIRECTED.
- SLOPE 0.02' / FT. MIN.

- 4 INCH MINIMUM.

- TRIM TO NEAT LINE, AS DIRECTED BY THE ENGINEER.

- H.P. - HINGE POINT.

- P.O.S.S. - POINT OF SLOPE SELECTION.

- THE CONTRACTOR WILL BE REQUIRED TO PLACE EMBANKMENT MATERIAL TO THIS
LINE AFTER COMPLETION OF THE PAVING OPERATION.

- PROFILE GRADE SHALL BE THE REQUIRED THICKNESS OF OVERLAY ABOVE THE
GRADE OF THE EXISTING PAVEMENT.

AS CONSTRUCTED

NO REVISIONS

REVISED

14 OCT 67

VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	FR 006-3(7)	4	

GENERAL NOTES

FOR PRELIMINARY PLAN QUANTITIES OF PAVEMENT STRUCTURE MATERIALS, THE FOLLOWING
RATES OF APPLICATION WERE USED:

TACK COAT DILUTED EMUL. ASPH. (SLOW-SETTING) @ 0.1 GALS./50. YD. (DILUTED)
@ 110 LBS./50. YD./INCH
BITUMINOUS PAVEMENT @ 0.05 GALS./50. YD. (DILUTED)
ASPHALT REJUVENATING AGENT

RATES OF APPLICATION SHALL BE AS DETERMINED BY THE ENGINEER AT THE TIME OF
APPLICATION.

DILUTED EMULSIFIED ASPHALT (SLOW-SETTING) FOR TACK COAT SHALL CONSIST OF 1 PART
EMULSIFIED ASPHALT AND 1 PART WATER. IT IS ESTIMATED THAT 7865 GAL. WILL BE
REQUIRED FOR THIS PROJECT.

DILUTED EMULSIFIED ASPHALT (SLOW-SETTING) SHALL BE USED AS A DUST PALLIATIVE WHERE
REQUIRED. LOCATIONS SHALL BE AS ORDERED.

ASPHALT REJUVENATING AGENT SHALL BE DILUTED IN ACCORDANCE WITH MANUFACTURERS
RECOMMENDATIONS. FOR ESTIMATING PURPOSES ONE GAL. OF ASPHALT REJUVENATING AGENT TO
TWO GALS. OF WATER WAS USED.

IT SHOULD BE NOTED THAT THE USE OF ASPHALT REJUVENATING IS DEPENDENT ON RESULTS OF
TESTS PERFORMED. COMPLETION OF SURFACING AND MAY NOT BE REQUIRED. IT IS
ESTIMATED THAT 1234 GAL. OF ASPHALT REJUVENATING AGENT WILL BE REQUIRED IF THE
ENGINEER DETERMINES THAT IT WILL BE USED FOR THIS PROJECT.

THE FOLLOWING SHALL BE FURNISHED WITH EACH BITUMINOUS PAYER:

- A SKI TYPE DEVICE AT LEAST 30 FEET IN LENGTH.
- SHORT SKI OR SHOE.

ANY LAYER OF BITUMINOUS PAVEMENT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON
SHALL BE COMPLETED FULL WIDTH BEFORE SUCCEEDING LAYER IS PLACED.

ROAD APPROACHES WHICH REQUIRE BITUMINOUS PAVEMENT SHALL HAVE A 2 INCH THICKNESS OF
PAVEMENT PLACED AS FOLLOWS:

PUBLIC APPROACHES AND ENTRANCES TO BUILDINGS OR RESIDENCES SHALL BE PAVED 50
FEET OUT FROM EDGE OF SHOULDER OR TO THE RIGHT OF WAY LINE, WHICHEVER IS LESS.
FIELD ENTRANCES SHALL BE PAVED 4 FEET OUT FROM EDGE OF SHOULDER.

DEPTH OF MOISTURE-DENSITY CONTROL FOR THIS PROJECT SHALL BE AS FOLLOWS:

FULL DEPTH OF ALL EMBANKMENTS.

BASES OF CUTS AND FILLS 0.5 FOOT.

EXCAVATION REQUIRED FOR COMPACTION OF BASES OF CUTS AND FILLS WILL BE CONSIDERED AS
SUBSIDIARY TO THAT OPERATION AND WILL NOT BE PAID FOR SEPARATELY.

EMBANKMENT ON THIS PROJECT SHALL BE COMPLETE IN PLACE.

TYPE OF COMPACTION FOR THIS PROJECT WILL BE ASHED T-180.

FLEXIBLE CONDUITS ON THIS PROJECT WITH HELICAL CORRUGATIONS, JOINED BY DIMPLED
CONNECTING BANDS, SHALL USE A SEALING COMPOUND OR GASKET WITH THE CONNECTING BAND.

GUARD POST, DELINEATORS, AND SIGNS WILL BE REMOVED BY STATE FORCES. WILE POSTS WILL
BE ADJUSTED OR RESET BY STATE FORCES AT NO COST TO THE PROJECT.

FINAL SIGNING AND STRIPING WILL BE DONE BY STATE FORCES.

SEEDING PLAN

SOIL PREPARATION, FERTILIZING, SEEDING AND MULCHING ~~SHALL BE REQUIRED~~ FOR 12.58
ACRES FOR ROADWAY WITHIN RIGHT OF WAY LIMITS ON ALL
DISTURBED AREAS NOT SURFACED. THE FOLLOWING TYPES AND RATES SHALL BE USED:

COMMON NAME	BOTANICAL NAME	RATE PLS/ACRE
CRESTED WHEATGRASS	AGROPYRON DESERTORUM	6.0
THICKSPICE WHEATGRASS	AGROPYRON DASYSTACHYUM	6.0
SPOROBOLUS CRYPTANDRUS	SPOROBOLUS CRYPTANDRUS	0.25
SAND DROPS	ERAGROSTIS TRICHODES	0.5
CALAMAGUSTA LONGIFOLIA	CALAMAGUSTA LONGIFOLIA	1.0
PRAIRIE SANDREED	BOULELONIA CURTIPENDULA	1.0
SIDEDOATS GRAMA	ALCALFA V. LADAK	0.5
ALCALFA V. LADAK	ALCALFA V. LADAK	0.25
SCARLET GLOBEFLOWER	SPHAERALCEA COCCINEA	0.25
TOTAL POUNDS PURE LIVE SEED (PLS) PER ACRE		15.5

COMMERCIAL FERTILIZER ANALYSIS 1 LBS/ACRE AVAILABLE

NITROGEN: 18

PHOSPHORUS: 46

SEEDING APPLICATION: SEED SHALL BE MECHANICALLY DRILLED TO A DEPTH OF
.25" - .50" INTO SOIL.

MULCHING REQUIREMENT AND APPLICATION: 1-1/2 TONS PER ACRE NATIVE GRASS SHALL
BE MECHANICALLY CRIMPED INTO SOIL.

THE FOLLOWING ESTIMATED QUANTITIES WILL BE REQUIRED FOR ROADWAY SEEDING ON
THIS PROJECT:

- SEEDING (NATIVE) 109 LBS
- FERTILIZER (AVAILABLE N) 189 LBS
- FERTILIZER (AVAILABLE P) 483 LBS
- SOIL PREPARATION (NATIVE) 7 ACRES
- MULCHING 105 TONS

* FOR INFORMATION ONLY

FINAL SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED
NO REVISIONS ☐ REVISED ☒ 14 OCT 87 VOID ☐

FED. ROAD REGION VIII DIVISION COLO. PROJ. NO. COMBINED FR 006-3(7) AND SR 0061(3) SHEET NO. 5

INDEX	CONTRACT NO.	CONTRACT ITEM	UNIT	FR 006-3 (7)		FR 006-3(7)		SR 0061(3)		COMBINED PROJECT TOTALS		DIFF. +/-	PLAN.
				MACR # 1 AMOUNT	PLAN	AS CONST.		PLAN	AS CONST.	PLAN	AS CONST.		
305	7	202 REMOVAL OF STRUCTURE	EACH		2	2.00				2	2.00	-	100
305	7	202 REMOVAL OF ASPHALT MAT	SQ YD					2689	2,689.00	2689	2,689.00	-	100
		202 REMOVAL OF FENCE	LIN FT					2010	2,185.00	2010	2,185.00	+175.0	103
		203 UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CU YD					4891	6,160.00	4891	6,160.00	+1,269	126
	8	203 EMBANKMENT MATERIAL (COMPLETE IN PLACE)	CU YD		16659	27,613.00				16659	27,613.00	+10,954	166
	7	206 STRUCTURE EXCAVATION	CU YD		257	271.00		43	43.00	300	314.00	+14.00	105
	7	206 STRUCTURE BACKFILL (CLASS 2)	CU YD		158	176.00		48	48.00	206	224.00	+18.00	109
		210 RESET MAILBOX STRUCTURE	EACH					2	2.00	2	2.00	-	100
305	4	210 RELOCATE FENCE SEEDING (NATIVE)	ACRE	1.00	7	12.60		3	8.50	10	21.10	+11.10	211
305	4	213 MULCHING	ACRE		7	12.60		3	8.50	10	21.10	+11.10	211
876		304 AGGREGATE BASE COURSE (CLASS 7) (HAUL)	TON					662	441.55	662	441.55	-220.45	67
496		307 MINERAL FILLER	TON		501	652.98		296	345.61	797	998.59	+201.59	125
876	8	403 HOT BITUMINOUS PAVEMENT (PATCHING) (HAUL AND ASPHALT)	TON		200	146.80		50	50.00	250	196.80	-53.2	79
876	8	403 HOT BITUMINOUS PAVEMENT (GRADING F) (HAUL)	TON		9838	11,592.40		5866	5,666.70	15704	17,259.10	+1,555.1	110
496		411 ASPHALT CEMENT (AC-10)	TON		608	760.53		370	375.23	978	1,135.76	+157.76	116
305		411 EMULSIFIED ASPHALT (SLOW-SETTING)	GAL		7665	4,736.00		2578	1,485.00	10443	6,221.00	-4,222	60
305	4	411 ASPHALT REJUVENATING AGENT	GAL		1234	1,183.00		362	350.00	1596	1,533.00	-63.0	96
	7	601 CONCRETE CLASS A (MISCELLANEOUS)	CU YD		40	37.80				40	37.80	-2.20	94
		603 24 INCH CORRUGATED STEEL PIPE	LIN FT					6	6.00	6	6.00	-	100
	7	603 36 INCH CORRUGATED STEEL PIPE	LIN FT		18	48.00				18	48.00	+30.0	267
		603 18 INCH EQUIVALENT CORRUGATED STEEL PIPE ARCH	LIN FT					78	78.00	78	78.00	-	100
		603 24 INCH EQUIVALENT CORRUGATED STEEL PIPE ARCH	LIN FT					62	62.00	62	62.00	-	100
		603 24 INCH STEEL END SECTION	EACH					2	2.00	2	2.00	-	100
	7	603 36 INCH STEEL END SECTION	EACH		2	3.00				2	3.00	+1.00	150
		603 18 INCH EQUIVALENT ARCH STEEL END SECTION	EACH					2	2.00	2	2.00	-	100
		603 24 INCH EQUIVALENT ARCH STEEL END SECTION	EACH					2	2.00	2	2.00	-	100
		607 END POST	EACH	2.00		2.00		2	2.00	2	4.00	+2.00	200
		607 CORNER AND LINE BRACE POST	EACH	2.00		2.00		8	7.00	8	9.00	+1.00	112
305		607 FENCE BARBED WIRE WITH METAL POSTS	LIN FT	125.00		125.00		1400	1,383.00	1400	1,508.00	+108.0	108
305	9	612 DELINEATOR (TYPE I)	EACH		73	73.00		62	62.00	135	135.00	-	100
76		614 FLAGGING	HOURL		1200	1,636.00		750	456.50	1950	2,092.50	+142.5	107
76		614 TRAFFIC CONTROL SUPERVISOR	DAY		39	63.00		26	15.00	65	78.00	+13.00	120

FINAL SUMMARY OF APPROXIMATE QUANTITIES

AS CONSTRUCTED	
NO REVISIONS	REVISED
	14 OCT 87
	VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
XIII	COO.	COMBINED FR 006-3(7) AND SR 0061(3)	6

INDEX	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	FR 006-3 (7)		FR 006-3(7)		SR 0061(3)		COMBINED PROJECT TOTALS		DIFF. +/-	PLAN.
				MCR # 1 AMOUNT	PLAN	AS CONST.		PLAN	AS CONST.	PLAN	AS CONST.		
305	9	614 CONSTRUCTION TRAFFIC SIGN (PANEL SIZE A)	EACH		4	2.00		2	2.00	6	4.00	-2.00	67
	9	614 CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EACH		31	28.00		18	16.00	49	46.00	-3.00	94
	9	614 VERTICAL PANEL (WITH LIGHT) (FLASHING)	EACH		80	80.00		40	50.00	120	130.00	+10.00	108
	9	614 TRAFFIC CONE	EACH		200	200.00		100	100.00	300	300.00	—	100
	7	617 24 INCH CULVERT PIPE	LIN FT		88	108.00				88	108.00	+20.00	123
	7	617 36 INCH CULVERT PIPE	LIN FT		58	58.00				58	58.00	—	100
		620 FIELD LABORATORY (CLASS-2) (MCR #1)	EACH		0.67	0.67		0.33	0.33	1.00	1.00	—	100
		620 SANITARY FACILITY	EACH		0.67	0.67		0.33	0.33	1.00	1.00	—	100
305		625 CONSTRUCTION SURVEYING	L S		0.67	45,025.00		0.33	42,475.00	1.00	47,500.00	—	100
Est.		626 MOBILIZATION	L S		0.67	43,543.07		0.33	41,602.68	1.00	48,571.75	—	100
305		627 4 INCH PAVEMENT MARKING TAPE	LIN FT		1800	954.00		500	617.00	2300	1,571.00	-729.00	68
		FORCE ACCOUNT =====											
		F/A01 MINOR CONTRACT REVISIONS	F A		1	—		1	—	1	—	—	—
		F/A02 MBE INCENTIVE PAYMENT	F A		1	(#13,117.26)		1	(#16,406.93)	1	(#13,576.23)	0	100
		F/A03 ON-THE-JOB TRAINEE	EACH		1	0.00				1			
266		F/A04 FINAL SIGNING AND STRIPING (WORK BY STATE FORCES)	F A		0.67	0.67		0.33	0.33	1	1.00	—	100
		UTILITIES =====											
305		F/A05 RELOCATE UTILITY POLE (WORK BY HIGHLINE ELECTRIC ASSOC.)	F A					1	1.00	1	1.00	—	100
305		F/A06 RELOCATE TELEPHONE LINE (WORK BY MOUNTAIN BELL)	F A					1	1.00	1	1.00	—	100
		RIGHT OF WAY =====											
		RIGHT OF WAY	L S					1	1.00	1	1.00	—	100

FINAL STRUCTURE QUANTITIES

INDEX	PAGE SHEET	LOCATION	REMOVAL OF STRUCTURE	UNCLASSIFIED EXCAVATION			STRUCTURE EXCAVATION			STRUCTURE BACKFILL			HOT BITUMINOUS PAVEMENT (GRADING E.)	CONCRETE (MISC.)		C. S. P.				* CULVERT PIPE		OVER CULV.	C. S. P. END SECTIONS		MISCELLANEOUS
				EXCAV. DITCH (NET)	EMB	FINISH	CL. 1	FINAL	CL. 2	FINAL	CL. 2	FINAL		CL. A	FINAL	36"	24"	36"	24"	36"	24"	36"	36"	FINAL	
266		111 + 50			40			54	54	25	25		3			36"					58	5			
266		112 + 94	1					5	5	7	7		3			36"					40	3			
266		113 + 33			300			5	5	7	7					36"									
266	10	114 + TO 122 +			880	85		176	176	110	110				40	37.8									
		114 + 06											29												
266		122 + 69	1	20									29								68	2			
266		123 + 50						17	24	11	16		4												
		126 + 45											4												
266		137 + 64						5	5	5	5		4												
		231 + 32											4												
		231 + 50											29												
		242 + 49				25																			
TOTALS				2	20	880	450		257	271	158	176	105	40	37.8						48	88	58		3

* END SECTIONS REQUIRED AT INLETS AND OUTLETS.
▲ QUANTITIES CARRIED TO EARTHWORK SUMMARY.
QUANTITIES CARRIED TO SURFACING TAB.

FINAL SUMMARY OF EARTHWORK QUANTITIES

INDEX		PROJECT TOTALS	
BOOK	SHEET	CU. YD.	CU. YD. FINAL
305		EMBANKMENT MATERIAL (CIP)	
266		ROADWAY (FROM COMPUTER) STRUCTURE QUANTITIES AS EMBANKMENT SHOULDER MATERIAL	
		16,107	27,613
		450	
		102	
		16,659	27,613
		TOTAL	
FOR INFORMATION ONLY			
		M GAL.	M GAL.
		510	
		WETTING	
		510	
		COMPACTION (ROADWAY)	
		510	
		TOTAL	
		CU. YD.	CU. YD.
		1,407	5,020
		880	
		450	
		7	
		ROADWAY (FROM COMPUTER) STRUCTURE QUANTITIES AS EMBANKMENT ESTIMATED FOR CUT SLOPE TREATMENT	
		2,744	5,020
		TOTAL	
		COMPACTION (AASHTO T 180)	
		16,659	
		EMBANKMENT (NET)	
		3,714	
		BASE COMPACTION	
		20,373	
		TOTAL	
ROADWAY QUANTITIES BALANCE (FOR INFORMATION ONLY)			
		CU. YD.	CU. YD.
		1,407	
		900	
		20,388	
		UNCLASSIFIED STRUCTURE QUANTITIES BORROW (AVAILABLE SOURCE)	
		22,695	
		TOTAL	
		16,209	
		EMBANKMENT (NET)	
		22,695	
		EMBANKMENT X FACTOR (1.4)	

AS CONSTRUCTED	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISD	14 OCT 87	VOID	8
	VIII	COLO.	FR 006-3(7)	

FINAL SURFACING PLAN

STATION	SOURCE	TYPICAL SECTION	HOT BITUMINOUS PAVEMENT (GRADING F) (HAUL)		HBP PATCHING (HAUL & ASPHALT)
			TOP LAYER TON	BOTTOM LAYER TON	
106+00 TO 110+56		B	142	136.30	137
110+56 TO 113+56		B TO C	98	94.05	95
113+56 TO 115+61.50		C	70	67.15	68
115+61.50 TO 117+61.50		C TO D	73	70.05	72
117+61.50 TO 135+25		D	671	644.00	671
135+25 TO 142+75		D TO A	244	230.45	237
142+75 TO 165+50		A	615	587.70	589
165+50 TO 166+00		A TO F	14	14.45	10
166+00 TO 230+19	AVAILABLE	F	1606	1556.20	835
230+19 TO 233+69		F TO G	102	106.85	53
233+69 TO 242+99		G	307	339.40	159
242+99 TO 247+50		G TO F	131	165.70	68
ESTIMATED FOR:			300	260.35	
ROAD APPROACHES			57	218.65	
APPROACH TO PROJ.					600
IRREGULARITIES					
PATCHING			4430	4649.2	3574
TOTALS				11,592.40	1834

It is estimated that 50 tons of Mineral Filler and 400 tons of Asphalt Cement (AC-10) shall be required for this project.

STABILIZATION BASED ON THE FOLLOWING DATA:

REGIONAL FACTOR
SERVICEABILITY INDEX
STRENGTH COEFFICIENT HBP (GR. F)

0.50
2.50
0.35

SUBGRADE R VALUE
18K EDLA
205

DYNAMIC

MI. TO MI.

408.9 ~ 408.0
408.1 ~ 409.5

AVG. DEFL.

1.544
1.280

AVG. SN

0.88
0.06

CRITICAL FACTOR

1.1
1.1

FOR INFORMATION ONLY

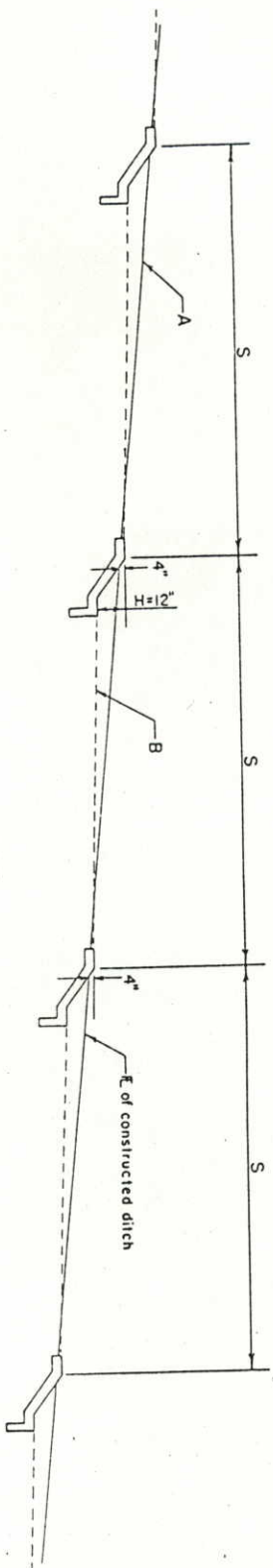
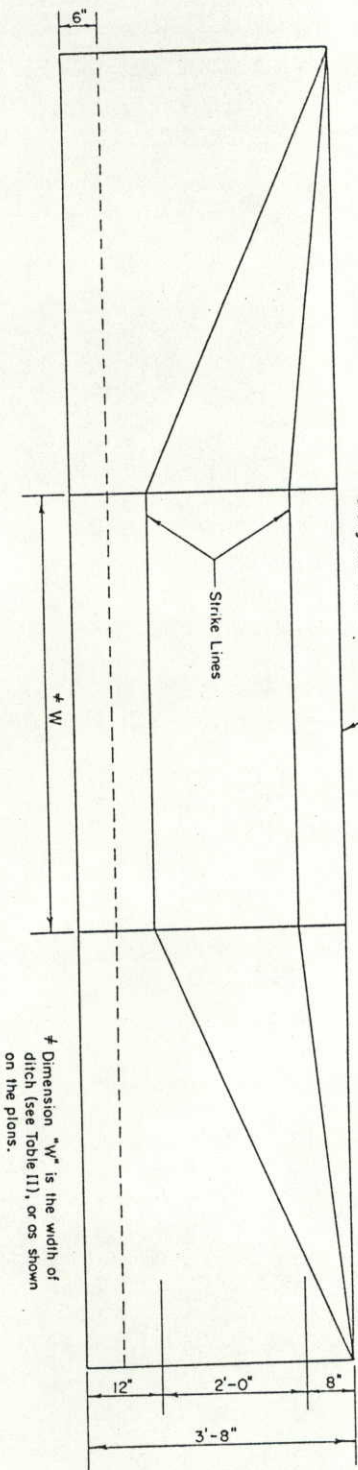
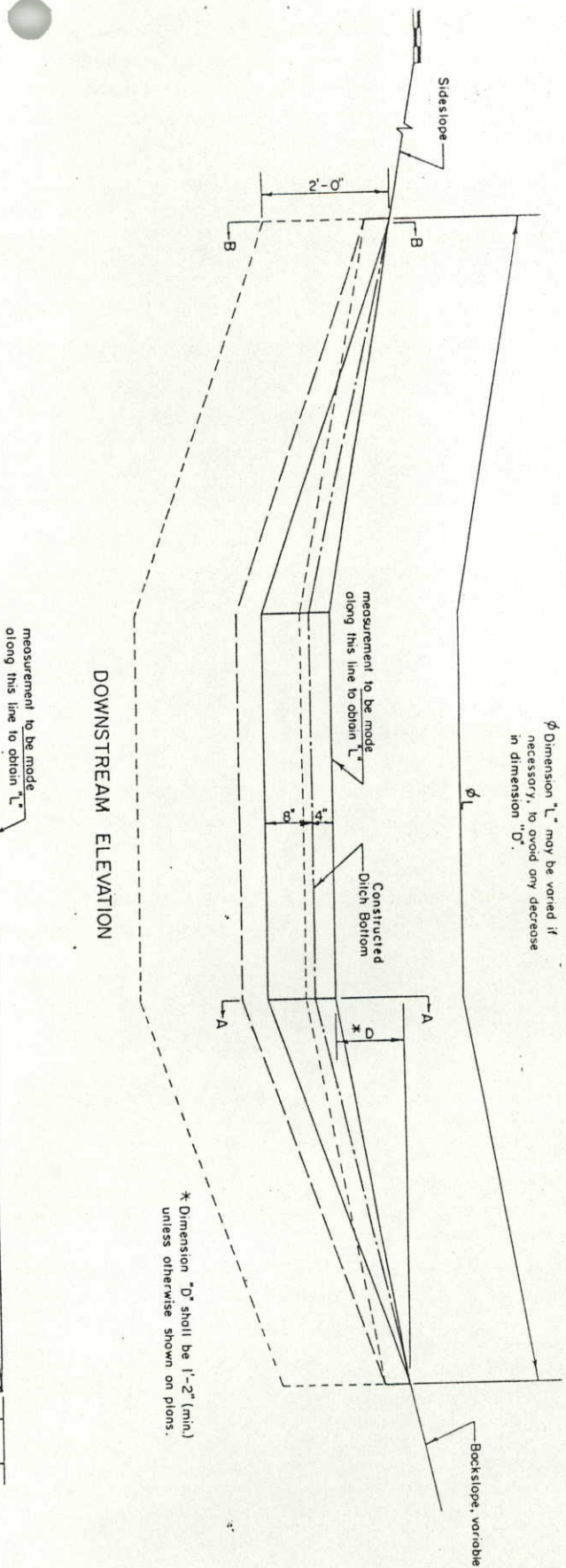
FINAL TABULATION OF DELINEATORS

LOCATION	SIDE	SPACING	TYPE	
			1	CRYSTAL
MAINLINE				FINAL
106+00	LT & RT		2	
111+28	LT & RT		2	
112+56.68	RT		1	
113+58	RT		1	
113+61	LT		1	
118+86	RT		1	
118+89	LT		1	
122+35 123+64	RT		1	
124+ 17 90	LT		1	
126+13	RT		1	
129+45	LT		1	
131+41	RT		1	
134+73	LT		1	
136+69	RT		1	
140+01 137+88	LT		1	
141+00 TO 230+00	LT & RT		3	
220+00 140+00	LT & RT		2 1	
225+28 141+00	LT & RT		2 1	
230+56 146+50 to 230+56	LT & RT		2 38	
231+00	RT		1	
231+82	LT		1	
233+39	LT & RT		2 14	
236+39	LT & RT		2	
PC 239+00 PT 244+99	LT & RT	1° CURVE	2	
247+99	LT & RT		2	
250+99	LT & RT		2	
TOTAL			73	

* TEMP. MARKINGS - 1 FOOT PIECE AT 40
FOOT INTERVALS
ALONG CENTERLINE

See Form 365

DETAIL OF DITCH CHECKS



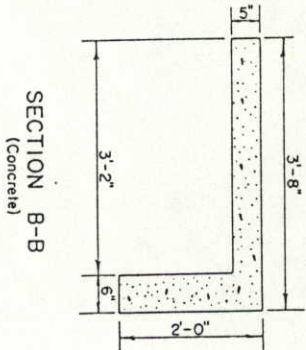
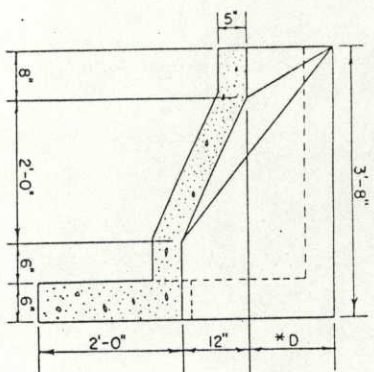
SPACING DIAGRAM

S = Spacing of units in feet.
A = Per Cent grade of constructed ditch.
B = Per Cent grade of which washing is expected to stop. This will vary with type of soil, etc. (See Table II).
H = Height of drop of each unit in feet

FORMULA FOR SPACING
 $S = \frac{100H}{(A-B)}$

TABLE I TABLE OF SPACING (H=12')	
(A-B)	SPACING
1	100
1.5	67
2	50
2.5	40
3	33
3.5	29
4	25
4.5	22
5	20

TABLE II - MAXIMUM SLOPE "B" (For various discharges and soil conditions)			
Q, cfs	Silty Soils (low PI)	Clay Soils (high PI)	W (min)
< 5 cfs	2%	4%	2'
5-20	1%	2%	6'
21-50	0.5%	1%	10'



NOTE: Use Class "A" concrete throughout for Ditch Checks.
Concrete based on "W" = 6' and "L" = 20'
Warp ditch to fit ditch checks

FINAL DITCH CHECKS

STATION	SIDE	ELEVATED DITCH	MISC		
			CONCRETE CLASS A	STRUCTURE EXCAVATION	STRUCTURE BACKFILL
115+50	Rt.	3948.97	1.8	8	5
116+20	Rt.	3951.20	1.8	8	5
116+50	Rt.	3952.50	1.8	8	5
116+80	Rt.	3954.00	1.8	8	5
117+10	Rt.	3955.70	1.8	8	5
117+30	Rt.	3957.10	1.8	8	5
117+50	Rt.	3958.50	1.8	8	5
117+70	Rt.	3959.90	1.8	8	5
117+90	Rt.	3961.30	1.8	8	5
118+10	Rt.	3962.70	1.8	8	5
118+30	Rt.	3964.10	1.8	8	5
118+50	Rt.	3965.50	1.8	8	5
118+70	Rt.	3966.90	1.8	8	5
118+90	Rt.	3968.30	1.8	8	5
119+10	Rt.	3969.64	1.8	8	5
119+30	Rt.	3970.92	1.8	8	5
119+50	Rt.	3972.20	1.8	8	5
119+90	Rt.	3974.76	1.8	8	5
120+10	Rt.	3975.64	1.8	8	5
120+50	Rt.	3978.13	1.8	8	5
121+40	Rt.	3981.90	1.8	8	5
122+80	Rt.	3986.16	1.8	8	5
FINAL TOTALS			37.2	176	110

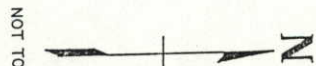
QUANTITIES CARRIED TO STRUCTURE QUANTITY

AS CONSTRUCTED
NO REVISIONS
REVISED 14 OCT 87
VOID

FEDERAL ROAD DISTRICT PROJ NO SHEET TOTAL
REGION NO COLORADO FR 006-3(1) 10 SHEETS

HEDGES PIT

HAZARDOUS, TRUSLE
THE SOUTH 1/2 OF THE SOUTH 1/2 SEC. 4, T. 8
SAND AND GRAVEL
30,000 CU. YDS.
3,000 CU. YDS. TO BE REPLACED
12,000 CU. YDS. OVERBURNED TO BE REMOVED
12,000 CU. YDS. OVERBURNED TO BE REPLACED
12.7 MI. TO COUNTY ROAD 24 AND SH 61
FIELD SAMPLE NO. 04404

OPTIMUM ASPHALT CONTENTLAB SP. GR. AT OPTIMUMPERCENT PASSING

COMPLETE LOG OF EACH TEST HOLE

PIT NAME: HEDGES R

OWNER'S NAME: HAROLD KUES, TRUSTEE
OWNER'S ADDRESS: ROUTE 1, FLEMING, CO 80728
PIT LOCATION (LEGAL): PORTIONS OF THE SOUTH 1/2 OF THE SOUTH 1/2 OF SECTION 4 LYING SOUTH OF THE R.N.R., TOWNSHIP 8 NORTH, RANGE 50 WEST.
TYPE OF PIT: SAND AND GRAVEL
ROYALTY FEE: FORTY CENTS PER TON (\$0.40)
ROYALTY CHECKS PAYABLE TO: HAROLD KUES, TRUSTEE
OPTION EXPIRATION DATE: AUGUST 22, 1990
OPTION DATE: AUGUST 22, 1986

1. THE DIVISION WILL OBTAIN THE NECESSARY CONSENT OR CITY ZONING CLEARANCE, AND THE REQUIRED PERMITS FROM COLORADO MINED LAND RECLAMATION NEEDED TO EXPLORE OR REMOVE MATERIAL FROM THIS AVAILABLE PIT.
2. IF THE CONTRACTOR CHOOSES NOT TO USE THE HENGES PIT, HE MUST STILL PERFORM THE WORK REQUIRED TO RECLAIM THOSE PORTIONS OF THE PIT, PLANT, STOCKPILE, AND ALL ROAD AREAS THAT WERE DISTURBED BY PREVIOUS OPERATIONS AND NOT YET RECLAIMED. THIS INCLUDES GRADING, SPENDING APPROXIMATELY \$.00M DURING YEARS OF STOPPING, RIPING, SOIL PREPARATION, SEEDING, FERTILIZING AND MULCHING 0.0 ACRES. THIS WORK WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE ASSUMED SUBSIDIARY TO THE PRODUCT.
3. ALL OF THE CONTRACTOR'S ACTIVITIES RELATING TO THE GRAVEL OPERATION INCLUDING, BUT NOT LIMITED TO, SUCH ITEMS AS STOCKPILE AREA, VEHICLE PARKING, PLANT AREA, AND HAUL ROADS SHALL BE CONFINED WITHIN THE EXISTING FENCED AREA. THE AREA ENCLOSED BY THE FENCE WILL BE REFERRED TO AS THE AFFECTED AREA.
4. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT VIOLATIONS IN THE GRADING OF THE DEPOSIT WERE ENCOUNTERED DURING SAMPLING. THEREFORE, CARE SHOULD BE EXERCISED DURING AGGREGATE PRODUCTION TO ASSURE THAT THE MATERIAL IS STOCKPILED AND BLENDEN IN SUCH A MANNER AS TO PRODUCE A UNIFORM AGGREGATE IN THE

5. THE CONTRACTOR WILL BE REQUIRED TO STRIP THE TOP SIX TO TEN INCHES OF OVERBORDEN FROM ANY AREAS LOCATED WITHIN THE AFFECTED AREA WHERE HE WISHES TO WORK, UNLESS THE AREA WAS STRIPPED DURING PREVIOUS OPERATIONS.

6. THE CONTRACTOR'S PLAN FOR EXCAVATING THE PIT MUST BE APPROVED BY THE ENGINEER.

7. THE GRAVEL EXCAVATION IS TO START AT THE FACE OF THE EXISTING PIT AND WORK BACK INTO THE DEPOSIT. ALL MATERIAL DESIGNATED BY THE ENGINEER AS USEABLE WILL BE REMOVED TO THE FULL DEPTH OF THE DEPOSIT.

8. ANY EXCESS OVERBURDEN IN THAT PORTION OF THE PIT AREA THAT IS TO BE EXCAVATED WILL BE STRIPPED AND STOCKPILED. HOWEVER, IT IS TO BE IN A SEPARATE STOCKPILE FROM THE MATERIAL REMOVED FROM THE TOP SIX TO TEN INCHES.

9. THE CONTRACTOR WILL SUPPLY AND USE EQUIPMENT CAPABLE OF WORKING A VERTICAL FACE WHEN EXCAVATING THE GRAVEL.

10. A SCREENING PLANT WILL BE REQUIRED TO PRODUCE SPECIFICATION MATERIAL.

11. THE CONTRACTOR WILL BE REQUIRED TO STOCKPILE THE SCREENED MATERIAL PRIOR TO THE START OF THE CONSTRUCTION OF THE SCREENING PLANT. IT IS ASSUMED THAT A UNIFORM PRODUCTION RATE WILL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.

12. ALL ASPHALT AND ASPHALT MIX WILL BE REMOVED FROM THE AFFECTED AREA. THE MIXING IT WITH ASPHALT CEMENT. THIS WILL AID IN ASSURING THAT A CONTAMINATED IS BEING PRODUCED.

12. ALL EXCESS MATERIALS AND WASTE SHALL BE REMOVED FROM THE PROJECT SITE. CONTRACTOR WILL NOT BURY WASTE ASPHALT OR MIX, EXCESS FILLER, OR TRASH ON THIS PROPERTY.

14. THE BOTTOM OF THE EXCAVATION IS TO BE LEFT RELATIVELY SMOOTH WITH NO LARGE HUMPS OR DEPRESSIONS.

15. THE ENGINEER MAY DIRECT THAT CERTAIN PORTIONS OF THE AFFECTED AREA, SUCH AS PORTIONS OF GRAVEL FACES AND/OR HAUL ROAD, NOT BE COMPLETELY RECLAIMED.

16. ALL LOCATIONS IN THE AFFECTED AREA THAT HAD OVERBUDEN REMOVED OR VEGETATION DESTROYED BY THE CONTRACTOR'S OPERATION, AND ANY UNRECLAIMED AREAS LEFT BY DISTURBED OPERATIONS, WILL BE RIPPED TO A MINIMUM DEPTH OF SIX INCHES.

17. THE STOCKPILED EXCESS OVERBURDEN WILL BE PLACED UNIFORMLY OVER THE BOTTOM THE AREA WHERE GRAVEL WAS REMOVED.

18. THE STOCKPILED TOP SIX TO TEN INCHES OF OVERBROKEN WILL BE SPREAD UNIFORM OVER THE AREAS FROM WHICH IT WAS REMOVED.

20. ALL LOCATIONS IN THE AFFECTED AREA THAT WERE COVERED WITH THE STOCKPILED
MATERIALS WILL BE ESTABLISHED, SEEDING, AND MULCHED AS INDICATED BELOW.

OVERBURDEN OR MIPEDU WILL BE PENALIZED; SEEDING
SEEDING

DATE

[illegible]

BLUE GRAMA (BOULELLOUA GRACILIS)	2.95
SIDEONTS GRAMA (BOULELLOUA CURTIPENDULA)	9.00
LITTLE BLUESTEM (SCHIZACHYRIUM SCOPARIUM)	8.75
WILLOW CURELLOUWA (METOTIS EFFICINALIS)	1.13

YELLOW SEEDLINGS (MILKWEEDS)	22.83
TOTAL SEEDLING - PLS/ACRE	22.83

FERTILIZER

COMMERCIAL FERTILIZER

50

100

100/1000

100

AVAILABLE NITROGEN
AVAILABLE PHOSPHATE

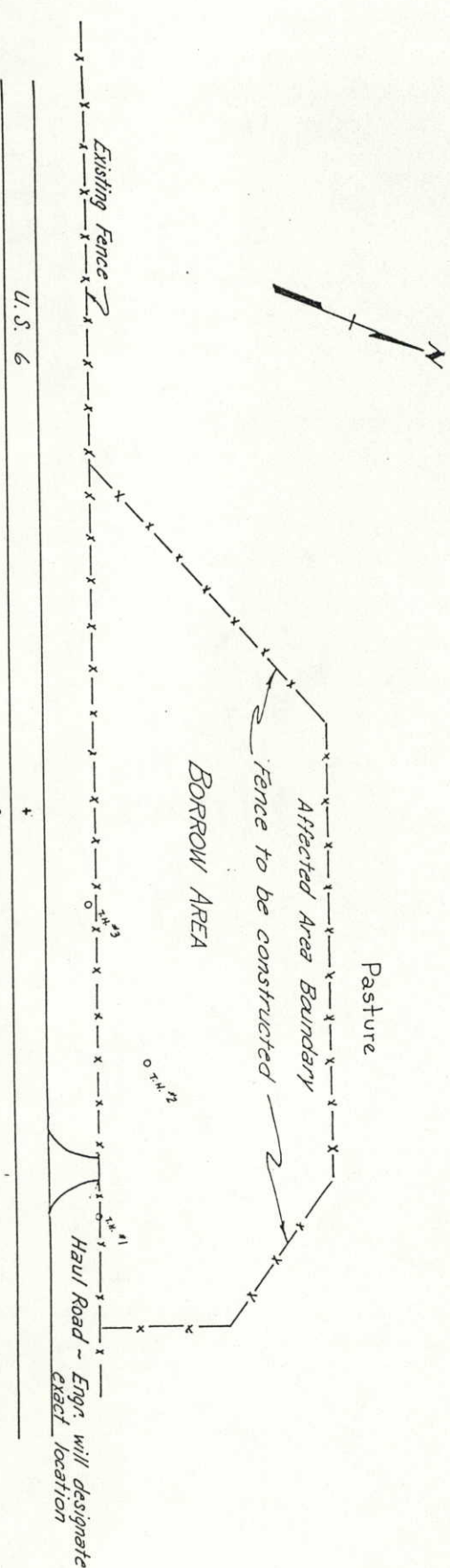
MULCHING

MULCHING MATERIAL SHALL BE PLACED AT APPROXIMATELY 1-1/2 TONS PER ACRE.

AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	☐ REVISED ☒ 14 OCT 87	VIII	COLO.	FR 006-3 (7)	12	

STATE LAND ~ THORNBURG PIT

NOT TO SCALE



AVAILABLE MATERIALS PIT INFORMATION

PIT NAME State Land - Thornburg Pit

OWNER'S NAME State of Colorado - State Board of Land Commissioners

OWNER'S ADDRESS 620 Centennial Bldg., 1313 Sherman St., Denver, CO 80203

PIT LOCATION (LEGAL) A portion of South 1/2, Southeast 1/4 Section 28, Township 8 North, Range 52 West

TYPE OF PIT Borrow

ROYALTY FEE Forty and one-half cents (\$0.405) per cubic yard

ROYALTY CHECKS PAYABLE TO State of Colorado - State Board of Land Comm.

OPTION EXPIRATION DATE June 2, 1991

OPTION DATE June 2, 1986

COMPLETE LOG OF TEST HOLES

TEST NO.	MATERIALS CHANGES FROM	TO	SAMPLE SHIPPED	NO. OF SACKS	DEPTH TO WATER	DESCRIPTION OF MATERIAL
1-A	0.0'	0.5'	NO	--	--	GRASS AND WEEDS
1-B	0.5'	9.0'	YES	1	--	SAMPLE
2-A	0.0'	0.5'	NO	--	--	GRASS AND WEEDS
2-B	0.5'	6.0'	NO	--	--	SIMILAR TO 1-B
3-A	0.0'	0.5'	NO	--	--	GRASS AND WEEDS
3-B	0.5'	6.0'	NO	--	--	SIMILAR TO 1-B

SUMMARY OF APPROXIMATE QUANTITIES (FOR INFORMATION ONLY)

ITEM NO.	ITEM	QUANTITY
203	SHIPPING	9,400 CU. YDS.
212	SEEDING (MANURE)	27 LBS.
212	MULCHING (MANURE)	208 TONS.
*607	FENCE BARBED WIRE WITH METAL POSTS	2,300 LIN. FT.
607	END POST	2 EACH
607	CORNER AND LINE BRACE POST	5 EACH

* INCLUDES 16 FT. BARBED WIRE GATE

PIT CONSTRUCTION REQUIREMENTS

1. THE AREA WHERE BORROW REMOVAL AND RELATED ACTIVITIES WILL BE CONDUCTED WILL BE KNOWN AS THE AFFECTED AREA.
2. A 4-WIRE BARBED WIRE FENCE WILL BE CONSTRUCTED ON THE NORTH, EAST, AND WEST BOUNDARIES OF THE AFFECTED AREA PRIOR TO THE START OF THE BORROW OPERATION. THE R.O.W. FENCE IN THE SOUTHERN PORTION OF THE AFFECTED AREA CAN THEN BE REMOVED.
3. A BARBED WIRE GATE WILL BE CONSTRUCTED IN THE FENCE BETWEEN THE AFFECTED AREA AND THE ADJACENT PASTURE.
4. WHEN THE BORROW OPERATION IS COMPLETED A STANDARD 4-WIRE BARB WIRE FENCE WILL BE BUILT WHERE THE R.O.W. FENCE WAS REMOVED.
5. THE ENGINEER WILL DESIGNATE THE LOCATION OF ALL FENCES. ALL NEW FENCE WILL REMAIN IN PLACE SUBSEQUENT TO PIT OPERATIONS.
6. THE ENGINEER WILL ESTABLISH THE ELEVATIONS TO WHICH THE BORROW IS TO BE REMOVED. THE OPERATION WILL BE CONDUCTED IN SUCH A MANNER THAT NO LARGE HUMPS OR DEPRESSIONS WILL BE LEFT IN THE AREA THAT IS EXCAVATED. ALL BACKSLOPES CREATED BY THIS EXCAVATION WILL BE LEFT NO STEEPER THAN 6:1.
7. THE DEPARTMENT'S R.O.W. ADJACENT TO THE EXCAVATED AREA WILL BE GRADED SO THAT RUNOFF FROM THE R.O.W. DOESN'T DRAIN INTO THE EXCAVATED AREA.
8. THE TOP SIX INCHES OF SOIL IN THE AFFECTED AREA WILL BE STRIPPED AND STOCKPILED.
9. AT THE COMPLETION OF THE BORROW OPERATION THE BOTTOM AND BACKSLOPES OF THE EXCAVATED AREA WILL BE RIPPED TO A DEPTH OF APPROXIMATELY SIX INCHES.
10. THE STOCKPILED TOP SIX INCHES OF SOIL WILL THEN BE SPREAD UNIFORMLY OVER THE BOTTOM AND BACKSLOPES OF THE AFFECTED AREA.
11. ALL ITEMS REQUIRED FOR PIT OPERATIONS WILL NOT BE PAID FOR SEPARATELY, BUT ARE INCLUDED IN THE WORK.
12. THE AFFECTED AREA WILL THEN BE SEEDED, FERTILIZED, AND MULCHED AS SHOWN BELOW.

COMMON NAME

SWITCHGRASS (PATHFINDER)
SAND BLUESTEM (WOODWARD)
SAND REED GRASS
LITTLE BLUESTEM (PASTURA)
BLUE GRAMA

SPECIES

PANTHON VIRGATUM
ANDROPOGON HALLII
CALAMAGRIS LONGIFOLIA
SCHIZACHYRIUM SCOPARIUM
BOULETUS GRACILIS

FERTILIZER/MULCH

IMMEDIATELY AFTER SEEDING UNIFORMLY SPREAD 40 TONS OF COW MANURE PER ACRE OVER THE AREA. APPROXIMATELY 60% OF THE MANURE SHOULD CONSIST OF CHUNKS THAT ARE 5 INCHES OR LARGER.

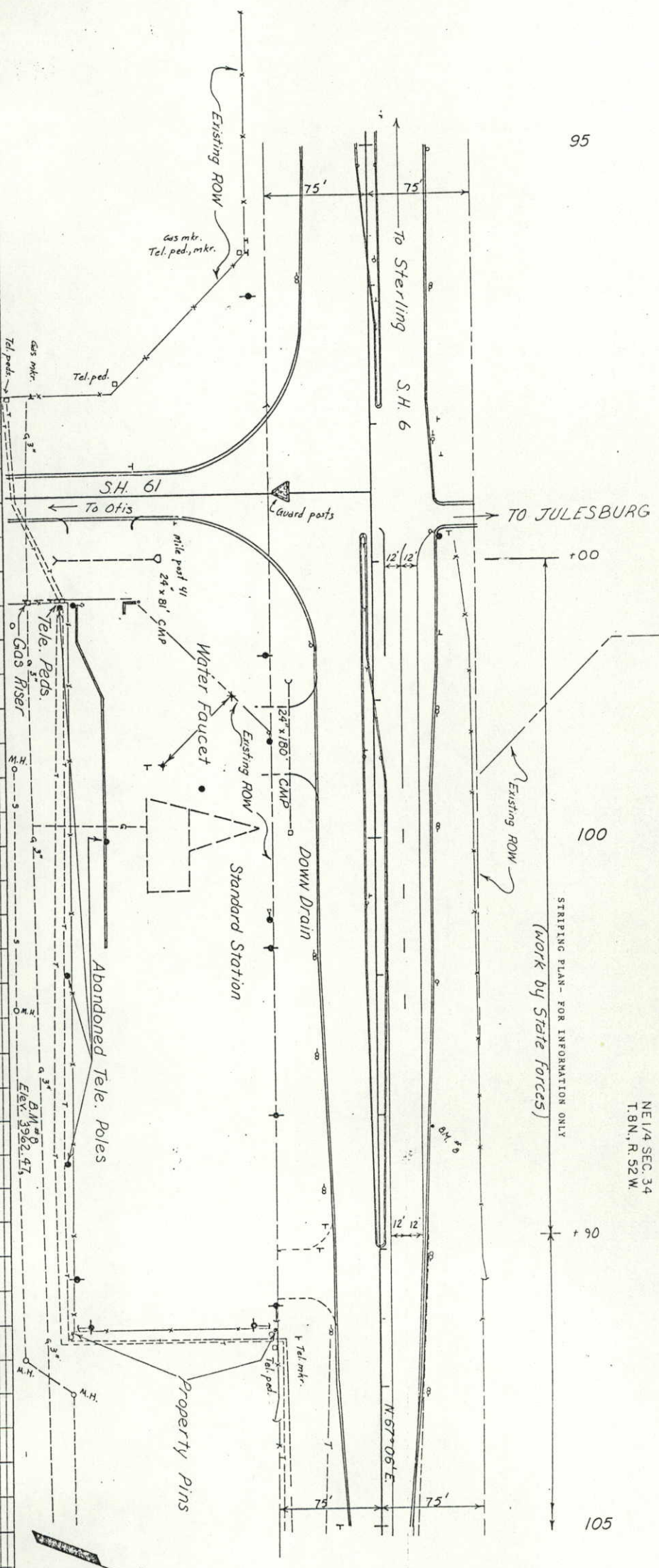
Total Acres Affected = 4.97

SEEDING PLAN

RATE PLS/ACRE
0.7
2.0
1.0
1.0
0.5
5.2

UTILITY COMPANIES: CATV, MOUNTAIN BELL, IOWA ELECTRIC
LIGHT AND POWER, CITY OF STERLING SEWER

NOTE: Bearings and Section information
from previous R.O.W. Project BF 010-1(1).



95

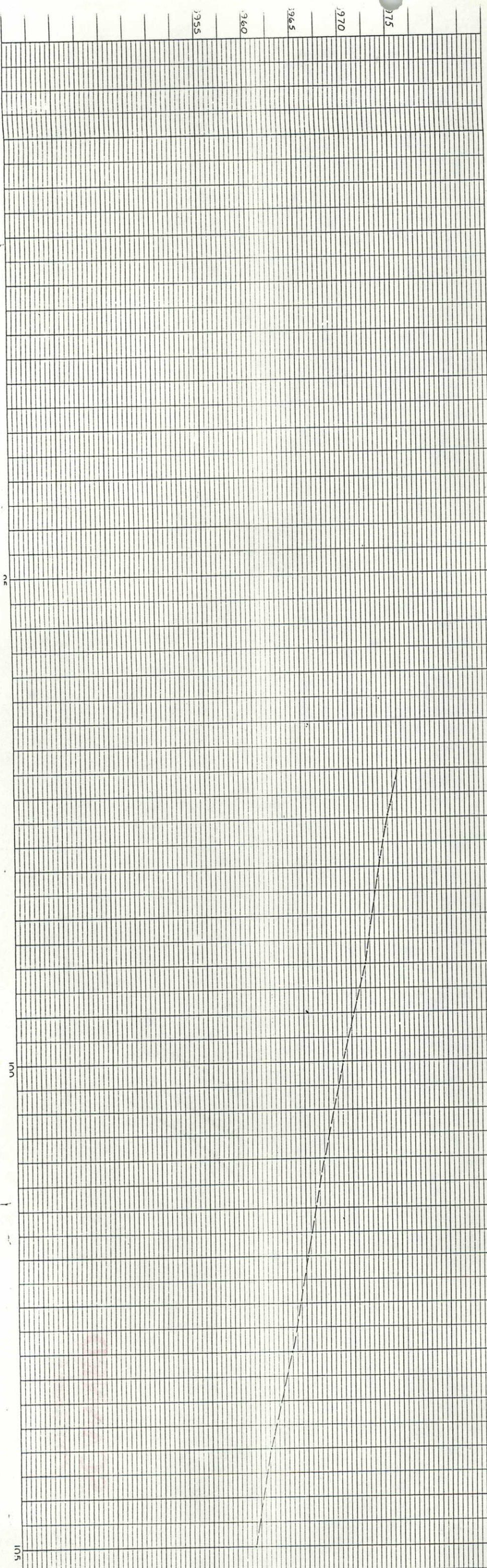
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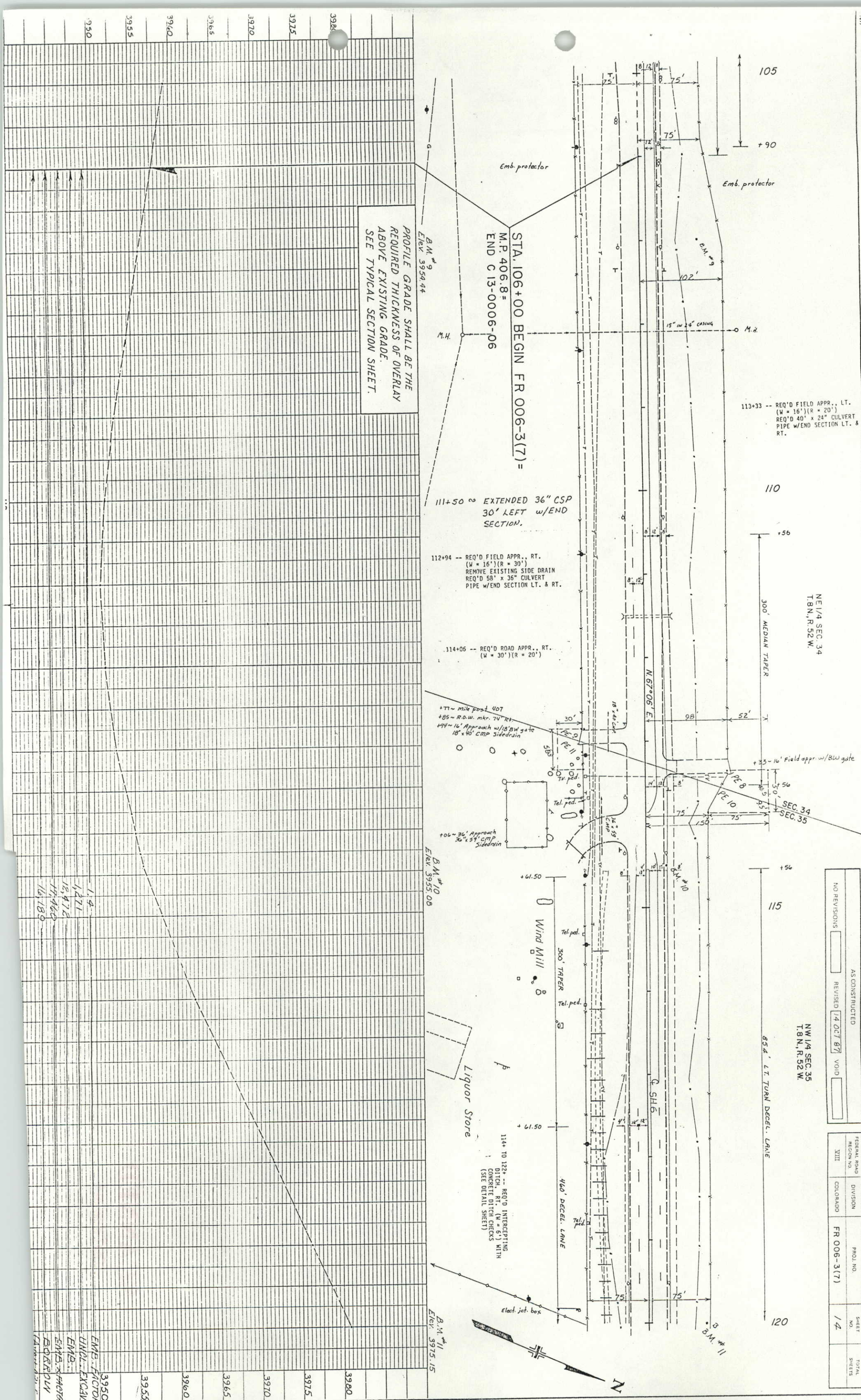
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AS CONSTRUCTED	
NO REVISIONS	14 OCT 87
REVISED	
VOID	

FEDERAL ROAD SECTION NO. VIII	DIVISION COLORADO	PROJ. NO. FR 006-3(7)	SHEET NO. 1/3	TO SHE
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NE 1/4 SEC. 34
T. 8N., R. 62W.

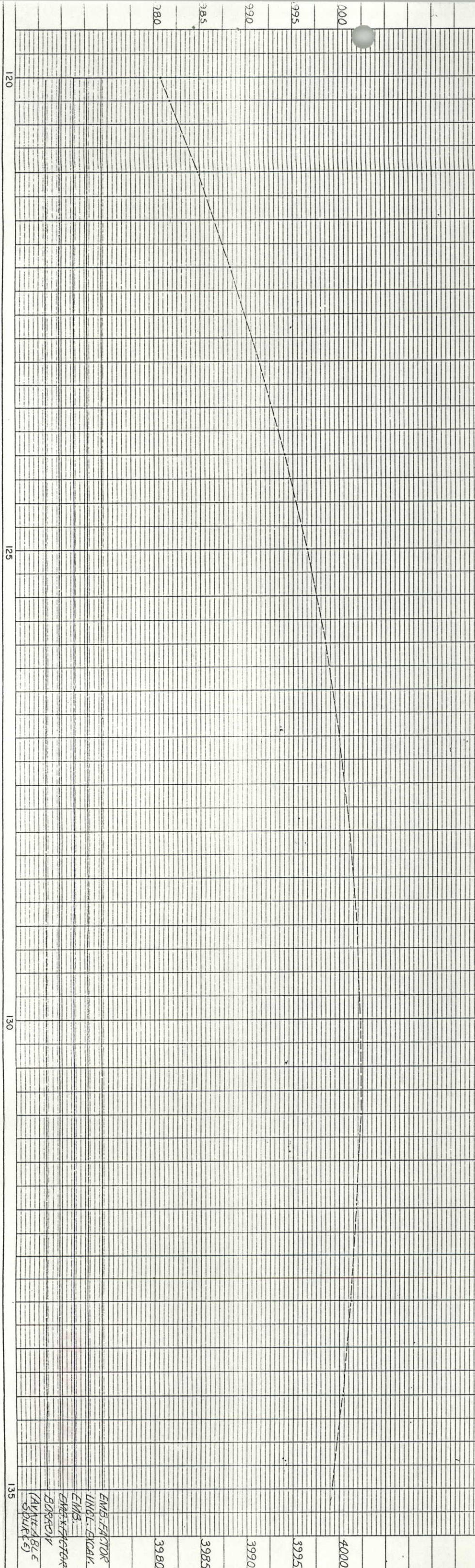
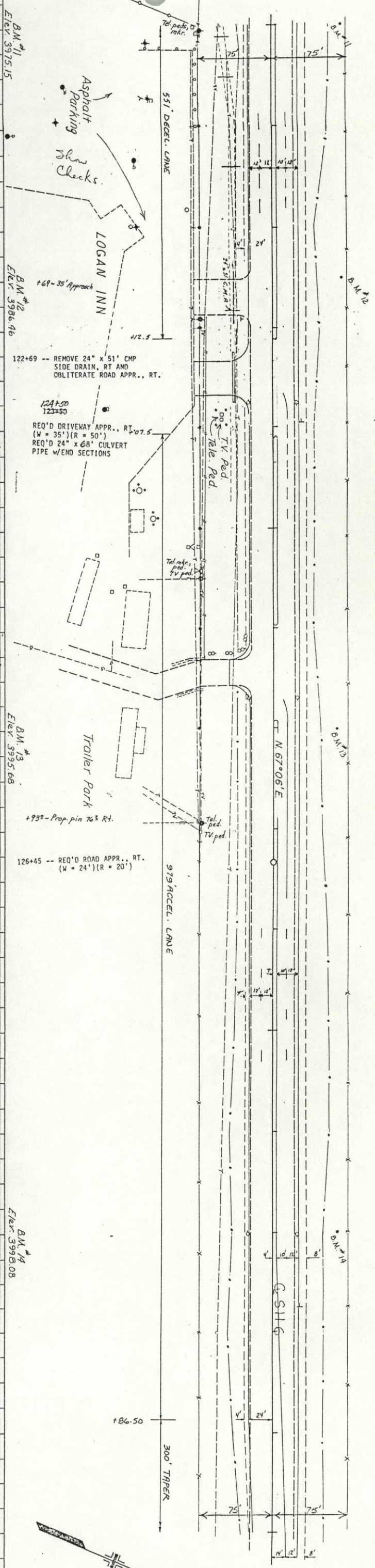
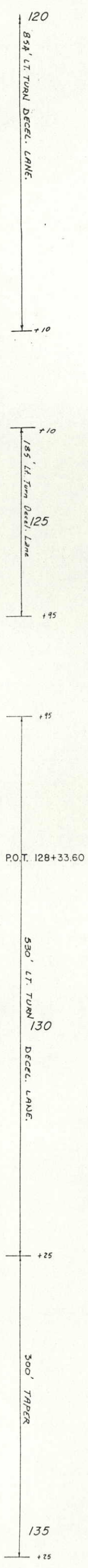




NW 1/4 SEC. 35
T. 8 N., R. 52 W.

AS CONSTRUCTED	
NO REVISIONS	REVISED 14 OCT 67
	VOID

FEDERAL ROAD REGION NO. XIII	DIVISION COLORADO	PROJ. NO. FR 006-3(7)	SHEET NO. 15	TOTAL SHEETS
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SW 1/4 SEC. 26
T.8N., R. 52W.

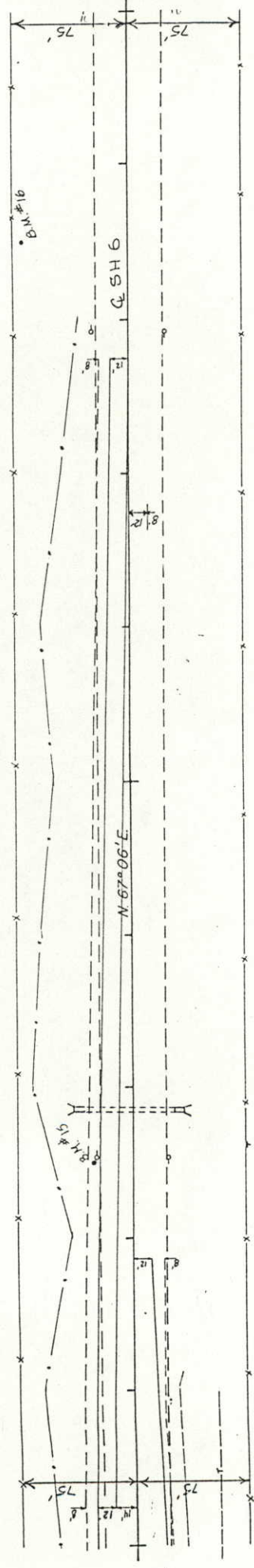
52 + 25

55

140

5L+

750' MEDIAN TAPER



500' TAPER

- 05.984

Teil.mkr.

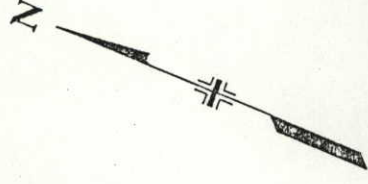
EXTEND EXISTING 36" CSP 10'
LT. AND 8' RT. W/END
SECTION LT. & RT.
DITCHES LT. & RT.

NW 1/4 SEC. 35
T.8 N., R. 52 W.

B.M. #15
Elev. 3995.08

B.M. #16
Elev. 3995.35

NOTE: From Sta. 141+ to Sta. 230+ is Hot Bituminous Pavement Overlay

[illegible]

AS CONSTRUCTED		NO REVISIONS		14 OCT 78		REVISED		VOID	
FEDERAL ROAD REGION NO	VIII	DIVISION	COLORADO	PROJ. NO.	FR 006-3(7)	SHEET NO.	17	TOTAL SHEETS	

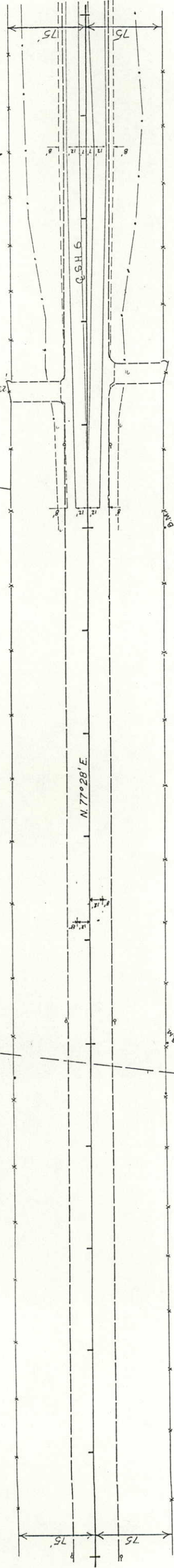
SE 1/4 SEC. 25
T.8N., R.52 W.

220

225

230

235



SEC. 25
SEC. 30
T.8N., R.52 W.
T.8N., R.51 W.

NOTE:
From Sta. 141+ to Sta. 230+
is Hot Bituminous Pavement
Overlay

SW 1/4 SEC. 30
T.8N., R.51W.
(M = 16'), (R = 20')
231+50 -- REQ'D FIELD APPR. LT.

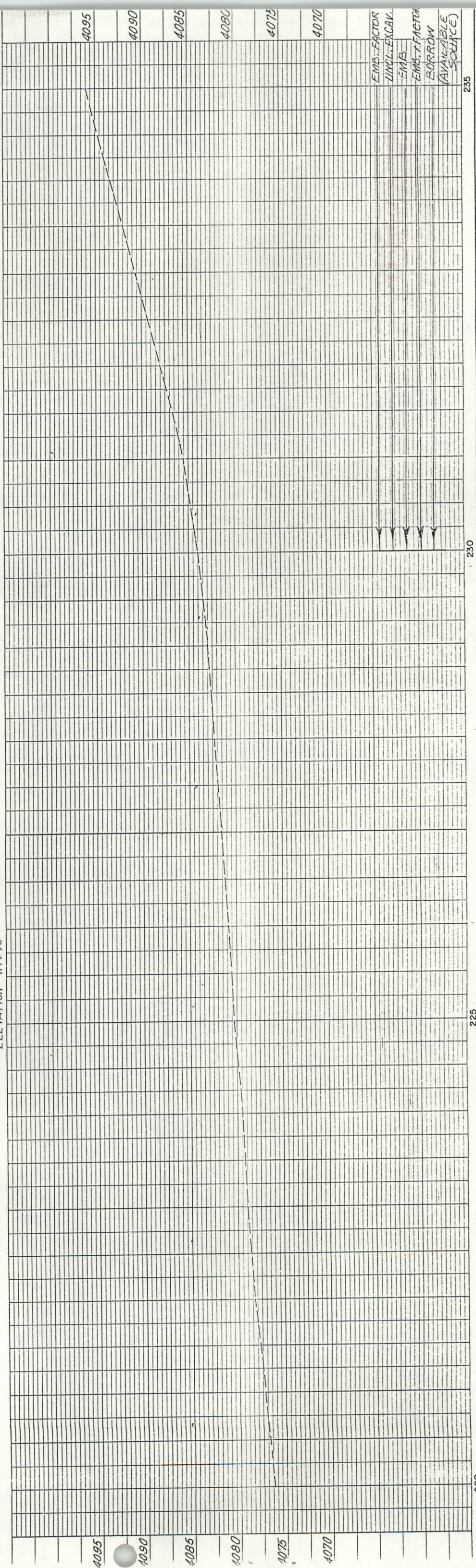
350' MEDIAN TAPER

300' TAPER

B.M. 75' Rt. Sta. 225
ELEVATION 4174.96

B.M. 75' Rt. Sta. 230
ELEVATION 4188.30

B.M. 75' Rt. Sta. 235
ELEVATION 4199.99



EMB. FACTOR
LINCL-EXCAV.
EMB
EMB-T-FACTOR
BORROW
(AVAILABLE
SOURCE)

AS CONSTRUCTED

NO REVISIONS 14 OCT 87

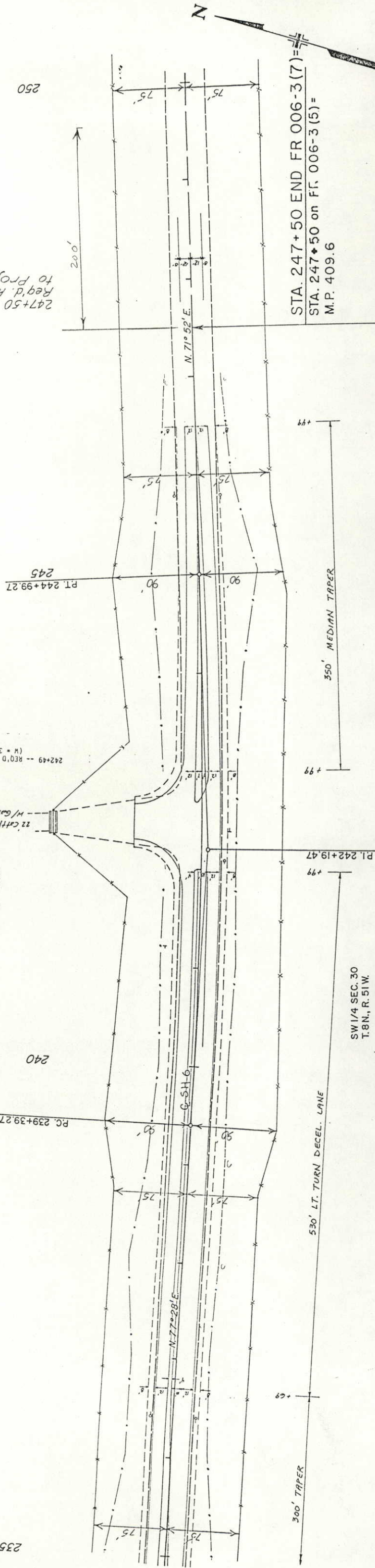
REVISED

VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	FR 006-3(7)	18	

$$\begin{aligned}\Delta &= 5^{\circ}36' \text{ Lt.} \\ T &= 280.22' \\ D &= 1^{\circ}00' \\ L &= 560.00' \\ R &= 5729.58' \\ E &= 6.85'\end{aligned}$$
$$\begin{array}{r} 239 + 39.27 \\ \hline \end{array}$$

235

SW 1/4 SEC. 30
T.8N., R. 51W.

B.M. 75' R+ Sta. 240
ELEVATION 4214.98

B.M. 75 R+ Sta 250
ELEVATION 4209.77

B.M. 75' Rt Sta. 245
ELEVATION 4218.51

300' TAPER

530' LT. TURN DECEL. LANE

350 MEDIAN TAPER

B.M. 75 Lt. Sta. 235
ELEVATION 4199.97

B.M. 75' R+ Sta. 240
ELEVATION 4214.98

B.M. 75' Rt Sta. 245
ELEVATION 4218.51

B.M. 75 R+ Sta 250
ELEVATION 4209.77

[illegible]