STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS — STATE OF COLORADO

PE AND UTILITIES UNDER IXFU 470-1(2) AND IXFU 470-1(42)
R.O.W. UNDER IXFU 470-1(2) AND IXFU 470-1(58)

FEDERAL ROAD REGION NO.	DIVISION	PROJECT	SHEET NO.
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	1

13b

AS CONSTRUCTED
NO REVISIONS [ ] REVISED 10-16-87 VOID [ ]

REVISIONS		
R-1	9-23-86 1,9,10,17,26,28,34,42	L.E.G.

PLAN AND PROFILE OF ~~PROPOSED~~ AS CONSTRUCTED

COMBINED FEDERAL AID PROJECT NO. IXFU 470-1(54) & IXM 1115(22)

STATE HIGHWAY NO. 470

MP 10.22 - 13.98

JEFFERSON COUNTY

SCALES OF ORIGINAL DRAWINGS
AS SHOWN ON PLAN AND PROFILE

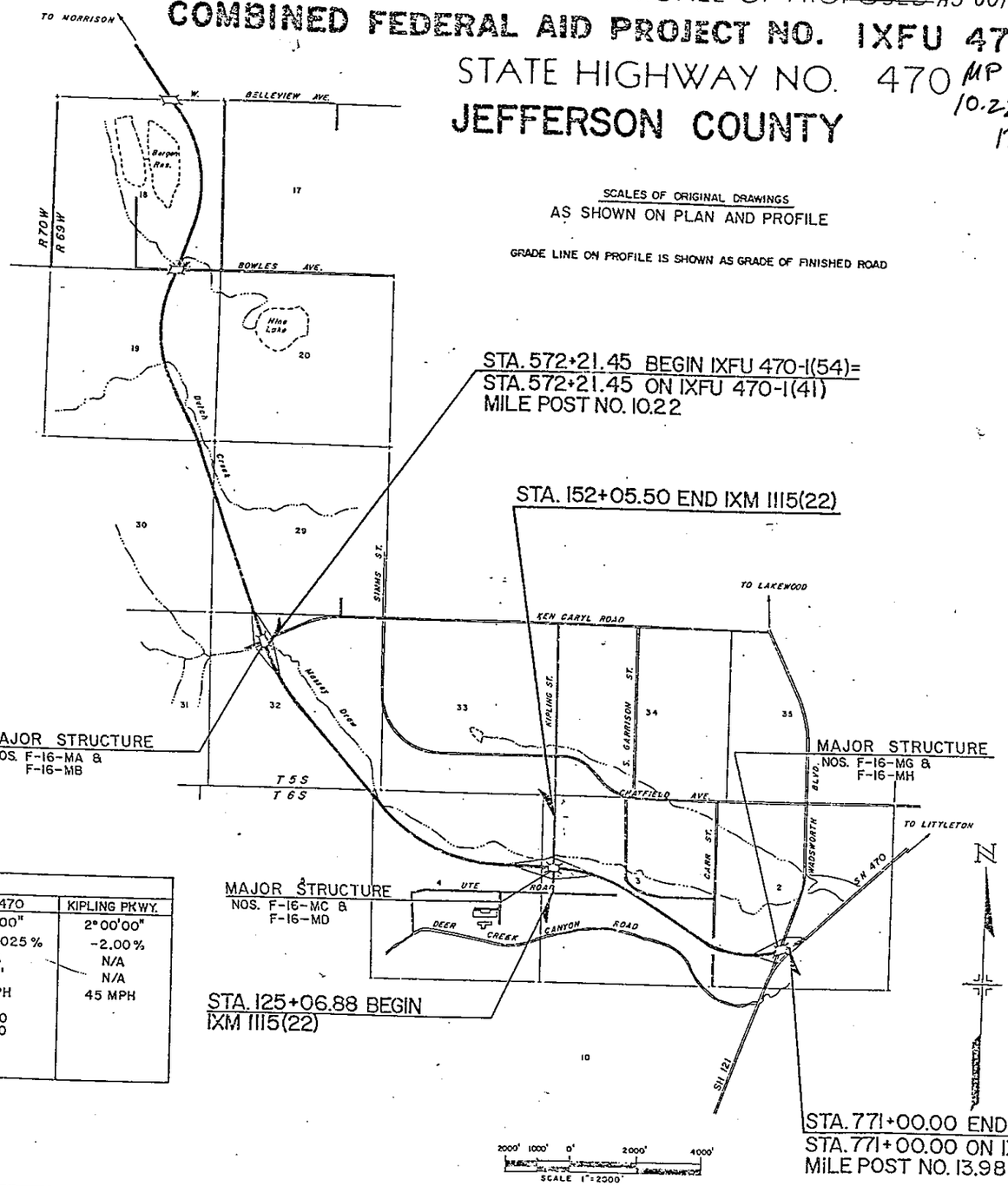
GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD

TABULATION OF LENGTH

STATION	LIN. FT. ROADWAY	LIN. FT. MAJOR STRUCTURE
572+21.45 BEGIN IXFU 470-1(54) = 572+21.45 ON IXFU 470-1(41) MILE POST NO. 10.22 771+00.00 END IXFU 470-1(54) = 771+00.00 ON IXFU 470-1(42) MILE POST NO. 13.98	19,878.55	
SUBTOTAL 470	19,878.55	
KIPLING PKWY. 125+06.88 BEGIN IXM 1115(22) 152+05.50 END IXM 1115(22)	2,698.62	
SUBTOTAL KIPLING PKWY.	2,698.62	
COMBINED PROJECT NET LENGTH	22,577.17	

SUMMARY	LIN. FT.	MILES
ROADWAY IXFU 470-1(54) (NET LENGTH)	19,878.55	3.765
ROADWAY IXM 1115(22) NET LENGTH	2,698.62	0.511
COMBINED PROJECTS TOTAL LENGTH	22,577.17	4.276

DESIGN DATA	SH-470	KIPLING PKWY.
MAXIMUM DEGREE OF CURVE	2°00'00"	2°00'00"
MAXIMUM GRADE	-4.0025 %	-2.00 %
MINIMUM SSD HORIZONTAL	N/A	N/A
MINIMUM SSD VERTICAL	610'	N/A
MINIMUM DESIGN SPEED	70 MPH	45 MPH
2004 DESIGN TRAFFIC VOLUME DHV	4,500	
2004 DESIGN TRAFFIC VOLUME ADT	37,200	



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REVISED M AND S STANDARDS
M-606-12 GUARDRAIL TYPE 4 CONCRETE BARRIER (9 SHEETS) 2-18-83

DeLeuw, Cather & Co.
Denver, Colorado

DAVID J. WEAVER REGISTERED 13935 PROFESSIONAL ENGINEER STATE OF COLORADO

DIVISION OF HIGHWAYS

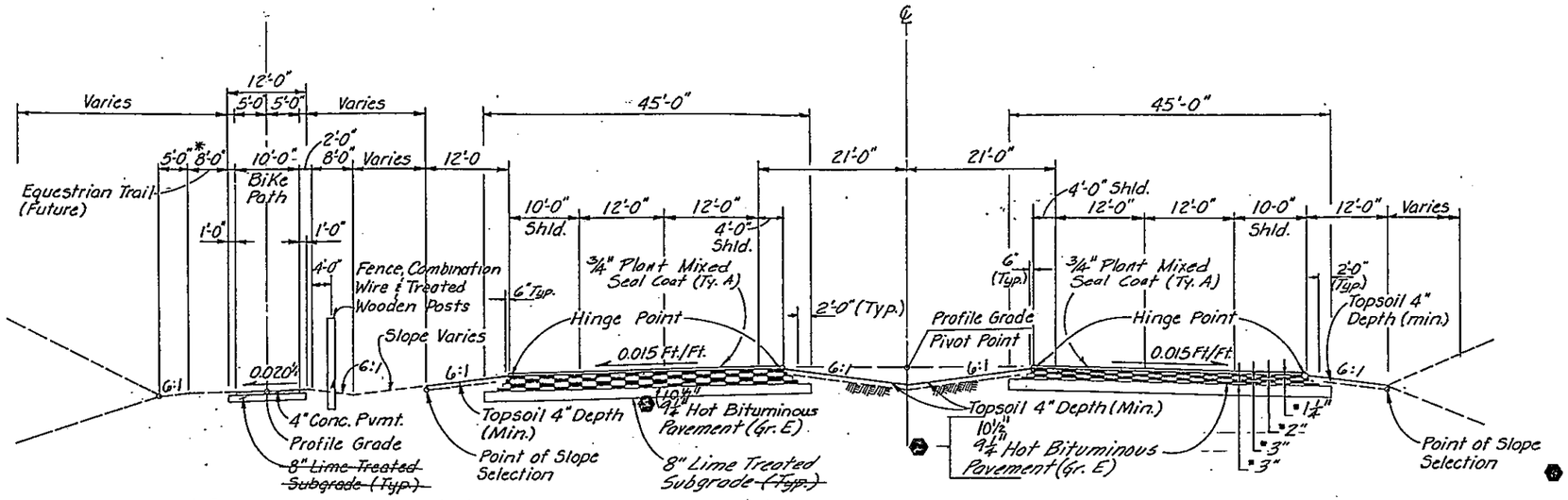
APPROVED: Robert L. Clevenger 9/17/86
CHIEF ENGINEER DATE

AS CONSTRUCTED INFORMATION
CONTRACTOR STERLING PAVING CO.
RES. ENGINEER R.L. MCKENZIE
(Project or Resident)
PROJECT STARTED 5-11-87
PROJECT COMPLETED 10-16-87
AS CONSTRUCTED PLANS APPROVED
Const Engr. 5-18-88
TITLE DATE

LEG-DIST. VI /GWO

AS CONSTRUCTED		
NO REVISIONS	REVISED 10-16-87	VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IXFU 470-1 (54) IXM 1115 (22)	3	109



Westbound or Northbound Lanes

Eastbound or Southbound Lanes

* Full 8'-0" Equestrian Trail not required from Sta. 5803+80 to 1702+00 use 2'-0" between these limits and transition as shown on plans.

* Approximate Thickness

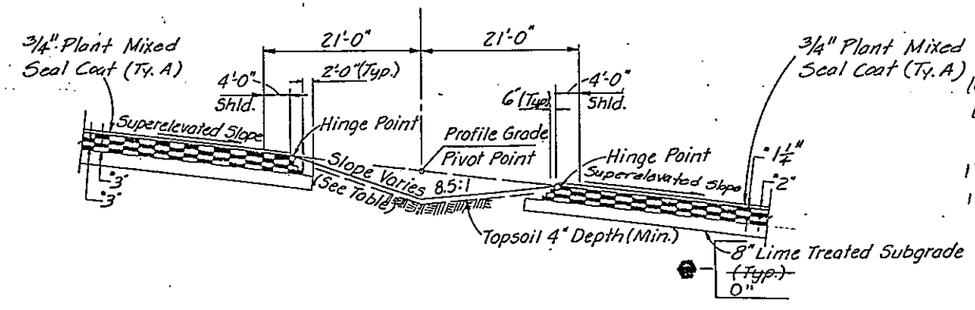
TYPICAL SECTION - S.H. 470

MEDIAN SLOPE		
Baseline	Superelev.	Slope
0°45'00"	.029%	5.69:1
1°00'00"	.038%	5.16:1
1°30'00"	.053%	4.47:1
2°00'00"	.065%	4.04:1

AS CONSTRUCTED TYPICAL SECTIONS CM0125

	STA. EAST-BOUND	LIME TREATED SUBGRADE	H.B.P. (GR. E)
		KEN CARYL STR.	
MP 10.213	572+47.49	8"	9¼"
10.417	583+00	0"	10½"
	689+15.77		
	691+70.77	KIPLING STR.	
12.924	715+50	8"	9¼"
13.033	721+25	0"	9¼"
	765+20.02	8"	9¼"
		WADS. STR.	

	WEST BOUND		
		KEN CARYL STR.	
10.213	572+47.49	8"	9¼"
10.417	583+00	0"	10½"
	689+12.15		
	691+67.15	KIPLING STR.	
12.905	714+50	8"	9¼"
13.047	722+00	0"	9¼"
	765+20.02	8"	9¼"
		WADS. STR.	



TYPICAL SECTION - S.H. 470
(SUPERELEVATED)

Typical Section Notes:

1. It is anticipated that the existing Subgrade is approximately 1" higher than as shown.

   It is anticipated that excess material may be generated during the Hydrated Lime Treatment. These operations shall be considered subsidiary to the work.

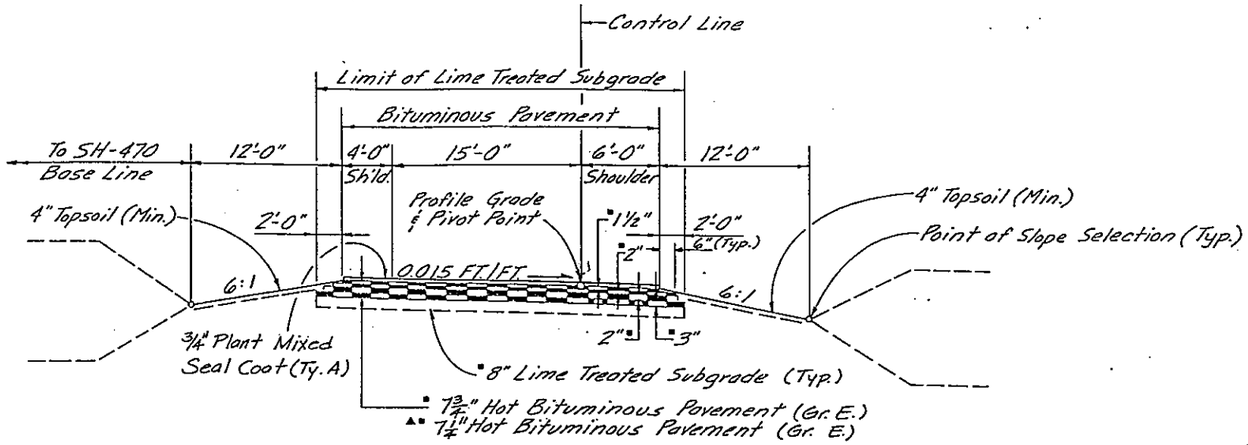
   Excess material shall be used as shouldering or as directed by the Engineer.

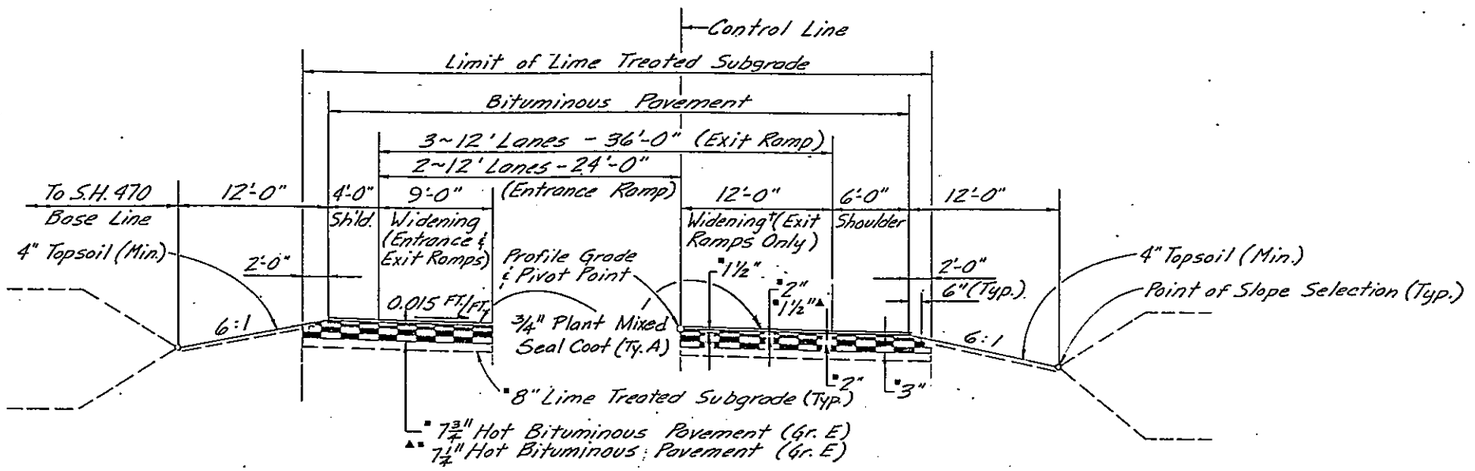
2. Break points on slopes and in bottoms of ditches shall be rounded on construction for a pleasing appearance. See Standards.

3. The contractor will be required to place 4 inches of topsoil as shown.

   Any additional material required for shouldering will be measured and paid for as "Topsoil (Haul)"

AS CONSTRUCTED.							
NO REVISIONS 10-16-87 REVISED		VOID	FED.ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
			VIII	COLO.	IXFU 470-1 (54) IXM 1115 (22)	4	109





▪ Approximate Thickness

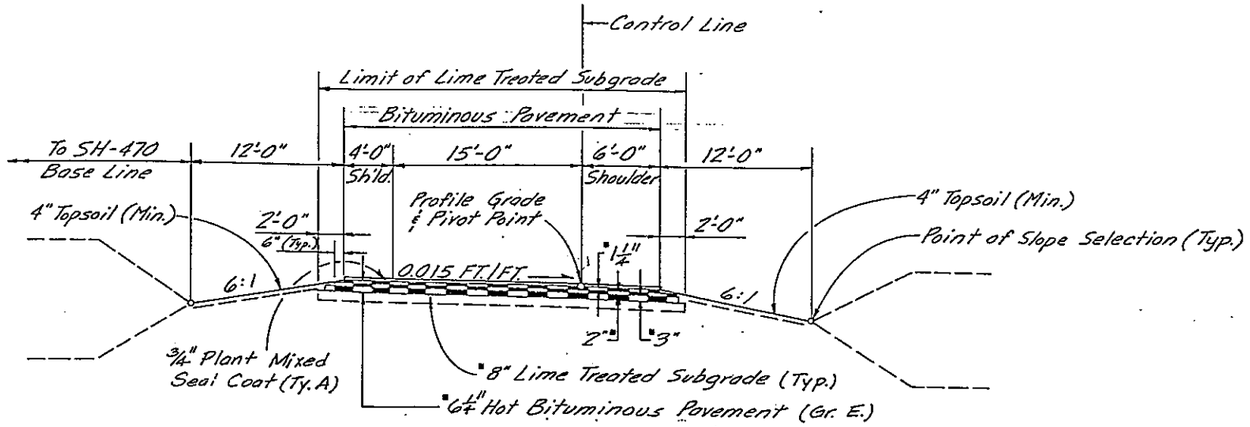
† See Plan Sheets for Location of Widening tapers & Widened Sections.

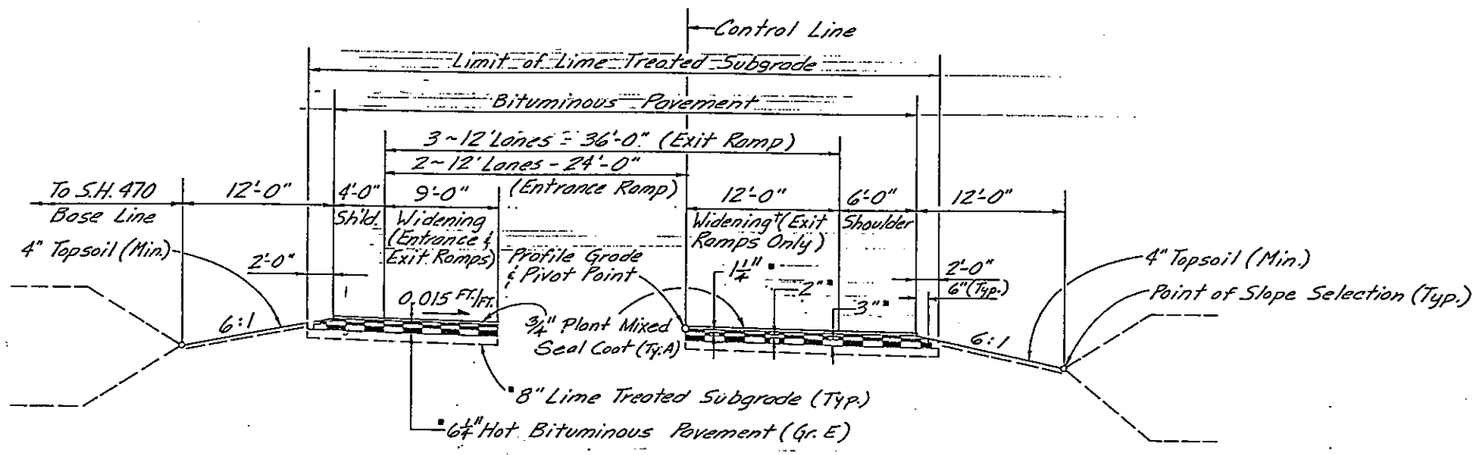
S.H. - 470 RAMPS
TYPICAL SECTIONS

WADSWORTH INTERCHANGE
▲ KEN CARYL INTERCHANGE

AS CONSTRUCTED			
NO REVISIONS 10-16-87	REVISED		VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IXFU 470-1 (54) IXM 1115 (22)	5	109





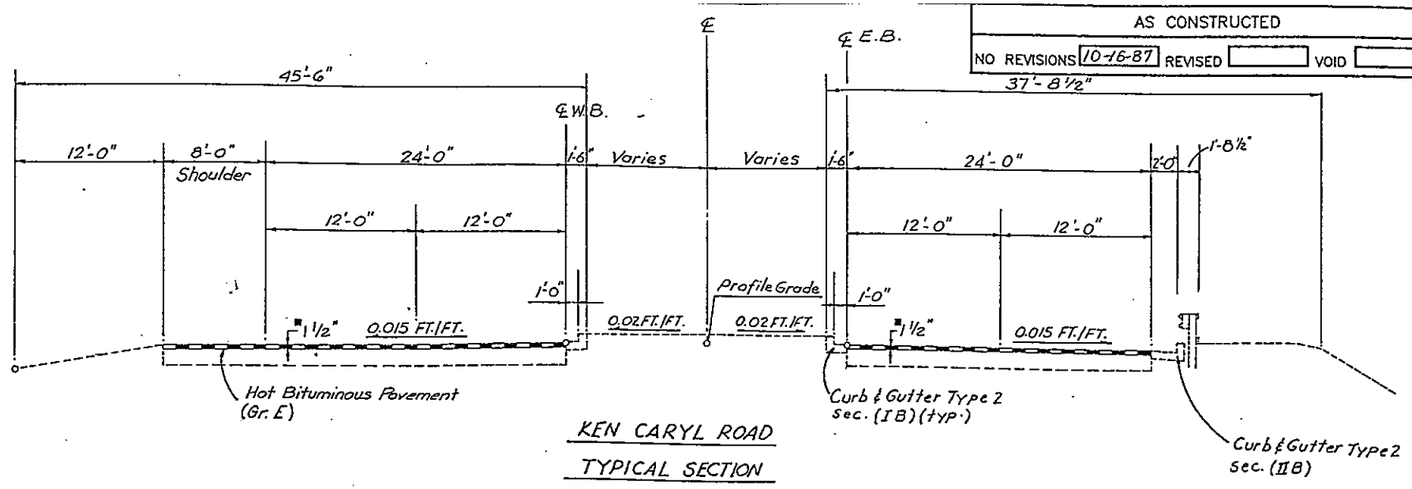
*Approximate Thickness

† See Plan Sheets for Location of Widening tapers & Widened Sections.

S.H. - 470 RAMPS
TYPICAL SECTIONS
KIPLING INTERCHANGE

AS CONSTRUCTED			
NO REVISIONS 10-16-87	REVISED		VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IXFU 470-1(54) IXM 1115(22)	6	109

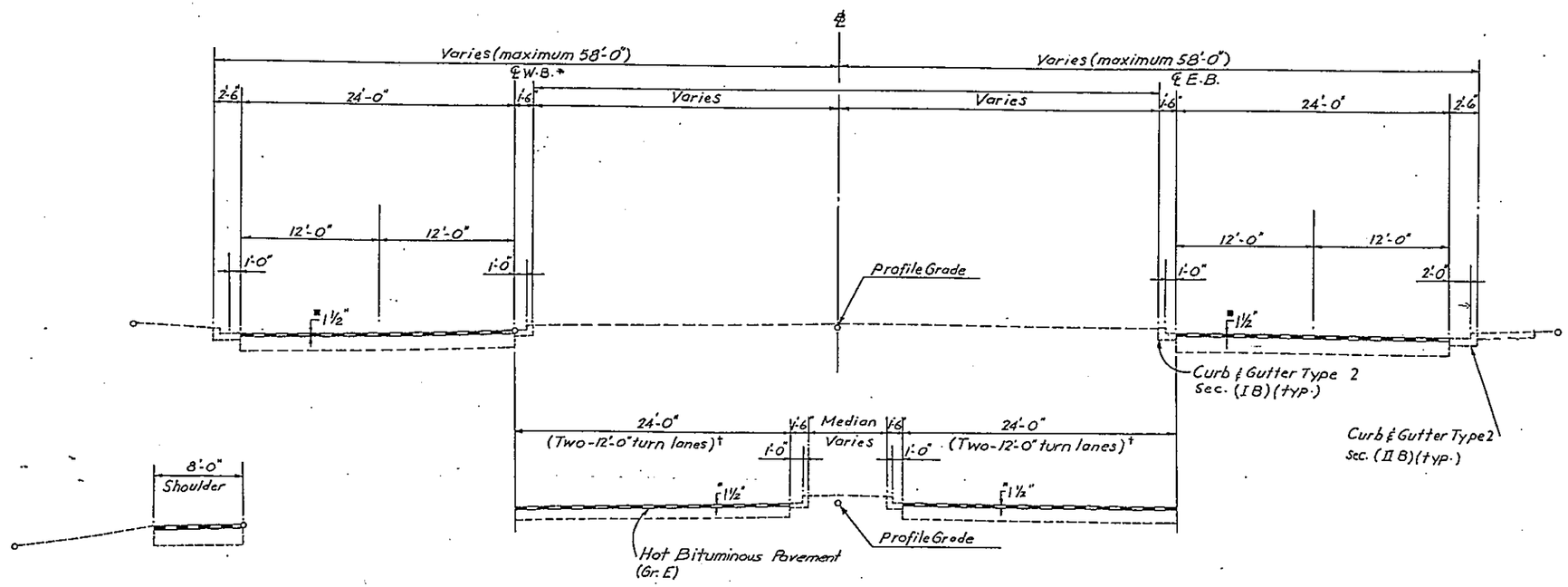


KEN CARYL ROAD

TYPICAL SECTION

Sta. 9+90.00 to sta. 15+74.00

■ Approximate Thickness



Sta 15+74.00 to Sta 16+85.00

* West bound control line ends at sta. 22+25.00

† See Plan & Profile Sheets PP-12 & PP-13 for location of turn Lanes.

KEN CARYL ROAD

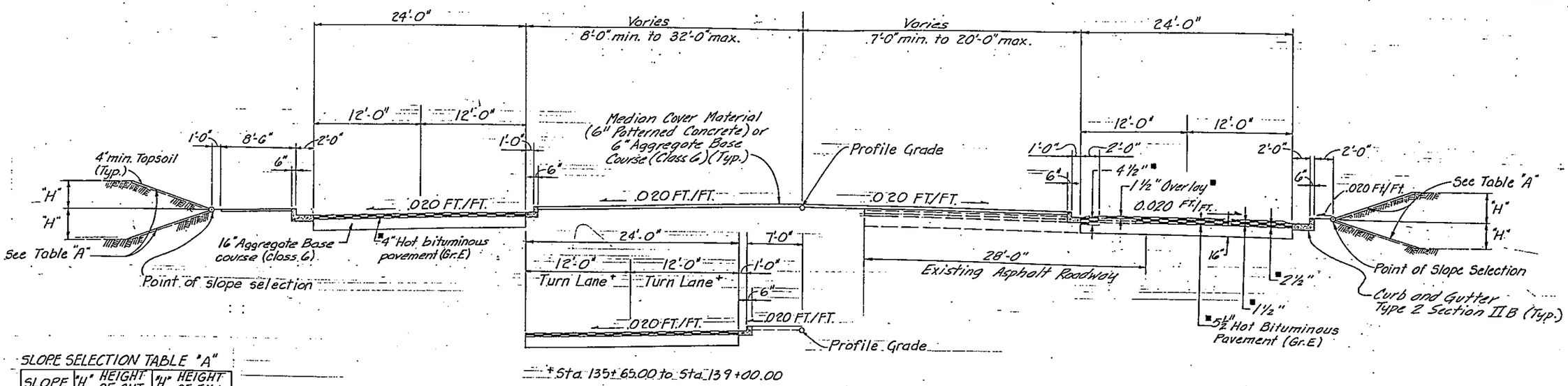
TYPICAL SECTION

Sta. 15+74.00 TO Sta. 34+00.00

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	7	109

AS CONSTRUCTED

NO REVISIONS ☐ REVISED 10-16-87 VOID ☐



+ Sta. 135+65.00 to Sta. 139+00.00

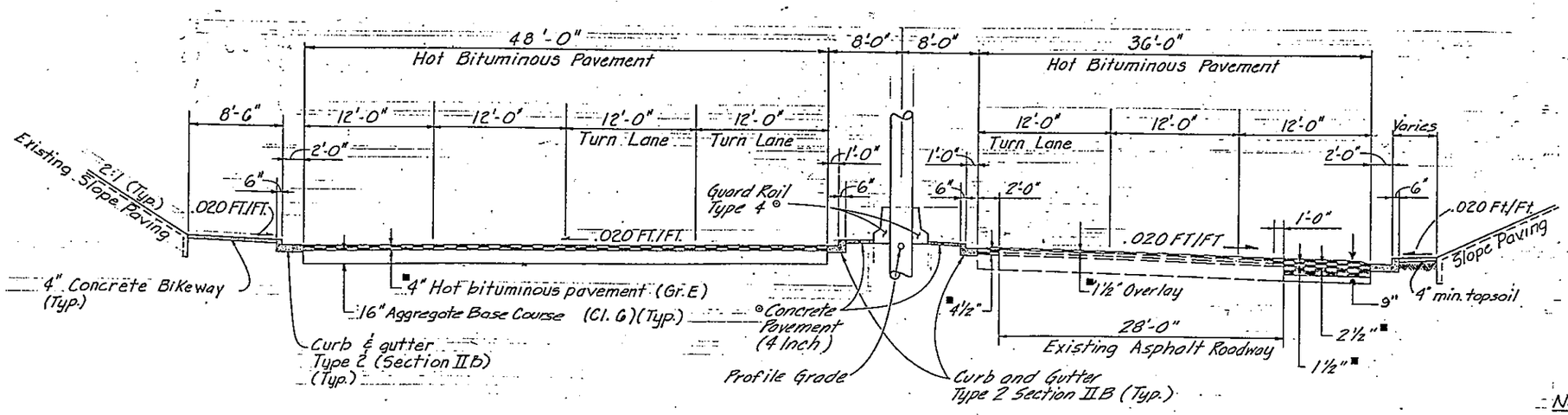
SLOPE SELECTION TABLE "A"

SLOPE	"H" HEIGHT OF CUT	"H" HEIGHT OF FILL
6:1	0' - 10'	0' - 10'
4:1	10' - 15'	10' - 25'
3:1	OVER 15'	OVER 25'

In special cases, slope may be steepened.

KIPLING PKWY - TYPICAL SECTION

Sta. 125+06.88 to Sta. 130+70.00
Sta. 135+20.00 to Sta. 141+80.00 Southbound
Sta. 135+20.00 to Sta. 142+60.00 Northbound



KIPLING PKWY - TYPICAL SECTION

Sta. 130+70.00 to Sta. 135+20.00

NOTE:

* The pavement cross slope will transition from .020 FT./FT. to .015 FT./FT. with a 50' transition (Sta. 144+50.00 to Sta. 145+00.00).

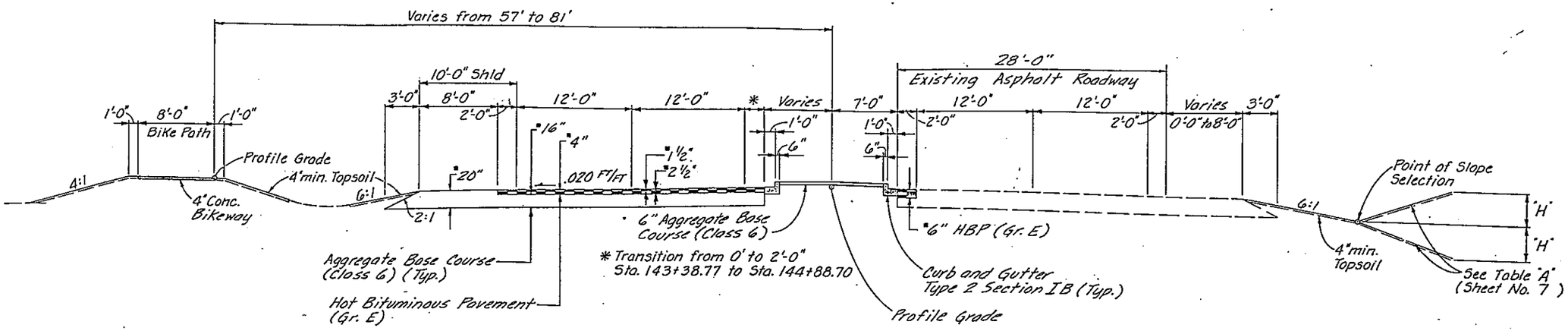
■ - Approximate Thickness

⊙ - Tan Color Coating Finish (No. 30219) (See Project Special Provision 601)

DWG. TY- 5

AS CONSTRUCTED			
NO REVISIONS 10-16-87	REVISED		VOID

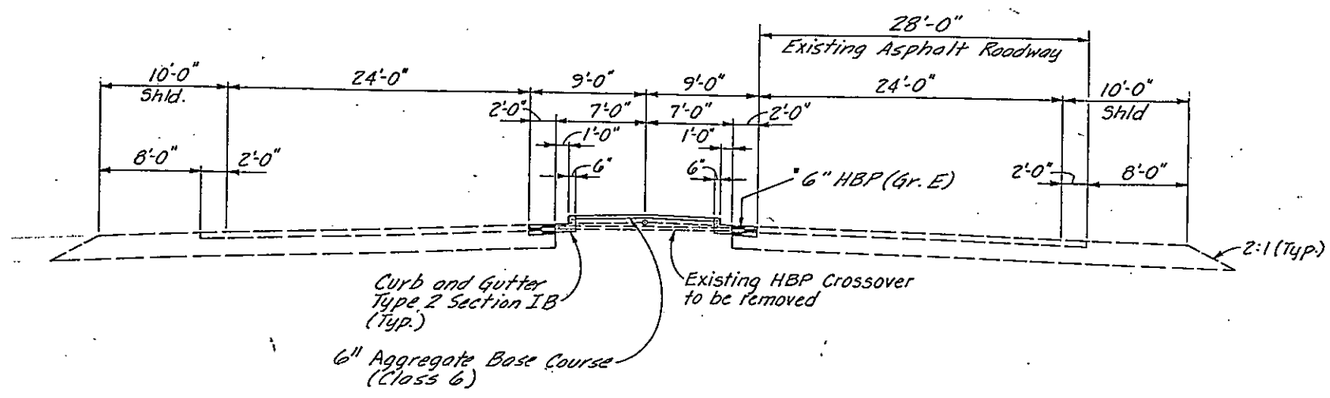
FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IXFU 470-1 (54) IXM 1115 (22)	8	109



* Approximate Thickness

KIPLING PKWY - TYPICAL SECTION

Sta. 141+80.00 to Sta. 145+00.00 Southbound
Sta. 142+60.00 to Sta. 143+00.00 Northbound



KIPLING PKWY - TYPICAL SECTION

Sta. 145+00 to 152+05.50 Southbound
Sta. 143+00 to 152+05.50 Northbound

NOTE:
The pavement cross slope will transition from .020 FT./FT. to .015 FT./FT. with a 50' transition (Sta. 144+50.00 to Sta. 145+00.00).

(R-1) 9-23-86 ~ REVISED QUANTITIES ~ LEG

SUMMARY OF ~~APPROXIMATE~~ FINAL QUANTITIES

AS CONSTRUCTED		
NO REVISIONS	REVISED 10-16-87	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	9	109

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	IXFU470-1(54) PLAN ROADWAY	AS CONSTRUCTED ROADWAY		IXM1115(22) PLAN ROADWAY	AS CONSTRUCTED ROADWAY	IXFU470-1(54) PLAN STR. F-16-MA	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MB	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MC	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MD	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MG	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MH	AS CONST.	COMBINED PROJECT TOTALS	AS CONST. TOTALS	DIFF. ±	% PLANS
305 Book		1	202	REMOVAL OF BARRICADE	EACH	8	8															8	8	0	100
		1	202	REMOVAL OF GUARD POST	EACH				4	4												4	4	0	100
		122, 2	202	REMOVAL OF CURB AND GUTTER MCR 121-15	LIN. FT.	0	66		17	126												17	192	+175	1,129
		117	202	PLUG STRUCTURE MCR 121-11	EACH	0	1															0	1	+1	0
		3	202	REMOVAL OF ASPHALT MAT	SQ. YD.				2055	2960												2055	2,960	+905	144
		2, 4	202	REMOVAL OF PAVEMENT MARKING MCR 121-24	SQ. FT.	2000	0		500	1556												2500	1,556	-944	62
		5	202	REMOVAL OF PORTIONS OF PRESENT STRUCTURE	L.S.				1	1												1	1	0	100
		3, 96	202	REMOVAL OF GROUND SIGN MCR 123-7	EACH	4	4		0	7												4	11	+7	275
		4	202	REMOVAL OF FENCE CMO 124	LIN. FT.	17,060	11,320															17,060	11,320	-5740	66
		6	202	REMOVAL OF GUARD RAIL TYPE 3	LIN. FT.				300	300												300	300	0	100
		7	202	REMOVAL OF END ANCHORAGE	EACH				2	2												2	2	0	100
		8	203	EMBANKMENT MATERIAL (COMPLETE IN PLACE)	CU. YD.				9268	9,397												9268	9397	+129	101
		135	203	CONSTRUCT EMBANKMENT (BIKEWAY) MCR 121-27	L.S.	0	1															0	1	+1	0
		16, 9	206	STRUCTURE EXCAVATION MCR 121-10	CU. YD.	0	337		1487	1,844												0	1	+1	0
																						1487	2,181	+694	147
		10	206	STRUCTURE BACKFILL (CLASS 1)	CU. YD.				861	873												861	873	+12	101
		115, 11	206	STRUCTURE BACKFILL (CLASS 2) MCR 121-9	CU. YD.	0	107		320	511												320	618	+298	193
		5, 12	207	TOPSOIL (HAUL)	CU. YD.	28,500	21,450		6,500	6,383												35,000	27,833	-7167	80
		6	210	RESET BARRICADE	EACH	11	11															11	11	0	100
		7	210	RESET GROUND SIGN MCR 123-8	EACH	8	8		0	7												8	15	+7	188
		8, 13	210	ADJUST MANHOLE	EACH	8	6		6	6												14	12	-2	86
		98, 14	210	MODIFY STRUCTURE MCR 121-13	EACH	0	7		1	2												1	9	+8	900
		9	210	ADJUST VALVE BOX	EACH	3	7		3	2												6	9	+3	150
		10, 16	212	SEEDING (NATIVE)	ACRE	53	54.2		12	12												65	66.2	+1.2	102
		30	213	MOWING MCR 121-21 N.P.	ACRE	0	2.3															0	2.3	+2.3	—
		11, 17	213	MULCHING	ACRE	53	54.2		12	12												65	66.2	+1.2	102
		37, 18	213	EROSION BALES MCR 121-23	EACH	0	36		18	18												18	54	+36	300
		12	214	SILVER MAPLE (ACER SACCHARINUM) (2 INCH CALIPER)	EACH	2	2															2	2	0	100
		13	214	WASHINGTON HAWTHORN (CRATAEGUS PHAENOPYRUM) (5 FOOT)	EACH	19	19															19	19	0	100
		14	214	RUSSIAN OLIVE (ELAEAGNUS ANGUSTIFOLIA) (6 FOOT)	EACH	80	80															80	80	0	100
		15	214	GREEN ASH (FRAXINUS PENNSYLVANICA LANCEOLATA) (2 INCH CALIPER)	EACH	13	13															13	13	0	100
		16	214	PINYON PINE (PINUS CEMBROIDES EDULIS) (3 FOOT)	EACH	3	3															3	3	0	100
		17	214	PINYON PINE (PINUS CEMBROIDES EDULIS) (6 FOOT)	EACH	7	7															7	7	0	100
		18	214	PONDEROSA PINE (PINUS PONDEROSA) (6 FOOT)	EACH	3	3															3	3	0	100
		19	214	COTTONLESS PLAINS COTTONWOOD (POPULUS SARGENTI) (8 FOOT)	EACH	9	9															9	9	0	100
		20	214	SMOOTH SUMAC (RHUS GLABRA) (3 FOOT)	EACH	120	119															120	119	-1	99
		21	214	ROCKY MOUNTAIN SUMAC (RHUS GLABRA CISMONTANA) (2 FOOT)	EACH	196	193															196	193	-3	98
		22	214	BUFFALOBERRY (SHEPHERDIA ARGENTEA) (3 FOOT)	EACH	36	36															36	36	0	100
		23	214	COMMON LILAC (SYRINGA VULGARIS) (3 FOOT)	EACH	180	183															180	183	+3	102

(R-1) 9-23-86 ~ REVISED QUANTITIES ~ LEG

SUMMARY OF ~~APPROXIMATE~~ FINAL QUANTITIES

AS CONSTRUCTED		
NO REVISIONS	REVISED 10-16-87	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ. NO.	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	10	109

INDEX BOOK	PAGE	SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	IXFU470-1(54) PLAN ROADWAY	AS CONSTRUCTED ROADWAY		IXM1115(22) PLAN ROADWAY	AS CONSTRUCTED ROADWAY	IXFU470-1(54) PLAN STR. F-16-MA	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MB	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MC	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MD	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MG	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MH	AS CONST.	COMBINED PROJECT TOTALS	AS CONST. TOTALS	DIFF. ±	% PLANS
505 Book #																									
		15	304	PRICE REDUCTION AGGREGATE BASE COURSE (CLASS 6) (HAUL)		L.S.			0	1												0	-1	+1	—
		19	304	AGGREGATE BASE COURSE (CLASS 6)(HAUL)	TON				10,795	10,242.08												10,795	10,242.08	-552.92	95
		12	306	RECONDITIONING CMO 125	SQ. YD.	0	112,129															0	112,129	+112,129	—
		24,20	307	HYDRATED LIME CMO 127 CMO 125	TON	3,370	1,629.96		263	263												3,633	1,892.96	-1,740.04	52
		25,21	307	PROCESSING LIME-TREATED SUBGRADE (8-INCH) CMO 127 CMO 125	SQ. YD.	254,501	116,384		19,930	19,930												274,431	136,314	-138,117	50
		41	403	SAMPLING TUBES	L.S.	0	1															0	1	+1	—
		22	403	MCR 121-17 CMO 125 HOT BITUMINOUS PAVEMENT (PATCHING)(HAUL AND ASPHALT)	TON	0	6.95		275	195.32												275	202.27	-72.73	74
		18	403	H.B.P. GR. EX SPECIAL MCR 123-9	TON				0	166.48												0	166.48	+166.48	—
		20,23	403	HOT BITUMINOUS PAVEMENT (GRADING E)(HAUL) CMO 125	TON	106,396	119,371.95		9573	11,256.14					58	58	58	58	87	87	83	83	116,255	130,628.09	+14,373	112
		100	403	PRICE REDUCTION HBP (GRADING E)(HAUL) MCR 123-12	L.S.				0	-398.37												0	1	+1	—
		27,24	410	PLANT MIXED SEAL COAT (TYPE A)(HAUL) MCR 121-8, 123-6	TON	8123	8430.79		746	955.02					35	35	35	35	52	52	50	50	9041	9385.81	+344.81	104
		28,25	411	ASPHALT CEMENT (AC-10) (FORTIFIED) MCR 123-5 MCR 121-3 CMO 125	TON	5,659	6220.42		496	612.19					3	3	3	3	4	4	4	4	6,169	6832.61	+663.61	111
		29,26	411	ASPHALT CEMENT (AC-20) (RUBBERIZED) MCR 121-3 MCR 123-8	TON	650	626.38		60	70.96					3	3	3	3	4	4	4	4	724	697.34	-26.66	96
		30,27	411	EMULSIFIED ASPHALT (SLOW SETTING)	GAL.	38,285	36,641		3670	4,615												41,955	41,256	-699	98
		28	412	CONCRETE PAVEMENT (4 INCH)	SQ. YD.				348	399												348	399	+51	115
		29	506	RIPRAP	CU. YD.				239	246												239	246	+7	103
		41	507	CONCRETE SLOPE AND DITCH PAV. (REIN.) MCR 121-14	CU. YD.	0	21.1															0	21.1	+21.1	—
			508	TREATED TIMBER CMO 128	M.F.B.M.	0	6.498															0	6.498	+6.498	—
		30	514	BIKEWAY RAILING (TIMBER)	LIN. FT.				100	100												100	100	0	100
		31	515	WATERPROOFING (MEMBRANE)	SQ. YD.										847	847	843	843	1264	1273	1211	1189	4,165	4,152	-13	100
		32	601	CONCRETE CLASS A (MISCELLANEOUS)	CU. YD.	9.0	99.44				1.5	15.48	1.5	15.48	3.0	34.24	3.0	34.24					9.0	99.44	+90.44	1105
		31	601	CONCRETE CLASS A (BOX CULVERT)	CU. YD.				425	425												425	425	0	100
		19	601	STRUCTURE CONCRETE COATING CMO 129	SQ. FT.	0	17,379															0	17,379	+17,379	—
		19,33	602	REINFORCING STEEL MCR 121-2	LB.	0	14,196		41,144	41,144	0	2366	0	2366	0	4732	0	4732					41,144	55,340	+14,196	134
		33	603	18 INCH REINFORCED CONCRETE END SECTION	EACH				4	4												4	4	0	100
		18	604	INLET TYPE C (10 FOOT) MCR 121-12	EACH	0	1															0	1	+1	—
		34	604	INLET TYPE R L5 (5 FOOT)	EACH				5	5												5	5	0	100
		35	604	INLET TYPE R L5 (10 FOOT)	EACH				1	1												1	1	0	100
		36	604	MANHOLE SLAB BASE (5 FOOT)	EACH				1	1												1	1	0	100
		37	604	MANHOLE SLAB BASE (10 FOOT)	EACH				1	1												1	1	0	100
		38	604	MANHOLE SPECIAL	EACH				1	1												1	1	0	100
		14,39	604	18 INCH REINFORCED CONCRETE PIPE SEWER MCR 121-4	LIN. FT.	0	250		800	811												800	1061	+261	133
		40	604	24 INCH REINFORCED CONCRETE PIPE SEWER	LIN. FT.				186	369												186	369	+183	198

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SUMMARY OF ~~APPROXIMATE~~ FINAL QUANTITIES

AS CONSTRUCTED		
NO REVISIONS	REVISED 10-16-87	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	11	109

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	IXFU470-1(54) PLAN ROADWAY	AS CONSTRUCTED ROADWAY		IXM 1115 (22) PLAN ROADWAY	AS CONSTRUCTED ROADWAY	IXFU 470-1(54) PLAN STR. F-16-MA	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-MB	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-MC	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-MD	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-ME	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-MH	AS CONST.	COMBINED PROJECT TOTALS	AS CONST. TOTALS	DIFF. ±	% PLANS
305	1300K	#																								
		33,41	606	GUARD RAIL TYPE 3 (6-3 POST SPACING)	LIN. FT.	1475	2938		275	275													1750	3213	+1463	184
		34,42	606	GUARD RAIL TYPE 4	LIN. FT.	2666	2868		350	310													3016	3178	+162	105
		35,43	606	END ANCHORAGE TYPE 3E	EACH	13	13		2	2													15	15	0	100
		36	606	END ANCHORAGE TYPE 3F	EACH	5	9																5	9	+4	180
		37	607	END POST CMO 128	EACH	6	15																6	15	+9	250
		38	607	CORNER AND LINE BRACE POST CMO 128	EACH	15	55																15	55	+40	367
		39	607	{DELETED BY CMO 126 FENCE COMBINATION WIRE WITH TREATED WOODEN POSTS	LIN. FT.	22,653	0																22,653	0	-22,653	0
		136	607	{FENCE COMBINATION WIRE WITH TREATED WOODEN POSTS (SPECIAL) ADDED BY CMO 126	LIN. FT	0	28,023																0	28,023	+28,023	—
		40	607	FENCE WOOD (SOUND BARRIER) (SPECIAL)	LIN. FT.	2055	2025																2,055	2025	-30	99
		110	607	DEER FENCE CMO 124	LIN. FT.	0	8,018																0	8,018	+8,018	—
		111	607	DEER GATE CMO 124	EACH	0	4																0	4	+4	—
		132	607	UTILITY GATE AND POSTS (DEER FENCE). MCR 121-22	EACH	0	1																0	1	+1	—
		137	607	CHAIN LINK FENCE 72 INCH } ADDED BY CMO 128	LIN. FT.	0	431																0	431	+431	—
		139	607	END POST	EACH	0	2																0	2	+2	—
		138	607	CORNER AND LINE BRACE POST	EACH	0	1																0	1	+1	—
		140	607	SHIP AND RESTOCK FENCE MATERIAL CMO 126	L.S.	0	$932.50																0	1	+1	—
		134,44	608	CONCRETE CURB RAMP MCR 121-26	SQ. YD	0	23		104	131													104	154	+50	148
		41,45	608	CONCRETE BIKEWAY	SQ. YD	23,050	29,043		1569	1842													24,619	30,885	+6266	125
		113	608	CONCRETE BIKEWAY (PRICE REDUCTION) MCR 121-29	L.S.	0	-$128.26																0	1	+1	—
		119	608	CONCRETE BIKEWAY (PRICE REDUCTION) MCR 121-30	L.S.	0	-$128.87																0	1	+1	—
		15,46	609	CURB AND GUTTER TYPE 2 (SECTION IB) MCR 121-16	LIN. FT.	0	46		5432	5213													5,432	5259	-173	97
		47	609	CURB AND GUTTER TYPE 2 (SECTION IIB)	LIN. FT.				3,927	3886													3,927	3886	-41	99
		48	610	MEDIAN COVER MATERIAL (PATTERNED CONCRETE)	SQ. FT.				7,636	7269													7,636	7269	-367	95
		42,49	612	DELINEATOR (TYPE I)	EACH	171	329		80	58													251	387	+136	154
		43,50	612	DELINEATOR (TYPE II)	EACH	56	91		47	26													103	117	+14	114
		116	612	DELINEATOR (TYPE III) MCR 121-20	EACH	0	7																0	7	+7	—
		44	613	1-½ INCH ELECTRICAL CONDUIT (DELETED BY 105)	LIN. FT.	100	0																100	0	-100	0
		48,51	613	2 INCH ELECTRICAL CONDUIT	LIN. FT.	1087	1245		1,707	1822													2,794	3,067	+273	110
		49	613	3 INCH ELECTRICAL CONDUIT	LIN. FT.	154	857		610	740													1,364	1,597	+233	117

SUMMARY OF ~~APPROXIMATE~~ FINAL QUANTITIES

AS CONSTRUCTED		
NO REVISIONS	REVISED 10-16-87	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	12	109

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	IXFU 470-1(54) PLAN ROADWAY	AS CONSTRUCTED ROADWAY		IXM 1115 (22) PLAN ROADWAY	AS CONSTRUCTED ROADWAY	IXFU 470-1(54) PLAN STR. F-16-MA	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-MB	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-MC	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-MD	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-MG	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-MH	AS CONST.	COMBINED PROJECT TOTALS	AS CONST. TOTALS	DIFF. ±	% PLANS
305		47,53	613	DIRECT-BURIAL CABLE	LIN. FT.	13,970	14,821		7290	7454												21,260	22,275	+1,015	105
BOOK		48,54	613	WIRING	L.S.	0.5	0.5		0.5	0.5												1	1	0	100
		49,55	613	LUMINAIRE HIGH PRESSURE SODIUM (47,000 LUMEN)	EACH	14	14		18	18												32	32	0	100
		53,56	613	MCR121-25 LUMINAIRE HIGH PRESSURE SODIUM (WALL TYPE) (12,000 LUMEN)	EACH	0	2		2	2												2	4	+2	200
		50	613	LUMINAIRE (SPECIAL)	EACH	3	3															3	3	0	100
		51,57	613	LIGHT STANDARD METAL (40 FOOT)	EACH	14	14		15	15												29	29	0	100
		52,58	613	CONCRETE FOUNDATION PAD	EACH	14	14		15	15												29	29	0	100
		53,59	614	FLAGGING	HOUR	1400	1,391.5		600	1,203.5												2,000	2,595	+595	130
		54,60	614	TRAFFIC CONTROL SUPERVISOR	DAY	84	90		36	52												120	142	+22	118
		55,61	614	SIGN PANEL (CLASS I)	SQ. FT.	203	203		147	168												350	371	+21	106
		56,62	614	SIGN PANEL (CLASS II)	SQ. FT.	492	492		223	246												715	738	+23	103
		57,63	614	SIGN PANEL (CLASS III)	SQ. FT.	1647	1647		268	268												1915	1915	0	100
		58,64	614	TIMBER SIGN POST 4x4 INCH	LIN. FT.	333	318		264	292												597	610	+13	102
		59,65	614	TIMBER SIGN POST 6x6 INCH	LIN. FT.	684	631		330	337												1014	968	-46	95
		60	614	STEEL SIGN POST (U-2)	LIN. FT.	60	60															60	60	0	100
		61	614	STEEL SIGN POST (W 8x21)	LIN. FT.	38	38															38	38	0	100
		62	614	CONCRETE FOOTING (Type 4)	EACH	2	2															2	2	0	100
		63,66	614	CONCRETE FOOTING IV (SPREAD)	EACH	1	1		2	2												3	3	0	100
		64	614	CONCRETE FOOTING V (SPREAD)	EACH	3	3															3	3	0	100
		65	614	CONCRETE FOOTING VI (SPREAD)	EACH	2	2															2	2	0	100
		66	614	CONCRETE FOOTING II-S (SPREAD	EACH	2	2															2	2	0	100
		67	614	MASK SIGN LEGEND	EACH	3	3															3	3	0	100
		68	614	BALANCED BUTTERFLY STRUCTURE	EACH	2	2															2	2	0	100
		69,67	614	CANTILEVER STRUCTURE (25 TO LESS THAN 30 FOOT FRAME)	EACH	6	6		2	2												8	8	0	100
		70,68	614	PEDESTRIAN SIGNAL FACE (16)	EACH	16	16		16	16												32	32	0	100
		71,69	614	TRAFFIC SIGNAL FACE (12-8-8)	EACH	8	8		8	8												16	16	0	100
		72,70	614	TRAFFIC SIGNAL FACE (12-12-12)	EACH	12	12		14	14												26	26	0	100
		73,71	614	TRAFFIC SIGNL FACE (12-12-12-12-12)	EACH	4	4		3	3												7	7	0	100
		74,72	614	TRAFFIC SIGNAL CONTROLLER CABINET	EACH	2	2		2	2												4	4	0	100
		75,73	614	COORDINATION UNIT	EACH	2	2		2	2												4	4	0	100
		76,74	614	LOOP DETECTOR WIRE	LIN. FT.	3240	5539		3600	3256												6840	8795	+1955	129
		77,75	614	TRAFFIC SIGNAL VEHICLE DETECTOR AMPLIFIER (LOOP TYPE)	EACH	4	4		4	4												8	8	0	100

SUMMARY OF ~~APPROXIMATE~~ QUANTITIES

AS CONSTRUCTED
NO REVISIONS ☐ REVISED 10-16-87 VOID ☐

REGION NO	DIVISION	PROJ. NO.	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	13	109

INDEX BOOK	PAGE	SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	IXFU 470-1(54) PLAN ROADWAY	AS CONSTRUCTED ROADWAY		IXM 1115 (22) PLAN ROADWAY	AS CONSTRUCTED ROADWAY	IXFU 470-1(54) PLAN STR. F-16-MA	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-MB	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-MC	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-MD	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-MG	AS CONST.	IXFU 470-1(54) PLAN STR. F-16-MH	AS CONST.	COMBINED PROJECT TOTALS	AS CONST. TOTALS	DIFF. ±	% PLANS
30 BOOK #	5	128	614	CONCRETE BARRIER (TEMPORARY) ADDED BY MCR 121-18		0	256															0	256	+256	0
		78	614	BARRICADE (TYPE 3-M-A)	EACH	6	15															6	15	+9	250
		79,76	614	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EACH	32	35		12	15												44	50	+6	114
		80,77	614	VERTICAL PANEL	EACH	30	10		20	59												50	69	+19	138
		81,78	614	VERTICAL PANEL (WITH LIGHT)(FLASHING)	EACH	10	9		10	5												20	14	-6	70
		82,79	614	TRAFFIC CONE	EACH	80	70		20	30												100	100	0	100
		60	614	TRAFFIC SIGNAL-LIGHT POLE STEEL (2 MAST ARM)	EACH				3	3												3	3	0	100
		83,81	614	TRAFFIC SIGNAL POLE STEEL (1 MAST ARM)	EACH	2	2		1	1												3	3	0	100
		84,82	614	TRAFFIC SIGNAL POLE STEEL (2 MAST ARM)	EACH	2	2		1	1												3	3	0	100
		85,83	614	TRAFFIC SIGNAL PEDESTAL POLE ALUMINUM	EACH	6	6		5	5												11	11	0	100
		86,84	614	TRAFFIC SIGNAL CONTROLLER (SOLID STATE)(FULL ACTUATED)(4 PHASE)	EACH	2	2		2	2												4	4	0	100
		94	619	24 INCH WELDED STEEL PIPE MCR 123-3	LIN. FT.				0	80												0	80	+80	—
		85	619	12 INCH DUCTILE IRON PIPE	LIN. FT.				75	75												75	75	0	100
		86	619	36 INCH WELDED STEEL PIPE MCR 123-2	LIN. FT.				75	0												75	0	-75	0
		87	619	3/4 INCH COPPER PIPE	LIN. FT	35	35															35	35	0	100
		88	619	3/4 INCH PLASTIC PIPE	LIN. FT.	6,748	4780															6748	4780	-1968	71
		89	619	1 INCH PLASTIC PIPE	LIN. FT.	1,863	1824															1863	1824	-39	98
		90	619	2 INCH PLASTIC PIPE	LIN. FT	155	36															155	36	-119	23
		91,87	620	FIELD LABORATORY (CLASS 2)	EACH	0.5	0.5		0.5	0.5												1	1	0	100
		92,88	620	FIELD OFFICE MCR 121-1 & MCR 123-1	EACH	0	0.5		0	0.5												0	1	+1	—
		92,88	620	SANITARY FACILITY	EACH	2	2		1	1												3	3	0	100
		93	623	DRIP EMITTER	EACH	316	309															316	309	-7	98
		94	623	EMITTER VALVE ASSEMBLY	EACH	3	3															3	3	0	100
		95	623	1/2 INCH FLUSH UNIT	EACH	12	16															12	16	+4	133
		96	623	3/4 INCH BACKFLOW PREVENTER	EACH	1	1															1	1	0	100
		97	623	1/2 INCH AUTOMATIC DRAIN VALVE	EACH	9	6															9	6	-3	67
		98	623	3/4 INCH MANUAL CONTROL VALVE	EACH	1	1															1	1	0	100
		99	623	CONTROL WIRE 24 VOLT	LIN. FT.	3438	4368															3438	4368	+930	127
		100	623	POWER SOURCE WIRE	LIN. FT.	40	40															40	40	0	100
		101	623	3/4 INCH QUICK COUPLER VALVE	EACH	3	3															3	3	0	100
		102	623	5 STATION AUTOMATIC CONTROLLER	EACH	1	1															1	1	0	100
		103	623	AUTOMATIC CONTROLLER TRANSMITTER/RECEIVER UNIT	EACH	1	1															1	1	0	100
		104	623	METER PIT, VALVES, YOKE, STOP AND WASTE MCR 121-31	L.S.	0	1															0	1	+1	—

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SUMMARY OF ~~APPROXIMATE~~ FINAL QUANTITIES

AS CONSTRUCTED		
NO REVISIONS	REVISED 10-16-87	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	14	109

INDEX BOOK	PAGE	SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	IXFU470-1(54) PLAN ROADWAY	AS CONSTRUCTED ROADWAY		IXM1115(22) PLAN ROADWAY	AS CONSTRUCTED ROADWAY	IXFU470-1(54) PLAN STR. F-16-MA	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MB	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MC	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MD	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MG	AS CONST.	IXFU470-1(54) PLAN STR. F-16-MH	AS CONST.	COMBINED PROJECT TOTALS	AS CONST. TOTALS	DIFF. ±	% PLANS
305 BOOK #																									
	104,89 1V5		625	CONSTRUCTION SURVEYING	L.S.	0.7	0.7		0.3	0.3												1	1	0	100
			625	MISCELLANEOUS ADDITIONAL SURVEYING MCR 121-5	HOUR	0	18															0	18	+18	—
	—		626	MOBILIZATION	L.S.	0.7	0.7		0.3	0.3												1	1	0	100
	31,99		627	PAVEMENT MARKING PAINT MCR 121-19 & MCR 123-10	GAL.	0	10		0	10												0	20	+20	—
	105,90		627	THERMOPLASTIC PAVEMENT MARKING	SQ. FT.	37,861	31,398		9,711	7,471												47,572	38,869	-8703	82
	106,91		627	4 INCH PAVEMENT MARKING TAPE	LIN FT ~~SQ. FT.~~	700	350		300	150												1000			
	107,97		627	PREFORMED PLASTIC PAVEMENT MARKING (60 MILS)	SQ. FT.	4,234	3625		1,615	1,429												5,849	5054	-795	86
				FORCE ACCOUNT ITEMS																					
			FA/01	ON-THE-JOB TRAINEE	EACH	$1660.00 2	805.80 2		$800.00 1	$344.80 1												$2460.00 3	1150.00 3	1249.40 0	47 100
			FA/02	MBE INCENTIVE PAVEMENT	EACH	$21,000.00 1	8711.98		$5300.00 1	2177.99 0												$26300.00 1	10,889.97 0	-1	0
			~~FA/03~~	~~MINOR CONTRACT REVISIONS~~	~~F.A.~~	0.7			-0.3													—		
			FA/04	WATER TAP	F.A.	1 $8108.00	$9,176.60															1 $8168.00	1 $9176.60	0 $+1068.60	100 113
			FA/05	TEMPORARY EROSION CONTROL	F.A.				$5,000.00 1	0 0												$5000.00 1	$0 0	$-5000.00 -1	0 0
			FA/06	POWER SOURCES AND ELECTRICAL CONNECTIONS (BY PUBLIC SERVICE COMPANY)	F.A.	$35,000.00 1	$9,965.00															$35,000.00 1	$9965.00 1	$-25035.00 0	28 100
			FA/03	MINOR CONTRACT REVISIONS	F.A.	$14,000.00 0.7	$6,009.94 0.7		$6,000.00 0.3	$1769.06 0.3												$20,000.00 1	$6279.00	$-13721.00	31
				APPROACH SLAB EXCAVATION AND STABILIZATION MCR 121-7	F.A.	0	$1829.40																		
				MODIFY SPRINKLER SYSTEM (MCR 121-28)	F.A.	0	$1440.72																		
				REVISE DRAINAGE (MCR 121-32)	F.A.		$1739.82																		
				REVISE MANHOLE SPECIAL (MCR 123-4)	F.A.				0	$327.75															
				RESET LUMINARE (MCR 123-13)	F.A.				0	$941.31															
				ROCK REMOVAL (CMO 125)	F.A.	0	$5,605.99																		
				STAND BY PAVING EQUIPMENT (CMO 127)	F.A.	0	$9,465.00																		
				SUBGRADE ADJUSTMENT (CMO 127)	F.A.	0	$6,071.38																		

AS CONSTRUCTED			
NO REVISIONS	10-16-87	REVISED	VOID

FED.ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IXFU 470-1(54) IXM 1115 (22)	15	109

GENERAL NOTES

WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. LOCATIONS SHALL BE AS ORDERED. IT IS ESTIMATED THAT 500 M. GAL. WILL BE REQUIRED FOR THIS PROJECT, AND WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST FOR EMBANKMENT MATERIAL (C.I.P.)

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

FULL DEPTH OF ALL EMBANKMENTS
BASES OF FILLS 0.67 FOOT

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

TYPE OF COMPACTION FOR THIS PROJECT WILL BE AASHTO T-99. SUBEXCAVATION MATERIAL SHALL BE PLACED IN 8-INCH LIFTS AND COMPACTED TO NO LESS THAN 92% STANDARD DENSITY (AASHTO T-99) AND NO LESS THAN OPTIMUM MOISTURE.

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

IT IS ESTIMATED THAT 2,000 HOURS OF FLAGGING AND 120 DAYS OF TRAFFIC CONTROL SUPERVISION WILL BE REQUIRED ON THIS PROJECT.

CONCRETE PIPE JOINT FASTENERS AS SHOWN ON M STANDARD ARE REQUIRED ON ALL CONCRETE CULVERT INSTALLATION EXCLUDING SIDE DRAINS.

THE CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO THOSE AREAS WITHIN THE LIMITS OF DISTURBANCE AND/OR TOES OF SLOPE AS SHOWN ON THE PLANS AND CROSS-SECTIONS. ANY DISTURBANCE BEYOND THESE LIMITS SHALL BE RESTORED TO ORIGINAL CONDITION BY THE CONTRACTOR AT HIS OWN EXPENSE. CONSTRUCTION ACTIVITIES, IN ADDITION TO NORMAL CONSTRUCTION PROCEDURES, SHALL INCLUDE THE PARKING OF VEHICLES OR EQUIPMENT, DISPOSAL OF LITTER, AND ANY OTHER ACTION WHICH WOULD ALTER EXISTING CONDITIONS.

THE FOLLOWING SHALL BE FURNISHED WITH EACH BITUMINOUS PAVER:

1. A SKI TYPE DEVICE AT LEAST 30 FEET IN LENGTH
2. MIN. OF 3000 FEET OF CONTROL LINE AND STAKES
3. NEXT TO FINAL LIFT SHALL BE WIRE CONTROLLED ON SH-470 ANY LAYER OF BITUMINOUS PAVEMENT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON SHALL BE COMPLETED FULL WIDTH BEFORE SUCCEEDING LAYER IS PLACED.

THE MINIMUM THICKNESS OF TOPSOIL (CONTRACTOR'S SOURCE) SHALL BE FOUR INCHES. IT IS ESTIMATED THAT 35,000 CU. YDS. (IXFU 470-1(54) 28,500 CU.YDS, IXM 1115(22) 6500 CU.YDS.) WILL BE REQUIRED BASED UPON AVERAGE THICKNESS.
FOUR INCHES OF TOPSOIL AND SEEDING SHALL BE PLACED ON ALL AREAS REQUIRING RIPRAP.

CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR RESETTING ALL LAND MONUMENTS DISTURBED BY CONSTRUCTION ACTIVITY. THE WORK SHALL BE DONE UNDER THE DIRECT SUPERVISION OF A REGISTERED LAND SURVEYOR. THE CONTRACTOR SHALL FILE MONUMENT RECORDS WITH THE BOARD OF REGISTRATION OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS FOR ALL MONUMENTS RESTORED OR RESET. THIS WORK SHALL BE INCLUDED IN THE COST OF CONSTRUCTION SURVEYING.

(FOR INFORMATION ONLY) MOISTURE DENSITY CONTROL

ITEM		
COMPACTION		Cu. Yds.
Embankment (AASHTO T-99)		9268
Bases of Cuts and Fills		4963
Total-		14,231
Wetting		M GALS.
Roadway (14,231 X 0.04)		569
Dust Pallative		500
ABC (10,795 x .015)		162
Totals for Information Only		1,231

UTILITY LINES, AS SHOWN ON THE PLAN AND PROFILE SHEETS, ARE PLOTTED FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR'S ATTENTION IS DIRECTED TO PARAGRAPH 107.18 OF THE STANDARD SPECIFICATIONS CONCERNING UTILITIES. THE CONTRACTOR WILL CALL 534-6700 FOR UTILITY LOCATIONS 48 HOURS PRIOR TO DIGGING.

THE CONTRACTOR SHALL INITIATE A REQUEST TO PUBLIC SERVICE COMPANY FOR ANY CONSTRUCTION-RELATED TEMPORARY ELECTRICAL POWER SOURCES AS SOON AS POSSIBLE. IN SOME INSTANCES, UP TO 30 DAYS MAY BE REQUIRED TO PROVIDE THE SOURCES. THE REQUEST IS TO BE PROCESSED THROUGH PUBLIC SERVICE COMPANY OF COLORADO--LIGHTING UTILIZATION AT (303) 571-7537.

SUMMARY OF EARTHWORK

INDEX			ITEM	PROJECT TOTALS ROADWAY			
				IXFU 470-1(54)		IXM 1115(22)	
BOOK	PAGE	SHEET		CU. YD.	FINAL	CU. YD.	FINAL
			Embankment Material C.I.P.				
			Kipling Pkwy (From cross sections)	0	0	8295	8295
			S.H. 470 - Kipling Ramps (From Cross-Sections)	0	0	615	615
			From Tabulation of Storm Sewer	0	0	358	358
			Totals By Project	0	0	9268	9268
			Total	9268			
			For Information Only	CU. YD.	FINAL	CU. YD.	FINAL
			Roadway Quantities Balance				
			Embankment Material X Factor (9268 x 1.13)	0	0	10,473	10,473
			Total for Balance	0	0	10,473	10,473
			Unclassified Excavation				
			Kipling Pkwy. (From cross sections)	0	0	1750	1,750
			S.H. 470 - Kipling Ramps (From Cross Sections)	0	0	52	52
			Source (Contractor) (Minimum Soil Support R-Value Shall be 7)			8,671	8,671
			Totals For Balance	0	0	10,473	10,473

AS CONSTRUCTED		
NO REVISIONS [ ]	REVISED 10-16-87	VOID [ ]

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IXFU 470-1(54) IXM 1115(22)	16	109

TABULATION OF SURFACING QUANTITIES

STATION TO STATION	SIDE	QUANTITY – TONS: HOT BITUMINOUS PAVEMENT (GRADING E)(HAUL) BOTTOM	FINAL	MIDDLE	FINAL	MIDDLE	FINAL	TOP	FINAL	PLANT MIXED SEAL COAT (TYPE A)(HAUL) 3/4" SURFACE	FINAL	ASPHALT CEMENT (AC-10) (FORTIFIED) TON	FINAL	ASPHALT CEMENT (AC-20) (RUBBERIZED) TON	FINAL	HYDRATED LIME TON	FINAL	PROCESSING LIME TREATED SUBGRADE SQ. YD.	FINAL	EMULSIFIED ASPHALT (SLOW SET) TACK COAT GAL.	FINAL
SH 470 Depth		3"		3"		2"		1 1/4"													
572+21.45 to 689+23.56	Lt.	10221		9078		5909		3670		2213		1537		177		812		61,524		10,318	
572+30.75 to 689+26.20	Rt	10,217		9073		5910		3668		2212		1536		177		811		61,450		10,310	
691+53.19 to 765+88.22	Lt.	6694		5948		3875		2410		1453		1008		116		530		40,188		6,764	
691+56.81 to 765+19.52	Rt.	6684		5942		3871		2408		1451		1007		116		529		40,088		6,754	
Ken Caryl Road Depth		—		—		—		1 1/2"													
10+00.00 to 18+00.00								476				26								288	
18+00.00 to 34+00.00		—		—		—		1013				56								614	
Ken Caryl Ramps Depth		3"		2 1/4"		2"															
"B" 201+75 to 213+00		807		546		447				161		95		13		62		4692		648	
"D" 401+60 to 413+00		839		543		445				160		95		13		65		4921		672	
Kipling Ramps Depth		3"		—		2"		1 1/4"													
"A" 178+50 to 190+13.51		912				539		327		197		90		16		70		5278		744	
"B" 191+11.83 to 202+50		828				490		298		180		81		14		63		4792		677	
"C" 378+50 to 389+93.71		833				493		300		181		82		15		64		4826		680	
"D" 390+35.24 to 402+50		868				513		312		188		86		15		66		5034		708	
Wadsworth Ramps Depth		3"		3"		1 3/4"															
"A" 153+00 to 165+00		990		882		501				197		125		16		81		5777		794	
"C" 353+00 to 368+20		1406		1230		693				276		174		22		116		8270		1123	
Kipling Parkway Depth		2 1/2"		—		1 1/2"		1 1/2"													
125+12.88 to 130+29.74		296				43		285				34								199	
130+29.74 to 135+63.74		522				63		438				56								304	
135+63.74 to 145+00.00		611				61		472				63								323	
145+00 to 152+05.50		43						26				4								35	
Bikepath																					
571+77.62 to 581+58.76																17		1,308			
5700+00 to 5808+01.57																190		14,402			
1692+26.12 to 1781+36.87																157		11,881			
AS CONSTRUCTED																					
IXM 1115(22) Totals		~~4,515~~	11,256.14	~~0~~		~~2,002~~		~~1,150~~		~~146~~	955.02	~~146~~	612.19	~~60~~	70.96	~~263~~	263.0	~~19,930~~	19,930	~~3,670~~	4615
IXFU 470-1(54) Totals		~~37,955~~	114,371.95 / 114,371.95	~~38,247~~		~~21,651~~		~~13,645~~		~~8,123~~	8,430.79	~~5,659~~	6220.42	~~650~~	626.38	~~3,370~~	1629.96	~~154,504~~	116,569	~~38,285~~	36,691
Project Totals			125,628.09	~~115,969~~						~~8,269~~	9385.81	~~6,155~~	6,832.61	~~710~~	697.34	~~3,633~~	1892.96	~~174,434~~	136,499	~~41,955~~	41,256

~~Bottom lift includes 10% for irregularities~~

STATION TO STATION	SIDE	QUANTITY – TONS: AGGREGATE BASE COURSE (CLASS 6) 4"	FINAL	8"	FINAL	* 12"	FINAL	6"	FINAL
Kipling Pkwy.									
125+18.88 to 130+29.74		442				1,324		589	
130+29.74 to 135+63.74		281				2,342		0	
135+63.74 to 145+00.00		909		161		2,970		756	
145+00 to 152+05.50		64				193		264	
AS CONSTRUCTED									
IXM 1115(22) TOTALS		10,242.08	~~10,795~~						

* In 2 Lifts.

Rate of Application of Quick lime = 20.5 Lbs/S.Y. Per 8" Layer.
Rate of Application of Hydrated Lime = 26.4 Lbs/S.Y. Per 8" Layer.
Rate of Application of Asphaltic Concrete = 110 Lbs/S.Y./Inch Depth.
Rate of Application of Tack Coat = 0.10 Gal./S.Y., 1:1 Diluted.

~~There Will be Approx. 275 Tons of H.B.P. (Patching)(Haul & Asphalt) Reqd. For the Temporary Detour on Kipling Parkway. These Quantities Are carried Forward to the Summary of Approximate Quantities.~~

PAVEMENT DESIGN CRITERIA

	18K EDLA	R VALUE OF SUBGR.	W.S.N.
SH-470	579	7	4.40
KEN CARYL RAMPS	159	7	3.40
KIPLING RAMPS	53	7	2.80
WADSWORTH RAMPS	205	7	3.66
KIPLING PARKWAY	53	7	3.50

BASED UPON A REGIONAL FACTOR OF 1.75 AND A SERVICABILITY INDEX OF 2.5.

STRENGTH COEFFICENTS

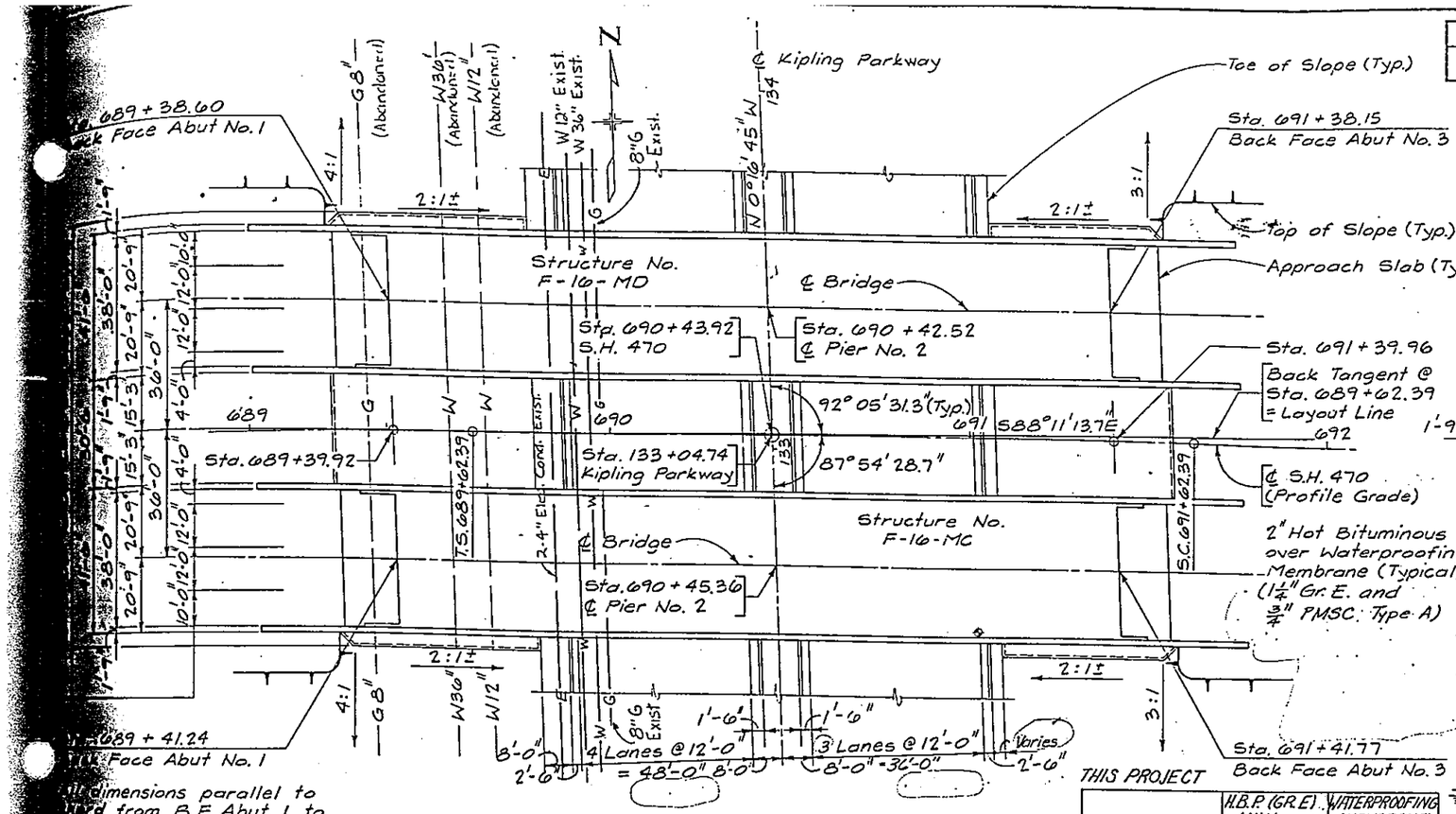
P.M.S.C. – 0.25
H.B.P. – 0.44
A.B.C. – 0.12
LIME TREATED BASE – 0.10

DWG. TG-2

AS CONSTRUCTED			
NO REVISIONS	10-16-87	REVISED	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU470-1(54) IXM1115 (22)	23	109

REVISIONS		



PLAN

◆ Indicates location of minimum vertical clearance

THIS PROJECT		
STRUCTURE NO.	H.B.P. (GR. E) (H)	WATERPROOFING (MEMBRANE)
	TON	SQ. YD.
F-16-MC	58	847
F-16-MD	58	843
TOTALS	116	1690

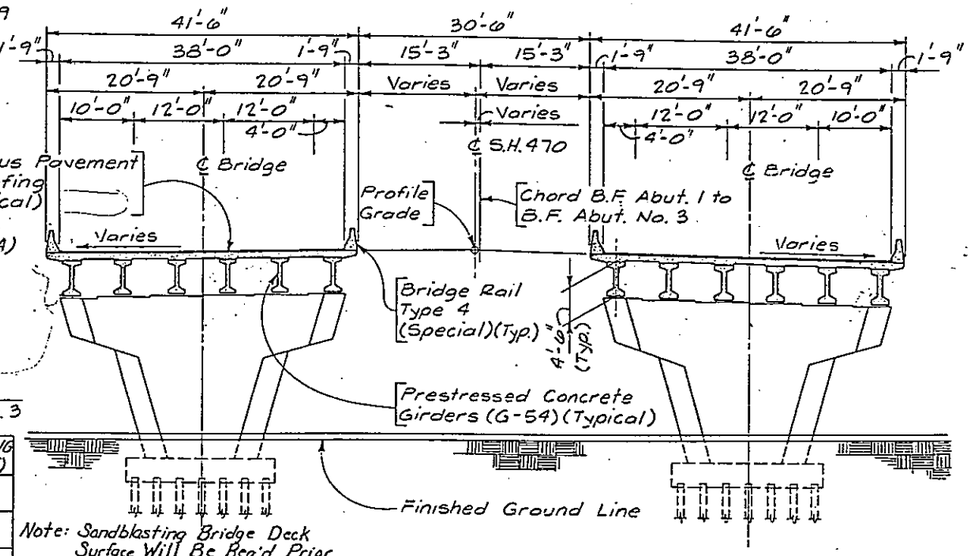
Note: Sandblasting Bridge Deck Surface Will Be Req'd Prior To Applying Waterproofing Membrane.

$\Delta = 31° 35' 19.3''$
$T_s = 1720.78'$
$E_s = 225.11'$
$\theta_s = 1° 00' 00''$
$L_s = 200.00'$

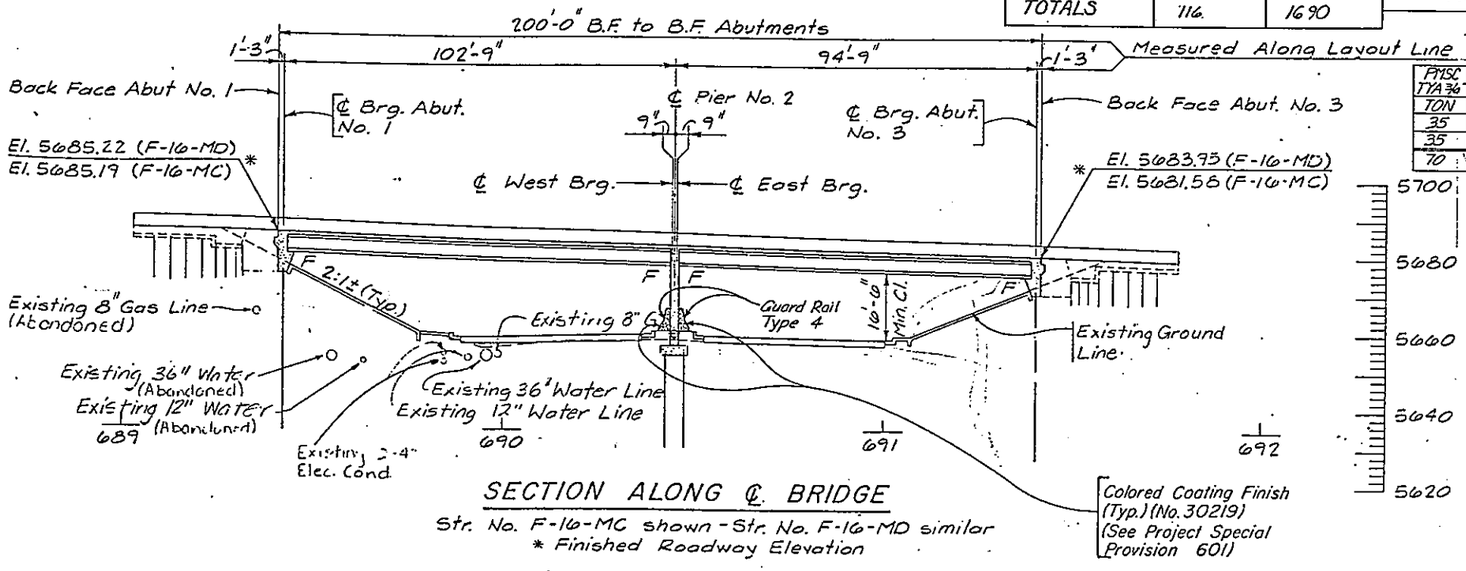
$L.T. = 133.34'$
$S.T. = 66.67'$
$\Delta_c = 29° 35' 19.3''$
$D_c = 1° 00' 00''$
$T_c = 1513.22'$

$L_c = 2958.87'$
$R_c = 5729.58'$
$e = .038$
M.D.S. = 75 M.P.H.
S.S.D. > 600'

HORIZONTAL CURVE DATA



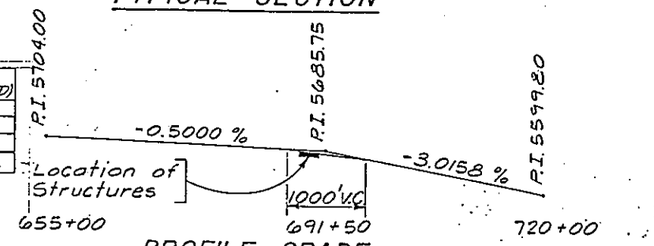
TYPICAL SECTION



SECTION ALONG ℄ BRIDGE

Str. No. F-16-MC shown - Str. No. F-16-MD similar
* Finished Roadway Elevation

PMSC TYA ¾"	AC-10 (FORTIFIED)	AC-20 (RUBBERIZED)
TON	TON	TON
35	3	3
35	3	3
70	6	6



PROFILE GRADE

NOTE: STRUCTURES BUILT UNDER PRIOR PROJECT

Live Loading = HS 20-44 and Interstate Alternate

NOTE:

The utilities as shown on the plans are plotted from the best available information. It is the contractor's responsibility to verify all utility and sub-surface item information. See paragraph 107.18 of the Standard Specifications.

DIVISION OF HIGHWAYS

IHLENFELDT, PETERSON & ASSOC., INC.
STRUCTURAL ENGINEERS

S.H. 470 OVER KIPLING PARKWAY

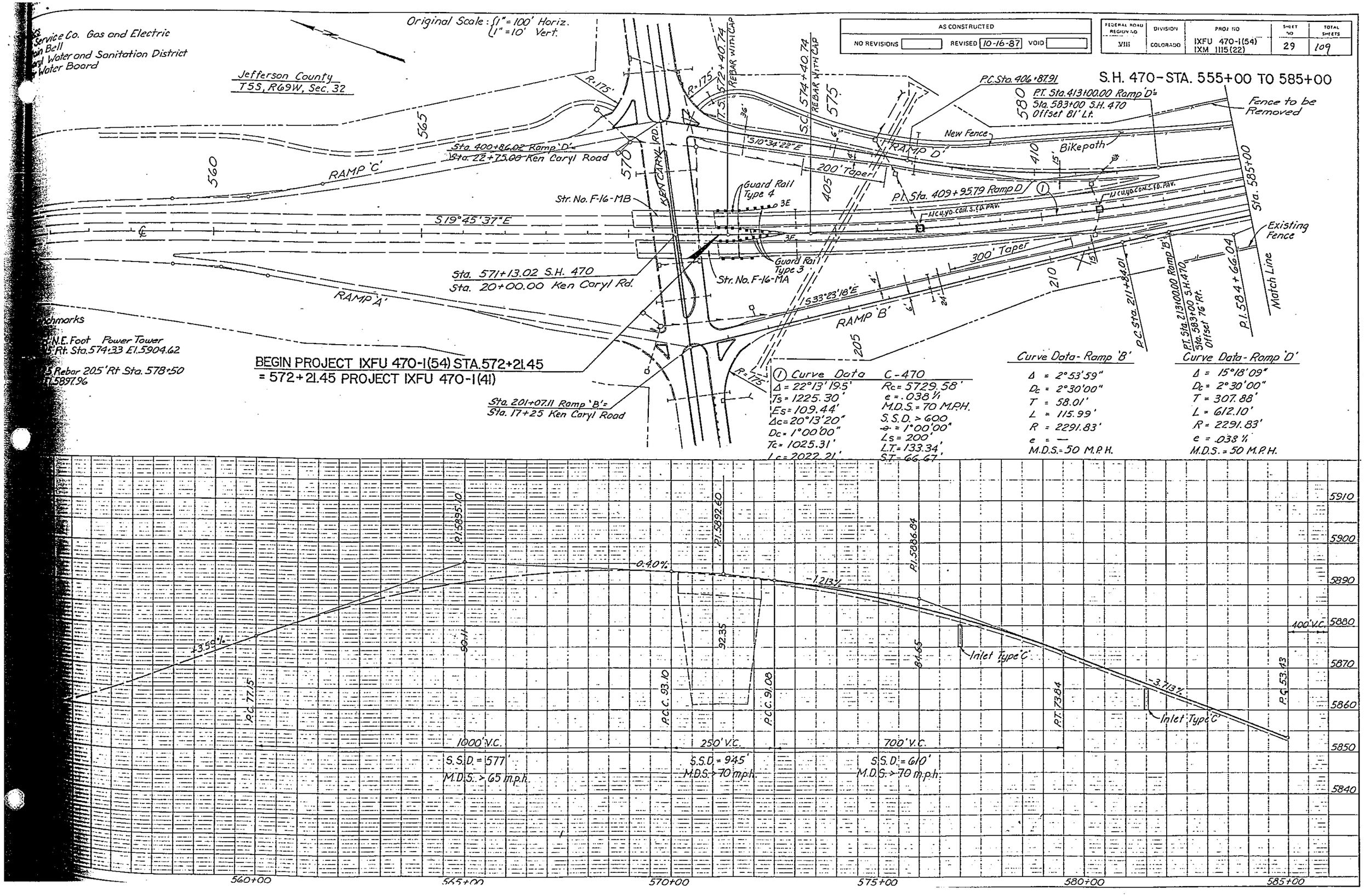
GENERAL LAYOUT

Designer D. Peterson		Structure Numbers	F-16-MC (E.B.L)
Detailer S. Earnett			F-16-MD (W.B.L)
Drawing Number B – 2	of 3	Drawings	

Revision Dates (Preliminary Stage Only)

AS CONSTRUCTED					
NO REVISIONS		REVISED 10-16-87	VOID		

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	29	109



① Curve Data C-470
Δ = 22°13'19.5'
Ts = 1225.30'
Es = 109.44'
Δc = 20°13'20"
Dc = 1°00'00"
Tc = 1025.31'
Lc = 2022.21'
Rc = 5729.58'
e = .038 ft
M.D.S. = 70 M.P.H.
S.S.D. > 600
θ = 1°00'00"
Ls = 200'
L.T. = 133.34'
S.T. = 66.67'

Curve Data - Ramp 'B'
Δ = 2°53'59"
Dc = 2°30'00"
T = 58.01'
L = 115.99'
R = 2291.83'
e = —
M.D.S. = 50 M.P.H.

Curve Data - Ramp 'D'
Δ = 15°18'09"
Dc = 2°30'00"
T = 307.88'
L = 612.10'
R = 2291.83'
e = .038 ft
M.D.S. = 50 M.P.H.

Original Scale 1" = 100' Horiz.
1" = 10' Vert.

AS CONSTRUCTED				
NO REVISIONS 10-16-87	REVISED		VOID	

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115 (22)	30	109

KEN CARYL RAMP PROFILES

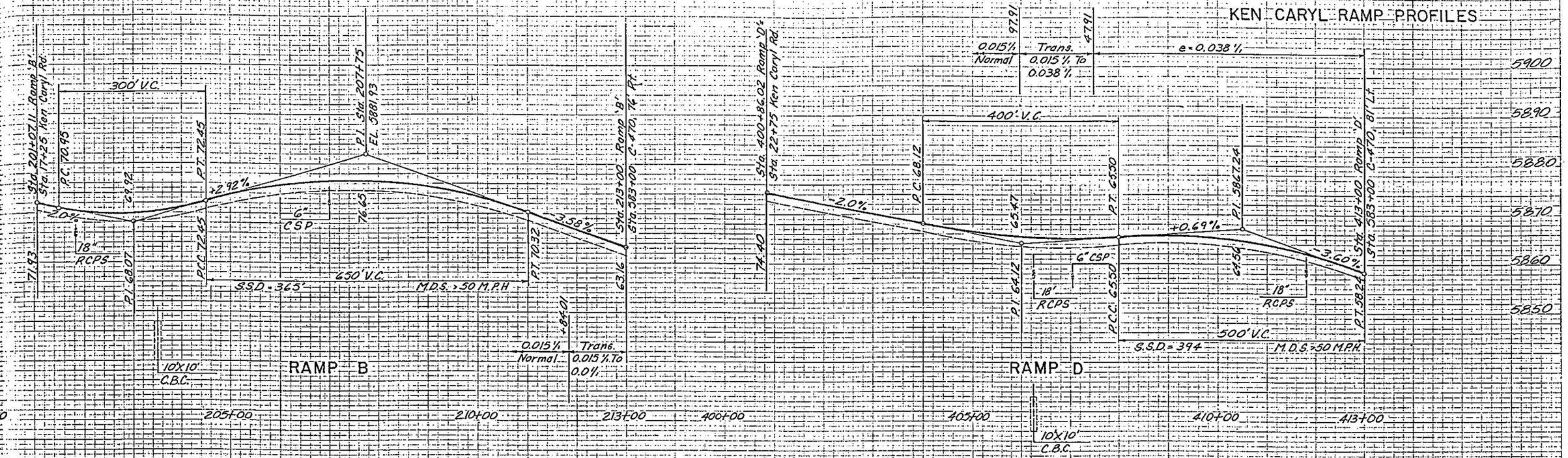


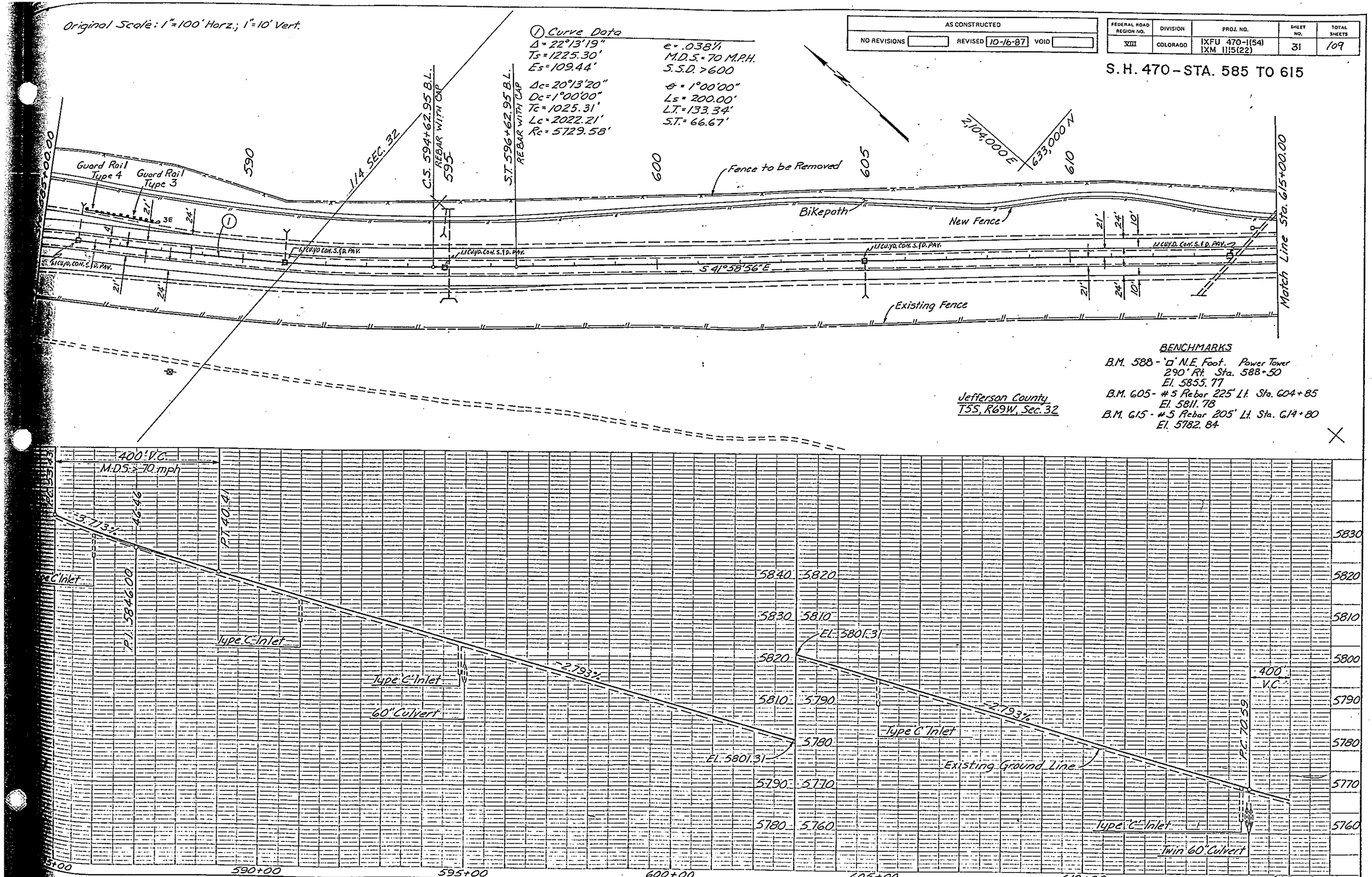
PLATE 3 FULL CROSS SECTION

AS CONSTRUCTED		
NO REVISIONS	REVISED 10-16-87	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 11!5(22)	31	109

S.H. 470 – STA. 585 TO 615

Original Scale: 1" = 100' Horz.; 1" = 10' Vert.



Original Scale: 1"=100' Horz.; 1"=10' Vert.

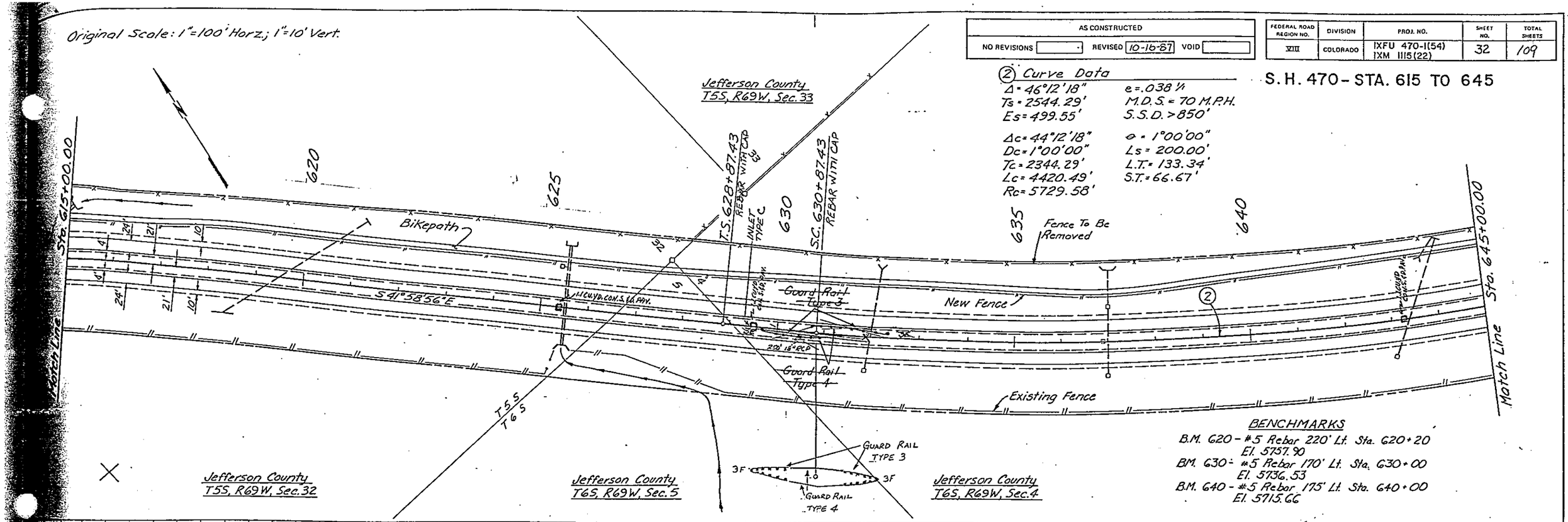
AS CONSTRUCTED			
NO REVISIONS		REVISED 10-16-87	VOID

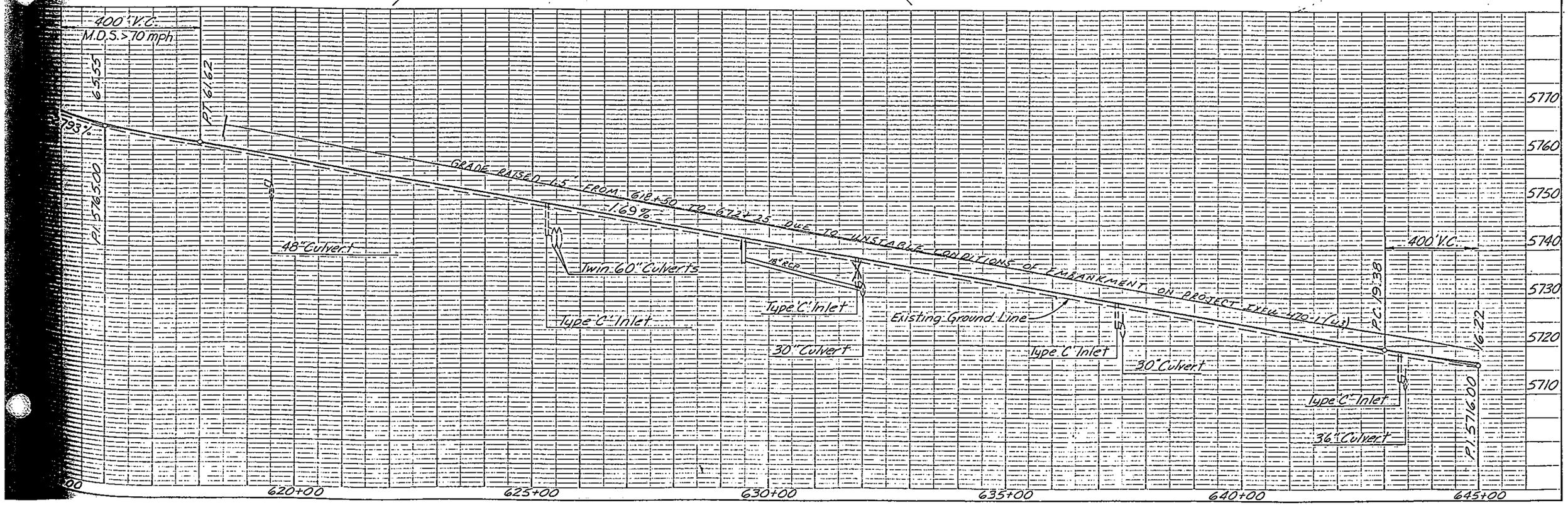
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	32	109

S.H. 470 - STA. 615 TO 645

② Curve Data

Δ = 46°12'18"	e = .038 ft
Ts = 2544.29'	M.D.S. = 70 M.P.H.
Es = 499.55'	S.S.D. > 850'
Δc = 44°12'18"	θ = 1°00'00"
Dc = 1°00'00"	Ls = 200.00'
Tc = 2344.29'	L.T. = 133.34'
Lc = 4420.49'	S.T. = 66.67'
Rc = 5729.58'	





AS CONSTRUCTED		
NO REVISIONS	REVISED 10-16-87	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	33	

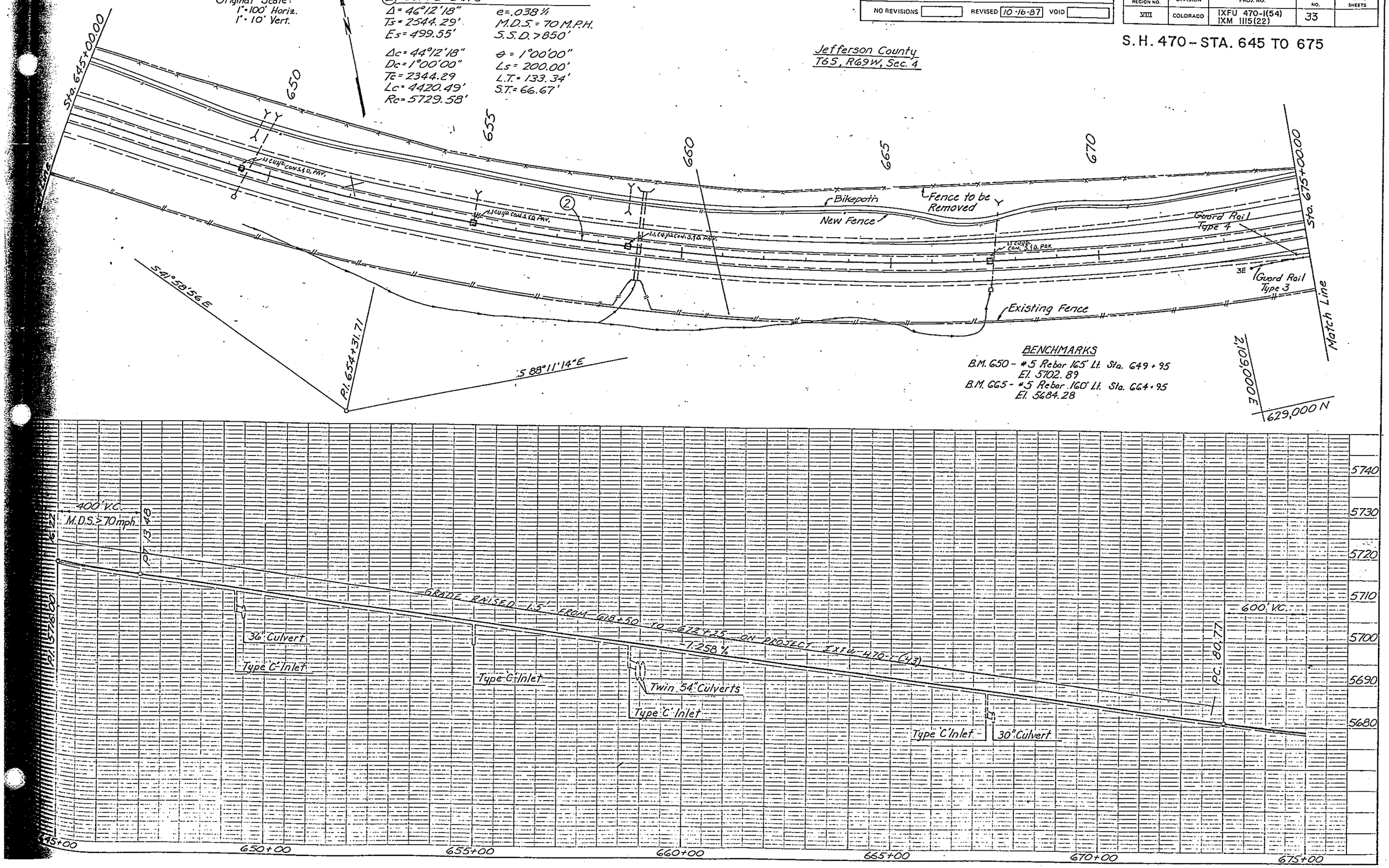
S.H. 470 – STA. 645 TO 675

Jefferson County
T6S, R69W, Sec. 4

Original Scale:
1" = 100' Horiz.
1" = 10' Vert.

(2) Curve Data

$\Delta = 46°12'18"$	e = .038 ft
$T_s = 2544.29'$	M.D.S. = 70 M.P.H.
$E_s = 499.55'$	S.S.D. > 850'
$\Delta_c = 44°12'18"$	$\theta = 1°00'00"$
$D_c = 1°00'00"$	$L_s = 200.00'$
$T_c = 2344.29$	L.T. = 133.34'
$L_c = 4420.49'$	S.T. = 66.67'
$R_c = 5729.58'$	

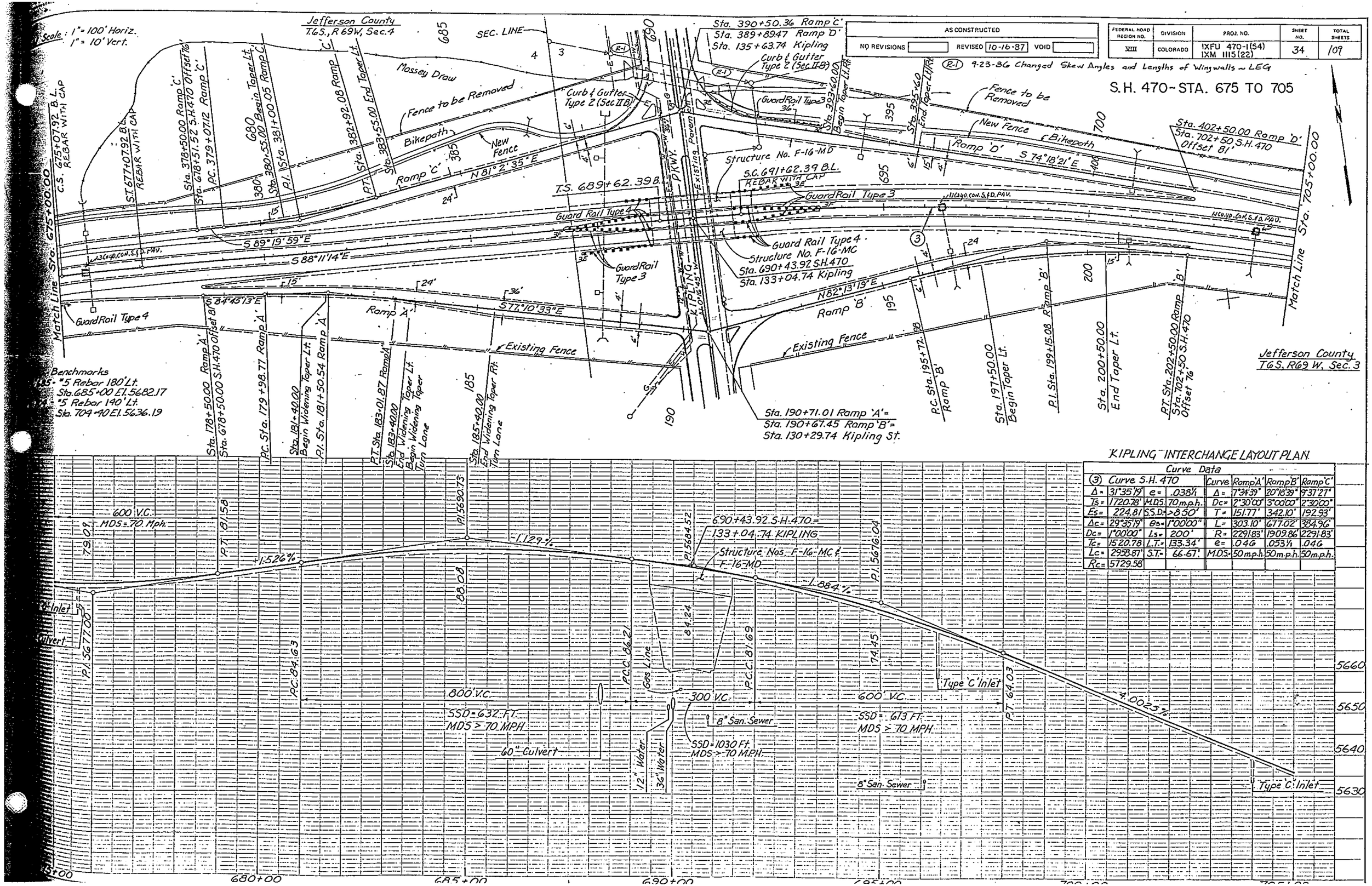


AS CONSTRUCTED			
NO REVISIONS		REVISED 10-16-87	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	34	109

(R-1) 9-23-86 Changed Skew Angles and Lengths of Wingwalls ~ LEG

S.H. 470-STA. 675 TO 705



KIPLING INTERCHANGE LAYOUT PLAN

Curve Data

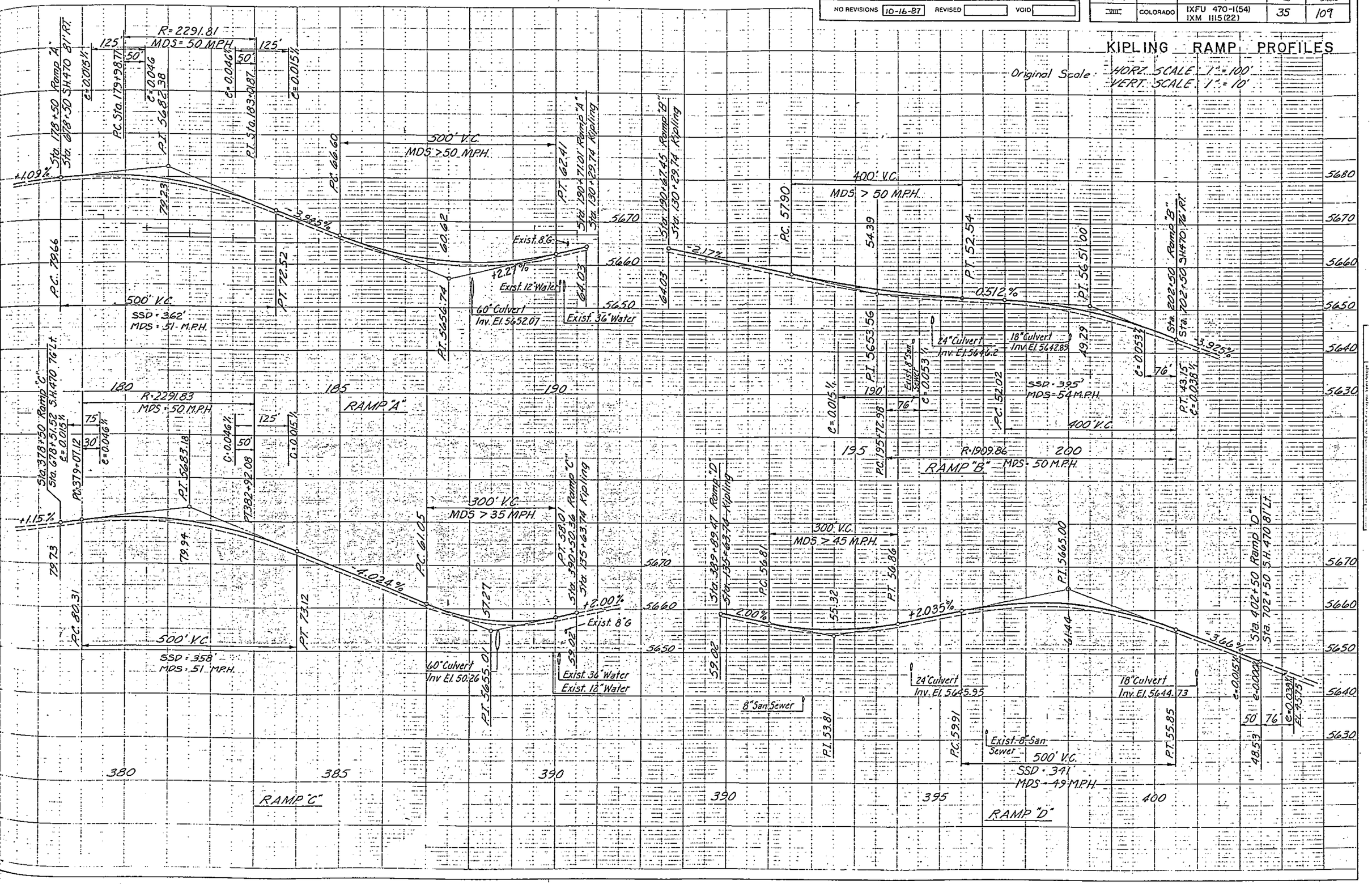
(3) Curve S.H. 470				Curve	Ramp 'A'	Ramp 'B'	Ramp 'C'
Δ =	31°35'19"	e =	.038 1/1	Δ =	7°34'39"	20°18'39"	9°37'27"
Ts =	1720.78'	M.D.S.	70 m.p.h.	Dc =	2°30'00"	3°00'00"	2°30'00"
Es =	224.81	S.S.D. =	>850'	T =	151.77'	342.10'	192.93'
Δc =	29°35'19"	θs =	1°00'00"	L =	303.10'	677.02'	384.96'
Dc =	1°00'00"	Ls =	200'	R =	2291.83'	1909.86'	2291.83'
Tc =	1520.78	L.T. =	133.34'	e =	.046	.053 1/1	.046
Lc =	2958.87'	S.T. =	66.67'	M.D.S. =	50 m.p.h.	50 m.p.h.	50 m.p.h.
Rc =	5729.58						

AS CONSTRUCTED		
NO REVISIONS 10-16-87	REVISED	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ. NO.	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	35	109

KIPLING RAMP PROFILES

Original Scale: HORZ. SCALE 1" = 100'
VERT. SCALE 1" = 10'



AS CONSTRUCTED			
NO REVISIONS		REVISED 10-16-87	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	36	109

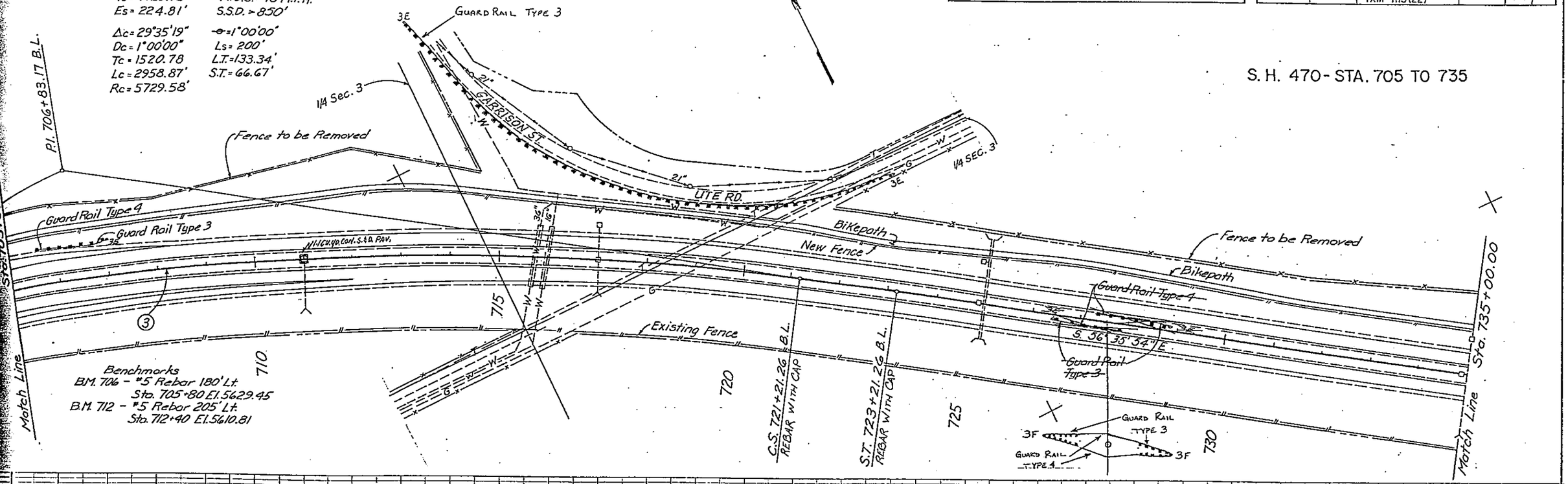
S. H. 470 - STA. 705 TO 735

Original Scale: 1" = 100' Horiz.; 1" = 10' Vert.

③ Curve Data

$\Delta = 31°35'19''$ $e = 0.38\%$
$T_s = 1720.78'$ M.D.S. = 70 M.P.H.
$E_s = 224.81'$ S.S.D. > 850'

$\Delta_c = 29°35'19''$ $\theta = 1°00'00''$
$D_c = 1°00'00''$ $L_s = 200'$
$T_c = 1520.78$ $L.T. = 133.34'$
$L_c = 2958.87'$ $S.T. = 66.67'$
$R_c = 5729.58'$



AS CONSTRUCTED					
NO REVISIONS		REVISED 10-16-87	VOID		

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IXFU 470-1(54) IXM 1115(22)	37	109

S.H. 470 - STA. 735 TO 767+14

(8) Curve Data

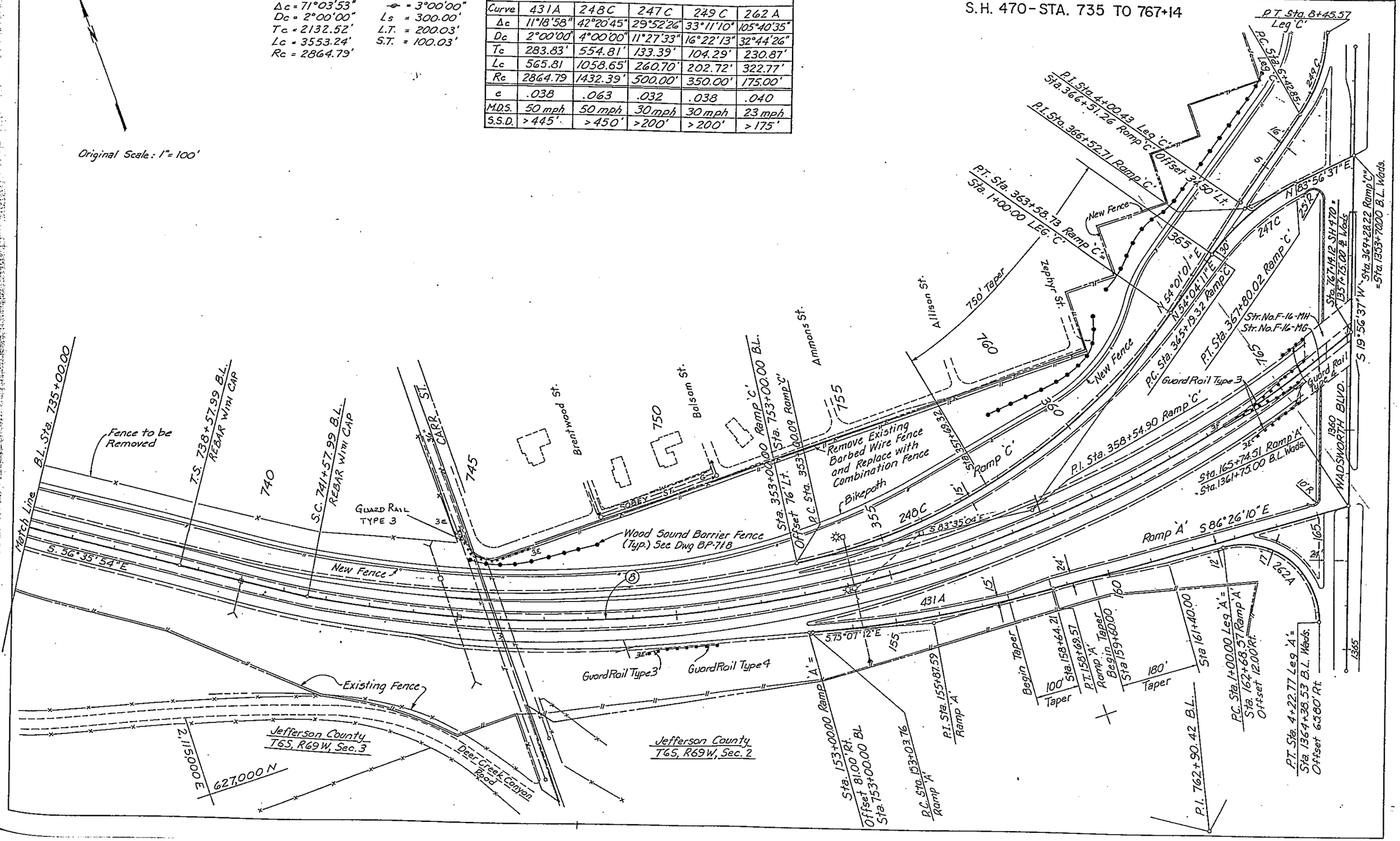
$\Delta = 77°03'53"$ $e = 0.065\%$
$T_s = 2432.43'$ M.D.S. = 70 M.P.H.
$E_s = 797.42'$ S.S.D. = > 850'

$\Delta_c = 71°03'53"$ $\theta = 3°00'00"$
$D_c = 2°00'00"$ $L_s = 300.00'$
$T_c = 2132.52'$ L.T. = 200.03'
$L_c = 3553.24'$ S.T. = 100.03'
$R_c = 2864.79'$

Curve Data

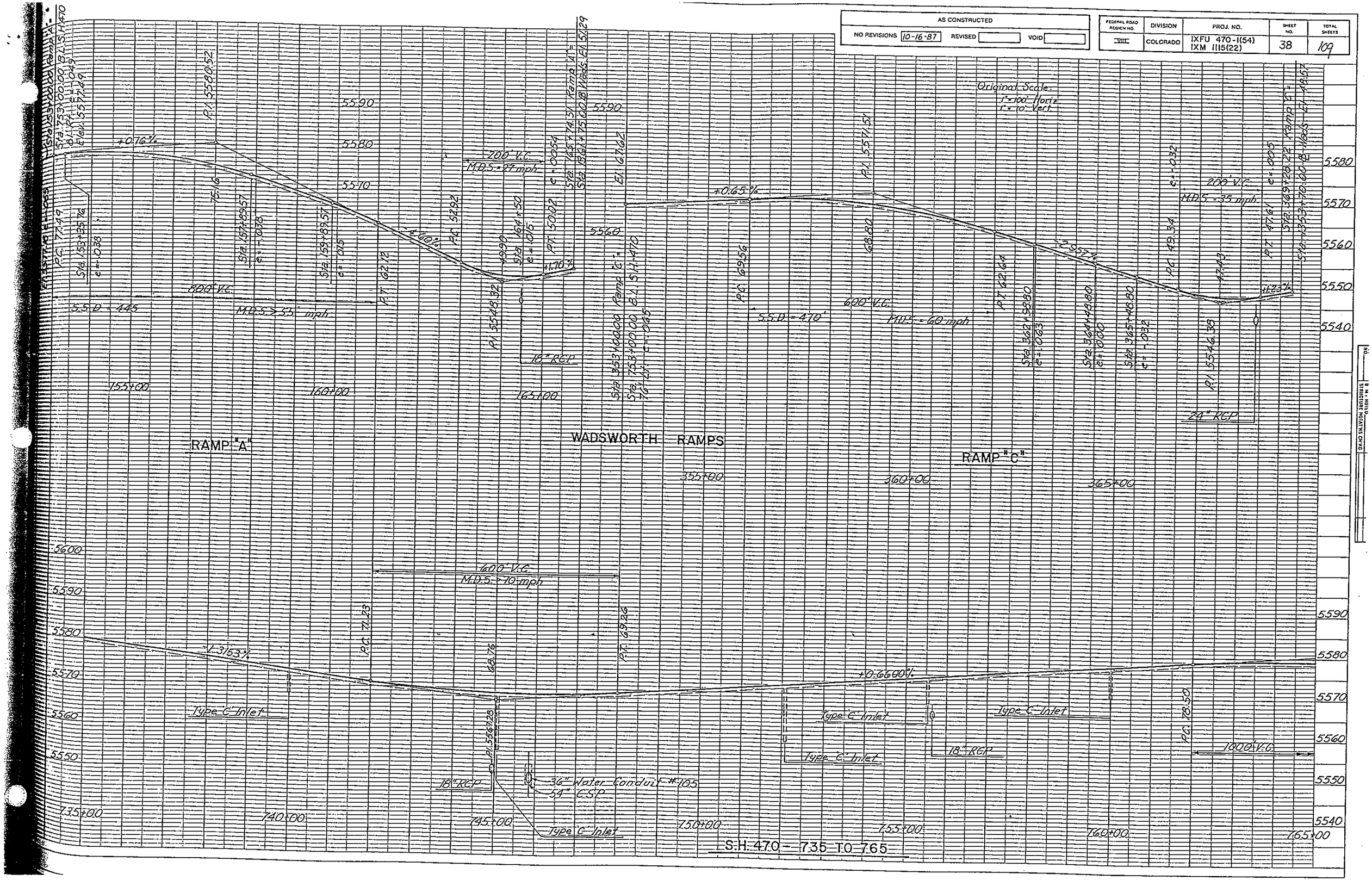
Curve	431A	248C	247C	249C	262A
Δ_c	11°18'58"	42°20'45"	29°52'26"	33°11'10"	105°40'35"
D_c	2°00'00"	4°00'00"	11°27'33"	16°22'13"	32°44'26"
T_c	283.83'	554.81'	133.39'	104.29'	230.87'
L_c	565.81	1058.65'	260.70'	202.72'	322.77'
R_c	2864.79	1432.39'	500.00'	350.00'	175.00'
e	.038	.063	.032	.038	.040
M.D.S.	50 mph	50 mph	30 mph	30 mph	23 mph
S.S.D.	> 445'	> 450'	> 200'	> 200'	> 175'

Original Scale: 1" = 100'



AS CONSTRUCTED			
NO REVISIONS 10-16-87	REVISED	VOID	

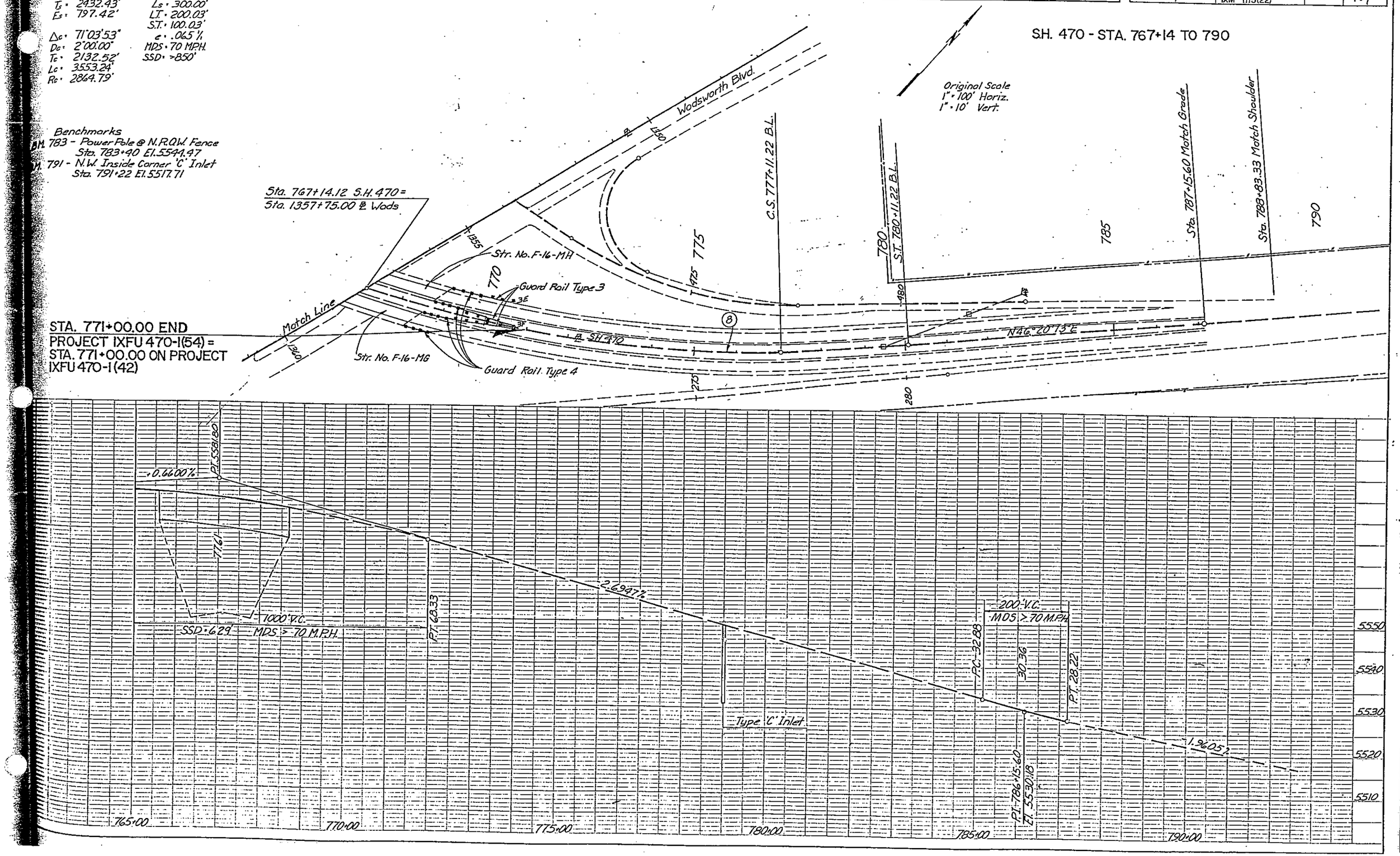
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	38	109



AS CONSTRUCTED			
NO REVISIONS 10-16-87	REVISED		VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	39	109

S.H. 470 - STA. 767+14 TO 790



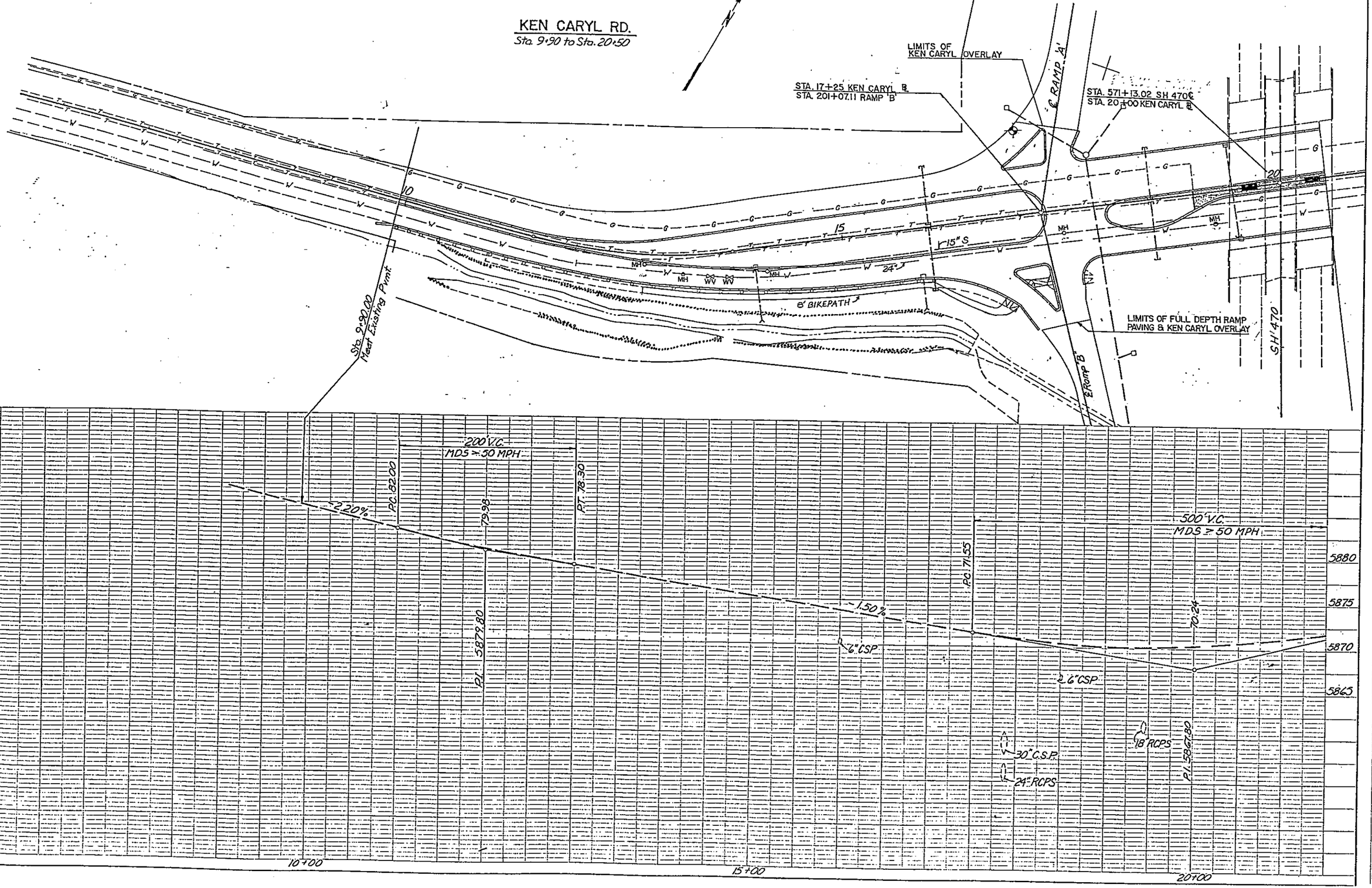
AS CONSTRUCTED		
NO REVISIONS	REVISED 10-16-87	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	40	109

Original Scale 1" = 50' Horiz.
1" = 5' Vert.

KEN CARYL RD.

Sta. 9+90 to Sta. 20+50



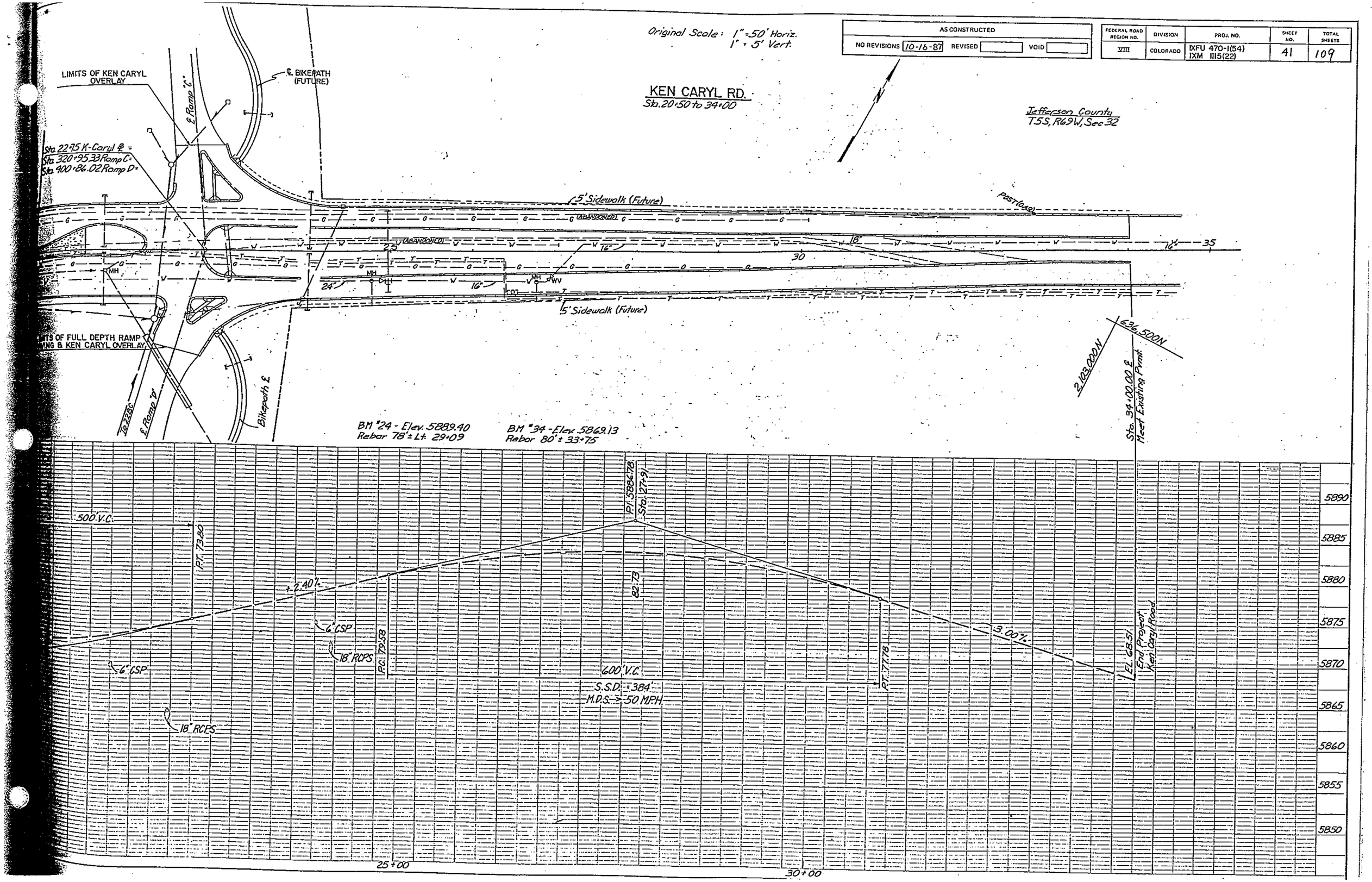
AS CONSTRUCTED			
NO REVISIONS 10-16-87	REVISED		VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM III5(22)	41	109

Original Scale: 1" = 50' Horiz.
1" = 5' Vert.

KEN CARYL RD.
Sta. 20+50 to 34+00

Jefferson County
T5S, R69W, Sec 32



AS CONSTRUCTED			
NO REVISIONS		REVISED 10-16-87	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(54) IXM 1115(22)	42	109

KIPLING PKWY
125+00 TO 138+50

Original Scale: 1" = 50' Horiz
1" = 5' Vert

(R-1) 9-23-86 ~ Changed Skew Angles and Lengths of Wingwalls ~ LEG

NW¼ Cor. Sec. 3, T6S, R69W of 6th. P.M.

2,110,500 E
629,000 N

Section Line
Sec. 4
Sec. 3

Sta. 130+05 ℄ Kipling 56' Lt.
130L to 131B
Req'd. Type 'R' inlet L5(5)
Req'd. 18" x 118' R.C.P.

Sta. 133+04.74 (Kipling ℄)
Sta. 690+43.92 (SH 470) ℄ 688

Sta. 134+86 ℄ Kipling 56' Lt.
135L to 135B
Req'd. Type 'R' inlet L5(5)
Req'd. 18" x 26' RCP

Sta. 135+68 ℄ Kipling 130' Lt.
135L1 to 136L
Req'd. Type 'R' inlet L5(5)
Req'd. 18" x 30' RCP with end section and 1.5 cu.yd. riprap (D_{50} = 12")

Sta. 130+50 ℄ Kipling 190' Rt.
130R to 131B
Req'd. Type 'R' inlet L5(5)
Req'd. 18" x 218' R.C.P.

Sta. 131+10 ℄ Kipling 30' Lt.
131B to 135B
Req'd. manhole (10')
Req'd. 18" x 370' R.C.P.

Sta. 134+86 ℄ Kipling 44' Rt.
135R to 135R
Req'd. Type 'R' inlet L5(10)
Req'd. 24" x 116' R.C.P. Cut Flush with retaining wall.

Sta. 134+86 ℄ Kipling 30' Lt.
Req'd manhole (5)
Req'd 24" x 70' R.C.P.

Sta. 136+40.00 Kipling
Req'd. Extend Double 10'x10' C.B.C. 40' Lt. & 65' Rt. with wingwalls, headwall, concrete apron, and riprap Lt. and Rt. (See Details Dwgs. CB-1-5)

Sta. 392+50 Ramp 'D' 12' Lt
Req'd Type 'R' Inlet L5(5)
Req'd 18" x 20' RCP w/end section and 1.5 cu.yd. riprap (D_{50} = 12")

Sta. 136+50 ℄ Kipling 90' Lt.
Req'd Manhole (Special) and adjust Gate Valve.

Sta. 136+50 to 137+75 ℄ Kipling 90' Lt.
Req'd. 12" x 15' D.I.P. (Class 50) & 36" x 75' welded steel pipe casing (Include removal of 12" x 15' existing C.A. pipe)

Slope Easmt.
Curb Ramp Type 3E
8' Sidewalk
6" ABC CL 6
Curb & Gutter, Type 2 (Sec. I-B) Typ.
N00°16'45" W
See Dwg. DS-1 for Lane Taper Detail
Curb & Gutter Type 2 (Sec. I-B) Typ.
Curb & Gutter, Type 2 (Sec. II-B) Typ.
Guard Rail Type 4
Abandoned Sanitary Sewer
Sta. 190+71.01 (Ramp 'A') =
Sta. 190+67.45 (Ramp 'B') =
Sta. 130+29.74 (Kipling)
See Island Detail DWG DS-1
Ramp 'A'
Ramp 'B'
Ramp 'C'
Ramp 'D'
60' Ken Caryl Ranch Water & Sanitation Dist. Easmt.
Abandoned
Curb Ramp Special See Detail DWG DS-1
Curb Ramp Type 3E
Sta. 390+50.36 (Ramp 'C') =
Sta. 389+89.47 (Ramp 'D') =
Sta. 135+63.79 (Kipling)
Riprap
Trans. Sidewalk 10' to 8'
EXISTING 10x10 DBL. C.B.C.
6" ABC CL 6
Curb and Gutter Type 2 (Sec. I-B) Typ.
Existing Type 3 Guard Rail To Be Removed
20' Ken Caryl Ranch Water & Sanitation Dist. Easmt.
MATCH LINE Sta. 138+50
LITE ST.
M.H.
Gate Valve
MODIFY MH

KEY
6" Median Cover Material (Patterned Concrete)
Concrete Pvmt. (4") (Colored Coating Finish) (No. 30219)

NOTES:
1. All roadway widths are dimensioned to Pan lines.
2. All radius dimensions are to ℄.

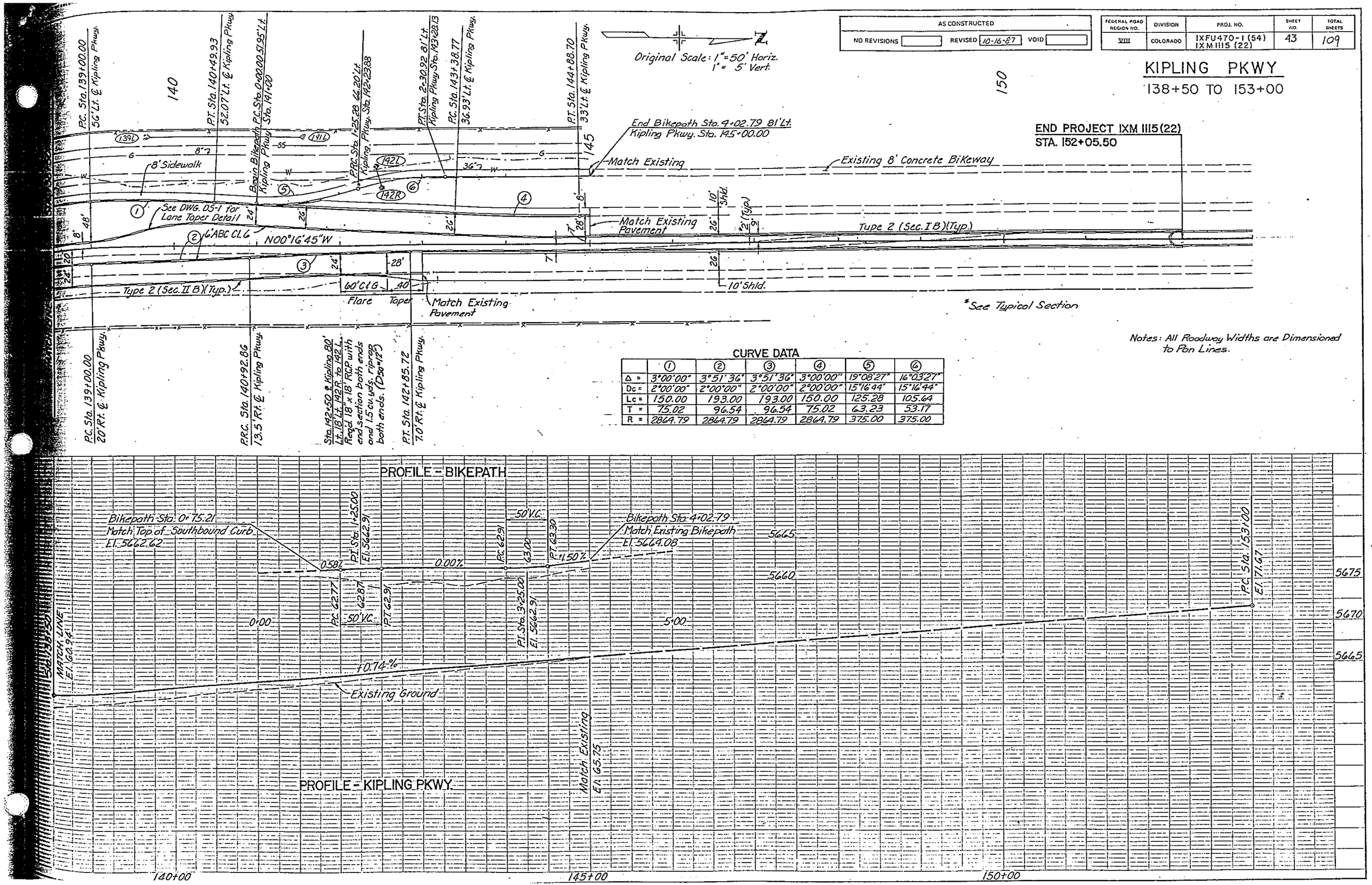
S.H. 470 W.B.
S.H. 470
S.H. 470 E.B.
Str. No. F-16-MD
Str. No. F-16-MC
D° BEG. 125+06.88 = W 63° LITE AVE
EL. 71.44 P.C. 71.06
50' V.C. MDS > 45 MPH
P.T. 70.23
0.00%
-1.37%
P.C. 5670.36
P.T. 5666.62
-1.44%
P.C. 60.86
100' V.C. MDS > 45 MPH
59.07
P.T. 59.46
+0.74%
18" R.C.P.S.
24" R.C.P.S.
P.T. 5657.98
10x10 DBL. C.B.C.
STA. 138+50 MATCH LINE EL. 60.04
5675
5670
5665
5660
5655
5650
125+00
130+00

AS CONSTRUCTED		
NO REVISIONS	REVISED 10-16-87	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU470-1 (54) IXM 1115 (22)	43	109

KIPLING PKWY

138+50 TO 153+00



Notes: All Roadway Widths are Dimensioned to Pan Lines.

CURVE DATA

	①	②	③	④	⑤	⑥
Δ =	3°00'00"	3°51'36"	3°51'36"	3°00'00"	19°08'27"	16°03'27"
Dc =	2°00'00"	2°00'00"	2°00'00"	2°00'00"	15°16'44"	15°16'44"
Lc =	150.00	193.00	193.00	150.00	125.28	105.64
T =	75.02	96.54	96.54	75.02	63.23	53.17
R =	2864.79	2864.79	2864.79	2864.79	375.00	375.00