STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS — STATE OF COLORADO

P.E., R.O.W. & UTILITIES
UNDER IXFU 470-1(2)

FEDERAL ROAD REGION NO	DIVISION	PROJECT NO.	SHEET NO.
VIII	COLORADO	IXFU 470-1(17)	1 of

REVISIONS

R-1	3-29-85	1 & 7	L.E.G.
R-2	4-10-85	3,8,15,16,17,15,101 & 106	E.B.

PLAN AND PROFILE OF ~~PROPOSED~~ As Constructed

FEDERAL AID PROJECT NO. IXFU 470-1(17)

STATE HIGHWAY NO. 470

DOUGLAS COUNTY

SCALES OF ORIGINAL DRAWING

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

TABULATION OF LENGTH

STATION	ROADWAY LIN. FT.	ROADWAY MILES	MAJOR STRUCTURES LIN. FT.	MAJOR STRUCTURES MILES
Sta. 1042+03.11 BEGIN IXFU 470-1(17)= Sta. 1042+03.11 END IXFU 470-1(10)= MILE POST NO. 19.11	2,327.27	0.441		
Sta. 1065+30.38 BEGIN STR. NOS. F-17-HX and F-17-HW			197.52	0.037
Sta. 1067+27.90 END STR. NOS. F-17-HX and F-17-HW	3,368.38	0.638		
Sta. 1100+96.28 BK = Equation Sta. 1099+06.90 AHD	4,264.35	0.808		
Sta. 1141+71.25 BEGIN STR. NOS. F-17-HQ and F-17-HP			189.60	0.036
Sta. 1143 60.85 END STR. NOS. F-17-HQ and F-17-HP	10,150.90	1.922		
Sta. 1245+11.75 BEGIN STR. NOS. F-17-HT and F-17-HS			130.50	0.025
Sta. 1246+42.25 END STR. NOS. F-17-HT and F-17-HS	3,216.19	0.609		
Sta. 1278+58.44 BK = Equation Sta. 1278+55.64 AHD	4,772.58	0.904		
Sta. 1326+28.22 BEGIN STR. NOS. F-17-HN and F-17-HN			139.50	0.026
Sta. 1327+67.72 END STR. NOS. F-17-HO and F-17-HN	5,121.56	0.970		
Sta. 1378+89.28 BEGIN STR. NOS. F-17-HK and F-17-HL			161.64	0.031
Sta. 1380+53.92 END STR. NOS. F-17-HK and F-17-HL	946.08	0.179		
Sta. 1390+00.00 END IXFU 470-1(17)= Sta. 1390+00.00 BEGIN I 25-2(156) = MILE POST NO. 25.74				
TOTALS	34,167.31	6.471	821.76	0.156

SUMMARY	LIN. FT.	MILES
ROADWAY (NET LENGTH)	34,167.31	6.471
MAJOR STRUCTURES	821.76	0.156
PROJECT NET AND GROSS LENGTH	34,989.07	6.627

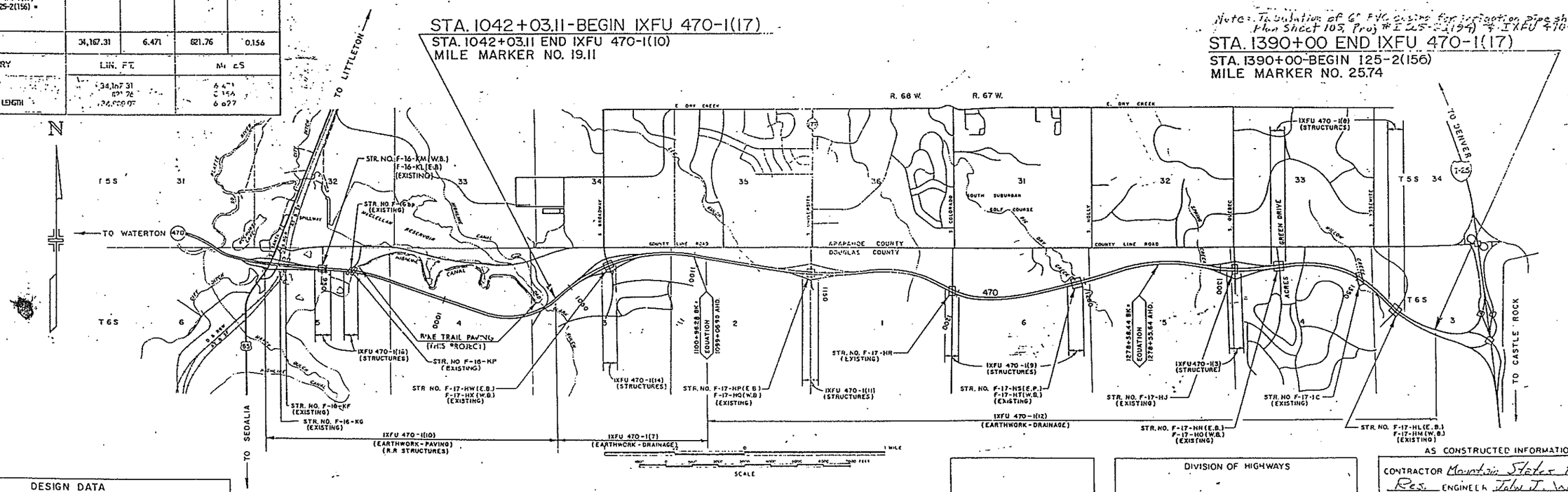
INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET, TABULATION OF LENGTH AND DESIGN DATA AND SKETCH MAP
2	STANDARD PLANS LIST
3 - 6	TYPICAL SECTIONS
7	GENERAL NOTES, TRAFFIC DIAGRAMS, SUMMARY OF EARTHWORK, LOCATIONS OF EXTRA DEPTH SUBGRADE TREATMENT, RAMP EXIT TERMINAL DETAIL AND RAMP ENTRANCE TAPER DETAIL
8 - 12 & X	SUMMARY OF APPROXIMATE QUANTITIES
13	TABULATION OF FENCING AND TABULATION OF REMOVAL, RESET AND MODIFY
14	TABULATION OF BRIDGE QUANTITIES AND STRUCTURE QUANTITIES
15 - 18	TABULATION OF CONCRETE PAVEMENT, LIME TREATED SUBGRADE, CONCRETE BIKEWAY, RECONDITION
19 - 21	TABULATION OF SIDEWALK, CURB RAMP, CURB AND GUTTER AND MEDIAN COVER MATERIAL
22 - 23	TABULATION OF GUARD RAIL
24 - 25	TABULATION OF DELINEATORS
26 - 47	ALIGNMENT PLAN AND PROFILE-SEE SHT. NO. 46 FOR 6" P.V.C. PIPE PLACEMENT DETAIL
48 - 50	BIKE TRAIL STA. 283+15 to STA. 370+00
51 - 58	APPROACH SLAB DETAILS AND GENERAL LAYOUT SHEETS FOR STR. NOS. F-17-HX, F-17-HW, F-17-HQ, F-17-HP, F-17-HS, F-17-HT, F-17-HJ, F-17-HN, F-17-HO, F-17-HM AND F-17-HL
59 - 65	TRAFFIC SIGNAL PLANS AND PULL BOX-SPECIAL
66 - 100	SIGNING AND PAVEMENT MARKING PLANS
101	STANDARD M-412-1 (SPECIAL THIS PROJECT)
102	STANDARD M-412-2 (SPECIAL THIS PROJECT)
103 - 104	STANDARD M-607-1 (SPECIAL THIS PROJECT)
105	STANDARD M-608-1 (SPECIAL THIS PROJECT)
106	TYPICAL SECTIONS OF UNDERDRAIN AND TABULATION OF ITEMS FOR UNDERDRAINS
	NEW AND REVISED H&S STANDARDS
	M-606-12 GUARDRAIL-TYPE 4 CONCRETE BARRIER (9 SHEETS) 2-18-83

Note: Tabulation of 6" PVC casing for irrigation pipe shown on Plan Sheet 103, Proj # I 25-2(194) & IXFU 470-1(15)

STA. 1042+03.11-BEGIN IXFU 470-1(17)
STA. 1042+03.11 END IXFU 470-1(10)
MILE MARKER NO. 19.11

STA. 1390+00 END IXFU 470-1(17)
STA. 1390+00-BEGIN 125-2(156)
MILE MARKER NO. 25.74



DESIGN DATA

MAXIMUM DEGREE OF CURVE	10 45'
MAXIMUM GRADE	3.60%
MINIMUM S.S.D. HORIZONTAL	> 600'
MINIMUM S.S.D. VERTICAL	> 600'
MAXIMUM DESIGN SPEED	70 MPH
2004 DESIGN TRAFFIC VOLUME	DHV 2850
	ADT 40,600

AS CONSTRUCTED

NO REVISIONS ☐ REVISED ☐ VOID ☐

CENTENNIAL ENGINEERING, INC.
15000 WEST 64TH AVENUE
ARVADA, COLORADO 80001

DIVISION OF HIGHWAYS

APPROVED: James E. Siebels 3-29-85
ASST. CHIEF ENGINEER DATE

AS CONSTRUCTED INFORMATION

CONTRACTOR Mountain States Paving Res. ENGINEER John J. Wood
(Project or Resident)

PROJECT STARTED 6-03-85

PROJECT COMPLETED 10-29-86

AS CONSTRUCTED PLANS APPROVED S. L. Hoppe
Const. Engr. 7-12-87
TITLE DATE

AS CONSTRUCTED		
NO. REVISIONS 10/29/86	REVISED	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.	TOTAL SHEETS
VII	COLORADO	IXFU 470-1(17)	2	106

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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

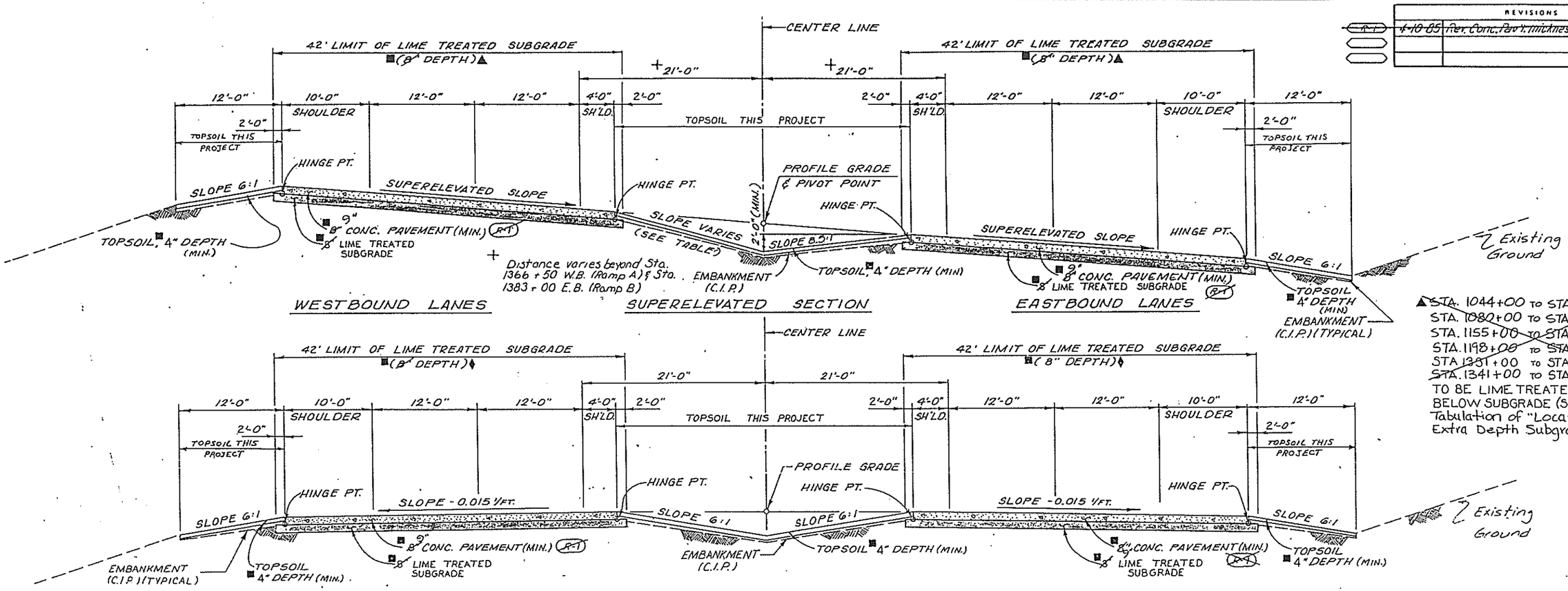
M & S STANDARDS — JANUARY, 1982

TYPICAL SECTIONS

AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/86	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1 (17)	3	106

REVISIONS		
R-1	~~4-10-85~~ Rev. Conc. Pav't. thickness to 8"	E.B.



▲~~STA. 1044+00 TO STA. 1056+00~~
STA. ~~1080~~+00 TO STA. ~~1111~~+00
STA. 1155+~~00~~ TO ~~STA.~~ 1178 +00
STA. 1198+~~00~~ TO ~~STA.~~ 1207+50
STA ~~1331~~+00 TO STA. ~~1335~~+50
~~STA.~~ 1341+00 TO STA. 1353+~~00~~
TO BE LIME TREATED 12 INCHES BELOW SUBGRADE (See ~~Profile &~~ Tabulation of "Locations of Extra Depth Subgrade Treatment")

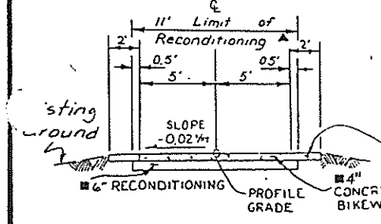
WESTBOUND LANES

SEE TABULATIONS

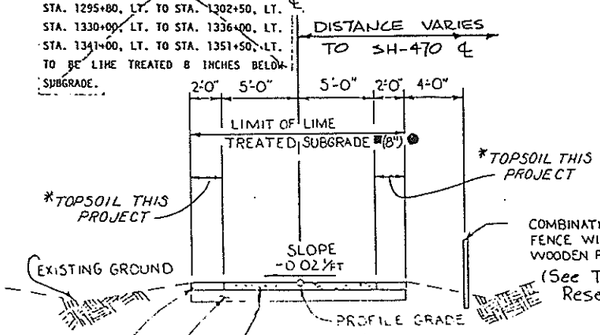
● STA. 1045+00, LT. TO STA. 1056+00, LT.
STA. 1066+80, LT. TO STA. 1111+00, LT.
STA. 1122+50, LT. TO STA. 1130+60, LT.
STA. 1143+50, LT. TO STA. 1157+00, LT.
STA. 1219+00, LT. TO STA. 1239+25, LT.
STA. 1279+00, LT. TO STA. 1288+00, LT.
STA. 1295+80, LT. TO STA. 1302+50, LT.
STA. 1330+00, LT. TO STA. 1336+00, LT.
STA. 1341+00, LT. TO STA. 1351+50, LT.
TO BE LIME TREATED 8 INCHES BELOW SUBGRADE.

SEE TABULATIONS

▲ STA. 1056+00, LT. TO STA. 1066+80, LT.
STA. 1111+00, LT. TO STA. 1122+50, LT.
STA. 1130+60, LT. TO STA. 1143+50, LT.
STA. 1157+00, LT. TO STA. 1219+00, LT.
STA. 1239+25, LT. TO STA. 1279+00, LT.
STA. 1288+00, LT. TO STA. 1295+80, LT.
STA. 1302+50, LT. TO STA. 1330+00, LT.
STA. 1336+00, LT. TO STA. 1341+00, LT.
RECONDITIONING TO BE 6 INCHES BELOW SUBGRADE.



BIKE TRAIL

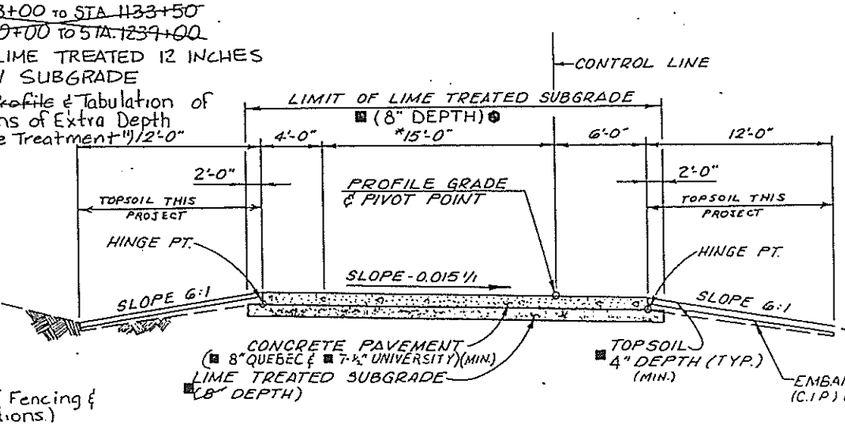


S.H. - 470

TANGENT SECTION

♦ ~~STA. 1123+00 TO STA. 1133+50~~
~~STA. 1220+00 TO STA. 1239+00~~
TO BE LIME TREATED 12 INCHES BELOW SUBGRADE
(See ~~Profile~~ & Tabulation of "Locations of Extra Depth Subgrade Treatment")/2'-0"

EASTBOUND LANES



* RAMP WIDTH INCREASES AT INTERSECTIONS TO PROVIDE ADDITIONAL TURNING LANES

RAMPS

TYPICAL SECTION NOTES
Topsoil will be placed to line shown

■ ~~APPROXIMATE THICKNESS~~

MEDIAN SLOPE		
DEGREE OF CURVE	SUPERELEVATION	SLOPE
0° 45'	0.029	5.68:1
0° 55'	0.035	5.33:1
1° 15'	0.046	4.78:1
1° 30'	0.053	4.47:1
1° 45'	0.059	4.24:1

● UNIVERSITY INTERCHANGE
S.W. RAMP STA. 125 + 00 to STA. 143+35
TO BE LIME TREATED 12 INCHES BELOW SUBGRADE (See Profile)

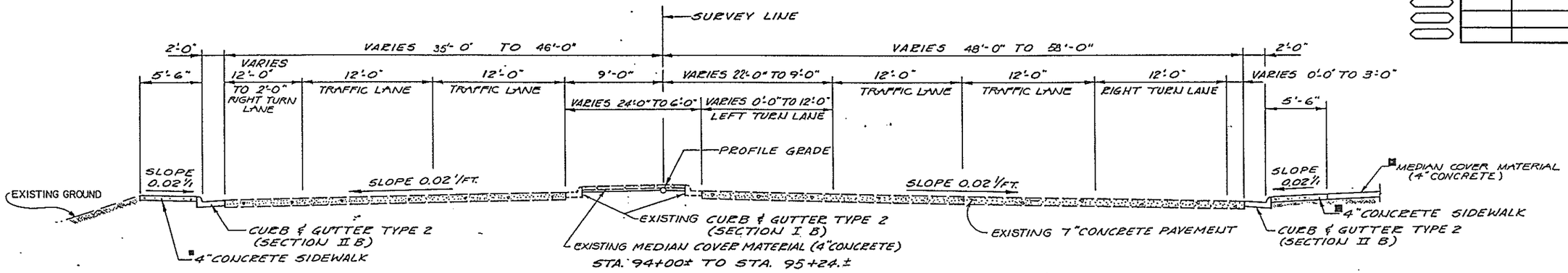
● QUEBEC INTERCHANGE
N.E. RAMP STA 406+30 to STA 414+00
S.E. RAMP STA 205+87 to STA 218+00
TO BE LIME TREATED 12 INCHES BELOW SUBGRADE (See Profile)

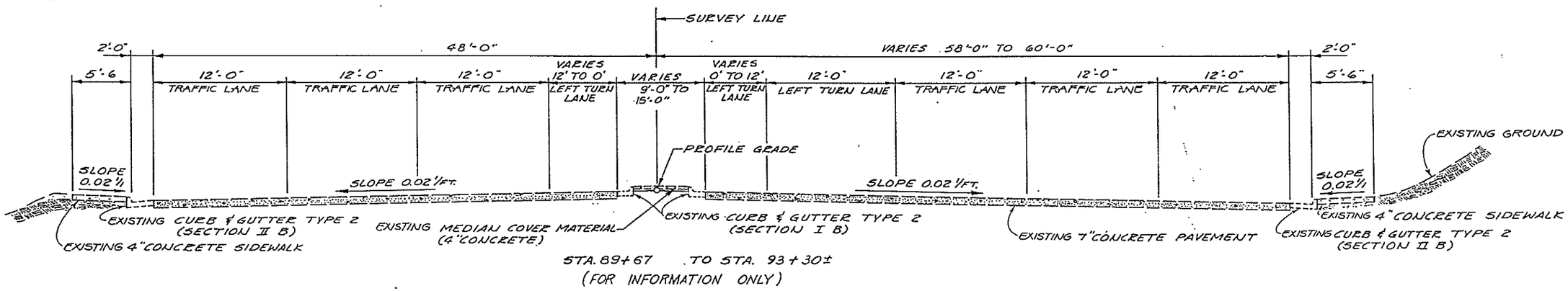
AS CONSTRUCTED		
NO REVISIONS 10/29/86	REVISED	VOID

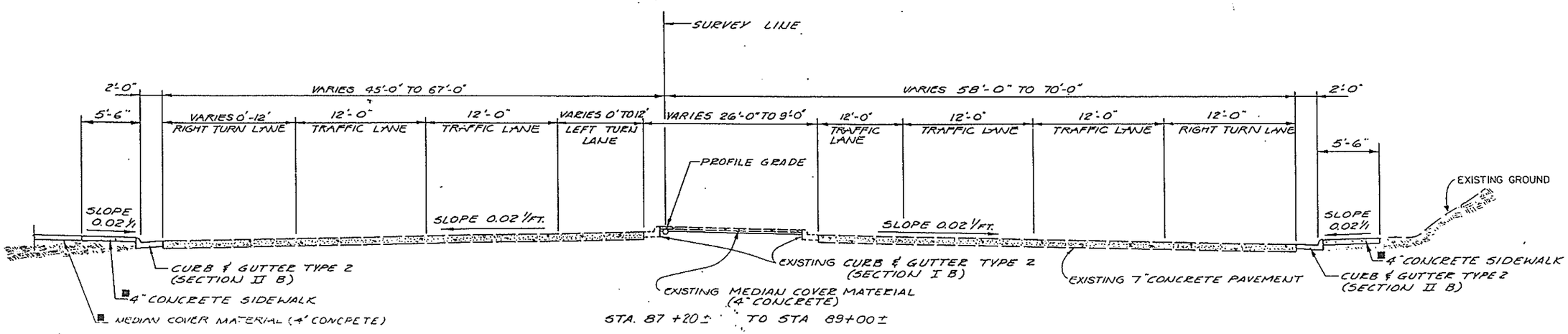
FEDERAL ROAD REGION NO	DIVISION	PROJ. NO.	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	4	106

REVISIONS		

TYPICAL SECTIONS







BROADWAY

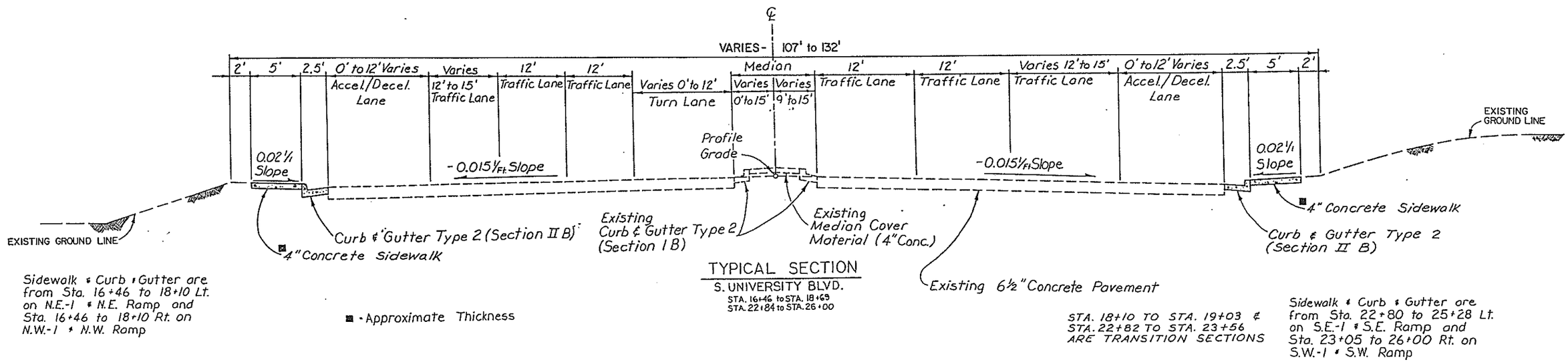
■ APPROXIMATE THICKNESS

TE OF COLORADO
TE DEPARTMENT OF HIGHWAYS
ISION OF HIGHWAYS:
O. H. FORM NO. 126:
. FEB. 1984

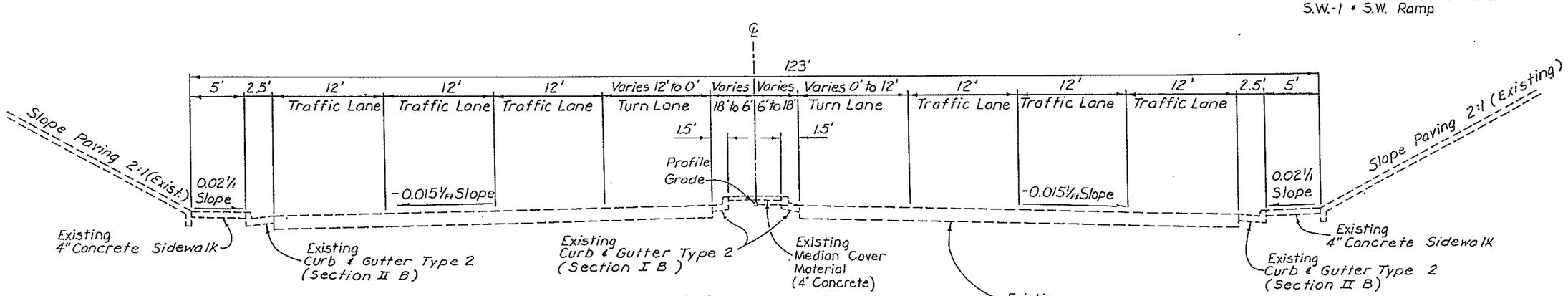
AS CONSTRUCTED				
NO REVISIONS 10/29/86 REVISED	VOID			

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IXFU 470-1(17)	5	106

TYPICAL SECTIONS



TYPICAL SECTION
S. UNIVERSITY BLVD.
STA. 16+46 to STA. 18+69
STA. 22+84 to STA. 26+00



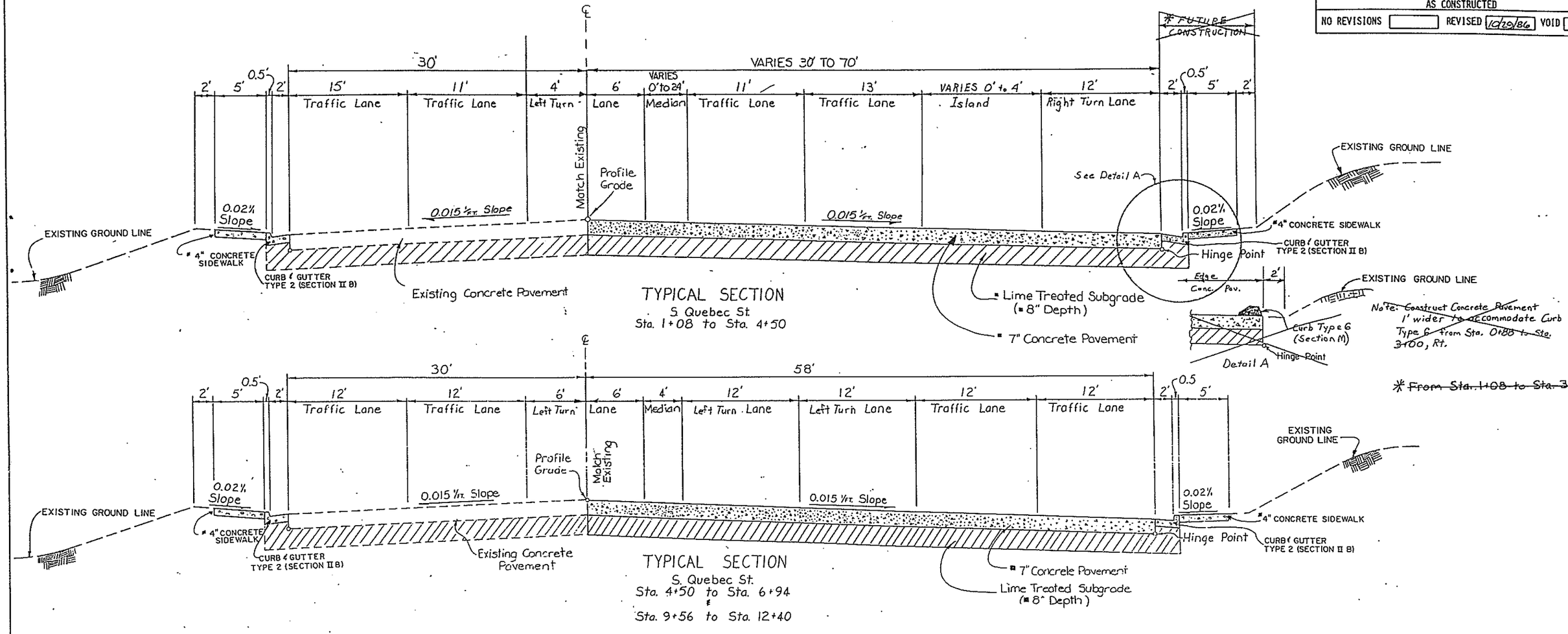
TYPICAL SECTION
S. UNIVERSITY BLVD.
STA. 19+03 to STA. 21+82
(FOR INFORMATION ONLY)

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	6	106

AS CONSTRUCTED

NO REVISIONS [ ] REVISED 10/20/86 VOID [ ]

TYPICAL SECTIONS

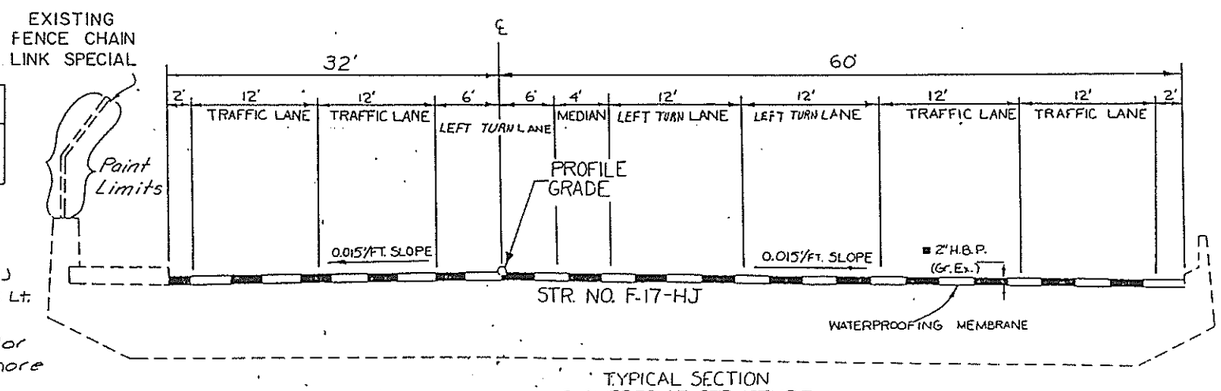


TYPICAL SECTION
S. Quebec St.
Sta. 1+08 to Sta. 4+50

TYPICAL SECTION
S. Quebec St.
Sta. 4+50 to Sta. 6+94
Sta. 9+56 to Sta. 12+40

LOCATION OF * 8 INCH SUBGRADE TREATMENT

LOCATION	STATIONS
S. Quebec Street	1+08 Rt. to 7+05.40 Rt.
S. Quebec Street	9+44.90 Rt. to 12+40 Rt.



TYPICAL SECTION
S. QUEBEC ST. STRUCTURE
STA. 7+05.40 to STA. 9+44.90

Approach Slabs - Sta. 6+95 to 7+05.40 and Sta. 9+44.90 to 9+55 shall receive a 2" H.B.P. overlay.

TYPICAL SECTION NOTES

* Approximate Thickness

Rt. Side of Quebec St. will be constructed to Subgrade on IXFU 470-1(12)

The existing Fence Chain Link Special on Str. No. F-17-HJ shall be painted on this project from Sta. 6+92.65 Lt. to Sta. 9+57.65 Lt.

The color of the paint is approximated by color no. 30219 of the Federal Standard 595a, and more specifically is intended to most nearly match the dark tan presently found on certain portions of the structure.

Method of payment shall be paid for as Item 210, Modify Fence. (See Project dated Special Provision)

AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/86	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ. NO.	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	7	106

REVISIONS		
R-1	3-29-85 Added Note	L.E.G.

GENERAL NOTES

MULCHING OF ALL DISTURBED AREAS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SECTION 213 OF THE SPECIFICATIONS.

WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. LOCATIONS SHALL BE AS ORDERED.

BEFORE PLACING THE CONCRETE PAVEMENT, THE FINISHED SUBGRADE SHALL BE PROCESSED TO A DEPTH OF 8 INCHES WITH 4% HYDRATED LIME TO PROVIDE A LIME STABILIZED SUBGRADE. CERTAIN AREAS TABULATED ON TYPICAL SECTIONS SHEET WILL REQUIRE LIME STABILIZATION TO A DEPTH OF 12 INCHES.

ALL DISTURBED AREAS SHALL RECEIVE SOIL PREPARATION IN ACCORDANCE WITH SECTION 212.06[A] OF THE STANDARD SPECIFICATIONS.

SEEDING, SOIL PREPARATION, FERTILIZING WITH COMMERCIAL FERTILIZER AND MULCHING WILL BE REQUIRED FOR ~~APPROXIMATELY 62.7~~ 50.1 ACRES FOR ROADWAY WITHIN RIGHT-OF-WAY ON ALL DISTURBED AREAS NOT TO SURFACED.

THE MINIMUM THICKNESS OF TOPSOIL SHALL BE 4 INCHES. ~~IT IS ESTIMATED THAT 29,525~~ 29,695 CU. YDS. WILL BE OBTAINED FROM STOCKPILES LOCATED WITHIN PROJECT LIMITS OR AS DIRECTED BY THE ENGINEER.

THE TYPE OF COMPACTION FOR EMBANKMENT SHALL BE AASHTO T-99.

TRIANGULAR ISLANDS AT THE INTERCHANGES WITH UNIVERSITY AND QUEBEC ARE TO BE FILLED WITH 4 INCHES OF MEDIAN COVER MATERIAL (CONCRETE)

FOR EXISTING UTILITIES SEE PLANS FOR PROJECTS IXFU 470-1(7) AND IXFU 470-1(12).

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 BEFORE DIGGING.

F/A04 IS INCLUDED FOR SPOT IMPROVEMENTS TO SLOPES DUE TO EROSION TAKING PLACE AFTER GRADING PLAN IS COMPLETED.

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

BITUMINOUS PAVEMENT @ 110 LBS./SQ. YD./INCH THICK.

THE FOLLOWING SHALL BE FURNISHED WITH EACH BITUMINOUS PAVER:

a. A ski type device at least 30 feet in length.
b. Short ski or shoe.

HAUL ROUTES ARE NOT DESIGNATED, THE CONTRACTOR SHALL REPAIR ANY DAMAGE DONE BY HIS HAULING EQUIPMENT. LOADS ON BRIDGES SHALL BE LIMITED TO THE LEGAL LOAD LIMIT SPECIFIED FOR NON-INTERSTATE ROADWAYS.

AN ALL WEATHER SURFACE SHALL BE PROVIDED FOR ACCESS TO FIELD FACILITIES.

THE FOLLOWING TYPES AND RATES SHALL BE USED.

COMMON NAME	BOTANICAL NAME	RATE-LBS. PLS/ACRE
BUFFALO GRASS	BUCHLOE DACTYLOIDES	4
BLUE GRAMA	BOUTELOUA GRACILIS	2
SAND DROPSEED	SPOROBOLUS CRYPTANDRUS	1
SIDEOATS GRAMA	BOUTELOUA CURTIPENDULA	4
SMOOTH BROME	BROMUS INERMIS	4
WESTERN WHEATGRASS	AGROPYRON SMITHII	6
TOTAL PLS/ACRE SEEDING (NATIVE)		21

MULCHING MATERIAL: NATIVE HAY ... 2 TONS PER ACRE

SEED SHALL BE MECHANICALLY DRILLED TO A DEPTH OF 0.5 INCHES INTO TOPSOIL.

COMMERCIAL FERTILIZER	LBS./ACRE AVAILABLE
AVAILABLE N	54
AVAILABLE P	139

PROJECT TOTALS

SEEDING (NATIVE) ~~1107~~ 1832 LBS.

SOIL PREPARATION (NATIVE) ~~62.7~~ 50.1 ACRES
MULCHING ~~105~~ TONS
FERTILIZER (AVAILABLE N) ~~2846~~ 4266 LBS.
FERTILIZER (AVAILABLE P) ~~7,273~~ 12,495 LBS.

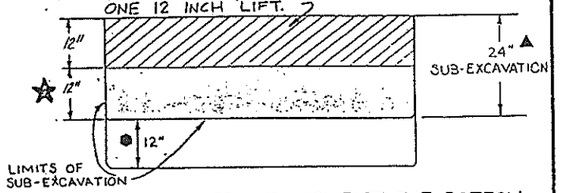
WATER (LANDSCAPING) ~~165~~ 0 M.GAL.

SUMMARY OF EARTHWORK

INDEX BOOK	PAGE	SHEET		PROJECT TOTALS
			UNCLASSIFIED EXCAVATION(CIP)	CU. YD.
			SUBEXCAVATION TOTAL FOR PAY QUANTITY	19,095
			EMBANKMENT(FOR INFORMATION ONLY)	~~19,095~~ 60,353
			EMBANKMENT(C.I.P.) TO REPLACE SUBEXCAVATION MATERIAL	19,095
			TOTAL	19,095
			WETTING	M. GAL.
			ROADWAY(DUST PALLIATIVE)	~~500~~
			BIKE PATH(RECONDITIONING)	~~200~~
			TOTAL FOR PAY QUANTITY	~~700~~
			COMPACTION (FOR INFORMATION ONLY)	CU. YD.
			ROADWAY	~~19,095~~
			TOTAL	

EXTRA SUBGRADE TREATMENT

TOP LIFT OF SUB-EXCAVATED MATERIAL TO BE LIME TREATED AND REPLACED IN ONE 12 INCH LIFT.



● RIP, WATER AND COMPACT THE BOTTOM ONE FOOT BEFORE REPLACING SUB-EXCAVATED MATERIAL (WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK).

R-1 ★ TO BE REPLACED WITH MOISTURE DENSITY CONTROL BEFORE TOP LAYER IS LIME TREATED.

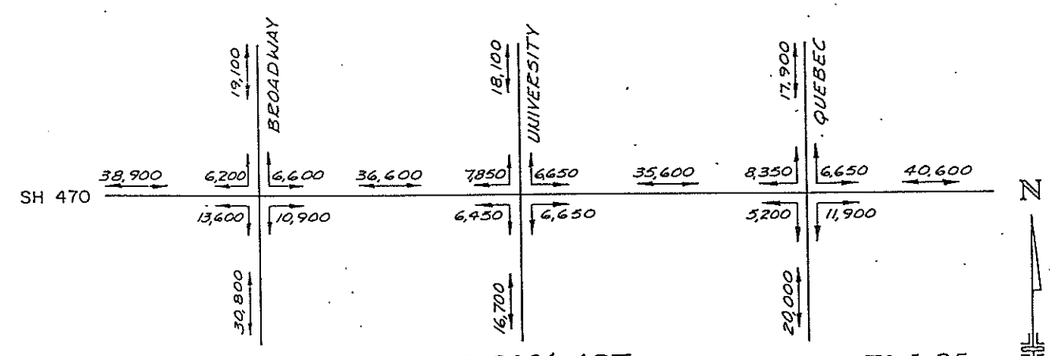
LOCATIONS OF EXTRA DEPTH SUBGRADE TREATMENT

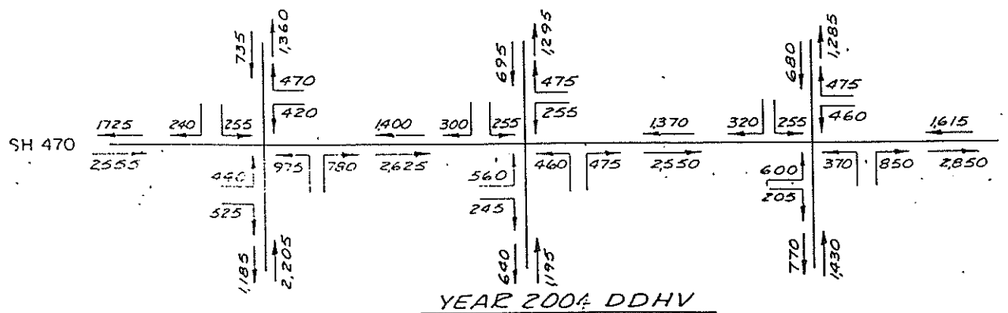
SUB-EXCAVATION (24" DEPTH)		
LOCATION	STATION TO STATION	CUBIC YARD
SH 470, MAINLINE	1098+00 TO 1105+00	5,175
	1220+00 TO 1230+00	6,222
	1331+00 TO 1335+50	2,800
Quebec Int. NE Ramp	406+30 TO 414+00	2,000
SE Ramp	205+87 TO 218+00	2,898

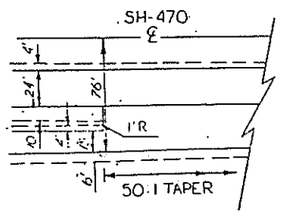
▲ REPLACING SUB-EXCAVATED MATERIAL WILL NOT BE MEASURED AND PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE PAY ITEM UNCLASSIFIED EXCAVATION (CIP)

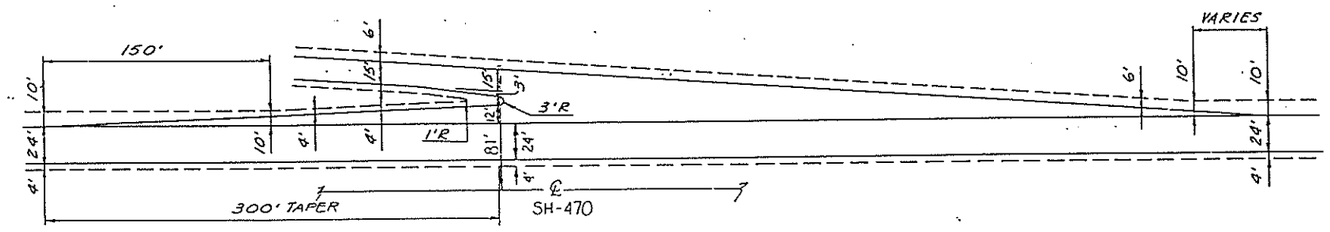
DENSITY FOR THESE BOTTOM LIFTS SHALL BE NO LESS 92% OF STANDARD (AASHTO T-99) MOISTURE SHALL BE OPTIMIUM OR GREATER.

TRAFFIC DIAGRAMS

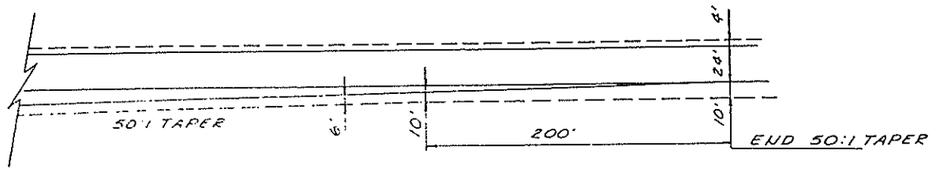








RAMP EXIT TERMINAL DETAIL



RAMP ENTRANCE TAPER DETAIL

OF COLORADO
DEPARTMENT OF HIGHWAYS
SION OF HIGHWAYS:
. H. FORM NO. 113
DEC. 1983:

AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/86	VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLO.	IXFU 470-1 (17)	8	106

SUMMARY OF ~~APPROXIMATE~~ QUANTITIES
AS CONSTRUCTED

~~(R-1) Rev. Conc. Pavt. Quant. - 4-10-85 - E.B. and deleted pay item~~

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	PLAN ROADWAY	AS CONSTR. ROADWAY	PLAN STR. NO. F-17-HX	AS CONSTR. STR. NO. F-17-HX	PLAN STR. NO. F-17-HW	AS CONSTR. STR. NO. F-17-HW	PLAN STR. NO. F-17-HO	AS CONSTR. STR. NO. F-17-HO	PLAN STR. NO. F-17-HP	AS CONSTR. STR. NO. F-17-HP	PLAN STR. NO. F-17-HS	AS CONSTR. STR. NO. F-17-HS	PLAN STR. NO. F-17-HT	AS CONSTR. STR. NO. F-17-HT	PLAN STR. NO. F-17-HJ	AS CONSTR. STR. NO. F-17-HJ	PLAN STR. NO. F-17-HN	AS CONSTR. STR. NO. F-17-HN	PLAN STR. NO. F-17-HO	AS CONSTR. STR. NO. F-17-HO	PLAN STR. NO. F-17-HH	AS CONSTR. STR. NO. F-17-HH	PLAN STR. NO. F-17-HL	AS CONSTR. STR. NO. F-17-HL	PROJECT TOTALS	AS CONSTR PROJECT TOTALS	DIFF. +/-	% PLAN
1	1		202	Removal of Barricade	Each	16	1																							16	1	-15	6
1	2		202	Removal of Curb, Gutter and Sidewalk	Lin.Ft.	88	88																							88	88	0	100
1	3		202	Removal of Pavement Marking	Sq.Ft.	200	843																							200	843	+643	421
1	4		202	Removal of Ground Sign	Each	10	9																							10	9	-1	90
1	5		202	Removal of Traffic Signal Head	Each	4	4																							4	4	0	100
1	6		202	Removal of Traffic Signal Pole	Each	2	1																							2	1	-1	50
1	7		202	Removal of Fence	Lin.Ft.	50	1232																							50	1232	+1182	2464
1	8		203	Unclassified Excavation (Complete In Place)	Cu.Yd.	19,095	60,353																							19,095	60353	+41258	316
1	9		203	Embankment Material (Complete In Place)	Cu.Yd.	25,000	25,074																							25,000	25074	+74	103
1	10		206	Structure Excavation	Cu.Yd.	951	1377																							951	1377	+426	145
1	11		206	Structure Backfill (Class 2)	Cu.Yd.	242	458																							242	458	+216	189
1	12		206	Filter Material (Class B)	Cu.Yd.	303	404																							303	404	+101	133
1	13		207	Topsoil (Haul)	Cu.Yd.	29,525	29,693																							29,525	29693	+168	101
1	14		209	Wetting	M.Gal.	708	306																							708	306	-402	43
1	15		209	Water (Landscaping)	M.Gal.	165	0																							165	0	-165	0
1	16		210	Reset Traffic Signal Head	Each	13	3																							13	3	-10	23
1	17		210	Reset Pedestrian Push Button	Each	2	1																							2	1	-1	50
1	18		210	Reset Fence	Lin.Ft.	455	0																							455	0	-455	0
1	19		210	Modify Fence	Lin.Ft.	265	265																							265	265	0	100
1	20		212	Seeding (Native)	Lb.	1,107	1892																							1,107	1892	+785	171
1	21		212	Fertilizer (Available N)	Lb.	2,846	4866																							2,846	4866	+2020	171
1	22		212	Fertilizer (Available P)	Lb.	7,273	12,435																							7,273	12,435	+5162	171
1	23		212	Soil Preparation (Native)	Acre	52.7	90.1																							52.7	90.1	+37.4	171
1	24		213	Mulching	Ton	105	180.21																							105	180.21	+75.21	171
1	25		304	Aggregate Base Course (Class 6) (Haul)	Ton	150	320.22																							150	320.22	+170.22	213
1	26		306	Reconditioning	Sq.Yd.	31,375	29009																							31,375	29009	-2366	92
1	27		307	Hydrated Lime	Ton	6,039	6809.44																							6,039	6809.44	+770.44	113
1	28		307	Processing Lime Treated Subgrade (8 Inch Layer)	Sq.Yd.	259,551	217845																							259,551	217845	-41706	84
1	29		307	Processing Lime Treated Subgrade (12 Inch Layer)	Sq.Yd	136,734	201765																							136,734	201765	+65031	148
1	30		403	Hot Bituminous Pavement (Patching) (Haul and Asphalt)	Ton	20	17.11																							20	17.11	-2.89	86
1	31		403	Hot Bituminous Pavement (Grading Ex.) (Haul and Asphalt)	Ton			103	109.28	97	101.85	89	100.65	89	100.65	85	75.76	85	74.76	294	252.42	86	92.42	66	77.84	90	87.59	90	82.90	1,174	1156.12	-17.88	98
1	32		412	Concrete Pavement (7 Inch)	Sq.Yd.	5,665	5848																							5,665	5848	+183	103
1	33		412	Concrete Pavement (7½ Inch)	Sq.Yd	19,008	19875																							19,008	19875	+867	105
(R-1) 1	34		412	Concrete Pavement (8 Inch)	Sq.Yd.	324,992	15682																							324,992	15682	-309,310	5
(R-1)																																	
2	35		506	Impervious Plastic Lining	Sq.Yd	106	190																							106	190	-84	179
2	36		506	Plastic Filter Cloth	Sq.Yd.	700	700																							700	700	0	100
2	37		515	Waterproofing (Membrane)	Sq.Yd.			864	1018	805	920	806	915	806	915	551	657	551	657	2,678	2431	742	909	589	705	711	811	713	811	9,840	10747	+907	109
2	38		518	Bridge Compression Joint Sealer	Lin.Ft.			78	78	76	78	76	76	76	76	76	76	76	76	120	180	76	76	76	76	78	78	78	78	888	948	+60	107

OF COLORADO
DEPARTMENT OF HIGHWAYS
ION OF HIGHWAYS:
H. FORM NO. 113-
DEC. 1983:

SUMMARY OF ~~APPROXIMATE~~ QUANTITIES
AS CONSTRUCTED

AS CONSTRUCTED
NO REVISIONS ☐ REVISED 10/29/86 VOID ☐

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLO.	IXFU 470-1 (17)	9	106

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	PLAN ROADWAY	AS CONSTR. ROADWAY	PLAN STR. NO. F-17-HX	AS CONSTR. STR. NO. F-17-HX	PLAN STR. NO. F-17-HW	AS CONSTR. STR. NO. F-17-HW	PLAN STR. NO. F-17-HQ	AS CONSTR. STR. NO. F-17-HQ	PLAN STR. NO. F-17-HP	AS CONSTR. STR. NO. F-17-HP	PLAN STR. NO. F-17-HS	AS CONSTR. STR. NO. F-17-HS	PLAN STR. NO. F-17-HT	AS CONSTR. STR. NO. F-17-HT	PLAN STR. NO. F-17-HJ	AS CONSTR. STR. NO. F-17-HJ	PLAN STR. NO. F-17-HH	AS CONSTR. STR. NO. F-17-HH	PLAN STR. NO. F-17-HO	AS CONSTR. STR. NO. F-17-HO	PLAN STR. NO. F-17-HM	AS CONSTR. STR. NO. F-17-HM	PLAN STR. NO. F-17-HL	AS CONSTR. STR. NO. F-17-HL	PROJECT TOTALS	AS CONSTR PROJECT TOTALS	DIFF. +/-	% PLAN
2	39		601	Class 5 Finish	Sq. Ft.		(F-17-HK) 790					7,289	7157	7,289	7157					0	2735	6,915	6992	6,915	6991	8,398	9180	8,398	9179	45,204	50181	+4977	111
2	40		603	18 Inch Reinforced Concrete Pipe	Lin Ft.	458	458																								458	458	0	100
2	41		603	18 Inch Reinforced Concrete End Section	Each	1	1																								1	1	0	100
2	42		604	Inlet Type R L 5 (5 foot)	Each	1	1																								1	1	0	100
2	43		604	Inlet Type R L 5 (10 foot)	Each	1	1																								1	1	0	100
2	44		604	6 Inch Plastic Pipe Sewer (Polyvinylchloride)	Lin. Ft.	3,064	4879																								3,064	4879	+1825	159
2	45		605	6 Inch Non-Perforated Underdrain	Lin. Ft.	20	20																								20	20	0	100
2	46		605	6 Inch Perforated Underdrain	Lin. Ft.	484	784																								484	784	+300	162
2	47		606	Guard Rail Type 3 (6.3 Post Spacing)	Lin. Ft.	2,300	2637																								2,300	2637	+337	115
2	48		606	Guard Rail Type 4	Lin. Ft.	5,154	6404																								5,154	6404	+1250	124
2	49		606	End Anchorage Type 3E	Each	19	22																								19	22	+3	116
2	50		606	End Anchorage Type 3F	Each	8	8																								8	8	0	100
2	51		607	End Post	Each	5	19																								5	19	+14	380
2	52		607	Corner and Line Brace Post	Each	7	64																								7	64	+57	914
2	53		607	Fence Combination Wire With Treated Wooden Posts	Lin. Ft.	4,351	30231																								4,351	30231	+25,880	695
2	54		608	Concrete Sidewalk	Sq. Yd	747	904																								747	904	+157	121
2	55		608	Concrete Curb Ramp	Sq. Yd.	300	266																								300	266	-34	89
2	56		608	Concrete Bikeway (4 Inch)	Sq. Yd.	33,345	33142.19																								33,345	33142.19	-202.81	99
2	57		608	Concrete Bikeway (5 Inch)	Sq. Yd.	9,650	476																								9,650	476	-9174	5
2	58		609	Curb and Gutter Type 2 (Section I-B)	Lin. Ft.	1,824	2112																								1,824	2112	+288	116
2	59		609	Curb and Gutter Type 2 (Section II-B)	Lin. Ft.	2,405	2906																								2,405	2906	+501	121
2	60		609	Curb Type 6 (Section M)	Lin. Ft.	212	0																								212	0	-212	0
2	61		610	Median Cover Material (Concrete)	Sq. Ft.	19,737	23822																								19,737	23822	+4085	121
2	62		612	Delineator (Type I)	Each	632	683																								632	683	+51	108
2	63		612	Delineator (Type II)	Each	190	205																								190	205	+15	108
2	64		612	Delineator (Type III)	Each	20	20																								20	20	0	100
2	65		613	1 ½ Inch Electrical Conduit	Lin. Ft.	1,000	539																								1,000	539	-461	54
2	66		613	2 Inch Electrical Conduit	Lin. Ft.	475	325																								475	325	-150	68
2	67		613	2 Inch Electrical Conduit (Jacked)	Lin. Ft.	340	50																								340	50	-290	15
2	68		613	3 Inch Electrical Conduit	Lin. Ft.	530	548																								530	548	+18	103
2	69		613	Direct-Burial Cable	Lin. Ft.	395	685																								395	685	+290	173
2	70		614	Flagging	Hour	800	4160																								800	4160	13360	520
2	71		614	Traffic Control Supervisor	Day	45	167																								45	167	+122	371
2	72		614	Sign Panel (Class I)	Sq. Ft.	410	471.60																								410	471.60	+61.60	115

OF COLORADO
DEPARTMENT OF HIGHWAYS
ION OF HIGHWAYS:
H. FORM NO. 113
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SUMMARY OF ~~APPROXIMATE~~ QUANTITIES
AS CONSTRUCTED

AS CONSTRUCTED — NO REVISIONS [ ] REVISED 10/29/86 VOID [ ]

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLO.	IXFU 470-1 (17)	10	106

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	PLAN ROADWAY	AS CONSTR. ROADWAY	PLAN STR. NO. F-17-HX	AS CONSTR. STR. NO. F-17-HX	PLAN STR. NO. F-17-HW	AS CONSTR. STR. NO. F-17-HW	PLAN STR. NO. F-17-HQ	AS CONSTR. STR. NO. F-17-HQ	PLAN STR. NO. F-17-HP	AS CONSTR. STR. NO. F-17-HP	PLAN STR. NO. F-17-HS	AS CONSTR. STR. NO. F-17-HS	PLAN STR. NO. F-17-HT	AS CONSTR. STR. NO. F-17-HT	PLAN STR. NO. F-17-HJ	AS CONSTR. STR. NO. F-17-HJ	PLAN STR. NO. F-17-HN	AS CONSTR. STR. NO. F-17-HN	PLAN STR. NO. F-17-HO	AS CONSTR. STR. NO. F-17-HO	PLAN STR. NO. F-17-HM	AS CONSTR. STR. NO. F-17-HM	PLAN STR. NO. F-17-HL	AS CONSTR. STR. NO. F-17-HL	PROJECT TOTALS	AS CONSTR PROJECT TOTALS	DIFF. +/-	% PLAN
2	73		614	Sign Panel (Class II)	Sq. Ft.	868	808.62																							868	808.22	-59.78	93
2	74		614	Sign Panel (Class III)	Sq. Ft.	2,318	2318																							2,318	2318	0	100
2	75		614	Timber Sign Post 4x4 Inch	Lin. Ft.	609	801.5																							609	801.5	+192.5	132
2	76		614	Timber Sign Post 6x6 Inch	Lin. Ft.	1,311	1188																							1,311	1188	-112	91
2	77		614	Steel Sign Post (W 6x 12)	Lin. Ft.	27	26.5																							27	26.5	-0.5	98
2	78		614	Steel Sign Post (W 6 x 15)	Lin. Ft.	95	95																							95	95	0	100
2	79		614	Steel Sign Post (W 8 x 18)	Lin. Ft.	132	132																							132	132	0	100
2	80		614	Steel Sign Post (W 8 x 21)	Lin. Ft.	74	73.5																							74	73.5	-0.5	99
3	81		614	Steel Sign Post (W10 x 22)	Lin. Ft.	86	86																							86	86	0	100
3	82		614	Concrete Footing (Type 1)	Each	2	2																							2	2	0	100
3	83		614	Concrete Footing (Type 2)	Each	6	6																							6	6	0	100
3	84		614	Concrete Footing (Type 3)	Each	6	6																							6	6	0	100
3	85		614	Concrete Footing (Type 4)	Each	4	4																							4	4	0	100
3	86		614	Concrete Footing (Type 5)	Each	4	4																							4	4	0	100
3	87		614	Concrete Footing I-S (Spread)	Each	1	0																							1	0	-1	0
3	88		614	Concrete Footing II-S (Spread)	Each	2	3																							2	3	+1	150
3	89		614	Mask Sign Legend	Each	2	0																							2	0	-2	0
3	90		614	Balanced Butterfly Structure	Each	3	3																							3	3	0	100
3	91		614	Pedestrian Signal Face (16)	Each	36	32																							36	32	-4	89
3	92		614	Traffic Signal Face (12-8-8)	Each	22	22																							22	22	0	100
3	93		614	Traffic Signal Face (12-12-12)	Each	36	35																							36	35	-1	97
3	94		614	Traffic Signal Face (12-12-12-12-12)	Each	12	12																							12	12	0	100
3	95		614	Traffic Signal Controller Cabinet	Each	6	6																							6	6	0	100
3	96		614	Pedestrian Push Button	Each	4	32																							4	32	+28	800
3	97		614	Coordination Unit	Each	6	6																							6	6	0	100
3	98		614	Loop Detector Wire	Lin. Ft.	9,800	11206																							9,800	11206	+1406	114
3	99		614	Traffic Signal Vehicle Detector Amplifier (Loop Type)	Each	15	15																							15	15	0	100
3	100		614	Barricade (Type 3 M-A)	Each	12	0																							12	0	-12	0
3	101		614	Barricade (Type 3 M-B)	Each	1	0																							1	0	-1	0

E OF COLORADO
E DEPARTMENT OF HIGHWAYS
SION OF HIGHWAYS:
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AS CONSTRUCTED		
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FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLO.	IXFU 470-1 (17)	11	106

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	PLAN ROADWAY	AS CONSTR. ROADWAY	PLAN STR. NO. F-17-HX	AS CONSTR. STR. NO. F-17-HX	PLAN STR. NO. F-17-HV	AS CONSTR. STR. NO. F-17-HV	PLAN STR. NO. F-17-HQ	AS CONSTR. STR. NO. F-17-HQ	PLAN STR. NO. F-17-HP	AS CONSTR. STR. NO. F-17-HP	PLAN STR. NO. F-17-HS	AS CONSTR. STR. NO. F-17-HS	PLAN STR. NO. F-17-HT	AS CONSTR. STR. NO. F-17-HT	PLAN STR. NO. F-17-HJ	AS CONSTR. STR. NO. F-17-HJ	PLAN STR. NO. F-17-HN	AS CONSTR. STR. NO. F-17-HN	PLAN STR. NO. F-17-HO	AS CONSTR. STR. NO. F-17-HO	PLAN STR. NO. F-17-HM	AS CONSTR. STR. NO. F-17-HM	PLAN STR. NO. F-17-HL	AS. CONSTR. STR. NO. F-17-HL	PROJECT TOTALS	AS CONSTR PROJECT TOTALS	DIFF. +/-	% PLAN
3	102		614	Barricade (Type 3 M-C)	Each	3	0																							3	0	-3	0
3	103		614	Barricade (Type 3 M-D)	Each	2	0																							2	0	-2	0
3	104		614	Barricade (Type 3 M-A) (Temporary)	Each	8	25																							8	25	+17	312
3	105		614	Barricade (Type 3 M-B) (Temporary)	Each	1	4																							1	4	+3	400
3	106		614	Barricade (Type 3 M-C) (Temporary)	Each	1	3																							1	3	+2	300
3	107		614	Barricade (Type 3 M-D) (Temporary)	Each	2	4																							2	4	+2	200
3	108		614	Construction Traffic Sign (Panel Size B)	Each	16	14																							16	14	-2	88
3	109		614	Vertical Panel	Each	40	71																							40	71	+31	178
3	110		614	Vertical Panel (with Light) (Flashing)	Each	10	12																							10	12	+2	120
3	111		614	Traffic Cone	Each	30	100																							30	100	+70	333
3	112		614	Traffic Signal Span Wire Pole (10 Inch)	Each	6	4																							6	4	-2	67
3	113		614	Traffic Signal Span Wire Pole (12 Inch)	Each	8	9																							8	9	+1	112
3	114		614	Traffic Signal-Light Span Wire Pole (10 Inch)	Each	4	4																							4	4	0	100
3	115		614	Traffic Signal-Light Span Wire Pole (12 Inch)	Each	8	8																							8	8	0	100
3	116		614	Traffic Signal Controller (Solid State) (Full-Actuated) (3 Phase)	Each	6	6																							6	6	0	100
3	117		620	Field Office (Class 2)	Each	1	0																							1	0	-1	0
3	118		620	Sanitary Facility	Each	2	2																							2	2	0	100
3	119		625	Construction Surveying	L.S.	0.85	0.85																							0.85	0.85	0	100
3	120		625	Construction Testing	L.S.	0.85	0.85																							0.85	0.85	0	100
			626	Mobilization	L.S.	0.85	0.85																							0.85	0.85	0	100
3	121		627	Pavement Marking Paint	Gal.	673	1106																							673	1106	+433	164
3	122		627	Preformed Plastic Pavement Marking (60 Mils)	Sq. Ft.	10,823	10320																							10,823	10320	-503	95

SUMMARY OF ~~APPROXIMATE~~ QUANTITIES

As Constructed

AS CONSTRUCTED					
NO REVISIONS ☐	REVISED 10/29/86	VOID ☐	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
			VIII	COLO.	IXFU 470-1 (17)	12	106

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	PLAN ROADWAY	AS CONSTR. ROADWAY	PLAN STR. NO. F-17-HX	AS CONSTR. STR. NO. F-17-HX	PLAN STR. NO. F-17-HW	AS CONSTR. STR. NO. F-17-HW	PLAN STR. NO. F-17-HQ	AS CONSTR. STR. NO. F-17-HQ	PLAN STR. NO. F-17-HP	AS CONSTR. STR. NO. F-17-HP	PLAN STR. NO. F-17-HS	AS CONSTR. STR. NO. F-17-HS	PLAN STR. NO. F-17-HT	AS CONSTR. STR. NO. F-17-HT	PLAN STR. NO. F-17-HJ	AS CONSTR. STR. NO. F-17-HJ	PLAN STR. NO. F-17-HN	AS CONSTR. STR. NO. F-17-HN	PLAN STR. NO. F-17-HO	AS CONSTR. STR. NO. F-17-HO	PLAN STR. NO. F-17-HM	AS CONSTR. STR. NO. F-17-HM	PLAN STR. NO. F-17-HL	AS CONSTR. STR. NO. F-17-HL	PROJECT TOTALS	AS CONSTR PROJECT TOTALS	DIFF. +/-	% PLAN
				FORCE ACCOUNT																														
			F/A01	Minor Contact Revisions	F.A.	1	1																							1		1	0	100
			F/A02	On-The-Job Trainee	Each	4	4 (1103.04)																							4		4	0	100
3			F/A03	MBE Incentive Payment	F.A.	1	1 (18,050.19)																							1		1	0	100
			F/A04	Slope Erosion Control	F.A.	1	1 (20,199.43)																							1		1	0	100
3			F/A05	Concrete Pavement Smoothness Incentive	F.A.	1	1 (67,422.38)																							1		1	0	100
			F/A06	Furnish Profilograph	F.A.	1	0																							1		0	-1	
			F/A07	Furnish and Install Electrical Service Connections from Power Source to Service Switch	F.A.	1	0																							1		0	-1	
			F/A08	Furnish and Install Electrical Power Source for Signals at Broadway, University and Quebec (Work by Public Service Company) CMO # 3	F.A.	1	1 (23,140.73)																							1		1	0	100
			F/A09	Furnish and Install Electrical Service and Meter Connection to Sign Structures at Sta. 1104+00, Sta. 1124+00 and Sta. 1358+00 work completed by bid item	F.A.	1	0																							1		0	-1	
			F/A10	Furnish and Install Electrical Power to Pad Mounted Transformer for Sign Structures at Sta. 1104+00, Sta. 1124+00 and Sta. 1358+00 (Work by Public Service Company) CMO # 4	F.A.	1	1 (13,560.00)																							1		1	0	100

TE OF COLORADO
TE DEPARTMENT OF HIGHWAYS
ISION OF HIGHWAYS
O. H. FORM NO. 113
. DEC. 1983

SUMMARY OF ~~APPROXIMATE~~ QUANTITIES
As Constructed

AS CONSTRUCTED			
NO REVISIONS 10/29/86	REVISED	VOID	

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLO.	IXFU 470-1(17)	12AX	106

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM		UNIT	PROJECT TOTALS PLAN	PROJECT TOTALS AS CONST.	DIFF. +/-	% PLAN
3	123			Concrete Bikeway (4 in.)		Sq Yd	0	72.22		
3	124			Concrete Bikeway (4 in.)		Sq Yd	0	130.27		
3	125			Concrete Bikeway (4 in.)		Sq Yd	0	72.37		
3	126			Concrete Pavement (9 in.)	CMO #2	Sq Yd	0	304,206		
3	127			Item 412 Price Adjust		Sq Yd	0	640		
3	128			Item 412 Price Adjust		Sq Yd	0	192		
3	129			Traffic Cone (Tubular)	MCR 4	Each	0	33		
3	130			End Anchorage Ty 3D	MCR 5	Each	0	1		
3	131			Preformed Plastic MKG Tabs	MCR 6	Each	0	1750		
3	132			Concrete Barrier (Temp)	MCR 7	Lin. ft	0	666		
3	133			Modify Inlet	MCR 8	Each	0	2		
3	134			Computer Rental	MCR 3	L.S.	0	1		
3	135			Steel Sign Post (U-2)	MCR 10	Lin. ft	0	220		
3	136			Rem Tree and Grind Stump	MCR 9	Each	0	2		
3	137			Haul	CMO #7	Yd Mi	0	79,010		
3	138			Item 625 Extra Surveying	CMO #5	L.S	0	1		
3	139			Abandon 18 inch Water line	MCR 11	L.S.	0	1		
3	140			Install Valve Boxes	MCR 12	L.S.	0	1		
3	141			Backfill Water Line	MCR 13	L.S.	0	1		
3	142			Field Office Elec. Service	MCR 14	L.S.	0	1		
3	143			Paint Span Wire Poles	MCR 15	L.S.	0	1		
3	144			Emb. Dump Road (CIP)	MCR 17	Cu Yd	0	257		
3	145			Rem Asphalt Mat	MCR 18	Sq Yd	0	881		
3	146			HBP Gr E (H&A)		Ton	0	561.08		
3	147			Str. Exc. (Special)	CMO #9	Cu Yd	0	106		
3	148			Conc. S&D Paving (Rein.)	CMO #9	Cu Yd	0	58.16		
3	149			Rem. Conc. Pavement	CMO #10	Sq Yd	0	572		
3	150			Sawing Concrete (8 in.)	CMO #10	Lin. ft.	0	1843		
3	151			Dowel into Conc	CMO #10	Lin. ft.	0	1245		
3	152			Conc. Pav (8 in) (Spec)	CMO #10	Sq Yd.	0	466		
3	153			Saw & Rem Conc (Conduit)	MCR 19	L.S.	0	1		
3	154			Conc. Pav. (Conduit)	MCR 20	L.S.	0	1		
3	155			Restock Span Poles (10 in)	MCR 21	L.S.	0	1		
3	156			Conc. Pave (Price Adjust)		Sq Yd	0	45		
3	157			Rem S&D Pave	CMO #8	Sq Yd	0	88		
3	158			Rem GD Rail Ty 4	CMO #8	Lin. ft.	0	924		
3	159			Emb. Mat'l (CIP) (Special)	CMO #8	Cu Yd	0	990		
3	160			Res End Anchorage	CMO #8	Each	0	5		
3	161			Res GD Rail Ty 3	CMO #8	Lin ft	0	500		
3	162			Modify Inlet (Special)	CMO #8	Each	0	5		
3	163			Conc Pave (7½ in.) (Special)	CMO #8	Sq Yd.	0	60		
3	164			Conc. S&D Paving	CMO #8	Cu. Yd.	0	13.98		
3	165			Inlet Ty C (5)	CMO #8	Each	0	4		
3	166			Guard Rail Ty 3 (Special)	CMO #8	Lin ft.	0	138		
3	167			End Anchor Ty 3E (Special)	CMO #8	Each	0	2		
3	168			Guard Rail Ty 4 (Temp) (Special)	CMO #8	Lin ft	0	912		
3	169			18 in. Culvert Pipe	CMO #8	Lin ft	0	510		
3	170			Mobilization (Special)	CMO #8	L.S.	0	1		

OF COLORADO
DEPARTMENT OF HIGHWAYS
SION OF HIGHWAYS:
. H. FORM NO. 113:
DEC. 1983:

SUMMARY OF ~~APPROXIMATE~~ QUANTITIES
AS CONSTRUCTED

AS CONSTRUCTED	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
NO REVISIONS 10/29/86 REVISED VOID	VIII	COLO.	IXFU 470-1(17)	128X	106

INDEX BOOK	INDEX PAGE	INDEX SHEET	CONTRACT ITEM NO.	CONTRACT ITEM		UNIT	PROJECT TOTALS PLAN	PROJECT TOTALS AS CONST.	DIFF. +/-	% PLAN
3	171			Crabtree Claim		L.S.	0	1		
3	172			Price Adjust Conc. Bikeway (4 in)		Sq Yd.	0	201		
3	173			Price Adjust Conc. Bikeway (5 in.)		Sq Yd.	0	5508		
3	174			Price Adjust Conc. Bikeway (5 in.)		Sq Yd.	0	1983		
3	175			Conc. S&D Pave (Rein)(Spec)	MCR 32	Cu. Yd.	0	9.03		
3	176			Pave Thickness Price Adjust		L.S.	0	1		
3	177			Pavement Grinding	MCR 24	L.S.	0	1		
3	178			Added Seed Cost	MCR 30	L.S.	0	1		
3	179			Guardrail Rental	MCR 28	L.S.	0	0		
3	180			Lien L.M. Kingrey		L.S.	0	0		
3	181			Lien C.A. Strassel		L.S.	0	0		
3	182			Lien B.J. Flynn		L.S.	0	0		
3	183			Lien I. Barela		L.S.	0	0		
3	184			Compaction Price Adjustment		L.S.	0	1		
3	185			Trailer Security Doors	MCR 26	L.S.	0	1		
3	187			Field Office (Class 1)	MCR 35	EA.	0	1		

FEDERAL ROAD REGION NO	DIVISION	PROJ. NO.	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	13	106

AS CONSTRUCTED

NO REVISIONS [ ] REVISED [10/29/86] VOID [ ]

TABULATION OF FENCING

STATIONS	SIDE	CORNER AND LINE BRACE POST		END POST		▲ FENCE COMBINATION WIRE WITH TREATED WOODEN POSTS		REMARKS
		EACH	AS CONST	EACH	AS CONST	LIN. FT	AS CONST	
1307+40 TO 1311+88	LT.	1		1		448		Req'd. E.P. @ 1307+40 Req'd. C.L.B.P. @ 1311+88
1311+88 TO 1318+30	LT.	1				648		Req'd C.L.B.P. @ 1318+30
1318+30 TO 1320+00	LT.	1				170		Req'd C.L.B.P. @ 1320+00
1320+00 TO 1323+00	LT.	1				300		Req'd C.L.B.P. @ 1323+00
1323+00 TO 1326+62	LT.			1		362		Req'd C.L.B.P. @ 1326+62
1327+50 TO 1339+30	LT.	1		1		1,197		Req'd E.P. @ 1327+50, C.L.B.P. @ 1339+30
+30 TO 1341+10	LT.	1				194		Req'd C.L.B.P. @ 1341+10
1341+10 TO 1343+38	LT.	1				235		Req'd C.L.B.P. @ 1343+38
1343+38 TO 1350+70	LT.			1		762		Req'd E.P. @ 1350+70
1350+92 TO 1351+25	LT.			1		35		Req'd. E.P. @ 1350+92 CONNECT TO EXISTING C.L.B.P.
PROJECT TOTALS		7	64	5	19	4,351	30231	

▲ See M-607-1 "Special This Project". 39 Inch Mesh Required for this Project. Cost of connecting new fence to existing fence to be included in the work.

TABULATION OF REMOVAL, RESET & MODIFY

STATIONS	SIDE	REMOVAL OF FENCE		RESET FENCE		REMOVAL OF CURB, GUTTER AND SIDEWALK		MODIFY FENCE		REMARKS
		LIN. FT.	AS CONST	LIN. FT.	AS CONST	LIN. FT.	AS CONST	LIN. FT.	AS CONST	
1193+30 TO 1195+73	LT.			250						
1196+75 TO 1198+00	LT.			135						
1306+74 TO 1307+00	LT.			70						
1326+62	LT.	25								
1327+50	LT.	25								
0+68 TO 1+08 QUEBEC STREET	RT.&LT.					88				
6+92.65 TO 9+57.65 QUEBEC STREET	LT.							265		
PROJECT TOTALS		50	1232	455	0	88	88	265	265	

NOTE: Required Posts for Reset Fence will be included in the work.

AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/86	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	14	106

REVISIONS		

TABULATION OF BRIDGE QUANTITIES

STATION TO STATION	QUANTITY- TONS HOT BITUMINOUS PAVEMENT (GRADING EX) (H & A) 2" LAYER	FINAL	QUANTITY- SQ.FT. CLASS 5 FINISH	FINAL	QUANTITY—LIN. FT. BRIDGE JOINT COMPRESS. SEALER	FINAL	QUANTITY- SQ. YD. WATERPROOFING (MEMBRANE)	FINAL	REMARKS
BROADWAY									
1065+08 to 1067+37	103	109.28			78	78	864	1016	STR. NO. F-17- HX
1065+27 to 1067+45	97	101.85			78	78	805	920	STR. NO. F-17-HW
UNIVERSITY									
1141+57 to 1143+73	89	100.65	7,289	7157	76	76	808	915	STR. NO. F-17- HQ
1141+60 to 1143+74	89	100.65	7,289	7157	76	76	808	915	STR. NO. F-17-HP
BIG DRY CREEK									
1244+99 to 1246+55	85	75.76			76	76	551	657	STR. NO. F-17-HS
1244+99 to 1246+55	85	74.76			76	76	551	657	STR. NO. F-17-HT
QUEBEC ST.									
6+94 to 9+56	294	252.42		2735	120	180	2,678	2431	STR. NO. F-17-HJ
ACRES GREEN DR.									
1326+16 to 1327+81	86	92.42	6,915	6992	76	76	762	909	STR. NO. F-17-HN
1326+15 to 1327+80	66	77.84	6,915	6991	76	76	589	705	STR. NO. F-17-HO
YOSEMITE ST.									
2378+61 to 2380+52	90	87.59	8,398	9180	78	78	711	811	STR. NO. F-17-HM
1378+85 to 1380+76	90	82.90	8,398	9179	78	78	713	811	STR. NO. F-17-HL
DANIELS PARK RD									
1197+00				790					STR NO. F-17-HR
PROJECT TOTALS	1,174	1156.12	45,204	50181	888	948	9,840	10747	

STRUCTURE QUANTITIES

STATION	SIDE	INLET TYPE R L5 (10 FOOT) EACH	FINAL	HOT BITUMINOUS PAVEMENT (PATCHING) (H.&A.) TON	FINAL	18 INCH REINFORCED CONCRETE PIPE LIN. FT.	FINAL	INLET TYPE R L5 (5 FOOT) EACH	FINAL	STRUCTURE EXCAVATION CU. YD.	FINAL	STRUCTURE BACKFILL (CL-2) CU. YD.	FINAL	18 INCH REINFORCED CONCRETE END SECTION EACH	FINAL
Quebec St.															
0+68 to 1+08	Lt.&Rt.			20											
2+45	Lt.							1							
3+12	Rt.	1													
														--	
3+12 Rt. to															
1304+30, Lt. SH-470						458				855		192		1	
PROJECT TOTALS		1	1	20	17.11	458	458	1	1	855	1377	192	458	1	1

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU470-1(17)	15	106

AS CONSTRUCTED

NO REVISIONS [ ] REVISED 10/29/86 VOID [ ]

~~(R-1) Rev Conc. Thickness 4-18-85 E.B.~~

TABULATION OF CONCRETE PAVEMENT AND LIME TREATED SUBGRADE AND CONCRETE BIKEWAY AND RECONDITIONING

STATION	SIDE	CONCRETE BIKEWAY (4 INCH)		(QUEBEC ST) CONCRETE PAVEMENT (7 INCH)		(RAMPS-UNIV.BLVD) CONCRETE PAVEMENT (7 1/2 INCH)		(RAMPS-QUEBEC ST.) CONCRETE PAVEMENT (8 INCH)		(MAINLINE) CONCRETE PAVEMENT ~~(8 INCH)~~ (R-1) (9 INCH)		CONCRETE BIKEWAY (5 INCH)		RECONDITIONING (BIKEWAY)		HYDRATED LIME		WETTING (RECONDITIONING)		(8 INCH LAYER) PROCESSING LIME TREATED SUBGRADE		(12 INCH LAYER) PROCESSING LIME TREATED SUBGRADE						REMARKS
		SQ. YD.		SQ. YD.		SQ. YD.		SQ. YD.		SQ. YD.	FINAL	SQ. YD.		SQ. YD.		TON	FINAL	M. GAL.		SQ. YD.	FINAL	SQ. YD.	FINAL					
SH-470																												
1042+03.11 TO 1065+30.38	LT. & RT.									22,853	222.60																	
1042+03.11 TO 1044+00	LT. & RT.															27				2,035	2036							
1044+00 TO 1056+00	LT. & RT.															273						13,764	14200					
1056+00 TO 1065+~~30.38~~ 76.38	LT. & RT.															115				8,684	8553							
1067+~~27.90~~ 41.90 TO 1080+00	LT. & RT.															173				13,088	12392							
1067+27.90 TO ~~1107+00~~ 1141+71.25	LT. & RT.									36,756	70191																	
1133+50 TO 1141+~~71.25~~ 57.25	LT. & RT.															115				8,731	7534							
1123+00 TO 1133+50	LT. & RT.															221						11,163	12284					
~~1107+00 TO 1141+71.25~~	LT. & RT.									33,126	0																	
1080+00 TO 1111+00	LT. & RT.															631				...		31,874	31244					
1+00 TO 1123+00	LT. & RT.															168				12,758	12,299							
1143+~~60.65~~ 79.85 TO 1155+00	LT. & RT.															151				11,424	10553							
1155+00 TO 1178+00	LT. & RT.															457						23,066	24858					
1143+60.85 TO 1245+11.75	LT. & RT.									89,935	88,681																	
1178+00 TO ~~1198+00~~ 1190+00	LT. & RT.															246				18,667	11200							
~~1198+00~~ 1190+00 TO 1207+50	LT. & RT.															117						8,867	16334					
1220+00 TO 1239+00	LT. & RT.															351						17,733	17734					
1239+00 TO ~~1245+11.75~~ 1243+98	LT. & RT.															75				5,710	5582							
1207+50 TO 1220+00	LT. & RT.															154				11,667	11666							
1246+56 TO 1255+00	LT & RT																				7877							
1255+00 TO 1261+00	LT & RT																						5600					
1246+42.25 TO 1326+28.25	LT. & RT.									73,942	72965																	
1261+00 TO 1267+00	LT.																				2800							
1261+00 TO 1267+00	RT																						2800					
1267+00 TO 1270+00	LT & RT																				2800							
1270+00 TO 1272+00	LT & RT																						1867					
1272+00 TO 1286+00	LT & RT																				13608							
1286+00 TO 1290+00	LT & RT																						4586					
1290+00 TO 1296+00	LT & RT																				7594							
1296+00 TO 1316+00	LT																						18667					
1296+00 TO 1302+50	RT																						6066					
1304+00 TO 1316+00	RT																						11200					
1316+00 TO 1326+14	LT & RT																				12330							
~~1246+55 TO 1326+15.50~~	~~LT & RT~~															~~981~~				~~74,298~~								
1327+~~80.50~~ 82.00 TO 1331+00	LT & RT															39				2,982	3221							
SHEET TOTAL										256,612	254,097					4,294	0			170,044	132,045	106,467	167,440					

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	16	106

AS CONSTRUCTED

NO REVISIONS [ ] REVISED 10/29/86 VOID [ ]

~~(R-1) - Rev. Conc. Thickness on 4-10-85 - E.B.~~

TABULATION OF CONCRETE PAVEMENT AND LIME TREATED SUBGRADE AND CONCRETE BIKEWAY AND RECONDITIONING

STATION	SIDE	CONCRETE BIKEWAY (4 INCH)		(QUEBEC ST.) CONCRETE PAVEMENT (7 INCH)		(RAMPS-UNIV. BLVD) CONCRETE PAVEMENT (7½ INCH)		(RAMPS-QUEBEC ST) CONCRETE PAVEMENT (8 INCH)		(MAINLINE) CONCRETE PAVEMENT ~~(8 INCH)~~ (9 INCH) ~~(R-1)~~		CONCRETE BIKEWAY (5 INCH)		RECONDITIONING (BIKEWAY)		HYDRATED LIME		WETTING (RECONDITIONING)		(8 INCH LAYER) PROCESSING LIME TREATED SUBGRADE		(12 INCH LAYER) PROCESSING LIME TREATED SUBGRADE						REMARKS
		SQ. YD.	FINAL	SQ. YD.	FINAL	SQ. YD.	FINAL	SQ. YD.	FINAL	SQ. YD.	FINAL	SQ. YD.	FINAL	SQ. YD.	FINAL	TON	FINAL	M. GAL.	FINAL	SQ. YD.	FINAL	SQ. YD.	FINAL					
1327+67.75 TO 1378+89.28	LT. & RT.									43,863	43289																	
1331+00 TO 1335+50	LT. & RT.															91						4,575	4261					
1335+50 TO 1341+00	LT. & RT.															68				5,133	5133							
1341+00 TO 1353+00	LT. & RT.															222						11,200	11,200					
1355+00 TO 1358+00	LT & RT																						2800					
1353+00 TO ~~1378+89.28~~ 1355+00	LT. & RT.															319				24,166	1867							
1358+00 TO 1378+75	LT & RT																				19367							
1380+53.92 TO 1390+00	LT. & RT.									7,871	7652																	
1380+~~53.92~~ 68.00 TO 1390+00	LT. & RT.									117	0					117				8830	8699							
KE PATH																												
203+15 TO 370+00	LT. & RT.													10,683	10,485			71										
1045+03.11 TO 1107+00	LT.	6,885																										
1056+00 TO ~~1065+20~~ 1066+60	LT.													1,124	1116			7										
1107+00 TO 1141+50	LT.	3,833																										
1111+00 TO 1122+50	LT.													1,406	1454			9										
1130+60 TO ~~1141+50~~ 1143+50	LT.													1,332	1292			9										
1143+50 TO 1196+05	LT.	5,839																										
1157+00 TO 1196+05	LT													4,773	3961			32										
1196+35 TO 1244+85	LT.	5,389																										
1196+35 TO 1219+00	LT.													2,768	1292			18										
1239+25 TO ~~1244+85~~ 1279+00	LT.													684	4816			5										
~~1246+30 TO 1279+00~~	~~LT.~~													3,997	0			27										
1246+30 TO 1305+00	LT.	6,522																										
1288+00 TO 1295+80	LT.													953	968			6										
~~1302+50 TO 1305+00~~	~~LT.~~													306	0			2										
~~1307+00 TO 1326+75~~	~~LT.~~	2,194												2,414	0			16										
~~1327+35~~ 1322+50 TO 1330+00	LT.													324	3005			2										
1327+35 TO 1351+50	LT.	2,683																										
1336+00 TO 1341+00	LT.													611	620			4										
SHEET TOTAL		33345	33,468							51,851	50,941			31,375	29009	817	0	208	0	38,129	35066	15,775	18,261					

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	17	106

AS CONSTRUCTED

NO REVISIONS ☐ REVISED 10/29/86 VOID ☐

~~(R-1) Rev. Conc. Thickness 4-10-85 E.B.~~

TABULATION OF CONCRETE PAVEMENT AND LIME TREATED SUBGRADE AND CONCRETE BIKEWAY AND RECONDITIONING

STATION	SIDE	CONCRETE BIKEWAY (4 INCH)		(QUEBEC ST.) CONCRETE PAVEMENT (7 INCH)		(RAMPS-UNIV. BLVD.) CONCRETE PAVEMENT (7½ INCH)		(RAMPS-QUEBEC ST.) CONCRETE PAVEMENT (8 INCH)		(MAINLINE) CONCRETE PAVEMENT ~~(8 INCH)~~ ~~(R-1)~~ (9 INCH)		CONCRETE BIKEWAY (5 INCH)		RECONDITIONING (BIKEWAY)		HYDRATED LIME		WETTING (RECONDITIONING)		(8 INCH LAYER) PROCESSING LIME TREATED SUBGRADE		(12 INCH LAYER) PROCESSING LIME TREATED SUBGRADE						REMARKS
		SQ. YD.	FINAL	SQ. YD.	FINAL	SQ. YD.	FINAL	SQ. YD.	FINAL	SQ. YD.	FINAL	SQ. YD.	FINAL	SQ. YD.	FINAL	TON	FINAL	M. GAL.	FINAL	SQ. YD.	FINAL	SQ. YD.	FINAL					
UNIVERSITY INTERCHANGE																												
S.W. RAMP																												
125 + 00 TO 143 + 35	LT. & RT.					6,127	7390									92						6,953	8109					
S.E. RAMP																												
242 + 91 TO 255 + 00	LT. & RT.					4,595	4399									68				5,133	5095							
N.W. RAMP																												
331 + 00 TO 341 + 92	LT. & RT.					3,900	3930									58				4,385	4368							
N.E. RAMP																												
443 + 25 TO 455 + 00	LT. & RT.					4,386	4156									65				4,908	4318							
QUEBEC ST. INTERCHANGE																												
S.W. RAMP																												
104 + 00 TO 115 + 80	LT. & RT.							4,257	3957							63				4,781	4575							
S.E. RAMP																												
205 + 87 TO 218 + 00	LT. & RT.							4,094	4032							91						4,165	4606					
N.E. RAMP																												
406 + 30 TO 418 + 00	LT. & RT.							4,140	3854																			
406 + 30 TO 414 + 00	LT. & RT.															67						3,374	3349					
414 + 00 TO 418 + 00	LT. & RT.															17				1,289	1289							
N.W. RAMP																												
304 + 00 TO 315 + 42								4,038	3839							60				4,545	4339							
SHEET TOTAL						19,008	19875	16,529	15682							581				25,041	23984	14,492	16064					

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	18	106

AS CONSTRUCTED

NO REVISIONS ☐ REVISED 10/29/86 VOID ☐

(R-1) Rev. Conc. Thickness and note on 4-10-85 on E.B.

TABULATION OF CONCRETE PAVEMENT AND LIME TREATED SUBGRADE AND CONCRETE BIKEWAY AND RECONDITIONING

STATION	SIDE	CONCRETE BIKEWAY (4 INCH)		(QUEBEC ST.) CONCRETE PAVEMENT (7 INCH)		(RAMPS-UNIV.BLVD) CONCRETE PAVEMENT (7½ INCH)		(RAMPS-QUEBEC ST) CONCRETE PAVEMENT (8 INCH)		(MAINLINE) CONCRETE PAVEMENT ~~(8 INCH)~~ (R-1) (9 INCH)		CONCRETE BIKEWAY (5 INCH)		RECONDITIONING (BIKEWAY)		HYDRATED LIME		WETTING (RECONDITIONING)		(8 INCH LAYER) PROCESSING LIME TREATED SUBGRADE		(12 INCH LAYER) PROCESSING LIME TREATED SUBGRADE						REMARKS
		SQ. YD.		SQ. YD.		SQ YD.		SQ. YD.		SQ. YD.		SQ. YD.		SQ. YD.		TON		M. GAL.		SQ. YD.		SQ. YD.						
QUEBEC STREET																												
1+08 to 7+05.40	RT.			3,766	4431											53				3,978	4550							
9+44.90 to ~~12+40~~ 11+88	RT.			1,899	1417											27				2,074	1559							
BIKE PATH																												
283+15 to 370+00	LT. & RT.											9,650																
1045+00 to 1056+00	LT.															23				1,711	1741							
1066+80 to 1111+00	LT.															91				6,876	7370							
1122+50 to 1130+60	LT.															18				1,393	1254							
1143+50 to 1157+00	LT.															27				2,100	2034							
1219+00 to 1239+25	LT.															42				3,150	3141							
1279+00 to 1288+00	LT.															18				1,400	1414							
1295+80 to 1302+50	LT.															14				1,089	1033							
1330+00 to 1336+00	LT.															12				933	943							
1341+00 to 1351+50	LT.															22				1,633	1711							
SHEET TOTAL				5,665	5848							9,650	7967			347				26,337	26750							
PROJECT TOTALS		33,345	33488	5,665	5848	19,008	19875	16,529	15682	308,463	305038	9,650	7967	31,375	29009	6,039	6809.44	208	108	259,551	217845	136,734	201,765					

Rate of Application of Hydrated Lime ≅ 26.4 lbs./Sq. Yd. (Per 8" Layer) and 39.6 lbs./Sq. Yd. (Per 12" Layer). Rate of Application of Wetting (Reconditioning) = 0.04 M. Gal / Cu. Yd.

The estimated No. of Load Transfer Devices (Dowel Basket Assembly's) to be placed in the M.L. pavement is 5412. Each assembly contains 6 Dowels. See Rev. of Section 412-Load Transfer Devices.

FOR CONTRACTOR'S INFORMATION:
THIS PROJECT INCLUDES ITEM 625 CONSTRUCTION SURVEYING. (R-1)

~~FOR THE CONTRACTOR'S INFORMATION: THE EARTHWORK ON THIS PROJECT WAS CONSTRUCTED BY OTHERS TO ACCOMMODATE 8-INCH THICK MAINLINE PAVEMENT FINISHED TO THE SAME PROFILE GRADE AS THE 9 INCH THICK PAVEMENT NOW INCLUDED. THE CONTRACTOR WILL BE ALLOWED TO ADJUST THE ELEVATIONS TO BEST FIT THE PRESENT EARTH GRADE, BUT WILL BE REQUIRED TO MATCH THE FINISH ELEVATION TO THE EXISTING PAVEMENTS AND BRIDGE APPROACHES WHEREVER THEY ABUT THE NEW PAVEMENT.~~ (R-1)

~~SUCH ADJUSTMENTS SHALL NOT VARY FROM PLANNED ELEVATIONS AT A RATE EXCEEDING 0.10 FOOT PER 100 FEET. IN ADDITION, THE FINISH ELEVATION SHALL NOT VARY FROM PLANNED ELEVATION AT ANY POINT BY MORE THAN 0.33 FOOT EXCEPT WHERE ABUTTING EXISTING PAVEMENTS OR BRIDGE APPROACHES. THE COST OF THE FORGOING SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF ITEM 631 CONSTRUCTION SURVEYING.~~ (R-1)

IT IS ESTIMATED THAT 25,000 CU. YDS. OF EMBANKMENT (C.I.P.) WILL BE REQUIRED IN AREAS ADJACENT TO CONCRETE PAVEMENT AS INDICATED ON TYPICAL SECTIONS SHEET. THE CONTRACTOR MAY PLACE AND COMPACT MATERIAL THAT IS GENERATED FROM THE SUBGRADE TREATING OPERATIONS OR AS A RESULT OF ADJUSTING GRADE OF EXISTING EARTHWORK. IF MATERIAL GENERATED IS NOT SUFFICIENT TO COMPLETE WORK, AN UNDESIGNATED SOURCE OF BORROW FOR THE EMBANKMENT WILL BE REQUIRED.

BORROW SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN EMBANKMENT (C.I.P.). EMBANKMENT (C.I.P.) SHALL NOT BE MEASURED, BUT SHALL BE PAID FOR AS QUANTITY SHOWN ON PLANS

STANDARD PENETRATION TEST DATA

STATION	OFFSET (FEET)	DEPTH (FEET)	STANDARD PENETRATION TESTS
1125 + 00	50' LT	5.0' - 5.8'	50/0.3
1130 + 00	40' RT	4.5' - 6.0'	72
1160 + 00	45' RT	4.5' - 6.0'	100
1157 + 00	50' RT	4.5' - 6.0'	45
1165 + 00	45' RT	4.5' - 6.0'	88
1170 + 00	48' RT	4.5' - 6.0'	80
1175 + 00	50' RT	4.5' - 6.0'	46
1190 + 00	40' RT	4.5' - 6.0'	27
1194 + 00	45' LT	4.5' - 6.0'	76
1196 - 00	45' RT	4.5' - 5.8'	50/0.3
1200 + 00	45' RT	4.5' - 6.0'	36
1204 + 00	45' LT	5.5' - 6.0'	95
1222 + 00	15' LT	4.0' - 5.5'	80
1228 + 00	15' LT	4.5' - 5.8'	50/0.3
1235 + 00	12' LT	4.5' - 6.0'	78
1230 + 00	50' RT	4.5' - 5.0'	55/0.5
1226 + 00	55' RT	4.5' - 6.0'	65
1310 + 00	20' LT	4.5' - 5.0'	50/0.3
1314 + 00	20' LT	4.0' - 5.5'	75
QUEBEC RAMPS			
N.E. RAMP			
416 + 00	0'	4.5' - 5.8'	40/0.3
402 + 00	0'	4.0' - 5.5'	53
[illegible] + 00	0	4.0' - 5.5	60/0.5
S.E. RAMP			
208 + 00	20' LT	4.0' - 5.5	54
212 + 00	20' LT	4.0' - 5.5'	83
216 + 00	20' LT	5.0' - 6.5'	100
UNIVERSITY RAMPS			
S.W. RAMP			
133 + 00	0'	5.0' - 6.5'	6
S.E. RAMP			
244 + 00	0'	5.0' - 6.5'	12

STABILIZATION BASED ON THE FOLLOWING DATA.

18^K EDLA (M.L.)	687
18^K EDLA (RAMP) UNIVERSITY BLVD.	144
18^K EDLA (RAMP) QUEBEC ST.	187
REGIONAL FACTOR	1.0
SERVICEABILITY INDEX	2.5
SUBGRADE "R" VALUE (DESIGN)	5
STRENGTH COEFFICIENTS	
CONCRETE DESIGN	
K ON SUBGRADE	95
WORKING STRESS OF CONCRETE	450 PSI
8" LIME TREATED SUBGRADE WITH 4% LIME	
K DESIGN	135

STATE OF COLORADO

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	19	106

AS CONSTRUCTED

NO REVISIONS 10/29/36 REVISED ____ VOID ____

UNIVERSITY RAMPS

TABULATION OF SIDEWALK, CURB RAMP, CURB & GUTTER AND MEDIAN COVER MATERIAL

STATION	SIDE	CONCRETE SIDEWALK SQ. YD.	CONCRETE CURB RAMP SQ. YD.			CURB & GUTTER TYPE 2 (SECTION I B) LIN. FT.	CURB & GUTTER TYPE 2 (SECTION II B) LIN. FT.	CURB TYPE 6 (SECTION M) LIN. FT.		▲ MEDIAN COVER MATERIAL (CONCRETE) SQ. FT.							REMARKS
16+46 to 17+50	Lt.	52					94										
16+46 to 17+32	Rt.	49															
16+46 to 18+00	Rt.						182										
17+21 to 18+12	Lt.					107				2,799							N.E. Ramp Island
17+33, N.E.-1	Lt.		15														TYPE 5
17+33, N.W.-1	Rt.		15														TYPE 5
17+39 to 18+12	Rt.					115				2,763							N.W. Ramp Island
17+48, N.E. RAMP	Lt.		10														TYPE 3A
17+48, N.W. RAMP	Rt.		10														TYPE 3A
18+07, N.E. RAMP	Lt.		10														TYPE 3A
18+07, N.W. RAMP	Rt.		10														TYPE 3A
18+12	Lt.						73										
18+12	Rt.						87										
9+40 to 18+60	Lt.	8					64										
18+50	Lt.		10														TYPE 3A
18+50 to 18+69	Rt.	8				64											
18+60	Rt.		10														TYPE 3A
22+80 to 23+05	Lt.	8				65											
22+95	Lt.		10														TYPE 3A
23+14 to 23+30	Rt.	8					64										
23+20	Rt.		10														TYPE 3A
23+25 to 23+50	Lt.					87											
23+30 to 24+50	Lt.					138				2,646							S.E. Ramp Island
23+40 to 23+55	Rt.					140											
23+40 to 25+18	Rt.					226				8,037							S.W. Ramp Island
23+45 to 25+28	Lt.						197										
23+50, S.E. RAMP	Lt.		10														TYPE 3A
24+20 to 25+28	Lt.	53															
23+60, S.W. RAMP	Rt.		10														TYPE 3A
24+25, S.E. RAMP	Lt.		10														TYPE 3A
24+35, S.E.-1	Lt.		15														TYPE 5
24+85, S.W. RAMP	Rt.		10														TYPE 3A
24+85 to 26+00	Rt.	58					104										
25+00, S.W.-1	Rt.		15														TYPE 5
Sheet Total		244	180			942	865			16,245							

▲ MEDIAN COVER MATERIAL 4" THICK

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU-470-1(17)	20	106

AS CONSTRUCTED

NO REVISIONS 10/29/56 REVISED [ ] VOID [ ]

QUEBEC STREET

TABULATION OF SIDEWALK, CURB RAMP, CURB & GUTTER AND MEDIAN COVER MATERIAL

STATION	SIDE	CONCRETE SIDEWALK	CONCRETE CURB RAMP		CURB & GUTTER TYPE 2 (SECTION I B)	CURB & GUTTER TYPE 2 (SECTION II B)	CURB TYPE 6 (SECTION M)		▲ MEDIAN COVER MATERIAL (CONCRETE)							REMARKS
		SQ. YD.	SQ. YD.		LIN. FT.	LIN. FT.	LIN. FT.			SQ. FT.						
0+88 to 3+00	RT.						212									
3+00 to 5+42	RT.	130				235										
0+85	LT		10													TYPE 3A
0+68 to 5+50	LT.	260				490										
5+70, N.E. RAMP	LT.		10													TYPE 3A, ISLAND
5+70, N.E. RAMP	LT.		10													TYPE 3A, ISLAND
5+57, N.E. RAMP	LT.		15													TYPE 5
5+50, N.W. RAMP	RT		15													TYPE 5
5+23 to 5+95	RT				82	129				1,197						NW RAMP ISLAND
5+06 to 5+71	LT.				71	121				1,269						NE RAMP ISLAND
5+62, N.W. RAMP	RT.		10													TYPE 3A, ISLAND
5+79, N.W. RAMP	RT.		10													TYPE 3A, ISLAND
6+24 TO 6+94	RT.					76										
313+85 NW RAMP RT. TO 6+24	RT.				149											
SHEET TOTAL		390	80		297	1051	212			2466						

▲ MEDIAN COVER MATERIAL 4" THICK.

STATE OF COLORADO

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU470-1(17)	21	106

AS CONSTRUCTED

NO REVISIONS ☐ REVISED 10/29/86 VOID ☐

QUEBEC STREET

TABULATION OF SIDEWALK, CURB RAMP, CURB & GUTTER AND MEDIAN COVER MATERIAL

STATION	SIDE	CONCRETE SIDEWALK SQ. YD.	CONCRETE SIDEWALK FINAL	CONCRETE CURB RAMP SQ. YD.	CONCRETE CURB RAMP FINAL			CURB & GUTTER TYPE 2 (SECTION I B) LIN. FT.	CURB & GUTTER TYPE 2 (SECTION I B) FINAL	CURB & GUTTER TYPE 2 (SECTION II B) LIN. FT.	CURB & GUTTER TYPE 2 (SECTION II B) FINAL	CURB TYPE 6 (SECTION M) LIN. FT.	CURB TYPE 6 (SECTION M) FINAL			▲ MEDIAN COVER MATERIAL (CONCRETE) SQ. FT.	▲ MEDIAN COVER MATERIAL (CONCRETE) FINAL											REMARKS
406+48 TO 408+35 N.E. RAMP	RT.							187																				TYPE 3A
6+08 TO 6+94	LT.	54		10						82																		
114+25 TO 115+55 S.W. RAMP	LT.							130																				
9+56 TO 115+55 SW RAMP	RT.									113																		TYPE 3A
9+56 TO 10+58	LT.	59		10						102																		
206+14 TO 207+65 S.E. RAMP	LT.							156																				
																												TYPE 3A
																												SW RAMP ISLAND
10+90 TO 11+56	RT.							70		102						648												
																												SE RAMP ISLAND
10+95 TO 11+48	LT.							42		90						378												
																												TYPE 3A, ISLAND
11+12, S.E. RAMP	LT.			10																								
																												TYPE 3A, ISLAND
11+34, S.E. RAMP	LT.			10																								
SHEET TOTAL		113		40				585		481						1026												
PROJECT TOTALS		747	204	300	226			1824	2112	2405	2906	212	0			19737	23822											

▲ MEDIAN COVER MATERIAL 4" THICK.

AS CONSTRUCTED			
NO REVISIONS		REVISED 10/20/86	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	22	106

*See note on following Sheet.

REVISIONS		

□ TABULATION OF GUARD RAIL

STATIONS	SIDE	GUARD RAIL TYPE 3 (6'-3" SPACING)		*GUARD RAIL TYPE 4 (CAST IN PLACE) (STYLE CA)		END ANCHORAGE TYPE 3E		END ANCHORAGE TYPE 3F		REMARKS
		LIN. FT.	FINAL	LIN. FT.	FINAL	EACH	FINAL	EACH	FINAL	
SH 470										
1062+64 TO 1062+89	MEDIAN							1	1	
1062+89 TO 1063+39	MEDIAN	100	100							
1063+35 TO 1064+89	MED. LT.			154	154					
1063+35 TO 1065+02	MED. RT.			167	166					
1063+93 TO 1064+68	RT.	75	75			1	1			
1064+64 TO 1065+09	RT.			45	60					
1064+45 TO 1064+83	LT.			38	50					
1067+55 TO 1068+00	LT.			45	45					
1067+96 TO 1068+71	LT.	75	75			1	1			
1067+63 TO 1069+17	MED. LT.			154	154					154 Guard Rail Ty 4 Added By CMOD B
1067+63 TO 1069+17	MED. RT.			154	154					154 Lin Ft Guard Rail Ty 4 Added By CMOD B
1069+14 TO 1069+64	MEDIAN	100	100							
1069+64 TO 1069+59	MEDIAN							1	1	
1067+69 TO 1068+07	RT.			38	40					
1102+59 TO 1103+34	MED. RT.	75	75			1	1			
1103+30 TO 1104+12	MED. RT.			82	80					
1103+88 TO 1104+70	MED. LT.			82	82					
1104+66 TO 1105+41	MED. LT	75	75			1	1			
1139+17 TO 1139+42	MEDIAN							1	1	
1139+42 TO 1139+92	MEDIAN	100	100							
1139+88 TO 1141+42	MED. LT.			154	154					154 Lin Ft. Guard Rail Ty 4 Added By CMOD B
1139+88 TO 1141+43	MED. RT.			154	154					154 Lin Ft. Guard Rail Ty 4 Added By CMOD B
1140+14 TO 1140+89	RT.	75	75			1	1			
1140+93 TO 1141+45	RT.			52	50					
1140+98 TO 1141+42	LT			44	44					

□ Guard Rail Type 3 Shall be Non-Galvanized corrosion resistant steel.

Note: Cost of connecting Guard Rail Type 3 to Guard Rail Type 4 to be included in the work.

STATIONS	SIDE	GUARD RAIL TYPE 3 (6'-3" SPACING)		*GUARD RAIL TYPE 4 (CAST IN PLACE) (STYLE CA)		END ANCHORAGE TYPE 3E		END ANCHORAGE TYPE 3F		REMARKS
		LIN. FT.	FINAL	LIN. FT.	FINAL	EACH	FINAL	EACH	FINAL	
1143+69 TO 1144+41	LT.			52	52					
1144+37 TO 1145+12	LT.	75	75			1	1			
1143+90 TO 1144+33	RT.			44	44					
1143+89 TO 1145+43	MED. LT.			154	154					
1143+90 TO 1145+44	MED. RT.			154	154					
1145+40 TO 1145+90	MEDIAN	100	100							
1145+90 TO 1146+15	MEDIAN							1	1	
1195+31 TO 1196+06	MED. RT.	75	75			1	1			
1195+02 TO 1197+32	MED. RT.			130	130					
1196+63 TO 1197+93	MED LT.			130	130					
1197+89 TO 1198+64	MED. LT.	75	75			1	1			
1222+59 TO 1223+34	MED RT.	75	75				1			
1223+30 TO 1324+12	MED. RT.			82	82					
1223+88 TO 1224+70	MED. LT.			82	82					
1124+66 TO 1225+41	MED. LT.	75	75			1	1			
1242+42 TO 1242+67	MEDIAN							1	1	
1242+67 TO 1243+17	MEDIAN	100	100							
1243+13 TO 1244+67	MEDIAN			308	308					
1243+41 TO 1244+36	RT.	75	75			1	1			
1244+32 TO 1244+67	RT.			35	35					
1244+40 TO 1244+67	LT.			27	27					
1246+87 TO 1248+41	MEDIAN			308	308					
1248+07 TO 1248+87	MEDIAN	100	100							
1248+87 TO 1249+12	MEDIAN							1	1	
[illegible]	[illegible]			27	27					
1246+87 TO 1247+22	LT.			35	35					
1247+[illegible] TO 1247+93	LT.	75	75			1	1			

AS CONSTRUCTED			FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
NO REVISIONS	REVISED 10/29/86	VOID	VIII	COLORADO	IXFU 470-1(17)	23	106

REVISIONS

* Note: Guard Rail Type 4 shall receive a Class 1 and Class 5 finish. The color of the Class 5 finish is to be determined from test panels supplied by the Contractor and selected by the Engineer, and shall be similar in color to the light tan on the existing structure. The cost of finish is to be included in Guard Rail Type 4.

▫TABULATION OF GUARD RAIL

STATIONS	SIDE	GUARD RAIL TYPE 3 (6'-3" SPACING)		*GUARD RAIL TYPE 4 (CAST IN PLACE) (STYLE CA)		END ANCHORAGE TYPE 3E		END ANCHORAGE TYPE 3F		REMARKS
		LIN. FT.	FINAL	LIN. FT.	FINAL	EACH	FINAL	EACH	FINAL	
1291+25 TO 1293+85	RT		262			0	1			1-End Anchor Ty 3 D MCR 5
1304+10 TO 1304+85	MED. RT.	75	75			1	1			
1304+81 TO 1306+39	MED. RT.			158	158					
1305+35 TO 1306+93	MED. LT.			158	158					
1306+89 TO 1307+64	MED LT	75	75			1	1			
1323+69 TO 1323+94	MEDIAN							1	1	
1323+24 TO 1324+44	MEDIAN	100	100							
1324+40 TO 1325+94	MEDIAN			308	308					
1325+59 TO 1325+95	LT.			36	36					
1324+79 TO 1325+54	RT.	75	75			1	1			
1325+50 TO 1325+94	RT.			44	44					
1328+01 TO 1329+55	MEDIAN			308	308					308 Lin. Ft. Guard Rail Ty 4 Added By CMO #8
1329+51 TO 1330+01	MEDIAN	100	100							
1330+01 TO 1330+26	MEDIAN							1	1	
1328+01 TO 1328+38	RT.			37	37					
1328+02 TO 1328+47	LT.			45	45					
1328+43 TO 1329+18	LT.	75	75			1	1			
1352+60 TO 1353+35	RT		75				1			
1356+59 TO 1357+34	RT.	75	75			1	1			
1357+30 TO 1358+12	MED. RT.			82	82					
1357+88 TO 1358+70	MED. LT.			82	82					
1358+66 TO 1359+41	LT.	75	75			1	1			
1374+47 TO 1378+57	MEDIAN LT. & RT.			410	410					
1377+51 TO 1378+26	RT.	75	75			1	1			
1378+22 TO 1378+60	RT.			38	38					
1381+11 TO 1381+71	MED RT				60					
1381+11 TO 1381+37	RT.			26	26					

▫Guard Rail Type 3 shall be Non-Galvanized Note: Cost of connecting Guard Rail Type 3 to [illegible]

STATIONS	SIDE	GUARD RAIL TYPE 3 (6'-3" SPACING)		*GUARD RAIL TYPE 4 (CAST IN PLACE) (STYLE CA)		END ANCHORAGE TYPE 3E		END ANCHORAGE TYPE 3F		REMARKS
		LIN. FT.	FINAL	LIN. FT.	FINAL	EACH	FINAL	EACH	FINAL	
RAMP A										
2378+01 TO 2378+37	LT.			37	37					
2377+77 TO 2378+37	MED LT				60					
2380+71 TO 2381+15	LT.			44	44					
2381+11 TO 2381+86	LT.	75	75			1	1			
2380+88 TO 2384+98	MEDIAN LT. & RT.			410	410					
6+35 TO 6+98 QUEBEC ST	RT		63				1			Added By CMO #8 Computer Ref # 166 & Comp Ref # 167
9+52 TO 10+27 QUEBEC ST	LT		75				1			Added By CMO #8 Computer Ref # 166 & Comp Ref # 167
TOTALS		2,300	2637	5,154	6404'	19	22	8	8	

The last section of Type 4 Guard Rail (Cast in Place) that abuts the bridge rail is to be formed to a smooth transition to match bridge rail configuration

AS CONSTRUCTED					
NO REVISIONS 10/29/86 REVISED ____ VOID ____	FED.ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
	VIII	COLO.	IXFU 470-1 (17)	24	106

TABULATION OF DELINEATORS

STATIONS	SIDE	LOCATION	SPACING (FEET)	DELINEATORS TYPE I C=CRYSTAL Y=YELLOW EACH		TYPE II C=2 CRYSTAL EACH		TYPE III Y=3 YELLOW HAZARD MARKER EACH		REMARKS
1043+00 TO 1054+00	LT.	ACCEL.	100			12C				
1045+00 TO 1048+00	RT.&MED.	ADVANCE CURVE	300	2C 2Y						
1050+36 TO 1064+35	MED.	CURVE	236	7Y						
1054+50 TO 1063+94	LT. & RT.	CURVE	236	10C						
1065+30	RT.	BRIDGE						2Y		
RAMP A										
149+00 TO 154+00	RT.	DECEL	100			6C				
155+00 TO 159+00	RT.	CURVE	100	5C						
160+05 TO 161+25	RT.	TAPER	120			2C				
162+00 TO 164+00	RT.		100	3C						
164+50	RT.		50	1C						
162+50 TO 165+60	LT.		103	4Y						
165+ TO 165+	RT.	ISLAND	--	3C						
0+00 TO 1+63.28	RT.	LEG A CURVE	26.00	8C						
RAMP B										
267+ TO 268+	RT.	ISLAND	--	3C						
270+00 TO 273+00	RT.	"	100	4C						
0+00 TO 82.22	RT.		33.54	9C						
274+00 TO 280+00	RT.		33.54	7Y						
0+80 TO 1+70	LT.	ISLAND	33.54	4Y						
RAMP C										
355+00 TO 364+00	LT.		100	10C						
365+ TO 365+	LT.	ISLAND	--	3C						
0+00 TO 2+00.68	LT.	LEG C	33.54	7C						
RAMP D										
466+ TO 466+	LT.	ISLAND	--	3C						
466+15 TO 469+20	RT.		102	4Y						
467+24 TO 467+84	LT.	ADVANCE CURVE	60	2C						
468+84 TO 469+84	LT.		100	2C						
470+50 TO 471+70	LT.	TAPER	120			2C				
473+00 TO 477+00	LT.		100	5C						
478+00 TO 483+00	LT.		100			6C				
0+00 TO 1+60.29	LT.	LEG D	127	8C						
Sub-Total				88C 28Y		28C		2Y		

STATIONS	SIDE	LOCATION	SPACING (FEET)	DELINEATORS TYPE I C=CRYSTAL Y=YELLOW EACH		TYPE II C=2 CRYSTAL EACH		TYPE III Y=3 YELLOW HAZARD MARKER EACH		REMARKS
1067+30	LT.	BRIDGE	--					2Y		
1068+50 TO 1077+80	LT.	CURVE	236	5C						
1068+20 TO 1080+00	RT.	CURVE	236	6C						
1080+00 TO 1095+50	RT.	ACCEL.	100			16C				
1070+00 TO 1098+96	MED.	CURVE	236	13Y						
1085+36 TO 1098+96	LT.	CURVE	236	7C						
1096+60 TO 1098+96	RT.	CURVE	236	2C						
1100+00 TO 1106+00	LT.,RT.,MED.	ADVANCE CURVE	300	6C 3Y						
1111+28	LT.	TAN	528	1C						
1111+28 TO 1116+56	RT.	TAN	528	2C						
1111+28 TO 1123+64	MED.	TAN	528	3Y						
1115+50 TO 1131+00	LT.	ACCEL.	100			17C				
1119+00 TO 1125+00	RT.	DECEL	100			7C				
1125+50	RT.	NOSE		1C						
1126+64 TO 1129+64	RT.&MED.	ADVANCE CURVE	300	2C 2Y		--				
1131+00	LT.	NOSE		1C						
1132+64 TO 1151+30	MED.,LT.,RT.	CURVE	261	7Y 14C						
1141+65	RT.	BRIDGE						2Y		
1154+30	LT.&RT.	ADVANCE CURVE	300	2C						
1154+30 TO 1163+30	MED.	ADVANCE CURVE	300	4Y						
S.W. RAMP UNIVERSITY										
126+00 TO 131+00	RT.		100	6C						
132+00 TO 140+00	RT.		100			9C				
140+00 TO 142+50	LT.		83	4Y						
141+00 TO 26+00 UNIV. (S.W.-1)	RT.	323 19'R	49.59	9C						
142+50 TO 143+15	RT.	ISLAND	65	2C						
141+85 TO 143+30	RT.	ISLAND	49.59	6Y						
N.W. RAMP UNIVERSITY										
332+00 TO 340+00	LT.		100			9C				
341+20 TO 341+80	LT.	ISLAND		3C						
340+50 TO 16+46 UNIV.	LT.	175'R	33.54	5C						
S.E. RAMP UNIVERSITY										
243+00 TO 243+80	RT.	ISLAND		2C						
245+00 TO 247+00	RT		100	3C						
26+00 UNIV. TO 244+50	RT.	175'R	33.54	10C						
243+00 TO 243+85	RT	175'R	33.54	5Y						
248+00 TO 254+00	RT		100			7C				
Sub-Total				89C 47Y		65C		4Y		

OF COLORADO
DEPARTMENT OF HIGHWAYS
OF HIGHWAYS:
H. FORM NO. 126:
EB. 1984

AS CONSTRUCTED					
NO REVISIONS [ ] REVISED 10/29/86 VOID [ ]	FED.ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
	VIII	COLO.	IXFU 470-1 (17)	25	106

TABULATION OF DELINEATORS

STATIONS	SIDE	LOCATION	SPACING (FEET)	DELINEATORS TYPE I C=CRYSTAL Y=YELLOW EACH		TYPE II C=2 CRYSTAL EACH		TYPE III Y=3 YELLOW HAZARD MARKER EACH		REMARKS
N.E. RAMP UNIVERSITY										
16+46 UNIV. TO 444+96	LT.	175'R	33.54	8C						
443+90 TO 444+00	LT.	ISLAND		3C						
443+50 TO 445+97	RT.		83	4Y						
446+00 TO 447+00	LT.		100	2C						
448+00 TO 451+00	LT.		100			4C				
452+00 TO 454+00	LT.		100	3C						
1143+88	LT.	BRIDGE						2Y		
1155+00 TO 1161+00	LT.	DECEL	100			7C				
1155+00 TO 1170+50	RT.	ACCEL.	100			16C				
1162+53	LT.	ADVANCE CURVE	300	1C						
1165+53 TO 1184+67	LT. & MED.	CURVE	184	11Y 12C						
1171+70 TO 1184+67	RT.	CURVE	184	8C						
1187+67 TO 1190+08	LT, RT, MED	ADVANCE CURVE	241	4C 2Y						
1192+50 TO 1229+91	MED, LT, RT.	CURVE	202	20Y 40C						
1232+62 TO 1238+62	MED, LT, RT.	ADVANCE CURVE	300	3Y 6C						
1243+90 TO 1251+19	MED, LT, RT.	TAN	528	3Y 6C						
1254+19 TO 1260+19	MED, LT, RT.	ADVANCE CURVE	300	3Y 6C						
1245+10	RT.	BRIDGE						2Y		
1246+50	LT.	BRIDGE						2Y		
1260+19 TO 1276+08	MED, LT, RT.	CURVE	184	19C 10Y						
1279+06 TO 1285+06	RT. & MED.	ADVANCE CURVE		3C 3Y						
1278+50 TO 1294+50	LT.	ACCEL	100			17C				
1288+00 TO 1294+00	RT.	DECEL	100			7C				
1288+30 TO 1294+30	MED.	ADVANCE CURVE	300	3Y						
1294+30 TO 1311+88	LT. & RT.	CURVE	261	16C						
1296+91 TO 1311+88	MED.	CURVE	261	7Y						
S.W. RAMP										
105+00 TO 109+00	RT.		100			5C				
113+00 TO 115+50	LT.		83	4Y						
110+00 TO 114+00	RT.		100	5C						
114+35 TO 12+40 QUEBEC	RT.	175'R	3.35	8C						
115+35 TO 115+75	RT.	ISLAND		3C						
N.W RAMP										
305+50 TO 311+50	LT.		100			7C				
312+50 TO 314+00	LT.		100	3C						
314+30 TO 4+50 QUEBEC	LT.	175'R	33.5	6C						
314+70 TO 315+45	LT.	ISLAND	33.5	5C						
Sub-Total				~~147C~~ ~~73Y~~		~~26C~~		~~6Y~~		

STATIONS	SIDE	LOCATION	SPACING (FEET)	DELINEATORS TYPE I C=CRYSTAL Y=YELLOW EACH	FINAL	TYPE II C=2 CRYSTAL EACH	FINAL	TYPE III Y=3 YELLOW HAZARD MARKER EACH	FINAL	REMARKS
S.E. RAMP										
205+80 TO 206+25	RT.	ISLAND		3C						
12+40 QUEBEC TO 207+15	RT.	175'R	33.5	7C						
208+00 TO 210+00	RT.		100	3C						
211+00 TO 217+00	RT.		100			7C				
N.E. RAMP										
4+58 QUEBEC TO 407+80	LT.	175'R	33.5	7C						
406+35 TO 406+95	LT.	ISLAND	33.5	4C						
406+55 TO 409+05	RT.		83	4Y						
409+00 TO 412+00	LT.		100	4C						
413+00 TO 417+00	LT.		100			5C				
1314+88 TO 1320+88	MED.	ADVANCE CURVE	300	3Y						
1314+88 TO 1317+88	LT. & RT.	ADVANCE CURVE	300	4C						
1318+00 TO 1330+50	RT.	ACCEL.	100			15C				
1318+00 TO 1324+00	LT.	DECEL	100			7C				
1325+67 TO 1331+67	LT.	ADVANCE CURVE	300	3C						
1322+67	MED.	ADVANCE CURVE	300	1Y						
1328+67 TO 1331+67	MED.	ADVANCE CURVE	300	2Y						
1326+10	RT.	BRIDGE						2Y		
1327+80	LT.	BRIDGE						2Y		
1333+51 TO 1373+10	MED & LT.	CURVE	184	23Y 23C						
1335+35 TO 1373+10	RT.	CURVE	184	22C						
1374+36 TO 1389+30	RT.	CURVE	170	9C						
1378+88	RT	BRIDGE						2Y		
1380+40	LT.	BRIDGE						2Y		
2374+45 TO 2390+00	LT. & MED.	RAMP A CURVE	170	9Y 9C						
Sub-Total				~~98C~~ ~~42Y~~		~~34C~~		~~8Y~~		
Project Totals				632	683	190C	205	20Y	20	

~~TYPE I DELINEATORS 442 CRYSTAL AND 190 YELLOW.~~
~~TYPE II DELINEATORS 380 CRYSTAL. TYPE III DELINEATORS 60 YELLOW~~

BROADWAY INTERCHANGE

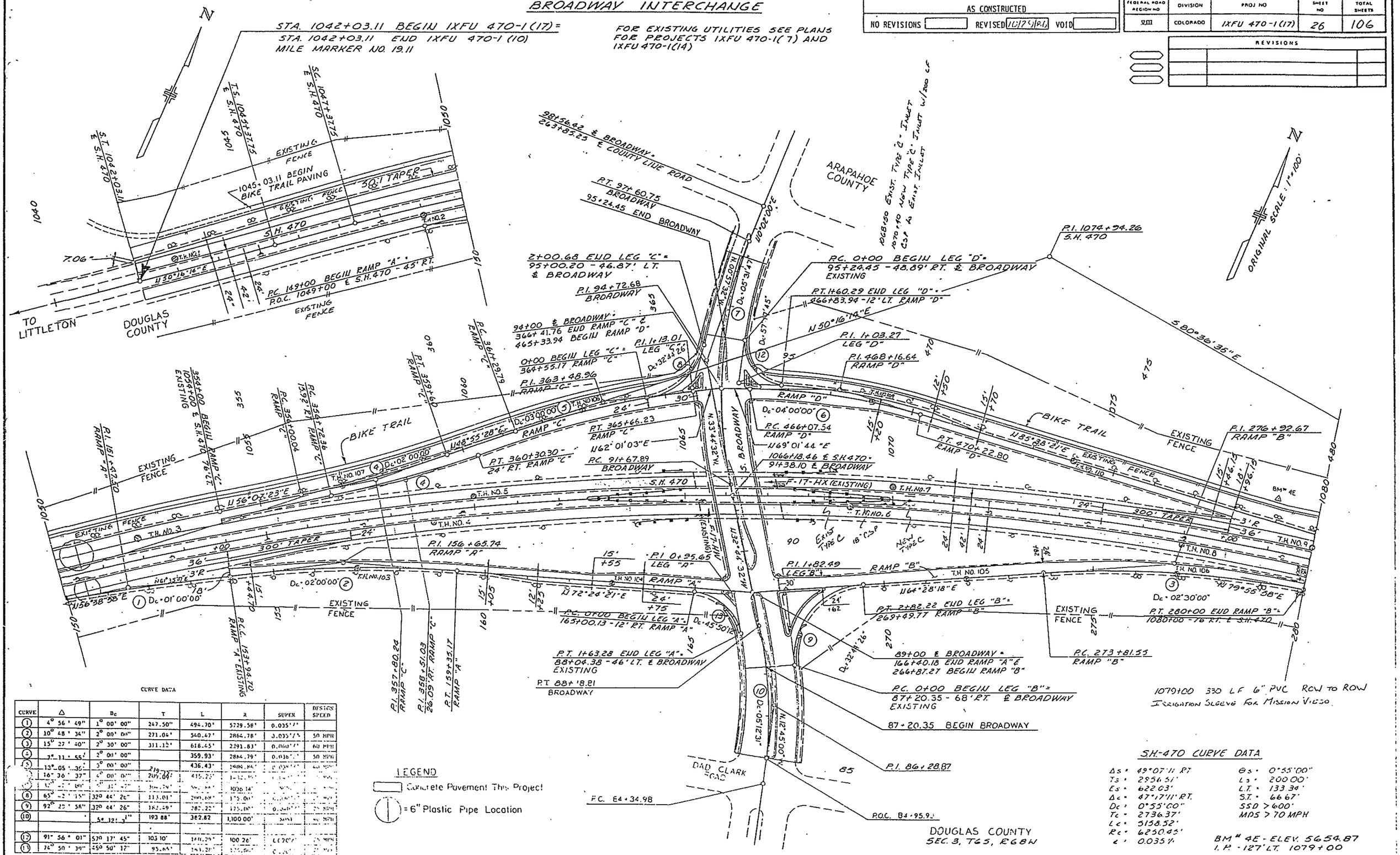
AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/96	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	26	106

REVISIONS		

STA. 1042+03.11 BEGIN IXFU 470-1(17) =
STA. 1042+03.11 END IXFU 470-1 (10)
MILE MARKER NO. 19.11

FOR EXISTING UTILITIES SEE PLANS FOR PROJECTS IXFU 470-1(7) AND IXFU 470-1(14)



CURVE DATA

CURVE	Δ	Dc	T	L	R	SUPER	DESIGN SPEED
1	4° 56' 49"	1° 00' 00"	247.50"	494.70'	5729.58'	0.035'/'	
2	10° 48' 34"	2° 00' 00"	271.04'	540.47'	2864.78'	0.035'/'	50 MPH
3	15° 27' 40"	2° 30' 00"	311.15'	618.45'	2291.83'	0.060'/'	60 MPH
4	7° 11' 55"	2° 00' 00"		359.93'	2864.79'	0.035'/'	50 MPH
5	13° 05' 35"	3° 00' 00"	219.[illegible]	436.43'	1908.86'	[illegible]	[illegible]
6	16° 36' 37"	4° 00' 00"	209.06'	415.25'	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	1036.16'	[illegible]	[illegible]
8	65° 42' 15"	32° 44' 26"	113.01'	200.69'	175.00'	[illegible]	[illegible]
9	92° 25' 58"	32° 44' 26"	182.49'	282.22'	175.00'	[illegible]	[illegible]
10		5° 12' 31"	193.88'	382.82	1,100.00'	MPH	[illegible] MPH
12	91° 56' 01"	57° 17' 45"	103.10'	140.29'	100.26'	[illegible]	[illegible]
13	74° 50' 39"	45° 50' 12"	95.85'	[illegible]	[illegible]	[illegible]	[illegible]

SH-470 CURVE DATA

Δs = 49°07'11" RT	θs = 0°55'00"
Ts = 2856.51'	Ls = 200.00'
Es = 622.03'	L.T. = 133.34'
Δc = 47°17'11" RT.	S.T. = 66.67'
Dc = 0°55'00"	SSD > 600'
Tc = 2736.37'	MPS > 70 MPH
Lc = 5158.52'	
Rc = 6250.45'	
e = 0.035'/'	

BM# 4E - ELEV. 5654.87
I.P. - 127' LT. 1079+00

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	27	106

AS CONSTRUCTED

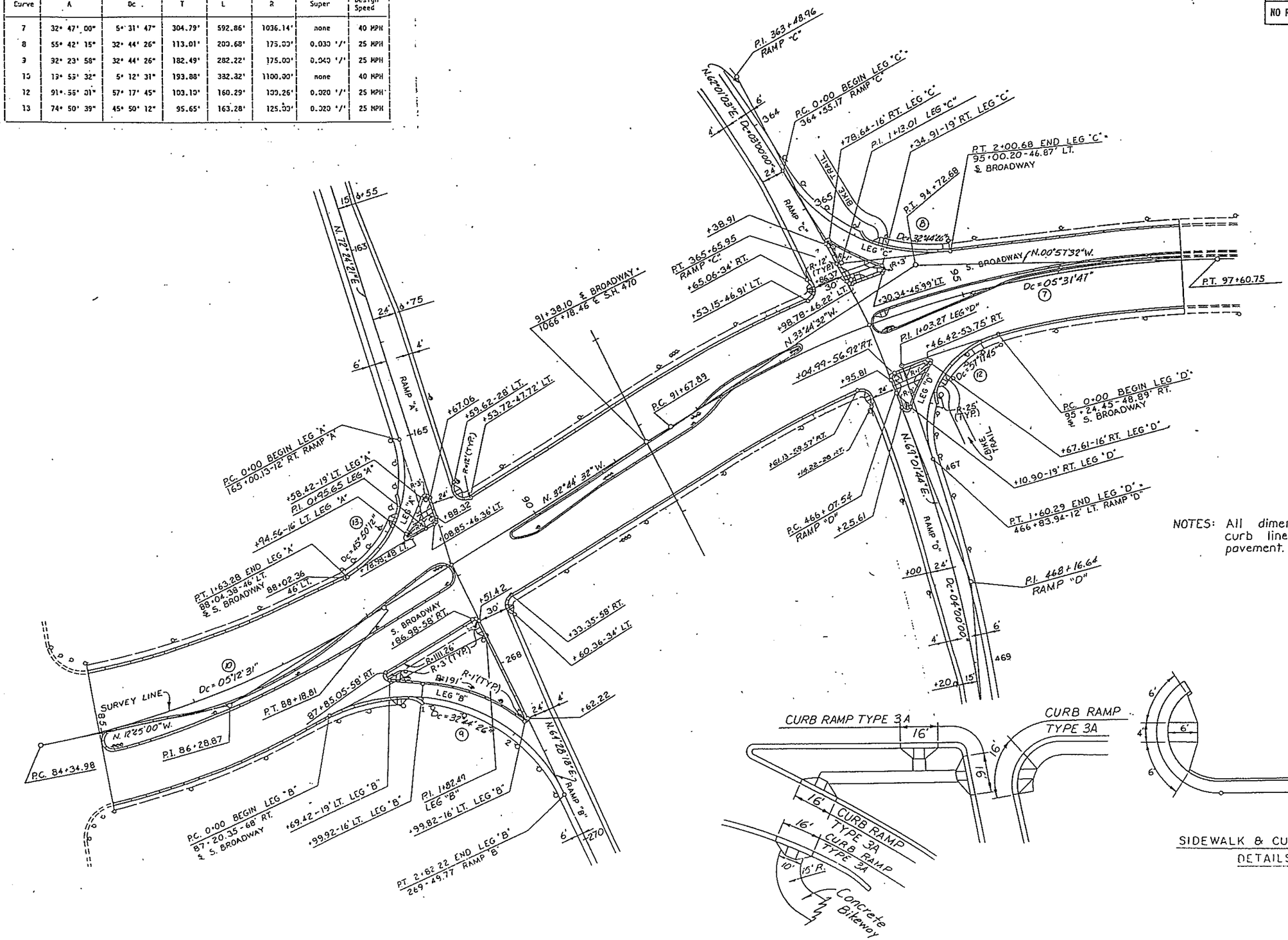
NO REVISIONS 10/29/86 REVISED [ ] VOID [ ]

BROADWAY INTERCHANGE

FOR INFORMATION ONLY

CURVE DATA

Curve	Δ	Dc	T	L	R	Super	Design Speed
7	32° 47' 00"	5° 31' 47"	304.79'	592.86'	1036.14'	none	40 MPH
8	55° 42' 15"	32° 44' 26"	113.01'	200.68'	175.00'	0.030 '/'	25 MPH
9	92° 23' 58"	32° 44' 26"	182.49'	282.22'	175.00'	0.030 '/'	25 MPH
10	19° 55' 32"	5° 12' 31"	193.88'	382.32'	1100.00'	none	40 MPH
12	91° 56' 01"	57° 17' 45"	103.10'	160.29'	100.26'	0.020 '/'	25 MPH
13	74° 50' 39"	45° 50' 12"	95.65'	163.28'	125.00'	0.020 '/'	25 MPH

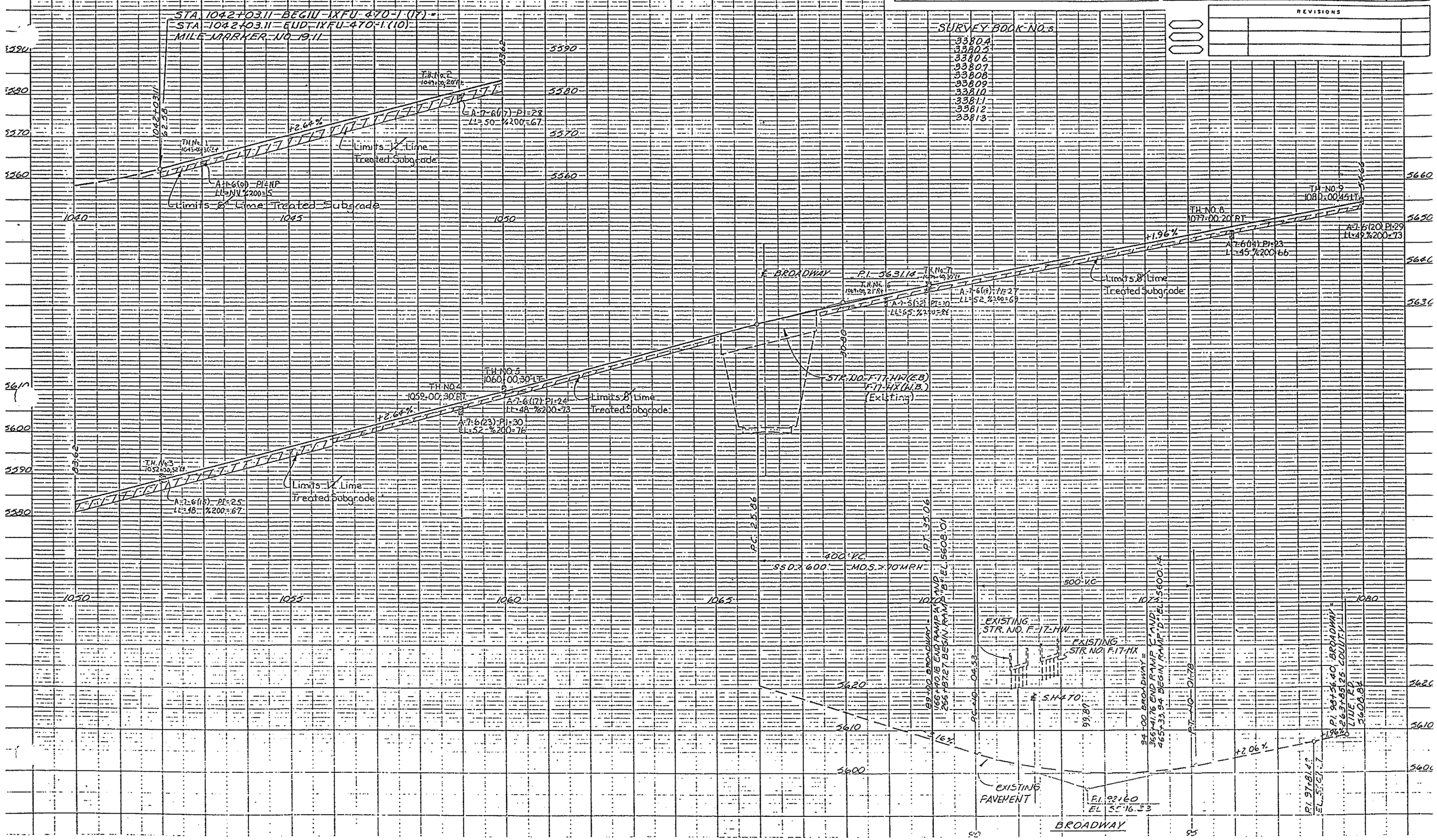


NOTES: All dimensions and offsets shown at curb lines are to edge of concrete pavement.

AS CONSTRUCTED		
NO REVISIONS	REVISED 10/20/86	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-(17)	28	106

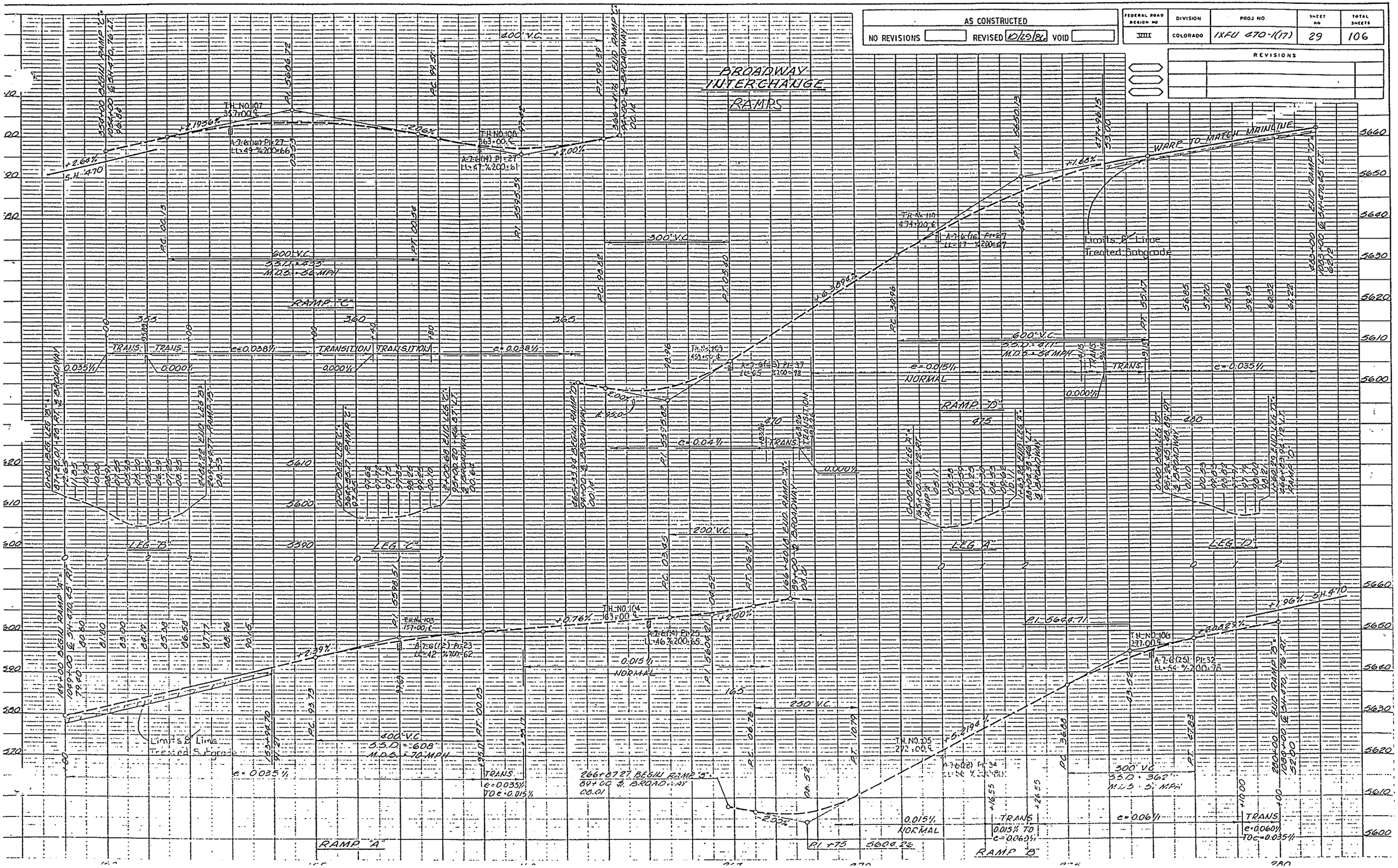
REVISIONS		



AS CONSTRUCTED				
NO REVISIONS ☐	REVISED 10/29/86	VOID ☐		

FEDERAL ROAD REGION NO	DIVISION	PROJ NO.	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	29	106

REVISIONS		



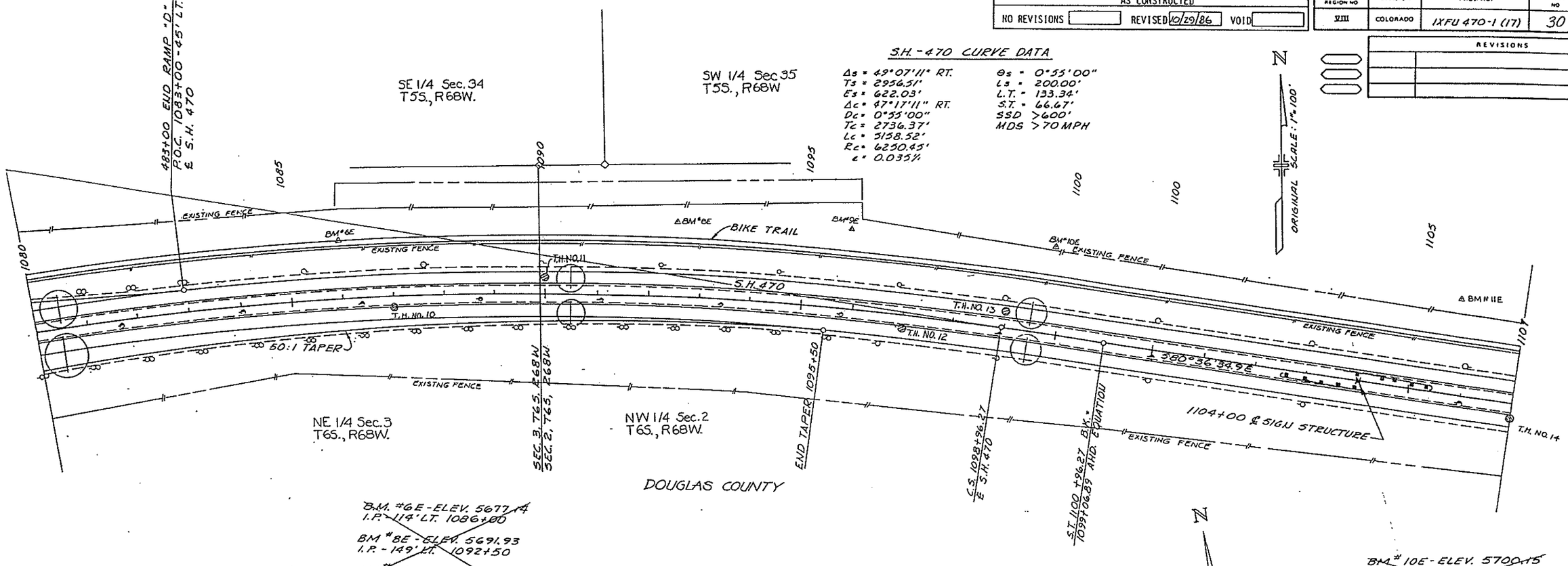
AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/86	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ. NO.	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1 (17)	30	106

REVISIONS		

S.H. - 470 CURVE DATA

Δs = 49°07'11" RT.	θs = 0°55'00"
Ts = 2954.51'	Ls = 200.00'
Es = 622.03'	L.T. = 133.34'
Δc = 47°17'11" RT.	S.T. = 66.67'
Dc = 0°55'00"	SSD >600'
Tc = 2736.37'	MDS >70 MPH
Lc = 5158.52'	
Rc = 6250.45'	
e = 0.035%	



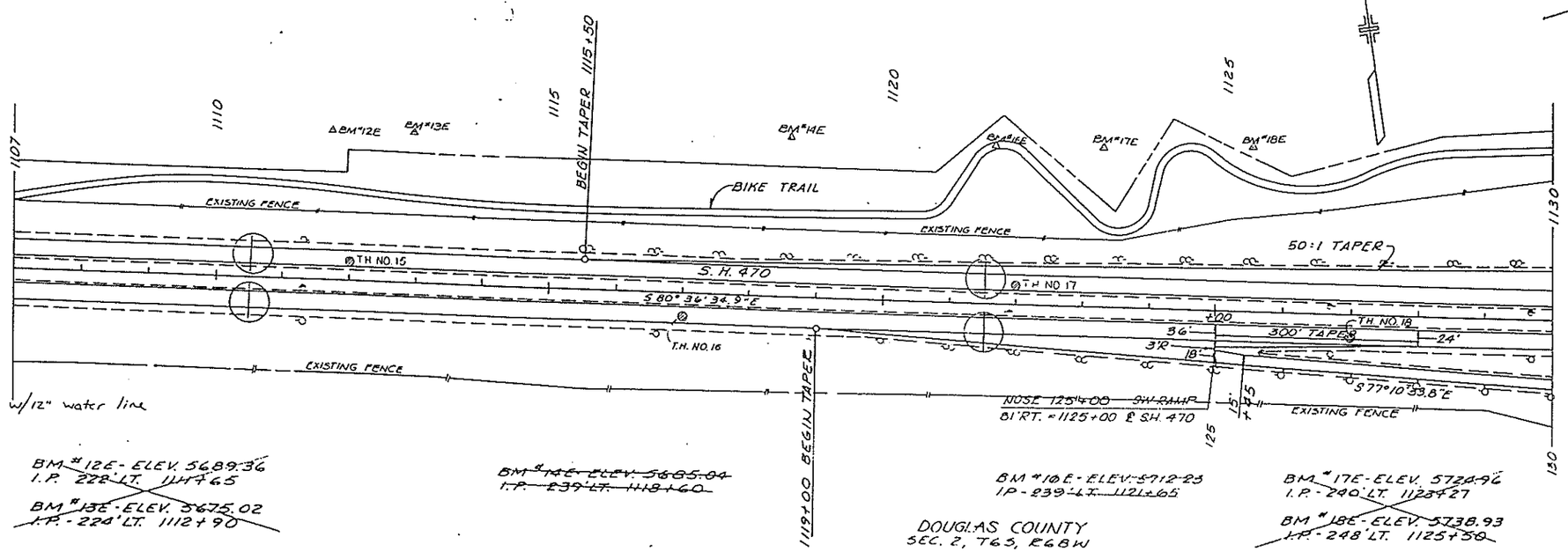
B.M. #6E - ELEV. 5677.14
I.P. - 114' LT. 1086+00

BM #8E - ELEV. 5691.93
I.P. - 149' LT. 1092+50

BM #9E - ELEV. 5694.67
I.P. - 159' LT. 1095+80

BM #10E - ELEV. 5700.15
I.P. - 178' LT 1099+75

BM #11E - ELEV. 5700.14
I.P. - 190' LT. 1105+75



1107+10 300 LF 21" tunnel liner w/12" water line
Willows Water District

BM #12E - ELEV. 5689.36
I.P. 228' LT. 1114+65

BM #13E - ELEV. 5675.02
I.P. - 224' LT. 1112+90

~~BM #14E - ELEV. 5685.04~~
~~I.P. - 239' LT. 1118+60~~

BM #16E - ELEV. 5712.23
IP - 239' LT. 1121+65

BM #17E - ELEV. 5724.96
I.P. - 240' LT. 1123+27

BM #18E - ELEV. 5738.93
I.P. - 248' LT. 1125+50

DOUGLAS COUNTY
SEC. 2, T6S, R68W

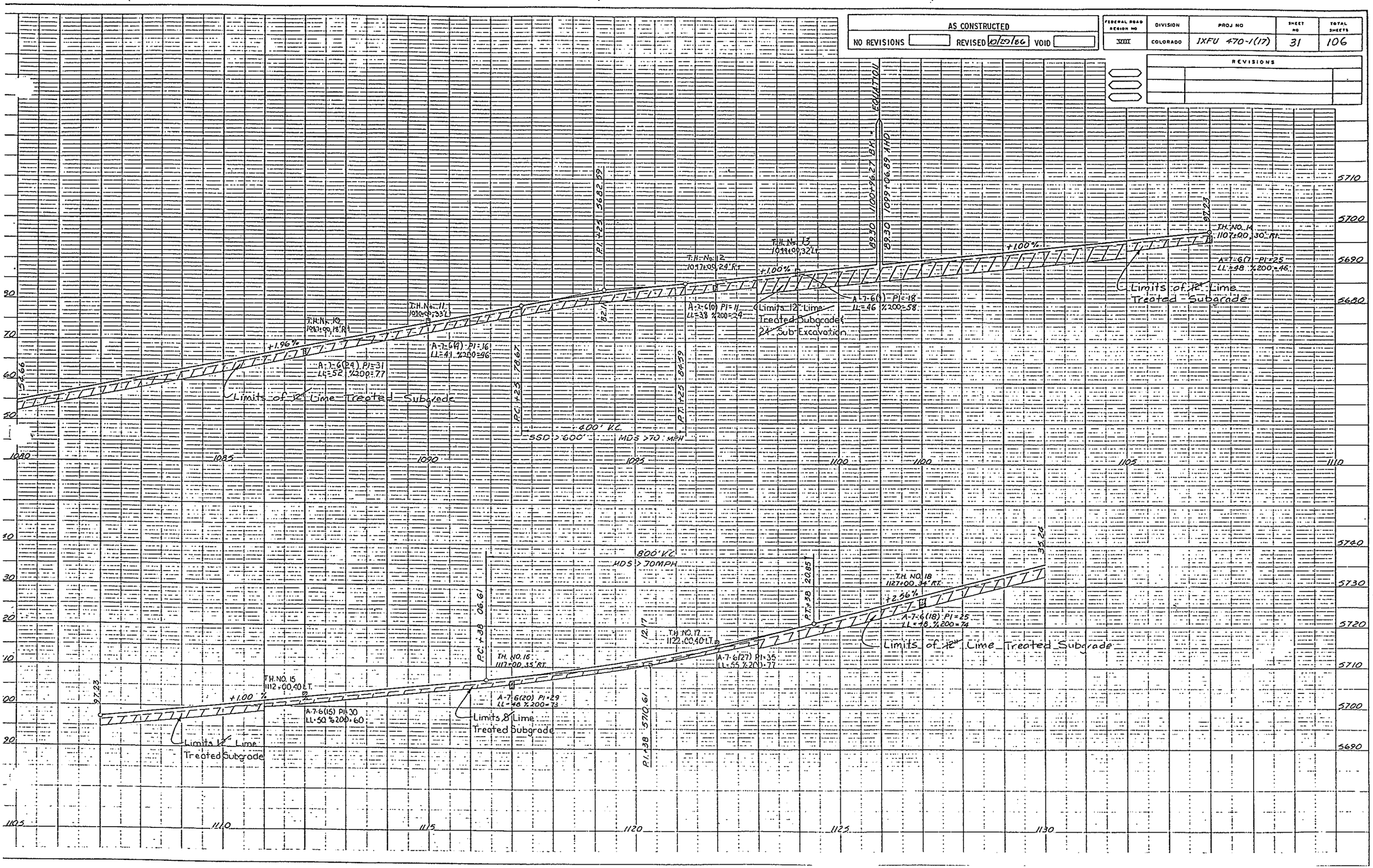
Legend

⊥	= 6" Plastic Pipe Location

AS CONSTRUCTED			
NO REVISIONS		REVISED 10/20/86	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	31	106

REVISIONS		

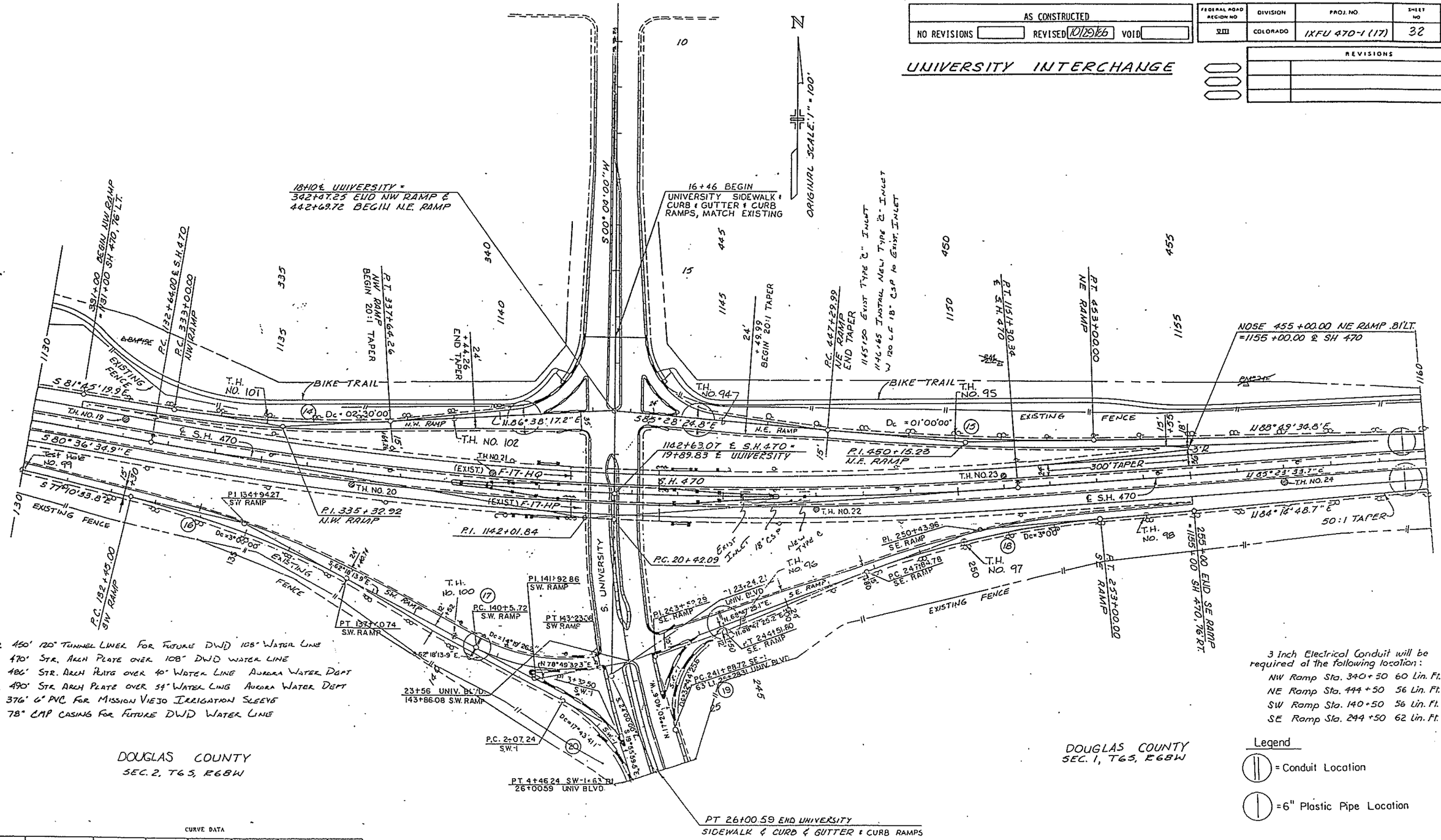


AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/66	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ. NO.	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1 (17)	32	106

REVISIONS		

UNIVERSITY INTERCHANGE



1132+82 450' 120" TUNNEL LINER FOR FUTURE DWD 108" WATER LINE
1134+43 470' STR. ARCH PLATE OVER 108" DWD WATER LINE
1134+90 486' STR. ARCH PLATE OVER 40" WATER LINE AURORA WATER DEPT
1135+12 490' STR. ARCH PLATE OVER 54" WATER LINE AURORA WATER DEPT
1154+00 376' 6" PVC FOR MISSION VIEJO IRRIGATION SLEEVE
1156+51 78" CMP CASING FOR FUTURE DWD WATER LINE

3 Inch Electrical Conduit will be required at the following location:

NW Ramp	Sta. 340+50	60 Lin. Ft.
NE Ramp	Sta. 444+50	56 Lin. Ft.
SW Ramp	Sta. 140+50	56 Lin. Ft.
SE Ramp	Sta. 244+50	62 Lin. Ft.

Legend

= Conduit Location

= 6" Plastic Pipe Location

CURVE DATA

CURVE	Δ	D	T	L	R	SUPER	DESIGN SPEED
14	11° 36' 22.9"	2° 30' 00"	232.92'	464.25'	2290.83'	0.066 1/1	50 MPH
15	5° 42' 00"	1° 00' 00"	285.24'	570.01'	5729.58'	0.021 1/1	50 MPH
16	14°52'19.9	3° 00' 00"	249.27'	495.74	1909.86'	0.053 1/1	50 MPH
17	38°52' 13.7"	14°19' 26.2"	141.14'	27137'	400.0'	0.070 1/1	35 MPH
18	15°27'23.9"	3° 00' 00"	259 16'	515 22'	1909.86'	0.053 1/1	50 MPH
19	86°08'5.9"	32°44' 25 6"	163 58'	263 06'	175 00'	0.070 1/1	30 MPH
20	42°22' 14.3"	17°43'41.1"	125.26	239 00	323 19	0.070 1/1	30 MPH

BM # 19E - ELEV. 5740.67
I.P. - # 210' LT. - 1131+70

~~BM # 23E - ELEV. 5754.51~~
~~I.P. - 267' LT. 1151+10~~

~~BM # 24E - ELEV. 5762.14~~
~~I.P. - 183' LT. 1156+39~~

S.H.-470 CURVE DATA

Δc = 13°59'31.4" LT.	Rc = 7639.43'
Dc = 0°45'00"	e = 0.029 ft/ft
Tc = 937.84'	SSD > 600
Lc = 1866.35'	MDS > 70 MPH

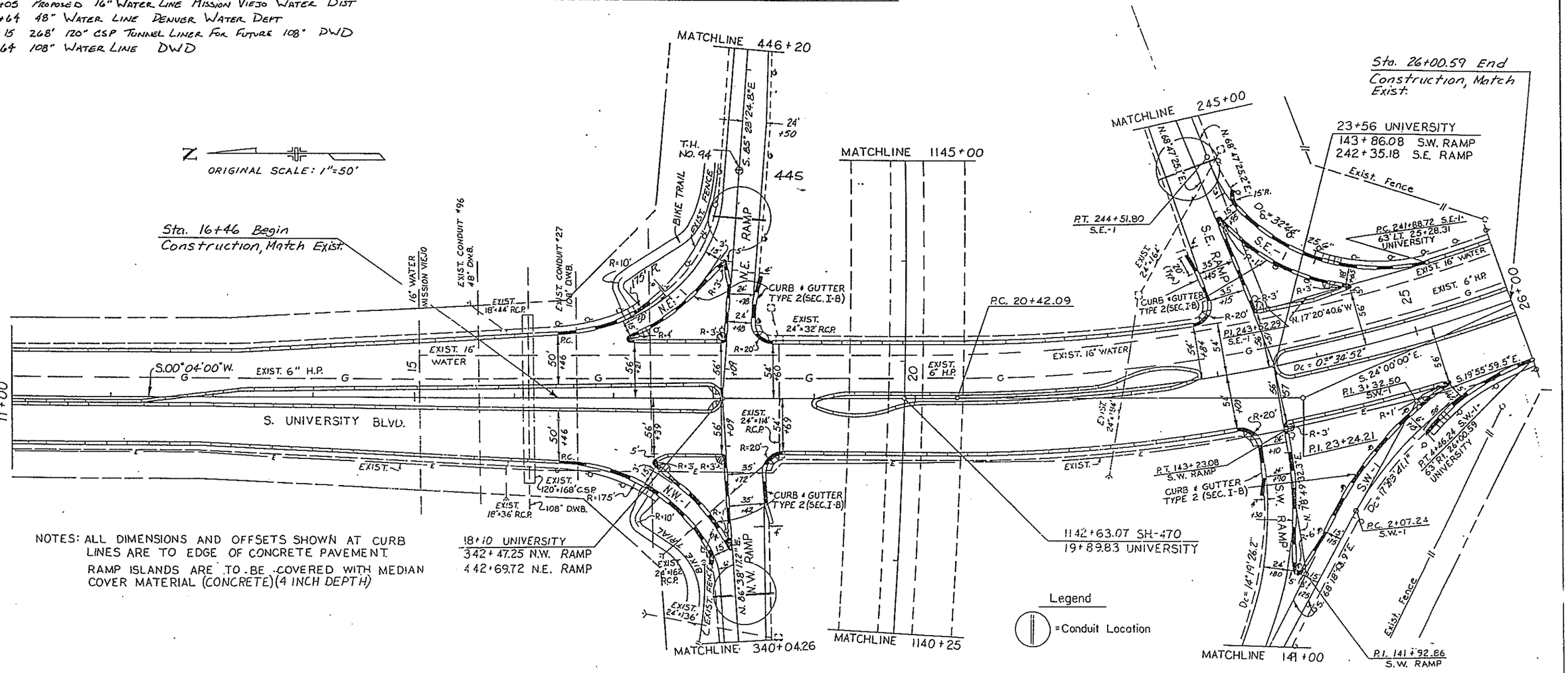
TE OF COLORADO
TE DEPARTMENT OF HIGHWAYS
ISION OF HIGHWAYS:
O. H. FORM NO. 126:
. FEB. 1984

AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/86	VOID

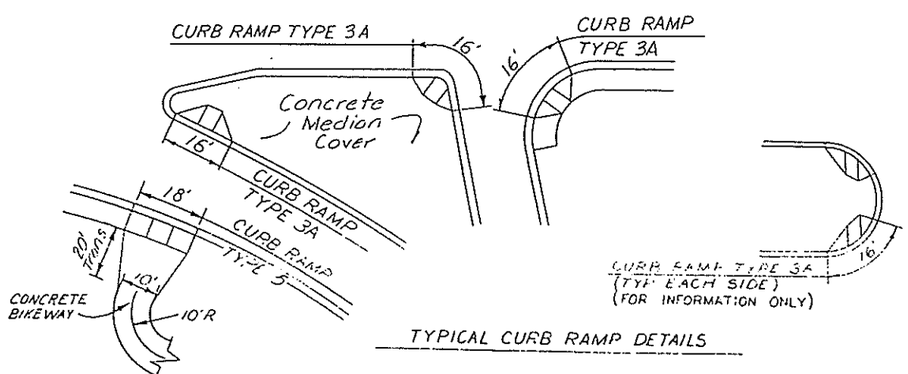
FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IXFU 470-1(17)	33	106

11+98 40" WATER LINE AURORA WATER DEPT
12+23 54" WATER LINE AURORA WATER DEPT
15+05 PROPOSED 16" WATER LINE MISSION VIEJO WATER DIST
15+64 48" WATER LINE DENVER WATER DEPT
16+15 268' 120" CSP TUNNEL LINER FOR FUTURE 108" DWD
16+64 108" WATER LINE DWD

UNIVERSITY INTERCHANGE



NOTES: ALL DIMENSIONS AND OFFSETS SHOWN AT CURB LINES ARE TO EDGE OF CONCRETE PAVEMENT.
RAMP ISLANDS ARE TO BE COVERED WITH MEDIAN COVER MATERIAL (CONCRETE)(4 INCH DEPTH)



TYPICAL CURB RAMP DETAILS

17+33 ~ Reqd. Conc. Curb Ramp, Type 5, 15 sq. yd., 95' Lt.
17+33 ~ Reqd. Conc. Curb Ramp, Type 5, 15 sq. yd., 95' Rt.
17+48 ~ Reqd. Conc. Curb Ramp, Type 3A, 15 sq. yd., 65' Lt.
17+48 ~ Reqd. Conc. Curb Ramp, Type 3A, 15 sq. yd., 70' Rt.
18+07 ~ Reqd. Conc. Curb Ramp, Type 3A, 15 sq. yd., 65' Lt.
18+07 ~ Reqd. Conc. Curb Ramp, Type 3A, 15 sq. yd., 65' Rt.
18+50 ~ Reqd. Conc. Curb Ramp, Type 3A, 15 sq. yd., 60' Lt.
18+60 ~ Reqd. Conc. Curb Ramp, Type 3A, 15 sq. yd., 60' Rt.

CURVE DATA

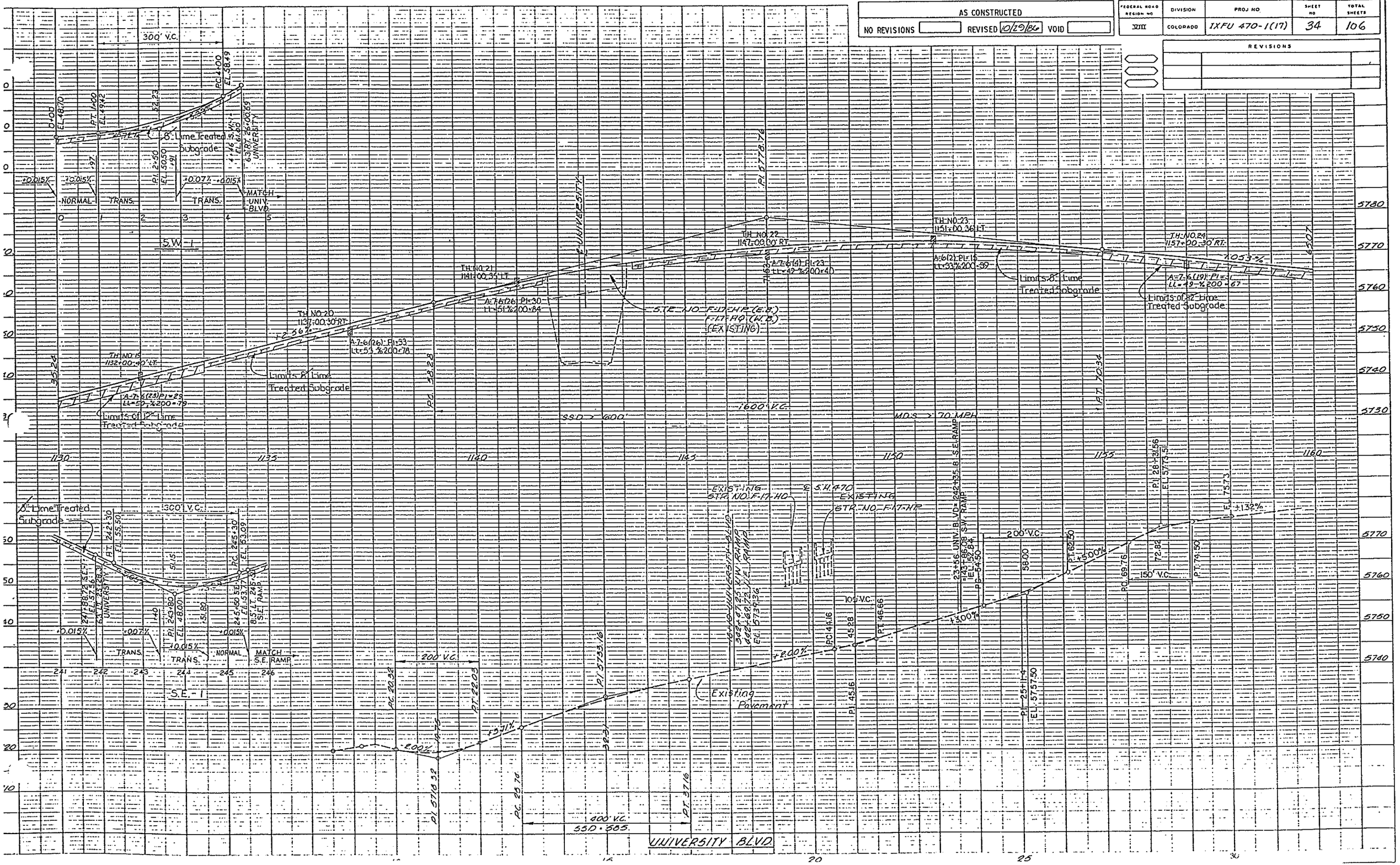
S.W. Ramp	S.W.-1
Δ = 38°52'13.7" Lt.	Δ = 42°22'14.3" Rt.
D = 14°19'26.2"	D = 17°43'41.1"
T = 141.14'	T = 125.26'
L = 271.37'	L = 239.00'
R = 400.0'	R = 323.19'
S.E.-1	**UNIVERSITY**
Δ = 86°08'05.9" Rt.	Δ = 24°04'00"
D = 32°44'25.6"	D = 03°34'52"
T = 163.58'	T = 341.06'
L = 263.08'	L = 672.07'
R = 175.0'	R = 1,600.0'

22+95 ~ Reqd. Conc. Curb Ramp, Type 3A, 15 sq. yd., 60' Lt.
23+20 ~ Reqd. Conc. Curb Ramp, Type 3A, 15 sq. yd., 60' Rt.
23+50 ~ Reqd. Conc. Curb Ramp, Type 3A, 15 sq. yd., 60' Lt.
23+60 ~ Reqd. Conc. Curb Ramp, Type 3A, 15 sq. yd., 60' Rt.
24+25 ~ Reqd. Conc. Curb Ramp, Type 3A, 15 sq. yd., 65' Lt.
24+35 ~ Reqd. Conc. Curb Ramp, Type 5, 15 sq. yd., 90' Lt.
24+85 ~ Reqd. Conc. Curb Ramp, Type 3A, 15 sq. yd., 65' Rt.
25+00 ~ Reqd. Conc. Curb Ramp, Type 5, 15 sq. yd., 90' Rt.

AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/86	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
XVIII	COLORADO	IXFU 470-1(17)	34	106

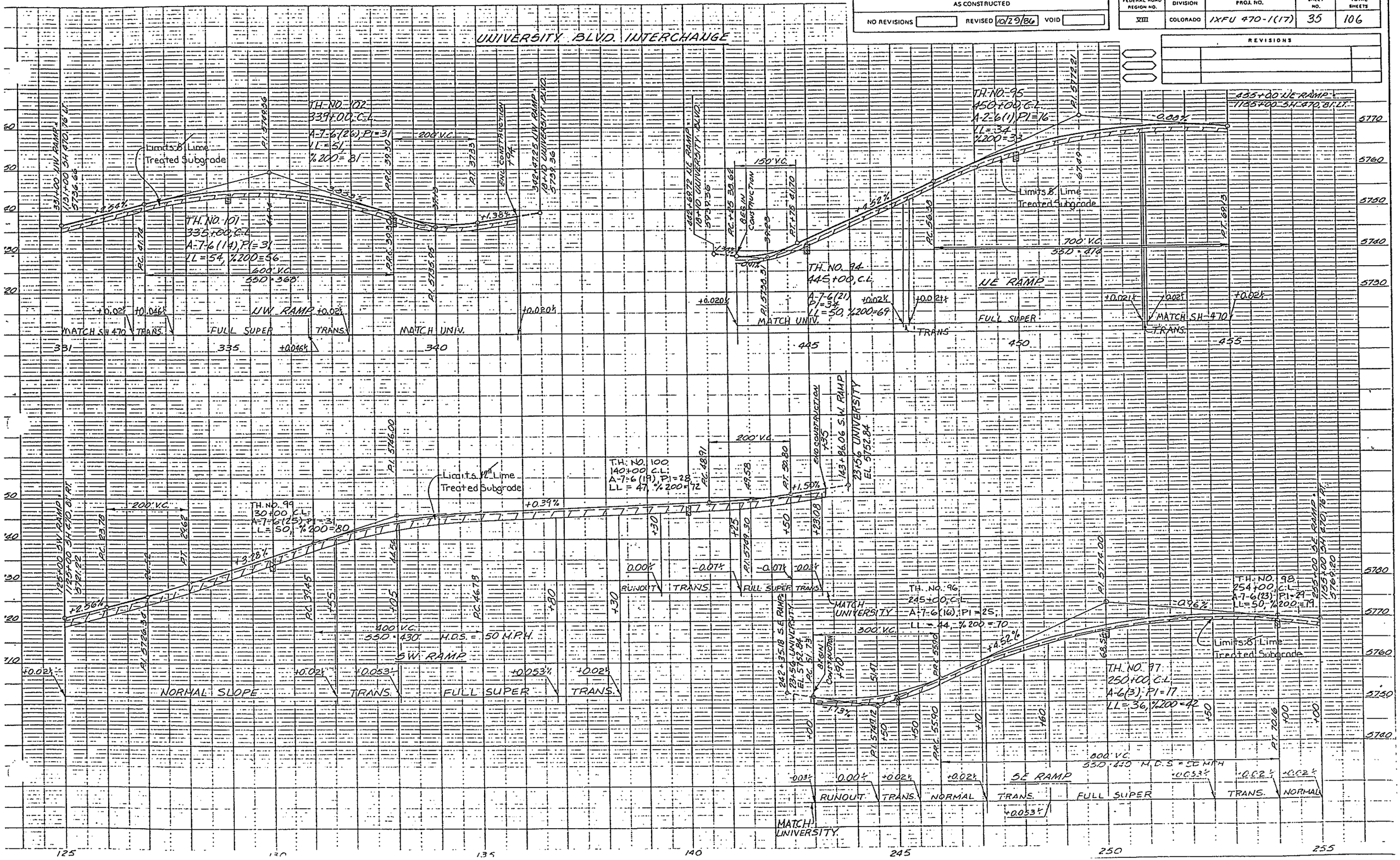
REVISIONS



AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/86	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
XIII	COLORADO	IXFU 470-1(17)	35	106

REVISIONS		



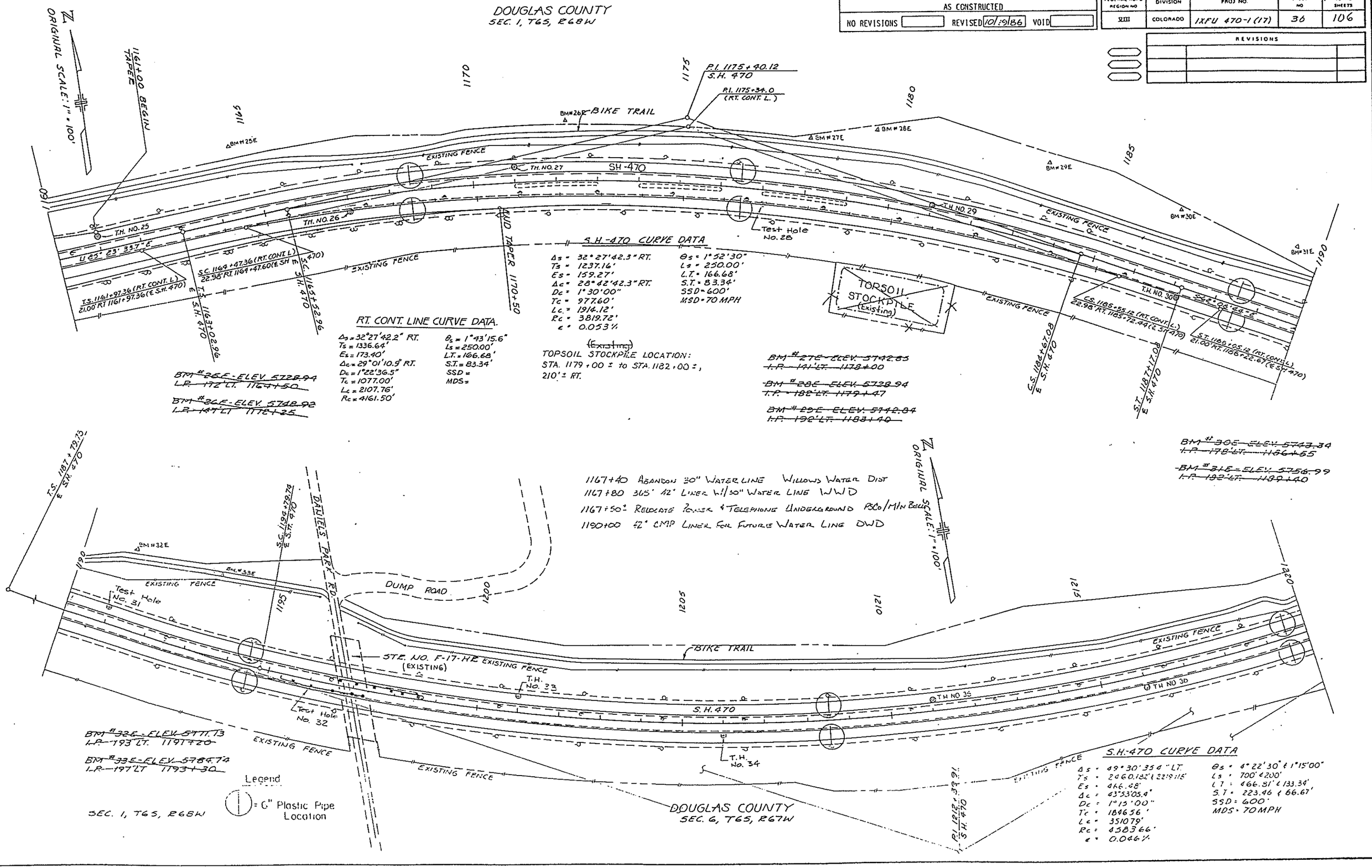
STATE OF COLORADO

AS CONSTRUCTED		
NO REVISIONS ☐	REVISED 10/30/86	VOID ☐

FEDERAL ROAD REGION NO	DIVISION	PROJ NO.	SHEET NO	TOTAL SHEETS
XIII	COLORADO	IXFU 470-1 (17)	36	106

REVISIONS		

DOUGLAS COUNTY
SEC. 1, T6S, R68W



S.H. 470 CURVE DATA

Δs = 32°27'42.2" RT.
T_s = 1237.16'
E_s = 159.27'
Δc = 28°42'42.3" RT.
D_c = 1°30'00"
T_c = 977.60'
L_c = 1914.12'
R_c = 3819.72'
e = 0.053'/'

θs = 1°52'30"
L_s = 250.00'
L.T. = 166.68'
S.T. = 83.34'
SSD = 600'
MSD = 70 MPH

RT. CONT. LINE CURVE DATA.

Δs = 32°27'42.2" RT.
T_s = 1336.64'
E_s = 173.40'
Δc = 29°01'10.9" RT.
D_c = 1°22'36.5"
T_c = 1077.00'
L_c = 2107.76'
R_c = 4161.50'

θs = 1°43'15.6"
L_s = 250.00'
L.T. = 166.68'
S.T. = 83.34'
SSD =
MDS =

~~(Existing)~~
TOPSOIL STOCKPILE LOCATION:
STA. 1179+00 ± to STA. 1182+00 ±,
210' ± RT.

~~BM #26E - ELEV. 5728.94~~
~~I.P. 172' LT. 1164+50~~

~~BM #26E - ELEV. 5748.92~~
~~I.P. 147' LT. 1176+25~~

~~BM #27E - ELEV. 5742.83~~
~~I.P. 141' LT. 1178+00~~

~~BM #28E - ELEV. 5728.94~~
~~I.P. 182' LT. 1179+47~~

~~BM #29E - ELEV. 5742.84~~
~~I.P. 192' LT. 1183+40~~

~~BM #30E - ELEV. 5743.34~~
~~I.P. 178' LT. 1186+55~~

~~BM #31E - ELEV. 5756.99~~
~~I.P. 192' LT. 1189+40~~

1167+40 ABANDON 30" WATER LINE WILLOWS WATER DIST
1167+80 365' 42" LINER W/30" WATER LINE WWD
1167+50± RELOCATE POWER & TELEPHONE UNDERGROUND PSCo/MIN BELL
1190+00 42" CMP LINER FOR FUTURE WATER LINE DWD

~~BM #32E - ELEV. 5771.73~~
~~I.P. 193' LT. 1191+20~~

~~BM #33E - ELEV. 5784.74~~
~~I.P. 197' LT. 1193+30~~

Legend
6" Plastic Pipe Location

SEC. 1, T6S, R68W

DOUGLAS COUNTY
SEC. 6, T6S, R67W

S.H. 470 CURVE DATA

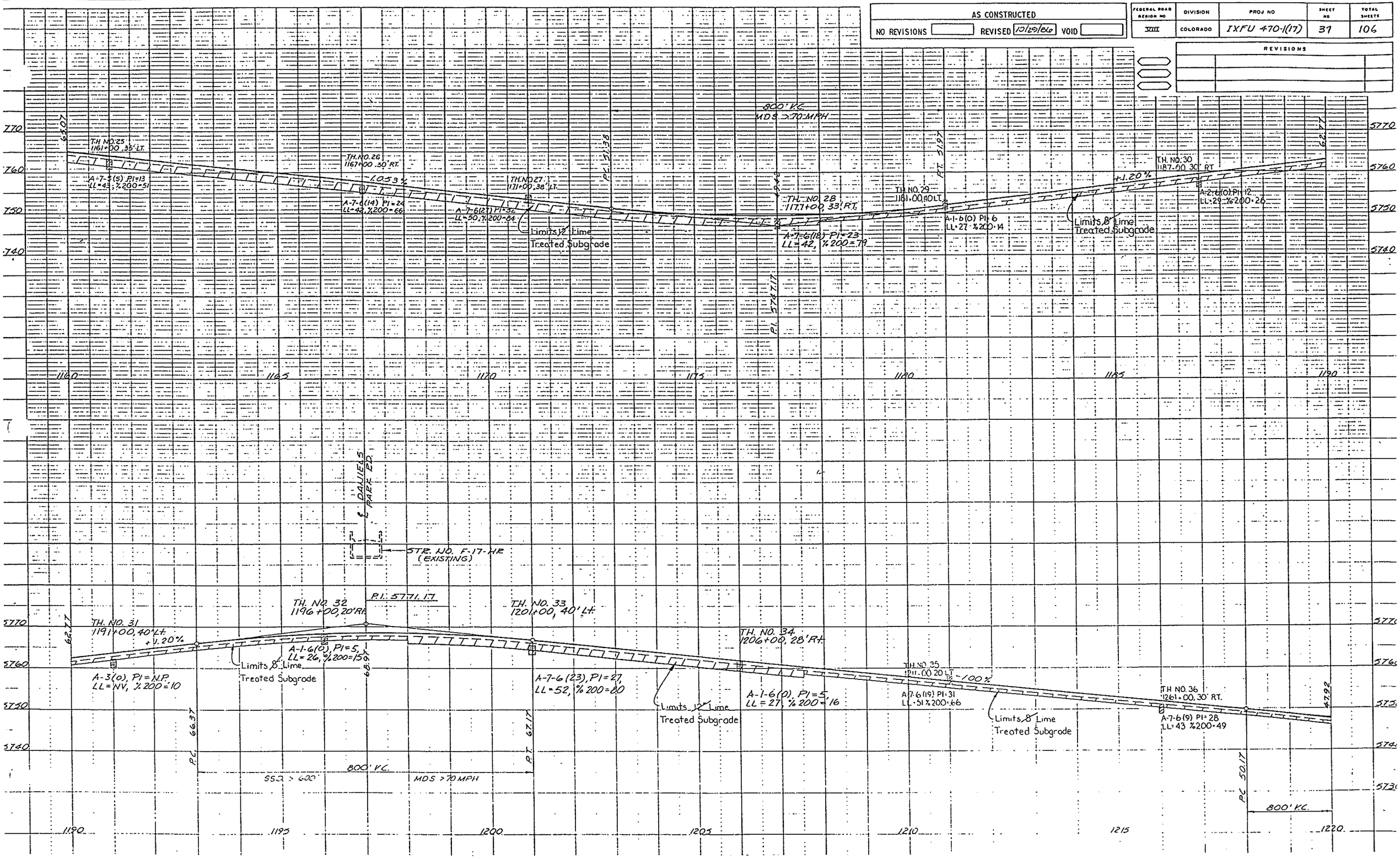
Δs = 49°30'35.4" LT
T_s = 2060.182' & 2219.115'
E_s = 466.68'
Δc = 43°53'05.4"
D_c = 1°15'00"
T_c = 1846.56'
L_c = 3510.79'
R_c = 4583.66'
e = 0.046'/'

θs = 4°22'30" & 1°15'00"
L_s = 700' & 200'
L.T. = 466.81' & 133.34'
S.T. = 223.46 & 66.67'
SSD = 600'
MDS = 70 MPH

AS CONSTRUCTED		
NO REVISIONS	REVISED 10/20/86	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	31	106

REVISIONS		



AS CONSTRUCTED		
NO REVISIONS	REVISED 10/20/86	VOID

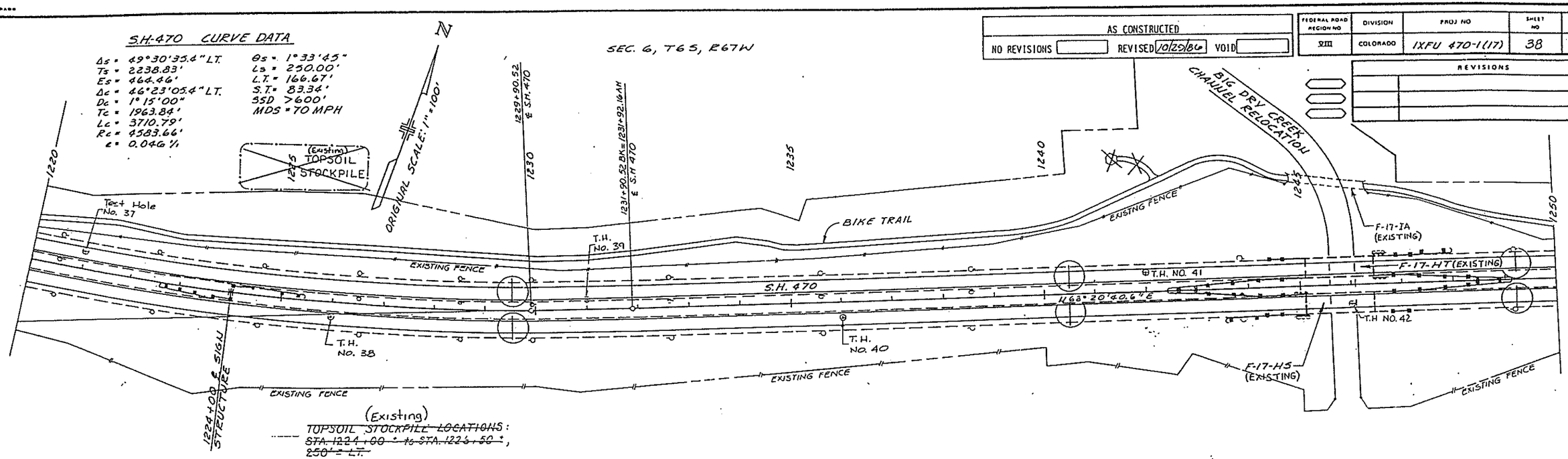
FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	38	106

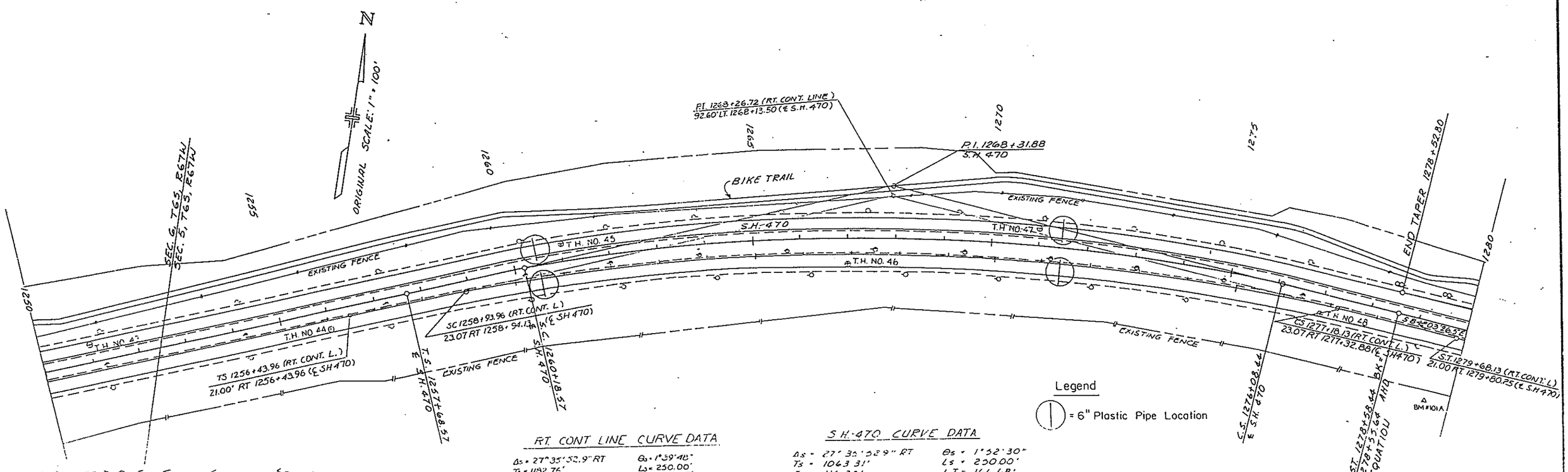
REVISIONS		

S.H.-470 CURVE DATA

Δs = 49°30'35.4" LT.
T_s = 2238.83'
E_s = 464.46'
Δc = 46°23'05.4" LT.
D_c = 1°15'00"
T_c = 1963.84'
L_c = 3710.79'
R_c = 4583.66'
e = 0.04G'/'

θs = 1°33'45"
L_s = 250.00'
L.T. = 166.67'
S.T. = 83.34'
SSD > 600'
MDS = 70 MPH





RT. CONT. LINE CURVE DATA

Δs = 27°35'52.9" RT
T_s = 1182.76'
E_s = 128.60'
Δc = 24°16'17.9" RT
D_c = 1°19'30"
T_c = 925.98'
L_c = 1824.17'
R_c = 4306.16'

θs = 1°39'48"
L_s = 250.00'
L.T. = 166.67'
S.T. = 83.34'
SSD = 600'
MDS = 70 MPH

S.H.-470 CURVE DATA

Δs = 27°35'52.9" RT
T_s = 1063.31'
E_s = 114.22'
Δc = 23°50'52.9" RT.
D_c = 1°30'00"
T_c = 806.61'
L_c = 1589.87'
R_c = 3815.70'

θs = 1°52'30"
L_s = 250.00'
L.T. = 166.68'
S.T. = 83.34'
SSD = 600'
MDS = 70 MPH

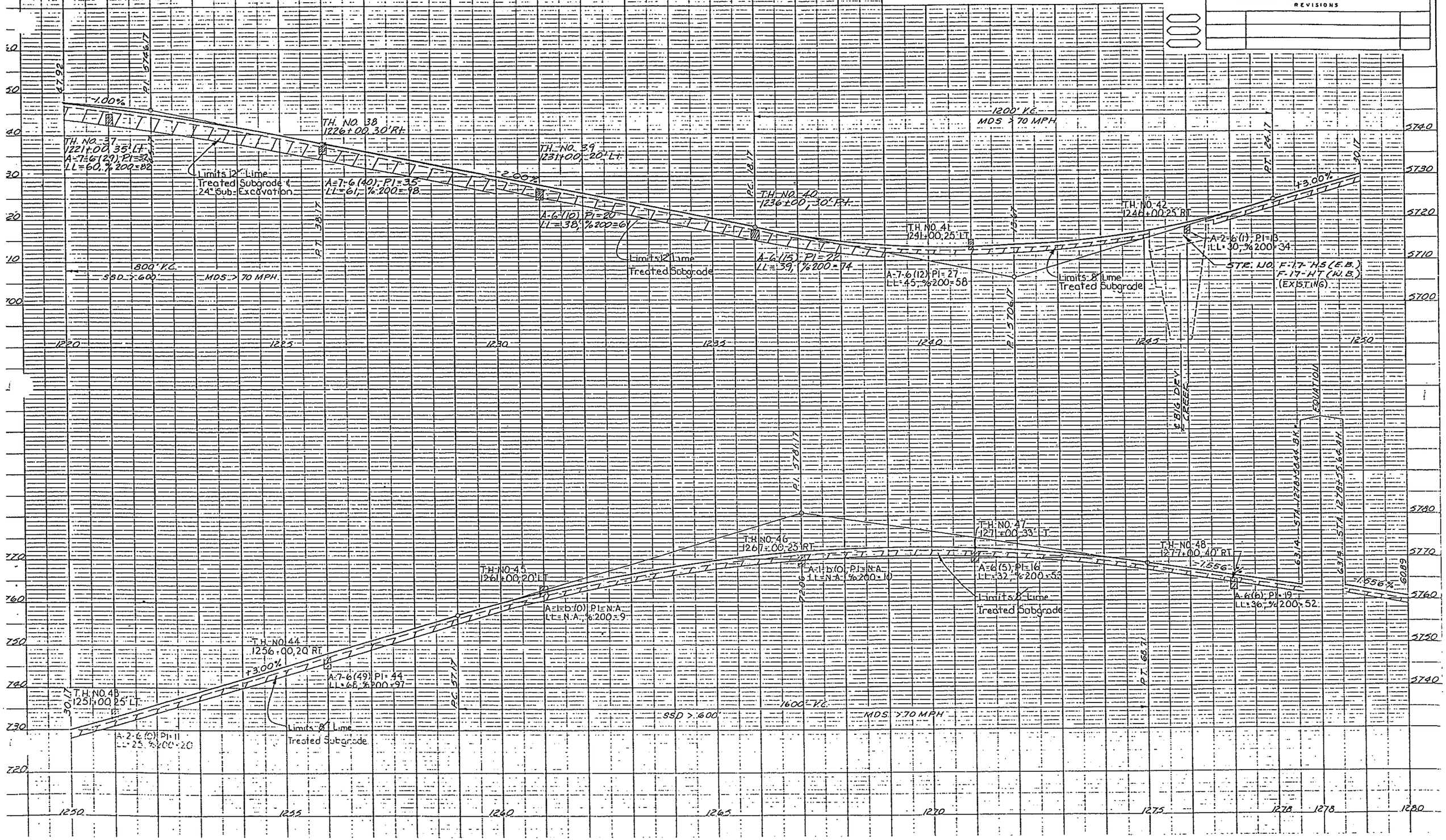
1247+30 12" DIP FOR FUTURE SANITARY SEWER
1253+50 42" CMP LINER FOR FUTURE WATER LINE DWD

~~BM #101A ELEV. 5761.74~~
~~T.P. 165' ET 1279+50~~

AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/86	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	39	106

REVISIONS		



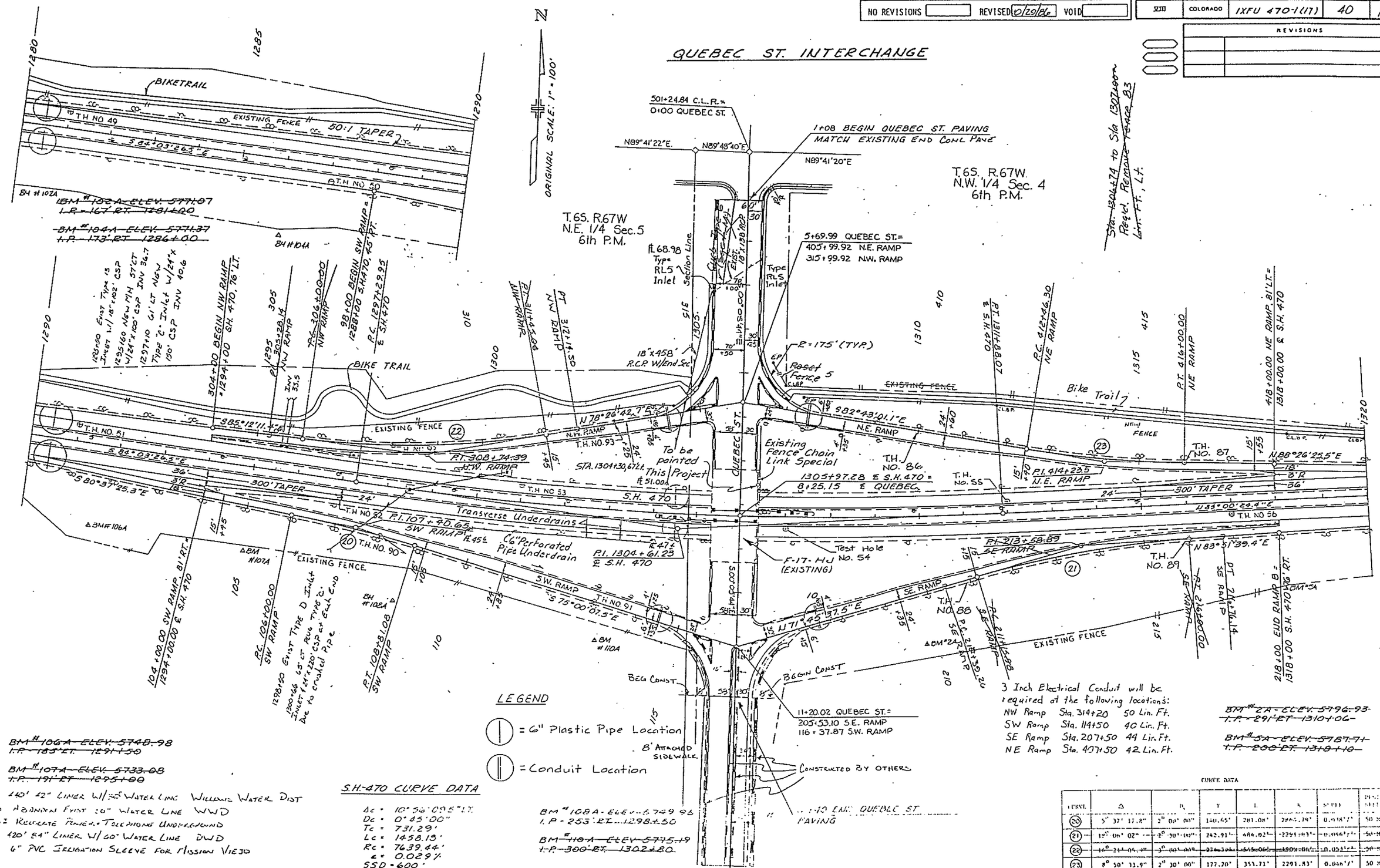
DEPT OF HIGHWAYS
STATE OF COLORADO

AS CONSTRUCTED		
NO REVISIONS ☐	REVISED 10/29/86	VOID ☐

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	40	106

REVISIONS		

QUEBEC ST. INTERCHANGE



CURVE DATA

CURVE	Δ	D	T	L	R	SSD	DESIGN SPEED
20	5° 37' 17.8"	2° 00' 00"	140.65'	281.08'	2864.79'	0.018'/'	50 MPH
21	12° 06' 02"	3° 30' 00"	242.91'	484.02'	1637.03'	0.046'/'	50 MPH
22	14° 24' 06.4"	3° 00' 00"	274.30'	545.06'	1910.86'	0.052'/'	50 MPH
23	8° 50' 33.9"	2° 30' 00"	177.20'	353.71'	2291.83'	0.046'/'	50 MPH
21	12° 06' 02.5"	1° 04' 00"	319.63	636.88	3015.37	0.046'/'	50 MPH
22	14° 21' 05.9"	2° 22' 57"	345.53	686.36	2405.00	0.053'/'	50 MPH

STATE OF COLORADO

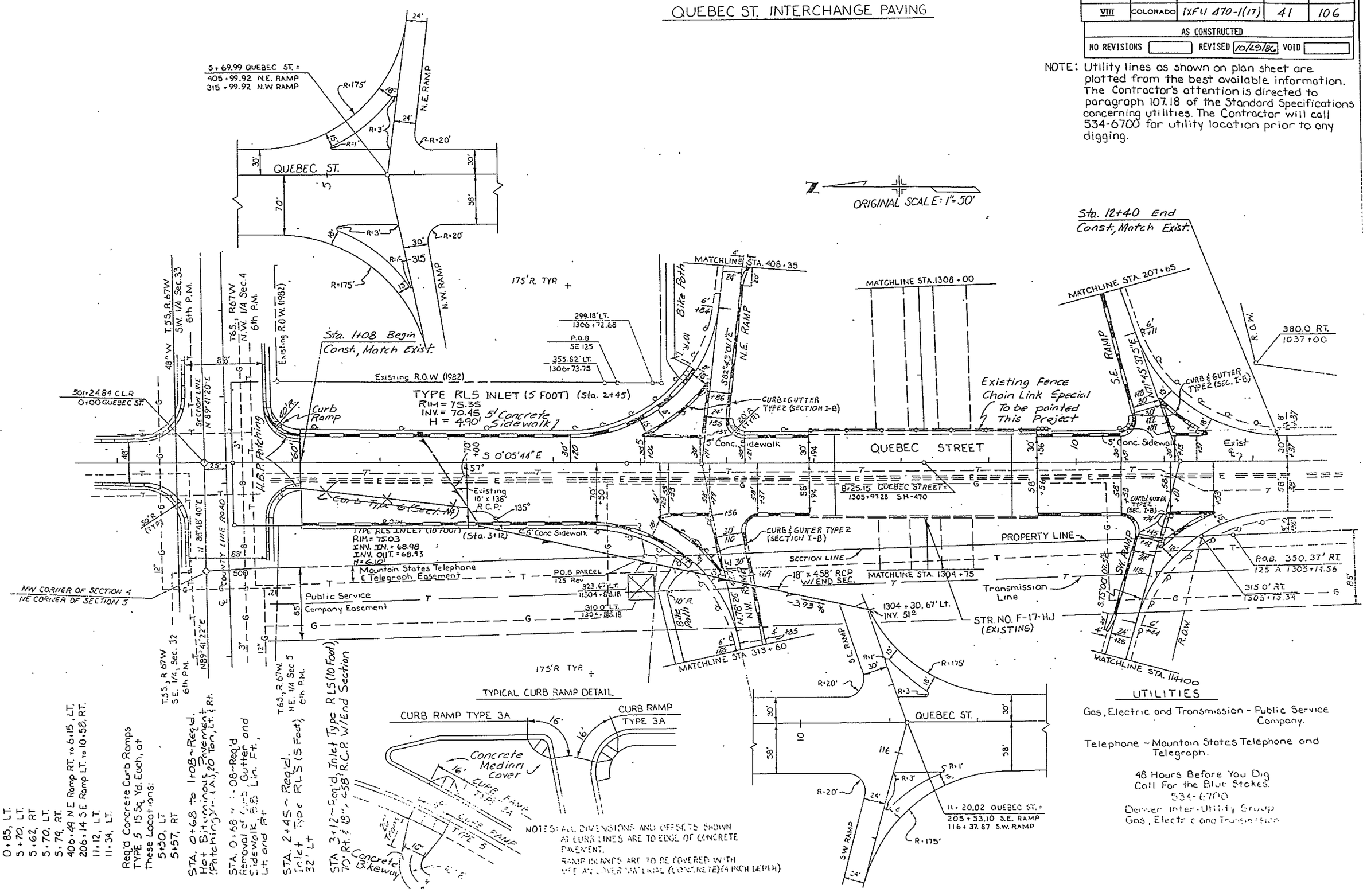
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	41	106

AS CONSTRUCTED

NO REVISIONS [ ] REVISED 10/25/86 VOID [ ]

QUEBEC ST. INTERCHANGE PAVING

NOTE: Utility lines as shown on plan sheet 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 location prior to any digging.



UTILITIES

Gas, Electric and Transmission - Public Service Company.

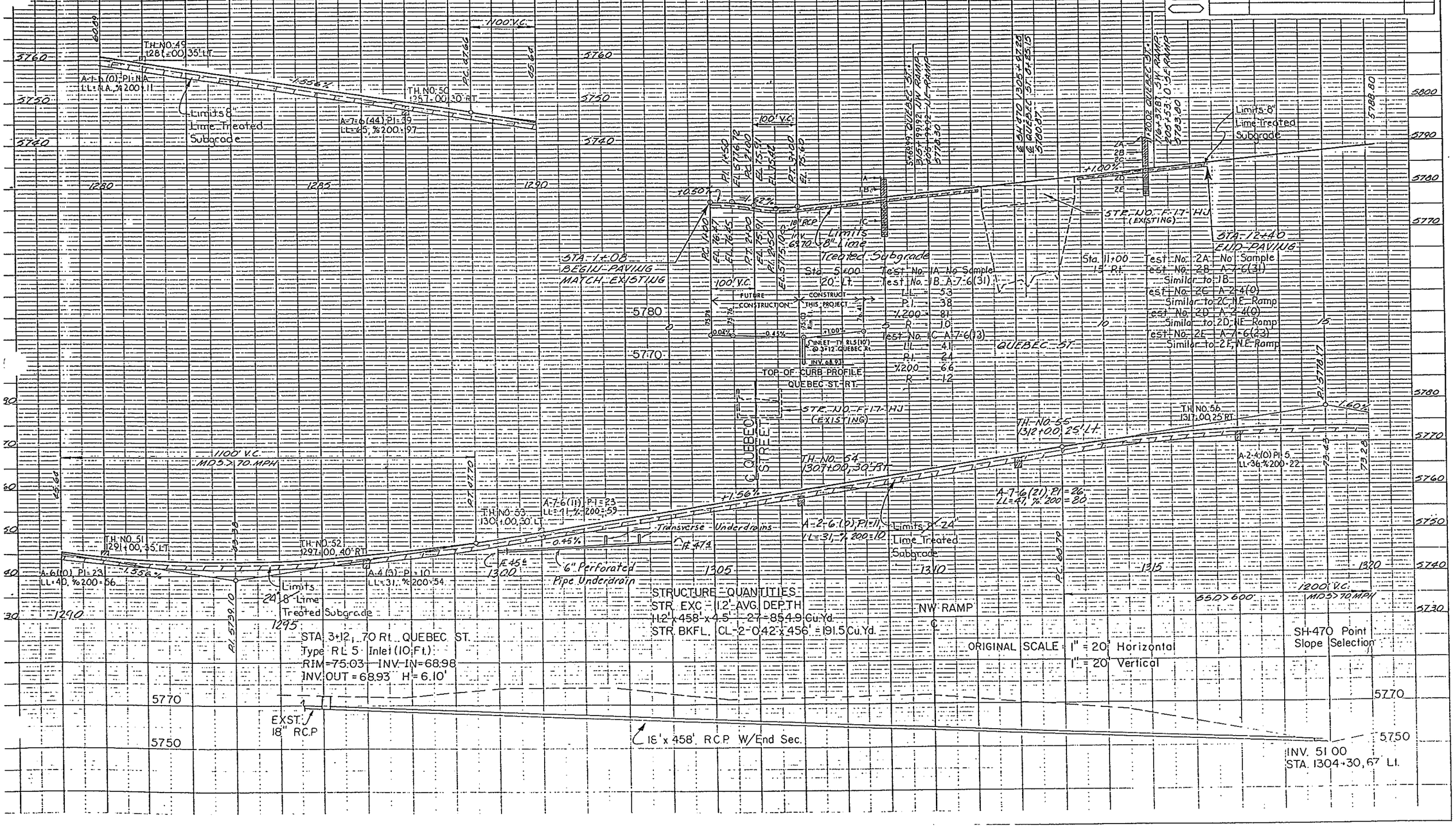
Telephone - Mountain States Telephone and Telegraph.

48 Hours Before You Dig
Call For the Blue Stakes.
534-6700
Denver Inter-Utility Group
Gas, Electric and Transmission

AS CONSTRUCTED		
NO REVISIONS ☐	REVISED 10/29/86	VOID ☐

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	42	106

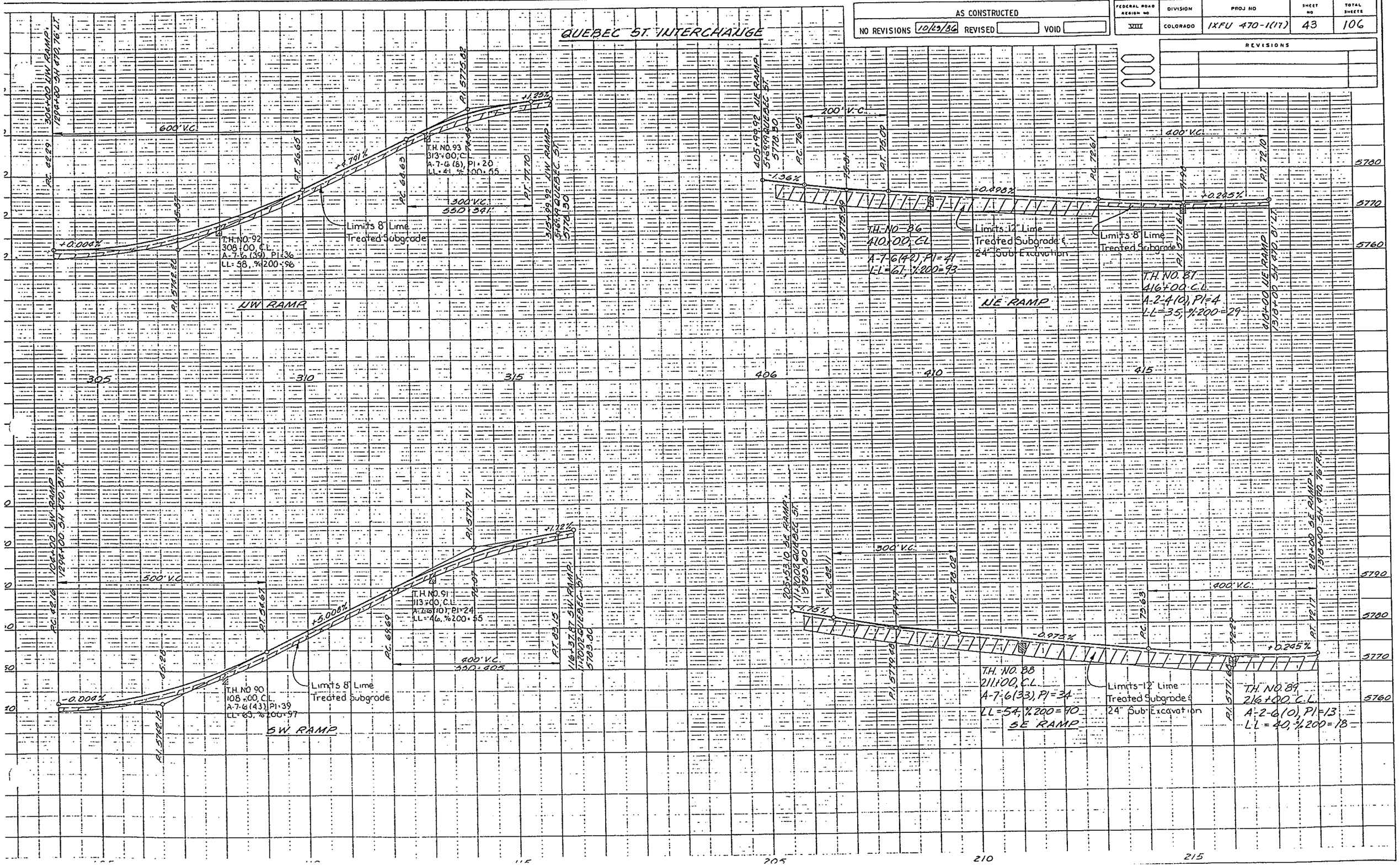
REVISIONS		



AS CONSTRUCTED			
NO REVISIONS 10/29/86	REVISED		VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	43	106

REVISIONS

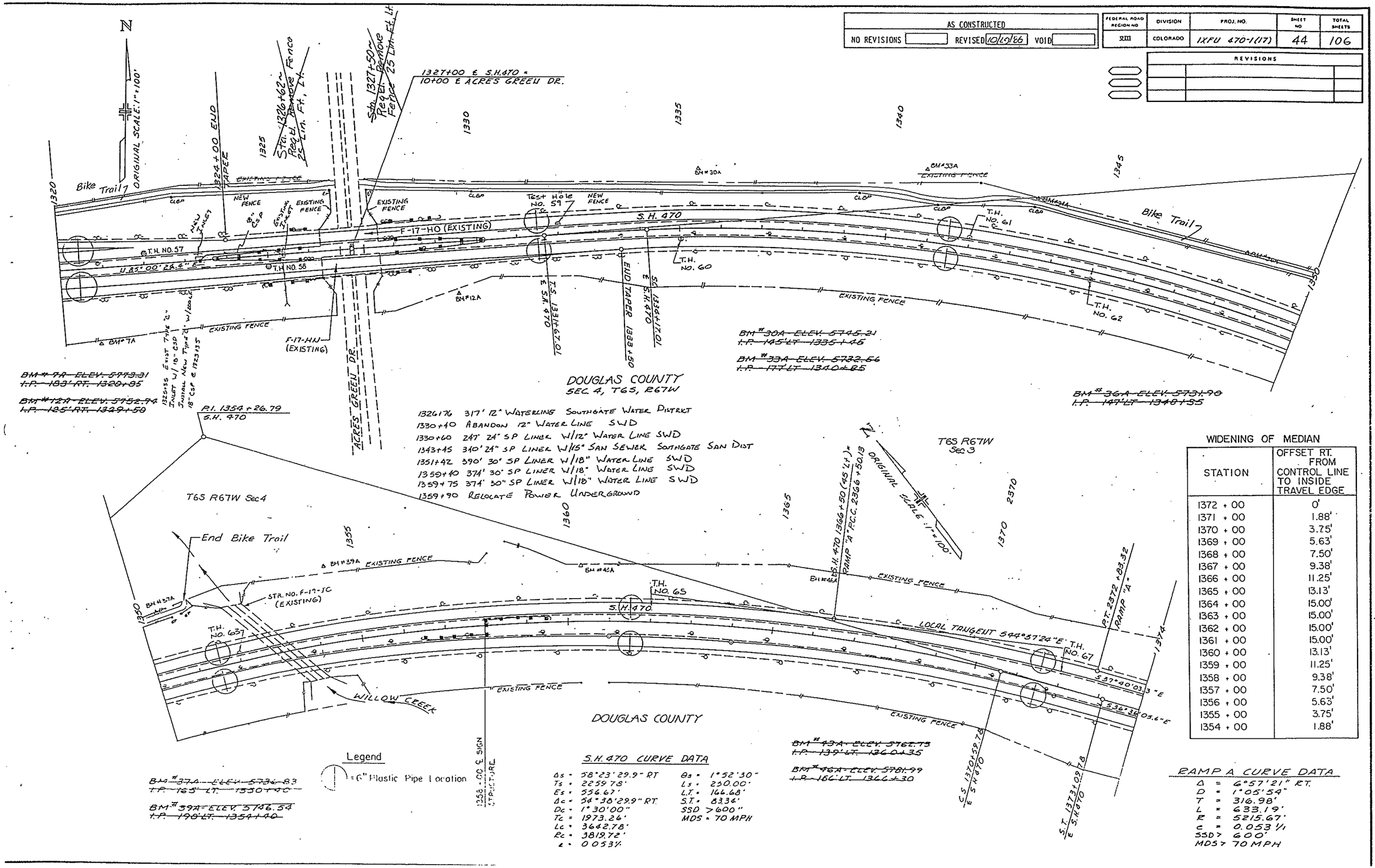


STATE OF COLORADO

AS CONSTRUCTED			
NO REVISIONS		REVISED 10/29/86	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ. NO.	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	44	106

REVISIONS		



WIDENING OF MEDIAN

STATION	OFFSET RT. FROM CONTROL LINE TO INSIDE TRAVEL EDGE
1372 + 00	0'
1371 + 00	1.88'
1370 + 00	3.75'
1369 + 00	5.63'
1368 + 00	7.50'
1367 + 00	9.38'
1366 + 00	11.25'
1365 + 00	13.13'
1364 + 00	15.00'
1363 + 00	15.00'
1362 + 00	15.00'
1361 + 00	15.00'
1360 + 00	13.13'
1359 + 00	11.25'
1358 + 00	9.38'
1357 + 00	7.50'
1356 + 00	5.63'
1355 + 00	3.75'
1354 + 00	1.88'

S.H. 470 CURVE DATA

Δs = 58°23'29.9" RT	θs = 1°52'30"
Ts = 2259.78'	Ls = 250.00'
Es = 556.67'	L.T. = 166.68'
Δc = 54°38'29.9" RT	S.T. = 83.34'
Dc = 1°30'00"	SSD > 600"
Tc = 1973.26'	MDS = 70 MPH
Lc = 3642.78'	
Rc = 3819.72'	
e = 0.053 1/1	

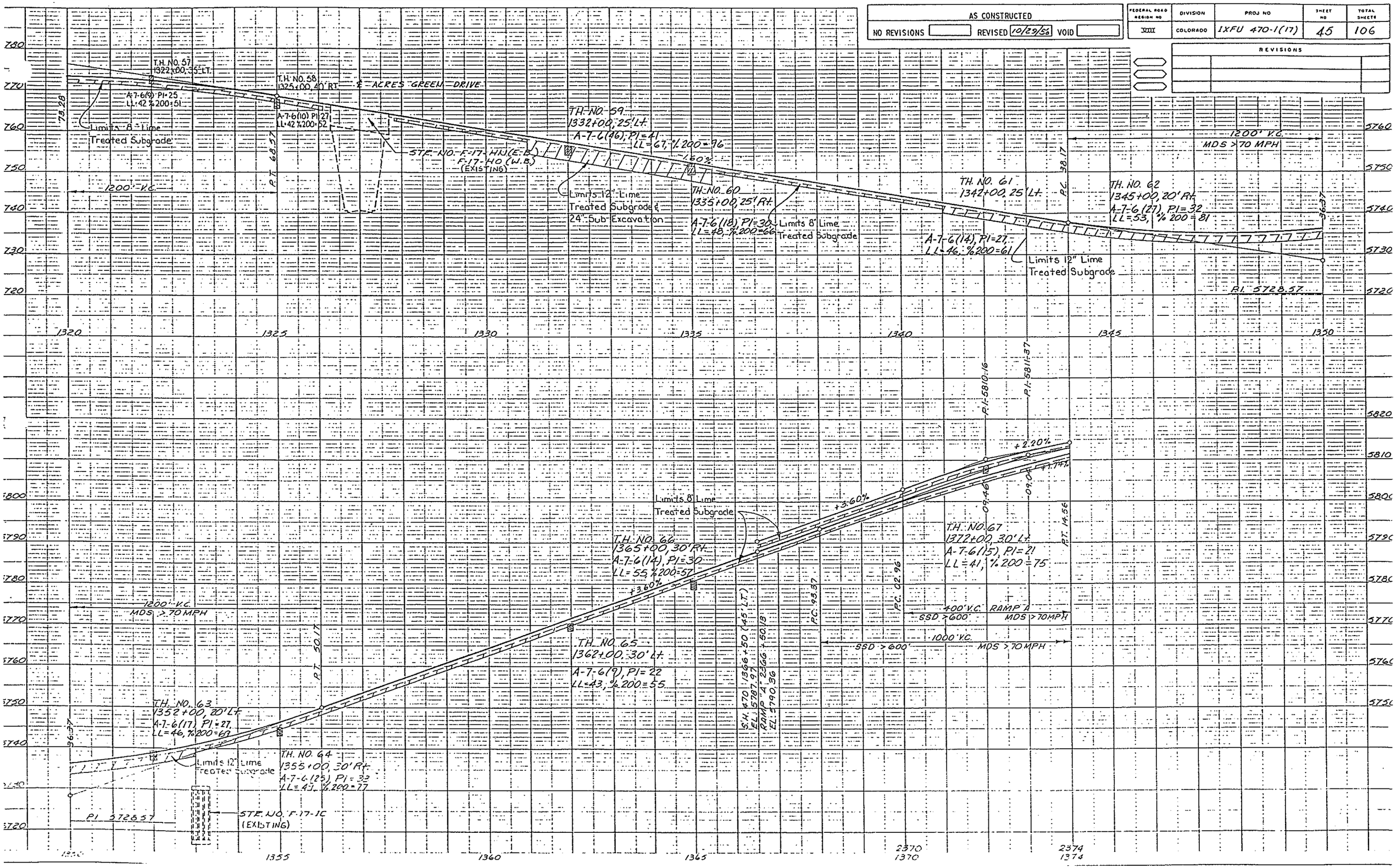
RAMP A CURVE DATA

Δ = 6°57'21" RT.
D = 1°05'54"
T = 316.98'
L = 633.19'
R = 5215.67'
e = 0.053 1/1
SSD > 600'
MDS > 70 MPH

AS CONSTRUCTED			
NO REVISIONS		REVISED 10/29/56	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
XXIII	COLORADO	IXFU 470-1(17)	45	106

REVISIONS		



AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/86	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ. NO.	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	46	106

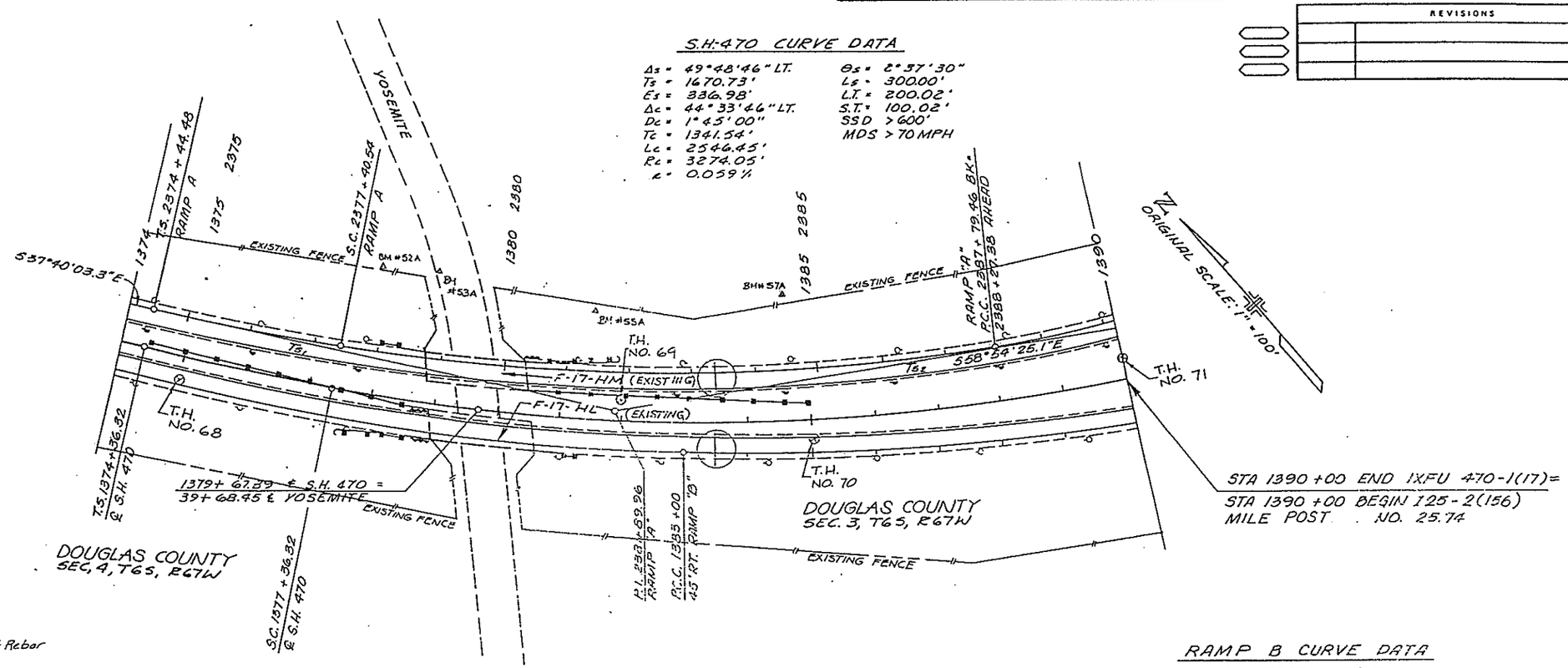
REVISIONS		

RAMP A CURVE DATA

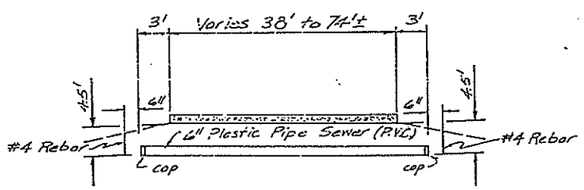
Δ = 21°14'22" LT.
T_{S1} = 746.48' T_{S2} = 603.61'
E_S = 56.38'
Δ_c = 18°35'26"
D_c = 1°47'22"
T_c = 524.07'
L_c = 1038.91'
R_c = 3201.95'
e = 0.059 %
θ_s = 2°38'56"
L_s = 296.06'
L.T. = 197.40'
S.T. = 98.71'
SSD > 600'
MDS > 70 MPH

S.H. 470 CURVE DATA

Δ_s = 49°48'46" LT.
T_s = 1670.73'
E_s = 336.98'
Δ_c = 44°33'46" LT.
D_c = 1°45'00"
T_c = 1341.54'
L_c = 2546.45'
R_c = 3274.05'
e = 0.059 %
θ_s = 2°37'30"
L_s = 300.00'
L.T. = 200.02'
S.T. = 100.02'
SSD > 600'
MDS > 70 MPH



6" PLASTIC PIPE SEWER (P.V.C.) PLACEMENT DETAIL



Note: #4 Rebar and cap to be included in cost of plastic pipe.

(|) = Pipe Location

6" PLASTIC PIPE SEWER (P.V.C.) REQUIRED AT THE FOLLOWING LOCATIONS:

STATION	LENGTH LIN. FT.	STATION	LENGTH LIN. FT.
1050+50	114	1249+20	88
1080+50	124	1260+50	88
1090+50	96	1271+50	88
1099+50	88	1280+50	88
1110+50	88	1290+50	118
1121+50	108	314+20 NW RAMP QUEBEC	50
340+50 NW RAMP UNIV.	60	114+50 SW RAMP QUEBEC	40
140+50 SW RAMP UNIV.	56	207+50 SE RAMP QUEBEC	44
444+50 NE RAMP UNIV.	56	407+50 NE RAMP QUEBEC	42
244+50 SE RAMP UNIV.	62	1304+50	88
1159+50	116	1320+50	130
1168+50	88	1331+50	88
1176+50	88	1341+50	88
1188+50	88	1351+50	88
1194+50	88	1361+50	88
1209+50	88	1371+50	88
1219+50	88	1383+00	88
1229+50	88		
1240+50	88		
		TOTALS	~~3,064~~ 4,879

~~BM #52A ELEV. 5799.77~~
~~I.P. 205' LT. 1377+80~~

~~BM #53A ELEV. 5807.58~~
~~BLUE PT. TOP GUIDE 215' LT. 1379+00~~

~~BM #55A ELEV. 5814.68~~
~~I.P. 174' LT. 1381+50~~

~~BM #57A ELEV. 5819.14~~
~~I.P. 205' LT. 1384+60~~

1383+00 ± 350' 48" LINER W/ 24" WATER LINE SOUTHGATE WATER DIST

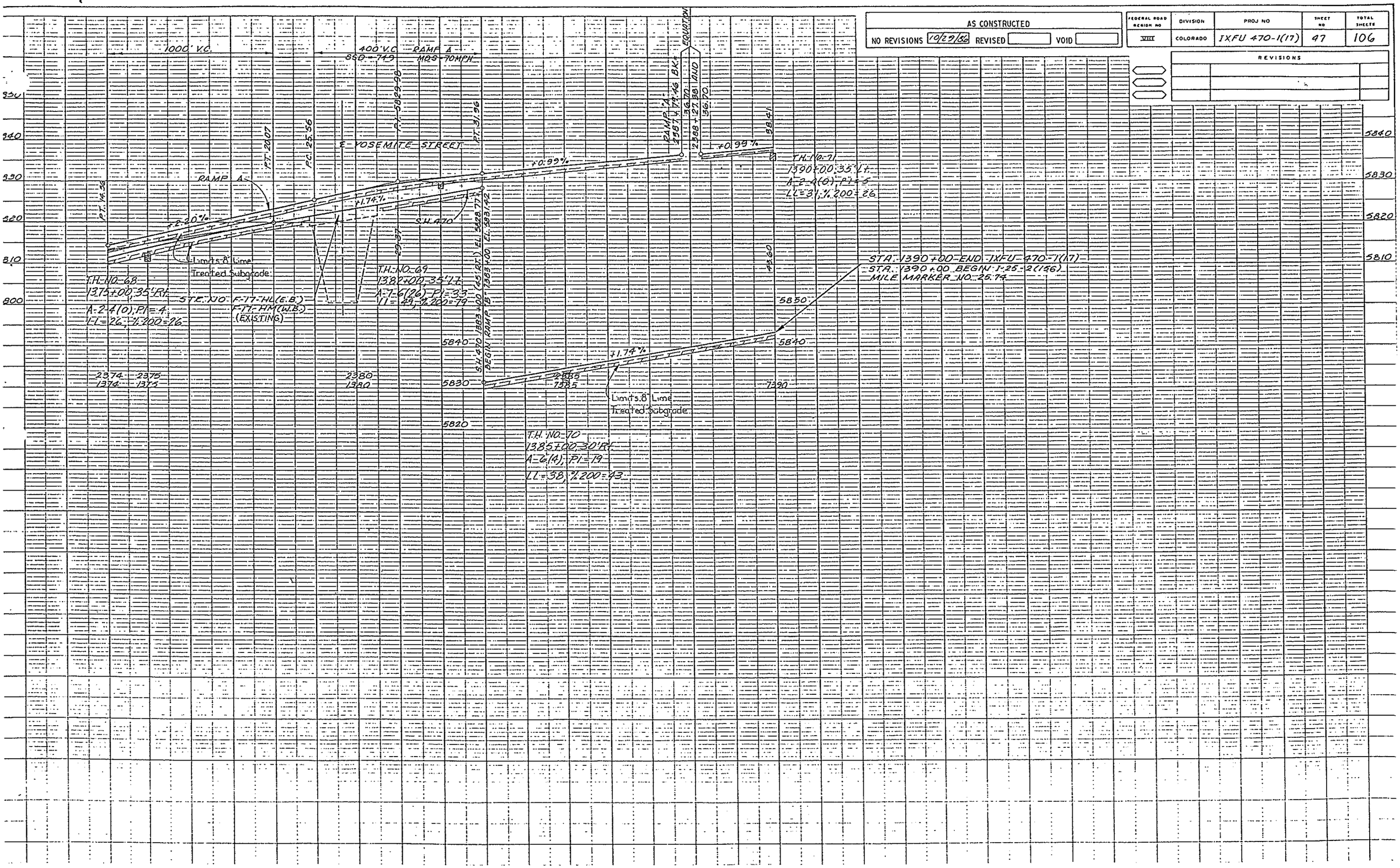
RAMP B CURVE DATA

Δ_c = 17°59'41.2" LT.
D_c = 1°22'57"
T_c = 656.21'
L_c = 1301.61'
R = 4144.35'

AS CONSTRUCTED			
NO REVISIONS 10/29/86	REVISED		VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	47	106

REVISIONS		

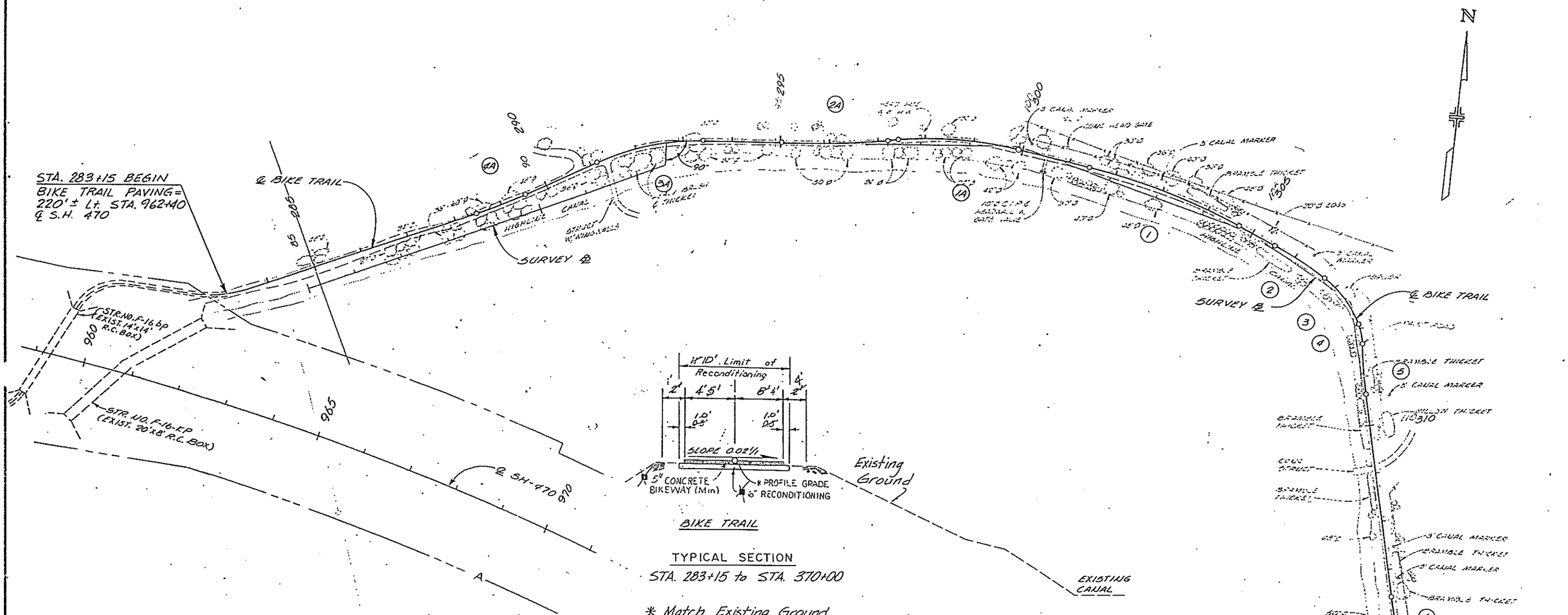


AS CONSTRUCTED		
NO REVISIONS	REVISED 10/20/86	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1 (17)	43	106

REVISIONS		

BIKE TRAIL



TYPICAL SECTION
STA. 283+15 to STA. 370+00

* Match Existing Ground
~~Approximate Thickness~~

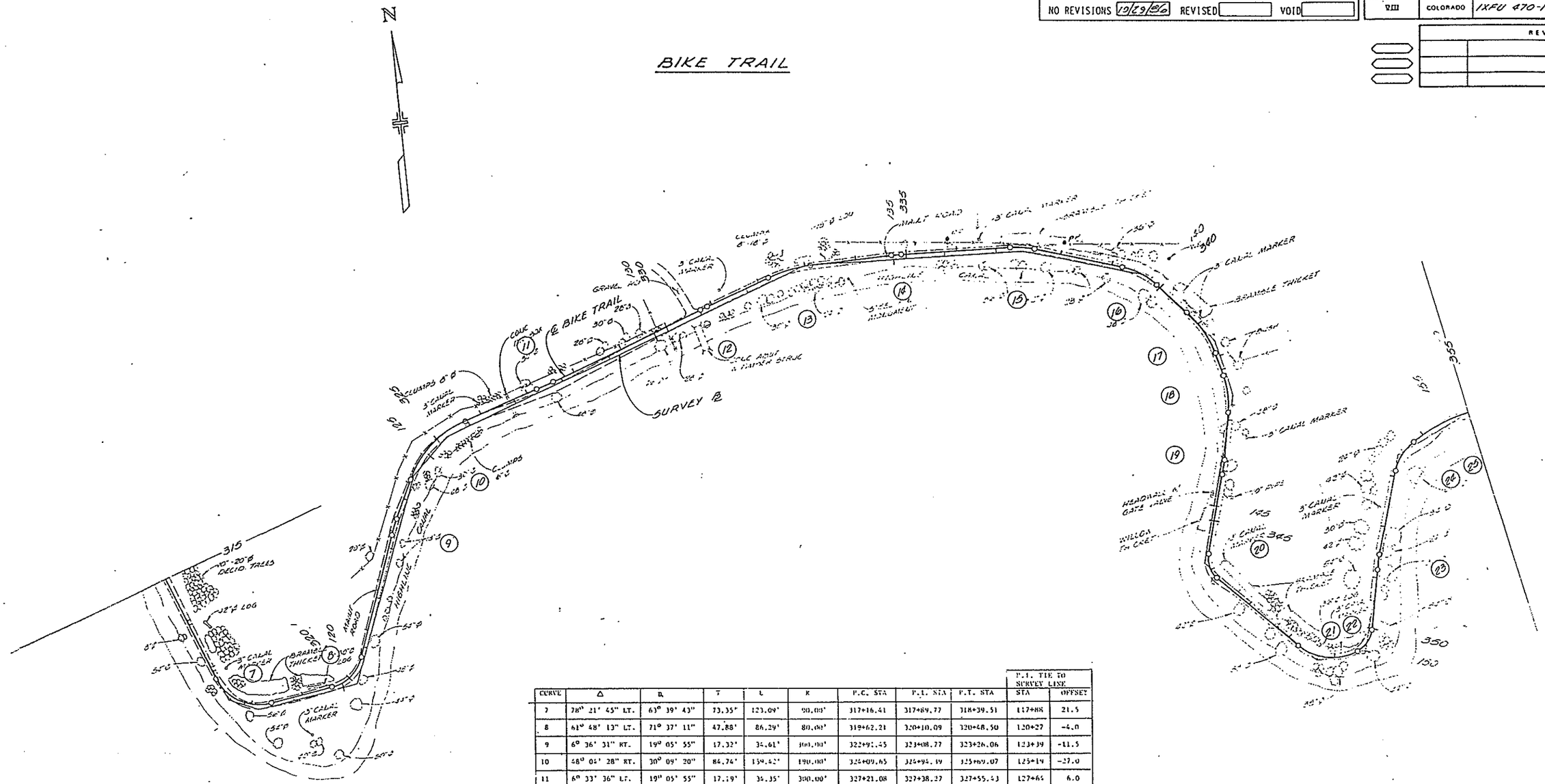
CURVE	Δ	D_c	T	L	R	P.C. STA.	P.I. STA.	P.T. STA.	P.I. TIE TO SURVEY LINE STA.	P.I. TIE TO SURVEY LINE OFFSET
4A	6° 00' 00"	5° 43' 46"	52.41'	104.72'	1000.00'	288+49.26	289+01.67	289+53.98	89+27.38	- 30.23'
3A	25° 45' 00"	11° 27' 33"	114.29'	224.71'	500.00'	291+17.28	292+31.57	293+41.99	92+56.08	- 59.58'
2A	6° 22' 08"	2° 51' 53"	111.27'	222.32'	2000.00'	295+00.43	296+11.70	297+22.75	96+20.87	+ 5.21'
1A	19° 01' 33"	7° 38' 22"	125.68'	249.05'	750.00'	297+42.73	298+68.41	299+91.78	98+76.53	- 20.36'
1	15° 34' 46" RT.	4° 46' 29"	164.16'	326.30	1200.00'	301+44.94	303+09.10	304+71.24	103+17	- 28.5'
2	9° 41' 05" RT.	6° 12' 07"	59.18	118.08'	698.57'	305+51.76	306+10.94	306+69.84	[illegible]	- 12.5'
3	30° 32' 27" RT.	25° 61' 41"	61.05'	119.19'	222.96'	306+69.84	[illegible]	[illegible]	[illegible]	[illegible]
4	19° 49' 42" RT.	45° 50' 32"	71.85'	43.24'	125.00'	307+89.03	308+10.88	308+32.70	[illegible]	- 13.0'
5	6° 22' 32" LT.	6° 10' 42"	51.71'	103.30'	927.35'	308+32.29	309+83.98	309+35.58	[illegible]	- 6.0'
6	7° 05' 18" LT.	6° 01' 52"	58.87'	117.48'	950.00'	313+57.10	314+15.92	314+74.58	[illegible]	2.0'

AS CONSTRUCTED		
NO REVISIONS 10/29/86	REVISED	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1 (17)	49	106

REVISIONS		

BIKE TRAIL



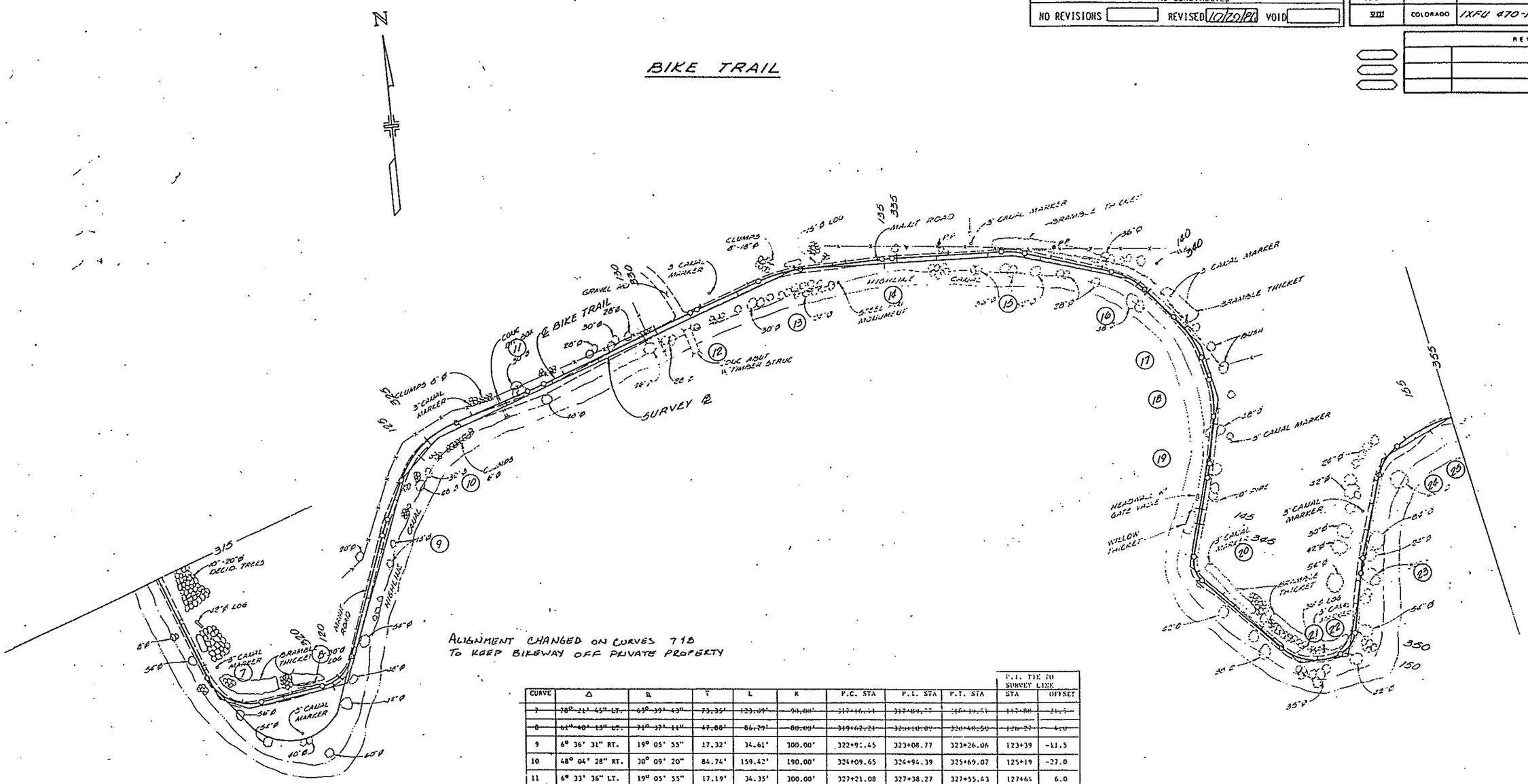
CURVE	Δ	D	T	L	R	P.C. STA	P.I. STA	P.T. STA	P.I. TIE TO SURVEY LINE STA	P.I. TIE TO SURVEY LINE OFFSET
7	28° 21' 45" LT.	63° 39' 43"	73.35'	123.09'	90.00'	317+16.41	317+89.77	318+39.51	117+88	21.5
8	61° 48' 13" LT.	71° 37' 11"	47.88'	86.29'	80.00'	319+62.21	320+10.09	320+48.50	120+27	-4.0
9	6° 36' 31" RT.	19° 05' 55"	17.32'	34.61'	300.00'	322+91.45	323+08.77	323+26.06	123+39	-11.5
10	68° 04' 28" RT.	30° 09' 20"	84.74'	159.42'	190.00'	324+09.65	324+94.39	325+69.07	125+19	-27.0
11	6° 33' 36" LT.	19° 05' 55"	17.19'	34.35'	300.00'	327+21.08	327+38.27	327+55.43	127+64	6.0
12	2° 47' 45" RT.	19° 05'55"	7.32'	14.64'	300.00'	330+77.24	330+84.56	330+91.88	131+13	-9.0
13	16° 12' 09"RT.	20° 50' 05"	44.05'	87.37'	275.00'	332+23.51	332+67.56	333+10.87	132+93	-8.0
14	3° 43' 15" RT.	19° 05' 55"	9.75'	19.48'	300.00'	334+72.14	334+81.88	334+91.62	135+02	-8.5
15	14° 45' 35" RT.	32° 44' 26"	22.67'	45.08'	175.00'	337+01.21	337+23.88	337+46.29	137+49	-7.5
16	31° 37' 25" RT.	40° 55' 32"	39.65'	77.27'	140.00'	339+13.89	339+53.53	339+91.16	139+77	-7.0
17	23° 33' 28" RT.	28° 38' 52"	49.05'	96.20'	200.00	340+21.71	341+20.76	341+67.91	141+44	-4.5
18	24° 15' 03" RT.	32° 44' 26"	37.57'	74.02'	175.00'	342+14.42	342+52.00	342+88.44	142+78	4.0
19	5° 12' 13" RT.	19° 05' 55"	11.72'	23.52'	300.00'	343+80.58	343+95.40	344+08.00	143+23	-7.0
20	[illegible]	[illegible]	28.61'	51.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
21	[illegible]	[illegible]	28.00'	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	19.0
22	55° 24' 06" LT.	10° 38' 55"	29.86'	54.[illegible]	56.93'	[illegible]	[illegible]	[illegible]	150+25	7.5
23	[illegible] 52' 50" RT.	19° 05' 55"	15.41'	30.29'	300.00'	351+13.03	351+28.46	351+43.85	151+75	-4.5
24	[illegible] 18' 02" RT.	50° 15' 51"	[illegible]	88.21'	101.21'	353+00.28	[illegible]	354+72.67	[illegible]	0.0
25	[illegible] 40' 16" RT.	[illegible]	[illegible]	[illegible]	300.00'	354+27.62	[illegible]	[illegible]	155+59	[illegible]

AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/86	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1 (17)	49	106

REVISIONS		

BIKE TRAIL



ALIGNMENT CHANGED ON CURVES 7 & 8
TO KEEP BIKEWAY OFF PRIVATE PROPERTY

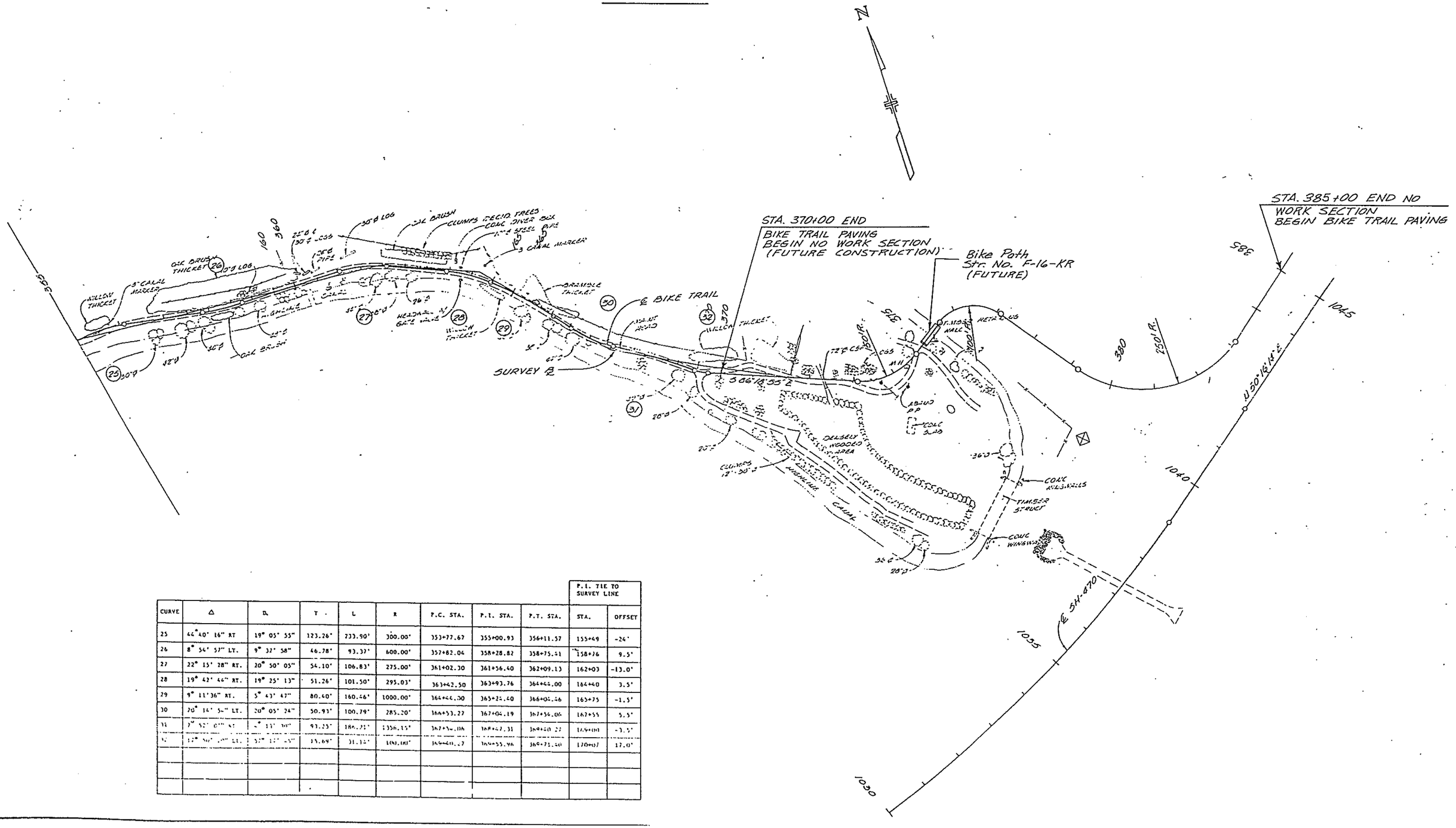
CURVE	Δ	D	T	L	R	P.C. STA	P.I. STA	P.T. STA	P.I. TIE TO SURVEY LINE STA	P.I. TIE TO SURVEY LINE OFFSET
~~7~~	~~70° 21' 45" LT.~~	~~63° 39' 43"~~	~~73.35'~~	~~133.09'~~	~~90.00'~~	~~317+46.33~~	~~317+89.77~~	~~318+39.53~~	~~117+88~~	~~21.5~~
~~8~~	~~61° 40' 13" LT.~~	~~71° 37' 11"~~	~~47.08'~~	~~86.29'~~	~~80.00'~~	~~319+62.21~~	~~320+10.02~~	~~320+48.50~~	~~120+27~~	~~4.0~~
9	6° 36' 31" RT.	19° 05' 55"	17.32'	34.61'	300.00'	322+91.45	323+08.77	323+26.06	123+39	-11.5
10	48° 04' 28" RT.	30° 09' 20"	84.74'	159.42'	190.00'	324+09.65	324+94.39	325+69.07	125+19	-27.0
11	6° 33' 36" LT.	19° 05' 55"	17.19'	34.35'	300.00'	327+21.08	327+38.27	327+55.43	127+64	6.0
12	2° 47' 45" RT.	19° 05'55"	7.32'	14.64'	300.00'	330+77.24	330+84.56	330+91.88	131+13	-9.0
13	18° 12' 09" RT.	20° 50' 05"	44.05'	87.37'	275.00'	332+23.51	332+67.56	333+10.87	132+93	-8.0
14	3° 43' 15" RT.	19° 05' 55"	9.75'	19.48'	300.00'	334+72.14	334+81.88	334+91.62	135+07	-8.5
15	14° 45' 35" RT.	32° 44' 26"	22.67'	45.08'	175.00'	337+01.21	337+23.88	337+46.29	137+69	-7.5
16	31° 37' 25" RT.	40° 55' 32"	39.65'	77.27'	140.00'	339+13.89	339+53.53	339+91.16	139+77	-7.0
17	27° 33' 28" RT.	28° 38' 52"	49.05'	96.20'	200.00	340+71.71	341+20.76	341+67.91	141+44	-4.5
18	24° 14' 03" RT.	32° 44' 26"	37.57'	74.02'	175.00'	342+14.42	342+52.00	342+88.44	142+78	4.0
19	5° 14' 13" RT.	19° 05' 55"	13.72'	27.42'	300.00'	343+80.58	343+94.30	344+08.00	144+21	-7.0
20	59° 33' 39" LT.	115° 35' 30"	28.61'	51.98'	50.00'	345+67.11	345+95.71	[illegible]	[illegible]	[illegible]
21	70° 01' 35" LT.	57° 12' 45"	70.06'	122.22'	100.00'	348+20.66	348+90.71	[illegible]	[illegible]	14.0
22	55° 21' 04" LT.	100° 38' 57"	29.86'	54.99'	56.43'	349+62.88	349+92.73	349+97.87	150+[illegible]	7.5
23	5° 52' 50" RT.	19° 05' 55"	15.41'	30.79'	300.00'	351+13.05	351+28.46	351+43.85	151+[illegible]	-4.5
24	38° 43' 03" RT.	56° 15' 51"	35.57'	68.31'	101.23'	353+09.26	353+44.83	353+77.62	153+[illegible]	0.0
25	44° 40' 16" RT.	19° 05' 55"	123.26'	233.90'	300.00'	353+23.62	355+[illegible]	356+11.52	155+[illegible]	-[illegible]

AS CONSTRUCTED		
NO REVISIONS 10/29/76	REVISED	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1 (17)	50	106

REVISIONS		

BIKE TRAIL

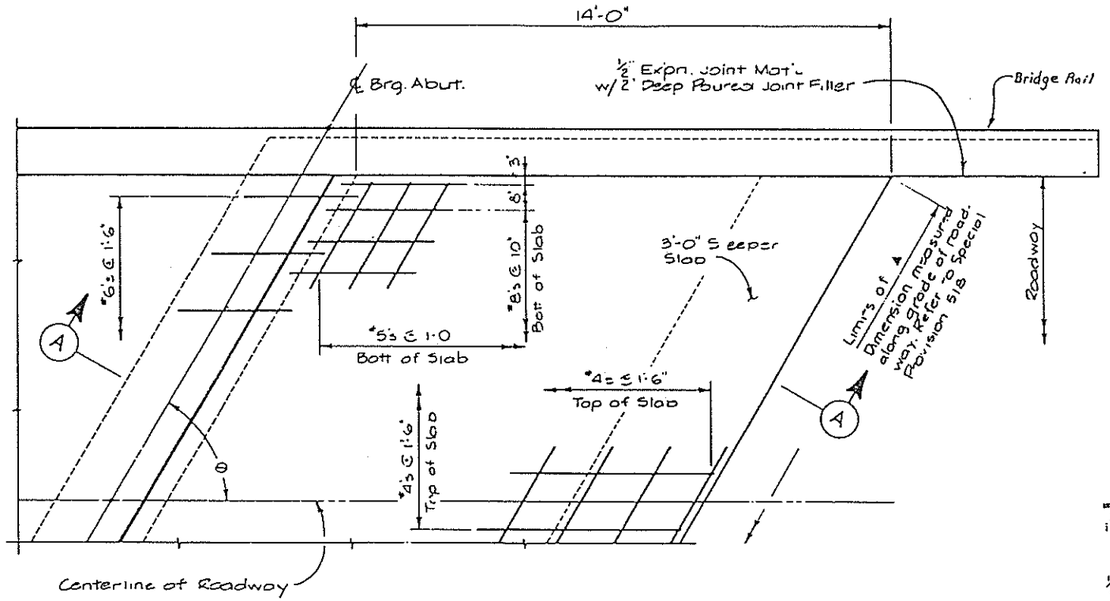


CURVE	Δ	D	T	L	R	P.C. STA.	P.I. STA.	P.T. STA.	P.I. TIE TO SURVEY LINE STA.	P.I. TIE TO SURVEY LINE OFFSET
25	44° 40' 16" RT	19° 05' 55"	123.26'	233.90'	300.00'	353+77.67	355+00.93	356+11.57	155+49	-24'
26	8° 54' 57" LT.	9° 32' 58"	46.78'	93.37'	600.00'	357+82.04	358+28.82	358+75.41	158+76	9.5'
27	22° 15' 28" RT.	20° 50' 05"	54.10'	106.83'	275.00'	361+02.30	361+56.40	362+09.13	162+03	-13.0'
28	19° 42' 46" RT.	19° 25' 13"	51.26'	101.50'	295.03'	363+42.50	363+93.76	364+44.00	164+40	3.5'
29	9° 11'36" RT.	5° 43' 47"	80.40'	160.46'	1000.00'	364+44.30	365+25.40	366+04.46	165+75	-1.5'
30	70° 14' 3[illegible]" LT.	20° 05' 24"	50.93'	100.79'	285.20'	366+53.27	367+04.19	367+54.06	167+55	5.5'
31	7° 52' 0[illegible]" RT	[illegible]° 11' 30"	93.25'	186.25'	1356.15'	367+34.06	368+27.31	369+20.27	169+00	-3.5'
32	12° 50' [illegible]" LT.	52° 17' [illegible]"	33.69'	31.15'	100.00'	369+40.27	369+55.96	369+71.40	170+07	17.0'

AS CONSTRUCTED		
NO REVISIONS 10/29/86	REVISED	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	51	106

REVISIONS		

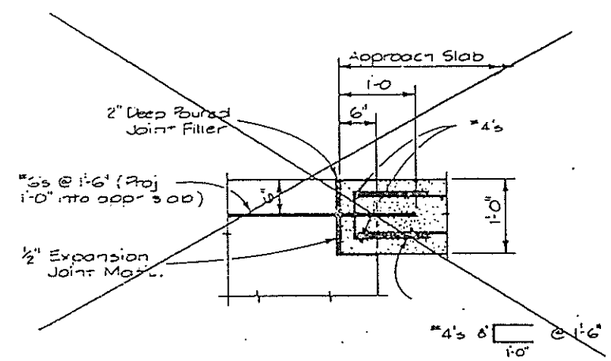


PLAN

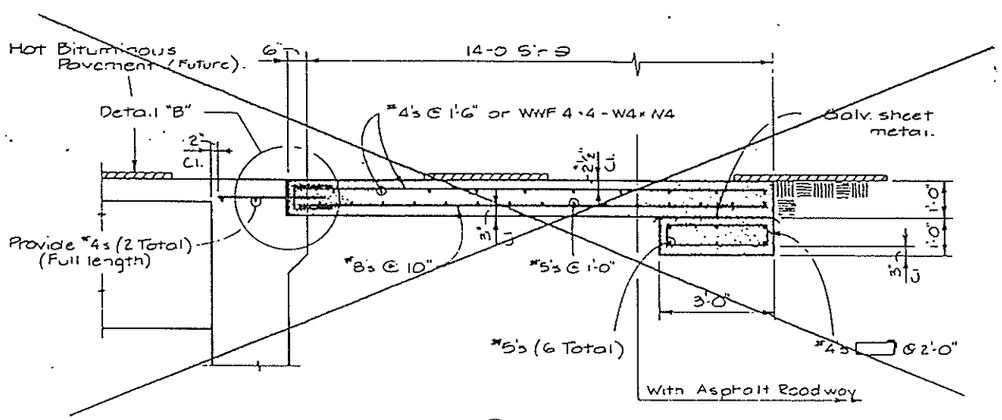
GENERAL NOTES

½" Expansion Joint Material, shall meet AASHTO Spec. M 213.

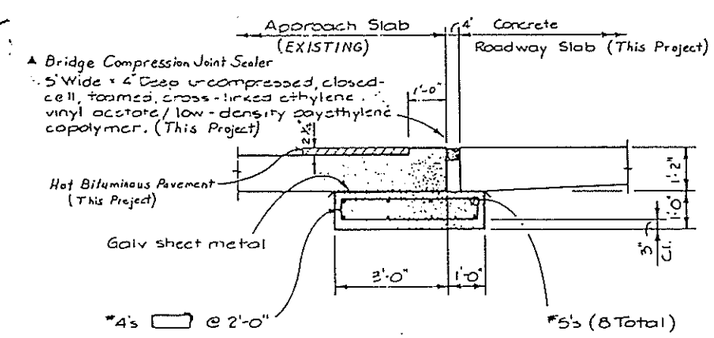
½" Expansion Joint Material, 2" deep poured joint filler and galvanized sheet metal shall not be paid for separately, but shall be included in Item 412, Concrete Pavement.



DETAIL "B"



SECTION (A)



SECTION (A)

With Concrete Roadway Slab

DIVISION OF HIGHWAYS

TYPICAL FOR ALL STRUCTURES (ON S.H. 470)

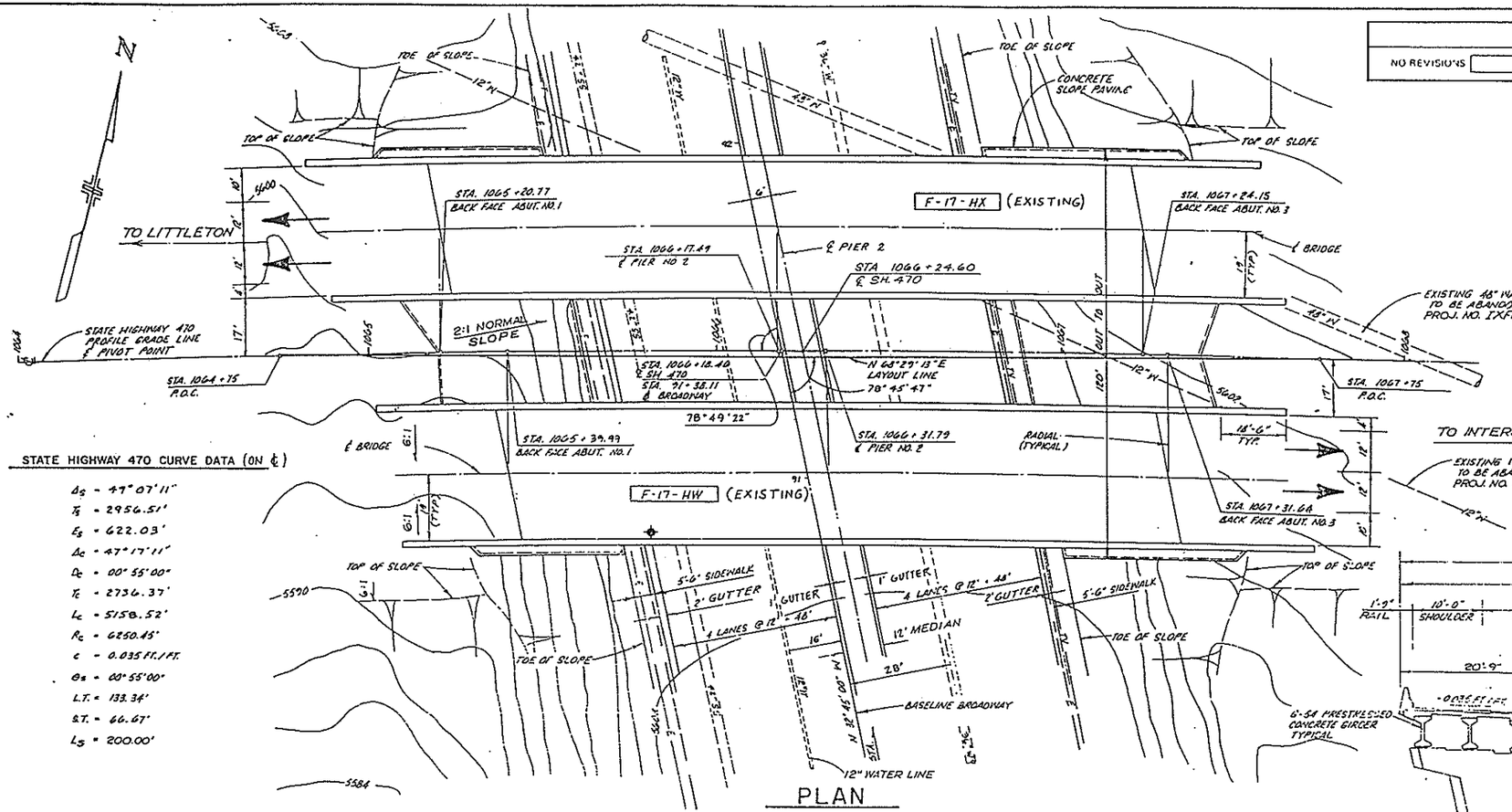
APPROACH SLAB DETAILS

Designer D. HUGHES		Structure Numbers	
Detailer E. LEE			
Drawing Number B 1	of 8	Drawings	

AS CONSTRUCTED			
NO REVISIONS		REVISED 10/29/96	VOID

FEDERAL ROAD REGION NO	DIVISION	PROJ NO	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	52	106

REVISIONS		



PLAN

✦ INDICATES LOCATION OF MINIMUM VERTICAL CLEARANCE

NOTE: ALL UTILITIES SHOWN WILL BE IN PLACE PRIOR TO BRIDGE CONSTRUCTION.

Scale 1" = 20'

CONSTRUCT THIS PROJECT

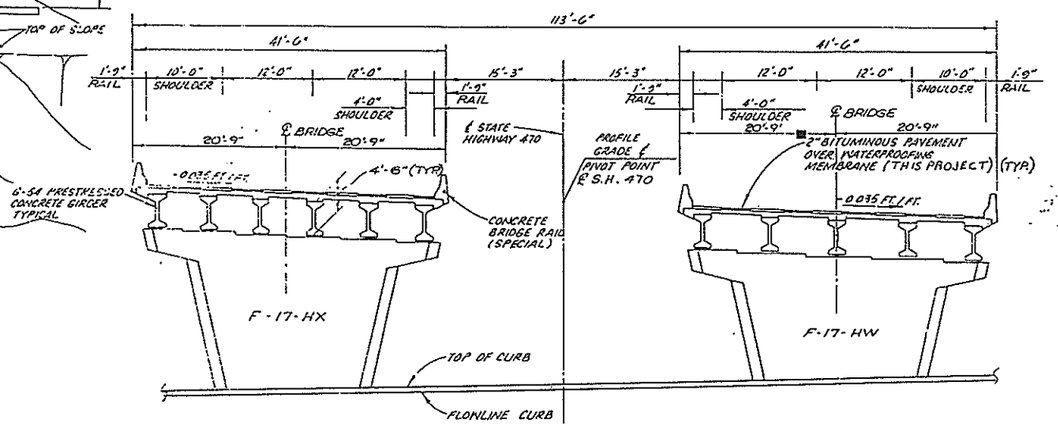
STRUCTURE NO.	H.B.P. (GR. EX) (H.E.A) TON	WATERPROOFING (MEMBRANE) SQ. YD.	BRIDGE CONFR. JOINT SEALER LIN. FT.
F-17-HW	101.85 ~~97~~	~~805~~ 920	78 ✓
F-17-HX	109.28 ~~103~~	~~864~~ 1016	78 ✓
TOTALS	~~200~~	~~1,669~~	156 ✓

For Info. only: It is estimated that 140 sq. ft. of ½ inch Expansion Joint Material will be required. To be included in Cost of Bid Item 412 Concrete Pavement

■ Sandblasting of bridge deck surface will be required before waterproofing Membrane is applied.

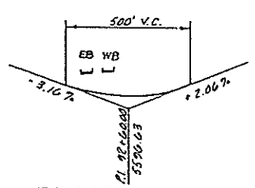
STATE HIGHWAY 470 CURVE DATA (ON ℄)

Δ_S = 47°07'11"
T_S = 2956.51'
E_S = 622.03'
Δ_C = 47°17'11"
D_C = 00°55'00"
T_C = 2736.37'
L_C = 5158.52'
R_C = 6250.45'
e = 0.035 FT./FT.
θ_s = 00°55'00"
L.T. = 133.34'
S.T. = 66.67'
L_S = 200.00'



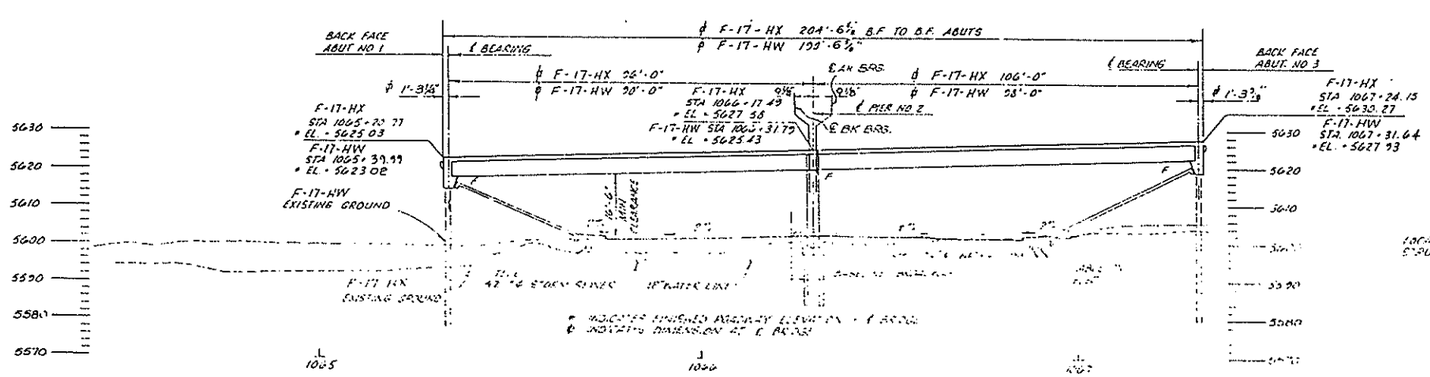
TYPICAL SECTION

(PERPENDICULAR TO ℄ S.H. 470)

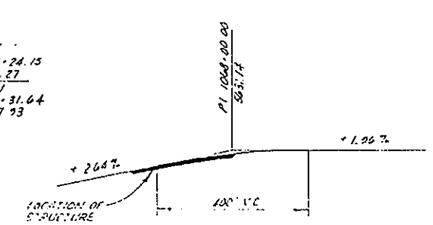


BROADWAY PROFILE

LOOKING WEST
(ON BASELINE)



SECTION



S.H. 470 PROFILE GRADE

GENERAL SITE LOCATION: N 1/2 OF SEC 3, T6S, R68W OF 6TH P.M. (NEAR LITTLETON)

LIVE LOADING: HS20-44 AND INTERSTATE ALTERNATE

KKBNA, INC. CONSULTING ENGINEERS DENVER, COLORADO

DIVISION OF HIGHWAYS

S.H. 470 OVER BROADWAY

GENERAL LAYOUT

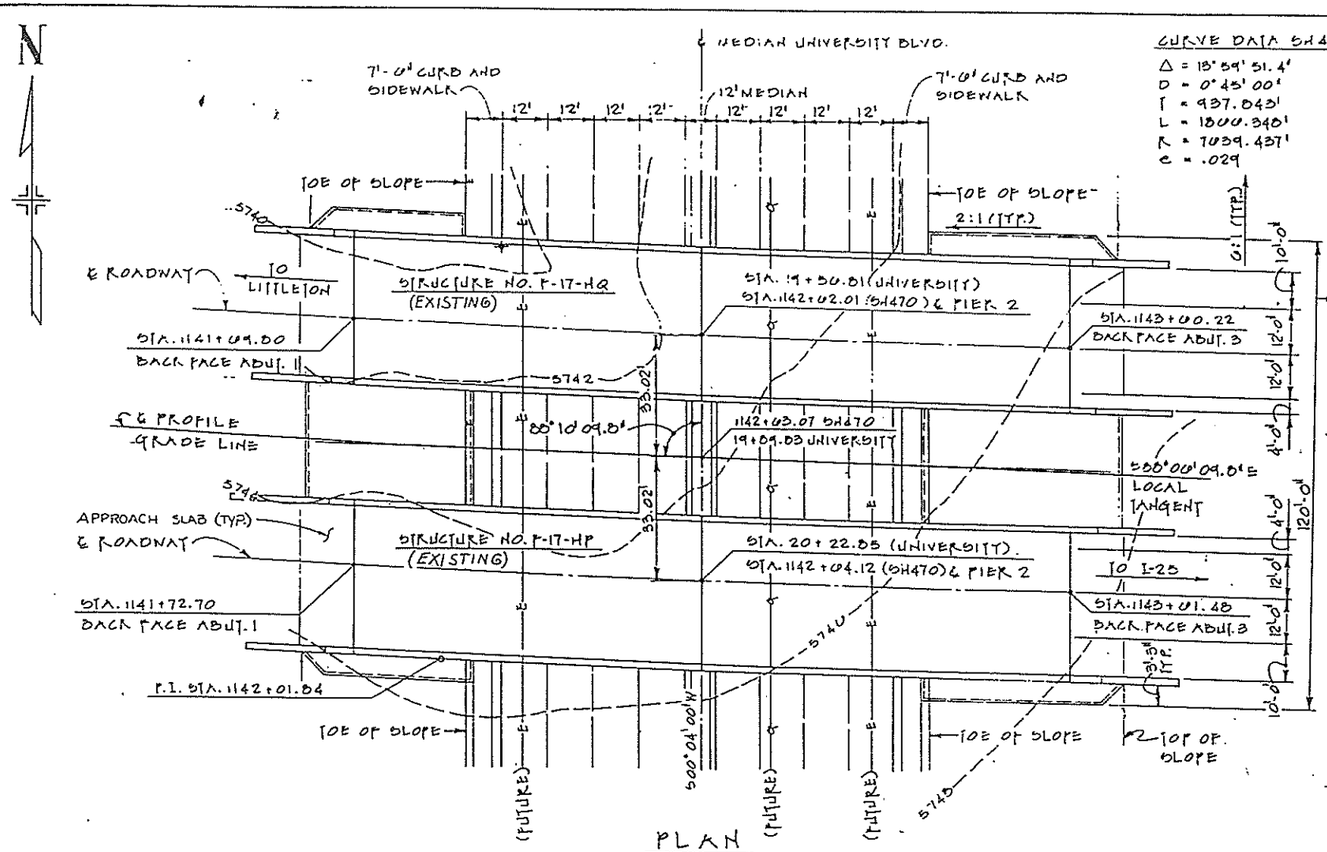
Designer	D. HUGHES	Structure Number	F-17-HW
Detailer	[illegible]		

Drawing Number B 2 of [illegible] Drawings

AS CONSTRUCTED			
NO REVISIONS		REVISED 10/20/86	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1 (17)	53	106

REVISIONS		

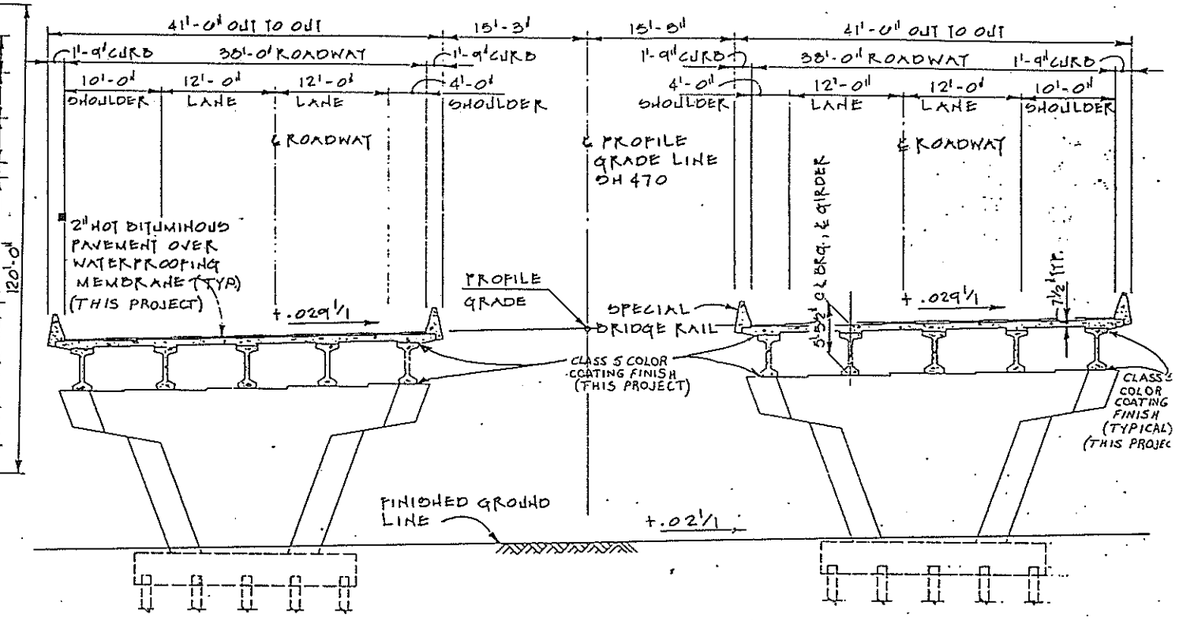


CURVE DATA SH 470

$\Delta = 15°59'51.4'$
$D = 0°45'00'$
$T = 937.043'$
$L = 1800.340'$
$R = 7639.437'$
$e = .029$

PLAN

+ POINT OF MINIMUM VERTICAL CLEARANCE



TYPICAL SECTION

■ Sandblasting of bridge deck surface will be required before waterproofing membrane is applied.

TABULATION OF CLASS 5, FINISH

LOCATION	AREA SQ. FT.	
Exterior Beams	1,615	
Slope & Ditch Paving	~~4,453~~	9699
TOTAL	~~4,578~~	14,314

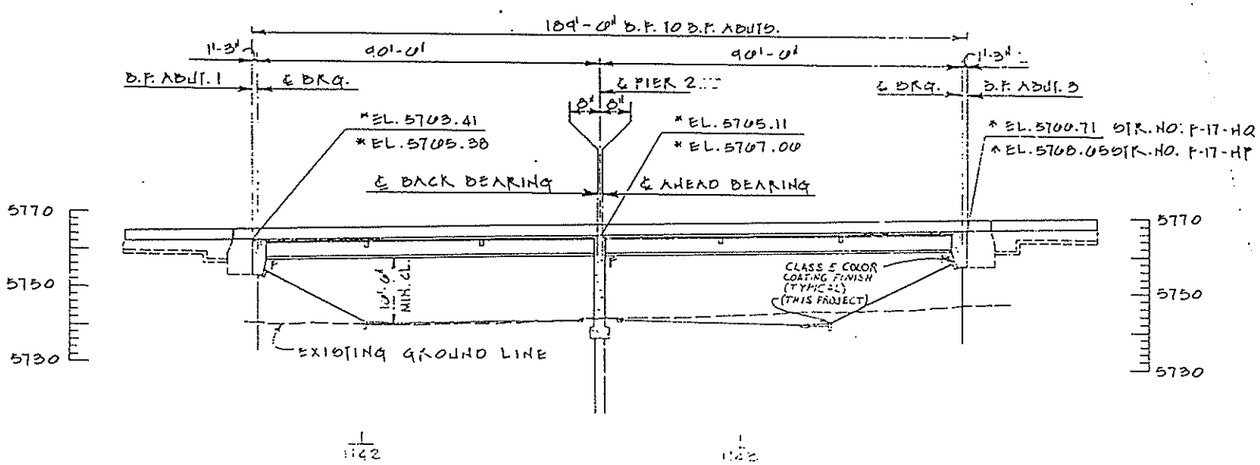
(CONSTRUCT THIS PROJECT)

CONSTRUCT THIS PROJECT

STRUCTURE NO.	H.B.P. (GR. EX) (H.&A) TON	WATERPROOFING (MEMBRANE) SQ. YD.	BRIDGE COMPR. JOINT SEALER LIN. FT.
F-17-HQ	~~100.65 89~~	~~915 888~~	76
F-17-HP	100.65 89	~~915 888~~	7.6
TOTALS	~~170~~	~~1,616~~	152

For Info. Only: It is estimated that 145 sq. ft. of ½ inch Expansion Joint Material will be required. To be included in Cost of Bid Item 412 Concrete Pavement

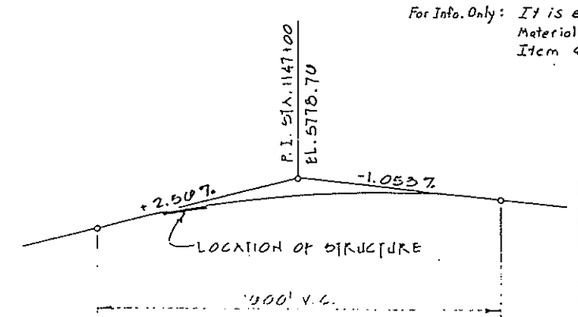
LIVE LOADING: HS 20-44 AND INTERSTATE ALTERNATE.



SECTION

TAKEN PERPENDICULAR TO UNIVERSITY BLVD & STA. 19+50.81, STRUCTURE NO. F-17-HQ. STRUCTURE NO. F-17-HP SIMILAR EXCEPT AS NOTED.

* ELEVATIONS ARE AT FINISHED GRADE AT ℄ ROADWAY



PROFILE GRADE

DIVISION OF HIGHWAYS

S.H. 470 OVER UNIVERSITY

GENERAL LAYOUT

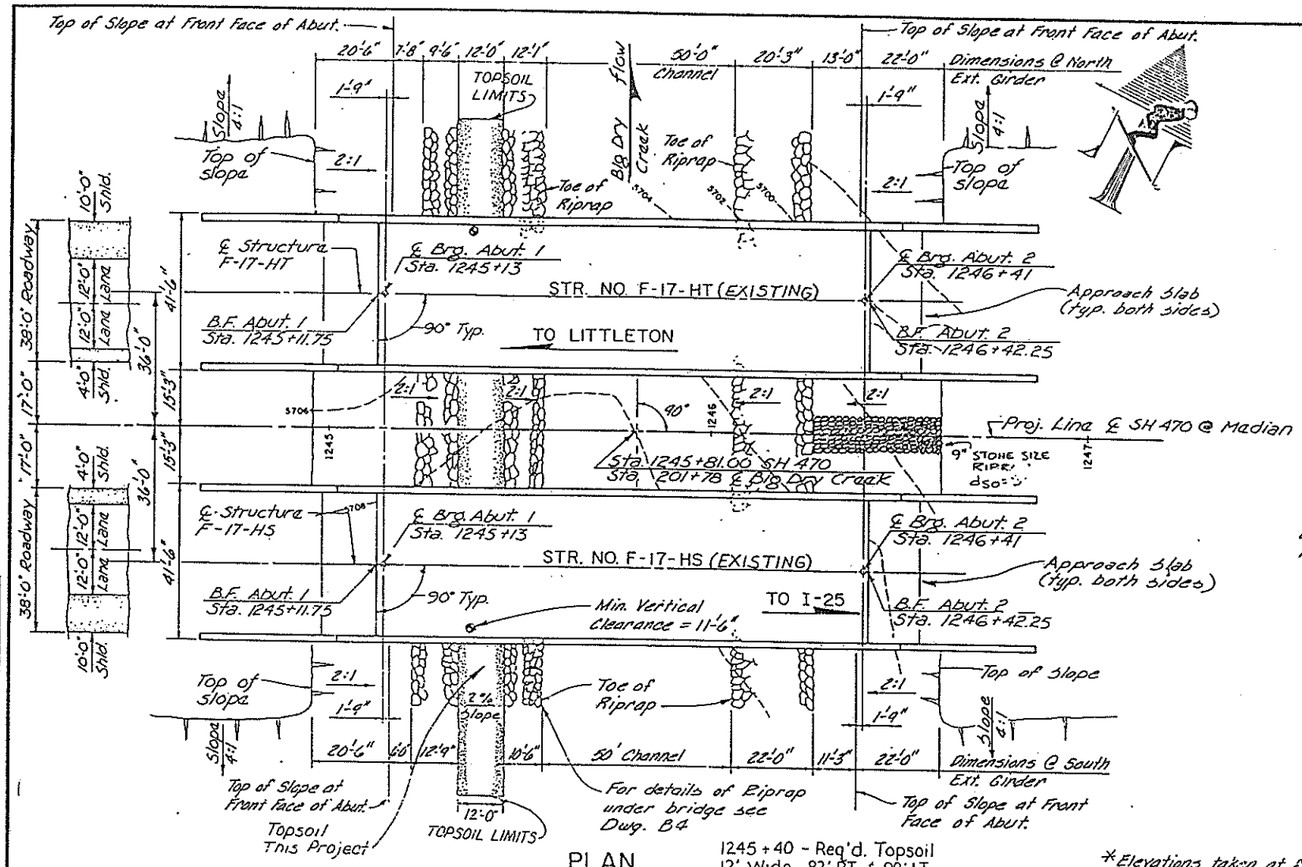
Designer E. WHITE		Structure Numbers	F-17-HP
Detailer P. HAAS			F-17-HQ
Drawing Number B-3		of	Drawings

DETAILED BY P.E.H. 2/82 CHECKED BY E.K.W. 4/82

AS CONSTRUCTED		
NO REVISIONS ☐	REVISED 10/29/96	VOID ☐

FEDERAL ROAD REGION NO	DIVISION	PROJ NO.	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1 (17)	54	106

REVISIONS		



PLAN

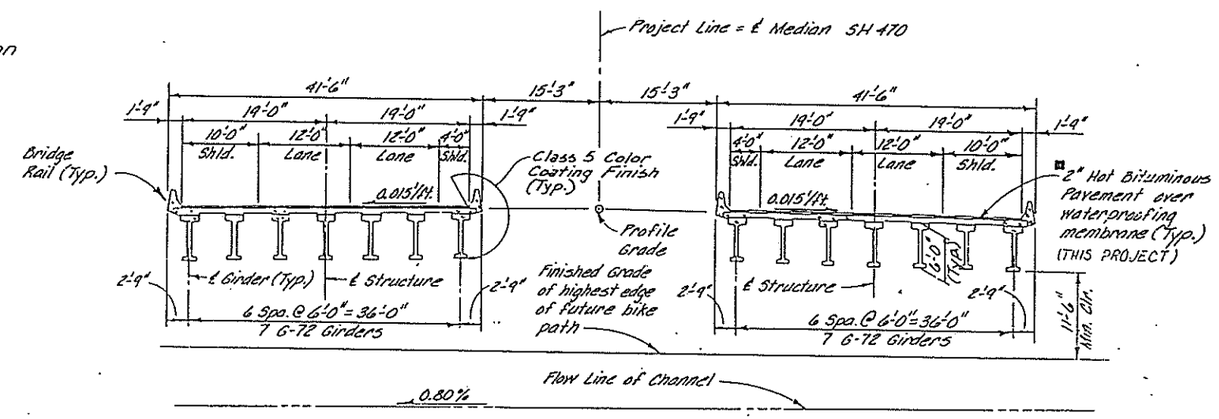
1245+40 - Req'd. Topsoil
12' Wide, 82' RT. & 98' LT.

*Elevations taken at finished grade at Proj. Line

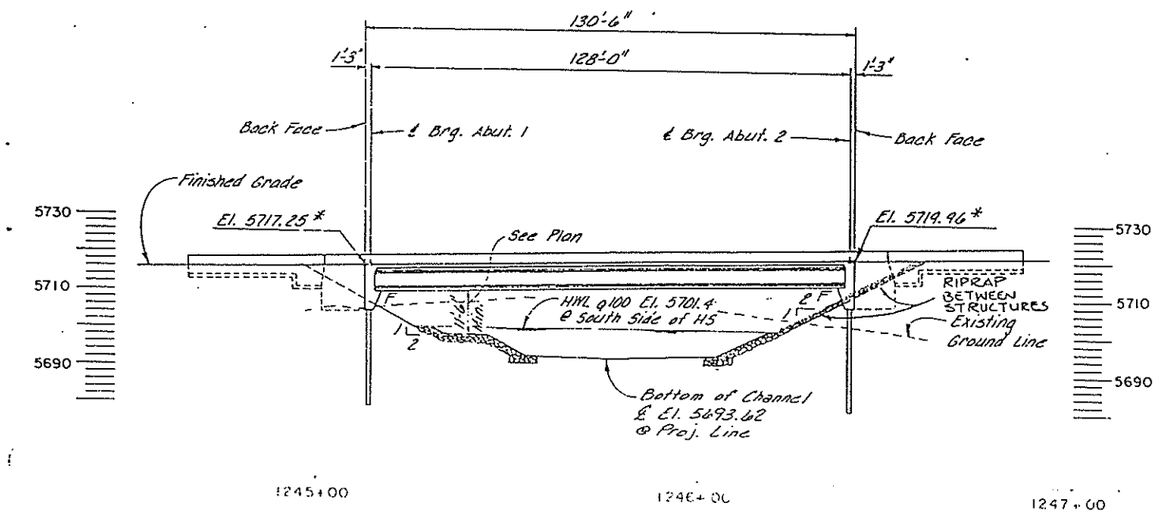
B.F. = Back Face

STR. NO. F-17-HT

STR. NO. F-17-HS



TYPICAL SECTION



SECTION

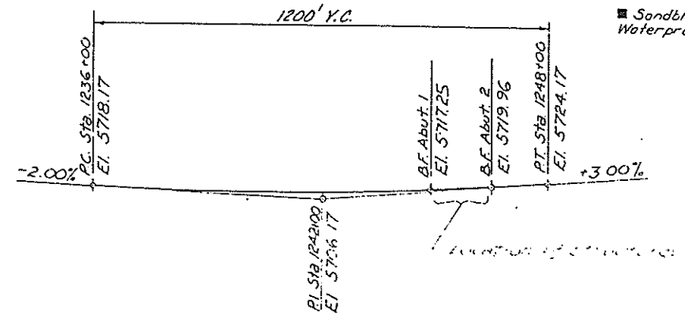
SECTION TAKEN AT CENTER AT EITHER STRUCTURE*

CONSTRUCT THIS PROJECT

STRUCTURE NO.	H.S.P. (GR. EX)(H(A) TON	WATERPROOFING (MEMBRANE) SQ. YD.	BRIDGE COMP JOINT SEALER LIN. FT.
F-17-HS	~~85~~ 75.76	~~551~~ 657	76 ✓
F-17-HT	~~85~~ 74.76	~~551~~ 657	76 ✓
TOTALS	~~170~~	~~1,102~~	152

FOR INFORMATION ONLY: It is estimated that 206 Sq. Ft. of ½ Inch Expansion Joint Material will be required. To be included in Cost of Bid Item 412 Concrete Pavement.

■ Sandblasting of bridge deck surface will be required before Waterproofing Membrane is applied.



PROFILE GRADE LINE *

Live Loading: HS 20-44 & Interstate Alternate

DIVISION OF HIGHWAYS

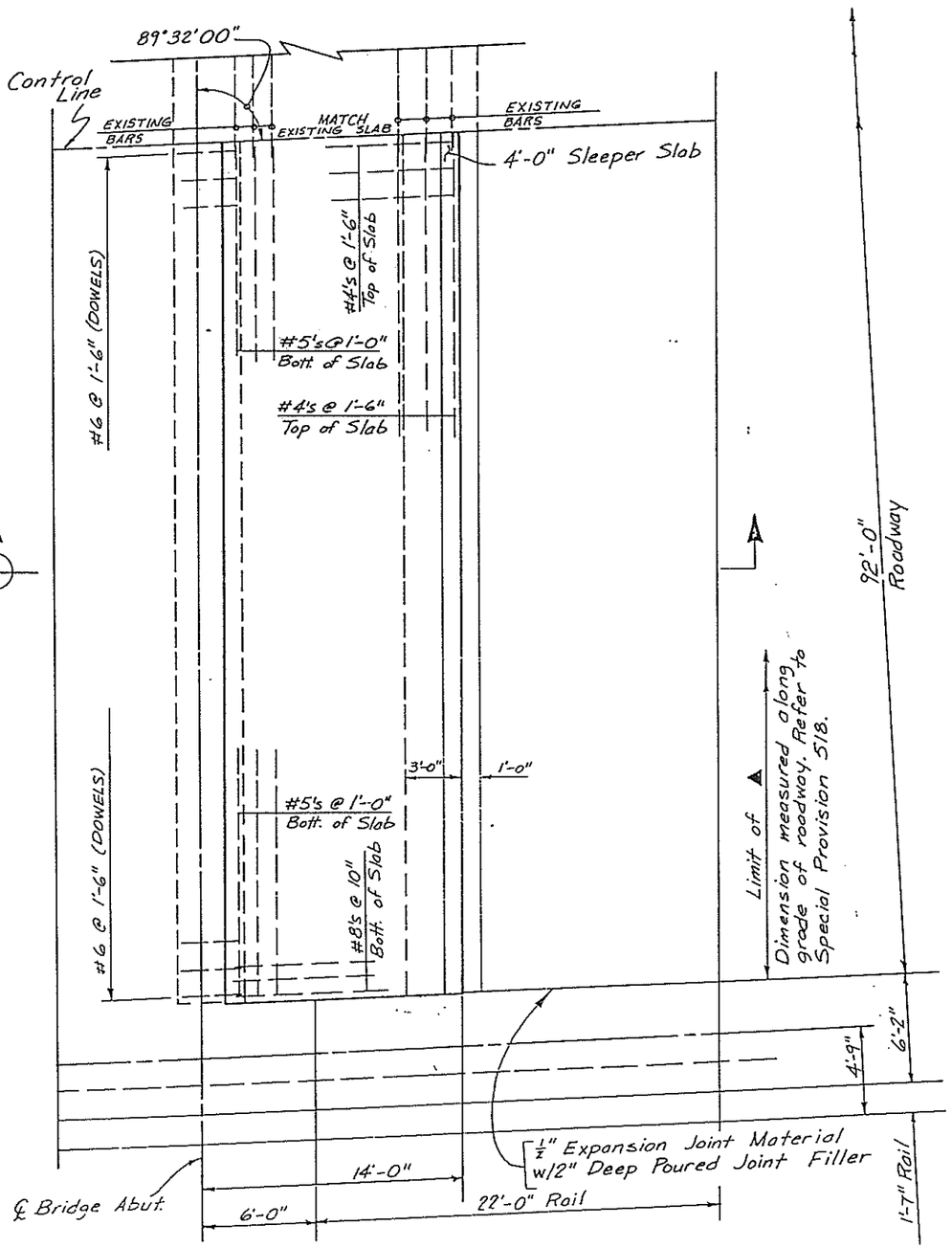
S.H. 470 OVER BIG DRY CREEK

GENERAL LAYOUT

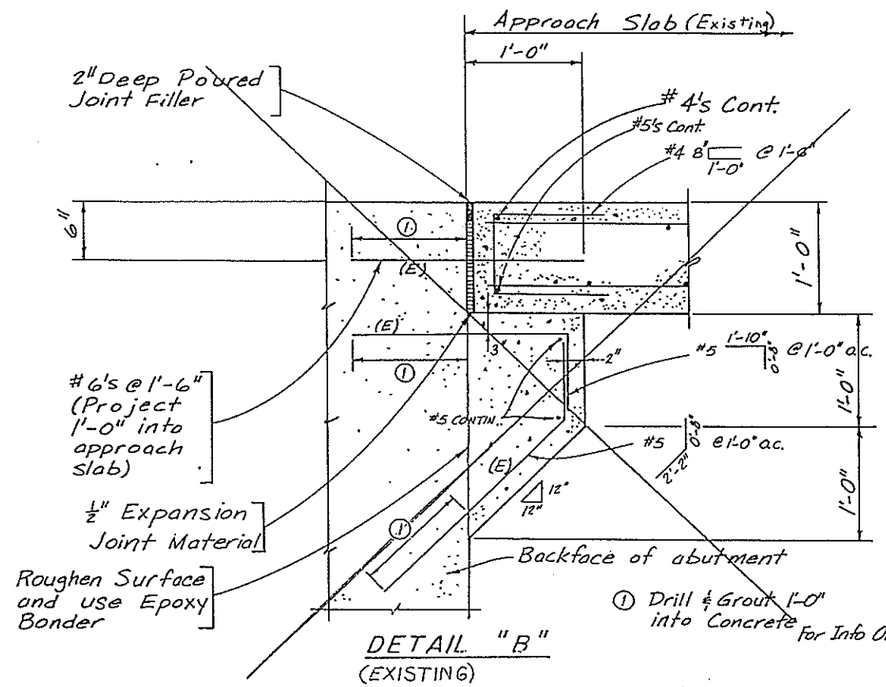
Designer J. Nolan	Structure Numbers	F-17-HT (W.B.)
Detailer F. Kreiner		F-17-HS (E.B.)
Drawing Number B-1	of 6	Drawings

AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/86	VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IXFU 470-1(17)	55	106



PLAN
SOUTH SIDE
NORTH SIDE OPPOSITE HAND



DETAIL "B"
(EXISTING)

Notes:

½" Expansion Joint Material, shall meet AASHTO Specification M 213.

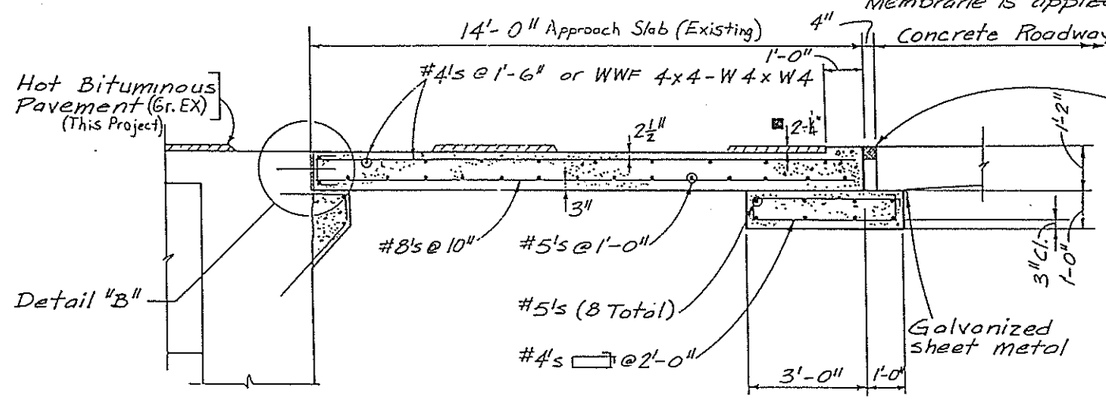
½" Expansion Joint Material, 2" deep Poured joint filler, and galvanized sheet metal shall not be paid for separately, but shall be included in Item 412.

CONSTRUCT THIS PROJECT

ITEM NO.	UNIT	DESCRIPTION	TOTAL
403	TON	H.B.P. (Gr. EX) (H&A) 252.42	~~260~~
515	S.Y.	Waterproofing (Membrane) 243.1	~~212.0~~
518	L.F.	Bridge Compression Joint Sealer	180 ~~120~~

For Info Only: It is estimated that 40 Sq. Ft. of ½ Inch "Expansion Joint Material" will be required.

■ Sandblasting of Bridge deck surface will be required before Waterproofing Membrane is applied.



SECTION
With Concrete Roadway (A)

DIVISION OF HIGHWAYS

QUEBEC ST. OVER SH 470 PARKWAY

APPROACH SLAB DETAILS

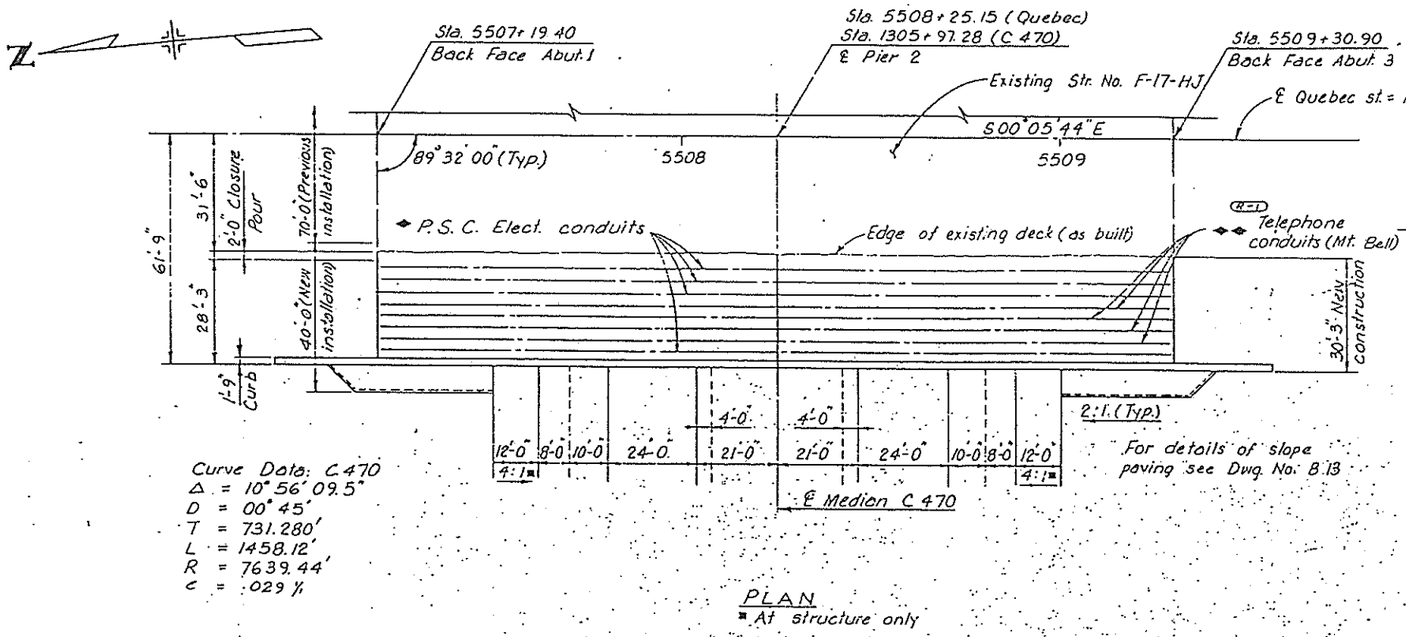
DESIGNER	Structure Numbers	F-17-HJ
DETAILER		

Drawing Number H 5 of 8 Drawings

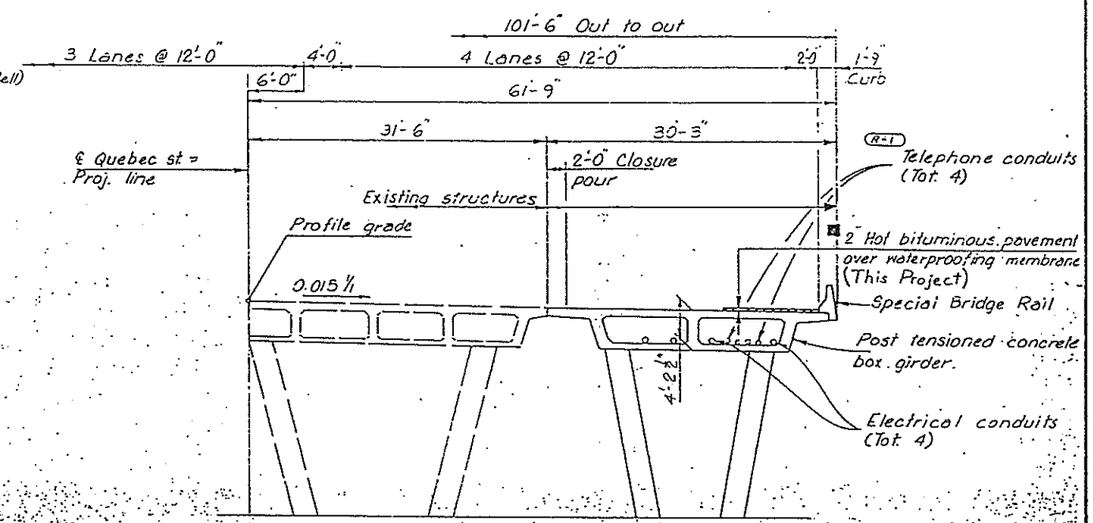
AS CONSTRUCTED		
NO REVISIONS 10/29/76	REVISED	VOID

FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	56	106

REVISIONS		



PLAN
* At structure only



TYPICAL SECTION

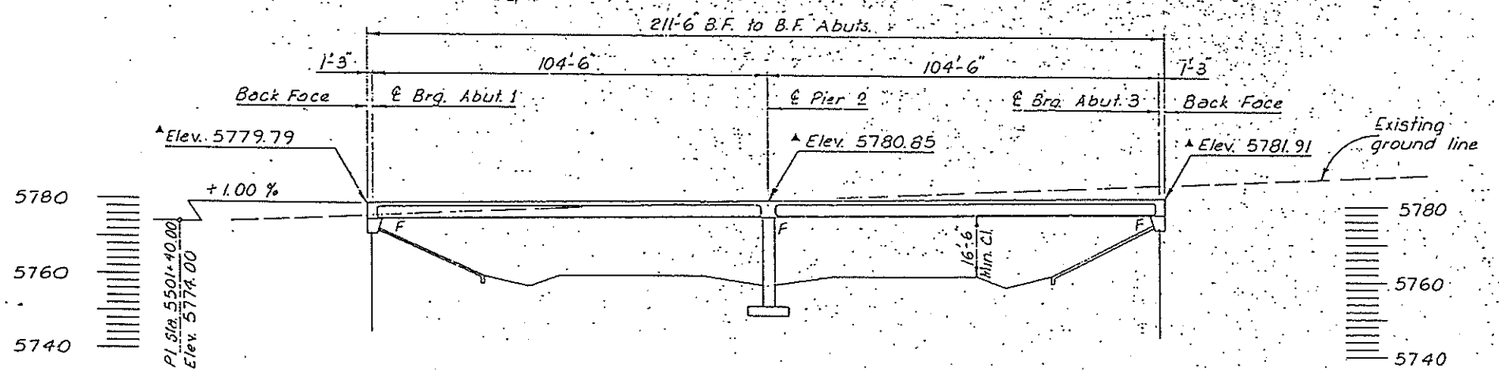
◆ ELECTRICAL CONDUIT AND MOUNTING HARDWARE TO BE FURNISHED BY PUBLIC SERVICE COMPANY AND INSTALLED BY THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY PUBLIC SERVICE COMPANY AND ARRANGE FOR INSPECTION OF THE PLACEMENT OF THE CONDUIT BEFORE POURING THE TOP SLAB. ALL WORK REQUIRED SHALL BE INCLUDED IN THE BID PRICE FOR ITEM NO. 601 AT NO COST TO PROJECT.

6" ϕ PIPE SLEEVES SHALL BE FURNISHED BY THE CONTRACTOR AND INCLUDED IN THE WORK.

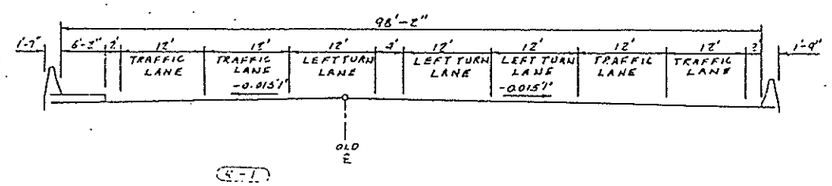
◆◆ TELEPHONE CONDUITS AND MOUNTING HARDWARE TO BE FURNISHED AND INSTALLED BY MOUNTAIN BELL. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH MOUNTAIN BELL.

6" ϕ PIPE SLEEVES SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR AND INCLUDED IN THE WORK.

■ Sanblasting of bridge deck surface will be required before Waterproofing Membrane is applied.



SECTION
Taken at Proj line
▲ Finished grade elevation



NORTHBOUND SEE LOOKING SOUTH
ULTIMATE FUTURE STRIPING TYPICAL

Live loading = HS 20-44 and Interstate Alternate

DIVISION OF HIGHWAYS

GENERAL LAYOUT

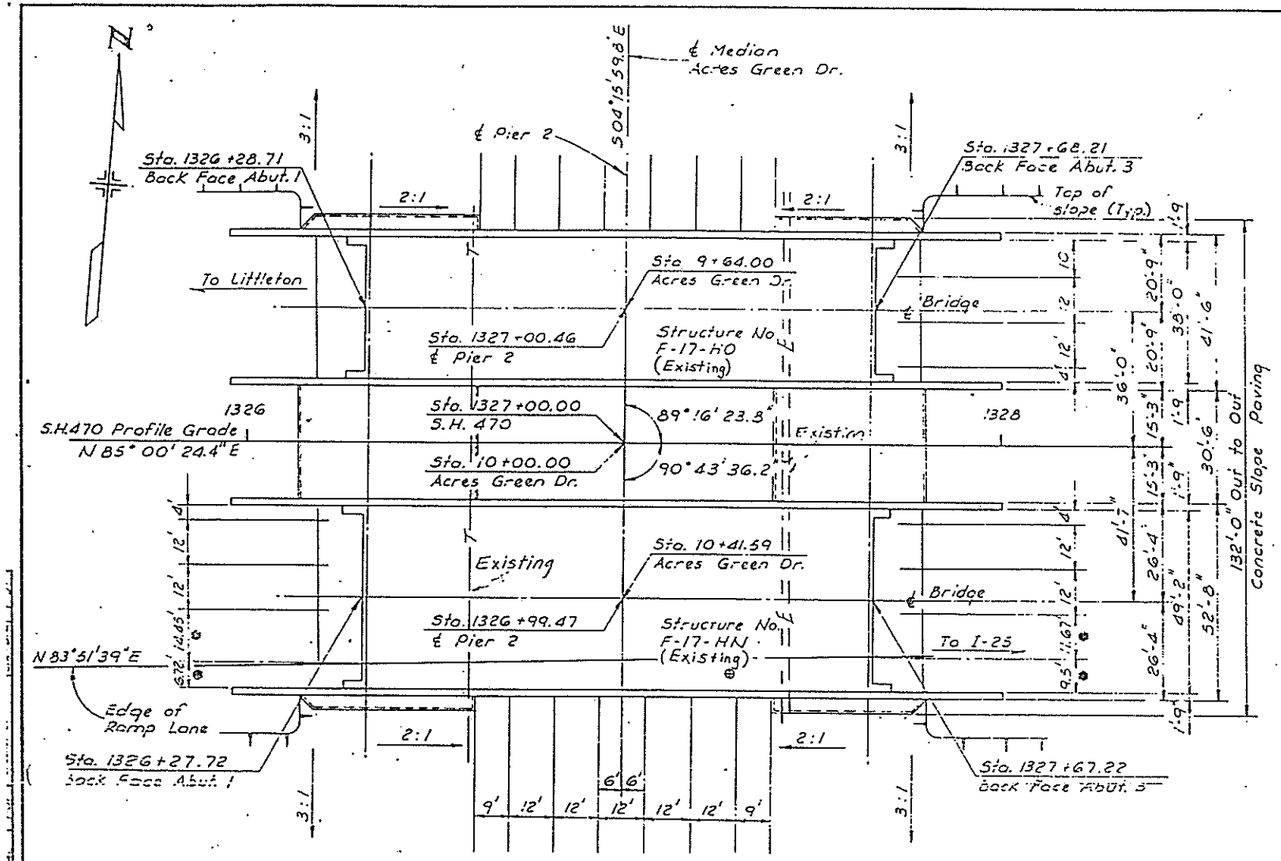
Designer	F. Lundberg	Structure Numbers	F-17-HJ
Detailer	J. Virgi		
Drawing Number B 6		of 8	Drawings

DETAILED BY	J.S.V.	6/83	CHECKED BY	F.B.L.	7/83

AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/96	VOID

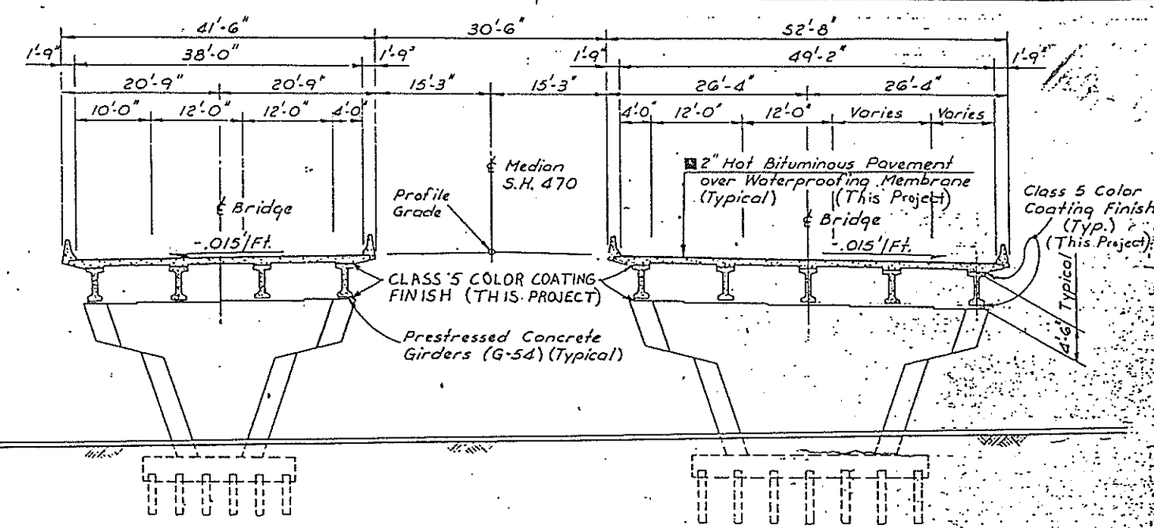
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IXFU 470-1(17)	57	106

REVISIONS		



PLAN

⊕ Indicates location of minimum vertical clearance.
* Lane widths measured of B.F. of Abutments.



TYPICAL SECTION

TABULATION OF CLASS 5, FINISH

LOCATION	AREA SQ. FT.	
Exterior Beams	3,381	
Slope & Ditch Paving	~~10,449~~	10602
TOTAL	13,830	13,983

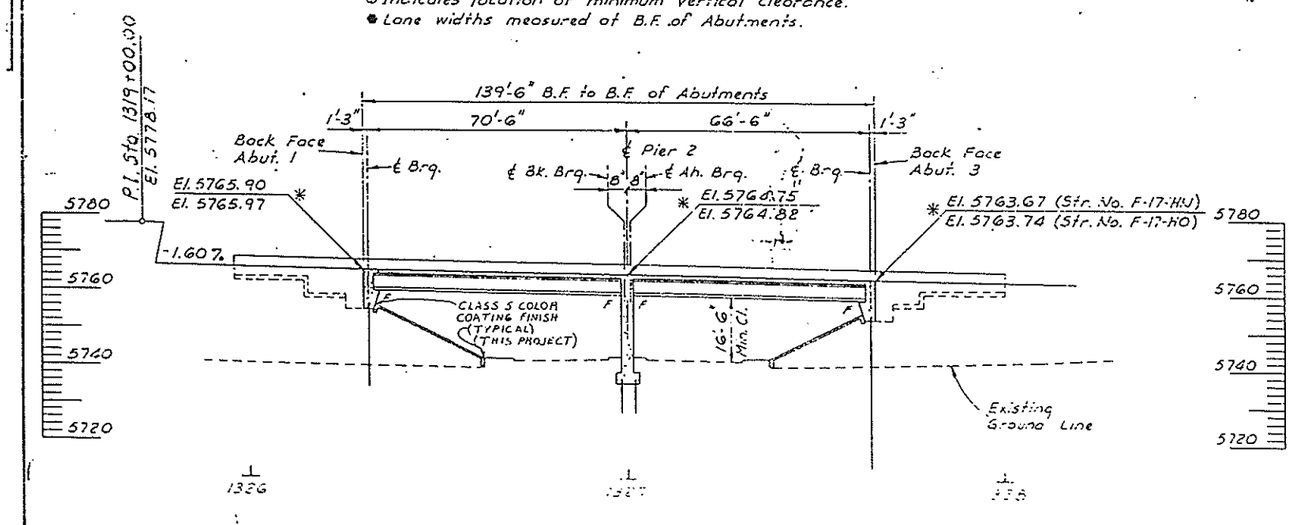
(CONSTRUCT THIS PROJECT)

CONSTRUCT THIS PROJECT

STRUCTURE NO.	H.B.P. (GR. EX)(H.E.A.) TON	WATERPROOFING (MEMBRANE) SQ. YD.	BRIDGE COMPR. JOINT SEALER LIN. FT.
F-17-HO	~~77.84~~ ~~86~~	~~537~~ 705	76
F-17-HN	92.42 ~~86~~	~~752~~ 909	76
TOTALS	~~152~~	~~1,351~~	152

For Info. Only: It is estimated that 132 sq. ft. of ½ inch Expansion Joint Material will be required. To be included in Cost of Bid Item 412 Concrete Pavement

■ Sandblasting of bridge deck surface will be required before Waterproofing Membrane is applied.



SECTION TAKEN ALONG ℄ BRIDGE

STR. NO. F-17-HN SHOWN - STR. NO. F-17-HO SIM. AS NOTED
* Finished Roadway Elevation

Live Loading: HS-20-44 and Interstate Alternate

DIVISION OF HIGHWAYS

S.H. 470 OVER ACRES GREEN DRIVE

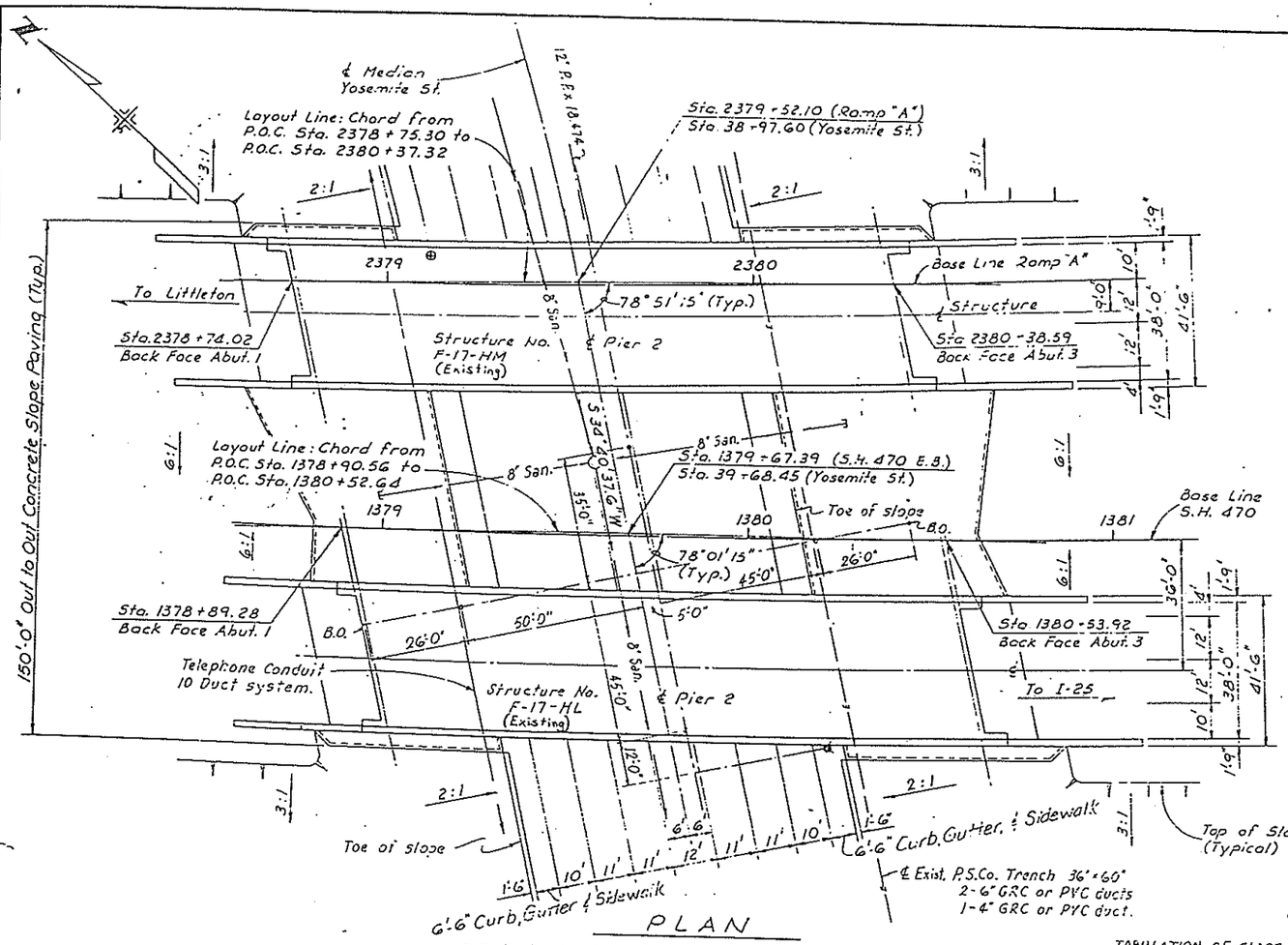
GENERAL LAYOUT

Designer	D. Horner	Structure Numbers	F-17-HN (E.B.L.)
Detailer	D. Griner		F-17-HO (W.B.L.)
Drawing Number B- 7		of	Drawings

AS CONSTRUCTED		
NO REVISIONS	REVISED 10/29/96	VOID

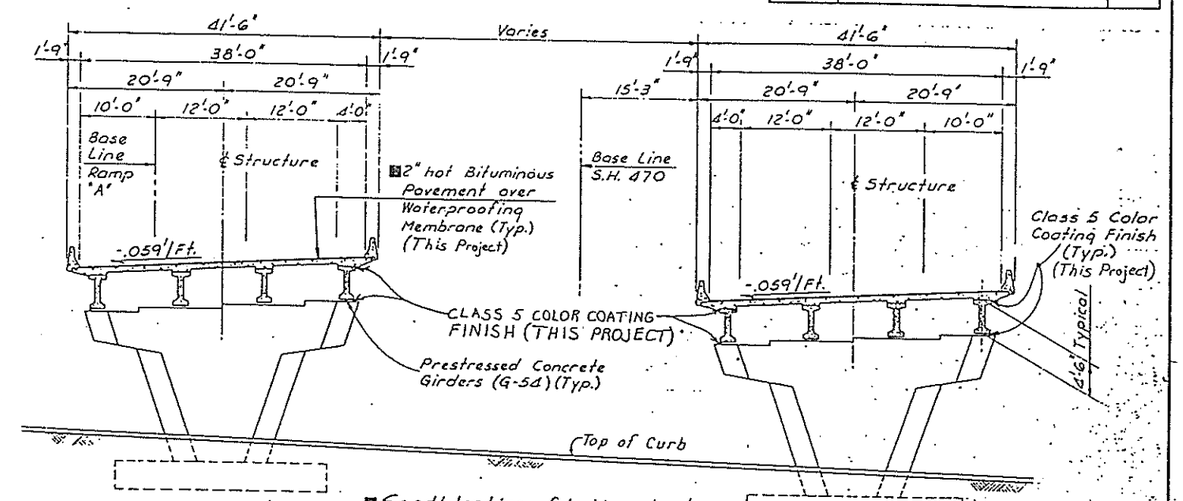
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	XFU 470-1(17)	58	106

REVISIONS		



PLAN

⊕ Indicates location of minimum vertical clearance. Field verify locations of all utilities.



Sandblasting of bridge deck surface will be required before Waterproofing Membrane is applied.

TYPICAL SECTION

CURVE DATA

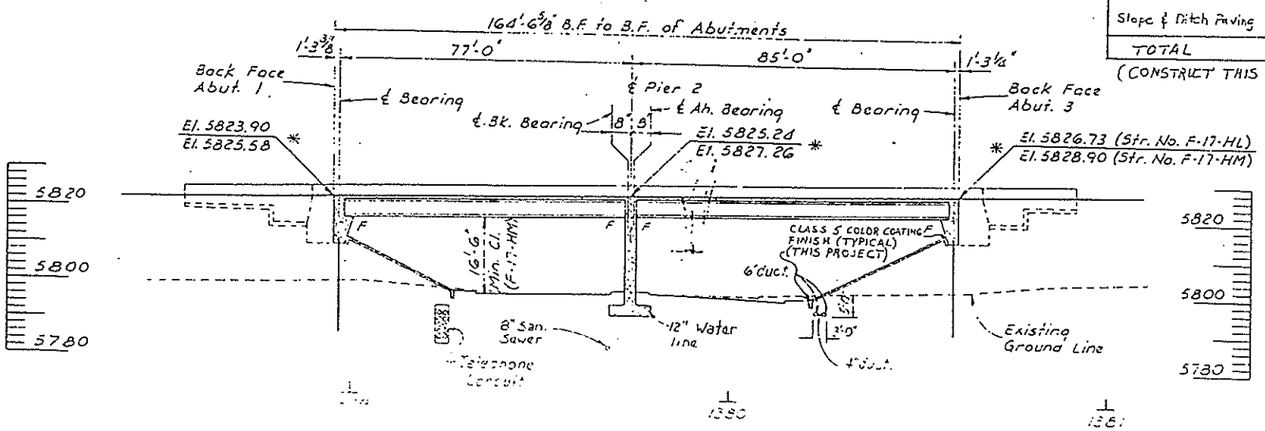
S.H. 470 E.B. (Str. No. F-17-HL)
$\Delta = 49°48'46''$ Lt.
$T_s = 1670.73'$
$\Delta_c = 44°33'46''$
$D_c = 1°45'$
$T_c = 1341.54$
$L_c = 2546.44'$
$R_c = 3274.04'$
$e(max) = 0.059'/Ft.$
$\theta_s = 2°37'30''$
$L_s = 300'$
L.T. = 200.02'
S.T. = 100.02'

RAMP "A" (Str. No. F-17-HM)
$\Delta = 21°14'21.6''$ Lt.
$T_s = 745.45'$
$\Delta_c = 18°35'25.7''$
$D_c = 1°47'21.8''$
$T_c = 524.07'$
$L_c = 1038.92'$
$R_c = 3201.353'$
$e(max) = 0.059'/Ft.$
$\theta_s = 2°38'55.9''$
$L_s = 296.06'$
L.T. = 197.40'
S.T. = 98.71'

TABULATION OF CLASS 5 FINISH

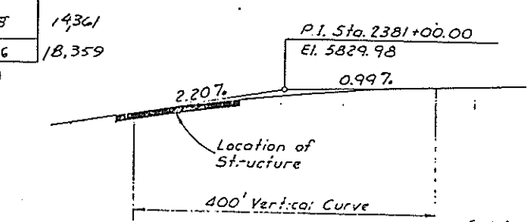
LOCATION	AREA SQ. FT.	
Exterior Beams	3,798	
Slope & Ditch Paving	~~12,718~~	14,561
TOTAL	16,796	18,359

(CONSTRUCT THIS PROJECT)

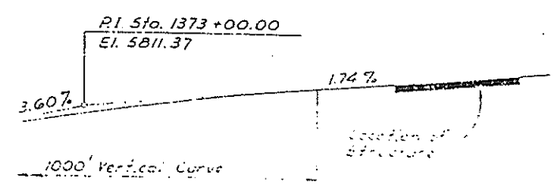


SECTION

TAKEN AT ℄ STR NO F-17-HL - STR NO F-17-HM SIM EXCEPT AS NOTED & FINISHED ROADWAY ELEVATIONS



PROFILE GRADE - STR. NO. F-17-HM



PROFILE GRADE - STR. NO F-17-HL

CONSTRUCT THIS PROJECT

STRUCTURE NO.	H.B.P. (GR. EX)(A.& A.) TON	WATERPROOFING (MEMBRANE) SQ. YD.	EXTRIDGE COMPR. JOINT SEALER LIN. FT.
F-17-HM	87.59 ~~90~~	~~711~~ 811	78
F-17-HL	92.90 ~~90~~	~~713~~ 811	78
TOTALS	~~180~~	~~1,424~~	156

For Info. Only: It is estimated that 166 sq. ft. of ½ inch Expansion Joint Material will be required. To be included in Cost of Bid Item 412 Concrete Pavement.

Live Loading: HS-20-44 and Interstate Alternate

DIVISION OF HIGHWAYS

S.H. 470 OVER YOSEMITE STREET

GENERAL LAYOUT

Designer	D. Werner	Structure Numbers	F-17-HL (E.B.L.)
Detailer	C. Grinder		F-17-HM (Ramp A)
Drawing Number B - 8		of 8	Drawings

D.M.G. 1-82 | CHECKED BY

MILNERLEY BY