

COLORADO

STATE HIGHWAY DEPARTMENT

PLAN AND PROFILE OF PROPOSED FEDERAL AID SECONDARY PROJECT NO. S-369 (4) STATE HIGHWAY NO. 114 SAGUACHE COUNTY

FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-369(4)	1	

Homer Gray added 5-25-46 H.O.W.
 Revised 6-14-46 Mileage to nearby towns F. C. S.
 Revised 6-22-46 Selected Mat'l. & Surfacing Pit F. C. S.
 Revised 7-8-46 Selected Mat'l. & Surfacing Pit J. P. K.

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CONVENTIONAL SIGNS

CENTER LINE OF SURVEY _____ **369.04**
 RIGHT OF WAY LINES _____
 COUNTY LINE _____
 TOWNSHIP LINES _____
 SECTION LINES _____
 ONE-QUARTER SECTION LINES _____

SCALES

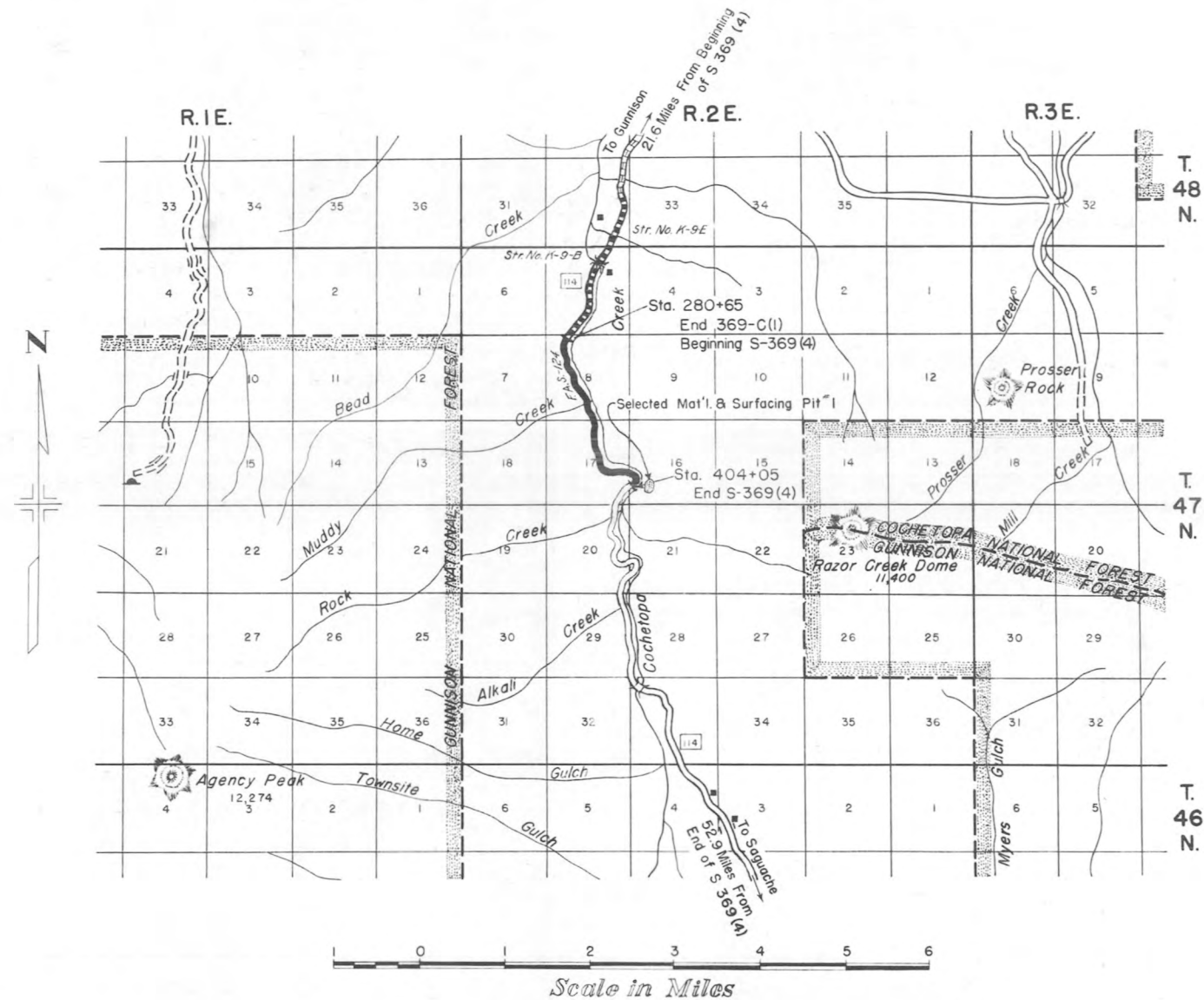
ON PLAN, 1 IN. = 100 FT.
 ON PROFILE 1 IN. = 100 FT. HORIZONTAL
 1 IN. = 10 FT. VERTICAL

GRADE LINE ON PROFILE IS SHOWN AS GRADE OF FINISHED ROAD
 GROSS LENGTH OF PROJECT } = 12,312.8 Ft. = 2.331 MILES
 NET LENGTH OF PROJECT }

NOTE

It is recommended that bidders on this Project go over the plan details with the following field representative of this Department.

J. R. Cheney Division Engineer, Grand Junction, Colo.
Homer Gray Resident Engineer, Gunnison, Colo.



RECOMMENDED FOR APPROVAL

Fast Bell
 ASSISTANT ENGINEER DATE 7-20-46

APPROVED

Wm. A. Waters
 STATE HIGHWAY ENGINEER DATE 5-20-46

RECOMMENDED FOR APPROVAL DATE

DISTRICT ENGINEER
 PUBLIC ROADS ADMINISTRATION
 FEDERAL WORKS AGENCY

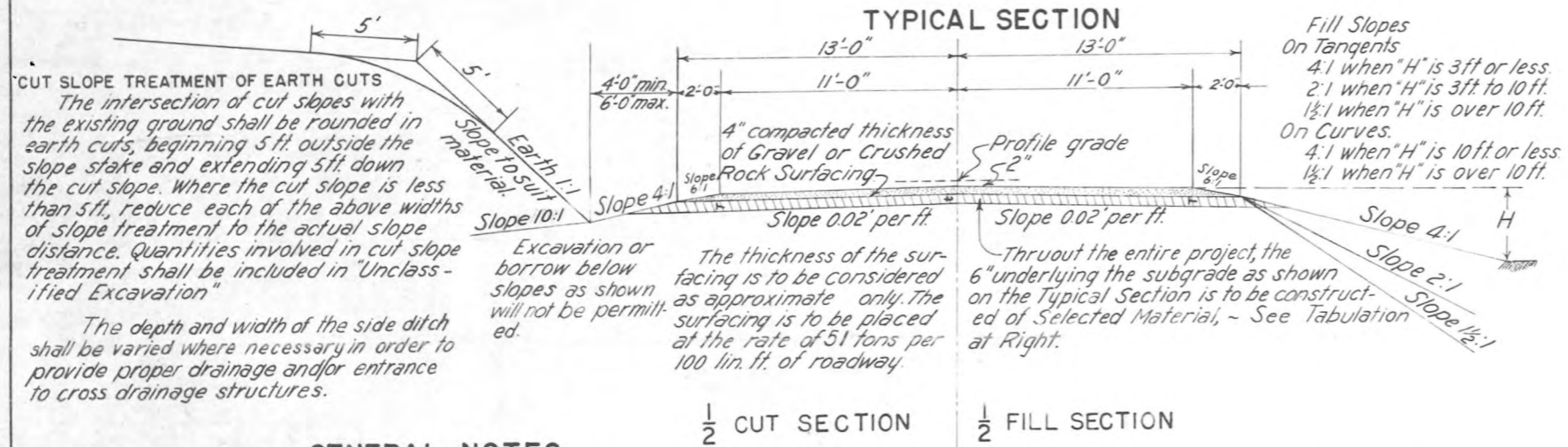
APPROVED

DATE
 DIVISION ENGINEER
 PUBLIC ROADS ADMINISTRATION
 FEDERAL WORKS AGENCY

TYPICAL CROSS SECTION OF IMPROVEMENT AND SUMMARY OF QUANTITIES

FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-369(4)	2	

Rev. - Surfacing, Select Plan and Summary 6-21-46 H.K.C.
 Rev. - Top Soil, Summary 8-21-46 C.W.



CUT SLOPE TREATMENT OF EARTH CUTS
 The intersection of cut slopes with the existing ground shall be rounded in earth cuts, beginning 5 ft. outside the slope stake and extending 5 ft. down the cut slope. Where the cut slope is less than 5 ft., reduce each of the above widths of slope treatment to the actual slope distance. Quantities involved in cut slope treatment shall be included in "Unclassified Excavation".
 The depth and width of the side ditch shall be varied where necessary in order to provide proper drainage and/or entrance to cross drainage structures.

Excavation or borrow below slopes as shown will not be permitted.

The thickness of the surfacing is to be considered as approximate only. The surfacing is to be placed at the rate of 51 tons per 100 lin. ft. of roadway.

Throughout the entire project, the 6" underlying the subgrade as shown on the Typical Section is to be constructed of Selected Material, - See Tabulation at Right.

Fill Slopes
 On Tangents:
 4:1 when "H" is 3 ft. or less
 2:1 when "H" is 3 ft. to 10 ft.
 1 1/2:1 when "H" is over 10 ft.
 On Curves:
 4:1 when "H" is 10 ft. or less
 1 1/2:1 when "H" is over 10 ft.

GENERAL NOTES

This Project is to be constructed in conformity with the Standard Specifications of the Colorado State Highway Department, adopted June 1, 1940.

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

All roadway excavation required to construct this project is to be obtained as indicated on the plans. All quantities involved beyond the limits of the ditch as shown on Typical Section either noted on the profile as "Borrow" or on the List of Structures as "Embankment" are to be classified and paid for as "Unclassified Excavation". These quantities are to be staked as part of the original excavation at locations indicated on the plans. Slope stakes beyond the limits of the Typical Section are subject to change by the Engineer to fit embankment requirements actually encountered on construction.

All Corrugated Metal Pipe Cross Culverts shall be laid with one Type "C" headwall at inlet end, unless otherwise noted on the plans.

Approximately 6 inches of embankment material will be used to cover culverts in such a manner that a minimum of pipe shall be exposed in the completed work. This shall be accomplished by warping embankment slopes around and adjacent to the culvert.

All side approach roads to the project shall be gravel surfaced with a 4" thickness of "Gravel or Crushed Rock Surfacing" extending approximately to the right of way line. Estimated tonnage of Surfacing Material required in this operation is shown on the List of Structures.

Overhaul will be paid for as measured along the center line of the project, except as otherwise noted on the plans.

All curves are to be super-elevated and widened as provided for by the Standard Super-elevation sheet included with the plans, except as noted below.

Curves on this project over 5 degrees shall be provided with the super-elevation shown on the Standard Super-elevation sheet for a 5 degree curve.

The ends of all cuts shall be flared and backslopes flattened to discharge side ditch drainage away from the base of adjacent fill slopes. The transition of flattened backslopes and ditch shall be constructed in such manner that a uniform appearance of slope and ditch results, and so as to promote the growth of native groundcover.

If excavation operations develop material which will stand on slopes steeper than slope stake lines, the Department reserves the right to change cut slopes during the progress of such excavations.

PROTECTION OF FILL SLOPES

Note: Roadway embankments at bridge approaches shall be so constructed that the finish point of the gravel shoulder is 3 ft. outside the curb line of the bridge. Where widening of the section is necessary to achieve this result, it shall take place uniformly over a distance of 300 ft. This is done to accommodate guard fence or guard posts at road approaches.

At all places on this project where toe of embankments, on stream side, extend into present stream bed, such toes of embankments shall be constructed of large rocks and boulders from adjacent cuts. Rocks and boulders shall be placed in toes of embankments on stream side to a minimum height of five (5) feet above stream bed.

The entire project shall be cleared in conformity with the requirements of the Standard Specifications except that such trees or shrubs as the Engineer may designate, shall be left in place and protected from damage during construction operations.

The present traveled roadway will be used for traffic during the construction of this project. At all places on the project where new construction encroaches on the present traveled roadway traffic shall be adequately provided for at the contractor's expense. Also the contractor shall, at his own expense, construct and maintain in safe condition all temporary approaches to, and crossings of intersecting roads.

SURFACING PLAN

It is estimated that material for Gravel Surfacing for the Project is available in the vicinity of the Pit indicated in the following tabulation. Estimated Quantities involved in this operation are shown below. No alteration of the Surfacing Plan as here outlined will be allowed without written permission from the Department.

MATERIAL TO BE PLACED	SOURCE	AVAILABLE	QUANTITY TONS USED		OVERHAUL TON MILE
			TOP COURSE	BOTTOM COURSE	
280+65 to 335+66.3	Pit No. 1, Located 100'	AMPLE		2806	2219
335+95.3 to 350+21.8	Lt. Sta. 402+00, in S.W.		728	98	
350+21.8 to 363+75.8	1/4 Sec. 16, T. 47 N., R. 2 E.		690	Free Haul	
363+74 to 404+05			2056	Free Haul	
Estimated for Widening			135	67	
Estimated for Road Approaches			180	88	
TOTALS			6395	2472	

SELECTED MATERIAL TABULATION

It is estimated that Selected Material for the Project is available in the vicinity of the Pit indicated in the following tabulation. Estimated Quantities involved in this operation are shown below. No alteration of the Selected Material Plan as here outlined will be allowed without written permission from the Department.

MATERIAL TO BE PLACED	SOURCE	AVAILABLE	QUANTITY THICKNESS		OVERHAUL TON MILE
			7"	6"	
280+65 to 335+66.3	Pit No. 1, Located 100'	AMPLE	6"	6"	4849
335+95.3 to 350+21.8	Lt. Sta. 402+00 in S.W.		6"	6"	1258
350+21.8 to 363+75.8	1/4 Sec. 16, T. 47 N., R. 10 E.		6"	6"	1194
363+74 to 404+05			6"	6"	3553
Estimated for Widening			6"	6"	204
Estimated for Road Approaches			6"	6"	300
TOTALS					11358

SUMMARY OF APPROXIMATE QUANTITIES

ITEM NO.	ITEM	UNIT	ROADWAY	PROJECT TOTALS
10a	Clearing and Grubbing Entire Project	Lump Sum	•	•
11a	Remove 5 Structures	Lump Sum	•	•
13c	Unclassified Excavation	Cu. Yd.	78000	78000
13d	Unclassified Ditch Excavation	Cu. Yd.	1200	1200
13x	Selected Material	Tons	11400	11400
14a	Dry Rock Excavation (Str.)	Cu. Yd.	250	250
14b	Dry Common Excavation (Str.)	Cu. Yd.	170	170
14c	Wet Rock Excavation (Str.)	Cu. Yd.	30	30
14d	Wet Common Excavation (Str.)	Cu. Yd.	20	20
14e	Mechanical Tamping	Hour	140	140
15a	Rolling Embankments and Cuts	Hour	600	600
15b	Furnishing Roller	Roller Unit	4	4
15c	Wetting Embankments and Cuts	M. Gal.	1120	1120
15d	Rolling With Finishing Roller	Hour	80	80
15e	Furnishing Finishing Roller	Lump Sum	•	•
18a	Station Yard Overhaul	Sta. Yd.	67000	67000
18b	Yard Mile Overhaul	Yd. Mi.	200	200
26a	Gravel or Crushed Rock Surfacing	Ton	6600	6600
26c	Overhaul of Surfacing and Selected Material	Ton Mi.	6800	6800
49	Cement Rubble Masonry	Cu. Yd.	55	55
53c	24" Corrugated Metal Culvert Pipe	Lin. Ft.	1060	1060
53d	30" Corrugated Metal Culvert Pipe	Lin. Ft.	60	60
53g	48" Corrugated Metal Culvert Pipe	Lin. Ft.	112	112
6-1	Dry Rubble Slope and Ditch Paving (12" Thick)	Sq. Yd.	10	10
81a	Project Marker	Each	1	1
81b	Right of Way Markers	Each	11	11
92	Timber Guard Posts	Each	201	201
	FORCE ACCOUNT			
	Obliterating Old Road	Lump Sum	•	•

TABULATION OF STRUCTURES

FED. ROAD DIST. NO.	STATE	F.A.S. PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-369 (4)	3	

Rev. Top Soil 8-21-46, C.W.

STATION	DESCRIPTION	REMOVE STRUCT. NO.	UNCLASSIFIED EXCAVATION		UNCLASSIFIED DITCH EXCAVATION		STRUCTURAL EXCAV. CU. YDS.		SELECTED BACKFILL CU. YDS.	GRAVEL SURF. TONS	CONCRETE CU. YDS.		REINF. STEEL LBS.	RELAY PIPE LIN. FT.	CORRUGATED METAL CULVERT PIPE LIN. FT.						DRY RUBBLE SL. & DITCH PAVING 12" THICK SQ. YDS.	CEMENT RUBBLE MASONRY CU. YDS.		MECHANICAL TAMPING HRS.	MISCELLANEOUS CU. YDS.			
			EXCAV. CU. YDS.	EMB. CU. YDS.	CU. YDS.	●	●	●			●	●			●	●	●	●	●	●		●	●			●	●	●
282+45 286+00 287+48 292+94	Cross Culvert and Dike Rt. Road Approach Lt. Cross Culvert, Intercepting Hdw'l. Cross Culvert, Inlet Ditch			10		12				30					66						205		6					
293+19 294+50 to 297+80 299+40 to 304+00 300+	Remove 18"x24' C.M.P. Channel Change, Lt. Channel Change, Lt. Road Approach, Rt.	1	500 800							30																		
301+25 305+70 to 309+00 306+ to 308+ 306+73	Cross Culvert, Inlet Ditch Channel Change, Lt. Fill in old Channel, Rt. Cross Culvert, Inlet Ditch		*			2	12								72						2.05		7					
307+ 312+50 to 324+70 313+30 317+73	Road Approach, Rt. Channel Change, Lt. Cross Culvert, Inlet Ditch Cross Culvert		*	100		2	10 12			30					58 56						2.05 2.05		5 7					
320+68 326+20 329+41 to 331+36 330 to 337	Cross Culvert, Intercepting Hdw'l. Cross Culvert, Intercepting Hdw'l. Channel Improvement, Lt. Subgrade Stripping		*			30 20									54 48						1.99 1.99		5 4					
331+61 335+09 to 337+00 336+00 336+30	Cross Culvert, Inlet Ditch Channel Improvement, Lt. Cross Culvert, Dry Rubble Sl. & Ditch Pav. at Inlet Remove 18"x24' C.M.P.	1	*		5	13 60									44			58	10		2.05 5.75		4 11					
340+75 to 342+00 344+00 347+20 347+20	Channel Improvement, Lt. Cross Culvert, Intercepting Hdw'l. Cross Culvert, Intercepting Hdw'l. Remove 12"x22' C.M.P.	1	*			22 20									50 52						1.99 1.99		5 5					
351+50 354+50 357+00 358+50	Cross Culvert, Intercepting Hdw'l. Remove 18"x24' C.M.P. Road Approach, Lt. Cross Culvert, Intercepting Hdw'l.	1				17 12				30					46 50						1.99 1.99		4 5					
362+00 to 363+75 363+50 368+99 370+46 to 383+69	Channel Change, Lt. Cross Culvert, Intercepting Hdw'l. Cross Culvert, Intercepting Hdw'l. Channel Change, Lt.		*			17 20									56 46						1.99 1.99		5 4					
375+95 380+23 385+25 to 386+50 385+18	Cross Culvert, Inlet Ditch Cross Culvert, Intercepting Hdw'l. Channel Change, Lt. Cross Culvert, Intercepting Hdw'l.		*		5	17 25 16									62 58 46						2.05 1.99 1.99		5 5 4					
386+38 390+65 391+68 394+92 to 398+94	Remove 18"x24' C.M.P. Cross Culvert, Intercepting Hdw'l. & Outlet Ditch Road Approach, Lt. Channel Change, Lt.	1	*	25	10	19				30					38						1.99		10					
395+72 390 to 404 404+05 404+05	Cross Culvert Subgrade Stripping Project Marker and Approach to Project Cross Culvert Intercepting Hdw'l.		1851 *			23 17				100					70 46						2.05 1.99		6 4	1 Project Marker				
TOTALS		5	4306 235	28	448					250					1060 60			112	10		54.52		133					

● Structural Excavation is Estimated to be 60% Rock and 40% Common, Each of which is Estimated to be 90% Dry and 10% Wet.
* Included in Profile Quantities.

R.O.W. MARKERS

STATION	SIDE	NO.
280+65	R	I
308+39.3	R	I
310+42	L	I
336+43.3	L	I
339+90.3	R	I
342+60.3	R	I
343+85.3	L	I
371+85.5	R	I
372+05.5	L	I
396+80.5	L	I
403+45	L	I
TOTAL		11

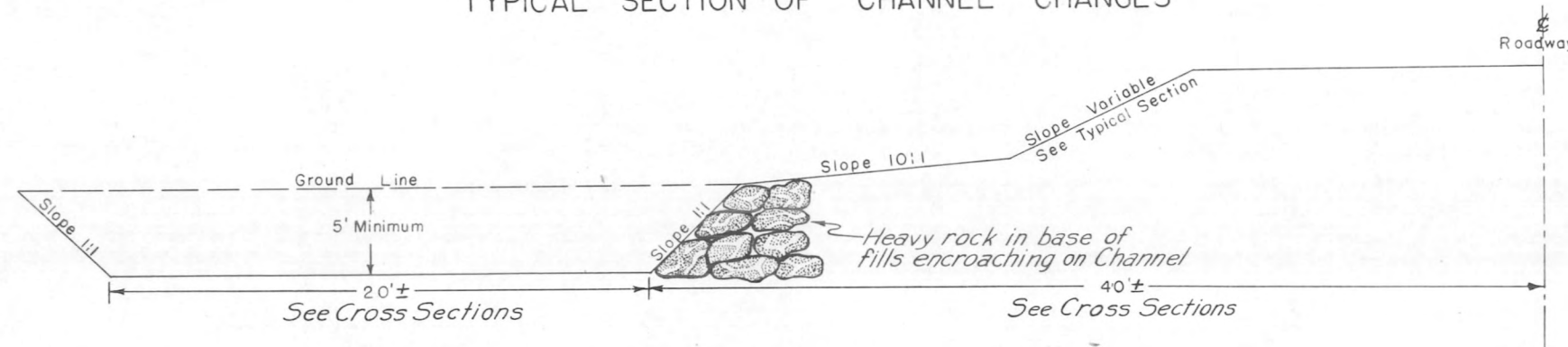
TIMBER GUARD POSTS

STATION	SIDE	SPACING	NO.
292+00 - 350+00	L	50'	117
361+00 - 391+00	L	50'	61
393+05 - 404+05	L	50'	23
TOTAL			201

TABULATION OF LENGTH & DESIGN DATA

STATION	ROADWAY	BRIDGES	
	LIN. FT.	LIN. FT.	LOADING
280+65 End F.A.S 369 C(1) Beg. S 369 (4)	5501.3		
335+66.3 Back= Equation			
335+95.3 Ahead	2780.5		
363+75.8 Back= Equation			
363+74.0 Ahead	4031.0		
404+05 End S 369 (4)			
TOTALS	12,312.8		
SUMMARY			
			LIN. FT. MILES
S 369 (4) Roadway			12,312.8 2.331
Total S 369 (4)			12,312.8 2.331
DESIGN DATA			
Maximum Degree of Curve		16°00'	
Maximum Grade		2.19%	
Minimum N.P.S.D. horizontal		240 Ft.	
Minimum N.P.S.D. vertical		910 Ft.	
Maximum Design Speed		30 M.P.H.	

TYPICAL SECTION OF CHANNEL CHANGES



SW 1/4 Sec 5
T47N R2E NMPM

NW 1/4 Sec 8
T47N R2E

287+48 - Req'd. 24"x42" C.M.P.
cross culv. (Masonry) Intercepting
Hdwl. Rt.

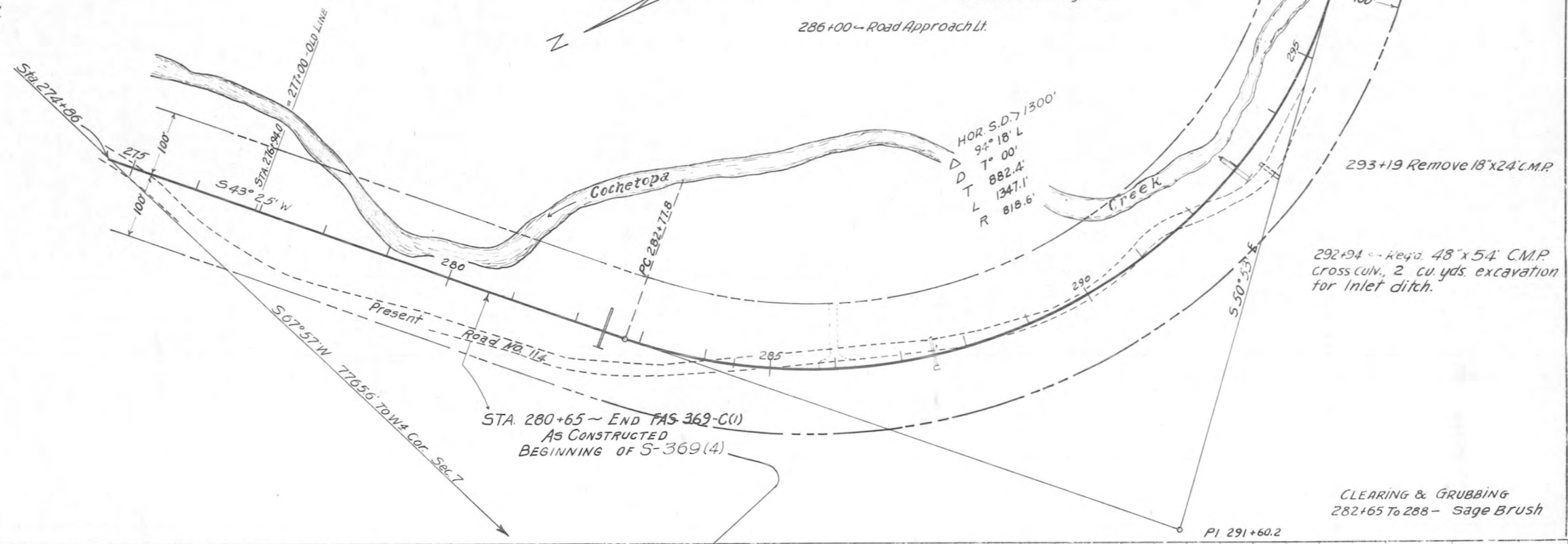
FED. ROAD DIST. NO.	STATE	FAS PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-369(4)	13	

NOTE:
Alignment and grades as shown are subject to modification during construction after approval by the Denver Office.
All curves on this project over 5 degrees shall be provided with the superelevation shown on Stand. Superelevation sheet for a 5 degree curve.
Typical Section for channel and Ditch changes is shown on Sheet No. 4.
Right of Way Markers and Guard Posts are tabulated on Sheet No. 4.

282+45 - Req'd. 24"x66" C.M.P.
Cross Culv. & 10 Cu. Yds. Embank.
for Dike Rt.

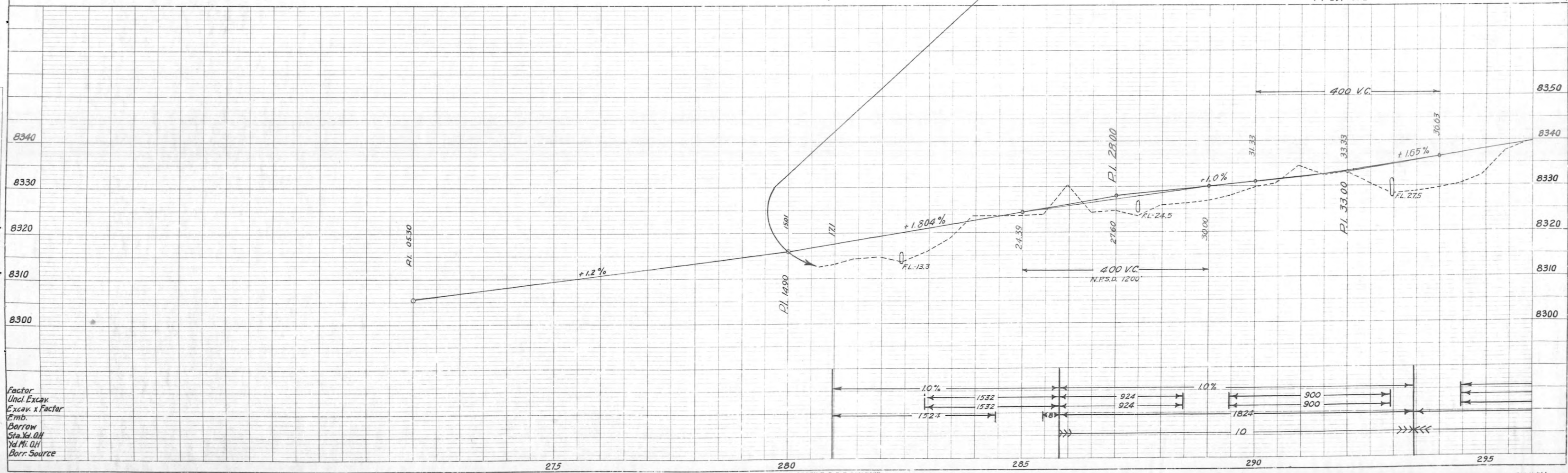
294+50 To 297+80 - Req'd.
500 cu. yds. Excavation for
channel change Lt.

Rev 6-14-46 - C.G.M., Soil Data Note.



STA. 280+65 - END FAS 369-C(1)
AS CONSTRUCTED
BEGINNING OF S-369(4)

CLEARING & GRUBBING
282+65 To 288 - Sage Brush

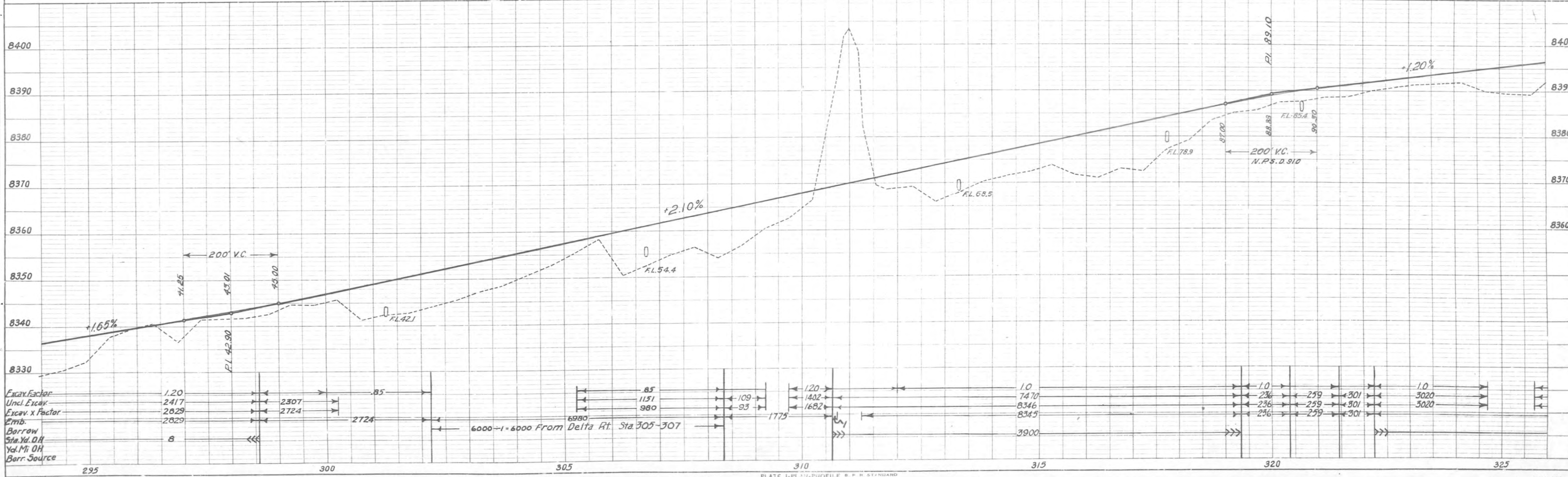
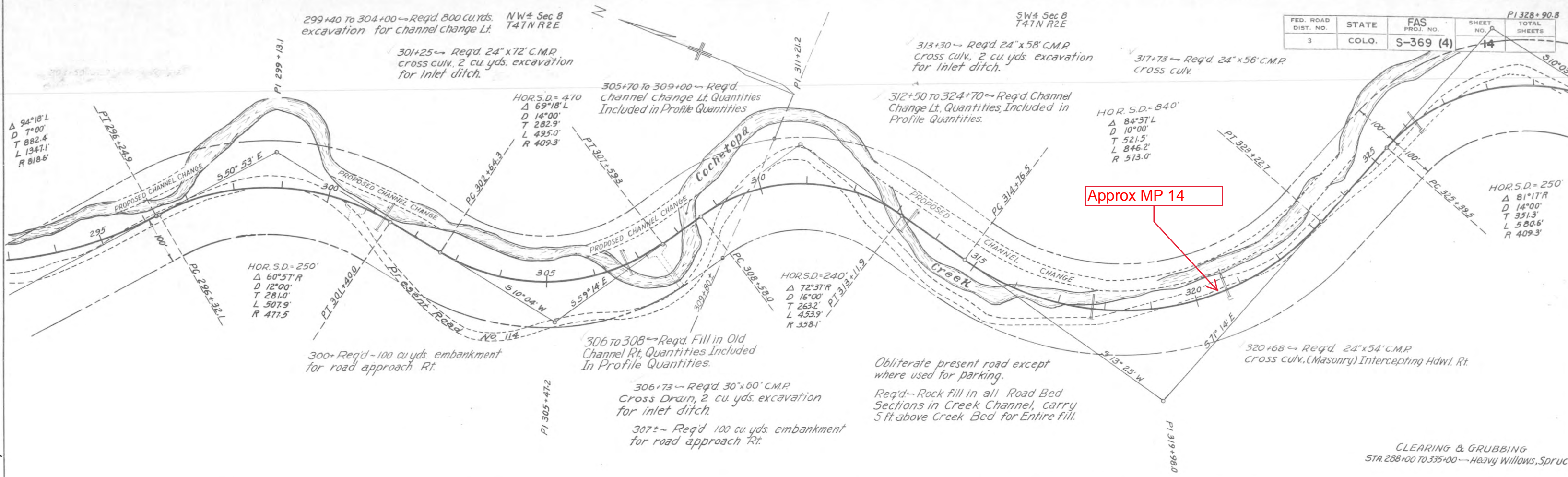


Factor
Uncl. Excav.
Excav. x Factor
Emb.
Borrow
Sta. Vol. OH
Yd. M. OH
Borr. Source

DATE: 7-28-46
 SURVEYED: C.E. CRAIG
 PLOTTED:
 ALIGNED CHECKED:
 BT. OF WAY CHECKED:
 PLAN NO.:

DATE:
 SURVEYED:
 PLOTTED:
 GRADES CHECKED:
 B.M. NOTED:
 STRUCTURE NOT IN CHARGE:
 PROFILE NO. 12957

FED. ROAD DIST. NO.	STATE	FAS PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-369 (4)	14	P1328+90.8

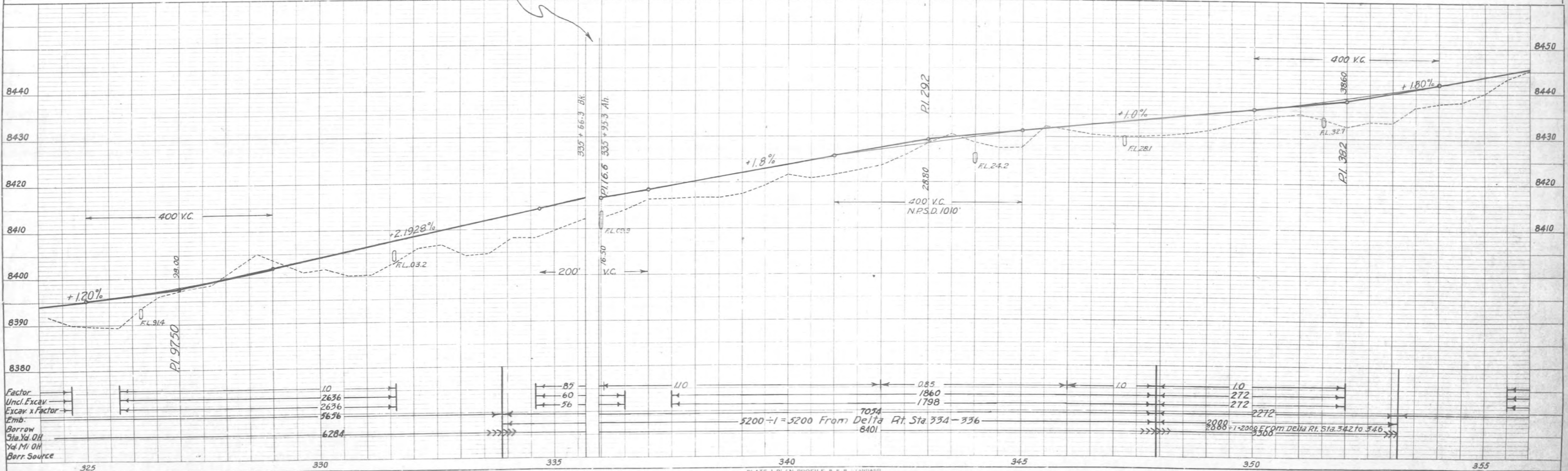
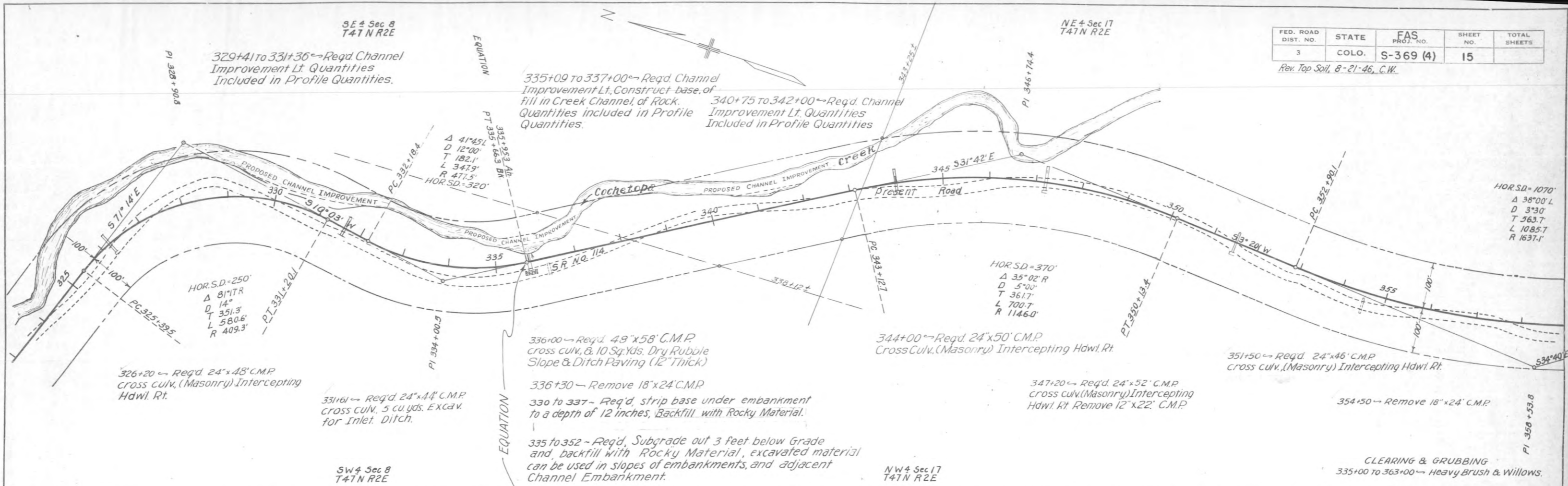


FED. ROAD DIST. NO.	STATE	FAS PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-369 (4)	15	

Rev. Top Soil, 8-21-46, C.W.

DATE	BY	BY	DATE
7-28-46	C.E. CRAIG		
SURVEYED, PLOTTED, ALIGNED, CHECKED, RT. OF WAY CHECKED			
PLAN			
NOTE BOOK NO. / 2957			

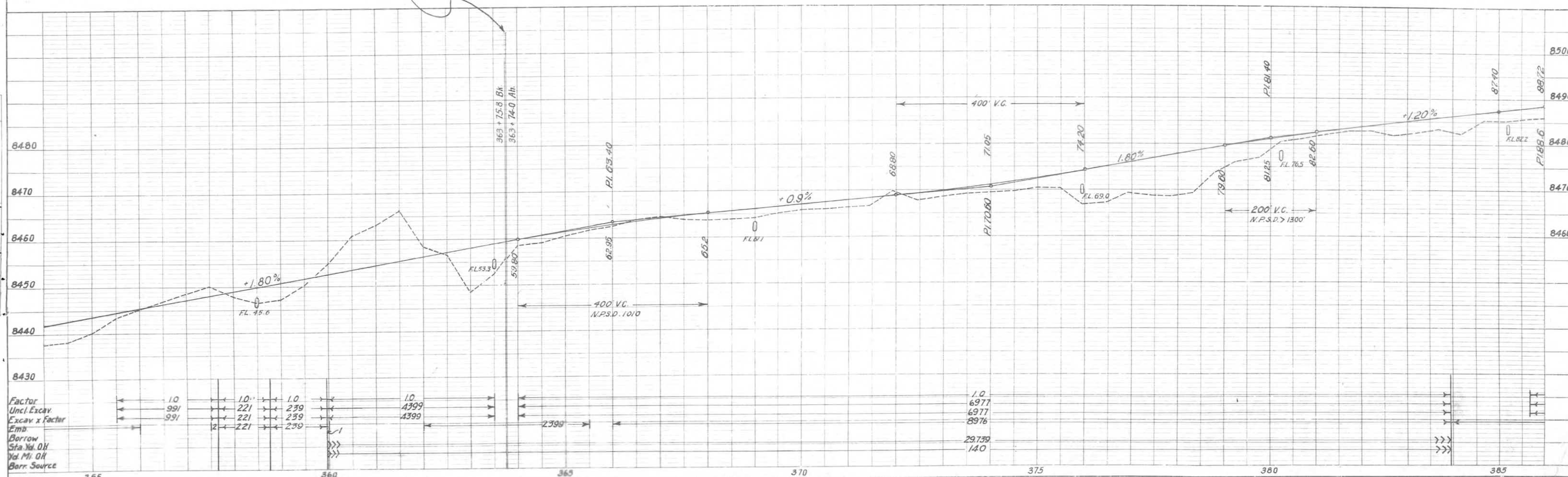
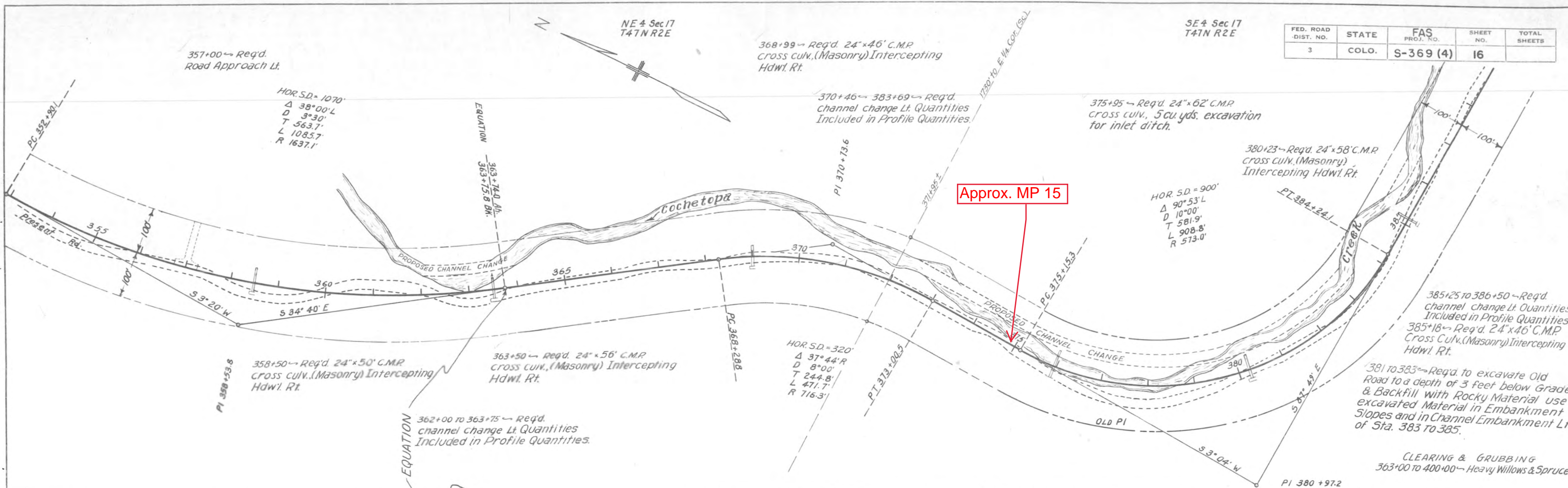
DATE	BY	BY	DATE
SURVEYED, PLOTTED, GRADES CHECKED, STRUCTURE NOTATION CHECKED			
PROFILE			
NOTE BOOK NO. / 2957			



DATE	7-28-46
BY	C.E. CRAIG
PLAN	SURVEYED
NOTE BOOK	ALIGNED CHECKED
NO.	PT. OF WAY CHECKED

DATE	
BY	
PROFILE	SURVEYED
NOTE BOOK	GRADES CHECKED
NO.	B.M.'S. NOTED
NO. 12957	STRUCTURE NOTATIONS CHECKED

FED. ROAD DIST. NO.	STATE	FAS PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-369 (4)	16	



SE 4 Sec 17
T47N R2E

SW 4 Sec 16
T47N R2E

FED. ROAD DIST. NO.	STATE	FAS PROJ. NO.	SHEET NO.	TOTAL SHEETS
3	COLO.	S-369 (4)	17	

Rev. Top Soil, 8-21-46, C.W.

394+92 to 398+94 ~ Req'd Channel Change Lt. Quantities Included in Profile Quantities.

390 to 404+ ~ Req'd. Muck out under embankment to a depth of 12". Backfill with Rocky Material.

388 to 393 ~ Req'd. subgrade old road area 3ft. below grade, backfill with rocky Material. Use excavated Material in Embankment Slopes & Adjacent channel Embankment.

386+38 ~ Remove 18"x24' C.M.P.

395+72 ~ Req'd. 24"x70' C.M.P. Cross CULV.,

391+68 ~ Req'd 25 cu. yds. Embankment for Road Approach Lt.

390+65 ~ Req'd 24"x38' C.M.P. Cross culv. (Masonry) Intercepting Hdwl. Rt. & 10 cu. yds. Excav. for Outlet Ditch

393+75 to 395+00 ~ Req'd. Fill on Rt. & Grade to Divert Water to C.M.P. at Sta. 395+72. Quantities Included in Profile Quantities.

404+05 ~ Req'd Project Marker and Approach to Project.

404+05 ~ Req'd. 24"x46' C.M.P. Cross Culv. (Masonry) Intercepting Hdwl. Rt.

409+29 ~ Req'd. Double 10'x6'x37' C.B.C. (Type 10-A) & 100 cu. yds. Excav. for Channel Improvement Rt.

409+29 ~ Remove 2-30"x24' C.M.P.'s

409+77 ~ Remove 15"x24' C.M.P.

412+75 to 415+89 ~ Req'd. Channel change Lt.

413+21 ~ Req'd. 24"x50' C.M.P. Cross Culv. 10 cu. yds. Excav. for Inlet Ditch & Dike Rt.

CLEARING & GRUBBING
400+00 to 438+00 ~ Willows and Brush

{ Sta. 404+05 End of Project S-369 (4) }

DATE	1-28-46
BY	C.E. CRAIG
NO.	

DATE	
BY	
NO.	12951

