

COLORADO DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF ~~PROPOSED~~ COLORADO PROJECT NO. CX 54-0024-05 STATE HIGHWAY NO. 24 PARK COUNTY

FINAL OVERSIGHT NO ☒ YES ☐ NOT APPLICABLE ☐

CONSTRUCTION SUBACCOUNT: 93143

FEDERAL ROAD REGION NO.	DIVISION	PROJECT NO.	SHEET NO.
WM	COLORADO	CX 54-0024-05	1

AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID
	11/1/93	

REVISED		

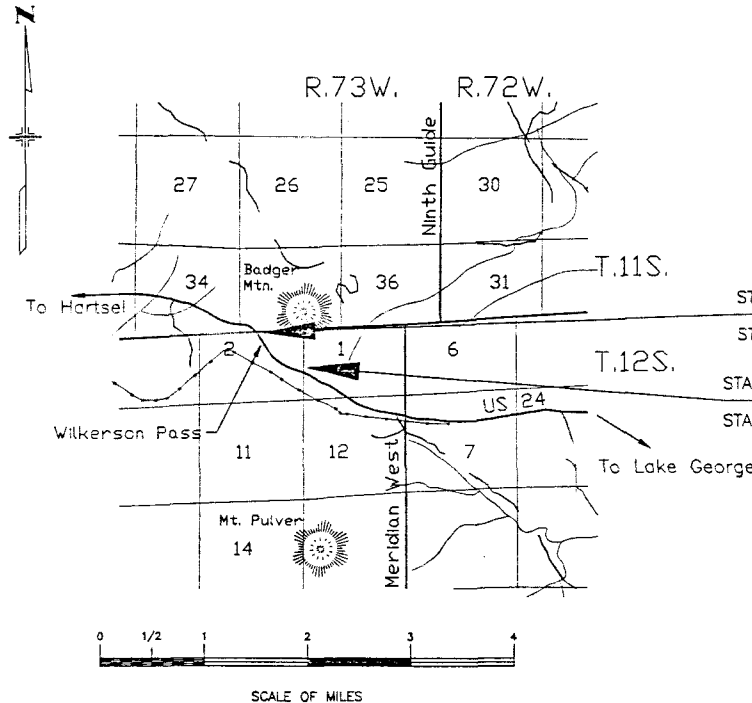
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TABULATION OF LENGTH & DESIGN DATA

STATION	ROADWAY		MAJOR STRUCT.	
	Lin. Ft.	Miles	Lin. Ft.	Miles
Sta. 1+00 Begin Project = MP 254.30 = Sta. 138+98 (Back) On Project 158-B To	2,214.92	0.4195		
Project 158-B Equation Sta. 145+15.7 (Back) = Sta. 132+23.9 (Ahead)				
Sta. 23+14.92 End Project = MP 254.72 = Sta. 148+28 (Ahead) On Project 158-B				
TOTALS	2,214.92	0.4195		
SUMMARY		Lin. Ft.	Miles	
Roadway		2,214.92	0.4195	
Major Structure				
GROSS AND NET LENGTH		2,214.92	0.4195	
DESIGN DATA				
Maximum Degree of Curve	16' 01' 47"			
Maximum Grade	6% existing			
Minimum S.S.D. Horizontal	200' existing			
Minimum S.S.D. Vertical	370' existing			
Maximum Design Speed	30 MPH Existing Curve 45 MPH Improvements			
1993 Design Traffic Volume	A.A.D.T. 1850			
2013 Design Traffic Volume	A.A.D.T. 4255			
	D.H.V. 638			
	% Trucks 9			



STA. 1+00 BEGIN PROJECT = MP 254.30 =

STA. 138+98 (BACK) ON PROJECT NO. 158-B

STA. 23+14.92 END PROJECT = MP 254.72 =

STA. 148+28 (AHEAD) ON PROJECT NO. 158-B

NO. REVISED - 133
P 25 2, 3, 7, 10, 11, 12, 15,
16, 20, 21, 22, 23,
101-133

CONTRACTOR	NEWLY ENTERED, INC.
RESIDENT ENGINEER	WET 2000
(Project or Resident)	
PROJECT STARTED	9/20/01
PROJECT COMPLETED	11/1/03
AS CONSTRUCTED PLANS	
APPROVED	11/1/03
TITLE	DATE

(DOW)/REGION 1

AS CONSTRUCTED			FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	11/92	REVISED		VIII	COLO.	CX 54-0024-05	2 22

PLAN NUMBER	M STANDARD TITLE	PAGE NUMBER
☒ M-100-1	STANDARD SYMBOLS	1
☒ M-107-1	TEMPORARY EROSION CONTROL	2
☒ M-203-1	APPROACH ROADS	3
☒ M-203-2	DITCH TYPES	4
☒ M-203-10	SUPERELEVATION CROWNED HIGHWAYS	5
☐ M-203-11	SUPERELEVATION DIVIDED HIGHWAYS SHOULDER PIVOT	6
☐ M-203-12	SUPERELEVATION STREETS	7
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THE STANDARD PLAN SHEETS INDICATED HEREON BY A MARKED BOX ARE TO BE USED TO CONSTRUCT THIS PROJECT.

PLAN NUMBER	S STANDARD TITLE	PAGE NUMBER
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☒ S-614-1	TYPICAL GROUND SIGN PLACEMENT	98
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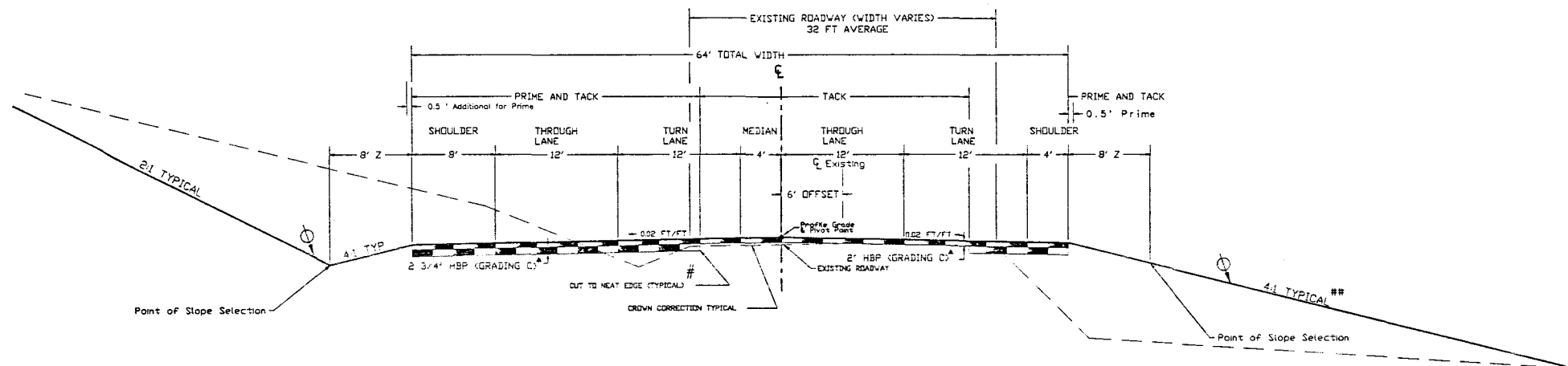
COLORADO
DEPARTMENT OF TRANSPORTATION

STANDARD PLANS LIST

M & S STANDARDS NOVEMBER 1992

TYPICAL SECTION

AS CONSTRUCTED			FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	REVISED	VOID	VIII	COLO.	CX 54-0024-05	3	23



FULL SECTION STA. 4+99.54 TO STA. 12+96

PAVEMENT WIDTH TRANSITIONS FROM 30' AT STA. 1+00 TO 64' AT STA. 4+99.54 AND FROM 64' AT STA. 12+96 TO 30' AT STA. 23+14.92

TYPICAL SECTION NOTES

- ▲ APPROXIMATE THICKNESS
- BREAK POINTS ON SLOPES AND IN BOTTOM OF DITCHES SHALL BE ROUNDED FOR A PLEASING APPEARANCE.
- TOPSOIL WILL BE PLACED ON THE DISTURBED SLOPES TO A DEPTH OF 4".
- # IN THE WIDENED AREAS, THE EXISTING EDGE OF PAVEMENT WILL BE CUT BACK 1' TO PRODUCE AN EVEN EDGE. COST WILL NOT BE PAID FOR SEPARATELY BUT WILL BE INCLUDED IN THE WORK.
- ## SLOPE VARIES FROM EXISTING 2:1 AT STA. 3+25 TO STANDARD 4:1 SLOPE AT STA. 4+25.

HBP PAVING RATES

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

TOP LIFT.....78.2 TONS (64' WIDTH FULL SECTION)
BOTTOM LIFT.....57.1 TONS (64' TOP WIDTH, 34' WIDENED WIDTH)

TOP LIFT.....18.3 - 78.2 TONS (15' - 64' WIDTH)
BOTTOM LIFT.....0.0 - 57.1 TONS (0' - 34' WIDTH)

NOTE: IT WAS ASSUMED THAT AN AVERAGE OF 30 FEET OF EXISTING PAVEMENT WOULD REMAIN AFTER TRIMMING EACH EDGE OF THE ASPHALT MAT.

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

ADDITIONAL PAVING WILL BE REQUIRED FOR CROWN CORRECTION. THE CONTRACTOR'S SURVEYOR SHALL BE RESPONSIBLE FOR CALCULATING AND SETTING THE GRADES FOR THIS WORK. PRIOR TO STAKING THE CONTRACTOR SHALL SUBMIT THESE GRADES WITH A PLOTTED PROFILE AND CROSS SECTIONS TO THE ENGINEER FOR APPROVAL.

GENERAL NOTES

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

EMUL. ASPH.(SS) PRIME COAT DILUTED 0.30 GALS./SQ.YD.(DILUTED)
EMUL. ASPH.(SS) TACK COAT DILUTED 0.10 GALS./SQ.YD.(DILUTED)
HOT BITUMINOUS PAVEMENT (GRADING C) (ASPH) 110 LBS. PER SQ.YD./INCH

DILUTED EMULSIFIED ASPHALT FOR TACK COAT AND PRIME COAT SHALL CONSIST OF 1 PART WATER AND 1 PART EMULSIFIED ASPHALT. RATES OF APPLICATION WILL BE DETERMINED BY THE ENGINEER AT THE TIME OF APPLICATION.

THE FOLLOWING SHALL BE FURNISHED WITH EACH BITUMINOUS PAVER:

1. AN ELECTRONICALLY CONTROLLED SKI TYPE DEVICE AS REQUIRED IN THE PROJECT SPECIFICATIONS AND APPROVED BY THE ENGINEER.
2. AN ELECTRONICALLY CONTROLLED SHORT SKI OR SHOE
3. 1000 LIN. FT. OF CONTROL LINE TO BE USED AS DIRECTED BY ENGINEER

THE CONTRACTOR SHALL USE A TAPERED SHOE ON ALL LONGITUDINAL JOINTS.

THE PAY QUANTITIES FOR HBP ARE BASED UPON THE ASSUMPTION THE MIX WILL HAVE 6.0% AC CONTENT.

ANY LAYER OF BITUMINOUS PAVEMENT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON SHALL BE COMPLETED FULL WIDTH BEFORE THE SUCCEEDING LAYER IS PLACED, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

PRIOR TO PLACING EACH LAYER OF BITUMINOUS PAVEMENT, THE SURFACE SHALL BE CLEANED AND TACKED.

THE CONTRACTOR WILL BE REQUIRED TO CUT 1 FOOT OFF THE EDGE OF THE EXISTING ASPHALT, IN AREAS OF WIDENING, TO AN EVEN VERTICAL EDGE IMMEDIATELY PRIOR TO PAVING. THIS CUTTING AND REMOVAL OF ASPHALT MAT AND THE REMOVAL OF ASPHALT MAT SHOWN IN THE PLANS WILL NOT BE MEASURED OR PAID FOR SEPARATELY BUT SHALL BE INCLUDED AND CONSIDERED INCIDENTAL TO THE PAVING AND EARTHWORK BID ITEMS.

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

FULL DEPTH OF ALL EMBANKMENTS
BASES OF CUTS AND FILLS 0.5 FOOT

THE EMBANKMENT MINIMUM "R" VALUE SHALL BE 60.
TYPE OF COMPACTION FOR THIS PROJECT WILL BE AASHTO T-180.

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

CLEARING AND GRUBBING SHALL INCLUDE THE REMOVAL OF ALL TREES, LOGS, LIMBS, STUMPS, BRUSH, TRASH, GATE POSTS, AND ANY OTHER MATERIALS FOUND, TO AN OFFSITE LOCATION. TRIMMED LOGS THAT ARE SUITABLE FOR FIREWOOD MAY, AT THE CONTRACTOR'S OPTION, BE DELIVERED TO THE LAKE GEORGE FOREST SERVICE FACILITY.

NO CONSTRUCTION DEBRIS OF ANY TYPE MAY BE BURIED WITHIN THE PROJECT LIMITS.

IT IS ESTIMATED THAT ⁷³⁷~~666~~ HOURS OF FLAGGING AND ³³~~55~~ DAYS OF TRAFFIC CONTROL SUPERVISOR WILL BE REQUIRED FOR THIS PROJECT.

IT IS ESTIMATED THAT ²⁶~~30~~ GALLONS OF WHITE PAVEMENT MARKING PAINT AND ²²~~20~~ GALLONS OF YELLOW PAVEMENT MARKING PAINT WILL BE REQUIRED FOR THIS PROJECT.

FINAL STRIPING IS TO IMMEDIATELY FOLLOW THE FINAL PAVING LIFT.

CONTROL MONUMENT AND OTHER COORDINATE INFORMATION IS AVAILABLE FROM THE ENGINEER.

TOPSOIL SHALL BE FROM THE CONTRACTOR'S SOURCE. SUFFICIENT TOPSOIL CAN BE FOUND ON SITE WITHIN THE PROJECT LIMITS AT AN APPROPRIATE DEPTH OF 4 TO 6 INCHES. TOPSOIL SHALL BE STOCKPILED AT A SUITABLE LOCATION AS APPROVED BY THE ENGINEER. A MINIMUM OF 4 INCHES OF TOPSOIL SHALL BE PLACED ON ALL DISTURBED AREAS NOT SURFACED. PAYMENT WILL NOT BE MADE FOR STOCKPILING TOPSOIL. SEE EARTHWORK SUMMARY FOR FURTHER INFORMATION.

IT IS ESTIMATED THAT ^{1,214}~~1,114~~ CUBIC YARDS OF TOPSOIL (HAUL) WILL BE REQUIRED.

AS CONSTRUCTED			FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	REVISED	VOID	VIII	COLO.	CX 54-0024-05	4	23

SEEDING PLAN

SEEDING, SOIL PREPARATION AND FERTILIZING FOR AN ESTIMATED ^{4.2}~~3.2~~ ACRES WILL BE REQUIRED FOR ALL DISTURBED AREAS NOT SURFACED WITHIN THE PROJECT.

SEEDING AND SOIL PREPARATION ADDITIVES SHALL BE PLACED BY MECHANICAL METHOD UNLESS APPROVED BY THE ENGINEER. THE APPLICATION ORDER SHALL BE AS FOLLOWS: (1) SOIL PREPARATION (WHICH INCLUDES FERTILIZER) (2) SEEDING (3) MULCH WITH TACKIFIER

AN APPROVED MULCH TACKIFIER SHALL BE APPLIED OVER THE SEED AND THE MULCH. TACKIFIER SHALL BE APPLIED AT THE RATE OF 100 LBS/ACRE, OR AS DIRECTED.

SPECIAL REQUIREMENTS:

SOIL PREPARATION SHALL INCLUDE HUMIC ACID-DRY FORM AND BISOL PLUS 7-3-3 (MICROBIAL BIOMAS SOIL AMENDMENT), OR APPROVED EQUALS. APPLICATION RATE SHALL BE 1200 LBS (DRY FORM) PER ACRE FOR EACH SOIL ADDITIVE; 2400 LBS/ACRE COMBINED. METHOD OF APPLICATION SHALL BE AS PER MANUFACTURER'S RECOMMENDATIONS.

HUMIC ACID-DRY FORM SHALL MEET THE FOLLOWING: THE MATERIAL SHALL BE CERTIFIED WITH TEST RESULTS TO MEET THE FOLLOWING MINIMUM REQUIREMENTS:

MAX. 10% RETAINED ON A #50 MESH SCREEN
PH 4 PLUS OR MINUS 1
20% MAXIMUM INERT INGREDIENT
MINIMUM ACTIVE INGREDIENTS
80% ORGANIC HUMUS
55% HUMIC ACID, DERIVED FROM LEONARDITE

ALL FINISHED SLOPES SHALL BE LEFT IN A ROUGHENED CONDITION.

DUE TO LOW PRECIPITATION AND HIGH VISIBILITY OF THE SITE, DRILL SEEDING IS HIGHLY RECOMMENDED TO ENSURE MOISTURE AND SOIL CONTACT TO THE SEED.

EXPOSED ROCK SHELFES OR BENCHES SHALL BE TOPSOILED, SEEDDED, AND MULCHED AS DIRECTED.

THE FOLLOWING TYPES AND RATES SHALL BE USED:

COMMON NAME	BOTANICAL NAME	LBS. PLS/ACRE
SLENDER WHEATGRASS V. SAN LUIS	ELYMUS TRACHYCAULUS	7
WESTERN WHEATGRASS V. ROSANNA	PASCOPYRUM SMITHII	16
HARD FESCUE	FESTUCA OVINA V.	1
ALFALFA CLOVER	DURIUSCULA	1
YARROW	TRIFOLIUM	1
	FRAGIFERUM	1
	ACHILLEA	1
ROCKY MTN. PENSTEMON	MILLEFOLIUM	0.1
ARIZONA FESCUE V. REDONDO	PENSTEMON STRICTUS	1
INDIAN RICEGRASS V. NEZPAR	FESTUCA ARIZONICA	4
	ORYZOPSIS	6
CANBY BLUEGRASS	HYMENOIDES	0.5
NEEDLE AND THREAD	POA CANBYI	3
BLUE GRAMA V. HACHITA	STIPA COMATA	1
	BOUTELOUA GRACILIS	1
TOTAL		40.6 LBS.

FERTILIZER (NUTRIENT REQUIREMENT) LBS./ACRE AVAILABLE

POTASSIUM 75
PHOSPHORUS 40
NITROGEN 80

SEEDING APPLICATION: DRILL SEED 0.25 INCH TO 0.5 INCH INTO THE TOPSOIL.

MULCHING MATERIAL:

2 TONS PER ACRE OF CERTIFIED WEED FREE NATIVE HAY SHALL BE MECHANICALLY CRIMPED INTO TOPSOIL.

DISTURBED SLOPES 2:1 OR STEEPER SHALL HAVE SOIL RETENTION BLANKET (SPECIAL) INSTALLED PER PROJECT SPECIAL PROVISION 216 OR AS DIRECTED BY ENGINEER.

PROJECT TOTALS

SEEDING (NATIVE) ~~3.2~~ 4.2 ACRES
MULCHING ~~4061~~ 4061 SQ. YDS
SOIL RETENTION BLANKET (SPEC) ~~24~~ 34 CLBS
MULCH TACKIFIER

ANY AREAS BEYOND STAKED LIMITS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AND RESEEDDED AS DIRECTED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE.

FINAL
SUMMARY OF ~~APPROXIMATE~~ QUANTITIES

AS CONSTRUCTED

NO REVISIONS

REVISÉ

 VOID

DIVISION

PRCJ. NO.

SHEET
NO

COLO.

CX 54-0024-05

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INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY														PROJECT TOTALS	
						PLAN	AS CONST.									PLAN	AS CONST.				
BOOK	PAGE	SHEET																			
30	5		201	CLEARING AND GRUBBING	L S	1	1													1	1
			202	REMOVAL OF HEADWALL	EACH	3	3													3	3
			202	REMOVAL OF GROUND SIGN	EACH	14	14													14	14
			202	REMOVAL OF GUARDRAIL TYPE 1	LF	1,000	1,000													1,000	1,000
			202	PLUG CULVERT	EACH	1	1													1	1
			203	UNCLASSIFIED EXCAVATION (COMPLETE IN PLACE)	CY	9,654	10,004													9,654	10,004
			207	TOPSOIL	CY	1,714	1814													1,714	1814
			212	SEEDING (NATIVE)	ACRE	3.2	4.2													3.2	4.2
			213	MULCHING	ACRE	2.4	3.4													2.4	3.4
			213	MULCH TACKIFIER	LB	240	340													240	340
			216	SOIL RETENTION BLANKET (SPECIAL)	SY	4,061	4,061													4,061	4,061
			403	HOT BITUMINOUS PAVEMENT (GRADING C) (ASPHALT)	TEN	2,712	2,537													2,712	2,537
			411	EMULSIFIED ASPHALT (SLOW-SETTING)	GAL	1,666	729													1,666	729
			606	GUARDRAIL TYPE 3 (6-3 POST SPACING)	LF	1,300	1,000													1,300	1,000
			606	END ANCHORAGE TYPE 3E	EACH	2	2													2	2
			612	DELINEATOR (TYPE I)	EACH	29	29													29	29
			612	DELINEATOR (TYPE II)	EACH	22	22													22	22
			612	DELINEATOR (TYPE III)	EACH	8	8													8	8
			614	SIGN PANEL (CLASS I)	SF	31	31													31	31
			614	SIGN PANEL (CLASS II)	SF	99	75													99	75
			614	SIGN PANEL (CLASS III)	SF	72	76													72	76
			614	TIMBER SIGN POST 4X4 INCH	LF	126	126													126	126
			614	TIMBER SIGN POST 6X6 INCH	LF	223	223													223	223
			617	18 INCH CULVERT PIPE	LF	131	131													131	131
			617	24 INCH CULVERT PIPE	LF	108	108													108	108
			620	FIELD LABORATORY (CLASS 1)	EACH	1	1													1	1
			625	CONSTRUCTION SURVEYING	L S	1	1													1	1
			626	MOBILIZATION	L S	1	1													1	1
			627	PAVEMENT MARKING PAINT	GAL	50	46													50	46
			630	FLAGGING	HOURL	600	737													600	737
			630	TRAFFIC CONTROL SUPERVISOR	DAY	55	33													55	33
			630	CONSTRUCTION TRAFFIC SIGN (PANEL SIZE B)	EACH	16	16													16	16
			630	TRUCK CHANNELIZING DEVICE	EACH	40	40													40	40

FINAL

NO REVISIONS

☐ VOI

☐ VOI

SHEET
NO.

6

[illegible]

STRUCTURE QUANTITIES

AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	CX 54-0024-05	7	23

LOCATION	① UNCLASSIFIED EXCAVATION		* STRUCTURE EXCAVATION	* STRUCTURE BACKFILL (CLASS 2)	REMOVAL OF HEADWALL	PLUG CULVERT	Δ CULVERT PIPE		'H' OVER CULV.	* END SECTION		MISCELLANEOUS
	CUBIC YARDS						LIN. FT.			EACH		
	DITCH	EMB					CU. YDS.	CU. YDS.		EACH	EACH	
2+26 LT.			3	5	1			22	6		1	
12+70 (LT & RT)	6		10	20	1			33 Lt 53 Rt	9		1 Lt 1 Rt	MODIFY INLET DITCH
21+86 (LT & RT)			3	7	1			10 Lt 26 Rt	6		1 Lt 1 Rt	
ENTRANCE DRIVE												
49+65						1						
50+00		22	45	14				95	6	2		
												NOTE:
												* FOR INFORMATION ONLY
												Δ CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR APPROVAL CONNECTION DETAILS TO THE EXISTING CULVERTS.
												EXISTING CULVERTS ARE CSP.
PLAN TOTALS	6	22	* 61	* 46	3	1		131	108		* 4	* 3

① CARRIED TO EARTHWORK SUMMARY

SURFACING PLAN

AS CONSTRUCTED		FED. ROAD DISTRICT	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	REVISED	VIII	COLO.	CX 54-0024-05	8	23

LOCATION	SOURCE	QUANTITY - TONS HOT BITUMINOUS PAVEMENT (GRADING C) (ASPHALT)				* QUANTITY - SQ. YDS. REMOVAL OF ASPHALT MAT	
		2 INCH TOP LAYER		2.75 INCH BOTTOM LAYER		PLAN	FINAL
		PLAN	FINAL	PLAN	FINAL		
<u>S.H. 24</u>							
STATION 1+00							
TO							
STATION 4+99.54	C	215	215	106	106		
STATION 4+99.54	O						
TO	N						
STATION 12+96	T	623	523	468	468		
STATION 12+96	R						
TO	A						
STATION 23+14.92	C	550	475	278	278		
ENTRANCE DRIVE	T						
STATION 49+28	R						
TO	'						
STATION 50+75	S	104	104	143	143		
Δ IRREGULARITIES AND FOR CROWN CORRECTION		225	225				
STATION 5+55 RT. WEST ENTRANCE						276	276
STATION 9+30 RT. EAST ENTRANCE						414	414
TOTALS		1,717	1,542	995	995	690	690
PLAN TOTALS		2537 2742					

IT IS ESTIMATED THAT ³³³~~578~~ GALLONS OF EMULSIFIED ASPHALT (SS) WILL BE REQUIRED FOR TACK COAT.

IT IS ESTIMATED THAT ⁴⁰⁰~~988~~ GALLONS OF EMULSIFIED ASPHALT (SS) WILL BE REQUIRED FOR PRIME COAT.

* FOR INFORMATION ONLY, TO BE INCLUDED IN UNCLASSIFIED EXCAVATION (CIP).

Δ THE ENGINEER MAY APPROVE GRADE CX FOR CROWN CORRECTION TO BE PAID FOR AS GRADE C

STABILIZATION DATA

WIDENED SECTION:

20 YEAR 18K ESAL'S	=	680,000
1992 ADT	=	1,850
MIN. REQUIRED R-VALUE	=	60
RELIABILITY	=	70%
OVERALL DEVIATION	=	0.44
TERMINAL SERVICEABILITY	=	2.5
SERVICEABILITY LOSS	=	2.0
STRUCTURAL NUMBER	=	2.01
REQUIRED HBP THICKNESS	=	4.75*

OVERLAY SECTION:

10 YEAR 18K ESAL'S	=	319,000
1992 ADT	=	1,850
MIN. REQUIRED R-VALUE	=	60
RELIABILITY	=	70%
OVERALL DEVIATION	=	0.44
TERMINAL SERVICEABILITY	=	2.5
SERVICEABILITY LOSS	=	2.0
REQUIRED STRUCTURAL NUMBER	=	0.23
DESIGN SN	=	1.77
EXISTING ROADWAY SN	=	1.54
REQUIRED HBP THICKNESS	=	2.00*

SUMMARY OF EARTHWORK, TOPSOIL, AND WETTING QUANTITIES

UNCLASSIFIED EXCAVATION (CIP) ①	CU. YD.
ROADWAY	9.722
S.H. 24 MAINLINE (FROM COMPUTER)	3.582
ENTRANCE DRIVE (FROM COMPUTER)	16
FROM STRUCTURE QUANTITIES	6
DISPOSAL AREA PREPARATION	50
TOTAL	9.054
TOTAL TOPSOIL ②	10.004
TOTAL TOPSOIL	1.685
S.H. 24 MAINLINE	1.685
ENTRANCE DRIVE	129
TOTAL TOPSOIL	12.4
THE FOLLOWING IS FOR INFORMATION ONLY	
WETTING (FOR INFORMATION ONLY)	M. GAL.
COMPACTION	300
COMPACTION (AASHTO T180) (FOR INFORMATION ONLY)	CU. YD.
EMBANKMENT (NET) (ROADWAY)	7.747
BASES OF CUTS AND FILLS	3.494
EXCESS EXCAVATION	745
TOTAL COMPACTION	11,986
EMBANKMENT NET	
S.H. 24 MAINLINE (FROM COMPUTER)	6,770
ENTRANCE DRIVE (FROM COMPUTER)	955
FROM STRUCTURE QUANTITIES	22
TOTAL	7,747
ROADWAY QUANTITIES BALANCE (FOR INFORMATION ONLY)	CU. YD.
EXCAVATION NET	
UNCLASSIFIED EXCAVATION (CIP)	9.054
EMBANKMENT NET	
EMBANKMENT	7,747
EMBANKMENT X FACTOR 1.15	8,909
EXCESS EXCAVATION	745

** EXCESS EXCAVATION IS TO BE PLACED AND COMPACTED AT A LOCATION TO BE STAKED BY THE FOREST SERVICE.

GUARDRAIL TABULATION

LOCATION	REMOVAL OF GUARDRAIL TYPE 1	GUARDRAIL TYPE 3 6'-3'	END ANCHORAGE TYPE 3E
	LIN. FT.	LIN. FT.	EACH
APPROACH TO PROJECT TO STA. 4+00	1,000'	1,000'	2
TOTALS	1,000'	1,000'	2

NOTES:

1. New Guardrail Type 3 shall be Weathered Steel.
2. Guardrail Posts shall be a minimum length of 7 feet.
3. Guardrail shall be located 3 to 4 feet off of the existing edge of oil. Location shall be approved by the Engineer.
4. The existing cable guardrail shall remain in place during the construction of the new guardrail unless otherwise approved.
5. Reflective tabs shall have reflective sheeting applied to both faces, (back to back).
6. The Contractor shall provide a written method of construction for guardrail to the Engineer for approval. This method statement shall include a schedule of work that may be required to maintain the function of the existing guardrail during the construction of the new guardrail.

① IMPORTANT EARTHWORK SUMMARY NOTES

Computer earthwork quantities are based from original ground to finished grade or roadway subgrade (including topsoil). See computer earthwork reports and computer generated cross sections.

② Sufficient topsoil exists within the project limits. If the Contractor elects to utilize this source the Contractor shall adjust the required earthwork balance as required. Pay quantities will be based on PLAN quantities shown, unless otherwise approved by the Engineer.

AS CONSTRUCTED	FED. ROAD DIVISION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTAL
NO REVISIONS ☐ REVISED ☐ VOID ☐	VIII	COLO.	CX 54-0024-05	9	23

DELINEATOR TABULATION

LOCATION Δ	REMOVAL ## OF DELINEATORS	DELINEATORS #					
		TYPE I		TYPE II		TYPE III	
	EACH	EACH	EACH	EACH	EACH	EACH	EACH
		RT	LT	RT	LT	RT	LT
WITHIN WORK LIMITS	19						
1+11		1	1				
1+63		1	1				
2+16		1	1				
2+26 CROSS CULVERT						1	1
2+69		1	1				
3+21		1	1				
3+74		1	1				
4+27		1	1				
4+70				1			
5+32				1			
5+70				1			
6+70							
6+91				1			
7+70				1			
9+97				1			
10+50							
11+50							
12+50							
12+70 CROSS CULVERT						1	1
13+50						1	
14+50						1	
15+45				1			
18+50				1			
20+73				1			
20+97							
21+85 CROSS CULVERT		1	1			1	1
22+21							
22+45		1	1				
22+95							
ENTRANCE DRIVE CURVES							
50+00 CROSS CULVERT		3	3			1	1
** APPROACH TO PROJECT BEHIND GUARDRAIL AT 50 FT. SPACING					12		
COLUMN TOTALS	19	12	17	22		4	4
PROJECT TOTALS		29		22		8	

NOTE:

*** - These delineators are to have reflectors placed back to back.

- Delineators are to be installed in accordance with STANDARD S-612-1.

For Information Only

Δ - Actual location and spacing shall be as approved by the Engineer.

It is estimated that the following reflectors will be required:

Crystal - 73
Yellow - 24



DEPARTMENT OF TRANSPORTATION - STATE OF COLORADO

CONTROL SURVEY DIAGRAM

Project CX 54-0024-05
 U.S. 24 M.P. 254.3 to 254.5
 Wilkerson Pass Rest Area
 Sections 1 and 2, T. 12 S., R. 73 W., 6th P.M.
 Park County, Colorado

COORDINATE SUMMARY TABLE
 (UNADJUSTED FIELD DATA)

POINT	NORTHING	EASTING	ELEV. (H.)
CM-MP 253.9	10130.58	19770.29	9456.83
CM-MP 254.1	10000.00	20000.00	9473.61
CM-MP 254.2	9495.54	20378.28	9502.17
CM-MP 254.3	8693.94	20307.74	9505.35
CM-MP 254.4	8345.41	20608.03	9502.60
CM-MP 254.5	8188.19	20927.72	9490.21
CM-MP 254.6	8174.79	21513.85	9460.44
CM-MP 254.7	7988.51	22339.70	9416.51
WP 96	9983.10	20044.94	---
WP 97	9522.95	20402.64	---
WP 98	8692.29	20312.77	---
WP 99	8378.46	20756.57	---
WP 100	8227.32	21531.64	---
B.M. W 176 1934	---	---	9401.60
WP 88	7662.05	22876.40	---
WP 89	8030.65	22203.40	---
WP 90	8131.23	21737.54	---
E 1/4 SEC. 2	9142.52	22428.79	---
SE COR. SEC. 2	6403.53	22369.43	---

TRAVERSE SUMMARY TABLES
 (UNADJUSTED FIELD DATA)
 PRIMARY CONTROL TRAVERSE

OCCUPIED POINT	BACK POINT	AHEAD POINT	MEAN HORIZ. DIST. (±.02")	MEAN HORIZ. ANG. RT. (±.5")
CM-MP 253.9	---	CM-MP 254.1	264.23	---
CM-MP 254.1	CM-MP 253.9	CM-MP 254.2	630.54	203°31'06"
CM-MP 254.2	CM-MP 254.1	CM-MP 254.3	804.69	221°53'40"
CM-MP 254.3	CM-MP 254.2	CM-MP 254.4	460.06	134°13'23"
CM-MP 254.4	CM-MP 254.3	CM-MP 254.5	356.26	156°56'03"
CM-MP 254.5	CM-MP 254.4	CM-MP 254.6	586.28	155°07'22"
CM-MP 254.6	CM-MP 254.5	CM-MP 254.7	846.60	191°24'05"
CM-MP 254.7	CM-MP 254.6	WP 100	842.61	3°45'12"
WP 100	CM-MP 254.7	WP 99	789.67	174°34'12"
WP 99	WP 100	WP 98	543.55	240°13'53"
WP 98	WP 99	WP 97	835.51	204°54'34"
WP 97	WP 98	WP 96	582.83	135°57'52"
WP 96	WP 97	CM-MP 253.9	311.74	156°05'26"
CM-MP 253.9	WP 96	CM-MP 254.1	264.23	1°23'04"

NOTE: Closure of unadjusted control traverses are calculated to be greater than 1 part in 50000.

SIDESHOT TIES TO ALIQUOT CORNERS

OCCUPIED POINT	BACK POINT	AHEAD POINT	MEAN HORIZ. DIST. (±.02")	MEAN HORIZ. ANG. RT. (±.5")
CM-MP 254.7	CM-MP 254.6	E 1/4 SEC. 2	1157.41	81°42'18"
CM-MP 254.7	CM-MP 254.6	WP 90	618.84	0°37'22"
WP 90	CM-MP 254.7	E 1/4 SEC. 2	1224.97	291°01'04"

OCCUPIED POINT	BACK POINT	AHEAD POINT	MEAN HORIZ. DIST. (±.02")	MEAN HORIZ. ANG. RT. (±.5")
CM-MP 254.7	CM-MP 254.6	WP 89	142.66	4°28'05"
CM-MP 254.7	CM-MP 254.6	WP 88	628.19	198°35'59"
WP 89	CM-MP 254.6	SE COR. SEC. 2	1635.56	252°21'59"
WP 88	CM-MP 254.7	SE COR. SEC. 2	1356.80	260°37'51"

AS CONSTRUCTED
 NO REVISIONS ☐ REVISED ☐ VOID ☐

FED. ROAD DISTRICT	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	CX 54-0024-05	10	23



TYPICAL CONTROL MONUMENT CAP



U.S.C.G.S. B.M. W 176 1934

BASIS OF BEARINGS: Bearings used in the calculation of coordinates are based on an assumed bearing of S 60°23' E from CM-MP 253.9 to CM-MP 254.1 as used in the U.S. Highway 24 construction project FAP 158-B. CM-MP 253.9 and CM-MP 254.1 are described in detail below.

BASIS OF ELEVATIONS: Project is based on U.S. Coast and Geodetic Survey benchmark W 176 1934 which is a standard brass disk (as shown) set in 6' by 6' granite boulder with an elevation of 9401.60' (NGVD 1929). The benchmark elevation is from Colorado line 50 relevelled in 1947 and adjusted in 1960.

△ CM-MP - Control Monuments are set CDOT type 2 monuments, a 3-1/4" dia. aluminum control monument cap (as shown) on a 3' X 3/4" dia. flanged aluminum security rod on a 3' X 3/4" dia. smooth aluminum rod.

△ WORK PT. - Work points are set oak hubs with a tack and guard stake.

○ RIGHT-OF-WAY Markers found are 4"x4" square tapered concrete posts with "STATE HWY R OF W" stamped in the side.

⊗ MISCELLANEOUS SURVEY MONUMENTS (see diagram for specific descriptions).

NOTE: This control survey is for the use of Colorado Department of Transportation personnel. The survey is not a complete Boundary Survey. Title Policy, Title Commitment, and Title Research were not part of this control survey, therefore, easements, rights, and restrictions of record are not shown. The verification of the physical evidence with relation to easements, rights of way, property boundaries, and restrictions, as described in the instruments of record, was not included in this control survey.

NOTE: According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event may any action based upon any defect in this survey be commenced more than ten years from the date of the statement shown.

NOTE: No guarantee as to the accuracy of the information contained on the attached drawing is either stated or implied unless this copy bears an original signature of the professional land surveyor hereon named.

NOTE: The coordinates for the E 1/4 Sec. 2 and the SE Cor. Sec. 2 are means of the calculated coordinates from the two side shots to the points.

SURVEYORS STATEMENT. I, Joseph P. Conway, a Professional Land Surveyor in the State of Colorado, hereby state that this Control Survey Diagram was prepared under my supervision this _____ day of _____, from a field survey performed under my supervision from September 8, 1992 to March 10, 1993, and checking for and on behalf of the Department of Transportation, State of Colorado, and is not a Land Survey Plat or Right-of-Way Survey Plat and to the best of my knowledge and belief this control survey, as shown, meets the minimum horizontal control tolerances of a Type B Survey and this topographic survey, as shown, meets the minimum horizontal control tolerances of a Type D Survey as listed in the Colorado Department of Transportation Survey Manual Chapter Three (Revised 4/29/92).

CONSTRUCTION SURVEYING AND MONUMENTATION REQUIREMENTS:

- This Survey Control Diagram represents the Division established horizontal and vertical control for the project. It is possible that some of the survey control monuments listed have been disturbed or obliterated. It is the Contractor's responsibility to verify the existence and stability of the Control monuments before submitting a bid price.
- If construction activity disturbs any R-O-W marker, property pin, or other survey monument, it is the Contractor's responsibility to replace, restore, or rehabilitate the monument according to State Statutes and the rules and regulations set forth by the State Board of Registration for Professional Engineers and Professional Land Surveyors.
- A presurvey conference is required before all construction projects begin.
- All Type 1 and Type 2 monuments shall be set flush with the ground. Witness posts shall be installed 1 foot from and facing all Type 1 and Type 2 monuments, or as directed by the Project Engineer.
- Installation of Type 3 and Type 3-A monuments shall be completed in the same day that installation is commenced. Under no circumstances shall holes, in the roadway, be left open overnight.
- When installing Type 3-A monuments, the aluminum access cover shall be positively secured to the PVC pipe with screws. The access cover shall be caulked with asphalt caulking between the cover and the edges of the roadway surface to provide a positive moisture barrier around the access cover.
- Control survey procedures, statistical analysis, and accuracy obtained for horizontal and vertical control shall be documented in the field book.
- Field notes shall be kept in a control survey book, alignment book, bench book, cross-section book, major or minor structure book, as needed for the project.
- Legible copies of the field books shall be submitted to the Project Engineer for review on a monthly basis.
- All changes made to plan design elements shall be brought to the attention of the Project Engineer in writing.
- It is ultimately the Prime Contractors responsibility to insure that these requirements, as well as any contained in the CDOT specifications, project special provisions, and CDOT Survey Manual are fulfilled under this contract.

Joseph P. Conway L.S. 25618



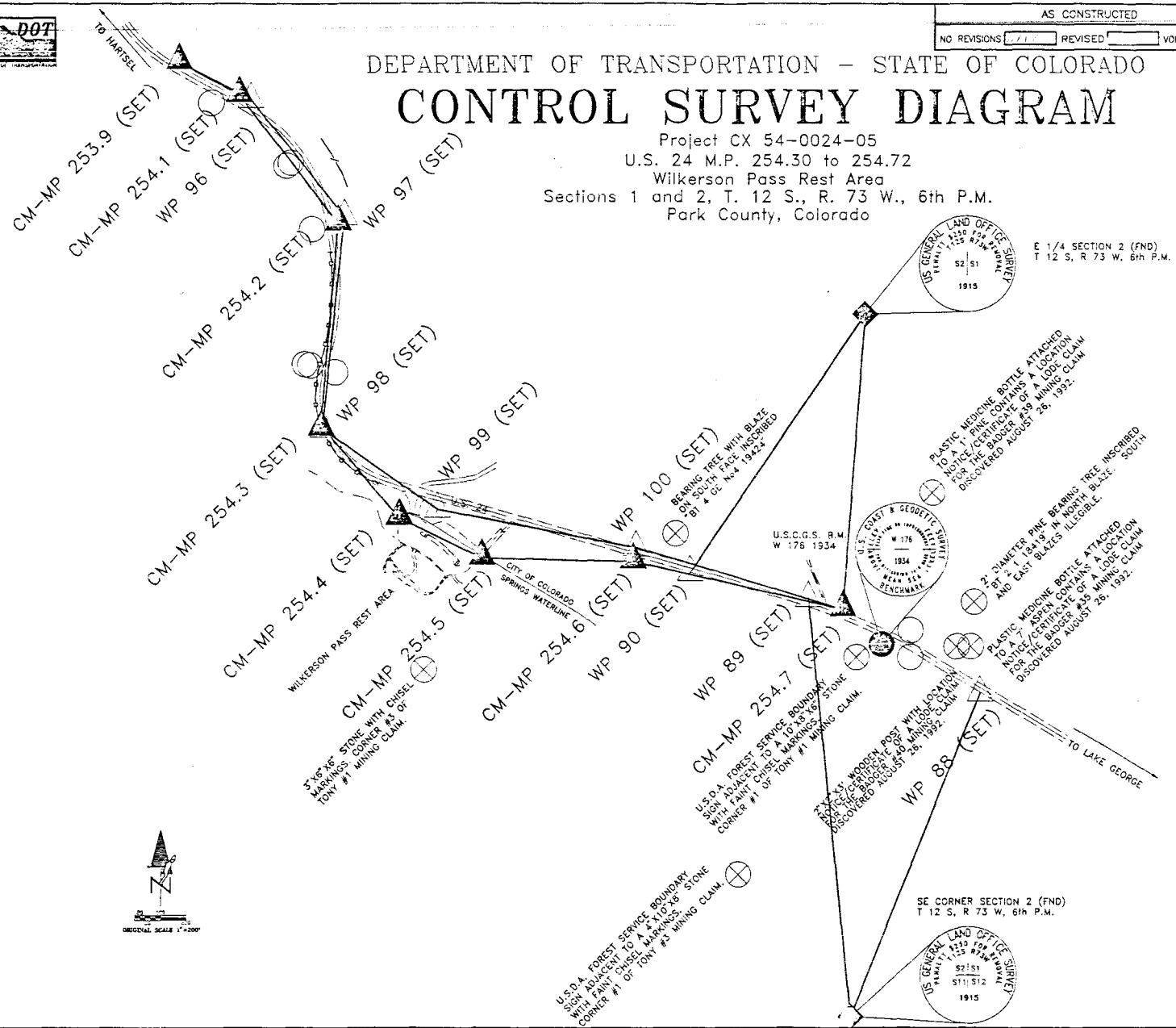
AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID

FED. ROAD SECTION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	CCLO.	CX 54-0024-05	11	23

DEPARTMENT OF TRANSPORTATION - STATE OF COLORADO

CONTROL SURVEY DIAGRAM

Project CX 54-0024-05
U.S. 24 M.P. 254.30 to 254.72
Wilkerson Pass Rest Area
Sections 1 and 2, T. 12 S., R. 73 W., 6th P.M.
Park County, Colorado



- ◆ S.E. CORNER SECTION 2 AND E 1/4 SECTION 2, T. 12 S., R. 73 W., 6th P.M., NOTE: Found 2" brass cap on a 1" diameter iron pipe. Caps are stamped as shown.
- ▲ CM-MP - CONTROL MONUMENTS
- △ WORK POINTS - Work points are set oak hubs with a tack and guard stake.
- R-O-W MARKERS (FND) - No station and offset on markers.
- U.S. COAST AND GEODETIC BENCHMARK (FND) (W 176 1934 EL. 9401.60 FT.)
- ⊗ MISCELLANEOUS SURVEY MONUMENTS (FND) (see diagram for specific description)

Right of Way and Easment Information (For Information Only)

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLD	CX 54-0024-05	12	23

REVISIONS

E 1/4 SECTION 2 (FND)
T 12 S. R 73 W. 6th P.M.

AS CONSTRUCTED
NO REVISIONS ☐ REVISED ☐ VOID ☐

SW 1/4 Section 1,
T. 12 S., R. 73 W.

SE 1/4 Section 2,
T. 12 S., R. 73 W.

USDA, Forest Service

Greate Eastern No. 3

USDA, Forest Service

POINT	NORTHING	EASTING
112 to 113	S.16°02'04"W	68.78'
113 to 114	S.75°06'42"E	107.87'
114 to 115	S.57°59'57"W	89.60'
115 to 116	N.73°57'57"W	167.77'

SURVEY CONTROL POINT TABULATION
(UNADJUSTED FIELD DATA)

POINT	NORTHING	EASTING
CM-MP 253.9	10150.58	19770.28
CM-MP 254.1	10000.00	20000.00
CM-MP 254.2	9495.54	20378.58
CM-MP 254.3	8693.34	20307.74
CM-MP 254.4	8345.41	20608.02
CM-MP 254.5	8188.19	20927.75
CM-MP 254.6	8174.79	21513.85
CM-MP 254.7	7988.51	22338.70
E 1/4 SEC. 2	9142.52	22428.79
SE COR. SEC. 2	6403.53	22569.43

PARCEL POINT TABULATION

POINT	NORTHING	EASTING
100	8570.262	20515.187
101	8574.597	20618.618
102	8218.809	21856.712
103	8153.848	21938.035
104	8407.817	20582.234
105	8514.030	20906.792
106	8123.453	21410.220
107	8148.503	21449.772
108	7944.197	22150.670
109	7852.577	22400.585
110	8007.469	22404.156
111	8078.751	22199.341
112	8271.535	20894.508
113	8205.531	20875.610
114	8177.814	20875.863
115	8225.298	21055.848
116	8900.692	20240.074
117	8943.320	20245.860
118	8914.630	20362.060
119	8913.857	20372.034
120	8378.557	20669.129

NOTE:
Protect Private Property
Establish Temporary Corner
For Construction Only.

1" P.F. STONE WITH CORREL
MARKING CORNER TO A
CORNER #1 OF TONY NO. 1 CLAIM.

Tony No. 1

Tony No. 3

USDA FOREST SERVICE BOUNDARY
SECTION 2 TO A MARKED CORNER #1 OF TONY NO. 3 CLAIM.

SE CORNER SECTION 2 (FND)
T 12 S., R 73 W. 6th P.M.

UTILITIES

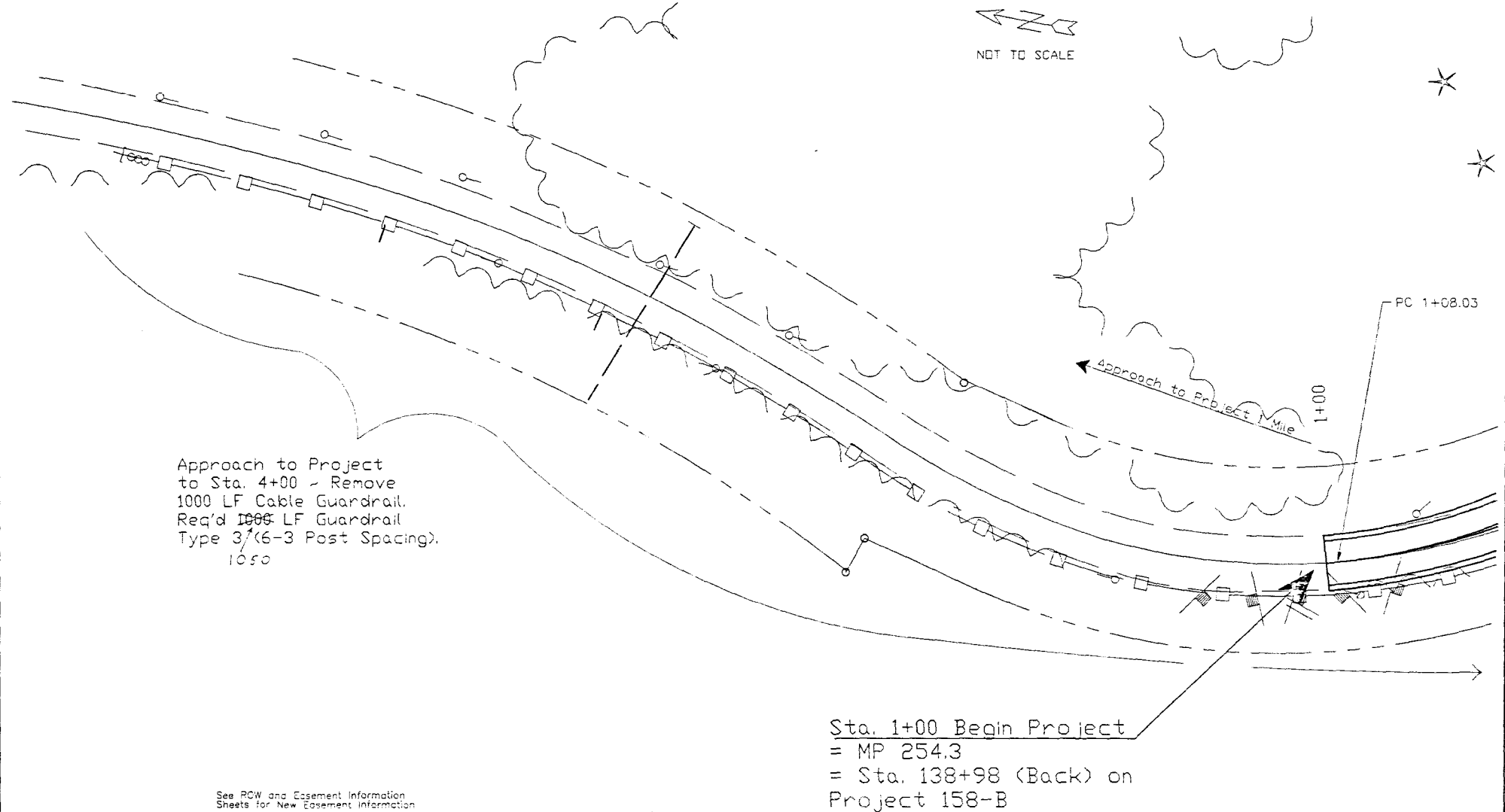
City of Colorado Springs - Water
 IREA - Electric
 US Forest Service - Rest Area Facilities

AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	CX 54-0024-05	13	23

STATE HIGHWAY 24 PLAN SHEET

NOT TO SCALE



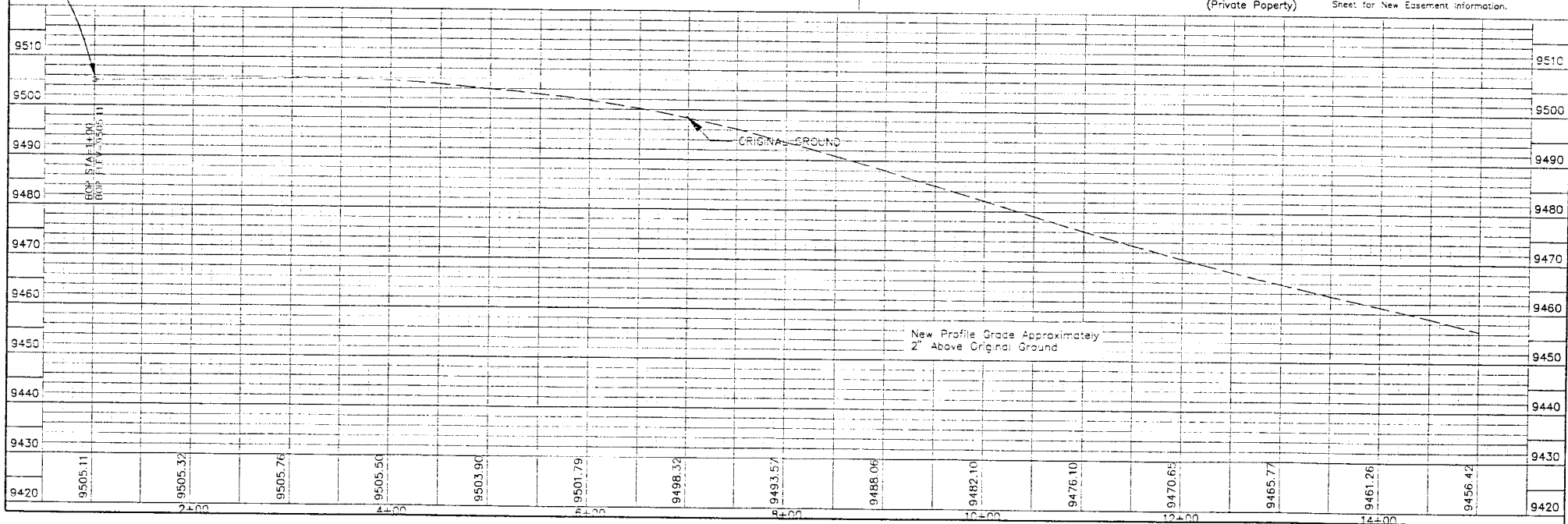
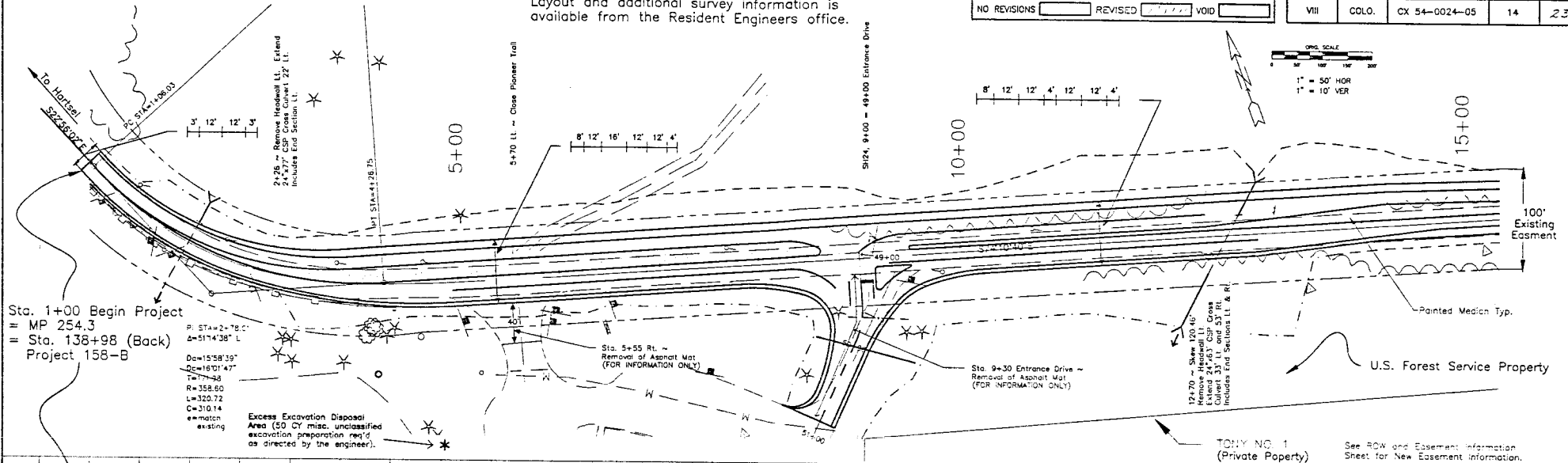
See PCW and Easement Information
 Sheets for New Easement Information

STATE HIGHWAY 24 PLAN SHEET

Note:
Layout and additional survey information is
available from the Resident Engineers office.

AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	CX 54-0024-05	14	23



STATE HIGHWAY 24 PLAN SHEET

Note:
Layout and additional survey information
is available from the Resident Engineer's
office.

PI STA=19+04.79
Δ=1°54'41" R

PI STA=21+96.10
D=4.33 lb ft
Da=277'57"
Dc=277'58"
I=39.10
R=2492.00
L=198.09
C=198.04

AS CONSTRUCTED

NO REVISIONS

REVISÉ

VOID

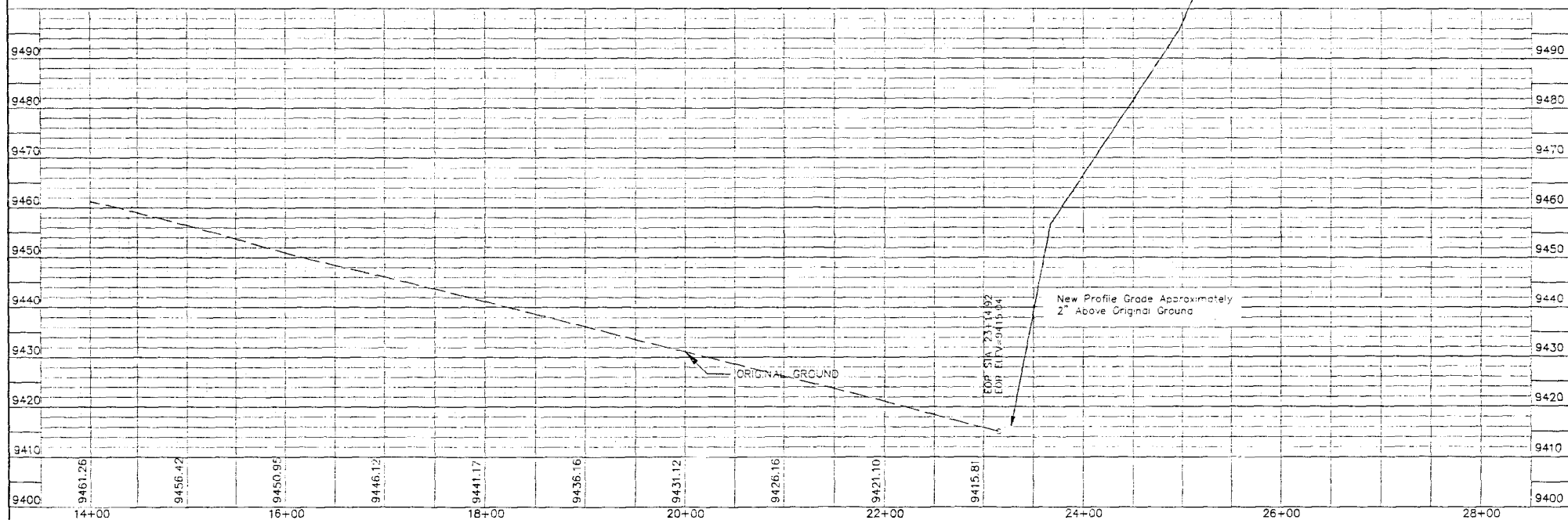
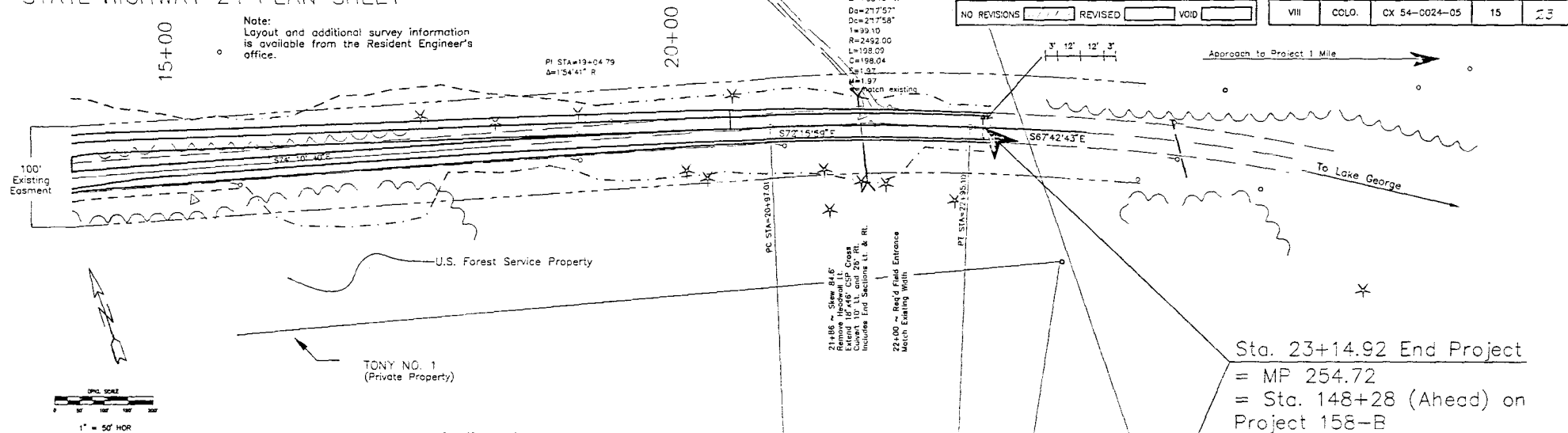
FED ROAD	
REGION	
VIII	

DIVISION
COLO.

PROJ. NO.
CX 54-C024-

SHEET NO.
15

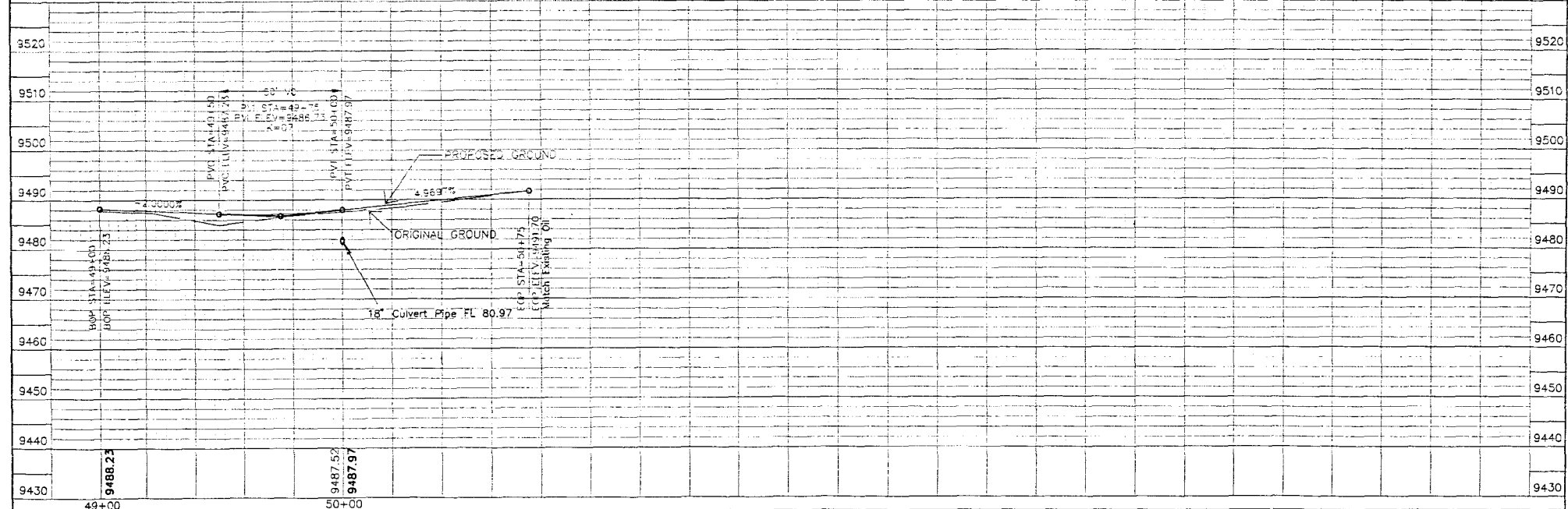
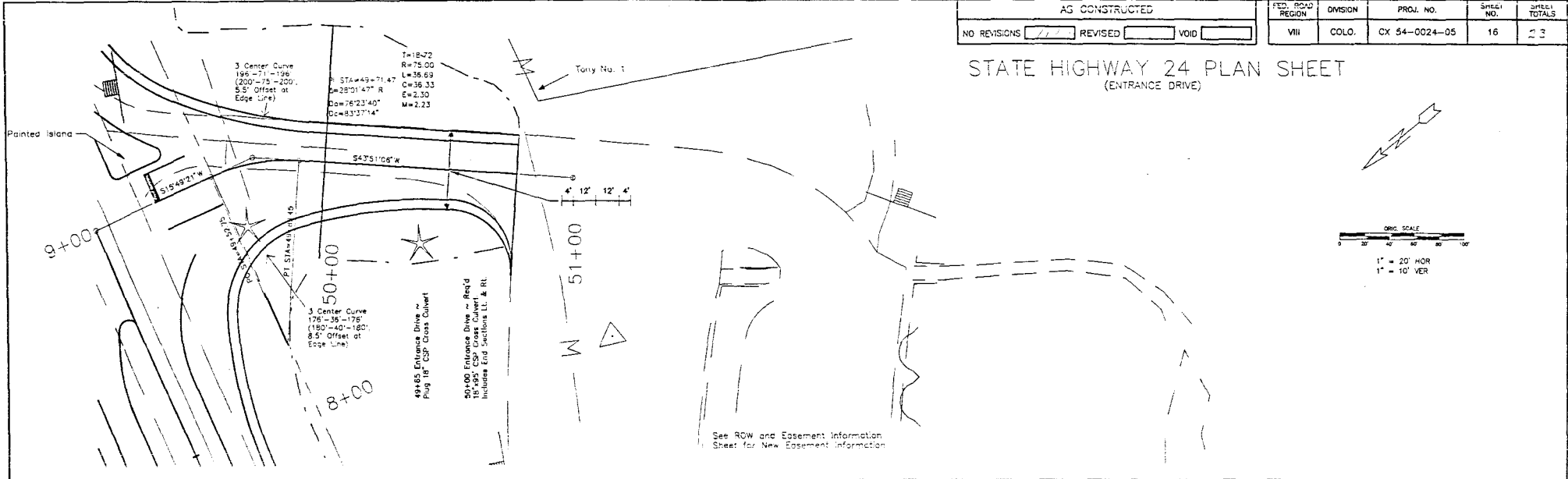
SHEET	1
TOTALS	23



AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	CX 54-0024-05	16	23

STATE HIGHWAY 24 PLAN SHEET (ENTRANCE DRIVE)



1. ALL SIGNS SHALL BE POST MOUNTED AND PLACED IN ACCORDANCE WITH THE STANDARD PLAN S-614-1, "TYPICAL GROUND SIGN PLACEMENT", UNLESS OTHERWISE APPROVED BY THE ENGINEER.
2. SEE CASE XVII OF STANDARD PLAN S-630-1, "TRAFFIC CONTROL FOR HIGHWAY CONSTRUCTION", FOR BASIC PLACEMENT DETAILS OF CONSTRUCTION TRAFFIC CONTROL DEVICES.
3. THE CONTRACTOR SHALL INSTALL THE PERMANENT SPEED LIMIT SIGNS FOR THE PROJECT, PRIOR TO BEGINNING ANY WORK, UNLESS OTHERWISE APPROVED BY THE ENGINEER.

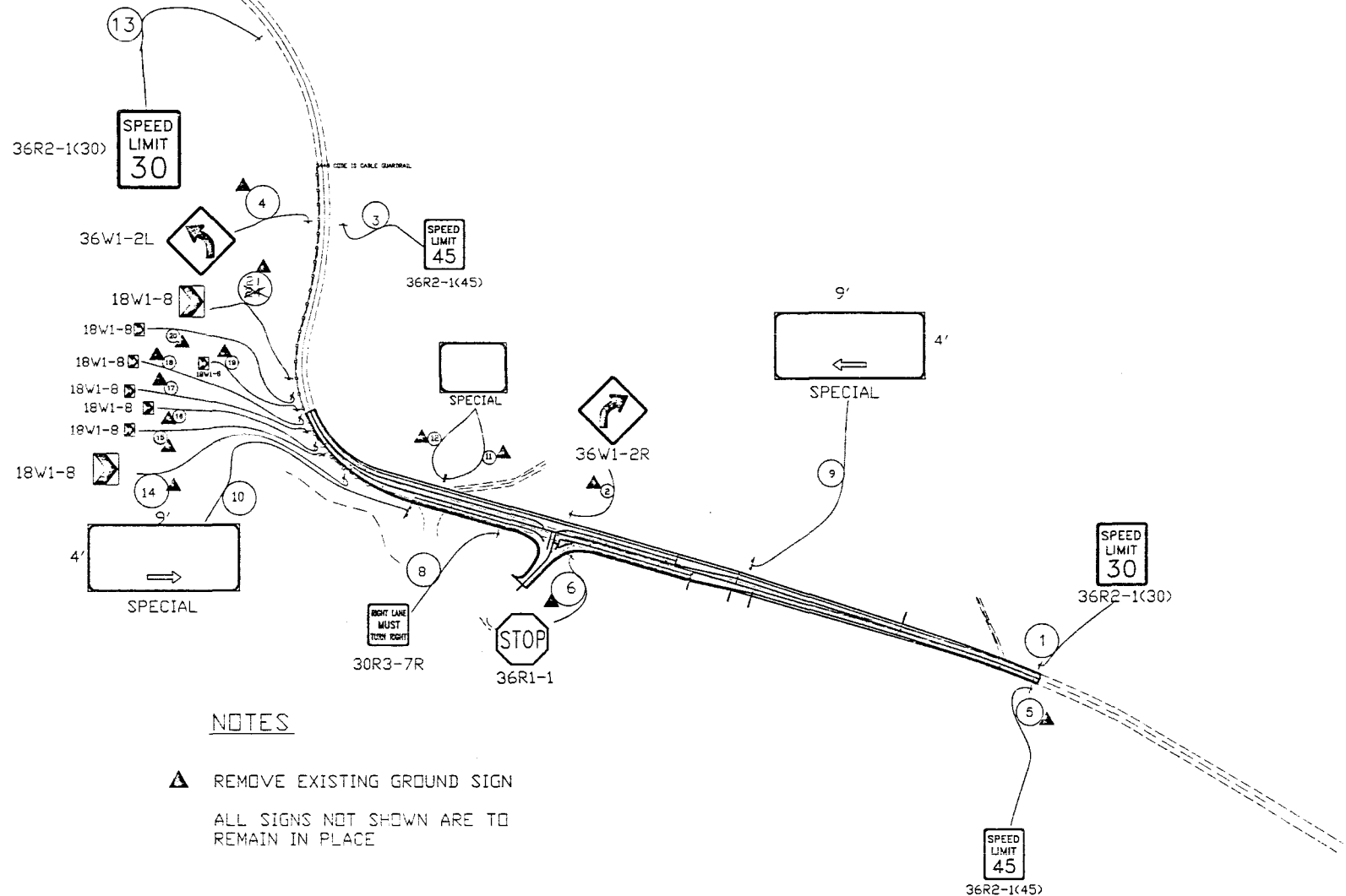
SIGN NO.	SIGN CODE	STATION	SIGN PANEL SIZE	BACK-GROUND COLOR	REMOVE GROUND SIGN (EACH)		NO. OF POSTS	LENGTH OF POST	POST TYPE (LIN.FT.)				SIGN PANEL (SQ.FT.)		
									4X4 TIMBER	6X6 TIMBER	W6X12 BEAM		CLASS I	CLASS II	CLASS III
1	36R2-1(30)	23 + 00 WB	36" X 48"	WHITE			1	17' - 6"		17.5				12.00	
2	36W1-2R	9 + 00	36" DIAMOND	YELLOW	1		1	17' - 0"		17.0				9.00	
3	36R2-1(45)	-5 + 00 WB	36" X48"	WHITE			1	17' - 6"		17.5				12.00	
4	36W2-1L	-5 + 00 EB	36" DIAMOND	YELLOW	1		1	17' - 0"		17.0				9.00	
5	36R2-1(45)	23 + 00 EB	36" X 48"	WHITE	1		1	17' - 6"		17.5				12.00	
6	36R1-1	9 + 60 ENT	36" OCTAGON	RED	1		1	16' - 6"		16.5				9.00	
7	DELETED														
8	30R4-7(R)	7 + 50	30" X 30"	WHITE			1	14' - 0"	14.0			6.25			
9	SPECIAL	14 + 80	9" X 4'	BROWN			2	21' - 6"		43.0				36.00	
10	SPECIAL	4 + 95	9" X 4'	BROWN			2	21' - 6"		43.0				36.00	
11	SPECIAL	5 + 50	48" X 36"	GREEN	1		1	16' - 6"		16.5				12.00	12.00
12	SPECIAL		48" X36"	GREEN	1									12.00	12.00
13	36R2-1(30)	-8 + 00	36" X 48"	WHITE			1	17' - 6"		17.5				12.00	
14	18W1-B	3 + 00 WB	18" X 24"	YELLOW	1		1	14' - 0"	14.0			3.00			
15	18W1-B	2 + 15 EB	18" X 24"	YELLOW	1		1	14' - 0"	14.0			3.00			
16	18W1-B	1 + 95 WB	18" X 24"	YELLOW	1		1	14' - 0"	14.0			3.00			
17	18W1-B	1 + 30 EB	18" X 24"	YELLOW	1		1	14' - 0"	14.0			3.00			
18	18W1-B	1 + 00 WB	18" X 24"	YELLOW	1		1	14' - 0"	14.0			3.00			
19	18W1-B	0 + 80 EB	18" X 24"	YELLOW	1		1	14' - 0"	14.0			3.00			
20	18W1-B	0 + 60 WB	18" X 24"	YELLOW	1		1	14' - 0"	14.0			3.00			
21	18W1-B	0 + 25 EB	18" X 24"	YELLOW	1		1	14' - 0"	14.0			3.00			
					*	14						* 30.25	* 99.00	* 72.00	
	PROJECT TOTALS	TOTALS							126.0	223.0					

* CARRIED TO TABULATION OF SIGNING QUANTITIES.

SIGN LOCATION PLAN

AS CONSTRUCTED			FED. ROAD DISTRICT	DIVISION	PROJ. NO.	SHEET NO.
NO REVISIONS	REVISED	VOID	VIII	COLO.	CX 54-0024-05	19

NOT TO SCALE

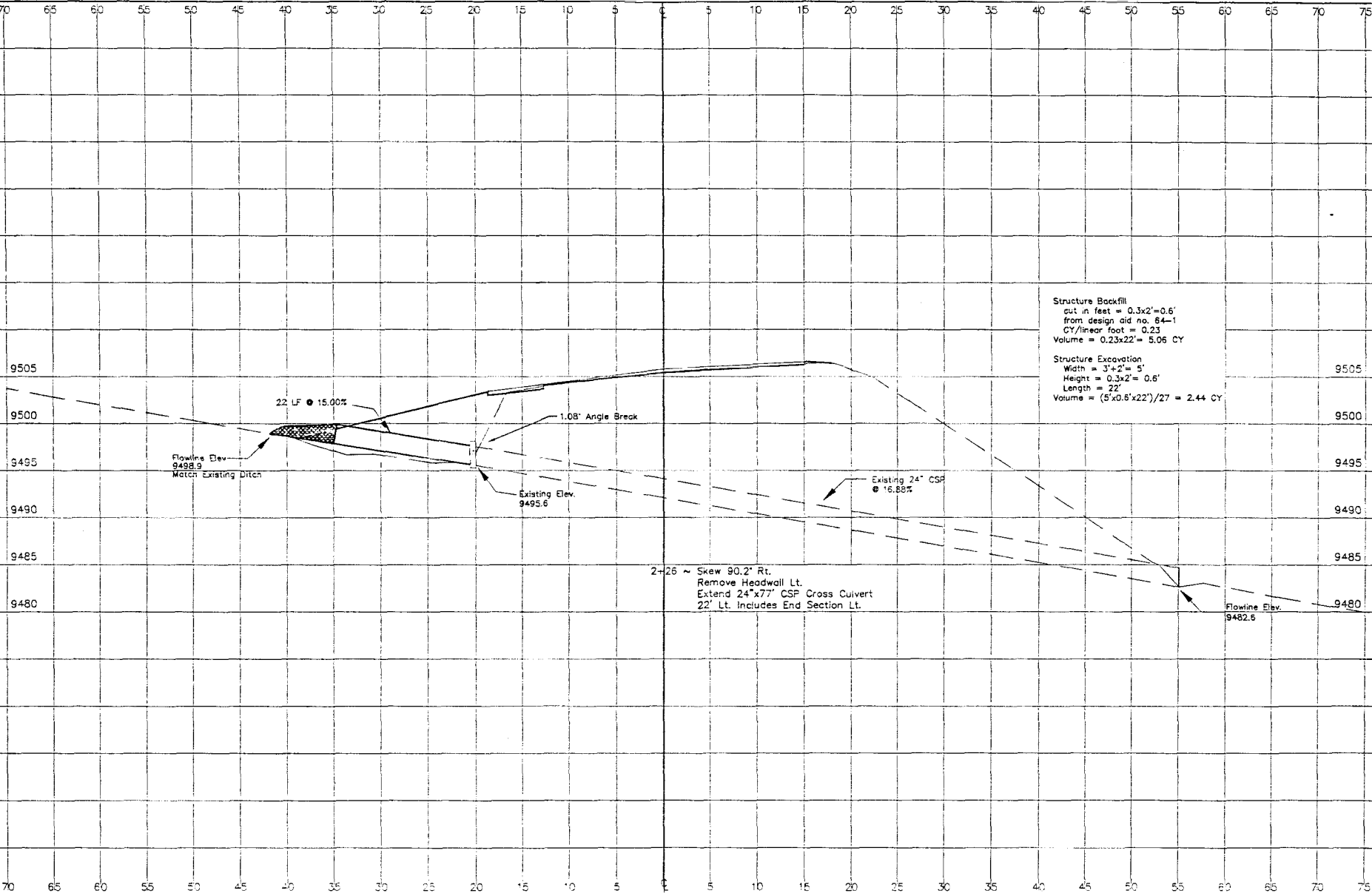


STRUCTURE CROSS SECTION

AS CONSTRUCTED

NO REVISIONS ☒ REVISED ☐ VOID ☐

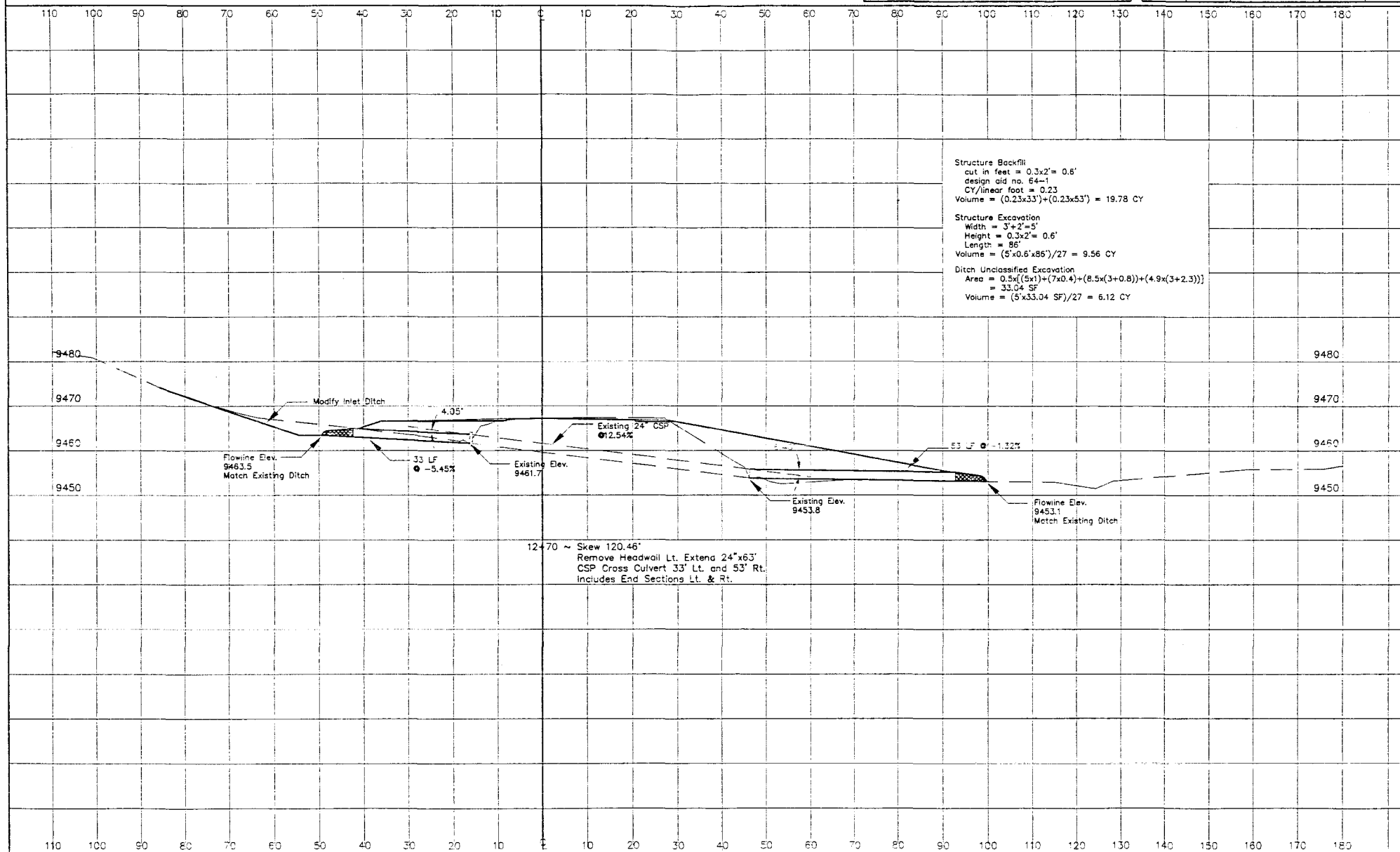
FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	CX 54-0024-05	20	23



STRUCTURE CROSS SECTION

AG CONSTRUCTED		
NO REVISIONS	REVISED	VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	CX 54-0024-05	21	22



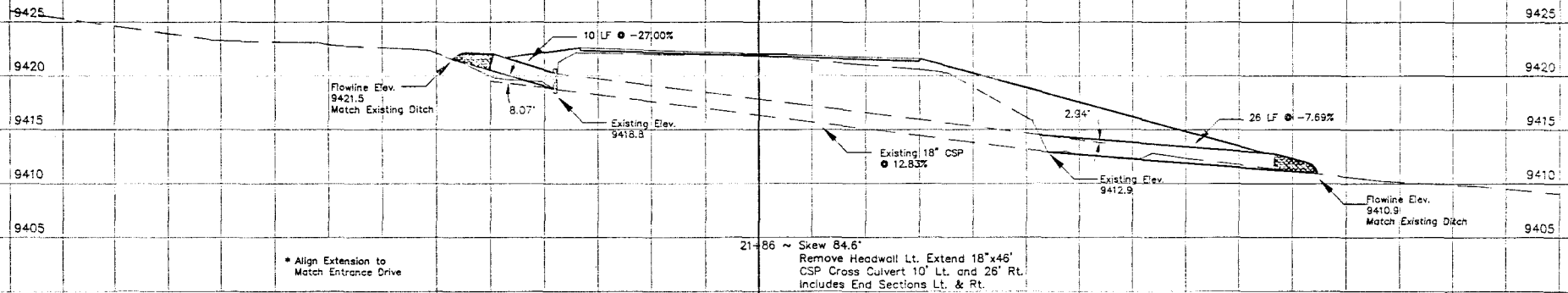
STRUCTURE CROSS SECTION

AS CONSTRUCTED
NO REVISIONS ☐ REVISED ☐ VOID ☐

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	CX 54-0024-05	22	23

Structure Backfill
cut in feet = $0.3 \times 1.5' = 0.45'$
design aid no. 64-1
CY/linear foot = 0.18
Volume = $(0.18 \times 10') + (0.18 \times 26') = 6.48$ CY

Structure Excavation
Width = $3' + 1.5' = 4.5'$
Height = $0.3 \times 1.5' = 0.45'$
Length = $10' + 26' = 36'$
Volume = $(4.5 \times 0.45 \times 36') / 27 = 2.7$ CY



STRUCTURE CROSS SECTION

AS CONSTRUCTED

NO REVISIONS REVISED VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	CX 54-0024-05	23	23

