

Oversight / NHS

FHWA FULL OVERSIGHT?

☒ NO ☐ YES

NATIONAL HIGHWAY SYSTEM?

☒ NO ☐ YES

DEPARTMENT OF TRANSPORTATION

STATE OF COLORADO

HIGHWAY CONSTRUCTION BID PLANS OF PROPOSED

FEDERAL AID PROJECT NO. BR 069A-019

STATE HIGHWAY NO. 69

CUSTER COUNTY

CONSTRUCTION PROJECT CODE NO. 14087

TABULATION OF LENGTH AND DESIGN DATA

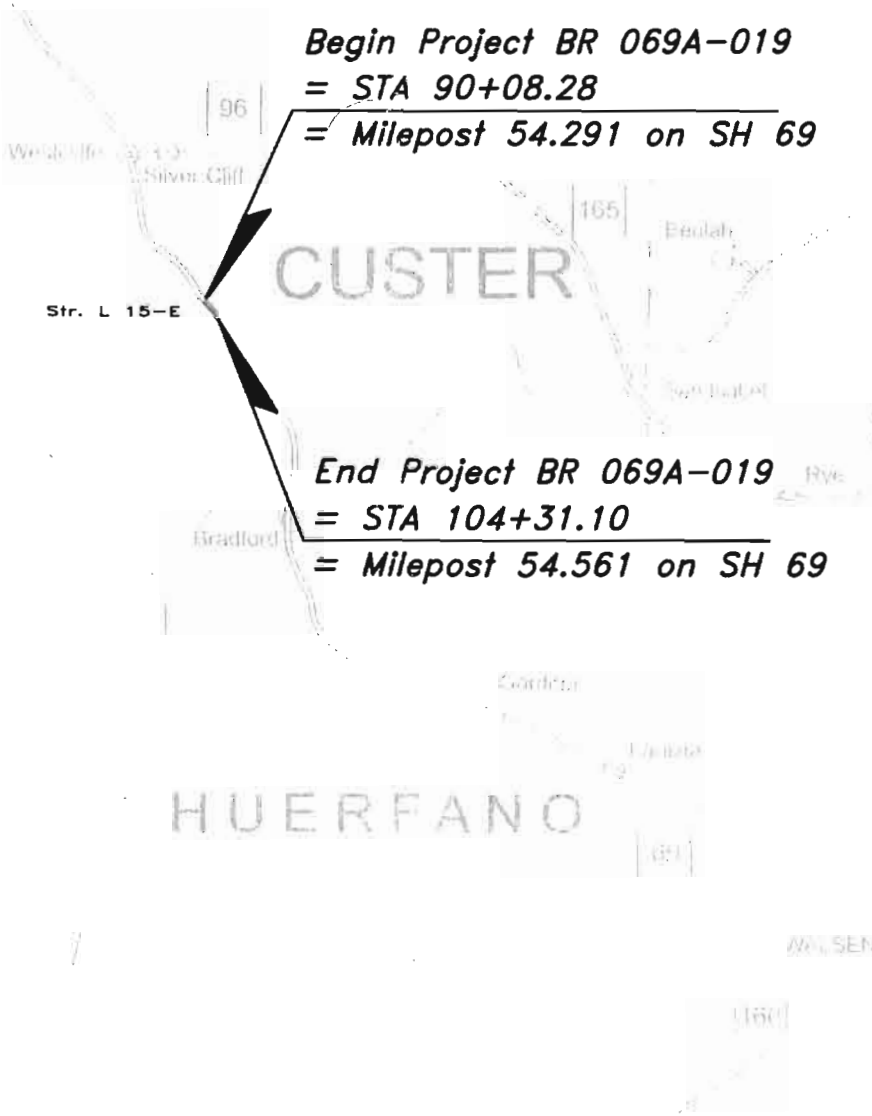
STATION TO STATION	CBC	ROADWAY
	Lin. Ft.	Lin. Ft.
Begin Project = Sta. 90+08.28 = M.P. 54.291		765.08
97+73.36		
Str. L 15-E = Sta. 98+05.03 = M.P. 54.442	63.33	
98+36.69		594.41
End Project = Sta. 104+31.10 = M.P. 54.561		
TOTAL	63.33	1,359.49

SUMMARY	Lin. Ft.	Miles
ROADWAY NET LENGTH	1,359.49	0.258
CBC NET LENGTH	63.33	0.012
PROJECT GROSS LENGTH	1422.82	0.270

DESIGN DATA		
MAXIMUM DEGREE OF CURVE	=	1° 30'
MAXIMUM GRADE	=	1.18 %
MINIMUM SSD VERTICAL	=	>820 feet
MINIMUM SSD HORIZONTAL	=	>820 feet
MAXIMUM DESIGN SPEED	=	55 mph
2004 DESIGN TRAFFIC VOLUME: AADT	=	840
DHV	=	8
TRUCK %	=	6 %
2024 DESIGN TRAFFIC VOLUME: AADT	=	1,537
DHV	=	15
TRUCK %	=	6 %

No change to existing conditions.

SKETCH MAP NOT TO SCALE



INDEX OF SHEETS

	NO.
TITLE AND INDEX SHEET	1
STANDARD PLANS LIST	2
GENERAL NOTES	3
TYPICAL SECTIONS	4 - 6
SUMMARY OF APPROXIMATE QUANTITIES	7 - 8
GEOMETRY	9
TABULATION OF SURFACING	10
TABULATION OF RESET, GUARDRAIL AND FENCING ITEMS	11
STORMWATER MANAGEMENT PLAN	12
CONSTRUCTION TRAFFIC CONTROL DEVICES	13
SURVEY TABULATION	14
SURVEY CONTROL DIAGRAM	15 - 16
ROW PLANS SHEET	17 - 18
ROADWAY PLAN SHEETS	19 - 21
STRUCTURE CROSS SECTION	22
ROADWAY PROFILE SHEET	23
DETOUR PLAN SHEET	24
DETOUR PROFILE	25
BRIDGE GENERAL INFORMATION SHEET	26
BRIDGE GENERAL LAYOUT	27
ENGINEERING GEOLOGY	28
HEADWALL SECTION AND CBC-WINGWALL CONNECTIONS	29
TYPICAL WINGWALL ELEVATION AND WINGWALL SECTIONS	30
WINGWALL PLANS AND CBC-WALL FOOTING CONNECTIONS	31
BRIDGE RAIL TYPE 10H HEADWALL MOUNTED	32

Computer File Information

Creation Date: 06/09/05

Initials: jpg

Last Modification Date: 08/17/05

Initials: jpg

Full Path: C:\Projects\14087\Design\Drawing\TITLE_SHEET.dgn

Drawing File Name: TITLE_SHEET.dgn

CAD Ver.: MicroStation V8

Scale: Not to Scale

Units: English

Index of Revisions

Colorado Department of Transportation

DOT

Region 2 Design/Construction

905 Erie Avenue

Pueblo, Colorado 81002

Phone: (719) 546-5439 FAX: (719) 546-5414

Region 2 - Design & Construction Unit

BDL/jpg

As Constructed

No Revisions:

Revised:

Void:

Contract Information

Contractor:

Resident Engineer: Benjamin "Doug" Lollar

Project Engineer:

PROJECT STARTED: ACCEPTED:

Comments:

Project No./Code

BR 069A-019

14087

Sheet Number 1

PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER	PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER	PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER
■ M-100-1		STANDARD SYMBOLS.	1	M-607-1	■	WIRE FENCES AND GATES (Revised 01/16/04)	78-80	S-612-1	■	TYPICAL DELINEATOR INSTALLATIONS (Revised 10/04)	109-113
■ M-203-1		APPROACH ROADS	2	□ M-607-2		CHAIN LINK FENCE	81-83	S-614-1	□	TYPICAL GROUND SIGN PLACEMENT (Revised 06/04)	114
□ M-203-2		DITCH TYPES.	3	□ M-607-3		BARRIER FENCE	84	S-614-2	□	CLASS I GROUND SIGN INSTALLATIONS (Revised 08/02)	115
M-203-10	■	SUPERELEVATION CROWNED HIGHWAYS (Revised 06/24/04)	4	□ M-607-4		DEER FENCE AND GATES.	85-86	S-614-3	□	CLASS II GROUND SIGN INSTALLATIONS (Revised 10/03)	116
M-203-11	□	SUPERELEVATION DIVIDED HIGHWAYS SHOULDER PIVOT (Rev. 6/24/04)	5	□ M-607-10		PICKET SNOW FENCE	87	S-614-4	□	CLASS III SIGNS, SHEET ALUMINUM PANELS (Revised 06/04)	117-119
M-203-12	□	SUPERELEVATION STREETS (Revised 06/24/04)	6	M-607-15	□	ROAD CLOSURE GATE DROP GATE DETAILS (Issued 06/20/02)	NA	□ S-614-5		BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS	120-121
M-203-13	□	SUPERELEVATION DIVIDED HIGHWAYS CENTER PIVOT (Revised 06/24/04)	7	M-608-1	□	CURB RAMPS (Revised 10/29/03)	88	□ S-614-6		CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS.	122-123
■ M-206-1		EXCAVATION AND BACKFILL FOR STRUCTURES.	8-9	M-609-1	□	CURBS, GUTTERS, AND SIDEWALKS (Revised 10/29/03)	89-90	S-614-8	□	GROUND MOUNTED SIGN SUPPORT DETAILS (Issued 12/03)	NA
□ M-206-2		EXCAVATION AND BACKFILL FOR BRIDGES.	10-11	M-611-1	□	CATTLE GUARD (Revised 10/14/03)	91-92	S-614-10	□	TYPICAL MARKER ASSEMBLY INSTALLATIONS (Revised 10/03)	124
■ M-208-1		TEMPORARY EROSION CONTROL	12-18	□ M-613-1		CONVENTIONAL HIGHWAY LIGHTING.	93-95	□ S-614-11		MILEPOST SIGN AND INSTALLATION	125
□ M-210-1		MAILBOX SUPPORTS.	19-20	□ M-613-2		HIGH MAST LIGHTING.	96-97	S-614-12	■	STRUCTURE NUMBER INSTALLATION (Revised 01/05) (BRIDGE INFORMATION SHEET)	126
□ M-214-1		PLANTING DETAILS	21	M-614-1	■	RUMBLE STRIPS (Revised 12/20/02)	98-99	S-614-14	□	FLASHING BEACON AND SIGN INSTALLATION (Revised 07/04)	127-128
M-412-1	□	CONCRETE PAVEMENT JOINTS (Revised 12/20/02)	22-24	□ M-615-1		EMBANKMENT PROTECTOR, TYPE 3.	100	□ S-614-20		TYPICAL POLE MOUNT SIGN INSTALLATION.	129
□ M-506-1		GABIONS AND SLOPE MATTRESS.	25	□ M-615-2		EMBANKMENT PROTECTOR, TYPE 5.	101	□ S-614-21		CONCRETE BARRIER SIGN POST INSTALLATIONS.	130
□ M-510-1		STRUCTURAL PLATE CULVERT PIPE H-20 LOADING	26	□ M-616-1		INVERTED SIPHON	102	□ S-614-22		TYPICAL MULTI-SIGN INSTALLATIONS.	131
□ M-601-1		SINGLE CONCRETE BOX CULVERT.	27-28	□ M-620-1		FIELD LABORATORY, CLASS 1.	103	S-614-40	□	TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS (Rev. 10/03)	132-136
□ M-601-2		DOUBLE CONCRETE BOX CULVERT.	29-30	■ M-620-2		FIELD LABORATORY, CLASS 2.	104	S-614-50	□	OVERHEAD SIGNS MONOTUBE (Revised 06/02)	137-140
■ M-601-3		TRIPLE CONCRETE BOX CULVERT.	31-32	□ M-620-11		FIELD OFFICE, CLASS 1.	105	S-627-1	■	TYPICAL PAVEMENT MARKINGS (Revised 01/05)	149-153
□ M-601-10		HEADWALL FOR PIPE CULVERTS.	33	■ M-620-12		FIELD OFFICE, CLASS 2.	106	S-630-1	■	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION (Revised 11/04)	154-163
□ M-601-11		TYPE "S" SADDLE HEADWALL FOR PIPE CULVERTS	34	M-629-1	□	SURVEY MONUMENTS (Revised 09/23/04)	107-108	■ S-630-2		BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) & VERTICAL PANELS	164
□ M-601-12		HEADWALLS AND CULVERT OUTLET PAVING.	35					S-630-3	■	FLASHING BEACON (PORTABLE) DETAILS (Revised 03/05)	165
■ M-601-20		WINGWALLS FOR PIPE OR BOX CULVERTS.	36								
□ M-603-1		METAL AND PLASTIC CULVERT PIPE.	37-38								
□ M-603-2		REINFORCED CONCRETE PIPE	39								
□ M-603-3		PRECAST CONCRETE BOX CULVERT.	40								
□ M-603-10		CONCRETE AND METAL END SECTIONS.	41-42								
□ M-604-10		INLET, TYPE C.	43								
□ M-604-11		INLET, TYPE D.	44								
□ M-604-12		CURB INLET, TYPE R.	45-46								
□ M-604-13		CONCRETE INLET, TYPE 13.	47								
□ M-604-20		MANHOLES	48-50								
M-604-25	□	VANE GRATE INLET WITH FRAME (Revised 12/20/02)	51-55								
		AND CONCRETE APRON									
□ M-605-1		SUBSURFACE DRAINS	56								
■ M-606-1		GUARDRAIL, TYPE 3, W-BEAM	57-71								
□ M-606-12		GUARDRAIL, TYPE 4, CONCRETE BARRIER.	72-73								
□ M-606-13		GUARDRAIL, TYPE 7, F-SHAPE BARRIER	74-77								
M-606-14	□	PRECAST TYPE 7 CONCRETE BARRIER (Issued 07/02/02)	NA								

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

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

COLORADO
DEPARTMENT OF TRANSPORTATION
STANDARD PLANS LIST
M&S STANDARDS
OCTOBER 1, 2000

Computer File Information			Sheet Revisions			As Constructed			Project No./Code	
Creation Date:	08/17/05	Initials: jpg	Date:	Comments	Init.	No Revisions:			BR 069A-019	
Last Modification Date:	9/16/2005	Initials: jpg				Revised:			14087	
Full Path:	C:\Projects\14087\Design\Drawing\14087StandardPlanList.dgn					Void:			Sheet Number	2
Drawing File Name:	14087StandardPlanList.dgn									
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English								



Colorado Department of Transportation

902 Erie Avenue
 Pueblo, CO 81001
 Phone: 719-546-5439 FAX: 719-546-5702

Region 2 - Design & Construction Unit

BDL/jpg

STANDARD PLANS LIST

HBP (GR. S) (75) (PG 64-22).....	@ 110 lbs./Sq. Yd./Inch
EMULSIFIED ASPHALT (SLOW SETTING).....	@ 0.05 Gal./Sq. Yd.

It is estimated that 503 gallons of Emulsified Asphalt (Slow-Setting) for tack coat will be required for this project.

1. A ski type device at least 30 feet in length.
2. A short ski or shoe

It is estimated that 2,846 linear feet of Sawing Asphalt Material (6 Inch) will be required on this project.

All edge lines, channelization lines, and skip lines will require 19 gallons of epoxy pavement marking paint (19 gallons yellow).

It is estimated that 50 Blading hours will be required for this project to shape ditches, improve drainage, etc. The motor type for the grader used shall be within the 135-155 horsepower range.

It is estimated that 29 Delineators (Type I) (1 yellow and 28 crystal), 4 Delineators (Type III) will be required on this project. Delineators will be mounted on steel post and installed according to CDOT Standard Plan S-612-1.

It is estimated that 2 structure makers will be required on this project. New markers will be paid for as "SIGN PANEL (CLAS 1)" - 3 square feet and "STEEL SIGN POST (U-2)" - 16 linear feet. Structure makers shall be installed according to CDOT Standard Plan S-614-12.

<u>Embankment Material (C.I.P.) - For Pay Quantity</u>	<u>Cubic Yards</u>
Roadway (Computer Cross Sections)	<u>4,683</u>
Total	4,683
<u>Compaction (AASHTO T-99) - (For Information Only)</u>	<u>Cubic Yards</u>
Embankment (Net)	<u>4,683</u>
Total	4,683
<u>Unclassified Excavation - (For Information Only)</u>	<u>Cubic Yards</u>
From Structure Quantities	<u>0</u>
Total	0
<u>Wetting - (For Information Only)</u>	<u>M Gal</u>
Dust Palliative	100
Emabankment Material (Net)	<u>187</u>
Total	287
<u>Quantities Balance - (For Information Only)</u>	<u>Cubic Yards</u>
Excavation	
Unclassified	0
Borrow - From Contractor's Source	<u>5,854</u>
Total	5,854
Embankment x 1.25	
Roadway (Computer Cross Sections)	<u>5,854</u>
Total	5,854

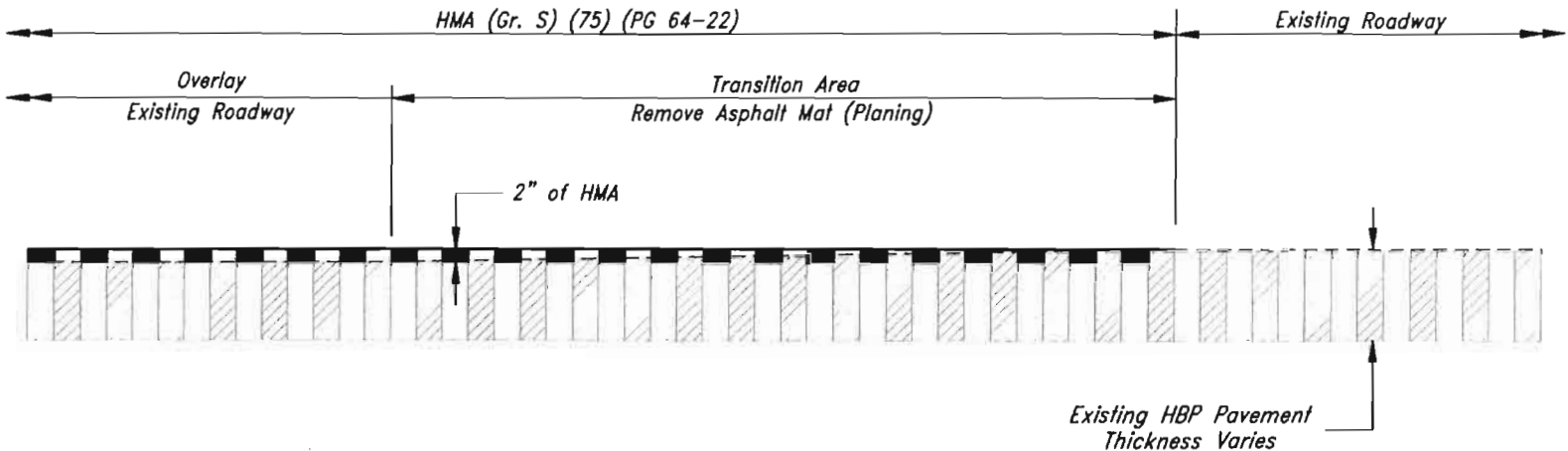
Excavation required for compaction of bases of cuts and fills will be considered subsidiary to that operation and will not be paid for separately.

Computer File Information			REVISIONS 000000	Sheet Revisions			Colorado Department of Transportation			As Constructed			GENERAL NOTES			Project No./Code		
Creation Date:	08/16/05	Initials:		jpg	Date:	Comments	Init.	 902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5439 FAX: 719-546-5702	No Revisions:			BR 096A-019						
Last Modification Date:	9/16/2005	Initials:		jpg					Revised:			14087						
Full Path:	C:\Projects\14087\Design\Drawing\14087GEN_NOTES.dgn						Void:			Sheet Number								
Drawing File Name:	14087GEN_NOTES.dgn									3								
CAD Ver.:MicroStation V8	Scale:Not to Scale	Units:English							Region 2 - Design & Construction			BDL/jpg						

SH 69 TYPICALS

PROFILE SECTION (TRANSITION AREAS)

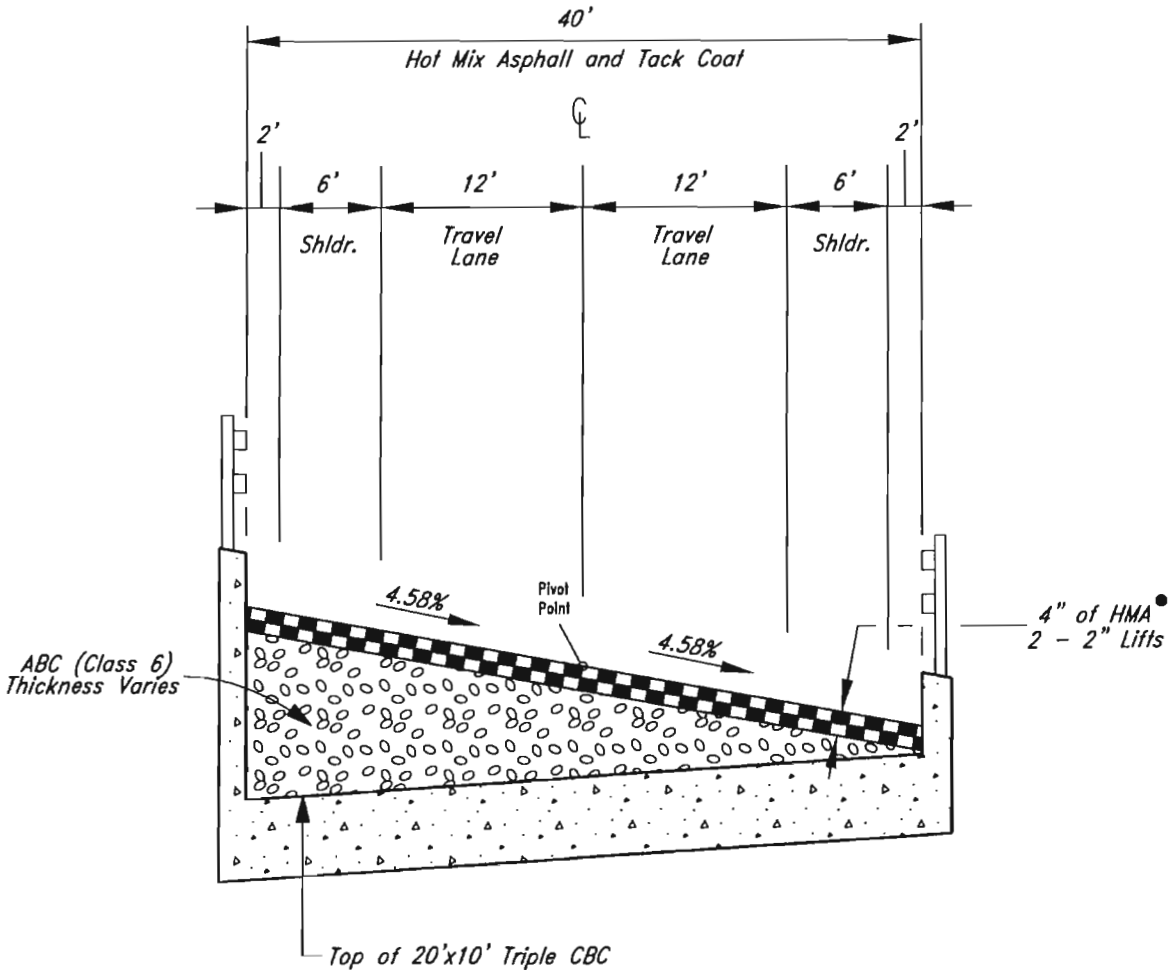
Sta. 90+08.28 to Sta. 91+08.28
Sta. 103+31.10 to Sta. 104+31.10



Note: Approximate thickness of Removal of Asphalt Mat (Planing) Varies, tapering from 0" to 2" in depth

STRUCTURE L-15-E

Sta. 97+73.19 Rt. to Sta. 98+36.52 Rt.
Sta. 97+73.53 Lt. to Sta. 98+36.86 Lt.



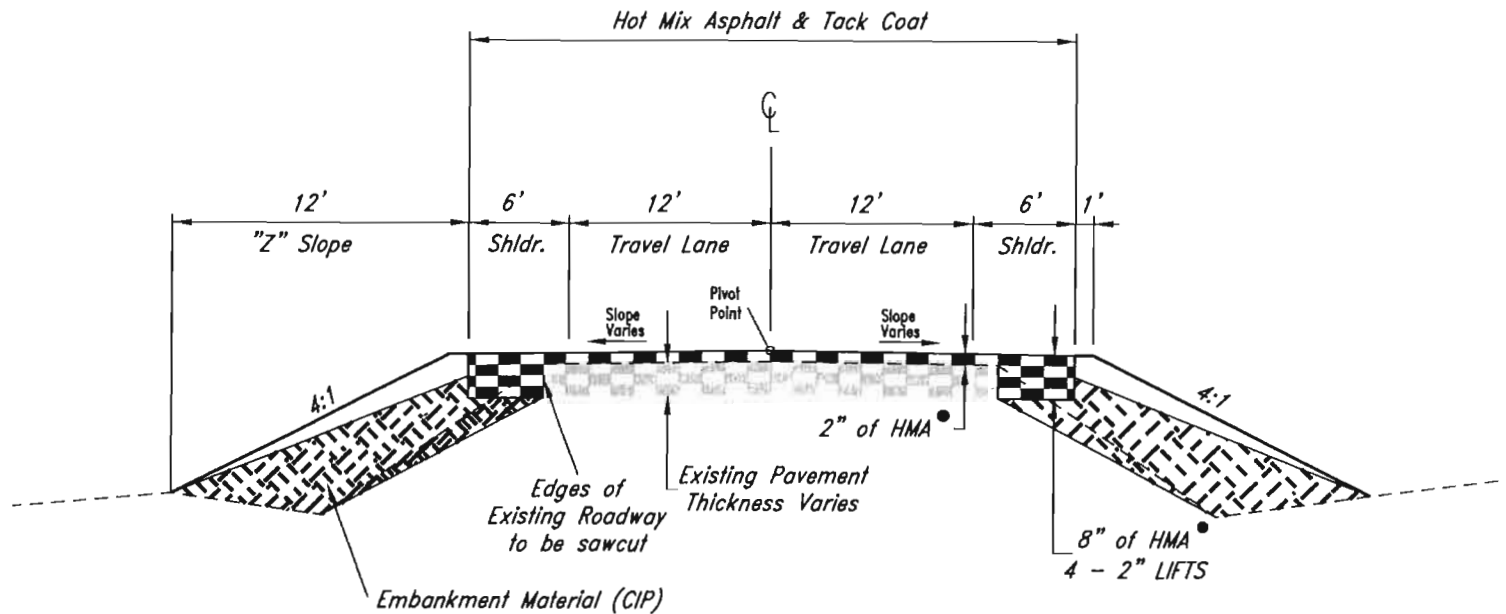
• HMA (Gr. S) (75) (PG 64-22)

Computer File Information			Sheet Revisions			As Constructed			Project No./Code	
Creation Date:	08/16/05	Initials: jpg	Date:	Comments	Init.	No Revisions:	TYPICAL SECTIONS			BR 069A-019
Last Modification Date:	9/16/2005	Initials: jpg				Revised:				14087
Full Path:	C:\Projects\14087\Design\Drawing\14087Typical_sec.dgn					Void:				Sheet Number
Drawing File Name:	14087Typical_sec.dgn									4
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English			 902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5439 FAX: 719-546-5702			Region 2 - Design & Construction BDL/jpg				

SH 69 TYPICALS

SH 69 w/out GUARDRAIL TYPE 3

Sta. 90+08.28	Rt. to	Sta. 92+17.93	Rt.
Sta. 90+08.28	Lt. to	Sta. 95+67.59	Lt.
Sta. 99+78.73	Lt. to	Sta. 104+31.10	Lt.
Sta. 100+26.65	Rt. to	Sta. 104+31.10	Rt.



• HMA (Gr. S) (75) (PG 64-22)

***The contractor will be required to place topsoil to this line after completion of paving operations*

TYPICAL SECTION NOTES

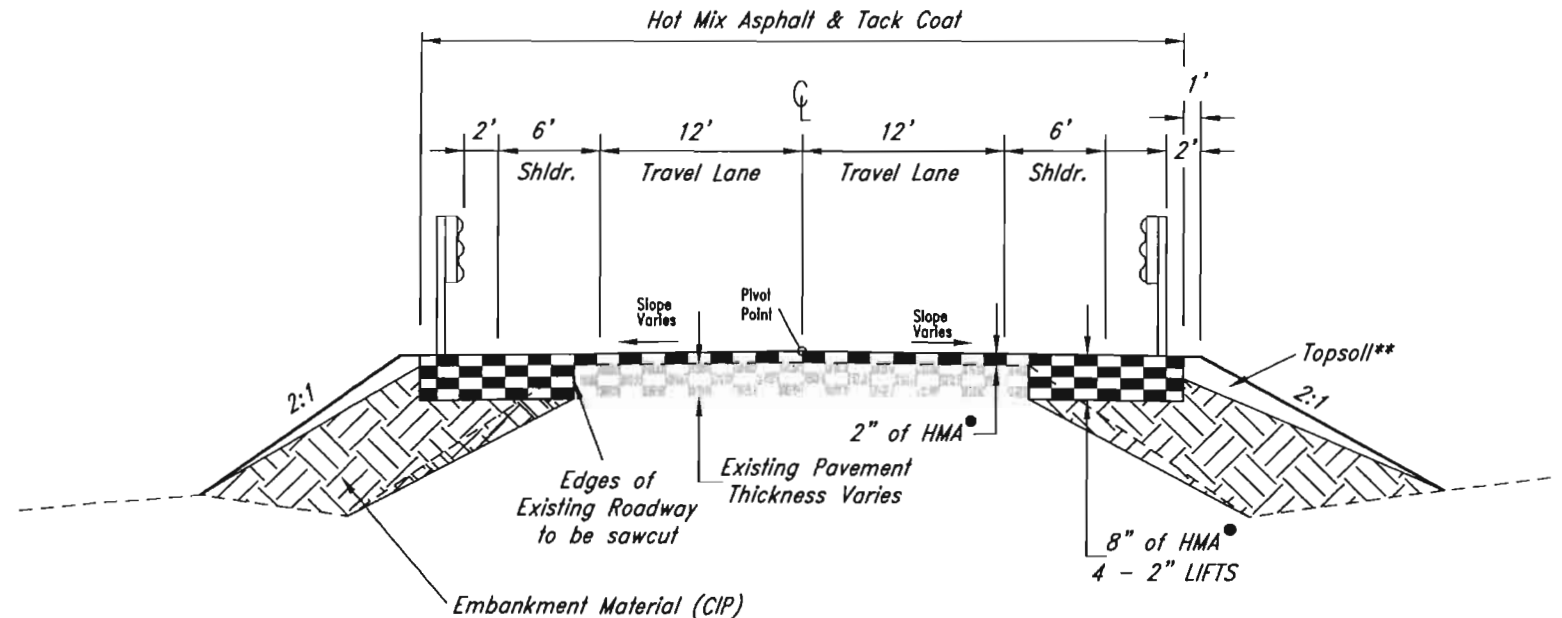
The depth and width of side ditch shall be varied where necessary in order to provide proper drainage.

FILL SLOPES Varies - 3:1 Max. CUT SLOPES 3:1

Break points on slopes and in bottoms of ditches shall be rounded during construction for a pleasing appearance. See Standards for details of a cut slope treatment, flaring and widening.

SH 69 w/ GUARDRAIL TYPE 3

Sta. 92+17.93	Rt. to	Sta. 97+73.19	Rt.
Sta. 95+67.59	Lt. to	Sta. 97+73.53	Lt.
Sta. 98+36.53	Rt. to	Sta. 101+92.13	Rt.
Sta. 98+36.86	Lt. to	Sta. 102+42.46	Lt.



• HMA (Gr. S) (75) (PG 64-22)

***The contractor will be required to place topsoil to this line after completion of paving operations*

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		Project No./Code	
Creation Date:	08/16/05 Initials: jpg	Date:	Comments	Init.	 902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5439 FAX: 719-546-5702 Region 2 - Design & Construction	No Revisions:		BR 069A-019	
Lost Modification Date:	9/16/2005 Initials: jpg					Revised:		14087	
Full Path:	C:\Projects\14087\Design\Drawing\14087Typical_sec.dgn					Void:		Sheet Number	
Drawing File Name:	14087Typical_sec.dgn							5	
CAD Ver.:MicroStation V8	Scale:Not to Scale Units: English								

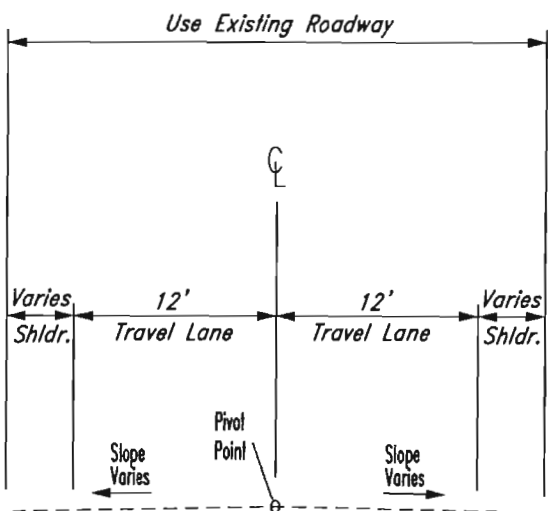
DETOUR TYPICAL

DETOUR w/one side CONCRETE BARRIER (TEMP)

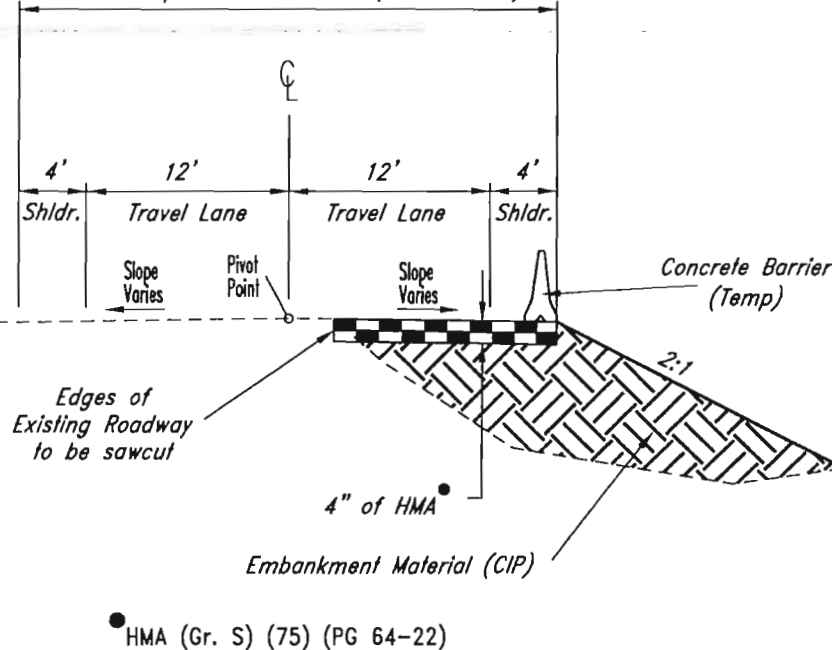
Sta. 500+10.98 Rt. to Sta. 502+84.80 Rt.
Sta. 510+71.10 Rt. to Sta. 513+10.00 Rt.

DETOUR w/out CONCRETE BARRIER (TEMP)

Sta. 500+00.00 Rt. to Sta. 500+10.98 Rt.
Sta. 500+00.00 Lt. to Sta. 502+84.80 Lt.
Sta. 513+10.00 Rt. to Sta. 513+56.69 Rt.
Sta. 510+71.10 Lt. to Sta. 513+56.69 Lt.

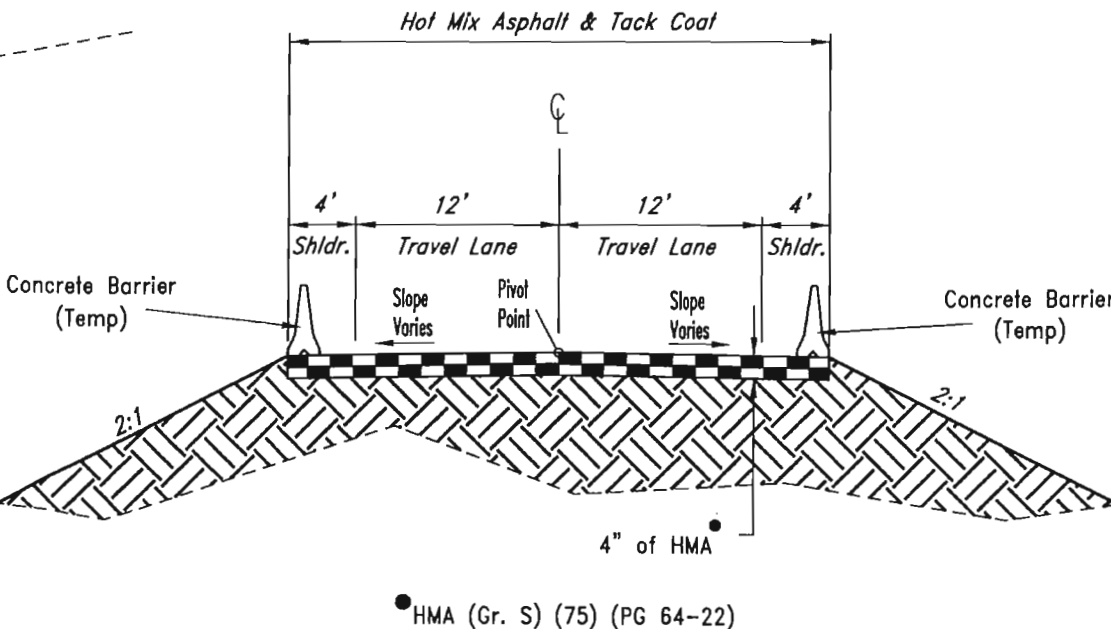


Hot Mix Asphalt & Tack Coat (Width Varies)



DETOUR w/both sides CONCRETE BARRIER (TEMP)

Sta. 502+84.80 to Sta. 510+71.10



Computer File Information		
Creation Date:	08/16/05	Initials: jpg
Last Modification Date:	9/19/2005	Initials: jpg
Full Path:	C:\Projects\14087\Design\Drawing\14087Typical_sec.dgn	
Drawing File Name:	14087Typical_sec.dgn	
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5439 FAX: 719-546-5702
Region 2 - Design & Construction BDL/jpg

As Constructed
No Revisions:
Revised:
Void:

TYPICAL SECTIONS

Project No./Code
BR 069A-019
14087
Sheet Number 6

INDEX			CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY									STRUCTURE L-15-E						PROJECT TOTALS	
BOOK	PAGE	SHEET				PLAN	AS CONST.								PLAN	AS CONST.					PLAN	AS CONST.
			202-00090	Removal of Delineator	EACH	11															11	
			202-00240	Removal of Asphalt Mat (Planing)	SY	590															590	
			202-00400	Removal of Bridge	EACH										1						1	
			202-01000	Removal of Fence	LF	1,479															1,479	
			202-01130	Removal of Guardrail Type 3	LF	320															320	
			202-01300	Removal of End Anchorage	EACH	8															8	
			202-05026	Sawing Asphalt Material (6 Inch)	LF	2,846															2,846	
			203-00060	Embankment Material (Complete In Place)	CY	5,168															5,168	
			203-01500	Blading	HOUR	50															50	
			206-00000	Structure Excavation	CY										729						729	
			206-00100	Structure Backfill (Class 1)	CY										519						519	
			207-00205	Topsoil	CY	376															376	
			208-00011	Erosion Bales (Weed Free)	EACH	100															100	
			208-00045	Concrete Washout Structure	EACH	1															1	
			208-00205	Erosion Control Supervisor	HOUR	20															20	
			210-00810	Reset Ground Sign	EACH	1															1	
			212-00006	Seeding (Native)	ACRE	2															2	
			213-00003	Mulching (Weed Free)	ACRE	2															2	
			213-00061	Mulch Tackifier	LB	1,200															1,200	
			216-00039	Soil Retention Blanket (Strow)	SY	2,321															2,321	
			304-06007	Aggregate Base Course (Class 6)	CY	1,453															1,453	
			403-33741	Hot Bituminous Pavement (Grading S) (75) (PG 64-22)	TON	1,191									49						1,240	
			411-10255	Emulsified Asphalt (Slow-Setting)	GAL	503															503	
			601-03030	Concrete Class D (Box Culvert)	CY										408						408	
			602-00020	Reinforcing Steel (Epoxy Coated)	LB										95,369						95,369	
			606-00301	Guardrail Type 3 (6-3 Post Spacing)	LF	1,300															1,300	
			606-01370	Transition Type 3G	EACH	4															4	
			606-02005	End Anchorage (Flared)	EACH	4															4	
			606-11000	Bridge Rail Type 10	LF										127						127	
			607-00005	End Post	EACH	6															6	
			607-00010	Corner and Line Brace Post	EACH	7															7	
			607-01000	Fence Borbed Wire with Metal Posts	LF	1,271															1,271	

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		SUMMARY OF APPROXIMATE QUANTITIES		Project No./Code	
Creation Date: 20-Sep-2005	Initials:			 902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5439 FAX: 719-546-5702 Region 2 - Design & Construction		No Revisions:		Designer: Detailer: Sheet Subset:		BR 069A-019	
Last Modification Date:	Initials:					Revised:				Structure Numbers	
Full Path: \\tsclient\C\Projects\14087\Design\Tabs						Void:				Subset Sheets:	
Drawing File Name: 14087_Sheet7										14087	
AutoCAD by Autodesk										Sheet Number: 7	

Description: Existing SH 69 Alignment

Element	STATION	NORTHING	EASTING
Linear			
PT	66+78.50	204202.50	62043.23
PC	95+27.90	201916.60	63744.33
Tangent Direction:	S 36°39'20" E		
Tangent Length:	2849.40		
Circular			
PC	95+27.90	201916.60	63744.33
PI	104+54.35	201173.37	64297.43
CC	204197.02	66808.69	
PT	113+45.70	200766.11	65129.56
Radius:	3819.77		
Delta:	27°16'00" Left		
Degree of Curvature(Arc):	1°30'00"		
Length:	1817.80		
Tangent:	926.45		
Chord:	1800.69		
Middle Ordinate:	107.63		
External:	110.75		
Tangent Direction:	S 36°39'20" E		
Radial Direction:	S 53°20'40" W		
Chord Direction:	S 50°17'20" E		
Radial Direction:	S 26°04'40" W		
Tangent Direction:	S 63°55'20" E		
Linear			
PT	113+45.70	200766.11	65129.56
PC	115+96.80	200655.73	65355.10
Tangent Direction:	S 63°55'20" E		
Tangent Length:	251.10		
Circular			
PC	115+96.80	200655.73	65355.10
PI	118+70.86	200535.26	65601.26
CC	202371.02	66194.59	
PT	121+41.20	200488.87	65871.36
Radius:	1909.70		
Delta:	16°20'00" Left		
Degree of Curvature(Arc):	3°00'01"		
Length:	544.40		
Tangent:	274.06		
Chord:	542.56		
Middle Ordinate:	19.37		
External:	19.56		
Tangent Direction:	S 63°55'20" E		
Radial Direction:	S 26°04'40" W		
Chord Direction:	S 72°05'20" E		
Radial Direction:	S 9°44'40" W		
Tangent Direction:	S 80°15'20" E		

Description: Detour Alignment

Element	STATION	NORTHING	EASTING
Circular			
PC	500+00.00	202235.60	63506.95
PI	500+82.90	202169.09	63556.44
CC	202742.45	64188.05	
PT	501+65.28	202113.41	63617.86
Radius:	849.00		
Delta:	11°09'14.40" Left		
Degree of Curvature(Arc):	6°44'55.03"		
Length:	165.28		
Tangent:	82.80		
Chord:	165.02		
Middle Ordinate:	4.02		
External:	4.04		
Tangent Direction:	S 36°39'20.10" E		
Radial Direction:	S 53°20'39.90" W		
Chord Direction:	S 42°13'57.29" E		
Radial Direction:	S 42°11'25.51" W		
Tangent Direction:	S 47°48'34.49" E		
Linear			
PT	501+65.28	202113.41	63617.86
PC	504+99.54	201888.93	63865.52
Tangent Direction:	S 47°48'34.49" E		
Tangent Length:	334.26		
Circular			
PC	504+99.54	201888.93	63865.52
PI	505+51.47	201854.05	63903.89
CC	201259.89	63295.34	
PT	506+03.26	201814.75	63937.93
Radius:	849.00		
Delta:	7°00'00.00" Right		
Degree of Curvature(Arc):	6°44'55.03"		
Length:	103.72		
Tangent:	51.93		
Chord:	103.66		
Middle Ordinate:	1.58		
External:	1.59		
Tangent Direction:	S 47°48'34.49" E		
Radial Direction:	S 42°11'25.51" W		
Chord Direction:	S 44°18'34.49" E		
Radial Direction:	S 49°11'25.51" W		
Tangent Direction:	S 40°48'34.49" E		
Linear			
PT	506+03.26	201814.75	63937.93
PC	507+49.41	201704.13	64033.44
Tangent Direction:	S 40°48'34.49" E		
Tangent Length:	146.15		
Circular			
PC	507+49.41	201704.13	64033.44
PI	508+01.34	201664.83	64067.38
CC	201149.27	63390.85	
PT	508+53.13	201621.68	64096.28
Radius:	849.00		
Delta:	7°00'00.00" Right		
Degree of Curvature(Arc):	6°44'55.03"		
Length:	103.72		
Tangent:	51.93		
Chord:	103.66		
Middle Ordinate:	1.58		
External:	1.59		
Tangent Direction:	S 40°48'34.49" E		
Radial Direction:	S 49°11'25.51" W		
Chord Direction:	S 37°18'34.49" E		
Radial Direction:	S 56°11'25.51" W		
Tangent Direction:	S 33°48'34.49" E		
Linear			
PT	508+53.13	201621.68	64096.28
PC	511+01.65	201415.20	64234.56
Tangent Direction:	S 33°48'34.49" E		
Tangent Length:	248.51		
Circular			
PC	511+01.65	201415.20	64234.56
PI	512+30.13	201308.44	64306.05
CC	201887.61	64939.98	
PT	513+56.69	201227.62	64405.93
Radius:	849.00		
Delta:	17°12'41.63" Left		
Degree of Curvature(Arc):	6°44'55.03"		
Length:	255.04		
Tangent:	128.49		
Chord:	254.08		
Middle Ordinate:	9.56		
External:	9.67		
Tangent Direction:	S 33°48'34.49" E		
Radial Direction:	S 56°11'25.51" W		
Chord Direction:	S 42°24'55.31" E		
Radial Direction:	S 58°58'43.88" W		
Tangent Direction:	S 51°01'16.12" E		

Computer File Information			Sheet Revisions			As Constructed	GEOMETRY	Project No./Code	
Creation Date:	08/08/05	Initials: jpg	Date:	Comments	Init.			BR 069A-019	
Last Modification Date:	9/20/2005	Initials: jpg				No Revisions:		14087	
Full Path:	C:\Projects\14087\Design\Design_Data\14087\Geometry.dgn					Revised:		Sheet Number	9
Drawing File Name:	14087Geometry.dgn					Void:			
CAD Ver.:MicroStation V8	Scale:Not to Scale	Units: English							

SH 69

Station	Bottom Mat HMA (Gr S) (75) (PG 64-22)	Top Mat HMA (Gr S) (75) (PG 64-22)	Removal of Asphalt Mat (Planing)	ABC (Class 6)
	2 inches	2 inches	Sq. Yds.	Cu. Yds.
	Tons	Tons		
Sta. 90+08.28 Transition Area Sta. 91+08.28	-	50	268	46
	150	329	-	551
Sta. 97+73.36 Str. L-15-E Sta. 98+39.69	-	-	-	86
	116	240	-	429
Sta. 103+31.10 Transition Area Sta. 104+31.10	-	50	268	46
Sub-Totals	266	669	536	1,072
Guardrail Widening	42	42	-	153
SRT Pads	24	24	-	96
Road Approaches	8	8	-	-
Sub-Totals	340	743	536	1,321
10% Irregularities	34	74	54	132
Sub-Totals	374	817	590	1,321
Project Totals	1,191		590	1,453

● See Bridge Detail Sheets for Quantities

Stabilization data:

20 Year 18K ESAL's
Reliability
Serviceability Index
Overall Std Deviation
Calculated Structural Number

SH 69

205,000
95 %
2.00
0.44
2.55

The category for the pavement smoothness is
Pavement Smoothness Incentive to be determined by

2
Inches per Mile

NOTE: HMA will be from the contractors source.

Computer File Information			Sheet Revisions			As Constructed			Project No./Code	
Creation Date:	01/10/05	Initials: jpg	Date:	Comments	Init.	No Revisions:			BR 069A-019	
Last Modification Date:	9/16/2005	Initials: jpg				Revised:			14087	
Full Path:	C:\Projects\14087\Design\Drawing\14087resurfacing_tob.dgn					Void:			Sheet Number	10
Drawing File Name:	14087resurfacing_tob.dgn									
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English								



902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5439 FAX: 719-546-5702

Region 2 - Design & Construction

BDL / jpg

TABULATION OF
SURFACING

STATION	Removal of Guardrail Type 3	Removal of End Anchorage	Guardrail Type 3	End Anchorage Type 3G	End Anchorage (Flared)
	Lin. Ft.	Each	Lin. Ft.	Each	Each
Sta. 92+17.93 Rt.			500	1	1
Sta. 95+67.59 Lt.			150	1	1
Sta. 96+71.32 Rt.	100	2			
Sta. 97+12.94 Lt.	60	2			
Sta. 98+41.15 Rt.	60	2			
Sta. 98+41.23 Lt.	100	2			
Sta. 98+36.53 Rt.			300	1	1
Sta. 98+36.86 Lt.			350	1	1
Project Totals	320	8	1,300	4	4

STATION	Removal of Fence	Fence Barbed Wire w/Metal Post	Corner and Line Brace Post	End Post	Fence (Temp) ▲
	Linear Feet	Linear Feet	Each	Each	Each
Sta. 92+14.47 Lt.					416
Sta. 92+14.77 Lt.					
Sta. 91+40.08 Lt.	618	620	2	2	
Sta. 97+05.03 Lt.					253
Sta. 97+24.54 Rt.	206	15	1	1	
Sta. 97+44.78 Lt.					539
Sta. 98+48.50 Rt.	595	588	2	2	
Sta. 98+49.49 Lt.	60	48	2	1	
Sta. 99+98.70 Lt.					
Project Totals	1,479	1,271	7	6	1,208

▲ The Contractor is required to install Fence (Temporary) prior to the construction of detour.

STATION	Reset Ground Sign
	Each
Sta. 102+10.81 Rt.	1
Project Totals	1

NOTES:

HMA pavement called for in these plans to be placed under the guardrail will be so placed as to not allow a gap around the post after completion of the guardrail item. Gap shall be fill with HMA and shall not be paid for separately, but shall be included in the cost of the HMA.

Computer File Information			Sheet Revisions			Colorado Department of Transportation			As Constructed			Project No./Code		
Creation Date:	08/18/05	Initials: jpg	(R-X)	Date:	Comments	Init.	 902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5439 FAX: 719-546-5702 Region 2 - Design & Construction Unit BOL.jpg	No Revisions:	TABULATION OF RESETS, GUARDRAIL AND FENCING ITEMS			BR 069A-019		
Last Modification Date:	9/20/2005	Initials: jpg						Revised:				14087		
Full Path:	C:\Projects\14087\Design\Drawing\14087grail_tob.dgn							Void:				Sheet Number		
Drawing File Name:	14087grail_tob.dgn											11		
CAD Ver.:MicroStation V8	Scale:Not to Scale	Units:English												

PROJECT TOTALS:

PAY ITEM	DESCRIPTION	UNIT	QUANTITY
208	Erosion Bales (Weed Free)	Each	100
208	Concrete Washout Structure	Each	1
208	Erosion Control Supervisor	Hours	20
212	Seeding (Native)	Acre	2
213	Mulching (Weed Free)	Acre	2
213	Mulch Tackifier	Pounds	1,200
216	Soil Retention Blanket (Straw)	Sq. Yds.	2,321
F/A	F/A Erosion Control	F. A.	1

Soil preparation and fertilizer are not to be paid for separately, but shall be included in the cost of seeding.

STORMWATER MANAGEMENT PLAN - ADDITIONAL INFORMATION

Estimated Runoff coefficient
Pre-construction: 0.3

Post-construction: 0.3

Existing data describing soil or quality of discharge: **Warm, deep to shallow, well drained, gently sloping to moderately steep soils.**

Existing vegetation: **Native grass**

Proposed sequence for major activities, location of any the potential pollution source, areas used for storage of building materials, soils or wastes, and location of any dedicated asphalt or concrete batch plants:
See water quality and erosion control specifications, and documents submitted by the contractor at the preconstruction conference.

100-year flood plain boundaries: **See bridge hydraulic information sheet (if existent)**

Description of the construction activity, estimate of the total site area and of the area expected to undergo excavation, and name of the receiving water:
See CDPS stormwater permit application.

Site map and construction site boundaries: **See title sheet.**

Areas of cuts and fills and areas of soil disturbance: **See roadway plan sheet.**

Surface waters: **See title sheet and bridge hydraulic information sheet (if existent).**

Material handling and spill prevention: **See water quality specification (107.25).**

Inspection and maintenance: **See erosion control standard specifications (107.25 or 208) or project special specifications (if existent).**

Contract Document location of erosion control and stormwater quality management measures not referenced above nor included on the Stormwater Management Plan Sheet(s):

NOTES:

Disturbed surfaces shall be left in a roughened condition at all times during construction.

Placement of topsoil, seeding and mulching will not be done in a single operation, but shall be completed after each construction phase. It is estimated that a minimum of 3 mobilizations for topsoil, seeding and mulching will be required and shall be included in the price of work.

When disturbed area exceed limits referenced in the standard special provision 208, and seeding cannot be accomplished due to seasonal constraints, apply 2 tons per acre native hay or straw mechanically crimped into the soil. Mulch shall be included in the price of the work.

Prior to winter shutdown all completed slopes shall be topsoiled, seeded and mulched. Uncompleted slopes shall be mulched 1 1/2 tons native hay or straw mechanically crimped in combination with an organic mulch tackifier per project special provision 213.

Soil preparation, fertilizer, seeding and mulching will be required for an estimated 2 Acres of disturbed area within the Right-of-Way limits which are not surfaced. The following types and rates shall be used:

COMMON NAME	BOTANICAL NAME	APPLICATION RATE
		Pounds / Acre
Blue Grama	Bouteloua gracilis v. hachilo	1.5
Green Needlegrass	Stipa viridula v. lodrom	2.5
Western Wheatgrass	Pascopyrum smithii v. arriba	5.0
Sideoats Grama	Bouteloua curtipendula v. vaughn	6.2
Buffalograss	Buchloe dactyloides v. texoka	8.0
Purple Prairie Clover	Petalostemum purpurea	0.5
Galleta	Hilaria jamesii v. viva (caryopsis)	2.5
Prairie Coneflower	Ratibida columifera	0.3
Scarlet Globemallow	Sphaerococcus coccinea	0.7
TOTALS		27.2

SEEDING APPLICATION:

Drill seed 0.25" to 0.50" into the topsoil. In areas that are not accessible to a drill, hand broadcast at double the above rate and rake to a depth of 0.25" to 0.50" into the topsoil.

MULCHING APPLICATION:

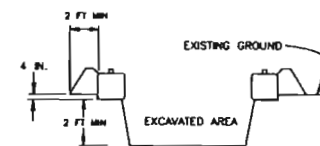
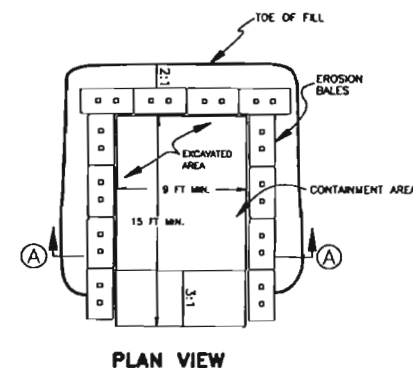
1.5 tons of certified weed free hay per acre are to be mechanically crimped into the topsoil in combination with an organic mulch tackifier per Special Provision 213.

FERTILIZER	ANALYSIS %	POUNDS / ACRE
Nitrogen	18	27
Phosphorus	46	69
Potassium	0	0

FOR INFORMATION ONLY:

Seeding (Native)	54 Pounds
Mulching	3 Tons
Fertilizer (N)	54 Pounds
Fertilizer (P)	138 Pounds
Soil Preparation	2 Acres

ITEM 208 - CONCRETE WASHOUT STRUCTURE



CROSS-SECTION A-A

PLAN VIEW

NOT TO SCALE

Computer File Information

Creation Date: 08/17/05 Initials: jpg
Last Modification Date: 9/16/2005 Initials: jpg
Full Path: C:\Projects\14087\Design\Drawing\14087seeding_plan.dgn
Drawing File Name: 14087seeding_plan.dgn
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation



902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5439 FAX: 719-546-5702

Region 2 - Design & Construction

BDL/jpg

As Constructed

No Revisions:
Revised:
Void:

STORMWATER
MANAGEMENT PLAN

Project No./Code

BR 069A-019

14087

Sheet Number 12

SCHEDULE OF CONSTRUCTION TRAFFIC CONTROL DEVICES

SIGNS					OTHER DEVICES	
SIGN CODE	LEGEND	DIMENSIONS	PANEL SIZE			QUANTITY
			A	B	C	
W20-1	ROAD WORK 1 MILE	48 X 48		2		FLASHING BEACON (Solar) 6
W20-1	ROAD WORK 1/2 MILE	48 X 48		2		BARRICADE (TYPE III M-A)(TEMP) 8
W20-2	DETOUR 1000 FT	48 X 48		2		TRAFFIC CONTROL MANAGEMENT 6
W1-4(L)	TRANSITION LEFT	48 X 48		2		DRUM CHANELIZING DEVICE / STEADY BURN 100
W1-4(R)	TRANSITION RIGHT	48 X 48		2		
W13-1(40)	40 MPH	24 X 24	4			TRAFFIC CONTROL INPECTION 55
R11-2	ROAD CLOSED	48 X 30	2			CONCRETE BARRIER (TEMPORARY) 2100
M4-10(L)	DETOUR (WITH ARROW)	30 X 24	1			
M4-10(R)	DETOUR (WITH ARROW)	30 X 24	1			
G20-10	THANK YOU	48 X 48		2		
R2-1(40)	SPEED LIMIT 40	36 X 48		2		
R2-1(55)	SPEED LIMIT 55	36 X 48		2		
R52-4	BEGIN FINES DOUBLED	48 X 60			2	
G20-5	WORK ZONE	36 X 12	2			
R2-6	FINE DOUBLED	36 X 36		2		
R52-4a	END FINE DOUBLED	48 X 60			2	
W1-8(R)	CHEVRON RIGHT	18 X 24	6			
W1-8(L)	CHEVRON	18 X 24	6			
SIGN TOTALS			22	18	4	

NOTES:

1. Based upon sight distances and other considerations, the final location of all signs are subject to approval by the engineer.
2. See case IV of the Standard S-630-1 of the Colorado Standard Plans 2000 for placement details of the construction traffic control devices.
3. 6 of the signs will require Solar Flashing Beacons, Road Work 1 Mile (2), Road Work 1/2 Mile (2) and, Detour 1000 FT (2)
4. Access must be maintained to all properties at all times.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		CONSTRUCTION TRAFFIC CONTROL DEVICES	Project No./Code	
Creation Date: 9/19/05 Initials: jpg		Date:	Comments	Init.	No Revisions:		BR 069A-019			
Last Modification Date: 9/19/2005 Initials: jpg					Revised:		14087			
Drawing File Name: 14087TrafficControlDevices.dgn					Void:		Sheet Number 13			
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English										

902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5439 FAX: 719-546-5702

Region 2 - Design and Construction

BDL/sd

TO ESTABLISH GEOMETRIC CONTROL FOR THE CONSTRUCTION OF THIS PROJECT, THE DEPARTMENT HAS PROVIDED THE FOLLOWING INFORMATION:

☒ Horizontal Control	Format*
☒ Vertical Control	Plan Sheet
☒ Roadway Alignment	Plan Sheet
☒ Original Terrain Data	Other
☐ Other:	

*Specify the information format, ie., plan sheet, computer disk, computer printout, or other.
The information marked is either contained on the plans or is available from the Engineer.

TYPE OF PROJECT

- ☐ Landscaping
☐ Signalization
☐ Safety Improvement
☐ Asphalt Overlay
☐ Concrete Overlay
☐ Minor Widening
☐ Major Reconstruction
☐ New Roadway Construction
☒ Bridge Replacement
☐ Bridge Widening
☐ New Bridge
☐ Other:

SURVEY WORK TO BE PERFORMED BY OTHERS: _____

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER ITEM 625:

☒ Establish and Maintain Project Centerline or Engineer Approved Offset Line(s)

☒ Verification and Maintenance of Horizontal and Vertical Control

☒ Verify or Determine existing grades and olignments

☒ Verify or Determine existing topography

☐ Clearing and Grubbing Limits

☒ Removal Limits

☒ Excavation and Embankment

- ☒ Excavation
☐ Unclassified
☐ Stripping
☐ Muck
☐ Rock
☐ Borrow
☐ Other: _____

- ☐ Embankment
☐ Site Grading
☐ Erosion Control (Perm)
☐ Other: _____

☒ As Staked Earthwork Quantities

☒ Landscaping

- ☒ Top Soil
☒ Seeding
☐ Mulching
☐ Planting
☐ Other: _____

☒ Erosion Control

- ☒ Seeding (Temp)
☐ Silt Fences
☐ Straw Boles
☐ Temporary Berm
☐ Riprap (Temp)
☒ Other (Temp Diversion, Temp Slope Drain, Bush Barrier, Check Dam, Other: Erosion Log)

- ☒ Roadway Bases
☐ Untreated Subgrade
☐ Treated Subgrade
☒ Aggregate Base Course
☐ Other: _____

☒ Pavements

- ☐ PMBB - Plant Mix Bituminous Base
☒ HMA - Hot Mix Asphalt
☐ Concrete
☐ Other: _____

☒ Roadway Elements

- ☐ Curb and Gutter
☐ Drop inlets - alignment and grades
☐ Retaining Walls
☒ Guard Rail
☐ Sidewalk
☐ Other: _____

☐ Riprap (Perm)

☐ Slope and Ditch Paving

☐ Minor Structures

- ☐ Structure Excavation limits
☐ Culverts
☐ Culverts w/ Headwalls and Wingwalls
☐ Concrete Box Culverts w/ Headwalls and Wingwalls
☐ Pipes
☐ Sanitary Sewer
☐ Storm Sewer
☐ Water
☐ Irrigation
☐ Miscellaneous

- ☐ Monholes
☐ Inlets
☐ Other: _____

☒ Major Structures - Overhead Signs, Concrete Box Culverts, Bridges - and all other structures assigned a structure number

- ☒ Structure Excavation limits
☒ Concrete Box Culverts w/ Headwalls and Wingwalls
☐ Piling locations and cut off elevations
☐ Coisson locations and elevations
☒ Footing locations, alignment, and elevations
☐ Abutment/Pier locations, olignment, and elevations
☒ Wingwall skew angles/offsets
☐ Structural concrete form locations
☐ Substructure survey (Required by Specification 601.12)
☐ Bridge expansion joint(s) olignment and grode (longitudinal and transverse)
☐ Deck grades at Girder 10th or "n" th point locations and elevations
☐ Slope and Ditch Paving
☒ Other: *headwall elevations*

☒ Fencing

- ☒ Temporary
☒ Permanent
☐ Sound Barriers
☐ Other: _____

☒ Delineators

- ☐ Temporary
☒ Permanent

☒ Lighting and Traffic Control Devices (Perm)

- ☐ Signal pole locations and elevations
☐ Light pole locations and elevations
☒ Signs
☒ Field verify sign post locations, elevations, and lengths before fabrication.
☐ Other: _____

☒ Pavement Marking

- ☐ Striping (Temp)
☒ Striping (Perm)
☐ Symbols
☐ Other: _____

GRADE STAKES	GRID	SPECIAL INTERVAL	SPECIAL OFFSET
-	-	-	-
Yes	-	10 Ft.	-
-	-	-	-
-	-	-	-
Yes	-	10 Ft.	-
-	-	-	-
-	-	-	-

- ☐ Temporary Lighting and Construction Traffic Control Devices
☐ Signal pole locations and elevations (Temp)
☐ Light pole locations and elevations (Temp)
☐ Signs (Temp)
☐ Other: _____

☒ Easement (Temp)(Staking)

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER ITEM 629:

☐ Monumentation

- ☐ Control
☐ Right of Way (Temp) (Staking)
☐ Right of Way
☐ Land corners, Aliquot corners
☐ Easement (Temp)(Staking)
☐ Easement (Perm)
☐ Reference the specified existing monuments: ** _____
☐ Relocate the specified existing monuments: ** _____
☐ Locate monuments. It is estimated _____ hours are required.

** A Tabulation of Survey Monuments may be provided on the plans.

GENERAL NOTES:

All work shall be done in accordance with the latest edition of the entire CDOT Survey Manual including all revisions to date:
- Chapter 5 - Construction Surveying, revised 02/07/96.

Adequate information for establishing lines, grades, and locations for all work items have been specified on the plans. Any additional information required to stake the item or element shall be generated by the Contractor's surveyor.

The Contractor's surveyor shall provide an estimate of the man-hours necessary to complete the work items indicated on this sheet. A copy of this sheet, with the estimated man-hours written on the blank line to the left of the specified items, shall be submitted with the Survey Schedule to the Engineer _____ days prior to the Presurvey Conference.

The following surveying notebooks are required:

- ☒ Alignment Notebook
☒ Benchmark Notebook
☒ Control Survey/Monumentation Notebook
☐ Minor Structure Notebook
☒ Major Structure Notebook
☒ Slope Staking Notebook
☒ Grade Notebook
☐ Other Notebook(s): _____

Stakes which are damaged or destroyed by the progress of construction shall be replaced by the Contractor at no additional cost to the Department.

The Contractor shall furnish an As Staked earthwork quantity to the Engineer prior to completion of twenty percent (20%) of the planned earthwork in any phase as per the CDOT Survey Manual.

A printed copy of the As Staked earthwork data and a computer disk in the specified format shall be submitted to the Engineer.

The Contractor shall field verify original ground cross sections at maximum 100 ft intervals.

Prior to beginning work on any subsequent operation, such as placing base course or paving, the Contractor shall certify in writing to the Engineer that the final grade is within the specified tolerance.

The Contractor shall perform all field surveying and calculations necessary to tie plan grades into field grades.

The Contractor shall coordinate construction staking on the project with any utility work.

Computer File Information

Creation Date: 08/16/05 Initials: jpg
Last Modification Date: 9/16/2005 Initials: jpg
Full Path: C:\Projects\14087\Design\Drawing\14087SURVEY_TAB.dgn
Drawing File Name: 14087SURVEY_TAB.dgn
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions

Date:	Comments	Init.

Colorado Department of Transportation



902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5439 FAX: 719-546-5702

Region 2 - Design & Construction

BDL/jpg

As Constructed

No Revisions:

Revised:

Void:

Project No./Code

BR 069A-019

14087

Sheet Number 14

SURVEY TABULATION



Region 2
905 Erie Ave.
Pueblo CO, 81001
Phone: (719) 546-5454 FAX: (719) 546-5414

Right of Way Plans Unit: 2153

Sheet Revisions		
mm/yy	Description	init

Sheet Revisions		
mm/yy	Description	init

Sheet Revisions		
mm/yy	Description	init

Control Diagram Sheet

Project Number: BR 069A-019

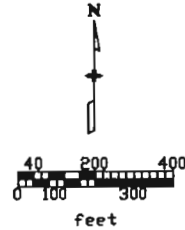
Project Location: S.H. 69 - South of Westcliffe

Project Location: Structure L-15-C at Wilmer Gulch

Project Code	Last Mod. Date	Subest Sheets	Sheet No.	Total No. of Sheets
14087	08-16-05	1 of 2	15	

State Highway 69 in Custer County

Sec. 32 & 33 in T. 22 S., R. 72 W. of the 6th PM
and Sec. 4, 5, 8, & 9 in T. 23 S., R. 72 W. of the 6th PM



GENERAL NOTES

- 1.) This Control Survey is for the use of the Colorado Department of Transportation. This survey is NOT a complete Land or Right of Way survey, nor is this Control Diagram Sheet a Land or Right of Way Survey Plat.
- 2.) NOTICE: 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 certification shown hereon.
- 3.) No guarantee as to the accuracy of the information contained hereon is implied or expressed unless this copy bears an original signature and seal of the Registered Land Surveyor named.
- 4.) All coordinates listed are based on G.P.S. observations taken in July of 2001.
- 5.) Field survey control precision computed to meet or exceed Colorado Department of Transportation Survey Manual Minimum Horizontal Control Tolerance for a type "B" survey requirements (+/- 0.25 FT. at 95% certainty).

BASIS OF BEARING

BASIS OF BEARINGS: The bearings referenced on this survey can be determined from any monuments set or found as shown on the Control Diagram Sheet. The basis of bearings for project reference is a line from Control Monument 5462 to Control Monument 5478 having a grid bearing of N 31° 14' 31" W at a distance of 842.21 feet.

SURVEY SYMBOL TABLE

▲ Control Monument / Project

△ Control Point / Secondary

SURVEYOR CERTIFICATE

I hereby state that this survey was performed under my supervision and checking, for and on the behalf of the Colorado Department of Transportation, State of Colorado, and is not a Land Survey Plat or a Right of Way Survey Plat, and is to the best of my knowledge and belief, the information presented here is true and correct.

DATE

Geodetic Coordinates

Name	Latitude	Longitude	Ellipsoid Ht. (m)	State Plane Coordinates			Name
				Northing (m)	Easting (m)	Elevation (m)	
5335	38° 4' 7.33274" N	105° 25' 49.50505" W	2424.767	460407.800	920507.392	2439.750	5335
5352	38° 4' 12.33186" N	105° 25' 57.87174" W	2419.546	460561.780	920303.352	2434.529	5352
5372	38° 4' 20.40313" N	105° 26' 6.17241" W	2420.771	460810.485	920100.862	2435.755	5372
5389	38° 4' 23.15711" N	105° 26' 16.97141" W	2415.322	460895.215	919837.604	2430.305	5389
5400	38° 4' 23.54206" N	105° 26' 23.37984" W	2413.200	460906.981	919681.406	2428.183	5400
5416	38° 4' 26.56720" N	105° 26' 33.34138" W	2413.155	461000.097	919438.561	2428.137	5416
5431	38° 4' 30.50388" N	105° 26' 41.52009" W	2420.647	461121.351	919239.156	2435.629	5431
5447	38° 4' 36.07925" N	105° 26' 48.00105" W	2417.781	461293.155	919081.105	2432.762	5447
5462	38° 4' 42.22245" N	105° 26' 54.81674" W	2420.305	461482.465	918914.893	2435.286	5462
5478	38° 4' 49.34045" N	105° 27' 0.27274" W	2418.319	461701.851	918781.809	2433.300	5478
5494	38° 4' 55.45037" N	105° 27' 6.99911" W	2415.003	461890.142	918617.789	2429.984	5494
5513	38° 5' 4.22062" N	105° 27' 13.32488" W	2413.083	462160.463	918463.499	2428.064	5513
5528	38° 5' 11.13411" N	105° 27' 15.59440" W	2411.832	462373.588	918408.089	2426.813	5528
5544	38° 5' 19.39807" N	105° 27' 17.34079" W	2405.871	462628.357	918365.409	2420.853	5544
0502	38° 5' 10.61191" N	105° 25' 56.42343" W	2463.724			2478.710	0502
0505	38° 4' 19.77878" N	105° 25' 58.23278" W	2441.676			2456.661	0505
0506	38° 4' 21.09883" N	105° 27' 05.25046" W	2402.314			2417.294	0506

**This control was created as part of a larger GPS control network from milepost 49.00 to 56.90. The project coordinates (see sheet 2) were derived by using the GPS Network Base Point's (CM 5283) combined factor of 0.9995689837.

$$\{[(\text{State Plane Coordinates (m)} / 0.9995689837) - (\text{northing (400,000 m) or easting (900,000 m) reduction})] \times 3937/1200 \text{ (ft/m)}\} = \text{Project coordinates (ft)}$$

▲ 5494

Westcliffe
▲ 5478

5462

Match line

Match line

COLORADO DEPARTMENT OF TRANSPORTATION



Region 2
905 Erie Ave.
Pueblo CO, 81001
Phone: (719) 546-5454 FAX: (719) 546-5414

Right of Way Plans Unit: 2153

Sheet Revisions

mm/yy	Description	Init

Sheet Revisions

mm/yy	Description	Init

Sheet Revisions

mm/yy	Description	Init

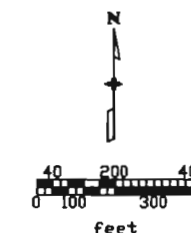
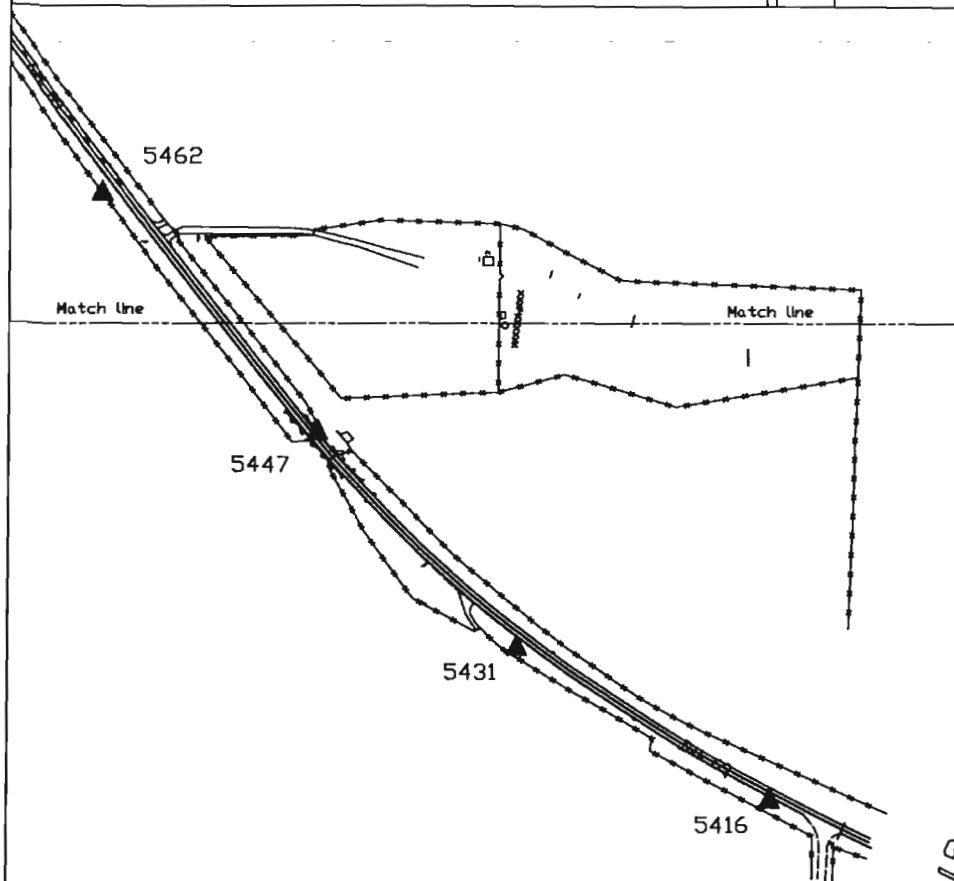
COLORADO DEPARTMENT OF TRANSPORTATION

Control Diagram Sheet

Project Number: BR 069A-019				
Project Location: S.H. 69 – South of Westcliffe				
Project Location: Structure L-15-C at Wilmer Gulch				
Project Code:	Last Mod. Date	Submittal Sheets	Sheet No.	Total No. of Sheets
14087	08-18-05	2 of 2	18	

State Highway 69 in Custer County

Sec. 32 & 33 in T. 22 S., R. 72 W. of the 6th PM
and Sec. 4, 5, 8, & 9 in T. 23 S., R. 72 W. of the 6th PM



GENERAL NOTES

- 1.) This Control Survey is for the use of the Colorado Department of Transportation. This survey is NOT a complete Land or Right of Way survey, nor is this Control Diagram Sheet a Land or Right of Way Survey Plat.
- 2.) NOTICE: 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 certification shown hereon.
- 3.) No guarantee as to the accuracy of the information contained hereon is implied or expressed unless this copy bears an original signature and seal of the Registered Land Surveyor named.
- 4.) All coordinates listed are based on G.P.S. observations taken in July of 2001.
- 5.) Field survey control precision computed to meet or exceed Colorado Department of Transportation Survey Manual Minimum Horizontal Control Tolerance for a type "B" survey requirements (+/- 0.25 FT. at 95% certainty).

BASIS OF BEARING

BASIS OF BEARINGS: The bearings referenced on this survey can be determined from any monuments set or found as shown on the Control Diagram Sheet. The basis of bearings for project reference is a line from Control Monument 5462 to Control Monument 5478 having a grid bearing of N 31° 14' 31" W at a distance of 842.21 feet.

Project Coordinates in FEET:

Name	Northing	Easting	Elevation	Mile Post	Rt/Lt	Dist. from Carsonite	Description
*5335	198839.2648	68583.5794	8004.4131	53.35	Lt	3.2'	CDOT CM 3' from delineator
5352	199344.6651	67913.8675	7987.2839	53.52	Lt	3'	CDOT CM
*5372	200160.9752	67249.2461	7991.3062	53.72	Rt	3'	CDOT CM
5389	200439.0802	66385.1676	7973.4257	53.89	Rt	3'	CDOT CM
*5400	200477.7005	65872.4891	7966.4637	54.00	Lt	3.7'	CDOT CM
5416	200783.3311	65075.4114	7966.3128	54.16	Lt	3'	CDOT CM
*5431	201181.3135	64420.9146	7990.8928	54.31	Lt	3.5'	CDOT CM
5447	201745.2183	63902.1511	7981.4867	54.47	Rt	3'	CDOT CM 3' behind NE guardrail
*5462	202366.5806	63356.6023	7989.7675	54.62	Lt	2.5'	CDOT CM
5478	203086.6583	62919.7865	7983.2518	54.78	Rt	3.4'	CDOT CM
*5494	203704.6770	62381.4337	7972.3725	54.94	Lt	2.3'	CDOT CM
5513	204591.9382	61875.0143	7966.0733	55.13	Rt	3.1'	CDOT CM
5528	205291.4688	61693.1461	7981.9690	55.28	Rt	3'	CDOT CM
*5544	206127.6838	61553.0613	7942.4152	55.44	Rt	3'	CDOT CM
*0502	205242.4648	68025.4584	8132.2343	1.20	Lt		Rosita Rd 3 1/2" Alum. Cap S 33-34-4-3 ** not shown **
*0505	200098.2422	67884.4433	8059.8945				12"x6" granite stone S 4-3-9-10
*0506	200228.5070	62523.1072	7930.7372				3 1/2" Alum. Cap S 4-5-8-9 ** not shown **

* Calibration Points

SURVEY SYMBOL TABLE

- ▲ Control Monument / Project
△ Control Point / Secondary



COLORADO DEPARTMENT OF TRANSPORTATION

Region 2
905 Erie Ave.
Pueblo CO, 81001
Phone: (719) 546-5454 FAX: (719) 546-5414

Right of Way Plans Unit: 2153

Sheet Revisions			Sheet Revisions			Sheet Revisions		
mm/yy	XXXXX	XXX	mm/yy	XXXXX	XXX	mm/yy	XXXXX	XXX

Right of Way				
Plan Sheet				
Project Number: BR 069A-019				
Project Location: State Highway 69 - South of Westcliffe				
Project Location: Structure L 15 C at Wilmer Gulch				
Project Code: 14087	Last Mod. Date: 09-14-05	Subest Sheets: 1 of 2	Sheet No.: 17	Total No. of Sheets: 17

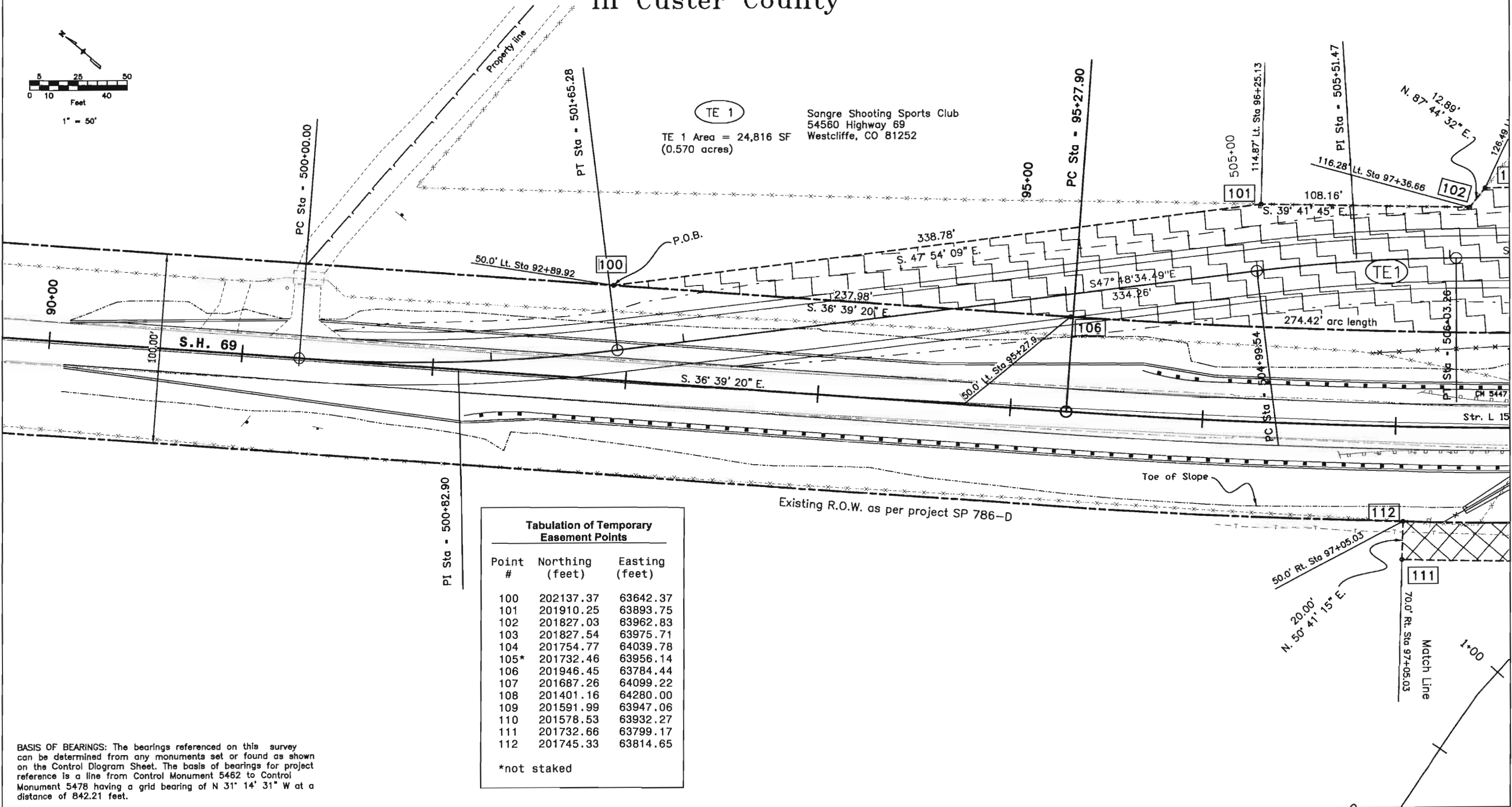
NOTE: This page is a detailed view of the TE's shown on page 19 of the construction plans.

Southwest 1/4 of Section 4

T. 23 S., R. 72 W., Of the 6th P.M.

In Custer County

Previous Right of Way Project
Information: S.P. 786-D



Tabulation of Temporary Easement Points		
Point #	Northing (feet)	Easting (feet)
100	202137.37	63642.37
101	201910.25	63893.75
102	201827.03	63962.83
103	201827.54	63975.71
104	201754.77	64039.78
105*	201732.46	63956.14
106	201946.45	63784.44
107	201687.26	64099.22
108	201401.16	64280.00
109	201591.99	63947.06
110	201578.53	63932.27
111	201732.66	63799.17
112	201745.33	63814.65
*not staked		

BASIS OF BEARINGS: The bearings referenced on this survey can be determined from any monuments set or found as shown on the Control Diagram Sheet. The basis of bearings for project reference is a line from Control Monument 5462 to Control Monument 5478 having a grid bearing of N 31° 14' 31" W at a distance of 842.21 feet.

COLORADO DEPARTMENT OF TRANSPORTATION



Region 2
905 Erie Ave.
Pueblo CO, 81001
Phone: (719) 546-5454 FAX: (719) 546-5414

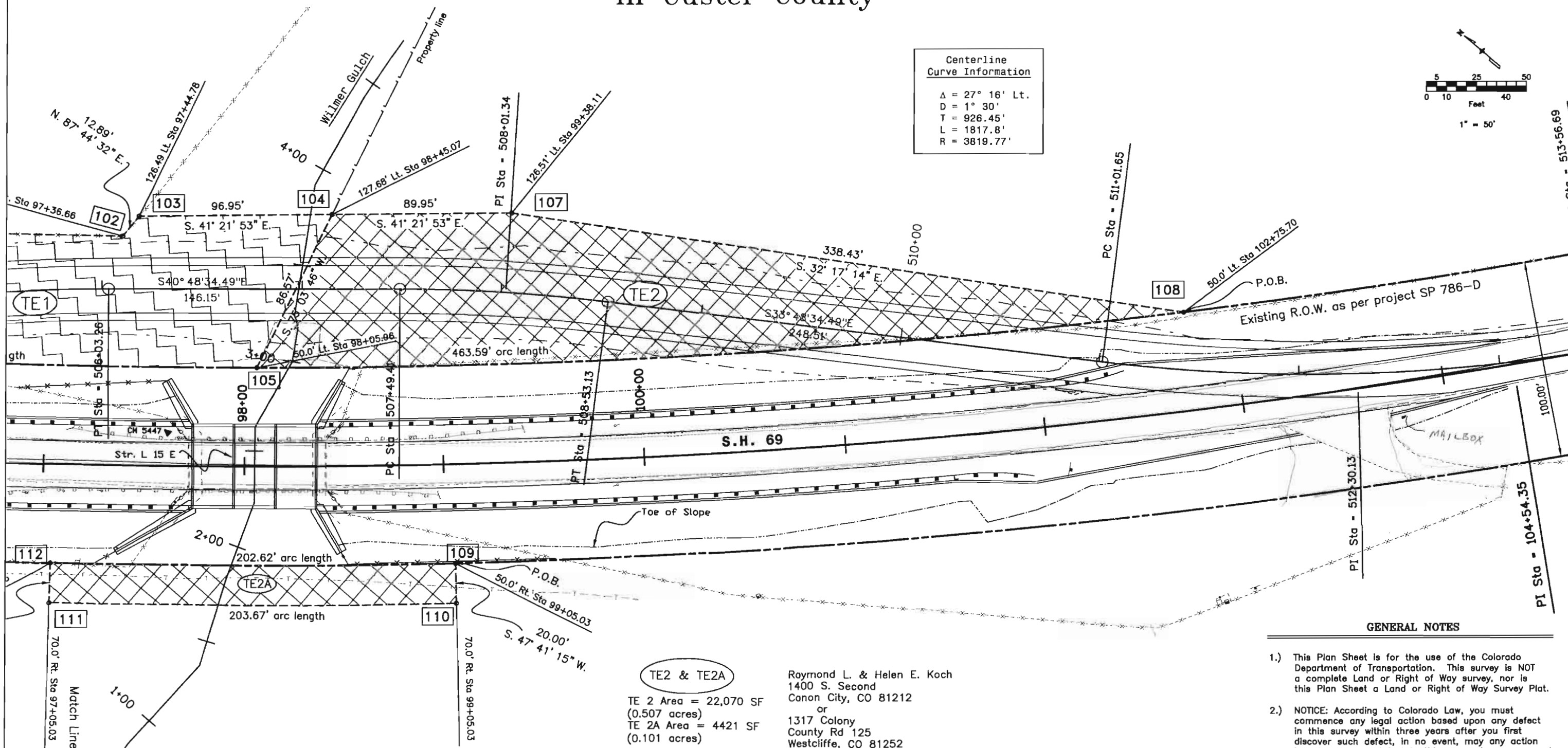
Right of Way Plans Unit: 2153

Sheet Revisions				Sheet Revisions				Sheet Revisions			
mm/yy	xxxx	xxx		mm/yy	xxxx	xxx		mm/yy	xxxx	xxx	

Right of Way				
Plan Sheet				
Project Number: BR 069A-019				
Project Location: State Highway 69 - South of Westcliffe				
Project Location: Structure L 15 C at Wilmer Gulch				
Project Code	Last Mod. Date	Subsect Sheets	Sheet No.	Total No. of Sheets
14087	09-14-05	2 of 2	18	

Southwest 1/4 of Section 4
T. 23 S., R. 72 W., Of the 6th P.M.
In Custer County

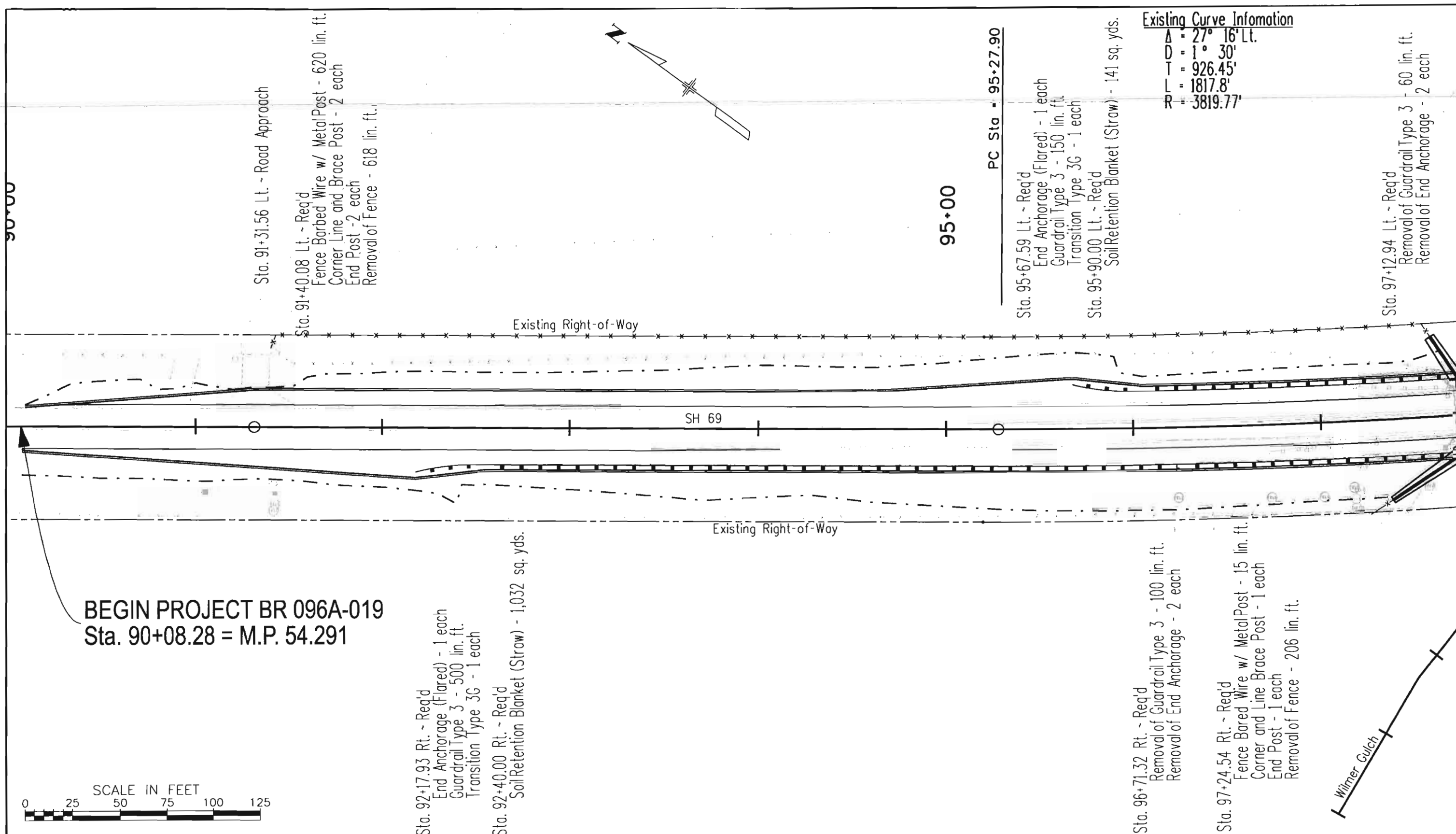
Previous Right of Way Project
Information: S.P. 786-D



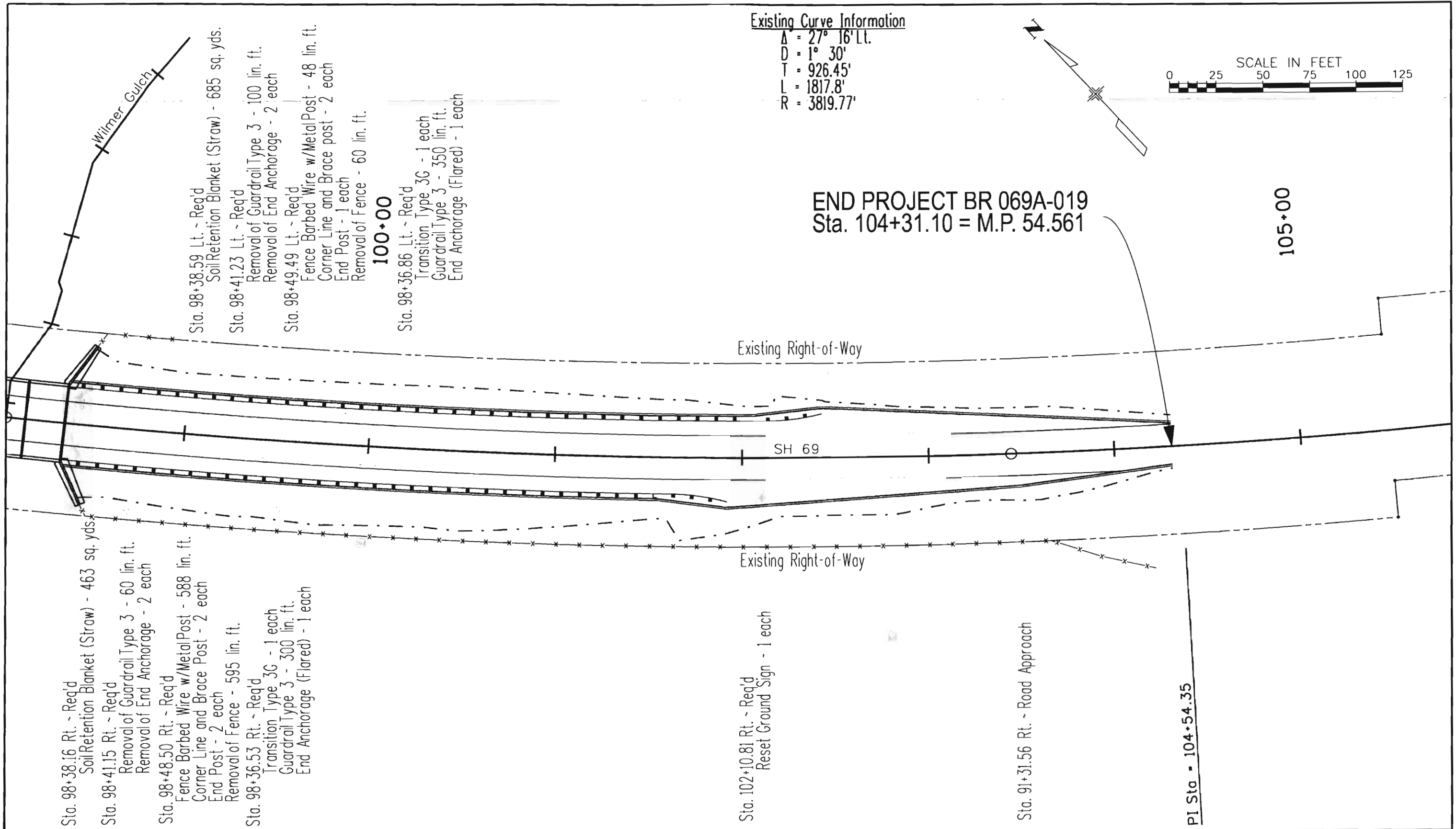
BASIS OF BEARINGS: The bearings referenced on this survey can be determined from any monuments set or found as shown on the Control Diagram Sheet. The basis of bearings for project reference is a line from Control Monument 5462 to Control Monument 5478 having a grid bearing of N 31° 14' 31" W at a distance of 842.21 feet.

GENERAL NOTES

- 1.) This Plan Sheet is for the use of the Colorado Department of Transportation. This survey is NOT a complete Land or Right of Way survey, nor is this Plan Sheet a Land or Right of Way Survey Plat.
- 2.) NOTICE: 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 certification shown hereon.
- 3.) No guarantee as to the accuracy of the information contained hereon is implied or expressed unless this copy bears an original signature and seal of the Registered Land Surveyor named.

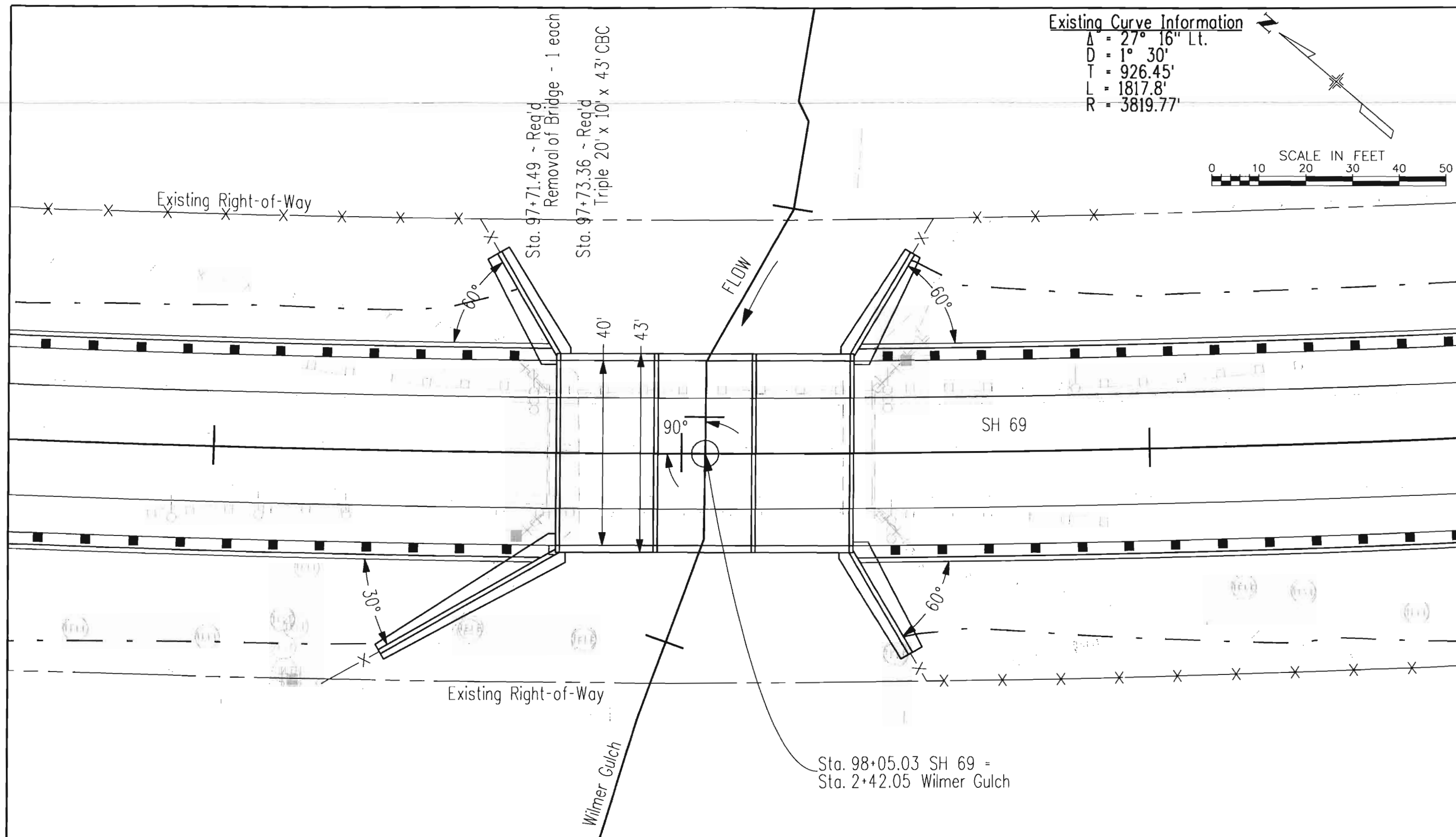


Computer File Information			R-X	Sheet Revisions			Colorado Department of Transportation			As Constructed		ROADWAY PLAN SHEET		Project No./Code	
Creation Date: 08/08/05 Initials: jpg				Date:	Comments	Init.	 902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5439 FAX: 719-546-5702 Region 2 - Design & Construction DL/jpg	No Revisions:				BR 069A-019			
Last Modification Date: 9/20/2005 Initials: jpg								Revised:				14087			
Full Path: C:\Projects\14087\Design\Design_Dots\14087PlanSheet_1.dgn								Void:				Sheet Number 19			
Drawing File Name: 14087PlanSheet_1.dgn															
CAD Ver.: MicroStation V8 Scale: 1" = 50' Units: English															

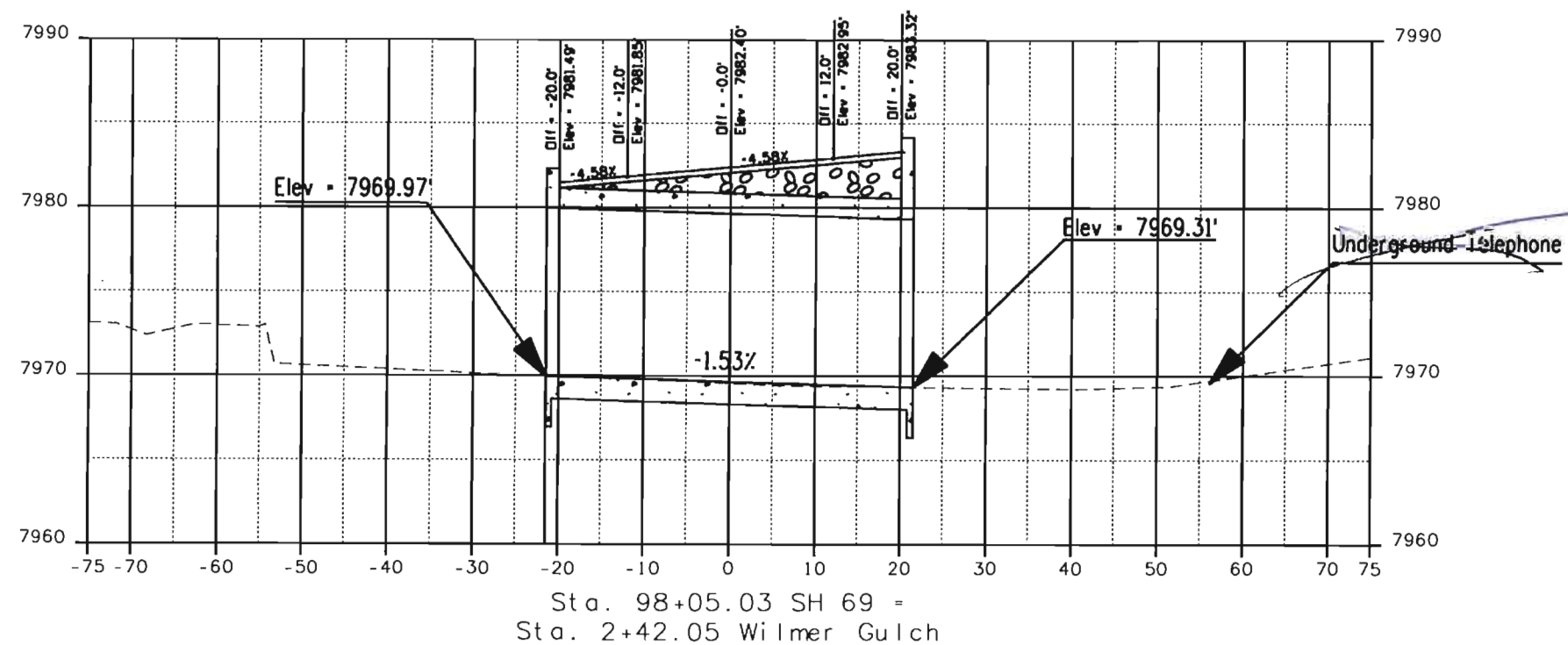


Computer File Information				Sheet Revisions			Colorado Department of Transportation DOT DEPARTMENT OF TRANSPORTATION 902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5439 FAX: 719-546-5702 Region 2 -Design and Construction BDL/jpg		As Constructed		ROADWAY PLAN SHEET		Project No./Code	
Creation Date:	08/08/05	Initials:		jpg	Date:	Comments			Init.	No Revisions:			BR 069A-019	
Last Modification Date:	9/20/2005	Initials:		jpg						Revised:			14087	
Full File Path:	F:\Projects\14087\Design\Design_Data\14087PlanSheet_2.dgn								Void:	Sheet Number				
Drawing File Name:	14087PlanSheet_2.dgn									20				
CAD Ver.:MicroStation V8	Scale:	1" = 50'		Units: English										

ROADWAY
PLAN SHEET



Computer File Information			Sheet Revisions			Colorado Department of Transportation			As Constructed			Project No./Code				
Creation Date:	08/08/05	Initials: jpg	R-X	Date:	Comments	Init.	 902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5439 FAX: 719-546-5702 Region 2 - Design & Constrction DL/jpg	No Revisions:			ROADWAY PLAN SHEET			BR 069A-019		
Last Modification Date:	9/20/2005	Initials: jpg						Revised:						14087		
Full Path:	C:\Projects\14087\Design\Design_Data\14087PlanSheet_CBC1.dgn							Void:						Sheet Number		
Drawing File Name:	14087PlonSheet_CBC1.dgn													21		
CAD Ver.:MicroStation V8	Scale: 1" = 20'	Units: English														



Computer File Information		
Creation Date:	09/13/05	Initials: jpg
Last Modification Date:	9/20/2005	Initials: jpg
Full Path:	C:\Projects\14087\Design\Design_Data\14087RoadwayXsec01.dgn	
Drawing File Name:	14087RoadwayXsec01.dgn	
CAD Ver.: MicroStation V8	Scale: 1"=10' Vert.: 1"=20' Horiz.	Units: English

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

DOT

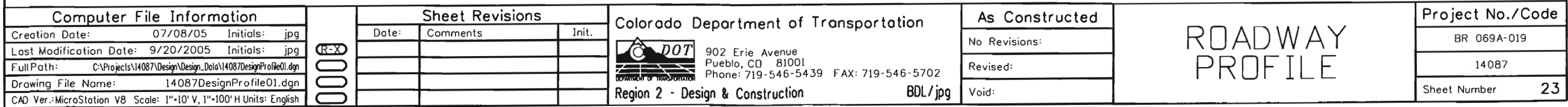
902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5439 FAX: 719-546-5702

Region 2 - Design & Construction BDL/jpg

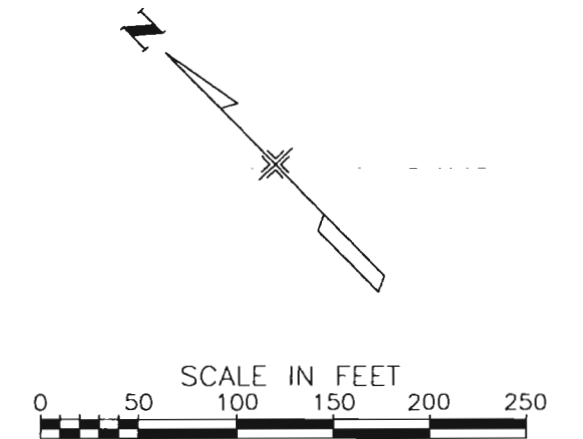
As Constructed
No Revisions:
Revised:
Void:

STRUCTURE
CROSS SECTION

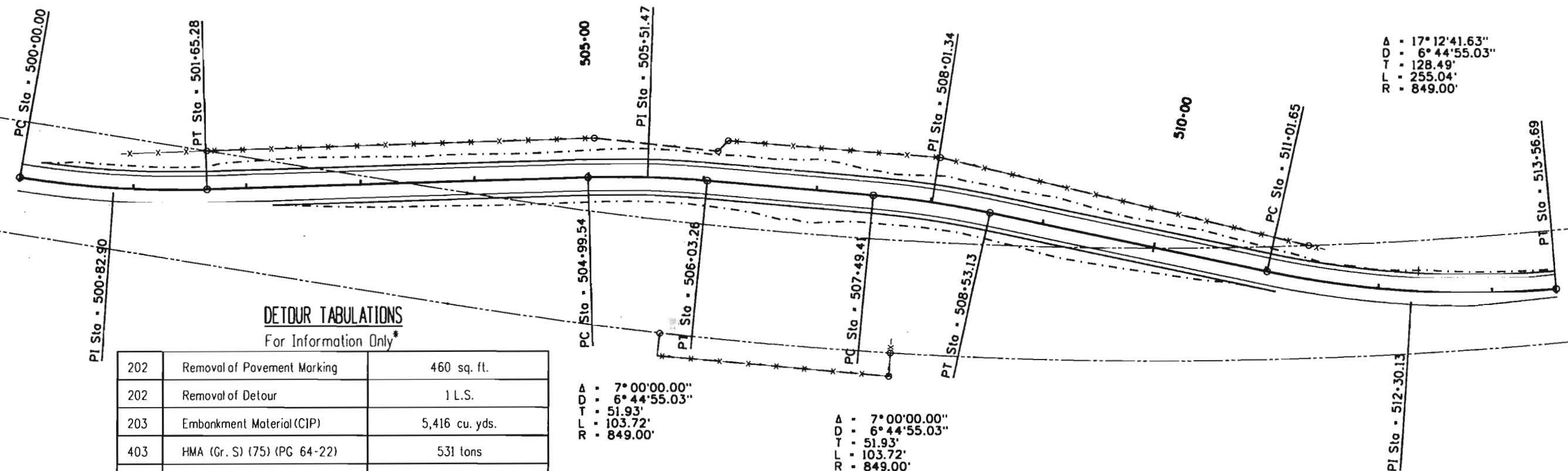
Project No./Code
BR 069A-019
14087
Sheet Number 22



A = 11° 09' 14.40"
 D = 6° 44' 55.03"
 T = 82.90'
 L = 165.28'
 R = 849.00'



A = 17° 12' 41.63"
 D = 6° 44' 55.03"
 T = 128.49'
 L = 255.04'
 R = 849.00'



DETOUR TABULATIONS

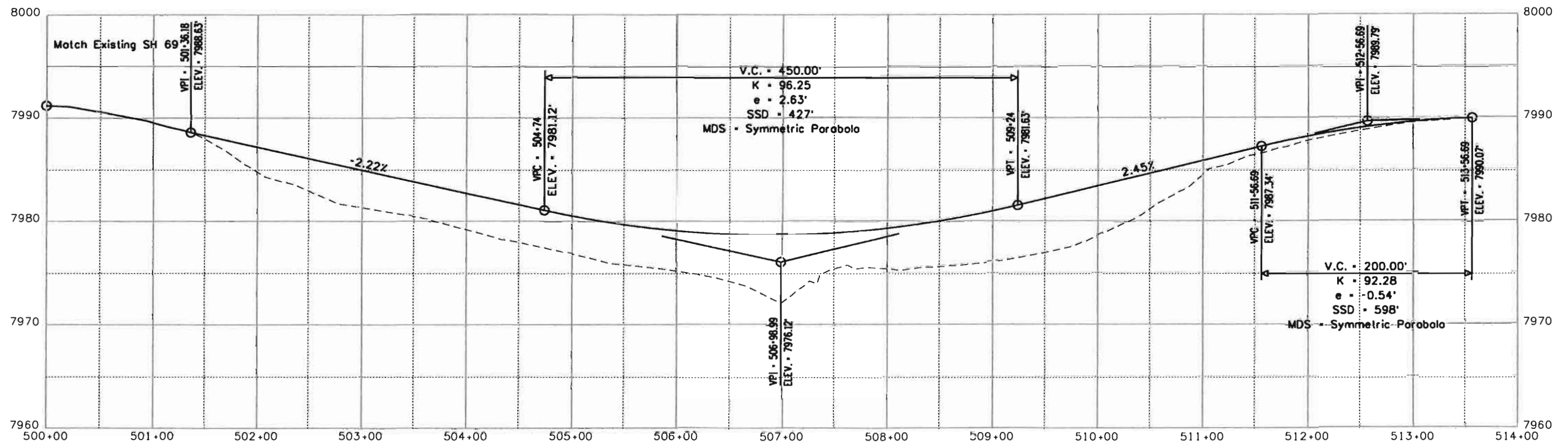
For Information Only*

202	Removal of Pavement Marking	460 sq. ft.
202	Removal of Detour	1 L.S.
203	Embankment Material (CIP)	5,416 cu. yds.
403	HMA (Gr. S) (75) (PG 64-22)	531 tons
411	Emulsified Asphalt (Slow-Setting)	482 gal.
519	Pavement Marking Point	18 gal. (9 gal. white and 9 gal. yellow)
617	Detour Culvert Pipe	60 lin. ft.

*Note: All cost to construct and remove the detour are included in Item 621-00425 - Detour (Lump Sum) and will not be paid for separately, but included in the cost of the item.

All areas disturbed by the construction and removal of the detour shall be reclaimed and all fences that are removed shall be replaced with new fence. The Contractor shall construct the detour in a manner that will ensure that livestock will be kept off the roadway at all times. This will require the placement of temporary fence prior to construction and removal of the detour.

Computer File Information			Sheet Revisions			As Constructed			Project No./Code	
Creation Date:	09/01/05	Initials: jpg	Date:	Comments	Init.	No Revisions:	DETOUR PLAN SHEET		BR 069A-019	
Last Modification Date:	9/20/2005	Initials: jpg				Revised:			14087	
Full Path:	C:\Projects\14087\Design\Design_Data\14087\DetourPlan.dgn					Void:			Sheet Number	
Drawing File Name:	14087DetourPlan.dgn								24	
CAD Ver.: MicroStation V8	Scale: 1" = 100'	Units: English								
			Colorado Department of Transportation  902 Erie Avenue Pueblo, CO 81001 Phone: 719-546-5439 FAX: 719-546-5702 Region 2 - Design & Construction BDL/jpg							



Computer File Information		
Creation Date:	09/02/05	Initials: jpg
Last Modification Date:	9/20/2005	Initials: jpg
Full Path:	C:\Projects\14087\Design\Design_Data\14087\DetourProfile.dgn	
Drawing File Name:	14087DetourProfile.dgn	
CAD Ver.: MicroStation V8	Scale: 1"=10'	Ver: 1"=100' Horiz. Units: English

Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation

902 Erie Avenue
Pueblo, CO 81001
Phone: 719-546-5439 FAX: 719-546-5702

Region 2 - Design & Construction BDL/jpg

As Constructed
No Revisions:
Revised:
Void:

Detour Profile

Project No./Code
BR 069A-019
14087
Sheet Number 25

GENERAL NOTES

EXCEPT AS SHOWN IN THE PLANS, STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH M-206-I FOR CAST-IN-PLACE RETAINING WALLS.

EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M213.

THE FINAL FINISH FOR THE SURFACES OF THE TYPE 7 BRIDGE RAIL AND CURBS SHALL BE CLASS 2. ALL OTHER EXPOSED CONCRETE SURFACES SHALL RECEIVE A CLASS 1 FINAL FINISH TO ONE FOOT BELOW THE GROUND LINE.

ALL BOLTS SHALL BE 7/8" DIAMETER, HIGH STRENGTH, UNLESS OTHERWISE NOTED.

GRADE 60 REINFORCING STEEL IS REQUIRED.

ALL REINFORCING STEEL SHALL BE EPOXY COATED UNLESS OTHERWISE NOTED.

(N) DENOTES NON COATED REINFORCING STEEL.

THE FOLLOWING TABLE GIVES THE MINIMUM LAP SPLICE LENGTH FOR EPOXY COATED REINFORCING BARS PLACED IN ACCORDANCE WITH SUBSECTION 602.06. THESE SPLICE LENGTHS SHALL BE INCREASED BY 25% FOR BARS SPACED AT LESS THAN 6" ON CENTER.

BAR SIZE	•4	•5	•6	•7	•8	•9	•10	•11
----------	----	----	----	----	----	----	-----	-----

SPLICE LENGTH FOR
CLASS D CONCRETE 1'-3" 1'-6" 1'-10" 2'-2" 3'-8" 4'-8" 5'-11" 7'-3"

WHEN THE CONTRACTOR ELECTS TO SUBSTITUTE EPOXY COATED REINFORCEMENT FOR BLACK REINFORCING BARS, THE MINIMUM LAP SPLICE SHALL BE AS DESCRIBED ABOVE.

THE FOLLOWING TABLE GIVES THE MINIMUM LAP SPLICE LENGTH FOR BLACK REINFORCING BARS PLACED IN ACCORDANCE WITH SUBSECTION 602.06. THESE SPLICE LENGTHS SHALL BE INCREASED BY 25% FOR BARS SPACED AT LESS THAN 6" ON CENTER.

BAR SIZE	•4	•5	•6	•7	•8	•9	•10	•11
----------	----	----	----	----	----	----	-----	-----

SPLICE LENGTH FOR
CLASS D CONCRETE 1'-0" 1'-4" 1'-7" 1'-10" 2'-5" 3'-1" 3'-11" 4'-10"

THE ABOVE SPLICE LENGTHS SHALL BE INCREASED BY 20 PERCENT FOR 3 BAR BUNDLES AND 33 PERCENT FOR 4 BAR BUNDLES.

THE ABOVE SPLICE LENGTHS MAY BE REDUCED BY 20% WHEN 3" OF CLEAR COVER EXISTS AND BAR SPACING IS 6" OR GREATER ON CENTER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.

FOR STRUCTURE NUMBER INSTALLATION, SEE STANDARD S-614-12.

STATIONS, ELEVATIONS, AND DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM A RECENT FIELD SURVEY. THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIAL.

THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987 AT LEAST 2 DAYS (NOT INCLUDING THE DAY OF NOTIFICATION) PRIOR TO ANY EXCAVATION OR OTHER EARTHWORK.

INDEX OF DRAWINGS

DWG. NO. B 1 GENERAL INFORMATION - SUMMARY OF QUANTITIES

DWG. NO. B 2 GENERAL LAYOUT

DWG. NO. B 3 ENGINEERING GEOLOGY

DWG. NO. B 4 HEADWALL SECTION - CBC-WINGWALL CONNECTIONS

DWG. NO. B 5 TYPICAL WINGWALL ELEVATION - WINGWALL SECTIONS

DWG. NO. B 6 WINGWALL PLANS - CBC-WALL FOOTING CONNECTIONS

DWG. NO. B 7 BRIDGE RAIL TYPE 10H HEADWALL MOUNTED

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	TOTAL
202	REMOVAL OF BRIDGE	EACH	1
206	STRUCTURAL EXCAVATION	CU. YD.	729
206	STRUCTURAL BACKFILL (CLASS 1)	CU. YD.	519
403	HOT MIX ASPHALT	TON	49
601	CONCRETE CLASS D (BOX CULVERT)	CU. YD.	408
602	REINFORCING STEEL	LB.	95,369
606	BRIDGE RAIL TYPE 10H	LF.	127

DESIGN DATA

AASHTO, 17TH EDITION STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES
AASHTO, THIRD EDITION LRFD WITH 2005 INTERIM REVISIONS

DESIGN METHOD: LOAD FACTOR DESIGN FOR CBC,
LOAD AND RESISTANCE FACTOR DESIGN FOR HEADWALL AND WINGWALLS

LIVE LOAD :HS20-44 FOR LFD
HL-93 (DESIGN TRUCK OR TANDEM, AND DESIGN LANE LOAD) FOR LRFD

DEAD LOAD: ASSUMES 48 LBS. PER SQ. FT. FOR CBC TOP DECK OVERLAY

REINFORCED CONCRETE:

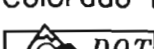
CLASS D CONCRETE: $f'_c = 4,500$ psi
REINFORCING STEEL: $f_y = 60,000$ psi

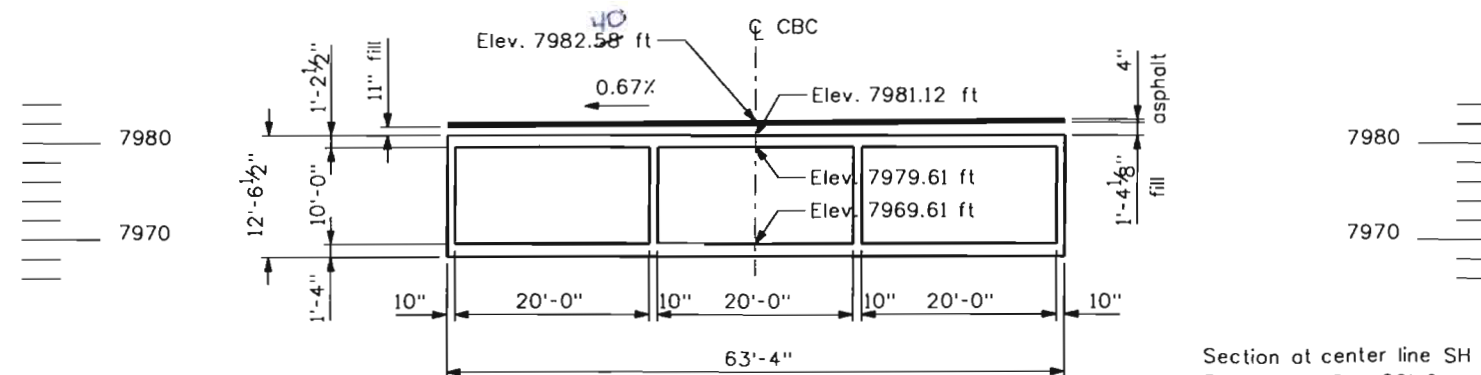
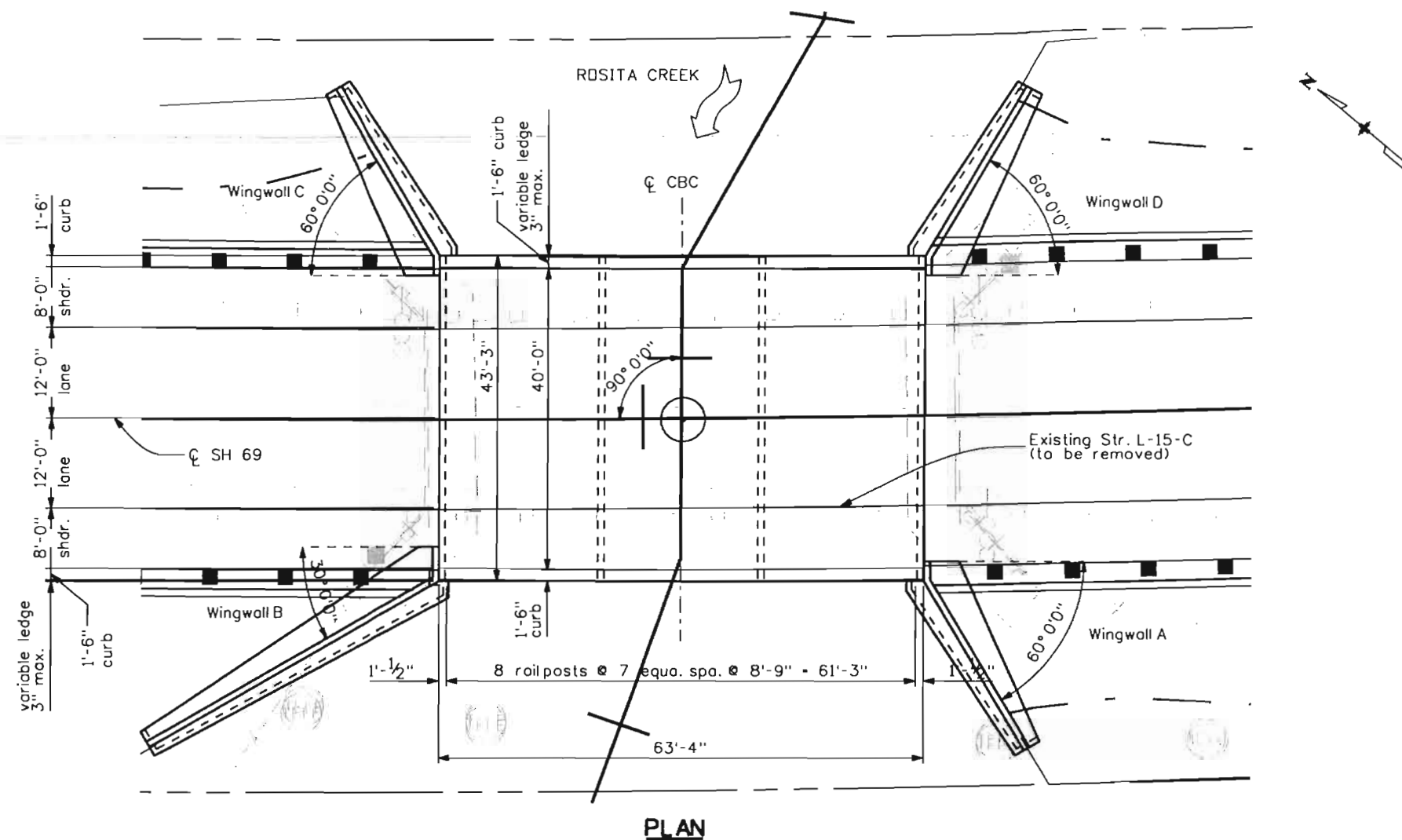
BRIDGE DESCRIPTION

REPLACE A 3 SPAN TIMBER STRINGER,
LAMINATED TIMBER DECK BRIDGE,
TIMBER ABUTMENTS, AND TIMBER WINGWALLS
WITH A 3 CELL 20' X 10' CONCRETE BOX CULVERT,
CONCRETE WINGWALLS, AND BRIDGE RAIL TYPE 10H.

CROSS REFERENCE DRAWING NUMBER
(IF BLANK, REFERENCE IS TO SAME SHEET)
SECTION OR DETAIL IDENTIFICATION



Computer File Information			0000	Sheet Revisions			Colorado Department of Transportation			As Constructed		GENERAL INFORMATION SUMMARY OF QUANTITIES				Project No./Code	
Creation Date: 09/19/05 Initials: AVT				Date:	Comments	Init.	 4201 East Arkansas Avenue Room 330 Denver, CO 80222 Phone: 303-757-9309 FAX: 303-757-9197 Staff Bridge Branch SLW			No Revisions:		Designer: John DeLond Structure L-15-E Detailer: An Tran Numbers				BR 069A-019	
Last Modification Date: 9/19/05 Initials: AVT										Revised:						14087	
Full Path: \Projects\Design Check BR 069A-019\Drawings\										Void:		Sheet Subset: Triple CBC		Subset Sheets: B01 of 7		Sheet Number 26	
Drawing File Name: L-15-E_Sheet1.dgn																	
CAD Ver.:MicroStation V8 Scale:Not to Scale Units: English																	

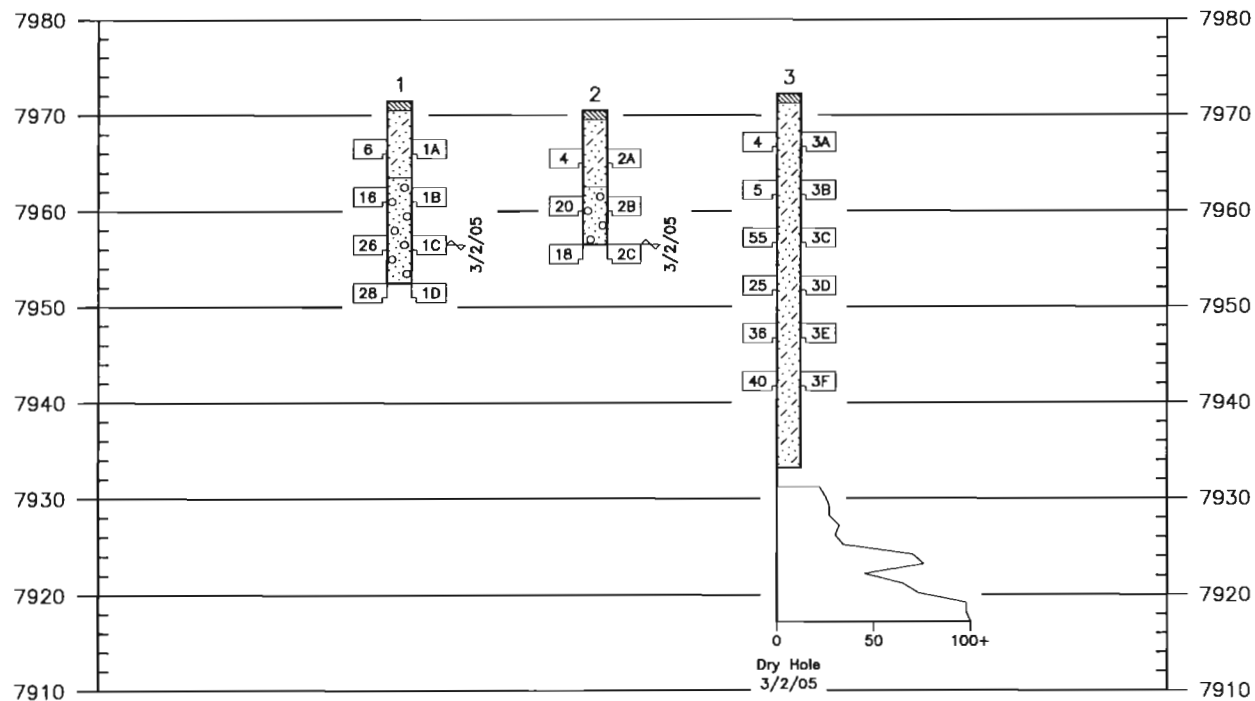
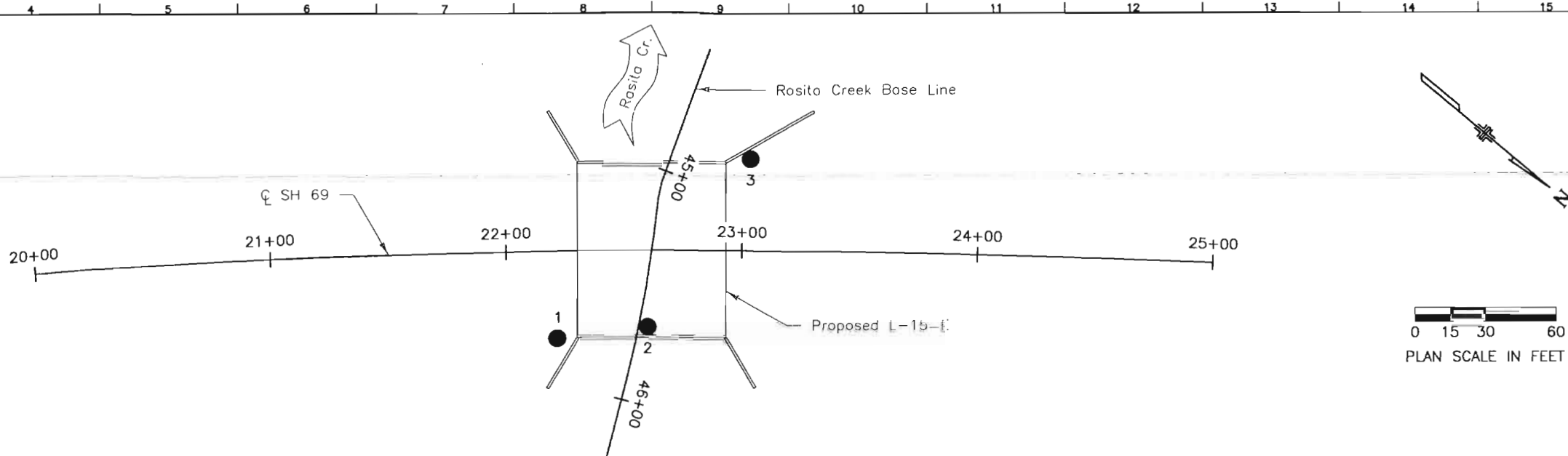


Computer File Information				00000	Sheet Revisions			Colorado Department of Transportation		As Constructed		GENERAL LAYOUT			Project No./Code	
Creation Date: 09/15/05 Initials: AVT					Date:	Comments	Init.	 4201 East Arkansas Avenue Room 330 Denver, CO 80222 Phone: 303-757-9309 FAX: 303-757-9197	No Revisions:		Designer: John DeLand Detailer: An Tran			BR 069A-019		
Last Modification Date: 9/16/05 Initials: AVT									Revised:					Structure L-15-E		
FullPath: \Projects\Design Check BR 069A-019\Drawings\									Void:		Numbers		14087			
Drawing File Name: L-15-E-Sheet2.dgn																
CAD Ver.:MicroStation V8 Scale:Not to Scale Units: English											Sheet Subset: Triple CBC		Subset Sheets: B02 of 7		Sheet Number 27	
								Staff Bridge Branch SLW								

Quantities		Revision Dates	
INITIAL	DATE	INITIAL	DATE

Detail		Design	
INITIAL	DATE	INITIAL	DATE

Computer File Information		Sheet Revisions	
Creation Date:	4/11/05	Initials:	TM
Last Modification Date:	6/06/05	Initials:	TM
Full Path:	C:\MY_FILES\ACADFILE\SH 069\		
Drawing File Name:	L15E.dwg		
Acad Ver.	16.0s	Scale:	varies
Units:	English		



The boring logs of the above test holes are on file in the Geotechnical Program Office, Staff Materials and Geotechnical Branch, (303)757-9274

SUMMARY OF TEST RESULTS												
Sample Number	Depth (feet)	Classification			Grading Analysis (AASHTO)				Atterberg Limits			Water Content W %
		Corps of Engrs. or Visual	USCS	AASHTO	Percent				L.L. L _w	P.L. P _w	P.I. I _w	
					Gravel	Coarse Sand	Fine Sand	Silt and Clay				
2A	4.0-5.5	Silty Sand	SM	A-2-4(0)	6	9	60	25	NL	NP	NP	12.9
2B	9.0-10.5	Gravelly Sand	GW	A-1-a(0)	54	26	15	5	NL	NP	NP	4.0
2C	14.0-15.5	Sand	SC	A-6(1)	4	12	47	37	32	17	15	18.0
3A	4.0-5.5	Silty Sand	SM	A-4(0)	5	12	46	37	20	NP	NP	5.7
3B	9.0-10.5	Silty Sand	SM	A-2-4(0)	3	13	58	26	NL	NP	NP	3.7
3D	19.0-20.5	Sand	SC-SM	A-2-4(0)	2	12	59	27	22	17	5	11.4

TYPE OF MATERIAL	
	Organic Material
	Silty Sand to Sand, with Cobbles
	Gravelly Sand to Sand
Note: Boulders may be encountered at any depth	

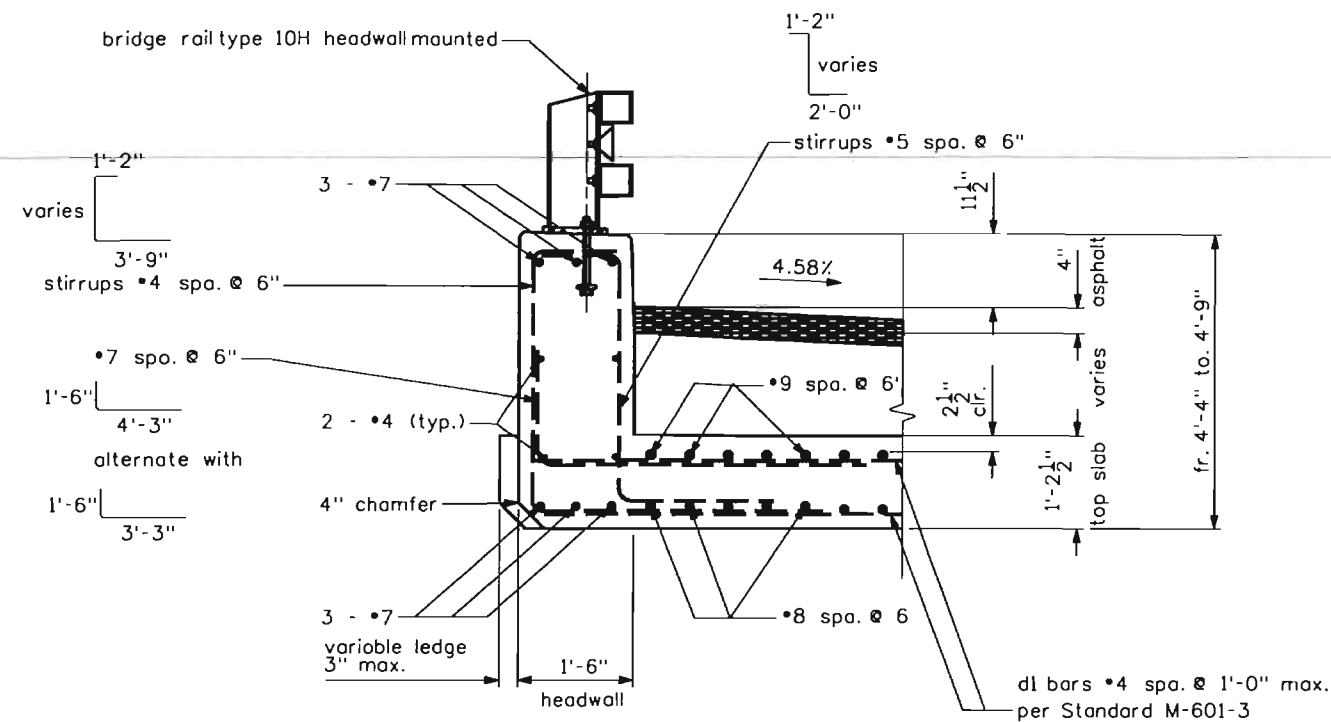
TEST BORING		CONTINUOUS PENETRATION TEST	
3" Hole Size Blows per foot * 30 R = Refusal on SPT 50/0.1 50 Blows in 0.1 ft Core Recovery R.Q.D. 50/25		2 Inch Diameter Drive Point 30 Inch Free Fall 140 Pound Hammer 0 50 100 Blows Per Foot	
* Standard Penetration Test (AASHTO T 206-87(2000))		Location of Test Boring Location of Continuous Penetration Test 3 Inch Wireline Boring Rotary Boring Auger Boring	

Computer File Information				Sheet Revisions				As Constructed				ENGINEERING GEOLOGY				Project No./Code			
Creation Date:	4/11/05	Initials:	TM					No Revisions:				SH 69 at Rosita Creek				BR 069A-019			
Last Modification Date:	6/06/05	Initials:	TM					Revised:				Designer:	I. Ksouri	Structure	L-15-E				
Full Path:	C:\MY_FILES\ACADFILE\SH 069\							Void:				Detailer:	T. McNulty	Numbers					
Drawing File Name:	L15E.dwg											Sheet Subset:	Geology	Subset Sheets:	BL1 of				
Acad Ver.	16.0s	Scale:	varies	Units:	English														

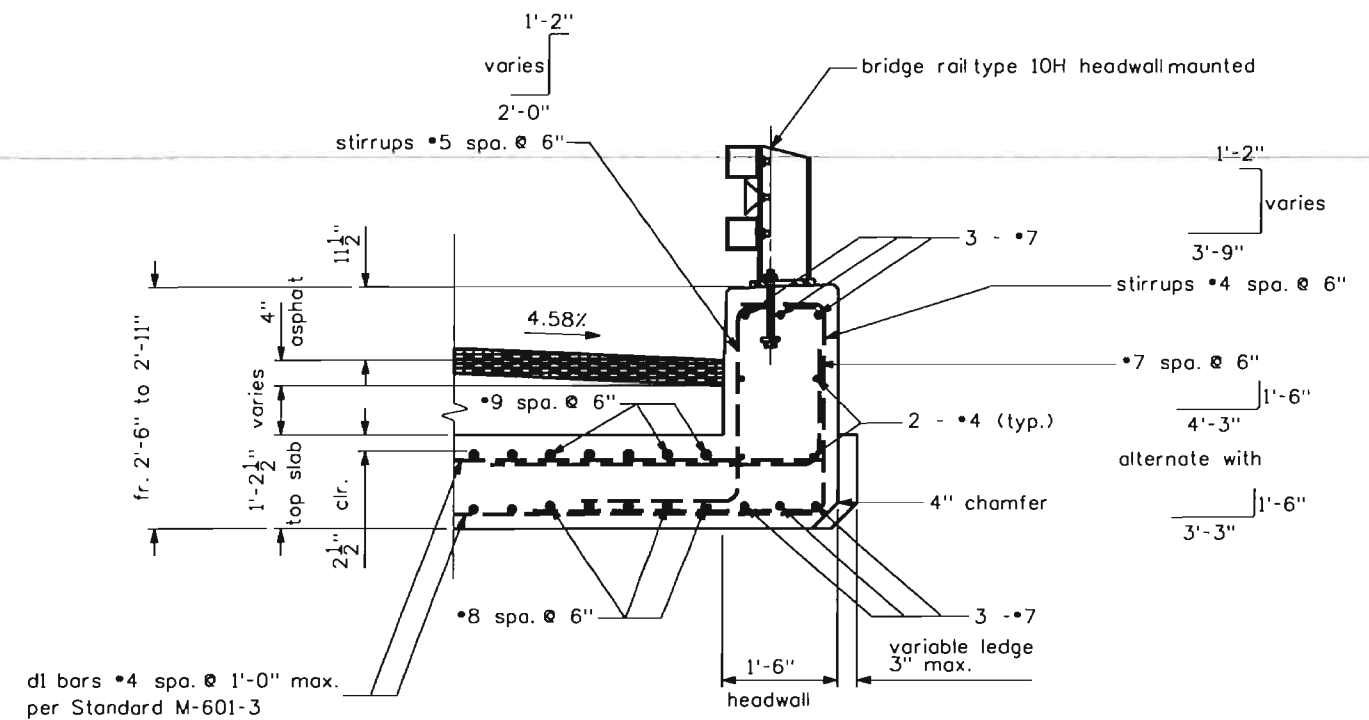
Colorado Department of Transportation

4201 East Arkansas Avenue, Room 330
Denver, Colorado 80222-3400
Phone: 303-757-9352 FAX: 303-757-9197

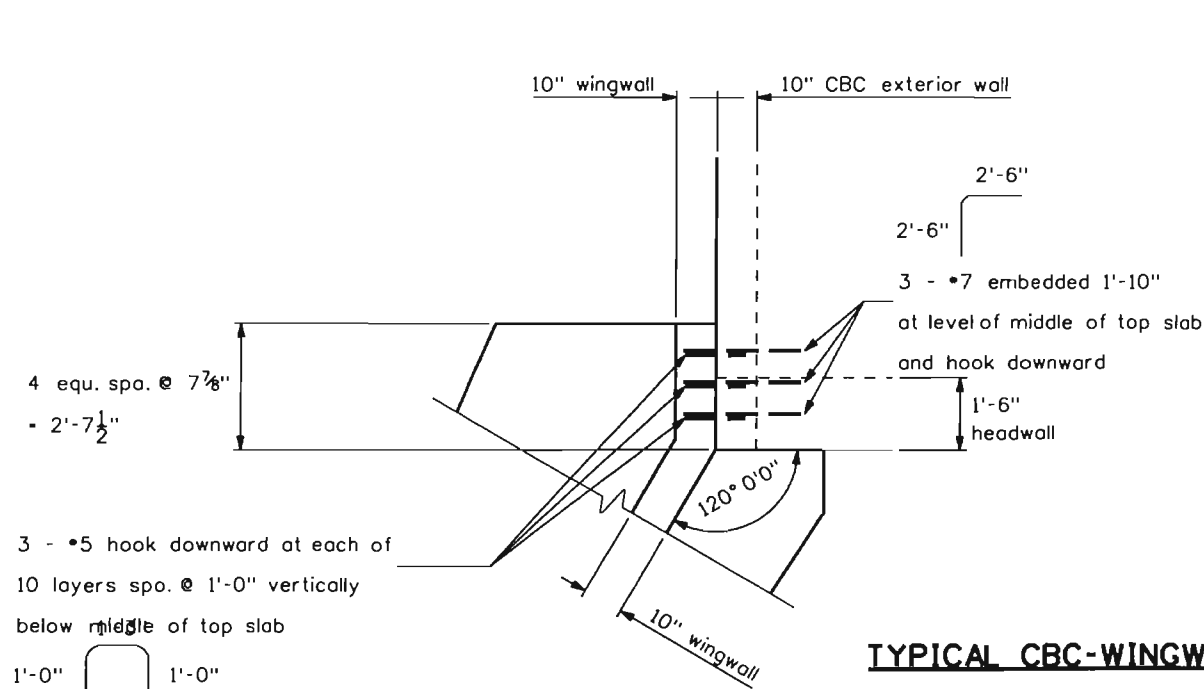
Geotechnical Program



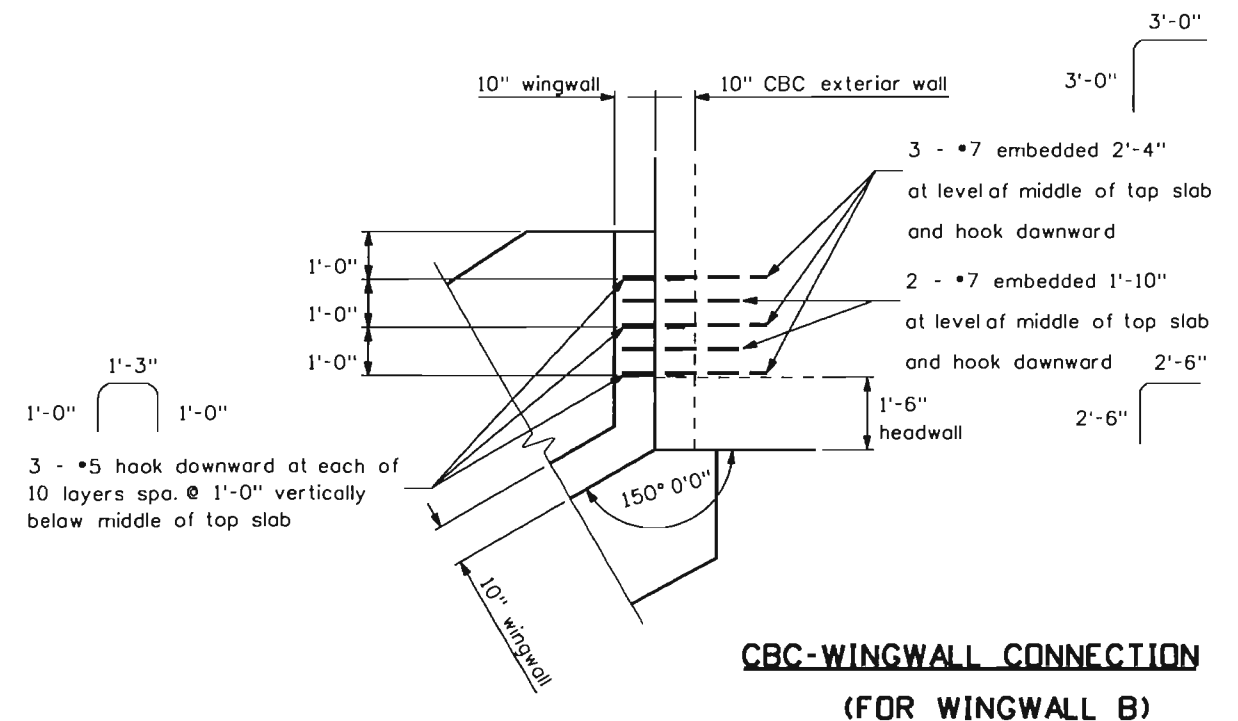
**LEFT HEADWALL SECTION
(LOOKING BACK STATION)**



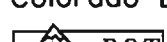
**RIGHT HEADWALL SECTION
(LOOKING BACK STATION)**

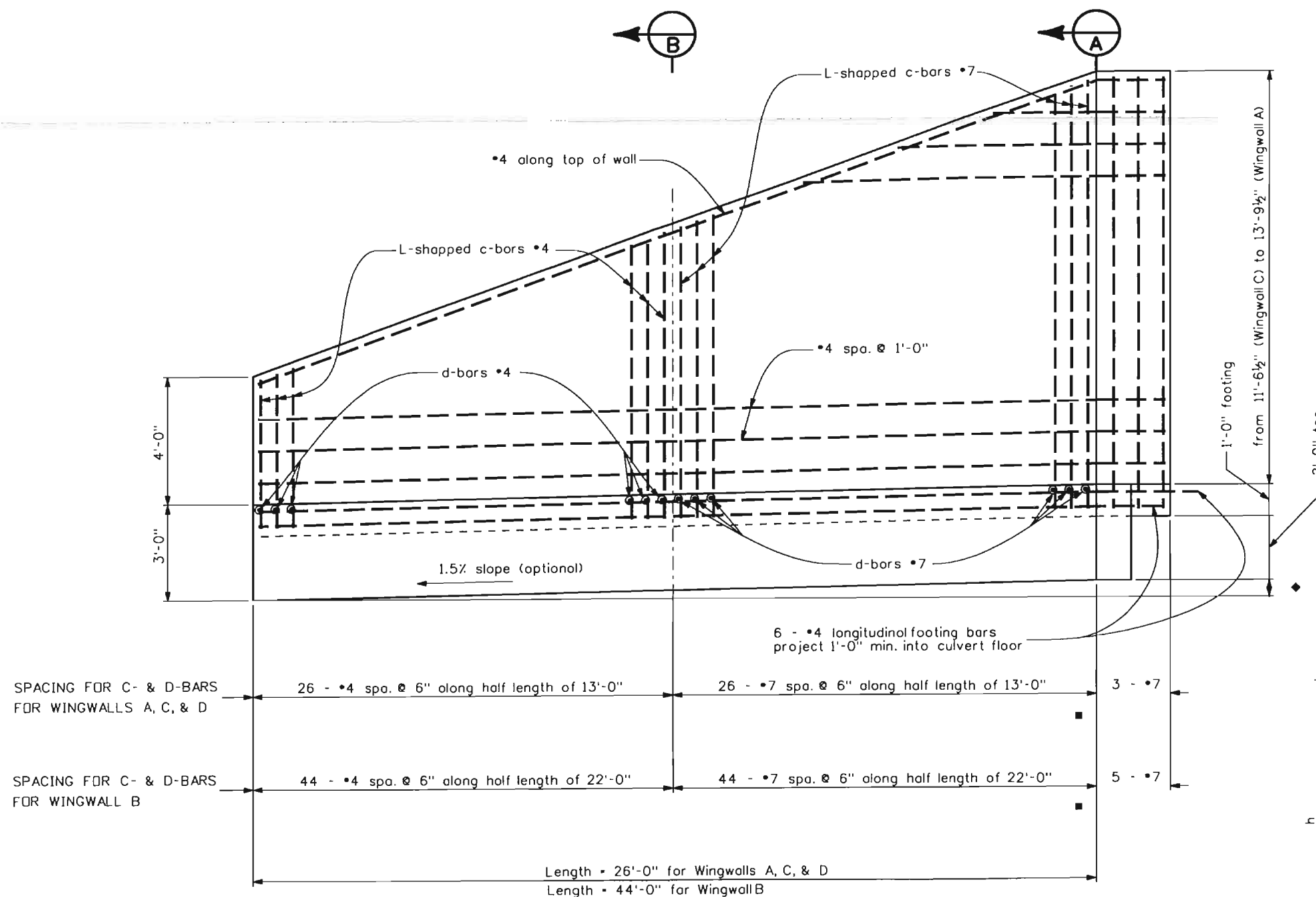


**TYPICAL CBC-WINGWALL CONNECTION
(FOR WINGWALLS A, C, & D)**



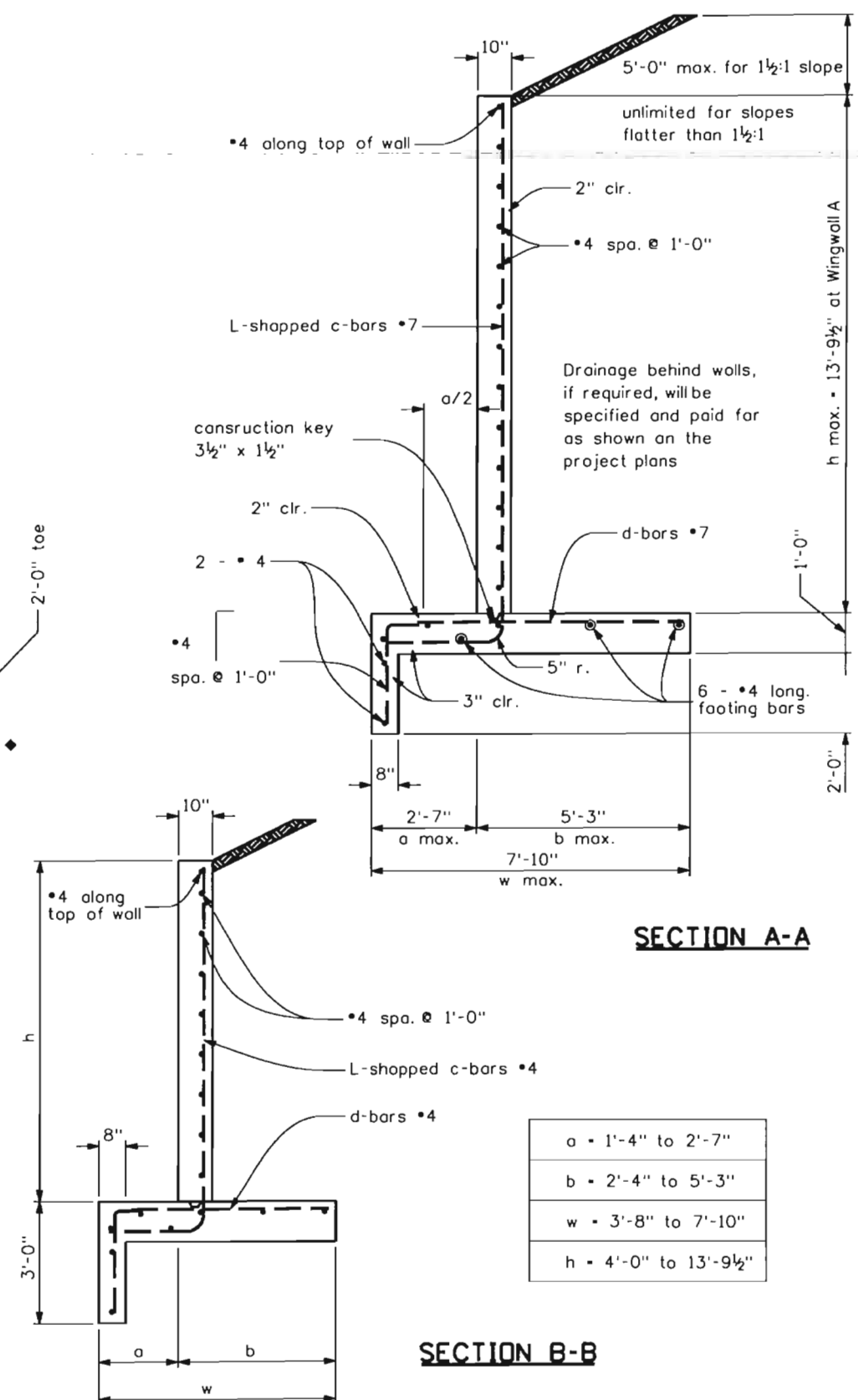
**CBC-WINGWALL CONNECTION
(FOR WINGWALL B)**

Computer File Information			Sheet Revisions			Colorado Department of Transportation		As Constructed		HEADWALL SECTION CBC-WINGWALL CONNECTIONS		Project No./Code			
Creation Date:	08/26/05	Initials: AVT	Date:	Comments	Init.	 4201 East Arkansas Avenue Room 330 Denver, CO 80222 Phone: 303-757-9309 FAX: 303-757-9197	No Revisions:			Designer:	Jahn DeLand	Structure	L-15-E	BR 069A-019	
Last Modification Date:	9/19/05	Initials: AVT					Revised:			Detailer:	An Tran	Numbers		14087	
Full Path:	\Projects\Design Check BR 069A-019\Drawings\						Void:			Sheet Subset:	Triple CBC	Subset Sheets:	B04 of 7	Sheet Number	29
Drawing File Name:	L-15-E_Sheet4.dgn														
CAD Ver.:MicroStation V8	Scale:Not to Scale	Units:English					Staff Bridge Branch		SLW						



TYPICAL WINGWALL ELEVATION

- ◆ Difference in height due to 1.5% slope (optional):
4 5/8" for Wingwalls A, C, & D
7 7/8" for Wingwall B
- See Dwg. No. B06 for additional c-bars and d-bars for CBC-footing connections



Computer File Information		
Creation Date:	08/26/05	Initials: AVT
Last Modification Date:	9/19/05	Initials: AVT
Full Path:	\Projects\Design Check BR 069A-019\Drawings\	
Drawing File Name:	L-15-E_Sheet5.dgn	
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English

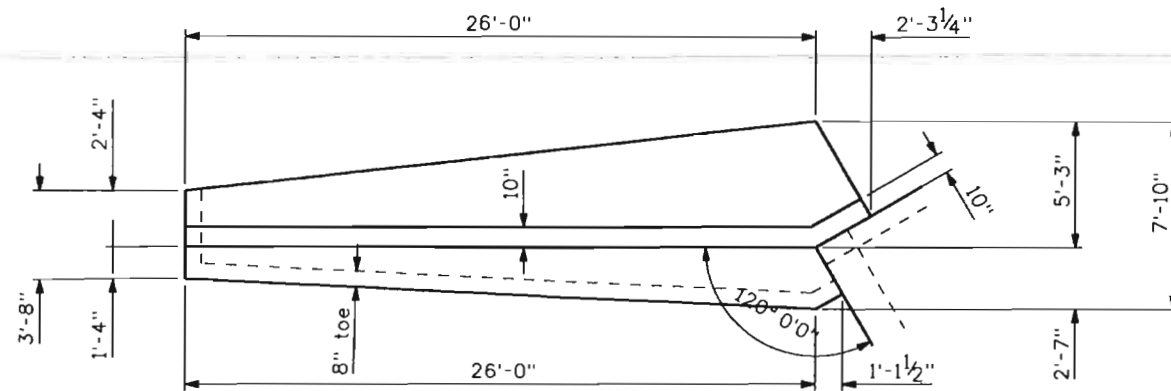
Sheet Revisions		
Date:	Comments	Init.

Colorado Department of Transportation
 4201 East Arkansas Avenue
 Room 330
 Denver, CO 80222
 Phone: 303-757-9309 FAX: 303-757-9197
 Staff Bridge Branch SLW

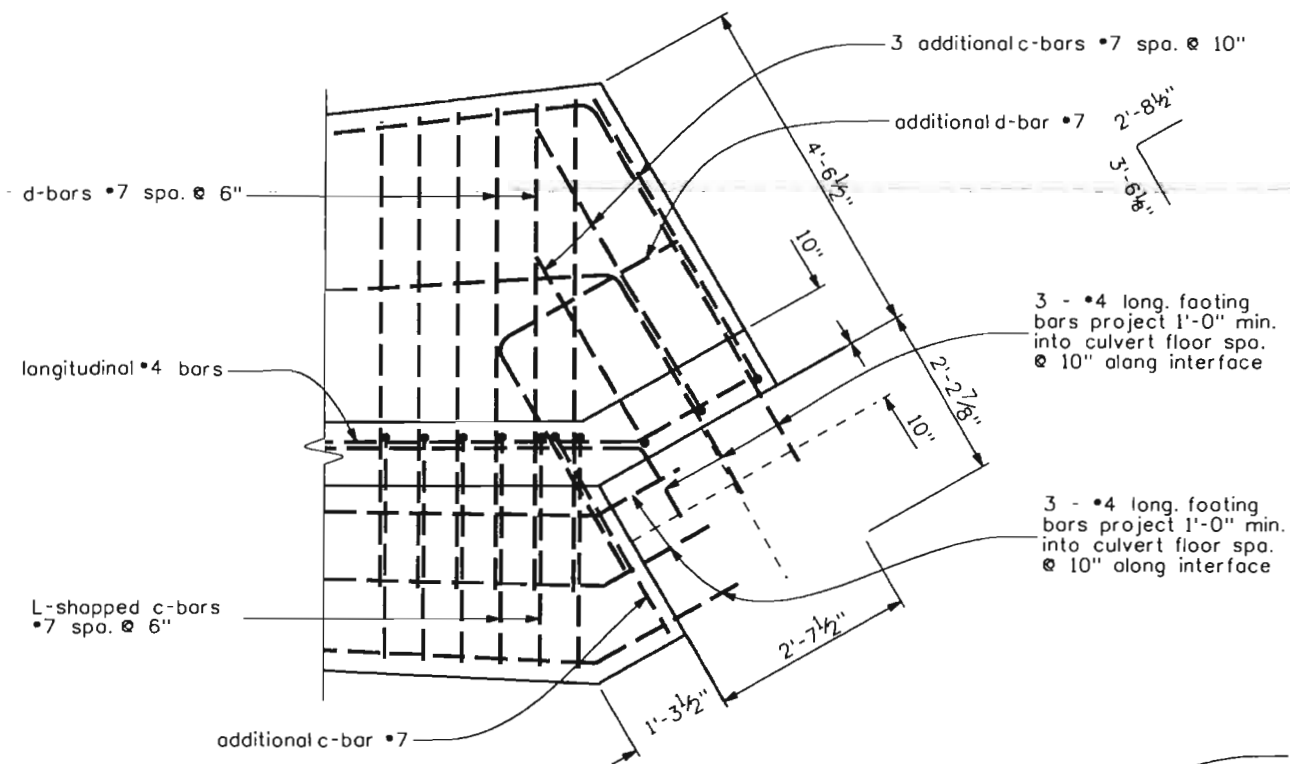
As Constructed
No Revisions:
Revised:
Void:

TYPICAL WINGWALL ELEVATION WINGWALL SECTIONS		
Designer:	John DeLand	Structure L-15-E
Detailer:	An Tran	Numbers
Sheet Subset:	Triple CBC	Subset Sheets: B05 of 7

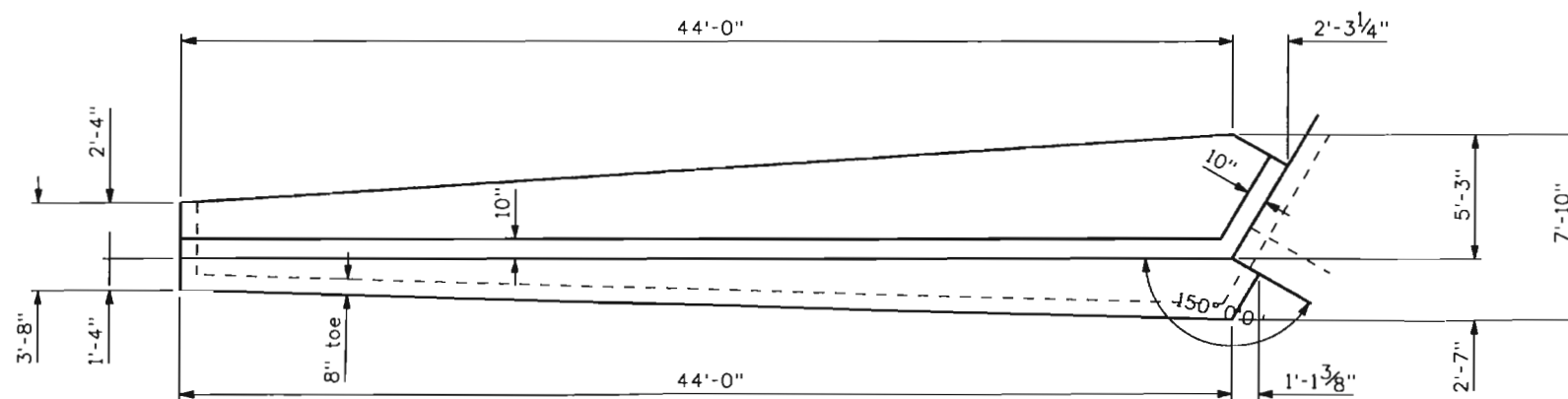
Project No./Code
BR 069A-019
14087
Sheet Number 30



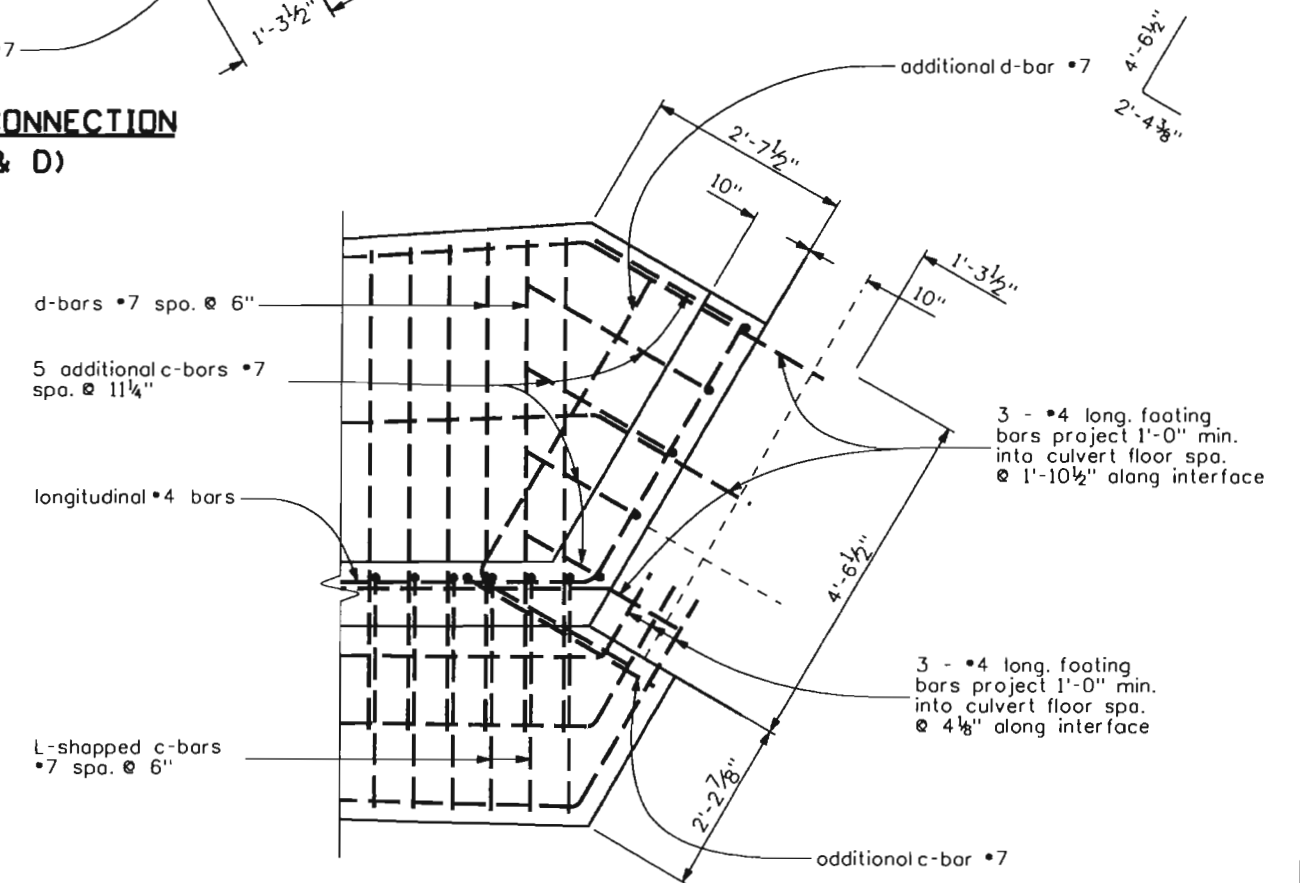
TYPICAL PLAN OF WINGWALLS A, C. & D



TYPICAL CBC-WALL FOOTING CONNECTION
(FOR WINGWALLS A, C, & D)

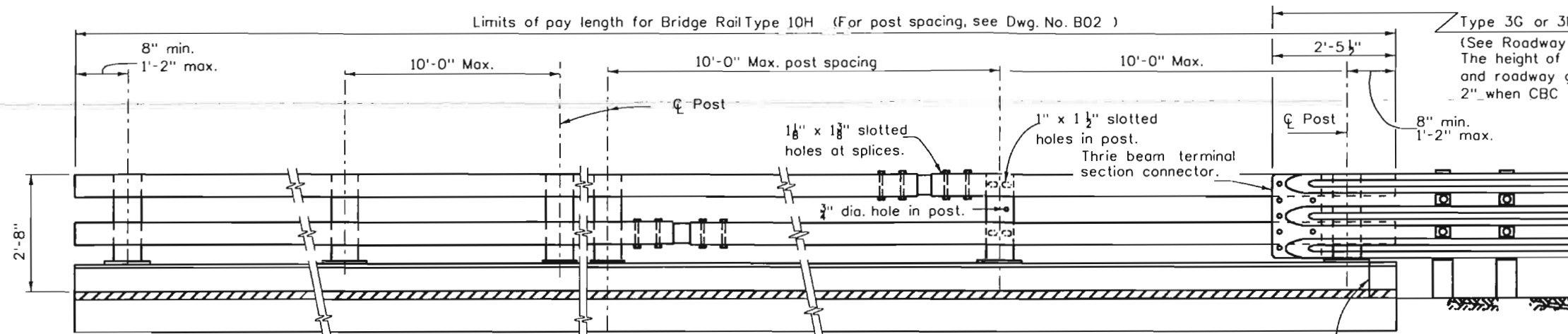


PLAN OF WINGWALL B



CBC-WALL FOOTING CONNECTION
(FOR WINGWALL B)

Computer File Information		0000	Sheet Revisions		Colorado Department of Transportation		As Constructed		WINGWALL PLANS CBC-WALL FOOTING CONNECTIONS			Project No./Code	
Creation Date:	08/26/05 Initials: AVT		Date:	Comments	Init.	 4201 East Arkansas Avenue Room 330 Denver, CO 80222 Phone: 303-757-9309 FAX: 303-757-9197 Staff Bridge BranchSLW	No Revisions:		CBC-WALL FOOTING CONNECTIONS			BR 069A-019	
Last Modification Date:	9/15/05 Initials: AVT						Revised:	Designer: John DeLand	Structure	L-15-E	14087		
Full Path:	\\Projects\Design Check BR 069A-019\Drawings\						Void:	Detailer: An Tran		Numbers			
Drawing File Name:	L-15-E_Sheet6.dgn							Sheet Subset: Triple CBC		Subset Sheets: B06 of 7		Sheet Number 31	
CAD Ver.:MicroStation V8	Scale:Not to Scale Units: English												



RAIL PANEL AT TERMINAL SECTION

(See Roadway plans for ends not attached to Guard Rail.)

RAIL PANEL AT TRANSITION SECTION

(See roadway plans for ends requiring attachment to guard rail.)

ELEVATION - BRIDGE RAIL

Chamfer traffic face of curb 3" x 6".

NOTES:

All tubes shall from ASTM A-500 Grade B.
All posts and base plates shall be ASTM A-572 Grade 50.
All other steel shall be ASTM A-36 unless otherwise noted.

The above material and all anchor bolts and miscellaneous bolts, nuts, and washers shall be galvanized after fabrication in accordance with Section 509. Concrete, reinforcing steel, and structural steel elements shall conform to the requirements of Sections 601, 602 and 509, respectively.

Post anchors, enclosed in concrete, shall be ASTM A-36 (AASHTO M-183) steel and need not be galvanized.

The tubes shall be shop bent or fabricated to fit horizontal curve when radius is less than 1,500 feet.

Tubes shall be continuous over not less than two posts. No welded butt splices will be allowed in the tube sections.

The centerline of the tube splice shall be 1'-8" minimum and 2'-6" maximum from the centerline of the posts.

All bolts that have lock washers shall be tightened to snug only.

Posts shall be perpendicular to the longitudinal roadway grade.

One or more 10'-0" post spacings may be reduced (6'-8" min.) in order to maintain dimensions from the end of the rail and expansion joints.

Payment will be made under Item 606, Bridge Rail Type 10H for all posts, post anchors, base plates, backing plates, anchor bolts, miscellaneous bolts, nuts, washers, tubes, tube splices, end plates, and reflector tabs.

Prior to fabrication of this item, three sets of working drawings which comply with the requirements of Section 105, shall be submitted to the Engineer for information only.

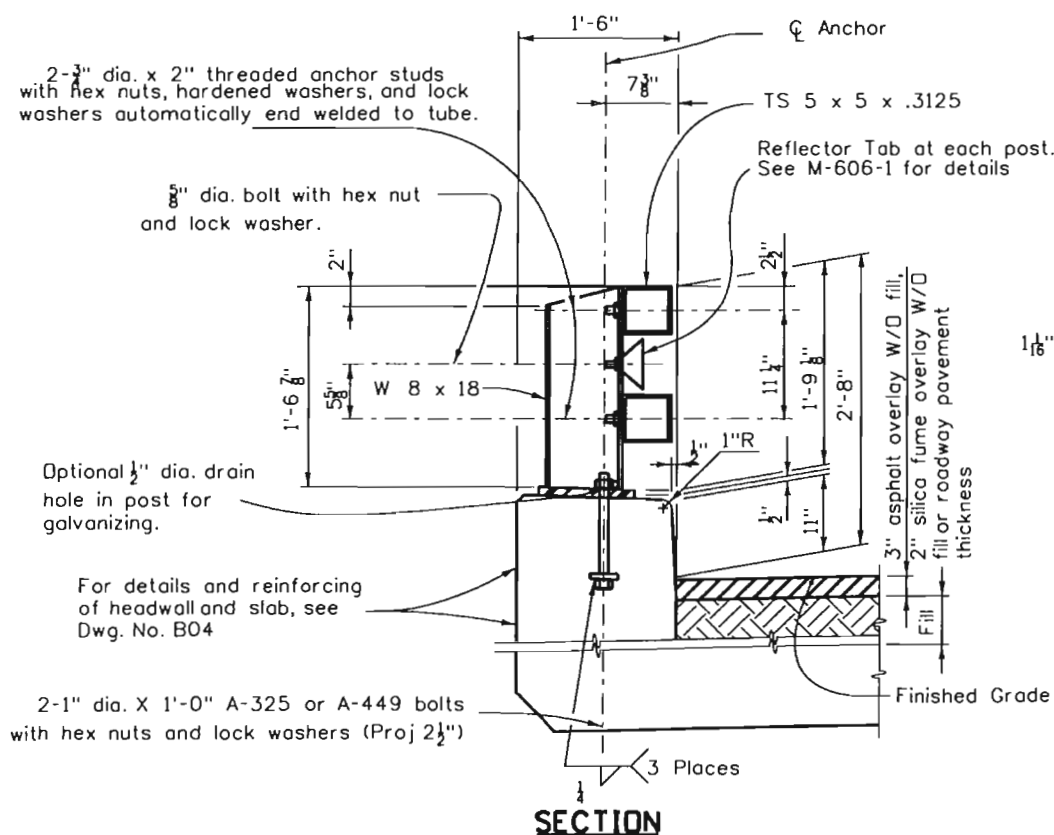
Structural Steel:

AASHTO M-183 (ASTM A-36) $f_y=36,000$ psi
AASHTO M-223 (ASTM A-572) $f_y=50,000$ psi
Cold formed ASTM A-500 Grade B $f_y=46,000$ psi

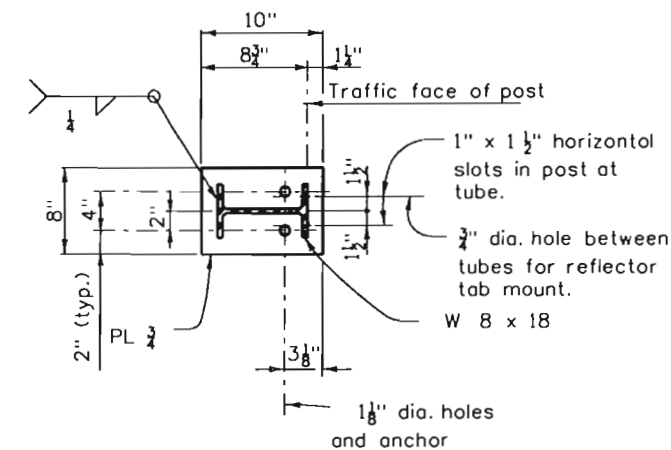
For additional details see next rail sheets.

INFORMATION ONLY

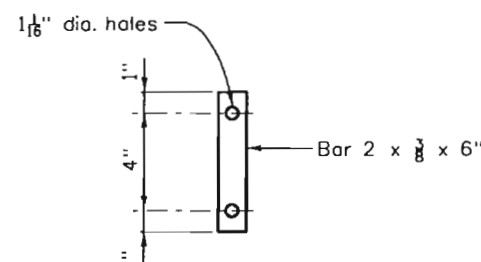
Description	Unit	Per Lin. Ft.
Structural Steel (Galvanized)	Lb.	45.1
Concrete Class D (Bridge)	Cu. Yd.	
Reinforcing Steel (Epoxy Coated)	Lb.	



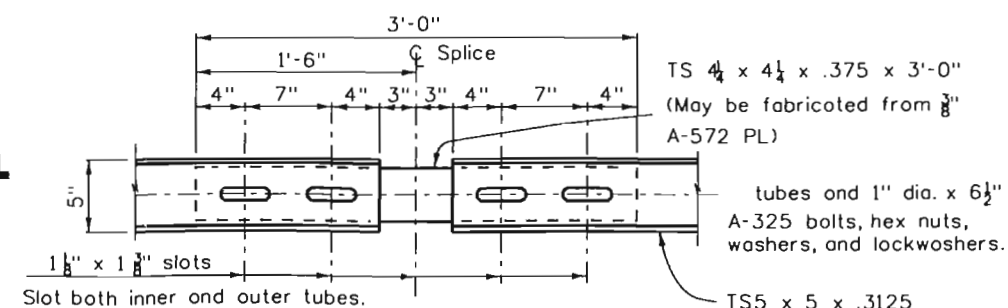
SECTION



PLAN - POST DETAIL



ANCHOR DETAIL



Stagger top and bottom splices into different post spacings.

PLAN - TUBE SPLICE

Computer File Information

Creation Date: 08/26/05 Initials: AVT
Last Modification Date: 9/15/05 Initials: AVT
Full Path: \Projects\Design Check BR 069A-019\Drawings\
Drawing File Name: L-15-E_Sheet7.dgn
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

Sheet Revisions

Date	Comments	Init.

Colorado Department of Transportation

4201 East Arkansas Avenue
Room 330
Denver, CO 80222
Phone: 303-757-9309 FAX: 303-757-9197
Staff Bridge Branch SLW

As Constructed

No Revisions:
Revised:
Void:

BRIDGE RAIL TYPE 10H HEADWALL MOUNTED

Designer: John DeLand
Detailer: An Tran
Sheet Subset: Triple CBC
Subst Sheets: B07 of 7

Project No./Code

BR 069A-019
14087
Sheet Number 32