

Oversight / NHS

FHWA REGION VIII OVERSIGHT? ☒ NO ☐ YES

NATIONAL HIGHWAY SYSTEM? ☒ NO ☐ YES

DEPARTMENT OF TRANSPORTATION
STATE OF COLORADO

HIGHWAY CONSTRUCTION BID PLANS OF PROPOSED
FEDERAL AID PROJECT NO. C R400-063
STATE HIGHWAY NO. 71

WELD COUNTY

CONSTRUCTION PROJECT CODE NO. 11991

TABULATION OF LENGTH AND DESIGN DATA

STATION	FEET	
	ROADWAY	MAJOR STR.
STA. 13+00.00 BEGIN C R400-063 = STA. 987+00.00 ON PROJ. ER 43(1) M.P. 215.06		
STA. 17+49.50 BEGIN STRUCTURE NO. B-22-M		
STA. 18+80.00 END STRUCTURE NO. B-22-M		
STA. 24+00.00 = END C R400-063 STA. 976+00.00 ON PROJ. ER 43(1) M.P. 215.32		
SUMMARY OF PROJECT LENGTH	FEET	MILES
ROADWAY (NET LENGTH) MAJOR STRUCTURE		
PROJECT GROSS LENGTH		

DESIGN DATA	TANGENT
MAXIMUM RADIUS OF CURVE	4
MAXIMUM GRADE %	157
MINIMUM S.S.D. HORIZONTAL (M)	157
MINIMUM S.S.D. VERTICAL (M)	100
MAXIMUM DESIGN SPEED (KM)	11
2017 DESIGN TRAFFIC	*
DHV TRUCKS %	*
CLEAR ZONE DISTANCE (TANGENT)	*
CLEAR ZONE DISTANCE (370 M RADIUS)	*

* FOR INFORMATION ONLY

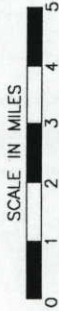
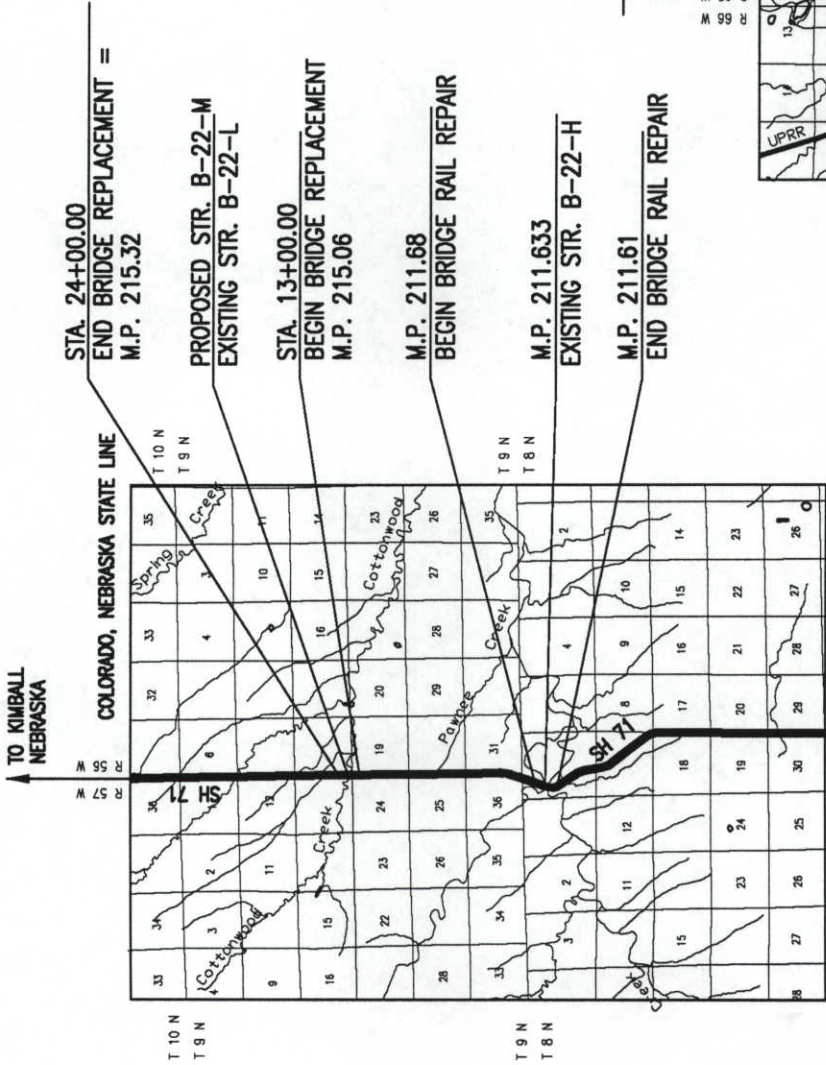
FIELD INSPECTION

AUG 25

ROADWAY PLANS

SCALES OF ORIGINAL DRAWINGS

ON PLAN 1 IN. = 50 FT.
ON PROFILE 1 IN. = 20 FT. VERTICAL
ON PROFILE 1 IN. = 100 FT. HORIZONTAL



SHEET NO. INDEX OF SHEETS

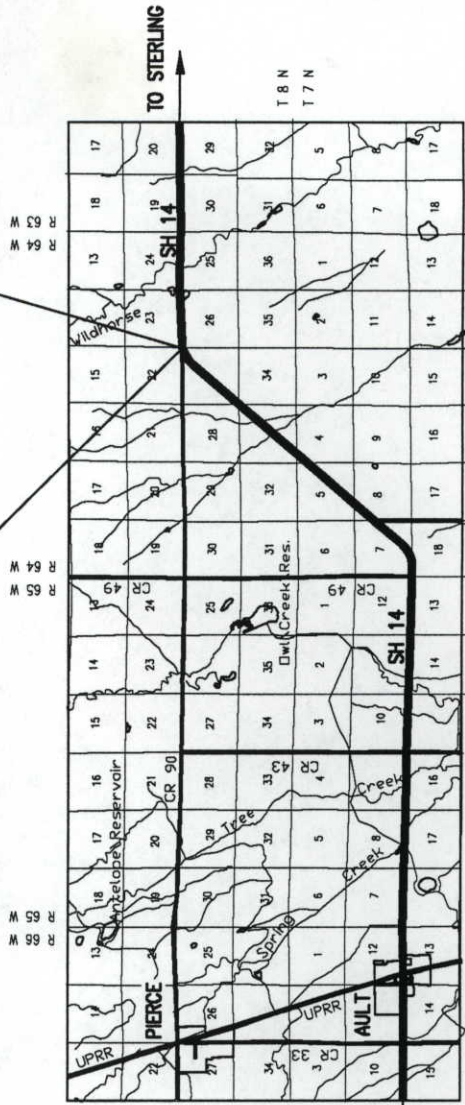
- 1 TITLE SHEET, LOCATION MAP, LENGTH AND TRAFFIC DATA
- 2 STANDARD PLANS LIST
- 3-4 TYPICAL SECTIONS
- 5 GENERAL NOTES
- 6 SURFACING PLAN AND SUMMARY OF EARTHWORK
- 7 TABULATIONS
- 8 SRT DETAIL
- 9 BRIDGE PLAN
- 10-13 PLAN AND PROFILE

NEW AND REVISED CDOT STANDARD PLANS

M-107-1 TEMPORARY EROSION CONTROL MAR. 24, 1997
M-614-1 RUMBLE STRIPS AUG. 21, 1997

M.P. 167.32
BEGIN BRIDGE RAIL REPAIR =
STR. B-18-F

M.P. 167.38
END BRIDGE RAIL REPAIR
STR. B-18-F



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Index of Revisions

Colorado Department of Transportation

Room 415
4201 E. Arkansas Ave.
Denver, CO 80222
Phone: (303) 757-9365 FAX: (303) 757-9868
Region IV Design DAF

As Constructed

No Revisions:	
Revised:	
Void:	

Contract Information

Contractor	
Resident Engineer	
Project Engineer	
PROJECT STARTED	DATE ACCEPTED
Comments:	

Project No./Code

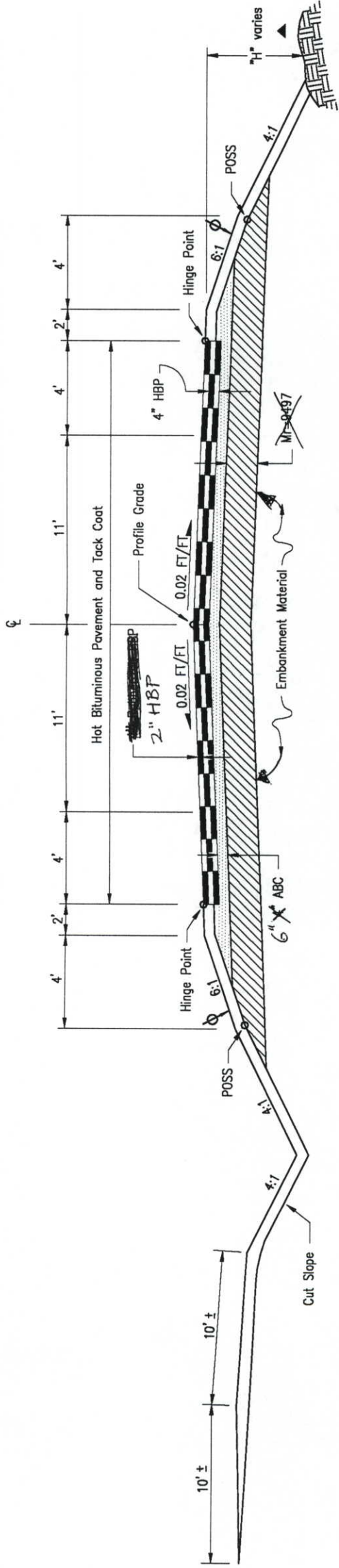
C R400-063
11991
Sheet Number 1

PLAN NUMBER		M STANDARD TITLE		PAGE NUMBER		PLAN NUMBER		M STANDARD TITLE		PAGE NUMBER		PLAN NUMBER		S STANDARD TITLE		PAGE NUMBER	
☒ M-100-1	STANDARD SYMBOLS	1		☐ M-607-1	WIRE FENCES AND GATES	(2 SHEETS) 64	☐ S-612-1	TYPICAL DELINEATOR INSTALLATIONS	(5 SHEETS) 93								
☐ M-107-1	TEMPORARY EROSION CONTROL	2		☐ M-607-2	CHAIN LINK FENCE	(3 SHEETS) 66	☒ S-614-1	TYPICAL GROUND SIGN PLACEMENT	98								
☒ M-203-1	APPROACH ROADS	3		☐ M-607-3	BARRIER FENCE	 69	☐ S-614-2	CLASS I GROUND SIGN INSTALLATIONS	99								
☒ M-203-2	DITCH TYPES	4		☐ M-607-4	DEER FENCE AND GATE	(2 SHEETS) 70	☐ S-614-3	CLASS II GROUND SIGN INSTALLATIONS	100								
☒ M-203-10	SUPERELEVATION CROWNED HIGHWAYS	5		☐ M-607-10	PICKET SNOW FENCE	 72	☐ S-614-4	CLASS III SIGNS, SHEET ALUMINUM PANELS . . (3 SHEETS) 101									
☐ M-203-11	SUPERELEVATION DIVIDED HIGHWAYS SHOULDER PIVOT	6		☐ M-608-1	CURB RAMPS	 73	☐ S-614-5	BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS (2 SHEETS) 104									
☐ M-203-12	SUPERELEVATION STREETS	7		☐ M-609-1	CURBS AND GUTTERS	 74	☐ S-614-6	CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS (2 SHEETS) 106									
☐ M-203-13	SUPERELEVATION DIVIDED HIGHWAYS CENTER PIVOT	8		☐ M-611-1	CATTLE GUARD	(2 SHEETS) 75	☐ S-614-10	TYPICAL MARKER ASSEMBLY INSTALLATIONS 108									
☐ M-206-1	EXCAVATION AND BACKFILL FOR STRUCTURES (3 SHEETS) 9			☐ M-613-1	CONVENTIONAL HIGHWAY LIGHTING	(3 SHEETS) 77	☐ S-614-11	MILEPOST SIGN AND INSTALLATION 109									
☒ M-206-2	EXCAVATION AND BACKFILL FOR BRIDGES	12		☐ M-613-2	HIGH MAST LIGHTING	(2 SHEETS) 80	☐ S-614-12	STRUCTURE NUMBER INSTALLATION (BRIDGE INFORMATION SHEET) 110									
☐ M-210-1	MAILBOX SUPPORTS	(2 SHEETS) 13		☐ M-614-1	RUMBLE STRIPS	 82											
☐ M-214-1	PLANTING DETAILS	 15		☐ M-615-1	EMBANKMENT PROTECTOR, TYPE 3	 83											
☐ M-412-1	CONCRETE PAVEMENT JOINTS	 16		☐ M-615-2	EMBANKMENT PROTECTOR, TYPE 5	 84											
☐ M-412-2	CURBED CONCRETE PAVEMENT JOINTS	 17		☐ M-616-1	INVERTED SIPHON	 85											
☐ M-504-1	STEEL CRIBBING	 18		☒ M-620-1	FIELD LABORATORY, CLASS 1	 86											
☐ M-506-1	GABIONS AND SLOPE MATTRESS	 19		☐ M-620-2	FIELD LABORATORY, CLASS 2	 87											
☐ M-510-1	STRUCTURAL PLATE CULVERT PIPE H-20 LOADING	 20		☒ M-620-11	FIELD OFFICE, CLASS 1	 88											
☐ M-601-1	SINGLE CONCRETE BOX CULVERT	(2 SHEETS) 21		☐ M-620-12	FIELD OFFICE, CLASS 2	 89											
☐ M-601-2	DOUBLE CONCRETE BOX CULVERT	(2 SHEETS) 23		☐ M-629-1	SURVEY MONUMENTS	(2 SHEETS) 90											
☐ M-601-3	TRIPLE CONCRETE BOX CULVERT	(2 SHEETS) 25															
☐ M-601-10	HEADWALL FOR PIPE CULVERTS	 27															
☐ M-601-11	TYPE "S" SADDLE HEADWALL FOR PIPE CULVERTS	 28															
☐ M-601-12	HEADWALLS AND CULVERT OUTLET PAVING	 29															
☐ M-601-20	WINGWALLS FOR PIPE OR BOX CULVERTS	 30															
☐ M-603-1	METAL AND PLASTIC CULVERT PIPE	(2 SHEETS) 31															
☐ M-603-2	REINFORCED CONCRETE PIPE	 33															
☐ M-603-3	PRECAST CONCRETE BOX CULVERT	 34															
☐ M-603-10	CONCRETE AND METAL END SECTIONS	(2 SHEETS) 35															
☐ M-604-10	INLET, TYPE C	 37															
☐ M-604-11	INLET, TYPE D	 38															
☐ M-604-12	CURB INLET, TYPE R	(2 SHEETS) 39															
☐ M-604-13	CONCRETE INLET, TYPE 13	 41															
☐ M-604-20	MANHOLES	(3 SHEETS) 42															
☐ M-605-1	SUBSURFACE DRAINS	 45															
☒ M-606-1	GUARDRAIL, TYPE 3, W-BEAM	(12 SHEETS) 46															
☒ M-606-12	GUARDRAIL, TYPE 4, CONCRETE BARRIER . . . (6 SHEETS) 58																

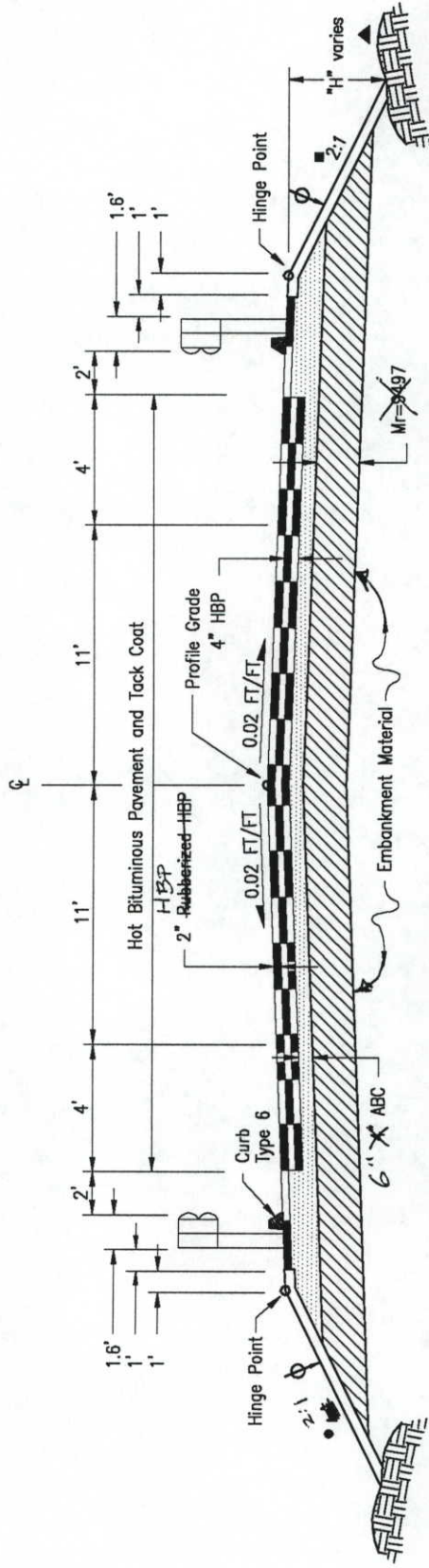
THE STANDARD PLAN SHEETS INDICATED HEREON BY A MARKED BOX ARE TO BE USED TO CONSTRUCT THIS PROJECT.

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

Computer File Information				Sheet Revisions				Colorado Department of Transportation				As Constructed		STANDARD PLANS LIST				Project No./Code	
Creation Date: 8/12/97		Initials: JAM						 Room 415 4201 E. Arkansas Ave. Denver, CO 80222 Phone: (303) 757-9365 FAX: (303) 757-9868 Region IV Design DAF				No Revisions:		Designer: JAM Detailer: JAM Sheet Subset: Subset Sheets:				C R400-063 11991 Sheet Number: 2	
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~~STA. 1+000.00 TO 1+570.00 AND FROM 1+712.00 TO 2+300.00 LEFT~~
~~STA. 1+000.00 TO 1+330.00 AND FROM 1+930.00 TO 2+300.00 RIGHT~~
(NOT TO SCALE)



~~STA. 1+570.00 TO 1+590.00 AND FROM 1+662.00 TO 1+712.00 LEFT~~
~~STA. 1+330.00 TO 1+600.00 AND FROM 1+675.00 TO 1+930.00 RIGHT~~
(NOT TO SCALE)

TYPICAL SECTION NOTES

- THE CONTRACTOR WILL BE REQUIRED TO PLACE 4" OF TOPSOIL TO THIS LINE AFTER COMPLETION OF PAVING OPERATION.
- BREAK POINTS IN SLOPES AND IN BOTTOMS OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR A PLEASING APPEARANCE.
- AT THE ENDS OF GUARDRAIL, SLOPES/TRANSITION TO A 4:1
- FROM STA. 1+204 TO 1+260 THE WIDTH OF THE PAVED SURFACE LEFT OF CENTERLINE TAPERS FROM 5.4 M TO 8.4 M FOR A DECELERATION LANE. THEN FROM 1+424 TO 1+460 IT TAPERS BACK FROM 8.4 M TO 5.4 M. FROM STATION 1+260 TO 1+424 THE WIDTHS LEFT OF CENTER LINE ARE AS FOLLOWS:
3.6 M TRAVEL LANE
3.6 M DECELERATION LANE
1.2 M SHOULDER
- THE LEFT SIDE SLOPE WILL BE AT LEAST 4:1 THROUGH THE LENGTH OF THE GUARDRAIL; AND NEAR THE BRIDGE, ON THE NORTH SIDE, THE SLOPE WILL BE AS FLAT AS 6:1 (SEE ROADWAY CROSS SECTIONS).

PAVEMENT DESIGN PARAMETERS

STABILIZATION DATA	
DESIGN LIFE (YEARS)	
RELIABILITY (%)	
OVERALL DEVIATION	
Mr WPA	
PS LOSS	
KN ESALS	
STRUCTURAL NUMBER	

Computer File Information		Sheet Revisions		As Constructed		TYPICAL SECTIONS		Project No./Code	
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Drawing File Name: TYPICAL.DWG									
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GENERAL NOTES

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

- TACK COAT EMULSIFIED ASPHALT (SLOW-SETTING) @ 0.10 GALS./SQ.YD. (DILUTED)
- BITUMINOUS PAVEMENT @ 110 LBS. PER SQ.YD./INCH
- AGGREGATE BASE COURSE (CLASS 6) @ 133 LBS. PER CU.FT.

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

A TACK COAT IS REQUIRED PRIOR TO THE PLACEMENT OF SUBSEQUENT LIFTS OF HBP. IT IS ESTIMATED THAT 1,550 GALLONS OF EMULSIFIED ASPHALT (SLOW-SETTING) FOR TACK COAT WILL BE REQUIRED ON THIS PROJECT AND SHALL BE INCIDENTAL TO THE HBP.

BEFORE PLACEMENT OF THE TACK COAT, THE CONTRACTOR SHALL CLEAN THE PRESENT ROADWAY AS DIRECTED. CLEANING WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCIDENTAL TO THE HBP.

A SKI TYPE DEVICE AT LEAST 50 FEET IN LENGTH WILL BE REQUIRED WITH EACH BITUMINOUS PAVER. THIS DEVICE SHALL BE USED ON EACH PASS AND LIFT OF BITUMINOUS PAVEMENT PLACED.

ANY LAYER OF BITUMINOUS PAVEMENT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON SHALL BE COMPLETED FULL WIDTH BEFORE SUCCEEDING LAYER IS PLACED.

ROAD APPROACHES WHICH REQUIRE BITUMINOUS PAVEMENT SHALL RECEIVE A 2" THICKNESS OF H.B.P. PLACED AS FOLLOWS:

PUBLIC ROADS AND STREETS SHALL BE PAVED FOUR FEET OUTSIDE CURB LINE OR EDGE OF PAVED SHOULDER PLUS MINIMUM TAPER OF 10:1 TO FIT EXISTING FIELD CONDITIONS.

BUSINESS, RESIDENTIAL, AND FIELD APPROACHES SHALL BE PAVED FOUR FEET OUTSIDE TRAVELED WAY PLUS MINIMUM TAPER OF 10:1 TO FIT EXISTING FIELD CONDITIONS. IF THE SHOULDER IS FOUR FEET OR MORE NO ADDITIONAL PAVEMENT SHALL BE PLACED.

TYPE OF COMPACTION FOR THIS PROJECT WILL BE AASHTO T-99.

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

- FULL DEPTH OF ALL EMBANKMENTS.
- BASES OF CUTS AND FILLS 0.5 FEET.

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.

CONCRETE PIPE JOINT FASTENERS AS SHOWN ON M-STANDARD, M-603-10, ARE REQUIRED ON ALL CONCRETE CULVERT INSTALLATIONS AND ARE INCLUDED IN THE COST OF THE REINFORCED CONCRETE PIPE.

A CUTTING WHEEL SHALL BE REQUIRED TO OBTAIN A VERTICAL CUT APPROXIMATELY 6" FROM THE EDGE OF EXISTING PAVEMENT OR AS DIRECTED BY THE ENGINEER. THE CUTTING SHALL BE DONE TO A NEAT VERTICAL WORK LINE WITH A CUTTING WHEEL ATTACHED TO A BLADE OR OTHER METHOD AS APPROVED BY THE ENGINEER. THE CONTRACTOR WILL BE REQUIRED TO PAINT THE EDGE OF CUT PAVEMENT WITH DILUTED EMULSIFIED ASPHALT (SLOW-SETTING) PRIOR TO PAVEMENT OPERATION. THE CONTRACTOR WILL NOT BE ALLOWED TO LEAVE THE CUT VERTICAL EDGES OVER NIGHT.

CUTTING AND SAWING OF ASPHALT MAT WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCIDENTAL TO THE EMBANKMENT MATERIAL (COMPLETE IN PLACE)..

TOPSOIL SHALL BE SPREAD TO A MINIMUM THICKNESS OF 4" AS DIRECTED BY THE ENGINEER. IT IS ESTIMATED THAT 2,500 CU. YDS. OF TOPSOIL WILL BE REQUIRED FOR THIS PROJECT. TOP SOIL WILL BE FROM THE CONTRACTOR'S SOURCE.

WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. LOCATIONS SHALL BE AS ORDERED. COST FOR DUST PALLIATIVE WILL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.

IT IS ESTIMATED THAT ONE RESET MAILBOX STRUCTURE WILL BE REQUIRED FOR THIS PROJECT.

IT IS ESTIMATED THAT 2,079 SQUARE YARD OF DETOUR PAVEMENT WILL BE REQUIRED FOR THIS PROJECT AS SHOWN ON DETOUR PLAN.

IT IS ESTIMATED THAT 50 TONS OF HOT BITUMINOUS PAVEMENT (PATCHING) (ASPHALT) WILL BE REQUIRED FOR THIS PROJECT AT LOCATIONS SELECTED AND DIRECTED BY THE ENGINEER.

Computer File Information			Index of Revisions		Colorado Department of Transportation  Room 415 4201 E. Arkansas Ave. Denver, CO 80222 Phone: (303) 757-9365 FAX: (303) 757-9868 Region IV Design DAF			As Constructed		General Notes			Project No./Code
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Acad Ver. R13 W	Scale: NA	Units: English											

GENERAL NOTES

EXCEPT AS SHOWN IN THE PLANS FOR STRUCTURE BACKFILL (FLOWFILL), STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH M-206-2 FOR ABUTMENTS AND WINGWALLS.

EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213.

FOR THE FINAL FINISH, SURFACES OF THE CURBS SHALL RECEIVE A CLASS 2 FINISH. ALL OTHER EXPOSED CONCRETE SURFACES SHALL RECEIVE A CLASS 1 FINISH TO 1 FOOT BELOW THE GROUND LINE.

GRADE 60 REINFORCING STEEL IS REQUIRED.

Ⓝ DENOTES NON EPOXY COATED REINFORCING.

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"

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

E.F. = EACH FACE

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

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 (534-8700 IN METRO DENVER) AT LEAST 2 DAYS (NOT INCLUDING THE DAY OF NOTIFICATION) PRIOR TO ANY EXCAVATION OR OTHER EARTHWORK.

DESIGN DATA

AASHTO, 16th EDITION 1996

DESIGN METHOD: LOAD FACTOR DESIGN

LIVE LOAD: AASHTO HS-25-44 AND ALTERNATE MILITARY LOADING

DEAD LOAD: ASSUMES 48 LBS. PER SQ. FT. FOR BITUMINOUS PAVEMENT

REINFORCED CONCRETE:

CLASS D CONCRETE: $f'_c = 4,500$ psi

REINFORCING STEEL : $f_y = 60,000$ psi

PRESTRESSED CONCRETE: $f'_s = 270,000$ psi
 $f'_c =$ (SEE DETAILS)

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PRESTRESSED CONCRETE: $f'_s = 270,000$ psi
 $f'_c =$ (SEE DETAILS)

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	SUPER-STRUCTURE	ABUT. 1	ABUT. 2	TOTAL
202	REMOVAL OF BRIDGE	EACH				1
206	STRUCTURE EXCAVATION	CU YD		188	188	376
206	STRUCTURE BACKFILL (FLOW-FILL)	CU YD		160	160	320
206	STRUCTURE BACKFILL (CLASS 2)	CU YD		44	44	88
403	HOT BITUMINOUS PAVEMENT (GRADING C) (C 25)	TON	51			51
502	STEEL PILING (HP 12X74)	LIN FT		240	240	480
506	RIPRAP (12 INCH)	CU YD		160	400	560
515	WATERPROOFING (MEMBRANE)	SQ YD	490			490
601	CONCRETE CLASS D (BRIDGE)	CU YD	97.0	45.5	45.5	188
602	REINFORCING STEEL (EPOXY COATED)	LB	16,735	5,140	5,140	27,015
606	BRIDGE RAIL TYPE 10	LIN FT	259			259
613	2 INCH ELECTRICAL CONDUIT (PLASTIC)	LIN FT	259			259
618	PRESTRESSED CONCRETE UNIT (BOX SECTION) (125 TO 130 FEET)	EACH	6			6

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	BRIDGE HYDRAULIC INFORMATION
Dwg. No.	B 5	BRIDGE HYDRAULIC INFORMATION
Dwg. No.	B 6	CONSTRUCTION AND PILING LAYOUT
Dwg. No.	B 7	ABUTMENT 1 DETAILS
Dwg. No.	B 8	ABUTMENT 2 DETAILS
Dwg. No.	B 9	WINGWALL DETAILS
Dwg. No.	B 10	SUPERSTRUCTURE DETAILS
Dwg. No.	B 11	PRECAST BOX GIRDER DETAILS
Dwg. No.	B 12	PRECAST BOX EXTERIOR GIRDER DETAILS
Dwg. No.	B 13	BRIDGE RAIL TYPE 10
Dwg. No.	B 14	BRIDGE RAIL TYPE 10
Dwg. No.	B 15	BRIDGE RAIL TYPE 10
Dwg. No.	B 16	STRUCTURE BACKFILL (FLOW-FILL)
Dwg. No.	B 17	EXCAVATION AND BACKFILL FOR BRIDGES IN CUT
Dwg. No.	B 18	BAR LIST
Dwg. No.	B 19	BRIDGE DECK ELEVATIONS
Dwg. No.	B 20	BRIDGE DECK ELEVATIONS
Dwg. No.	B 21	BRIDGE DECK ELEVATIONS

BRIDGE DESCRIPTION

1--SPAN (128'-0") BRIDGE
CONCRETE PRESTRESSED GIRDER

OVER COTTONWOOD CREEK
34'-0" ROADWAY CURB TO CURB, 90° 00' 00" SKEW
1'-3" CURB, BRIDGE RAIL TYPE 10

COLORADO
DEPARTMENT OF TRANSPORTATION
GENERAL INFORMATION
SUMMARY OF QUANTITIES

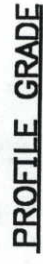
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Station	18+80.00
Near	Sterling
Sec.	18
Design	M. McMullen
Detailer	M. McMullen
Drawing Number	B 1 of 21
Drawings	

CROSS REFERENCE DRAWING NUMBER
(IF BLANK, REFERENCE IS TO SAME SHEET)

SECTION OR DETAIL IDENTIFICATION



Section taken at Horizontal Control Line.
Elevations shown at finished grade.

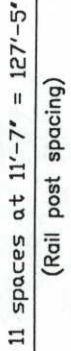


GENERAL LAYOUT

Designer	M. McMullen	Structure	B-22-M
Detailer	M. McMullen	Numbers	
Drawing Number B 2 of 20 Drawings			

(Preliminary Stage Only)

AS CONSTRUCTED		DIVISION		PROJECT NUMBER		SHEET NUMBER	
NO REVISIONS		FEDERAL ROAD REGION NO.		COLORADO		16	
REVISED		XIII		ER ???-???		15	
VOID						14	
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■ Girder spacing is based on $\frac{3}{4}$ " gap between the girders @ bottom of girders. Bridge deck width may vary due to the accumulation of girder dimension and sweep tolerances.



Pile spacing is typical for both abutments. All piling is end bearing HP 12 x 74 with an unfactored max. load of 69 tons. The factored max. design load = 105 tons. The performance factor = 0.45. The aforementioned factored load does not include the performance factor. Pile loads are derived per Load Factor Design. The ultimate bearing capacity is 32.4 ksi. For pile anchorage detail see Dwg. No. B7.

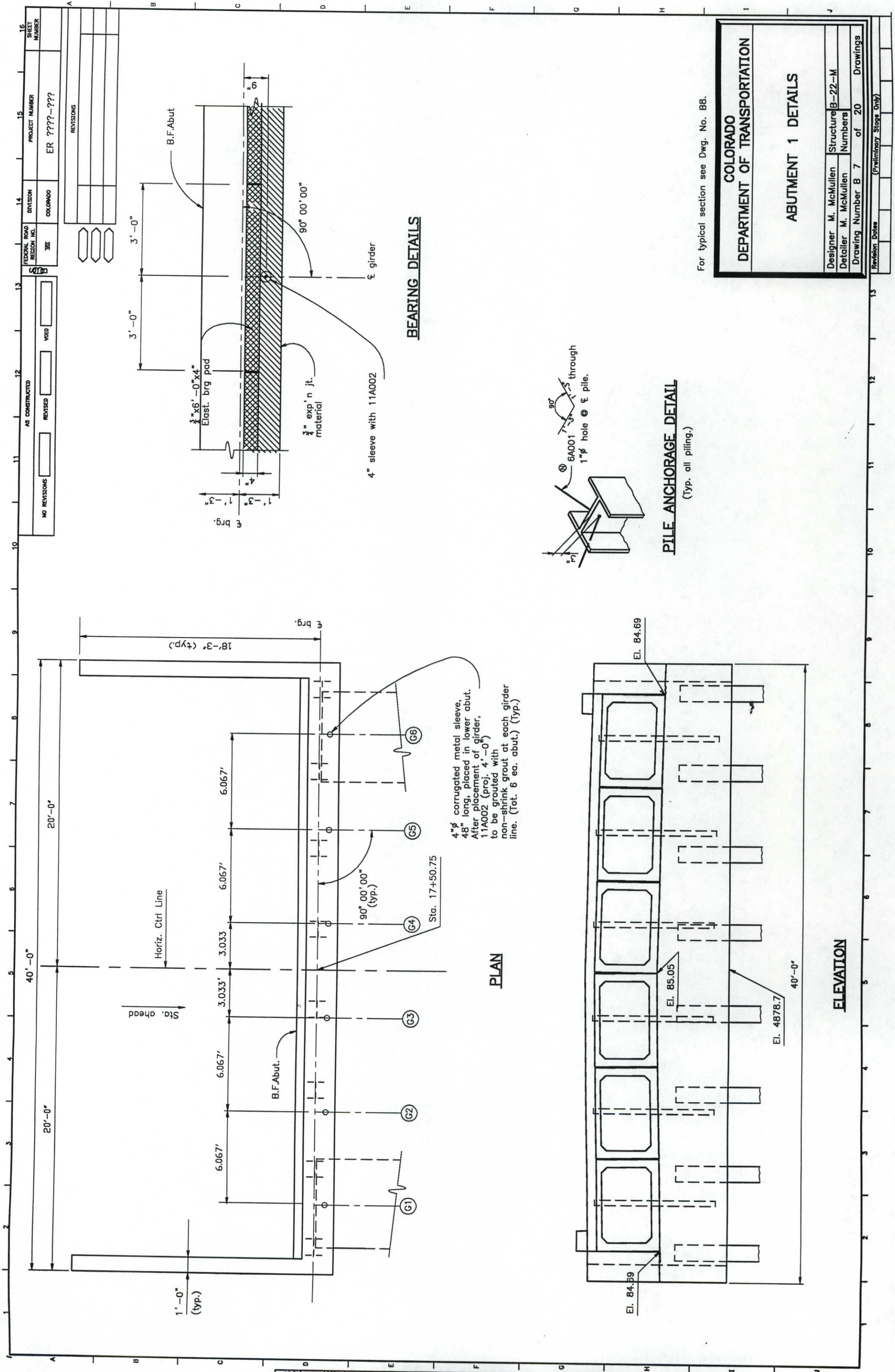
Size	Location	Est. Tip Elev.	Min. Tip Elev.
HP 12 X 74	Abut. 1	4851.7	4858.0
HP 12 X 74	Abut. 2	4850.1	4858.0

GEOMETRY SCHEMATIC

CONSTRUCTION AND PILING LAYOUT

Designer	M. McMullen	Structure	B-22-M
Detailer	M. McMullen	Numbers	
Drawing Number B 6 of 20 Drawings			

Revision Dates		(Preliminary Stage Only)				



Designed By	MLM	8/97	Checked By	MLM	8/97	Quantity	By	MLM	8/97	Quantity	By	MLM	8/97
Checked By	MLM	8/97	Checked By	MLM	8/97	Quantity	By	MLM	8/97	Quantity	By	MLM	8/97
Initial	DATE	8/97	Initial	DATE	8/97	Quantity	By	MLM	8/97	Quantity	By	MLM	8/97

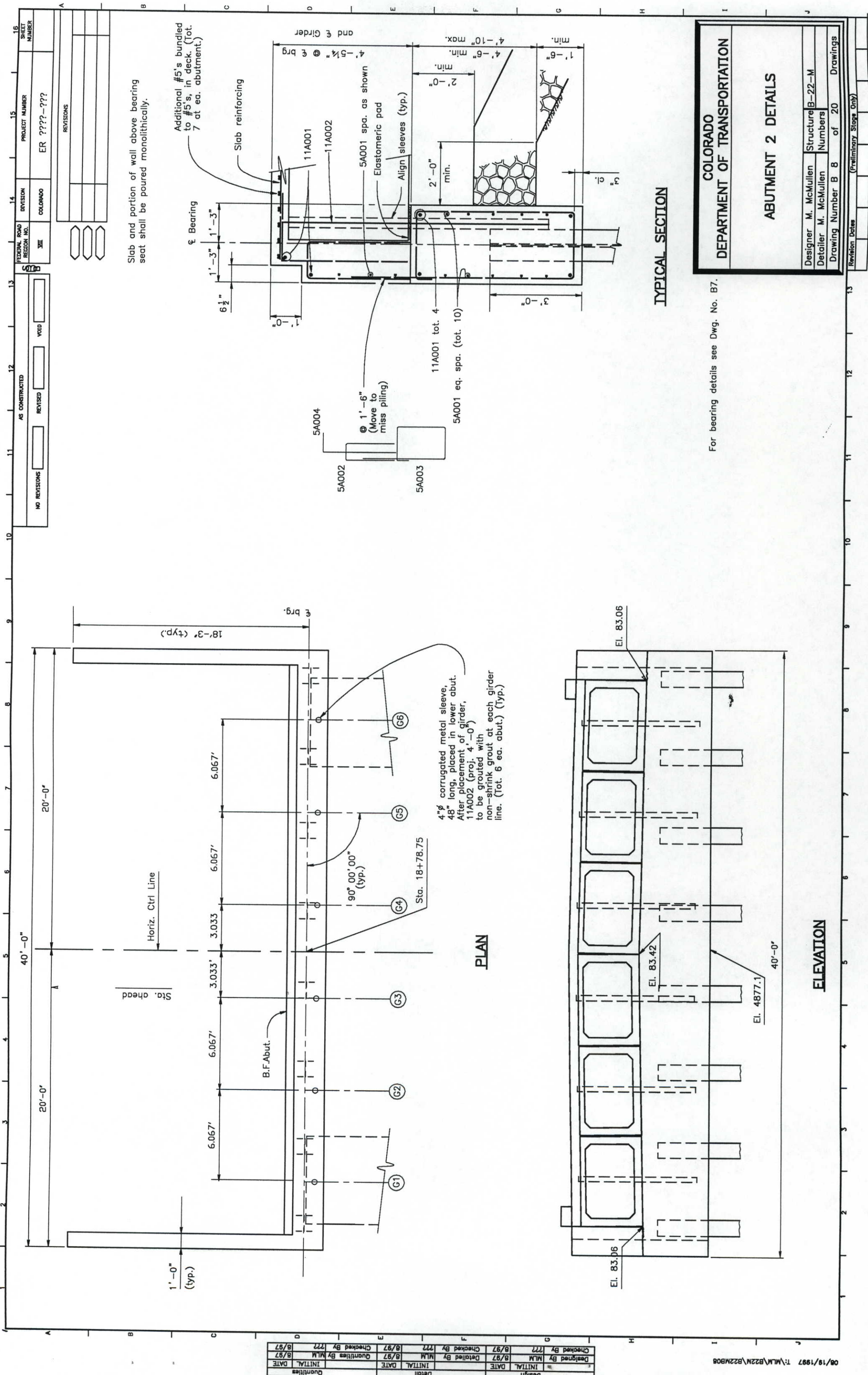
For typical section see Dwg. No. B8.

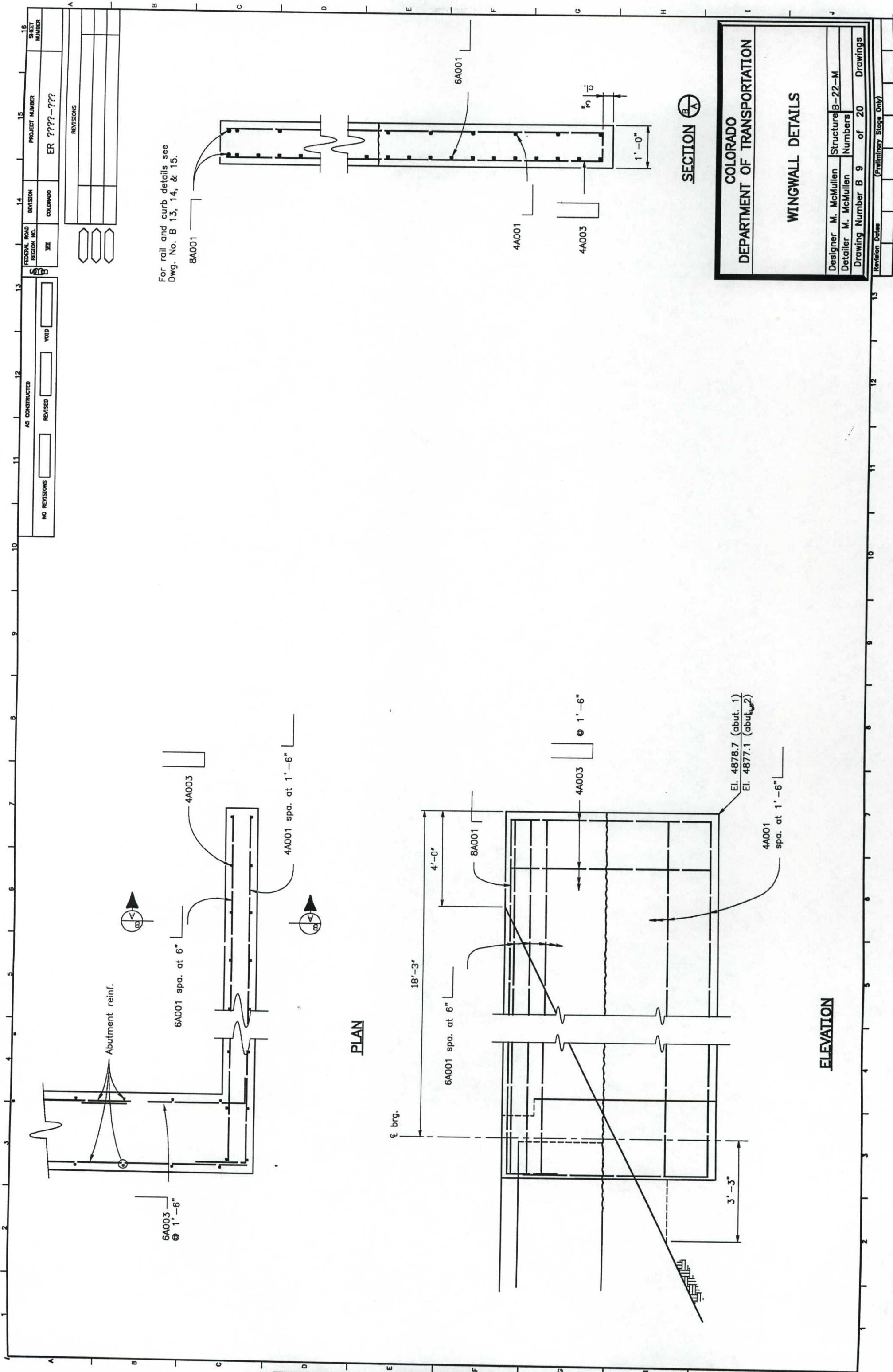
COLORADO
DEPARTMENT OF TRANSPORTATION

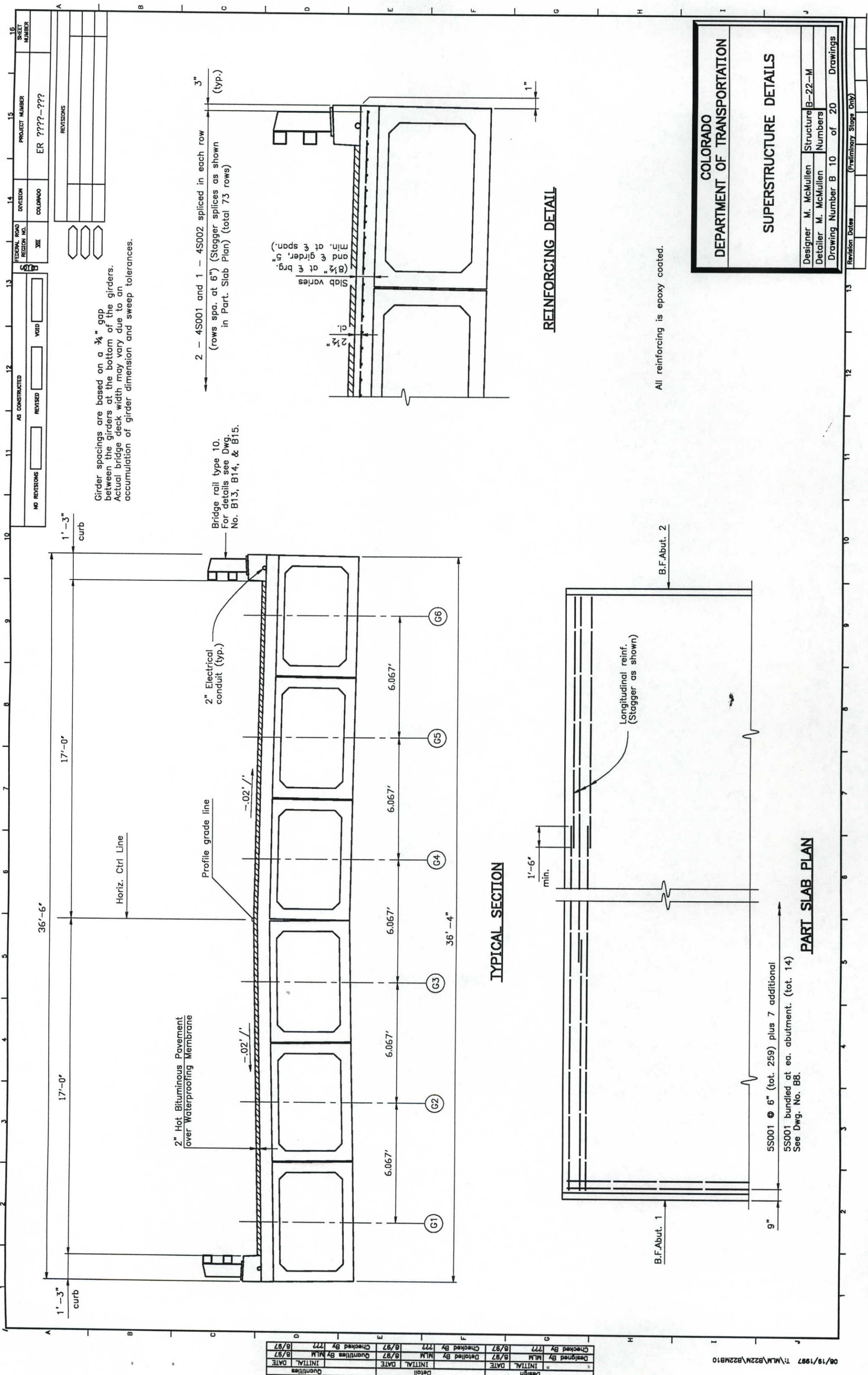
ABUTMENT 1 DETAILS

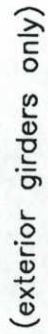
Designer	M. McMullen	Structure	B-22-M
Detailer	M. McMullen	Numbers	
Drawing Number	B 7	of	20
			Drawings

Revision Dates
(Preliminary Stage Only)







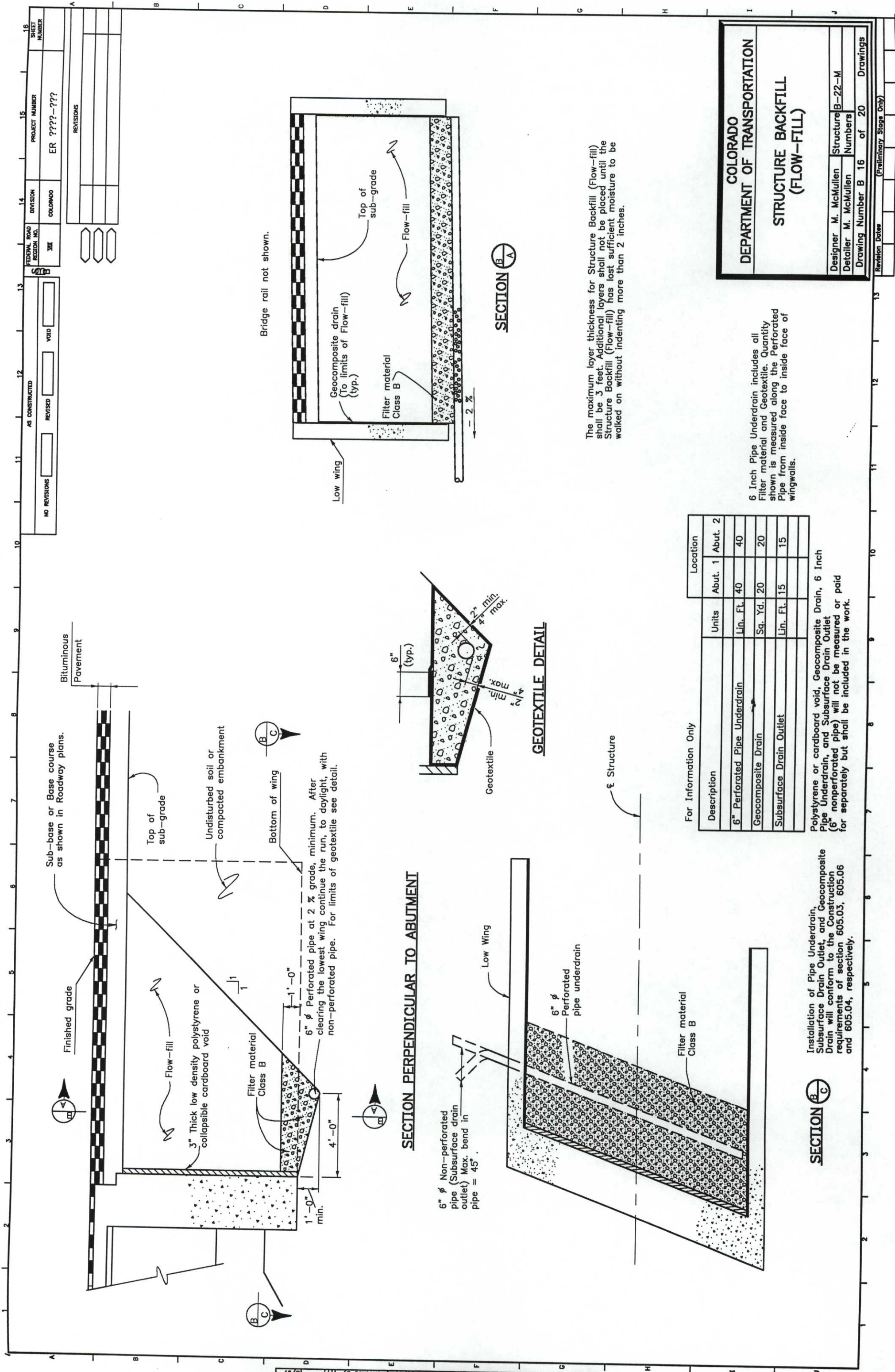


**COLORADO
DEPARTMENT OF TRANSPORTATION**

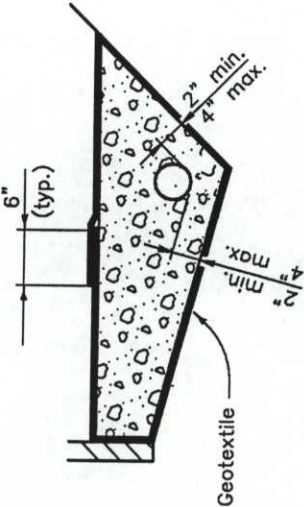
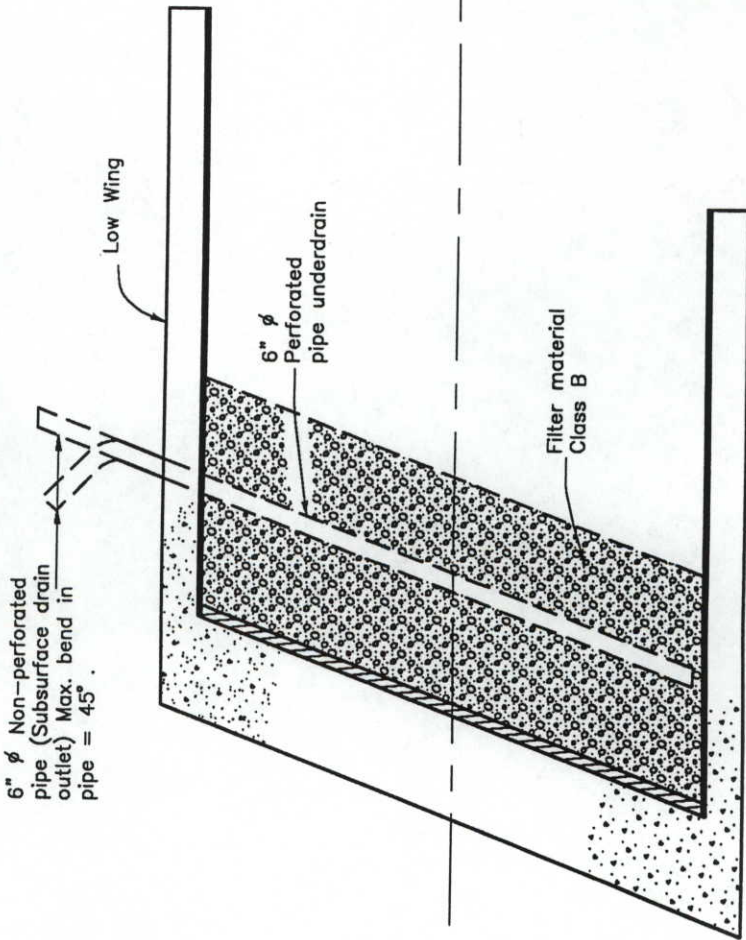
Designer	M. McMullen	Structure Numbers	B-22-M
Detailer	M. McMullen		
Drawing Number B 12 of 20			Drawings

Revision Dates (Preliminary Stage Only)

[illegible]

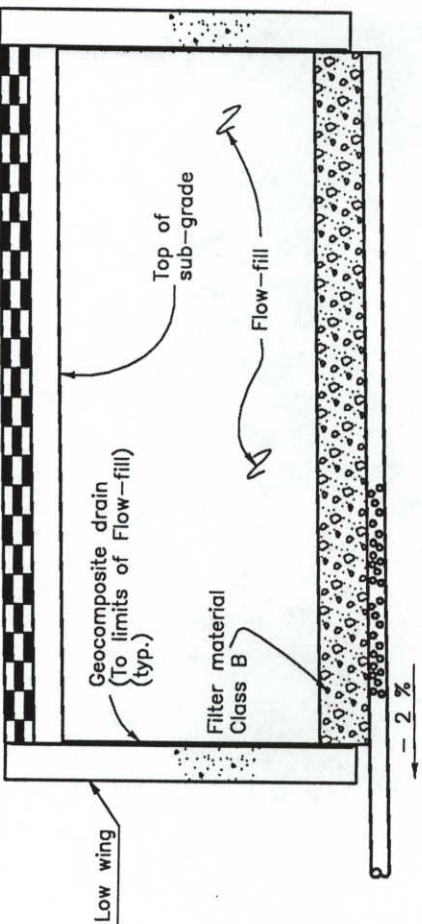


SECTION PERPENDICULAR TO ABUTMENT



GEOTEXTILE DETAIL

SECTION A-B



Bridge rail not shown.

The maximum layer thickness for Structure Backfill (Flow-fill) shall be 3 feet. Additional layers shall not be placed until the Structure Backfill (Flow-fill) has lost sufficient moisture to be walked on without indenting more than 2 inches.

6 Inch Pipe Underdrain includes all Filter material and Geotextile. Quantity shown is measured along the Perforated Pipe from inside face to inside face of wingwalls.

Description	Units	Location	
		Abut. 1	Abut. 2
6" Perforated Pipe Underdrain	Lin. Ft.	40	40
Geocomposite Drain	Sq. Yd.	20	20
Subsurface Drain Outlet	Lin. Ft.	15	15

Installation of Pipe Underdrain, Subsurface Drain Outlet, and Geocomposite Drain will conform to the Construction requirements of section 605.03, 605.06 and 605.04, respectively.

SECTION B-C

COLORADO
DEPARTMENT OF TRANSPORTATION
STRUCTURE BACKFILL
(FLOW-FILL)

Designer	M. McMullen	Structure	B-22-M
Detailer	M. McMullen	Numbers	
Drawing Number	B 16	of	20 Drawings

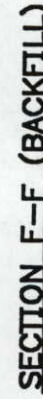
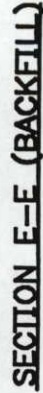
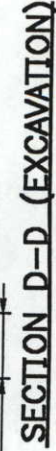
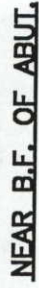
Revision Dates
(Preliminary Stage Only)

Designed By	MLM	Checked By	MLM	Quantity	DATE
8/97	8/97	8/97	8/97	8/97	8/97
Checked By	MLM	Checked By	MLM	Quantity	DATE
8/97	8/97	8/97	8/97	8/97	8/97



STRUCTURE EXCAVATION FOR RIPRAP TOE NOT SHOWN.

For purposes of quantity calculations this template applies out to end of wingwall.



ABBREVIATIONS

O.G. ORIGINAL GROUND
P.S. PLANNED SUBGRADE
F.S. PLANNED FINISHED SURFACE

**COLORADO
DEPARTMENT OF TRANSPORTATION**

Designer	M. McMullen	Structure	B-22-M
Detailer	M. McMullen	Numbers	
Drawing Number B 17		of 20 Drawings	
Revision Dates (Preliminary Stage Only)			

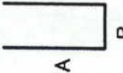
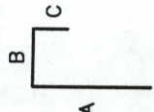
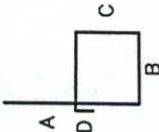
[illegible]

861 Lin. ft. #4	0.668 lb/ft =	575 lbs
1400 Lin. ft. #5	1.043 lb/ft =	1466 lbs
905 Lin. ft. #6	1.502 lb/ft =	1359 lbs
82 Lin. ft. #8	2.670 lb/ft =	220 lbs
286 Lin. ft. #11	5.313 lb/ft =	1520 lbs
Total =		5140 lbs

BEI = By Equal Increments

AS CONSTRUCTED		12		13		15	
NO REVISIONS	REVISED	VOID	FEDERAL ROAD REGION NO.		DIVISION	PROJECT NUMBER	SHEET NUMBER
			III		COLORADO	ER ????-??	

[illegible]

BENDING DIAGRAMS Dimensions are out to out of bars.	
 Type I	 Type II
 Type III	 Type IV

BAR LISTS

Designer	M. McMullen	Structure Numbers	B-22-M
Detailer	M. McMullen		
Drawing Number B 18 of 20			Drawings

Design	INITIAL	DATE	Checked By	Quantity	INITIAL	DATE
Detail	INITIAL	DATE	Checked By	Quantity	INITIAL	DATE

08/22/97 T:\MLM\B22M\B22MB19

STRUCTURE ID: B-22-M

97/08/22 10:57

PAGE 1

FEDERAL ROAD REGION NO.		DIVISION		PROJECT NUMBER		SHEET NUMBER	
XII		COLORADO					
NO REVISIONS		REVISED		VOID			

REVISIONS	

Replacement for B-22-L
Designed by MLM
Detailed by MLM
Proj.
Subacct

HORIZONTAL ALIGNMENT DATA

HORIZONTAL TANGENT

VERTICAL ALIGNMENT DATA

ELEVATION AT PI	ELEVATION AT GRADE	STATION	ELEVATION AT PI	PERCENT GRADE
4877.8500		15+00.0000		-5.187000
4898.5980		19+00.0000		
4887.7750		23+00.0000		
4896.8020				4.738000

TABLE OF ROADWAY CROSS-SLOPES (SUPERELEVATION: E= -NC-)

STATION	SLOPE LEFT	SLOPE RIGHT	VC LENGTH
(ON TANGENT)	-0.0200	-0.0200	50.00 (MAX)

OFFSET PROFILE CONTROL TO PIVOT POINT = 0.0000 FEET

LIMITS OF VALID ELEVATION AND CROSS-SLOPE DATA

BEGIN	END
16+00.0000	20+00.0000

LAYOUT LINE DATA

LAYOUT LINE DEFINED TO BE COINCIDENT WITH HORIZONTAL CONTROL

LAYOUT LINE INTERSECTS REF LINE AT	HCL STA	OFFSET	X	Y
	17+50.7500	0.000000000E+00	0.0000	0.0000

LT OUTSIDE OF WING

PARALLEL TO HORIZONTAL CONTROL

BENT LINE	STATION	OFFSET	ELEVATION	ELEV+DL	X	Y	NORTHING	EASTING	BENT LNTH	SKEW	GIRDER LNTH	CRS-SLP
END WW A1	17+32.5000	-20.0000	4889.4914		-20.0000	-18.2500	31688.8686	32705.3763	-20.0000	0 00 00.00	-18.2500	-0.020000
BF ABUT 1	17+49.5000	-20.0000	4889.1179		-20.0000	-1.2500	31705.8586	32705.9600	-20.0000	0 00 00.00	-1.2500	-0.020000
CL BRG A1	17+50.7500	-20.0000	4889.0918		-20.0000	0.0000	31707.1079	32706.0029	-20.0000	0 00 00.00	0.0000	-0.020000
CL BRG A2	18+78.7500	-20.0000	4887.4507		-20.0000	128.0000	31835.0324	32710.3975	-20.0000	0 00 00.00	128.0000	-0.020000
BF ABUT 2	18+80.0000	-20.0000	4887.4447		-20.0000	129.2500	31836.2817	32710.4404	-20.0000	0 00 00.00	129.2500	-0.020000
END WW A2	18+97.0000	-20.0000	4887.3823		-20.0000	146.2500	31853.2716	32711.0240	-20.0000	0 00 00.00	146.2500	-0.020000

LT OUT OF DECK

PARALLEL TO HORIZONTAL CONTROL

BENT LINE	STATION	OFFSET	ELEVATION	ELEV+DL	X	Y	NORTHING	EASTING	BENT LNTH	SKEW	GIRDER LNTH	CRS-SLP
BF ABUT 1	17+49.5000	-18.2500	4889.1529		-18.2500	-1.2500	31705.7985	32707.7089	-18.2500	0 00 00.00	-1.2500	-0.020000
CL BRG A1	17+50.7500	-18.2500	4889.1268		-18.2500	0.0000	31707.0478	32707.7519	-18.2500	0 00 00.00	0.0000	-0.020000
F-1	17+53.5500	-18.2500	4888.8713		-18.2500	0.0000	31719.8402	32708.1913	-18.2500	0 00 00.00	0.0000	-0.020000
F-2	17+76.3500	-18.2500	4888.6360		-18.2500	25.6000	31732.6327	32708.6308	-18.2500	0 00 00.00	25.6000	-0.020000
F-3	17+89.1500	-18.2500	4888.4211		-18.2500	38.4000	31745.4251	32709.0702	-18.2500	0 00 00.00	38.4000	-0.020000
F-4	18+01.9500	-18.2500	4888.2265		-18.2500	51.2000	31758.2176	32709.5087	-18.2500	0 00 00.00	51.2000	-0.020000
F-5	18+14.7500	-18.2500	4888.0522		-18.2500	64.0000	31771.0100	32709.9491	-18.2500	0 00 00.00	64.0000	-0.020000
F-6	18+27.5500	-18.2500	4887.8983		-18.2500	76.8000	31783.8025	32710.3886	-18.2500	0 00 00.00	76.8000	-0.020000
F-7	18+40.3500	-18.2500	4887.7646		-18.2500	89.6000	31796.5949	32710.8281	-18.2500	0 00 00.00	89.6000	-0.020000
F-8	18+53.1500	-18.2500	4887.6513		-18.2500	102.4000	31809.3874	32711.2675	-18.2500	0 00 00.00	102.4000	-0.020000
F-9	18+65.9500	-18.2500	4887.5584		-18.2500	115.2000	31822.1799	32711.7070	-18.2500	0 00 00.00	115.2000	-0.020000
CL BRG A2	18+78.7500	-18.2500	4887.4857		-18.2500	128.0000	31834.9723	32712.1464	-18.2500	0 00 00.00	128.0000	-0.020000
BF ABUT 2	18+80.0000	-18.2500	4887.4797		-18.2500	129.2500	31836.2216	32712.1893	-18.2500	0 00 00.00	129.2500	-0.020000

NOTE: ELEVATIONS ARE AT TOP OF CONCRETE DECK IN BELOW FINISHED GRADE.

POSITIVE ROADWAY CROSS SLOPE IS UPWARDS FROM THE PROFILE GRADE LINE.

THESE STATIONS, COORDINATES, OFFSETS, AND LENGTHS DEFINE THE LAYOUT OF THE STRUCTURE IN A TWO DIMENSIONAL HORIZONTAL PLANE. ELEVATIONS DEFINE THE FINAL GRADE OF THE FINISHED CONCRETE DECK. FABRICATION OF STRUCTURAL COMPONENTS THRU THE DIRECT USE OF THIS INFORMATION IS NOT INTENDED OR ADVISABLE.

COLORADO
DEPARTMENT OF TRANSPORTATION

BRIDGE DECK ELEVATIONS

Designer M. McMullen	Structure	B-22-M
Detailer K. Heater	Numbers	
Drawing Number B19	of	21
Drawings		

Revision Dates
7-97 | 8-91 | 12-87

TYPICAL CROSS SECTION OF IMPROVEMENT



width of the side ditch shall be varied
in order to provide proper drainage
to drainage structures.

Material immediately above the sub-grade is to be constructed of Sub-Base Material at locations designated in Sub-Base Material tabulation. Estimated quantities involved in this operation and thickness of material required are tabulated in the Sub-Base Material Plan.

GENERAL NOTES

GENERAL NOTES
 1. Project is to be constructed in conformity with the Standard Specifications of the Colorado Department of Transportation, 1952 Edition.

ent of Highways, copies of which are being considered approximate only.

ities on preliminary plans are to be removed by the owners.

encroaching on construction are to be moved by the owner.

es are to be supererogated and widened as provided by the
with the plans.

er inlets and outlets of culverts are required after the normal grading operations are completed with the plans. The culverts shall be constructed and paid for under appropriate items. Adequate inlets and outlets shall be laid without

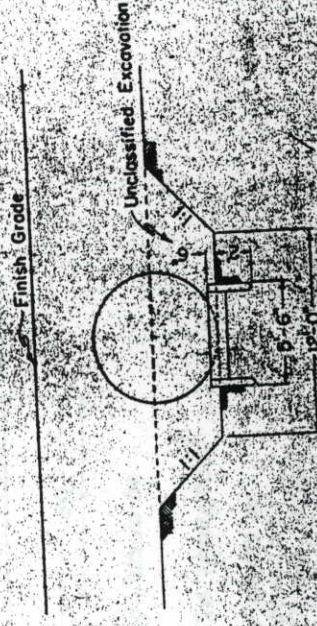
Corrugated Metal Pipe Cross Culverts including

Aprons unless otherwise noted on the plans.

approach roads to the project shall be covered with Sub-Base Material, in lieu of the paving shown on Standard M-2-EM.



DETAILS OF STOCKPASS TIMBER HEADER



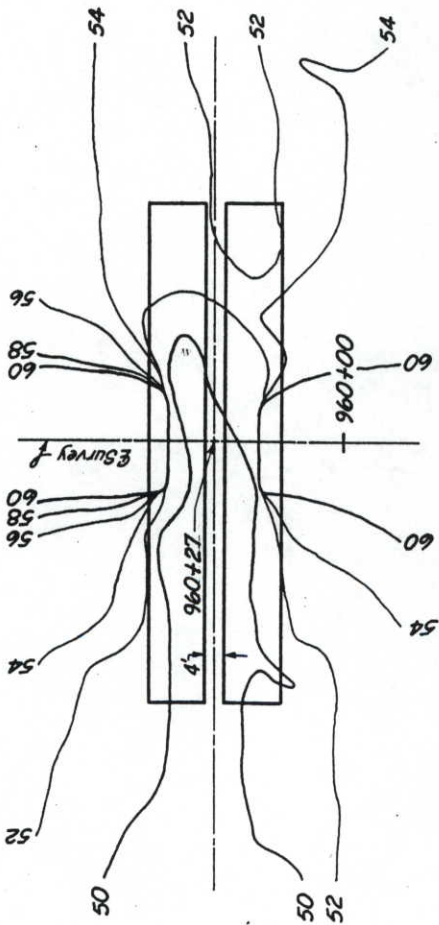
TIMBER REQUIRED FOR HEADER FOR ONE STOCKPASS
 2 x 12's 5'-0" Tracked Timber Header
 2 x 6's 2'-0" Tracked Timber Sides

TABLE	ATION OF	LENGTH &	DESIGN	DATA
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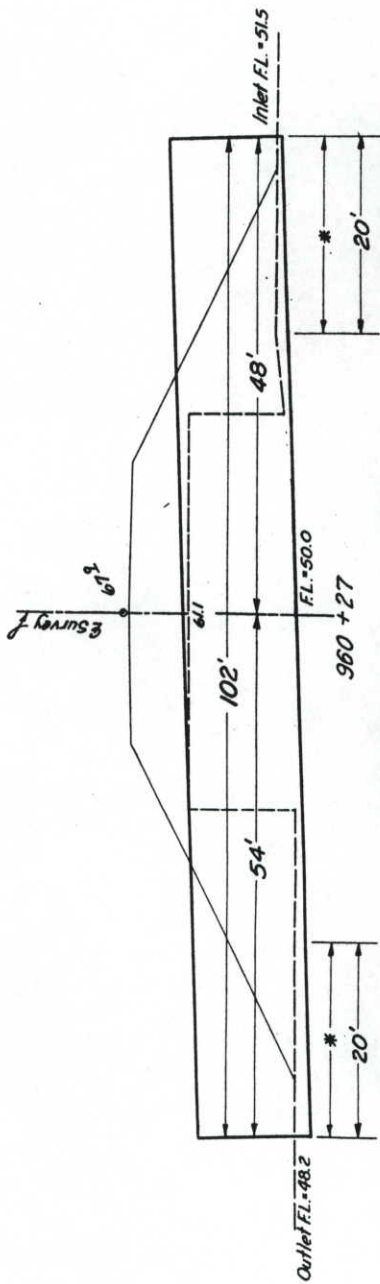
STATION		ROADWAY LIN. FT.	NO WORK LIN. FT.	BRIDGE LIN. FT.	LOADING
57+50	BEGIN C 03-0021-02	3,400			
91+50	Begin No Work		4,350		
139+00	End No Work	1,600			
151+00	Begin No Work	800	3,500		
187+00	End No Work				
195+00	Begin No Work	1,400	6,800		
263+00	End No Work				
277+00	Begin No Work	2,000	4,900		
326+00	End No Work		8,650		
346+00	Begin No Work	900			
432+50	End No Work	1,000	42,200		
442+00	Begin No Work				
864+00	End No Work	1,300	7,900		
874+00	Begin No Work				
953+00	End No Work	953	19,400	123.2	H 20 - 44
966+00	Begin No Work				
1160+00	End No Work	11,623.8			
1169+53					
1170+76.2	Panace Creek				
1287+00	END C 03-0021-02				
TOTALS		25,026.8	97,800	123.2	
BRIDGE ROADWAY SUB TOTAL (NET LENGTH) NO WORK TOTAL (GROSS LENGTH)					
DESIGN DATA MAXIMUM DEGREE OF CURVE 4°00' MAXIMUM GRADE 7% MINIMUM R.P.S.D. HORIZONTAL 3800' MINIMUM R.P.S.D. VERTICAL 800' MAXIMUM DESIGN SPEED 60 M.P.H.					

13-22-J

DETAILS OF DOUBLE 144"x102" MULTIPLE PLATE CULVERT Sta 960+27



Scale of Original Drawing
Plan 1"=20'
Profile 1"=10'



On this Structure, the longitudinal joints shall be secured with a sufficient number of bolts of adequate strength to develop a joint which will be effective to an ultimate strength of 36,000 Lbs. in shear tension per linear foot.

All plates above invert to be 10 gage.

On this Structure the design of plates as shown on Standard M-113-B is based on a section modulus of .0732 for 10 gage plates and .1458 for 1 gage plates.

Compression caps and bearing sills to be 6"x6"x24" throughout.

Upper and lower sills to be 6"x6" throughout.

* 6"x6" Struts decreasing from 10'-4 5/16" to 10'-0" at 4'-6" centers.