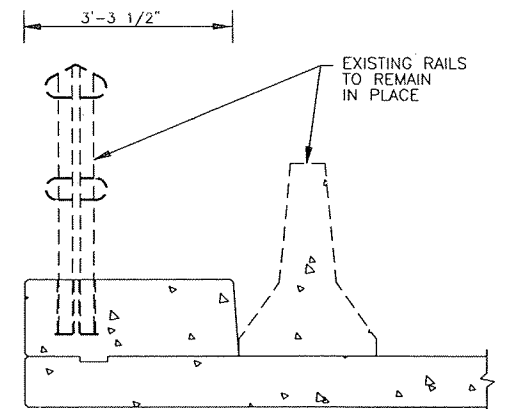
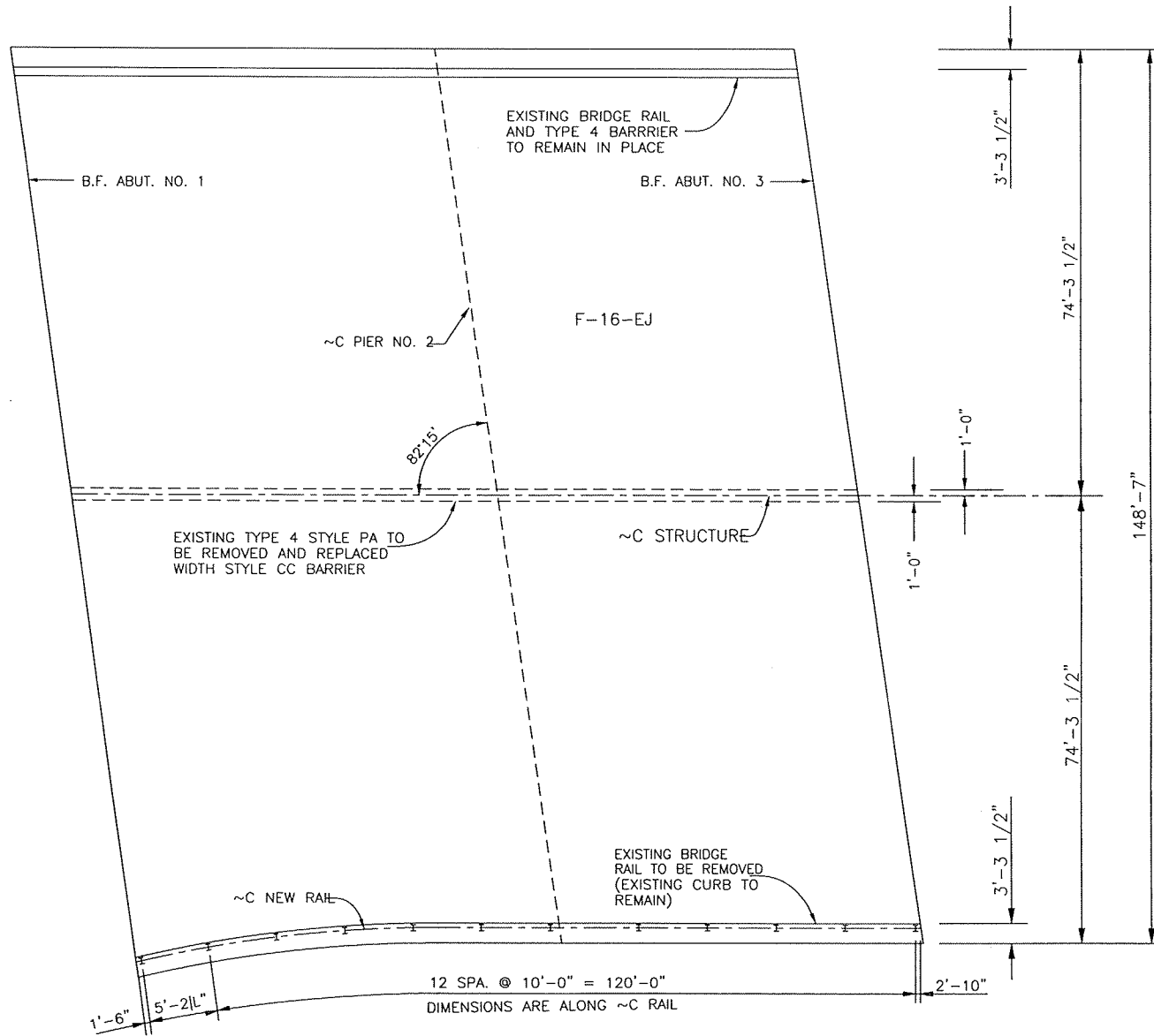
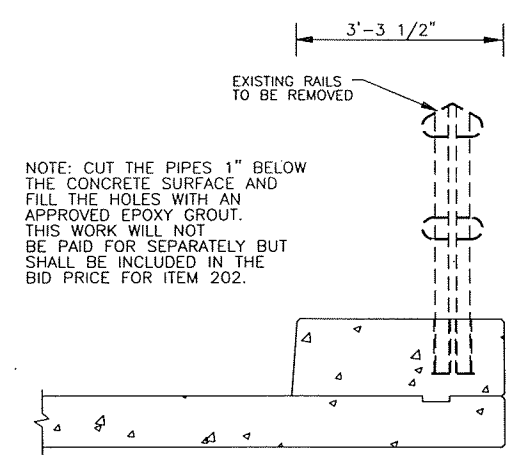


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NORTH END



SOUTH END

Computer File Information			
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Last Modification Date:	09/09/98	Initials:	CMA
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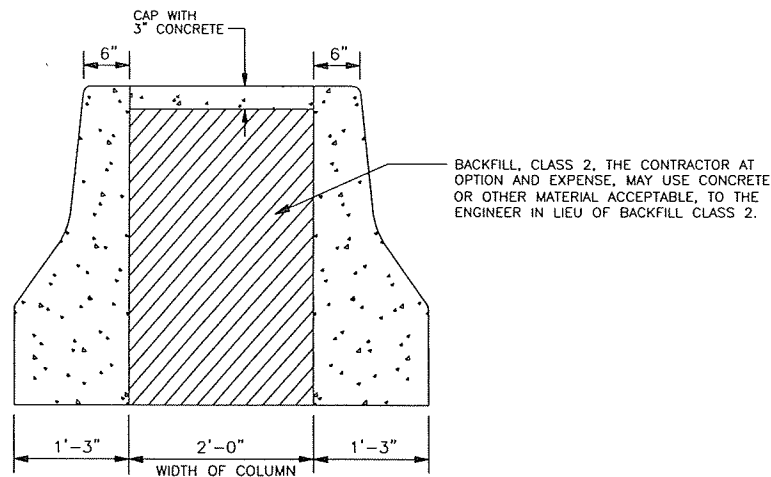
Sheet Revisions			

Colorado Department of Transportation
 2000 S. Holly St.
 Room 288
 Denver, CO 80222
 Phone: 303-757-9332 FAX: 303-757-9053
 Region Number VI SC

As Constructed
 No Revisions:
 Revised:
 Void:

BRIDGE RAIL POST SPACING			
Designer:	S. Chowdhury	Structure Numbers:	F-16-EJ
Detailer:	W. Williams	Sheet Subst:	
Subject:		Sheet Chapter:	2 of 5

Project No./Co
 NH 0061-066
 12297
 Sheet Number



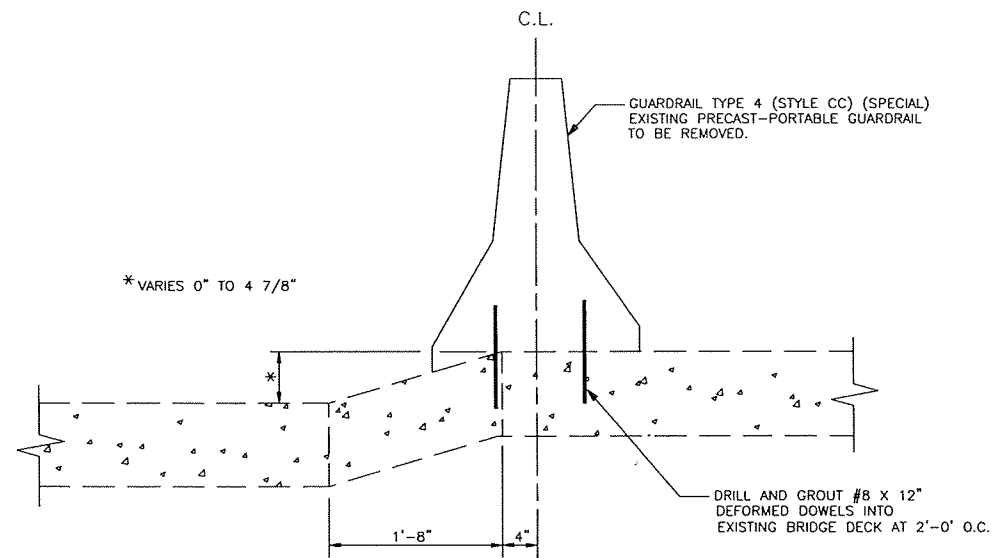
DETAILS OF GUARDRAIL TYPE 4 (STYLE CD)
AT FEDERAL BLVD. BRIDGE STRUCTURE
STR. NO. F-16-EK

GENERAL NOTES

THE PAY LENGTH (QUANTITY) FOR BARRIER ON BOTH SIDES OF A COLUMN SHALL NOT BE MEASURED AND PAID FOR AS TWO SEPARATE LENGTHS BUT SHALL BE DETERMINED BY ONE LINEAR MEASUREMENT ALONG THE GUARDRAIL CENTERLINE FOR PAY LENGTH MEASUREMENT. ALSO THE BACKFILL AND CAP BETWEEN COLUMNS OR OBSTRUCTIONS WILL NOT BE PAID FOR SEPARATELY, BUT WILL BE INCLUDED IN THE COST OF THE GUARDRAIL TYPE 4 (STYLE CD).


THE 37.5' TRANSITION SECTION BETWEEN THE GUARDRAIL TYPE 4 (STYLE CA) AND GUARDRAIL TYPE 4 (STYLE CD) WILL BE MEASURED AND PAID FOR AS GUARDRAIL TYPE 4 (STYLE CD).

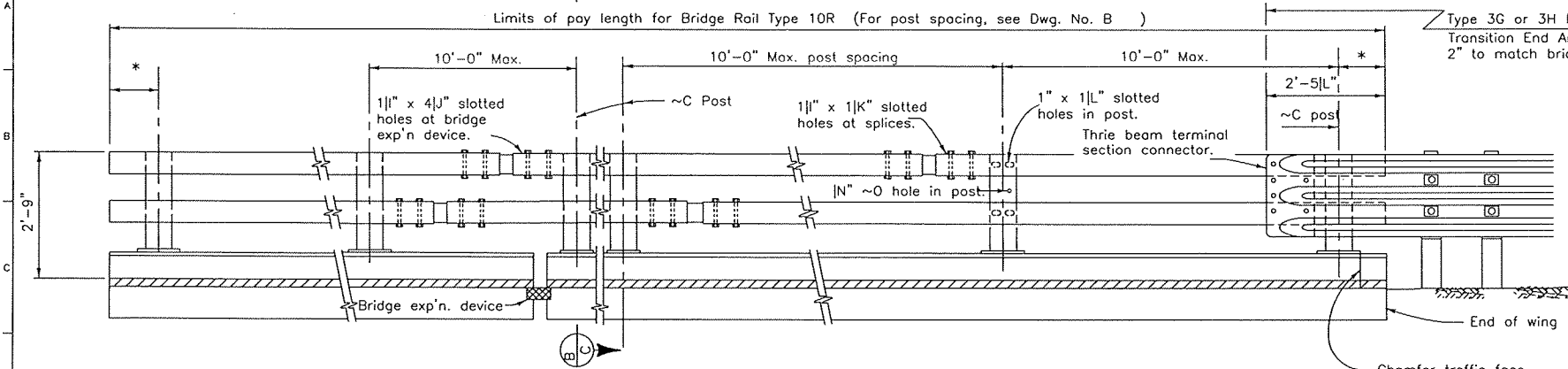
FOR FURTHER DETAILS SEE STANDARD M-606-12



DETAILS OF GUARDRAIL TYPE 4 (STYLE CC) (SPECIAL)
AT RAILROAD BRIDGE STRUCTURE
STR. NO. F-16-EJ

FOR FURTHER DETAILS SEE STANDARD M-606-12

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		Project No./Code	
Creation Date:	9/09/98 Initials: TRM	<input type="checkbox"/>		 2000 SOUTH HOLLY STREET DENVER, CO 80222 Phone: 303-757-9330 FAX: 303-757-9053 Region 6	No Revisions: mm/dd/yy Revised: mm/dd/yy Void: mm/dd/yy	DETAILS OF GUARDRAIL TYPE 4 (STYLE CD) AT FEDERAL BLVD. BRIDGE STRUCTURE STR. NO. F-16-EK &		NH 0061-066	
Last Modification Date:	9/28/98 Initials: TRM	<input type="checkbox"/>						DETAILS OF GUARDRAIL TYPE 4 (STYLE CC) (SPECIAL) AT RAILROAD BRIDGE STRUCTURE STR. NO. F-16-EJ	
Full Path:	C:/12297	<input type="checkbox"/>				Sheet Number			
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RAIL PANEL ON WING
 TERMINAL SECTION

RAIL PANEL
 AT EXPANSION DEVICE

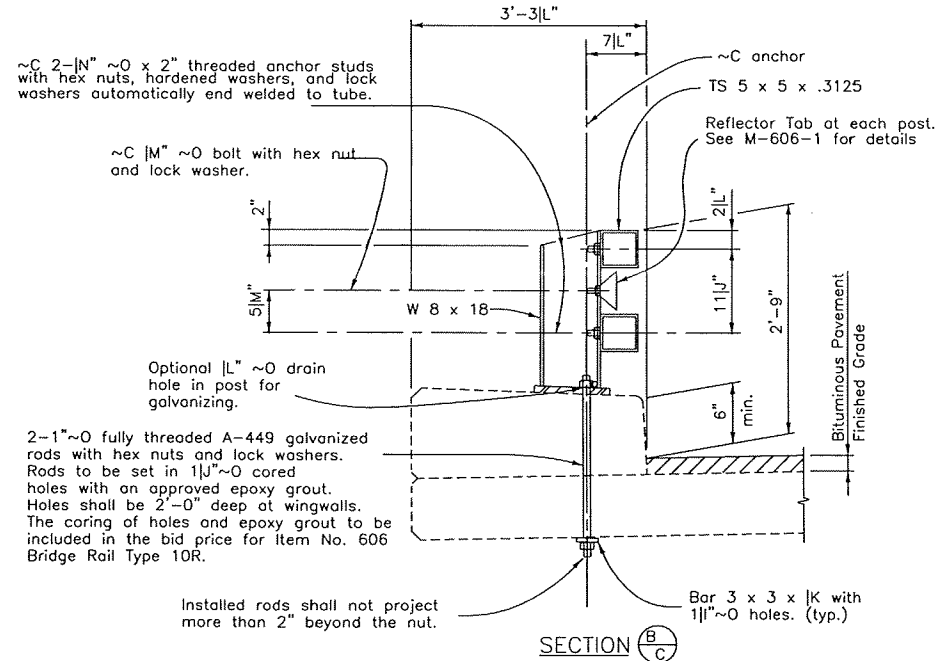
RAIL PANEL ON WING
 TRANSITION SECTION

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

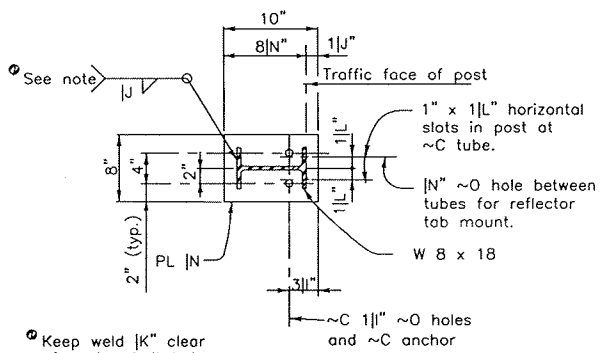
ELEVATION - BRIDGE RAIL

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

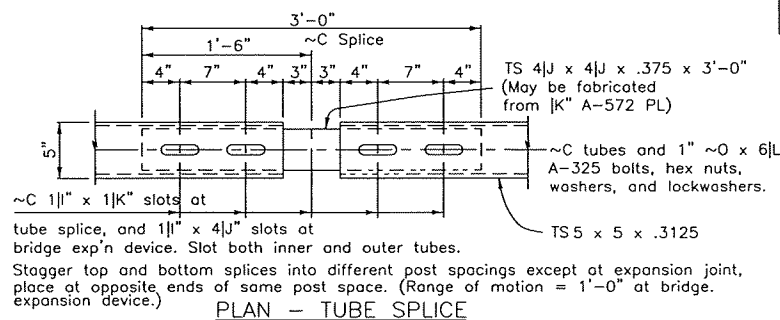
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SC	8/98	SC	8/98	SC	8/98
SC	8/98	SC	8/98	SC	8/98



SECTION B/C



PLAN - POST DETAIL



PLAN - TUBE SPLICE

NOTES:

All tubes shall be 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.

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.

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.

Optional drain hole for galvanizing may be drilled, punched, or clipped leaving smooth surfaces and transitions. No flame cutting or air carbon arc gouging is allowed.

Payment will be made under Item 606, Bridge Rail Type 10R for all post base plates, backing plates, anchor bolts, miscellaneous bolts, nuts, washers, tube expansion devices, tube splices, end plates, cored holes, grout 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 Department for information only. One set shall be sent to the Colorado Department of Transportation, Staff Materials Inspection Unit, 4340 E. Louisiana Avenue, Denver, Colorado 80222. Two sets shall be sent to the Engineer.

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.	45.8

COLORADO
 DEPARTMENT OF TRANSPORTATION
 BRIDGE RAIL TYPE 10R

Designer S. CHOWDHURY	Structure	F-16-EJ
Detailer B. LERE	Numbers	
Drawing Number B 3	of 5	Drawings

Revision Dates	(Preliminary Stage Only)						
11-90	11-91	03-92	8-94	12-95	2-96	1-97	10

108A-EJ