

GENERAL NOTES

ALL WORK SHALL BE DONE ACCORDING TO THE STANDARD SPECIFICATIONS OF THE DIVISION OF HIGHWAYS, STATE OF COLORADO, APPLICABLE TO THE PROJECT.

STRUCTURE EXCAVATION AND BACKFILL SHALL BE IN ACCORDANCE WITH STANDARD M-206-2.

EXPANSION JOINT MATERIAL SHALL MEET AASHTO SPECIFICATION M-213.

ALL STRUCTURAL STEEL SHALL BE AASHTO M-183 (ASTM A-36) UNLESS OTHERWISE NOTED.

CLASS 1 FINISH, FOLLOWED BY APPLICATION OF A COLORED ACRYLIC COATING, WILL BE REQUIRED ON ALL EXPOSED CONCRETE SURFACES DOWN TO 1'-0" BELOW GROUND LINE. REQUIREMENTS FOR COATING ARE GIVEN IN REVISION OF SECTION 601, STRUCTURAL CONCRETE (COATING).

ALL EXTERIOR CONCRETE CORNERS SHALL BE CONSTRUCTED WITH 3/4" CHAMFERS, UNLESS OTHERWISE NOTED.

(R-1) GRADE 60 REINFORCING STEEL IS REQUIRED FOR #4 BARS AND LARGER. ALL REINFORCING STEEL SHOWN AND DETAILED WITHIN THIS SET OF DRAWINGS, WHETHER NOTED WITH THE SYMBOL (E.C.) OR NOT, SHALL BE EPOXY COATED.

THE FOLLOWING TABLE GIVES THE MINIMUM LAP SPLICE LENGTH FOR REINFORCING BARS:

BAR SIZE	#4	#5	#6	#7	#8	#9	#10	#11
SPLICE LENGTH FOR CLASS A CONCRETE	1'-0"	1'-3"	1'-8"	2'-3"	3'-0"	3'-10"	4'-10"	5'-11"
SPLICE LENGTH FOR CLASS D & S CONCRETE	1'-0"	1'-3"	1'-6"	2'-0"	2'-7"	3'-4"	4'-2"	5'-1"

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

ANY SPLICES NOT SHOWN SHALL BE APPROVED BY THE ENGINEER.

APPLIED WIND LOADS AND EARTHQUAKE LOADS WERE NOT CONSIDERED IN ANALYZING THE STRUCTURE FOR STABILITY DURING THE CONSTRUCTION STAGES.

E.F. = EACH FACE
 F.F. = FAR FACE
 N.F. = NEAR FACE
 T.F. = TOP FACE
 B.F. = BOTTOM FACE
 E.C. = EPOXY COATED

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

PERMANENT STEEL BRIDGE DECK FORMS MAY BE USED, AT THE CONTRACTOR'S OPTION, AT NO ADDITIONAL COST TO THE STATE OF COLORADO. NO STEEL BRIDGE DECK FORMS WILL BE ALLOWED ON THE CANTILEVER PORTION OF THE DECK.

THE INFORMATION SHOWN ON THESE PLANS CONCERNING 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 TO THEM.

DESIGN NOTES

CURRENT AASHTO SPECIFICATIONS:

LIVE LOAD: AASHTO HS-20-44 AND INTERSTATE ALTERNATE
 DEAD LOAD: ASSUMES 48 LBS. PER SQ. FT. FOR BITUMINOUS PAVEMENT
 ASSUMES 7 LBS. PER SQ. FT. FOR CONCRETE FORMWORK

REINFORCED CONCRETE:

CLASS A CONCRETE: $f_c = 1,200$ psi, $n = 9$
 CLASS D CONCRETE: $f_c = 1,800$ psi, $n = 8$
 CLASS S CONCRETE: $f_c = 2,000$ psi, $n = 7$

REINFORCING STEEL: #4 BARS AND LARGER: $f_s = 24,000$ psi

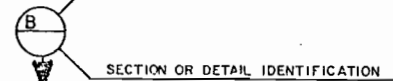
STRUCTURAL STEEL: AASHTO M-183 (ASTM A-36) $f_s = 20,000$ psi

PRESTRESSED CONCRETE:

CLASS S CONCRETE: $f'_c = 5,000$ psi

PRESTRESSING STEEL: $f'_s = 270,000$ psi

CROSS REFERENCE DRAWING NUMBER



SECTION OR DETAIL IDENTIFICATION

AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	9/30/87 REVISED	VIII	COLO.	IR 25-2(187)	92	170 177

REVISIONS		
(R-1)	6-5-86	Revised Note, Reinforcing Steel J.K.K.

INDEX OF DRAWINGS

B-1	GENERAL INFORMATION	B-26	SUPERSTRUCTURE DETAILS (SECTIONS) - UNIT ①	BRIDGE STANDARD 0
B-2	SUMMARY OF QUANTITIES	B-27	SUPERSTRUCTURE DETAILS (SECTIONS) - UNIT ①	
B-3	GENERAL LAYOUT - UNIT ①	B-28	SUPERSTRUCTURE DETAILS (SECTIONS) - UNIT ②	
B-4	GENERAL LAYOUT - UNIT ②	B-29	DIAPHRAGM DETAILS	
B-5	GENERAL LAYOUT - SECTIONS	B-30	DIAPHRAGM SECTIONS	
B-6	ENGINEERING GEOLOGY	B-31	SUPERSTRUCTURE DETAILS	
B-7	BRIDGE HYDRAULIC INFORMATION	B-32	SUPERSTRUCTURE DETAILS - UNIT ①	
B-8	CONSTRUCTION LAYOUT - FOOTING AND PILING LAYOUT	B-33	SUPERSTRUCTURE DETAILS - UNIT ①	
B-9	CONSTRUCTION LAYOUT - PILING LAYOUT	B-34	SUPERSTRUCTURE DETAILS - UNIT ①	
B-10	CONSTRUCTION LAYOUT - PILING LAYOUT	B-35	SUPERSTRUCTURE DETAILS - UNIT ①	
B-11	CONSTRUCTION LAYOUT - PILING LAYOUT	B-36	SUPERSTRUCTURE DETAILS - UNIT ②	
B-12	ABUTMENT 1 DETAILS	B-37	SUPERSTRUCTURE DETAILS - UNIT ②	
B-13	ABUTMENT 8 DETAILS	B-38	SUPERSTRUCTURE DETAILS - WEB FLARES	
B-14	WINGWALL DETAILS	B-39	SUPERSTRUCTURE DEFLECTIONS	
B-15	WINGWALL AND RETAINING WALL DETAILS	B-40	POST-TENSIONING ANCHORAGE DETAILS - UNIT ①	
B-16	PIER 2 DETAILS	B-41	CAST-IN-PLACE PRESTRESSED GIRDER DETAILS	
B-17	PIER 3 DETAILS	B-42	BOX GIRDER DETAILS	
B-18	PIER 4 DETAILS	B-43	EXPANSION DEVICE (0-9 INCH) - PIER 4	
B-19	PIER 4 SECTIONS	B-44	EXPANSION DEVICE (0-9 INCH) - PIER 4	
B-20	PIERS DETAILS - PIERS 5, 6 & 7	B-45	COVER PLATE DETAILS - PIER 4	
B-21	BEARING DETAILS (TYPE III)	B-46	BRIDGE RAIL TYPE 4.	
B-22	DECK PLAN - UNIT ①	B-47	SIGN BRIDGE BASE DETAILS	
B-23	DECK PLAN - UNIT ①	B-48	BRIDGE DRAIN DETAILS	
B-24	DECK PLAN - UNIT ②	B-49	BRIDGE DECK ELEVATIONS AND DECK/APPROACH CONTOURS	
B-25	DECK PLAN - UNIT ②	B-50	BRIDGE DECK ELEVATIONS AND DECK/APPROACH CONTOURS	

BRIDGE DESCRIPTION

UNIT 1: 3-SPAN (121'-1 1/2", 129'-0", 108'-8 5/8"), F-16-NK
 UNIT 2: 4-SPAN (115'-4 5/8", 150'-0", 150'-0", 121'-3"), F-16-OE
 EACH UNIT CONTINUOUS POST-TENSIONED CAST-IN-PLACE
 CONCRETE BOX GIRDER BRIDGE.

OVER SOUTH PLATTE RIVER.
 VARIABLE ROADWAY WIDTH AND SKEW.
 1'-6" CONCRETE BARRIERS. BRIDGE RAIL TYPE 4.

De Leuw, Cather & Company Denver, CO.

Reviewed
 H. Harris
 BRIDGE ENGINEER DATE 2-24-86

DIVISION OF HIGHWAYS			
GENERAL INFORMATION			
Station 706+84.50 TO Station 715+85.61 (RAMP F)			
Near Denver	Sec 9	T 4 S	R 68 W
Designer	R. KOESTER	Structure	F-16-NK
Detailer	HINSHAW, PANNING	Numbers	F-16-OE
Drawing Number	B-1	of 50	Drawings

AS CONSTRUCTED
NO REVISIONS REVISED 7/30/87 VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR 25-2(187)	93	177

SUMMARY OF QUANTITIES

REVISIONS
R-1 6-5-86 Rev. Quantities, Reinforcing Steel J.K.K.

ITEM	DESCRIPTION	UNIT	AS CONSTRUCTED											STR. F-16-NK AND F-16-OE TOTALS		
			STR. F-16-NK SUPER-STRUCTURE UNIT ①	STR. F-16-OE SUPER-STRUCTURE UNIT ②	STRUCTURE NUMBER F-16-NK				STRUCTURE NUMBER F-16-OE				STR. F-16-NK TOTALS		STR. F-16-OE TOTALS	
					ABUT. 1	PIER 2	PIER 3	PIER 4	PIER 5	PIER 6	PIER 7	ABUT. 8				
5	206 STRUCTURE EXCAVATION	CU. YD.			113	601	503	668	284	259	213			1885	756	2641
	206 STRUCTURE BACKFILL (CLASS 1)	CU. YD.			237							348		237	348	585
5	206 STRUCTURE BACKFILL (CLASS 2)	CU. YD.				432	459	554	236	211	166			1445	613	2058
	403 HOT BITUMINOUS PAVEMENT (GRADING EX)(HAUL AND ASPHALT)	TON	285	247										285	247	532
	502 DRILLING HOLE TO FACILITATE PILE DRIVING	LIN. FT.			140							80		140	80	220
	502 STEEL PILING (HP10x42)	LIN. FT.										595		595	613	595 613
1	502 STEEL PILING (HP12x53)	LIN. FT.			493							446		493	464	939 886
	502 STEEL PILING (HP14x102)	LIN. FT.					701	643	342	311	402			1344	1055	2399 2127
	506 RIPRAP	CU. YD.			348									348	336	348 336
	506 PLASTIC FILTER CLOTH	SQ. YD.			453									453	415	453 415
3	509 STRUCTURAL STEEL	LB.	1251	556										1251	556	1807
4	509 STRUCTURAL STEEL (GALVANIZED)	LB.	1600	709		1968	536	3454						1600	709	2309 2085
	512 BEARING DEVICE (TYPE III)	EACH				3		6						9		9
	513 BRIDGE DRAIN (SPECIAL)	EACH	2	2										2	2	4
	515 WATERPROOFING (MEMBRANE)	SQ. YD.	2,635	2,287										2,635	2,287	4,922
	518 BRIDGE COMPRESSION JOINT SEALER	LIN. FT.			18							18		18	19	37
	518 WATERSTOP (6 INCH)	LIN. FT.			24							21		24	20	44
	518 BRIDGE EXPANSION DEVICE (0-9 INCH)	LIN. FT.		43											43	43
	601 CONCRETE CLASS A(BRIDGE)	CU. YD.			44.5	264.5	186.1	211.4	43.4	43.4	43.4	46.8		707	177	884
	601 CONCRETE CLASS D(BRIDGE)	CU. YD.		62.5		46.4	88.3	89.3	43.4	43.5	44.6			224	194	418
	601 CONCRETE CLASS S(BRIDGE)	CU. YD.	1798	1,416	38.3							25.4		1837	1442	3279 280.52
R-1	602 REINFORCING STEEL (EPOXY COATED)	LB.	381,074	295,673	5817	51628	51266	43137	21296	13567	21567	5453		533,132	379,590	912,722
R-1														532,922	357,556	890,478
	606 BRIDGE RAIL TYPE 4	LIN. FT.	736	1124										736	1124	1860 1720
	613 2 INCH ELECTRICAL CONDUIT	LIN. FT.	820	553										820	553	1373 1371
	613 4 INCH ELECTRICAL CONDUIT	LIN. FT.	350	540										350	540	890
2	618 PRESTRESSING STEEL WIRE OR STRAND	LB.	98,929	103,152										98,929	103,152	202,081

- NOTES:
- HPS 10x57 May be used in lieu of HP 12x53 at original bid price.
 - This item includes furnishing, placing in the concrete, and post-tensioning the prestressing steel. The Contractor shall furnish all stressing equipment and accessories required for installation and stressing operations. Weight shall not be remeasured, but shall be the quantity shown.
 - Includes 1807 Lbs. AASHTO M-105 gray iron castings for access manholes.
 - Includes 3661 Lbs. AASHTO M-183 (ASTM A-36) steel for access manholes, pier nosings, and pintle slots. Includes 4606 Lbs. ASTM A-53, Grade B steel for pintles.
 - Structural Excavation and Structural Backfill (Class 2) for Pier 2 assumes a vertical excavation surface supported by temporary shoring and bracing. Structural Excavation for Pier 2 shall include all pumping, bailing, draining, sheeting, bracing and incidentals required for proper execution of the work.

DESIGNED BY J.L.S. 10-85
 CHECKED BY M.R.M. 1-86
 QUANTITIES BY R.M.H. 11-85
 DETAILED BY S.Y.S. 10-85
 DATE 10-85
 CHECKED BY J.L.S. 10-86
 QUANTITIES BY R.M.H. 11-85
 DETAILED BY S.Y.S. 10-85

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

SUMMARY OF QUANTITIES

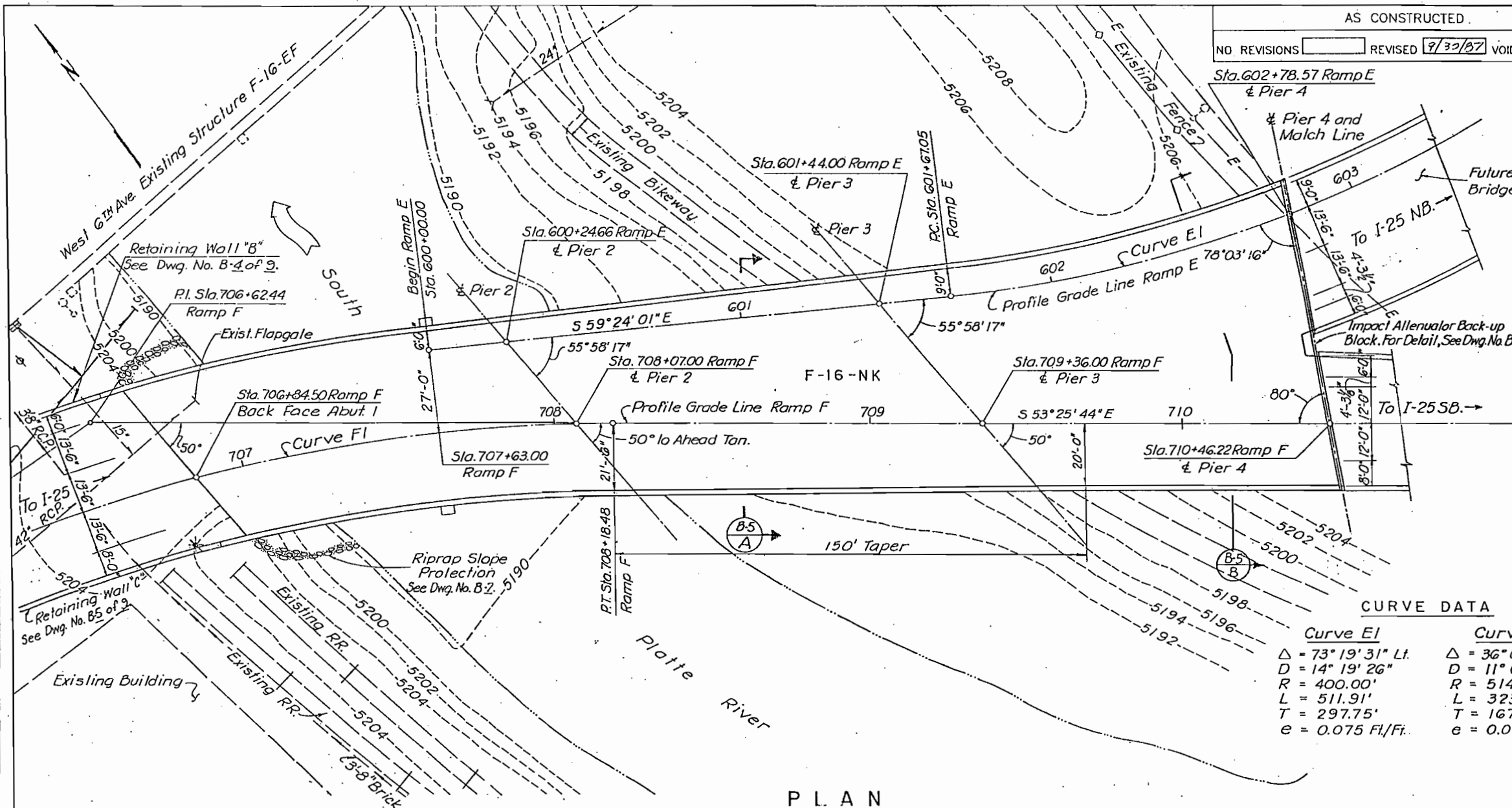
Designer J. Stapleton Structure Numbers F-16-NK
 Detailer S. Shibao Numbers F-16-OE
 Drawing Number B-2 of 50 Drawings

Revision Dates (Preliminary Stage Only)

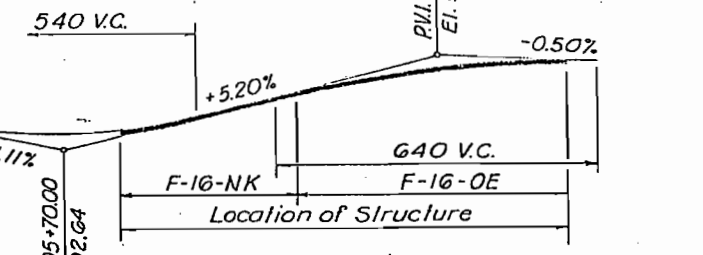
AS CONSTRUCTED
NO REVISIONS REVISED 7/30/87 VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR25-2(187)	94	179 177

REVISIONS	



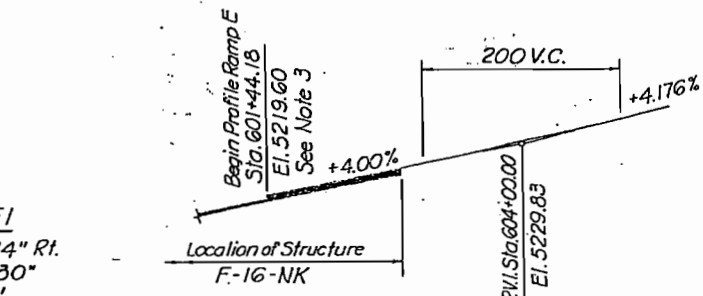
PLAN



PROFILE GRADE ~ RAMP F

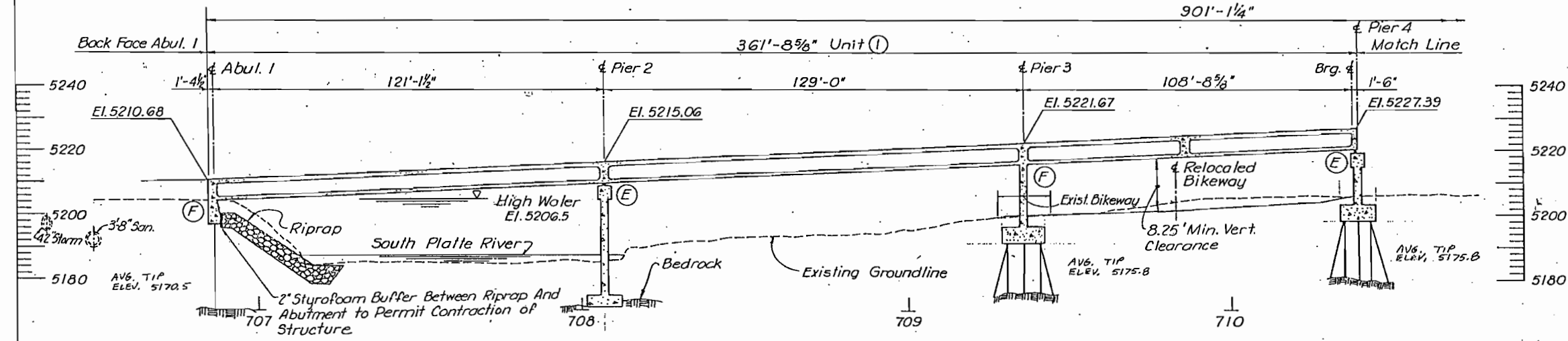
CURVE DATA

Curve E1	Curve F1
$\Delta = 73^\circ 19' 31''$ Lt.	$\Delta = 36^\circ 00' 14''$ Rt.
$D = 14^\circ 19' 26''$	$D = 11^\circ 08' 30''$
$R = 400.00'$	$R = 514.25'$
$L = 511.91'$	$L = 323.15'$
$T = 297.75'$	$T = 167.11'$
$e = 0.075$ Ft./Ft.	$e = 0.071$ Ft./Ft.



PROFILE GRADE ~ RAMP E

- NOTES:
1. Live Loading - HS20-44 and Interstate Alternate.
 2. For Adjacent Bridge Structure F-16-OE Unit (2), See Dwg. No. B-4.
 3. Ramp E Profile below Sta. 601+44.18 is controlled by Ramp F Profile and Superelevations.



SECTION

Taken at Profile Grade Line Ramp F

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

GENERAL LAYOUT
UNIT (1)

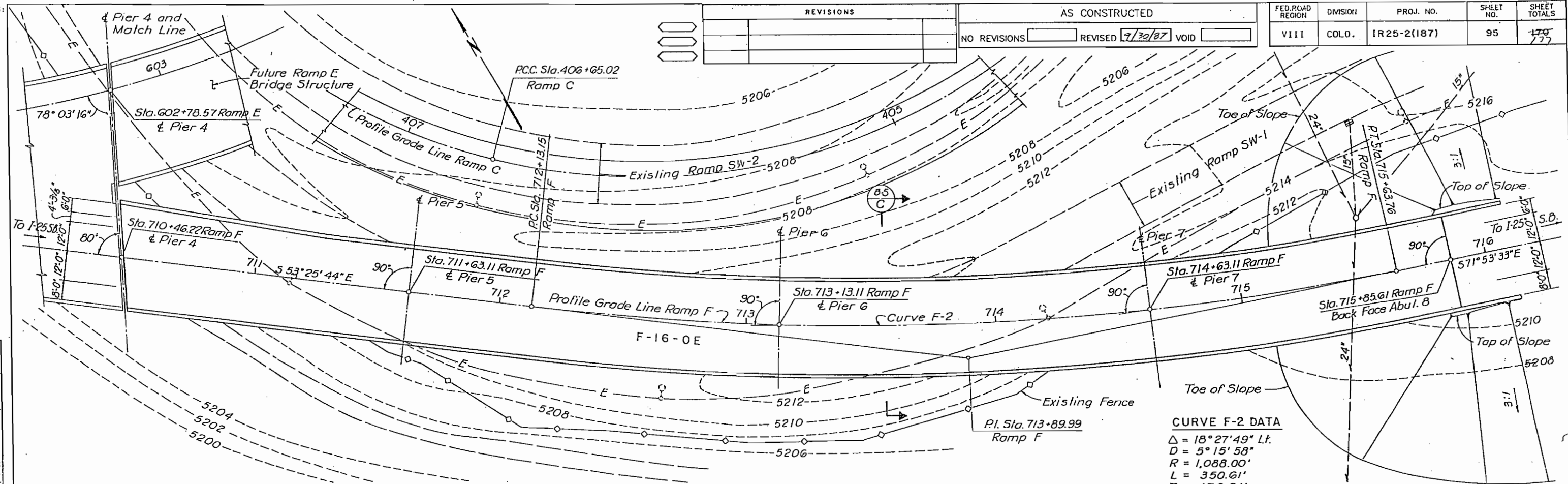
Designer J. Stapleton	Structure F-16-NK
Detailer V. Villao	Numbers
Drawing Number B-3	of 50 Drawings

DESIGNED BY	J.S.	CHECKED BY	V.V.
CHECKED BY	M.M.	QUANTITIES BY	B.B.
DETAILED BY	V.V.	CHECKED BY	B.B.

REVISIONS	

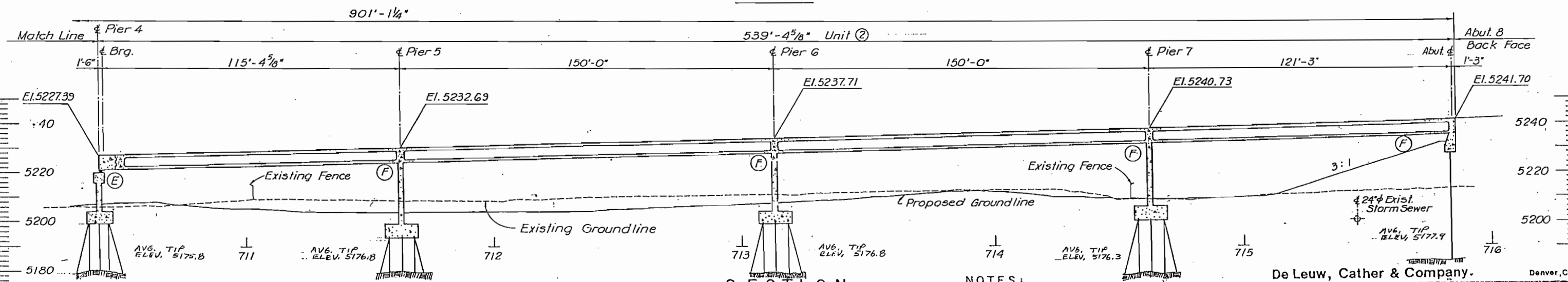
AS CONSTRUCTED		
NO REVISIONS	REVISED 7/30/87	VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR 25-2(187)	95	170 777



PLAN

INITIAL	DATE	CHECKED BY	DATE
M.A.M.	8-85	J.L.S.	9-85
M.M.	8-85	R.K.	8-85
R.K.	8-85	V.V.	8-85
V.V.	8-85		



SECTION

Taken at Profile Grade Line Ramp F

NOTES:

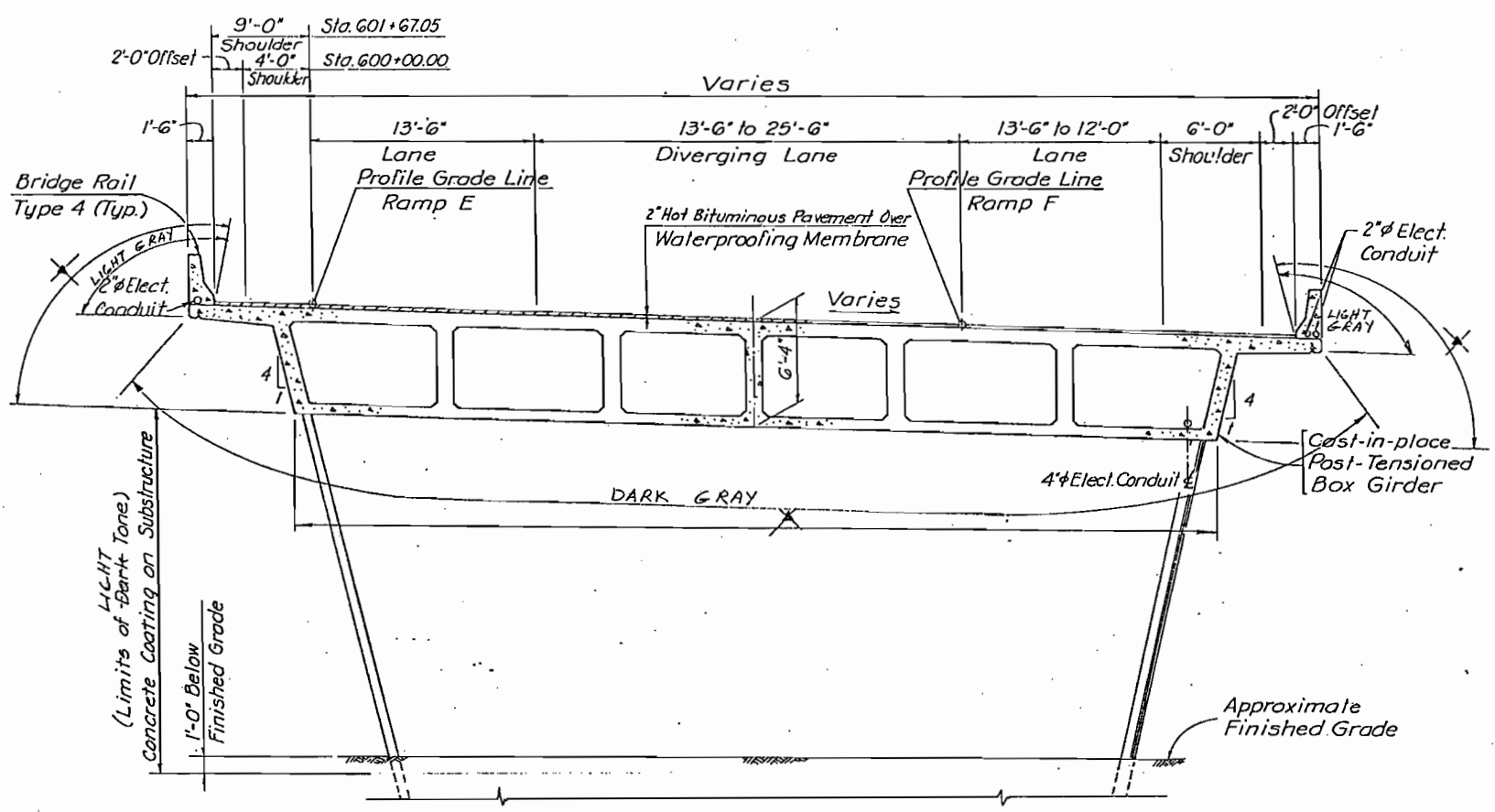
- For Adjacent Bridge Structure F-16-NK Unit 1, See Dwg. No. B-3
- Temporary Side Slope Steeper than 3:1 as Required to Accommodate the Delour Ramp.

De Leuw, Cather & Company - Denver, CO.

DIVISION OF HIGHWAYS	
GENERAL LAYOUT	
UNIT 2	
Designer M. Merklinger	Structure F-16-0E
Detailer V. Villao	Numbers
Drawing Number B-4	of 50 Drawings

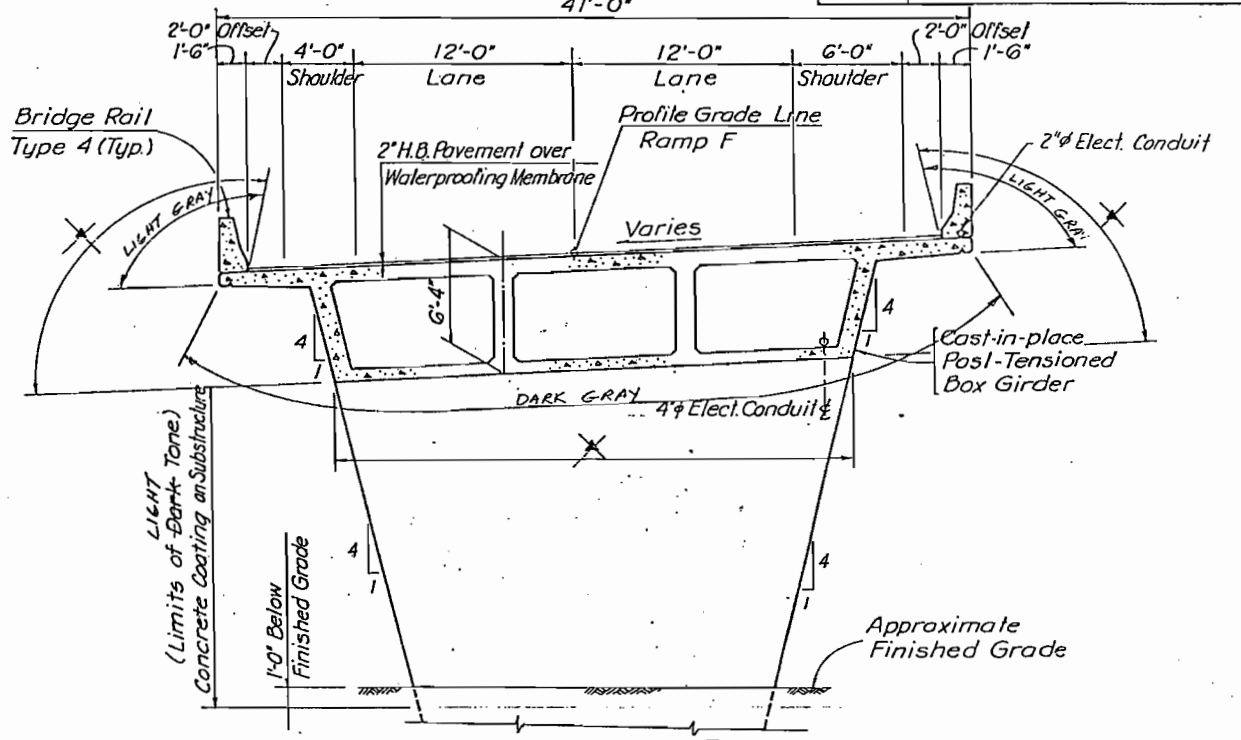
Revision	Date	Description

AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	REVISED 7/30/87	VIII	COLO.	1R25-2(187)	96	127
REVISIONS						



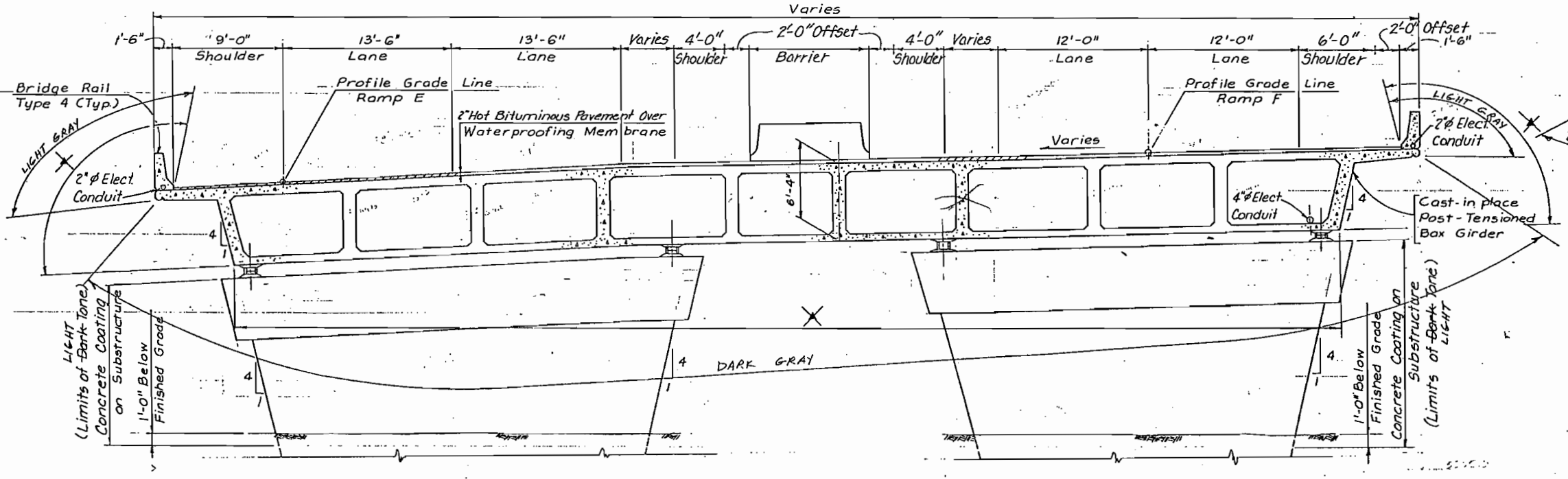
SECTION B-3
 A

▲ Limits of Light Tone Concrete Coating on Superstructure and Bridge Rail



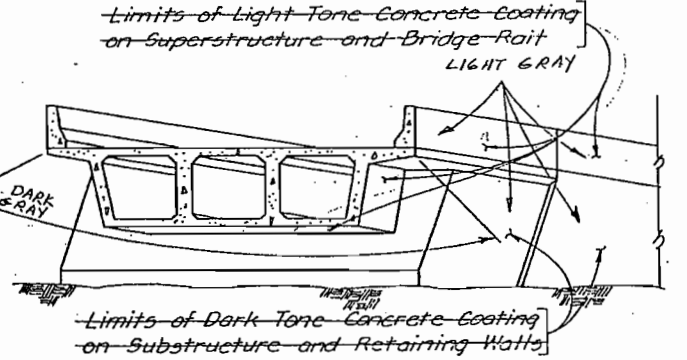
SECTION B-4
 C

▲ Limits of Light Tone Concrete Coating on Superstructure and Bridge Rail



SECTION B-3
 B

▲ Limits of Light Tone Concrete Coating on Superstructure Bridge Rail

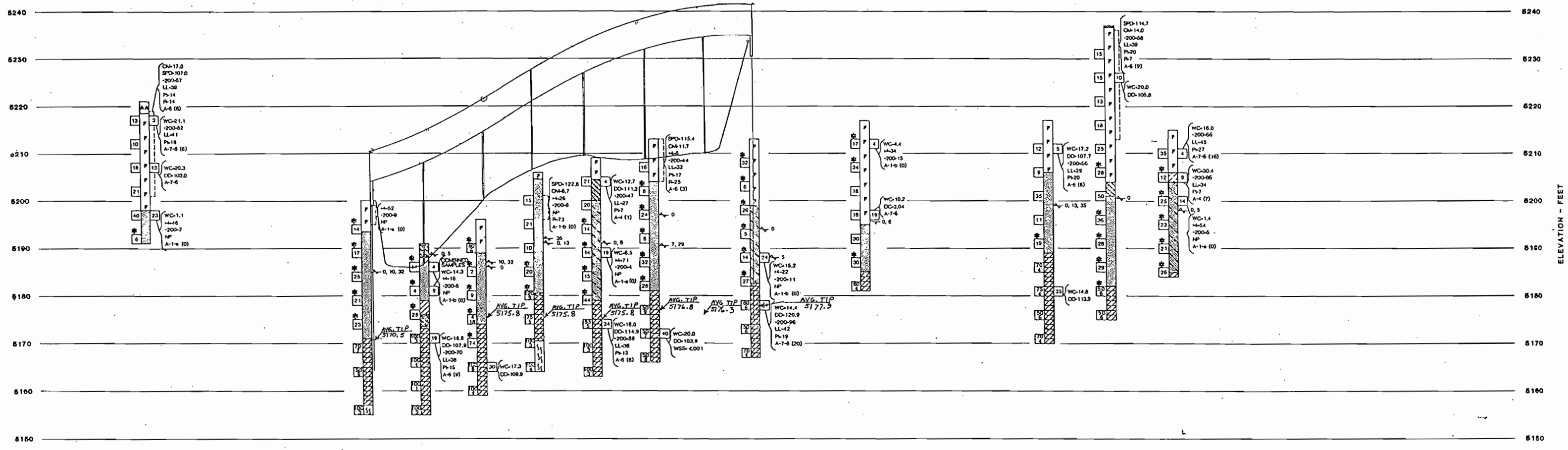
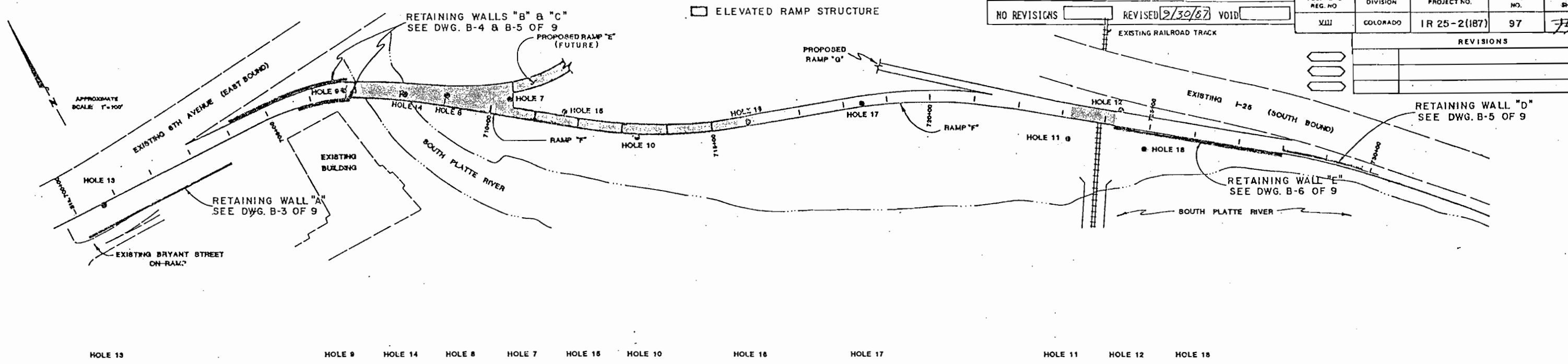


CONCRETE COATING
 LIMITS AT ABUTMENTS

De Leuw, Cather & Company Denver, CO.

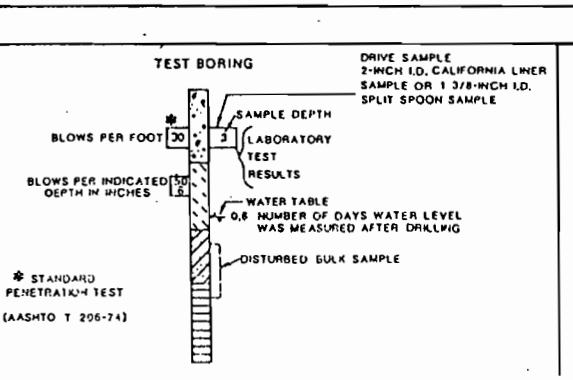
DIVISION OF HIGHWAYS	
GENERAL LAYOUT SECTIONS	
Designer M. Merklinger	Structure F-16-NK
Detailer V. Viloo	Numbers F-16-OE
Drawing Number B-5	of 50 Drawings
Revision Dates (Preliminary Stage Only)	

CHECKED BY	M.R.M.	9-85
DESIGNED BY	J.L.S.	9-85
CHECKED BY	R.M.H.	11-85
DESIGNED BY	V.V.V.	8-85
CHECKED BY	V.V.V.	8-85



LEGEND:

	CONCRETE		SAND (SM), FINE TO COARSE GRAINED, SILTY, SCATTERED GRAVEL, MEDIUM DENSE, WET, BROWN.
	ASPHALT AND BASE COURSE		SAND (SP-SM), FINE TO COARSE GRAINED, GRAVELLY, LOOSE TO DENSE, MOIST TO WET, BROWN.
	FILL, SANDY CLAY TO CLAYEY SAND AND SILTY SAND, SCATTERED GRAVEL, UP TO 30% TRASH BY VOLUME IN HOLES 18 AND 17 CONSISTING OF CINDERS, BRICK, CONCRETE, WOOD, PAPER AND RAGS, SLIGHTLY MOIST TO MOIST, BROWN TO BLACK.		SAND (S), FINE TO COARSE GRAINED, GRAVELLY, CLEAN TO SLIGHTLY SILTY, LOOSE TO DENSE, MOIST TO WET, BROWN.
	CLAY (CL), SANDY, VERY STIFF, VERY MOIST TO WET, GRAY TO BROWN.		CLAYSTONE BEDROCK, SANDY TO VERY SANDY, MEDIUM HARD TO VERY HARD, SLIGHTLY MOIST TO VERY MOIST, BROWN TO GRAY-BLUE, BLOCKY, OCCASIONAL SANDSTONE LENSES.
	SILT (ML), SLIGHTLY SANDY TO SANDY, STIFF, MOIST TO VERY MOIST, BROWN.		SANDSTONE BEDROCK, FINE TO MEDIUM GRAINED, VERY HARD, SLIGHTLY MOIST, BLUE, MODERATELY CEMENTED.
	SAND (SC), FINE TO COARSE GRAINED, CLAYEY TO VERY CLAYEY, DENSE, SLIGHTLY MOIST TO MOIST, BROWN.		



LABORATORY TEST RESULTS:

WC-WATER CONTENT (%)
DD-DRY DENSITY (pcf)
+4-PERCENTAGE RETAINED ON #4 SIEVE
-200-PERCENTAGE PASSING NO. 200 SIEVE
LL-LIQUID LIMIT (%)
PI-PLASTICITY INDEX (%)
NP-NON-PLASTIC
OC-ORGANIC CONTENT (%)
SPD-MAXIMUM STANDARD PROCTOR DENSITY (pcf)
OM-OPTIMUM MOISTURE CONTENT (%)
R-HYDROMETER STABILOMETER RESISTANCE VALUE
A-1-8 (0)-AASHTO CLASSIFICATION AND GROUP INDEX.

EXPLORATORY HOLE	DATE OF DRILLING
7	3-8-86
8	3-11-86
9	3-11-86
10	3-14-86
11	3-8-86
12	3-14-86
13	7-18-85
14	7-18-85
15	7-18-85
16	7-18-85
17	7-18-85
18	7-18-85

STRUCTURE NO. F-16-NK & F-16-OE
DWG. NO. B-C OF 50

DIVISION OF HIGHWAYS

ENGINEERING GEOLOGY

CHEN & ASSOCIATES, INC.

PROJECT NO. 1 801 84

Geologist
Drawn by A.S.
Checked by G.T.J.

PLATE I
Date AUG. 1968

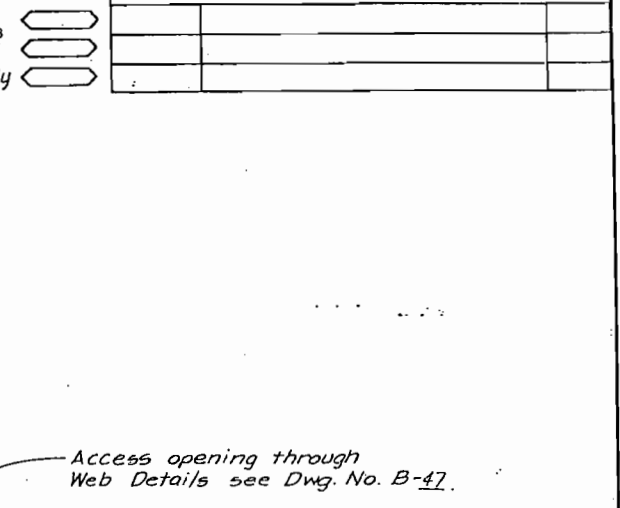
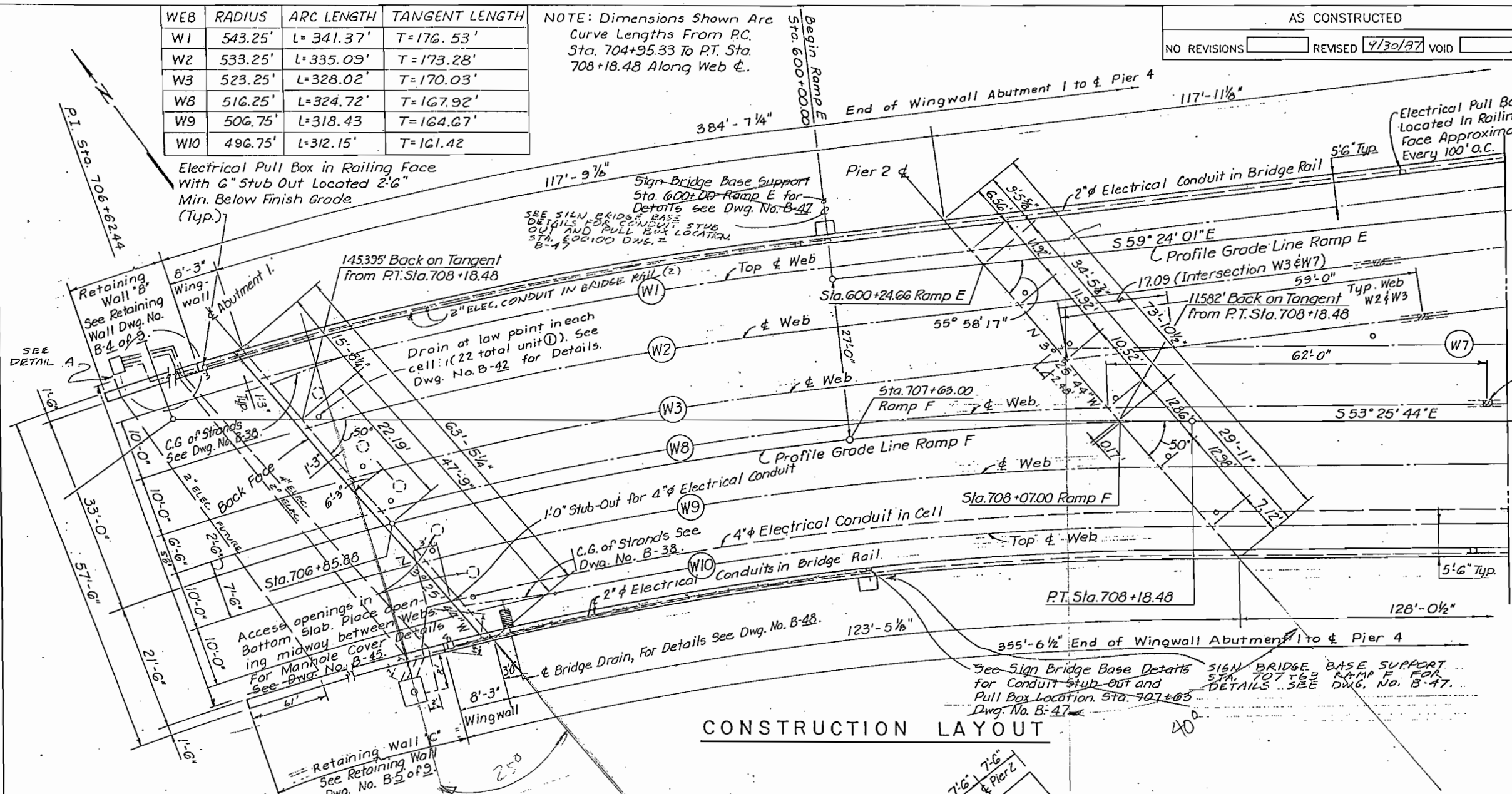
WEB	RADIUS	ARC LENGTH	TANGENT LENGTH
W1	543.25'	L=341.37'	T=176.53'
W2	533.25'	L=335.09'	T=173.28'
W3	523.25'	L=328.02'	T=170.03'
W8	516.25'	L=324.72'	T=167.92'
W9	506.75'	L=318.43'	T=164.67'
W10	496.75'	L=312.15'	T=161.42'

NOTE: Dimensions Shown Are
 Curve Lengths From P.C.
 Sta. 704+95.33 To P.T. Sta.
 708+18.48 Along Web C.

AS CONSTRUCTED		
NO REVISIONS	REVISED	VOID
	7/30/87	

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR25-2(187)	99	170 177

REVISIONS	



- NOTES:**
- Dimensions Are At Bottom of Concrete
 - Pile Data:

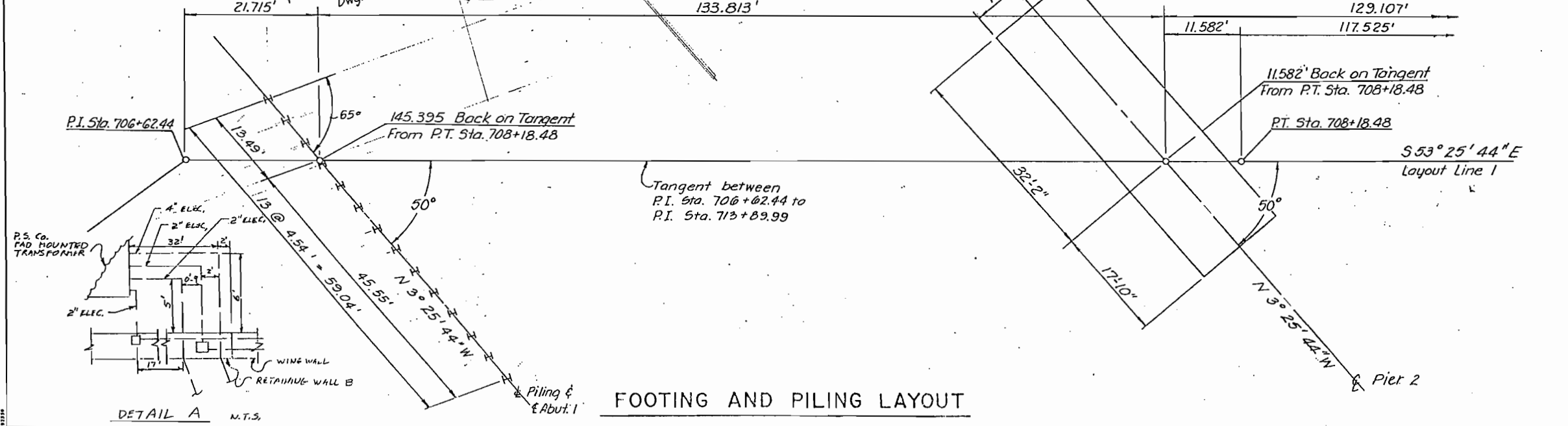
Location	Pile Size	Est. Tip Elev.	Max Pile Load
Abut. 1	HP 12x53	5164.0	70 Tons
 - All Piles Shall Be End Bearing
 - All Piling at Abut. 1 Shall Be Placed in 18" Dia. Drilled Holes 10 Feet Deep. Fill Holes With Bentonite Slurry Before Piling is Driven. (To Be Included In The Work). See Dwg. No. B-13.
 - Pier 2 Footing Pressure = 6.75 Tons Per Square Foot.

De Leuw, Cather & Company Denver, CO.

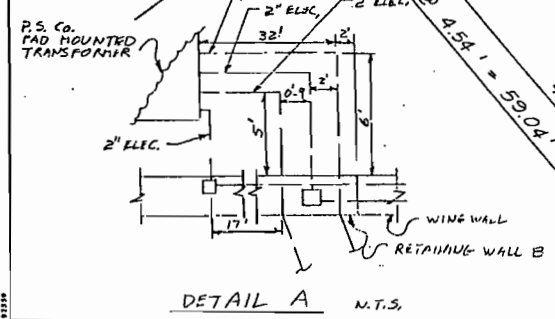
DIVISION OF HIGHWAYS

**CONSTRUCTION LAYOUT
 FOOTING AND PILING LAYOUT**

Designer J. Stapleton	Structure F-16-NK
Detailer Villao, Panning	Numbers
Drawing Number B-8	of 50 Drawings



DATE	BY	REVISION
10-85	JLS	1
10-85	RMH	2
11-85	RMH	3
11-85	RMH	4
11-85	RMH	5
11-85	RMH	6
11-85	RMH	7
11-85	RMH	8
11-85	RMH	9
11-85	RMH	10

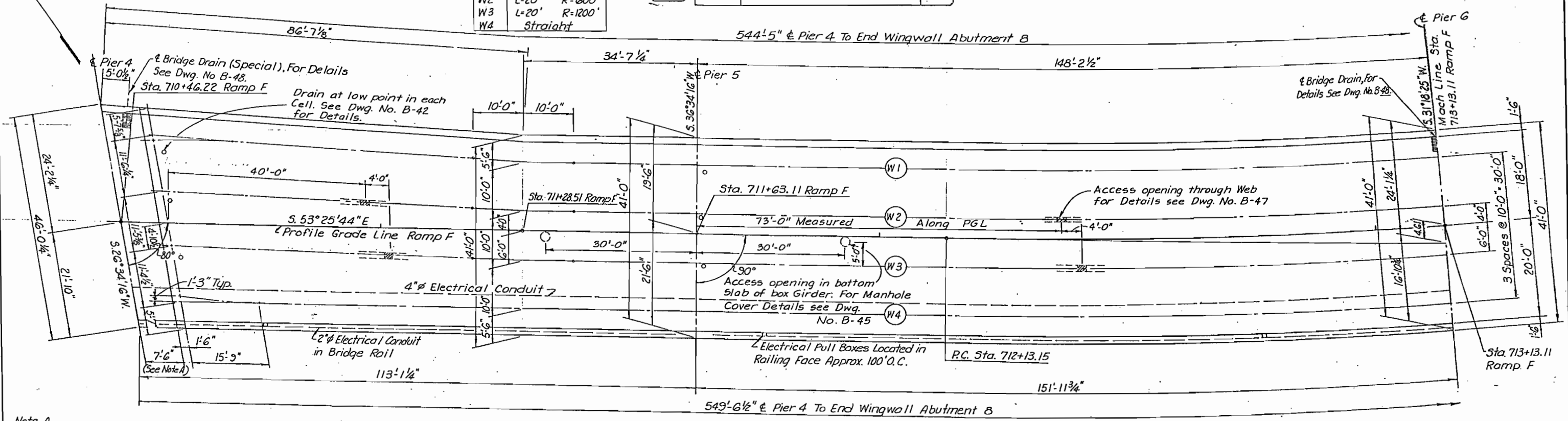


WEB	TENDON CURVE
W1	L=20' R=400'
W2	L=20' R=600'
W3	L=20' R=1200'
W4	Straight

REVISIONS	

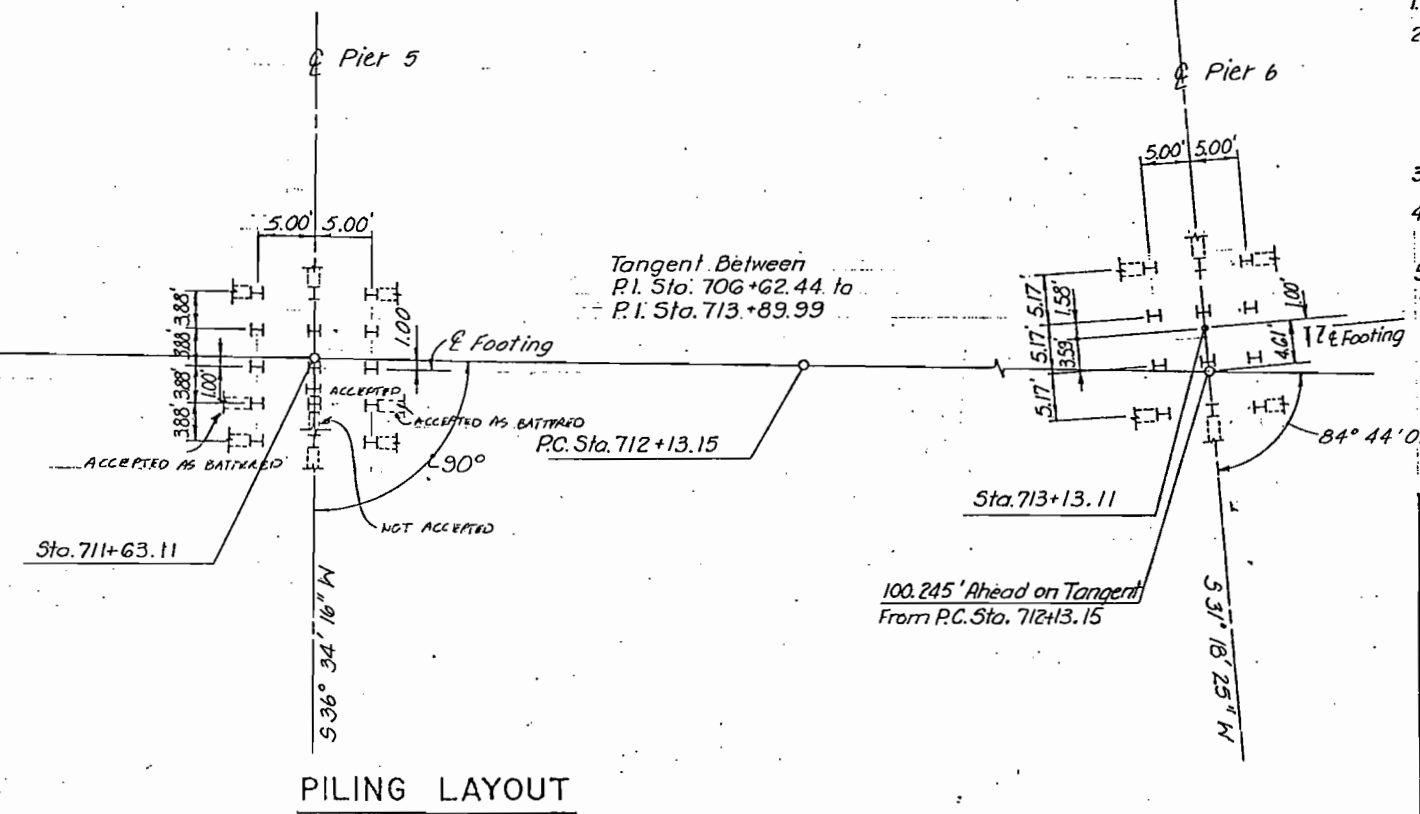
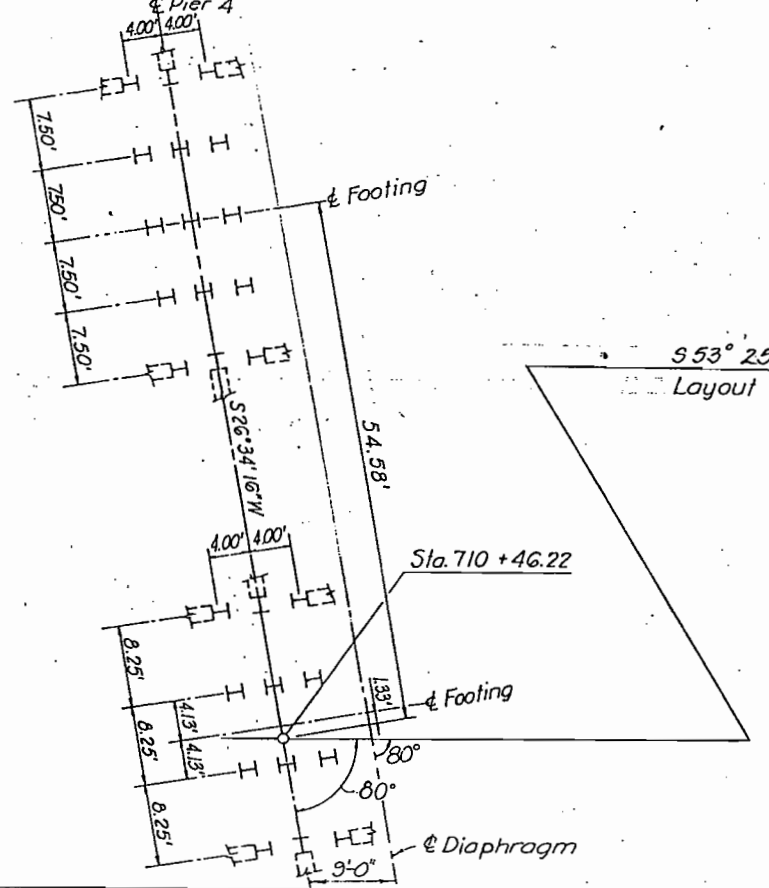
NO REVISIONS	REVISED 9/30/87	VOID
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FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR25-2(187)	101	177



Note A
This Section Is Cast-In-Place After All Post-Tensioning And Grouting Are Completed.

CONSTRUCTION LAYOUT



- NOTES:**
- Dimensions are at Bottom of Concrete.
 - Pile Data:

Location	Pile Size	Est. Tip Elev.	Max. Pile Load
Pier 4	HP14x102	5173.00	125 Tons
Pier 5	HP14x102	5172.00	110 Tons
Pier 6	HP14x102	5174.00	130 Tons
 - All Piles shall be End Bearing.
 - Piles shown thus (H-I) are to be battered at 3:12 in the Direction Shown.
 - Temporary Support is Required At Diaphragm Near Pier 4. See Dwg. No. B-31 For Details.

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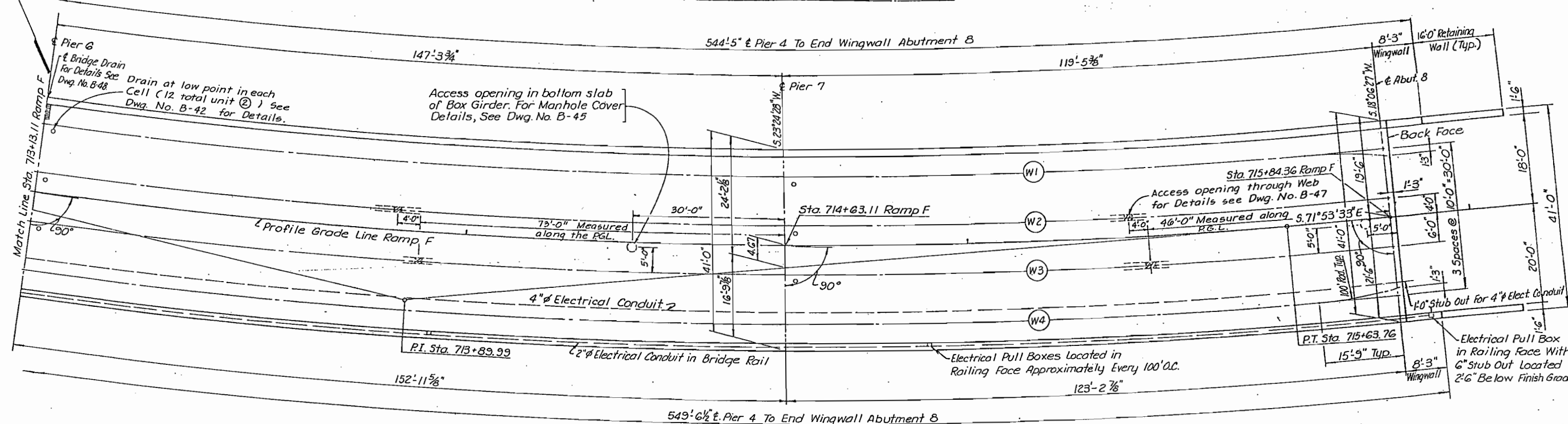
DIVISION OF HIGHWAYS

**CONSTRUCTION LAYOUT
PILING LAYOUT**

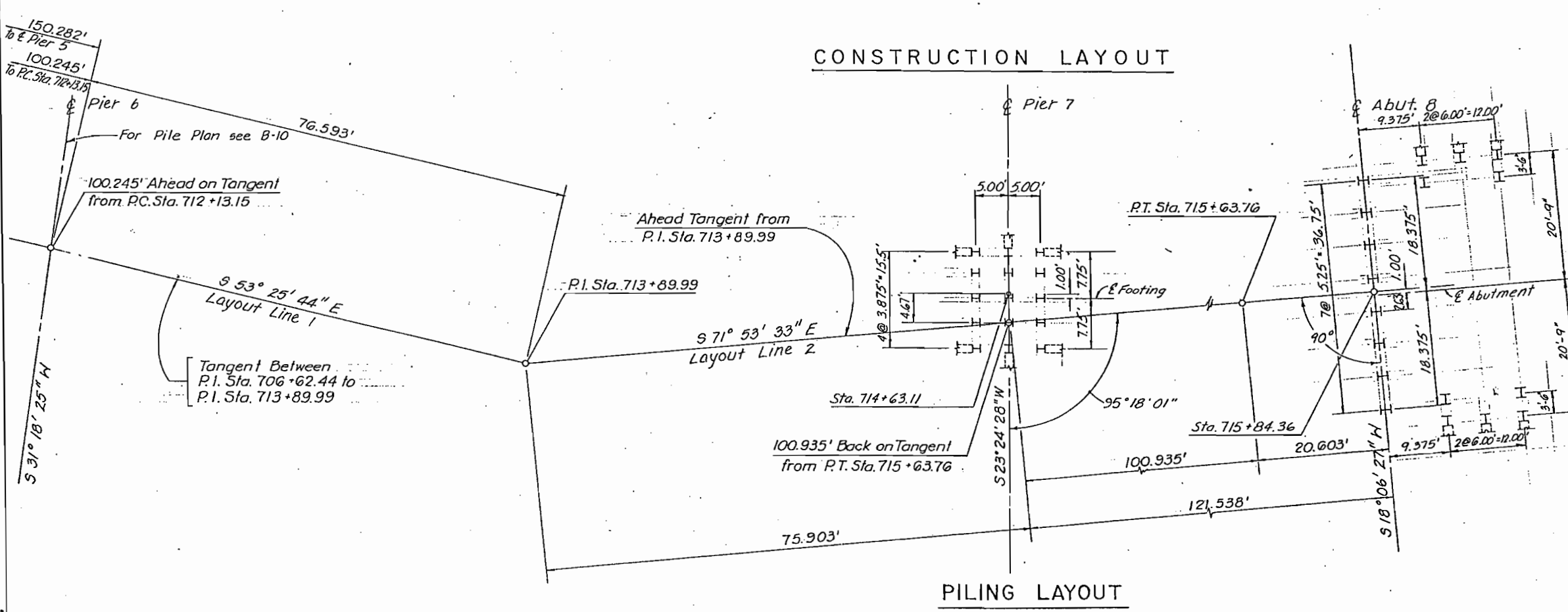
Designer M. Merklinger	Structure F-16-NK
Detailer R. Hinshaw	Numbers F-16-OE
Drawing Number B-10 of 50 Drawings	

Revision Dates (Preliminary Stage Only)

REVISIONS		AS CONSTRUCTED	FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
		NO REVISIONS	VIII	COLO.	IR25-2(187)	102	759
		REVISED 7/30/97					
		VOID					



INITIAL	DATE	CHECKED BY	QUANTITY BY
M.R.M.	10-85		
R.M.H.	10-85		



- NOTES:**
- Dimensions are at Bottom of Concrete.
 - Pile Data :

Location	Pile Size	Est. Tip Elev.	Max. Pile Load
Piers 7	HP14.102	5175.00	115 Tons
Abut. 8	HP12.53	5175.00	67 Tons
Ret. Wall (Abut. 8)	HP 10x42	5175.00	13 Tons
 - All Piles shall be End Bearing.
 - All HP12x53 Piling at Abut. 8 shall be placed in 18" Dia drilled holes 10 Feet Deep. Fill holes with Bentonite slurry before Piling is driven (to be included in the work). See Dwg. B-13 for Details.
 - Piles shown thus (H) are to be Battered at 3:12 for Pier 7 and at 4:12 for Ret. Wall (Abut. 8) in the Direction shown.

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DIVISION OF HIGHWAYS

CONSTRUCTION LAYOUT

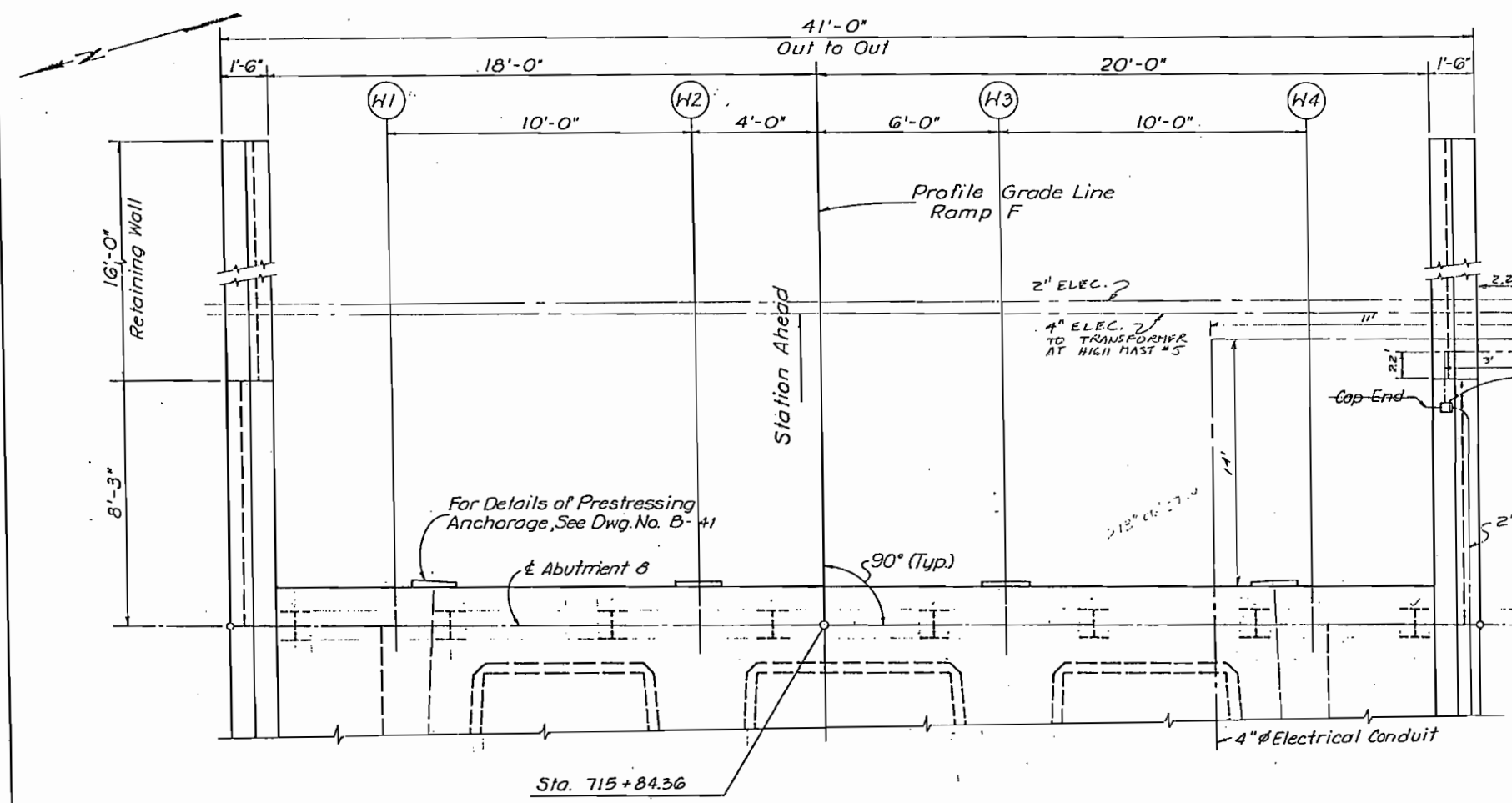
PILING LAYOUT

Designer M. Merklinger	Structure Numbers	F-16-OE
Drawing Number B-11 of 50 Drawings		

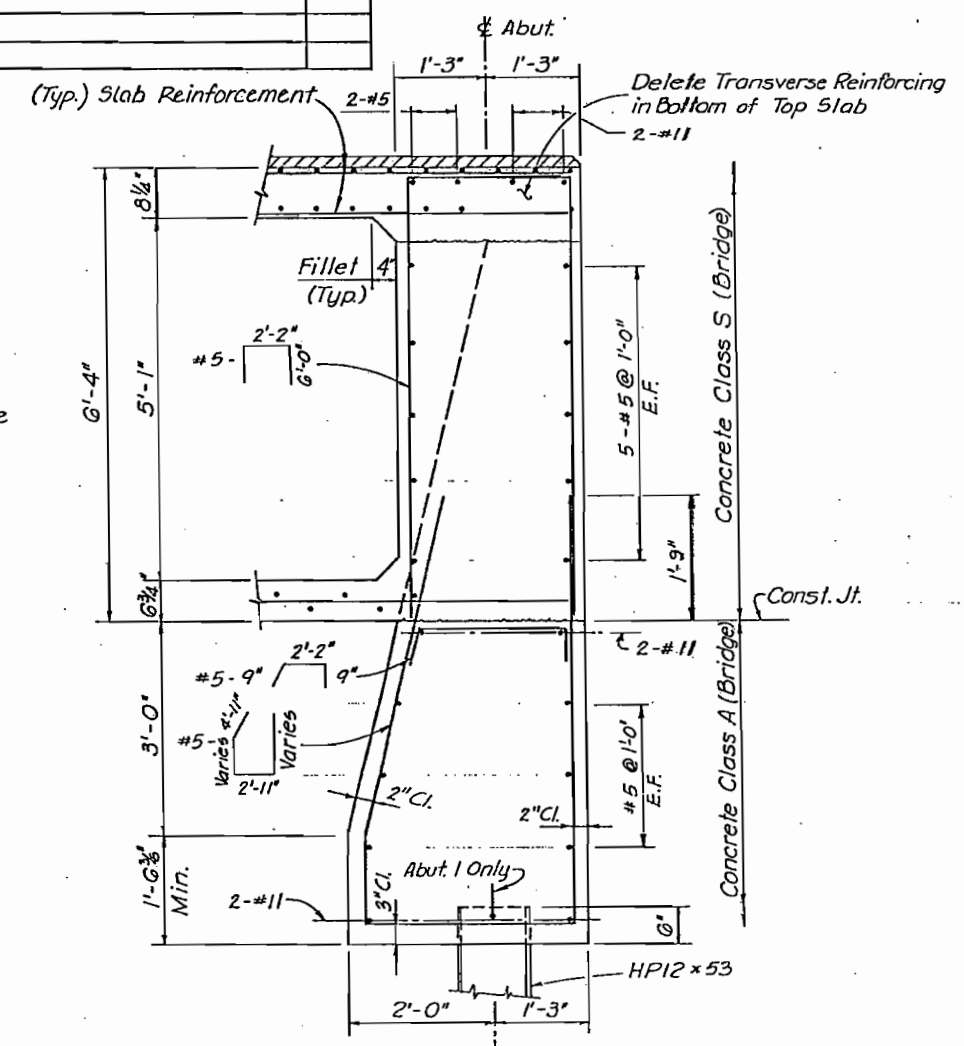
Revision Dates (Preliminary Stage Only)

AS CONSTRUCTED		
NO REVISIONS	REVISED 7/30/87	VOID
REVISIONS		

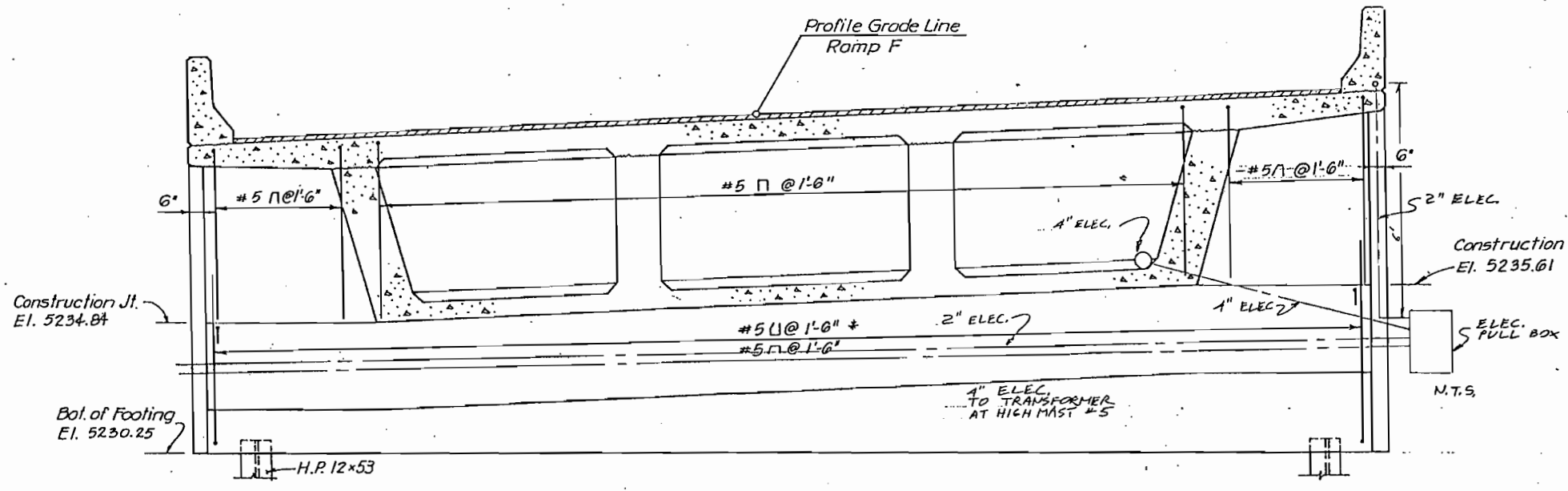
FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR25-2(187)	104	170 177



PLAN

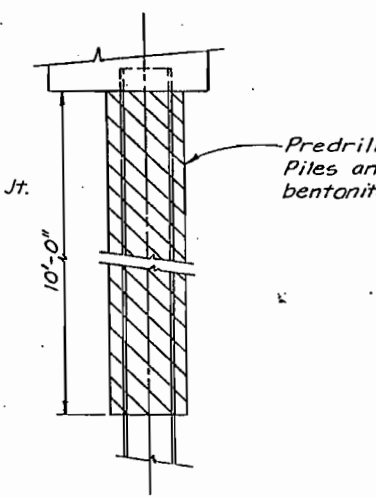


TYPICAL ABUTMENT SECTION



ELEVATION

* Adjust Reinforcement to clear piles.



ABUTMENT PILE PLACEMENT DETAIL

- NOTES:
- 1 For Wingwall Details, See Dwg. No. B-15
 - 2 For Details of Bridge Rail, See Dwg. No. B-43
 - 3 For Web Flair Details, See Dwg. No. B-39

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

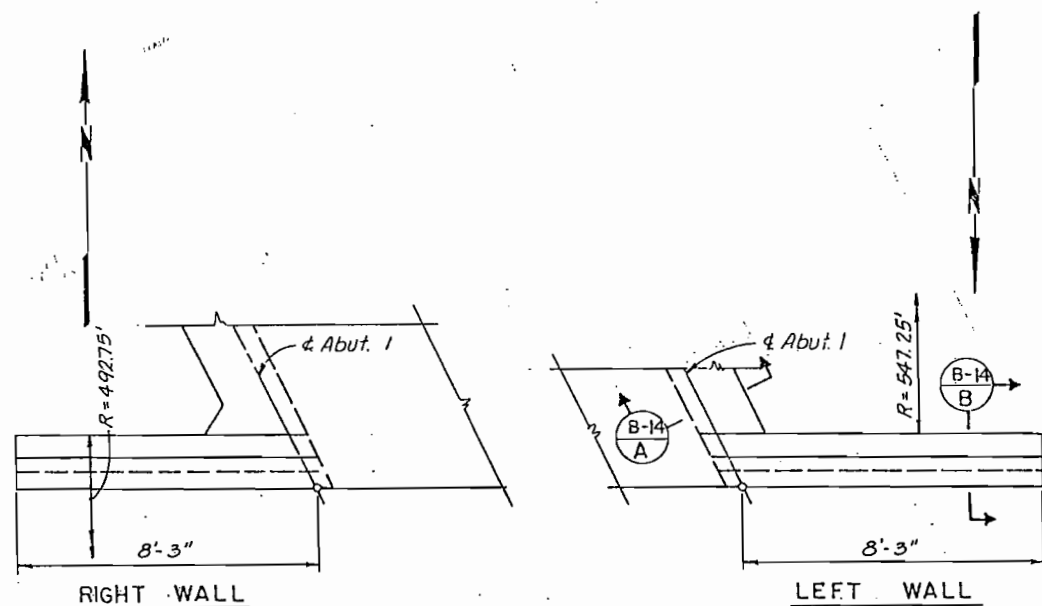
ABUTMENT 8 DETAILS

Designer J. Stapleton	Structure F-16-NK
Detailer V. Villao	Numbers F-16-OE
Drawing Number B-13	of 50 Drawings

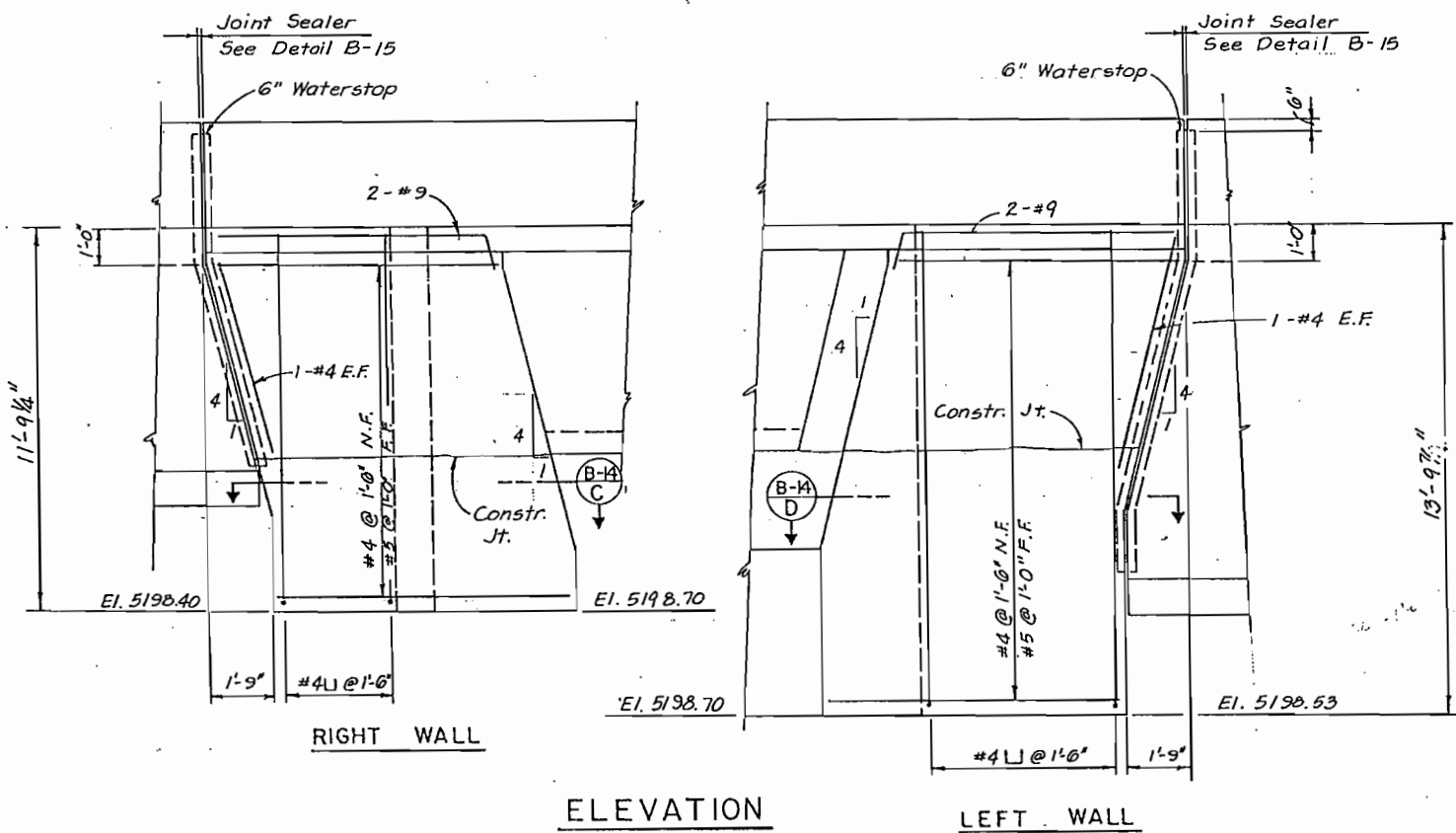
INITIAL	DATE	CHECKED BY	DATE
J.L.S.	9-85	J.L.S.	9-85
R.D.K.	6-85	R.M.H.	11-85
V.V.V.	8-85		

Revision Dates	(Preliminary Stages Only)

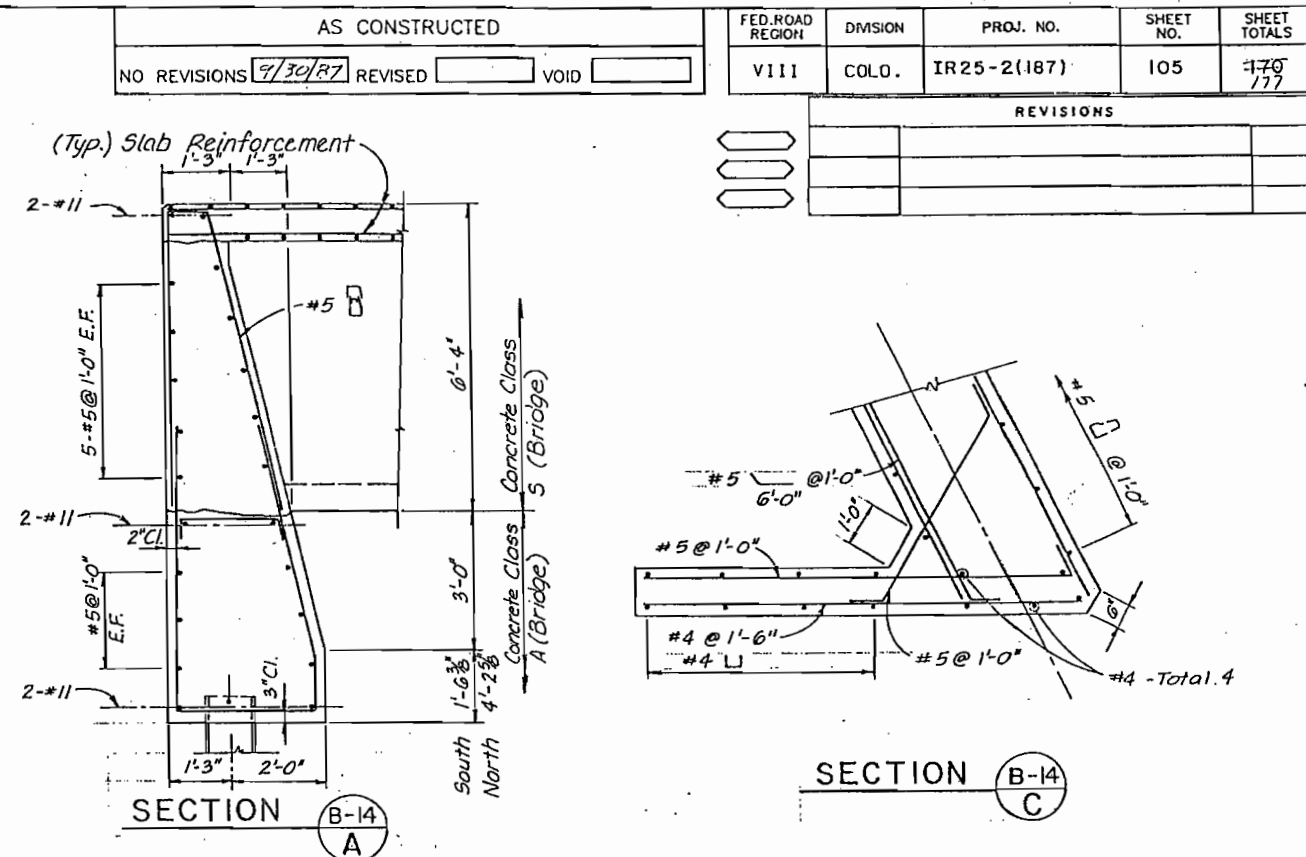
DESIGNED BY	J.L.S.	CHECKED BY	J.L.S.	DATE	9-85
CHECKED BY	R.M.H.	QUANTITY BY	R.M.H.	DATE	7-85
DETAILD BY	R.S.P.	DISCREP BY	R.S.P.	DATE	9-85



PLAN

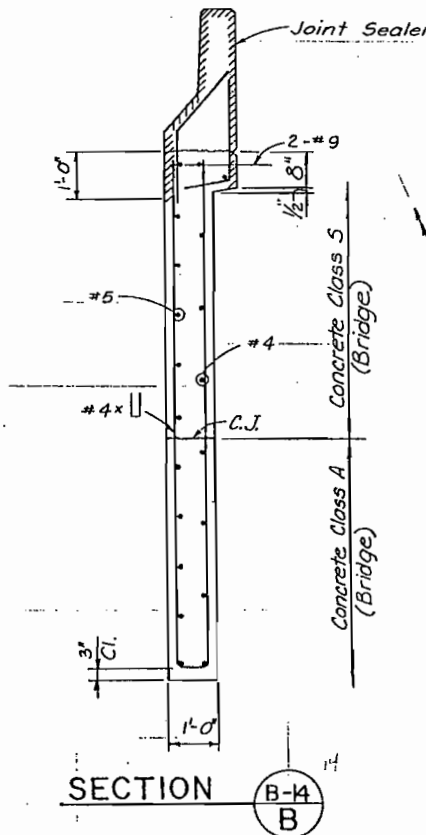


ELEVATION

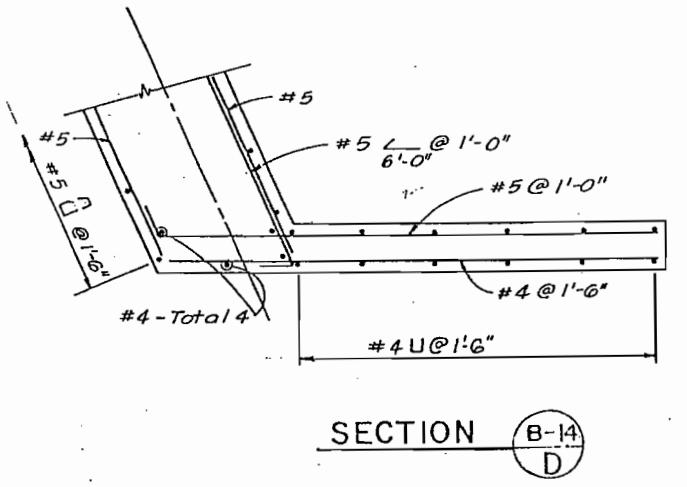


SECTION B-14 A

SECTION B-14 C



SECTION B-14 B



SECTION B-14 D

AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	7/30/87	VIII	COLO.	IR 25-2(187)	105	170 177

REVISIONS	

De Leuw, Cather & Company
 Denver, CO.

DIVISION OF HIGHWAYS

WINGWALL DETAILS

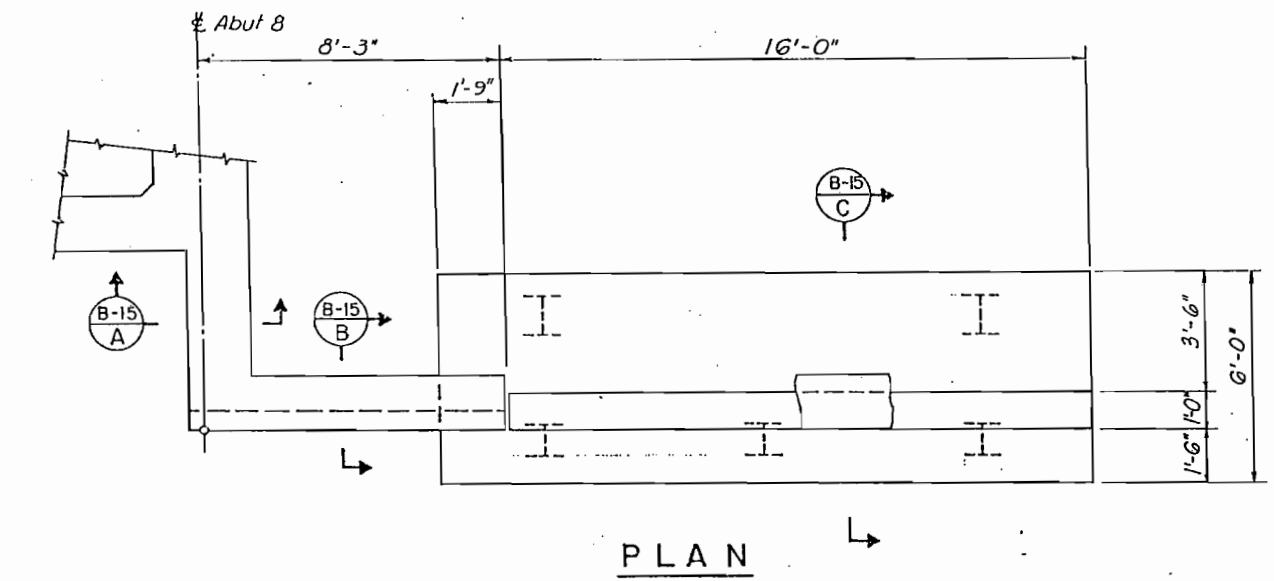
Designer	J. Stapleton	Structure	F-16-NK
Detailer	R. Penning	Numbers	
Drawing Number	B-14	of	50 Drawings

Revision Dates (Preliminary Stage Only)

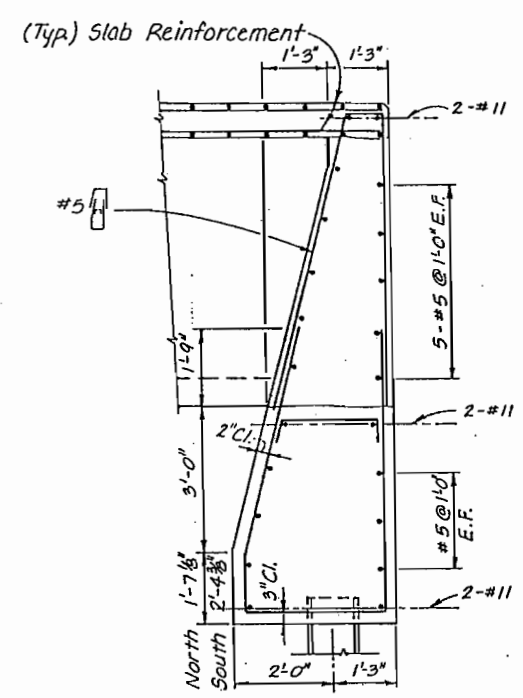
AS CONSTRUCTED
 NO REVISIONS 7/30/87 REVISED VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR25-2(187)	106	770/771

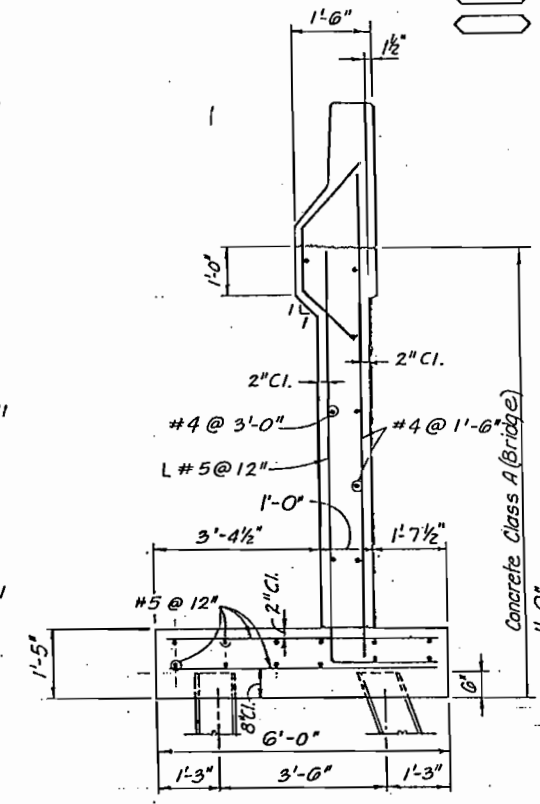
REVISIONS	



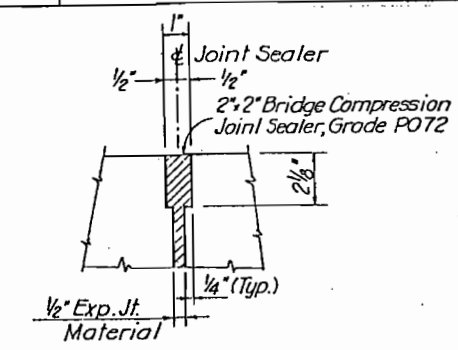
PLAN



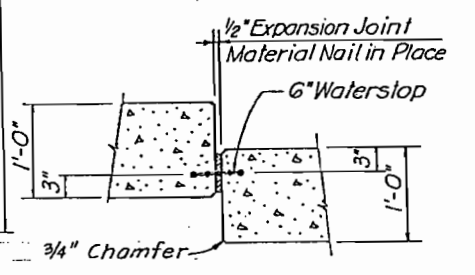
SECTION B-15 A



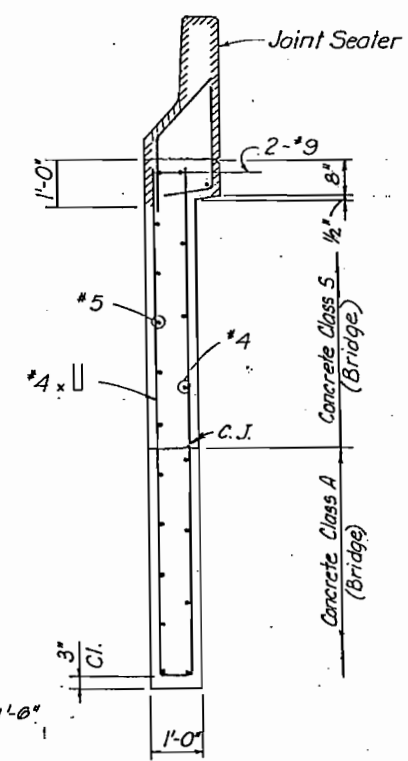
SECTION B-15 C



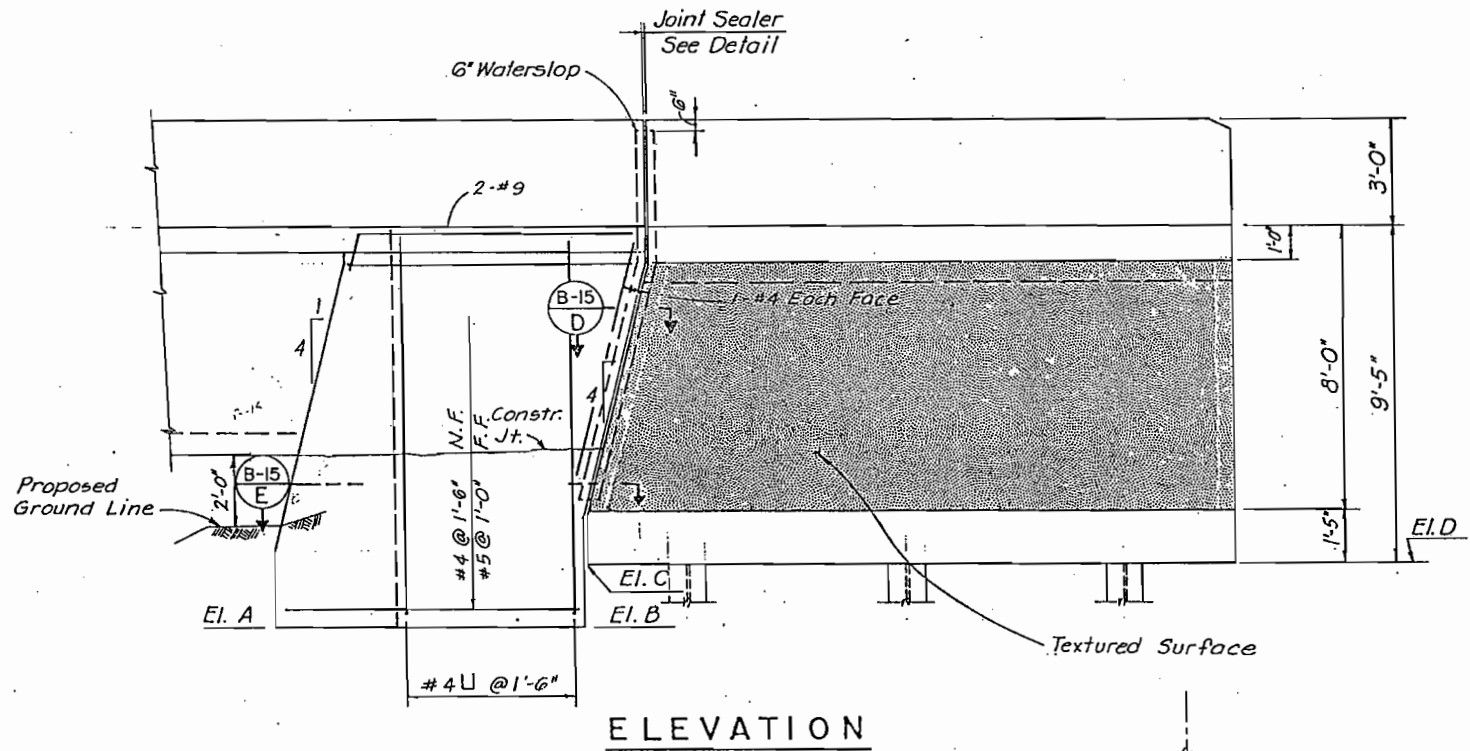
JT. SEALER DETAIL



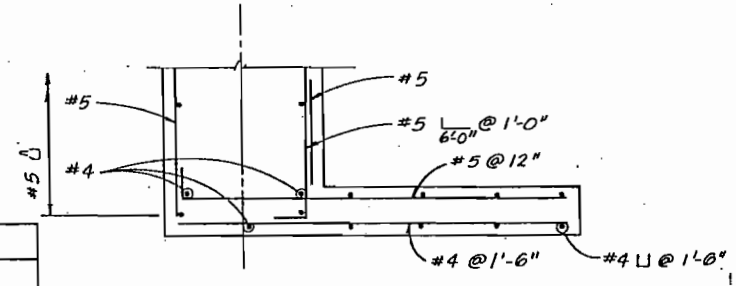
SECTION B-15 D



SECTION B-15 B



ELEVATION



SECTION B-15 E

LOCATION	ELEVATIONS			
	A	B	C	D
Abut. 8 North	5230.25	5230.27	5231.68	5231.85
Abut. 8 South	5230.25	5230.27	5232.63	5232.49

- NOTES:
- For Bridge Rail Type 4 Details see Dwg. No. B-46
 - Textured Surface Shall Conform to The Surface As Provided By Form Liner Large 3/4" Aggregate Texture By Greenstreak #348 Or Approved Equal. Textured Surface Shall Be Included in the Work For Class A Concrete.

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

WINGWALL AND RETAINING WALL DETAILS

Designer J. Stapleton	Structure F-16-OE
Detailer V. Villao, R. Panning	Numbers
Drawing Number B-15	of 50 Drawings

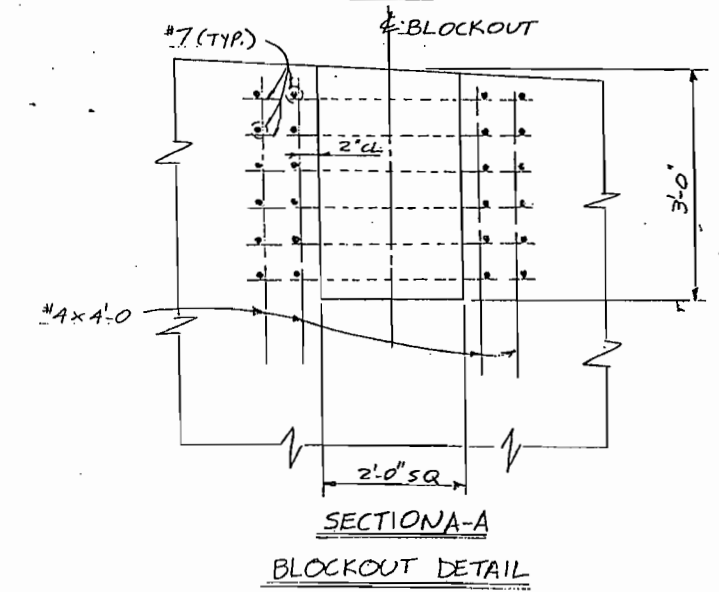
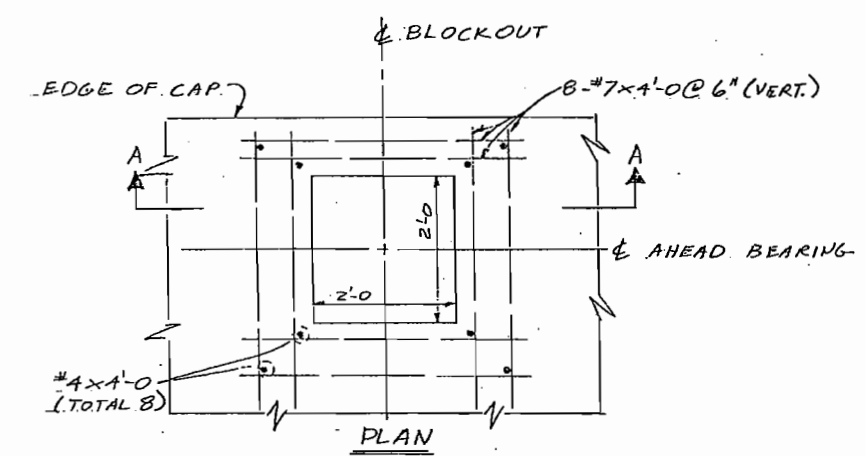
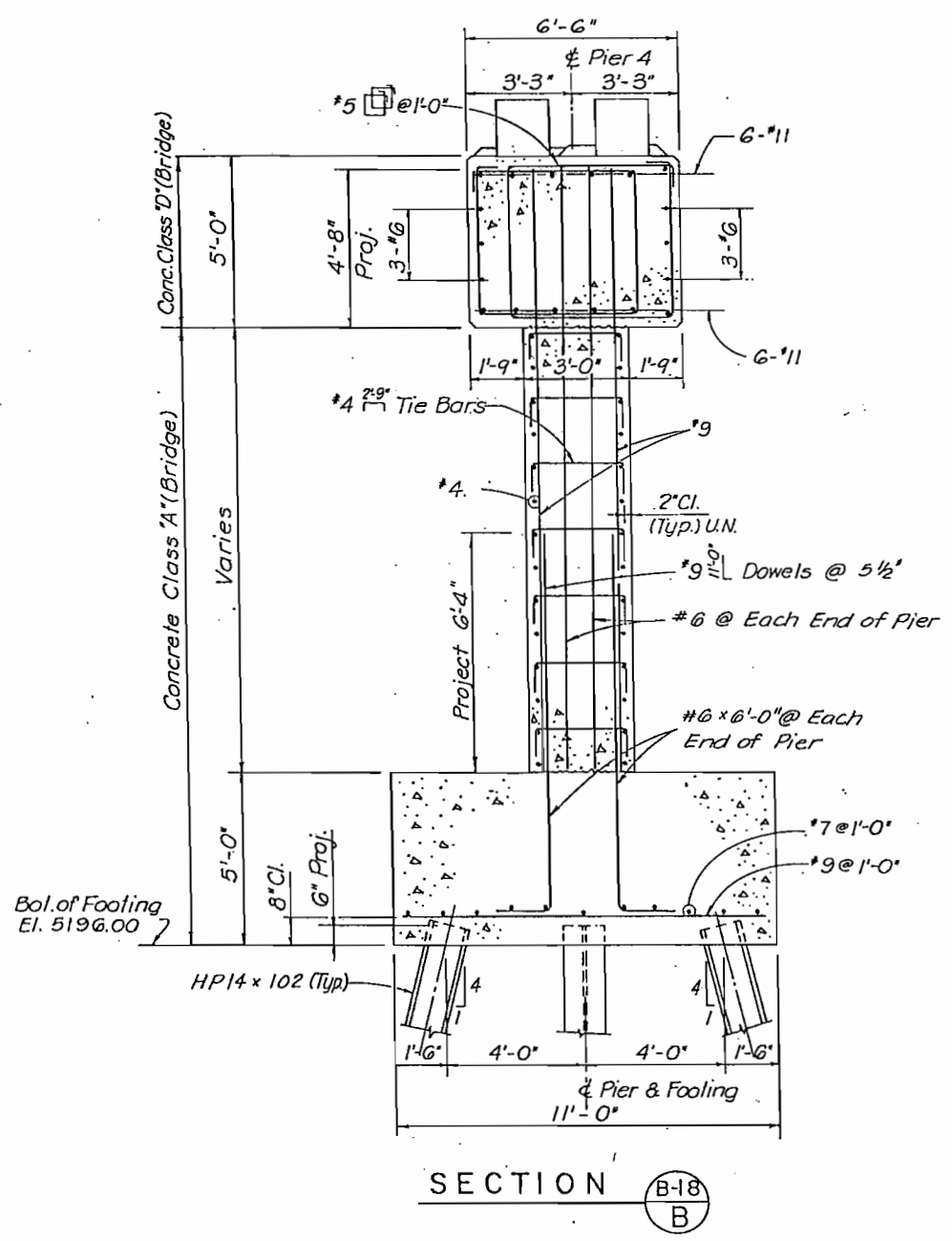
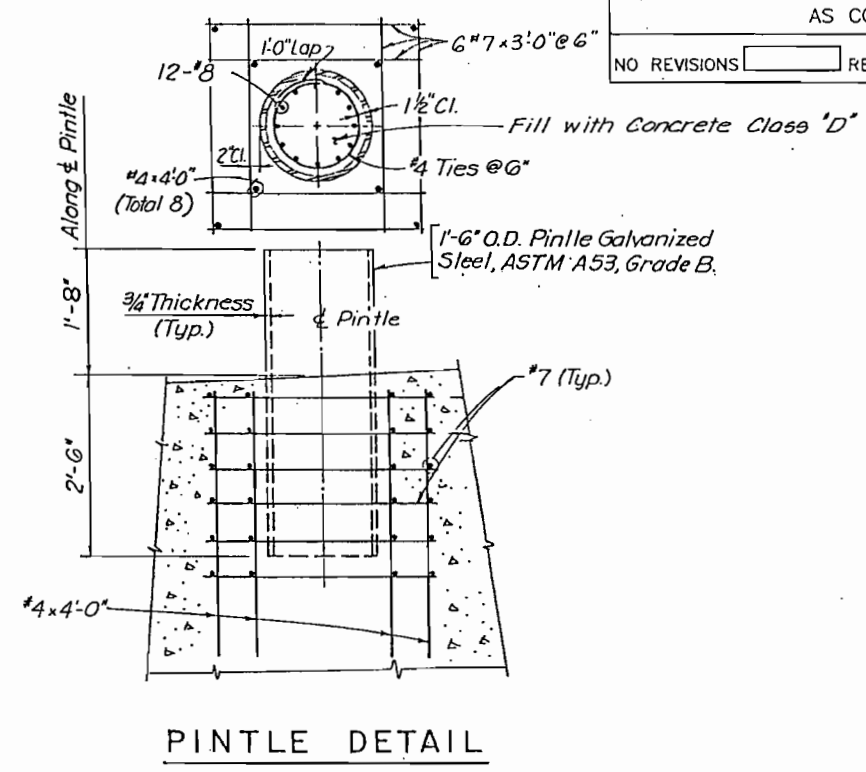
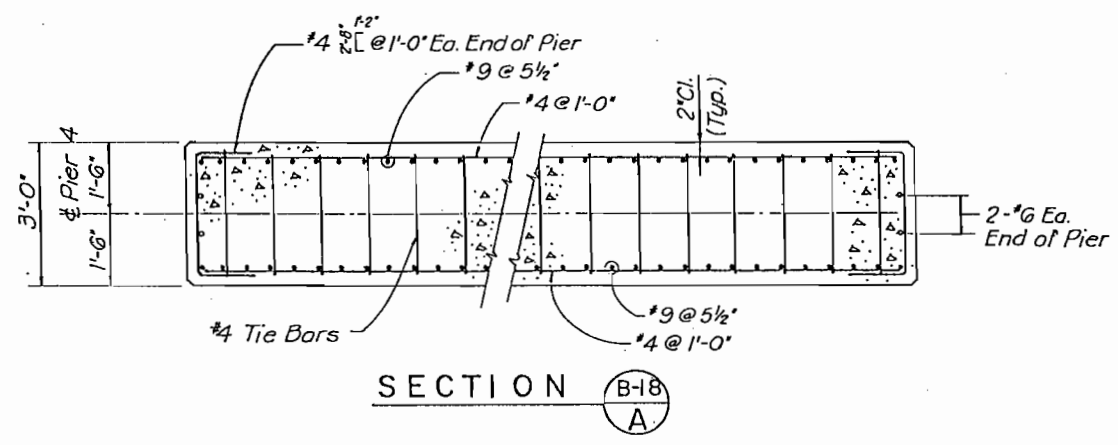
Revision Dates (Preliminary Stage Only)

INITIAL	DATE	CHECKED BY	QUANTITIES BY
J.L.S.	8-85	R.M.H.	11-85
J.L.S.	8-85	R.M.H.	11-85
DESIGNED BY	CHECKED BY	QUANTITIES BY	DRAWN BY
M.W.	R.S.	R.S.	C.S.

AS CONSTRUCTED
NO REVISIONS REVISED 7/30/87 VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR 25-2 (187)	110	177

REVISIONS	



INITIAL	DATE	CHECKED BY	DATE
J.L.S.	11-85	J.L.S.	11-85
R.O.K.	1-86	R.M.H.	11-85
V.V.V.	1-85	P.K.	12-85

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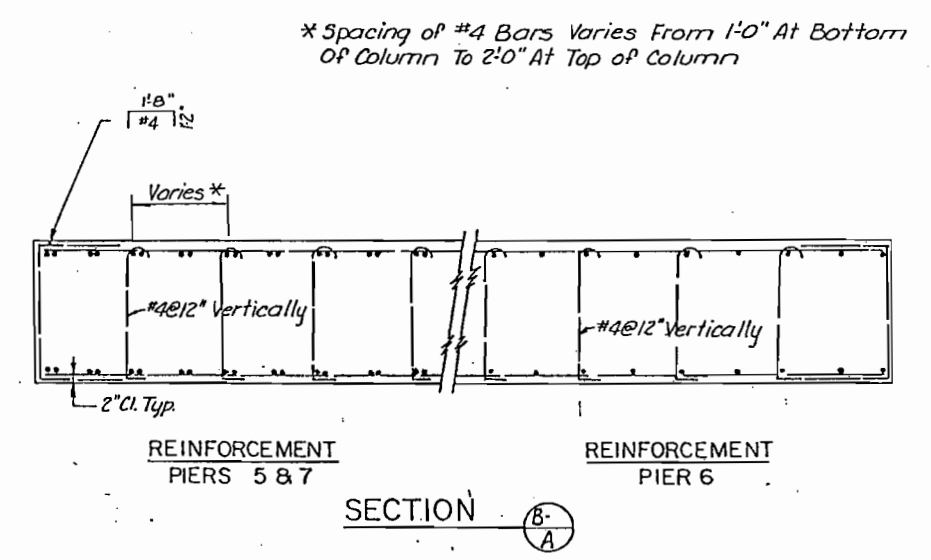
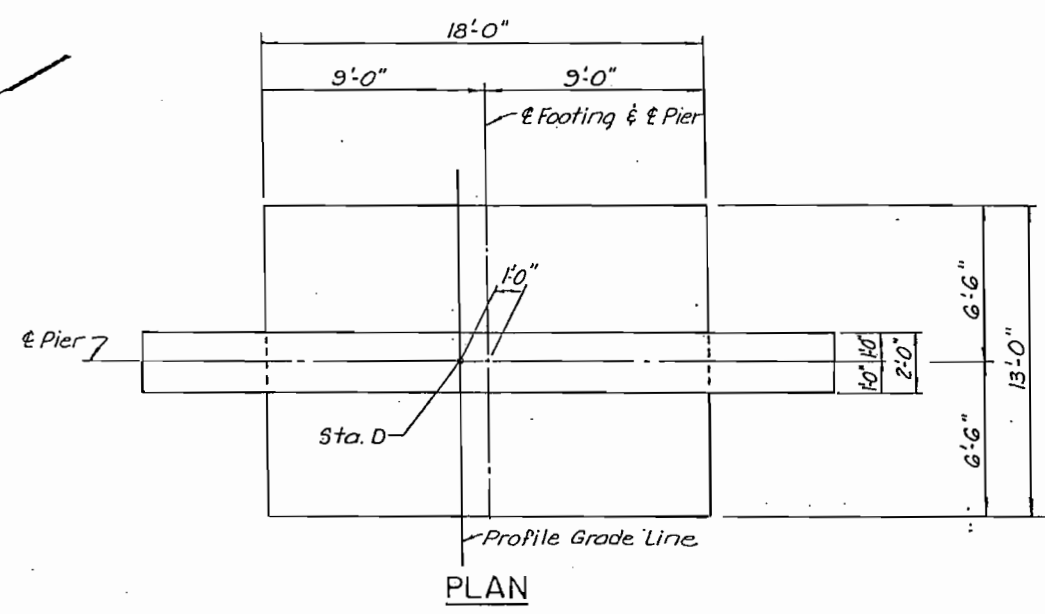
DIVISION OF HIGHWAYS

PIER 4 SECTIONS

Designer <i>J. Stapleton</i>	Structure Numbers	F-16-NK
Detailer <i>V. Villao</i>		
Drawing Number <i>B-19</i>		of 50 Drawings

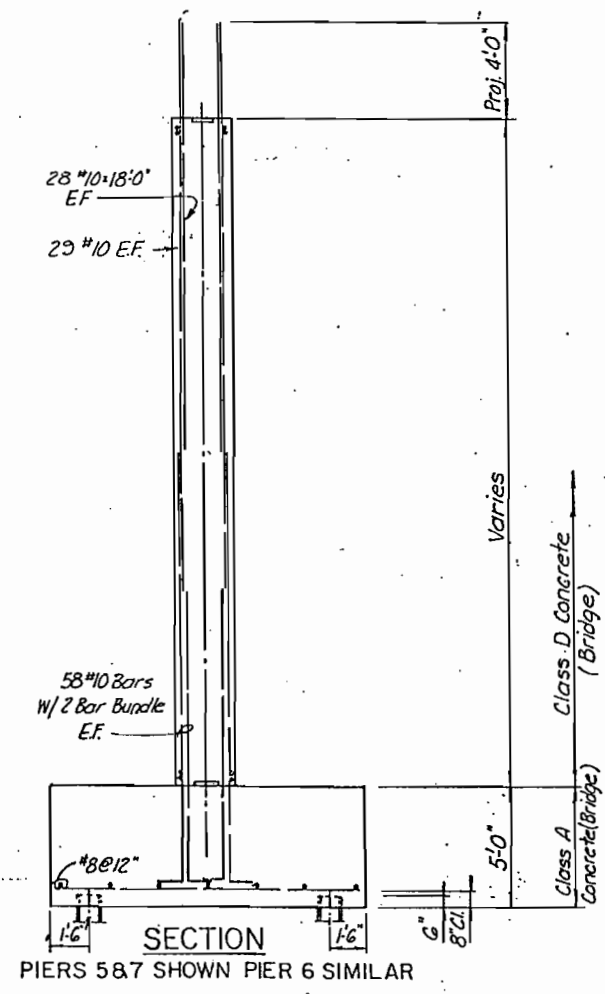
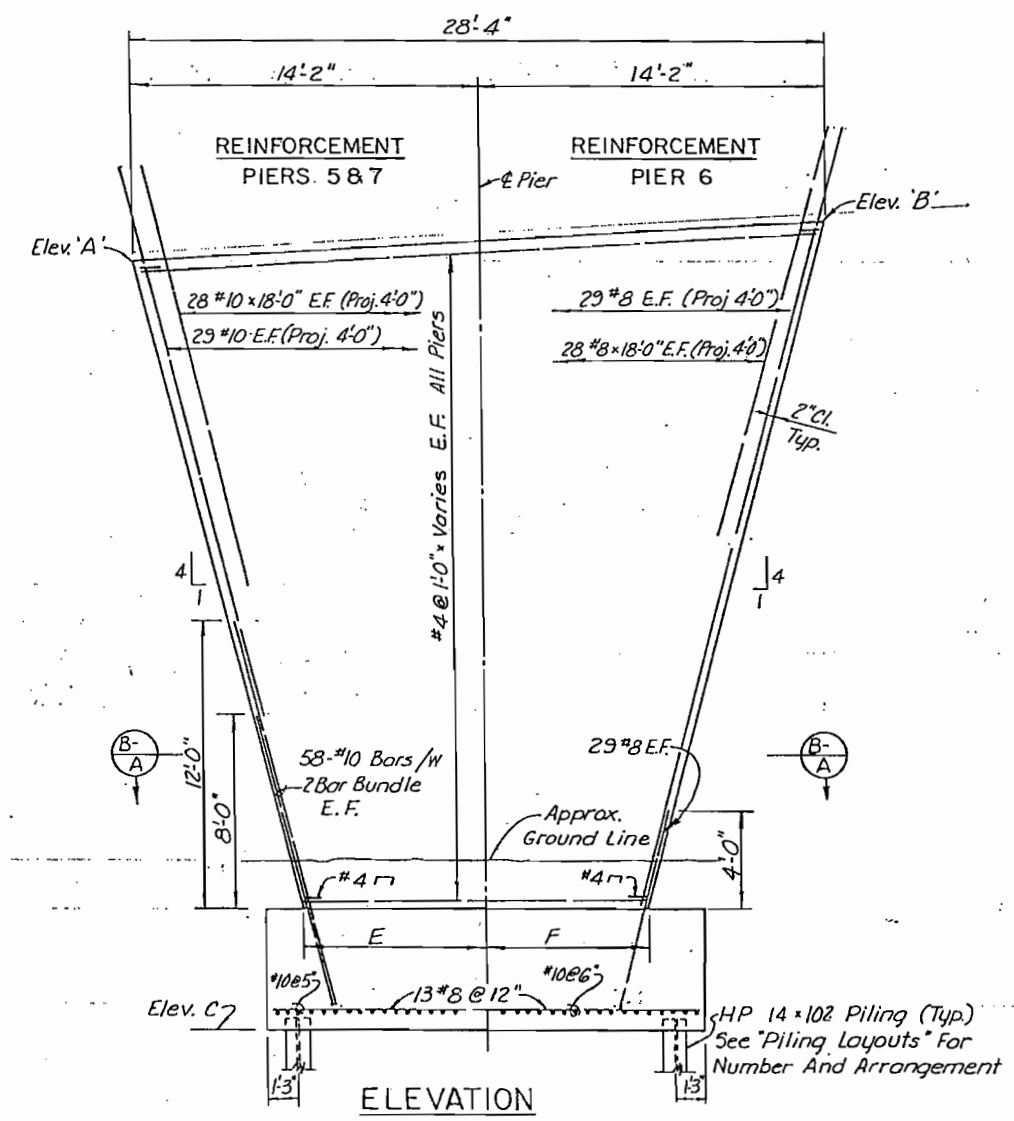
Revision Dates (Preliminary Stage Only)

AS CONSTRUCTED		FED. ROAD REGION	DMSION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	7/20/87	REVISED	VOID	VIII	COLO.	IR 25-2(187)
REVISIONS						



* Spacing of #4 Bars Varies From 1'-0" At Bottom Of Column To 2'-0" At Top of Column

INITIAL	DESIGNED BY	CHECKED BY	QUANTITIES BY	CHECKED BY
R.D.K.	R.D.K.	R.D.K.	R.M.H.	R.M.H.
9-85	9-85	9-85	9-85	11-85



PIER	ELEV. A	ELEV. B	ELEV. C	STA. D	E	F
5	5225.82	5226.61	5194.00	711+63.11	7'-5 1/2"	7'-3 1/4"
6	5230.42	5232.12	5199.00	713+13.11	7'-6 3/4"	7'-1 3/4"
7	5233.44	5235.14	5201.00	714+63.11	7'-3 3/4"	6'-10 1/2"

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 Denver, CO.

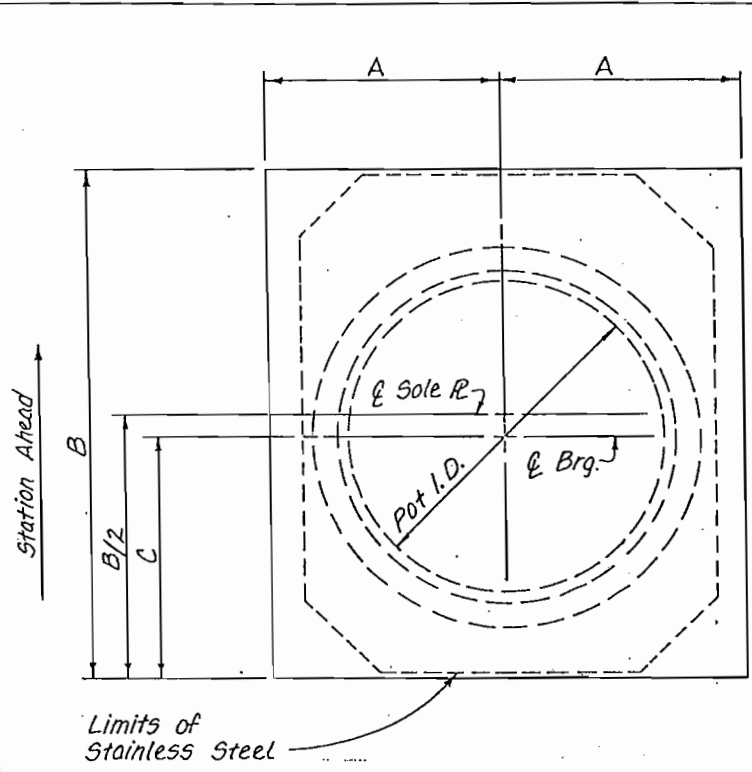
DIVISION OF HIGHWAYS

**PIER DETAILS
 PIERS 5,6 & 7**

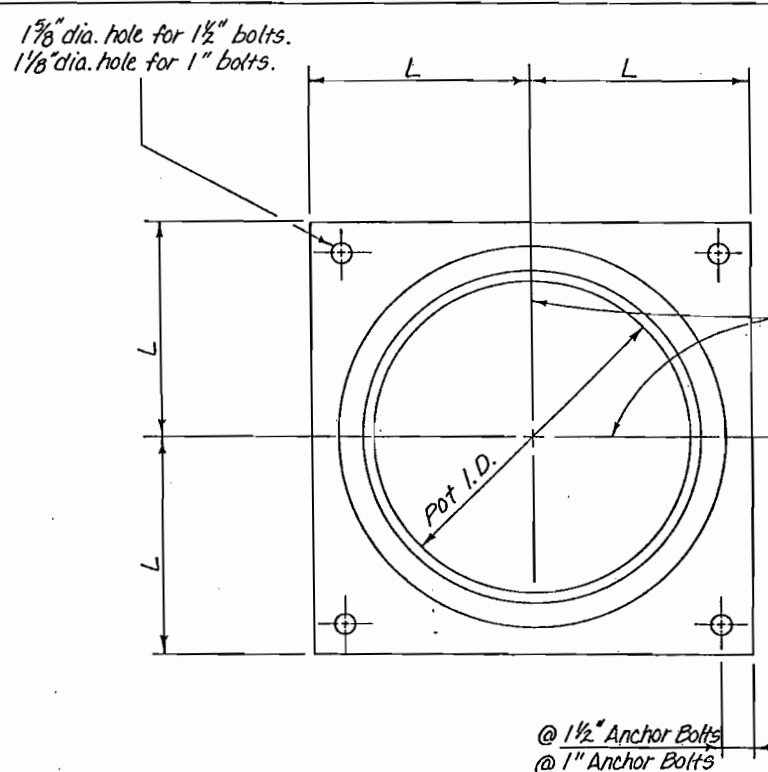
Designer	R. Koester	Structure	F-16-OE
Detailer	R. Hinshaw	Numbers	
Drawing Number B-20		of 50 Drawings	

Revision Dates	(Preliminary Stage Only)

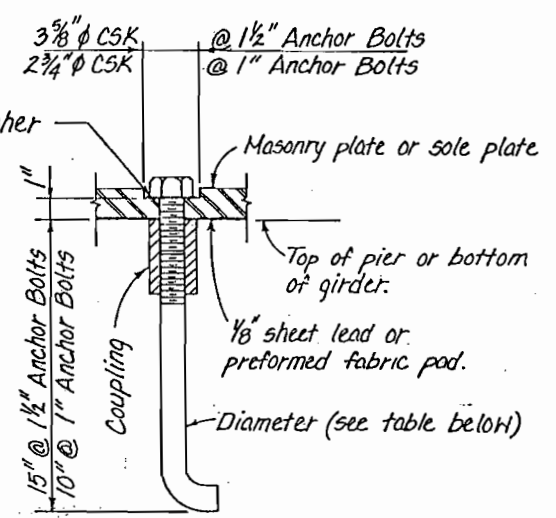
AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	9/30/87	REVISED	VOID	VIII	COLO.	IR 25-2(187)
REVISIONS						



SOLE PLATE DETAIL



MASONRY PLATE DETAIL



ANCHOR BOLT DETAIL

NOTES

ALL STRUCTURAL STEEL FOR THE BEARING DEVICES, INCLUDING SOLE PLATES AND MASONRY PLATES, SHALL BE AASHTO M-183 (ASTM A-36).

THE BEARING DEVICE SHALL BE SECURED TO THE SUPPORT WITH THE USE OF AN ANCHORAGE SYSTEM WHICH ALLOWS FOR FUTURE REPLACEMENT OF THE BEARINGS WITHOUT JACKING THE SUPERSTRUCTURE MORE THAN 1/4". AN ALTERNATE BEARING AND ANCHORAGE SYSTEM MAY BE SUBSTITUTED UPON APPROVAL BY THE ENGINEER.

THE BEARING HEIGHTS (H) SHOWN ARE THE MINIMUM REQUIRED. PIER SEAT ELEVATIONS SHALL BE ADJUSTED FOR THE BEARINGS PROVIDED. MASONRY AND SOLE PLATE THICKNESS (T AND D) MUST BE CHECKED IF THE PLATE SIZES AND POT DIMENSIONS ARE DIFFERENT FROM THOSE GIVEN IN THE TABLE.

THE BEARING DEVICE SHALL BE POSITIONED SYMMETRICALLY ABOUT THE TRANSVERSE AND LONGITUDINAL CENTERLINE OF BEARING. THE CENTERLINE OF SOLE PLATE SHALL BE OFFSET FROM THE CENTERLINE OF BEARING AS SHOWN ON THE PLAN. THE MINIMUM CLEARANCE FROM THE OUTSIDE EDGE OF THE BEARING DEVICE, ON THE CONCRETE SURFACE, TO THE EDGE OF CONCRETE PIER SHALL BE 3".

THE ALLOWABLE BEARING STRESS ON CONCRETE SURFACES SHALL BE EQUAL TO 0.3 f'c (f'c = THE STRENGTH OF THE LOADED CONCRETE SURFACE), UNLESS MODIFIED BY BEARING DATA TABLE.

THE LONGITUDINAL MOVEMENT GIVEN IN THE BEARING DATA TABLE IS BASED ON A TOTAL TEMPERATURE CHANGE OF 90°F (45°F RISE AND 45°F DROP FROM A MEAN TEMPERATURE OF 40°F) AND EFFECTS DUE TO PRESTRESS, SHRINKAGE, AND CREEP. THE BEARING DEVICE SHALL HAVE A MINIMUM OF 2 INCHES ADDITIONAL MOVEMENT CAPACITY EACH WAY FROM CENTERLINE BEARING.

PERMANENT INDEX MARKS SHALL BE PLACED ON THE SIDE OF THE BEARING SO THAT THE TOP PLATE MAY BE POSITIONED IN CORRECT RELATION TO THE CENTERLINE BASE POT FOR THE TEMPERATURE AT THE TIME THE GIRDERS ARE PLACED. DIMENSION (C) IS FROM THE BACK STATION END OF THE SOLE PLATE TO THE CENTERLINE BASE POT AT 40°F.

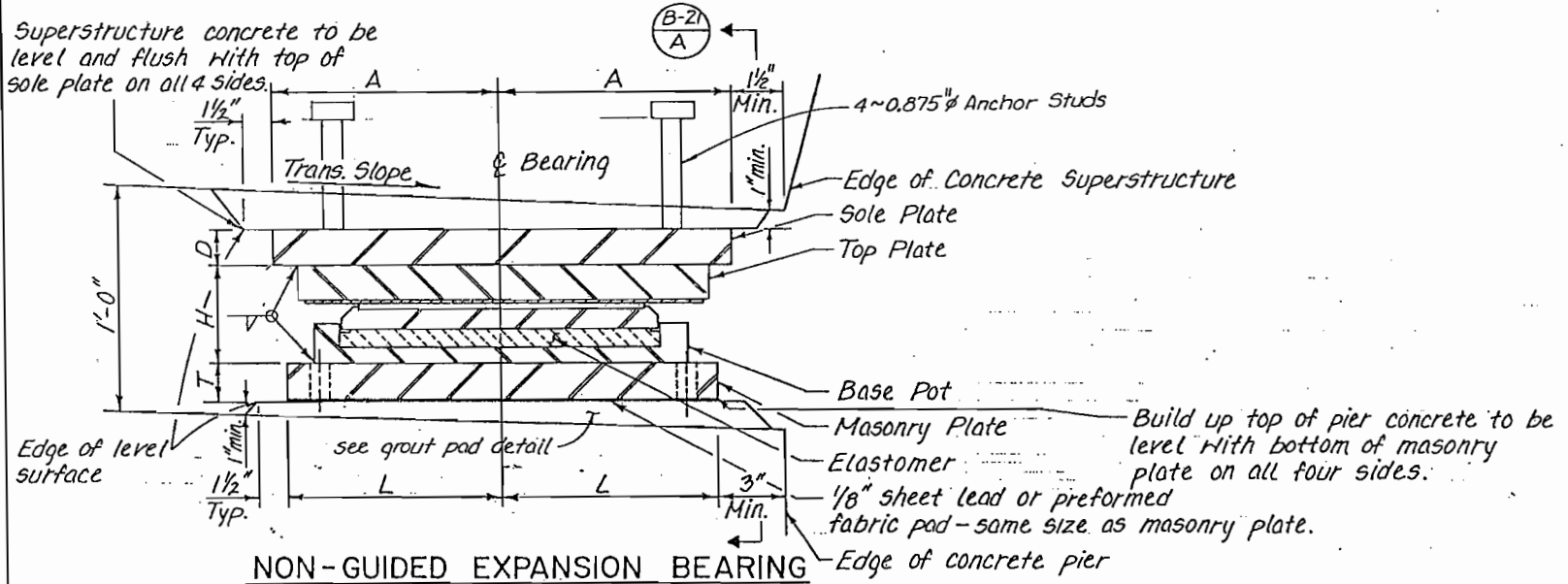
SEE PIER DETAILS FOR BEARING LOCATIONS.

DIMENSION (C) VARIES TO COMPENSATE FOR GIRDER MOVEMENT DUE TO SHRINKAGE, CREEP, AND ELASTIC SHORTENING.

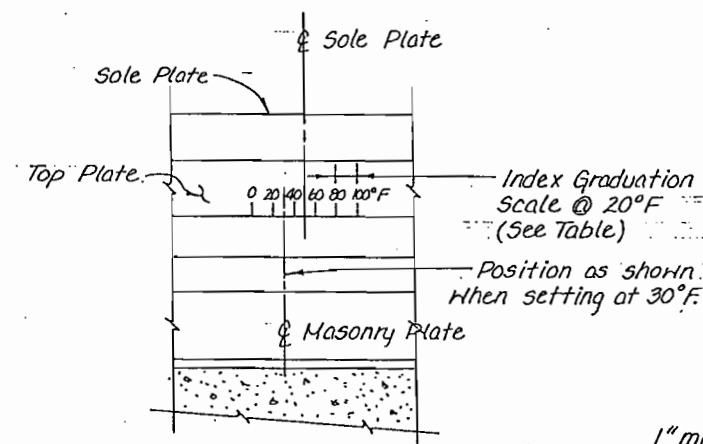
ALL SURFACES OF STRUCTURAL STEEL COMPONENTS NOT CONNECTED TO STAINLESS STEEL OR TFE SHALL BE COMPLETELY ZINC METALIZED IN ACCORDANCE WITH AMERICAN WELDING SOCIETY DESIGNATION AWS C.2.2, LATEST ISSUE, TO A MINIMUM THICKNESS OF EIGHT MILS ON EXPOSED SURFACES AND THREE MILS ON PROTECTED SURFACES. A HOT-GALVANIZING PROCESS IN ACCORDANCE WITH AASHTO M-111 MAY BE SUBSTITUTED FOR THE ZINC METALIZING.

ALL MATERIALS AND LABOR REQUIRED FOR COMPLETION OF THIS WORK, INCLUDING SOLE PLATES, MASONRY PLATES, AND ALL ANCHORAGE HARDWARE SHALL BE INCLUDED IN ITEM NO. 512 BEARING DEVICE (TYPE III).

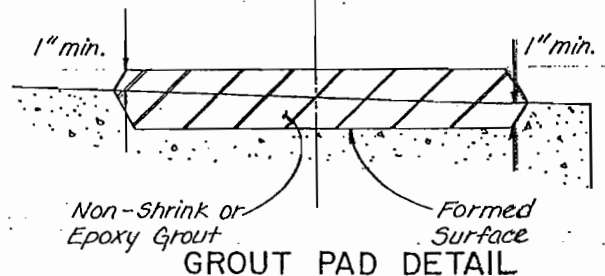
DESIGNED BY	J.L.S.	9-85
CHECKED BY	J.L.S.	9-85
QUANTITIES BY	R.M.H.	7-85
DETAILS BY	S.Y.S.	9-85



NON-GUIDED EXPANSION BEARING



SECTION (B-2) A



GROUT PAD DETAIL

BEARING LOCATION	NO. REQ'D	DIMENSIONS (INCHES)							MOVEMENT AT ±45°	INDEX GRADUATION @ 20°F	ROTATION	VERTICAL LOAD		CONCRETE BEARING STRESS (ALLOWABLE)	ANCHOR BOLTS
		A	B	C	D	H	L	T				MIN. (KIPS)	MAX. (KIPS)		
Pier 2 Left	1	16.50	37.00	22.58	1 3/4	3.42	15.00	1 1/2	4.85"	0.34"	<1°	564.9	938.5	1,950 p.s.i.	4~1"φ
Pier 2 Center	1	19.50	43.00	25.58	1 3/4	4.30	18.00	1 1/2	4.85"	0.34"	<1°	1013.7	1650.5	1,600 p.s.i.	4~1 1/2"φ
Pier 2 Right	1	16.50	37.00	22.58	1 3/4	3.42	15.00	1 1/2	4.85"	0.34"	<1°	575.2	973.4	1,950 p.s.i.	4~1"φ
North Pier 4, Back Left	1	10.00	23.50	10.50	1 1/2	3.12	12.00	1 1/4	4.04"	0.28"	<1°	378.3	582.9	1,350 p.s.i.	4~1"φ
North Pier 4, Back Right	1	11.00	25.00	12.00	1 1/2	3.33	14.00	1 1/4	4.04"	0.28"	<1°	513.2	789.5	1,350 p.s.i.	4~1"φ
South Pier 4, Back Left	1	10.00	23.50	10.50	1 1/2	2.78	12.00	1 1/4	4.06"	0.28"	<1°	332.5	505.5	1,350 p.s.i.	4~1"φ
South Pier 4, Back Right	1	10.00	23.50	10.50	1 1/2	2.78	12.00	1 1/4	4.06"	0.28"	<1°	318.9	498.3	1,350 p.s.i.	4~1"φ
South Pier 4, Ahead Left	1	10.00	23.50	12.50	1 1/2	3.12	12.00	1 1/4	3.86"	0.37"	<1°	382.0	542.6	1,350 p.s.i.	4~1"φ
South Pier 4, Ahead Right	1	10.00	23.50	12.50	1 1/2	3.23	13.00	1 1/4	3.86"	0.37"	<1°	466.8	646.1	1,350 p.s.i.	4~1"φ

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

BEARING DETAILS (TYPE III)

Designer J. Stapleton Structure F-16-NK
 Detailer S. Shibusawa Numbers F-16-OE
 Drawing Number B-21 of 50 Drawings

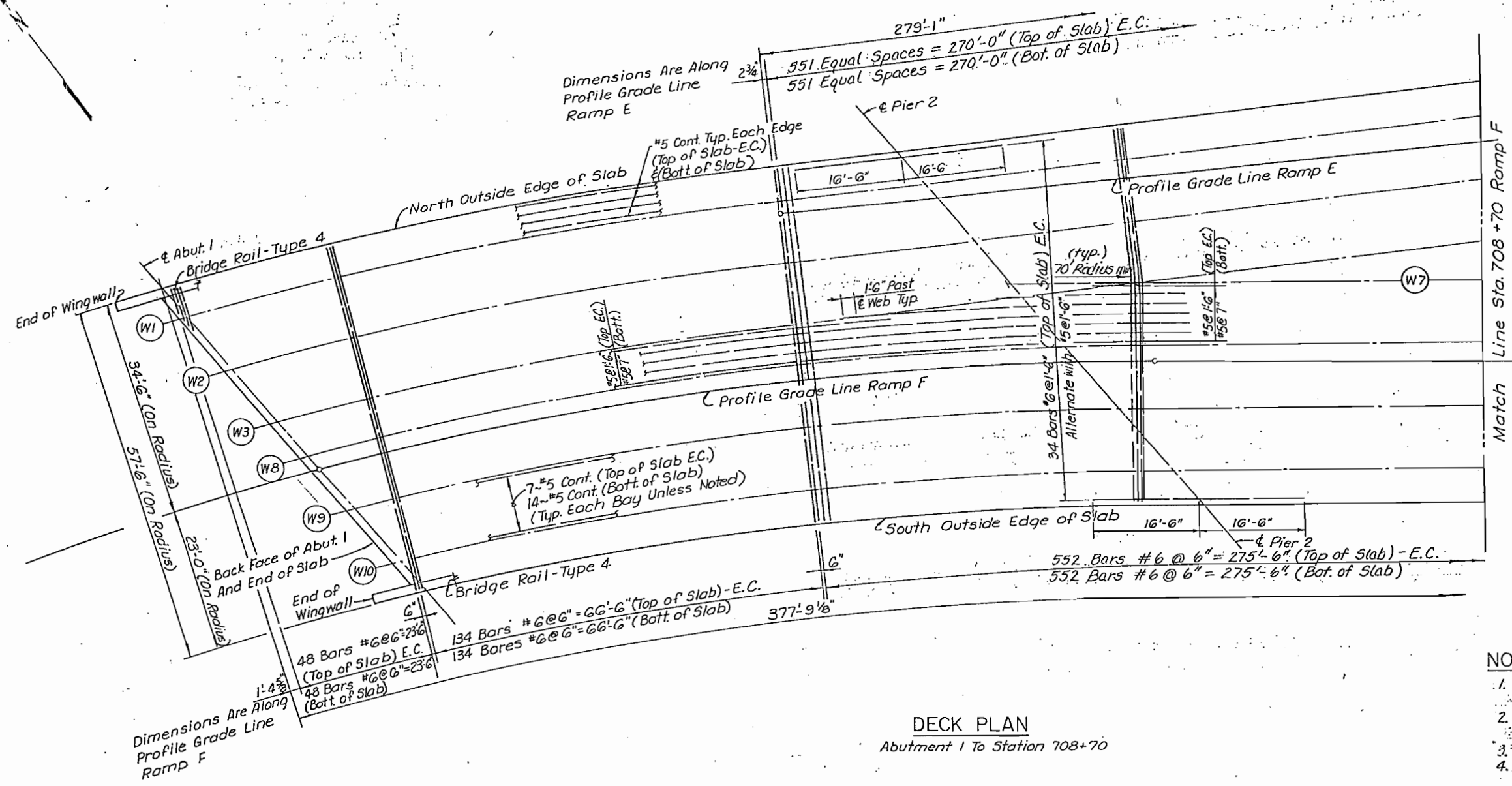
Revision	Date	(Preliminary Stage Only)

AS CONSTRUCTED
 NO REVISIONS 9/30/87 REVISED VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	1R25-2(187)	113	177

REVISIONS	

DESIGNED BY	DATE	CHECKED BY	DATE
J.L.S.	9-85	J.L.S.	9-85
CHECKED BY	DATE	DESIGNED BY	DATE
R.M.H.	11-85	R.M.H.	11-85
DESIGNED BY	DATE	CHECKED BY	DATE
R.M.H.	9-85	R.M.H.	9-85



DECK PLAN
 Abutment 1 To Station 708+70

- NOTES:
1. Number and Location of Lap Splices shall be approved by the Engineer.
 2. Lap Splices shall be staggered at Least 2'-0" Minimum.
 3. Top Slab Reinforcing is shown and Noted.
 4. Bottom Slab Reinforcing to be Placed in a similar manner.
 5. E.C. = Epoxy Coated.
 6. All Transverse Slab Reinforcing Shall be placed Perpendicular to Centerline Girder Webs as Shown.

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

DECK PLAN
 UNIT ①

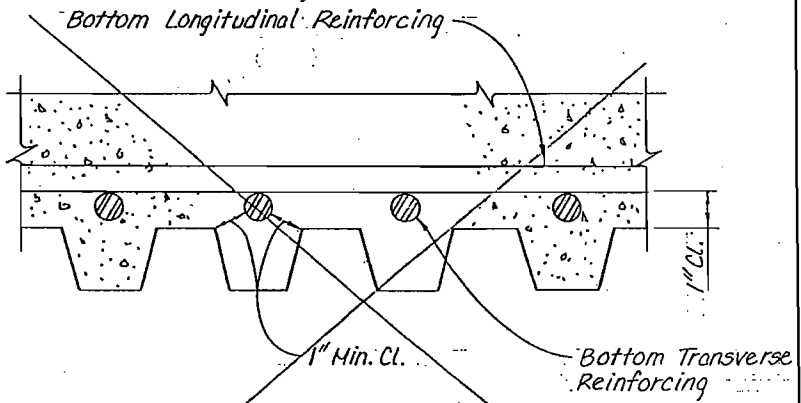
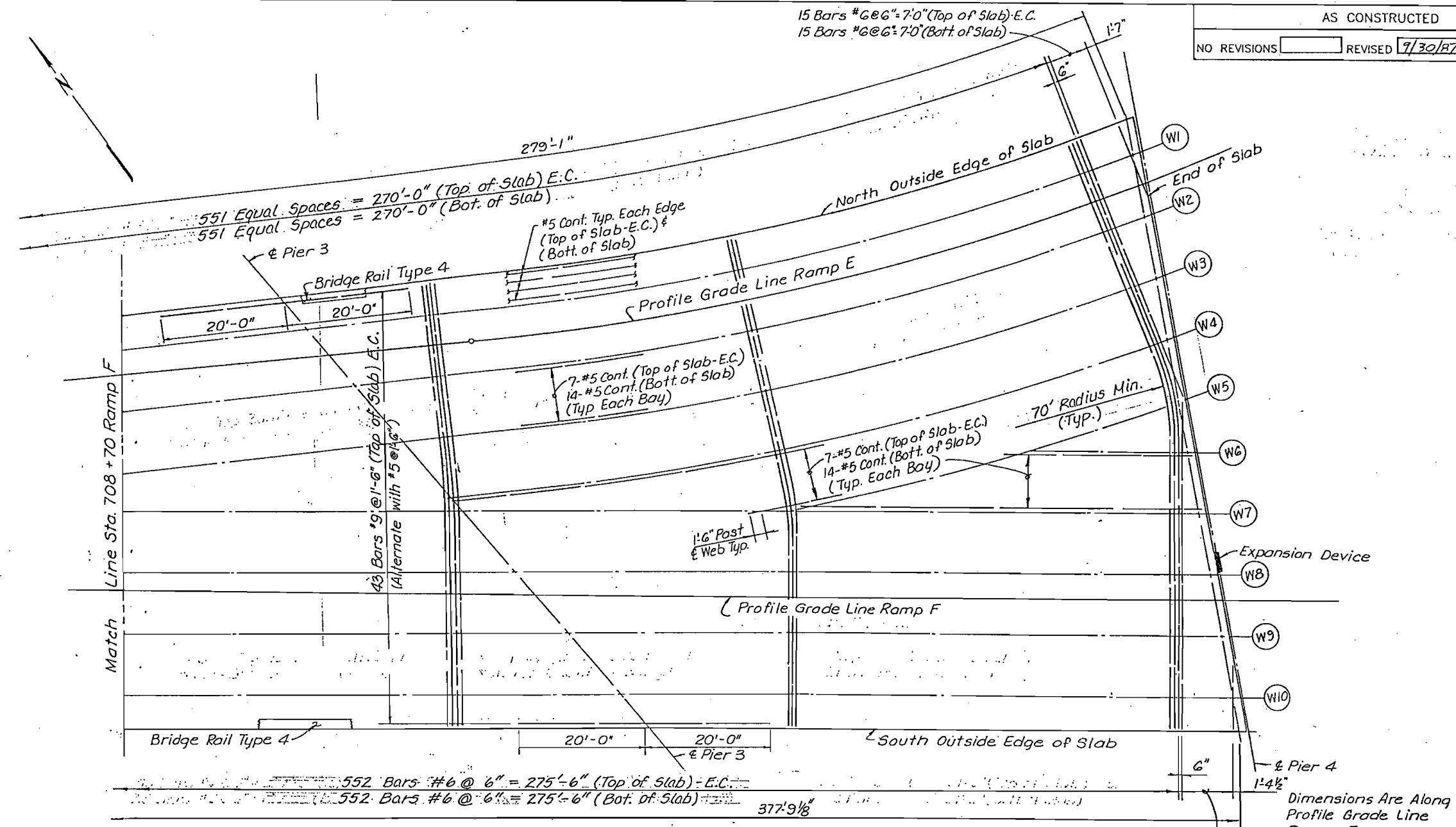
Designer J. Stapleton	Structure Numbers	F-16-NK
Drawing Number B-22 of 50 Drawings		
Revision Dates (Preliminary Stages Only)		

AS CONSTRUCTED
NO REVISIONS REVISED 7/30/87 VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR25-2(187)	114	179

REVISIONS	

INITIAL	DATE	CHECKED BY	DATE	QUANTITIES BY	DATE
J.L.S.	9-85	J.L.S.	9-85	R.M.H.	11-85
R.M.H.	9-85	R.M.H.	9-85	R.M.H.	9-85



OPTIONAL-STAY-IN-PLACE-FORM DETAIL
Deck may be formed using permanent steel bridge deck forms. Form flutes and transverse slab reinforcing shall be placed perpendicular to the girders, see special provisions.

- NOTES:**
- Number and Location of Lap Splices Shall be Approved by the Engineer.
 - Lap Splices Shall be Staggered at Least 2'-0" Minimum.
 - Top Slab Reinforcing is Shown and Noted.
 - Bottom Slab Reinforcing to be Placed in a Similar manner.
 - E.C. = Epoxy Coated.
 - All Transverse Slab Reinforcing Shall be Placed Perpendicular to Centerline Girder Webs as Shown.

DECK PLAN
Station 708+70 To Pier 4

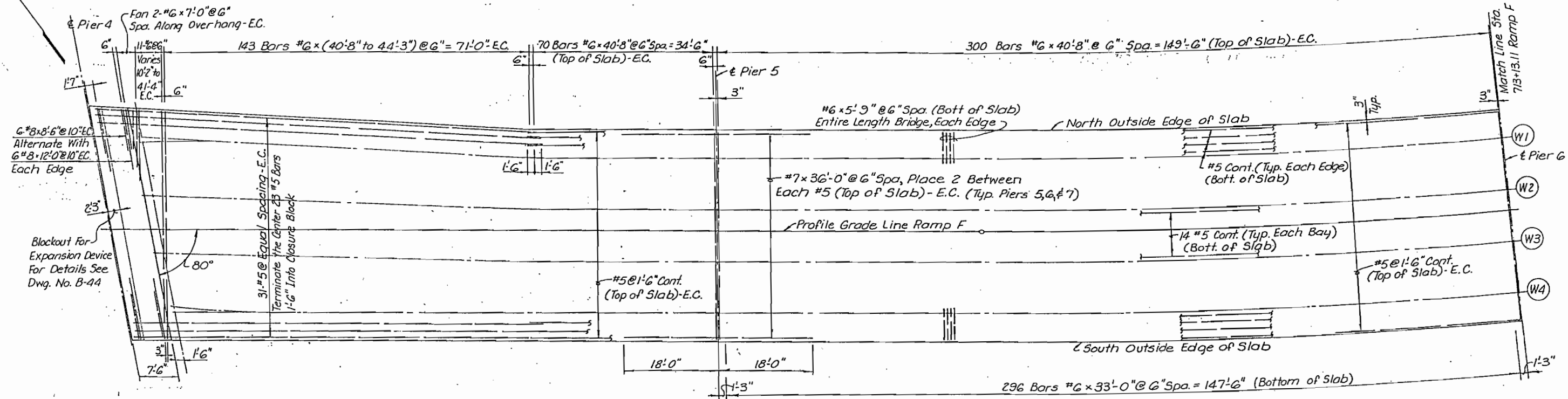
Dimensions Are Along Profile Grade Line Ramp F
Back Brg. Pier 4 (Back Station Diaphragm)

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS		
DECK PLAN UNIT ①		
Designer J. Stapleton	Structure Numbers	F-16-NK
Detailer R. Hinshah, S. Shitoo	Numbers	F-16-OE
Drawing Number B-23		of 50 Drawings

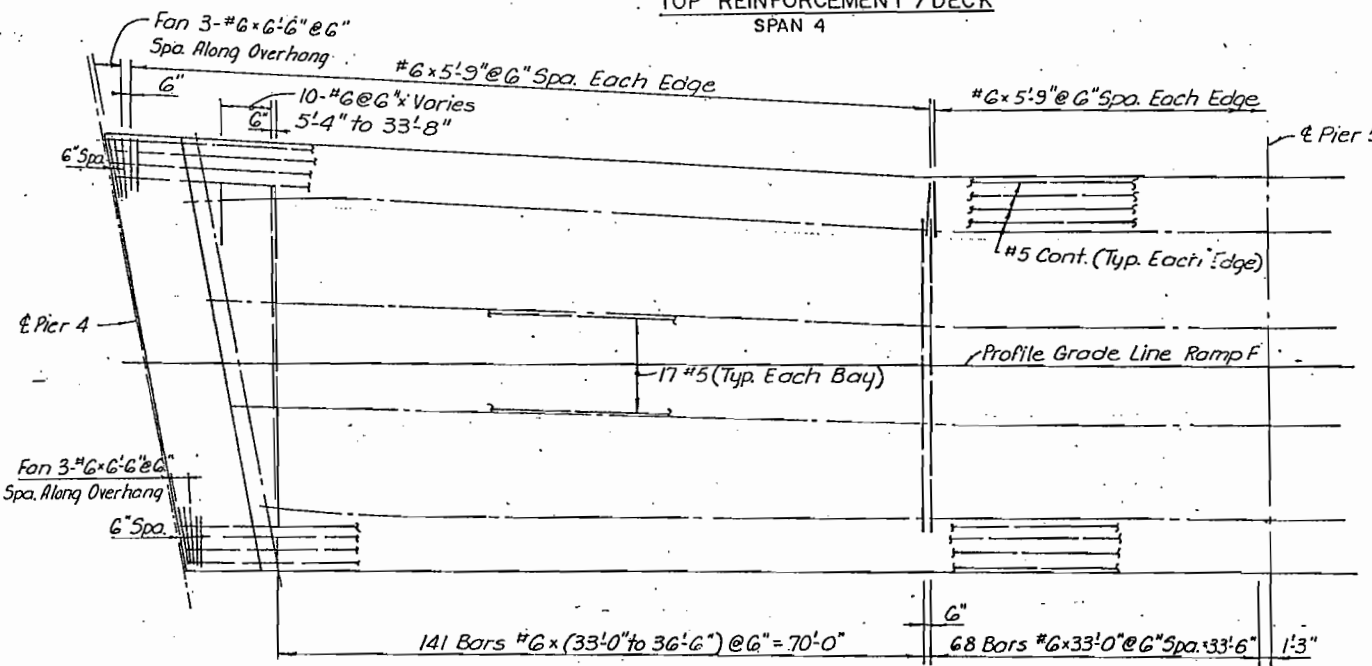
Revision	Date	(Preliminary Stage Only)

REVISIONS		AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	7/30/87	REVISED	VOID	VIII.	COLO.	IR25-2(187)	115	779



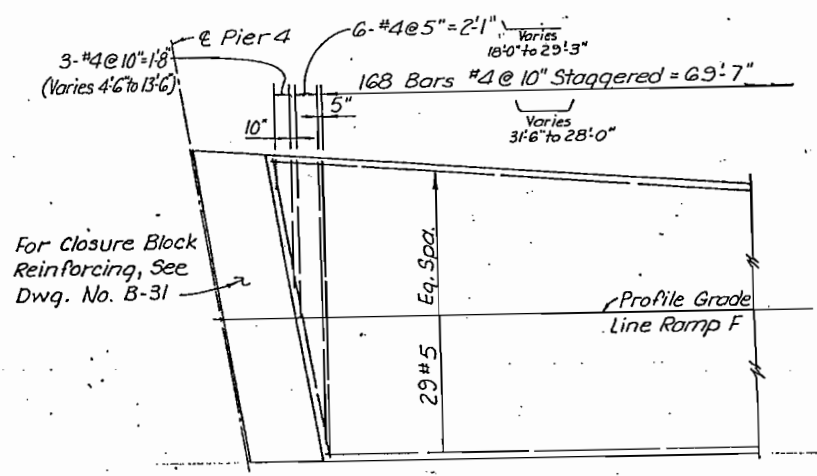
DATE	INITIAL	CHECKED BY
9-85	M.R.M.	9-85
11-85	R.M.H.	11-85
2-85	R.M.H.	2-85

TOP REINFORCEMENT / DECK
SPAN 4



BOTTOM REINFORCEMENT / DECK
SPAN 4

TOP & BOTT. REINFORCEMENT / DECK



BOTTOM SLAB AT CLOSURE BLOCK
NEAR PIER 4

- NOTES:
1. All Transverse Slab Reinforcing Shall Be Placed Radially And Dimensioned Along Profile Grade Line.
 2. E.C. = Epoxy Coated
 3. See Dwg No. B-28 For Spacing of Longitudinal Reinforcing.

De Leuw, Cather & Company
 DIVISION OF HIGHWAYS
 DECK PLAN
 UNIT ②

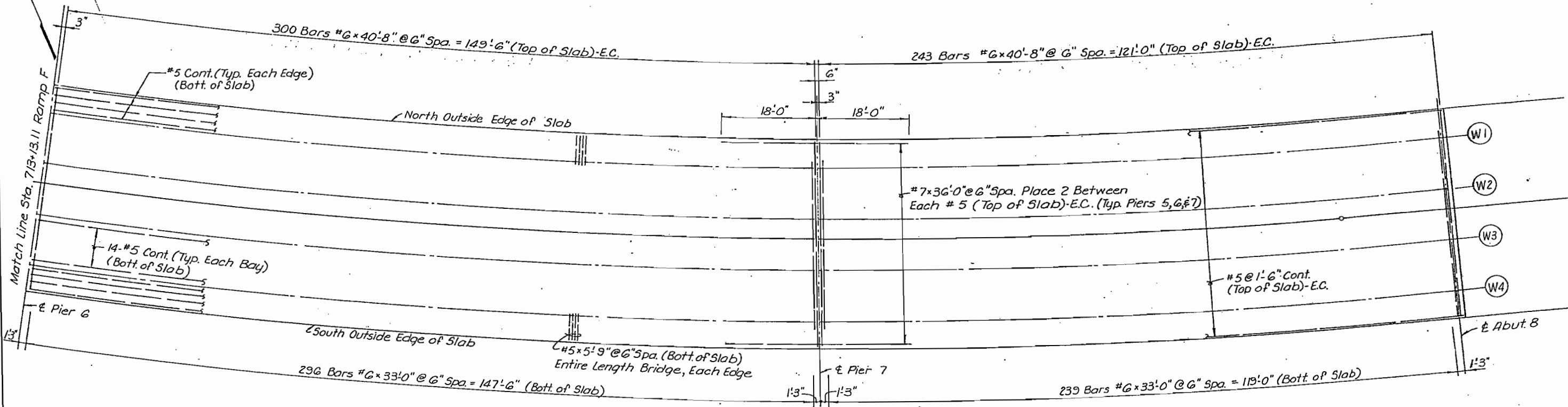
Designer M. Merklinger	Structure Numbers	F-16-OE
Detailer R. Hinshaw	Drawing Number B-24	of 50 Drawings

Revision Dates (Preliminary Stage Only)

REVISIONS	

AS CONSTRUCTED
 NO REVISIONS 9/30/87 REVISED VOID

FED. ROAD REGION	DMSION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	1R25-2(187)	116	<u>116</u>



DECK PLAN

- NOTES:**
- All Transverse Slab Reinforcing Shall Be Placed Radially And Dimensioned Along Profile Grade Line.
 - E.C. = Epoxy Coated
 - See Dwg. No. B-27 For Spacing of Longitudinal Reinforcing.

INITIAL	DATE	CHECKED BY	DATE
M.R.M.	9-85	M.R.M.	9-85
R.M.H.	7-85	R.M.H.	7-85
R.M.H.	9-85	R.M.H.	9-85

De Leuw, Cather & Company
 Denver, CO.

DIVISION OF HIGHWAYS

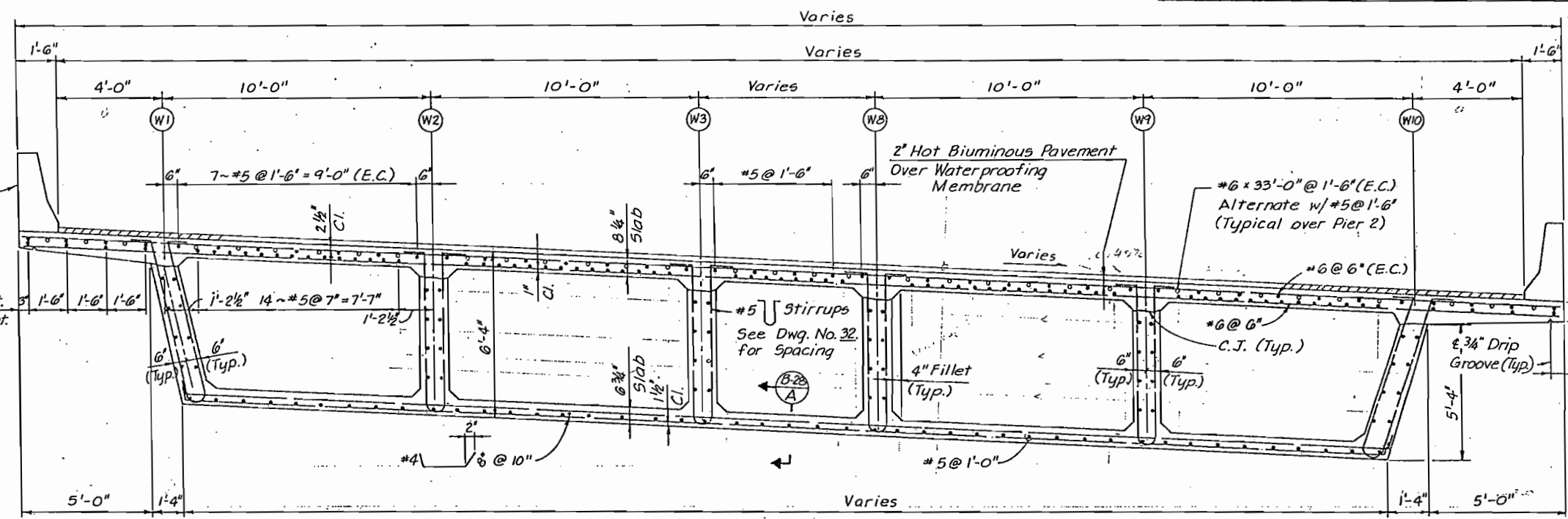
**DECK PLAN
 UNIT ②**

Designer <i>M. Merklinger</i>	Structure Numbers	F-16-OE
Detailer <i>R. Hinshaw</i>	Numbers	
Drawing Number <i>B-25</i>	of 50	Drawings

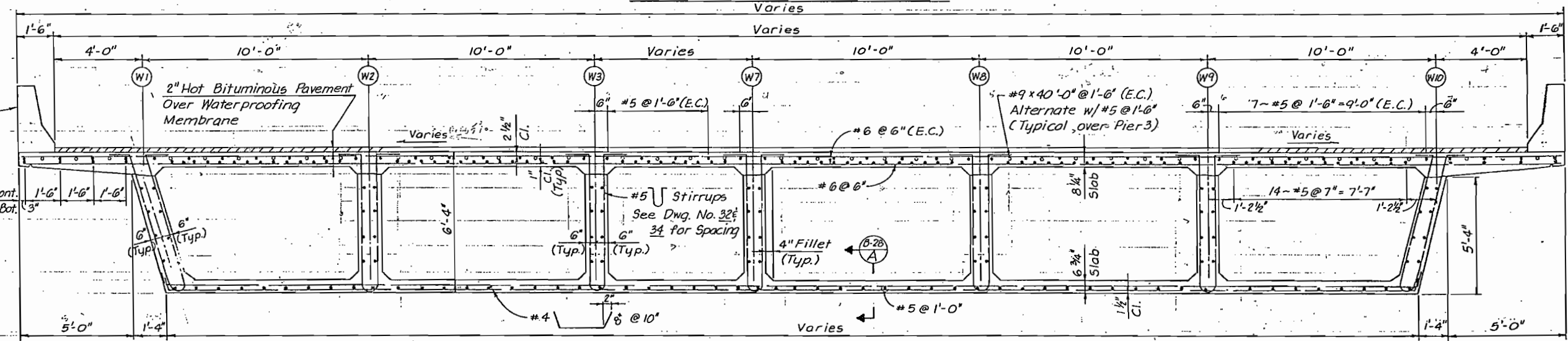
Revision	Date	(Preliminary Stage Only)

AS CONSTRUCTED		
NO REVISIONS	7/30/87	REVISED
		VOID

FED. ROAD REGION	DMSION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	1R 25-2(187)	117	170



TYPICAL SECTION - SPAN 1



TYPICAL SECTION - SPAN 2

NOTES:
1. All Interior Webs to be Constructed Vertical

Handwritten notes:
As Top = 33' in
As Bottom = 17.52

DATE	CHECKED BY
10-85	J.L.S.
DATE	CHECKED BY
11-85	R.M.H.
DATE	CHECKED BY
9-85	R.S.P.
DATE	CHECKED BY
7-85	R.S.P.

Bridge Rail Type 4 For Details, See Dwg. B-46.

Bridge Rail Type 4 For Details, See Dwg. B-46.

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

SUPERSTRUCTURE DETAILS (SECTIONS) UNIT ①

Designer J. Stapleton	Structure Numbers F-16-NK
Detailer R. Panning	
Drawing Number B-26	of 50 Drawings

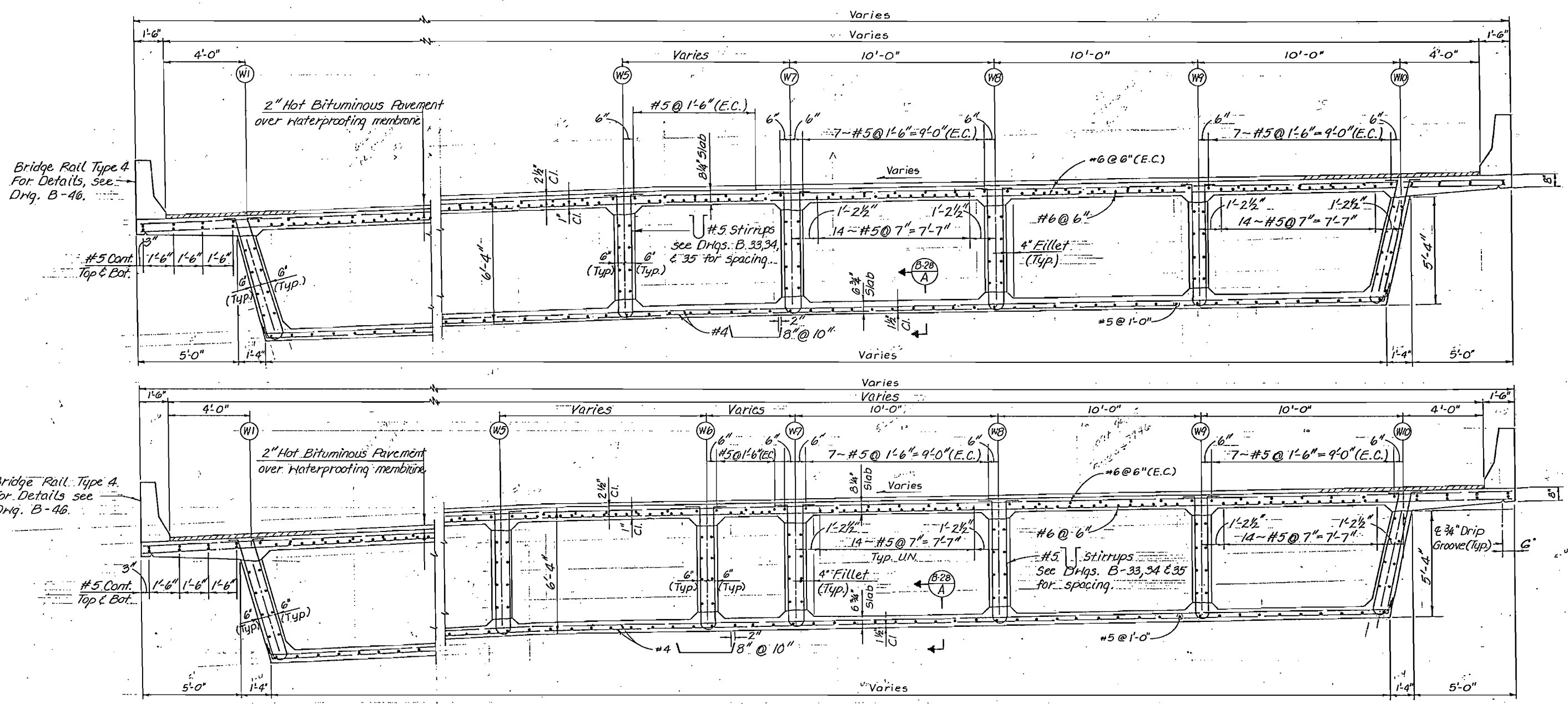
Revision Dates	(Preliminary Stage Only)
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AS CONSTRUCTED
NO REVISIONS 9/30/87 REVISED VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR 25-2(187)	118	177

REVISIONS	

DATE	BY	REASON
9-85	J.L.S.	10-85
11-85	R.M.H.	11-85
9-85	R.S.P.	9-85



TYPICAL SECTIONS - SPAN 3

NOTES:
1. All Interior Webs to be Constructed Vertical.

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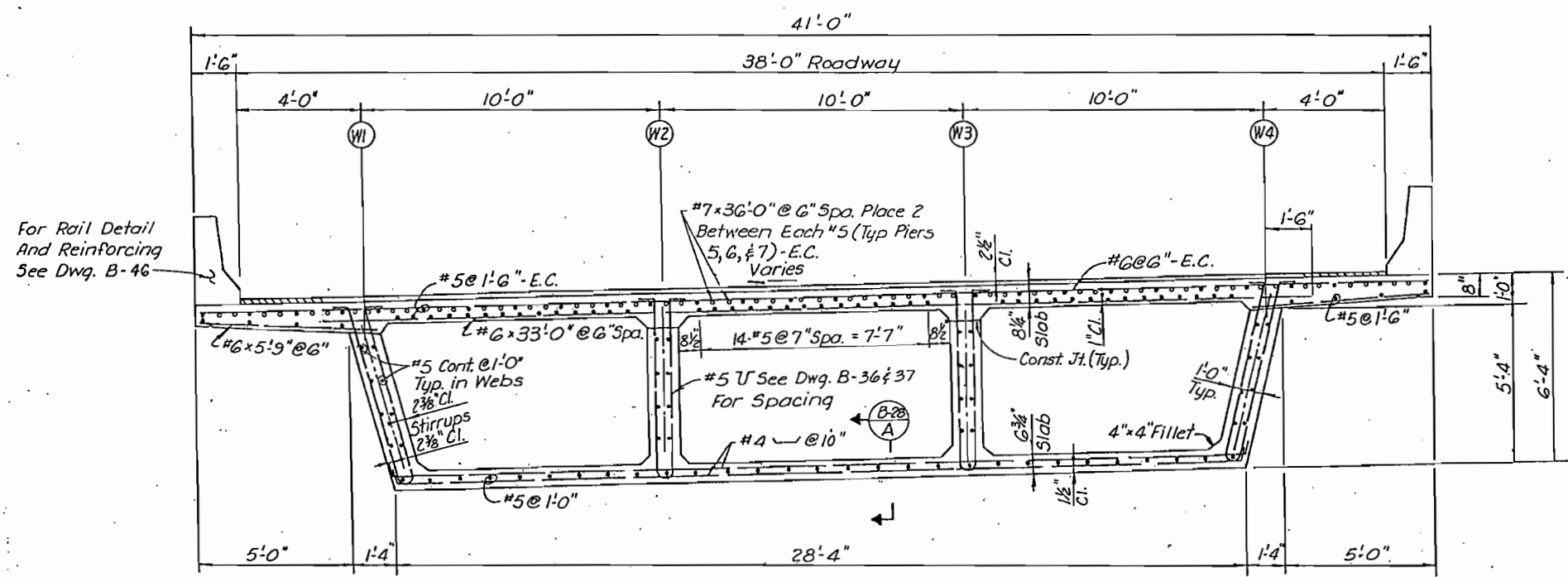
DIVISION OF HIGHWAYS		
SUPERSTRUCTURE DETAILS (SECTIONS)		
UNIT ①		
Designer J. Stapleton	Structure Numbers	F-16-NK
Detailer R. Panning		
Drawing Number B-27 of 50 Drawings		

Revision	Date	(Preliminary Stage Only)

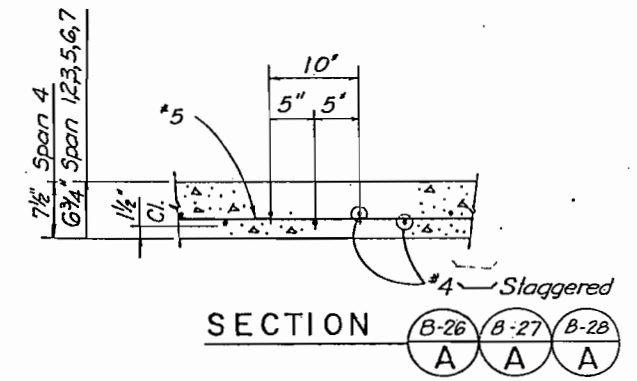
AS CONSTRUCTED
NO REVISIONS 9/30/87 REVISED VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR 25-2(187)	119	179

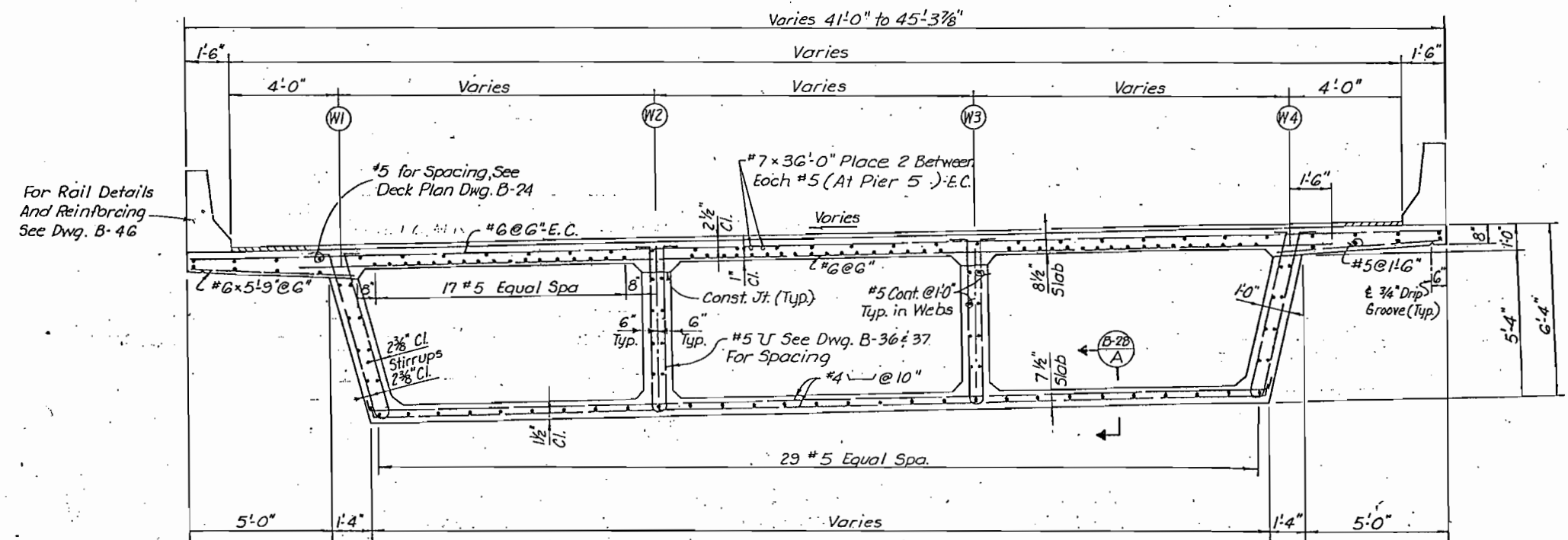
REVISIONS				



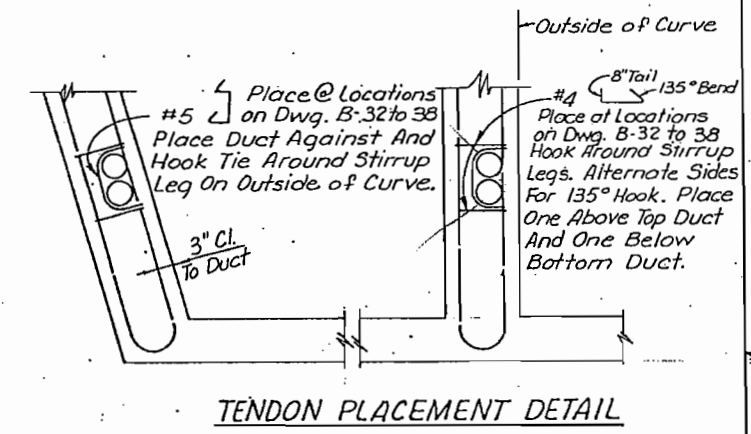
TYPICAL SECTION - SPANS 5, 6, & 7



DESIGNED BY	M.R.M.	10-85
CHECKED BY	R.M.H.	11-85
QUANTITIES BY	R.M.H.	11-85
CHECKED BY	R.M.H.	9-85
INITIAL	M.R.M.	9
DESIGNED BY	M.R.M.	9
CHECKED BY	R.M.H.	9-85
INITIAL	R.M.H.	9-85



TYPICAL SECTION - SPAN 4



NOTES:
1. All Interior Webs to be Constructed Vertical.

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

SUPERSTRUCTURE DETAILS (SECTIONS) UNIT ②

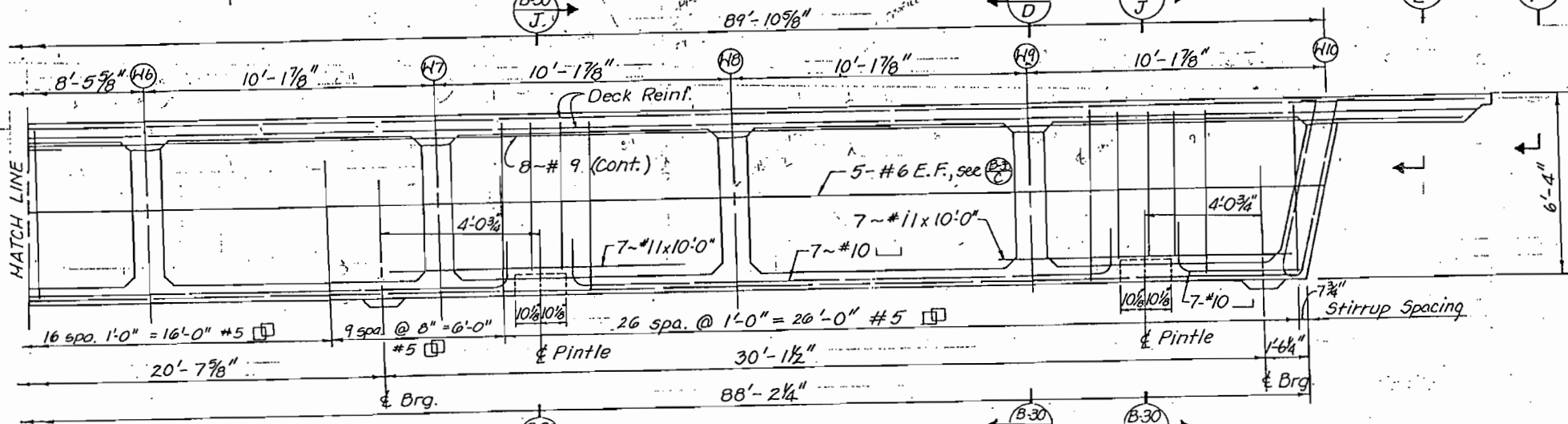
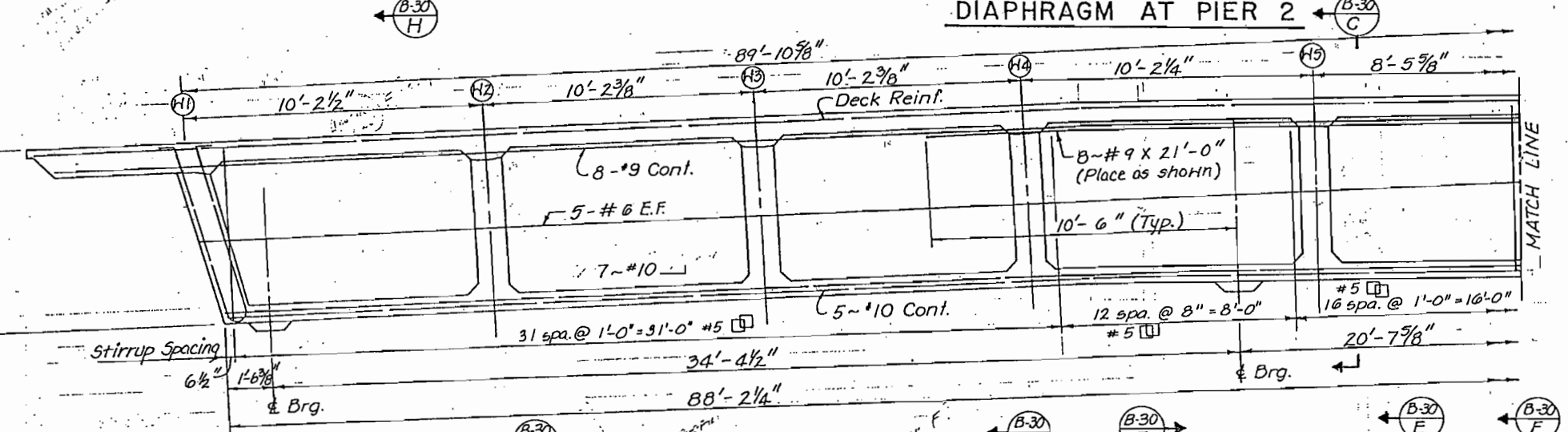
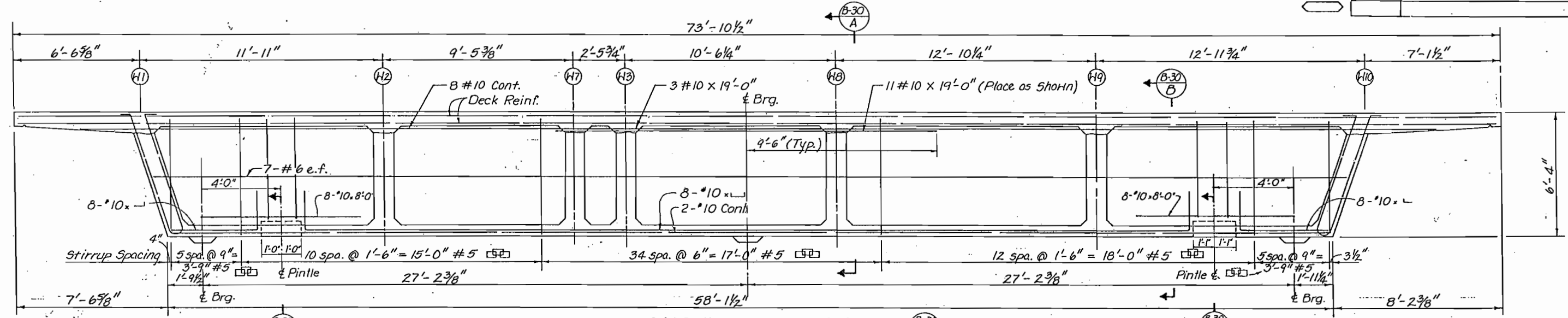
Designer M. Merklinger	Structure F-16-NK
Detailer R. Hinshaw	Numbers F-16-OE
Drawing Number B-28	of 50 Drawings

Revision Dates	(Preliminary Stage Only)

AS CONSTRUCTED
NO REVISIONS 9/30/87 REVISED VOID

FED. ROAD REGION	DMSION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR 25-2(187)	120	179
REVISIONS				

DESIGNED BY	CHECKED BY	DATE
J.L.S.	J.L.S.	11-85
F.E.B.	F.E.B.	9-85
Y.K.	R.M.H.	11-85
S.Y.S.	Y.K.	1-86



De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

DIAPHRAGM DETAILS

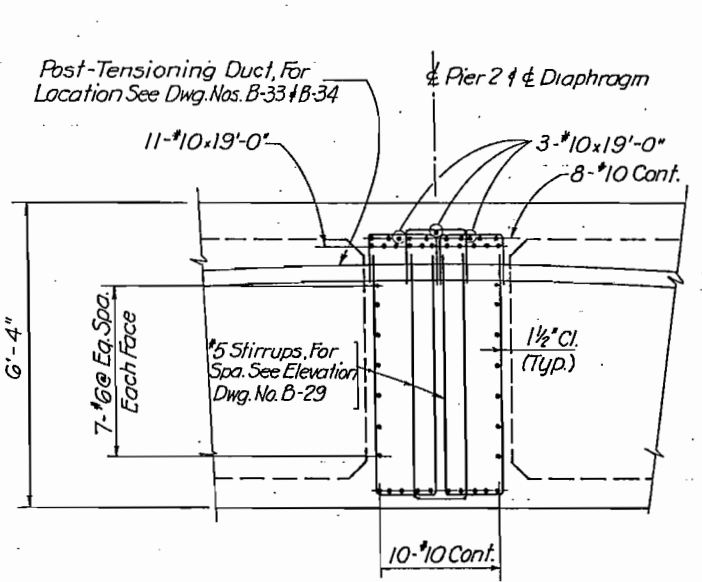
Designer *F. Boustani* Structure Numbers *F-16-NK*
 Detailer *S. Shibus, R. Panning*
 Drawing Number *B-29* of 50 Drawings

Revision Dates (Preliminary Stage Only)

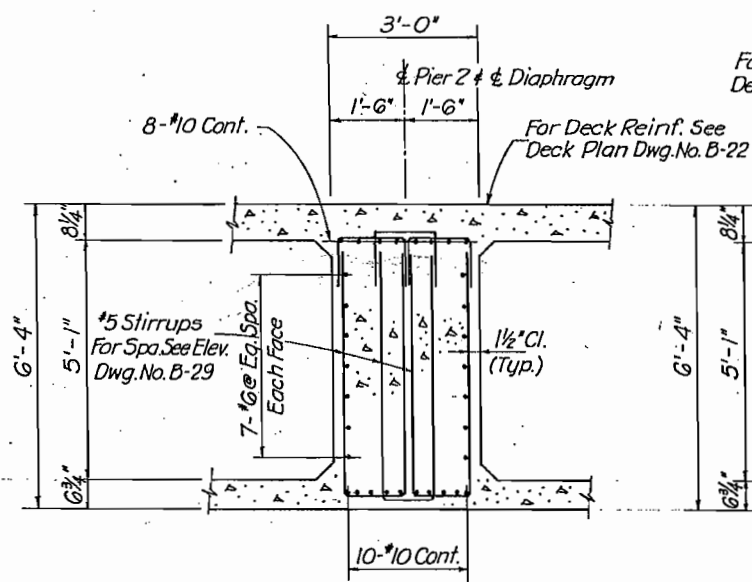
AS CONSTRUCTED
 NO REVISIONS 7/30/87 REVISED VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR25-2(187)	121	170 177

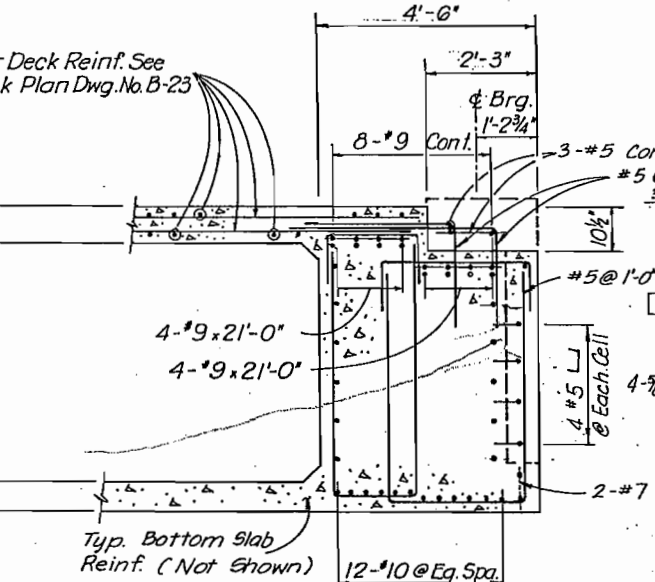
REVISIONS	



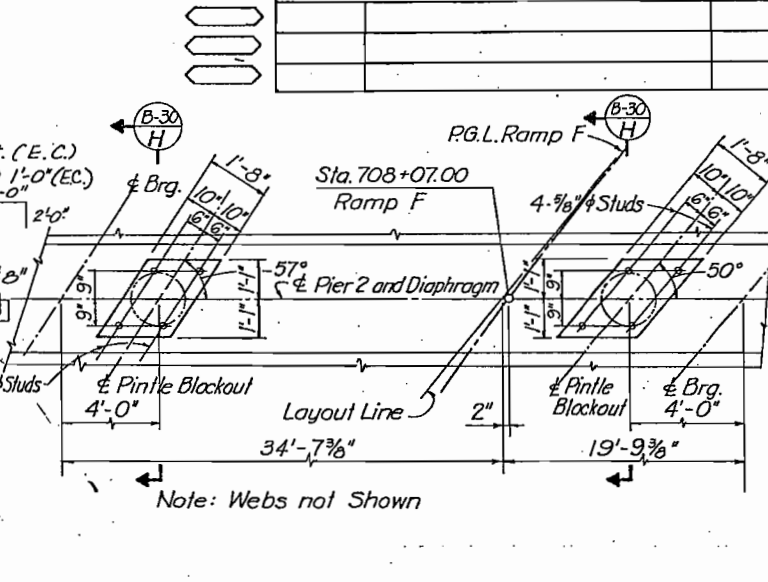
SECTION B-29 A



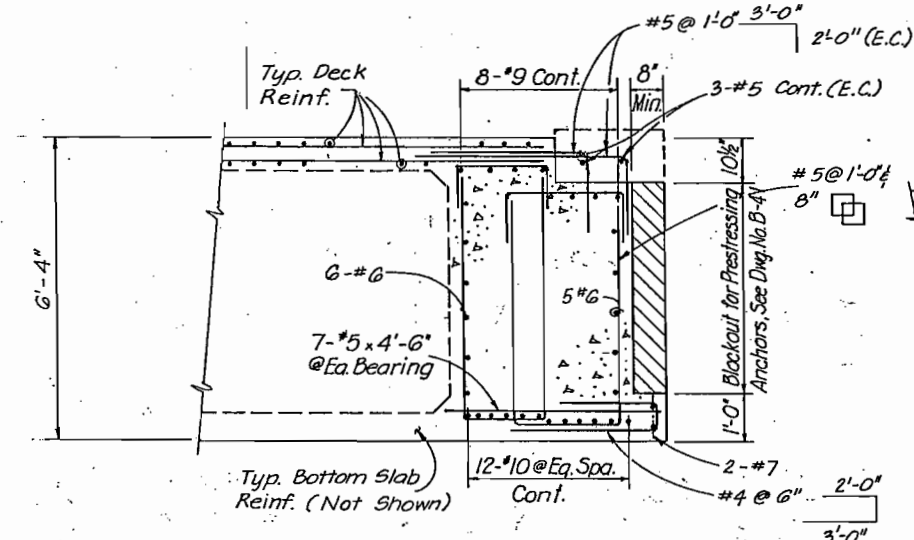
SECTION B-29 B



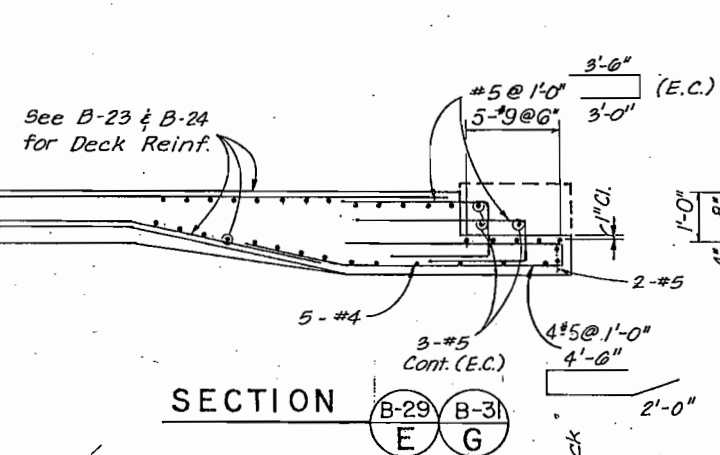
SECTION B-29 C



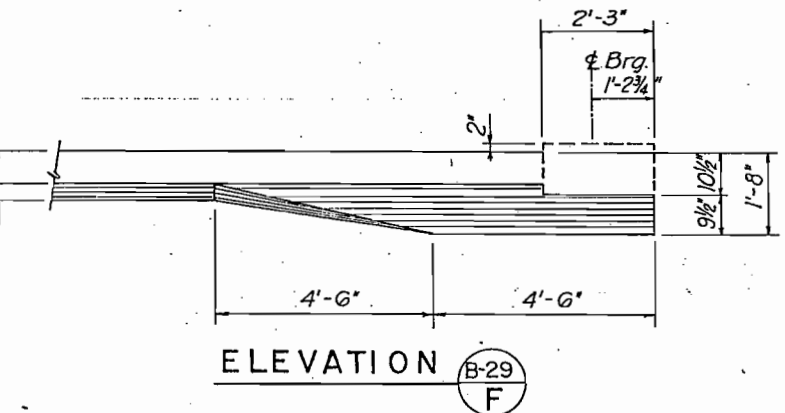
PINTLE SLOT DETAIL PIER 2



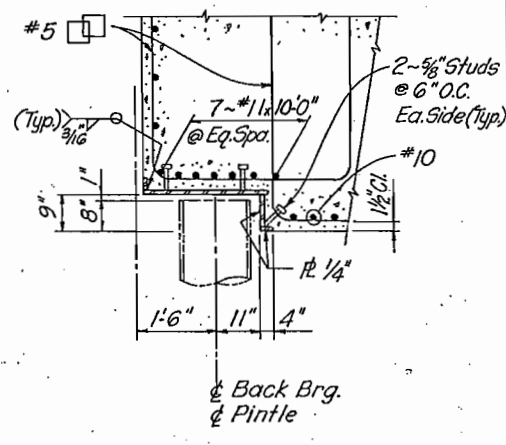
SECTION B-29 D



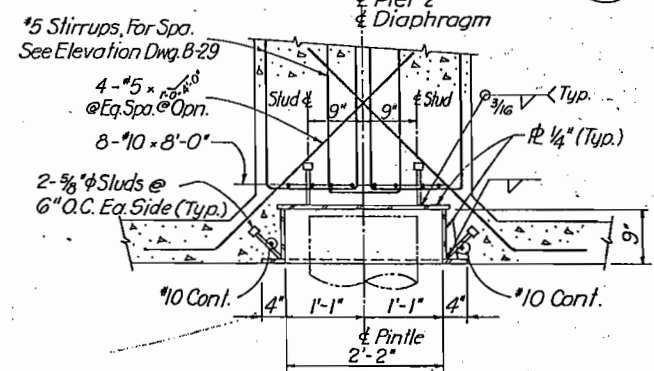
SECTION B-29 E B-29 G



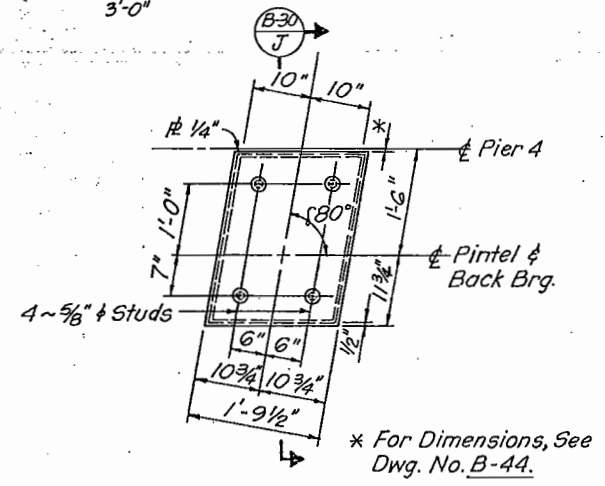
ELEVATION B-29 F



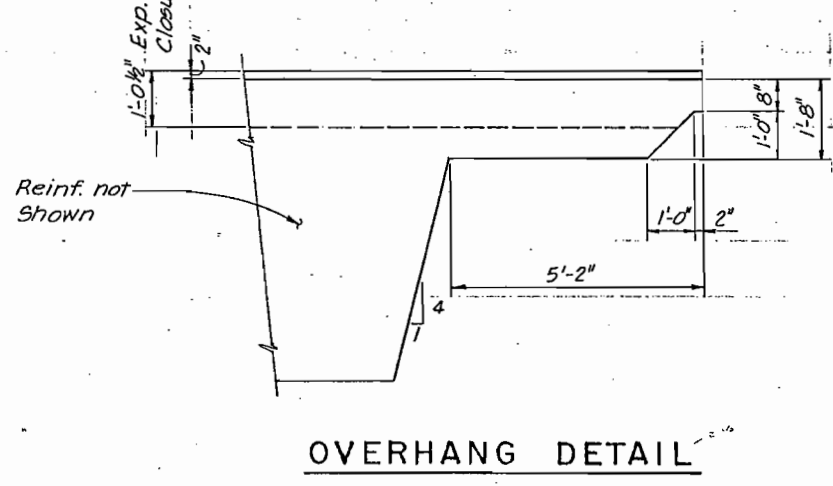
SECTION B-29 J



SECTION B-30 B-29 H H



PINTLE SLOT DETAIL 4



OVERHANG DETAIL (FOR EXPANSION JOINT AREA)

INITIAL	DATE	CHECKED BY
J.L.S.	10-85	J.L.S.
M.R.M.	12-85	R.M.H.
V.V.V.	10-85	Y.K.

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

DIAPHRAGM SECTIONS

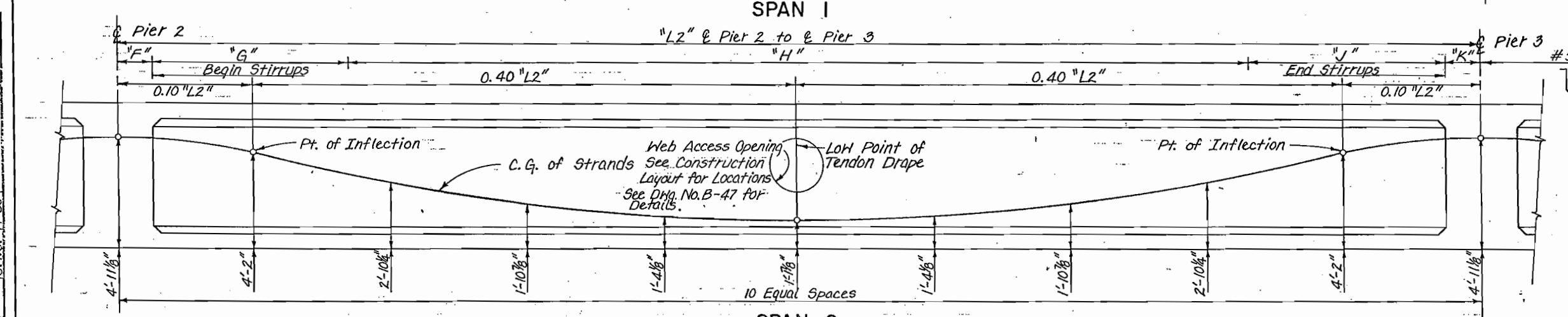
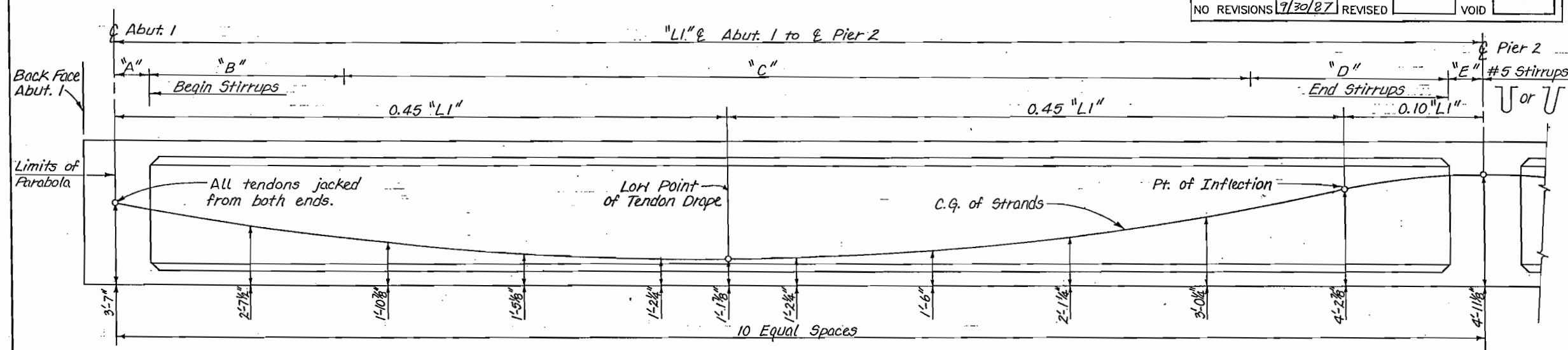
Designer J. Stapleton	Structure F-16-NK
Detailer V. Villao, R. Panning	Numbers F-16-OE
Drawing Number B-30	of 50 Drawings

Revision Dates (Preliminary Stage Only)

AS CONSTRUCTED
 NO REVISIONS 9/30/87 REVISED VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR25-2(187)	123	179

REVISIONS	



STRESSING NOTES

JACKING FORCE:
 PJACK = PRESTRESS FORCE AT JACKING ENDS. SEE TABLE, DRAWING NUMBER B-33, FOR JACKING FORCES IN EACH WEB.
 $A_s = \frac{PJACK}{0.75f'_s}$
 $f'_s = 270,000 \text{ psi}$

CONCRETE:
 $f'_c = 5,000 \text{ psi AT 28 DAYS}$
 $f'_{ci} = 4,000 \text{ psi AT TIME OF STRESSING}$

GENERAL:
 DESIGN IS BASED ON RIGID, GALVANIZED PRESTRESSING DUCTS WITH A FRICTION CURVATURE COEFFICIENT $\mu = 0.25$, AND A FRICTION WOBBLE COEFFICIENT $k = 0.0002$ MODIFIED IN EACH SPAN FOR HORIZONTAL CURVATURE. SEE TABLE, DRAWING NUMBER B-33, FOR MODIFIED k' VALUES USED. CONTRACTOR TO SUBMIT ELONGATION AND JACKING CALCULATIONS BASED ON THESE VALUES.
 PJACK SPECIFIED AT THE JACKING END INCLUDES FRICTION LOSSES AND PROVISIONS FOR AN ADDITIONAL 33.0 ksi LOSS IN STRESS.
 TENDONS TO BE JACKED TO $0.75 f'_s$ AND ANCHORED AT AN EQUIVALENT ANCHOR SET = $5/8"$. ALL TENDONS SHOWN ON THIS DRAWING TO BE JACKED FROM BOTH ENDS.
 PRESTRESSING STEEL SHALL BE UNCOATED SEVEN-WIRE STRESS-RELIEVED STRAND, AASHTO M 203, GRADE 270, $1/2"$ NOMINAL DIAMETER.

**SPAN 2
 WEB ELEVATION - UNIT 1 WEBS 1-3, 8-10**

WEB REINFORCING DATA - SPAN 1					
WEB NO.	*A*	*B*	*C*	*D*	*E*
W1	1'-10"	18 Spa. @ 1'-0" = 18'-0"	39 Spa. @ 2'-0" = 78'-0"	36 Spa. @ 6" = 18'-0"	2'-3 1/8"
W2	1'-8 3/8"	18 Spa. @ 1'-0" = 18'-0"	39 Spa. @ 2'-0" = 78'-0"	25 Spa. @ 9" = 18'-9"	2'-1 3/8"
W3	1'-9 5/8"	18 Spa. @ 1'-0" = 18'-0"	39 Spa. @ 2'-0" = 78'-0"	38 Spa. @ 6" = 19'-0"	2'-2 1/2"
W8	1'-8 1/8"	18 Spa. @ 1'-0" = 18'-0"	40 Spa. @ 2'-0" = 80'-0"	38 Spa. @ 6" = 19'-0"	2'-2 1/2"
W9	1'-7 7/8"	18 Spa. @ 1'-0" = 18'-0"	41 Spa. @ 2'-0" = 82'-0"	36 Spa. @ 6" = 18'-0"	2'-2 3/8"
W10	1'-8"	18 Spa. @ 1'-0" = 18'-0"	41 Spa. @ 2'-0" = 82'-0"	38 Spa. @ 6" = 19'-0"	2'-2 5/8"

WEB REINFORCING DATA - SPAN 2					
WEB NO.	*F*	*G*	*H*	*J*	*K*
W1	2'-1"	25 Spa. @ 9" = 18'-9"	38 Spa. @ 2'-0" = 76'-0"	38 Spa. @ 6" = 19'-0"	2'-1 1/8"
W2	2'-1"	25 Spa. @ 9" = 18'-9"	38 Spa. @ 2'-0" = 76'-0"	38 Spa. @ 6" = 19'-0"	2'-1 1/8"
W3	2'-1"	38 Spa. @ 6" = 19'-0"	38 Spa. @ 2'-0" = 76'-0"	25 Spa. @ 9" = 18'-9"	2'-1 1/8"
W8	2'-2 7/8"	39 Spa. @ 6" = 19'-6"	43 Spa. @ 2'-0" = 86'-0"	24 Spa. @ 9" = 18'-0"	2'-3 1/8"
W9	2'-3 3/8"	39 Spa. @ 6" = 19'-6"	43 Spa. @ 2'-0" = 86'-0"	24 Spa. @ 9" = 18'-0"	2'-3 3/8"
W10	2'-3 1/4"	39 Spa. @ 6" = 19'-6"	43 Spa. @ 2'-0" = 86'-0"	24 Spa. @ 9" = 18'-0"	2'-3 1/4"

NOTES

AT THE CONTRACTOR'S OPTION, LOW-RELAXATION PRESTRESSING STRANDS MAY BE SUBSTITUTED FOR THE STRESS RELIEVED PRESTRESSING STRANDS SHOWN IN UNIT 1, PROVIDED REDESIGN CALCULATIONS FOR ELONGATION AND JACKING ARE SUBMITTED TO THE ENGINEER FOR APPROVAL.

De Leuw, Cather & Company
 Denver, CO.

DIVISION OF HIGHWAYS

**SUPERSTRUCTURE
 DETAILS
 UNIT 1**

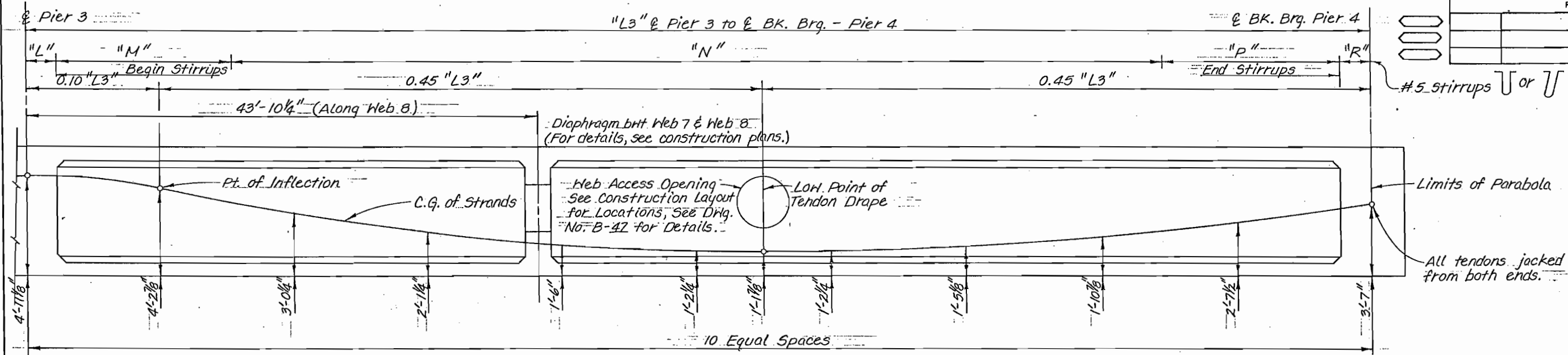
Designer *F. Boustani* Structure Numbers F-16-NK
 Detailer *S. Shiba*
 Drawing Number B-32 of 50 Drawings

Revision	Date	By	Checked

AS CONSTRUCTED
 NO REVISIONS 9/30/87 REVISED VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR25-2(187)	124	177

REVISIONS	



**SPAN 3
 WEB ELEVATION ~ UNIT ① WEBS 1-3, 8-10**

INITIAL	DATE	CHECKED BY
P.E.B.	9-85	F.E.B.
S.Y.S.	7-85	J.L.S.
		R.M.H.
		71-85

STRESSING NOTES

JACKING FORCE:
 PJACK = PRESTRESS FORCE AT JACKING ENDS. SEE TABLE FOR JACKING FORCES IN EACH WEB.
 $A_s = \frac{PJACK}{0.75 f'_s}$
 $f'_s = 270,000 \text{ psi}$

CONCRETE:
 $f'_c = 5,000 \text{ psi AT 28 DAYS}$
 $f'_{ci} = 4,000 \text{ psi AT TIME OF STRESSING}$

GENERAL:
 DESIGN IS BASED ON RIGID, GALVANIZED PRESTRESSING DUCTS WITH A FRICTION CURVATURE COEFFICIENT $\mu = 0.25$, AND A FRICTION WOBBLE COEFFICIENT $k = 0.0002$ MODIFIED IN EACH SPAN FOR HORIZONTAL CURVATURE. SEE TABLE FOR MODIFIED k' VALUES USED. CONTRACTOR TO SUBMIT ELONGATION AND JACKING CALCULATIONS BASED ON THESE VALUES.
 PJACK SPECIFIED AT THE JACKING END INCLUDES FRICTION LOSSES AND PROVISIONS FOR AN ADDITIONAL 33.0 ksi LOSS IN STRESS.
 TENDONS TO BE JACKED TO $0.75 f'_s$ AND ANCHORED AT AN EQUIVALENT ANCHOR SET = $5/8"$. ALL TENDONS SHOWN ON THIS DRAWING TO BE JACKED FROM BOTH ENDS.
 PRESTRESSING STEEL SHALL BE UNCOATED SEVEN-WIRE STRESS-RELIEVED STRAND, AASHTO M 203, GRADE 270, $1/2"$ NOMINAL DIAMETER.

STRESSING TABLE:

WEB NO.	"L1" (FEET)	"L2" (FEET)	"L3" (FEET)	PJACK (KIPS)
W1	118'-1 1/8" (k' = 0.0006)	117'-11 1/8" (k' = 0.0002)	135'-9 5/8" (k' = 0.0007)	2,294
W2	118'-6 3/4" (k' = 0.0006)	117'-11 1/8" (k' = 0.0002)	129'-9 5/8" (k' = 0.0007)	2,294
W3	119'-0 1/8" (k' = 0.0005)	117'-11 1/8" (k' = 0.0002)	123'-9 5/8" (k' = 0.0007)	2,232
W8	120'-10 5/8" (k' = 0.0007)	128'-0" (k' = 0.0002)	111'-0 7/8" (k' = 0.0002)	2,170
W9	121'-10 1/4" (k' = 0.0007)	128'-0 3/4" (k' = 0.0002)	104'-6 1/4" (k' = 0.0002)	2,170
W10	122'-10 5/8" (k' = 0.0007)	128'-0 1/2" (k' = 0.0002)	97'-11 1/2" (k' = 0.0002)	2,170

WEB NO.	"L"	"M"	"N"	"P"	"R"
W1	2'-2 5/8"	35 Spa. @ 6" = 17'-6"	48 Spa. @ 2'-0" = 96'-0"	18 Spa. @ 1'-0" = 18'-0"	2'-1"
W2	2'-2 3/4"	35 Spa. @ 6" = 17'-6"	45 Spa. @ 2'-0" = 90'-0"	18 Spa. @ 1'-0" = 18'-0"	2'-0 7/8"
W3	2'-2 3/4"	26 Spa. @ 9" = 19'-6"	41 Spa. @ 2'-0" = 82'-0"	24 Spa. @ 9" = 18'-0"	2'-0 7/8"
W8	2'-2 1/4"	24 Spa. @ 9" = 18'-0"	35 Spa. @ 2'-0" = 70'-0"	19 Spa. @ 1'-0" = 19'-0"	1'-10 5/8"
W9	2'-5"	24 Spa. @ 9" = 18'-0"	32 Spa. @ 2'-0" = 64'-0"	18 Spa. @ 1'-0" = 18'-0"	2'-1 1/4"
W10	2'-4 5/8"	39 Spa. @ 6" = 19'-6"	28 Spa. @ 2'-0" = 56'-0"	18 Spa. @ 1'-0" = 18'-0"	2'-0 7/8"

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

**SUPERSTRUCTURE
 DETAILS
 UNIT ①**

Designer <i>F. Boustani</i>	Structure Numbers	F-16-NK
Detailer <i>S. Shibao</i>		
Drawing Number <i>B-33</i>	of <i>50</i>	Drawings

Revision Dates (Preliminary Stage Only)

AS CONSTRUCTED		FED. ROAD REGION	OMISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	9/30/87 REVISED	VIII	COLO.	IR 25-2(187)	125	170 177
REVISIONS						

STRESSING NOTES

JACKING FORCE:

PJACK = 2,232 KIPS. TOTAL AT JACKING END, WEB NUMBER W7.

$A_s = \frac{PJACK}{0.75f'_s}$

$f'_s = 270,000$ psi

CONCRETE:

$f'_c = 5,000$ psi AT 28 DAYS

$f'_{ci} = 4,000$ psi AT TIME OF STRESSING

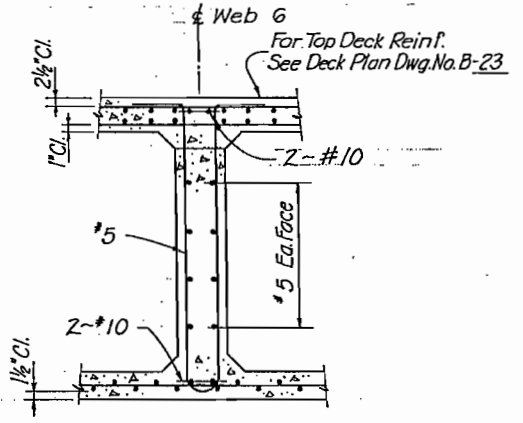
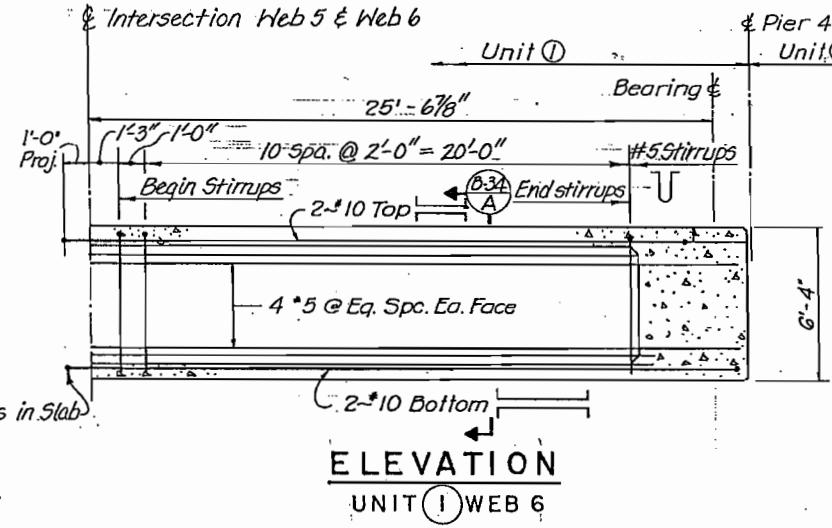
GENERAL:

DESIGN IS BASED ON RIGID, GALVANIZED PRESTRESSING DUCTS WITH A FRICTION CURVATURE COEFFICIENT $\mu = 0.25$, AND A FRICTION WOBBLE COEFFICIENT $k = 0.0002$. CONTRACTOR TO SUBMIT ELONGATION AND JACKING CALCULATION BASED ON THESE VALUES.

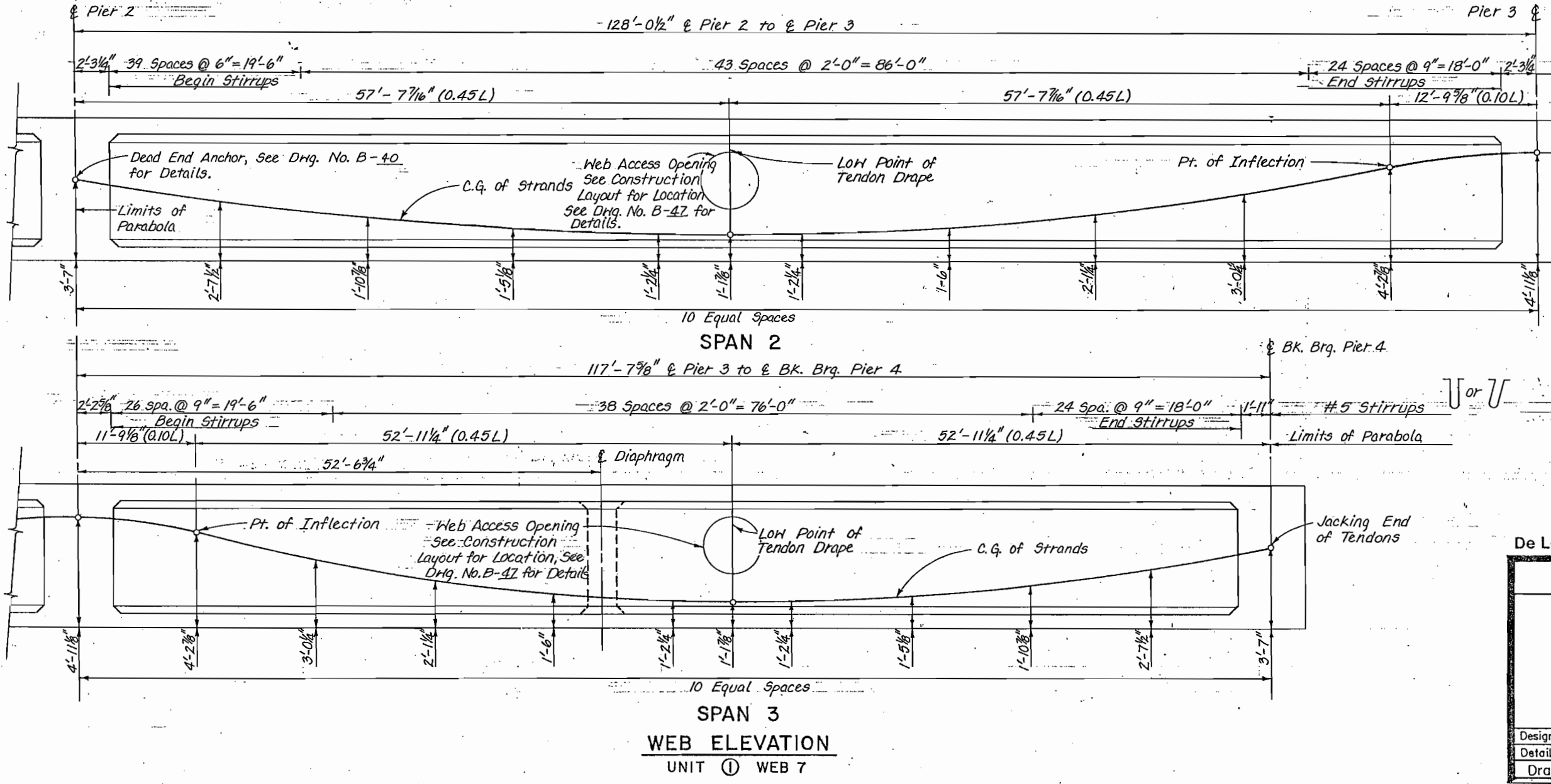
PJACK SPECIFIED AT THE JACKING END INCLUDES FRICTION LOSSES AND PROVISIONS FOR AN ADDITIONAL 33.0 ksi LOSS IN STRESS.

TENDONS TO BE JACKED TO $0.75 f'_s$ AND ANCHORED AT AN EQUIVALENT ANCHOR SET = $5/8"$. ALL TENDONS SHOWN ON THIS DRAWING TO BE JACKED FROM PIER 4.

PRESTRESSING STEEL SHALL BE UNCOATED SEVEN-WIRE STRESS-RELIEVED STRAND, AASHTO M 203, GRADE 270, $1/2"$ NOMINAL DIAMETER.



DESIGNED BY	DATE	CHECKED BY	DATE
FE.B.	9-85	J.L.S.	10-85
CHECKED BY	DATE	QUANTIFIED BY	DATE
Y.S.	9-85	R.M.H.	11-85
DETAILED BY	DATE	CHECKED BY	DATE



SECTION B-34 A

De Leuw, Cather & Company
 DIVISION OF HIGHWAYS
 SUPERSTRUCTURE
 DETAILS
 UNIT 1

Designer F. Baustani	Structure Numbers	F-16-NK
Detailer S. Shibus		
Drawing Number B-34	of 50	Drawings

Revision Dates (Preliminary Stages Only)

AS CONSTRUCTED

NO REVISIONS 9/30/87 REVISED VOID

FED. ROAD REGION	DMSION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR25-2(187)	126	177

STRESSING NOTES

JACKING FORCE:

PJACK = 2,232 KIPS TOTAL AT JACKING END, WEB NUMBER W4.
 PJACK = 837 KIPS TOTAL AT JACKING END, WEB NUMBER W5.

$A_s = \frac{PJACK}{0.75f'_s}$

$f'_s = 270,000 \text{ psi}$

CONCRETE:

$f'_c = 5,000 \text{ psi AT 28 DAYS}$

$f'_{ci} = 4,000 \text{ psi AT TIME OF STRESSING}$

GENERAL:

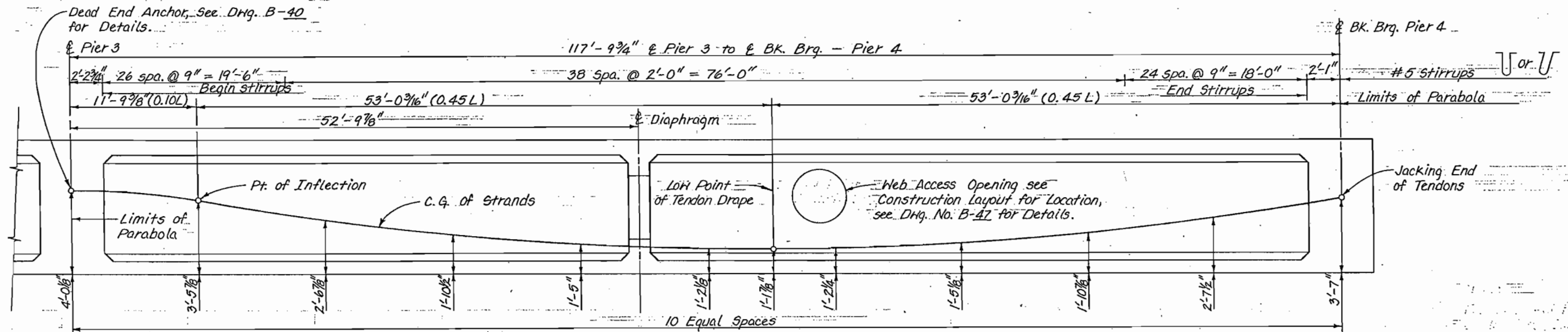
DESIGN IS BASED ON RIGID, GALVANIZED PRESTRESSING DUCTS WITH A FRICTION CURVATURE COEFFICIENT $\mu = 0.25$, AND A FRICTION WOBBLE COEFFICIENT $k = 0.0002$ MODIFIED IN EACH SPAN FOR HORIZONTAL CURVATURE. A MODIFIED VALUE OF $k' = 0.0008$ USED FOR WEBS 4 AND 5. CONTRACTOR TO SUBMIT ELONGATION AND JACKING CALCULATIONS BASED ON THESE VALUES.

PJACK SPECIFIED AT THE JACKING END INCLUDES FRICTION LOSSES AND PROVISIONS FOR AN ADDITIONAL 33.0 ksi LOSS IN STRESS.

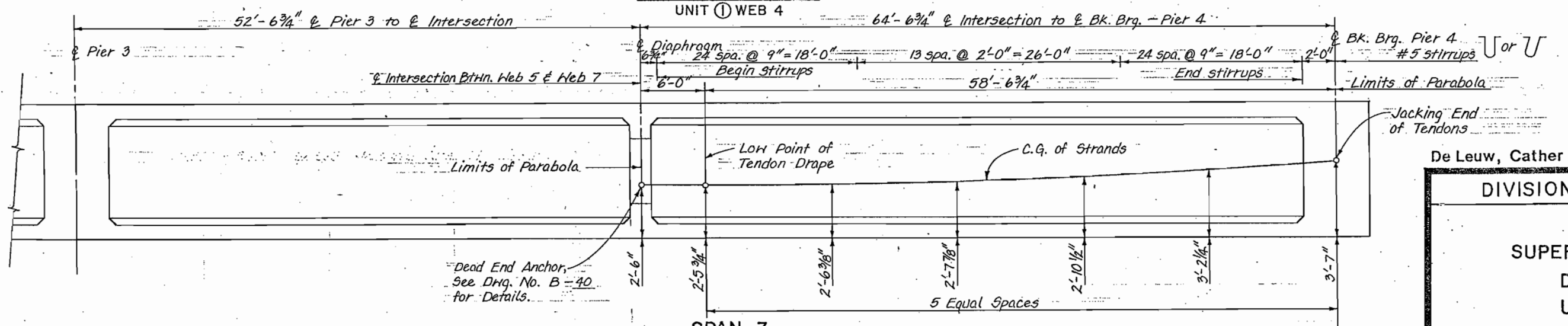
TENDONS TO BE JACKED TO 0.75 f'_s AND ANCHORED AT AN EQUIVALENT ANCHOR SET = 5/8". ALL TENDONS SHOWN ON THIS DRAWING TO BE JACKED FROM PIER 4.

PRESTRESSING STEEL SHALL BE UNCOATED SEVEN-WIRE STRESS-RELIEVED STRAND, AASHTO M 203, GRADE 270, 1/2" NOMINAL DIAMETER.

INITIAL	DATE	CHECKED BY
F.E.B.	9-85	J.L.S.
DESIGNED BY	DATE	CHECKED BY
F.E.B.	9-85	R.M.H.
CHECKED BY	DATE	CHECKED BY
S.Y.S.	9-85	
DETAILS BY		



**SPAN 3
 WEB ELEVATION
 UNIT 1 WEB 4**



**SPAN 3
 WEB ELEVATION
 UNIT 1 WEB 5**

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

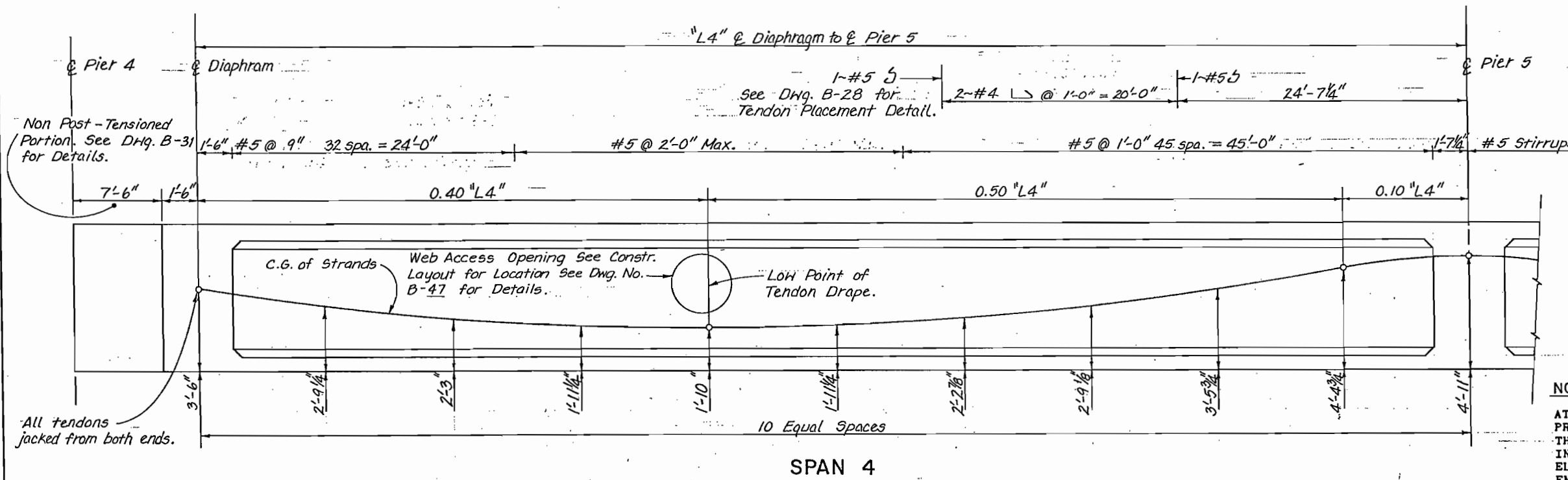
**SUPERSTRUCTURE
 DETAILS
 UNIT 1**

Designer <i>F. Boustani</i>	Structure Numbers	F-16-NK
Detailer <i>S. Shibus</i>		
Drawing Number <i>B-35</i>	of 50	Drawings

Revision Dates	(Preliminary Stage Only)
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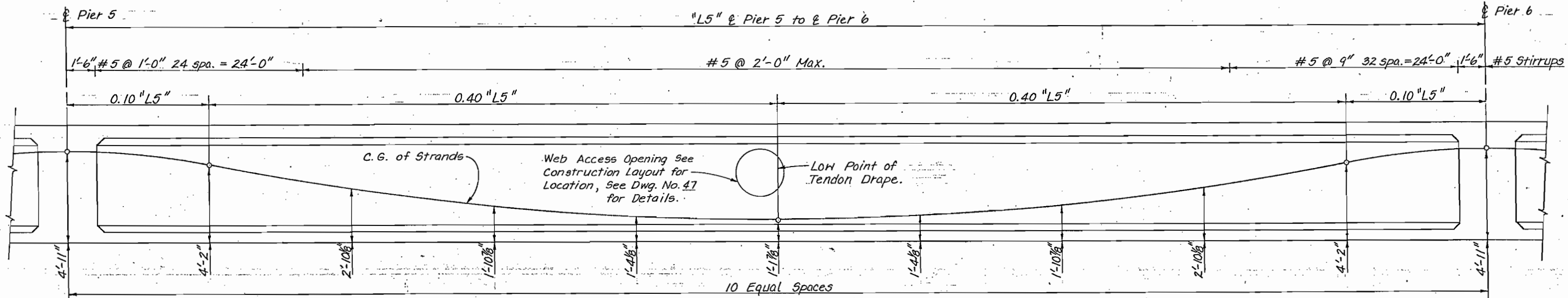
AS CONSTRUCTED
 NO REVISIONS 9/30/87 REVISED VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR 25-2(187)	127	177
REVISIONS				



NOTE
 AT THE CONTRACTOR'S OPTION, LOW-RELAXATION PRESTRESSING STRANDS MAY BE SUBSTITUTED FOR THE STRESS RELIEVED PRESTRESSING STRANDS SHOWN IN UNIT 2, PROVIDED REDESIGN CALCULATIONS FOR ELONGATION AND JACKING ARE SUBMITTED TO THE ENGINEER FOR APPROVAL.

INITIAL	DATE	CHECKED BY
M.R.M.	9-85	R.M.H. 11-85
DESIGNED BY	DATE	QUANTITIES BY
S.Y.S.	9-85	
CHECKED BY	DATE	DETAILS BY



STRESSING NOTES

JACKING FORCE:
 PJACK = 11,153 KIPS TOTAL AT JACKING ENDS (PIER 4 AND ABUTMENT 8) AND SHALL BE EQUALLY PROPORTIONED IN THE FOUR WEBS.
 $A_B = \frac{PJACK}{0.75 f'_s}$
 $f'_s = 270,000 \text{ psi}$

CONCRETE:
 $f'_c = 5,000 \text{ psi AT 28 DAYS}$
 $f'_{ci} = 4,000 \text{ psi AT TIME OF STRESSING}$

GENERAL:
 DESIGN IS BASED ON RIGID, GALVANIZED PRESTRESSING DUCTS WITH A FRICTION CURVATURE COEFFICIENT $u = 0.25$, AND A FRICTION WOBBLE COEFFICIENT $k = 0.0002$ MODIFIED IN EACH SPAN FOR HORIZONTAL CURVATURE. SEE TABLE FOR MODIFIED k' VALUES USED. CONTRACTOR TO SUBMIT ELONGATION AND JACKING CALCULATIONS BASED ON THESE VALUES.
 PJACK SPECIFIED AT THE JACKING END INCLUDES FRICTION LOSSES AND PROVISIONS FOR AN ADDITIONAL 33.0 ksi LOSS IN STRESS.
 TENDONS TO BE JACKED TO $0.75 f'_s$ AND ANCHORED AT AN EQUIVALENT ANCHOR SET = 5/8". ALL TENDONS SHOWN ON THIS DRAWING TO BE JACKED FROM BOTH ENDS.
 PRESTRESSING STEEL SHALL BE UNCOATED SEVEN-WIRE STRESS-RELIEVED STRAND, AASHTO M 203, GRADE 270, 1/2" NOMINAL DIAMETER.

**SPAN 5
 WEB ELEVATION
 UNIT 2 ALL WEBS**

DIMENSION TABLE:

WEB NO.	"L4" (FEET)	"L5" (FEET)	"L6" (FEET)	"L7" (FEET)
W1	111'-2 1/4"	148'-8 5/8"	148'-0 7/8"	120'-0 1/4"
W2	109'-0 7/8"	149'-7 5/8"	149'-5 3/8"	120'-10 1/2"
W3	107'-0 5/8"	150'-6 5/8"	150'-9 7/8"	121'-9 5/8"
W4	105'-1 1/2"	151'-5 5/8"	152'-2 1/2"	122'-9 1/2"

TABLE FOR MODIFIED FRICTION WOBBLE COEFFICIENT:

SPAN	SPAN 4	SPAN 5	SPAN 6	SPAN 7
k'	$k' = 0.0003$	$k' = 0.0004$	$k' = 0.0004$	$k' = 0.0004$

De Leuw, Cather & Company
 Denver, CO.

DIVISION OF HIGHWAYS

**SUPERSTRUCTURE
 DETAILS
 UNIT 2**

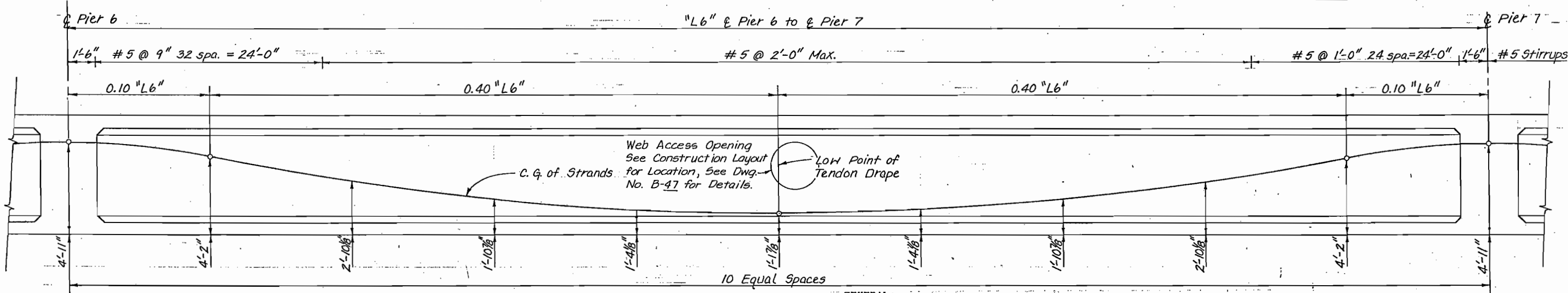
Designer *M. Merklinger* Structure F-16-OE
 Detailer *S. Shibao* Numbers
 Drawing Number *B-36* of 50 Drawings

Revision Dates (Preliminary Stage Only)

AS CONSTRUCTED
 NO REVISIONS 9/30/87 REVISED VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR 25-2(187)	128	176 177

REVISIONS	



STRESSING NOTES

JACKING FORCE:

PJACK = 11,153 KIPS TOTAL AT JACKING ENDS (PIER 4 AND ABUTMENT 8) AND SHALL BE EQUALLY PROPORTIONED IN THE FOUR WEBS.

$A_s = \frac{PJACK}{0.75 f'_s}$

$f'_s = 270,000 \text{ psi}$

CONCRETE:

$f'_c = 5,000 \text{ psi AT 28 DAYS}$

$f'_{ci} = 4,000 \text{ psi AT TIME OF STRESSING}$

SPAN 6

GENERAL:

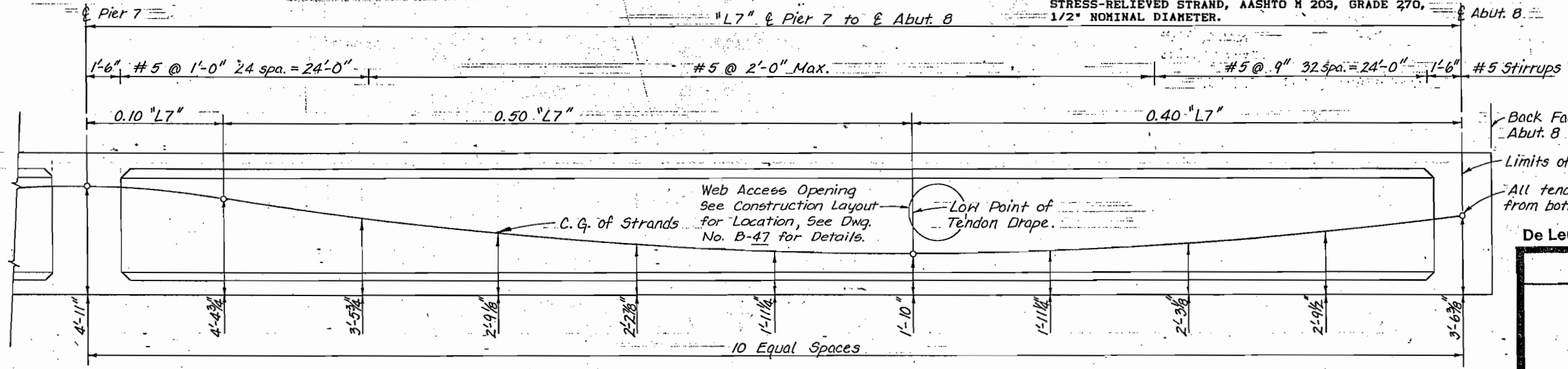
DESIGN IS BASED ON RIGID, GALVANIZED PRESTRESSING DUCTS WITH A FRICTION CURVATURE COEFFICIENT $u = 0.25$, AND A FRICTION WOBBLE COEFFICIENT $k = 0.0002$ MODIFIED IN EACH SPAN FOR HORIZONTAL CURVATURE. SEE TABLE, DRAWING NUMBER B-36, FOR MODIFIED k' VALUES USED. CONTRACTOR TO SUBMIT ELONGATION AND JACKING CALCULATIONS BASED ON THESE VALUES.

PJACK SPECIFIED AT THE JACKING END INCLUDES FRICTION LOSSES AND PROVISIONS FOR AN ADDITIONAL 33.0 ksi LOSS IN STRESS.

TENDONS TO BE JACKED TO 0.75 f'_s AND ANCHORED AT AN EQUIVALENT ANCHOR SET = 5/8". ALL TENDONS SHOWN ON THIS DRAWING TO BE JACKED FROM BOTH ENDS.

PRESTRESSING STEEL SHALL BE UNCOATED SEVEN-WIRE STRESS-RELIEVED STRAND, AASHTO M 203, GRADE 270, 1/2" NOMINAL DIAMETER.

DESIGNED BY	DATE	CHECKED BY	DATE
M.R.M.	9-85	R.M.H.	11-85
CHECKED BY	DATE	QUANTITIES BY	DATE
S.Y.S.	9-85		



SPAN 7
WEB ELEVATION
 UNIT ② ALL WEBS

De Leuw, Cather & Company Denver, CO.

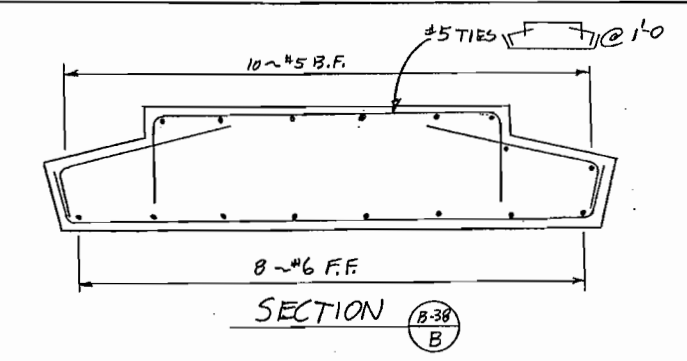
DIVISION OF HIGHWAYS

SUPERSTRUCTURE DETAILS
 UNIT ②

Designer <i>M. Merklinger</i>	Structure Numbers	F-16-0E
Detailer <i>S. Shiao</i>	Numbers	
Drawing Number B-37 of 50 Drawings		

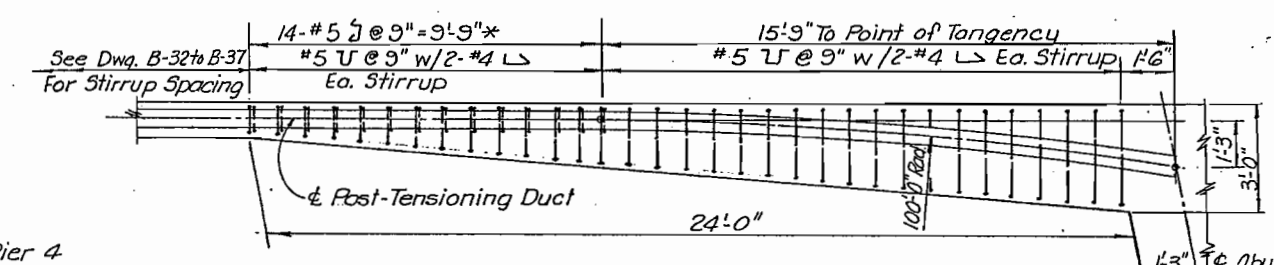
Revision Dates (Preliminary Stage Only)

AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	REVISED 7/30/87	VIII	COLO.	IR 25-2(187)	129	177

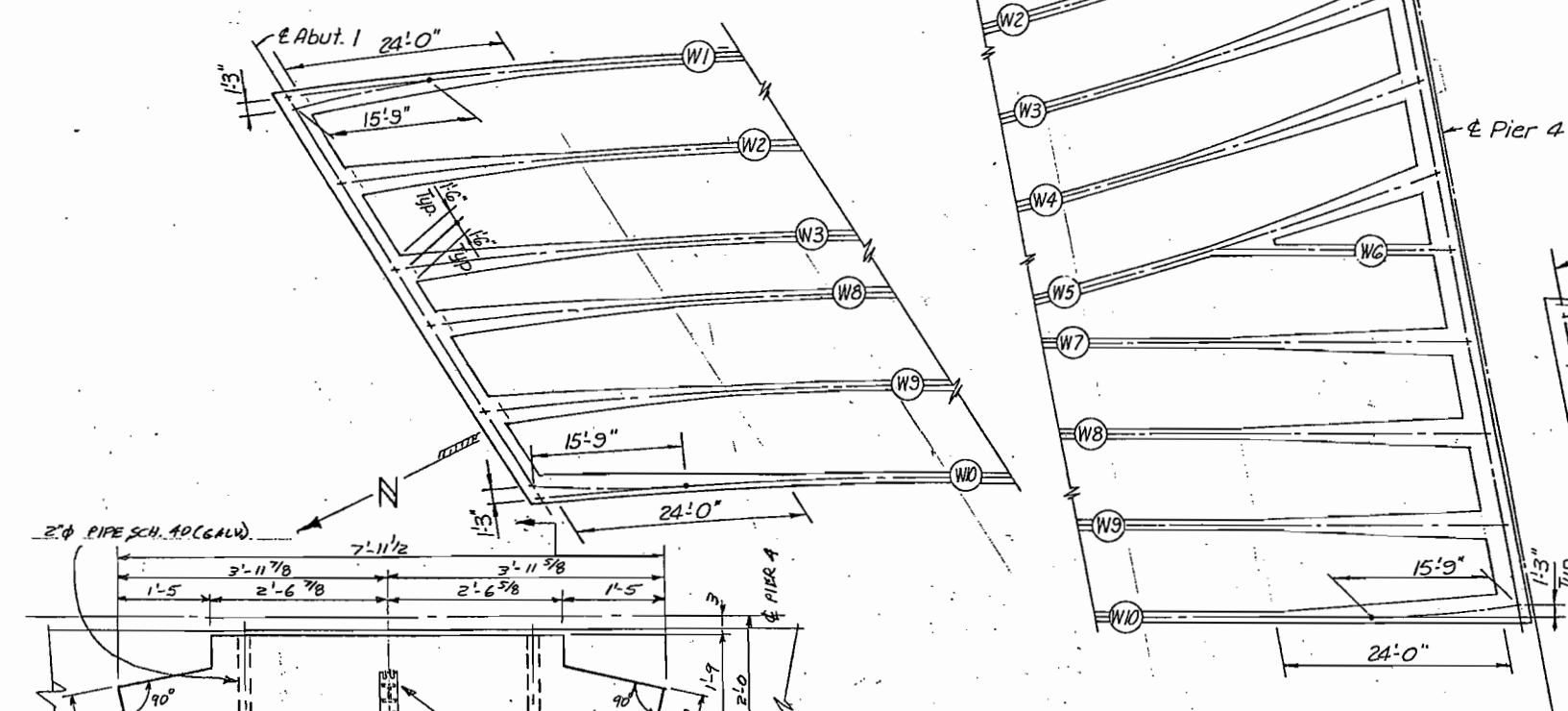


* Required On Exterior Webs Only. Place $\frac{1}{2}$ On Outside Edge As Shown. See Also Tendon Placement Detail Dwg. No. B-28.

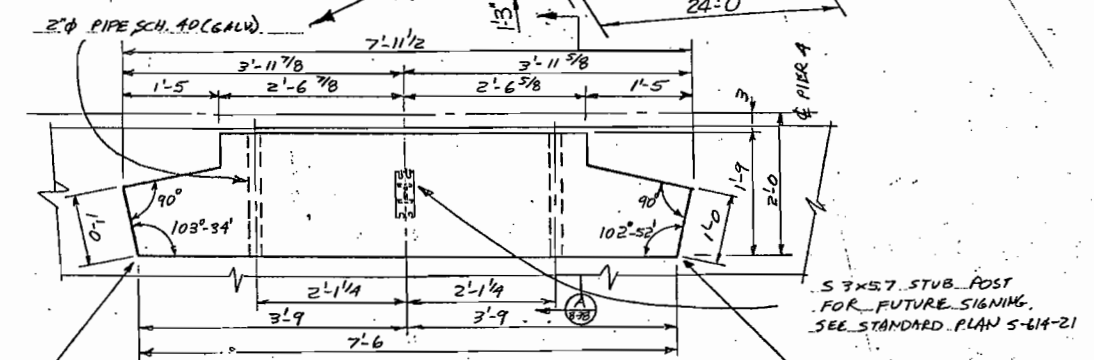
REVISIONS	



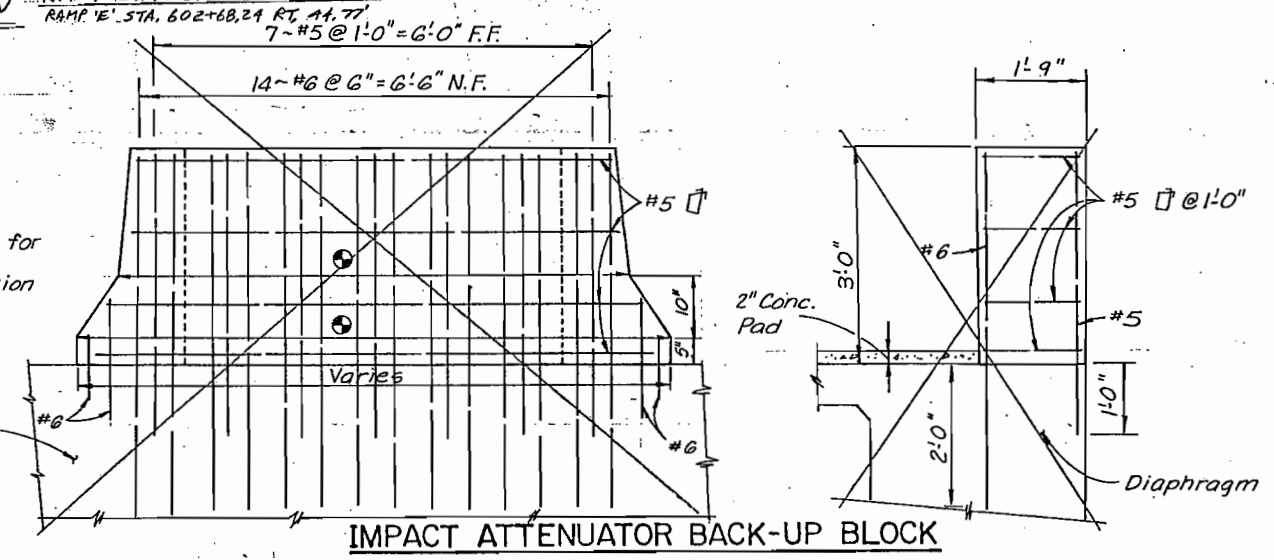
TYPICAL EXTERIOR WEB FLARE PLAN



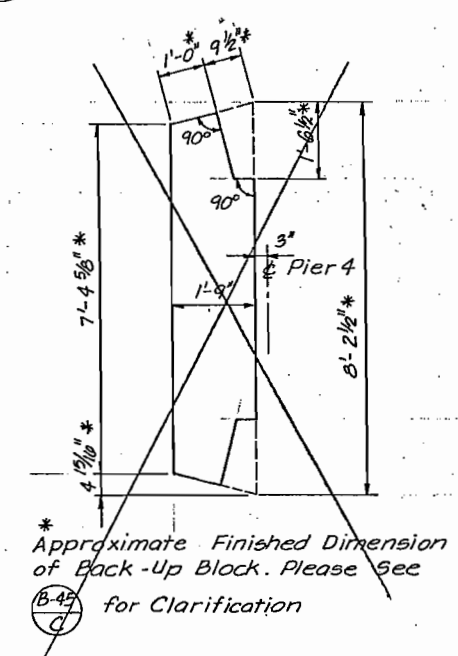
WEB FLARE PLAN



IMPACT ATTENUATOR BACK-UP BLOCK



IMPACT ATTENUATOR BACK-UP BLOCK



* Approximate Finished Dimension of Back-Up Block. Please See (B-47) for Clarification

- NOTES**
1. For Prestress Anchorage Details See Dwg. B-41
 2. For Prestress Tendon Elevation See Dwg. B-32 Thru B-37.
 3. The Typical Exterior Web Flare Reinforcement #5 \square and #4 L are in addition to the Reinforcement shown on Dwg. B-32 thru B-37.

DATE	CHECKED BY	QUANTITIES BY
10-85	M.R.M.	R.M.H.
10-85	M.R.M.	R.M.H.
10-85	M.R.M.	R.M.H.

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

SUPERSTRUCTURE DETAILS

WEB FLARES

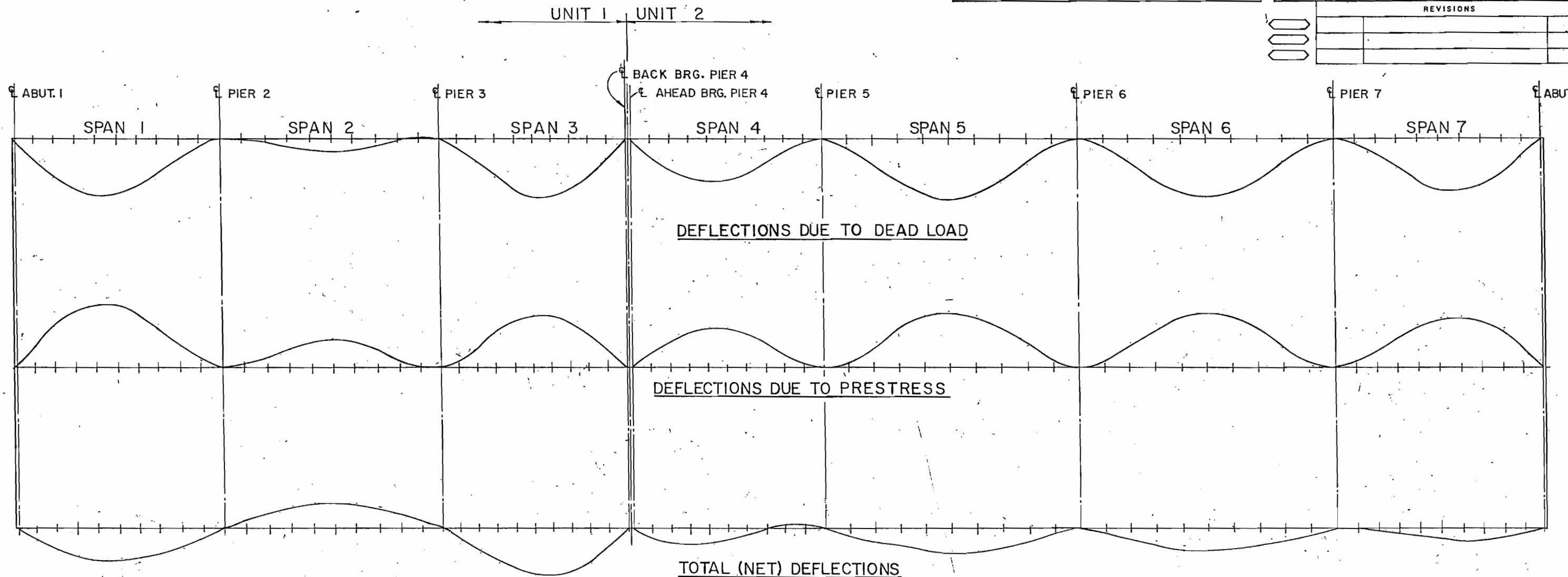
Designer M. Merklinger	Structure F-16-NK
Detailer R. Hinshaw	Numbers F-16-OE
Drawing Number B-38 of 50 Drawings	

Revision Dates (Preliminary Stage Only)

AS CONSTRUCTED
NO REVISIONS 7/30/87 REVISED VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR 25-2(187)	130	176

REVISIONS	



DESIGNED BY	DATE	CHECKED BY
CHECKED BY	DATE	QUANTITIES BY
DETAILED BY	DATE	CHECKED BY

- NOTES:
- All Deflections Are In Feet.
 - Positive Deflections Are Downward.
 - The Total (Net) Deflections Have Been Multiplied By The Factor of Three (3) To Include The Long Term Effects.
 - Dead Load Deflections Include Superimposed Dead Load Effects.
 - The Camber in the Tables shall be applied to all Webs.

DEFLECTION TABLES

	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0
DEAD LOAD	0.000	0.027	0.050	0.066	0.074	0.073	0.064	0.049	0.030	0.012	0.000	-0.001	0.004	0.010	0.016	0.018	0.016	0.011	0.004	-0.002	0.000	0.012	0.030	0.048	0.062	0.071	0.071	0.063	0.048	0.025	0.000
PRESTRESS	0.000	-0.022	-0.041	-0.055	-0.061	-0.061	-0.052	-0.039	-0.022	-0.008	0.000	-0.002	-0.010	-0.019	-0.026	-0.028	-0.026	-0.018	-0.009	-0.001	0.000	-0.007	-0.020	-0.034	-0.046	-0.052	-0.052	-0.046	-0.034	-0.018	0.000
TOTAL	0.000	0.015	0.027	0.033	0.039	0.036	0.036	0.030	0.024	0.012	0.000	-0.009	-0.018	-0.027	-0.030	-0.030	-0.030	-0.021	-0.015	-0.009	0.000	0.015	0.030	0.042	0.048	0.057	0.057	0.051	0.042	0.021	0.000

	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0
DEAD LOAD	0.000	0.020	0.036	0.047	0.052	0.050	0.042	0.029	0.015	0.004	0.000	0.011	0.033	0.055	0.071	0.077	0.071	0.054	0.031	0.010	0.000	0.009	0.030	0.052	0.068	0.074	0.068	0.053	0.031	0.010	0.000
PRESTRESS	0.000	-0.015	-0.030	-0.041	-0.046	-0.046	-0.039	-0.029	-0.016	-0.005	0.000	-0.008	-0.027	-0.048	-0.062	-0.067	-0.062	-0.046	-0.026	-0.008	0.000	-0.007	-0.025	-0.045	-0.059	-0.065	-0.060	-0.046	-0.026	-0.007	0.000
TOTAL	0.000	0.015	0.018	0.018	0.018	0.012	0.009	0.000	-0.003	-0.003	0.000	0.009	0.018	0.021	0.027	0.030	0.027	0.024	0.015	0.006	0.000	0.006	-0.015	0.021	-0.027	0.027	0.024	0.021	0.015	0.009	0.000

	7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0
DEAD LOAD	0.000	0.006	0.021	0.038	0.053	0.063	0.066	0.060	0.045	0.025	0.000
PRESTRESS	0.000	-0.006	-0.019	-0.035	-0.050	-0.059	-0.061	-0.055	-0.042	-0.023	0.000
TOTAL	0.000	0.000	0.006	0.009	0.009	0.012	0.015	0.015	0.009	0.006	0.000

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

SUPERSTRUCTURE DEFLECTIONS

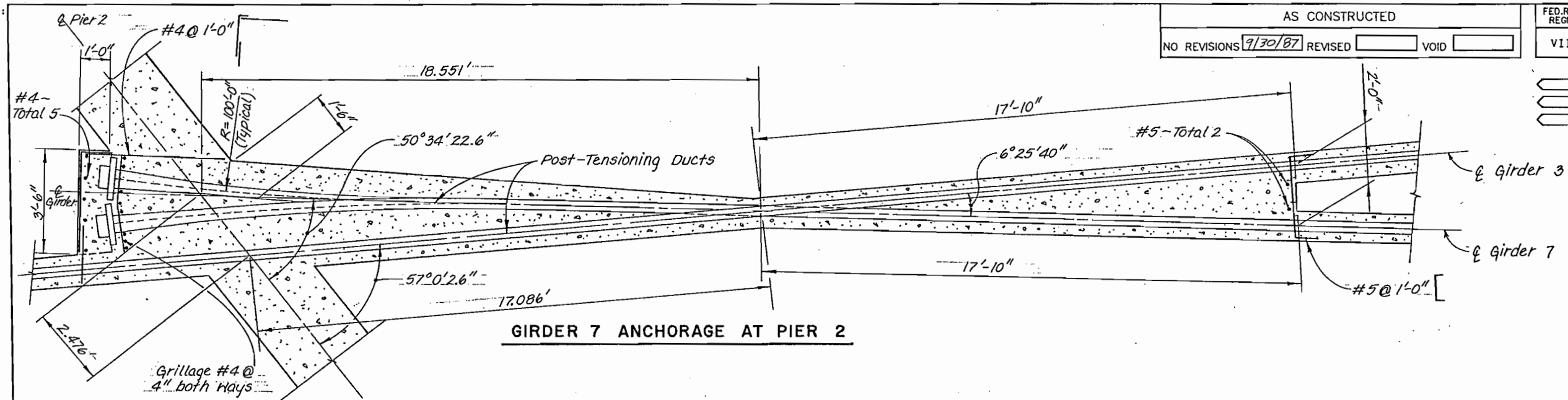
Designer <i>Boustani/Merklinger</i>	Structure	F-16-NK
Detailer <i>R. Hinshaw</i>	Numbers	F-16-OE
Drawing Number <i>B-39</i> of <i>50</i> Drawings		

Revision Dates	(Preliminary Stage Only)

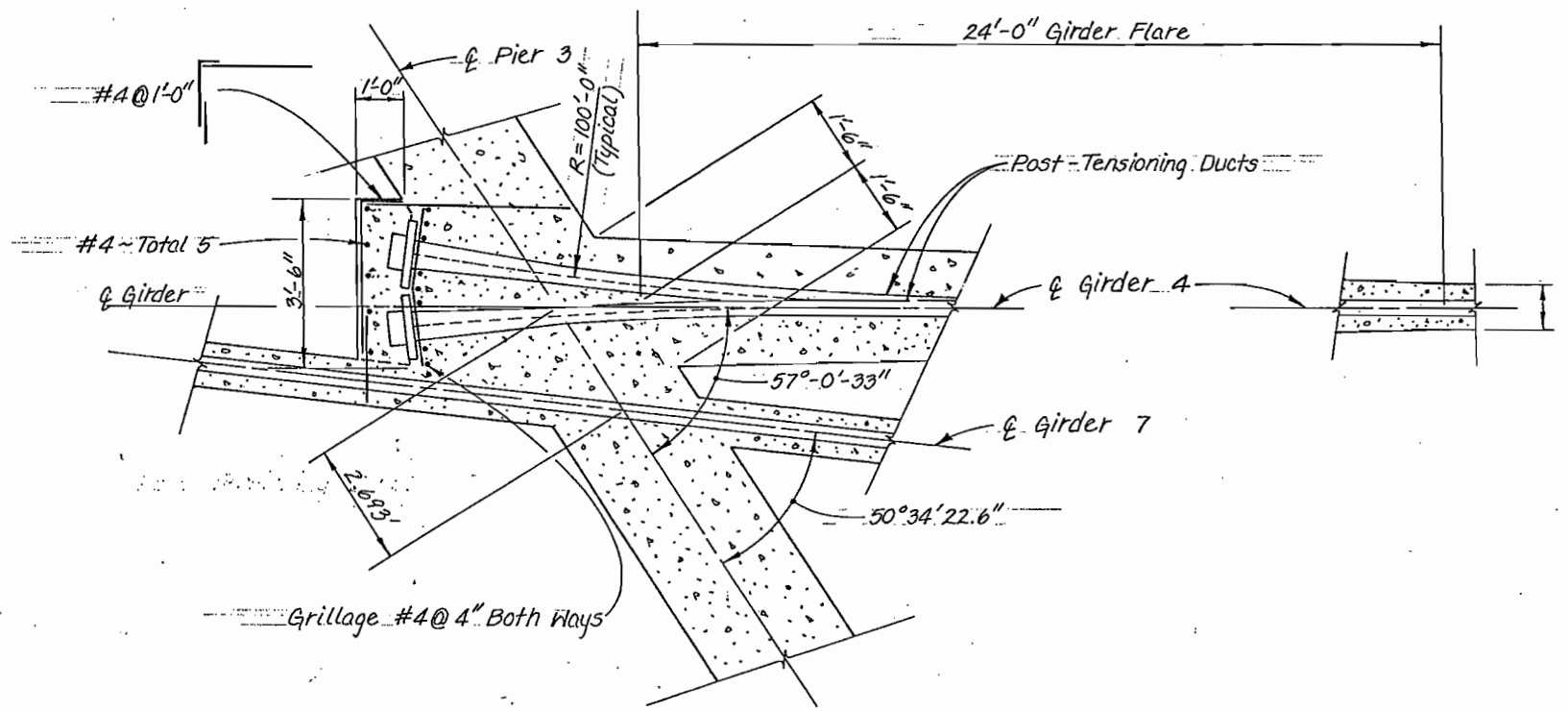
AS CONSTRUCTED
 NO REVISIONS 9/30/87 REVISED VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR 25-2(187)	131	177

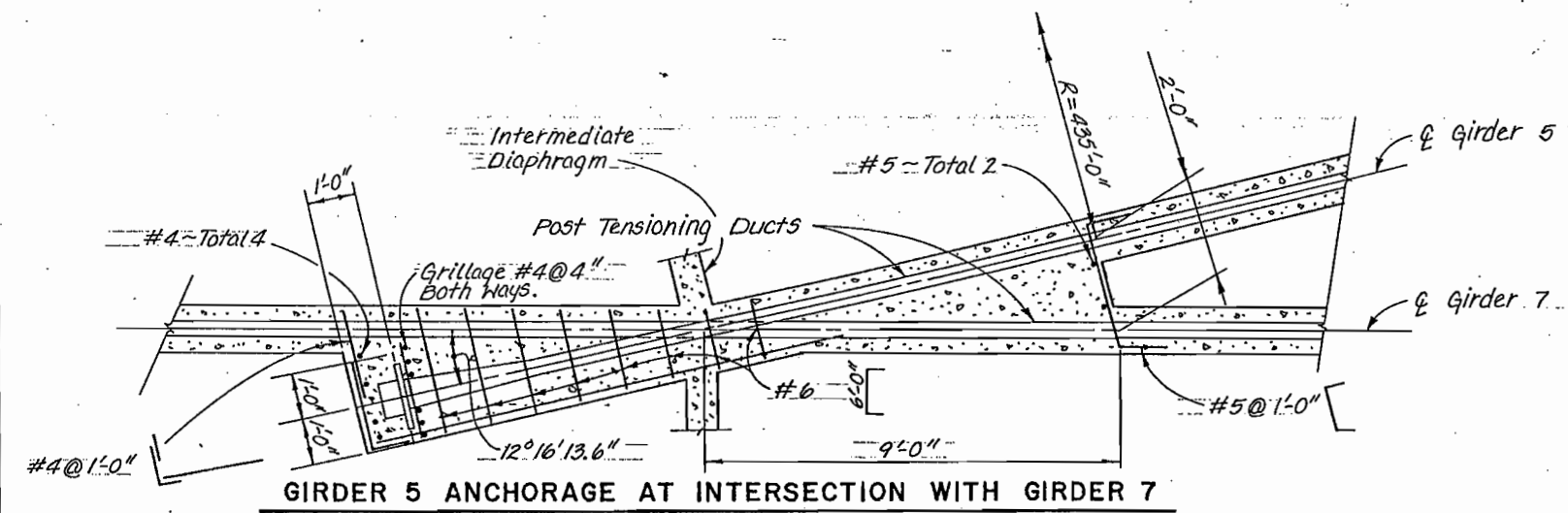
REVISIONS	



GIRDER 7 ANCHORAGE AT PIER 2



GIRDER 4 ANCHORAGE AT PIER 3



GIRDER 5 ANCHORAGE AT INTERSECTION WITH GIRDER 7

DESIGNED BY	DATE	CHECKED BY
J.L.S.	9-85	J.L.S.
CHECKED BY	DATE	QUANTITIES BY
S.Y.S.	9-85	R.M.H.
DETAILS BY	DATE	CHECKED BY

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

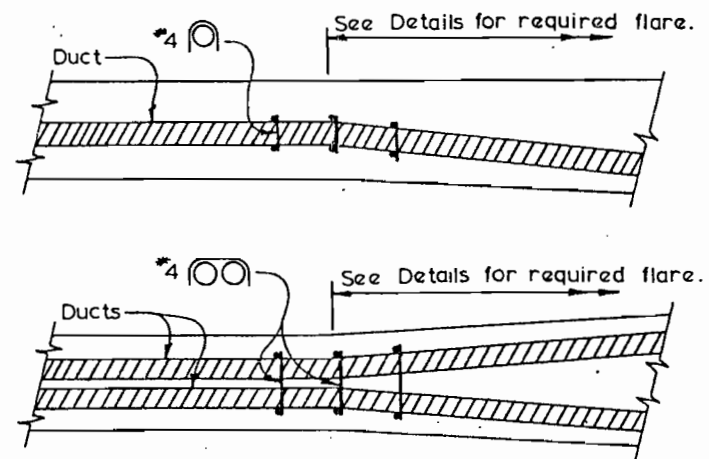
POST-TENSIONING ANCHORAGE DETAILS UNIT ①

Designer J. Stapleton	Structure Numbers	F-16-NK
Detailer S. Shiba		
Drawing Number B-40	of 50	Drawings

Revision Dates (Preliminary Stage Only)

REVISIONS	

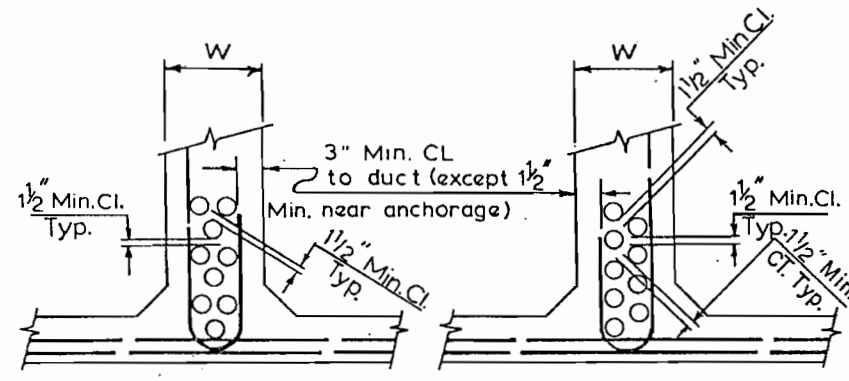
BRIDGE STANDARD 73



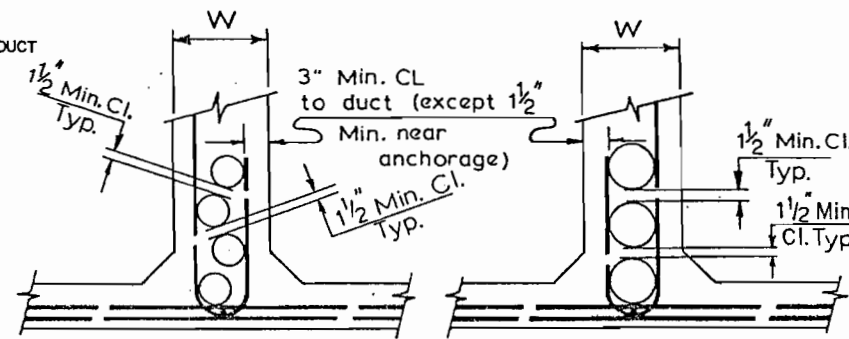
PLAN VIEWS
 Provide #4 ties for each pair of ducts, or single ducts, tie to three stirrups at beginning of duct flare.

ADDITIONAL REINFORCEMENT AT FLARE OF DUCTS

NOTES FOR DUCT CLEARANCE
 DUCT PATTERNS SHOWN ARE FOR A "W" WIDE GIRDER STEM: FOR WIDTH "W", SEE PLANS.
 GIRDER STIRRUPS MUST BE BENT TO FIT THE DUCT SIZE USED, OR U STIRRUPS MAY BE USED.
 APPROVAL OF THE ENGINEER IS REQUIRED FOR DEVIATIONS.

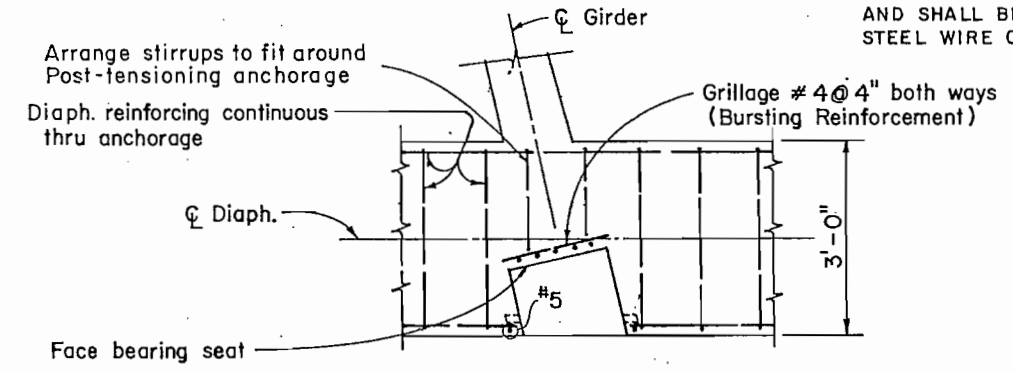


Ducts 3" O.D. & Less Ducts Over 3" O.D. & Less Than 4" O.D.



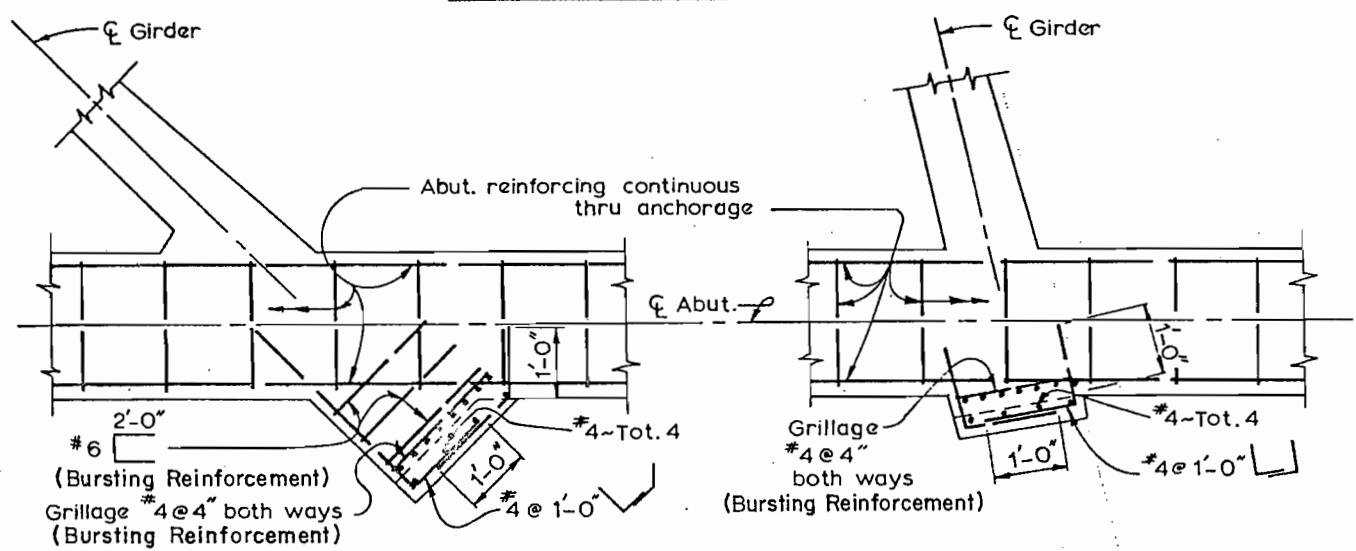
Ducts 4" to 4 1/2" O.D. Ducts Over 4 1/2" O.D.

CLEARANCE REQUIREMENTS FOR DUCTS

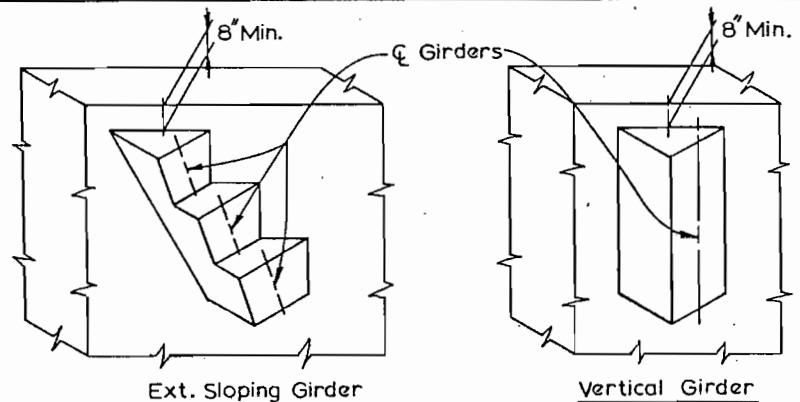


BEARING SEAT FOR PRESTRESSED ANCHORAGE AT PIER 4 UNIT 1 ONLY

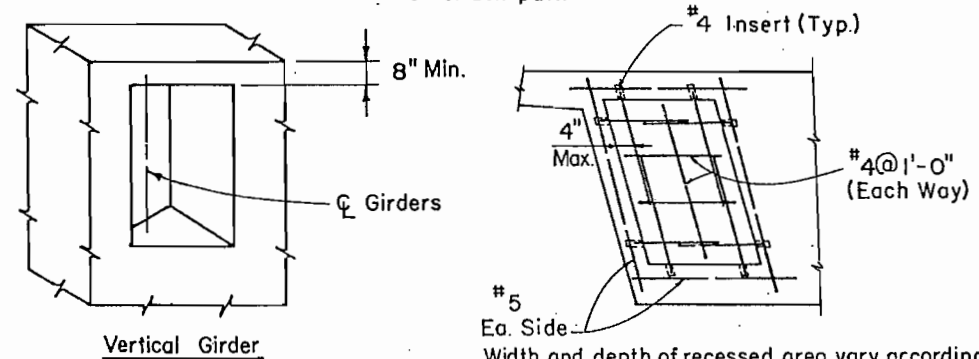
Note: Bearing plates shall be placed normal to tendon path



BEARING SEAT FOR PRESTRESSED ANCHORAGE AT ABUTMENTS AND PIER 4 UNIT 2



TYPICAL BEARING SEAT ILLUSTRATIONS
 Details may be modified to specific anchorage



Width and depth of recessed area vary according to Post-tensioning supplier. Recess to be filled with non-shrinking grout after tendons are stressed

CLOSURE OF ANCHORAGE

NOTES:
 RECESS FOR ANCHORAGE TO BE FILLED WITH CONCRETE TO PROVIDE A MINIMUM OF 1-1/2" COVER.
 EDGE DISTANCE OF BEARING PLATES SHALL BE 1-1/2" MINIMUM.
 DISTRIBUTION OF PRESTRESSING FORCE:

AT THE CONTRACTOR'S OPTION, THE PRESTRESSING FORCE MAY VARY 5% FROM THE THEORETICAL FORCE PER GIRDER PROVIDED THE TOTAL FORCE IS OBTAINED AND IS DISTRIBUTED SYM. ABOUT THE CENTERLINE OF THE TYPICAL SECTION.

STRESSING SEQUENCE:
 NO MORE THAN 1/2 OF THE PRESTRESSING FORCE IN ANY GIRDER MAY BE STRESSED BEFORE AN EQUAL FORCE IS STRESSED IN THE ADJACENT GIRDERS. AT NO TIME DURING THE STRESSING OPERATIONS WILL MORE THAN 1/6 OF THE TOTAL PRESTRESSING FORCE BE APPLIED ECCENTRICALLY ABOUT THE CENTERLINE OF THE STRUCTURE.

GIRDER STEM SHALL BE FLARED NEAR ANCHORAGE TO PROVIDE A MINIMUM OF 1-1/2" CONCRETE COVERING THE DUCTS, FLARE MAY BE ON ONE SIDE OF THE GIRDER ONLY.

BAR REINFORCEMENT INTERFERING WITH THE PRESTRESSING TENDON ALIGNMENT SHALL BE ADJUSTED AS APPROVED BY THE ENGINEER.

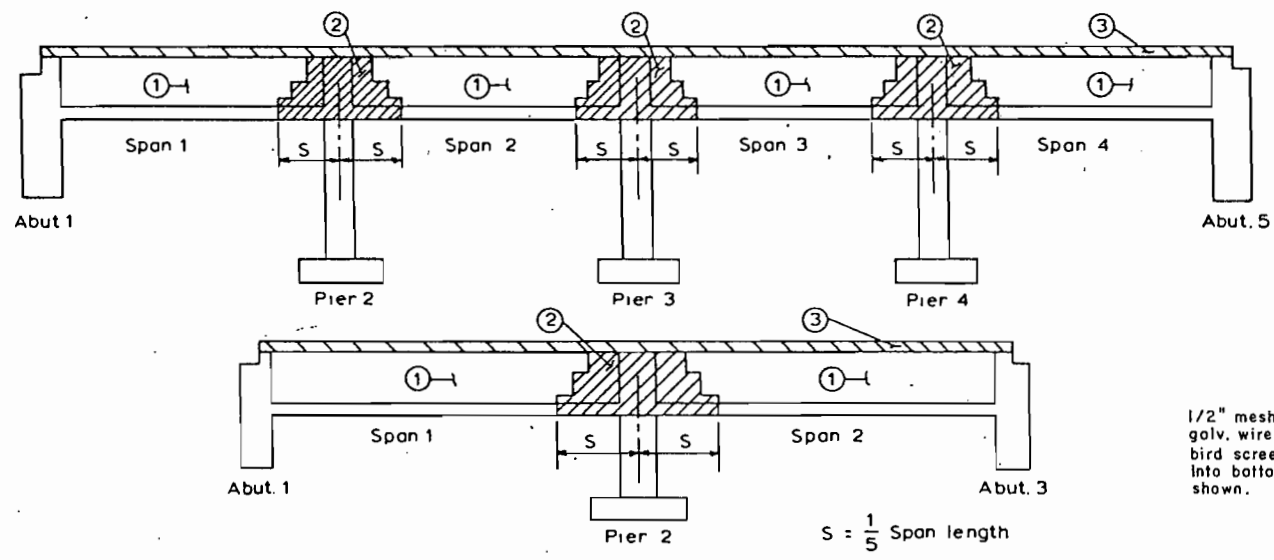
GIRDER STEM SHALL BE FLARED NEAR ANCHORAGE AS SHOWN ON DWG. B-38.

ADEQUATE BURSTING REINFORCEMENT SHALL BE PROVIDED, AND SHALL BE INCIDENTAL TO ITEM 618, PRESTRESSING STEEL WIRE OR STRAND.

DIVISION OF HIGHWAYS			
CAST-IN-PLACE PRESTRESSED GIRDER DETAILS			
Designer Stapleton/Merklinger	Structure	F-16-NK	
Detailer S. Shibao	Numbers	F-16-OE	
Drawing Number B-41		of	50 Drawings

AS CONSTRUCTED		
NO REVISIONS	9/30/87	REVISED
		VOID

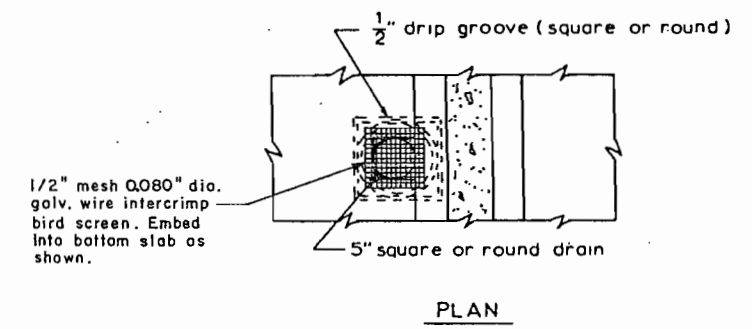
FEDERAL ROAD REGION NO.	DIVISION	PROJ. NO.	SHEET NO.	TOTAL SHEETS
VIII	COLORADO	IR 25-2(187)	133	177



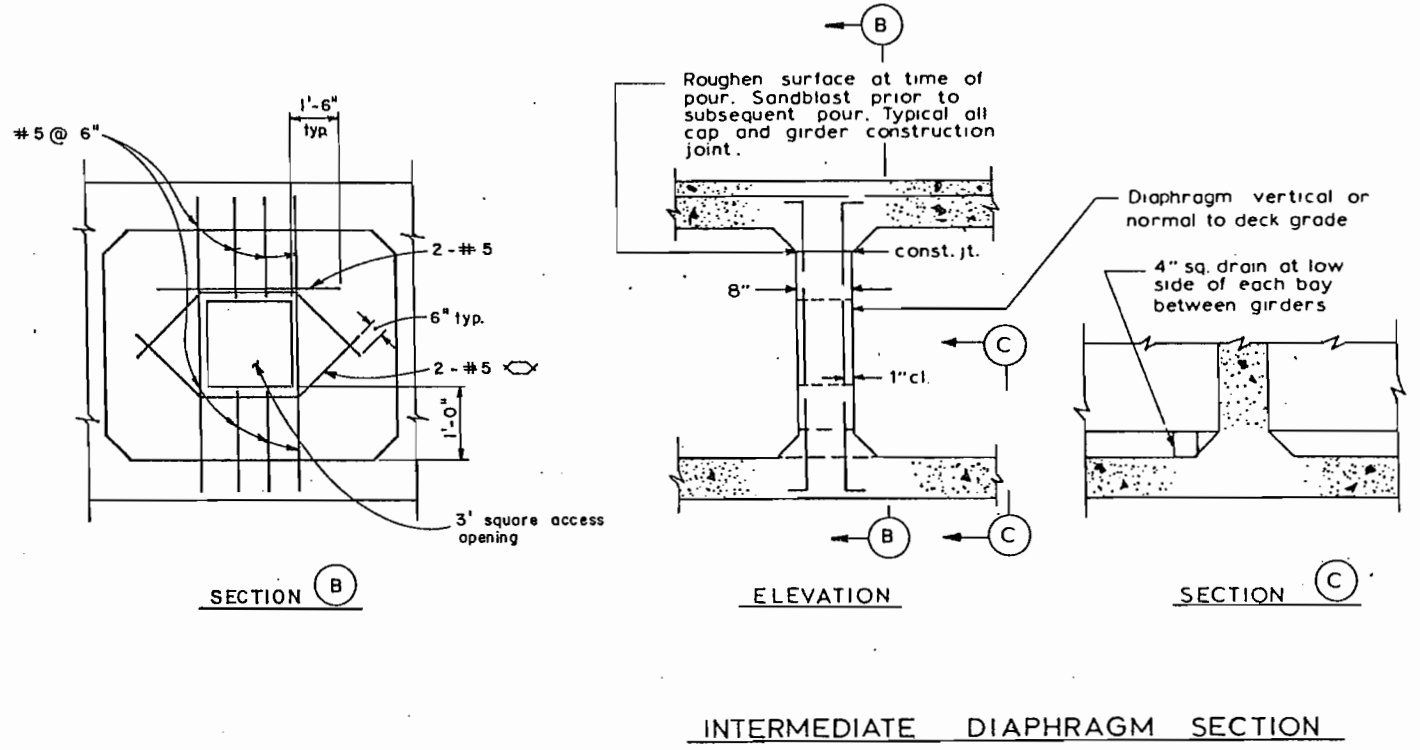
$S = \frac{1}{5}$ Span length

BOX GIRDER SUPERSTRUCTURE PLACING SCHEDULE

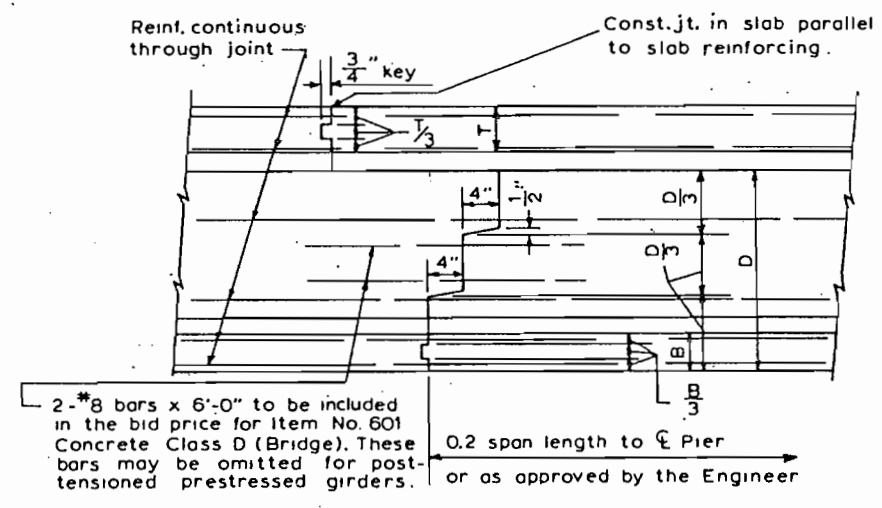
Note Numbers ① and ② indicate sequence of placing bottom slab and girder web concrete when each section constitutes a separate pour. ③ Shall be placed separately from ① and ②. ③ may be placed continuously or in parts, as approved by the Engineer, providing no transverse construction joints fall within the ② areas. Contractors may submit an alternate placing schedule to the engineer for approval.



PLAN
ELEVATION
BOTTOM SLAB DRAIN DETAIL



INTERMEDIATE DIAPHRAGM SECTION



TRANSVERSE GIRDER CONSTRUCTION JOINT

T = Top slab thickness
B = Bottom slab thickness

CHECKED BY: J.L.S. 9-23-87
 QUANTITIES BY: R.S.P. 11-20-87
 CHECKED BY: R.S.P. 11-20-87

REVISIONS			

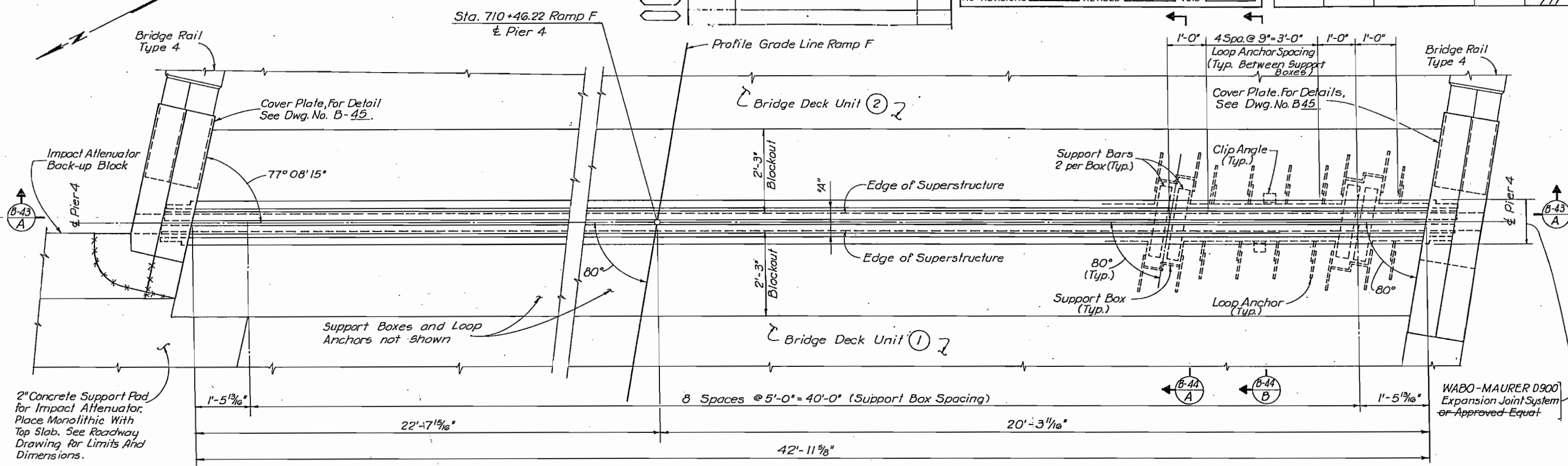
BRIDGE STANDARD 71

DIVISION OF HIGHWAYS			
BOX GIRDER DETAILS			
Designer C.D.O.H.	Structure F-16-NK		
Detailer R. Panning	Numbers F-16-OE		
Drawing Number B-42	of 50	Drawings	
Revision Dates		(Preliminary Stage Only)	

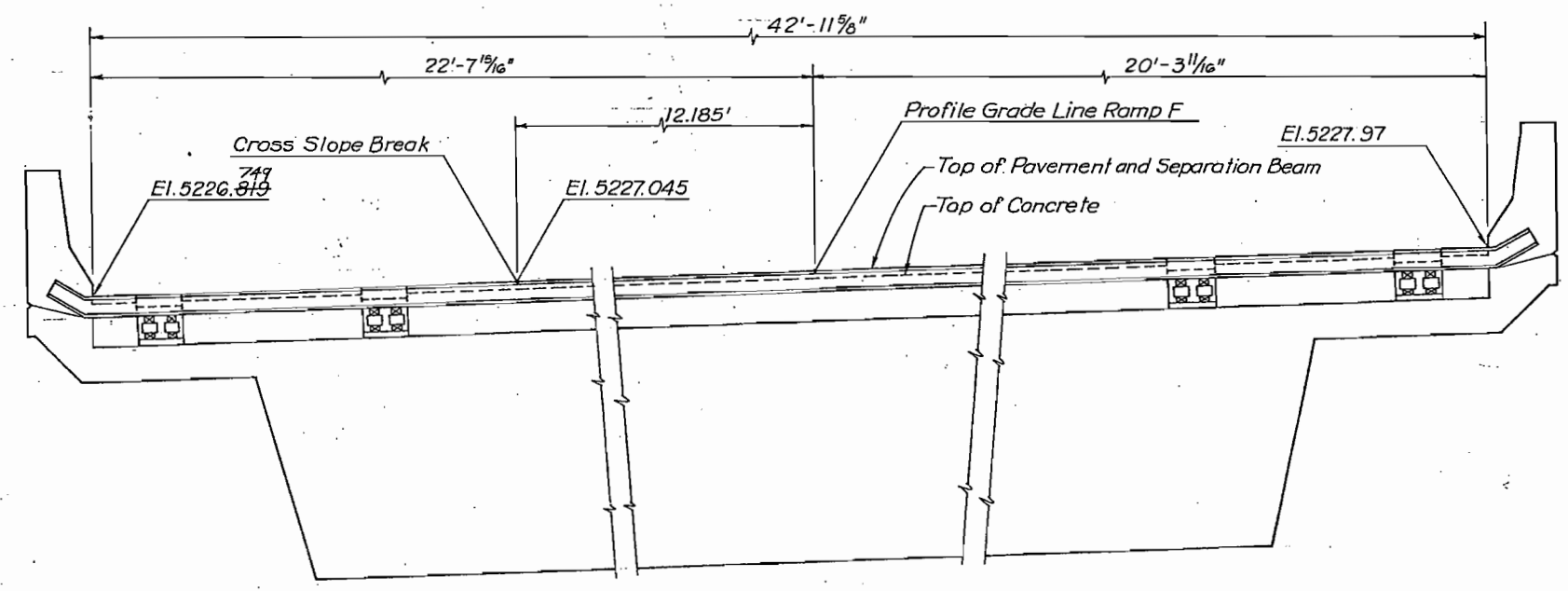
REVISIONS	

AS CONSTRUCTED
 NO REVISIONS REVISED 7/30/87 VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR25-2(187)	134	178 777



PLAN AT PIER 4



SECTION B-43
A

NOTE
 Work This Drawing With Drawing No. B-44
 And B-45.

DESIGNED BY	CHECKED BY	DATE	INITIAL
J.L.S.	J.L.S.	10-85	J.L.S.

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

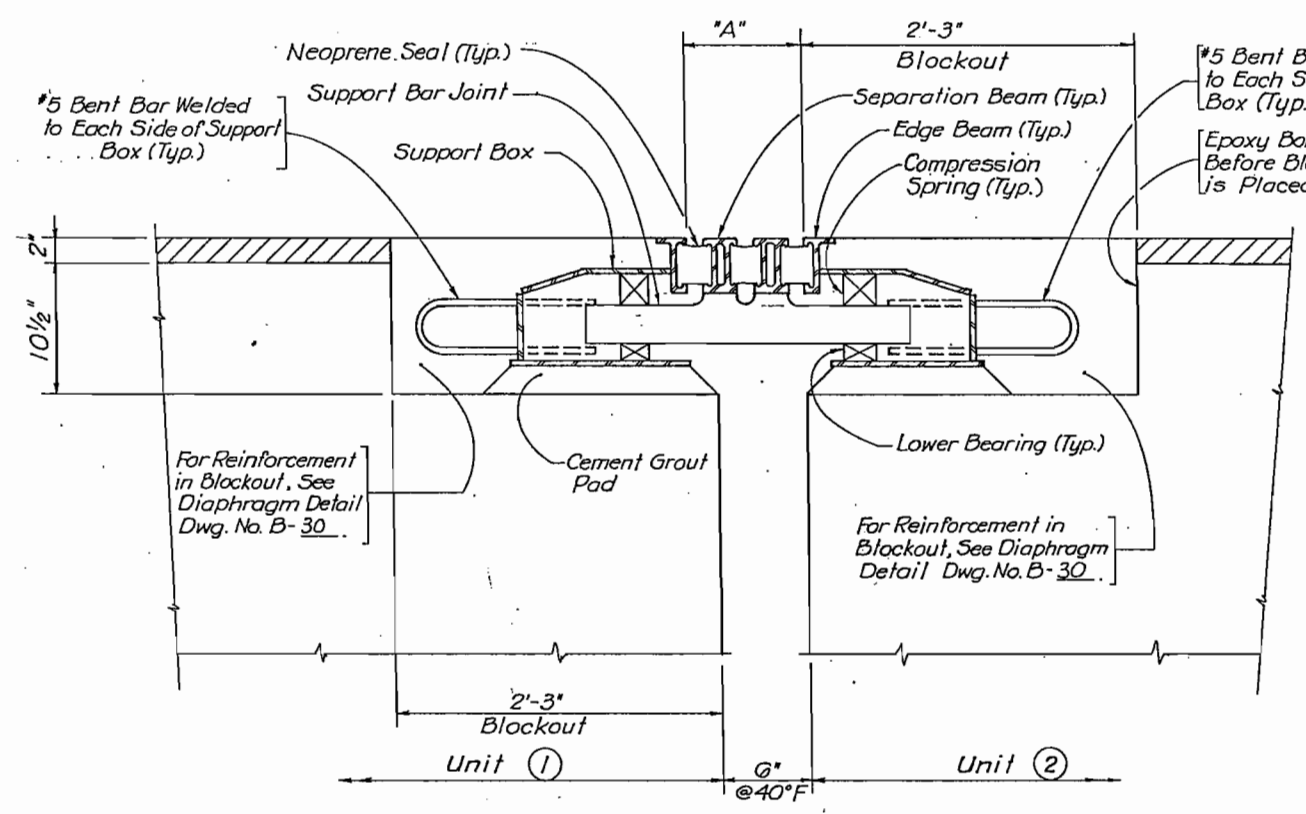
**EXPANSION DEVICE
 (0-9 INCH)
 PIER 4**

Designer <i>J. Stapleton</i>	Structure Numbers	F-16-NK F-16-OE
Detailer <i>V. Villao</i>		
Drawing Number B-43 of 50 Drawings		

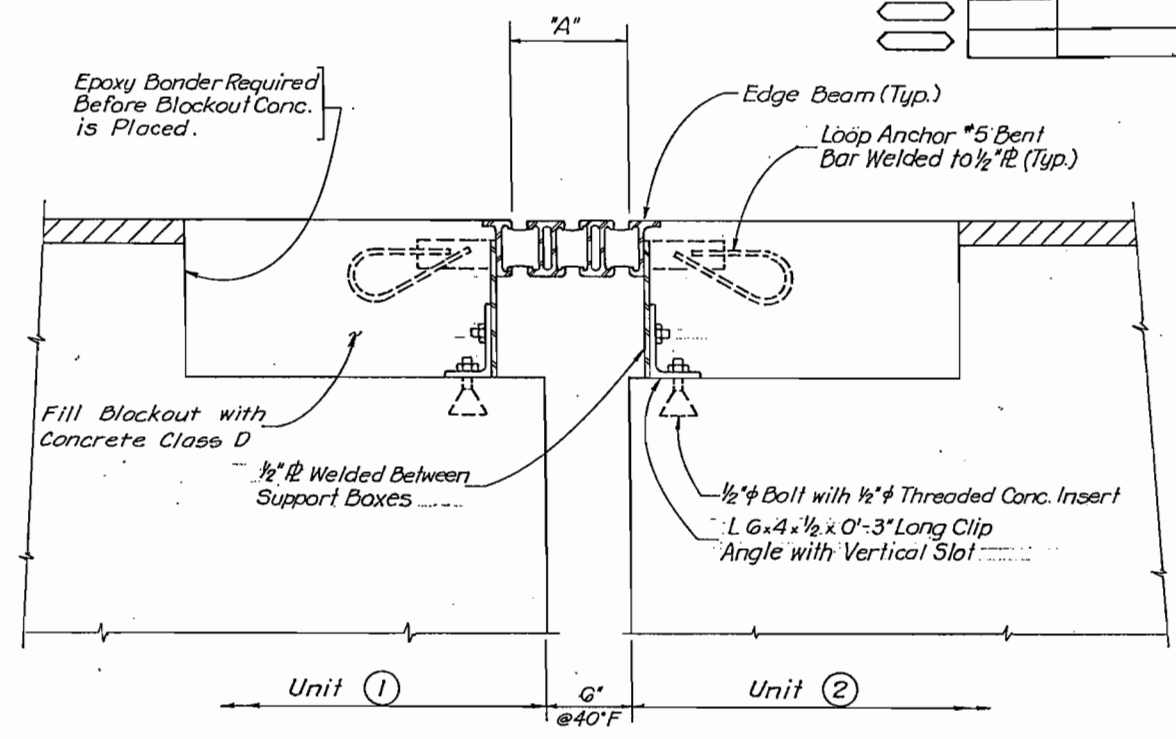
Revision Dates (Preliminary Stages Only)

AS CONSTRUCTED		FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
NO REVISIONS	7/30/87	VIII	COLO.	IR25-2(187)	135	177

REVISIONS	



SECTION A (B-43)

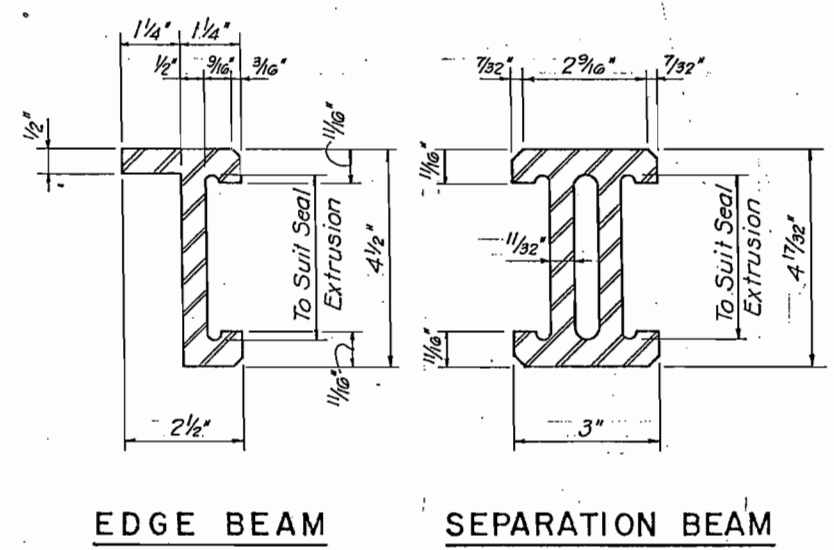


SECTION B (B-43)

- NOTES:**
1. Location and size of support bars, anchor assembly, anchor angle, bracket for attachment to steel and stiffener plates shall be per manufacturer's drawings.
 2. See table for dimension "A".
 3. The expansion device shall be installed on grade, parallel to the slope and grade of the deck.
 4. After the concrete has attained initial set, the attachments used to hold the expansion device assembly in its proper position shall be removed.
 5. Do not paint steel surfaces in contact with concrete and elastomeric seals.
 6. "A" dimensions are dependent upon the particular expansion device supplied, and shall be shown on the shop drawings.
 7. The shop drawings shall indicate the "A" dimensions at a range of temperatures from 30°F to 100°F assuming a mid-point temperature of 40°F.
 8. The neoprene seals shall be supplied and installed in one continuous piece.

STRUCTURE TEMPERATURE	PIER 4 DIMENSION "A"
30°F	8 ¹³ / ₁₆ "
40°F	8 ¹ / ₂ "
50°F	8 ³ / ₁₆ "
60°F	7 ¹³ / ₁₆ "
70°F	7 ¹ / ₂ "
80°F	7 ³ / ₁₆ "
90°F	6 ⁷ / ₈ "
100°F	6 ¹ / ₂ "

Min. "A" = 6" ; Max. "A" = 15"



DESIGNED BY	DATE	CHECKED BY	DATE
CHECKED BY	DATE	QUANTITIES BY	DATE
DETAILS BY	DATE	CHECKED BY	DATE

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

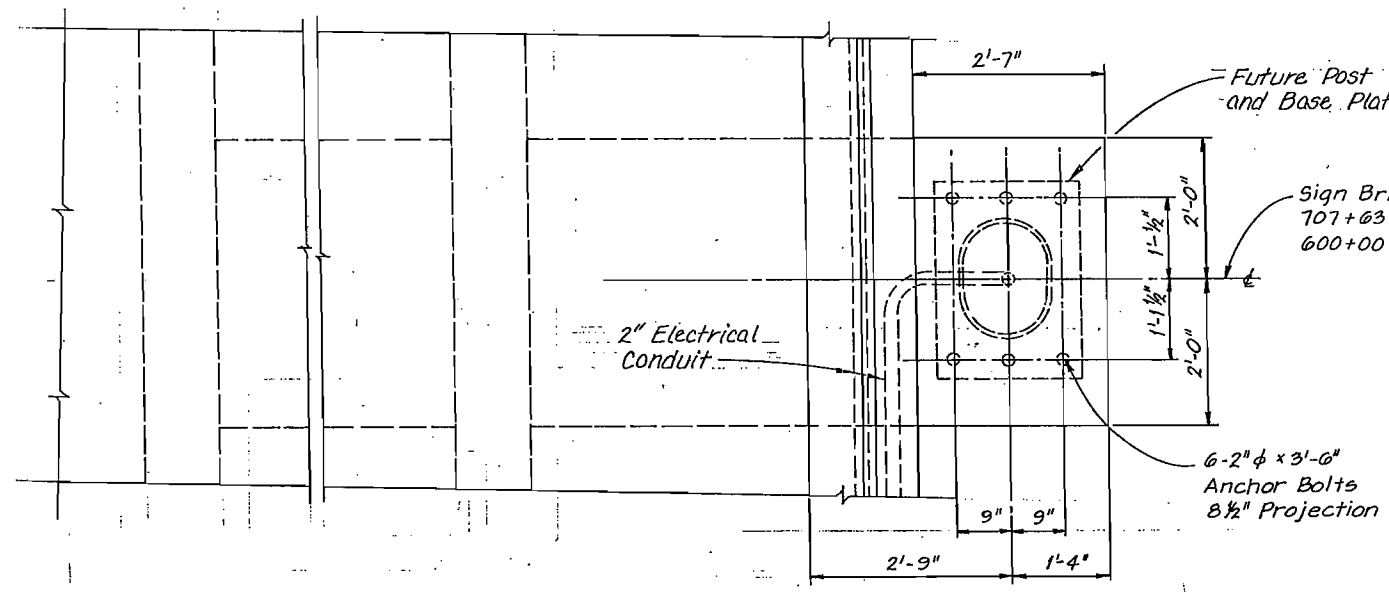
EXPANSION DEVICE (0-9 INCH) PIER 4

Designer J. Stapleton	Structure F-16-NK
Detailer V. Villao	Numbers F-16-OE
Drawing Number B-44 of 50 Drawings	

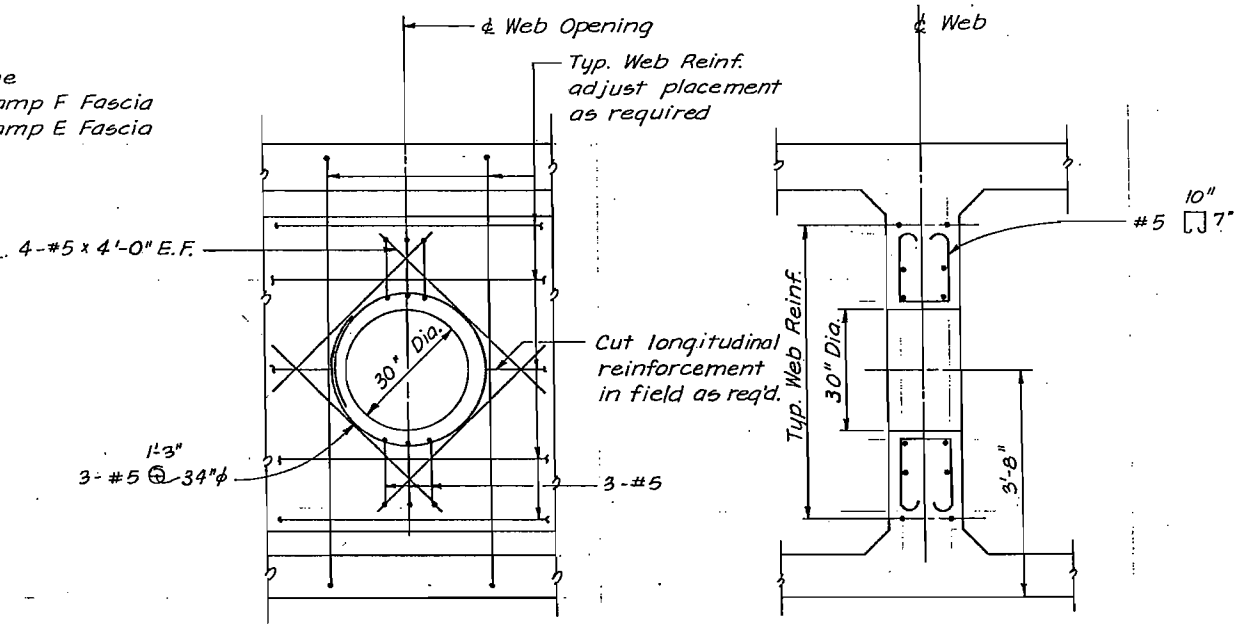
Revision Dates (Preliminary Stage Only)

AS CONSTRUCTED		
NO REVISIONS	REVISED 7/30/87	VOID

FED. ROAD REGION	DMSION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR 25-2(187)	138	177
REVISIONS				



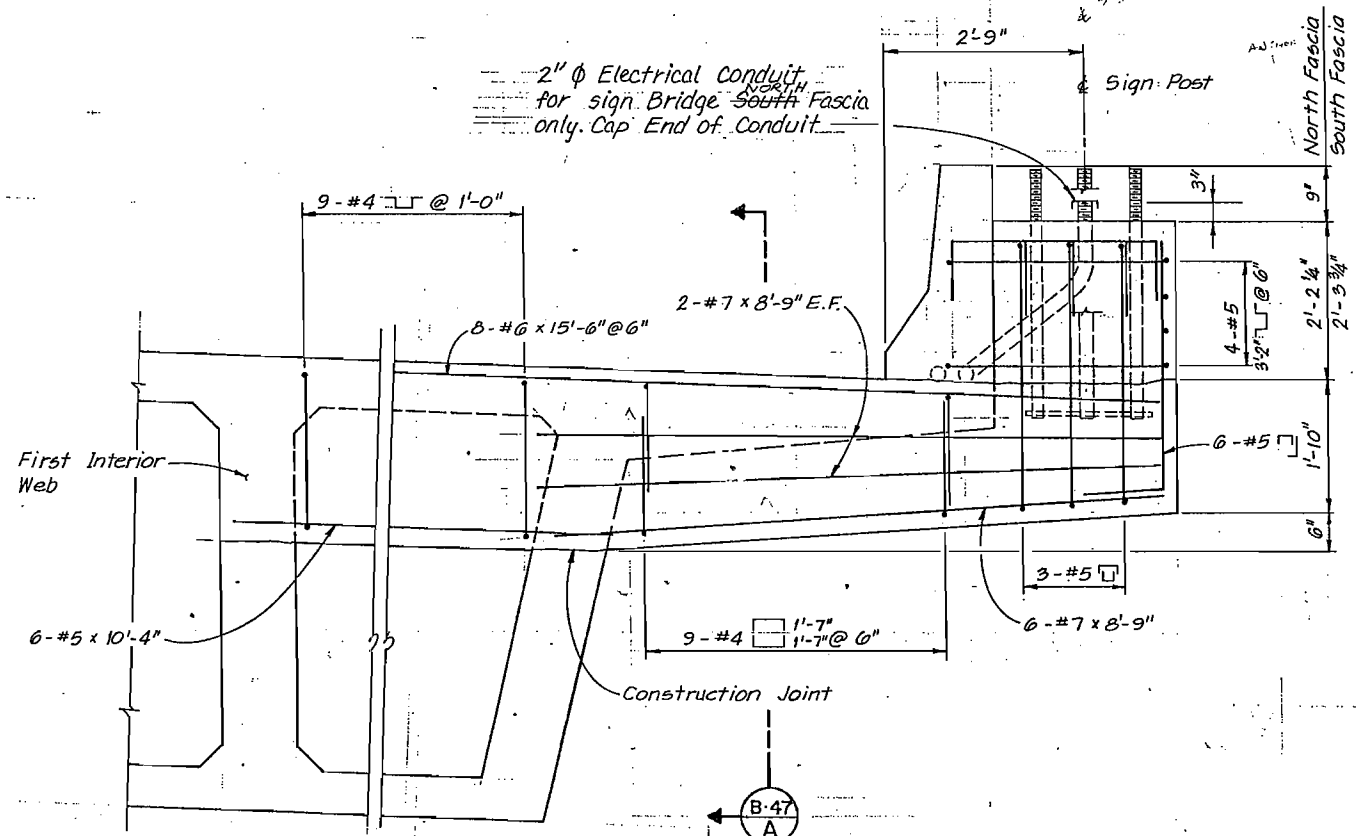
PLAN



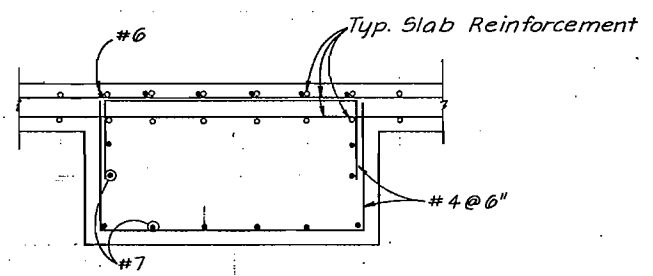
ELEVATION

SECTION

WEB OPENING DETAIL



ELEVATION
 BARRIER MODIFICATION FOR
 SIGN POST



SECTION B-47
 A

NOTES:
 1. For Anchor Bolt Details see Signing Plans.

DESIGNED BY	DATE	CHECKED BY
R. D. K.	10-85	R. D. K.
CHECKED BY	DATE	CHECKED BY
R. S. P.	10-85	R. M. H.
DETAILED BY		

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

SIGN BRIDGE
 BASE DETAILS

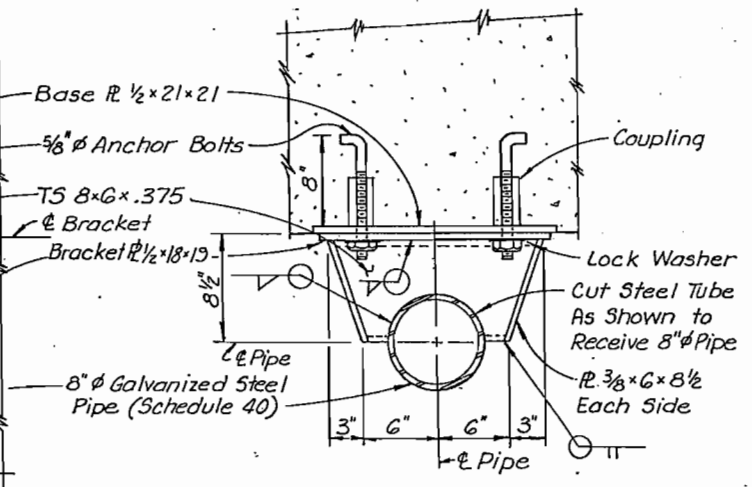
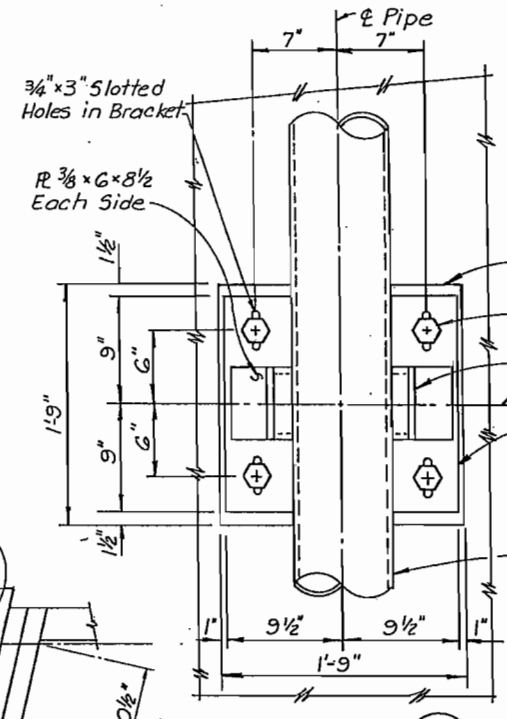
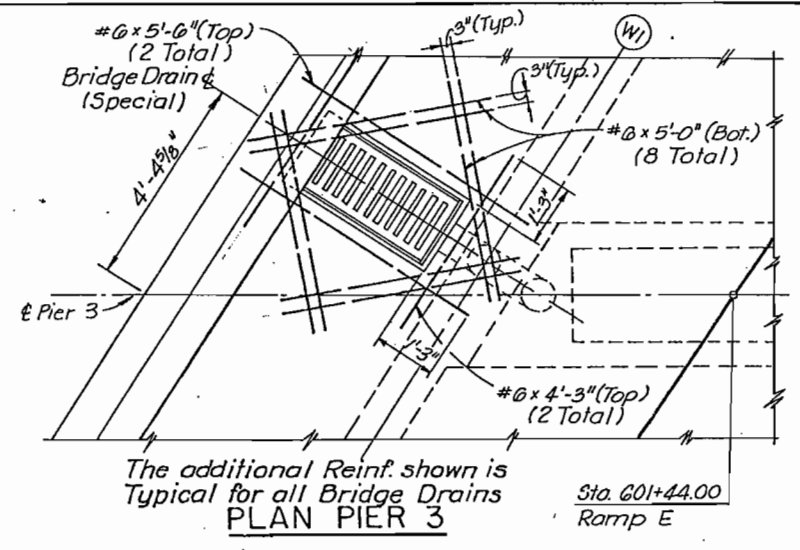
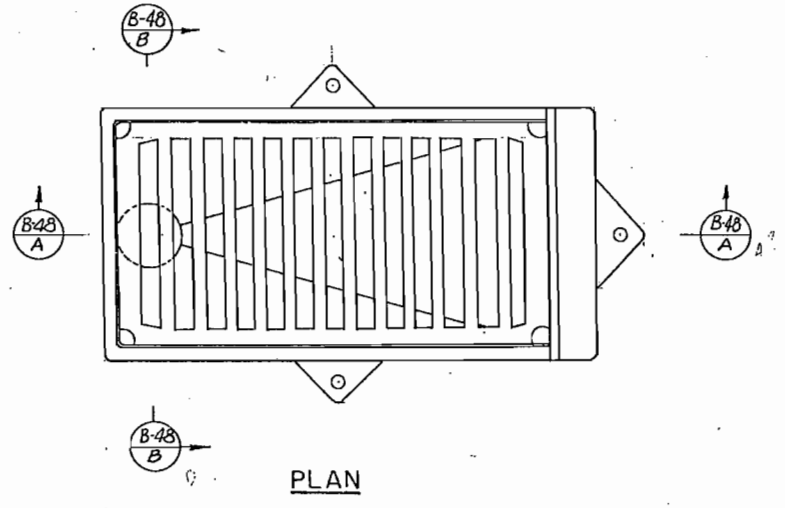
Designer R. Koester	Structure Numbers	F-16-NK
Detailer R. Panning		
Drawing Number B-47	of 50	Drawings

Revision Dates (Preliminary Stage Only)

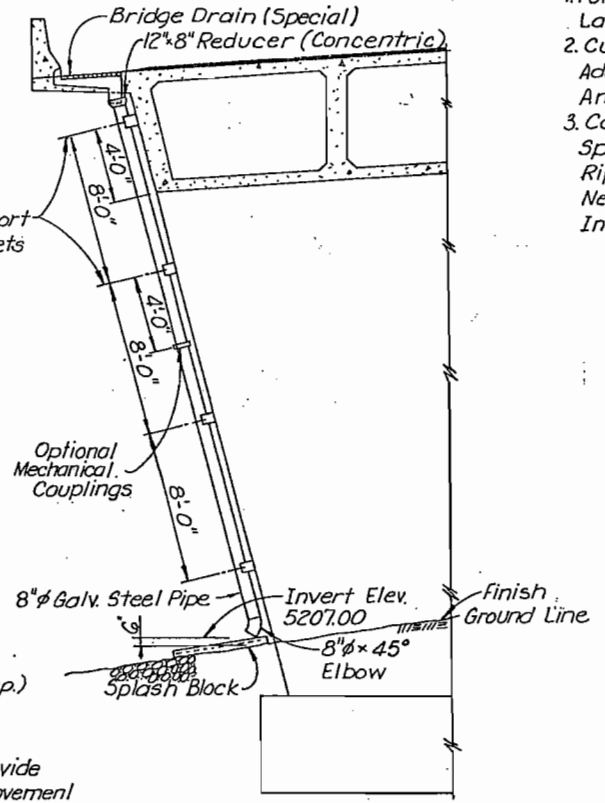
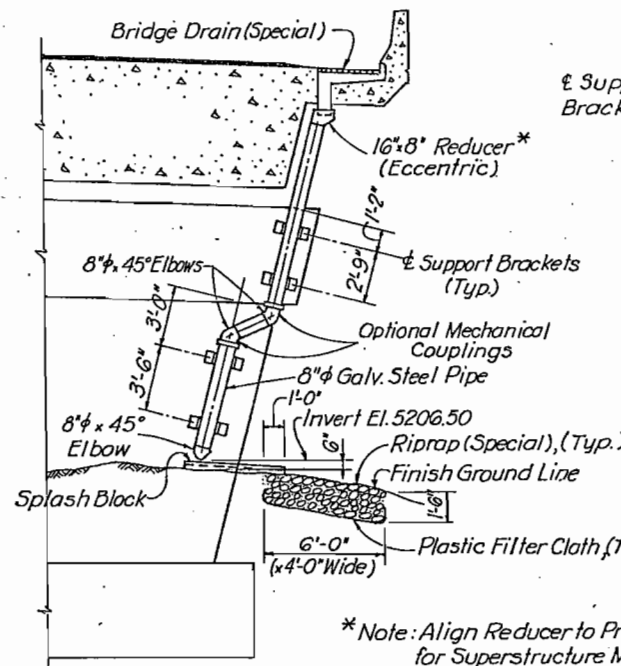
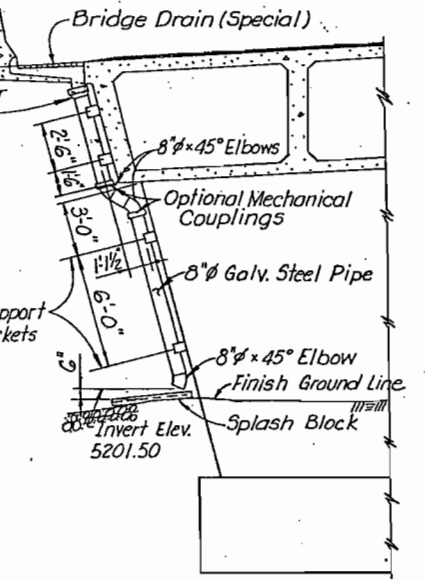
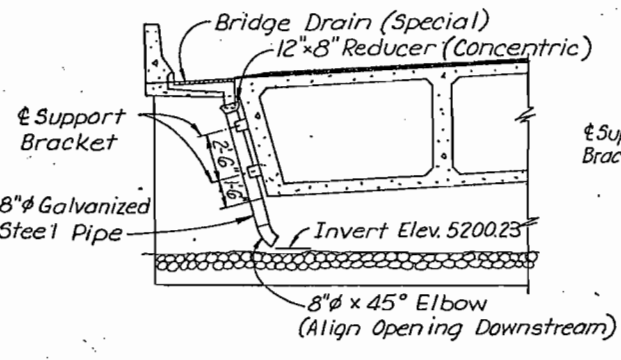
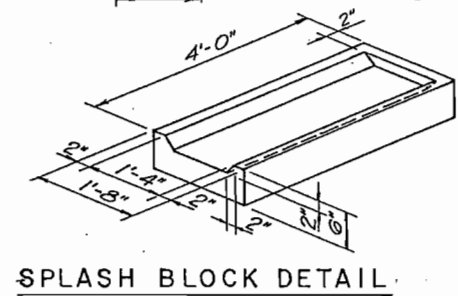
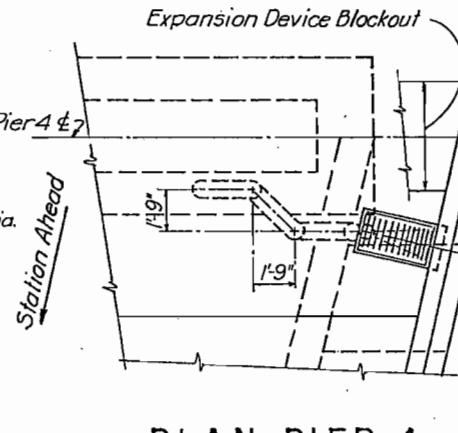
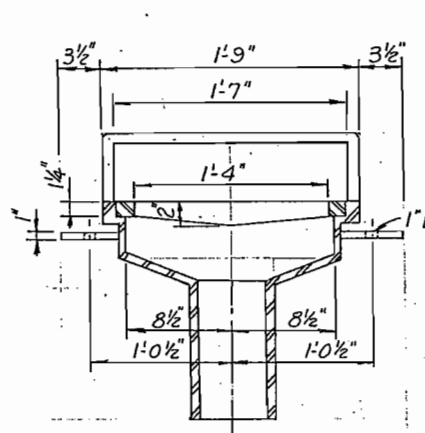
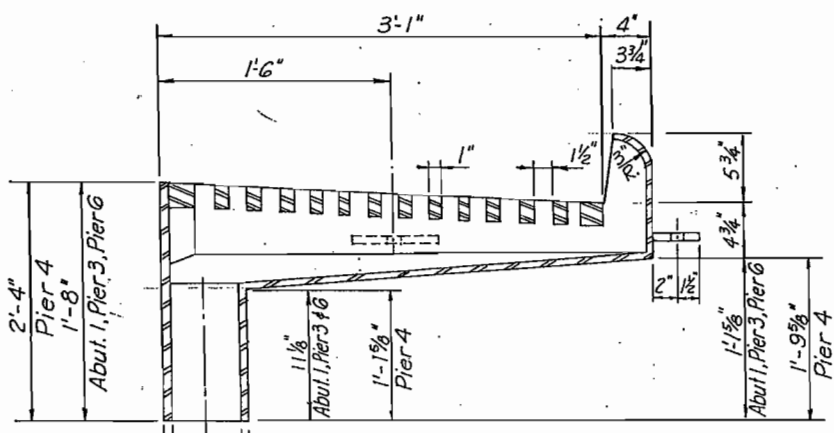
AS CONSTRUCTED	
NO REVISIONS	7/30/87 REVISED
	VOID

FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR 25-2(187)	139	177

REVISIONS	



DATE	CHECKED BY	QUANTITY BY
7-1-85	J.L.S.	R.M.H.
11-85	J.L.S.	R.M.H.
11-85	J.L.S.	R.M.H.



- DRAINAGE NOTES**
1. For Location of Bridge Drains, See Construction Layout.
 2. Cut Slab Reinforcing Bars to Clear Bridge Drains. Additional #6 Bars Shall Be Set Between Top and Bottom Slab Bars. Bend Bridge Rail Reinf.
 3. Cost of Furnishing and Installing 8" dia Pipe, Splash Blocks, Support Brackets, Bridge Drains, Riprap (Special), Plastic Filter Cloth, and Other Necessary Drainage System Incidentals Shall Be Included in Bridge Drain (Special).

* Note: Align Reducer to Provide for Superstructure Movement

De Leuw, Cather & Company
 Denver, CO.

DIVISION OF HIGHWAYS

BRIDGE DRAINAGE DETAILS

Designer J. Stapleton	Structure F-16-NK
Detailer R. Hinshaw	Numbers F-16-OE
Drawing Number B-48 of 50 Drawings	

Revision Dates (Preliminary Stage Only)

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION	COORDINATES FROM LAYOUT LINE		BENT LINE LENGTH FROM Y-AXIS OR OFFSET FROM EXTERIOR GIRDER	GIRDER LINE LENGTH
				OFFSET X	ORDINATE Y		
LONGITUDINAL LINE: NORTH OUTSIDE EDGE OF DECK							
CL BRG A1	706+70.750	-34.500	5212.631	-12.013	-383.221	-15.682	
CL PIER 2	707+81.159	-35.119	5214.932	-33.673	-267.571	-43.950	
CL PIER 3	601+37.272**	-9.965	5219.051	-48.045	-150.535	-62.718	
CL BRG P4	602+79.310*	-10.500	5224.171	-78.053	-15.263	-79.257	
LONGITUDINAL LINE: WEB 1							
CL BRG A1	706+73.021	-29.000	5212.293	-7.413	-379.361	-9.677	0.000
CL PIER 2	707+84.788	-29.817	5214.868	-28.650	-263.357	-37.394	118.092
CL PIER 3	601+40.941**	-4.531	5219.243	-43.022	-146.320	-56.161	236.018
CL BRG P4	602+78.122*	-5.000	5224.474	-72.516	-14.287	-73.635	371.815
LONGITUDINAL LINE: WEB 2							
CL BRG A1	706+77.281	-19.000	5211.683	0.975	-372.323	1.272	0.000
CL PIER 2	707+91.568	-20.249	5214.801	-19.517	-255.697	-25.474	118.561
CL PIER 3	601+47.612*	5.349	5219.654	-33.890	-138.657	-44.240	236.487
CL BRG P4	602+76.045*	5.000	5225.016	-62.458	-12.513	-63.422	366.286
LONGITUDINAL LINE: WEB 3							
CL BRG A1	706+81.721	-9.000	5211.071	9.394	-365.259	12.263	0.000
CL PIER 2	707+98.594	-10.777	5214.802	-10.385	-248.037	-13.554	119.013
CL PIER 3	601+54.284*	15.230	5220.075	-24.757	-130.994	-32.318	236.938
CL BRG P4	602+74.071*	15.000	5225.425	-52.410	-10.741	-53.219	360.740
LONGITUDINAL LINE: WEB 4							
CL PIER 3	601+60.955*	25.110	5220.373	-15.625	-123.331	-20.397	18.582
CL BRG P4	602+72.191*	25.000	5225.341	-42.372	-8.971	-43.026	136.390
LONGITUDINAL LINE: WEB 5							
CL BRG P4	602+70.399*	35.000	5225.261	-32.343	-7.203	-32.842	64.559

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION	COORDINATES FROM LAYOUT LINE		BENT LINE LENGTH FROM Y-AXIS OR OFFSET FROM EXTERIOR GIRDER	GIRDER LINE LENGTH
				OFFSET X	ORDINATE Y		
LONGITUDINAL LINE: WEB 6							
CL BRG P4	710+40.487	-24.000	5226.454	-24.000	-5.732	-24.370	25.572
LONGITUDINAL LINE: WEB 7							
CL PIER 2	707+97.110	-12.736	5214.795	-12.281	-249.628	-16.030	0.000
CL PIER 3	709+24.621	-13.561	5220.673	-13.561	-121.599	-17.703	128.039
CL BRG P4	710+42.250	-14.000	5226.744	-14.000	-3.969	-14.216	245.675
LONGITUDINAL LINE: WEB 8							
CL BRG A1	706+84.709	-2.500	5210.689	14.885	-360.651	19.431	0.000
CL PIER 2	708+05.009	-2.500	5214.862	-2.323	-241.275	-3.032	120.884
CL PIER 3	709+32.942	-3.645	5221.273	-3.645	-113.279	-4.758	248.889
CL BRG P4	710+44.015	-4.000	5227.033	-4.000	-2.205	-4.062	359.967
LONGITUDINAL LINE: WEB 9							
CL BRG A1	706+89.472	7.500	5210.137	23.362	-353.538	30.497	0.000
CL PIER 2	708+13.129	7.500	5215.014	7.527	-233.013	9.825	121.856
CL PIER 3	709+41.263	6.272	5221.904	6.272	-104.957	8.188	249.916
CL BRG P4	710+45.778	6.000	5227.323	6.000	-0.442	6.093	354.436
LONGITUDINAL LINE: WEB 10							
CL BRG A1	706+94.449	17.500	5209.630	31.878	-346.392	41.614	0.000
CL PIER 2	708+21.546	17.469	5215.253	17.469	-224.674	22.801	122.882
CL PIER 3	709+49.584	16.189	5222.535	16.189	-96.636	21.133	250.921
CL BRG P4	710+42.541	16.000	5227.612	16.000	1.321	16.247	348.882
LONGITUDINAL LINE: SOUTH OUTSIDE EDGE OF DECK							
CL BRG A1	706+97.284	23.500	5209.372	36.579	-342.447	47.751	0.000
CL PIER 2	708+26.121	22.923	5215.412	22.923	-220.099	29.919	122.882
CL PIER 3	709+54.161	21.643	5222.883	21.643	-92.059	28.253	250.921
CL BRG P4	710+48.511	21.500	5227.771	21.500	2.291	21.832	348.882

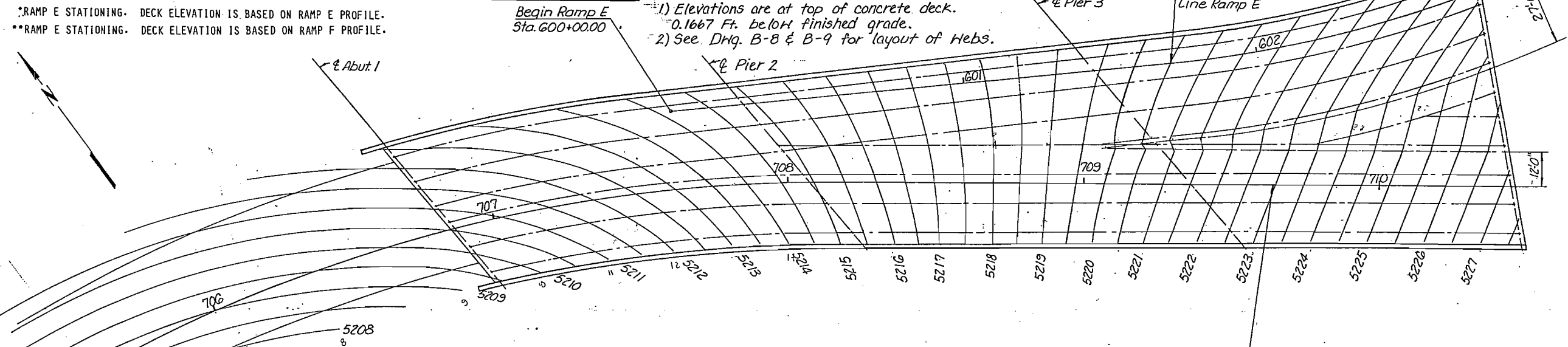
FED. ROAD REGION	DIVISION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	1R25-2(187)	140	177

REVISIONS	

AS CONSTRUCTED	
NO REVISIONS	REVISED
9/29/87	
	VOID

- NOTES:
1. Contour Elevations Are Top of Concrete Deck, 0.1667' Below Finished Grade.
 2. Contour Interval = 0.5'
 3. Contours Do Not Include Camber Or Allowance For Falsework Settlement. (See Dwg. No. B-39 For Camber Diagram.)
 4. A Deck Contour Drawing And An Approach Contour Drawing Having a Scale of 1"=4'-0" And A Contour Interval of 0.10' Will Be Supplied For Use During Construction.

DESIGNED BY	DATE	CHECKED BY
V.P.	9-85	V.P.
CHECKED BY	DATE	QUANTITIES BY
R.M.H.	9-85	R.M.H.
DETAILED BY	DATE	CHECKED BY
R.M.H.	9-85	R.M.H.



Note:
 1) Elevations are at top of concrete deck.
 0.1667 Ft. below finished grade.
 2) See Dwg. B-8 & B-9 for layout of Hebs.

*RAMP E STATIONING. DECK ELEVATION IS BASED ON RAMP E PROFILE.
 **RAMP E STATIONING. DECK ELEVATION IS BASED ON RAMP F PROFILE.

De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

BRIDGE DECK ELEVATIONS AND DECK/APPROACH CONTOURS

Designer	V. Patel	Structure	F-16-NK
Detailer	R. Hinshaw	Numbers	
Drawing Number B-49		of 50 Drawings	

Revision Dates (Preliminary Stage Only)

BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION	COORDINATES FROM LAYOUT LINE		BENT LINE LENGTH FROM Y-AXIS OR OFFSET FROM EXTERIOR GIRDER	GIRDER LINE LENGTH
				OFFSET X	ORDINATE Y		
LONGITUDINAL LINE: NORTH OUTSIDE EDGE OF DECK							
CL BRG P4	710+43.531	-23.758	5226.614	-23.758	-2.689	-24.125	
CL PIER 5	711+63.110	-19.500	5231.980	-19.500	116.890	-19.500	
CL PIER 6	713+13.110	-19.500	5236.376	-24.006	264.960	-24.108	
CL PIER 7	714+63.110	-19.500	5239.392	-47.574	410.256	-48.858	
CL BRG A8	715+84.360	-19.500	5240.994	-81.025	524.867	-85.422	
LONGITUDINAL LINE: WEB 1							
CL BRG P4	710+44.511	-18.202	5226.774	-18.202	-1.710	-18.483	0.000
CL PIER 5	711+63.110	-14.000	5232.134	-14.000	116.890	-14.000	118.701
CL PIER 6	713+13.110	-14.000	5236.705	-18.529	265.465	-18.608	267.414
CL PIER 7	714+63.110	-14.000	5239.722	-42.219	411.509	-43.358	415.484
CL BRG A8	715+84.360	-14.000	5241.147	-75.808	526.609	-79.922	535.439
LONGITUDINAL LINE: WEB 2							
CL BRG P4	710+46.521	-6.801	5227.104	-6.801	0.301	-6.906	0.000
CL PIER 5	711+63.110	-4.000	5232.414	-4.000	116.890	-4.000	116.633
CL PIER 6	713+13.110	-4.000	5237.306	-8.572	266.383	-8.608	266.265
CL PIER 7	714+63.110	-4.000	5240.322	-32.482	413.786	-33.358	415.714
CL BRG A8	715+84.360	-4.000	5241.424	-66.323	529.776	-69.922	536.594

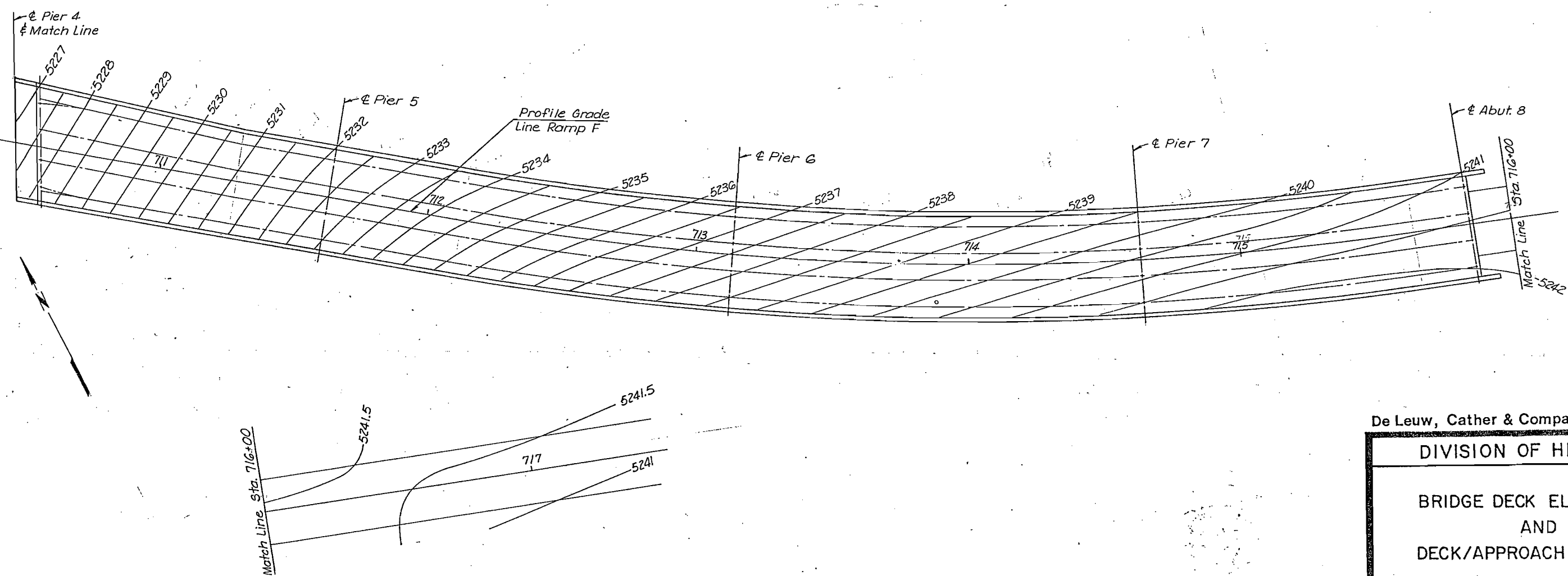
BENT LINE DESCRIPTION OR FRACTIONAL POINT DESIGNATION	STATION	OFFSET	ELEVATION	COORDINATES FROM LAYOUT LINE		BENT LINE LENGTH FROM Y-AXIS OR OFFSET FROM EXTERIOR GIRDER	GIRDER LINE LENGTH
				OFFSET X	ORDINATE Y		
LONGITUDINAL LINE: WEB 3							
CL BRG P4	710+48.531	4.599	5227.434	4.599	2.311	4.670	0.000
CL PIER 5	711+63.110	6.000	5232.694	6.000	116.890	6.000	114.588
CL PIER 6	713+13.110	6.000	5237.906	1.386	267.300	1.392	265.139
CL PIER 7	714+63.110	6.000	5240.922	-22.744	416.063	-23.358	415.966
CL BRG A8	715+84.360	6.000	5241.701	-56.838	532.943	-59.922	537.771
LONGITUDINAL LINE: WEB 4							
CL BRG P4	710+50.541	16.000	5227.763	16.000	4.321	16.247	0.000
CL PIER 5	711+63.110	16.000	5232.974	16.000	116.890	16.000	112.565
CL PIER 6	713+13.110	16.000	5238.506	11.344	268.217	11.392	264.035
CL PIER 7	714+63.110	16.000	5241.522	-13.007	418.341	-13.358	416.241
CL BRG A8	715+84.360	16.000	5241.979	-47.352	536.110	-49.922	538.972
LONGITUDINAL LINE: SOUTH OUTSIDE EDGE OF DECK							
CL BRG P4	710+51.511	21.500	5227.921	21.500	5.291	21.832	
CL PIER 5	711+63.110	21.500	5233.128	21.500	116.890	21.500	
CL PIER 6	713+13.110	21.500	5238.836	16.821	268.722	16.892	
CL PIER 7	714+63.110	21.500	5241.852	-7.652	419.593	-7.858	
CL BRG A8	715+84.360	21.500	5242.131	-42.135	537.852	-44.422	

FED. ROAD REGION	DMSION	PROJ. NO.	SHEET NO.	SHEET TOTALS
VIII	COLO.	IR25-2(187)	141	177
REVISIONS				
AS CONSTRUCTED				
NO REVISIONS	9/30/87	REVISED	VOID	

- NOTES:
1. Contour Elevations Are Top of Concrete Deck, 0.1667' Below Finished Grade.
 2. Contour Interval = 0.5'
 3. Contours Do Not Include Camber or Allowance For Falsework Settlement. (See Dwg. No. B-39 For Camber Diagram.)
 4. A Deck Contour Drawing And An Approach Contour Drawing Having A Scale of 1"=4'-0" And A Contour Interval of 0.10' Will Be Supplied For Use During Construction.

DESIGNED BY	DATE	CHECKED BY	DATE
V.P.	9-85	R.M.H.	11-85
CHECKED BY	DATE	QUANTITIES BY	DATE
R.M.H.	9-85	R.M.H.	11-85

Note:
 1) Elevations are at top of concrete deck.
 0.1667 Ft. below finished grade.
 2) See Dwg. B-10 & B-11 for layout of Webs.



De Leuw, Cather & Company Denver, CO.

DIVISION OF HIGHWAYS

BRIDGE DECK ELEVATIONS AND DECK/APPROACH CONTOURS

Designer V. Patel	Structure Numbers	F-16-OE
Drawing Number B-50 of 50 Drawings		

Revision Dates (Preliminary Stages Only)