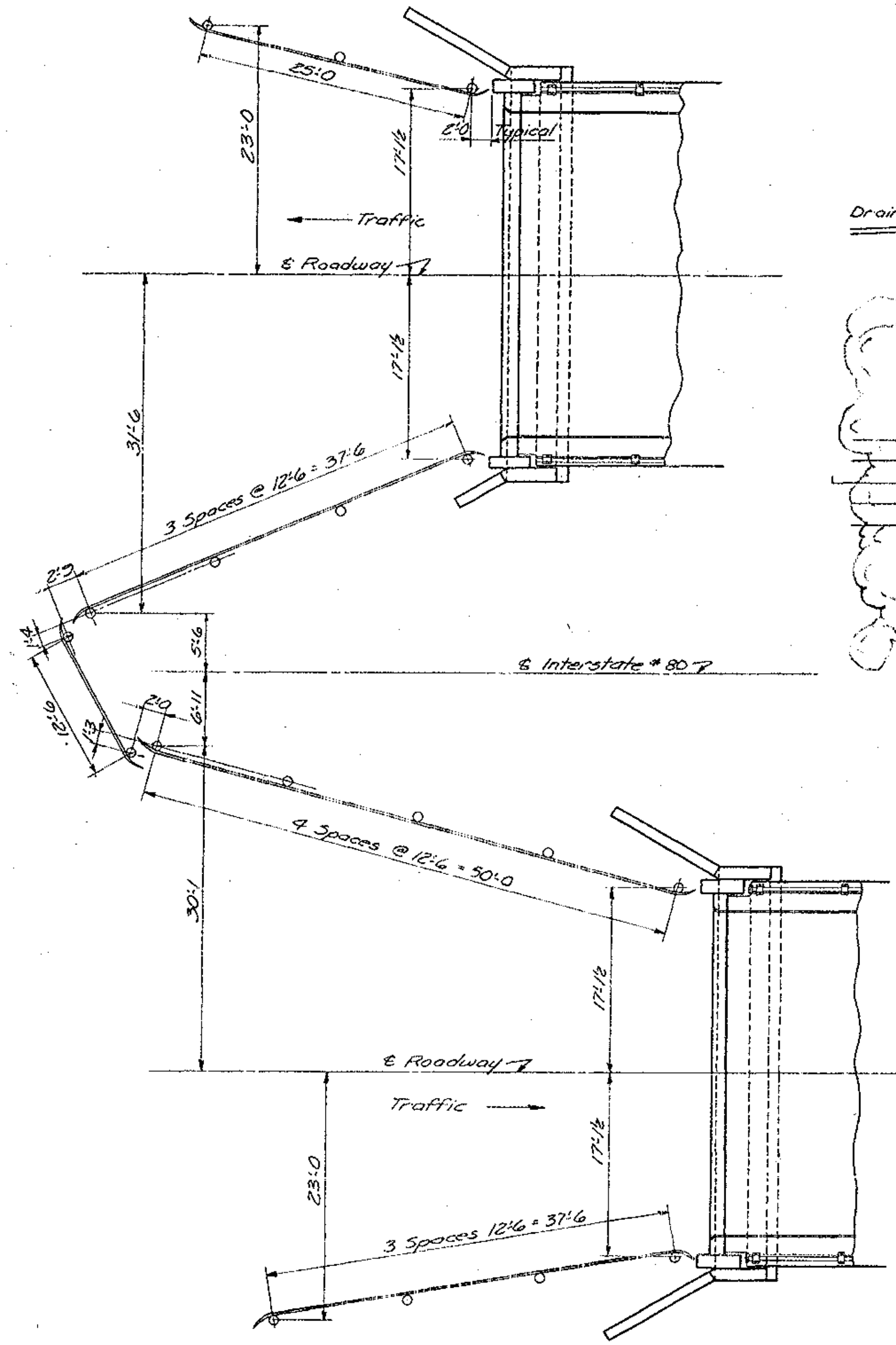
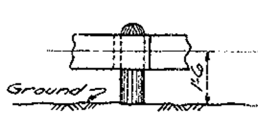
BENCH MARKS: ~~No. 117 Sta. 740+79 Set R.R. Spike W. Side 36 Elm 150' Lt. Elev. 633.52~~
~~No. 118 Sta. 746+95 Set R.R. Spike W. Side Twin 12" Ash 212' Lt. Elev. 635.37~~
~~No. 119 Sta. 756+00 Set R.R. Spike N. Side 18" Elm 147' Rt. Elev. 648.31~~
No 119a Sta 756+00, Set RR Spike N. Side 12" Elm 228 Rt Elev. 643.63

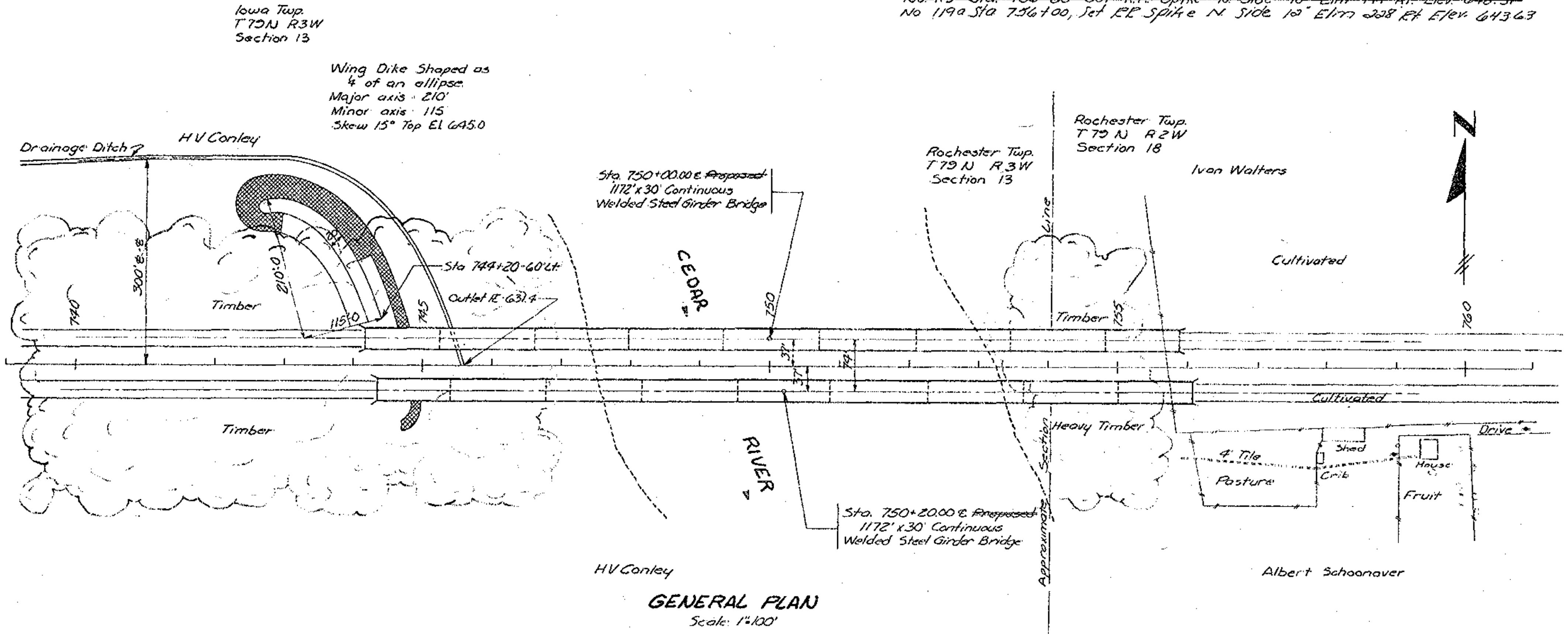




PART ELEVATION

GUARD RAIL LAYOUT
Scale ⅛"=1'-0

Note: Guard Rail by others



GENERAL PLAN
Scale: 1"=100'

GENERAL NOTES

These bridges are designed for H20-S16-44 loading plus 19 lbs. per sq ft. of roadway for future wearing surface and for alternate loading designated BPR's PPM 20-4 Section 4-C.

The approach fills are not a part of this estimate but are to be in place before abutment piles are driven. The bridge contractor is to level off and shape the berms to the elevations shown.

Formed steel beam guardrail and creosoted wood posts are ~~to be~~ furnished by others and are not a part of this estimate.

SPECIFICATIONS

Design: AASHO, Series of 1957 and AASHO tentative specification series T(58).

Construction: Standard Specifications of the Iowa State Highway Commission, series of 1956, plus current special provisions.

TOTAL ~~ESTIMATED~~ QUANTITIES

Item		4 Abuts	16 Piers	2 Super str.	Total
Concrete		275.4	1341.25 ~~1,333.6~~	2209.2	3825.85 ~~3818.2~~ c.y.
Structural Steel		———	———	2,739,490	2,739,430 lbs.
Reinforcing Steel		21,698	211,542	682,968	916,208 lbs.
Steel Piles 10BP42	Furnish	~~27 @ 75~~ ~~13 @ 25~~ ~~14 @ 20'~~ ~~3639 L.F.~~	~~180 @ 50' 9000~~ ~~60 @ 47' 2820~~ ~~30 @ 37' 1110 L.F.~~ ~~30 @ 31' 930~~ ~~60 @ 20' 1200~~	———	18,500 ~~17,400~~ L.F.
	Drive	2618.4 ~~2630~~	15,179.2 ~~15,000~~	———	17,797.6 ~~17,630~~ L.F.
Aluminum Handrail		———	———	———	4682.? L.F.
Excavation Class 20		318	778.74 ~~819~~	———	1096.74 ~~1137~~ c.y.
Excavation Class 21		———	1339	———	1339 c.y.
Excavation Class 22		———	134.0	———	134.0 c.y.

Constructed

LOCATION

Cedar County

T79N R3W	T79N R2W
Iowa Twp.	Rochester Twp.
Section 13	Section 18

Interstate # 80 over Cedar River

Design for

TWIN 1172'-0 x 30' CONTINUOUS WELDED GIRDER BRIDGES

106'-6 End Spans
Concrete Floor & Substructure

7-137'-0 Interior Spans
Aluminum Handrail

GENERAL PLAN

Station 750+00.00 North Lane
Station 750+20.00 South Lane

Project No. I-80-7(5)270

CEDAR COUNTY

Iowa State Highway Commission

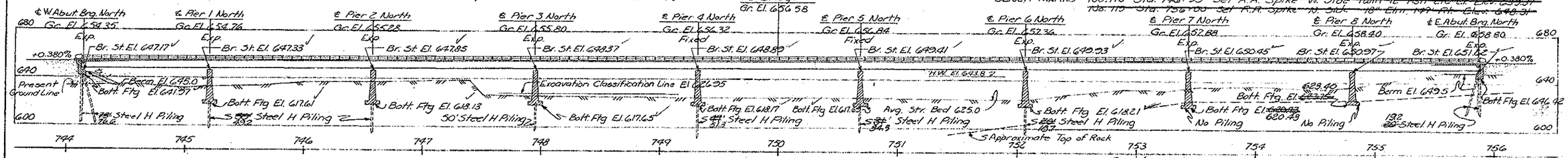
April 1959

Sheet 1 of 13

Design 8859 Cedar County File No. 20039

BENCH MARK: ~~No. 117 Sta. 740+19 Set R.R. Spike W. Side 36" Elm 130 Ft. Elev. 653.38~~

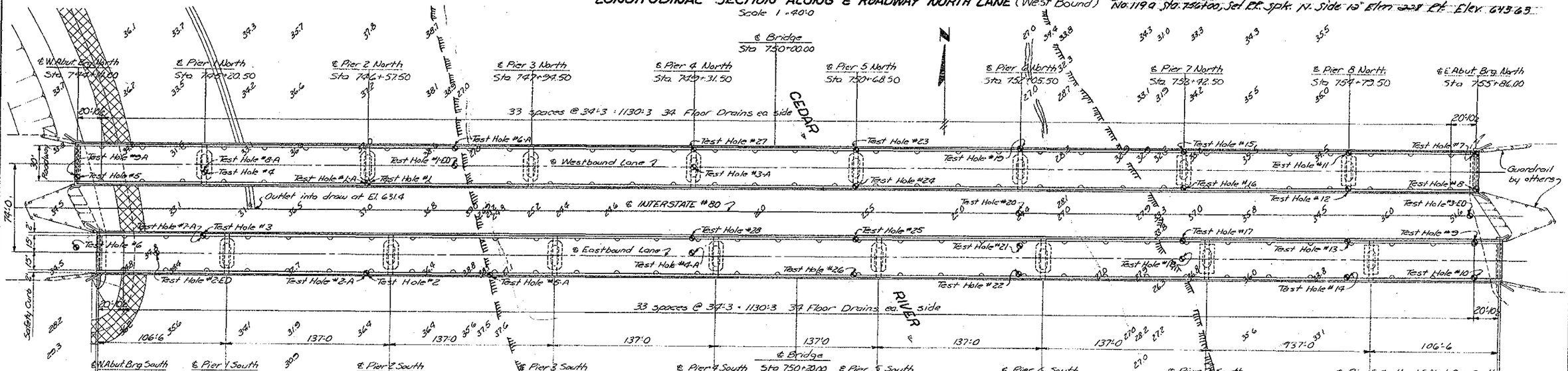
BENCH MARKS: ~~No. 118 Sta. 742+33 Set R.R. Spike W. Side Twin 12" Ash 212 Ft. Elev. 639.39~~
~~No. 119 Sta. 756+00 Set R.R. Spike N. Side 18" Elm 149 Ft. Elev. 648.31~~



LONGITUDINAL SECTION ALONG ℄ ROADWAY NORTH LANE (West Bound)

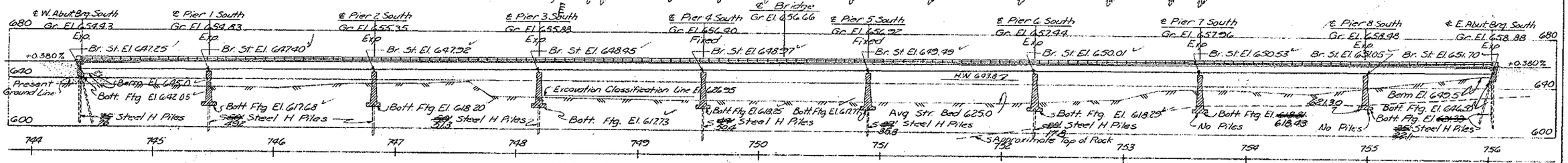
Bench Mark No. 119 Sta. 756+00, Set R.R. Spk. N. Side 18" Elm ~~149~~ Ft. Elev. 648.69

Scale 1"=40'-0



SITUATION PLAN

Scale 1"=40'



LONGITUDINAL SECTION ALONG ℄ ROADWAY SOUTH LANE (East Bound)

Scale 1"=40'-0

CONSTRUCTED AS SHOWN

Note See Sheet 1 for General Notes, General Plan, Total Quantities and guardrail details
See Sheets 3 & 4 for soundings.

Design for
TWIN 1172'-0 x 30' CONTINUOUS WELDED GIRDER BRIDGES

106'-6 End Spans — 7- 137'-0 Interior Spans
Concrete Floor & Substructure — Aluminum Handrail

SITUATION PLAN

Station 750+00 North Lane
Station 750+20 South Lane
Project No. I-80-7(51)270

CEDAR COUNTY

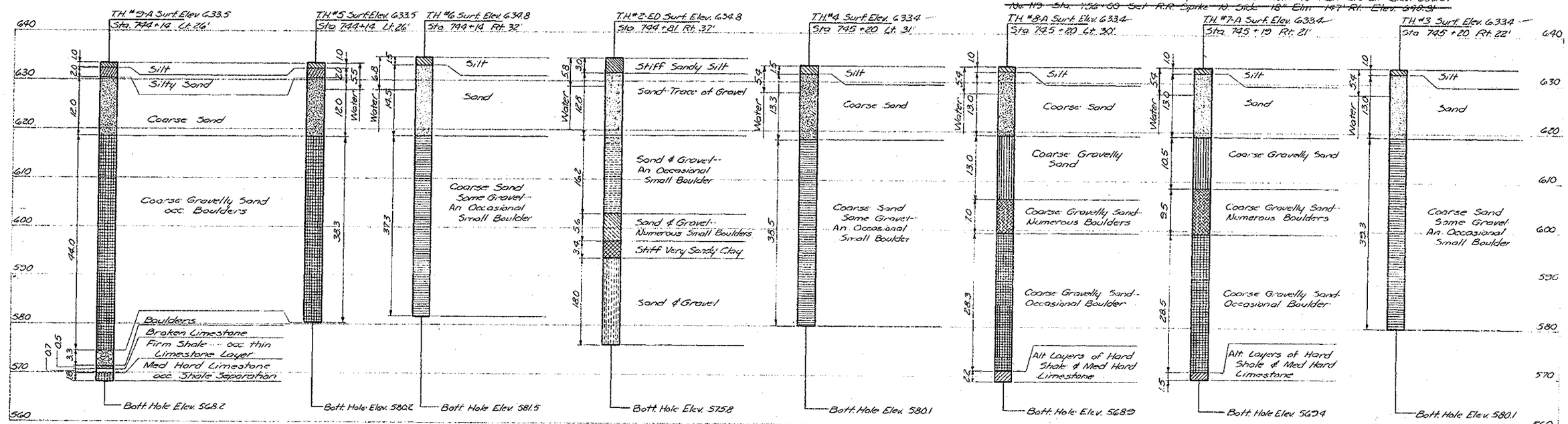
Iowa State Highway Commission

April 1959 — Sheet 2 of 13

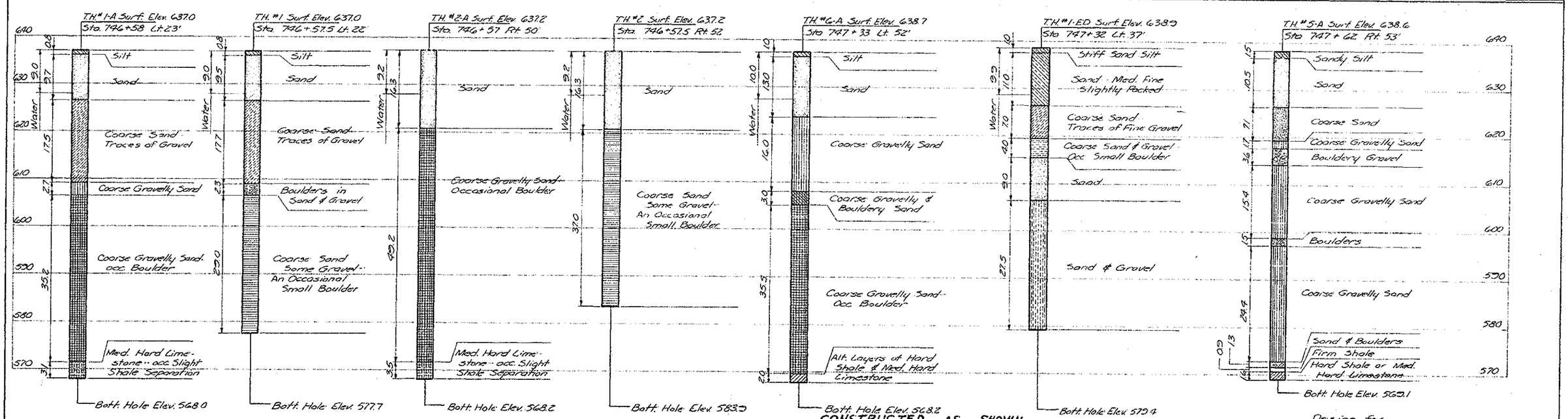
Design 5859 / Cedar County — File No. 20039

BENCH MARK ~~No. 117 Sta. 740+19 Set RR Spike W Side 36" Elm 150' Lt. Elev. 633.32~~

BENCH MARKS ~~No. 118 Sta. 746+35 Set RR. Spike W. Side Twin 10" Ash 612' Lt. Elev. 639.37~~
~~No. 119 Sta. 756+00 Set RR. Spike W. Side 18" Elm. 147' Rt. Elev. 648.31~~



BM. No. 1190, Sta. 756+00. RR Spk. in N. Side 18" Elm, 333' Lt. Elev. 643.63



SOUNDING DATA

Scale: 1"=10'-0

CONSTRUCTED AS SHOWN

Design for

TWIN 1172'-0 x 30' CONTINUOUS WELDED GIRDER BRIDGES

10@ 117'-0 Interior Spans
7@ 117'-0 End Spans
Concrete Floor & Substructure
Aluminum Handrail

BRIDGE SOUNDINGS

Station 750+00.00 North Lane
Station 750+20.00 South Lane

Project No. I-80-7(51)270

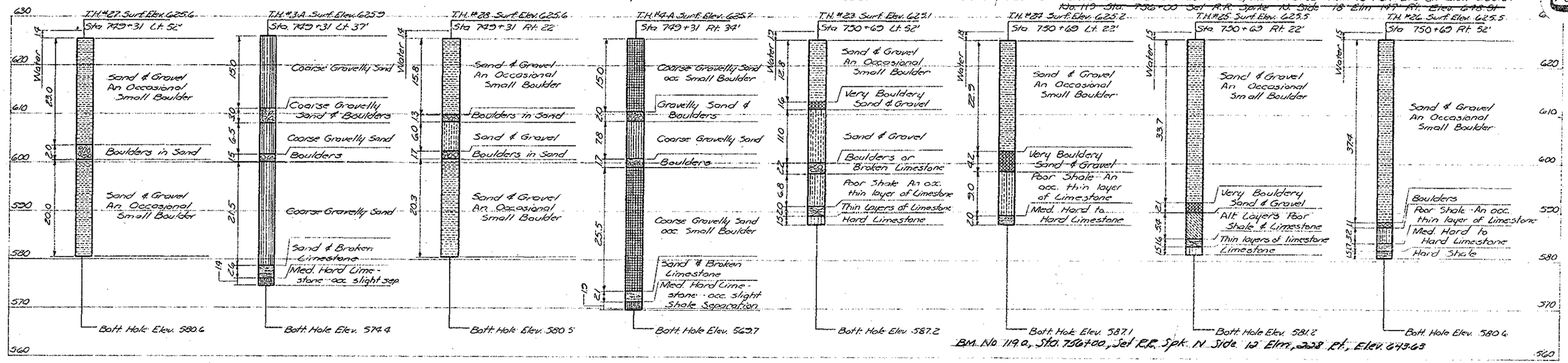
CEDAR COUNTY

Iowa State Highway Commission

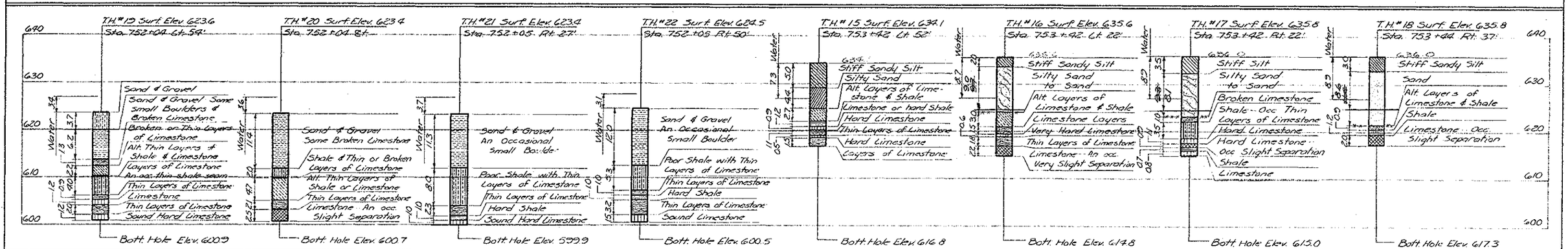
April 1959

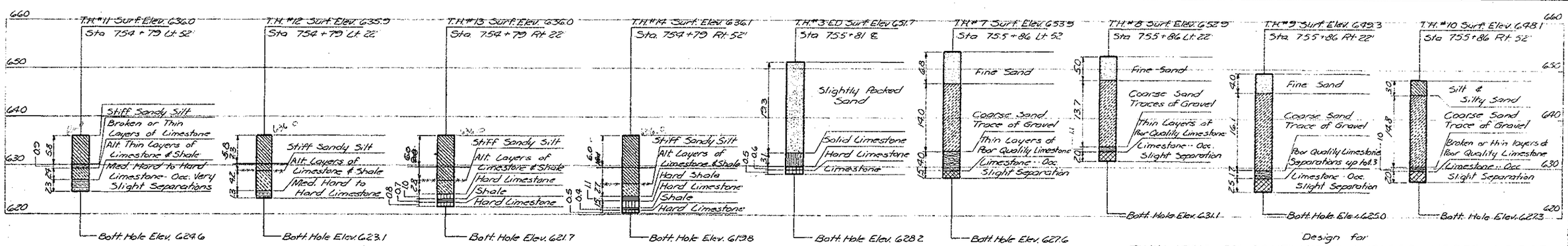
BENCH MARK: ~~No. 117 Sta. 740+10 Set R.R. Spike W. Side 36" Elm 150' Lt. Elev. 633.32~~

BENCH MARKS: ~~No. 118 Sta. 746+55 Set R.R. Spike W. Side Twin 12" Ash 212' Lt. Elev. 633.97~~
~~No. 119 Sta. 756+00 Set R.R. Spike N. Side 18" Elm 149' Rt. Elev. 643.84~~



BM. No. 119a, Sta. 756+00, Set R.R. Spk. N. Side 12" Elm, 238' Rt., Elev. 643.63





CONSTRUCTED AS SHOWN

SOUNDING DATA
Scale 1" = 10:0

Design for
TWIN 1172'0 x 30' CONTINUOUS WELDED GIRDER BRIDGES
106'-6 End Spans
Concrete Floor & Substructure
7-137.0 Interior Spans
Aluminum Handrail

BRIDGE SOUNDINGS

Station 750+00.00 North Lane
Station 750+20.00 South Lane

Project No. I-80-7(51)270

CEDAR COUNTY

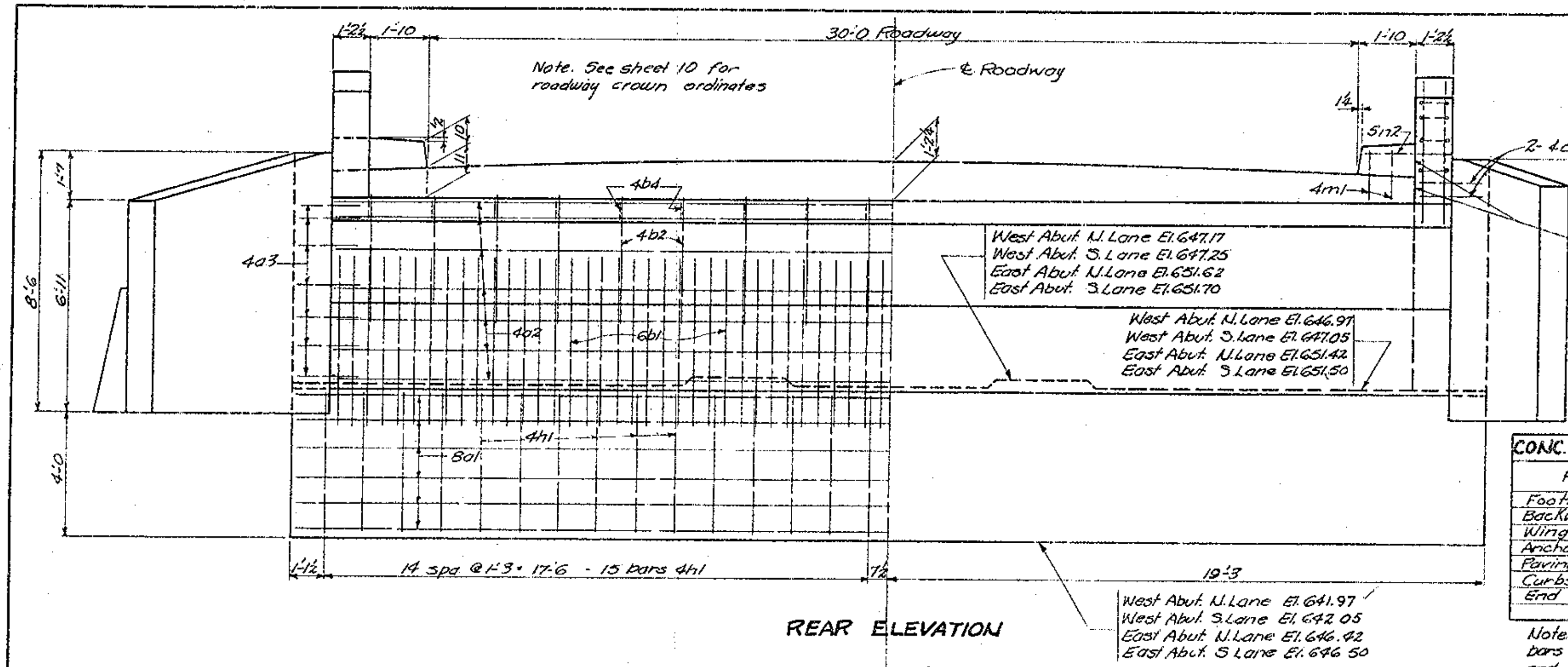
Iowa State Highway Commission

April 1959

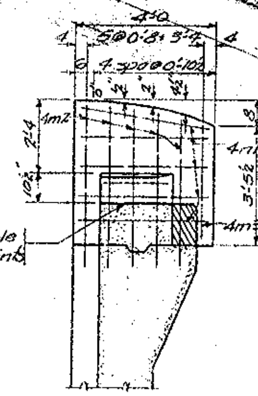
Sheet 4 of 13

Cedar County

File No. 20039



REAR ELEVATION

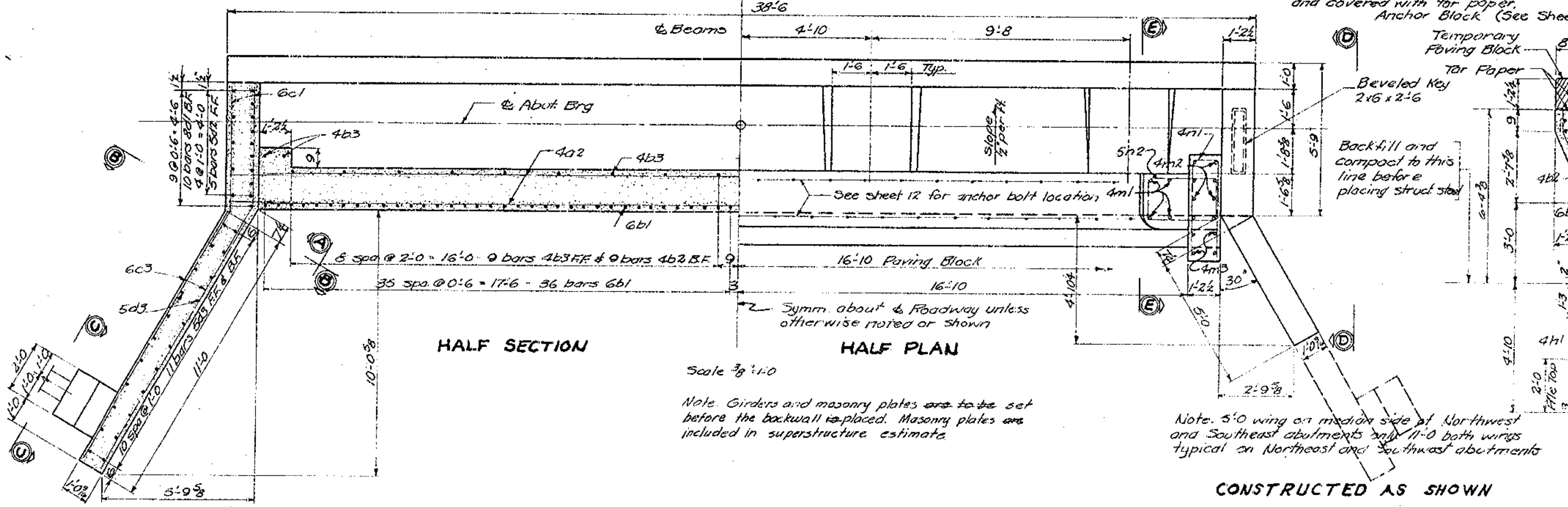


SECTION E-E

CONC. PLACEMENT QUAN. ONE ABUT.		
Part	N.W. or S.E. Abutment	N.E. or S.W. Abutment
Footing	36.9 c.y.	36.9 c.y.
Backwall	16.9 c.y.	16.9 c.y.
Wingwalls	8.7 c.y.	10.8 c.y.
Anchor Block	2.8 c.y.	2.8 c.y.
Paving Block	0.9 c.y.	0.9 c.y.
Curbs	0.2 c.y.	0.2 c.y.
End Posts	1.4 c.y.	1.4 c.y.
Total	67.8 c.y.	69.9 c.y.

Note. Before placing temp. paving block bars 4b2 ~~are to be~~ bent down as shown and covered with tar paper.

West Abut. N. Lane El. 654.35
West Abut. S. Lane El. 654.43
East Abut. N. Lane El. 658.80
East Abut. S. Lane El. 658.88



HALF SECTION

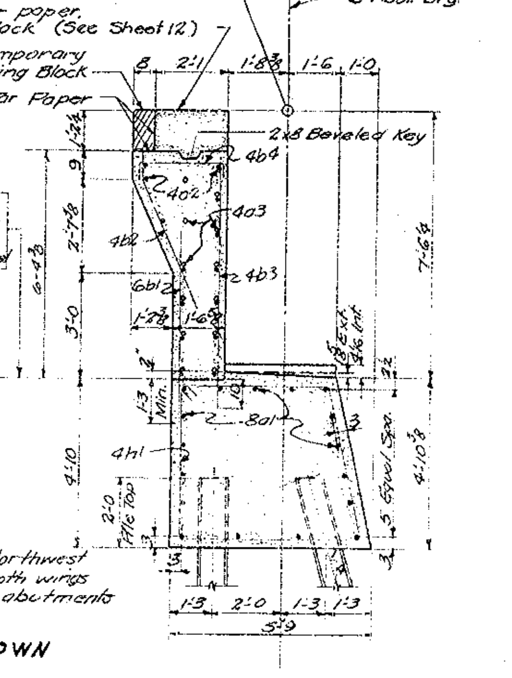
HALF PLAN

Scale 3/8" = 1-0

Note. Girders and masonry plates ~~are to be~~ set before the backwall is placed. Masonry plates ~~are~~ included in superstructure estimate.

Note. 5-0 wing on median side of Northwest and Southeast abutments only. 11-0 both wings typical on Northeast and Southwest abutments.

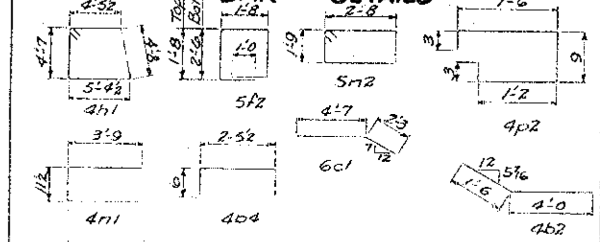
CONSTRUCTED AS SHOWN



℄ SECTION

Bar	Location		No.	Length	N.W. or S.E.	N.E. or S.W.
[illegible]	Footing, Longitudinal	—	[illegible]	[illegible]	[illegible]	[illegible]
4a2	Backwall, Longitudinal	—	14	35-9	334	[illegible]
4a3	Backwall, [illegible]	—	34	[illegible]	[illegible]	[illegible]
6b1	Backwall, Vertical, B.F.	—	[illegible]	[illegible]	[illegible]	[illegible]
4b2	Backwall, Vertical, B.F.	—	[illegible]	[illegible]	[illegible]	[illegible]
4b3	Backwall, Vertical, F.F.	—	[illegible]	7-8	[illegible]	[illegible]
4b4	Backwall Tie	⊓	18	3-4	40	40
6c1	Wing, Horizontal, FF&BF	—	36	6-10	369	369
6c3	Long Wing Horiz. FF&BF	—	36	10-8	—	577
6c3	Long Wing Horiz. FF&BF	—	18	10-8	288	—
6c4	Short Wing, Horiz. FF&BF	—	18	4-8	126	—
8d1	Wing, Vertical, B.F.	—	20	9-2	489	489
5d2	Wing, Vertical, F.F.	—	10	8-6	89	89
5d3	Long Wing Vert., FF&BF	—	44	Varies	—	338
5d3	Long Wing Vert., FF&BF	—	22	Varies	169	—
5d3	Short Wing, Vert., FF&BF	—	10	Varies	81	—
5f1	Pile Cap, Vertical	—	4	3-9	—	16
5f1	Pile Cap, Vertical	—	2	3-9	8	—
5f2	Pile Cap, Hoops	□	10	Varies	—	85
5f2	Pile Cap, Hoops	□	5	Varies	43	—
4h1	Footing Hoops	□	30	19-8	394	394
4m1	Curb, Vertical	—	8	1-6	8	8
4m2	End Post, Vertical	—	20	4-9	63	63
4m3	End Post, Vertical	—	4	3-2	8	8
4n1	End Post, Horizontal	⊏	10	8-4	56	56
5n2	Curb Hoops	□	2	9-6	20	20
4p1	Anchor Block, Longit.	—	4	33-4	89	89
4p2	Anchor Block Hoops	⊔	24	3-8	59	59
				Totals	5,274	5,575

BAR DETAILS



Note: All dimensions are out to out.

ABUTMENT NOTES~

All exposed corners of 90° or sharper ~~are to be~~ filleted with a ¾" dressed and beveled strip.

Minimum distance from face of concrete to ℄ of near reinforcing bar ~~to be~~ 2" unless otherwise noted or shown.

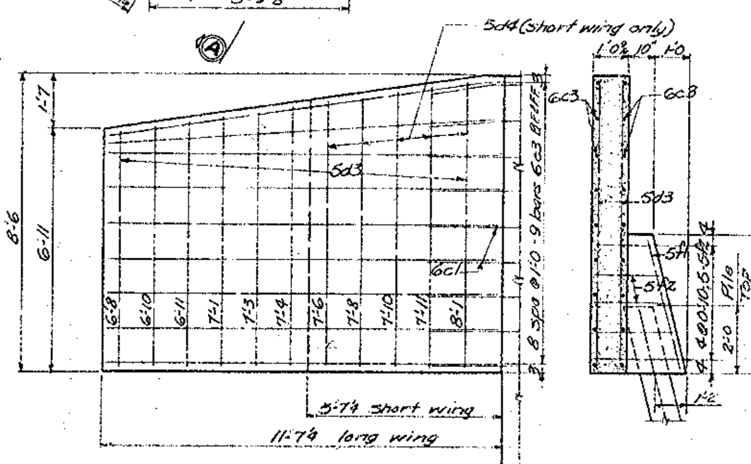
All piling ~~is to be~~ driven to refusal on rock, if practicable but to at least a 37 ton bearing value.

SPECIFICATIONS~

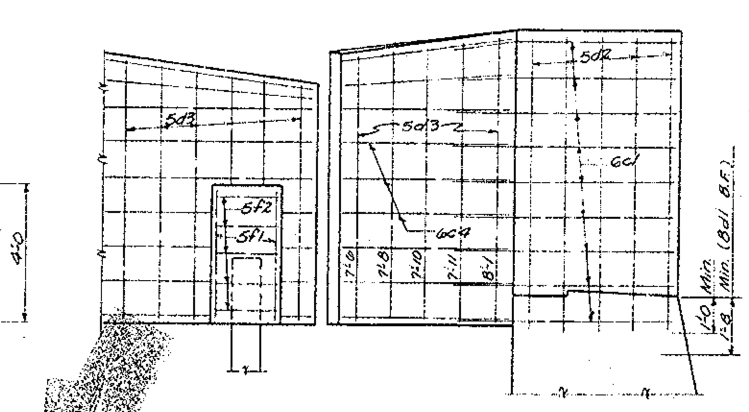
Design A.A.S.H.O., Series of 1957.

Construction: Std. Specifications, Iowa State Highway Commission Series of 1956, plus current special provisions.

TOTAL ~~ESTIMATED~~ QUANT. - 4 ABUTMENTS	
Concrete	275.4 c.y.
Reinforcing Steel	21,698 lbs.
Furnish 10BP42 Steel Piling	2630 L.F.
Drive 10BP42 Steel Piling: 27@75', 13@25', 14@20'	2618.4 L.F.
Class 20 Excavation 2@81 and 2@78	318 c.y.



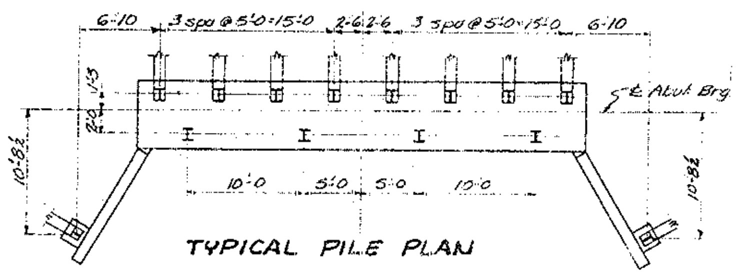
VIEW A-A



SECTION B-B

VIEW C-C

VIEW D-D



10BP42 Piles	
N.W.	13 @ 75'
S.W.	14 @ 75'
N.E.	14 @ 20'
S.E.	13 @ 25'

TYPICAL PILE PLAN

Note. Batter piles 1 on 4 in direction shown. Dimensions shown are at bottom of footing. Wing pile ~~to be~~ omitted under short wing of Northwest and Southeast abutments only.

Design For

TWIN 1172' x 30' CONTINUOUS WELDED GIRDER BRIDGES

106-6 End Spans 7-137-0 Interior Spans

Concrete Floor and Substructure Aluminum Rail

ABUTMENT DETAILS

Sta. 750 + 90.00 North Lane

Sta. 750 + 20.00 South Lane

Project I-80-7(5)270

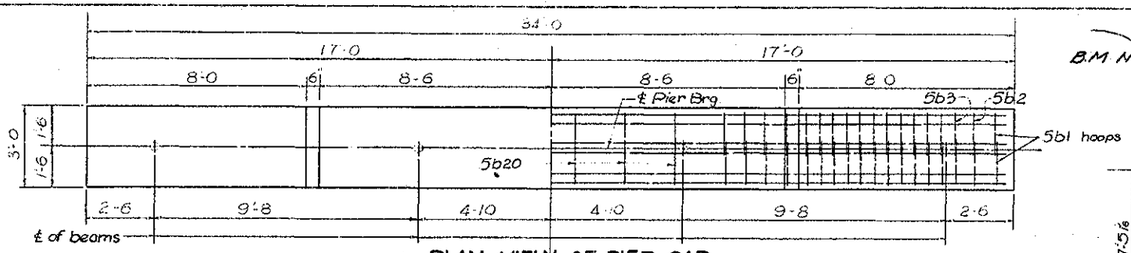
CEDAR COUNTY

IOWA STATE HIGHWAY COMMISSION

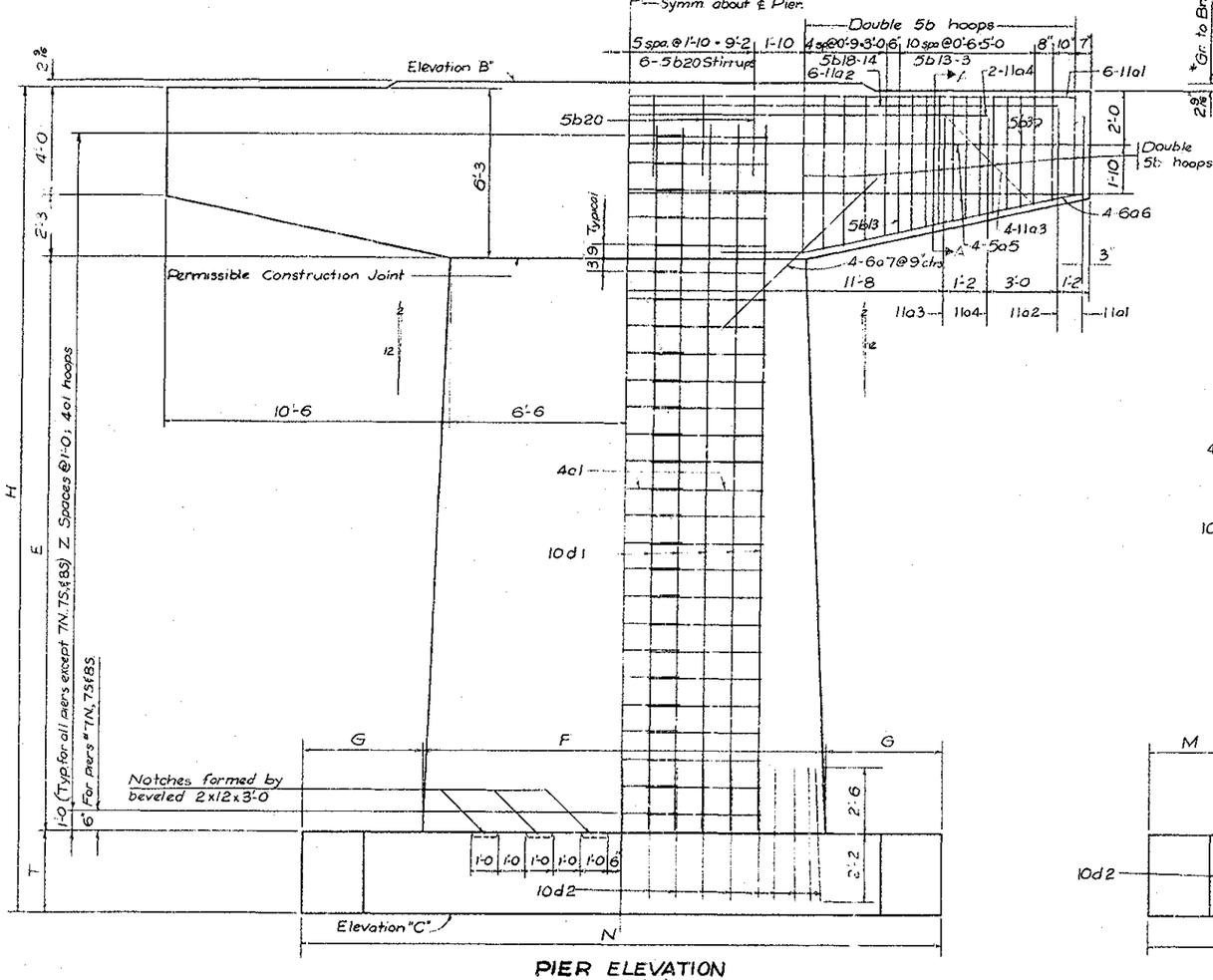
April 1959

Design 8859 Cedar County File 20039

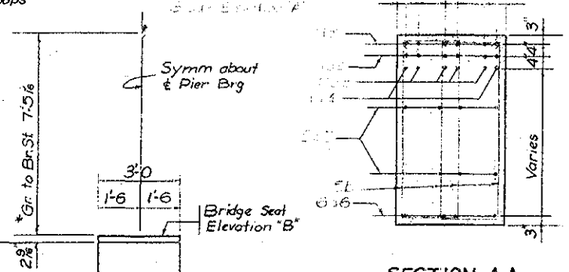
B.M No. 1190, Sta. 756+00, R.R. Spk. in N side 12" Elm, 32.8' Lt., Elev. 643.69



PLAN VIEW OF PIER CAP

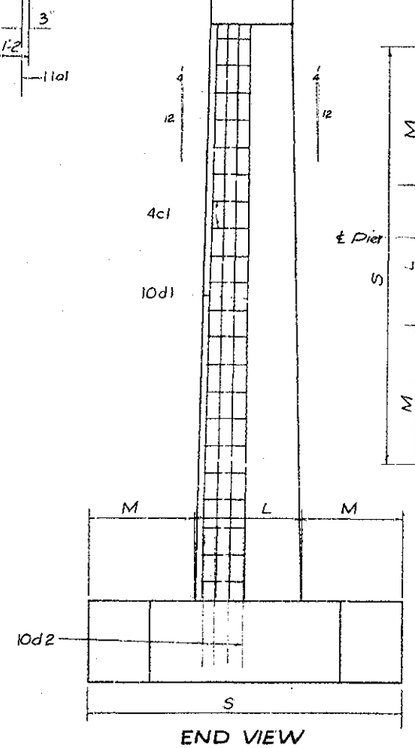


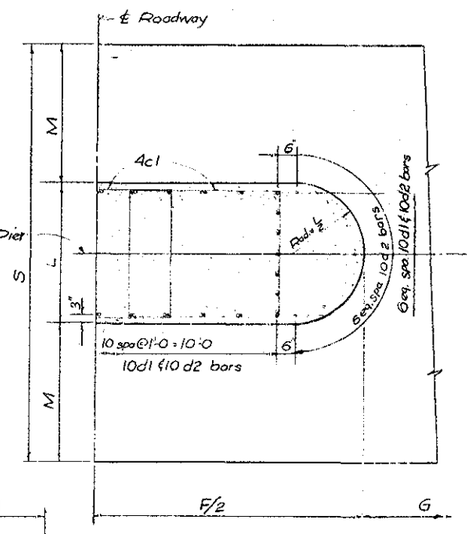
PIER ELEVATION
Scale ⅜" = 1'-0
See sheet "7 for Quantities, Footing and Piling Details, and Reinforcing List.



SECTION A-A
Scale ½" = 1'-0

* Includes 1" for paint & canvas





PART PLAN VIEW OF FOOTING
Scale ½" = 1'-0

END VIEW

CONSTRUCTED AS SHOWN

PIER DIMENSIONS

	PIER NUMBER					
	1N, 1S, 2S	3N, 3S, 4N, 4S	5N, 5S, 6N, 6S	7N, 8S	7S	8N
H	29'-6	30'-6	31'-6	29'-6	31'-6	27'-0
E	20'3	21'-3	22'-3	20'-9	22'-9	
	4 4⅛					
	3					
M	3'-9			2'-9	2'-9	
	23'-6			21'-6		
S	11			6		
T	3'0	3'-0	3'-0	6	2'-6	
Z'	24					

PIER ELEVATIONS

	Elev. "A"	Elev. "B"	Elev. "C"
Pier № 1N	654.76	647.33	617.61
" 2N	655.28	647.85	618.13
" 3N	655.80	648.37	617.65
" 4N	656.32	648.89	618.17
" 5N	656.84	649.41	617.69
" 6N	657.36	649.93	618.21
" 7N	657.88	650.45	~~620.79~~
" 8N	658.40	650.97	~~623.75~~
" 1S	654.83	647.40	617.68
" 2S	655.35	647.92	618.20
" 3S	655.88	648.45	617.73
" 4S	656.40	648.97	618.25
" 5S	656.92	649.49	617.77
" 6S	657.44	650.01	618.29
" 7S	657.96	650.53	~~618.81~~
" 8S	658.48	651.05	~~621.33~~

PIER NOTES:

All exposed corners of 90° or sharper ~~are to be~~ filleted with a ¾" dressed and beveled strip.

All piling ~~is to be~~ driven to refusal on rock if practicable but to at least 37 ton bearing value.

Pier №'s 7N, 7S, 8N & 8S are founded on rock. These footings shall extend at least 6' into solid rock and the rock excavation ~~shall be~~ to neat lines of masonry.

Clear distance from face of concrete to near reinforcing bar s ~~to be~~ 1½" unless otherwise noted or shown.

SPECIFICATIONS:

Design: A.A.S.H.O. Series of 1957.
Construction: Iowa State Highway Commission Standard Specifications, Series of 1956, plus current special provisions.

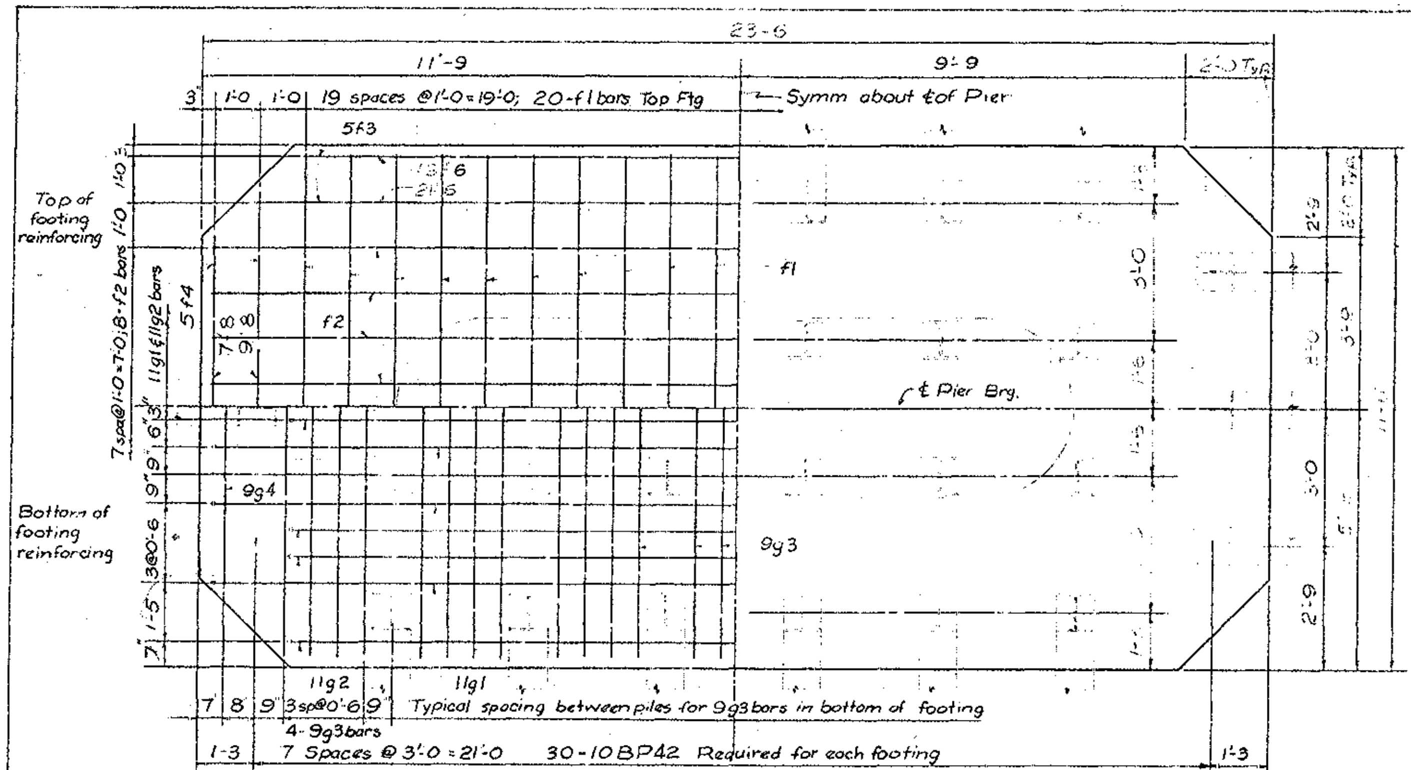
Design For
TWIN 1172'-0 x 30' CONTINUOUS WELDED GIRDER BRIDGES
106'-6 End Spans — 7-137'-0 Interior Spans
Concrete Floor & Substructure — Aluminum Rail

PIER DETAILS

Station 750+00.00 North Lane
750+20.00 South Lane
Project № I-80-7(5)270

CEDAR COUNTY
Iowa State Highway Commission

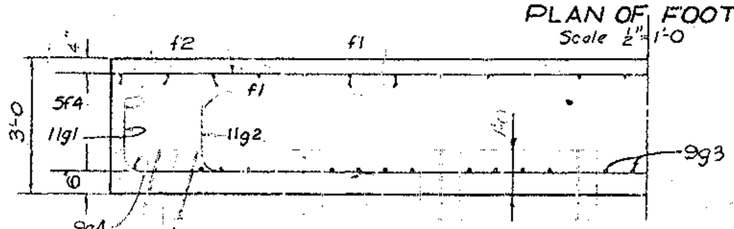
April 1959 — Sheet 6 of 13
Design 8859 — Cedar County — File № 20039



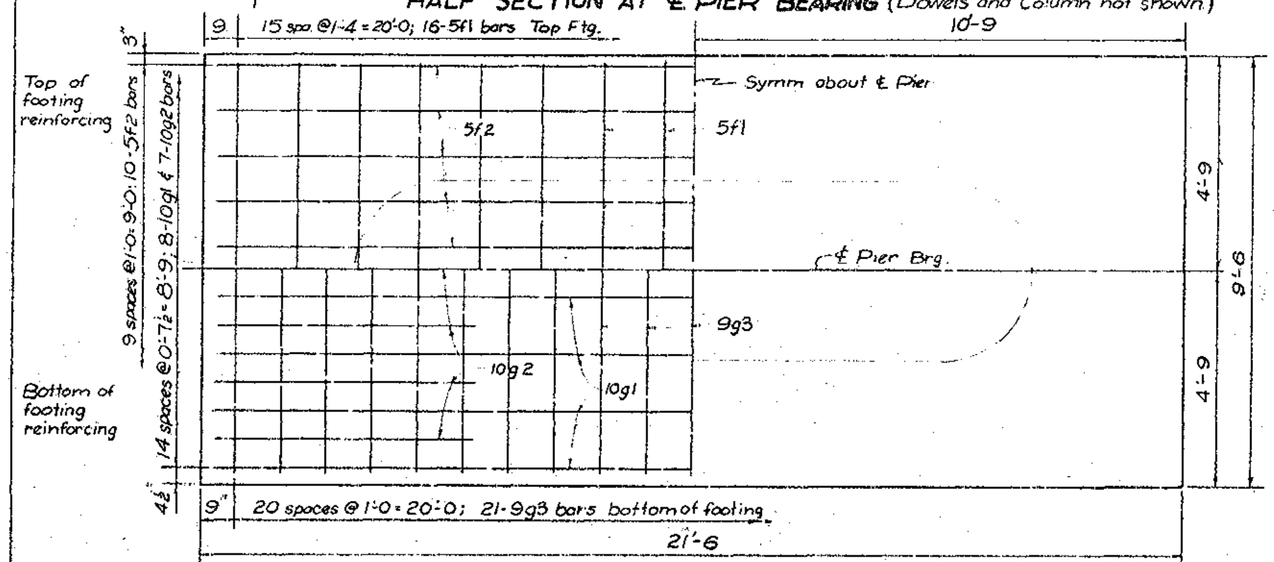
PLAN OF FOOTING (Typical for footings founded on piles)

Scale ½" = 1-0

Note: Dimensions shown are at bottom of footing.
Batter perimeter piles 1 : 4 in the direction shown

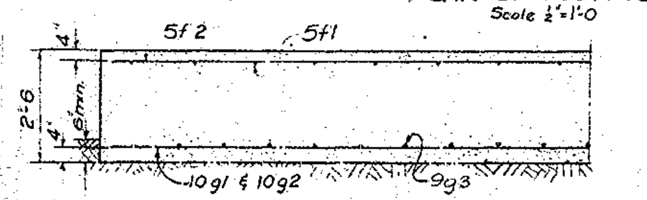


HALF SECTION AT ℄ PIER BEARING (Dowels and Column not shown)



PLAN OF FOOTING (Typical for footings 7N, 7S, 8N, & 8S founded on rock.)

Scale ½" = 1-0



HALF SECTION AT ℄ PIER BEARING

Dowels and Column not shown

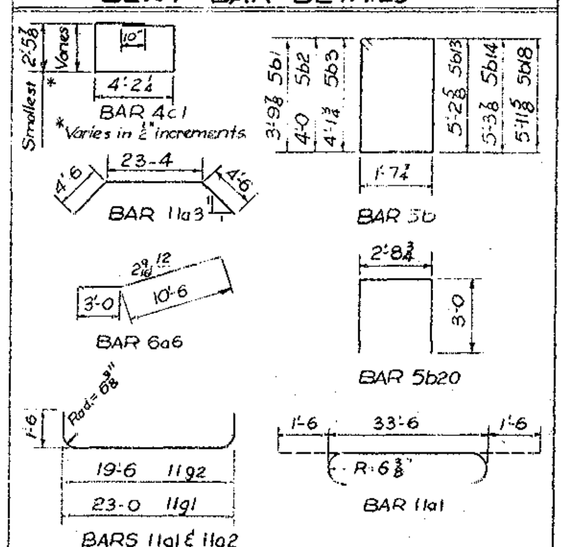
See sheet #6 for Pier column & cap details & notes.

REINFORCING BAR LIST FOR PIERS

Location	Shape	Pier [illegible] Bar	No	Length	Weight	Pier Nº 3 N [illegible] Bar	No	Length	Weight	Pier [illegible] 5 [illegible] Bar	No	Length	Weight	Pier Nº [illegible] Bar	No	Length	Weight	Pier Nº 7 S [illegible] Bar	No	Length	Weight	Pier [illegible] Bar	No	Length	Weight
[illegible]		[illegible]	6	35-6	164		6	35-5	[illegible]	[illegible]	6	35-6	164	11a1	6	35-2	164	[illegible]	6	35-6	164	[illegible]	6	36-6	164
Cap Longit Top		[illegible]2	6	[illegible]	[illegible]	11a2	6	31-8	[illegible]	11a2	6	31-8	[illegible]	11a2	6	31-8	[illegible]	11a2	6	31-8	1009	11a2	6	31-8	[illegible]
Cap Longit Top		11a3	4	32-4	687	11a3	4	32-4	687	11a3	4	32-4	687	11a3	4	32-4	687	[illegible]	4	32-4	687	11a3	4	[illegible]	687
Cap Longit Top		11a4	2	25-8	273	[illegible]4	2	25-8	273	[illegible]4	2	25-8	[illegible]	11a4	2	[illegible]	[illegible]	[illegible]	2	[illegible]-8	273	[illegible]4	2	25-8	273
Cap Longit [illegible]		[illegible]5	8	[illegible]	[illegible]	5a5	8	33-6	280	5a5	8	33-6	280	5a5	8	33-6	280	5a5	8	33-6	280	5a5	8	33-6	280
Cap Longit Botts		6a6	8	[illegible]	[illegible]	[illegible]	8	13-6	[illegible]	6a6	[illegible]	[illegible]	162	6a6	[illegible]	[illegible]	162	6a6	8	13-6	162	6a6	8	13-6	[illegible]
[illegible]		6a7	8	6-0	[illegible]	[illegible]	8	6-0	72	6a7	[illegible]	[illegible]	72	6a7	8	6-0	72	6a7	8	6-0	72	6a7	8	[illegible]	72
Cap Hoops		[illegible]	72	[illegible]	1031	[illegible]	72	[illegible]	1031	[illegible]	72	Varies	[illegible]	[illegible]	72	[illegible]	[illegible]	[illegible]	72	[illegible]	1031	5a8	72	Varies	[illegible]
Cap Stirrups		5a9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	54	[illegible]	8	[illegible]	[illegible]
Column Hoops		4c1	[illegible]	[illegible]	747	4c1	[illegible]	Varies	779	4c1	[illegible]	[illegible]	812	[illegible]	[illegible]	[illegible]	779	4c1	[illegible]	Varies	846	4c1	[illegible]	Varies	684
Column Vertical		10c1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	32	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Column Dowels Vert.		[illegible]																							
Footing Top Transv.		6f1	[illegible]	[illegible]	369	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Footing Top Longit		8f2	[illegible]	[illegible]	495	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	93	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31-[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Footing Top Longit		5f3	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	35												
Footing Top Transv.		5f4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	52												
Footing Bott Longit		11g1	6	[illegible]	808	[illegible]	6	[illegible]	808	[illegible]	4	[illegible]	806	[illegible]	6	[illegible]	723	10g1	[illegible]	[illegible]	723	10g1	[illegible]	[illegible]	723
Footing Bott. Longit		11g2	[illegible]	[illegible]	328	[illegible]	8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	328	[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	10g2	4	[illegible]	[illegible]
Footing Bott Transv.		9g3	[illegible]	[illegible]	[illegible]	9g3	[illegible]	[illegible]	1047	9g3	[illegible]	11-0	1047	[illegible]	21	[illegible]	615	9g3	21	9-0	643	9g3	21	[illegible]	[illegible]
Footing Bott. Transv.		9g4	[illegible]	8-2	56	9g4	[illegible]	8-2	56	[illegible]	[illegible]	8-2	56												
		Total			13,721	Total			13,476	Total			13,646	Total			12,067	Total			12,409	Total			11,627
		4 Piers @ 13,721 = 54,884 lbs				4 Piers @ 13,476 = 53,904 lbs				4 Piers @ 13,646 = 54,584 lbs				2 Piers @ 12,067 = 24,134 lbs				1 Pier @ 12,409 = 12,409 lbs				1 Pier @ 11,627 = 11,627 lbs			

*Note: Bars 10g1 & 10g2 are straight

BENT BAR DETAILS



Note: All dimensions are out to out. Radii are to ℄ of bar.

PIER CONCRETE QUANTITIES

	Units	Pier [illegible]	Pier [illegible] 3S [illegible] 4S	Pier [illegible] 5S [illegible] 6S	Pier 7N [illegible]	Pier 7S	Pier 8N
Footing	cy	[illegible]	23.7	23.7	18.9	18.9	[illegible]
Column	[illegible]	34.7	35.7	37.7	34.7	38.8	39.6
Cap	cy	21.4	[illegible]	[illegible]	21.4	21.4	21.4
Total	cy	84.8	86.2	[illegible]	75.0	79.1	[illegible]
	cy	[illegible]	[illegible] = 344.8	[illegible]	[illegible] 75.0 = [illegible]	[illegible] 79.1 = 79.1	[illegible] 79.1 = 79.1

TOTAL ~~ESTIMATED~~ PIER QUANTITIES

		Units	Pier 1N 1S 2N 2S	Pier 3N 3S 4N 4S	Pier 5N 5S 6N 6S	Pier 7N 8S	Pier 7S	Pier 8N	Total For 16 Piers
Concrete		cy	~~339.2~~ ~~[illegible]~~	~~344.78~~ ~~[illegible]~~	~~354.82~~ ~~[illegible]~~	~~150.97~~ ~~150.0~~	~~79.10~~ ~~79.1~~	~~79.10~~ ~~79.1~~	~~1341.25~~ ~~1333.6~~
Reinforcing		lbs.	54 884	53 904	54,584	24,134	12,409	11,627	211,542
Steel Piling 10 BP42	Furnish	Lin.Ft.	~~6,000~~	~~5829~~	~~3,240~~	—	—	—	15,060
	Drive	Lin.Ft.	5,901.4 ~~6,000~~	6093.6 ~~5,829~~	3184.6 ~~3,240~~	—	—	—	15,188.5 ~~15,069~~
Class 20 Excavation		cy	451	—	—	~~85~~ 7N 69.2+90.8 ~~163~~	100	66.9 ~~75~~	~~819~~
Class 21 Excavation		cy	492	4?6	351	~~97.6~~ 27.2 ~~95~~ 7N	~~39.6~~ ~~55~~	~~64.0~~	1306.5 ~~[illegible]~~
Class 22 Excavation		cy	—	—	—	44.2 7N ~~60.5~~ 97.6-85	65.0 ~~24.9~~	~~84.0~~ ~~42.6~~	189.8 ~~134.4~~

CONSTRUCTED AS SHOWN

STEEL PILING (10 BP42)

Pier			
Pier Nº 1N	30 @ 50' = ~~1500~~ LF	1474.8	
" 1S	30 @ 50' = ~~1500~~ LF	1474.7	~~6,000~~ LF 5901.4
" 2N	30 @ 50 = ~~1500~~ LF	1475.4	
" 2S	30 @ 50' = ~~1500~~ LF	1476.6	
" 3N	30 @ 50' = ~~1500~~ LF	1501.5	
" 3S	30 @ 50' = ~~1500~~ LF	1539.0	~~5820~~ LF 6093.6
" 4N	30 @ 47' = ~~1410~~ LF	1541.0	
" 4S	30 @ 47' = ~~1410~~ LF	1512.1	
" 5N	30 @ 31' = ~~930~~ LF	1030.3	
" 5S	30 @ 37' = ~~1110~~ LF	1058.9	~~3240~~ LF 3184.6
" 6N	30 @ 20' = ~~600~~ LF	559.4	
" 6S	30 @ 20 = ~~600~~ LF	596.0	
	Total ~~15,060~~ LF	15,188.5 LF	

Design For
TWIN 1172'-0 x 30 CONTINUOUS WELDED GIRDER BRIDGES
106'-6 End Spans 7-137'-0 Interior Spans
Concrete Floor & Substructure Aluminum Rail

PIER DETAILS

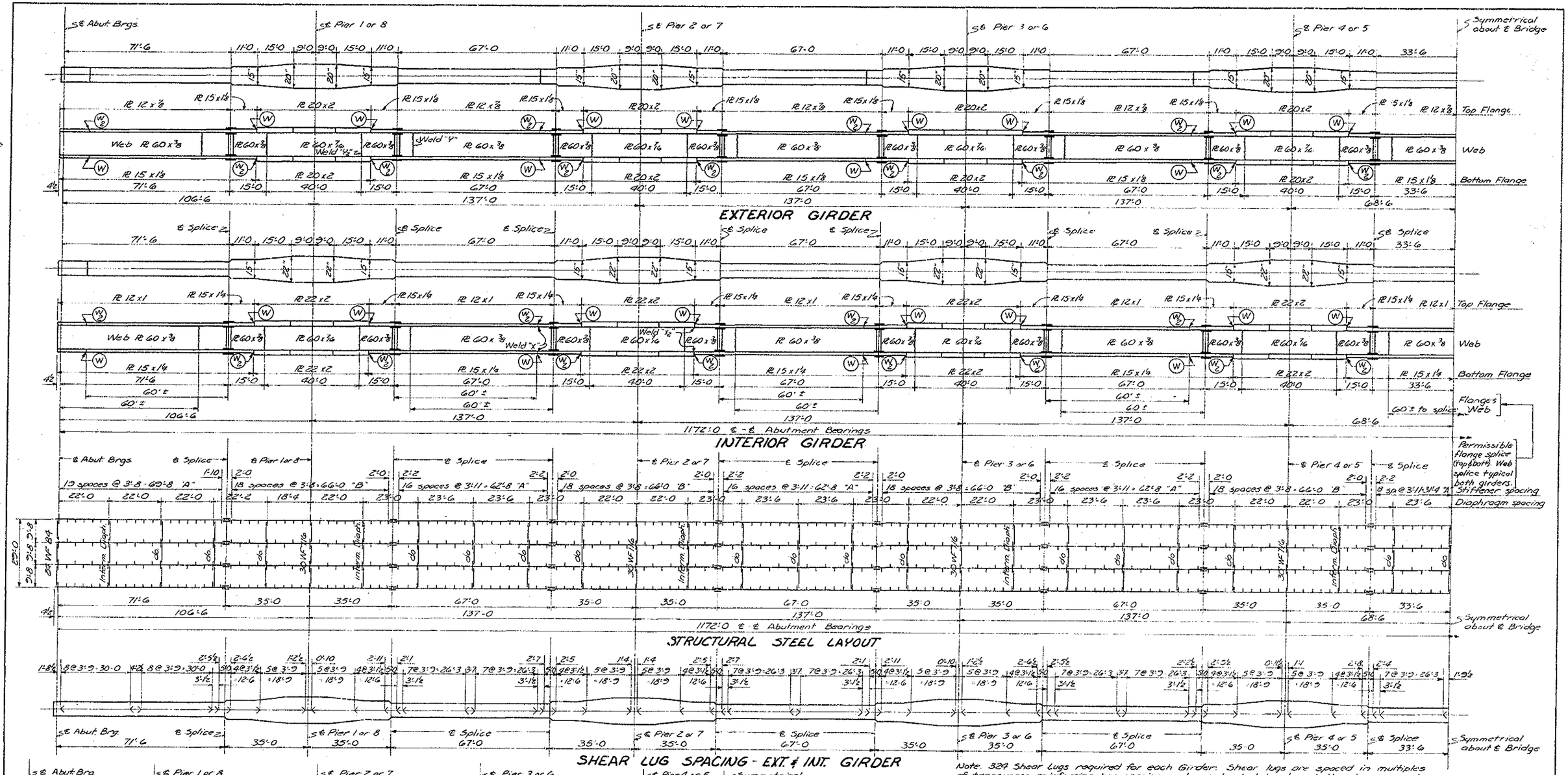
Station 750+00.00 North Lane Project Nº I-80-7(5) 270
750+20.00 South Lane

CEDAR COUNTY

Iowa State Highway Commission

April 1959 Sheet 7 of 13

Design 8859 Cedar County File Nº 20039



SPECIAL WELD NOTE.

All welding ~~shall be~~ by the electric arc process and shall comply with requirements of the Standard Specifications for welded Highway and Railway Bridges, 1956, of the American Welding Society. All operators and processes ~~shall be~~ qualified in accordance with the foregoing specification for the type of electrode and position in which the work will be performed.

The fabricator ~~is to~~ furnish to the Highway Commission satisfactory photographic evidence of the acceptability of the transverse welds in the flange plates of the girders. Butt welds marked (W) on this sheet are ~~to be~~ photographed full width of flange; butt welds marked (W) are ~~to be~~ photographed at least half width of flange. These photographs are ~~to~~ show the internal structure of the welds, and may be made by the use of x ray, radium, radio-active cobalt, or other approved process, at the option of the fabricator. Cost of this photographic inspection is to be included in the price bid for structural steel.

For all girder weld details see sheet 10

CONSTRUCTED AS SHOWN

Design for

TWIN 1172'-0 x 30' CONTINUOUS WELDED GIRDER BRIDGES

106'-6 End Spans — 7-137'-0 Interior Spans

Concrete Floor & Substructures — Aluminum Handrail

SUPERSTRUCTURE DETAILS

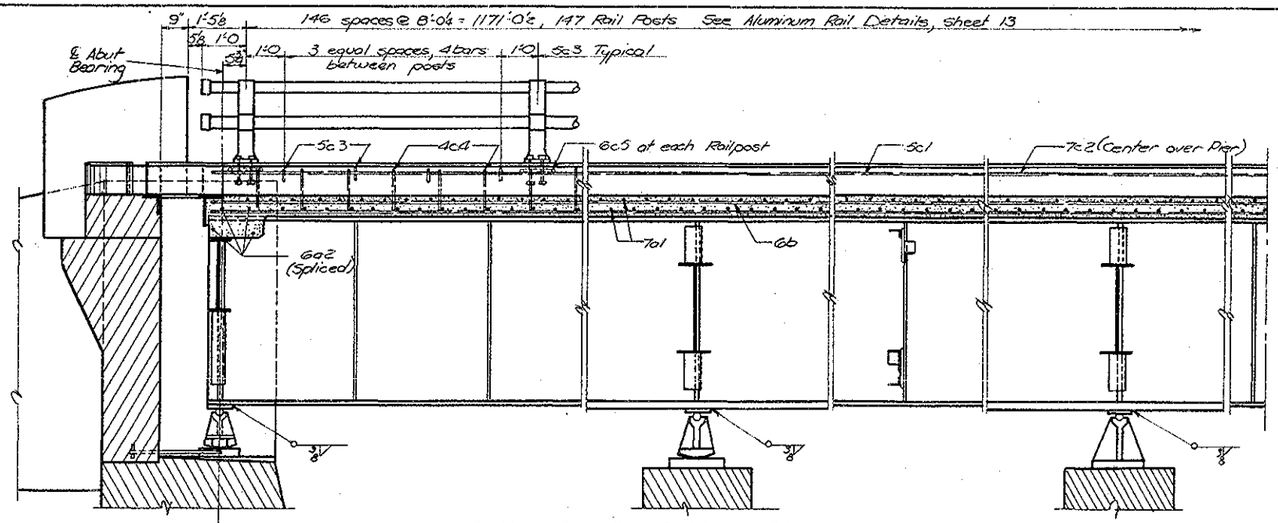
Sta 750+00 N. & 750+20 S. — Project No. I-80-7(51)270

CEDAR COUNTY

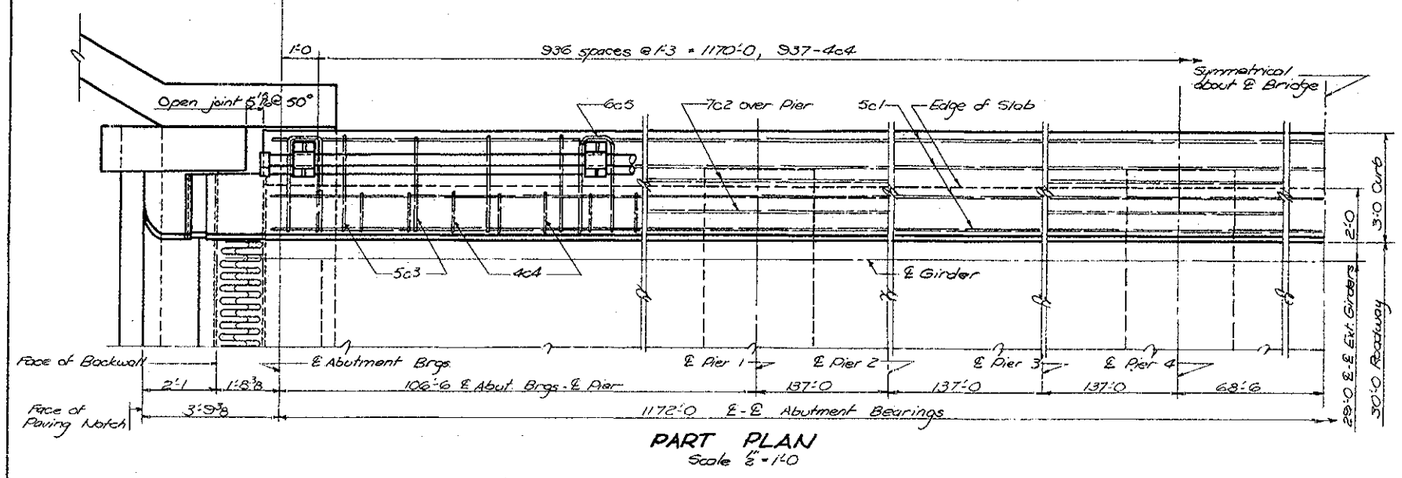
Iowa State Highway Commission

April 1959 — Sheet 8 of 13

Design 8859 — Cedar County — File No 20039



PART LONGITUDINAL SECTION NEAR CURB



PART PLAN
Scale ½" = 1'-0

CONCRETE PLACEMENT QUANTITIES

Item		Cu. Yd.
Sections 1 @ 9	2 @ 56.4	112.8
2 ⋯ @ 8	7 @ 52.8	369.6
10 ⋯ @ 17	8 @ 49.8	398.4
Curbs		223.8
Total, One Superstructure		1104.6

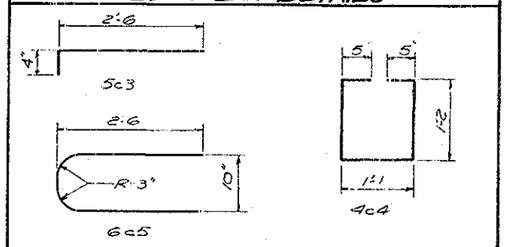
~~ESTIMATED~~ QUANTITIES - ONE SUPERSTRUCTURE

Item	Quantity
Concrete	1104.6 c.y.
Reinforcing Steel	341,484 lbs.
Structural Steel	1,369,745 lbs.

REINFORCING STEEL - ONE SUPERSTRUCTURE

Bar	Location	Shape	No.	Length	Weight
7a1	Slab Transv. - Top & Bott.	——	3745	32'-8	232,056
6a2	Abutment Diaphragm	——	16	15'-1	362
6b1	Slab Longitud. End Span	——	148	38'-2	8484
6b2	" " - Int. "	——	518	37'-4	29046
6b3	" " - Over Pier	——	592	33'-9	30010
5c1	Curb Longitud.	——	256	37'-11	10124
7c2	" " Over Pier	——	32	40'-0	2616
5c3	" Transverse	⌐	1168	2'-9	3350
4c4	" "	⊐	1874	4'-0	5007
6c5	" Rail Post Anchor	⌐	294	5'-6	2429
			Total		341,484

BENT BAR DETAILS



Note: All dimensions are out to out, all radii to ℄ of bar.

SUPERSTRUCTURE NOTES

These bridges are designed for H20-S16 Loading plus 19 lbs. per sq. ft. of roadway for future wearing surface, and for alternate loading designated in PPM 20-4, Section 4-C.

The floor slab as shown includes ½" of wearing surface.

Field Connections may be riveted or bolted, except as noted or shown. Splice connections, if bolted, will require "High Tensile Strength Bolts". Structural Steel weights have been computed using "High Tensile Strength Bolts".

All open holes are to be 13/16" and rivets and bolts are to be ⅞" unless otherwise noted.

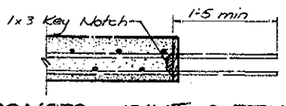
Bottom flanges of girders are to be perpendicular to webs at reaction points. Girder splices are to be subpunched and reamed. Before reaming, all girders are to be assembled to proper camber as shown on sheet 8, "Girders as Fabricated and Erected", for inspection. After inspection, holes are to be reamed and all parts match-marked.

Masonry plates are to be set in paint and canvas. Bearing surfaces of unfinished masonry plates are be flat and true.

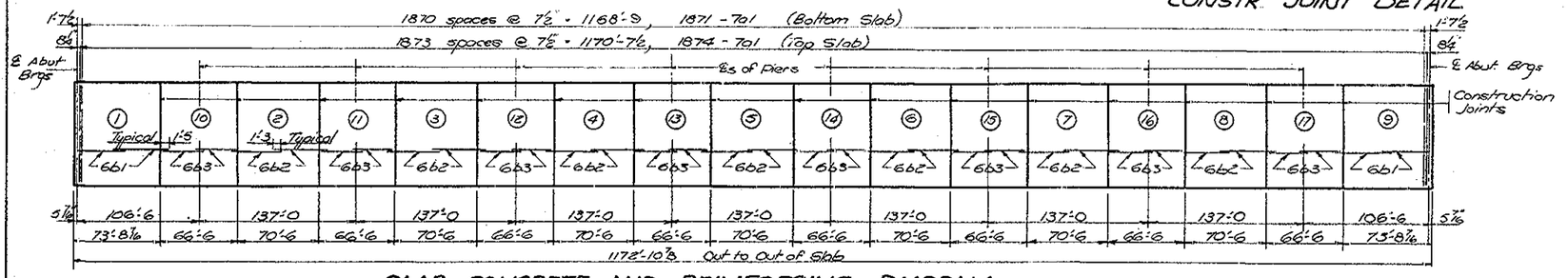
Shop coat of paint is to be omitted on all steel surfaces in contact with concrete. Parts inaccessible after erection are to be given three coats of paint in the shop.

The structural steel for main stress carrying members shall conform with specifications for ASTM A-373 Steel.

Girder splice points are to be supported by false work or other means, as directed by the engineer, and adjusted as closely as possible to dimensions shown on diagram "Girders as Fabricated and Erected" before riveting or bolting is completed.



CONSTR. JOINT DETAIL



SLAB CONCRETE AND REINFORCING DIAGRAM

Slab sections over piers are to be placed last. Curbs may be placed continuously. Encircled figures indicate recommended slab pouring sequence.

SPECIFICATIONS

Design: A.A.S.H.O. Series of 1957 and A.A.S.H.O. tentative specifications series T(58).
Construction: Standard specifications of the Iowa State Highway Commission, series of 1956, plus current special provisions.

CONSTRUCTED AS SHOWN

Design For
TWIN 1172'x30' CONTINUOUS WELDED GIRDER BRIDGES
106'-6 End Spans 7-137'-0 Interior Spans
Concrete Floor & Substructures Aluminum Rail

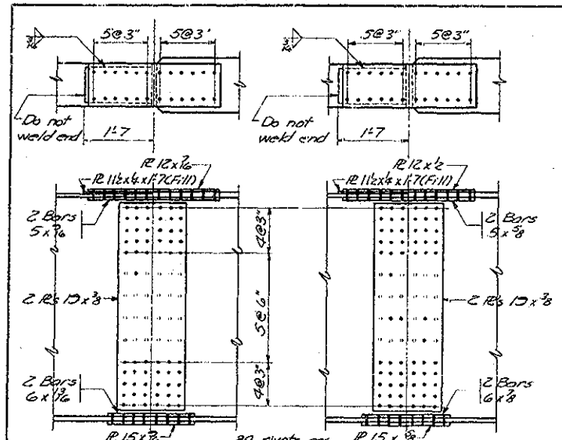
SUPERSTRUCTURE DETAILS

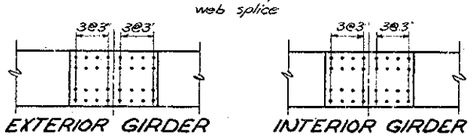
Sta 750+00.00 N.& 750+20.00 S. Project No F-80-7(5)270

CEDAR COUNTY

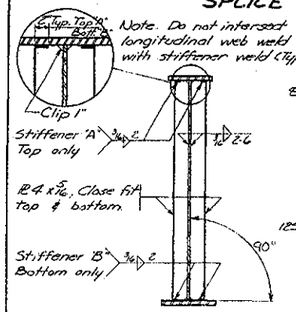
Iowa State Highway Commission
April 1959 Sheet 9 of 13

Design 8859 Cedar County File 20039



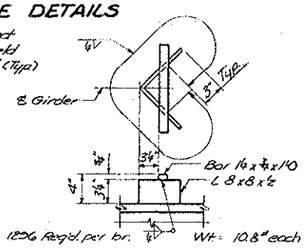


SPLICE DETAILS



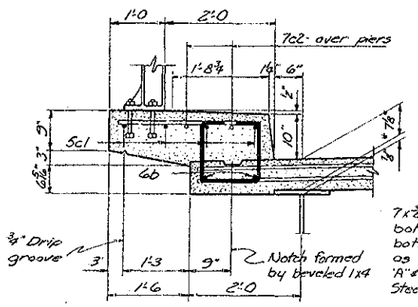
INTERMEDIATE GIRDER STIFFENERS

Note. Do not intersect longitudinal web weld with stiffener weld (Typ)

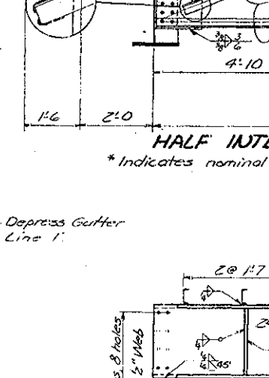


SHEAR LUG DETAILS

Note For Rail & post details see sheet 13

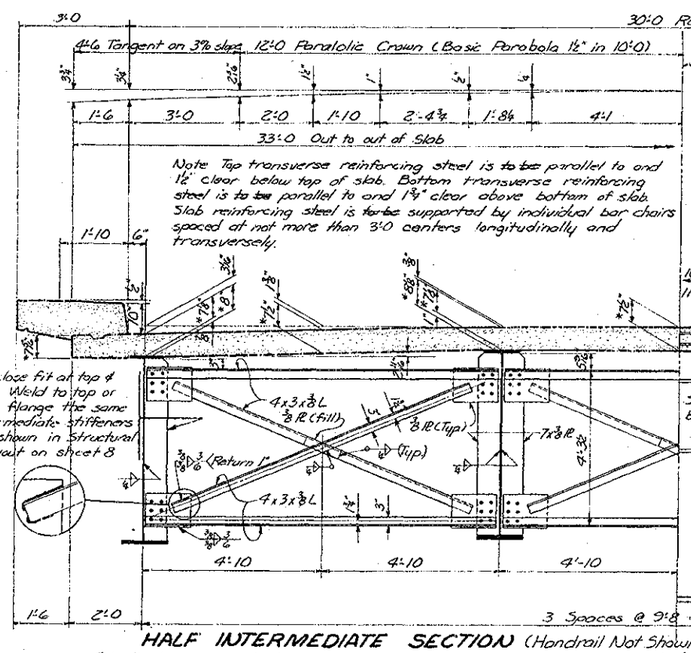


CURB DETAILS

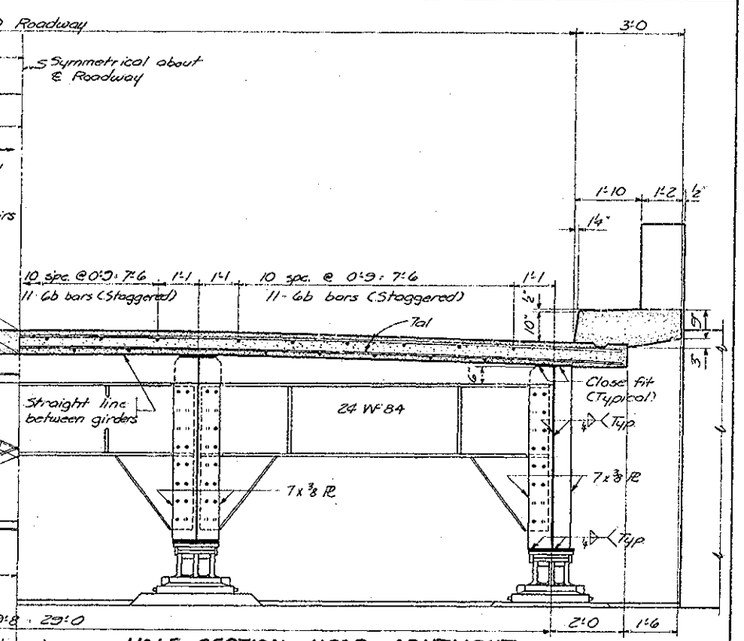


DRAIN DETAILS

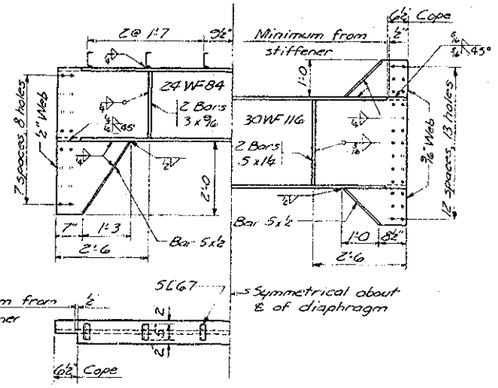
68 Drains req'd per bridge Wt = 21.4 # each
(See Situation Plan for location)
Note. Rolled tube 4"x8" O.D. with 1/4" wall thickness may be substituted for the welded floor drain shown Dimensions shown are for 4" welded PL



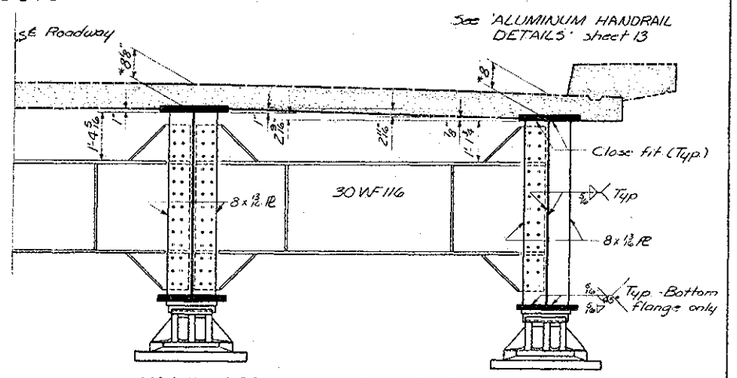
HALF INTERMEDIATE SECTION (Handrail Not Shown)
* Indicates nominal dimensions
Scale 1/2" = 1'-0



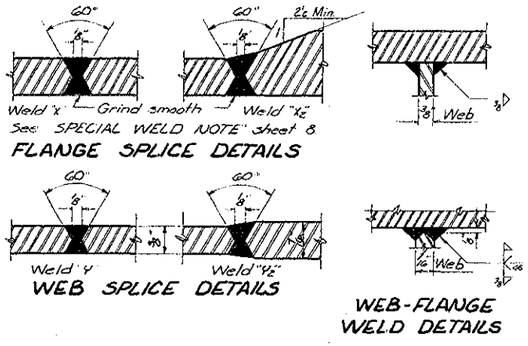
HALF SECTION NEAR ABUTMENT



AT ABUTMENT DIAPHRAGM AT PIER DIAPHRAGM DETAILS



HALF SECTION NEAR PIER
(Handrail Not Shown)



FLANGE SPLICE DETAILS

WEB SPLICE DETAILS

WEB-FLANGE WELD DETAILS

1.Note. Web to Flange Welds
It will not be necessary to bevel web plates if a satisfactory weld, with full penetration, can be made by using an automatic or semiautomatic submerged arc system, provided neither the depth of fusion nor the total width of fusion at any point in a single weld or weld pass exceeds the width of the face of the weld or pass Square Tee joints with web plates 3/8" max. thickness are prequalified. Square Tee joints with web plates over 3/8" thick will require specific approval as follows. The contractor shall make up a sample, one foot long, of the same cross section and same materials, with the same edge preparation (gouging, beveling etc. to comply with depth of fusion requirements above) as the joint he proposes to use in construction, and submit it to the Highway Commission to be approved or rejected as an alternate joint, before proceeding with the welding

TABLE OF MOMENTS IN FOOT KIPS

	Negative Moments								Positive Moments									
	Pier 1-8		Pier 2-7		Pier 3-6		Pier 4-5		End Spans		Span 2-8		Span 3-7		Span 4-6		Span 5	
	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.
D.L. #1	1498	2250	1481	2224	1489	2237	1486	2232	539	802	464	697	469	704	466	701	468	703
D.L. #2	303	144	342	150	342	150	342	150	470	75	477	76	461	73	461	73	461	73
Uniff.L.L.	750	1006	892	1129	860	1152	858	1152	512	687	596	799	624	837	618	830	624	837
Conc L.L.	258	346	272	365	272	365	272	365	279	375	272	365	275	365	275	369	275	365
Impact	204	279	213	285	216	290	210	290	171	229	166	222	172	230	170	229	172	230
Total	3613	4020	3750	4153	3879	4194	3798	4199										

TABLE OF REACTIONS IN KIPS

	Abutments		Pier 1-8		Pier 2-7		Pier 3-6		Pier 4-5	
	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.	Ext.	Int.
D.L. #1	30.3	95.5	115.5	173.3	113.8	171.0	114.2	171.4	114.0	171.2
D.L. #2	23.8	3.8	82.4	13.0	83.7	13.2	83.4	13.1	83.4	13.1
Uniff.L.L.	42.1*	56.5*	62.0	83.1	65.7	88.3	65.7	88.3	65.7	88.3
Conc L.L.			17.0	22.8	17.0	22.8	17.0	22.8	17.0	22.8
Impact	9.1	12.2	15.1	20.2	15.8	21.2	15.8	21.2	15.8	21.2
Total	105.3	118.0	292.0	312.4	296.0	316.5	296.1	316.8	295.9	316.6

* Truck Live Load Governs at Abutments.

CONSTRUCTED AS SHOWN

Design for
TWIN 1172'x30' CONTINUOUS WELDED GIRDER BRIDGES
106'-6 End Spans 7-137'-0 Interior Spans
Concrete Floor & Substructure Aluminum Handrail

SUPERSTRUCTURE DETAILS

Station 750+00.00 North Lane Project No. I-80-7(5)270
Station 750+20.00 South Lane

CEDAR COUNTY
Iowa State Highway Commission

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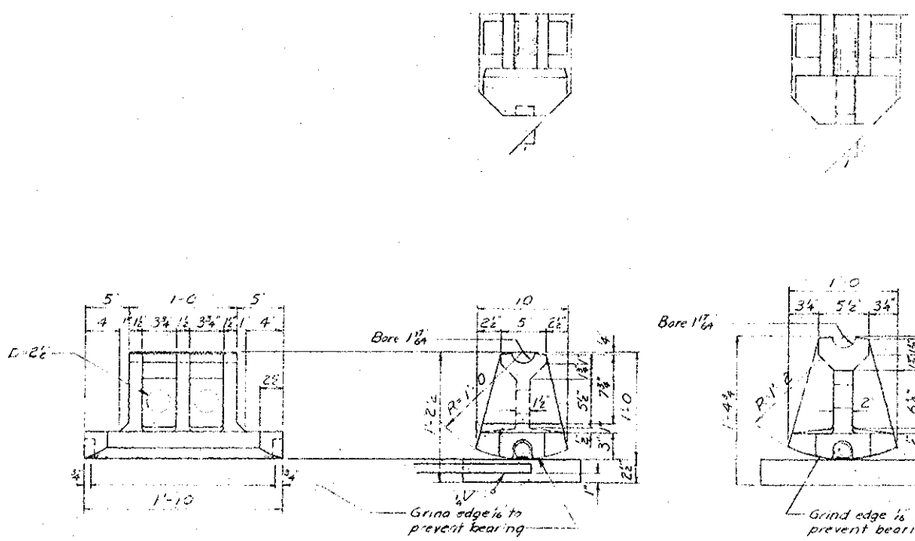
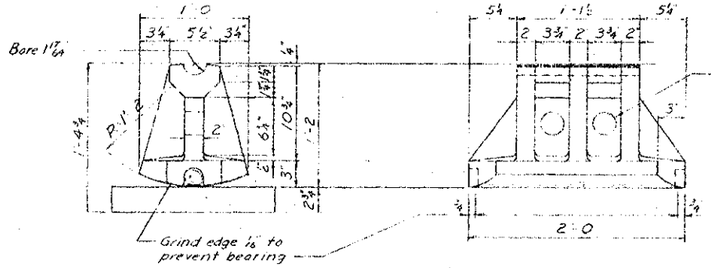
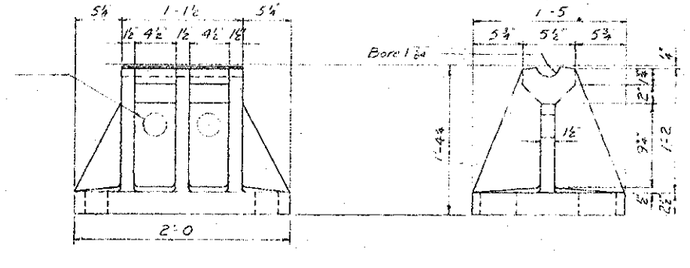


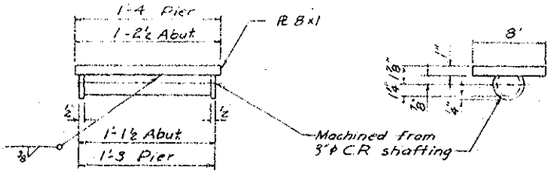
Wt 241 lbs each
ABUTMENT ROCKER



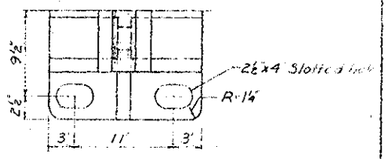
Wt 427 lbs each
PIER ROCKER

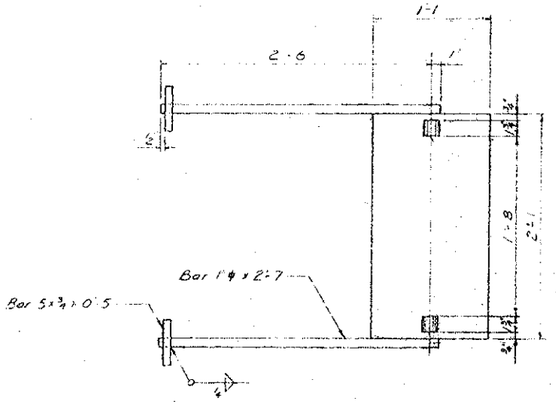


Wt 554 lbs each
PIER FIXED SHOE
16 Req'd
Scale 1½" = 1'-0

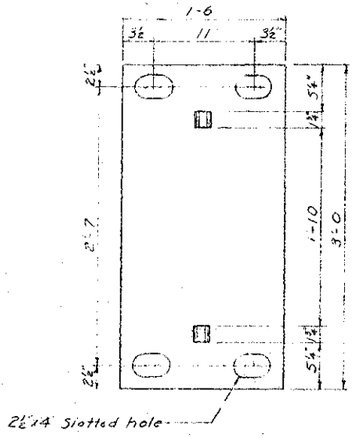


SOLE PL & PIN
(Abutment & Pier)
Scale 1½" = 1'-0



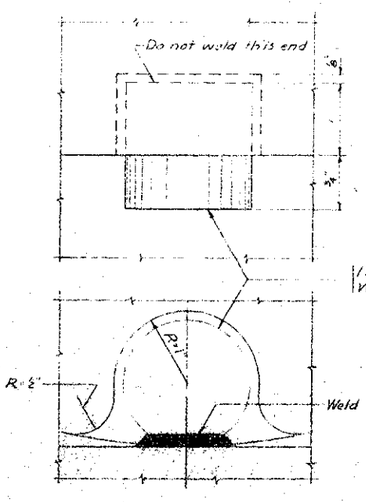


ABUTMENT MAS PL
16 Req'd.

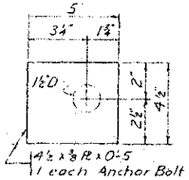


PIER MAS PL
48 Req'd.

Scale ½" = 1'-0



ROCKER PINTLE (TYP)
Scale 12" = 1'-0



PL WASHER
Scale 3" = 1'-0

Note 2 56-1¼"x1'-8" swedged anchor bolts with heavy hex nuts are required for pier bearings. Set to project 5" above concrete. After bearing is in correct location, mortar ~~should~~ be poured around bolts to fill holes in masonry plates and shoes.

ROCKER SETTING TABLE

Temperature at time of setting	Abut	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	Pier 8	Abut
10°F	-1 13/16"	-1½"	-1 1/16"	-⅝"			-⅝"	-1 1/16"	-1½"	-1 13/16"
50°F	0	0	0	0	Fixed	Fixed	0	0	0	0
90°F	+1 13/16"	+1½"	+1 1/16"	+⅝"			+⅝"	+1 1/16"	+1½"	+1 13/16"

Note Tilt rockers in direction shown for temperatures above 50°F, and in opposite direction for temperature below 50°F. Settings for other temperatures are proportional.

CONSTRUCTED AS SHOWN

Design for
TWIN 1172'x30' CONTINUOUS WELDED GIRDER BRIDGES
106'-6 End Spans 7 - 137'-0 Interior Spans
Concrete Floor & Substructures Aluminum Rail

BEARING DETAILS

Sta 750+00.00 N & 750+20.00 S. Project I-80 7(5) 270

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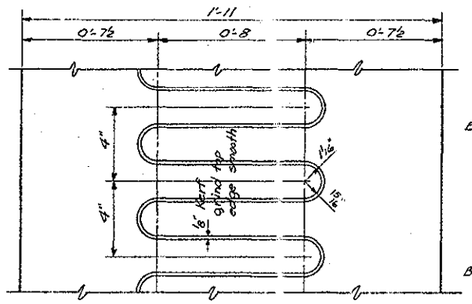
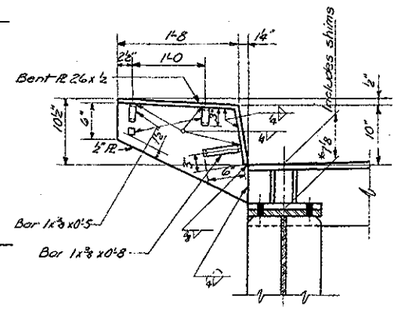
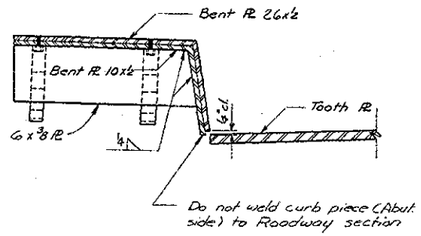


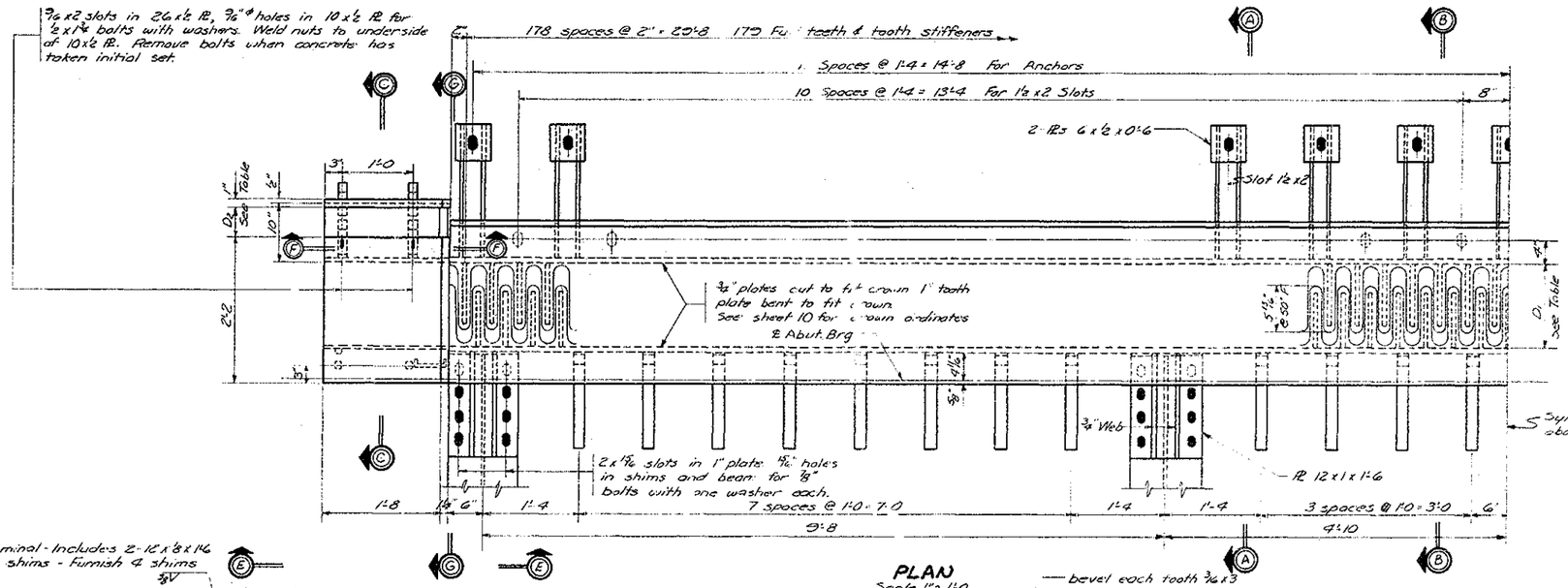
TOOTH LAYOUT
Flame cut from 23 1" PL
Scale 3"=1'-0



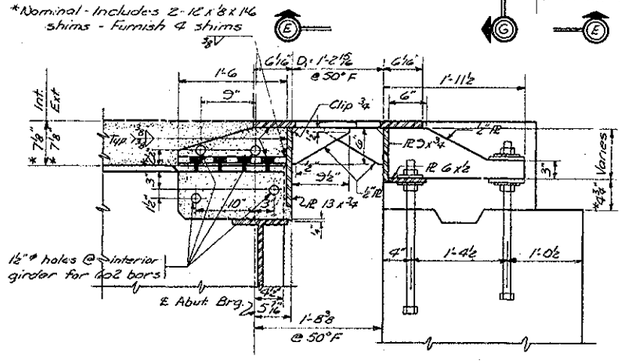
VIEW E-E
Scale 1"=1'-0



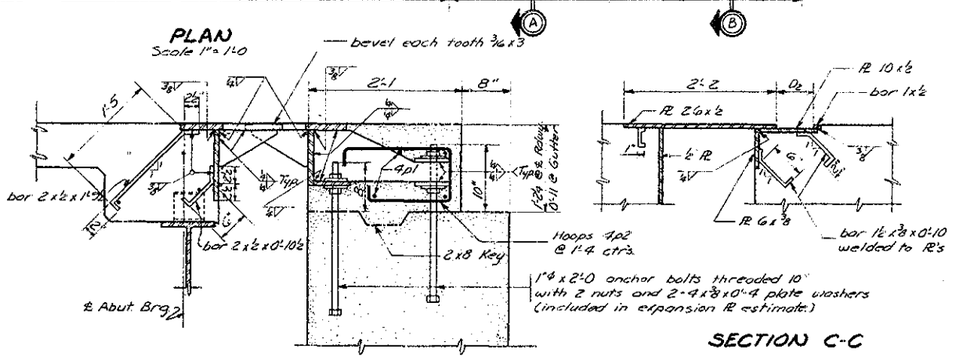
SECTION F-F
Scale 1½"=1'-0



PLAN
Scale 1"=1'-0

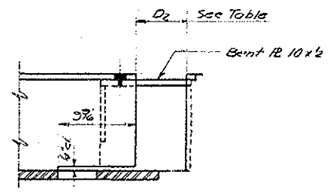


SECTION A-A



SECTION B-B

SECTION C-C



SECTION G-G
Scale 1½"=1'-0

TEMP TABLE				
	East Abut		West Abut	
TEMP	D1	D2	D1	D2
10° F	1'-4 ⅝"	6 ⅛"	1'-4 ⅞"	6 ⅛"
50° F	1'-2 ¹⁵⁄₁₆"	4½"	1'-2 ¹⁵⁄₁₆"	4½"
90° F	1'-1⅛"	2 ⅞"	1'-1⅛"	2 ⅞"

Note 4 expansion details required. Weight each = 7740 lbs (including all bolts except for connecting to main girders)

Constructed as Shown

Design for
TWIN 1172'-0 x 30' CONTINUOUS WELDED GIRDER BRIDGE
106'-6" End Spans — 7-137'-0 Interior Spans
Concrete Floor and Substructures — Aluminum Rail

EXPANSION PLATE DETAILS

Station 750+00.00 North Lane
Station 750+20.00 South Lane
Project I-80-7(51)270

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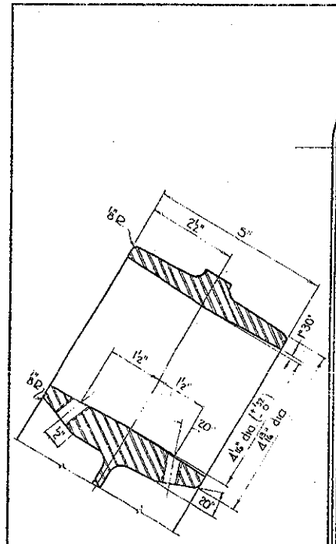
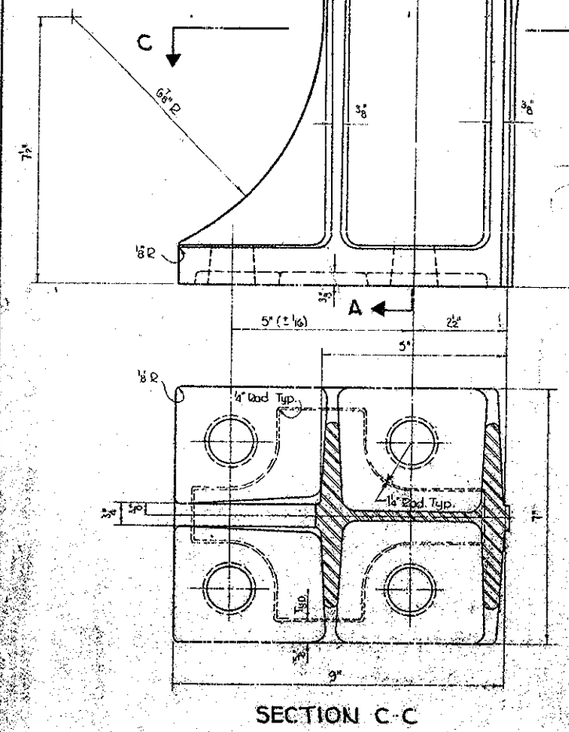
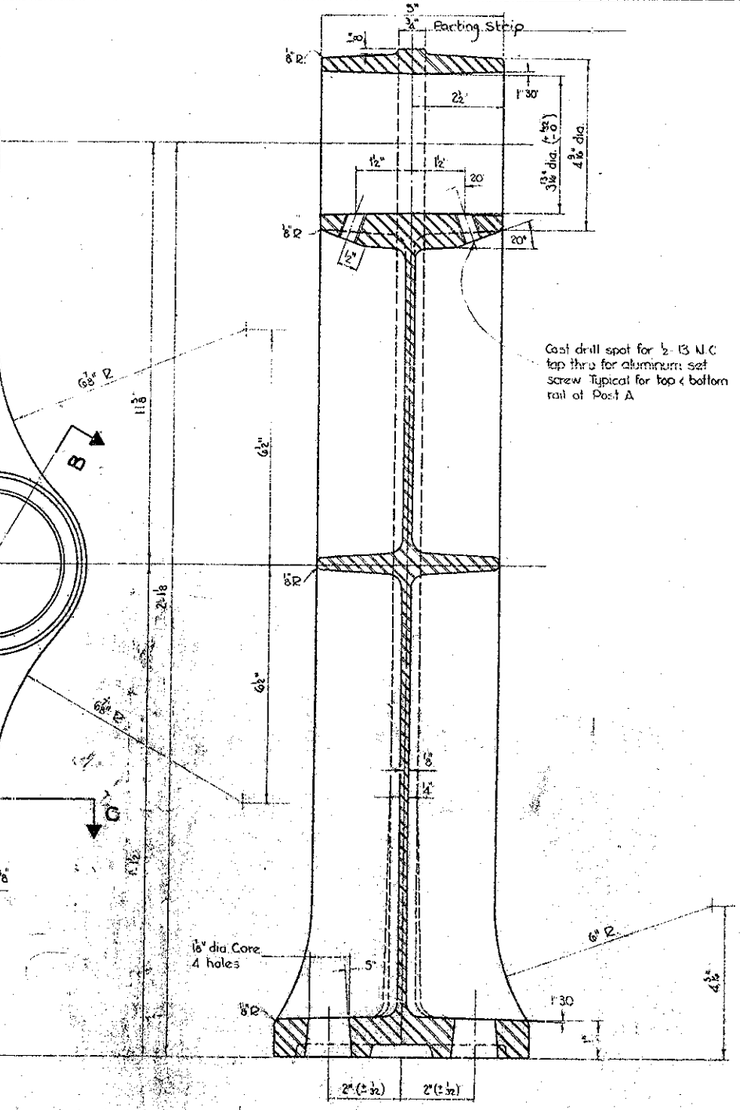
Design 8859 — Cedar County — File No 20039



PART SECTION B-B



SECTION C-C



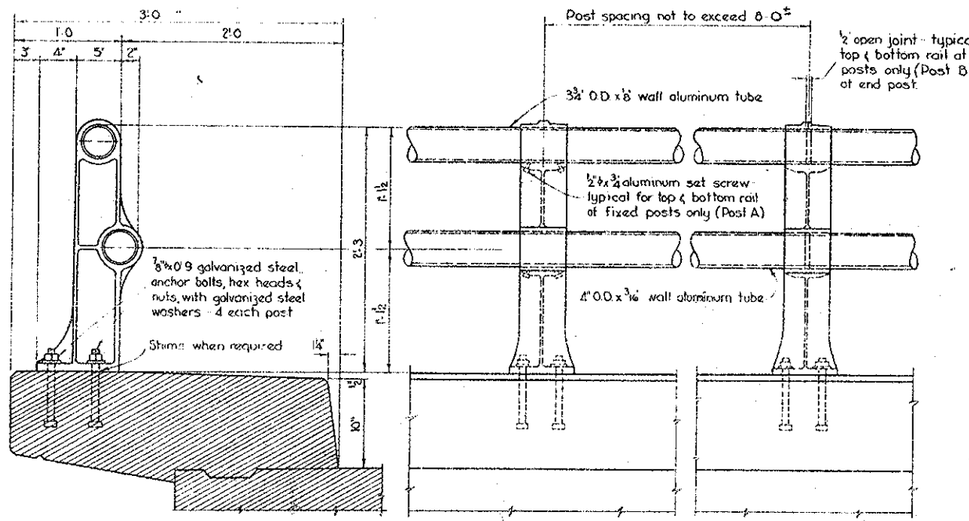
SECTION A-A

Cast drill spot for ½-13 N.C. tap thru for aluminum set screw Typical for top & bottom rail at Post A

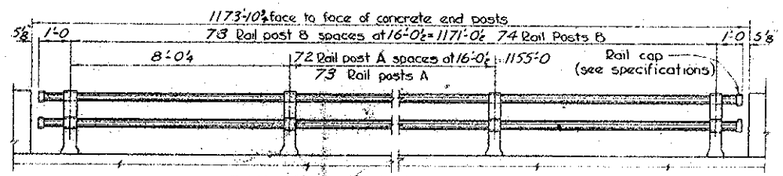
RAIL POST CASTING DETAILS

Scale 6" = 1'-0

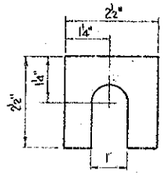
Note: All draft angles not shown are to be 3°
All unmarked fillets are to be ⅜"
All gates, risers, and seams are to be trimmed flush.
Unless otherwise specified { Casting tolerance ± ⅛" / Wall thickness ± 1/32"



SECTION THRU CURB — POST "A"-FIXED POST — POST "B"-EXPANSION POST



RAIL POST LAYOUT



ALUMINUM SHIM DETAIL
Note Provide 4 1/16 thick shims at each post

SPECIFICATIONS:

1 DESCRIPTION OF BID ITEM
A Aluminum handrail is to be bid on a linear foot basis measured from center to center of end posts. The price bid for "Aluminum Handrail" shall consist of furnishing, fabricating, erecting, and cleaning all metal handrail and shall include the furnishing and installation of anchor bolts and all other incidental items in accordance with these plans and specifications.

2 COMPONENT PARTS AND MATERIALS
A Aluminum Bridge Rail Tubing
1 Aluminum tubing shall comply with the A.S.T.M. Specification B 235- * alloy 6S11A condition T6 (commercial designation 60SA-T6). The aluminum tubing shall be fabricated in two panel sections as detailed. The rail shall be fixed at alternate posts with set screws and allowed to expand at adjacent posts.
2 The aluminum rail tubing shall be closed at the ends next to the concrete end posts, as detailed, by means of cast caps or plugs or by means of welded end plates. The cast caps or plugs shall comply with the material specifications as outlined for post castings.
B Aluminum Rail Post Castings
1 Aluminum post castings shall comply with:
(a) The A.S.T.M. Specification B 108 * alloy S67A-A condition T6 for aluminum alloy permanent mold castings (commercial designation - aluminum alloy permanent mold castings 356-T6) or:
(b) The A.S.T.M. Specification B 26 * alloy S6 70A-A condition T6 for aluminum alloy sand castings (commercial designation - aluminum alloy sand castings, 356-T6).
2 The post castings shall have smooth and even surfaces, free from shrinkage cracks, oxide inclusions, and other defects.
3 The post castings shall follow the outlines and dimensions as detailed. Minor changes, such as draft angles and radii for fillets and corners, shall be permitted. Draft on front and back face of post may be omitted providing minimum wall thicknesses as detailed are maintained. Shop drawings for post castings must be submitted and approved by the Engineer before castings are made.
4 The 36" parting strip is to be finished with a 120 grit finish or on approved equal. All other surfaces are to have a uniformly polished or burnished finish.
5 Before setting posts, the entire base of the post casting shall be coated with an aluminum impregnated caulking compound ⅛" thick. The caulking compound shall comply with Federal Specifications TT-C-598 for knife grade, to which shall be added aluminum paste conforming with Paragraph 4136.03 A in proportion to one pound of aluminum to 5 pound of caulking compound.
C Aluminum Set Screws for Posts A
1 Aluminum set screws shall comply with the A.S.T.M. Specification B211 * alloy C6 42 A1 (commercial designation 2024-T4 with Alcoa 205 alumilite finish). The finished set screws shall be supplied in the T4 temper and shall be given an anodic coating of at least 0.0002" in thickness and chromate sealed. The set screws shall have a hexagon socket head and wax point.
D Aluminum Shims
1 Aluminum shims shall comply with the A.S.T.M. Specification B-209 * alloy 99.0 A condition O (commercial designation-1100-0).

3 CONSTRUCTION
A The specifications for construction shall be the Standard Specifications of the Iowa State Highway Commission Series of 1956 plus current Special Provisions with the added provisions.
1 The anchor bolts for the aluminum posts shall be set at the line and elevations shown on the plans. They shall be firmly held in place by suitable templates that will assure their correct position during the placement of concrete. Aluminum shims as detailed, shall be used if necessary to insure the correct elevation of the rails.
2 The cast aluminum posts and the aluminum tube rails shall be carefully handled during their unloading, handling, and erection. Members that are marred, disfigured or damaged to the extent that they impair their usefulness or appearance shall be rejected and replaced at the contractors expense.
3 The aluminum handrail shall be stored above ground upon suitable platforms and kept free from dirt, grease, and contact with dissimilar metals. The stored aluminum handrail shall be protected from moisture as far as practical.
4 After anchor bolts have been tightened, the excess caulking compound shall be removed and all openings around the base of the post pointed full and flush with caulking compound.
5 After erection, rails and posts and the concrete around the post bases shall be thoroughly cleaned of all dirt, grease, caulking compound and other foreign material by an approved means as directed by the Engineer.
6 The ends (about 2") of both rails at Post "B" are to be wrapped with friction tape before being set in the hubs in order to produce a tight fit and prevent rattling (Approved ~~granules~~ or shims may be substituted).

ALUMINUM HANDRAIL QUANTITIES	
Aluminum Handrail (4-4 End Posts)	* 2342.1 lin. Ft.

* Total each Lane

Revised (2-10-58 Post casting finish changed, Specifications Par. 2B Item 4)
Revised 10-6-58 Post casting base slotted out and other minor changes.

Current Tentative A.S.T.M. Standard Specifications

Design for **Constructed as Shown**

TWIN 1172'x30' CONTINUOUS WELDED GIRDER BRIDGES

106-6 End Spans — 7-137'-0 Interior Spans

Concrete Floor & Substructure — Aluminum Rail

ALUMINUM HANDRAIL DETAILS

Station 750+00.00 N. — Project I 80-7(5)270
750+20.00 S.

CEDAR COUNTY

Iowa State Highway Commission

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