BRIDGE DECK REPAIR
IR-29-5(61)77--12-43

HARRISON COUNTY

926

CONVENTIONAL SIGNS

STATE LINE
COUNTY LINE
TOWNSHIP LINE
SECTION LINE
CORPORATION LINE
URBAN BOUNDRY
R. O. W. LINES — EXISTING / PROP.

SURVEY LINES — STA. / REF. POINT

SECTION CORNER

PROPOSED PROFILE GRADE
RAILROAD

FIELD TILE — EXISTING / PROP.

UNDERGROUND LINES — GAS / TEL

CULVERTS — OLD / NEW

UTILITY POLES — POWER / TEL

FENCES — BARB / MESH

TREES OR BRUSH

STREAM

DIKE — OLD / NEW

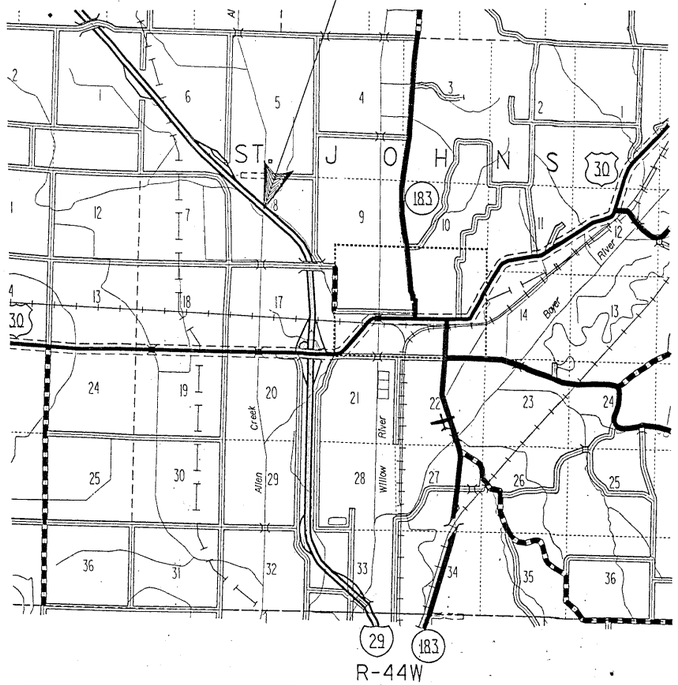
COUNTY ROAD NUMBER

PRIMARY ROAD NUMBER

U.S. ROAD NUMBER

INTERSTATE ROAD NUMBER

DESIGN NO. 290 ~~& 590~~



LOCATION MAP SCALE
0 1 2 3
Miles

No 926 File

43-029-18

#1807

901714
006837
006838
021
SJK

HARRISON COUNTY

IOWA
DEPARTMENT OF TRANSPORTATION
Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

INTERSTATE ROAD SYSTEM

HARRISON COUNTY

BRIDGE DECK REPAIR

ON I-29 OVER ALLEN CREEK
2 MILES NW OF US 30 INTERCHANGE

SCALES: As Noted

The standard specifications, series of 1984 of the Iowa Department of Transportation, shall apply to construction work on this project.

(PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS)

CONSTRUCTION PLANS SHOWING PROJECT AS BUILT

Plan Preparation Supervised By: Jerry R Lum
Resident Construction Engineer

Date 1-4-95 Iowa Reg. No. 7232

REVIEWED AND FORWARDED TO AMES

Tony S Kaufmann
NWITC Construction Engineer

Date 8-22-95

~~One 50% Reduced and Two Full-Size~~ Prints To Be Made and Returned To

JIM BUMP
District Engineer

AFTER MICROFILMING RETURN ORIGINAL TO NWITC.

THIS AS BUILT PLAN INCLUDES

YEAR	WORK	CONTRACTOR	PROJ. INSPECTOR
1991	BRIDGE DECK REPAIR	WATERLOO CONST. CO. INC.	K. FITZPATRICK

150

STATE	FHWA REGION	F.Y.	SHEET	TOTAL
IOWA	7		1	31

PROJECT NUMBER
IR-29-5(61)77--12-43
R.O.W. PROJECT NUMBER

PIN
90-43-010-1

INDEX OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATE SHEET
3-13	BRIDGE DESIGN NO. 290
~~14-24~~	~~BRIDGE DESIGN NO. 590~~
25-31	ROAD SHEETS

STANDARD ROAD PLANS

IDENT	DATE	IDENT	DATE
RE-2A	02-17-87	RE-69	08-08-89
RE-2B	10-02-90	RH-52	10-02-90
RE-7	10-02-90	RK-17	01-09-90
RE-12A	10-11-88	RL-11	10-11-88
RE-12B	01-09-90	RL-12	04-04-89
RE-27B	01-09-90	RS-62	10-11-88
RE-47	11-10-87	RH-50	10-02-90
RE-48A	08-20-85	RH-51	10-02-90
RE-52	08-08-89		
RE-53	10-11-88		
RE-65	01-09-90		
RE-67	01-09-90		
RE-68	08-08-89		

STANDARD BRIDGE PLANS

STANDARD	ISSUED	REVISED

REVISIONS

Iowa Department of Transportation

AUTHORIZED FOR LETTING
George F. Sisson 10-10-90
DEPUTY CHIEF ENGINEER DATE

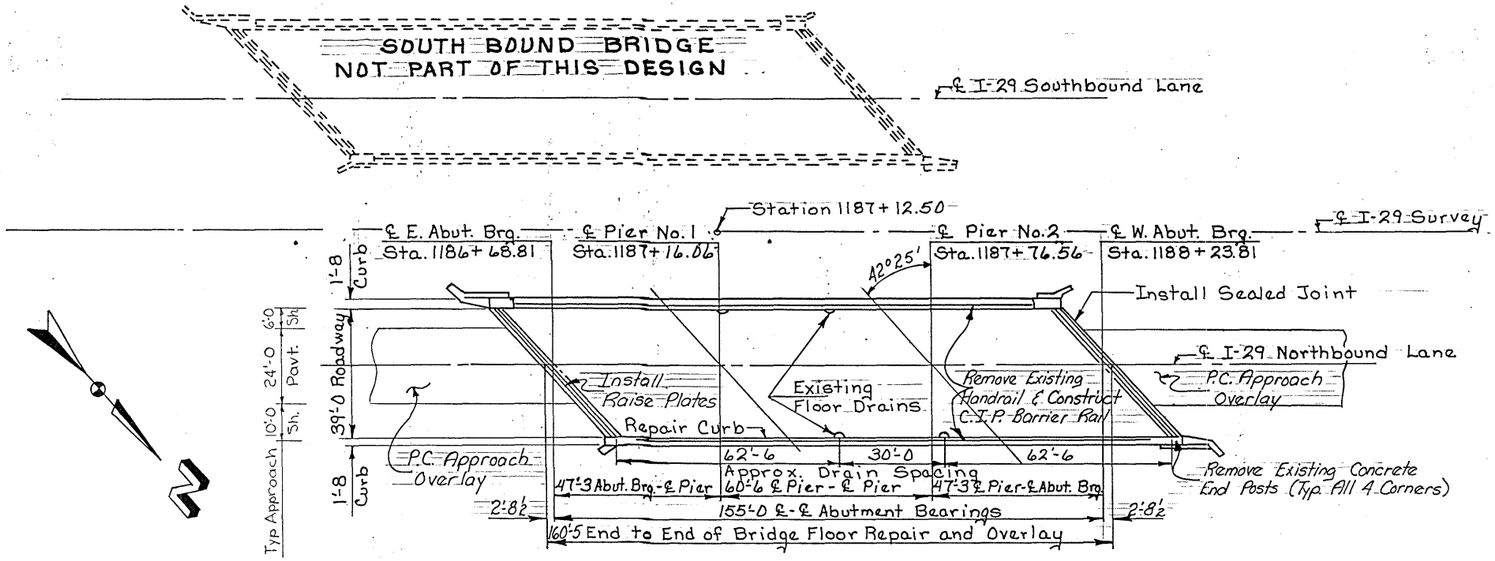
I hereby certify that this plan was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly Registered Professional Engineers under the laws of the State of Iowa.

Name Gordon A. Smudgent
Iowa Registration No. 4449 Date 10/8/90

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

FOR THE DIVISION ADMINISTRATOR DATE

LETTING DATE December 11, 1990 STATE CONTROL SECTION NUMBER 43-0900 STEVE 10-2-90 FILE NO. 28060 10/8/90 HARRISON COUNTY PROJECT NO. IR-29-5(61)77--12-43 SHEET NO. 1



SITUATION PLAN

TOTAL ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
1	CLASS A BRIDGE FLOOR REPAIR	SQ. YD.	37
2	BRIDGE FLOOR OVERLAY	SQ. YD.	690
3	TEMPORARY BARRIER RAIL - FURNISH ONLY	L.F.	490
4	TEMPORARY BARRIER RAIL - PLACE ONLY	L.F.	960
5	CONCRETE SEALER AS PER PLAN	SQ. FT.	815
6	CONCRETE BARRIER RAIL - CAST IN PLACE	L.F.	335.4
7	Structural Steel	Lbs.	2064
8	Removal of Existing Handrail	L.S.	Lump Sum

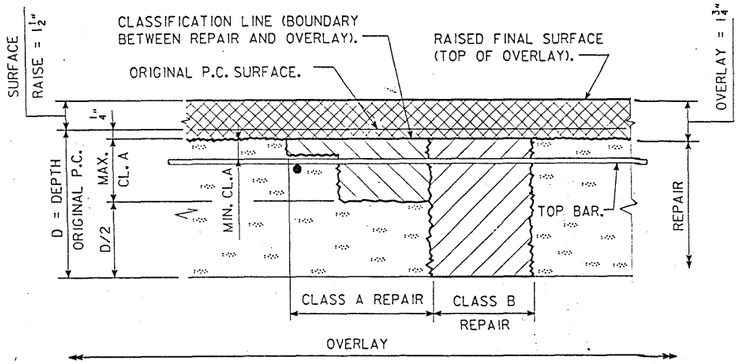
ESTIMATE REFERENCE INFORMATION

ITEM NO.

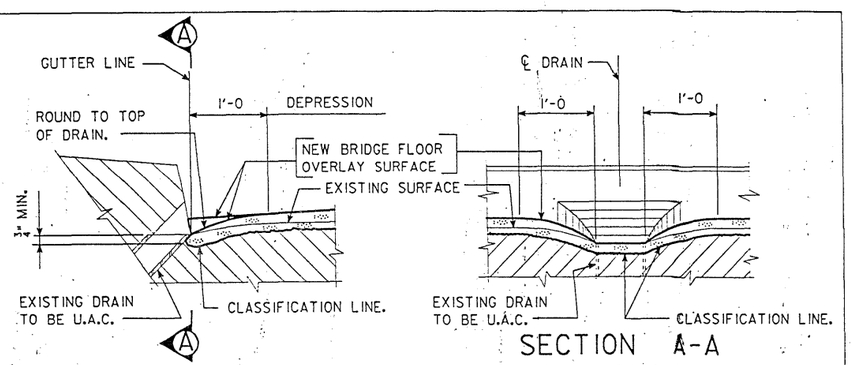
1 — Includes 10 sq.yds. of curb repair.

3 & 4 — ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS.

6 — INCLUDES 1610 L.F. OF NO. 5 BAR AND 1647 L.F. OF NO. 6 BAR OF EPOXY COATED REINFORCING STEEL, AND 24.5 CU. YD. OF CLASS D STRUCTURAL CONCRETE.



REPAIR AND OVERLAY DEFINITION



SECTION A-A

FLOOR REPAIR DETAIL AT DRAIN
(REQUIRED AT 4 LOCATIONS)

NOTE:
Roadway Quantities Shown Elsewhere In These Plans.

SPECIFICATIONS:
CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION SPECIFICATION, SERIES OF 1984, PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS.

DESIGN STRESSES:
DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1989.
REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.
CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 3,500 PSI.
STRUCTURAL STEEL IN ACCORDANCE WITH SECTION 10. ASTM A-36.

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
565	Original Design
290	Overlay & Repair to N.B. Lane

LOCATION:

MAINTENANCE NO. 4377.6R029(NBL)
I-29 over Allen Creek
Section 8
T-78N R-44W
St. Johns Township
Harrison County

Design For Repairs To 42°25' Skew (R.A.)
155'-0 X 39' CONTINUOUS I-BEAM BRIDGE
47'-3 End Spans 60'-6 Interior Span
SITUATION PLAN
Station: 1187+12.50 (℄ I-29 Survey) Sept., 1990
HARRISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 11 FILE NO. 28060 DESIGN NO. 290

DESIGNED BY M.E. Freier
DETAILED BY J.A. Whitney
TRACED BY
CHECKED BY E.W. Konechne
SECTION LEADER: G. Novey

DECK REPAIR - QUANTITIES | STANDARD SHEET 1038 | HARRISON COUNTY

PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IR-29-5(61)77--12-43	IOWA	7		3	31

HSTD01038.SOI--LEF: THIS SHEET REDRAWN. DEVICE:ZHAO:(200,004) ARCH.TAPE NO. 15 DATE 9-8-88

*INCLUDES BRIDGE AND ROADWAY QUANTITIES

DESIGN NO. 290	OVER ALLEN CREEK	STATION 1187 + 12.50
HARRISON COUNTY		
SECTION 8	T-78N R-44W	ST. JOHN'S TWP.

DESIGN FOR REPAIRS TO 42°25' (R.A.)

155'-0 X 39' CONTINOUS I-BEAM BRIDGE

ESTIMATE OF QUANTITIES

NO.	ITEM	UNIT	TOTAL	Final QUANTITIES
1	CLASS A BRIDGE FLOOR REPAIR	SQ. YD.	69*	42.27
2	BRIDGE FLOOR OVERLAY	SQ. YD.	1027*	961.81
3	TEMPORARY BARRIER RAIL-FURNISH ONLY	L.F.	490	490
4	TEMPORARY BARRIER RAIL-PLACE ONLY	L.F.	960	960
5	CONCRETE SEALER AS PER PLAN	SQ.FT.	815	835.8
6	CONCRETE BARRIER RAIL-CAST IN PLACE	L.F.	335.4	335.4
7	STRUCTURAL STEEL	LBS.	2064	2064
8	REMOVAL OF EXISTING HANDRAIL	L.S.	LUMP SUM	LUMP SUM
9	3/4" TYPE "B" ACC BASE COURSE CLASS 1	TONS	195	17.11
10	EMBANKMENT IN PLACE	CU.YDS.	40	40
11	OMIT			
12	FORMED STEEL THRIE BEAM GUARDRAIL	LIN.FT.	93.75	93.75
13	BEAM GUARDRAIL POSTS	NO.	53	54
14	RE-69 BEAM GUARDRAIL END ANCHORAGE	NO.	3	3
15	Type 3 Object Marker	NO.	2	2
16	Triple Yellow Object Marker, as per plan	NO.	5	5
17	Removal of Formed Steel Beam Guardrail	Lin.Ft.	150	150
18	Removal of Posts	NO.	69	69
19	Removal of Object Markers	No.	2	2
20	Remove & Reinstall Steel Beam Guardrail	Lin.Ft.	237.5	237.5
21	Remove & Install Guardrail End Anchorage	NO.	2	2
22	OMIT			
23	PAVEMENT MARKINGS	STA.	94.55	111.56
24	OMIT	NO.	--	
25	OMIT	SQ.YDS.	--	
26	OMIT	NO.	--	
27	TRAFFIC CONTROL	L.S.	SEE TCP	LUMP SUM
28	TEMPORARY FLOODLIGHTING	L.S.	LUMP SUM	LUMP SUM

ESTIMATE REFERENCE INFORMATION

DATA LISTED BELOW IS FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT CONSTITUTE A BASIS FOR ANY EXTRA WORK ORDERS

ITEM NO.	DESCRIPTION
1-2.	SEE STANDARD ROAD PLAN RK-17. ESTIMATED FOR 2 PANELS PER SIDE OF BRIDGE 24'X20' (SKEW) AND 24'X30'. INCLUDES 10 SQ. YD. OF CLASS A FOR CURB REPAIR.
3-4.	ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS.
6.	INCLUDES 1610 L.F. OF NO. 5 BAR AND 1647 L.F. OF NO. 6 BAR OF EPOXY COATED REINFORCING STEEL, AND 24.5 CU. YD. OF CLASS D STRUCTURAL CONCRETE.
9.	FOR SHOULDER STRENGTHENING, ASPHALT CEMENT, PRIME & TACK, AND TRENCHING TO BE INCIDENTAL TO PRICE BID. SEE TAB. 106-5.
10.	FOR CONSTRUCTION OF GUARDRAIL BLISTERS AS DIRECTED BY THE ENGINEER. SEE STANDARD ROAD PLAN RL-11 FOR DETAIL. APPROVED MATERIAL TO BE OBTAINED BY THE CONTRACTOR . NO PAYMENT FOR OVERHAUL WILL BE ALLOWED.
12-14. 20,21	FOR GUARDRAIL INSTALLATION ON SB BRIDGE AS DIRECTED BY THE ENGINEER. REFER TO TAB. 107-23, 108-8A AND 108-19 AND 110-7.
15 16.	SEE TAB 108-17 AND STANDARD ROAD PLAN RE-48A FOR MORE INFORMATION.
17-21.	AS DIRECTED BY THE ENGINEER. SEE TAB. 110-7 FOR LOCATION AND INFORMATION.
23.	SEE TAB 108-22 AND 521-20 DETAIL SHEET.
27.	SEE DETAIL SHEET 521-20.
28.	SEE DETAIL SHEETS 570-2 AND 521-20.

*INCLUDES BRIDGE AND ROADWAY QUANTITIES

DESIGN NO. 590	OVER ALLEN CREEK	STATION 1187 + 12.50
HARRISON COUNTY		
SECTION 8	T-78N R-44W	ST. JOHN'S TWP.

DESIGN FOR REPAIRS TO 42°25' (R.A.)

155'-0 X 39' CONTINOUS I-BEAM BRIDGE

ESTIMATE OF QUANTITIES

NO.	ITEM	UNIT	TOTAL	Final Quantities
1	CLASS A BRIDGE FLOOR REPAIR	SQ. YD.	57*	39.56
2	BRIDGE FLOOR OVERLAY	SQ. YD.	1027*	961.81
3	TEMPORARY BARRIER RAIL-FURNISH ONLY	L.F.	490	490
4	TEMPORARY BARRIER RAIL-PLACE ONLY	L.F.	960	960
5	CONCRETE SEALER AS PER PLAN	SQ.FT.	815	835.8
6	CONCRETE BARRIER RAIL-CAST IN PLACE	L.F.	335.4	335.40
7	STRUCTURAL STEEL	LBS.	2064	2064
8	REMOVAL OF EXISTING HANDRAIL	L.S.	LUMP SUM	Lump Sum
9	3/4" TYPE "B" ACC BASE COURSE CLASS 1	TONS	195	23.17
10	EMBANKMENT IN PLACE	CU.YDS.	40	40.0
11	OMIT			
12	FORMED STEEL THRIE BEAM GUARDRAIL	LIN.FT.	93.75	93.75
13	BEAM GUARDRAIL POSTS	NO.	53	54
14	RE-69 BEAM GUARDRAIL END ANCHORAGE	NO.	3	3
15	Type 3 Object Marker	NO.	2	2
16	Triple Yellow Object Marker, as per plan	NO.	5	5
17	Removal of Formed Steel Beam Guardrail	Lin.Ft.	150	150
18	Removal of Posts	NO.	69	69
19	Removal of Object Markers	No.	2	2
20	Remove & Reinstall Steel Beam Guardrail	Lin.Ft.	237.5	237.5
21	Remove & Install Guardrail End Anchorage	NO.	2	2
22	OMIT			
23	PAVEMENT MARKINGS	STA.	94.55	111.56
24	~~"EF" JOINT ASSEMBLY~~ OMIT	~~NO.~~	~~4~~	
25	~~FULL DEPTH PATCH, BY AREA~~ OMIT	~~SQ.YDS.~~	~~32~~	
26	~~FULL DEPTH PATCH, BY COUNT~~ OMIT	~~NO.~~	~~4~~	
27	TRAFFIC CONTROL	L.S.	SEE TCP	Lump Sum
28	TEMPORARY FLOODLIGHTING	L.S.	LUMP SUM	Lump Sum

ESTIMATE REFERENCE INFORMATION

DATA LISTED BELOW IS FOR INFORMATIONAL PURPOSES ONLY AND SHALL NOT CONSTITUTE A BASIS FOR ANY EXTRA WORK ORDERS

ITEM NO.	DESCRIPTION
1-2.	SEE STANDARD ROAD PLAN RK-17. ESTIMATED FOR 2 PANELS PER SIDE OF BRIDGE 24'X20' (SKEW) AND 24'X30'. INCLUDES 5 SQ. YD. OF CLASS A FOR CURB REPAIR.
3-4.	ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS.
6.	INCLUDES 1610 L.F. OF NO. 5 BAR AND 1647 L.F. OF NO. 6 BAR OF EPOXY COATED REINFORCING STEEL, AND 24.5 CU. YD. OF CLASS D STRUCTURAL CONCRETE.
9.	FOR SHOULDER STRENGTHENING, ASPHALT CEMENT, PRIME & TACK, AND TRENCHING TO BE INCIDENTAL TO PRICE BID. SEE TAB. 106-5.
10.	FOR CONSTRUCTION OF GUARDRAIL BLISTERS AS DIRECTED BY THE ENGINEER. SEE STANDARD ROAD PLAN RL-11 FOR DETAIL. APPROVED MATERIAL TO BE OBTAINED BY THE CONTRACTOR . NO PAYMENT FOR OVERHAUL WILL BE ALLOWED.
12-14. 20,21	FOR GUARDRAIL INSTALLATION ON SB BRIDGE AS DIRECTED BY THE ENGINEER. REFER TO TAB. 107-23, 108-8A AND 108-19 AND 110-7.
15 16.	SEE TAB 108-17 AND STANDARD ROAD PLAN RE-48A FOR MORE INFORMATION.
17-21.	AS DIRECTED BY THE ENGINEER. SEE TAB. 110-7 FOR LOCATION AND INFORMATION.
23.	SEE TAB 108-22 AND 521-20 DETAIL SHEET.
24-26.	SEE TAB. 102-6C AND DETAIL SHEETS 532-4 AND 532-9.
27.	SEE DETAIL SHEET 521-20.
28.	SEE DETAIL SHEETS 570-2 AND 521-20.

NO	EXTRA Work Orders Design 290	Unit	Total
* 8001	Replace Over Depth ACC. Overlay Bridge Approach Section W/ Rdwy	Cu Yds	75.0
* 8002	Removal of Over-Depth ACC Overlay on Bridge Approach	SQ YDS	267.61
* 7001	Delete Type B. Class I Asphalt Cement Concrete	Tons	177.89

NO	EXTRA WORK ORDERS Design 590	UNIT	TOTAL
* 8003	Replace Over Depth ACC. Overlay Bridge Approach Sect W/Rdwy	Cu Yds	75.0
* 8004	Removal of Over-Depth ACC Overlay on Bridge Approach	SQ Yds	267.6
* 8005	DOWEL Bars Assembly & No 5 Bars Epoxy	L.S.	Lump Sum
* 8006	Saw Cuts	L.S.	Lump Sum
* 8007	Material Cost for Deleted Items	L.S.	Lump Sum
* 7001	Delete Item 0460	Only	0
7002	Delete Item 0470	SQ Yds	0
7003	Delete Item 0480	Only	0
7005	Decrease Item 0330	Tons	171.83

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA

10/5/92 DATE — GARY NOVEY — REG. NO. 8704

BRIDGE DECK REPAIR ESTIMATE SHEET

FILE NO. 28060 HARRISON COUNTY PROJECT NO. IR-29-5(61)77--12-43

STATE	FHWA REGION	F.Y.	SHEET	TOTAL
IOWA	7		2	31

GENERAL NOTES:

THIS DESIGN IS FOR REPAIRS TO THE EXISTING 155'-0 X 39' CONTINUOUS STEEL BEAM BRIDGE (NORTH BOUND LANE). ORIGINAL DESIGN NO. 565 HARRISON COUNTY. PLANS OF THE EXISTING STRUCTURE MAY BE OBTAINED AT THE AMES OFFICE OF THE IOWA DOT - HIGHWAY DIVISION.

REPAIRS SHALL CONSIST OF THE FOLLOWING:

1. BRIDGE FLOOR REPAIR
2. BRIDGE FLOOR OVERLAY
3. INSTALLATION OF RAISE PLATES AT EAST ABUTMENT
4. INSTALLATION OF SEALED JOINT AT WEST ABUTMENT
5. CURB REPAIR
6. CONSTRUCTION OF CAST IN PLACE BARRIER RAIL
7. REMOVAL OF EXISTING CONCRETE END POSTS
8. REMOVAL OF EXISTING ALUMINUM HANDRAILS
9. APPLICATION OF CONCRETE SEALER*
10. PLACEMENT OF P.C. OVERLAY ON BOTH APPROACH PAVEMENTS
11. INSTALLATION OF NEW GUARDRAIL

PRESENT FLOOR THICKNESS IS ABOUT 8 INCHES. THE CONTRACTOR SHALL EXERCISE EXTREME CARE IN REMOVING CONCRETE IN ORDER TO PREVENT UNNECESSARY UNBONDING OF REINFORCING STEEL.

CONSTRUCTION SHALL BE DONE IN STAGES, WITH AT LEAST ONE LANE OF TRAFFIC MAINTAINED AT ALL TIMES IN ACCORDANCE WITH "TRAFFIC CONTROL PLAN" NOTE.

SURFACE RAISE, AS SHOWN ON THE PLANS, SHALL BE CONSIDERED A MINIMUM. IN ORDER TO LIMIT THE ADDITIONAL DEAD LOAD, SURFACE RAISE SHALL BE RESTRICTED TO A MAXIMUM OF 1/2" MORE THAN SHOWN ON THE PLANS. PROFILE MAY BE ADJUSTED TO THE EXTENT POSSIBLE WITHIN THESE LIMITS.

ALL DIMENSIONS AND DETAILS SHOWN ON THESE PLANS PERTINENT TO NEW CONSTRUCTION SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE STARTING CONSTRUCTION.

THE TOP OF ABUTMENT BACKWALLS BETWEEN GUTTER LINES AS SHOWN SHALL BE REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS FOR CLASS A BRIDGE FLOOR REPAIR AND BRIDGE FLOOR OVERLAY WITH THE FOLLOWING EXCEPTIONS:

1. THE LOWER LIMIT FOR CLASS A BRIDGE FLOOR REPAIR SHALL BE TO SUITABLE EXISTING CONCRETE, AS DETERMINED BY THE ENGINEER, BUT TO AT LEAST $2\frac{1}{2}$ INCHES BELOW THE BOTTOM LIMIT FOR BRIDGE FLOOR OVERLAY.
2. IF MACHINE FINISHING FOR THE TOP OF BACKWALL IS NOT PRACTICABLE, A MANUAL TYPE SCREED OR METAL PLATE, WITH APPROVED VIBRATORS ATTACHED, SHALL BE USED.

THE EXPOSED TOP OF BACKWALL AREAS AS SHOWN HAVE BEEN INCLUDED IIN THE QUANTITIES SHOWN FOR CLASS A BRIDGE FLOOR REPAIR AND FOR BRIDGE FLOOR OVERLAY.

IN ADDITION TO THE REQUIREMENTS OF ARTICLE 2413.09, BOTH ABUTMENT BRIDGE SEATS SHALL HAVE AN APPLICATION OF CONCRETE SEALER IN ACCORDANCE WITH SUB-ARTICLE 2403.23D. AMOUNTS FOR ALL AREAS TO BE SEALED ARE INCLUDED IN THE ESTIMATED QUANTITY OF "CONCRETE SEALER AS PER PLAN"

THE 1 1/2" THICK RAISE PLATES FOR THE EXPANSION DEVICE ARE TO BE BLAST CLEANED AND PAINTED AFTER FIELD WELDING TO THE EXISTING EXPANSION PLATE. THE BLAST CLEANING PREPARATION IS TO COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL SPECIFICATIONS SSPC-SP7, BSAL. THE RAISE PLATES ARE TO BE GIVEN ONE COAT OF RUST-OLEUM PRIMER AND ONE COAT OF RUST-OLEUM FINAL COAT OR AN APPROVED EQUAL PRIMER AND FINAL COAT. THE COLOR OF THE DRY PAINT SHOULD APPROXIMATE THE COLOR OF CONCRETE.

THE BID ITEM "STRUCTURAL STEEL" SHALL INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING RAISE PLATES FOR EXPANSION DEVICES AS SHOWN.

QUANTITY OF "CONCRETE SEALER, AS PER PLAN" IN SQUARE FEET, TO BE PAID FOR WILL BE COMPUTED FROM MEASUREMENTS OF AREAS ACTUALLY COVERED. PLAN QUANTITY IS BASED ON P.C. CONCRETE FLOOR OVERLAY.

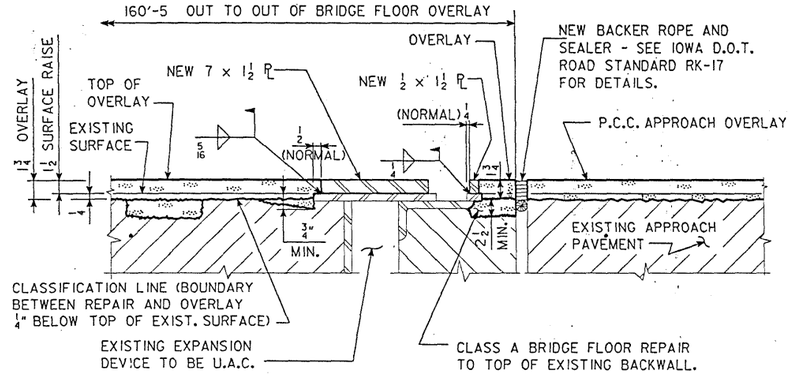
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE WASTE AREAS OR DISPOSAL SITES FOR EXCESS MATERIAL WHICH IS NOT DESIRABLE TO BE INCORPORATED IN THE WORK INVOLVED ON THIS PROJECT (EXCAVATION OR BROKEN CONCRETE). NO PAYMENT FOR OVERHAUL WILL BE ALLOWED FOR MATERIAL TO THESE SITES.

AREAS OF CURB INDICATED IN THESE PLANS OR DESIGNATED BY THE ENGINEER, ARE TO BE REPAIRED AS CLASS A BRIDGE FLOOR REPAIR EXCEPT THAT THE UPPER OR OUTER LIMIT SHALL BE THE ORIGINAL SURFACE. NO OVERLAY QUANTITY WILL BE INCLUDED FOR THE CURB AREA. THE REPAIR AREAS WITHOUT OVERLAY SHALL RECEIVE A SURFACE FINISH PER ART. 2403.23, AND THEY SHALL RECEIVE A CURE AS SPECIFIED FOR BRIDGE FLOOR OVERLAY. THE ENGINEER MAY RELAX THE SLUMP REQUIREMENTS OF STIFF MIX TO A MAXIMUM OF $2\frac{1}{2}$ INCHES IN FORMING THE BATTER FACE. A MANUAL TYPE SCREED OR METAL PLATE WITH APPROVED VIBRATORS ATTACHED WILL BE REQUIRED FOR HORIZONTAL CURB SURFACES.

PLAN QUANTITY OF FLOOR REPAIR IS BASED ON THE SHADED AREAS SHOWN ON THE "SURVEY PLOT" IN THESE PLANS. SHADED AREAS REPRESENT CLASS A BRIDGE FLOOR REPAIR FOUND BY THE DELAMTECT PLOT. ACTUAL SPALLED AND HOLLOW AREAS AS DETERMINED BY THE ENGINEER AT THE TIME OF CONSTRUCTION, SHALL BE REPAIRED. THE ENTIRE CONCRETE SURFACE OF THE BRIDGE FLOOR , INCLUDING AREAS OVER BRIDGE FLOOR REPAIR , SHALL HAVE BRIDGE FLOOR OVERLAY.

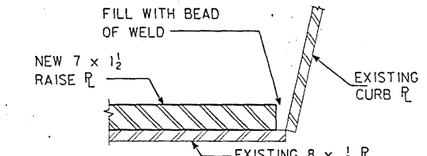
THE CONTRACTORS ATTENTION IS DIRECTED TO THE FACT THAT ALL OF THE CAST IN PLACE BARRIER RAIL REINFORCING BARS ARE TO BE EPOXY COATED. SEE THE EPOXY COATED REINFORCING BAR LIST IN THESE PLANS.

THE BID ITEM "REMOVAL OF EXISTING HANDRAIL" SHALL INCLUDE ALL COSTS ASSOCIATED WITH DISMANTLING THE EXISTING ALUMINUM HANDRAIL (APPROXIMATELY 303 L.F. AND 38 POSTS). THE HANDRAILS ARE TO BECOME THE PROPERTY OF THE CONTRACTOR.

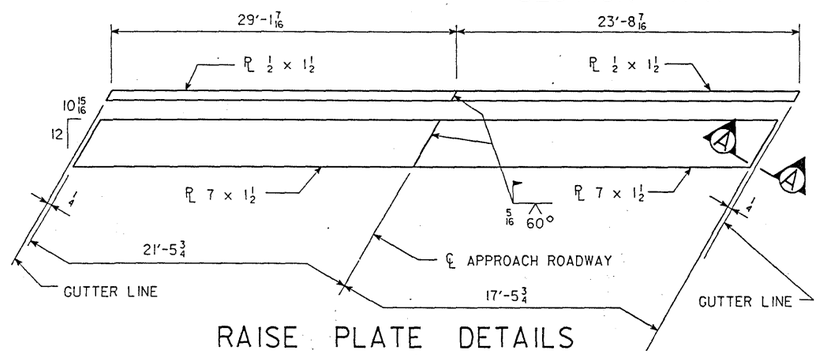


PART LONGITUDINAL SECTION ALONG ROADWAY

EAST ABUTMENT

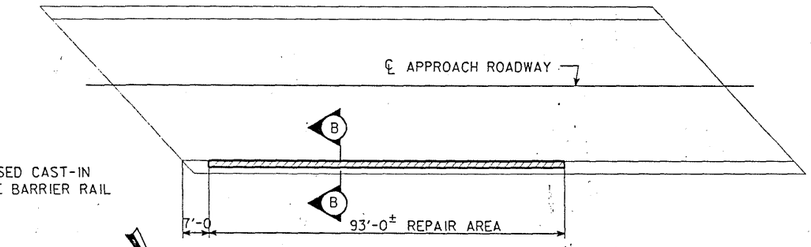


SECTION A-A

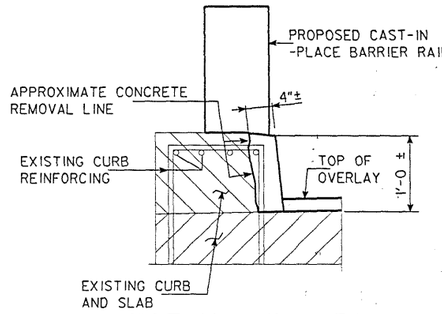


RAISE PLATE DETAILS

REQUIRED AT EAST ABUTMENT

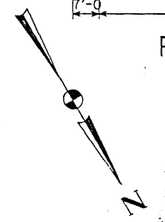


PLAN SHOWING APPROX. LOCATION OF CURB REPAIR



SECTION B - B

NOTE : ACTUAL LOCATION AND LIMITS OF CONCRETE REPAIR AND REMOVAL WILL BE DETERMINED BY THE ENGINEER AT THE TIME OF CONSTRUCTION.



DESIGN FOR REPAIRS TO 42°25' SKEW (R.A.)

155'-0x39' CONTINUOUS I-BEAM BRIDGE

47'-3 END SPANS — 60'-6 INTERIOR SPAN

GENERAL NOTES

STATION : 1187+12.50 (℄ I-29 SURVEY) — SEPTEMBER, 1990

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

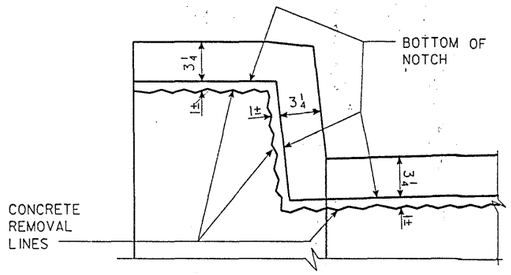
DESIGN SHEET NO. 2 OF 11 — FILE NO. 28060 — DESIGN NO. 290

DESIGNED BY M.E.FREIER — TRACED BY
DETAILED BY R.RYSAVY — CHECKED BY E.W.KONECHNE

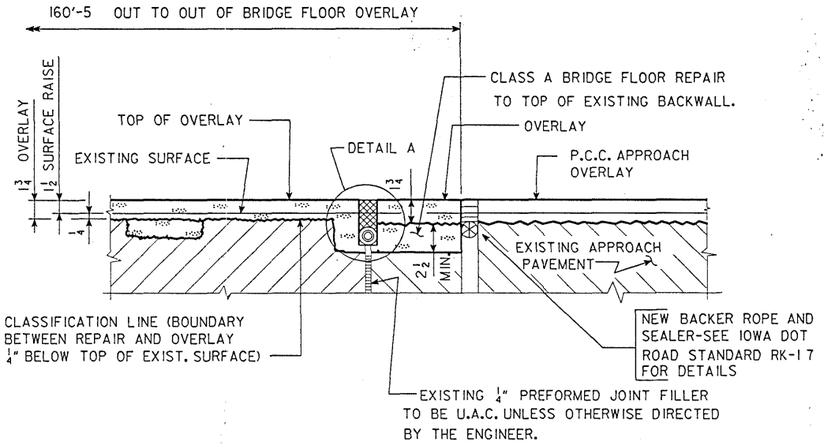
HARRISON COUNTY — PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		4	31

H43290.S01 DEVICE : ZGAI:[200,003]ARCH. TAPE No. _____DATE_____

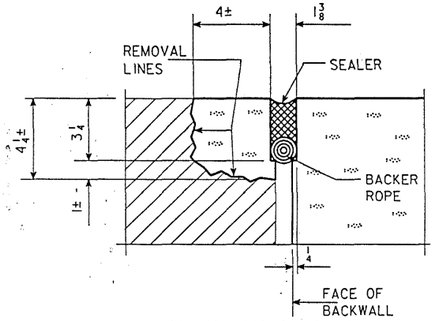


PART SECTION A-A



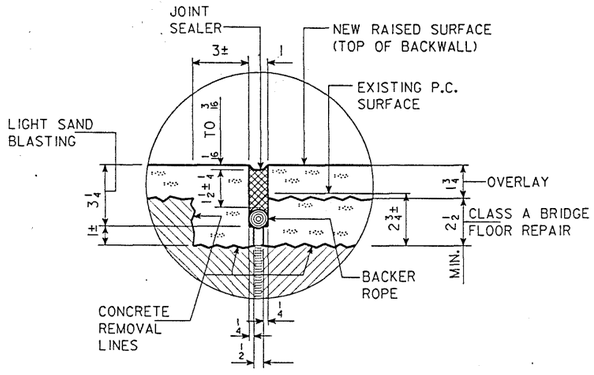
PART LONGITUDINAL SECTION ALONG ROADWAY

WEST ABUTMENT



PART SECTION B-B

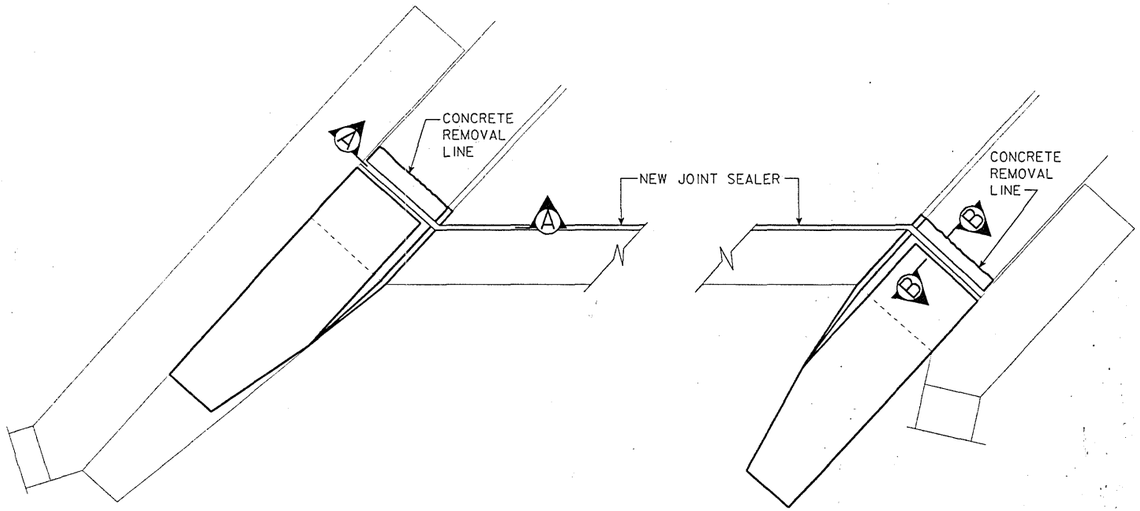
(BARRIER RAIL NOT SHOWN)



DETAIL A

JOINT REPAIR NOTES:

1. WEST ABUTMENT JOINT IS TO BE SEALED AS SHOWN AND NOTED. SILICONE JOINT SEALER IN ACCORDANCE WITH ARTICLE 4136.02B OF THE STANDARD SPECIFICATIONS SHALL BE USED.
2. JOINT SEALER SHALL BE PREPARED AND APPLIED AS RECOMMENDED BY THE MANUFACTURER.
3. NOTCH SHALL BE FORMED AS SHOWN THROUGHOUT THE ROADWAY WIDTH AND CURBS.
4. NOTCH SHALL BE LIGHTLY SAND BLASTED FOLLOWED BY JOINT CLEANING WITH AIR BLASTING.
5. A CONTINUOUS BACKER ROPE OF APPROPRIATE DIAMETER SHALL BE INSTALLED IN A DRY CLEAN NOTCH TO THE DEPTH SHOWN.
6. SEALER MATERIAL SHALL BE INSTALLED ON TOP OF THE BACKER ROPE. THE UPPER SURFACE SHALL BE 1/16" TO 3/16" BELOW THE TOP OF CONCRETE SURFACE.
7. JOINT SEALER SHALL BE PLACED ONLY WHEN PAVEMENT AND AIR TEMPERATURES ARE 40° F. OR HIGHER. WHEN NEAR THIS MINIMUM, AIR BLASTING AND ADDITIONAL DRYING TIME OR BOTH MAY BE NECESSARY TO ASSURE SATISFACTORY BOND TO THE JOINT SURFACES.
8. ALL COSTS ASSOCIATED WITH CONCRETE REMOVAL, FORMING OF NOTCH AND INSTALLING SEALED JOINT IS TO BE INCLUDED IN PRICE BID FOR "BRIDGE FLOOR OVERLAY".
9. THE CURB PORTION OF JOINT REPAIR SHALL RECEIVE A SURFACE FINISH PER ART. 2403.23 AND THEY SHALL RECEIVE A CURE AS SPECIFIED FOR BRIDGE FLOOR OVERLAY. CLASS D CONCRETE OR OVERLAY CONCRETE WITH SLUMP REQUIREMENT RELAXED UP TO 2½ INCHES SHALL BE USED FOR CURB PORTION OF JOINT REPAIR. A MANUAL TYPE SCREED OR METAL PLATE WITH APPROVED VIBRATORS ATTACHED WILL BE REQUIRED FOR HORIZONTAL CURB SURFACES.



PART PLAN AT WEST ABUTMENT

DESIGN FOR REPAIR TO 42°25' R.A. SKEW

155'-0 x 39' CONTINUOUS I-BEAM BRIDGE

47'-3 END SPANS 60'-6 CENTER SPAN

WEST ABUTMENT REPAIRS

STATION : 1187+12.50 (℄ I-29 SURVEY) SEPTEMBER ,1990

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

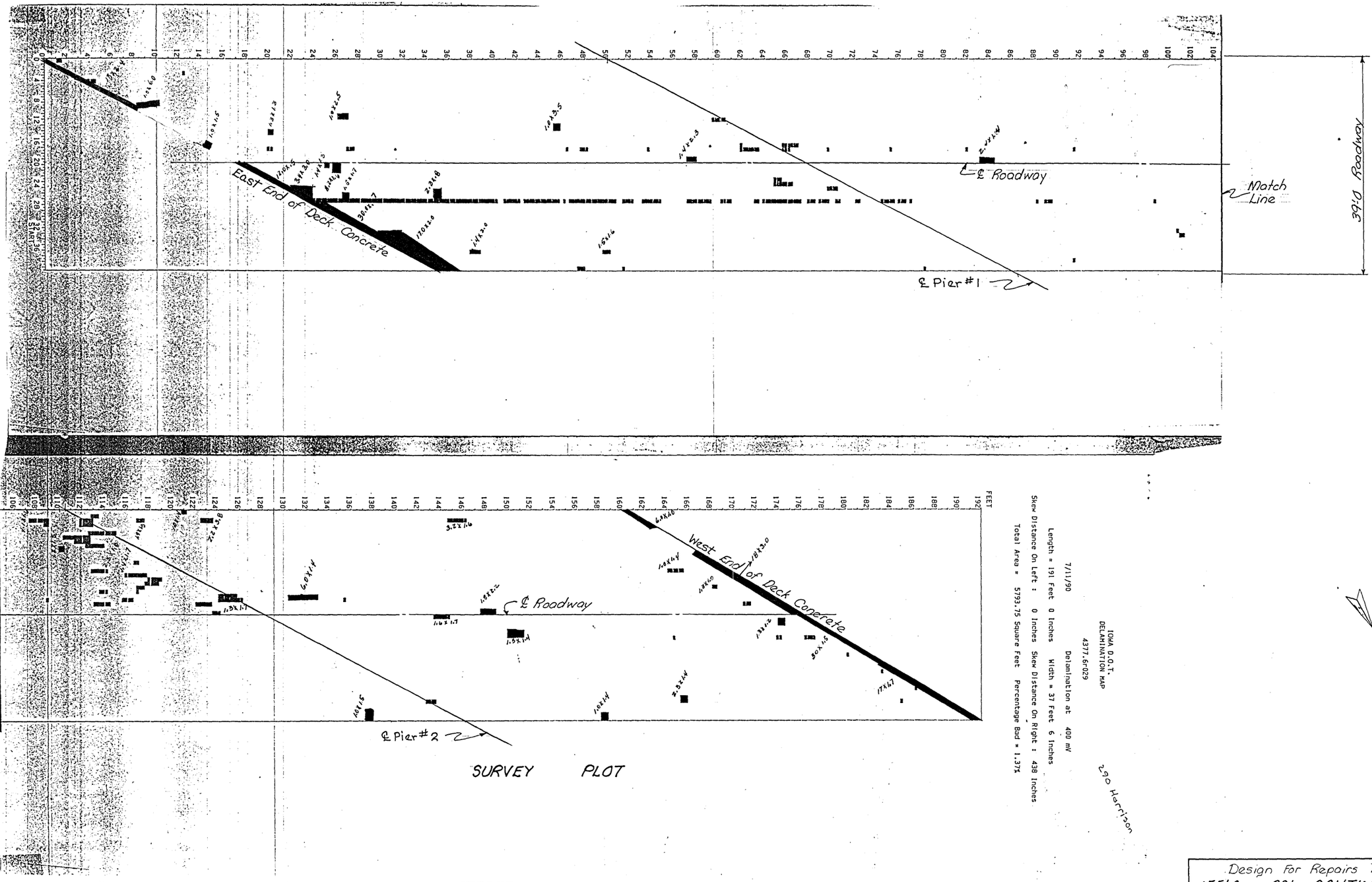
DESIGN SHEET NO. 3 OF 11 FILE NO. 28060 DESIGN NO. 290

DESIGNED BY M.FREIER TRACED BY
DETAILED BY C.E.COLE CHECKED BY E.W.KONECHNE

HARRISON COUNTY | PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		5	31

H43290.S04 DEVICE : ZGAI:[200,003]ARCH. TAPE No. _____DATE_____



SURVEY PLOT

Skew Distance On Left : 0 Inches Skew Distance On Right : 438 Inches
Length = 191 Feet 0 Inches Width = 37 Feet 6 Inches
Total Area = 5793.75 Square Feet Percentage Bad = 1.37%

7/11/90
Delamination at 400 mV

IOWA D.O.T.
DELAMINATION MAP
4377.6r029

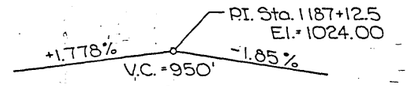
290 Harrison

Design For Repairs To 42°25' Skew (R.A.)
155'-0 x 39' CONTINUOUS I-BEAM BRIDGE
47'-3 End Spans 60'-6 Interior Span
SURVEY PLOT
Station: 1187+12.50 (℄ I-29 Survey) Sept, 1990
HARRISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 4 Of 11 File No.: 28060 Design No.: 290

HARRISON

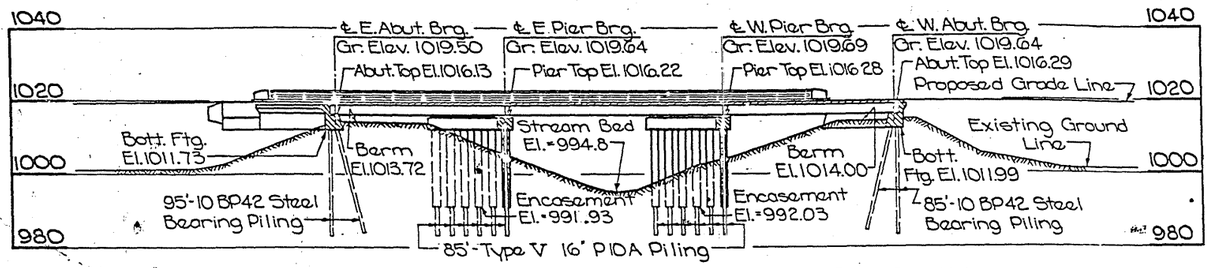
			6	31

BENCH MARK: "96A Station 1187+85.5
Iron Pin on Dike, 150' Right - Elev.= 1014.84

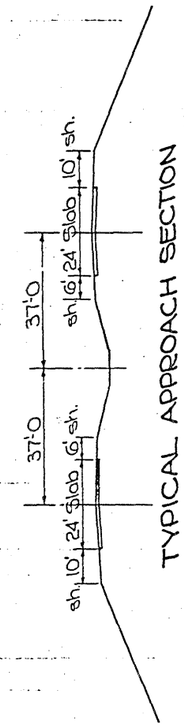


VERTICAL CURVE DATA

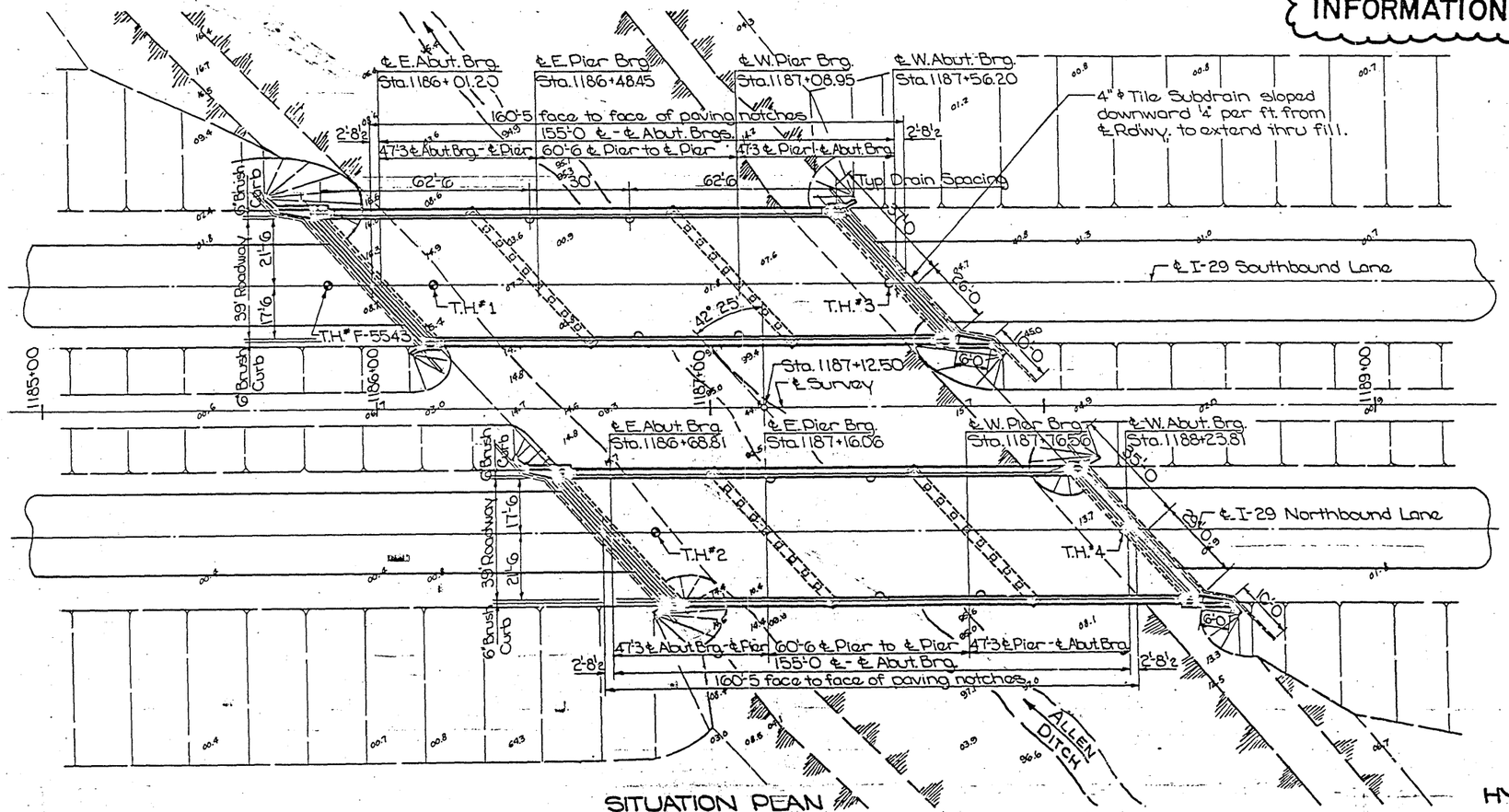
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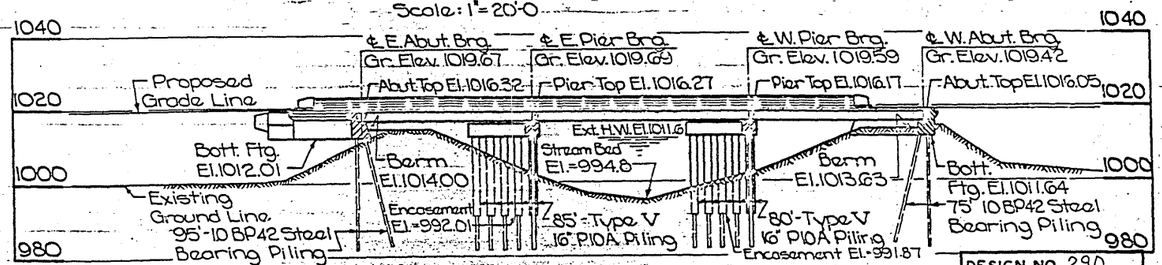
LONGITUDINAL SECTION ALONG ℄ ROADWAY



TYPICAL APPROACH SECTION



SITUATION PLAN
Scale: 1" = 20'-0"



LONGITUDINAL SECTION ALONG ℄ ROADWAY

LOCATION:
St. Johns Twp.
T-78-N R-44-W
Section 8
Harrison County
I-29 over Allen Ditch

HYDRAULIC DATA:
Drainage Area = 64 sq. mi.

Design for 42° 25' Skew
DUAL 155'-0 x 39' CONT. I-BEAM BRIDGE
47'-3 End Spans 60'-6 Interior Span
SITUATION PLAN
Station 1187+12.50 August, 1966
HARRISON COUNTY
IOWA STATE HIGHWAY COMMISSION

DESIGN NO. 290
FILE NO. 28060
DES. SH. NO. 5 OF 11

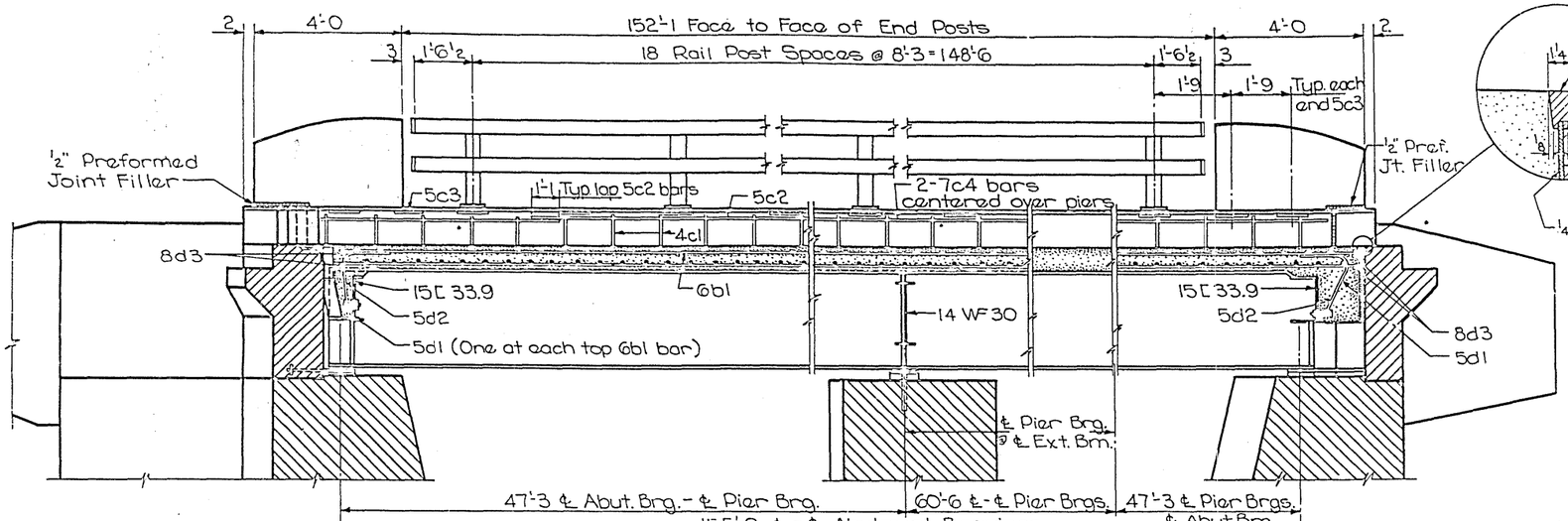
Designed By: J.H Traced By: PH Checked By: WAL

HARRISON COUNTY

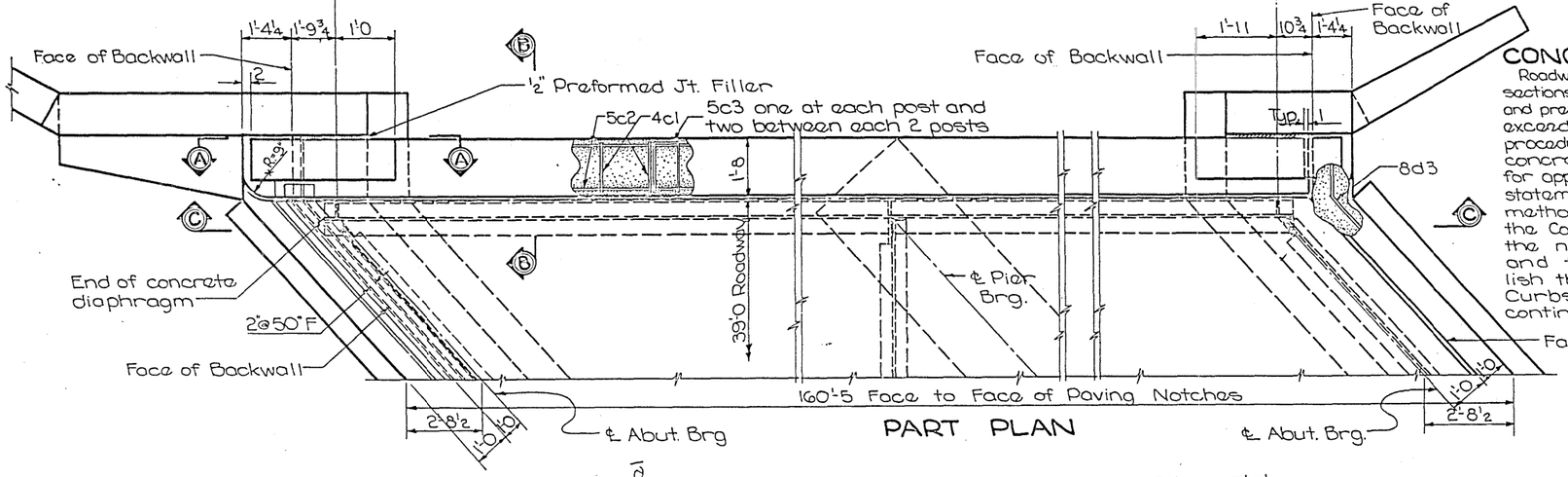
PROJECT NUMBER

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	3		35	42

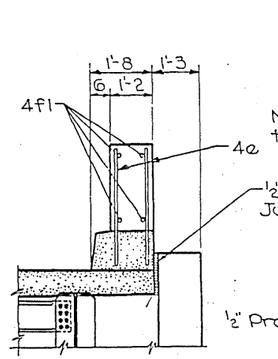
KEUFFEL & ESSER CO. NO. 191 ARKWRIGHT



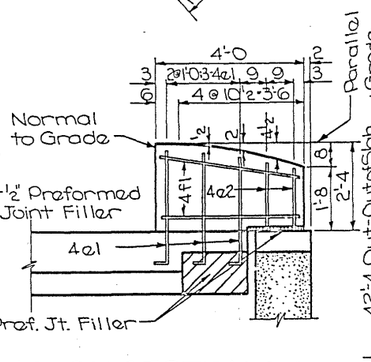
PART LONGITUDINAL SECTION C-C



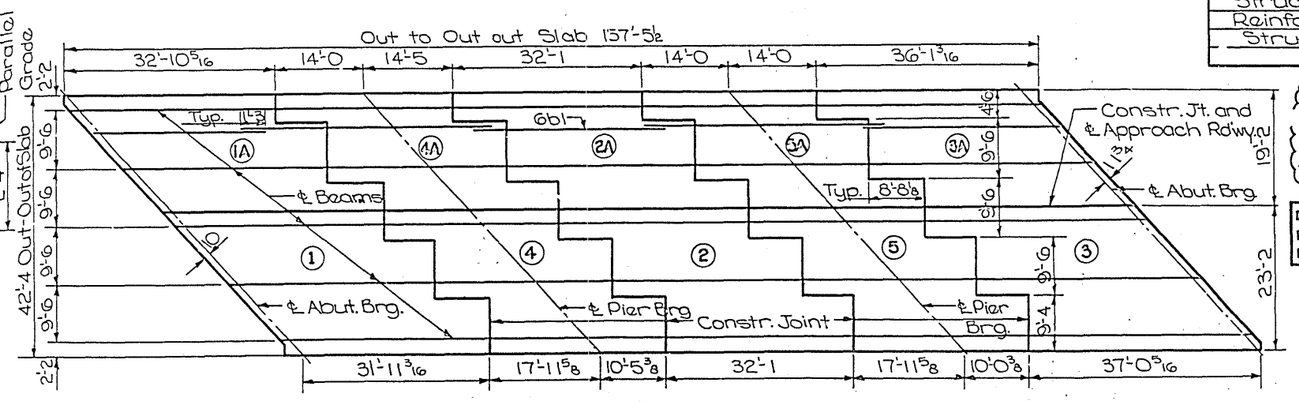
PART PLAN



PART SECTION B-B



PART SECTION A-A

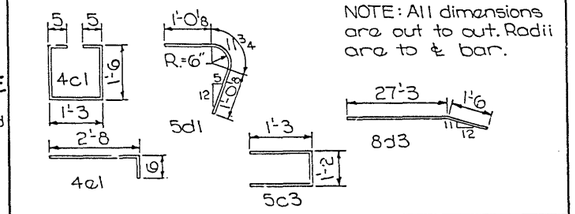


CONCRETE PLACEMENT DIAGRAM AND LONGITUDINAL STEEL LAYOUT

BILL OF REINFORCING - ONE SUPERSTR.

Bar	Location	Shape	No.	Length	Weight
7a1	Slab Transverse Top	—	212	19'-0	8,233
7a2	" " "	—	204	24'-6	10,216
7a3	" " Bott.	—	208	21'-9	9,247
7a4	" " "	—	208	21'-9	9,247
7a5	Slab Transverse Ends Top	—	29	Varies	734
7a6	" " Ends Bott.	—	26	"	591
7a7	" " " Top	—	23	"	479
7a8	" " " Bott.	—	28	"	668
7a9	" " " Top	—	22	"	439
7a10	" " " Bott.	—	26	"	564
7a11	" " " Top	—	31	"	830
7a12	" " " Bott.	—	27	"	634
6b1	Slab Longitudinal	—	320	32'-5	15,581
4c1	Curb Hoop	□	236	4'-9	749
5c2	" Longitudinal	—	16	40'-1	669
5c3	" Anchor	⊐	118	3'-6	431
7c4	" Longit. over Piers	—	8	20'-0	327
5d1	Abut. Diaph. Longitudinal	⌐	64	3'-0	200
5d2	" " Transverse	—	4	26'-1	109
8d3	Slab Ends Transverse	⌐	8	28'-9	614
4e1	End Post Vertical	⌐	24	3'-1	49
4e2	" "	—	16	1'-5	15
4f1	" " Horizontal	—	16	3'-8	39
	Total				60,665

BENT BAR DETAILS



NOTE: All dimensions are out to out. Radii are to ℄ bar.

CONC. PLACEMENT NOTE

Roadway slab shall be placed in sections and in sequence indicated and preferably at intervals not exceeding 24 hours. Alternate procedures for placing slab concrete may be submitted for approval together with a statement of the proposed method, and evidence that the Contractor possesses the necessary equipment and facilities to accomplish the required result. Curbs may be poured continuously.

CONCRETE PLACEMENT QUANT.

Section 1	c.y.	21.3	Section 1A	c.y.	17.7
Section 2	"	18.7	Section 2A	"	15.6
Section 3	"	22.0	Section 3A	"	18.2
Section 4	"	16.3	Section 4A	"	13.6
Section 5	"	16.0	Section 5A	"	13.4
Two Curbs 2 @ 10.2				c.y.	20.4
Four End Posts				"	1.5
Total				c.y.	194.7

ESTIMATED QUANTITIES - TWO SUPERSTR.

Item	Unit	Quantity
Structural Concrete - Class D	c.y.	389.4
Reinforcing Steel	lbs.	121,330
Structural Steel	lbs.	305,904

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

DESIGN NO. 290
FILE NO. 28060
DES. SH. NO. 6 OF 11

Design for 42°25' Skew

DUAL 155'-0 x 39' CONT. I-BEAM BRIDGE

47'-3 End Spans 60'-6 Interior Span

SUPERSTRUCTURE DETAILS

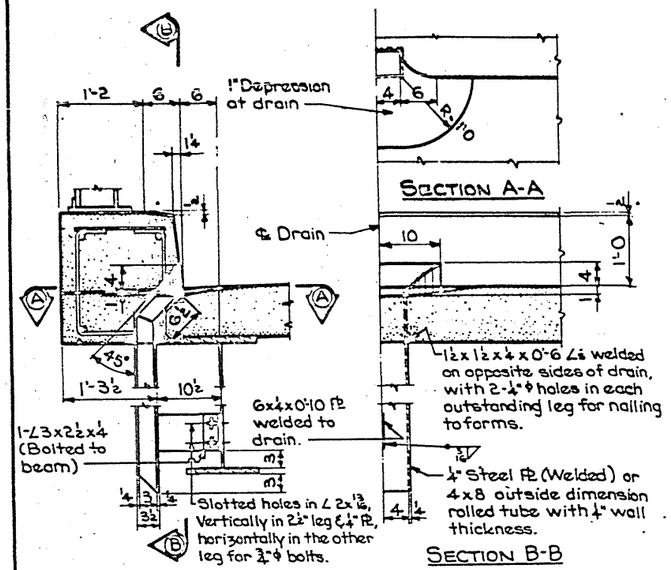
Station 1187+12.50 August, 1966

HARRISON COUNTY

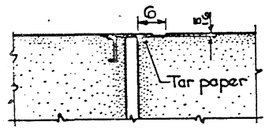
IOWA STATE HIGHWAY COMMISSION

Designed By: J.H Traced By: DH Checked By: WAL

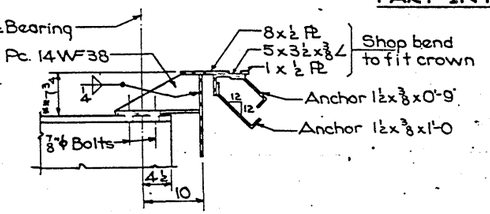
COUNTY | PROJECT NUMBER | STATE: IOWA | FED. ROAD DIST. NO.: 3 | FISCAL YEAR | SHEET NO.: 8 | TOTAL SHEETS: 11



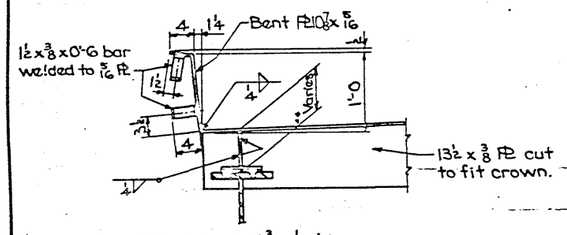
DRAIN DETAILS

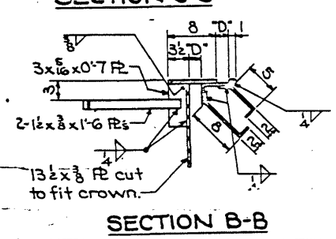


SECTION A-A

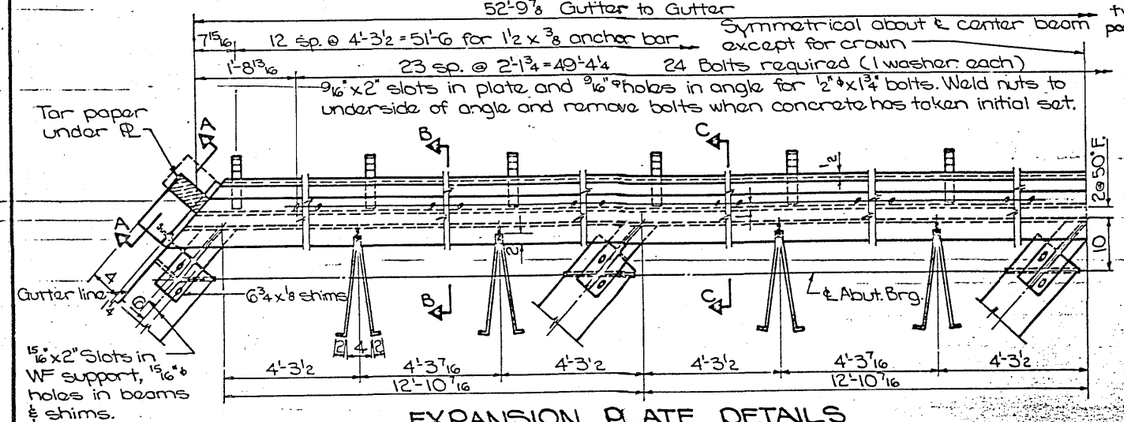


SECTION C-C

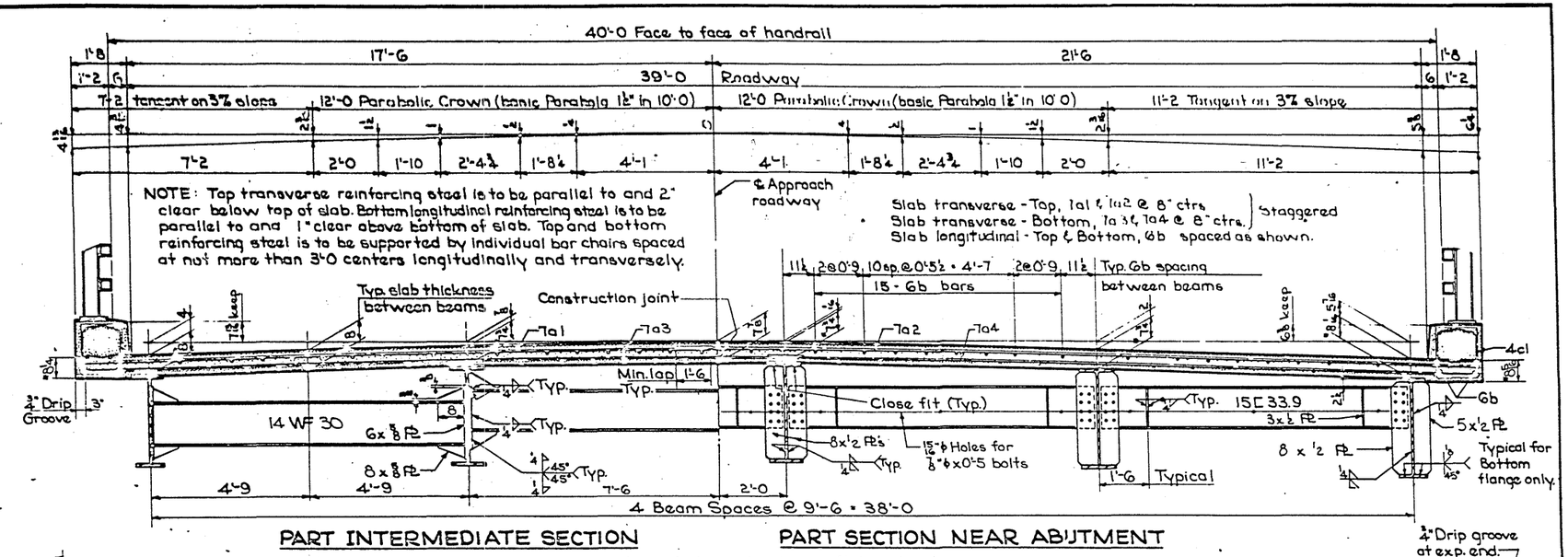




SECTION B-B



EXPANSION PLATE DETAILS

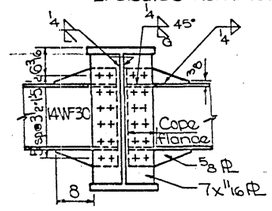


PART INTERMEDIATE SECTION

PART SECTION NEAR ABUTMENT

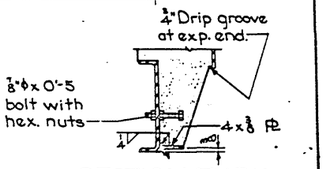
NOTE: The bottom of the slab is to be a flat surface between the top of the top flanges of adjacent beams for end span beams only. For center span beams, embed flange of 27WF114 1'6 and 30WF124 - 1'8.
* Indicates nominal dimensions.

	12,808 s.f.
	15,371 s.f.
Area of Slab =	28.179 s.f.
Area of Curb =	1.715 s.f.

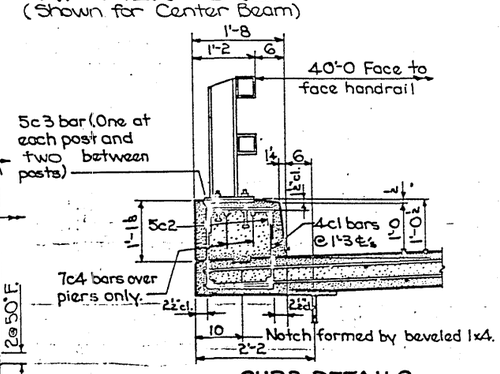


DIAPHRAGM CONNECTION AT PIER BRG.
(Shown for Center Beam)

NOTE: Connection at other end of diaphragm is like the intermediate diaphragm connection.



SECTION THRU ABUTMENT DIAPH.



CURB DETAILS

SUPERSTRUCTURE NOTES:

This bridge is designed for H20-S16 loading plus 19 lb. per square foot of roadway for future wearing surface and alternate loading designated in B.P.R. P.P.M. 20-4, Section 4c.

Field connections are to be bolted. Splice connections will require High Tensile Strength Bolts.

The floor slab as shown includes ½" of wearing surface.
All open holes are to be 15/16" ϕ unless otherwise noted.
All bolts are to be ⅞" ϕ unless otherwise noted.
Bottom flanges of beams are to be perpendicular to webs at reaction points.

Masonry plates are to be set in paint and canvas.
Bearing surfaces of unfinished masonry plates are to be flat and true.
Shop coat of paint is to be omitted on tops of top flanges of beams and on other steel surfaces in contact with concrete.
Parts inaccessible after erection are to be given three coats of paint in the shop.
Forms for the slab and curb are to be supported by the beams.
Cost of all preformed expansion joint filler is to be included in the price bid for concrete.

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

Design for 42°25' Skew

DUAL 155' x 39' CONTINUOUS I-BEAM BRIDGE

47'-3 End Spans — 60'-6 Interior Span

SUPERSTRUCTURE DETAILS

Station 1187+12.50 — August, 1966

HARRISON COUNTY

IOWA STATE HIGHWAY COMMISSION

DESIGN NO. 290
FILE NO. 28060
DES. SH. NO. 7 OF 11

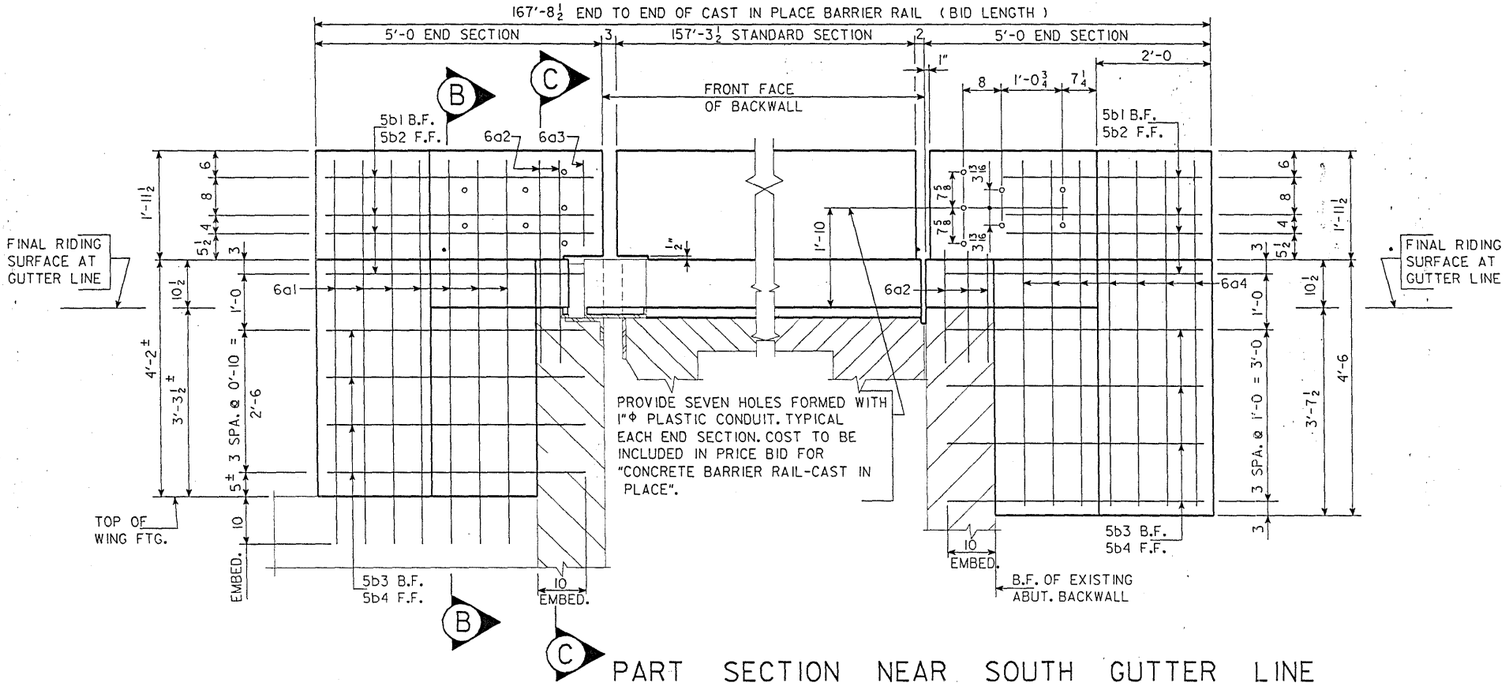
Revised: 2-17-65 Notes and details brought up to date.
Revised: 1-23-66 Drain Detail changed. Reinforcing cover changed to 2".

Designed By: JH Traced By: PH Checked By: WAL

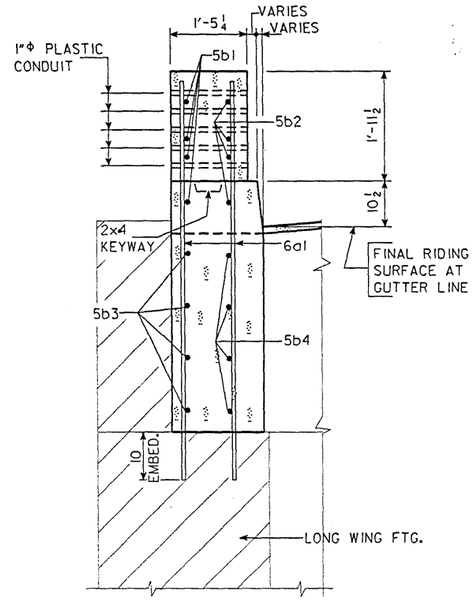
2032 HARRISON COUNTY

PROJECT NUMBER	STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	3		9	13

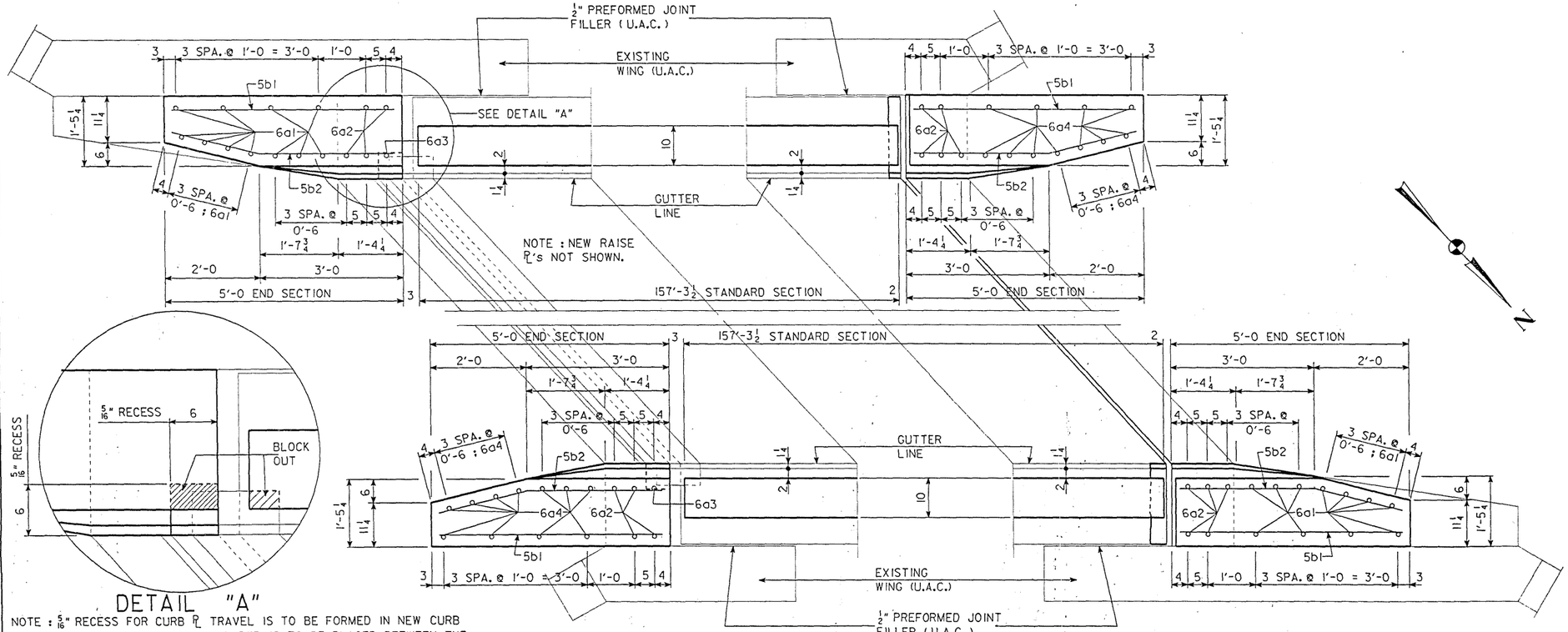
Sheet 9 of 31



PART SECTION NEAR SOUTH GUTTER LINE



SECTION B - B



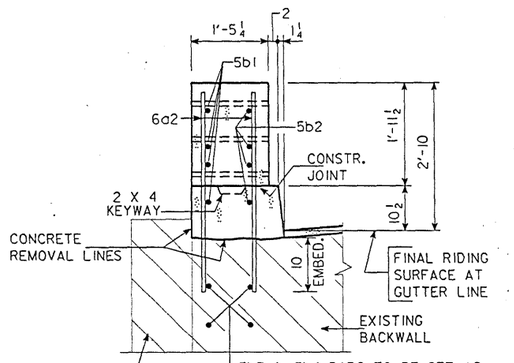
PART PLAN - CAST IN PLACE BARRIER RAIL

NOTE : FOR STANDARD SECTION DETAILS SEE DESIGN SHEET 9.

DETAIL "A"

NOTE : 5/16" RECESS FOR CURB ℄ TRAVEL IS TO BE FORMED IN NEW CURB PORTION OF BACKWALL. TARPAPER IS TO BE PLACED BETWEEN THE EXISTING CURB ℄ AND THE NEW CURB RECESS. PORTIONS OF RAIL ABOVE THE RECESS AND ABOVE THE EXISTING CURB ℄ ARE TO BE BLOCKED OUT (½" VERTICALLY) BY A METHOD APPROVED BY THE ENGINEER.

NOTE :
CURB PORTION OF EXISTING BACKWALL IS TO BE REMOVED DOWN TO EXISTING DRIVING SURFACE. INCORPORATE EXISTING REINFORCING INTO NEW WORK. (TYP. ALL FOUR CORNERS)



SECTION C - C

DESIGN FOR REPAIR TO 42°25' R.A. SKEW

155'-0 x 39' CONTINUOUS I-BEAM BRIDGE

47'-3 END SPANS 60'-6 CENTER SPAN

CAST IN PLACE BARRIER RAIL DETAILS

STATION : 1187+12.50 (℄ I-29 SURVEY) SEPTEMBER, 1990

HARRISON COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

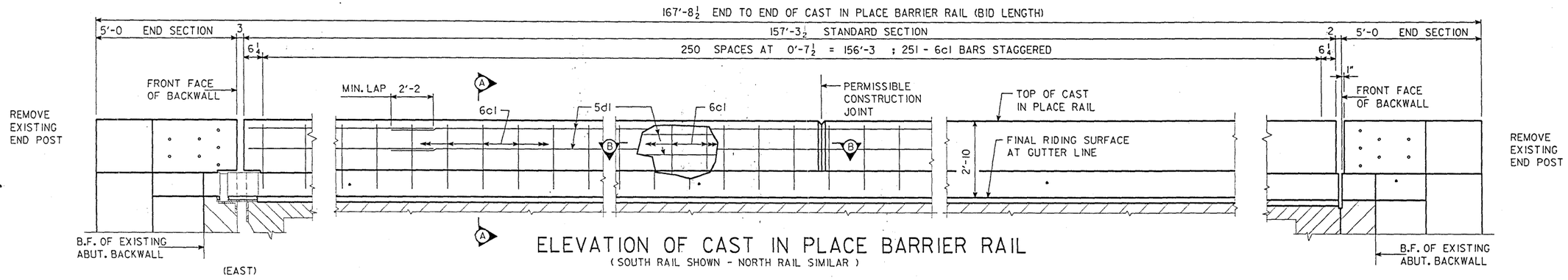
DESIGN SHEET NO. 8 OF 11 FILE NO. 28060 DESIGN NO. 290

DESIGNED BY M. FREIER TRACED BY
DETAILED BY J. A. WHITNEY CHECKED BY E.W. KONECHNE

HARRISON, COUNTY

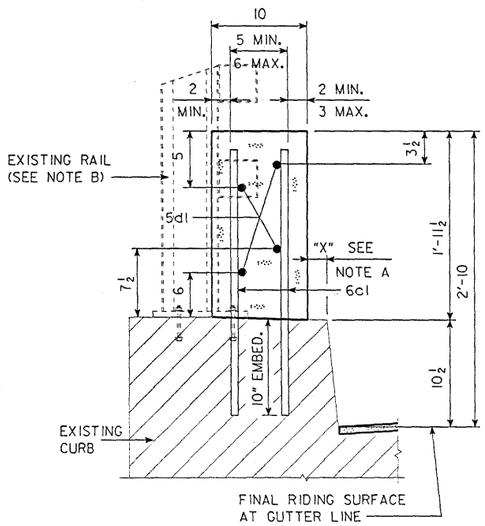
PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		10	31

H43290.S02 DEVICE : ZGAI:[200.003]ARCH. TAPE No. _____ DATE _____



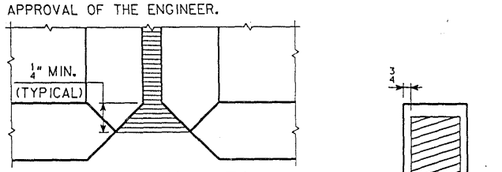
ELEVATION OF CAST IN PLACE BARRIER RAIL

(SOUTH RAIL SHOWN - NORTH RAIL SIMILAR)



SECTION A-A

NOTE B:
EXISTING RAIL IS TO BE REMOVED. ANCHOR BOLTS WHICH ARE NOT STAINLESS STEEL SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW CURB SURFACE AND THE REMAINING EXPOSED ENDS PAINTED WITH 2 COATS OF ZINC RICH PAINT. IF THE EXISTING ANCHOR BOLTS ARE STAINLESS STEEL THEY MAY BE LEFT IN POSITION AT THE CONTRACTOR'S OPTION SUBJECT TO THE APPROVAL OF THE ENGINEER.



PART PLAN VIEW

PART ELEVATION VIEW

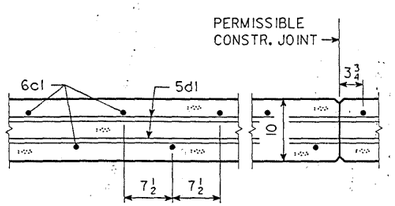
CAST IN PLACE BARRIER RAIL JOINT DETAILS

DOWEL SETTING NOTE :
THE 6c1 BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 10" DEEP. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ONE OF THE FOLLOWING SYSTEMS SHALL BE USED AS A BONDING AGENT FOR THE 6c1 DOWELS :

A. EPOXY GROUT SYSTEM IN ACCORDANCE WITH STANDARD SPECIFICATIONS ARTICLE 2301.15 AND CURRENT SUPPLEMENTAL SPECIFICATIONS OF THE IOWA D.O.T. HIGHWAY DIVISION.
B. HYDRAULIC CEMENT GROUT SYSTEMS. DRILLED HOLES ARE TO BE 2½ TIMES THE DOWEL DIAMETER AND ARE TO BE BLOWN CLEAN WITH COMPRESSED AIR IMMEDIATELY PRIOR TO PLACING GROUT. THE HYDRAULIC CEMENT GROUT SHALL BE ONE OF THOSE APPROVED IN MATERIALS I.M. 491.13 AND SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

THE 6a1,6a2,5b3 & 5b4 BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 10" DEEP. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR THE EPOXY GROUT SYSTEM AS NOTED IN PARAGRAPH "A" ABOVE.

NOTE A:
ON EACH SIDE OF BRIDGE, DIMENSION "X" SHALL BE A MINIMUM OF 1" AND A MAXIMUM OF 3", BUT MUST BE CONSTANT FOR FULL LENGTH OF BRIDGE, HOWEVER APPROXIMATELY 10 LINEAR FEET AT EITHER END OF STD. RAIL SECTION SHALL BE TRANSITIONED TO MATCH THE 2" AT THE 5'-0 END SECTION.



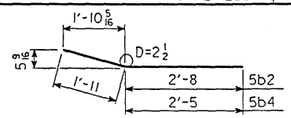
SECTION B-B

(SHOWING 6c1 PLACEMENT)

EPOXY REINFORCING STEEL- TWO RAILS

BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
6a1	END SECTION, SE & NW VERT.	——	22	6'-9	149	223
6a2	END SECTION, VERT.	——	18	3'-7	64	97
6a3	END SECTION, EAST, VERT.	——	2	1'-7	3	5
6a4	END SECTION, NE & SW VERT.	——	22	6'-1	134	201
5b1	END SECTION, B.F. - HORIZ.	——	16	4'-7	73	76
5b2	END SECTION, F.F. - HORIZ.	——	16	4'-7	73	76
5b3	END SECTION, B.F. - HORIZ.	——	16	4'-3	68	71
5b4	END SECTION, F.F. - HORIZ.	——	16	4'-4	69	72
6c1	STANDARD SECTION, VERT.	——	502	2'-7	1297	1948
5d1	STANDARD SECTION, HORIZ.	——	40	33'-2	1327	1384
					TOTAL (LBS.)	4153

BENT BAR DETAILS



NOTE: BAR DIMENSIONS ARE OUT TO OUT. D= PIN DIAMETER.

CONCRETE PLACEMENT SUMMARY - TWO RAILS

SECTION	TOTAL
STANDARD SECTION 314.6' AT 0.060 CU. YDS. PER LIN. FT	18.9
END SECTIONS 4 @ 1.4 CU. YDS. PER SECTION	5.6
TOTAL (CU. YDS.)	24.5

ESTIMATED QUANTITIES-2 RAILS

ITEM	UNITS	QUANTITY
CONCRETE BARRIER RAIL - CAST IN PLACE	LIN. FT.	335.4

CAST IN PLACE BARRIER RAIL NOTES:
MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.
ALL EXPOSED CORNERS 90° OR SHARPER ARE TO BE FILLETED WITH A ¾" DRESSED AND BEVELED STRIP.
THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20 FEET. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.
COST OF JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.
THE CAST IN PLACE BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM END TO END OF RAIL. THE NUMBER OF LINEAL FEET OF CAST IN PLACE BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BASED ON PLAN QUANTITIES. PRICE BID FOR CAST IN PLACE BARRIER RAIL SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL (INCLUDING REINF. STEEL & 1" Φ PLASTIC CONDUIT) PLUS ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.
ALL CAST IN PLACE BARRIER RAIL CONCRETE IS TO BE CLASS D.
ALL REINFORCING STEEL IS TO BE GRADE 60 AND EPOXY COATED.
THE JOINT SEALER SHALL CONFORM TO FED. SPEC. TT-S00230 OR TT-S00227 FOR TYPE II, CLASS A OR B.
ANY REMOVALS AND DISPOSALS REQUIRED SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE STANDARD SPECIFICATIONS. ANY DAMAGE TO OTHER PORTIONS OF THE EXISTING STRUCTURE NOT NOTED FOR REMOVAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED BY HIM AT NO COST TO THE STATE.
EXISTING BRIDGE RAIL IS NOT TO BE REMOVED UNTIL AUTHORIZED BY THE ENGINEER.
EXISTING END POSTS ARE TO BE REMOVED, EXISTING REINFORCING STEEL SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW CONCRETE SURFACE AND THE REMAINING EXPOSED ENDS PAINTED WITH TWO COATS OF ZINC RICH PAINT.
THE COST OF REMOVAL OF EXISTING END POSTS AND CUTTING OFF AND PAINTING OF EXISTING REINFORCING AND EXISTING RAIL POST ANCHOR BOLTS SHALL BE INCLUDED IN PRICE BID FOR "REMOVAL OF EXISTING HANDRAIL".
ANY EXISTING PAVED SHOULDER MATERIAL REMOVALS TO FACILITATE CONSTRUCTION SHALL BE REPLACED IN KIND AND SHALL MATCH EXISTING GEOMETRICS AS DIRECTED BY THE ENGINEER. COST TO BE CONSIDERED INCIDENTAL.
ANY EXCAVATION REQUIRED IS TO BE CONSIDERED INCIDENTAL AND NO EXTRA PAYMENT WILL BE MADE.

DESIGN FOR REPAIR TO 42°25' R.A. SKEW

155'-0 x 39' CONTINUOUS I-BEAM BRIDGE

47'-3 END SPANS 60'-6 CENTER SPAN

CAST IN PLACE BARRIER RAIL DETAILS

STATION : 1187+12.50 (℄ I-29 SURVEY) SEPTEMBER ,1990

HARRISON COUNTY

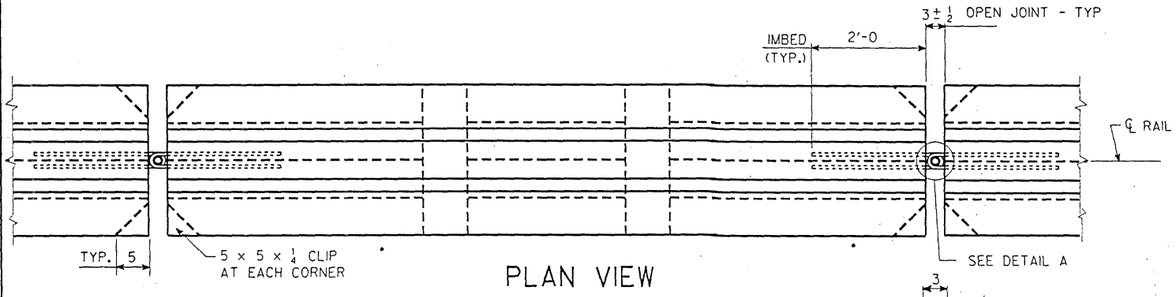
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 9 OF 11 FILE NO. 28060 DESIGN NO. 290

DESIGNED BY	TRACED BY							
M.FREIER		CAST IN PLACE BARRIER RAIL	STANDARD SHEET 1031	HARRISON COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY J. A. WHITNEY	CHECKED BY E.W.KONECHNE					IOWA	7		11	31

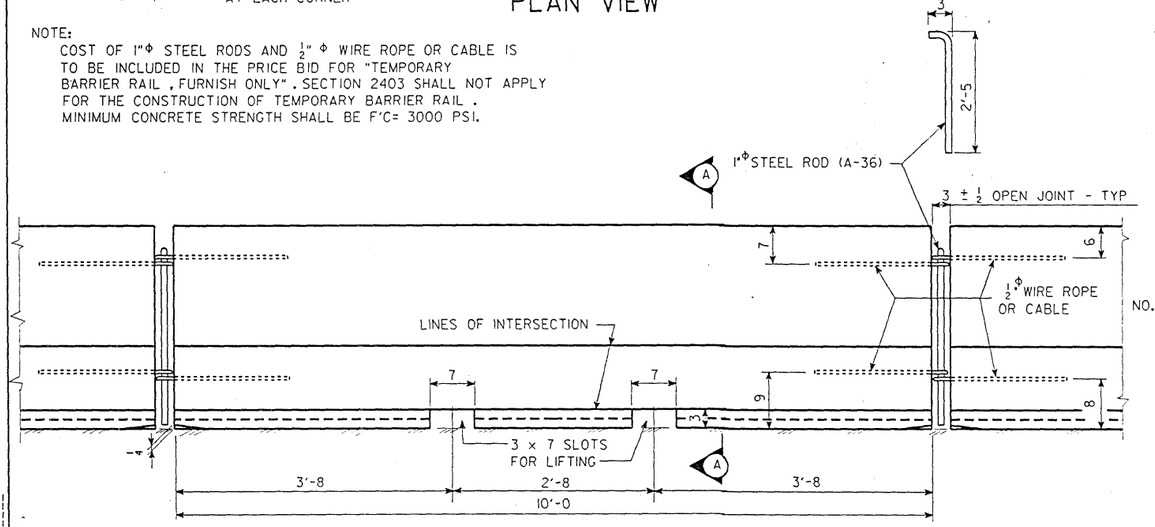
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HSTD01031.S01--LEP: THIS SHEET REDRAWN, DEVICE:ZHAO:(200,004) ARCH.TAPE NO._____DATE_____

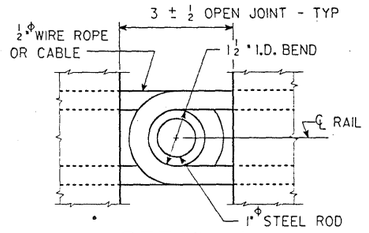


PLAN VIEW

NOTE:
COST OF 1"Φ STEEL RODS AND 1/2" Φ WIRE ROPE OR CABLE IS TO BE INCLUDED IN THE PRICE BID FOR "TEMPORARY BARRIER RAIL , FURNISH ONLY". SECTION 2403 SHALL NOT APPLY FOR THE CONSTRUCTION OF TEMPORARY BARRIER RAIL . MINIMUM CONCRETE STRENGTH SHALL BE F'C= 3000 PSI.

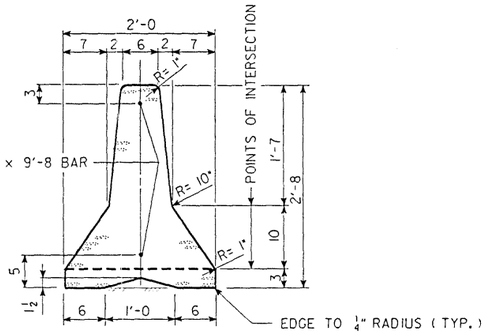


ELEVATION VIEW



DETAIL A

1/2"Φ WIRE ROPE OR CABLE TO BE 1/2"Φ WITH A MINIMUM BREAKING STRENGTH OF 20,000 POUNDS.



SECTION A-A

CONTRACTOR MAY ADD EXTRA REINFORCING BARS TO INCREASE THE SERVICE LIFE OF THE RAIL SECTIONS.

SHOULDER WIDTH (S)	NO. OF BARRIER RAIL SECT. (N)	D
~~4 FT.~~	~~13~~	~~4 FT.~~
6 FT.	14	5.5 FT.
~~8 FT.~~	~~15~~	~~7 FT.~~
10 FT.	16	9 FT.

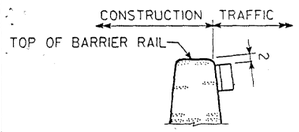
NOTE:
BARRIER IS TO BECOME THE PROPERTY OF THE CONTRACTOR AT THE COMPLETION OF WORK AND REMOVED FROM THE SITE BY HIM.

TRAFFIC REFLECTORS SHALL BE A RETRO-REFLECTIVE TYPE, APPROVED BY THE ENGINEER, AND THEY SHALL BE LOCATED AS SHOWN ON THIS SHEET. THE CONTRACTOR SHALL MAINTAIN THE REFLECTORS AND SHALL PROMPTLY REPLACE ANY MISSING OR DAMAGED UNITS. ALL COSTS FOR FURNISHING, INSTALLING AND MAINTAINING REFLECTORS SHALL BE INCLUDED IN THE PRICE BID FOR "TEMPORARY BARRIER RAIL; PLACE ONLY".

REFER TO OTHER DETAILS, NOTES, AND QUANTITY ITEMS ELSEWHERE IN THESE PLANS FOR TRAFFIC CONTROL TO BE ESTABLISHED IN CONJUNCTION WITH THE TEMPORARY BARRIER RAIL.

NO STATIONARY EQUIPMENT OR CONSTRUCTION MATERIAL IS TO BE PLACED IN FRONT OF THE TEMPORARY BARRIER RAIL AT ANY TIME.

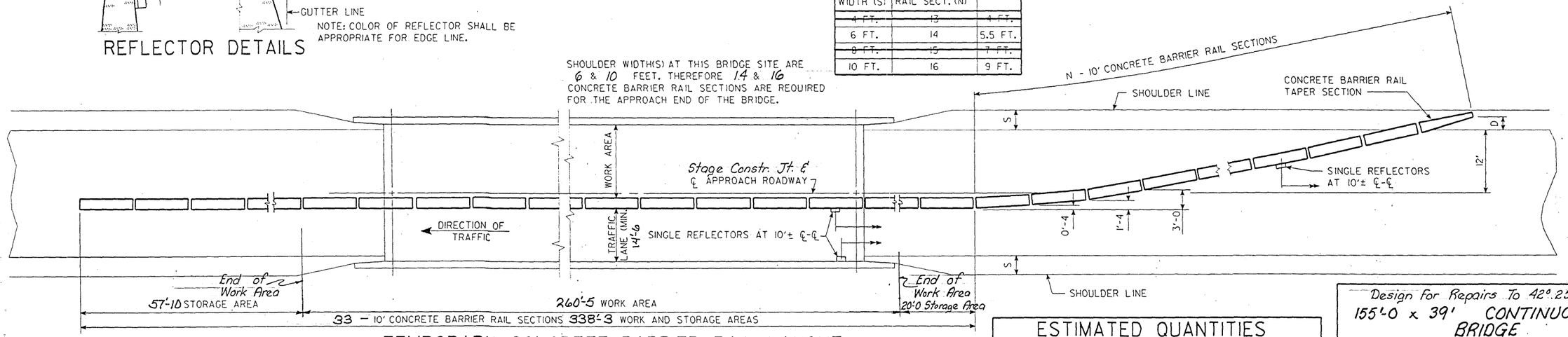
SURFACE FINISH FOR TEMPORARY CONCRETE BARRIER RAIL SHALL BE IN ACCORDANCE WITH ARTICLE 2403.23B OF THE STANDARD SPECIFICATIONS.



NOTE: COLOR OF REFLECTOR SHALL BE APPROPRIATE FOR EDGE LINE.

REFLECTOR DETAILS

SHOULDER WIDTH(S) AT THIS BRIDGE SITE ARE 6 & 10 FEET. THEREFORE 14 & 16 CONCRETE BARRIER RAIL SECTIONS ARE REQUIRED FOR THE APPROACH END OF THE BRIDGE.



TEMPORARY CONCRETE BARRIER RAIL LAYOUT FOR ONE WAY TRAFFIC

ESTIMATED QUANTITIES

ITEM	AMOUNT
TEMPORARY BARRIER RAIL, FURNISH ONLY	490 L.F.
TEMPORARY BARRIER RAIL, PLACE ONLY	960 L.F.

ITEM REFERENCE:
ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS.

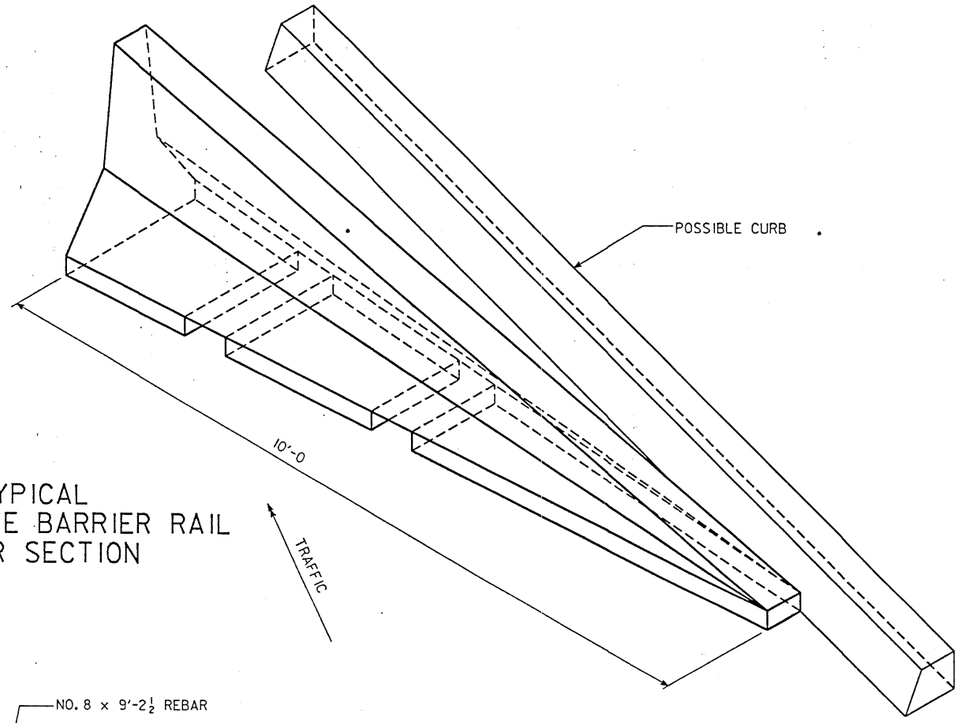
Design for Repairs To 42°.25' Skew (R.A.)
155'-0 x 39' CONTINUOUS I-BEAM BRIDGE
47'-3 End Spans 60'-6 Interior Span
TEMPORARY BARRIER RAIL-CONCRETE
Station: 1187+12.50(℄ I-29 Survey) Sept, 1990
HARRISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 10 OF 11 FILE NO. 28060 DESIGN NO. 290

DESIGNED BY M.E. Freier DETAILED BY J. Whitney TRACED BY CHECKED BY E.W. Konechne

TEMPORARY BARRIER RAIL-CONCRETE	STANDARD 1032	HARRISON COUNTY	PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		12	31

HSTD01032.SOI--LEP: THIS SHEET REDRAWN, DEVICE:ZHAO:(200,004) ARCH.TAPE NO. 10 DATE 1-25-89
LAYOUT CHANGED, DEVICE:ZHAO:(200,004) ARCH.TAPE NO. 15 DATE 9-8-88

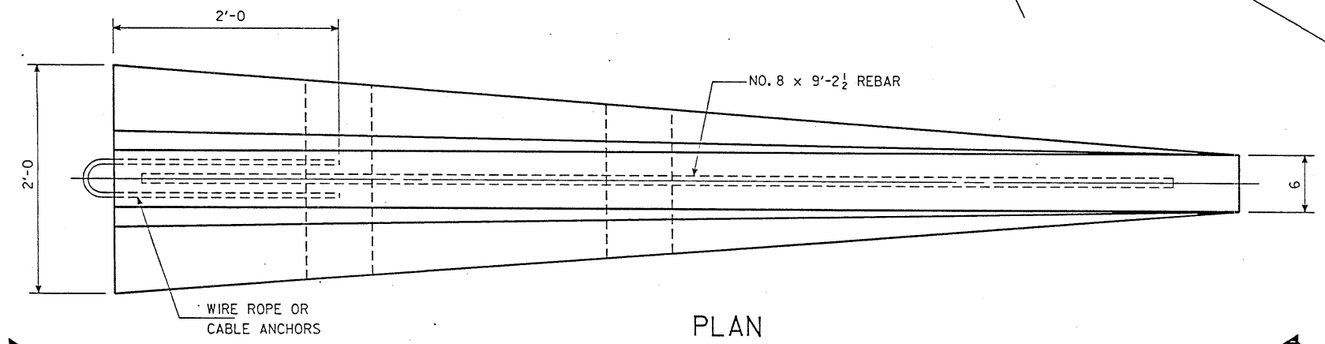


TYPICAL
CONCRETE BARRIER RAIL
TAPER SECTION

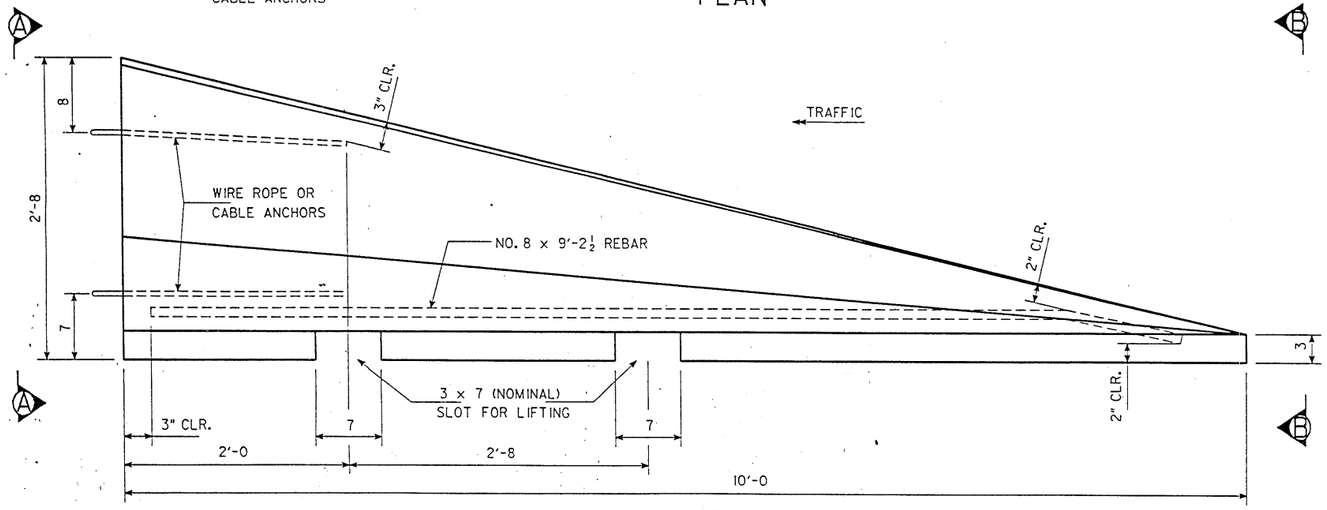
GENERAL NOTES:

DETAILS SHOWN HEREON ARE FOR THE CONSTRUCTION OF A PRECAST CONCRETE BARRIER RAIL TAPER SECTION. DETAILS SHOWN ARE TYPICAL. ALTERNATE DESIGN DETAILS MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

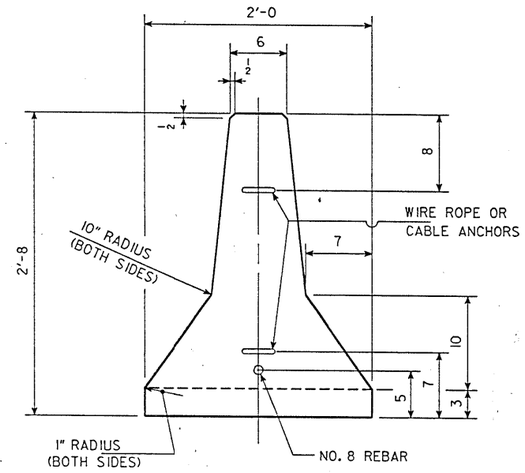
CONCRETE SHALL BE CLASS "D" STRUCTURAL CONCRETE PLACED AND FINISHED IN CONFORMANCE WITH CURRENT STANDARD SPECIFICATIONS FOR "STRUCTURAL CONCRETE". APPROXIMATELY 0.486 CU. YDS. OF CLASS "D" STRUCTURAL CONCRETE WILL BE REQUIRED FOR EACH TAPER SECTION.



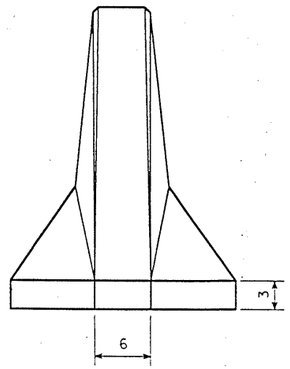
PLAN



SIDE ELEVATION



END VIEW A-A



FRONT VIEW B-B

Design for Repairs To 42°25' Skew (R.A.)
155'-0" x 39' CONTINUOUS I-BEAM BRIDGE
47'-3" End Spans 60'-6" Interior Span

CONCRETE BARRIER RAIL TAPER SECTION

Station: 1187+12.50 (℄ I-29 Survey) Sept, 1990

HARRISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 11 OF 11 FILE NO. 28060 DESIGN NO. 290

DESIGNED BY / DETAILED BY	TRACED BY / CHECKED BY		STANDARD SHEET / ISSUE DATE		PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
M.E. Freier / J. Whitney	E.W. Konechne	CONCRETE . BARRIER RAIL TAPER SECTION	STANDARD SHEET 1034B / ISSUE DATE 10/89	HARRISON COUNTY		IOWA	7		13	31

HSTD1034B.SOI--GJP; THIS SHEET ISSUED, DEVICE : ZHAH1200,SJ ARCH. TAPE NO. 9 DATE 10-12-89

1-20-84 204-1

The installation of each continuous piece of guardrail shall be completely functional within five consecutive working days. The following shall apply unless modified by the engineer:

Grading work, if necessary, shall be completed prior to the removal of any existing guardrail or the installation of new guardrail.

Removal of any existing guardrail and installation of new posts and beam rail, except for the approach end section, shall be completed on the same working day. Beam rail shall be fully connected to all posts and protected with a Type E terminal section plus Type II barricade with Type A warning light.

Not later than the next working day, concrete for the end anchorage (RE-52 or RE-53) shall be poured.

204-2
1-20-84

All holes resulting from operations of the contractor, including removal of guardrail posts, fence posts, utility poles, or foundation studies, shall be filled and consolidated to finished grade as directed by the engineer to prevent future settlement. The voids shall be filled as soon as practical--preferably the day created and not later than the following day. Any portion of the right-of-way or project limits (including borrow areas and operation sites) disturbed by any such operations shall be restored to an acceptable condition. This operation shall be considered incidental to other bid items in project.

04-04-89 213-1

It shall be the contractor's responsibility to provide waste areas or disposal sites for excess material (excavated material or broken concrete) which is not desirable to be incorporated into the work involved on this project. No payment for overhaul will be allowed for material hauled to these sites. No material shall be placed within the right of way, unless specifically stated in the plans or approved by the Engineer.

1-20-84 221-4

In order to avoid any unnecessary surface breaks or premature spalling, the contractor is cautioned to exercise extreme care when performing any of the necessary saw-cutting operations for the proposed pavement removal.

6-22-84 251-2

The contractor is hereby notified that removal of any existing traffic markers, warning devices or guardrail barriers shall be scheduled subject to the approval of the engineer. The contractor may be required to place temporary warning devices at certain locations where replacement features are not installed the same day during which any such removals take place.

10-02-90 213-7

Unless otherwise directed or authorized, all asphaltic cement concrete and other bituminous materials which are not specifically addressed or described in the plans shall become the property of the contractor.

The contractor in accordance with current rules and regulations of the Iowa Department of Natural Resources may:

1. With the approval of the Engineer, blend or otherwise process the material for use with shoulder or special backfill aggregate, for use on the project.
2. With the approval of the Engineer, place with material in areas designated by the Engineer as Soil Aggregate Subbase without extra charge.
3. Remove the material from the project and stockpile for the contractor's future use.
4. Dispose of in a licensed landfill.

TRAFFIC CONTROL PLAN

108-23
11-10-83

1. Through traffic will be maintained on the project at all times.
2. Traffic control on this project shall be in accordance with the RS series of Standard Road Plans found in Tab. 105-4 on the Title Sheet and Detail Sheets (if included in plans). For additional complementary information, refer to current "Supplemental Specifications for Traffic Control".
3. Where possible, all post mounted signs shall be placed a minimum of 2 feet clear of the shoulder.
4. Permanent signs conveying a message contrary to the message of the temporary signs and not applicable to the working conditions shall be covered by the contractor when directed by the Engineer.
5. All traffic control devices shall be furnished, erected, maintained and removed by the contractor.
6. The location for storage of equipment by the contractor during non-working hours shall be as approved by the engineer in charge of construction.
7. Parking of personal vehicles, unattended equipment or the overnight storage of equipment shall not be allowed within 50' of the edge of pavement.
8. Proposed sign spacing may be modified, as approved by the engineer, to meet existing field restrictions or to prevent obstructions of the motorist's view of permanent signing.
9. Proposed changes in the traffic control plan (includes layout sheets) shall be reviewed with the Office of Construction before changes are made.
10. The bid item 'Traffic Control' shall include the cost for all traffic control measures required of the contractor except for those which are separate bid items or are incidental to other bid items.

EROSION CONTROL (Incidental):

Following completion of work on this project seeding, fertilizing, and mulching of all disturbed areas shall be done as directed by the engineer.

SEEDING:

3 lbs. of Fescue, Kentucky 31 or Fawn per 1000 sq. ft.

FERTILIZER:

17 lbs of 13-13-13 (or equivalent) chemically combined fertilizer per 1000 sq. ft.

MULCH:

70 lbs. of dry cereal straw per 1,000 sq.ft. All mulch to be consolidated into the soil with the mulch tiller.

The preparation of the seedbed, furnishing and application of seed, fertilizer, and mulch to all disturbed areas on this project shall be considered incidental to work on this project and no extra compensation will be allowed.

JRA-1

If there is any usable guardrail (as determined by the engineer) remaining after the reinstallation is completed, it shall be hauled to and stockpiled at the local maintenance garage in an approved manner. Any remaining rail and posts are to become the property of the contractor and disposed of as per 213-1. This work shall be included in the price bid for this project.

ESTIMATED PROJECT QUANTITIES

100-1B
01-09-90

NO.	ITEM	UNIT	DIVISION		TOTAL	"AS BUILT" QUAN.
			DESIGN NO. 290 (NB)	DESIGN NO. 590 (SB)		
1	3/4" Type 'B' ACC Base Course Class 1	Tons	195	195	390	
2	Embankment-In-Place	Cu.Yds.	40	40	80	
3	Formed Steel Thrie Beam Guardrail	Lin.Ft.	93.75	93.75	187.5	
4	Beam Guardrail Posts	No.	53	53	106	
5	RE-69 Beam Guardrail End Anchorage	No.	3	3	6	
6	Type 3 Object Marker	No.	2	2	4	
7	Triple Yellow Object Marker, as per plan	No.	5	5	10	
8	Removal of Formed Steel Beam Guardrail	Lin.Ft.	150	150	300	
9	Removal of Posts	No.	69	69	138	
10	Removal of Object Markers	No.	2	2	4	
11	Remove & Reinstall Steel Beam Guardrail	Lin.Ft.	237.5	237.5	475	
12	Remove & Install Guardrail End Anchorage	No.	2	2	4	
13	Pavement Markings	Sta.	94.55	94.55	189.10	
14	Class 'A' Bridge Floor Repair	Sq.Yds.	60	60	120	
15	Bridge Floor Overlay	Sq.Yds.	462	462	924	
16	'EF' Joint Assembly	No.	----	4	4	
17	Full Depth Patch, by count	No.	----	4	4	
18	Full Depth Patch, by area	Sq.Yds.	----	32	32	
19	Traffic Control	LumpSum			See TCP	
20	Temporary Floodlighting	LumpSum			LumpSum	

101-4

DESIGN DATA RURAL

1990 AADT 8560 V.P.D.

STANDARD ROAD PLANS

105-4
06-17-77

The following Standard Road Plans shall be considered applicable to construction work on this project.

NUMBER	DATE	NUMBER	DATE	NUMBER	DATE
RE-2A	02-17-87	RE-48A	08-20-85	RE-69	08-08-89
RE-2B	10-02-90	RE-52	08-08-89	RH-52	10-02-90
RE-7	10-02-90	RE-53	10-11-88	RK-17	01-09-90
RE-12A	10-11-88	RE-65	01-09-90	RL-11	10-11-88
RE-12B	01-09-90	RE-67	01-09-90	RL-12	04-04-89
RE-27B	01-09-90	RE-68	08-08-89	RS-62	10-11-88
RE-47	11-10-87	RH-50	10-02-90	RH-51	10-02-90

8-20-85 204-3

All formed steel beam railing and posts that are to be removed and reinstalled on this project shall meet the approval of the engineer before reinstalling. Painted steel beam railing and painted posts shall not be used on this project.

05-10-88 204-5

This project requires that existing formed steel beam guardrail be incorporated into the new work. When additional holes in the existing rail sections are required to accommodate new or modified hardware, these holes shall be punched. Payment for punching additional holes shall be considered incidental to other bid items in the project.

ESTIMATE REFERENCE INFORMATION

100-4
11-10-83

Data listed below is for informational purpose only and shall not constitute a basis for any extra work orders.

ITEM NO. DESCRIPTION

1. FOR SHOULDER STRENGTHENING, ASPHALT CEMENT, PRIME & TACK, AND TRENCHING TO BE INCIDENTAL TO PRICE BID. SEE TAB. 106-5.
2. FOR CONSTRUCTION OF GUARDRAIL BLISTERS AS DIRECTED BY THE ENGINEER. SEE STANDARD ROAD PLAN RL-11 FOR DETAIL. APPROVED MATERIAL TO BE OBTAINED BY THE CONTRACTOR. NO PAYMENT FOR OVERHAUL WILL BE ALLOWED.

3-5, 11,12. FOR GUARDRAIL INSTALLATION ON NB AND SB BRIDGE AS DIRECTED BY THE ENGINEER. REFER TO TAB. 107-23, 108-8A , 108-19 AND 110-7

6-7. SEE TAB. 108-17 AND STANDARD ROAD PLAN RE-48A FOR MORE INFORMATION.

8-12. AS DIRECTED BY THE ENGINEER. SEE TAB. 110-7 FOR LOCATION AND INFORMATION.

13. SEE TAB. 108-22 AND 521-20 DETAIL SHEET

14-15. SEE STANDARD ROAD PLAN RK-17. ESTIMATED FOR 2 PANELS PER SIDE OF BRIDGE 24' x 20' (SKEW) AND 24' x 30'.

16-18. SEE TAB. 102-6C AND DETAIL SHEETS 532-4 AND 532-9.

19. SEE DETAIL SHEET 521-20

20. SEE DETAIL SHEETS 570-2 AND 521-20.

ROADWAY DESIGN

REGISTERED PROFESSIONAL ENGINEER
JOHN R. ABRAMS
7229
IOWA

I hereby certify that this plan was prepared under my supervision and that engineering decisions with regard to the design were made by me or by other duly Registered Professional Engineers under the laws of the State of Iowa.

Name [signature]

Iowa Registration No. 7229 Date 8/13/90

PLS

Design 290 & 590 File No 28060

STATE OF IOWA	FHWA REGION 7	FISCAL YEAR		HARRISON COUNTY	PROJECT NUMBER IR-29-5(61)77--12-43	SHEET NUMBER 25	TOTAL SHEETS 31