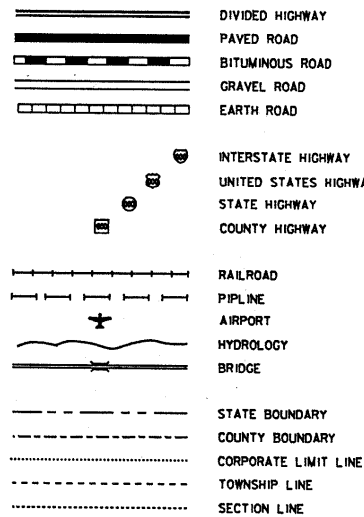


316
SRK

CONVENTIONAL SIGNS

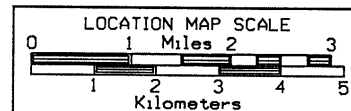
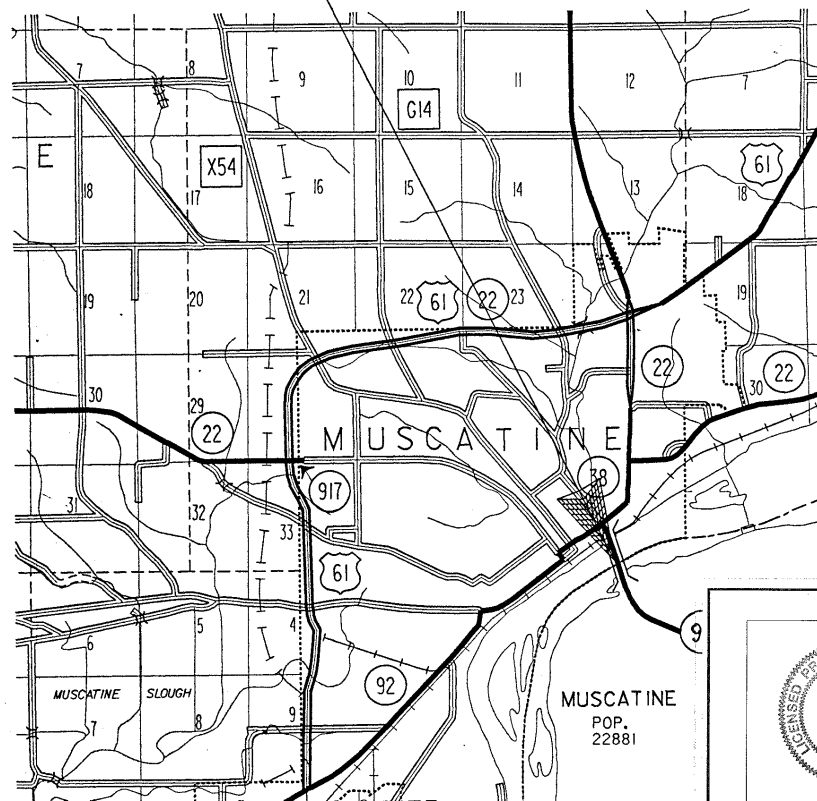


IOWA
DEPARTMENT OF TRANSPORTATION
Project Development Division
PLANS OF ~~PROPOSED~~ IMPROVEMENTS ON THE
PRIMARY ROAD SYSTEM
MUSCATINE COUNTY
BRIDGE DECK OVERLAY
ON IA 92 OVER
MISSISSIPPI RIVER AND RAILROAD AT MUSCATINE

SCALE: As Noted

The standard specifications, series of 1992 of the Iowa Department
of Transportation, shall apply to construction work on this project.
(PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS)

DESIGN NO. 694



THIS AS BUILT PLAN INCLUDES			
YEAR	WORK	CONTRACTOR	PROJ. INSPECTOR
1995	BRIDGE DECK OVERLAY	CIVIL CONTRACTORS	RICH SCHULZ

STATE	FHWA REGION	F.Y.	SHEET	TOTAL
IOWA	7		1	41
PROJECT NUMBER				
BRF-92-9(68)--38-70				
R.O.W. PROJECT NUMBER				
PIN				
89-70-040-1				

INDEX OF SHEETS	
NO.	DESCRIPTION
1	TITLE SHEET
2	ROAD ^{QUANTITY} ESTIMATE SHEET
3	BRIDGE ^{QUANTITY} ESTIMATE SHEET
3-29	BRIDGE DESIGN NO. 694
30-41	ROAD SHEETS

101-4			
DESIGN DATA RURAL			
1993	AADT	3340	V.P.D.
201	AADT		V.P.D.
201	DHV		V.P.H.
TRUCKS			%

VALUE ENGINEERING SAVES
REFER TO THE GENERAL NOTES ON SHEET 3 OF 41

STANDARD ROAD PLANS				STANDARD BRIDGE PLANS		
IDENT	DATE	IDENT	DATE	STANDARD	ISSUED	REVISED
RE-2A	2-17-87	RF-19E	2-23-93			
RE-2B	10-22-93	RH-50	9-27-94			
RE-7	4-28-92	RH-51	9-27-94			
RE-12A	10-11-88	RH-52	6-7-94			
RE-12B	1-9-90	RK-19A	9-29-92			
RE-47	11-10-87	RK-19F	2-23-93			
RE-48A	6-15-93	RL-11	10-11-88			
RE-52	10-22-93	RS-2	6-15-93			
RE-65	1-7-92	RS-3	2-23-93			
RE-68	8-8-89	RS-50	10-22-93			
RE-69	10-22-93					

REVISIONS



PROJECT DEVELOPMENT DIVISION

AUTHORIZED FOR LETTING

W. A. Ziegler 12/7/94
BRIDGE ENGINEER DATE

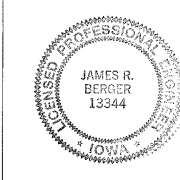
I hereby certify that this plan was prepared under my
supervision and that engineering decisions with regard
to the design were made by me or by other duly
Registered Professional Engineers under the laws of
the State of Iowa.

Name Gary O. Noyes
Iowa Registration No. 8704 Date 12/6/94

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

FOR THE DIVISION ADMINISTRATOR DATE

I hereby certify that this project was constructed in accordance
with the contract documents, the "as-built" plans were prepared
under my supervision, and that I am a duly licensed
Professional Engineer under the laws of the State of Iowa.

 James R. Berger 13344
Project Engineer Date 3-18-95
My license renewal date is December 31, 98

Reviewed and forwarded to Ames:
N/A [Signature] 11/16/00
Transportation Center Engineer Date

After microfilming, return original copy, 1 50% reduced prints and 2 full-size print(s)
to: Southeast Iowa Transportation Center.

1995 Year CIVIL CONTRACTORS Contractor RICH SCHULZ Project Inspector

ESTIMATE REFERENCE INFORMATION

100-4A
07-30-93

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

ITEM CODE	DESCRIPTION
2102-2625000	Approved material to be obtained by the contractor outside of existing right-of-way. No payment for overhaul will be allowed. See tab. 107-23.
2214-5145150	For milling the last 30' of A.C.C. overlay from 0 to 1½" to provide a butt joint 70' from bridge end.
2301-0685100	See RK-19F and tab. 112-6. Extend curb to end of approach.Boxout intakes.
2303-0400090	For overlaying 70' of approach to match new bridge overlay. Price bid includes adjustment as necessary for existing Intakes off bridge end.
2505-4010010	See Detail Sheets 2341-5 for type 6 Barrier Terminal. Price bid includes all labor and materials, except for "w" beam guardrail and steel posts.
2505-4020105	See detail sheets 2336-4 for Type 1 Barrier Terminal. Price bid includes includes all labor and materials except for "w" beam guardrail and steel posts.
2505-4020152, 2505-4020250, 2505-4020251, 2505-4020400, 2505-4021690	See tab. 108-8A. For Illinois guardrail see detail sheets 2230-16, 2336-4, and 2341-5. For Illinois guardrail, the bend in the rubrail and guardrail at the bridge end will not be required.
2505-6745740, 2505-6745749, 2505-6745855	See tab. 110-7. For Illinois end anchorages, all material must be removed at 6" below the finished grade. All material to become property of the contractor and disposed of as per 213-1.
2510-6745850	See tab. 110-1.
2524-9220020, 2524-9220030	See tab. 108-17. Removal of existing object markers, delineators, and posts to be incidental.
2527-9263110, 2527-9263130, 2527-9263180	See tab. 108-22.
2528-8400157	See tab. 108-27, modified sheet RS-5D and detail sheet 570-2.
2528-8400256	See tab. 108-28 and modified sheet RS-5D .
2528-8445110	See tab. 108-23 and modified sheet RS-5D.

ESTIMATED ROADWAY QUANTITIES

100-0A
MODIFIED

CONSTRUCTION USE ONLY	ITEM CODE	ITEM	UNIT	QUANTITIES				
				ESTIMATED			AS BUILT	
				IOWA COST	ILLINOIS COST	TOTAL	IOWA COST	ILLINOIS COST
	2102-2625000	Embankment-In-Place	CY	30	0.00	30.00	30.00	
	2214-5145150	Pavement Scarification	SY	0.00	107	107.00		
	2301-0685100	Bridge Approach Section	SY	268.0	0.00	268.00	288.40	86.67
	2303-0400090	Asphalt Cement Concrete,Commercial Mix,as per plan	TONS	0.00	22	22.00		38.769
	2505-4010010	Guardrail, Bridge Connection, Special, as per plan	ONLY	0.00	2	2.00		2.00
	2505-4020105	Breakaway End Anchorages, as per plan	ONLY	0.00	2	2.00		2.00
	2505-4020152	G'Rail, End Anchor, Beam, RE-52	ONLY	2	0.00	2.00	2.00	
	2505-4020250	G'Rail, Formed Steel Beam	LF	100	350	450.00	100.00	350.00
	2505-4020251	G'Rail, Formed Steel Thrie Beam	LF	62.5	0.00	62.50	62.50	
	2505-4020400	G'Rail, Posts, Beam	ONLY	28	0.00	28.00	28.00	
	2505-4020401	Guardrail, Posts, Beam-Steel	ONLY	0.00	66	66.00		64.00
	2505-4021690	G'Rail, End Anchor, Beam, RE-69	ONLY	2	0.00	2.00	2.00	
	2505-6745740	Rmvl of G'Rail End Anchor	ONLY	2	2	4.00	2.00	
	2505-6745749	Rmvl of G'Rail	LF	125	375.0	500.0	125.00	375.00
	2510-6745850	Removal of Pavement	SY	268	0.00	268.00	287.77	
	2524-9220020	Object Marker, Type 2	ONLY	4	0.00	4.00	4.00	
	2524-9220030	Object Marker, Type 3	ONLY	2	0.00	2.00	2.00	
	2527-9263110	Painted Pavement Marking	STA	425.4	0.00	425.40	186.97	
	2527-9263130	Removable Tape Marking	STA	74.2	0.00	74.20	41.655	
	2527-9263180	Pavement Marking Removed	STA	333.0	0.00	333.00	88.48	
	2528-8400157	Temp Floodlighting Luminaire	ONLY	14	0.00	14.00	13.00	
	2528-8400256	Temporary Traffic Signals	ONLY	12	0.00	12.00	14.00	
	2528-8445110	Traffic Control	LS	1	0.00	1.00	28,000.00	
	2505-6745855	Removal of Posts	ONLY	23	60	83.00	23.00	60.00
	2528-8445112	Flaggers	DAYS	30	0.00	30.00	76.00	

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 commercial 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 stabilizer.

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.

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-52	10-22-93	RH-52	06-07-94
RE-2B	10-22-93	RE-65	01-07-92	RK-19A	09-29-92
RE-7	04-28-92	RE-68	08-08-89	RK-19F	02-23-93
RE-12A	10-11-88	RE-69	10-22-93	RL-11	10-11-88
RE-12B	01-09-90	RF-19E	02-23-93	RS-2	06-15-93
RE-47	11-10-87	RH-50	07-27-94	RS-3	02-23-93
RE-48A	06-15-93	RH-51	07-27-94	RS-5D	10-22-93

TABULATION OF BRIDGE APPROACH SECTION

(Refer to Standard Road Plan RF-19D, RF-19E, RK-16, RK-19A, RK-19B, RK-19C, RK-19D, RK-19E, RK-19F, RK-19G, RK-19H, or RK-19J)

112-6
10-22-93

① Not a bid item

LOCATION		APPROACH PAVEMENT						SUBDRAIN						APPROACH SUBGRADE		REMARKS
Bridge Station	End	Case	PN for Case '2'	T Thickness Inches	Non-Reinf. Pavement Area Sq. Yds.	Reinforced Pavement Area Sq. Yds.	Fixed or Movable Abutment F or M	Perforated Subdrain ① 4" Lin. Ft.	Subdrain Outlet ①		Porous ① Backfill Cu. Yds.	Class 'A' Crushed Stone ① Backfill Cu. Yds.	Special Backfill ① Sq. Yds.	Engineering Fabric ① Sq. Yds.		
									Station	Side						
17+51	N	1	--	10"	194.4	74.4	F	44'	4+12	W	2.0	0.2	292	292	(1)	

(1) Box out around existing intakes as directed by the engineer. Extend curb section to the end of the approach

DESIGN NO. 694
FILE NO. 27768

101-4
DESIGN DATA RURAL

1993 AADT 3340 V.P.D.
20 AADT V.P.D.
20 ADHV V.P.H.
TRUCKS %

ROADWAY DESIGN

JOHN R. ABRAMS
7229

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
Iowa Registration No. 7229 Date 11-19-93

GENERAL NOTES:

THIS DESIGN IS FOR REPAIRS TO THE EXISTING MISSISSIPPI RIVER BRIDGE AT MUSCATINE, IOWA ON IOWA #92 OVER THE MISSISSIPPI RIVER, ORIGINAL DESIGN NO. 170 MUSCATINE COUNTY. PLANS OF THE EXISTING STRUCTURE MAY BE OBTAINED AT THE AMES OFFICE OF THE IOWA D.O.T.-PROJECT DEVELOPMENT DIVISION. REPAIRS SHALL CONSIST OF BRIDGE FLOOR REPAIR AND OVERLAY, WELDING RAISE PLATES TO THE EXISTING EXPANSION JOINT DEVICES, INSTALLING STEEL EXTRUSION JOINTS WITH NEOPRENE AT ABUTMENTS 1 & 25, AND PIERS 4,6,15,17,19,21 & 23 AND AT PANEL POINTS 3,7 & 3' IN THE TRUSS SPANS, REMOVAL OF EXISTING HANDRAIL AND CONCRETE END POSTS, PLACING NEW CAST IN PLACE BARRIER RAIL, PLACEMENT OF CONCRETE APPROACH AT IOWA END OF THE BRIDGE AND A.C. APPROACH AT ILLINOIS END AND INSTALLATION OF GUARDRAIL.

ALSO INCLUDED IN THIS DESIGN IS THE REPOSITIONING OF TWO BEARING PADS AT PIER 4 AS NOTED AND DETAILED ON DESIGN SHEET 5 AND THE INSTALLATION OF SENSORS FOR PAVEMENT TEMPERATURE AND MOISTURE DETECTION AS NOTED IN THESE NOTES.

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.

PRESENT FLOOR THICKNESS IS ABOUT 7 1/2 INCHES IN CONCRETE BEAM SPANS AND 8" IN TRUSS AND GIRDER SPANS. THE CONTRACTOR SHALL EXERCISE EXTREME CARE IN REMOVING CONCRETE IN ORDER TO PREVENT UNNECESSARY UNBONDING OF REINFORCING STEEL.

PLAN QUANTITY OF FLOOR REPAIR IS BASED ON TWO TIMES THE SHADED AREAS, PLUS THE BOUNDED AREAS SHOWN ON THE "SURVEY PLOT" IN THESE PLANS. SHADED AREAS REPRESENT CLASS A BRIDGE FLOOR REPAIR FOUND BY DELAMTECT. PLOT. BOUNDED AREAS INCLUDE AC PATCH OR SPALLED AREAS NOT RECORDED BY THE DELAMTECT AND/OR THE SQUARING UP OF THE REPAIR AREAS. 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 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 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 IN THE QUANTITIES SHOWN FOR CLASS A BRIDGE FLOOR REPAIR AND FOR BRIDGE FLOOR OVERLAY.

REMOVALS AND DISPOSALS OF ITEMS SCHEDULED FOR REMOVAL SHALL BE IN ACCORDANCE WITH SECTION 2401 OF THE SPECIFICATIONS. ANY DAMAGE TO ANY STEEL OR CONCRETE NOT TO BE REMOVED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED BY HIM AT NO EXTRA COST TO THE STATE.

SURFACES OF EXISTING EXPANSION DEVICE AS DETAILED IN THESE PLANS ARE TO BE CLEANED OF EXISTING CORROSION AND PAINT IN PREPARATION FOR FIELD WELDING. THE NEW STEEL EXTRUSIONS AND THE 1 1/2" R's AT THE TOOTHED JOINTS, TO BE PAINTED SHALL BE CLEANED AND PAINTED AFTER FIELD WELDING TO THE EXISTING EXPANSION DEVICE. CLEANING BY OTHER THAN ABRASIVE BLAST CLEANING (INCLUDES VACUUM BLAST) IS REQUIRED. SURFACE TO BE PAINTED SHALL BE PREPARED IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL (SSPC) SP3. THE EXPOSED SURFACES OF THE COMPLETED EXPANSION DEVICE ARE TO BE GIVEN ONE COAT OF RUST-OLEUM PRIMER AND ONE COAT OF RUST-OLEUM FINAL COAT OR APPROVED EQUAL PRIMER AND FINAL COAT. THE COLOR OF THE DRY PAINT SHOULD APPROXIMATE THE COLOR OF CONCRETE. ONLY THOSE SURFACES OF THE EXPANSION DEVICE NOTED TO BE PAINTED ARE TO BE PAINTED, NO PAINTING OF OTHER STRUCTURAL STEEL IS REQUIRED. (THE WORK SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER LUMP SUM FOR THE BID ITEM "CLEANING AND PAINTING STRUCTURAL STEEL").

CONTAINMENT AND DISPOSAL OF WASTE SHALL BE IN ACCORDANCE WITH CURRENT SUPPLEMENTAL SPECIFICATIONS FOR "ENVIRONMENTAL PROTECTION FOR REMOVAL OF NON HAZARDOUS PAINT".

WASTE MATERIAL SHALL BE DELIVERED TO THE DOT CENTRAL COMPLEX EAST OF THE SIGN SHOP ON SOUTH 4TH STREET IN AMES. ALL COSTS ASSOCIATED WITH HAULING AND DEPOSITING OF WASTE AT THE DESIGNATED SITE/FACILITY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND INCLUDED IN THE CONTRACT PRICE BID FOR THE "CONTAINMENT" ITEM. PREDELIVERY ARRANGEMENTS SHALL BE MADE WITH A REPRESENTATIVE OF THE BUREAU OF MANAGEMENT AT TELEPHONE NUMBER 515-239-1040. THE CONTRACTOR IS NOT RESPONSIBLE FOR DISPOSAL OF WASTE AFTER IT HAS BEEN DELIVERED AND DEPOSITED AT THE DESIGNATED FACILITY IN AMES.

EXISTING BRIDGE RAIL IS NOT TO BE REMOVED UNTIL AUTHORIZED BY THE ENGINEER.

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.

MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.

THE BRIDGE CONTRACTOR IS ENCOURAGED TO TAKE FULL ADVANTAGE OF SPECIFICATION 1105.15 -- VALUE ENGINEERING INCENTIVE PROPOSAL. A PAMPHLET AND CONCEPTUAL PROPOSAL FORM WILL BE AVAILABLE AT THE PRECONSTRUCTION CONFERENCE.

THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE EXISTING CONDUIT IN THE BRIDGE CURBS. IN ORDER TO INSURE THE EXISTING CONDUITS ARE NOT DAMAGED DURING PLACEMENT OF THE CAST IN PLACE BARRIER RAIL, THE CONTRACTOR SHALL BE REQUIRED TO DO THE FOLLOWING :

1. PHYSICALLY LOCATE THE CONDUIT AT APPROXIMATELY 50 FOOT INTERVALS PRIOR TO DRILLING ANY HOLES FOR 3/4" DOWEL BARS.

2. AFTER COMPLETION OF DRILLING FOR THE 3/4" DOWEL BARS AND PRIOR TO PLACEMENT OF THE DOWELS, PROVE TO THE INSPECTOR BY A REASONABLE METHOD THE USABILITY OF THE CONDUIT HAS NOT BEEN COMPROMISED.

COST OF THESE OPERATIONS WILL BE CONSIDERED INCIDENTAL TO THE COST OF THE CAST IN PLACE BARRIER RAIL. ANY DAMAGE TO THE CONDUIT BY THE CONTRACTOR WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED AT NO EXTRA COST TO THE STATE.

IN 1993 THE ILLINOIS D.O.T. HAD 2 SENSORS FOR PAVEMENT TEMPERATURE AND MOISTURE DETECTION INSTALLED IN THE BRIDGE DECK. THESE SENSORS ARE LOCATED ABOUT 800 FEET AND 1600 FEET FROM THE ILLINOIS ABUTMENT. BRIDGE CONTRACTOR IS TO CONTACT THE ILLINOIS D.O.T. FOR EXACT LOCATION OF THE SENSORS. BRIDGE FLOOR OVERLAY WILL RENDER THESE SENSORS INOPERABLE. AFTER COMPLETION OF OVERLAY THE BRIDGE CONTRACTOR IS TO HAVE TWO NEW SENSORS INSTALLED AT LOCATIONS DETERMINED BY ILLINOIS D.O.T. THE FURNISHING AND INSTALLATION OF THE NEW SENSORS IS TO BE DONE BY SURFACE SYSTEMS INC., SAINT LOUIS, MO. THE ILLINOIS D.O.T. IS TO COORDINATE THE PLACEMENT OF THE NEW SENSORS. ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING THE NEW SENSORS IS TO BE INCLUDED IN THE BID PRICE FOR "BRIDGE REPAIR".

THE CONTACT FOR SENSORS IS :
JERRY OLNEY
SURFACE SYSTEMS INC.
SAINT LOUIS, MISSOURI
PH. 1-800-325-7226

THE CONTACT AT ILLINOIS D.O.T. IS :
JERRY VIRTUE
ENG. OF OPERATIONS
PH. 815-284-5396

SUPPLEMENTAL NOTES :

THE BRIDGE CONTRACTOR WILL BE REQUIRED TO ASSIST THE IOWA - D.O.T. IN AN INVESTIGATION INTO THE POSSIBILITY OF OTHER REPAIRS TO THIS STRUCTURE. THESE REPAIRS WILL BE DONE UNDER A FUTURE CONTRACT AND THE INVESTIGATION IS TO DETERMINE A METHOD OF REPAIR.

THE POSSIBLE REPAIR AREAS ARE :

1. DETERIORATION OF THE ENDS OF PRESTRESSED CONCRETE BEAMS AT EXPANSION JOINTS.

2. CRACKING AND SPALLING OF THE DIAPHRAGM CONCRETE BETWEEN THE ENDS OF THE EXTERIOR BEAMS AT THE FIXED PIERS.

THE BRIDGE CONTRACTOR WILL BE REQUIRED TO DO THE FOLLOWING :

1. REMOVE THE EXISTING CONCRETE PATCHES AND ALL DETERIORATED CONCRETE ON THE EAST EXTERIOR BEAM ENDS IN SPANS 18 AND 19 AT PIER 19 AND SPAN 16 AT PIER 17. ALSO CLEAN THE END OF THE EAST EXTERIOR BEAM IN SPAN 17 AT PIER 17 BY SANDBLASTING.

2. REMOVE ALL CRACKED AND SPALLED DIAPHRAGM CONCRETE BETWEEN THE BEAM ENDS OF THE EAST EXTERIOR BEAMS AT THE FIXED PIERS 20 AND 22.

ALL COSTS ASSOCIATED WITH THE ABOVE INVESTIGATIONS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF BRIDGE FLOOR OVERLAY.

IN ADDITION TO THE ABOVE LISTED INVESTIGATIONS, THE BRIDGE CONTRACTOR WILL BE REQUIRED TO ASSIST IN THE DETERMINATION OF THE POSSIBILITY OF USING SANDBLASTING TO CLEAN THE ARMOR ANGLE AND ADJACENT CONCRETE DIAPHRAGMS AT THE EXPANSION JOINTS WITHIN THE CONCRETE BEAM SPANS.

AT PIER 19 REMOVE THE COMPRESSION SEAL ON THE EAST HALF OF THE ROADWAY AND EXAMINE THE SURFACE OF THE ANGLE FOR THE PRESENCE OF ANY PAINT. IF NO PAINT IS FOUND THE CONTRACTOR MAY PROCEED WITH ATTEMPTING TO CLEAN THE JOINT BY SANDBLASTING FROM BOTH ABOVE AND BELOW THE ROADWAY. IF THIS METHOD OF CLEANING THE JOINTS IS FOUND TO BE SATISFACTORY BY D.O.T. PERSONNEL THEN ALL OF THE JOINTS AT 12 LOCATIONS AS LISTED ON DESIGN SHEET 6 WILL BE CLEANED BY THIS METHOD AND UNDER THIS CURRENT CONTRACT. PAYMENT FOR THIS JOINT CLEANING SHALL BE BY A NEGOTIATED WORK ORDER REFLECTING THE CHANGES IN REQUIRED PERFORMANCE. IF PAINT IS FOUND ON THE SURFACE OF THE ARMOR ANGLE THEN CLEANING SHALL BE DONE AS MENTIONED IN THE GENERAL NOTES.

THE BRIDGE CONTRACTOR SHOULD NOTIFY THE ENGINEER AT LEAST 7 DAYS PRIOR TO THE DAYS HE INTENDS TO DO THESE INVESTIGATIONS SO THAT D.O.T. PERSONNEL MAY BE PRESENT TO DIRECT AND OBSERVE THE OPERATIONS.

THE BRIDGE CONTRACTOR WILL BE REQUIRED TO PROVIDE ACCESS FOR UNDERDECK EXAMINATION BY D.O.T. PERSONNEL.

ALL OF THE ABOVE INVESTIGATIONS SHALL BE ACCOMPLISHED WHILE WORKING IN AREA ① SHOWN ON THE WORK AREA SEQUENCE DIAGRAM ON DESIGN SHEET 13.

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

12/6/94
DATE

GARY NOVEY
GARY NOVEY

REG. NO. 8704

SECTION LEADER: G. NOVEY

MUSCATINE COUNTY

TOTAL ~~ESTIMATED~~ BRIDGE QUANTITIES

	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUANTITY
	2401-6745635	REMOVAL OF EXISTING HANDRAIL	LS	1.000	\$ 7,000.00
	2408-7800000	STEEL, STRUCTURAL	LB	25502.000	25,559.00
	2412-4480510	JOINT, STEEL EXTRUSION WITH NEOPRENE	LF	396.000	396.00
	2413-0698071	BRIDGE FLOOR OVERLAY	SY	10678.000	10,731.27
	2413-0698072	BRIDGE FLOOR REPAIR, CLASS A	SY	295.000	592.33
	2414-6424115	RAIL, CONCRETE BARRIER (CAST-IN-PLACE)	LF	6070.100	6,070.10
	2499-0700082	BRIDGE REPAIR	LS	1.000	\$ 30,000.00
	2508-0810000	CLEANING AND PAINTING STRUCTURAL STEEL	LS	1.000	\$ 6,000.00
	2508-0970000	CONTAINMENT	LS	1.000	0.00
	2528-8400051	TEMPORARY BARRIER RAIL - FURNISH ONLY	LF	1510.000	1,500.00
	2528-8400052	TEMPORARY BARRIER RAIL - PLACE ONLY	LF	10250.000	9,460.00
	2533-4980005	MOBILIZATION	LS	1.000	\$ 68,000.00

ITEM CODE

~~ESTIMATE~~ REFERENCE INFORMATION

2413-0698071 INCLUDES COST OF FURNISHING AND PLACING CONCRETE SEALER.

2414-6424115 INCLUDES 503.4 CU.YDS. OF CLASS D STRUCTURAL CONCRETE AND 65,596 LBS. OF EPOXY COATED REINFORCING STEEL.

2528-8400051 ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS.

2528-8400052

EXTRA WORK ORDERS

8001	COVER PLATE - MODIFICATIONS	L.S.	\$ 1,620.81
8002	EXPANSION JOINTS - CLEAN & PAINT	L.S.	\$ 8,945.71
8003	COVER PLATES	L.S.	\$ 5,670.00
8004	PRICE ADJ. - RAIN DAMAGE	L.S.	\$ 145.20

SPECIFICATIONS:

CONSTRUCTION: IOWA DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, CURRENT SERIES, 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 1992.

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.

NOTE:
ROADWAY QUANTITIES SHOWN ELSEWHERE IN THESE PLANS.

TRAFFIC CONTROL PLAN

NOTE: THE ROADWAY WILL BE OPEN TO THRU TRAFFIC. REFER TO THE TRAFFIC CONTROL PLAN ON THE ROAD PLANS IN THESE PLANS.

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
170	ORIGINAL DESIGN
694	RETROFIT RAIL AND BRIDGE OVERLAY

LOCATION:

IOWA #92 OVER
MISSISSIPPI RIVER & R.R.
SECTION 35
T-77 N R-2 W
MUSCATINE TWP.
MUSCATINE COUNTY, IOWA
ROCK ISLAND COUNTY, ILLINOIS

BRIDGE MAINT. NO. 7075.7S092

RAILROAD CROSSING NO. 09713
FRA CROSSING NO. 607203K

PROJECT NUMBER

BRF 92-9 (68)--38-70

DESIGN FOR REPAIRS TO

MISSISSIPPI RIVER BRIDGE
AT
MUSCATINE IOWA
GENERAL NOTES AND QUANTITIES

DECEMBER, 1994

MUSCATINE COUNTY

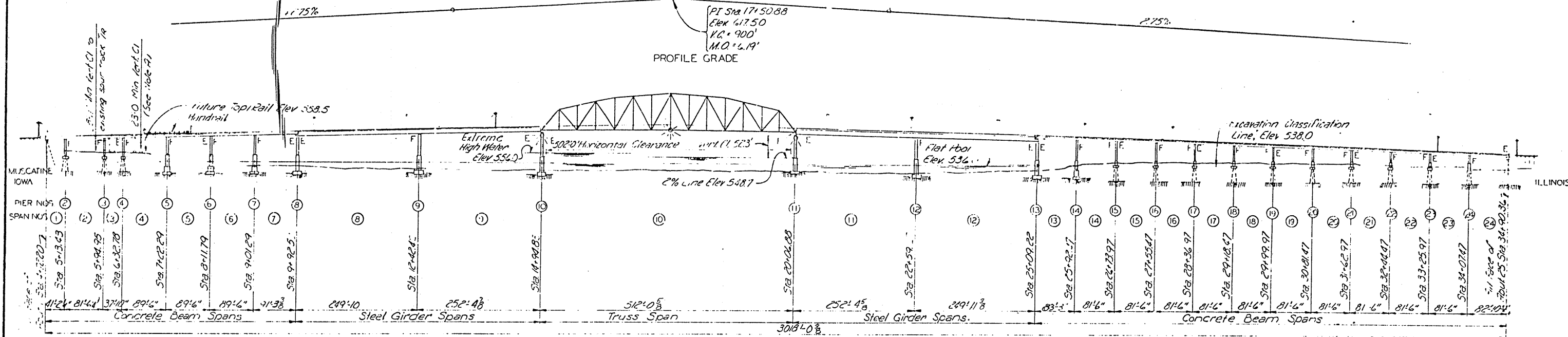
IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION

DESIGN SHEET NO. 1 OF 27 FILE NO. 27768 DESIGN NO. 694

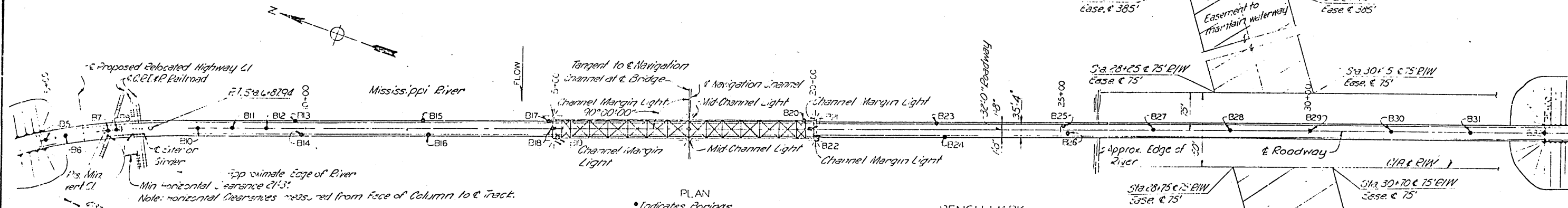
DESIGNED BY H.D. SERVER
CHECKED BY
DETAILED BY R.RYSAYV
CADD FILE H70694.S01

STATE	AREA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		3	41

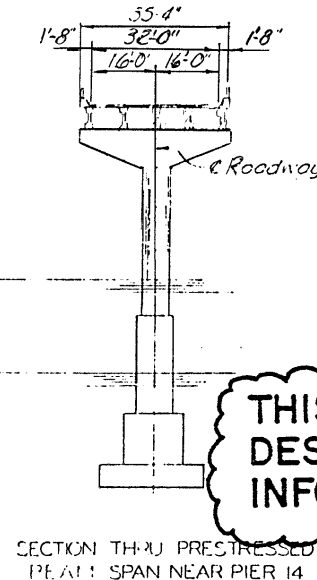
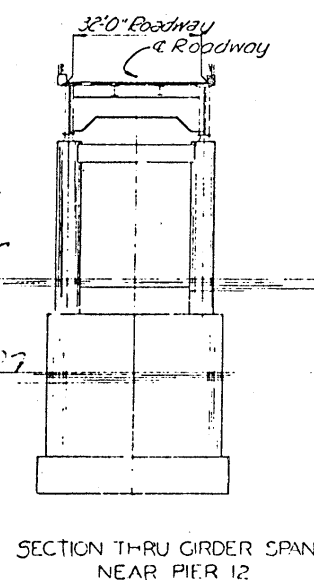
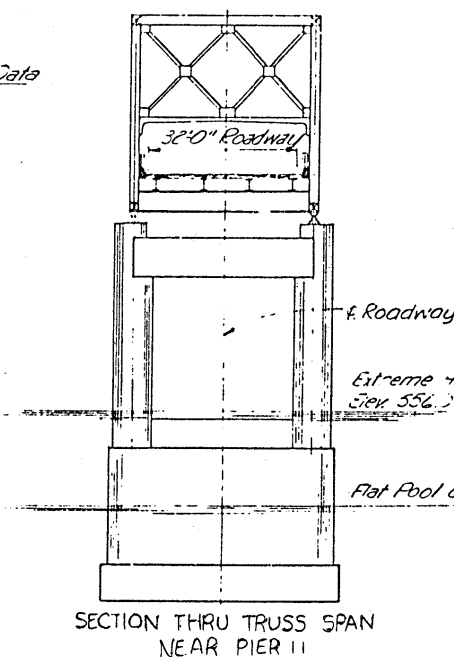
Note A: 25'0" to existing Hwy/Rail.



Note: Stations shown at Piers are for & Piers & Roadway



Horizontal Curve Data
 P.I. Sta 6+90.00
 L: 20°00'00"
 D: 5°00'00"
 T: 22.06'
 L: 100.0'
 R: 115.92'



THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

Note: Do not scale this drawing. Follow dimensions.

Design No. 694
 File No. 27768
 Des. Sht. No. 2 of 27

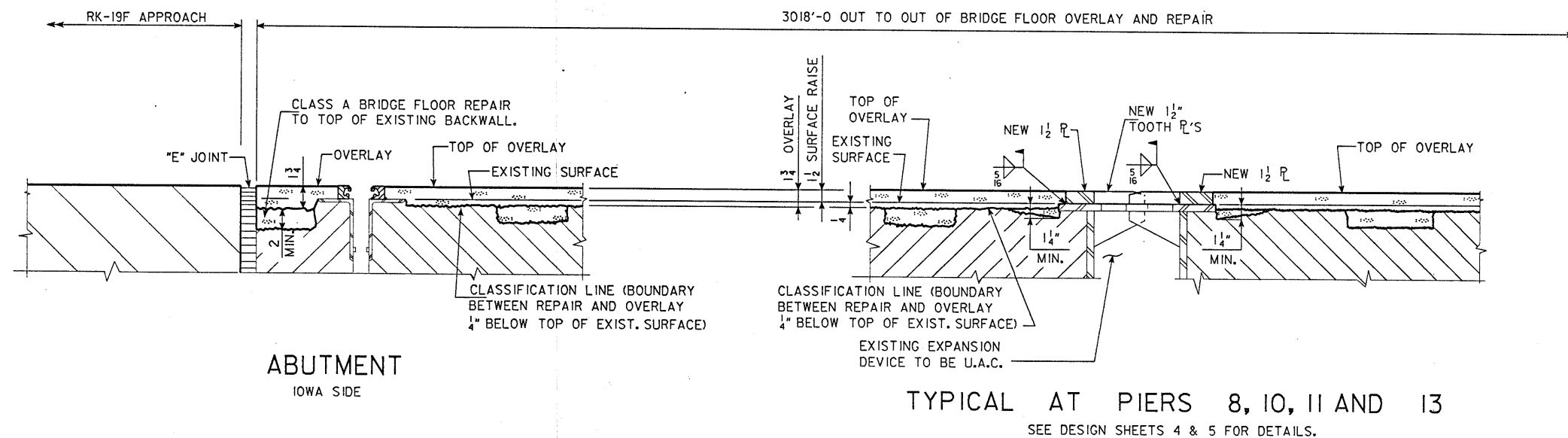
MISSISSIPPI RIVER BRIDGE
 GENERAL PLAN AND ELEVATION
 MUSCATINE COUNTY
 IOWA STATE HIGHWAY COMMISSION

DESIGN NO. 170 FILE NO. 23800 DES. SH. NO. 4 of 41

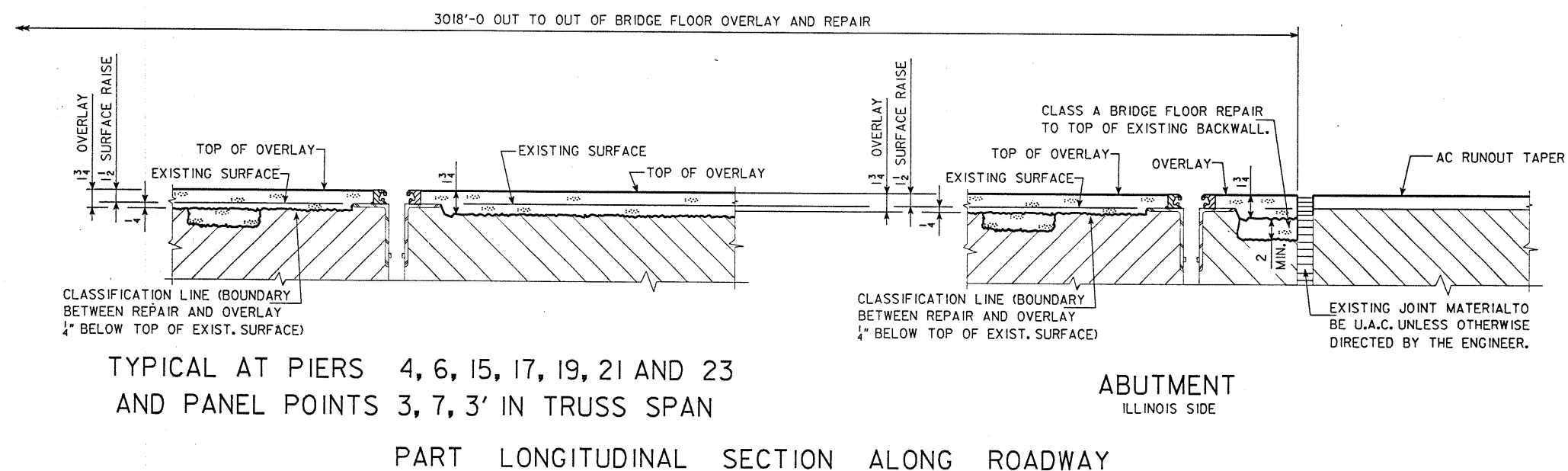
PROJECT UN-92-9(1) 1-4-70 PROJECT SH. NO. OF

Drawn By: Missions, Inc. 12/9
 Checked By: O. Sandherrich, P.E. 1/9

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
 CONSULTING ENGINEERS
 ST. LOUIS, MISSOURI



PART LONGITUDINAL SECTION ALONG ROADWAY

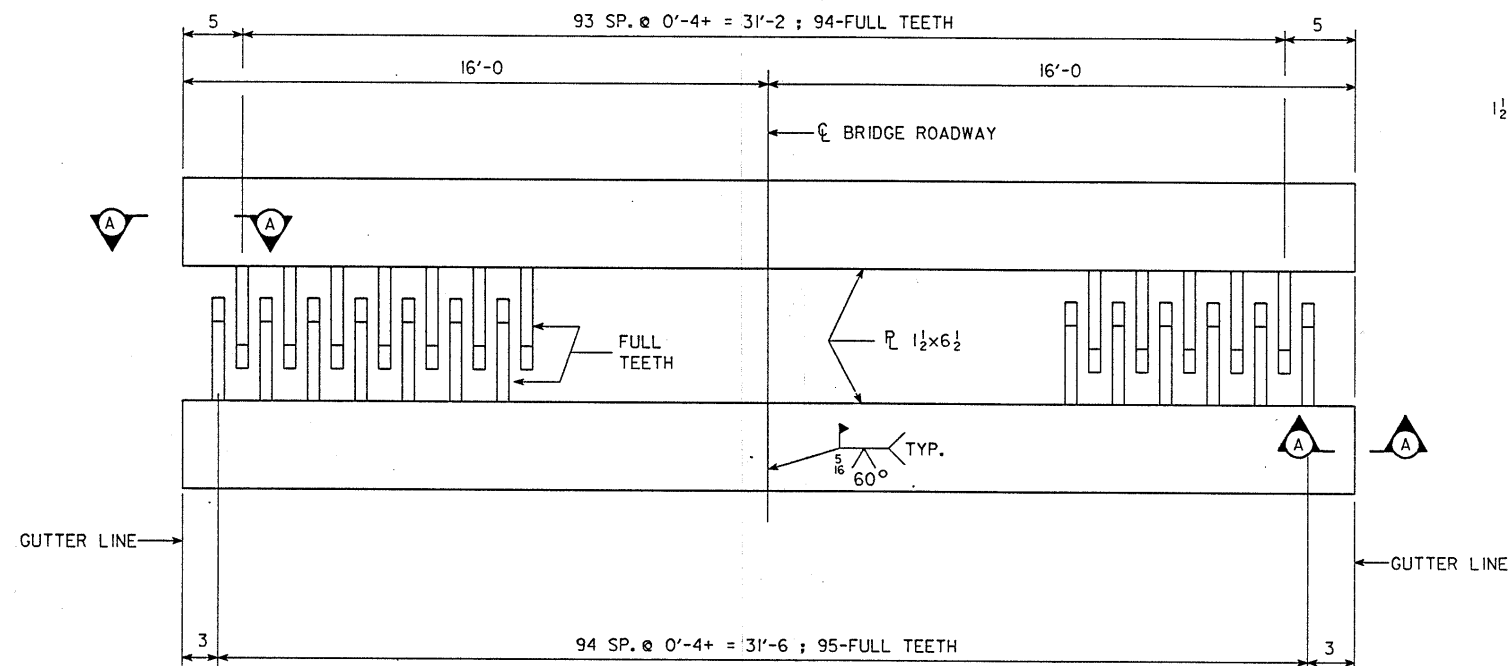


DESIGN FOR REPAIRS TO				
MISSISSIPPI RIVER BRIDGE				
AT				
MUSCATINE IOWA				
REPAIR DETAILS				
DECEMBER, 1994				
MUSCATINE COUNTY				
IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION				
DESIGN SHEET NO. 3 OF 27 FILE NO. 27768 DESIGN NO. 694				
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		5	91

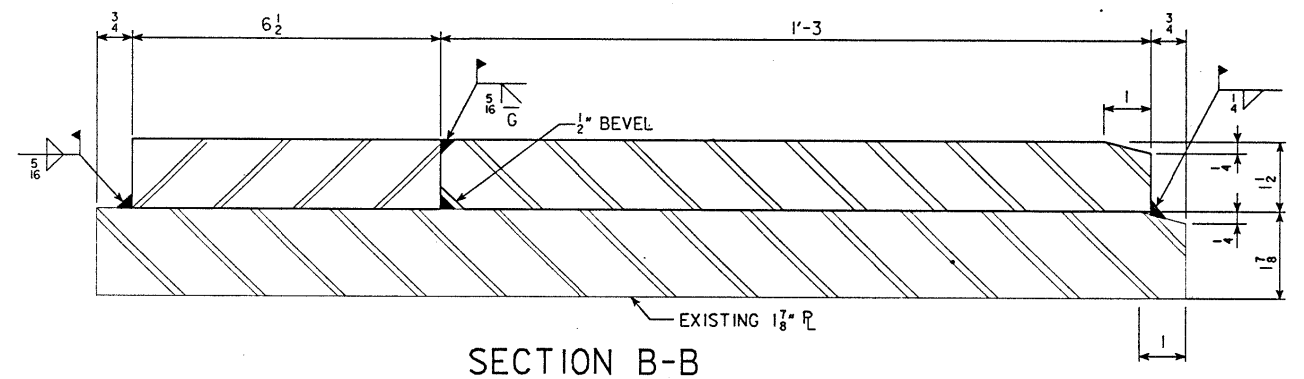
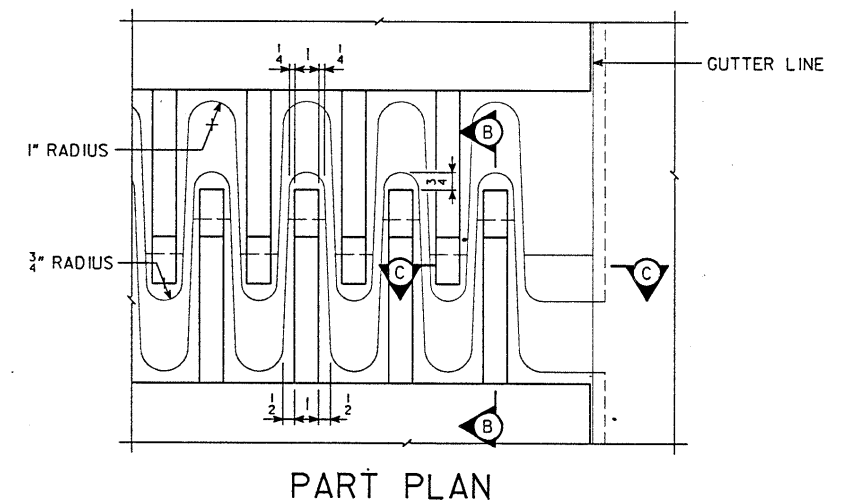
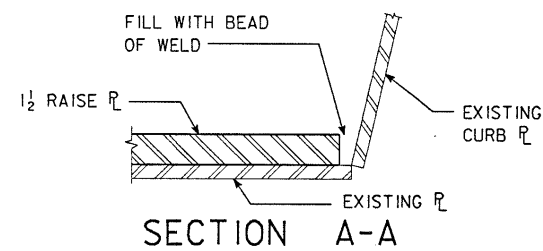
DESIGNED BY H.D. SERVER CHECKED BY
 DETAILED BY R. RYSAVY CADD FILE H70694.S03

MUSCATINE COUNTY

PROJECT NUMBER



RAISE PLATE DETAILS
AT PIER 10

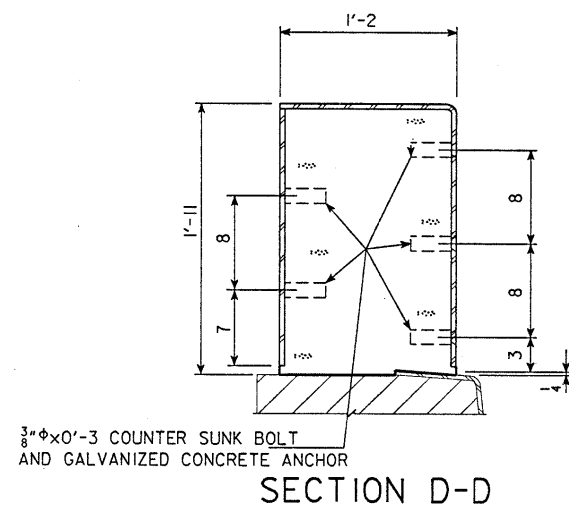


SECTION B-B

NOTE: IT IS INTENDED THAT THE $\frac{7}{16}$ INCH RECESSED AREA BE FORMED SO THAT WHEN THE $\frac{3}{8}$ INCH BENT PLATE IS INSTALLED THE PLATE WILL BE ABLE TO MOVE FREELY IN THIS RECESSED AREA.

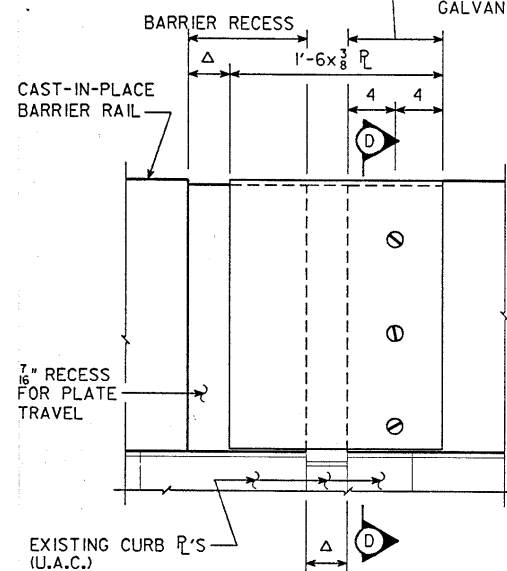
THIS INSIDE PORTION OF THE $\frac{3}{8}$ INCH BENT PLATE IS TO BE PAINTED WITH A COLORLESS OIL, OR SOME OTHER SATISFACTORY MEANS TO PREVENT CONCRETE FROM ADHERING TO THE PLATE SO THAT THE PLATE CAN BE REMOVED IF NECESSARY. (TYP. ALL $\frac{3}{8}$ INCH BENT PLATES) $\frac{3}{8}$ INCH BENT PLATES ARE TO BE GALVANIZED.

NOTE: AFTER PLACEMENT OF OVERLAY, ALL EXPOSED SURFACES OF $\frac{1}{2}$ INCH RAISE PLATES ARE TO BE PAINTED. SEE GENERAL NOTES.



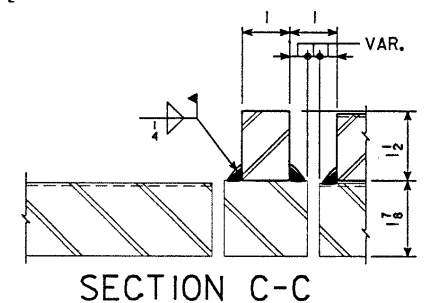
SECTION D-D

CONTRACTOR TO NOTE THAT ANCHORAGE SYSTEM FOR THE $\frac{3}{8}$ INCH BARRIER PLATES IS ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.



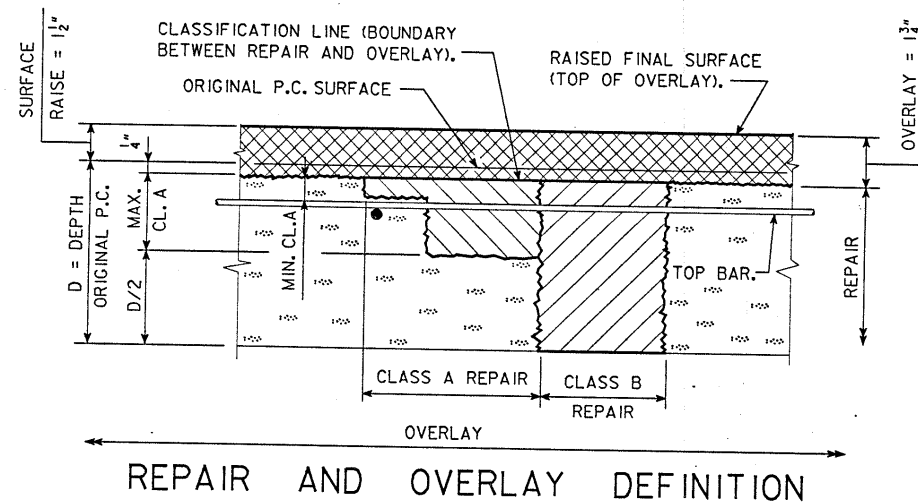
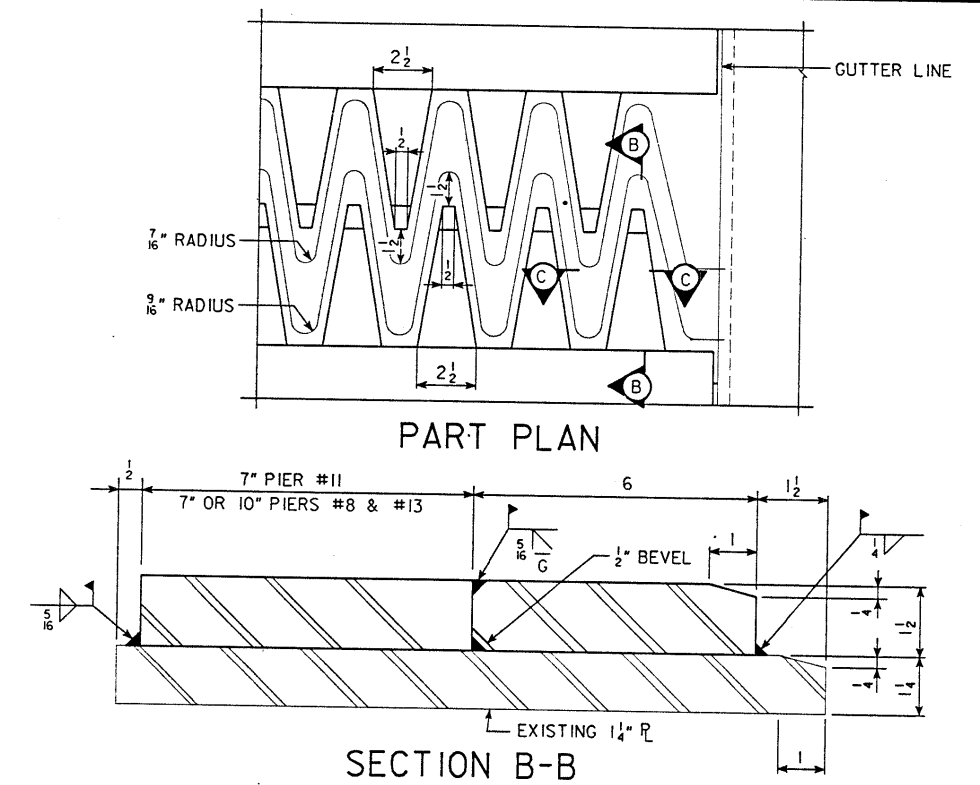
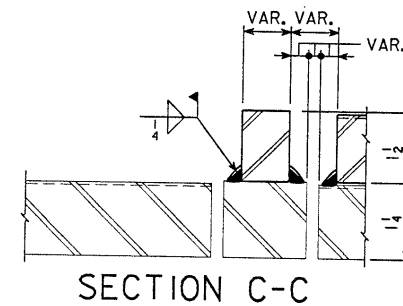
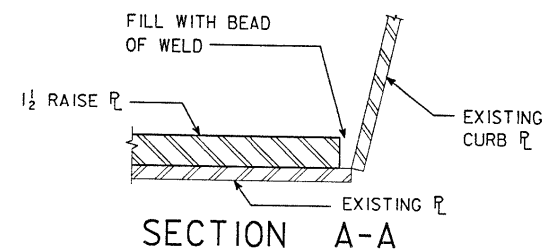
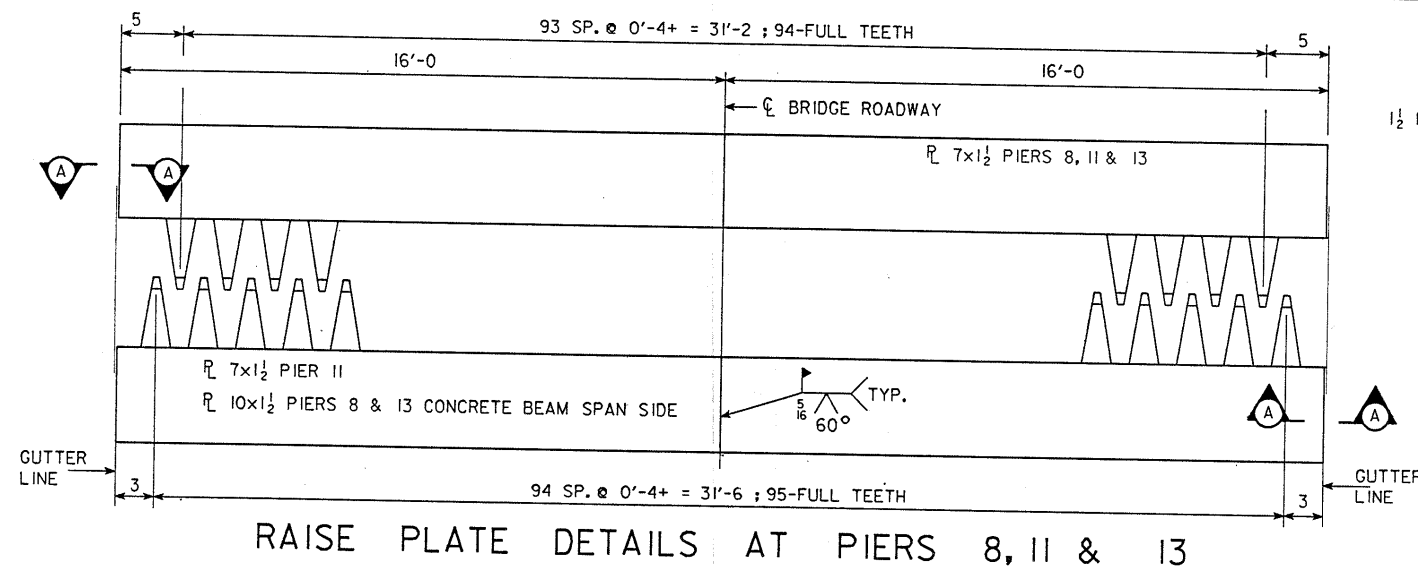
CAST-IN-PLACE BARRIER RAIL
BARRIER JOINT
REQUIRED FOR JOINTS AT PIERS 8, 10, 11 & 13

STEEL PLATE NOTE:
THE MINIMUM GRADE OF STRUCTURAL STEEL SHALL BE ASTM A-36.
THE BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A-307. THE PLATES, BOLTS, NUTS AND CAP SCREWS ARE TO BE GALVANIZED IN ACCORDANCE WITH ARTICLE 4100.07 OF THE STANDARD SPECIFICATIONS.
WEIGHT OF RAISE PLATES, TEETH AND BARRIER RAIL JOINT IS INCLUDED IN "STRUCTURAL STEEL" BID ITEM.
TOP SURFACE OF EXISTING TOOTH PLATES ARE TO BE SANDBLASTED TO REMOVE GALVANIZING BEFORE WELDING.

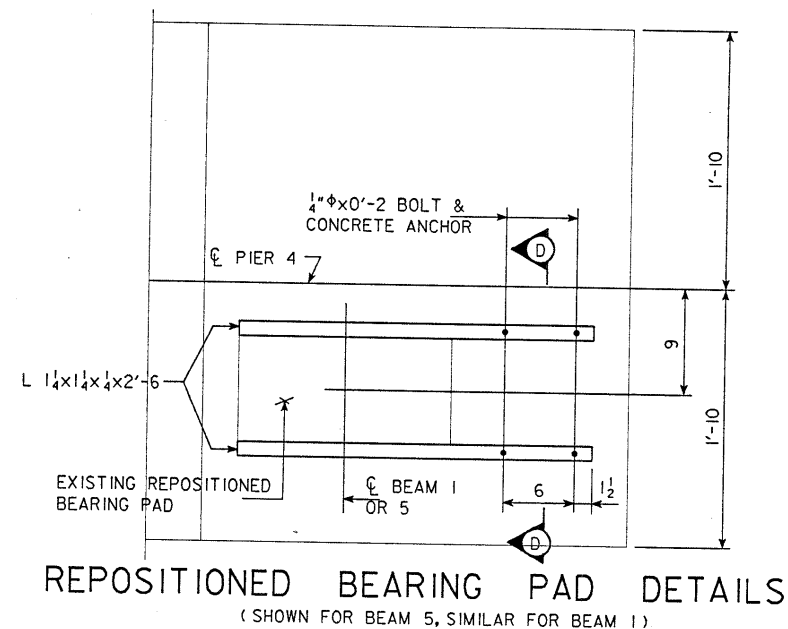


SECTION C-C

DESIGN FOR REPAIRS TO
MISSISSIPPI RIVER BRIDGE
AT
MUSCATINE IOWA
REPAIR DETAILS
DECEMBER, 1994
MUSCATINE COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION
DESIGN SHEET NO. 4 OF 27 FILE NO. 27768 DESIGN NO. 694



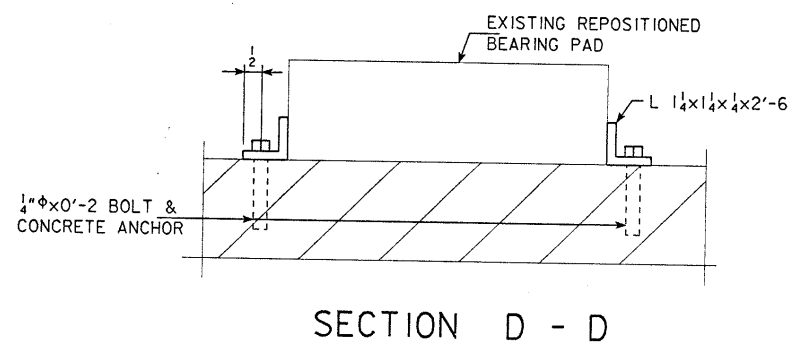
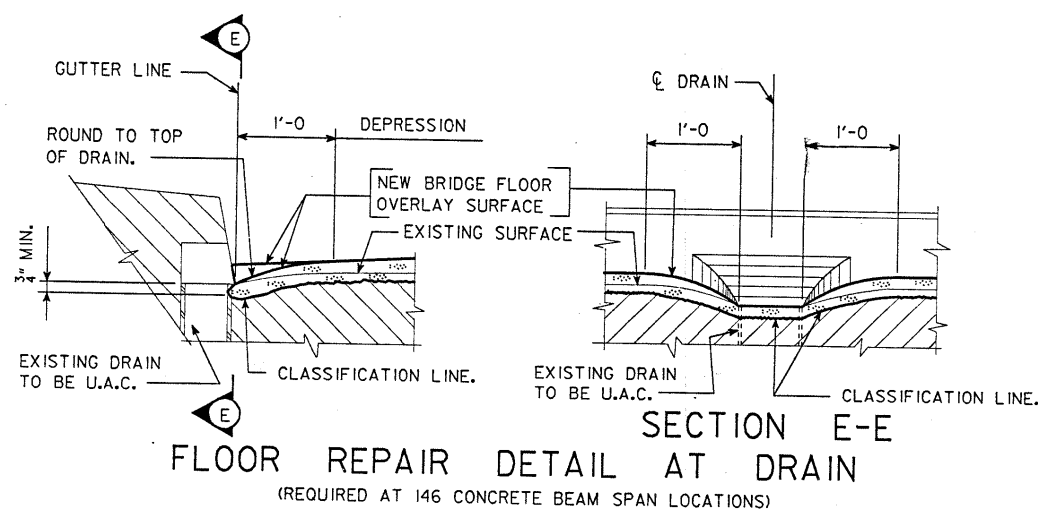
NOTE : AFTER PLACEMENT OF OVERLAY, ALL EXPOSED SURFACES OF 1/2" RAISE PLATES ARE TO BE PAINTED. SEE GENERAL NOTES.



NOTE :

THE EXISTING BEARING PADS UNDER BEAMS 1 AND 5 (EXTERIOR BEAMS) IN SPAN 3 AT PIER 4 END HAVE SHIFTED EXTREMELY OUT OF PROPER POSITION. THE BRIDGE CONTRACTOR IS TO JACK UP THE EXTERIOR BEAMS A SUFFICIENT AMOUNT TO ALLOW REPLACING THE BEARING PADS TO ORIGINAL POSITION AS SHOWN. DEAD LOAD REACTION OF EXTERIOR BEAMS AT PIER #4 IS ABOUT 16 TONS. AFTER REPOSITIONING THE BEARING PADS THEY ARE TO BE CONFINED IN PROPER POSITION BY INSTALLING ANGLES AND CONCRETE ANCHORS AS DETAILED. WEIGHT OF ANGLES IS INCLUDED IN "STRUCTURAL STEEL". ALL OTHER COST ASSOCIATED WITH REPOSITIONING THE BEARING PADS AND FURNISHING AND INSTALLING ANGLES AND CONCRETE ANCHORS SHALL BE INCLUDED IN PRICE BID FOR "BRIDGE REPAIR".

REPOSITIONING OF BEARING PADS SHALL BE DONE AT EACH EXTERIOR BEAM WHEN THE TRAFFIC IS SHIFTED TO THE OTHER SIDE OF BRIDGE.



DESIGN FOR REPAIRS TO				
MISSISSIPPI RIVER BRIDGE				
AT				
MUSCATINE IOWA				
REPAIR DETAILS				
MUSCATINE COUNTY				
DECEMBER, 1994				
IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION				
DESIGN SHEET NO. 5	OF 27	FILE NO. 27768	DESIGN NO. 694	
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		7	71

DESIGNED BY H.D. SERVER CHECKED BY R. RYSAVY
 DETAILED BY R. RYSAVY CADD FILE H70694.S05

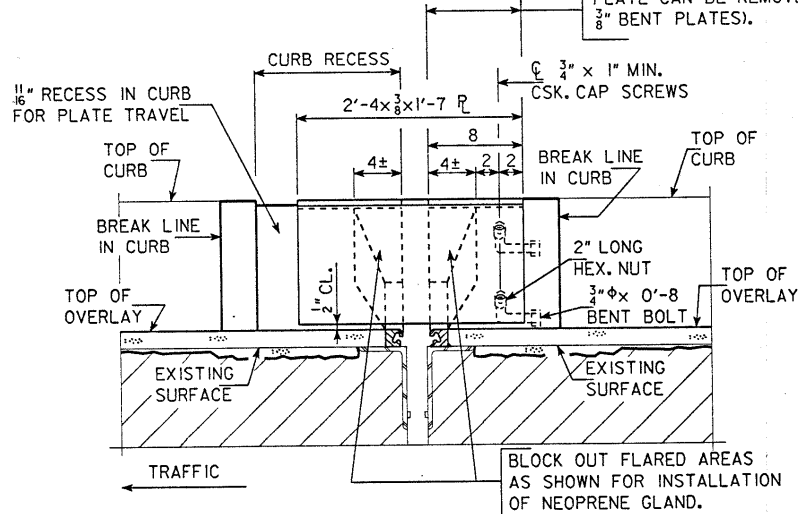
MUSCATINE COUNTY

PROJECT NUMBER

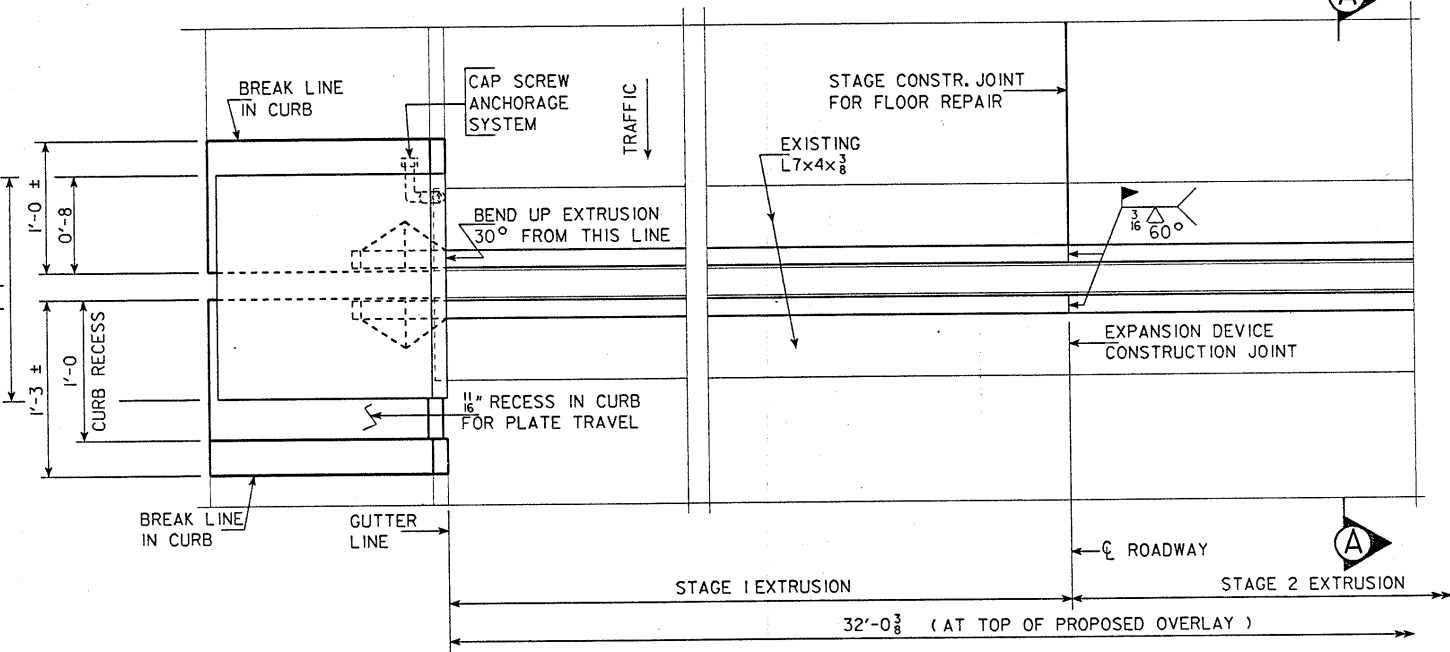
CONTRACTOR TO NOTE THAT THE CAP SCREW ANCHORAGE SYSTEM FOR THE 3/8" CURB PLATES ARE ALWAYS TO BE PLACED ON THE ONCOMING TRAFFIC SIDE.

THIS PORTION OF THE 3/8" BENT PLATE IS TO BE PAINTED WITH A COLORLESS OIL, OR SOME OTHER SATISFACTORY MEANS TO PREVENT CONCRETE FROM ADHERING TO THE PLATE SO THAT THE PLATE CAN BE REMOVED IF NECESSARY. (TYP. ALL 3/8" BENT PLATES).

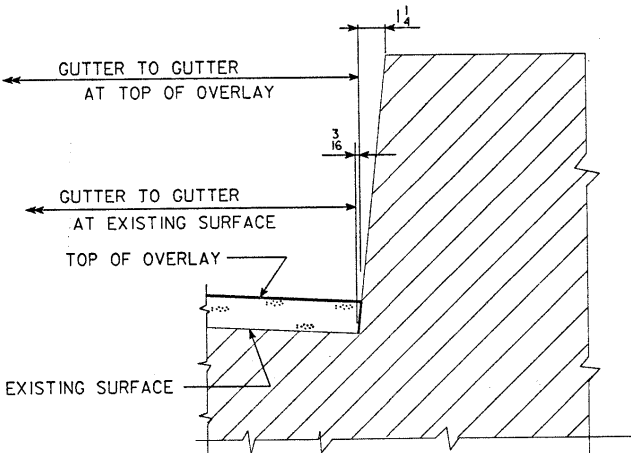
NOTE: IT IS INTENDED THAT THE 1/16" INCH RECESSED AREA BE FORMED SO THAT WHEN THE 3/8" BENT PLATE IS INSTALLED THE PLATE WILL BE ABLE TO MOVE FREELY IN THIS RECESSED AREA.



TYPICAL PART ELEVATION NEAR CURB

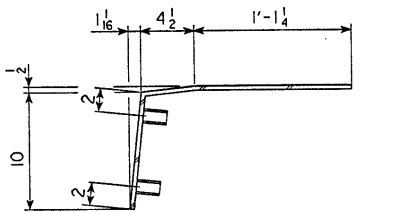


TYPICAL PLAN VIEW - EXPANSION DEVICE
(NOTE: CAST IN PLACE BARRIER RAIL NOT SHOWN.)

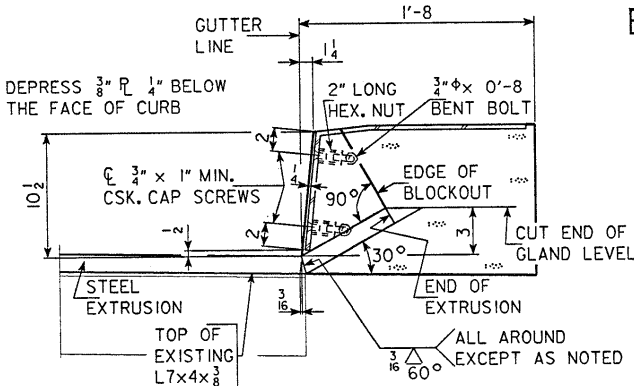


PART SECTION AT GUTTER

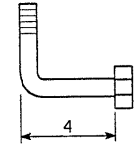
NOTE: THE EXPANSION DEVICE IS REQUIRED AT 12 LOCATIONS. ABUTMENTS 1 & 25, AND PIERS 4, 6, 15, 17, 19, 21 & 23 AND AT PANEL POINTS 3, 7, & 3' IN THE TRUSS SPAN.



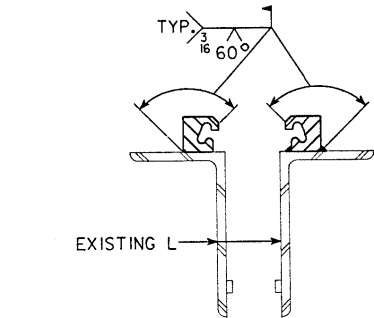
CURB R DETAIL



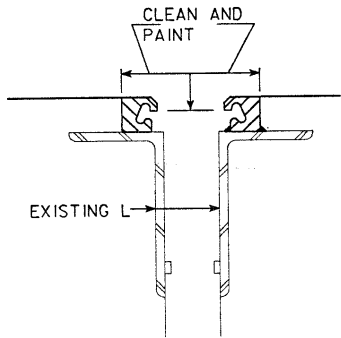
SECTION THRU CURB



BENT BOLT DETAIL



WELD DETAIL AT ROADWAY



PAINT DETAIL

EXPANSION DEVICE NOTES:

- THE CONTRACTOR SHALL SUBMIT FOR APPROVAL SHOP DRAWINGS OF THE EXPANSION DEVICE SHOWING LAYOUT AND MATERIAL TO BE USED.
- THE EXPANSION DEVICE IS TO BE PARALLEL TO GRADE.
- CAP SCREWS SHALL BE COUNTERSUNK 1/16" BELOW TOP OF THE PLATE.
- THE NEOPRENE GLAND IS TO BE PLACED AS ONE CONTINUOUS PIECE FROM END TO END OF THE STEEL EXTRUSIONS.
- THE MINIMUM GRADE OF STRUCTURAL STEEL FOR THE EXPANSION DEVICE SHALL BE ASTM A-36.
- THE NEOPRENE GLAND SHALL CONFORM TO ASTM D-2628 MODIFIED TO EXCLUDE RECOVERY TESTS AND COMPRESSION SET.
- BLOCKOUT DETAILS MAY BE ALTERED FROM THOSE SHOWN PROVIDED THE GLAND MAY BE INSTALLED AND REMOVED IF NECESSARY.
- THE CONTRACT UNIT PRICE BID FOR "STEEL EXTRUSION JOINT WITH NEOPRENE" SHALL BE FULL COMPENSATION FOR FURNISHING AND INSTALLING THE EXPANSION JOINTS. THIS WORK WILL CONSIST OF FURNISHING ALL REQUIRED MATERIALS AND THE INSTALLATION AND ADJUSTMENT OF THE EXPANSION JOINT IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. THE FURNISHING AND INSTALLATION OF ALL NECESSARY HARDWARE AND ACCESSORIES AS SUPPLIED BY THE EXPANSION JOINT MANUFACTURER ARE TO BE INCLUDED IN THIS WORK, INCLUDING THE ANCHORAGE SYSTEM AND ANY TEMPORARY ERECTION MATERIAL. ALL WORK AND MATERIALS FOR THE INSTALLATION OF THE EXPANSION JOINTS ARE TO COMPLY WITH THE WRITTEN RECOMMENDATIONS OF THE EXPANSION JOINT MANUFACTURER.
- SHOP AND FIELD SPLICES OF THE STEEL EXTRUSION WILL BE REQUIRED AT THE GUTTER LINES AND THE STAGE CONSTRUCTION JOINT, RESPECTIVELY. ALL PIECES SHALL BE JOINED WITH A PREQUALIFIED PARTIAL PENETRATION SINGLE GROOVE WELD, AND ALL SURFACES NOT IN CONTACT WITH CONCRETE ARE TO BE GROUND FLUSH. NO WELD SHALL BE PERMITTED IN THE INTERNAL SECTION OF THE EXTRUSION WHERE THE NEOPRENE GLAND IS TO BE LOCATED.
- FIELD WELDS ON GALVANIZED ITEMS SHALL BE COATED WITH A ZINC RICH PAINT APPROVED BY THE ENGINEER.
- SURFACES OF EXISTING EXPANSION DEVICE AS DETAILED IN THESE PLANS ARE TO BE CLEANED OF EXISTING CORROSION AND PAINT IN PREPARATION FOR FIELD WELDING. THE NEW STEEL EXTRUSION TO BE PAINTED SHALL BE CLEANED AND PAINTED AFTER FIELD WELDING TO THE EXISTING EXPANSION DEVICE.
- CURB PLATES, INCLUDING THEIR ANCHORAGE SYSTEMS, SHALL BE GALVANIZED AFTER WELDING.
- THE MATERIAL USED FOR THE CURB PLATES IS TO BE ASTM A-36 STEEL. THE BOLTS SHALL MEET THE REQUIREMENTS OF ASTM A-307.
- SEE GENERAL NOTES FOR CLEANING AND PAINTING OF NEW STEEL EXTRUSIONS.
- THE 3/8" PLATES AT THE CURBS AND THEIR ANCHORAGE SYSTEMS SHALL BE INCLUDED IN THE BID ITEM "STRUCTURAL STEEL".
- EXISTING COMPRESSION SEALS ARE TO BE REMOVED.

TABLE OF APPROVED EXPANSION DEVICES

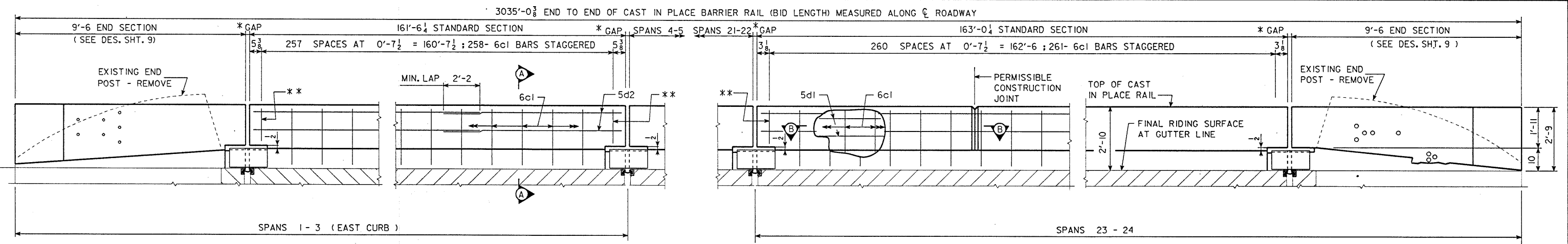
MANUFACTURER	TYPE OF STEEL EXTRUSION	NEOPRENE GLAND
WATSON-BOWMAN & ACME CORP.	E1	SE-400
D.S. BROWN	SSE 2	A2-400
APPROVED EQUAL		

DESIGN FOR REPAIRS TO
MISSISSIPPI RIVER BRIDGE
AT
MUSCATINE IOWA
EXPANSION DEVICE DETAILS

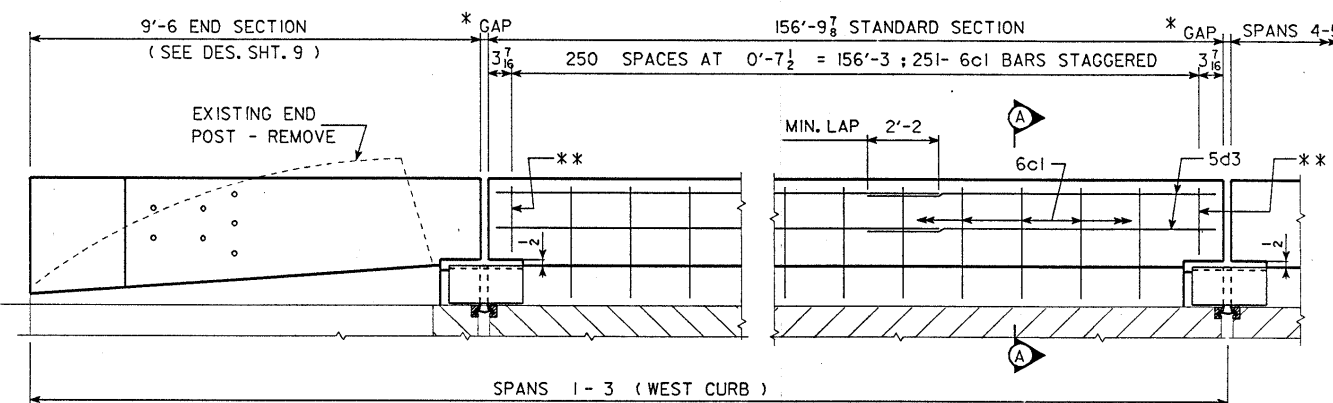
DECEMBER, 1994

MUSCATINE COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION
DESIGN SHEET NO. 6 OF 27 FILE NO. 27768 DESIGN NO. 694



ELEVATION OF CAST IN PLACE BARRIER RAIL



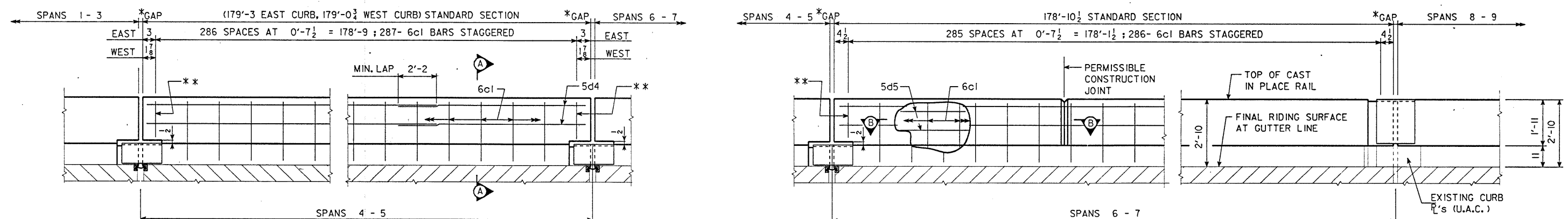
ELEVATION OF CAST IN PLACE BARRIER RAIL

EPOXY REINF. STEEL-BOTH RAILS SPANS 1-3					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	509	2'-8	2039
5d2	STANDARD RAIL, LONGIT.	—	20	34'-0	709
5d3	STANDARD RAIL, LONGIT.	—	20	33'-1	690
TOTAL (LBS.)					3438

EPOXY REINF. STEEL-ONE RAIL SPANS 23-24					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	261	2'-8	1046
5d1	STANDARD RAIL, LONGIT.	—	20	34'-4	716
TOTAL (LBS.)					1762

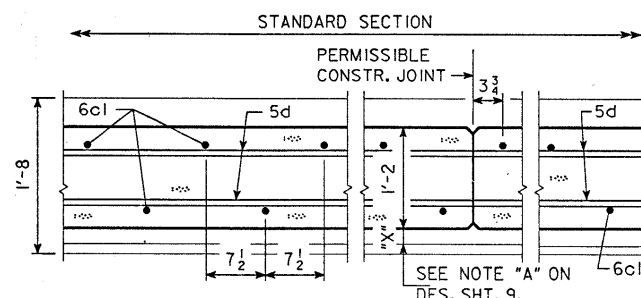
** FIELD CUT 6c1 BARS AS REQUIRED THAT INTERFERE WITH NOTCH AND/OR CURB PLATE AND COAT CUT END WITH EPOXY PATCHING MATERIAL.

* NOTE: MATCH EXISTING GAP IN CURBS FOR GAP IN BARRIER RAIL.



ELEVATION OF CAST IN PLACE BARRIER RAIL

EPOXY REINF. STEEL-ONE RAIL SPANS 4-5					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	287	2'-8	1150
5d4	STANDARD RAIL, LONGIT.	—	20	37'-7	784
TOTAL (LBS.)					1934

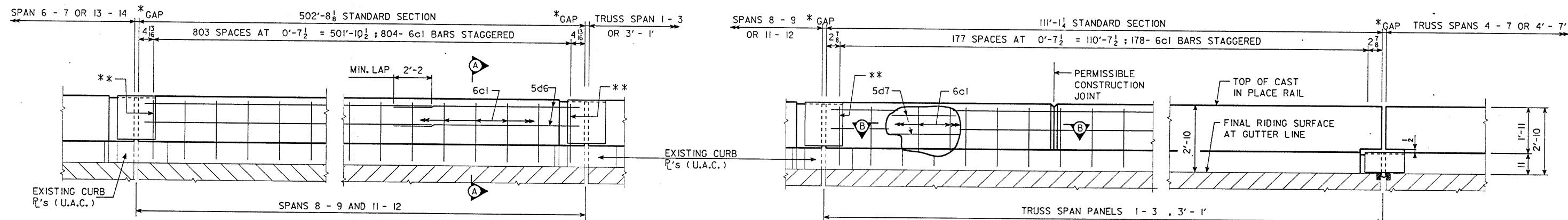


SECTION B-B
(SHOWING 6c1 PLACEMENT)

EPOXY REINF. STEEL-ONE RAIL SPANS 6-7					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	286	2'-8	1145
5d5	STANDARD RAIL, LONGIT.	—	20	37'-6	782
TOTAL (LBS.)					1927

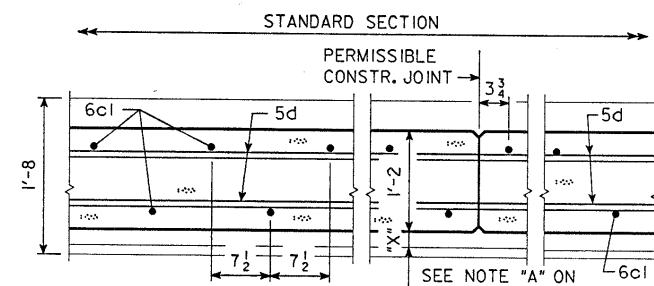
FOR SECTION A-A SEE DESIGN SHEET 9.
FOR ESTIMATED BARRIER RAIL QUANTITIES AND OTHER DETAILS, SEE DESIGN SHEET 10.

DESIGN FOR REPAIRS TO
MISSISSIPPI RIVER BRIDGE
AT
MUSCATINE IOWA
CAST IN PLACE BARRIER RAIL DETAILS
DECEMBER, 1994
MUSCATINE COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION
DESIGN SHEET NO. 7 OF 27 FILE NO. 27768 DESIGN NO. 694



ELEVATION OF CAST IN PLACE BARRIER RAIL

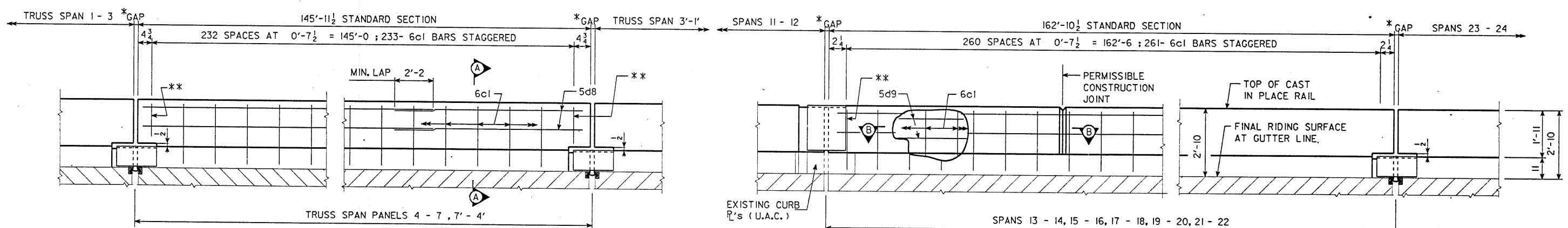
EPOXY REINF. STEEL-ONE RAIL SPANS 8-9 AND 11-12					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	804	2'-8	3221
5d6	STANDARD RAIL, LONGIT.	—	56	37'-11	2215
TOTAL (LBS.)					5436



SECTION B-B
(SHOWING 6c1 PLACEMENT)

* NOTE: MATCH EXISTING GAP IN CURB
FOR GAP IN BARRIER RAIL.

EPOXY REINF. STEEL-ONE RAIL TRUSS SPAN PANELS 1-3 AND 3'-1'					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	178	2'-8	713
5d7	STANDARD RAIL, LONGIT.	—	12	38'-5	481
TOTAL (LBS.)					1194



ELEVATION OF CAST IN PLACE BARRIER RAIL

EPOXY REINF. STEEL-ONE RAIL TRUSS SPAN PANELS 4-7					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	233	2'-8	933
5d8	STANDARD RAIL, LONGIT.	—	16	38'-1	636
TOTAL (LBS.)					1569

** FIELD CUT 6c1 BARS AS REQUIRED
THAT INTERFERE WITH NOTCH AND/OR
CURB PLATE AND COAT CUT END WITH
EPOXY PATCHING MATERIAL.

EPOXY REINF. STEEL-ONE RAIL SPANS 13-14, 15-16, 17-18, 19-20, 21-22					
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	—	261	2'-8	1046
5d9	STANDARD RAIL, LONGIT.	—	20	34'-3	714
TOTAL (LBS.)					1760

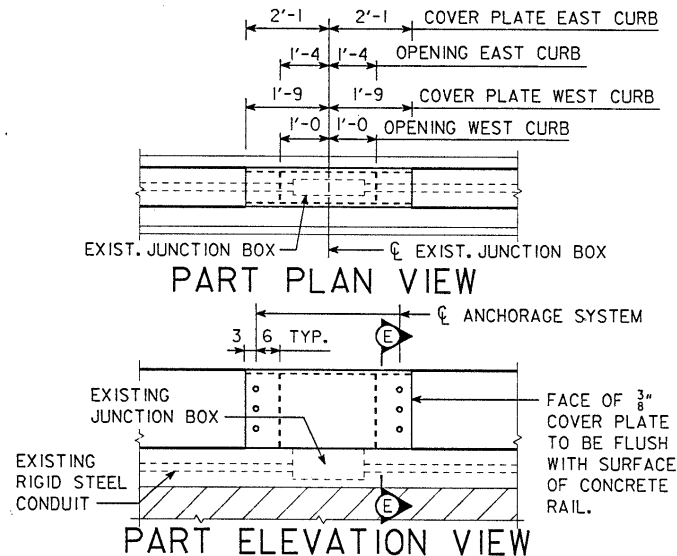
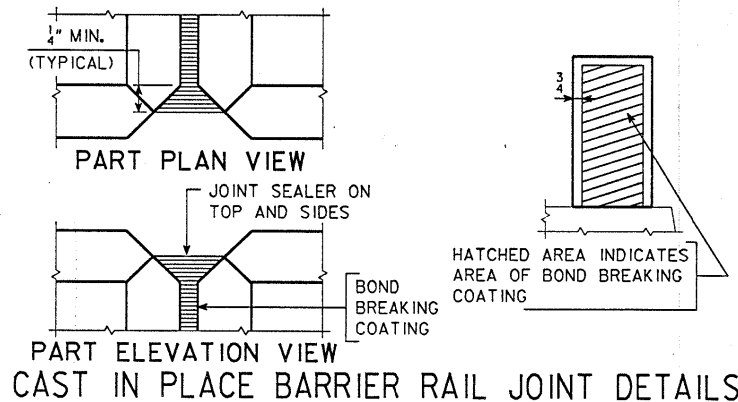
FOR SECTION A-A SEE DESIGN SHEET 9.
FOR ESTIMATED BARRIER RAIL QUANTITIES
AND OTHER DETAILS, SEE DESIGN SHEET 10.

DESIGN FOR REPAIRS TO
MISSISSIPPI RIVER BRIDGE
AT
MUSCATINE IOWA
CAST IN PLACE BARRIER RAIL DETAILS
DECEMBER, 1994
MUSCATINE COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION
DESIGN SHEET NO. 8 OF 27 FILE NO. 27768 DESIGN NO. 694

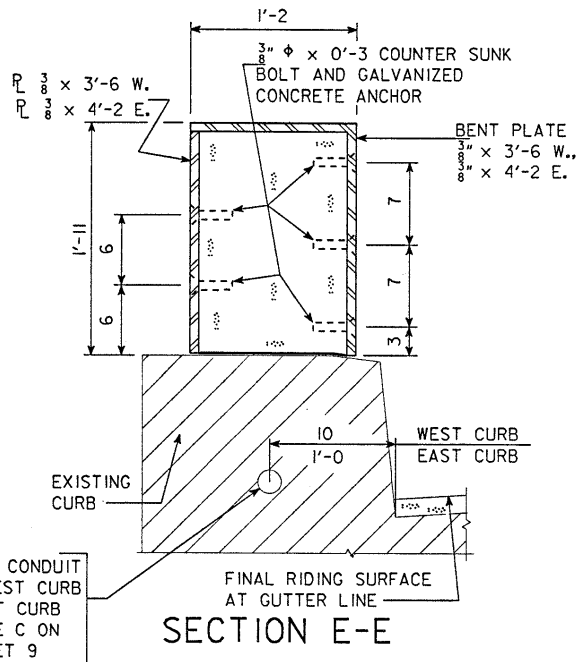
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		10	41

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 3/4" 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.
THE PRICE BID FOR "REMOVAL OF EXISTING HANDRAIL" SHALL INCLUDE ALL COSTS ASSOCIATED WITH DISMANTLING THE EXISTING ALUMINUM HANDRAIL (APPROX. 6039 L.F. AND 648 POSTS). THE RAILS AND POSTS ARE TO BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE BY THE CONTRACTOR. THE BID ITEM SHALL ALSO INCLUDE ALL COSTS ASSOCIATED WITH THE REMOVAL OF THE EXISTING CONCRETE END POSTS AND THE CUTTING OFF AND PAINTING OF THE EXISTING RAIL POST ANCHOR BOLTS IF REQUIRED.
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 THE CONTRACTOR AT NO COST TO THE STATE.
EXISTING BRIDGE RAIL IS NOT TO BE REMOVED UNTIL AUTHORIZED BY THE ENGINEER.

DOWEL SETTING NOTE:
THE 60 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 DOWELS:
A. EPOXY GROUT SYSTEM IN ACCORDANCE WITH STANDARD SPECIFICATIONS ARTICLE 2301.12 AND CURRENT SUPPLEMENTAL SPECIFICATIONS OF THE IOWA D.O.T. HIGHWAY DIVISION.
B. HYDRAULIC CEMENT GROUT SYSTEMS. DRILLED HOLES ARE TO BE 2 1/2 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 CAST IN PLACE RAIL SHALL BE GAPPED AT EXISTING JUNCTION BOXES AS DETAILED. THE VERTICAL BARS SHALL BE SHIFTED AS REQUIRED AND THE LONGITUDINAL BARS SHALL BE FIELD CUT AS REQUIRED. CUT ENDS OF LONGITUDINAL BARS SHALL BE PATCHED WITH EPOXY. A 3/8\"/>



REINFORCING STEEL PLACEMENT SUMMARY TWO RAILS		
SECTION	QUANTITY	TOTAL
SPANS 1 - 3	BOTH RAILS	3438
SPANS 4 - 5	2 @ 1934	3868
SPANS 6 - 7	2 @ 1927	3854
SPANS 8 - 9, 11 - 12	4 @ 5436	21,744
TRUSS SPAN PANELS 1 - 3, 3' - 1'	4 @ 1194	4776
TRUSS SPAN PANELS 4 - 7, 7' - 4'	4 @ 1569	6276
SPANS 13-14, 15-16, 17-18, 19-20, 21-22	10 @ 1760	17,600
SPANS 23-24	2 @ 1762	3524
9'-6 END SECTION	4 @ 129	516
TOTAL (LBS.)		65,596

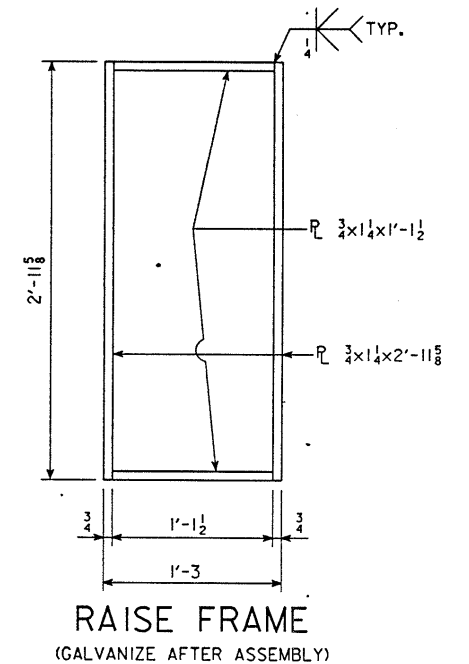
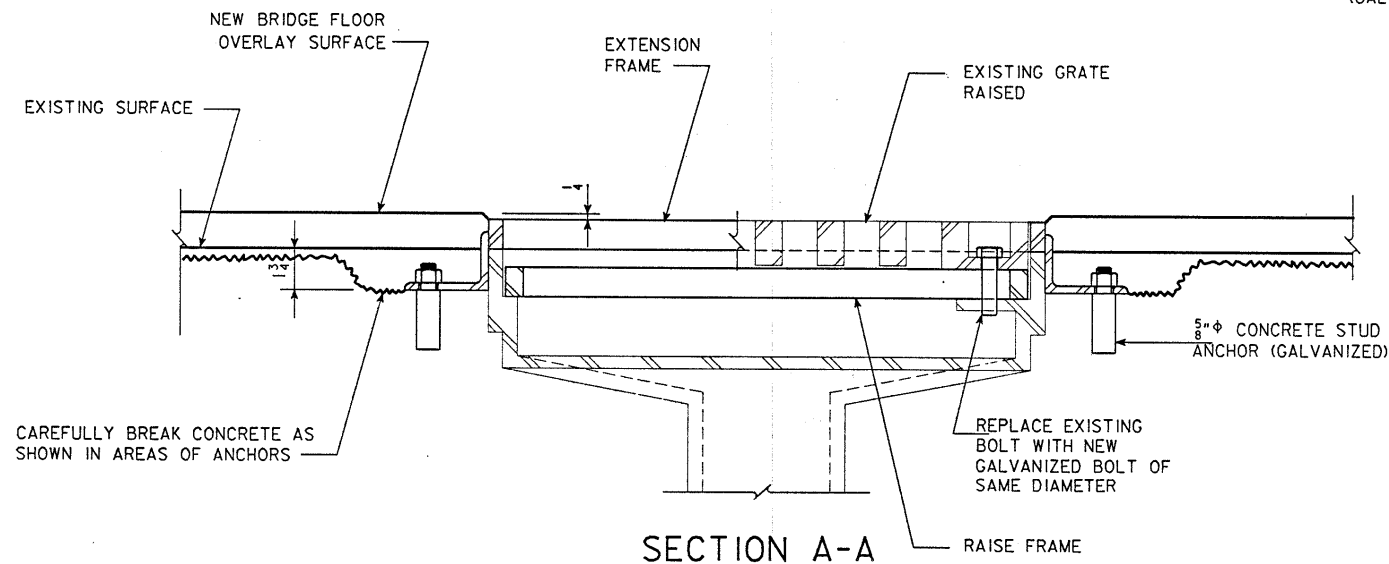
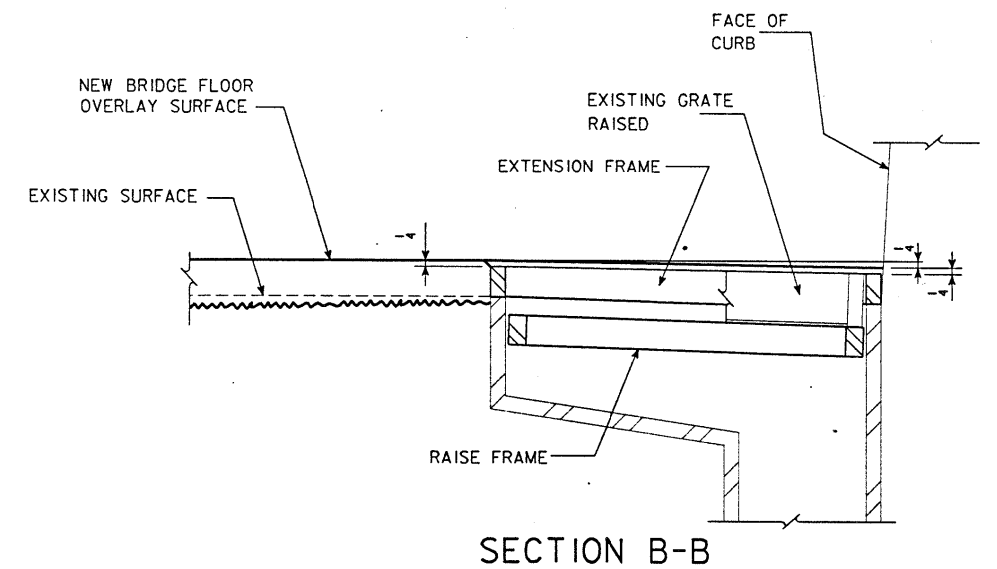
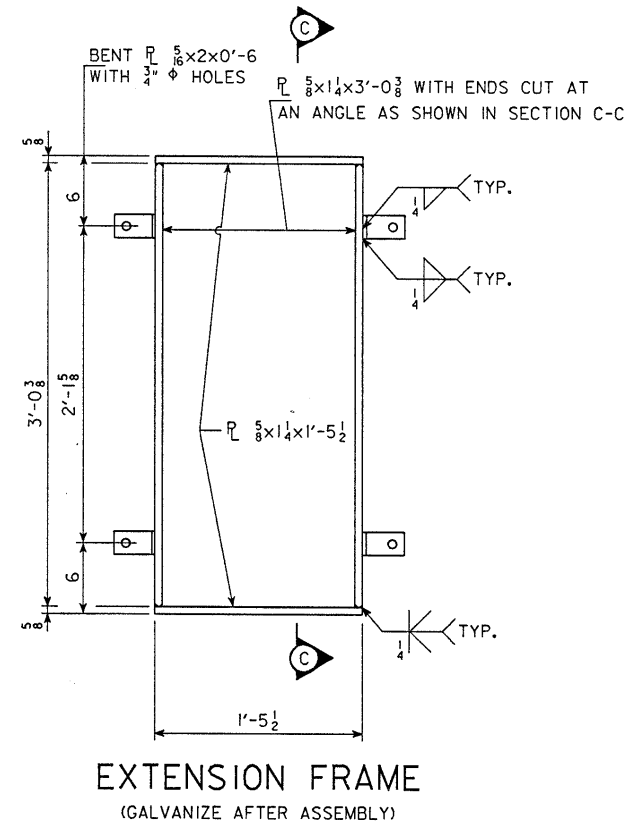
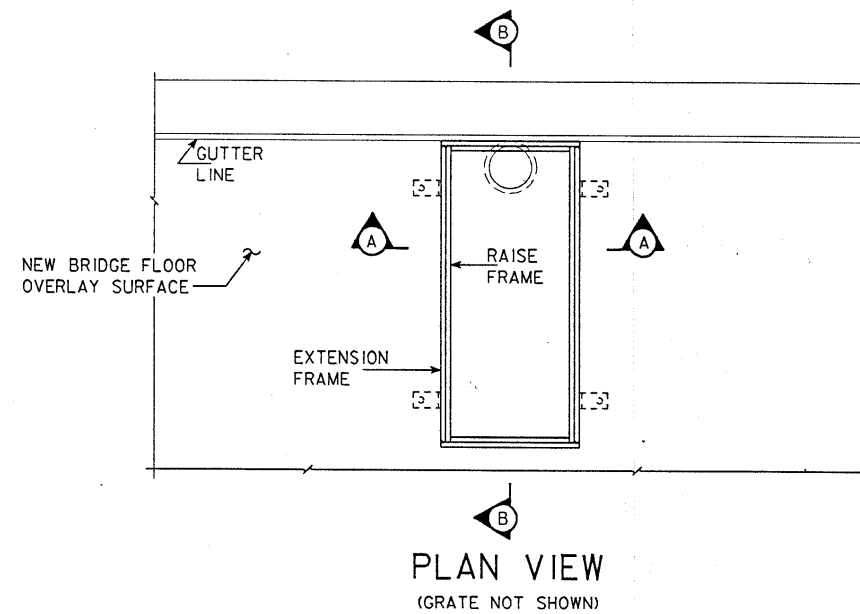
CONCRETE PLACEMENT SUMMARY TWO RAILS		
SECTION	QUANTITY	TOTAL
SPANS 1 - 3	E. @ 13.37 W. @ 12.98	26.4
SPANS 4 - 5	E. @ 14.84 W. @ 14.83	29.7
SPANS 6 - 7	2 @ 14.81	29.6
SPANS 8 - 9, 11 - 12	4 @ 41.62	166.5
TRUSS SPAN PANELS 1 - 3, 3' - 1'	4 @ 9.20	36.8
TRUSS SPAN PANELS 4 - 7, 7' - 4'	4 @ 12.09	48.4
SPANS 13-14, 15-16, 17-18, 19-20, 21-22	10 @ 13.49	134.9
SPANS 23-24	2 @ 13.50	27.0
9'-6 END SECTION	4 @ 1.03	4.1
TOTAL (CU.YDS.)		503.4

STANDARD SECTIONS ARE 0.0828 CU.YDS. PER LIN. FT.

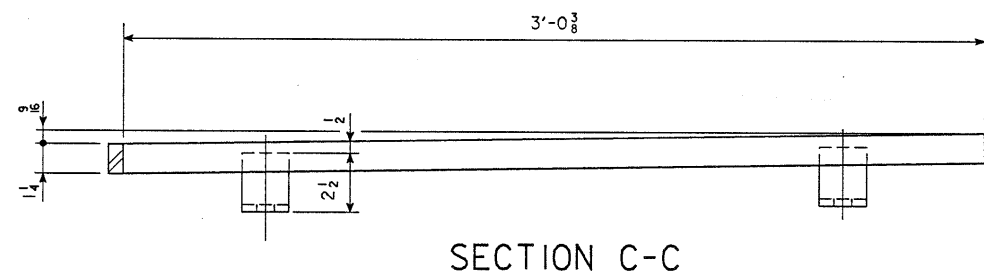
ESTIMATED QUANTITIES - TWO RAILS		
ITEM	UNITS	QUANTITY
CONCRETE BARRIER RAIL, (CAST-IN-PLACE)	LIN.FT.	6070.1
REMOVAL OF EXISTING HANDRAIL	L.S.	\$7,000.00

DESIGN FOR REPAIRS TO
MISSISSIPPI RIVER BRIDGE
AT
MUSCATINE IOWA
CAST IN PLACE BARRIER RAIL DETAILS
DECEMBER, 1994
MUSCATINE COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION
DESIGN SHEET NO. 10 OF 27 FILE NO. 27768 DESIGN NO. 694

STATE	REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		12	41



DRAIN RAISING NOTES:
 ALL DRAIN GRATES IN THE STEEL GIRDER SPANS AND THE TRUSS SPAN SHALL BE RAISED AS NOTED AND SHOWN. THERE ARE 28 DRAIN GRATES TO BE RAISED.
 THE RAISE FRAME AND EXTENSION FRAME SHALL BE GALVANIZED AFTER FABRICATION. ALL ANCHOR BOLTS, BOLTS AND NUTS SHALL BE GALVANIZED.
 THE MINIMUM GRADE OF STRUCTURAL STEEL SHALL BE ASTM A-36. WEIGHT OF RAISE FRAME AND EXTENSION FRAME IS INCLUDED IN "STRUCTURAL STEEL" BID ITEM.



DESIGN FOR REPAIRS TO
MISSISSIPPI RIVER BRIDGE
 AT
MUSCATINE IOWA
 REPAIR DETAILS

DECEMBER, 1994

MUSCATINE COUNTY

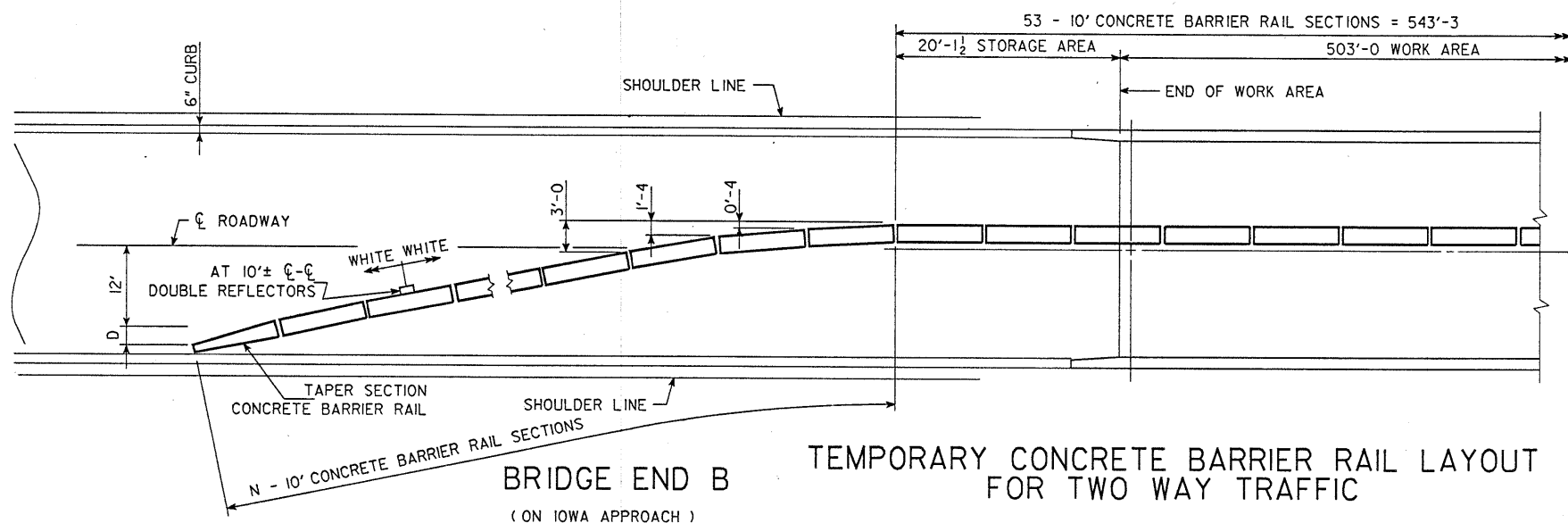
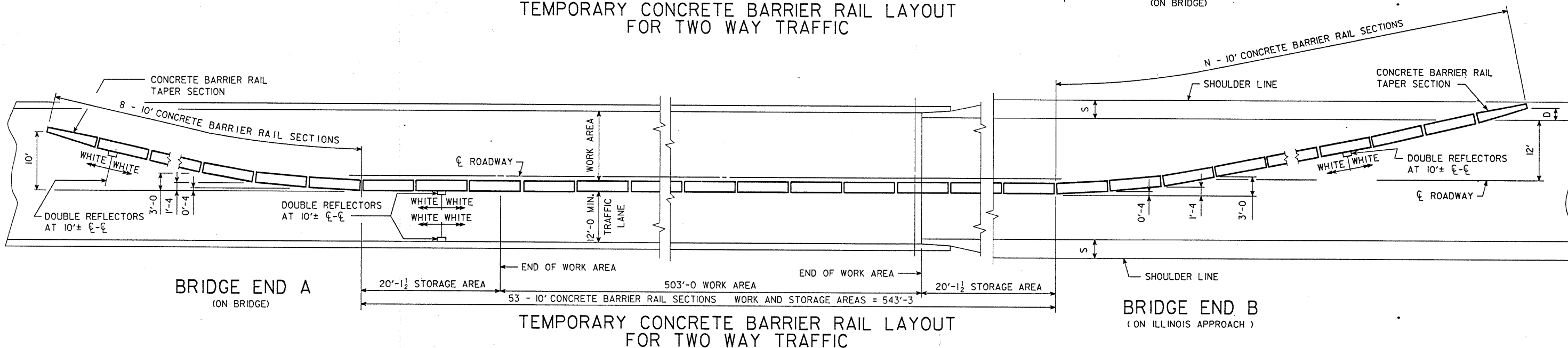
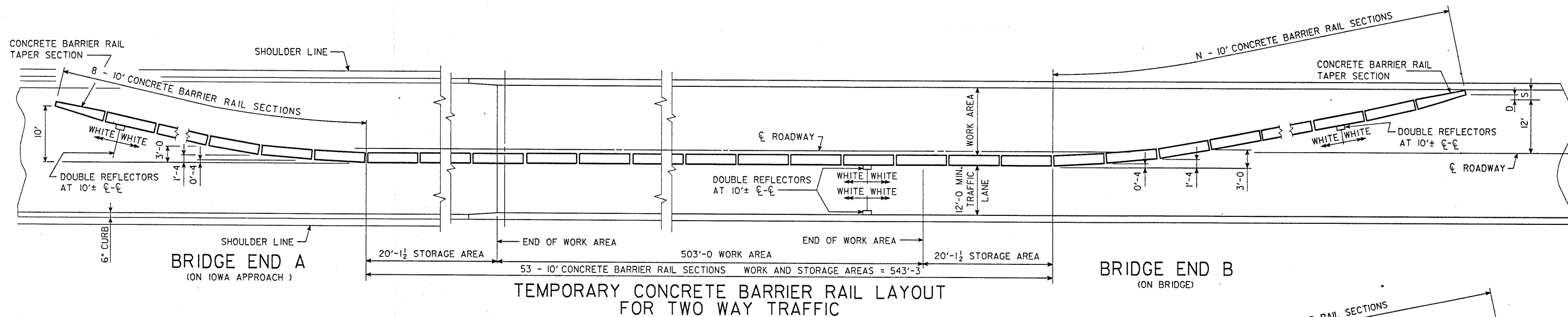
IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION
 DESIGN SHEET NO. 11 OF 27 FILE NO. 27768 DESIGN NO. 694

DESIGNED BY H.D. SERVER CHECKED BY
 DETAILED BY R. RYSAVY CADD FILE H70694.S11

MUSCATINE COUNTY

PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		13	41



BRIDGE END "B" ON ILLINOIS APPROACH			BRIDGE END "B" ON BRIDGE			BRIDGE END "B" ON IOWA APPROACH		
SHOULDER WIDTH (S)	NO. OF BARRIER RAIL SECT. (N)	D	SHOULDER WIDTH (S)	NO. OF BARRIER RAIL SECT. (N)	D	SHOULDER WIDTH (S)	NO. OF BARRIER RAIL SECT. (N)	D
10 FT.	16	9 FT.	4 FT.	13	3.5 FT.	4.4 FT.	13	3.9 FT.

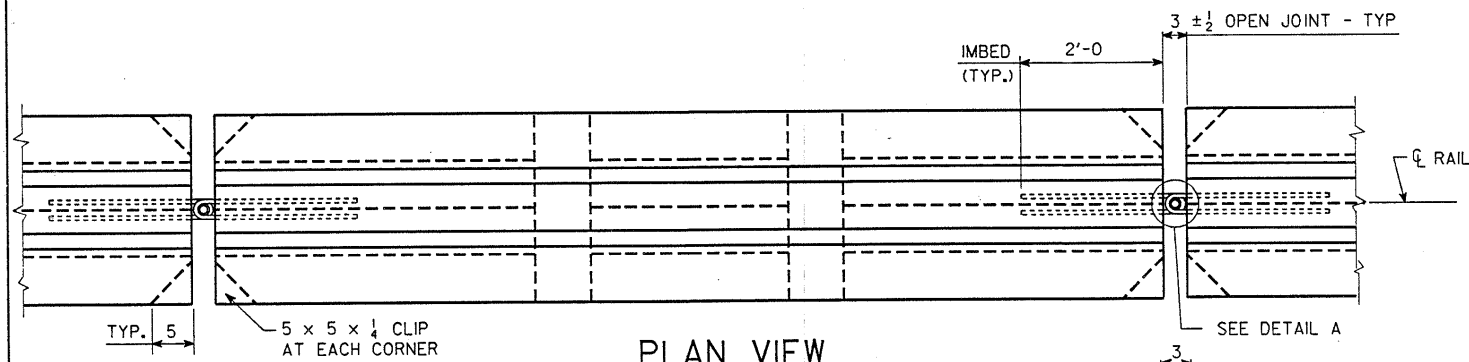
DESIGN FOR REPAIRS TO
MISSISSIPPI RIVER BRIDGE
 AT
MUSCATINE IOWA
TEMPORARY BARRIER RAIL DETAILS
 DECEMBER, 1994
MUSCATINE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION
 DESIGN SHEET NO. 12 OF 27 FILE NO. 27768 DESIGN NO. 694

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		14	41

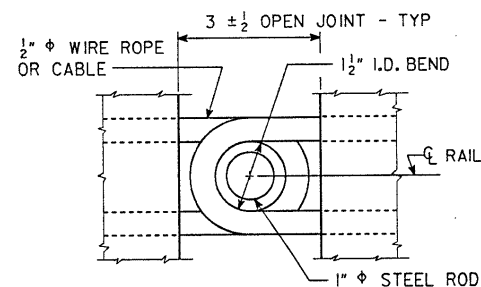
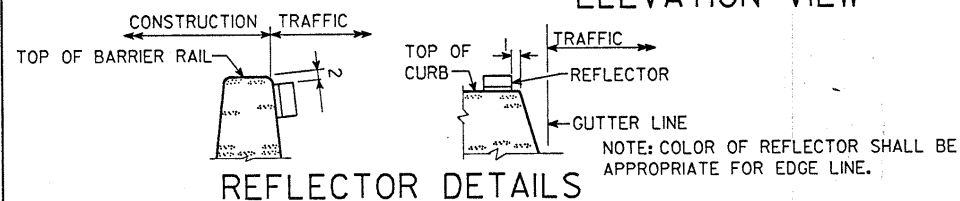
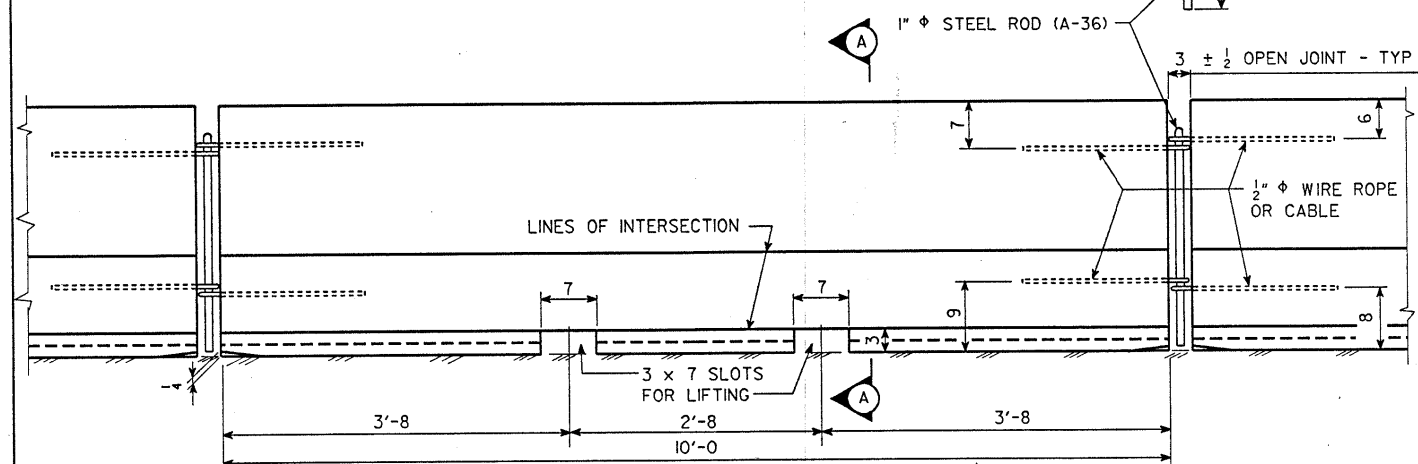
DESIGNED BY H.D.SERVER CHECKED BY
 DETAILED BY R.RYSÄVY CADD FILE H70694.S12

MUSCATINE COUNTY

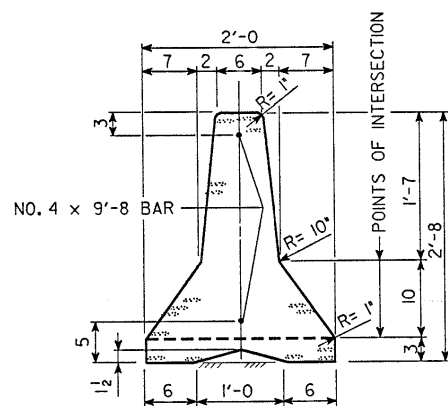
PROJECT NUMBER



NOTE:
COST OF 1" ϕ STEEL RODS AND 1/2" ϕ WIRE ROPE OR CABLE 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.

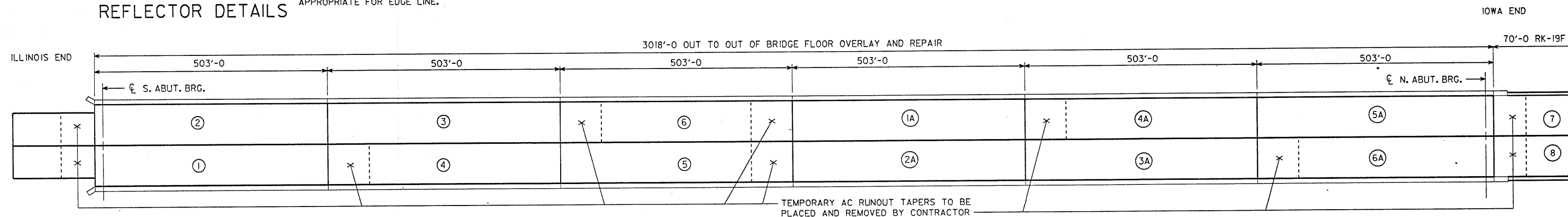


WIRE ROPE OR CABLE TO BE 1/2" ϕ , WITH A MINIMUM BREAKING STRENGTH OF 20,000 POUNDS.



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

NOTES:
BARRIER IS TO BECOME THE PROPERTY OF THE CONTRACTOR AT THE COMPLETION OF WORK AND REMOVED FROM THE SITE BY HIM.
NO STATIONARY EQUIPMENT OR CONSTRUCTION MATERIAL IS TO BE PLACED IN FRONT OF THE TEMPORARY BARRIER RAIL AT ANY TIME.
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 ON THESE PLANS FOR TRAFFIC CONTROL TO BE ESTABLISHED IN CONJUNCTION WITH THE TEMPORARY BARRIER RAIL.
SURFACE FINISH FOR TEMPORARY CONCRETE BARRIER RAIL SHALL BE IN ACCORDANCE WITH ARTICLE 2403.21B OF THE STANDARD SPECIFICATIONS.
WORK AREAS ① AND ①A ARE TO BE PERFORMED SIMULTANEOUSLY, ② AND ②A ETC. THE CONTRACTOR WILL NOT BE ALLOWED TO SHIFT TRAFFIC TO START WORK ON ANOTHER WORK AREA UNTIL BOTH WORK AREAS IN THE SAME SEQUENCE HAVE BEEN COMPLETED. FOR THE "WORK AREA SEQUENCE DIAGRAM" SHOWN WORK AREA ① REQUIRES 16 CONCRETE BARRIER RAIL SECTIONS FOR BRIDGE END "B" ON THE ILLINOIS APPROACH PAVEMENT. WORK AREA ⑤A REQUIRES 13 CONCRETE BARRIER RAIL SECTIONS FOR BRIDGE END "B" ON THE IOWA APPROACH PAVEMENT. ALL OTHER WORK AREAS REQUIRE 13 CONCRETE BARRIER RAIL SECTIONS FOR BRIDGE END "B" ON THE BRIDGE. THE CONTRACTOR MAY START AT EITHER END AND EITHER SIDE OF THE BRIDGE BUT SHALL WORK IN SEQUENCES SIMILAR TO THE ORDER INDICATED ABOVE. THE TEMPORARY A.C. RUNOUT TAPERS REQUIRED AT THE END OF WORK AREAS ③, ①A, ②A, ③A, ⑤A
⑥A, ① & ② ARE TO BE PLACED AND REMOVED BY THE CONTRACTOR. WORK AREAS ⑦ & ⑧ ARE FOR THE PLACING OF A 70'-0 MODIFIED RK-19F BRIDGE APPROACH ON THE IOWA SIDE. THIS IS TO BE DONE AFTER COMPLETION OF ALL BRIDGE FLOOR OVERLAY AND REPAIR. 32 TEMPORARY BARRIER RAIL SECTIONS WILL BE REQUIRED FOR THIS CONSTRUCTION WHICH CONSISTS OF 11 SECTIONS = 112'-9 FOR WORK AND STORAGE, 8 SECTIONS FOR BRIDGE END A AND 13 SECTIONS FOR BRIDGE END B AS SHOWN FOR ON IOWA APPROACH OR ON BRIDGE.
FOR LAYOUT OF BRIDGE END "B" SEE DESIGN SHEET 12.
35 TEMPORARY BARRIER RAIL SECTIONS WILL BE REQUIRED FOR PLACEMENT OF 70' ACC OVERLAY OF ILLINOIS APPROACH. THIS CONSISTS OF 11 SECTIONS = 112'-9 FOR WORK AND STORAGE, 8 SECTIONS FOR BRIDGE END A AND 16 SECTIONS FOR BRIDGE END B ON ILLINOIS APPROACH.



WORK AREA SEQUENCE DIAGRAM
(ENCIRCLED NUMBERS INDICATE WORK AREAS)

ESTIMATED QUANTITIES	
ITEM	AMOUNT
TEMPORARY BARRIER RAIL, FURNISH ONLY	1500
TEMPORARY BARRIER RAIL, PLACE ONLY	9460
	10,250 L.F.

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

DESIGN FOR REPAIRS TO
MISSISSIPPI RIVER BRIDGE
AT
MUSCATINE IOWA
TEMPORARY BARRIER RAIL-CONCRETE
DECEMBER, 1994
MUSCATINE COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION
DESIGN SHEET NO. 13 OF 27 FILE NO. 27768 DESIGN NO. 694

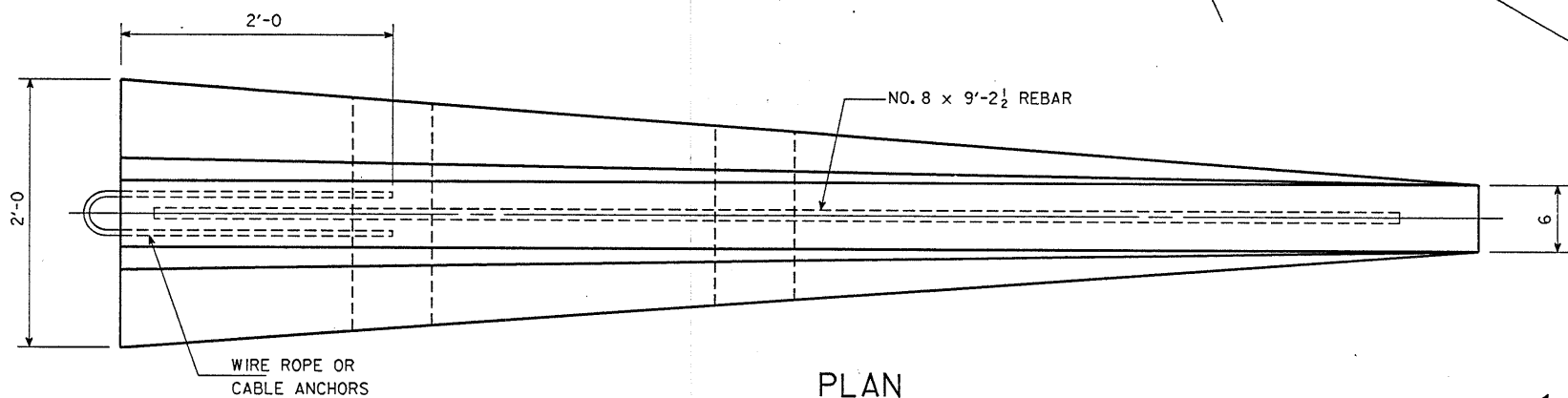
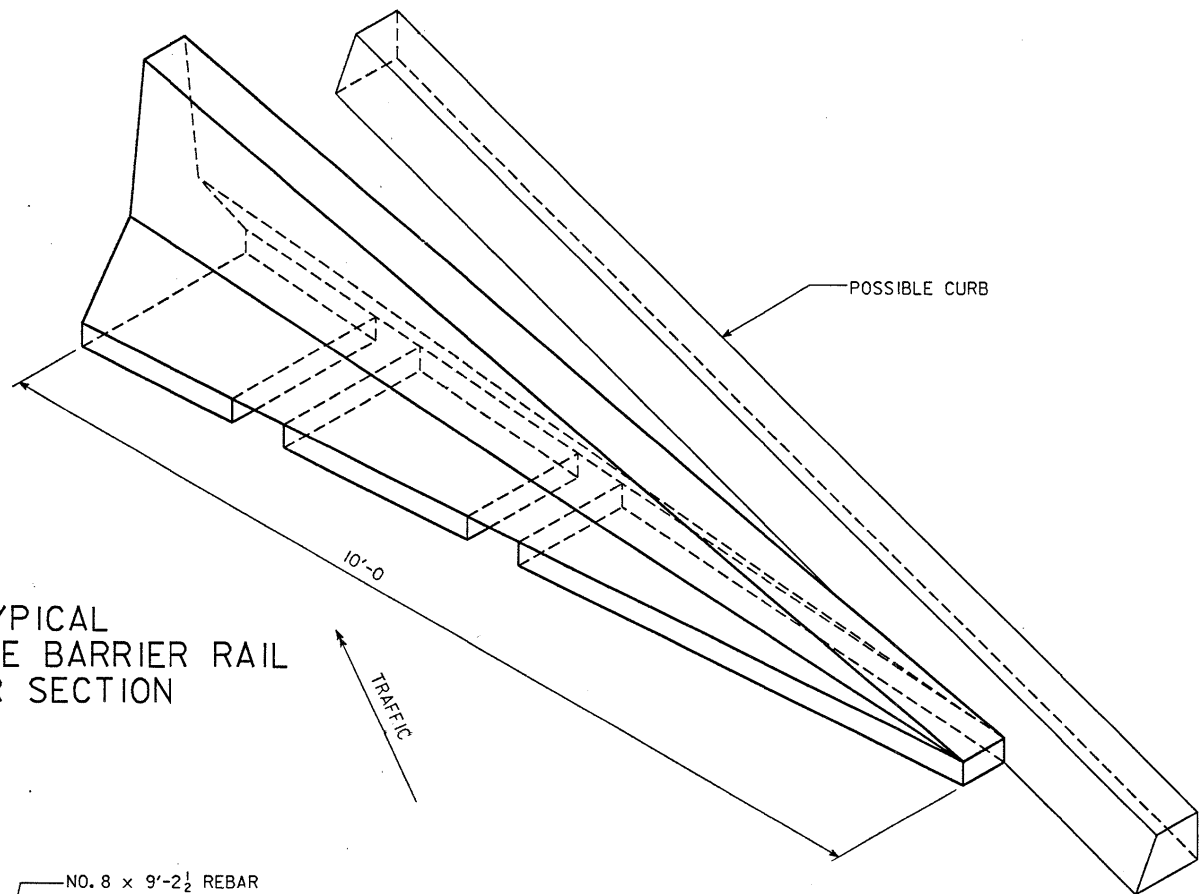
STATE	FWHA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		15	41

GENERAL NOTES:

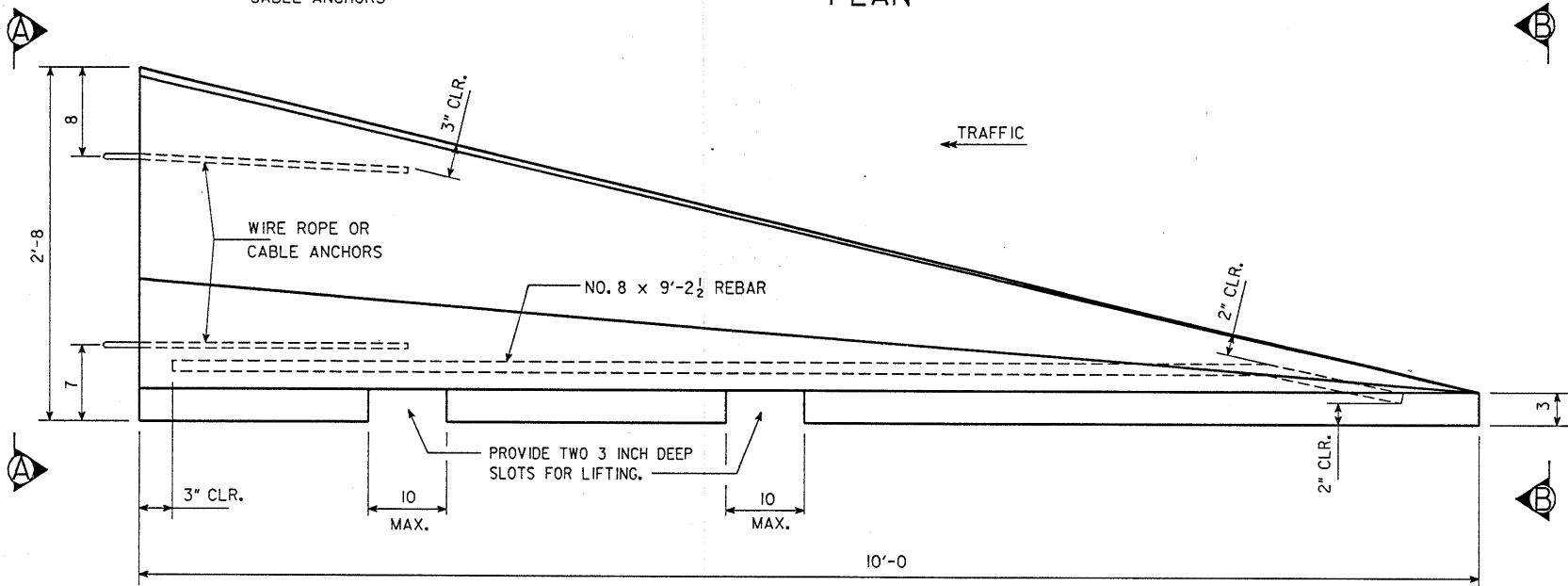
DETAILS SHOWN HEREON ARE FOR THE CONSTRUCTION OF A PRECAST CONCRETE BARRIER RAIL TAPER SECTION. DETAILS SHOWN ARE TYPICAL. ALTERNATE DESIGN DETAILS MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

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.

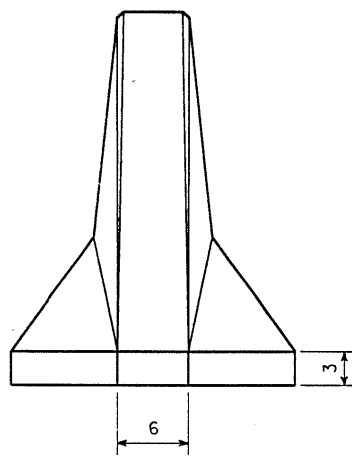
TYPICAL
CONCRETE BARRIER RAIL
TAPER SECTION



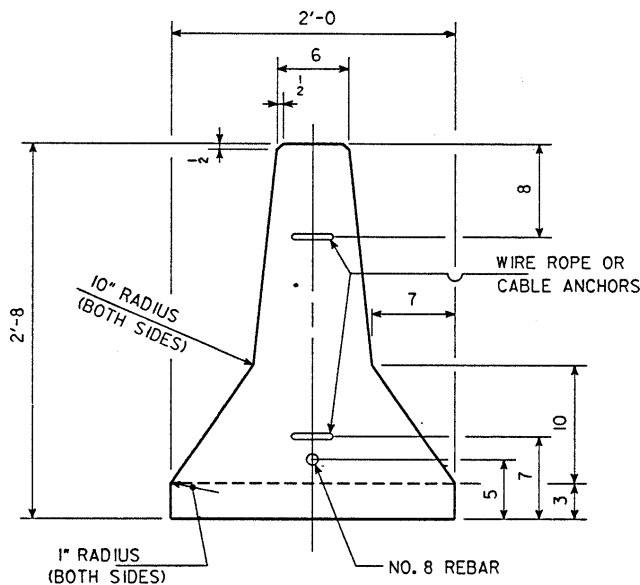
PLAN



SIDE ELEVATION



FRONT VIEW B-B



END VIEW A-A

DESIGN FOR REPAIRS TO
MISSISSIPPI RIVER BRIDGE
AT
MUSCATINE IOWA
CONCRETE BARRIER RAIL TAPER SECTION
DECEMBER, 1994
MUSCATINE COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - PROJECT DEVELOPMENT DIVISION
DESIGN SHEET NO. 14 OF 27 FILE NO. 27768 DESIGN NO. 694

HSTD1034B--GJP; THIS SHEET ISSUED, DEVICE : ZHAH200.51 ARCH. TAPE NO. 9 DATE 10-12-89
REVISED: 6-21-93 - LIFTING SLOT DETAILS CHANGED.

DESIGNED BY H.D. SERVER
CHECKED BY R. RYSAVY
CADD FILE H70694.S14

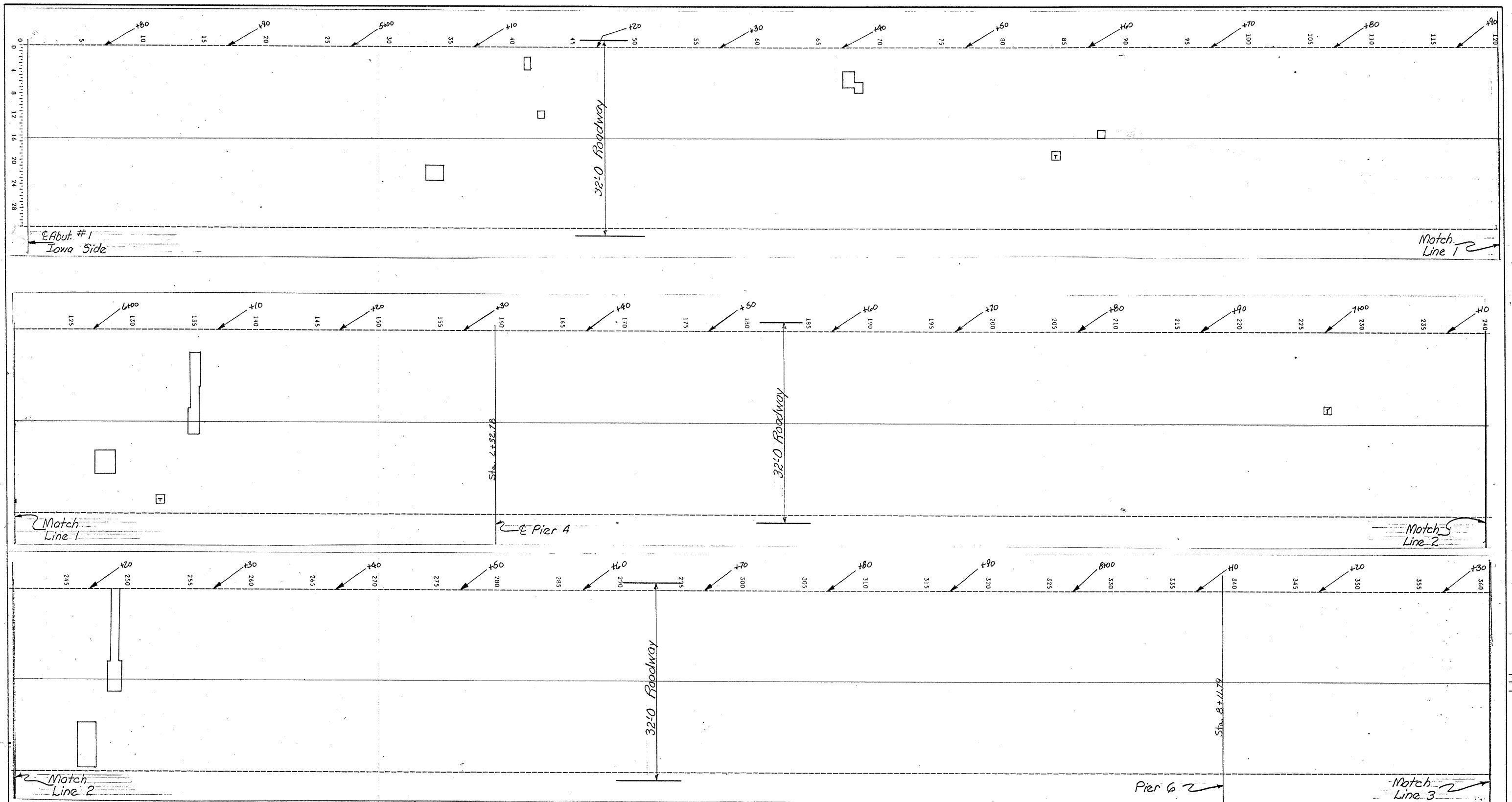
CONCRETE BARRIER RAIL TAPER SECTION

STANDARD 1034B

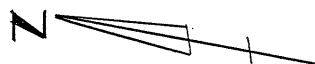
MUSCATINE COUNTY

PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		16	41



SURVEY PLOT
(Dated: 9-15-93)



DESIGN FOR REPAIRS TO
MISSISSIPPI RIVER BRIDGE
AT
MUSCATINE IOWA
SURVEY PLOT

November, 1993

MUSCATINE COUNTY

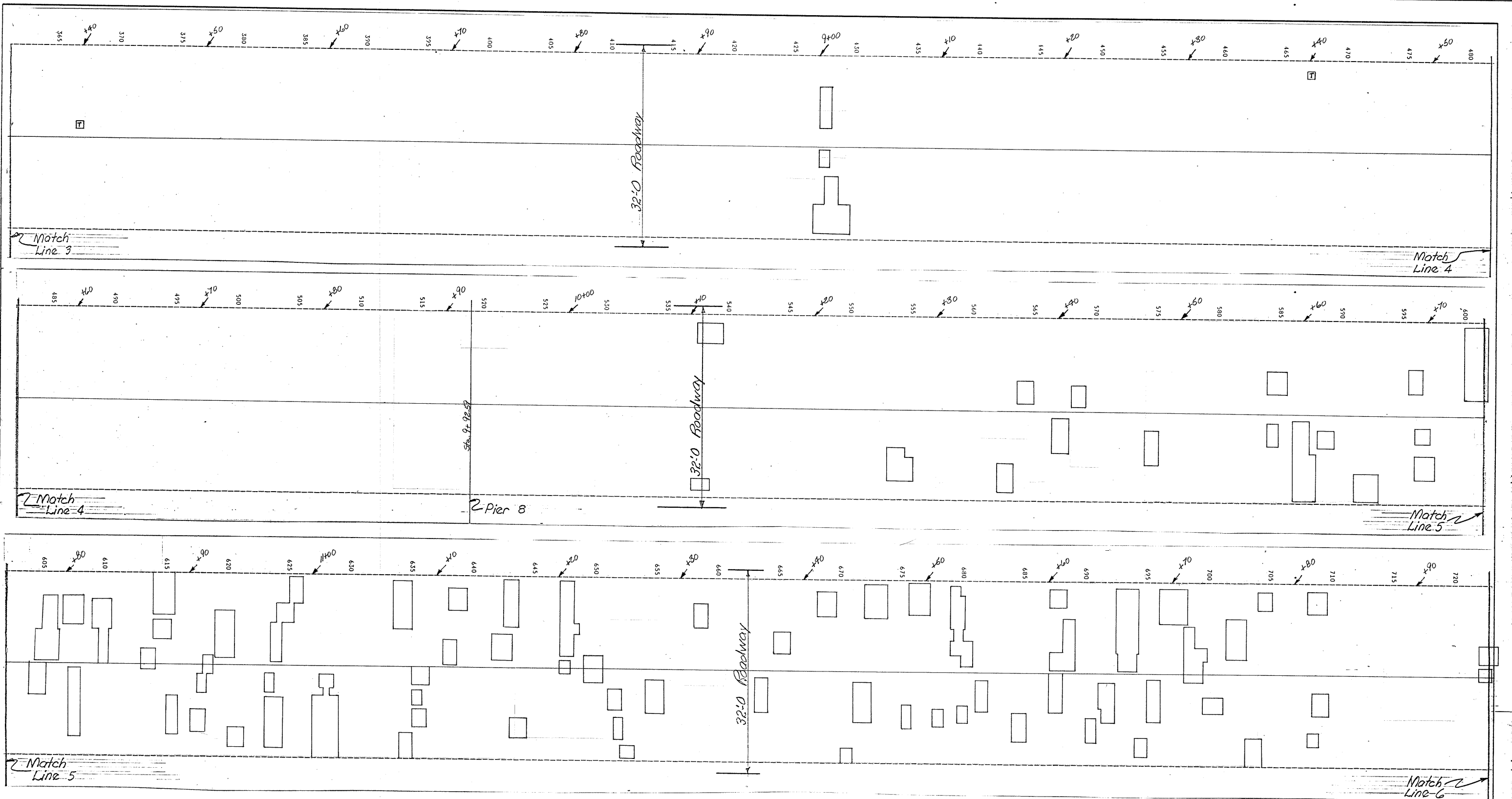
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 15 OF 27 FILE NO. 27768 DESIGN NO. 694

DESIGNED BY H.D. SERVER TRACED BY
DETAILED BY R. RYSAVY CHECKED BY

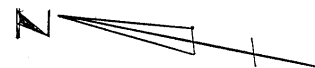
MUSCATINE COUNTY

PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		17	97



SURVEY PLOT
(Dated: 9-15-93)

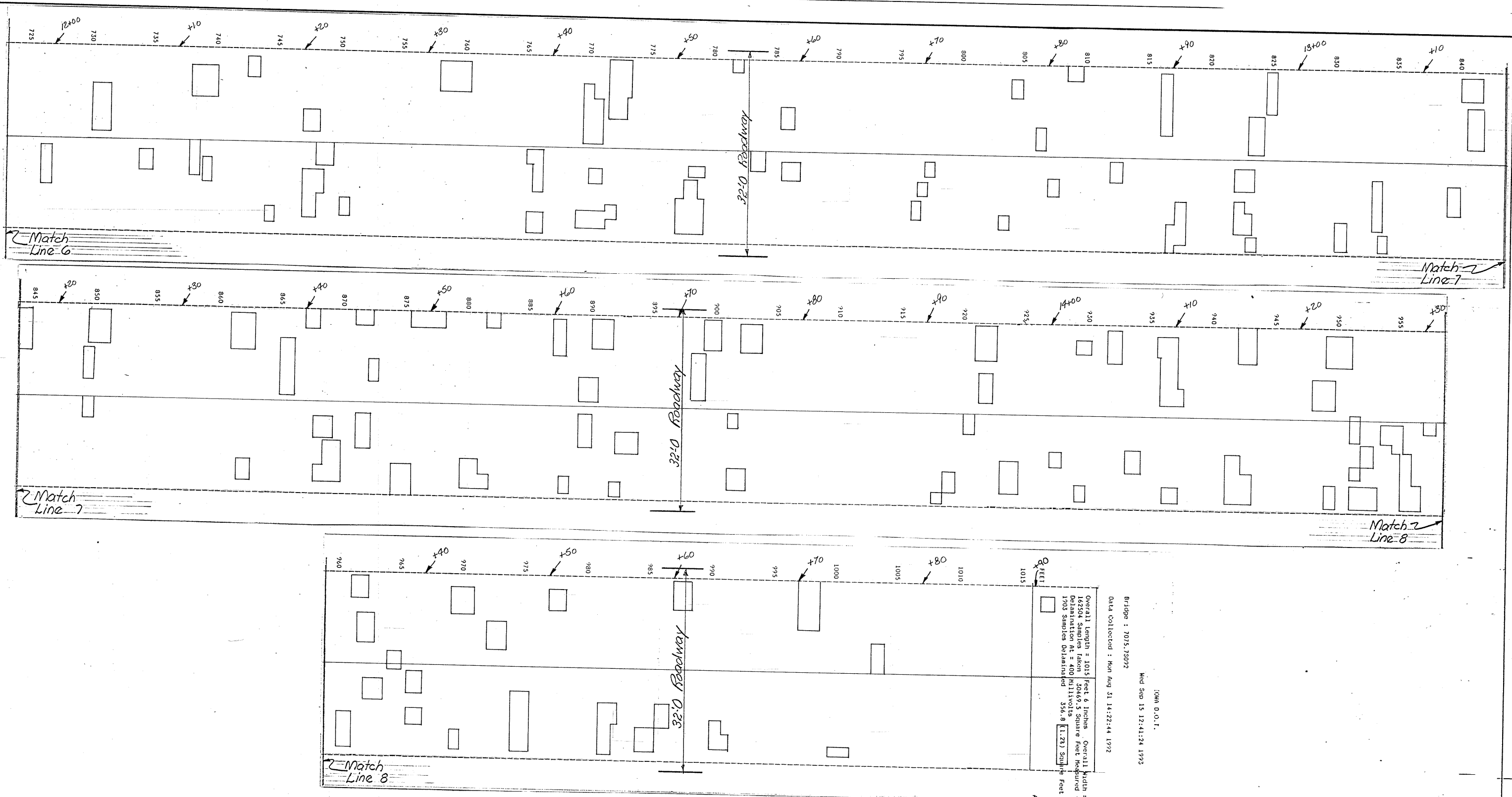


DESIGN FOR REPAIRS TO				
MISSISSIPPI RIVER BRIDGE				
AT				
MUSCATINE IOWA				
SURVEY PLOT				
November, 1993				
MUSCATINE COUNTY				
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION				
DESIGN SHEET NO. 16 OF 27 FILE NO. 27768 DESIGN NO. 694				
STATE	FWHA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		18	41

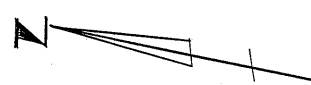
DESIGNED BY H.D. SERVER TRACED BY _____
 DETAILED BY R. RYSAVY CHECKED BY _____

MUSCATINE COUNTY

PROJECT NUMBER



SURVEY PLOT
(Dated: 9-15-93)



114.00 sq yds. C14
 98.44 " " C24
 82.69 " " C24
 290.13 sq yds. H&H
 9-24-93
 317-652 3541

101.54 sq yds. Pier 1D
 114.00 sq yds. T14
 101.54 sq yds. T14

Overall Length = 1015 Feet 6 Inches. Overall Width = 30 Feet 0 Inches.
 162504 Samples Taken. 20469.5 Square Feet Measured = 20469.5 sq yds.
 Delamination At = 400 Hillivolts.
 1703 Samples Delaminated. 356.8 (1.7%) Square Feet Bad.

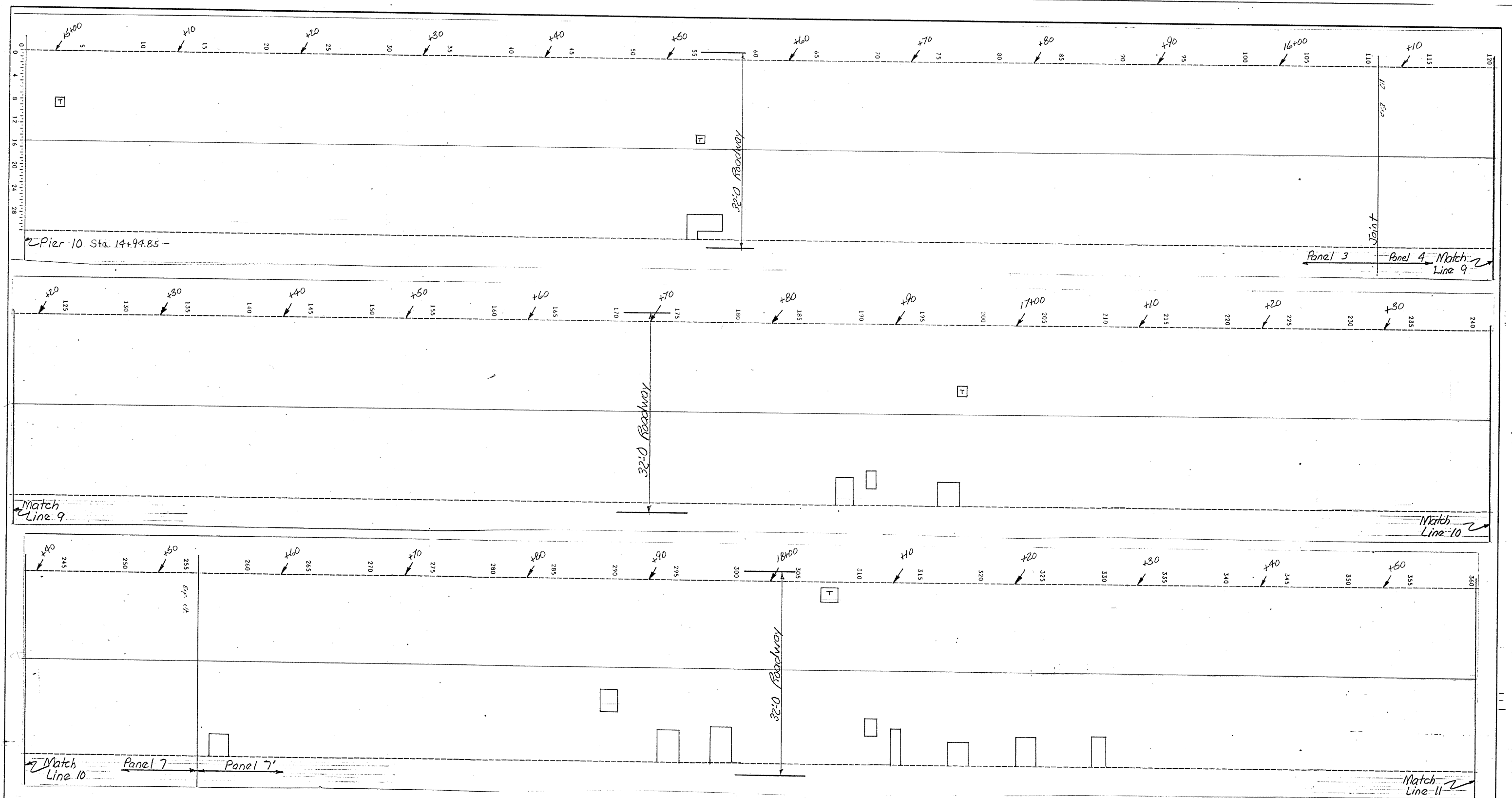
Bridge : 7015-75072
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 Wed Sep 15 12:41:24 1993

DESIGN FOR REPAIRS TO MISSISSIPPI RIVER BRIDGE AT MUSCATINE IOWA SURVEY PLOT November, 1993 MUSCATINE COUNTY IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION DESIGN SHEET NO. <u>17</u> OF <u>27</u> FILE NO. <u>27768</u> DESIGN NO. <u>694</u>				
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		19	27

DESIGNED BY H.D. SERVER TRACED BY _____
 DETAILED BY R. RYSAVY CHECKED BY _____

MUSCATINE COUNTY

PROJECT NUMBER



SURVEY PLOT
(Dated: 9-15-93)

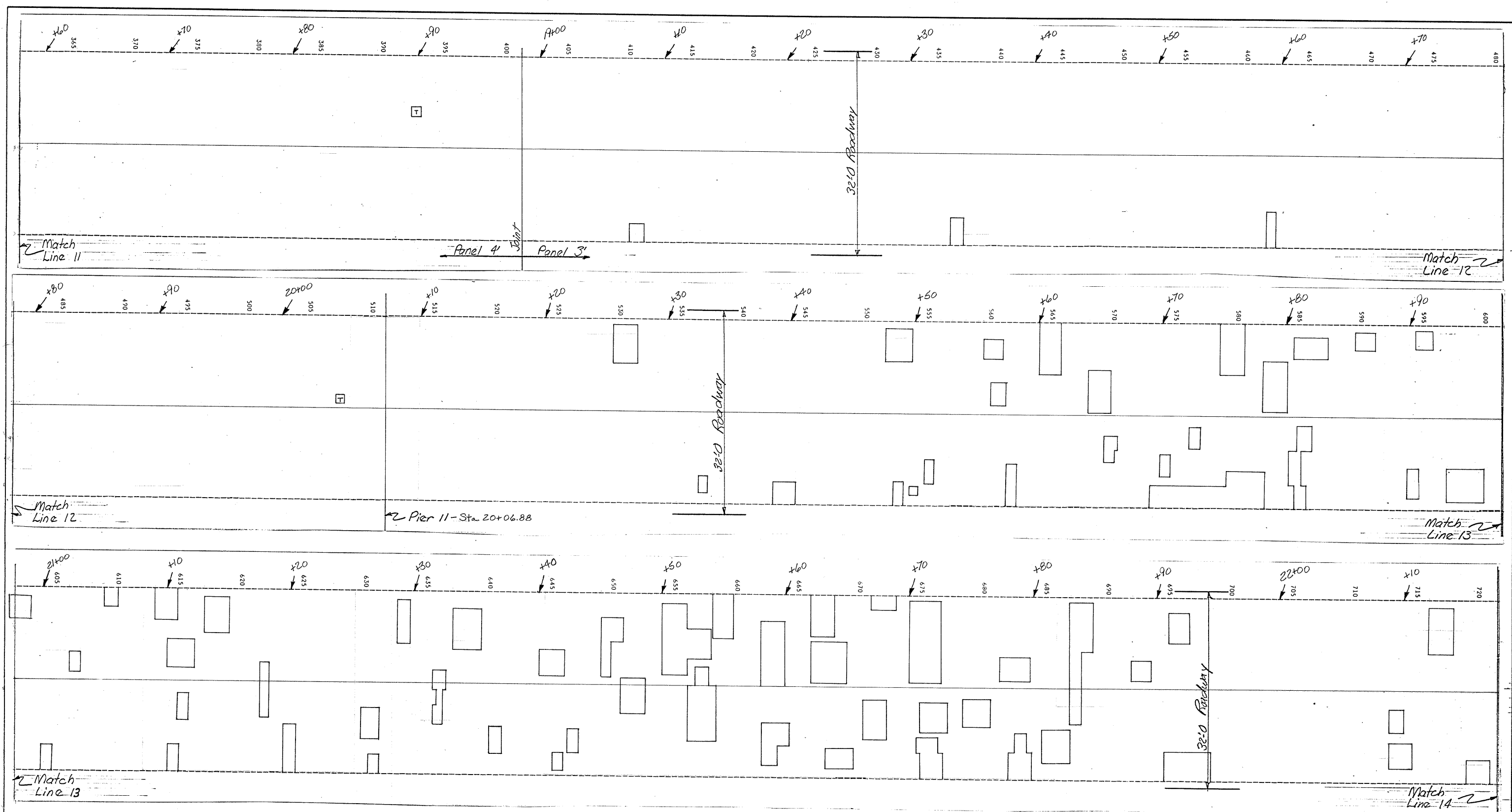


DESIGN FOR REPAIRS TO				
MISSISSIPPI RIVER BRIDGE				
AT				
MUSCATINE IOWA				
SURVEY PLOT				
November, 1993				
MUSCATINE COUNTY				
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION				
DESIGN SHEET NO. 18 OF 27 FILE NO. 27768 DESIGN NO. 694				
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		20	41

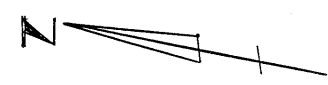
DESIGNED BY H.D. SERVER TRACED BY
 DETAILED BY R. RYSAVY CHECKED BY

MUSCATINE COUNTY

PROJECT NUMBER



SURVEY PLOT
(Dated: 9-15-93)

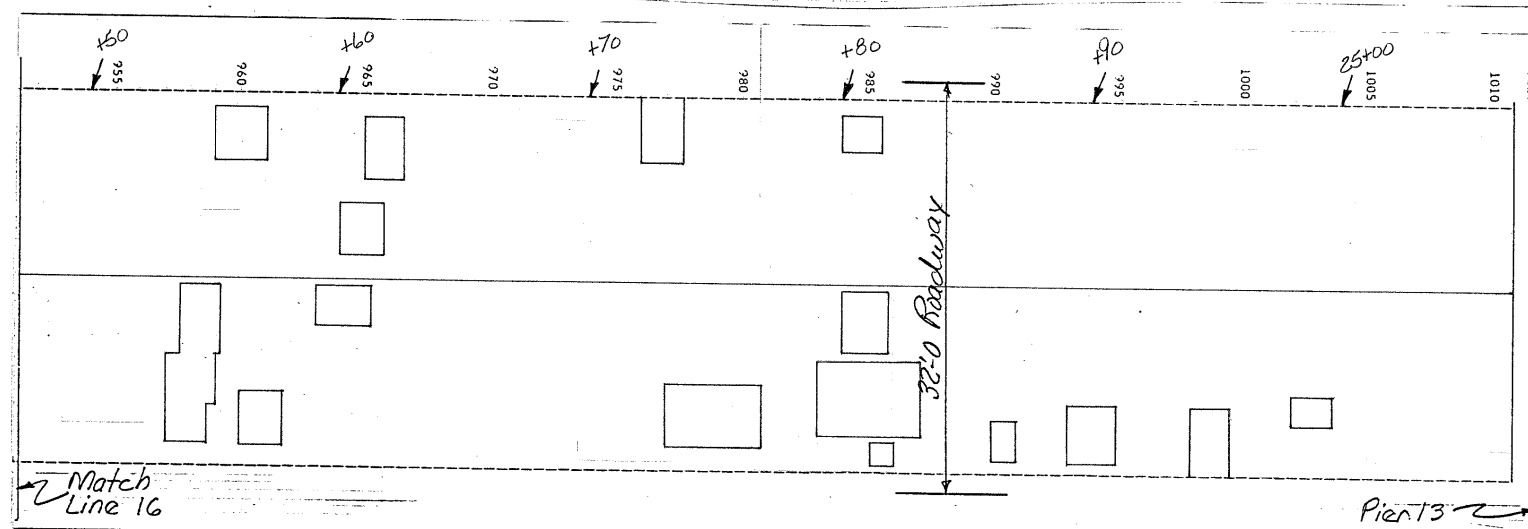
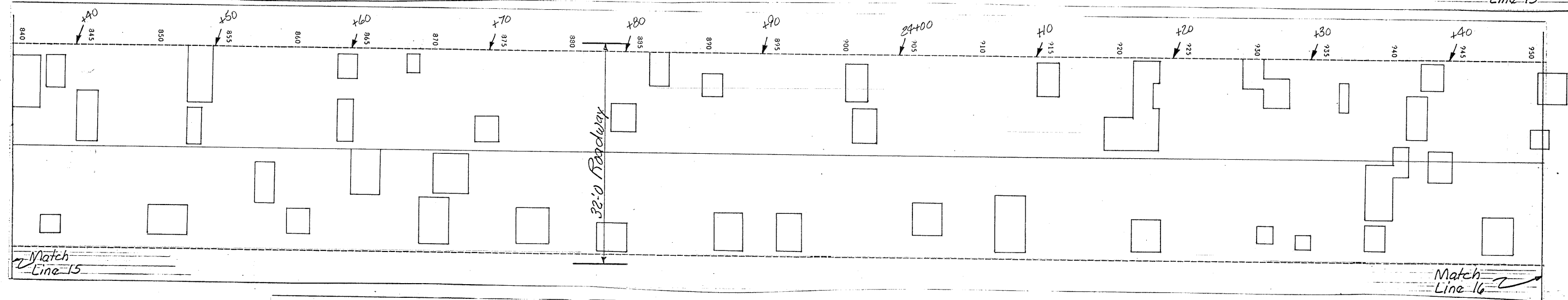
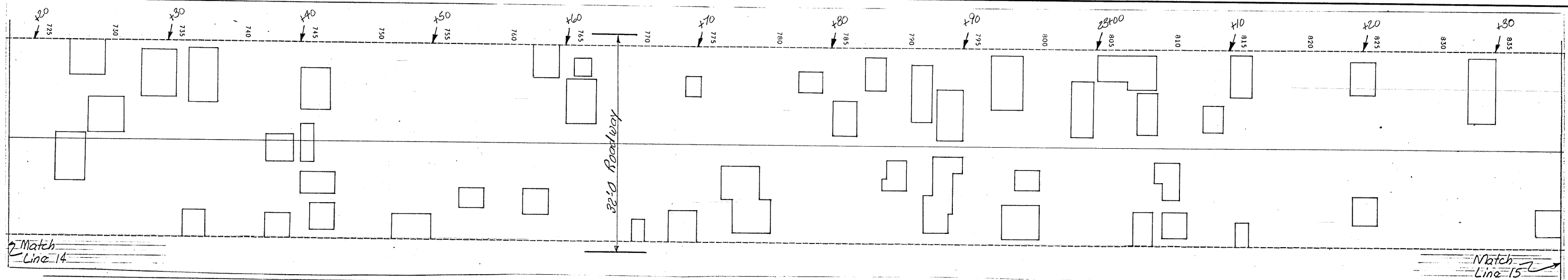


DESIGN FOR REPAIRS TO				
MISSISSIPPI RIVER BRIDGE				
AT				
MUSCATINE IOWA				
SURVEY PLOT				
November, 1993				
MUSCATINE COUNTY				
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION				
DESIGN SHEET NO. 19 OF 27		FILE NO. 27768		DESIGN NO. 694
STATE	PRWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		21	41

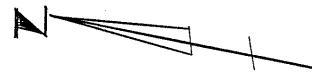
DESIGNED BY H.D. SERVER TRACED BY _____
 DETAILED BY R. RYSAVY CHECKED BY _____

MUSCATINE COUNTY

PROJECT NUMBER



SURVEY PLOT
(Dated: 9-15-93)



Overall Length = 1010 Feet 3 Inches Overall Width = 30 Feet 0 Inches
 16162 Samples Taken 30507.9 Square Feet Measured = 35645 sq. yds.
 Determination R₁ = 400 Hillivolts
 214 Samples Determined 576.4 (1.38) Square Feet Bid = 43.78 sq. yds.
 Bridge : 7075, 75072
 Data Collected : Mon Aug 31 16:27:28 1972
 Wed Sep 15 11:41:25 1973
 IOWA D.O.T.
 O2A

87.5/10 = 8.75 yds
 5.88 " " 1/1000
 93.44' Total sq. yds
 02A

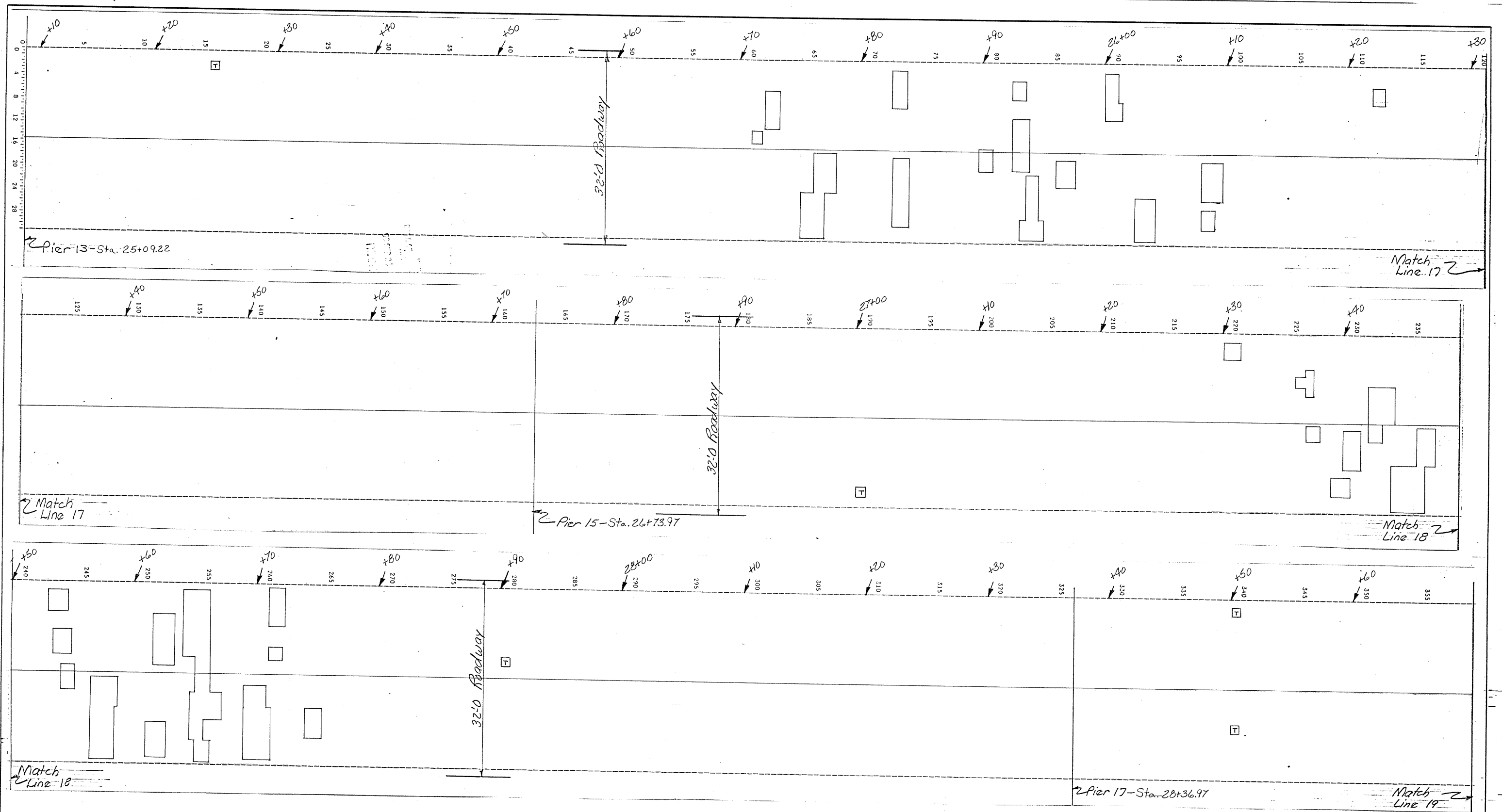
DESIGN FOR REPAIRS TO
 MISSISSIPPI RIVER BRIDGE
 AT
 MUSCATINE IOWA
 SURVEY PLOT
 November 1993
 MUSCATINE COUNTY
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
 DESIGN SHEET NO. 20 OF 27 FILE NO. 27768 SHEET NO. 22 TOTAL SHEETS 47

DESIGNED BY H.D. SERVER TRACED BY
 DETAILED BY R. RYSAVY CHECKED BY

MUSCATINE COUNTY

PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		22	47



SURVEY PLOT
(Dated: 9-15-93)

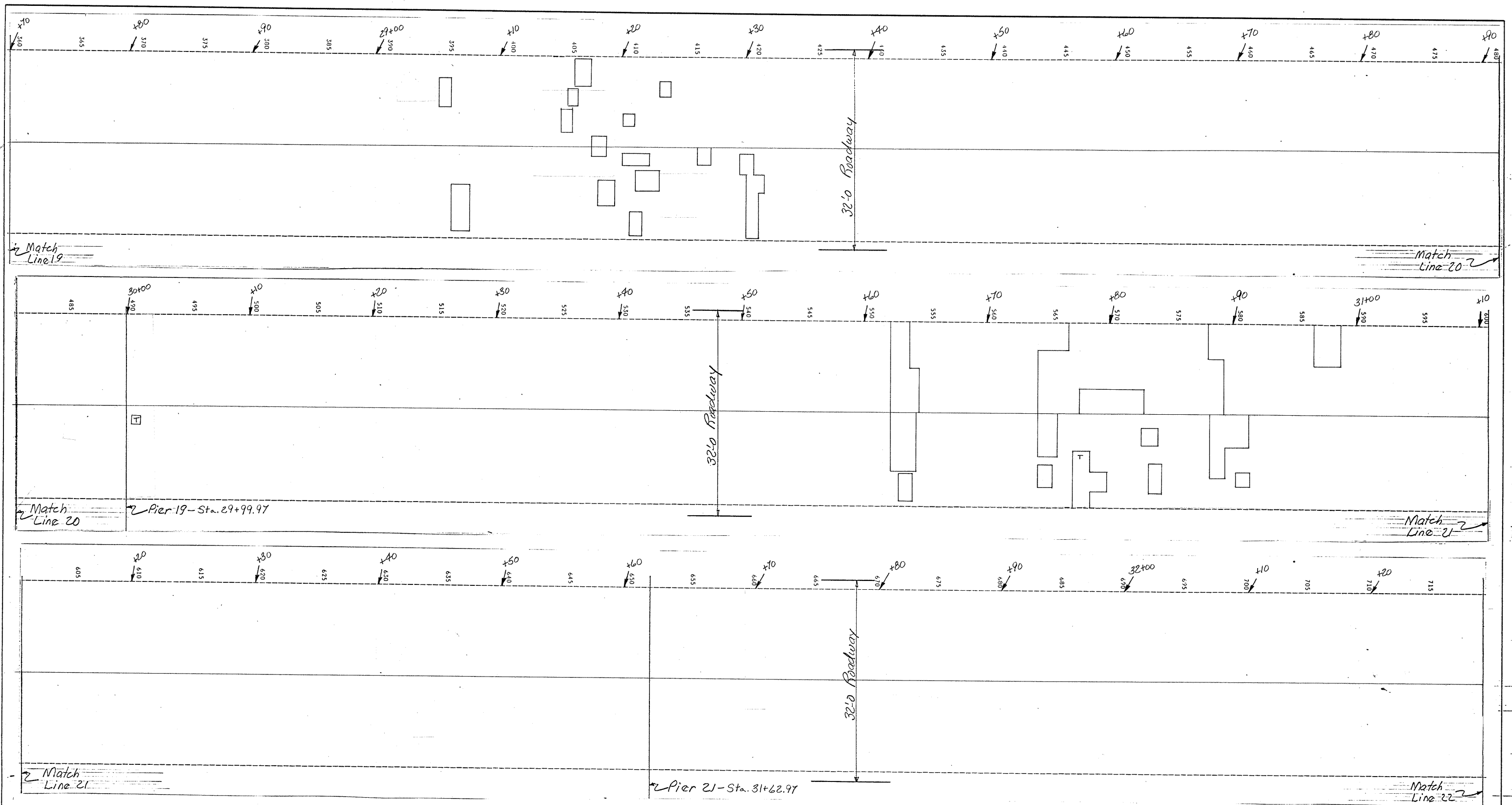


DESIGN FOR REPAIRS TO MISSISSIPPI RIVER BRIDGE AT MUSCATINE, IOWA SURVEY PLOT				
November, 1993				
MUSCATINE COUNTY				
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION				
DESIGN SHEET NO. 21 OF 27		FILE NO. 27768	DESIGN NO. 694	
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		23	41

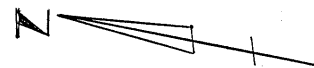
DESIGNED BY H.D. SERVER
CHECKED BY R. RYSAVY

MUSCATINE COUNTY

PROJECT NUMBER



SURVEY PLOT
(Dated: 9-15-93)

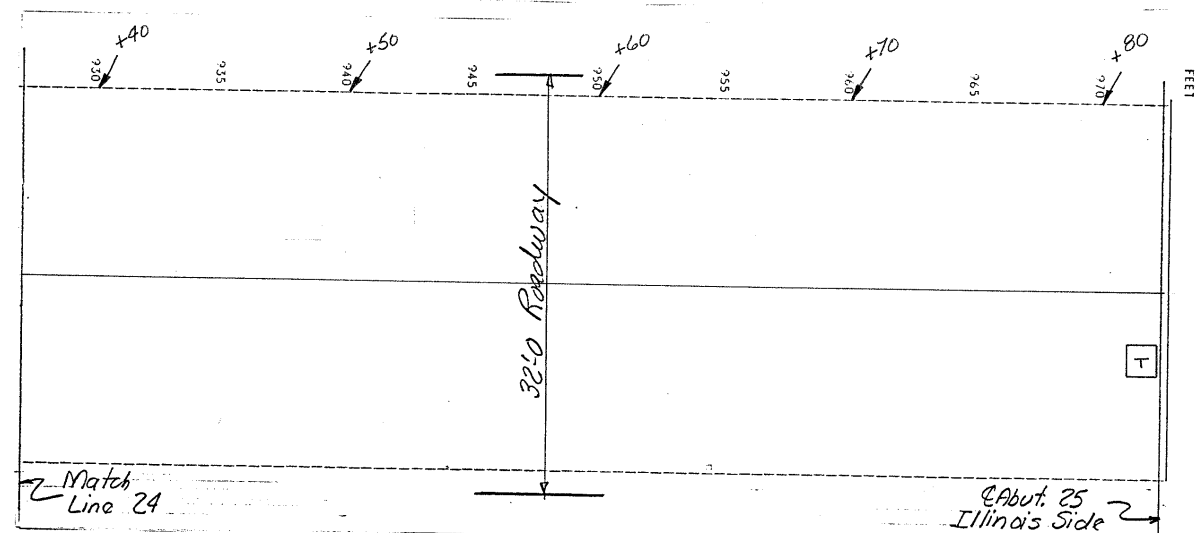
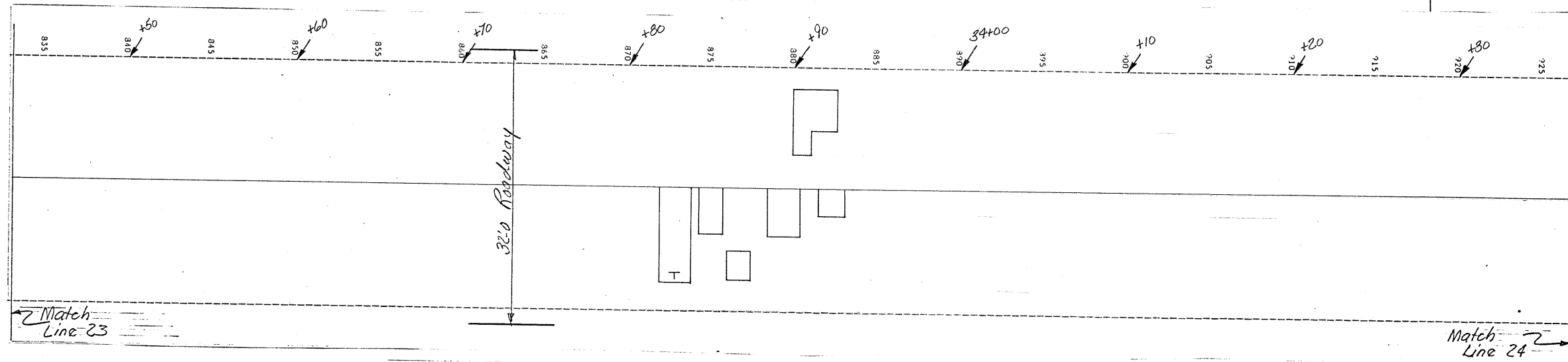
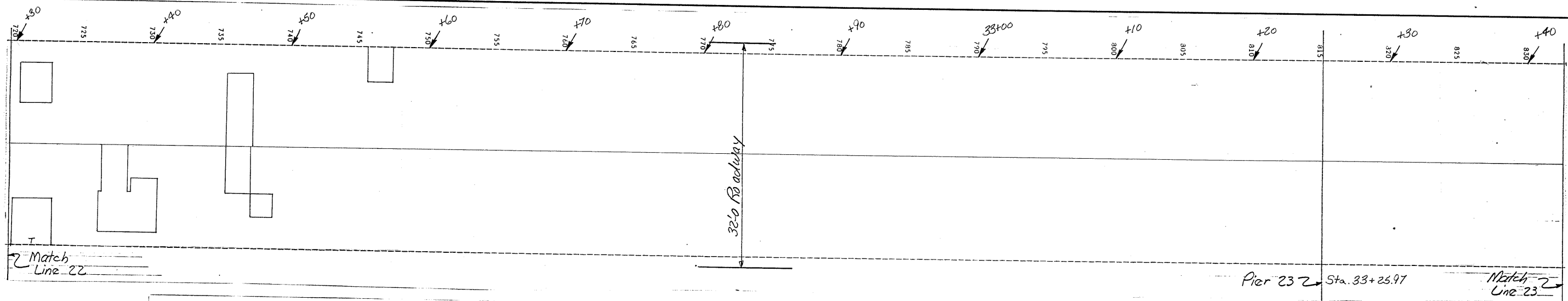


DESIGN FOR REPAIRS TO				
MISSISSIPPI RIVER BRIDGE				
AT				
MUSCATINE IOWA				
SURVEY PLOT				
November, 1993				
MUSCATINE COUNTY				
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION				
DESIGN SHEET NO. 22 OF 27 FILE NO. 27768 DESIGN NO. 694				
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		24	41

DESIGNED BY H.D. SERVER TRACED BY
 DETAILED BY R.RYSAVY CHECKED BY

MUSCATINE COUNTY

PROJECT NUMBER



SURVEY PLOT
(Dated: 9-15-93)



Overall Length = 972 Feet 3 Inches Overall Width = 30 Feet 0 Inches
 155568 Samples Taken 29169.0 Square Feet Measured
 Determination At = 400 Hills Vols
 1480 Samples Determined 277.5 (1.0%) Square Feet Paid
 64.82 sq. yds. 11.87 sq. yds. 82.69 Total sq. yds.
 0.34

CAN
 IOWA D.O.I.
 Wed Sep 15 13:04:34 1993
 Bridge : 7075.78092
 Data Collected : Tue Sep 01 10:20:52 1992

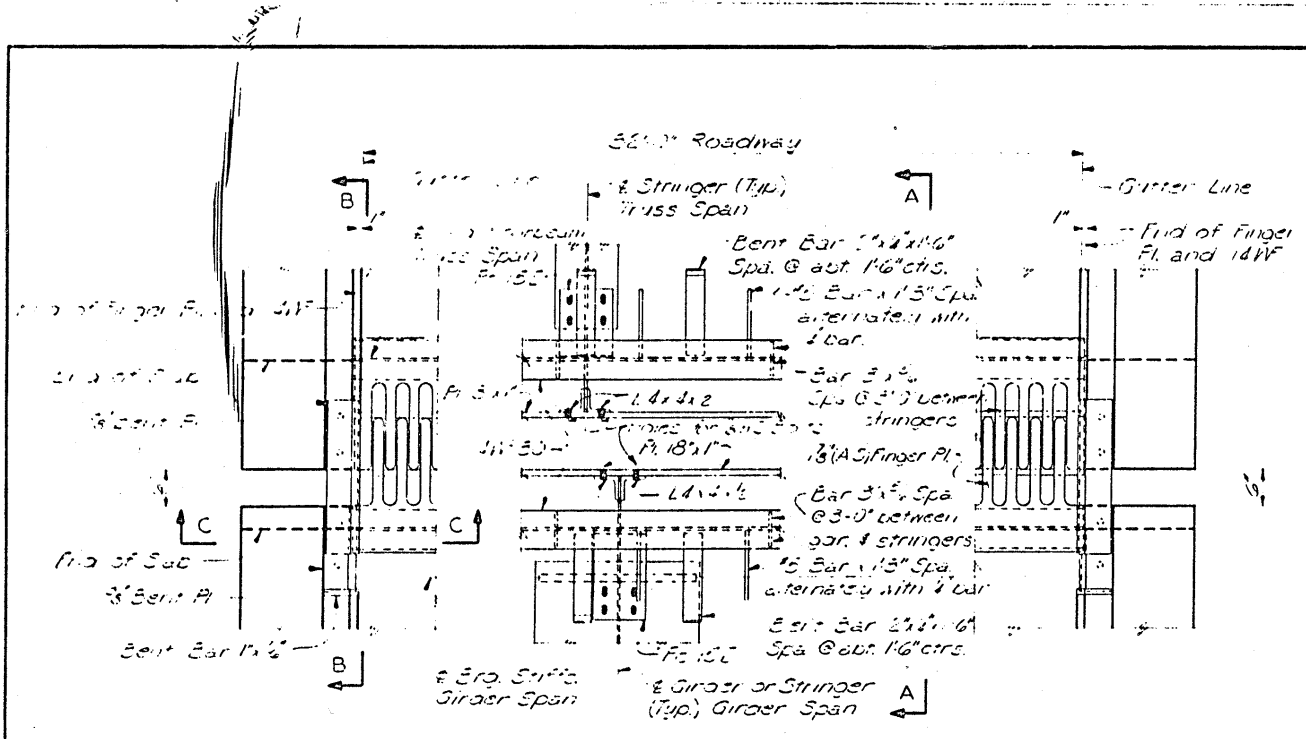
03A

DESIGN FOR REPAIRS TO				
MISSISSIPPI RIVER BRIDGE				
AT				
MUSCATINE IOWA				
SURVEY PLOT				
November, 1993				
MUSCATINE COUNTY				
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION				
DESIGN SHEET NO. 23 OF 27 FILE NO. 27768 DESIGN NO. 694				
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		25	91

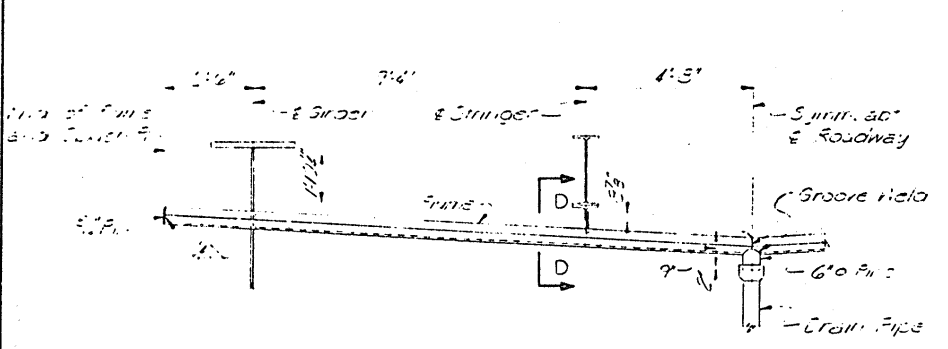
DESIGNED BY H.D. SERVER TRACED BY
 DETAILED BY R.RYSAYV CHECKED BY

MUSCATINE COUNTY

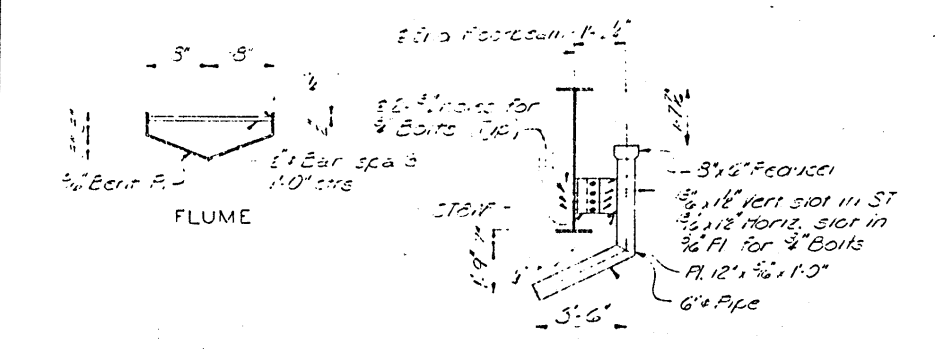
PROJECT NUMBER



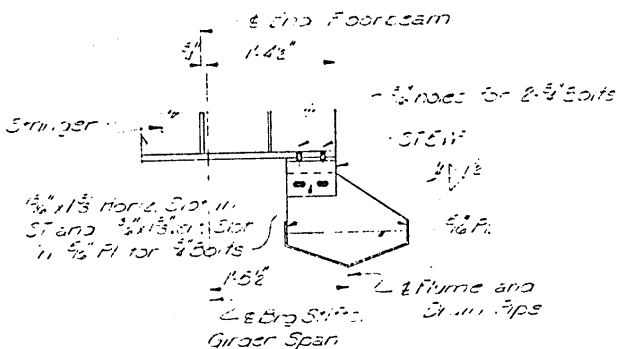
PART PLAN-DEVICE AT PIER 10
 Note: Details and material at both ends are the same.
 Flume, splash plate and flume connections are not shown.



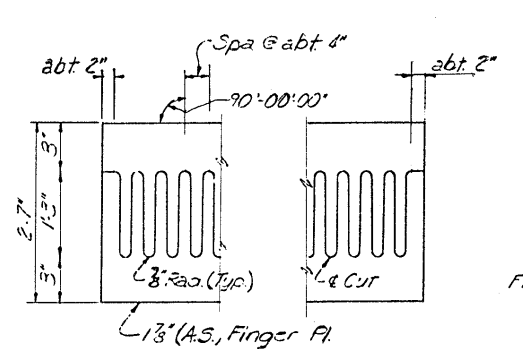
ELEVATION-FLUME AT PIER 10



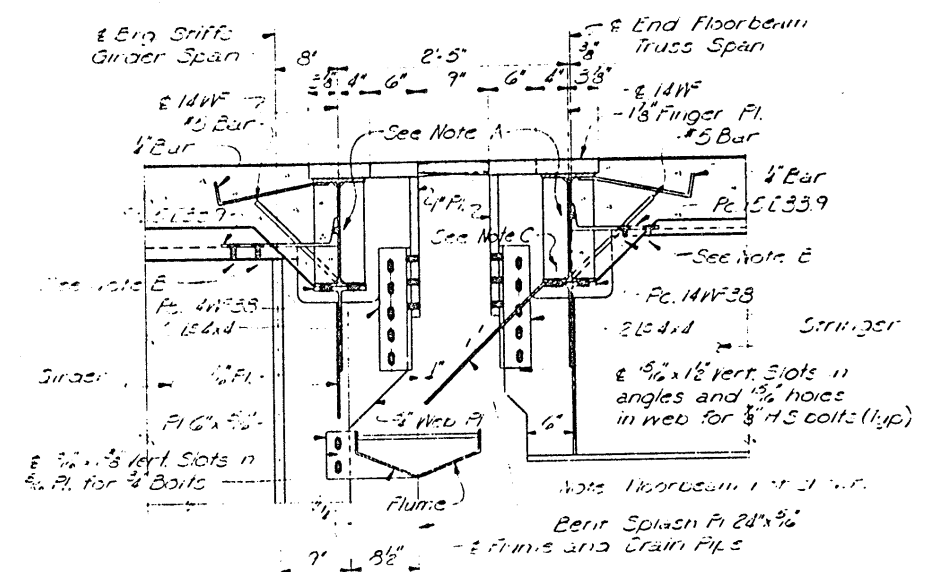
DRAIN PIPE



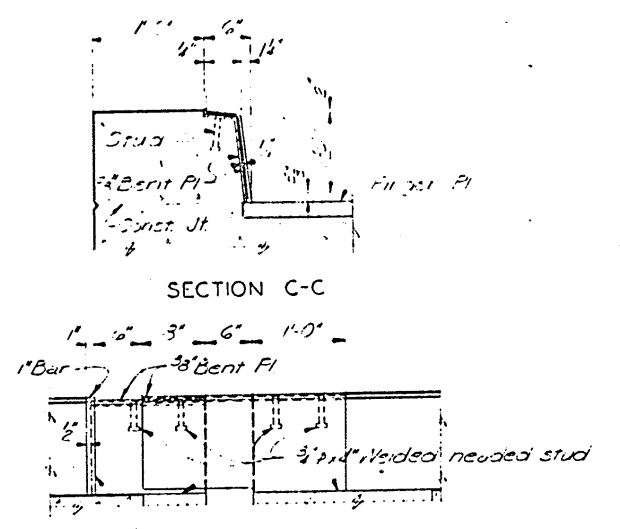
SECTION D-D



FINGER PLATE CUTTING PLAN
 Note: Dimensions shown for finger plate cutting include a 1/4" allowance for flame cutting.



SECTION A-A
 Note: Girder shown, girder span stringer similar except as shown in Section C-C.



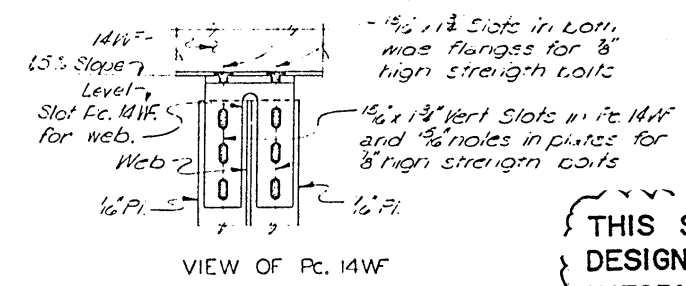
SECTION B-B

SECTION C-C

Note A: Provide 1/2" x 1/4" slots in 1/4" and 1/2" holes in 1/2" for 2-3/4" bolts.
 Note B: Provide 1/2" x 1/4" slots in 1/4" and 1/2" holes in 1/2" for 2-3/4" bolts.
 Note C: Provide 1/2" x 1/4" slots in 1/4" and 1/2" holes in 1/2" for 2-3/4" bolts.

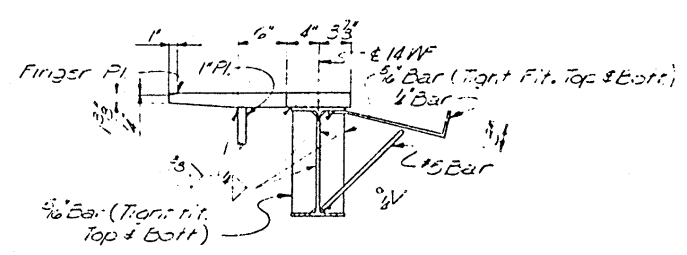
NOTES

Expansion devices are shown in the normal position at a temperature of 50°F.
 Expansion devices shall be fabricated and erected to fit crown of roadway.
 All material for expansion devices is included in the quantities for Structural Steel and is to be paid for as such.
 Expansion device shall be fabricated in one section.
 Lengths of drain pipe shown are approximate and shall be field checked after installation of flumes.
 Pipe shall be spliced with full penetration butt welds.
 Rough bolted connections shall be used for all 1/2" and 3/4" bolts.
 Galvanize expansion devices, flumes, drain pipes, splash plates and their assemblies.



VIEW OF Pc. 14WF

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.



SECTION THRU FINGER PLATE

Note: Do not scale this drawing. Follow dimensions.

AS BUILT

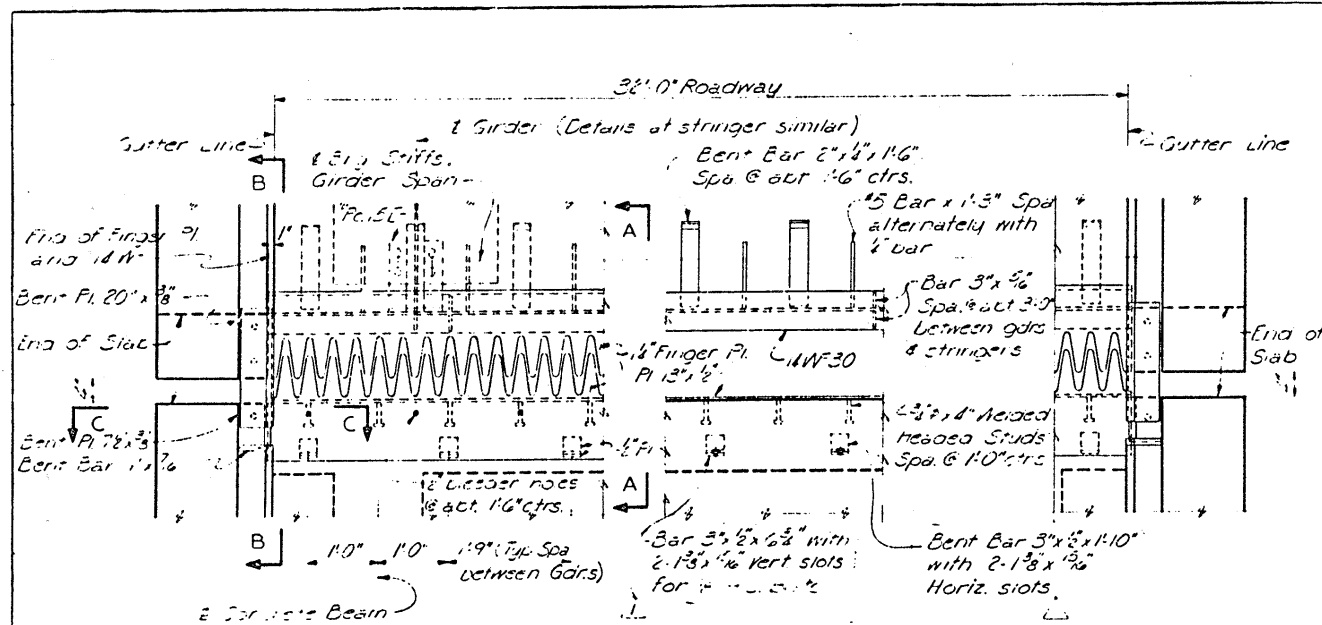
DEC 28 1972

MISSISSIPPI RIVER BRIDGE

ROADWAY EXPANSION DEVICE AT PIER 10

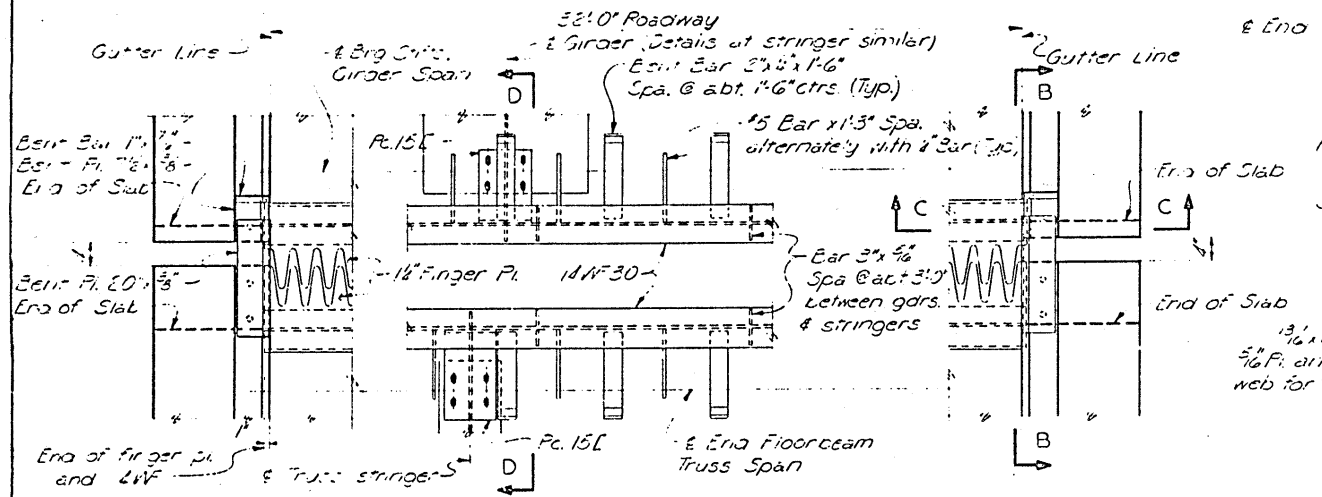
MUSCATINE COUNTY
 IOWA STATE HIGHWAY COMMISSION

Design No. 694
 File No. 27768
 Des. Sht. No. 24 of 27



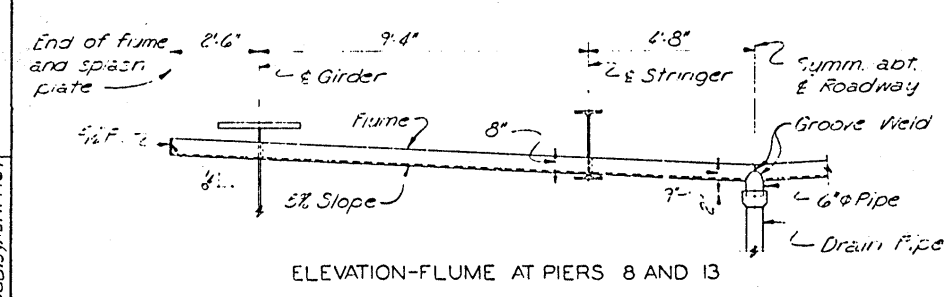
PART PLAN-DEVICE AT PIERS 8 AND 13

Note: Details and material at both curbs are the same. Flume, splash plate and flume connections are not shown.

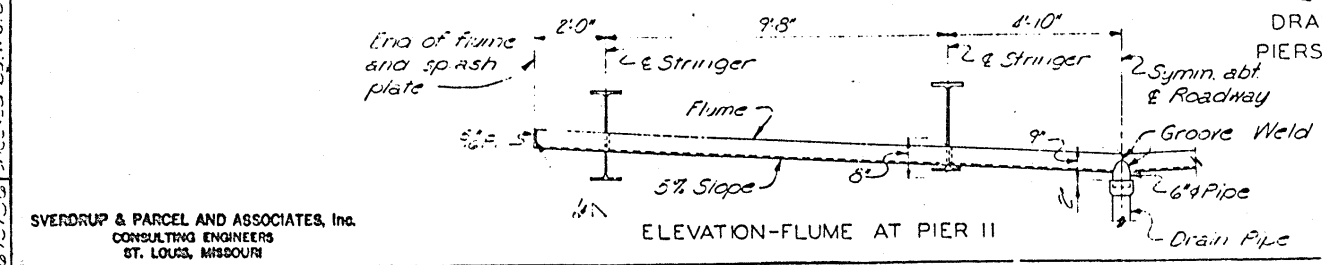


PART PLAN-DEVICE AT PIER II

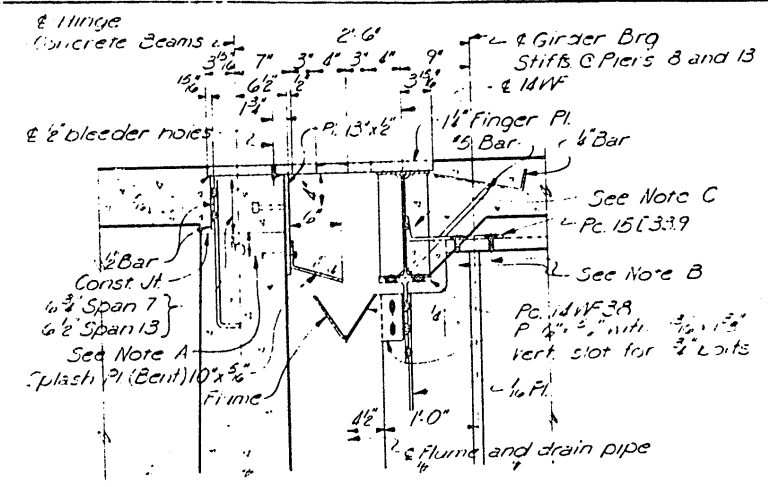
Note: Details and material at both curbs are the same. Flume, splash plate and flume connections are not shown.



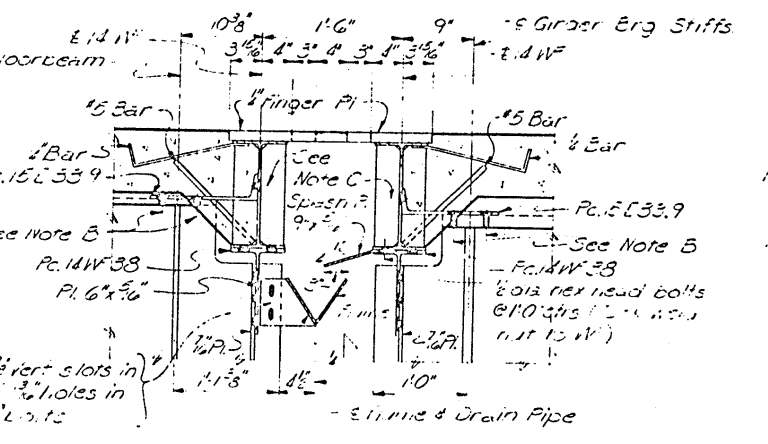
ELEVATION-FLUME AT PIERS 8 AND 13



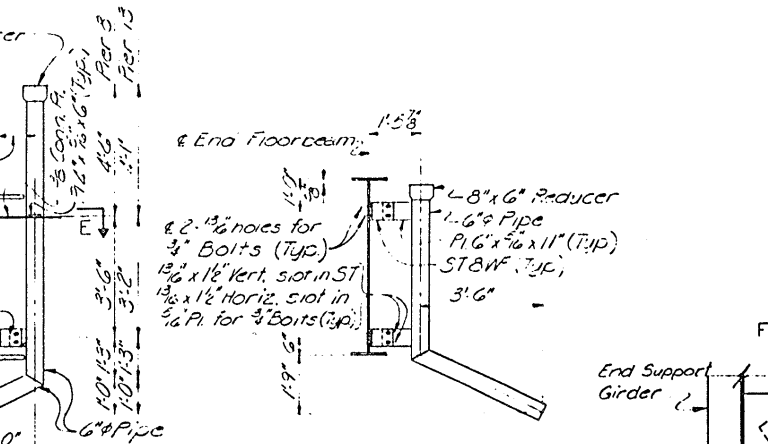
ELEVATION-FLUME AT PIER II



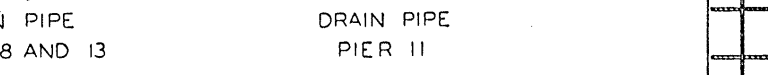
SECTION A-A



SECTION D-D

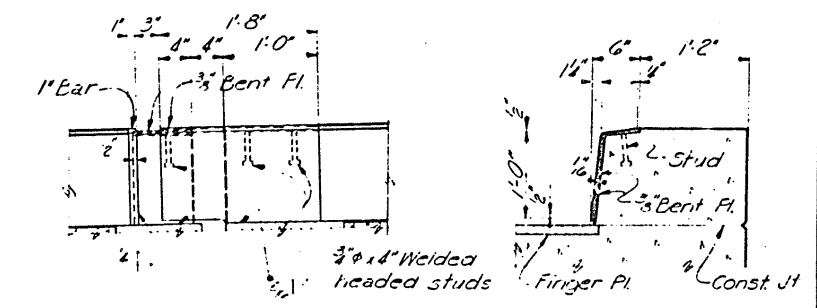


DRAIN PIPE PIERS 8 AND 13



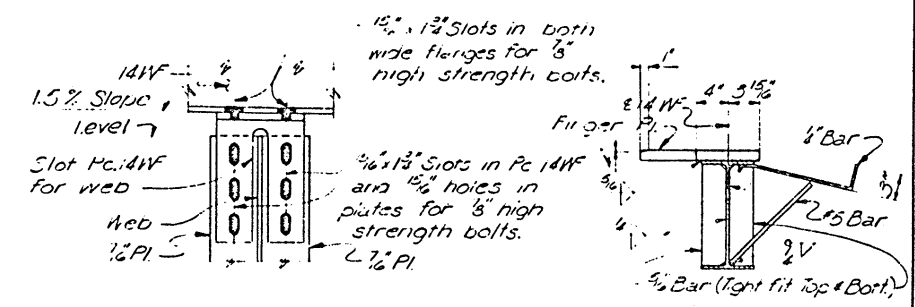
DRAIN PIPE PIER II

Note: Do not scale this drawing. Follow dimensions.



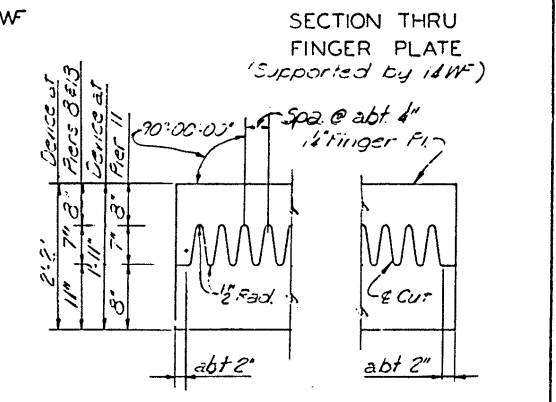
SECTION B-B

SECTION C-C



VIEW OF Pc. 14WF

Note A: Connects inverts for 1/2" bolts. 1/2" slots in 1/4" x 3/4" x 1/2" finger plate; for spacing of inserts see Sheet C.
Note B: Provides 1/4" x 3/4" x 1/2" slots in 1/4" x 3/4" x 1/2" finger plate and 1/4" x 3/4" x 1/2" holes in girder or stringer for 1/2" bolts.
Note C: Provides 1/4" x 3/4" x 1/2" slots in 1/4" x 3/4" x 1/2" finger plate and 1/4" x 3/4" x 1/2" holes in 1/4" x 3/4" x 1/2" finger plate for 1/2" bolts.

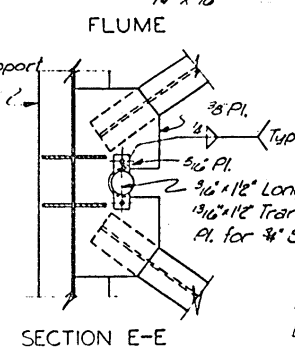


SECTION THRU FINGER PLATE

FINGER PLATE CUTTING PLAN
Note: Dimensions shown for finger plate cutting include a 1/8" allowance for flame cutting.

NOTES
For expansion device notes see Sheet 23.

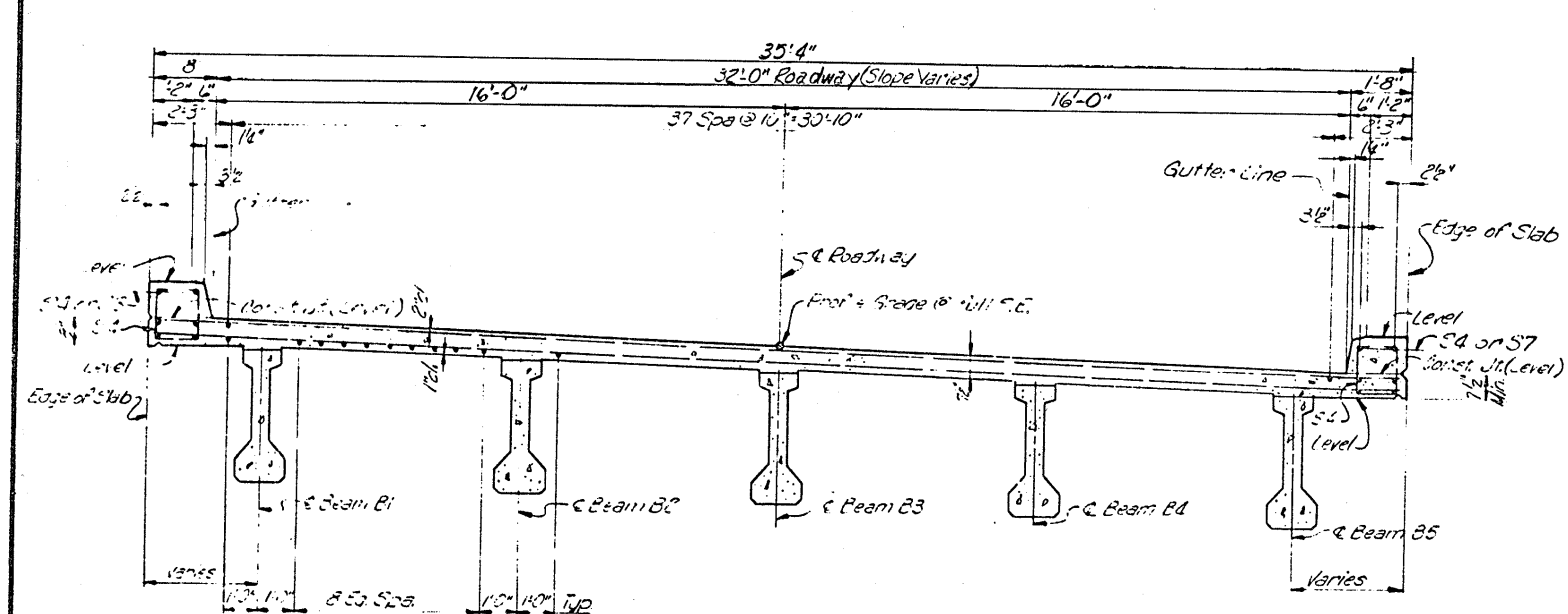
THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY. AS BUILT



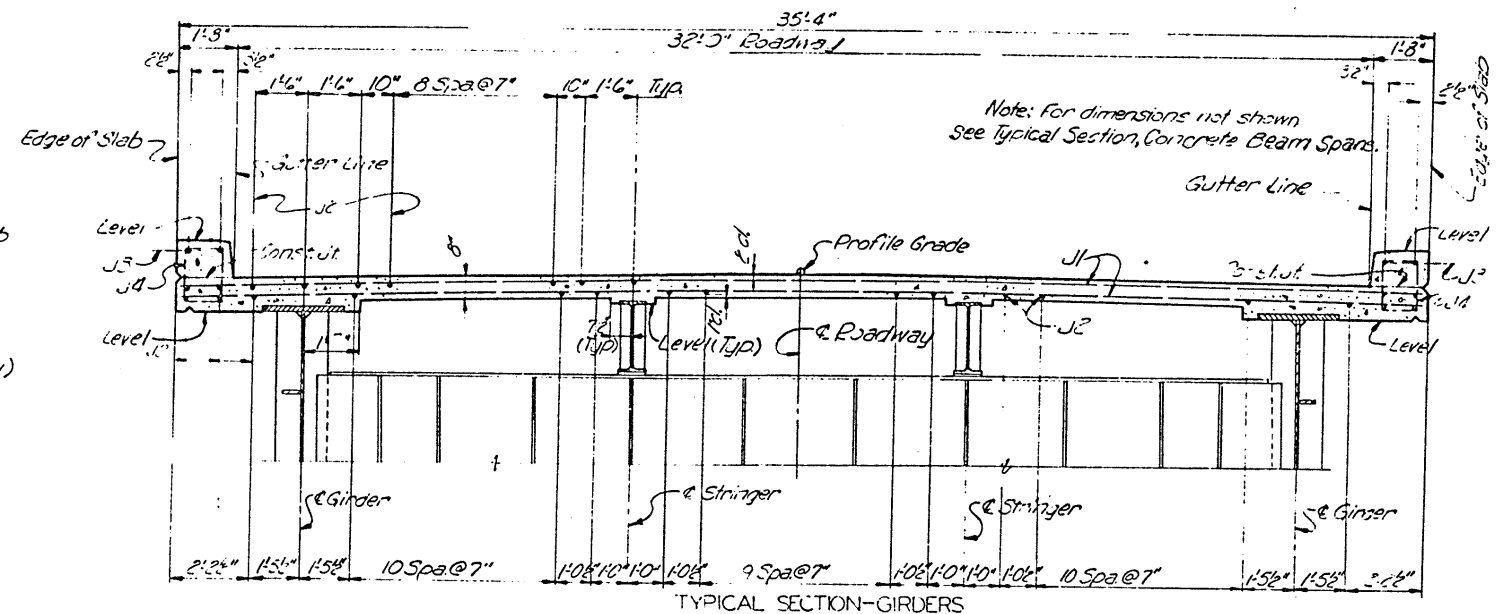
SECTION E-E

MISSISSIPPI RIVER BRIDGE
ROADWAY EXPANSION DEVICES
AT PIERS 8, 11 AND 13
MUSCATINE COUNTY
IOWA STATE HIGHWAY COMMISSION

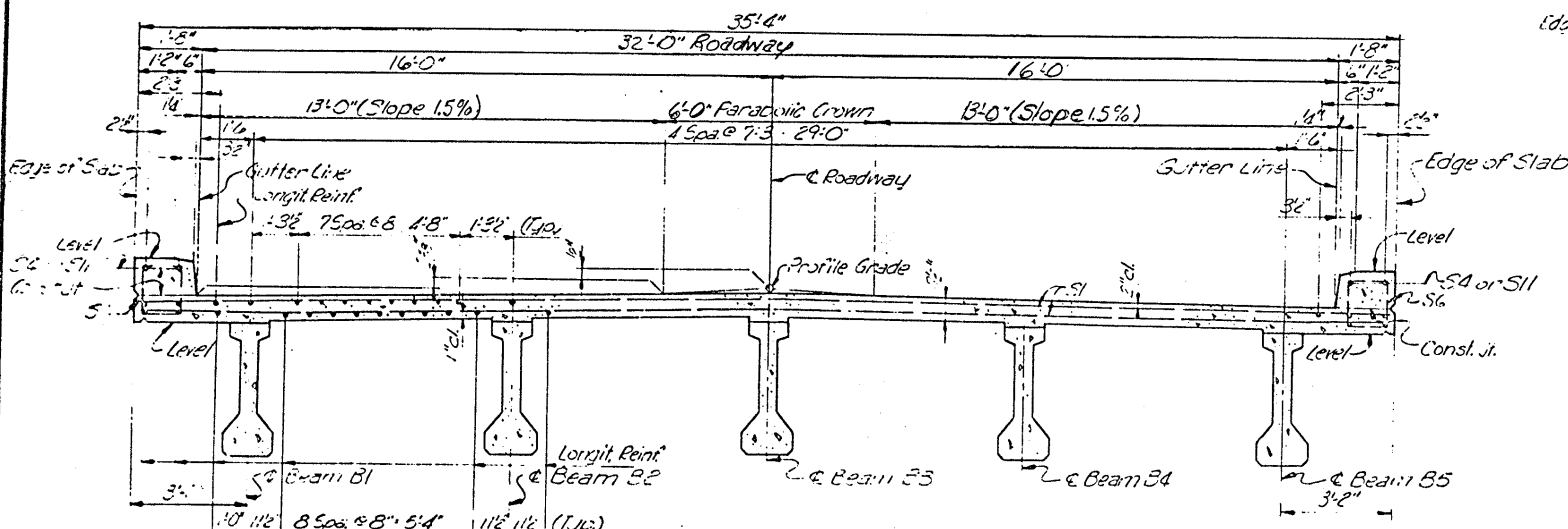
DESIGN NO. 170 FILE NO. 23800 DES. SH. NO. 22 OF 74



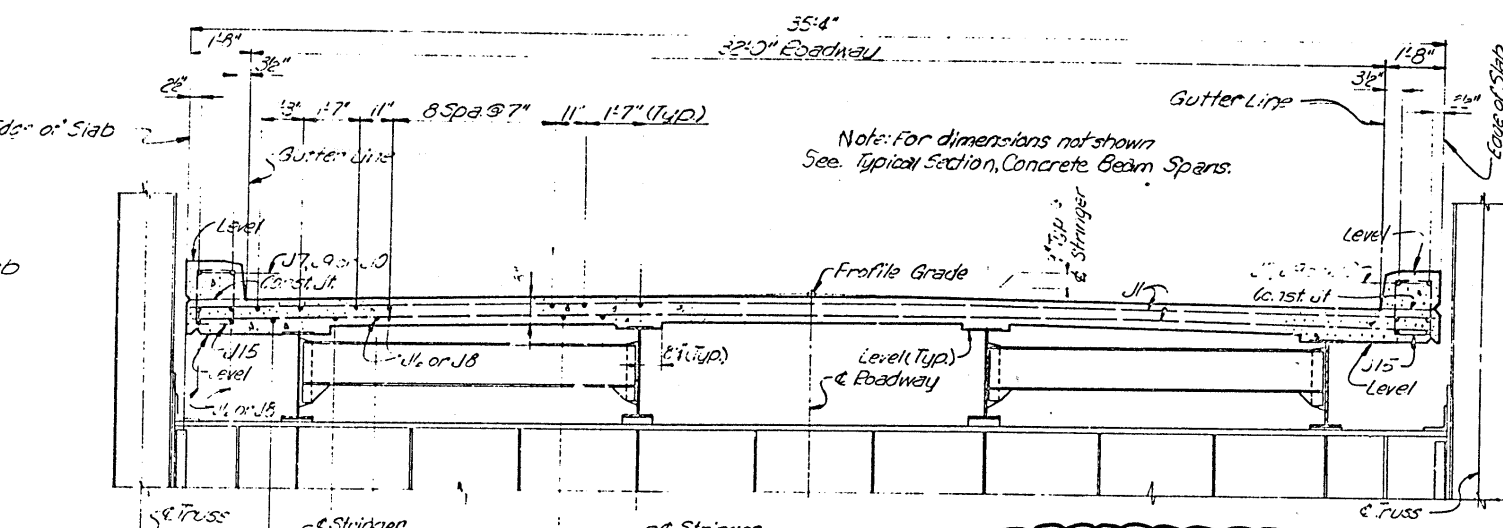
SECTION IN SUPERELEVATION
(Spans 1 thru 5)



TYPICAL SECTION-GIRDERS

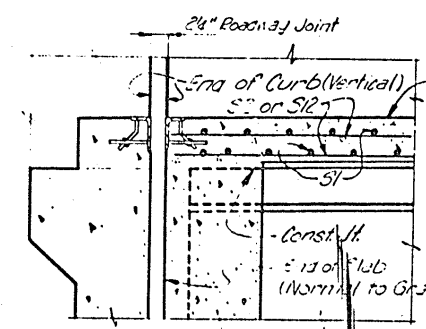


TYPICAL SECTION
CONCRETE BEAM SPANS

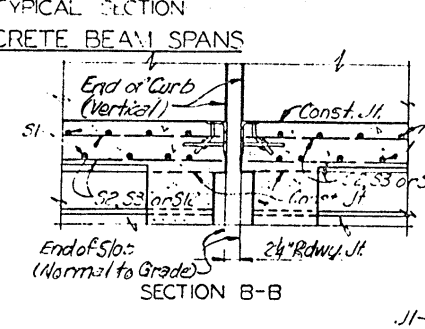


TYPICAL SECTION-TRUSS
STEEL SPANS

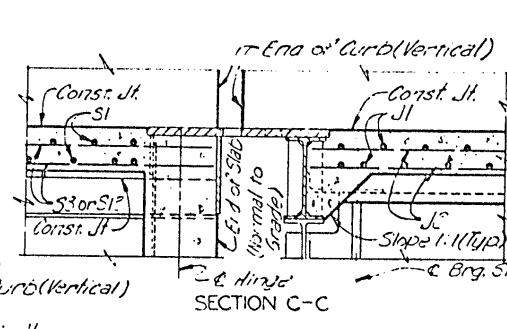
THIS SHEET FROM ORIGINAL
DESIGN IS INCLUDED FOR
INFORMATION ONLY.



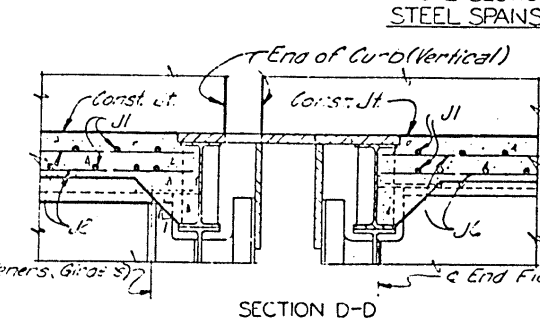
SECTION A-A



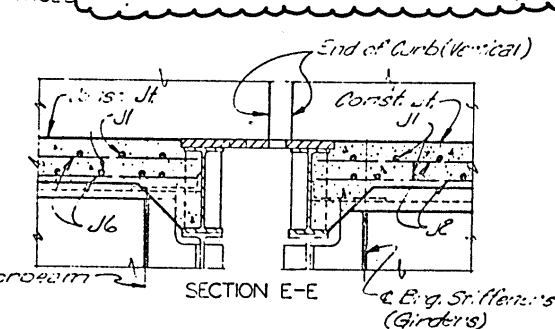
SECTION B-B



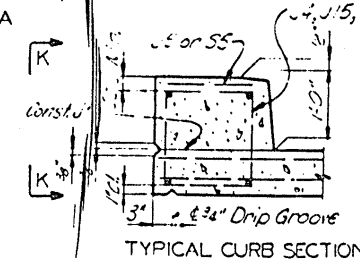
SECTION C-C



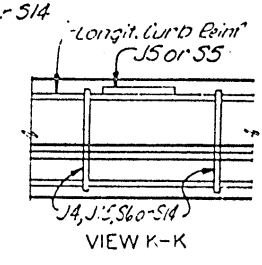
SECTION D-D



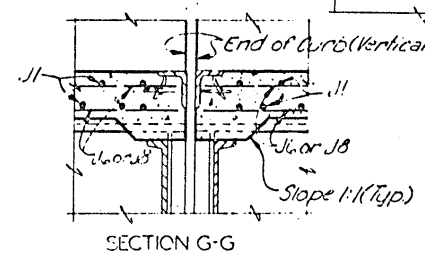
SECTION E-E



TYPICAL CURB SECTION



VIEW K-K

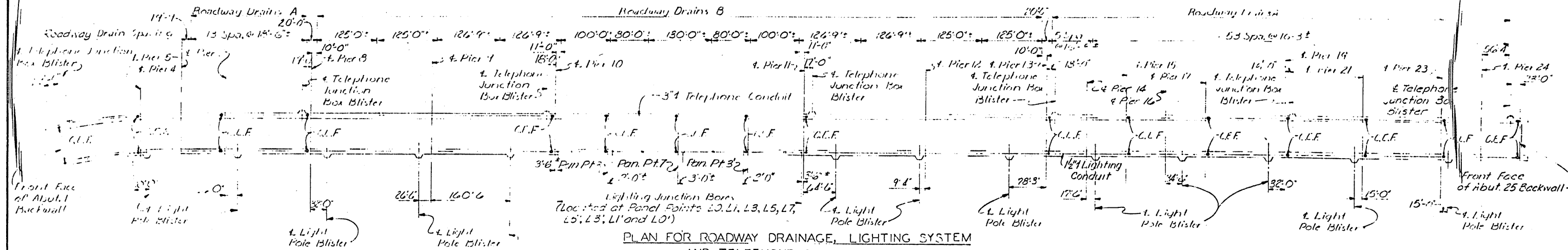


SECTION G-G

NOTES
Work this sheet with Sheets 25 & 26.
Handrail not shown in cross sections,
see Sheets 31 & 32.
Compression joint seats not shown in Sections
A-A, B-B and G-G.
For slab forming elevations, see Sheet 28.

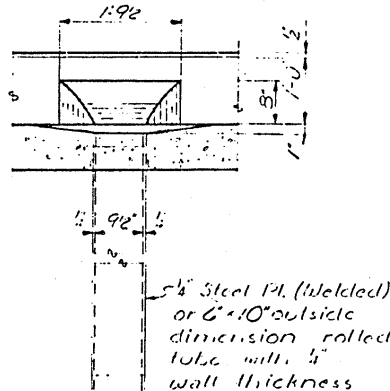
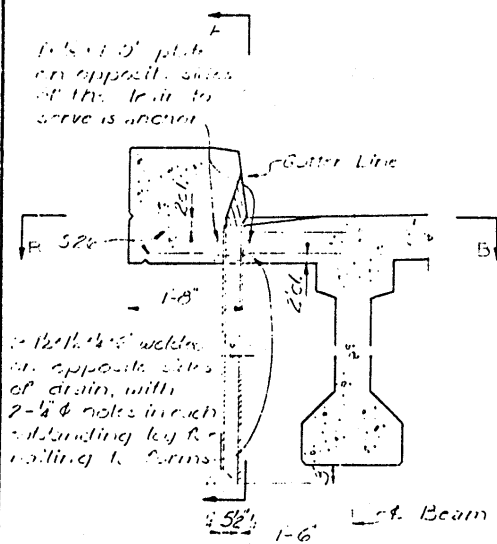
MISSISSIPPI RIVER BRIDGE
SLAB
CROSS SECTIONS
MUSCATINE COUNTY
IOWA STATE HIGHWAY COMMISSION

DESIGN NO. 170 FILE NO. 23800 DES. SH. NO. 27 OF 74



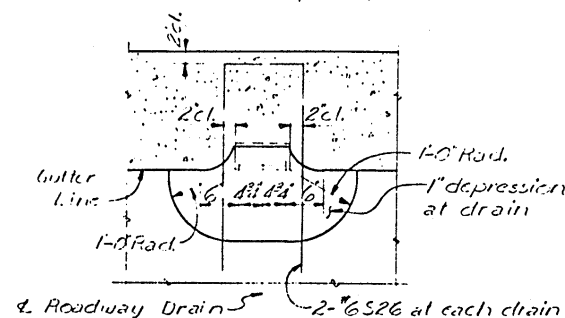
**PLAN FOR ROADWAY DRAINAGE, LIGHTING SYSTEM
AND TELEPHONE CONDUIT SYSTEM**

Notes: Roadway Drains A & B are located at the upstream and downstream curbs.
All dimensions are measured along Edge of Slab.
C.C.F. indicates Conduit Expansion Fitting.

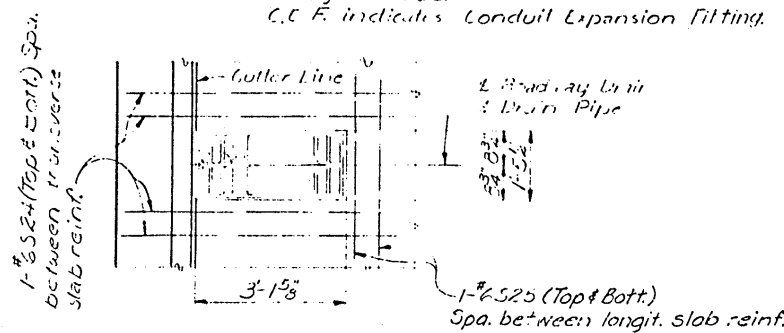


SECTION A-A

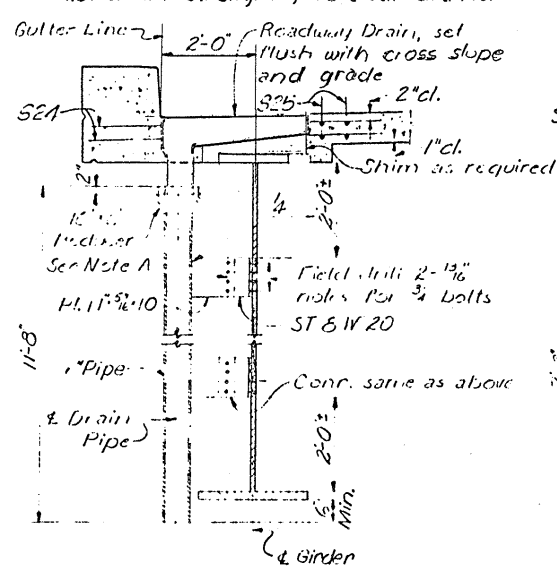
SECTION B-B (1/4" Required)



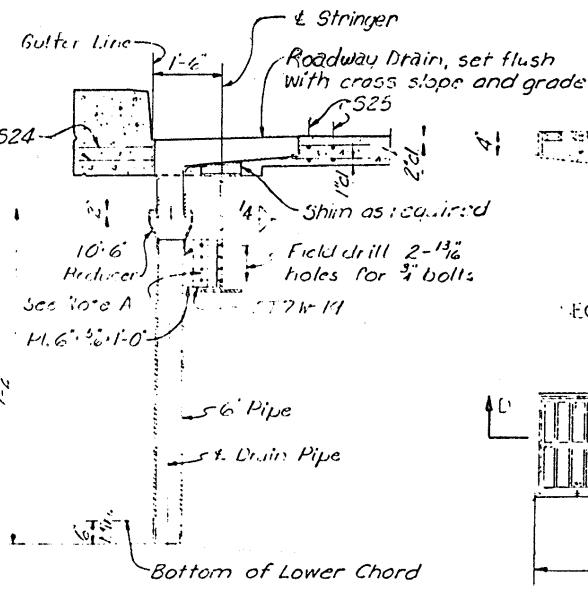
SECTION C-C



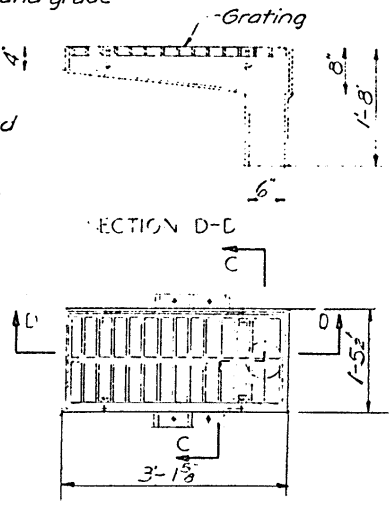
ROADWAY DRAIN B REINFORCING PLAN



SECTION D-D (1/4" Required)



SECTION E-E (1/4" Required)



SECTION F-F (1/4" Required)

RAINAGE NOTES

Roadway Drains B are to be as manufactured by National Foundry Co., Cat. No. 4014-A, or an approved equal. Material shall be ductile iron conforming to ASTM A536-67, Grade 65-45.
Pipe shall be spliced with full penetration butt welds.
Rough fitted connections shall be used for all 3/4" bolts.
Drain Pipe shall conform to ASTM A53-69a, Type S.
Drains A are to be galvanized after fabrication.
Normal slab reinforcement may be shifted slightly to clear drains.

NOTES

Work this sheet with Sheet 30.

AS BUILT

DEC 28 1972

MISSISSIPPI RIVER BRIDGE

DRAINAGE

MUSCATINE COUNTY
IOWA STATE HIGHWAY COMMISSION

Design No. 694
File No. 27768
Des. Sht. No. 27 of 27

**THIS SHEET FROM ORIGINAL
DESIGN IS INCLUDED FOR
INFORMATION ONLY.**

Note: Do not scale this drawing. Follow dimensions.

SVERDRUP & PARCEL AND ASSOCIATES, Inc.
CONSULTING ENGINEERS
ST. LOUIS, MISSOURI

DESIGN NO. 170 FILE NO. 23800 DES. SH. NO. 27 OF 27

PROJECT UN-92-9(19)-41-70 PROJECT SH. NO. 112 OF 153

01-20-84204-1

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.

10-22-93204-4

All guardrail materials that are removed and not reused on this project shall become the property of the contractor. Any material to be used on this project that is damaged due to the carelessness of the contractor shall be replaced at the contractor's expense without cost to the State of Iowa.

04-04-89213-1

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.

01-20-84221-4

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.

10-02-90213-7

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.

06-22-84251-2

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.

08-20-85251-4

When the two-line marking system is being used, the centerline may always be placed on one side of the roadway except where a "No Passing Zone" line is used, at which point it is placed on the opposite side of the roadway.

NOTE 1

The State of Illinois will coordinate the removal of the SSI sensors. They will also be in charge of coordinating replacement with the sensor contractor.

TABULATION OF GRADING FOR GUARDRAIL INSTALLATIONS107-2302-28-89

*Refer to Standard Road Plan RL-11 or Typical 4303 and 4306

LOCATION POINT		TYPE	* DIMENSIONS				CLASS 10 EXCAV. Cu.Yds.	EMBANK. IN PLACE Cu.Yds.	PIPE			REMARKS
No.	Station		(A) / (T)	(Y)	(Z)	Size			Type	Length		
1	4+72	1	68.75	4.8	18.2	--	15					for N. end
2	4+72	1	68.75	4.8	18.2	--	15					

TABULATION OF DELINEATORS AND OBJECT MARKERS108-1704-28-92

Refer to Standard Plan RE-48A-B* and RE-29C**Not a Bid Item

LOCATION		DELINEATOR	OBJECT MARKER				REMARKS
Station	Type*	Single White D-1W Number	Type 2 OM2-3YV Number	Type 3		Offset Brackets ** Number	
				OM-3L Number	OM-3R Number		
4+72	2	--	4	1	1	2	for N. end

REMOVE or REMOVE AND REINSTALL BEAM GUARDRAIL110-7A10-22-93

LOCATION		SIDE	STEEL BEAM GUARDRAIL		POST					END ANCHORAGE		REMARKS
No.	STATION		REMOVE Lin. Ft.	REMOVE & REINSTALL Lin. Ft.	REMOVE Number	REMOVE & REINSTALL 8"x8" 10"x10" 6"x8" 6"x6" Number	REMOVE Number	REMOVE & REINSTALL Number				
1	4+72	N	125	--	23	--	--	--	2	--	Iowa End	
2	4+90	S	375	--	60	--	--	--	2	--	Illinois End	

TABULATION OF STEEL BEAM GUARDRAIL FOR STANDARD ROAD PLANS RE-63, RE-65

* Includes 2 - 12.5' Thrie Beam Sections and 1 - 6.25' "W" to Thrie Beam Transition Section

NO.	STATION	STANDARD ROAD PLAN	CASE	FORMED STEEL BEAM GUARDRAIL					TOTAL "W" BEAM Lin. Ft.	TOTAL THRIE BEAM Lin. Ft.	BEAM GUARDRAIL POSTS			POST & ADAPTOR RE-37 No.	ANCHOR SYSTEM	REMARKS
				"W" Beam Lin. Ft.	(S) Thrie Beam 31.25' Lin. Ft.	(H) Thrie Beam Lin. Ft.	(T) Thrie Beam 31.25' Lin. Ft.	"W" Beam Lin. Ft.			With 8"x8" Spacer Blocks 10"x10"x6' No.	Without Spacer Blocks 8"x8"x6' No.	6"x8"x6' No.			
1	17+51	RE-65	W	50.0	31.25	--	31.25	100	62.5	6	18	4	--	RE-52 2	For NE And NW corner (Iowa End)	
2	17+51	2230-16		175.0			175.0	360		64	Steel Posts			RE-69 2	For SE And SW corner (Illinois End)	

TABULATION OF TEMPORARY FLOODLIGHTING LUMINAIRES108-27Modified

NO.	LOCATION STATION	TYPE	NUMBER LUMIN.	REMARKS
1	17+51	570-2	13	includes 2 for approaches

TABULATION OF TEMPORARY SIGNALS108-28Modified

NO.	LOCATION STATION	NUMBER SET-UPS	TYPE			REMARKS
			One Lane Traffic	Haul Road	Intersection	
1	17+51	14	modified RS	XD		

REMOVAL OF PAVEMENT110-107-21-87

STATION TO STATION	AREA Sq. Yds.	SAW CUT Lin. Ft.	REMARKS
3+94 to 4+72	268	287.71	28 3/4

DESIGN NO. 694
FILE NO. 27768

ROAD DESIGN • CADD • PRODUCED

STATE OF IOWA

FHWA REGION 7

FISCAL YEAR

MUSCATINE

COUNTY

PROJECT NUMBER

BRF-92-9(68)--38-70

SHEET NUMBER

30 of 41