

LETTING DATE January 8, 1991

FN-92-4(16)--21-61

MADISON COUNTY

CONSTRUCTION PLANS SHOWING PROJECT AS BUILT

Plan Preparation Supervised By: [Signature]
Resident Construction Engineer

Date MAY 14, 1993 Iowa Reg. No. 11002

REVIEWED AND FORWARDED TO AMES

[Signature] Date MAY 18 1993
District Construction Engineer

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

ALAN SAMSON
District Engineer

AFTER MICROFILMING RETURN ORIGINAL TO DISTRICT NO. 4

IOWA
DEPARTMENT OF TRANSPORTATION
Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE
PRIMARY ROAD SYSTEM
MADISON COUNTY
A.C.C. RESURFACING OF P.C.C.
ON IA. 92 FROM ADAIR COUNTY LINE EAST TO WINTERSET

SCALE: As Noted

The Iowa Department of Transportation Standard Specifications for Highway and Bridge Construction, series of 1984, plus current Supplemental Specifications and Special Provisions shall apply to construction work on this project.

IOWA 7 1 21

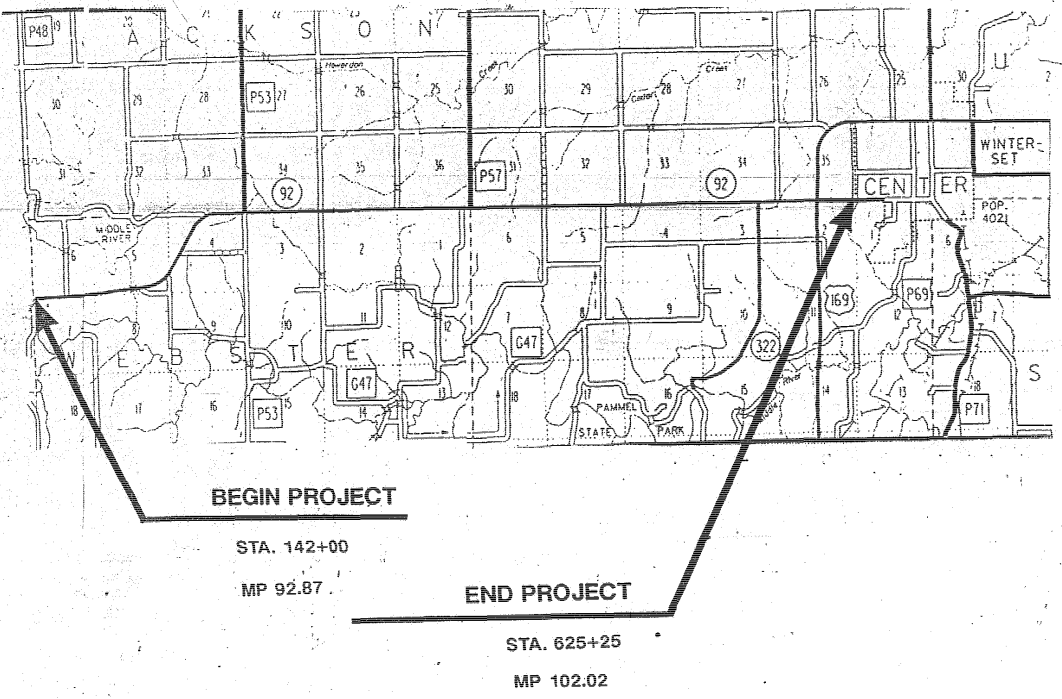
PROJECT NUMBER
FN-92-4(16)--21-61

R.O.W. PROJECT NUMBER

R.O.W.

PIN NUMBER
90-61010-1

INDEX OF SHEETS		105-3 07-21-87
NO.	DESCRIPTION	
1	TITLE SHEET	
2A-2B	TYPICAL CROSS SECTIONS	
3A-3E	ESTIMATE OF QUANTITIES & GENERAL INFORMATION	
4	DETAIL SHEET FOR RIGHT TURN LANE	
5A-5C	DETAIL SHEETS FOR BRIDGE RETRO FITS	
6A-6F	DETAIL SHEETS 520-17A, 520-17C, 520-50, 520-51B, 532-4 & 532-9	
7-9	CROSS SECTIONS	
3F	CENTERLINE REFERENCE TIES	



MILEAGE SUMMARY					105-1 08-20-85
DIV.	LOCATION	LIN. FT.	MILES	STATE CONTROL SECTION NO.	
	STA. 142+00 TO STA. 392+00	25,000			
	STA. 588+75 TO STA. 625+25	3,650			
	OMIT FOR BRIDGE STA. 222+67	- 215			
	TOTAL NET LENGTH OF PROJECT	28,435	5.39	61-0500	

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-29C	11-05-85	RF-8	04-19-74	R6-2	10-02-90	
RE-48A	08-20-85	RF-14	01-09-90	RH-50	10-02-90	
RE-48B	08-20-85	RF-19C	05-10-88	RH-51	10-02-90	
RE-52	08-08-89	RF-19E	10-02-90	RL-7	05-13-86	
RE-65	01-09-90	RF-30A	01-09-90	RL-11	10-11-88	
RE-69	08-08-89	RF-30B	07-21-87	RS-2	10-11-88	
RF-1	09-03-76	RF-31	12-03-71	RS-3	11-15-88	
RF-3	12-09-77	RF-32	01-09-90	RS-4	11-15-88	
RF-5	03-31-87					

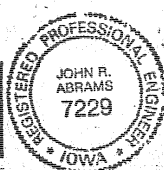
THIS AS BUILT PLAN INCLUDES			
YEAR	WORK	CONTRACTOR	PROJ. INSPECTOR
1992	ACC RESURFACING	HENNINGSSEN CONST., INC.	R. JMERSON
	LONGITUDINAL SUBDRAIN	LUNDELL CONST. CO.	TOM LYNAM
	FULL DEPTH PATCHES	DNK ENTERPRISES	BILL PIPER

DESIGN DATA RURAL					101-4
1991	AADT	1300	V.P.D.		
2011	AADT		V.P.D.		
20	DHV		V.P.H.		
	TRUCKS	12	%		

150

MICROFILMED

Donald L. Eady
ROAD DESIGN ENGINEER DATE NOV 28 1990



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.

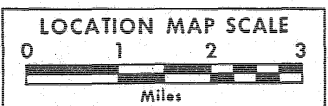
Name [Signature]
Iowa Registration No. 7229 Date 11/28/90

Iowa Department of Transportation
Highway Division

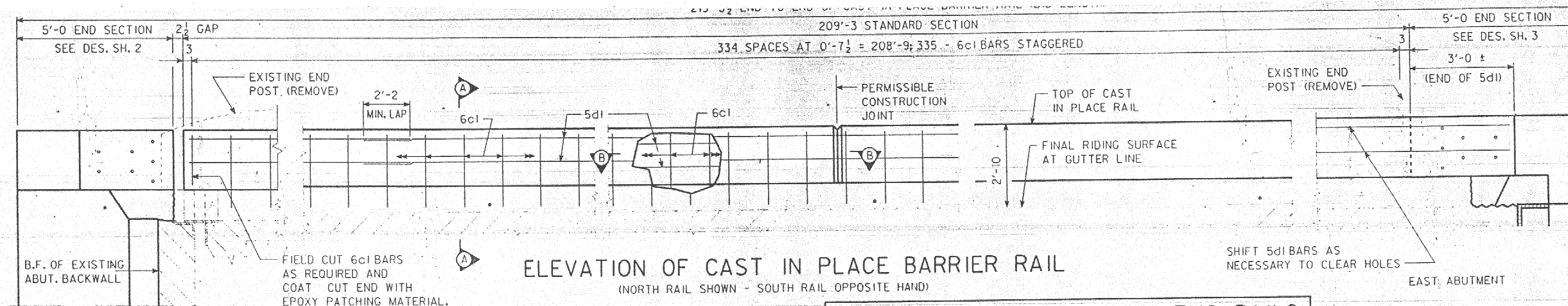
AUTHORIZED FOR LETTING
[Signature]
DEPUTY CHIEF ENGINEER 11/27/90 DATE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

FOR THE DIVISION ADMINISTRATOR DATE



910124 122/1990
007004



ELEVATION OF CAST IN PLACE BARRIER RAIL
(NORTH RAIL SHOWN - SOUTH RAIL OPPOSITE HAND)

DOWEL SETTING NOTE:
THE 6a2, 6a6 & 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 6a2, 6a6 & 6c1 DOWELS:

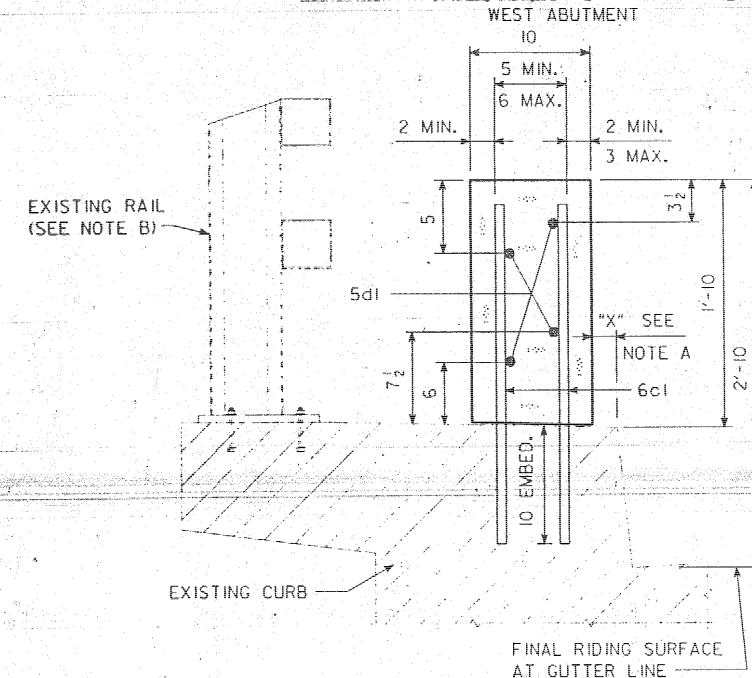
A. EPOXY GROUT SYSTEM IN ACCORDANCE WITH STANDARD SPECIFICATIONS ARTICLE 2301.15 AND CURRENT SUPPLEMENTAL SPECIFICATIONS OF THE IOWA D.O.T. HIGHWAY DIVISION.

B. HYDRAULIC CEMENT GROUT SYSTEMS. DRILLED HOLES ARE TO BE 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.

SOME OF THE 5b1 AND 5b2 BARS, PLUS ALL OF THE 6a5 AND 5e BARS SHALL ALSO BE SET AS DOWELS IN DRILLED HOLES. SEE DESIGN SHEETS 2 AND 3 FOR DEPTH OF HOLES. THESE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR THE EPOXY GROUT SYSTEM ONLY AS NOTED IN PARAGRAPH "A" ABOVE.

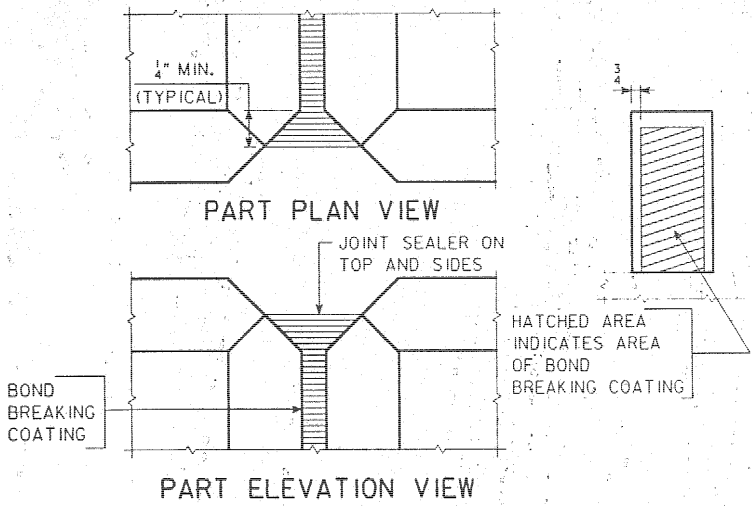
EPOXY REINFORCING STEEL-TWO RAILS						
BAR	LOCATION	SHAPE	NO.	LENGTH	LIN. FT.	WEIGHT
6a1	END SECTION FTG.-VERT.	—	20	4'-1	82	123
6a2	END SECTION FTG.-VERT.	—	4	1'-8	7	10
6a3	END SECTION RAIL-VERT.	—	20	2'-6	50	75
6a4	END SECTION RAIL-VERT.	—	28	3'-6	98	147
6a5	END SECTION RAIL-VERT.	—	10	3'-0	30	45
6a6	END SECTION RAIL-VERT.	—	8	2'-6	20	30
5b1	END SECTION FTG.-HORIZ.	—	10	4'-11	49	51
5b2	END SECTION FTG.-HORIZ.	—	10	5'-0	50	52
5b3	END SECTION RAIL-HORIZ.	—	12	4'-8	56	58
5b4	END SECTION RAIL-HORIZ.	—	12	4'-8	56	58
6c1	STANDARD RAIL, VERT.	—	670	2'-6	1675	2516
5d1	STANDARD RAIL, LONGIT.	—	48	37'-2	1784	1861
5e1	CURB DOWELS, HORIZ.	—	2	4'-2	8	9
5e2	CURB DOWELS, HORIZ.	—	2	4'-2	8	9
TOTAL (LBS.)						5044

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.
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.



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.

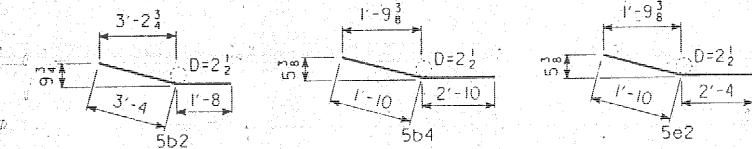


CAST IN PLACE BARRIER RAIL JOINT DETAILS

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.

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
965	ORIGINAL DESIGN
991	RETROFIT RAIL



BENT BAR DETAILS

CONCRETE PLACEMENT SUMMARY-TWO RAILS			TOTAL
SECTION	418.50' AT 0.057 CU. YDS. PER LIN. FT.		23.9
WEST END SECTION & FOOTING	2 AT 1.6 CU. YDS. PER SECTION		3.2
EAST END SECTION	2 AT 0.6 CU. YDS. PER SECTION		1.2
TOTAL (CU. YDS.)			28.3

TOTAL ESTIMATED QUANTITIES-TWO RAILS			
ITEM NO.	ITEM	UNITS	QUANTITY
1	CONCRETE BARRIER RAIL, (CAST-IN-PLACE)	LIN. FT.	438.9
2	REMOVAL OF EXISTING HANDRAIL	L. S.	LUMP SUM

ESTIMATE REFERENCE INFORMATION
INCLUDES 28.3 CU. YDS. OF CLASS D STRUCTURAL CONCRETE, AND 5044 LBS. OF EPOXY COATED REINFORCING STEEL. REINFORCING STEEL COMPRISED OF 2011 L.F. OF #5 BAR & 1962 L.F. OF #6 BAR.

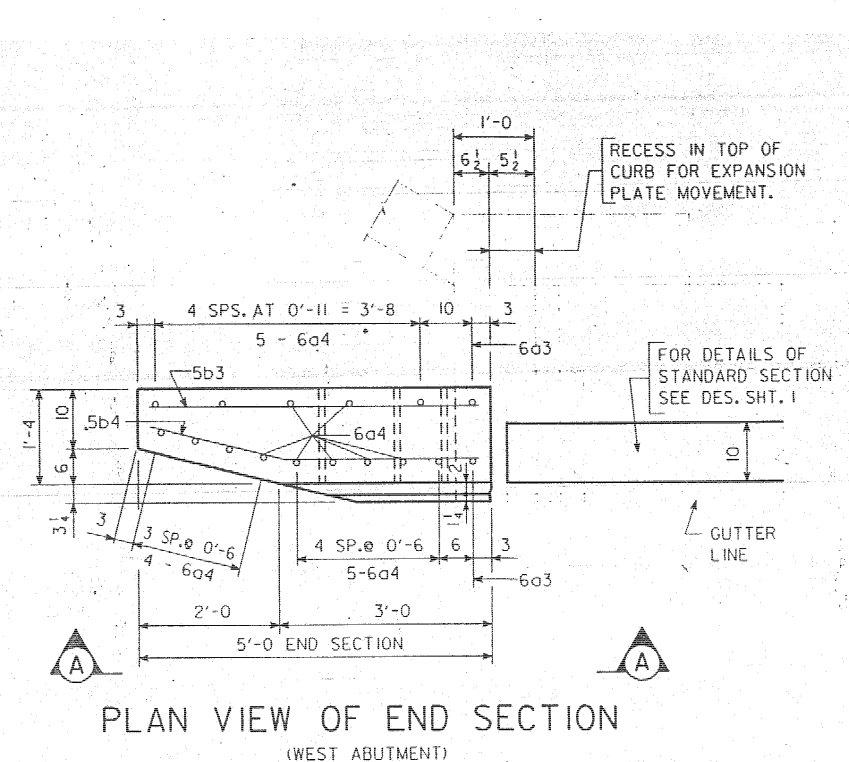
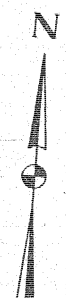
DESIGN STRESSES:
DESIGN STRESSES FOR THE FOLLOWING MATERIALS ARE IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SERIES OF 1989.
REINFORCING STEEL IN ACCORDANCE WITH SECTION 8, GRADE 60.
CONCRETE IN ACCORDANCE WITH SECTION 8, f'c = 3,500 PSI.

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
DATE: 12-16-11
LEROY PHILLIPS
REG. NO. 4138

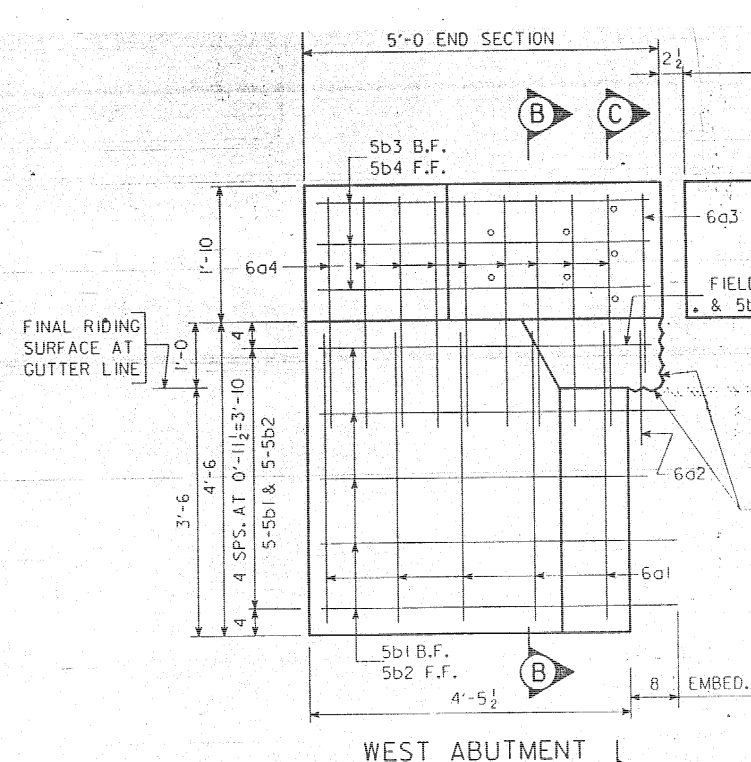
LOCATION:

IOWA #92 OVER MIDDLE RIVER T-75N, R-29W SECTION 5 WEBSTER TWP. MADISON COUNTY MAINT. NO. 6194.45092

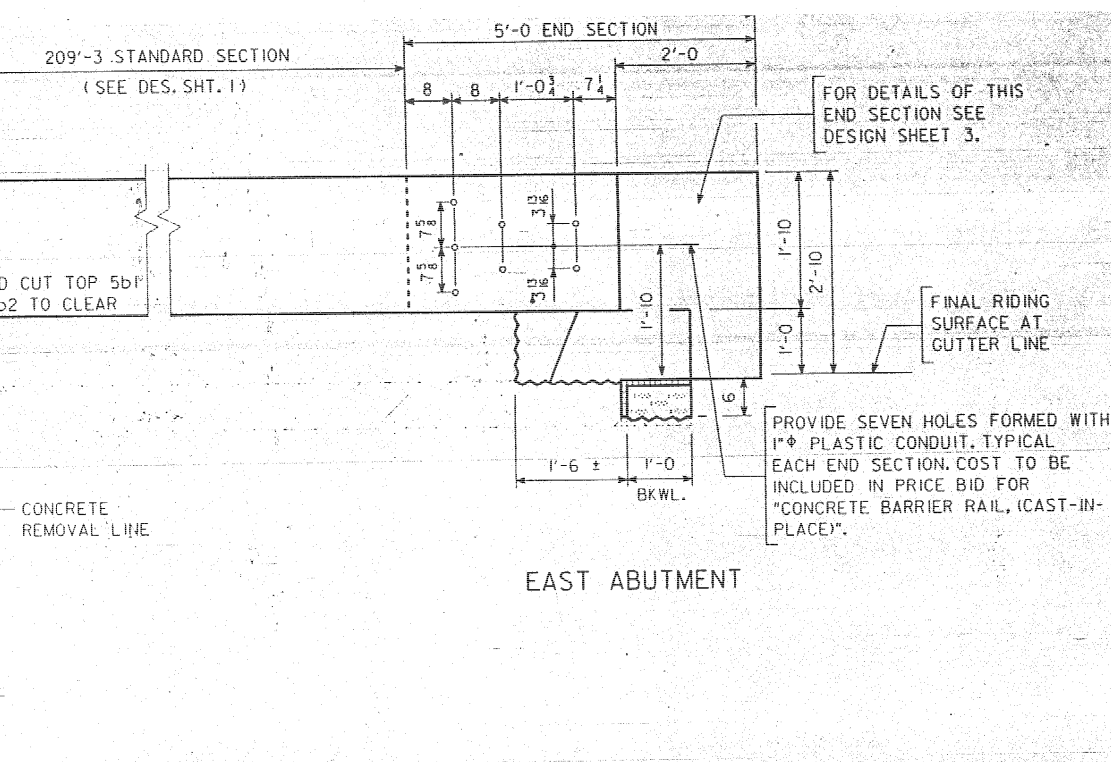
DESIGN FOR REPAIRS TO A
210'-0" x 30' CONTINUOUS I-BEAM BRIDGE
64'-0" END SPANS 82'-0" INTERIOR SPAN
CAST IN PLACE BARRIER RAIL DETAILS
STA. 222+67 OCT., 1990
MADISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 1 OF 3 FILE NO. 28270 DESIGN NO. 991
STATE IOWA REGION 7 FISCAL YEAR 5A TOTAL SHEETS



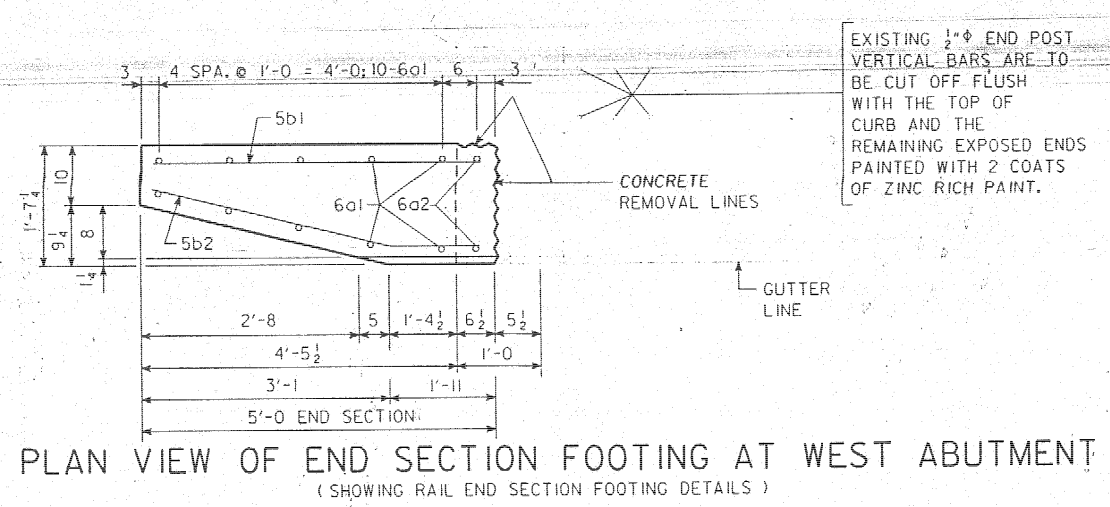
PLAN VIEW OF END SECTION
(WEST ABUTMENT)



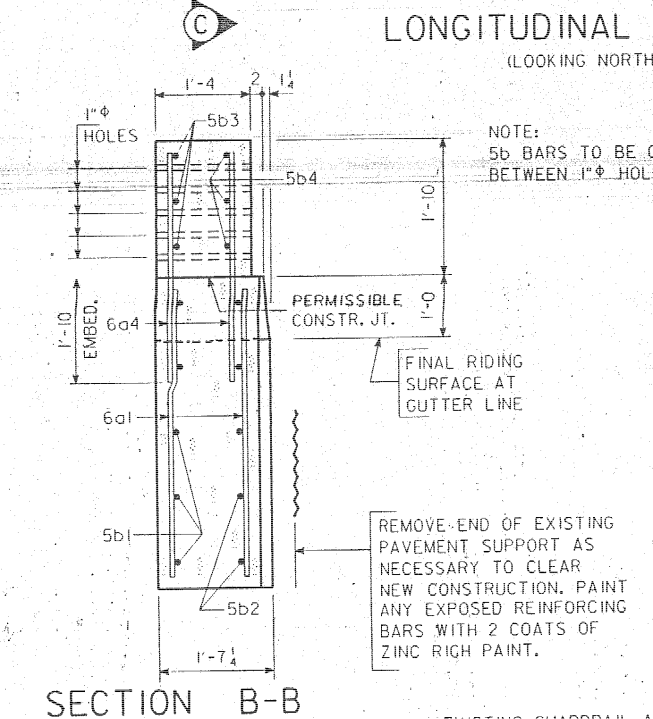
WEST ABUTMENT



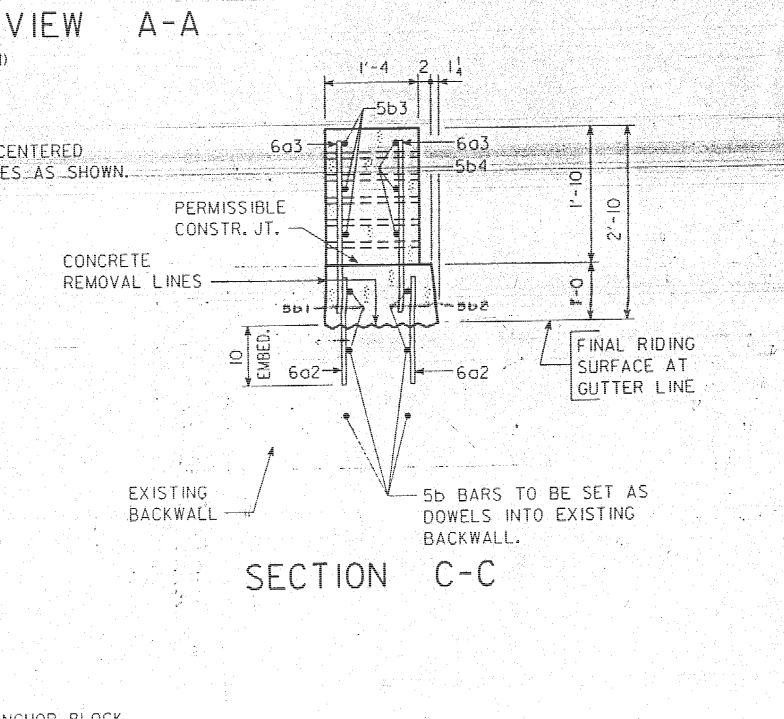
EAST ABUTMENT



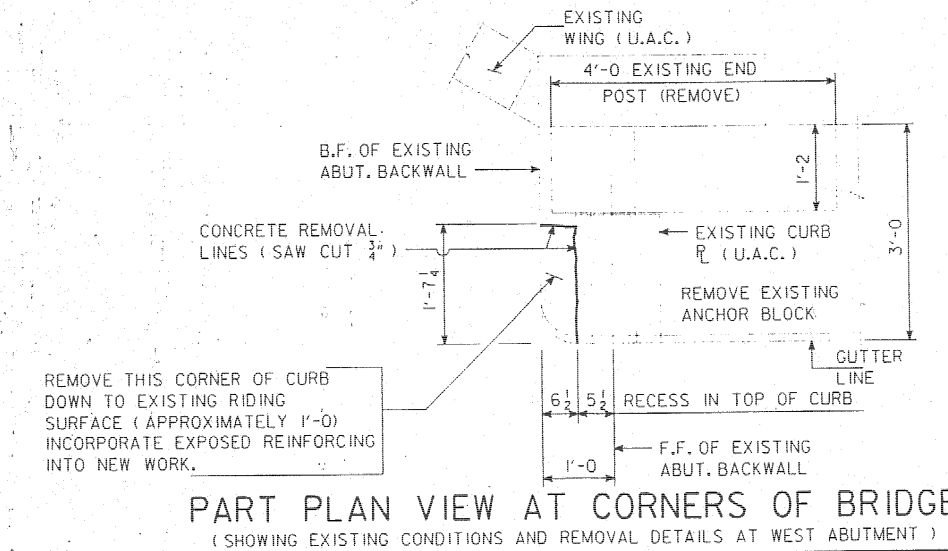
PLAN VIEW OF END SECTION FOOTING AT WEST ABUTMENT
(SHOWING RAIL END SECTION FOOTING DETAILS)



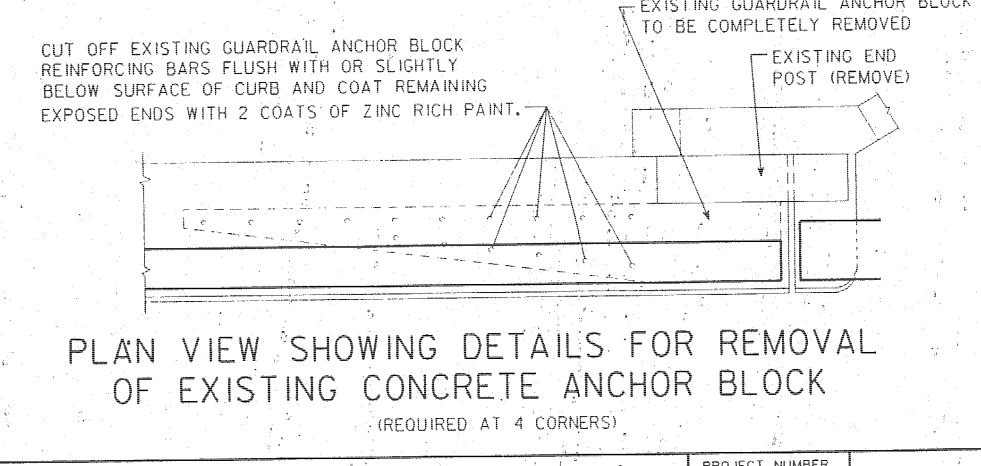
SECTION B-B



SECTION C-C

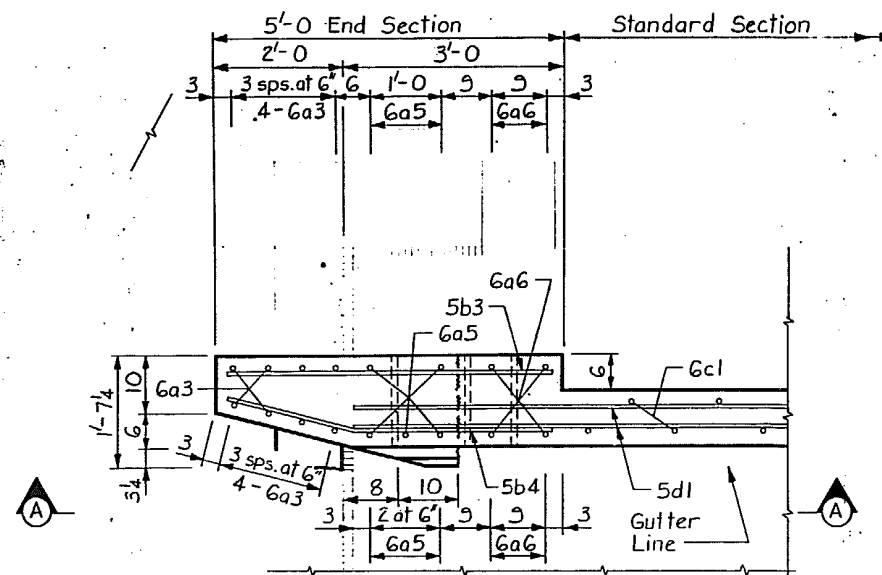


PART PLAN VIEW AT CORNERS OF BRIDGE
(SHOWING EXISTING CONDITIONS AND REMOVAL DETAILS AT WEST ABUTMENT)

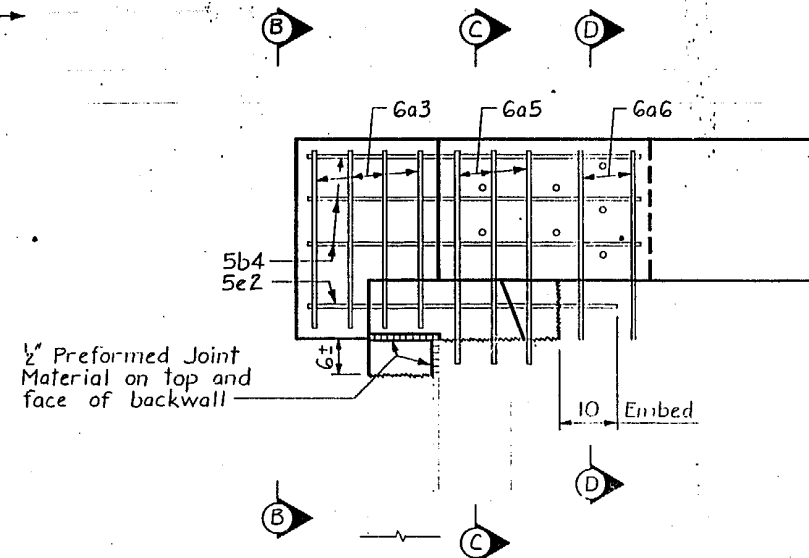


PLAN VIEW SHOWING DETAILS FOR REMOVAL
OF EXISTING CONCRETE ANCHOR BLOCK
(REQUIRED AT 4 CORNERS)

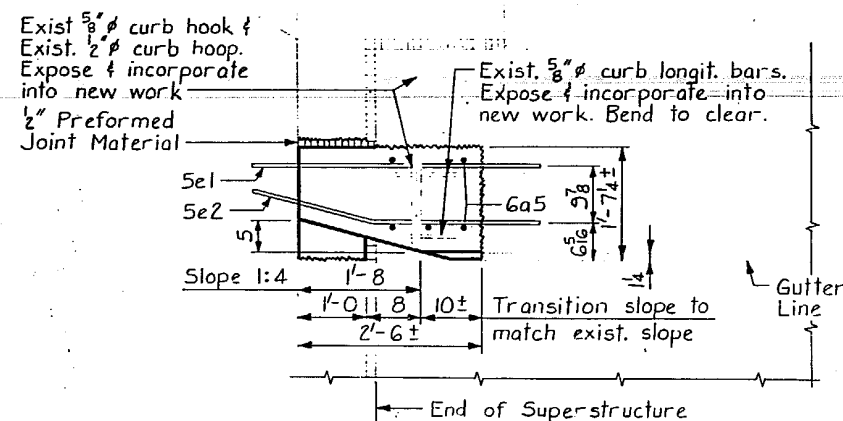
DESIGN FOR REPAIRS TO A					
210'-0" x 30' CONTINUOUS					
I-BEAM BRIDGE					
64'-0" END SPANS			82'-0" INTERIOR SPAN		
WEST ABUT. END SECTION DETAILS					
STA. 222+67					
MADISON COUNTY					
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION					
DESIGN SHEET NO. 2		OF 3		FILE NO. 28270	
STATE		FISCAL YEAR		SHEET NO.	
IOWA		7		5B	



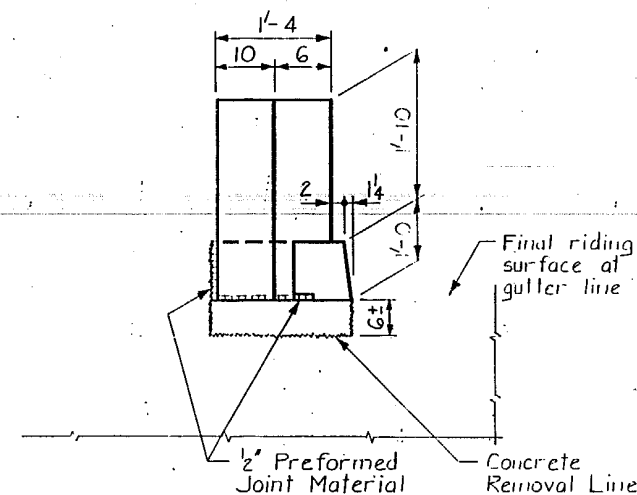
PLAN VIEW OF END SECTION
(East Abutment)



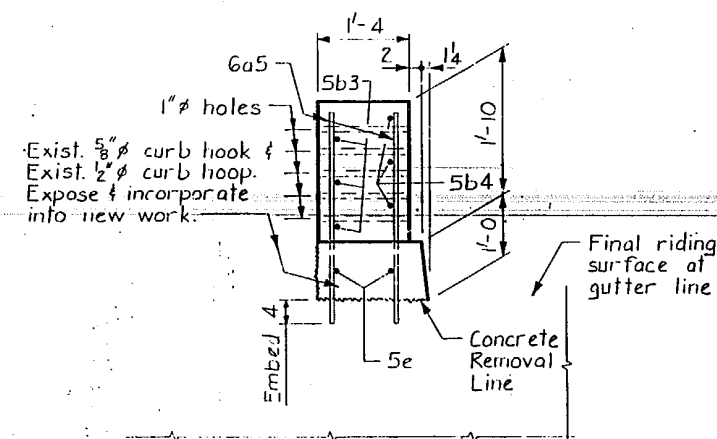
LONGITUDINAL VIEW A-A
(Looking South)



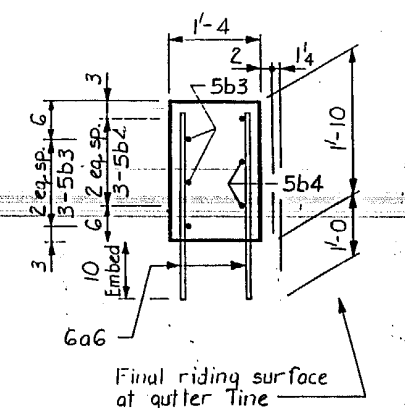
PLAN VIEW OF NEW CURB (East Abutment)



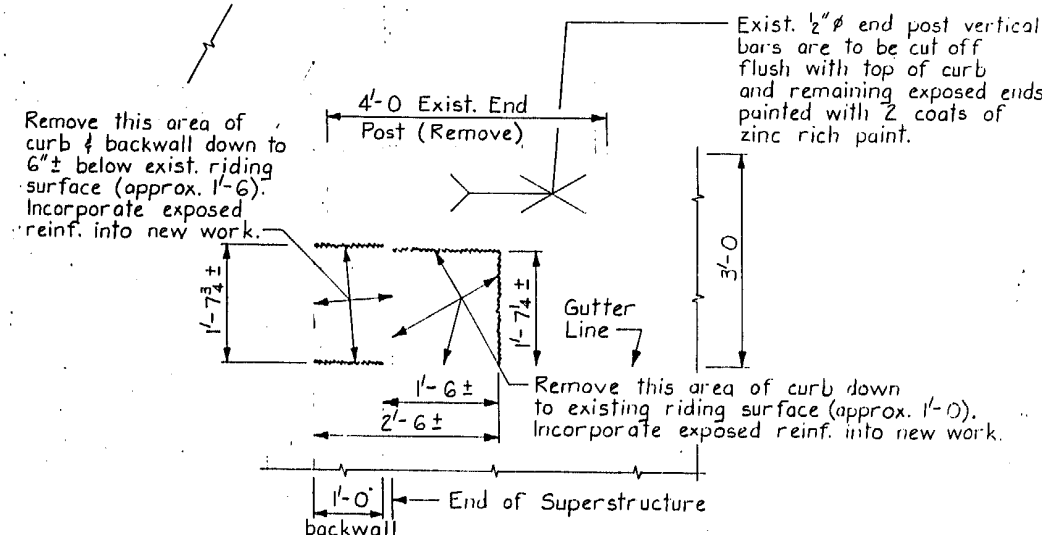
VIEW B-B



SECTION C-C



SECTION D-D



PART PLAN VIEW AT CORNER OF BRIDGE

(Showing existing conditions and removal details at East Abutment)

Design for Repairs to a
210'-0" x 30' CONTINUOUS I-BEAM BRIDGE
64'-0" End Spans 82'-0" Interior Span
CAST IN PLACE BARRIER RAIL DETAILS
Sta. 222+67 October, 1990
MADISON COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 3 Of 3 File No.: 28270 Design No.: 991

DESIGNED BY: Chad Schumann TRACED BY: R. Gustafson
DETAILED BY: Thayne Sorenson CHECKED BY: R. Gustafson

Madison COUNTY

PROJECT NUMBER

FN-92-4(16)--21-61

STATE	IOWA	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
			5C	