Story I-35 #93

BRIDGE REPAIR & RETROFIT RAIL
IM-35-5(62) 113--13-85

CONVENTIONAL SIGNS

- DIVIDED HIGHWAY
- PAVED ROAD
- BITUMINOUS ROAD
- GRAVEL ROAD
- EARTH ROAD
- INTERSTATE HIGHWAY
- UNITED STATES HIGHWAY
- STATE HIGHWAY
- COUNTY HIGHWAY
- RAILROAD
- PIPLINE
- AIRPORT
- HYDROLOGY
- BRIDGE
- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE LIMIT LINE
- TOWNSHIP LINE
- SECTION LINE

IOWA
DEPARTMENT OF TRANSPORTATION
Highway Division

PLANS OF PROPOSED IMPROVEMENTS ON THE

INTERSTATE ROAD SYSTEM

STORY COUNTY

BRIDGE REPAIR & RETROFIT RAIL

ON I-35 N.B.& S.B.OVER
13th ST.IN AMES

SCALES: 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)

STATE	FHWA REGION	F.Y.	SHEET	TOTAL
IOWA	7		1	30

PROJECT NUMBER
IM-35-5(62)113--13-85
R.O.W. PROJECT NUMBER
PIN
93-85-010-1

DESIGN NO. 693 N.B. 101-4			
DESIGN DATA RURAL			
1993	AADT	16,500	V.P.D.
201	AADT		V.P.D.
201	DHV		V.P.H.
TRUCKS			%

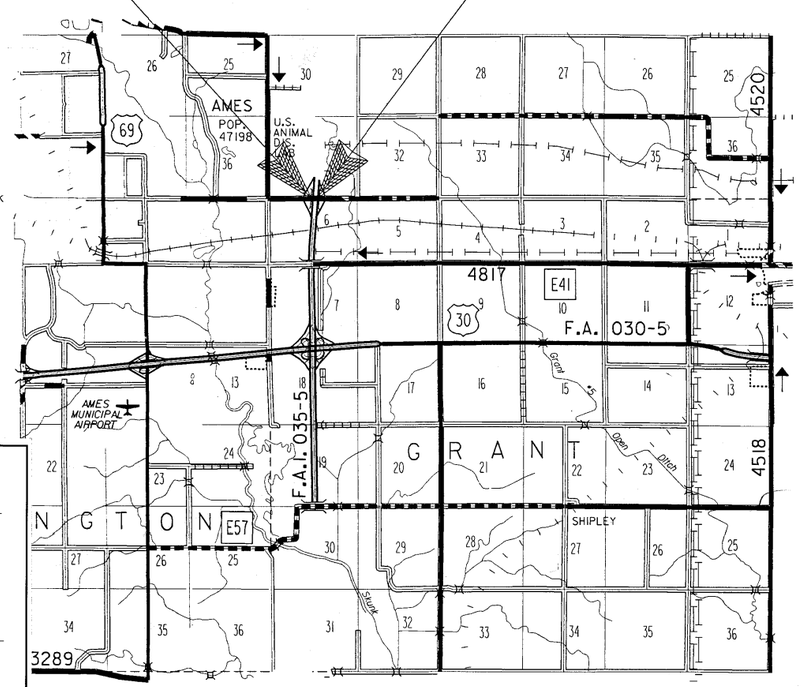
DESIGN NO. 793 S.B. 101-4			
DESIGN DATA RURAL			
1993	AADT	16,500	V.P.D.
201	AADT		V.P.D.
201	DHV		V.P.H.
TRUCKS			%

INDEX OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2	BRIDGE ESTIMATE SHEET FOR DESIGN 693
2-13	BRIDGE DESIGN 693
14	ROAD ESTIMATE SHEET FOR DESIGN 693
15-18	ROAD SHEETS FOR DESIGN 693
19	BRIDGE ESTIMATE SHEET FOR DESIGN 793
19-25	BRIDGE DESIGN 793
26	ROAD ESTIMATE SHEET FOR DESIGN 793
27-30	ROAD SHEETS FOR DESIGN 793

DESIGN NO. 793 S.B.

~~DESIGN NO. 693 N.B.~~



THIS AS BUILT PLAN INCLUDES

YEAR	WORK	CONTRACTOR	PROJECT INSP
1994	BRIDGE REPAIR	CRAMER AND ASSOCIATES	LEONARD BUTRICK

CORRECTED BY : NORMAN HOCKETT
CHECKED BY: DAVE MARTIN

CONSTRUCTION "AS BUILT" PLANS

As-Built Preparation Supervised By: Sandra Larson (Project Engineer)

Date: 1-21-97

REVIEWED AND FORWARDED TO AMES

Robert A. Younie (Transportation Center Construction Engineer) Date: 1/27/97

AFTER MICROFILMING RETURN ORIGINAL,
~~One 50% Reduced Print, and~~ Two Full-Size Prints To:
Iowa Transportation Center

LOCATION MAP SCALE
0 1 Miles 2 3
1 2 3 4 5 Kilometers

150

VALUE ENGINEERING SAVES
REFER TO THE GENERAL NOTES ON SHEET 2&19 OF 30

STANDARD ROAD PLANS

IDENT	DATE	IDENT	DATE
RE-2A	2-17-87	RH-50	6-15-93
RE-2B	10-22-93	RH-51	2-23-93
RE-7	4-28-92	RH-52	9-29-92
RE-12A	10-11-88	RF-19E	2-23-93
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	RL-12	4-4-89
RE-53	2-23-93	RS-62	2-23-93
RE-65	1-7-92	RS-63A	9-29-92
RE-67	7-16-91	RS-63B	9-29-92
RE-68	8-8-89		
RE-69	10-22-93		

STANDARD BRIDGE PLANS

STANDARD	ISSUED	REVISED

REVISIONS

Iowa Department of Transportation

AUTHORIZED FOR LETTING
George F. Sisson 12-13-93
DEPUTY CHIEF ENGINEER DATE

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

Name Wm. A. Lundquist
Iowa Registration No. 4449 Date 11/22/93

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED

FOR THE DIVISION ADMINISTRATOR DATE

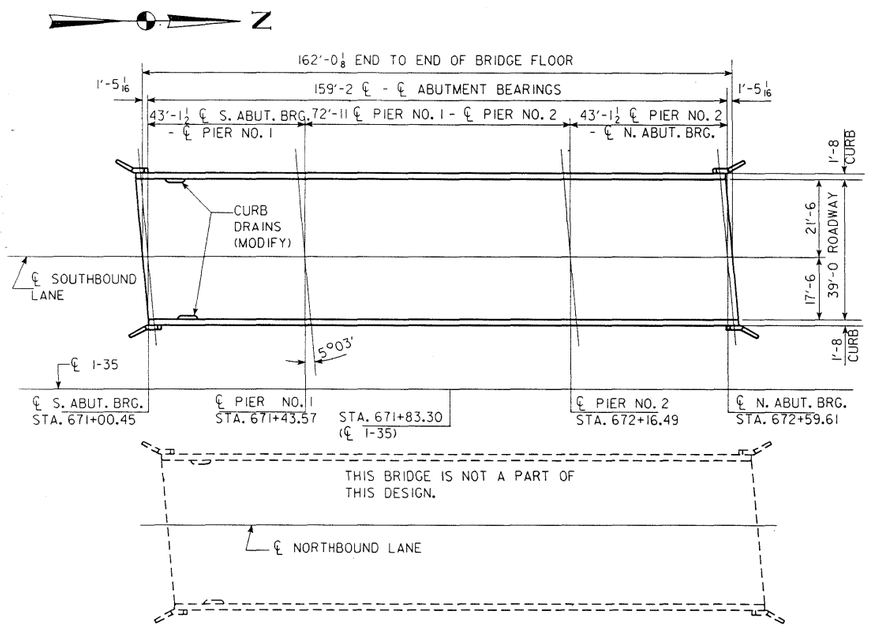
MICROFILMED

LETTING DATE 02-08-94 STATE CONTROL SECTION NUMBER 85-1300 FILE NO. 28751 STORY COUNTY PROJECT NO. IM-35-5(62) 113--13-85 SHEET NO. 1

2-8-94 GAN 693 & 793 STORY (ABRAMS)

STORY COUNTY

2-8-94 GAN 693 & 793 STORY (ABRAMS)



SITUATION PLAN

CLEANING AND PAINTING NOTE :

ABUTMENT BEARINGS (SOLE PLATES AND MASONRY PLATES) ARE TO BE CLEANED AND PAINTED. CLEANING BY OTHER THEN ABRASIVE BLAST CLEANING (INCLUDES VACUUM BLAST) IS REQUIRED. SURFACE TO BE PAINTED SHALL BE PREPARED IN ACCORDANCE WITH STEEL STRUCTURES PAINTING COUNCIL (SSPC) SP3. SURFACES OF THE ABUTMENT BEARINGS 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. THIS 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 "ENVIRONMENT PROTECTION FOR REMOVAL OF NON HAZARDOUS PAINT". WASTE MATERIAL SHALL BE DELIVERED TO THE D.O.T. 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.

GENERAL NOTES :

THIS DESIGN IS FOR REPAIR TO THE EXISTING 159'-2x39' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE (SOUTHBOUND LANE), ORIGINAL DESIGN NO. 863 STORY COUNTY. BRIDGE REPAIR, INCLUDING A 1 1/2" SURFACE RAISE, WAS DONE UNDER DESIGN 378 STORY COUNTY. PLANS OF THE ORIGINAL STRUCTURE AND THE REPAIRS MAY BE OBTAINED AT THE AMES OFFICE OF THE IOWA D.O.T. - HIGHWAY DIVISION.

REPAIRS SHALL CONSIST OF THE FOLLOWING :

1. REMOVAL OF EXISTING HANDRAIL.
2. CONSTRUCTION OF CAST IN PLACE BARRIER RAIL.
3. MODIFICATION OF CURB DRAINS.
4. CLEAN AND PAINT ABUTMENT BEARINGS.
5. APPLICATION OF CONCRETE SEALER.
6. INSTALLATION OF NEW GUARDRAIL.

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

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

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 THE CONTRACTOR AT NO EXTRA COST TO THE STATE.

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

THE BID ITEM "REMOVAL OF EXISTING HANDRAIL" SHALL INCLUDE ALL COSTS ASSOCIATED WITH DISMANTLING THE EXISTING HANDRAIL (APPROXIMATELY 306.4 L.F. AND 40 POSTS). THE HANDRAILS ARE TO BECOME THE PROPERTY OF 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 END POST REINFORCING AND RAIL POST ANCHOR BOLTS.

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

BOTH ABUTMENT BRIDGE SEATS SHALL HAVE AN APPLICATION OF CONCRETE SEALER IN ACCORDANCE WITH SUB-ARTICLE 2403.21 (D).

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

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.

AS BUILT	BRIDGE QUANITIES		
ITEM NO	DESCRIPTION	UNIT	QUANTITY
0320	REMOVAL OF HANDRAIL	LUMP SUM	$ 1500.00
0330	CONCRETE BARRIER RAIL	LIN FT	332
0340	CLEANING AND PAINTING STRUCTURAL STEEL	LUMP SUM	$ 800.00
0350	CONTAINMENT	LUMP SUM	$ 300.00
0360	TEMP BARRIER RAIL FURNISHED ONLY	LIN FT	390
0370	TEMP BARRIER RAIL PLACE ONLY	LIN FT	760
0380	MOBILIZATION	LUMP SUM	$ 6000.00
0390	CURB, DRAIN	LUMP SUM	$ 3000.00
0400	EMBANKMENT-IN-PLACE	CU. YD.	34.48
0410	GUARDRAIL END ANCHOR RE-52	EACH	1
0420	GUARDRAIL END ANCHOR RE-53	EACH	1
0430	GUARDRAIL , FORMED STEEL BEAM	LIN FT	212.75
0440	GUARDRAIL, FORMED STEEL THRIE BEAM	LIN FT	93.75
0450	GUARDRAIL BEAM POST	EACH	51
0460	GUARDRAIL END ANCHOR RE-69	EACH	3
0470	REMOVAL OF GUARDRAIL END ANCHORAGE	EACH	2
0480	REMOVAL OF GUARDRAIL	LIN FT	237.5
0490	REMOVAL OF POST	EACH	44
0500	OBJECT MARKERS TYPE 2	EACH	5
0510	OBJECT MARKERS TYPE 3	EACH	2
0520	PAINTED PAVEMENT MARKINGS	STATIONS	1.82
0530	REMOVABLE TAPE MARKINGS	STATIONS	23.48
0540	PAVEMENT MARKINGS REMOVED	STATIONS	1.82
0550	TEMP FLOOD LIGHTING,LUMINAIRE	EACH	2
0560	TRAFFIC CONTROL	LUMP SUM	$ 3600.00
0570	FLAGGER	DAYS	0

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.

TOTAL ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
1	CONCRETE BARRIER RAIL - CAST IN PLACE	L.F.	332.0
2	REMOVAL OF EXISTING HANDRAIL	L.S.	LUMP SUM
3	TEMPORARY BARRIER RAIL - FURNISH ONLY	L.F.	390
4	TEMPORARY BARRIER RAIL - PLACE ONLY	L.F.	760
5	CURB DRAIN MODIFICATION	L.S.	LUMP SUM
6	CLEANING AND PAINTING STRUCTURAL STEEL	L.S.	LUMP SUM
7	CONTAINMENT	L.S.	LUMP SUM
8	MOBILIZATION	L.S.	LUMP SUM

ESTIMATE REFERENCE INFORMATION

ITEM NO.	
1	INCLUDES 3828 LBS. OF EPOXY COATED REINFORCING STEEL AND 24.9 CU. YD. OF CLASS D STRUCTURAL CONCRETE. ALSO INCLUDES COST OF STEEL COVER PLATES AND THEIR ANCHORAGE SYSTEMS.
3 & 4	ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS.
5	INCLUDES 89 LBS. OF EPOXY COATED REINFORCING STEEL AND 1.0 CU. YD. OF CLASS D STRUCTURAL CONCRETE. ALSO INCLUDES COST OF 10" I.D. PVC DRAIN PIPE PLUS ANCHORS.
6	INCLUDES COST OF FURNISHING AND PLACING CONCRETE SEALER.
6 & 7	INVOLVES CLEANING AND PAINTING ABUTMENT BEARINGS ONLY.

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
863	ORIGINAL DESIGN
378	OVERLAY & REPAIR
793	RETROFIT RAIL

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.

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

12/14/93 DATE — GARY NOVEY — REG. NO. 8704

LOCATION:

MAINTENANCE NO. 8513.6L035
STORY COUNTY
T 83N R 23W SECTION 6
GRANT TWP.
SOUTHBOUND
I-35 OVER 13TH STREET

DESIGN FOR REPAIR TO SOUTHBOUND

159'-2 x 39' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

43'-1 1/2 END SPANS — 72'-11 INTERIOR SPAN

SITUATION PLAN

STATION:671+83.30 (℄ I-35) — NOVEMBER, 1993

STORY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 7 — FILE NO. 28751 — DESIGN NO. 793

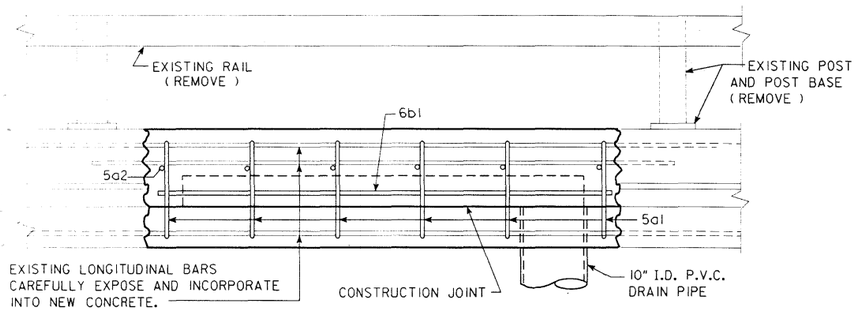
DESIGNED BY EW Koechne — TRACED BY C.E.COLE — SECTION LEADER: G.A.NOVEY
DETAILED BY C.E.COLE — CHECKED BY

DECK REPAIR - QUANTITIES | STANDARD SHEET 1038 | STORY COUNTY | PROJECT NUMBER | IM-35-5(62)113--13-85

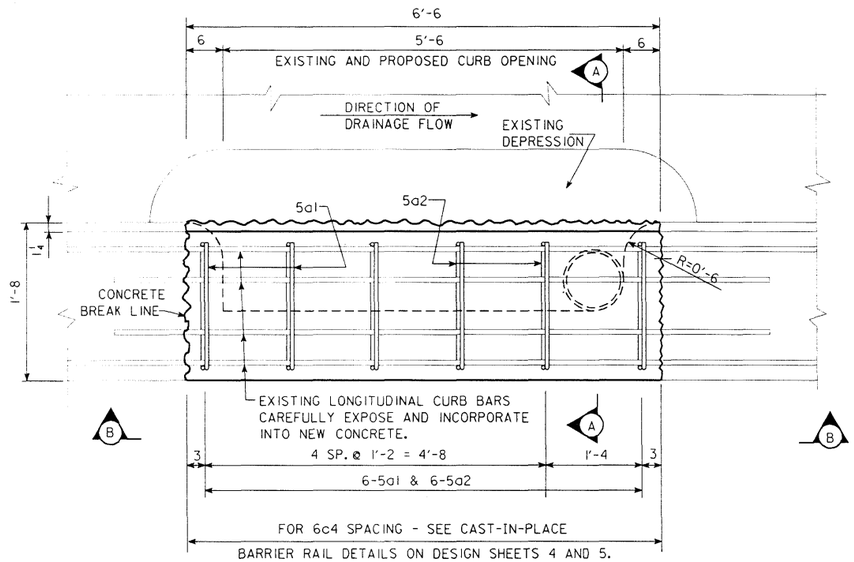
STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		19	30

REVISED: TOTAL ESTIMATED BRIDGE QUANTITIES TABLE CHANGED, AASHTO SERIES CHANGED TO 1992. TAPE NO. 13, DATED 11-9-92.
REVISED: IDOT STANDARD SPECIFICATIONS, UPDATE; ARCH.TAPE NO. 12 DATE 4-20-92
HSTD01038.SOI-LEP: THIS SHEET REDRAWN, DEVICE:ZHAO:[200,004]ARCH.TAPE NO. 15 DATE 9-8-88
REVISED: 6-21-93 - ESTIMATE REFERENCE INFORMATION CHANGED FOR " CONCRETE BARRIER RAIL - CAST IN PLACE".

H850793.COI DEVICE : ZGAI:[200,003]ARCH. TAPE No. _____DATE_____



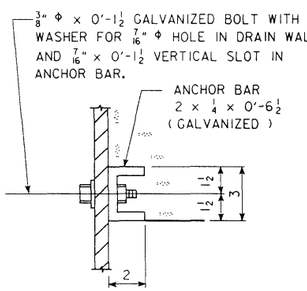
PART ELEVATION VIEW B-B OF CURB AND SLAB



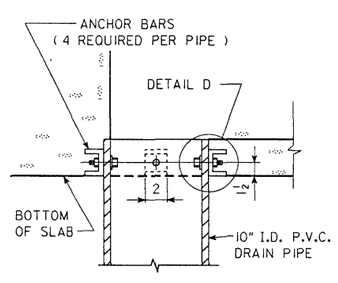
PLAN OF DRAIN MODIFICATION

SHOWN FOR WEST CURB

(2 DRAINS TO BE MODIFIED. CAST IN PLACE BARRIER RAIL NOT SHOWN.)



DETAIL D



DRAIN TOP DETAIL

CURB DRAIN MODIFICATION NOTES:

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

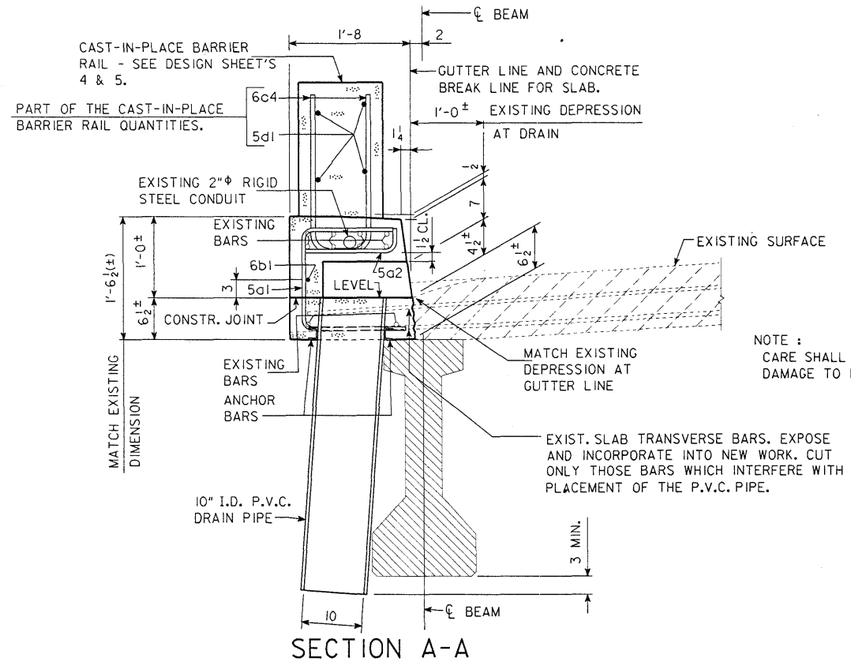
ALL CURB DRAIN MODIFICATION CONCRETE IS TO BE CLASS D.

ALL REINFORCING IS TO BE EPOXY COATED.

P.V.C. DRAIN PIPE SHALL BE NONPERFORATED PIPE MEETING THE REQUIREMENTS OF ARTICLE 4146.04 OF THE STANDARD SPECIFICATIONS.

THE LUMP SUM BID FOR "CURB DRAIN MODIFICATION" IS TO INCLUDE ALL COSTS INVOLVED IN REMOVING THE EXISTING CONCRETE AS SHOWN ON THIS SHEET. IT SHALL ALSO INCLUDE THE COST OF FURNISHING NEW REINFORCING STEEL, STRUCTURAL CONCRETE, 10" I.D. PVC DRAIN PIPE PLUS ANCHORS AND ALL LABOR TO CONSTUCT THE DRAIN INTAKE AND DRAIN EXTENSION AS SHOWN ON THIS SHEET.

CONTRACTOR SHALL TAKE CARE WHEN MODIFYING THE DRAIN IN THE WEST CURB SO AS NOT TO DISTURB THE EXISTING STEEL CONDUIT EMBEDDED IN THE CURB.



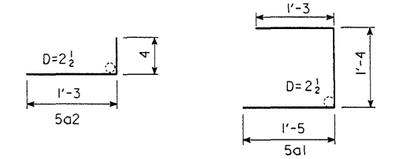
SECTION A-A

NOTE :
CARE SHALL BE TAKEN TO AVOID DAMAGE TO EXISTING BEAMS.

EPOXY REINF. BAR LIST - 2 DRAIN MODIFICATIONS

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
5a1	SLAB TO CURB TRANSVERSE	⊐	12	4'-0	50
5a2	CURB TRANSVERSE	⌐	12	1'-7	20
6b1	CURB LONGITUDINAL	—	2	6'-2	19
				TOTAL LBS.	89

BENT BAR DETAILS



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

CONCRETE PLACEMENT QUANTITIES

LOCATION	UNIT	QUANTITY
* CURB DRAINS 2 AT 0.5 CU. YD. EACH	CU. YD.	1.0

* INCLUDES 0.3 CU.YD. FOR CURB AND 0.2 CU.YD. FOR SLAB PER DRAIN.

DESIGN FOR REPAIR TO SOUTHBOUND

159'-2 x 39' PRETENSIONED PRESTRESSED

CONCRETE BEAM BRIDGE

43'-1 1/2 END SPANS 72'-11 INTERIOR SPAN

CURB DRAIN MODIFICATION DETAILS

STATION:671+83.30 (℄ I-35) NOVEMBER, 1993

STORY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

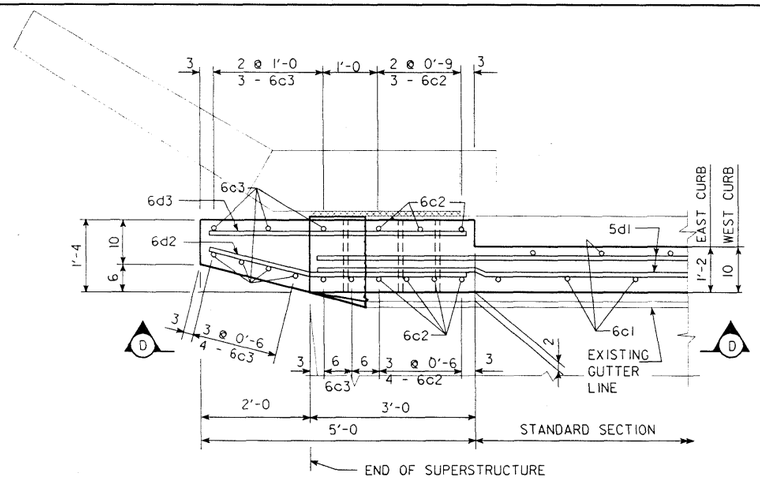
DESIGN SHEET NO. 2 OF 7 FILE NO. 28751 DESIGN NO. 793

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

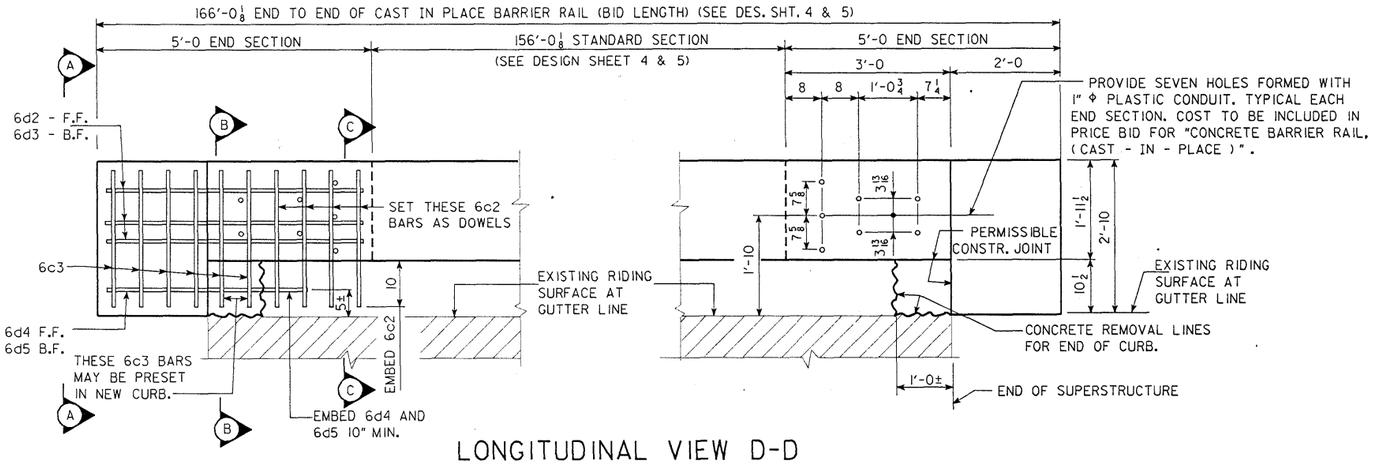
STORY COUNTY | PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		20	30

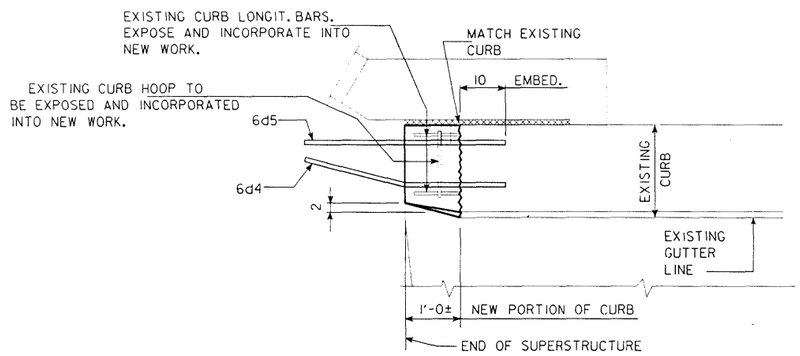
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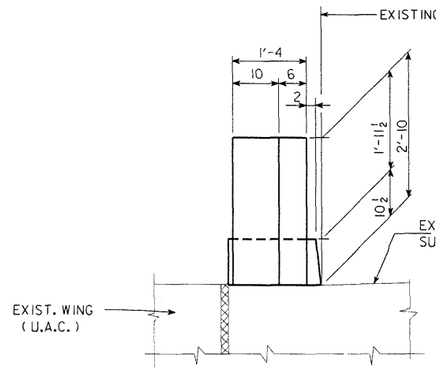
PLAN VIEW OF END SECTION



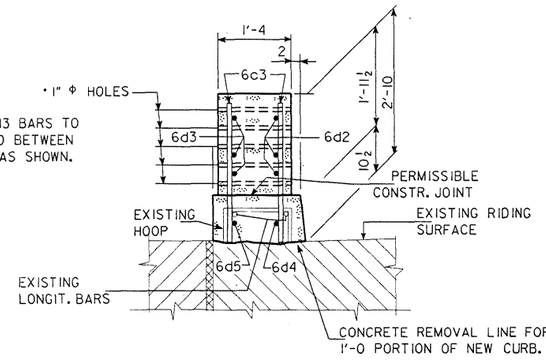
LONGITUDINAL VIEW D-D



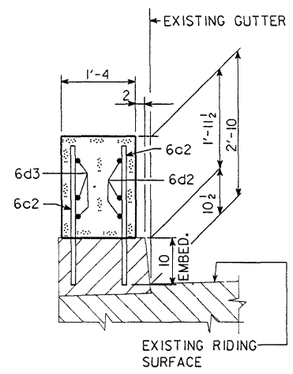
PLAN VIEW OF NEW PORTION OF CURB



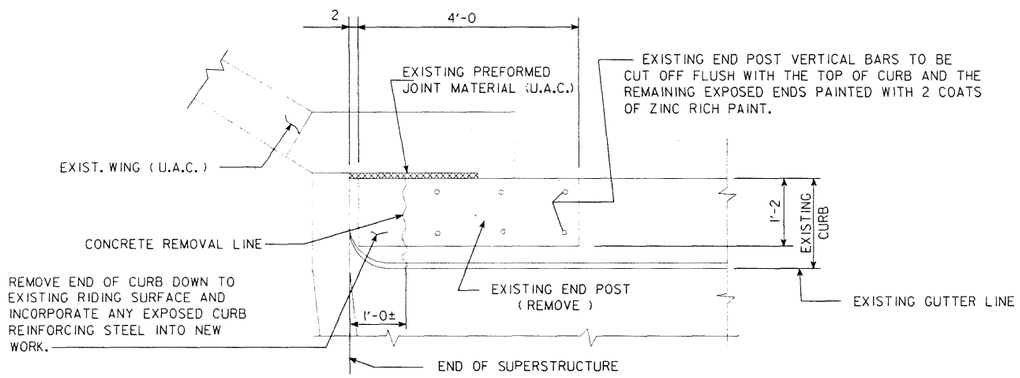
END VIEW A-A



SECTION B-B



SECTION C-C



PART PLAN VIEW AT CORNERS OF BRIDGE

(SHOWING EXISTING CONDITIONS AND REMOVAL DETAILS)

NOTE: SEE DESIGN SHEET 5 FOR "CAST IN PLACE BARRIER RAIL NOTES" AND "DOWEL SETTING NOTE".

NOTE:
DETAILS SHOWN ON THIS SHEET ARE TYPICAL AT ALL FOUR CORNERS OF THE BRIDGE.

DESIGN FOR REPAIR TO SOUTHBOUND

159'-2 x 39' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

43'-1½ END SPANS 72'-11 INTERIOR SPAN

5'-0 END SECTION DETAILS

STATION: 671+83.30 (℄ I-35) NOVEMBER, 1993

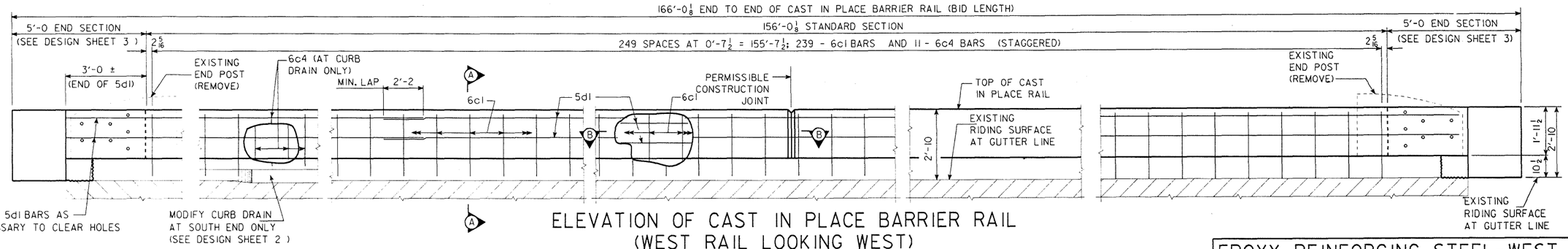
STORY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

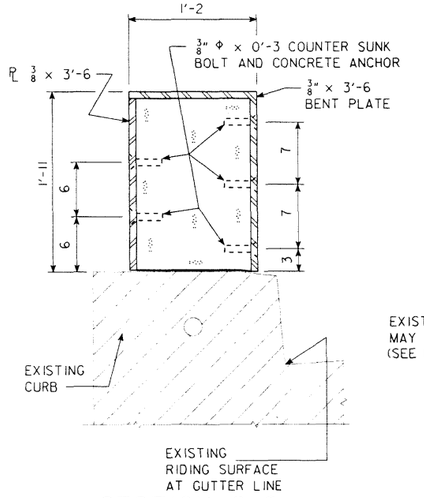
DESIGN SHEET NO. 3 OF 7 FILE NO. 28751 DESIGN NO. 793

DESIGNED BY E.W.KONECHNE	TRACED BY C.E.COLE							
DETAILED BY C.E.COLE	CHECKED BY		STORY COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
					IOWA	7		21	30

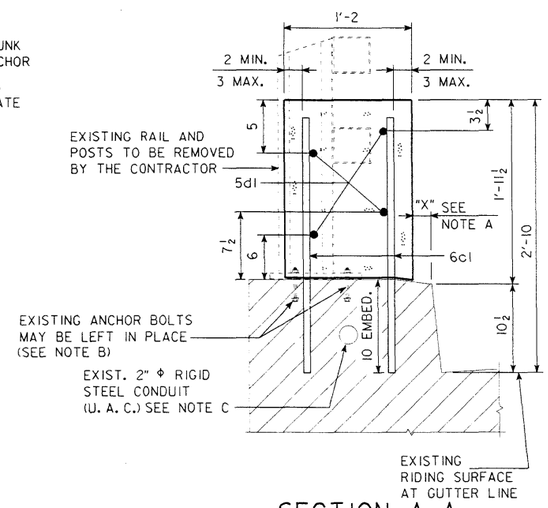
H850793.C05 DEVICE : ZGAI:[200,003]ARCH. TAPE No. _____DATE_____



ELEVATION OF CAST IN PLACE BARRIER RAIL (WEST RAIL LOOKING WEST)



SECTION C-C

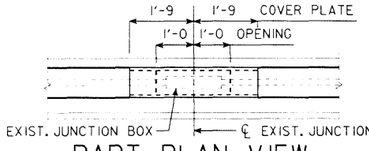


SECTION A-A

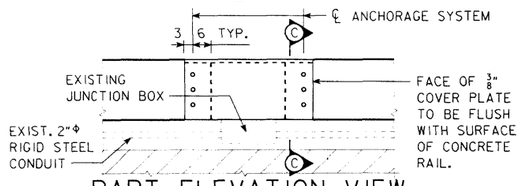
NOTE A:
DIMENSION "X" SHALL BE A MINIMUM OF 1" AND A MAXIMUM OF 3", BUT MUST BE CONSTANT FOR FULL LENGTH OF BRIDGE. HOWEVER APPROXIMATELY 10 LINEAR FEET AT EITHER END OF STANDARD RAIL SECTION SHALL BE TRANSITIONED TO 2" AT THE END SECTION.

NOTE B:
EXISTING RAIL IS TO BE REMOVED. ANY ANCHOR BOLTS THAT WILL HAVE AT LEAST 2" OF CONCRETE COVER WHEN ENCOMPASSED BY THE NEW BARRIER RAIL MAY BE LEFT IN PLACE AT THE CONTRACTORS OPTION SUBJECT TO THE APPROVAL OF THE ENGINEER. ANY ANCHOR BOLTS NOT HAVING THE 2" MIN. COVER SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW THE TOP OF CURB AND ENDS OF NON STAINLESS STEEL BOLTS PAINTED WITH TWO COATS OF ZINC RICH PAINT.
STAINLESS STEEL ANCHOR BOLTS OUTSIDE THE AREA OF NEW BARRIER RAIL MAY BE LEFT IN PLACE AT CONTRACTORS OPTION SUBJECT TO APPROVAL OF THE ENGINEER. STAINLESS STEEL BOLTS NEED NOT BE PAINTED.

NOTE C:
CARE SHALL BE EXERCISED WHEN DRILLING HOLES FOR THE CAST IN PLACE BARRIER RAIL DOWELS TO INSURE THE EXISTING CONDUIT IS NOT DAMAGED. ANY DAMAGE TO THE CONDUIT BY THE CONTRACTOR WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND REPAIRED BY HIM AT NO EXTRA COST TO THE STATE.

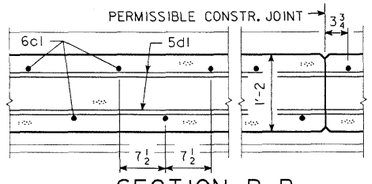


PART PLAN VIEW

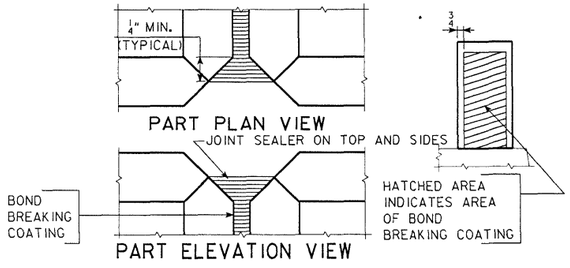


PART ELEVATION VIEW

THE CAST IN PLACE RAIL SHALL BE GAPPED AT EXISTING JUNCTION BOX 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 ⅜" GALVANIZED PLATE SHALL FIT OVER THE GAPPED AREA IN THE RAIL AND SHALL BE HELD IN PLACE WITH COUNTERSUNK BOLTS AND CONCRETE ANCHORS. THE COST OF THE GALVANIZED PLATES AND ANCHORAGE SYSTEM SHALL BE INCIDENTAL TO THE COST OF THE CAST IN PLACE RAIL.
REQUIRED AT ONE EXISTING JUNCTION BOX.



SECTION B-B
(SHOWING 6c1 PLACEMENT)



CAST IN PLACE BARRIER RAIL JOINT DETAILS

EPOXY REINFORCING STEEL-WEST RAIL

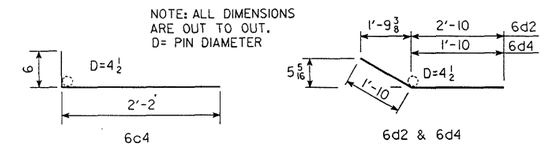
BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	——	239	2'-7	927
6c2	END SECTION, VERTICAL	——	14	2'-7	54
6c3	END SECTION, VERTICAL	——	18	2'-7	70
6c4	STANDARD RAIL VERT. AT DRAIN	⌐	11	2'-8	44
5d1	STANDARD RAIL, LONGIT.	——	20	34'-2	713
6d2	END SECTION, F.F.H.	——	6	4'-8	42
6d3	END SECTION, B.F.H.	——	6	4'-8	42
6d4	END SECTION, F.F.H.	——	2	3'-8	11
6d5	END SECTION, B.F.H.	——	2	3'-8	11
				TOTAL (LBS.)	1914

CONCRETE PLACEMENT SUMMARY WEST RAIL

SECTION	TOTAL
STANDARD SECTION * 154.0' @ 0.085 CU. YDS. PER LIN. FT.	13.1
END SECTIONS 2 @ 0.6 CU. YDS. PER SECTION	1.2
* OPENING AT JUNCTION BOX DEDUCTED	
TOTAL (CU. YDS.)	14.3

ESTIMATED QUANTITIES-WEST RAIL

ITEM	UNITS	QUANTITY
CONCRETE BARRIER RAIL, (CAST-IN-PLACE)	LIN. FT.	166.0



BENT BAR DETAILS

NOTE :
SEE DESIGN SHEET 5 FOR "CAST IN PLACE BARRIER RAIL NOTES" AND "DOWEL SETTING NOTE".

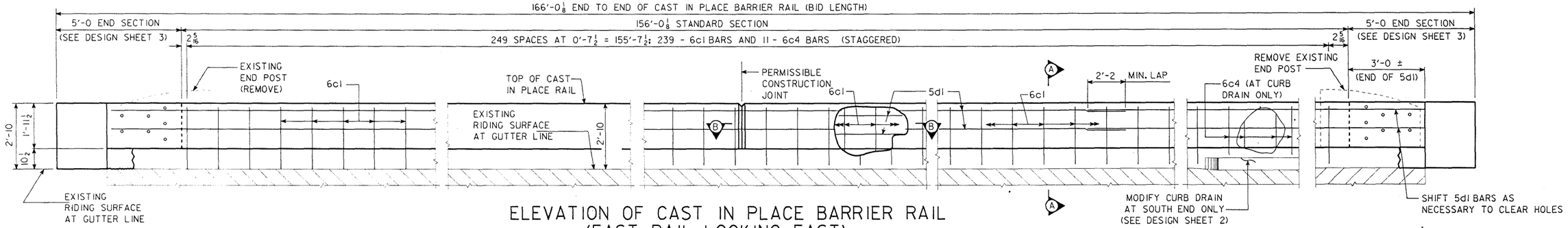
DESIGN FOR REPAIR TO SOUTHBOUND
159'-2 x 39' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE
43'-1½ END SPANS 72'-11 INTERIOR SPAN
CAST IN PLACE BARRIER RAIL DETAILS (WEST RAIL)
STATION:671+83.30 (℄ I-35) NOVEMBER, 1993
STORY COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 4 OF 7 FILE NO. 28751 DESIGN NO. 793

REVISED: OPENING AT JUNCT. BOX DEDUCTED. TAPE NO.__11__ DATE__3-28-91_____
REVISED: BARRIER RAIL DETAILS CHANGED. TAPE NO.__9__ DATE 2-26-90_____
HSTD1031 D.SOI--LEP: THIS SHEET REDRAWN. DEVICE:ZHAG:[200,004] ARCH. TAPE NO. 000016 DATE__11-3-88_____

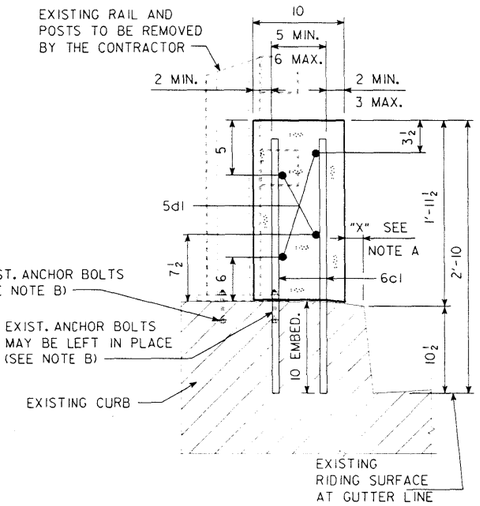
DESIGNED BY E.W.KONECHNE	TRACED BY C.E.COLE	CAST IN PLACE BARRIER RAIL	STANDARD SHEET 1031 D	STORY COUNTY	PROJECT NUMBER
DETAILED BY C.E.COLE	CHECKED BY				

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		28	30

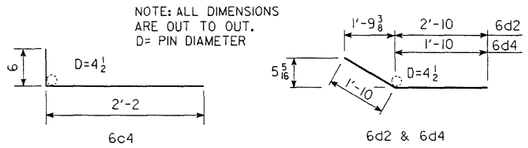
H850793.C03 DEVICE : ZGAI:[200,003]ARCH. TAPE No. _____DATE_____



ELEVATION OF CAST IN PLACE BARRIER RAIL (EAST RAIL LOOKING EAST)



SECTION A-A



BENT BAR DETAILS

NOTE A:
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 STANDARD RAIL SECTION SHALL BE TRANSITIONED TO 2" AT THE END SECTION.

NOTE B:
EXISTING RAIL IS TO BE REMOVED. ANY ANCHOR BOLTS THAT WILL HAVE AT LEAST 2" OF CONCRETE COVER WHEN ENCOMPASSED BY THE NEW BARRIER RAIL MAY BE LEFT IN PLACE AT THE CONTRACTORS OPTION SUBJECT TO THE APPROVAL OF THE ENGINEER. ANY ANCHOR BOLTS NOT HAVING THE 2" MIN. COVER SHALL BE CUT OFF FLUSH WITH OR SLIGHTLY BELOW THE TOP OF CURB AND ENDS OF NON STAINLESS STEEL BOLTS PAINTED WITH TWO COATS OF ZINC RICH PAINT.
STAINLESS STEEL ANCHOR BOLTS OUTSIDE THE AREA OF NEW BARRIER RAIL MAY BE LEFT IN PLACE AT CONTRACTORS OPTION SUBJECT TO APPROVAL OF THE ENGINEER. STAINLESS STEEL BOLTS NEED NOT BE PAINTED.

DOWEL SETTING NOTE :
ALL 6c1 AND 6c2 BARS SHALL BE SET AS DOWELS IN DRILLED HOLES. HOLES ARE TO BE 10" DEEP. THE DOWELS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ONE OF THE FOLLOWING SYSTEMS SHALL BE USED AS A BONDING AGENT FOR THE 6c1 AND 6c2 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 2½ TIMES THE DOWEL DIAMETER AND ARE TO BE BLOWN CLEAN WITH COMPRESSED AIR IMMEDIATELY PRIOR TO PLACING GROUT. THE HYDRAULIC CEMENT GROUT SHALL BE ONE OF THOSE APPROVED IN MATERIALS I.M. 491.13 AND SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

THE 6c3 BARS IN THE AREA OF NEW CURB MAY BE PRESET INTO NEW CONCRETE WITH A 10" EMBEDMENT.
THE 6d4 AND 6d5 BARS 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-EAST RAIL

BAR	LOCATION	SHAPE	NO.	LENGTH	WEIGHT
6c1	STANDARD RAIL, VERT.	——	239	2'-7	927
6c2	END SECTION, VERTICAL	——	14	2'-7	54
6c3	END SECTION, VERTICAL	——	18	2'-7	70
6c4	STANDARD RAIL VERT. AT DRAIN	⌐	11	2'-8	44
5d1	STANDARD RAIL, LONGIT.	——	20	34'-2	713
6d2	END SECTION, F.F.H.	⌒	6	4'-8	42
6d3	END SECTION, B.F.H.	——	6	4'-8	42
6d4	END SECTION, F.F.H.	⌒	2	3'-8	11
6d5	END SECTION, B.F.H.	——	2	3'-8	11
				TOTAL (LBS.)	1914

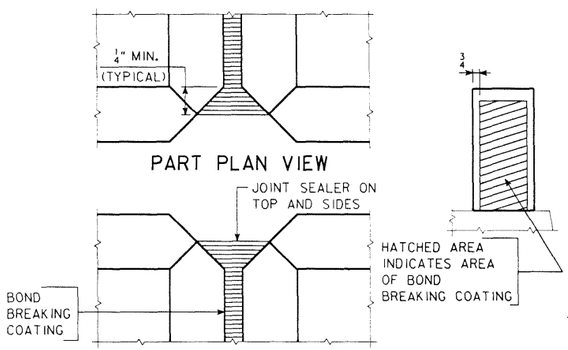
CONCRETE PLACEMENT SUMMARY EAST RAIL

SECTION		TOTAL
STANDARD SECTION	156.0' @ 0.060 CU. YDS. PER LIN. FT.	9.4
END SECTIONS	2 @ 0.6 CU. YDS. PER SECTION	1.2
	TOTAL (CU. YDS.)	10.6

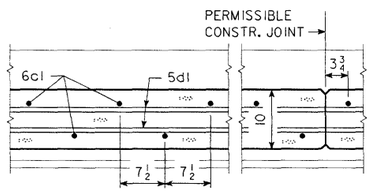
ESTIMATED QUANTITIES-EAST RAIL

ITEM	UNITS	QUANTITY
CONCRETE BARRIER RAIL, (CAST-IN-PLACE)	LIN. FT.	166.0

CAST IN PLACE BARRIER RAIL NOTES:
MINIMUM CLEAR DISTANCE FROM FACE OF CONCRETE TO NEAR REINFORCING BAR IS TO BE 2" UNLESS OTHERWISE NOTED OR SHOWN.
ALL EXPOSED CORNERS 90° OR SHARPER ARE TO BE FILLETED WITH A ¾" DRESSED AND BEVELED STRIP.
THE PERMISSIBLE CONSTRUCTION JOINTS ARE TO BE PLACED BETWEEN VERTICAL BARS AT A MINIMUM SPACING OF 20 FEET. CONSTRUCTION JOINT CONTACT SURFACES ARE TO BE COATED WITH AN APPROVED BOND BREAKER.
COST OF JOINT SEALER AND BOND BREAKER SHALL BE CONSIDERED INCIDENTAL TO OTHER CONSTRUCTION.
THE CAST IN PLACE BARRIER RAIL IS TO BE BID ON A LINEAL FOOT BASIS MEASURED FROM END TO END OF RAIL. THE NUMBER OF LINEAL FEET OF CAST IN PLACE BARRIER RAIL INSTALLED WILL BE PAID FOR AT THE CONTRACT PRICE PER LINEAL FOOT BASED ON PLAN QUANTITIES. PRICE BID FOR CAST IN PLACE BARRIER RAIL SHALL BE FULL COMPENSATION FOR FURNISHING ALL MATERIAL (INCLUDING REINF. STEEL & 1" Φ PLASTIC CONDUIT) PLUS ALL OF THE EQUIPMENT AND LABOR REQUIRED TO ERECT THE RAIL IN ACCORDANCE WITH THESE PLANS AND CURRENT SPECIFICATIONS.
ALL CAST IN PLACE BARRIER RAIL CONCRETE IS TO BE CLASS D.
ALL REINFORCING STEEL IS TO BE GRADE 60 AND EPOXY COATED.
THE JOINT SEALER SHALL CONFORM TO FED. SPEC. TT-S00230 OR TT-S00227 FOR TYPE II, CLASS A OR B.



CAST IN PLACE BARRIER RAIL JOINT DETAILS



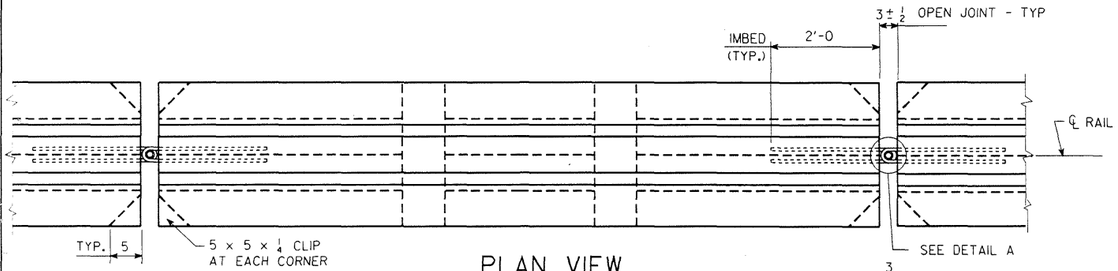
SECTION B-B
(SHOWING 6c1 PLACEMENT)

DESIGN FOR REPAIR TO SOUTHBOUND
159'-2 x 39' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE
43'-1½ END SPANS — 72'-11 INTERIOR SPAN
CAST IN PLACE BARRIER RAIL DETAILS (EAST RAIL)
STATION:671+83.30 (℄ I-35) NOVEMBER, 1993
STORY COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 5 OF 7 FILE NO. 28751 DESIGN NO. 793

REVISED: BARRIER RAIL DETAILS CHANGED, TAPE NO. 9 DATE 2-26-90
HSTD1031C.SOI -LEP: THIS SHEET REDRAWN, DEVICE:ZHAO:[200,004] ARCH.TAPE NO. 000016 DATE 11-3-88

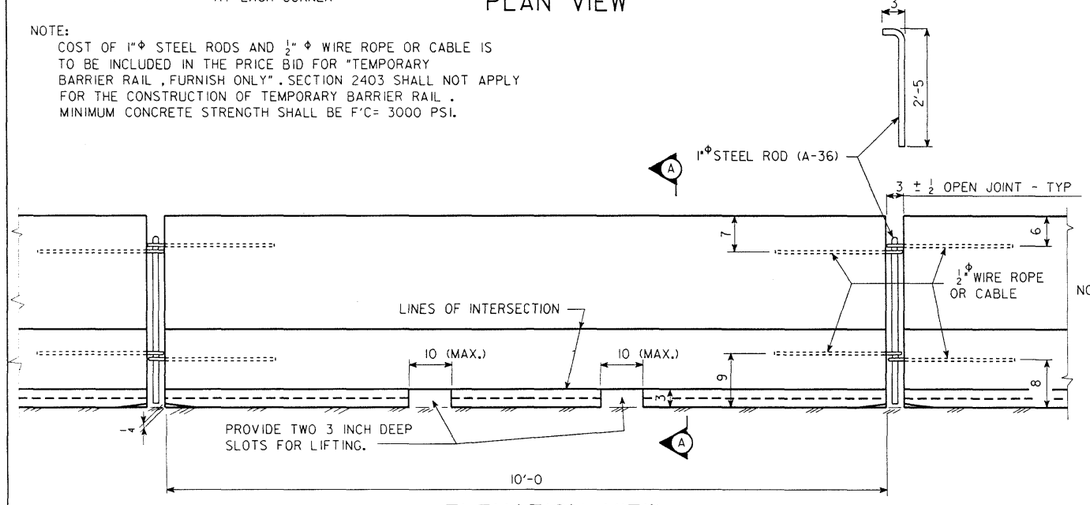
DESIGNED BY E.W.KONECHNE	TRACED BY C.E.COLE	CAST IN PLACE BARRIER RAIL	STANDARD SHEET 1031C	STORY COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY C.E.COLE	CHECKED BY					IOWA	7		23	30

H850793.C04 DEVICE : ZGAI:[200,003]ARCH. TAPE No. _____DATE_____

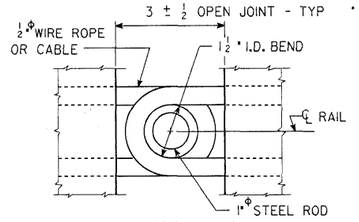


PLAN VIEW

NOTE:
COST OF 1"Φ STEEL RODS AND ½" Φ WIRE ROPE OR CABLE IS TO BE INCLUDED IN THE PRICE BID FOR "TEMPORARY BARRIER RAIL, FURNISH ONLY". SECTION 2403 SHALL NOT APPLY FOR THE CONSTRUCTION OF TEMPORARY BARRIER RAIL. MINIMUM CONCRETE STRENGTH SHALL BE F'C= 3000 PSI.



ELEVATION VIEW



DETAIL A

½"Φ WIRE ROPE OR CABLE TO BE ½", WITH A MINIMUM BREAKING STRENGTH OF 20,000 POUNDS.

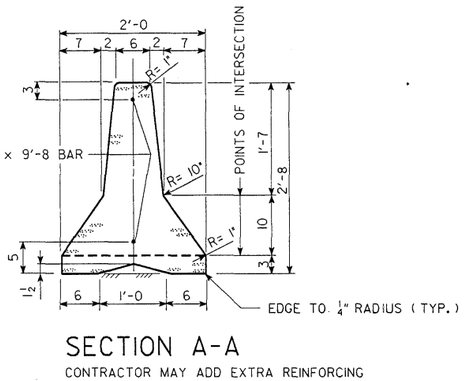
NOTE:
BARRIER IS TO BECOME THE PROPERTY OF THE CONTRACTOR AT THE COMPLETION OF WORK AND REMOVED FROM THE SITE BY THE CONTRACTOR.

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

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

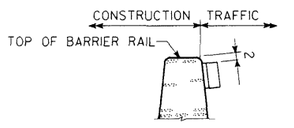
NO STATIONARY EQUIPMENT OR CONSTRUCTION MATERIAL IS TO BE PLACED IN FRONT OF THE TEMPORARY BARRIER RAIL AT ANY TIME.

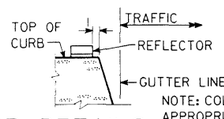
SURFACE FINISH FOR TEMPORARY CONCRETE BARRIER RAIL SHALL BE IN ACCORDANCE WITH ARTICLE 2403.21B OF THE STANDARD SPECIFICATIONS.



SECTION A-A

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



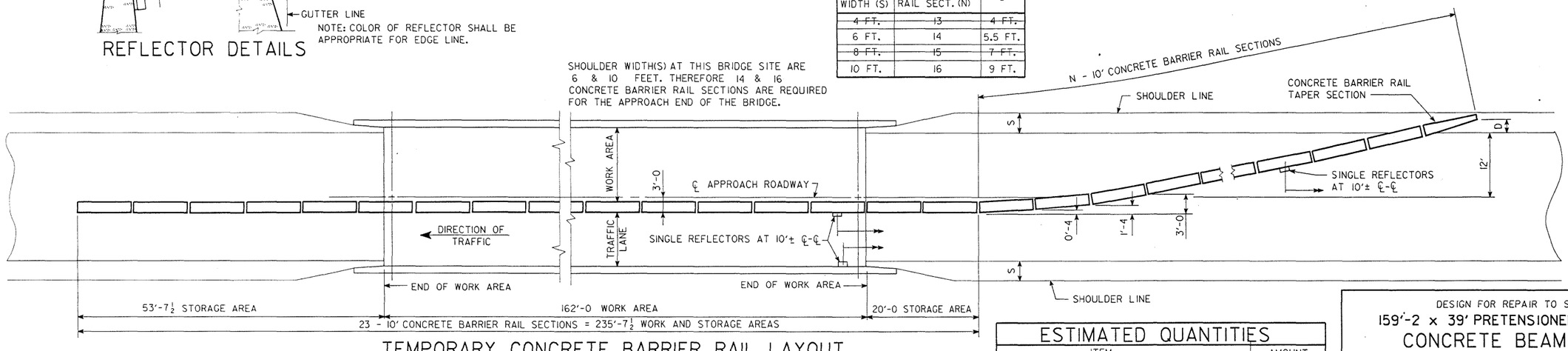


NOTE: COLOR OF REFLECTOR SHALL BE APPROPRIATE FOR EDGE LINE.

REFLECTOR DETAILS

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

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



TEMPORARY CONCRETE BARRIER RAIL LAYOUT FOR ONE WAY TRAFFIC

ESTIMATED QUANTITIES

ITEM	AMOUNT
TEMPORARY BARRIER RAIL, FURNISH ONLY	390 L.F.
TEMPORARY BARRIER RAIL, PLACE ONLY	760 L.F.

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

DESIGN FOR REPAIR TO SOUTHBOUND
159'-2 x 39' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE
43'-1½ END SPANS 72'-11 INTERIOR SPAN
TEMPORARY BARRIER RAIL-CONCRETE
STATION:671+83.30 (℄ I-35) NOVEMBER, 1993
STORY COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 6 OF 7 FILE NO. 28751 DESIGN NO. 793

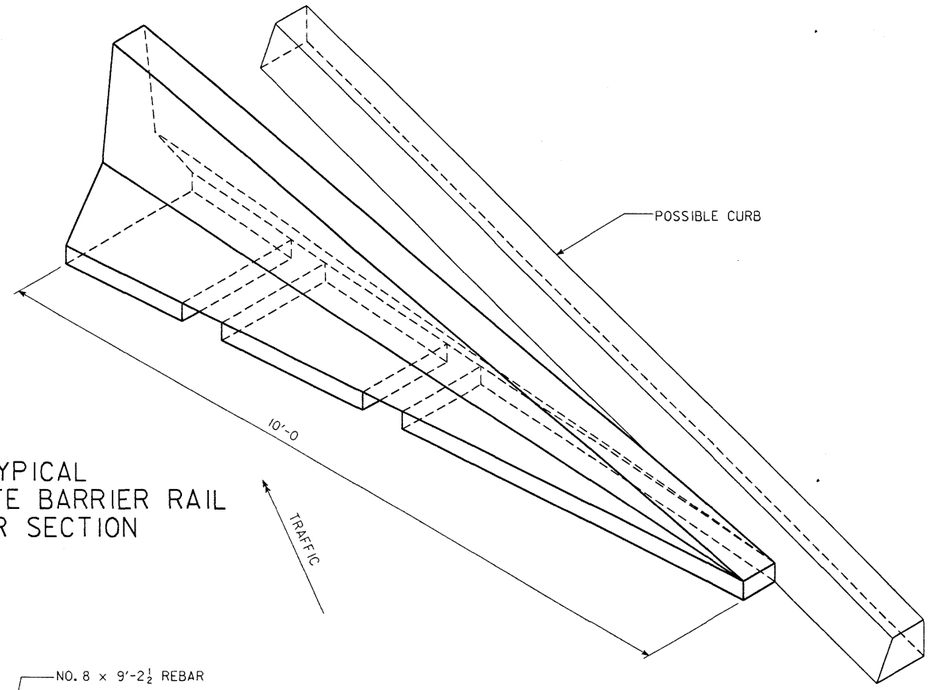
REVISED SPECIFICATION ARTICLE NUMBER CHANGED, TYPE NO.9, DATED 1-1-90.
REVISED 1-17-89 BARRIER RAIL LAYOUT CHANGED, DEVICE:ZHAO50,000,ARCH.TAPE NO.____ DATE:1-24-89.
REVISED 1-17-89 BARRIER RAIL LAYOUT CHANGED, DEVICE:ZHAO50,000,ARCH.TAPE NO.____ DATE:1-24-89.
H850032301-SPL.INS SHEET REMARK, DEVICE:HAO50,000,ARCH.TAPE NO.____ DATE 3-8-89.
REVISED: 6-2-93 - LIFTING SLOT DETAILS CHANGED.

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

TEMPORARY BARRIER RAIL-CONCRETE	STANDARD 1032	STORY COUNTY	PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		24	30

H850793.C06 DEVICE : ZGAI:[200,003]ARCH. TAPE No. _____DATE_____

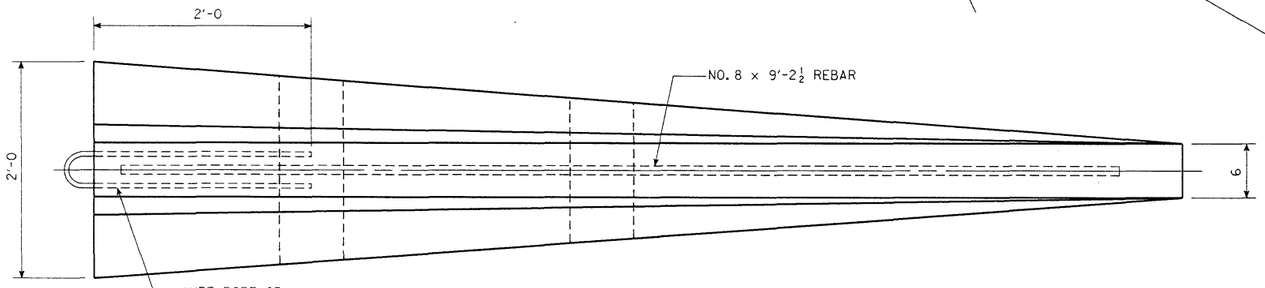


TYPICAL
CONCRETE BARRIER RAIL
TAPER SECTION

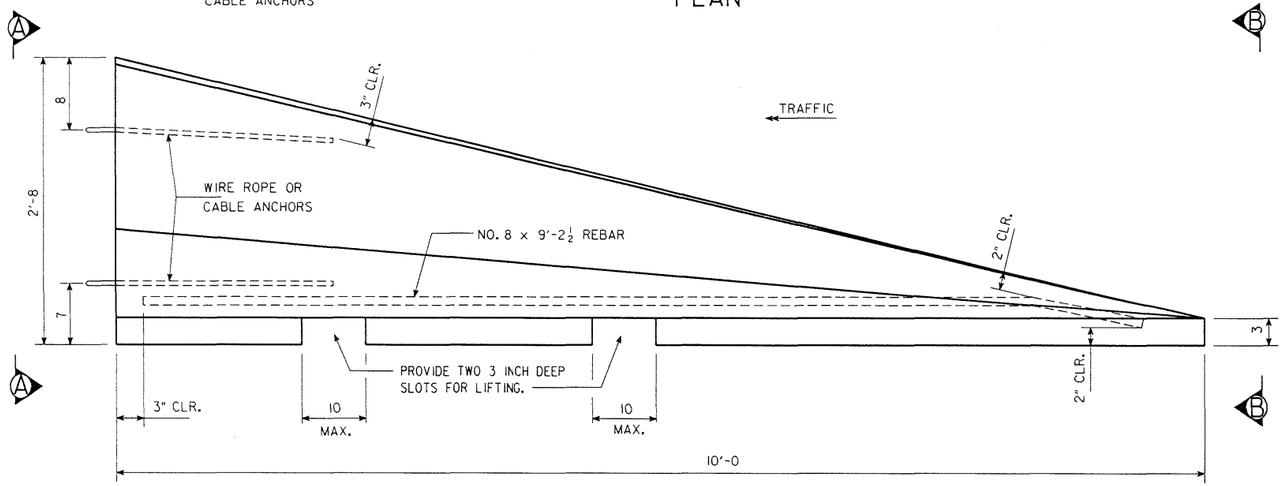
GENERAL NOTES:

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

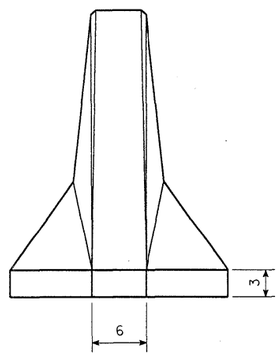
CONCRETE SHALL BE CLASS "D" STRUCTURAL CONCRETE PLACED AND FINISHED IN CONFORMANCE WITH CURRENT STANDARD SPECIFICATIONS FOR "STRUCTURAL CONCRETE". APPROXIMATELY 0.486 CU. YDS. OF CLASS "D" STRUCTURAL CONCRETE WILL BE REQUIRED FOR EACH TAPER SECTION.



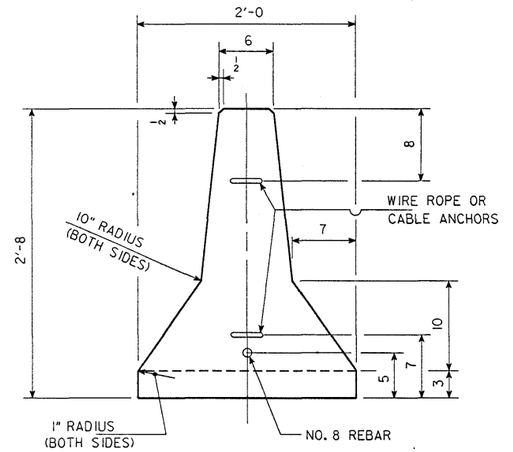
PLAN



SIDE ELEVATION



FRONT VIEW B-B



END VIEW A-A

DESIGN FOR REPAIR TO SOUTHBOUND
159'-2 x 39' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE
43'-1½ END SPANS 72'-11 INTERIOR SPAN
CONCRETE BARRIER RAIL TAPER SECTION
STATION:671+83.30 (℄ I-35) NOVEMBER, 1993
STORY COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 7 OF 7 FILE NO.: 28751 DESIGN NO. 793

DESIGNED BY E.W.KONECHNE	TRACED BY C.E.COLE	CONCRETE BARRIER RAIL TAPER SECTION	STANDARD 1034B	STORY COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
DETAILED BY C.E.COLE	CHECKED BY					IOWA	7		25	30

HSTD1034B--GJP: THIS SHEET ISSUED. DEVICE : ZHAI:[200,5] ARCH. TAPE NO. 9 DATE 10-12-89
REVISED: 6-21-93 - LIFTING SLOT DETAILS CHANGED.

H850793.C07 DEVICE : ZGAI:[200,003]ARCH. TAPE No. _____DATE_____

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.
2505-4020152, 2505-4020250, 2505-4020251, 2505-4020400, 2505-4021690	See tab. 108-8A.
2505-6745740, 2505-6745749, 2505-6745855	See tab. 110-7A.
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 and detail sheet 570-2.
2528-8445110	See tab. 108-23.

ESTIMATED ROADWAY QUANTITIES

SEE SHEET 19

100-0A
10-01-93

CONSTRUCTION USE ONLY	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
	2102-2625000	Embankment-In-Place	CY	45.000	
	2505-4020152	Guardrail, End Anchorages, Beam, RE-52	Only	1.000	
	2505-4020153	Guardrail, End Anchorages, Beam, RE-53	Only	1.000	
	2505-4020250	Guardrail, Formed Steel Beam	LF	206.500	
	2505-4020251	Guardrail, Formed Steel Thrie Beam	LF	93.750	
	2505-4020400	Guardrail, Posts, Beam	Only	49.000	
	2505-4021690	Guardrail, End Anchorages, Beam, RE-69	Only	3.000	
	2505-6745740	Removal Of Guardrail End Anchorage	Only	2.000	
	2505-6745749	Removal of Guardrail	LF	237.500	
	2524-9220020	Object Marker, Type 2	Only	5.000	
	2524-9220030	Object Marker, Type 3	Only	2.000	
	2527-9263110	Painted Pavement Marking	Sta	33.900	
	2527-9263130	Removable Tape Marking	Sta	27.400	
	2527-9263180	Pavement Marking Removed	Sta	33.000	
	2528-8400157	Temporary Floodlighting Luminaire	Only	2.000	
	2528-8445110	Traffic Control	LS	1.000	
	2505-6745855	Removal Of Posts	Only	44.000	

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-65	01-07-92	RL-11	10-11-88
RE-2B	10-22-93	RE-67	07-16-91	RL-12	04-04-89
RE-7	04-28-92	RE-68	08-08-89	RS-62	02-23-93
RE-12A	10-11-88	RE-69	10-22-93	RS-63A	09-29-92
RE-12B	01-09-90	RH-50	06-15-93	RS-63B	09-29-92
RE-47	11-10-87	RH-51	02-23-93		
RE-48A	06-15-93	RH-52	09-29-92		
RE-52	10-22-93				
RE-53	02-23-93				

TABULATION OF GRADING FOR GUARDRAIL INSTALLATIONS

107-23
02-28-89

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

LOCATION POINT			*DIMENSIONS			CLASS 10 EXCAV.	EMBANK. IN PLACE	PIPE			REMARKS
No.	Station	TYPE	(A)/(T) Lin.Ft.	(Y) Lin.Ft.	(Z) Lin.Ft.	Cu.Yds.	Cu.Yds.	Size Inches	Type	Length Lin.Ft.	
1	671+80	1	56.25	5.9	22		15				NW corner
2	671+80	5	231.5				30				N median

REMOVE or REMOVE AND REINSTALL BEAM GUARDRAIL

110-7A
10-22-93

LOCATION			STEEL BEAM GUARDRAIL		POST					END ANCHORAGE		REMARKS
NO.	STATION	SIDE	REMOVE Lin. Ft.	REMOVE & REINSTALL Lin. Ft.	REMOVE Number	REMOVE & REINSTALL 8"x 8" Number	REMOVE & REINSTALL 10"x10" Number	REMOVE & REINSTALL 6"x 8" Number	REMOVE & REINSTALL 6"x 6" Number	REMOVE Number	REMOVE & REINSTALL Number	
1	671+80	N	237.5	--	44	--	--	--	--	2	--	for north end

101-4

DESIGN DATA RURAL

1993	AADT	16500	V.P.D.
20	AADT	_____	V.P.D.
20	DHV	_____	V.P.H.
TRUCKS		_____	%

ROADWAY DESIGN

REGISTERED PROFESSIONAL ENGINEER
JOHN R. ABRAMS
7229
IOWA

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

Name John R. Abrams

Iowa Registration No. 7229 Date 11-10-93

DESIGN NO. 793
FILE NO. 28751

KLH