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
- P/PLINE
- AIRPORT
- HYDROLOGY
- BRIDGE
- STATE BOUNDARY
- COUNTY BOUNDARY
- CORPORATE LIMIT LINE
- TOWNSHIP LINE
- SECTION LINE

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

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)

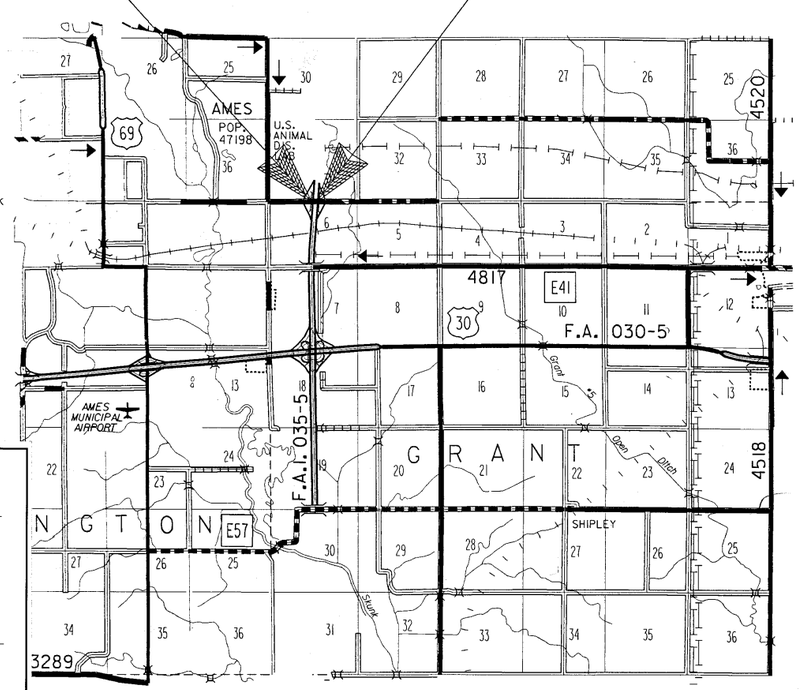
DESIGN NO. 693 N.B. 101-4			
DESIGN DATA RURAL			
1993	AADT	16,500	V.P.D.
201	AADT		V.P.D.
201	DHV		V.P.H.
TRUCKS			%

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			%

NO.	INDEX OF SHEETS 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. Yonemis (Transportation Center Construction Engineer) Date: 1/27/97

AFTER MICROFILMING RETURN ORIGINAL,
~~One 50% Reduced Print, and two~~ Five 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

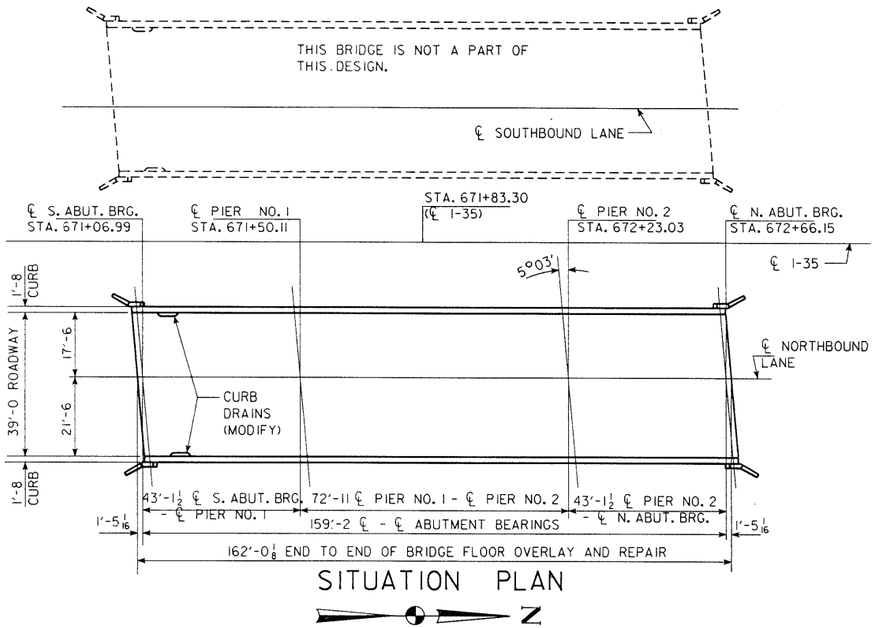
MICROFILMED

LETTING DATE 02-08-94 STATE CONTROL SECTION NUMBER 85-1300 STEVE 11-22-93 FILE NO. 28751 11/22/93 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)

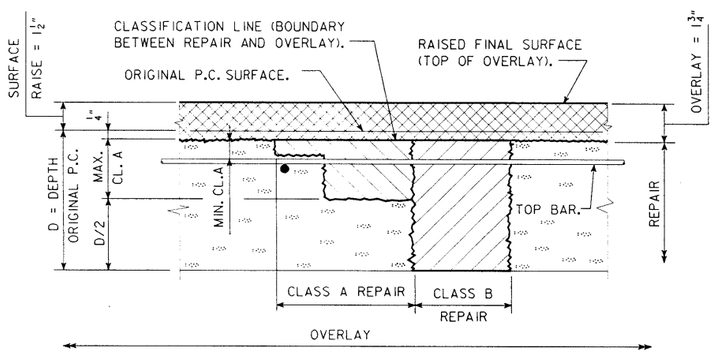


SITUATION PLAN

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.



REPAIR AND OVERLAY DEFINITION

GENERAL NOTES :

THIS DESIGN IS FOR REPAIR TO THE EXISTING 159'-2x39' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE (NORTHBOUND LANE), ORIGINAL DESIGN NO. 863 STORY COUNTY. PLANS OF THE ORIGINAL STRUCTURE MAY BE OBTAINED AT THE AMES OFFICE OF THE IOWA D.O.T. - HIGHWAY DIVISION.

REPAIRS SHALL CONSIST OF THE FOLLOWING :

1. CLASS A BRIDGE FLOOR REPAIR.
2. BRIDGE FLOOR OVERLAY.
3. REMOVAL OF EXISTING HANDRAIL.
4. CONSTRUCTION OF CAST IN PLACE BARRIER RAIL.
5. PPC BEAM REPAIR.
6. MODIFICATION OF CURB DRAINS.
7. CLEAN AND PAINT ABUTMENT BEARINGS.
8. APPLICATION OF CONCRETE SEALER.
9. INSTALLATION OF NEW GUARDRAIL.
10. REMOVAL AND REPLACEMENT OF APPROACH PAVEMENT.

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.

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

PRESENT FLOOR THICKNESS IS ABOUT 6 INCHES. THE CONTRACTOR SHALL EXERCISE EXTREME CARE IN REMOVING CONCRETE IN ORDER TO PREVENT UNNECESSARY UNBONDING OF REINFORCING STEEL.

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 ½" MORE THAN SHOWN ON THE PLANS. PROFILE MAY BE ADJUSTED TO THE EXTENT POSSIBLE WITHIN THESE LIMITS.

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.

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.

IN ADDITION TO THE REQUIREMENTS OF ARTICLE 2413.09, BOTH ABUTMENT BRIDGE SEATS SHALL HAVE AN APPLICATION OF CONCRETE SEALER IN ACCORDANCE WITH SUB-ARTICLE 2403.21 (D). AREAS OF THE PRESTRESSED BEAMS AT LOCATIONS OF BRIDGE DECK SEEPAGE MAY ALSO REQUIRE AN APPLICATION OF CONCRETE SEALER. THESE AREAS SHALL BE DETERMINED BY THE ENGINEER AT THE TIME OF CONSTRUCTION.

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.

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.

LOCATION:

MAINTENANCE NO. 8513.6R035
STORY COUNTY
T 83N R 23W SECTION 6
GRANT TWP.
NORTHBOUND
I-35 OVER 13TH STREET

AS BUILT TOTAL ESTIMATED BRIDGE QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY	
1	CLASS A BRIDGE FLOOR REPAIR	SQ. YD.	20	4.86
2	BRIDGE FLOOR OVERLAY	SQ. YD.	702	702
3	TEMPORARY BARRIER RAIL - FURNISH ONLY	L. F.	530	530
4	TEMPORARY BARRIER RAIL - PLACE ONLY	L. F.	1040	1040
5	CONCRETE BARRIER RAIL - CAST IN PLACE	L. F.	332.0	332
6	CURB DRAIN MODIFICATION	L.S.	LUMP SUM	$ 3000.00
7	REMOVAL OF EXISTING HANDRAIL	L.S.	LUMP SUM	$ 1500.00
8	CONCRETE REPAIR	SQ. FT.	20	25.81
9	CLEANING AND PAINTING STRUCTURAL STEEL	L.S.	LUMP SUM	$ 800.00
10	CONTAINMENT	L.S.	LUMP SUM	$ 300.00
11	MOBILIZATION	L.S.	LUMP SUM	$ 21500.00

ESTIMATE REFERENCE INFORMATION

ITEM NO.	
2	INCLUDES COST OF FURNISHING AND PLACING CONCRETE SEALER.
3 & 4	ALL TEMPORARY BARRIER RAIL SHALL BE NOMINAL 10' LONG CONCRETE UNITS.
5	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.
6	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.
9 & 10	INVOLVES CLEANING AND PAINTING ABUTMENT BEARINGS ONLY.

DESIGN HISTORY AT THIS SITE

DES. NO.	TYPE OF WORK
863	ORIGINAL DESIGN
693	OVERLAY, REPAIR & 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

DESIGN FOR REPAIR TO NORTHBOUND

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

43'-1½ END SPANS — 72'-11 INTERIOR SPAN

SITUATION PLAN

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

STORY COUNTY

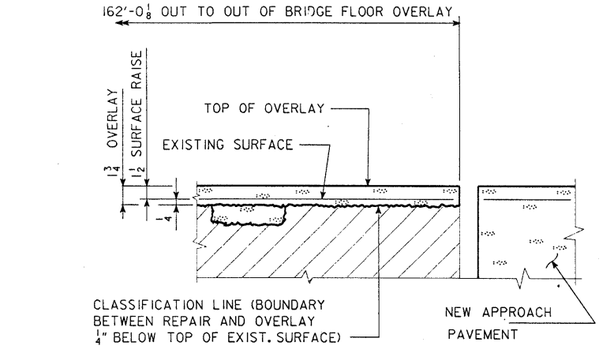
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 1 OF 12 — FILE NO. 28751 — DESIGN NO. 693

REVISED: "TOTAL ESTIMATED BRIDGE QUANTITIES" TABLE CHANGED, AASHTO SERIES CHANGED TO 1992. TAPE NO. 19. DATED 11-9-92.
REVISED: IDOT STANDARD SPECIFICATIONS, UPDATE; ARCH.TAPE NO. 12 DATE 4-20-92
HSTD0038.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".

DESIGNED BY E.W.Kenechne	TRACED BY C.E.COLE	SECTION LEADER: G.A.NOVEY	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
DETAILED BY C.E.COLE	CHECKED BY							IOWA	7		2	30

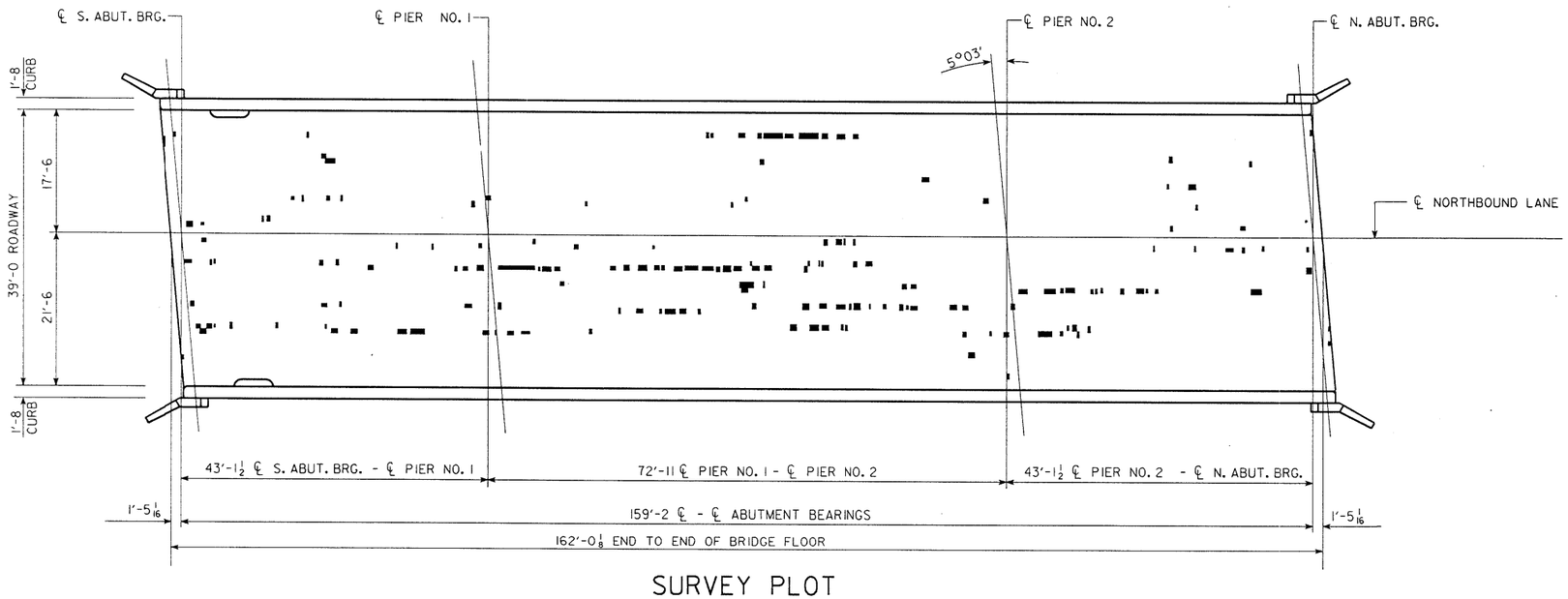
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PART LONGITUDINAL SECTION ALONG ROADWAY

BOTH ABUTMENTS

N



SURVEY PLOT

SURVEY DATE = OCTOBER 1, 1993

DESIGN FOR REPAIR TO NORTHBOUND

159'-2 x 39' PRETENSIONED PRESTRESSED

CONCRETE BEAM BRIDGE

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

SURVEY PLOT

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

STORY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 2 OF 12 — FILE NO. 28751 — DESIGN NO. 693

DESIGNED BY E.W.KONECHNE — TRACED BY C.E.COLE

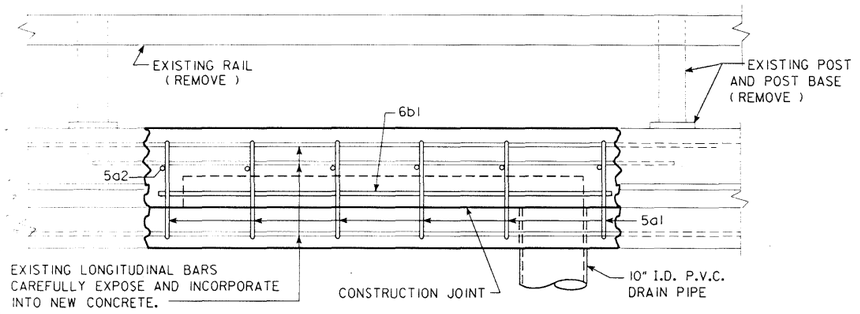
DETAILED BY C.E.COLE — CHECKED BY

STORY COUNTY

PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		3	30

H850693.C02 DEVICE : ZGAI:[200,003]ARCH. TAPE No. _____DATE_____



PART ELEVATION VIEW B-B OF CURB AND SLAB

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.

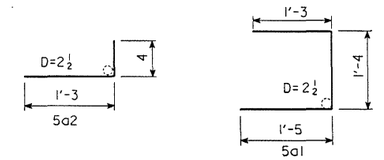
THE LUMP SUM BID FOR "CURB DRAIN MODIFICATION" IS TO INCLUDE ALL COSTS INVOLVED IN REMOVING THE EXISTING CONCRETE AS SHOWN ON THIS SHEET. IT SHALL ALSO INCLUDE THE COST OF FURNISHING NEW REINFORCING STEEL, STRUCTURAL CONCRETE, 10" I.D. PVC DRAIN PIPE PLUS ANCHORS AND ALL LABOR TO CONSTUCT THE DRAIN INTAKE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

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

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

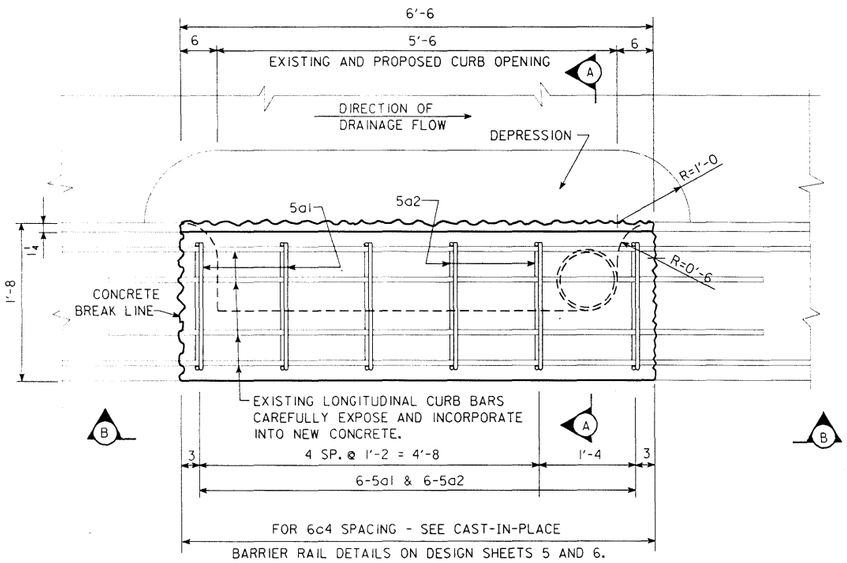


NOTE: ALL DIMENSIONS ARE OUT TO OUT. D= PIN DIAMETER.

CONCRETE PLACEMENT QUANTITIES

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

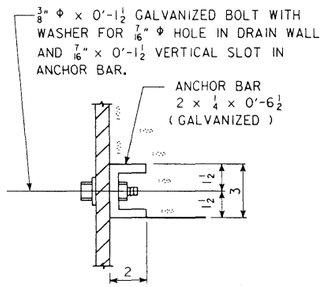
* INCLUDES 0.3 CU.YD. FOR CURB AND 0.2 CU.YD. FOR SLAB PER DRAIN.



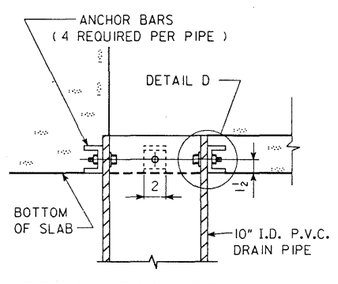
PLAN OF DRAIN MODIFICATION

SHOWN FOR WEST CURB

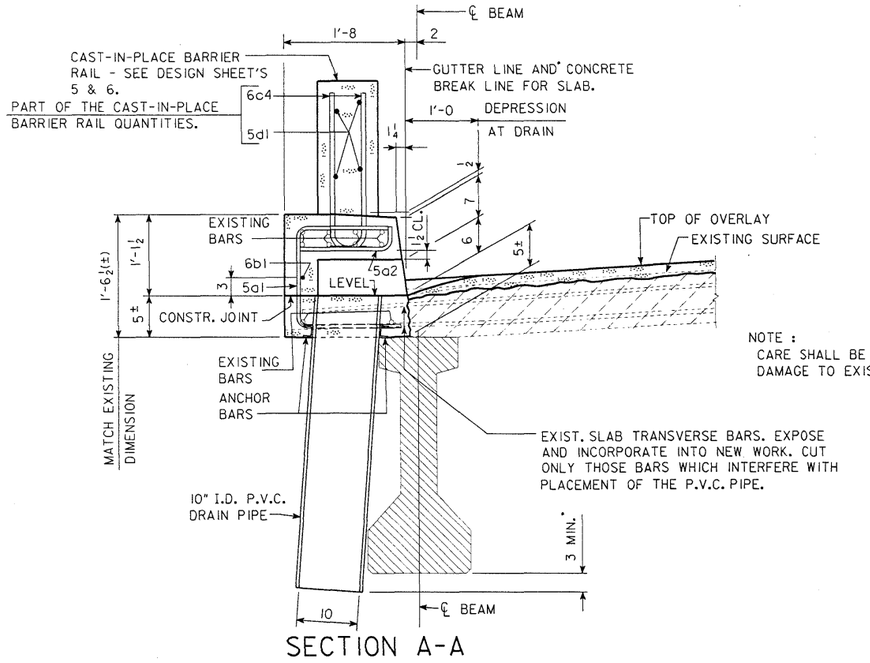
(2 DRAINS TO BE MODIFIED. CAST IN PLACE BARRIER RAIL NOT SHOWN.)



DETAIL D



DRAIN TOP DETAIL



SECTION A-A

DESIGN FOR REPAIR TO NORTHBOUND

159'-2 x 39' PRETENSIONED PRESTRESSED

CONCRETE BEAM BRIDGE

43'-1½ END SPANS — 72'-11 INTERIOR SPAN

CURB DRAIN MODIFICATION DETAILS

STATION:671+83.30 (℄ I-35)

NOVEMBER, 1993

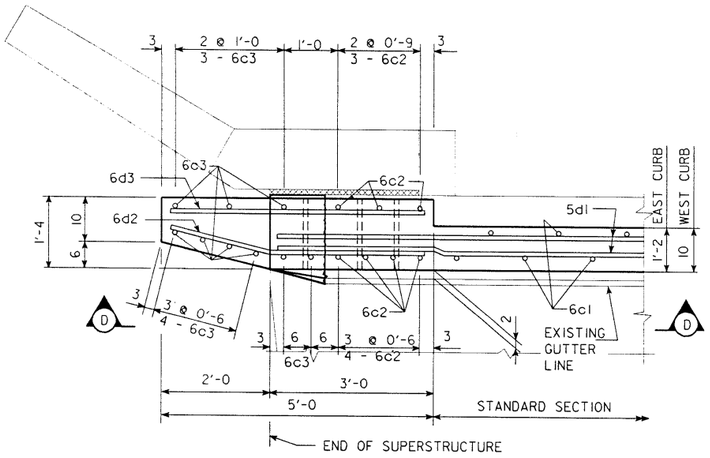
STORY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

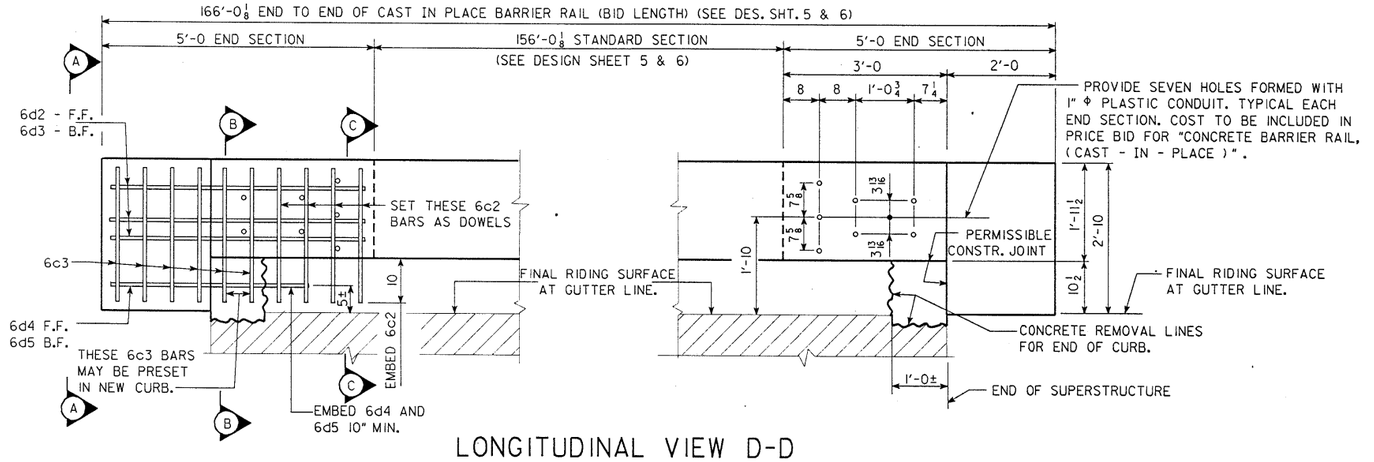
DESIGN SHEET NO. 3 OF 12 FILE NO. 28751 DESIGN NO. 693

DESIGNED BY	TRACED BY	STORY COUNTY	PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
E.W.KONECHNE	C.E.COLE			IOWA	7		9	30
DETAILED BY C.E.COLE	CHECKED BY							

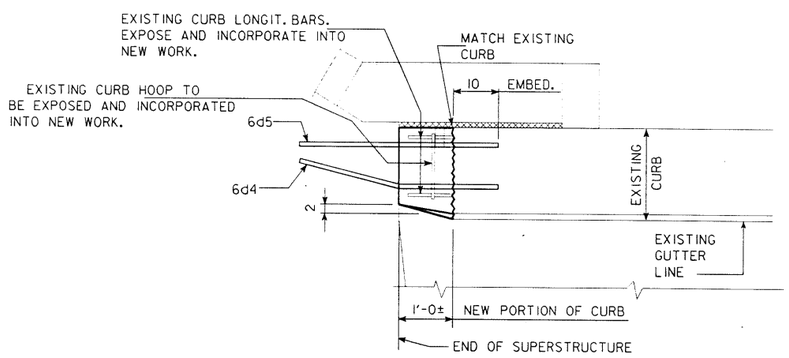
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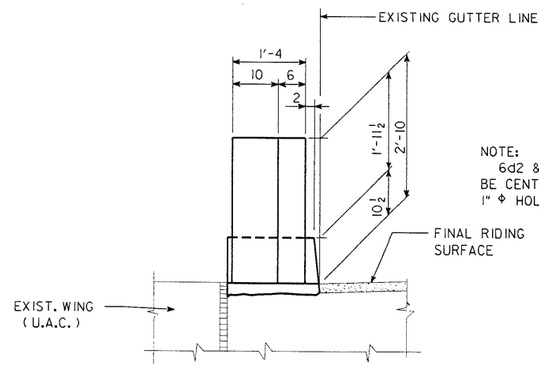
PLAN VIEW OF END SECTION



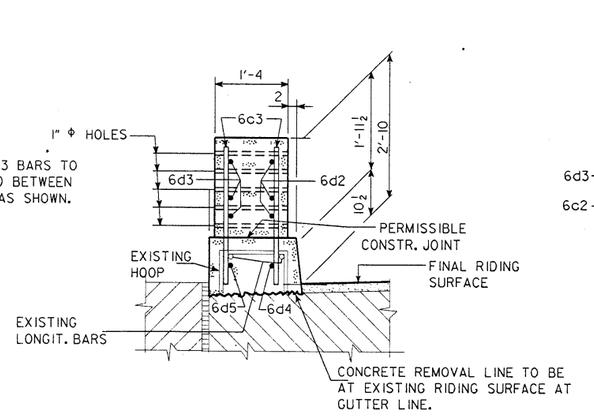
LONGITUDINAL VIEW D-D



PLAN VIEW OF NEW PORTION OF CURB

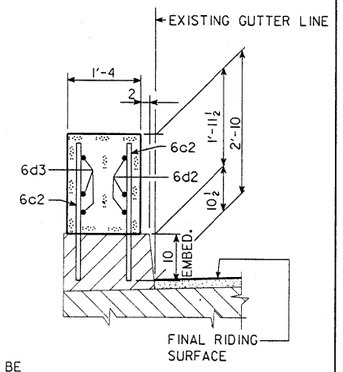


END VIEW A-A

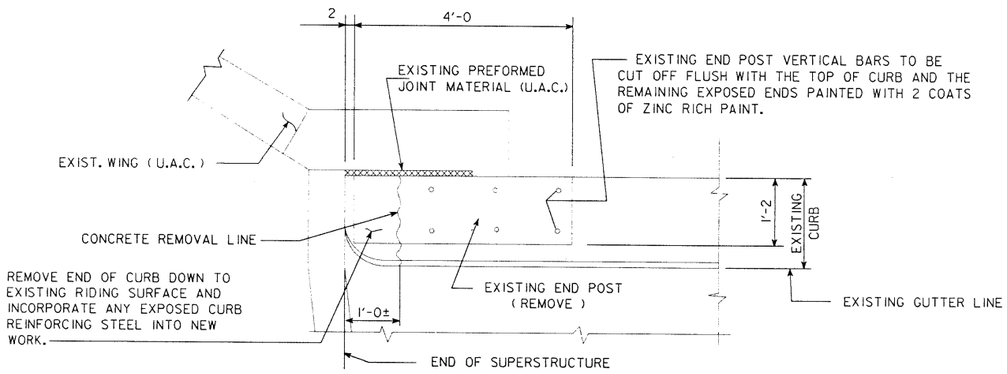


SECTION B-B

NOTE:
6d2 & 6d3 BARS TO
BE CENTERED BETWEEN
1" Φ HOLES AS SHOWN.



SECTION C-C



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

NOTE: SEE DESIGN SHEET 6 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 NORTHBOUND

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

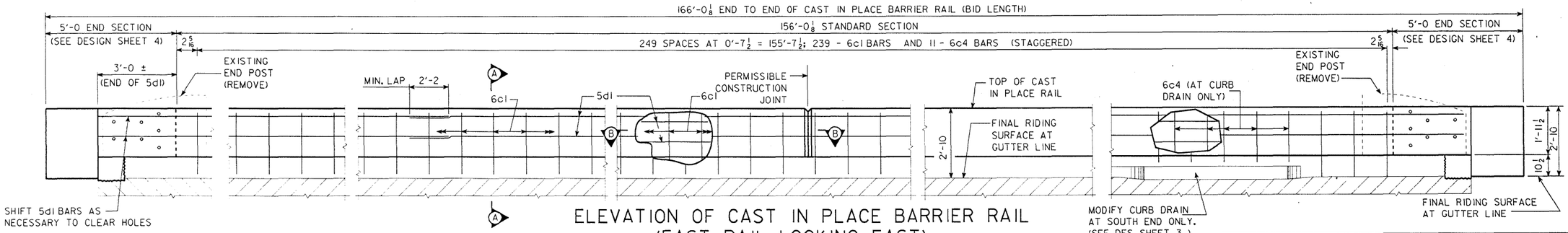
DESIGN SHEET NO. 4 OF 12 FILE NO. 28751 DESIGN NO. 693

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

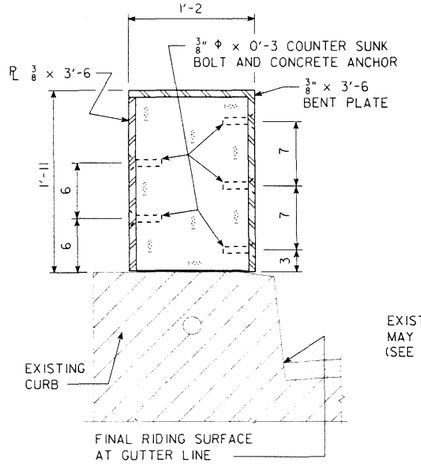
STORY COUNTY | PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		5	30

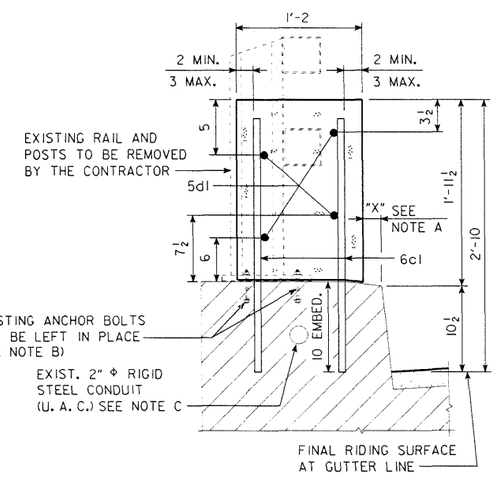
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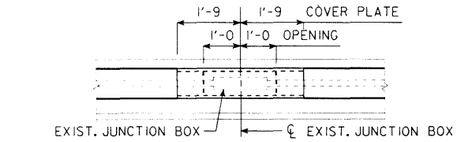
ELEVATION OF CAST IN PLACE BARRIER RAIL (EAST RAIL LOOKING EAST)



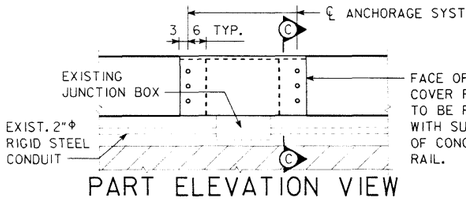
SECTION C-C



SECTION A-A



PART PLAN VIEW



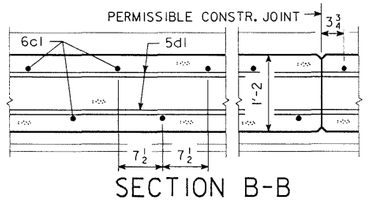
PART ELEVATION VIEW

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 3/8" 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.

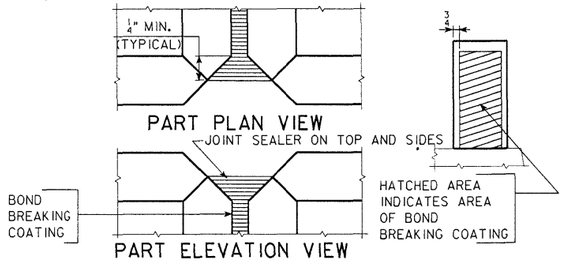
NOTE A:
DIMENSION "X" SHALL BE A MINIMUM OF 1" AND A MAXIMUM OF 3", BUT MUST BE CONSTANT FOR FULL LENGTH OF BRIDGE, HOWEVER APPROXIMATELY 10 LINEAR FEET AT EITHER END OF STANDARD RAIL SECTION SHALL BE TRANSITIONED TO 2" AT THE END SECTION.

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.



SECTION B-B
(SHOWING 6c1 PLACEMENT)



CAST IN PLACE BARRIER RAIL JOINT DETAILS

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

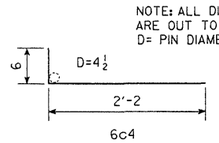
CONCRETE PLACEMENT SUMMARY EAST RAIL

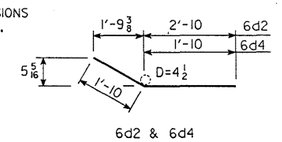
SECTION	TOTAL
STANDARD SECTION * 154.0' @ 0.085 CU. YDS. PER LIN. FT.	13.1
END SECTIONS 2 @ 0.6 CU. YDS. PER SECTION	1.2
* OPENING AT JUNCTION BOX DEDUCTED	
TOTAL (CU. YDS.)	14.3

ESTIMATED QUANTITIES-EAST RAIL

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

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





BENT BAR DETAILS

NOTE :
SEE DESIGN SHEET 6 FOR "CAST IN PLACE BARRIER RAIL NOTES" AND "DOWEL SETTING NOTE".

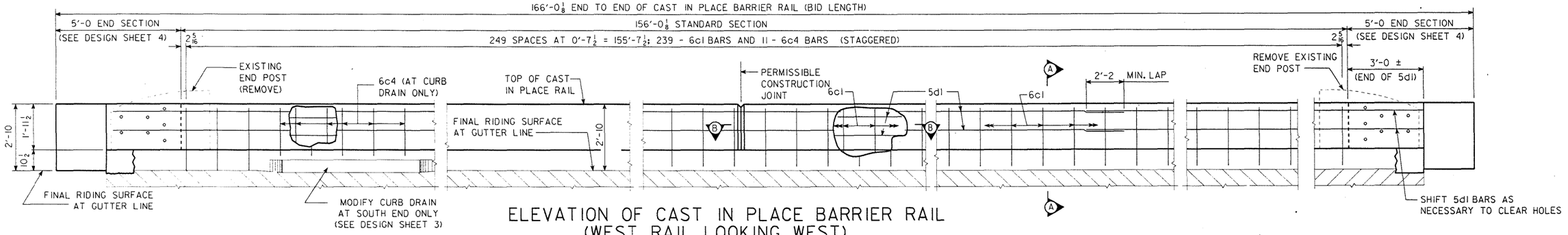
DESIGN FOR REPAIR TO NORTHBOUND
159'-2 x 39' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE
43'-1 1/2 END SPANS 72'-11 INTERIOR SPAN
CAST IN PLACE BARRIER RAIL DETAILS (EAST RAIL)
STATION:671+83.30 (℄ I-35) NOVEMBER, 1993
STORY COUNTY
IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION
DESIGN SHEET NO. 5 OF 12 FILE NO. 28751 DESIGN NO. 693

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
H:STD\031 D.S01--LEP: THIS SHEET REDRAWN, DEVICE:ZHAO:[200,004) ARCH.TAPE NO.00006. DATE 11-3-88

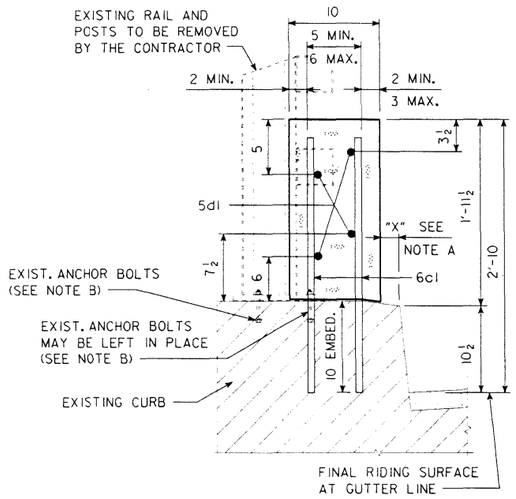
DESIGNED BY E.W.KONECHNE	TRACED BY C.E.COLE	CAST IN PLACE BARRIER RAIL	STANDARD SHEET 1031 D	STORY COUNTY	PROJECT NUMBER
DETAILED BY C.E.COLE	CHECKED BY				

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		6	30

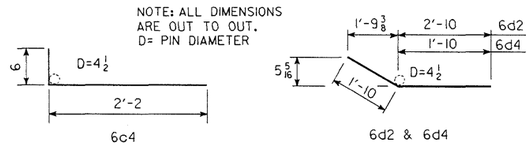
H850693.C04 DEVICE : ZGAI:[200,003]ARCH. TAPE No. _____DATE_____



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



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 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 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-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

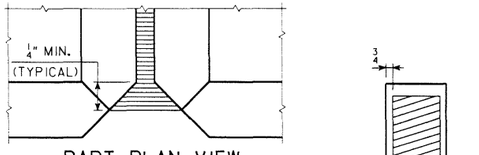
CONCRETE PLACEMENT SUMMARY WEST RAIL

SECTION		TOTAL
STANDARD SECTION	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

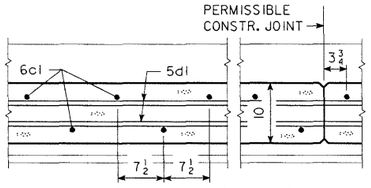
ESTIMATED QUANTITIES-WEST RAIL

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 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.



CAST IN PLACE BARRIER RAIL JOINT DETAILS



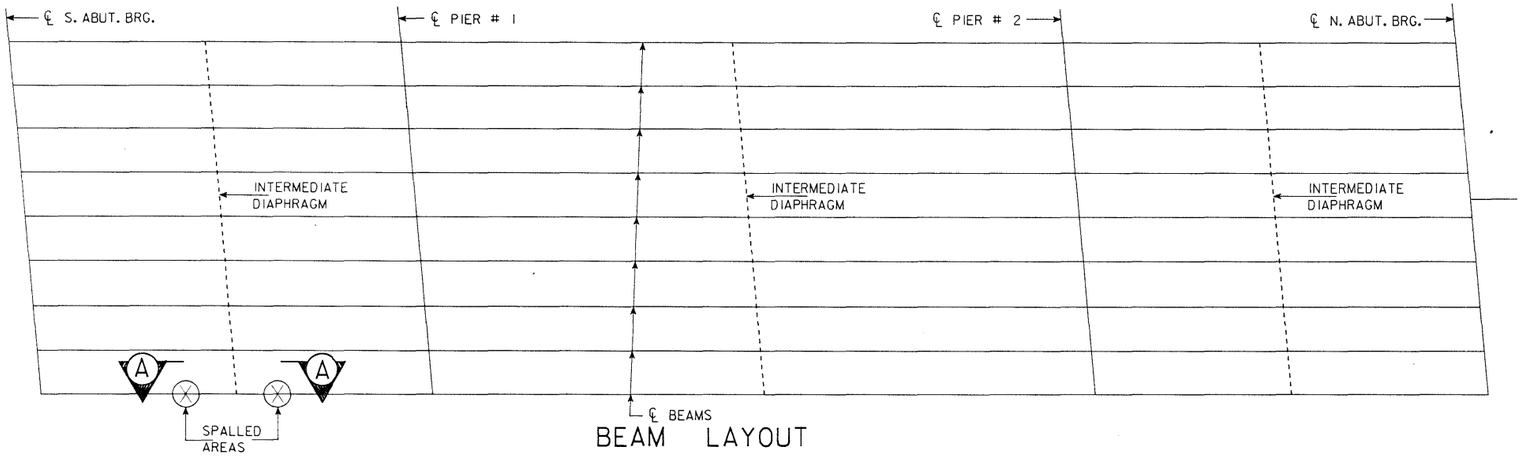
SECTION B-B
(SHOWING 6c1 PLACEMENT)

DESIGN FOR REPAIR TO NORTHBOUND
159'-2 x 39' PRETENSIONED PRESTRESSED
CONCRETE BEAM BRIDGE
43'-1 1/2" 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. 6 OF 12 FILE NO. 28751 DESIGN NO. 693

DESIGNED BY	TRACED BY							
E.W.KONECHNE	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		7	20

REVISED: BARRIER RAIL DETAILS CHANGED. TAPE NO. 9 DATE 2-26-90
HSTD1031C.S01 --LEP: THIS SHEET REDRAWN, DEVICE:ZHAO:[200,004]ARCH.TAPE NO. 000016 DATE 11-3-88

H850693.C05 DEVICE : ZGAI:[200,003]ARCH. TAPE No. _____DATE_____



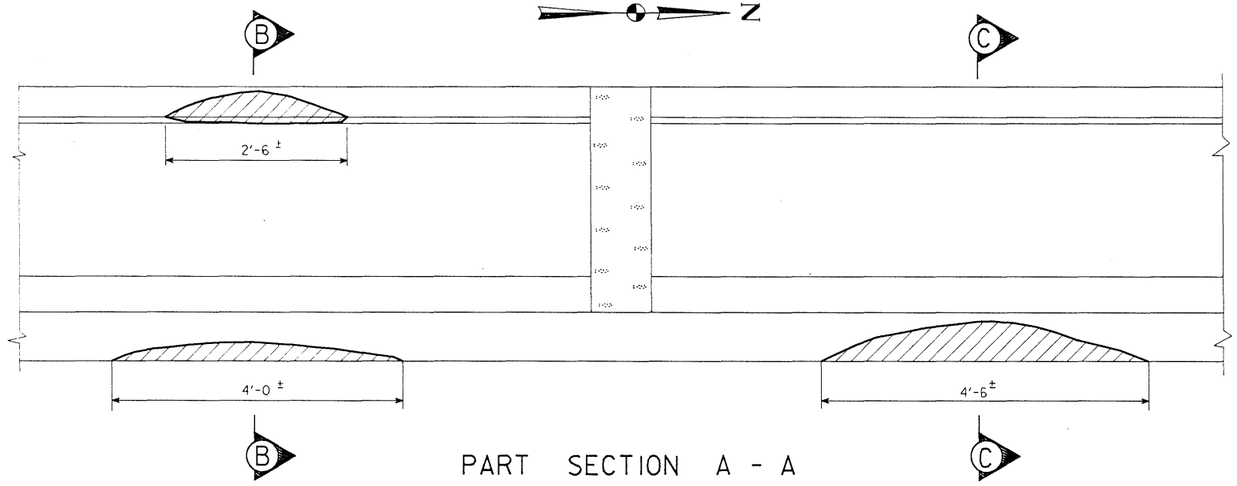
BEAM LAYOUT

BEAM REPAIR NOTES :

AREAS OF THE PRESTRESSED BEAMS SHALL BE REPAIRED AS SHALLOW REPAIR ACCORDING TO SECTION 2426 OF THE STANDARD SPECIFICATIONS, "STRUCTURAL CONCRETE REPAIR". THE MAXIMUM DEPTH OF 1½ INCH FOR SHALLOW REPAIR SHALL NOT APPLY.

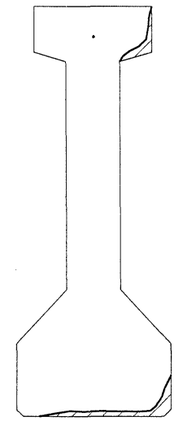
SPALLED AND HOLLOW AREAS AS SHOWN AND NOTED ON THIS SHEET SHALL BE REPAIRED. AREAS IN ADDITION TO THOSE SHOWN MAY REQUIRE REPAIR. THE ENGINEER SHALL DETERMINE AND OUTLINE BY VISUAL AND AUDIBLE INSPECTION THE ACTUAL AREAS OF THE CONCRETE REPAIR. THE CONTRACTOR SHALL BE PAID FOR THE ACTUAL AMOUNT OF REPAIRS MADE ON A SQUARE FOOT BASIS BASED ON THE PRICE BID PER SQUARE FOOT. ALL COSTS OF EQUIPMENT AND MATERIAL REQUIRED TO REPAIR THE SPALLED AND HOLLOW AREAS ON THE BEAMS SHALL BE INCLUDED IN THE PRICE BID FOR "CONCRETE REPAIR".

ALL EXISTING REINFORCING BARS OR PRESTRESSING STRANDS THAT ARE EXPOSED BY CONCRETE REMOVAL SHALL BE CLEANED AND CAREFULLY INCORPORATED INTO THE NEW WORK. THE CONTRACTOR SHALL EXERCISE EXTREME CARE IN REMOVING CONCRETE IN ORDER TO PREVENT DAMAGE TO THE PRESTRESSING STRANDS.

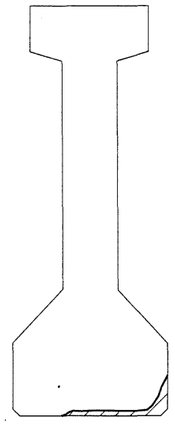


PART SECTION A - A

(SHOWING SPALLED AREAS)



PART SECTION B-B



PART SECTION C-C

DESIGN FOR REPAIR TO NORTHBOUND

159'-2 x 39' PRETENSIONED PRESTRESSED

CONCRETE BEAM BRIDGE

43'-1½ END SPANS 72'-11 INTERIOR SPAN

BEAM REPAIR

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

STORY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION

DESIGN SHEET NO. 7 OF 12 FILE NO. 28751 DESIGN NO. 693

DESIGNED BY E.W.KONECHNE TRACED BY

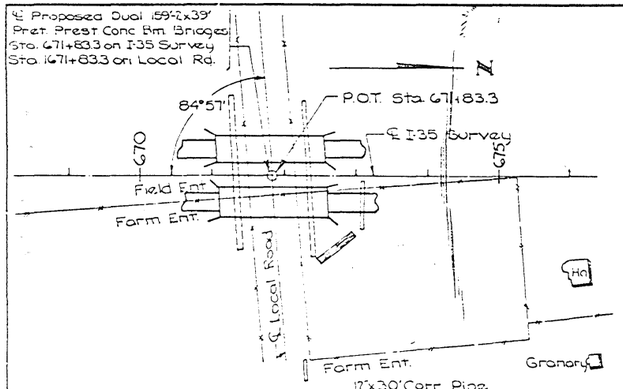
DETAILED BY R.RYSAVY CHECKED BY

STORY COUNTY

PROJECT NUMBER	STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	IOWA	7		8	30

H850693.C09

℄ Proposed Dual 159'-2"x39' Pret. Prest Conc Bm Bridges
Sta. 671+83.3 on I-35 Survey
Sta. 1671+83.3 on Local Rd.



GENERAL PLAN
Scale: 1"= 100'-0

GENERAL NOTES:

These bridges are designed for H20-S16-44 loading and alternate loading designated in B.P.R. P.M. 20-4, Section 4c, plus an allowance of 19 lb. per square foot of roadway for future wearing surface.

The Bridge Contractor is to install the tile subdrain behind each abutment as shown and noted on sheets 1 and 2. The price bid for "4" Tile Subdrain" is to include all the labor and excavation necessary for installation.

The approach fills are not a part of this estimate but are to be in place before abutment piles are driven.

Test piles are for determining pile lengths.

Pier excavation quantities assume that the grading work will be completed prior to start of pier construction.

SPECIFICATIONS:

Design: A.A.S.H.O. Series of 1961
Construction: Standard Specifications of the Iowa State Highway Commission, Series of 1964, plus current Supplemental Specifications and Special Provisions.

DESIGN STRESSES:

Design Stresses for the following materials are in accordance with A.A.S.H.O. Standard Specifications for Highway Bridges, Series of 1961.

Reinforcing Steel in accordance with Section 1.4.12 "Reinforcement" for Intermediate, Hard, or Rail Steel grade

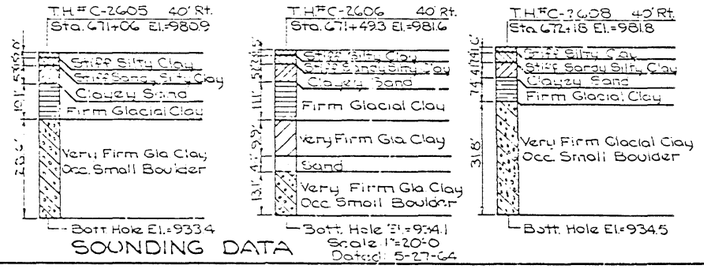
Concrete in accordance with Section 1411 fc=3500 p.s.i.

See sheet 6 for design stresses for prestressed beams.

TOTAL ESTIMATED QUANTITIES

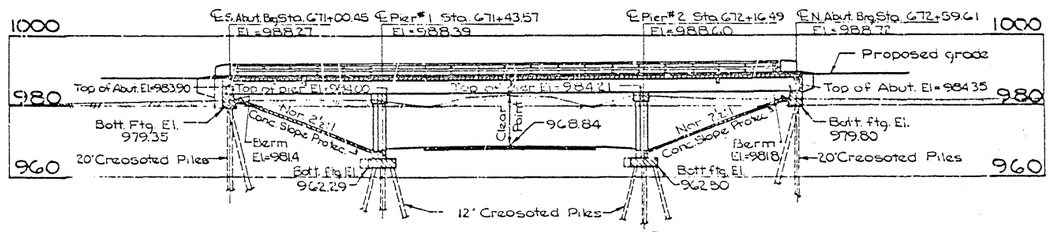
Item	Units	4 Abut.	4 Piers	2 Super	Total
* Structural Concrete	cy	1308	212.8	378.6	722.2
Reinforcing Steel	lbs	14336	37048	105965	157349
** Prestressed Prestr. Conc. Beams	Sp (42")	No		18	18
		No		36	36
Aluminum handrail or Steel handrail		LF			612.7 L.F. 612.7 L.F.
2" ϕ Rigid Steel Conduit		LF			350
Class 20 Excavation		cy	170	288	458
Granular Backfill		cy	288		2.3
Creosoted Piling		LF	60@20	96@12'	2328
4" ϕ Tile Subdrain		LF			312
Creosoted Test Piling		Lump Sum		2@25'	Lump Sum
Concrete Slope Protection		SY			904

* The floor, curbs & wing posts, 378 cy. is to be class "D" concrete. The remainder, 344 cy. is to be class "C" concrete.

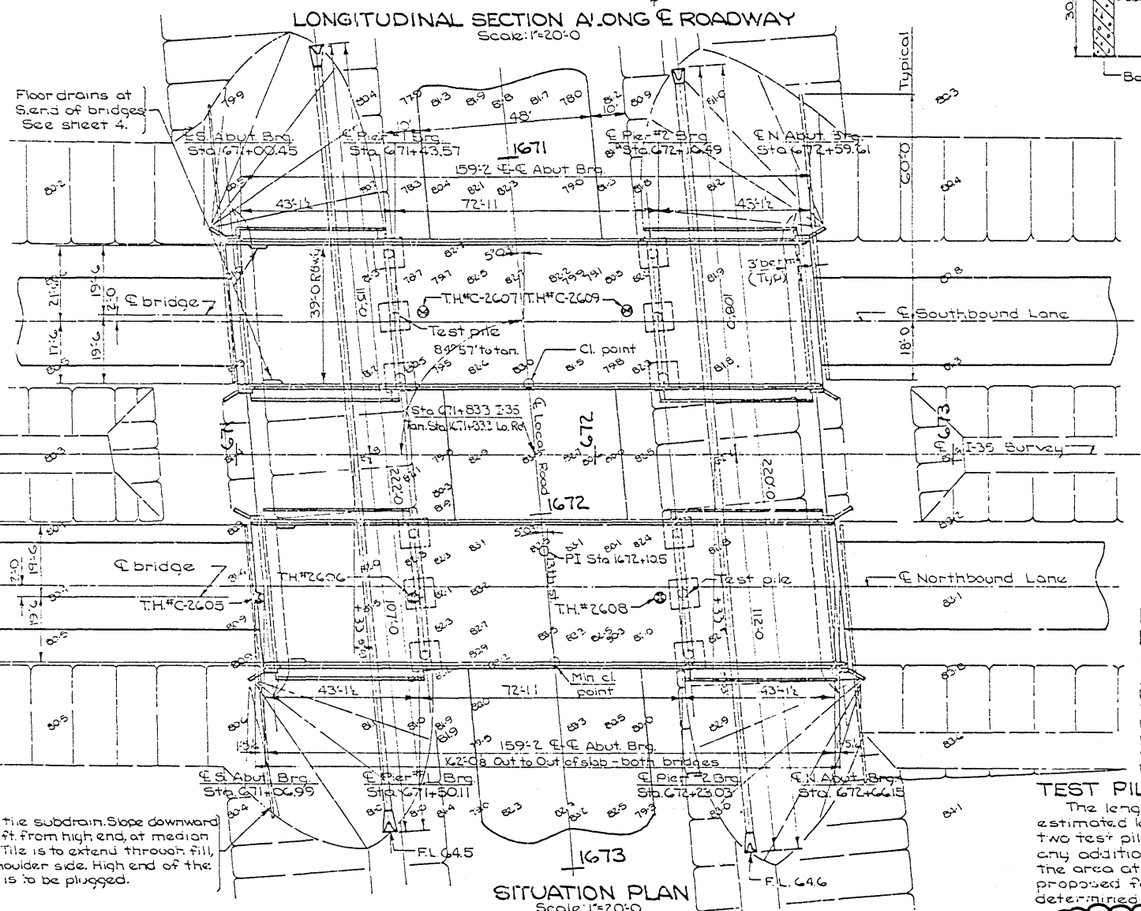


SOUNDING DATA
Scale: 1"=20'-0
Scale: 1"=20'-0
Dated: 5-27-64

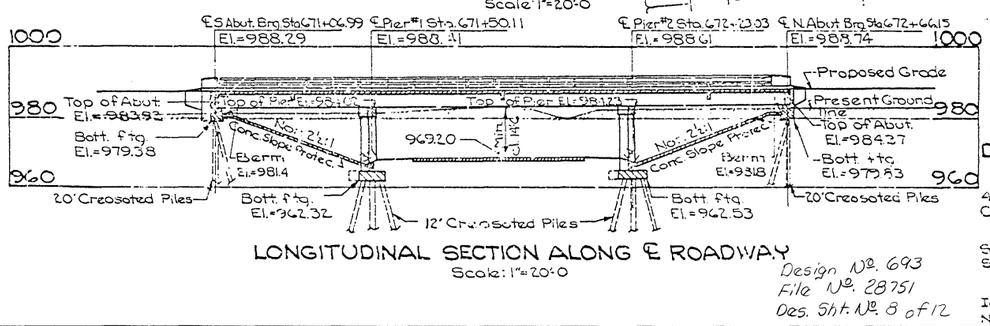
Bench Mark # 13, Sta 672+11, 21' Rt. Found R.R. Spk. W. Side Tel. Pole at Loc. Rd. (98.35)



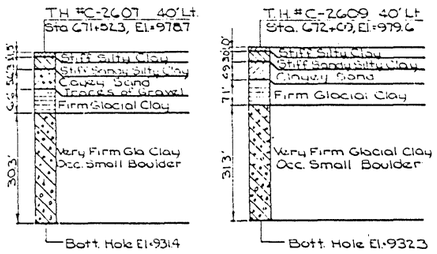
LONGITUDINAL SECTION ALONG ℄ ROADWAY
Scale: 1"=20'-0



SITUATION PLAN
Scale: 1"=20'-0



LONGITUDINAL SECTION ALONG ℄ ROADWAY
Scale: 1"=20'-0



SOUNDING DATA
Scale: 1"=20'-0
Dated: 5-27-64

Sta. 661+00
Elev.=985.47
+0.28%

PROP. INTERSTATE GRADE

Sta. 669+50
Elev.=956.30
+0.49%

PROP. 13th STREET GRADE

LOCAL ROAD HORIZONTAL CURVE DATA

Δ= 0° 23' Rt.
D= 0° 03' 50"
T= 300.02'
L= 600.00'
E= 0.50
R= 89,636.96
PI= 1672+10.5

LOCATION:

T-83-N R-23-W Sec 6
T-84-N R-23-W Sec 31
Grant Twp.
Milford Twp.
Over 13th street

TEST PILE NOTE:

The lengths shown for Creosoted Piling are estimated lengths for bidding purposes only and two test piles shall be driven before ordering any additional piling. Before driving the Test Pile the area at the test pile is to be excavated to the proposed footing elevation. Pile lengths will be determined from test pile results.

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

Design for 0° 03' Skew

DUAL 159'-2"x 39'-0" PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

43'-1½" End Spans — 72'-11" Center Span
Concrete Floor & Substructure — Tubular Handrail

GENERAL & SITUATION PLAN

Station: 671+83.3 on Interstate
Station: 1671+83.3 on Local Road
Project No. I-IG-35-5(8)13

STORY COUNTY

Iowa State Highway Commission
November, 1964

9 of 30 Sheets

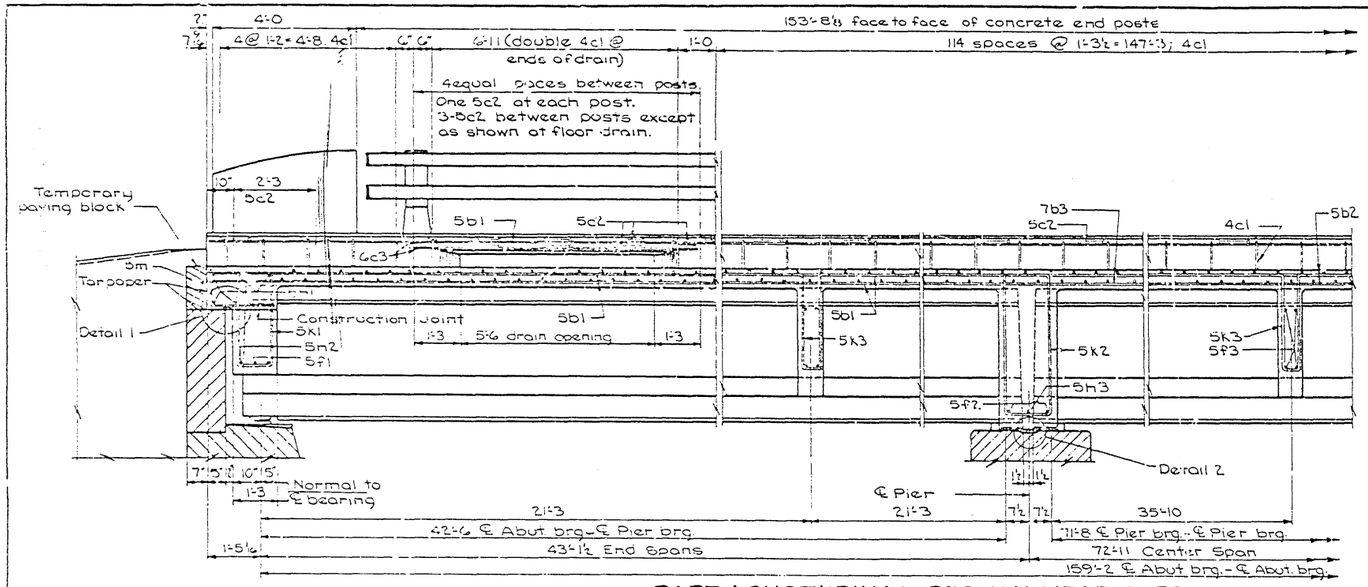
Design No. 693
File No. 28751
Des. Sht. No. 8 of 12

Design No. 863 — Story County — ~~File No. 21735~~

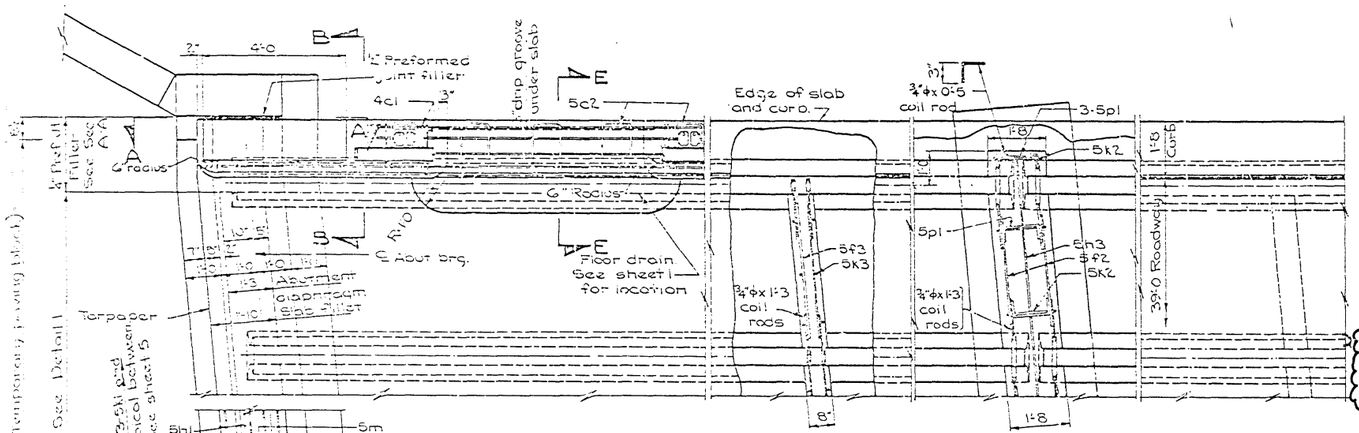
Designed by: E.N. Traced by: ℄. Checked by: JFS

JFS

SAMWRIGHT



PART LONGITUDINAL SECTION NEAR CURB



PART PLAN

PART SECTION B-B

PART SECTION A-A

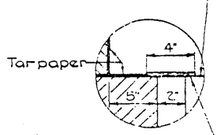
SECTION E-E

ESTIMATED QUANTITIES-TWO SUPER'S	
Item	Quantity
Structural Concrete Class "D"*	378.6 CY
Reinforcing Steel*	105,965 lb
Prestensioned Prestr. Conc. Bms (42'-6 sp)	36 No
" " " " (71'-8 sp)	18 No

* Includes 2 light pole bases

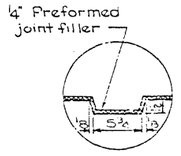
CONCRETE PLACEMENT QUANTITIES	
Section 1	36.5
Section 2	46.7
Section 3	36.5
Section 4 or 5-2@ 23.9	47.8
Curbs	20.2
End Posts	1.5
Total (one superstructure)	189.2 CY

Construction joint level with top of backwall.



¼"x4" plywood strip, full length of abutment diaphragm. (to be left in place)

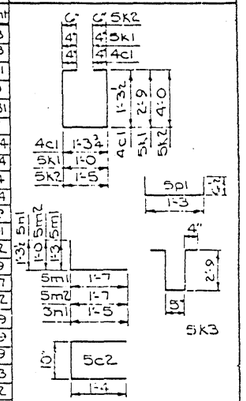
DETAIL 1



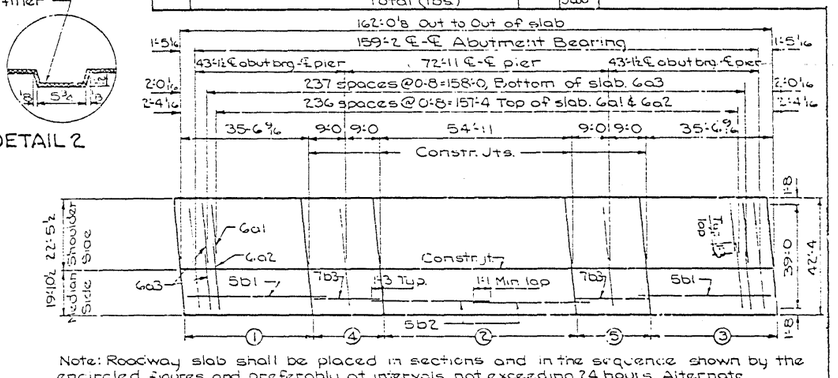
DETAIL 2

REINFORCING STEEL-ONE SUPERSTR.					
Bar	Location	Shape	No	Length	Weight
6a1	Slab, transverse, top	—	237	19'-2	6823
6a2	Slab, transverse, top	—	237	24'-2	8603
6a3	Slab, transverse, bottom	—	476	21'-8	15491
5b1	Slab and curb, longitudinal	—	160	36'-8	6119
5b2	Slab and curb, longitudinal	—	160	29'-3	4881
7b3	Slab and curb, longit. over piers	—	86	13'-8	1717
4c1	Curb hoops	□	248	1'-3	704
5c2	Curb, transverse	—	108	3'-2	584
6c3	Curb, over floor drain	—	12	8'-0	144
5f1	Abutment diaphragm	—	32	4'-0	134
5f2	Pier diaphragm	—	32	3'-1	103
5f3	Intermediate diaphragm	—	92	1'-0	401
5h1	Slab fillet, at abutment	—	20	21'-8	452
5h2	Abutment diaphragm	—	2	37'-11	79
5h3	Pier diaphragm	—	4	20'-10	87
5k1	Abutment diaphragm hoops	□	48	6'-10	342
5k2	Pier diaphragm hoops	□	36	10'-11	379
5k3	Intermediate diaphragm hoops	⊔	72	6'-3	469
5m1	Slab fillet	⌊	24	2'-9	69
5m2	Slab fillet	⌊	32	2'-4	83
5n1	Curb, transverse, at ends	⌊	8	2'-7	22
5p1	Pier diaphragm	⊔	44	2'-3	103
4r1	End post, vertical	---	32	2'-9	59
4f1	End post, horizontal	---	16	3'-9	39
	Total (lbs)				5288

BAR DETAIL

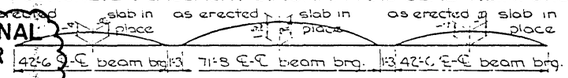


All dimensions shown are out to out.

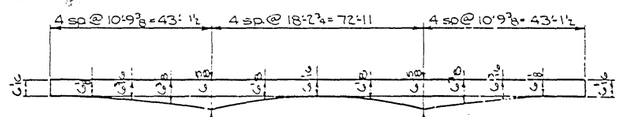


Note: Roadway slab shall be placed in sections and in the sequence shown by the encircled figures and preferably at intervals not exceeding 24 hours. Alternate procedures for placing slab concrete may be submitted for approval, together with a statement of the proposed method and evidence that the Contractor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

CONCRETE PLACEMENT DIAGRAM AND SLAB REINFORCING



BEAM CAMBER



SLAB THICKNESS DIAGRAM

Note: The slab thicknesses shown are based on the anticipated beam camber remaining after placing the slab and are not guaranteed for construction. To meet final grade line, slab is to be thickened to compensate for deficient beam camber and thinned a maximum of ⅛ inch for excess beam camber.

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

4/10

Design No. 693
File No. 28751
Des. Sht. No. 9 of 12

Design for 5°03' Skew

DUAL 159'-2x39' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

43'-1½ End Spans — 72'-11 Center Span
Concrete Floor & Substructure — Tubular Handrail

SUPERSTRUCTURE DETAILS

Station: 671+83.3 on Interstate
Station: 1671+83.3 on Local Road
Project No. I-IG-35-5(113

STORY COUNTY

Iowa State Highway Commission

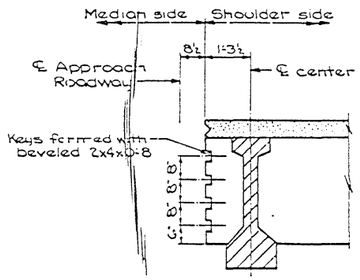
10 of 30

November, 1964

~~Sheet 4 of 10~~

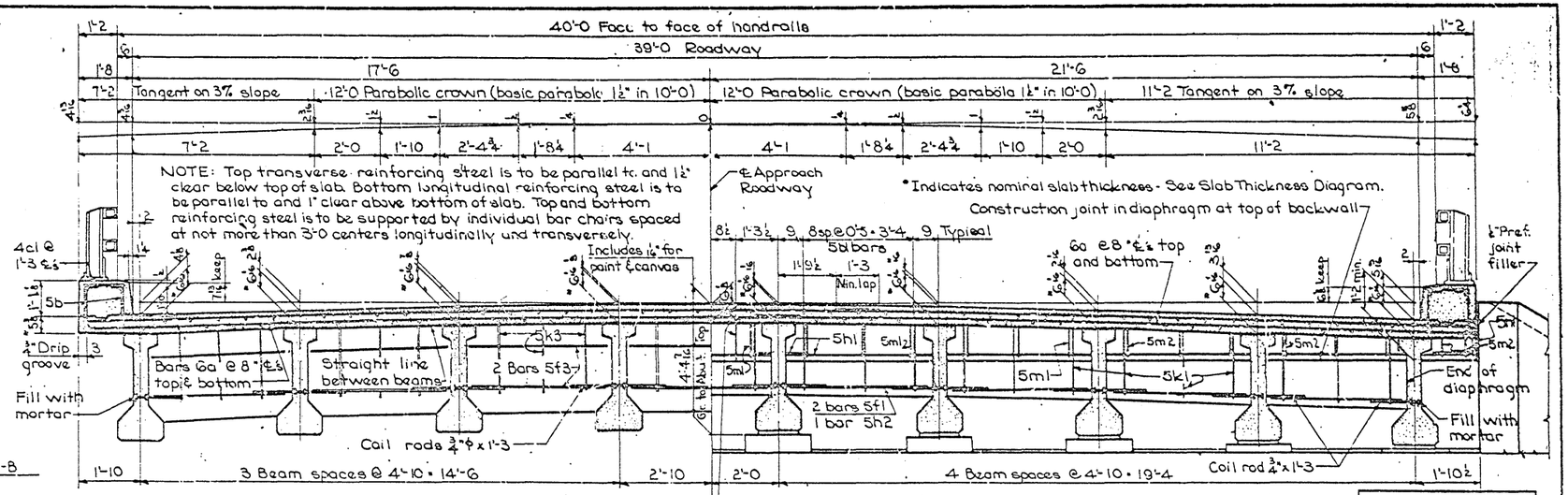
Design No. 863 — Story County — ~~File No. 21736~~

Designed by: E.N. — Traced by: ☆ — Checked by: ☆☆



PART ROADWAY SECTION

Showing vertical construction joint for intermediate diaphragm.

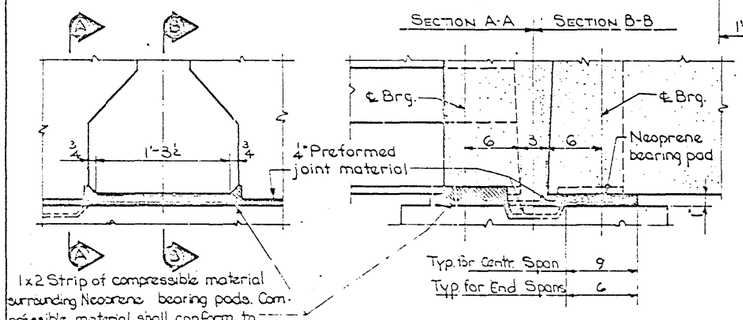


PART SECTION NEAR MID SPAN

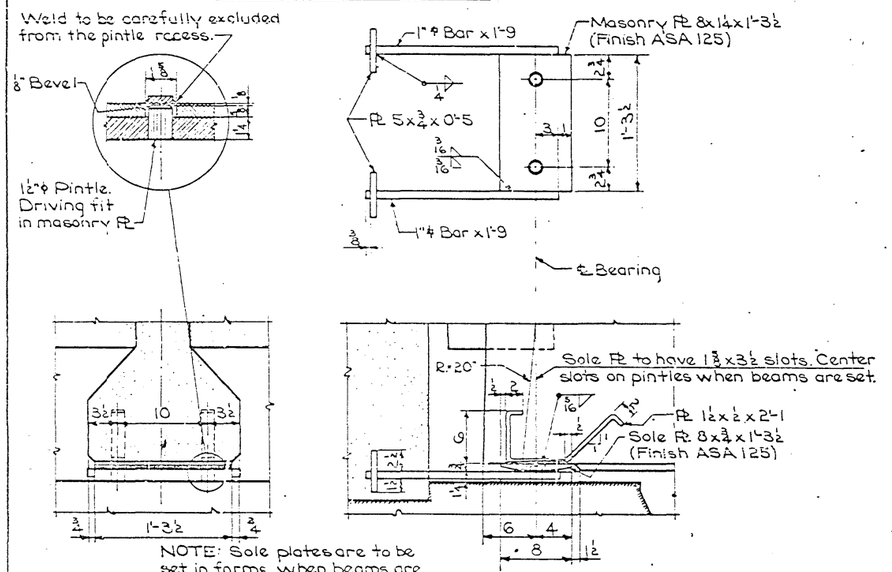
PART SECTION NEAR ABUTMENT

Construction joint

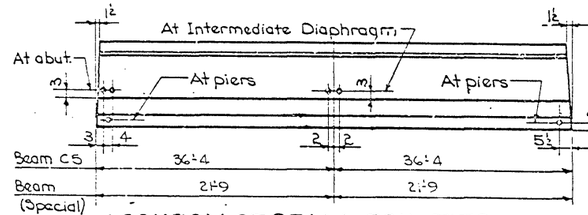
	10,050 s.f.
	11,326 s.f.
Area of Slab =	21,376 s.f.
Area of Curb =	1,715 s.f.



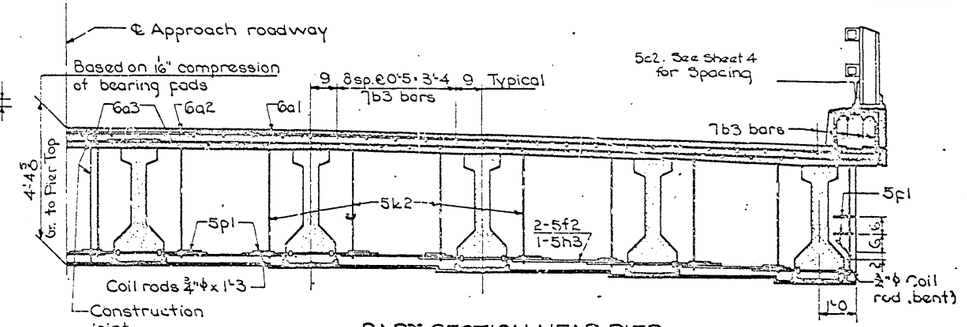
PIER BEARING DETAILS



ABUTMENT BEARING DETAILS



LOCATION OF BEAM COIL TIES



PART SECTION NEAR PIER

SUPERSTRUCTURE NOTES:

This bridge is designed for H20-S16-44 Loading, plus 19 lbs. per sq.ft. of roadway for future wearing surface and alternate loading designated in B.P.R. PPM. 20-4, Section 4c

Concrete in slab is to have a 28 day crushing strength of 3500 p.s.i. and is to contain no Class "V" aggregate. It is to be placed as dry as practicable to reduce shrinkage to a minimum and special precaution is to be taken to secure complete bond between beams and slab. All exposed corners of 90° or sharper are to be filleted ¾".

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

All reinforcing is to be securely wired in place and adequately supported on metal bar chairs before placing concrete.

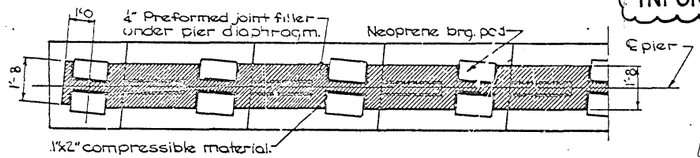
Cost of all bearing material is to be included in price bid for the beam.

Cost of all preformed joint material is to be included in price bid for concrete.

Slab as shown includes ½" of wearing surface.

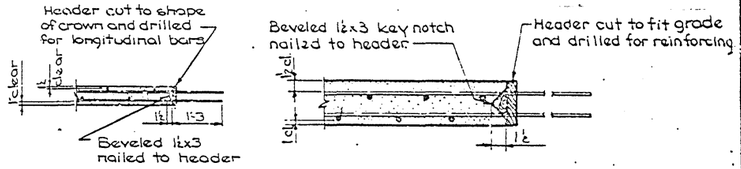
Forms for slab and curbs are to be supported by the beams.

For Pretensioned Prestressed Concrete Beam Details see Sheet 6.



HALF PLAN OF PIER CAP

Showing area covered by ½" preformed joint material



TRANSVERSE Jt. LONGITUDINAL Jt.

FLOOR CONSTRUCTION JOINT DETAILS

THIS SHEET FROM ORIGINAL DESIGN IS INCLUDED FOR INFORMATION ONLY.

5/10

Design For 5°03' Skew

DUAL 159'-2 x 39'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

43'-1½ End Spans — 72'-11 Interior Span

Concrete Floor & Substructure — Tubular Handrail

SUPERSTRUCTURE DETAILS

Station: 671+833 on Interstate

Station: 671+833 on Local Road — Project No. IIG-35-5(8)113

STORY COUNTY

IOWA · STATE HIGHWAY COMMISSION

November, 1964 — ~~Sheet 5 of 10~~

Design No. 693

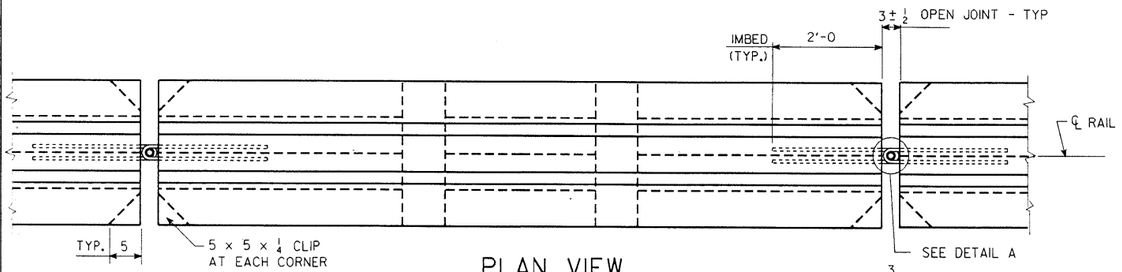
File No. 28751

Des. Sht. No. 10 of 12

Design No. 863 — Story County — ~~File No. 2F135~~ 11 of 30

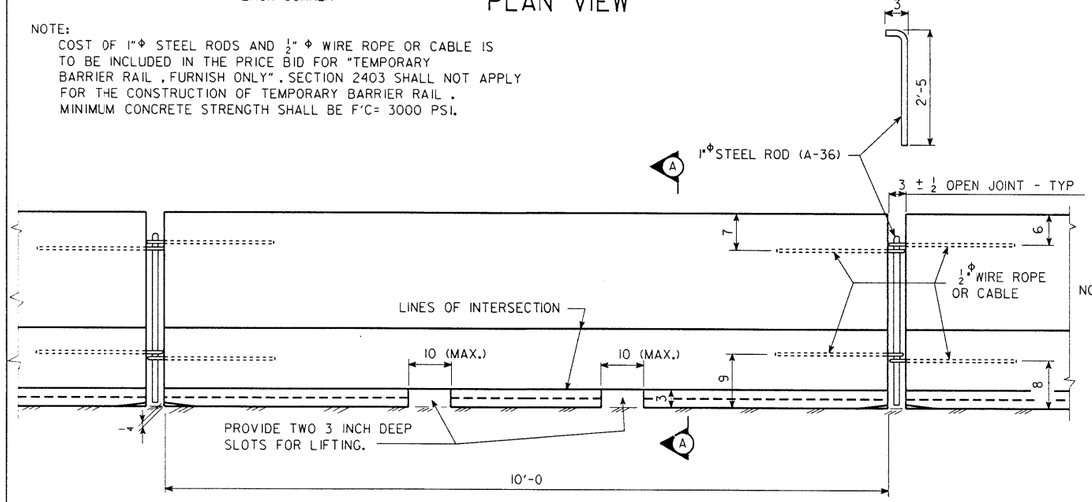
Designed by: EN — Traced by: — Checked by:

4031

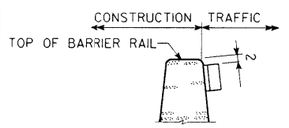


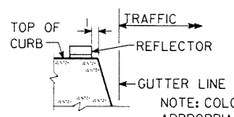
PLAN VIEW

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.



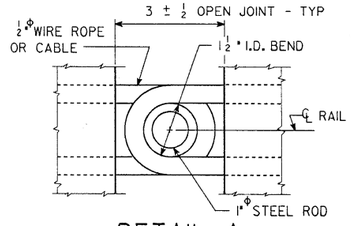
ELEVATION VIEW





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

REFLECTOR DETAILS



DETAIL A

½"Φ WIRE ROPE OR CABLE TO BE ½"Φ 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.

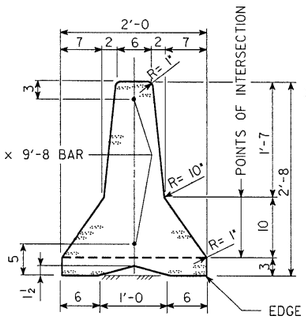
NO STATIONARY EQUIPMENT OR CONSTRUCTION MATERIAL IS TO BE PLACED IN FRONT OF THE TEMPORARY BARRIER RAIL AT ANY TIME.

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

ALL COSTS FOR TIE DOWNS SHALL BE INCLUDED IN THE PRICE BID FOR "TEMPORARY BARRIER RAIL, PLACE ONLY".

TIE-DOWNS ARE REQUIRED ONLY WHERE THE TEMPORARY BARRIER RAIL IS ADJACENT TO A DROP-OFF. HOLES FOR CONCRETE ANCHORS MAY BE DRILLED AFTER POSITIONING TEMPORARY BARRIER RAIL. CONCRETE ANCHORS ARE TO BE SET SO THAT THE ANCHORS CAN BE REMOVED AT LEAST 1½" BELOW THE CONCRETE SURFACE AND THE REMAINING HOLE FILLED WITH A NEAT MIXTURE OF SAND-CEMENT GROUT. CONCRETE ANCHORS ARE TO BE REMOVED, WITHOUT DAMAGING THE SURROUNDING CONCRETE, ONLY AFTER THE TEMPORARY BARRIER RAIL IS NO LONGER NEEDED AT THE PARTICULAR LOCATION.

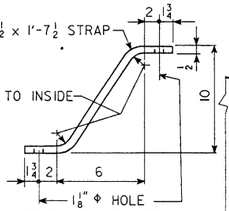
CONCRETE ANCHORS ARE TO BE A MINIMUM OF ¾"Φ AND AS OTHERWISE SPECIFIED IN CURRENT OFFICE OF MATERIALS I.M. 453.09 WITH A PULL-OUT STRENGTH OF 16,000 LBS. BASED ON 4,000 P.S.I. CONCRETE.



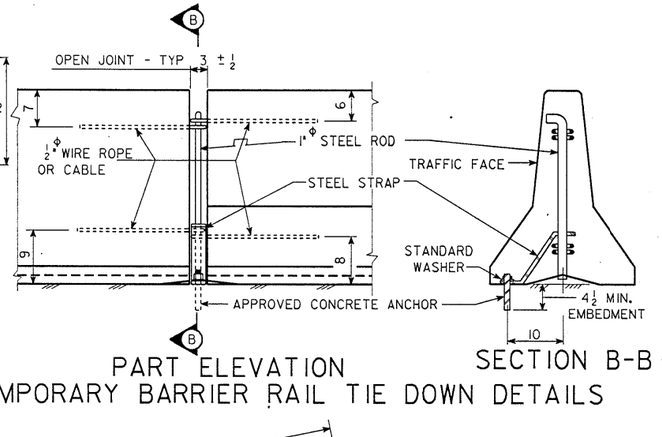
SECTION A-A

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

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



STRAP DETAIL

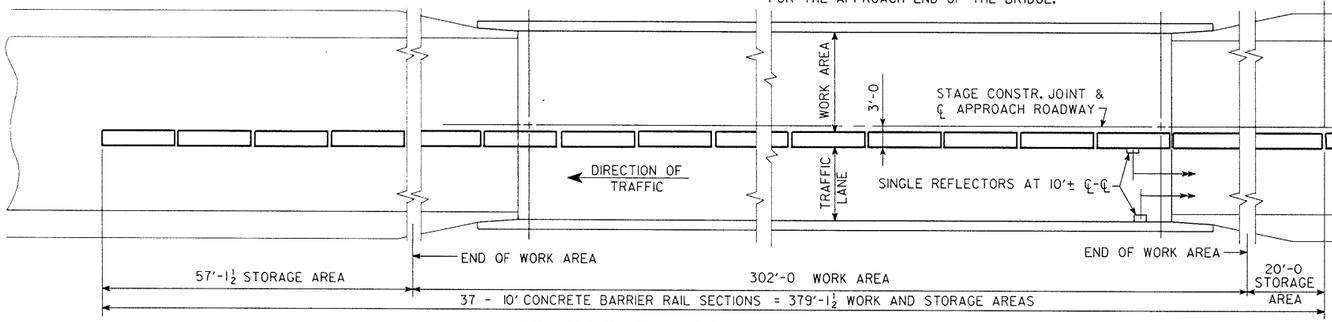


PART ELEVATION

SECTION B-B

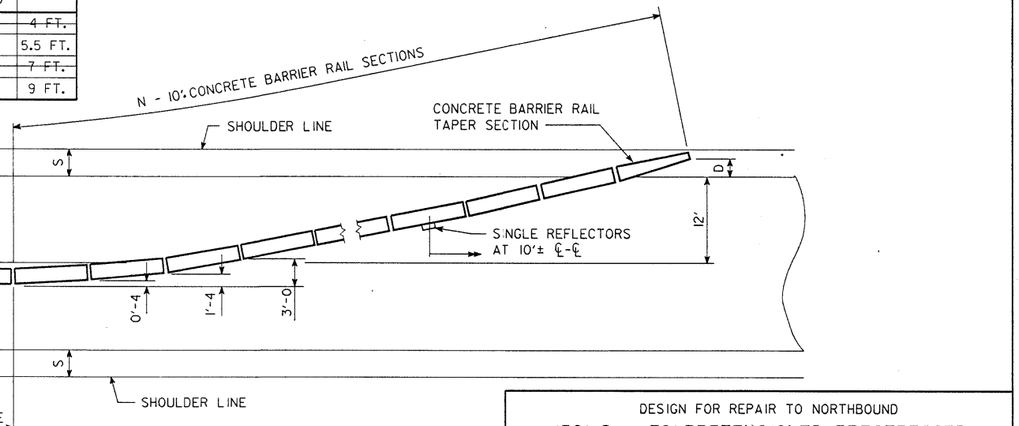
TEMPORARY BARRIER RAIL TIE DOWN DETAILS

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



TEMPORARY CONCRETE BARRIER RAIL LAYOUT FOR ONE WAY TRAFFIC

NOTE :
TIE DOWNS WILL BE REQUIRED ADJACENT TO REMOVED APPROACH PAVEMENT.



ESTIMATED QUANTITIES	
ITEM	AMOUNT
TEMPORARY BARRIER RAIL, FURNISH ONLY	530 L.F.
TEMPORARY BARRIER RAIL, PLACE ONLY	1040 L.F.

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

DESIGN FOR REPAIR TO NORTHBOUND
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. 11 OF 12 FILE NO. 28751 DESIGN NO. 693

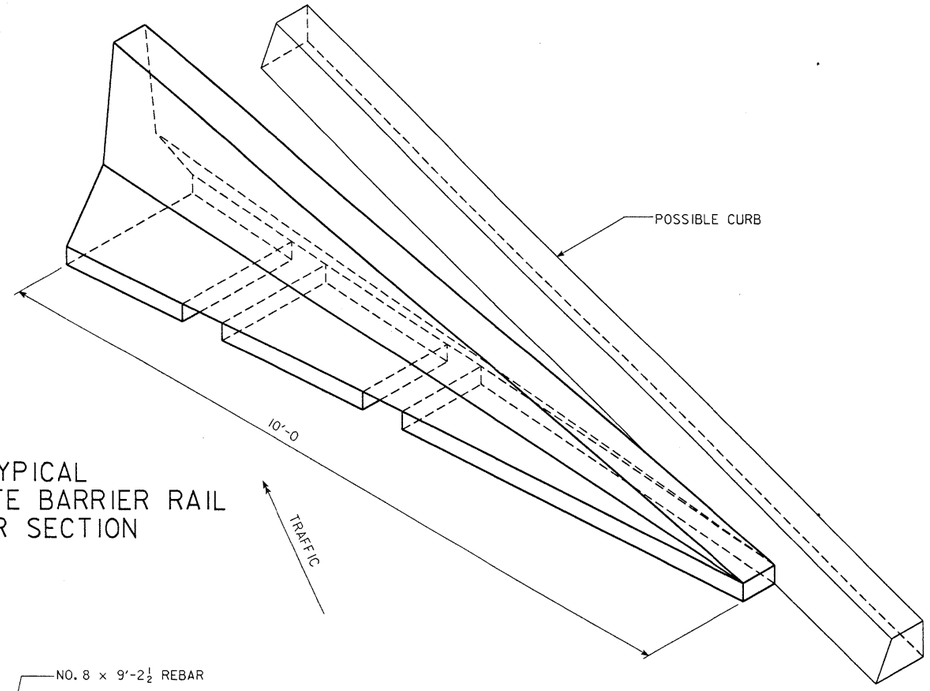
REVISED SPECIFICATION ARTICLE NUMBER CHANGED, TAPE NO.15, DATED 1-2-92.
REVISED 1-17-92 BARRIER RAIL LAYOUT CHANGED, DEVICE:ZGAI:[200,003]ARCH.TAPE NO.__ DATE 1-23-92.
REVISED 1-17-92 BARRIER RAIL LAYOUT CHANGED, DEVICE:ZGAI:[200,003]ARCH.TAPE NO.__ DATE 1-23-92.
REVISED: 6-21-93 - LIFTING SLOT DETAILS 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		12	30

H850693.C07 DEVICE : ZGAI:[200,003]ARCH. TAPE No. _____DATE_____

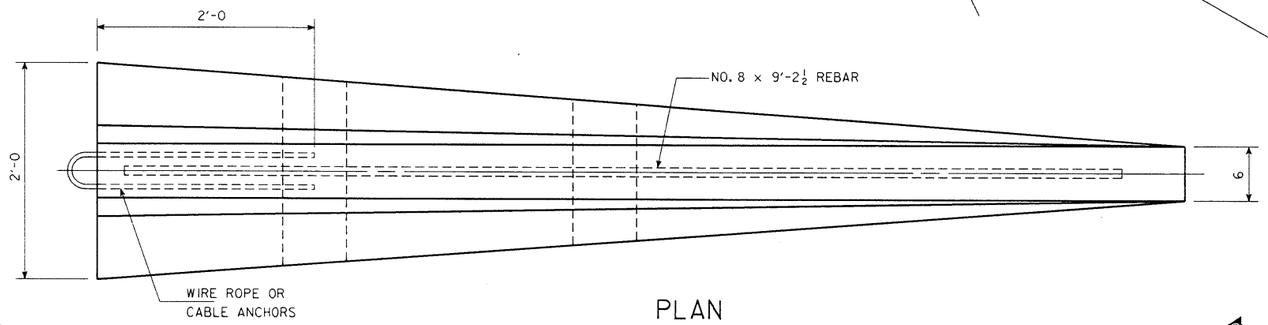


TYPICAL
CONCRETE BARRIER RAIL
TAPER SECTION

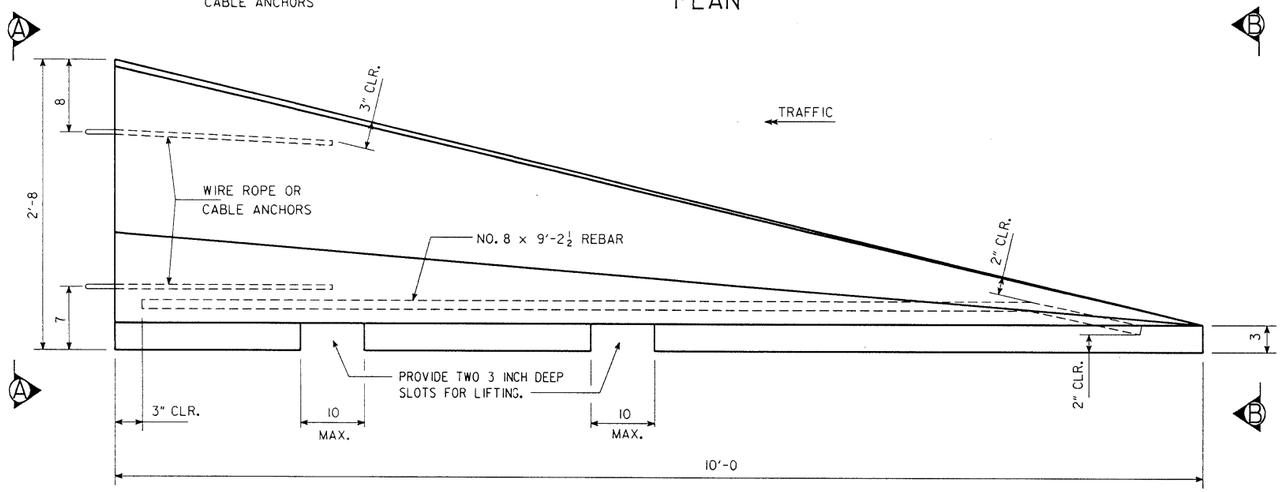
GENERAL NOTES:

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.

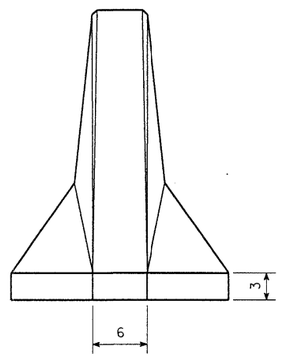
CONCRETE SHALL BE CLASS "D" STRUCTURAL CONCRETE PLACED AND FINISHED IN CONFORMANCE WITH CURRENT STANDARD SPECIFICATIONS FOR "STRUCTURAL CONCRETE". APPROXIMATELY 0.486 CU. YDS. OF CLASS "D" STRUCTURAL CONCRETE WILL BE REQUIRED FOR EACH TAPER SECTION.



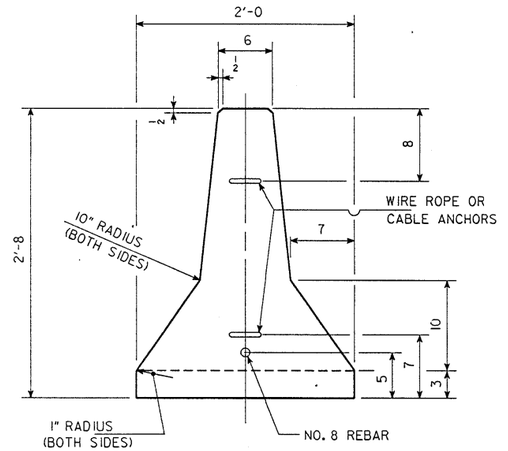
PLAN



SIDE ELEVATION



FRONT VIEW B-B



END VIEW A-A

DESIGN FOR REPAIR TO NORTHBOUND
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. 12 OF 12 FILE NO. 28751 DESIGN NO. 693

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

CONCRETE BARRIER RAIL TAPER SECTION	STANDARD 1034B	STORY COUNTY	PROJECT NUMBER

STATE	FHWA REGION	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	7		13	30

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

H850693.C08 DEVICE : ZGAH:[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.
2301-0685100	See RK-19F and tab. 112-6.
2505-4020152, 2505-4020250, 2505-4020251, 2505-4020400, 2505-4021690	See tab. 108-8A.
2505-6745740, 2505-6745749, 2505-6745855	See tab. 110-7A.
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, and detail sheet 570-2.
2528-8445110	See tab. 108-23.

AS BUILT

EXTRA WORK ORDERS

EWO	DESCRIPTION	UNIT	QUANITITY
8001	SHOULDER STRENGTHING	SQ. YD	370.89
8002	CLASS 13 EXCAVATION	CU. YD	82.55
8003	PRICE ADJUSTMENT	CREDIT	$ 200.00
8004	CONCRETE SEALER	SQ. FT.	607.56
8005	ACC WEDGE COURSE	TONS	2.92
8006	SMOOTHNESS INCENTIVE	LUMP SUM	$ 2000.00

ESTIMATED ROADWAY QUANTITIES

100-0A
10-01-93

CONSTRUCTION USE ONLY	ITEM CODE	ITEM	UNIT	TOTAL	AS BUILT QUAN.
	2102-2625000	Embankment-In-Place	CY	45.000	-0-
	2301-0685100	Bridge Approach Section	SY	444.000	477.16
	2505-4020152	Guardrail, End Anchorage, Beam, RE-52	Only	1.000	1
	2505-4020153	Guardrail, End Anchorages, Beam, RE-53	Only	1.000	1
	2505-4020250	Guardrail, Formed Steel Beam	LF	206.500	213.0
	2505-4020251	Guardrail, Formed Steel Thrie Beam	LF	93.750	93.75
	2505-4020400	Guardrail, Posts, Beam	Only	49.000	51
	2505-4021690	Guardrail, End Anchorages, Beam, RE-69	Only	3.000	3
	2505-6745740	Removal Of Guardrail End Anchorage	Only	2.000	2
	2505-6745749	Removal Of Guardrail	LF	250.000	250.0
	2510-6745850	Removal of Pavement	SY	444.000	477.1
	2524-9220020	Object Marker, Type 2	Only	5.000	5
	2524-9220030	Object Marker, Type 3	Only	2.000	2
	2527-9263110	Painted Pavement Marking	Sta	33.900	19.42
	2527-9263130	Removable Tape Marking	Sta	27.400	36.88
	2527-9263180	Pavement Marking Removed	Sta	33.000	14.91
	2528-8400157	Temporary Floodlighting Luminaire	Only	2.000	2
	2528-8445110	Traffic Control	LS	1.000	$ 3600.00
	2505-6745855	Removal of Posts	Only	47.000	47

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	RF-19E	02-23-93		
RE-53	02-23-93	RK-19A	09-29-92		
		RK-19F	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	670+49	1	56.25	5.9	22		15				SE corner
2	670+49	5	231.5				30				S median

REMOVE or REMOVE AND REINSTALL BEAM GUARDRAIL

110-7A
10-22-93

LOCATION			STEEL BEAM GUARDRAIL		POST					END ANCHORAGE		REMARKS
						REMOVE & REINSTALL						
NO.	STATION	SIDE	REMOVE Lin. Ft.	REMOVE & REINSTALL Lin. Ft.	REMOVE Number	8"x 8" Number	10"x10" Number	6"x 8" Number	6"x 6" Number	REMOVE Number	REMOVE & REINSTALL Number	
1	671+87	S	250	--	47	--	--	--	--	2	--	for south end

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)

ⓘ Not a bid item

112-6
10-22-93

LOCATION		APPROACH PAVEMENT					Fixed or Movable Abutment	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.	F or M	Perforated Subdrain ⓘ 4" Lin.Ft.	Subdrain Outlet ⓘ Station	Side	Porous ⓘ Backfill Cu. Yds.	Class 'A' Crushed Stone ⓘ Backfill Cu. Yds.	Special Backfill ⓘ Sq. Yds.	Engeering Fabric ⓘ Sq. Yds.	
671+87	S	1	-	12"	133	89	F	40'	670+47	E	2.0	0.2	257	257	
671+87	N	1	-	12"	133	89	F	40'	673+26	E	2.0	0.2	257	257	

101-4

DESIGN DATA RURAL

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

DESIGN NO. 693
FILE NO. 28751

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 11-17-93

KLH

ROAD DESIGN • CADD • PRODUCED | STATE OF IOWA | FHWA REGION 7 | FISCAL YEAR | STORY COUNTY | PROJECT NUMBER IM-35-5(62)113--13-85 | SHEET NUMBER 14 of 30