

BRIDGE REPAIR
FN-30-5(55)--21-85

STORY COUNTY

CONVENTIONAL SIGNS

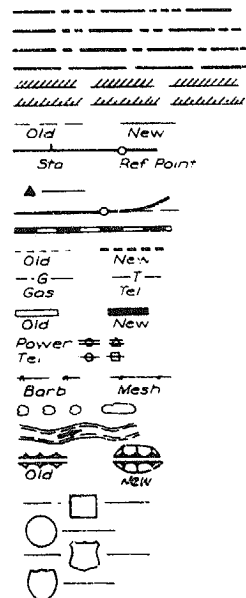
State Line
Co. Line
Twp. Line
Sec. Line
Corp. Line
Urban Bdry
R.O.W. Lines
Survey Line

Sec. Corner
Profile Grade
Railroad
Field Tile
Underground Lines

Culverts
Utility Poles

Fences
Trees Or Brush
Stream
Dike

County Road No
Primary Road No
U. S. Road No.
Interstate Road No



IOWA
DEPARTMENT OF TRANSPORTATION

Highway Division

PLANS OF PROPOSED IMPROVEMENT ON THE

PRIMARY ROAD SYSTEM

STORY COUNTY

BRIDGE REPAIR

US 30 OVER SKUNK RIVER 1.3 MILES EAST OF US 69

SCALES AS NOTED

THE STANDARD SPECIFICATIONS, SERIES OF 1984
OF THE IOWA DEPARTMENT OF TRANSPORTATION,
SHALL APPLY TO CONSTRUCTION WORK ON THIS PROJECT

(PLUS CURRENT SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS)

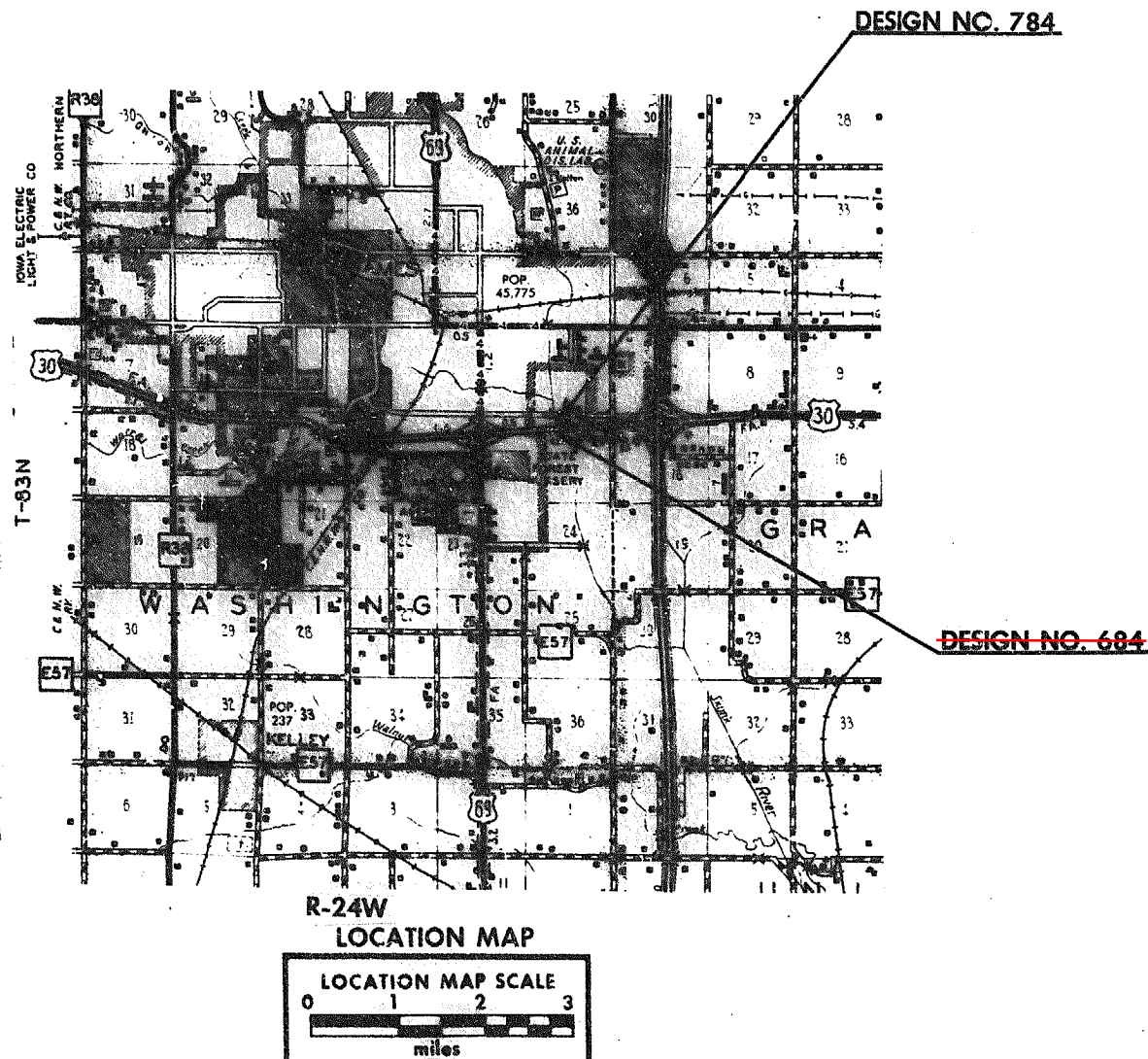
STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		1	24
PROJECT NUMBER				
FN-30-5(55)--21-85				
R.O.W. PROJECT NUMBER				
PRELIMINARY ENGINEER NUMBER				

INDEX OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
1A	REVISION SHEET
2	ESTIMATE SHEET
3-13	DESIGN NO. 684
14-24	DESIGN NO. 784

STANDARD ROAD PLANS			
IDENT	DATE	IDENT	DATE
RE-2	8-16-74		
RE-7	8-31-84		
RE-12	1-23-85		
RE-47	12-9-83		
RE-48A	1-23-85		
RE-52	1-23-85		
RE-53	8-31-84		
RE-57	1-23-85		
RE-58	1-23-85		
RL-11	1-23-85		

STANDARD BRIDGE PLANS		
STANDARD	ISSUED	REVISED



~~DESIGN NO. 684~~

REV
* 30*

REVISED
SEE SHEET 1A

DEPARTMENT OF TRANSPORTATION
IOWA
Highway Division
AUTHORIZED FOR LETTING
12-5-84
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
2797 12/5/84
IOWA REGISTRATION NUMBER DATE

U.S. DEPT. TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED
DIVISION ENGINEER DATE

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

DATE 12-19-85 WILLIAM C. BYER REG. NO. 2976

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.

DATE December 19 1985 IOWA REG. NO. 4981

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

DATE 12-19-85 WILLIAM C. BYER REG. NO. 2976

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.

DATE December 19 1985 IOWA REG. NO. 4981

* This total included in "Estimate of Bridge Quantities"

* This total included in "Estimate of Bridge Quantities"

ESTIMATE OF QUANTITIES			
NO.	ITEM	UNIT	TOTAL
1	BRIDGE FLOOR OVERLAY	SQ. YDS.	1234
2	CLASS A BRIDGE FLOOR REPAIR	SQ. YDS.	85.6
3	STRUCTURAL STEEL	LBS.	2823
4	TEMPORARY BARRIER RAIL - FURNISH ONLY	LIN. FT.	530
5	TEMPORARY BARRIER RAIL - PLACE ONLY	LIN. FT.	1060
6	CONCRETE SEALER, AS PER PLAN	SQ. FT.	1219
7	PAVEMENT MARKINGS	STA.	62.9
8	TEMPORARY FLOODLIGHTING	L.S.	LUMP SUM
9	TRAFFIC CONTROL	L.S.	LUMP SUM
10	RAIL CONCRETE BARRIER (CAST IN PLACE)	LIN. FT.	618.0

ESTIMATED ROADWAY QUANTITIES			
NO.	ITEM	UNIT	TOTAL
1	Guardrail, Formed Steel Beam	Lin. Ft.	106.25
2	Guardrail Posts, Beam	No.	2
3	Guardrail End Anchorage, Beam RE-52	No.	1
4	Guardrail End Anchorage, Beam RE-53	No.	1
5	Removal of Formed Steel Beam Guardrail	Lin. Ft.	62.5
6	Removal of Posts	No.	34
7	Removal of Guardrail End Anchorage	No.	2
8	Remove & Reinstall Formed Steel Beam Guardrail	Lin. Ft.	175
9	Remove & Reinstall Posts	No.	7
10	Remove & Reinstall Object Markers	No.	4
11	Object Markers, Triple Yellow	No.	3
12	Embankment-In-Place	Cu. Yds.	47
13	Bridge Floor Overlay	Sq. Yds.	85.6
14	Bridge Floor Repair, Class A	Sq. Yds.	85.6
15	Holes (For Pressure Grouting)	No.	85
16	Portland Cement (For Pressure Grouting)	Tons	0.8
17	Joint, Pressure Relief	Lin. Ft.	48
18	Base, Type B, Class I, Asphalt Cement Concrete	Tons	124

ESTIMATE OF QUANTITIES			
NO.	ITEM	UNIT	TOTAL
1	BRIDGE FLOOR OVERLAY	SQ. YDS.	1234
2	CLASS A BRIDGE FLOOR REPAIR	SQ. YDS.	85.6
3	STRUCTURAL STEEL	LBS.	2823
4	TEMPORARY BARRIER RAIL - FURNISH ONLY	LIN. FT.	530
5	TEMPORARY BARRIER RAIL - PLACE ONLY	LIN. FT.	1060
6	CONCRETE SEALER, AS PER PLAN	SQ. FT.	1219
7	PAVEMENT MARKINGS	STA.	62.9
8	TEMPORARY FLOODLIGHTING	L.S.	LUMP SUM
9	TRAFFIC CONTROL	L.S.	LUMP SUM
10	RAIL CONCRETE BARRIER (CAST IN PLACE)	LIN. FT.	618.0

ESTIMATED ROADWAY QUANTITIES			
NO.	ITEM	UNIT	TOTAL
1	Guardrail, Formed Steel Beam	Lin. Ft.	106.25
2	Guardrail Posts, Beam	No.	2
3	Guardrail End Anchorage, Beam RE-52	No.	1
4	Guardrail End Anchorage, Beam RE-53	No.	1
5	Removal of Formed Steel Beam Guardrail	Lin. Ft.	7.5
6	Removal of Posts	No.	24
7	Removal of Guardrail End Anchorage	No.	2
8	Remove & Reinstall Formed Steel Beam Guardrail	Lin. Ft.	162.5
9	Remove & Reinstall Posts	No.	6
10	Remove & Reinstall Object Markers	No.	7
11	Object Markers, Triple Yellow	No.	1
12	Embankment-In-Place	Cu. Yds.	19
13	Bridge Floor Overlay	Sq. Yds.	166.6
14	Bridge Floor Repair, Class A	Sq. Yds.	85.6
15	Holes (For Pressure Grouting)	No.	85
16	Portland Cement (For Pressure Grouting)	Tons	0.7
17	Joint, Pressure Relief	Lin. Ft.	52
18	Base, Type B, Class I, Asphalt Cement Concrete	Tons	124

ESTIMATE REFERENCE INFORMATION

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

ITEM NO.	DESCRIPTION
1	INCLUDES 39.0 STA. FOR REMOVAL OF PAVEMENT MARKINGS (TEMPORARY AND PERMANENT) AND 23.9 STA. FOR PLACING YELLOW MARKINGS (TEMPORARY AND PERMANENT) AND 23.9 STA. FOR PLACING WHITE MARKINGS (TEMPORARY AND PERMANENT).
11	INCLUDES JOINT SEALER, BOND BREAKER, REINFORCING STEEL, CAP SCREWS, RE-2 TYPE F TERMINAL SECTION, ETC.

ESTIMATE REFERENCE INFORMATION

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

ITEM NO.	DESCRIPTION
1	Includes 1 - 12.5' shop bent section for RE-53 end anchorage.
2	Consists of 50 posts 8" x 8" & 3 posts 6" x 8". Existing 10" x 10" posts are to be reused at present locations.
5 & 7	To be disposed of as per Std. Notation 213-1.
6	To be hauled to maintenance yard as directed by the Engr.
10	Consists of triple yellow object markers.
12	Contractor shall provide required material. Quantity is estimate only and payment will be made on the actual volume of material placed.
13	Consists of 80 sq. yds. for west approach & 82 sq. yds. for east approach.
14	Consists of 17.3 sq. yds. for each approach.
15	Consists of 53 holes for west approach & 32 holes for east approach.
16	Consists of 0.5 tons for west approach & 0.3 tons for east approach.
17	Consists of 24 lin. ft. for each approach.
18	To be used for shldr. strengthening. Design weight 140 lbs. per cu. ft. Includes removal of approx. 81 c.y. of existing shldr. material which is to be disposed of as per Std. Notation 213-1. Removal & disposal of existing shldr. material shall be considered incidental to this bid item. Also includes approx. 7 tons of asphalt cement which shall be considered incidental to this bid item.

ESTIMATE REFERENCE INFORMATION

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

ITEM NO.	DESCRIPTION
7	INCLUDES 39.0 STA. FOR REMOVAL OF PAVEMENT MARKINGS (TEMPORARY AND PERMANENT) AND 23.9 STA. FOR PLACING YELLOW MARKINGS (TEMPORARY AND PERMANENT) AND 23.9 STA. FOR PLACING WHITE MARKINGS (TEMPORARY AND PERMANENT).
10	INCLUDES JOINT SEALER, BOND BREAKER, REINFORCING STEEL, CAP SCREWS, RE-2 TYPE F TERMINAL SECTION, ETC.

ESTIMATE REFERENCE INFORMATION

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

ITEM NO.	DESCRIPTION
1	Includes 1 - 12.5' shop bent section for RE-53 end anchorage.
2	Consists of 50 posts 8" x 8" & 3 posts 6" x 8". Existing 10" x 10" posts are to be reused at present locations.
5 & 7	To be disposed of as per Std. Notation 213-1.
6	To be hauled to maintenance yard as directed by the Engr.
9	Consists of 1 Type 3 and 4 triple yellow object markers.
12	Contractor shall provide required material. Quantity is estimate only and payment will be made on the actual volume of material placed.
13	Consists of 80 sq. yds. for each approach.
14	Consists of 17.3 sq. yds. for each approach.
15	Consists of 25 holes for west approach & 39 holes for east approach.
16	Consists of 0.3 tons for west approach & 0.4 tons for east approach.
17	Consists of 24 lin. ft. for each approach.
18	To be used for shldr. strengthening. Design weight 140 lbs. per cu. ft. Includes removal of approx. 81 c.y. of existing shldr. material which is to be disposed of as per Std. Notation 213-1. Removal & disposal of existing shldr. material shall be considered incidental to this bid item. Also includes approx. 7 tons of asphalt cement which shall be considered incidental to this bid item.

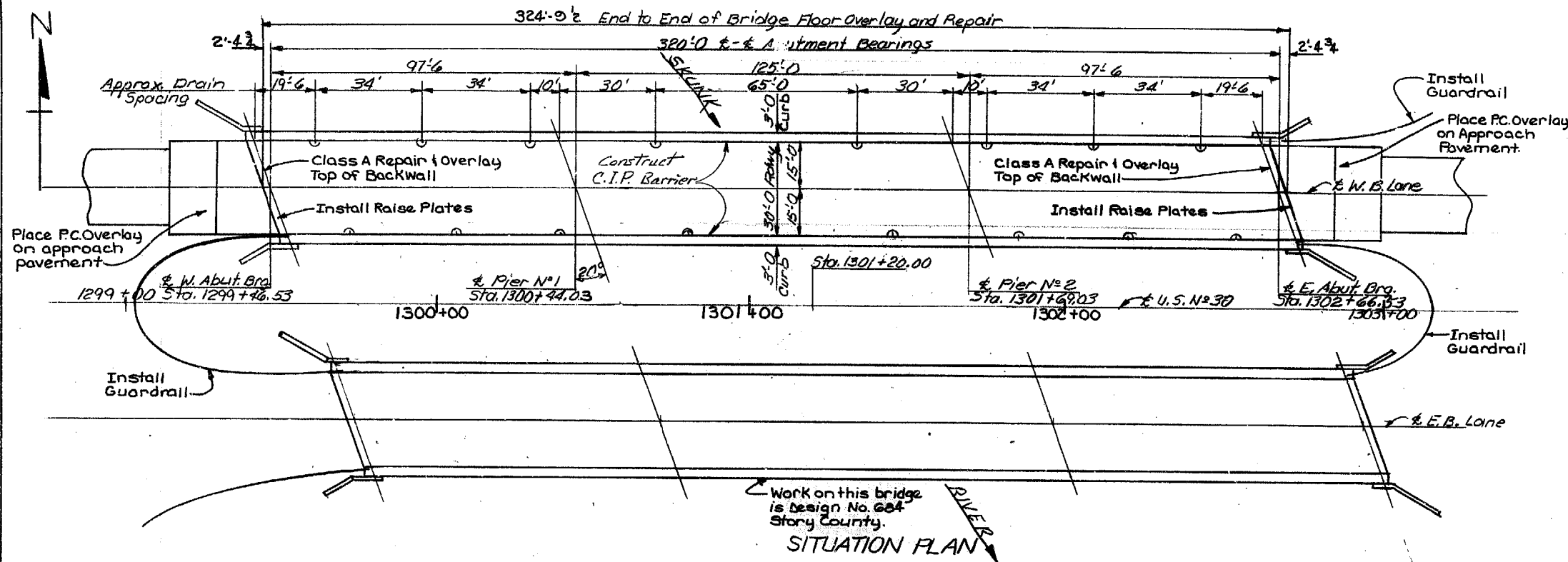
Design No. 664 Revised 04-15-85. Bridge Floor Overlay, County corrected.

ESTIMATE SHEET

FILE NO. 27090

STORY COUNTY

IN-30-5(55)-21-85



TOTAL ESTIMATED QUANTITIES - Bridge			
Item No.	Item	Units	Quantity
1.	Bridge Floor Overlay	Sq. Yd.	1076
2.	Class A Bridge Floor Repair	Sq. Yd.	51
3.	Structural Steel	Lbs.	2823
4.	Temporary Barrier Rail, Furnish Only	Lin. Ft.	530
5.	Temporary Barrier Rail, Place Only	Lin. Ft.	1060
6.	Concrete Sealer, As Per Plan	Sq. Ft.	1214
7.	Pavement Markings	Sta.	82.8
8.	Temporary Floodlighting	L.S.	Lump Sum
9.	Traffic Control	L.S.	Lump Sum
10.	Rail Concrete Barrier (Cast in Place)	Lin. Ft.	638.0

Item No.	Estimate Reference Information
7.	Includes 39.0 Sta. for removal of pavement markings, 19.9 Sta. for placing yellow markings (temporary and permanent), and 23.9 Sta. for placing white markings (temporary and permanent).
10.	Includes joint sealer, bond breaker, reinforcing steel, cap screws, RE-2 Type F terminal section, etc.

GENERAL NOTES

THIS DESIGN IS FOR REPAIR TO THE WESTBOUND BRIDGE OF THE EXISTING DUAL 32' x 30' CONTINUOUS WELDED GIRDER BRIDGE, ORIGINAL DESIGN NO. 3061 STORY COUNTY. PLANS OF THE EXISTING STRUCTURE MAY BE OBTAINED AT THE AMES OFFICE OF THE IOWA D.O.T. - HIGHWAY DIVISION. REPAIRS SHALL CONSIST OF BRIDGE FLOOR REPAIR, BRIDGE FLOOR OVERLAY, ADDING RAISE PLATES TO THE EXPANSION DEVICES, P.C. OVERLAY ON APPROACH PAVEMENT, SHOULDER STRENGTHENING, INSTALLATION OF GUARDRAIL, APPLICATION OF CONCRETE SEALER AND CONSTRUCTION OF CAST IN PLACE BARRIER.

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

PLAN QUANTITY OF FLOOR REPAIR IS BASED ON THE "SURVEY PLOT" AS SHOWN ON DESIGN SHEET 2. HATCHED PORTIONS REPRESENT CLASS A BRIDGE FLOOR REPAIR. CROSS HATCHED PORTIONS, IF SHOWN, REPRESENT CLASS B BRIDGE FLOOR REPAIR. 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 7 1/4 INCHES. THE CONTRACTOR WILL BE REQUIRED TO EXERCISE CARE IN REMOVING CONCRETE IN ORDER TO PREVENT UNNECESSARY UNBONDING OF REINFORCING STEEL.

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

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

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

QUANTITY OF "CONCRETE SEALER, AS PER PLAN" IN SQUARE FEET, TO BE PAID FOR WILL BE COMPUTED FROM MEASUREMENTS OF AREAS ACTUALLY COVERED AND ARTICLE 1109.03 SHALL NOT APPLY. PLAN QUANTITY IS BASED ON P.C. CONCRETE FLOOR REPAIR.

FLOODLIGHTING WILL BE REQUIRED AS SHOWN ON DESIGN SHEET 11.

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

THE BID ITEM "STRUCTURAL STEEL" SHALL INCLUDE ALL COSTS ASSOCIATED WITH FURNISHING AND INSTALLING RAISE PLATES FOR EXPANSION DEVICES AS SHOWN AND NOTED ON DES. SH. 3.

TRAFFIC CONTROL PLAN

- Through traffic will be maintained on the project at all times.
- Traffic control on this project shall be in accordance with layouts contained in the plans. For additional complementary information, refer to current Supplemental Specification for Traffic Controls.
- When Special Layout Sheet is not in effect, Detail Sheet 521-4 shall be used for unfinished work or work within 12 feet of the traveled way, and Modified Detail Sheet 521-2A for work in progress that encroaches on the traveled way.
- Overlay of the bridge approach pavement shall be accomplished with the work area protected by temporary barrier rail.
- Undersealing and jacking may be done using Detail Sheet 521-4.
- All traffic control devices shall be furnished, erected, maintained and removed by the contractor.
- Where possible, all post mounted signs shall be placed a minimum of two feet clear of the shoulder.
- The location for storage of equipment by the contractor during non-working hours will be as approved by the engineer in charge of construction.

- The engineer may require modification of, or additions to, pavement marking details shown. Conflicting permanent edgelines or lanelines shall be removed and replaced with appropriate temporary lines. As applicable, permanent edgelines and lanelines shall be restored before the roadway is returned to normal traffic.
- Proposed sign spacing may be modified, as approved by the engineer, to meet existing field restrictions or to prevent obstruction of the motorist's view of permanent signing.
- Proposed changes in the Traffic Control Plan (includes layout sheets) shall be reviewed with the Office of Construction before changes are made.
- The bid item "Traffic Control" shall include the cost of all traffic control measures required of the contractor except those which are separate bid items or are incidental to other bid items.

Note: See Design Sheet 6 for estimated roadway quantities which are a part of this contract.

LOCATION:
Story County
T-83N, R-24W
Washington Twp.
Section 13
U.S. No. 30 over
Skunk River
Maint. No. 8550.2L030

Design for Repair to 20' Sk Westbound
320'0 x 30' CONTINUOUS WELDED GIRDER
BRIDGE
97'6 End Spans 125'0 Interior Span
SITUATION PLAN
Station: 1301+20.00 (U.S. No. 30) Nov., 1984
STORY COUNTY

IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION

Design Sheet No. 1 Of 11 File No. 27020 Design No. 784

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

SECTION LEADER: W.C. EYER

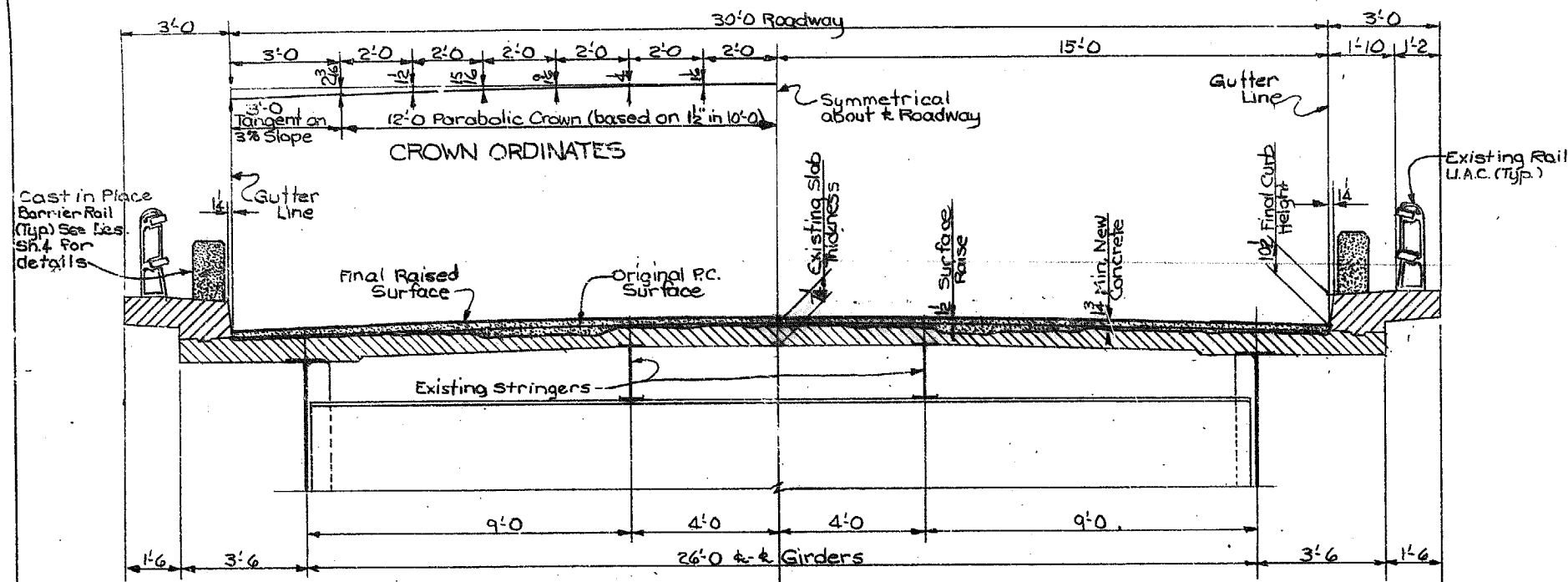
STORY COUNTY

PROJECT NUMBER FN-30-5(55)--21-85

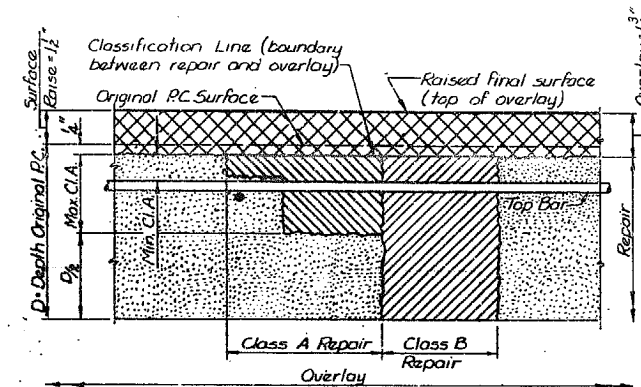
STATE IOWA DIST. NO. 5 FISCAL YEAR SHEET NO. 14 TOTAL SHEETS 24

DESIGNED BY: W. Johnston
CHECKED BY: G.E. Cole

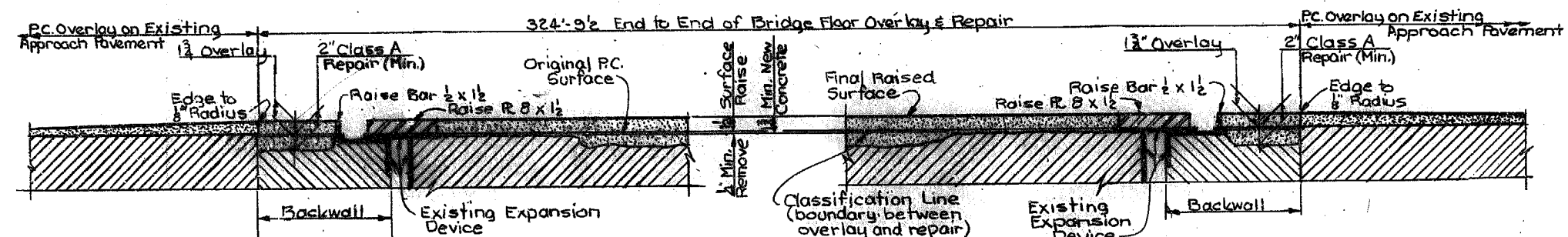
TRACED BY: C.E. Cole
CHECKED BY: S.K. Gupta



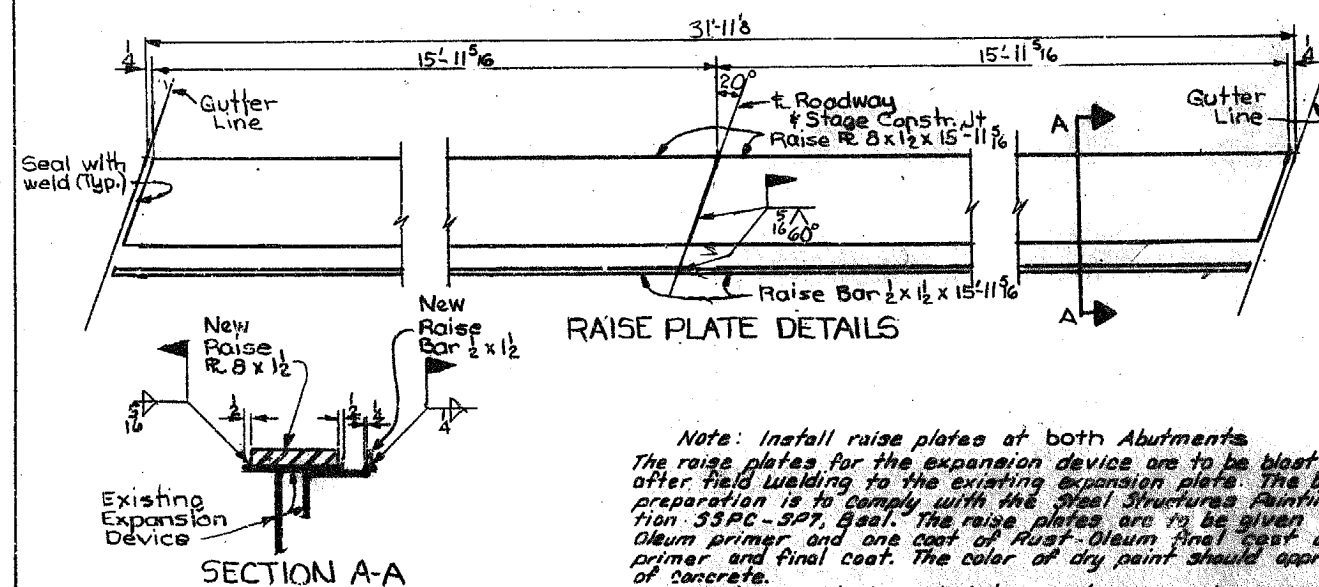
TYPICAL CROSS SECTION



REPAIR AND OVERLAY DEFINITION



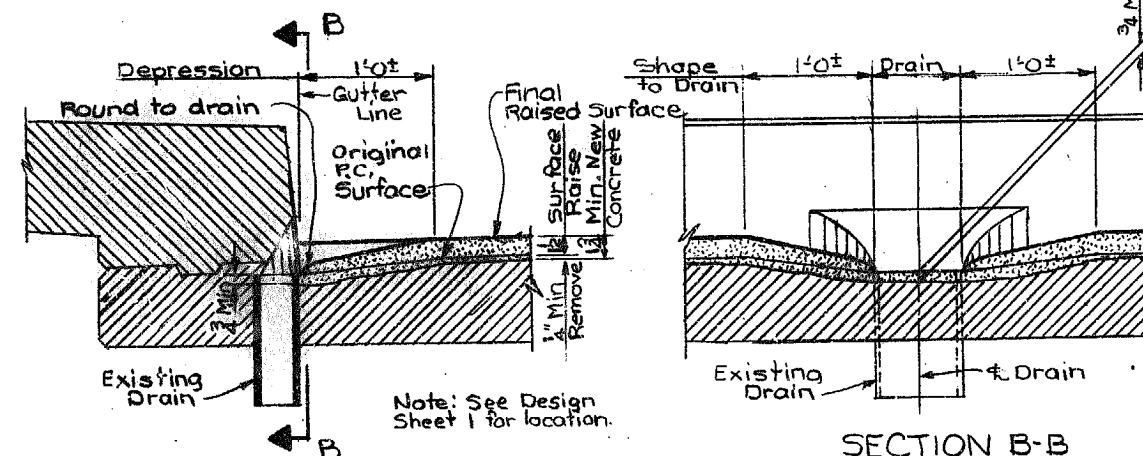
PART LONGITUDINAL SECTION



Note: Install raise plates at both Abutments.

The raise plates for the expansion device are to be blast cleaned and painted after field welding to the existing expansion plate. The blast cleaning preparation is to comply with the Steel Structures Painting Council Specification SSPC-SP7, Saal. The raise plates are to be given one coat of Rust-Oleum primer and one coat of Rust-Oleum final coat or an approved equal primer and final coat. The color of dry paint should approximate the color of concrete.

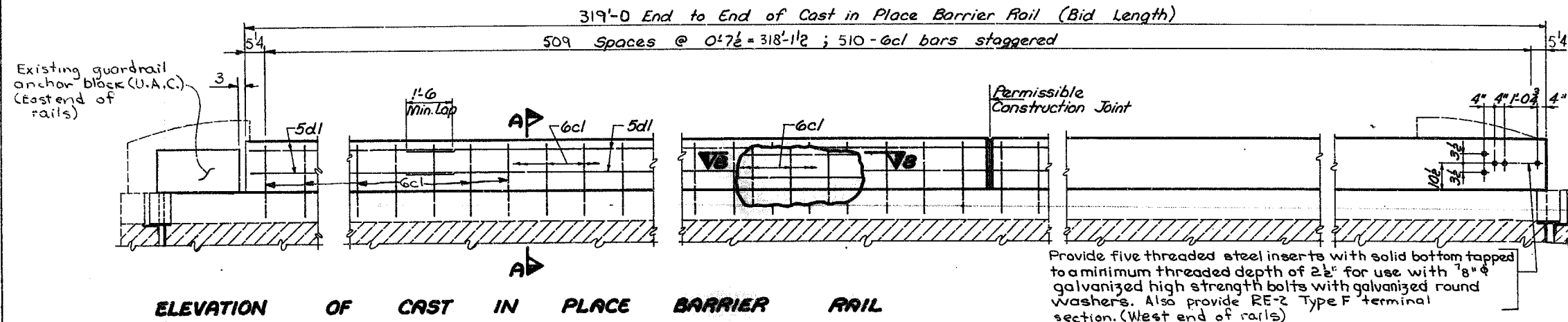
Raise plates are to be installed in sections as shown to allow for stage placement as required. Raise plates for each stage are to be in place before the new bridge overlay of that stage is in place. New plate lengths are to be verified in the field.



SECTION B-B

BRIDGE FLOOR OVERLAY
AT DRAIN

Design for Repair to 20° Skew Westbound
320'-0 x 30' CONTINUOUS WELDED GIRDER
BRIDGE
97'-6 End Spans 125'-0 Interior Span
REPAIR DETAILS
Station: 1301 + 20.00 (E U.S. No 30) Nov, 1984
STORY COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 3 Of 11 File No.: 27090 Design No.: 784



EPOXY REINFORCING STEEL - TWO RAILS					
BAR	LOCATION	SHAPE	Nº	LENGTH	WEIGHT
6cl	Rail, Vertical	—	1020	2'-4"	3574
5dl	Rail, Longitudinal	—	72	36'-9"	2760
TOTAL (lbs.)					6334

CONCRETE PLACEMENT SUMMARY	
CONCRETE	TOTAL
638.0' @ 0.05 cu yds per lin. ft.	31.9

ESTIMATED QUANTITIES		
ITEM	UNITS	QUANTITY
Rail, Concrete Barrier (Cast In Place)	lin. ft.	638.0

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 reinforcing steel, and 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.

The joint sealer shall conform to Fed. Spec. TT-S00230 or TT-S00227 for type II; Class A or B.

All reinforcing is to be epoxy coated. The epoxy coating shall be in accordance with Article 4151.036 of the Standard Specifications.

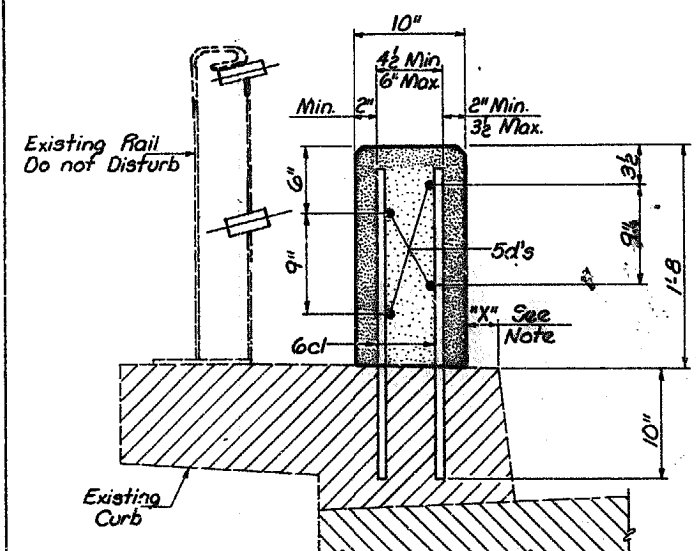
Anchor bolts shall conform to requirements of ASTM A 325 or A 449 and shall be galvanized in compliance with ASTM A 153. Anchor bolts shall be installed in threaded steel inserts held in proper position by use of an assembly set in the concrete and allowing a minimum embedment of 2 1/2" for the anchor bolts. The components and procedure shall be subject to the approval of the Engineer.

The cost of the RE-2 Type F terminal section, threaded steel inserts and anchor bolts shall be included in price bid for "Cast in Place Barrier Rail".

DOWEL SETTING NOTE

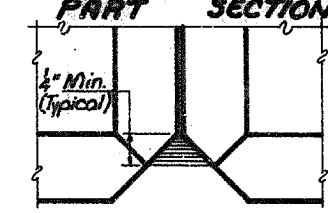
The 6cl bars shall be set as dowels in drilled holes. Holes are to be 10" deep. The dowels shall be installed in accordance with the manufacturer's recommendations. One of the two following systems shall be used as a bonding agent for the dowels:

- 1) Epoxy system. Drilled holes are to be 7/8" φ. The epoxy grout shall be one of those approved in the I.D.O.T. Materials I.M. 491.11.
- 2) Grout system. Drilled holes are to be 2" φ. The hydraulic cement grout shall be one of those approved in Materials I.M. 491.13.

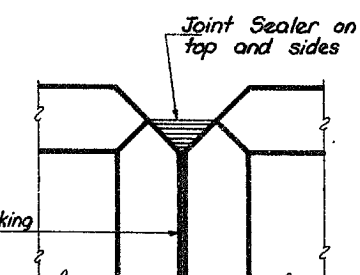


Note: On each side of bridge, Dimension "X" can be a minimum of 1" and a maximum of 3", but must be constant for full length of bridge. However approximately 10 linear feet at either end of rail length shall be transitioned to match existing beam guard rail attachment.

PART SECTION A-A

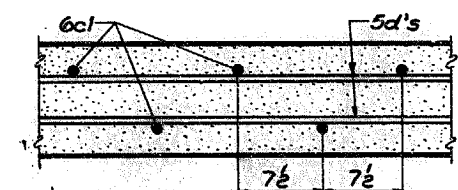


PART PLAN VIEW

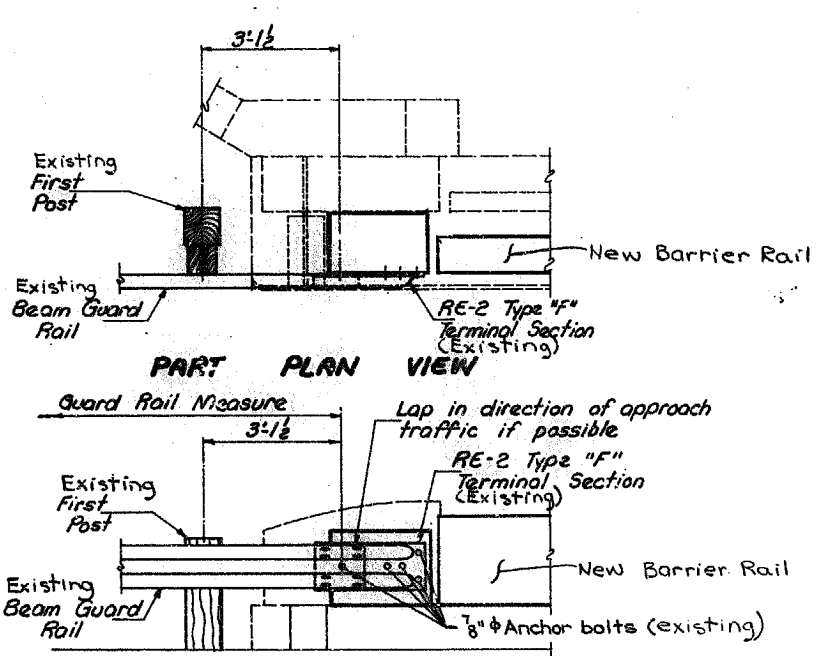


PART ELEVATION VIEW

CAST IN PLACE BARRIER RAIL JOINT DETAILS

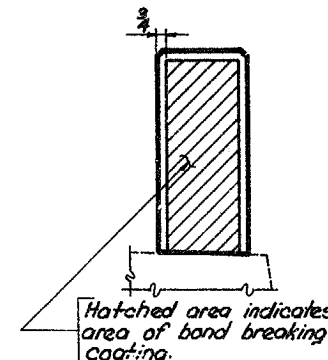


SECTION B-B (SHOWING 6cl PLACEMENT)



PART ELEVATION VIEW

(Showing beam guard rail attachment to RE-2 Type "F" Terminal Section)



Revised 8-23-83: Notes concerning steel inserts and anchor bolts changed.
Revised: 7-7-81; Grout requirement changed.
Revised: 4-16-1980; This sheet re-drawn.

DESIGNED BY: W. Johnston
CHECKED BY: S.K. Gupta

CAST IN PLACE BARRIER RAIL

STANDARD SHEET 1031

STORY COUNTY

Design For Repairs to 20° skew westbound
320'-0 x 30' CONTINUOUS WELDED GIRDER
BRIDGE
97'-6 End Spans 125'-0 Interior Span
CAST IN PLACE BARRIER RAIL DETAILS
Station: 1301+20.00 (± U.S. 30) Nov. 1984
STORY COUNTY
IOWA DEPARTMENT OF TRANSPORTATION-HIGHWAY DIVISION
Design Sheet No.: 4 Of 11 File No.: 27090 Design No.: 784

STATE	FED. ROAD DIST. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
IOWA	5		17	29

20A-1
1-20-84

204-2
1-20-84

2-3-1
1-20-84

le to be

251-2
6-22-84

shall be

108-2
1-22-55

*Not a bid item

REMARKS

108-19
12 08 82

*Connect to

100-

00-00
-20-84

114

107-23
1-23-85

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.

Fred W. Wilkerson
4989 November 30, 1984

IOWA REGISTRATION NUMBER	DATE
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