FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
5	IOWA			1	10

STORY I-IG-35-5(8)113 BRIDGES + CULVERTS June 22, 1965

IN LETTING OF JUNE 22, 1965

DESIGN 363 — ON COUNTY TRUNK "E" — STA. 1830+31.60 COUNTY TRUNK "E"; STA. 830+31.60 INTERSTATE NO. 35

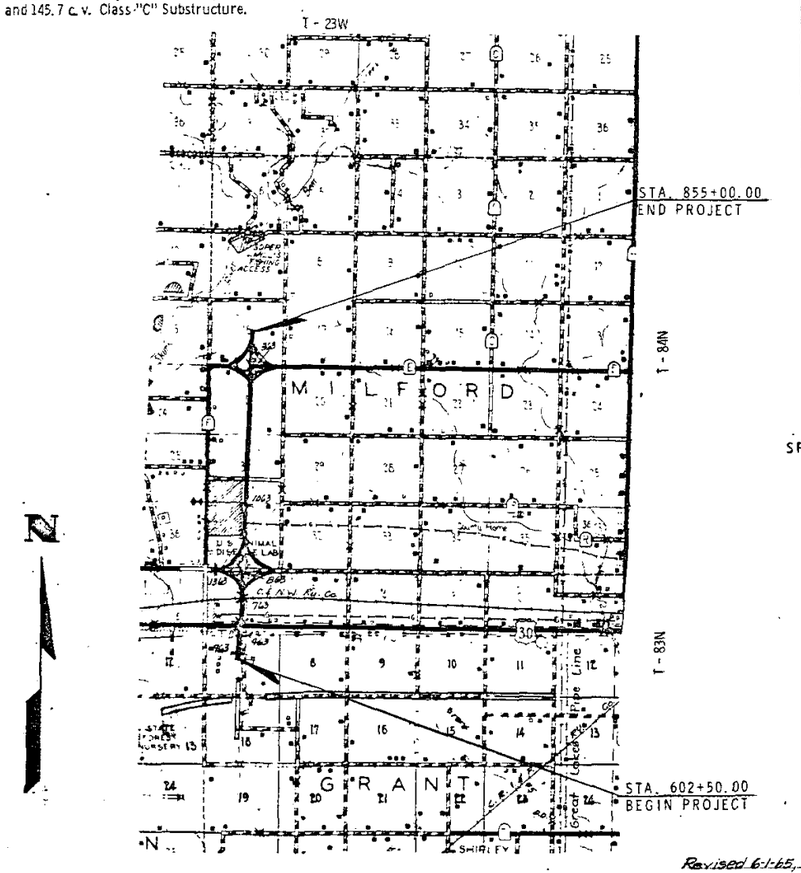
SECTIONS 18 & 19 — T - 84N — R - 23W — MILFORD TOWNSHIP

DESIGN FOR 5°50' SKEW
215'-5 X 28' PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

ESTIMATE OF QUANTITIES

ITEM		UNIT	TOTAL
* Structural Concrete		Cu. Yds.	336.1
Reinforcing Steel		Lbs.	73 935
Pretensioned Prestressed Concrete Beams	B99 38'-4	No.	10
	B7 67'-6	No.	10
Creosoted Piling - 58 at 18', 22 at 35'		L.F.	1 814
Concrete Slope Protection		Sq. Yds.	400
Granular Backfill		Cu. Yds.	102
Class 20 Excavation		Cu. Yds.	318
4" ϕ Tile Subdrain		L.F.	168
Aluminum Handrail	or	L.F.	418.8
Steel Handrail		L.F.	418.8
Creosoted Test Piling	2 at 35'	L.S.	Lump Sum

* Includes 190.4 c. y. Class "D" Superstructure and 145.7 c.y. Class "C" Substructure.



LAYOUT
SCALE: 1" = 1 MILE

STATE OF IOWA

STATE HIGHWAY COMMISSION

DESIGN FOR

BRIDGES AND CULVERTS

INTERSTATE ROAD SYSTEM

PROJECT NO. I-IG-35-5(8)113

STORY COUNTY

IN LETTING OF JUNE 22, 1965

DESIGN 463 — ON U.S. NO. 30 OVER INTERSTATE NO. 35 — STA. 79+55.4 ON U.S. NO. 30; STA. 628+96.5 ON INTERSTATE NO. 35

SECTIONS 6 & 7 — T-83N — R-23W — GRANT TOWNSHIP

215'-5 X 30'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGE

ESTIMATE OF QUANTITIES

ITEM		UNIT	TOTAL
* Structural Concrete		Cu. Yds.	376.7
Reinforcing Steel		Lbs.	82 545
Aluminum Handrail		L.F.	418.8
Steel Handrail		L.F.	418.8
Preten. Prestressed Concrete Beams	B 99 (38'-4)	No.	14
	B 7 (67'-6)	No.	14
Creosoted Piling	71 at 30', 22 at 45'	L.F.	3 120
Class 20 Excavation		C.Y.	290
Granular Backfill		C.Y.	96
Concrete Slope Protection		Sq. Yds.	432
4" ϕ Tile Subdrain		L.F.	184
Creosoted Test Piling	1 at 35'	L.S.	Lump Sum

* 209.9 cu. yds. of Class "D" Structural Concrete for superstructure and 166.8 cu. yds. of Class "C" for substructure.

IOWA STATE HIGHWAY COMMISSION STANDARDS REQUIRED

STANDARD	ISSUED	REVISED
C1P	1932	1944
CHP	1956	
CFP	1945	
F5J		1964
C5P	1932	1944
C6P	1932	1944
C6F	1952	1955
C8F	1952	1955
C10F	1952	1955
CBJ	1959	1964
F6J1	1964	1964
CBH-00	1960	

IN LETTING OF JUNE 22, 1965

DESIGN 763 — ON I #35 OVER C. & N.W. RWY., IA. CROSSING NO. 1582 — STA. 651+49.62

SECTION 6 — T - 83N — R - 23W — GRANT TOWNSHIP

DESIGN 12°23' SKEW
DUAL 163'-4 X VAR. PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

ESTIMATE OF QUANTITIES

ITEM		UNIT	TOTAL
* Structural Concrete		Cu. Yds.	774.0
Reinforcing Steel		Lbs.	180 326
Pretensioned Prestressed Concrete Beams	B1 (42'-6)	No.	18
	B3 (50'-10)	No.	18
	B7 (67'-6)	No.	18
4" ϕ Tile Subdrain		L.F.	249
Class 20 Excavation		Cu. Yds.	784
Granular Backfill		Cu. Yds.	286
Creosoted Piling - 108 at 14' 64 at 40'		L.F.	4 072
Aluminum Handrail	or	L.F.	630.5
Steel Handrail		L.F.	630.5
Creosoted Test Piling	4 at 25'	L.S.	LumpSum

* The floor, curbs and end posts 384.9 cu. yd. are to be Class "D" Concrete; the remainder 389.1 cu. yd. is to be Class "C" Concrete.

DETAIL PLANS REDUCED IN SIZE (DO NOT SCALE)

SPECIFICATIONS:

CONSTRUCTION: Standard Specifications of the Iowa State Highway Commission, Series of 1964, plus current Supplemental Specifications and Special Provisions.

DESIGN STRESSES for the following materials are in accordance with A. A. S. H. O. Standard Specifications, 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 1.4.11 f'_c = 3500 p. s. i.

Prestressed Concrete in accordance with Section 1.13.7 f'_c = 5000 psi.

Prestressing Steel in accordance with Section 1.13.7 f'_s = 250,000 psi.

THESE BRIDGES WILL REQUIRE BRIDGE SIGN ASSEMBLIES, FURNISHED AND PLACED BY OTHERS, AS SPECIFIED IN SECTION 2C-5 OF THE I. S. H. C. MANUAL ON "UNIFORM TRAFFIC CONTROL DEVICES", DATED JANUARY - 1963.

MILEAGE SUMMARY 105-1

LOCATION	LIN. FT.	MILES
BRIDGE AT STA. 651+49.62	166.656	.031
BRIDGE AT STA. 671+83.3	162.010	.031
TOTAL		.062

APPROVED

R.M. Tudor — MAY 20 1965

DEPUTY CHIEF ENGINEER, IOWA HIGHWAY COMMISSION — DATE

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS

APPROVED

DIVISION ENGINEER — DATE

Revised 6-1-65, Design 863, Sheet 9 of 10, Cure note and Specifications corrected

TITLE SHEET 1 OF 2

Story I-35 #19 — 7-12-65 R20 a R — STORY COUNTY — PROJECT NO. I-IG-35-5(8)113 — FILE NO. 21735 — SHEET NO. 100

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
8	IOWA			1	40

IN LETTING OF JUNE 22, 1965

DESIGN 863 — OVER 13TH STREET — STA. 671+83.3 ON INTERSTATE
STA. 1671+83.3 ON LOCAL ROAD

SECTION 6 — T - 83N R - 23W — GRANT TOWNSHIP

SECTION 31 — T - 84N R - 23W — MILFORD TOWNSHIP

DESIGN FOR 5°03' SKEW

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

ESTIMATE OF QUANTITIES

ITEM		UNIT	TOTAL
* Structural Concrete		Cu. Yds.	722.2
Reinforcing Steel		Lbs.	157 349
Pretensioned Prestr. Concrete Beams	C-5 (71'-8) Sp. (42'-6)	No.	18 / 36
Aluminum Handrail or Steel Handrail		L. F.	612.7 or 612.7
2" ϕ Rigid Steel Conduit		L. F.	350
Class 20 Excavation		Cu. Yds.	458
Granular Backfill		Cu. Yds.	288
Creosoted Piling	94 at 12' 60 at 20'	L. F.	2 328
4" ϕ Tile Subdrain		L. F.	312
Creosoted Test Piling	2 at 25'	L. S.	Lump Sum
Concrete Slope Protection		Sq. Yd.	904

* The floor, curbs and wing posts, 378.6 cu. yds. is to be Class "D" concrete. The remainder, 343.6 cu. yds. is to be Class "C" concrete.

IN LETTING OF JUNE 22, 1965

DESIGN	LOCATION: SECTION	TOWNSHIP	STATION	DESCRIPTION: SIZE AND TYPE	ESTIMATE OF QUANTITIES: STRUC. CONC. CL. "C" Cu. Yds.	REINF. STEEL LBS.	EXCAVATION - C.Y. CL. 20	CL. 24	CL. 10 CHAN.	REMOVALS
963	7	GRANT	606+00	6' X 4' X 140' Reinforced Concrete Box Culvert	108.4	10 206	478		-	
1063	31	MILFORD	723+12	10' X 8' X 122' Reinforced Concrete Box Culvert	196.7	32 120	333			
1363	6 & 31	GRANT & MILFORD	1643+28	6' X 6' Reinforced Concrete Box Culvert Ext. with Stub Flume	76.5	9 864	117		9	AS PER PLAN
				TOTALS	373.6	52190	928	-	9	

* This Culvert is in Division 6. Reinbursement to the State for construction to be made by the City of Ames.

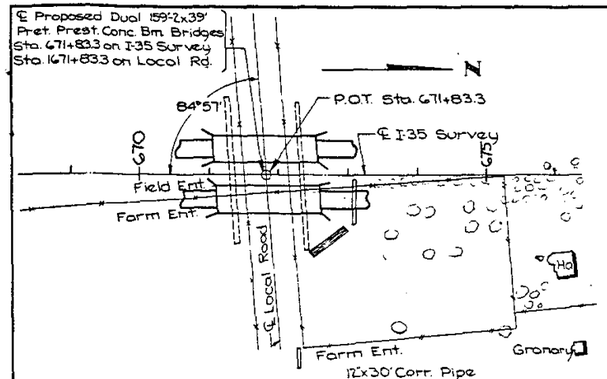
Revised 6-1-65- Design 863 sheet 9 of 10 - Cure note and Series of Specification corrected.

TITLE SHEET 2 OF 2

STORY COUNTY PROJECT NO. I-35-5(8)113 FILE NO. 21735, SHEET NO.

Bench Mark # 13, Sta. 672+11, 21' Rt. Found R.R. Spk. W. Side Po. Pole at Loc. Rd. El. 983.51

℄ Proposed Dual 159'-2x39' 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. PPM 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.

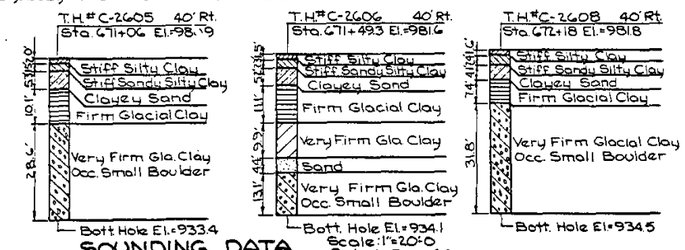
Concrete in accordance with Section 1.4.11 f'c=3500 p.s.i.

See sheet 6 for design stresses for prestressed beams.

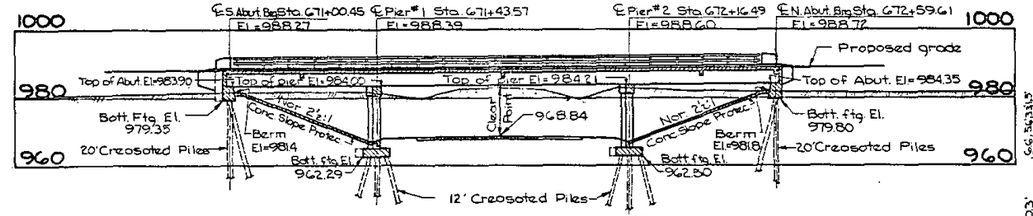
TOTAL ESTIMATED QUANTITIES

Item	Units	4 Abuts	4 Piers	2 Super	Total
* Structural Concrete	c.y.	130.8	212.8	378.6	722.2
Reinforcing Steel	lbs.	14336	37048	105965	157349
Pretensioned Prestr.	C-5(71'-8)	No.			18	18
Concrete Beams	Sp(42-6)	No.			36	36
Aluminum Handrail or Steel Handrail		L.F.				612.7 L.F. 612.7 L.F.
2" ℄ Rigid Steel Conduit		L.F.				350
Class 20 Excavation		c.y.	170	288		458
Granular Backfill		c.y.	288			288
Creosoted Piling		L.F.	60 @ 20'	94 @ 12'		2328
4" ℄ Tile Subdrain		L.F.				312
Creosoted Test Piling		Lump Sum		2 @ 25'		Lump Sum
Concrete Slope Protection		S.Y.				904

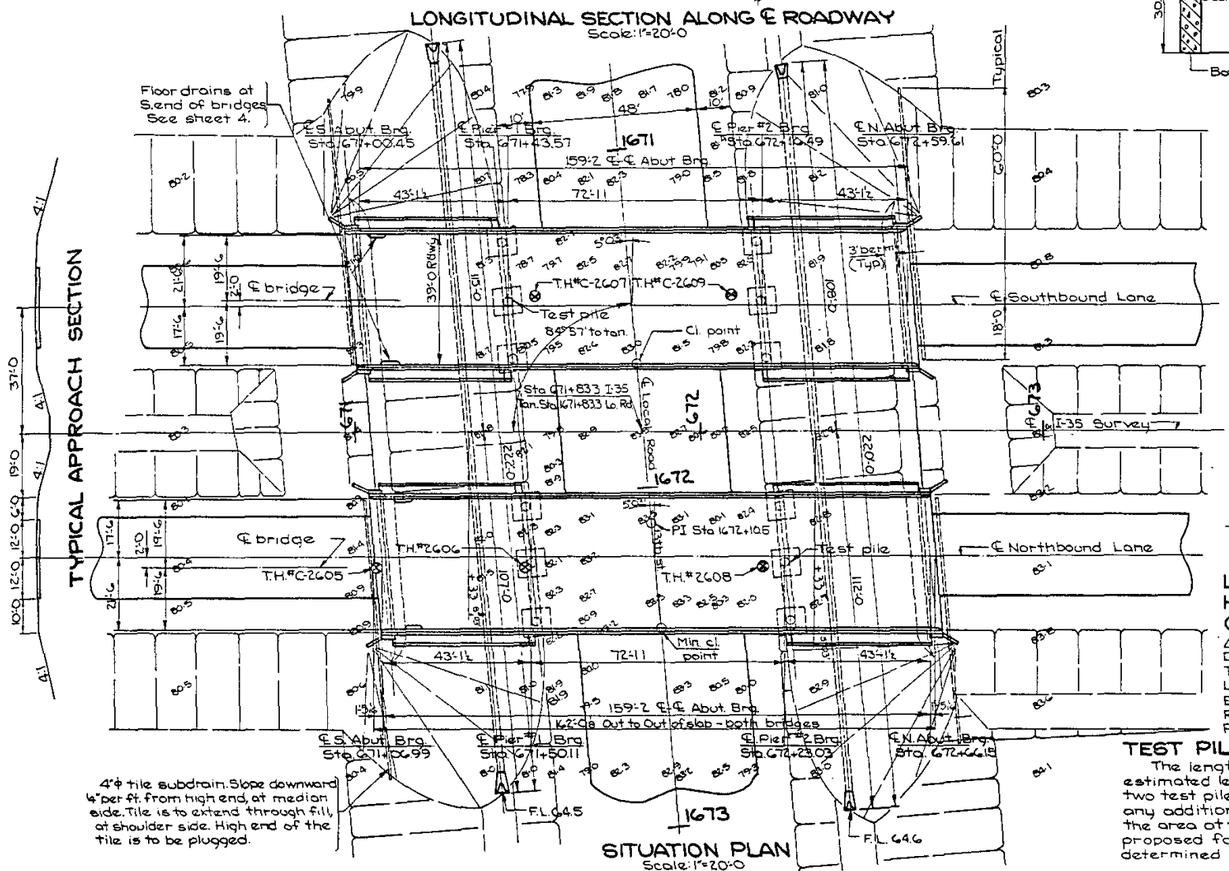
*The floor, curbs & wing posts, 378.6 c.y. is to be class "D" concrete. The remainder, 343.6 c.y. is to be class "C" concrete.



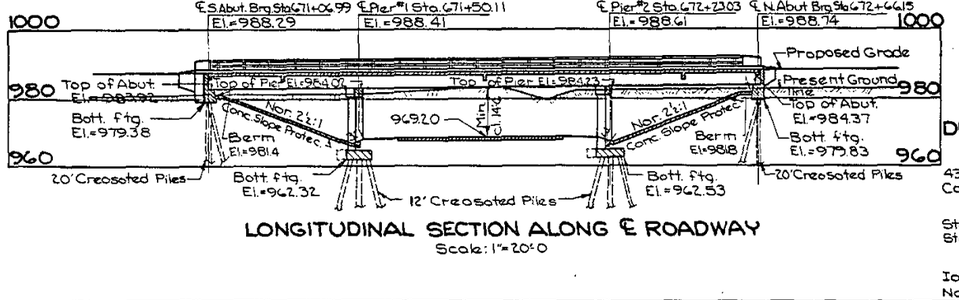
SOUNDING DATA
Scale: 1"=20'-0
Dated: 5-27-64



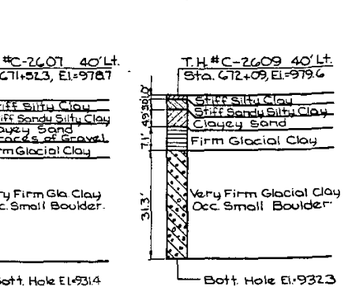
LONGITUDINAL SECTION ALONG ℄ ROADWAY
Scale: 1"=20'-0



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. K49+50
Elev.=958.30 +0.48%

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= 89,684.96
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.

Design for 5°03' Skew

DUAL 159'-2x39'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

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

GENERAL & SITUATION PLAN

Station: 671+833 on Interstate
Station: 1671+833 on Local Road
Project No. I-IG-35-5(8)113

STORY COUNTY

Iowa State Highway Commission
November, 1964
Sheet 1 of 10

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

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

JRS

DIETZGEN NO. 131 ARKWRIGHT

Bench Mark: No. 13 Sta. 672+11, 21' Rt. Found R.R. Spk. W. side Po. Pole at local road El. 983.51

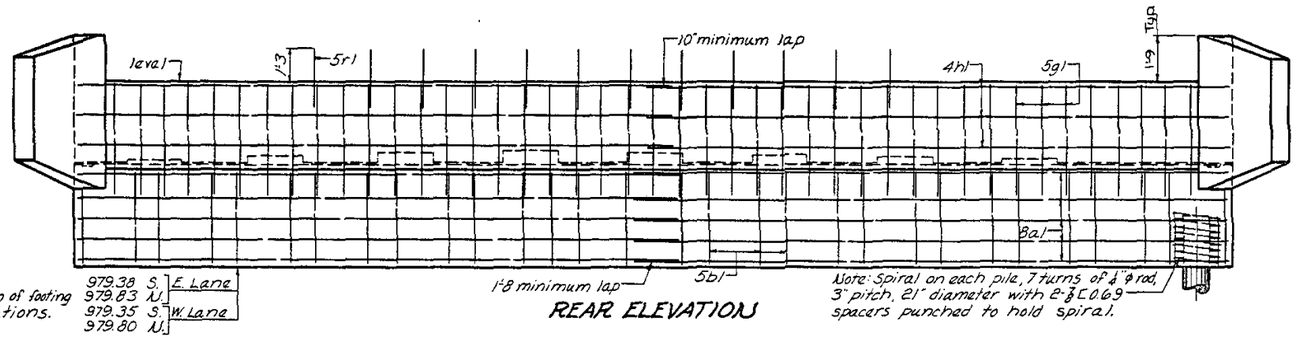
El. 984.02 N. / El. 983.57 S. — El. 984.17 N. / El. 983.72 S. — El. 984.29 N. / El. 983.85 S. — El. 984.36 N. / El. 983.91 S. — El. 984.37 N. / El. 983.92 S. — El. 984.31 N. / El. 983.87 S. — El. 984.20 N. / El. 983.76 S. — El. 984.06 N. / El. 983.61 S. — El. 983.91 N. / El. 983.47 S.

Low seat elevation (shoulder side)

PART REAR ELEVATION OF FOOTING
Showing Beam Step Details-East Lane
(Looking North)

El. 984.01 N. / El. 983.57 S. — El. 984.16 N. / El. 983.71 S. — El. 984.28 N. / El. 983.84 S. — El. 984.34 N. / El. 983.90 S. — El. 984.35 N. / El. 983.90 S. — El. 984.29 N. / El. 983.85 S. — El. 984.18 N. / El. 983.73 S. — El. 984.03 N. / El. 983.59 S. — El. 983.88 N. / El. 983.44 S.

PART REAR ELEVATIONS OF FOOTING
Showing Beam Step Details-West Lane
(Looking South)

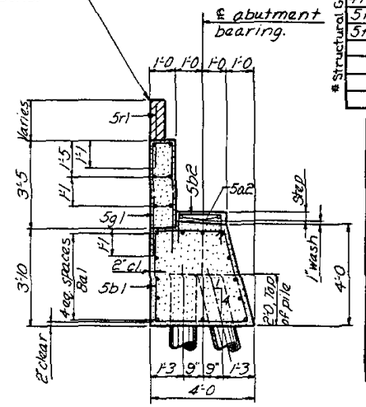


Bottom of footing elevations: 979.38 S. E. Lane; 979.83 N.; 979.35 S. W. Lane; 979.80 N.

Note: Spiral on each pile, 7 turns of ¼" ϕ rod, 3" pitch, 21" diameter with 2-⅜ C 0.69 spacers punched to hold spiral.

REAR ELEVATION

Temporary paving block. Temporary paving block is to match roadway crown and be placed after superstructure slab has been placed. Bend down 5r1 bars and line approach pavement support with tar paper to prevent bond.



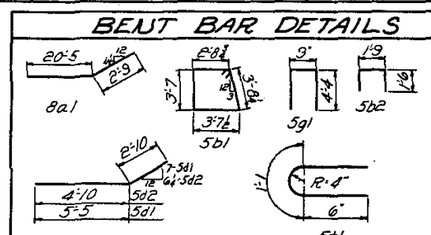
SECTION A-A

REINFORCING STEEL - ONE ABUTMENT

Bar	Location	Shape	No.	Length	Weight
8a1	Footing, Longitudinal		26	23'-2	608
5a2	" " " at Beam Seats		18	2'-0	38
5b1	" " Hoops	B	30	14'-5	451
5b2	" " at Beam Seats		27	4'-7	129
5c1	Wing, Vertical, F.F.		8	5'-10	49
8c2	" " B.F.		14	6'-5	240
5c3-7	" " " Both Faces		20	Varies	97
5d1	" Horizontal, B.F.		12	8'-3	103
5d2	" " F.F.		12	7'-8	96
5g1	Backwall, Vertical	C	43	9'-3	415
4h1	" Horizontal		12	22'-9	182
5r1*	Paving Dowels		12	2'-4	29
5t1	" Block Loops	C	6	2'-7	13
	Pile Spirals, ¼" ϕ Rod		15	38'-6	96
	Spiral Spacers ⅜ C 0.69		30	1'-10	38
	Total (lbs)				3584

* Structural Grade

BENT BAR DETAILS



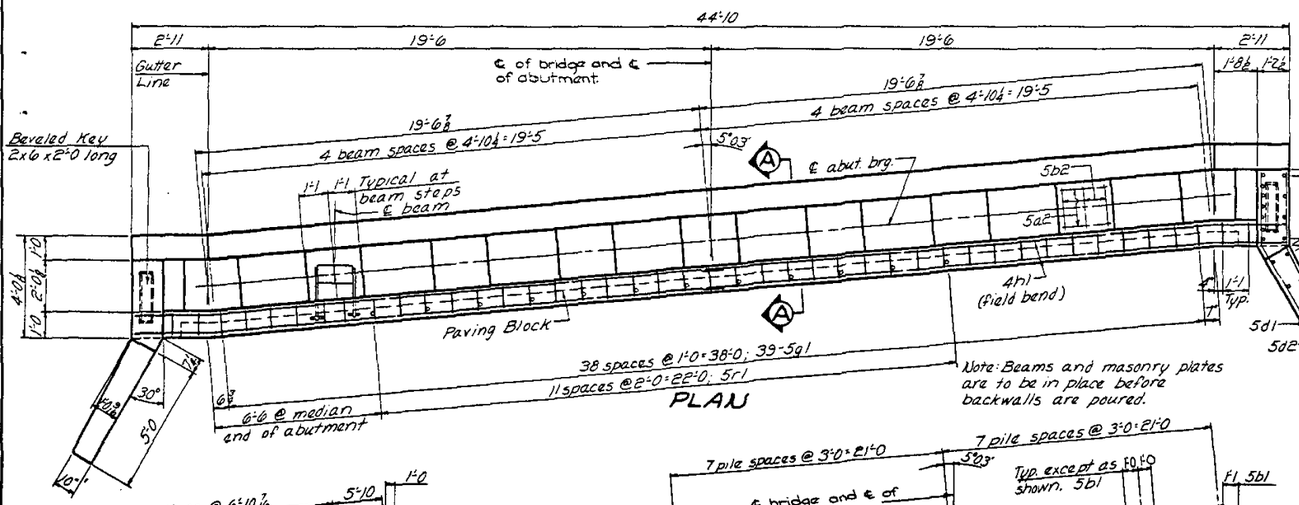
Dimensions are out to out. Radii to ℄ of bar.

CONCRETE PLACEMENT QUANTITIES-ONE ABUT.

Footing	22.8 cu.
Backwall	5.4 cu.
Wings	3.2 cu.
Paving Block	1.3 cu.
Total	32.7 cu.

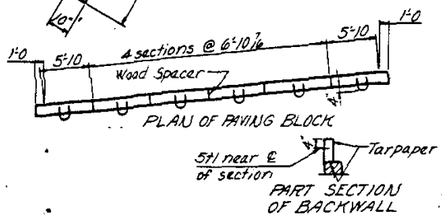
ESTIMATED QUANTITIES- FOUR ABUT'S.

Item	Quantity
Structural Concrete Class "C"	130.8 cu.
Reinforcing Steel	14,336 lb.
Class 20 Excavation	170 cu.
Granular Backfill	288 cu.
Creosoted Piling- 60 @ 20'-0	1200 L.F.



PLAN

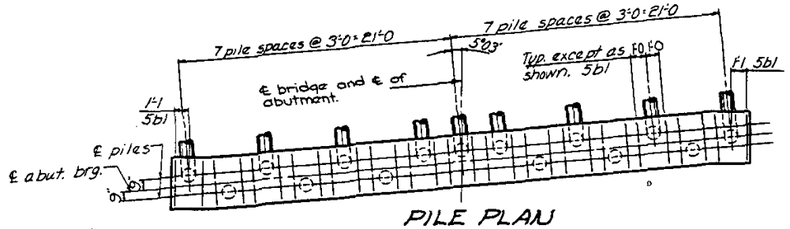
Note: Beams and masonry plates are to be in place before backwalls are poured.



PLAN OF PAVING BLOCK

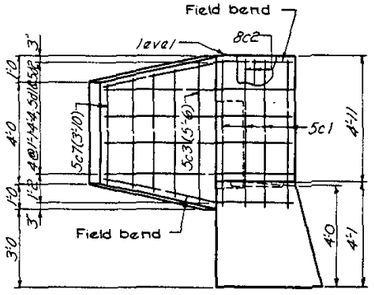
PART SECTION OF BACKWALL

PAVING BLOCK DETAILS

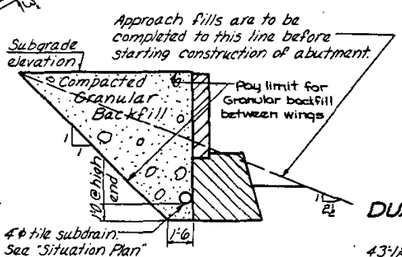


PILE PLAN

Note: Dimensions shown are at the bottom of the footing. Batter front row piles 1:4 in the direction shown. 15 creosoted piles are required at each abutment. 5b1 bars are symmetrical about ℄ of abutment.



VIEW B-B



BACKFILL DETAILS

ABUTMENT NOTES:

Minimum clear distance from face of concrete to near reinforcing bar is to be 2" unless otherwise shown.

Reinforcing Steel is to be securely wired in place before concrete is poured.

All exposed corners of 90° or sharper are to be filleted ¾".

Piling is to be driven to full penetration, if practicable, but to not less than 20 tons nor more than 40 tons bearing capacity.

All backfill behind the abutment between wings is to be granular backfill. The remainder of the abutment excavation is to be backfilled with soil.

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

ABUTMENT DETAILS

Station: 671+83.30 on Interstate
Station: 1671+83.30 on Local Road
Project No. I-IG-35-5(8)113

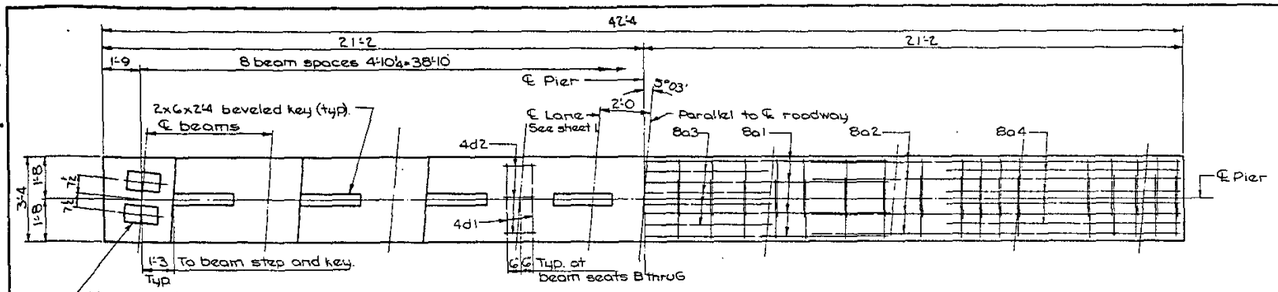
STORY COUNTY

Iowa State Highway Commission
November 1964
Sheet 2 of 10

Design 863 — Story County — File No. 21735

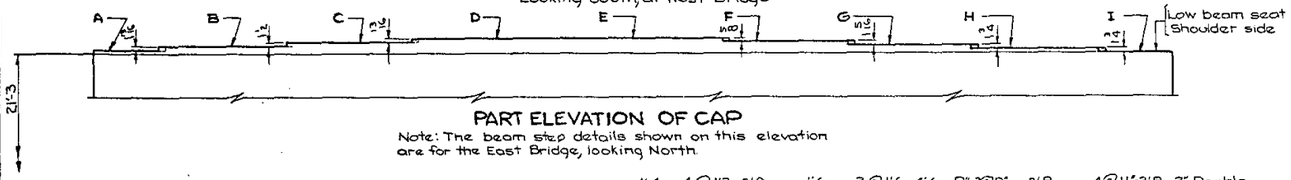
Designed by: E.N. Traced by: B.B.B. Checked by: G.J.

Bench Mark Nº 13: Sta. 672+11, 21' Rt. Found R.R. spk. in W. side po. pole at local road. Elev. 983.51



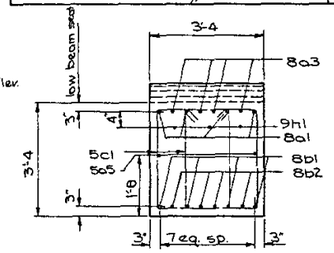
PLAN OF CAP

Looking North at East Bridge
Looking South at West Bridge



PART ELEVATION OF CAP

Note: The beam step details shown on this elevation are for the East Bridge, looking North.



SECTION A-A

CONCRETE PLACEMENT QUANT.-ONE PIER

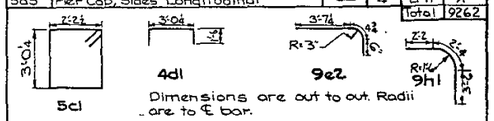
Location	Quantity
Footings	22.6
Columns	11.7
Pier cap	18.9
Total cu.yds.	53.2

TOTAL ESTIMATED QUANTITIES-FOUR PIERS

Structural Concrete Class "C"	212.8 cu.yd.
Reinforcing steel	37,048 lbs
Creosoted piling 9# @ 12'	1128 lin.ft.
Class 10 Excavation	288 cu.yd.
Creosoted Test Piling, 2@25'	Lump Sum

REINFORCING BAR LIST-ONE PIER

Bar	Location	Shape	Nº	Length	Weight
8a1	Pier cap, top, longitudinal	——	4	19'-0	203
8a2	Pier cap, top, longitudinal	——	8	14'-6	310
8a3	Pier cap, top, longitudinal	——	4	10'-0	107
8a4	Pier cap, top, longitudinal	——	8	9'-1	194
8b1	Pier cap, bottom, longitudinal	——	8	21'-10	466
8b2	Pier cap, bottom, longitudinal	——	8	10'-5	222
5c1	Pier cap, Hoops	[]	68	11'-2	792
4d1	Pier cap, under beams	⌐¬	12	3'-10	47
4d2	Pier cap, under beams	——	18	1'-8	20
9e1	Pier column, Vertical	——	54	16'-7	3045
9e2	Footing Dowel	⌐¬	54	4'-6	826
5g1	Footing	——	42	7'-2	314
6g2	Footing	——	45	9'-0	608
#5	Column Spiral	~~~	3	514'-9	1611
	℄ C069	——	12	14'-7	121
9h1	Pier Column, Corners	⌐¬	6	8'-0	163
9h2	Pier Column, Corners	——	6	6'-0	122
5a5	Pier Cap, Sides, Longitudinal	——	4	21'-11	91
				Total	9262



Dimensions are out to out. Radii are to ℄ bar.

BAR DETAILS

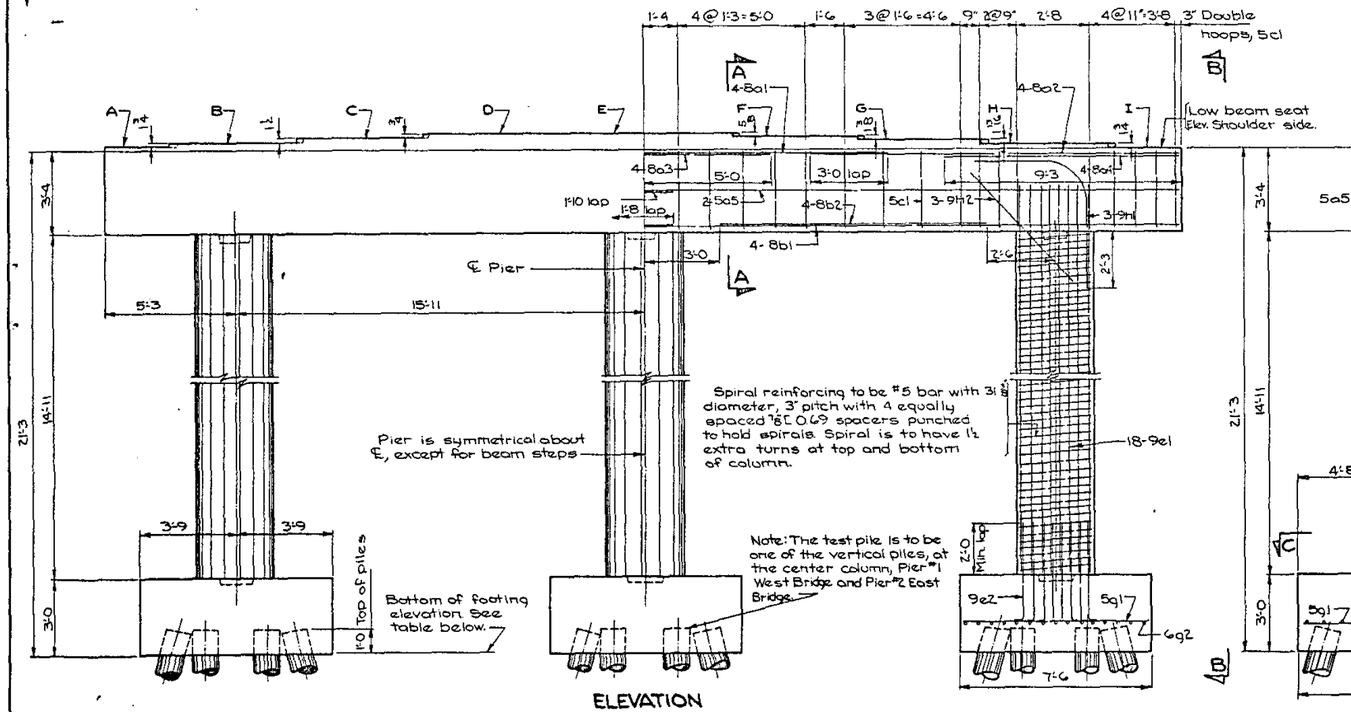
PIER NOTES:

All exposed corners of 90° or sharper are to be filleted ¾".

Clear distance from face of concrete to near reinforcing bar shall be 2" unless otherwise shown.

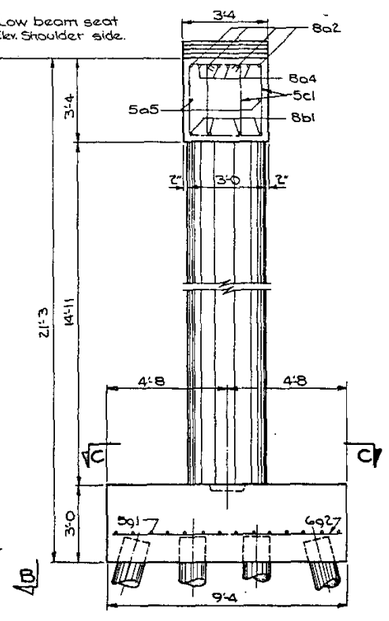
Piles are to be driven to full penetration if practicable, but in no case to less than 20 tons nor more than 40 tons bearing capacity.

The spiral reinforcement may be made of plain structural grade reinforcing steel and spliced by lapping 1½ turns. The length of spiral shown does not include the lapped length of the splices. The cost of the laps is to be included in the price bid for other reinforcement.

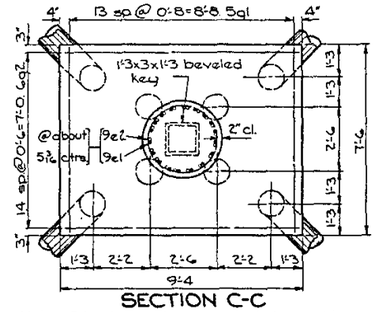


ELEVATION

Note: The beam step details shown on this elevation are for the West Bridge, looking South.
Scale: ⅜" = 1'-0



ELEVATION B-B



SECTION C-C

Note: Pile dimensions are at the bottom of the footing. Batter piles 1:4 in the directions shown. 24 creosoted piling required each pier, 12' long.

PIER ELEVATIONS

Bridge	Pier	A	B	C	D	E	F	G	H	I	Bott. Ftg.
West Bridge	Pier #1	983.67	983.82	983.94	984.00	984.00	983.95	983.84	983.69	983.54	962.29
	Pier #2	983.88	984.02	984.15	984.21	984.21	984.14	984.04	983.89	983.75	962.50
East Bridge	Pier #1	983.68	983.83	983.95	984.02	984.02	983.97	983.86	983.72	983.57	962.32
	Pier #2	983.88	984.03	984.16	984.23	984.23	984.18	984.07	983.92	983.78	962.53

Design for 5°03' Skew

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

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

PIER DETAILS

Station: 671+83.30 on Interstate
Station: 1671+83.30 on local road
Project Nº I-IG-35-5(8)13

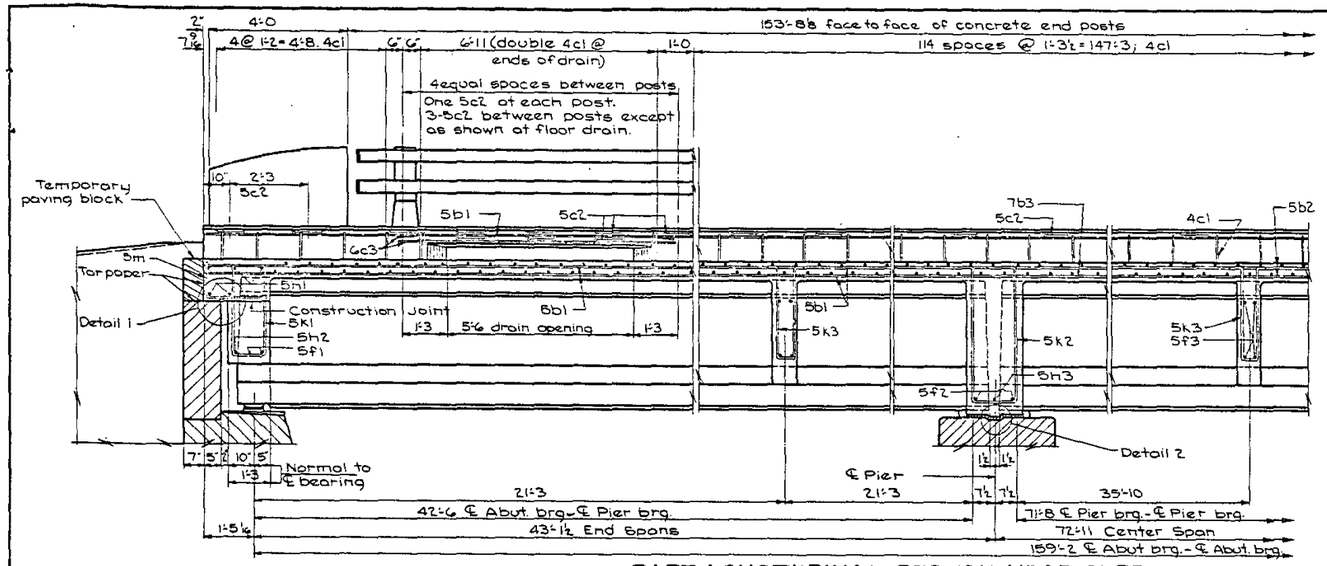
STORY COUNTY

Iowa State Highway Commission
November, 1964
Sheet 3 of 10

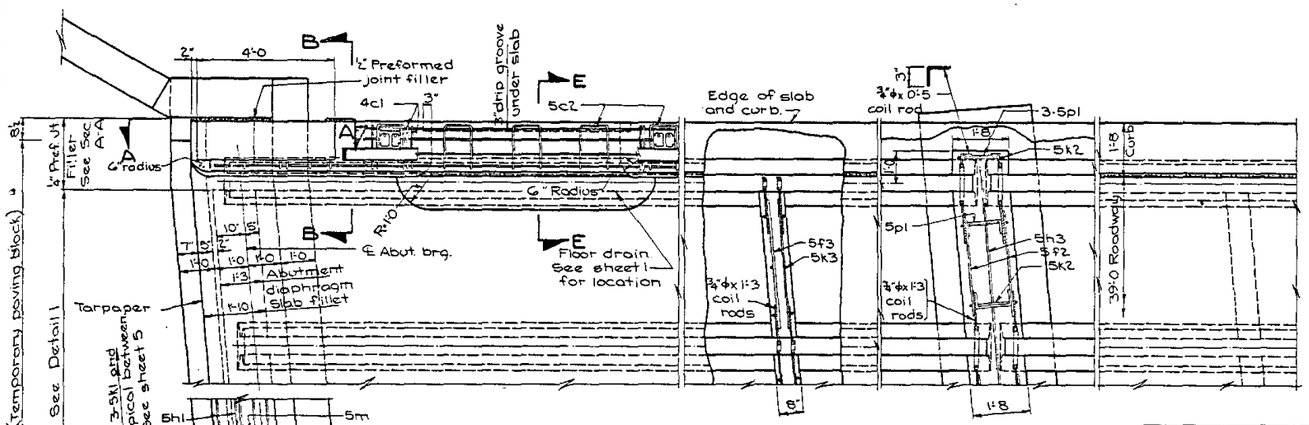
Design Nº 863 Story County File Nº Z1735

Designed by: [illegible] Traced by: [illegible] Checked by: [illegible]

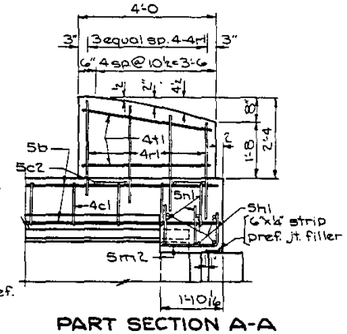
DIETZGEN NO. 151 ARKWRIGHT



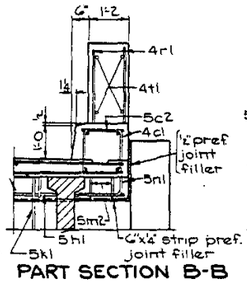
PART LONGITUDINAL SECTION NEAR CURB



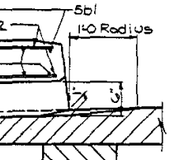
PART PLAN



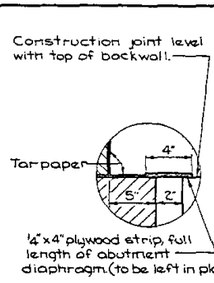
PART SECTION A-A



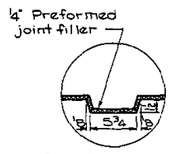
PART SECTION B-B



SECTION E-E



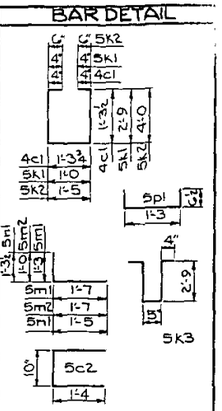
DETAIL 1



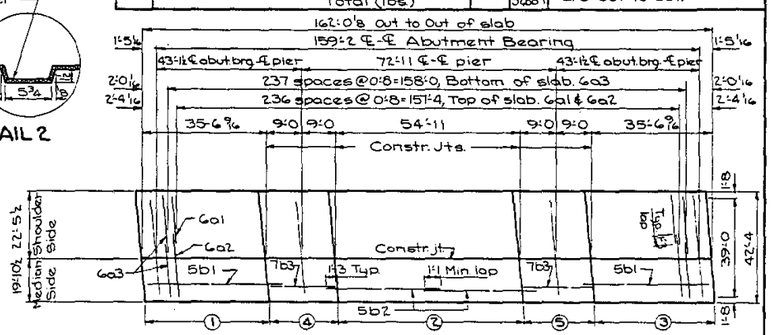
DETAIL 2

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	—	186	17'-8	6717
4c1	Curb hoops	□	248	4'-3	704
5c2	Curb, transverse	□	168	3'-4	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	—	96	4'-0	401
5h1	Slab fillet, at abutment	—	20	21'-8	452
5h2	Abutment diaphragm	—	2	39'-11	79
5h3	Pier diaphragm	—	4	20'-10	87
5k1	Abutment diaphragm hoops	□	48	6'-10	342
5k2	Pier diaphragm hoops	□	36	10'-1	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
4t1	End post, horizontal	—	16	3'-8	39
	Total (lbs)				52887

BAR DETAIL

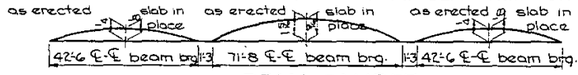


All dimensions shown are out to out.

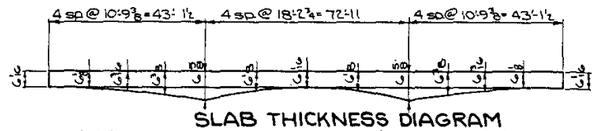


Note: Roadway slab shall be placed in sections and in the sequence shown by the encircled figures and preferably at intervals not exceeding 24 hours. Alternate procedures for placing slab concrete may be submitted for approval, together with a statement of the proposed method and evidence that the Contractor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

ESTIMATED QUANTITIES-TWO SUPER'S	
Item	Quantity
Structural Concrete Class "D"*	378.6 C.Y.
Reinforcing Steel *	105,965 lb
Pretensioned 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 C.Y.

Design for 5°03' Skew

DUAL 159'-2 x 39' 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(8)113

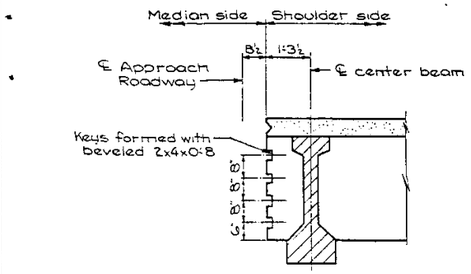
STORY COUNTY

Iowa State Highway Commission
November, 1964
Sheet 4 of 10

Design Nº 863 — Story County — File Nº 21735

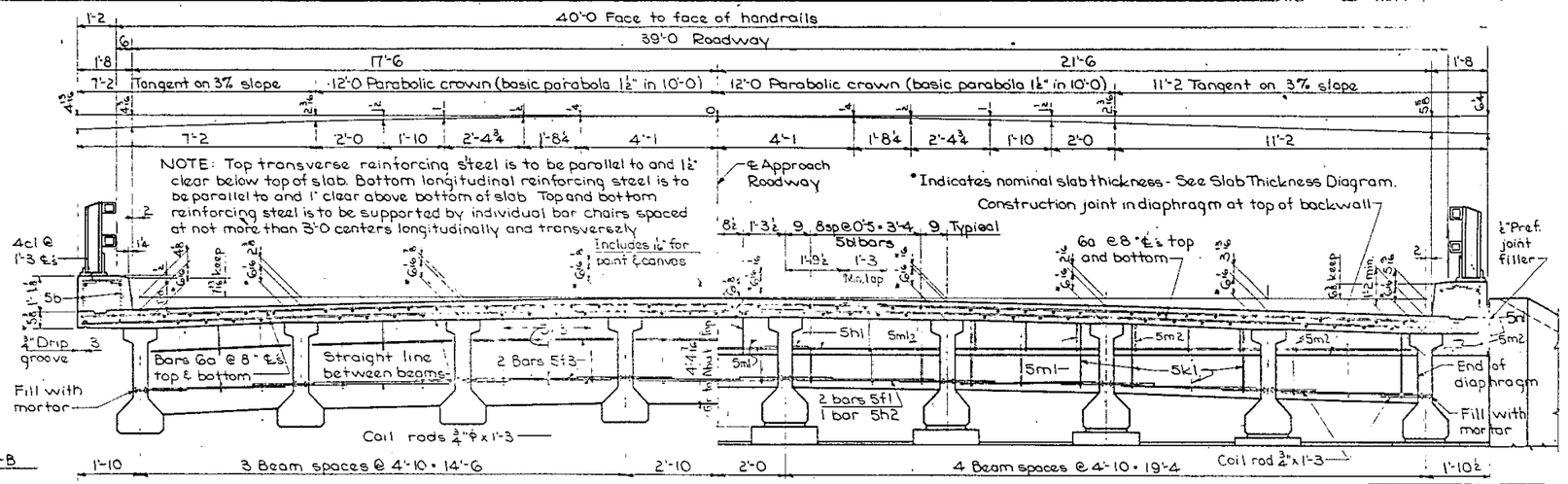
Designed by: F.N. — Traced by: — Checked by:

DIETZGEN NO. 99 ARKWRIGHT



PART ROADWAY SECTION

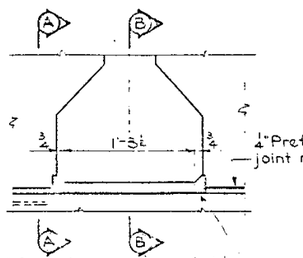
Showing vertical construction joint for intermediate diaphragm.



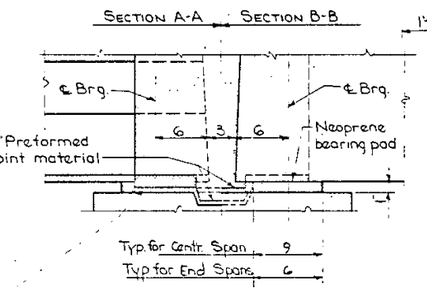
PART SECTION NEAR MID SPAN

PART SECTION NEAR ABUTMENT

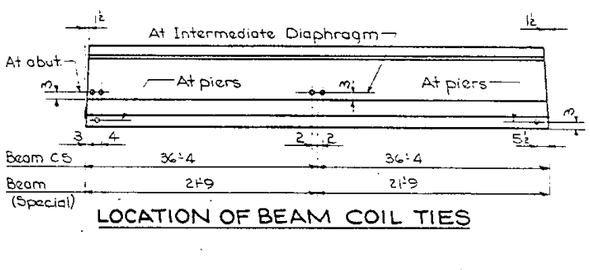
	10 050 s.f.
	11 326 s.f.
Area of Slab =	21 376 s.f.
Area of Curb =	1 715 s.f.



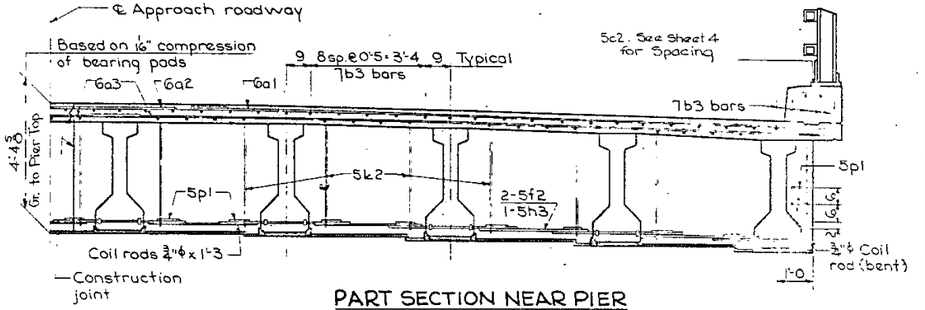
1 x 2 Strip of compressible material surrounding Neoprene bearing pads. Compressible material shall conform to the AASHO Spec. M-153 (Type III).



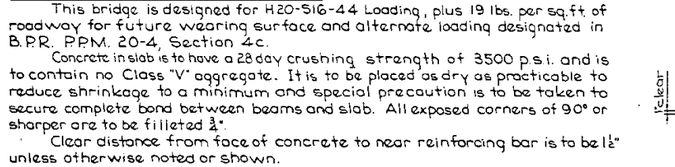
PIER BEARING DETAILS



LOCATION OF BEAM COIL TIES



PART SECTION NEAR PIER



NOTE: Sole plates are to be set in forms when beams are cast and formed out below as shown to exclude concrete.

ABUTMENT BEARING DETAILS

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. P.P.M. 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.

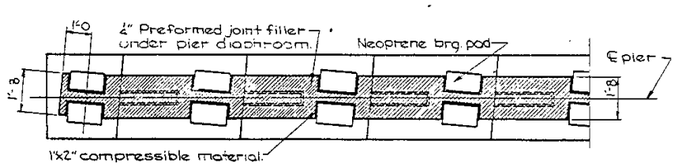
Cost of all bearing material is to be included in price bid for the beam.

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

Slab as shown includes ½" of wearing surface.

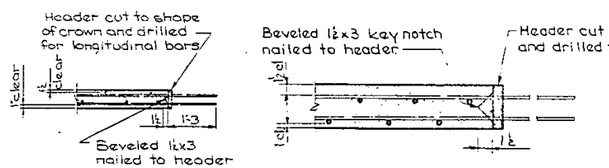
Forms for slab and curbs are to be supported by the beams.

For Pretensioned Prestressed Concrete Beam Details see Sheet 6.



HALF PLAN OF PIER CAP

Showing area covered by ¼" preformed joint material



TRANSVERSE Jt. LONGITUDINAL Jt.

FLOOR CONSTRUCTION JOINT DETAILS

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: 1671+833 on Local Road

Project No. IIG-35-5(8)113

STORY COUNTY

IOWA STATE HIGHWAY COMMISSION

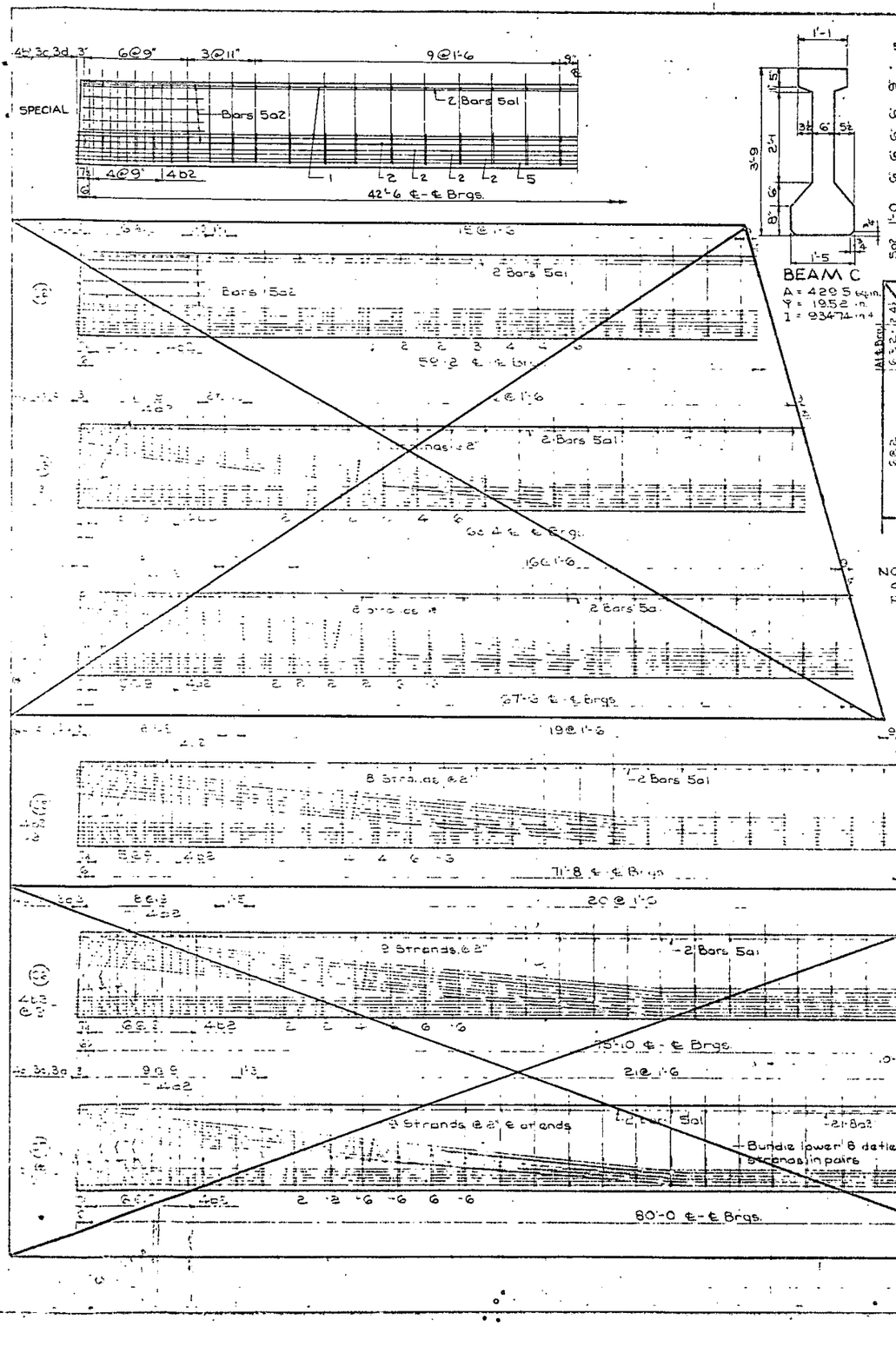
November, 1964

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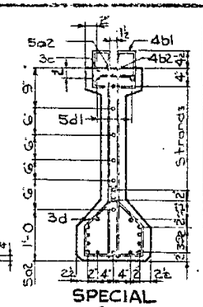
Design No. 863 — Story County — File No. 21735

Designed by: E.N. Traced by: W. Checked by: JS

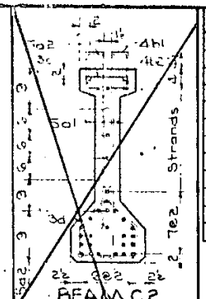
DIETZGEN NO. 181 APPRIGHT



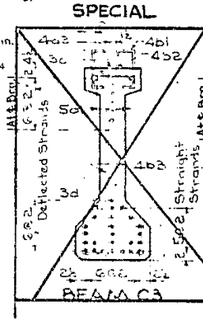
BEAM C
A = 4205 sq.in.
Y = 19.52 in.
I = 93474 in.⁴



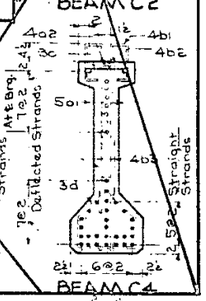
SPECIAL



BEAM C2

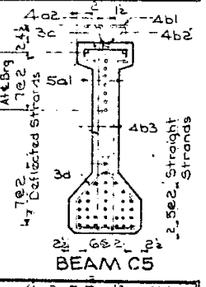


BEAM C3

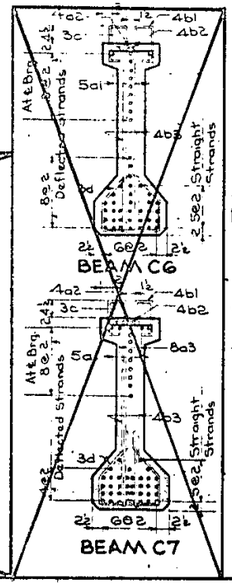


BEAM C4

NOTE: Bars 4b1, 4b3 and 3a are to be placed in pairs.



BEAM C5

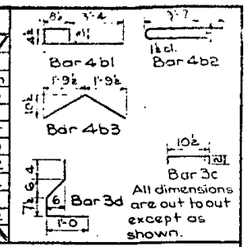


BEAM C6

BEAM C7

REINFORCING BAR LIST

Beam	SPECIAL	C2	C3	C4	C5	C6	C7
Span	42'-6	50'-2	63'-4	67'-6	71'-8	75'-10	80'-0
Bar / Shape	Nº / Length	Nº / Length	Nº / Length	Nº / Length	Nº / Length	Nº / Length	Nº / Length
5a1	4 / 22'-6	4 / 30'-5	4 / 32'-11	4 / 35'-0	4 / 37'-1	4 / 39'-2	4 / 41'-3
4a2	—	—	4 / 4'-6	2 / 4'-6	2 / 4'-6	2 / 5'-3	2 / 5'-3
5a2	12 / 4'-6	12 / 6'-0	—	—	—	—	—
8a3	—	—	—	—	—	2 / 20'-0	
4b1	76 / 5'-2	96 / 5'-2	104 / 5'-2	112 / 5'-2	116 / 5'-2	120 / 5'-2	128 / 5'-2
4b2	10 / 7'-2	10 / 7'-2	12 / 7'-2	2 / 7'-2	12 / 7'-2	14 / 7'-2	14 / 7'-2
4b3	—	—	8 / 4'-1	8 / 4'-1	12 / 4'-1	12 / 4'-1	16 / 4'-1
3c	38 / 1'-2	48 / 1'-2	52 / 1'-2	56 / 1'-2	58 / 1'-2	60 / 1'-2	64 / 1'-2
3a	76 / 2'-6	96 / 2'-6	104 / 2'-6	112 / 2'-6	116 / 2'-6	120 / 2'-6	128 / 2'-6



It is anticipated that the beam camber immediately after releasing strands will be as follows: Beam C5, .75", Special Beam .14"

BEAM DATA

Beam	SPECIAL	C2	C3	C4	C5	C6	C7
Span	42'-6	50'-2	63'-4	67'-6	71'-8	75'-10	80'-0
Initial Prestress Kips	302	454	473	529	605	662	689
Size Strands	7/16	7/16	7/16	7/16	7/16	7/16	7/16
Straight Strands	16	24	18	20	24	24	28
Deflected Strands	—	—	8	8	9	9	9
Hold Down Stress Kips	—	—	15.9	15.6	14.7	14.2	16.2
Camber in.	.25	.69	.95	1.00	1.33	1.53	2.05
DL Deflection in (5'-0 Spcg.)	.11	.38	.50	.67	.79	1.03	1.26
DL Deflection in (6'-6 Spcg.)		.49	.65	.85		1.34	1.62
Reinforcing Steel lb.	548	694	702	748	785	823	987
Concrete c.y.	4.81	665	711	757	804	850	896

② Due to weight of slab.

NOTES:

An allowance of .0005 L is to be made on all beams for shrinkage and elastic shortening.

All deflected strands are to be held down at the third points of the beams except that the hold down point may be moved toward the center of the beam a distance not to exceed .05 span at the producer's option.

Tops of beams are to be scored transversely at about 3" centers with a pointed tool. Scores are to be 1/8 deep.

Hold down devices and procedure for tension and detensioning must be approved by the Engineer.

Bearing details will be as detailed on specific designs.

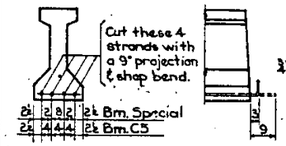
The cost of bearing details, including masonry plates and neoprene pads, coil ties, coil rods and lifting loops, is to be included in the price bid for prestressed concrete beams.

Strand ends which will be encased in concrete in the finished structure are to be cut with a 1" projection with the exception of four strands at the pier end of the beam which are to be cut with a 9" projection and bent as detailed. Strand ends which will be exposed in the finished structure are to be cut flush and painted with two coats of red lead at the plant.

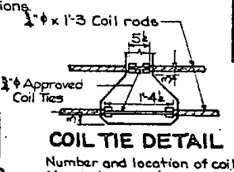
DESIGN STRESSES: Design stresses for the following materials are in accordance with AASHO Standard Specifications for Highway Bridges, Series of 1961:
Reinforcing steel in accordance with Section 1.4.12. "Reinforcement" for Intermediate, Hard or Rail Steel Grade. Concrete in accordance with 1.13.7. f'_c = 5000 p.s.i. Prestressing steel in accordance with 1.13.7. f'_s = 250,000 p.s.i.

SPECIFICATIONS:

DESIGN: A.A.S.H.O. Series 1961.
CONSTRUCTION: Standard Specifications of the Iowa State Highway Commission, current series, plus current Special Provisions and current Supplemental Specifications.



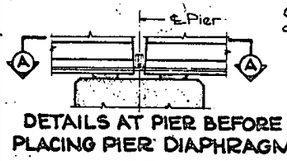
BEAM END DETAIL AT PIER



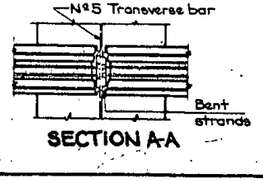
COIL TIE DETAIL

Number and location of coil ties to be as detailed on specific designs.

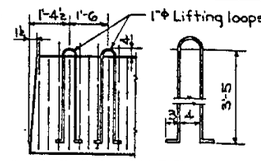
Coil ties and anchors are to be approved by the Engineer.



DETAILS AT PIER BEFORE PLACING PIER DIAPHRAGM



SECTION A-A



LIFTING LOOP DETAILS

Lifting loops are to be structural grade steel. Alternate types may be substituted with the approval of the Engineer.

MAXIMUM SPACING OF BEAMS FOR SPANS SHOWN

Loading	Future W.S.	Maximum Spacing
H-20 - S16 (Primary)	19#/a'	5'-0
H-20 (Primary)	19#/a'	6'-0
H-20 (Secondary)	19#/a'	6'-6
H-15 (Secondary)		7'-3

Design for 5°03' Skew

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

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

BEAM DETAILS

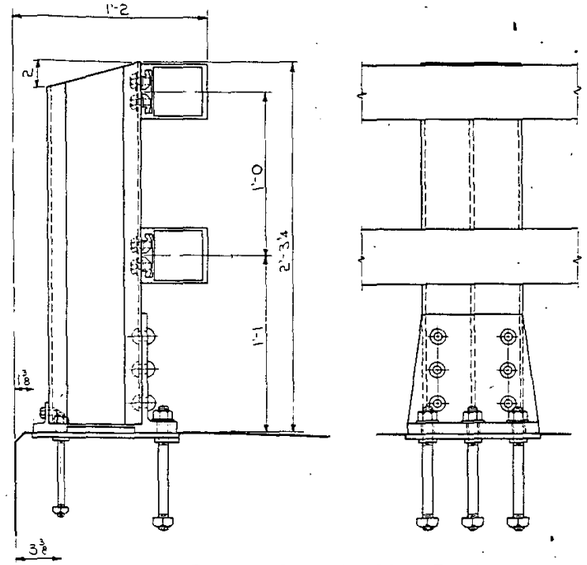
Station: 671+83.3 on Interstate
Station: 16+71+83.3 on Local Road
Project Nº I-IG-35-5(8)113

STORY COUNTY

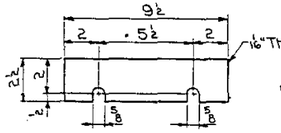
Iowa State Highway Commission
November 1964
Sheet 60 of 10

Design Nº 863 | Story County | File Nº 2.1735
Designed by: E.N. | Traced by: | Checked by:

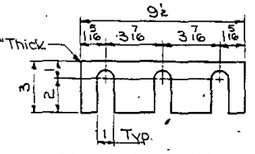
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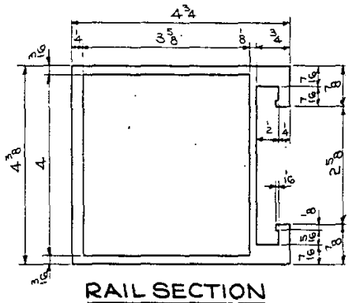
RAIL POST ASSEMBLY



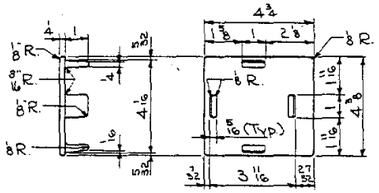
SHIM "A" DETAIL



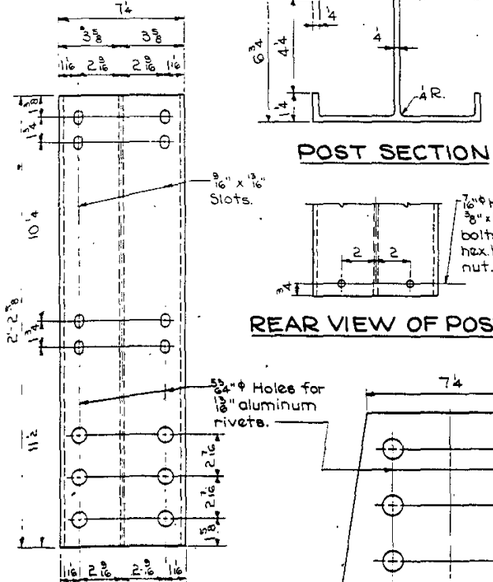
SHIM "B" DETAIL



RAIL SECTION



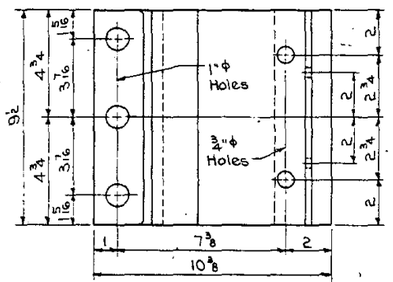
RAIL END CAP DETAILS

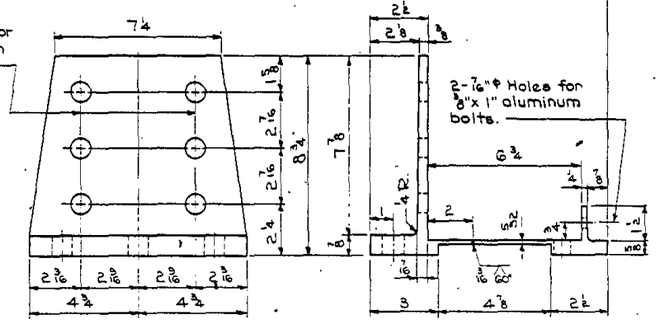


POST

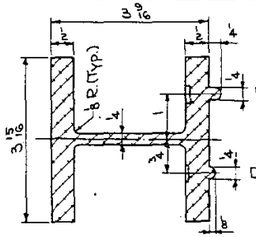
POST SECTION

REAR VIEW OF POST

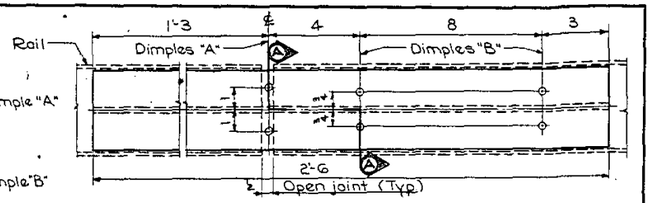




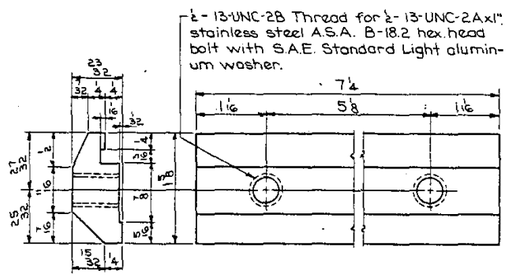
POST BASE PLATE DETAILS



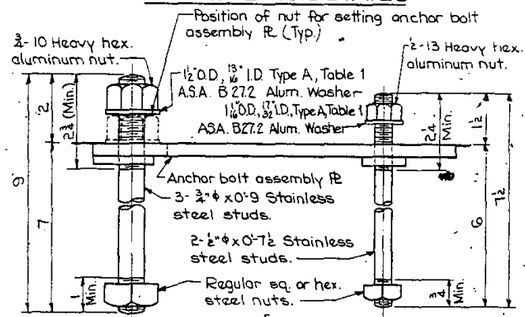
SECTION A-A

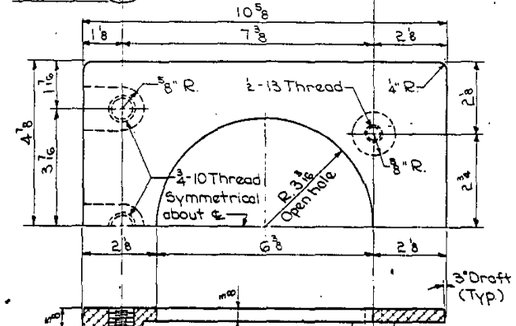


RAIL SPLICE DETAIL

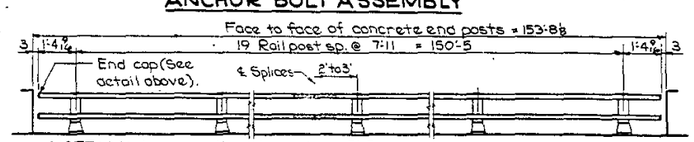


CLAMP BAR DETAILS





ANCHOR BOLT ASSEMBLY



NOTE: Maximum rail post spacing = 8'-6.

TYPICAL ELEVATION OF RAILING AND RAIL POST LAYOUT

ALUMINUM HANDRAIL NOTES:

The aluminum handrail is to be bid on a lineal foot basis measured from end to end of rail. The price bid for "Aluminum Handrail" shall be full compensation for furnishing all material including the anchor bolts and all of the equipment and labor required to erect the rail in accordance with these plans and specifications.

Each rail section must be attached to as many posts as possible but to at least three posts before being spliced.

Material for rails, post, post base plate, rail splice bar, clamp bar, the aluminum bolts and aluminum nuts shall be A.S.T.M. B-221 Alloy 6061-T6 or 6062-T6.

Material for aluminum washers and shims shall be A.S.T.M. B-209; Alloy Alclad 2024-T3 for washers and Alloy 1100-0 for shims.

Material for aluminum rivets shall be A.S.T.M. B-316 or B-221 Alloy 6061-T6 or 6062-T6. Rivets shall be button head, cone point and cold driven.

Material for stainless steel anchor studs shall conform to A.S.T.M. A-276 Type 430, except with a minimum of 100,000 psi ultimate strength. Stud thread shall conform to A.S.A. B-1.1 for UNC threads series, class 2A fit. Threads may be rolled or cut. Diameter of stud shall be not less than pitch diameter of threads. The aluminum nuts shall be thick, hexagonal, finished and shall comply with A.S.A. B-18.2. Threads shall comply with A.S.A. B-1.1 for UNC threads series, class 2B fit.

Material for steel nuts shall be A.S.T.M. A-307 Grade A, and shall conform to A.S.A. B-18.2. Threads shall comply with A.S.A. B-1.1 for UNC threads series, class 2B fit.

Material for anchor bolt assembly plate shall be aluminum alloy permanent mold casting complying with A.S.T.M. B-108 Alloy SG70A-T6 (AA Alloy 356-T6).

The entire surfaces of anchor bolt assembly plate and the shims are to be coated with zinc chromate.

One shim "A" and one shim "B" is to be furnished for each post, to be used as required.

Material for clamp bar bolt shall be stainless steel A.S.T.M. A-193, Grade B8.

Rail end caps may be either aluminum alloy permanent mold casting or sand mold casting.

Ends of rail sections to be sawed or milled. Cut ends to be true, smooth and free from burrs or ragged edges.

All surfaces requiring zinc chromate shall be given one shop coat of zinc chromate paint.

Handling, storage and installation of aluminum handrail shall be in accordance with Section 2414.06 of the Standard Specifications.

DESIGN SPECIFICATIONS:

Designed in accordance with 1964 interim A.A.S.H.O. Specifications.

ALUMINUM HANDRAIL QUANTITIES		
Aluminum Handrail	612.7	Lin Ft

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

ALUMINUM HANDRAIL DETAILS

Station: 671+83.3 on Interstate

Station: 671+83.3 on Local Road — Project No. I-IG-35-5(8)113

STORY COUNTY

IOWA STATE HIGHWAY COMMISSION

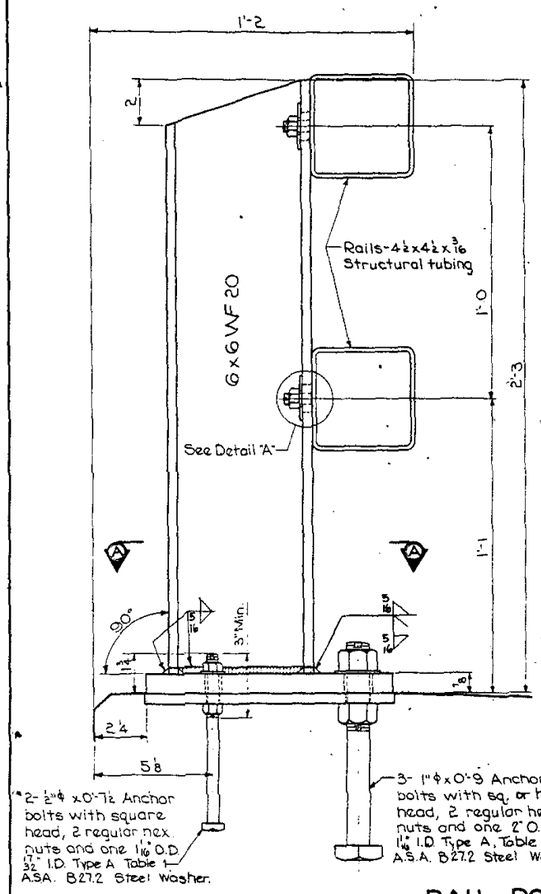
April, 1965 STANDARD RAIL SHEET 1012 Sheet 7 of 10

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

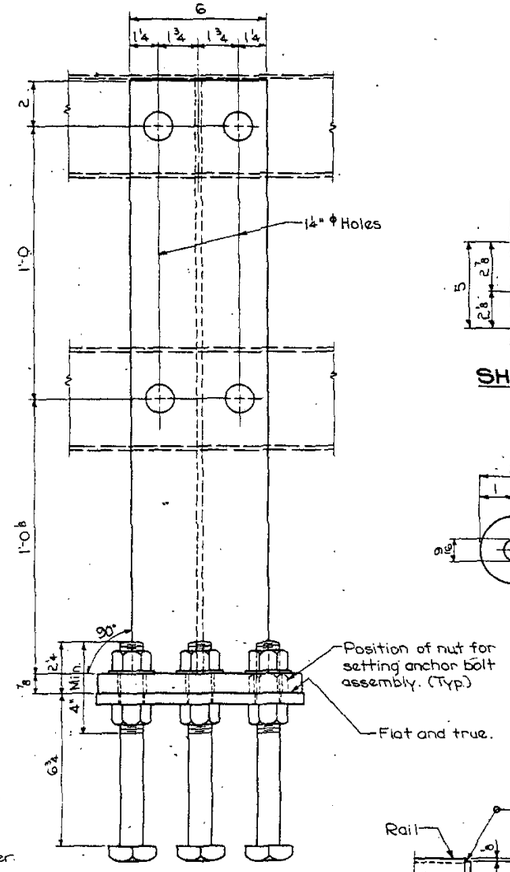
Designed by: EN — Traced by: — Checked:

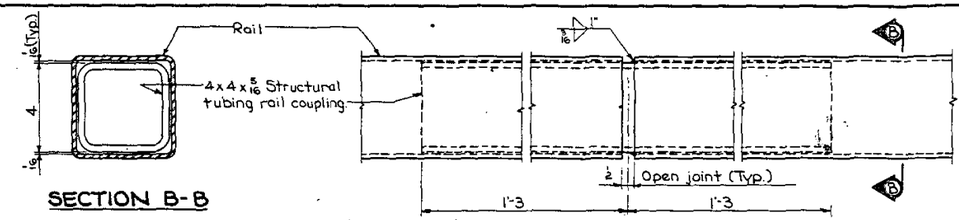
1012

DIETZGEN NO. 151 ARKWRIGHT



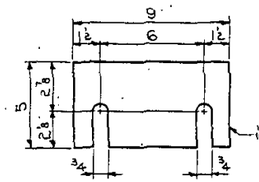
RAIL POST



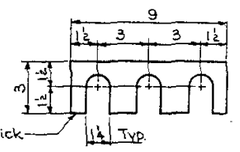


SECTION B-B

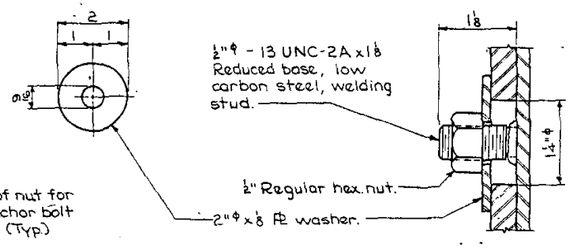
TYPICAL SPLICE JOINT



SHIM "A" DETAIL



SHIM "B" DETAIL



DETAIL "A"

STEEL HANDRAIL NOTES:

The steel handrail is to be bid on a lineal foot basis measured from end to end of rail. The price bid for "Steel Handrail" shall be full compensation for furnishing all material including the anchor bolts and all equipment and labor required to erect the rail in accordance with these plans and Specifications.

Each rail section must be attached to as many posts as possible, but to at least three posts before being spliced.

Material for rail tubing, post, base plate and anchor cage shall be A.S.T.M. A-36 and are to be galvanized after fabrication to A.S.T.M. A-123.

Material for End Cap "B" shall be galvanized malleable iron casting or galvanized steel casting.

Material for anchor bolts and nuts, and rail to post attachment nuts shall be A.S.T.M. A-307 - Gr.T, Grade A.

Anchor bolts and nuts, rail to post attachment nuts, end caps, washers and shims are to be galvanized to A.S.T.M. A-153.

Ends of tube sections to be sawed or milled. Cut ends to be true, smooth and free from burrs or ragged edges.

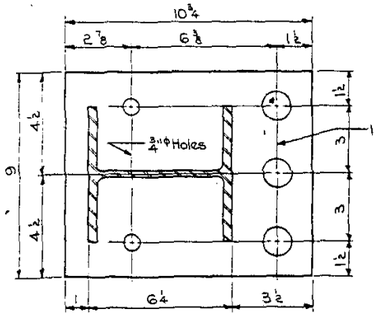
Welding shall be in accordance with Section 2408.15 of the Standard Specifications.

Handling, storage and installation of steel handrail shall be in accordance with Section 2414.06 of the Standard Specifications. Rail studs shall be provided with adequate protection during shipment.

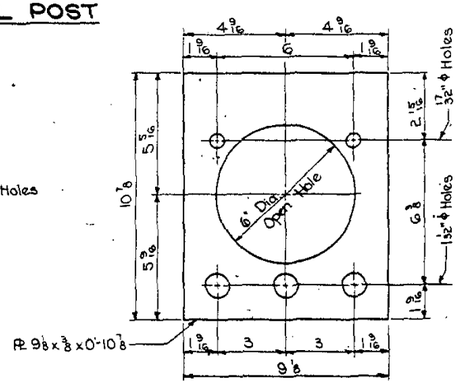
One shim "A" and one shim "B" is to be furnished for each post, to be used as required.

A surface is considered to be "Flat and True" when the deviation from a straight edge placed on this surface in any position, is less than 1/16".

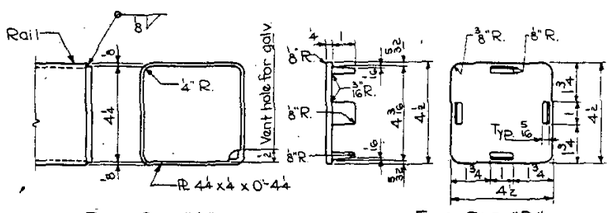
No painting will be required.



SECTION A-A

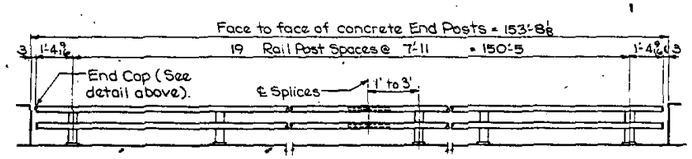


ANCHOR CAGE DETAILS



END CAP "A" END CAP "B"

RAIL END CAP DETAILS



NOTE:
Maximum rail post spacing = 8'-6.

TYPICAL ELEVATION OF RAILING AND RAIL POST LAYOUT

DESIGN SPECIFICATIONS:

Designed in accordance with 1964 interim A.A.S.H.O. Specifications.

STEEL HANDRAIL QUANTITIES	
Steel Handrail	612.7 Lin. Ft.

Design for 5°03' Skew

DUAL 159'-2x39'-0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

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

STEEL HANDRAIL DETAILS

Station: 671+83.3 on Interstate
Station: 1671+83.3 on Local Road
Project No. I-IG 35-[illegible]

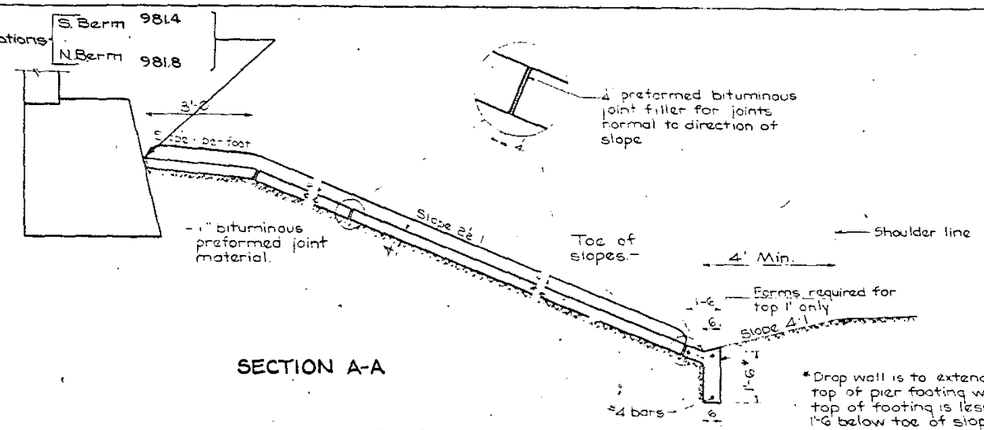
STORY COUNTY

IOWA STATE HIGHWAY C[illegible]
April, 1965 STA[illegible]
No 863

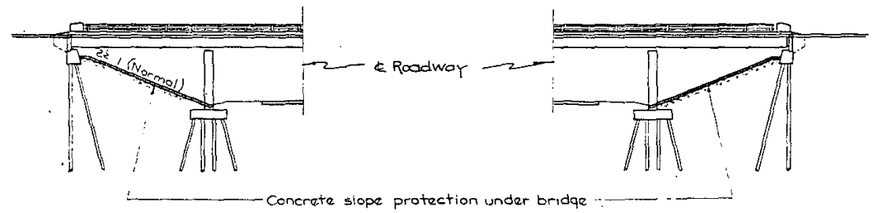
DIETZGEN NO. 10 ARKWRIGHT

Bench Mark: #13, Sta. 672+11, 21' Rt. Found R.R. Spk. W. Side Pb. Pole at Loc. Rd. El 983.5

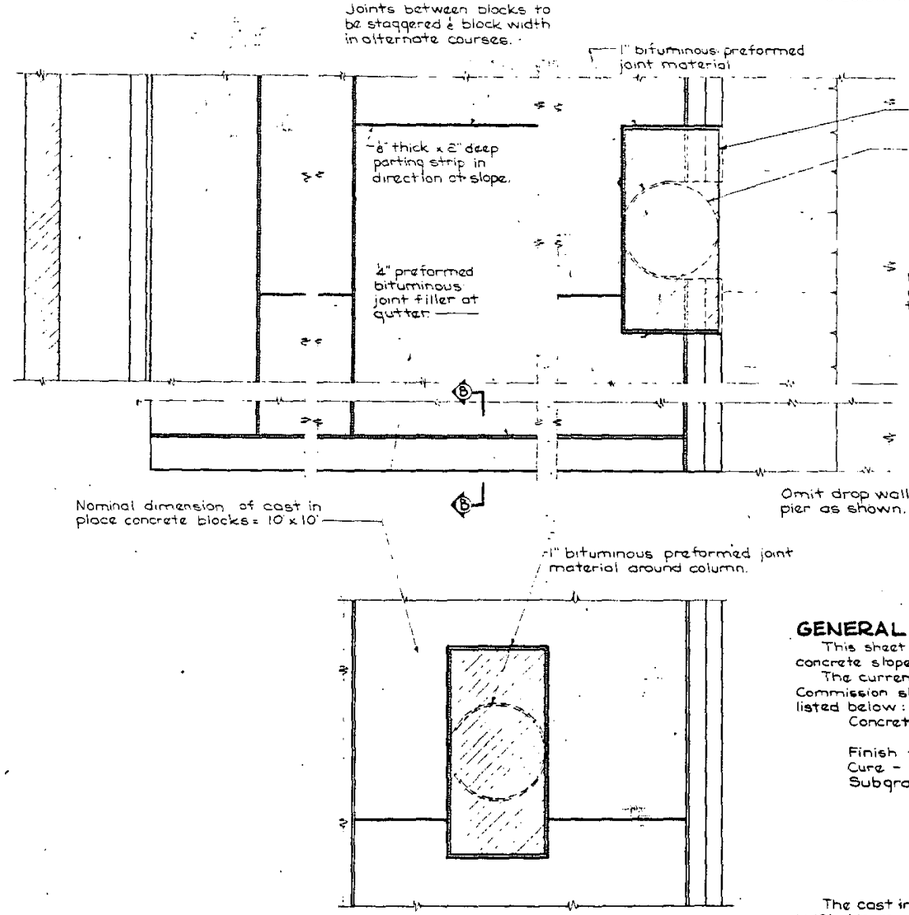
Berm Elevations: S. Berm 981.4, N. Berm 981.8



SECTION A-A

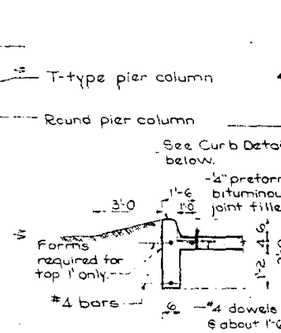


LONGITUDINAL SECTION ALONG ℄ OF ROADWAY

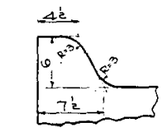


PART SLOPE PROTECTION PLAN (0° SKEW) FOR COLUMNS IN SLOPE

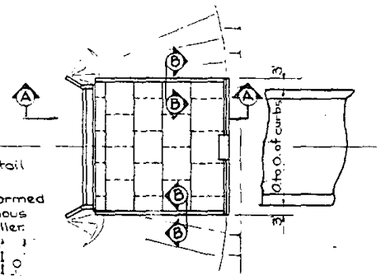
Scale: ½" = 1'-0



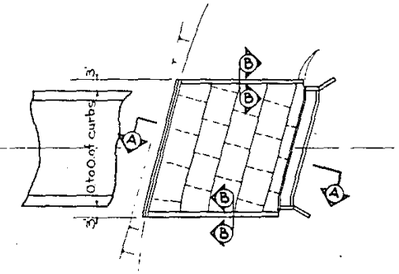
SECTION B-B



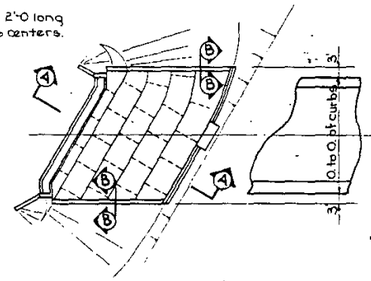
CURB DETAIL



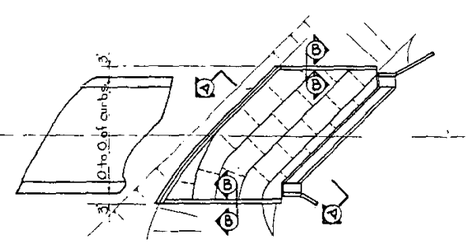
SLOPE PROTECTION LAYOUT 0° SKEW



SLOPE PROTECTION LAYOUT 15° SKEW



SLOPE PROTECTION LAYOUT 30° SKEW



SLOPE PROTECTION LAYOUT 45° SKEW

GENERAL NOTES:

This sheet shows details for placing portland cement concrete slope protection under overhead structures.

The current specifications of the Iowa Highway Commission shall apply with modifications or additions listed below:

Concrete - Class S Structural.

Finish - Class 1, Floated Surface Finish.
Cure - No cure necessary.
Subgrade Preparation - The subgrade is to be shaped and compacted so that finished slope protection will be similar to examples shown on this sheet. The subgrade shall be firm when concrete is placed. Sprinkling required shall be done early enough so that concrete is not placed on a muddy subgrade. No subgrade paper will be required.

The cast in place concrete is to be poured in approximately 10' wide courses, but all courses on one slope should have approximately equal widths. Adjacent coursees shall not be poured within 15 hours of one another. The joints in the direction of the slope are to be staggered about ½ block width.

Basis of payment: Payment will be made on a square yard basis for slope protection constructed. The unit price bid per square yard is to include costs of all materials and labor required to construct this protection as shown or intended by these plans. The subgrade preparation including any necessary excavation or filling required to shape the slope to the lines shown on the plans, and disposal of excess earth excavated as directed by the Engineer, are considered incidental to placing the concrete slope protection.

SLOPE PROTECTION QUANTITIES	
W. lane, North slope	232
W. lane, South slope	226
E. lane, North slope	226
E. lane, South slope	220
Total SY	904

When erosion control work is completed, the Contractor shall be responsible for any plant materials destroyed adjacent to slope protection area. The Contractor shall replant, reseed and remulch all areas disturbed adjacent to slope protection areas in accordance with section 2601 of Standard Specifications, Series of 1960, at his expense.

Design for 5°03' Skew

DUAL 159:2x39:0 PRETENSIONED PRESTRESSED CONCRETE BEAM BRIDGES

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

CONCRETE SLOPE PROTECTION

Station: 671+83.3 on Interstate
Station: 1671+83.3 on Local Road
Project No. I-IG-35-5(8)113

STORY COUNTY

IOWA STATE HIGHWAY COMMISSION

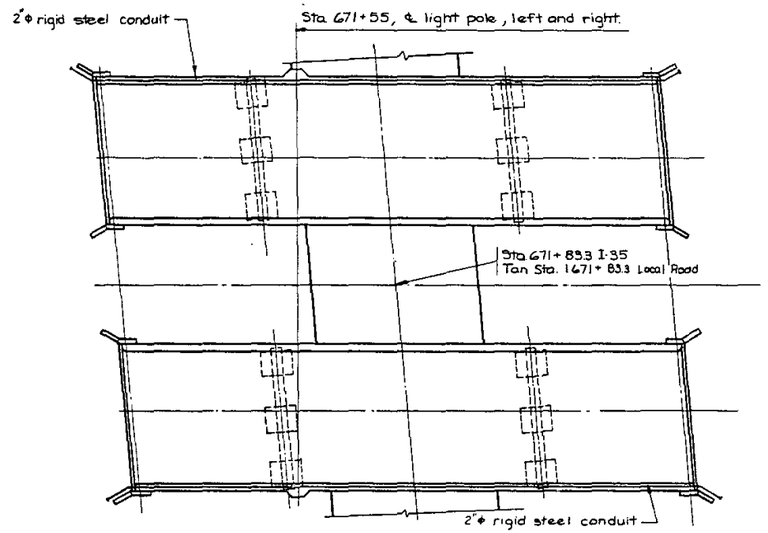
November 1964 — Sheet 9 of 10

Design No. 863 — Story County — File No. 21725

Designed by: E.N. Traced by: HJ Checked by:

Revised 1-19-61 Curb dowel bars added.
Revised 7-21-60 Corrected for 1960 Standard Specifications.
Revised 2-15-60 Pre cast block construction deleted. Curb added to sides.
Revised 9-15-59 Stormwater concerning erosion control added.
Revised 9-1-59 Statement concerning disposal of excess earth added.

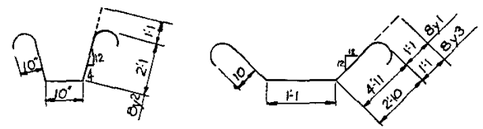
1006.



SITUATION PLAN

ESTIMATED QUANTITIES - TWO BRIDGES	
Item	Amount
2"ϕ rigid steel conduit	350 L.F.

BILL OF REINFORCING - TWO BASES					
Bar	Location	Shape	N°	Length	Weight
8y1	Blister		2	13'0	69
8y2	"		4	7'0	75
8y3	"		2	8'10	47
	Total lbs.				191



All bar dimensions are out to out

BAR DETAILS

LIGHTING NOTES:

Construction shall conform with the Iowa State Highway Commission Standard Specifications, Series of 1964 plus current Special Provisions and Supplemental Specifications for Highway Lighting (dated July 14, 1964)

All expansion fittings shall be O.Z. Expansion Fitting, Type AX200 or an approved equivalent.

All exposed conduit ends are to be capped to exclude dirt and moisture.

The contract unit price per linear foot of conduit shall be full compensation for furnishing all material (including junction boxes and fittings) labor and any work incidental to the installation. The concrete and weight of reinforcing steel is included in the Superstructure Estimated Quantities.

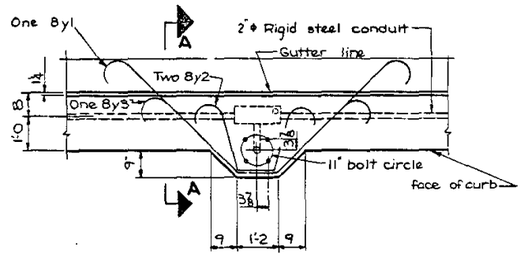
The length of conduit installed shall be measured in feet by the Engineer.

Cost of furnishing and installing poles, lights and lighting conductor is not a part of this estimate.

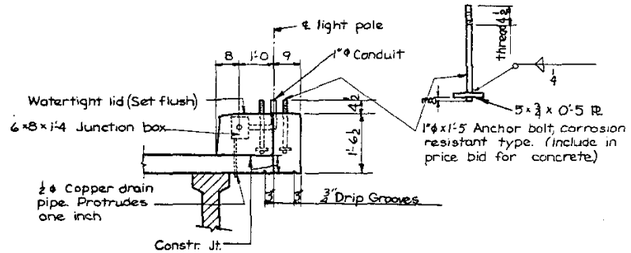
Corrosion resistant type of anchor bolts shall be as stated in the Supplemental Specifications for Highway Lighting. If the bi-metallic type of bolt is used the stainless steel shank shall be 6½ inches long. (min.)

After conduit lines have been installed, a stiff oversize wire brush or mandrel shall be pulled through the conduit to make certain that no particles of earth, sand, gravel, or mortar have been left in the line. During construction, temporary plugs or caps at each open end of conduit shall be used.

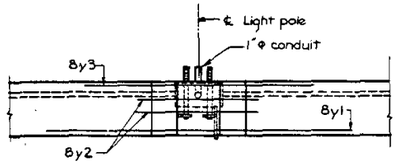
Cost of 1"ϕ x 1'-5 Anchor bolts is to be included in price bid for concrete.



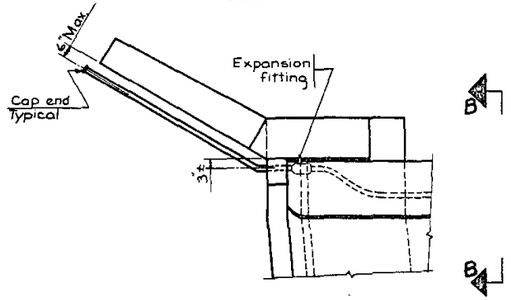
PLAN



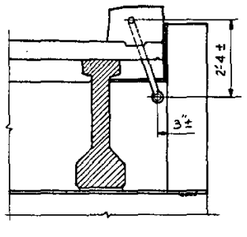
SECTION A-A



ELEVATION



PART PLAN
End post not shown



SECTION B-B

Note: Extend 2"ϕ conduit along abutment wing a sufficient amount to clear the shoulder line. End of conduit is 1'-6 below ground surface.

Designed for 5°03' Skew

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

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

LIGHTING DETAILS

Station: 671+83.3 on Interstate
Station: 1671+83.3 on local Road

Project N° I-IG-35-5(83)113

STORY COUNTY

Iowa State Highway Commission

November, 1964

Sheet 10 of 10

Design N° 863 — Story County — File N° 21735

Designed by: E.N. — Traced by M&V — Checked by