

011-0022

cover: dgm 02 DEC 1997

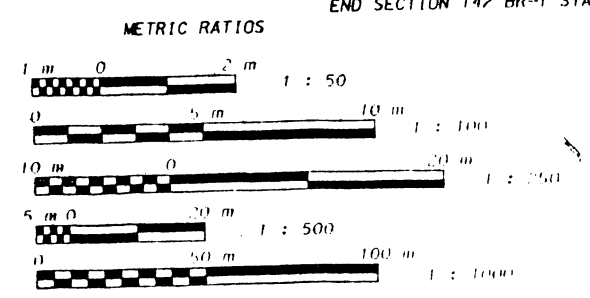
36X 98%
4-17-1999
INDEX OF SHEETS

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* SHEET 48 HAS BEEN DELETED

STANDARDS

- 000001-01
- 420401-01
- 515001
- 630001
- 631026
- 701001
- 701006-01
- 701011
- 701201
- 701301
- 701306
- 701311
- 701321-01
- 701326
- 702001
- 704001
- 780001
- 781001-01



FULL SIZE PLANS HAVE BEEN PREPARED USING STANDARD ENGINEERING SCALES. REDUCED SIZED PLANS WILL NOT CONFORM TO STANDARD SCALES. IN MAKING MEASUREMENT ON REDUCED PLANS, THE ABOVE SCALIS MAY BE USED.

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123

CONTRACT NO. 92926

CHRISTIAN COUNTY SECTION 142 (BR, BR-1, BR-2), 143 BR FAP 753

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
**PLANS FOR PROPOSED
FEDERAL AID HIGHWAY**

F.A.P. ROUTE 753 (IL 104)
SECTION 142 (BR, BR-1, BR-2) & 143 BR

PROJECT ACBHF-753(22)
CHRISTIAN COUNTY
C-96-520-98

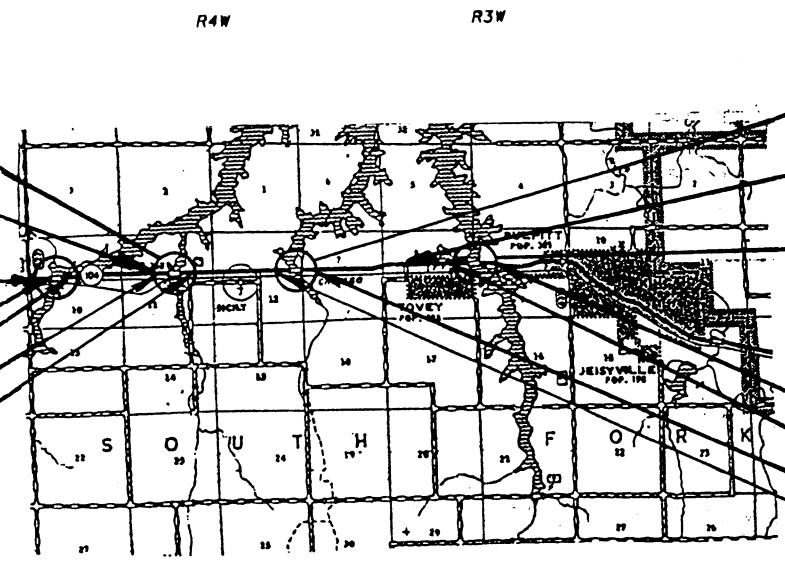
SECTION 142 BR-1 INCLUDES
REHABILITATION OF S.N. 011-0020
CARRYING FAP 753 (IL 104)
OVER LAKE SANGCHRIS

SECTION 142 BR-1 INCLUDES
REMOVAL OF EXISTING GUARDRAIL
LT. & RT. STA. 1+400

SECTION 142 BR INCLUDES
REHABILITATION OF S.N. 011-0019
CARRYING FAP 753 (IL 104)
OVER LAKE SANGCHRIS

BEGIN SECTION 142 BR STA. 0+390
END SECTION 142 BR STA. 0+520

BEGIN SECTION 142 BR-1 STA. 2+445
END SECTION 142 BR-1 STA. 2+575



LOCATION MAP
SCALE 1 : 63360

SECTION 142 BR-2 INCLUDES
REHABILITATION OF S.N. 011-0021
CARRYING FAP 753 (IL 104)
OVER LAKE SANGCHRIS

SECTION 143 BR INCLUDES
REMOVAL OF EXISTING GUARDRAIL
RT. STA. 7+185

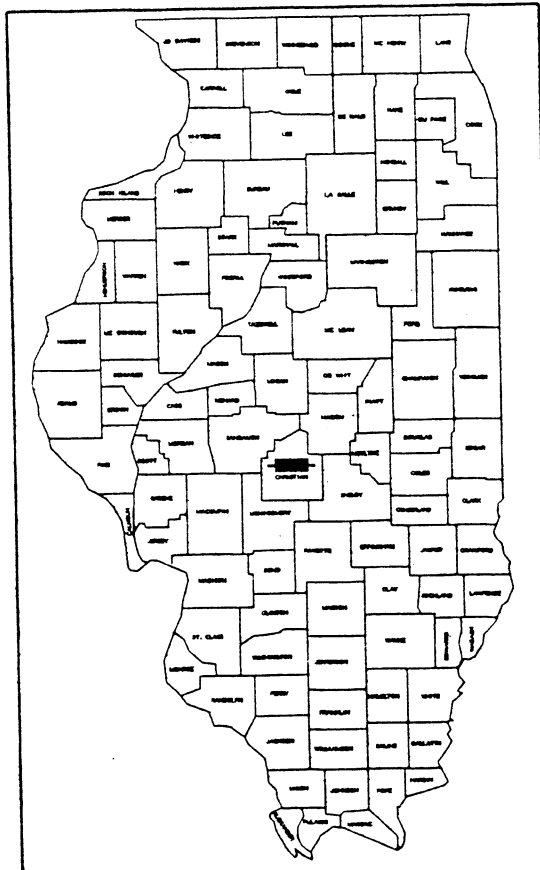
SECTION 143 BR INCLUDES
REHABILITATION OF S.N. 011-0022
CARRYING FAP 753 (IL 104)
OVER LAKE SANGCHRIS

END SECTION 143 BR STA. 7+987.628
BEGIN SECTION 143 BR STA. 7+888.988
END SECTION 142 BR-2 STA. 3+705
BEGIN SECTION 142 BR-2 STA. 3+583.125

GROSS LENGTH OF SECTION	7597.628 METERS	7.589 KILOMETERS
SECTION 142 BR	130.000 METERS	0.130 KILOMETERS
SECTION 142 BR-1	130.000 METERS	0.130 KILOMETERS
SECTION 142 BR-2	121.875 METERS	0.122 KILOMETERS
SECTION 143 BR	98.640 METERS	0.099 KILOMETERS
NET LENGTH OF SECTION	480.515 METERS	0.481 KILOMETERS

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.P. 753		CHRISTIAN	75	1
FED. ROAD DIST. NO.	ILLINOIS	FED. AID PROJECT	*ACBHF-753(22)	

D-96-514-96



LOCATION OF SECTION INDICATED THUS: -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED December 17, 1997
James L. Embury
DISTRICT ENGINEER

19

ENGINEER OF PROJECT
DEVELOPMENT AND IMPLEMENTATION
June 19, 1998
Bill Shumaker

ENGINEER OF DESIGN AND ENVIRONMENT
June 19, 1998
James P. Stutz
DIRECTOR, DIVISION OF HIGHWAYS

CURRENT A.D.T. = 3350 (1994)
PROJECTED A.D.T. = 4150 (2017)

PRINTED BY AUTHORITY OF THE STATE OF ILLINOIS

6-237

AAIC AAIC Incorporated
Architects / Engineers

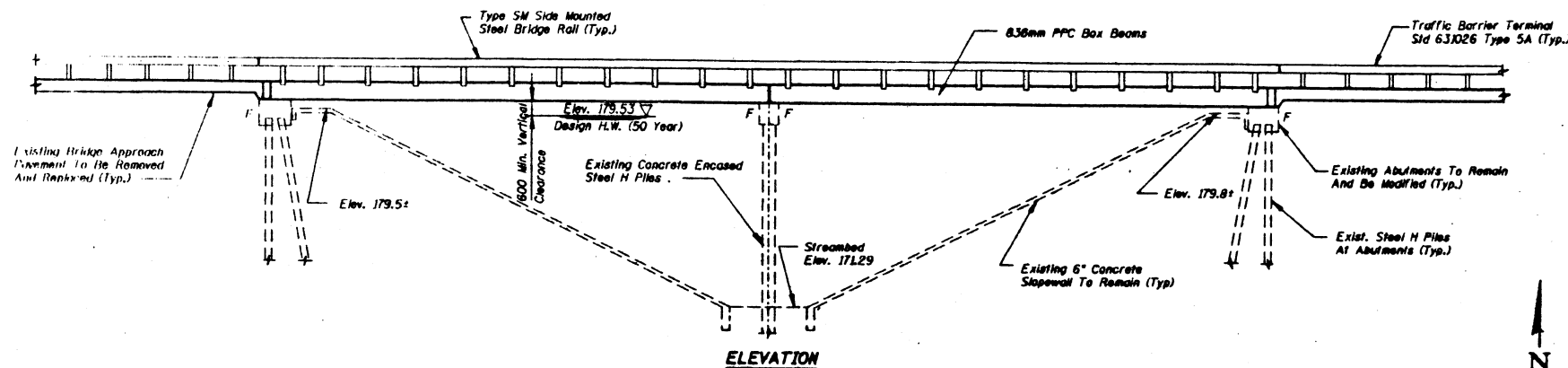
011-0022

ROUTE NO.	CITY	COUNTY	ZIP	SHEET NO.
F.A.P. 753	MSBR	CHRISTIAN	75	49
FED. ROAD DIST. NO. 1		SHEET NO. AND PROJECT-		

BENCHMARK

Spike in Power Pole Sta. 8+014.78, 10.668m Right, Elev. 181.265

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION



1996 A.A.S.N.T.O.

SEISMIC DATA

Seismic Performance Category (SPC)=A
Bedrock Acceleration Coefficient (A)= .066
Site Coefficient (S)= 1.5

LOADING MS 18

Allow 12 kN/m^2 for future wearing surface

DESIGN STRESSES

FIELD UNITS

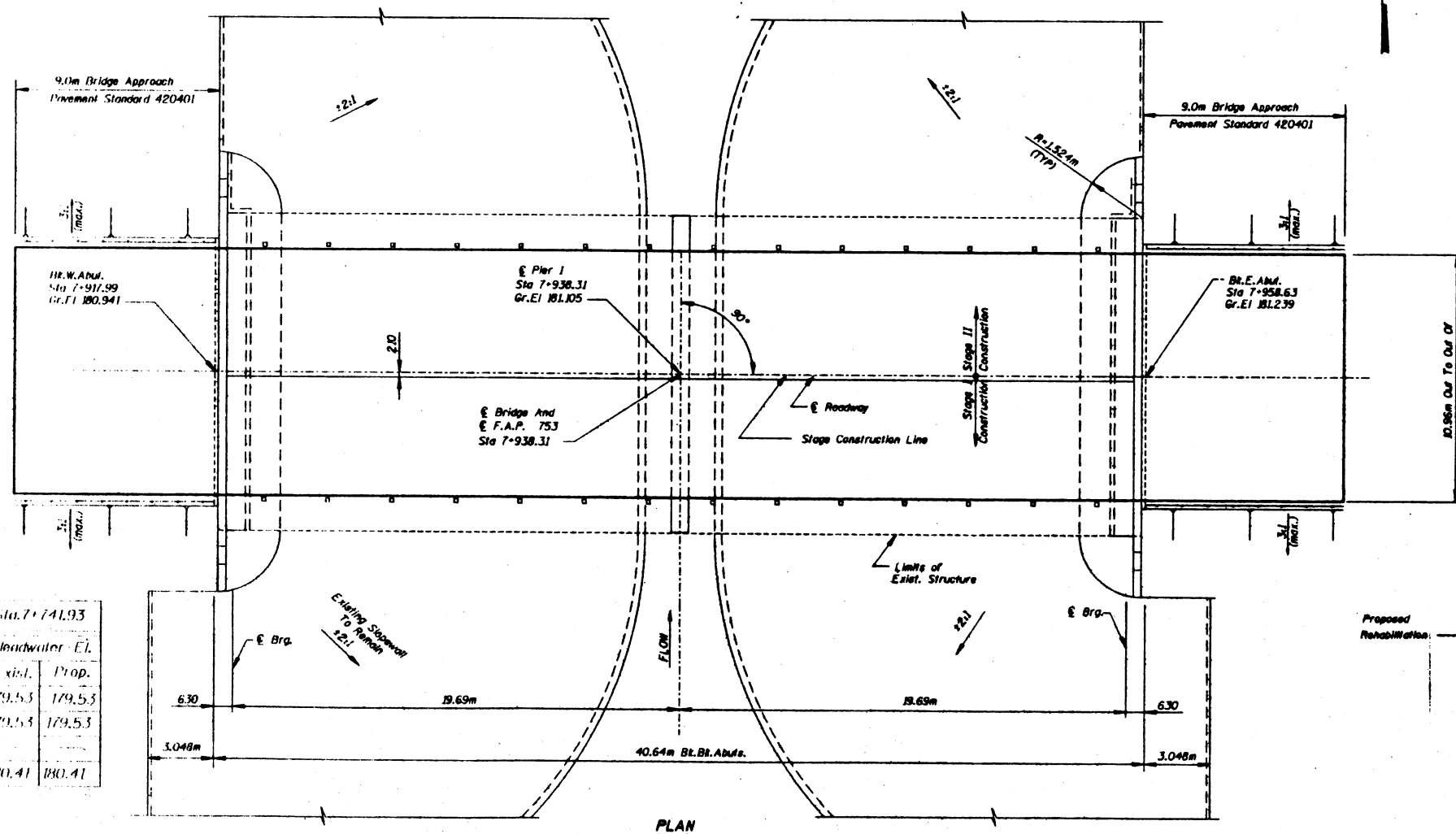
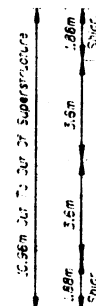
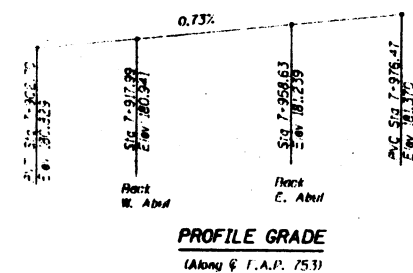
$f'_c = 24 \text{ MPa}$
 $f_y = 400 \text{ MPa}$ (Reinf.)

PRECAST PRESTRESSED UNITS

$f'_c = 35 \text{ MPa}$
 $f'_{ci} = 28 \text{ MPa}$
 $f'_s = 1860 \text{ MPa (12.7mm } \phi \text{ strands)}$
 $f'_{si} = 1302 \text{ MPa (12.7mm } \phi \text{ strands)}$
 Low relaxation

STATION 7-938.31
REBUILT TO — BY
STATE OF ILLINOIS
FAP 753 SECTION 1430R
PROJECT ACONE-753(22)
LOADING NSM
STR. NO. 011-0082

NAME PLATE
See 314.515001



WATERWAY INFORMATION

Drainage Area = 58.0 km²

Low Grade E-L-180,65

• 56.7 + 74.93

Flow	Freq. Yr.	Q m ³ /s	Opening m ²		Nat. H.W.F.	Head m		Headwater E.L.	
			Exist.	Prop.		Exist.	Prop.	Exist.	Prop.
Design	50	66.8	135.4	137.3	179.53	0	0	179.53	179.53
Base	100	76.7	147.4	147.4	179.8	0.03	0.03	179.53	179.53
Overlapping	—	—	—	—	—	—	—	—	—
Max. Calc.	500	100.5	151.5	151.5	180.38	0.03	0.03	180.41	180.41

DESIGNED	RAB
CHECKED	WCU
DRAWN	SY
CHECKED	RAB

*Existing name plate shall be cleaned and placed next to new name plate.
Cost included with name plates.

APPROVED
FOR STRUCTURAL ADEQUACY ONLY

Ralph E. Anderson
ENGINEER OF BRIDGES AND STRUCTURES



ILLINOIS LICENSED STRUCTURAL
ENGINEER NO. 081-004669
EXPIRES: 11-30-98

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Architects / Engineers

GENERAL PLAN & ELEVATION
ILLINOIS ROUTE 104 OVER
LAKE SANGCHRIS
F.A.P. 753 SECTION 143BR
STA. 7+938.31
CHRISTIAN COUNTY, ILLINOIS
STRUCTURE NO. 011-0022

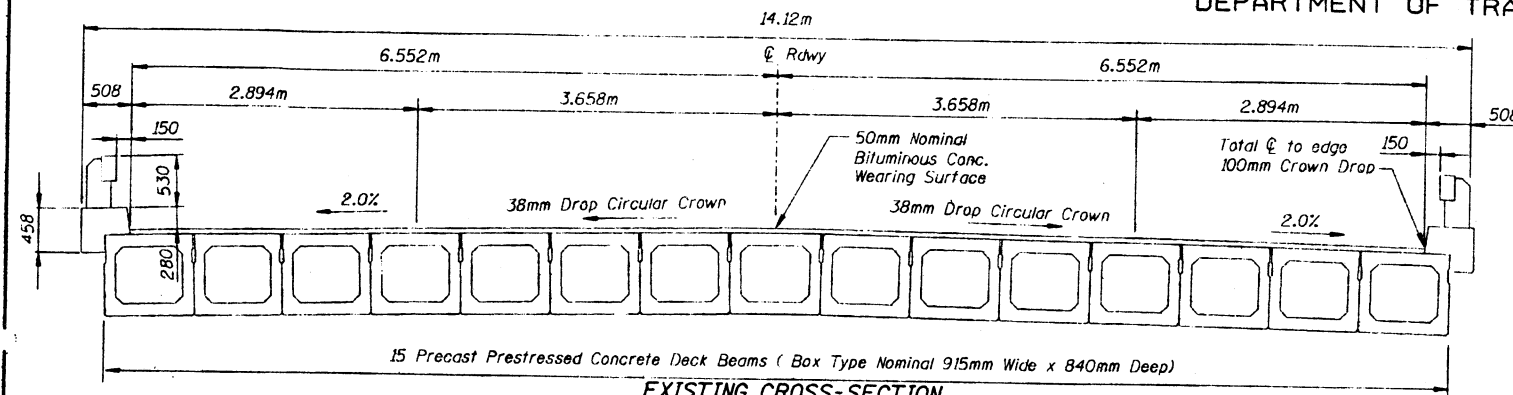
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEET	SHEET
F.A.P. 753	143BR	CHRISTIAN	75	50
ILLINOIS FED. AID PROJECT				

SHEET NO. 2
9 SHEETS

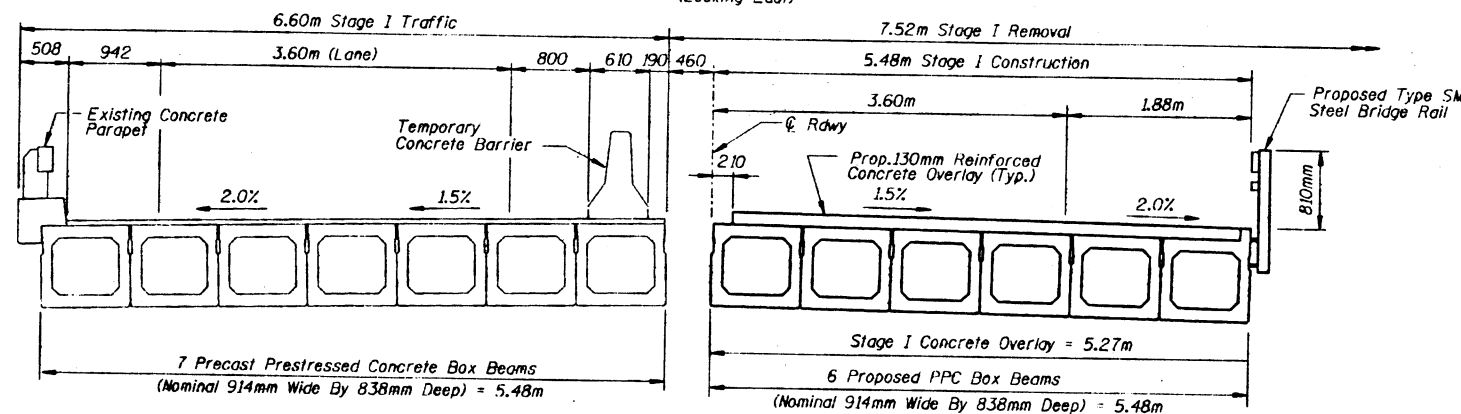
GENERAL NOTES

- Plan dimension and details relative to existing structure have been taken from existing plans and are subject to nominal construction variations. It shall be the Contractor's responsibility to verify such dimensions and details in the field and make necessary approved adjustments prior to construction or ordering of materials. Such variations shall not be cause for additional compensation for a change in the scope of the work, however, the Contractor will be paid for the quantity actually furnished at the unit price bid for the work.
- A Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.
- All dimensions are in millimeters (mm) except as noted.
- Reinforcement bars shall conform to the requirements of AASHTO M-31M, M-42M OR M-53M GRADE 400.
- Existing dowel rods shall be burned off flush with bearing seat. Cost included with removal of existing superstructure.
- For Bonded Construction Joints, see Special Provisions.



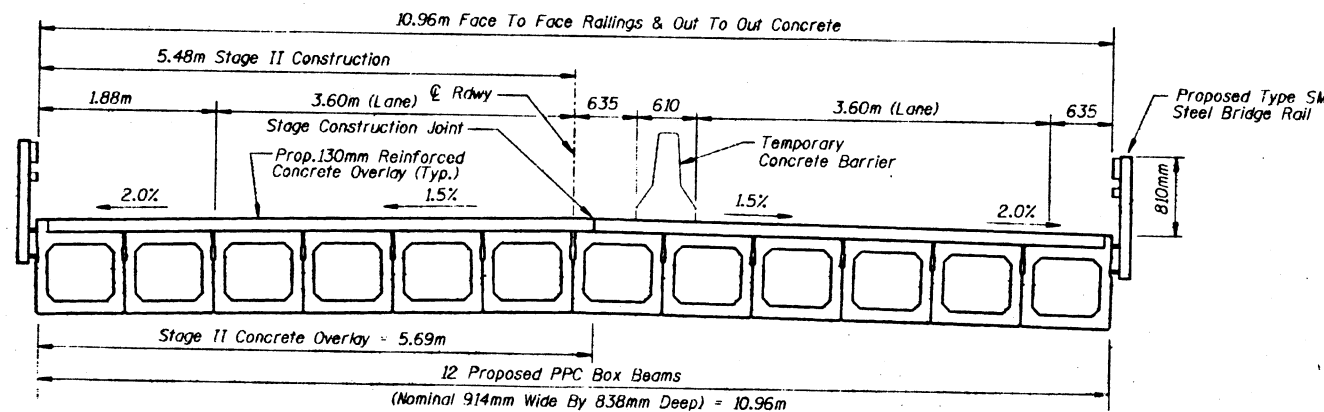
EXISTING CROSS-SECTION

(Looking East)



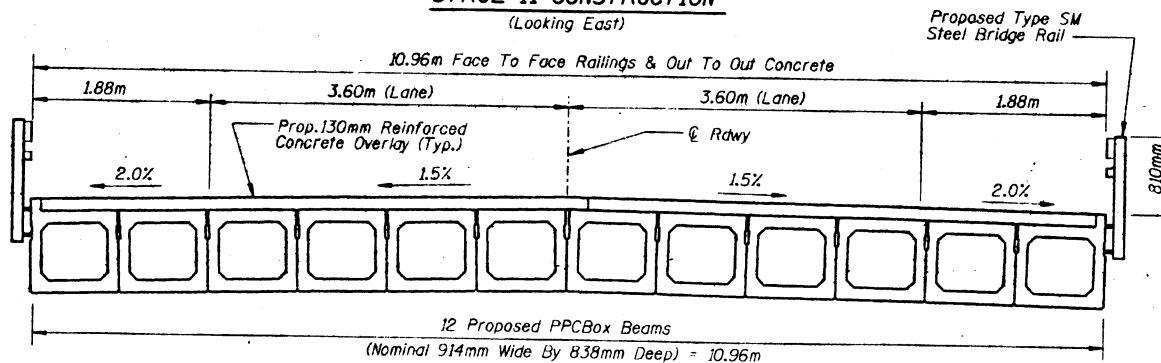
STAGE I CONSTRUCTION

(Looking East)



STAGE II CONSTRUCTION

(Looking East)



FINAL CROSS-SECTION

(Looking East)

TOTAL BILL OF MATERIAL

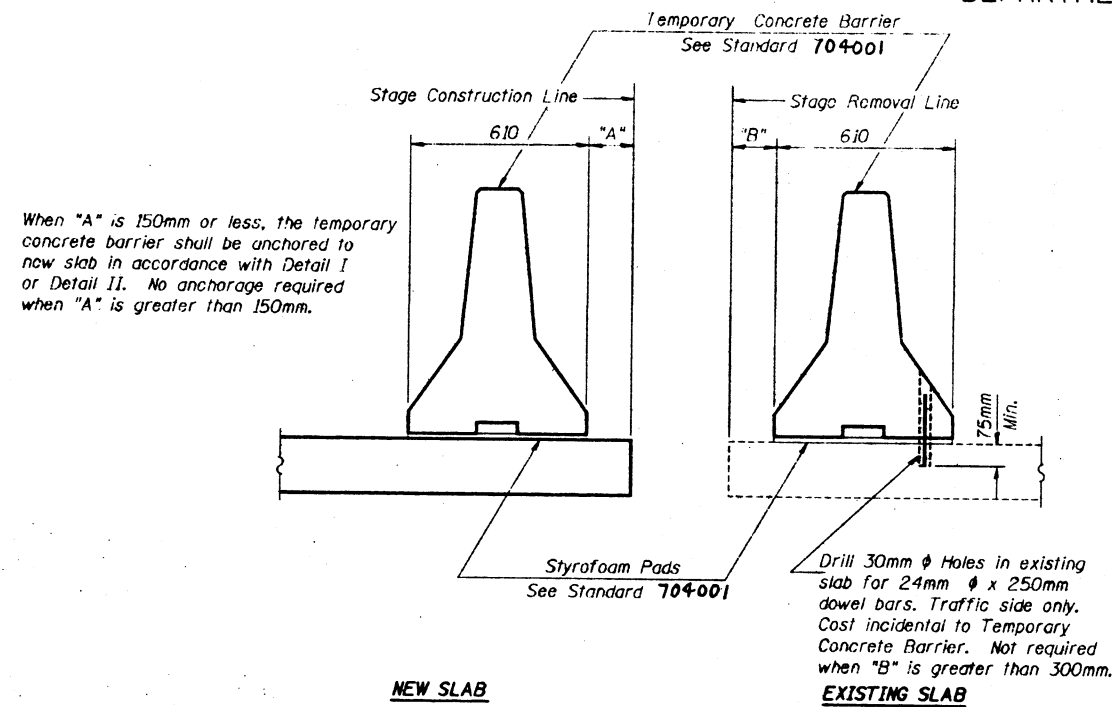
ITEM NAME	UNIT	SUPER	SUB	TOTAL
Removal of Existing Superstructures	Each	1		1
Concrete Removal	m³		11.2	11.2
Bridge Deck Grooving	m²	411.4		411.4
Concrete Superstructure	m³	11.2		11.2
Concrete Wearing Surface	m²	415.8		415.8
Precast Prestressed Concrete Deck Beams (838mm)	m³	435.5		435.5
Reinforcement Bars (Epoxy Coated)	KG	5140		5140
Steel Bridge Rail, Type SM	Meter	81.28		81.28
Name plates	Each	1		1

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Architects / Engineers

STAGE CONSTRUCTION DETAILS, GENERAL
NOTES, TOTAL BILL OF MATERIAL
ILLINOIS ROUTE 104 OVER
LAKE SANGCHRIS
F.A.P. 753 SECTION 143BR
STA. 7+938.31
CHRISTIAN COUNTY
STRUCTURE NO. 011-0022

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

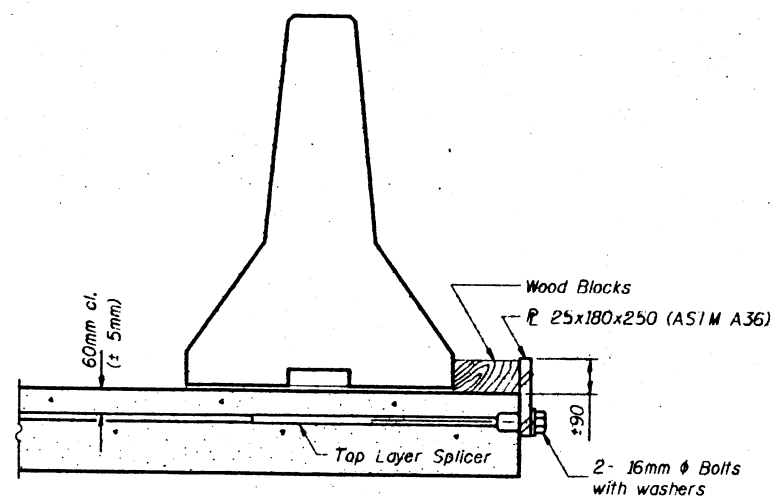
ROUTE NO.	SECTION	COUNTY	SHEET	SHEET NO.
753	143BR	CHRISTIAN	75	51
9 SHEETS				



SECTIONS THRU SLAB

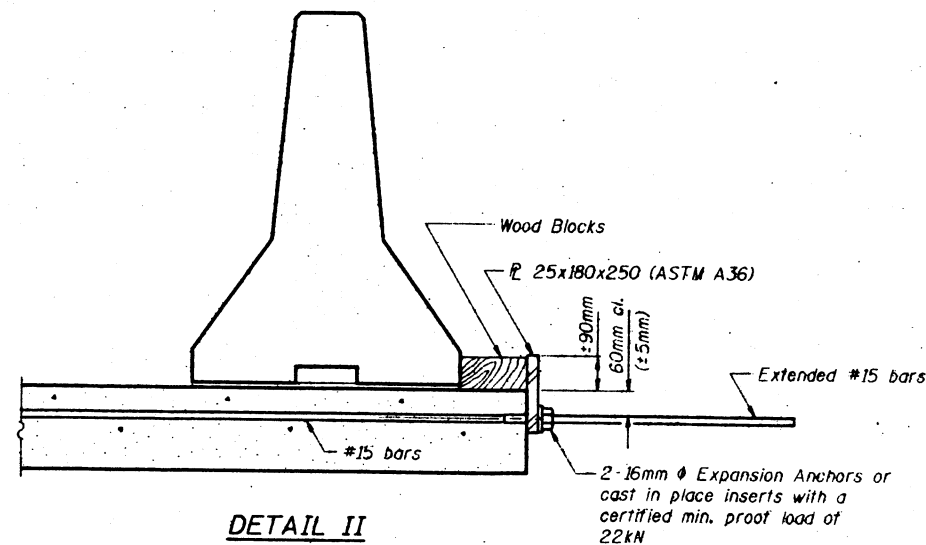
NOTES

- Detail I - With Bar Splicer or Couplers:
Connect one (1) 25x180x250 steel $\bar{P}$ to the top layer of couplers with 2-16mm ϕ bolts screwed to coupler at approximate $\bar{C}$ of each 3m barrier panel.
- Detail II With Extended Reinforcement Bars:
Connect one (1) 25x180x250 steel $\bar{P}$ to the concrete slab with 2-16mm ϕ Expansion Anchors or cast in place inserts spaced between the top layer of reinforcement at approximate $\bar{C}$ of each 3m barrier panel.
- Cost of anchorage is incidental to Temporary Concrete Barrier.
For pay item "Temporary Concrete Barrier, See Roadway Plans.



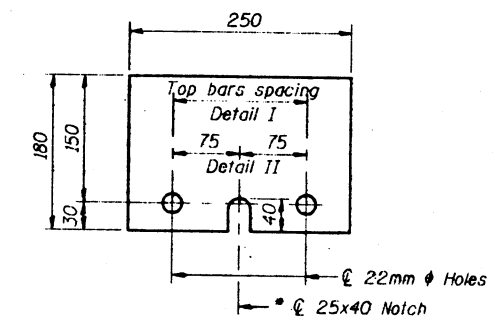
DETAIL I

The 25x180x250 Plate shall not be removed until Stage II Construction forms and reinforcement bars are in place.



DETAIL II

The 25x180x250 Plate shall not be removed until Stage II Construction forms and all reinforcement bars are in place and the concrete is ready to be placed.



$\bar{P}$ 25x180x250

* Required only with Detail II

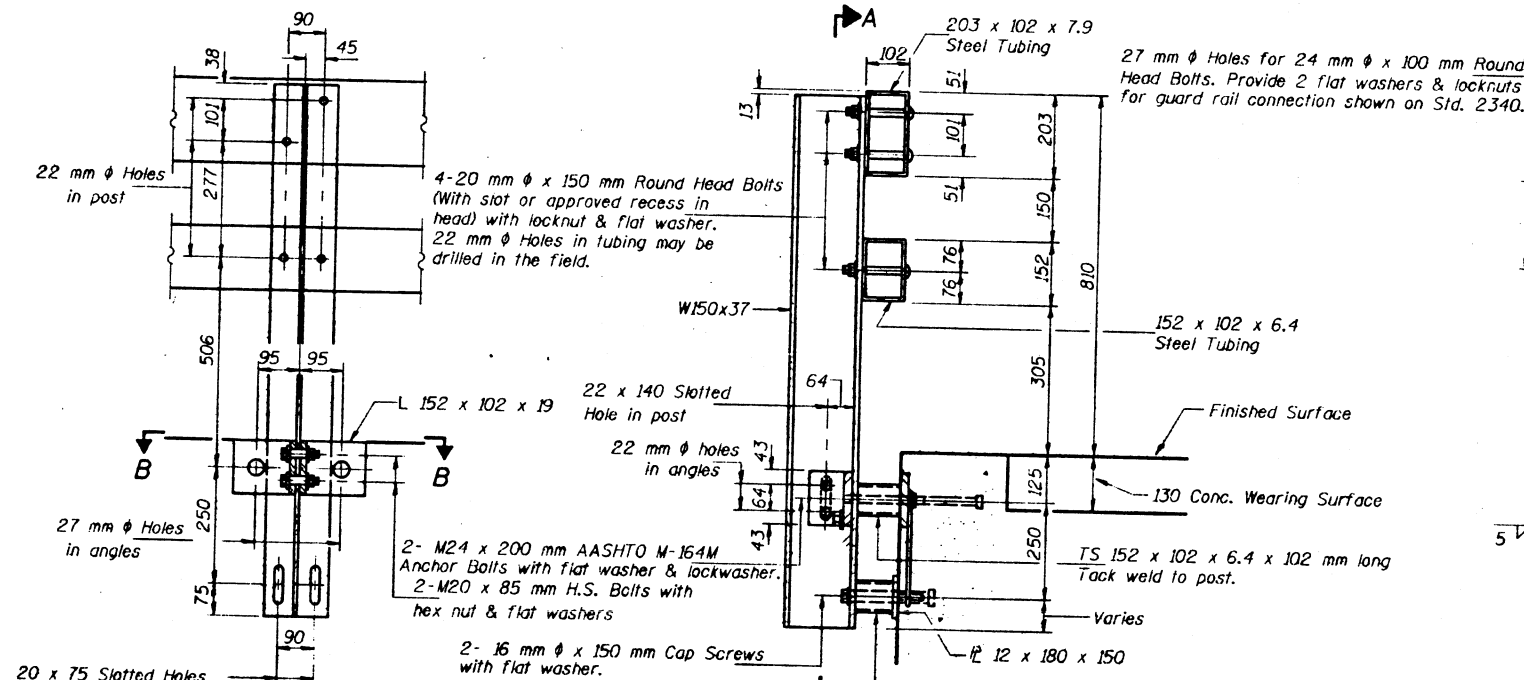
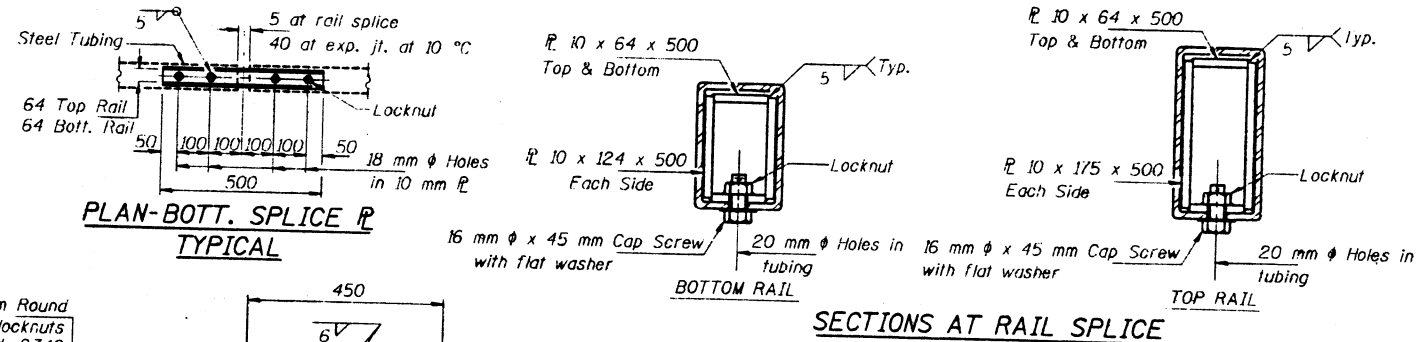
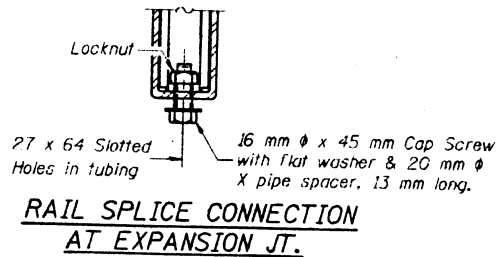
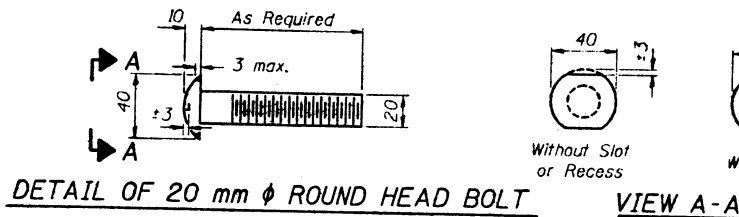
R-27M

TEMPORARY CONCRETE BARRIER
ILLINOIS ROUTE 104 OVER
SANGCHRIS LAKE
F.A.P. 753 SECTION 143BR
STA. 7+938.31
CHRISTIAN COUNTY, ILLINOIS
STRUCTURE NO. 011-0022

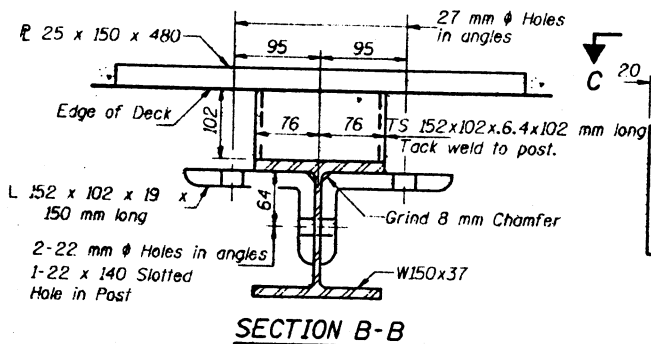
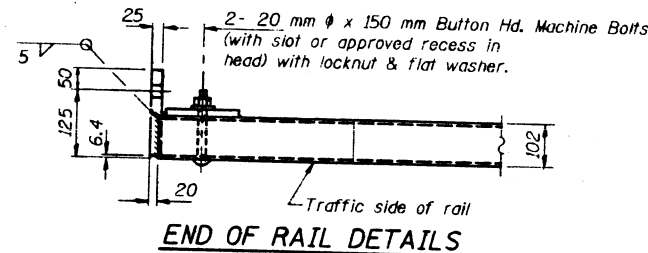
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROJECT NO.	SHEET NO.	DATE	BY	CHECKED	APPROVED
F.A.P. 753	143BR	CHRISTIAN	75	52	
PER. AND DES. NO. 1	ALPHABET	PER. AND PROJECT			

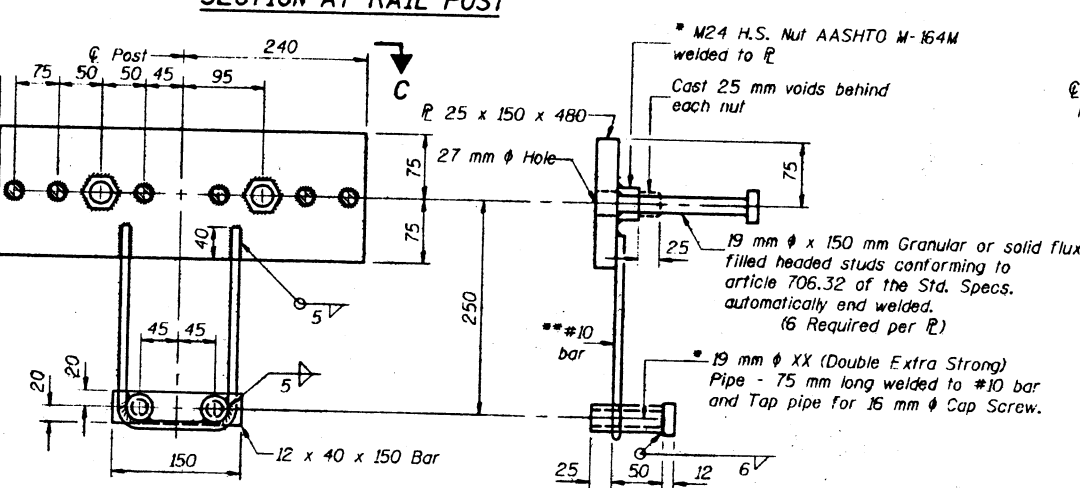
SHEET NO. 4
9 SHEETS



SECTION AT RAIL POST



SECTION B-B



ANCHOR DEVICE

* Threaded areas shall be plugged or blocked off during casting of beam. Galvanized after fabrication.
** Whenever the lower insert assemblies interfere with strand locations, the #10 bars shall be cut and adjusted in order to allow raising or lowering of the lower inserts. Maximum adjustment not to exceed 12 mm.

NOTES

Hollow structural steel tubing shall conform to the requirements of ASTM designation A-500 Grade B Structural Steel Tubing and shall meet the longitudinal CVN requirements of 20 N-m at -18 °C.

All other steel shapes and plates shall conform to the requirements of AASHTO M-270 Grade 250 except posts and angles shall conform to AASHTO M-270, Grade 345.

Bolts, cap screws, and nuts shall conform to the requirements of ASTM designation A-307 except for high strength bolts, nuts and washers noted which shall conform to AASHTO M-164M.

All bolts, nuts, cap screws, washers and lock washers shall be galvanized in accordance with AASHTO M-232.

All posts, railing, rail splices, anchor devices and angles shall be galvanized after shop fabrication in accordance with AASHTO M-111 and ASTM A-385. Galvanized rail shall not be painted.

Railing shall be in accordance with Section 509 of the Standard Specifications, except as noted, and will be paid for at the contract unit price per meter for STEEL BRIDGE RAIL, TYPE SM.

All field drilled holes shall be coated with an approved zinc rich paint before erection.

For multi-span PPC Deck bridges, sufficient 6 x 150 x 360 galvanized steel shims shall be provided to align rail between adjacent spans. Cost incidental to STEEL BRIDGE RAIL, TYPE SM.

Bolts located at expansion joint shall be provided with locknuts and shall be tightened only to a point that will allow railing movement.

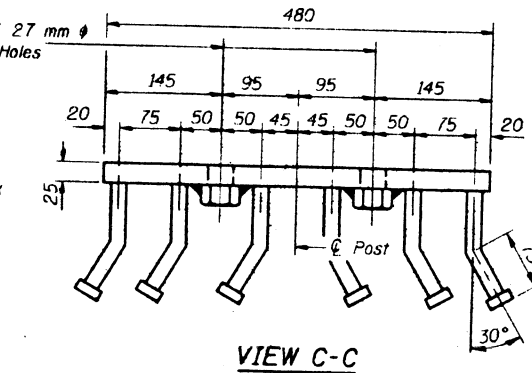
The M20 high strength bolts used to connect the 152 x 102 x 19 angles to the post shall be tightened in accordance with Article 505.04(f)(3) of the Standard Specifications. The M24 high strength bolts connecting the angles to the concrete shall be tightened to a snug fit and given an additional 1/8 turn. The 16 mm Ø cap screws in bottom of posts shall be tightened to a snug fit only.

All dimensions are in millimeters (mm) except as noted.

BILL OF MATERIAL

Item	Unit	Quantity
Steel Bridge Rail, Type SM	m	56.6

**TYPE SM
STEEL BRIDGE RAIL SIDE MOUNTED**



VIEW C-C

TYPE SM STEEL RAILING
ILLINOIS ROUTE 104 OVER
LAKE SANGCHRIS
F.A.P. 753 SECTION 143BR
STA. 7+938.31
CHRISTIAN COUNTY, ILLINOIS
STRUCTURE NO. 011-0022

R-34M

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
R. 1				
P. A. = 753	143BR	CHRISTIAN	75	53
FED. ROAD DIST. NO. 7		ALABAMA	FED. RD. PROJECT-	

SHEETS

Bar	No.	Size	Length (m)	Shape
a(E)	131	#15	5.48	_____
a ₁ (E)	131	#15	5.21	_____
b(E)	102	#15	13.69	_____
Concrete Wearing Surface			m ²	416
Reinforcement Bars (Epoxy Coated)			Kg	4391

NOTES:

Technical drawing of a bridge deck cross-section, showing construction stages, reinforcement, and dimensions.

Dimensions:

- Overall width: 39.65m (131-#15 a(E) @ 305mm)
- Span 1: 19.86m end to end deck beam span 1
- Span 2: 19.86m end to end deck beam span 2
- Stage I Construction: 5.48m
- Stage II Construction: 5.48m
- Deck thickness: 250mm
- Reinforcement spacing: 305mm
- Reinforcement diameter: #15
- Reinforcement quantity: 131-#15 a(E) @ 305mm
- Reinforcement quantity: 34x3-#15 b(E) @ 305mm
- Reinforcement quantity: 131-#15 p (E) @ 305mm
- Reinforcement quantity: 131-#15 a(E) @ 305mm = 39.65m
- Reinforcement quantity: 131-#15 p (E) @ 305mm

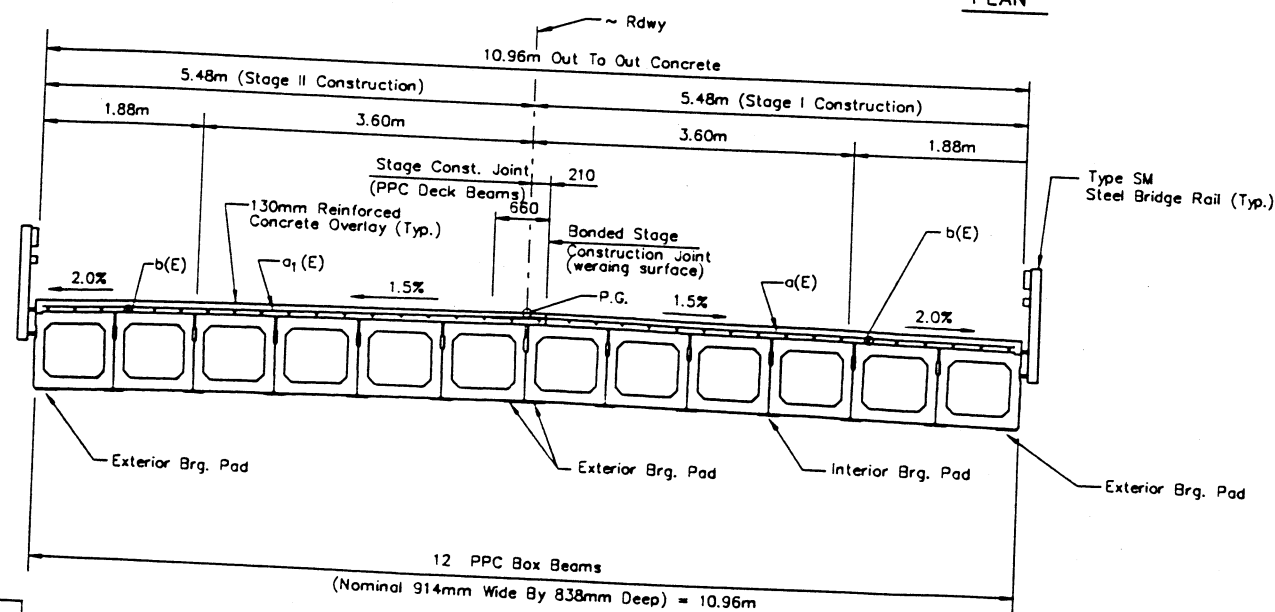
Construction Details:

- Bk. W. Abut. Sta 7+917.99 Gr.El 180.941
- Bk. W. Abut. Sta 7+958.63 Gr.El 181.239
- ~ Pier #1 Sta 7+938.31
- ~ Roadway
- Bonded Stage Construction Joint (Wearing Surface) (Do Not Edge)

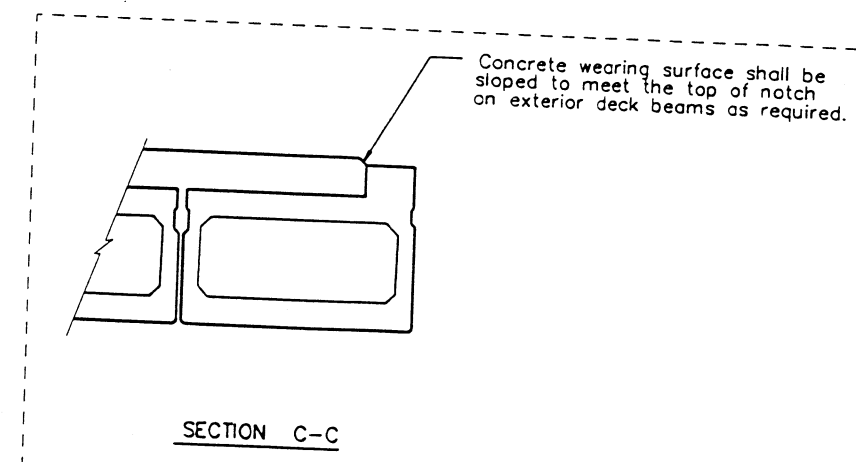
Labels:

- A
- B
- C

PLAN



CROSS SECTION
(Looking East)



SECTION C-C

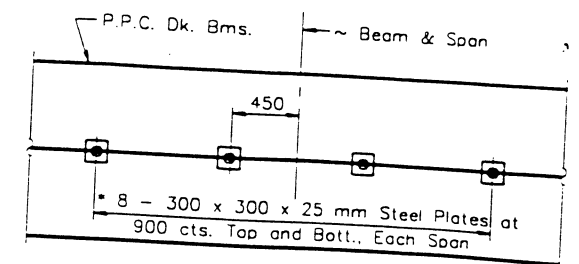
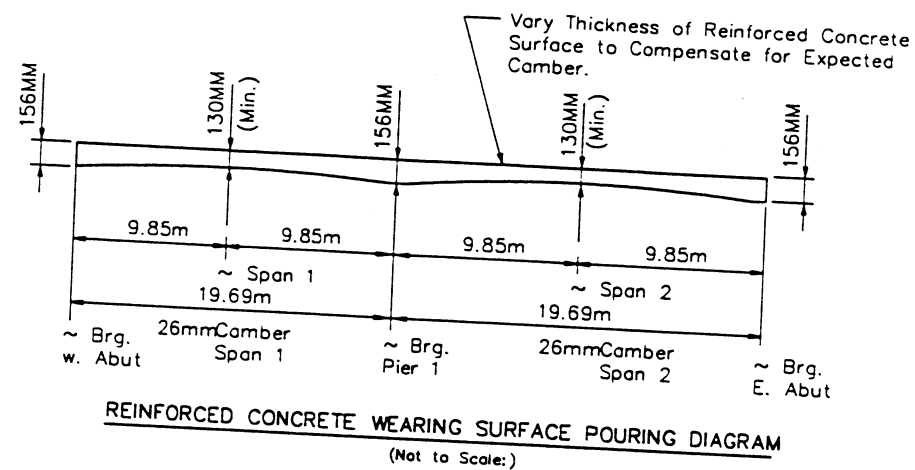
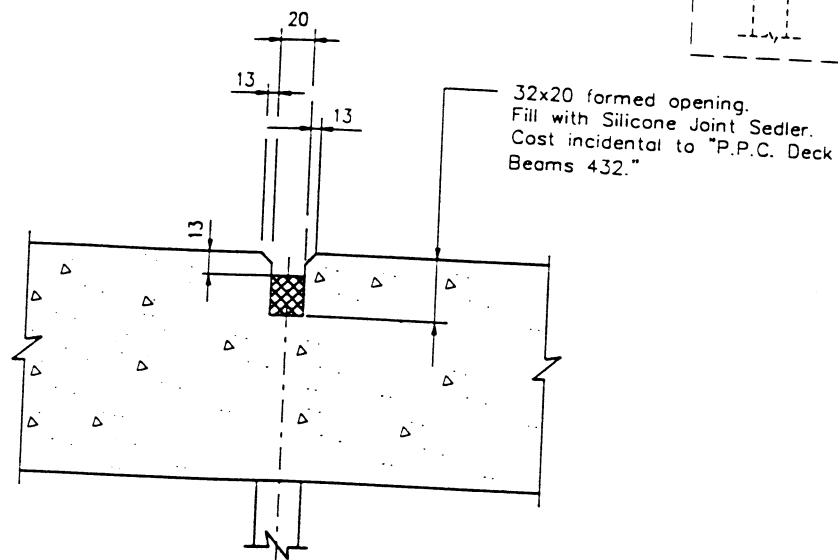
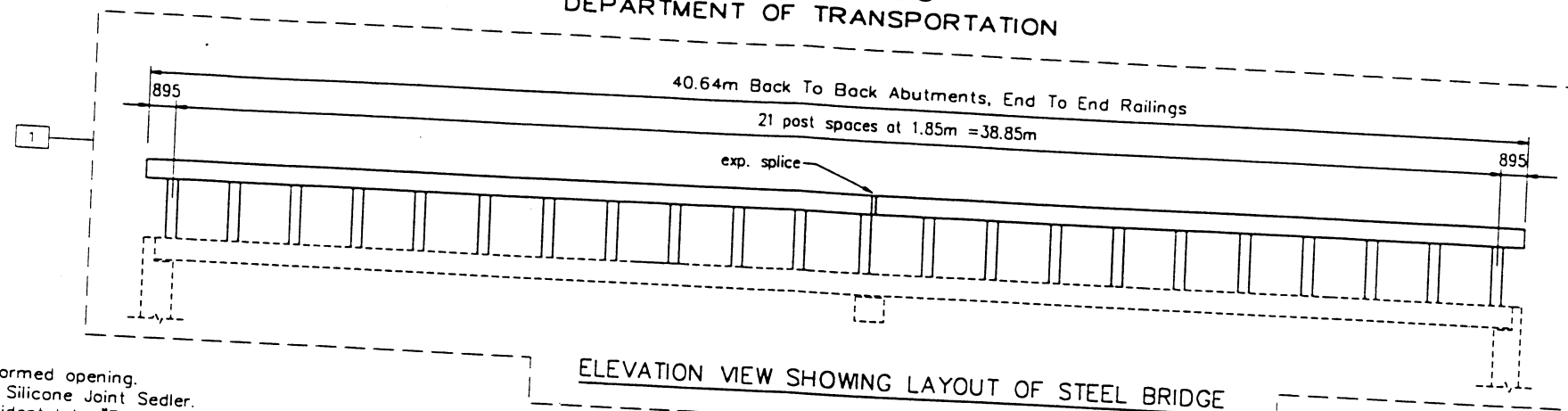
Concrete wearing surface shall be sloped to meet the top of notch on exterior deck beams as required.

SUPERSTRUCTURE
ILLINOIS ROUTE 104 OVER
LAKE SANGCHRIS
F.A.P. 753 SECTION 143BR
STA. 7+938.31
CHRISTIAN COUNTY, ILLINOIS
STRUCTURE NO. 011-0022

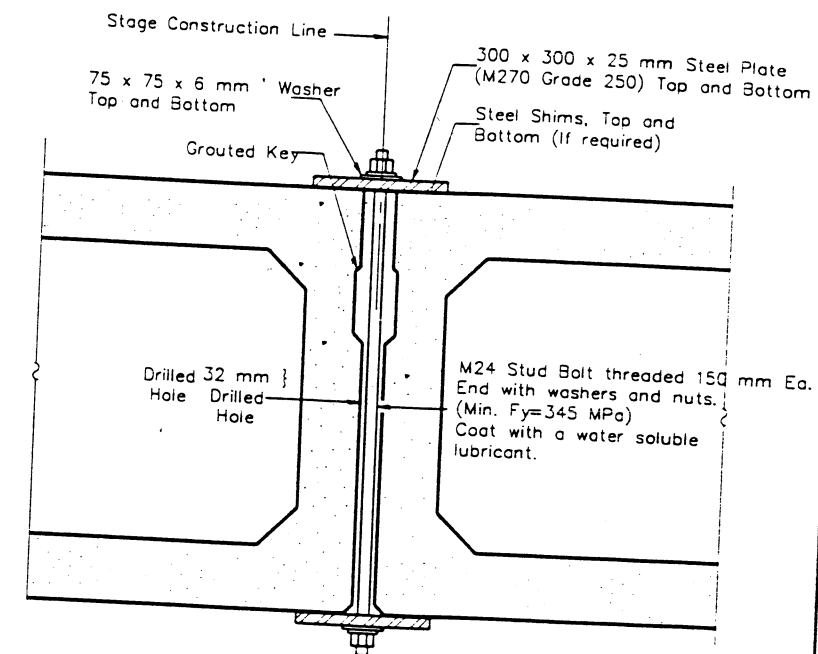
DESIGNED	R.A.B.
CHECKED	W.C.U.
DRAWN	S.Y.
CHECKED	R.A.B.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	DESIGNER	DATE	SHEET NO.
F.A.P. 753	143BR	CHRISTIAN	75	54
9 SHEETS				

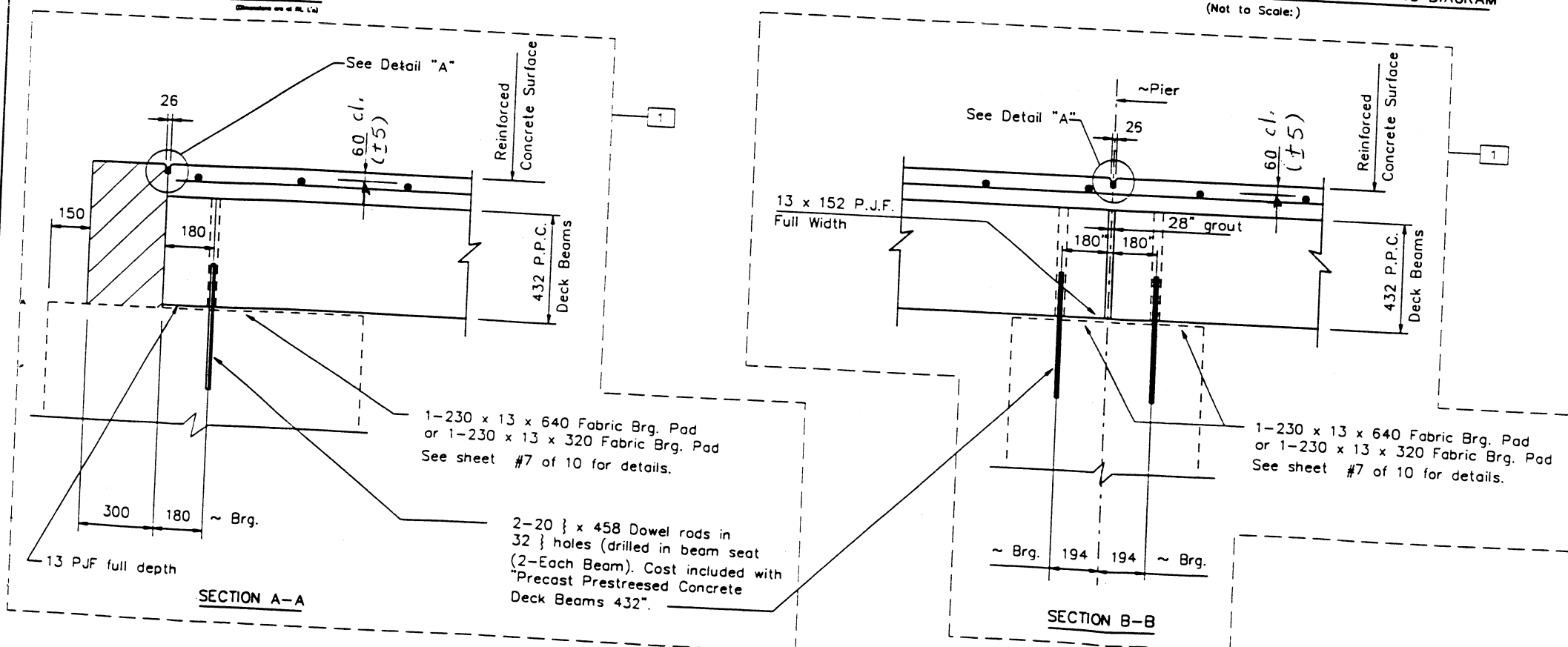
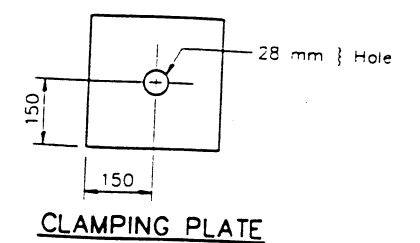


• Space plates to miss Temporary Bridge Rail Posts.



**SHEAR KEY CLAMPING DETAILS
AT STAGE CONST. JT.**

See Special Provisions, for Stage Construction
Precast Prestressed Concrete Deck Beams.
Cost included with Precast
Prestressed Concrete Deck Beams.
See Stage Construction Detail for traffic lane.

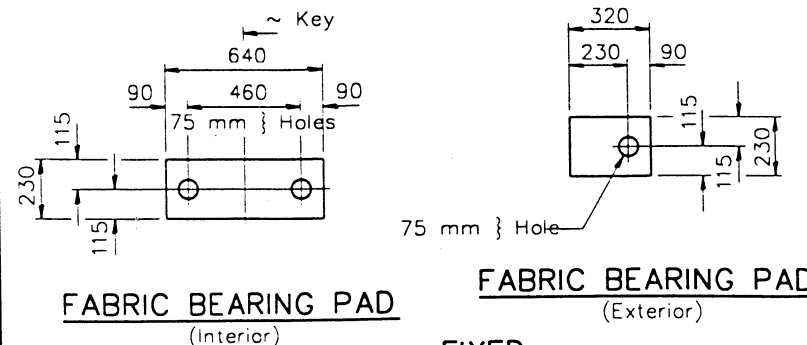


Dowel Rods shall be grouted after beams are in place and allowed
to cure (minimum 24 hours) prior to grouting the shear keys.

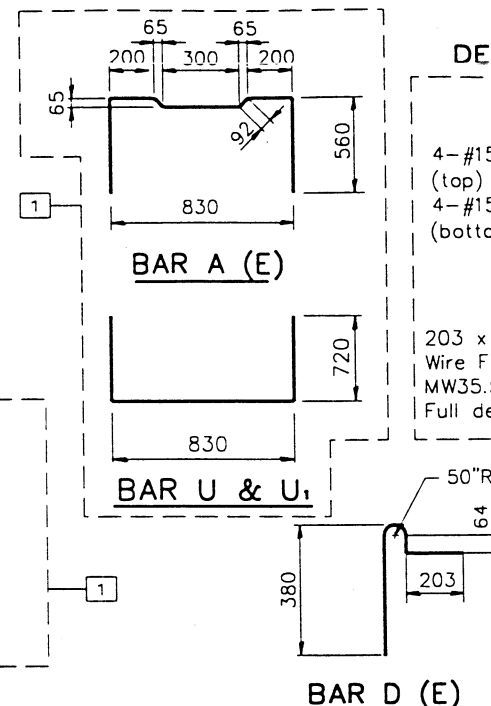
SUPERSTRUCTURE DETAILS
ILLINOIS ROUTE 104 OVER
LAKE SANGCHRIS
F.A.P. 753 SECTION 143BR
STA. 7+938.308
CHRISTIAN COUNTY, ILLINOIS
STRUCTURE NO. 011-0022

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	POST MILES	SHEET NO.
753	143BR	CHRISTIAN	75	55
SHEET NO. 7				
9 SHEETS				



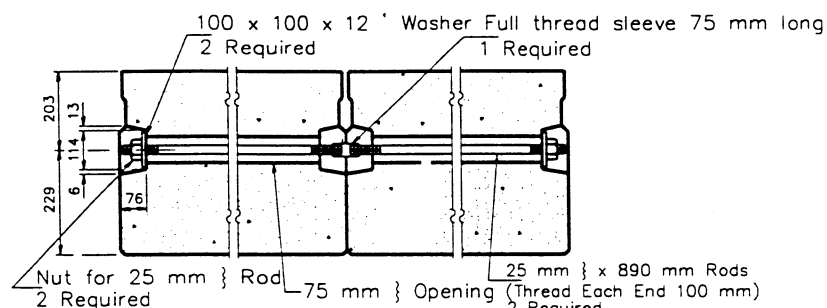
FIXED



4-#15 A₁ @ 280 cts (top)
4-#15 U₁ @ 280 cts (bottom)

203 x 76-MW16.0 x MW35.5
Wire Fabric
MW35.5 vertical
Full depth of beam

END OF BEAM DETAIL



BILL OF MATERIAL

(Per Beam)

Bar	No.	Size	Length (m)	Shape
B	2	#15	19.78	
B ₁	8	#15	3.96	
B ₂	2	#15	19.78	
A(E)	8	#10	.810	
A ₁ (E)	59	#15	2.00	
D ₁ (E)	33	#15	.762	
U ₁	8	#15	2.27	
U	51	#10	2.27	
Precast Prestressed Conc. Deck Bms.			m ²	18.15

Reinforcement bars designated (E) shall be epoxy coated.

* Exterior Beams only.

NOTES

Prestressing steel shall be uncoated high strength, stress-relieved 7-wire strand ($F_u=1860$ MPa). The nominal diameter shall be 12.7 mm and the nominal cross-sectional area shall be 98.71 mm². Lifting loops shall be 2 - 12.7 mm strands ($F_u=1860$ MPa) as shown.

The 25 mm rods in the transverse tie assembly shall be tightened to a snug fit and the threads set. Pockets that receive transverse tie bar on outside shall be filled with grout after transverse tie assembly is in place.

Reinforcement bars shall conform to the requirements of AASHTO M-31M, M-42M or M-53M Grade 400.

The bearing seat surfaces shall be adjusted by shimming to assure firm and even bearing. Two 3 mm fabric adjusting shims of the dimensions of the Exterior Bearing Pad shall be provided for each bearing.

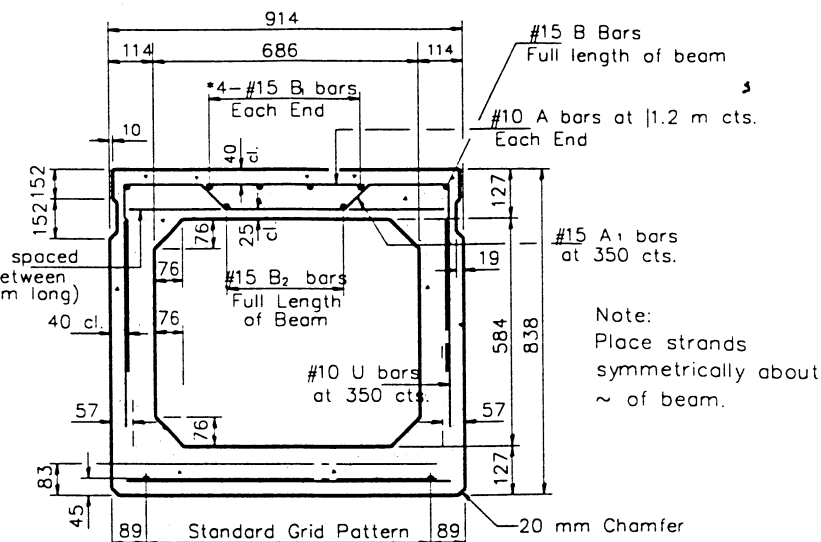
Keyway surfaces shall be cleaned to remove form oil or other bond breaking material prior to shipment of the beams. Cleaning shall be done by sandblasting the keyway areas between top of the beam and the bottom edge of the key.

A Calcium Nitrite Corrosion Inhibitor, as covered in the Special Provisions, shall be used in the concrete for precast prestressed concrete deck beams.

Required Release Strength, f'_{ci} , shall be 28 MPa.

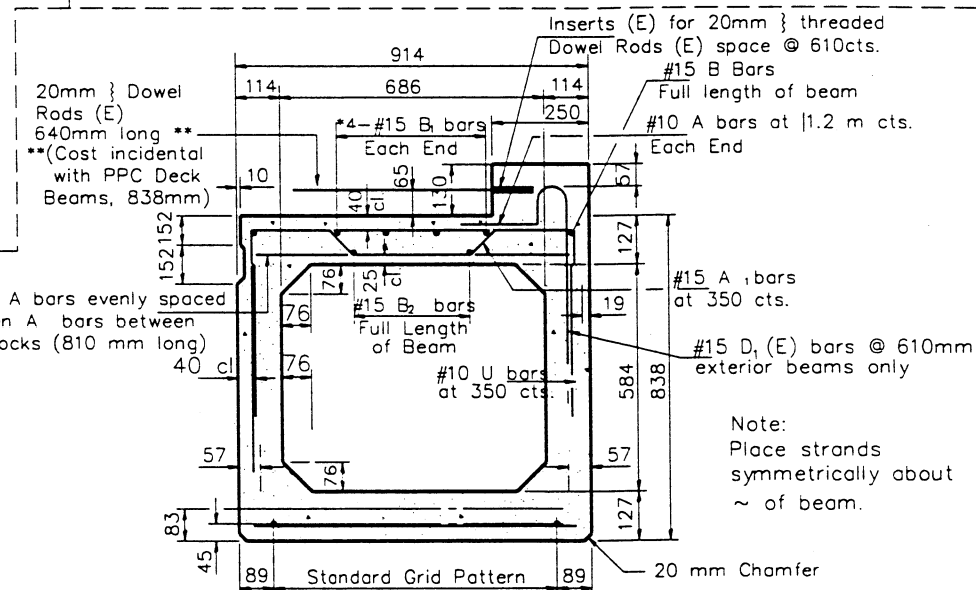
An equal substitution of the low-relaxation strands for the stress-relieved strands will be permitted.

All dimensions are in millimeters (mm) except as noted.



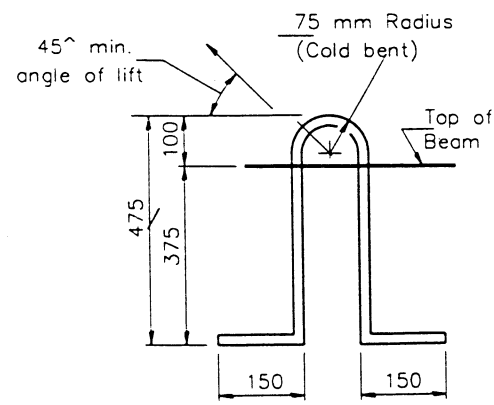
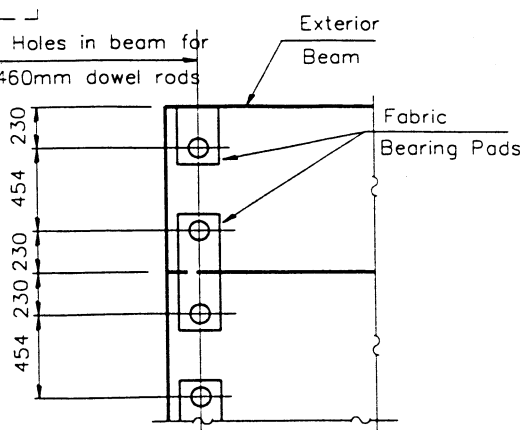
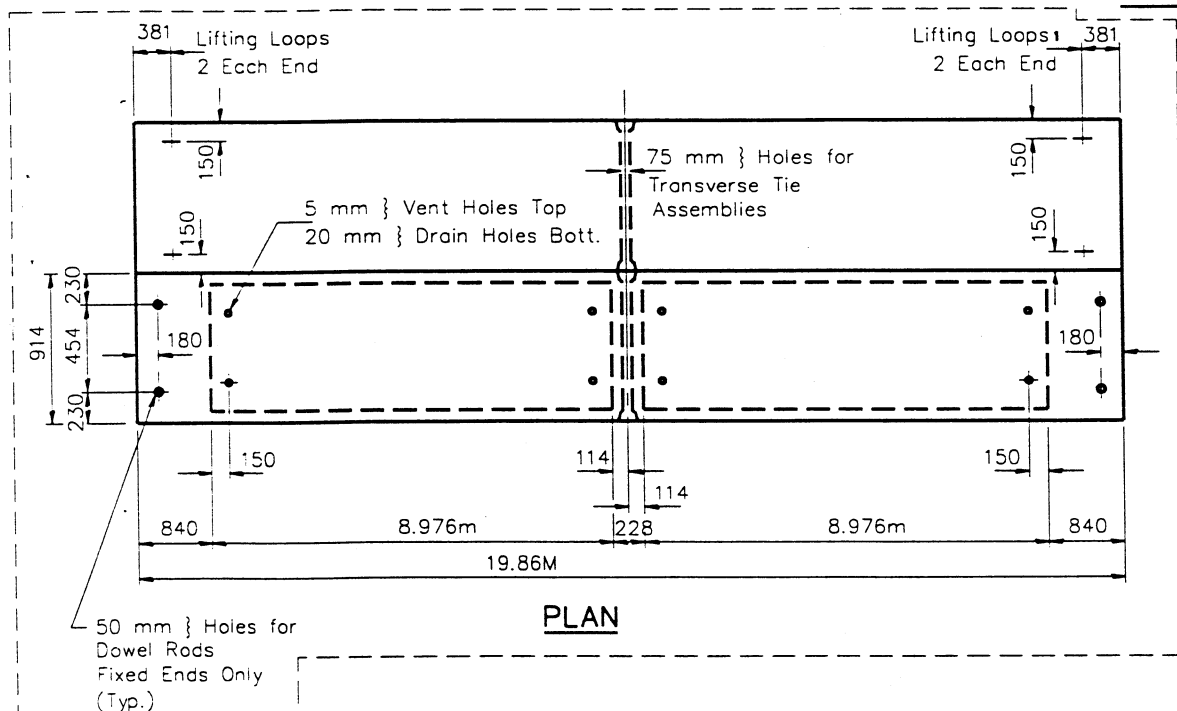
SECTION THRU INTERIOR BEAM

14-12.7 mm Strands Each Strand Stressed to 128,500 N.
8-Strands 45 mm up, 6-Strands 83 mm up



SECTION THRU EXTERIOR BEAM

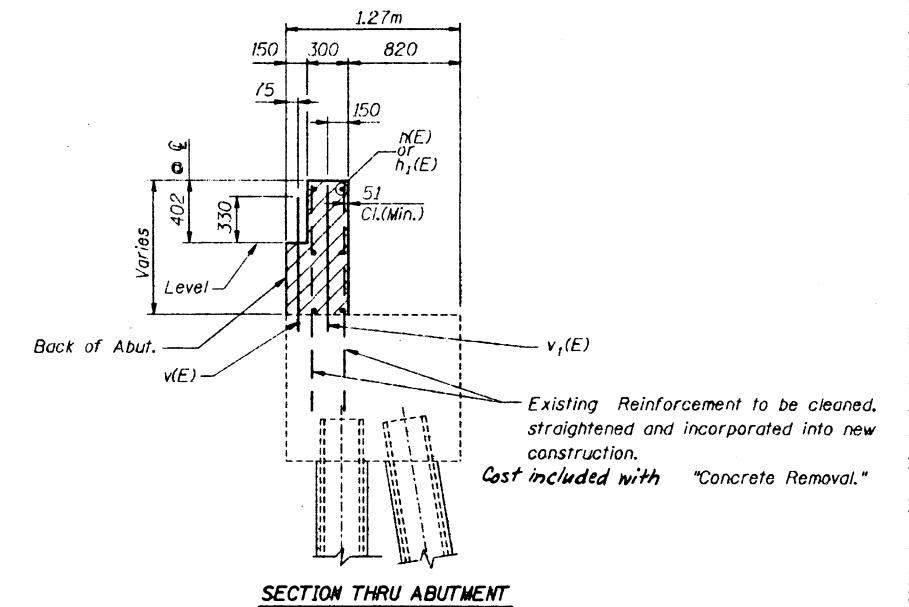
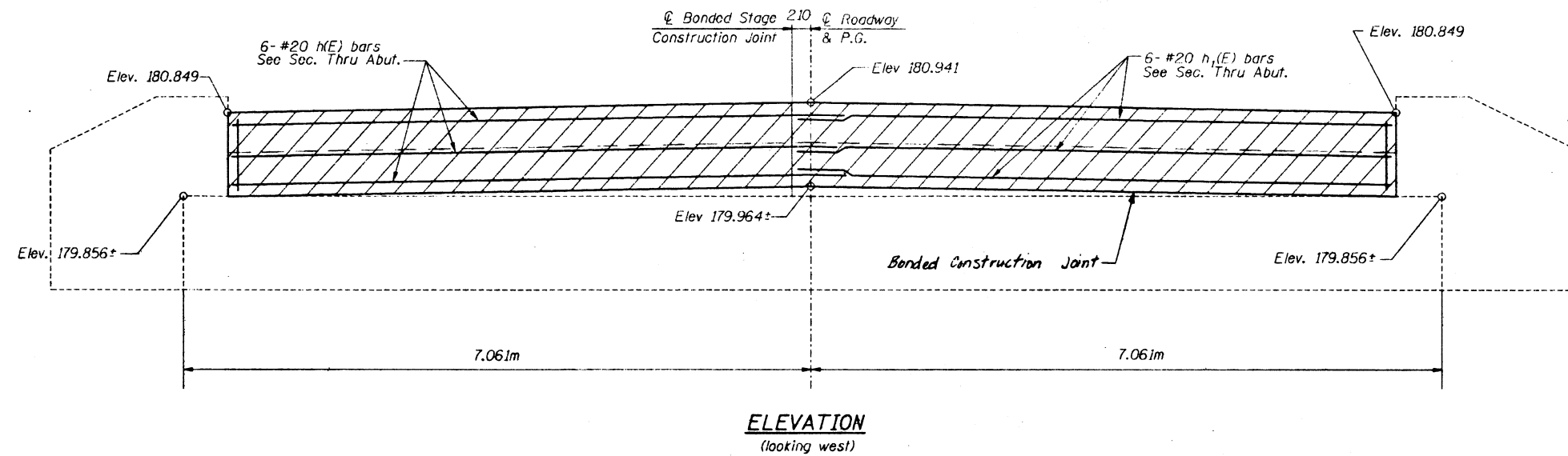
14-12.7 mm Strands Each Strand Stressed to 128,500 N.
8-Strands 45 mm up, 6-Strands 83 mm up



SUPERSTRUCTURE - PPC DECK BEAMS, SPANS 1 AND 2
ILLINOIS ROUTE 104 OVER LAKE SANGCHRIS
F.A.P. 753 SECTION 143BR
STA. 7+938.31
CHRISTIAN COUNTY, ILLINOIS
STRUCTURE NO. 011-0022

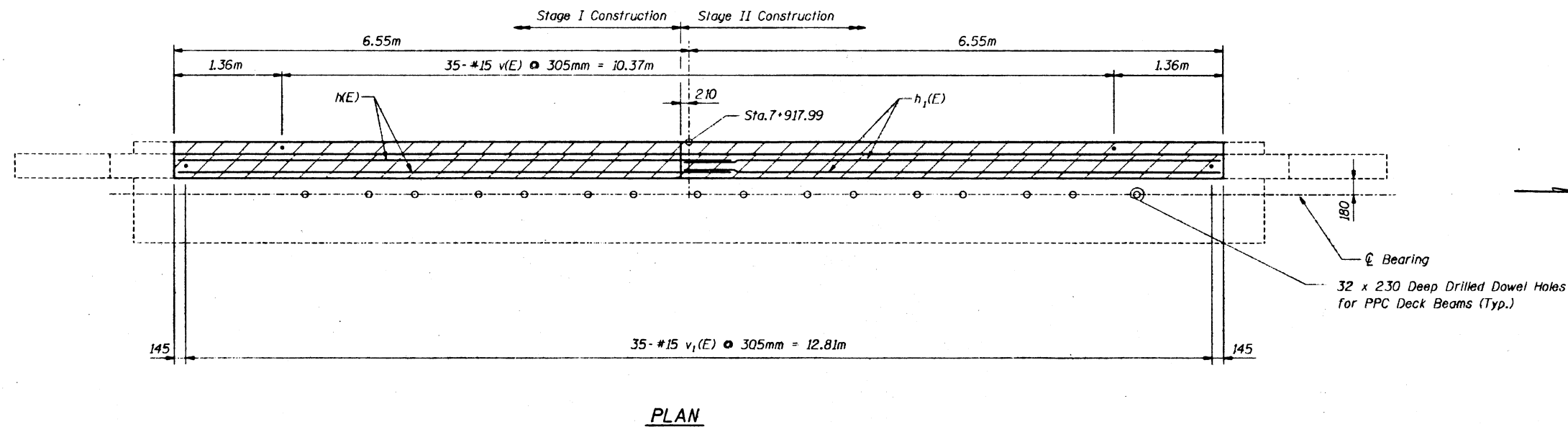
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	SHEET NO.	SHEET TOTAL
753	143BR	CHRISTIAN	75	96
SHEET NO. 8				
9 SHEETS				



**SUBSTRUCTURE
BILL OF MATERIAL**

Bar	No.	Size	Length (m)	Shape
h(E)	6	#20	6.92	—
h1(E)	6	#20	6.76	—
v(E)	35	#15	1.10	—
v1(E)	43	#15	1.30	—
Concrete Wearing Surface			m ³	5.6
Reinforcement Bars (Epoxy Coated)			Kg	340
Concrete Removal			m ³	5.6



* Epoxy grout v(E) and v1(E) bars in 22mm ϕ x 230mm Min. drilled holes. The grout and the method of application shall be approved by the Department. See Art. 584 of the Standard Spec's.

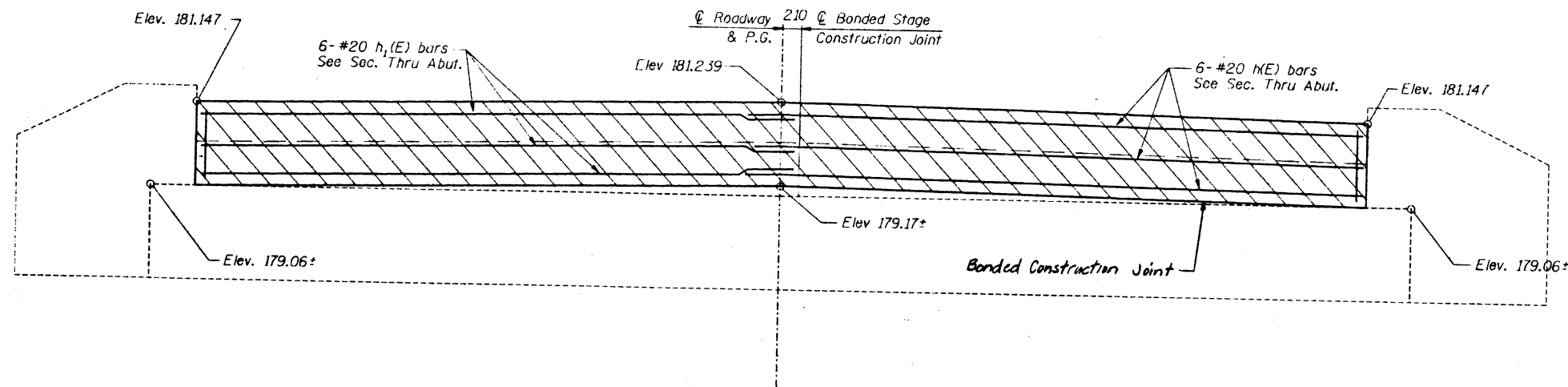
Notes:

Hatched area indicates "Concrete removal" and "Concrete Superstructure."
Existing vertical reinforcement extending into removed areas shall be cleaned, straightened and incorporated into the new construction.
Concrete Superstructure shall be poured as shown above after the superstructure forms have been removed.
All edges shall have standard 19mm chamfers except as noted.
Reinforcement bars designated (E) shall be epoxy coated.
Minimum bar lap for #20 Bar = 610mm.

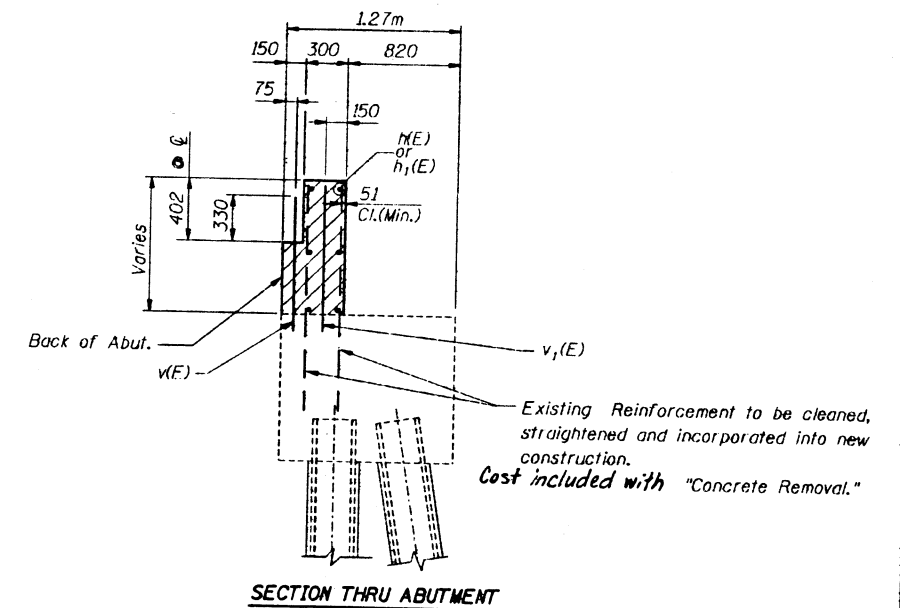
**WEST ABUTMENT
ILLINOIS ROUTE 104 OVER
LAKE SANGCHRIS
F.A.P. 753 SECTION 143BR
STA. 7+938.31
CHRISTIAN COUNTY, ILLINOIS
STRUCTURE NO. 011-0022**

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

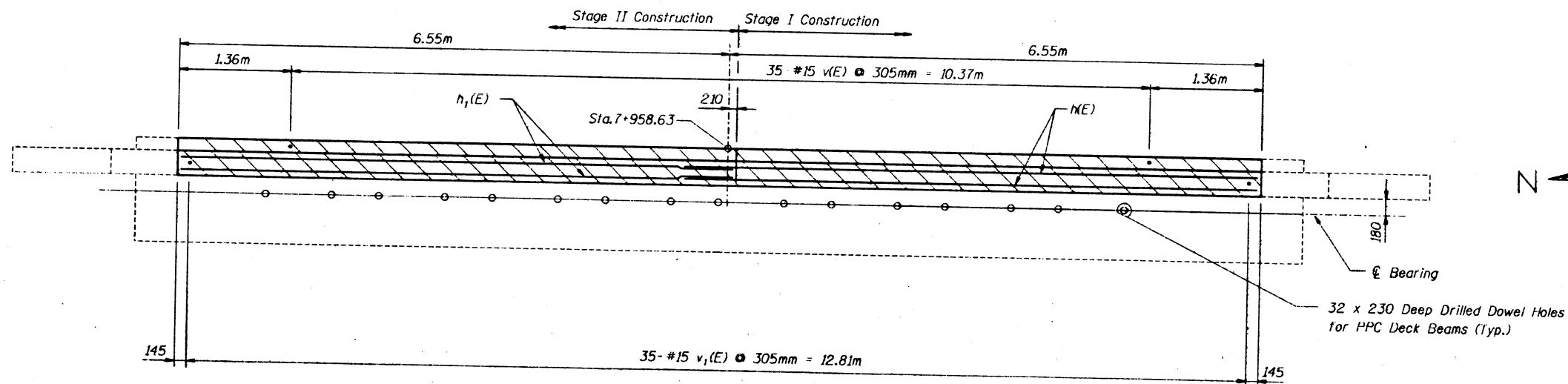
ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. 9
S.A.P. 753	143BR	CHRISTIAN	75	57	9 SHEETS
P.E.D. DIST. NO. 7	ILLINOIS	P.E.D. PROJECT			



ELEVATION
(looking east)



SECTION THRU ABUTMENT



PLAN

**SUBSTRUCTURE
BILL OF MATERIAL**

Bar	No.	Size	Length (m)	Shape
h(E)	6	#20	6.92	—
h1(E)	6	#20	6.76	—
v(E)	35	#15	1.10	—
v1(E)	43	#15	1.30	—
Concrete Superstructure			m³	5.6
Reinforcement Bars (Epoxy Coated)			Kg	340
Concrete Removal			m³	5.6

* Epoxy grout v(E) and v1(E) bars in 22mm ϕ x 230mm Min. drilled holes. The grout and the method of application shall be approved by the Department. See Art. 584 of the Standard Spec's.

Notes:

Hatched area indicates "Concrete removal" and "Concrete Superstructure." Existing vertical reinforcement extending into removed areas shall be cleaned, straightened and incorporated into the new construction. Concrete Superstructure shall be poured as shown above after the superstructure forms have been removed. All edges shall have standard 19mm chamfers except as noted. Reinforcement bars designated (E) shall be epoxy coated. Minimum bar lap for #20 Bar = 610mm

**EAST ABUTMENT
ILLINOIS ROUTE 104 OVER
LAKE SANGCHRIS
S.A.P. 753 SECTION 143BR
STA. 7+938.31
CHRISTIAN COUNTY, ILLINOIS
STRUCTURE NO. 011-0022**

STATE OF ILLINOIS DEPARTMENT OF PUBLIC WORKS AND BUILDINGS DIVISION OF HIGHWAYS PLANS FOR PROPOSED STATE BOND ISSUE HIGHWAY



S.B.I. ROUTE 104 SEC. 142, 143 (XRS-1), 142B-1 & 143B-1
PROJECT F-196
CHRISTIAN COUNTY

C-96-053-64

SECTION 142B-1, ONE BRIDGE, @ STA. 1251+35.00
PRECAST PRESTRESSED CONCRETE BEAMS
2 SPANS @ 35'-11 1/2"

OMISSION STATION 1185+00
TO STATION 1241+85

OMISSION STATION 1148+00
TO STATION 1171+00

STATION EQUATION
1314+71.6 BK. = 0+00 AH.

SECTION 143B-1, ONE BRIDGE, @ STA. 40+94
PRECAST PRESTRESSED CONCRETE BEAMS
2 SPANS @ 64'-5 1/2"

END SECTION 142, 143 (XRS-1), 142B-1 & 143B-1
@ STATION 50+00

BEGIN SECTION 142, 143 (XRS-1), 142B-1 & 143B-1
STATION 1095+00

SECTION 142B-1, ONE BRIDGE, @
STA. 1109+06.18, PRECAST PRESTRESSED
CONCRETE BEAMS, 2 SPANS @ 25'-5 1/2"
& 1 SPAN @ 37'-7"

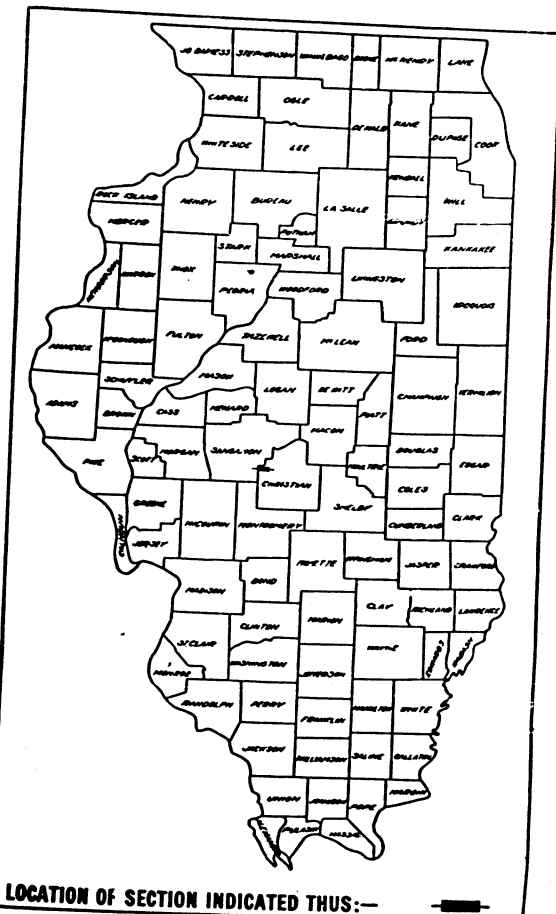
SECTION 142B-1, ONE BRIDGE @ STA. 1177+60
PRECAST PRESTRESSED CONCRETE BEAMS,
2 SPANS 35'-8 1/2" & 1 SPAN 36'-4"

OMISSION STATION 1254+75
TO STATION 9+00

SCALE 1" = 1 MILE
NET LENGTH = 12,090.0 FT. = 2.290 MILES

BOND ISSUE	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
104	CHRISTIAN	60	1	

P-96-031-63-2



STATE OF ILLINOIS DEPARTMENT OF PUBLIC WORKS AND BUILDINGS DIVISION OF HIGHWAYS	
SUBMITTED	August 7, 1964 E. K. O'Sullivan
EXAMINED	August 17, 1964 W. L. O'Sullivan
PASSED	August 17, 1964 E. K. O'Sullivan
APPROVED	August 17, 1964 James R. O'Sullivan

CONTRACT NO. 23825

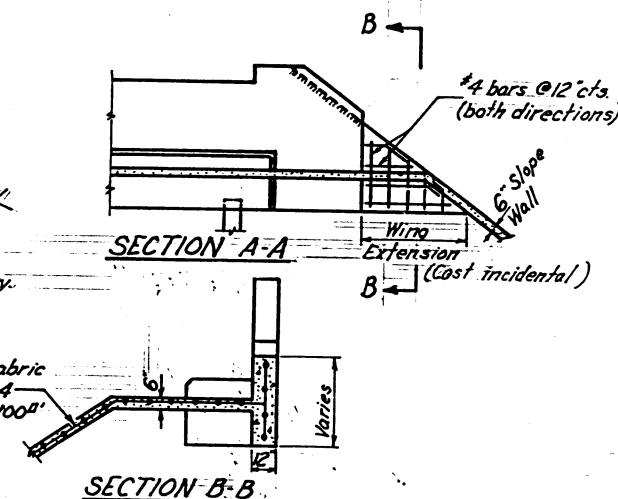
CHRISTIAN COUNTY

SECTION 142, 143 (XRS-1), 142B-1 & 143B-1
S. B. I. ROUTE 104

6-25

STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.	SHEET NO. / 4 SHEETS
A.A. 164 P.A.	1438-1	Christian	60	23	
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AND PROJECT.		



GENERAL NOTES

Class X Concrete shall be used through out except for handrails and precast prestressed beams.

Handrail Concrete shall be used in handrails.

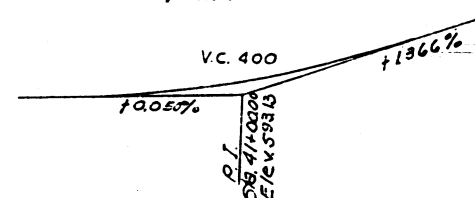
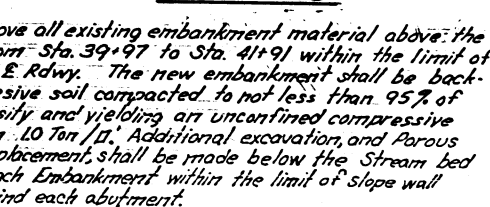
The handrail concrete in the rail post and railing shall be poured in separate operations.

For Concrete in precast prestressed beams, see Supp. Spec.
Slope Wall shall be reinforced with welded wire fabric 6"x6" mesh,
weighing 58 lb. per 100 Sq. Ft.

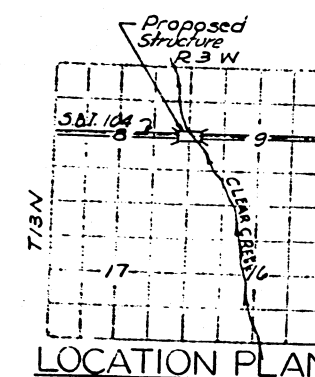
Layout of slope walls may be varied to suit ground conditions in the field as directed by the Engineer.

The exposed surfaces of the expansion guards shall be given two shop coats of red lead paint, the contact surfaces shall be given one coat of red lead paint. Anchor studs shall not be painted.

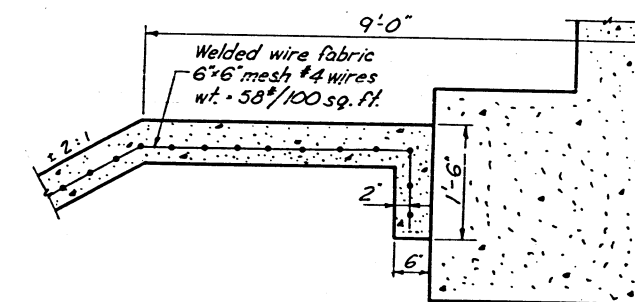
The Contractor shall drive two steel test piles, one at the west abutment and one at the pier, all in permanent locations, as directed by the Engineer before ordering the remaining piles.



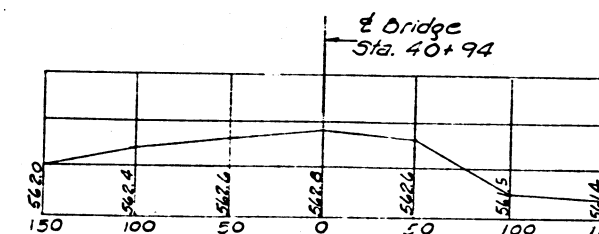
PROFILE SBI.104



LOCATION PLAN



SECTION C-C



PROFILE STREAM BED

STATION 40+94
BUILT 196 BY
STATE OF ILLINOIS
SBI Rt 104 SEC. 143-B-
LOADING HS20

NAME PLATE
See Std. 2113-1

WATERWAY INFORMATION

Drainage Area	-----	19	Sq. Mi.
Character	-----	level, rolling &	Cultiv.
Required Opening	-----		Sq. Ft.
Present Opening	-----	476	Sq. Ft.
Proposed Opening	-----	1573	Sq. Ft. (Below H.W.)
Ordinary Water Elev.	585.0 (Spillway)		
Low Water Elev.			

STRESSES

PRECAST PRESTRESSED UNITS FIELD UNITS

$f'_{ci} = 5,000 \text{ psi}$
 $f_{ci} = 4,000 \text{ psi}$
 $f'_s = 248,000 \text{ psi. (cables 7\#)}$
 $f_{si} = 173,600 \text{ psi}$

fc = 1400 psi. Super.
Vc = 75 psi. Ftg.
fs = 20,000 psi. Reinf.
fc = 1,000 psi. Subt.
n = 10

LOADING H520-44

TOTAL BILL OF MATERIAL

	ITEM	UNIT	SUPER	SUB.	TOTAL
563	Earth Excavation	Cu. Yds.			17450
	Borrow Excavation	Cu. Yds.			33,180
562	Removal of Existing Structure	Each			1
	Structural Steel	Lbs.	1920		1900
561	Precast Prestressed Conc. Br. Deck	Sq. Ft.	5850		5850
50	Handrail Concrete	Cu. Yds.	6.6		6.6
	Class X Concrete	Cu. Yds.	33.2	70.2	103.4
	Reinforcement Bars	Lbs.	3280	5890	9170
	Cresosoted piles (20.1 - 38)	Lin. Ft.			420
	Steel Piles (10BP42)	Lin. Ft.		1345	1345
	Test Piles Steel (10BP42)	Each		2	2
	Name Plates	Each	1		1
	Slope Wall (6')	Sq. Yds.			2520
	Bridge Deck Sealant	Sq. Yds.	620		620
	Bridge Seat Sealant	Lump Sum		1	1
	Class B Excav. for strc.	Cu. Yds.			55
	Bit. Conc. Surface Course (1/2" T-11)	Tons	51.		51.
	Class X Concrete Encasement	Cu. yds.		28.3	28.3
	Porous Granular Embankment	Cu. Yds.			5570

- * For toe of slope wall only
- ** At Abut seal only.

OVER CLEAR CREEK
EAST BRANCH

SBI. RTE. 104 SEC. 143-B-1
CHRISTIAN COUNTY
STA. 40+94

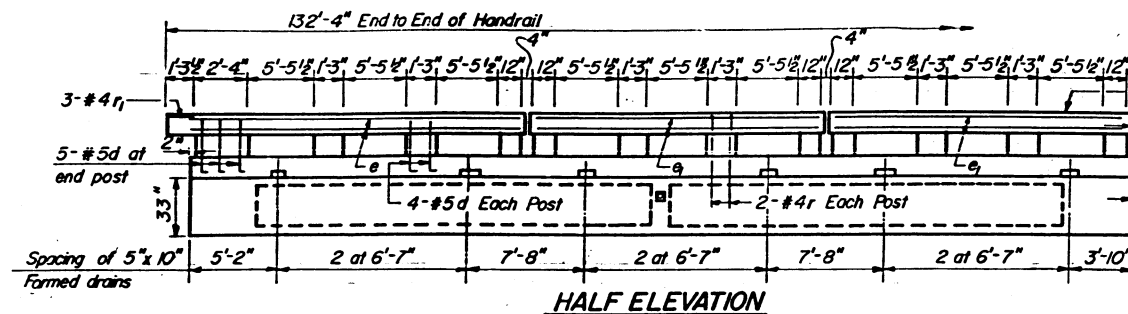
DESIGNED *Training Yang*
 CHECKED *M. Tomachuk*
 DRAWN *F.M. TL.*
 CHECKED *M. Tomachuk*

AUGUST 3 1944
 EXAMINED *H.E. Baumann*
 PASSED *[Signature]*
 APPROVED *[Signature]*
 U.S. AIR FORCE

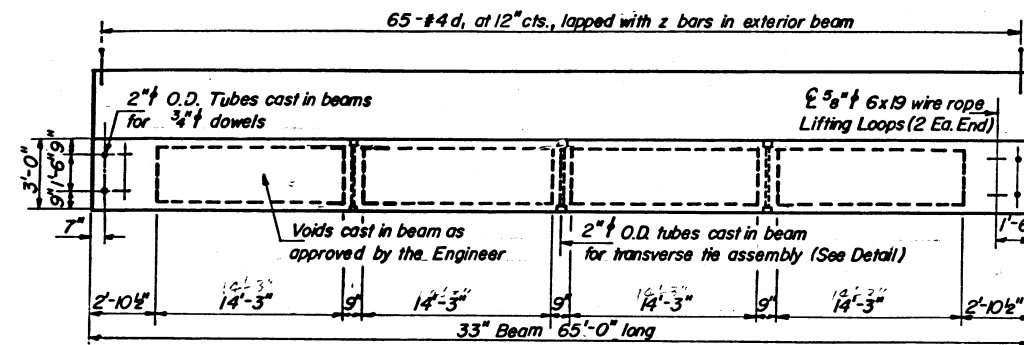
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
S.B.I. 104	143B-1	Christian	60	24
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

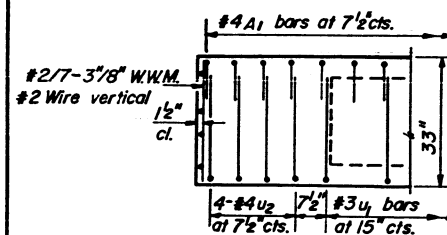
SHEET NO. 2
4 SHEETS



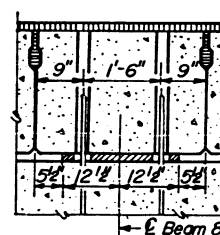
HALF ELEVATION



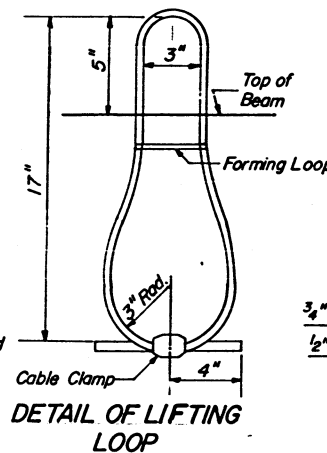
PLAN OF BEAMS (30 req'd)



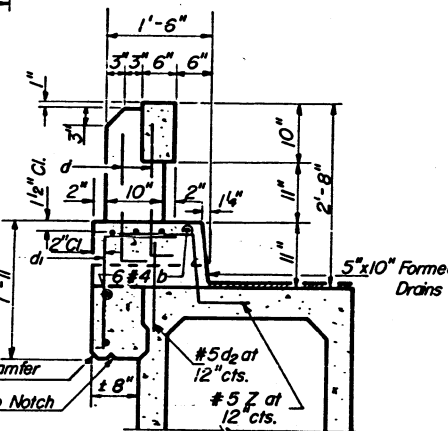
ELEVATION OF END BLOCK



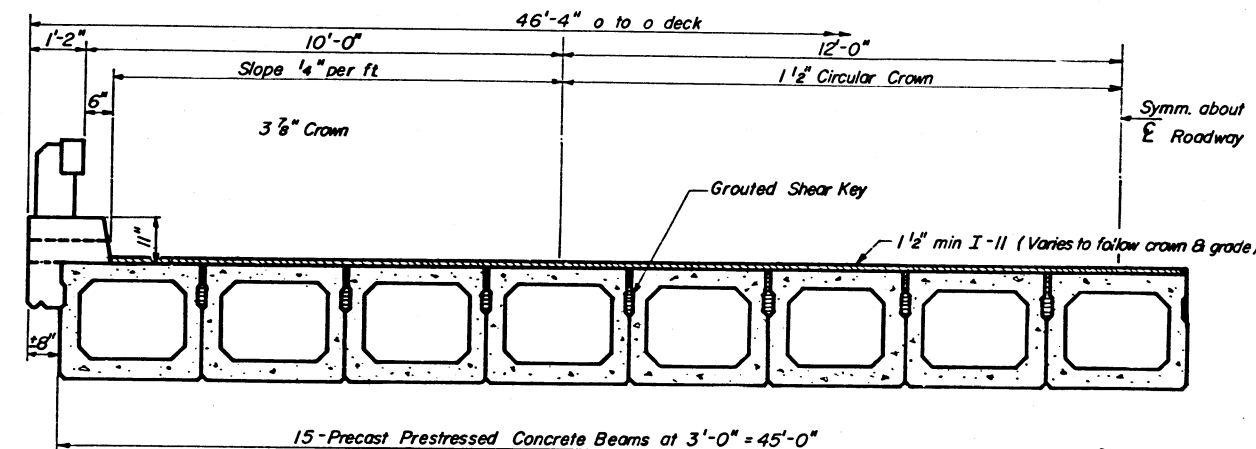
SECTION A-A



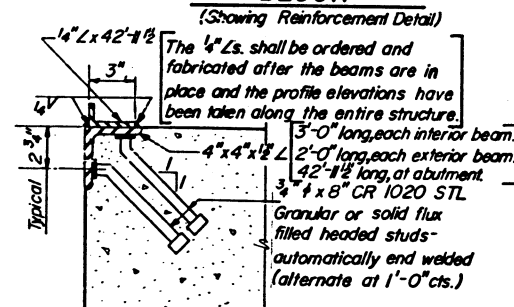
DETAIL OF LIFTING LOOP



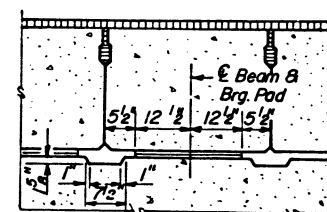
SECTION THRU CURB



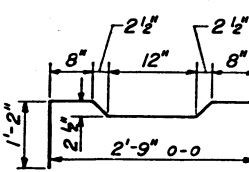
HALF CROSS SECTION



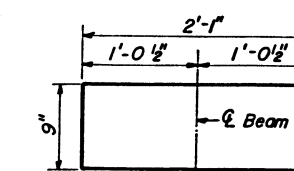
DETAIL A



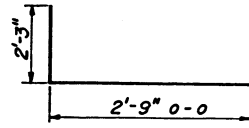
SECTION B-B



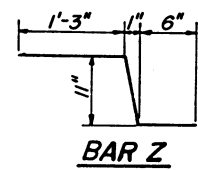
BAR A1



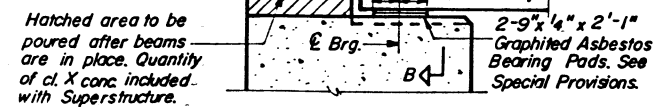
GRAPHITED ASBESTOS BEARING PAD



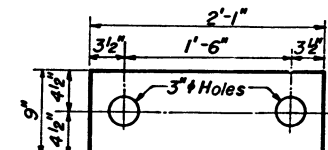
BAR U1 & U2



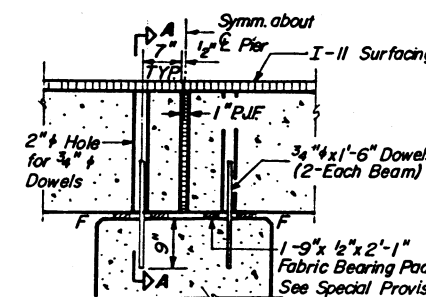
BAR Z



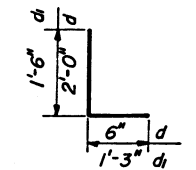
SEC. THRU ABUT.



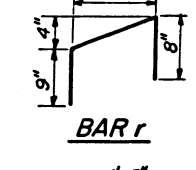
FABRIC BRG. PAD



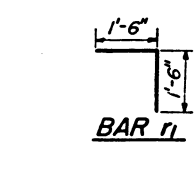
DETAIL A



BAR d & d1



BAR r



BAR f1

BILL OF MATERIAL

Bar	No.	Size	Length	Shape
b	48	#4	33'-0"	—
d	196	#5	2'-6"	┐
d1	260	#4	2'-9"	┐
e	16	#5	22'-0"	—
e1	32	#5	20'-10"	—
r	96	#4	2'-3"	┐
n	12	#4	3'-0"	┐
Precast Prestressed Concrete Bridge Deck			Sq. Ft.	5850
Class X Concrete			Cu. Yds.	33.2
Handrail Concrete			Cu. Yds.	6.6
Reinforcement Bars			Lbs.	3280
Bit. Conc. Surface Course (1 1/2" I-II)			Tons	51

SUPERSTRUCTURE

S.B.I. RT. 104 SEC. 143B-1
CHRISTIAN COUNTY
STA. 40+94

DESIGNED T. M. Young
CHECKED M. Tarnachis
DRAWN Joseph L. Putnam
CHECKED M. Tarnachis

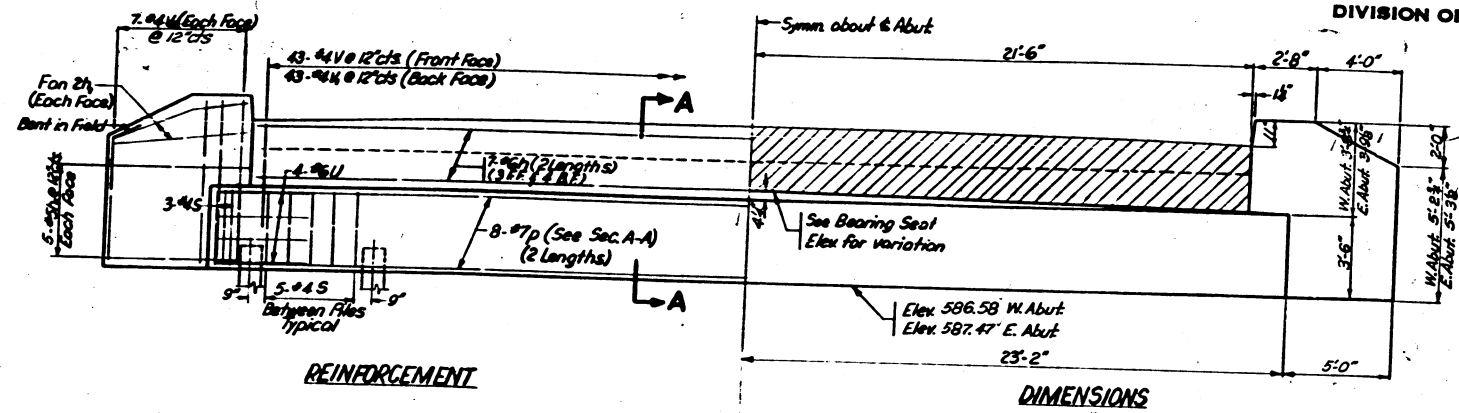
EXAMINED H. G. Baumann
PASSED
APPROVED V. E. Ruff

Hatched area to be poured after beams are in place. Quantity of cl. X conc. included with Superstructure.

SEC. THRU ABUT.

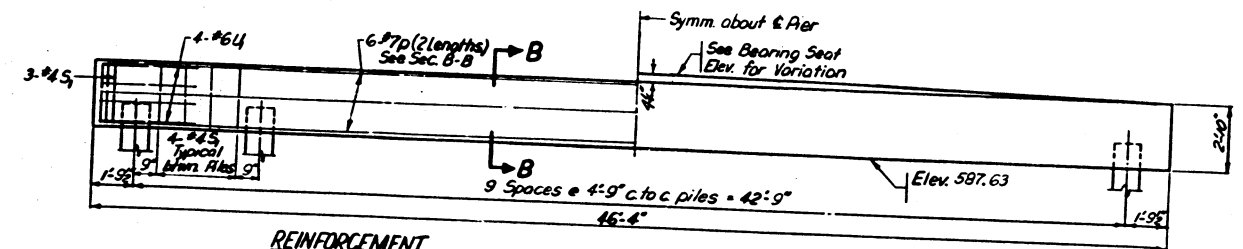
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
143B-1	Christian	60	25	4
P.L. 104				
P.L. 104				



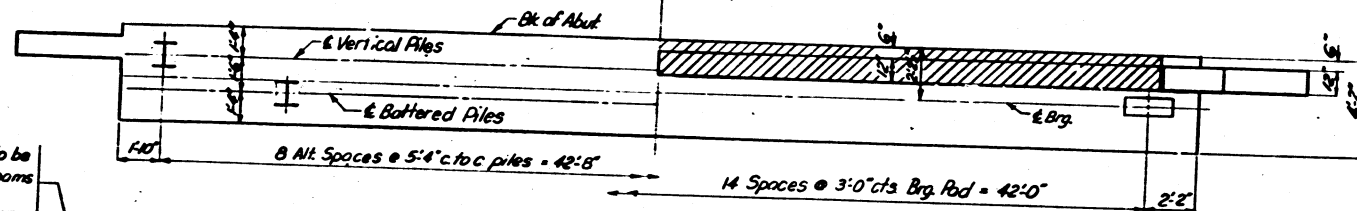
ELEVATION

DIMENSIONS



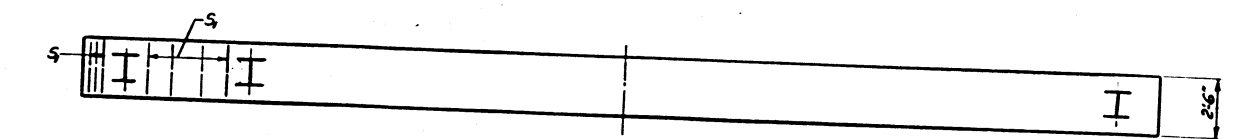
ELEVATION

DIMENSIONS

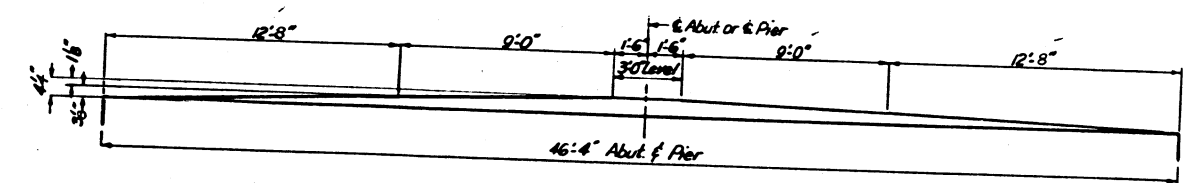


PLAN - ABUTMENT

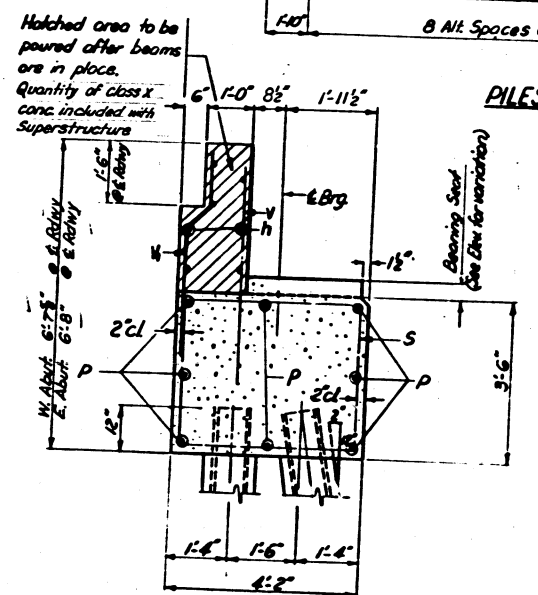
DIMENSIONS



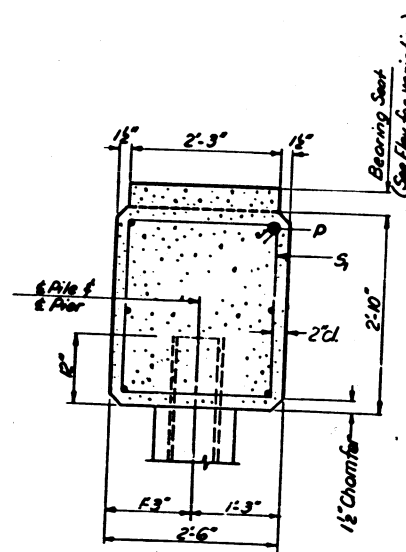
PLAN - PIER



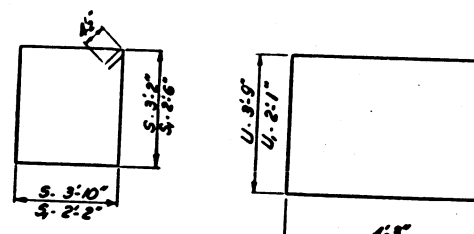
ELEVATION OF ALL BEARING SEATS



SEC. A-A

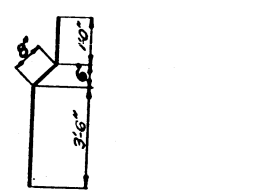


SEC. B-B



BARS & S.

BAR U & U



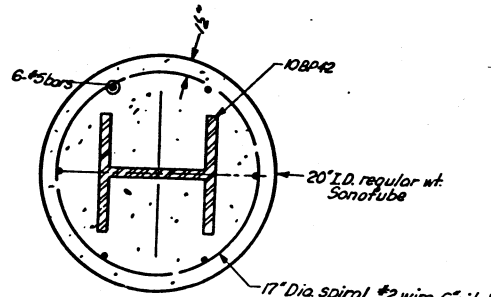
BAR V

PILE DATA - ABUTS

Type - Steel (10 BP 42)
Capacity - 35 Tons
Est. Length - 50'-0"
No. Reg'd - 18 (including one test pile @ 14' Abut.)

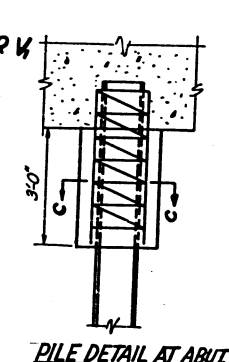
PILE DATA - PIER

Type - Steel (10 BP 42)
Capacity - 40 Tons
Est. Length - 55'-0"
No. Reg'd - 10 (including one test pile)

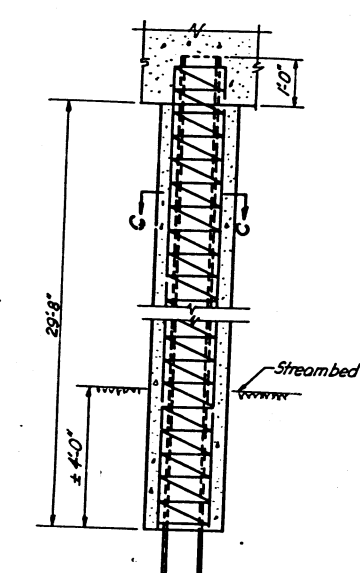


SEC. C-C

Cost of sonotube & reinf. is incidental to Class X Concrete Encasement



PILE DETAIL AT ABUT



PILE DETAIL AT PIER

(2 ABUTS & 1 PIER)
BILL OF MATERIAL

BAR	NO.	SIZE	LENGTH	SHAPE
h	28	#6	22'-3"	—
h	56	#5	6'-5"	—
P	44	#7	24'-0"	—
S	92	#4	14'-9"	□
S	42	#4	10'-1"	□
U	16	#6	12'-3"	□
U	8	#6	10'-7"	□
V	86	#4	4'-6"	—
V	86	#4	5'-2"	—
V	56	#4	6'-11"	—
CLASS X Concrete		Cu. Yds.	70.2	
Reinforcement Bars		Lbs.	5890	
Steel Piles (10 BP 42)		Lin. Ft.	1345	
Test Piles Steel (10 BP 42)		Each	2	
Class X Conc. Encasement		Cu. Yds.	28.3	

SUBSTRUCTURE
S.B.I. RT. 104 SEC. 143B-1
CHRISTIAN COUNTY
STA. 14

DESIGNED	M. Tameshio	EXAMINED	AUGUST 3 1964
CHECKED	T. Tameshio	PASSED	
DRAWN	M. Tameshio	APPROVED	
CHECKED	T. Tameshio		

NOTE:
Space reinforcement in cap to miss dowel bars
All edges shall have standard 3/4" chamfer except
as noted
Four seats monolithically with cap

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
S. & L. 10 1/4 P. A.	143B-1	Christian	60	26
FED. ROAD DIST. NO. 7		ILLINOIS	FED. AID PROJECT-	

SHEET NO. 4
+ SHEETS

Sh 1 of 3 Sh

[illegible]

Sh. 2 of 3 Sh.

PROJECT		BRIDGE over Clear Creek		Date.	7-10-24	
ROUTE				Bored By	S. Lewis	
SEC.		STA.		Checked By H. Brady		
COUNTY						
Boring No.	2			Surface Water El.		
Station	47+50			Groundwater El. at Completion		
Offset	15' Lt.			After _____ Hours		
Revisions	N	Q _s t/a.t.	n (%)	Revisions	N	Q _s t/a.t.
Ground Surface	579.5	0		Gray-Brown Clay Till (Hard)	50	$\frac{8.5}{S}$
Dark Gray Silty Clay (Medium)				15% Strain		
Sandy-Clay Loam (Medium)				10% Strain	-25	$\frac{1.70}{S}$
15% Strain	-5	6	$\frac{1.80}{S}$	10% Strain	68	$\frac{8.3}{S}$
	573.0				550.5	
Dark Gray Silty Clay (Medium)		7	$\frac{1.1}{E}$	Yellow-Brown Clay Till (Hard)	100	$\frac{8.4}{S}$
			26	10% Strain	-30	
		7	$\frac{1.0}{E}$	15% Strain	100	$\frac{8.1}{S}$
					546.5	
15% Strain	-14	14	$\frac{1.20}{S}$	Boring Completed		
					-35	
20% Strain	-15	9	$\frac{1.00}{B}$			
	563.0					
Gray-Brown Silty Clay-Loam (Medium)		7	$\frac{0.80}{B}$		-40	
20% Strain			25			
	560.0					
Yellow-Brown-Gray Mottled Sandy-Loam (Very Soft)	-20	2	$\frac{0.20}{B}$			
20% Strain			26			
	558.0					
Gray-Brown Clay Till (Hard)					-45	

Sh. 3 of 3 Sh

[illegible]

Type failure:
B - Bulge Failure
S - Shear Failure
E - Estimated Value

DESIGNED	T. M. Yang
CHECKED	M. Parnakian
DRAWN	Joseph L. Putham
CHECKED	M.T.

AUGUST 3 1964
 EXAMINED ME. Burman
(signature of student or testing supervisor)
 PASSED E. J. [unclear]
(signature of examiner)
 APPROVED U. E. [unclear]
(signature of official)

BORING DATA
S.B.I 104 SEC. 143-B-1
CHRISTIAN COUNTY
STA. 40+94