FED. RD. DIVISION	STATE	PROJECT	
2	OHIO	72	

18/25

FRA-605-1.02
0.7± miles North of New Albany

BENCH MARK NO. 3 CHISLED ON TOP OF N.W. WINGWALL OF STRUCTURE NO. 0103 ELEVATION 024.30

1 STORY BRICK RES.

1 STORY BRICK RES.

1 STORY BRICK AND STUCCO RES.

RUN

EX. SMALL STONE DAM

EX. STEEL BEAM BRIDGE

Residential Yard
Existing Limestone Placed Along Bank

POND
Elev. 1016.0±

8" WILLOW
14" WILLOW
6" WILLOW
SMALL TREES

PINE SEEDLINGS

SMALL TREES & SHRUB

ROSE BUSHES

+86 ℄ 12' GRAVEL RES. DR.

+77.5 ℄ 11' GRAVEL RES. DR.

+11.5 ℄ 12" FIELD DR.

+55 ℄ 16' GRAVEL RES. DR.

+97.5 ℄ 10' GRAVEL RES. DR.

+94 ℄ GRAVEL RES. DR.

12" PEAR

14" PEAR

12" CATALBAS

Existing 6" C.M.P.

Existing 6" V.S.P.

Existing 18" Concrete Pipe

Existing 12" concrete Pipe

Existing 4" GAS LINE (To be relocated)

Existing 4" Plastic Pipe

Existing 4" Plastic Pipe

TRANSITION 2:1 TO 4:1 SLOPES AT ALL FOUR CORNERS OF BRIDGE

Rip-Rap

+09±

+47±

12'

0.7 Mile ± To New Albany

8 Miles ± To Intersection S.R. 605 & S.R. 37

℄ SURVEY S.R. 605

Existing 12" Tile

END APPROACH SLAB
STA. 54+22.71

BEGIN APPROACH SLAB
STA. 54+53.29

+29±

+67±

25°

Elev. 1016.8±

60'±

12"LOCUT

24" LOCUT

16" LOCUST

24" LOCUST

SUGAR

Clears assumed 10yr. effective stream H.W. Elev. 1.45'±

End Work
Sta 57+14

End Project
Sta 56+08
S.L.M. 1.07

Begin Work
Sta 51+32

Begin Project
Sta 53+50
S.L.M. 1.02

P.T. 52+24.66

Existing 5" Tile

200'R

℄ Temporary Road

EARTHWORK limits shown are schematic
Actual slopes shall conform to plan cross-sections.

1990 = Design Traffic = 3546 A.D.T
Q_{10} = 525 c.f.s. (Est.)
Q_{25} = 667 c.f.s. (Est.)

DRAINAGE AREA 2.1 Square Miles.

1028.4

EXISTING BRIDGE DATA

TYPE: Concrete Beam on Concrete Substructure
SPAN: 26'-0" (clear)
ROADWAY: 19'-0" Curb to Curb
LOADING: H-15
SKEW: 31°00' R.F.
CONDITION: Poor
DATE BUILT: 191X

PROPOSED STRUCTURE

TYPE: Single Span prestressed concrete beam with vertical wall abutments
SPAN: 28' t/f abutments
ROADWAY 44'-0" t/f guard rails
LOADING: HS 20-44
SKEW: 25° R.F.
SURFACE COURSE: 2½" Asphalt Concrete
APPROACH SLABS: AS-1-67 (15' rear) (25' forward)
ALIGNMENT: Tangent

1970 TRAFFIC DATA				
P	A	B	C	TOTAL
1848	284	11	105	2248

Bridge Limits = 30.58'

STA. 54+22.71

STA. 54+53.29

1024.58

1024.98

PROPOSED PROFILE TO BE MIN. OF 1'4" ABOVE EXISTING

PROPOSED PROFILE TO BE MIN. OF 1'4" ABOVE EXISTING

1959 HIGH WATER ELEVATION 1020.24 (BY S.H.D Records)

ASSUMED 10yr. effective stream H.W. ELEVATION 1021.2±
10-15yr. High Water Elevation 1022.40 (By Local Res)

Existing 6" C.M.P. LT. | Existing 6" V.S.P. LT. | Existing 18" Conc. Pipe LT. | Existing ℄ Profile | Proposed + 0.40% Grade | Existing Concrete Pipe LT. | Existing 12" Tile Rt.

Existing 5" Tile RT. | Existing 4" Gas Line LT.

5-31-67 Normal Water Elevation 1017.11

Limits of channel excavate thru structure

Excavate channel thru structure to elevations shown above

Flg. Elev. 1013.50

1026.43	1025.41	1024.77	1024.43	1024.34	1024.47	1024.74	1024.88	1025.19	1025.44	1025.64
+ 50	52	+ 50	53	+ 50	54	+ 50	55	+ 50	56	+ 50

1/6

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
BUREAU OF BRIDGES

SITE PLAN

BRIDGE NO. FRA-605-0103
Over SUGAR RUN
FRANKLIN CO SR 605
SEC. STA. 54+22.71 54+53.29
SCALE 1" = 20'

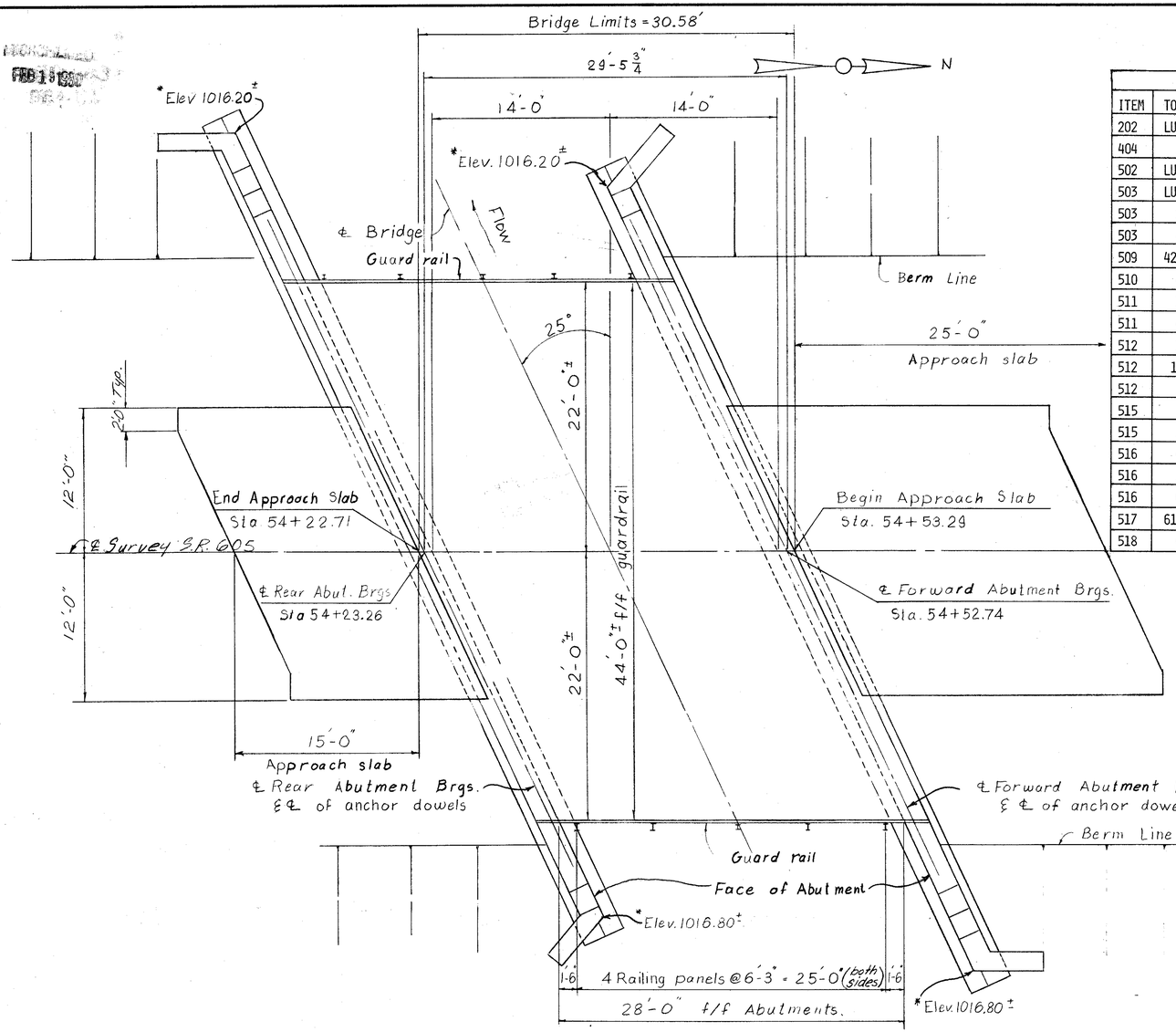
PRESENT TOPOGRAPHY		PROPOSED WORK			
SURVEYED	DRAWN	DESIGNED	DRAWN	CHECKED	REVIEWED
AERIAL SURVEY	AERIAL SURVEY	N.J.B.	N.J.B.	B.D.H.	G.E.S.

BFG 5-24-71

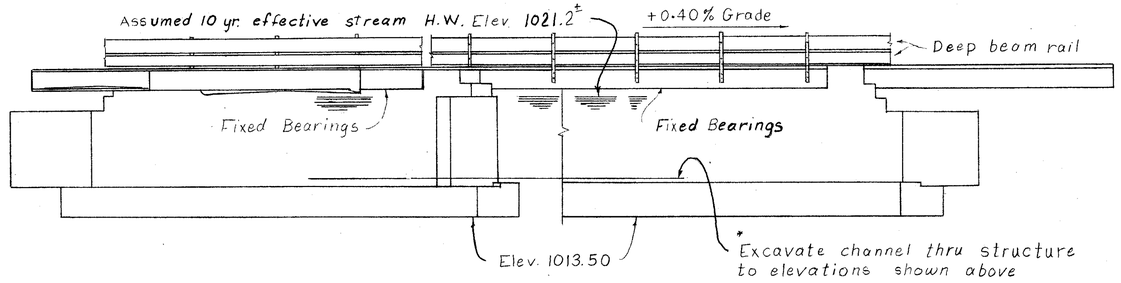
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

FRA-605-1.02

19/25



GENERAL PLAN



ELEVATION

ESTIMATED QUANTITIES								
ITEM	TOTAL	UNIT	DESCRIPTION	ABUT.	SUPER.	GEN'L	AS-BUILT	
202	LUMP	SUM	STRUCTURE REMOVED			LUMP		
404	13	CU.YD.	ASPHALT CONCRETE (70-85 or AC 20)		13			
502	LUMP	SUM	TEMPORARY BRIDGE			LUMP		
503	LUMP	SUM	COFFERDAMS, CRIBS AND SHEETING			LUMP		
503	29	CU.YD.	UNCLASSIFIED EXCAVATION	29				
503	43	CU.YD.	ROCK EXCAVATION	43				
509	4283	LB.	REINFORCING STEEL	4283				
510	44	EACH	DOWEL HOLES	44				
511	73	CU.YD.	CLASS C CONCRETE, ABUTMENTS ABOVE FOOTINGS	73				
511	45	CU.YD.	CLASS C CONCRETE, FOOTINGS	45				
512	33	SQ.YD.	TYPE B WATERPROOFING	33				
512	160	SQ.YD.	TYPE B WATERPROOFING, MODIFIED		160			
512	15	LIN.FT.	PREMOLDED SEALING STRIP	15				
515	4	EACH	PRESTRESSED CONCRETE BRIDGE MEMBERS, 4'x31'-10½"		4			
515	7	EACH	PRESTRESSED CONCRETE BRIDGE MEMBERS, 4'x30'-7"		7			
516	41	SQ.FT.	½" THICK ELASTOMERIC BEARING PADS (50, 60 OR 70 HARDNESS)	41				
516	14	SQ.FT.	1" PREFORMED EXPANSION JOINT FILLER	14				
516	60	SQ.FT.	½" PREFORMED EXPANSION JOINT FILLER	60				
517	61.16	LIN.FT.	RAILING, TWO DEEP BEAM RAILS WITH STEEL POSTS AND BOLTS		61.16			
518	48	CU.YD.	POROUS BACKFILL	48				

GENERAL NOTES

REFERENCE SHALL BE MADE TO STANDARD DRAWING NO. DBR-1-71 DATED 1-1-71.

DESIGN SPECIFICATIONS: THIS STRUCTURE CONFORMS TO "STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES" ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS, 1969, INCLUDING THE OHIO "SUPPLEMENT" TO THESE SPECIFICATIONS.

DESIGN DATA:

DESIGN LOADING - HS20-44

CONCRETE - PRESTRESSED CONCRETE BEAMS - UNIT STRESS 2200 P.S.I.

CONCRETE CLASS C - UNIT STRESS 1333 P.S.I. FOR SUBSTRUCTURE

STRUCTURAL STEEL - ASTM A36 - UNIT STRESS 20,000 P.S.I.

REINFORCING STEEL - ASTM A615, A616 OR A617 - UNIT STRESS 20,000 P.S.I. IF BARS IN ACCORDANCE WITH ASTM A616 ARE PROVIDED THEY SHALL BE SUBJECT TO BEND TESTS AS PER AASHO DESIGNATION M42-70.

PRESTRESSING STRANDS - F'_S = 268,000 P.S.I.; DESIGN LOAD STRESS = .6F'_S.

REMOVAL OF EXISTING STRUCTURE: WHEN NO LONGER NEEDED TO MAINTAIN TRAFFIC THE EXISTING STRUCTURE SHALL BE REMOVED.

FOOTINGS SHALL BE PLACED IN BEDROCK AT THE ELEVATION SHOWN.

FOUNDATION BEARING PRESSURE: FOOTINGS ARE DESIGNED FOR A MAXIMUM BEARING PRESSURE OF (4) TONS PER SQ. FT.

UTILITY LINES: ALL EXPENSE INVOLVED IN RELOCATING (INSTALLING) THE AFFECTED UTILITY LINES SHALL BE BORNE BY THE OWNERS. THE CONTRACTOR AND OWNERS ARE REQUESTED TO COOPERATE BY ARRANGING THEIR WORK IN SUCH A MANNER THAT INCONVENIENCE TO EITHER WOULD BE HELD TO A MINIMUM.

TYPE "B" WATERPROOFING MODIFIED: SHALL BE IN ACCORDANCE WITH SECTION 512 OF THE "CONSTRUCTION AND MATERIAL SPECIFICATIONS," EXCEPT AS MODIFIED. THE BITUMINOUS MATERIAL SHALL BE ASPHALT CEMENT SEC. 702.06. ALL JOINTS AND IRREGULARITIES IN THE BEAMS SHALL BE FILLED WITH PLASTIC CEMENT AFTER THEY HAVE BEEN CLEANED AND ARE DRY. AFTER THE DECK IS PRIMED AND BEFORE THE FIRST MOPPING, AN EXTRA PLY OF FABRIC SHALL BE LAID OVER THE JOINTS EXTENDING AT LEAST 9" ON EACH SIDE OF THE JOINTS. THE MEMBRANE SHALL THEN BE MOPPED ON TOP OF THIS EXTRA PLY ALLOWING THE UNDERSIDE TO REMAIN LOOSE WHICH ALLOWS FOR MOVEMENT IN THE JOINT. PLACING OF WATERPROOFING SHALL BEGIN AT THE EDGE OF THE DECK AND SHALL PROGRESS TOWARD THE CENTER. ADEQUATE PLANKS OR RUNWAYS SHALL BE USED SO THAT THE PAVING MACHINE WILL HAVE NO DIRECT BEARING ON THE SURFACE OF THE WATERPROOFING MEMBRANE.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

2/6

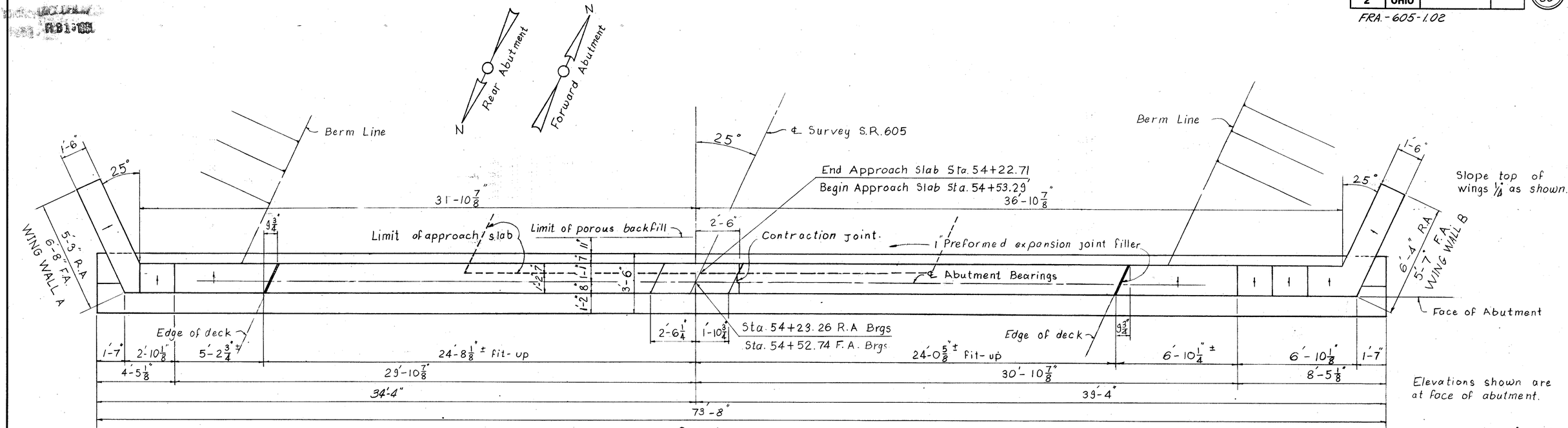
GENERAL PLAN, ELEVATION, NOTES & ESTIM. QUANTITIES
BRIDGE NO. FRA-605-0103
OVER SUGAR RUN

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
MRG	MRG		K.L.D. 4-23-71	BFG	5-24-71	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

30/28

FRA.-605-1.02



* Concrete above this construction joint will be placed after the placement of the prestressed box beams.

FOOTINGS shall be placed in bedrock at the elevation shown.

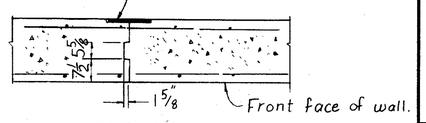
ELEVATION

NOTES

POROUS BACKFILL 1'-6" thick shall extend from 6" below weepholes upward to the plane of the subgrade and laterally to the turned back portions of the wingwalls.

BACKFILL shall not be placed higher than elevation 1017.3± prior to placing and anchoring of the prestressed concrete beams.

See Sheet 4/6 for additional details.



SECTION D-D
CONTRACTION JOINT.

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

3/6

ABUTMENT DETAILS

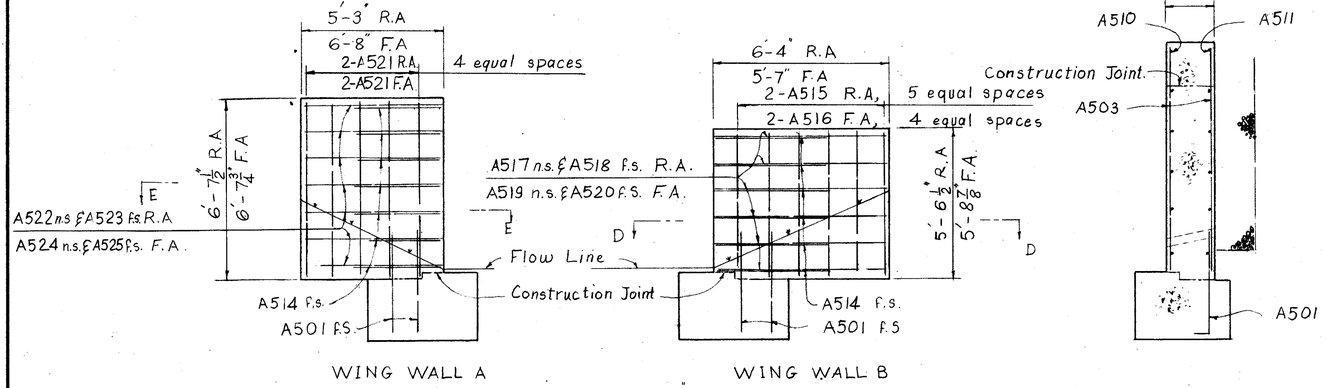
BRIDGE NO. FRA-605-0103.
OVER SUGAR RUN.

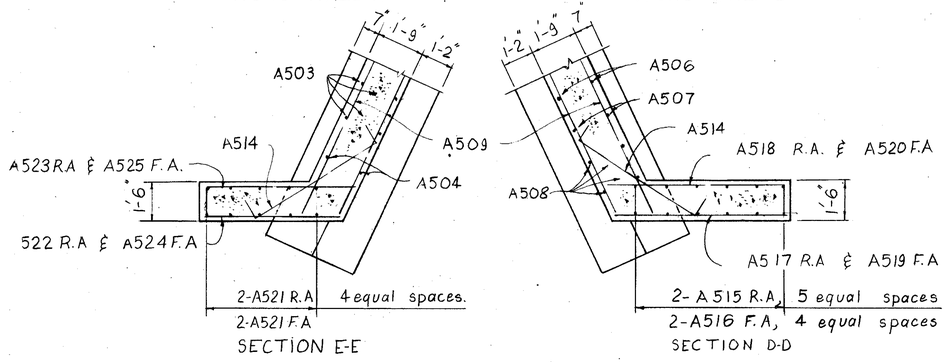
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
MRG	MRG		R.L.D	BFG	5-24-71	

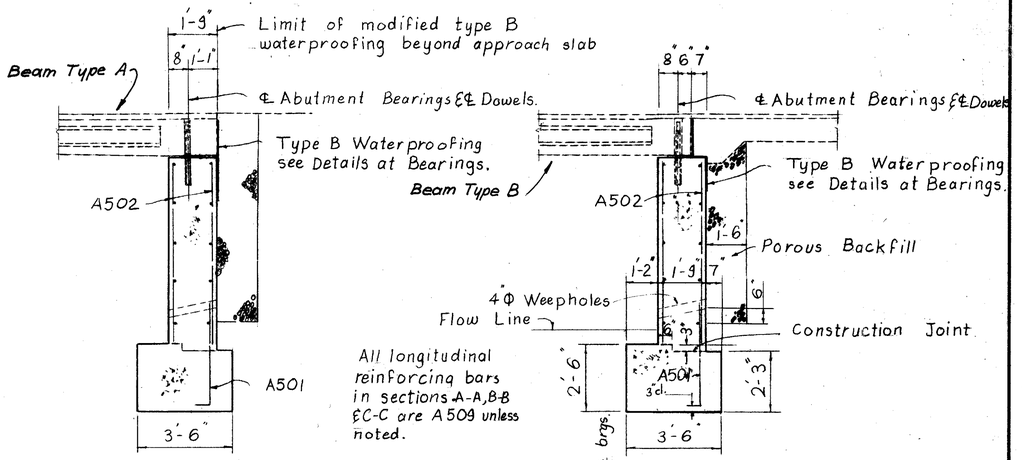
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

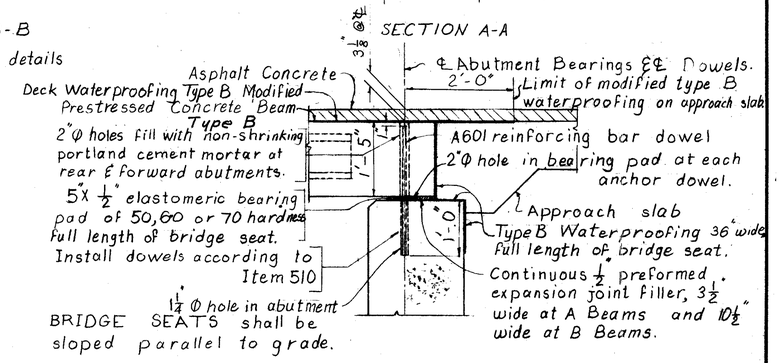
28
253

FRA.-605-1.02







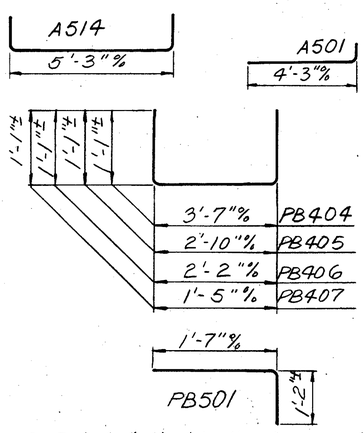


DETAILS OF BEARINGS

REINFORCING STEEL LIST

Mark	No.	Length	Weight	Shp
ABUTMENTS				
A501	100	4'-9"	495	B
A502	128	6'-5"	857	S
A503	16	8'-2"	136	S
A504	4	7'-2"	30	S
A505	20	8'-1"	169	S
A506	4	7'-1"	30	S
A507	4	6'-1"	25	S
A508	8	5'-1"	42	S
A509	80	18'-8"	1,358	S
A510	2	4'-9"	10	S
A511	2	5'-5"	11	S
A513	2	5'-8"	12	S
A514	26	6'-3"	169	B
A515	12	5'-2"	65	S
A516	10	5'-4"	56	S
A517	6	6'-0"	38	S
A518	6	6'-7"	41	S
A519	6	5'-3"	33	S
A520	6	5'-10"	37	S
A521	20	6'-2"	129	S
A522	7	4'-11"	36	S
A523	7	5'-6"	40	S
A524	7	6'-4"	46	S
A525	7	6'-11"	51	S
A512	2	6'-5"	13	S

Bending Diagrams



Mark	No.	Length	Weight	Shp
ABUTMENTS (Cont.)				
AG01	44	2'-4"	154	S
PRESTRESSED BEAMS				
PB501	242	2'-8"	*	B
PB401	24	31'-6"	*	S
PB402	42	30'-3"	*	S
PB403	110	10'-1"	*	S
PB404	466	5'-6"	*	B
PB405	44	4'-9"	*	B
PB406	44	4'-1"	*	B
PB407	44	3'-4"	*	B
PB408	88	4'-0"	*	S
REPLACEMENT BARS				
RE601	2	2'-4"	-	S
RE501	1	6'-7"	-	S
RE401	1	6'-3"	-	S

BAR SIZE is indicated in the bar mark. The first digit where three digits are used, and the first two digits where four digits are used, indicates the bar size number. For Example A701 is a No. 7 size, and A1101 is a No. 11 size bar.

PROCEDURE: After tensioning of the transverse tie rods the dowel holes shall be drilled 12" into the abutment seat and dowels installed. A fixed condition is required for the rear and forward abutments, the dowels shall be installed per Item 510, with the non-shrinking mortar also filling the holes in the beam
NON-SHRINKING MORTAR shall be made with portland cement and an approved additive or with an approved proprietary product, and included with Item 510 for payment

LEGEND:
R.A. = Rear Abutment
F.A. = Forward Abutment
n.s. = Near side
f.s. = Far side

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

4/6

ABUTMENT DETAILS & REINFORCING STEEL LIST

BRIDGE NO. FRA-605-0103
OVER SUGAR RUN

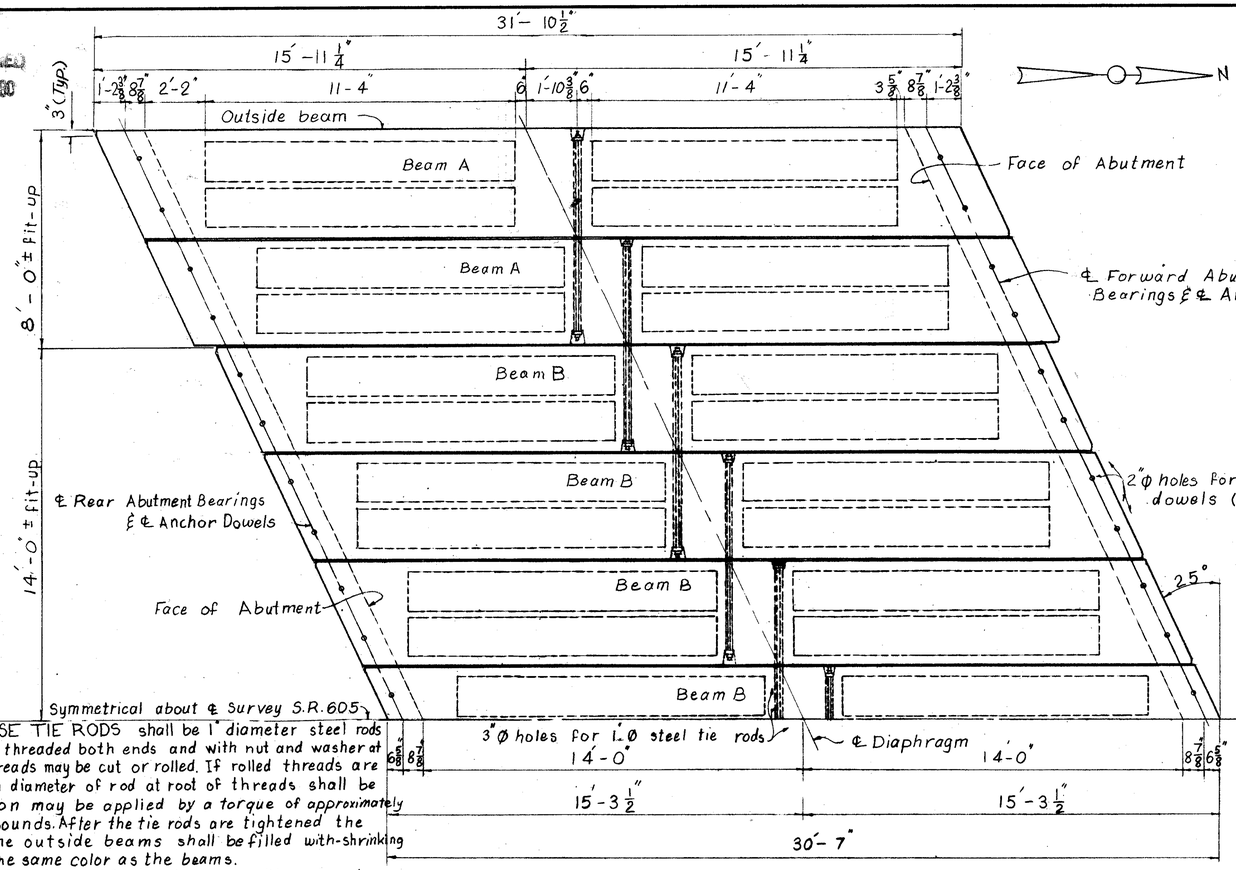
DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
MRG	MRG	GFJ	RLD	BFG	5-24-71	

FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

FRA.-605-1.02

22
23

APPROVED
FEB 19 1970



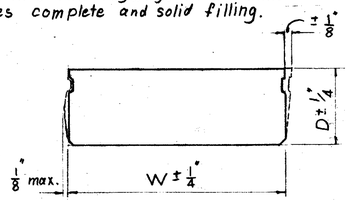
HALF PLAN FOR LAYOUT OF BEAMS & TRANSVERSE TIE RODS.

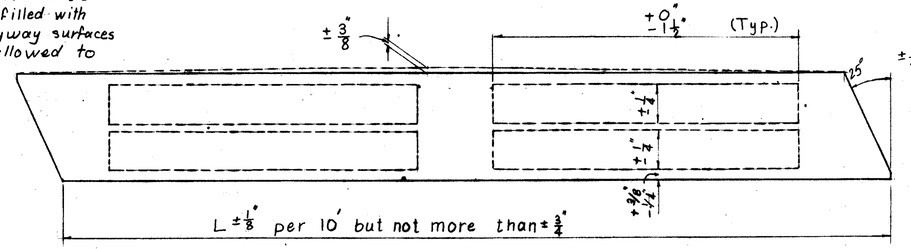
TRANSVERSE TIE RODS shall be 1" diameter steel rods of A36 steel, threaded both ends and with nut and washer at both ends. Threads may be cut or rolled. If rolled threads are used, minimum diameter of rod at root of threads shall be 0.838". Tension may be applied by a torque of approximately 250 foot-pounds. After the tie rods are tightened the recess in the outside beams shall be filled with shrinking mortar of the same color as the beams.

NON-SHRINKING MORTAR shall be made with portland cement and an approved additive or with an approved proprietary product.

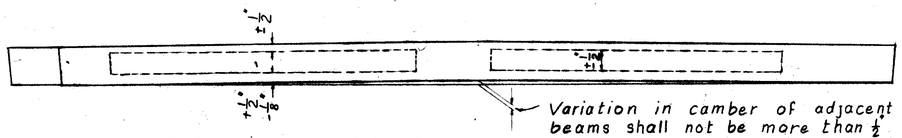
GALVANIZING: All anchor bolts, studs, inserts, tie rods, nuts, and washers shall be galvanized per 711.

MORTARING OF SHEAR KEYS: After the transverse tie rods have been tightened shear keys shall be filled with non-shrink mortar. Before mortaring, the keyway surfaces shall be wetted, but no free water shall be allowed to remain in the keyways. Mortar shall be placed into the keyways in a manner that insures complete and solid filling.





PLAN

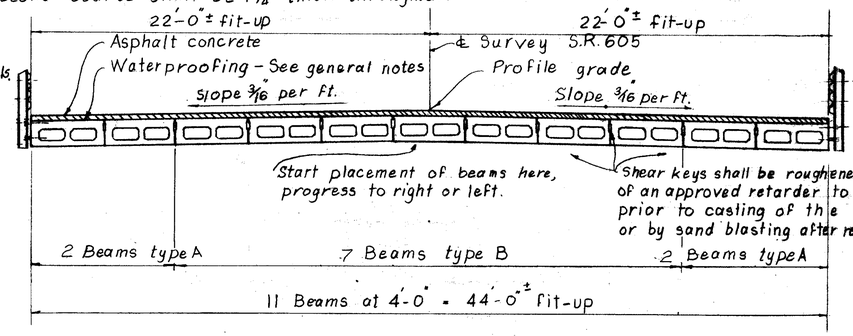


Dimensional variation in excess of the tolerances shown may be cause for rejection of the member. Generally the dimensions should be well within the tolerance limit.

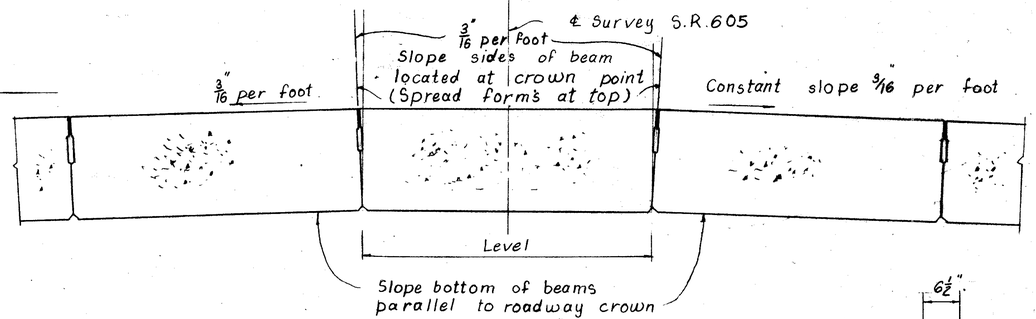
ELEVATION

BEAM DIMENSIONAL TOLERANCES

Asphalt concrete wearing course shall be placed in 2 layers. The first course shall vary in thickness from 1¼ average at midspan to approximately 1⅞ average over the supports to produce a smooth and uniform surface. The second course shall be 1¼ thick throughout.

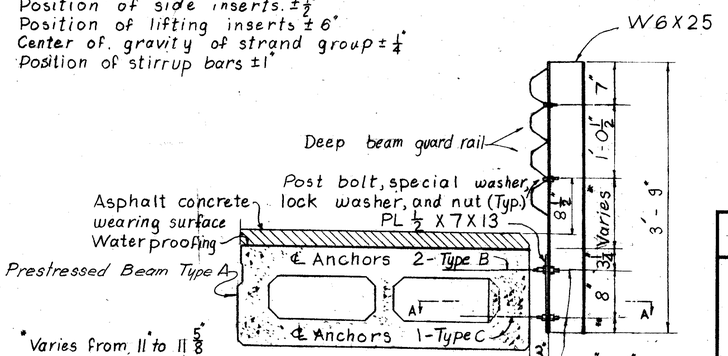


TRANSVERSE CROSS SECTION



NORMAL CROWN TREATMENT AT ℄ ROADWAY.

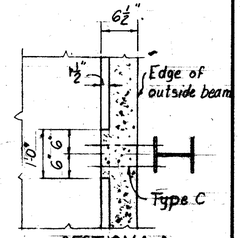
Additional tolerances:
Holes for anchor dowels and tie rods. ±½"
Position of side inserts. ±½"
Position of lifting inserts ±6"
Center of gravity of strand group ±¼"
Position of stirrup bars ±1"



*Varies from 11" to 11⅝"

**Varies, 2½" to center of slotted hole.

DOUBLE DEEP BEAM GUARD RAIL



SECTION A-A

For Deep Beam Guard Rail Additional Details see Standard Drawing No. DBR-1-71

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF ENGINEERING AND CONSTRUCTION
BUREAU OF BRIDGES

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SUPERSTRUCTURE DETAILS

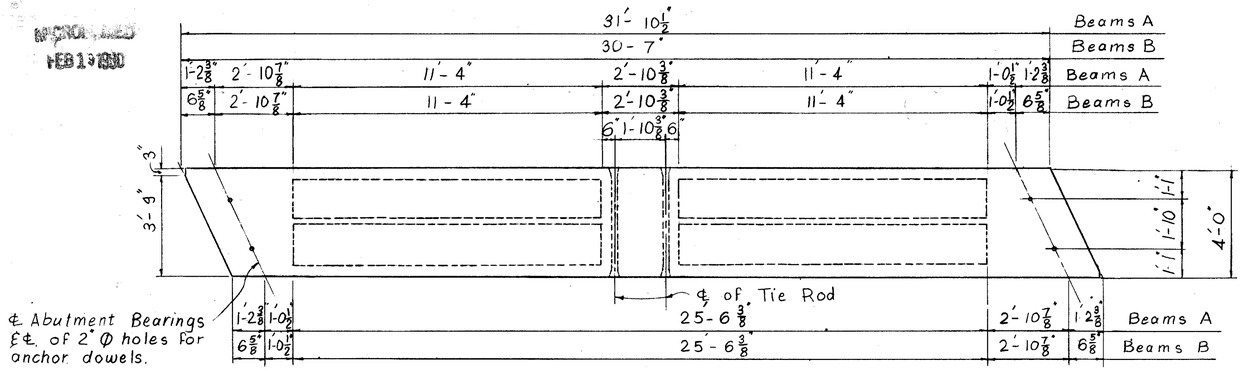
BRIDGE NO. FRA-605-0103.
OVER SUGAR RUN.

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
MRG	MRG		R.L.D.	BFG	5-24-71	

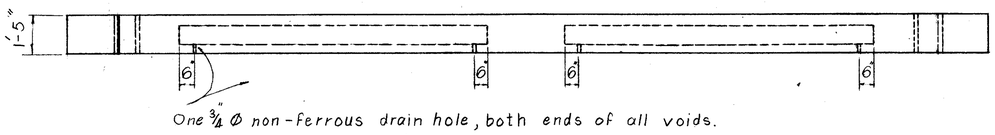
FED. RD. DIVISION	STATE	PROJECT	
2	OHIO		

FRA-605-10.02

23
25

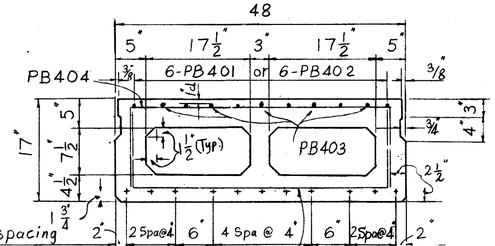


PLAN



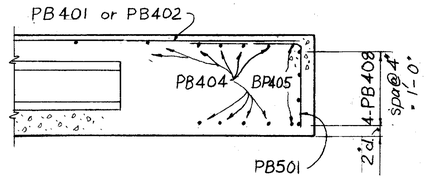
One ¾" Ø non-ferrous drain hole, both ends of all voids.

ELEVATION



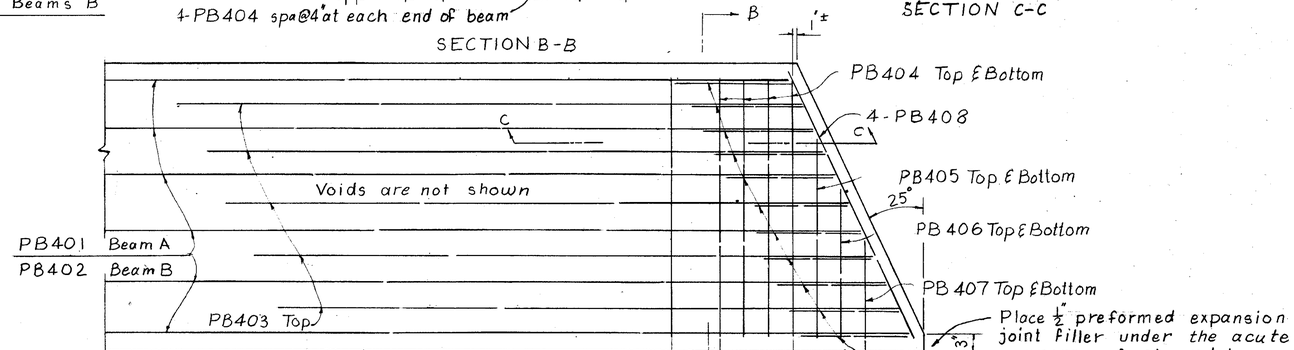
*Strand spacing

4-PB404 spa@4" at each end of beam



SECTION C-C

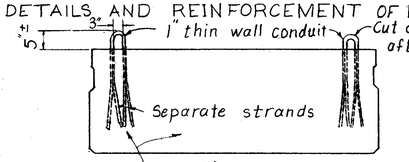
SECTION B-B



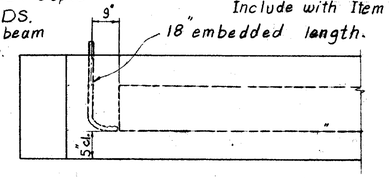
Reinforcement for Beam A 27-PB404 spa@1'-0"=26'-0" Top

Reinforcement for Beam B 26-PB404 spa@1'-0"=25'-0" Top

PLAN OF DETAILS AND REINFORCEMENT OF BEAM ENDS.

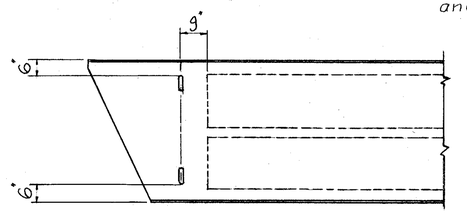


END VIEW



ELEVATION

Shift lifting inserts slightly where necessary to clear reinforcement or anchor dowel holes.

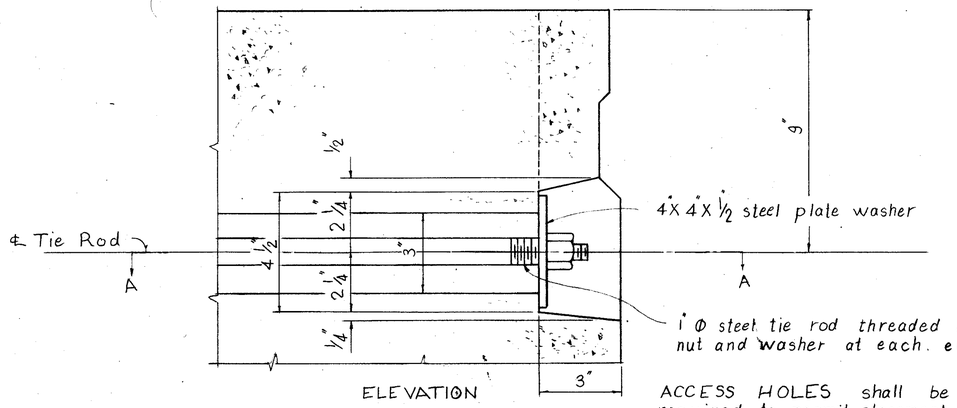


PLAN

BEAM LIFTING INSERTS.

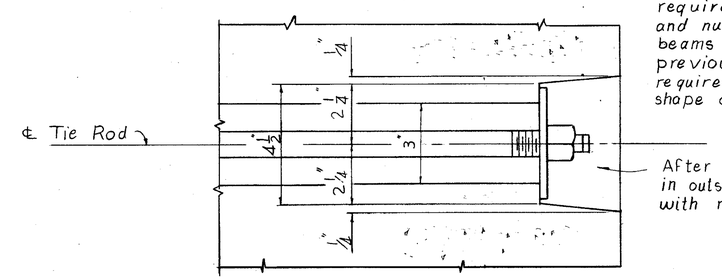
Note: Lifting inserts of the Contractor's design may be used if approved by the Director.

* Prestressing strands are ½" Ø uncoated seven wire stress relieved strands with an initial tension of 28890 pounds per strand and an ultimate strength of 268,000 p.s.i



ELEVATION

ACCESS HOLES shall be provided as required to permit placement of washers and nuts. If the contractor elects to thread beams over rods projecting from beams previously placed, access holes will not be required. When used, holes shall be same shape as recesses as shown in Section A-A



After tie rods are tightened fill recesses in outside beam flush with face of beam with non-shrinking mortar.

SECTION A-A
RECESSES FOR TRANSVERSE
TIE ROD ANCHORAGE

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DIVISION OF DESIGN AND CONSTRUCTION
BUREAU OF BRIDGES

6/6

SUPERSTRUCTURE DETAILS
BRIDGE NO. FRA-605-0103
OVER SUGAR RUN

DESIGNED	DRAWN	TRACED	CHECKED	REVIEWED	DATE	REVISED
MRG	MRG		RLD	BFG	5-24-71	