FOR INFORMATION ONLY

EXISTING STRUCTURE: NO. 071-0022 THREE SIMPLE SPANS CAST-IN-PLACE CONCRETE DECK GIRDER BRIDGE 34 FT. WIDE 114 FT. LONG IS TO BE REVOLVED. THE EXISTING SUBSTRUCTURE IS TO BE LEFT IN AND WIDENED TO ACCOMODATE A NEW 40 FT. WIDE THREE SPAN CONTINUOUS SUPERSTRUCTURE CONSISTING OF A CONCRETE DECK SUPPORTED BY W21 (M-223) SECTION

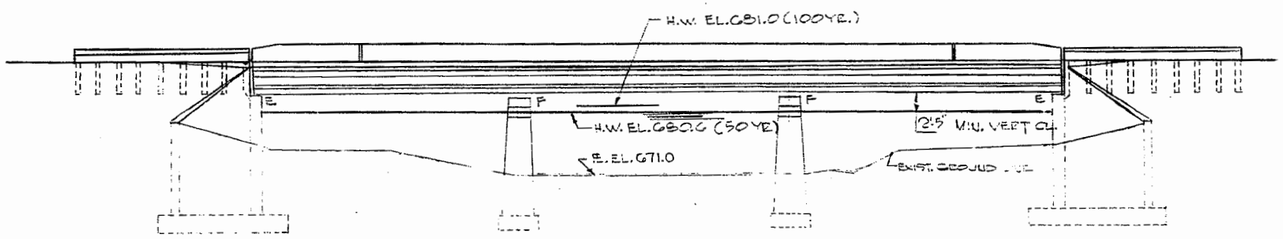
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 2	37BR-2	OGLE	48	24
F.A. 742				11 SHEETS
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

SHEET NO. 1

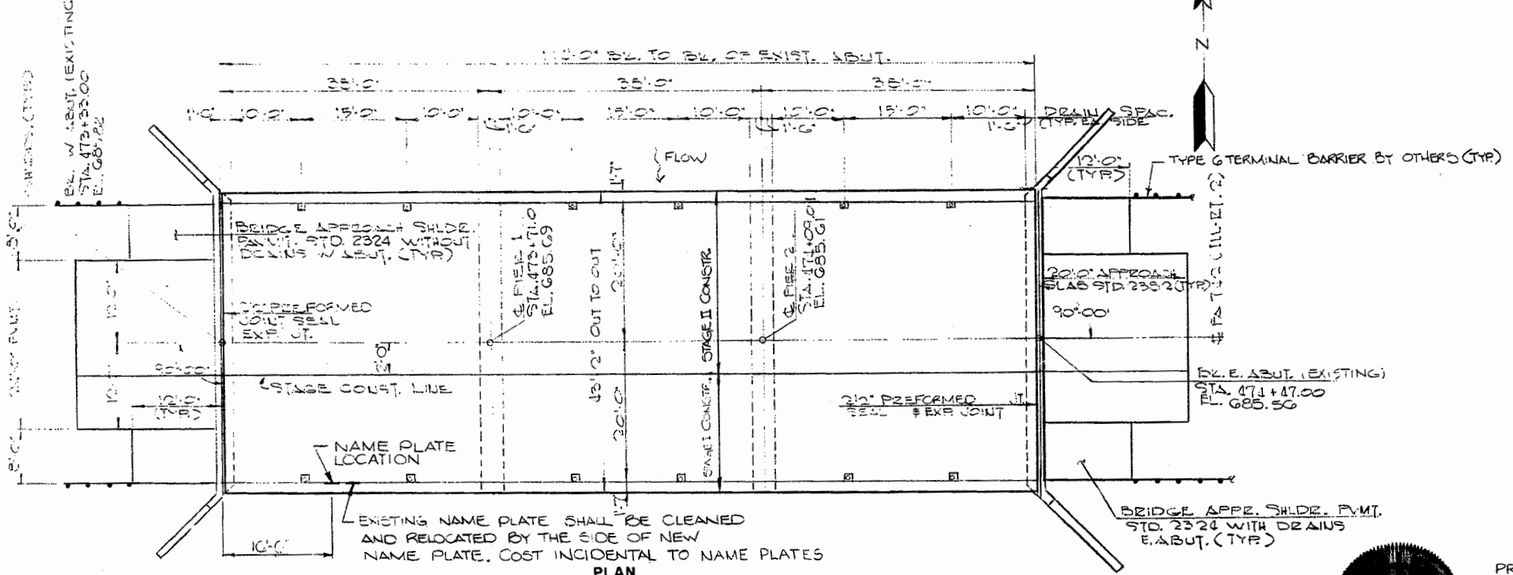
NOTE: BRIDGE PLAN STATIONS REFLECT OLD ROADWAY STATIONING

STA. 473+33.00 BRIDGE PLANS (WEST ABUTTMENT) =
STA. 473+88.39 ROADWAY PLANS



ELEVATION

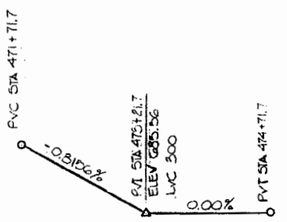
BENCH MARK: CHISLED SQUARE ON TOP N.E. CORNER OF U.S. ABUTMENT OF MILL CREEK BRIDGE EL. 683.12.



TOTAL BRIDGE QUANTITIES

ITEM	UNIT	QUANTITY SUPER-STRUCTURE	QUANTITY SUB-STRUCTURE	TOTAL
CLASS X CONC. SUPERSTRUCTURE	C.Y.	143.6		143.6
CONCRETE REMOVAL	C.Y.	—	31.3	31.3
CLASS 'X' CONCRETE	C.Y.		48.1	48.1
ELASTOMERIC BRG. ASSEMBLY TYPE I	EA.	—	12	12
FLOOR DRAINS	EA	12	—	12
FURNISHING & ERECTING STRUCTURAL STEEL	LS	1	—	1
STUD SHEAR CONNECTORS	EA.	1980	—	1980
PROTECTIVE COAT	SY.	602	—	602
NAME PLATES	EA.	1	—	1
PREFORMED JOINT SEAL (2½")	LF.	86	—	86
REINFORCEMENT BARS, EPOXY COATED	LBS.	36,140	—	36,140
REINFORCEMENT BARS	LBS.		410	410
REMOVAL OF EXISTING SUPERSTRUCTURE	EA.	1	—	1
EPOXY CRACK SEALING	LINFT	—	13	13
EXPANSION BOLTS ¾" Ø	EACH	—	153	153
TEMPORARY CONCRETE BARRIER	LF.	228	—	228

INDEX OF DRAWINGS



PROPOSED PROFILE FA 742 (ILLINOIS RT. 2)

NOTE: PROFILE DATA SHOWN IS BASED ON EXISTING BRIDGE STATIONING.

APPROVED
FOR STRUCTURAL ADEQUACY ONLY.

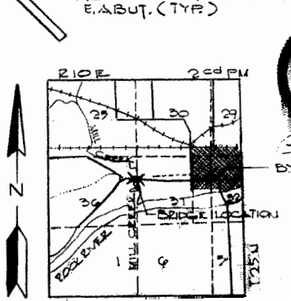
James I Rayburn
Engineer of Bridges and Structures

DESIGNED	M. L. M.
CHECKED	M. E. M.
DRAWN	M. G. / B. J. P.
CHECKED	M. E. M.

WATERWAY INFORMATION

DRAINAGE AREA 52.6496. MI LOW GRADE EL. 680.52 @ STA. 465+00

FLOOD	FREQ YR.	Q C.F.S.	OPENING SQ FT EXIST.	OPENING SQ FT PROP.	NAT. U.W.E.	HEAD FT. EXIST	HEAD FT. PROP.	HEADWATER EL. EXIST.	HEADWATER EL. PROP.
DESIGN	50	5364	777	777	680.6	2.0	2.0	682.6	682.6
BASE	100	6139	818	818	681.0	2.4	2.4	683.4	683.4
OVERTOPPING	500	7937		933	682.1		2.7		684.8



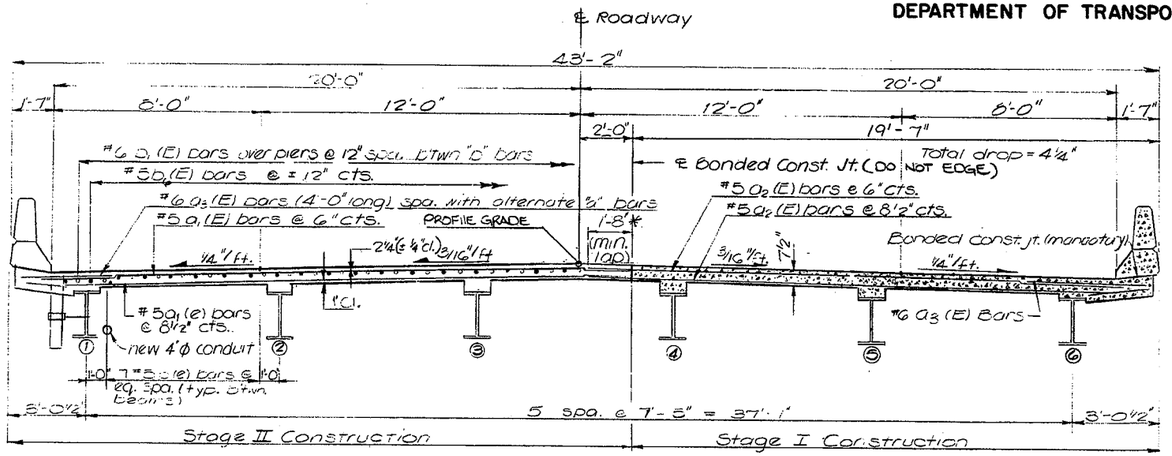
GENERAL PLAN AND ELEVATION

ILLINOIS ROUTE 2 & 72 (F.A.P. 742) BRIDGE REPLACEMENT OVER MILL CREEK
SECTION 37 BR-2 OGLE COUNTY
STATION 473 + 90.00

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
S.B.I. 2 F.A. 742	37BR-2	OGLE	48	27
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

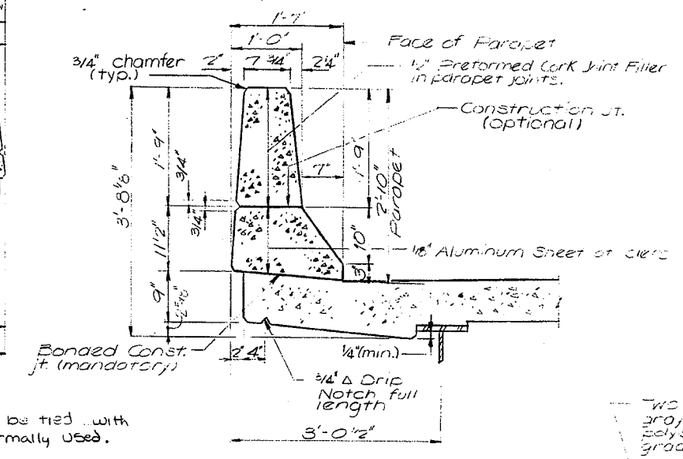
SHEET NO. 4
11 SHEETS



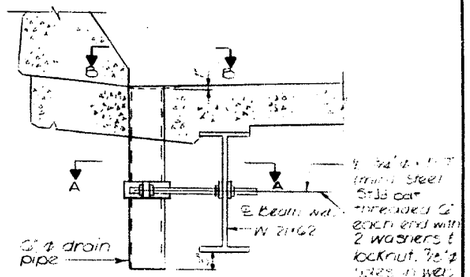
TYPICAL SECTION

Hatched area to be poured after superstructure falsework has been removed. Quantity of class X concrete billed w/ superstructure on Sheet 1.

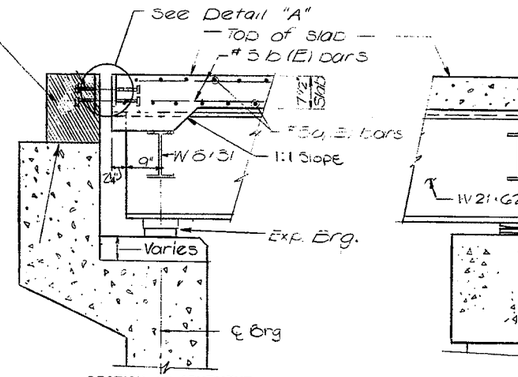
* Lapped bars at this location shall be tied with double the number of ties than normally used.



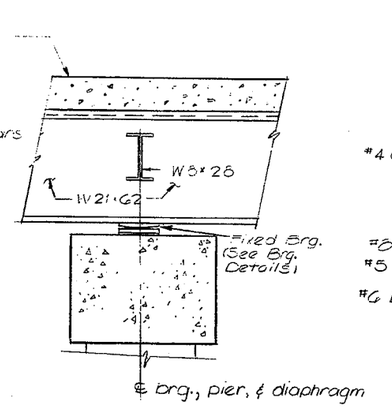
PARAPET DETAIL



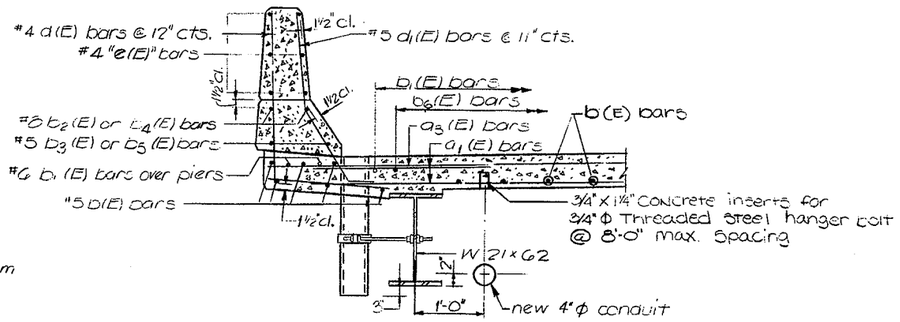
FLOOR DRAIN DETAIL



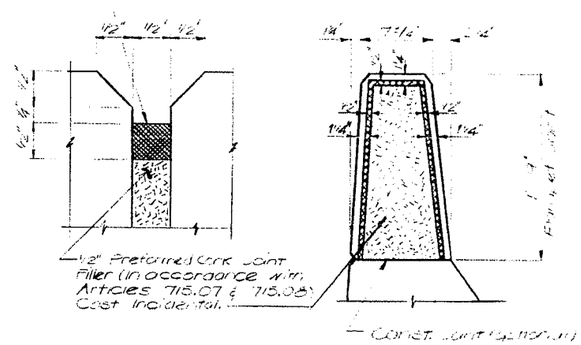
SECTION AT ABUTMENT



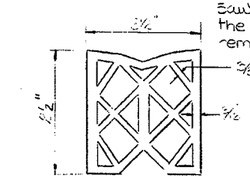
SECTION AT PIER



PARAPET REINFORCEMENT

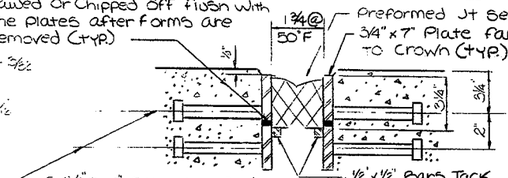


PARAPET JOINT DETAILS

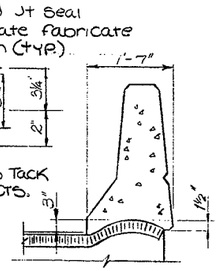


PREFORMED JOINT SEAL (2½)

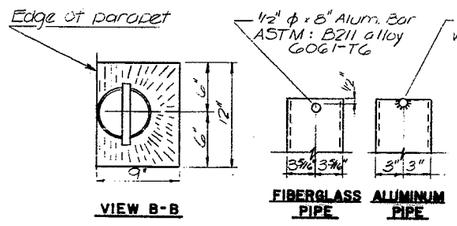
7/16" ϕ holes at 12" cts for ⅜" ϕ bolts. All bolts shall be burned, sawed or chipped off flush with the plates after forms are removed (typ.)



DETAIL "A"
(TOTAL length of plates = 172')
(TOTAL number of studs = 172)

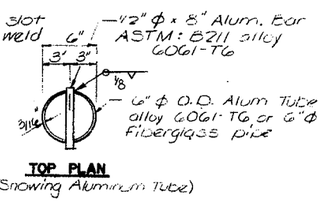


TYPICAL END OF SEAL TREATMENT

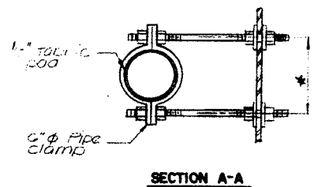


VIEW B-B

FIBERGLASS PIPE | ALUMINUM PIPE



TOP PLAN
(Showing Aluminum Tube)



SECTION A-A

DESIGNED	M. L. M.
CHECKED	M. E. M.
DRAWN	B. J. P.
CHECKED	M. L. M.

NOTE:
Fiberglass pipe shall conform to ASTM: D2996 with short time rupture strength hoop tensile stress of 30,000 psi minimum. The exterior surfaces of the floor drain shall be painted with the vinyl enamel coat painting specified for structural steel. The exterior surfaces of the aluminum tube shall be cleaned and given a washcoat pretreatment in accordance with "Steel Structures Painting Council" Spec SSPC-SP1 & SSPC-PT27 prior to painting.

The surface of the fiberglass pipe shall be free of bond inhibiting agents.

TYPICAL SECTION & DECK DETAILS

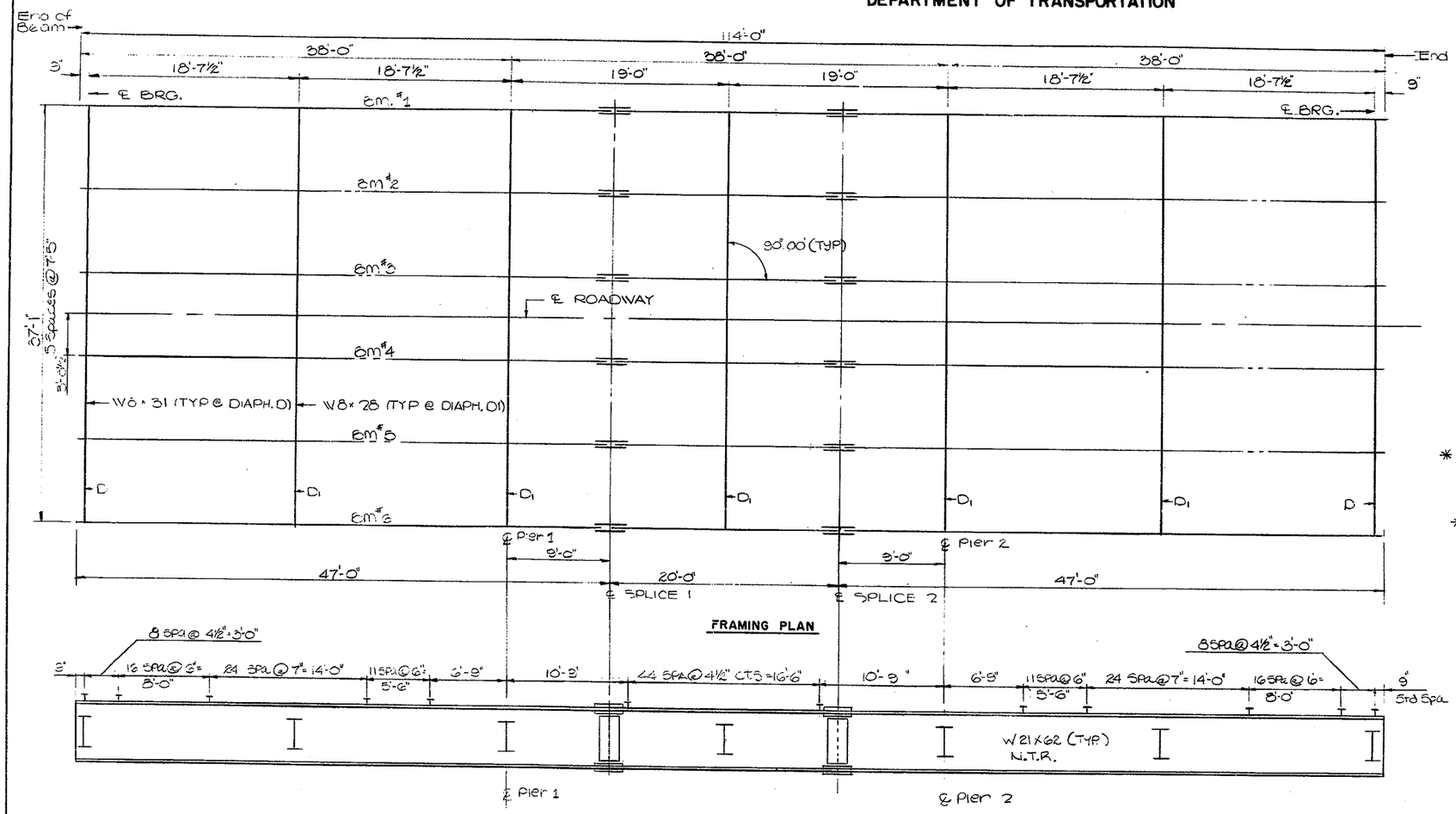
ILLINOIS ROUTE 2 & 72 (F.A.P. 742) BRIDGE
REPLACEMENT OVER MILL CREEK
SECTION 37 BR - 2 OGLE COUNTY
STATION 473 + 90.00

SN 071 - 0022

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
S.B.I. 2 F.A.742	37 BR 2	OGLE	48	29
FED. ROAD DIST. NO. 7		ILLINOIS FED. AID PROJECT		

SHEET NO 6
11 SHEETS



FRAMING PLAN

N.T.R. indicates Notch Toughness Requirement.

BEAM ELEVATION

INTERIOR GIRDER MOMENT TABLE			
	0.4 SPAN 1	PIER 1	0.5 SPAN 2
Is (in⁴)	1330	1330	1330
Ic (in⁴)	4977		4977
Ss (in³)	126.7	126.7	126.7
Sc (in³)	220.8		220.8
MQ (K')	0.814	0.814	0.814
MSQ (K')	89.6	115.1	31.8
SQ (K')	0.325	0.325	0.325
MSQ (K')	40	34	24
ML (K')	238	102	214
MIMP (K')	72	31	64
Ss (ML+I) (K')	517	224	464
Ma (K')	841	486	676
* MU (K')	1317		1317
fs Q non-comp (KSI)	8.5	10.8	3.0
fs Q (comp) (KSI)	2.4	3.2	1.4
fs Ss (L+I) (KSI)	28.1	21.2	25.2
fs (Overload) (KSI)	39.0	35.4	29.6
** fs (TOTAL) (KSI)	50.7	46.0	38.0
VR (K)	556		57.7

INTERIOR GIRDER REACTION TABLE		
	ABUTMENTS	PIER 1 OR 2
R Q (K)	17.2	46.3
R L (K)	38.9	47.4
Imp (K)	12.0	4.2
R Total (K)	68.1	98.5

* Mu = Full Plastic moment capacity for compact braced section

** NON-compact section

Ma (Applied Moment) = 1.3 [MQ + MSQ + 5/3 (ML + I)]

Is and Ss are the moment of inertia and section modulus of the steel section used in computing fs (Total and Overload)

Ic and Sc are the moment of inertia and section modulus of the composite section used in computing fs (Total and Overload)

VR is the maximum L + I impact shear force in span.

The fully plastic moment capacity (Mu) is computed according to AASHTO 10.48.1 & 10.50.1.

fs (Total) is the sum of the stresses due to 1.3 [MQ + MSQ + 5/3 (ML + I)]

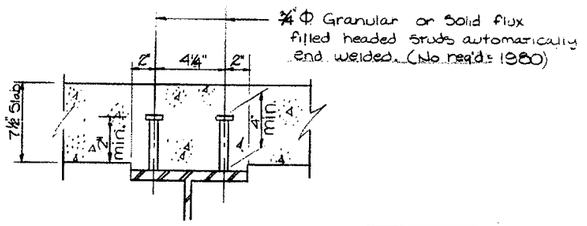
fs (Overload) is the sum of the stresses due to ML + MSQ + 5/3 (ML + I)

MQ - Moment due to dead loads on non-composite section

MSQ - Moment due to dead loads on composite section

ML - Moment due to live loads on non-composite section

I - Live load impact



SHEAR STUD DETAIL

NOTE: See Sheet 7 for additional notes.

DESIGNED	M.L.M.
CHECKED	M.E.M.
DRAWN	M.B.
CHECKED	M.L.M.

FRAMING PLAN

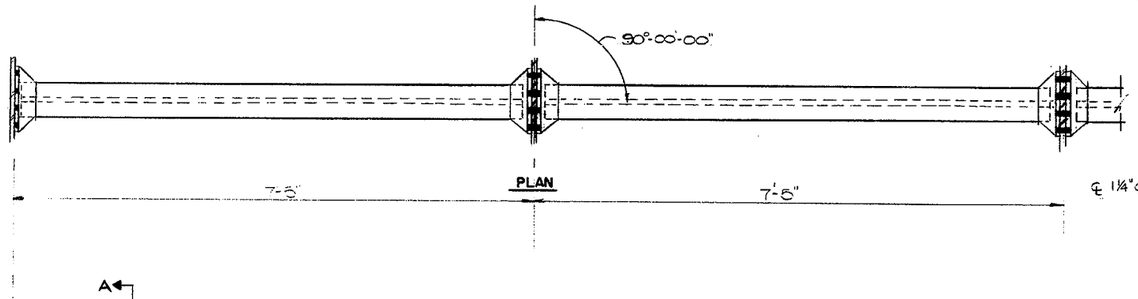
ILLINOIS ROUTE 2 & 72 (F.A.P. 742) BRIDGE REPLACEMENT OVER MILL CREEK
SECTION 37 BR-2 OGLE COUNTY
STATION 473+90.00

SN 071-0022

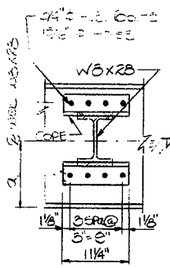
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
S.B.I. 2 F.A. 742	37 BR-2	OGLE	48	30
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

SHEET NO. 7 OF 11 SHEETS

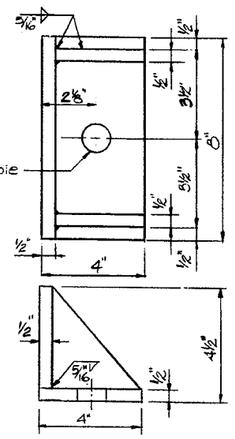


ELEVATION DIAPHRAGM D1



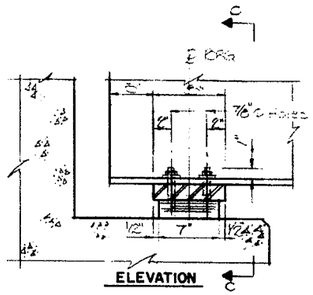
SECTION A-A

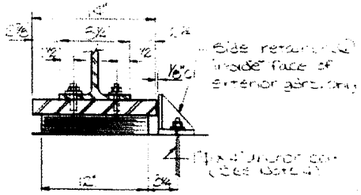
BM	1 OR 6	2 OR 5	3 OR 4
2	11 5/16	9 3/4"	9 3/8"



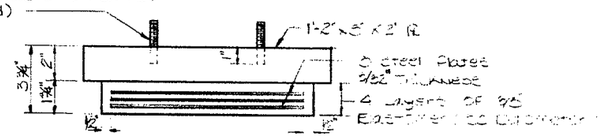
SIDE RETAINER DETAIL *

* Equivalent rolled angle with stiffeners will be allowed in lieu of welded plates.

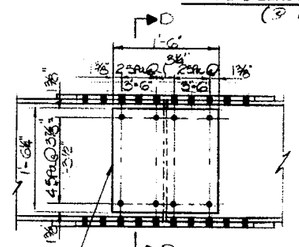




¾" ⌀ Threaded Stud with Flat Washer & hex nut (4 Req'd)

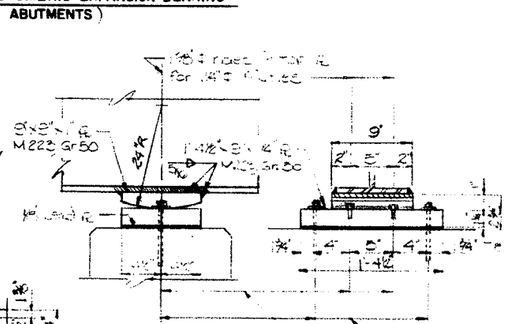


TYPE I ELASTOMERIC EXPANSION BEARING
(2 ABUTMENTS)



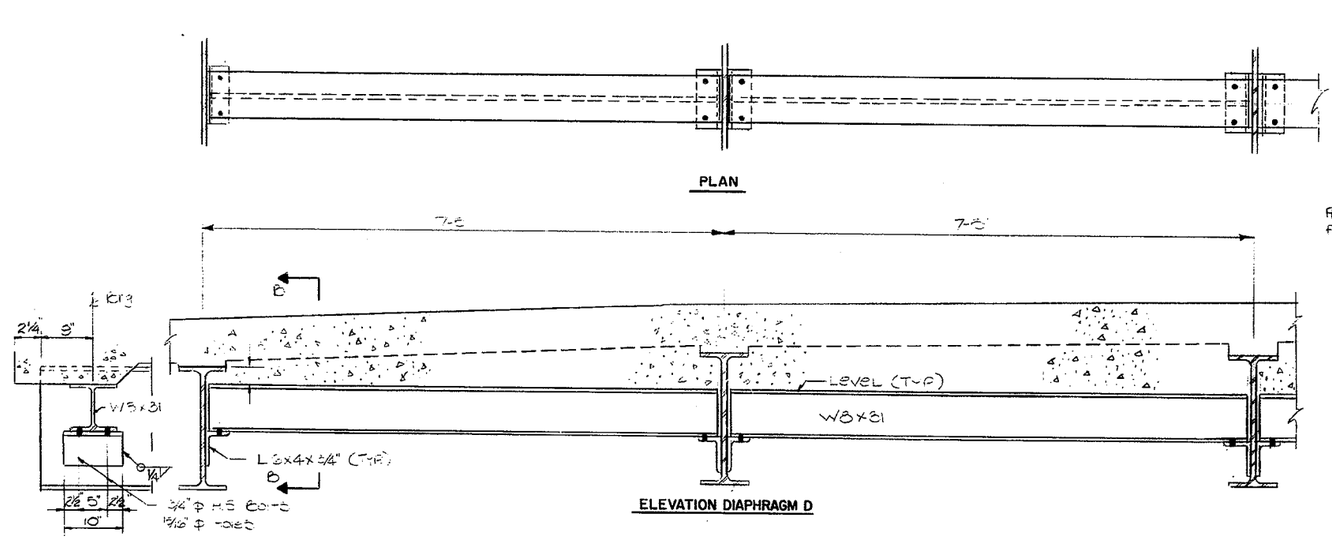
SECTION D-D

BOLTED FIELD SPLICE DETAILS



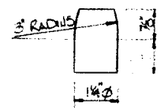
1¼" ⌀ Pintles - 1'-6" long in Bott PL. Thread or press fit. —

FIXED BEARING ASSEMBLY
(2 PIERS)



ELEVATION DIAPHRAGM D

SECTION B-B



PINTLE

NOTES
1. Hardened washers are required over all 13/16" holes in diaphragm connections.
2. Beams 1 thru 6 and splice PL's shall be AASHTO M-223 Gr 50 Steel.
3. After girders have been erected, holes at expansion bearing shall be drilled and anchor bolts grouted in place. Anchor bolts at fixed bearings may be built into the masonry.

DESIGNED	M.L.M.
CHECKED	M.E.M.
DRAWN	M.B.
CHECKED	M.L.M.

MISCELLANEOUS DETAILS

ILLINOIS ROUTE 2 & 72 (F.A.P. 742) BRIDGE REPLACEMENT OVER MILL CREEK
SECTION 37 BR - 2 OGLE COUNTY
STATION 473 + 90.00

SN 071 - 0022