1-20-2012 LETTING ITEM 151

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
VARIOUS	D6 BDGE PAINTING 2012	MENARD, SANG.	27	1
FED. ROAD DIST. NO. 6	ILLINOIS	CONTRACT NO. 72F02		

C-96-010-12

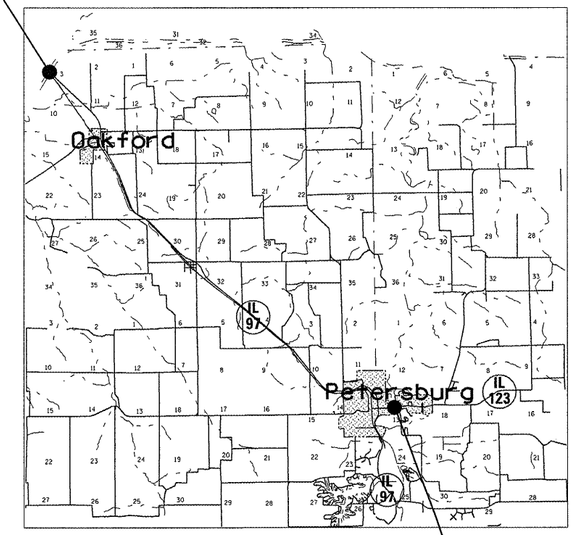
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

PROPOSED
HIGHWAY PLANS

VARIOUS ROUTES
SECTION D6 BRIDGE PAINTING 2012
BRIDGE PAINTING
SANGAMON AND MENARD COUNTIES

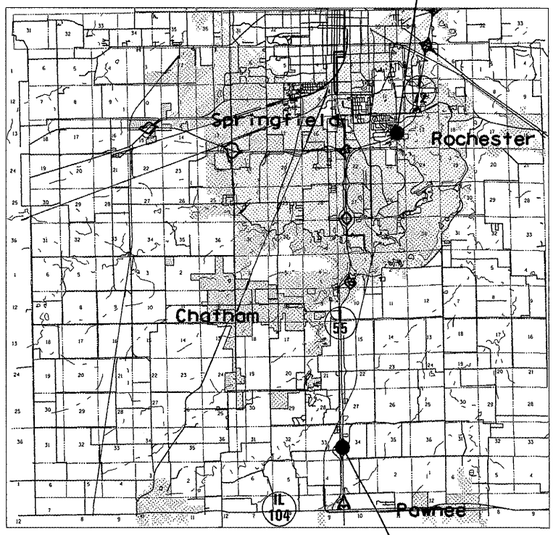
FOR INDEX OF SHEETS, SEE SHEET NO. 2

SN 065-0002

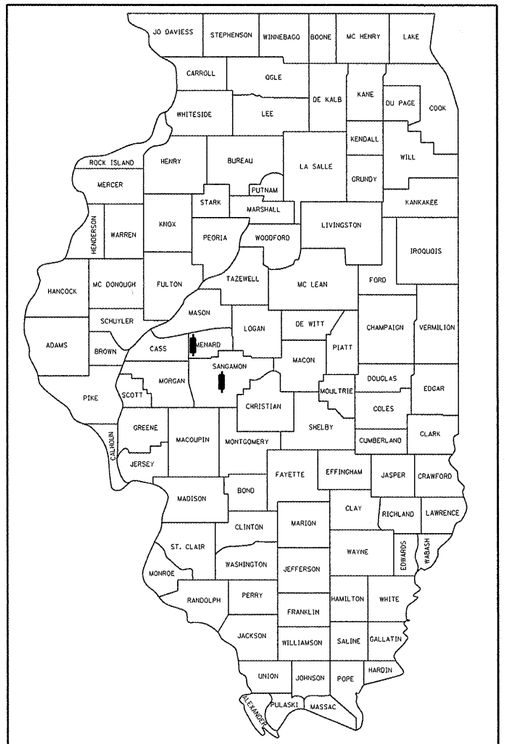


SN 065-0016

SN 084-0092



SN 084-0111



LOCATION OF SECTION INDICATED THUS: – ■ –

J.U.L.I.E.
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
1-800-892-0123
OR 811

D6 BRIDGE MAINTENANCE ENGINEER –
STEVE BERAN (217) 785-9290
D6 BRIDGE INSPECTION ENGINEER –
DAVE COPENBARGER (217) 785-5306

CONTRACT NO. 72F02

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

SUBMITTED October 27 20 11
Roger L Driskell
DEPUTY DIRECTOR OF HIGHWAYS, REGION ENGINEER
December 9 20 11
Scott E. Stitt, P.E. /BL
acting ENGINEER OF DESIGN AND ENVIRONMENT
December 9 20 11
William R. Frey /BL
Interim DIRECTOR OF HIGHWAYS, CHIEF ENGINEER

PRINTED BY THE AUTHORITY
OF THE STATE OF ILLINOIS

NET LENGTH = 2080 FT. = 0.39 MILE

INDEX OF SHEETS:

1 - COVER SHEET
2 - INDEX, HIGHWAY STANDARDS, & GENERAL NOTES
3 - SUMMARY OF QUANTITIES
4 THRU 12 - EXISTING PLANS, SN 065-0002
13 THRU 19 - EXISTING PLANS, SN 065-0016
20 THRU 22 - EXISTING PLANS, SN 084-0092
23 THRU 27 - EXISTING PLANS, SN 084-0111

STANDARDS

701001-02
701006-03
701101-02
701106-02
701201-04
701400-05
701401-06
701411-08
701446-03
701801-05
701901-02

GENERAL NOTES:

STRUCTURE NO 1 - SN 065-0002, IL 97 OVER THE SANGAMON RIVER LOCATED AT THE MASON/MENARD CO LINE IN MENARD CO. CLEANING AND PAINTING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISIONS FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES". ALL BEAMS, BEARING AND OTHER STRUCTURAL STEEL WITHIN 10' (MEASURED ALONG THE BEAM) OF EITHER SIDE OF DECK JOINTS SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING PER SSPC-SP10. ALL EXISTING STEEL CLEANED SHALL BE PAINTED ACCORDING TO THE REQUIREMENTS OF PAINT SYSTEM 1 - OZ/E/U. THE COLOR OF THE FINAL FINISH COAT SHALL BE GREEN, MUNSELL NO 7.5G 4/8.

STRUCTURE NO 2 - SN 065-0016, IL 123 OVER THE SANGAMON RIVER LOCATED .2 MILES EAST OF PETERSBURG IN MENARD CO. CLEANING AND PAINTING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISIONS FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES". ALL BEAMS, BEARING AND OTHER STRUCTURAL STEEL WITHIN 10' (MEASURED ALONG THE BEAM) OF EITHER SIDE OF DECK JOINTS SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING PER SSPC-SP10. ALL EXISTING STEEL CLEANED SHALL BE PAINTED ACCORDING TO THE REQUIREMENTS OF PAINT SYSTEM 1 - OZ/E/U. THE COLOR OF THE FINAL FINISH COAT SHALL BE GREEN, MUNSELL NO 7.5G 4/8

STRUCTURE NO 3 - SN 084-0092, WEST LAKE DRIVE OVER I-55 LOCATED .8 MILES SW OF STEVENSON DRIVE CLEANING AND PAINTING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISIONS FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES". ALL EXISTING STEEL, INCLUDING BRIDGE RAILING, SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING PER SSPC SP 10. ALL EXISTING STEEL CLEANED SHALL BE PAINTED ACCORDING TO THE REQUIREMENTS OF PAINT SYSTEM 1 - OZ/E/U. THE COLOR OF THE FINAL FINISH COAT FOR THE OUTSIDE AND BOTTOM OF THE FASCIA BEAMS SHALL BE GREEN, MUNSELL NO 7.5G 4/8. THE COLOR OF THE FINAL FINISH COAT FOR ALL INTERIOR SURFACES AND BRIDGE RAILING SHALL BE GRAY, MUNSELL NO 5B 7/1.

STRUCTURE NO 4 - SN 084-0111, HORSE FARM ROAD OVER I-55 LOCATED 1.4 MILES NORTH OF IL 104. CLEANING AND PAINTING OF THE EXISTING STRUCTURAL STEEL SHALL BE AS SPECIFIED IN THE SPECIAL PROVISIONS FOR "CLEANING AND PAINTING EXISTING STEEL STRUCTURES". ALL EXISTING STEEL SHALL BE CLEANED PER NEAR WHITE BLAST CLEANING PER SSPC SP 10. ALL EXISTING STEEL CLEANED SHALL BE PAINTED ACCORDING TO THE REQUIREMENTS OF PAINT SYSTEM 1 - OZ/E/U. THE COLOR OF THE FINAL FINISH COAT FOR THE OUTSIDE AND BOTTOM OF THE FASCIA BEAMS SHALL BE GREEN, MUNSELL NO 7.5G 4/8. THE COLOR OF THE FINAL FINISH COAT FOR ALL INTERIOR SURFACES SHALL BE GRAY, MUNSELL NO 5B 7/1.

THE USE OF AIR MONITORS WILL BE REQUIRED AT STRUCTURES NUMBERS 1,2 AND 3. A MINIMUM OF 2 MONITORS WILL BE REQUIRED AT EACH BRIDGE TO MONITOR ABRASIVE BLASTING OPERATIONS AT THIS SITE, SEE SPECIAL PROVISIONS FOR "CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES".

THE SSPC-QP-1 AND SSPC-QP2 PAINTING CONTRACTOR CERTIFICATIONS WILL BE REQUIRED FOR THESE BRIDGES.

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
DISTRICT 6

EXAMINED 10/20 20 11
ENGINEER OF OPERATIONS

EXAMINED 10-26- 20 11
ENGINEER OF PROJECT IMPLEMENTATION

EXAMINED 10/26 20 11
ENGINEER OF PROGRAM DEVELOPMENT

INDEX, STANDARDS, & NOTES
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

SUMMARY OF QUANTITIES

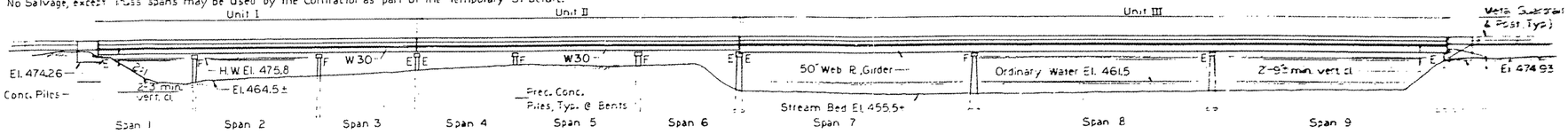
CODE NO.	ITEM	UNIT	100% STATE 0014 MENARD QTY	100% STATE 0014 SANG QTY	100% STATE 0014 TOTAL QTY
Z0010501	CLEANING AND PAINTING STEEL BRIDGE, NO. 1	L SUM	1		1
Z0010502	CLEANING AND PAINTING STEEL BRIDGE, NO. 2	L SUM	1		1
Z0010503	CLEANING AND PAINTING STEEL BRIDGE, NO. 3	L SUM		1	1
Z0010504	CLEANING AND PAINTING STEEL BRIDGE, NO. 4	L SUM		1	1
Z0007101	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES, NO 1	L SUM	1		1
Z0007102	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES,NO 2	L SUM	1		1
Z0007103	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES,NO 3	L SUM		1	1
Z0007104	CONTAINMENT AND DISPOSAL OF LEAD PAINT CLEANING RESIDUES,NO 4	L SUM		1	1
Z0052396	PORTABLE TEMPORARY BARRIER SYSTEM, TEST LEVEL 3	FOOT		300	300
67100100	MOBILIZATION	L SUM	0.5	0.5	1
70100450	TRAFFIC CONTROL AND PROTECTION, STANDARD 701201	L SUM	1		1
70100420	TRAFFIC CONTROL AND PROTECTION, STANDARD 701411	EACH		2	2
70100800	TRAFFIC CONTROL AND PROTECTION, STANDARD 701401	L SUM		1	1
70100815	TRAFFIC CONTROL AND PROTECTION, STANDARD 701446	L SUM		1	1
70102640	TRAFFIC CONTROL AND PROTECTION, STANDARD 701801	L SUM		1	1
70106800	CHANGEABLE MESSAGE SIGNS	CAL MO		2	2
70200100	NIGHTTIME WORK ZONE LIGHTING	L SUM		1	1
X7040092	RELOCATE PORTABLE TEMPORARY BARRIER SYSTEM, TEST LEVEL 3	L SUM		1	1

QUANTITIES
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

FA 34	2 BR	MENARD MASON	57	7
			Sheet 1 of 35	

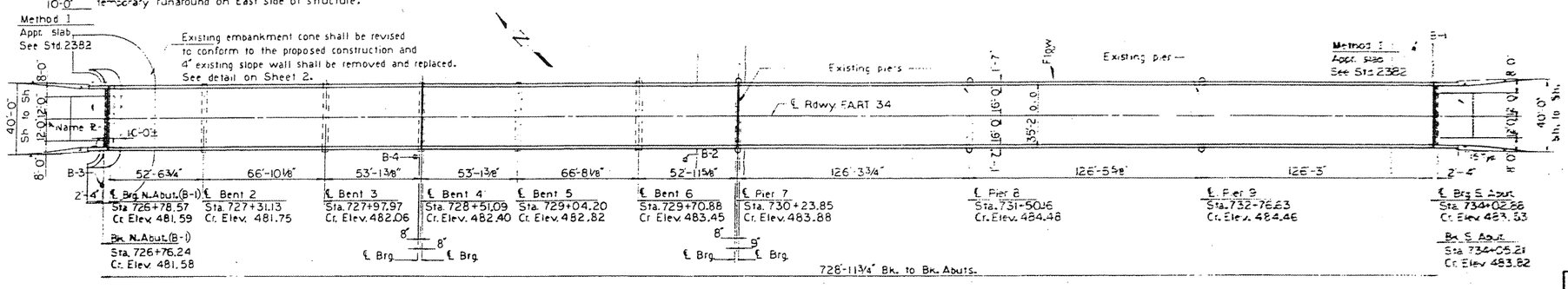
B.M. Standard Mone-Metal Rivet (USGS Copper Plug) Top of E. Pier Under RR Tracks Rt. Sta. 730+50± Elev. 474.71.

Existing Structure: Structure No. 065-0002. Original structure built in 1937 as FAP 142 Sec. 2-B-D-E-F-P, Mason-Menard County, Sta. 732+14. Six spans of R.C. slab on steel I-brms and three Truss spans, 24'-0" roadway. Concrete pile cents at approach spans and solid concrete piers at Truss spans, closed abutment at South end and pile bent at North end. Superstructure and parts of substructure, to be removed. No Salvage, except Truss spans may be used by the Contractor as part of the Temporary Structure.



ELEVATION

Traffic to be maintained during construction on a temporary runaround on East side of structure.



PLAN

*Existing Name R. to be cleaned and placed beneath New Name R. Cost incidental.

STATION 730+40.73
BUILT 1938 BY
STATE OF ILLINOIS
F.A.R.T. 34 SEC. 2BR
F.A. PROJ.: BR-F-34(3)
LOADING HS 20
STR. NO. 065-0002

NAME PLATE
Std. 2113

GENERAL NOTES

See proposal for boring data.

Fasteners shall be high strength bolts. Bolts 7/8"ø, open holes 15/16"ø, unless otherwise noted.

Calculated weight of M 223 Grade 50 structural steel = 333,430 lbs.

Calculated weight of M 183 structural steel = 303,760 lbs.

All reinforcement shall conform to the requirements of AASHTO M 31 or M 53 grade 60.

The basic lead silico chromate paint system shall be used for shop and field painting of structural steel.

Field welding of construction accessories will not be permitted to the bottom flange of beams or girders nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.

Anchor bolts shall be set before bolting diaphrams and cross frames over supports.

Slope wall shall be reinforced with welded wire fabric 6" x 6" - WA.0 x WA.0, weighing 58 lbs. per 100 sq. ft.

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

The contractor shall drive 3 test piles in permanent locations-one concrete test pile at north abut. and one each precast concrete test pile at bents 3 and 6 as directed by the Engineer before ordering the remainder of piles.

Plan dimensions and details relative to existing structure have been taken from field survey results. 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 variation shall not be cause for additional compensation for a change in the scope of work; however, the Contractor will be paid for the quantity actually furnished and used in the construction at the unit price bid for the work.

Bearing seat surfaces shall be constructed or adjusted to the designated elevations within a tolerance of 1/8". Adjusting shims of the dimension of the bottom bearing plates shall be provided for each bearing in addition to all other plates or shims.

The main load-carrying member components subject to tensile stress shall conform to the Supplemental Requirements for Notch Toughness Zone 2. These components are the tension flanges, webs and all splice plate material of the steel girders or wide flange beams.

Catwalk to USAS Gauging Station at Pier 7 shall be removed before construction and reattached after construction has been completed.

All contact surfaces of joints for the diaphragms, cross frames and/or lateral bracings shall be free of paint or lacquer.

Expansion bolts shall consist of self drilling expansion anchors and 3/4"ø hooked bolts. Hooked bolts shall extend a minimum of 12" into new concrete unless otherwise shown.

CONSTRUCTION SEQUENCE

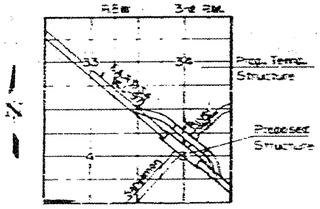
1. Construct first six P.P.C. deck bean spans of the temporary structure.
2. Construct temporary piers 8 and 9 and the temporary south abutment.
3. Close through traffic on main line route and shift the three existing trusses to their new location on the temporary structure.
4. Divert the through traffic to the temporary structure.
5. Construct the permanent structure.
6. Re-direct traffic to the permanent structure
7. Remove the temporary structure and complete embankment cone for the north abutment of the permanent structure.

TOTAL BILL OF MATERIALS

	ITEM	UNIT	SUPER.	SUB.	TOTAL
*	Removal of Existing Superstructures	Each			1
	Concrete Removal	Cu. Yd.		100	100
	Structure Excavation	Cu. Yd.		150	150
	Protective Coat	Sq. Yd.	3200		3200
	Class X Concrete	Cu. Yd.	770.9	181.0	951.9
	Structural Steel	L.S.			L.S.
	Stud Shear Connectors	Each	7860		7860
	Reinforcement Bars	Lb.	80,450	17,540	97990
	Reinforcement Bars (Epoxy Coated)	Lb.	125,150		125,150
	Precast Concrete Piles	Lin. Ft.		377	377
	Test Pile, Precast Concrete	Each		2	2
	Concrete Piles	Lin. Ft.		259	259
	Test Pile Concrete	Each			
	Name Plate	Each	1		1
	Slope Wall (6")	Sq. Yd.		450	450
*	Temporary Bridge, Complete	Each			1
	Neoprene Expansion Joint 2"	Lin. Ft.	34		34
	Neoprene Expansion Joint 2½"	Lin. Ft.	34		34
	Neoprene Expansion Joint 4"	Lin. Ft.	66		66
	Floor Drains	Each	96		96
	Elastomeric Brg. Assembly (Type II)	Each	20		20
	Expansion Bolts (¾"ø)	Each		120	120

See Sheet 2 for Waterway Information, Design Stresses, Profile Grade, Pouring Schedule and detail of North embankment cone.

* See Special Provisions.



LOCATION SKETCH

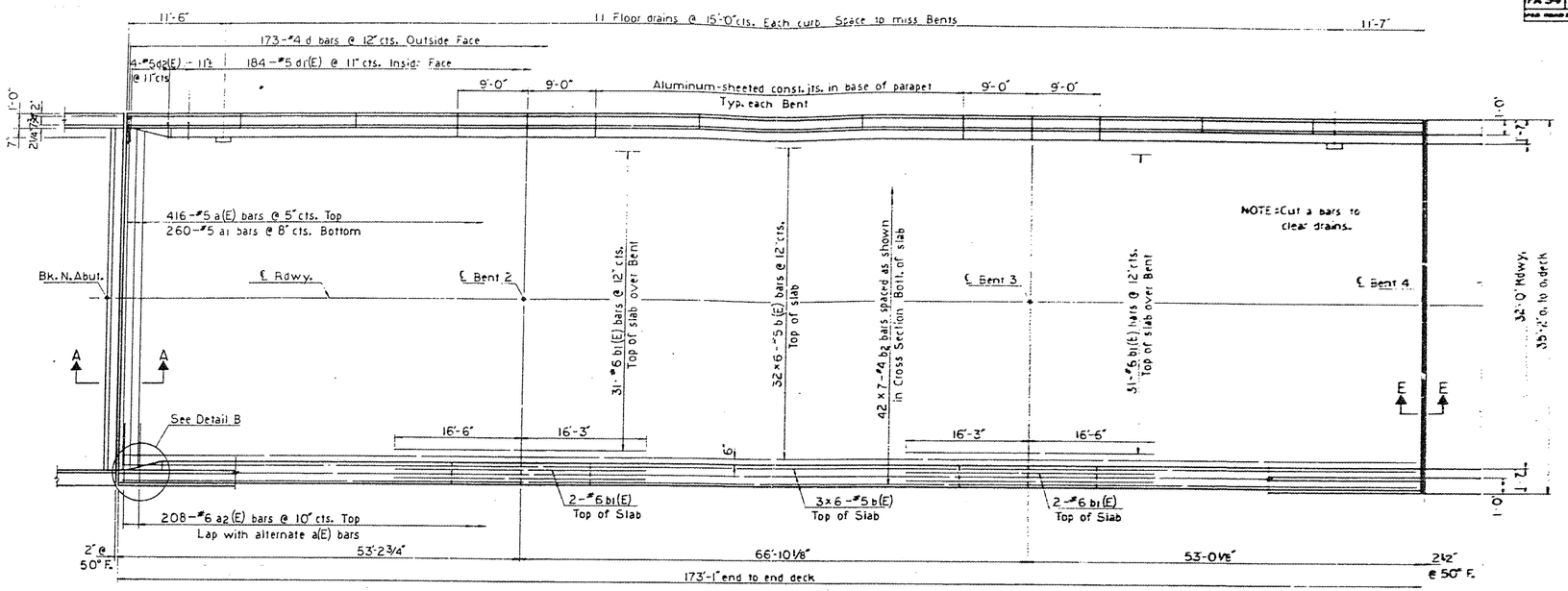
ILL. Structural #2919

FOR INFORMATION ONLY

EXISTING PLANS, SN 065-0002
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

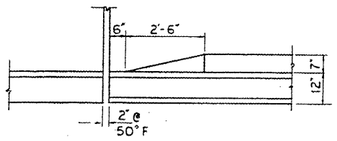
FA 34	2 BR	MENARD MASON	17	9

Sheet 3 of 35

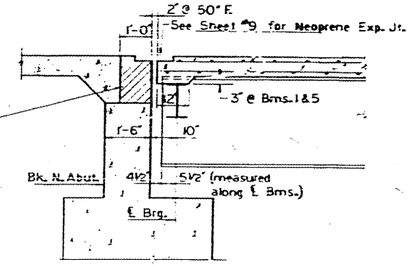


For Sec. E-E See Sheet 5.

PLAN
UNIT I

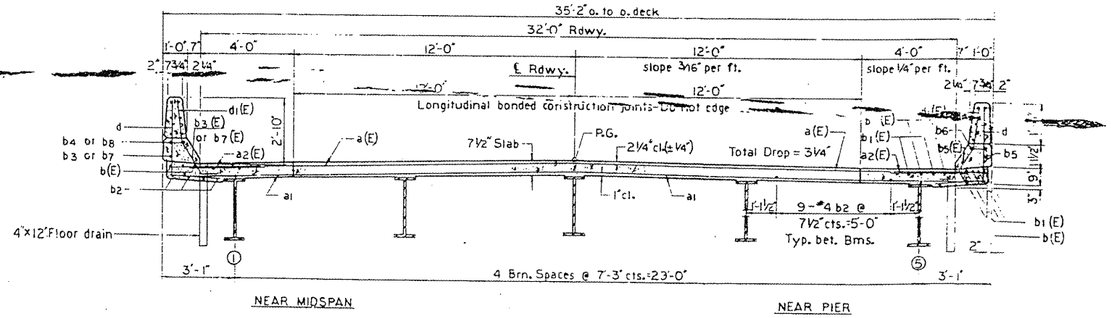


DETAIL B



Hatched area to be poured after superstructure forms have been removed. Quantity of Class X Concrete included with superstructure.

Min. Bar Lap	
#4	1'-4"
#5	1'-8"
#8	3'-0"



NEAR MIDSPAN

NEAR PIER

CROSS SECTION

SEC. A-A

See Sheet #4 for Superstructure details and Bill of Materials. Reinforcement bars designated (E) shall be epoxy-coated. See Special Provisions.

Bars shown thus 32x6-#5 etc. indicate 32 lines of bars with 6 lengths per line.

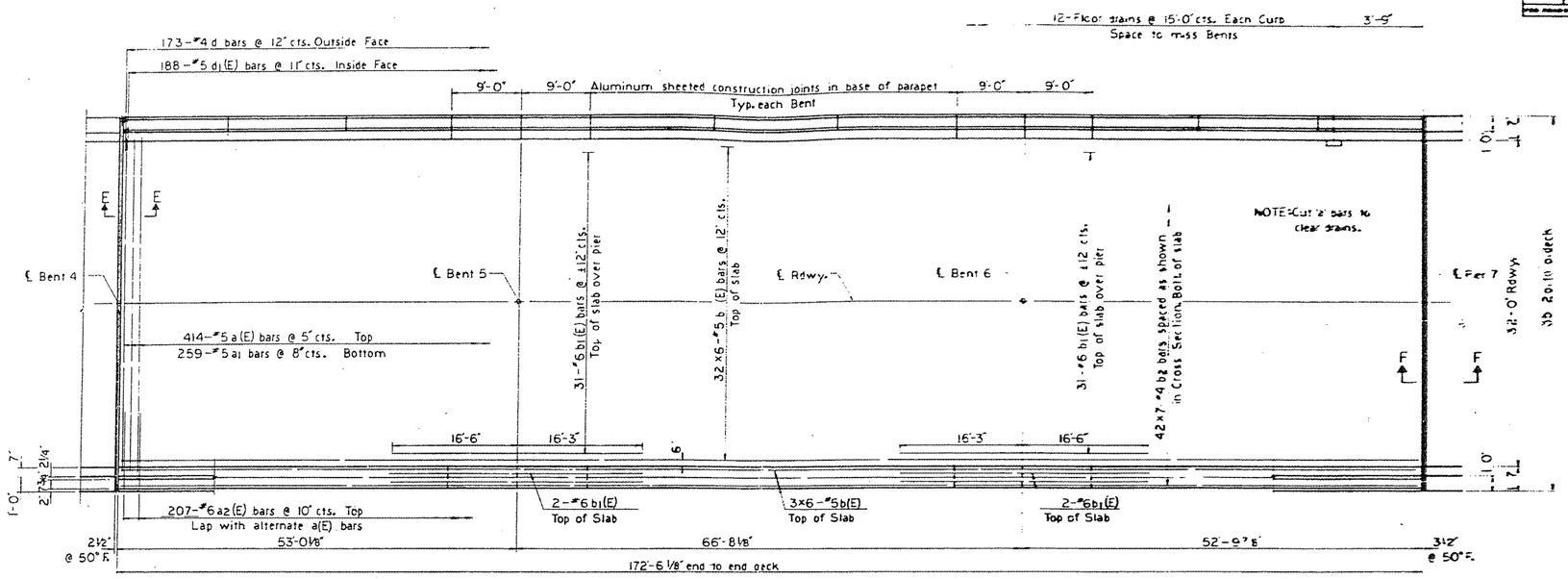
UNIT I
SUPERSTRUCTURE
F.A.RT.34 SEC.2BR
MASON-MENARD COUNTY
STA. 730+40.73

FOR INFORMATION ONLY

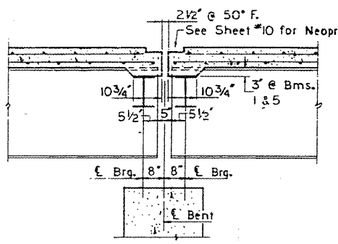
EXISTING PLANS, SN 065-0002
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

CONTRACT: 72F02
SHEET 6 OF 27

FA 34	2 BR	MENARD MASON	57	11
				Sheet 5 of 35

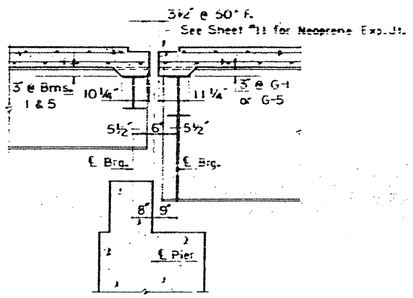


PLAN
UNIT II

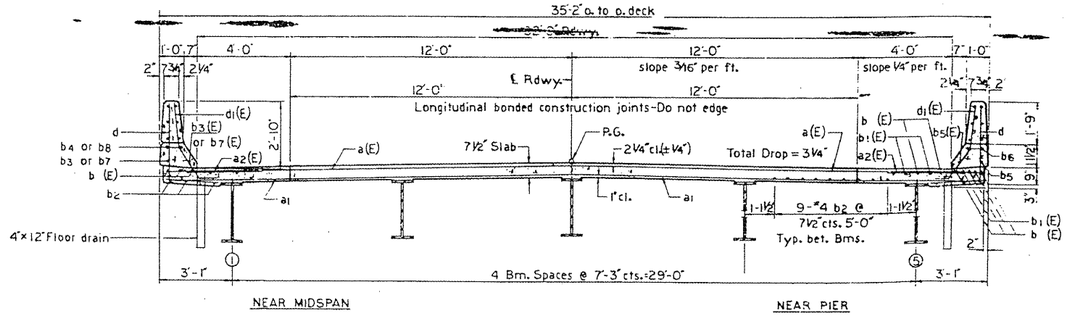


SEC. E-E

Min. Bar Lap
#4 1'-4"
#5 1'-8"
#8 3'-0"



SEC. F-F



CROSS SECTION

See Sheet #6 for Superstructure details and Bill of Materials.
Reinforcement bars designated (E) shall be epoxy-coated.
See Special Provisions.
Bars shown thus 32 x 6-#5 etc., indicate 32 lines of bars with 6 lengths per line.

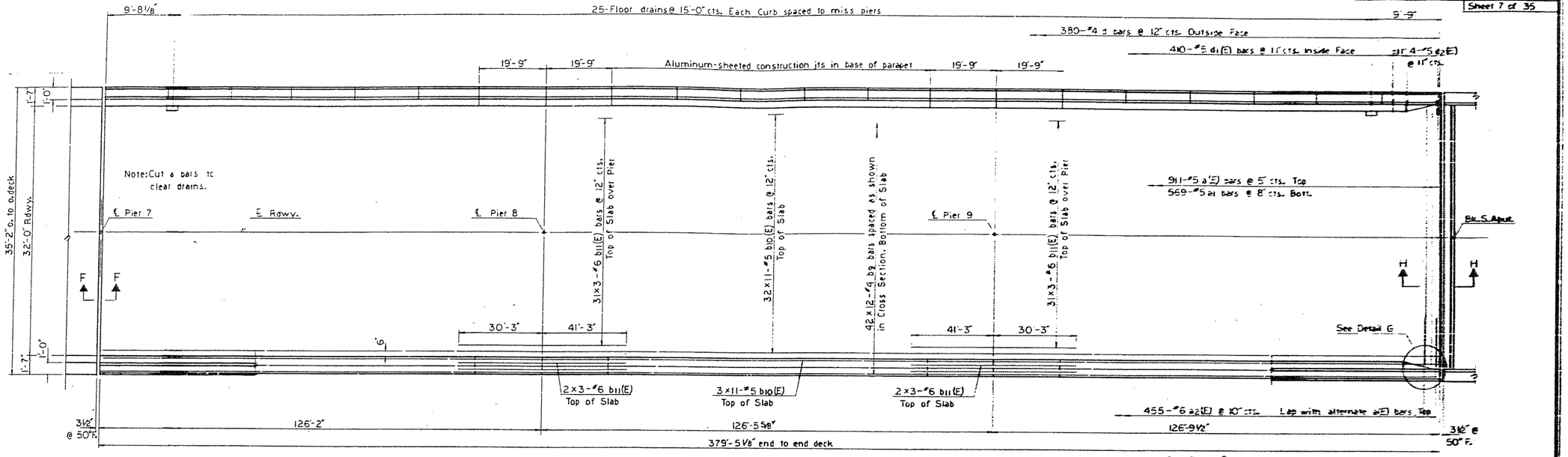
UNIT II
SUPERSTRUCTURE
F.A.R.I. 34 SEC. 2BR
MASON-MENARD COUNTY
STA. 730+40.73

EXISTING PLANS, SN 065-0002
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

FOR INFORMATION ONLY

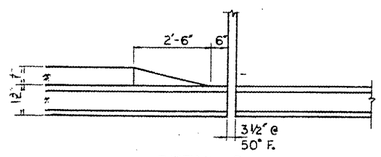
CONTRACT: 72F02
SHEET 7 OF 27

	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
FA34	2 BR	MENARD MASON	57	13
			Sheet 7 of 35	

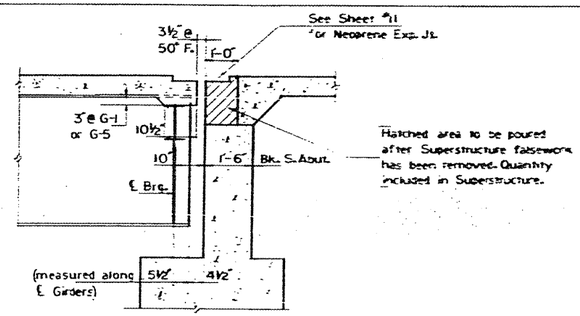


For Sec F-F. See Sheet 5.

Min. Bar Lap
#4 1'-4"
#5 1'-8"
#6 2'-0"
#8 3'-0"

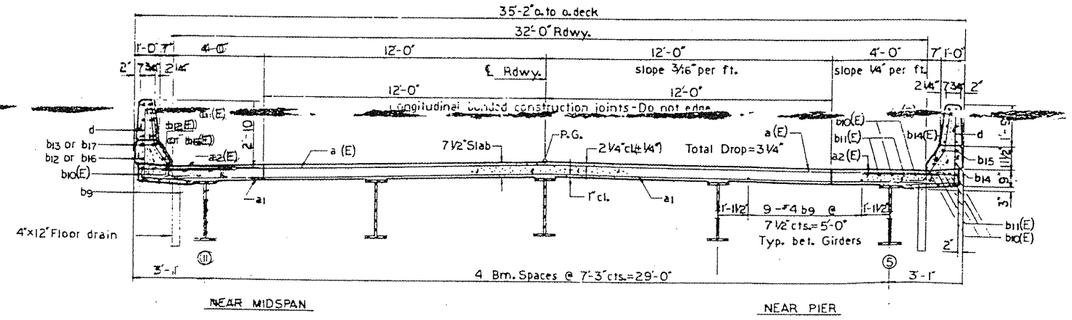


DETAIL G



Hatched area to be poured after Superstructure falsework has been removed. Quantity included in Superstructure.

SEC. H-H



CROSS SECTION

See Sheet #8 for Superstructure details and Bill of Materials.
Reinforcement bars designated (E) shall be epoxy-coated.
See Special Provisions.
Bars shown thus 32x11-#5 etc., indicate 32 lines of bars with 11 lengths per line.

UNIT III
SUPERSTRUCTURE
F.A.RTE 34 SEC 2BR
MASON-MENARD COUNTY
STA. 730+4073

EXISTING PLANS, SN 065-0002
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

FOR INFORMATION ONLY

F.A. 34	2 BR	MENARD MASON	57	18

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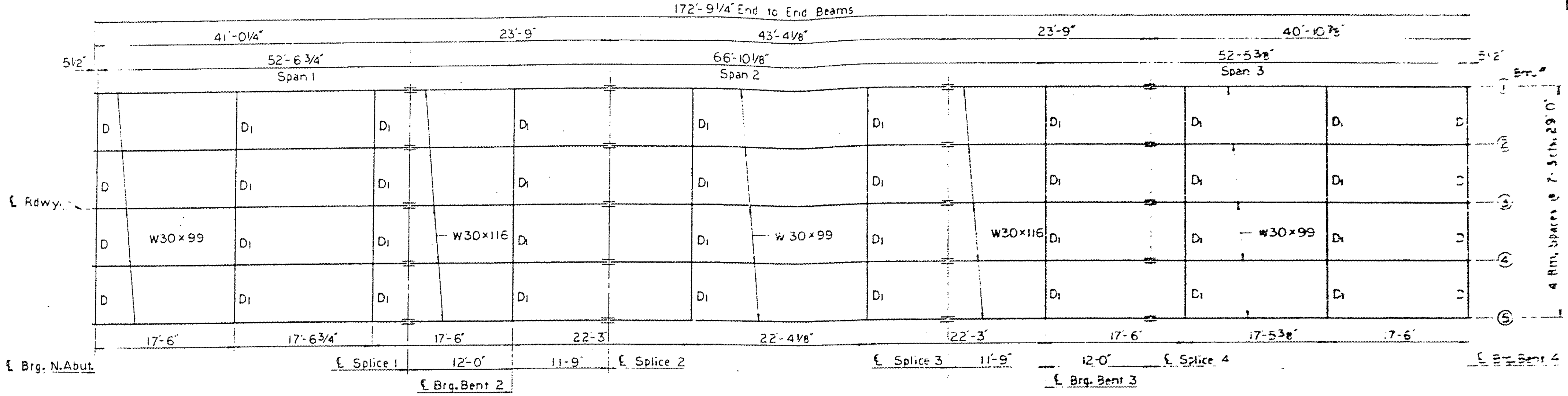
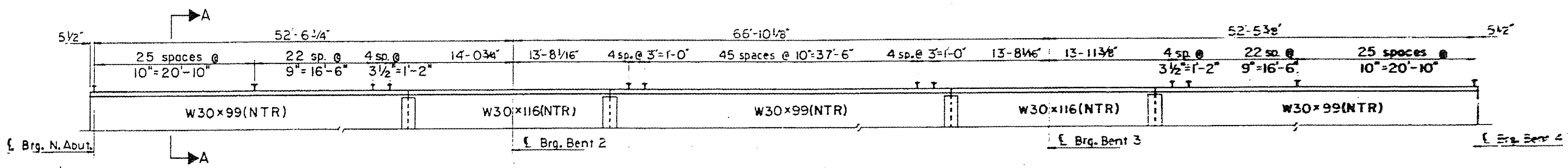


FRAMING PLAN



ELEVATION

Spacing of Stud Shear Connectors

NTR-Designates Notch Toughness Requirement

INTERIOR BEAM MOMENT TABLE

Unit I	.4 Sp.1 or .6 Sp.3	B-2 or 3	.5 Sp. 2
Unit II	.4 Sp.4 or .6 Sp.6	B-5 or 6	.5 Sp. 5
Is (in4)	3990	4930	3990
Ic (in4)	11151		11151
Ss (in3)	269	329	269
Sc (in3)	402.2		402.2
D (K/')	.83	.83	.83
M D ('K)	147.1	318.4	150.1
fs D (KSI)	6.56	11.61	6.69
S D (K/')	.33	.33	.33
M S D ('K)	66.2	107.4	79.0
[illegible]	[illegible]	3.92	2.36
ML ('K)	369.8	260.0	415.2
M imp. ('K)	99.9	70.3	112.1
fs L+I (KSI)	14.01	12.05	15.73
fs Total (KSI)	41.5	46.3	45.8
VR (K)	52.8		45.2

$f_{sTotal} = 1.3(f_s D + f_s SD + \frac{5}{3} f_{sL+I})$

NOTES FOR STRESS TABLE

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

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

VR is the maximum L + Impact shear range in span used to determine shear connector spacing.

INTERIOR BEAM REACTION TABLE

	N. Abut., B-4 & P-7	Bents 2,3 5 & 6
R D (k)	21.8	77.5
R L (k)	37.4	41.1
Imp. (k)	10.1	11.1
R TOTAL (k)	69.3	129.7

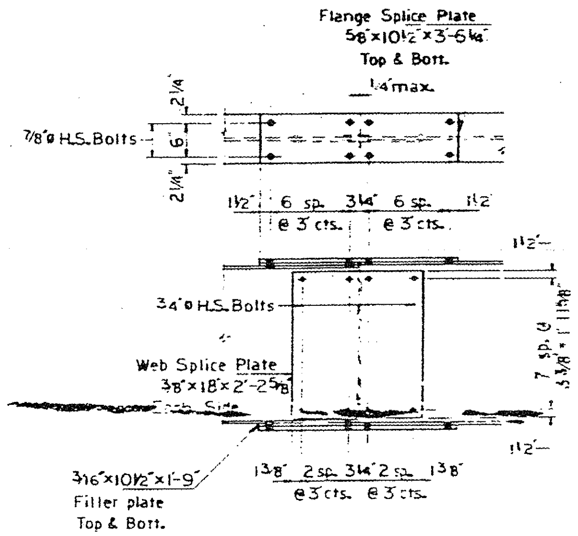
TOP OF BEAM ELEVATIONS

	Bm.1 or 5	Bm.2 or 4	Bm.3
℄ Brg. N.Abut.	480.68	480.81	480.92
℄ Splice 1	480.74	480.87	480.98
℄ Brg. Bent 2	480.79	480.92	481.03
℄ Splice 2	480.83	480.96	481.07
℄ Splice 3	481.03	481.16	481.27
℄ Brg. Bent 3	481.10	481.23	481.34
℄ Splice 4	481.17	481.30	481.41
℄ Brg. Bent 4	481.49	481.62	481.73

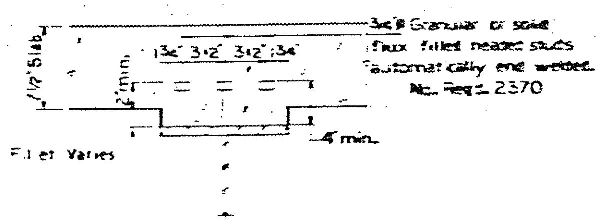
The above Elevations are for fabrication only. Elevation at splices are given to the top of W30×116.

NOTE:

1. All W30 wide flange beams and field splice material shall be AASHTO M-223 Grade 50 Steel. Diaphragms and their connecting angles & Brg. shall be AASHTO M-183 Steel.
2. For detail of Diaphragms D and D1, See Sheet 13.



DETAIL OF SPLICE



SECTION A-A

Est'd. Wt.
M-183 — 15 810 lbs. (incl. Bearings)
M-223 — 96 790 lbs.

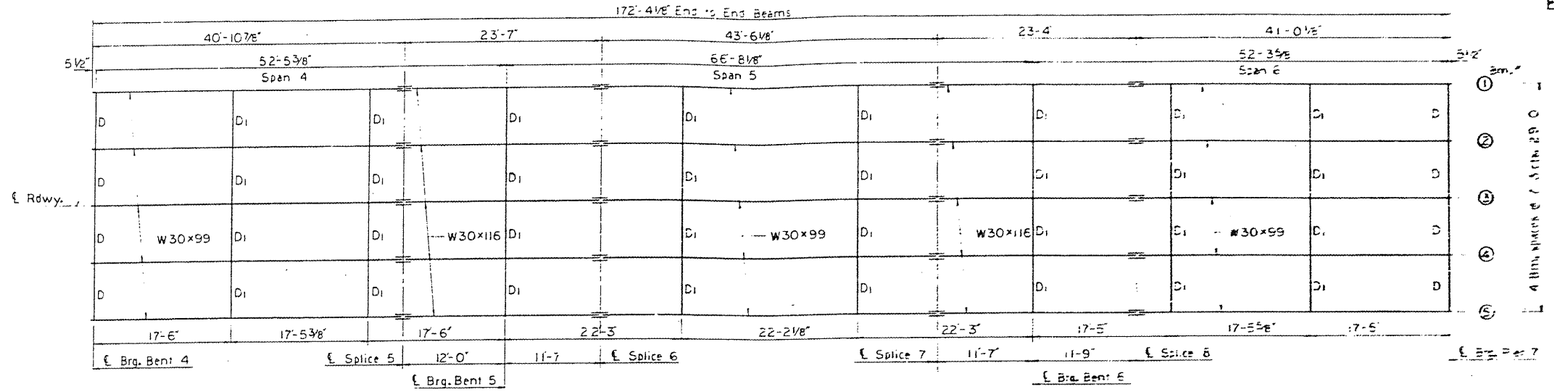
UNIT I
STRUCTURAL STEEL
F.A.RT.34 SEC.2BR
MASON-MENARD COUNTY
STA. 730+40.73

EXISTING PLANS, SN 065-0002
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

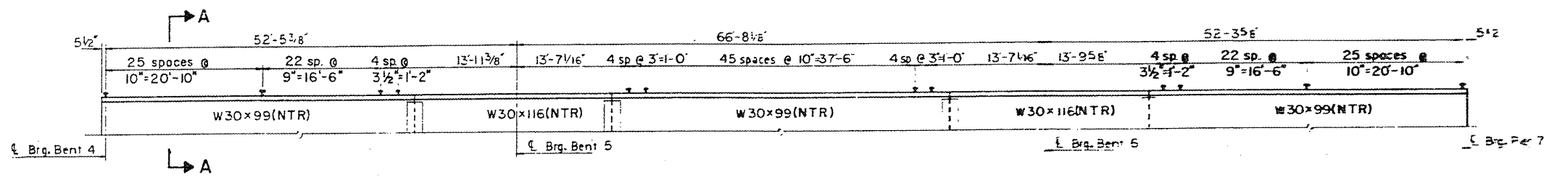
FOR INFORMATION ONLY

FA34	2 BR	MENARD MASON	57	19

Sheet 13 of 35



FRAMING PLAN



ELEVATION

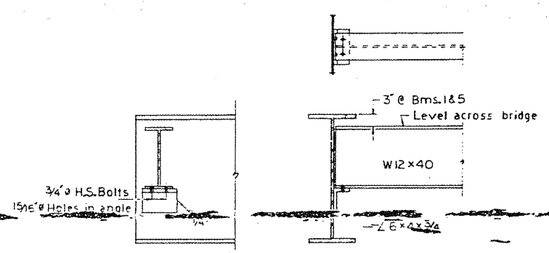
Spacing of Stud Shear Connectors
NTR-Designates Notch Toughness Requirement

NOTE:
1. All W30 wide flange beams and field splice material shall be AASHTO M-223 Grade 50 Steel. Diaphragms & their connecting angles & Brgs. shall be AASHTO M-183 Steel.
2. For Moment and reaction tables and detail of Splice See Sheet 12.

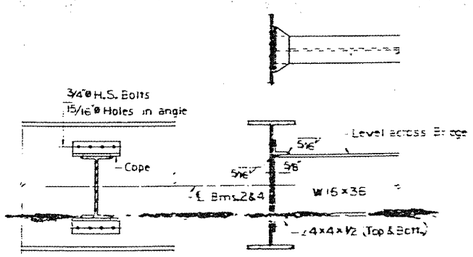
TOP OF BEAM ELEVATIONS

	Bm. 1 or 5	Bm. 2 or 4	Bm. 3
℄ Brg. Bent 4	481.49	481.62	481.73
℄ Splice 5	481.76	481.89	482.00
℄ Brg. Bent 5	481.86	481.99	482.10
℄ Splice 6	481.96	482.09	482.20
℄ Splice 7	482.38	482.51	482.62
℄ Brg. Bent 6	482.48	482.61	482.72
℄ Brg. Pier 7	482.97	483.10	483.21

The above Elevations are for fabrication only.
-Elevation at Splices are given to the top of W 30×116.

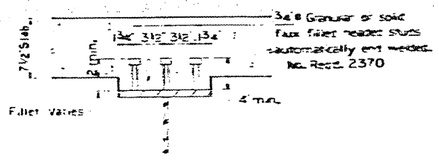


DIAPHRAGM D
8 Req'd. Ea. Unit



DIAPHRAGM D1
32 Req'd. Ea. Unit

NOTE: Hardened washers shall be required over 15/16"ø holes in angles.



SECTION A-A

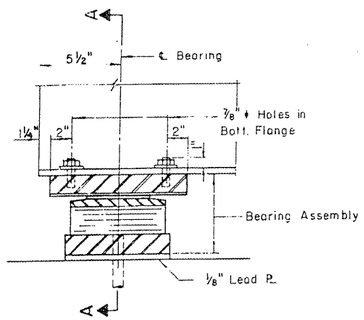
Estd. Wt.
M-183 - 15,810 lbs. (incl. Bearings)
M-223 - 96,530 lbs.

UNIT II
STRUCTURAL STEEL
F.A.R.T 34 SEC. 2BR
MASON-MENARD COUNTY
STA. 730+40.73

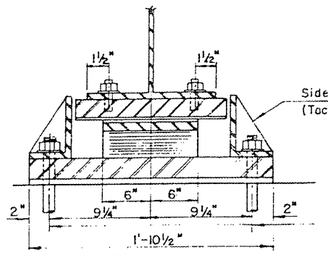
EXISTING PLANS, SN 065-0002
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

FOR INFORMATION ONLY

FA 34	2 BR	MENARD MASON	57	20
			Sheet 14 of 35	



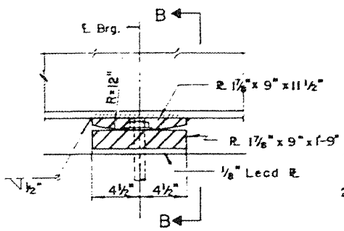
SECTION AT N. ABUT.
BENT 4 & PIER 7 N. BRG.



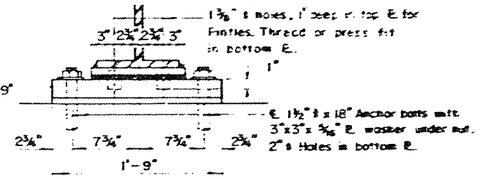
SECTION A-A

℄ 1" ϕ x 12" Anchor bolts with 2½" x 2½" x 5/16" PL washer under nut. 1½" ϕ Holes in bottom PL.

TYPE II TFE ELASTOMERIC EXP. BRG.



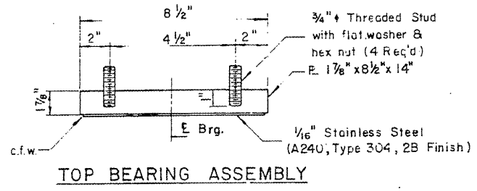
SECTION AT BENTS
2,3,5&6



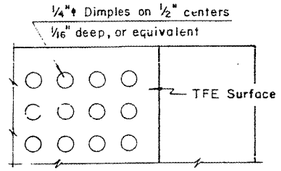
SECTION B-B

FIXED BEARING

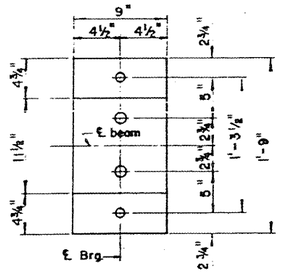
Note: After girders have been erected holes at expansion bearings shall be drilled and anchor bolts grouted in place. Anchor bolts at fixed bearings may be built into the masonry.



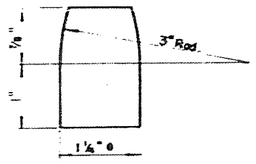
TOP BEARING ASSEMBLY



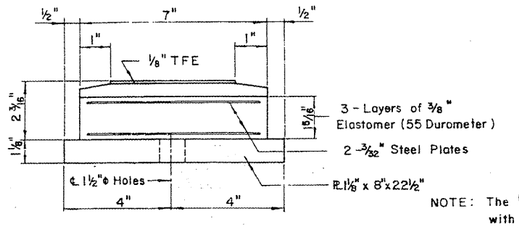
PLAN - TFE SURFACE



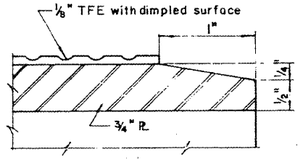
PLAN



PINTLE

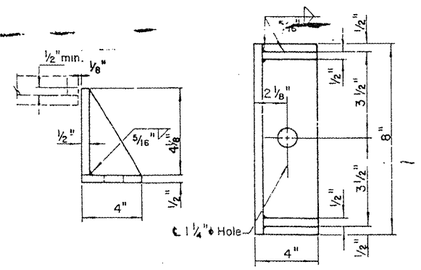


BOTTOM BEARING ASSEMBLY

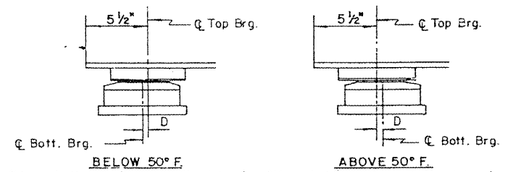


SECTION THRU TFE

NOTE: The ⅛" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of the contact surfaces.
Bonding of ⅛" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.



SIDE RETAINER



SETTING ANCHOR BOLTS AT EXP. BRG.
D= ⅛" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

FOR INFORMATION ONLY

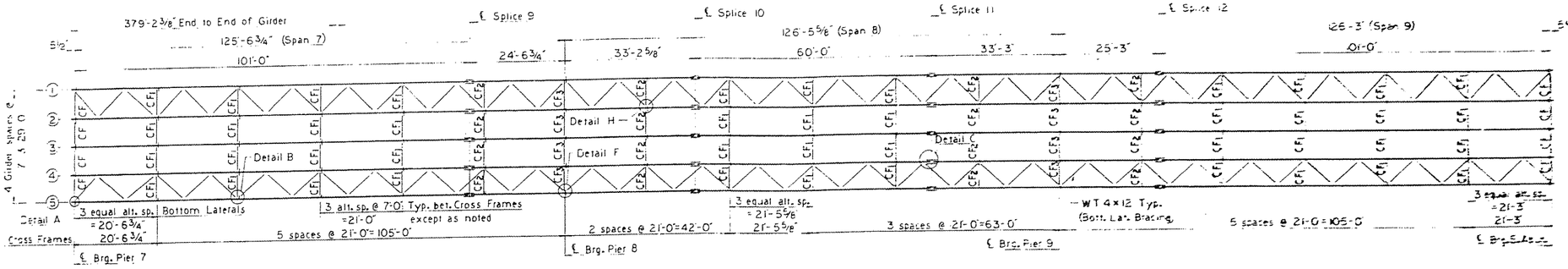
UNITS I & II
BEARINGS
F.A.RT.34 SEC.2BR
MASON-MENARD COUNTY
STA. 730+40.73

EXISTING PLANS, SN 065-0002
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

CONTRACT: 72F02
SHEET 11 OF 27

FA 34	2 BR	MENARD MASON	57	21

Sheet 15 of 35

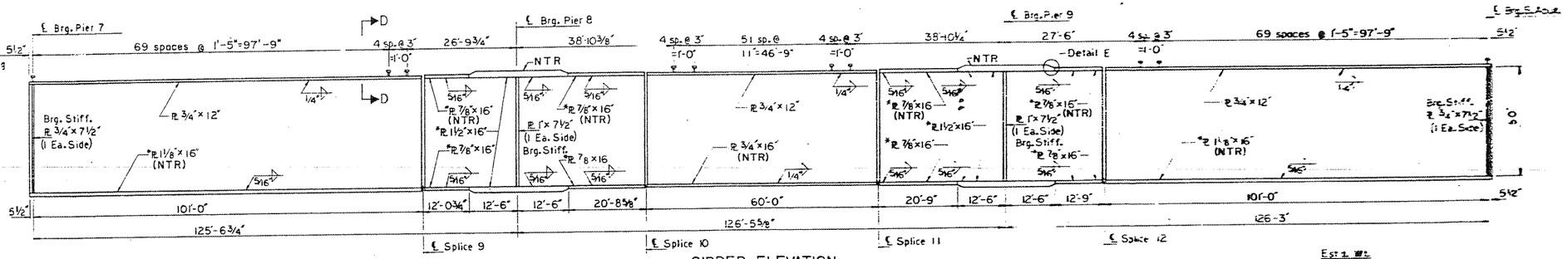


FRAMING PLAN

All Structural Steel shall be AASHTO M-183 except as noted.
NTR-Designates Notch Toughness Requirements.

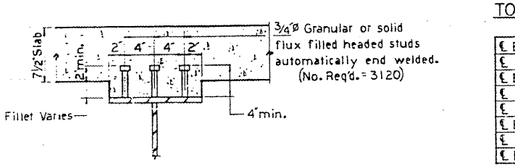
*Plate shall be AASHTO M-223, Grade 50 Steel.

1. See Sheet 16 for details of CF & CF1.
2. See Sheet 17 for details of CF2, CF3 & Details A, B, C, F & H
3. See Sheet 17 for Moment & Reaction table.

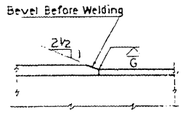


All Web plates to be 1/2" x 50" (NTR).

GIRDER ELEVATION



SECTION D-D

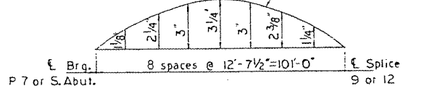


DETAIL E

TOP OF GIRDER WEB ELEVATIONS

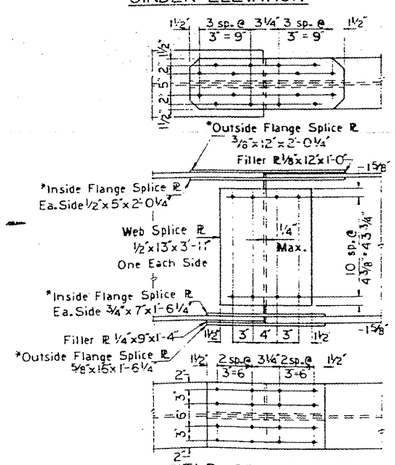
	G 1 or 5	G 2 or 4	G 3
℄ Brg Pier 7	482.92	483.05	483.16
℄ Splice 9	483.48	483.61	483.72
℄ Brg Pier 8	483.45	483.58	483.69
℄ Splice 10	483.42	483.55	483.66
℄ Splice 11	483.41	483.54	483.65
℄ Brg Pier 9	483.43	483.56	483.67
℄ Splice 12	483.44	483.57	483.68
℄ Brg S Abut	482.86	482.99	483.10

Elevations at Splices have been adjusted for dead load deflections.
The above Elevations are for fabrication only.



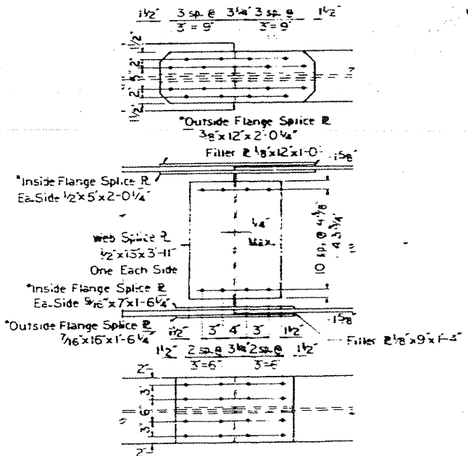
CAMBER DIAGRAM

No camber between ℄ Splice 9 & ℄ Splice 12.



FIELD SPLICE DETAIL

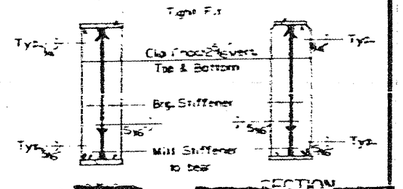
For Splices 9 & 12
Use 7/8" Ø H.S. Bolts



FIELD SPLICE DETAIL

For Splices 10 & 11
Use 7/8" Ø H.S. Bolts

Est. Wts.
M-183 — 272,140 lbs. (Incl. Bearings)
M-223 — 140,110 lbs.

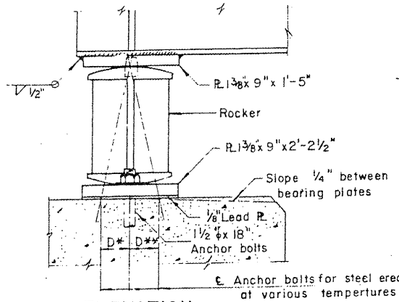


UNIT III
STRUCTURAL STEEL
F.A.RT 34 SEC 2BR
MASON-MENARD COUNTY
STA. 730+40.73

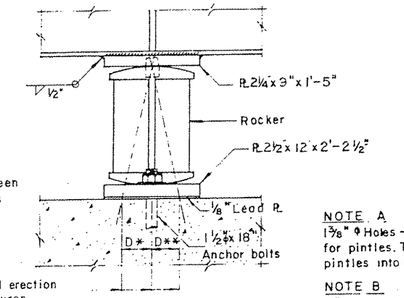
EXISTING PLANS, SN 065-0002
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

FOR INFORMATION ONLY

FA 34	2 BR	MENARD MASON	57	22
				Sheet 16 of 35



ELEVATION

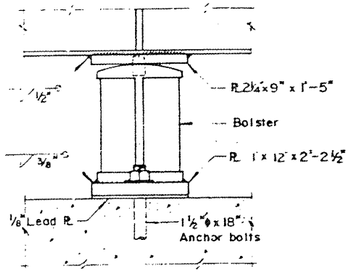


ELEVATION

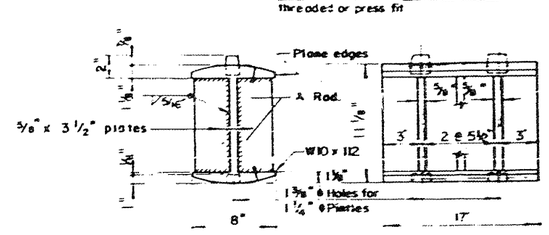
NOTE A
1⅜" ϕ Holes - 1" deep in top R. for pintles. Thread or press fit pintles into bottom R.

NOTE B
2" ϕ Holes for 1½" ϕ anchor bolts 5/16" x 3" x 3" R. Washers under nut.

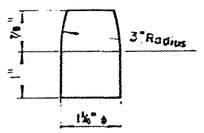
NOTE C
1⅜" ϕ Holes 1" deep in top R. only for 1¼" ϕ pintles.



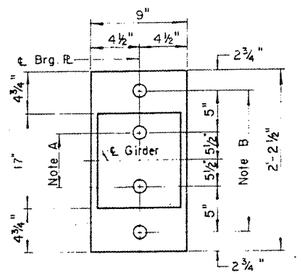
ELEVATION



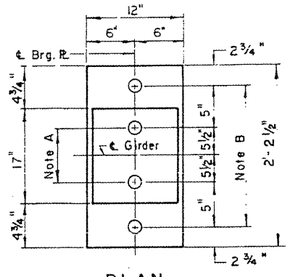
ROCKER
A=12" @ P 7 & P 9
A=11" @ S. Abut.



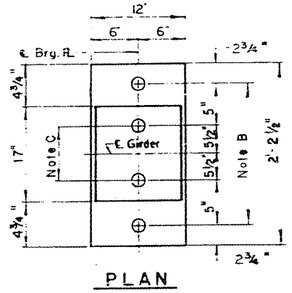
PINTLE



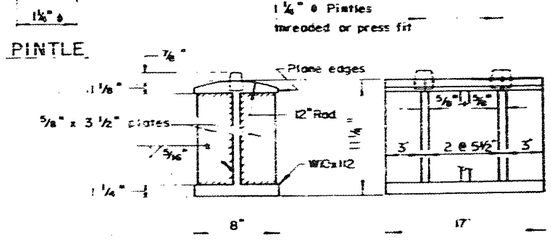
PLAN
AT S. ABUTMENT & PIER 7



PLAN
AT PIER 9



PLAN
AT PIER 8



BOLSTER

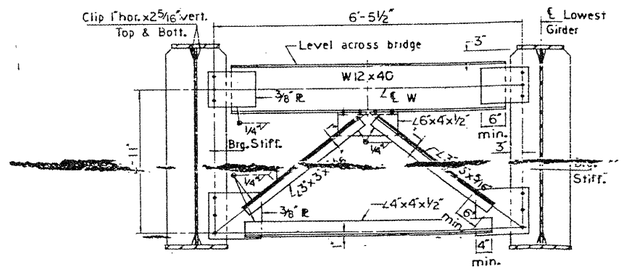
BEARING ASSEMBLY DETAILS

NOTES ON SETTING OF ANCHOR BOLTS AT EXP. BRGS.

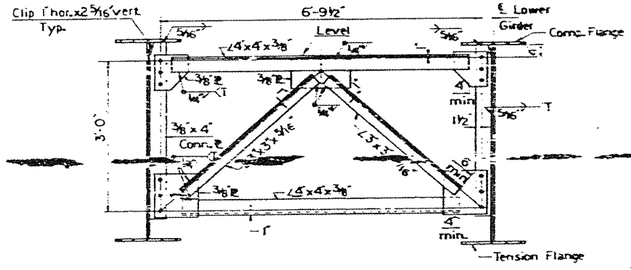
a) D* (Side of brg. away from fixed brg.)
D* = ⅛" per each 100' of expansion for every 15° fall above the normal temp. of 50° F.

D** (Side of brg. toward fixed brg.)
D** = ⅛" per each 100' of expansion for every 15° rise above the normal temp. of 50° F.

Before girders have been erected and dimensions D* or D** determined, holes shall be drilled and shall be grouted in place. All fixed anchor bolts may be built into the masonry.



END CROSS FRAME-CF
6 Req'd.



INTERIOR CROSS FRAME-CF1
44 Req'd.

UNIT III
BEARINGS & CROSS FRAMES
F.A.RT 34 SEC 2BR
MASON-MENARD COUNTY
STA. 730+40.73

FOR INFORMATION ONLY

EXISTING PLANS, SN 065-0002
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
737	1(X-1,B-1)	Menard	85	31

Bench Mark: U.S.G.S. Plaque @ S.E. Corner Of Existing Bridge El. 521.59

Existing Structure: 065-0011; 811'-4" Long x 23'-10" Center To Center Of Trusses With A 6'-0" Sidewalk On The South Side. Built As S.B.I. Rte. 43A, Sec. 2B & 2C, In 1926. The Existing 5 Spans Thru Trusses On Reinf. Conc. Abutments & Piers Shall Be Used For Traffic During The Construction Of A New Structure On A New Alignment.

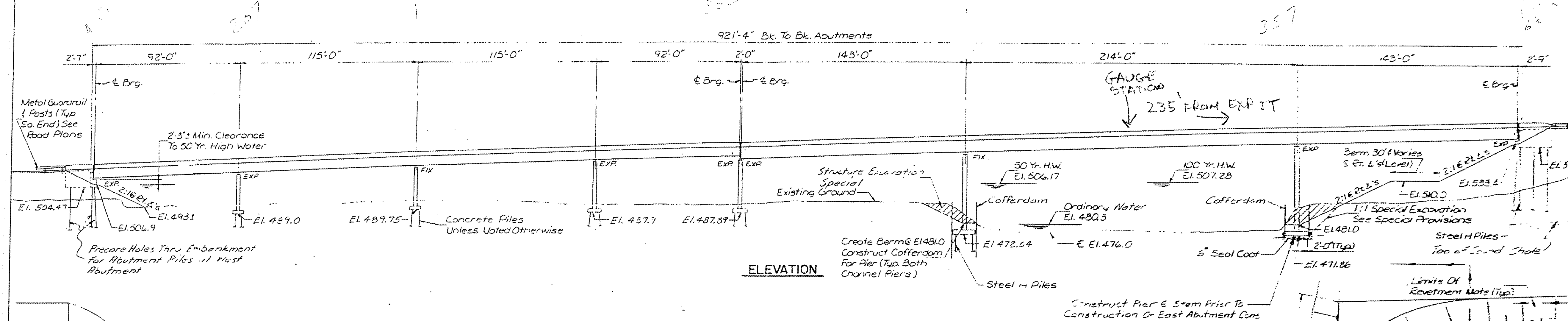
Salvage: None

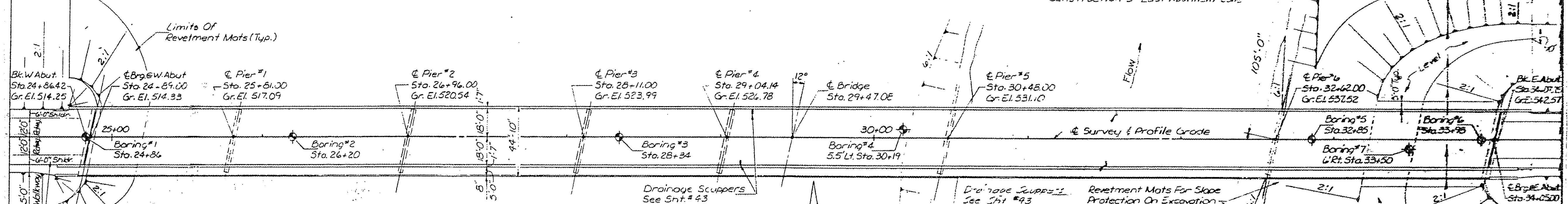
DESIGN SPECIFICATIONS

AASHTO 1977 And All Applicable Interim Specifications ('78 Thru '81). Allow 25#/sq.ft. For Future Wearing Surface.

DESIGN STRESSES

f'c = 3500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M223 Gr. 50 & M222 Structural Steel)
fy = 36,000 psi (M183 Structural Steel)
n = 9



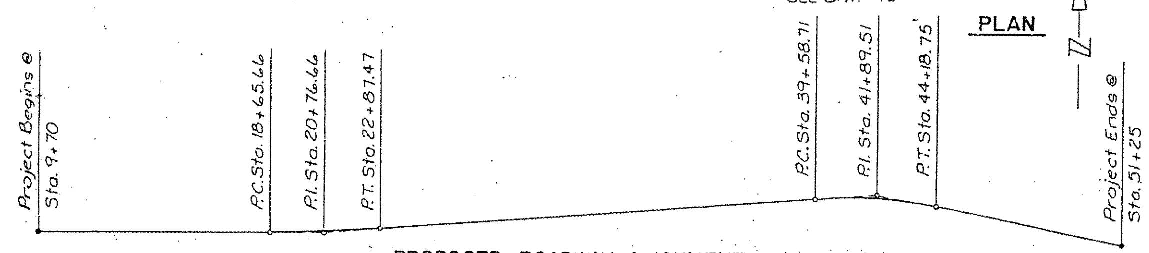


STATION
BUILT 198_ BY
STATE OF ILLINOIS
F.A. RT. 737 SEC. 1(X-1, B-1)
F.A. PROJ. BR-F-737(4)
LOADING HS20
STR. NO. –

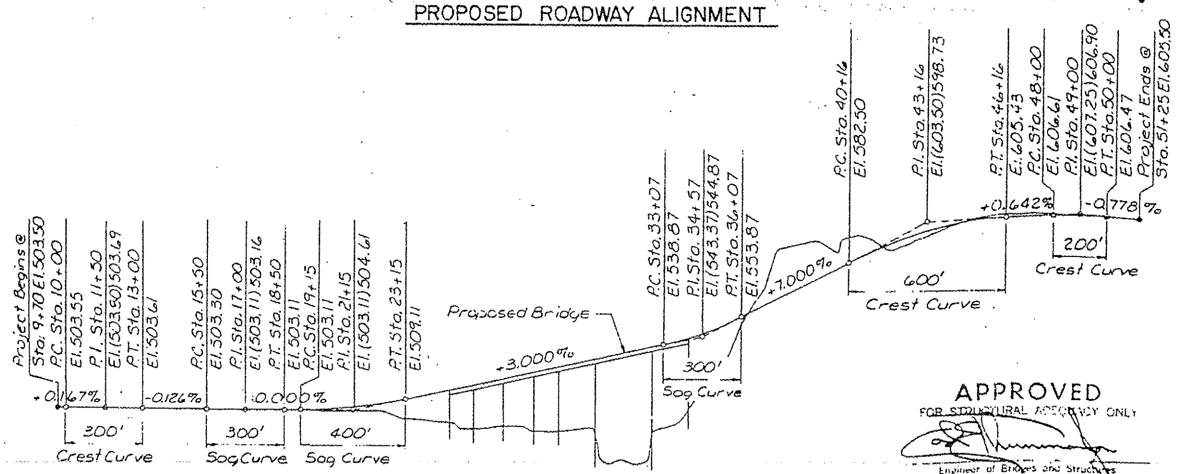
NAME PLATE

CURVE NO. 1
P.I. = Sta. 20+76.66
Δ = 4°13'05"
D = 1°00'00"
R = 5729.58'
T = 211.00'
L = 421.81'
E = 3.88'
Superelevation = 0.021'/ft.
Design Speed = 50 mph

CURVE NO. 2
P.I. = Sta. 41+89.51
Δ = 11°30'04"
D = 2°30'00"
R = 2291.83'
T = 230.80'
L = 460.04'
E = 11.59'
Superelevation = 0.045'/ft.
Design Speed = 50 mph



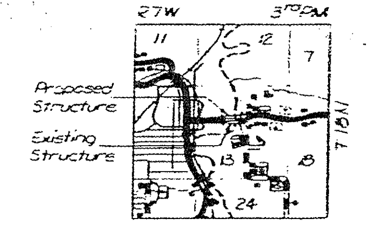
PROPOSED ROADWAY ALIGNMENT



PROPOSED ROADWAY PROFILE

WATERWAY INFORMATION

Drainage Area 3063 Sq. Miles Low Grade El. 502.9±								Sta. 44.53	
Flood	Freq. Yr	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head-Ft. Exist.	Head-Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
Design	50	50,000	9103	12281	506.17	0.15	0.14	506.32	506.31
Base	100	57,000	9982	13136	507.28	0.16	0.16	507.42	507.42
Overtopping	10	33,980	6791	10031	503.21	0.32	0.16	503.51	503.37
Max. Calc.	500								



LOCATION SKETCH

065-0016

FRANK L. TILEY 3100 REGISTERED STRUCTURAL ENGINEER OF ILLINOIS

APPROVED
FOR STRUCTURAL ADEQUACY ONLY
Engineer of Bridges and Structures

Frank L. Tiley
ILLINOIS STRUCTURAL No. 3100

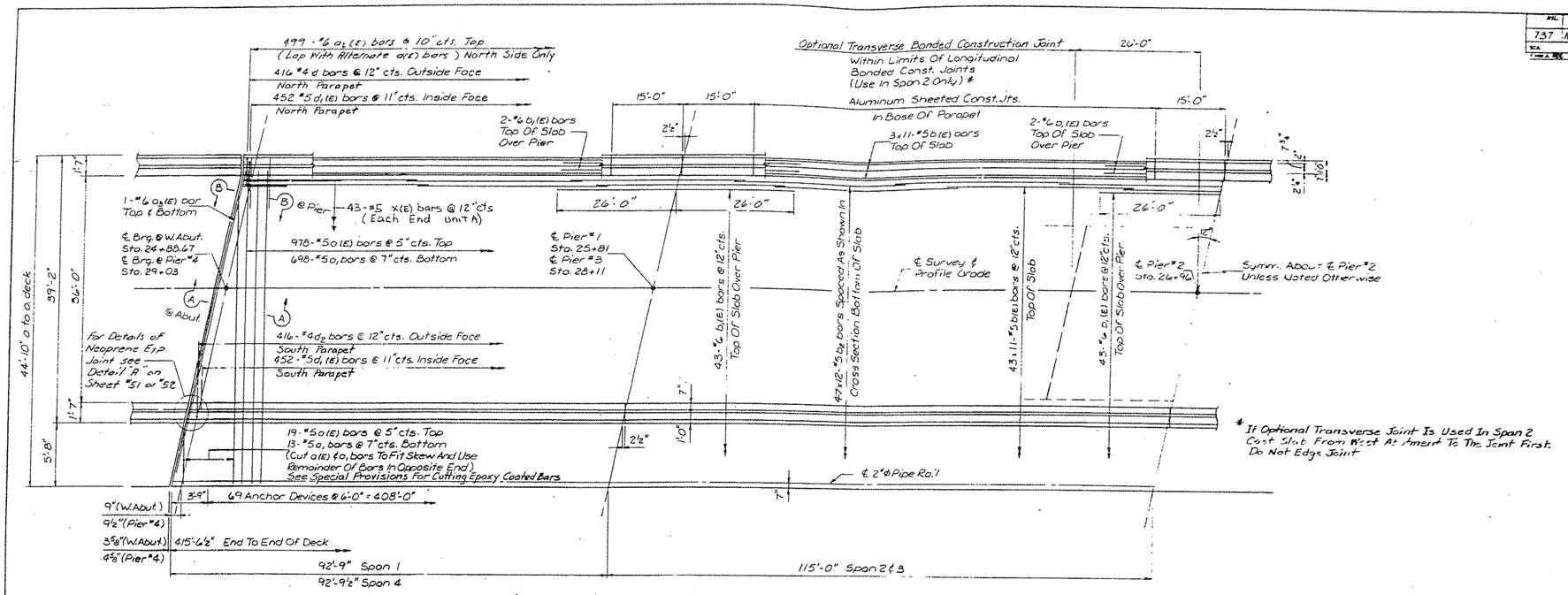
LOADING HS20-44

Ralph Hahn and Associates
Consulting and Design Engineers Inc.
1320 South State Street
Springfield, Illinois 62704

FOR INFORMATION ONLY

EXISTING PLANS, SN 065-0016
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

CONTRACT: 72F02
SHEET 14 OF 27



KEY

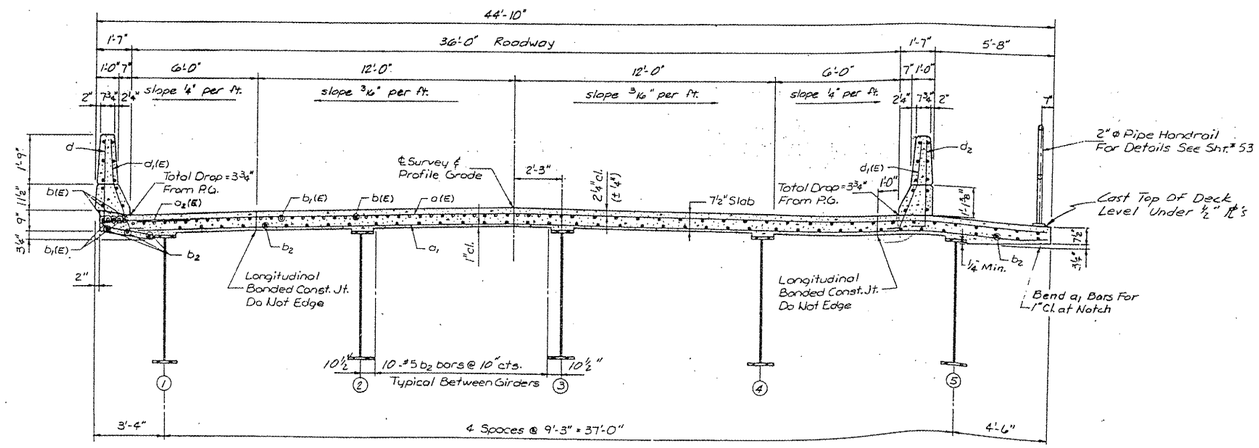
P.G. = Profile Grade

N

HALF PLAN

MIN. BAR LAPS

#5 = 2'-3"
#6 = 2'-8"
#8 = 4'-6"



NEAR PIER — CROSS SECTION (LOOKING EAST) — NEAR MIDSPAN

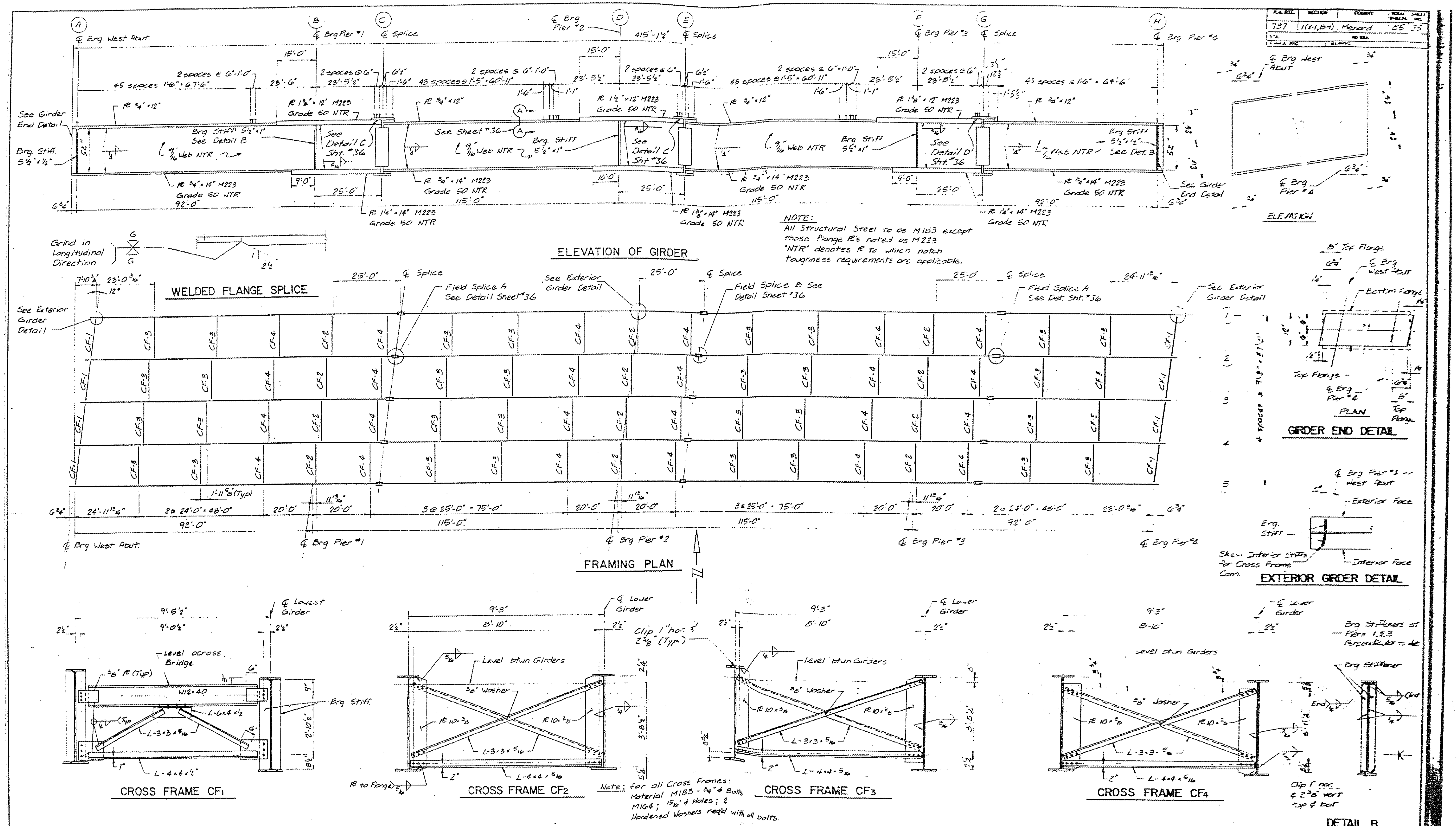
NOTES:

- See Sheet # 34 For Superstructure Details And Bill Of Material.
- All Reinforcement Bars in concrete deck & parapet shall be epoxy coated. See Special Provisions.
- Bars indicated Thus 20 x 3"5 Etc. Indicates 20 Lines Of Bars With 3 Lengths Per Line.

RTE.	SECTION	COUNTY	TOTAL SHEETS	SHT. NO.
737	1(X-1,B-1)	Menard	55	33
SCA		FED. ROAD DIST. NO.	STATE	
ILLINOIS		1	ILLINOIS	

FOR INFORMATION ONLY

EXISTING PLANS, SN 065-0016
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES



	(A) ℄ Brg West Abut	(B) ℄ Brg Pier #1	(C) ℄ Splice	(D) ℄ Brg Pier #2	(E) ℄ Splice	(F) ℄ Brg Pier #3	(G) ℄ Splice	(H) ℄ Brg Pier #4
Girder #1	513.30	516.06	516.81	519.51	520.26	522.96	523.71	525.72
Girder #2	513.41	516.17	516.92	519.52	520.37	523.07	523.82	525.83
Girder #3	513.42	516.18	516.93	519.63	520.38	523.08	523.83	525.84
Girder #4	513.21	515.97	516.72	519.42	520.17	522.87	523.62	525.63
Girder #5	512.96	515.72	516.47	519.17	519.92	522.62	523.37	525.38

Note: No Camber Required

TOP OF WEB ELEVATIONS
(For Fabrication Only)

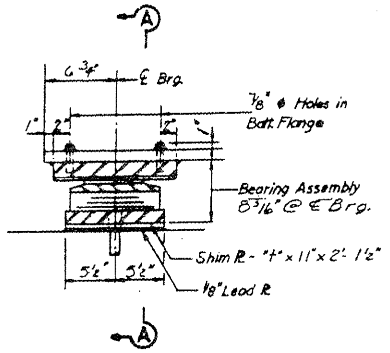
FOR INFORMATION ONLY

EXISTING PLANS, SN 065-0016
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

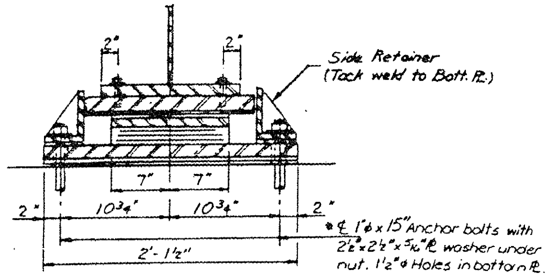
F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
737	1(X-1,B-1)	Menard	85	39

TABLE FOR "t" DIMENSION FOR SHIM PLATES

Location \ Girder	Girder #1	Girder #2	Girder #3	Girder #4	Girder #5
W. Abut.	—	—	1/8"	—	—
Pier #4	—	—	1/8"	—	—



SECTION AT WEST ABUT. OR PIER #4

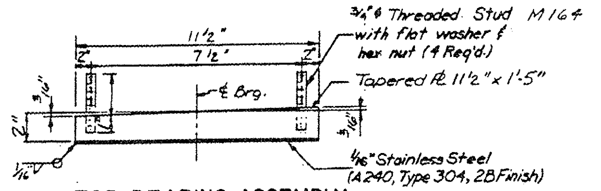


SECTION A-A

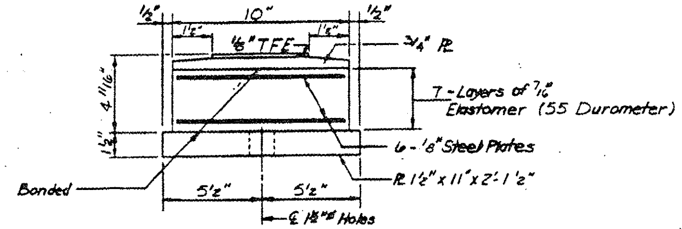
TYPE II TFE ELASTOMERIC EXP. BRG.

* NOTE: After beams have been erected holes at expansion bearings shall be drilled and anchor bolts grouted in place.

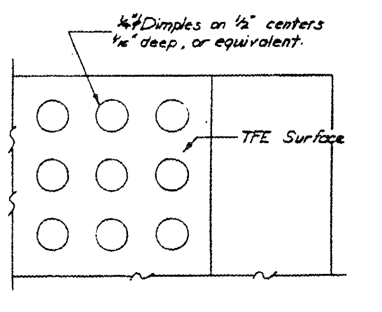
All bearing devices are M-183, unless noted. The cost of side retainers is incidental to the cost of elastomeric bearings.



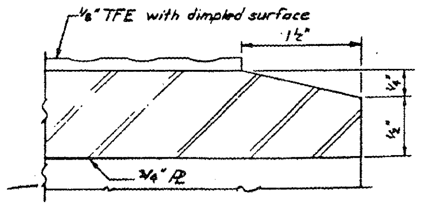
TOP BEARING ASSEMBLY
(Looking North)



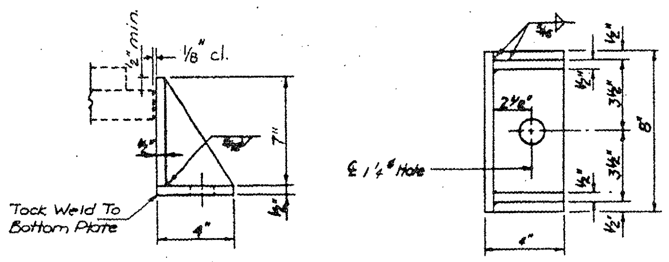
BOTTOM BEARING ASSEMBLY



PLAN - TFE SURFACE



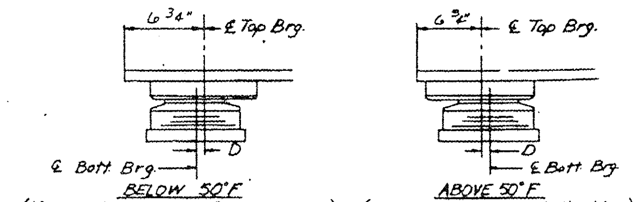
SECTION THRU TFE



SIDE RETAINER

NOTE: The 1/8" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of contact surfaces.

Bonding of 1/8" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.

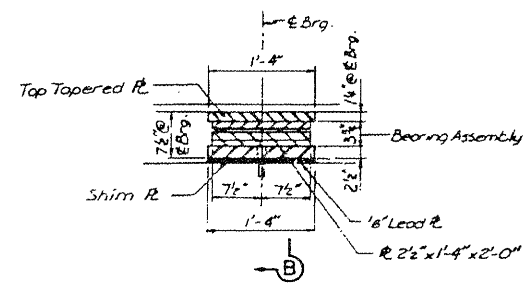


SETTING ANCHOR BOLTS AT EXP. BRG.
D = 1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

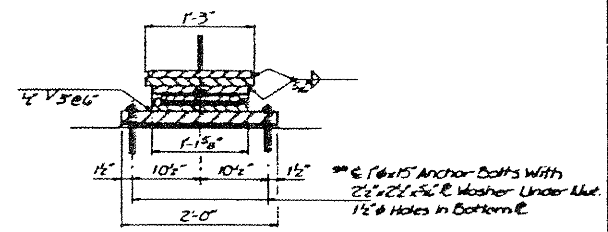
WEST ABUT. & PIER #4

TABLE FOR "t" DIMENSION FOR SHIM PLATES

Location \ Girder	Girder #1	Girder #2	Girder #3	Girder #4	Girder #5
Pier #1	—	—	1/8"	—	—
Pier #3	—	—	1/8"	—	—



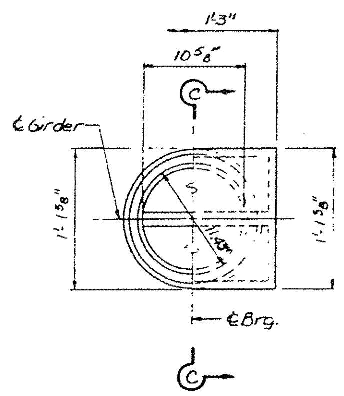
SECTION AT PIER #1 OR #3



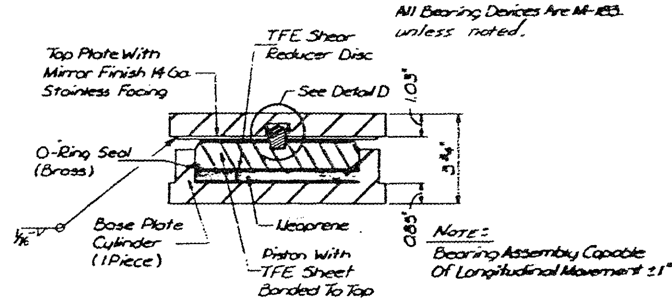
SECTION B-B

** NOTE: After Beams Have Been Erected Holes At Expansion Bearings Shall Be Drilled And Anchor Bolts Grouted In Place.

All Bearing Devices Are M-183, unless noted.

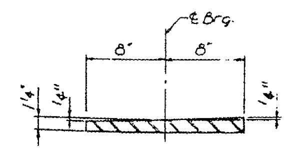


CUT-AWAY PLAN
BEARING ASSEMBLY

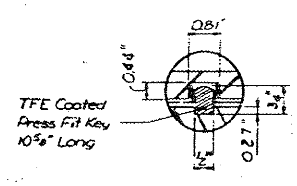


SECTION C-C

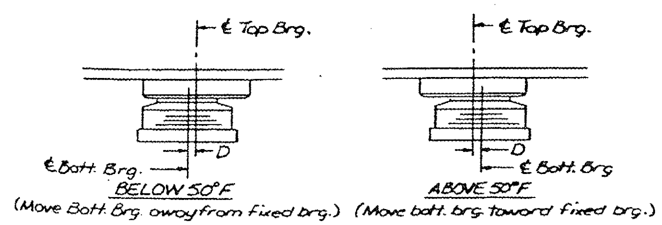
NOTE: Bearing Assembly Capable Of Longitudinal Movement ±1"



TOP TAPERED PLATE
(Looking North)
(M223 Gr. 50)



DETAIL D



SETTING ANCHOR BOLTS AT EXP. BRG.
D = 1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

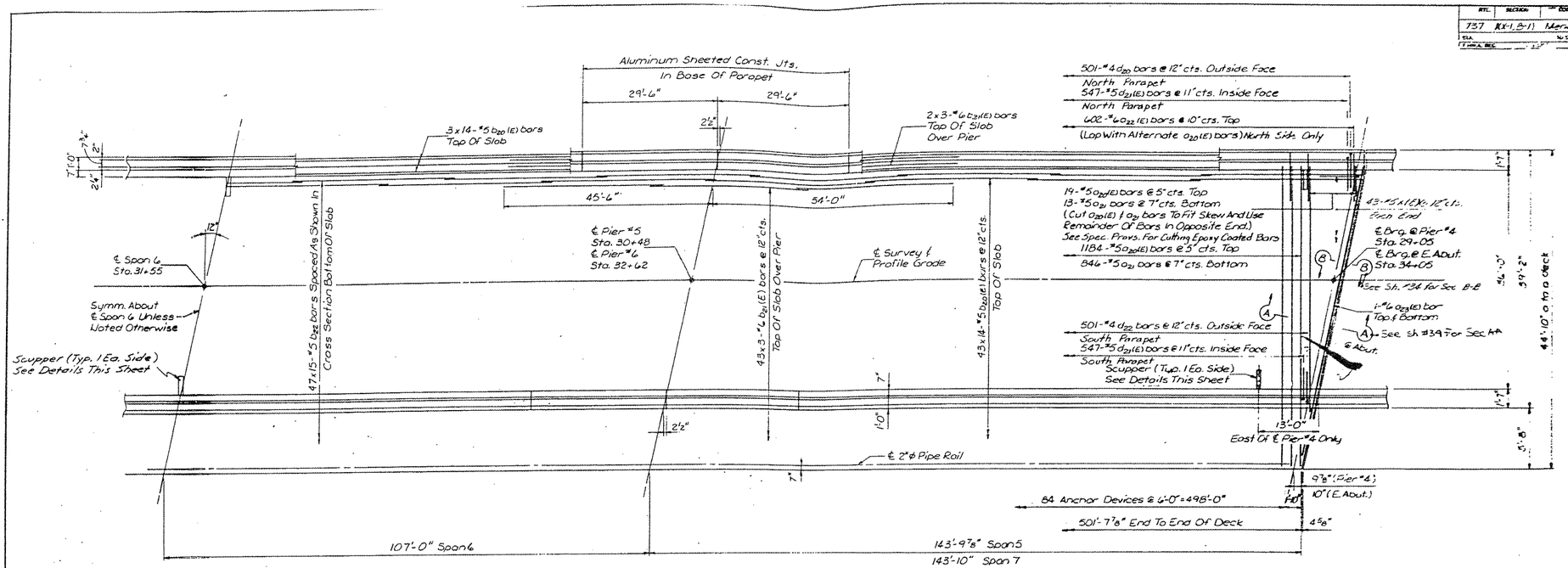
FLOATING BEARING - GUIDED EXPANSION
LOAD RATING = 300 KIPS

PIER #1 & #3

FOR INFORMATION ONLY

EXISTING PLANS, SN 065-0016
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

RTE.	SECTION	COUNTY	ROAD DIST.	SHEET NO.
737	XX-1,3-1)	Menard	85	41
FED. ROAD PROJ. NO.		STATE		



KEY

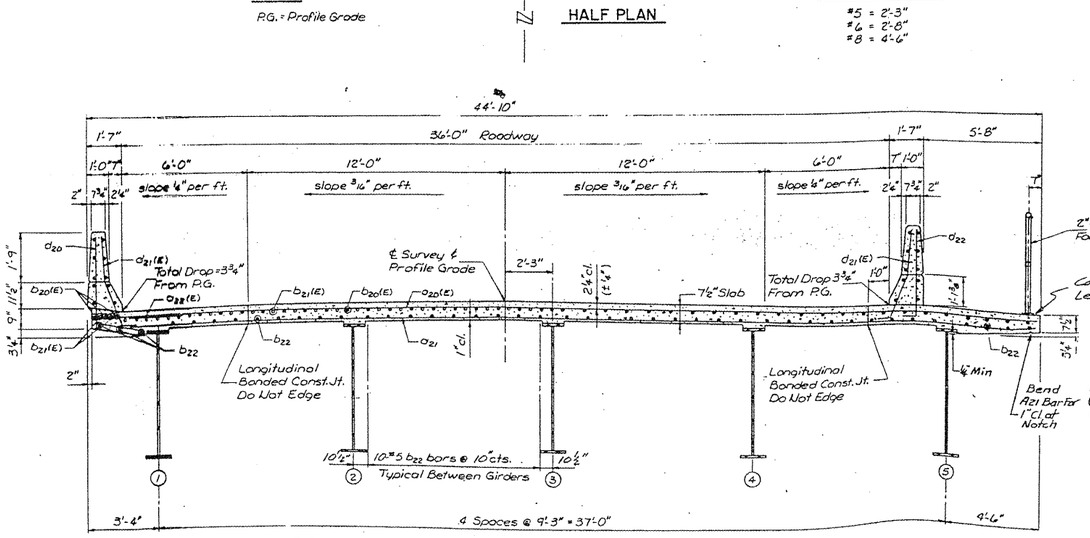
P.G. = Profile Grade

N

HALF PLAN

MIN. BAR LAPS

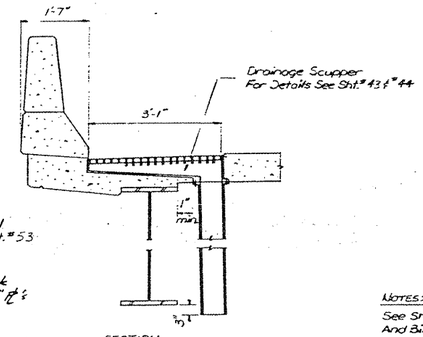
#5 = 2'-3"
#6 = 2'-8"
#8 = 4'-6"



NEAR PIER

CROSS SECTION
LOOKING EAST

NEAR MIDSPAN



SCUPPER DETAIL

NOTES:

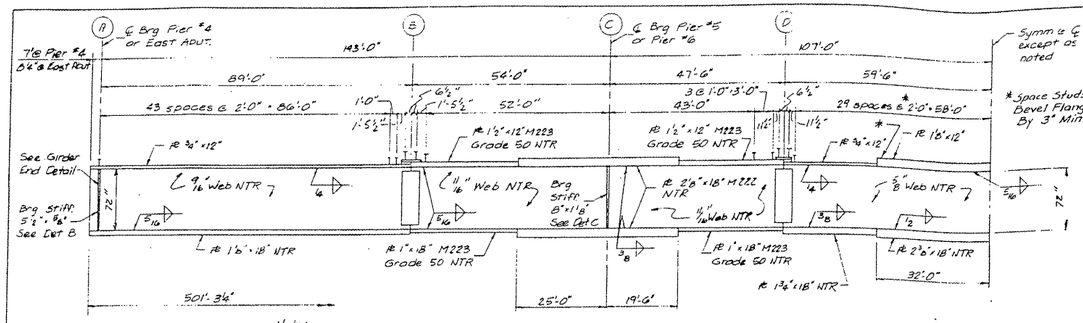
See Sheet #42 For Superstructure Details And Bill Of Material.

All Reinforcement Bars in deck & Parapets Shall Be Epoxy Coated. See Special Provisions.

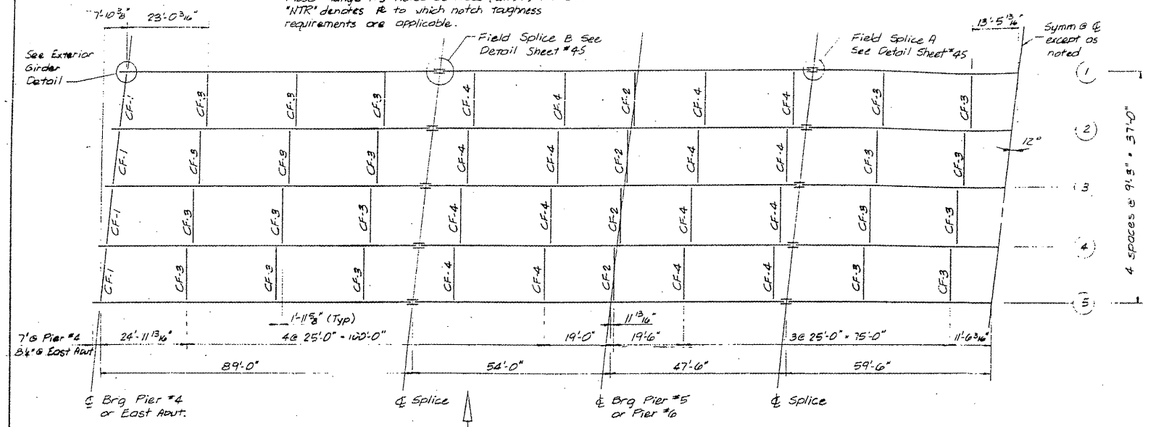
Bars indicated Thus 20 @ 3"=5 Etc. Indicates 20 Lines Of Bars with 3 Lengths Per Line. For Pouring Sequence see Detail on Sheet #42

FOR INFORMATION ONLY

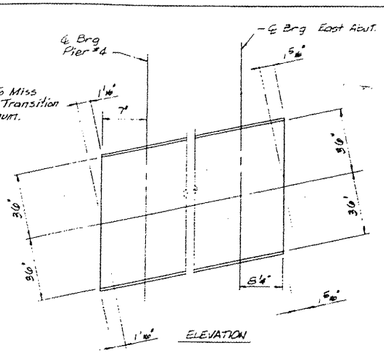
EXISTING PLANS, SN 065-0016
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES



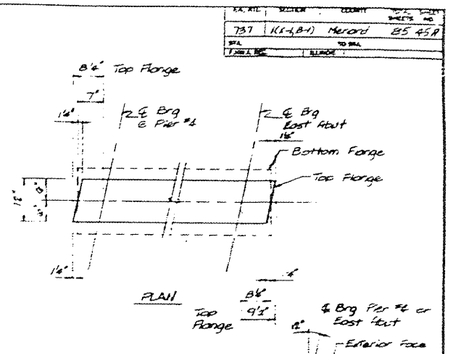
Note:
All Structural Steel to be M183 except those flange PL's noted as M223 (Gr. 50) or M222. "NTR" denotes PL to which notch toughness requirements are applicable.



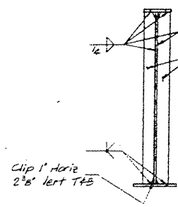
FRAMING PLAN



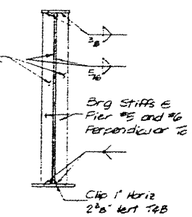
GIRDER END DETAIL



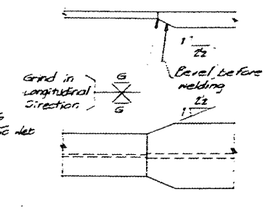
EXTERIOR GIRDER DETAIL



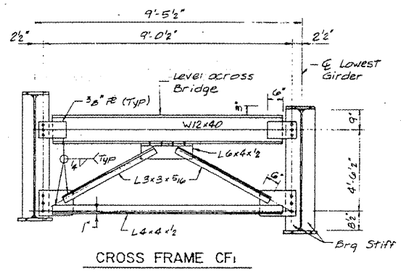
DETAIL B



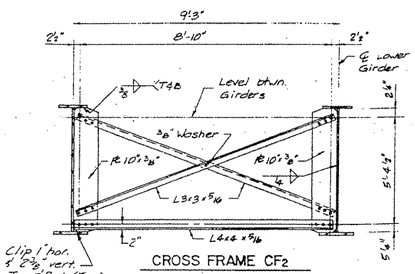
DETAIL C



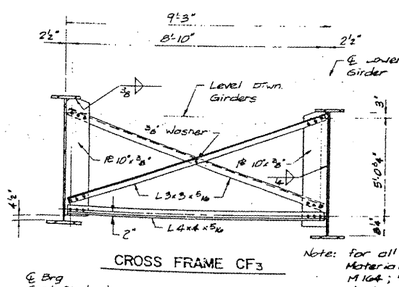
WELDED FLANGE SPLICE



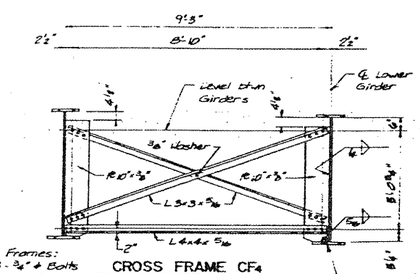
CROSS FRAME CF1



CROSS FRAME CF2

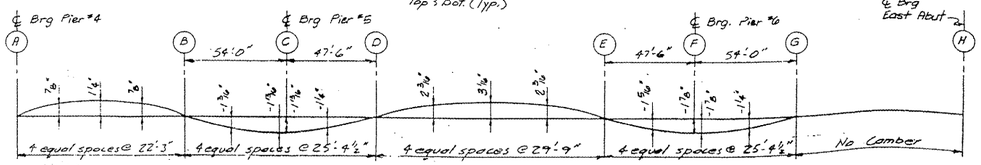


CROSS FRAME CF3



CROSS FRAME CF4

Note: For all Cross Frames:
Material M 183 - ⅞" ø Bolts
M 164 ; 15/16" ø Holes; 2 Hardened Washers req'd with all bolts.



CAMBER DIAGRAM

	A ℄ Brg Pier #4	B ℄ Splice	C ℄ Brg Pier #5	D ℄ Splice	E ℄ Splice	F ℄ Brg. Pier #6	G ℄ Splice	H ℄ Brg East Abut
Girder #1	525.78	528.52	530.07	531.76	535.33	536.49	538.18	541.46
Girder #2	525.89	528.62	530.18	531.87	535.44	536.60	538.29	541.54
Girder #3	525.90	528.63	530.19	531.88	535.45	536.61	538.30	541.53
Girder #4	525.69	528.42	529.98	531.67	535.24	536.40	537.09	541.30
Girder #5	525.44	528.17	583.73	531.42	536.99	536.15	537.84	541.03

TOP OF WEB ELEVATIONS
(For Fabrication Only)

Revised 12-14-83

As Revised

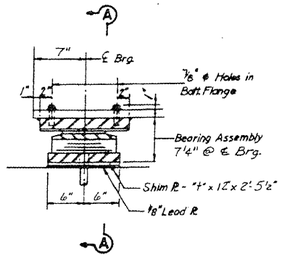
FOR INFORMATION ONLY

EXISTING PLANS, SN 065-0016
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

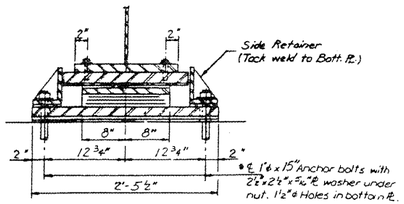
CODE	SECTION	COUNTY	TOTAL SHEET NO.	SHEET NO.
737	VA-1, B-D	Menard	185	19

TABLE FOR "t" DIMENSION FOR SHIM PLATES

Girder Location	Girder #1	Girder #2	Girder #3	Girder #4	Girder #5
Pier #4	—	—	1/8"	—	—

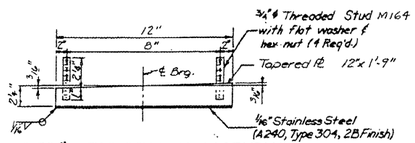


SECTION AT PIER #4

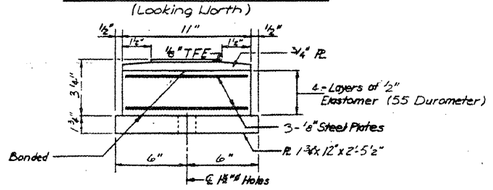


SECTION A-A

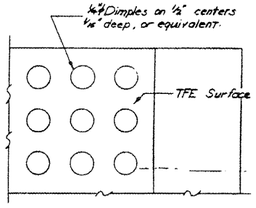
TYPE II TFE ELASTOMERIC EXP. BRG.



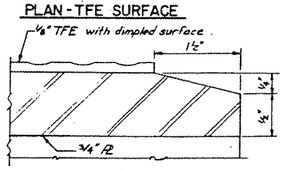
PIER #4 TOP BEARING ASSEMBLY
(Looking North)



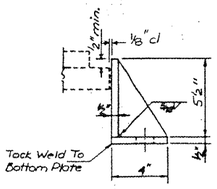
BOTTOM BEARING ASSEMBLY



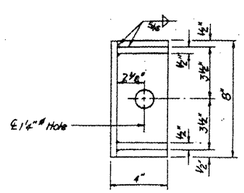
PLAN - TFE SURFACE



SECTION THRU TFE

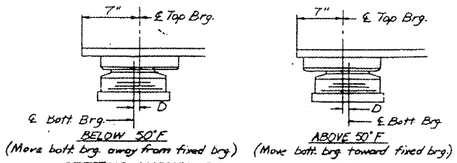


SIDE RETAINER



Note: The 1/16" TFE sheet shall be bonded directly to the top steel plate with a two-component, medium viscosity epoxy resin, conforming to the requirements of the Federal Specification MMM-A-134, Type I. The bond agent shall be applied on the full area of contact surfaces.

Bonding of 1/16" TFE sheet during vulcanizing process will be permitted provided the process and method of adjusting assembly height is approved by the Engineer.



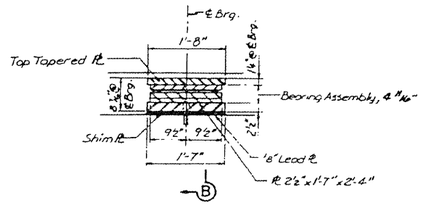
SETTING ANCHOR BOLTS AT EXP. BRG.

D = 1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

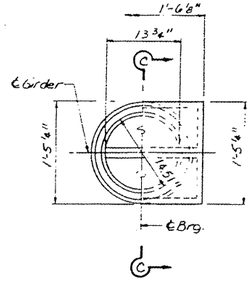
PIER #4

TABLE FOR "t" DIMENSION FOR SHIM PLATES

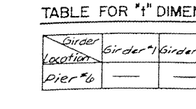
Girder Location	Girder #1	Girder #2	Girder #3	Girder #4	Girder #5
Pier #6	—	—	1/8"	—	—



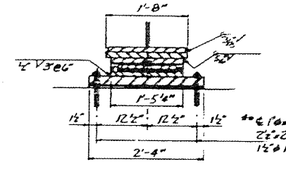
SECTION AT PIER #6



CUT-AWAY PLAN
BEARING ASSEMBLY



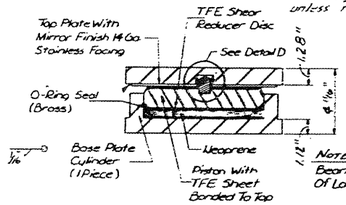
TOP TAPERED PLATE
(Looking North)
(M223 Gr. 50)



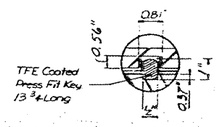
SECTION B-B

** Note: After Beams Have Been Erected Holes At Expansion Bearings Shall Be Drilled And Anchor Bolts Grouted In Place

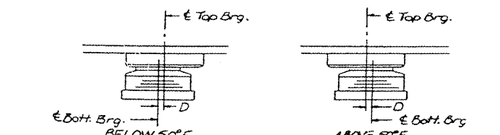
All Bearing Plates Are M-183 unless noted.



SECTION C-C



DETAIL D



SETTING ANCHOR BOLTS AT EXP. BRG.

D = 1/8" per each 100' of expansion for every 15° temp. change from the normal temp. of 50°F.

FLOATING BEARING - GUIDED EXPANSION
LOAD RATING = 500 KIPS

PIER #6

FOR INFORMATION ONLY

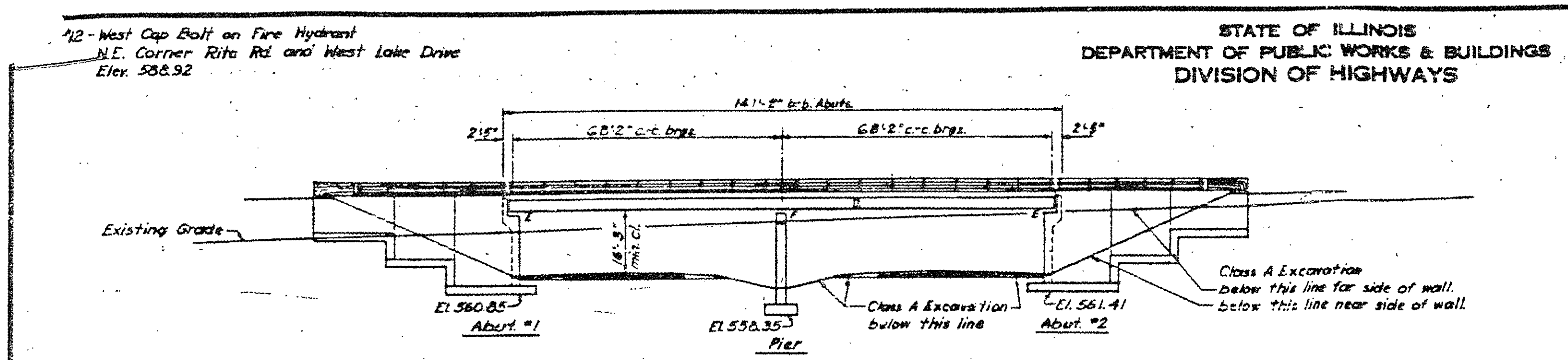
EXISTING PLANS, SN 065-0016
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

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

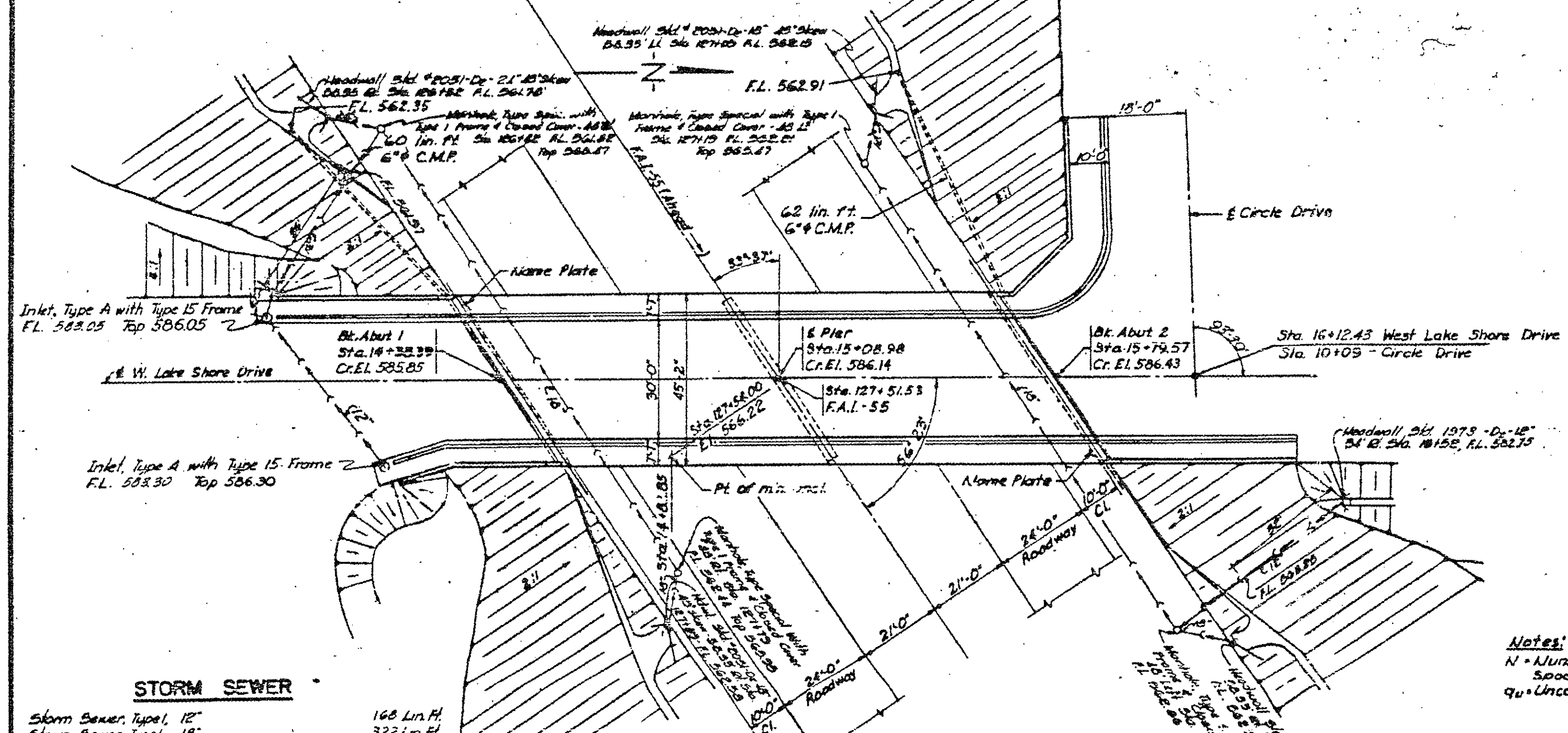
084-0092

F.A.I. RT. 55	84-3HB-3	Sangamon	42	10
FED. ROAD DIST. NO. 7	ILLINOIS	PROJECT I-55-3(16)93		

SHEET 1 OF 13



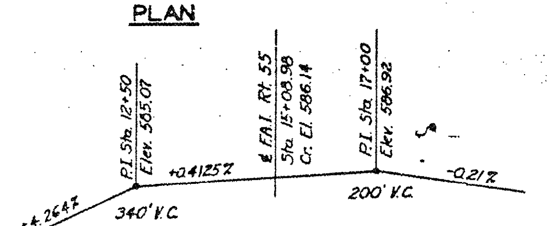
ELEVATION
Scale 1"=20'



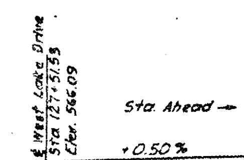
PLAN

STORM SEWER

Storm Sewer, Type I, 12"	168 Lin. Ft.
Storm Sewer, Type I, 18"	322 Lin. Ft.
Manhole, Type Special with Type I Frame & Closed Cover	4 Each
Inlet, Type A, with Type 15 Frame	2 Each
Class X Concrete (Headwall)	7.3 Cu. Yds.
Reinforcement Bars	250 lbs.
Storm Sewer, Type I, 24"	14 Lin. Ft.
Trench Backfill	5 Cu. Yds.



PROFILE ALONG WEST LAKE DRIVE



PROFILE ALONG F.A.I. RT. 55
@ Median Edge of Pavement

GENERAL NOTES

Class X Concrete shall be used throughout except in handrail and posts.

Handrail Concrete shall be used in the handrail and posts.

The concrete floor slab shall be finished in accordance with Art. 51.19 of the Standard Specifications, and shall be poured in one continuous operation between construction joints.

Rivets 3/4" ϕ, open holes 13/16" ϕ, unless noted.

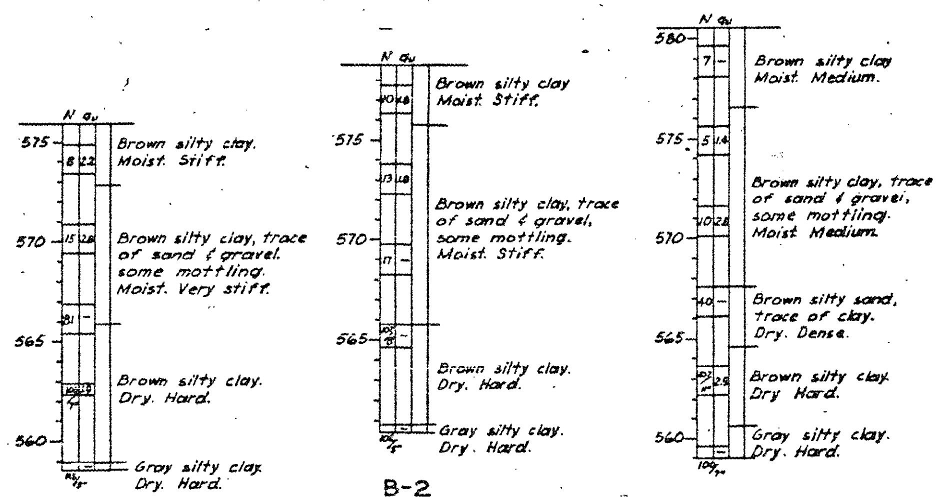
All holes for splices shall be punched 11/16" ϕ and reamed to proper size (13/16" ϕ in web and 15/16" ϕ in flange) with all stringers assembled in the shop in proper position. Leave assembled in shop for inspection.

All rockers, bolsters, bearing plates, fill plates, lead plates, pintles, and anchor bolts shall be fabricated and set in accordance with Art. 51.15 of the Standard Specifications, and are included in the quantity of Structural Steel.

Anchor bolts shall be set before riveting diaphragms over supports.

Except as otherwise provided, all Structural Steel shall receive one (1) shop coat of red lead paint and two (2) field coats of aluminum paint. See Art. 56.1 through 56.5 inclusive, of the Standard Specifications.

The aggregate for the Class X Concrete used in the barrier shall be free from chert, flint, limonite, lignite, and soft sandstone.



B-1
56' Rt. Sta. 126+73.50

B-2
℄ Sta. 127+47.70

B-3
56' Lt. Sta. 127+85.70

Notes:
N = Number of blows required to drive a 1⅜" I.D. Split Spoon Sampler by means of a 140# weight falling 30".
qu = Unconfined compressive strength, of the soil in tons/sq. ft.

STATION 127+51.53
BUILT 196 BY
STATE OF ILLINOIS
F.A.I. RT. 55 SEC 84-3HB-3
F.A. PROJ. I-55-3(16)
LOADING H20-S16

LETTERING FOR NAME PLATE
See Std. 2113

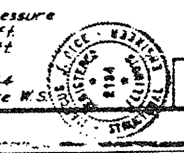
TOTAL BILL OF MATERIAL

ITEM		SUPER	SUB	TOTAL
Class X Concrete	Cu. Yds.	200.1	682.4	882.5
Handrail Concrete	Cu. Yds.	2.3	-	2.3
Reinforcement Bars	Lbs.	35,610	81,730	117,340
Furnishing & Erecting Structural Steel	Lbs.	206,560	-	206,560
Furnishing & Erecting Metal Handrail	Lin. Ft.	915	-	915
Name Plates	Ea.	-	-	2
Class A Excavation for Structures	Cu. Yds.	-	2034	2034
Corrugated Metal Pipe, 6 inch	Lin. Ft.	-	-	122
Perforated Corrugated Metal Pipe, 6 inch	Lin. Ft.	-	310	310
Porous Granular Backfill	Cu. Yds.	-	51	51
Portland Cement Concrete Sidewalk (6")	Sq. Ft.	1556	--	1556

DESIGN STRESSES

f_c = 1,400 p.s.i. (Super & Piers)
f_c = 1,000 p.s.i. (Abuts.)
f_s = 20,000 p.s.i. (Reinf.)
f_s = 18,000 p.s.i. (Struct.)
v = 75 p.s.i. (Footings)
n = 10
Design Footing Pressure
Ave. = 2.1 Tons/sq. ft.
Max. = 2.9 Tons/sq. ft.

Loading H20-S16-44
with 20#/sq. ft. Future W.S.



GENERAL PLAN & ELEVATION
WEST LAKE DRIVE OVER FED. AID INTERSTATE
PROJECT I-55-3(16)93
F.A.I. ROUTE 55 SEC. 84-3HB-3
SANGAMON COUNTY
STATION 127+51.53

JENKINS, MERCHANT & NANKIVIL
CONSULTING ENGINEERS
SPRINGFIELD, ILLINOIS

HANSON, COLLINS & RICE
CONSULTING ENGINEERS
SPRINGFIELD, ILLINOIS

DESIGNED	R.E.G.
CHECKED	M.J.Q.
DRAWN	T.E.B.
CHECKED	M.J.Q.

EXAMINED
PASSED
APPROVED

084-0092

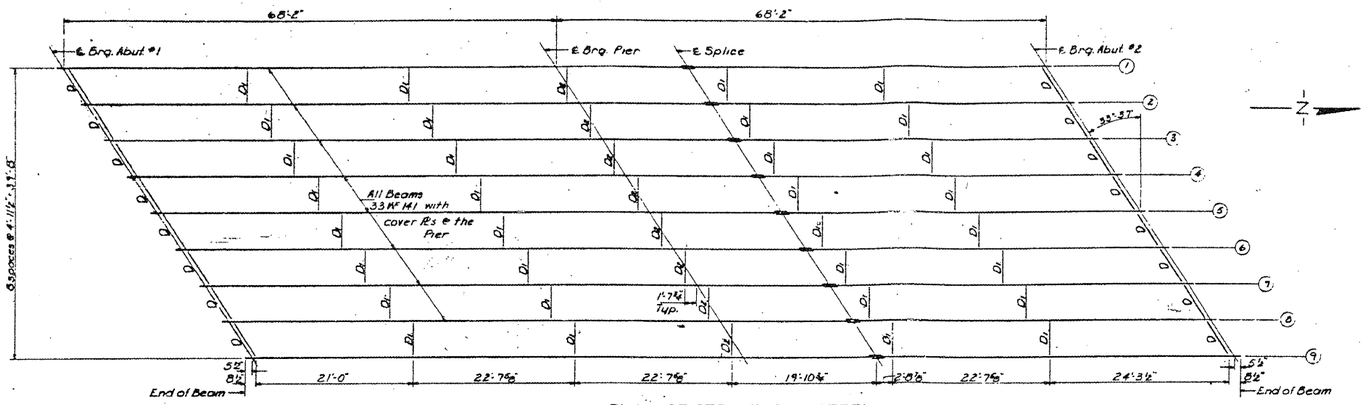
EXISTING PLANS, SN 084-0092
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

FOR INFORMATION ONLY

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

ROUTE NO.	SEC.	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. Rt. 55	84-3HB-3	Sangamon	42	12
FED. ROAD PROJ. NO. 7	ILLINOIS	PROJECT		

SHEET 3 OF 13

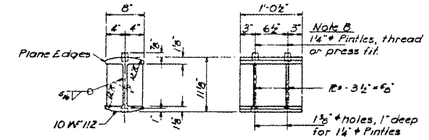


PLAN OF STRUCTURAL STEEL

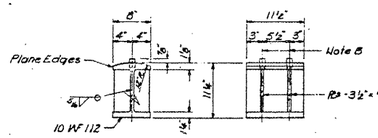
TABLE OF ELEVATIONS

Pt. / Bm.	℄ Brg. Abut. #1	℄ Brg. Pier	℄ Splice	℄ Brg. Abut. #2
1	585.05	585.29	585.34	585.61
2	585.07	585.31	585.37	585.63
3	585.16	585.40	585.47	585.73
4	585.24	585.48	585.54	585.80
5	585.27	585.51	585.58	585.84
6	585.27	585.51	585.57	585.83
7	585.22	585.46	585.52	585.78
8	585.15	585.39	585.45	585.71
9	585.16	585.40	585.47	585.72

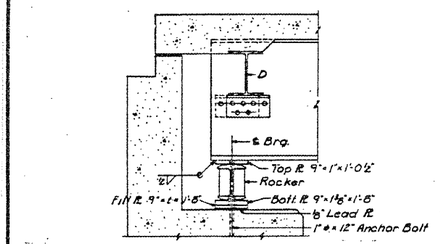
Note: All Elevations shown are given at the top of the flanges of the beams.



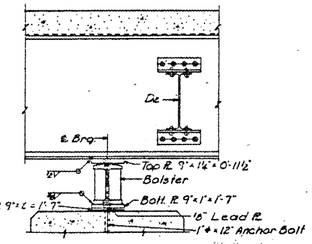
ROCKER



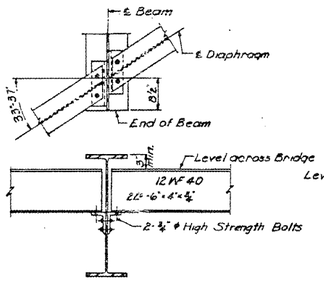
BOLSTER



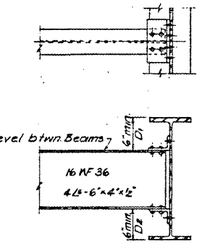
SECTION AT ABUTMENTS



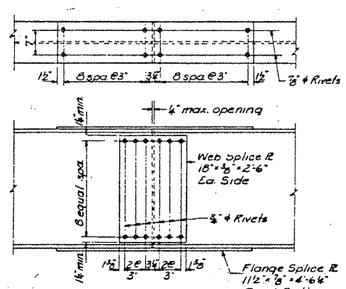
SECTION AT PIER



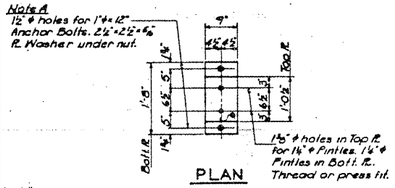
DIAPHRAGM D



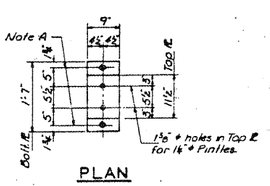
DIAPHRAGMS D1 & D2



SPLICE DETAIL



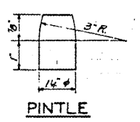
PLAN



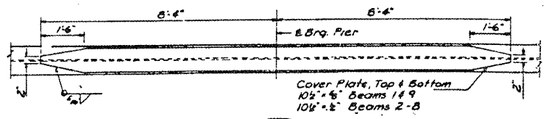
PLAN

TABLE OF ϕ DIMENSIONS

Pt. / Bm.	1	2	3	4	5	6	7	8	9
℄ Brg. Abut. #1	–	9"	–	–	½"	⅜"	⅞"	–	1¼"
℄ Brg. Pier	–	6"	–	–	½"	⅜"	⅞"	–	–
℄ Brg. Abut. #2	–	9"	–	–	½"	¼"	⅞"	–	1¼"



PINTLE



COVER PLATE DETAIL

DESIGNED	R.E.G.
CHECKED	M. J. Q.
DRAWN	D. J. M.
CHECKED	M. J. Q.
EXAMINED	
PASSED	
APPROVED	

STRUCTURAL STEEL
WEST LAKE DRIVE OVER FED. AID INTERSTATE

F.A.I. ROUTE 55 SEC. 84-3HB-3
SANGAMON COUNTY
STATION 127+51.53

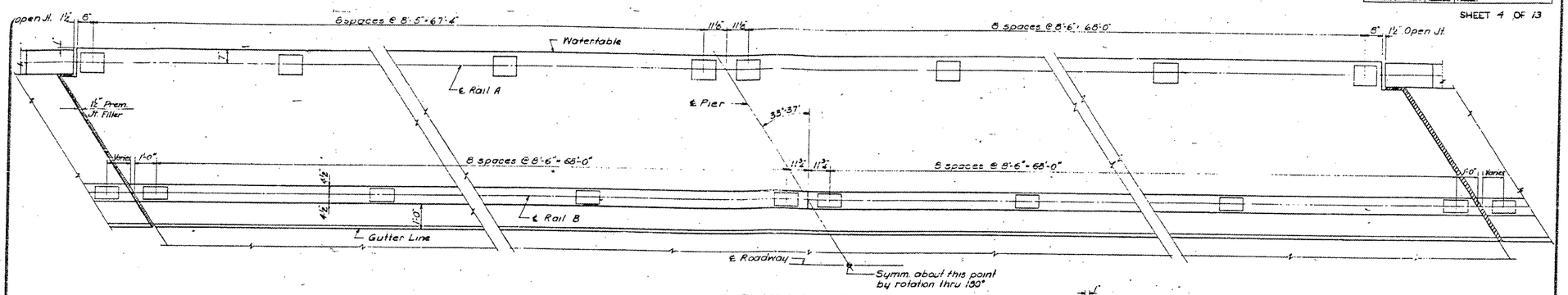
FOR INFORMATION ONLY

EXISTING PLANS, SN 084-0092
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

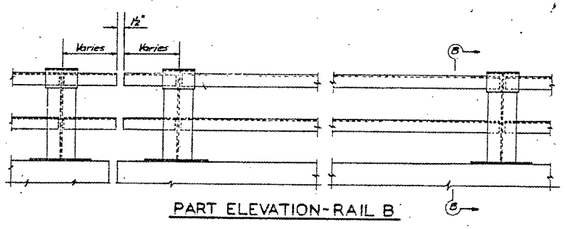
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

ROUTE NO.	DIST.	COUNTY	TOTAL SHEETS	SHEET NO.
F.A.I. 55	84-3HB-3	Sangamon	42	13
PED. ROAD DIST. NO. 7	ILLINOIS	PROJECT		

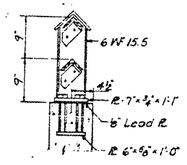
SHEET 4 OF 13



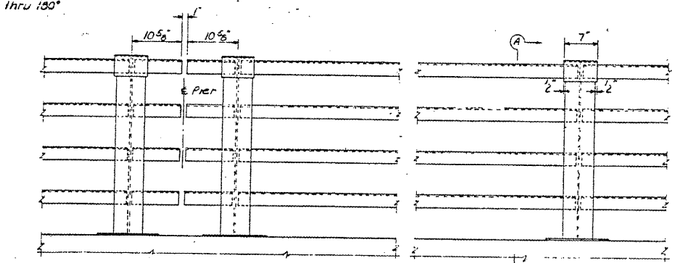
PLAN-WEST CURB



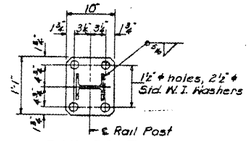
PART ELEVATION-RAIL B



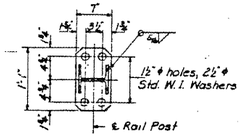
SECTION B-B
Rail Post B



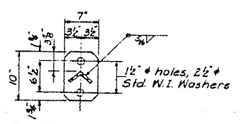
PART ELEVATION-RAIL A



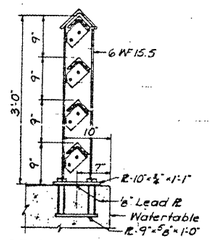
RAIL POST A
BASE PLATE
10"×⅝"×1'-1"



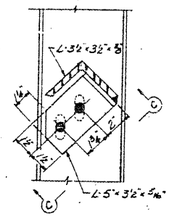
RAIL POST B
BASE PLATE
7"×⅜"×1'-1"



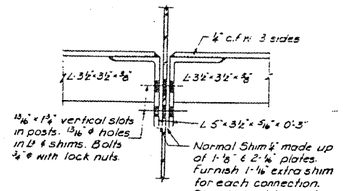
BASE PLATE C
7"×⅜"×0'-10"
(See Sht. 6 for location)



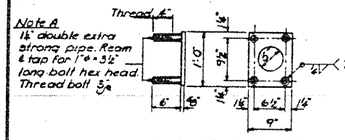
SECTION A-A
Rail Post A



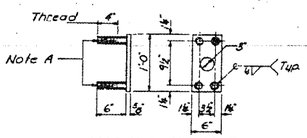
TYPICAL CONNECTION



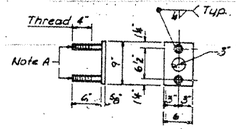
VIEW C-C



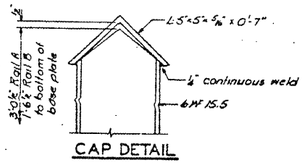
ANCHOR DETAILS (Post A)
Plate 9"×6"×1'-0". Ship with 1"ϕ×3½" bolts in place.



ANCHOR DETAILS (Post B)
Plate 6"×6"×1'-0". Ship with 1"ϕ×3½" bolts in place.



ANCHOR DETAILS (Post C)
Plate 6"×6"×0'-9". Ship with 1"ϕ×3½" bolts in place.



CAP DETAIL

Note: Item Furnishing & Erecting Metal Handrail includes both the two angle & the four angle rail.

Work this Sheet with Sheet Nos. 5 & 6

NOTE: Furnish one 1/16" and two 1/16" shims for 50% of the rail posts.

BILL OF MATERIAL

* Furnishing & Erecting Metal Handrail	Lin. Ft.	915

* Includes 435 lin. ft. Rail A
480 lin. ft. Rail B

HANDRAIL DETAILS
WEST LAKE DRIVE OVER FED. AID INTERSTATE

F.A.I. ROUTE 55 SEC. 84-3HB-3
SANGAMON COUNTY
STATION 127+51.53

DESIGNED R.E.S.	EXAMINED 19
CHECKED M.J.Q.	PASSED
DRAWN D.J.M.	APPROVED
CHECKED M.J.Q.	

FOR INFORMATION ONLY

EXISTING PLANS, SN 084-0092
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

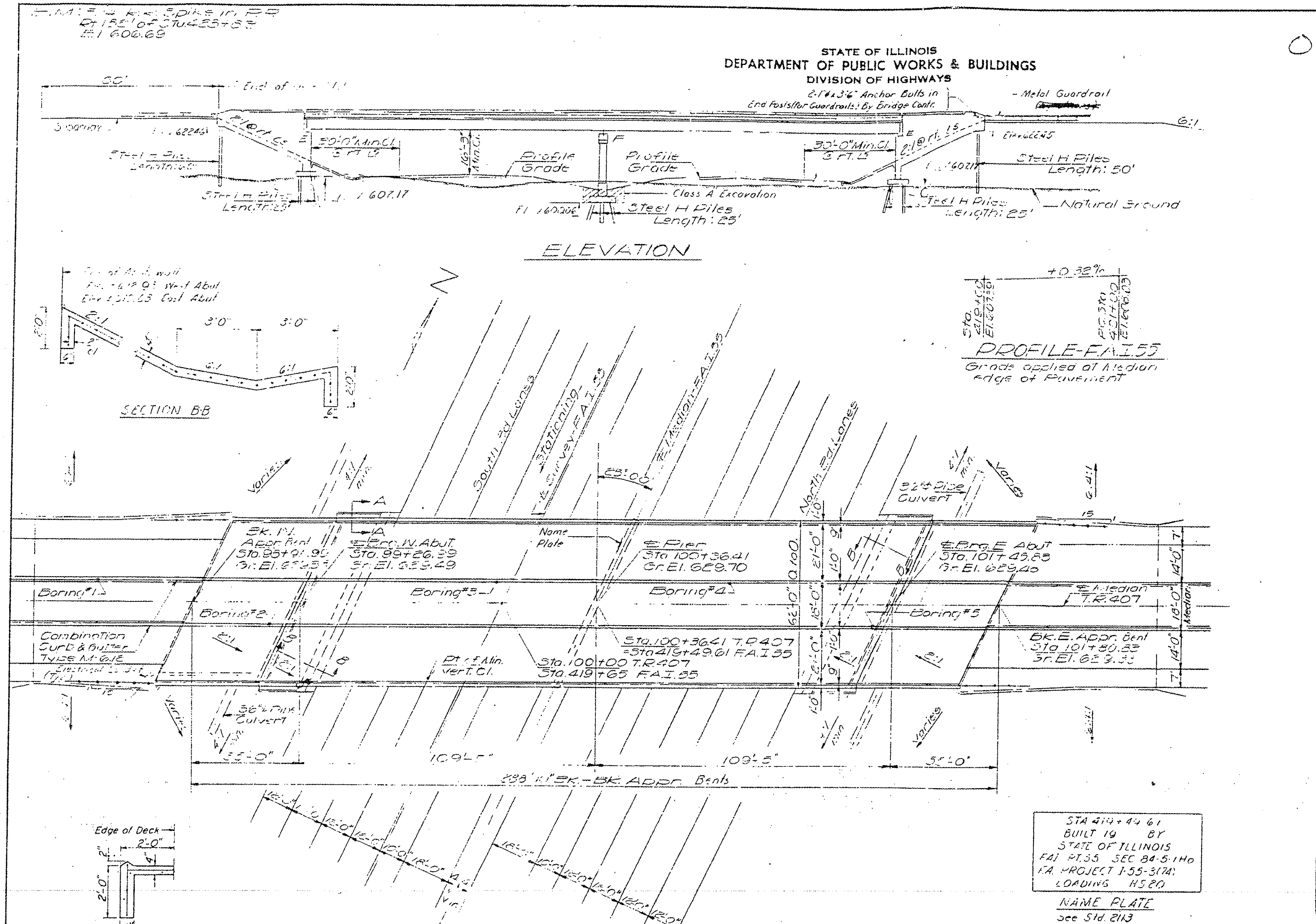
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

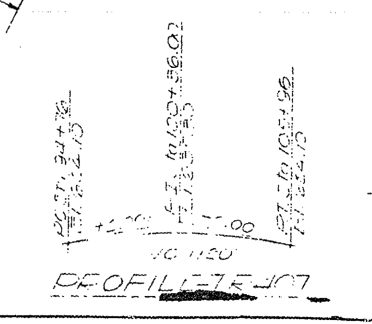
0111

55	*	SANGAMON	460	106

SHEET NO. 1 / 16 SHEETS

*84-5-1, 1HB, 1VHB

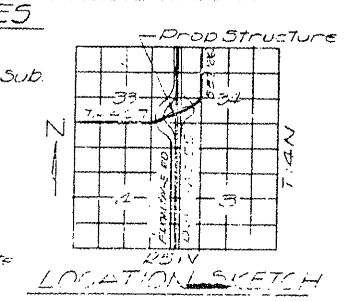




DESIGN STRESSES

FIELD UNITS
f'c = 1200 psi. Deck Slab
f'c = 1400 psi. Curb, Parapet, Sub.
fs = 20,000 psi. Steel
fs = 20,000 psi. Struct.
Vc = 75 psi. Ftgs.
n = 10

PRECAST PRESTRESSED UNITS
f'c = 5000 psi
f'ci = 4000 psi
f's = 248,000 psi Strands
fsi = 175,000 psi Strands
Allowable ... Composite
Allowable ... 665 lb
LOADING - HS20-44



GENERAL NOTES

All reinforcement bars shall be lapped 24 diameters unless otherwise shown.

F... shall be high strength bolt... unless otherwise noted.

The Basic Lead Silico Chromate paint system shall be used for shop and field painting of structural steel.

Field welding of construction accessories will not be permitted to the bottom flange of beams or girders nor to the top flange for a distance equal to one-fourth the span length each way from the pier supports. Field welding in other areas will be permitted only when approved by the Engineer.

Anchor bolts shall be set before bolting diaphragms over supports.

Slope wall shall be reinforced with welded wire fabric 6"x 6" mesh, weighing 58# per 100 sq.ft.

The embankment configuration shown shall be the minimum embankment that must be constructed prior to construction of the abutments.

The Contractor shall drive 2 steel test piles in permanent location; one @ W. Approach Bent, and one at the Pier as directed by the Engineer before ordering the remainder of piles.

Class A Excavation for structures includes excavation for slope wall.

The concrete rail section above the mandatory construction joint at the top of the slab shall be constructed of Class X Concrete, except the aggregates shall conform to the requirements of Handrail Concrete.

Calculated weight of Structural Steel = 45,510 lb.

TOTAL BILL OF MATERIAL

Item	Unit	Super	Sub.	Total
Class "A" Excavation for Structure	Cu Yds.		104	104
Structural Steel	Lump Sum	Lump Sum		Lump Sum
Stud Shear Connectors	Each	2808		2808
Precast Prestressed Conc I Beams (36")	Lin Ft.	580.5		580.5
Class X Concrete	Cu. Yds.	561.2	428.0	989.2
Reinforcement Bars	Lbs.	128,990	37,100	166,090
Aluminum Railing	Lin. Ft.	535		535
Steel Piles (8 BP36)	Lin Ft.		2175	2175
Steel Piles (10 BP42)	Lin Ft.		1040	1040
Test Piles (Steel) (8BP36)	Each		1	1
Test Piles (Steel) (10BP42)	Each		1	1
Name Plates	Each		1	1
Slope Wall (4")	Sq. Yds.		392	392
Protective Coat	Sq. Yds.	2100		2100

084 0111

DESIGNED	
CHECKED	
DRAWN	J.L.S.
CHECKED	

EXAMINED January 27 19..
PASSED W.E. Baumann
APPROVED R.H. Golterman

PROJECT I-55-3(74) 83

GENERAL PLAN & ELEVATION
T.R. 407 OVER F.A.I. 55
F.A.I. ROUTE 55
SECTION 84-5-1HB
SANGAMON COUNTY
STATION 419+49.61

FOR INFORMATION ONLY

EXISTING PLANS, SN 084-0111
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

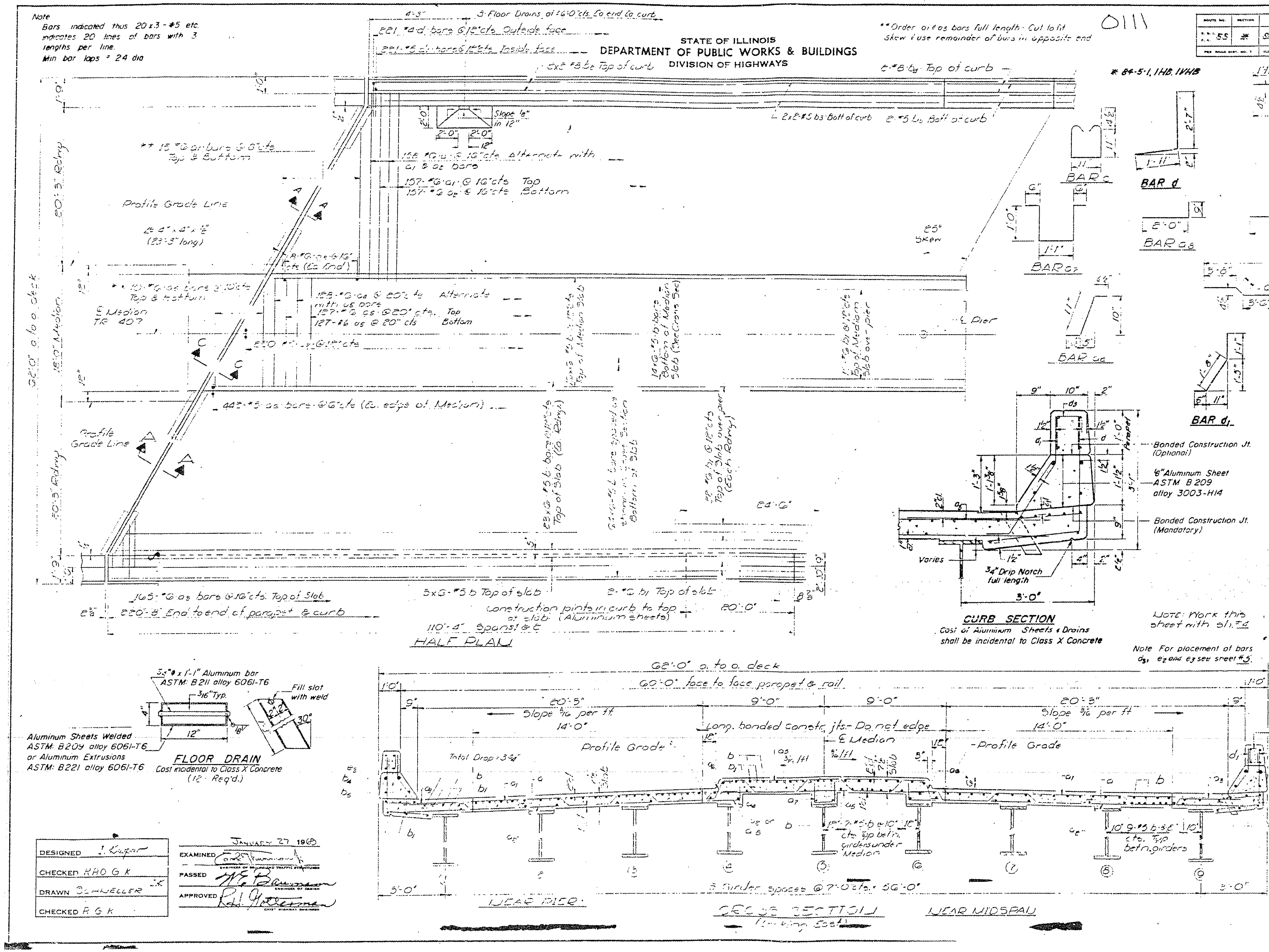
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

0111

SHEET NO. 8 / 16 SHEETS

Note
Bars indicated thus 20 x 3 - #5 etc. indicates 20 lines of bars with 3 lengths per line.
Min bar laps = 24 dia

** Order all a$_{2}$ bars full length. Cut to fit skew & use remainder of bars in opposite end.



BILL OF MATERIAL

Bar	No.	Size	Length	Shape
a	316	#6	24'-9"	
a$_{1}$	374	#6	23'-9"	
a$_{2}$	314	#6	24'-3"	
a$_{3}$	530	#6	4'-0"	
a$_{4}$	128	#6	15'-9"	
a$_{5}$	274	#6	15'-1"	
a$_{6}$	654	#5	2'-0"	
a$_{7}$	220	#5	4'-1"	
a$_{8}$	16	#6	2'-9"	
b	876	#5	38'-0"	
b$_{1}$	63	#6	49'-0"	
b$_{2}$	16	#8	46'-0"	
b$_{3}$	16	#5	45'-9"	
b$_{4}$	8	#8	19'-9"	
b$_{5}$	8	#5	19'-9"	
c	16	#4	3'-6"	
d	448	#4	4'-6"	
d$_{1}$	448	#5	3'-3"	
m5	4	#5	15'-6"	

Reinforcement Bars	Lbs	36,190
Class X Concrete	Cu Yds	380.2
* Structural Steel	Lump Sum	L.S.
Stud Shear Conn'trs.	Each	2,808

* Weight of bearing assemblies with lead plates and anchor bolts are included as structural steel
Est Wt = 11,640 Lbs.

Parapet reinforcement & Class X Concrete are billed on sheet #5.

Note: Work this sheet with sht. #4

Note: For placement of bars a$_{3}$, e$_{2}$ and e$_{3}$ see sheet #5.

CURB SECTION
Cost of Aluminum Sheets & Drains shall be incidental to Class X Concrete

FLOOR DRAIN
Cost incidental to Class X Concrete (12 - Req'd.)

SUPERSTRUCTURE
MAIN SPANS
F.A.I. RT. 55 SEC. 84-5-1HB

DESIGNED	
CHECKED	RHO G K
DRAWN	SCHNELLER
CHECKED	R G K

EXAMINED January 27 1965
PASSED
APPROVED

FOR INFORMATION ONLY

EXISTING PLANS, SN 084-0111
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

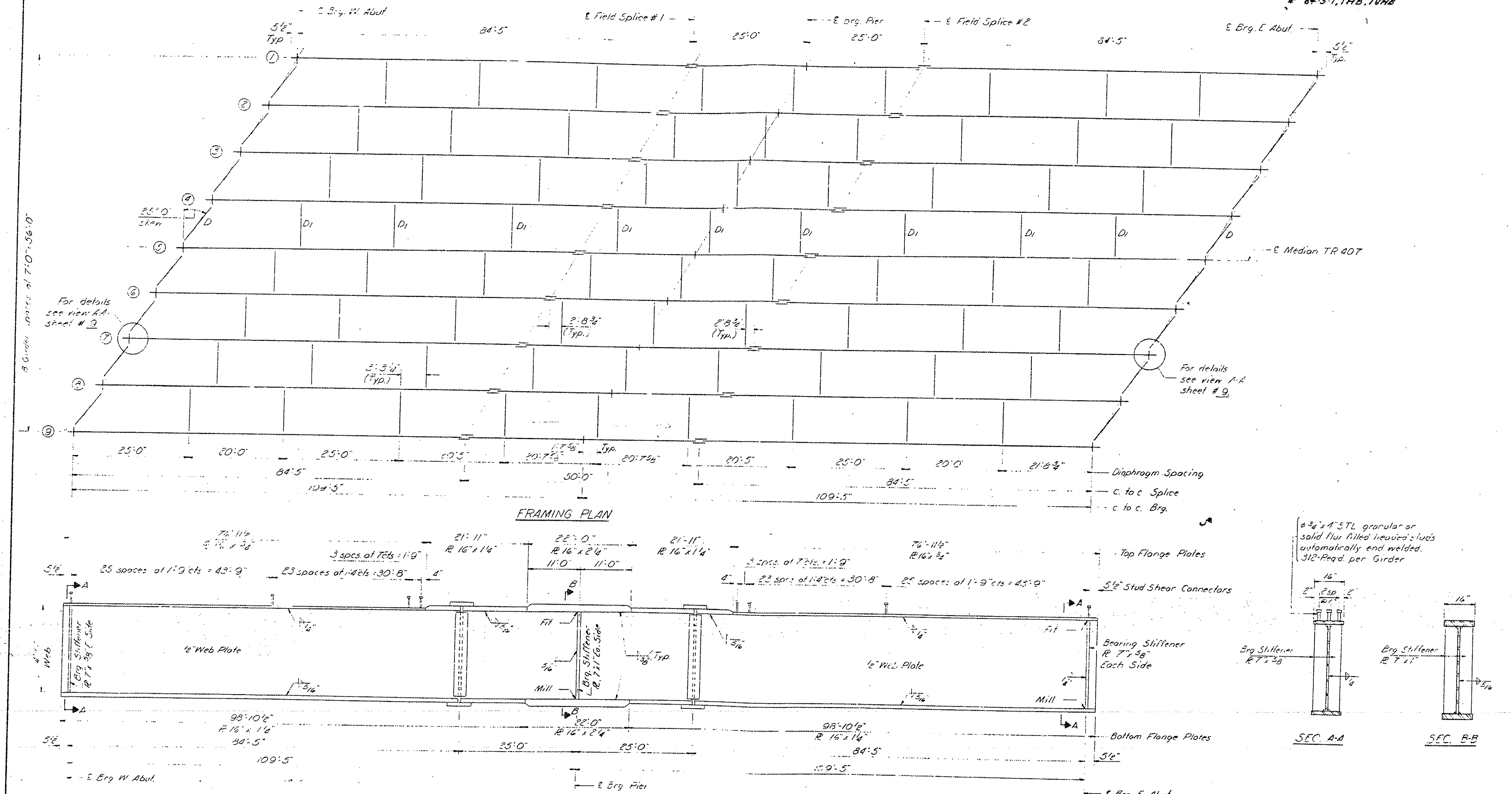
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

0111

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
F.A. 55	*	SANGAMON	460	113
FED. ROAD DIST. NO. 7	ILLINOIS	FED. AID PROJECT		

SHEET NO. 8
16 SHEETS

* 84-5-1, 1HB, 1VHB



DESIGNED	[illegible] Kapar
CHECKED	RHO G.K.
DRAWN	S.E. Lindsey IK
CHECKED	R.G.K.

JAN 27 1969
EXAMINED Carl Hummand — ENGINEER OF BRIDGE AND TRAFFIC STRUCTURES
PASSED W.E. Blumann — ENGINEER OF DESIGN
APPROVED R.H. Golterman — CHIEF HIGHWAY ENGINEER

¾"
Inside edge
BRG. STIFFENER-END CUT

STRUCTURAL STEEL
F.A.I. RT. 55 SEC. 84-5-1HB
SANGAMON COUNTY
STA. 419 + 49.61

FOR INFORMATION ONLY

EXISTING PLANS, SN 084-0111
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

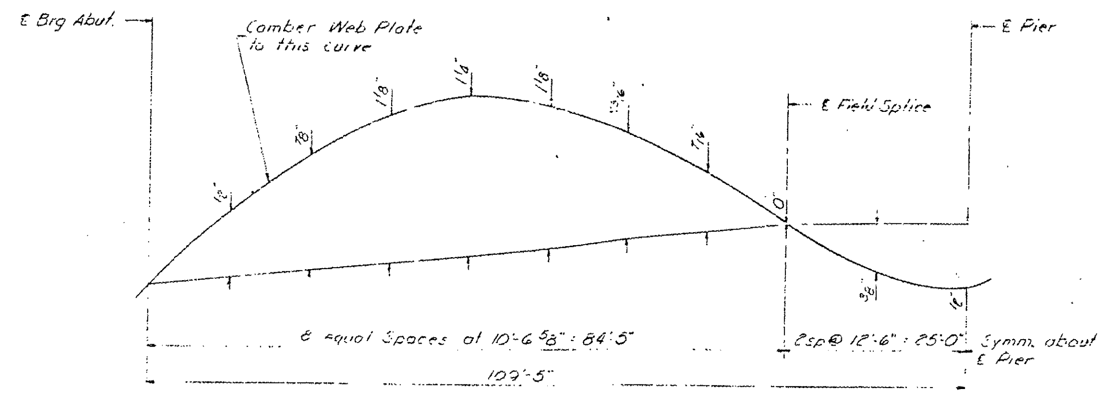
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

0111

Route	Section	County	Total Sheets	Sheet No.
F.A.I. 55	#	SANGAMON	460	114

SHEET NO. 9
16 SHEETS

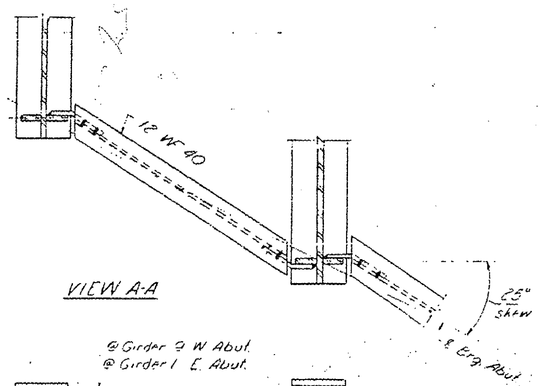
84-5-1, 1HB, 1VHB



CAMBER DIAGRAM
Note: Top & Bottom of Girder webs shall be cut to camber curves.

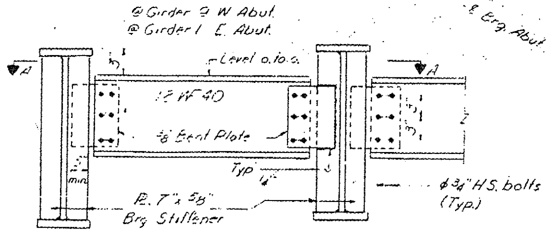
TOP OF GIRDER WEB ELEVATIONS

Location \ Girder	1	2	3	4	5	6	7	8	9
℄ Brg W. Abut.	628.54	628.65	628.75	628.81	628.80	628.79	628.68	628.57	628.45
℄ Field Splice # 1	628.63	628.74	628.84	628.92	628.91	628.90	628.83	628.72	628.60
℄ Brg Pier	628.58	628.69	628.79	628.87	628.86	628.85	628.79	628.68	628.56
℄ Field Splice # 2	628.61	628.72	628.82	628.91	628.90	628.89	628.84	628.73	628.61
℄ Brg. E Abut	628.45	628.56	628.66	628.80	628.79	628.78	628.74	628.63	628.51

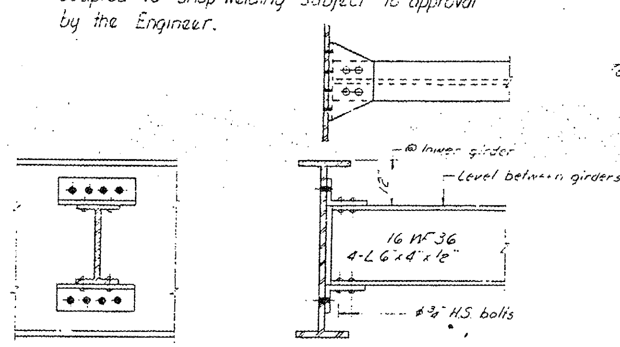


VIEW A-A

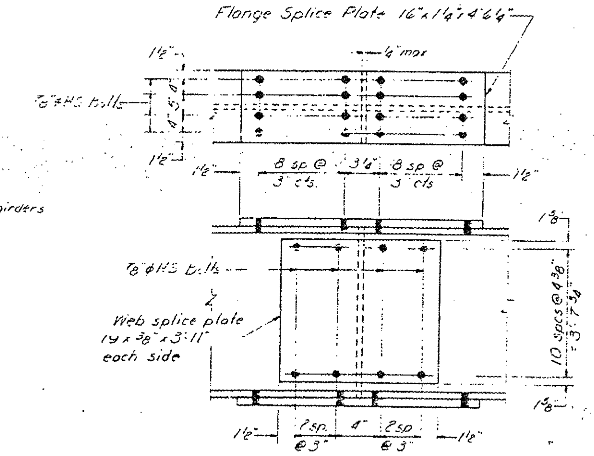
Note: Diaphragm connections may be adapted to shop welding subject to approval by the Engineer.



DIAPHGRAGM D
16 Required



DIAPHGRAGM D1
72 Required



SPLICE

STRESS TABLE

MOMENTS & REACTIONS ~ INTERIOR GIRDERS	Moments ~ Ft-kips		Reactions ~ kips	
	.40 Sp. 1	Pier	Abut	Pier
D.L.	661.7	1635.5	35.9	131.6
S.D.L.	235.5	377.2	11.3	36.3
L.L.	889.8	796.1	41.0	71.5
Imp.	189.5	169.6	8.8	15.2
Total	1996.5	2978.4	97.0	254.6

S.D.L. = Superimposed Dead Load

Properties

At Midspan (Composite): $I = 52{,}440\ in^4$, $S_B = 1380.8\ in^3$, $S_{TS} = 4359.\ in^3$
At Pier: $I_s = 50{,}090\ in^4$, $S_{TB} = 1908.2\ in^3$
At Midspan (Non-comp.): $I = 25{,}154\ in^4$, $S_B = 1028.1\ in^3$, $S_T = 617.5\ in^3$

DESIGNED	I. Kuper	EXAMINED	JAN. 27 1969
CHECKED	R.AC. G.K.	PASSED	M. E. Baumann
DRAWN	S.E. Lindsey I.K.	APPROVED	R. L. Golterman
CHECKED	R. G. K.		

STRUCTURAL STEEL DETAILS
F.A.I. RT. 55 SEC. 84-5-1HB
SANGAMON COUNTY
[illegible] 49.61

FOR INFORMATION ONLY

EXISTING PLANS, SN 084-0111
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

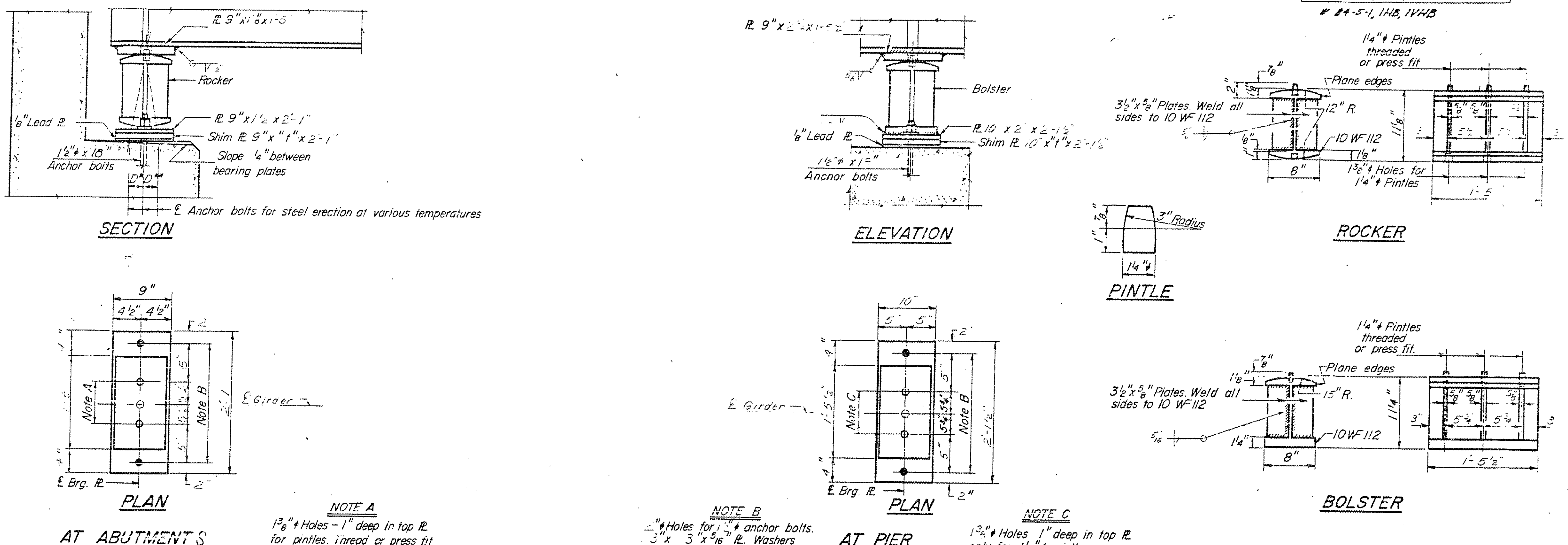
STATE OF ILLINOIS
DEPARTMENT OF PUBLIC WORKS & BUILDINGS
DIVISION OF HIGHWAYS

0111

ROUTE NO.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
55	*	SANGAMON	460	115

SHEET NO. 10
16 SHEETS

* 84-5-1, IHB, IVHB



NOTE A
1 3/8"φ Holes – 1" deep in top PL for pintles. Thread or press fit pintles into bottom PL.

NOTE B
2"φ Holes for 1 1/2"φ anchor bolts. 3"x 3"x 5/16" PL Washers under nut.

NOTE C
1 3/8"φ Holes 1" deep in top PL only for 1 1/4"φ pintles.

BEARING ASSEMBLY DETAILS

NOTES ON SETTING OF ANCHOR BOLTS AT EXP. BRGS.

a) D* (Side of brg. away from fixed brg.)
D* = 1/8" per each 100' of expansion for every 15° fall below the normal temp. of 50°F.
D** (Side of brg. toward fixed brg.)
D** = 1/8" per each 100' of expansion for every 15° rise above the normal temp. of 50°F.

b) After Girders have been erected and dimensions D* or D** determined, holes shall be drilled and anchor bolts shall be grouted in place. All Pier anchor bolts will be built into the masonry.

TABLE OF "t" DIMENSIONS

Location \ Girder	1	2	3	4	5	6	7	8	9
℄ Brg. W. Abut.	–	–	–	–	5/8"	1/2"	–	–	–
℄ Brg. Pier	1/4"	–	–	1/4"	1/8"	–	–	–	–
℄ Brg. E. Abut.	-	–	–	–	5/8"	1/2"	–	–	–

DESIGNED	I. [illegible]
CHECKED	G K
DRAWN	P.G. Barnett
CHECKED	R G K

JAN 27 1969
EXAMINED [signature]
PASSED W. E. Baumann, ENGINEER OF DESIGN
APPROVED R. H. Golterman, CHIEF HIGHWAY ENGINEER

1-2-B 9-1-65

BEARING DETAILS

EXISTING PLANS, SN 084-0111
VARIOUS ROUTES
D6REHAB BDGE PAINTING 2012
MENARD, SANGAMON COUNTIES

FOR INFORMATION ONLY