BRIDGE CONTRACT No. 4729

INDEX

PROJECT	STRUCTURE	TYPE	SPAN	OVER	STATION	CONTRACT NO.
I-74-2(14)072	136-H9-4440	CONTINUOUS STEEL BEAM TWIN STRUCTURES	4 SPANS 48'0", 2@97'0, 48'0"	S. R. 100	℄ 855+87.5 "AA" SK. 40°40' 30" LT.	4729

SHEET NO.	SHEET DESIGNATION	SUBJECT	
1		INDEX & TITLE SHEET	
2	BRIDGE SHEET	SOIL BORING LOG	
3	ROAD STD.	STD. DIVIDED LANE SECTIONS FOR FEDERAL AID INTERSTATE PROJECTS REV. 11-26-57	
4	ROAD SHEET 15	PLAN & PROFILE LINE "AA" STA. 833+00 to 865+00 RD. PROJ. I-74-2(12)069	
5-6	ROAD SHEET 17 & 18	PLAN & PROFILE LINE "L" STA. 400+00 to 430+00, STA. 430+00 to 460+00 RD. PROJ. I-74-2(12)069	
7	ROAD SHEET 20	PLAN OF RIGHT OF WAY LINE "AA" STA. 840+00 to 870+00 RD. PROJ. I-74-2(12)069	
8	ROAD SHEET 21	RAMP ALIGNMENT LINE "AA" STA. 840+00 to 870+00 RD. PROJ. I-74-2(12)069	
9	ROAD SHEET 22	RAMP DETAILS LINE "AA" STA. 840+00 to 870+00 RD. PROJ. I-74-2(12)069	
10	S1	LAYOUT	
11	S2	GENERAL PLAN	
12-13	S3, S4	BENTS Nº 1 & Nº 5 DETAILS	
14	S5	SUBSTRUCTURE BILL OF MATERIALS	
15	S6	PIER Nº 2 & Nº 4 DETAILS	
16	S7	PIER Nº 3 DETAILS	
17	S8	FRAMING PLAN	
18-19-20	S9, S10 & S11	FLOOR DETAILS	
21	S12	SPLICE DETAILS	
22	S13	SHOE DETAILS	
23	S14	STEEL EXPANSION JOINT DETAILS	
24	S15	SUPERSTRUCTURE BILL OF MATERIALS	
25		SUMMARY	
26	BR. STD. C1	STANDARD MISCELLANEOUS DETAILS	REV. 12-2-58
27	BR. STD. M2	MISCELLANEOUS APPROACH DETAILS	REV. 6-3-57
28	BR. STD. M3	MISCELLANEOUS APPROACH DETAILS	REV. 1-15-59
29	BR. STD. R1	ALUMINUM RAILING DETAILS	REV. 1-15-59
30	BR. STD. S2	TYPICAL DETAILS FOR PLACING SPECIAL FILLING MATERIAL	REV. 9-20-52
31	RD. STD. MA	MISCELLANEOUS STANDARDS	REV. 12-19-57
32	SHEET 2 DETOURS	STANDARD DETOUR SIGNS	REV. 11-12-58
29A	BR. STD. R2	BRIDGE LIGHTING DETAILS	6-30-59
11A	S-2A	RAILING, PARAPET WALL & PARAPET WALL CONTRACTION JOINT DETAILS	

STATE OF INDIANA
STATE HIGHWAY DEPARTMENT

BRIDGE PLANS

FOR SPANS OVER 20 FEET ON STATE ROAD NO. SECTION

F.A. PROJECT NO. I-74-2(14)072

INDIANAPOLIS-CRAWFORDSVILLE ROAD OVER STATE ROAD 100

BEGINNING AT A POINT APPROXIMATELY 2237 FEET WEST OF THE EAST SECTION LINE OF SECTION 26 AND EXTENDING SOUTHEAST A DISTANCE OF 490 FEET TO A POINT APPROXIMATELY 1747 FEET WEST OF THE EAST SECTION LINE OF SECTION 26, ALL BEING IN SECTION 26 T16N R2E, WAYNE TOWNSHIP, MARION COUNTY, INDIANA.

ROADWAY LENGTH : 0.037 MILE
BRIDGE LENGTH: 0.056 MILE
TOTAL LENGTH : 0.093 MILE

MAX. GRADE : +2.08 %

BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14)072	1959	1	32

PLANS PREPARED BY

PIERCE, GRUBER & BEAM, INC.
CONSULTING STRUCTURAL ENGINEERS
INDIANAPOLIS, INDIANA

CERTIFIED DATE APRIL 30, 1959

Walter M. Beam

PIERCE, GRUBER & BEAM, INC. CONSULTING STRUCTURAL ENGINEERS

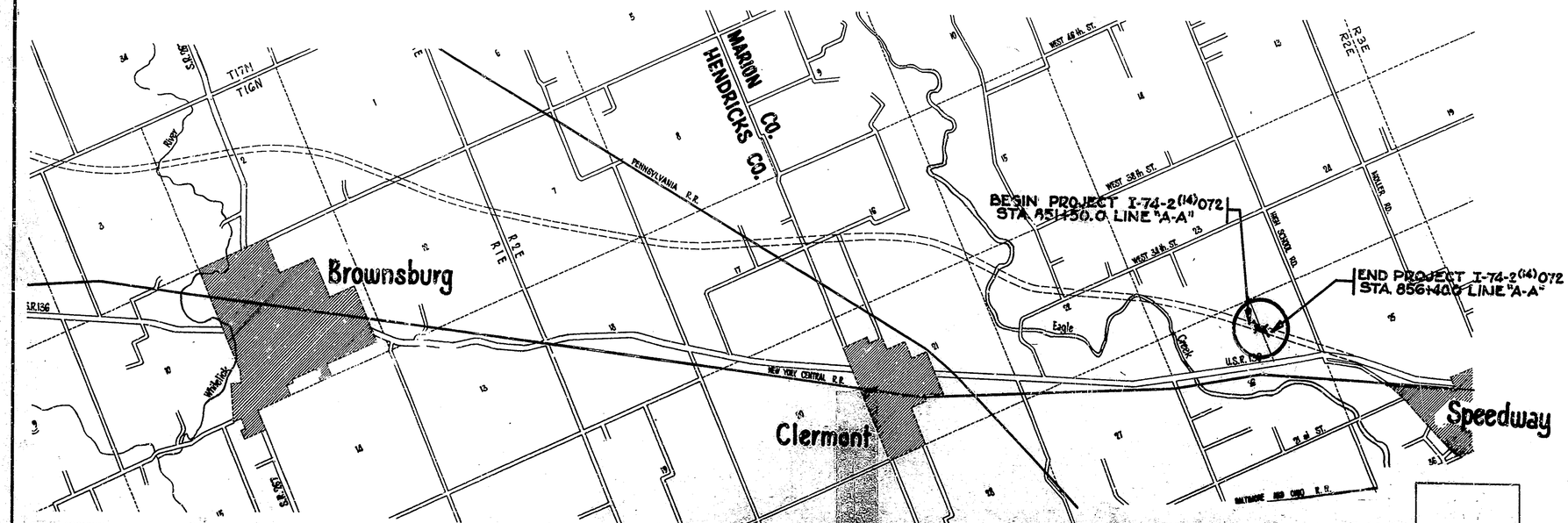
WALTER M. BEAM REGISTERED No. 5013 STATE OF INDIANA PROFESSIONAL ENGINEER

DESIGN DATA

A.D.T. 1959 ADJ.	14,697
A.D.T. 1979 PROJ.	71,721
DESIGN SPEED	70
ACCESS CONTROL	FULL
TRUCKS	7%

Rev. 9-8-59 SHEETS 1-11 & 25
Added 9-8-59 SHEET 29A

REVISED 11-23-59 SHEETS Nº 1, 11, 12, 15, 16, 15, 16, 16, 19, 20, 24 & 25; SHEET Nº 11A ADDED.



STATE HIGHWAY DEPARTMENT OF INDIANA
1957 STANDARD ROAD AND BRIDGE SPECIFICATIONS
TO BE USED WITH THESE PLANS

Rev. 9-8-59 - Lighting Installation

RECOMMENDED FOR APPROVAL DATE 5-22-59

DIVISION OF DESIGN, STATE HIGHWAY DEPARTMENT OF INDIANA

APPROVED AND ADOPTED BY STATE HIGHWAY DEPARTMENT OF INDIANA DATE 6-8-59

CHAIRMAN, STATE HIGHWAY DEPARTMENT OF INDIANA

APPROVED DATE 6/5/59

CHIEF ENGINEER, STATE HIGHWAY DEPARTMENT OF INDIANA

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED:
DIVISION ENGINEER DATE

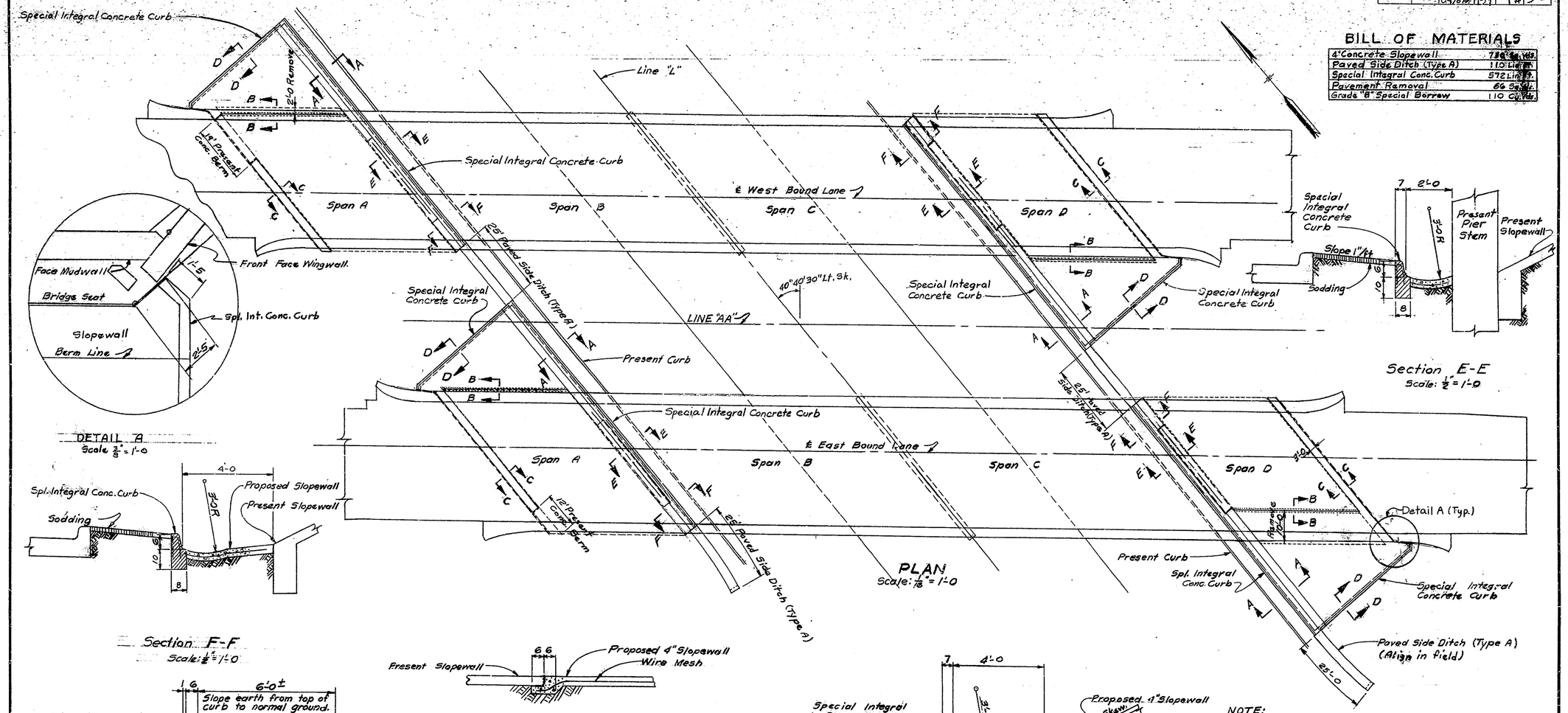
BRIDGE FILE: 136-H9-4440 (OLD)
I-74-72-4440

PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14) 072	1962	1	32

BRIDGES OVER 20' SPAN

BILL OF MATERIALS

4" Concrete Slopewall	736 Sq. Yds.
Paved Side Ditch (Type A)	115 Lin. Ft.
Special Integral Conc. Curb	572 Lin. Ft.
Pavement Removal	66 Sq. Yd.
Grade "B" Special Borrow	110 Cu. Yds.



NOTE:
Cross-hatched portion of curb sections to be paid for as Special Integral Concrete Curb.
For details of Paved Side Ditch Type A see Bridge Standard M1.
For additional slopewall details see Bridge Standard M15.
Shape portions of Paved Side Ditch (Type A) to match 3'-0 radius.

DRAINAGE AT END BENTS

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- AS NOTED — JUNE 15 1961

RECOMMENDED FOR APPROVAL: C.R. Runnion
ENGINEER OF BRIDGE DESIGN

DRAWING:- OF

PROJECT:- I-74-2(14)-072

BRIDGE CONTRACT NO.

BRIDGE FILE:- I-74-72-4440

DESIGNED	C'K'D
DRAWN WEA 5-18-61	C'K'D MB 5-28-61
TRACED	C'K'D

BRIDGES OVER 20' SPAN

FUR. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14) 072	1959	2	32

SOIL BORING LOG

	1	2	3	4	5	6
BORING Nº	1	2	3	4	5	6
STATION	851+74.5	852+70.0	852+98.5	854+39	854+82	855+96
OFFSET	72' Lt.	24' Lt.	72' Rt.	60' Rt.	60' Lt.	60' Rt.
SURFACE ELEV.	749.1	748.5	748.0	748.3	748.3	748.3
GROUNDWATER ELEV.	732.1	733.5	734.0	734.3	732.3	733.8

ELEV.	Sample Nº	Sample Elev.	N	Description
745				
	1	744.1	3	Dry soft fine to coarse gravel & sand with silty clay.
740				
	2	739.1	30	Dry dense, fine to coarse gravel & sand.
735				
	3	734.1	28	Wet dense, fine to coarse sand & gravel.
730				
	4	729.1	27	
725				
	5	724.1	67	
720				Med. to coarse gravel, some sand. Trace of clay.
	6	719.1	100	
715				
	7	714.1	107	
710				Depth of Boring 37'
705				
700				
695				

Sample Nº	Sample Elev.	N	Description
1	743.5	16	Fine, gray & brown sand with fine to med. gravel.
2	738.5	37	
3	733.6	38	
4	728.5	29	Wet gray sand, very little fine gravel.
5	723.5	34	
			Wet gray fine to med. sand & gravel.
6	718.5	32	
			Depth of Boring 31'

Sample Nº	Sample Elev.	N	Description
1	743.0	17	Loose moist gray & brown sand with fine to med. gravel. Some coarse gravel.
2	738.0	19	
3	733.0	24	
4	728.0	26	
5	723.0	28	Loose wet gray sand.
6	718.0	30	
			Depth of Boring 31'

Sample Nº	Sample Elev.	N	Description
			Brown topsoil
1	743.3	4	
2	738.3	35	
3	733.3	34	Brown moist sand & gravel with some silt.
4	728.3	29	
5	723.3	32	
6	718.3	35	
7	713.3	42	Wet gray sand & fine to medium gravel with some gray silt.
8	708.3	59	
9	703.3	89	Very hard gray clayey silt with little fine to medium sand & gravel.
10	698.3	150	
			Depth of Boring 51'

Sample Nº	Sample Elev.	N	Description
			Topsoil
1	743.3	9	
2	738.3	10	
3	733.3	40	Moist brown & gray sand & gravel.
4	728.3	20	
5	725.3	38	
6	718.3	105	Dense wet fine gray sand & gravel with some gray silt.
7	713.3	43	
			Dense wet fine gray sand with trace of gray silt.
8	708.3	98	Dense wet fine to medium gray sand & fine to coarse gravel with trace of gray silt.
9	703.3	96	
			Very hard gray silt with some fine sand & gravel
10	698.3	150 / 5"	
			Depth of Boring 50'

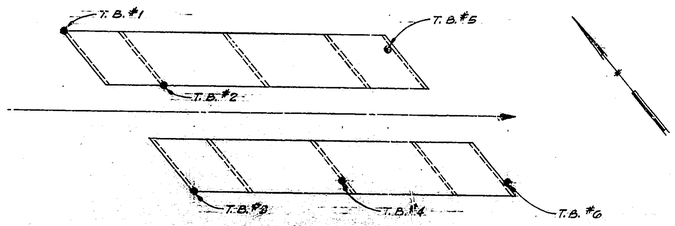
Sample Nº	Sample Elev.	N	Description
			Topsoil
1	743.3	7	
2	738.3	8	
3	733.3	32	Moist gray & brown fine to medium sand & gravel.
4	728.3	30	
5	723.3	36	
6	718.3	82	Wet fine gray sand & gravel with some large rock.
7	713.3	57	
8	708.3	82	Wet fine gray sand & gravel with trace of gray silt.
9	703.3	98	
			Very hard gray silt with little fine sand & fine to coarse gravel.
10	700.3	100 / 7"	
			Depth of Boring 48.5'

ELEV.

745 740 735 730 725 720 715 710 705 700 695

NOTE:- It is anticipated that before the bridge is constructed gravel quarrying will be made in the area of the foundations to depths of 30 feet and there Concrete Piling will be required.

N = Relative Density - Number of blows required to drive 2" O. D. Sample Spoon 12" with 140 lb. weight falling 30".



SOIL BORING PLAN

DESIGNED _____ C'K'D. _____
DRAWN R.T.M. 6-20-58 C'K'D. _____

SOIL BORING LOG
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- NONE

APRIL 30, 1959

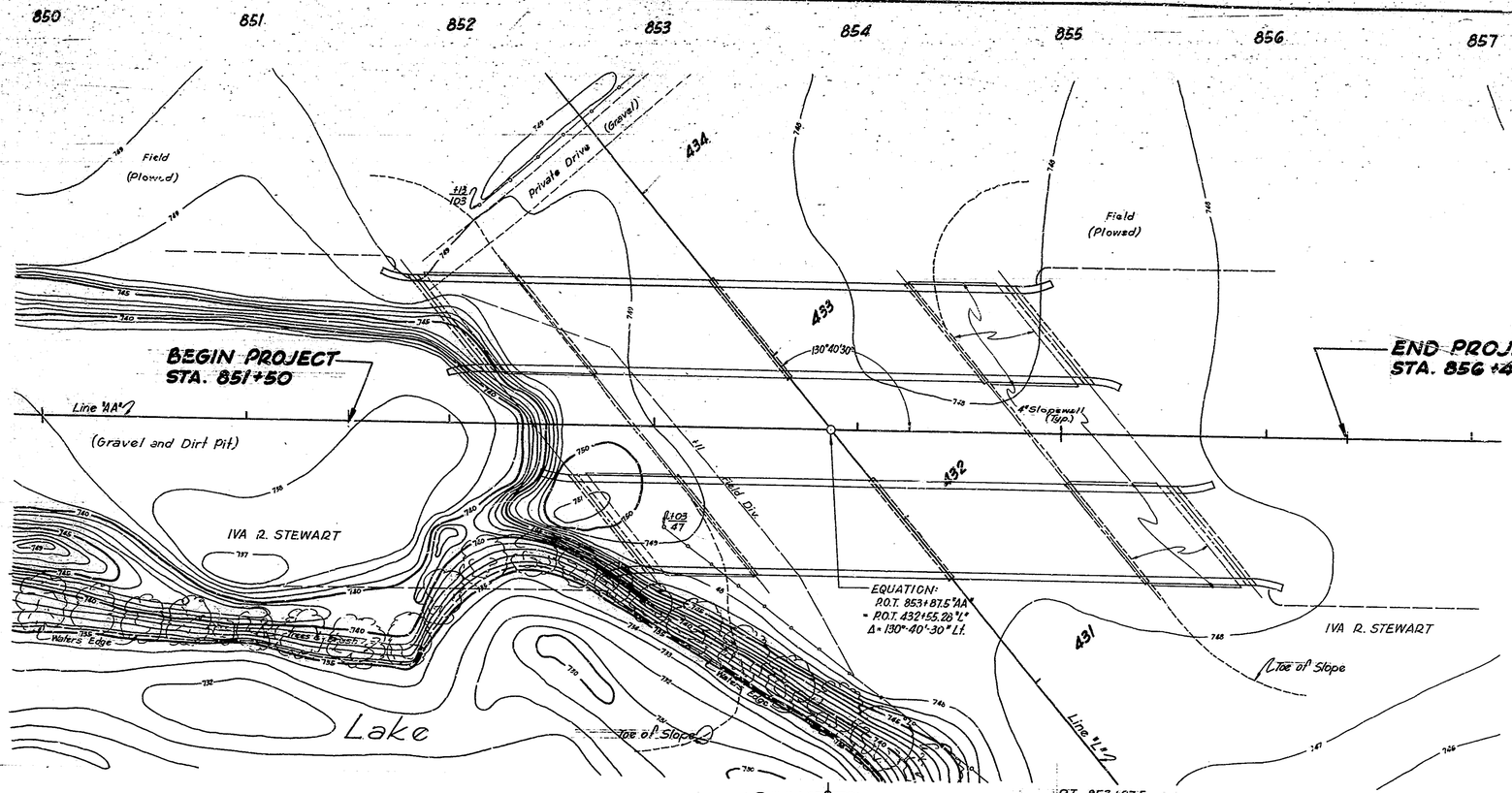
Walter M. Beam

WALTER M. BEAM REGISTERED ENGINEER No. 3171 STATE OF INDIANA PROFESSIONAL ENGINEER

PROJECT:- I-74-2 (14) 072
BRIDGE CONTRACT NO. 4729
BRIDGE FILE:- ~~158-H-5~~ 4440

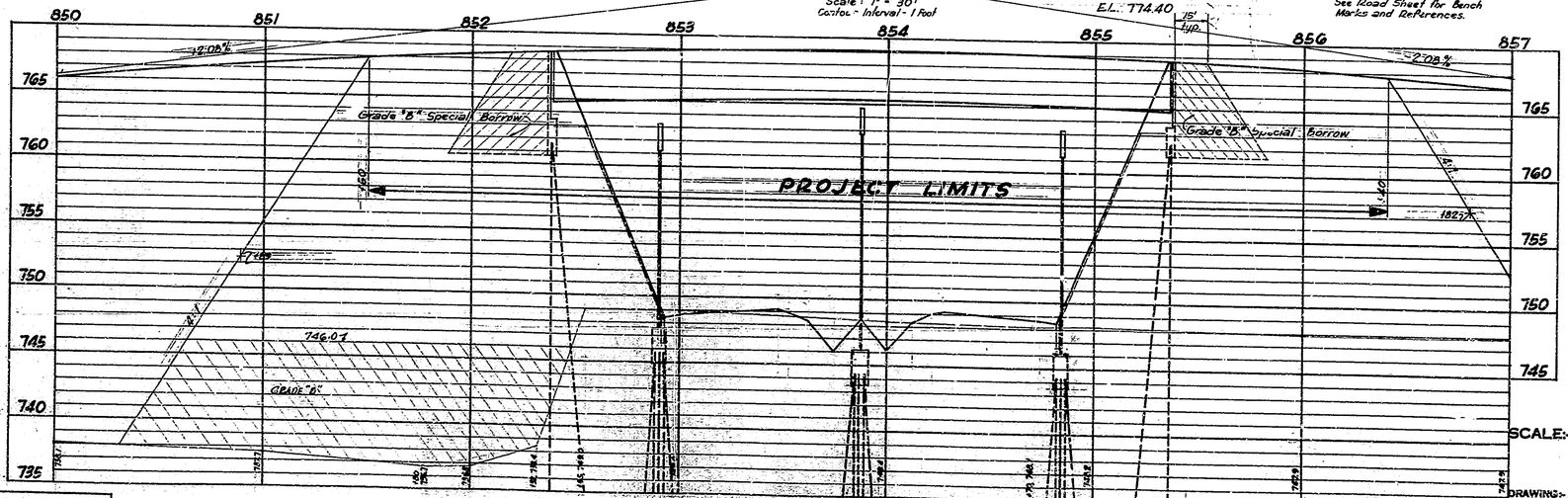
BRIDGES OVER 20' SPAN

FED. ROAD PROJ. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14) 072	1959	10	32



EARTH WORK

Fill	58530 CY	
Less Grade "B"	- 14200 CY	+ 25% = 18000 CY
Fill + 20%	48630 CY	
Surplus Foundation Exc.	260 CY	
Special Borrow	48370 CY	



DESIGNED ____ CK'D ____
DRAWN C.C.T. CK'D ____

SURVEY BOOKS: ROAD 7969 T, 7971 T

See Art. A 203 of Specifications regarding Test Pit Data.

LAYOUT
TWIN STRUCTURES
CONTINUOUS STEEL BEAM BRIDGE
4 SPANS: 48'-6", 97'-0", 97'-0", 48'-6" SKEW 40°40'30" LT.
39'-0" ROADWAY - 2'-0" CURBS
U.S. 136 OVER S.R. 100

STATE HIGHWAY DEPARTMENT OF INDIANA
MARION COUNTY

SCALE:- As Noted

APRIL 30, 1959

Walter J. Bauer

DRAWING:- 5/ OF 15
PROJECT:- I-74-2(14)072
BRIDGE CONTRACT NO. 4729
BRIDGE FILE:- ~~136-M9-4440~~
I-74-72

NUMBER ARCH ENGINEERING SUPPLY KANSAS

BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YR'S.	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14)072	1959	11	32

Outlet end of 3" Φ Steel Conduit to extend beyond structure into ground and not to be exposed. Cap end. (Typ.)

Shoulder Line

45'-6 13/16"

Location of Future Lamp Post

STRUCTURE TO BE BUILT TO A 1000' V.C.

96'-3"

Location of Future Lamp Post

45'-6 13/16"

Aluminum Railing Type 1

Splice

Exp.

Fixed

Exp.

Exp.

4" Concrete Slopewall (Typ.)

12" Steel Encased Conc Piles 35 Tons Min. Brg. (Typ.)

SPAN "A"

SPAN "B"

SPAN "C"

SPAN "D"

14'-3 3/8" Min. Vert. Cl.

Bott. Flg. El. E.B. 743.74 W.B. 744.78

Bott. Flg. El. E.B. 743.19 W.B. 744.19

Present Ground Line

Treated Timber Piles 20 Ton Min. Brg. (Typ.)

Bott. Flg. El. E.B. 742.78 W.B. 743.74

12" Steel Encased Concrete Piles 35 Ton Min. Brg. (Typ.)

Pile Tip El. 705.0

Pile Tip El. 705.0

BENT No. 1

PIER No. 2

PIER No. 3

PIER No. 4

BENT No. 5

ELEVATION

NOTE: RAILING REVISIONS

For Details Superceding This Drawing See Dwg 52A

GENERAL NOTES

No present structure at proposed bridge site.

Depth of footings to be extended if found necessary. See Art. B403.2(a) of the Specifications.

Piles shall have minimum bearing value shown on detail drawings. Determine pile lengths by Art. F103 and Art. F203 of the Specifications.

For details at steel encased concrete piles see Bridge Standard Cl, the Special Provisions and applicable articles in the Specifications.

Piles shall be driven to elevation shown on plans or below if necessary to obtain desired bearing.

Reinforcing steel covering shall be 1 inch in floor slabs, 3 inches in footings except bottom steel which shall be 4 inches and 2 inches in all other parts unless noted.

Concrete in footings and pier stems to bottom of coping to be Class "E".

Concrete in superstructure, including railing, bent caps to be Class "F".

Concrete in headwalls to be Class "D".

Concrete in structure not noted above, in steel encased concrete piles, concrete slopewall to be Class "D".

Bevel forms ¾" under copings, and chamfer exposed edges 1 inch unless noted.

Construct slopewall at locations as shown on plans in accordance with the Special Provisions.

Tolerance in position of pile head, maximum, 2 inches.

* 3" expansion joint to be placed in approach pavement approximately 60' from each end of bridge floor.

All railing to be constructed perpendicular to grade.

6" traffic lane stripe to be placed as shown on roadway on bridge floor and pavement.

See Special Provisions for items included in this Contract.

The Contractor shall prepare detail bills of material giving the final pay weights of structural steel and detailed working or shop drawings to enable him to fabricate, erect and construct all parts of the work in conformity with the Engineer's drawings and Specifications and shall submit five (5) copies of these to the Engineer.

Mudwall and wingwalls are to be waterproof in accordance with specifications.

STANDARD DRAWINGS

BRIDGE

C1 - Reinf. Bar Notes, Test Bar Samples & Details of splicing steel pile shells in field, 1" Exp. Joint.
M2 - Integral Curb Walk, Concrete Slopewall
M3 - 12.C. Bridge Approach Details.
B1 - Aluminum Railing Type 1
S2 - Placing Special fill material

ROAD

MA - Pavement Offsets
Sheet 2 - Detour Signs

Wing X' Exp. Typ.

Berm El. 762.6

Conduit

Point of Vert. Cl.

A

Wing Y'

Berm El. 763.3

1" Exp. Jt. (Typ.)*

20'-6 R.C. Br. Approach

2'-0 Berm

Future Lamp Post

Future Lamp Post

Future Lamp Post

12'-0 12'-0 *R.C. Pavement

22'-8

45'-4 Out to Out Casing

39'-0 Clear Roadway

Construction Work Line

℄ WESTBOUND LANE

El. 768.59

El. 768.89

El. 769.19 Profile Grade

El. 769.09

Bituminous Shoulder (Typ.)

Taper from 3'-0 to 0' in 100'

Wing Z'

Level

2'-0

2:1

Level

℄ Top Shoe - Bent No. 1 Sta. 852+42.0

℄ Pier No. 2 Sta. 852+90.5

LINE "A-A"

℄ Pier No. 3 Sta. 853+87.5 LINE "A-A" Sta. 432+55.28 LINE "L"

℄ Pier No. 4 Sta. 854+84.5

℄ Top Shoe - Bent No. 5 Sta. 855+33.0

5K 40°40'30" Lt.

30'-0

36'-0

16'-3" Clear To Top

16'-3" Clear To Top

Slope El. 1'

Taper to 4'-0 in 100'

Wing R'

Wing R'

Wing Z'

Level

1.5%

1.5%

Level

Slope El. 1'

Sloping Limits (Typ.)

92'-0

84'-0

42'-0

42'-0

12'-0 12'-0 *R.C. Pavement

4'-6

4'-6

20'-6 R.C. Br. Approach

El. 763.90

El. 769.09

Profile Grade

El. 769.19

El. 768.89

El. 768.59

1" Exp. Jt. (Typ.)*

6" Parmt. Ledge (Typ.)

Toothed Exp. Jt. (Typ.)

℄ EASTBOUND LANE

Construction Work Line

Future Lamp Post

Toothed Exp. Jt. (Typ.)

3'-2½

46'-6

97'-0

97'-0

46'-6

3'-2½

Future Lamp Post

Future Lamp Post

20'-6 R.C. Br. Approach

Bituminous Shoulder (Typ.)

297'-4½ Out to Out Bridge Floor

Special Integral Curb - height *) varies from 10" at Structure to 4" in 20 feet (Typical)

Wing Y

Berm El. 763.3

Conduit

Wing X'

Berm El. 762.6

Sloping Limits (Typ.)

3'-0 Typ.

15'-6

Note: * Not in Bridge Contract

PLAN

Construction Work Line

22'-8

45'-4 Out to Out Casing

46'-6

22'-8

39'-0 Clear Roadway

3'-2

3'-0

2'-0

1'-0

6" Concrete Joint Roughen Surface

2" 1'-0 2'-0

Aluminium Railing Type 1

11½"

1½"

12'-0

12'-0

12'-0

4'-6

Slope ⅜" / Ft.

6" Traffic Lane Stripe

℄ Roadway

6" Traffic Lane Stripe

3/4" Drain in 28"

Profile Grade

Constr. Joint

Slope ½" / Ft.

Slope ½" / Ft.

1'-5½

1'-5½

1'-0

1'-0

5'-3"

602 A Bar (See Br. S.d. R2.)

Constr. Jt.

Constr. Jt.

¾" Ø 102

¾" Ø 102

36WF170

69 Spa. @ 5½" = 32'-9

1'-9

4'-6½

4'-6½

1'-9

SECTION A-A

Scale: ½" = 1'-0

DESIGN DATA

Designed for H20-S16-44 loading in accordance with 1957 A.A.S.H.O. Specifications, except slab designed for 16,000 lb. wheel load. Checked for special loadings of 2-24,000 lb. axles spaced 4'-0 centers.

JOINT LEGEND

1" Expansion Joint - See Bridge Standard Cl.
1½" Expansion Joint - See Bridge Standard Cl, similar to 1" Expansion Joint.

TYPICAL CROSS SECTION

Standard Divided Lane Sections for Federal Aid Interstate Projects. Revised 11-16-57.

Rev. 11-23-59 Railing Details & Center Light Post Added
Rev. 9-8-59 Lighting Installation

GENERAL PLAN
CONTINUOUS STEEL BEAM BRIDGE

4 SPANS: 48'-6, 97'-0, 97'-0, 48'-6 SK. 40°40'30" LT. TWIN STRUCTURES
U.S. 136 OVER S.R. 100 39'-0 ROADWAYS 2'-0 CURBS

STATE HIGHWAY DEPARTMENT OF INDIANA

MARION COUNTY

SCALE: 1/16" = 1'-0 Unless Noted

APRIL 30, 1959

Walter Ray Beam

DRAWING S2 OF 15

PROJECT: I-74-2 (14) 072

BRIDGE CONTRACT NO. 4729

BRIDGE FILE: ~~136-119~~ 4440

I-74-72

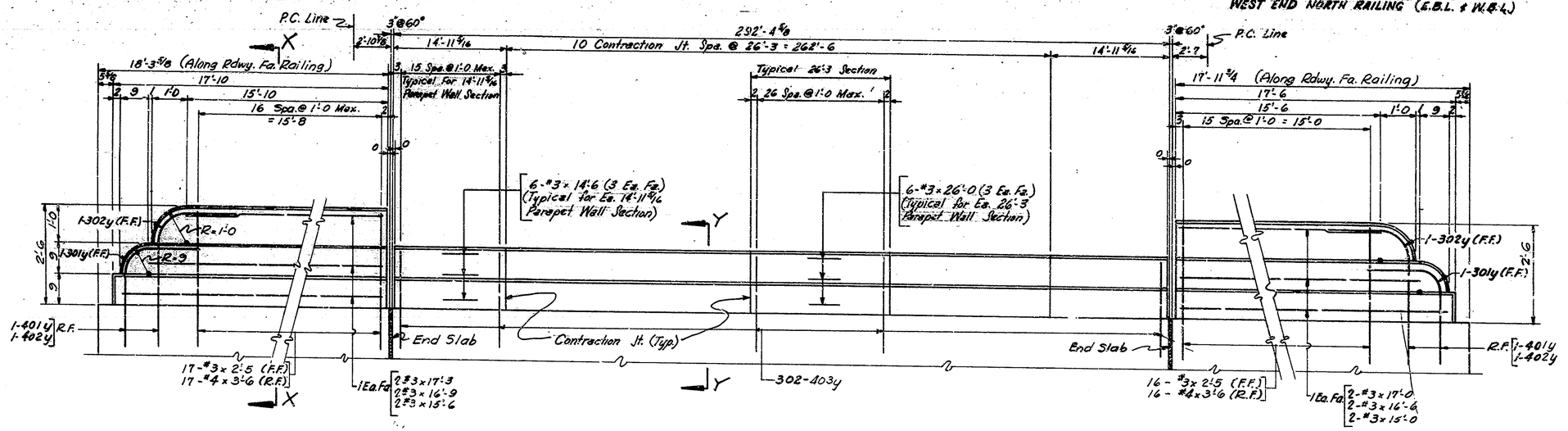
DESIGNED ____ C'K'D ____

DRAWN ____ C'K'D ____

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14) 072	1959	11A	32

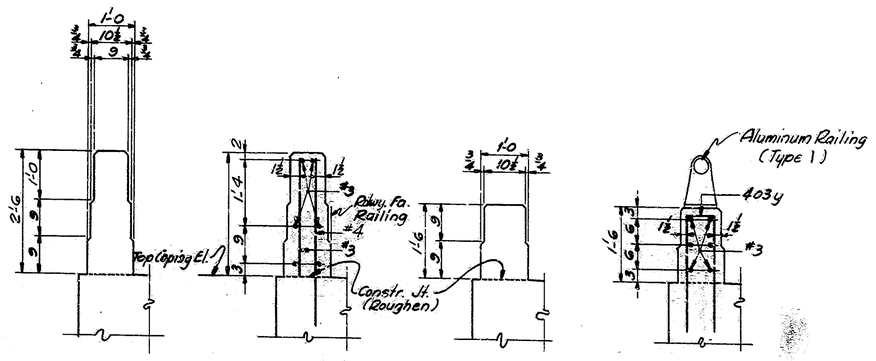
WEST END SOUTH RAILING (E.B.L. & W.B.L.)
EAST END NORTH RAILING (E.B.L. & W.B.L.)

EAST END SOUTH RAILING (E.B.L. & W.B.L.)
WEST END NORTH RAILING (E.B.L. & W.B.L.)



ELEVATION

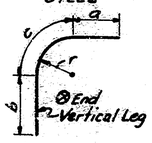
SHOWING CONCRETE RAILING, PARAPET WALL AND PARAPET WALL CONTRACTION JOINTS



SECTION X-X

SHOWING CONCRETE DIMENSIONS

SHOWING REINFORCING STEEL

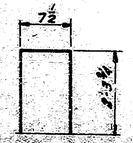


SECTION Y-Y

SHOWING CONCRETE DIMENSIONS

Mark	a	b	c	r	Length
401y	1'-4	1'-9	0'-11	7	4'-0
402y	1'-4	2'-6	1'-4	10	5'-2
301y	1'-0	0'-9	0'-11	7	2'-8
302y	1'-0	1'-6	1'-4	10	3'-10

SHOWING REINFORCING STEEL



403y = 5'-3

⊗ ✳ BILL OF MATERIAL #1
Bill of Material of Concrete Railing and Parapet Wall.

REINFORCING STEEL

SIZE & MARK	NO. BARS	LENGTH	WEIGHT
401y	8	4'-0	
402y	8	5'-2	
403y	1208	5'-3	
#3	132	3'-6	
	Total #3		4694#
301y	8	2'-8	
302y	8	3'-10	
#3	240	56'-0	
#3	8	17'-3	
#3	8	17'-0	
#3	8	16'-9	
#3	8	16'-6	
#3	6	15'-6	
#3	8	15'-0	
#3	48	14'-6	
#3	12	13'-6	
Total #3			3044#
TOTAL STEEL			7738#
CEILING Concrete (Class "F")			
Beam #1 (2 @ 3.11)			5.6 cys.
Beam #2 (2 @ 3.11)			5.6 cys.
Space 2 @ 2'-0 @ 18.0			50.8 cys.
TOTAL CEILING Concrete			112.0 cys.

⊗ BILL OF MATERIAL #2
Bill of Materials of Concrete Railing and Parapet Wall To Be Superceded by Bill of Material #1.

REINFORCING STEEL

SIZE & MARK	NO. OF BARS	LENGTH	WEIGHT
401	1208	4'-8	
#1	90	86'-0	
#1	16	14'-8	
#1	280	2'-8	
	Total #1		5811#
#3	24	17'-3	
#3	64	17'-0	
	Total #3		309#
TOTAL STEEL			6120#
CEILING Concrete (Class "F")			
Beam #1 (2 @ 3.11)			4.2 cys.
Beam #2 (2 @ 3.11)			4.2 cys.
Space 2 @ 2'-0 @ 18.0			36.0 cys.
TOTAL CEILING Concrete			44.4 cys.

NOTES:-
Details on this Drawing of the Concrete Railing and Parapet Wall are to supercede all details of Concrete Railing and Parapet Wall shown in the Original Contract Plans, Structure 136-H9-4440. ✳Bill of Material #1 gives all material required for Concrete Railing and Parapet Wall as shown on this Drawing. Bill of Material #2 gives all material to be deleted from the present Bills of Material shown on Drawings Ss, Ss, & Summary Sheet.
See Br. Std. C1 for Reinforcing Bar Notes.
See Br. Std. R1 for Aluminum Railing Details.

⊗ Indicates Bill of Materials includes Quantities For Both Structures

DESIGNED CWR
DRAWN F.C. 11-28-59 CHECKED LJW 11-28-59
TRACED R.E.W. 11-28-59 CHECKED LJW 11-28-59

RAILING, PARAPET WALL AND PARAPET WALL CONTRACTION JOINT DETAILS

STATE HIGHWAY COMMISSION OF INDIANA

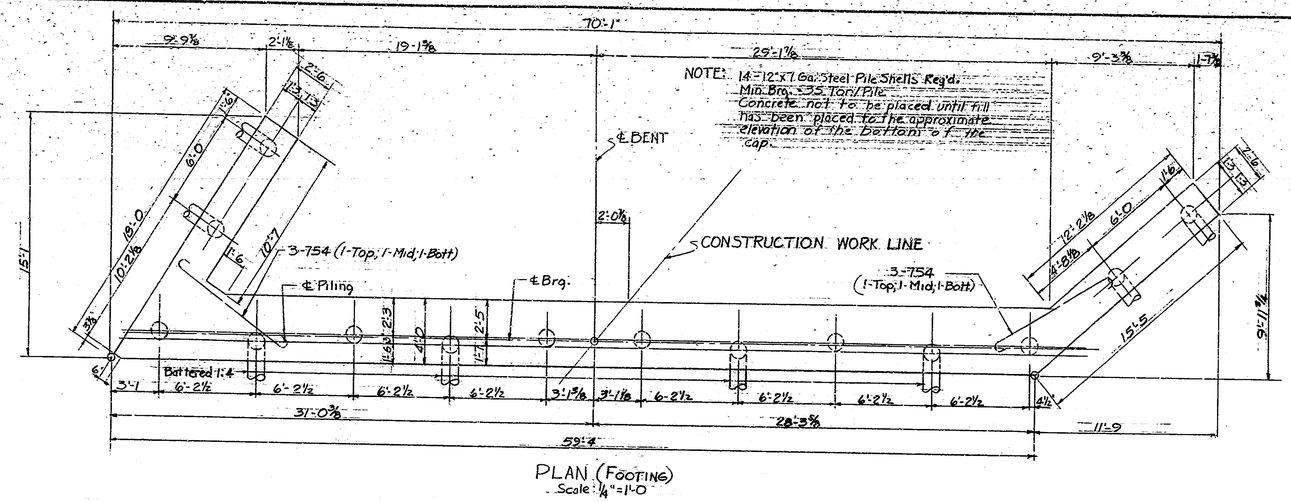
SCALE:- NOT TO SCALE NOVEMBER 23, 1959

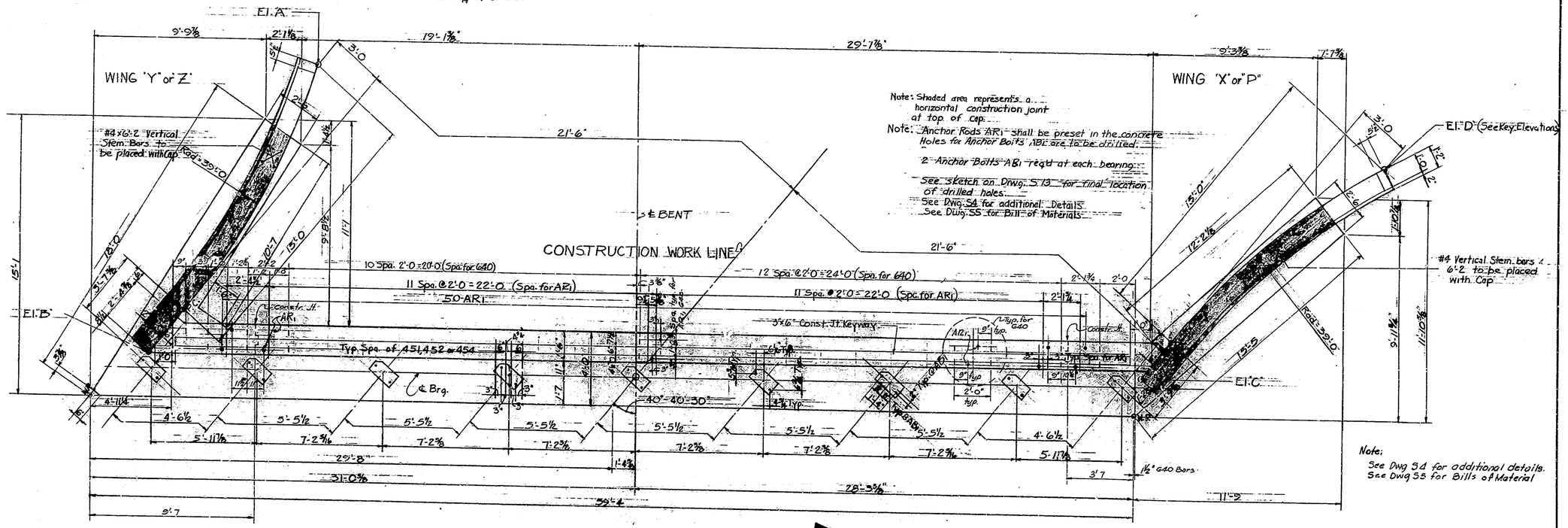
RECOMMENDED FOR APPROVAL:- C. R. Rummel
ENGINEER OF BRIDGE DESIGN

DRAWING:- 32 OF 15
PROJECT:- I-74-2(14)072 STATION:-
BRIDGE CONTRACT NO. 4729
BRIDGE FILE:- 136-H9-4440

I-74-72

BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (04) 072	1959	12	32





NOTE: RAILING REVISIONS
For Details Superceding This Drawing See Dwg S2A

Rev. 11-23-59 Railing Details

BENT No. 1 & No. 5 DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

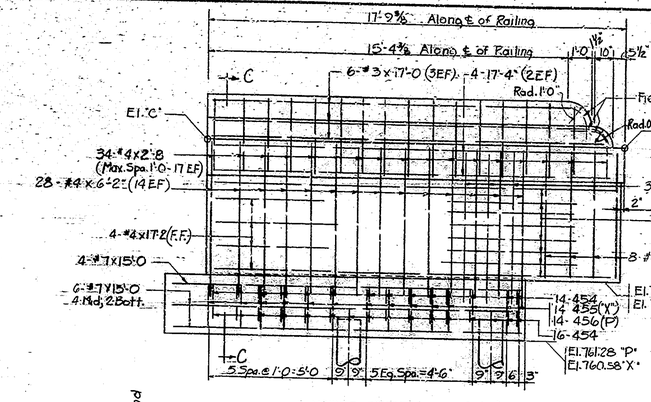
SCALE:- AS NOTED

APRIL 30, 1959

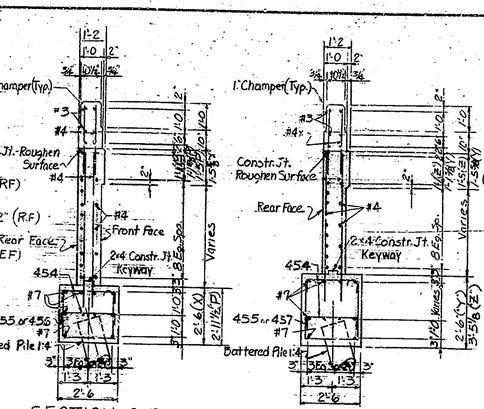
Walter J. Beam

DESIGNED R.T.H. CKD. R.D.W.
DRAWN R.P.W. CKD. T.L.C. R.R.W.

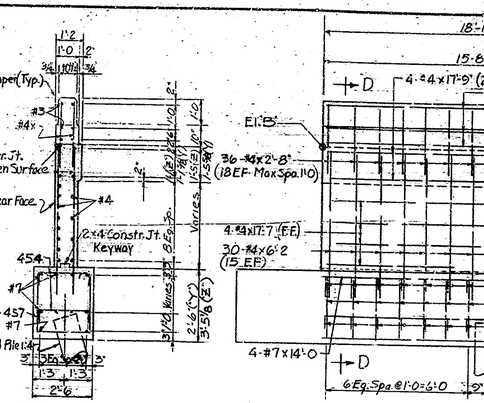
DRAWING:- S 5 OF 15
PROJECT:- I-74-2(04)072
BRIDGE CONTRACT NO. 4729
BRIDGE FILE:- ~~136-H9-4440~~ I-74-72



WING DETAILS 'X' or 'P'
Scale: ⅜" = 1'-0



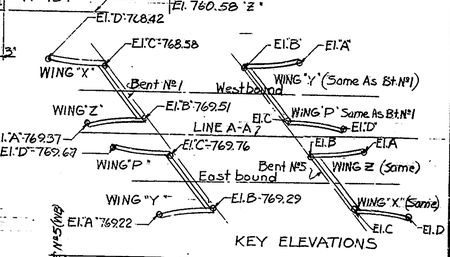
SECTION C-C
Scale: ⅜" = 1'-0



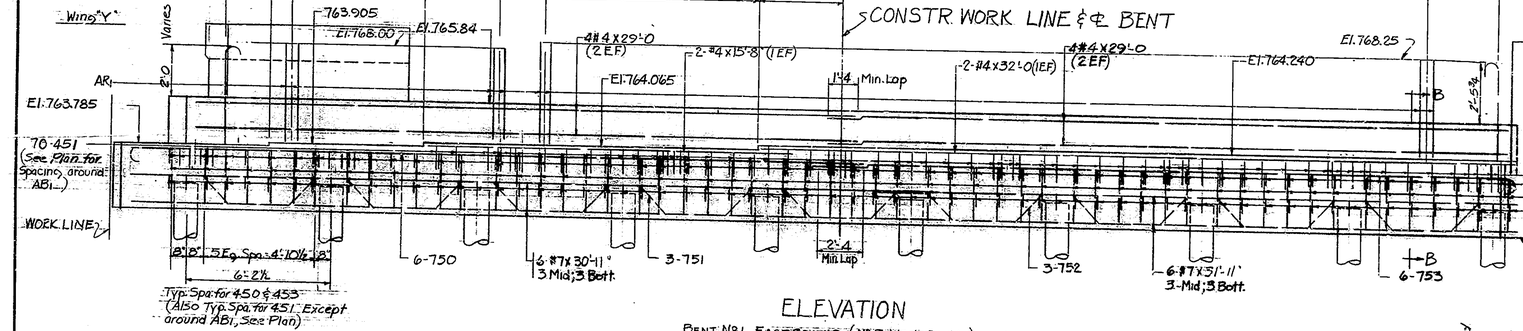
SECTION D-D
Scale: ⅜" = 1'-0

WING DETAILS "Y" & "Z"
Scale: ⅜" = 1'-0

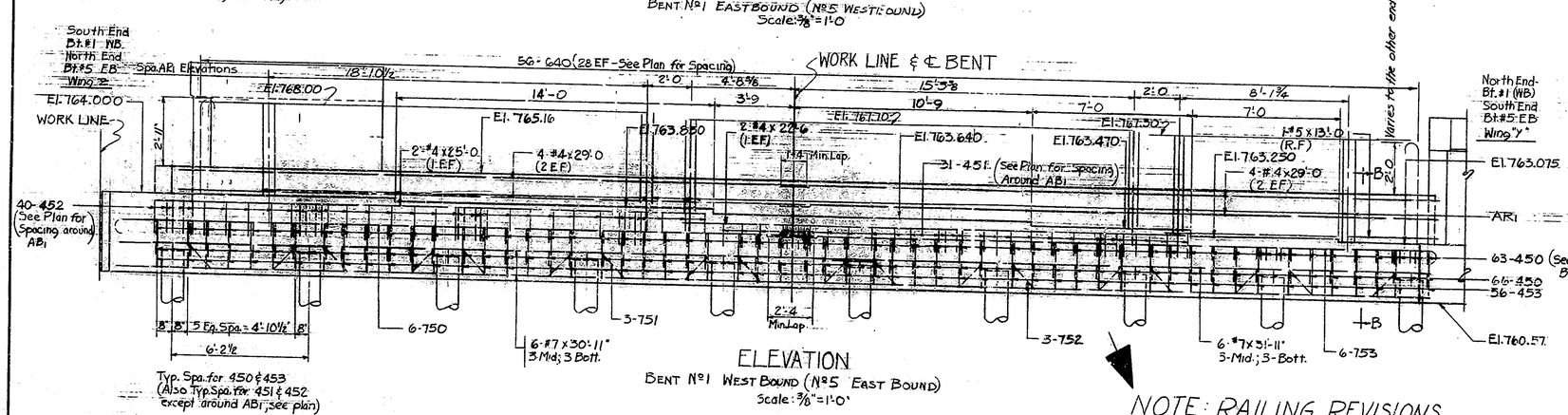
BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14) 072	1959	13	32



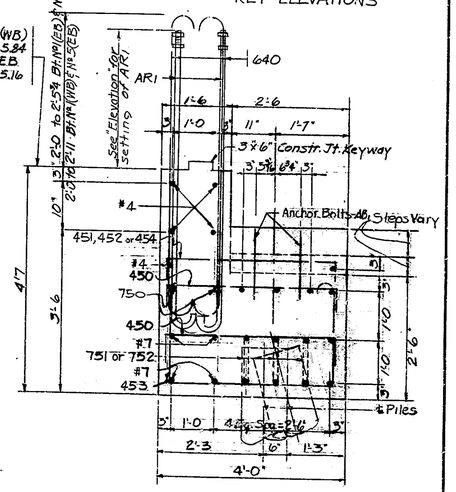
KEY ELEVATIONS



ELEVATION
BENT No. 1 EASTBOUND (No. 5 WESTBOUND)
Scale: ⅜" = 1'-0



ELEVATION
BENT No. 1 WEST BOUND (No. 5 EAST BOUND)
Scale: ⅜" = 1'-0



SECTION B-B
Scale: ¾" = 1'-0"

Note: See Dwg 53 for additional Details
See Dwg 55 for Bills of Material

NOTE: RAILING REVISIONS
For Details Superceding This Drawing See Dwg S2A

Rev. 11-23-59 Railing Details

BENT No. 1 & No. 5 DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- AS NOTED

APRIL 30, 1959

Walter M. Bean

WALTER M. BEAN REGISTERED No. 3971 PROFESSIONAL ENGINEER

DESIGNED RRH CK'D. ADW
DRAWN ADW CK'D. TLG-RRH

DRAWING:- 54 OF 15
PROJECT:- I-74-2(14)072
BRIDGE CONTRACT NO. 4729
BRIDGE FILE:- ~~136 H9 4440~~
I-74-72

MARSHALL ENGINEERING SUPPLY Kan 166

BENT N°1 E. BOUND (BENT N°5 W. BOUND SAME)

MARK OR SIZE	N° OF BARS	LENGTH	WEIGHT lbs
750	6	31'-9	
751	3	37'-8	
752	3	26'-3	
753	6	32'-9	
754	6	9'-8	
#7	6	31'-11	
#7	6	30'-11	
#7	10	15'-0	
#7	10	14'-0	
	Total	N°7	2683
640	56	7'-7	638
450	129	4'-8	
451	70	5'-10	
453	56	9'-0	
454	62	3'-2	
455	15	7'-6	
456	14	8'-4	
#4	2	32'-0	
#4	8	29'-0	
#4	4	17'-9	
#4	12	17'-7	
#4	4	17'-4	
#4	12	17'-2	
#4	2	15'-8	
#4	64	6'-2	
#4	16	5'-0	
#4	70	2'-8	
	Total	N°4	2389
#3	6	17'-3	
#5	6	17'-0	
	Total	N°3	77
	Total Steel		5727

Anchor Rods AR1 50 Reqd

CONCRETE
Class 'F' 44.1 C.Y.
Class 'F' Railing 2.1 C.Y.

MISCELLANEOUS
Bent N°1 EB-14-12'x7ga Steel Pile Shells @ 60' = 840 L.F.
Bent N°5 WB-14-12'x7ga Steel Pile Shells @ 60' = 840 L.F.

BENT N°1 W. BOUND (BENT N°5 E. BOUND SAME)

MARK OR SIZE	N° OF BARS	LENGTH	WEIGHT lbs
750	6	31'-9	
751	3	37'-8	
752	3	26'-3	
753	6	32'-9	
754	6	9'-8	
#7	6	31'-11	
#7	6	30'-11	
#7	10	15'-0	
#7	10	14'-0	
	Total	N° 7	2683
640	56	7'-7	638
450	129	4'-8	
451	31	5'-10	
452	40	6'-6	
453	56	9'-0	
454	62	3'-2	
455	14	7'-6	
457	15	9'-4	
#4	8	29'-0	
#4	2	25'-0	
#4	2	22'-6	
#4	4	17'-9	
#4	12	17'-7	
#4	4	17'-4	
#4	12	17'-2	
#4	64	6'-2	
#4	16	5'-0	
#4	70	2'-8	
	Total	N° 4	2361
#3	6	17'-3	
#3	6	17'-0	
	Total N° 3		77
	Total Steel		5759

Anchor Rods AR1 50 Reqd.

CONCRETE
Class 'F' 46.1 C.Y.
Class 'F' Railing 2.1 C.Y.

MISCELLANEOUS
Bent N°1 WB-14-12'x7ga Steel Pile Shells @ 60' = 840 L.F.
Bent N°5 EB. 14-12'x7ga Steel Pile Shells @ 60' = 840 L.F.

PIER N°2 W. BOUND

MARK OR SIZE	N° OF BARS	LENGTH	WEIGHT lbs
#11	4	30'-9	
1100	12	32'-4	2715
600	63	8'-10	836
510	2	8'-7	
511	2	9'-1	
512	2	9'-7	
513	2	10'-1	
514	2	10'-7	
515	2	11'-2	
516	2	11'-8	
517	2	12'-4	
518	2	12'-11	
519	2	13'-6	
520	2	14'-1	
521	2	14'-7	
522	2	15'-1	
523	2	15'-7	
524	2	16'-1	
525	2	16'-8	
526	2	17'-5	
527	2	18'-2	
528	2	18'-11	
529	2	19'-8	
530	4	5'-0	
531	2	5'-3	
532	2	5'-6	
533	2	5'-9	
534	2	6'-0	
535	2	6'-3	
538	52	4'-4	
#5	14	33'-0	
#5	4	29'-9	
#5	4	29'-6	
#5	4	26'-9	
#5	4	23'-9	
#5	4	20'-9	
#5	46	14'-9	
#5	4	13'-6	
#5	6	9'-3	
	Total	N°5	2739
#4	9	36'-0	
412	76	3'-2	
413	29	4'-0	
414	34	4'-8	
415	70	2'-8	
416	67	6'-6	
#4	2	24'-10	
#4	2	22'-6	
	Total	N°4	1040
	Total Steel		7330

CONCRETE
Class 'F' Above Const Jt 38.2 C.Y.
Class 'E' Below Const Jt 15.1 C.Y.
Class 'E' Footing 32.9 C.Y.

MISCELLANEOUS
36 Treated Timber Piles @ 40'
= 1440 L.F.

PIER N°2 E. BOUND (PIER N°4 W. BOUND SAME)

MARK OR SIZE	N° OF BARS	LENGTH	WEIGHT lbs
#11	4	30'-9	
1100	12	32'-4	2715
600	63	8'-10	836
510	2	8'-7	
511	2	9'-1	
512	2	9'-7	
513	2	10'-1	
514	2	10'-7	
515	2	11'-2	
516	2	11'-8	
517	2	12'-4	
518	2	12'-11	
519	2	13'-6	
520	2	14'-1	
521	2	14'-7	
522	2	15'-1	
523	2	15'-7	
524	2	16'-1	
525	2	16'-8	
526	2	17'-5	
527	2	18'-2	
528	2	18'-11	
529	2	19'-8	
530	4	5'-0	
531	2	5'-3	
532	2	5'-6	
533	2	5'-9	
534	2	6'-0	
535	2	6'-3	
536	2	6'-6	
538	52	4'-4	
#5	16	33'-0	
#5	4	29'-9	
#5	4	29'-6	
#5	4	26'-9	
#5	4	23'-9	
#5	4	20'-9	
#5	46	16'-3	
#5	4	13'-6	
#5	6	9'-3	
	Total	N°5	2893
#4	9	36'-0	
411	25	4'-4	
412	76	3'-2	
413	38	4'-0	
415	70	2'-8	
416	67	6'-6	
#4	2	29'-6	
#4	2	17'-10	
	Total	N°4	1030
	Total Steel		7474

CONCRETE
Class 'F' Above Const Jt 37.5 C.Y.
Class 'E' Below Const Jt 19.0 C.Y.
Class 'E' Footing 32.4 C.Y.

MISCELLANEOUS
36 Treated Timber Piles @ 40'
= 1440 L.F. (each pier)

PIER N°3 W. BOUND

MARK OR SIZE	N° OF BARS	LENGTH	WEIGHT lbs
#11	10	30'-9	
1100	10	32'-4	3352
910	55	13'-0	2431
#6	12	36'-0	
610	2	8'-8	
611	2	9'-2	
612	2	9'-8	
613	2	10'-2	
614	2	10'-8	
615	2	11'-2	
616	2	11'-8	
617	2	12'-2	
618	2	12'-8	
619	2	13'-2	
620	2	13'-8	
621	2	14'-2	
622	2	14'-8	
623	2	15'-2	
624	2	15'-8	
625	2	16'-2	
626	2	16'-8	
627	2	17'-4	
628	2	18'-0	
629	2	18'-10	
630	2	19'-8	
631	2	20'-6	
Total #6			1579
530	4	5'-0	
531	2	5'-3	
532	2	5'-6	
533	2	5'-9	
534	2	6'-0	
535	2	6'-3	
536	2	6'-6	
538	52	4'-4	
#5	16	33'-0	
#5	4	29'-9	
#5	4	29'-6	
#5	4	26'-9	
#5	4	23'-9	
#5	4	20'-9	
#5	46	16'-9	
#5	4	13'-6	
#5	6	10'-6	
	Total	N°5	2350
412	120	3'-2	
415	76	2'-8	
416	58	6'-6	
417	26	3'-11	
418	30	4'-5	
#4	2	24'-10	
#4	2	22'-6	
	Total N° 4		861
	Total Steel		10,573

CONCRETE
Class 'F' Above Constr Jt 31.9 C.Y.
Class 'E' Below Constr Jt 20.2 C.Y.
Class 'E' Footing 44.6 C.Y.

MISCELLANEOUS
48 Treated Timber Piles @ 40'
= 1920 L.F.

PIER N°3 E. BOUND

MARK OR SIZE	N° OF BARS	LENGTH	WEIGHT lbs
#11	10	30'-9	
1100	10	32'-4	3352
910	55	13'-0	2431
#6	12	36'-0	
610	2	8'-8	
611	2	9'-2	
612	2	9'-8	
613	2	10'-2	
614	2	10'-8	
615	2	11'-2	
616	2	11'-8	
617	2	12'-2	
618	2	12'-8	
619	2	13'-2	
620	2	13'-8	
621	2	14'-2	
622	2	14'-8	
623	2	15'-2	
624	2	15'-8	
625	2	16'-2	
626	2	16'-8	
627	2	17'-4	
628	2	18'-0	
629	2	18'-10	
630	2	19'-8	
631	2	20'-6	
Total #6			1579
530	4	5'-0	
531	2	5'-3	
532	2	5'-6	
533	2	5'-9	
534	2	6'-0	
535	2	6'-3	
536	2	6'-6	
537	2	6'-9	
538	52	4'-4	
#5	16	33'-0	
#5	4	29'-9	
#5	18	33'-0	
#5	4	29'-9	
#5	4	29'-6	
#5	4	26'-9	
#5	4	23'-9	
#5	4	20'-9	
#5	46	17'-9	
#5	4	13'-6	
#5	6	10'-6	
	Total	N°5	2481
412	120	3'-2	
415	76	2'-8	
416	58	6'-6	
417	26	3'-11	
418	30	4'-5	
#4	2	24'-10	
#4	2	22'-6	
	Total N° 4		861
	Total Steel		10,704

CONCRETE
Class 'F' Above Constr Jt 31.9 C.Y.
Class 'E' Below Constr Jt 22.8 C.Y.
Class 'E' Footing 44.6 C.Y.

MISCELLANEOUS
48 Treated Timber Piles @ 40'
= 1920 L.F.

PIER N°4 E. BOUND

MARK OR SIZE	N° OF BARS	LENGTH	WEIGHT lbs
#11	4	30'-9	
1100	12	32'-4	2715
600	63	8'-10	836
510	2	8'-7	
511	2	9'-1	
512	2	9'-7	
513	2	10'-1	
514	2	10'-7	
515	2	11'-2	
516	2	11'-8	
517	2	12'-4	
518	2	12'-11	
519	2	13'-6	
520	2	14'-1	
521	2	14'-7	
522	2	15'-1	
523	2	15'-7	
524	2	16'-1	
525	2	16'-8	
526	2	17'-5	
527	2	18'-2	
528	2	18'-11	
529	2	19'-8	
530	4	5'-0	
531	2	5'-3	
532	2	5'-6	
533	2	5'-9	
534	2	6'-0	
535	2	6'-3	
536	2	6'-6	
538	52	4'-4	
#5	16	33'-0	
#5	4	29'-9	
#5	4	29'-6	
#5	4	26'-9	
#5	4	23'-9	
#5	4	20'-9	
#5	46	16'-9	
#5	4	13'-6	
#5	6	9'-3	
	Total	N°5	2918
#4	9	36'-0	
412	76	3'-2	
413	29	4'-0	
414	34	4'-8	
415	70	2'-8	
416	67	6'-6	
#4	2	24'-10	
#4	2	22'-6	
	Total	N°4	1040
	Total Steel		7509

CONCRETE
Class 'F' Above Constr Jt 38.2 C.Y.
Class 'E' Below Constr Jt 20.2 C.Y.
Class 'E' Footing 32.4 C.Y.

MISCELLANEOUS
36 Treated Timber Piles @ 40'
= 1440 L.F.

BAR BENDING DIAGRAM

MARK	TYPE	SIZE	LENGTH	A	B	C	D	G
910	2	#9	13'-0	1'-3	10'-6			1'-3
750	1	#7	31'-9	10	30'-11			
753	1	#7	32'-9	10	31'-11			
754	2	#7	9'-8	10	8'-0			10
600	2	#6	8'-10	8	7'-6			8
610	59	#6	8'-8	8	7'-0	1'-8	2'-10	8
611	59	#6	9'-2	8	9'-1	1'-8	3'-1	8
612	59	#6	9'-8	8	9'-4	1'-8	3'-4	8
613	59	#6	10'-2	8	9'-7	1'-8	3'-7	8
614	59	#6	10'-8	8	9'-10	1'-8	3'-10	8
615	59	#6	11'-2	8	4'-1	1'-8	4'-1	8
616	59	#6	11'-8	8	4'-4	1'-8	4'-4	8
617	59	#6	12'-2	8	4'-7	1'-8	4'-7	8
618	59	#6	12'-8	8	4'-10	1'-8	4'-10	8
619	59	#6	13'-2	8	5'-1	1'-8	5'-1	8
620	59	#6	13'-8	8	5'-4	1'-8	5'-4	8
621	59	#6	14'-2	8	5'-7	1'-8	5'-7	8
622	59	#6	14'-8	8	5'-10	1'-8	5'-10	8
623	59	#6	15'-2	8	6'-1	1'-8	6'-1	8
624	59	#6	15'-8	8	6'-4	1'-8	6'-4	8
625	59	#6	16'-2	8	6'-7	1'-8	6'-7	8
626	59	#6	16'-8	8	6'-10	1'-8	6'-10	8
627	59	#6	17'-4	8	7'-2	1'-8	7'-2	8
628	59	#6	18'-0	8	7'-6	1'-8	7'-6	8
640	2	#6	7'-7	6	6'-3			6
510	59	#5	8'-7	7	2'-10½	1'-8	2'-10½	7
511	59	#5	9'-1	7	3'-1½	1'-8	3'-1½	7
512	59	#5	9'-7	7	3'-4½	1'-8	3'-4½	7
513	59	#5	10'-1	7	3'-7½	1'-8	3'-7½	7
514	59	#5	10'-7	7	3'-10½	1'-8	3'-10½	7
515	59	#5	11'-2	7	4'-2	1'-8	4'-2	7
516	59	#5	11'-8	7	4'-5	1'-8	4'-5	7
517	59	#5	12'-4	7	4'-9	1'-8	4'-9	7
518	59	#5	12'-11	7	5'-0½	1'-8	5'-0½	7
519	59	#5	13'-6	7	5'-4	1'-8	5'-4	7
520	59	#5	14'-1	7	5'-7½	1'-8	5'-7½	7
521	59	#5	14'-7	7	5'-10½	1'-8	5'-10½	7
522	59	#5	15'-1	7	6'-1½	1'-8	6'-1½	7
523	59	#5	15'-7	7	6'-4½	1'-8	6'-4½	7
524	59	#5	16'-1	7	6'-7½	1'-8	6'-7½	7
525	59	#5	16'-8	7	6'-11	1'-8	6'-11	7
526	59	#5	17'-5	7	7'-3½	1'-8	7'-3½	7
527	59	#5	18'-2	7	7'-8	1'-8	7'-8	7
528	59	#5	18'-11	7	8'-0½	1'-8	8'-0½	7
529	59	#5	19'-8	7	8'-5	1'-8	8'-5	7
530	17	#5	5'-0		1'-8	1'-8	1'-8	
531	17	#5	5'-3		1'-9½	1'-8	1'-9½	
532	17	#5	5'-6		1'-11	1'-8	1'-11	
533	17	#5	5'-9		2'-0½	1'-8	2'-0½	
534	17	#5	6'-0		2'-2	1'-8	2'-2	
535	17	#5	6'-3		2'-3½	1'-8	2'-3½	
536	17	#5	6'-6		2'-5	1'-8	2'-5	
537	17	#5	6'-9		2'-6½	1'-8	2'-6½	
538	1	#5	4'-4	7	3'-9			
411	17	#4	4'-4		1'-1	2'-2	1'-1	
412	17	#4	3'-2		6	2'-2	6	
413	17	#4	4'-0		11	2'-2	11	
414	17	#4	4'-8		1'-3	2'-2	1'-3	
415	17	#4	2'-8		6	1'-8	6	
416	59	#4	6'-6	6	1'-8	2'-2	1'-8	6
417	17	#4	3'-11		10½	2'-2	10½	
418	17	#4	4'-5		1'-1½	2'-2	1'-1½	
450	17	#4	4'-8		6	3'-8	6	
451	17	#4	5'-10		1'-1	3'-8	1'-1	
452	17	#4	6'-6		1'-5	3'-8	1'-5	
453	59	#4	9'-0	6	2'-2	3'-8	2'-2	6
454	17	#4	3'-2		6	2'-2	6	
455	59	#4	7'-6	6	2'-2	2'-2	2'-2	6
456	59	#4	8'-4	6	2'-7	2'-2	2'-2	6
457	59	#4	9'-4	6	3'-1	2'-2	3'-1	6
G20	59	#6	18'-10	8	7'-11	1'-8	7'-11	8
G30	59	#6	19'-8	8	8'-4	1'-8	8'-4	8
G31	59	#6	20'-6	8	8'-9	1'-8	8'-9	8

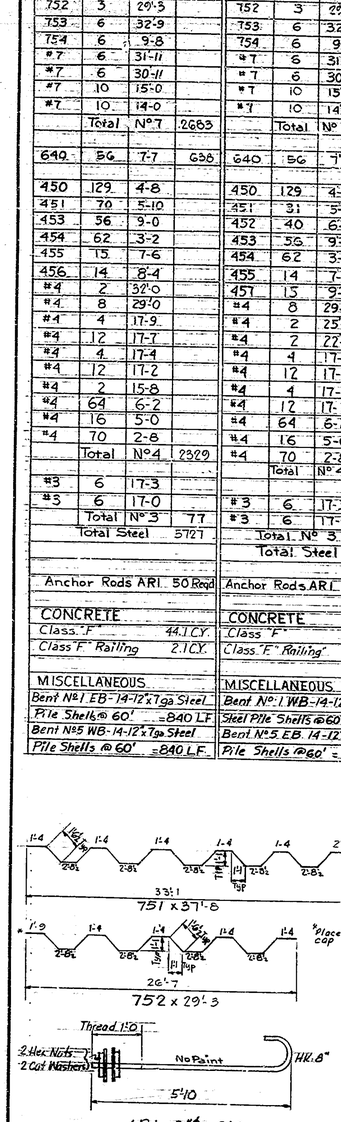
BENDING DIAGRAM
No Scale

1100 × 32'-4

See Dwg S4 for BENT N°1 & N°5 Details
See Dwg S6 for Pier N°2 & N°4 Details
See Dwg S7 for Pier N°3 Details
See Br Std C1 for Reinforcing Bar Notes

BRIDGES OVER 20' SPAN

PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14) 072	1959	14	32



NOTE: RAILING REVISIONS
For Details Superceding This Drawing See Dwg S2A

Rev. 11-23-59 Railing Details

SUBSTRUCTURE BILL OF MATERIALS
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- None

APRIL 30, 1959

DESIGNED RRH CKD. FEM
DRAWN FEM CKD. RRH

DRAWING:-35 OF 15
PROJECT:- I 74-2(14) 072
BRIDGE CONTRACT NO. 4729
BRIDGE FILE:- ~~136 N9-4410~~
I-74-72

WALTER M. BEAM REGISTERED No. 2671 PROFESSIONAL ENGINEER

KUEBLER ENGINEERING SUPPLY KA6116

PUB. ROAD REQ. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14)072	1959	15	32

BRIDGES OVER 20' SPAN

CAP PLAN PIER N°2 E.B., N°4 W.B.

ELEVATION & STEPS PIER N°2 E.B., N°4 W.B.

NOTE: Holes for Anchor Bolts AB1 to be drilled. 2 Anchor Bolts are required at each bearing. See Superstructure Details for Billing. For final location of drilled holes See Drg. S13

CAP PLAN PIER N°2 W.B., N°4 E.B. (SAME AS N°2 E.B., N°4 W.B. EXCEPT AS NOTED)

ELEVATION PIER N°2 W.B., N°4 E.B. (PIER N°2 E.B., N°4 W.B. SAME EXCEPT AS NOTED)

FOOTING PLAN

NOTE: Space Footing Dowels (S3B) To miss Vertical Stem Steel.

SECTION B-B
Scale: ½"=1'-0

SECTION A-A

Note: 36 Pressure treated Timber Piles Reqd. All piles to be driven to 20 Ton Min. Brg. Maximum Design Soil pressure - 2.5 Ton/sq. ft.

See DWG S5 for BILL OF MATERIALS

Rev. 11-23-59 Timber Piles

PIER N°2 & N°4 DETAILS

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE: ⅜"=1'-0 Unless Noted

APRIL 30, 1959

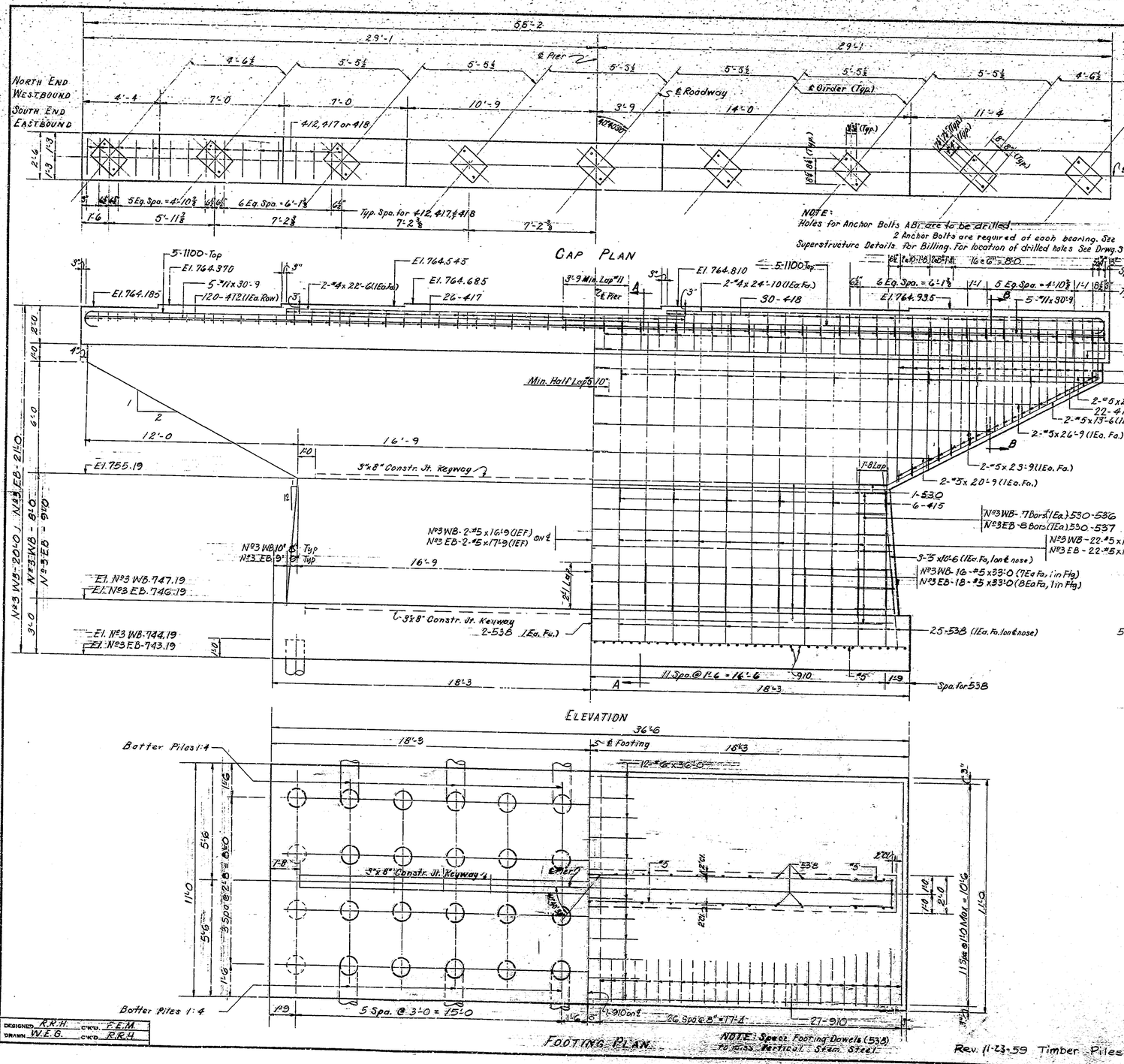
Walter F. Beam

DESIGNED R.R.H. C'K'D F.E.M.
DRAWN W.E.G. C'K'D A.D.W.

DRAWING: 86 OF 15
PROJECT: I-74-2(14)072
BRIDGE CONTRACT NO. 4729
BRIDGE FILE: ~~136 149~~ 4440
I-74-2

HARRISON ENGINEERING SUPPLY KBE 186

BRIDGES OVER 20' SPAN					
PUB. ROAD SEC. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14) 072	1959	16	32



DESIGNED R.R.H. C'K'D. F.E.M.
DRAWN W.E.G. C'K'D. R.R.H.

PIER N°3 DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- ⅜"=1'-0 Unless Noted

APRIL 30, 1959

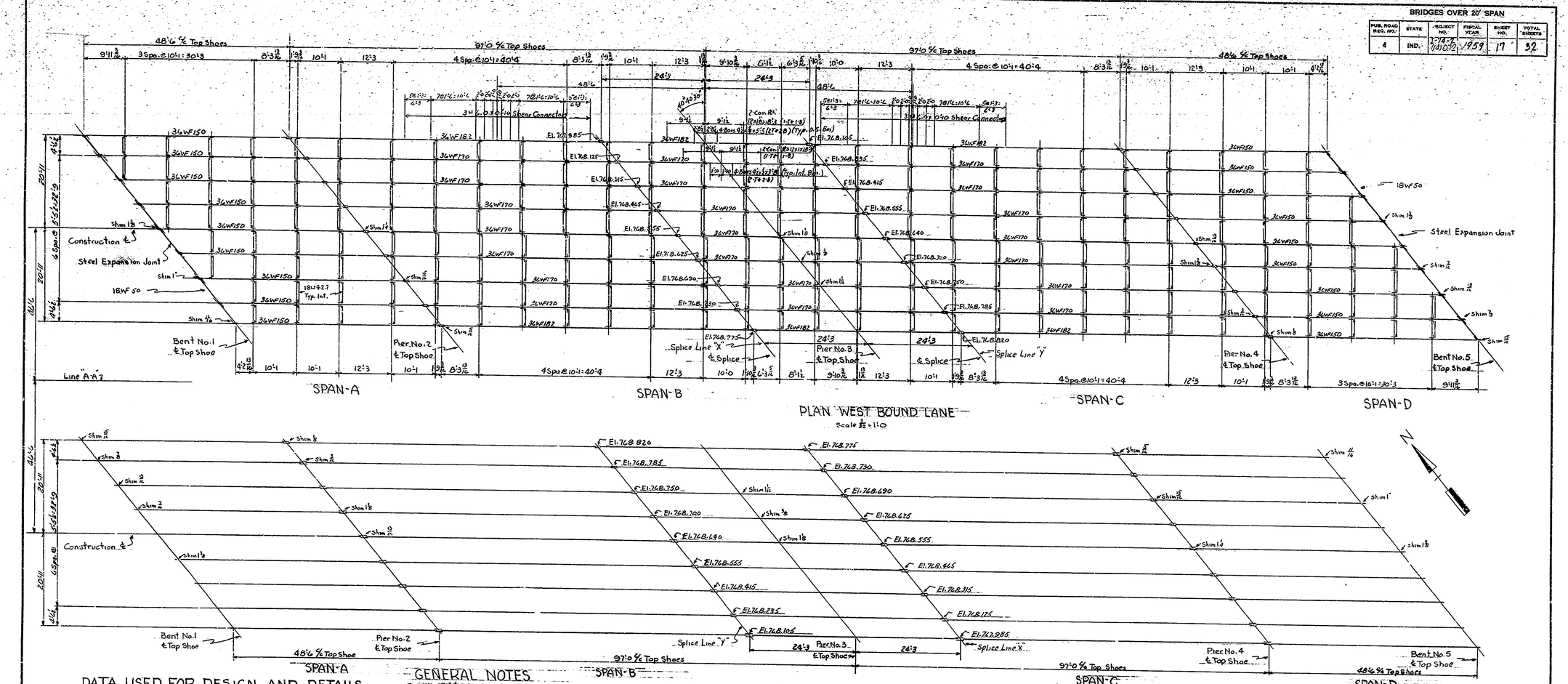
Walter F. Dorn

DRAWING S 7 OF 15
PROJECT:- I-74-2 (14) 072
BRIDGE CONTRACT NO. 4729
BRIDGE FILE:- ~~136-11-4440~~
I-74-72-

HARSHAW ENGINEERING SUPPLY KOK 155

BRIDGES OVER 20' SPAN

PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14) 012	1959	17	52



PLAN WEST BOUND LANE
Scale 1/32" = 1'-0"

DATA USED FOR DESIGN AND DETAILS

LIVE LOADS - H20-S16-44 loading with impact and distribution of loads in accordance with 1957 AASHO Specifications.

DEAD LOAD - Actual weight plus 15 pounds per sq. ft. of roadway to provide for future wearing surface.

SI-AB Designed for 16,000 lb. wheel plus impact, and with 1/2" monolithic wearing surface.

UNIT STRESSES

Structural Steel Bending (Tension)	18,000 #/sq. in.
Shear On Rivets	15,500 #/sq. in.
Structural Steel Bearing (Including Rivets)	27,000 #/sq. in.
Bearing Steel On Concrete (Including Overturning and Eccentric Loading)	1,000 #/sq. in.
Reinforcing Steel (Tension)	20,000 #/sq. in.
Concrete (Compression)	1,200 #/sq. in.

PAINTING STRUCTURAL STEEL

All paint shall be in accordance with current State Highway Specifications
Shop Paint - One Coat Red Lead Type I or II except as noted.
Field Paint - 2 Coats of Aluminum

Note: Aluminum Railing, including Anchor Bolts and Post Castings to be paid for as cost per lineal feet.

DESIGNED JAT CKD EBH
DRAWN JAT CKD RCH 2/25/59

GENERAL NOTES

Rivets - 7/8" unless noted.
Open Holes - 15/16" unless noted.
Diameter of holes in all material connecting top shoes to beam flange shall be 1 inch.

Bolts connecting beam flange to top shoe shall extend into top shoe a minimum of 1 inch.

Beams must be cambered to a smooth curve. Camber must be checked while beams are supported in such a way as to have no bending moment in the direction of camber.

Holes for beam splices shall be subpunched or subdrilled and reamed to size while assembled. See Article E-1103.18(d) of the Specification.

The shop plans shall indicate whether reaming is to be done in the shop or field.

If shop reaming or drilling is used, the beams shall be reamed or drilled while assembled and supported relative to their final erection position with web vertical.

The shop details shall show a plan of matchmarking for all reamed pieces.

All splice plates are to be removed, cleaned and painted after reaming. Splice plates shall not extend beyond the end of beam after bolting for shipment.

Flange splice bars shall have planed or rolled edges and holes in bars shall be subdrilled and reamed or drilled full size while assembled.

Ribbed bolts may be substituted for field rivets in diaphragm connections. See specifications.

Gage lines on beam webs are to be straight.

All structural steel shall be erected and beams adjusted to relative elevation before driving rivets in beam splices. See note for adjustment of Splice points X & Y.

The contractor shall prepare detailed bills of material giving final pay weights of structural steel and detailed working or shop drawings to enable him to fabricate, erect, and construct all parts of the work in conformity with the Engineers drawings and specifications and shall submit 5 copies of these to the Engineer. See Article 1102 of the specifications.

Shims between beams and top shoes may be built up. No shim shall be less than 1/8 inch in thickness.

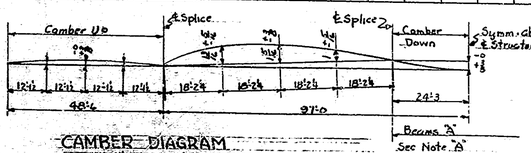
PLAN EAST BOUND LANE

Dimensions & Material Not Shown Same As West Bound Lane

Note: Splice Points X & Y Are To Be Adjusted Relative To Elevations Shown. Both Points Shall Be Adjusted + Or - The Same Amount Before Driving Rivets In Beam Splices In Spans B And C. (Elevations Shown are to Top of Cover Plate.)

TABLE OF MOMENTS & REACTIONS

	Moment @ 0.4 Span A Ft.-Kips		Moment @ Span B Ft.-Kips		Moment @ Pier No. 3 Ft.-Kips		Moment @ Rx Ft.-Kips		Reaction @ Pier No. 1 Kips		Reaction @ Pier No. 2 Kips		Reaction @ Pier No. 3 Kips	
	Int. Bm.	O.S. Bm.	Int. Bm.	O.S. Bm.	Int. Bm.	O.S. Bm.	Int. Bm.	O.S. Bm.	Int. Bm.	O.S. Bm.	Int. Bm.	O.S. Bm.	Int. Bm.	O.S. Bm.
DEAD LOAD	78.1	93.7	325.9	464.0	311.0	315.0	755.0	1106.0	16.8	14.8	54.2	82.1	80.0	113.1
LIVE LOAD	249.0	207.0	426.0	373.0	367.0	316.0	511.0	408.0	31.9	13.7	54.7	27.8	61.2	32.3
IMPACT	71.7	49.2	96.0	84.0	93.0	80.0	115.0	92.0	9.2	3.9	13.9	7.0	13.8	7.3
TOTAL	398.8	349.9	847.0	921.0	771.0	711.0	1381.0	1606.0	57.9	32.4	122.8	116.9	155.0	156.7



CAMBER DIAGRAM
Scale 1:3 Vert. 1"=20'0 Horiz.

NOTE A (Place this Note on Shop Plans Attention Shop Inspector) If less than 3/8 Camber exists in Beams "A" shims equal to difference between actual camber and 3/8 shall be provided at Pier No. 3 in addition to shims shown in Framing Plan.

Shims Required For Camber In Addition To Shims On Framing Plan

CAMBER	0	1/16	1/8	3/16	1/4	5/16	3/8
Shim	1/2	7/16	3/8	5/16	1/4	3/16	0

NOTE: See Dwg. S2 for General Notes.

Estimated Weight of Structural Steel 584,500 lbs. (one Lane Only)

FRAMING PLAN

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE: 3/32" = 1'-0"

APRIL 30, 1959

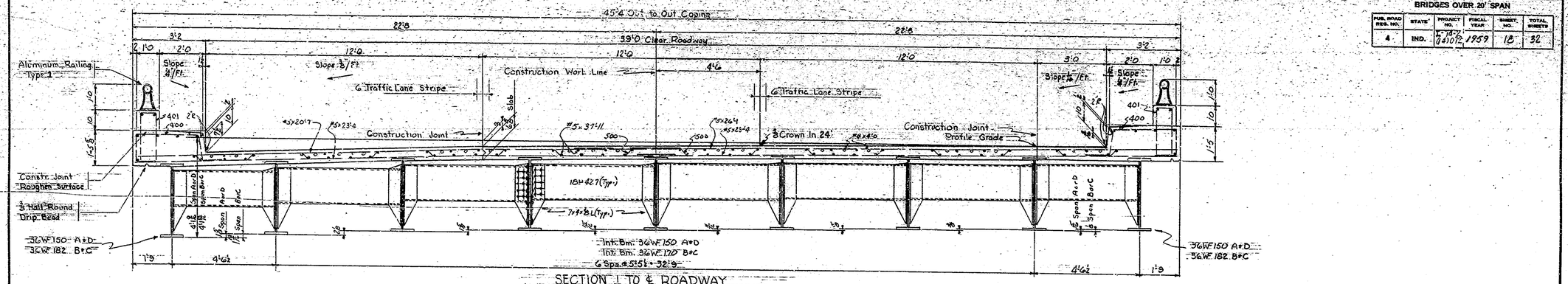
Walter M. Bacon

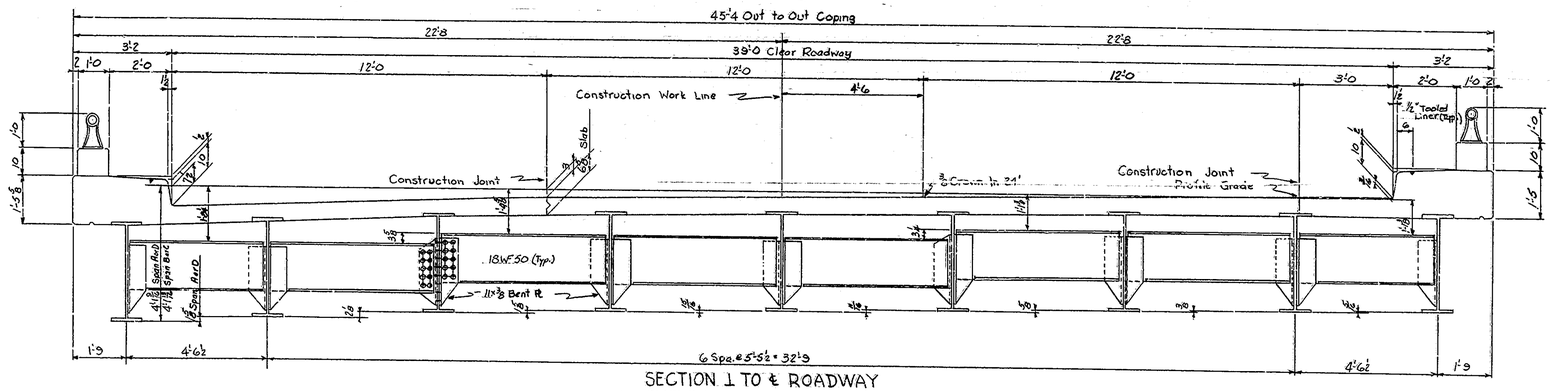
DRAWING S8 OF 15
PROJECT: I-74-2(14)012
BRIDGE CONTRACT NO. 4729
BRIDGE FILE: ~~136-113~~ 4440
I-74-72-

WALTER M. BACON REGISTERED PROFESSIONAL ENGINEER No. 3 STATE OF INDIANA

BRIDGES OVER 20' SPAN

PUB. ROAD RES. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2(14)072	1959	18	32





NOTE: RAILING REVISIONS
For Details Superceding This Drawing See Dwg S2A

FLOOR DETAILS

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Noted

APRIL 30, 1959

Walter W. Scobee

DESIGNED JAT C'K'D RH
DRAWN JAT C'K'D RHH 11-25-59

DRAWING S9 OF 15
PROJECT: I-74-2(14)072
BRIDGE CONTRACT NO. 4729
BRIDGE FILE: 116-4440
I-74-72

Rev. 11-23-59 Railing Details

MARQUARDT ENGINEERING SUPPLY KAK 164

BRIDGES OVER 20' SPAN

PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14) 072	1959	19	32

292'-4½ Out To Out Railing

5 Spa. @ 26'-3" = 131'-3
11 Spa. @ 15'-9" = 173'-9

69 Spa. @ 6'-3" = 431'-3

14'-11½"

2'-0

8'-6½"

2'-7½"

3'-9½"

1'-6"

℄ o.o. Girder

P.C.

Group A-8-#5 (3'-3" to 7'-4") Top
Group A-8-#5 (3'-10 to 7'-11") Bott.
5-501 Lap with Group B-10-#5 (3'-0 to 7'-8)
5-Top + 5-Bott.

Profile Grade

Group C-13-#5 (8'-6" to 22'-6") Top
Group C-13-#5 (9'-1 to 23'-1") Bott.
4-502 Lap with Group D-8-#5 (3'-6"-7'-0)
4-Top + 4-Bott.
1-#4 x 29'-0"
1-503
4-503 Lap with Group E-8-#5 (3'-10 to 7'-4)
4-Top + 4-Bott.
1-#5 x 23'-8" Top + 1-#5 x 24'-3" Bott.
5-500 Lap with Group B-10-#5 (3'-0 to 7'-8)
5-Top + 5-Bott.
2-#5 (24'-10" to 24'-1") Top
2-#5 x 23'-4" Lap with 2-#5 (3'-10 to 5'-0) Bott.

Constr. Work Line

16-#5 x 26'-1 Lap with Group F-14-#5 (2'-10 to 18'-0) Top
14-#5 x 23'-4 Lap with Group F-14-#5 (6'-1" to 21'-4") Bott.

℄ Prim. Ledge
7-#4 x 29'-0"

4-500 + 4-504 Lap with Group D-8-#5 (3'-6" to 7'-0)
4-Top + 4-Bott.
1-500 + 1-505
Tooth Exp. Plate
4-500 + 4-505 Lap with Group E-8-#5 (3'-10 to 7'-4)
4-Top + 4-Bott.
3-500 + 3-506 Lap with Group G-6-#5 (3'-0 to 5'-4)
3-Top + 3-Bott.
51-402 @ 1'-0 ctrs.
51-405 @ 1'-0 ctrs.

45'-4"
22'-5"
14'-4"
6'-2"

K
K
L
L

5 Spa. @ 6'-0" = 30'-0"

18'-2"

5'-1"

Contraction Joint Spacing
Railing Post Spacing

℄ Symm. about ℄ by rotation thru 180°

168-400 @ 1'-0 ctrs.

Gutter Line

Constr. Joint

128-#5 x 26'-1 Top + 128-#5 x 23'-4 Bott.
127-500

5 Tot. Lines #5 x 23'-11" 9 each Line 148 Min. Lap

40°-40°-20°

22-#4 x 4'-0
See Section For Location

Constr. Joint

128-#5 x 20'-7 Top + 128-#5 x 23'-4 Bott.
127-500

℄ o.o. Girder

Gutter Line

128-400 @ 1'-0 ctrs.

P.C.

5½"

℄ Top Shoe Bent No. 1 or 5

2'-7½"

2-#4 x 14'-8"

Detail B For Post Anchor Bolts
See Br. Std. R1

2-#4 x 26'-0"

16-401 @ 1'-0 ctrs. (Typ.)

21-401 @ 1'-0 ctrs. (Typ.)

℄ Top Shoe Pier No. 2 or 4

℄ Top Shoe Pier No. 3 & ℄ Structure

2'-0

8'-6½"

14'-11½"

18 Spa. @ 6'-9" = 115'-9

4 Spa. @ 26'-3" = 105'-0

3'-8"

8'-0½"

Railing Post Spacing
Contraction Joint Spacing

18'-3"

3'-2¾"

48'-6 ℄ Top Shoes

254 Spaces @ ℄ = 127'-0"

97'-0 ℄ Top Shoes

297'-4½ Out to Out Bridge Floor

SPAN A or D

SPAN B or C

PLAN

NOTE: RAILING REVISIONS
For Details Superceding This Drawing See Dwg 52A

DETAIL "B"
Setting Plan For Post Anchor Bolts
Scale 1½"=0"

℄ Railing

℄ Post

NOTES
For Reinforcing Bar Notes See Bridge Std. C
For Additional Details See Dwg. 5//
Sequence Of Pours To Be Made In Order Of Pour Numbers. Transverse Construction Joints Are Optional And Pours May Be Continuous Provided The Pour Terminates At A Construction Joint Indicated On The Pour Diagram Dwg. 5/5
For Details Of Aluminum Railing See Bridge Std. R1
See Dwg. 5// For Sections K-K & L-L

Rev. 11-23-59 Railing Details

FLOOR DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE: 1"=1'-0"

APRIL 30, 1959

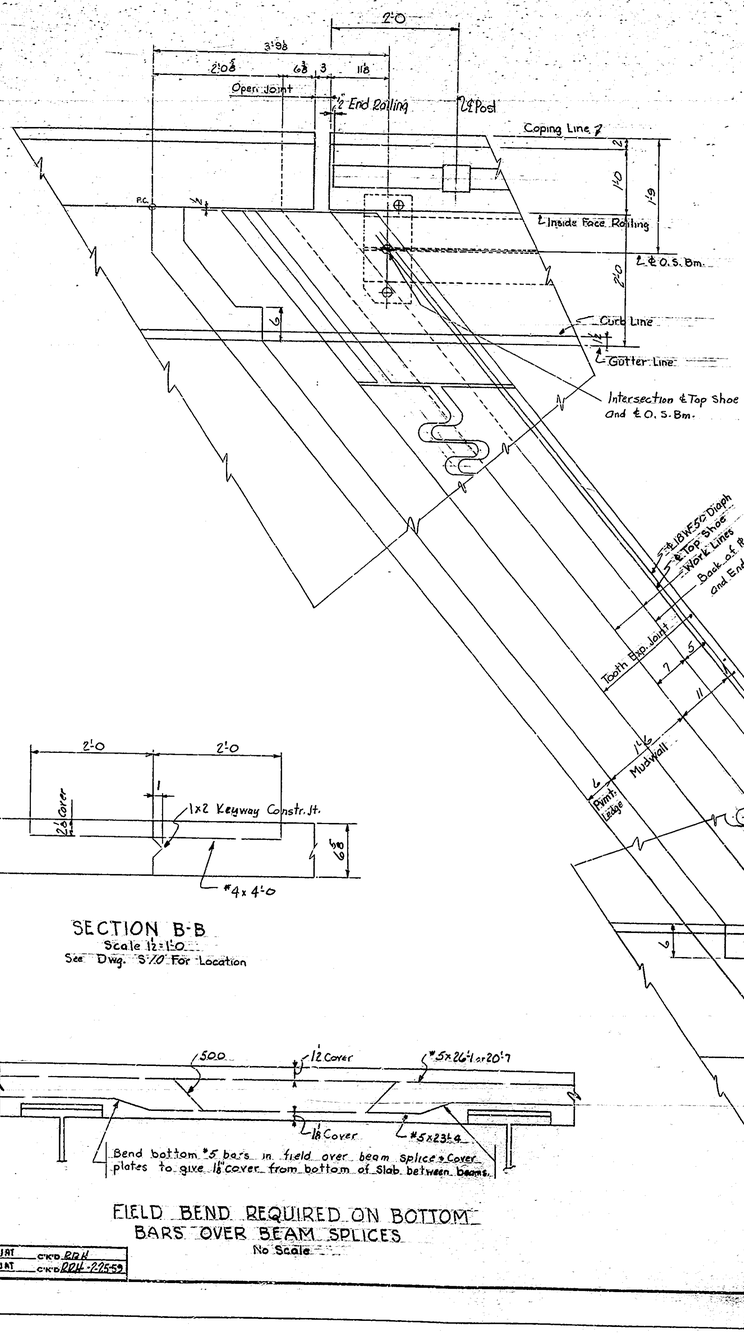
Walter J. Beam

DESIGNED JAT CKD PEH
DRAWN JAT CKD PEH 2-25-59

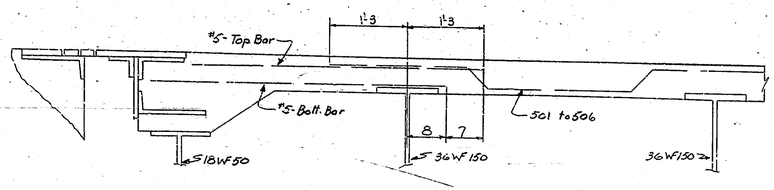
DRAWING 5/10 OF 15
PROJECT: I-74-2(14)072
BRIDGE CONTRACT NO. 4729
BRIDGE FILE: BC-HG-4440

I-74-72

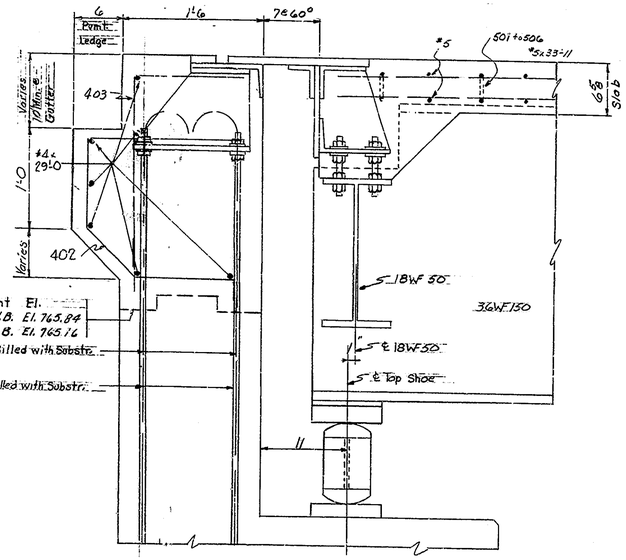
BRIDGES OVER 20' SPAN					
FUN. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	IND.	I-74-2 (14) 072	1959	20	32



CORNER DETAILS
Scale 1"=1'-0



#5 Straight Bar Location With 501 to 506
SECTION K-K



SECTION L-L
Scale ½"=1'-0

Note: Portion of Mudwall above Constr. Joint to be poured with superstructure.

SECTION B-B
Scale ½"=1'-0
See Dwg. S10 For Location

FIELD BEND REQUIRED ON BOTTOM BARS OVER BEAM SPLICES
No Scale

NOTE: RAILING REVISIONS
For Details Superceding This Drawing See Dwg S2A

Note:
See Dwg. S10 For Location of Sect. K-K & L-L.
See Dwg S15 for Alamo Railing Layout.

FLOOR DETAILS
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Noted
APRIL 30, 1959
Walter H. Beam

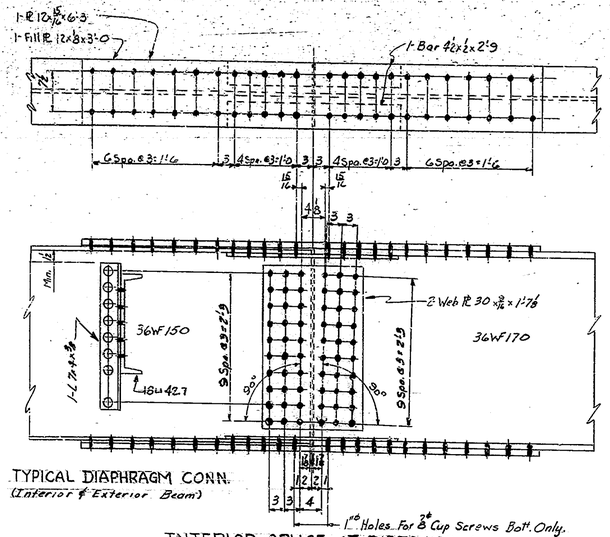
DRAWING:- S11 OF 15
PROJECT:- I-74-2 (14) 072
BRIDGE CONTRACT NO. 4729
BRIDGE FILE:- ~~136 NO 4640~~
I-74-72-

DESIGNED JAT CHK'D RBH
DRAWN JAT CHK'D RBH-27559

Rev. 11-23-59 Railing Details

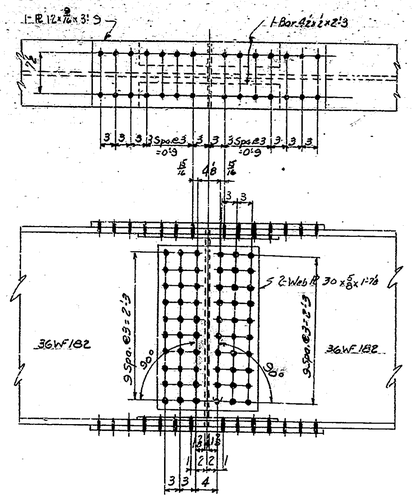
MARBAUGH ENGINEERING SUPPLY KOKOMO

BRIDGES OVER 20' SPAN					
FED. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14) 072	1959	21	32

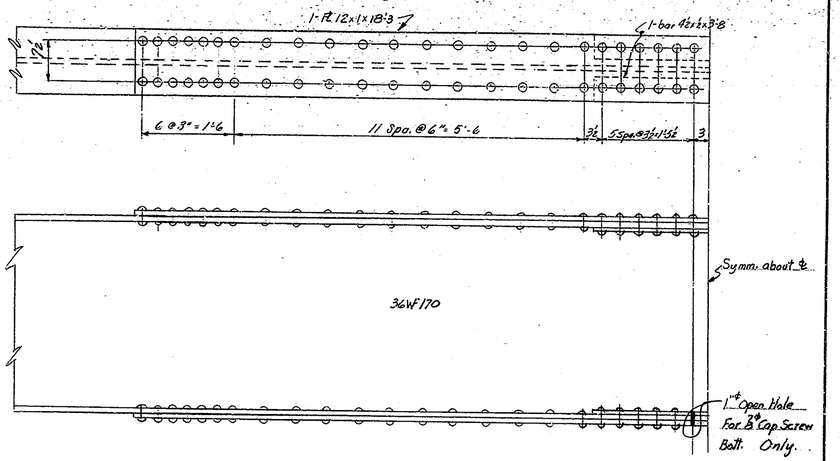


TYPICAL DIAPHRAGM CONN.
(Interior & Exterior Beam)

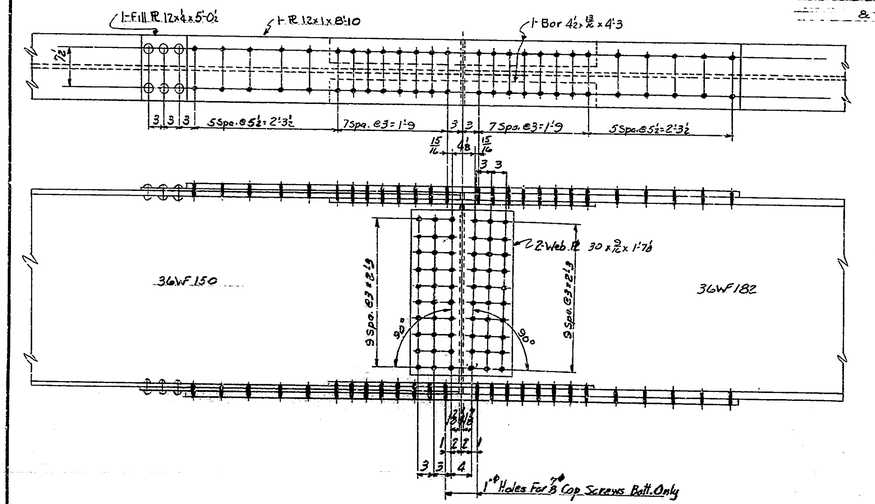
INTERIOR SPLICE AT PIERS Nº 2 & 4



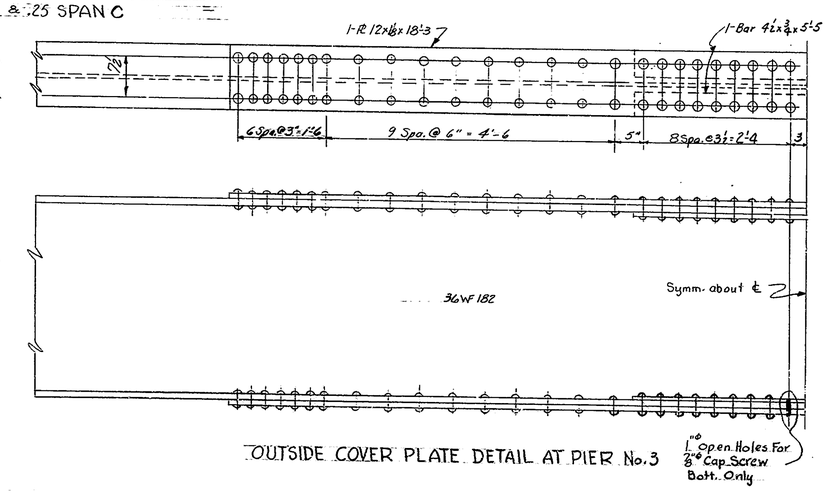
OUTSIDE SPLICE AT .75 SPAN B
& .25 SPAN C



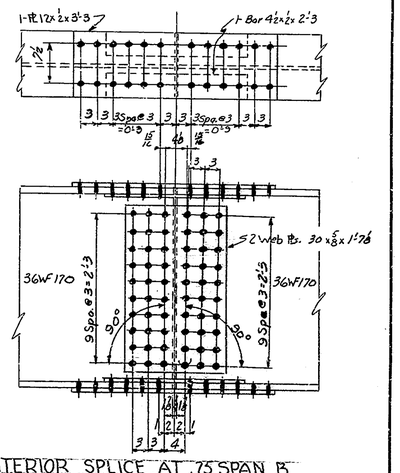
INTERIOR COVER PLATE DETAIL AT PIER No. 3



OUTSIDE SPLICE AT PIERS Nº 2 & 4



OUTSIDE COVER PLATE DETAIL AT PIER No. 3



INTERIOR SPLICE AT .75 SPAN B
& .25 SPAN C

NOTE:-
13/16" ϕ Rivets
15/16" ϕ Open holes unless noted.

Bottom Splice Plates and Cover Plates same as Top Plates Except as Noted.

SPLICE DETAILS

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE: NONE

APRIL 30, 1959

Walter W. Beam

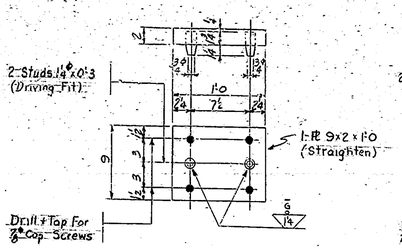
DRAWING: 3/12 OF 15
PROJECT: I-74-2 (14) 072
BRIDGE CONTRACT NO. 4729
BRIDGE FILE: ~~136-113-4440~~
I-74-72

DESIGNED	R.R.H.	CK'D	T.L.G.
DRAWN	J.R.T.	CK'D	DATE 2-25-59

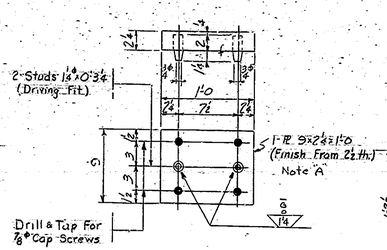
WALTER R. BEAM No. 3417 REGISTERED PROFESSIONAL ENGINEER STATE OF INDIANA

KEUFFEL & ESSER CO. MADE IN U.S.A.

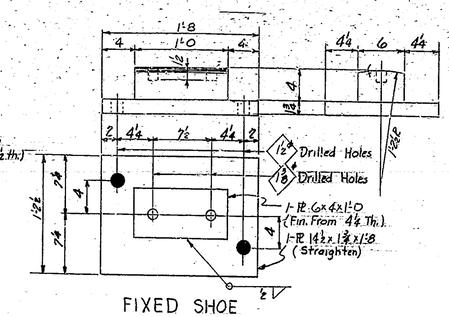
BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14) 072	1959	22	32



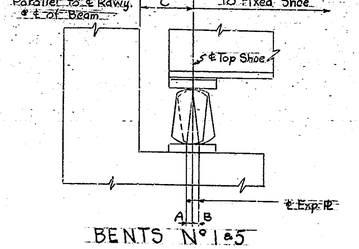
TOP SHOE AT BENTS Nº 1 & 5
Scale: 1/2" = 1'-0



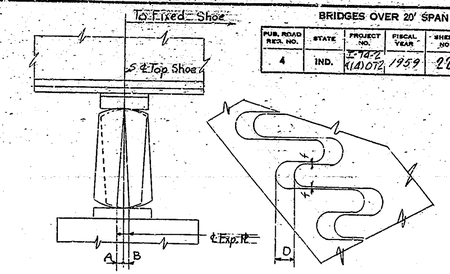
TOP SHOE AT PIERS Nº 2, 3 & 4
Scale 1 1/2" = 1'-0



FIXED SHOE AT PIER Nº 3
Scale: 1 1/2" = 1'-0

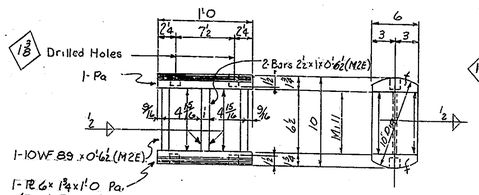


BENTS Nº 1 & 5

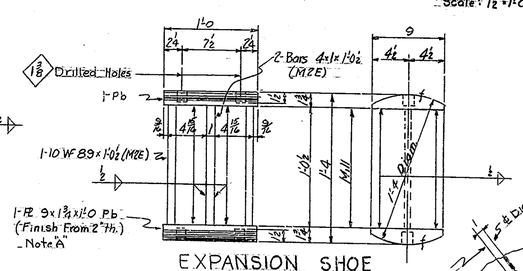


PIERS Nº 2 & 4

TOOTHED PLATE AT BENTS Nº 1 & 5



EXPANSION SHOE AT BENTS Nº 1 & 5
Scale 1 1/2" = 1'-0



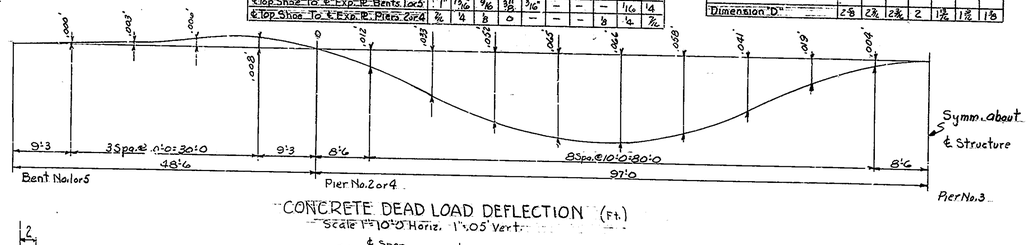
EXPANSION SHOE AT PIERS Nº 2 & 4
Scale: 1 1/2" = 1'-0

TABLE I

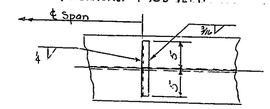
Temperature	Dim. A						Dim. B		
	0	20	40	60	80	100	120	80	100	120
℄ Top Shoe To ℄ Exp. PL Bents 1 or 5	1"	1 3/16	9/16	3/8	3/16	—	—	—	1/16	1/4
℄ Top Shoe To ℄ Exp. PL Piers 2 or 4	3/4	1/4	1/8	0	—	—	—	1/8	1/4	7/16

TABLE II

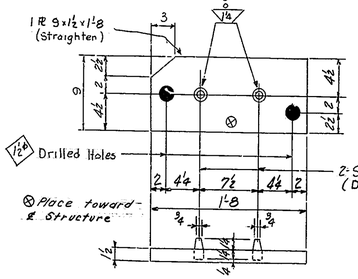
Temperature	0	20	40	60	80	100	120
Dimension "D"	2 5/8	2 3/8	2 1/8	2	1 7/8	1 3/4	1 5/8



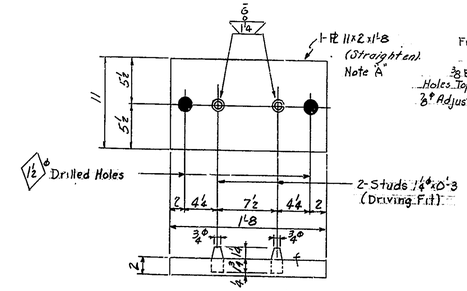
CONCRETE DEAD LOAD DEFLECTION (Ft.)
Scale 1" = 10'-0 Horiz. 1" = .05' Vert.



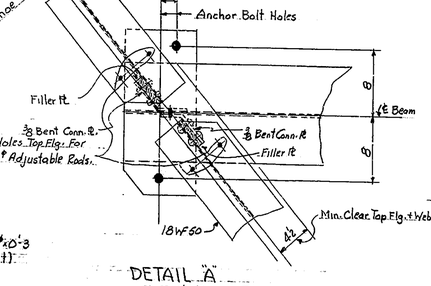
TYPICAL SHEAR CONNECTORS FOR All BM'S. SPANS B & C



EXPANSION PLATE AT BENTS Nº 1 & 5
Scale 1 1/2" = 1'-0

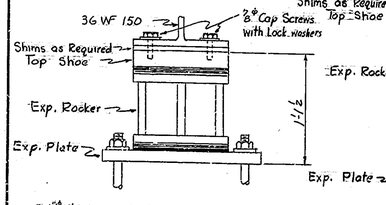


EXPANSION PLATE AT PIER Nº 2 & 4
Scale: 1 1/2" = 1'-0



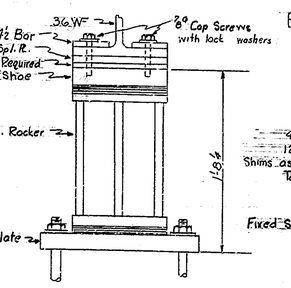
DETAIL "A"
Scale 1 1/2" = 1'-0

Note "A"
High-Strength, Low Alloy Structural Steel A.S.T.M.-A242-55



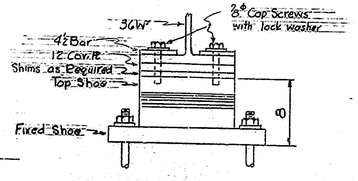
2-1 3/8" x 1'-2 Anchor Bolts with Hex. Nuts, ABi (Swedged, Thread 3" No Point)
2-2 1/2" ø Washers, Wi

SHOE ASSEMBLY AT BENTS Nº 1 or 5
Scale 1 1/2" = 1'-0



2-1 3/8" x 1'-2 Anchor Bolts with Hex. Nuts, ABi (Swedged, Thread 3" No Point)
2-2 1/2" ø Washers, Wi

SHOE ASSEMBLY AT PIERS Nº 2 or 4
Scale 1 1/2" = 1'-0

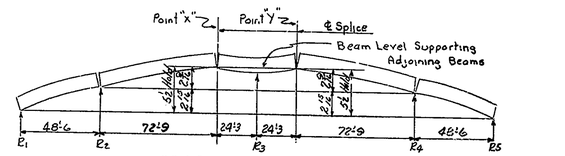


2-1 3/8" x 1'-2 Anchor Bolts with Hex. Nuts ABi (Swedged, Thread 3" No Point)
2-2 1/2" ø Washer, Wi

SHOE ASSEMBLY AT PIER Nº 3
Scale 1 1/2" = 1'-0

GENERAL PROCEDURE

1. After all rivets have been driven, adjust the superstructure longitudinally so that dimension "C" from the ℄ Top Shoe to the face of the mud wall at Bents Nº 1 & 5 are equal.
2. With the superstructure in the adjusted position called for in (1), set the anchor bolts for the fixed shoes at Pier 3.
3. Adjust the expansion plate under each expansion shoe in accordance with dimension "A" or "B" in Table I for the prevailing temperature. Note that dimension "A" is always the distance from a vertical line through the ℄ Top Shoe in a direction away from the fixed shoe. Set the anchor bolts.
4. Set the steel expansion joint and adjust it to elevation using double nuts on the anchor rods and threaded rods on the diaphragms.
5. Adjust the steel expansion joint horizontally so that the openings "f" between the teeth are equal and longitudinally so that openings "D" correspond to the values "D" in Table II for the prevailing temperature.
6. Screed elevations shall be determined by adding the concrete dead load deflections given on this drawing to the final required concrete elevations at screed points. Take elevations at all screed points on top of beam adjacent to screed point. Subtract these elevations from the elevation corrected for deflection and use the resulting dimension as the height for setting the screed for on above that point. This dimension remains constant regardless of how much or in what order the concrete is poured. Do not set screeds by leveling.
7. No concrete in the floor is to be poured until the above operations are complete.



Note: Splice Points "X" & "Y" to be adjusted to same elevation in shop with load of Beam on splice. Beams are to be in relative position for full length of structure before reaming or drilling. During reaming beams shall be supported at E1, E2, E3, E4 & E5 only.

DIAGRAM SHOWING SHOP ASSEMBLY FOR REAMING OF SPLICES
No Scale

NOTE:
Rivets 7/8" ø
Open Holes 1" unless noted.
See Dwg. S-6 for General Notes

SHOE DETAILS

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE:- As Noted

APRIL 30, 1959

Walter W. Bamm

DESIGNED RRH CK'D TLG
DRAWN JAT CK'D RRH 2-25-59

DRAWING:- S/30F/5
PROJECT:- I-74-2(14)072
BRIDGE CONTRACT NO. 4729
BRIDGE FILE: ~~136-H9-4440~~

I-74-72-

BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14) 072	1959	23	32

Spacing For 10WF49

51'-5½ Work Point To Work Point

11 Spa. @ 2'-0 = 22'-0

19'-6

Inside Face Railing

1:10

5 - ⅞ Hooked Bars

Curb Line

Gutter Line

3

3

D

E

H

F

* ⅞ x 1½ Slots in ⅜ PL Drill and Tap ½ R&L for ½ Cap Screws.

Face Mudwall Work Line

Work Line

℄ Top Shoe

℄ Diaphragm

℄ Splice

5⅛

40°

10WF49

Concrete Work Line

Gutter Line

Curb Line

5 - ⅞ Hooked Bars

* ⅞ x 1½ Slots in ⅜ PL Drill and Tap ½ R&L for ½ Cap Screws.

Inside Face Railing

G

A

H

℄ E.O.S. Bm.

℄ Ell

A

D

E

C

℄ Splice

C

b

B

℄ E.O.S. Bm.

Spacing for Adjustable Bolts Along ℄ Diaphragm

Beam Spacing Along ℄ Diaphragm (Not To Scale)

PLAN - PLATE EXPANSION JOINT

* Cap Screws to be used to hold Curb Section in position while concrete is poured. After initial set in concrete cap screws are to be removed.

See Section 1 to Roadway For Dimensions and Slope of Sidewalk

⅜ PL Bent

4 x 3½ x ⅜ L E.S.

4 x 4 x ⅜ L N.S.

½ R a

R 7 x ½ b

Holes in R a

Holes for Bolts in R. b

℄ E.O.S. Bm.

Note: See Road Std. m for Pavement Offsets.

℄ Tooth R.

4 x 3½ x ⅜ L E.S.

2 - 4 x 4 x ⅜ L N.S.

½ R

PC. 18 @ 42.7 (1-18 @ 42.7 Cuts 2 Pc.)

for Location 18WF50 See Dwg. S 9

⅞ Threaded Rod

⅜ R Stiffener @ 2'-0 ctrs.

SECTION A-A

SECTION B-B OPP. HAND & SIMILAR

℄ Splice

⅞ Threaded Rods Top Diaphragm

SECTION C-C

Work Line Face Mudwall

Work Line

PC. 18 @ 42.7

⅞ Hooked Bar @ 2'-0 Ctrs.

10WF49

1½ Holes

⅞ Rods Bolted with Substructure Marked RR

⅞ R @ 2'-0 Ctrs.

PC. 18 @ 42.7

⅞ Threaded Rods

Holes in W

Holes in ⊔

℄ 18WF50 Diaphragm

℄ Top Shoe

SECTION D-D

2 - 15 5x3½x⅜

¾ Bolts

⅜ R

2 - L 3½x3½x⅜

Pc. 10WF49

Work Line

SECTION E-E

Max. Space

Typical Spacing

½ Rod To ℄ Cut

TYPICAL TOOTH

Note

All dimensions to Cuts are given to ℄ cuts. See specifications Art. E 103.13 regarding burning of toothed plates.

The toothed plates shall be match marked to maintain the same relative position before and after cutting.

NOTE

Rivets ¾" unless noted.

Open Holes ¹³⁄₁₆ Unless noted.

See Dwg. S 8 For General Notes.

For Crown Offsets See Road Std. 4Aa.

Expansion joints are to be assembled in the shop in their relative erection positions and inspected for fit.

See Section 1 To Roadway For Dimensions and Slope at sidewalk.

⅜ Bent R

½ Bent R

4 x 3½ x ⅜ L

℄ Bent R

Note: See Road Std. m Az For Pavement Offsets.

10WF49

SECTION F-F

SECTION G-G SEE HAND & SIMILAR

⅜ R

½ R

⅞ Hooked Rods @ 2'-0 Ctrs.

⅞ Hooked Bars @ 2'-0 C. to C.

4 x 3½ x ⅜ L

PC. 18 @ 42.7

℄ Diaphragm

Work Line

℄ Top Shoe

SECTION H-H

Inside Face Railing

Slope ½"/Ft

Curb Line

Gutter Line

Coping Line

See Dwg. S 9 For Complete Section 1 To Roadway

See Dwg. S 2 For Location of Crown Rdwy.

CURB CONTOUR 1 TO CENTER LINE

STEEL EXPANSION JOINT DETAILS

STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE: 1½" = 1'-0

APRIL 30, 1959

Walter M. Peirce

WALTER M. PEIRCE No. 5071 STATE OF INDIANA REGISTERED PROFESSIONAL ENGINEER

DESIGNED JAT CKD RPH

DRAWN JAT CKD RPH 2-25-59

DRAWING 3/4 OF 15

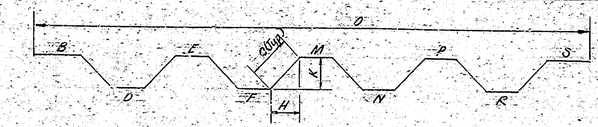
PROJECT I-74-2(14)072

BRIDGE CONTRACT NO. 4729

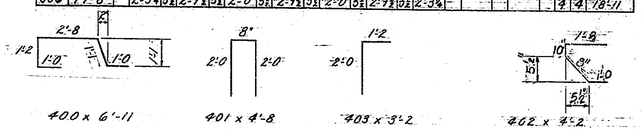
BRIDGE FILE ~~136-419-4440~~

I-74-72

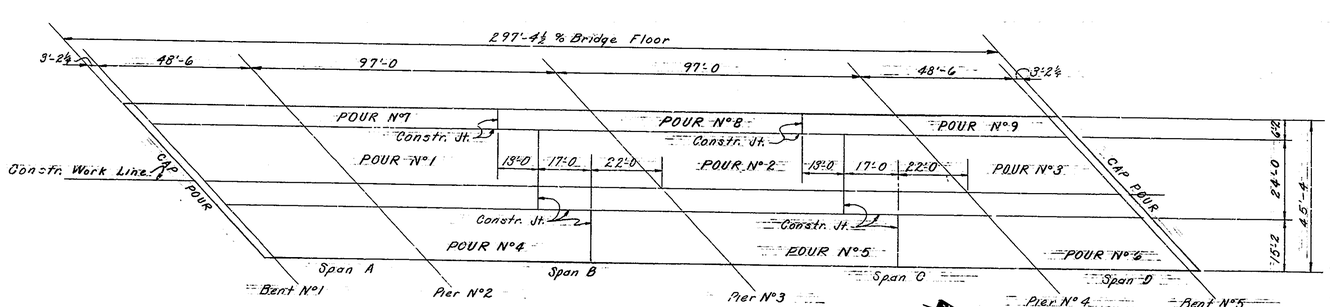
BRIDGES OVER 20' SPAN					
PUB. ROAD REG. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (4) 4501 72	1959	24	32



MARK	LENGTH	B	C	D	C	E	C	F	C	M	C	N	C	P	C	R	C	S		H	K	O
500	24'-9	2'-6	5½	2'-0½	5½	1'-11	5½	2'-9½	5½	2'-0	5½	2'-9½	5½	2'-0	5½	2'-9½	5½	2'-3		4	4	23'-9
501	7'-8	2'-6	5½	2'-0½	5½	2'-2½		-		-		-		-		-		-		4	4	7'-5
502	13'-4	2'-6	5½	2'-0½	5½	1'-11	5½	2'-9½	5½	2'-3		-		-		-		-		4	4	12'-10
503	19'-1	2'-6	5½	2'-0½	5½	1'-11	5½	2'-9½	5½	2'-0	5½	2'-9½	5½	2'-3¾		-		-		4	4	18'-4
504	8'-3	2'-3⅜	5½	2'-9½	5½	2'-3¾		-		-		-		-		-		-		4	4	8'-0
505	13'-11	2'-3⅜	5½	2'-9½	5½	2'-0	5½	2'-9½	5½	2'-3		-		-		-		-		4	4	13'-5
506	19'-8	2'-5⅝	5½	2'-9½	5½	2'-0	5½	2'-9½	5½	2'-0	5½	2'-9½	5½	2'-3¾		-		-		4	4	18'-11



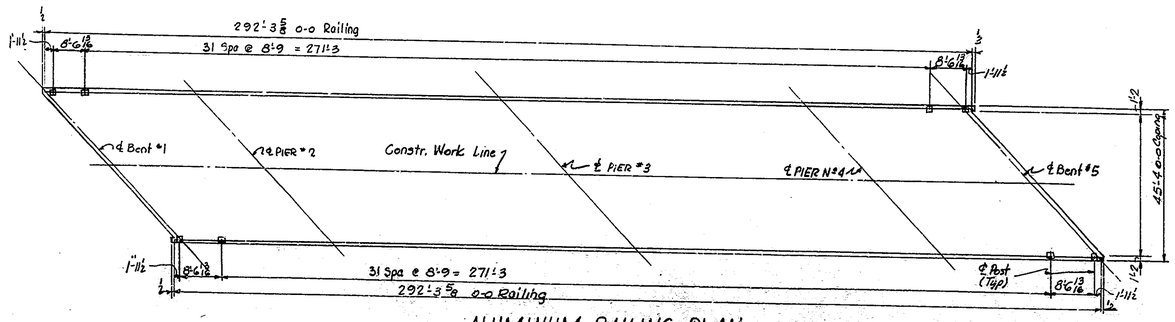
BENDING DIAGRAMS
Not to Scale



POUR DIAGRAMS
Scale: 1"=20'-0

EASTBOUND LANE SHOWN (WESTBOUND LANE SAME BY ROTATION OF 180° ABOUT ℄ STRUCTURE)

NOTE: RAILING REVISIONS
For Details Superceding This Drawing See Dwg S2A



ALUMINUM RAILING PLAN
No Scale
See Corner Details Dwg S11

SUPERSTRUCTURE
BILL OF MATERIALS
EASTBOUND LANE (WESTBOUND LANE SAME)

Group Mark	Mark or Size	No. of Bars	Length	Weight
	500	542	24'-9	
	501	10	7'-8	
	502	8	13'-4	
	503	10	19'-1	
	504	8	8'-3	
	505	10	13'-11	
	506	6	19'-8	
	#5	630	33'-11	
	#5	286	26'-1	
	#5	544	23'-4	
	#5	256	20'-7	
	#5	2	24'-10	
	#5	2	24'-3	
	#5	2	23'-8	
A-Top	#5	2	3'-3	
A-Top	#5	2	3'-10	
A-Top	#5	2	4'-5	
A-Top	#5	2	5'-0	
A-Top	#5	2	5'-7	
A-Top	#5	2	6'-2	
A-Top	#5	2	6'-9	
A-Top	#5	2	7'-4	
B-Bott	#5	2	3'-10	
B-Bott	#5	2	4'-5	
B-Bott	#5	2	5'-0	
B-Bott	#5	2	5'-7	
B-Bott	#5	2	6'-2	
B-Bott	#5	2	6'-9	
B-Bott	#5	2	7'-4	
B-Bott	#5	2	7'-11	
B-Top&Bott	#5	8	3'-0	
B-Top&Bott	#5	8	4'-2	
B-Top&Bott	#5	8	5'-4	
B-Top&Bott	#5	8	6'-6	
B-Top&Bott	#5	8	7'-8	
C-Top	#5	2	8'-6	
C-Top	#5	2	9'-8	
C-Top	#5	2	10'-10	
C-Top	#5	2	12'-0	
C-Top	#5	2	13'-2	
C-Top	#5	2	14'-4	
C-Top	#5	2	15'-6	
C-Top	#5	2	16'-8	
C-Top	#5	2	17'-10	
C-Top	#5	2	19'-0	
C-Top	#5	2	20'-2	
C-Top	#5	2	21'-4	
C-Top	#5	2	22'-6	
C-Bott	#5	2	9'-1	
C-Bott	#5	2	10'-3	
C-Bott	#5	2	11'-5	
C-Bott	#5	2	12'-7	
C-Bott	#5	2	13'-9	
C-Bott	#5	2	14'-11	
C-Bott	#5	2	16'-1	
C-Bott	#5	2	17'-3	
C-Bott	#5	2	18'-5	
C-Bott	#5	2	19'-7	
C-Bott	#5	2	20'-9	
C-Bott	#5	2	21'-11	
C-Bott	#5	2	23'-1	
D-Top&Bott	#5	6	3'-6	
D-Top&Bott	#5	8	4'-8	
D-Top&Bott	#5	8	5'-10	
D-Top&Bott	#5	8	7'-0	
E-Top&Bott	#5	8	3'-10	
E-Top&Bott	#5	8	5'-0	
E-Top&Bott	#5	8	6'-2	
E-Top&Bott	#5	8	7'-4	

Group Mark	Mark or Size	No. of Bars	Length	Weight
F-Top	#5	2	2'-10	
F-Top	#5	2	4'-0	
F-Top	#5	2	5'-2	
F-Top	#5	2	6'-4	
F-Top	#5	2	7'-6	
F-Top	#5	2	8'-8	
F-Top	#5	2	9'-10	
F-Top	#5	2	11'-0	
F-Top	#5	2	12'-2	
F-Top	#5	2	13'-4	
F-Top	#5	2	14'-6	
F-Top	#5	2	15'-8	
F-Top	#5	2	16'-10	
F-Top	#5	2	18'-0	
F-Bott	#5	2	6'-2	
F-Bott	#5	2	7'-4	
F-Bott	#5	2	8'-6	
F-Bott	#5	2	9'-8	
F-Bott	#5	2	10'-10	
F-Bott	#5	2	12'-0	
F-Bott	#5	2	13'-2	
F-Bott	#5	2	14'-4	
F-Bott	#5	2	15'-6	
F-Bott	#5	2	16'-8	
F-Bott	#5	2	17'-10	
F-Bott	#5	2	19'-0	
F-Bott	#5	2	20'-2	
F-Bott	#5	2	21'-4	
G-Top&Bot	#5	4	3'-0	
G-Top&Bott	#5	4	4'-2	
G-Top&Bott	#5	4	5'-4	
	#5	2	3'-10	
	#5	2	5'-0	
	TOTAL #5			66,076
	400	582	6'-11	
	401	404	4'-8	
	402	114	4'-2	
	403	117	3'-2	
	#4	28	23'-0	
	#4	40	26'-0	
	#4	8	14'-8	
	#4	46	4'-0	
	TOTAL #4			6,563
TOTAL STEEL				72,639

CONCRETE

Pour No.	Cu. Yds.
1	53.5
2	46.2
3	40.8
4	44.6
5	38.9
6	34.7
7	25.4
8	21.2
9	18.6
Cap Pour North End	6.1
Cap Pour South End	6.1
TOTAL CLASS "F" CONC.	336.1
Railing Concrete	18.0
Aluminum Railing (Type I)	584 Lin. Ft.

Note: See Br Std C1 for reinforcing bar notes.

SUPERSTRUCTURE BILL OF MATERIALS
STATE HIGHWAY DEPARTMENT OF INDIANA

SCALE: As Noted — APRIL 30, 1959

Walter M. Bean

WALTER M. BEAN — REGISTERED — No. 10111 — PROFESSIONAL ENGINEER

DESIGNED JAT CHKD RRH
DRAWN WFG CHKD 2/24/59

DRAWING S15 OF 15
PROJECT I-74-2 (4) 072
BRIDGE CONTRACT NO. 4729
BRIDGE FILE: ~~136-49-4440~~

I-74-72

Rev. 11-23-59 Railing Details

BRIDGES OVER 20' SPAN

FED. ROAD DIV. NO.	STATE	PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
4	IND.	I-74-2 (14)072	1959	25	32

STRUCTURE QUANTITIES

ITEM	CONCRETE CLASS F CU. YDS.	CONCRETE CLASS D CU. YDS.	CONCRETE CLASS E ABOVE FTG. CU. YDS.	CONCRETE CLASS E FTG. CU. YDS.	RAILING CONCRETE CLASS F CU. YDS.	RAILING CONCRETE LIN. FT.	REINFORCING STEEL (1934 STD. WTS.) #11(1¼□) LBS.	#10(1⅛□) LBS.	#9(1□) LBS.	#8(1ϕ) LBS.	#7(⅞ϕ) LBS.	#6(¾ϕ) LBS.	#5(⅝ϕ) LBS.	#4(½ϕ) LBS.	#3(⅜ϕ) LBS.	#2(¼ϕ) LBS.	TOTALS LBS.	STRUCTURAL STEEL (Estimated) LBS.	CAST IRON LBS.	STEEL ENCASED CONCRETE PILES Nº	STEEL ENCASED CONCRETE PILES LIN. FT.	TREATED TIMBER PILES Nº	TREATED TIMBER PILES LIN. FT.	ALUMINUM RAILING TYPE 1 LIN. FT.	AR1 Each
EASTBOUND LANE																									
BENT Nº1	44.1				2.1						2683	638		2329	77		5727			14	840				50
PIER Nº2	37.5		19.0	32.4			2715					836	2893	1030			7474					36	1440		
PIER Nº3	37.9		22.8	44.6			3552		2431			1579	2481	861			10704					48	1920		
PIER Nº4	38.2		20.2	32.4			2715					836	2918	1040			7509					36	1440		
BENT Nº5	46.1				2.1						2683	638		2361	77		5759			14	840				50
SUPERSTRUCTURE	336.1				18.0								66076	6563			72639	*584,600						584.6	
Reinf. Steel for Lighting												327 ~~206~~					327 ~~206~~								
TOTAL E.B. LANE	539.9		62.0	109.4	22.2		8782		2431		5366	~~4733~~ 4854	74168	14184	154		~~110,018~~ 110,139	584,500		28	1680	120	4800	584.6	100
WESTBOUND LANE																									
BENT Nº1	46.1				2.1						2683	638		2361	77		5759			14	840				50
PIER Nº2	38.2		15.1	32.4			2715					836	2739	1040			7330					36	1440		
PIER Nº3	37.9		20.2	44.6			3352		2431			1579	2350	861			10573					48	1920		
PIER Nº4	37.5		19.0	32.4			2715					836	2893	1030			7474					36	1440		
BENT Nº5	44.1				2.1						2683	638		2329	77		5727			14	840				50
SUPERSTRUCTURE	336.1				18.0								66076	6563			72639	*584,500						584.6	
Reinf. Steel for Lighting												327 ~~206~~					327 ~~206~~								
TOTAL W.B. LANE	539.9		54.3	109.4	22.2		8782		2431		5366	~~4733~~ 4854	74058	14184	154		~~109,708~~ 109,829	584,500		28	1680	120	4800	584.6	100
Bill of Splice Bars							58		32		16	34	70	16			226								
Reinf. Steel From "Approach Structures" column																									
Reinf. Steel for Thickened Pavement																									
Reinf. Steel for Lip Gutter, Pvmt. Tapers, etc.																									
TOTALS	1079.8		116.3	218.8	44.4		17622		4894		10748	~~9568~~ 9742	148496	28384	308		~~219,958~~ 220,194	1,169,000		56	3360	240	9600	1169.2	200

BILL OF SPLICE BARS

REINFORCING STEEL

Size	Nº Pcs	Length	Location	Weight	Total Weight
#11	1	11'-0		58	
#9	1	9'-6		32	
#7	1	8'-0		16	
#6	3	7'-6		34	
#5	10	6'-9		70	
#4	4	6'-0		16	
					226

Note:- For Test Bar Samples see Br. Std "C1"

BILL OF MATERIALS FOR THICKENED PAVEMENT

REINFORCING STEEL

Size	Nº Pcs.	Length	Location	Weight	Total Weight
			Not Included		

BARRICADES, BARRIERS, TRAFFIC SIGNS, & LIGHTS

ITEM	UNIT	QUANTITY	ASSEMBLY				
WARNING SIGNS	Each		Signs 130 R				
			" 123 R				
			" 124 R				
			" 115 R				
			Torches				
STD. BARRICADES (TYPE A)	Each		Barricades (Type A)				
			Signs 113 R				
			" W11 R				
			" 117				
			Lanterns				
STD. 3'-0" x 4'-3" SIGNS	Each		Signs 113				
BRIDGE (SUITABLE) BARRIERS	Each	4	* Suitable Barriers	4			
			* Lanterns or Torches	4			
STD. BARRICADES (TYPE B)	Each		Barricades (Type B)				
			Signs 113				
			Lanterns or Torches				
TYPICAL SIGN STANDARDS	Each		Signs 113 R				
			" W11 R				
			" 117				
			Lanterns				

*Not a pay item

APPROACH STRUCTURES

STRUCT. Nº	LOCATION	DESCRIPTION SIZE	DESCRIPTION KIND	DESCRIPTION LENGTH	CL. D CONC. IN STRUCTS. CU. YDS.	REINF. STEEL LBS.	CAST IRON LBS.	REMARKS
				TOTALS				Total of Reinf. Steel carried to "Structure Quantities"

BILL OF ADDITIONAL REINF. STEEL FOR LIGHTING

REINF. STEEL

SIZE & MARK	NO. OF BARS	LENGTH	WEIGHT (LBS.)
601A	~~16~~ 24	~~7'-0~~ 8'-0"	
602A	~~56~~ 54	4'-6	
			~~412~~ 654

NOTE: RAILING REVISIONS
For Quantities Superceding This Drawing See Dwg 52A

SUMMARY

ITEM	DESCRIPTION	UNIT	QUANTITY			
1	Class F Concrete	Cu. Yds.	1079.8			
2	Class D Concrete	Cu. Yds.				
3	Class E Concrete above Footings	Cu. Yds.	116.3			
4	Class E Concrete in Footings	Cu. Yds.	218.8			
5	Railing Concrete	Lin. Ft.				
6	Reinforcing Steel	Lbs.	~~219,952~~	220194		
7	Structural Steel (Estimated)	Lbs.	1,169,000			
8	Cast Iron	Lbs.				
9	Untreated Timber Piles Furnished	Lin. Ft.				
10	Untreated Timber Piles Driven	Lin. Ft.				
11	Furnishing Equipment for Driving Piles	Lump Sum	1			
12	Wet Excavation	Cu. Yds.				
13	Waterway Excavation	Cu. Yds.				
14	Common Excavation	Cu. Yds.				
15	Special Borrow	Cu. Yds.	48370			
16	Grade B Special Borrow	Cu. Yds.	18000			
17	Sodding	Sq. Yds.	1360			
18	Mulched Seeding	Sq. Yds.				
19	Cement Concrete Pavement	Sq. Yds.				
20	Reinforced Cement Concrete Pavement	Sq. Yds.				
21	Thickened Reinf. Cement Concrete Pavement	Sq. Yds.				
22	Aggregate for Compacted Aggregate Base	Tons				
23	Removal Present Structure	Lump Sum				
24	Temporary Bridge and Approaches	Lump Sum				
25	Warning Signs	Each				
26	Std. Barricades (Type A)	Each				
27	Class D Concrete in Structures	Cu. Yds.				
28	R/W Markers	Each				
29	Steel Shell Piles Furnished	Lin. Ft.	3360			
30	Steel Shell Piles Driven	Lin. Ft.	3360			
31	Railing Concrete	Cu. Yds	44.4			
32	* Aluminum Railing Type 1	Lin. Ft.	1169.2			
33	Treated Timber Piles Furnished	Lin. Ft.	9600			
34	Treated Timber Piles Driven	Lin. Ft.	9600			
35	Slopewall (4")	S. Yds.	1076			
36	Anchor Bolts - AR1	Each	200			
37	Foundation Excavation Unclassified	Cu. Yds	500			
38	Anchor Rods AR21	Each	~~16~~	24		
39	2" Steel Conduit	Lin. Ft.	662			
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						
55						
56						
57						
58						
59						
60						

*Note: ~~4~~ 6 additional aluminum post req'd. for lighting. (See Br. Std. R2) Included in cost per lin. ft. of aluminum railing.

SUMMARY

END STR

STATE HIGHWAY DEPARTMENT OF INDIANA

APRIL 30, 1959

Walter ... (signature)

PROJECT:- I-74-2(14)072

BRIDGE CONTRACT Nº 4729

BRIDGE FILE:- ~~186-119~~ 4440 I-74-72

Rev. 11-23-59 Railing Details & Center Light
Rev. 3-8-59 Lighting Installation.

SUMMARIZED ... CK'D ...
TRACED ... CK'D ...

Drawing not Legible

X