

SHEET NUMBER	SECTION	STRUCTURE					DRAWING NUMBER	SUBJECT	BRIDGE CONTRACT NO.
		NO.	TYPE	SPAN	OVER	STATION			
1							Index & Title Sheet		
2							Layout, Strs. 1027 & 1028		
3	A	1027	R.C. Girder	25'-0"	State Road #12	492+25.6	General Plan	374	
4							Abut. & Details: Wing Seals, & Elev.		
5							" " "		
6							Plan, Fig. Const. Jn. Dets., Bend Diags. & Summary		
7							Superstructure Details		
8	A	1028	R.C. Girder	25'-0"	C.S.S. & S.B. Rd. #12	494+28.85	General Plan	374	
9							Details: Bents #1 & #2		
10							" #3, #4 & #5		
11							Superst. Details		
12							Bill of Mat. Misc. Dets. & Summary		
13							Road Plan & Profile - Rd. Proj. 180-A		
14							Detail of Intersect. Sta. 490+00 (Rd. Proj. 180-A)		
15							Cross Sections - Rd. Proj. 180-A		
16							" " " " " " " " " "		
17							" " " " " " " " " "		
18							" " " " " " " " " "		
19							" " " " " " " " " "		
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33							" " " " " " " " " "		
34							" " " " " " " " " "		
35							" " " " " " " " " "		
36	A	1016	R.C. Girder	25'-0"	State Road #20	149+00	Layout	396	
37							General Plan		
38							Substructure Details		
39							Plan, Fig. Const. Jn. Dets., Bend Diags. & Summary		
40							Superstructure Details		
41							Bill of Mat. Misc. Dets. & Summary		
42							Road Plan & Profile - Rd. Proj. 183-C		
43							Intersection Details		
44							Connection Details		
45							Road Plan & Profile - Rd. Proj. 183-C		
46							Std. Detail, Barricade, Etc.		
47							Std. Detail, R.C. H. Paving Section		
48							Misc. Road, Stds.		
49							Std. Pipe Culverts and Head Walls		

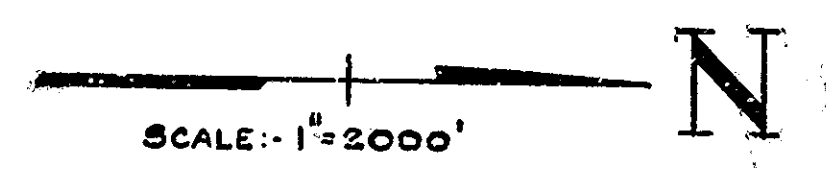
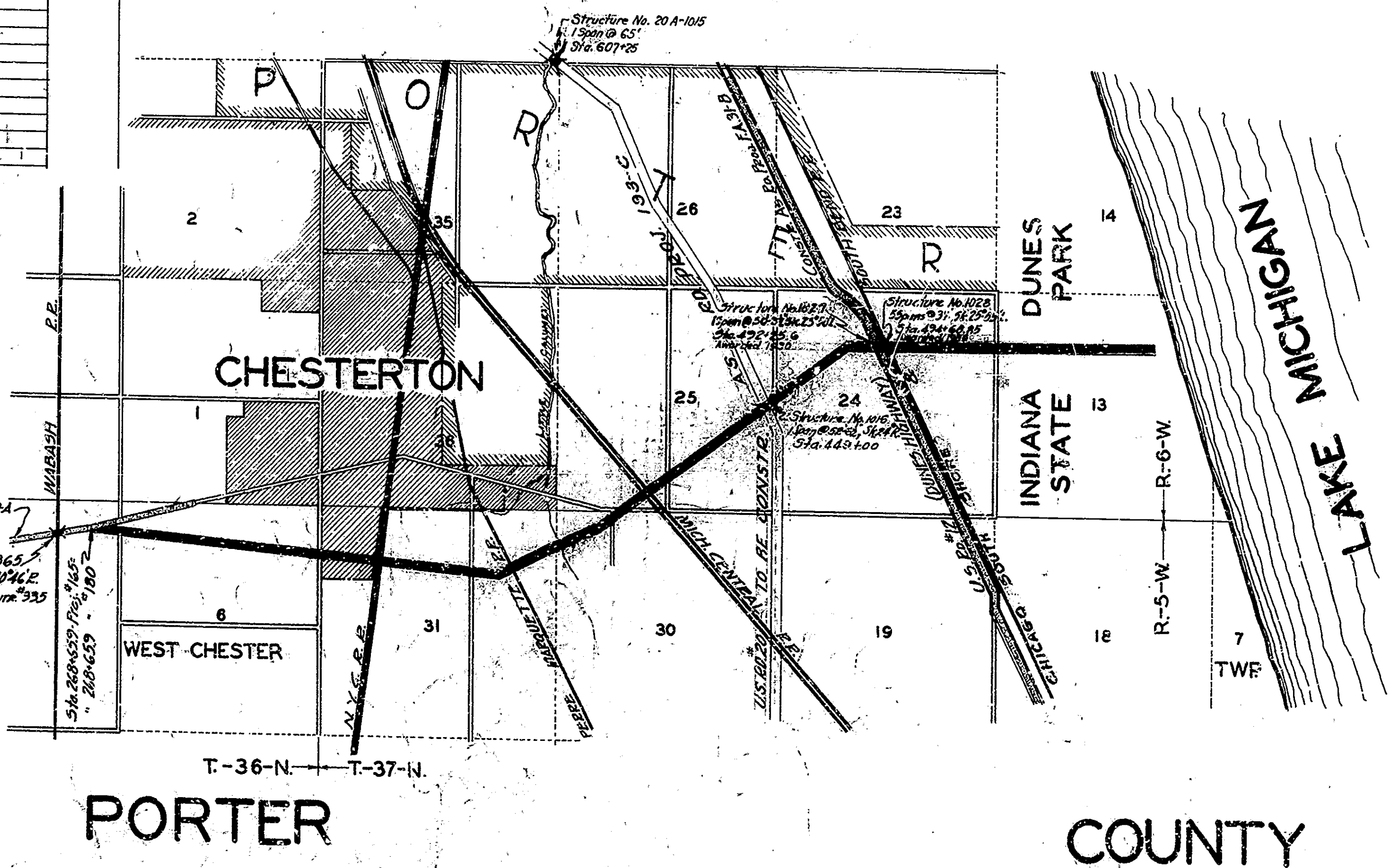
STATE OF INDIANA
STATE HIGHWAY COMMISSION

PLANS FOR BRIDGES OF SPANS OVER 20 FEET
FOR PROPOSED
STATE HIGHWAY

PROJECT NO. 49 SECTION A
LOCATION OF STRUCTURE NO. 1028 IN PORTER COUNTY, WEST CHESTER TOWNSHIP, IN SECTION 24 T-37-N-R-6-W, OVER GHICAGO SOUTH SHORE & SOUTH BEND R.R.
LOCATION OF STRUCTURE NO. 1027 IN PORTER COUNTY, WEST CHESTER TOWNSHIP, NEAR CENTER OF WEST HALF OF SECTION 24 T-37-N-R-6-W, OVER STATE ROAD NO. 12.
LOCATION OF STRUCTURE NO. 1016 IN PORTER COUNTY, WEST CHESTER TOWNSHIP, NEAR THE NORTHWEST CORNER OF THE EAST HALF OF SECTION 25, T. 37 N., R. 6 W., OVER STATE ROAD #20

BRIDGES OVER 20 FT. SPAN			
NO. ROAD	SPANS	TOTAL LENGTH	EST. COST
7	42	1,195	1,497

SECTION A

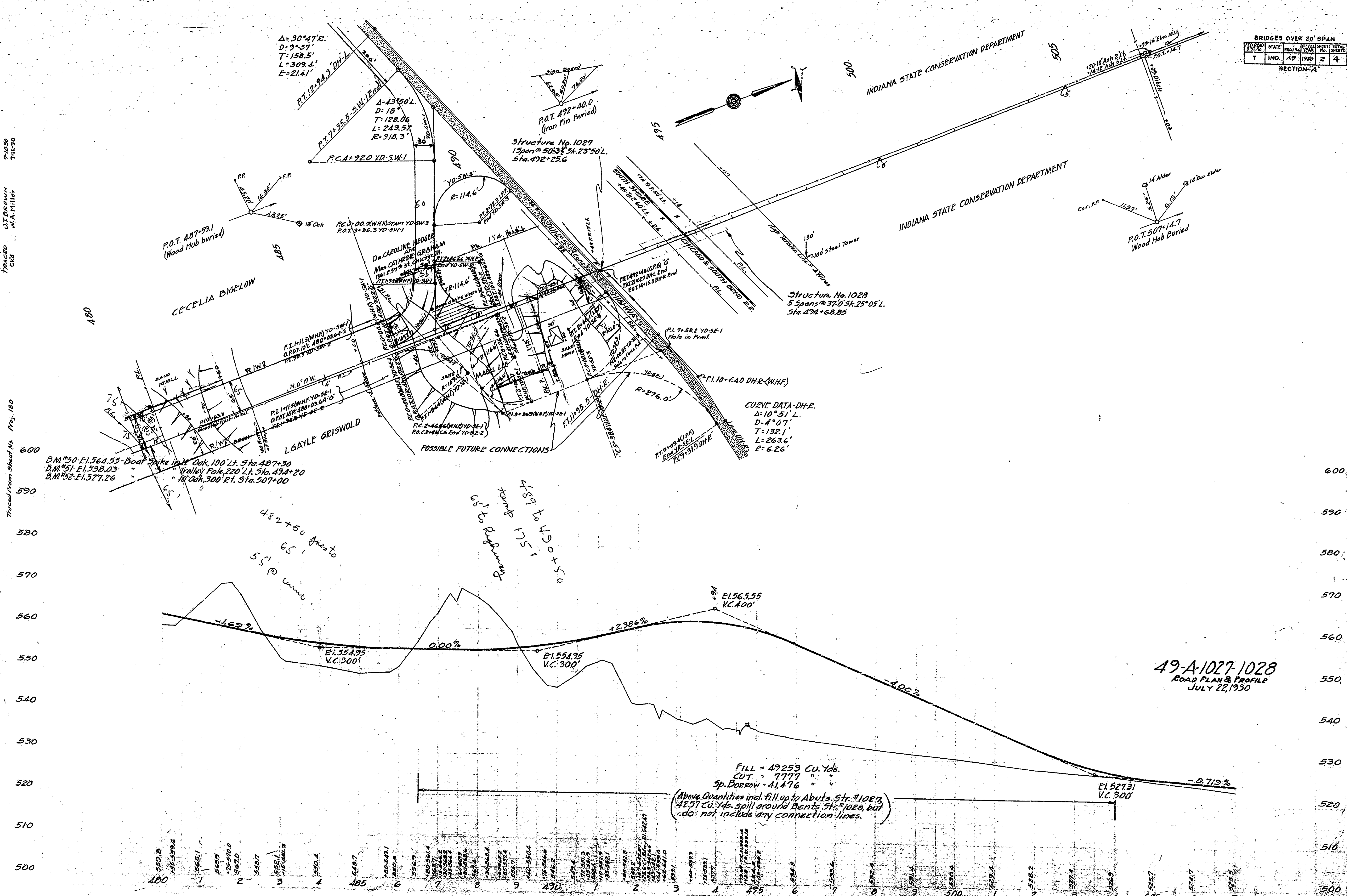


FOR STRUCTURE 1016
APPROVED JANUARY 17, 1931
J.P. Brown
DIRECTOR - INDIANA STATE HIGHWAY COMMISSION
APPROVED JANUARY 17, 1931
W.J. Little
CHIEF ENGINEER - INDIANA STATE HIGHWAY COMMISSION
FOR DETAIL PLANS STRUCTURES 1027 & 1028
APPROVED NOVEMBER 9, 1930
J.P. Brown
DIRECTOR - INDIANA STATE HIGHWAY COMMISSION
APPROVED NOVEMBER 9, 1930
W.J. Little
CHIEF ENGINEER - INDIANA STATE HIGHWAY COMMISSION
FOR PRELIMINARY PLANS STRUCTURE 1028
APPROVED JULY 22, 1930
J.P. Brown
DIRECTOR - INDIANA STATE HIGHWAY COMMISSION
APPROVED JULY 22, 1930
W.J. Little
CHIEF ENGINEER - INDIANA STATE HIGHWAY COMMISSION

INDIANA STATE HIGHWAY STANDARD
BRIDGE SPECIFICATIONS, 1922 TO BE
USED WITH THESE PLANS.

BRIDGES OVER 20' SPAN					
FED. ROAD DIST. NO.	STATE	PROJECT YEAR	SHEET NO.	TOTAL SHEETS	
T	IND.	29	1990	4	

SECTION - A



49-A-1027-1028
ROAD PLAN & PROFILE
JULY 22, 1930

TRACED
 UTBROWN
 M.A. MILLER
 7-10-30
 7-11-30
 TRACED
 M.A. MILLER
 7-10-30
 7-11-30

Traced from Sheet No. Proj. 180
 7-10-30
 7-11-30

500

500

540

540

580

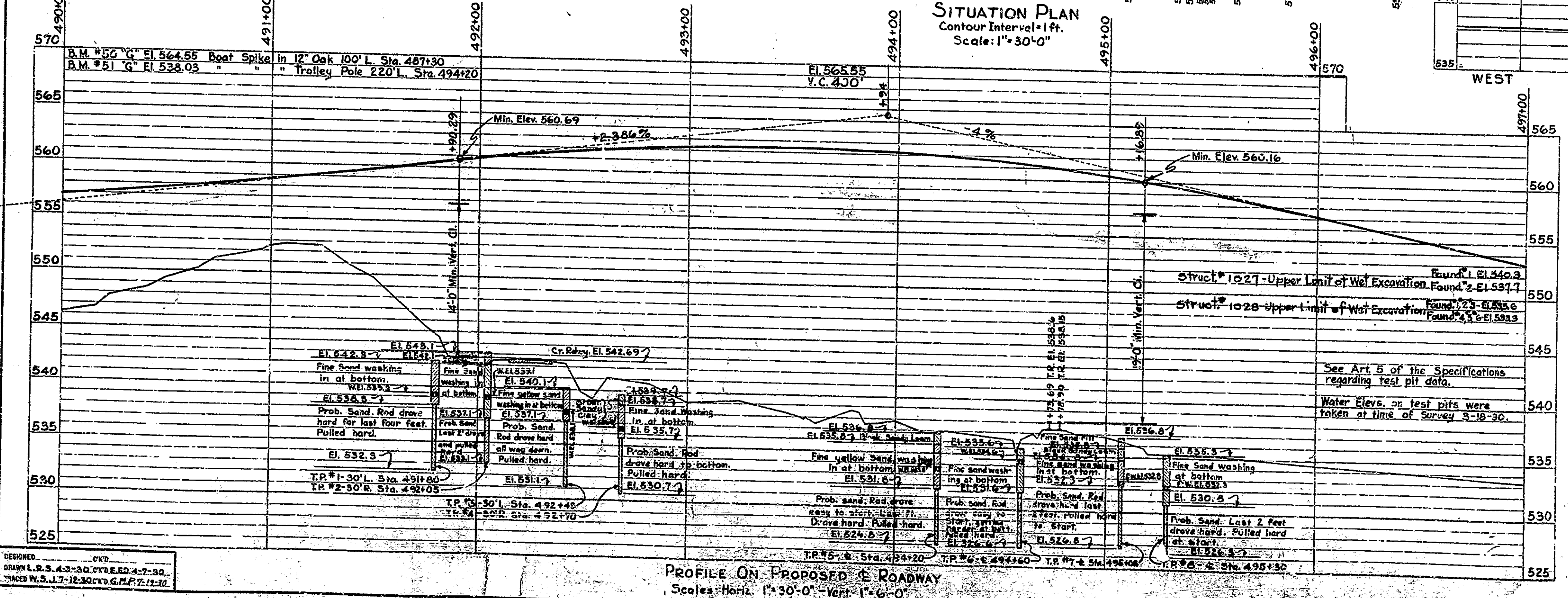
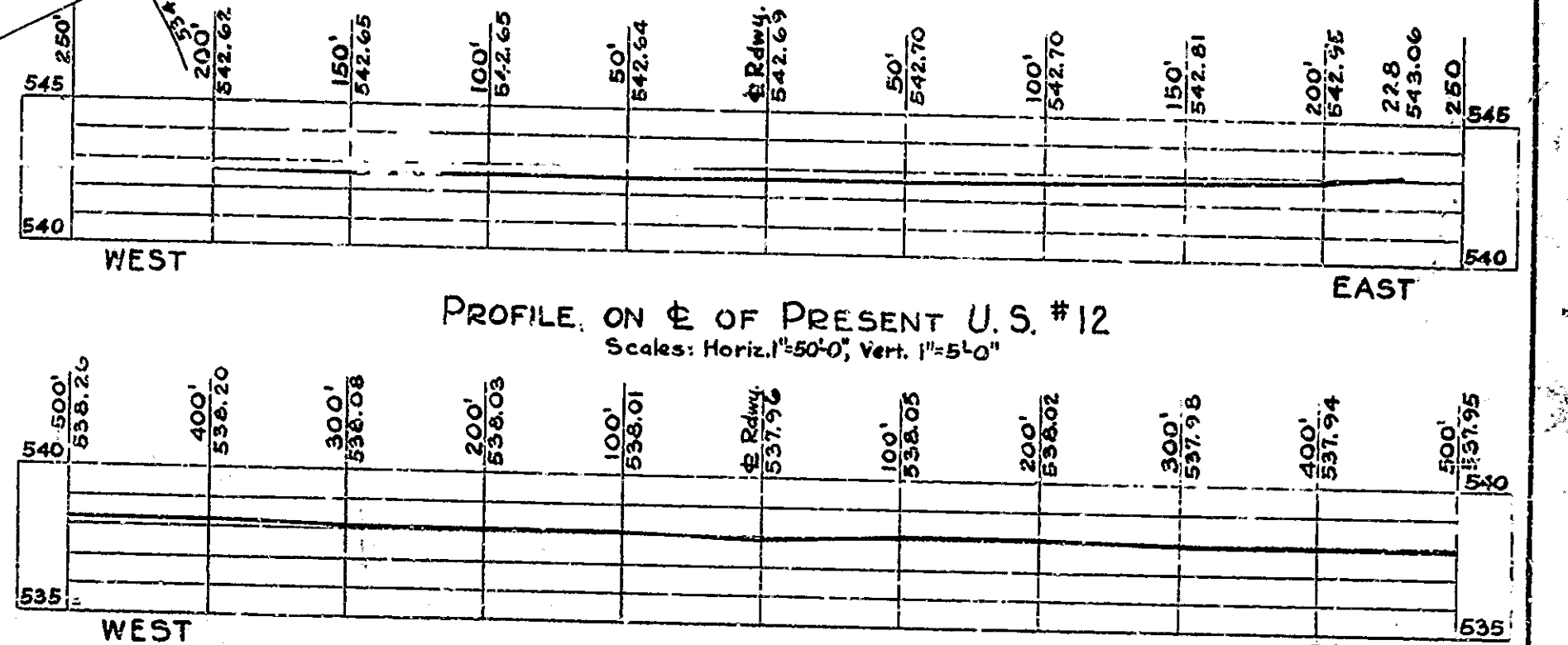
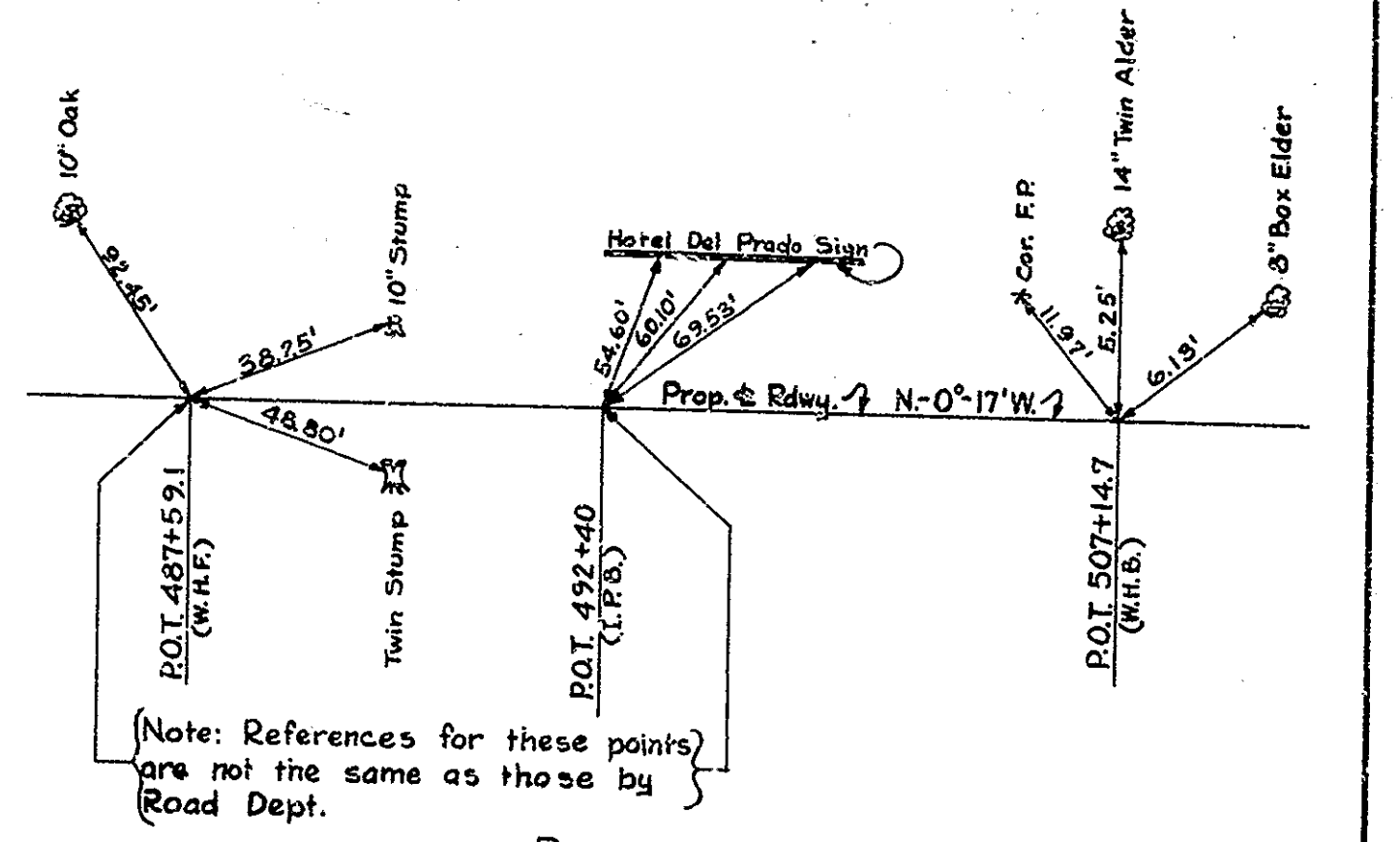
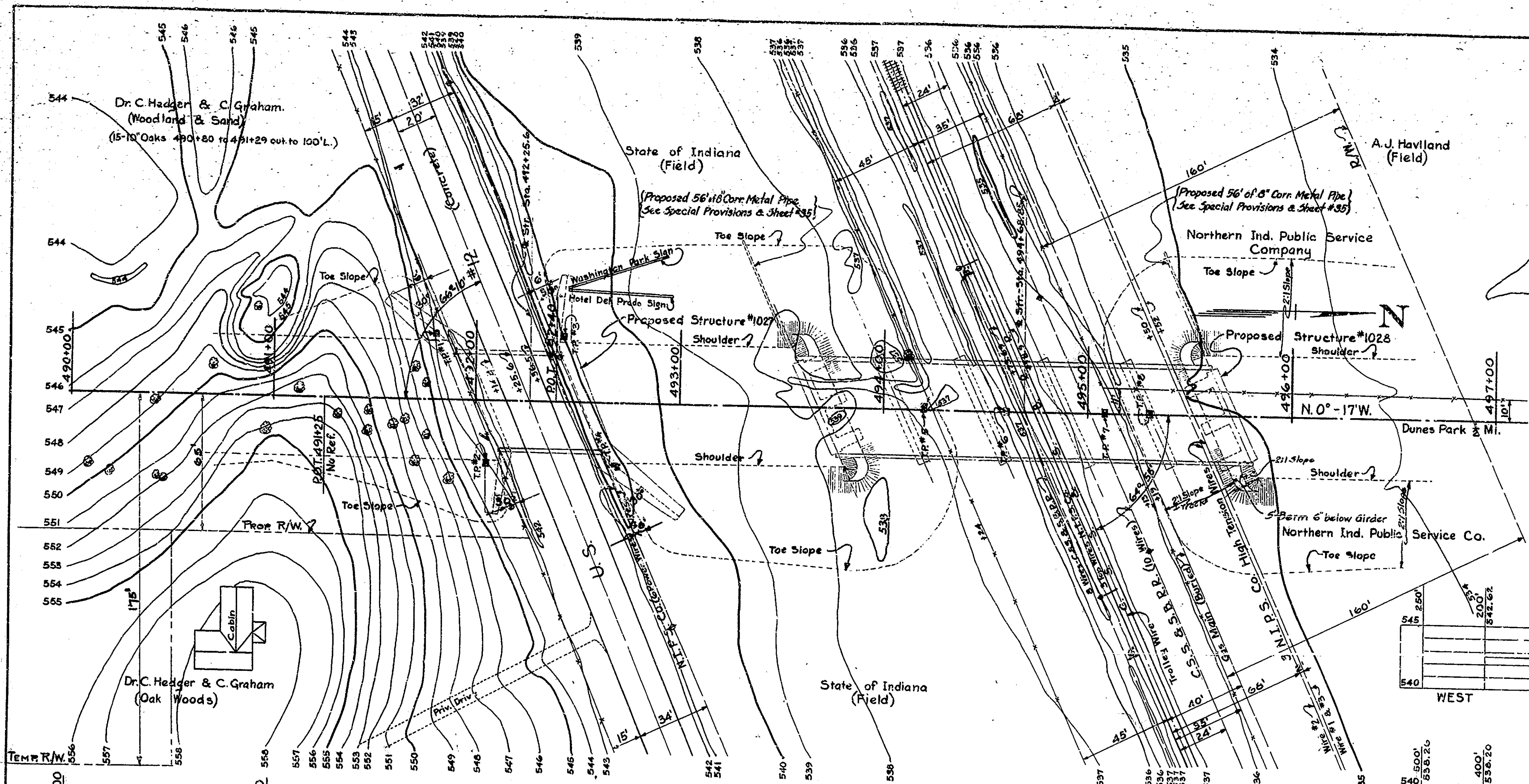
580

600

600

BRIDGES OVER 20' SPAN					
FED. PROJ. DIST. NO.	STATE	FED. PROJ. YEAR	TOTAL SHEETS	CURRENT SHEET NO.	TOTAL SHEETS
7	IND.	49	1930	3	35

SECTION - A



NOTE: Str. No. 1027 Over U.S. Highway #12 is Str. No. on Road Proj. 180, Line G. Str. No. 1028 Over C.S.S. & S.B.R.R. is Str. No. on Road Proj. 130 Line G. See Sheet No. for Grade Line, Bench Marks and References.

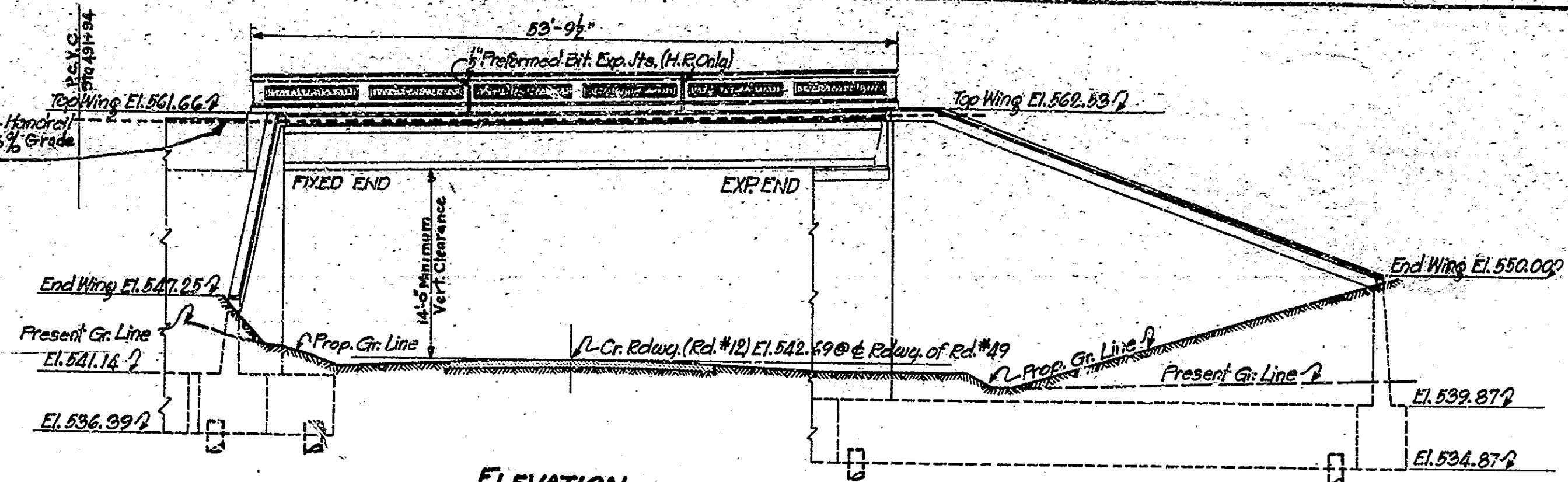
LAYOUT
REINFORCED CONCRETE BRIDGE
 1 SPAN - 50'-3" SKEW 23° 50' L (STR. 1027)
 5 SPANS - 37'-0" SKEW 25° 05' L (STR. 1027)
 OVER U.S. HIGHWAY NO. 12 (STR. 1027)
 OVER C.S.S. & S.B.R.R. (STR. 1028)
 44'-0" ROADWAY
 ON STATE ROAD - 49-A
INDIANA STATE HIGHWAY COMMISSION
 PORTER COUNTY
 SCALE: - AS NOTED
 JULY 22, 1930
 RECOMMENDED FOR APPROVAL: *Fred Kellam*
 ASSIST. CHIEF ENGINEER IN CHARGE OF STRUCTURES
 PROJECT: 49
 SECTION: A
 DRAWING: C-1 OF G
 STATION: 492+25.6 (STR. 1027)
 494+68.85 (STR. 1028)
 STRUCTURE NO. 1028
 BRIDGE CONTRACT NO. 374

DESIGNED BY: C.V.P.
 DRAWN BY: L.S.A. 3-30-C.V.P. E.S.D. 3-7-30.
 CHECKED BY: W.S.J. 7-12-30 C.V.P. G.P.P. 7-12-30

FIELD NOTES: Book Dr. 347, pp. 45-86

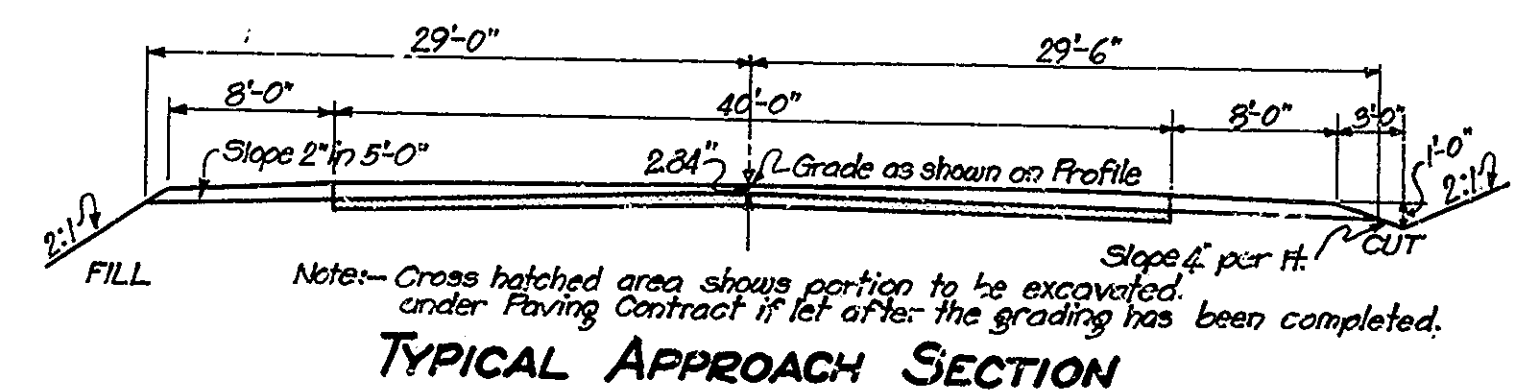
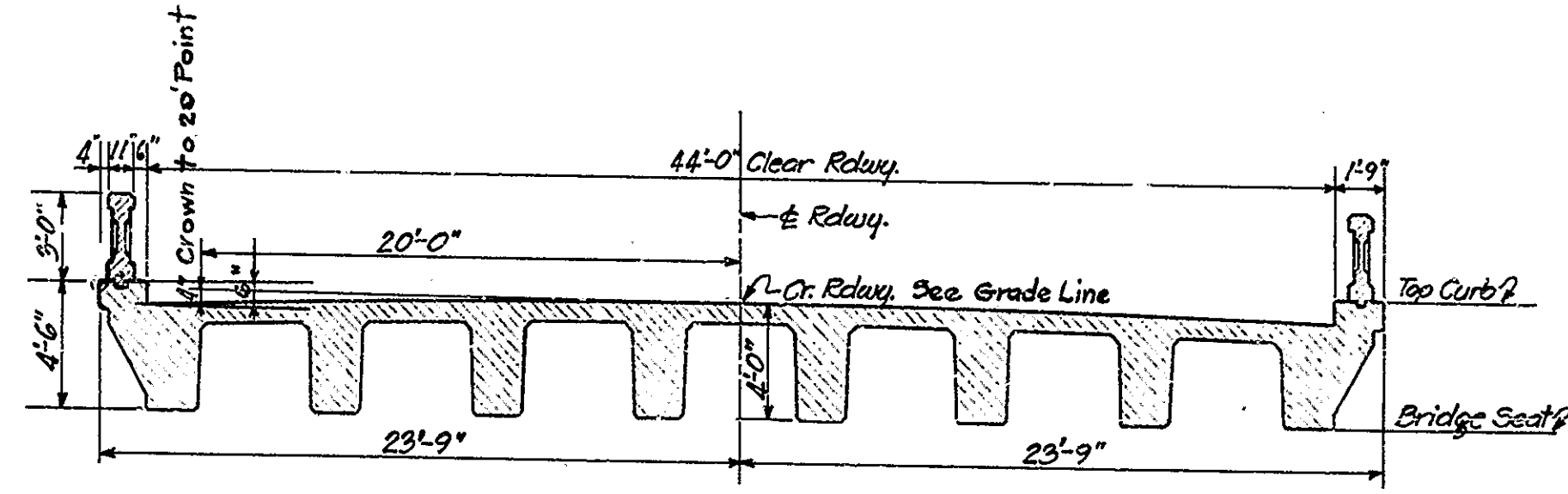
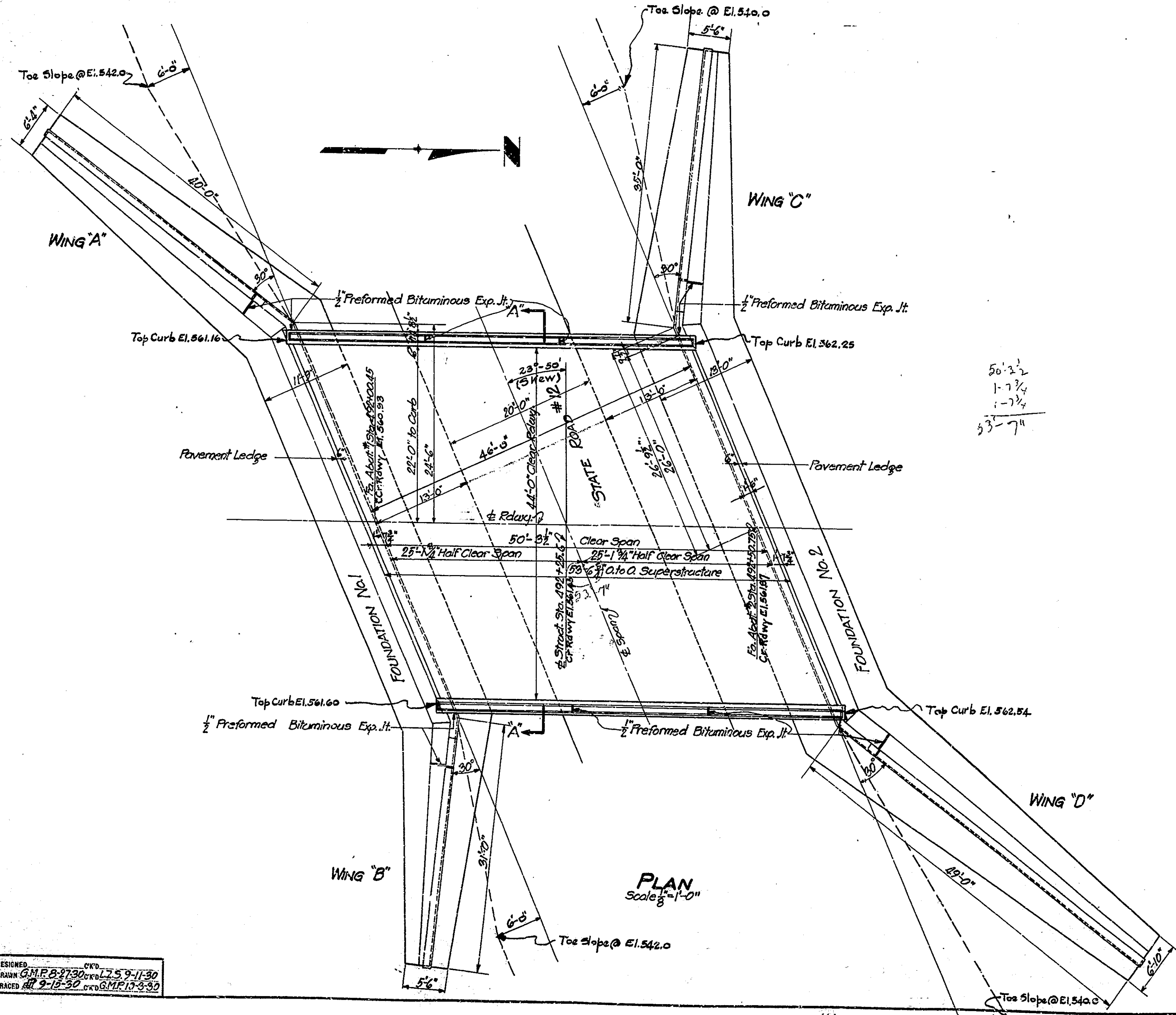
BRIDGES OVER 20' SPAN				
DESIGN DIST. NO.	STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
7	IND.	49	1981	35

Notes:-
Crown Roadway Curbs - Handrail to Conform to +2.38% Grade and 400' V.C.



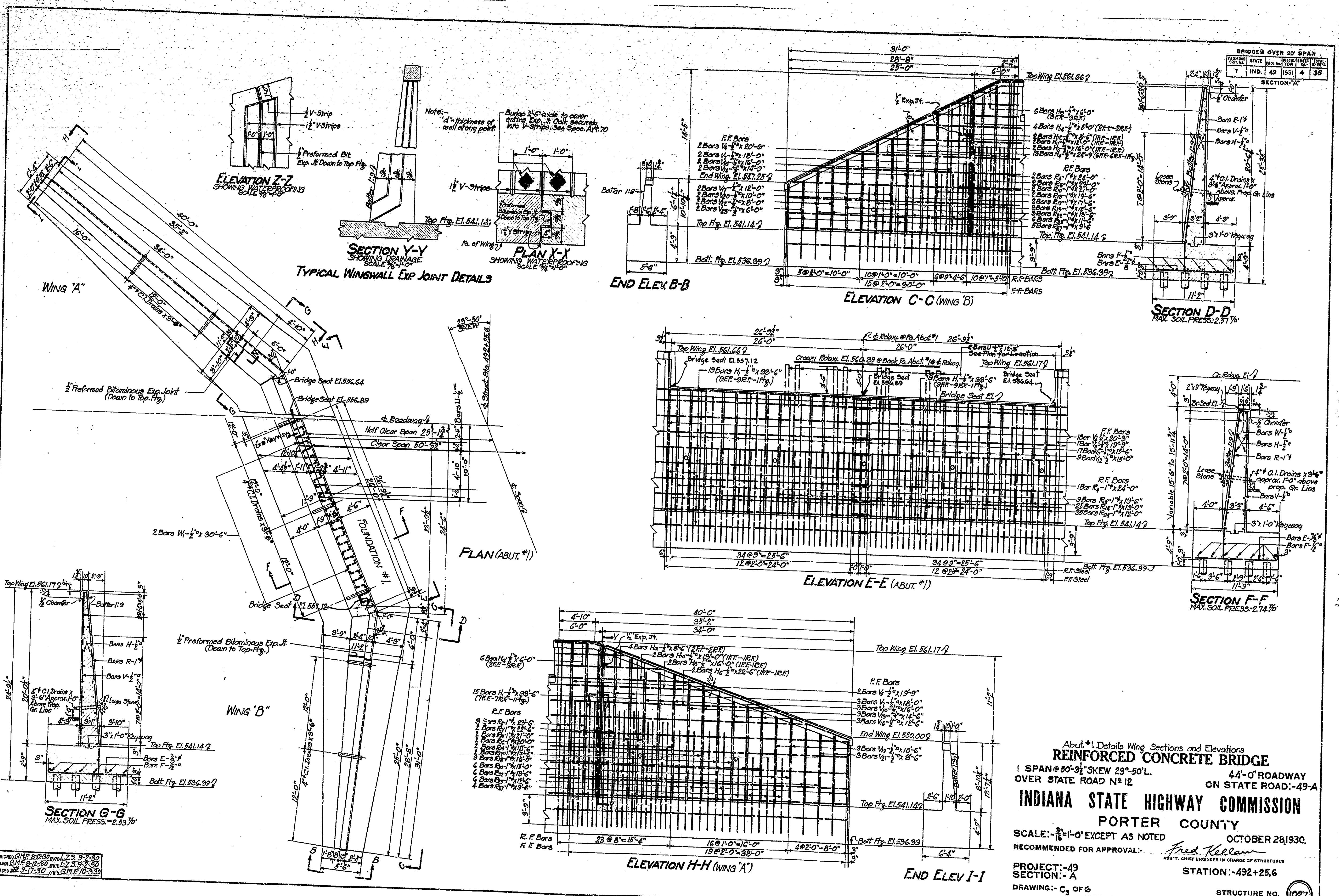
GENERAL NOTES

There is no structure at this location at present. Depth of footings to be extended if found necessary. See Art. 113 of Supplement. All concrete in footings, wing walls and abutments to be Class "E". All concrete in superstructure below top of curb to be Class "D". All concrete in handrail above top of curb to be Class "F". All reinforcing steel shall be embedded 3" in substructure and 2" in superstructure unless otherwise noted. Wing walls and abutments to be waterproofed in accordance with specifications. If piles are required, they shall have bearing value as shown on Draw. C₅ and the length shall be determined in accordance with Art. 301 of Supplement. Bevel forms 1/4" on under side of all copings. See detail of handrail. Chamfer all exposed edges 3/4" except the copings and handrail. Contractor is required to have a two bag concrete mixer for the construction of this structure. See Special Provisions. Approaches to be graded. See Special Provisions. See Special Provisions regarding maintaining Traffic on State Road No. 12. Structures 13x14 on Road Proj 180-A to be included in this contract. See Special Provisions. Grading of Road Connections YD&W, SW, SW₂ included in this Contract. See Special Provisions. See Special Provisions regarding Treated Timber Piles.

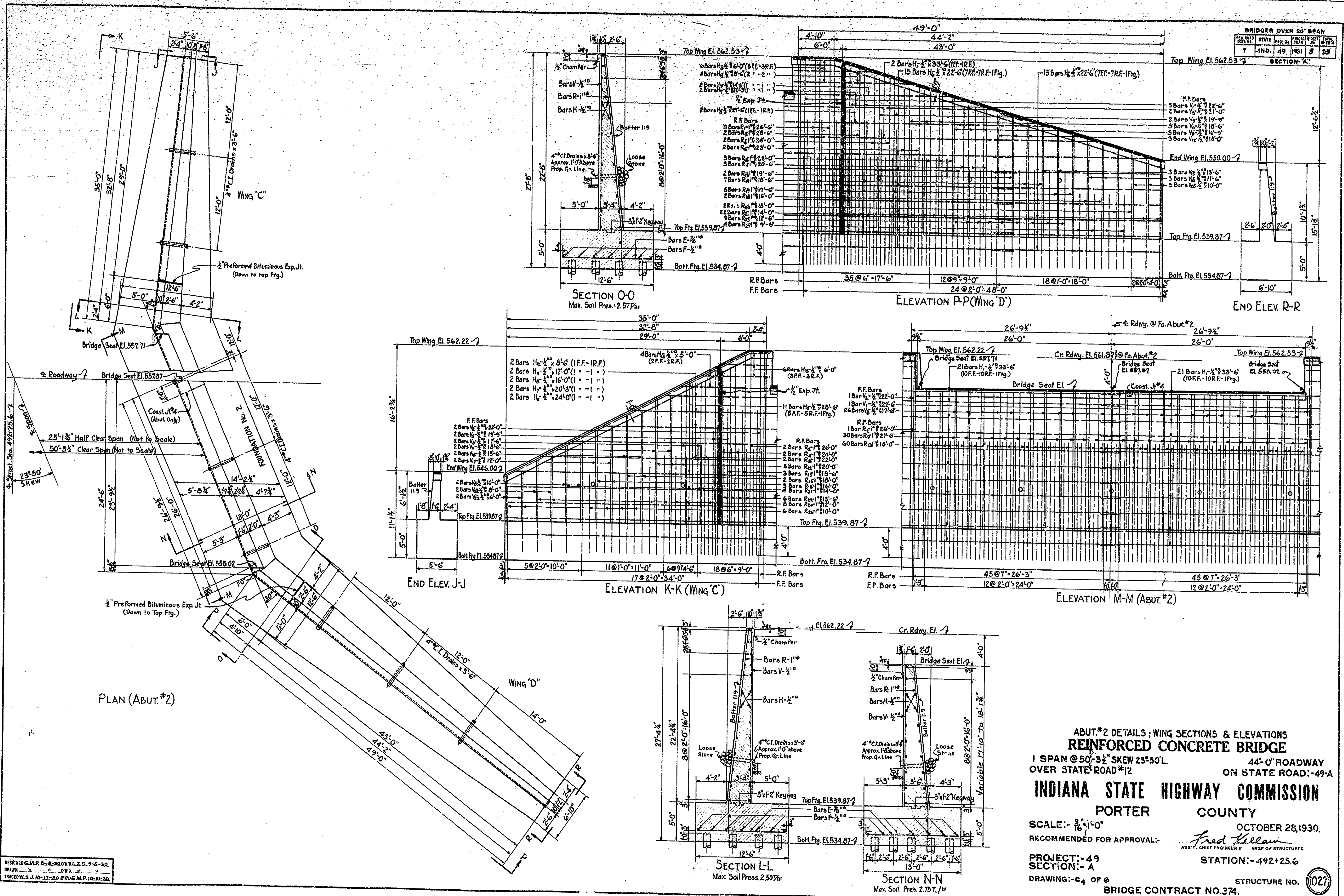


GENERAL PLAN
REINFORCED CONCRETE BRIDGE
1 SPAN @ 50'-3 1/2" SKEW 23°-50'L. 44'-0" ROADWAY
OVER STATE ROAD NO. 12 ON STATE ROAD -49-A
INDIANA STATE HIGHWAY COMMISSION
PORTER COUNTY
SCALE: 1/8" = 1'-0" EXCEPT AS NOTED OCTOBER 28, 1930.
RECOMMENDED FOR APPROVAL: Fred Kellam
ASS'T. CHIEF ENGINEER IN CHARGE OF STRUCTURES
PROJECT: -49 STATION: -492+25.6
SECTION: -A DRAWING: - C₂ OF 6 STRUCTURE NO. (027)
BRIDGE CONTRACT NO. 374.

DESIGNED: G.M.P. B-2730
CHECKED: G.M.P. B-2730
DATE: 9-18-30



Abut. #1 Details Wing Sections and Elevations
REINFORCED CONCRETE BRIDGE
 1 SPAN @ 50'-3 1/2" SKEW 23°-50' L.
 OVER STATE ROAD N° 12
 44'-0" ROADWAY
 ON STATE ROAD -49-A
INDIANA STATE HIGHWAY COMMISSION
 PORTER COUNTY
 SCALE: - 3/16" = 1'-0" EXCEPT AS NOTED
 RECOMMENDED FOR APPROVAL: *Fred Keenan*
 PROJECT: - 49
 SECTION: - A
 DRAWING: - C₃ OF 6
 STATION: - 492+25.6
 OCTOBER 28, 1930.
 STRUCTURE NO. 1027
 BRIDGE CONTRACT NO. 374.

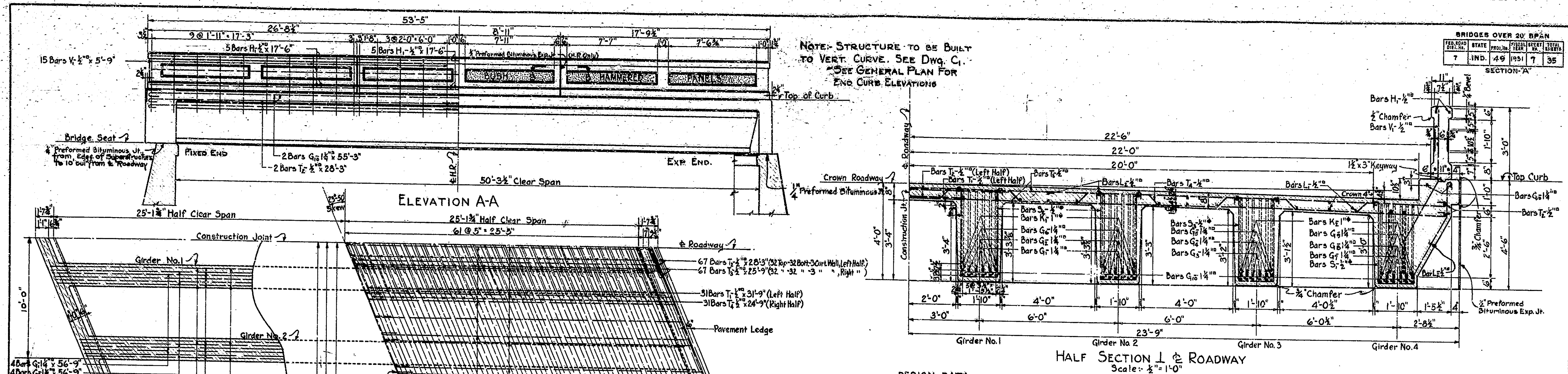


BRIDGE OVER 20' SPAN				
SPAN	STATE	YEAR	PROJECT	TOTAL AREA
7	IND.	49	191	5

ABUT.#2 DETAILS; WING SECTIONS & ELEVATIONS
REINFORCED CONCRETE BRIDGE
 1 SPAN @ 50'-3 1/2' SKEW 23°-50'L
 OVER STATE ROAD #12
 44'-0" ROADWAY
 ON STATE ROAD #49-A

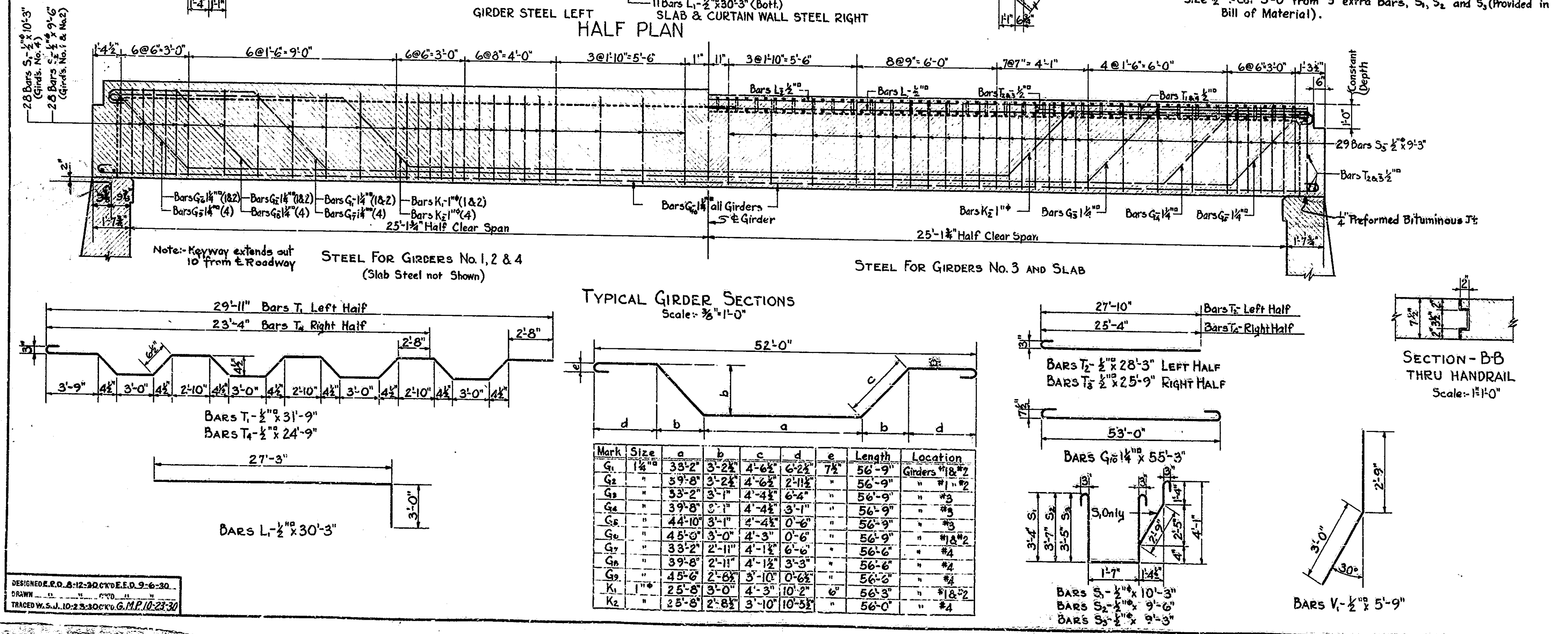
INDIANA STATE HIGHWAY COMMISSION
 PORTER COUNTY
 OCTOBER 28, 1930.
 SCALE: 3/16" = 1'-0"
 RECOMMENDED FOR APPROVAL: *Fred Kellaw*
 PROJECT: 49
 SECTION: A
 DRAWING: C4 OF 6
 STATION: 492+25.6
 STRUCTURE NO. 1027
 BRIDGE CONTRACT NO. 374.

DESIGNED BY: J. R. ...
 DRAWN BY: ...
 CHECKED BY: ...



DESIGN DATA:-
 Unit Stresses - $f_s = 16,000 \text{ psi}$, $f_c = 800 \text{ psi}$
 Live Load H-20 without impact with distribution of loads in accordance with A.A.S.H.O. Specification dated June 1, 1925, (Revised 1926)
 Designed to carry a 7" concrete pavement on top of regular slab. Slab designed with $1\frac{1}{2}$ " wearing surface.
 Maximum deflection with maximum live load = $\frac{1}{8}$ "
 Notes:- All dimensions shown on details and bending diagrams for reinforcing bars are measured on ϕ of bars.

BILL OF MATERIALS						
REINFORCING STEEL						
Mark	No. Pcs.	Size	Length	Location	Tot. Length	Weight
Go	1	1 1/4"	15'-6"	Splice bar for 1/4" bar cut for test.	15'-6"	15.0*
G1	8	"	56'-9"	Longt. Girders #1 & #2	454'-0"	454.0*
C1	8	"	56'-9"	" " " #1 & #2	454'-0"	454.0*
G3	4	"	56'-9"	" " " #3	227'-0"	227.0*
G4	4	"	56'-9"	" " " #3	227'-0"	227.0*
G5	4	"	56'-9"	" " " #3	227'-0"	227.0*
G6	8	"	56'-9"	" " " #1 & #2	454'-0"	454.0*
G7	4	"	56'-6"	" " " #4	226'-0"	226.0*
G8	4	"	56'-6"	" " " #4	226'-0"	226.0*
G9	4	"	56'-6"	" " " #4	226'-0"	226.0*
G10	52	5/8"	48 Long. in Girders, 4 Curbs		2873'-0"	2873.0*
Total 1/2" Bars					5609'-0"	2903*
K1	8	1"	13'-0"	Splice bar for 1/2" bar cut for test.	13'-0"	13.0*
K2	8	"	56'-3"	Longt. Girders #1 & #2	450'-0"	450.0*
K3	8	"	56'-0"	" " " #4	448'-0"	448.0*
Total 1" Bars					911'-0"	2432*
H1	3	3/4"	8'-0"	Splice bars for 3/4" bars cut for test.	24'-0"	24.0*
H2	30	"	17'-6"	Horiz. Handrails	525'-0"	525.0*
L1	42	"	30'-3"	Longt. Boff. Slab and Vert. in Curt. Wall.	1270'-6"	1270.6*
L2	46	"	27'-3"	" " " Top	1253'-6"	1253.6*
T1	62	"	31'-9"	Transv. Slab (Left Half)	1968'-6"	1968.6*
T2	140	"	28'-3"	126 Trans. Slab (Left Half) & 28 Corus	3968'-0"	3968.0*
T3	132	"	25'-9"	126 " " (Right Half) & 28 Corus	3399'-0"	3399.0*
T4	62	"	24'-9"	" " " (Right Half)	1534'-6"	1534.6*
V1	60	"	5'-9"	Vert. in H.R.	345'-0"	345.0*
Total 3/4" Bars					14278'-0"	12134*
S1	113	1/2"	10'-3"	Shrups Girders #4. One Addit. sample	1158'-3"	1158.3*
S2	225	"	9'-6"	" #1, #2 One Addit. sample	2137'-6"	2137.6*
S3	117	"	9'-3"	" #3 One Addit. for sample	1082'-3"	1082.3*
Total 1/2" Bars					4378'-0"	2925*
Total Steel					47294'	47294*

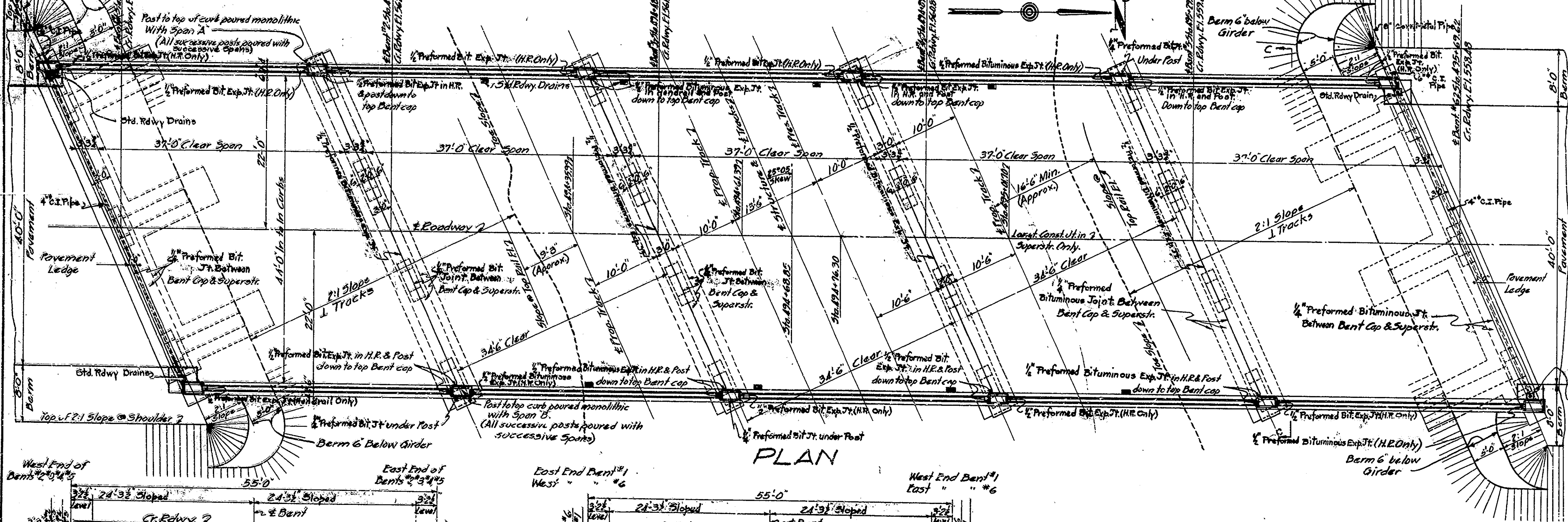
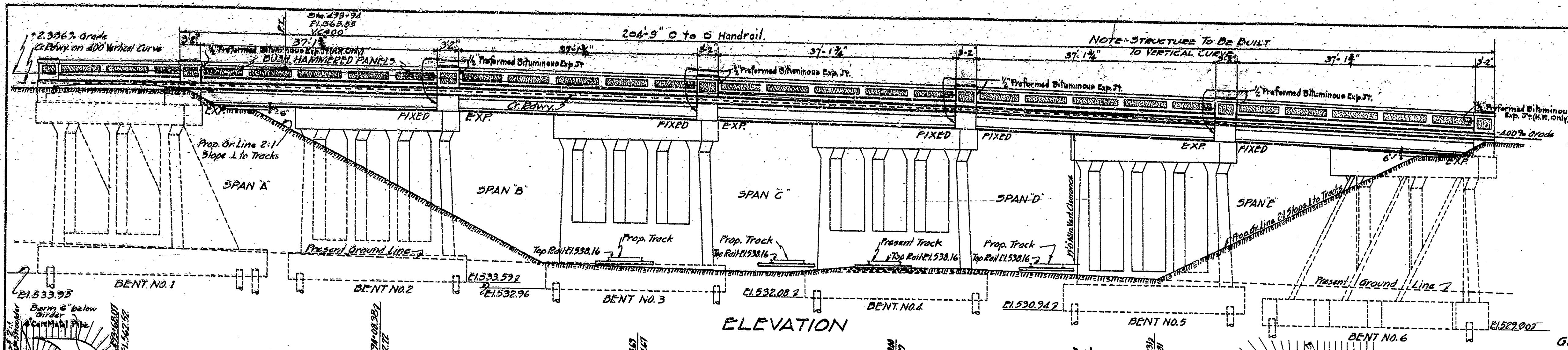


CONCRETE		
Class "D" - Superstructure to Const. Joint		89.0 Cu. Yds.
" " " " " " " "		89.0
Total Class "D"		178.0 "
Class "F" - Handrail (8.8 Cu. Yds.)		106.83 Lin. Ft.

SUPERSTRUCTURE DETAILS
REINFORCED CONCRETE BRIDGE
 1 SPAN @ 50'-3 1/2" SKEW 23° 50' L. 44'-0" ROADWAY
 OVER STATE ROAD #12 ON STATE ROAD -49-A
INDIANA STATE HIGHWAY COMMISSION
PORTER COUNTY
 SCALE: 1/4" = 1'-0" UNLESS NOTED
 RECOMMENDED FOR APPROVAL: *Fred Kelleman* ASST. CHIEF ENGINEER IN CHARGE OF STRUCTURES
 PROJECT: -49 SECTION: -A OCTOBER 28, 1930.
 DRAWING: -C6 OF 8 STATION: -492+25.6 STRUCTURE NO. 1027
 BRIDGE CONTRACT NO. 374

DESIGNED E.O.D. & I-2-30 C.V.O. E.E.D. 9-6-30
 DRAWN W.S.J. I-2-30 C.V.O. G.M.P. 10-23-30
 TRACED W.S.J. I-2-30 C.V.O. G.M.P. 10-23-30

BRIDGES OVER 20' SPAN		FISCAL YEAR		TOTAL SPAN	
7	IND. 49	1931	6	34	
SECTION 'A'					



GENERAL NOTES

There is no structure at this location at present.

Depth of footings to be extended if found necessary; see Art. 113 of Supplement.

All concrete in footings, buttresses and bents to be Class E.

All concrete in superstructure up to top curb E.I. to be Class D.

All concrete in handrails above top of curb E.I. to be Class F.

All reinforcing steel shall be embedded 3' in substructure and 2' in superstructure unless otherwise noted.

If piles are required they shall have bearing value as shown on Drwg. Gen. and the length shall be determined in accordance with Art. 301 of the Supplement.

12" roadway drains to be placed as shown on Drwg. Ce. See Supplement to Specifications. Drates to be wired down securely.

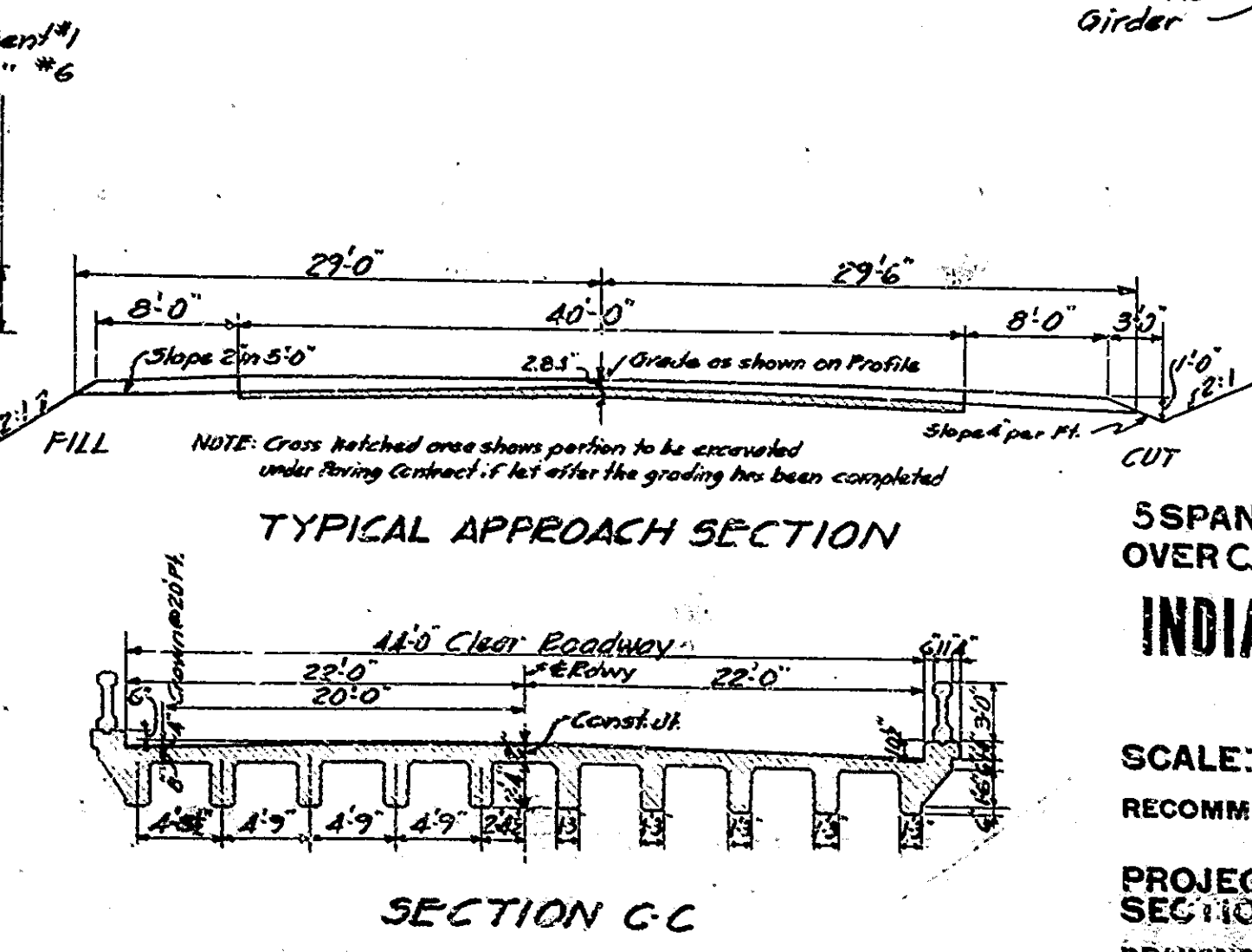
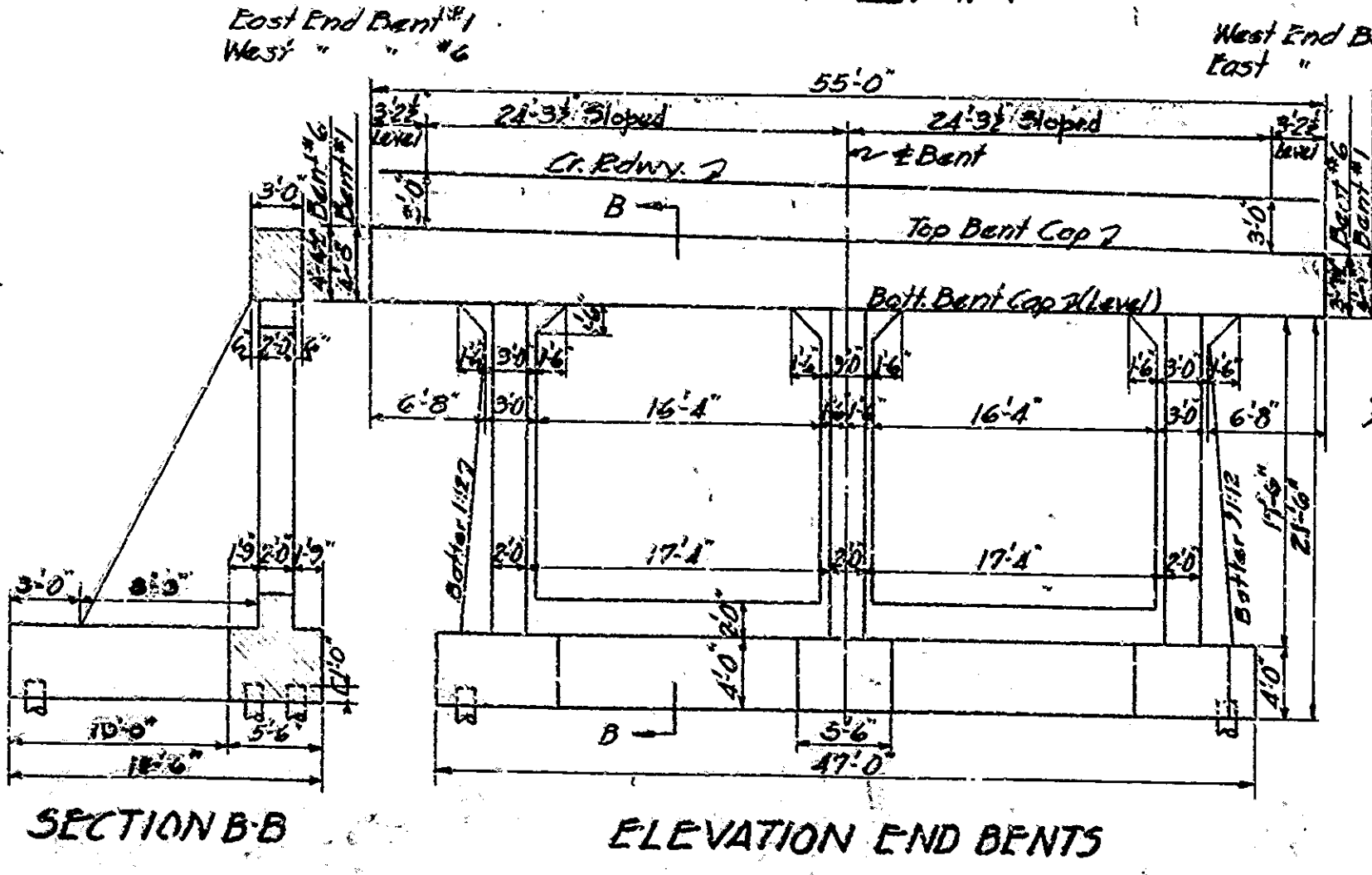
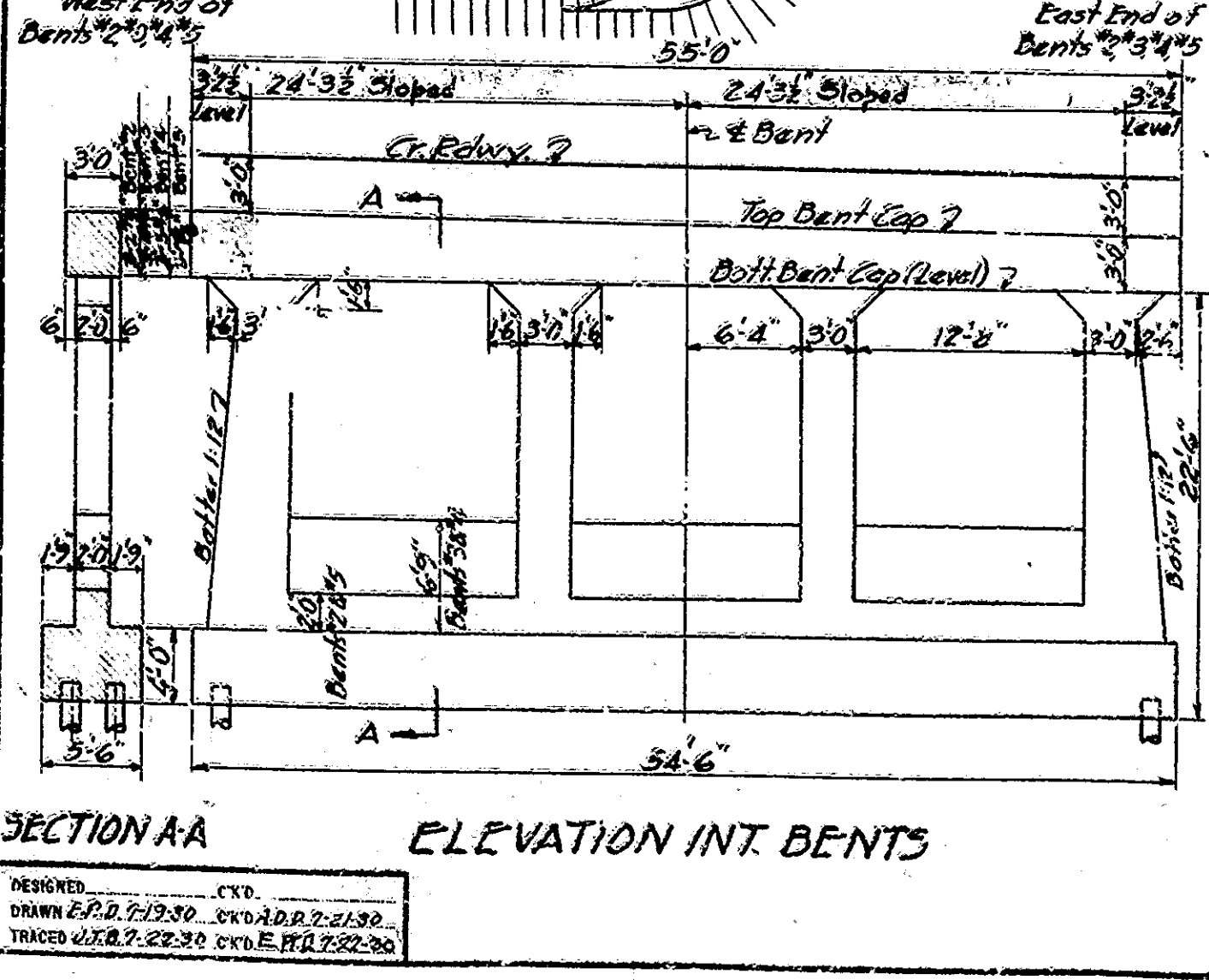
Bevel forms 4" on under side of all copings. See detail of handrail.

Chamfer all exposed edges 3/8" except the copings and handrail.

Approaches to be graded. See Special Provisions.

Std. Roadway Drains to be definitely located by Engineer.

See Special Provisions regarding End Drains and 6" Corr. Metal Pipe.



GENERAL PLAN
REINFORCED CONCRETE BRIDGE

5 SPANS: 37'-0" SKEW 25° 05'L. 44'-0" ROADWAY
OVER C.S. & S.B.R.R. ON STATE ROAD: 49-A

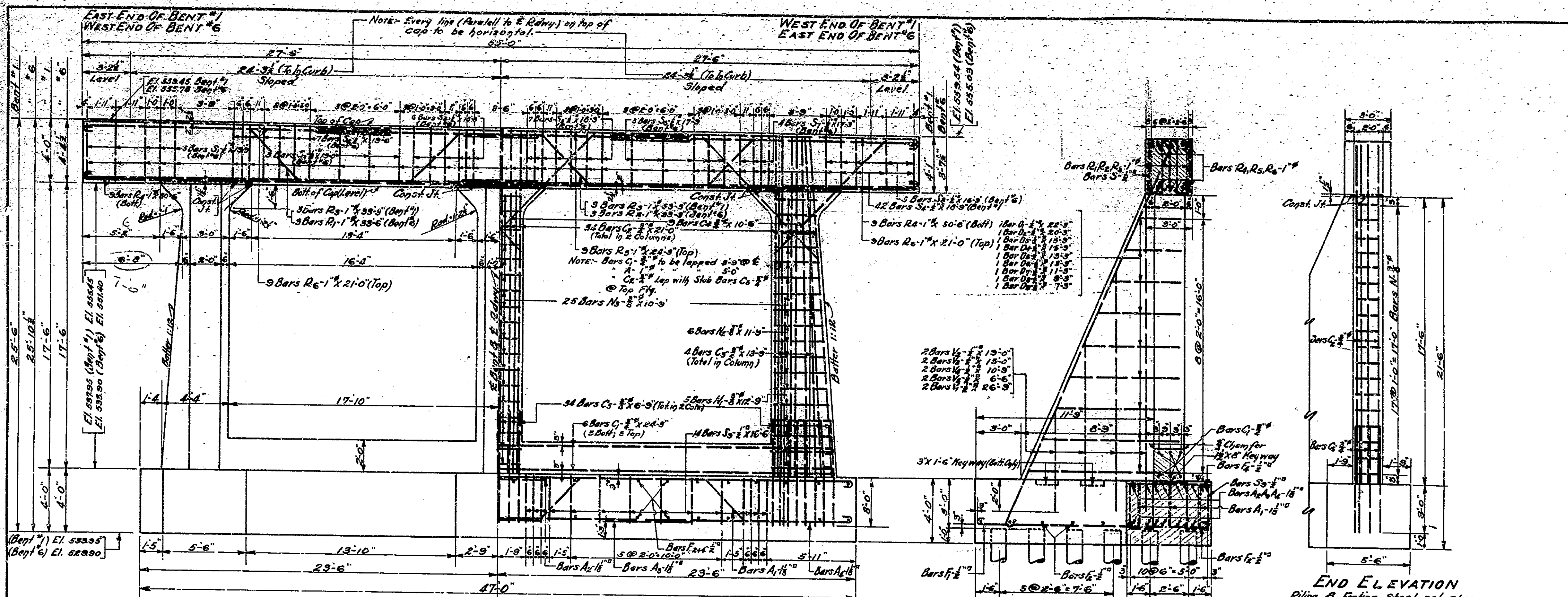
INDIANA STATE HIGHWAY COMMISSION
PORTER COUNTY

SCALE: 1" = 1'-0"
RECOMMENDED FOR APPROVAL: *Fred Kellaw* JULY 22, 1930
ASST. CHIEF ENGINEER IN CHARGE OF STRUCTURES

PROJECT: 49
SECTION: A
DRAWING: C2 OF 6
BRIDGE CONTRACT NO. 374

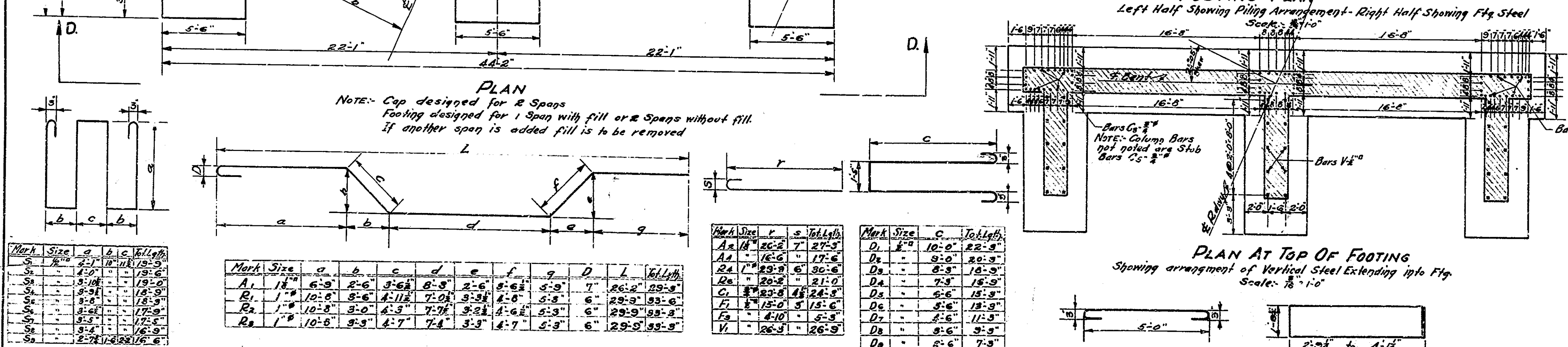
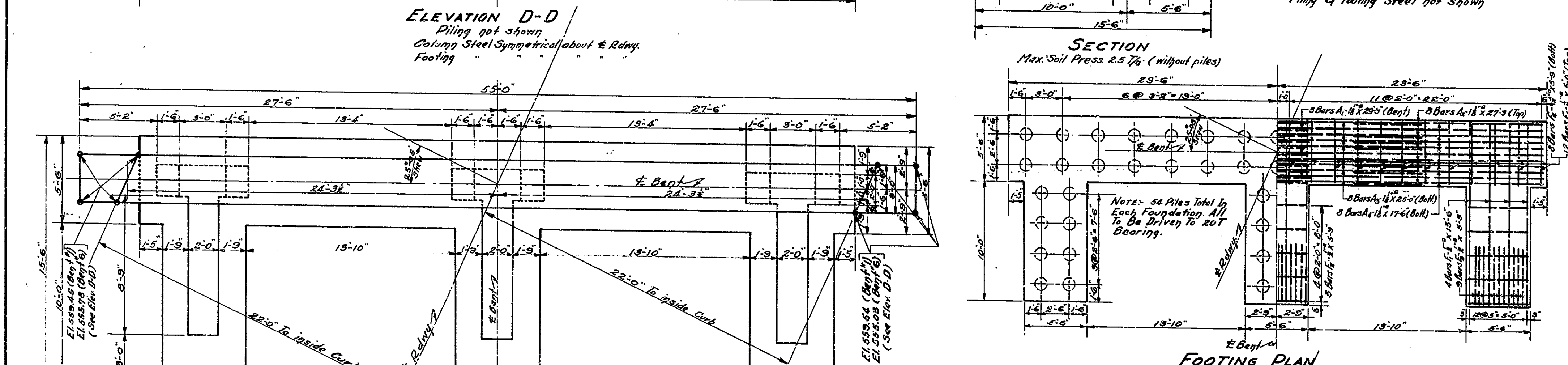
STATION: 494+68.85
STRUCTURE NO. 1026

Rev. 11-3-30 For Final Detail
Rev. 11-28-30 General Notes, End Drain Details.



BILL OF MATERIALS

REINFORCING STEEL				Total Length	Weight
Mark	No. Pos.	Size	Length		
Ao	1	1 1/2"	14'-6"	14'-6"	
A1	12	2 1/2"	29'-3"	351'-0"	
A2	32	2 1/2"	27'-9"	872'-0"	
A3	16	2 1/2"	25'-0"	400'-0"	
A4	32	1 1/2"	17'-6"	560'-0"	
Total 1 1/2" Bars				2197'-6"	9456#
R1	1	1"	13'-0"	13'-0"	
R2	3	3/8"	33'-3"	100'-6"	
R3	6	3/8"	33'-3"	199'-6"	
R4	36	3/8"	30'-6"	1098'-0"	
Ro	18	3/8"	24'-3"	436'-6"	
Ra	36	3/8"	21'-0"	756'-0"	
Total 1" Bars				2709'-9"	7210#
C1	24	3/8"	24'-9"	592'-0"	
C2	104	3/8"	21'-0"	2184'-0"	
C3	16	3/8"	13'-9"	220'-0"	
C4	36	3/8"	10'-6"	378'-0"	
C5	104	3/8"	6'-9"	708'-0"	
Total 3/8" Bars				4097'-6"	6154#
E1	3	3/8"	8'-0"	24'-0"	
E2	24	3/8"	15'-6"	372'-0"	
E3	62	3/8"	5'-9"	356'-6"	
E4	64	3/8"	5'-3"	288'-6"	
E5	48	3/8"	5'-0"	240'-0"	
S1	5	3/8"	19'-9"	98'-3"	
S2	7	3/8"	19'-6"	136'-6"	
S3	3	3/8"	19'-0"	57'-0"	
S4	48	3/8"	18'-9"	900'-0"	
S5	7	3/8"	18'-3"	127'-9"	
S6	5	3/8"	17'-9"	88'-9"	
S7	4	3/8"	17'-3"	69'-0"	
S8	5	3/8"	16'-9"	83'-9"	
S9	56	3/8"	16'-6"	924'-0"	
D1	6	3/8"	22'-3"	133'-6"	
D2	6	3/8"	20'-9"	121'-6"	
D3	6	3/8"	18'-3"	112'-6"	
D4	6	3/8"	16'-9"	100'-6"	
D5	6	3/8"	15'-3"	91'-6"	
D6	6	3/8"	13'-9"	79'-6"	
D7	6	3/8"	11'-9"	67'-6"	
D8	6	3/8"	9'-9"	55'-6"	
D9	5	3/8"	7'-8"	43'-6"	
V1	12	3/8"	26'-9"	321'-0"	
V2	12	3/8"	19'-0"	228'-0"	
V3	12	3/8"	15'-0"	180'-0"	
V4	12	3/8"	10'-9"	129'-0"	
V5	12	3/8"	6'-6"	78'-0"	
Total 3/8" Bars				5503'-0"	4678#
No	3	3/8"	7'-0"	21'-0"	
U	20	3/8"	12'-9"	258'-0"	
N1	24	3/8"	11'-9"	282'-0"	
N2	64	3/8"	10'-9"	688'-0"	
Total 3/8" Bars				1246'-0"	468#
TOTAL STEEL				27974'	27974#
CONCRETE				Bent #1	Bent #6
Class E - Footings				630 Cu Yds	630 Cu Yds
Ftg. for Both Cap Const. Jt.				365 "	365 "
Cap				24.5 "	24.5 "
Total Class E				1240 "	1240 "
MISCELLANEOUS				108 Treated Timber Piles @ Approx. 20'-0" (54 ea. Foundation) = 2,160 Lb Ft	

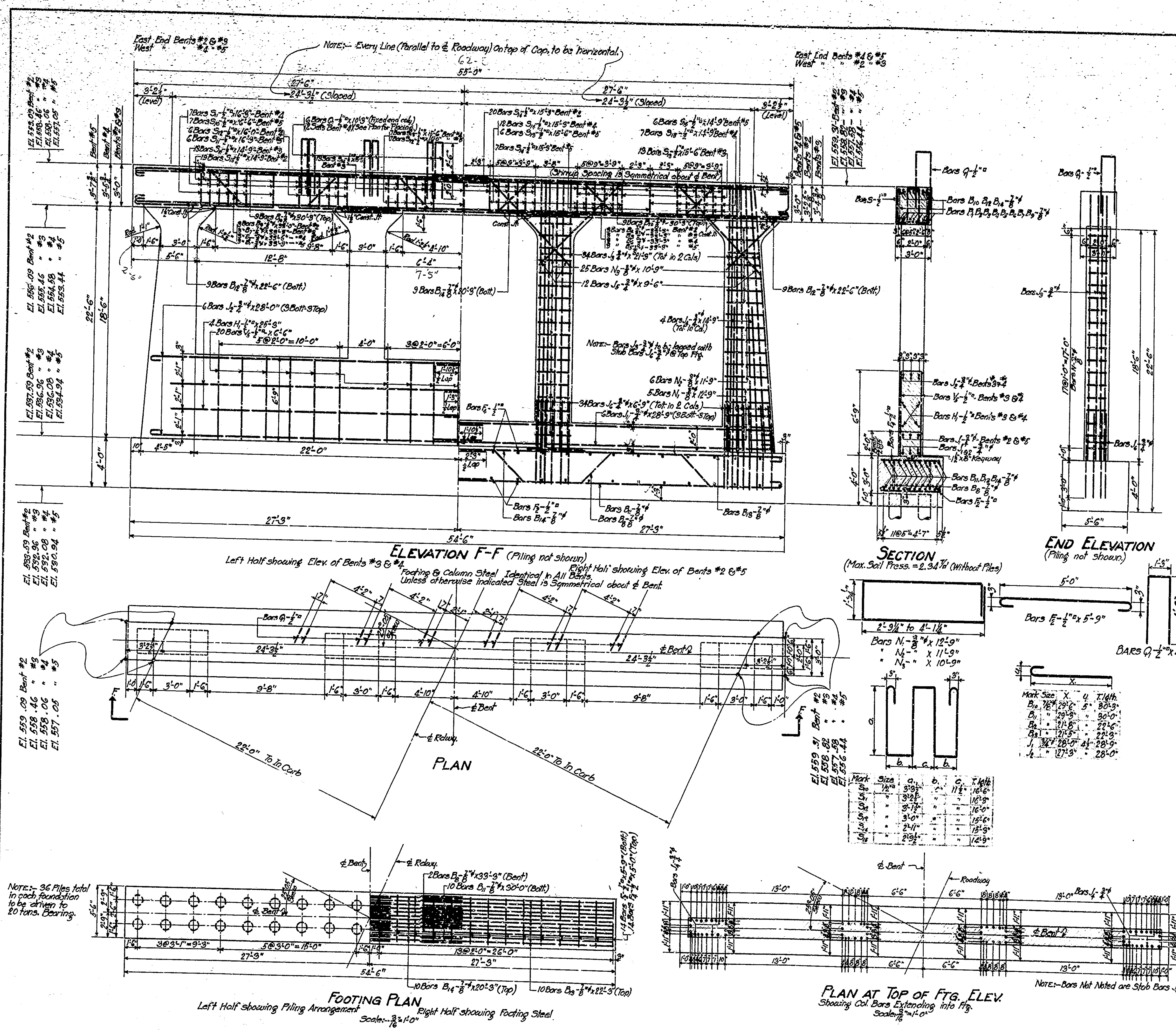


Mark	Size	a	b	c	d	e	f	g	h	l	l ₁	l ₂
S1	2 1/2"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"
S2	2 1/2"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"
S3	2 1/2"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"
S4	2 1/2"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"
S5	2 1/2"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"
S6	2 1/2"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"
S7	2 1/2"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"
S8	2 1/2"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"
S9	2 1/2"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"	10'-0"

Mark	Size	a	b	c	d	e	f	g	h	l	l ₁	l ₂
A1	1 1/2"	6'-9"	2'-6"	3'-6"	8'-3"	2'-6"	3'-6"	5'-9"	7'	26'-2"	29'-9"	
R1	1"	10'-0"	3'-0"	4'-11 1/2"	7'-0"	3'-9"	4'-8"	5'-3"	6"	29'-3"	33'-6"	
R2	1"	10'-0"	3'-0"	4'-3"	7'-0"	3'-2 1/2"	4'-6"	5'-3"	6"	29'-9"	33'-8"	
R3	1"	10'-0"	3'-0"	4'-7"	7'-4"	3'-3"	4'-7"	5'-3"	6"	29'-5"	33'-9"	
R4	1"	10'-0"	3'-0"	4'-7"	7'-4"	3'-3"	4'-7"	5'-3"	6"	29'-5"	33'-9"	

Mark	Size	a	b	c	l	l ₁	l ₂
D1	3/8"	10'-0"	10'-0"	10'-0"	22'-9"		
D2	3/8"	10'-0"	10'-0"	10'-0"	22'-9"		
D3	3/8"	10'-0"	10'-0"	10'-0"	22'-9"		
D4	3/8"	10'-0"	10'-0"	10'-0"	22'-9"		
D5	3/8"	10'-0"	10'-0"	10'-0"	22'-9"		
D6	3/8"	10'-0"	10'-0"	10'-0"	22'-9"		
D7	3/8"	10'-0"	10'-0"	10'-0"	22'-9"		
D8	3/8"	10'-0"	10'-0"	10'-0"	22'-9"		
D9	3/8"	10'-0"	10'-0"	10'-0"	22'-9"		

DETAILS - BENTS #1 & #6
REINFORCED CONCRETE BRIDGE
 5 SPANS @ 37'-0" SKEW 25° 05' L 44'-0" ROADWAY
 OVER C.S.S. & S.B.R.R. ON STATE ROAD - 49-A
INDIANA STATE HIGHWAY COMMISSION
 PORTER COUNTY
 SCALE: 1/4" = 1'-0" EXCEPT AS NOTED NOVEMBER 3, 1930
 RECOMMENDED FOR APPROVAL: Fred Kellum
 PROJECT: -49 STATION: -494+68.85
 SECTION: -A DRAWING: -C₉ OF 6 STRUCTURE NO. 1028
 BRIDGE CONTRACT NO. 374



BRIDGES OVER 20' SPAN						
IND. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS	DATE	SCALE
7	IND.	49	1931	10	25	SECTION - A'

BILL OF MATERIALS

REINFORCING STEEL

Mark	No. Pcs.	Size	Length	Location	Total Length	Weight
B ₁	1	3/8"	12'-0"	Splice Bar with 3/4" Bar cut for Test	12'-0"	100.0*
B ₂	9	3/8"	98'-9"	Lang. Cap - Bent #3 (W End)	889.3*	99.9*
B ₃	9	3/8"	98'-9"	"	889.3*	99.9*
B ₄	9	3/8"	98'-9"	"	889.3*	99.9*
B ₅	9	3/8"	98'-9"	"	889.3*	99.9*
B ₆	9	3/8"	98'-9"	"	889.3*	99.9*
B ₇	9	3/8"	98'-9"	"	889.3*	99.9*
B ₈	16	3/8"	39'-9"	Flg. 4 each Bent	638.4*	89.0*
B ₉	9	3/8"	39'-9"	Cap. Bent #2 - E End	359.1*	49.2*
B ₁₀	9	3/8"	39'-9"	18 each Bent (Top)	359.1*	49.2*
B ₁₁	9	3/8"	39'-9"	Flg. 20 (Bot)	359.1*	49.2*
B ₁₂	9	3/8"	39'-9"	Flg. 18 (Top)	359.1*	49.2*
B ₁₃	9	3/8"	39'-9"	19 each Bent - 10 Top Flg. 9 Bolt Cap.	359.1*	49.2*
B ₁₄	9	3/8"	39'-9"	Total 1/2" Bars	359.1*	49.2*
B ₁₅	9	3/8"	10'-6"	Splice Bars with 3/4" Bars cut for Test	95.4*	22.99*
B ₁₆	24	3/8"	28'-9"	Horiz. Struts - 18 each Bent #3 & #4 - 6 Bolt Cap	685.2*	91.6*
B ₁₇	9	3/8"	21'-9"	Vert. Coll Wall - Bent #3 & #4 - 6	196.2*	26.2*
B ₁₈	32	3/8"	14'-9"	Vert. Coll Wall - Bent #3 & #4	475.2*	63.4*
B ₁₉	36	3/8"	9'-6"	Diag. Cols. & Caps - 24 ea. Bent	345.6*	45.4*
B ₂₀	76	3/8"	6'-9"	Vert. Flg. - 68	525.6*	69.4*
				Total 3/4" Bars	345.6*	45.4*
B ₂₁	3	1/2"	2'-0"	Splice Bars with 1/2" Bars cut for Test	6'-0"	15.61*
B ₂₂	112	1/2"	5'-9"	Transv. Bolt Flg. - 28 ea. Bent	645.6*	86.1*
B ₂₃	112	1/2"	5'-9"	Cap	645.6*	86.1*
B ₂₄	16	1/2"	28'-9"	Horiz. Coll Wall - Bent #3 & #4	460.8*	61.4*
B ₂₅	60	1/2"	10'-9"	Vert. Girder Struts - Bent #3 & #4 - 1 Bolt	654.0*	87.2*
B ₂₆	15	1/2"	16'-9"	Cap Struts - Bent #3	253.5*	33.8*
B ₂₇	32	1/2"	16'-9"	78 Bolt Cap #3	537.6*	71.7*
B ₂₈	26	1/2"	15'-6"	6	203.4*	27.1*
B ₂₉	32	1/2"	15'-9"	10	499.2*	66.5*
B ₃₀	45	1/2"	14'-9"	19	665.7*	88.8*
B ₃₁	76	1/2"	6'-6"	Vert. Col. W-38 each Bent #3 & #4	494.4*	65.9*
				Total 1/2" Bars	3153.0*	418.0*
B ₃₂	3	3/8"	7'-0"	Splice Bars with 3/8" Bars cut for Test	21'-0"	27.0*
B ₃₃	40	3/8"	12'-9"	Horiz. Cols. 10 each Bent	516.0*	68.8*
B ₃₄	48	3/8"	11'-9"	"	633.6*	84.4*
B ₃₅	200	3/8"	10'-9"	"	2160.0*	288.0*
				Total 3/8" Bars	3229.6*	429.2*
				Total Steel		4335.5*

CONCRETE

Cap	24'-0"	24.0
Bent #3	28'-0"	28.0
Bent #4	28'-0"	28.0
Bent #5	28'-0"	28.0
Bent #6	28'-0"	28.0
Bent #7	28'-0"	28.0
Bent #8	28'-0"	28.0
Bent #9	28'-0"	28.0
Bent #10	28'-0"	28.0
Bent #11	28'-0"	28.0
Bent #12	28'-0"	28.0
Bent #13	28'-0"	28.0
Bent #14	28'-0"	28.0
Bent #15	28'-0"	28.0
Bent #16	28'-0"	28.0
Bent #17	28'-0"	28.0
Bent #18	28'-0"	28.0
Bent #19	28'-0"	28.0
Bent #20	28'-0"	28.0
Bent #21	28'-0"	28.0
Bent #22	28'-0"	28.0
Bent #23	28'-0"	28.0
Bent #24	28'-0"	28.0
Bent #25	28'-0"	28.0
Bent #26	28'-0"	28.0
Bent #27	28'-0"	28.0
Bent #28	28'-0"	28.0
Bent #29	28'-0"	28.0
Bent #30	28'-0"	28.0
Bent #31	28'-0"	28.0
Bent #32	28'-0"	28.0
Bent #33	28'-0"	28.0
Bent #34	28'-0"	28.0
Bent #35	28'-0"	28.0
Bent #36	28'-0"	28.0
Bent #37	28'-0"	28.0
Bent #38	28'-0"	28.0
Bent #39	28'-0"	28.0
Bent #40	28'-0"	28.0
Bent #41	28'-0"	28.0
Bent #42	28'-0"	28.0
Bent #43	28'-0"	28.0
Bent #44	28'-0"	28.0
Bent #45	28'-0"	28.0
Bent #46	28'-0"	28.0
Bent #47	28'-0"	28.0
Bent #48	28'-0"	28.0
Bent #49	28'-0"	28.0
Bent #50	28'-0"	28.0
Bent #51	28'-0"	28.0
Bent #52	28'-0"	28.0
Bent #53	28'-0"	28.0
Bent #54	28'-0"	28.0
Bent #55	28'-0"	28.0
Bent #56	28'-0"	28.0
Bent #57	28'-0"	28.0
Bent #58	28'-0"	28.0
Bent #59	28'-0"	28.0
Bent #60	28'-0"	28.0
Bent #61	28'-0"	28.0
Bent #62	28'-0"	28.0
Bent #63	28'-0"	28.0
Bent #64	28'-0"	28.0
Bent #65	28'-0"	28.0
Bent #66	28'-0"	28.0
Bent #67	28'-0"	28.0
Bent #68	28'-0"	28.0
Bent #69	28'-0"	28.0
Bent #70	28'-0"	28.0
Bent #71	28'-0"	28.0
Bent #72	28'-0"	28.0
Bent #73	28'-0"	28.0
Bent #74	28'-0"	28.0
Bent #75	28'-0"	28.0
Bent #76	28'-0"	28.0
Bent #77	28'-0"	28.0
Bent #78	28'-0"	28.0
Bent #79	28'-0"	28.0
Bent #80	28'-0"	28.0

MISCELLANEOUS

1/2" Treated Timber Piles (36 Ea. Bent) @ 20'-0". Approximately = 2380 Lin Ft.

Details - Bents #2, #3, #4 & #5

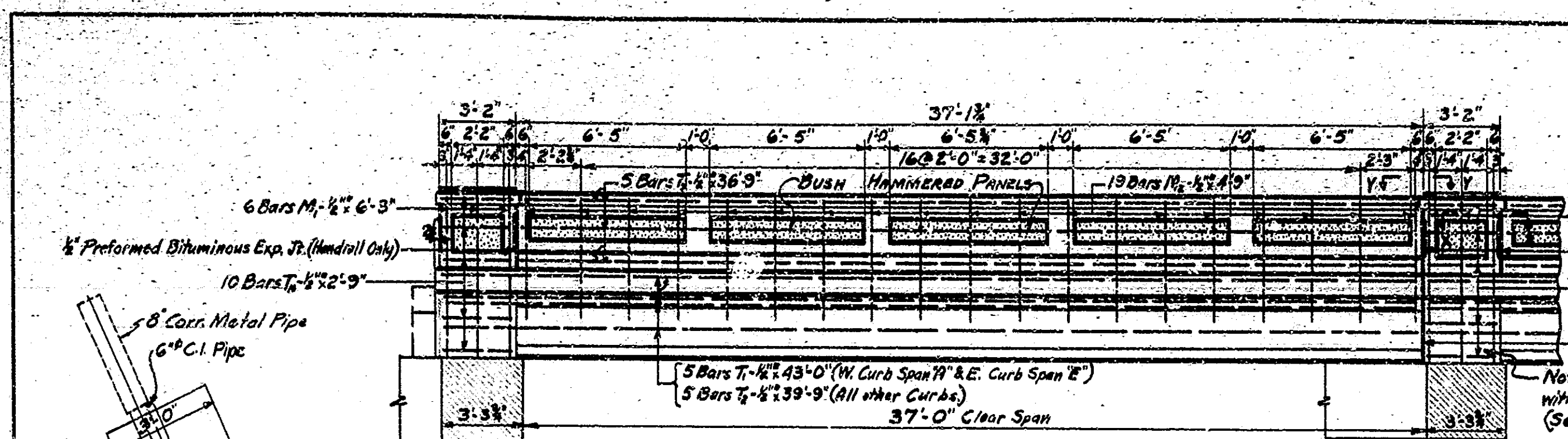
REINFORCED CONCRETE BRIDGE
 5 SPANS @ 37'-0" SKEW 25'-05"
 OVER C.S. & S.B. R.R. 44'-0" ROADWAY
 ON STATE ROAD - 45-A

INDIANA STATE HIGHWAY COMMISSION
PORTER COUNTY
 NOVEMBER 3, 1930

SCALE: $\frac{1}{4}$ " = 1'-0" EXCEPT AS NOTED
 RECOMMENDED FOR APPROVAL: *Fred Kellam*
 ASST. CHIEF ENGINEER IN CHARGE OF STRUCTURES

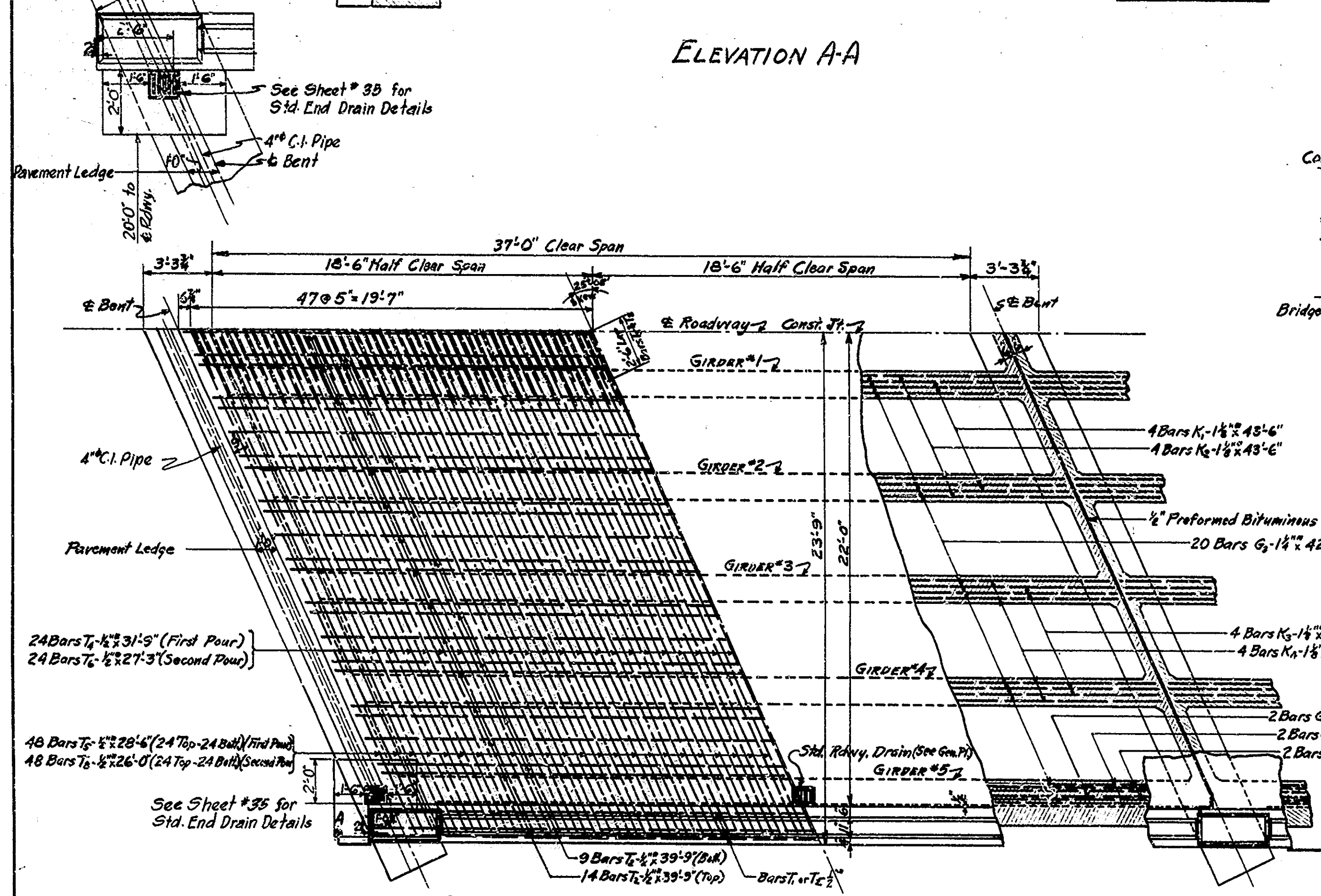
PROJECT: - 49
 SECTION: - A
 DRAWING: - C₁ OF 6
 STATION: - 494 + 68.85
 BRIDGE CONTRACT NO. 374
 STRUCTURE NO. 1028

BRIDGES OVER 20' SPAN					
FED. ROAD DIST. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS	DATE
7	IND.	49	1931	11	35

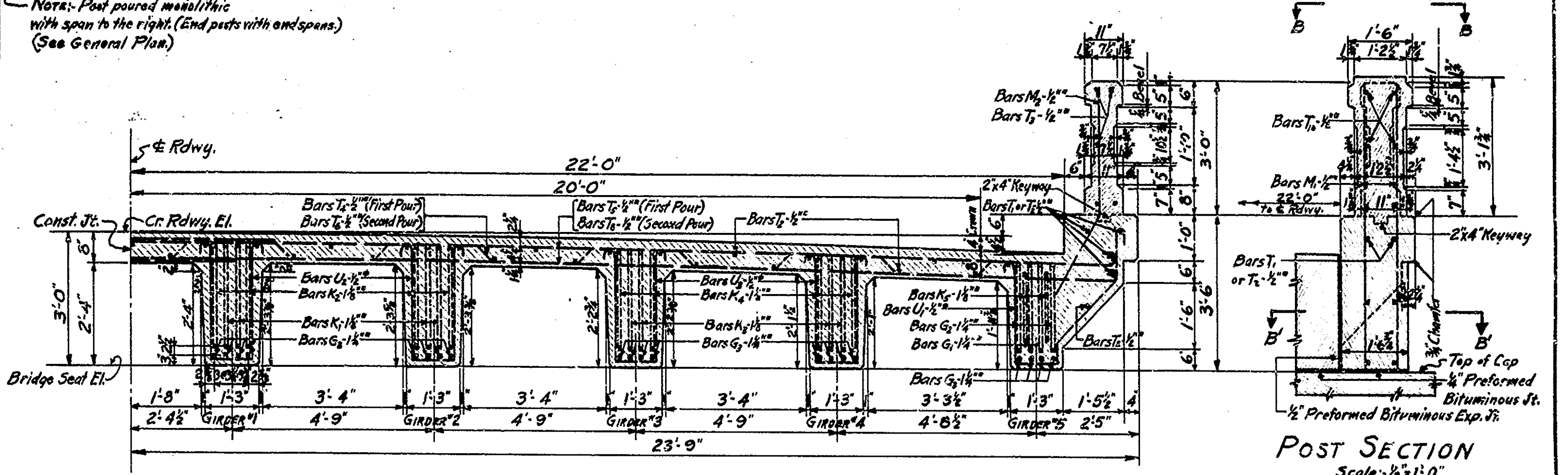


Note: Superstructure to be built to Vertical Curve.
Posts and Panel Ends to be Vertical.

ELEVATION A-A



PART PLAN



HALF SECTION
Perpendicular to the Roadway
Scale: 1/2" = 1'-0"

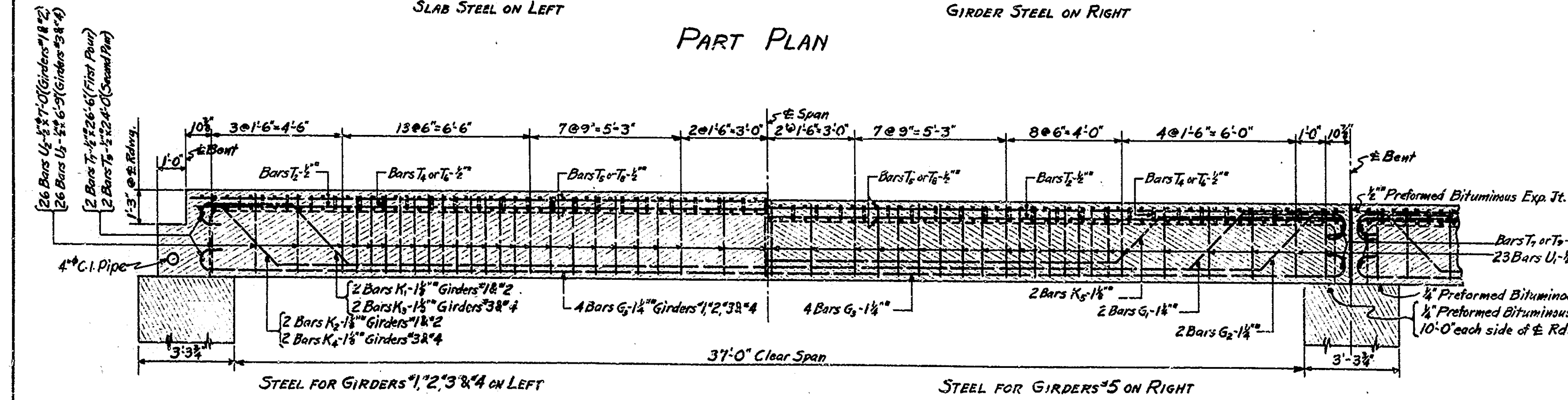
POST SECTION
Scale: 1/2" = 1'-0"

DESIGN DATA:

Unit Stresses: $f_c = 16,000$ psi $f_s = 650$ psi (Interior Girders)
 $f_s = 800$ psi (Exterior Girders)
Live Load: H-20 without impact with distribution of loads in accordance with A.A.S.H.O. Specifications dated June 1, 1925 (Revised 1926).
Designed to carry a 7" concrete pavement on top of regular slab.
Slab designed with 1" wearing surface.
Maximum deflection with maximum live load = 1/2"
Note: All dimensions shown on details and bending diagrams for reinforcing bars are measured on ϕ bars.

TEST BARS: SAMPLES

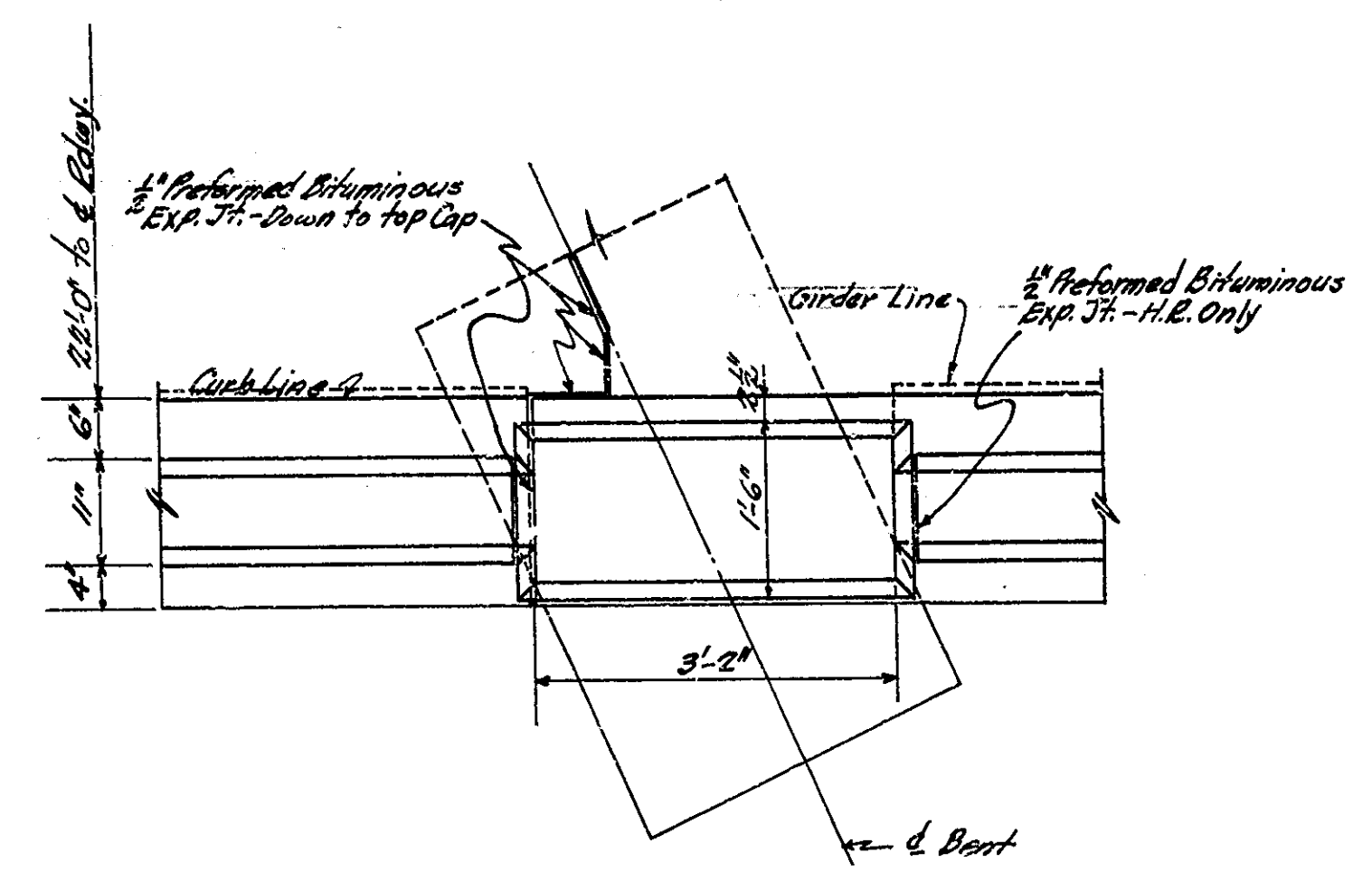
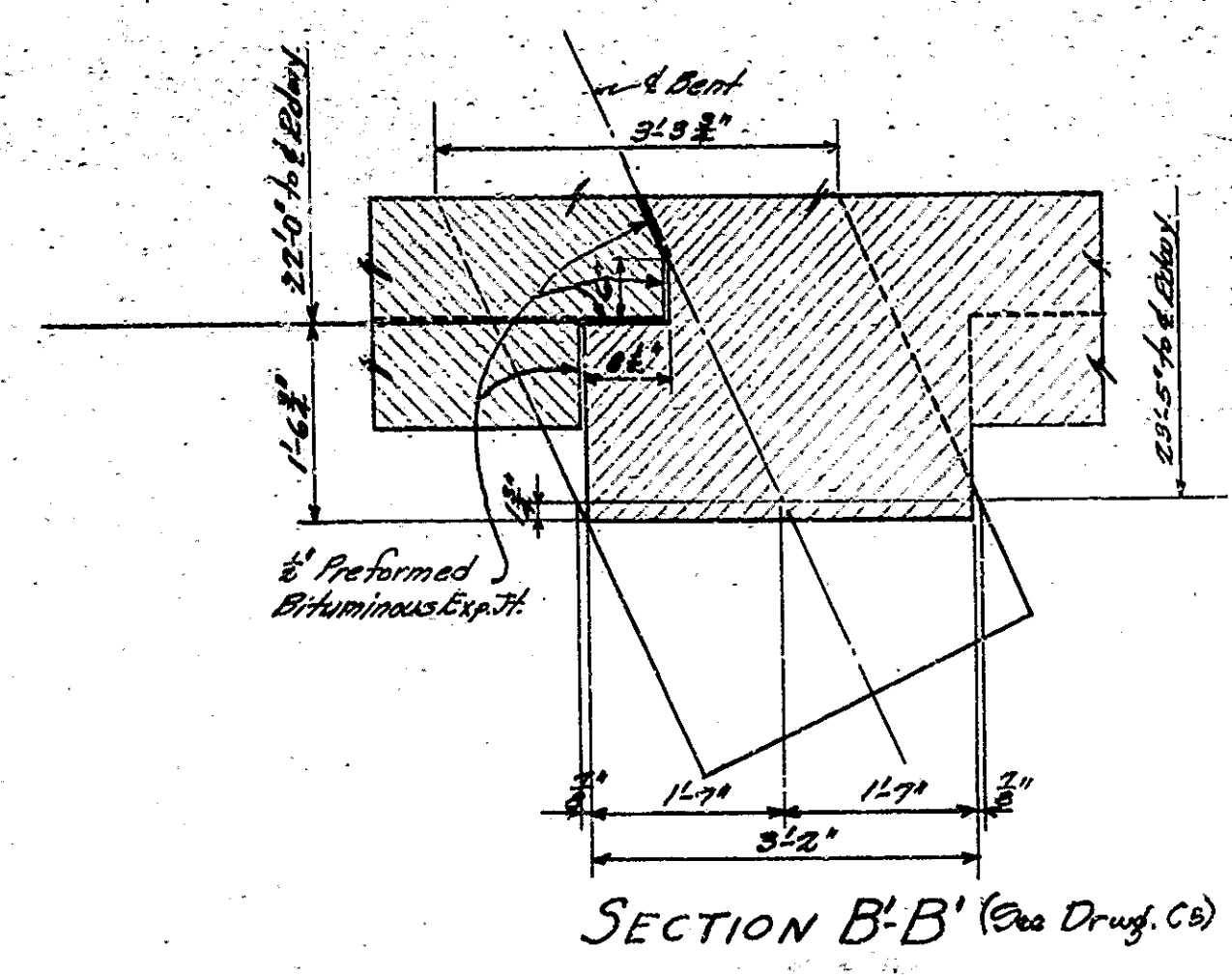
SIZE 1 1/4": Cut one 3'-0" sample from one bar either G_1 or G_2 making cuts 7'-0" and 10'-0" from same bent up point or G_3 making cuts 7'-0" and 10'-0" from same end. Splice girder bar G_1, G_2 or G_3 with bar G_4 .
SIZE 1 1/8": Cut one 3'-0" sample from one bar either K_1, K_2, K_3, K_4 or K_5 making cuts 6'-0" and 9'-0" from same bent up point. Splice girder bar K_1, K_2, K_3, K_4 or K_5 cut with bar K_6 .
SIZE 1/2": Cut three 3'-0" samples from any 1/2" bars billed except bars M_1, M_2, M_3, M_4 or M_5 . Bars cut to be spliced with bars M_6 .
SIZE 3/8": Cut three 2'-3" samples from 3 extra stirrups (Us) provided in bill.



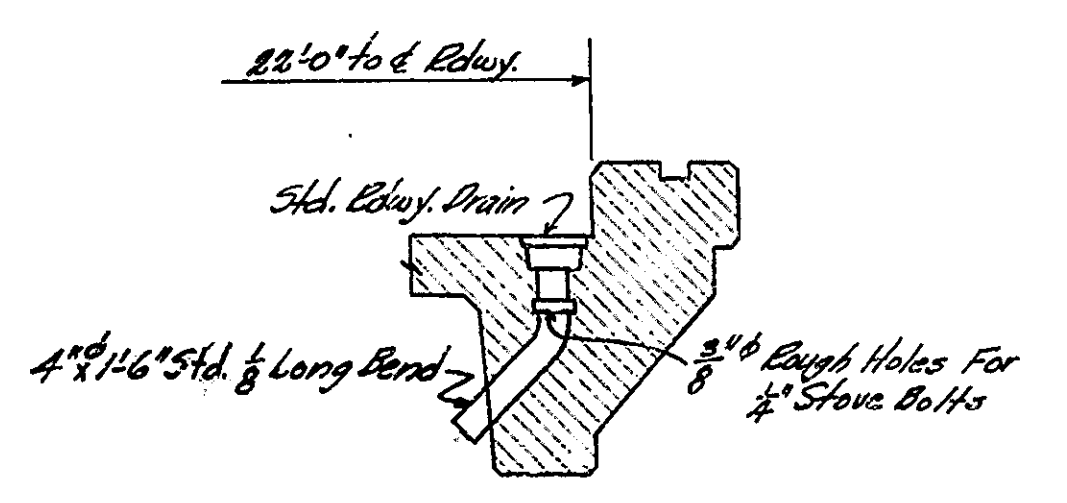
GIRDER SECTION
Scale: 3/8" = 1'-0"

SUPERSTRUCTURE DETAILS
REINFORCED CONCRETE BRIDGE
 5 SPANS @ 37'-0" SKEW 25° 05' L. 44'-0" ROADWAY
 OVER C.S.S. & S.B.R.R. ON STATE ROAD: 49-A
INDIANA STATE HIGHWAY COMMISSION
 PORTER COUNTY
 SCALE: 1/4" = 1'-0" EXCEPT AS NOTED NOVEMBER 3, 1930
 RECOMMENDED FOR APPROVAL: *Fred Kellam*
 ASST. CHIEF ENGINEER IN CHARGE OF STRUCTURES
 PROJECT: 49 STATION: 494+68.85
 SECTION: A DRAWING: C-5 OF 6 STRUCTURE NO. 1028
 BRIDGE CONTRACT NO. 374
 Rev. 11-28-30 End Drain Details.

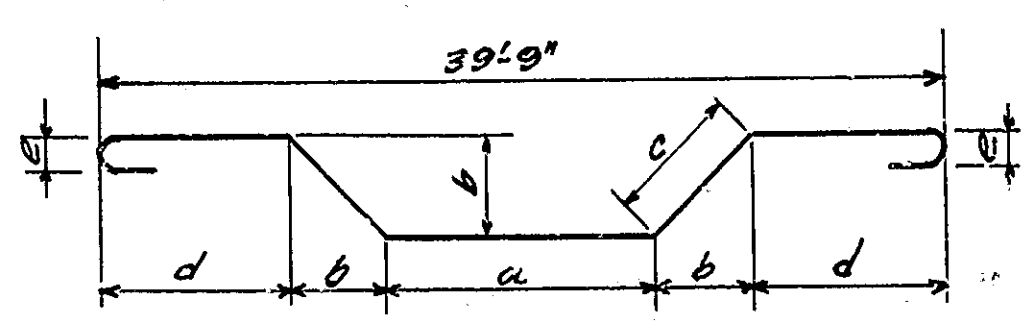
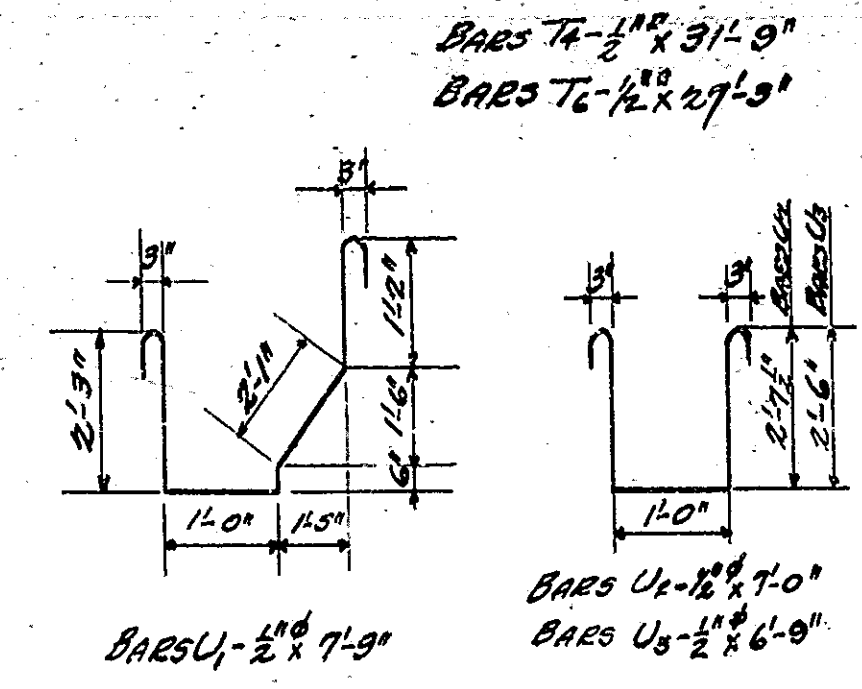
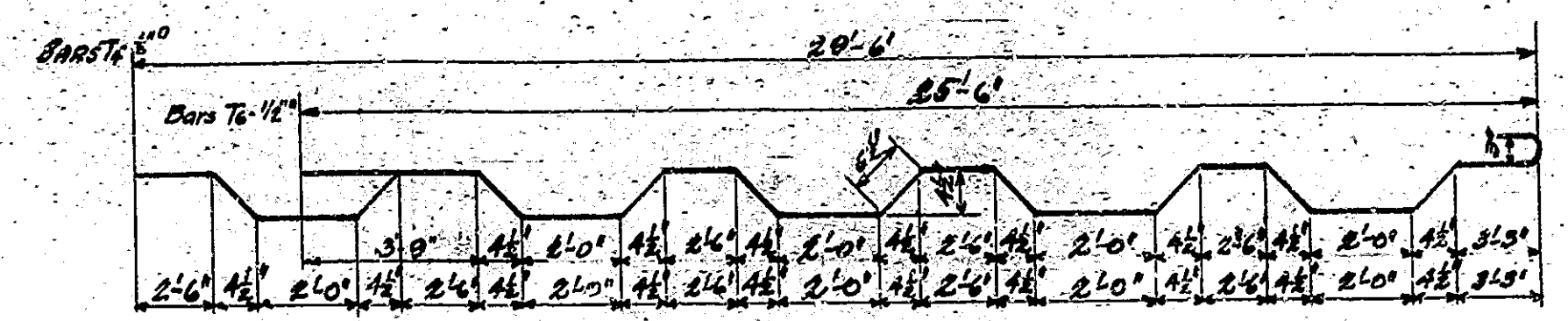
DESIGNED BY W.B. MILLER, CIVIL ENGINEER, INDIANAPOLIS, IND.
 DRAWN BY W.B. MILLER, CIVIL ENGINEER, INDIANAPOLIS, IND.
 CHECKED BY W.B. MILLER, CIVIL ENGINEER, INDIANAPOLIS, IND.



PLAN B-B (See Drawg. C2)
 DETAILS OF POSTS OVER BENTS
 (TO BE BUILT MONOLITHIC WITH SUPERSTR.)
 Scale: 3/4" = 1'-0"



STD ROADWAY DRAIN
 Scale: 1/2" = 1'-0"
 (See Gen. Plan Divg. C2 for Location of Drains)

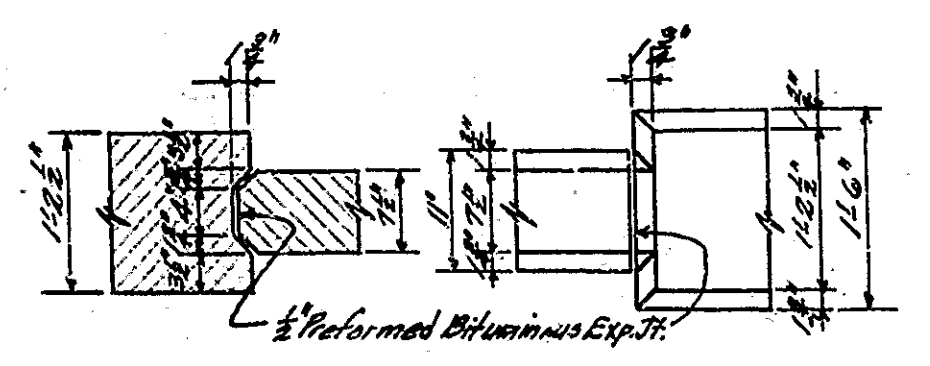


Mark	Size	a	b	c	d	e	Total
G ₁	1 1/2"	29'-0"	14'-11"	21'-9"	31'-5"	7'-1"	43'-6"
G ₂	"	34'-0"	14'-11"	21'-9"	31'-5"	7'-1"	43'-6"
K ₁	1 1/2"	29'-0"	2'-3"	3'-2"	3'-11"	7"	43'-6"
K ₂	"	34'-0"	2'-3"	3'-2"	7'-6"	7"	43'-6"
K ₃	"	29'-0"	2'-1 1/2"	3'-0"	3'-3"	7"	43'-6"
K ₄	"	34'-0"	2'-1 1/2"	3'-0"	9"	7"	43'-6"
K ₅	"	24'-0"	12'-6"	21'-9"	64'-2"	7"	43'-6"

SUMMARY

UNIT	CONCRETE			REINFORCING STEEL										TREATED TIMBER PILES			
	Class	Vol.	Lin. Ft.	1/4"	1/2"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	3"	4"	5"	No.	Lin. Ft.
BENTS No. 1 & No. 6		248.0			9,456	7,218			6,154	4,678			468	27,974	108	2,160	
BENTS No. 2, 3, 4 & 5		581.5						22,149	15,611	4,365			1220	43,395	144	2,880	
SUPERSTRUCTURE - SPANS		517.5		35.5	401.45	53,956	53,712			47,212	11,712			146,592			
TOTAL		517.5		629.5	35.5	401.45	53,956	43,148	7,218	22,149	21,765		56,258	117,172	1,688	2,752	5,040

MISCELLANEOUS
 12 - Standard Roadway Drains - See Supplement to Specifications.
 8 - 4" x 12" Standard & Long Bends.
 112 Lin. Ft. - 8" Cor. Metal Pipe (For Additional Material, See Sheet No. 35 & Special Provisions)



BILL OF MATERIALS

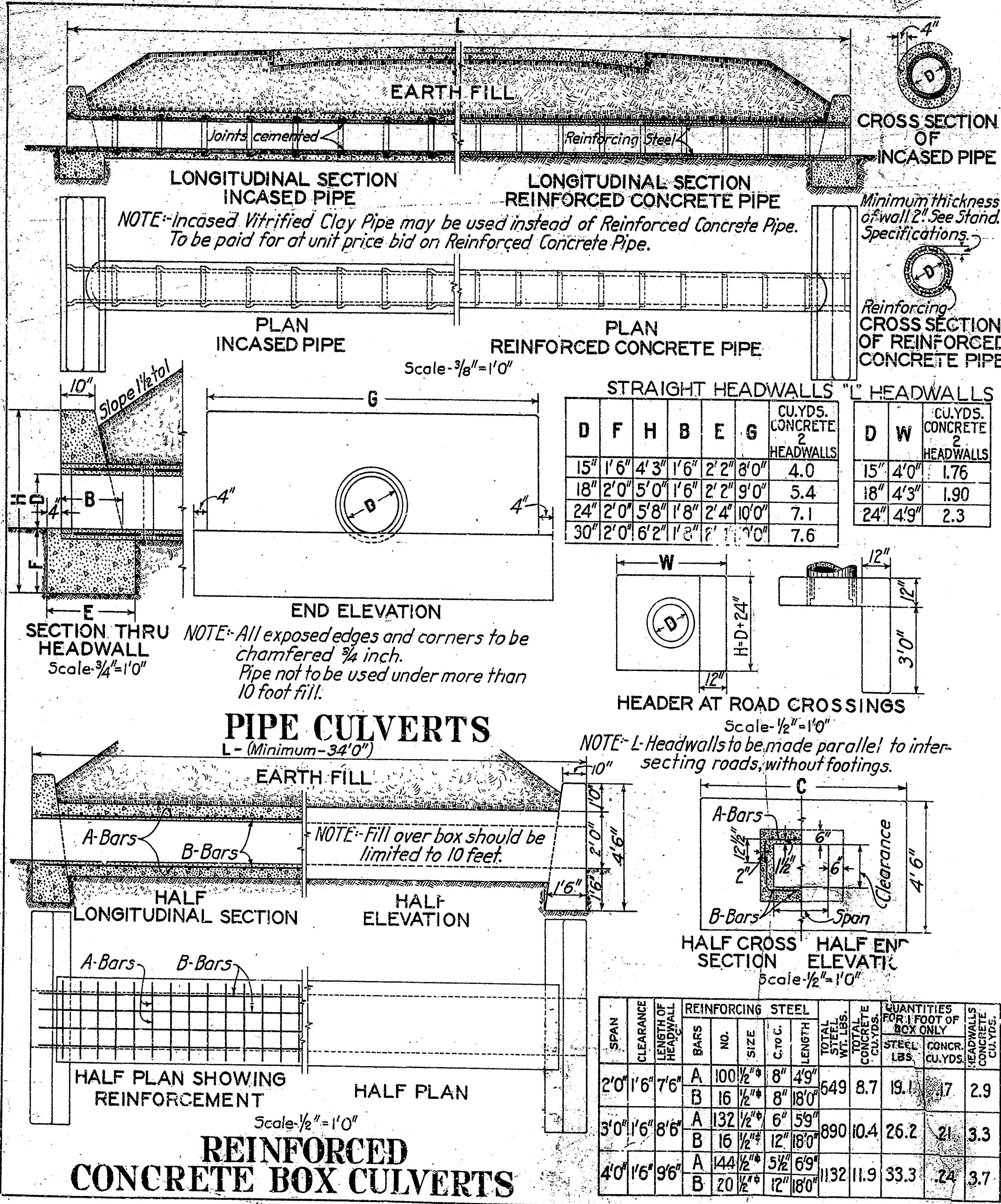
MARK	NO.	SIZE	LENGTH	LOCATION	TOT. LGTH.	WEIGHT
G ₁	1	1 1/2"	15'-6"	Splice Bars for 2' Bent	15'-6"	
G ₁	20	"	43'-6"	Grids 5'-2" ea. Span	870'-0"	
G ₂	20	"	43'-6"	" " 5'-2" - 4"	870'-0"	
G ₃	200	"	42'-0"	" (all) - 4" - 40"	8,400'-0"	
TOTAL 1 1/2" BARS					10,155'-6"	53,956#
K ₀	1	1 1/2"	14'-6"	Splice Bars for 1 1/2' Bent	14'-6"	
K ₁	40	"	43'-6"	Grids 1 1/2' - 2' ea. Span	1,740'-0"	
K ₂	40	"	43'-6"	" " 1 1/2' - 2' - 8"	1,740'-0"	
K ₃	40	"	43'-6"	" " 2' - 8"	1,740'-0"	
K ₄	40	"	43'-6"	" " 2' - 8"	1,740'-0"	
K ₅	20	"	43'-0"	" " 2' - 4"	860'-0"	
TOTAL 1 1/2" BARS					7,834'-0"	33,712#
M ₀	3	1/2"	8'-0"	Splice Bars for 2' Bent	24'-0"	
M ₁	72	"	6'-9"	Vert. H.R. Posts - 6 ea. Span	450'-0"	
M ₂	190	"	4'-9"	" " - 38 ea. Span	902'-6"	
T ₁	10	"	43'-0"	Horiz. Curbs - 5' ea. Span	430'-0"	
T ₂	265	"	39'-9"	Horiz. Curbs - 5' ea. Span	10,602'-9"	
T ₃	50	"	36'-9"	Horiz. H.R. - 10 ea. Span	1,837'-6"	
T ₄	235	"	31'-9"	Trans. Slab - 4 ea. Span	7,461'-3"	
T ₅	480	"	28'-6"	" " - 36" - 48" (all)	13,680'-0"	
T ₆	235	"	27'-3"	" " - 47" - (all)	6,405'-9"	
T ₇	20	"	26'-6"	Curb Walls - 4" - (all)	530'-0"	
T ₈	180	"	26'-0"	" Slab - 36" - (all)	4,680'-0"	
T ₉	20	"	24'-0"	Curb Walls - 4" - (all)	480'-0"	
T ₁₀	120	"	2'-9"	Horiz. H.R. Posts - 10 ea. Span	324'-0"	
TOTAL 3/8" BARS					55,542'-9"	47,212#
U ₁	450	3/8"	7'-9"	Stirrups - 5' ea. Span	3,495'-0"	
U ₂	1080	"	7'-0"	" " - 5' - 20"	7,560'-0"	
U ₃	1,023	"	6'-9"	" " - 3' - 5' - 20"	6,905'-9"	
TOTAL 3/8" BARS					17,961'-9"	11,712#
TOTAL STEEL						146,592#
IN SUPERSTRUCTURE						146,592#

* 3 Extra Bars included for Test Samples

SUPERSTRUCTURE BILL OF MATERIALS, MISC. DETAILS, & SUMMARY
REINFORCED CONCRETE BRIDGE
 5 SPANS @ 37'-0" SKEW 25° 05' L. 44'-0" ROADWAY
 OVER C.S. & S.B. R.R. ON STATE ROAD - 49-A
INDIANA STATE HIGHWAY COMMISSION
 PORTER COUNTY
 SCALE: - AS NOTED NOVEMBER 3, 1930.
 RECOMMENDED FOR APPROVAL: *Fred Keenan*
 ASST. CHIEF ENGINEER IN CHARGE OF STRUCTURES
 PROJECT: - 49 STATION: - 494 + 68.85
 SECTION: - A
 DRAWING: - C6 OF G BRIDGE CONTRACT NO. 374
 STRUCTURE NO. 1028
 Rev. 11-20-30

BRIDGE AND CULVERT DATA

STRUCTURE NO.	LOCATION	DESCRIPTION		LENGTH L'	HEIGHT H'	WINGS W'	FLOW LINE		CONCRETE CU.YDS.		STEEL REINFORCING LBS.	REMARKS	PLANS ON SHEET NO.	STRUCTURE NO.
		SIZE	KIND				UP STREAM	DOWN STREAM	HEAD WALLS CLASS "D"	CULVERTS CLASS "B"				
11	485+00	18"	Corrugated Metal Pipe	74'	-	-	-	-	5.4	-	-		33	11
12	on YDSW 14.80	15"	"	46	-	-	-	-	4.0	-	-		33	12
13	on YDSW 6.78	15"	"	46	-	-	-	-	4.0	-	-		33	13
14	on YDSW 7.43	2x2	Extension to Present Box	12 on Left 12 on Right	-	-	-	-	7.7	-	304	Class "D" Concrete to be used in place of 1:2 1/2:4 as shown on plan.	34	14



ESTIMATE OF QUANTITIES

EXCAVATION - CU.YDS.			PAVEMENT - SQ.YDS.		CONCRETE - CU.YDS.		PIPE CULVERTS		STEEL		
CLASS	CLASS	CLASS	CONCRETE	BITUM. BRICK	HEAD WALLS CLASS "D"	CULVERTS CLASS "B"	KIND	SIZE	LIN. FEET	FOR CULVERTS LBS.	FOR PAVEMENT LBS.
					8.0	7.7	Corr. Metal	15"	92		
					5.4			18"	74		
						7.7				304	

STEEL - Official Weight - 1/2" = 0.850 LBS. PER LINEAL FOOT.
 3/4" = 1.502 LBS. PER LINEAL FOOT.