

STATE OF KANSAS
STATE HIGHWAY COMMISSION

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY

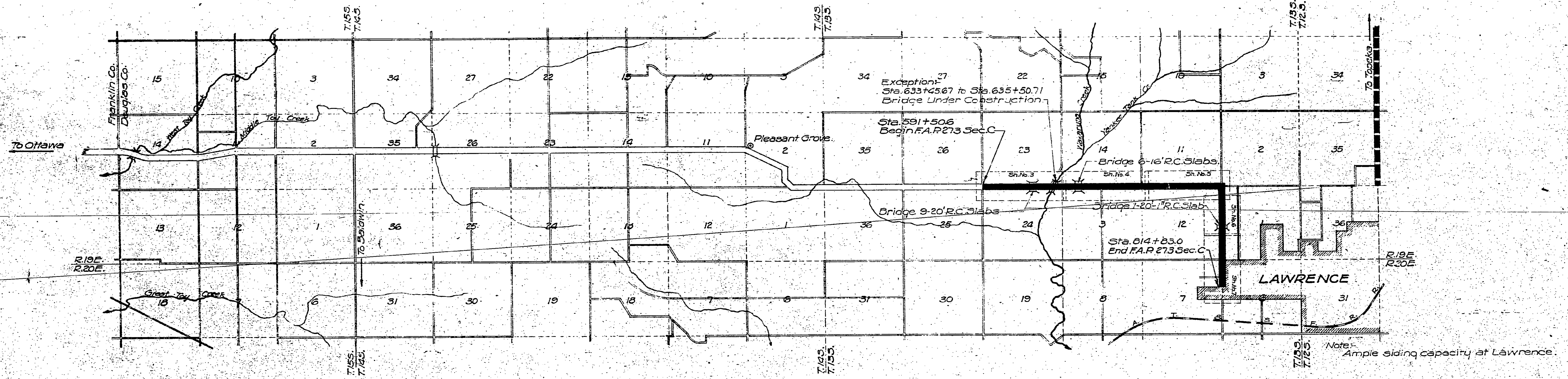
FEDERAL AID PROJECT
DOUGLAS COUNTY
LAWRENCE-OTTAWA ROAD
U.S. 73W.

INDEX OF SHEETS

Sheet No.	Title Page
1	Typical Cross Sections
2	Plan and Profile Sheet
3	Standard Designs
4	Summary of Quantities
10	12' Span R.C. Box
11	5'
12	5'
13	16'
14	Double 6' x 3' R.C. Box
15-16	Relief Bridge Sta. 623+64
17-18	533+00
19	20' R.C. Slab Br. Sta. 778+46
20-27	Cross Sections



Traffic Census
1000 vehicles per day
100 Trucks per day.



Siding capacity at Baldwin 32 Cars

SCALE 1/2" = 1 MILE

TOTAL LENGTH
22,332.4 Lin. Ft.

EXCEPTIONS
Wakerusa Bridge Sta. 633+45.67 to Sta. 635+50.71 = 205.04 Ft.

NET LENGTH
22,273.36 Lin. Ft. = 4,197 Miles

CONVENTIONAL SIGNS

County Line	Retaining Wall	
City, Village, or Borough	Base or Survey Line	
State and National Line	Lever	
Township Line	Culvert	
Section Line	Drop Inlet	
Grant Line	Trolley Pole	
Fence Line	Power Line	
1/2" and Fence	Telephone or Telegraph Line	
Fenced Property	Marsh	
Right of Way Line	Hedge	
Travelled Way	Trees	
Roads	Grade Elevation	

Prepared by
H. Marshall
Consulting Engineer

Recommended for Approval
[Signature]
County Engineer

Recommended for Approval
[Signature]
Engineer of Design

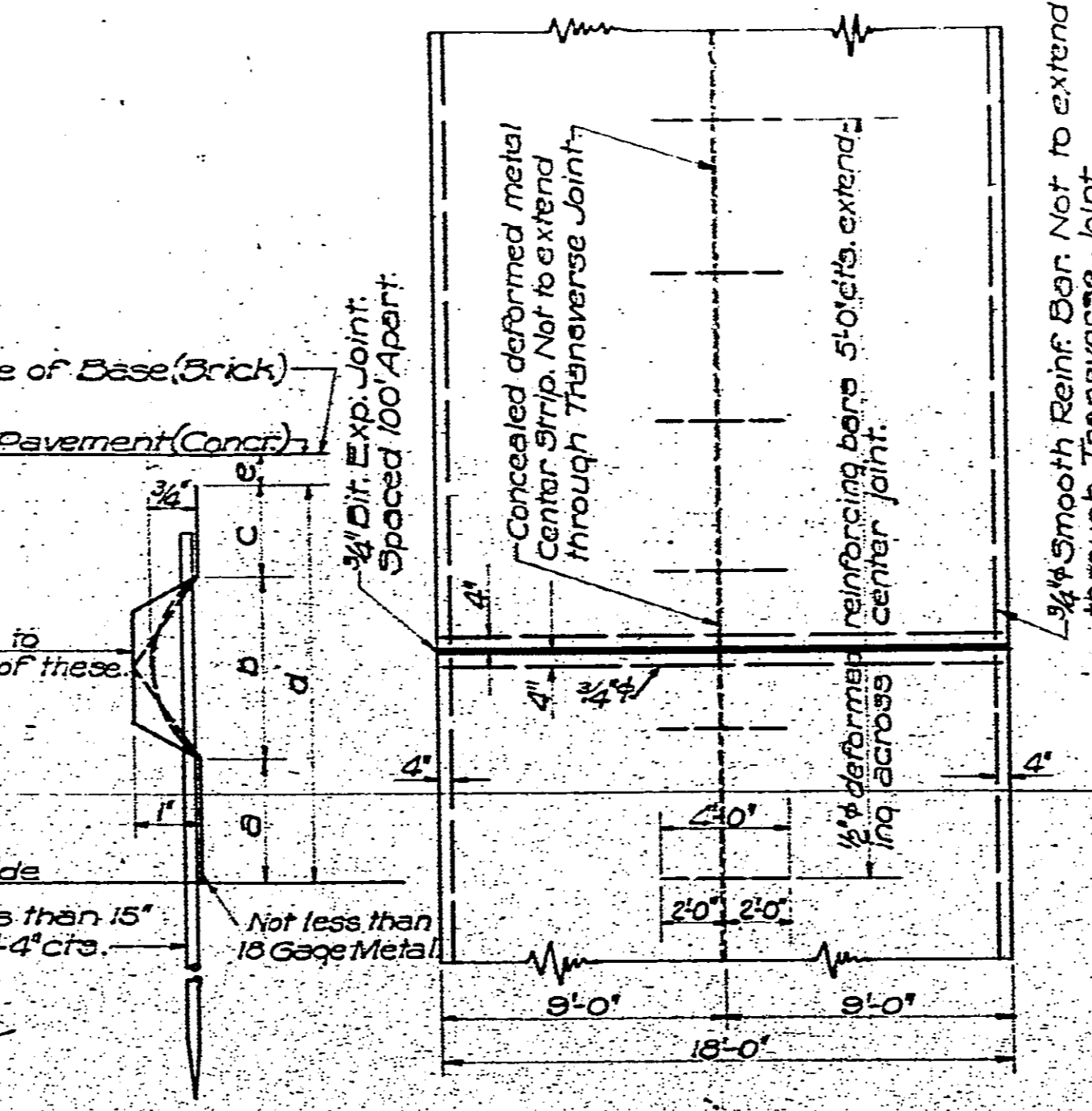
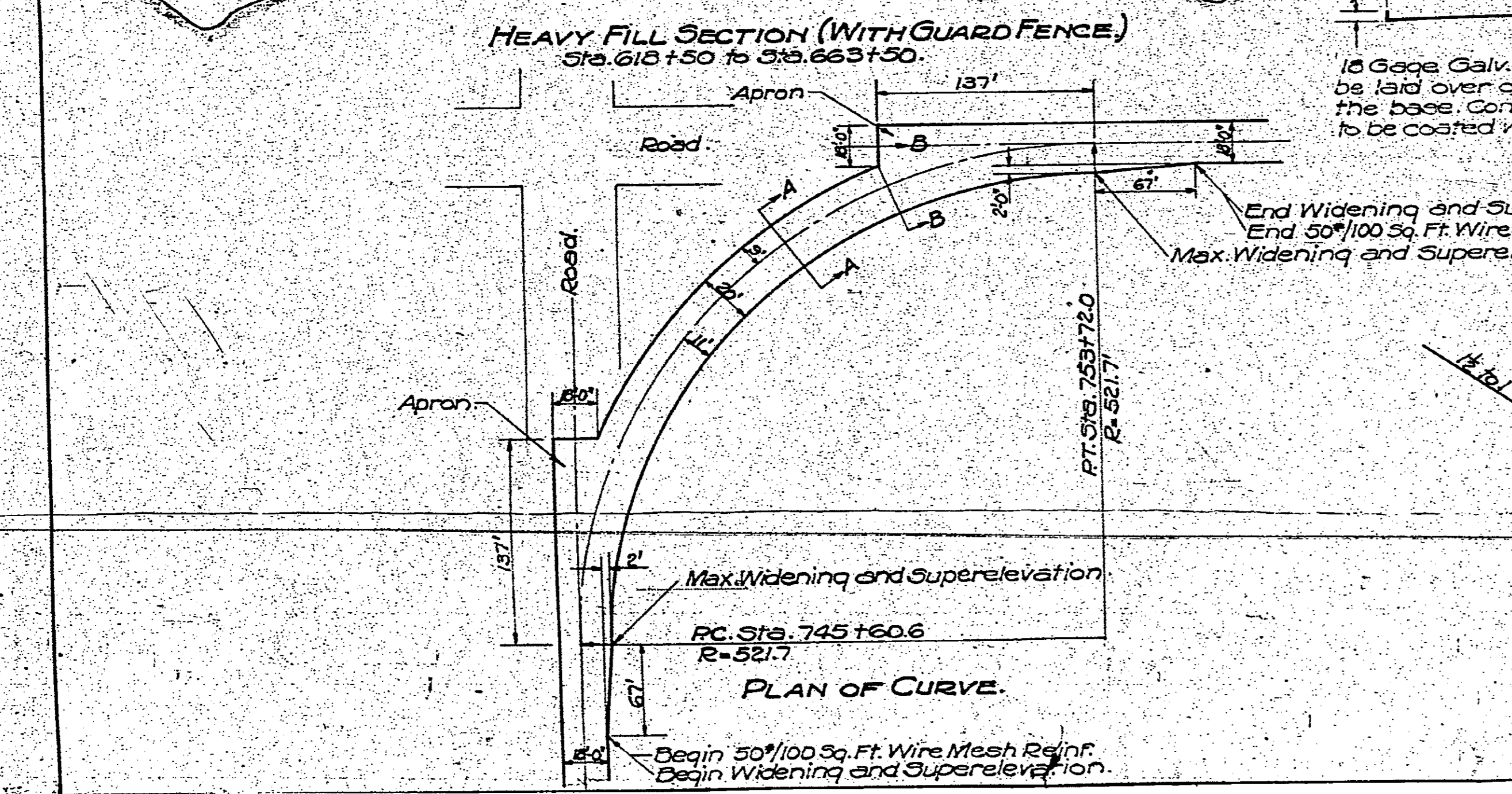
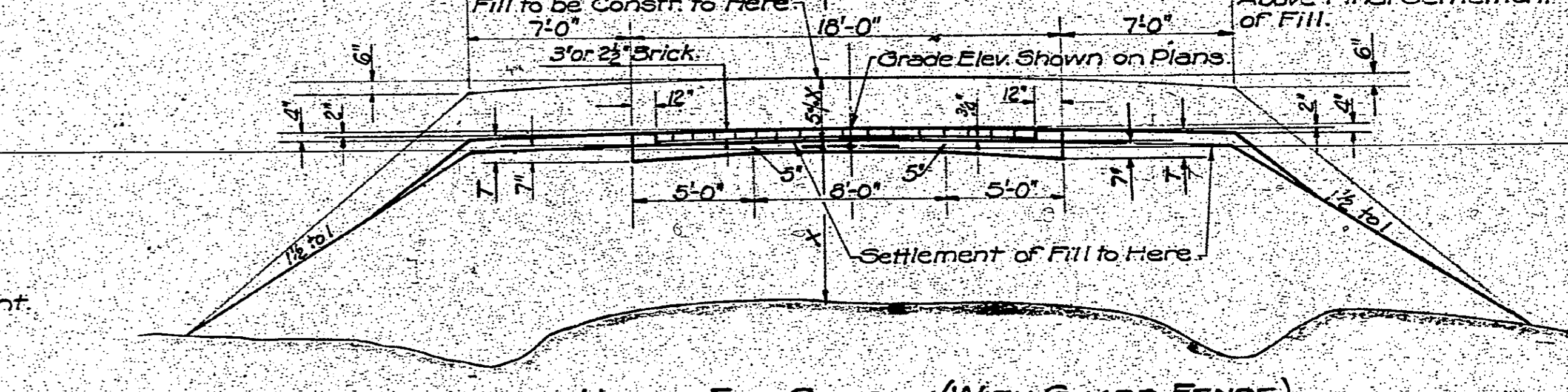
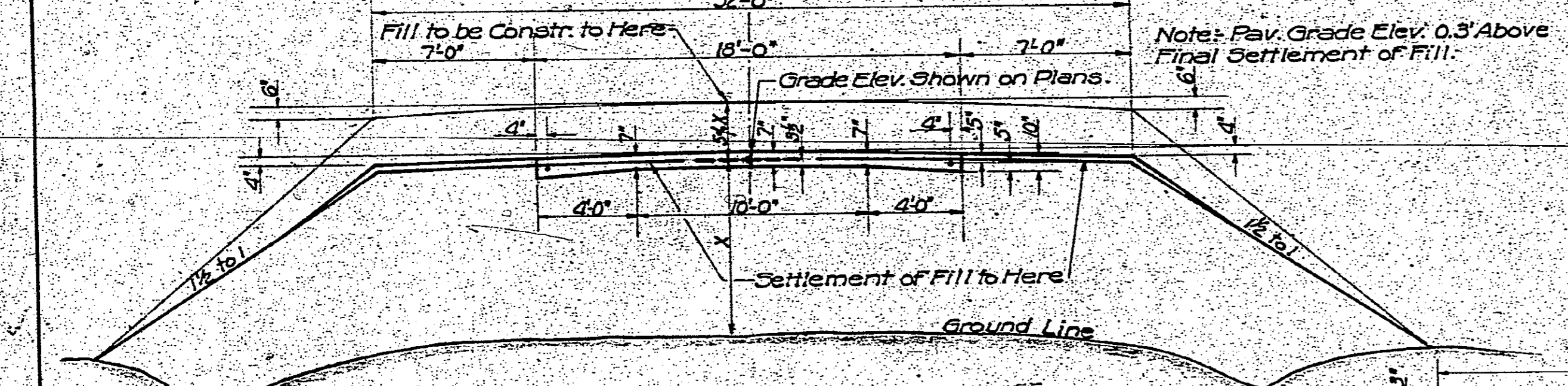
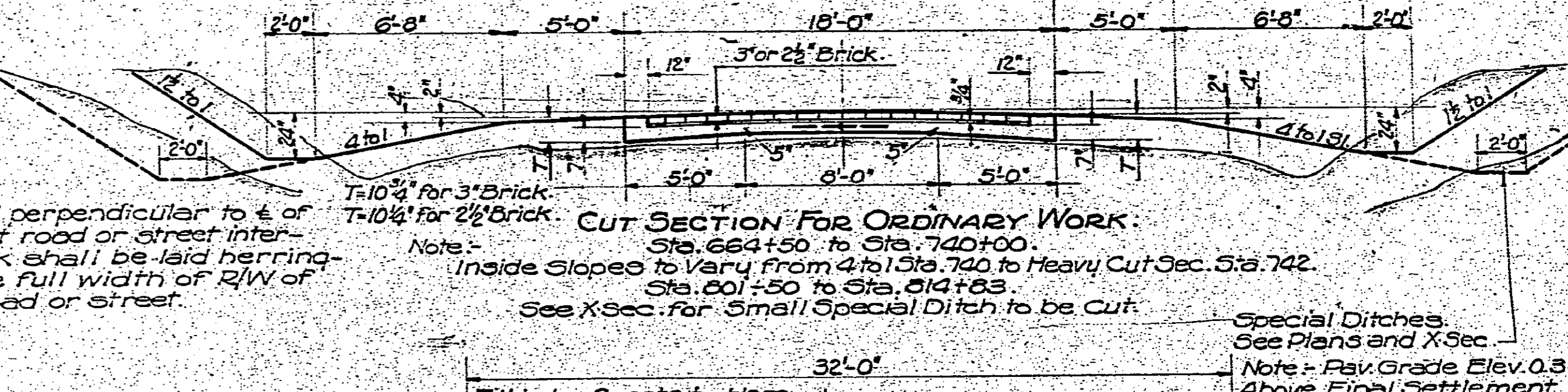
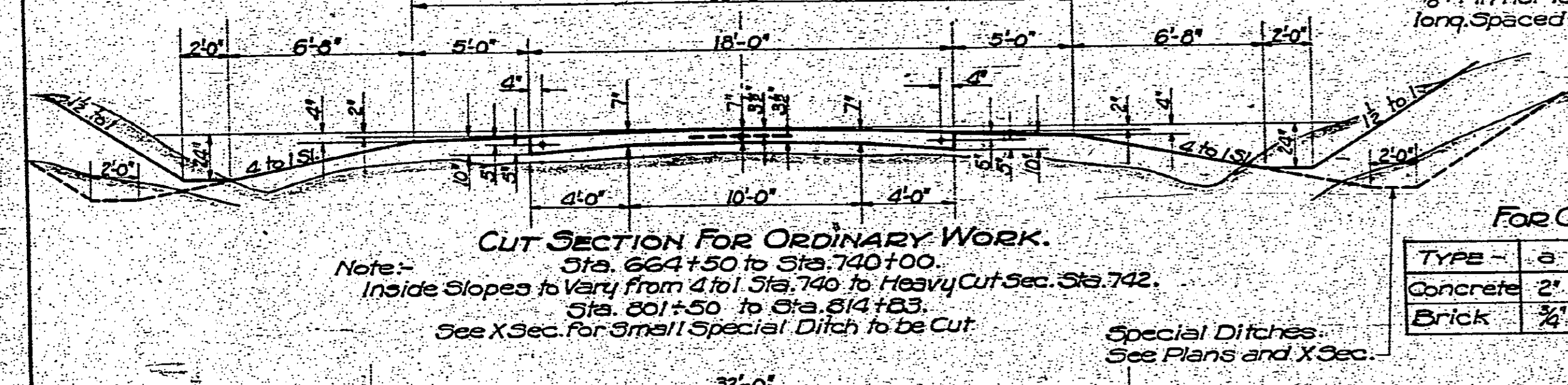
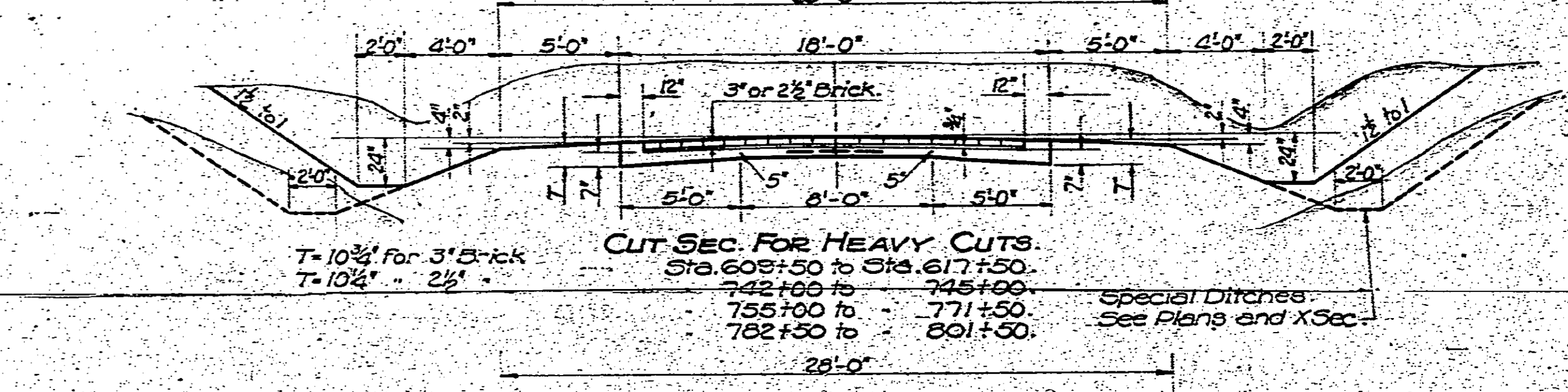
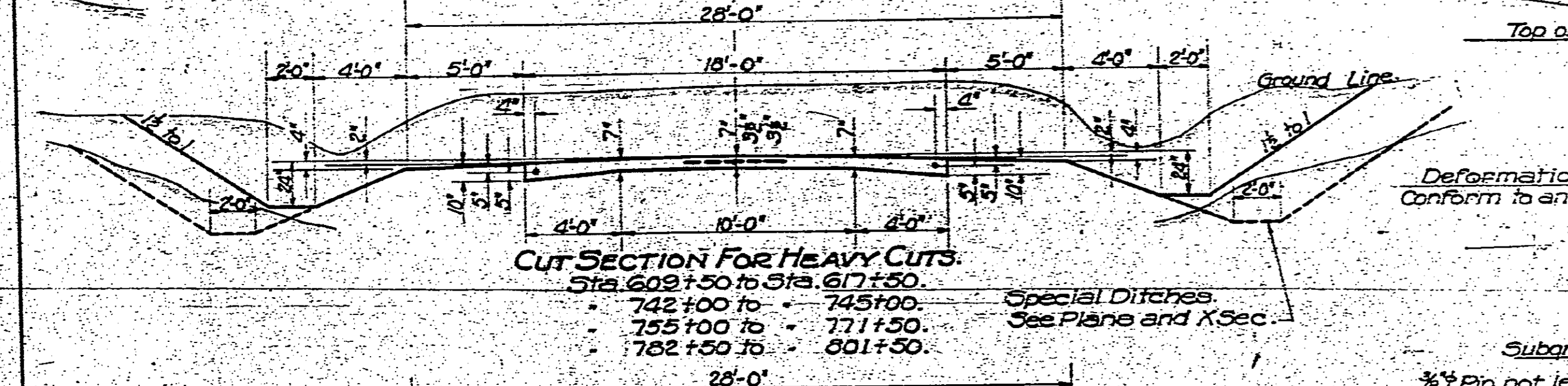
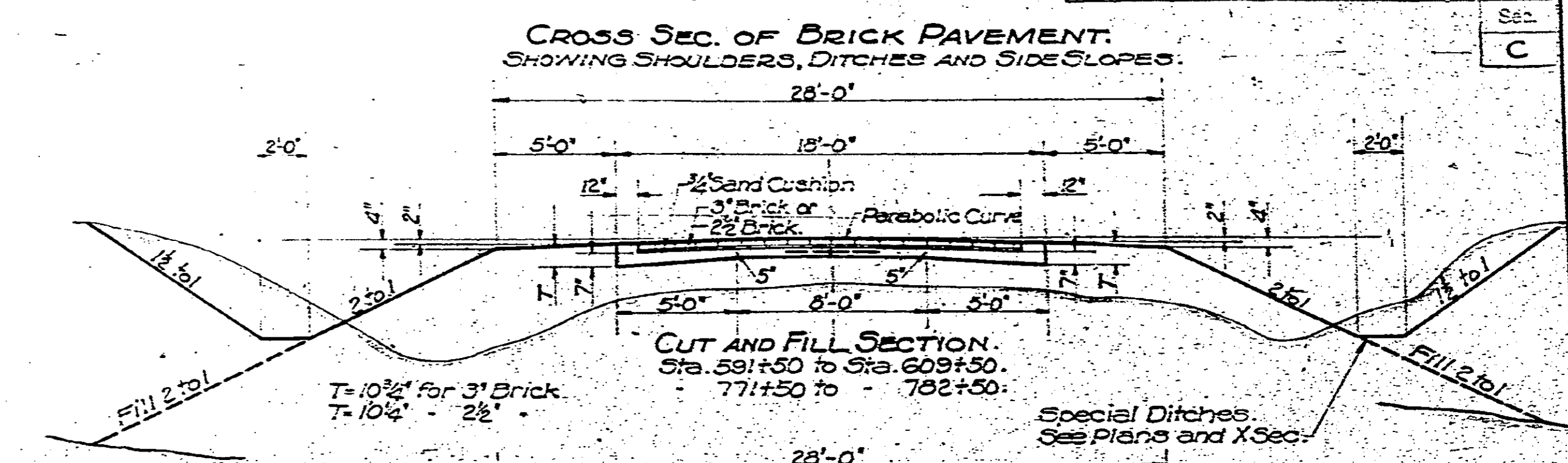
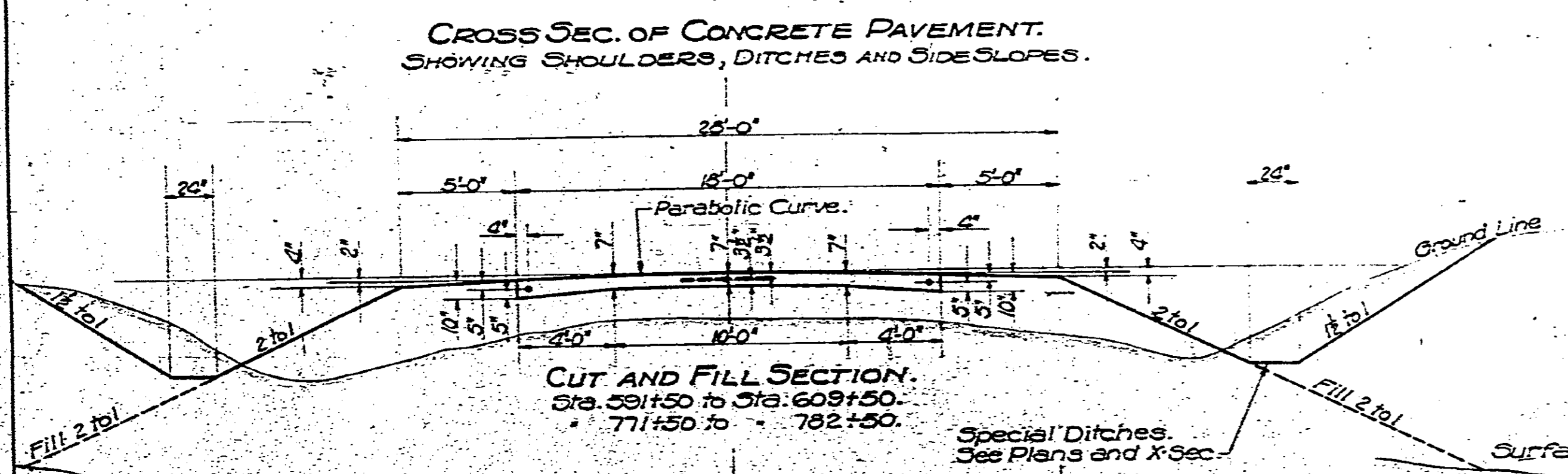
Approved
[Signature]
State Highway Engineer

Recommended for Approval
[Signature] 1927
District Eng. - Dist. No. 5

Recommended for Approval
[Signature]
Chief Eng. - Office of B.P.R.A.E.

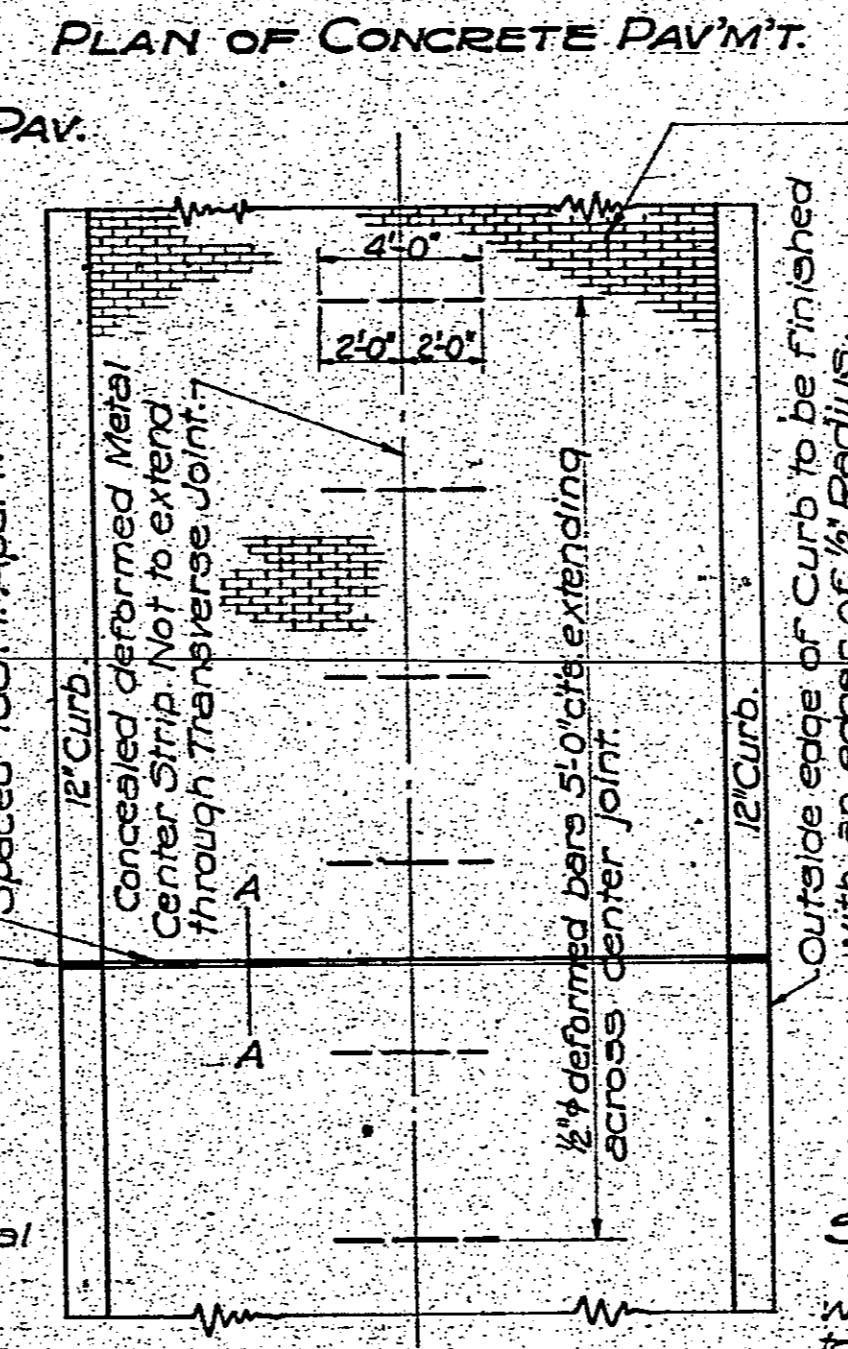
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Director - Office of B.P.R.A.E.

DETAIL OF TYPICAL CROSS SECTIONS.
 TO BE USED THROUGHOUT UNLESS OTHERWISE SHOWN.

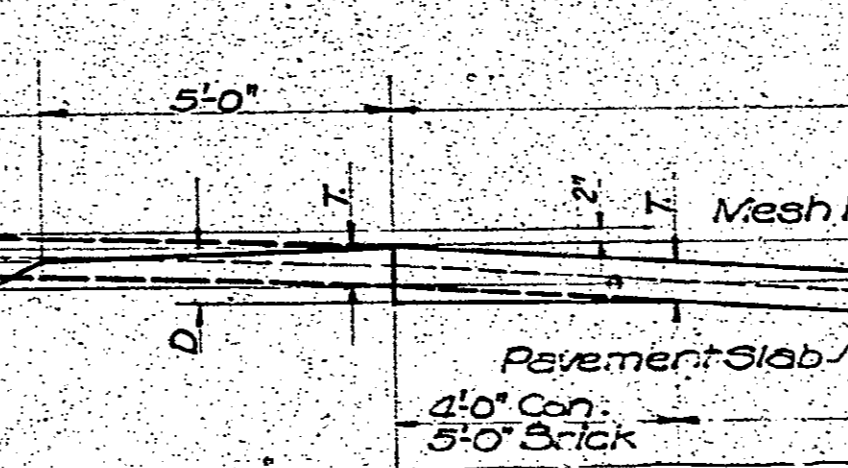


DETAIL OF METAL CENTER STRIP FOR CONCRETE AND BRICK PAV.

TYPE -	a	b	c	d	e
Concrete	2"	3"	1 1/2"	6 1/2"	1 1/2"
Brick	3/4"	3"	3/4"	4 1/2"	1 1/2"



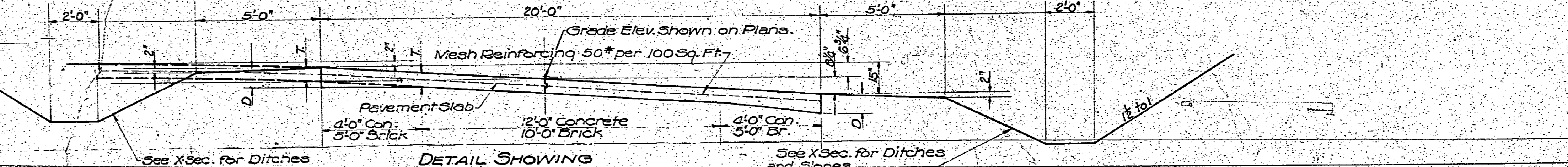
PLAN OF CONCRETE PAV'T.



PLAN OF BRICK PAVEMENT.

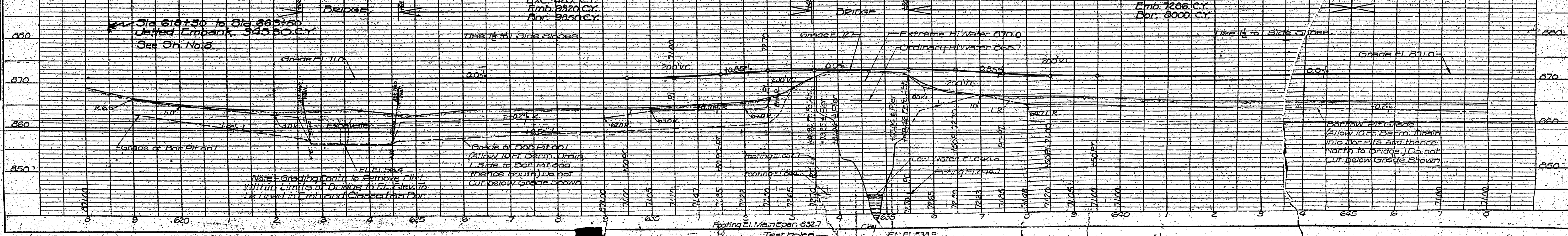
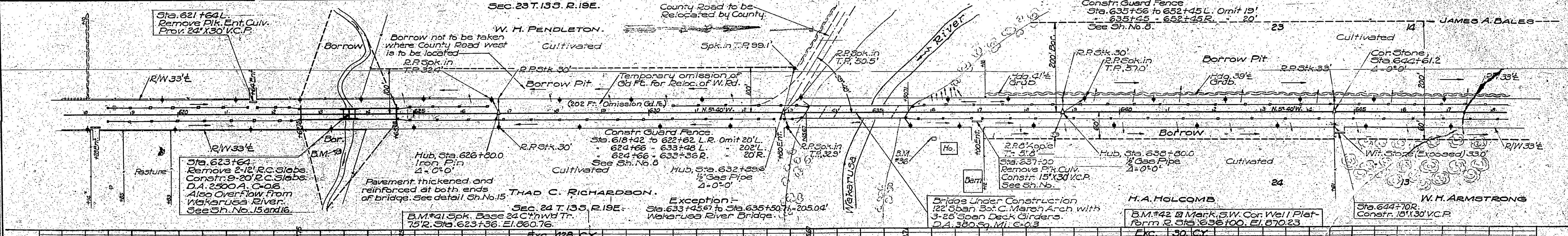
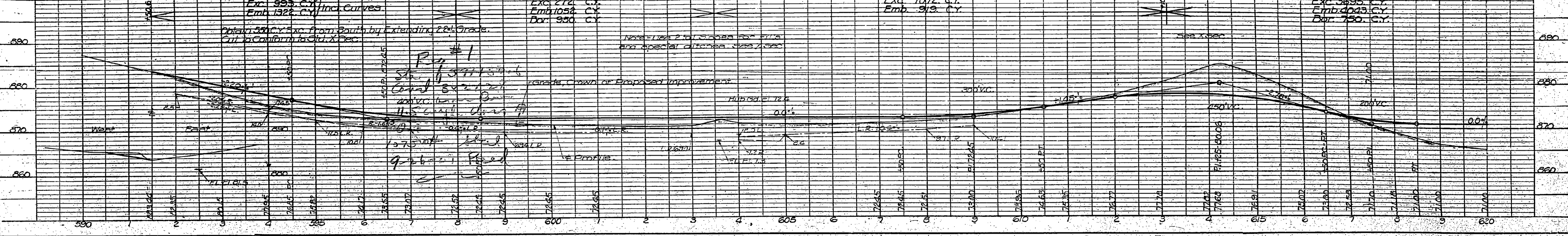
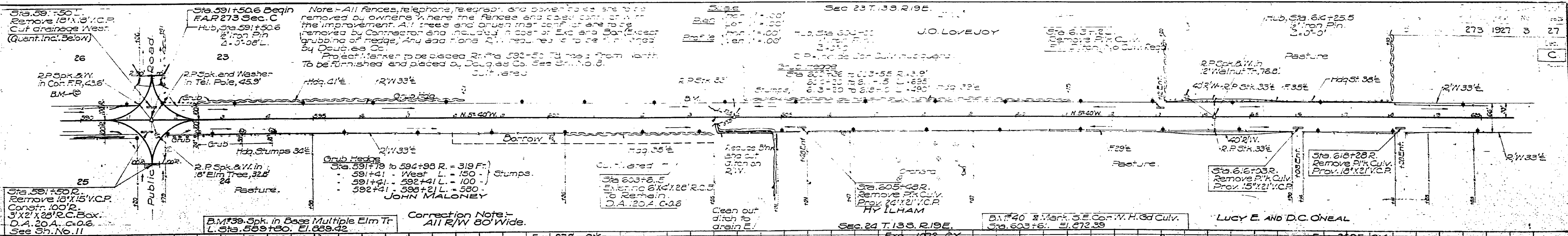
Brick shall be laid perpendicular to & of Pavement except at road or street intersections where brick shall be laid herringbone style for the full width of R/W of the intersecting road or street.

SEC. AA (ENLARGED)
 Showing open expansion joint with Metal Covering Strip lifted to show coating of Bitumen.



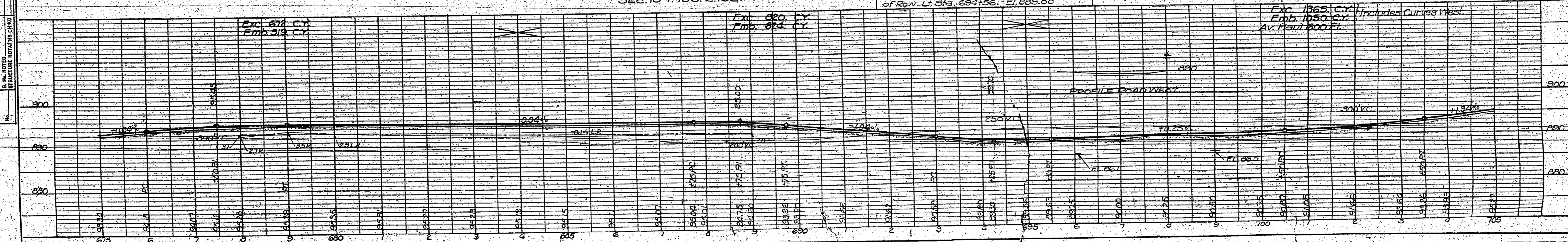
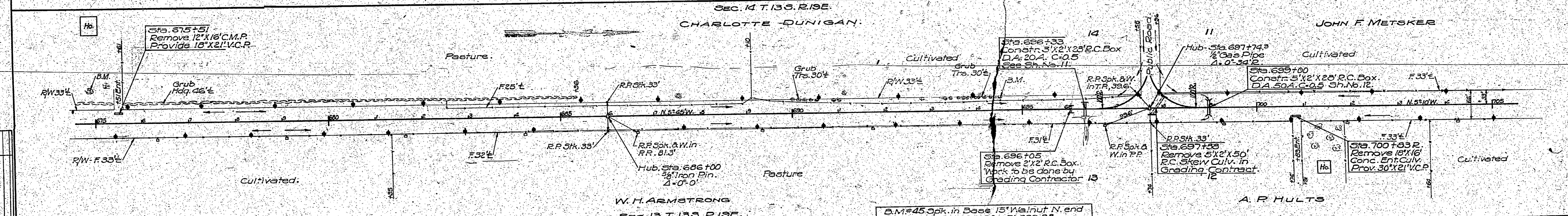
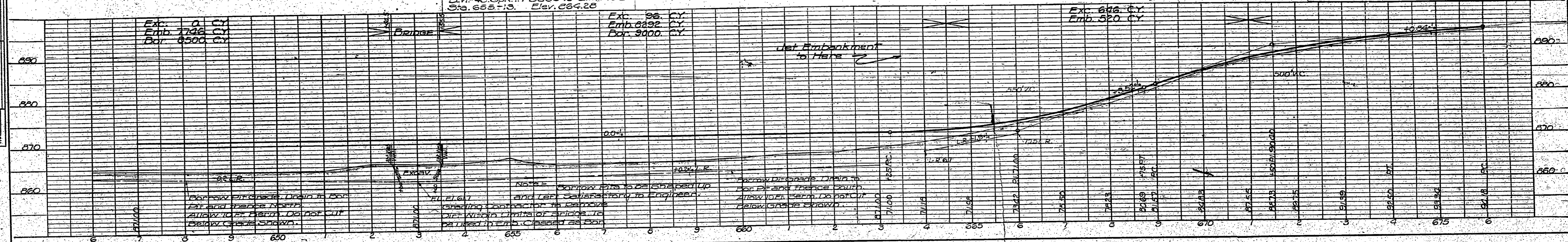
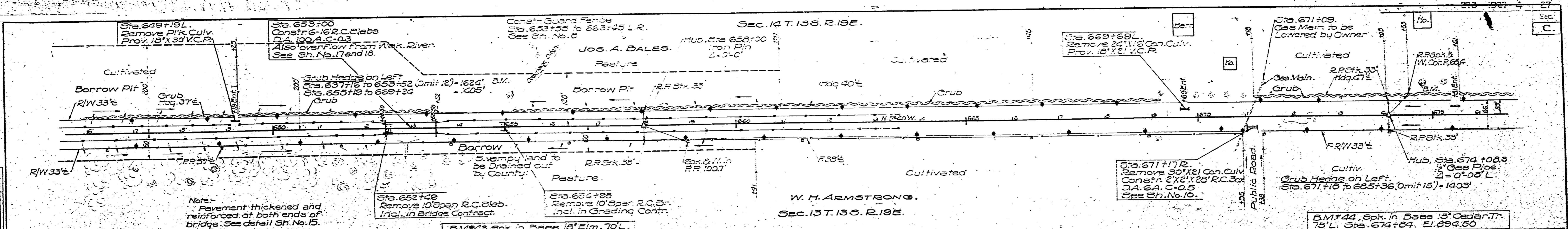
Prepared by H.A. Marshall
 Consulting Engr.
 Topeka, Kan.

Feb. 14, 1927.



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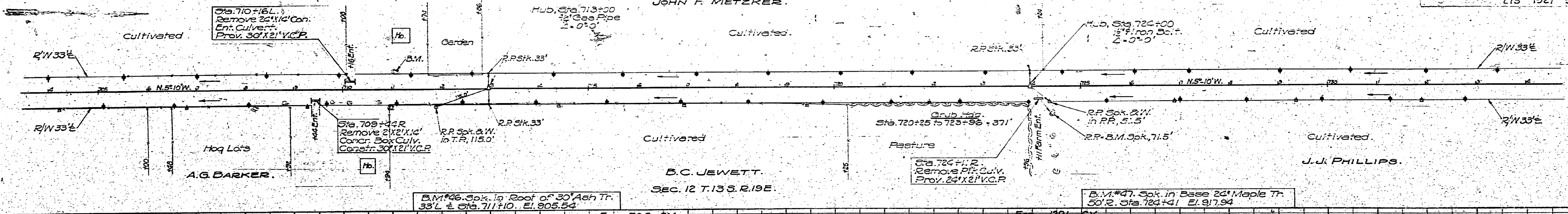
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SEC. 11 T. 13 S. R. 19 E.
JOHN F. METZKER.

SANFORD JOHNS

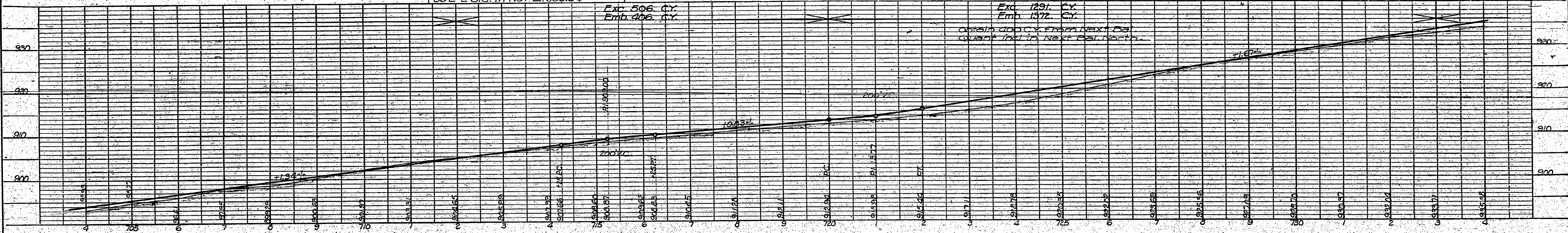
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SEC. 12 T. 13 S. R. 19 E.

B.M. #47 Spk. in Base 20' Maple Tr. 50' E. Sta. 724+41 El. 917.94

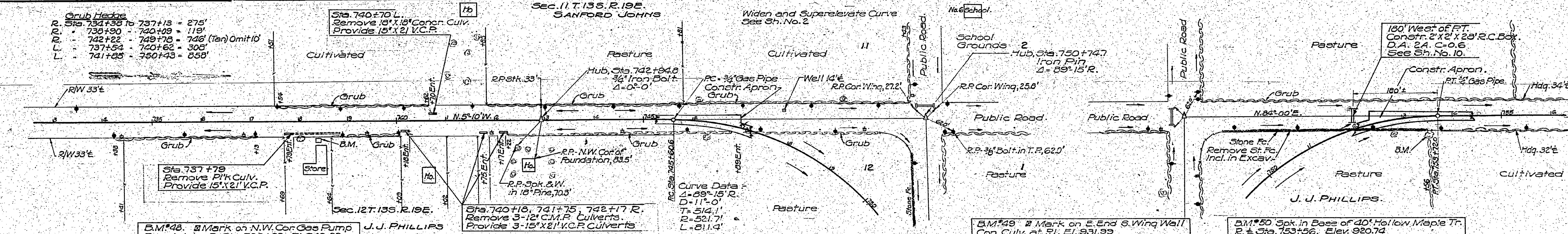
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SEC. 11 T. 13 S. R. 19 E.

SANFORD JOHNS

Widen and Superlevate Curve See Sh. No. 2

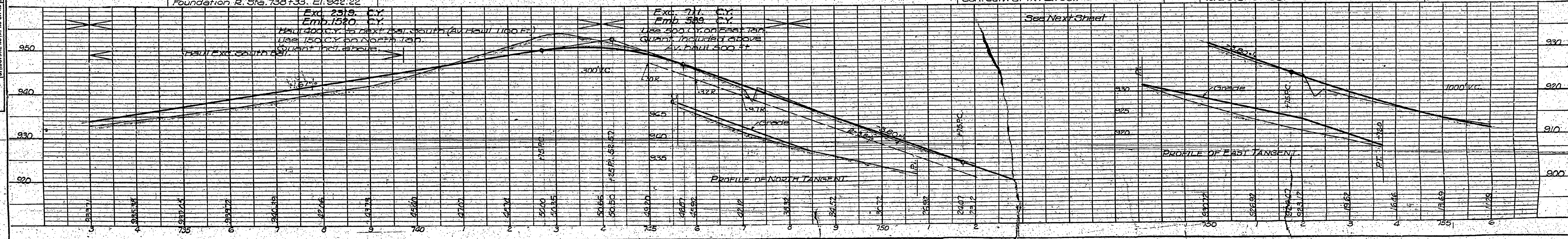


B.M. #48 8' Mark on N.W. Cor Gas Pump Foundation R. Sta. 738+33 El. 912.22

B.M. #49 8' Mark on E. End S. Wing Wall Con. Culv. at R. El. 931.99

B.M. #50 Spk. in Base of 40' Hollow Maple Tr. R. Sta. 753+56 El. 920.74

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W. M. MARTIN

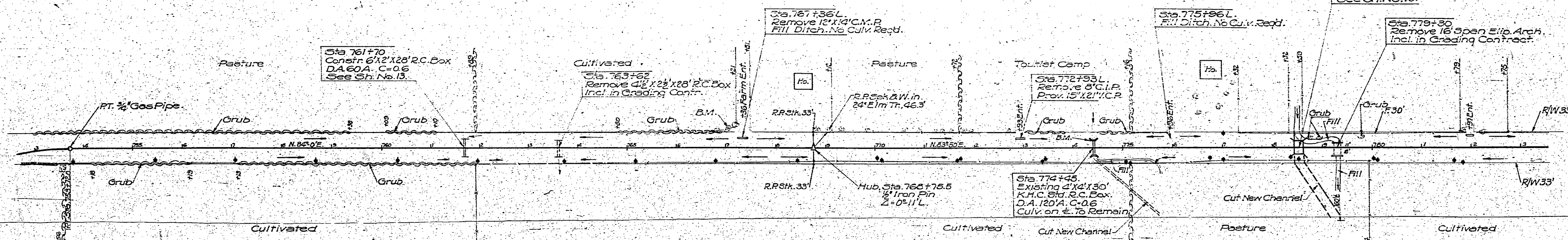
WOLGAMOT ESTATE

J. J. PHILLIPS

Sec. 12 T. 133. R. 19E.

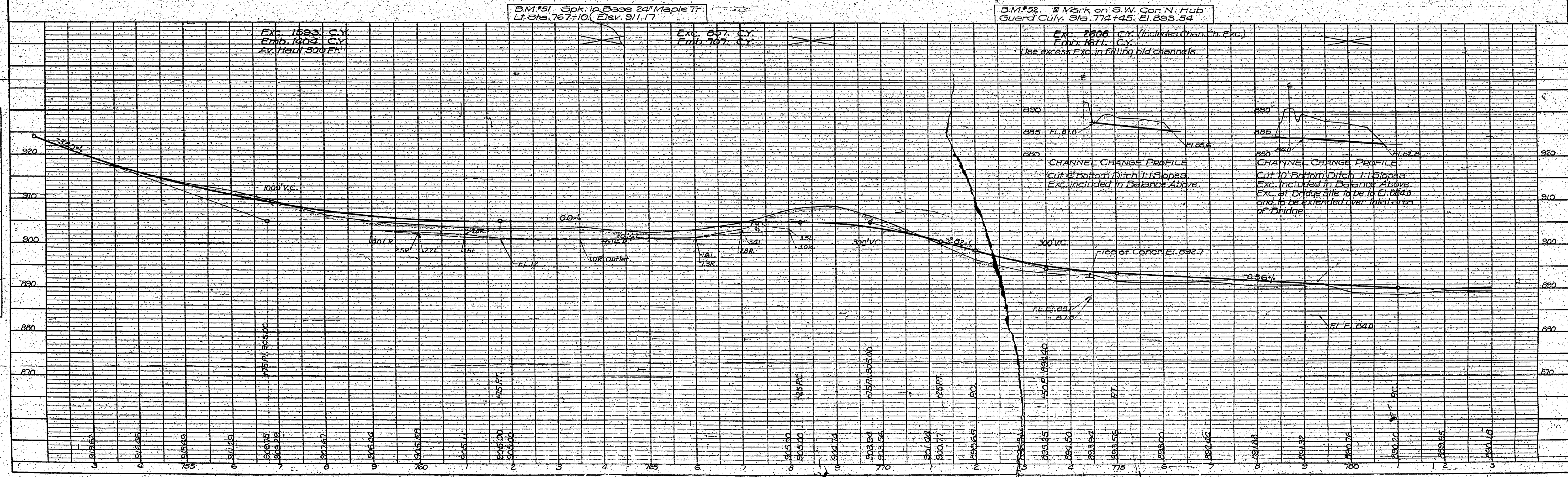
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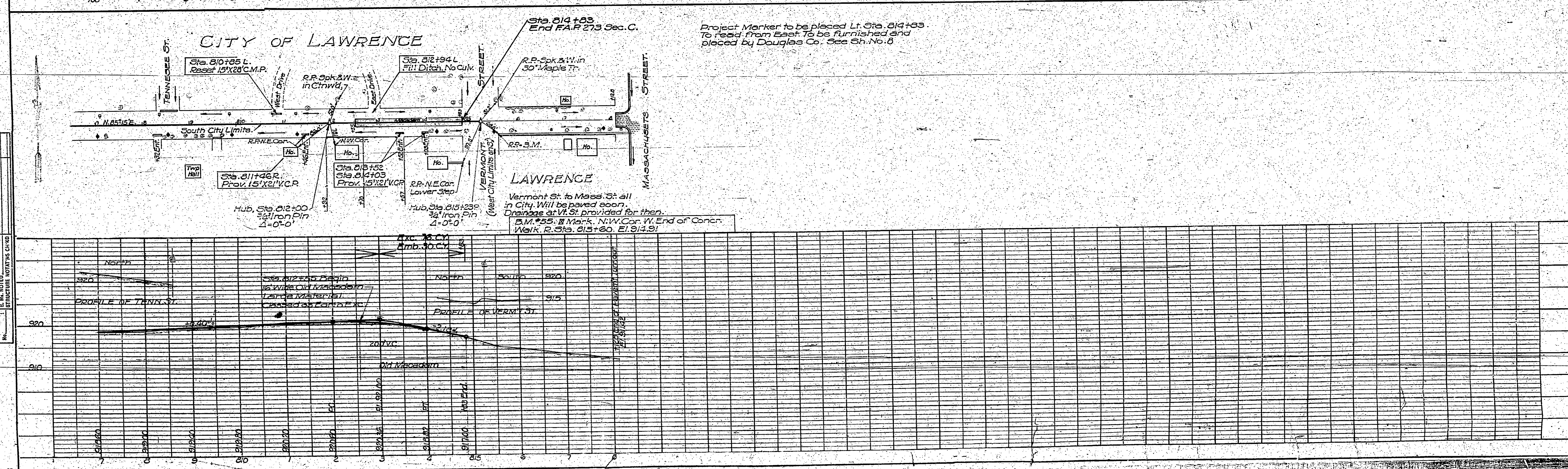
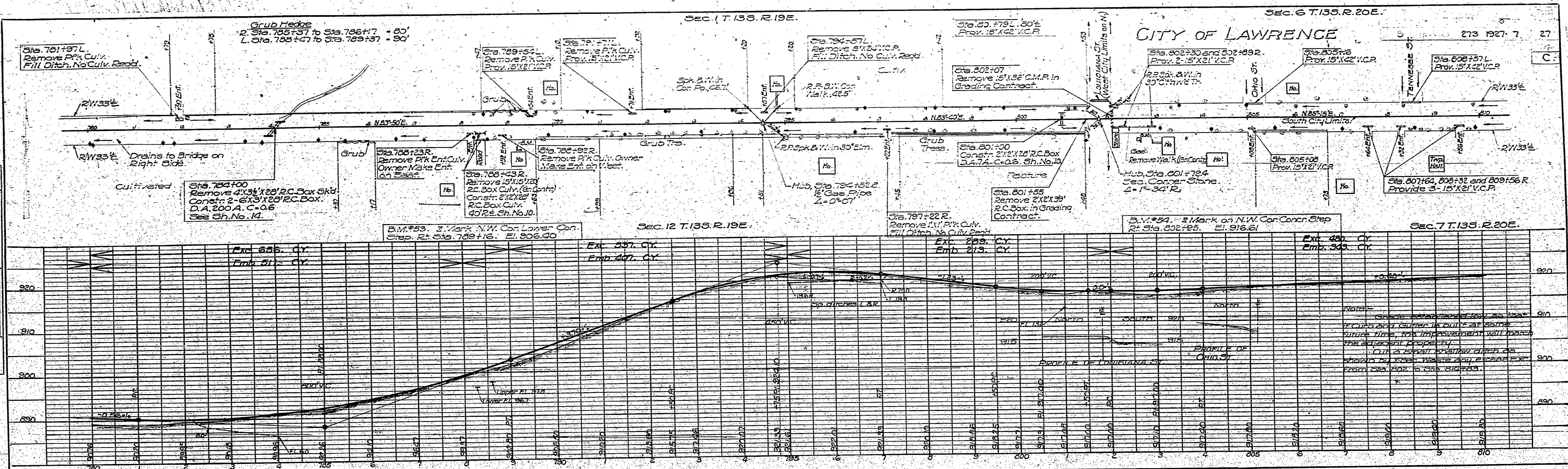
Grub Hedge

L. Sta. 753+72 West	48'
L. Sta. 753+72 to Sta. 759+38	56'
L. Sta. 760+05 to Sta. 761+10	30'
L. Sta. 764+80 to Sta. 766+82	202'
L. Sta. 773+00 to Sta. 773+81	81'
L. Sta. 774+52 to Sta. 775+16	64'
R. Sta. 754+18 to Sta. 756+13	20'
R. Sta. 757+13 to Sta. 761+69	476'



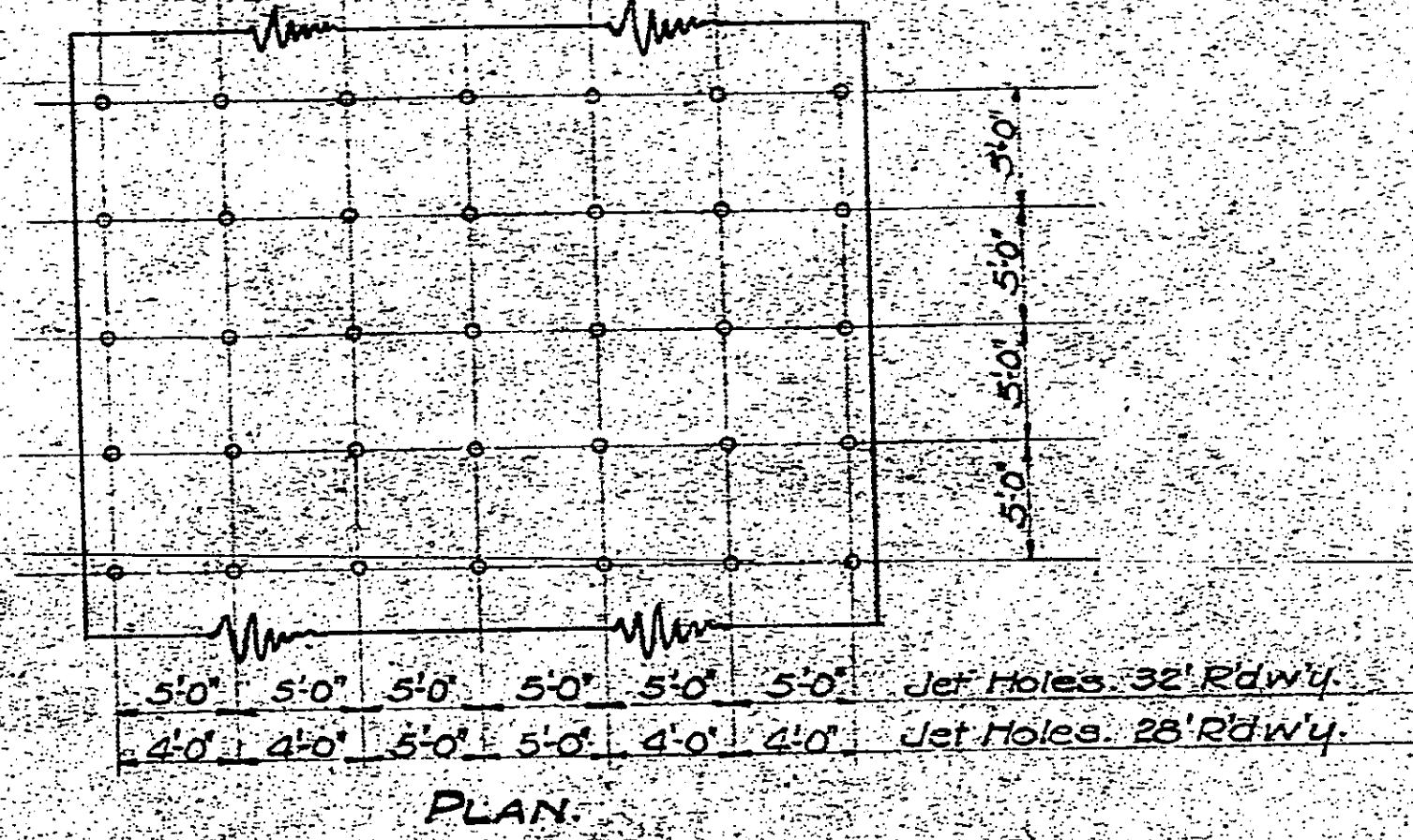
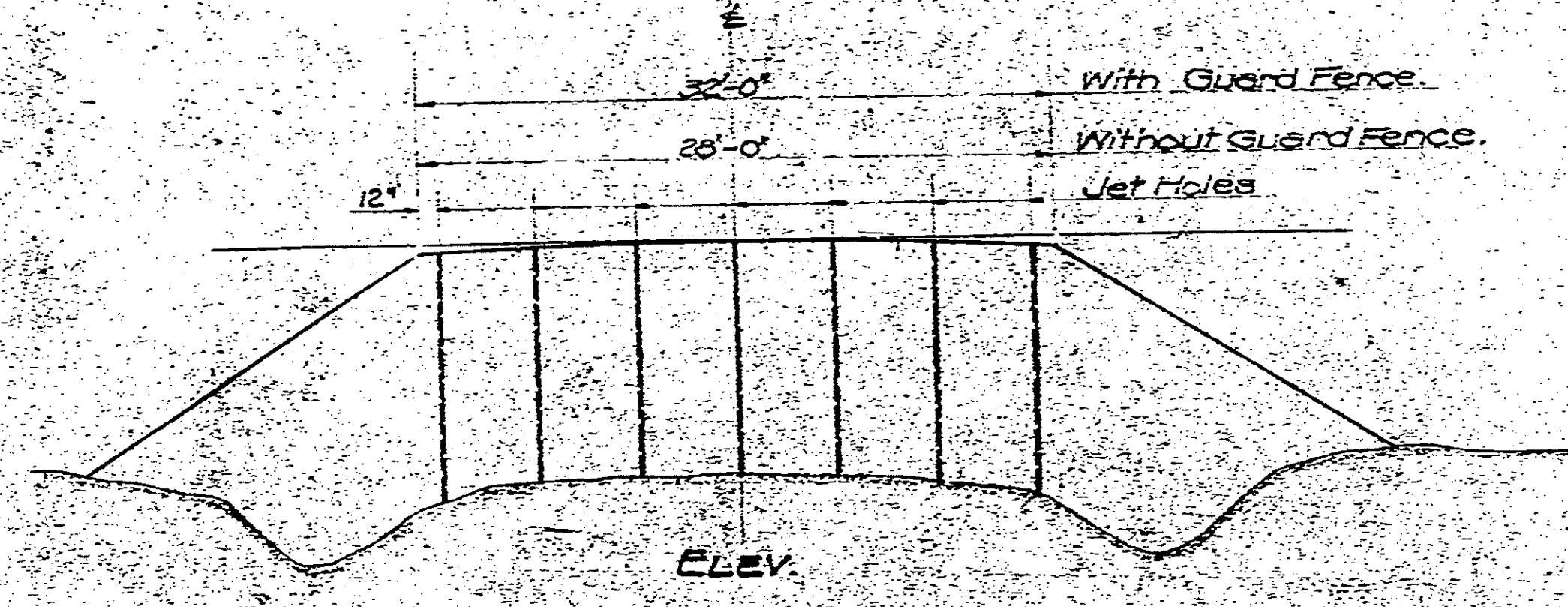
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KANSAS STATE HIGHWAY COMMISSION
 TOPEKA KANSAS
 STANDARD GUARD FENCE
 SECTION MARKER AND SNOW FENCE

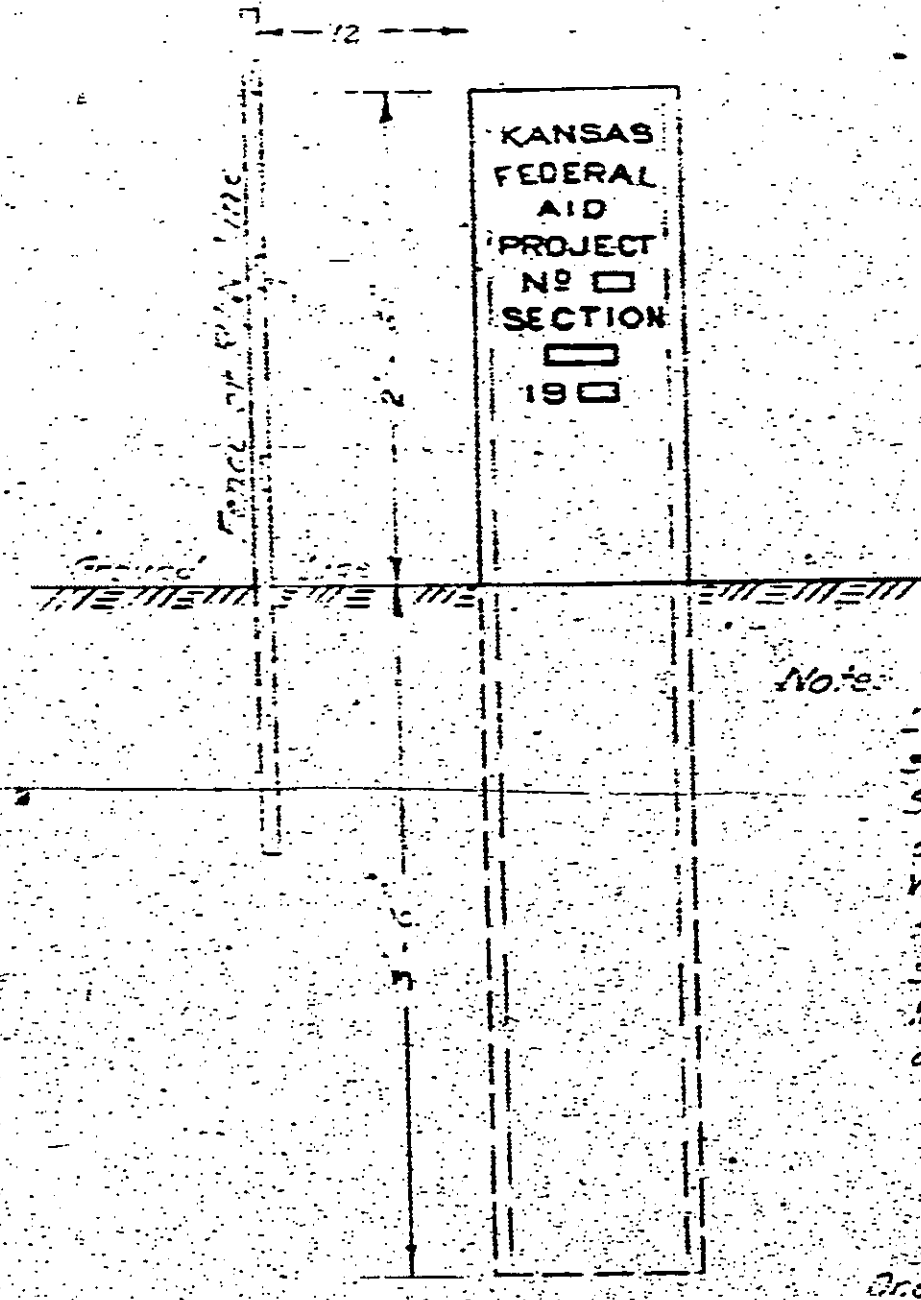
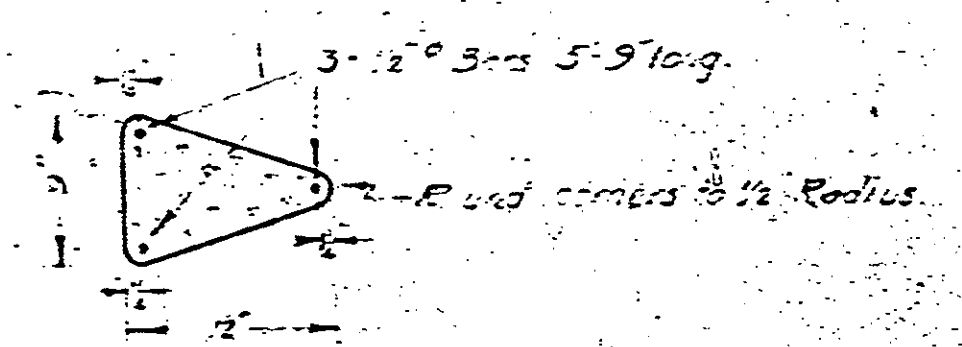


DETAIL SHOWING JETTING OF HEAVY FILLS
 STA. 618+50 TO 663+50

SUMMARY OF GUARD FENCE

Sta. to	Sta.	Side	Length
618+42	622+62	L.R.	820
624+66	633+48	L.	680
624+66	633+36	R.	650
635+56	652+45	L.	1670
635+45	652+45	R.	1620
653+55	663+45	L.R.	1960
Total			7680 Ft.

Omit 20' for Ent. 20' Road 20' Ent. 19' 20'



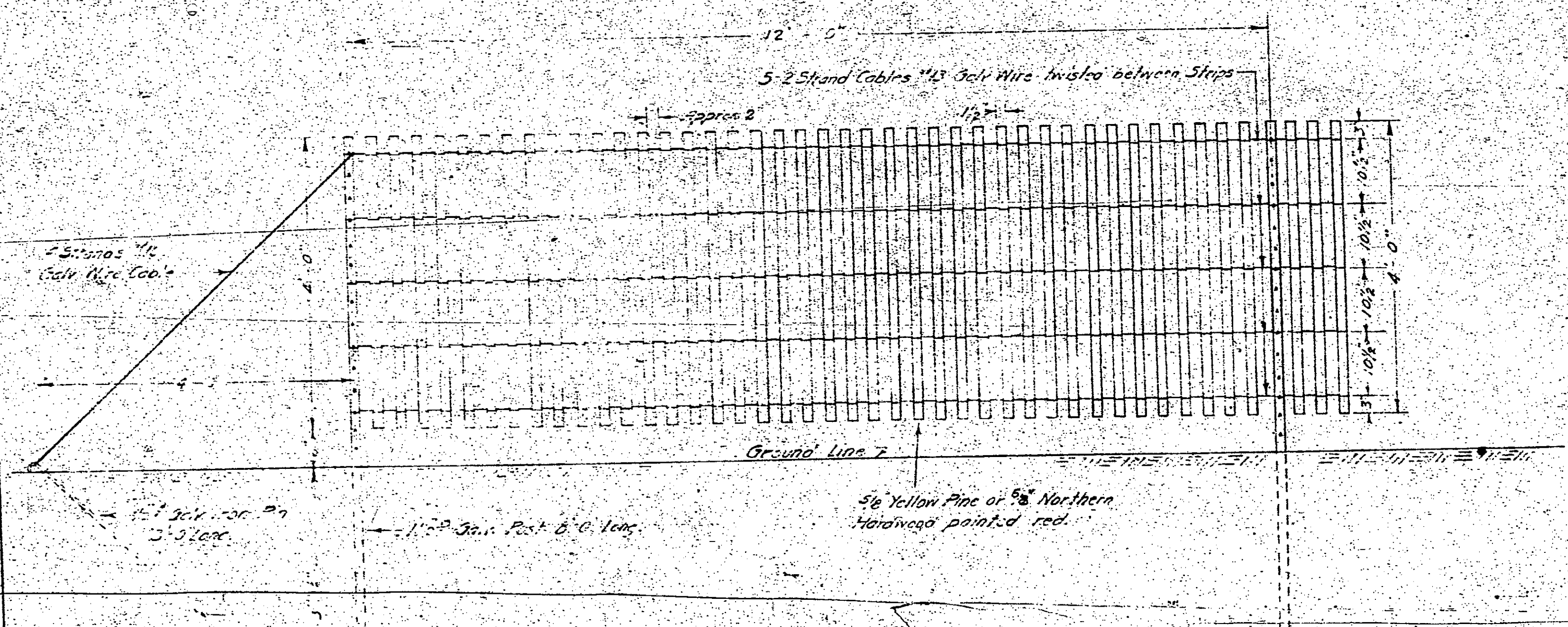
POWERS COUNTY APPIAN WAY PROJECT 1920

WORKING FOR COUNTY PROJECTS NOT FEDERAL AID

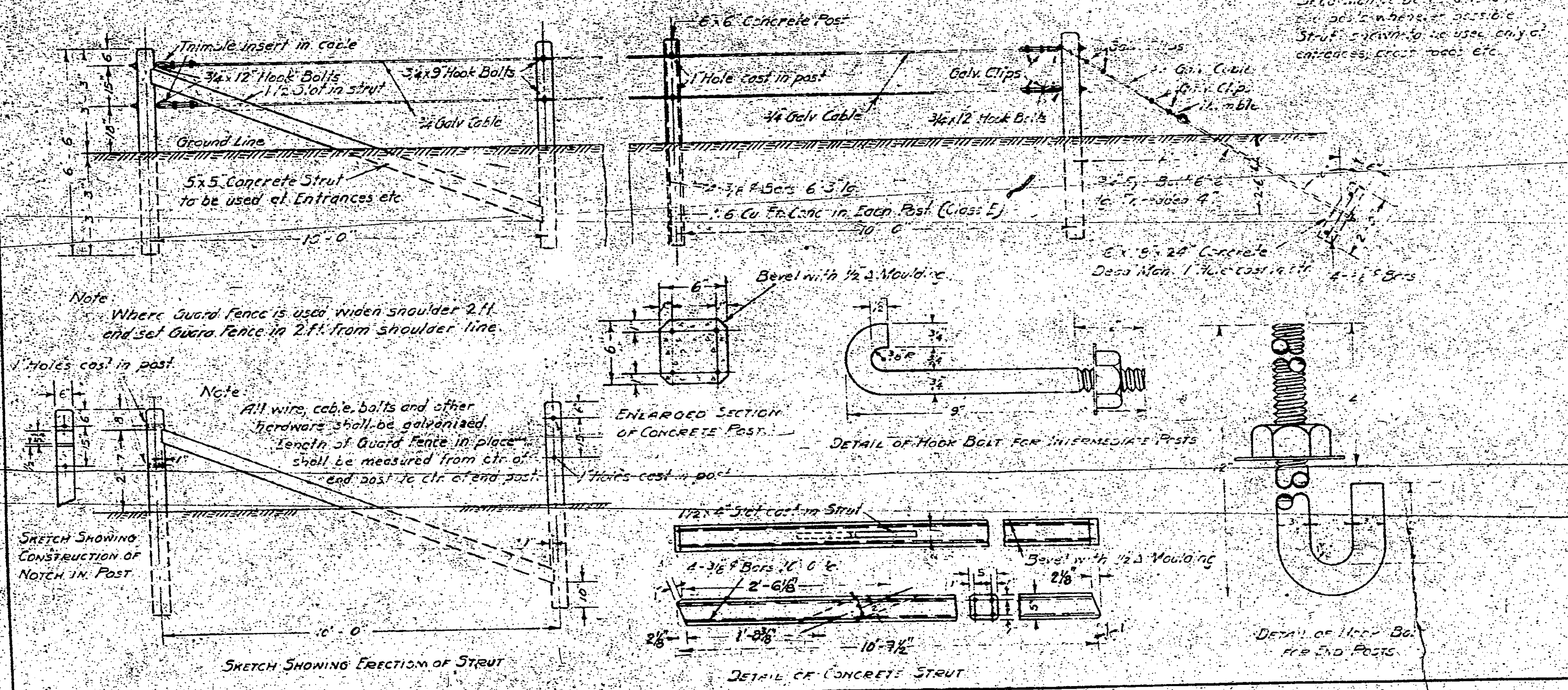
Note:
 Letters to be 1/2" high, 1" wide and set in with bit of cement.
 Section marker to agree with letter of section under contract.
 When section marker is placed the lettering shall be 5" in the section of project, which it refers.
 Marker shall be 1/2" dia. galvanized iron 2 1/2" apart.

DETAIL OF SECTION MARKERS
 One to be used at each end of each section to be built by county

STANDARD SNOW FENCE



TYPE II GUARD FENCE



SUMMARY OF QUANTITIES

Proj. No. 273 1927
 Date No. 5
 Total Sheets 27
 Sec. C

HEDGE TO BE GRUBBED				
Sta. to Sta.	Side	Net Length Lin. Ft.	Remarks	
591+79	West	319	Stumps	
591+41	West	150		
592+41	West	150		
592+21	L	290		
600+36	R	319		
604+20	L	695		
613+20	L	490	Stumps	
617+16	L	1624	12' Ent.	
655+19	L	1405		
671+16	L	1403	15' Ent.	
720+25	R	371		
734+30	R	275		
738+30	R	119		
737+54	L	300		
742+22	R	706	10' Ent.	
741+25	L	650		
753+72	West	481		
753+72	West	566		
760+09	L	101		
764+30	L	202		
773+00	L	61		
774+52	L	64		
784+18	R	201		
787+13	R	476		
785+37	R	30		
785+47	L	30		
Total - Lin. Ft.		12104	12104 Sta.	

Note - All trees and brush within the limits of R/W that conflict with the improvement are to be grubbed by the Grading Contractor and included in price bid for Earth Exc. and Borrow.

EARTHWORK SUMMARY				
Sta. to Sta.	Exc. Cu.Yds.	Emb. Cu.Yds.	Borrow. Cu.Yds.	Remarks
591+50	1523	1322		5500 from So.
598+00	272	1052	950	
603+50	1072	519		
615+10	3655	2043	750	
624+654	426	9320	8850	
635+507	30	7396	2000	
645+00	0	7746	6500	
653+541	96	4292	9000	
684+30	696	520		
671+00	672	512		
684+00	820	624		
689+00	1365	1050		Av Haul 600'
712+00	506	406		
720+00	1291	1372		
733+00	2319	1520		2325 emb. from Cal
744+00	711	589		300 emb. from station
749+00	1593	1400		Av Haul 500'
764+00	657	707		
760+50	2606	1611		Excess to Old Chas
780+00	656	371		
788+00	537	271		
785+00	303	213		
802+00	400	343		
813+00	76	30		Waste Excess
Total	22560	51806	37050	

Jetting of embankment, Sta. 618+50 to 663+50 - 54530 C.Y.

Total Area Concrete on Brick Pavement - 43956 Sq. Yds.
 Total Mesh Reinforcing for Curbs - 7960 Lbs.
 Transverse Expansion Joints for (Conc. Pavt) 3978 Lin. Ft.
 Metal Strip Joint Cover (Brick Pavt) 3647
 Total Guard Fence - 7680 Lin. Ft.
 3/4 x 10 Mastic Joint (Brick Pavt) 442 Lin. Ft.

BRIDGE SUMMARY								
Sta.	Size and Type	Concrete C.Y.			Reinf. Steel	Excavation C.Y.		Removal of Existing Str.
		C.I.A.	C.I.E.	C.I.D.	Wet	Dry	Rock	
623+64	9-20" Sp. RC Slabs	436.6	122	33.7	54680	330	—	2-12" RC Slab
653+00	6-16" Sp. RC Slabs	253.9	67	18.4	27930	210	—	1-10" RC Slab
778+46	1-20" Sp. RC Slab	102.0	1.4	4.4	8200	65	—	
Totals		852.5	20.3	56.5	90790	625		

CULVERT SUMMARY														
Sta.	Size	Type	K.H.C. Brand No.	Grade Elev.	Flow Line Elev.		Remarks	Concrete		Reinf. Steel Lbs.	Triple Strength V.C.Pipe			
					Up Str.	On Str.		Class A Cu. Yds.	Class E Cu. Yds.		15"	18"	24"	30"
591+50 R	36" x 24"	R.C. Box	115	885.00	81.6	81.5	No H.W.	11.5	0.4	1075				
605+48 R	24" x 21"	V.C. Pipe										21		
616+03 R	15" x 21"	"											21	
618+25 R	15" x 21"	"											21	
621+64 L	24" x 30"	"										30		30
637+00 R	15" x 30"	"											30	
644+70 R	18" x 30"	"											30	
649+19 L	18" x 30"	"											21	
689+69 L	18" x 21"	"												
671+17 R	24" x 22"	R.C. Box	112	867.90	84.5	84.4		10.2	0.4	860			21	
675+51 L	18" x 21"	V.C. Pipe												
686+23 R	36" x 24"	R.C. Box	115	869.83	86.1	86.0		11.5	0.4	1075				
699+00	54" x 24"	"	130	890.50	86.6	86.5		17.9	0.5	1780				
700+03 R	30" x 21"	V.C. Pipe												21
709+44 R	30" x 21"	"												21
710+16 L	30" x 21"	"												21
724+11 R	24" x 21"	"											21	
737+79 R	15" x 21"	"											21	
740+18 R	15" x 21"	"											21	
740+70 L	15" x 21"	"											21	
741+36 R	15" x 21"	"											21	
742+17 R	15" x 21"	"											21	
810+14 RT	24" x 22"	R.C. Box	112	823.50	19.6	19.5	On Ten.	10.2	0.4	860				
761+70	61" x 28"	"	142	905.00	0.1	0.10		20.7	0.5	2090				
772+38 L	15" x 21"	V.C. Pipe					No H.W.					21		
784+00	24" x 30"	R.C. Box	Special	890.96	86.1	86.0		38.2	0.8	3550				
788+43 R	24" x 28"	"	112	900.78	97.6	96.7		10.2	0.4	860				
789+24 L	15" x 21"	V.C. Pipe					No H.W.					21		
791+71 L	15" x 21"	"											21	
801+00	24" x 28"	R.C. Box	112	917.08	13.3	13.2		10.2	0.4	860			42	
801+79 L	18" x 25"	V.C. Pipe		917.00	13.5	13.4	No H.W.							
802+50 R	15" x 21"	"										21		
802+88 R	15" x 21"	"										21		
805+08 R	15" x 21"	"										21		
805+16 L	15" x 21"	"										21		
807+64 R	15" x 21"	"										21		
808+32 R	15" x 21"	"										21		
809+57 L	15" x 21"	"										21		
809+58 R	15" x 21"	"										21		
811+46 R	18" x 21"	"										21		
813+32 R	15" x 21"	"										21		
814+03 R	15" x 21"	"										21		
Totals								140.6	4.2	13310	492	165	72	63

*Alternate bids to be received on R.C.R

Exp # 1
 Sta. 591+50
 On or Run
 11.5 cu yds class A
 0.4 " " " " class E
 1075 # Re-Steel
 9-26-27 - Red

Re # 2
 amount 80+55
 10.2 cu yds class A
 4 " " " " class E
 860 # Re-Steel
 9-9-27 RT

Re # 3
 Sta. 710+00 819+73
 on Run
 6.8 - 24" VCP
 4.2 - 18" VCP
 4.2 - 15" VCP
 9-26-27 Red

Re # 4
 On Run
 3846 cu yds Ex
 5-31-28 Red

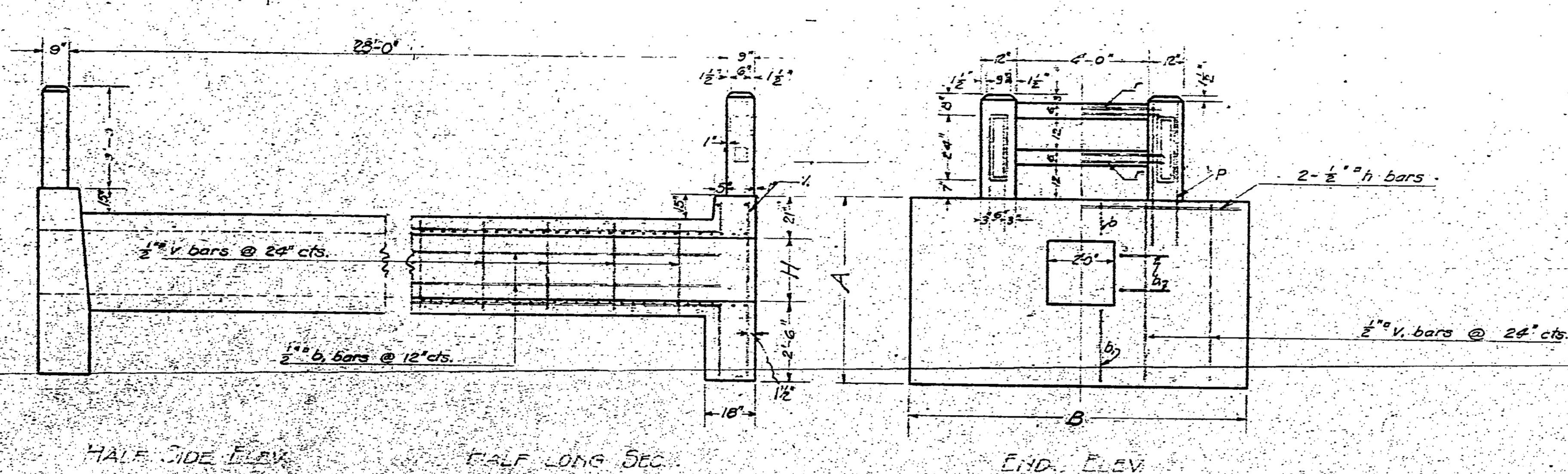
Prepared by
 H.A. Marshall,
 Consulting Engr.
 Topeka,
 Kansas.

Feb. 17, 1927.

3 1 8

KANSAS HIGHWAY COMMISSION
TOPEKA KANSAS

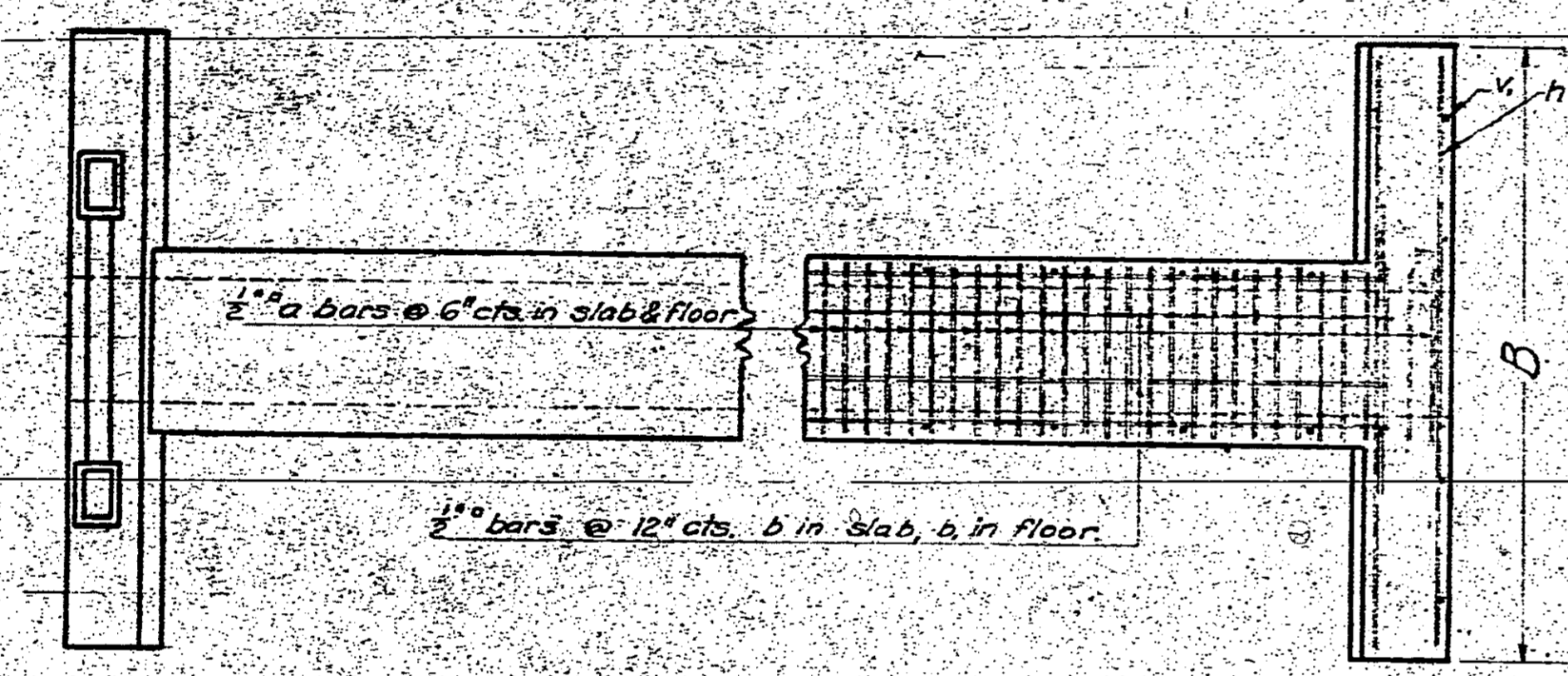
Fed. Road Dist. No.	State	Fed. Aid Proj. No.	Fiscal Year	Sheet No.	Total Sheets
5	KANSAS	273	1927	10	27
					Sec. C



HALF SIDE ELEV.

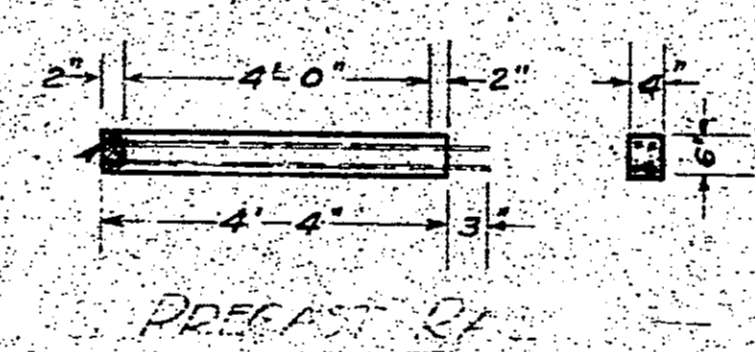
HALF LONG SEC.

END. ELEV.

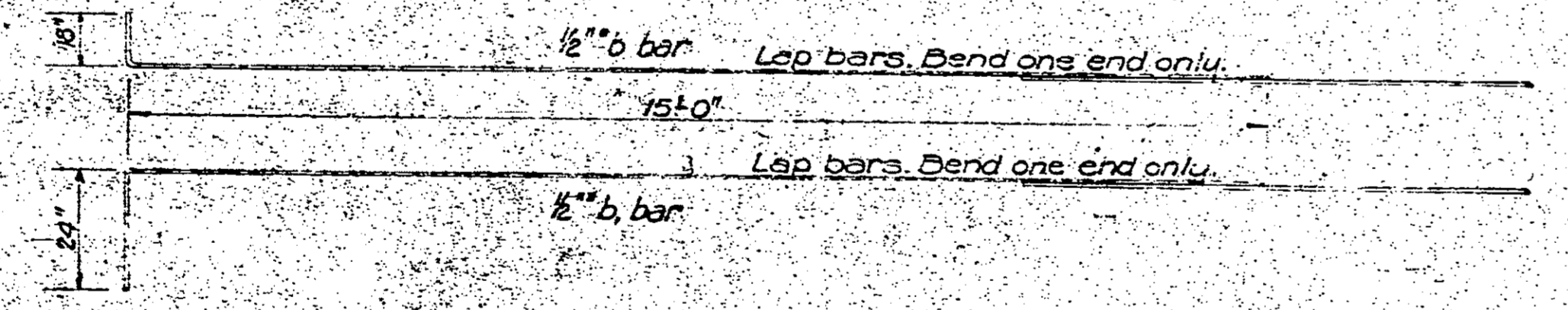


PLAN

CROSS SEC. OF BOX



PREFECT BY

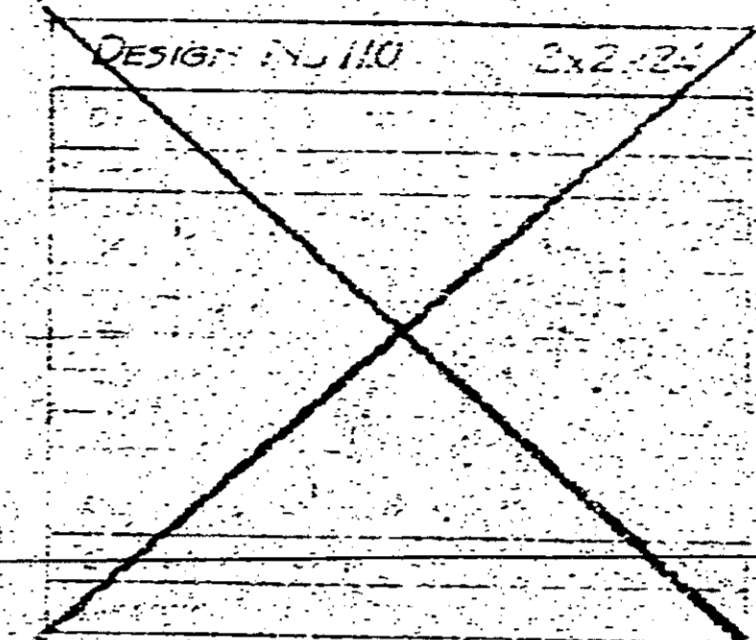


LAPPING DIAGRAMS

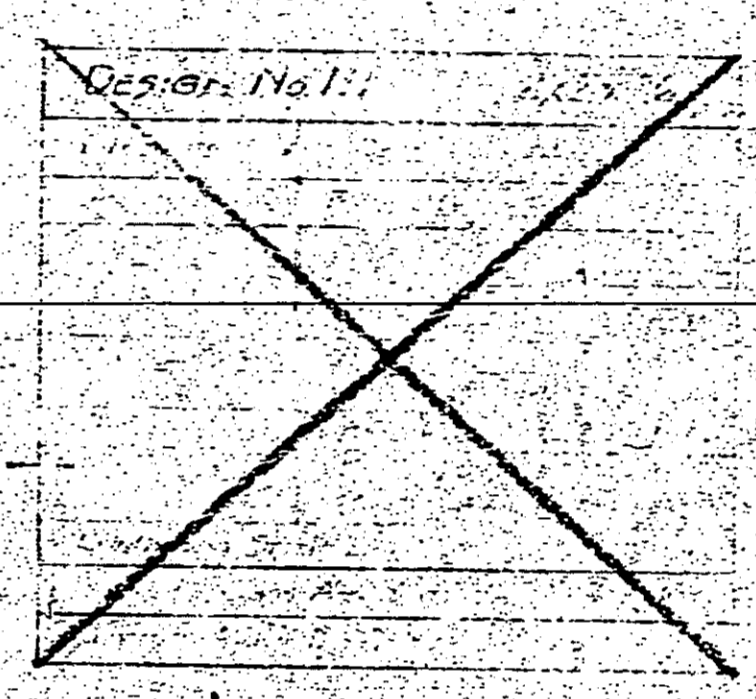
BILL OF MATERIAL FOR CULVERTS

2 FOOT SPAN

24 FOOT ROADWAY



24 FOOT ROADWAY



28 FOOT ROADWAY

Design No. 112. 2'x2'

Dimension	Letter	Length	Bar No.	Size	Length
A	a	8'-3"	118	1/2"	3'-9"
B	b	8'-6"	112	1/2"	17'-0"
H	d	2'-0"	16	1/2"	5'-0"
	e		16	1/2"	2'-0"
	f		16	1/2"	2'-0"
	g		16	1/2"	2'-0"
	h		16	1/2"	2'-0"
	i		16	1/2"	2'-0"
	j		16	1/2"	2'-0"
	k		16	1/2"	2'-0"
	l		16	1/2"	2'-0"
	m		16	1/2"	2'-0"
	n		16	1/2"	2'-0"
	o		16	1/2"	2'-0"
	p		16	1/2"	2'-0"
	q		16	1/2"	2'-0"
	r		16	1/2"	2'-0"
	s		16	1/2"	2'-0"
	t		16	1/2"	2'-0"
	u		16	1/2"	2'-0"
	v		16	1/2"	2'-0"
	w		16	1/2"	2'-0"
	x		16	1/2"	2'-0"
	y		16	1/2"	2'-0"
	z		16	1/2"	2'-0"

Reinforcing Steel, Lbs. 560.
Concrete, Class A - Cu. Yds. 10.2
Concrete, Class E - Cu. Yds. 0.4

*Lap b and b. bars. Bend one end only.

Sta. 271+17. - 30'R.
100 W. OF FT. STA. 753+72
Sta. 763+03. - 00'R.
Sta. 801+00.

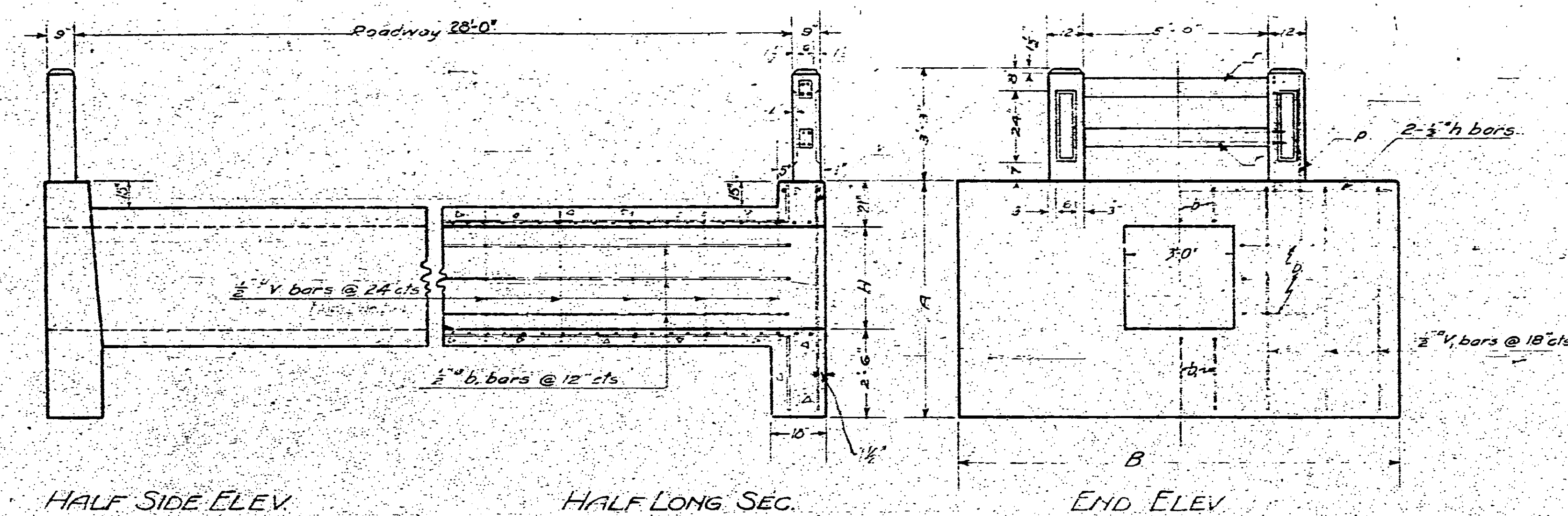
Concrete to be used throughout
in Right and Paving the Class E materials in
Left and Paving.
Bridges and abutments to be built with 1/2 inch
reinforcing steel and 1/2 inch concrete in all other exposed
parts.

STANDARD
CONCRETE BOX CULVERT
2 FOOT SPAN

**KANSAS HIGHWAY COMMISSION
TOPEKA, KANSAS**

Fed. Road Dist. No.	State	Fed. Aid Fiscal Year	Sheet No.	Total Sheets
5	KAN.	273	11	27

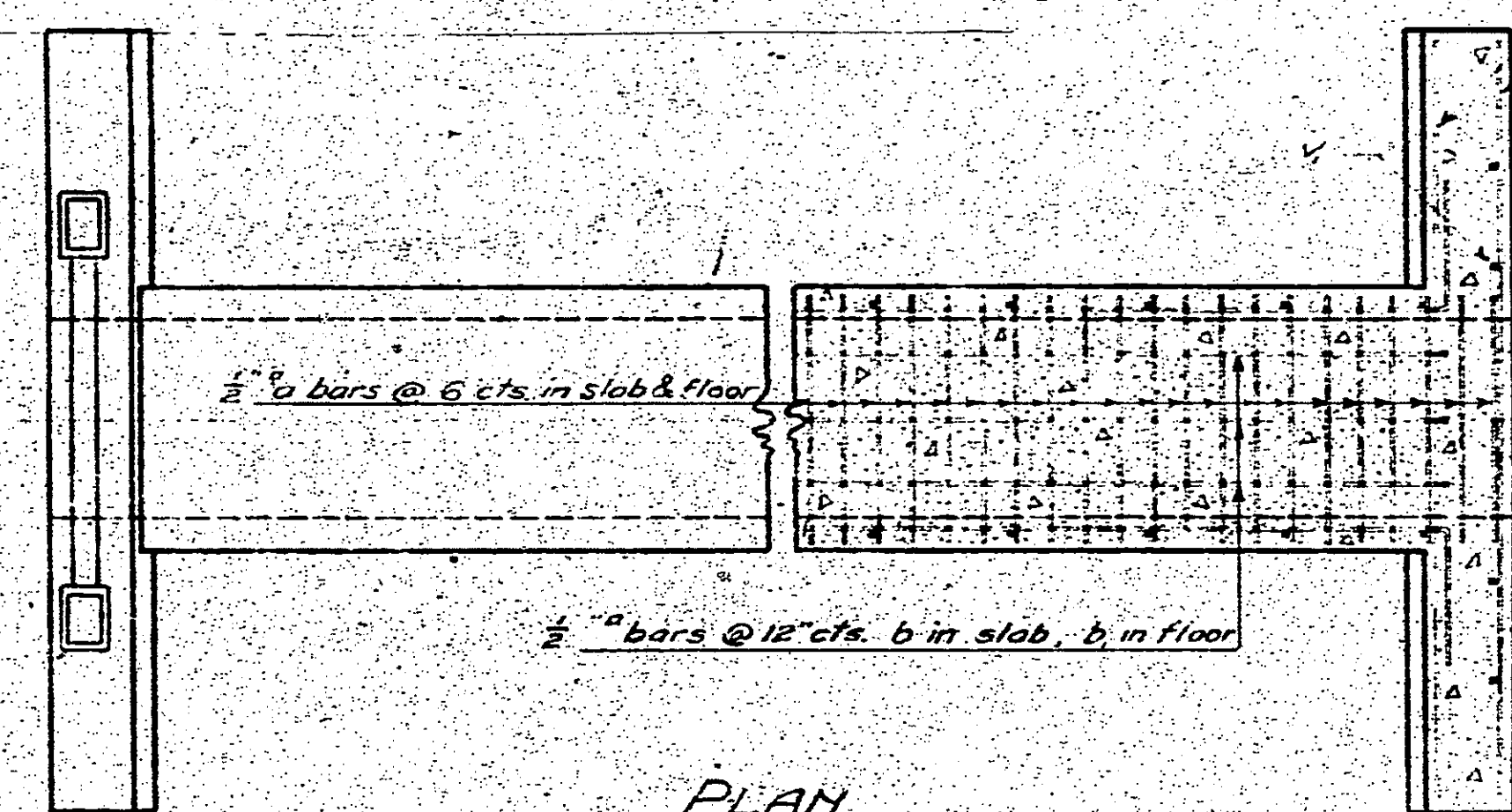
Sec. C



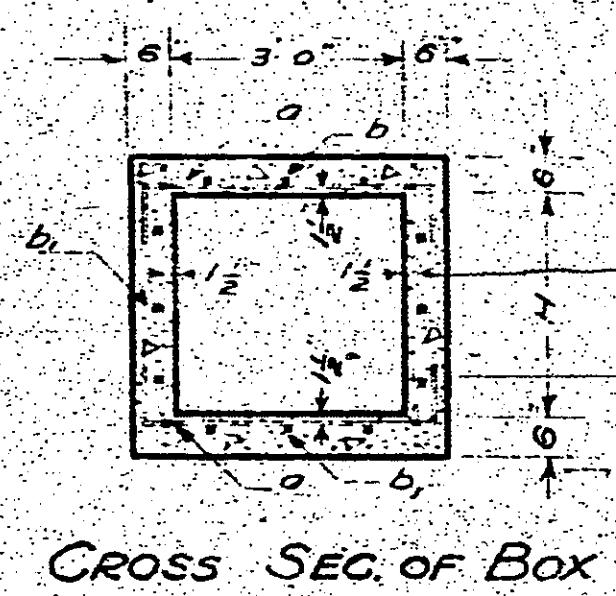
HALF SIDE ELEV.

HALF LONG SEC.

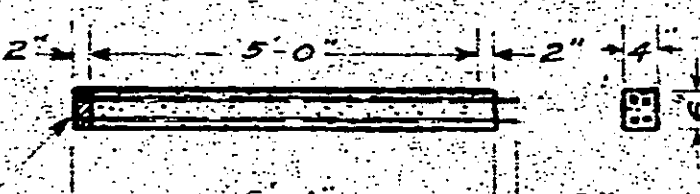
END ELEV.



PLAN

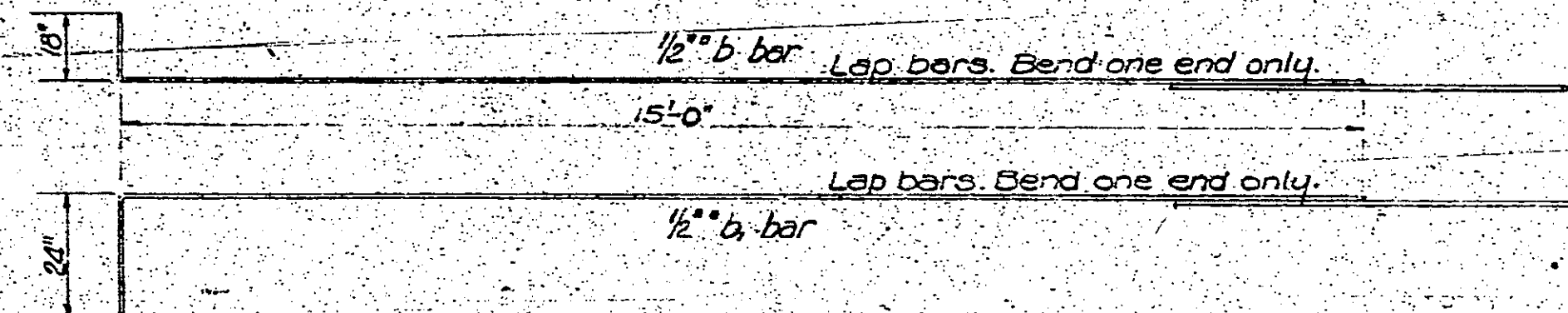


CROSS SEC. OF BOX



PRECAST RAIL

The ends of each rail to be wrapped with 1/2" x 1/2" mesh to allow for expansion.



BENDING DIAGRAMS

Notes: 1. Use concrete to be used throughout entire project. 2. Use Type E concrete in walls and floor. 3. Coat the edges of rail with a 1/2" x 1/2" mesh on all other exposed edges.

BILL OF MATERIAL FOR CULVERTS - 3 FOOT SPAN
24 FOOT ROADWAY 26 FOOT ROADWAY 28 FOOT ROADWAY

DESIGN No. 113 3x2x24

Letter	Length	Bar	No.	Size	Length
A	24'-0"	4	110	1/2"	52'
B	12'-0"	4	110	1/2"	26'

DESIGN No. 114 3x2x26

Letter	Length	Bar	No.	Size	Length
A	26'-0"	4	110	1/2"	57'
B	13'-0"	4	110	1/2"	28'

DESIGN No. 115 3x2x28

Letter	Length	Bar	No.	Size	Length
A	28'-0"	4	110	1/2"	61'
B	14'-0"	4	110	1/2"	30'

Reinforcing Steel - Lbs. 6075
Concrete Class A - Cu. Yds. 11.5
Concrete Class E - Cu. Yds. 0.4

*Lap these bars. Bend one end only.

Sta. 591+50 - 100' R.
Sta. 606+53

DESIGN No. 116 3x3x24

Letter	Length	Bar	No.	Size	Length
A	24'-0"	4	110	1/2"	52'
B	12'-0"	4	110	1/2"	26'

DESIGN No. 117 3x3x26

Letter	Length	Bar	No.	Size	Length
A	26'-0"	4	110	1/2"	57'
B	13'-0"	4	110	1/2"	28'

DESIGN No. 118 3x3x28

Letter	Length	Bar	No.	Size	Length
A	28'-0"	4	110	1/2"	61'
B	14'-0"	4	110	1/2"	30'

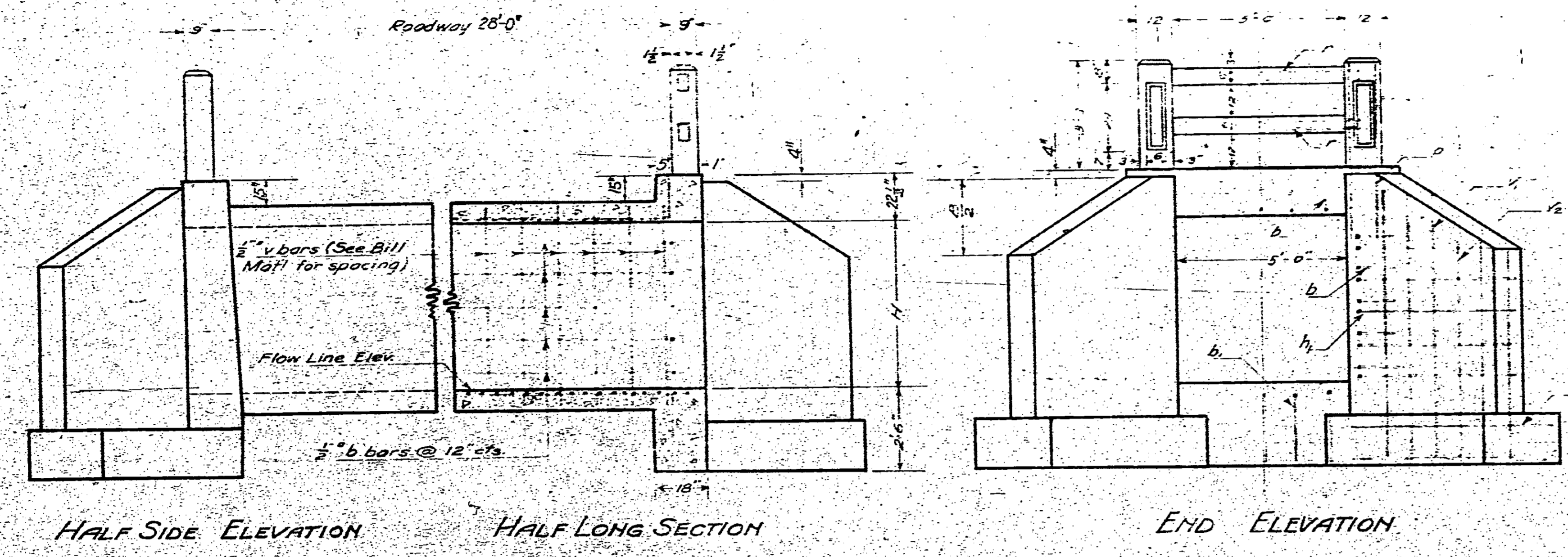
Reinforcing Steel - Lbs. 6075
Concrete Class A - Cu. Yds. 11.5
Concrete Class E - Cu. Yds. 0.4

*Lap these bars. Bend one end only.

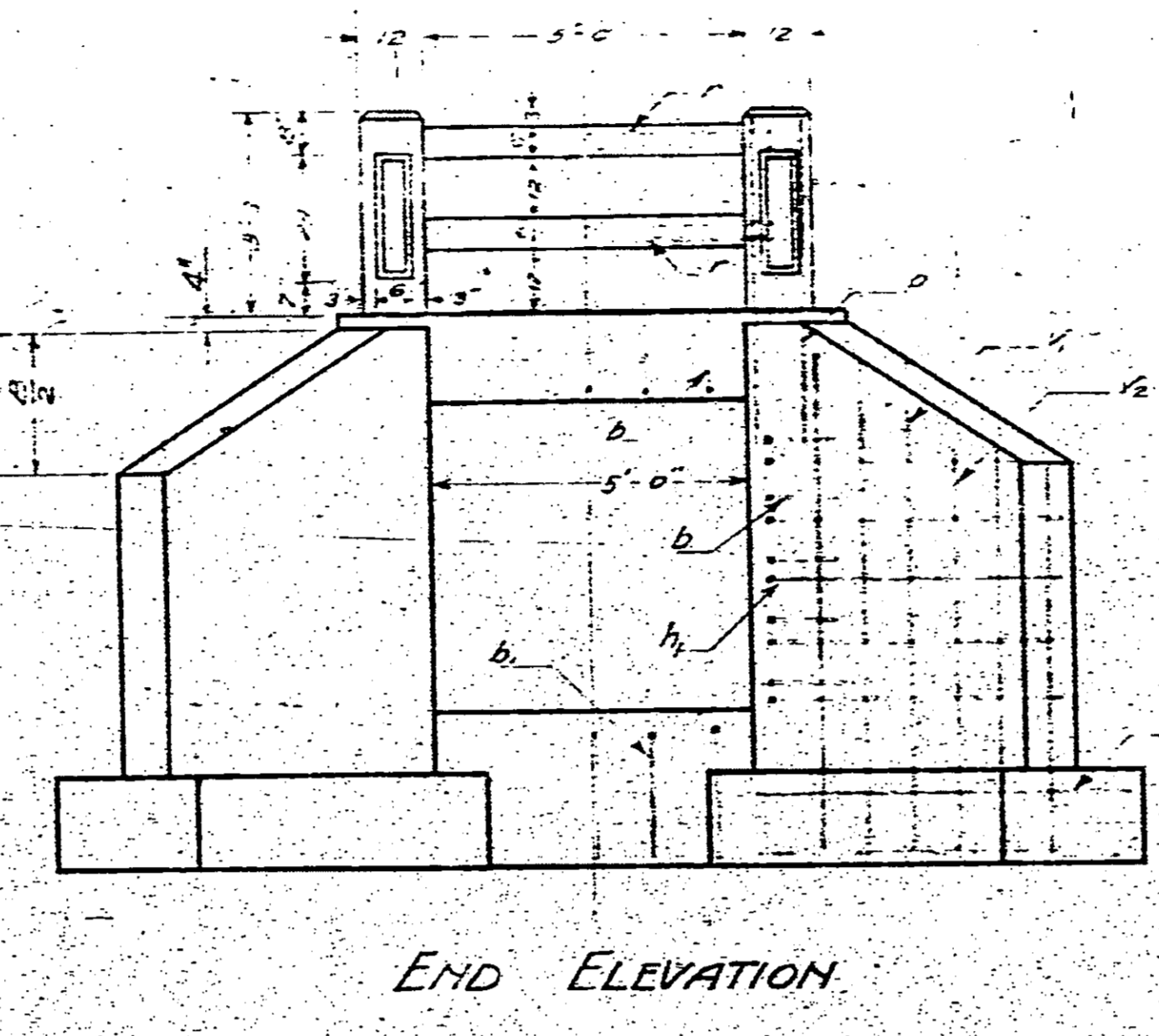
STANDARD
CONCRETE BOX CULVERT
3 FOOT SPAN

3 2 0

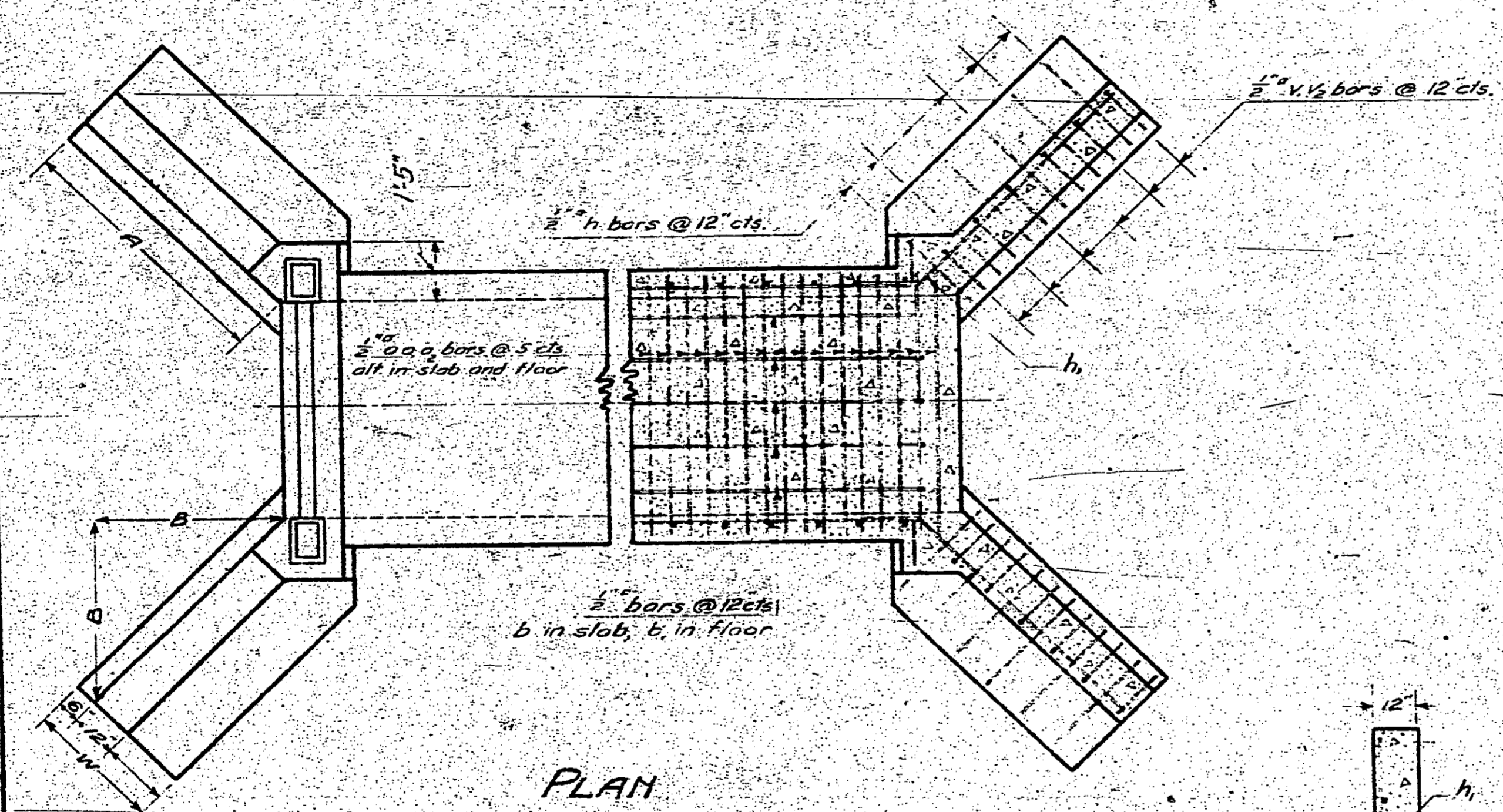
KANSAS HIGHWAY COMMISSION
TOPEKA KANSAS



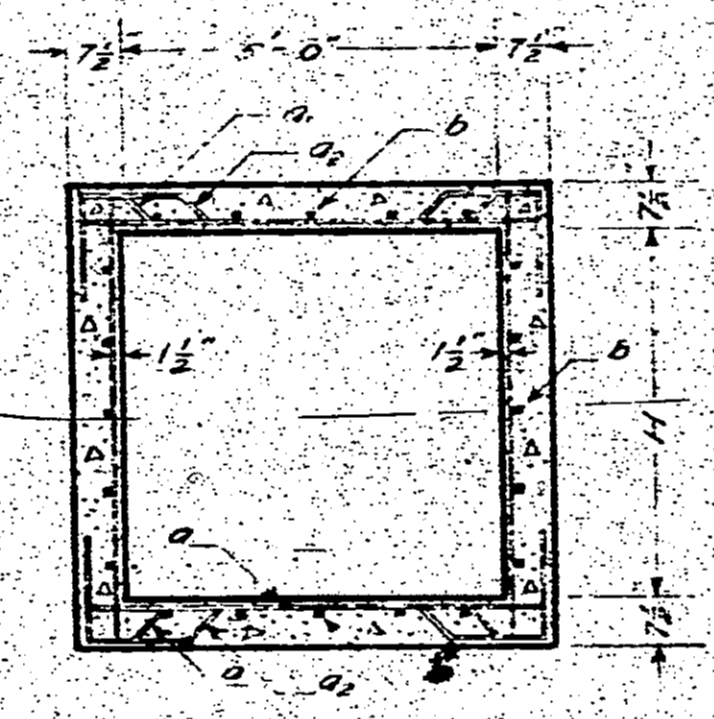
HALF SIDE ELEVATION HALF LONG SECTION



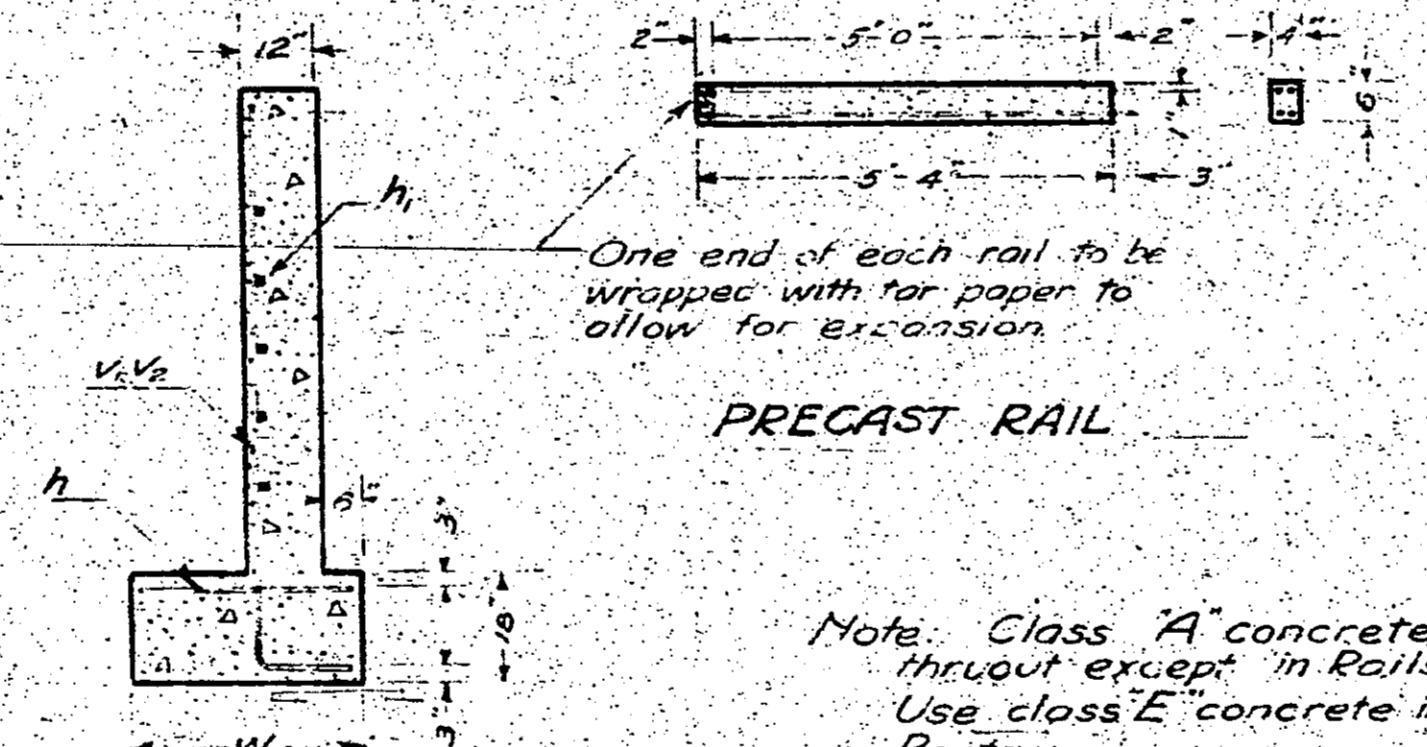
END ELEVATION



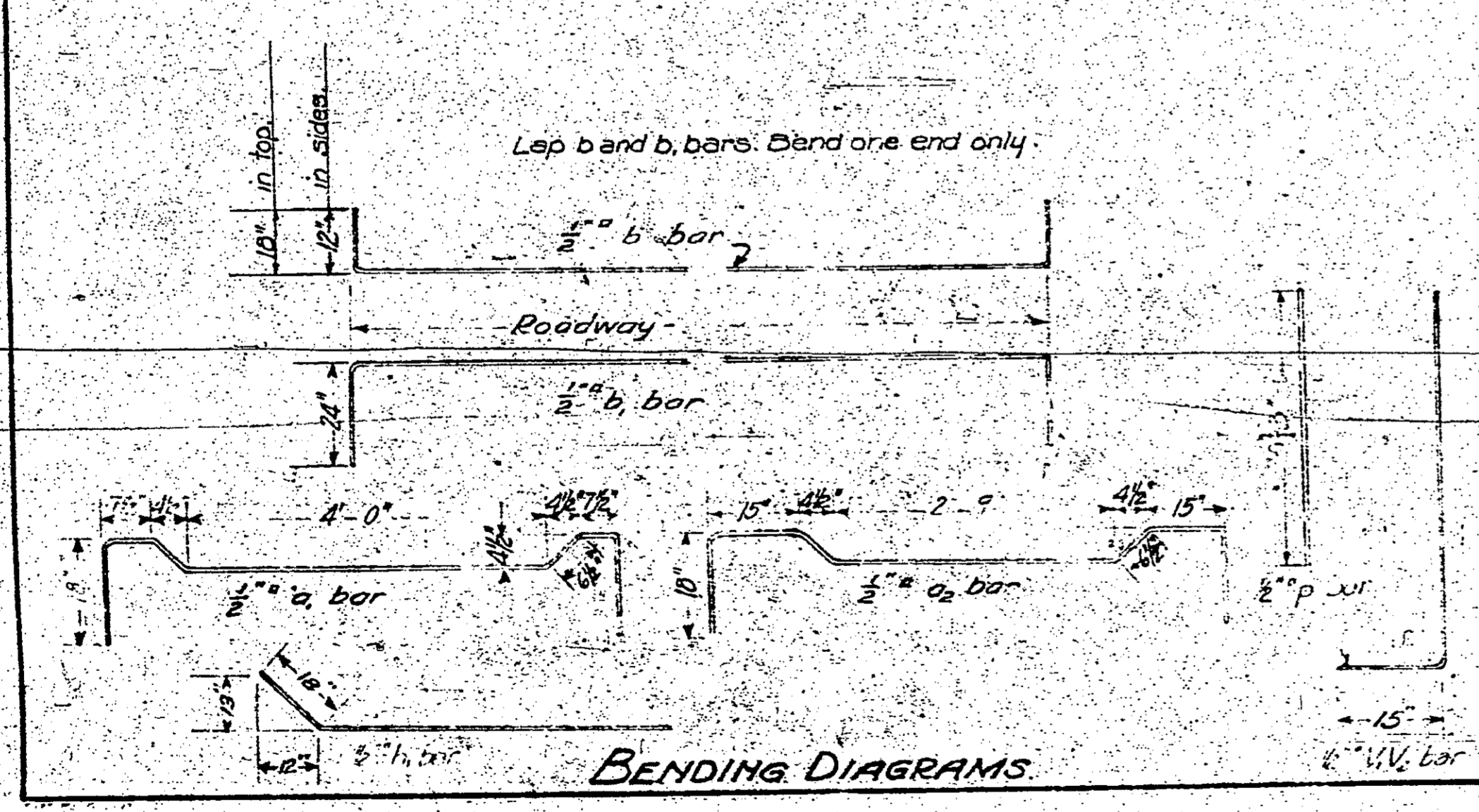
PLAN



CROSS SEC OF BOX



PRECAST RAIL



BENDING DIAGRAMS

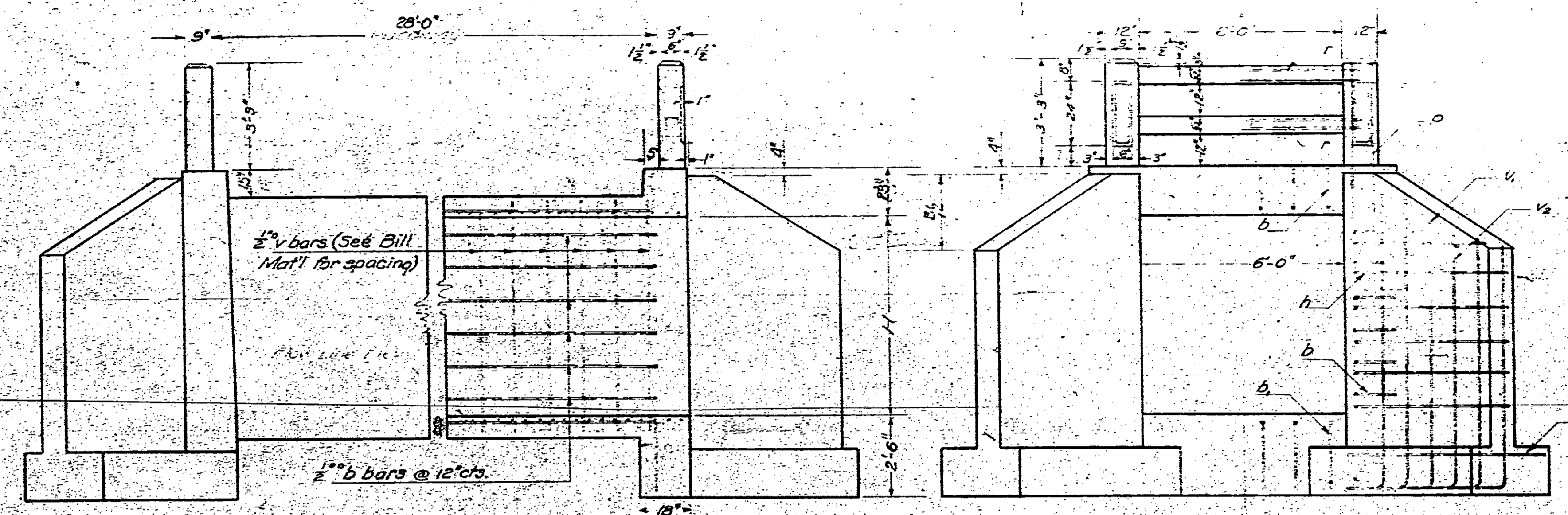
CROSS SEC OF WING

Note: Class 'A' concrete to be used thruout except in Rails and Posts.
Use class 'E' concrete in Rails and Posts.
Finish the edges of Rails with a 3/8 inch triangular moulding.
Use a 3/8 inch moulding on all other exposed edges.

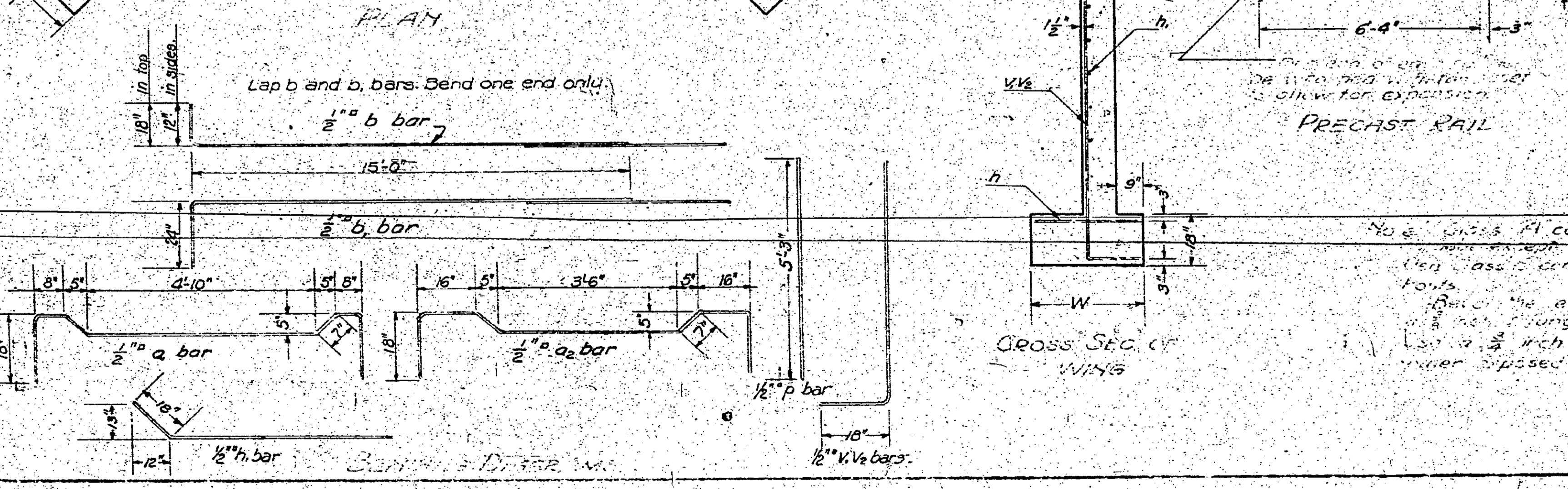
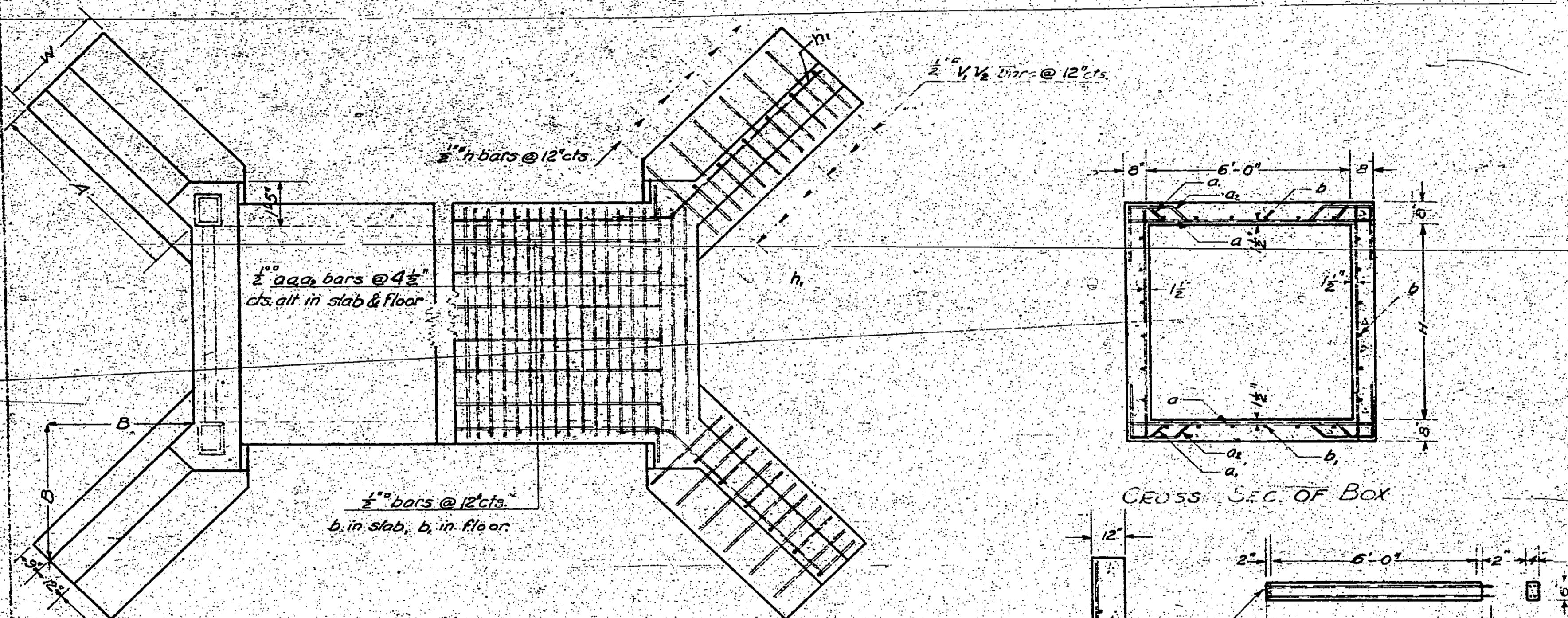
BILL OF MATERIAL FOR CULVERTS - 5 FOOT SPAN

24 FOOT ROADWAY										26 FOOT ROADWAY										28 FOOT ROADWAY									
DESIGN No. 128 5x2x24										DESIGN No. 129 5x2x26										DESIGN No. 130 5x2x28									
Letter	A	B	H	W	Bar	V	V ₂	Space	12'	Letter	A	B	H	W	Bar	V	V ₂	Space	12'	Letter	A	B	H	W	Bar	V	V ₂	Space	12'
Dimension	36"	25"	20"	24"	3	18"	12"	12"	12"	Letter	A <td>B<td>H<td>W<td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> <td>Letter<td>A<td>B<td>H<td>W<td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> </td></td></td></td></td></td></td></td></td></td></td></td>	B <td>H<td>W<td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> <td>Letter<td>A<td>B<td>H<td>W<td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> </td></td></td></td></td></td></td></td></td></td></td>	H <td>W<td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> <td>Letter<td>A<td>B<td>H<td>W<td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> </td></td></td></td></td></td></td></td></td></td>	W <td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> <td>Letter<td>A<td>B<td>H<td>W<td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> </td></td></td></td></td></td></td></td></td>	Bar <td>V<td>V₂</td><td>Space</td><td>12'</td> <td>Letter<td>A<td>B<td>H<td>W<td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> </td></td></td></td></td></td></td></td>	V <td>V₂</td> <td>Space</td> <td>12'</td> <td>Letter<td>A<td>B<td>H<td>W<td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> </td></td></td></td></td></td></td>	V ₂	Space	12'	Letter <td>A<td>B<td>H<td>W<td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> </td></td></td></td></td></td>	A <td>B<td>H<td>W<td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> </td></td></td></td></td>	B <td>H<td>W<td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> </td></td></td></td>	H <td>W<td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> </td></td></td>	W <td>Bar<td>V<td>V₂</td><td>Space</td><td>12'</td> </td></td>	Bar <td>V<td>V₂</td><td>Space</td><td>12'</td> </td>	V <td>V₂</td> <td>Space</td> <td>12'</td>	V ₂	Space	12'
Bar	0	0	0	0	0	0	0	0	0	Bar	0	0	0	0	0	0	0	0	0	Bar	0	0	0	0	0	0	0	0	0
No.	40	40	40	40	40	40	40	40	40	No.	40	40	40	40	40	40	40	40	40	No.	40	40	40	40	40	40	40	40	40
Side	18"	18"	18"	18"	18"	18"	18"	18"	18"	Side	18"	18"	18"	18"	18"	18"	18"	18"	18"	Side	18"	18"	18"	18"	18"	18"	18"	18"	18"
Length	24'	24'	24'	24'	24'	24'	24'	24'	24'	Length	26'	26'	26'	26'	26'	26'	26'	26'	26'	Length	28'	28'	28'	28'	28'	28'	28'	28'	28'
Reinforcing Steel - Lbs.	2000	2000	2000	2000	2000	2000	2000	2000	2000	Reinforcing Steel - Lbs.	2000	2000	2000	2000	2000	2000	2000	2000	2000	Reinforcing Steel - Lbs.	2000	2000	2000	2000	2000	2000	2000	2000	2000
Concrete Class 'A' - Cu Yds.	125	125	125	125	125	125	125	125	125	Concrete Class 'A' - Cu Yds.	125	125	125	125	125	125	125	125	125	Concrete Class 'A' - Cu Yds.	125	125	125	125	125	125	125	125	125
Concrete Class 'E' - Cu Yds.	25	25	25	25	25	25	25	25	25	Concrete Class 'E' - Cu Yds.	25	25	25	25	25	25	25	25	25	Concrete Class 'E' - Cu Yds.	25	25	25	25	25	25	25	25	25

**STANDARD
CONCRETE BOX CULVERT
5 FOOT SPAN**



HALF SIDE ELEVATION HALF LENGTH SECTION END ELEVATION

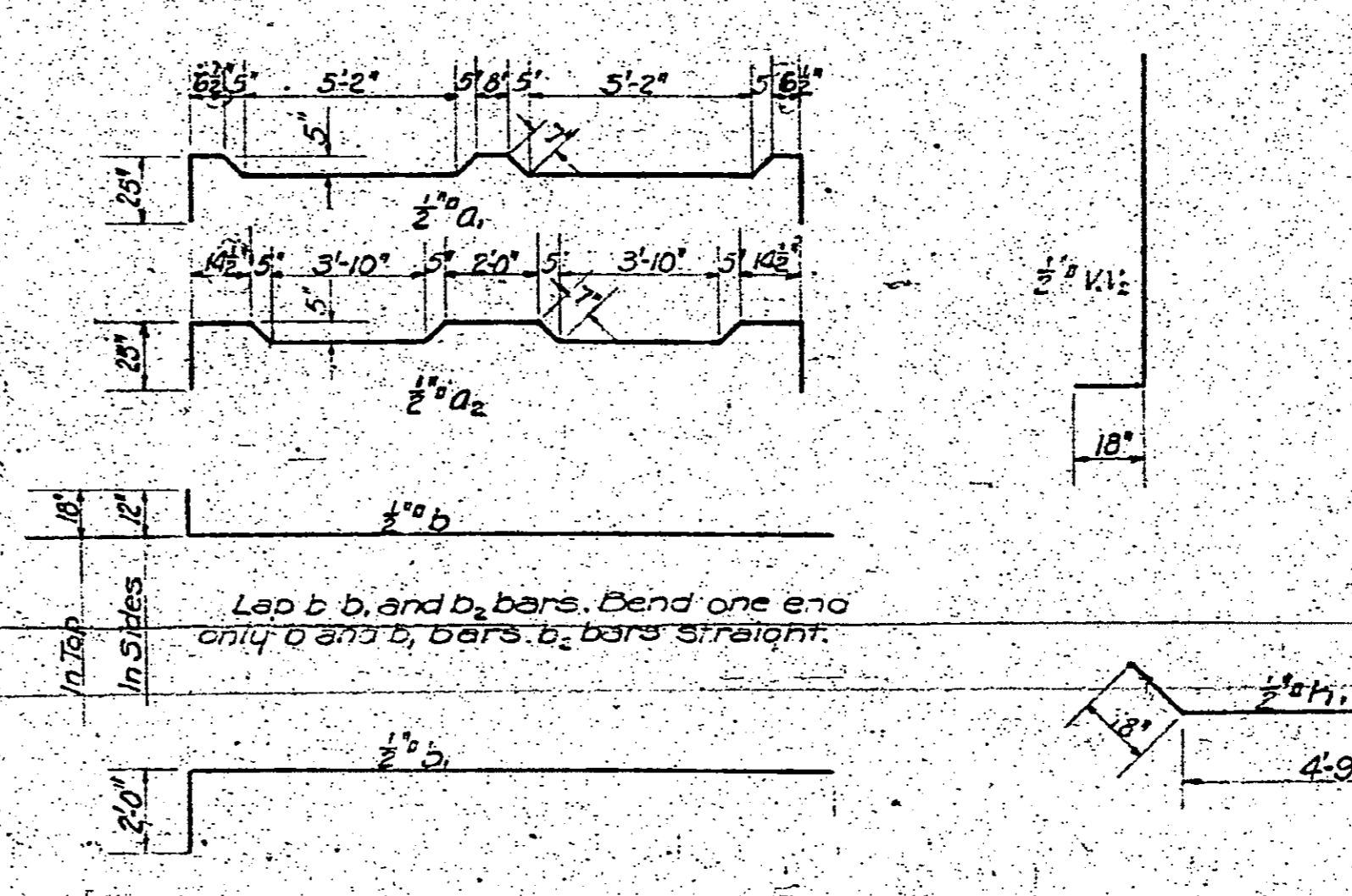
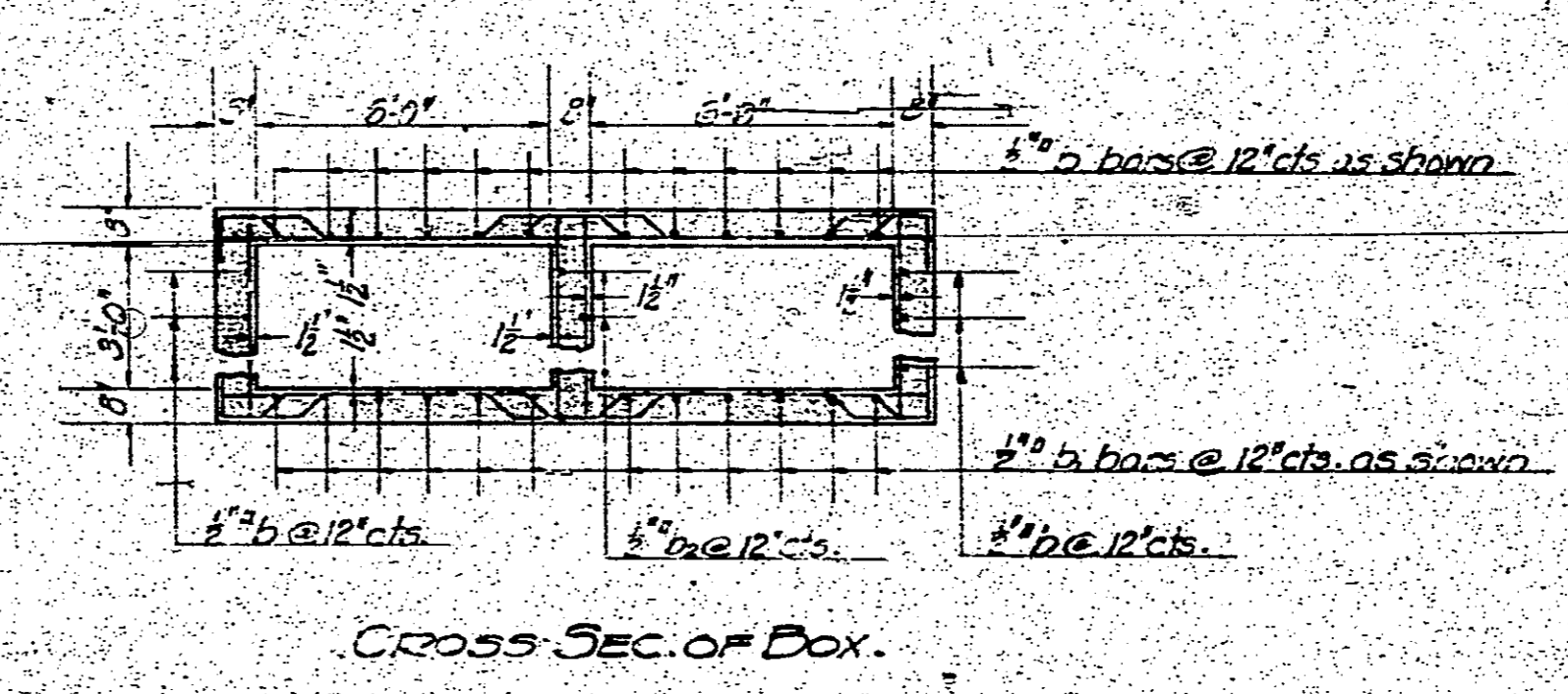
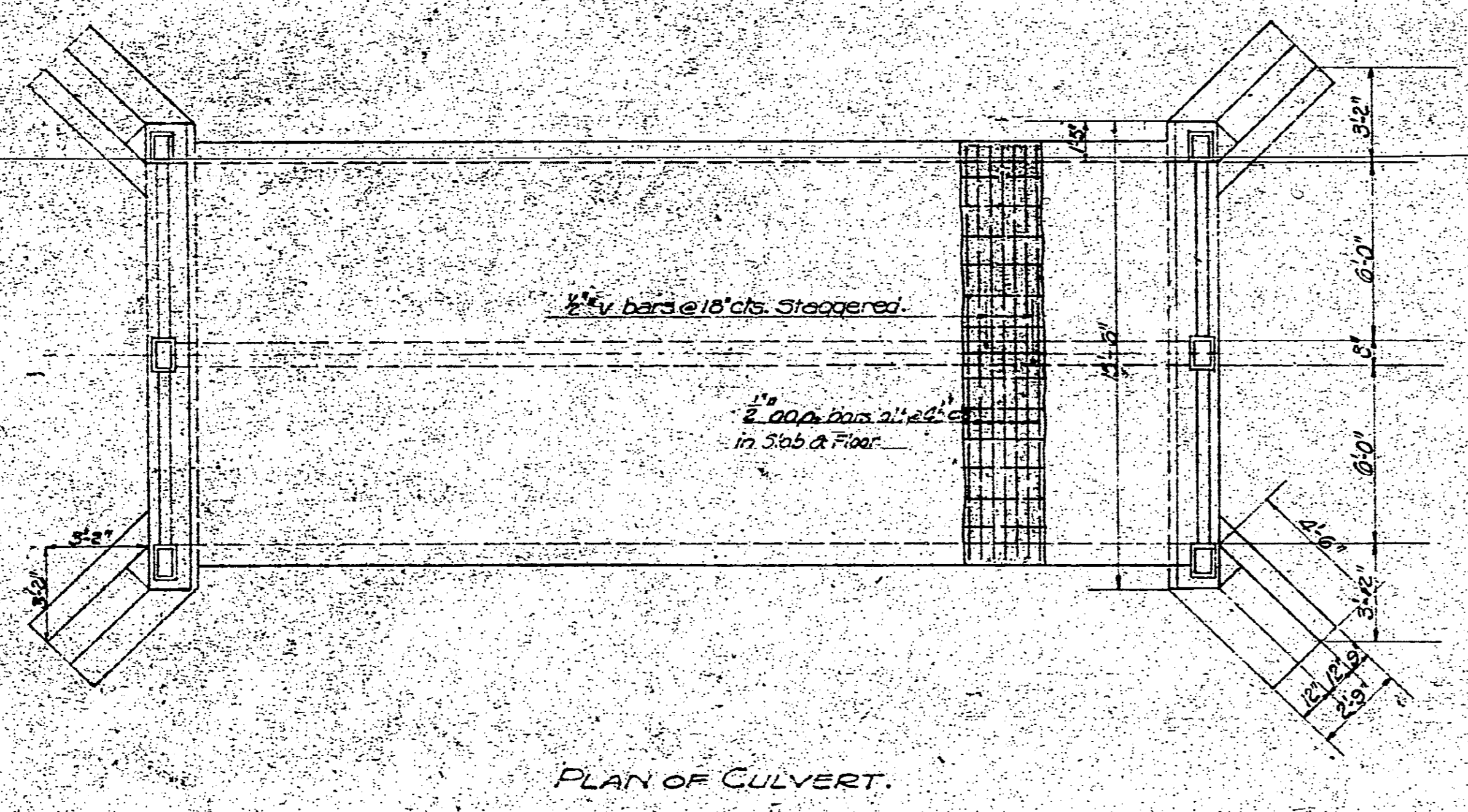
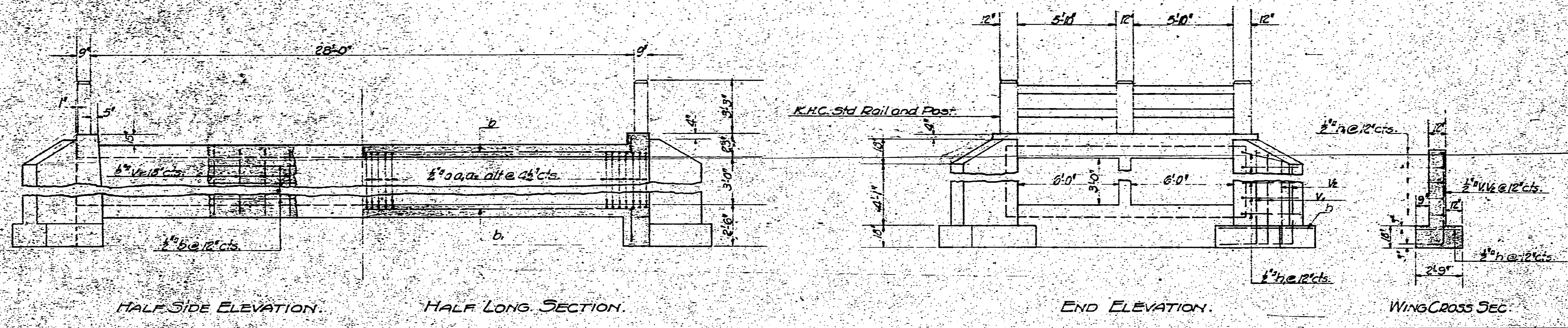


BILL OF MATERIAL FOR CULVERTS - 6 FOOT SPAN
24 FOOT ROADWAY 26 FOOT ROADWAY 28 FOOT ROADWAY

DESIGN No.	Dimensions	Reinforcing Steel - Lbs	Concrete Class A - Cu Yds	Concrete Class E - Cu Yds
DESIGN No. 140	6x2x24	8200	1.4	0.5
DESIGN No. 141	6x2x26	8500	1.5	0.5
DESIGN No. 142	6x2x28	2090	20.7	0.5
DESIGN No. 143	6x3x24	1900	21.5	0.5
DESIGN No. 144	6x3x26	2000	22.5	0.5
DESIGN No. 145	6x3x28	2200	23.5	0.5
DESIGN No. 146	6x4x24	2400	24.6	0.5
DESIGN No. 147	6x4x26	2500	25.9	0.5
DESIGN No. 148	6x4x28	2600	26.9	0.5
DESIGN No. 149	6x5x24	2800	28.1	0.5
DESIGN No. 150	6x5x26	2900	29.1	0.5
DESIGN No. 151	6x5x28	3000	30.1	0.5
DESIGN No. 152	6x6x24	25800	33.2	0.5
DESIGN No. 153	6x6x26	27800	34.5	0.5
DESIGN No. 154	6x6x28	29800	35.8	0.5

No. 6 wires of concrete to be used
in walls, floor, and slab
Use class concrete in walls and
floor.
Bend the ends of bars with
a 90 degree angular moulding
with a 3 inch insulating on all
inner exposed edges.

STANDARD
CONCRETE BOX CULVERT
6 FOOT SPAN



Bar	No.	Size	Length
a	52	1/2"	13'-0"
a ₁	52	1/2"	18'-7"
a ₂	52	1/2"	18'-7"
b	24	1/2"	17'-0"
b ₁	6	1/2"	15'-6"
b ₂	16	1/2"	2'-6"
c	20	1/2"	6'-3"
d	57	1/2"	4'-0"
e	8	1/2"	7'-9"
f	8	1/2"	6'-3"
g	24	1/2"	5'-5"
h	32	1/2"	6'-5"

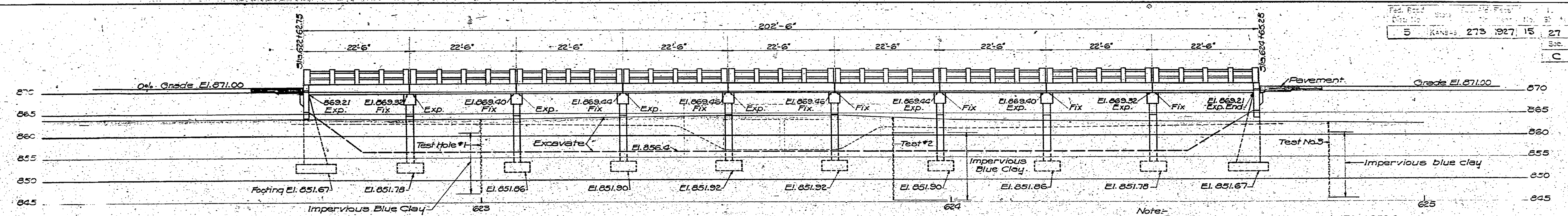
Reinf. Steel, Lbs. 3650.
 Concrete, C. I. C. Y. 302
 Concrete, C. I. E. C. Y. 00

Bar	No.	Size	Length
a	52	1/2"	13'-0"
a ₁	52	1/2"	18'-7"
a ₂	52	1/2"	18'-7"
b	24	1/2"	17'-0"
b ₁	6	1/2"	15'-6"
b ₂	16	1/2"	2'-6"
c	20	1/2"	6'-3"
d	57	1/2"	4'-0"
e	8	1/2"	7'-9"
f	8	1/2"	6'-3"
g	24	1/2"	5'-5"
h	32	1/2"	6'-5"

Reinf. Steel, Lbs. 3650.
 Concrete, C. I. C. Y. 302
 Concrete, C. I. E. C. Y. 00

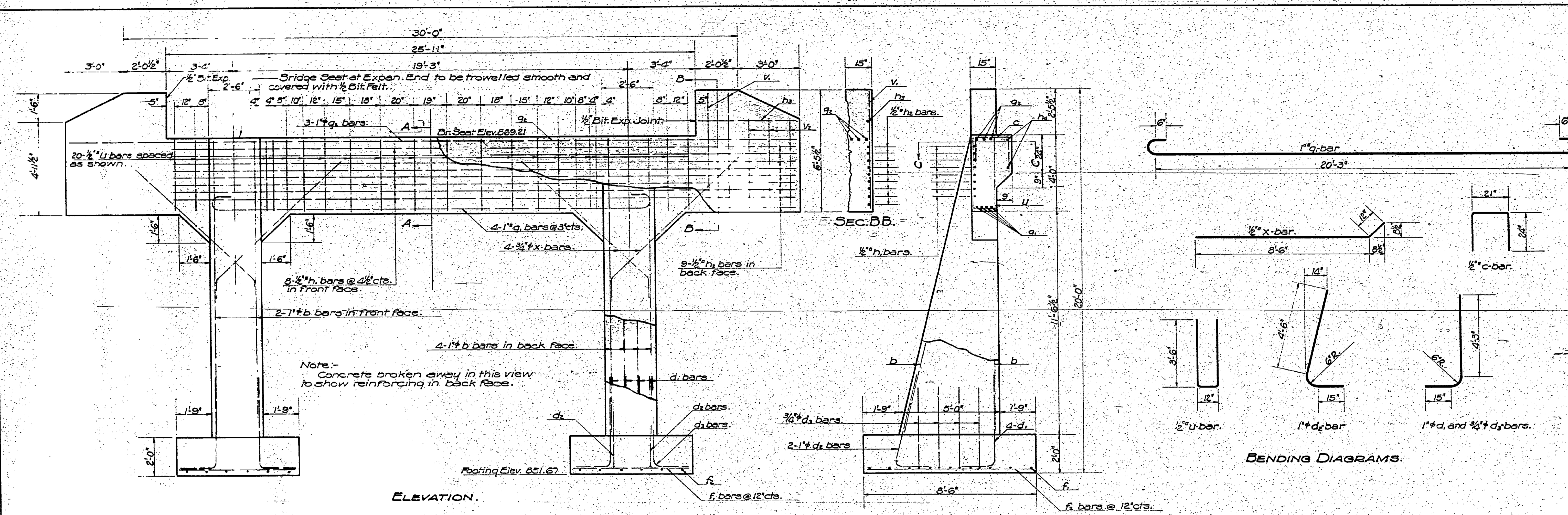
*Lap b, b₂ bars.

DOUBLE 6'X3' CULVERT.

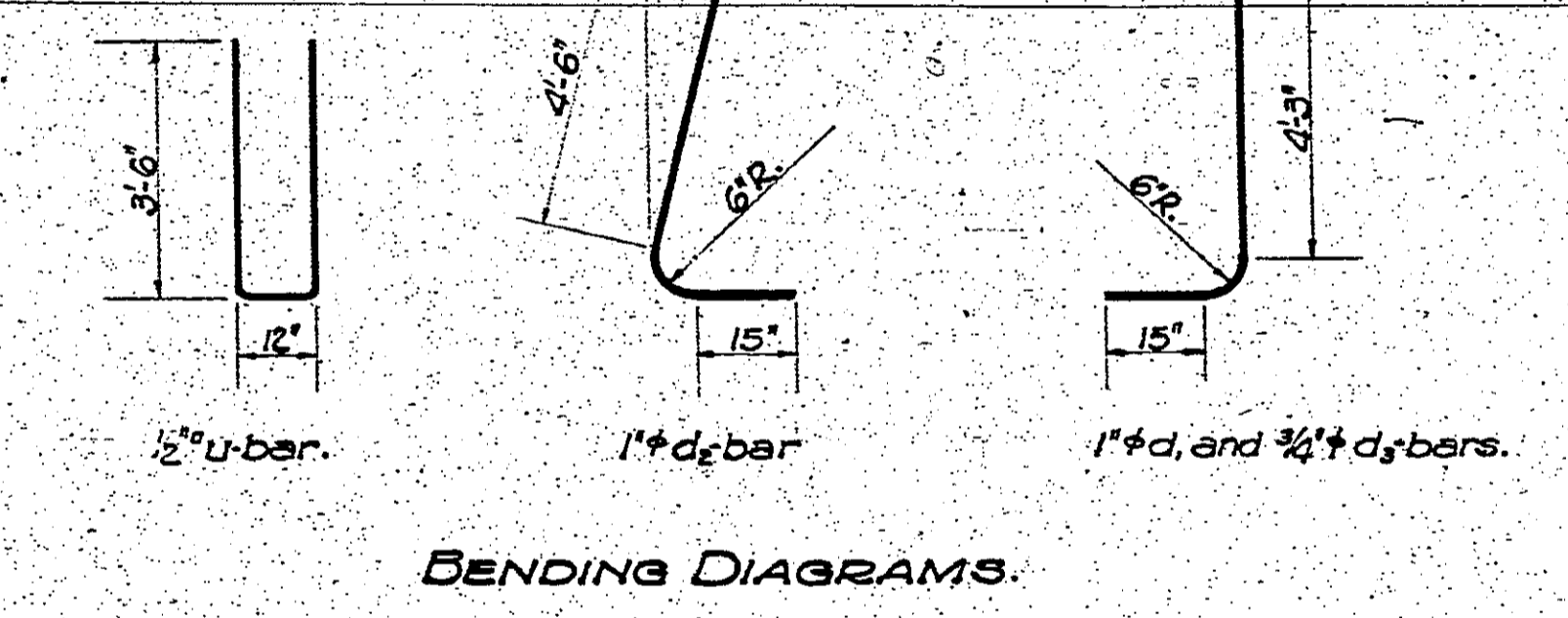


**GENERAL ELEVATION OF WAKARUSA RIVER RELIEF STRUCTURE STA. 623+64.
 9-20 FT. SPAN R.C. SLAB BRIDGE.**

Note: Road Contractor to excavate to Elev. 856.4 after Bridge Contractor has removed existing structure, and before construction of new bridge.



Ref # 1
 Sta 623+64
 River Run
 15' x 15' x 15'
 ST. 623+64
 River Run
 8'1" x 12' x 12'
 1-30-28

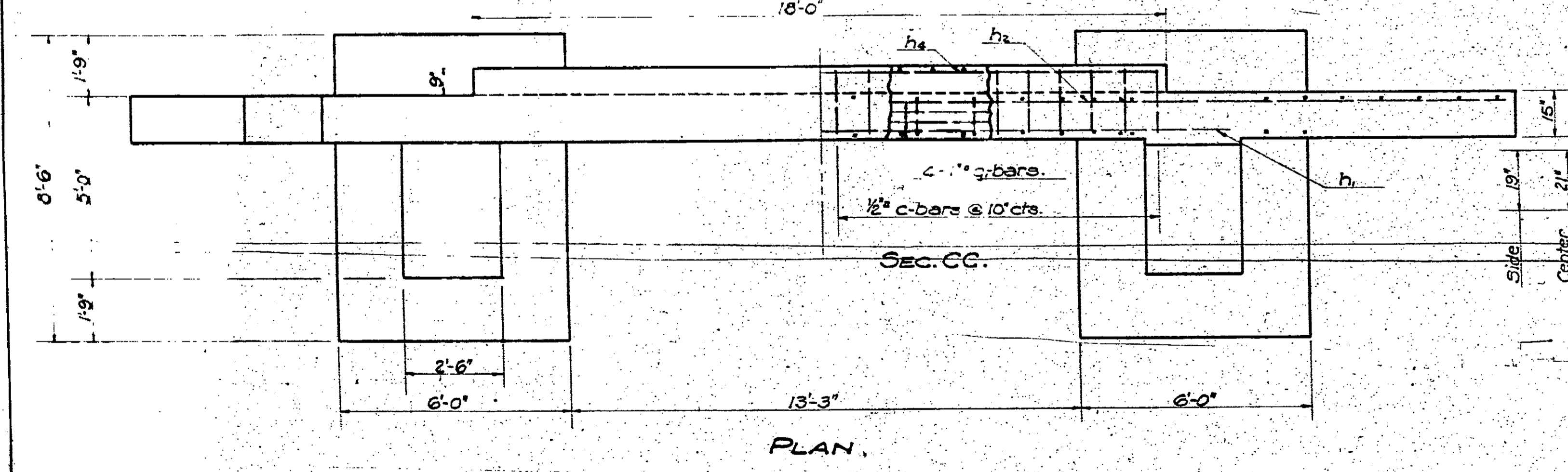


BENDING DIAGRAMS.

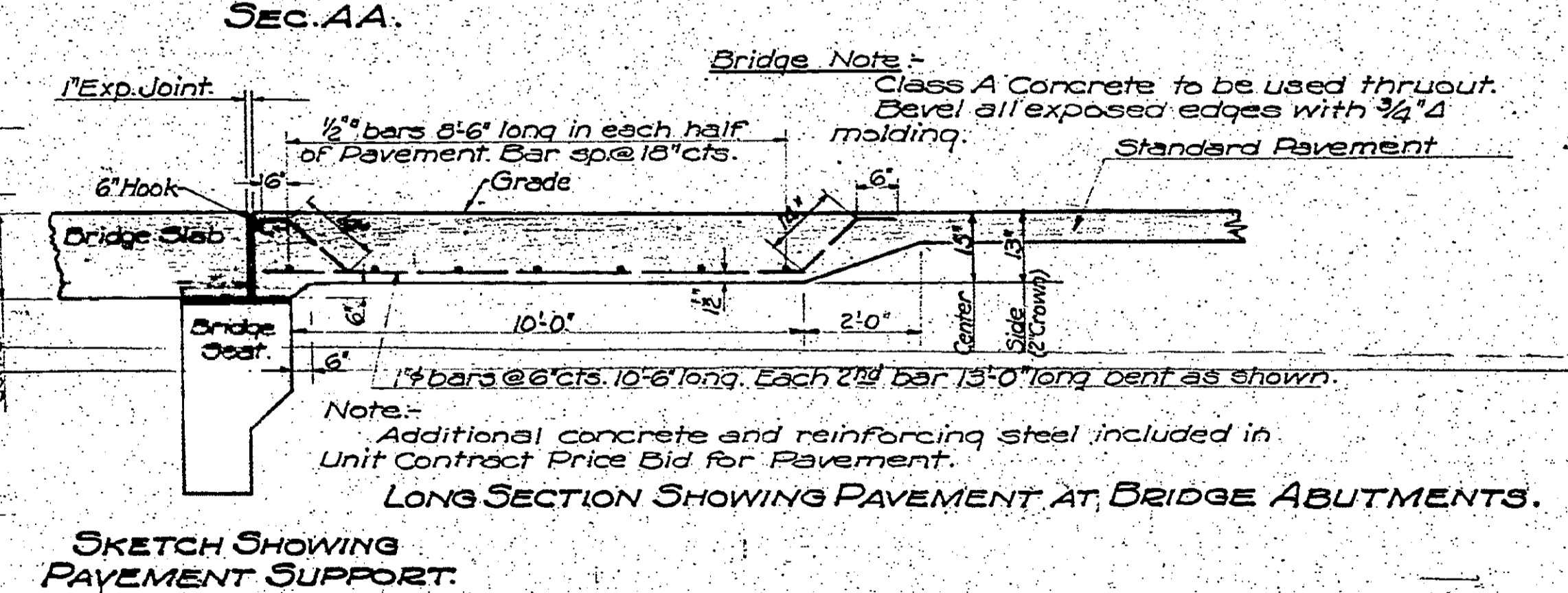
BILL OF MATERIAL FOR TWO ABUT'S.

Bar No.	Size	Length
g	1"	23'-3"
g	1"	35'-0"
b	24"	15'-4"
d	16"	6'-3"
g	8"	6'-6"
g	32"	6'-3"
x	16"	8'-6"
h	16"	25'-6"
h	36"	15'-0"
h	4"	4'-6"
h	4"	17'-6"
f	36"	5'-6"
f	24"	6'-0"
v	8"	6'-0"
v	12"	2'-9"
c	24"	6'-0"
u	40"	9'-0"

Rein. Steel - Lbs. 4900.
 Concrete, C. A. Cu Yds. 293
 Dry Excav. - Cu Yds. 40.



PLAN.



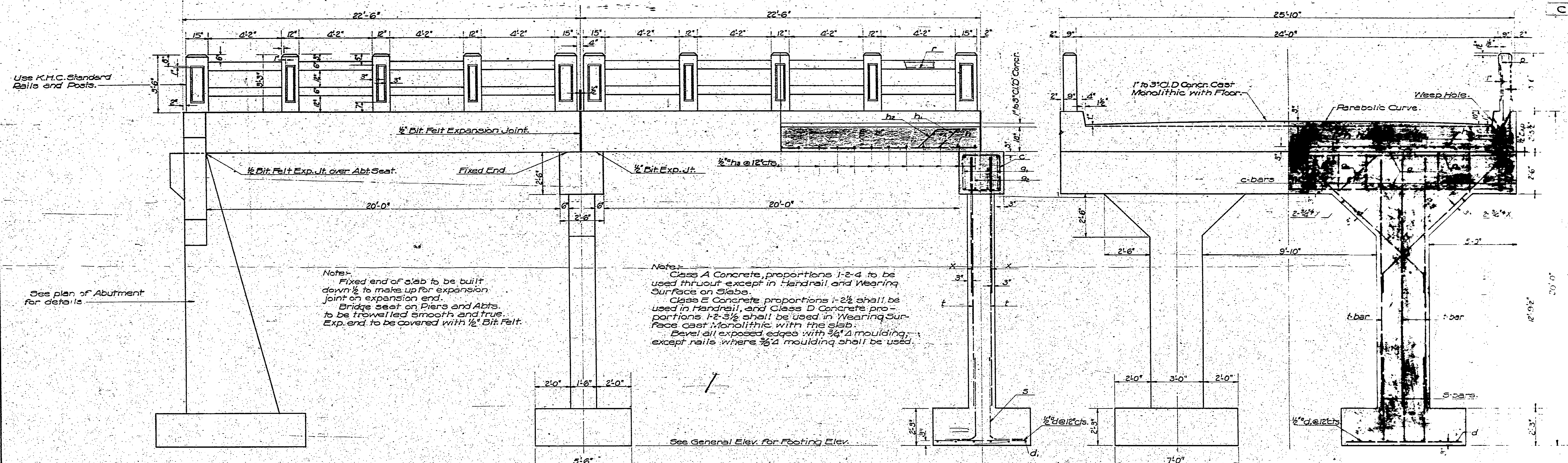
SKETCH SHOWING PAVEMENT SUPPORT.

Bridge Note: Class A Concrete to be used thruout. Level all exposed edges with 3/4" d molding. Standard Pavement.

Note: Additional concrete and reinforcing steel included in Unit Contract Price Bid for Pavement.
LONG SECTION SHOWING PAVEMENT AT BRIDGE ABUTMENTS.

**PLAN OF ABUTMENTS
 BRIDGE STA. 623+64.
 FAP 273 SEC. C
 DOUGLAS CO. KANSAS.**

Prepared by
 H.A. Marshall
 Consulting Engr.
 Topeka,
 Kansas.



Notes:
 Fixed end of slab to be built down 1/2" to make up for expansion joint on expansion end.
 Bridge seat on Piers and Abts. to be trowelled smooth and true.
 Exp. end to be covered with 1/2" Bit. Felt.

Notes:
 Class A Concrete proportions 1-2-4 to be used thruout except in Handrail and Wearing Surface on Slabs.
 Class E Concrete proportions 1-2 1/2 shall be used in Handrail, and Class D Concrete proportions 1-2-3 1/2 shall be used in Wearing Surface cast monolithic with the slab.
 Bevel all exposed edges with 3/4" moulding, except rails where 3/4" moulding shall be used.

Use K.H.C. Standard Rails and Posts.

See plan of Abutment for details.

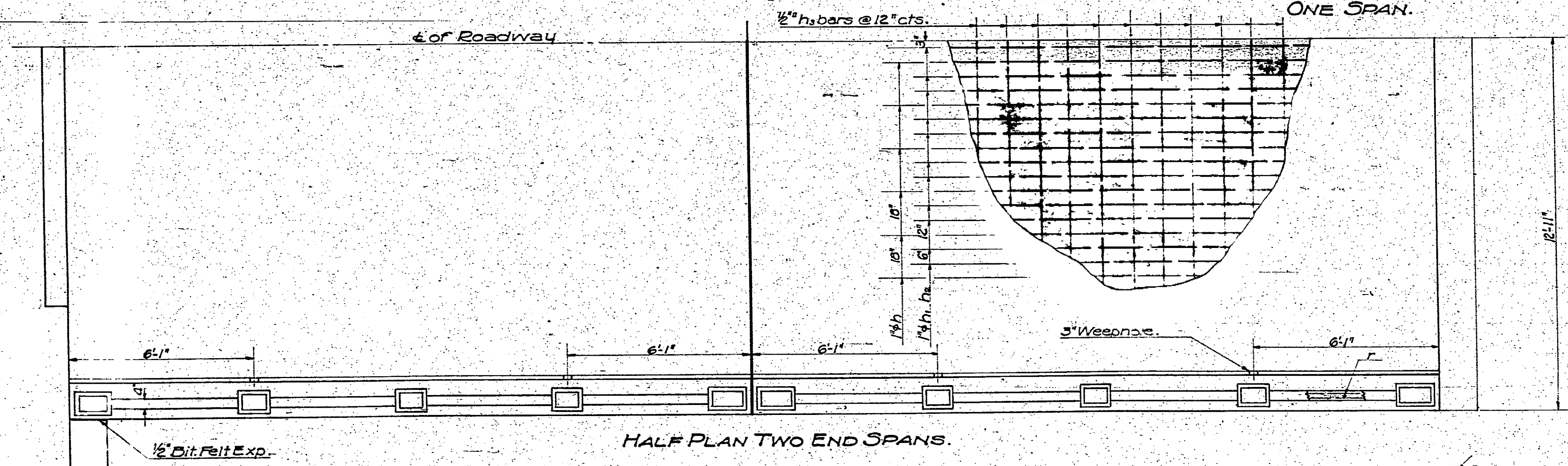
See General Elev. for Footing Elev.

SIDE ELEVATION.

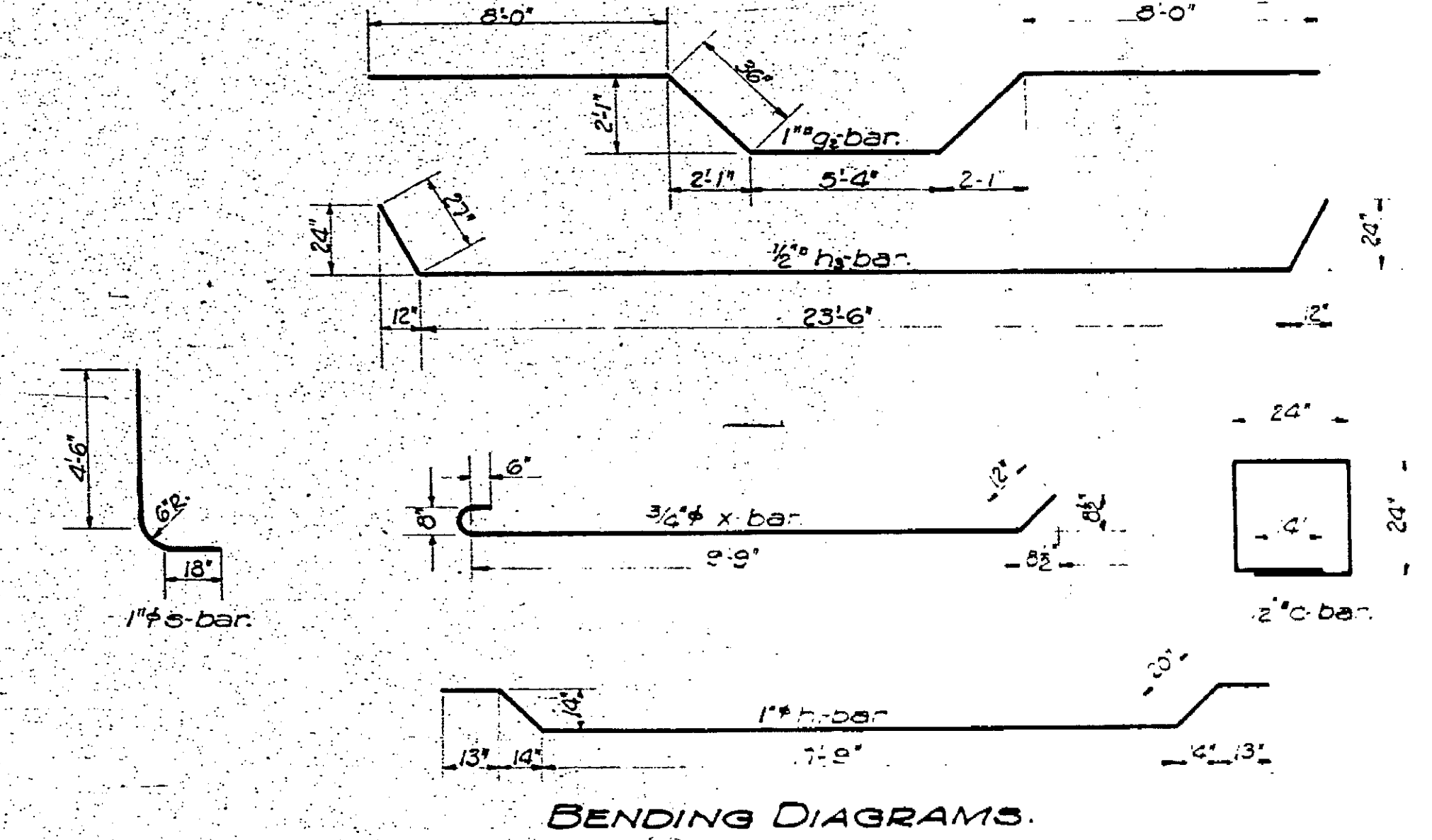
HALF LONG SEC. ONE SPAN.

HALF END ELEV.

HALF END SEC.



HALF PLAN TWO END SPANS.



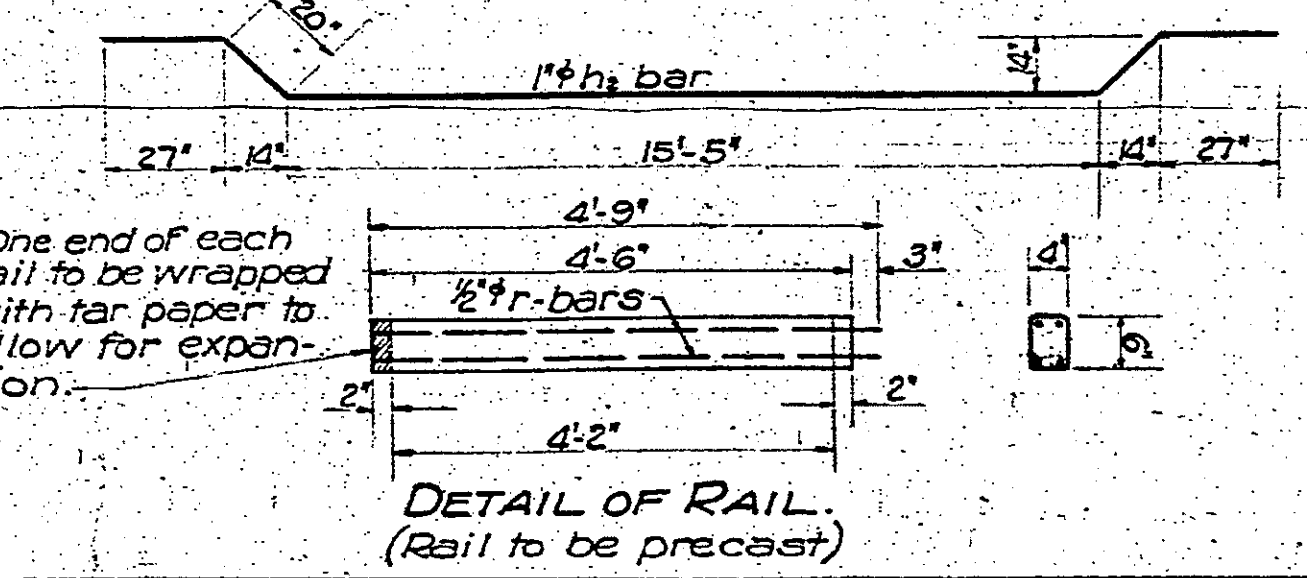
BENDING DIAGRAMS.

BILL OF MATERIAL FOR 9-20'SLABS.

Bar	h	h ₁	h ₂	p	r	h ₃
No.	162	183	183	360	278	207
Size	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Length	22'-3"	23'-3"	23'-3"	5'-3"	4'-9"	28'-0"
Reinforcing Steel - Lbs.	36950.					
Concrete, Class A - Cu. Yds.	308.5					
Concrete, Class E - Cu. Yds.	12.2					
Concrete, Class D - Cu. Yds.	33.7					

BILL OF MATERIAL FOR 6 PIERS.

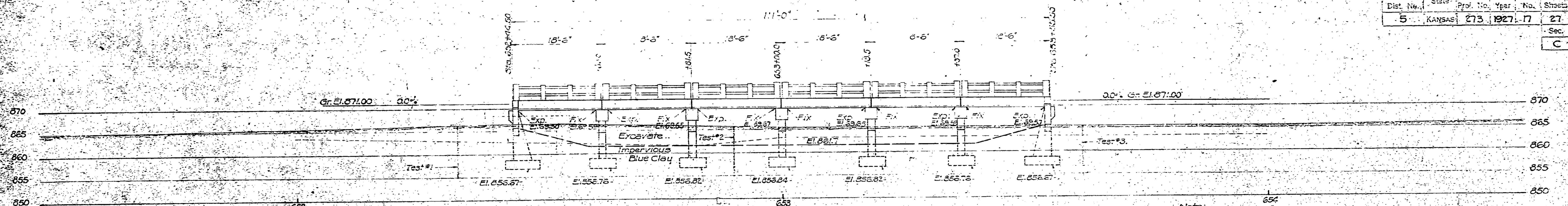
Bar	g	g ₁	x	t	s	d	d	c
No.	32	16	64	96	96	112	96	96
Size	1/2"	1/2"	3/4"	1/2"	1/2"	1/2"	1/2"	1/2"
Length	25'-0"	27'-0"	12'-3"	15'-0"	6'-9"	5'-3"	6'-9"	9'-2"
Reinforcing Steel - Lbs.	12,810.							
Concrete, Class A - Cu. Yds.	138.8							
Dry Excavation - Cu. Yds.	180.							



DETAIL OF RAIL. (Rail to be precast)

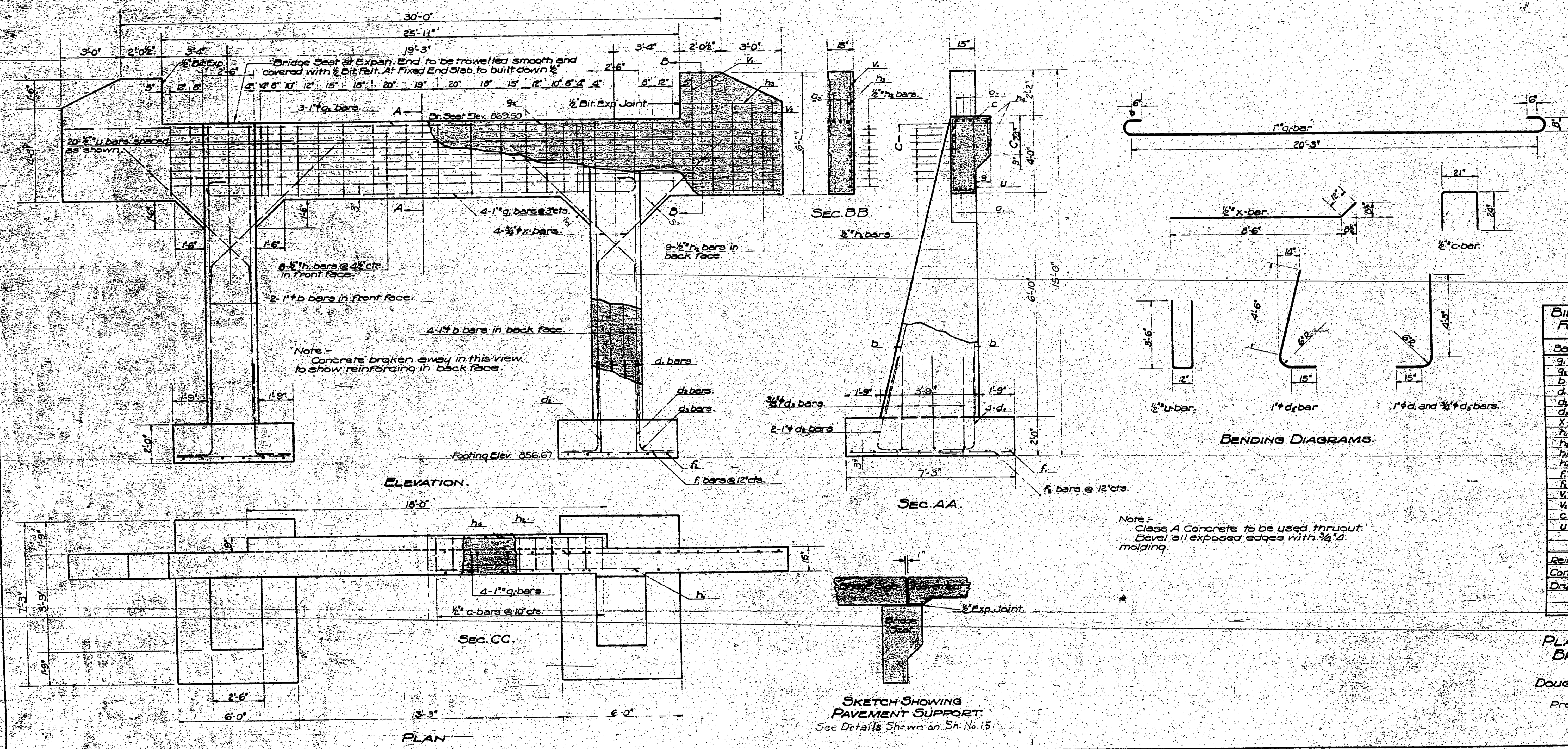
PLAN OF PIERS AND SLABS.
 WAKARUSA RIVER RELIEF BRIDGE
 STA. 623+64 F.A.P. 273 SEC. C.
 DOUGLAS CO. KAN.

Prepared by
 H.A. Mershe, Jr.
 Consulting Engr.
 Topeka, Kan.
 Feb. 1927.



GENERAL ELEVATION OF WAKARUSA RIVER RELIEF STRUCTURE STA. 653+00.
6-16 FT. SPAN R.C. SLAB BRIDGE.

Note:— Road Contractor to excavate material shown under the bridge to Elev. 661.7 after removal of existing structure and before construction of new bridge.



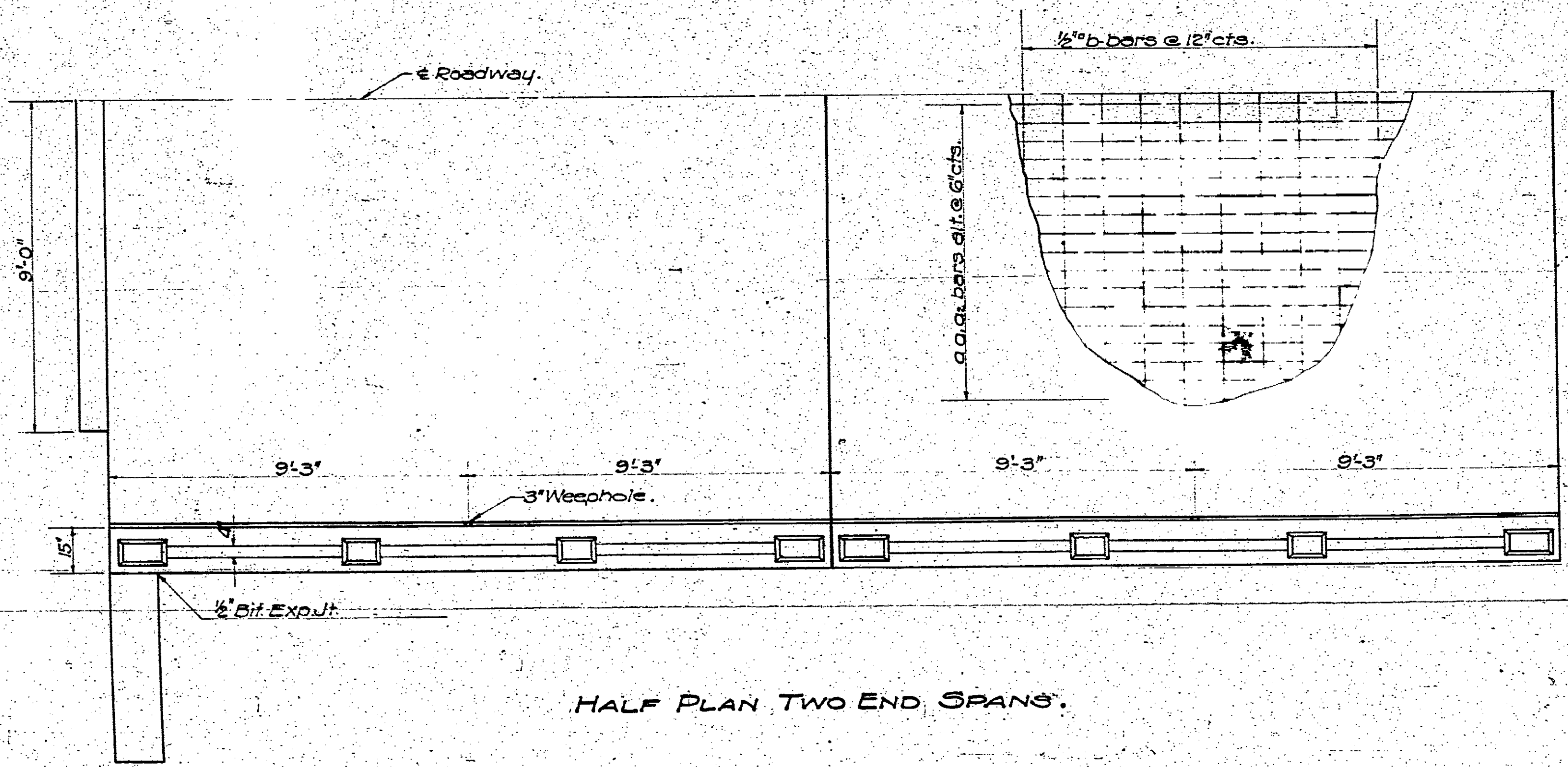
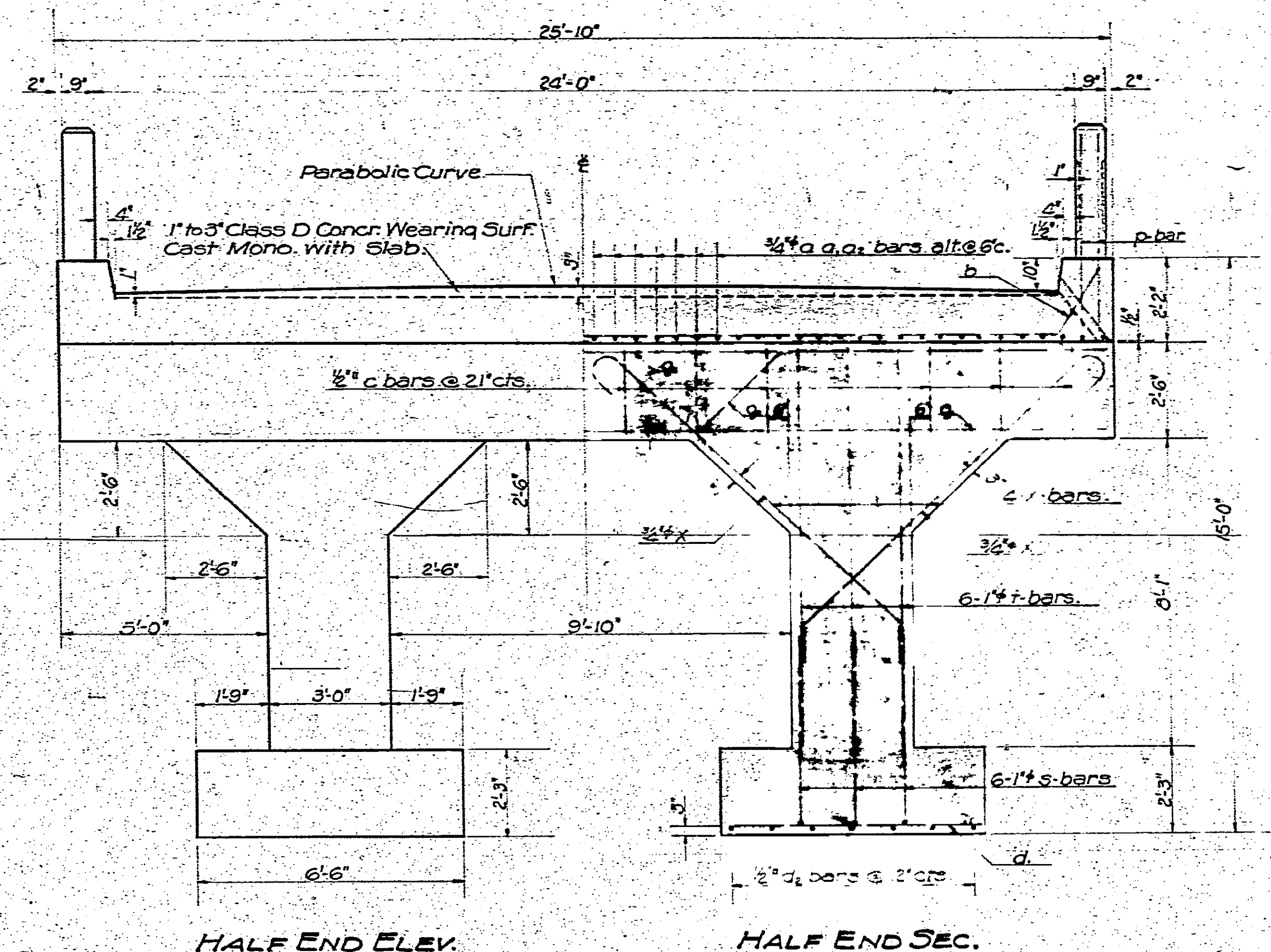
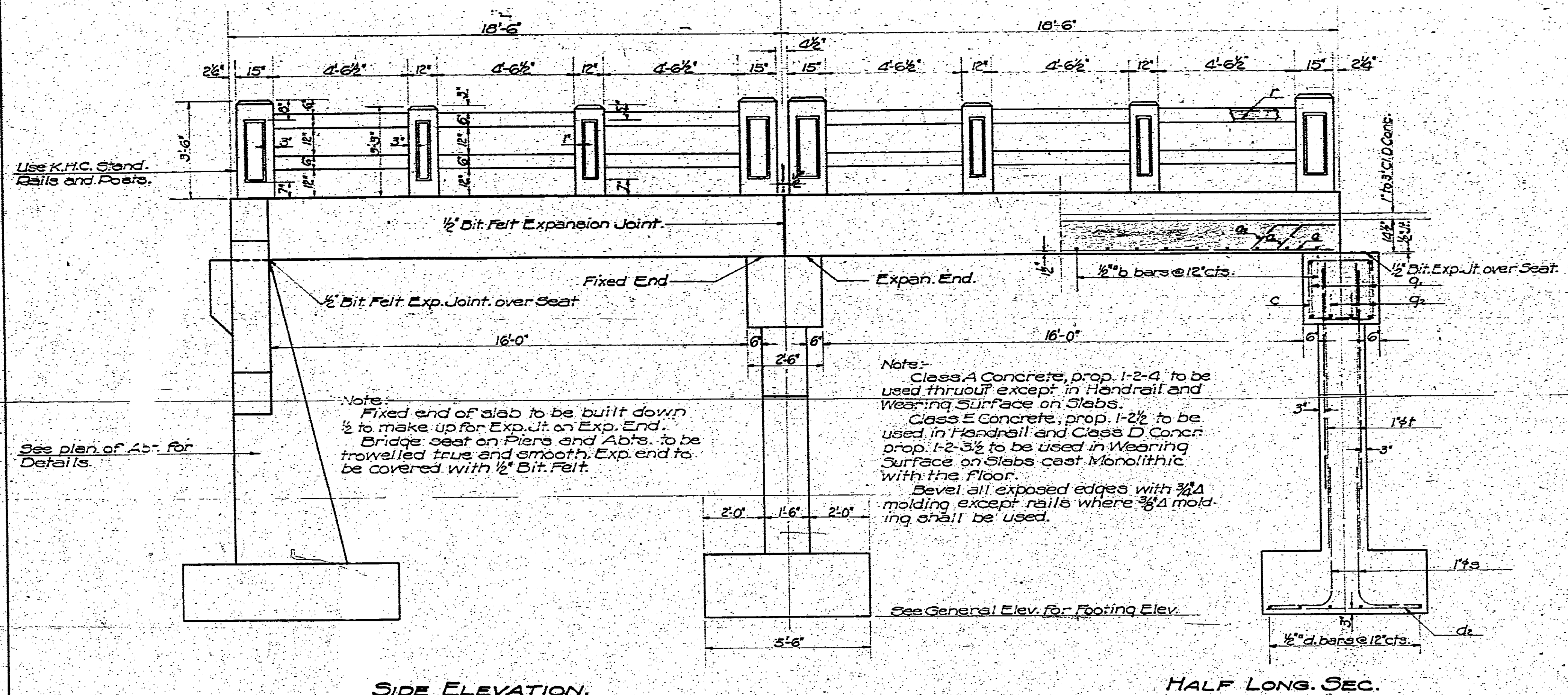
BILL OF MATERIAL FOR TWO ABUTTS.

Bar	No.	Size	Length
a	8	1"	23'-3"
g	6	1"	55'-0"
b	24	1"	10'-0"
d	16	1"	6'-3"
ch	8	1"	6'-6"
cs	24	3/4"	6'-3"
x	16	3/4"	9'-0"
hy	16	3/4"	25'-6"
h	36	3/4"	15'-0"
h ₂	4	3/4"	4'-6"
h ₃	4	3/4"	17'-6"
f	32	3/4"	5'-6"
h	24	3/4"	7'-0"
v	8	3/4"	5'-9"
k	12	3/4"	4'-9"
c	24	3/4"	5'-9"
u	20	3/4"	6'-0"

Reinf. Steel - Lbs. 4480.
Concrete C.I.A. - Cu. Yds. 30.8
Dry Excav. - Cu. Yds. 90.

PLAN OF ABUTMENTS
BRIDGE STA. 653+00.
F.A.P. 273-SEC. C.
DOUGLAS Co. KANSAS.

Prepared by
H.A. Marshall
Consulting Engr.
Topeka
Kansas.



BILL OF MATERIAL FOR 6-16' SLABS.

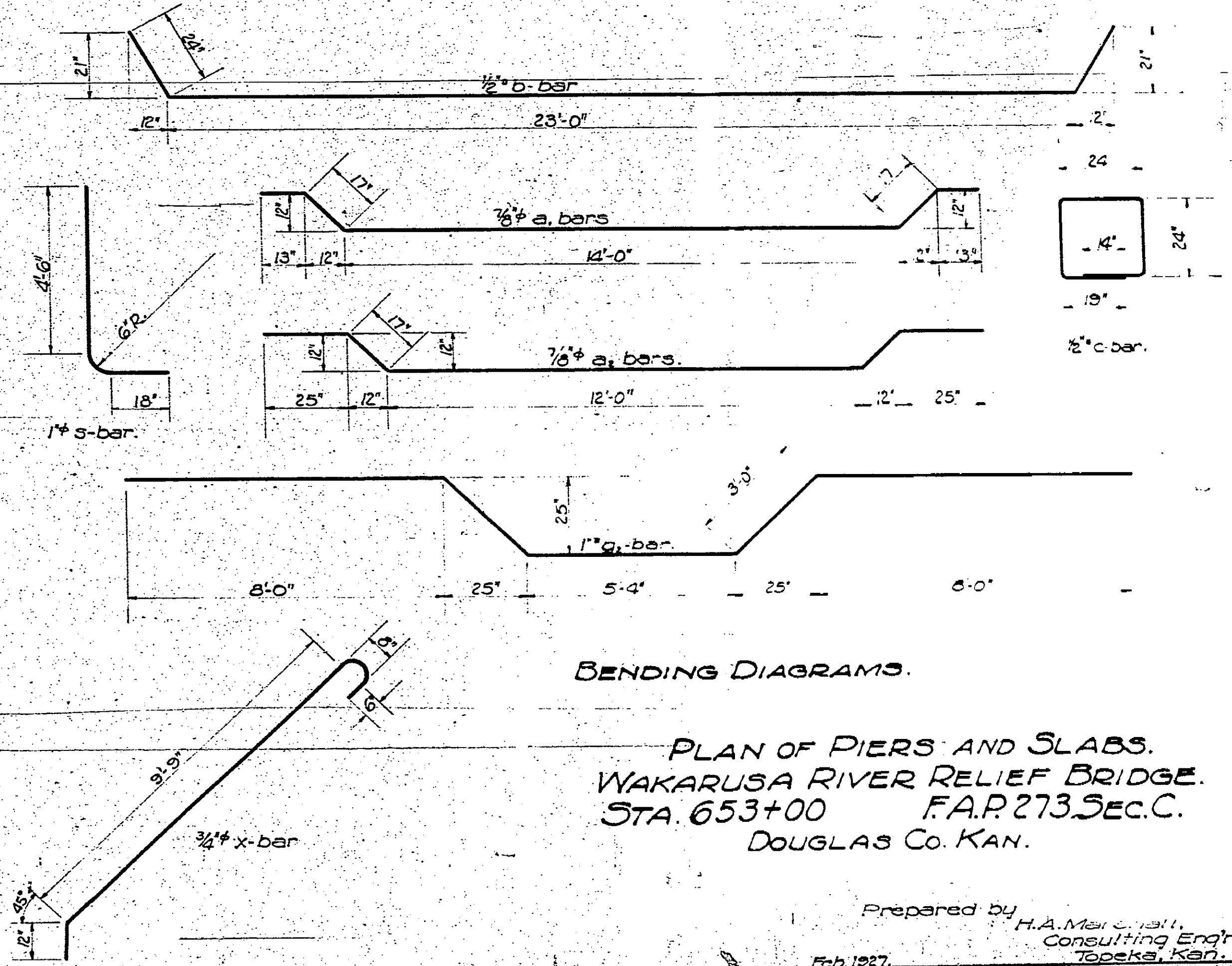
Bar	No.	Size	Length
a	108	$\frac{3}{8}$ "	18'-3"
b	102	$\frac{3}{8}$ "	19'-0"
a ₂	102	$\frac{3}{8}$ "	19'-0"
p	108	$\frac{1}{2}$ "	27'-0"
r	288	$\frac{1}{2}$ "	5'-1"

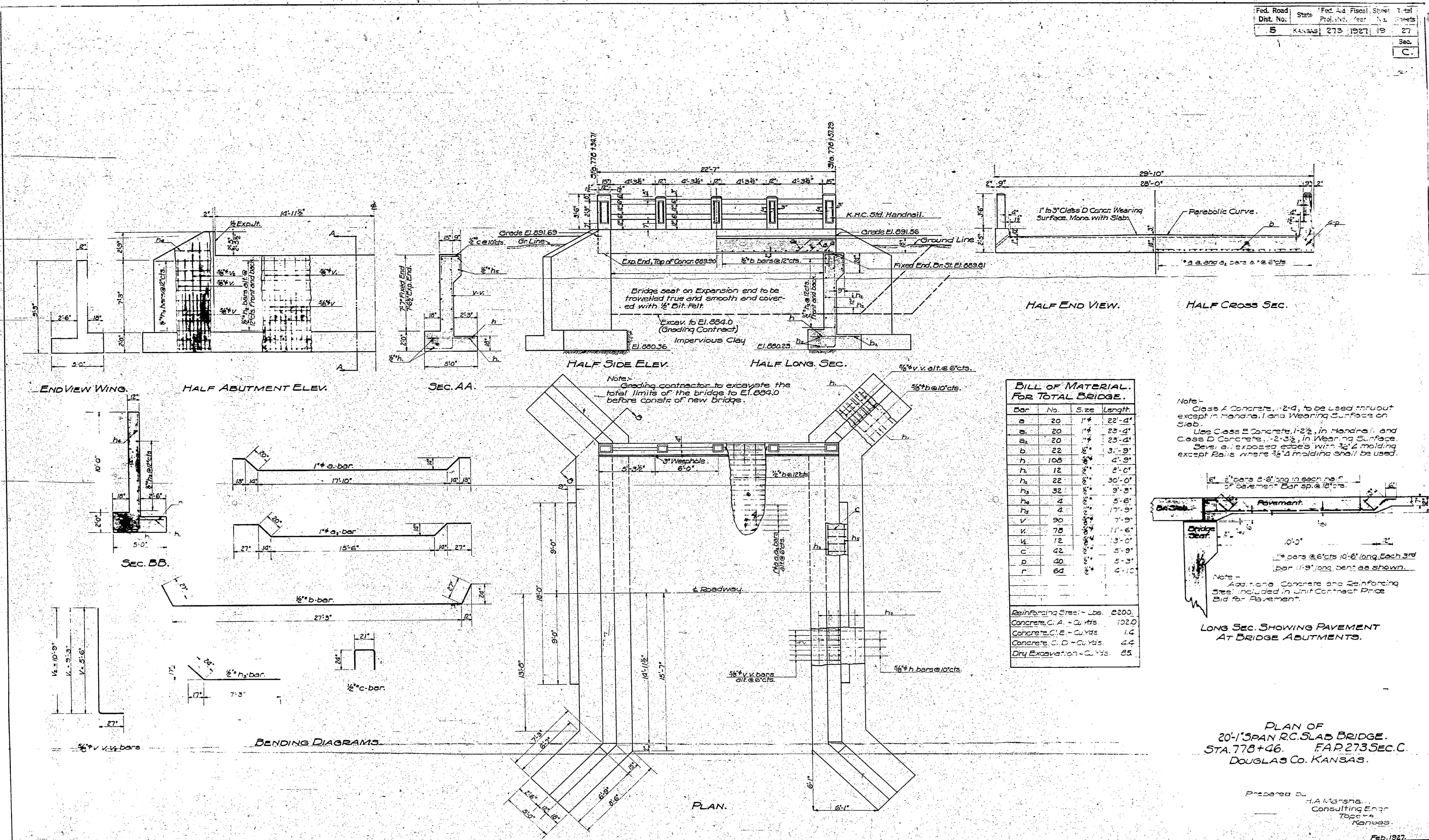
Reinforcing Steel - Lbs. 16230.
 Concrete, Class A - C.Y. 138.5
 Concrete, Class E - C.Y. 6.7
 Concrete, Class D - C.Y. 18.4

BILL OF MATERIAL FOR 5 PIERS.

Bar	No.	Size	Length
c	60	$\frac{1}{2}$ "	9'-2"
g	20	1"	25'-6"
g ₂	10	1"	27'-4"
d	60	$\frac{1}{2}$ "	6'-3"
d ₂	70	$\frac{1}{2}$ "	5'-3"
s	60	1"	6'-9"
t	60	1"	10'-3"
x	40	$\frac{3}{4}$ "	12'-3"

Reinforcing Steel - Lbs. 7220.
 Concrete, Class A - C.Y. 76.6
 Dry Excavation - C.Y. 120.0





BILL OF MATERIAL FOR TOTAL BRIDGE.

Bar	No.	Size	Length
a	20	1"	22'-4"
a	20	1"	23'-4"
a	20	1"	23'-4"
b	22	1/2"	3'-9"
h	108	3/8"	4'-9"
h	12	1/2"	8'-0"
h	22	1/2"	30'-0"
h	32	1/2"	9'-5"
h	4	1/2"	5'-6"
h	4	1/2"	17'-9"
v	90	3/8"	7'-9"
v	78	3/8"	11'-6"
v	72	3/8"	9'-0"
c	42	1/2"	5'-9"
p	40	1/2"	5'-3"
r	64	3/8"	4'-10"

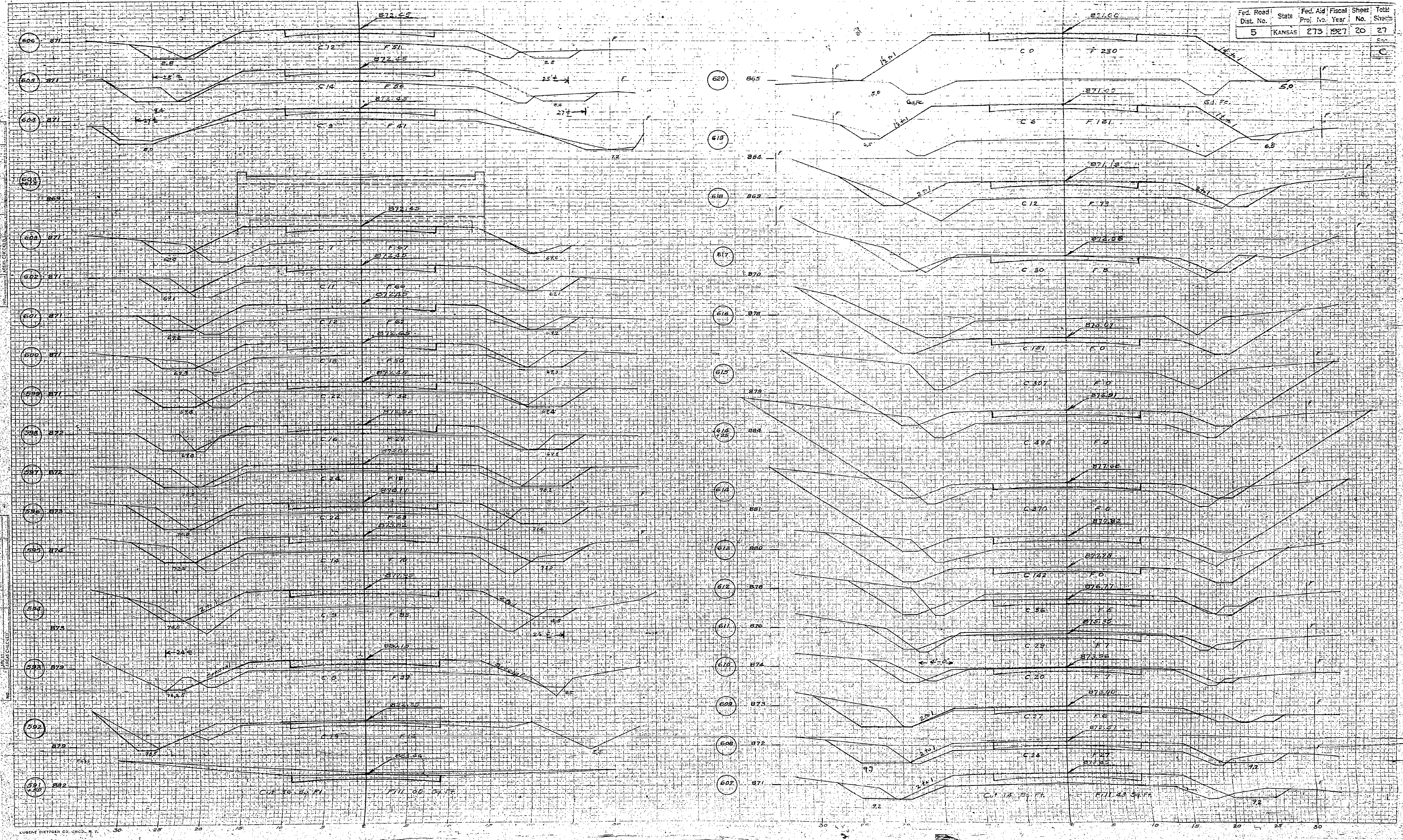
Reinforcing Steel - Lbs. 5200.
 Concrete, C. A. - Cu Yds. 102.0
 Concrete, C. B. - Cu Yds. 1.4
 Concrete, C. D. - Cu Yds. 4.4
 Dry Excavation - Cu Yds. 55

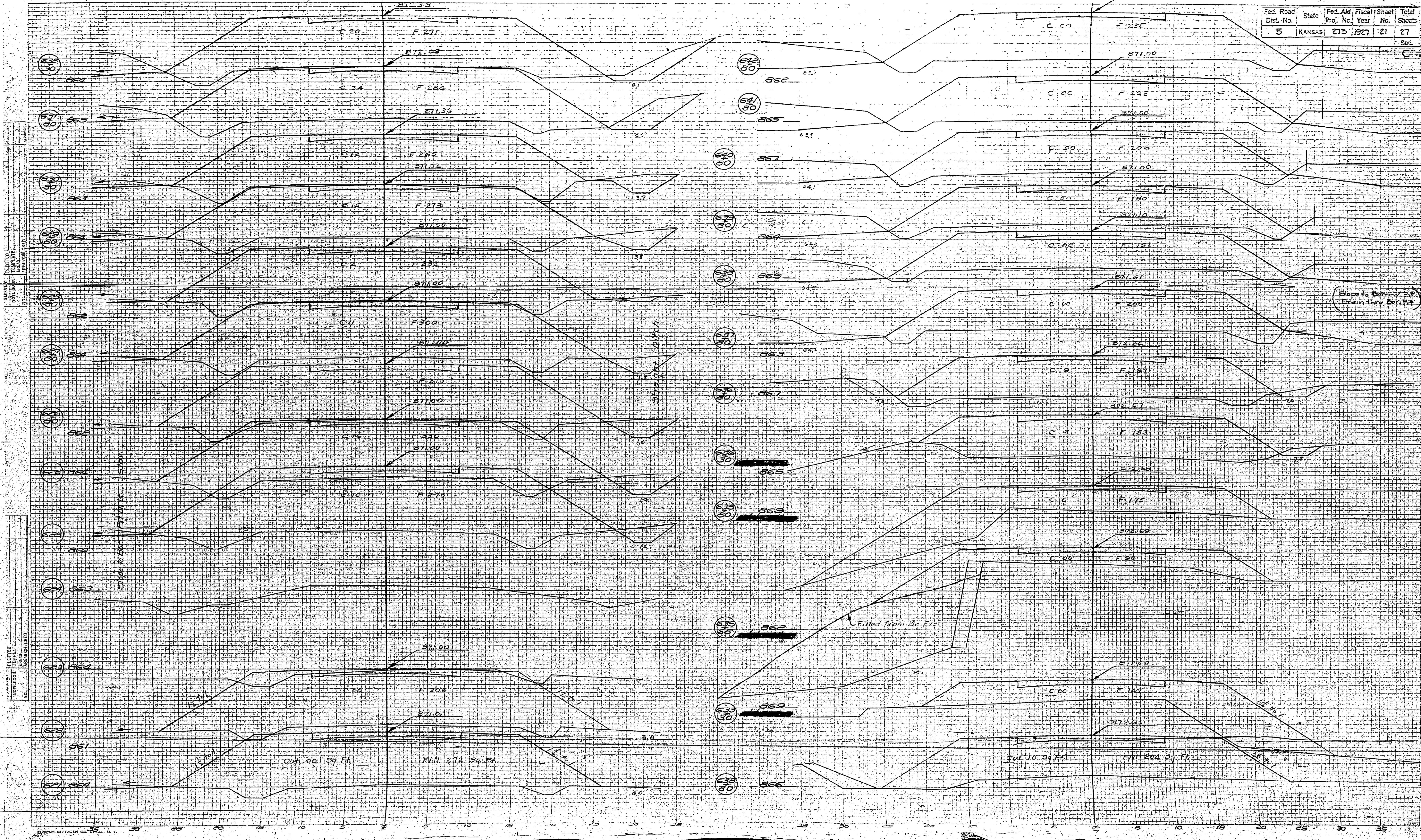
Notes:
 Class A Concrete, 1-2-4, to be used thruout except in Handrail and Wearing Surface on Slab.
 Use Class B Concrete, 1-2-3, in Handrail, and Class D Concrete, 1-2-3 1/2, in Wearing Surface.
 Save all exposed edges with 3/4" molding except Raile where 3/4" molding shall be used.

6" bars @ 6' long in each pair of pavement @ 6' cts.
 10" bars @ 6' cts 10'-6" long, each 3rd bar 11'-9" long bent as shown.

LONG SEC. SHOWING PAVEMENT AT BRIDGE ABUTMENTS.

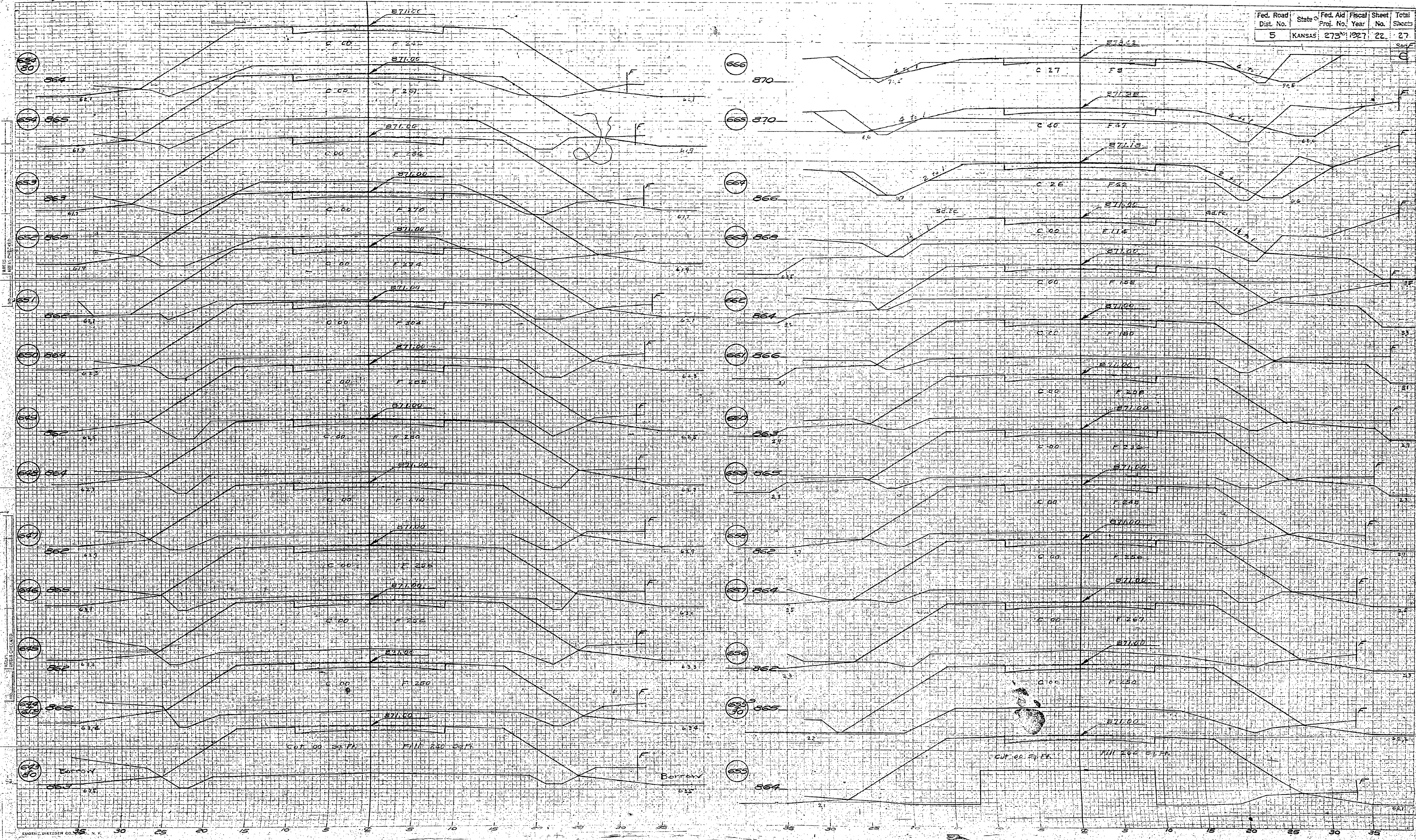
PLAN.





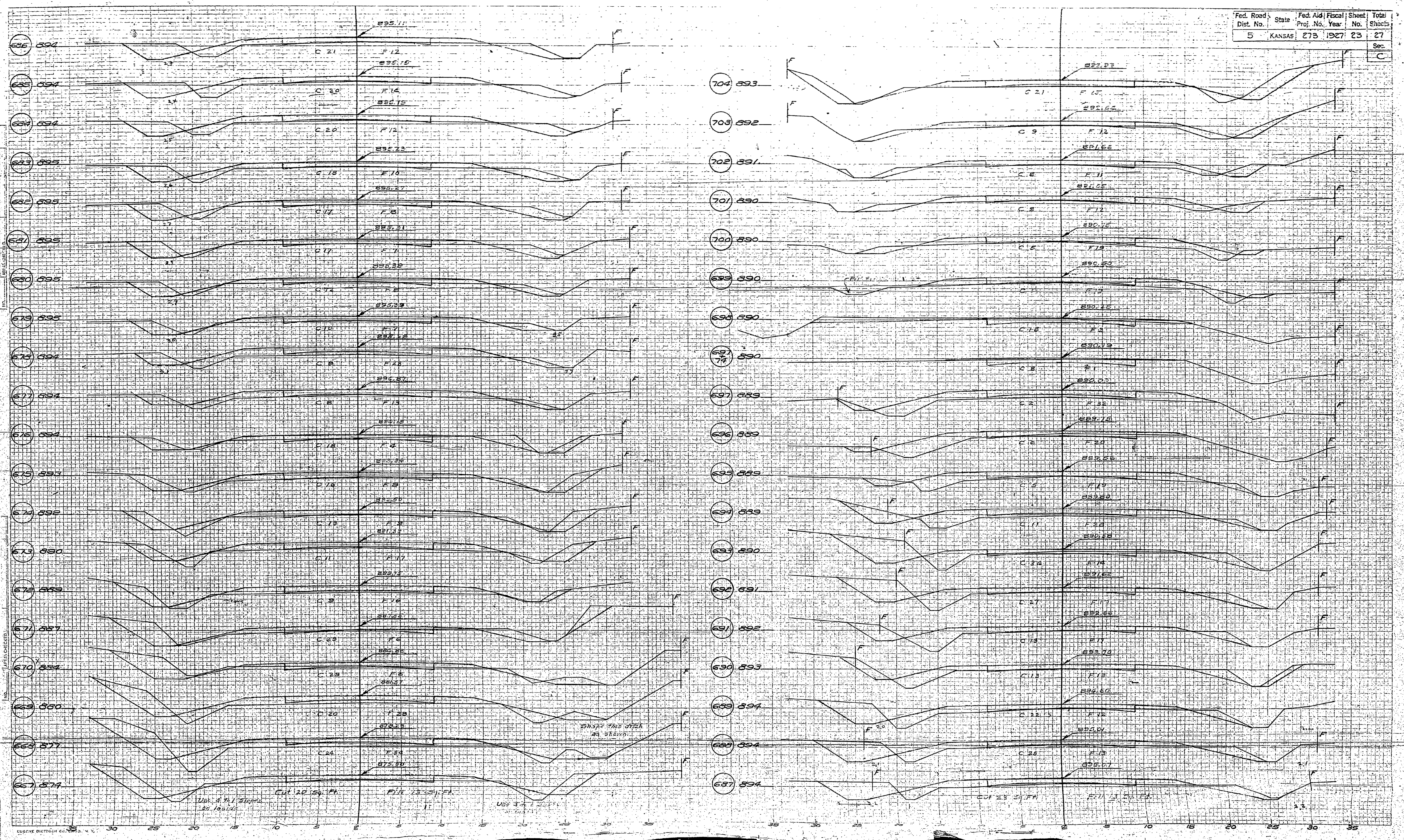
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Fed. Road Dist. No.	State	Fed. Aid Proj. No.	Fiscal Year	Sheet No.	Total Sheets
5	KANSAS	273	1927	22	27



3 3 1

Fed. Road Dist. No.	State	Fed. Aid Proj. No.	Fiscal Year	Sheet No.	Total Sheets
5	KANSAS	275	1927	23	27
					Sec. C



Fed. Road Dist. No.	State	Fed. Aid Proj. No.	Fiscal Year	Sheet No.	Total Sheets
5	KANSAS	273	1927	24	27

